



STAPLES MILL ROAD
SMALL AREA PLAN

March 2023

SMALL AREA PLAN



FOR





1.0 INTRODUCTION

The Staples Mill Road Small Area Plan evaluated transit, pedestrian, biking, and driving conditions on Staples Mill Road near the Staples Mill Road Amtrak Station in Henrico County. The study team assessed future travel projections, development patterns, and a concept developed by Henrico County and Virginia Department of Rail and Public Transportation (DRPT) for transit-oriented development (TOD) surrounding the Amtrak Station.

This document records the results of the Staples Mill Road Small Area Plan and presents:

- **Project Findings**— Existing and future conditions for people traveling on Staples Mill Road and other key streets near the Staples Mill Road Amtrak Station in Henrico County
- **Recommendations**—
 - Safety and operational improvements at 11 study area intersections
 - Wayfinding, lighting, and continuous bicycle and pedestrian facilities on Staples Mill Road between Hungary Road and the I-64 Interchange
 - A transit alternatives analysis for dedicated transit lanes on Staples Mill Road between E Parham Road and Broad Street
 - Updates to future transit-oriented development (TOD) planning for the Staples Mill Road Amtrak Station
 - Updates to Henrico County's Comprehensive Plan
- **Next Steps**— Implementing plan recommendations

The transportation network can accommodate this plan's recommended changes to the Staples Mill corridor and associated changes in traffic patterns. Henrico County should further evaluate and adopt these recommendations in conjunction with a formal TOD plan. The County can use the approved TOD plan to fund implementation of the recommended improvements.

This plan was a collaborative effort between the Virginia Department of Transportation (VDOT), Henrico County, and their national, regional and local partners. Together, they engaged the community at each stage of the planning process. This feedback helped form the plan vision for Staples Mill Road to grow as a complete street that will support TOD and provide safe and comfortable travel for all uses and users.

Thank you to all the plan stakeholders, community champions, and residents for your participation and support of the Staples Mill Road Small Area Plan! Your contributions will help Staples Mill Road become a stronger and safer multimodal corridor.



Henrico County



Greater Richmond Transit Company (GRTC)



City of Richmond



Richmond Regional Transportation Planning Organization (RRTPO)



Virginia Department of Transportation



Federal Highway Administration (FHWA)

2.0 PLAN BACKGROUND

Questions this section answers:

- Why did VDOT conduct the Staples Mill Road Small Area Plan study?
- Where did the study occur?
- Which regional partners supported VDOT during the study?

The Staples Mill Road Small Area Plan sought to identify a shared transportation vision for the Staples Mill Road corridor. It also worked to develop and refine projects that would support safe and comfortable travel for all road users and define how the corridor could evolve to support TOD near the Staples Mill Road Amtrak Station.

The completed plan presents:

- issues and opportunities for multimodal travel in the study area;
- a menu of possible solutions and those solutions' benefits and impacts; and
- a preferred set of implementable alternatives that VDOT, its partner agencies, and the community can support.

Transit-Oriented Development Concept

In summer 2020, the Virginia Department of Rail and Public Transportation (DRPT) and Henrico County developed a TOD concept plan for the area surrounding the Staples Mill Road Amtrak Station. The plan included recommended land-use changes and a new street network that would connect these uses.

To improve multimodal access, safety, and comfort along Staples Mill Road, DRPT and Henrico County also recommended a detailed study of cross section and intersection design changes. This document—the Staples Mill Road Small Area Plan—records those redesign options for Staples Mill Road. This plan is an opportunity for VDOT partners to develop a new vision for Staples Mill Road and understand how roadway design changes can transform the surrounding transportation network.

KEY TERM>>

Transit-Oriented Development (TOD) is development that supports and is supported by frequent, reliable, accessible transit. TOD is characterized by dense, diverse land uses located within safe, comfortable walking distance of transit.

Study Area and Process

The study area is approximately 12 square miles around Staples Mill Road in Henrico County (see **Figure 1**). Staples Mill Road runs through the heart of the study area and covers Hungary Road to the I-64 Interchange. Broad Street (Route 250), Brook Road (Route 1), and Staples Mill Road provide a key connection between Henrico County and Richmond. Staples Mill Road also helps travelers reach regional and statewide destinations via nearby I-64, I-295, I-95. With hundreds of thousands of annual passenger boardings and alightings each year, the Staples Mill Road Amtrak Station has some of the highest rail ridership in Virginia.

VDOT and its partners conducted the small area plan between August 2021 and December 2022 (**Figure 2**). The planning process included six key stages:

1. Evaluate existing and future transportation conditions
2. Identify vision, goals, and objectives
3. Develop transportation alternatives
4. Evaluate transportation alternatives
5. Refine transportation alternatives
6. Develop small area plan

The study process included consistent community engagement through a study website, community stakeholder interviews, and two phases of public engagement.

A Regional Partnership

VDOT and Henrico County regularly collaborate to advance transportation initiatives through STARS studies, Virginia's SMART SCALE funding program, and County transportation projects. VDOT initiated the Staples Mill Road Small Area Plan at the request of Henrico County after the County and the Virginia Department of Rail and Public Transportation (DRPT), completed a TOD concept for the Staples Mill Road Amtrak Station.

VDOT gathered together stakeholders from national, regional, and local partnering organizations, including Henrico County, the City of Richmond, the Greater Richmond Transit Company (GRTC), the Richmond Regional Transportation Planning Organization (RRTPO), the Virginia Department of Rail and Public Transportation (DRPT), and the Federal Highway Administration (FHWA). This stakeholder group served as a sounding board for each step of the planning process and helped evaluate alternatives to better serve the communities living in the study area. With hundreds of thousands of annual passenger boardings and alightings each year, the Staples Mill Road Amtrak Station has the highest Amtrak ridership in Virginia.

Draft TOD Concept Plan for Staples Mill Road Amtrak Station Area



Henrico County, Virginia Department of Rail and Public Transportation (DRPT).

Figure 1. Study Area

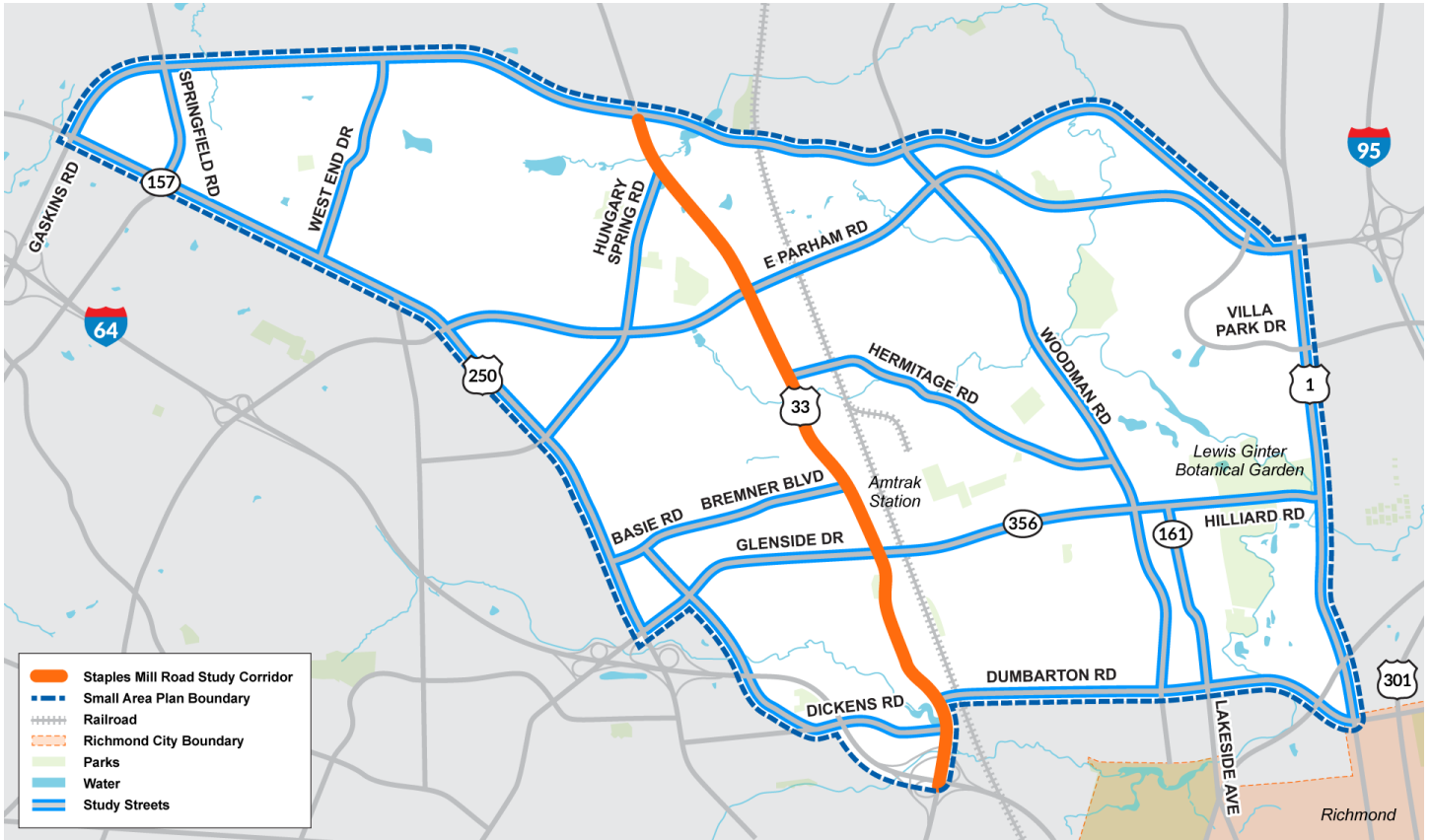
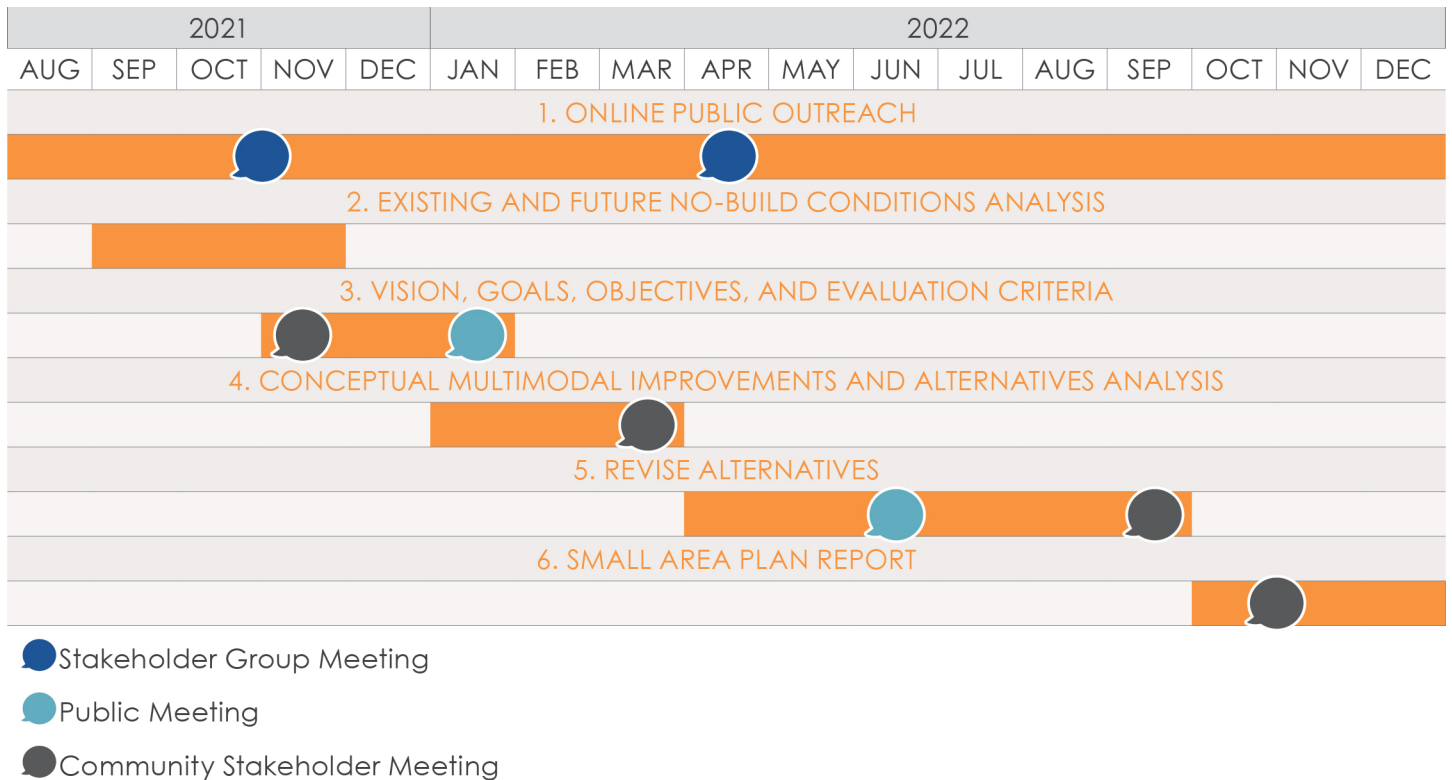


Figure 2. Study Schedule



CHAPTER TAKEAWAYS:

- This plan identifies a vision for the Staples Mill Road corridor and presents transportation projects that will help Staples Mill Road support TOD and safe travel for all road users.
- The study area includes Staples Mill Road between Hungary Road and the I-64 Interchange, and 12 square miles of Henrico County surrounding Staples Mill Road.
- Stakeholders from Henrico County, the City of Richmond, GRTC, RRTPO, DRPT, and FHWA provided vital input throughout the planning process.

3.0 PUBLIC AND STAKEHOLDER ENGAGEMENT

Questions this section answers:

- How did VDOT engage decision-makers in the small area plan?
- How did they engage community members?

VDOT established early and continuous community engagement throughout the project. The process involved a diverse group of community members through two phases of interviews, meetings, and surveys. [Public engagement technical memos](#) detail each phase of the two-phase public engagement process.

Stakeholder Group Meetings

The study team met with stakeholders four times during the planning process. Together, they helped by establishing the study's vision, goals, and objectives; identifying alternatives; and providing feedback during the alternatives analysis and refinement processes.

In addition to offering feedback during each meeting, stakeholders helped facilitate communication between the study team, community members, and local decision-making bodies.



2

VIRTUAL PUBLIC MEETINGS

2

COMMUNITY STAKEHOLDER CONVERSATIONS

4

STAKEHOLDER GROUP MEETINGS

2,000+

SURVEY RESPONSES

Community Meetings

The study team hosted online meetings and conversations with stakeholders during the two phases of the planning process. During the first phase, an online meeting and community stakeholder conversations helped vet the plan's draft vision, goals, and objectives. During the second phase, the study team collected community feedback about transportation alternatives for Staples Mill Road and study area intersections through an online meeting.

Phase 1—Vision and Goals Meetings

At the study's first online community meeting, VDOT introduced the planning process, gathered input from 53 community members on issues and opportunities in the study area, and solicited feedback on the study vision, goals, and objectives.

VDOT also invited eight community groups to conversations that introduced the study and requested feedback on the study area, goals, and approach. Two community groups, the Virginia Center for Inclusive Communities and Bryan Parkway Civic Association, participated in these conversations.

The study team used insights from this first phase of the engagement process to align transportation alternatives with the study's vision and goals.

Phase 2—Alternatives Meeting

VDOT's second online meeting presented multimodal transportation options for the Staples Mill Road corridor and other study area intersections. At this meeting, 49 community members learned about and helped refine specific transportation options.

The study team used insights from this phase to modify, refine, and finalize recommendations for the study area.

Study Website and Surveys

VDOT shared information about the small area plan through a [study website](#) that was regularly updated with background information, memoranda, and public meeting recordings.

The study team developed two online interactive surveys to solicit community feedback on the study's goals, needs, and alternatives.

Phase 1—Vision and Goals Survey

The study's vision and goals survey introduced the public to the project and asked about respondents' relationship with the area, the study vision and goals, and local transportation issues and opportunities. Over 1,200 people participated in the survey, and 83 percent of them reported living within ten miles of the Staples Mill Road Amtrak Station.

The study team used survey results to finalize the study vision, goals, and objectives and to guide initial study alternatives.

Phase 2—Alternatives Survey

The alternatives survey asked for community input on study area transportation options. The study team collected more than 1,000 responses, and these results were used to refine and finalize cross-section options for the Staples Mill Road corridor and options for 11 priority intersections.

KEY TAKEAWAYS:

- A group of local, regional, and federal stakeholders provided feedback at each stage of the study.
- VDOT used online meetings, community conversations, and surveys to gather input on the plan vision, goals, and alternatives.

Community Comments on... Existing Conditions and Study Goals

1,200+ Survey Responses

Cycling to the Station is dangerous.

Impossible to park and walk to multiple shops

Lack of tree canopy or pedestrian infrastructure.

Biking on sidewalk w/ overgrown bushes is dangerous. Benches/Cover needed at bus stops.

...
In order to make [Staples Mill Road] a place that will be desirable for people to walk, there must be trees, bushes or a hedge between the swiftly moving traffic and the sidewalk.

Current community character lacks actual community. This area is built for cars, not people

Should provide mixed-use, livable neighborhood for all income levels.

...accessible local bus service... to Staples Mill Amtrak would serve many more people of all income levels...

Staples Mill could use a road diet. The station requires a parking deck soon/

No safe and well designated crosswalks at intersections with speeders going through red traffic lights.

Intersection and Corridor Alternatives

1,000+ Survey Responses

[Intersection designs should] reduce corner radii for slower speeds to allow for yielding to people on bike or

Need pedestrian island bump outs [at E Parham Road and Woodman Road]

Dedicated bus lanes are great! Shared use path leaves lots of room for trees and bus shelters, benches and pads.

I appreciate a lot of what I see in the design. How can I support it and help make it a

We have been asking for crosswalks with signals at this intersection forever! Please do this. Lakeside Ave should be much more pedestrian and cyclist

To be clear, I believe there should be crosswalks across every leg of the Amtrak intersection :)

[Dedicated transit] would be great, especially if the bus quickly gets to the train station, which would save travel time and parking costs.

Shared use gives more room for non-car users and leaves a healthy gap for trees but could slow

Slip lanes are dangerous and encourage speeding. They should be removed.

...
I love the options that show either shared use paths or bike paths at the same grade as the

4.0 STAPLES MILL ROAD TODAY

Questions this section answers:

- Who lives in the study area and how do they get around?
- What transportation challenges does the study area face?
- How can these challenges be addressed?

To identify transportation challenges facing Staples Mill Road, the study team conducted an existing conditions analysis. This analysis reviewed the study area's socioeconomic and land use contexts, its multimodal travel patterns, and its safety trends. For the full analysis, see the [Existing and Future No-Build Conditions Technical Memo](#).



Most census block groups in the study area have a lower median household income than the median household income for the greater Richmond Region.

There are households in the study area, particularly along Staples Mill Road near the Amtrak Station, who do not have access to an automobile.

Study Area Residents

The study area has a mix of low- and medium-density suburban neighborhoods (**Figure 3**). Compared to the greater Richmond region, Staples Mill Road has neighborhoods with higher population and employment densities.

Many households in the study area would benefit from expanded transportation options, especially:

- households with lower median incomes (**Figure 4**);
- zero-car households (**Figure 5**); and
- households experiencing poverty (**Figure 6**).

Today, most people living in the study area rely on automobiles to get around. The study area has slightly higher percentages of people driving to work (single occupancy vehicles and carpooling) and slightly lower percentages of people taking transit, biking, and walking to work compared to the greater Richmond region and Commonwealth.

Figure 3. Population Density per Square Mile

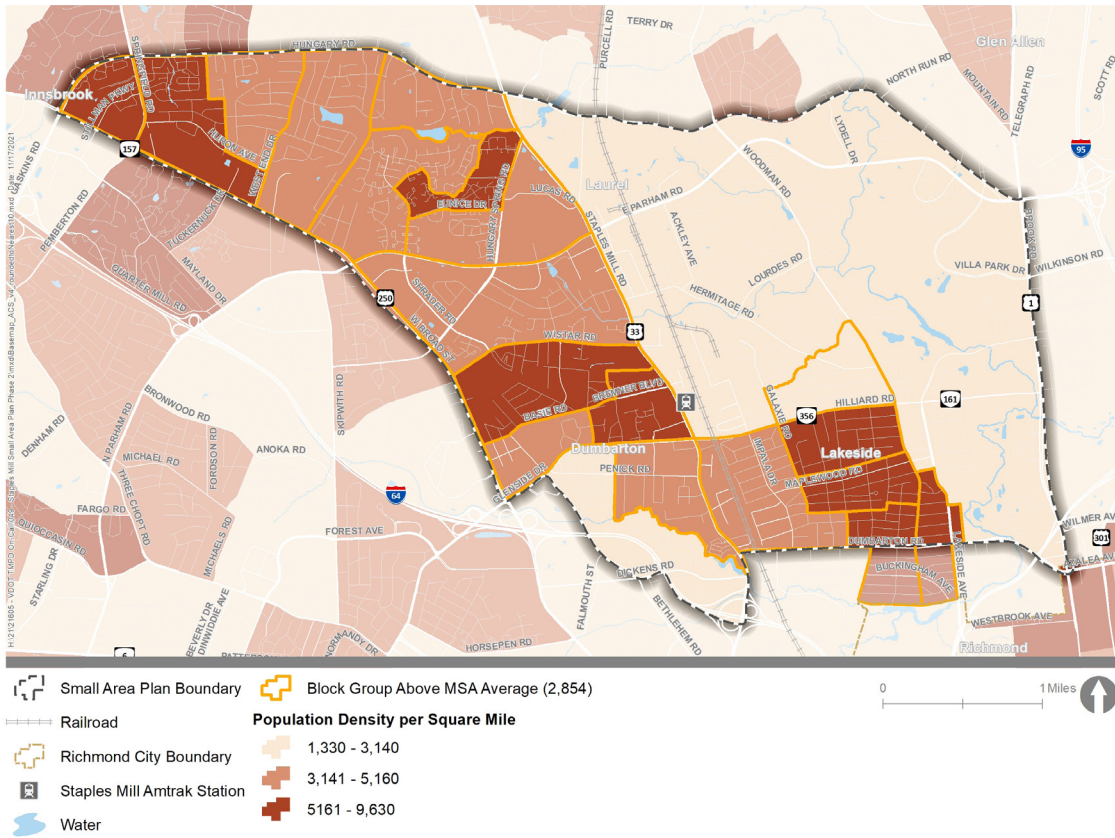


Figure 4. Median Household Income

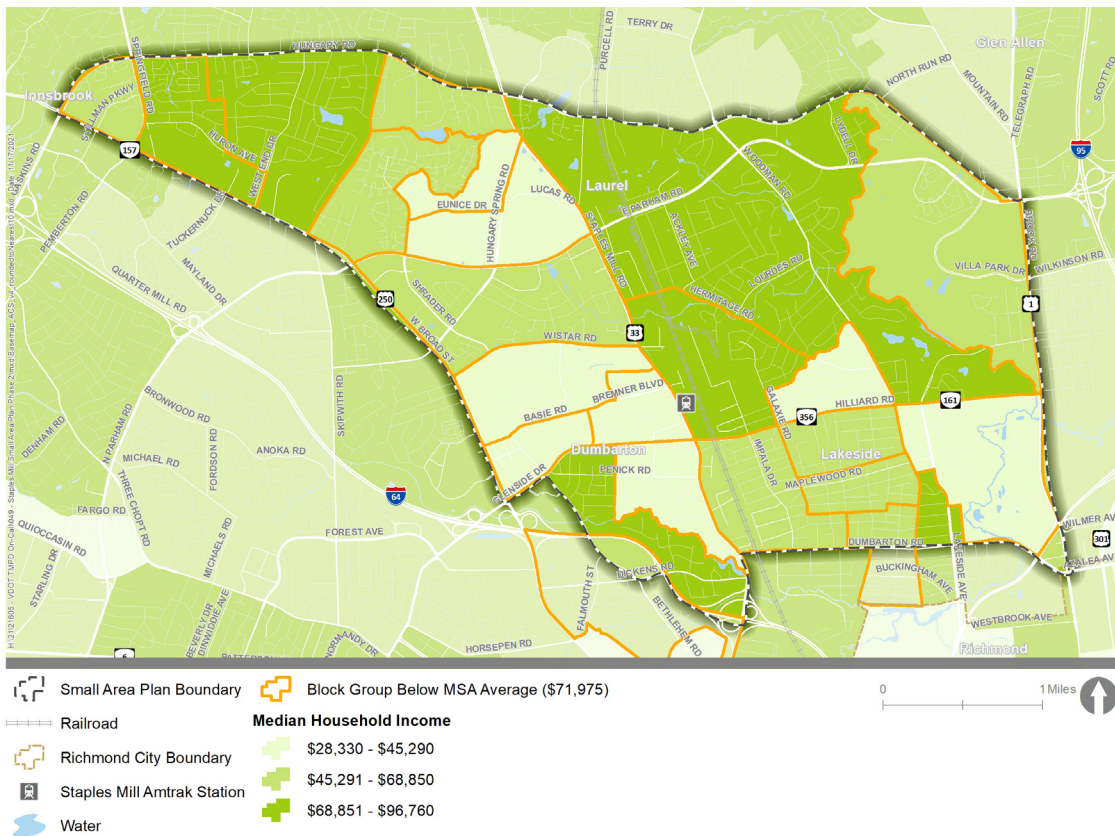


Figure 5. Zero Car Households

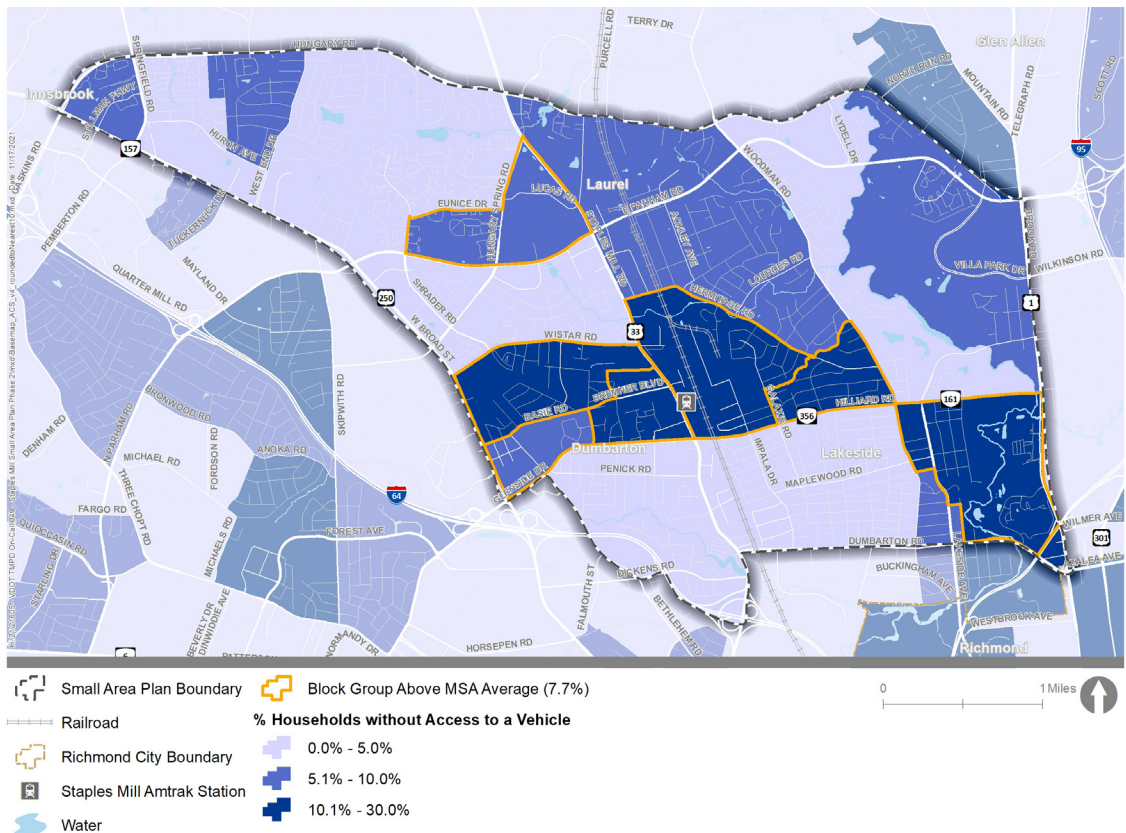
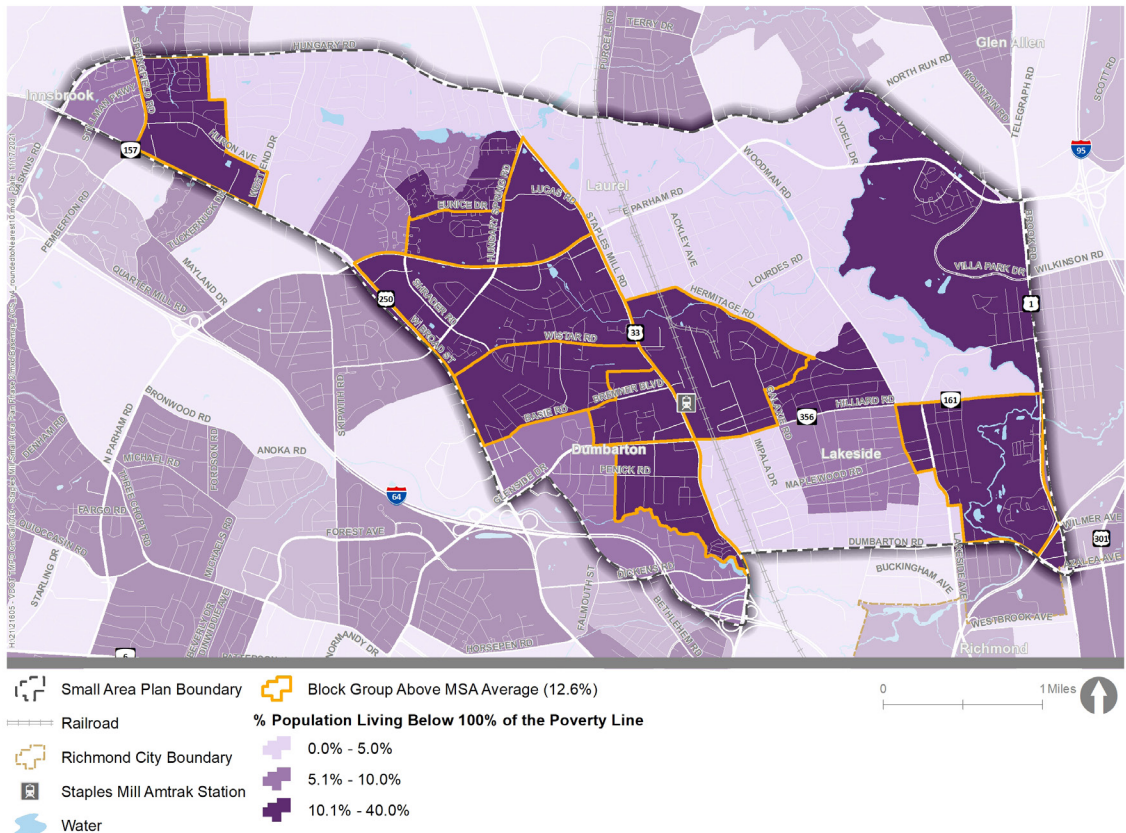


Figure 6. Population Living Below 100% of the Poverty Line



Study Area Challenges

TOD can attract people and investments to the Staples Mill Road Amtrak Station area. Successful TOD depends on providing safe, convenient, and *multimodal* access for the new trips generated by new, denser land uses. Today, people traveling to the Amtrak station area rely heavily on automobiles (**Figure 7**).

To increase multimodal access and support TOD, Staples Mill Road must overcome several challenges:

- The average commute time for transit riders in the study area is nearly twice as long as the average commute time for people driving (**Table 1**).
- Sidewalks and bike lanes are inconsistent and incomplete along Staples Mill Road, and they do not provide the safety or comfort necessary to encourage walking and biking (**Figure 8**).
- Passengers at transit stops along Staples Mill Road often must wait alongside traffic moving 45 mph or faster. Most stops are located on curbs or along sidewalks without safe means to cross the street and with obstacles impeding access to the transit stop for people with disabilities (**Figure 9**).
- Nearly 80% of crashes in the study area are angle or rear-end crashes. Angle crashes had higher proportions of fatalities and injuries than other reported crash types (**Figure 10**).
- The top four transportation problems survey participants observed in the study area were inadequate sidewalks, poor crosswalk locations, inadequate bike facilities, and speeding (**Figure 11**).

Figure 7. Study Area Commute Mode to Work (ACS, 5-Year Estimates, 2019)

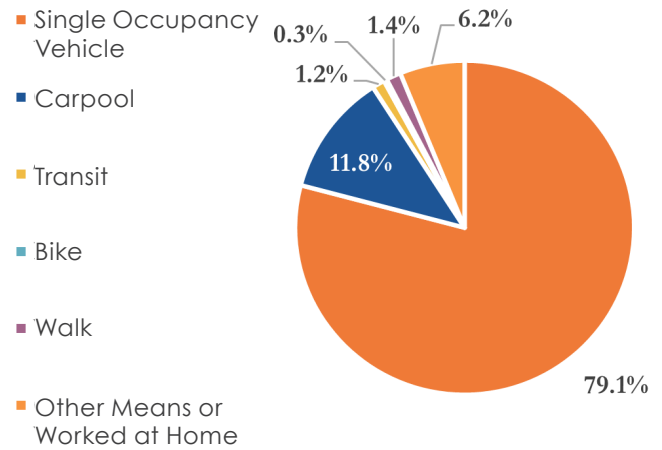


Table 1. Study Area Average Commute Time (ACS, 5-Year Estimates, 2019)

SINGLE OCCUPANCY VEHICLE	22 minutes
CARPOOL	23 minutes
PUBLIC TRANSIT	37 minutes

Figure 8. Bicycle and Pedestrian Facilities



Figure 9. Sidewalk and crossing gaps on Staples Mill Road



Figure 10. Reported Crashes by Crash Type and Severity, January 2016–December 2020

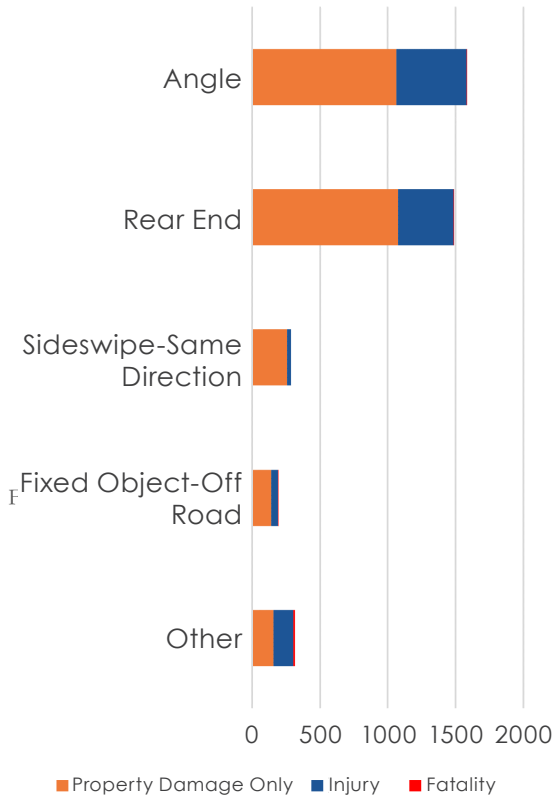
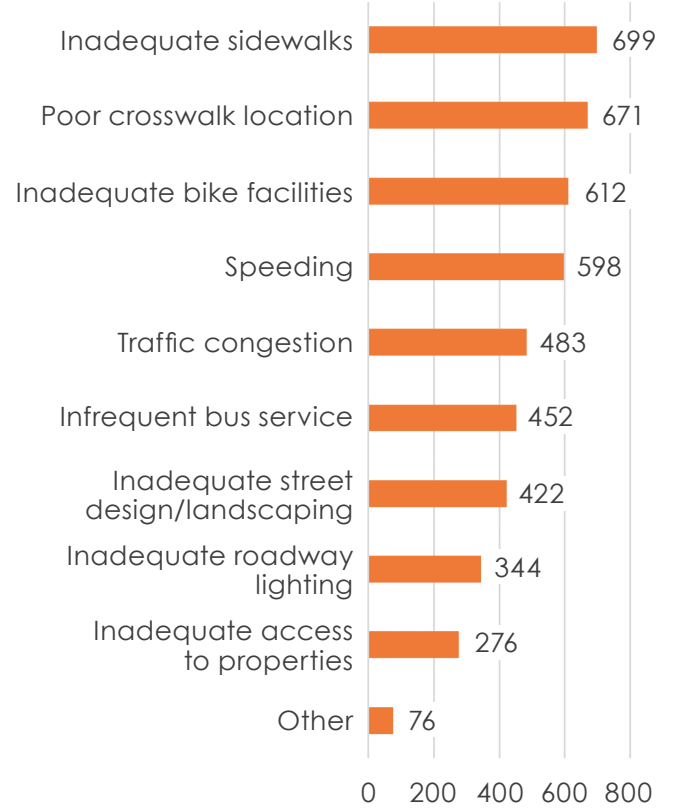


Figure 11. Community-identified transportation problems



Study Area Opportunities

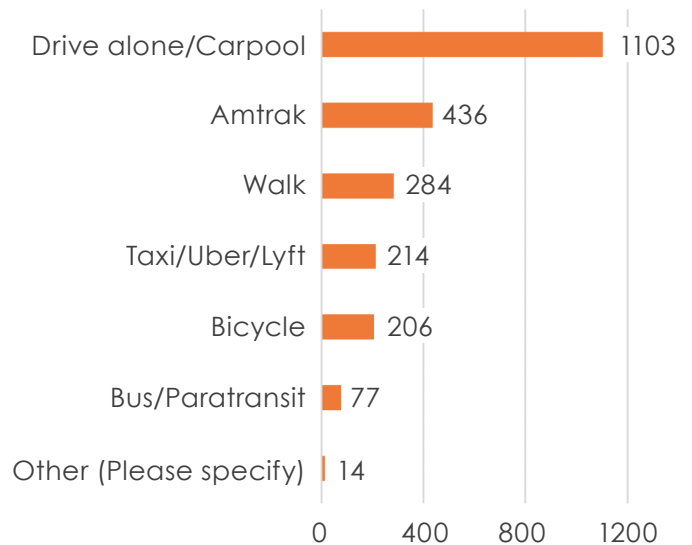
After collecting and analyzing data, the study team identified opportunities to advance the vision and goals of the Staples Mill Road TOD concept. These goals include enhancing existing land uses and multimodal development surrounding the Staples Mill Road Amtrak Station and modifying the Staples Mill Road cross-section to improve level of service for walking, bicycling, and transit.

The following bullets summarize findings from both qualitative and quantitative data collection from online surveys, vehicular data collection and operations analysis, demographic analysis, and crash review.

- About a quarter of survey respondents reported walking in the study area (23%) and 17% reported biking in the area (**Figure 12**). This data reflects a lack of safe and comfortable facilities that encourage biking and walking.
- Staples Mill Road is supported by a broader network of principal arterial roadways with high average annual daily traffic volumes—Broad Street, Brook Road, and E Parham Road—that connect Henrico County to Richmond and serve as regional crossroads via interchanges with I-64 I-295 (**Figure 13**). The connected network of streets increases flexibility for people deciding how to get to their destinations and creates an opportunity for reallocating space along Staples Mill Road for other modes.
- Nearly 90% of crashes in the study area during the past five years of available data occurred at intersections. The high proportion of intersection crashes highlights an opportunity to implement safety improvements at key intersections. (**Figure 14**).

- Most of the study intersections are forecasted to perform acceptably during the AM (**Figure 15**) and PM (**Figure 16**) rush hour, except for a few study intersections: Broad Street and Gaskins Road/Hungary Road, Hungary Road and Springfield Road, Broad Street and Parham Road, Broad Street and Glenside Drive, and Staples Mill Road and Glenside Drive.
- Communities along Staples Mill Road have a high percentage of households experiencing poverty and many households do not have access to a vehicle. These conditions reflect an opportunity to provide increased multimodal options to households burdened by the combined costs of housing and transportation.

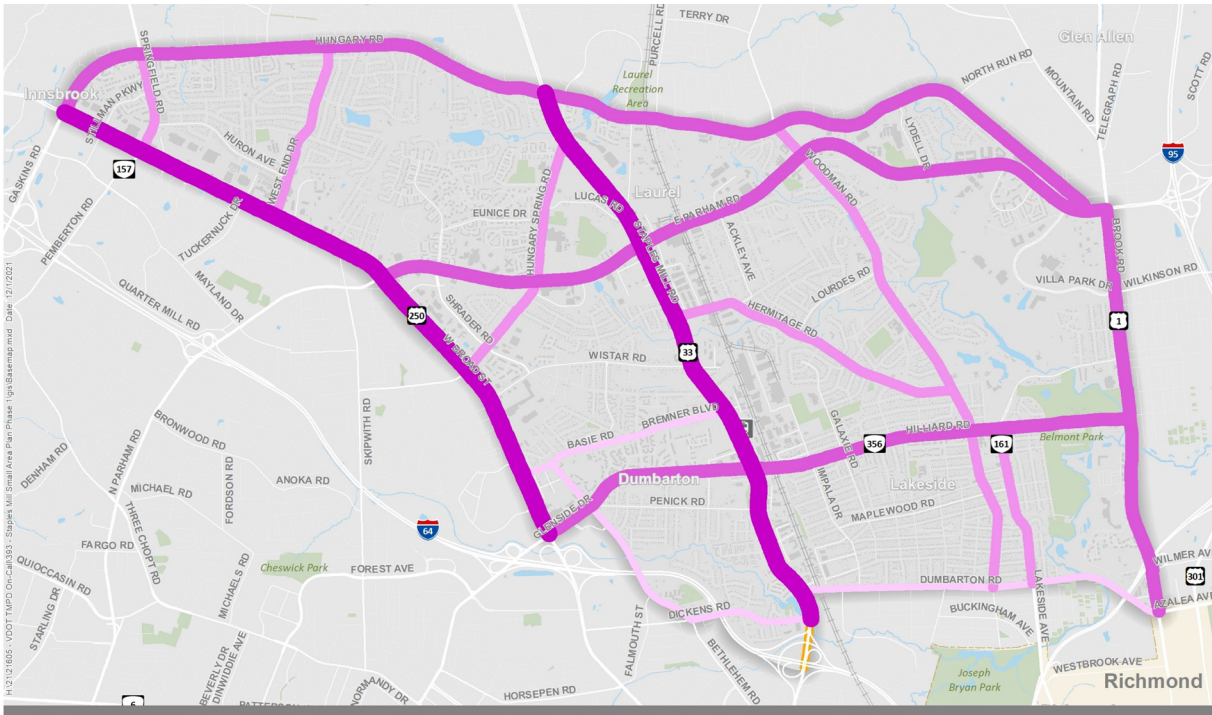
Figure 12. How survey respondents travel in the Staples Mill Road study area



KEY TAKEAWAYS:

- Transit-oriented development could bring more people and investment to the Staples Mill Road Amtrak Station area. However, gaps in comfortable multimodal facilities along and around Staples Mill Road pose a challenge to realizing Henrico County's TOD vision.
- Multimodal enhancements would provide more safe, comfortable, and reliable transportation options for economically disadvantaged residents.
- Staples Mill Road is one of several major connectors that serve communities in Henrico County and Richmond. This network offers opportunities to redesign Staples Mill Road to better serve all road users.

Figure 13. Study Streets Average Annual Daily Traffic Volumes

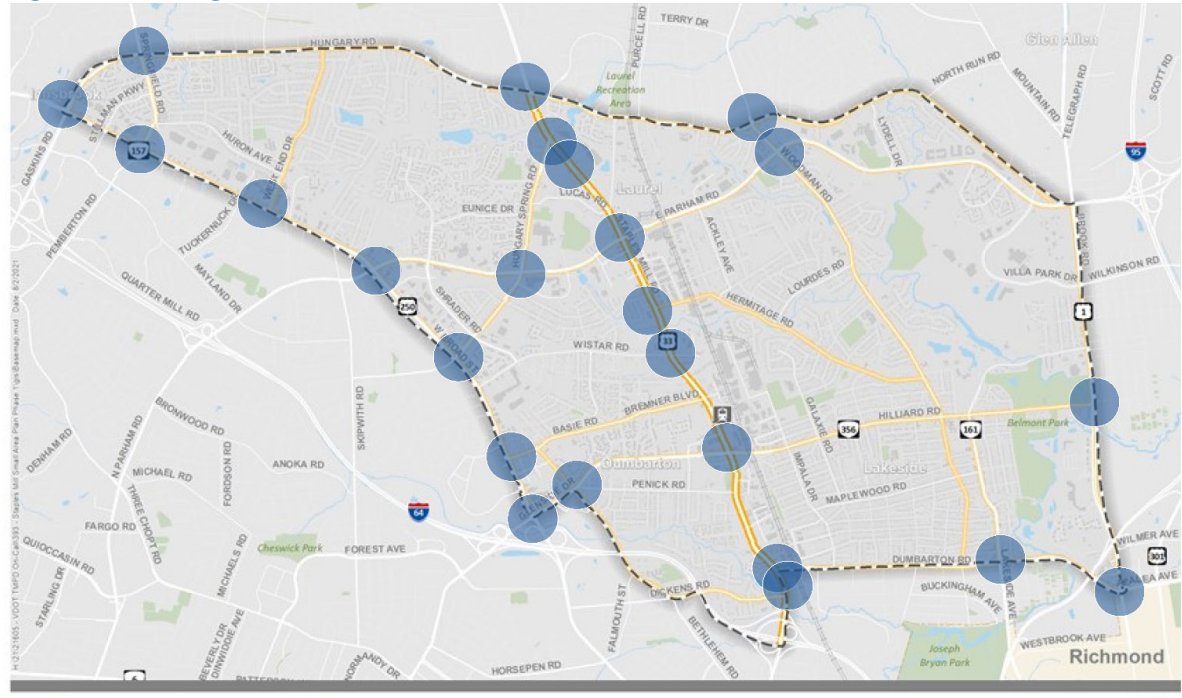


Average Annual Daily Traffic

- 1,630 - 7,100 vehicles
- 7,101 - 16,600 vehicles
- 16,601 - 26,600 vehicles
- 26,601 - 37,000 vehicles



Figure 14 High Crash Study Intersections

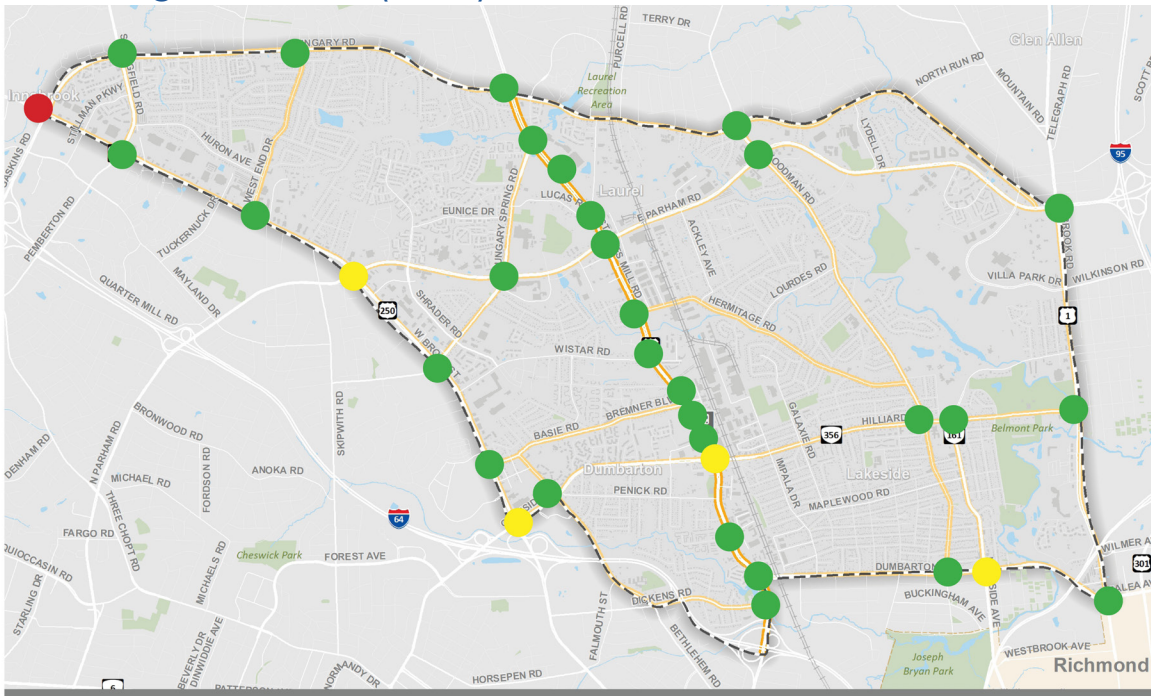


- Staples Mill Road Study Corridor
- Small Area Plan Boundary
- Railroad
- Richmond City Boundary
- Parks
- Water
- Study Streets

Study intersections in Top 20% for Crash Frequency and Severity

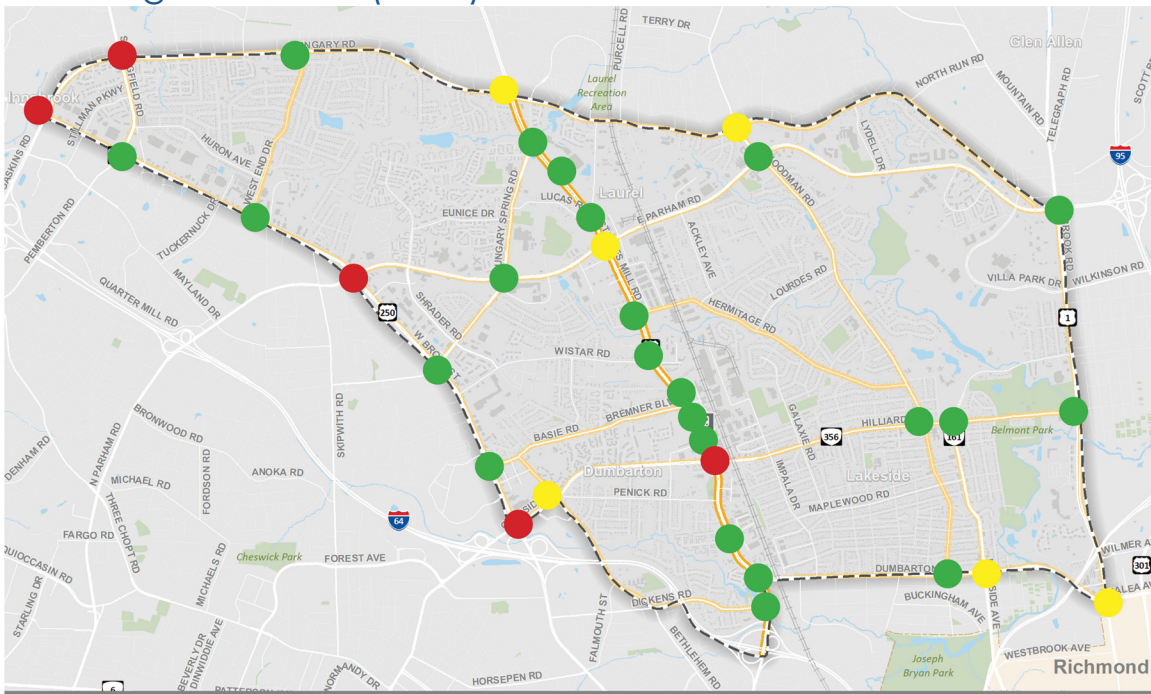


Figure 15. Estimated Future Traffic Conditions at Intersections - Morning Rush Hour (2040)



*Level of service (LOS) is a qualitative grading system for amount of congestion, using the letter A to represent the least amount of congestion and F to refer to the greatest amount.

Figure 16. Estimated Future Traffic Conditions at Intersections - Evening Rush Hour (2040)



*Level of service (LOS) is a qualitative grading system for amount of congestion, using the letter A to represent the least amount of congestion and F to refer to the greatest amount.

5.0 THE VISION FOR STAPLES MILL ROAD

Questions this section answers:

- How did VDOT develop the small area plan vision, goals, and objectives?
- How did those vision, goals, and objectives inform corridor alternatives?

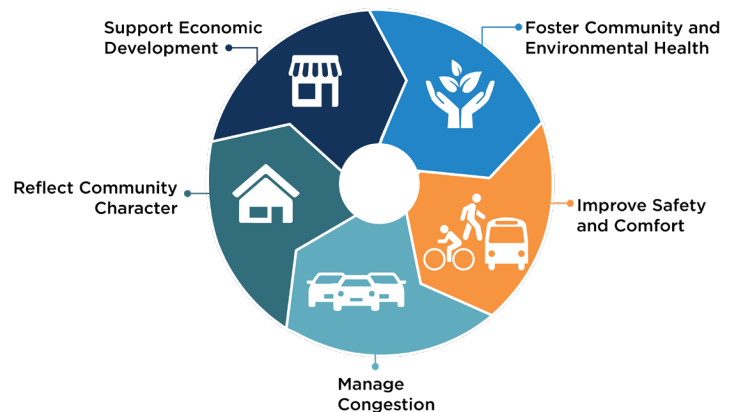
Vision, Goals and Objectives

The study team and stakeholder group worked together to refine the study vision, goals, and objectives based on findings from the existing conditions analysis.

The study envisions Staples Mill Road as a complete street that supports TOD and provides safe and comfortable travel for all uses and users. Project goals and objectives supported this vision and created a framework for measuring the effectiveness of potential multimodal alternatives (Figure 17).

Figure 17. Vision and Goals

Staples Mill Road is a complete street that supports transit-oriented development and provides safe and comfortable travel for all uses and users of the roadway.



KEY TERM>>

A **complete street** is designed to enable safe access for all modes of transportation and for people of all ages and abilities.

Screening Criteria & Alternatives Analysis

The study team developed screening criteria tied to each of the study goals and objectives (Table 2). Then, after developing multimodal alternatives (see Chapter 6), the study team conducted an alternatives analysis based on those screening criteria, planning-level cost estimates, and community feedback (see Chapter 7). Figure 18 presents the alternatives analysis process and Table 2 summarizes the alternatives screening criteria.

KEY TAKEAWAYS:

- Findings from the existing conditions analysis, stakeholder group, and community feedback shaped the plan's vision, goals, and objectives.
- Alternatives were screened by criteria related to each goal and its objectives.

Figure 18. Alternatives Analysis Process

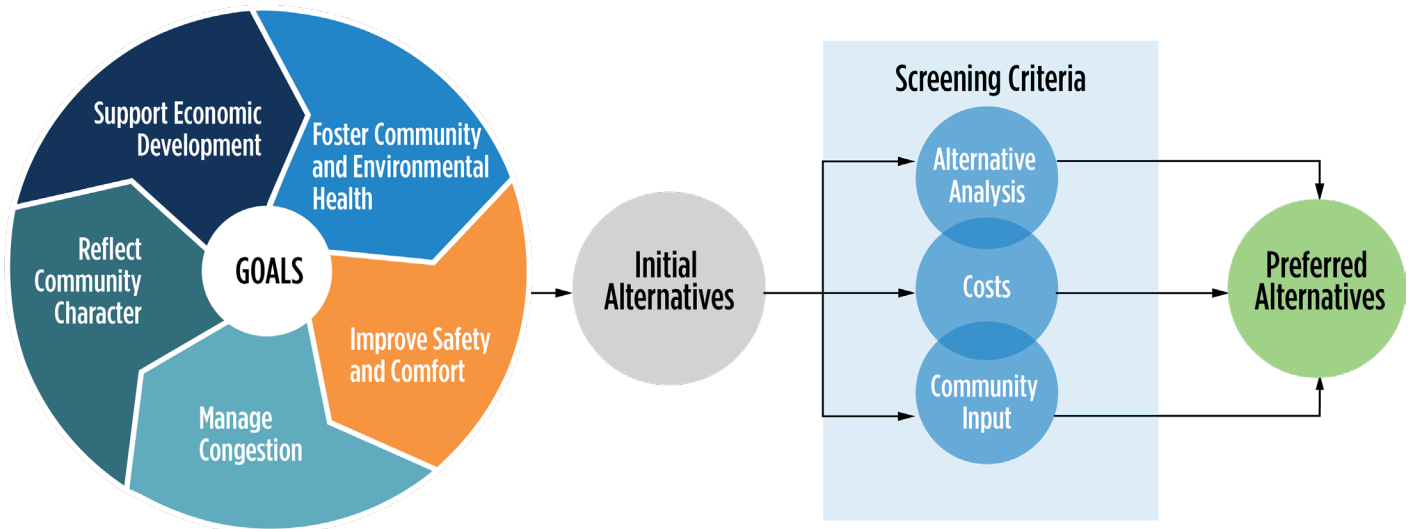







Table 2. Alternatives Screening Criteria

GOAL	OBJECTIVE	SCREENING CRITERIA
IMPROVE SAFETY AND COMFORT 	Reduce or manage vehicular conflict points	Number of curb cuts and driveways
	Manage and encourage reduction in vehicular travel speeds	Number of context-sensitive speed management strategies
	Provide continuous, consistent, and separated bicycle and pedestrian facilities	Miles of continuous bicycle and pedestrian facilities
	Provide protected pedestrian crossing opportunities	Number of protected pedestrian crossing opportunities
		Pedestrian crossing distance curb to curb
		Number of high visibility crosswalks
MANAGE CONGESTION 	Increase person throughput capacity	Potential to increase daily transit ridership
		Physical improvements that support transportation demand management (TDM) strategies
	Reduce travel time variability	Travel times for representative trips
		Physical improvements that promote consistent transit run times
		Potential to impact intersection delay at intersections that will be congested in the future no-build condition
	Make efficient use of right-of-way for all users	Potential to increase bicycle and pedestrian activity on the corridor
FOSTER COMMUNITY AND ENVIRONMENTAL HEALTH 	Encourage mode shift by providing bicycle and pedestrian facilities that connect to existing and future generators	Miles of separated bicycle facilities that connect to existing generators
	Encourage mode shift by providing ADA accessible transit stops	Increase in ADA-accessible facilities
	Prioritize multimodal investments to and near mixed- and low-income housing developments	Zero-car households accessible by interconnected bike, pedestrian, and transit facilities
		Low-income population accessible by interconnected bike, pedestrian, and transit facilities

GOAL	OBJECTIVE	SCREENING CRITERIA
SUPPORT ECONOMIC DEVELOPMENT 	Provide access to jobs for users with a range of abilities	Number of households accessible by connected bike, pedestrian, and transit facilities
	Provide mode choice in access to employment opportunities	Jobs accessible by connected bike, pedestrian, and transit facilities
	Support implementation of the TOD Concept Plan for Staples Mill Road Station	Potential to increase landscaping
		Potential to improve signage or wayfinding
		Potential to increase lighting
Accommodate a higher intensity of development	Transit stops accessible by connected bike and pedestrian facilities	
REFLECT COMMUNITY CHARACTER 	Develop transportation alternatives based on community input	Number of survey responses that inform initial alternatives
		Number of survey responses that support revised alternatives
	Solicit community feedback on transportation alternatives	Participation in public meetings
		Diversity of community feedback (age, race, zip code, etc.)

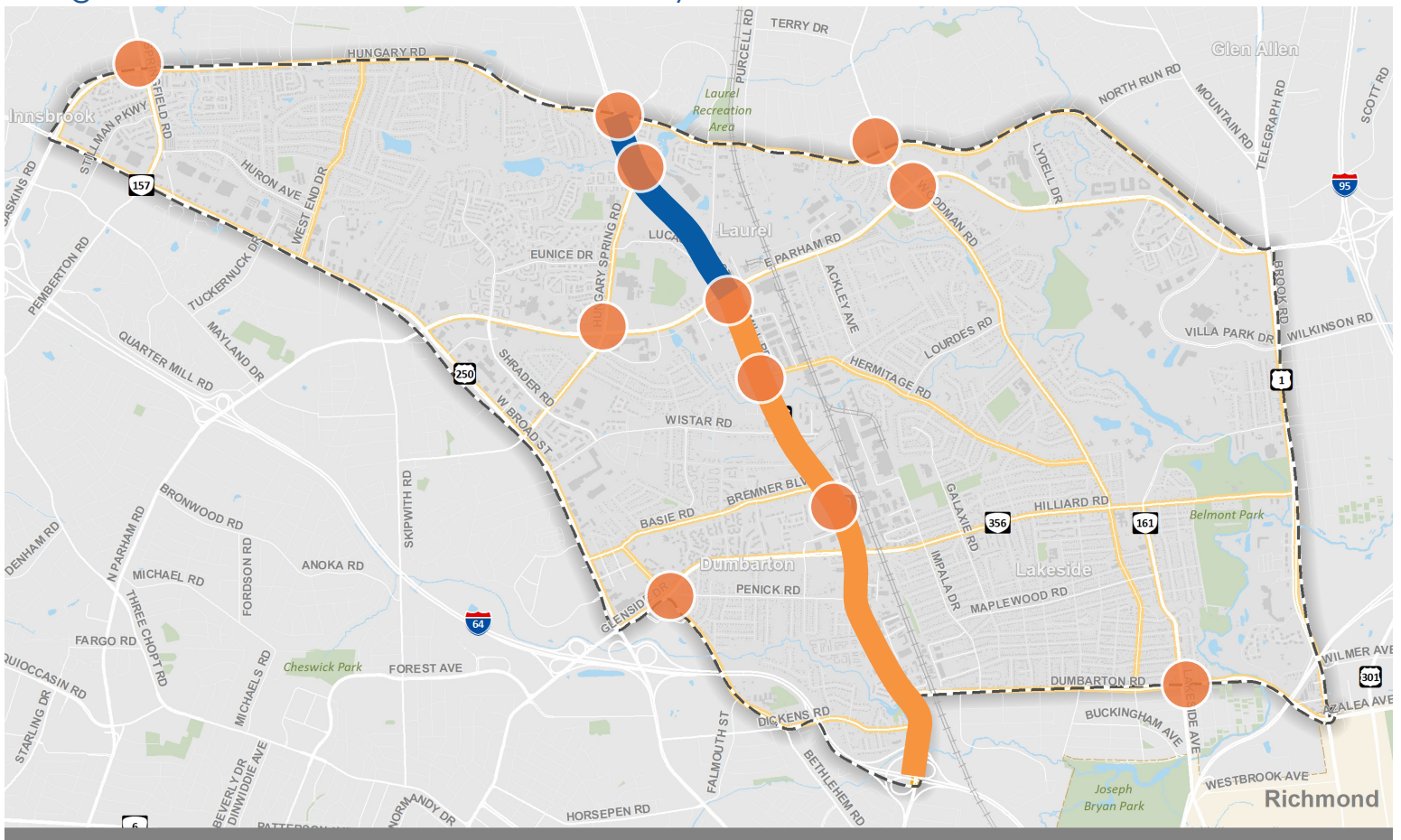
6.0 ACHIEVING THE VISION— DEVELOPING ALTERNATIVES

Questions this section answers:

- How did VDOT develop the alternatives?
- What are those alternatives?

This section presents outcomes from the alternative development process. VDOT and the study team aimed to develop feasible multimodal concepts that would meet the plans goals and objectives and be supported by stakeholders and the community.

Figure 19. Corridor Sections and Priority Intersections



- Priority Intersection
- Staples Mill Road North of E Parham Road
- Staples Mill Road South of E Parham Road

Transportation Solutions for the Study Area

The study team developed corridor and intersection options for the study area (**Figure 19**). There are alternatives for the following locations:

- **Staples Mill Road Corridor**
 - Hungary Road to E Parham Road
 - E Parham Road to I-64 Interchange
- **Priority Intersections**
 - Springfield Road and Gaskins Road/Hungary Road
 - E Parham Road and Hungary Spring Road
 - Glenside Drive and Bethlehem Road
 - Staples Mill Road and Hungary Road
 - Staples Mill Road and Hungary Spring Road
 - Staples Mill Road and E Parham Road
 - Staples Mill Road and Hermitage Road
 - Staples Mill Road and Amtrak Station
 - Hungary Road and Woodman Road
 - E Parham Road and Woodman Road
 - Lakeside Avenue and Dumbarton Road

Staples Mill Road Corridor

The study team divided the Staples Mill Road corridor into two sections based on transportation and land-use context:

- **Along Staples Mill Road north of E Parham Road**
- **Along Staples Mill Road south of E Parham Road**

Along Staples Mill Road North of E Parham Road

Today, the cross section of this part of the roadway has two through lanes in both directions and a landscaped median. Surrounding land uses are single-family residences and low-density commercial uses like the Staples Mill Marketplace and Staples Mill Plaza shopping centers. Compared to the section of Staples Mill Road south of E Parham Road, this section has more available right-of-way and fewer access points and driveways.

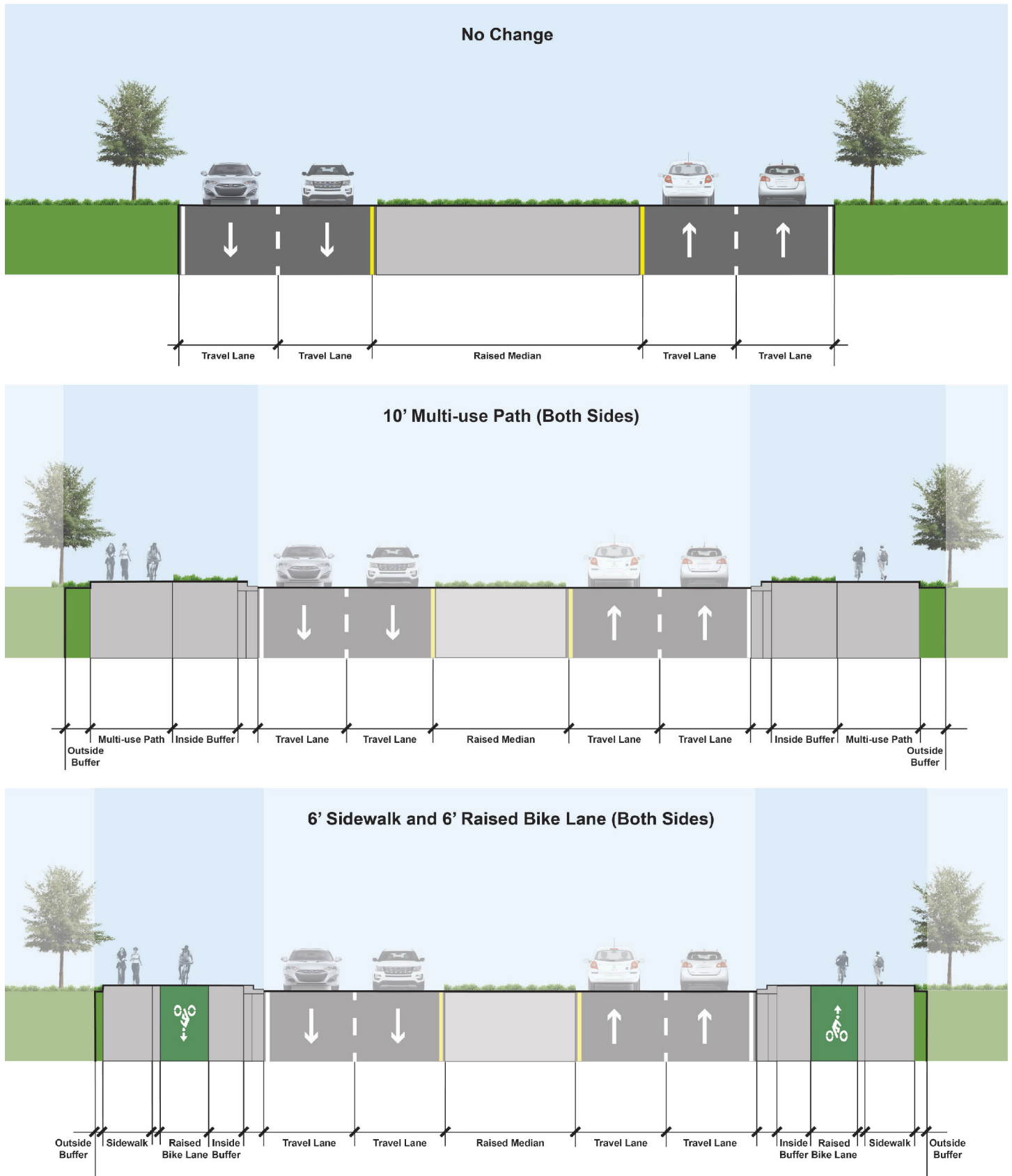
As a principal arterial roadway, Staples Mill Road has a high speed limit (45 mph) and moves many vehicles (22,000–30,000 per day, on average). In addition to sharing the street with fast-moving traffic, people who walk or bike along the corridor today encounter large sidewalk gaps. Sidewalks are mostly missing on one or both sides of the road, and such gaps discourage walking and biking.

The study team developed two alternatives to provide consistent, continuous walking and biking facilities along Staples Mill Road:

- **Shared Use Path**—Add a 10-foot shared use path to both sides of Staples Mill Road. The corridor generally has enough right-of-way to also add an 8-foot landscaped buffer between the shared use path and roadway.
- **Sidewalk and Separated Bicycle Facility**—Add a 6-foot sidewalk and a 6-foot separated bicycle facility to both sides of Staples Mill Road. The corridor generally has enough right-of-way to add a 6-foot landscaped buffer between the separated bicycle facility and roadway.

Both alternatives require narrowing existing travel lanes to 11 feet to reduce crossing distances and reallocate space for walking and biking facilities. **Figure 20** compares key elements of the Staples Mill Road cross section alternatives north of E Parham Road.

Figure 20. Staples Mill Cross Section Alternatives North of E Parham Road



Along Staples Mill Road South of E Parham Road

Today, Staples Mill Road south of E Parham Road has three travel lanes with a concrete median. Surrounding land uses are single- and multifamily residences, industrial uses, and low-density commercial uses. This section of Staples Mill Road provides access to rail and bus transit via the Staples Mill Road Amtrak Station and 11 GRTC bus stops. Compared to the northern section of Staples Mill Road, this area has limited right-of-way and more access points and driveways.

People walking and biking in the south section of the corridor also encounter high volumes of fast-moving traffic. Although sidewalks are provided along most of the corridor, these sidewalks generally lack landscaped buffers and could benefit from maintenance and ADA improvements.

The same two alternatives for north of E Parham Road could be applied along Staples Mill Road south of E Parham Road. In addition, the study team developed two new alternatives to support TOD with dedicated transit lanes.

- **Shared Use Path**—Add a 10-foot shared use path to both sides of Staples Mill Road. Where right-of-way allows, add up to an 8-foot landscaped buffer between the shared use path and roadway.
- **Sidewalk and Separated Bicycle Facility**—Add a 6-foot sidewalk and a 6-foot separated bicycle facility to both sides of Staples Mill Road. Where right-of-way allows, add up to a 6-foot landscaped buffer between the separated bicycle facility and roadway.
- **Dedicated Transit and Shared Use Path**—Convert the outer through lane in both directions to a dedicated transit lane. Add a 10-foot shared use path to both sides of the road. Where right-of-way allows, add up to an 8-foot landscaped buffer between the shared use path and roadway.

- **Dedicated Transit, Sidewalks, and Bicycle Facilities**—Convert the outer through lane in both directions to a dedicated transit lane. Add a 6-foot sidewalk and a 6-foot separated bicycle facility to both sides of Staples Mill Road. Where right-of-way allows, add up to a 6-foot landscaped buffer between the separated bicycle facility and roadway.

All four cross-section alternatives involve narrowing existing travel lanes to 11 feet to reduce crossing distances and reallocate space for walking and biking facilities. **Figure 21** compares key elements of the Staples Mill Road cross-section alternatives south of E Parham Road.

DEDICATED TRANSIT ALONG STAPLES MILL ROAD

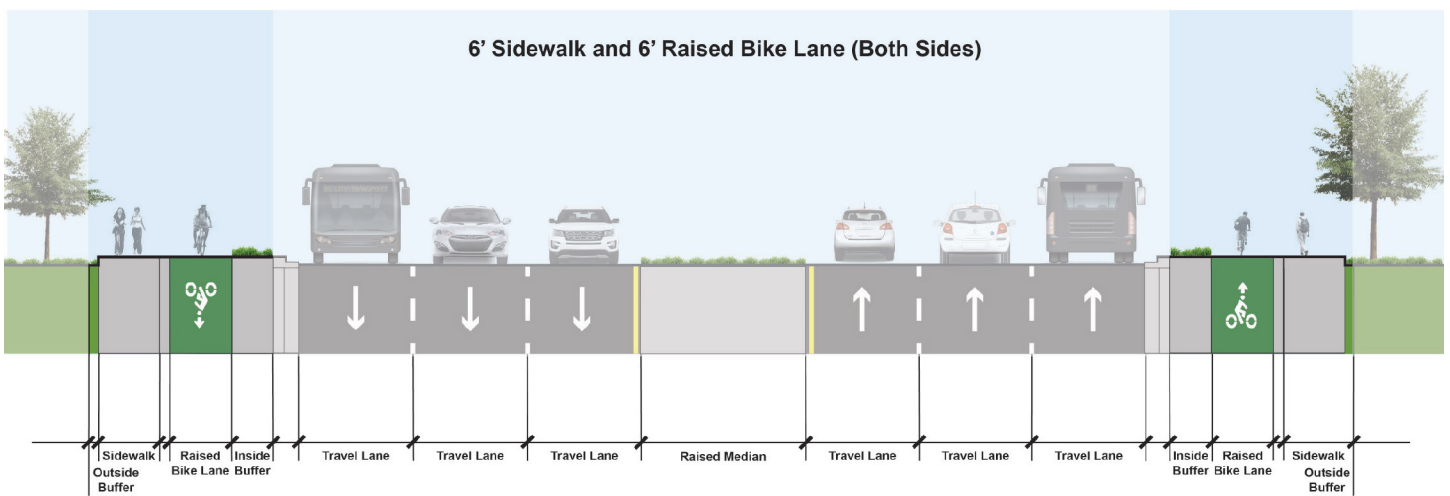
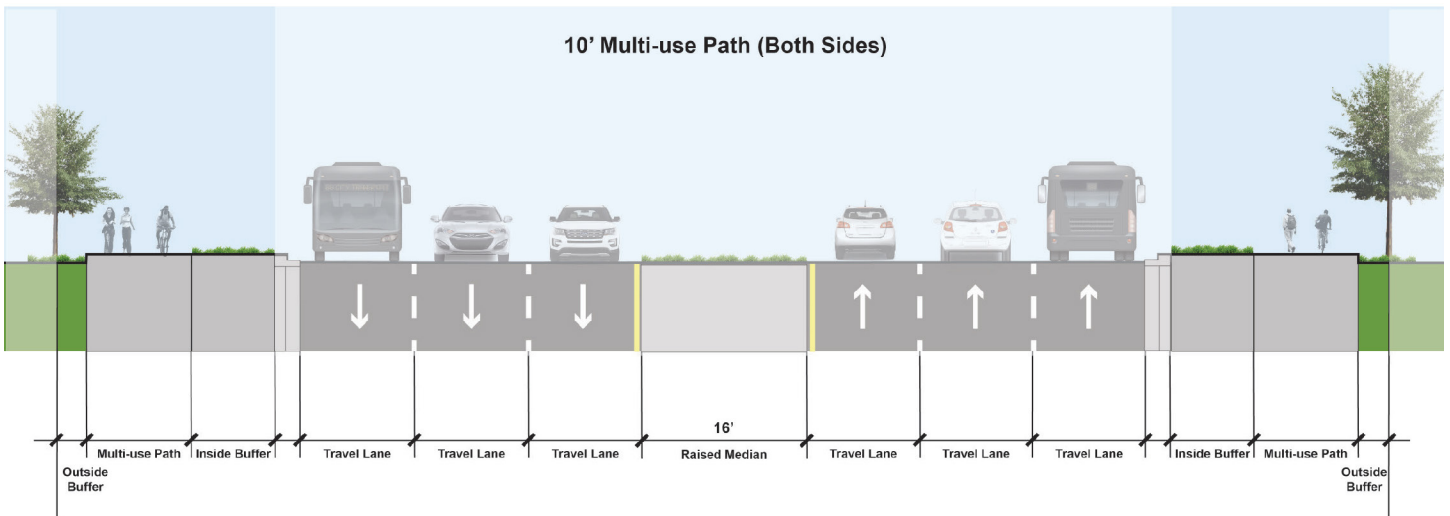
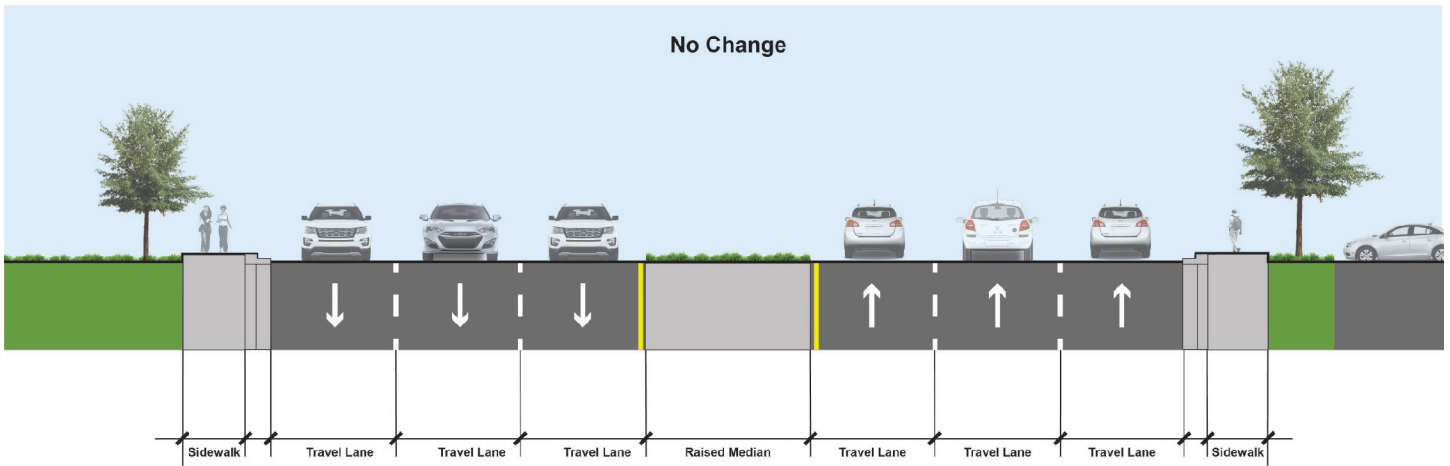
The study team developed alternatives that convert outside lanes on Staples Mill Road to dedicated transit lanes based on Henrico County's TOD Concept for the Staples Mill Road Amtrak Station.

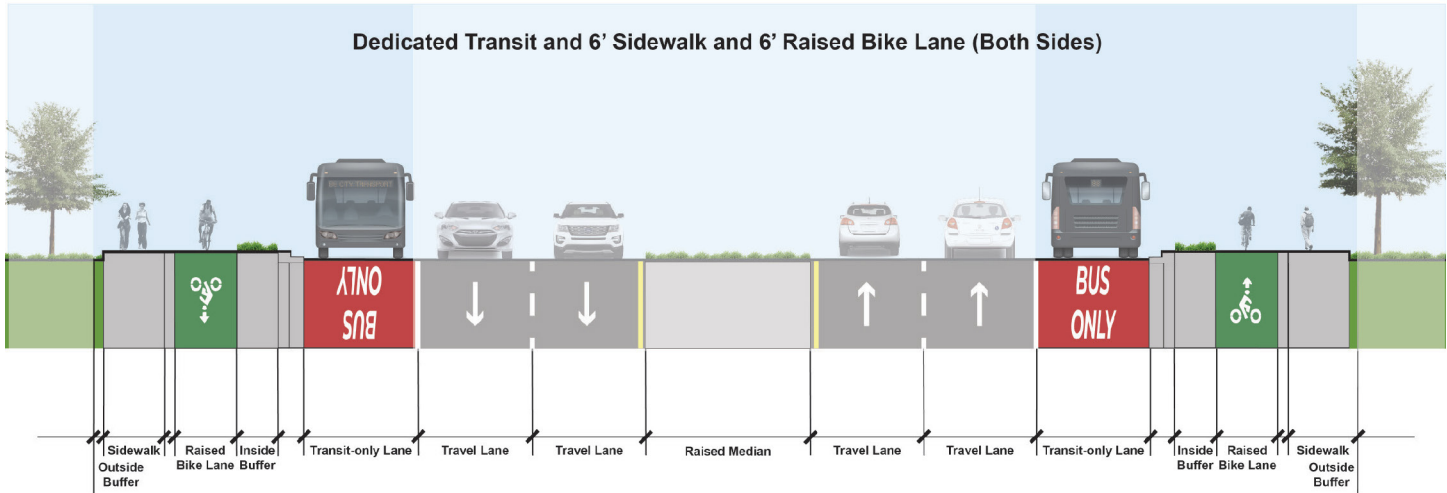
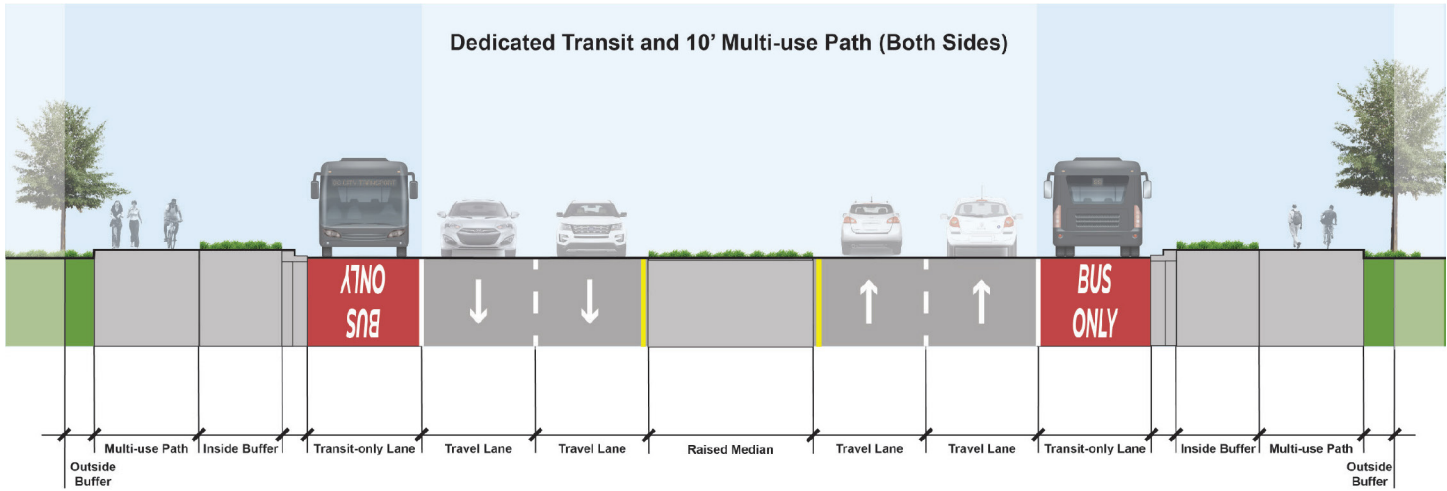
Along with physical space in the street, successful dedicated transit depends on frequent transit service (e.g., 14 or more buses per hour), station amenities (e.g., off-board ticketing, info screens displaying estimated arrival times), and vehicle amenities (e.g., low-floor buses for level boarding, onboard Wi-Fi), among other strategies.



Source: GRTC

Figure 21. Staples Mill Cross Section Alternatives South of E Parham Road





Priority Intersections

The study team developed intersection-specific alternatives for 11 priority locations based on issues and opportunities identified during the existing conditions analysis (Figure 22). Issues and opportunities included:

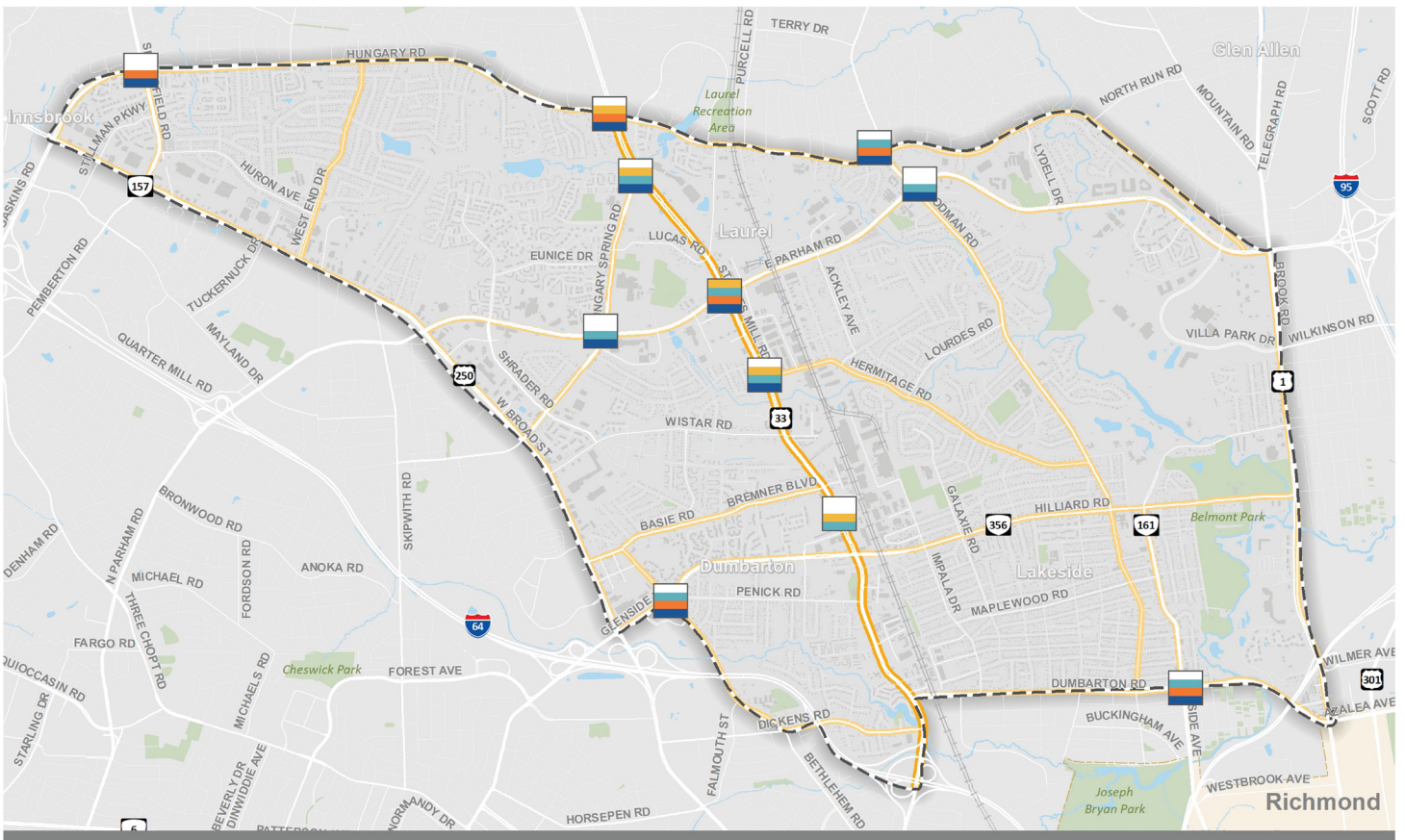
- **Safety Concerns**—These locations experienced more frequent and more severe crashes compared to other study intersections.

- **Future Congestion**—If no changes are made to these intersections, motorists are predicted to experience greater delay at these locations by 2040.

- **TOD Proximity**—These intersections are located within two miles of the Staples Mill Road Amtrak Station and future TOD.

- **Community Interest**—Community members identified specific issues or opportunities at these intersections or along intersecting streets.

Figure 22. Issues and Opportunities at Priority Intersection



Priority Intersections by Issue

- Community Interest
- Future Congestion (2040)
- TOD Proximity
- Safety Concerns



The 11 priority intersections are located on wide arterial roads and in some of Henrico County's densest neighborhoods. Adding new travel and turn lanes to increase automobile capacity to these intersections would exacerbate existing safety issues, contradict the County's plans for TOD, and aggravate long-term congestion.

Nearby property lines, utilities, buildings, and intersections also make it difficult to apply innovative intersection designs like roundabouts, restricted crossing U-turns, and displaced left turns. Due to these constraints, the study team focused on identifying treatments that could be implemented within the existing footprint of each intersection. Those treatments include:

■ **Pedestrian Safety Treatments**

- Upgrade curb ramps and sidewalks
- Add high-visibility crosswalks
- Provide pedestrian refuge islands
- Add pedestrian signal heads
- Restrict right turns on red
- Provide leading pedestrian intervals
- Modify intersection geometry to improve safety and operations

■ **Signalized Intersection Safety Treatments**

- Add intersection lighting
- Improve signal hardware
- Install raised medians
- Provide protected left turns for motorists

■ **Signalized Intersection Operations Treatments**

- Adjust signal timing
- Reallocate space between turn lanes and travel lanes

The following sections present alternatives related to the priority intersections.

KEY TERMS>>

Pedestrian Refuge Island

Also known as median islands, pedestrian refuge islands reduce pedestrian crossing distances by allowing them to cross in several stages.

No-Right Turn on Red Restriction

This treatment restricts motorists from turning right during a red light and reduces conflicts between motorists, pedestrians, and bicyclists.

Leading Pedestrian Interval

This signal phasing modification allows pedestrians to begin crossing before traffic moving in the same direction gets the green light. This head start helps reduce potential conflicts between vehicles and pedestrians at the end of the signal cycle and increases the visibility of pedestrians in the intersection.

Springfield Road and Gaskins Road/Hungary Road

From 2016 to 2020, Springfield Road and Gaskins Road/Hungary Road had many crashes, including a fatal crash involving a bicyclist. Drivers are predicted to experience higher delay at this intersection during the evening rush hour in 2040 (Level of Service F – more than a minute of delay). The intersection is located near multiple single-family developments in Henrico County's Innsbrook neighborhood.

The study team developed an alternative to increase multimodal access, safety, and comfort at this intersection (**Figure 23**). The alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to increase pedestrian safety, including:
 - crossing time
 - leading pedestrian intervals
 - restrict right turns on red
- Upgrade curb ramps
- Add intersection lighting
- Add high visibility crosswalks
- Adjust lane geometry in the east leg of the intersection to reduce delay for motorists

E Parham Road and Hungary Spring Road

E Parham Road and Hungary Spring Road is a high crash intersection. It is located near the Staples Mill Road Amtrak Station and other pedestrian trip generators, including Hermitage High School and Henrico County's Western Government Center.

The study team also developed a second alternative to improve multimodal access, safety, and comfort (**Figure 24**). This alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to add crossing time for pedestrians

- Upgrade curb ramps
- Add high visibility crosswalks
- Update signal hardware to increase signal visibility
- Add pedestrian refuge islands to the east and west legs of the intersection

Glenside Drive and Bethlehem Road

Drivers at Glenside Drive and Bethlehem Road are predicted to experience higher delay at this intersection during the evening rush hour in 2040 (Level of Service E – close to or more than a minute of delay). A high-crash intersection, it is also located near the Staples Mill Road Amtrak Station.

The study team developed an alternative to improve multimodal access, safety, and comfort and reduce motorist delay **Figure 25**. This alternative would

- Add pedestrian signal heads
- Make signal timing modifications to add crossing time for pedestrians
- Upgrade curb ramps
- Add high visibility crosswalks
- Provide protected left-turn phases for eastbound and westbound motorists
- Update signal hardware to increase signal visibility
- Add a pedestrian refuge island to the east leg of the intersection

Figure 23. Springfield Road and Gaskins Road/Hungary Road Alternative

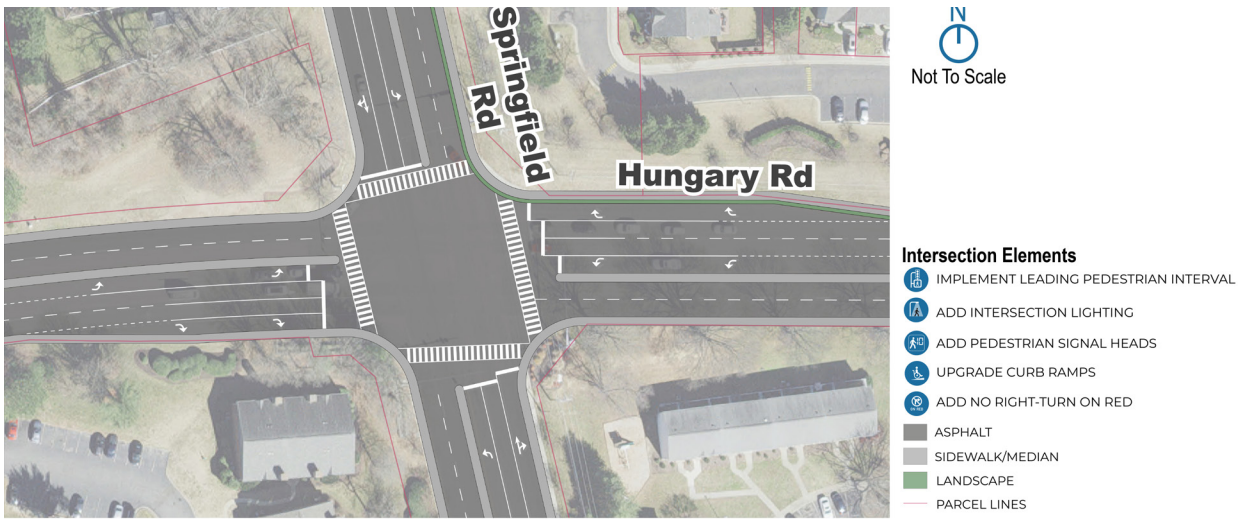


Figure 24. E Parham Road and Hungary Spring Road Alternative



Figure 25. Glenside Drive and Bethlehem Road Alternative



Staples Mill Road and Hungary Road

From 2016 to 2020, Staples Mill Road and Hungary Road had a high number of crashes and one bicycle-involved injury crash. Drivers are predicted to experience higher delay at this intersection during the evening rush hour in 2040 (Level of Service E – close to or more than a minute of delay).

The study team developed an alternative to build on Henrico County's ongoing sidewalk project on the north side of Hungary Road between Hardings Way Drive and Hungary Spring Road (**Figure 26**). This alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to add crossing time for pedestrians
- Upgrade curb ramps
- Add intersection lighting
- Add high visibility crosswalks
- Add a pedestrian refuge island to the north leg of the intersection

Staples Mill Road and Hungary Spring Road

Staples Mill Road and Hungary Spring Road is a high crash intersection, and it experienced a pedestrian-involved crash between 2016 and 2020. The intersection is located near the Staples Mill Road Amtrak Station and other pedestrian trip generators.

The study team developed an alternative that would build on a 2022 project, which updated the intersection mast arms and added crosswalks and pedestrian signal heads to the north and east legs (**Figure 27**). This alternative proposes to:

- Add pedestrian signal heads
- Make signal timing modifications to add crossing time for pedestrians
- Upgrade curb ramps
- Add intersection lighting
- Add high visibility crosswalks
- Add a raised median and pedestrian refuge island to the northeast leg of the intersection

Staples Mill Road and E Parham Road

Staples Mill Road and E Parham Road is a high crash intersection. From January 2016 to December 2020, it experienced more intersection crashes than any other study intersection.

Drivers are predicted to experience higher delay at this intersection during the evening rush hour in 2040 (Level of Service E – close to or more than a minute of delay). This intersection it is located near the Staples Mill Road Amtrak Station and other pedestrian trip generators. Community members shared that the right-turn slip lanes at the intersection create an uncomfortable environment for people walking.

To help, the study team developed an alternative to improve multimodal access, safety, and comfort (**Figure 28**). This alternative proposes to:

- Add pedestrian signal heads
- Make signal timing modifications to increase pedestrian safety, including:
 - Increase crossing time
 - Leading pedestrian intervals
 - Restrict right turns on red
- Upgrade curb ramps
- Add intersection lighting
- Add high visibility crosswalks
- Modify intersection geometry to improve safety and operations

Figure 26. Staples Mill Road and Hungary Road Alternative

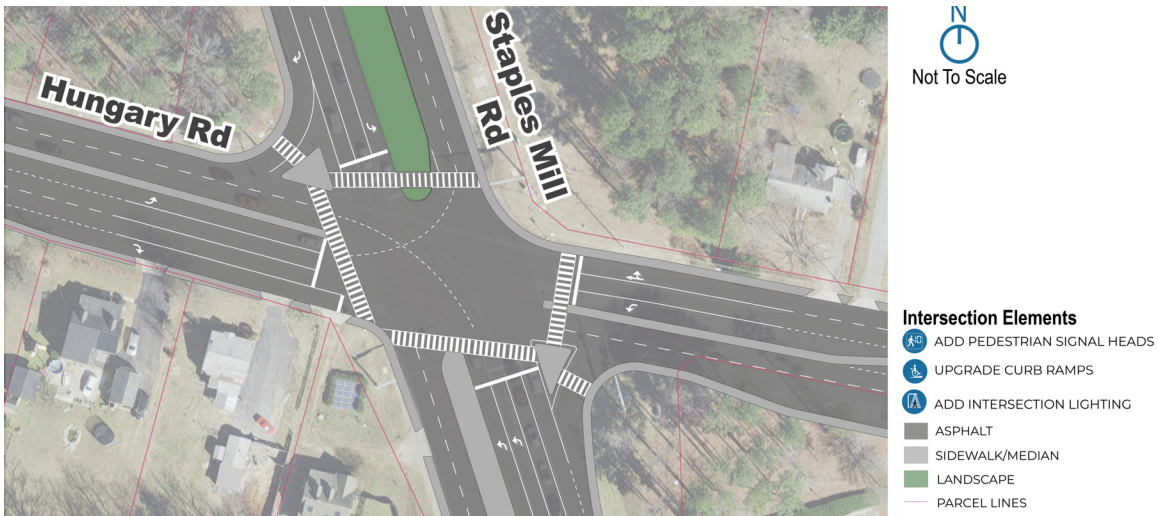


Figure 27. Staples Mill Road and Hungary Spring Road Alternative



Figure 28. Staples Mill Road and E Parham Road Alternative



Staples Mill Road and Hermitage Road

Staples Mill Road and Hermitage Road is a high-crash intersection that had two pedestrian-involved crashes between 2016 and 2020. One of these crashes resulted in a pedestrian fatality. The intersection is located near the Staples Mill Road Amtrak Station and other pedestrian trip generators, including two supermarkets.

To help, the study team developed an alternative to improve multimodal access, safety, and comfort (**Figure 29**). This alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to increase pedestrian safety, including:
 - Increase crossing time
 - Leading pedestrian intervals
 - Restrict right turns on red
- Upgrade curb ramps
- Add intersection lighting
- Add high visibility crosswalks
- Add a raised median to the east leg of the intersection

Staples Mill Road and Amtrak Station

While this intersection does not have existing crash or congestion issues, it serves as the gateway to the Staples Mill Amtrak Station. Future TOD near this station will increase the number of people walking, biking, taking transit, and driving through this intersection.

The study team developed an alternative to improve multimodal access, safety, and comfort at this intersection (**Figure 30**). The alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to increase pedestrian safety, including:
 - Increase crossing time
 - Leading pedestrian intervals
 - Restrict right turns on red

- Upgrade curb ramps
- Add intersection lighting
- Add high-visibility crosswalks
- Add a fourth (west) leg to the intersection to provide access to future TOD.

Hungary Road and Woodman Road

Hungary Road and Woodman Road is a high-crash intersection, and drivers are predicted to experience higher delay at this intersection during the evening rush hour in 2040 (Level of Service E – close to or more than a minute of delay). The intersection is located near the Staples Mill Road Amtrak Station and several pedestrian trip generators, including a pharmacy, convenience stores, and fast-food restaurants.

The study team developed an alternative to improve multimodal access, safety, and comfort at this intersection (**Figure 31**). The alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to increase pedestrian safety, including:
 - Increase crossing time
 - Leading pedestrian intervals
 - Restrict right turns on red
- Upgrade curb ramps
- Upgrade intersection lighting
- Add high-visibility crosswalks
- Update signal hardware to increase signal visibility

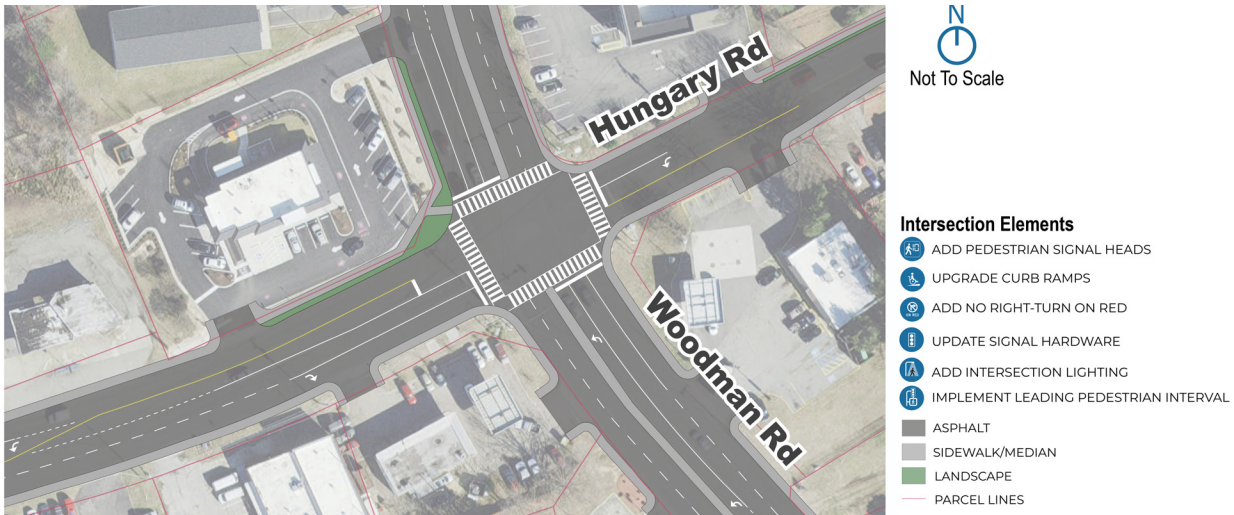
Figure 29. Staples Mill Road and Hermitage Road Alternative



Figure 30. Staples Mill Road and Amtrak Station Alternative



Figure 31. Hungary Road and Woodman Road Alternative



E Parham Road and Woodman Road

E Parham Road and Woodman Road is a high-crash intersection. It is located near the Staples Mill Road Amtrak Station and other pedestrian trip generators, including Maude Trevvett Elementary School.

The study team developed an alternative to help improve multimodal access, safety, and comfort at this intersection (**Figure 32**). The alternative would:

- Add pedestrian signal heads
- Make signal timing modifications to add crossing time for pedestrians
- Upgrade curb ramps
- Add high-visibility crosswalks
- Modify intersection geometry to improve safety and operations
- Add pedestrian refuge islands to the east and west legs of the intersection

Lakeside Avenue and Dumbarton Road

Lakeside Avenue and Dumbarton Road is a high-crash intersection, and drivers are predicted to experience higher delay at this intersection during the morning and evening rush hour in 2040 (Level of Service E – close to or more than a minute of delay). It is located near the Staples Mill Road Amtrak Station and pedestrian trip generators, including single-family homes and commercial land uses.

The study team developed an alternative to build on Henrico County's ongoing Dumbarton Road Safety and Mobility Improvements project (**Figure 33**). The alternative would:

- Make signal timing modifications to increase pedestrian safety, including:
 - Increase crossing time
 - Leading pedestrian intervals
 - Restrict right turns on red
- Upgrade curb ramps
- Add high-visibility crosswalks

KEY TAKEAWAYS:

- The study team developed alternatives for the Staples Mill Road Corridor and 11 priority intersections based on data and community input.
- All cross-section alternatives could help increase safety and comfort for vulnerable road users, including elderly, young, and people with physical challenges.
- Signalized intersection treatments focused on opportunities to improve multimodal access, safety, and comfort.
- On Staples Mill Road south of E Parham Road, replacing outside travel lanes with dedicated transit lanes would help support TOD and create a wider buffer between pedestrians, bicyclists, and traffic.

Figure 32. E Parham and Woodman Road Alternative

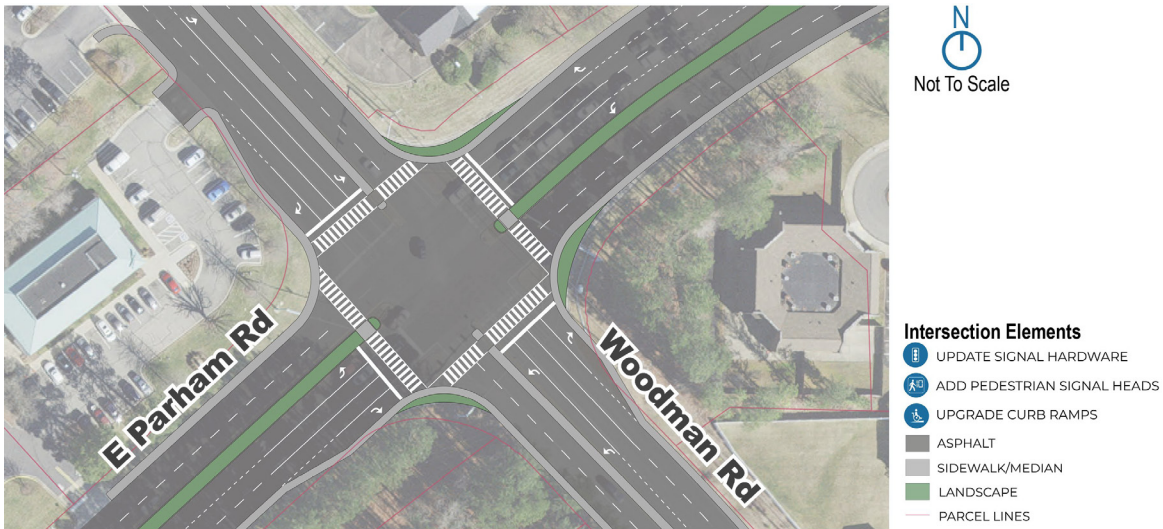
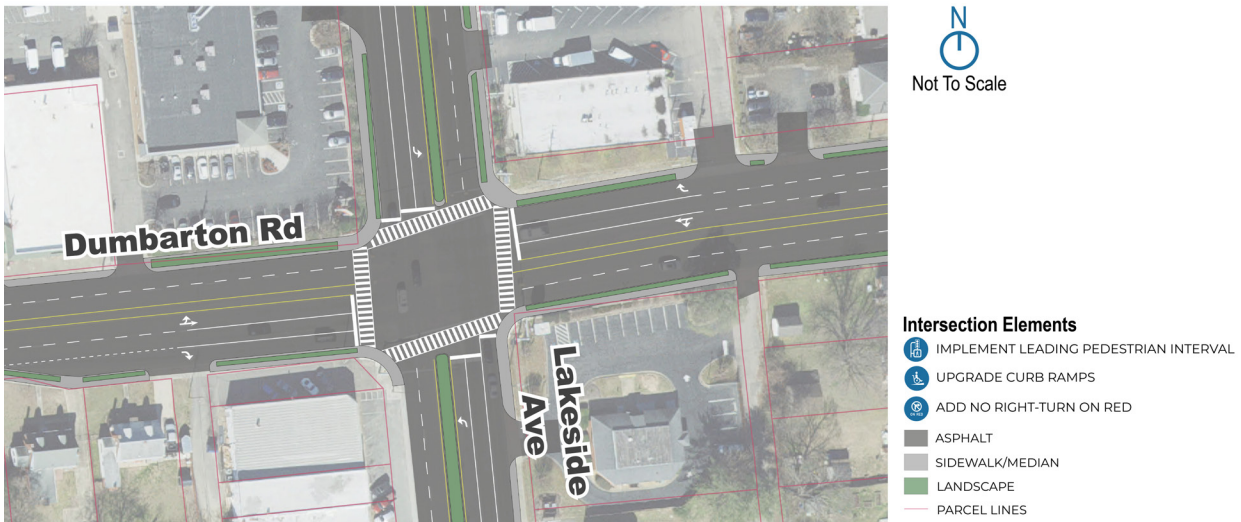


Figure 33. Lakeside Avenue and Dumbarton Road Alternative



7.0 ACHIEVING THE VISION— COMPARING ALTERNATIVES

Questions this section answers:

- How would each alternative advance the plan's vision and goals?
- How does the community feel about each alternative?
- About how much would each alternative cost?

The alternative evaluation process compared each option and helped decision-makers know which solutions would best meet their needs.

The study team evaluated each alternative according to the project's goals and objectives. The study team also developed planning-level cost estimates and asked for community feedback on each alternative.

For a complete discussion of the evaluation process and results, see the Alternatives Analysis Technical Memo.

Staples Mill Road Corridor

The study team identified several alternatives for corridor sections north and south of E Parham Road (see **Chapter 6**).

Table 3 summarizes the results of the north section alternative analysis, and **Table 4** summarizes the results of the south section alternative analysis.

LANE REPURPOSING ANALYSIS

The study team conducted an operational analysis using the Richmond/Tri-Cities **Regional Travel Demand Model** to estimate how trip patterns and vehicle volumes could change after dedicated transit is implemented on Staples Mill Road.

Results showed that this repurposing and other proposed improvements, *would not significantly increase delay at study intersections*. The analysis also indicated that travel times on Staples Mill Road between E Parham Road and I-64 would decrease in the peak direction (toward Richmond in the AM peak and away from Henrico County in the PM peak).

Table 3. Alternative Evaluation for Staples Mill Road North of E Parham Road

	MANAGE CONGESTION	COMMUNITY AND ENVIRONMENTAL HEALTH	SUPPORT ECONOMIC DEVELOPMENT	IMPROVE SAFETY AND COMFORT	REFLECT COMMUNITY CHARACTER	ORDER OF MAGNITUDE COST ESTIMATES (2022 DOLLARS)	SURVEY RANKING OUT OF 5.0
Existing (No Change)	●●○○○	●○○○○	●●○○○	●●○○○	●●●○○	\$0	1.46
10-foot Multiuse Path (Both Side)	●●●●○	●●○○○	●●●●○	●●●●○	●●●●●	\$14.4 million	3.63
6-foot Sidewalk and 6-foot Separated Bike Lane (Both Sides)	●●●●○	●●○○○	●●●●○	●●●●○	●●●●●	\$13.0 million	4.34

Lowest Scoring ← ————— → Highest Scoring



Table 4. Alternative Evaluation for Staples Mill Road Corridor South of E Parham Road

	MANAGE CONGESTION	COMMUNITY AND ENVIRONMENTAL HEALTH	SUPPORT ECONOMIC DEVELOPMENT	IMPROVE SAFETY AND COMFORT	REFLECT COMMUNITY CHARACTER	ORDER OF MAGNITUDE COST ESTIMATES (2022 DOLLARS)	SURVEY RANKING OUT OF 5.0
Existing (No Change)	●●○○○	●●●○○	●●○○○	●○○○○	●●●○○	\$0	1.51
Dedicated Curbside Transit and 10-foot Multiuse Path (Both Sides)	●●●●●	●●●●○	●●●●○	●●●○○	●●●●●	\$45.4 million	3.24
Dedicated Curbside Transit, 6-foot Sidewalk, and 6-foot Separated Bike Lane (Both Sides)	●●●●●	●●●●○	●●●●○	●●●○○	●●●●●	\$40.1 million	3.94
Mixed Transit Lane and 10-foot Multiuse Path (Both Sides)	●●●●○	●●●●○	●●●●○	●●●○○	●●●●●	\$42.1 million	3.13
Mixed Transit Lane, 6-foot Sidewalk, and 6-foot Separated Bike Lane (Both Sides)	●●●●○	●●●●○	●●●●○	●●●○○	●●●●●	\$36.9 million	3.50



Priority Intersections

The study team identified alternatives for 11 priority intersections in the study area (see **Chapter 6**). Each alternative included safety and operational treatments for vulnerable road users and vehicles intended to:

- Increase pedestrian visibility with crosswalks, refuge islands, and signal timing
- Improve nighttime visibility with intersection lighting
- Maintain or improved travel time for cars and buses and reduce pedestrian delay with signal timing and reduced crossing distances
- Improve ADA-accessible crossings for bicyclists and pedestrians
- Provide multimodal facilities connected to employment and transit
- Address motorist crashes with travel lane and signal timing adjustments

Table 5 summarizes the analysis results and presents planning-level cost estimates, community feedback, and future intersection level of service (LOS) for each alternative.

KEY TAKEAWAYS:

- **Alternatives that best advance study goals and receive the most community support tend to be the most expensive.**
- **Intersection and corridor alternatives may be implemented simultaneously.**
- **Corridor alternatives south of E Parham Road are substantially more costly than corridor alternatives north of East Parham Road, due to the corridor length and right-of-way needs.**
- **Together with the proposed intersection improvements, the transportation network can accommodate repurposing outside travel lanes into dedicated transit lanes on Staples Mill Road south of E Parham Road and the associated diversion of traffic to surrounding streets.**

Table 5. Evaluation of Priority Intersection Alternatives

	MANAGE CONGESTION	COMMUNITY AND ENVIRONMENTAL HEALTH	SUPPORT ECONOMIC DEVELOPMENT	IMPROVE SAFETY AND COMFORT	REFLECT COMMUNITY CHARACTER	
SPRINGFIELD ROAD AND GASKINS ROAD/HUNGARY ROAD						
Existing (No Change)	●○○○○	●●○○○	●●○○○	●●○○○	●●●○○	
Intersection Modification	●●○○○	●●○○○	●●○○○	●●●○○	●●●●●	
E PARHAM ROAD AND HUNGARY SPRING ROAD						
Existing (No Change)	●●○○○	●●●○○	●●○○○	●●●○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	
GLENSIDE DRIVE AND BETHLEHEM ROAD						
Existing (No Change)	●●○○○	●●○○○	●●○○○	●●○○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	
STAPLES MILL ROAD AND HUNGARY ROAD						
Existing (No Change)	●○○○○	●●○○○	●●○○○	●○○○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	
STAPLES MILL ROAD AND HUNGARY SPRING ROAD						
Existing (No Change)	●●○○○	●●○○○	●●○○○	●○○○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	
STAPLES MILL ROAD AND E PARHAM ROAD						
Existing (No Change)	●○○○○	●●○○○	●●○○○	●●○○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	
STAPLES MILL ROAD AND HERMITAGE ROAD						
Existing (No Change)	●●○○○	●●○○○	●●○○○	●●○○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	
STAPLES MILL ROAD AND AMTRAK STATION						
Existing (No Change)	●●○○○	●●●○○	●●○○○	●●○○○	●●●○○	
Intersection Modification	●●●○○	●●●●●	●●●○○	●●●○○	●●●●●	

	ORDER OF MAGNITUDE COST ESTIMATES (2022 DOLLARS)	SURVEY RANKING OUT OF 5.0	2040 INTERSECTION LEVEL OF SERVICE (MORNING/EVENING RUSH HOUR)	
			WITHOUT STAPLES MILL ROAD TRANSIT LANES	WITH STAPLES MILL ROAD TRANSIT LANES
	\$0	1.50	D/F	D/F
	\$1.21 million	4.39	D/F	D/F
	\$0	1.50	B/C	B/C
	\$1.39 million	4.43	C/C	C/C
	\$0	1.46	C/E	C/E
	\$2.05 million	4.34	C/C	C/C
	\$0	1.50	D/E	D/E
	\$2.32 million	4.32	D/E	D/D
	\$0	1.51	C/C	C/C
	\$1.66 million	4.34	C/D	C/D
	\$0	1.53	D/E	D/E
	\$1.42 million	4.32	E/E	D/E
	\$0	1.58	B/B	B/B
	\$730,000	4.31	C/D	D/D
	\$0	1.42	C/C	C/C
	\$530,000	4.48	D/C	C/C

*Level of service (LOS) is a qualitative grading system for amount of congestion, using the letter A to represent the least amount of congestion and F to refer to the greatest amount.

	MANAGE CONGESTION	COMMUNITY AND ENVIRONMENTAL HEALTH	SUPPORT ECONOMIC DEVELOPMENT	IMPROVE SAFETY AND COMFORT	REFLECT COMMUNITY CHARACTER	
HUNGARY ROAD AND WOODMAN ROAD						
Existing (No Change)	●○○○○	●●○○○	●●○○○	●●○○○	●●●○○	
Intersection Modification	●●○○○	●●○○○	●●○○○	●●●○○	●●●●●	
E PARHAM ROAD AND WOODMAN ROAD						
Existing (No Change)	●●○○○	●●○○○	●●○○○	●○○○○	●●●○○	
Intersection Modification	●●●○○	●●○○○	●●○○○	●●●●○	●●●●●	
LAKESIDE AVENUE AND DUMBARTON ROAD						
Existing (No Change)	●●○○○	●●●○○	●●●○○	●●●○○	●●●○○	
Intersection Modification	●●●○○	●●●○○	●●●○○	●●●○○	●●●●●	



	ORDER OF MAGNITUDE COST ESTIMATES (2022 DOLLARS)	SURVEY RANKING OUT OF 5.0	2040 INTERSECTION LEVEL OF SERVICE (MORNING/EVENING RUSH HOUR)	
			WITHOUT STAPLES MILL ROAD TRANSIT LANES	WITH STAPLES MILL ROAD TRANSIT LANES
	\$0	1.46	C/E	C/E
	\$2.42 million	4.34	C/E	C/E
	\$0	1.48	C/C	C/C
	\$2.86 million	4.37	C/D	C/D
	\$0	1.53	E/E	E/E
	\$700,000	4.42	F/E	E/E

*Level of service (LOS) is a qualitative grading system for amount of congestion, using the letter A to represent the least amount of congestion and F to refer to the greatest amount.

8.0 PLAN RECOMMENDATIONS

Questions this section answers:

- What ongoing efforts align with the outcomes of the small area plan?
- What are the short-term recommendations?
- What are the long-term recommendations?

The study team concluded the planning part of this project by making a series of recommendations that Henrico County and VDOT can advance in the short-, mid- and long-term.

Ongoing

Several parallel efforts in the Staples Mill Road area aligned with this plan's outcomes and recommendations, including:

- Expanding the pedestrian network with the **Hungary Road Sidewalk Project**.
- Enhancing the multimodal network through the **Dumbarton Road Safety and Mobility Improvements Project**.
- Increasing pedestrian crossing access and safety at intersections through intersection improvement projects at Staples Mill Road and E Parham Road, and E Parham Road and Hungary Springs Road.
- Managing corridor access and implementing sections of recommended long-term bicycle and pedestrian facilities through ongoing private development projects along Staples Mill Road.
- Incorporating plan recommendations into the Henrico County Comprehensive Plan Update

Short-Term

Short-term recommendations can be implemented within the next five years, and include:

- Applying for funding to design and implement spot safety improvements at priority intersections
- Improving lighting along Staples Mill Road
- Collaborating with GRTC on a full transit alternatives analysis to vet the feasibility of dedicated transit lanes and service on Staples Mill Road, along with corridor wide walking and biking improvements
- Based on the results of a transit alternatives analysis, adopt recommended changes to Staples Mill Road in conjunction with a formal TOD plan

Mid-Term

Mid-term recommendations can be implemented in the next six to ten years, and include:

- Implementing spot safety improvements at priority intersections
- Expanding network connectivity via low-stress walking and biking connections to the Fall Line Trail
- Using a transit alternatives analysis and TOD plan get approval and funding to implement corridor wide walking, biking and transit improvements on Staples Mill Road

Long-Term

Long-term recommendations can be implemented beyond ten years, and include:

- Constructing corridor-wide walking, biking, transit facilities on Staples Mill Road

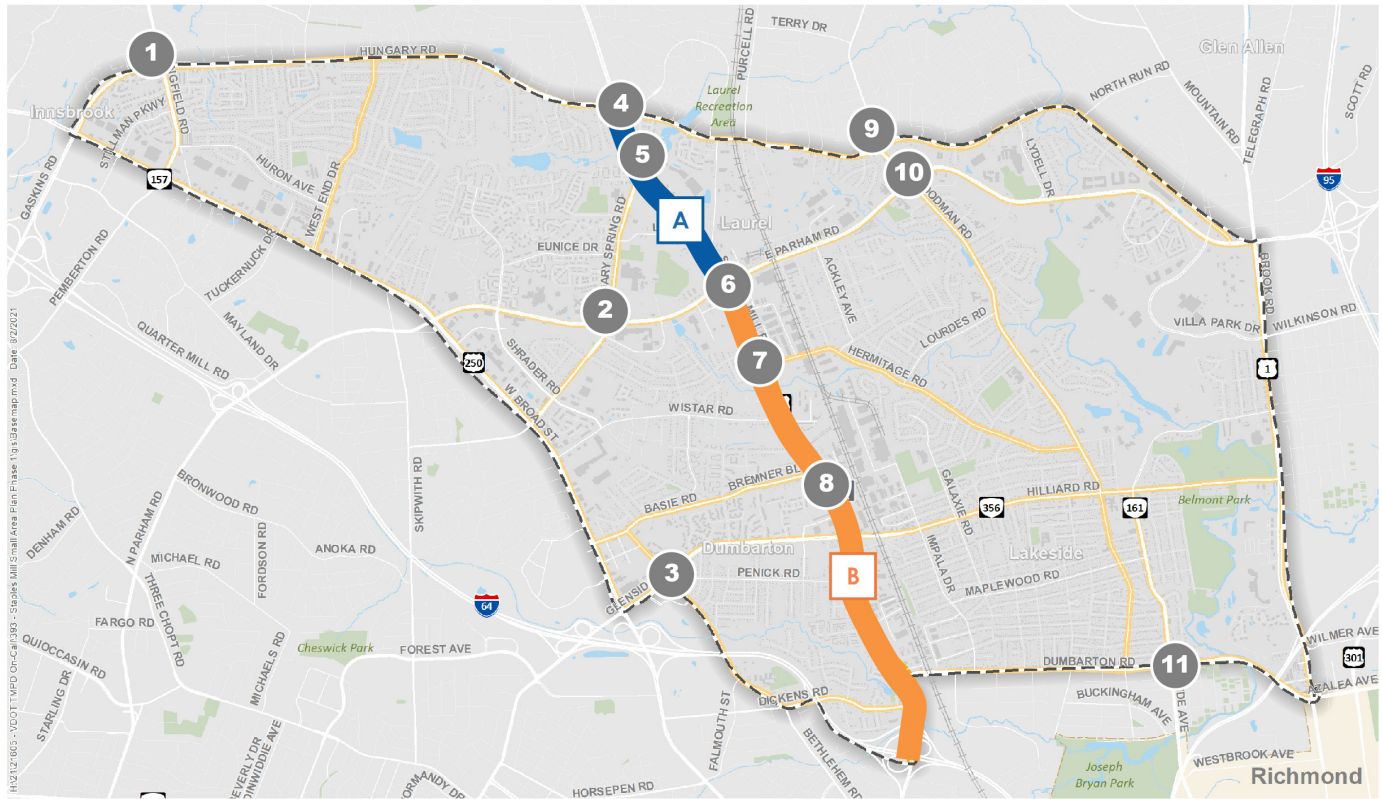
KEY TAKEAWAYS:

- Ongoing County efforts are expanding the study area's bicycle and pedestrian network.
- Short-term recommendations fund spot safety improvements at priority intersections. These recommendations also confirm and formally adopt corridor-wide walking, biking, and transit improvements for Staples Mill Road.
- Mid-term recommendations achieve spot safety improvements at priority intersections and fund corridor-wide sidewalks, bicycle facilities, and transit improvements on Staples Mill Road.
- Long-term recommendations increase access to the Staples Mill Road Amtrak Station, surrounding communities, and Richmond via transit improvements and comfortable walking and biking facilities.



Source: Kittelson

PLAN RECOMMENDATIONS



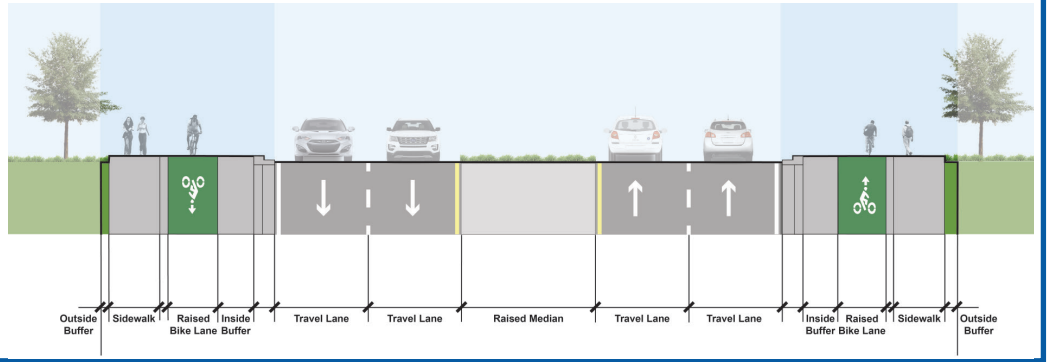
PRIORITY INTERSECTIONS

	Apply Pedestrian Safety Treatments							Apply Signalized Intersection Safety Treatments				
	Add Pedestrian Signal Heads	Add High Visibility Crosswalks	Implement Leading Pedestrian Interval	Add No Right-Turn on Red	Add Pedestrian Refuge Island(s)	Upgrade Curb Ramps	Remove Slip Lanes	Add Intersection Lighting	Upgrade Signal Hardware	Provide Protected Left Turn Phase	Install Raised Median	Adjust Lane Geometry
1												
2												
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A

North of E Parham Road

/Construct sidewalk and separated bike lanes

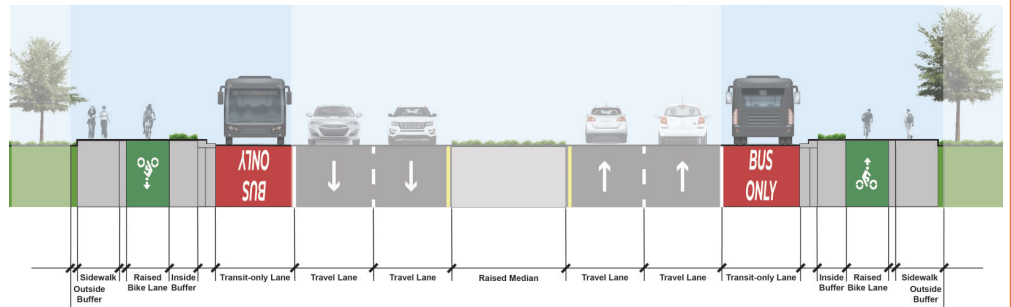


B

South of E Parham Road

/Conduct and implement recommendations from Alternatives Analysis for dedicated transit lanes

/Construct sidewalk separated bike lanes



B

Transit-Oriented Development on Staples Mill Road

/Incorporate corridor and intersection recommendations into future land use and TOD planning for the Staples Mill Amtrak Station Area



9.0 FUNDING OPPORTUNITIES

Questions this section answers:

- What funding sources could help advance plan recommendations?
- Who could partners be?

VDOT, Henrico County, and the Staples Mill Road stakeholder group can use several funding sources for this plan's recommendations.

SMART SCALE Funding

VDOT's SMART SCALE program scores and allocates funding to projects submitted by regional and local entities. Henrico County, GRTC, and RRTPO can work with VDOT to select and submit projects for SMART SCALE funding. Projects that improve corridors of statewide significance, enhance the regional transportation network, compliment an urban development area, and address safety concerns receive top priority for funding.

Regional Surface Transportation Block Grant Funding

The RRTPO administers the Regional Surface Transportation Block Grant funding program to projects submitted by RRTPO member localities. The STBG program funds projects that maintain and enhance conditions and performance on roads, pedestrian infrastructure, bicycle facilities, and transit capital projects.

Transportation Alternatives Set-Aside Funding

The Transportation Alternatives (TA) Set-Aside is an allocation set-aside within STBG program funding. This funding supports non-motorized transportation projects, including pedestrian facilities, bicycle facilities, recreational trails, safe routes to school, and infrastructure projects improving non-motorist access to public transportation.

Central Virginia Transportation Authority Funding

Funding may also be available through the Central Virginia Transportation Authority (CVTA), which administers funding for priority transportation investments to the counties and cities located in Planning District 15, including Henrico County and the Richmond.

Infrastructure Investment & Jobs Act

USDOT is administering billions in federal grant funding over the next five years through the Infrastructure Investment & Jobs Act (IIJA). Several of these –competitive grant programs are relevant to this plan’s recommendations, including:

- Safe Streets & Roads for All (SS4A)
- Reconnecting Communities Pilot Program
- Rebuilding American Infrastructure with Sustainability and Equity

These grants provide funding for planning and construction and are aimed at projects that improve safety, benefit underserved communities, and help increase walking, biking, and transit to support the local economy and environment.

Safe Streets and Roads for All

Henrico County was awarded a SS4A action plan grant in February 2023. Projects identified in the County’s Safety Action Plan will be eligible for additional SS4A funding through an implementation grant.

Private Development

Henrico County can work with private developers to incorporate plan recommendations into new development projects in the study area.

KEY TAKEAWAYS:

- A mix of state, regional, and federal funding sources can be used to fund the study recommendations.
- The next five years present an opportunity to obtain significant federal funding through IIJA grants.
- Henrico County can work with private developers to advance study recommendations through new developments.



Source: Kittelson

10.0 MOVING FORWARD— HOW TO HELP!

Questions this section answers:

- What can community leaders, agency staff, and residents do to advance the plan?

Staples Mill Road has great potential to grow into an efficient, comfortable, and welcoming corridor for people traveling on foot, by bike, via transit, or by car. Henrico County's TOD concept for the Staples Mill Road Amtrak Station created an opportunity to reimagine Staples Mill Road as a complete street that supports and is supported by TOD. This plan shows that dedicated transit lanes and related intersection improvements on Staples Mill Road could support TOD and improve multimodal safety, manage congestion, support economic development, and foster community and environmental health.

Through the recommendations of the plan, VDOT, Henrico County, and their partners can advance the plan's goals to achieve a complete street for people living, working, and traveling on Staples Mill Road.

Although achieving planning goals can be challenging, community leaders, transportation professionals, and residents must work together to make this vision a reality.

To get involved, visit: bit.ly/VDOTStaplesMillProject

Be a Champion for Staples Mill Road

■ Community Leaders

- Secure funding for short-term recommendations.
- Support the vision for Staples Mill Road as a multimodal corridor that supports TOD around the Staples Mill Road Amtrak Station.

■ Agency Staff

- Incorporate plan recommendations into your work, including location-specific projects and TOD and land use plans.
- Foster existing and new agency partnerships to apply lessons learned from past projects.
- Continue to engage the community as you refine, design, and implement the plan's recommendations.

■ Citizens

- Share this plan and its recommendations with your neighbors.
- Let your elected officials know that you support Staples Mill Road becoming a complete street.
- Follow VDOT at <https://www.virginiadot.org/projects/richmond/default.asp> for updates on ongoing projects.

KEY TAKEAWAYS:

- The vision for Staples Mill Road as a complete street is achievable and has community support.
- The plan recommendations can be realized with support from community leaders, transportation professionals, and residents like you!



FOR

