



RICHMOND ROAD

MULTIMODAL CORRIDOR STUDY

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Baker



OCTOBER 2009

Prepared by



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INTRODUCTION

MAP 1. RICHMOND ROAD CORRIDOR STUDY AREA



INTRODUCTION

Richmond Road, the local name given to US Route 250, was built to serve critical local, regional and interstate purposes, connecting Richmond, Charlottesville, Waynesboro, and Staunton, and continuing on to Wheeling, WV, and Sandusky, OH. The construction of both I-81 and I-64 changed the function of Richmond Road to primarily serve local and regional traffic. Today it is classified as a major arterial by the Virginia Department of Transportation (VDOT) and serves an important function providing the most direct access between two of the region's largest population and activity centers, Staunton and Waynesboro. It also links Fishersville, the Augusta Medical Center, the Frontier Culture Museum of Virginia and the Woodrow Wilson Rehabilitation Center, and serves as an important commercial destination for the region.

The study area for Richmond Road runs approximately 3.6 miles east-west from US Route 11 to Desper Hollow Road (see Map 1 on opposite page). For most of its length, the road is 4 or 5 lanes wide with additional turning lanes at intersections. While some sidewalks and fixed route transit (bus) service exists, Richmond Road is primarily auto-oriented. However, the road passes through a variety of contexts in this small area. At its westernmost point the road serves as a gateway to downtown Staunton. It is designed as an urban boulevard with sidewalks and a tree lined median at the western end of the study area. Traversing east, the context changes to a suburban commercial corridor with both large and small scale businesses set back a large distance from the road. Big box stores and interstate-oriented services are clustered around I-81 and I-64. East of the interstate the context shifts again to a rural parkway.

With multiple demands placed on the corridor, it is important to design and enhance the roadway in a manner that reflects the desired corridor character, while preserving mobility.

Some segments of the corridor are expected to experience significant degradation over time as traffic volumes grow as a result of new development, particularly near the I-81 interchange. While other areas are less likely to experience degradation, now is the time to establish a framework for minimizing congestion, while enhancing multimodal opportunities and placemaking opportunities. For the corridor to continue to be successful in serving Augusta County, the City of Staunton, and the Central Shenandoah region in the future, it will need to be modified to better accommodate pedestrians, bicyclists, transit, and automobiles. Key investments identified in this plan include an interconnected grid of pedestrian-scaled streets on either side of the corridor, as well as intersection improvements, a complete bicycle-pedestrian network and transit facilities. At the same time, to achieve the full benefit of future infrastructure investments, the urban form will need to evolve to encourage travel by all modes of transportation.

This corridor study report is the culmination of a 16 month public process that documented existing conditions, analyzed future trend conditions, evaluated different transportation alternatives for handling future development on the corridor, and recommended multimodal transportation improvements. This final project report summarizes the results of the public input process and preferences for the corridor based on future traffic needs.

The report is broken into three main sections: Corridor Plan, Transportation Strategy, and Implementation and Funding.

This introductory chapter sets the framework of growth and change, travel characteristics, and corridor influences. This same chapter also describes the planning and public involvement process including the identification of specific outreach efforts. Public and other input received is summarized in the Appendix.

Growth and Change

According to the United States Census Bureau, Augusta County (968 square miles) and the City of Staunton (19.7 square miles) are home to more than 70,000 and 23,000 (2007 US Census) residents respectively. While the Census reports that the City of Staunton experienced a loss of 3% in population between 1997-2007, City staff confirm this is primarily related to the downsizing of Western State Hospital and the closing of Staunton Correction Center; it is more likely that Staunton's resident population has remained relatively stable or grown slightly over the ten year period. At the same time, Augusta County has experienced a 23% population increase over the 10-year period from 1997-2007. While most of this population is located in areas off of the corridor, it is important to consider these regional trends to help predict growth into the future.

Predicting how much of the corridor's potential build-out will be reached by the year 2035 is neither a straightforward nor simple task. There are many variables at play that could influence development. Based on stakeholder interviews and reviews of short- and long-term plans, it is clear that the corridor will grow significantly. An analysis of City and County policies shows a great deal of capacity for development in the corridor, particularly in the area closest to the 1-81 interchange.

Table 1 summarizes the study area projections for both non-residential building square feet and dwelling units. Given regional growth trends, as well as current policies and constraints, the corridor could attract an additional 2.7 million square feet of com-

Table 1: Year 2035 Projected Corridor Development

Analysis Factors	Building Square Footage		Dwelling Units	
	Staunton	Augusta	Staunton	Augusta
Existing Development (2007)	3,562,060	244,612	236	224
Average Annual Growth	2.00%	1.60%	5.00%	6.00%
Number of Years	28	28	28	28
Total future development (2035) (compounded growth)	6,201,633	381,506	925	1,145
New development 2007-2035	2,639,573	136,894	689	921
Summary				
	Building Sq.Ft.	Dwelling Units		
Total projected development, 2035	6,583,139	2,070		
Approximate new development projected, 2007-2035	2,776,467	1,610		

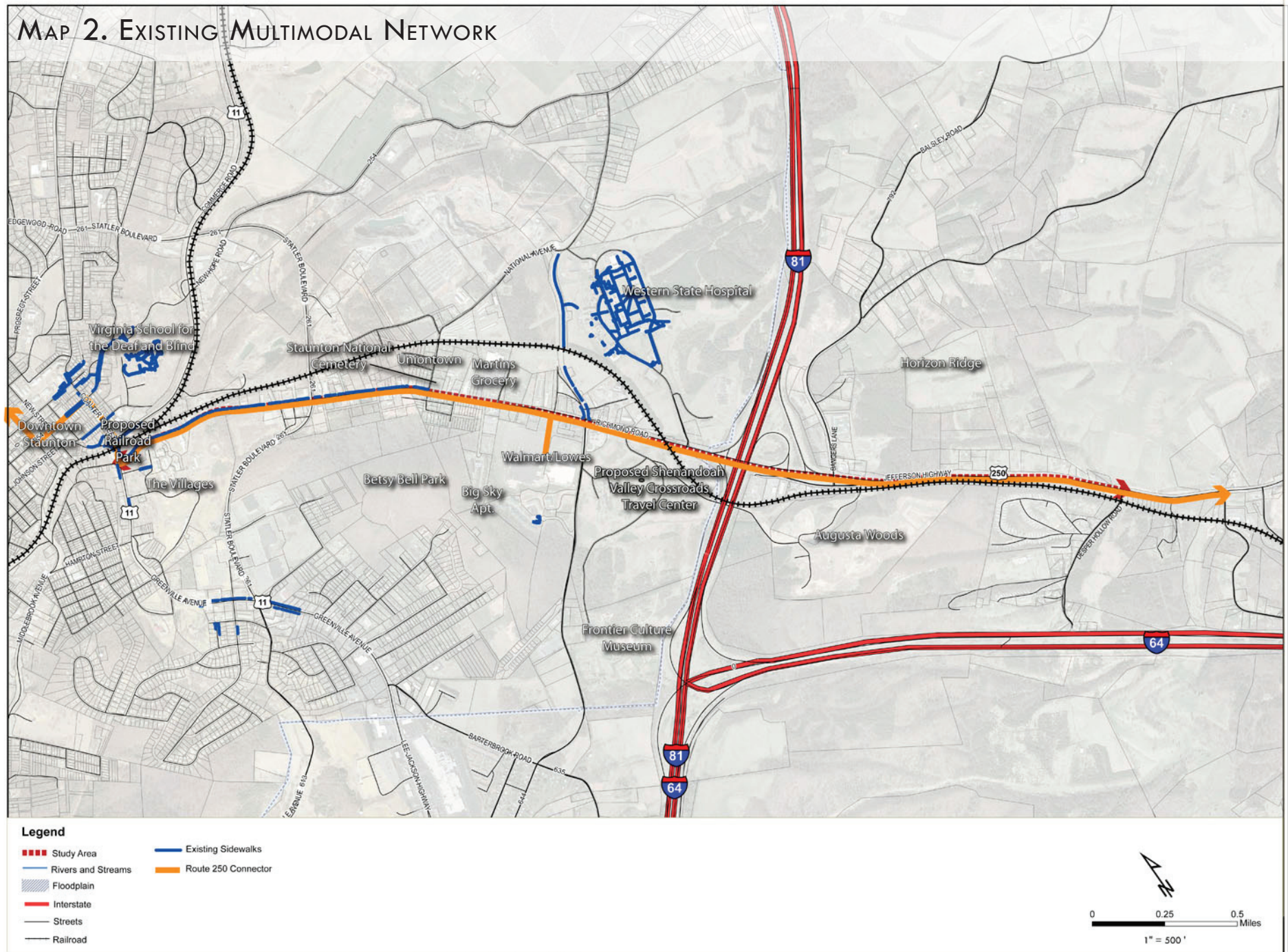
mercial building space, and 1,610 new dwelling units (see Technical Memorandum #2 for more information about how these projections were developed). These numbers could be higher without changes to current policies if some land uses were built out to their full allowable intensity, or if more land were utilized.

Evolution of the Corridor

Richmond Road predates most of the development that currently exists along the corridor in the study area. Over time, the corridor has carried goods and people between Richmond, the Sheandoah Valley and beyond. As can be imagined, because of the length of time Richmond Road has existed and the ages in which development has occurred along its length, the urban form along the corridor varies

widely. To the west of the study area, the historic city center of Staunton exhibits a traditional 19th century pattern of growth with an interconnected system of streets, buildings lining important corridors, pedestrian-friendly streetscapes, human-scale development, and a generally compact urban form. As one travels from downtown Staunton east along the corridor, an automobile-oriented pattern of development is evident, featuring a more dispersed street network, widely separated uses, limited pedestrian network, and the disconnected urban form. With some development and uses along the corridor beginning to age, and potential for future development to significantly transform the pattern of development once again, the possibility exists to begin a measured process

MAP 2. EXISTING MULTIMODAL NETWORK



to improve local street connectivity and encourage infill development supportive of multimodal travel.

Multimodal Travel Context

Map 2 illustrates the existing multimodal network within the study area. Richmond Road, the local name given to US Route 250, is part of the National Highway System and is classified as a major arterial by the Virginia Department of Transportation (VDOT). For most of its length the road is 4 or 5 lanes wide with additional turning lanes at intersections. The road narrows as it reaches the very centers of Staunton and Waynesboro. A few major roads intersect Route 250 as it travels east from Downtown Staunton (namely Statler Blvd, National Ave, and Frontier Drive), with numerous access roads and curb cuts providing access to the commercial development along its length.

Currently, the Richmond Road corridor poorly accommodates bicyclists and pedestrians. Pedestrian infrastructure is limited to a sidewalk on the north side of the road from Greenville Ave to the east of the Community Way intersection. The crosswalks, pushbuttons and pedestrian signals on the north, east, and south side of the Frontier Drive intersection do not connect to surrounding sidewalks. No bicycle-specific infrastructure exists.

The City of Staunton offers a free trolley system that serves three routes throughout the City. In addition, a regional fixed route bus service (250 Connector) connects downtown Staunton, to downtown Waynesboro, with key stops at Augusta Medical Center in Fishersville, and retail shopping areas. The 250 Connector operates two buses running about one hour apart from 8 a.m. to 6

p.m. Monday through Friday. This service expands upon the Coordinated Area Transportation System (CATS) paratransit service, which is available on demand from 6 a.m. to 6 p.m. on weekdays. Intercity bus service is not provided directly to Staunton.

Two rail lines intersect in the vicinity of the Route 250 corridor. Historically, rail traffic played a key role in Staunton's development and economic stature, but as the rail industry and its routes evolved over the years, volume on the lines running through the city has been dramatically reduced. Today, the City of Staunton is served by intercity rail three days a week. Amtrak's Cardinal line runs east through Charlottesville to Washington, DC and west through West Virginia to Chicago, Illinois. It operates on the CSX Mountain Subdivision, which was nearly eliminated as a through route in the early 1990s. Today CSX uses the line as a backup for freight shipping when the James River line becomes congested.

The Shenandoah Valley Railroad short line runs northeast from its intersection with the CSX line in the city and connects to the Norfolk & Southern line in Pleasant Valley (just south of Harrisonburg).

Planning Process

The process to develop the Richmond Road Multimodal Corridor Study involved the following major efforts:

Public Involvement: At the onset of the planning process, a project website was established on the Central Shenandoah Planning District Commission (CSPDC) website. A steering committee of local, regional, and state agency staff, was formed to guide the study process through meetings and work sessions. The study process included

three public meetings, seven interviews with key local stakeholders, and two presentations were made to the City of Staunton's City Council and the Augusta County Board of Supervisors.

Data Collection and Existing Conditions: The analysis of current conditions involved collecting and assimilating background information including previously completed studies and plans, maps, traffic volumes, crash data, and other information to firmly establish a starting point for the study. Traffic counts were collected at fifteen intersections.

Future Trend Scenario: A trend scenario was developed through an analysis of the corridor's plans and policies, and discussions with the steering committee to arrive at the corridor's potential buildout and future traffic generation for the study year horizon. Transportation alternatives were based on the Trend Scenario.

Alternatives Evaluation: Numerous concepts were developed during the study process. These concepts addressed current and anticipated transportation deficiencies, challenges, and opportunities along the corridor, while considering the surrounding development context and accommodating multiple modes of transportation.

Plan Development and Recommendations: Following input from the public, the steering committee, and the City Council and Board of Supervisors, a recommended corridor plan was developed. This plan illustrates and describes proposed corridor modifications to support overall project goals and objectives.

Public Involvement

Meaningful public involvement is essential in developing

community-focused corridor plans. A community's citizens have an intimate knowledge of the places where they live and travel and of the transportation problems they encounter. To make sure that the corridor plan considered citizen concerns and interests, input was solicited from the general public as well as through the steering committee, CSPDC, and elected officials. The following summarizes steps taken to inform, educate and involve the public in the corridor planning process. A summary of the activities and input received is further described in the Appendix.

- **Website:** Launched at the onset of the process the site included general information and reports developed for the study, as well as contact information for study staff and upcoming meeting announcements.

- **Mailing List:** To ensure that citizens and businesses along the Richmond Road corridor were advised of the study, a comprehensive contact database was developed. The database included property owners located along and surrounding Richmond Road, citizens, businesses, elected officials, county public affairs, and key planning groups.

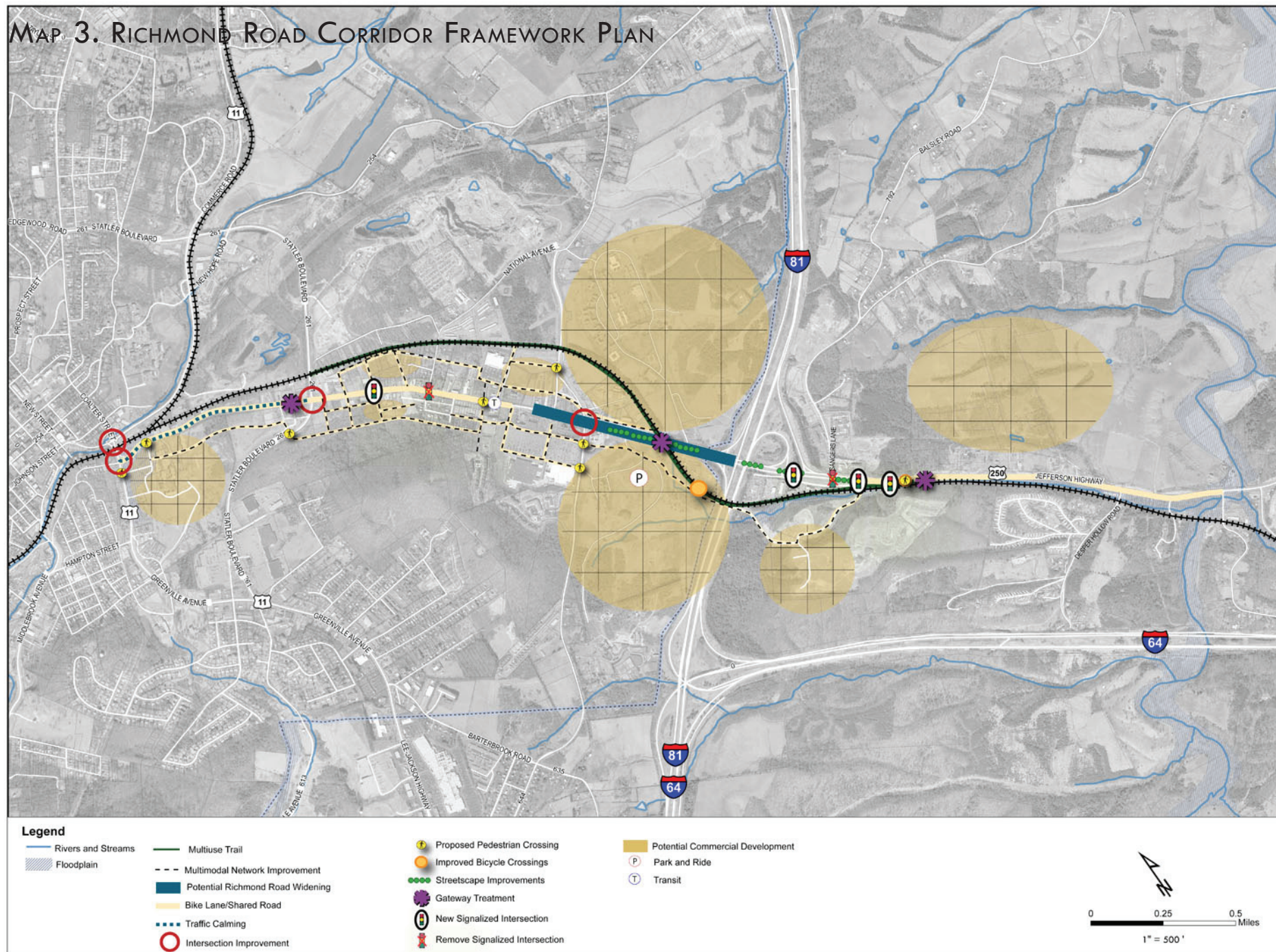
- **Stakeholder Interviews:** Interviews were conducted with seven key stakeholders in November 2008 and January 2009 to gain insight into issues and opportunities related to transportation and development. A summary of the interviews is included in the Appendix.

- **Public Workshops:** To kick off the study, the first public workshop was held in January 2009 at the Frontier Culture Museum on Richmond Road. A second public workshop was held in June 2009 at the Frontier Culture Museum to review and gather feedback on transportation alternatives for the corridor. In addition the public was invited to attend pre-

sentations at joint meetings of the City Council and Board of Supervisors held in July and October 2009. Notification was made through a variety of print and broadcast media for each workshop.

- **Steering Committee:** A steering committee comprised of staff from the City of Staunton, Augusta County, VDOT, and CSPDC met on seven occasions to assist with the study process. The project team also met individually with local and VDOT staff to work through technical elements such as local regulatory tool recommendations, economic development forecasts, intersection analyses and the access management plan.

Map 3. RICHMOND ROAD CORRIDOR FRAMEWORK PLAN



CORRIDOR PLAN

CORRIDOR PLAN VISION

The vision for the Richmond Road Corridor is to create distinct development patterns along the corridor that enhance its character, strengthen economic vitality and expand opportunities to attract residents, visitors and workers by increasing multimodal accessibility. Map 3 shows the overall framework for the corridor.

This Multimodal Corridor Plan reflects a long-range 30 year vision for redevelopment of Richmond Road and is focused on the following goals:

1. Foster commercial activity.
2. Support community cohesiveness and connectedness.
3. Ensure orderly and efficient traffic flow.
4. Enhance the corridor as a gateway.

The Corridor Plan defines five specific “context zones” (see Map 4) that describe both the context and function of the Richmond Road corridor, ranging from a more urban setting on the western end of the corridor within the city limits to the more rural character of Augusta County. This approach provides an understanding of how the corridor functions today, and also allows the city and county to envision a thriving commercial corridor that can serve as a gateway to the community with pedestrian-oriented activity centers, and hubs for existing and planned transit services in the future.

To ensure that the remake of Richmond Road is manageable, the City and County should target their capital improvement programs toward addressing each key activity center individually in a logical sequence

based on market demand. This would have the advantage of demonstrating measurable progress toward the corridor’s transformation in keeping with the plan’s vision. At the same time, the City and County should work together to define overarching strategies such as overlay district boundaries, development review criteria and other regulatory strategies to support a cohesive approach for the whole corridor.

The following pages present the recommendations for the five context zones, highlighting the different character of each segment, and proposed transportation improvements and policies that would support the desired future character. These include the entrance to Downtown Staunton (Urban Gateway), a small-scale commercial center (Local Service Area), a larger, regional suburban commercial area (Regional Service Area), destination retail/commercial for interstate travelers (Interstate Service Area), and the suburban to rural transition along the western approach to Augusta County (Rural Parkway).

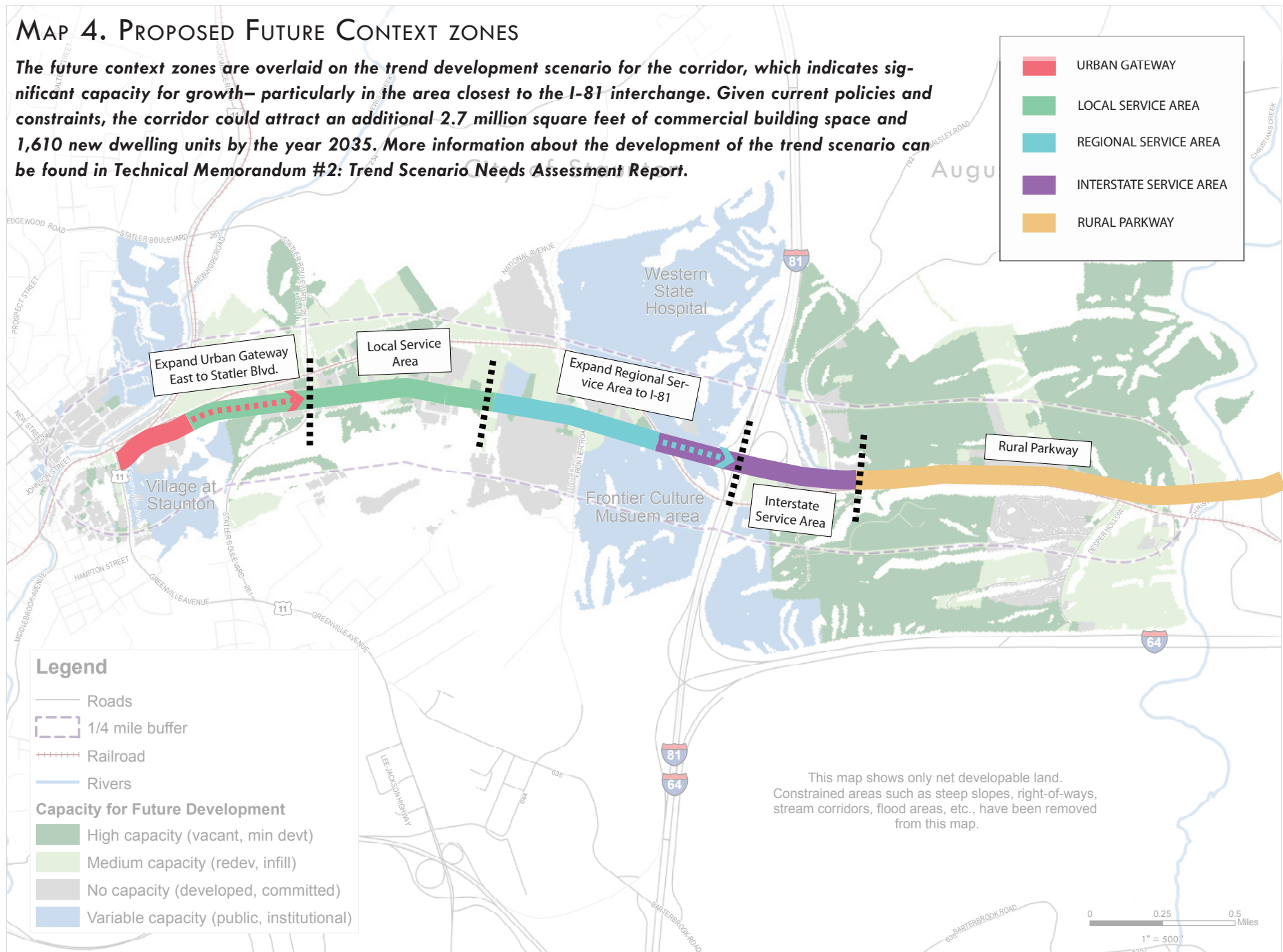
Strong market forces are fostering new development on both the eastern and western portions of the corridor. Through negotiations and regulatory tools, the City, County, and VDOT can partner effectively with private interests to advance the plan in the urban gateway, the Regional and Interstate Service areas, and the Rural Parkway section. Along the central Local Service Area, market forces are not yet generating significant private interest. In order to encourage orderly, cohesive development of the corridor and its transportation networks, public infrastructure investments need to be made proactively in this central section. With relatively little private investment and concerns about neighborhood decline in areas such as

Uniontown, the central portion of the study area from Statler Boulevard to Community Way needs immediate attention. The catalyst for its transformation could be the expansion of the local street grid in an effort to direct and anticipate future development and redevelopment in the corridor with additional access to businesses and multimodal connections.

While the City should take steps to catalyze development along the western sections of the corridor, the County should focus its efforts on maintaining the well-spaced access and rural character that currently exists in its portion of the study area, as well as ensuring that the necessary infrastructure is in place for the significant amount of residential development that is projected. Proactively making roadway improvements that will increase the safety and efficiency along Richmond Road, such as reconfiguring the access points around Rowe Road and installing traffic lights at the interstate ramps, ensures that safety and mobility will be maintained as new development occurs. Such improvements can also enhance the roadway as a gateway, which would allow the County to entice Staunton-based travelers to also visit Augusta County. The County should also be proactive in supporting measures that support the safety and mobility of an aging population, such as transit and development of multimodal alternatives. This is particularly important given the increasing market for development of communities for older adults.

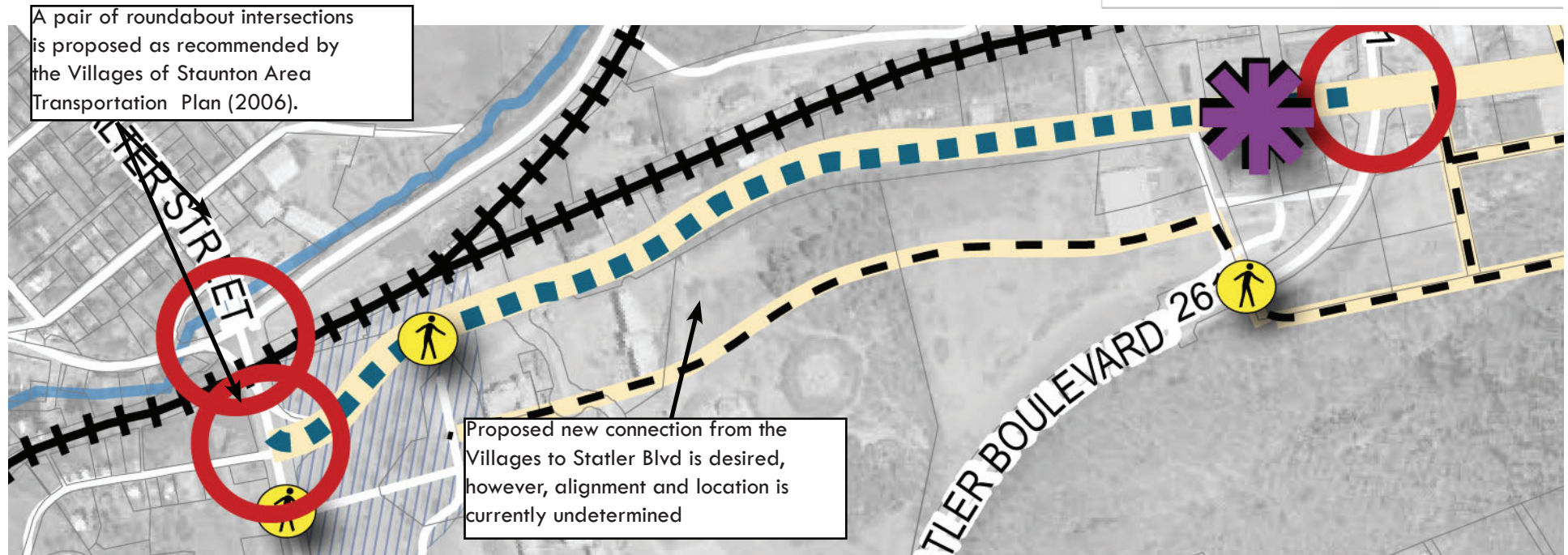
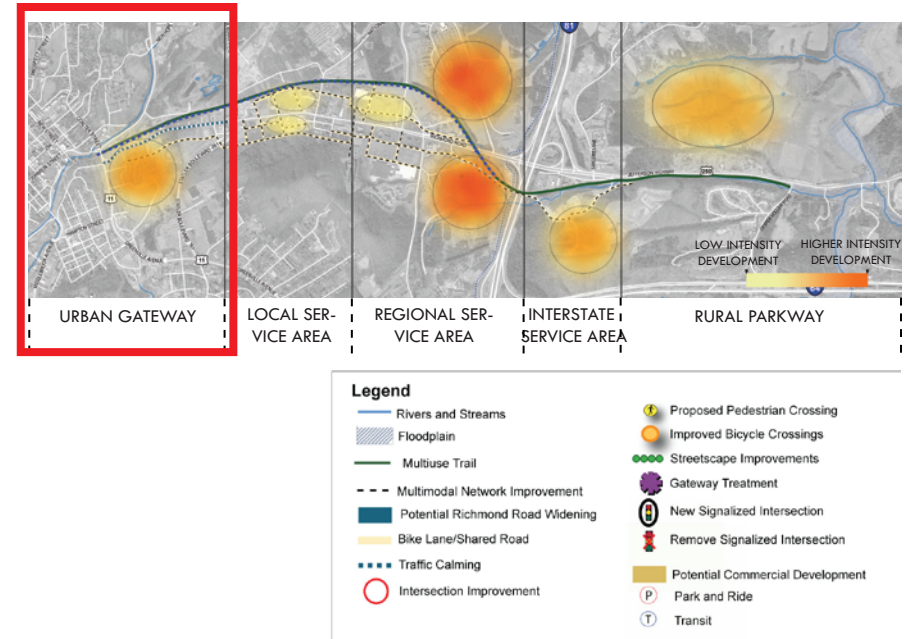
MAP 4. PROPOSED FUTURE CONTEXT ZONES

The future context zones are overlaid on the trend development scenario for the corridor, which indicates significant capacity for growth— particularly in the area closest to the I-81 interchange. Given current policies and constraints, the corridor could attract an additional 2.7 million square feet of commercial building space and 1,610 new dwelling units by the year 2035. More information about the development of the trend scenario can be found in Technical Memorandum #2: Trend Scenario Needs Assessment Report.



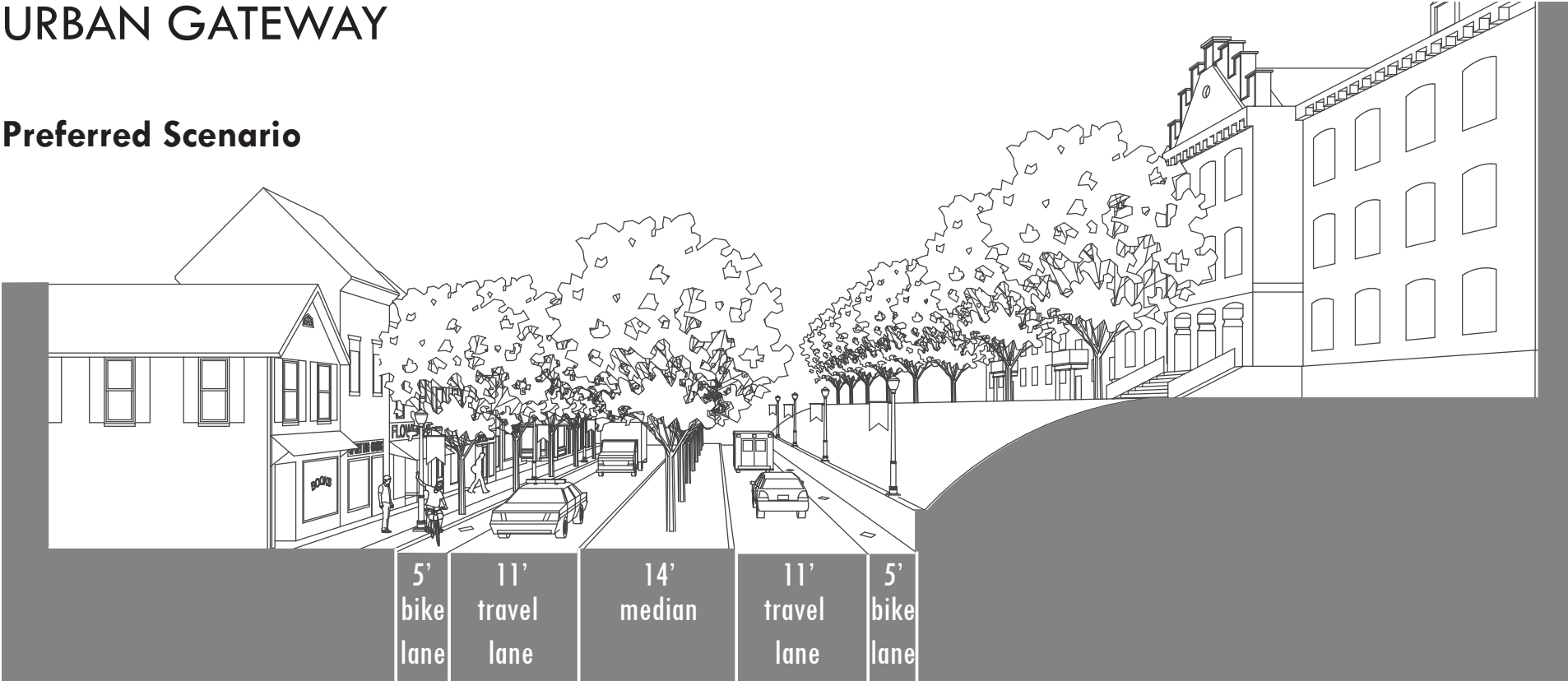
URBAN GATEWAY

The future Urban Gateway spans the area between Greenville Avenue and Statler Boulevard. This segment of the Richmond Road corridor has an urban character with a sidewalk and buildings set fairly close to the street. The overall vision for this segment is to create an urban boulevard with improved pedestrian and bicycle facilities, landscaping, and urban form. Recommendations to reinforce a transition into downtown Staunton and calm traffic include shrinking 4 lanes of traffic to 2 lanes (often referred to as a “Road Diet”) to make room for on-street bike lanes, sidewalks, and a landscaped median. Sidewalk facilities remain on the north side of Richmond Road. Pedestrian access along the southern side is organized along a proposed parallel connector street included in the Villages Plan. Access to the corridor will be focused at the signalized intersections of Greenville Avenue and Statler Boulevard, with equally spaced unsignalized access locations in between. By creating a street grid connection to a new street south of Richmond Road between Statler Blvd and Greenville Ave, access to the corridor activities will be enriched by allowing more entrances from behind and to the sides of corridor oriented businesses. Finally, a proposed multi-use trail adjacent to the CSX rail line will provide additional travel options, as well as a recreational amenity for the region.



URBAN GATEWAY

Preferred Scenario



Example Images



Example of Road Diet, City of Hampton, VA

Impacts Table

BICYCLE NETWORK	This concept provides new on-street accommodations in both directions, a multi-use trail, and a parallel network.
PEDESTRIAN NETWORK	Pedestrian facilities remain along the northern side. Additional facilities provided along multiuse trail and parallel street network to the south.
VEHICULAR NETWORK	Although four lane capacity is maintained, the road diet will encourage drivers to slow down, improving safety for all users.
TRANSIT NETWORK	Potential for improved transit capacity on Richmond Road associated with new development
ROW IMPACTS	May require roadway expansion and moving overground utilities

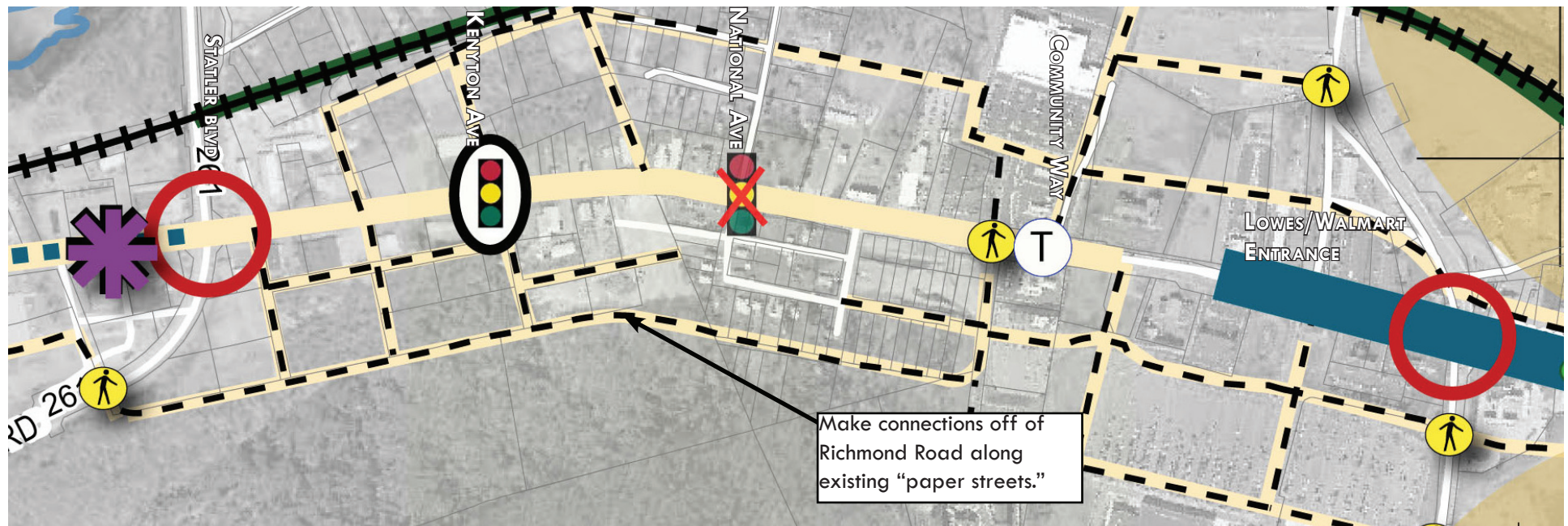
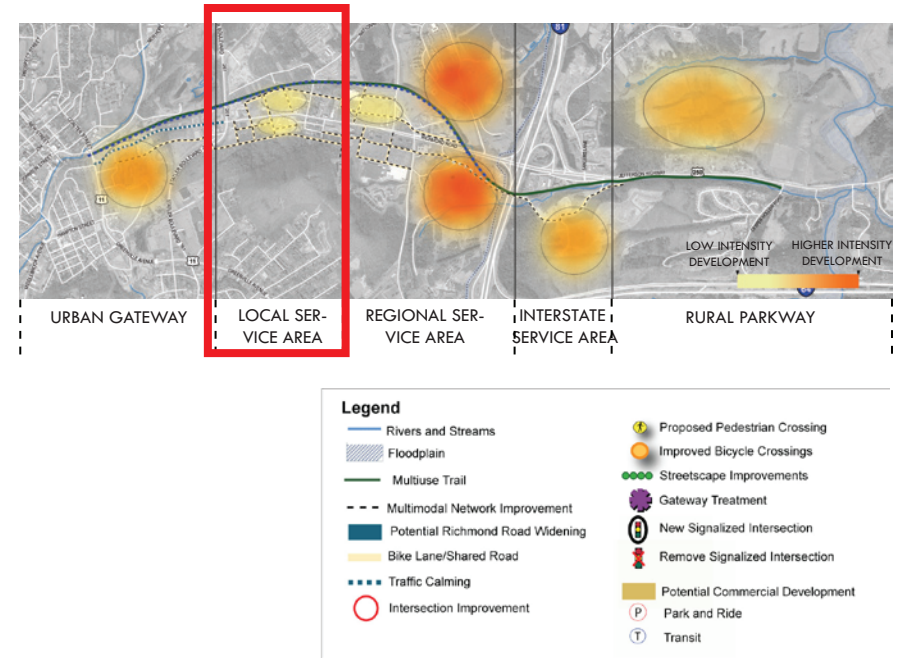
Positive Impacts

Neutral Impacts

Potential Issues

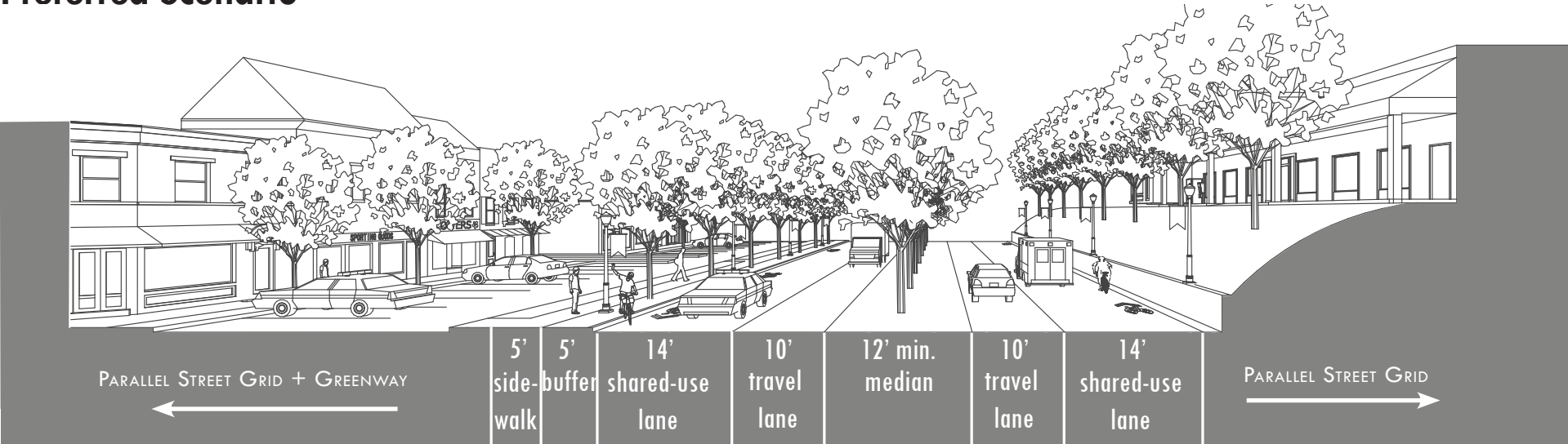
LOCAL SERVICE AREA

The Future Local Service Area spans between Statler Blvd and Community Way. The existing Local Service Area consists of small, locally owned businesses, a few vacant residences, and entrances to neighborhoods. Though the building setbacks vary widely, most include on-site parking in front of the building for one line of cars. Overall, the area is walkable, but its lower density, lack of compelling destinations for a pedestrian, quality of facilities, and topography discourage pedestrian activity. Proposed improvements will serve existing and future local businesses and residents with enhanced pedestrian facilities, new on-road bicycle facilities that will facilitate and encourage local trips as redevelopment occurs. In the short term, this includes completing the sidewalk network along north side of the roadway to create a continuous network between Statler and Community Way, and reconfiguring travel lanes to accommodate a 14' shared-use outside lane that accommodates cars and bicycles. Additionally, the creation of a local street grid on both sides of the corridor provides improved access to businesses, and more travel choices for drivers, cyclists, pedestrians, and transit riders. Primary access will be focused on signalized intersections at Statler Blvd, Community Way, and one additional signalized intersection in between (perhaps at Kenyton Avenue). One additional unsignalized full-access location between the signals, coupled with a new local street grid and the proposed trail along the CSX line will provide a rich array of access while preserving the capacity of the main corridor.



LOCAL SERVICE AREA

Preferred Scenario



Example Images



Positive Impacts

Neutral Impacts

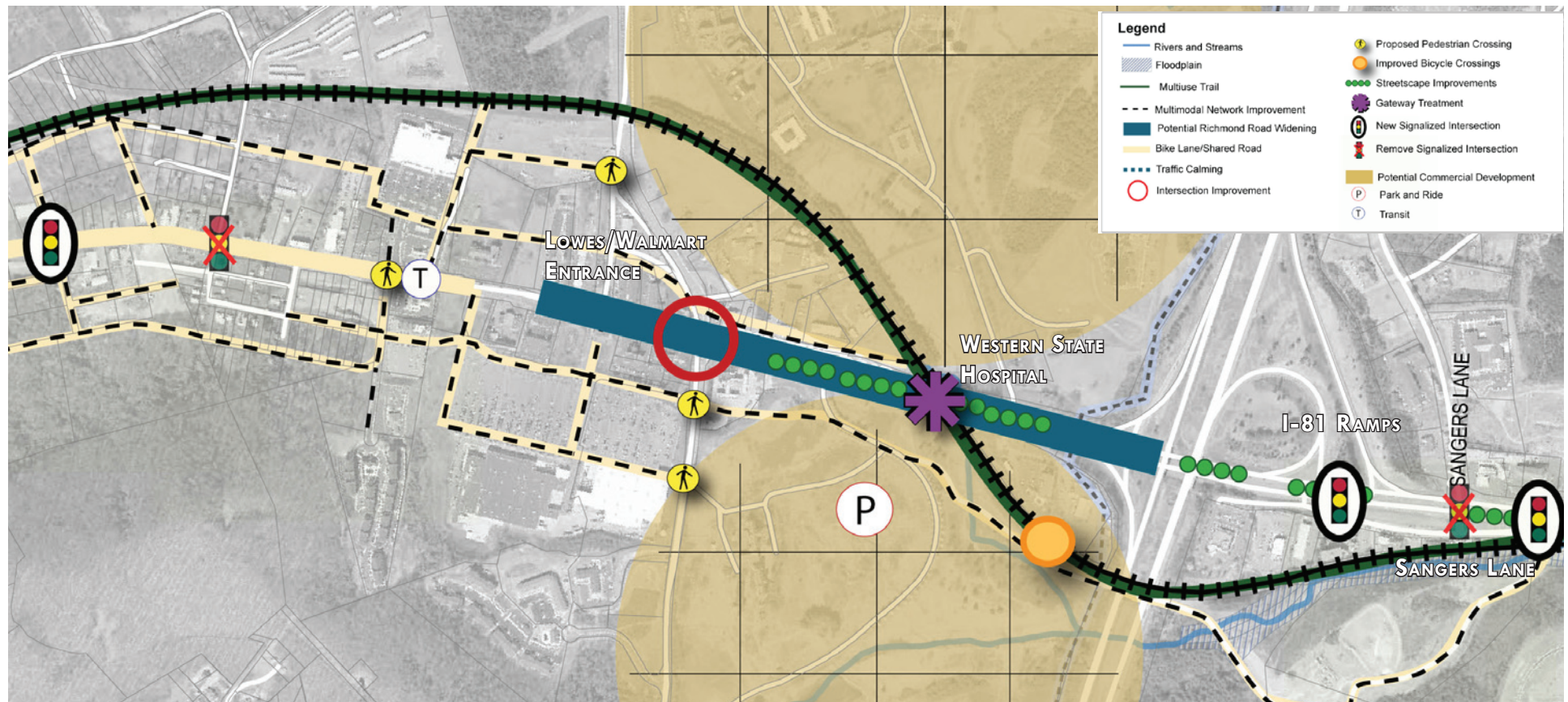
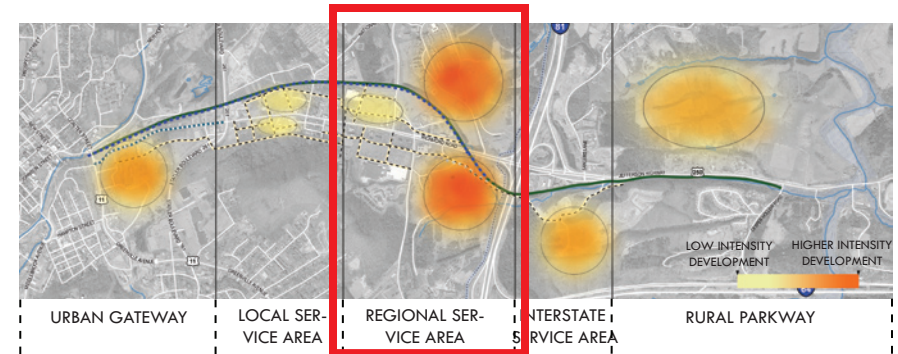
Potential Issues

Impacts Table

BICYCLE NETWORK	This concept provides shared-use outer lanes in both directions + multi-use trail + parallel network
PEDESTRIAN NETWORK	Pedestrian network is expanded along parallel street network and multi-use trail
VEHICULAR NETWORK	No impacts to traffic on Richmond Road. Additional capacity is provided on parallel network
TRANSIT NETWORK	Potential for improved transit capacity on Richmond Road.
ROW IMPACTS	May require roadway expansion and moving overground utilities.

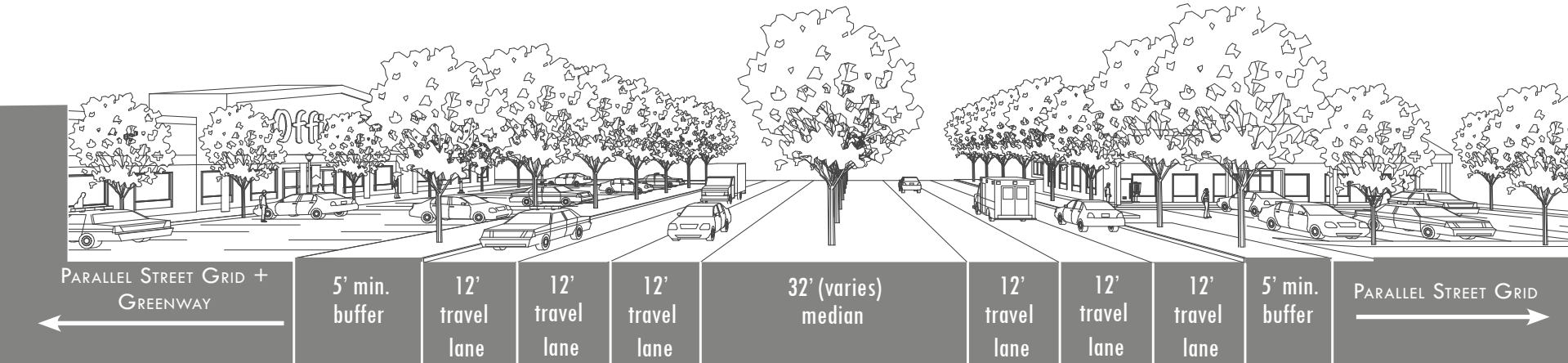
REGIONAL SERVICE AREA

The Future Regional Service Area spans the area between Community Way and the I-81 interchange. This area has the greatest expectation for future development. Bicycle and pedestrian facilities should be provided off-corridor to separate non-motorized travelers from heavy vehicle traffic volumes. Bicycle lanes and sidewalks are provided on new parallel street networks running from Community Way to Frontier Drive, as well as the trail along the CSX line. There is also an opportunity to connect to the 2-lane road recently built under I-81 connecting Frontier Drive to Augusta County, and potentially through to Desper Hollow Rd. Park and Ride and transit facilities are also recommended in this area to serve both tourists and commuters visiting the region. Access management in this segment is challenging because the placement of existing signals, and the additional signals that may be warranted by increased traffic, create a situation in which the array of signals is located close to the interstate and to one another. By creating a network of local street grids to the north and south of the corridor, the pressure on existing intersections can be lessened.



REGIONAL SERVICE AREA

Preferred Scenario



Example Images



Impacts Table

BICYCLE NETWORK	Off-road accommodations along the multi-use trail and parallel network helps to create a seamless cycling network
PEDESTRIAN NETWORK	Additional pedestrian facilities are provided off-road, expanding the pedestrian network
VEHICULAR NETWORK	Future development creates additional demand for roadway improvements. Capacity increases to meet demand, but roadway functions as it does today
TRANSIT NETWORK	Potential for improved transit capacity on or off of Richmond Road. Short-term bus stop on Richmond Rd. and longer term on parallel network.
ROW IMPACTS	No Effect on existing Richmond Road ROW. May require some acquisition of land off of Richmond Road to create new parallel facility.

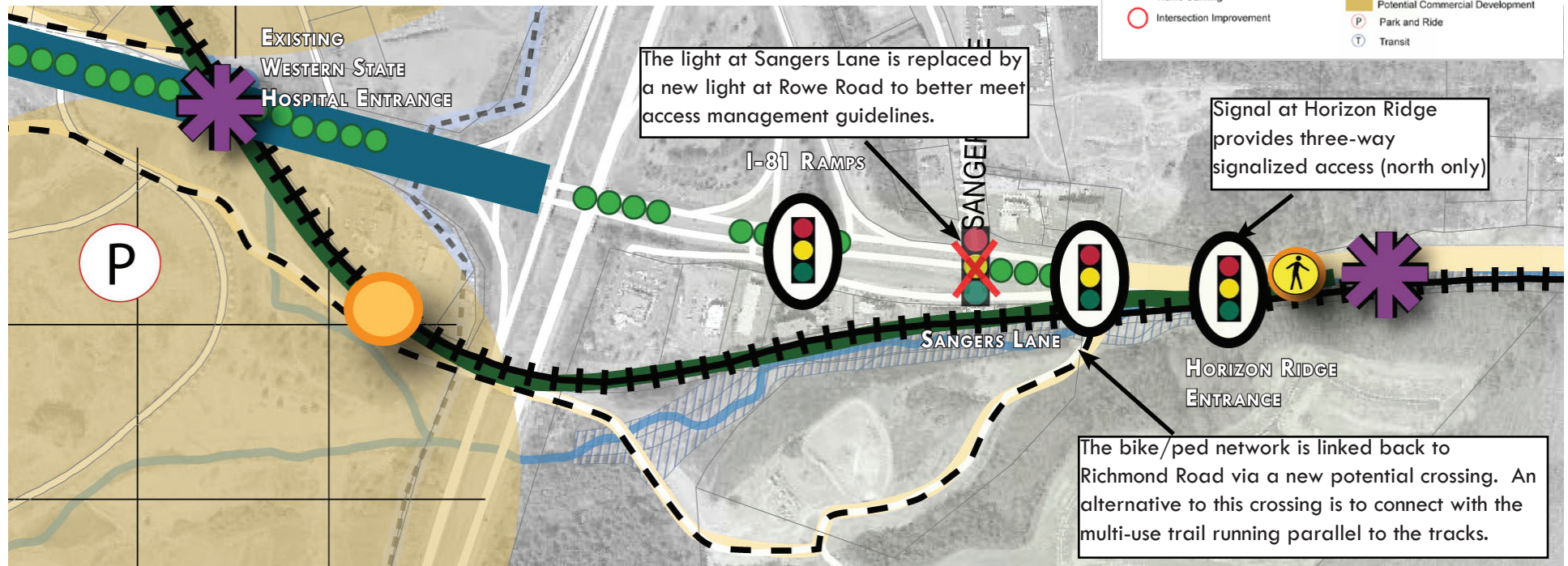
Positive Impacts

Neutral Impacts

Potential Issues

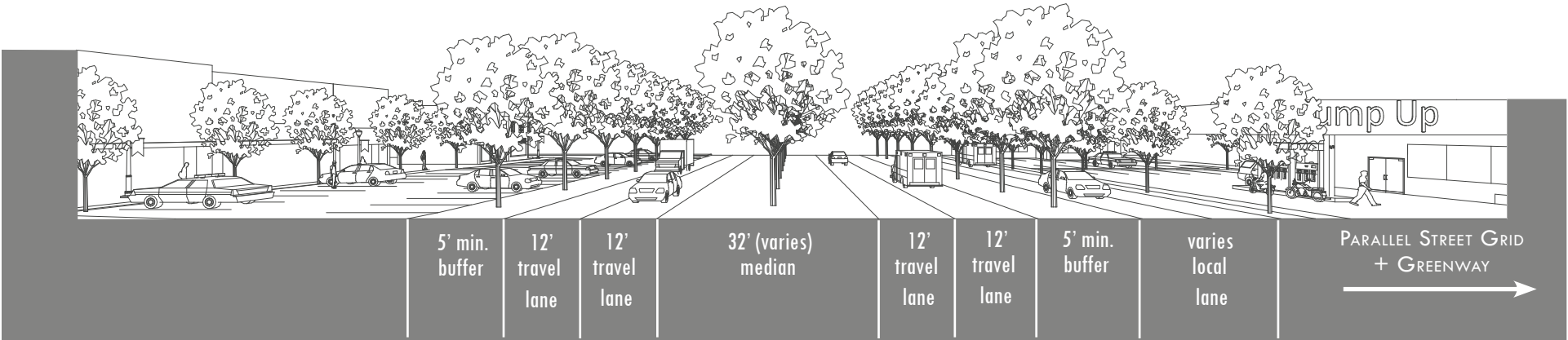
INTERSTATE SERVICE AREA

The Future Interstate Service Area spans the area between the I-81 interchange and the easternmost entrance to Rowe Road. Growth in this area is expected to occur primarily off of the roadway, however, redevelopment opportunities exist along Richmond Road and Rowe Road as buildings age or properties change hands. In the future, development may be improved by placing hotels and restaurants in closer proximity to one another with accessible pedestrian connections, and by improving the area's aesthetics. Gateway treatments within the median, such as landscaping and signage, are recommended on both the east and west sides of the I-81 interchange. Multimodal improvements include a bicycle and pedestrian route off of Richmond Road to bypass the busy interchange area. Access is driven by the interchange ramp junction requirements. Without a major interchange reconstruction project, the ramp junctions east of I-81 will require signalization. The placement of these signals relative to the existing signal at Sangers Lane is not consistent with VDOT Access Management Guidelines. However, the relocated signals are necessary for intersection safety and functionality. Therefore, it is recommended that the existing signal at Sangers Lane move further east, in conjunction with a reconfiguration of the Rowe Road/Richmond Road intersection. An additional signal is proposed for the pending Horizon Ridge development.



INTERSTATE SERVICE AREA

Preferred Scenario



Example Images



Images demonstrating a potential landscaped median/gateway treatment.

Positive Impacts

Neutral Impacts

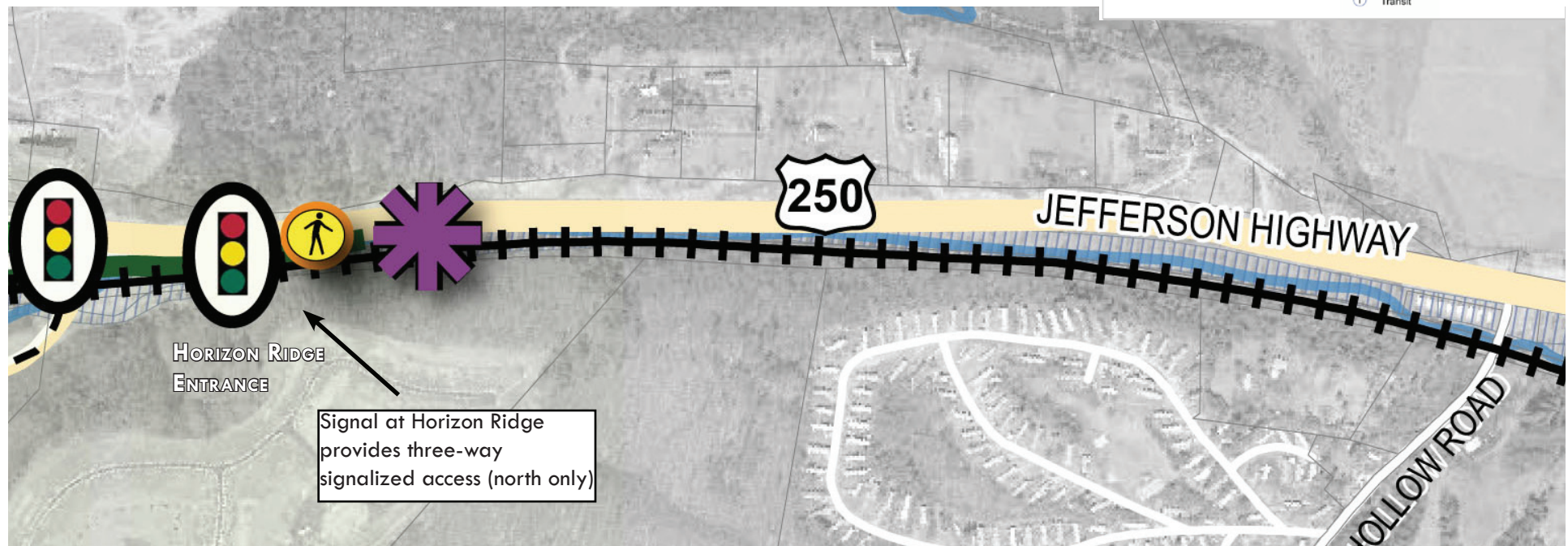
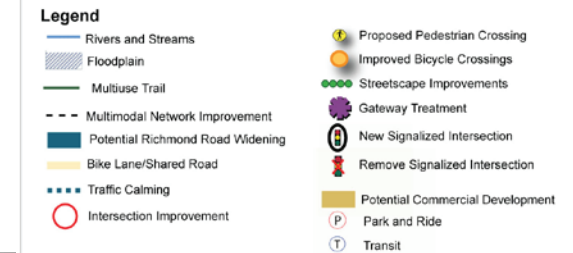
Potential Issues

Impacts Table

BICYCLE NETWORK	Parallel network accommodations for bicycles helps to create a safer, seamless cycling network
PEDESTRIAN NETWORK	Additional pedestrian facilities may be provided off of Richmond Road, but destinations are difficult to access
VEHICULAR NETWORK	No impacts to traffic on Richmond Road.
TRANSIT NETWORK	Potential for improved transit capacity on or off of Richmond Road
ROW IMPACTS	No Effect on existing Richmond Road ROW. Requires the acquisition of land off of Richmond Road to create new bike/ped parallel facility.

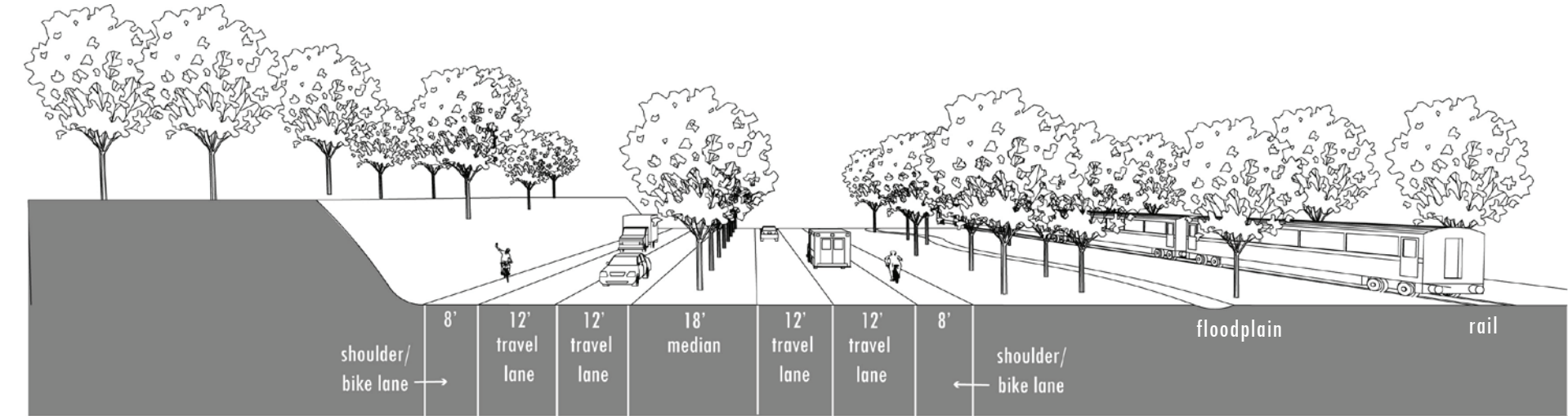
RURAL PARKWAY

The Future Rural Parkway spans the area between the easternmost entrance to Rowe Rd and Desper Hollow Rd. Growth in this area is expected to occur off of the roadway due to topographic, hydrologic, and railway constraints. This segment, however, should continue to support seamless bicycle access to and from Staunton. Through the use of signage and pavement markings, shared-use bicycle facilities can be provided on the existing Richmond Road shoulder. Additional bike/ped facilities are provided on the south side of Richmond Road on the proposed multi-use trail. Pedestrians and cyclists can transfer onto Richmond Road from the trail and/or southern parallel road by crossing the railroad tracks. Permission for this access will need to be negotiated with CSX. Alternatively, the topography in this segment lends itself to the construction of a bicycle/pedestrian bridge connecting development on the north and south side of Richmond Road. Given the development constraints in this zone, the only signalized intersections will likely be at the endpoints with access facilitated by a series of equally spaced uncontrolled median breaks in between.



RURAL PARKWAY

Preferred Scenario



Example Images



Positive Impacts

Neutral Impacts

Potential Issues

Impacts Table

BICYCLE NETWORK	This concept provides shared bicycle facilities within the width of existing shoulders, as well as access to multi-use trail
PEDESTRIAN NETWORK	No new sidewalks are proposed along this segment
VEHICULAR NETWORK	No impacts to traffic.
TRANSIT NETWORK	Potential for improved transit capacity on or off of Richmond Road
ROW IMPACTS	No impacts to the Richmond Road ROW width

TRANSPORTATION STRATEGY

Overview

Richmond Road has and always will be an important transportation corridor for the region. Historically, the primary thoroughfare connecting the City of Staunton with the City of Richmond, it now functions as a vital part of the local and regional network, connecting residents and visitors to important commercial destinations. With these multiple demands placed on the corridor, it is important to design and enhance the roadway in a manner that can accommodate the vision laid out in this study while preserving its mobility.

Projections indicate that for the most part, traffic on Richmond Road will not exceed the road's current capacity in the year 2035. However, capacity may be significantly degraded in the area surrounding the interstate given the ambitious development agenda for that portion of the corridor. The goal of the transportation strategy is to set up a framework for encouraging desired development that mitigates, or reduces, corridor congestion while also enhancing community design and place-making attributes throughout the corridor. Expanding local street grids, and bicycle/pedestrian networks, developing a rails-with-trails greenway, and implementing access management strategies along the corridor are important components of the overall transportation strategy.

Access Management and Intersection Improvement

Another important strategy associated with the study is access management. Access management strategies involved in this plan include the careful planning of the location and spacing of driveways and commercial entrances (consistent with VDOT standards for minor arterials), street connections, median openings and traffic signals. Managing access can result in better traffic

flow, fewer crashes, and an overall increase in access to local businesses.

Local Street Grid/Parallel Networks

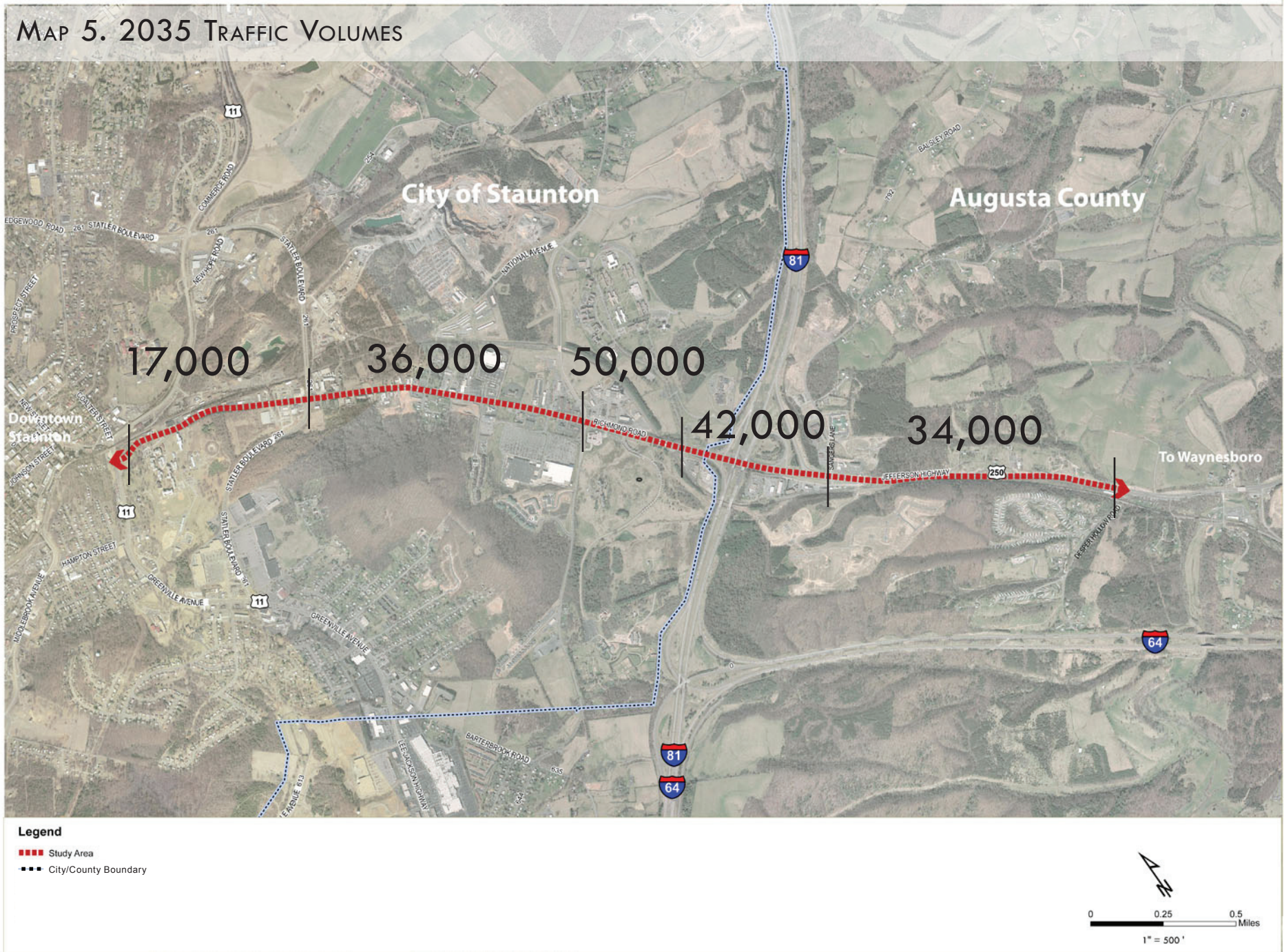
A critical part of the overall framework is the creation of a grid of pedestrian-friendly local streets and parallel roads surrounding the corridor. Creating a parallel and interconnected network of local streets does several things for mobility and access along Richmond Road. First, by creating smaller block lengths on parallel roads over time through redevelopment, the local network reduces walking distances and brings future transit service closer to people's destinations, in a comfortable environment that does not require pedestrians and cyclists to dodge traffic along a busy regional highway. Second, by distributing traffic better across multiple roadways, it reduces traffic volumes on the main corridor and allows turning movements to be concentrated at key intersections rather than scattered throughout the corridor. Traffic is more balanced and the signals can be better timed to move through traffic along Richmond Road.

Rails-with-Trails

The framework plan recommends a rails-with-trails (RWT) concept along the CSX (Buckingham Branch operated) railroad corridor that parallels Richmond Road. The proposed trail would be carefully designed to prohibit pedestrian access to the active railroad tracks. It would provide a means of connecting downtown Staunton with commercial and residential areas along the corridor, as well as providing a dedicated pedestrian and bicycle corridor that crosses I-81. It would also serve as part of a regional trail network connecting Clifton Forge, Staunton and Waynesboro,

recommended in the 2007 Virginia Outdoors Foundation Plan. Constructing trails adjacent to operating rail corridors can have many benefits. By defining a pedestrian pathway that is clearly and firmly separated from the rail line, the trail can help reduce illegal trespassing on the tracks, which lessens liability issues for the railroad. This incentive can encourage railroads to partner with communities in funding the development and maintenance of the trail, thus providing new sources of revenue to supplement scarce public funds. In addition, the trail can serve as a recreational amenity that draws more tourists and visitors to destinations from downtown Staunton to the Frontier Culture Museum and the proposed AWASAW center near the interstate.

MAP 5. 2035 TRAFFIC VOLUMES



Future Traffic Analysis

Average Daily Trips (ADT)

Based on development generated for this study and trip generation calculations described in Technical Memorandum #2 for the year 2035, the following total average vehicles per day are projected for the Richmond Road corridor.

US 11 to Statler Blvd. – 17,000 vpd

Statler Blvd. to Frontier Dr. - 36,000 vpd

Frontier Dr. to I-81 – 50,000 vpd

I-81 to Sangers Lane - 42,000 vpd

Sangers Lane to Desper Hollow Road – 34,000 vpd

Map 5 shows the 2035 traffic projections for the entire corridor.

Operational Analysis

Synchro Version 6.0 software was used to analyze the projected conditions for both the AM and PM peak hours of a typical weekday at selected signalized and unsignalized intersections (see Figures 1a and 1b). This analysis represents year 2035 traffic volumes on the current roadway network (without parallel networks). Six levels of service are defined and given letter designations, where LOS A represents the best operating conditions and LOS F the worst. The threshold for acceptable operations for planning or design purposes for areas that are not densely urbanized is LOS C, because it ensures a more acceptable quality of service to facility users. However, LOS D is com-

monly accepted in cities, in part because slower moving traffic is desirable for pedestrian-scaled environments.

Generally, during the AM peak hour, the signalized intersections operate satisfactorily from an overall intersection perspective. However, some movements at the Frontier Drive intersection are expected to have poor levels of service, and many of the STOP controlled intersections (including the I-81 ramp entrances) are expected to have movements that fail. PM peak hour analyses indicate similar patterns occurring more frequently than in the morning. The Frontier Drive intersection is expected to operate with very high delay and the Statler Boulevard intersection is also expected to operate at LOS E. During the PM peak hour, even more individual movements along the corridor are expected to experience high delay and failing LOS.

The Year 2035 Levels of Service Comparison graphics (see Figures 2 and 3) are intended to succinctly illustrate the expected changes related to recommended mitigation measures or access management strategies. Therefore, only study intersections that are expected to have a change in traffic operations as a result of mitigation measures or access management are illustrated (see the separate Year 2035 Level of Service graphics for the projected year 2035 LOS data).

Arterial Level of Service

In addition to the detailed intersection analyses, a Synchro Arterial Level of Service report is included in the

Appendix for reference. The report indicates that the future average arterial level of service for the entire corridor is LOS C in both directions, with all individual segments operating at LOS D or better with one exception: the short segment between Frontier Drive and the Walmart intersection (in the westbound direction only) is expected to operate at LOS E. This is a function of the short distance between the two intersections which may be mitigated through access management strategies. The analysis indicates that a slow down in speed is expected which would generate a lower arterial LOS in this segment. However, the intersection analyses indicate the westbound movements are expected to operate at satisfactory levels of service.

FIGURE 1A. 2035 LEVEL OF SERVICE AM PEAK HOUR
(CURRENT ROADWAY NETWORK)

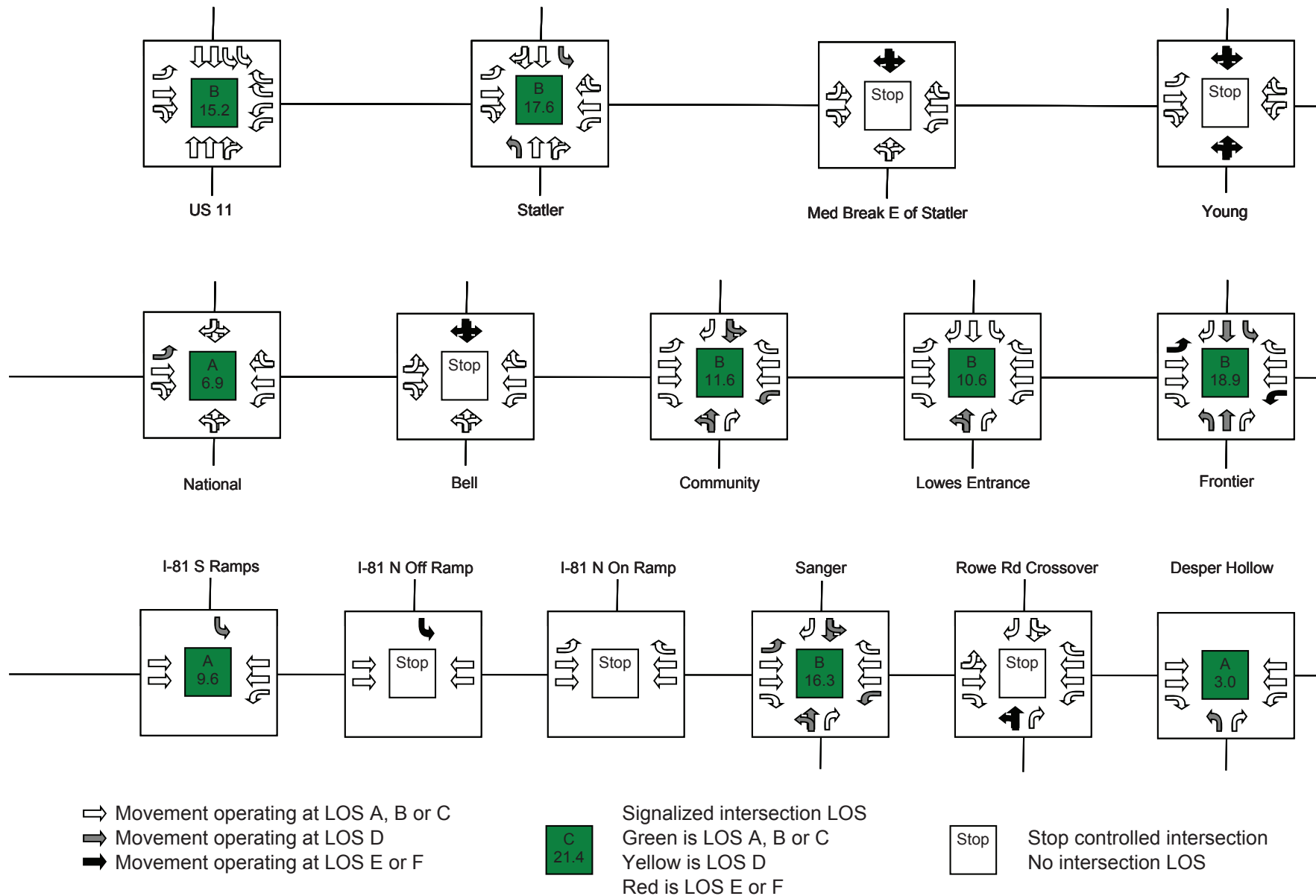
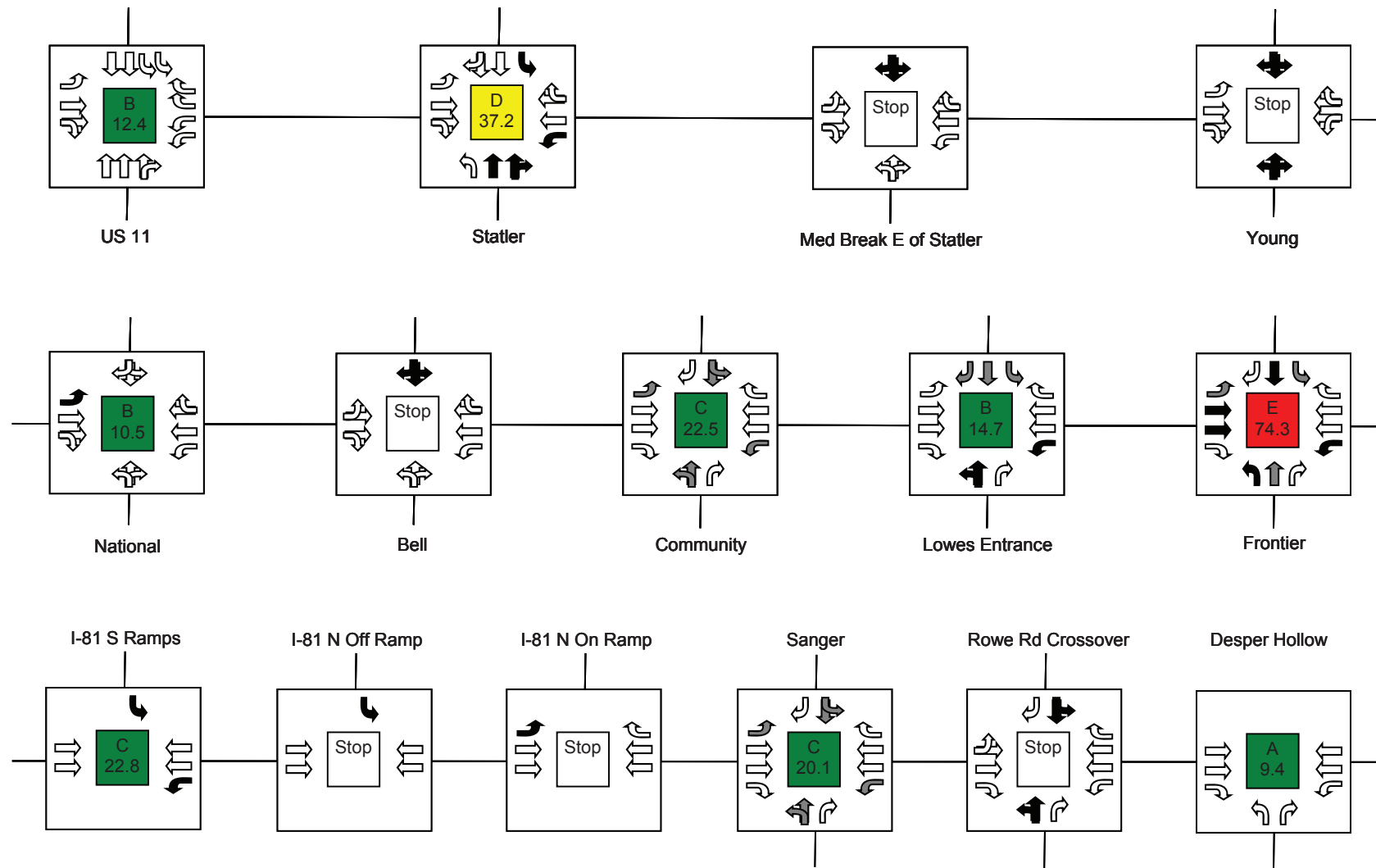


FIGURE 1B. 2035 LEVEL OF SERVICE PM PEAK HOUR
(CURRENT ROADWAY NETWORK)



- ⇨ Movement operating at LOS A, B or C
- ⇨ Movement operating at LOS D
- ⇨ Movement operating at LOS E or F

Signalized intersection LOS/avg delay
 Green is LOS A, B or C
 Yellow is LOS D
 Red is LOS E or F

Stop Stop controlled intersection
 (No intersection LOS)

FIGURE 2A. 2035 LEVEL OF SERVICE COMPARISONS - AM PEAK HOUR
 (INTERSECTIONS WITH RECOMMENDED MITIGATION OR ACCESS MANAGEMENT RELATED CHANGES)

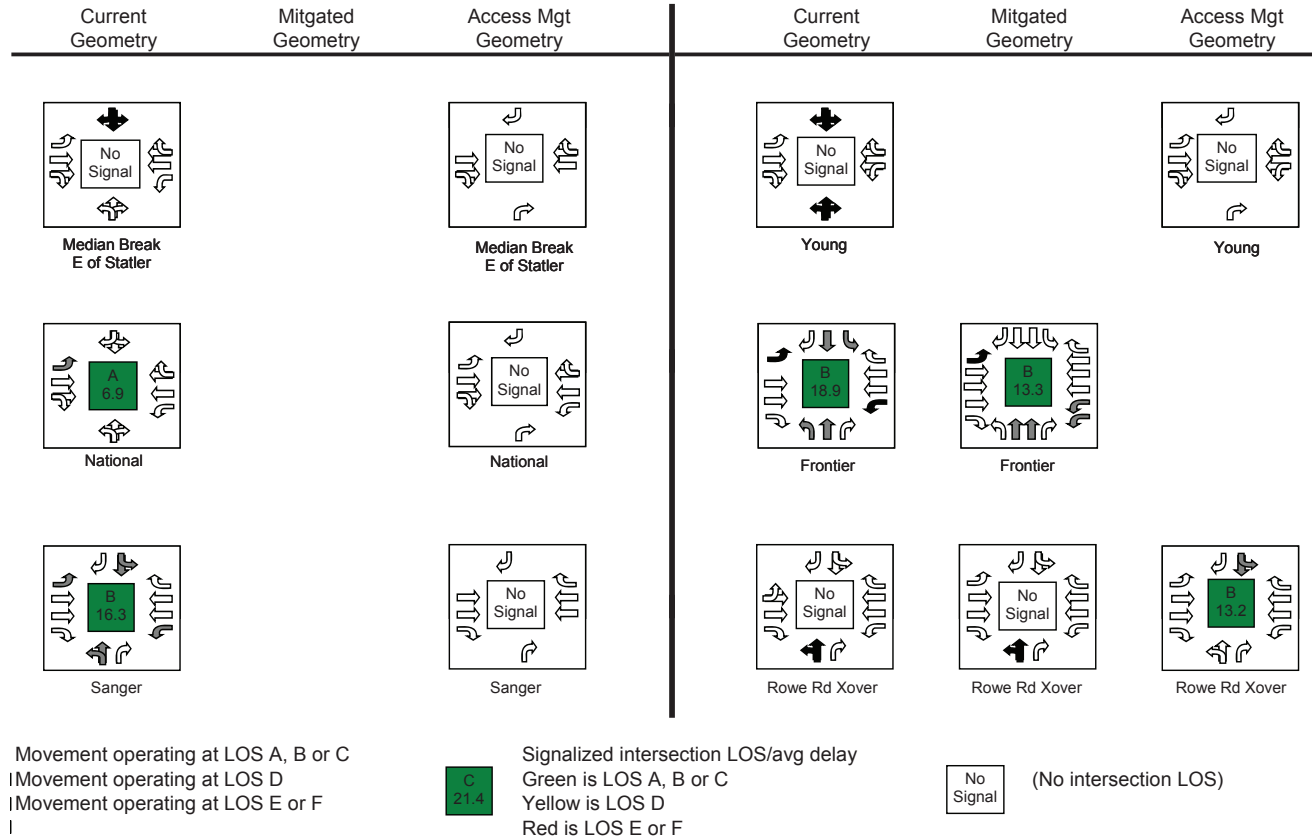
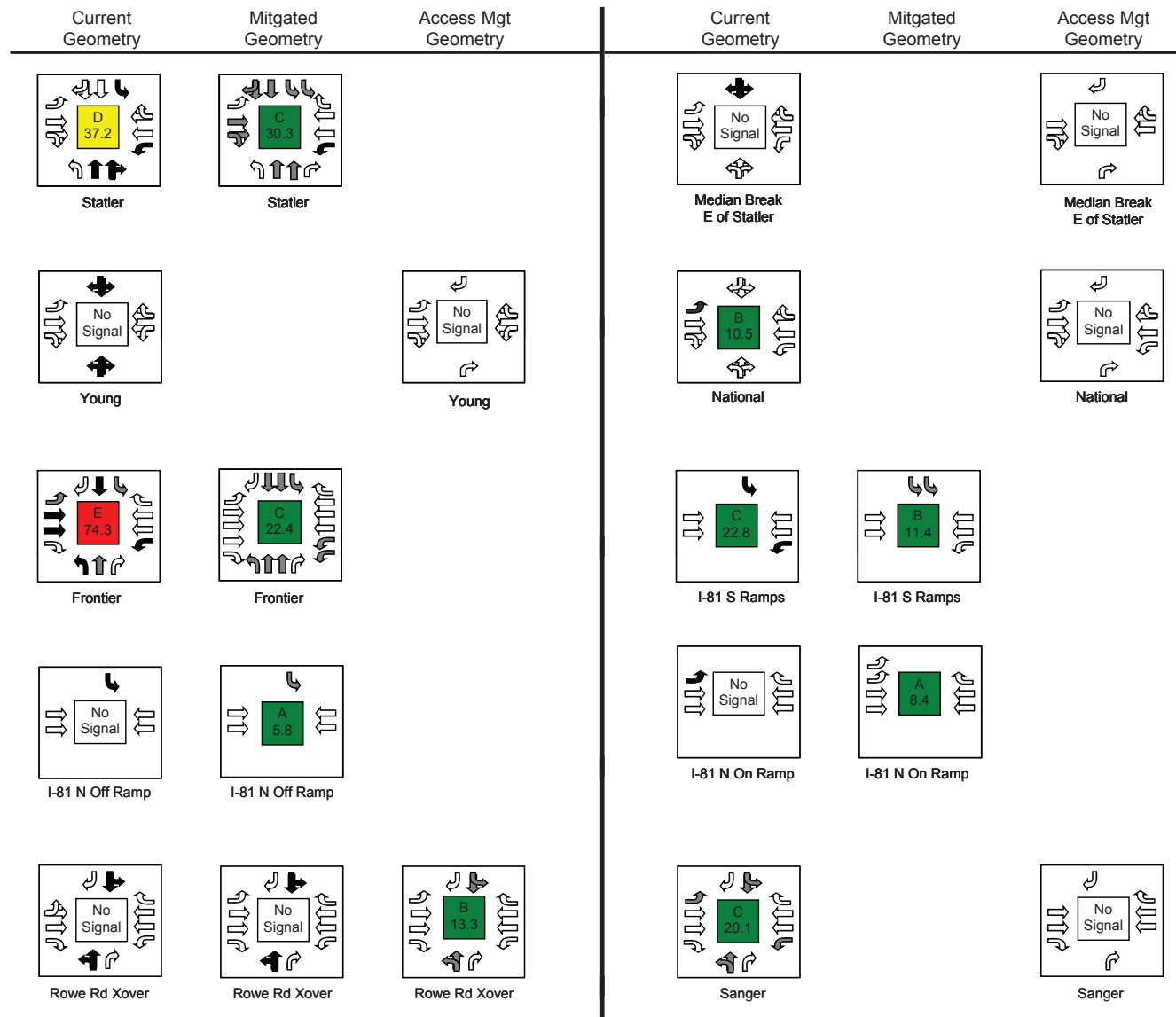


FIGURE 2B. 2035 LEVEL OF SERVICE COMPARISONS - PM PEAK HOUR
 (INTERSECTIONS WITH RECOMMENDED MITIGATION OR ACCESS MANAGEMENT RELATED CHANGES)



Movement operating at LOS A, B or C
 Movement operating at LOS D
 Movement operating at LOS E or F

C
21.4

Signalized intersection LOS/avg delay
 Green is LOS A, B or C
 Yellow is LOS D
 Red is LOS E or F

No
Signal

(No intersection LOS)

Operational Improvements

Potential expansion to 6 lanes near the Interstate

Analyses of traffic trends and forecasts for Richmond Road do not suggest that additional vehicular capacity is a priority need for the majority of the study area. The existing 4-lane divided cross section should provide adequate capacity for anticipated growth, and can be narrowed to two lanes in the Urban Gateway Section. However, the segment of Richmond Road between Frontier Drive and I-81 may experience substantial growth (to 50,000 vehicles/day) if the projected amount of development at the Western State Hospital and Frontier Culture Museum site are realized. In this case, it may be necessary to widen Richmond Road to 6 lanes to accommodate these future trips. It is anticipated that the need to widen the road occurs at roughly 2/3 of assumed buildout. The development of parallel street networks concurrent with growth in this segment is a very important strategy to mitigate impacts on Richmond Road.

“Road Diet” Reduction to 2 lanes in Urban Gateway

A “road diet” was evaluated for the Richmond Road section between US 11 and Statler Boulevard as part of the urban gateway context. This strategy includes a reduction to one lane in each direction between the US 11 and Statler Boulevard intersections, with transition treatments at the intersection approaches. This evaluation also included a roundabout analysis at the US 11 intersection. The roundabout was modeled separately in SIDRA for a more accurate operational

analysis. The SIDRA output indicates that the average level of service for all vehicles is LOS B with all movements operating at LOS A, B or C with the exception of the westbound right turn lane which is expected to operate at LOS D. The SIDRA output worksheets are included in the Appendix.

Additional Turn Lanes at Statler Boulevard

The Statler Blvd intersection will have an overall LOS of D in 2035 but the southbound left turn lane will have very heavy volumes resulting in a LOS of F. The northbound right turn movement is also very high and would severely affect traffic operations. The recommended mitigation for this intersection is to add one new left turn lane for the southbound approach and one new right turn lane for the northbound approach.

Additional through lanes at Frontier Drive

In addition to new through lanes on Richmond Road in the Regional Service Area, the Frontier Drive intersection will require mitigation to handle added traffic. In particular, the westbound left lanes and southbound through lanes will need to be expanded to meet a satisfactory level of service.

Additional Signals

The overall access management plan includes several signalized intersections that were not part of the original list of intersections defined for this study. These in-

clude a proposed signal between Young and National (i.e., Kenyton), Avenue of Trees, the signal between the railroad and I-81, and a proposed new signalized intersection at Horizon Ridge. As these intersections are not part of the traffic operations study locations, sufficient data is not available to provide detailed operational analyses. However, the following qualitative information is provided for each:

(1). Proposed Signal Between Young and National

This proposed signal is a function of better signal spacing and better connection to land uses (assuming a parallel street network). This signal would be expected to generally replace and operate similar to the National signal in a satisfactorily manner.

(2). Access to Future Development near Interstate

In the Regional Service Area there is the greatest capacity and potential for large scale development that could significantly increase traffic in the corridor. In particular the Western State and Awasaw sites have sizeable undeveloped areas that the City is interested in seeing developed. Current access points to both sites are too close to the interchange ramps based on the VDOT signal spacing and access management standards. In particular, the Western State signal is extremely close to the ramps to and from southbound I-81. Analysis of future traffic conditions suggests that the existing signal will operate satisfactorily under the assumptions made in this study. Nevertheless, any increase in traffic at this intersection is undesirable due to its proximity to the interchange. This study recommends 3 potential options for improvements to the corridor

between the interstate and Frontier Drive depending on the level of development and traffic generated by new development from the two sites. All options (depicted on pages 51-53) should be considered by any traffic analysis study conducted for redevelopment proposals on either site.

Option A would keep both signals at Avenue of Trees and Western State intersections, provide an additional left turn lane from westbound Richmond Road to Avenue of Trees and some widening of the two intersections to handle additional traffic entering and exiting the two sites. Based on the assumptions developed in this study, Option A would result in satisfactory traffic operations in the corridor and at both intersections. Option A is the simplest option but the failure to meet access management and signal spacing standards along the corridor between the interchange and Frontier Drive would lead to some safety issues, particularly in the weaving area between the I-81 southbound off-ramp and the Western State intersection.

Option B would require a new road and bridge across the railroad and Richmond Road, connecting the Awasaw and Western State Hospital sites directly. The existing Avenue of Trees and Western State Hospital entrances would become right-in-right-out (RIRO) access ramps that connect to the new road, thereby providing full access to both sites from Richmond Road. Option B would improve traffic operations on Richmond Road significantly and it would come closest to meeting the VDOT access management and signal spacing standards. It would also significantly reduce safety issues from weaving between the I-81 southbound off-ramp

and the Western State intersection.

Option C would require changing the access to the Western State site by converting the signalized intersection to a right-in-right-out (RIRO) intersection and closing the median. Full access to the developments at the Western State site would be provided by a signalized intersection on Frontier Drive north of the railroad. The existing signal at Avenue of Trees would remain and an additional left turn lane would be needed as in Option A. Option C would improve traffic operations over Option A but not as well as Option B. Option C would also come closer to meeting access management and signal spacing requirements than Option A but not as close as Option B.

(3). Proposed Signal at Horizon Ridge

The proposed Horizon Ridge intersection with Richmond Road will involve realigning Sangers Road and move the Sangers intersection further east, away from the I-81 ramp junction. The current Sangers intersection would remain as right-in/right-out only.

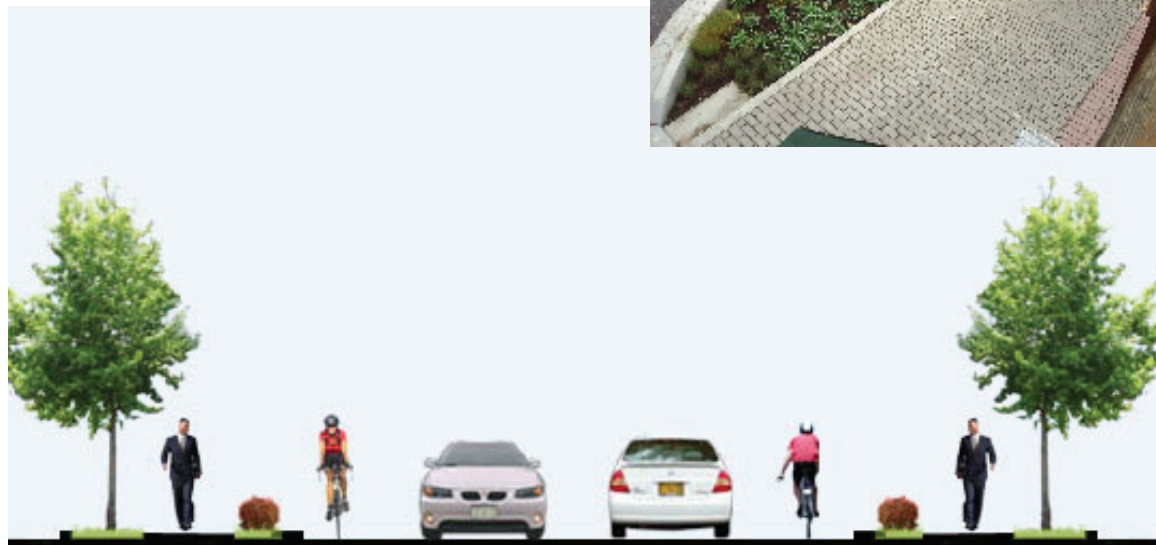
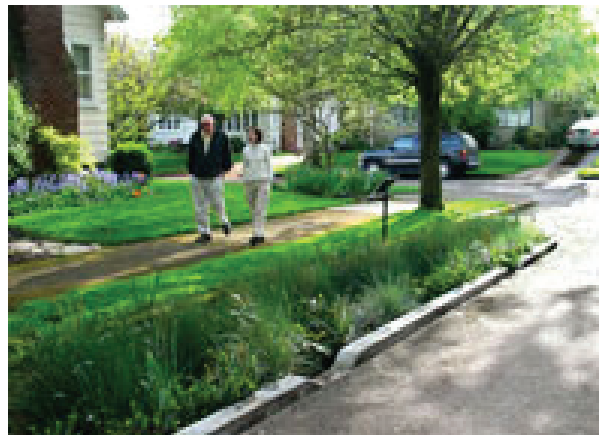
Local Street Grid/Parallel Roadway Networks

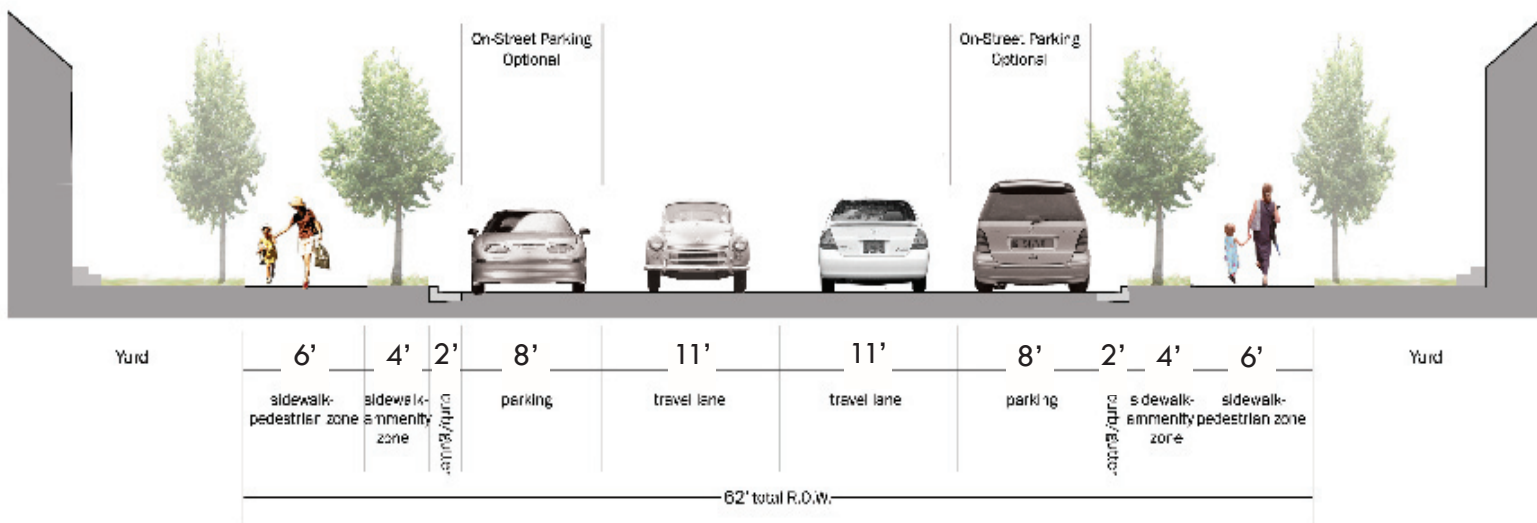
A critical part of the overall framework is the creation of a grid of local streets and parallel roads. Creating a parallel and interconnected network of local streets does several things for mobility and access along Richmond Road. First, by creating smaller block lengths on parallel roads over time through redevelopment, it reduces walking distances and brings future transit service closer to people's destinations, in an environment that's comfortable and has fewer barriers than trying to dodge traffic along a busy regional highway. Second, by distributing traffic better across multiple roadways, it reduces traffic volume concentrating at one or two critical intersections. Traffic is more balanced and the signals can be better timed to move through traffic along Richmond Road. It is recommended that the new parallel networks provide bicycle and pedestrian accessibility. The image right provides an illustrative example, however, dimensions and actual street design will vary.

Some localities are replacing traditional curb and gutter systems with innovative stormwater management systems including bio-swales and rain gardens along the edges of the street or in medians. These localities are reducing watershed impacts, while beautifying their streets. The City of Portland, OR, is a leader in using strategies that manage stormwater runoff, enhance community and neighborhood livability, and strengthen the local economy. In Portland, a street that uses vegetated facilities to manage stormwater runoff at its source is referred to as a Green Street. A Green Street is a sustainable stormwater strategy that meets regulatory compliance and resource protection goals by using a natural systems approach to manage stormwater, reduce flows, improve water quality and

enhance watershed health. Such a design should be considered as roadways are added to the multimodal network.

Examples of Green Streets in Portland, OR





Example section of neighborhood or commercial street that could be used for the local street grid. Actual features and dimensions will vary based on right of way availability. See pages 98-99 for more information.

Rail-with-Trail Greenway

The framework plan recommends a rails-with-trails (RWT) concept along the CSX (Buckingham Branch operated) railroad corridor that parallels Richmond Road. At one time this rail line was under consideration for abandonment but today serves industrial customers and at least three weekly Amtrak trains serving Staunton on The Cardinal route between New York and Chicago. The proposed trail would be carefully designed to prohibit pedestrian access to the active railroad tracks, as shown in the images below. It would provide a means of connecting downtown Staunton with commercial and residential areas along the corridor, as well as providing a dedicated pedestrian and bicycle corridor that crosses I-81. It would also serve as part of a regional trail network connecting Clifton Forge, Staunton and Waynesboro, recommended in

the 2007 Virginia Outdoors Foundation Plan.

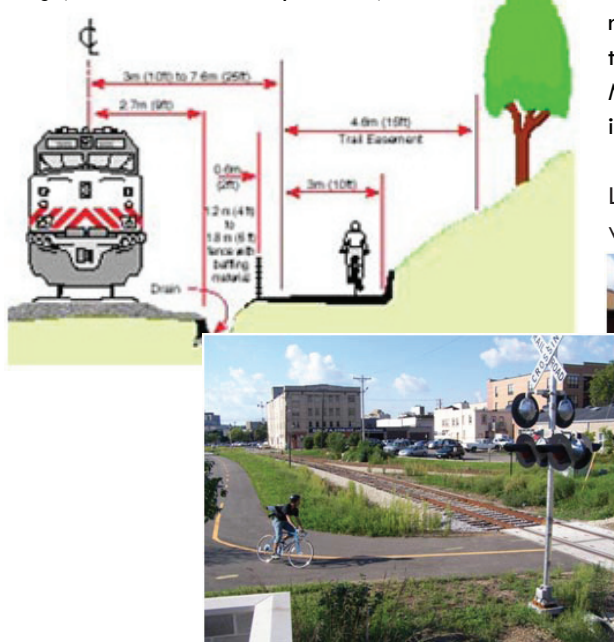
Based on a USDOT review in 2002, there are at least 65 existing rails-with-trails around the United States and many communities are discovering the value of providing multi-modal access along these underused corridors. Constructing trails adjacent to operating rail corridors can have many benefits. By defining a pedestrian pathway that is clearly and firmly separated from the rail line, the trail can help reduce illegal trespassing on the tracks, which lessens liability issues for the railroad. This incentive can encourage railroads to partner with communities in funding the development and maintenance of the trail, thus providing new sources of revenue to supplement scarce public funds. In addition, the trail can serve as a recreational amenity that draws more tourists and visitors to destinations from downtown Staunton to the Frontier Culture Museum and the proposed AWASAW center near the interstate.

Liability is often a major concern of railroad companies when considering a RWT but evidence to date shows

this concern is unfounded. Both USDOT and the Rail to Trails Conservancy have found that RWTs have an excellent safety record with only one incident involving a trail user and a train. Many railroads actually find that illegal trespassing, dumping and vandalism decrease due to the addition of the trail.

Design of the trail will be critical. It should consist of a standard ten foot multiuse asphalt path. USDOT research indicates that, on average, RWTs should be offset from the railroad centerline by 33 feet. In this corridor, that would generally be just outside the right of way of the railroad. At a minimum, USDOT recommends a 10 ft setback from the railroad centerline. In this situation, a 20 ft setback would generally fit along the edge of the railroad corridor. Fencing can also be added to ensure users do not encroach on the railroad dynamic envelope except at dedicated crossings.

The recommendation of this plan is to place the trail on the south side of the existing railroad line beginning at Statler Boulevard and ending at the Rowe Road intersection with Richmond Road. West of Statler Blvd, the railroad corridor becomes very tight with a few buildings very close to the railroad, leaving little room for a trail. In addition, the old Chesapeake Western Railway ties into the CSX mainline in this area, complicating the connections with downtown. At the eastern end, there is an existing gravel crossing of the railroad at Rowe Road that is prohibited to vehicle traffic. Conversion of this crossing to a dedicated pedestrian/bicycle crossing would prevent vehicles from misusing it and provide a convenient location for trail users to access Route 250.



Access Management

The access management strategy in this plan includes a continuous median from Greenville Avenue to Desper Hollow Road, with access only at signalized intersections and specific median breaks with turn lanes. The goal of this is to improve traffic flow by increasing the distance between crossings and left turn movements, encouraging drivers to use signalized intersections, dedicated left turn lanes, and/or parallel street networks to reach corridor destinations. The plan strives for a signal spacing of 1,300 feet and median breaks at no less than 650 feet. This spacing would meet the requirements for a minor arterial per VDOT Access Management Standards. It is not possible to meet these standards in all sections of the corridor, but by improving the conditions as much as reasonably possible, traffic flow can be maintained and the capacity of the existing lanes can be maximized.

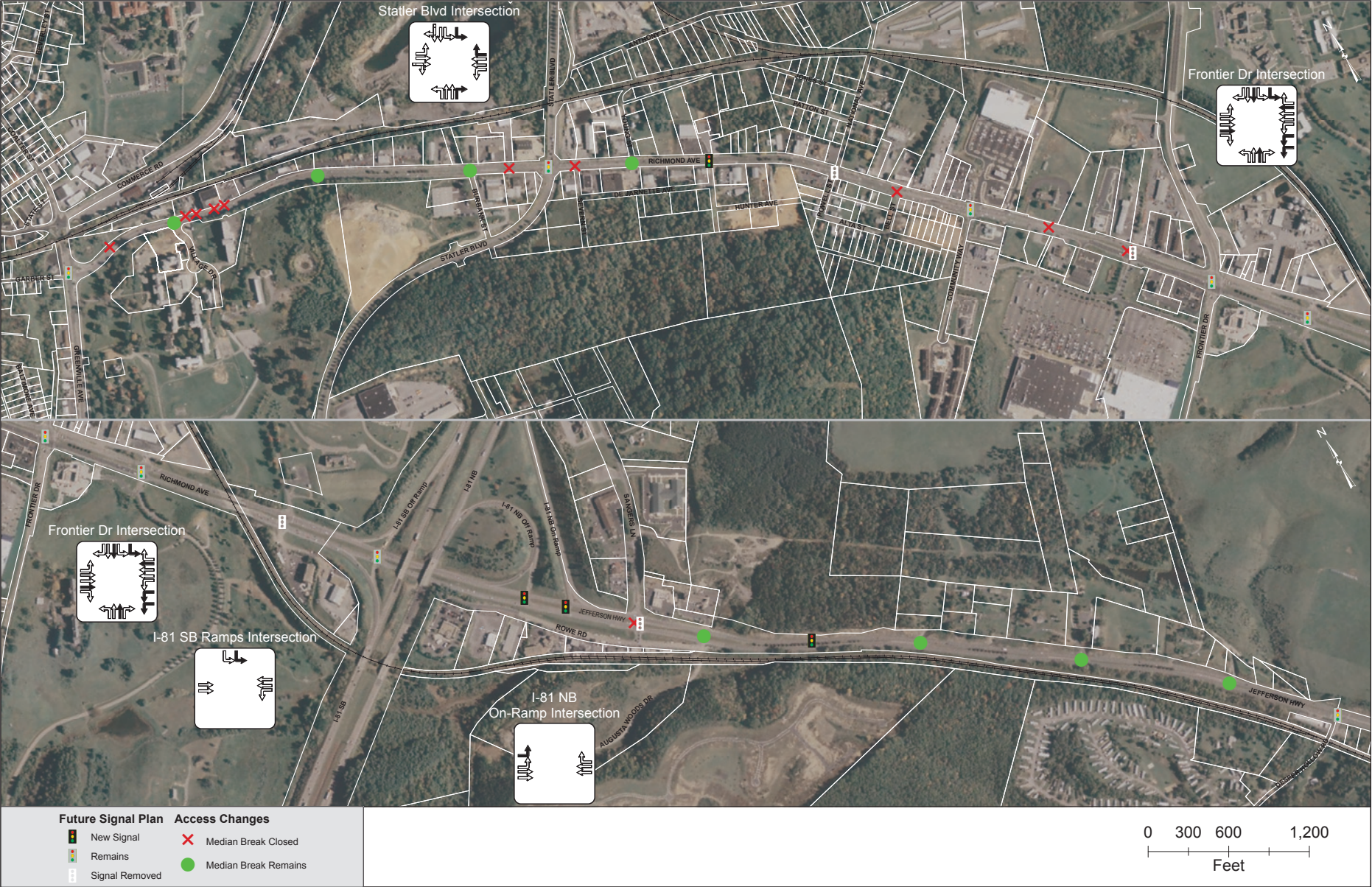
The conceptual design sheets show locations where access changes would occur, such as the closing of median breaks, locations where existing median breaks and signals would remain, and locations where existing signals would be removed, and where new signals would be located. In addition, some general concepts are presented for access management of the corridor. These include realigning and closing some of the existing driveways and curb cuts, and creating access from the side streets, which fits with the overall master plan of maintaining traffic flow, while providing necessary access to business to ensure continued economic vitality.

Another key element to manage access along Route

250 is to provide interparcel or access roads between parcels. A series of interparcel or access roads can provide connections to the parallel road network, and funnel traffic to designated intersections and median breaks. Where it is impossible for a given parcel to gain access to a public roadway via a parallel or cross street, all efforts should be made to connect the parcel to an interparcel access road via an existing curb cut.

The conceptual design plans show potential interparcel access location throughout the corridor. These locations are conceptual in nature and should serve as a guide to planners and developers on ways in which access could be given while preserving the operational capacity and safety of Route 250. Due to certain limitations, such as the railroad and steep slopes, it may not always be possible to connect a given parcel to a planned crossover, parallel road or cross street. It is anticipated that the City, County and VDOT will work with private developers to preserve right-of-way and construct many of the interparcel access roads when parcels redevelop.

MAP 6. PROPOSED ACCESS MANAGEMENT AND INTERSECTION IMPROVEMENT PLAN





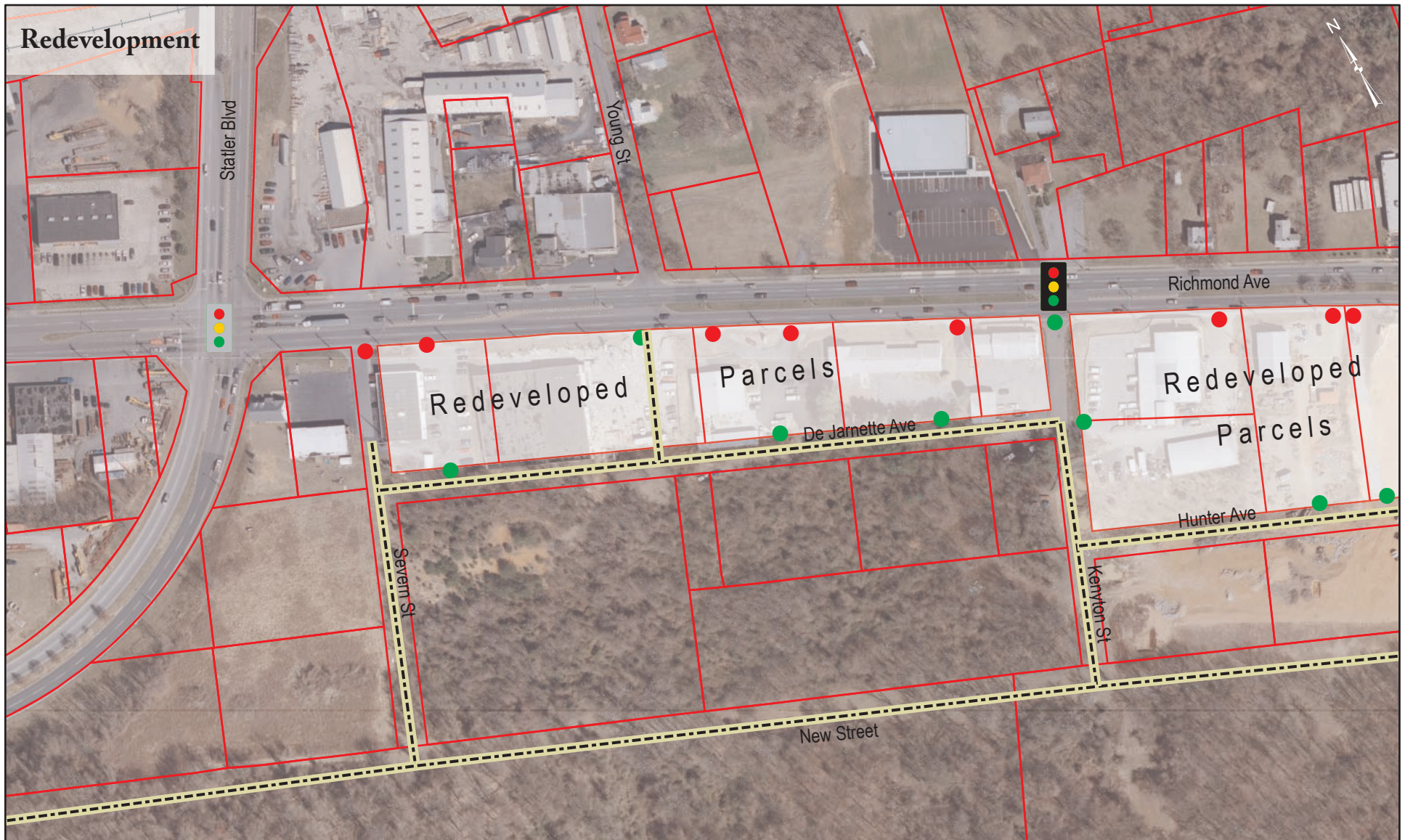
HYPOTHETICAL ACCESS MANAGEMENT STRATEGIES: EXISTING NETWORK

Currently, there are six access points along the south side of Richmond Road in the 1,150 feet from Statler Boulevard and Kenyon Street. That is an average of one access point every 200 feet, less than the preferred 300-325 recommended in the access management guidelines. Furthermore, several driveways are less than 100 feet from adjacent driveways or streets. These problems can be remedied using the recommended access management guidelines and implementing other recommendations of this plan.



HYPOTHETICAL ACCESS MANAGEMENT STRATEGIES: PHASE 1 NEW STREETS

As new roads and access options are added, those parcels with driveways directly onto Richmond Road could have new access provided from the rear, along DeJarnette Avenue. Most existing driveways would likely remain as property owners may keep them, but the City should encourage them to close unnecessary driveways voluntarily. Severn Street, which is too close to Statler Boulevard, should be closed at this point as the addition of DeJarnette Avenue would provide full access to this street.



HYPOTHETICAL ACCESS MANAGEMENT STRATEGIES: PHASE 2 REDEVELOPMENT

When redevelopment comes to this section of the corridor, opportunities arise for consolidating driveways and access, moving them to the rear of parcels or otherwise off of Richmond Road. Redevelopment could come in many forms, but in the example shown here, all of those parcels east of Severn Street have redeveloped and had their access moved to the rear off of DeJarnette Avenue, Hunter Avenue, or Kenyton Street. If these parcels were redeveloped as part of a larger redevelopment project, a new street connection could also be added to line up with an intersection at Young Street and the Severn Street intersection with Richmond Road could be closed, as it is too close to Statler Boulevard.

Summary of Recommendations:

Project Costs, Phasing, and Conceptual Designs

The transportation investments recommended in this plan can be made with a combination of public and private sector resources in order to realize the long range vision for the Richmond Road corridor. Though many of the projects are dependent on funding that has not been identified or may not be available for several years, this Corridor Plan is valuable because it sets forth the community's vision for the area and demonstrates how development and transportation improvements can support the desired character for the Richmond Road corridor well into the future.

Not all of the recommendations can be pursued at once, and priorities need to be established for consideration as resources allow. Some of these projects are needed now to address transportation deficiencies that currently exist. The need for other projects will arise as new development takes place. With strong market forces fostering new development in both the eastern and western portions of the corridor, the City, County, and VDOT have an opportunity to partner effectively with private interests to advance the plan as development proposals arise.

In the central areas of the corridor, particularly the Local Service Area, market forces are not yet generating strong private development interests. The public sector must take the lead on making infrastructure investments in these areas. These investments, particularly the proposed network of local streets surrounding the corridor, are critical to the success of the overall plan because they serve as the central "link in the chain" of proposed corridor-wide transportation systems. With-

out a seamless network of corridor-wide connections, the multimodal benefits of the plan will not fully realized, and the level of improved performance at key intersections will be diminished.

By focusing public investments proactively in the central portion of the corridor, the City, County and VDOT can accomplish two important goals: 1) stimulate development interest in these areas and 2) provide critical street connections that "knit together" the networks built through public-private partnerships on the eastern and western ends of the corridor.

Another key recommendation that can be initiated by the public sector is the proposed rail-with-trail greenway. The City, County and VDOT can launch the effort at any time by forming partnerships with representatives of railway interests and researching the potential funding sources identified in the plan.

Table 2 depicts project recommendations with planning level cost estimates. These were developed based on VDOT Transportation and Mobility Planning Division's (TMPD) Statewide Planning Level Cost Estimates and include a 20% factor for engineering and contingencies. The values from the TMPD tables reflect 2006 costs, the study team inflated them by 5.5% to generate 2009 costs. The estimates do not, however, include any consideration for utilities as the study does not provide a sufficient level of detail to reasonably estimate utility costs. Improvements that fit easily into one of the categories, such as new roads, turn lane additions or trail construction, were directly calculated using the

cost per mile or cost per linear foot as delineated in the TMPD tables. A few items, such as fence costs, were determined based on recent bid cost. Estimates of the project length were calculated in GIS.

Project recommendations include pedestrian network improvements, intersection improvements, addition of bicycle lanes, and median closings. Projects are identified for the short (1-5 years), medium (6-10 years) and long term (11-20).

The following conceptual design sheets present a set of transportation recommendations that, if implemented, would help to further the goals of the preferred future context zones. The conceptual designs provide a "framework" for directing and anticipating future development and redevelopment in the corridor. They are not specific plans for new roads and intersections, but rather conceptual alignments and improvements to the overall transportation network.

TABLE 2. PROJECT RECOMMENDATIONS AND PLANNING LEVEL COST ESTIMATES

Construction Cost Estimate						
Key Projects	Investment	Timeline	Improvement	Units	Cost per Unit	Total Cost
New Roundabouts at Richmond/Greenville and Greenville/Commerce	Public	Medium Term	Rebuild intersections as two lane roundabouts	2	\$1,570,000	\$3,140,000
Road Diet, 4 to 2 Lane Conversion, Greenville to Statler Adding Bicycle Lanes and Full Median	Public	Medium Term	Rebuild roadway to 2 lanes with median and bike lanes	0.7 miles	\$8,520,000	\$5,964,000
New Parallel Road, south of Richmond Ave, Greenville to Statler (Part of Villages)	Private	Short Term	New roadways, 2 lanes with sidewalks and bike lanes	0.4 miles	\$3,165,000	\$1,266,000
Statler Blvd Intersection Improvements	Public	Medium Term	New Right Turn Lane WB Richmond to NB Statler	1	\$100,000	\$100,000
			New Right Turn Lane NB Statler to EB Richmond	1	\$100,000	\$100,000
			Second Left Turn Lane, SB Statler to EB Richmond	1	\$150,000	\$150,000
			New Signal Installation	1	\$275,000	\$275,000
			Restriping Intersection	1	\$50,000	\$50,000
Restriping Richmond Ave, Statler to Community 10' Inside Lane, 14' Outside Sharrow Lane	Public	Short Term	Restriping	3200 linear feet	\$20	\$29,000
New Parallel Roads, south and north of Richmond Ave, Statler to Community	Public/Private	Medium Term/Long Term	New roadways, 2 lanes with sidewalks and bike lanes	1.6 miles	\$3,165,000	\$5,064,000
Removing Signal at National/Powell Add Signal at Kenyton	Public	Medium Term		1	\$275,000	\$275,000
Closing Median at Bell	Public	Medium Term		1	\$25,000	\$25,000
Widening Richmond Ave, Community Way to I-81 3rd Thru Lane Each Direction	Public	Long Term	Widening Roadway 4 lanes to 6	0.9 miles	\$11,183,000	\$10,064,700
			Widen both bridges over RR for 1 addt'l thru lane	2,702 sq. ft. each	\$127	\$700,000
Fronteir Drive Intersection Improvements	Public/Private	Medium Term	Dedicated Right Turn Lane for SB Fronteir Drive	1	\$150,000	\$150,000
			Second Left Turn Lane WB Richmond to SB Fronteir	1	\$150,000	\$150,000
	Public		New Signal Installation	1	\$275,000	\$275,000
			Restripe Intersection	1	\$50,000	\$50,000
Additional Left Turn Lane, Richmond Ave to Avenue of Trees	Public/Private	Medium Term		1	\$150,000	\$150,000
Conversion of Western State and Awasaw Site Access to Full Access Control RIRO ramps with connecting roadway over Richmond Ave.			New Bridge over Richmond Rd	76,000 sf	\$127	\$9,652,000
			Connecting Roadways	0.5 miles	\$9,691,500	\$4,845,750
			Closing Median	2	\$20,000	\$40,000
			RIRO Island	2	\$20,000	\$40,000
			Widen both bridges over RR for addt'l merge lanes	2,702 sq. ft. each	\$127	\$700,000
			Closing Median	1	\$20,000	\$20,000

Option A

Option B

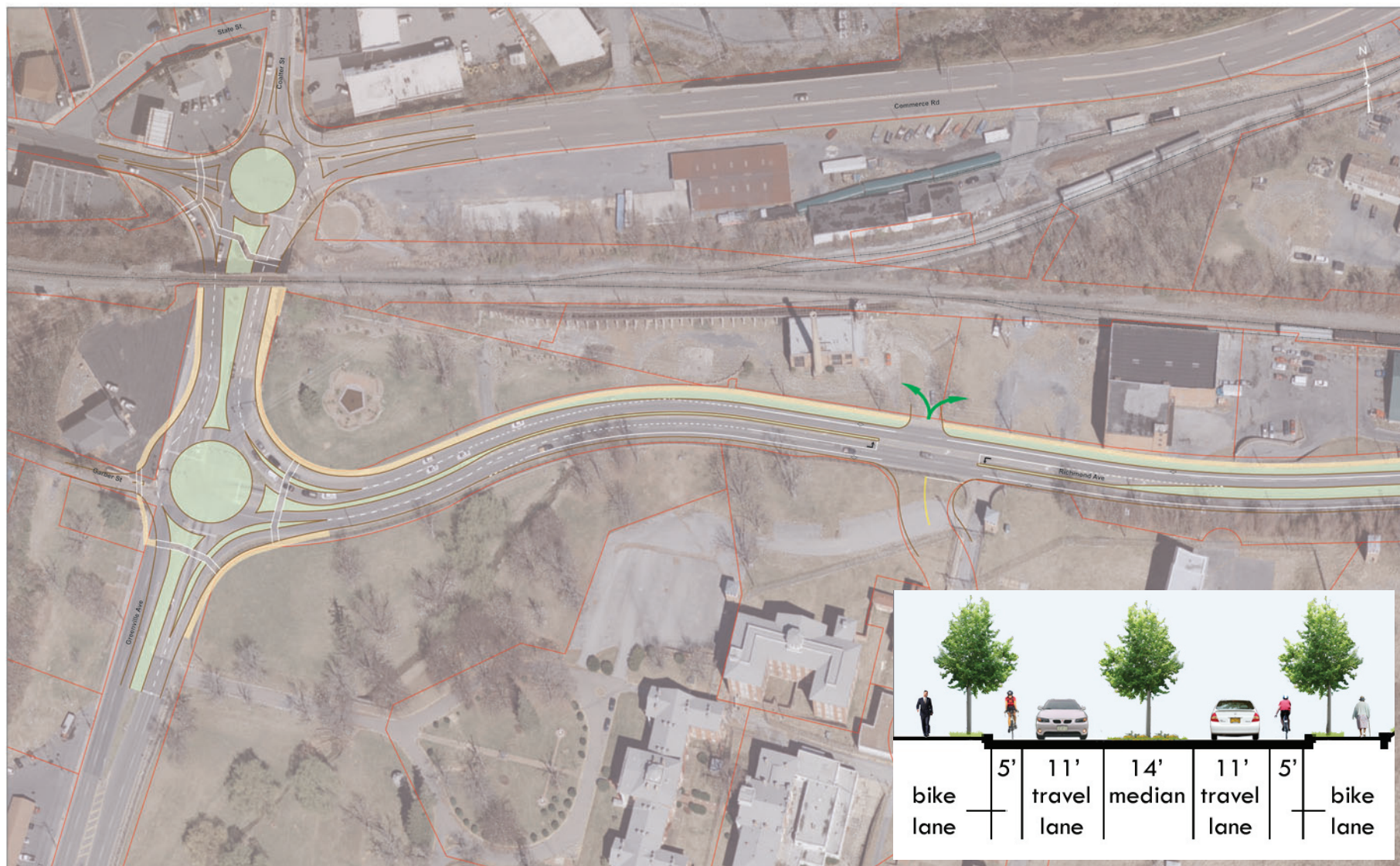
Option A

Option B

TABLE 2. PROJECT RECOMMENDATIONS AND PLANNING LEVEL COST ESTIMATES (CONT.)

Key Projects	Investment	Timeline	Construction Cost Estimate			
			Improvement	Units	Cost per Unit	Total Cost
Conversion of Western State to RIRO	Public/Private	Medium Term	RIRO Turn Lane Island	1	\$20,000	\$20,000
Additional Left Turn Lane, I-81 SB Ramp to EB Richmond Ave.	Public	Medium Term		1	\$150,000	\$150,000
Realignment of I-81 NB Ramps Intersection	Public	Long Term	Add'l Left Turn Lane, Richmond Ave EB to I-81 NB	1	\$150,000	\$150,000
		Long Term	Realign ramps to new intersection	1	\$600,000	\$600,000
		Long Term	New Signal Installation	1	\$275,000	\$275,000
Add 8' Shoulders to Jefferson Hwy Sangers Ln to Desper Hollow Rd	Public	Medium Term		1.1	\$795,200	\$874,720
Closing Median at Sanger Ln Realignment of Brandon Station turnoff	Public	Commensurate with Horizon Ridge		1	\$40,000	\$40,000
New Signal at Horizon Ridge entrances	Private	Commensurate with Horizon Ridge		1	\$250,000	\$250,000
Rail with Trail Greenway, along BB ROW, east of Greenville to Augusta Woods	Public/Private	Long Term	Trail construction	2.7 miles	\$190,000	\$513,000
	Public/Private	Long Term	4' fence	2.7 miles	\$100,000	\$270,000
	Public/Private	Long Term	Warning lights at crossing	1	\$37,000	\$37,000

Option C



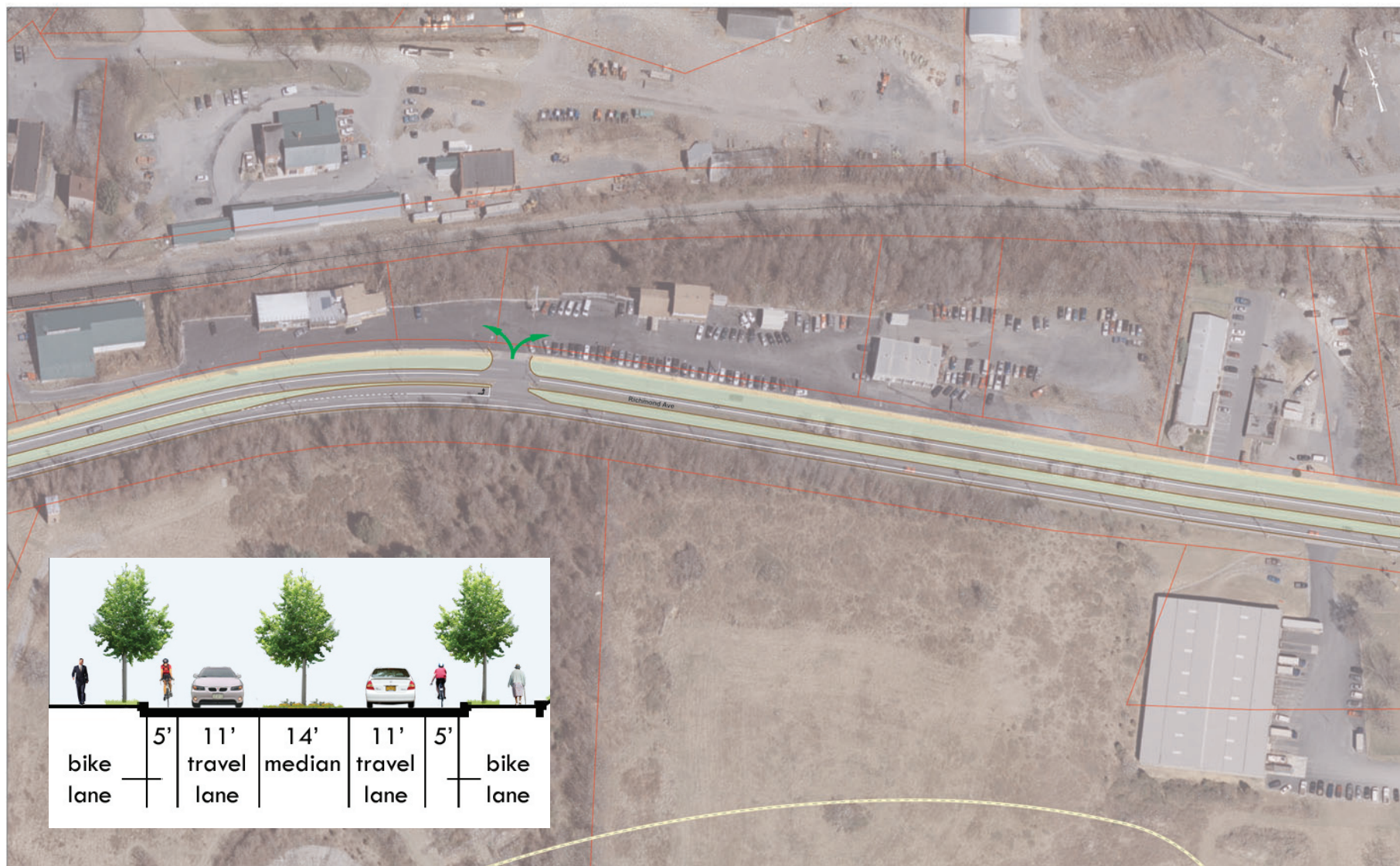
RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

SHEET 1

0 50 100
Feet

Lane Striping
 Edge of Pavement
(Curb or Shoulder)
 Centerline
 Landscape Median
 Sidewalk
 Parcel Lines
 New Signal
 Remains
 Signal Removed
 Framework Streets
 Interparcel Connections



RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

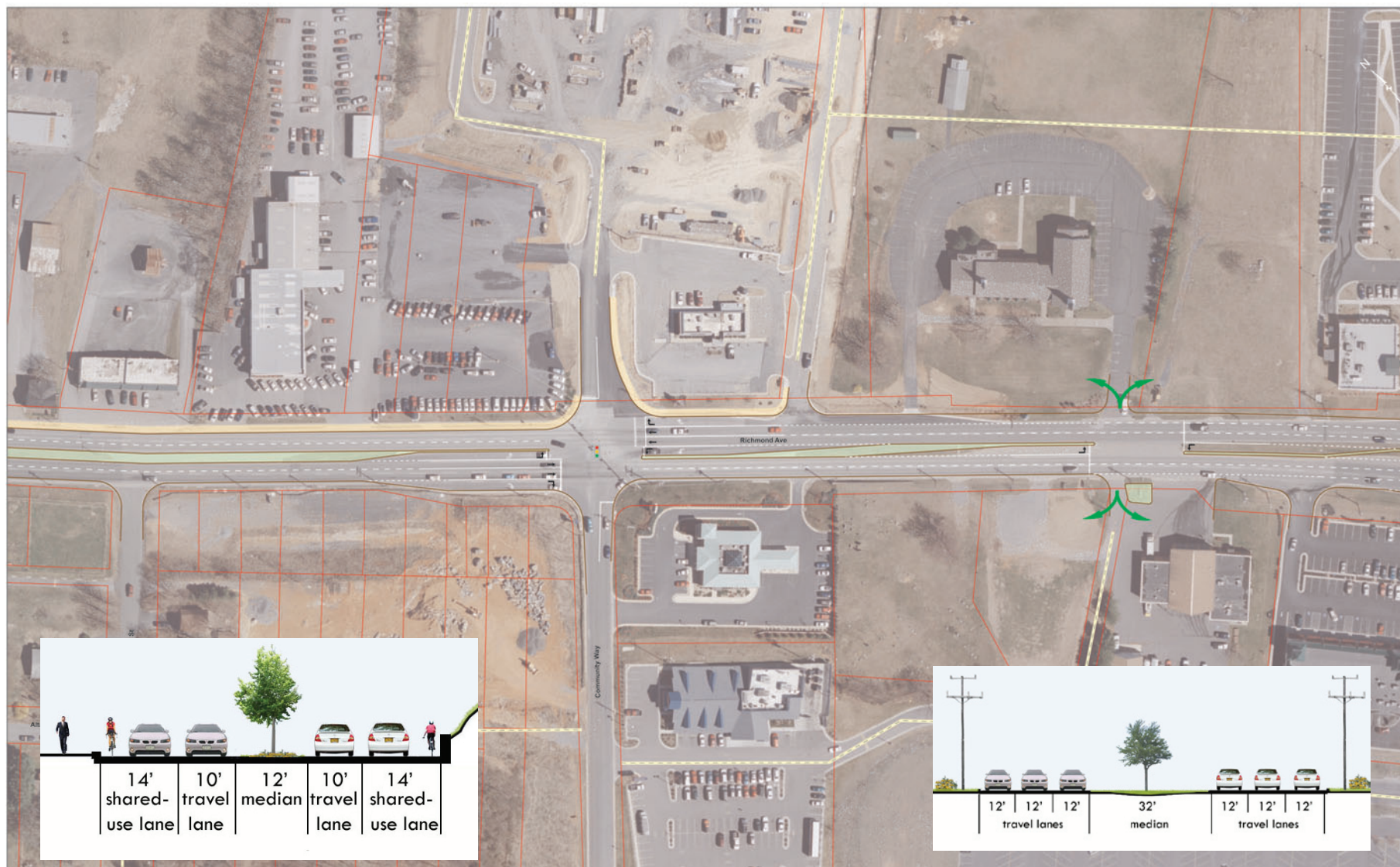
SHEET 2

0 50 100
Feet

Lane Striping
 Edge of Pavement (Curb or Shoulder)
 Centerline
 Landscape Median
 Sidewalk
 Parcel Lines
 New Signal
 Remains
 Signal Removed
 Framework Streets
 Interparcel Connections



RICHMOND ROAD CORRIDOR STUDY	FRAMEWORK PLAN CONCEPTUAL DESIGN	SHEET 4	0 50 100 Feet	Lane Stripping Edge of Pavement (Curb or Shoulder) Centerline	Landscape Median Sidewalk Parcel Lines	New Signal Remains Signal Removed Framework Streets Interparcel Connections
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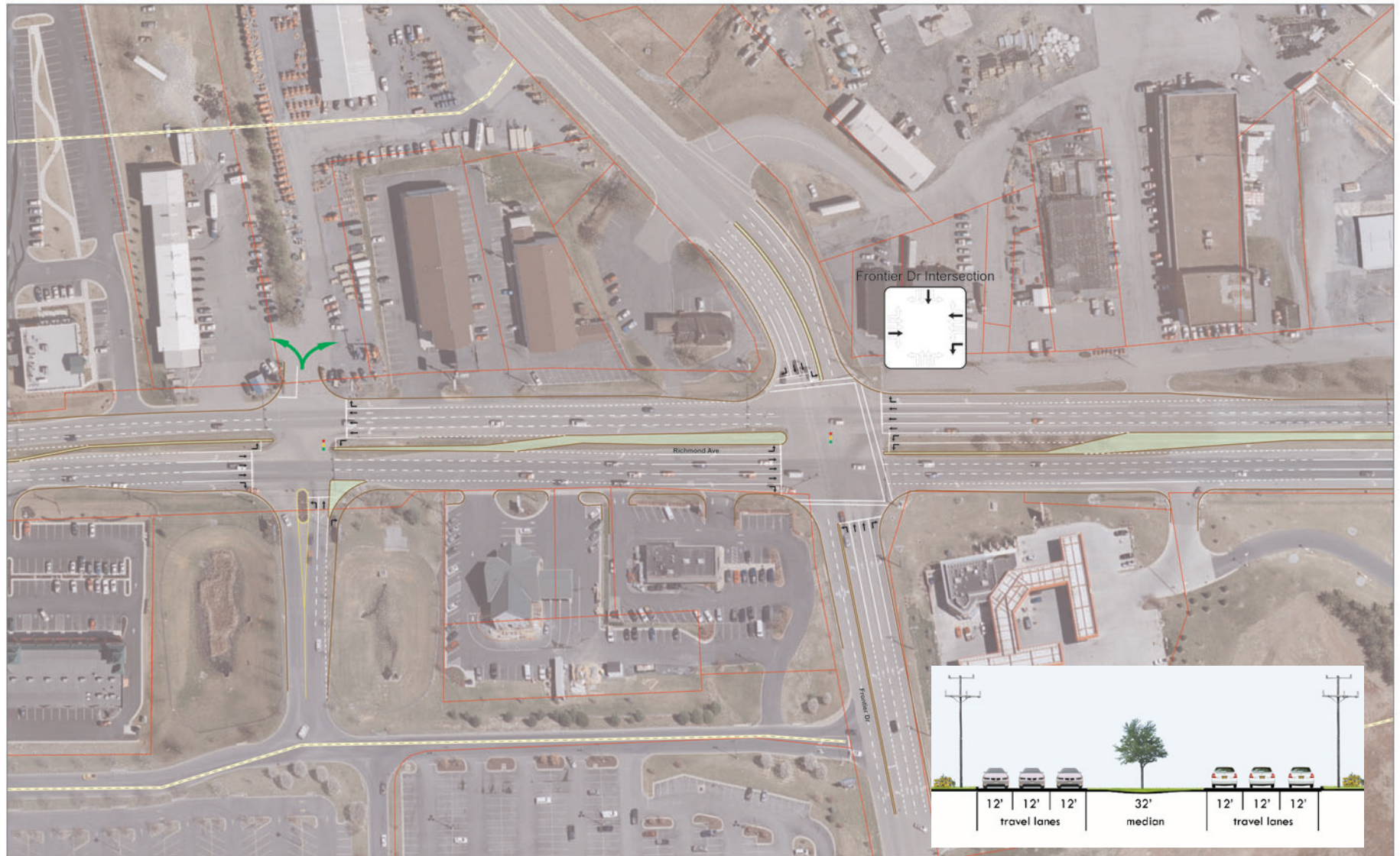
RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

SHEET 5

0 50 100
Feet

Lane Stripping
 Edge of Pavement (Curb or Shoulder)
 Centerline
 Landscape Median
 Sidewalk
 Parcel Lines
 New Signal
 Remains
 Signal Removed
 Framework Streets
 Interparcel Connections



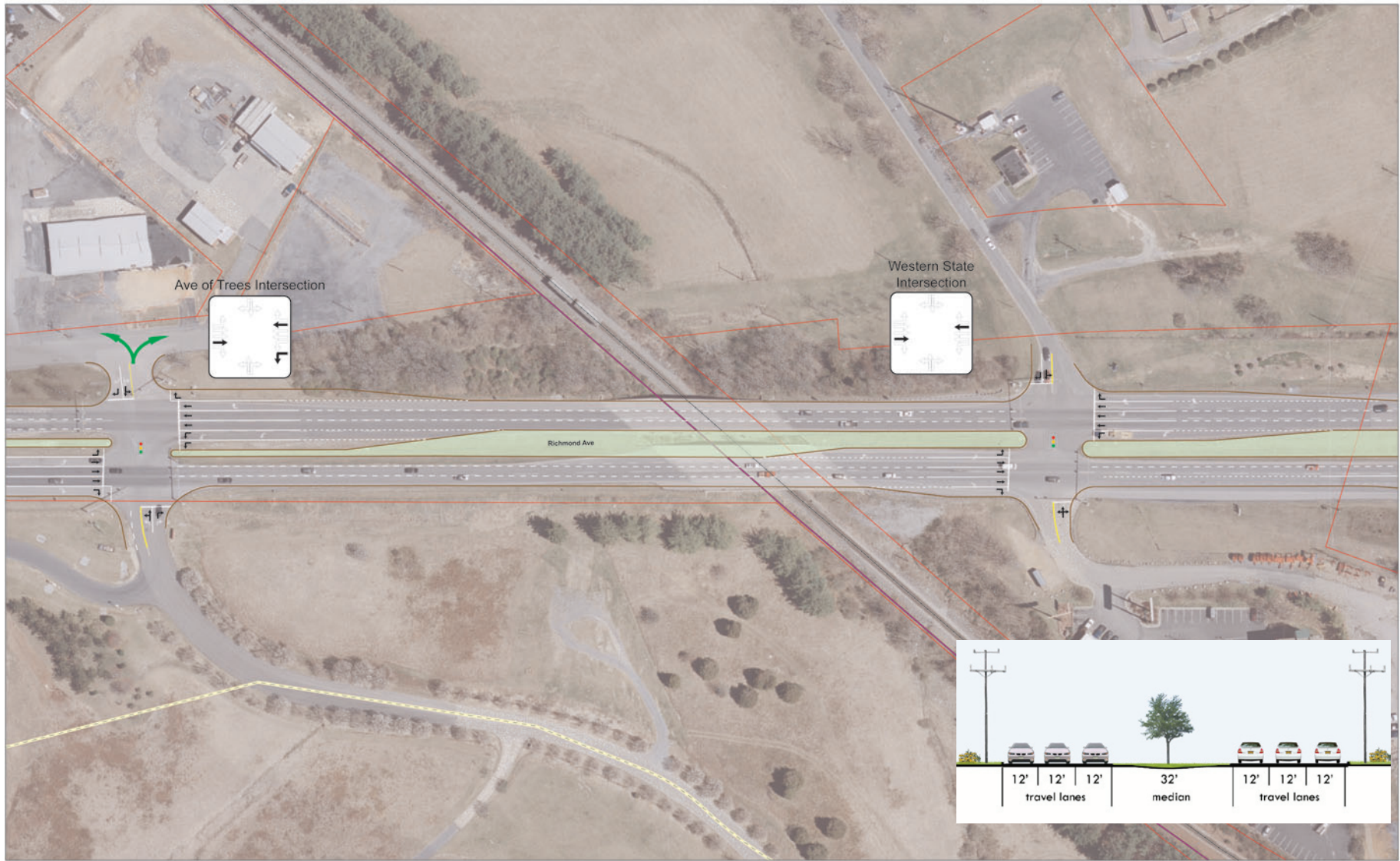
RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

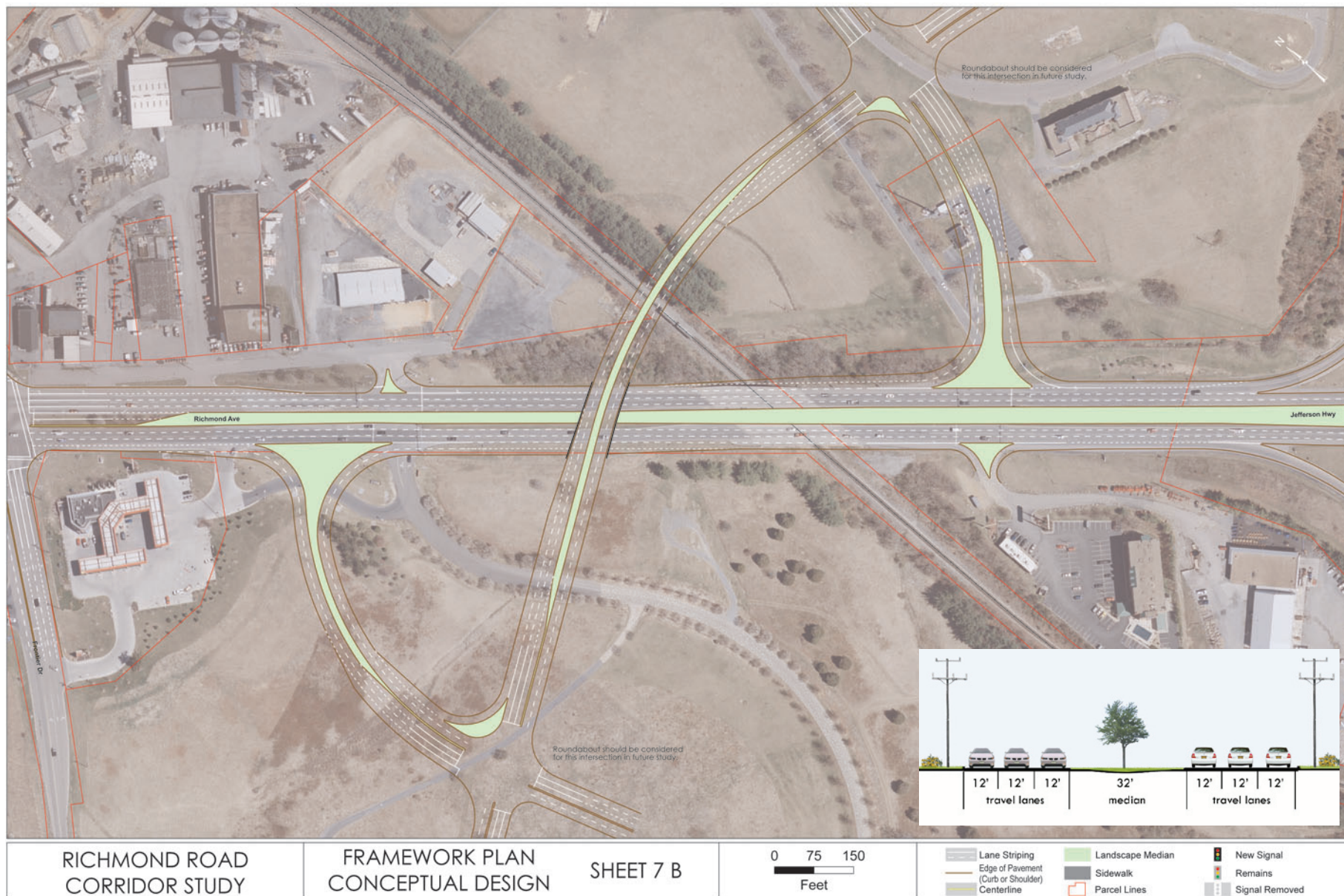
SHEET 6

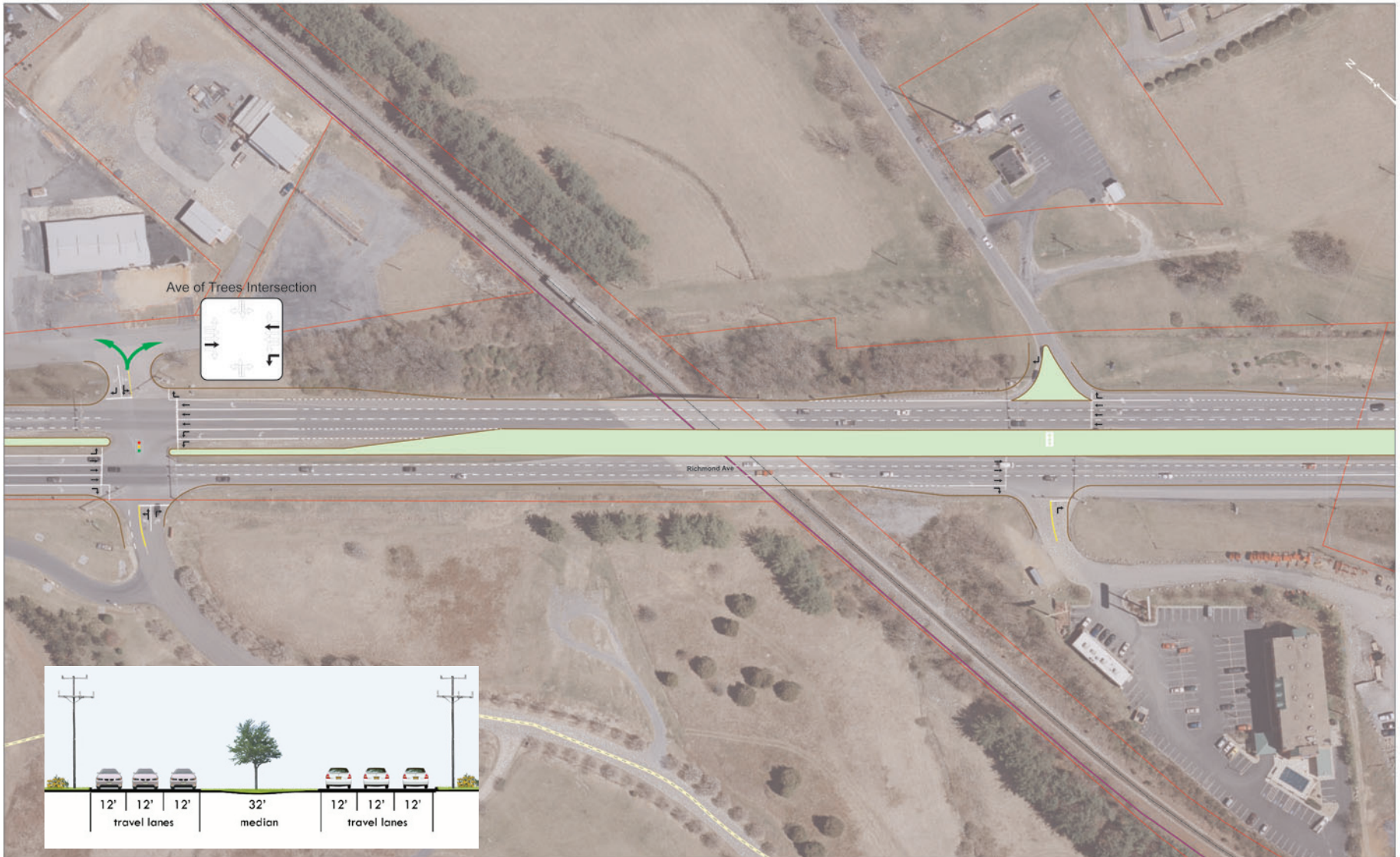
0 50 100
Feet

- | | | | |
|-------------------------------------|------------------|----------------|-------------------------|
| Lane Striping | Landscape Median | New Signal | Framework Streets |
| Edge of Pavement (Curb or Shoulder) | Sidewalk | Remains | Interparcel Connections |
| Centerline | Parcel Lines | Signal Removed | |



RICHMOND ROAD CORRIDOR STUDY	FRAMEWORK PLAN CONCEPTUAL DESIGN	SHEET 7 A	0 50 100 Feet	Lane Striping	Landscape Median	New Signal	Framework Streets
				Edge of Pavement (Curb or Shoulder)	Sidewalk	Remains	Interparcel Connections
Centerline	Parcel Lines	Signal Removed					

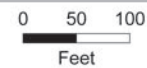


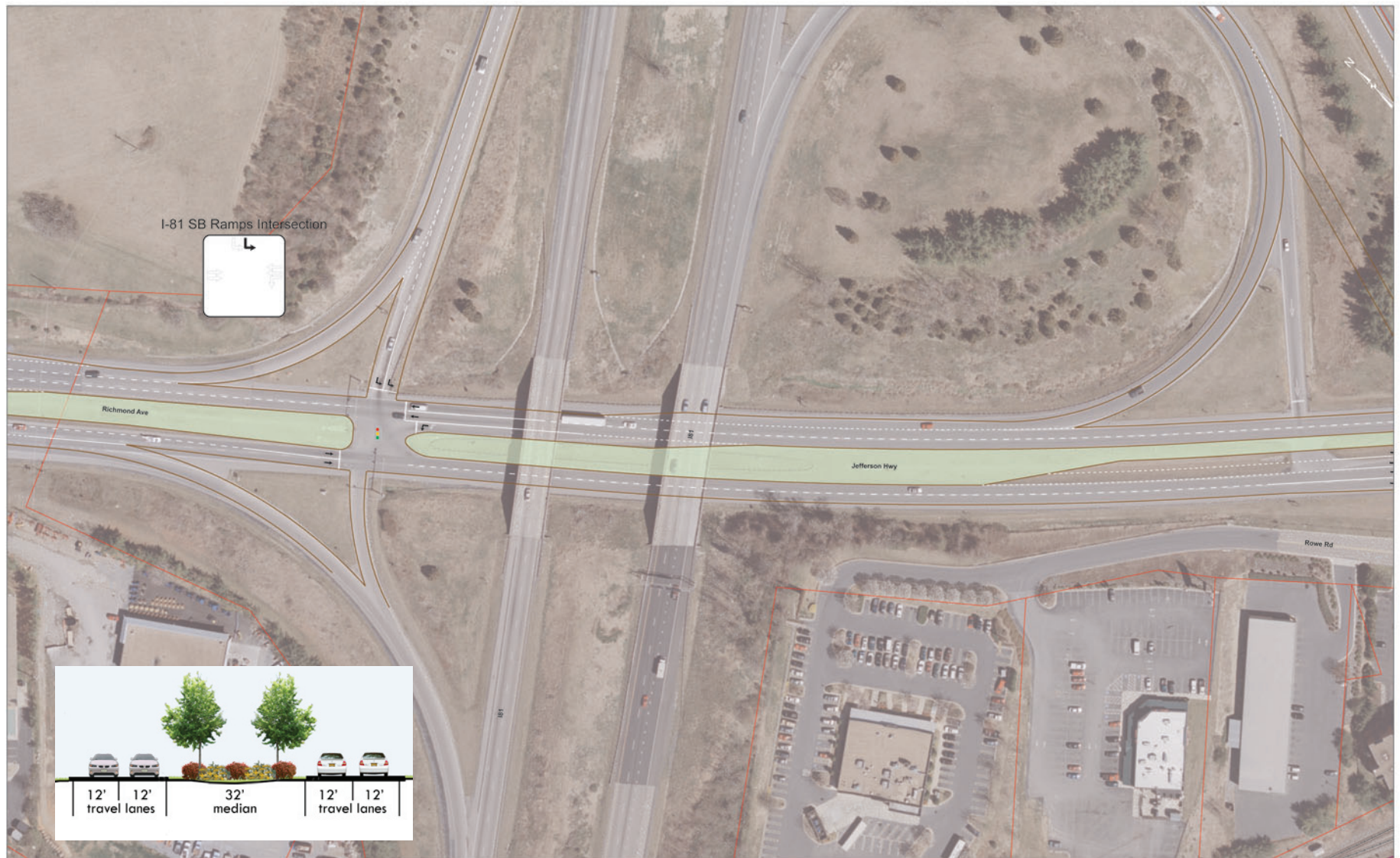


RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

SHEET 7 C

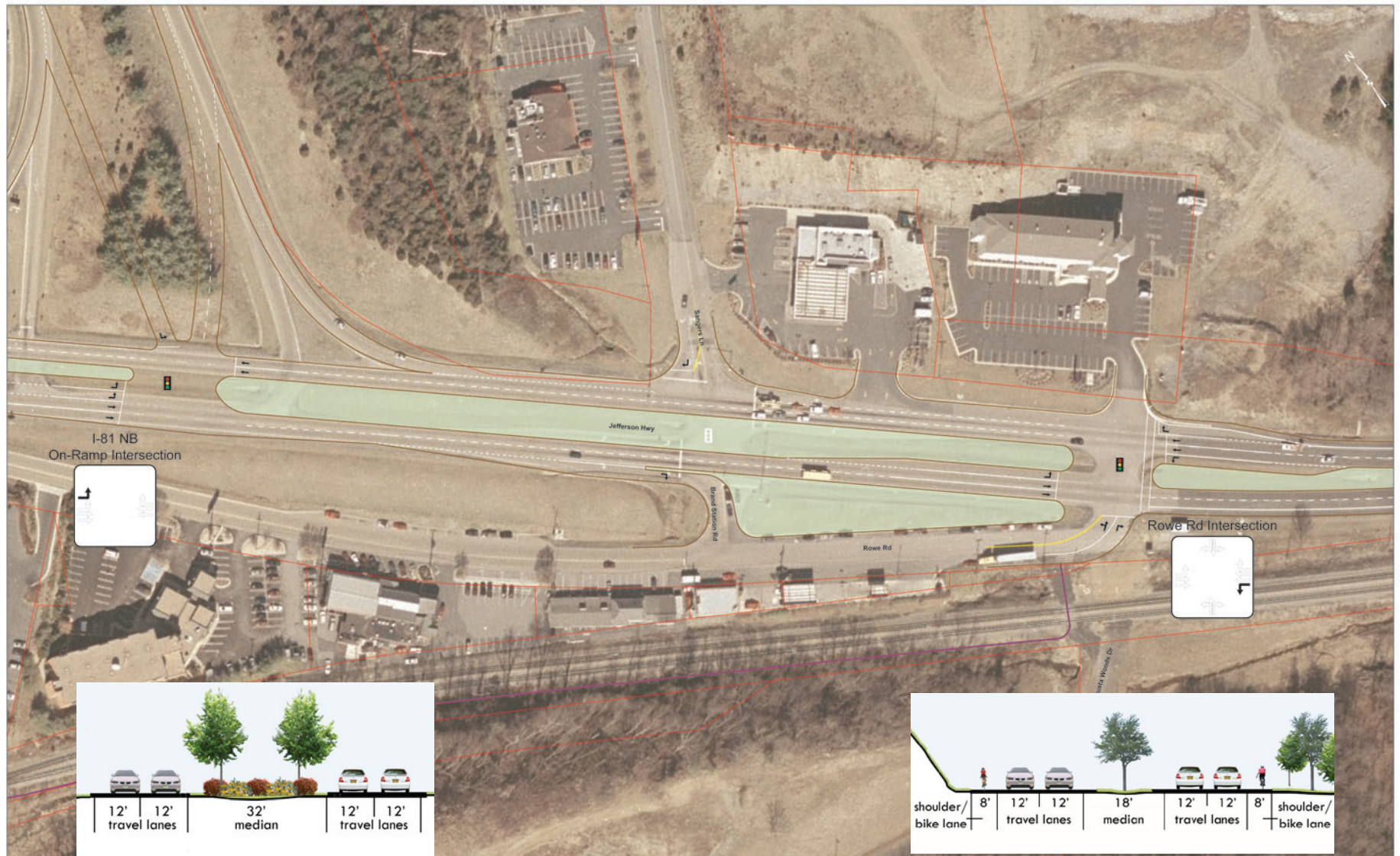




RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

SHEET 8



RICHMOND ROAD
CORRIDOR STUDY

FRAMEWORK PLAN
CONCEPTUAL DESIGN

SHEET 9

0 50 100
Feet

Lane Striping
 Edge of Pavement (Curb or Shoulder)
 Centerline
 Landscape Median
 Sidewalk
 Parcel Lines
 New Signal
 Remains
 Signal Removed
 Framework Streets
 Interparcel Connections



RICHMOND ROAD CORRIDOR STUDY	FRAMEWORK PLAN CONCEPTUAL DESIGN	SHEET 10	0 50 100 Feet	Lane Stripping Edge of Pavement Centerline	Landscape Median Sidewalk Parcel Lines	New Signal Remains Signal Removed Framework Streets Interparcel Connections
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RICHMOND ROAD CORRIDOR STUDY	FRAMEWORK PLAN CONCEPTUAL DESIGN	SHEET 11	0 50 100 Feet	Lane Stripping Edge of Pavement Centerline	Landscape Median Sidewalk Parcel Lines	New Signal Remains Signal Removed Framework Streets Interparcel Connections
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RICHMOND ROAD CORRIDOR STUDY	FRAMEWORK PLAN CONCEPTUAL DESIGN	SHEET 12	0 50 100 Feet	Lane Striping	Landscape Median	New Signal	Framework Streets
				Edge of Pavement (Curb or Shoulder)	Sidewalk	Remains	Interparcel Connections
				Centerline	Parcel Lines	Signal Removed	

IMPLEMENTATION TOOLS + FUNDING SOURCES

The Richmond Road Corridor has been, and will continue to be, an important commercial corridor and gateway to both the City and Augusta County. Current conditions along the corridor do not consistently reflect desired community character. Instead travelers see a mix of auto-oriented and a series of vacant and underutilized parcels. This Corridor Plan illustrates those conditions, and shows what can be done to foster a more vibrant, active and valuable resource for both the City and County.

The key issue now is, how to achieve that vision? What steps need to be taken to take the corridor from here to there? How best to honor the street? Achieving the vision that is outlined in this Corridor Plan will require ongoing attention, advocacy, and new tools.

The approach to implementation of this Corridor Master Plan needs to be multi-pronged. Action is needed on a number of fronts simultaneously to implement these ideas. Attention is needed by the City, County, and other governmental bodies, and also by private property owners. Partnerships will be important. The approaches to implementation can be categorized as follows:

Encourage Private Investment

A number of private investment initiatives, including development proposals at the Western State Hospital, Frontier Culture Museum, The Villages at Staunton, Horizon Ridge and Augusta Woods (recently approved) are currently in the works along Richmond Road. There is a need to continue working with the development community to ensure these projects are realized. Through civic appeals, construction of public improvements, and an array of regulatory incentives, private property owners need to be encouraged to invest in

the Richmond Road Corridor in ways that are consistent with the principles and guidelines identified in this plan. The City and County can articulate, through design guidelines and/or policy statements, the elements that private property owners should consider. Mixed-use development proposals with interconnected streets should be encouraged throughout the corridor.

Direct Public Investment and Operational Changes

The most obvious and direct way to accomplish a physical change within the Richmond Road corridor is to use public resources to directly fund improvements and take the public actions to transform the character of the corridor. Recommendations for public improvements within public rights-of-way are identified in this Corridor Plan, and are organized in terms of short term (Phase I: 1-5 year time frame), medium term (Phase II: 5-10 year time frame), and long term (10+ year time frame) possibilities. Suggestions for operational adjustments and staff initiatives are also identified.

Adjust Local Regulations and Incentives

Encouraging private investment is a good idea. Directly funding public improvements is necessary for those projects that cannot be accomplished otherwise. It is also necessary to adjust the city's current zoning regulations, to be able to influence the form of new private development and to assure that public improvements that are necessary to serve new development are provided as components of new development or redevelopment projects. Zoning amendments must be made in order to achieve the

vision set out in the Corridor Plan. The timing is good right now for attention to zoning amendments.

There are three types of zoning adjustments that should be considered: (1) Market-based adjustments to allow activity that meets the objectives of the Corridor Plan; (2) Requirements that prescribe standards and procedures; and (3) Incentives to encourage activity of a type that cannot be required.

(1) Market-based Regulatory Adjustments: To the extent that there are actions currently prohibited that might be taken by private property owners, in response to market conditions, that would promote public objectives for the Richmond Road Corridor, zoning regulations should be adjusted to allow these actions. Examples include adding residential uses as permitted uses in commercial districts, allowing small-scale commercial uses in residential districts, allowing accessory apartments in dwelling units in or close to downtown, and allowing existing downtown uses to expand without triggering additional parking requirements.

(2) Regulatory Requirements: Zoning regulations can also be adjusted in a manner that requires new development (or redevelopment) to meet more rigorous standards, and/or to provide public infrastructure that will be needed as a result of the development. Examples include requirements for off-site improvements and expanded landscaping requirements, or to mitigate traffic impacts through contribution to the development of the greenway network or operation of a downtown trolley system.

(3) Regulatory Incentives: Zoning regulations can be adjusted in a manner that provides incentives for

property owners to take actions that are in the public interest. Incentives could take the form of (1) Less stringent requirements if characteristics of proposed development are consistent with policy objectives; (2) streamlined process if development is proposed that is consistent with policy objectives; (3) Modifications of regulations and requirements if certain findings are met; and/or (4) Public participation in the financing of required infrastructure.

The Design Guidelines included with this study can serve as a useful resource to encourage the community design and urban form elements necessary to achieve the long-term vision of the plan.

Policy and Regulatory Tools

The Comprehensive Plan and Conditional Zoning

For physical roadway improvements within the existing public right-of-way (“off-site” of a particular development tract) such as widening the roadway, adding lanes, or adding turn lanes, the fundamental implementation tool is to adopt the recommended road improvements as elements shown in the Comprehensive Plan.

Adopting the desired improvements into the Comprehensive Plan provides the basis for accepting road improvements as proffers through the conditional zoning process. Adopting proffer guidelines as part of the Comprehensive Plan can further encourage proffers. Such guidelines can set out incentives such as density bonuses that could apply to tracts of land that provide proffered improvements through the conditional zoning process in conjunction with a rezoning to a higher density. Such density bonuses can also be stipulated in the zoning ordinance to link it to the Comprehensive Plan policies.

Note that among the key aspects of proffers, are the following:

- The proffers must be voluntary.
- The zoning must itself give rise to the need for the proffers.
- The proffers must have a reasonable relation to the rezoning.
- The proffers must be in conformity with the comprehensive plan.

Implementation through the zoning ordinance may require some refinement of allowed density (dwellings per acre, minimum lot size, and/or floor area ratio), in accord with a framework for density bonuses estab-

lished in the Comprehensive Plan.

The Comprehensive Plan and Special Use Permits (also called Special Exceptions or Conditional Uses)

Off-site road improvements may be required as a condition of approval of a Special Use Permit for a use that is so listed in the zoning district for a given property. However, localities in Virginia do not have the authority to require the construction of off-site road improvements unless the need for those improvements is substantially generated by the proposed development.

Implementation of Design Guidelines

Most of the major elements of design guidelines can be implemented through the zoning ordinance. Provisions of design guidelines that pertain to the size, height, area, bulk, location of structures, or to the use of land, can be regulated under the enabling authority provided for in §15.2-2280 through §15.2-2286. However, provisions that pertain to architectural features including style, materials and colors, require the authority provided for historic districts in §15.2-2306.

The major issue in terms of zoning implementation is the level of specificity and firmness needed for “guidelines” to become “regulations”. For example, a general guideline for the spatial enclosure of buildings might read:

“Buildings in commercial areas should generally achieve the appropriate spatial enclosure. Spatial enclosure is from one building facade to another. For a street width of 66 feet, with an appropriate

spatial enclosure ratio of 1:2, buildings should be at least 33 feet high.”

By contrast, a zoning regulation for this guideline might read:

“The front (street facing) façade of any commercial structure must have a height of at least half the distance between that façade and the façade of the building directly across the street, but not greater than that distance.”

The elements that lend themselves to specific, quantifiable zoning standards include:

- Land use (including mix of uses on a site or within a structure)
- Spatial enclosure
- Density
- Building orientation
- Building setbacks (including maximum or “build-to” lines)
- Building frontage types (provided that the standards are objective and quantifiable)
- Parking (location, dimensions, amount, and configuration)
- Landscaping and open space (provided that the standards are objective and quantifiable)
- Lighting
- Signage

Sidewalks, curb and gutter, and other features that are commonly in the public right-of-way may be regulated under Zoning through Site Plan standards, but are often regulated by the Subdivision Ordinance or a Public Facilities Manual.

Any standards that are largely subjective in na-

ture, such as architectural style and materials, should be regulated through the provisions of §15.2-2306, which would require an overlay zoning district designation as either an historic area or an entrance corridor to an historic area.

Form-Based vs. Use-Based Zoning Regulations

Many localities are now choosing to implement “form-based” zoning codes rather than conventional “Euclidean” zoning codes. Form-based codes differ from conventional zoning mainly in that they focus less on land uses and density, and more on the quality and character of the public realm along major streets - particularly streets with employment activities.

Form-based codes are aimed at ensuring that the public realm created or framed by new buildings and streets has a “human scale”, making it comfortable for pedestrians and thereby a more enjoyable and attractive place for people to carry out all kinds of activities – shopping, recreation, work, etc. Form-based codes focus less on the uses that occur inside the building, and more on ensuring that the bulk, height and placement of buildings will create good pedestrian environments and attractive streetscapes, instead of creating “seas” of parking lots in front of buildings.

Form-based codes typically incorporate many of the urban design principles associated with the “new urbanism” approach to planning and community design. Form-based code provisions can be implemented as distinct “base” districts within the Zoning Ordinance, or as overlay districts in addition to existing base districts.

Corridor Overlay Zoning Districts

Corridor overlay zoning districts would be appropriate for all or portions of Richmond Road, in order to provide special zoning regulations tailored to the needs and policies for the corridor. Corridor overlay districts are typically implemented under the authority of §15.2-2306 of the Code of Virginia, which provides for designation and regulation of historic districts, including entrance corridors to historic districts.

Although this provision of the Virginia Code allows for architectural review, it is not necessary to use that tool. In fact, the requirements of corridor overlay districts may be limited to such things as building setback, landscaping, site access, and other such concerns, rather than architectural design, per se. Corridor overlay standards may include form-based provisions or may be limited to the conventional issues as noted above.

In the case of Richmond Road, different corridor overlay standards could apply to different sections of the roadway, rather than trying to make one set of provisions apply to the entire length of road. These could be sub-sections of a single corridor overlay district, or could be adopted as entirely separate districts.

Subdivision and Site Plan Review

Localities in Virginia cannot require off-site road improvements as a condition of approval of a subdivision or site plan application.

Access Management Guidelines and Recommended Regulatory Standards

Access management is the process of overseeing access to land development while simultaneously preserving the flow, in terms of safety and capacity, of traffic on the surrounding roadway system. Access

design characteristics that directly impact roadway traffic flow and safety include location and design of access drives and side roads as well as location of signals, medians, and turn lanes. Effective access management includes a comprehensive package of both physical design plans for improving roadway function and local planning programs and development regulations to control access by future development onto a roadway system.

The benefits of using access management in preserving and enhancing a roadway system are threefold:

1. Access management supports a safe and effective relationship between the local transportation system and land use. It can ensure that traffic can reach local development smoothly and safely and that traffic generated by local development can be accommodated on the roadway without exacerbating congestion and/or accidents. In this manner, effective access management can reduce the need for roadway widenings and other costly upgrades.
2. Access management often promotes the goals and objectives of a local plan of development for the future of a community. For example, where the plan of development calls for more retail business in specific locations, an access management plan can help to ensure that roads and future driveways are planned to best accommodate the increased traffic.
3. Access management can contribute to maintaining the safety and capacity of roadways relative to the functions they are expected to serve. Most plans of development include a circulation plan/map that indicates which roads should remain as quiet residential streets, which roads should be used to convey large volumes of traffic to businesses within the community,

and which roads should convey traffic through the community on its way to other destinations. A local roadway circulation plan can be supported and promoted by effective access management.

It is important to note that U.S. law dictates that a property owner has a legal right to reasonable access from his property to a public street. If such access is denied through the local regulatory process, this can be construed as a land taking requiring compensation to the owner. However, as long as local government does not preclude a property owner from reasonable access to a public way, then it can specify which access point must be used. When a community adopts access management tools, it must take into account this fundamental property right and basic limit on the extent to which the design of access points onto the roadway system can be controlled.

The intent of the recommendations in this memorandum for modifications to the City of Staunton and Augusta County Zoning Regulations is to ensure that the City Council/County Board of Supervisors, City/County planning professionals, and/or City/County Engineer each has an opportunity to review and comment on all proposed new or substantially altered access drives onto City/County roadways. In particular, it is the intent of the recommended zoning language, to strengthen the ability of the City Council/Board of Supervisors to control the design and location of new or substantially altered access drives that provide access onto Route 250.

Options for Access Management

Access management design standards can be applied with varied degrees of stringency and either integrat-

ed directly into the zoning regulations or incorporated into other City or County planning documents. That is, access design standards can be phrased as guidelines which proposed development should seek to meet or as requirements that developments must comply with. If such design standards are not adopted as amendments to the zoning regulations, they can be compiled in a separate access design manual (or made part of a roadway design manual). The City Council/Board of Supervisors and professional staff would use the manual in working with development applicants to guide them in their decisions about access arrangements as part of site design. Applicants for land use permits would not be required to meet the design standards in the manual, yet would be encouraged to do so.

If the access design standards are integrated into the zoning regulations themselves, this too can be approached in various ways. The zoning regulations can establish a specific Access Management Overlay Zone or they can include additional language for access management applicable to all proposed development in the City or County and integrated throughout the regulations. As the City of Staunton is already familiar and comfortable with the process of overlay district regulations an appropriate option is to adopt more comprehensive access management language that would apply only within an overlay zone. Such access management zoning language would be cumulative with the requirements of the existing underlying zones. The benefits of using a specific overlay zone alone for access management is that stringent access design standards can be applied where the need may currently be greatest without adding undue regulatory burden on development throughout the entire City or County.

Conversely, the drawback to using a dedicated overlay zone exclusively as an area for comprehensive access management is that only the roadways within the zone are addressed, and access management on other City or County roadways is set aside. A third recommended option would be to add the most stringent access management requirements to an overlay zone in the Route 250 corridor and also, to add more general access design guidance applicable to the entire City or County. The added guidance language for access management would be included as a separate stand alone section of the regulations under Article III (Miscellaneous Provisions)

It is worth noting that with any access management approach, new access points and/or changes to any driveway location and/or design will only occur at such time a property owner decides to create or make substantive changes to a development. This would require obtaining a permit through the local planning and zoning process. Consequently, the zoning and subdivision regulations and commissions who enforce them are the first critical opportunity for effective limits on access design to be employed or for a retrofit of a poorly designed access to be corrected.

Current Regulatory Framework

Access Management by the State of Virginia

A permit is required from the Virginia Department of Transportation (VDOT) prior to work being performed on or crossing any right-of-way under its jurisdiction. This includes encroachments or entrances onto any state roadway. A permit is also required when modifications are needed for an existing entrance due to a change in the land use or other substantial changes

resulting in higher volume use. VDOT can also require a new permit due to a change in the type of traffic a site generates.

VDOT has a permit process in place that is paired with three manuals that establish design standards: the Land Development Manual, the Road Design Manual, and the Minimum Standards of Entrances to State Highways. The last of these includes a separate appendix dealing with commercial entrances. The Land Development Manual also contains an appendix with design standards for subdivision streets, including access design guidance. Each of these documents has incorporated some access design standards into its guidance and generally covers sight distances, intersections, median openings, and turn lanes. Entrance spacing is also sometimes addressed.

It is notable that a permittee, or developer, is required to procure all additional governmental permits and licenses and submit evidence of those permits as part of the permit approval process by VDOT. This means that to the extent that local regulations include access management provisions which must be met prior to approval and zoning permitting, those provisions will be recognized by VDOT. In addition, VDOT approval of all commercial entrances to highways is finite and is not meant to be transferred from one owner to another. If VDOT determines that an entrance is substandard or that safety, use, or maintenance of the entrance has changed significantly enough to require corrections, then it will require the owner to make those necessary changes or the entrance may be closed. VDOT has a policy of conducting periodic surveys for substandard driveway conditions

Recommended Access Management Standards

In order to meet the long-term goals of the City of Staunton and Augusta County for access management, it is recommended that a general section on access design requirements be added to the zoning regulations. In addition, it is recommended that access management provisions be included in an Overlay Zone for Route 250 and include the following four general conditions:

1. To apply to all roads within the corridor, rather than just Route 250, and be based on their functional classification,
2. to more fully address access for potential future development in non-residential zones where existing median crossings are limited,
3. to offer more comprehensive and quantitative design standards when applicable, and
4. to address non-conforming access points.

It is recommended that the following model regulatory language for access management be considered for adoption by the City of Staunton and Augusta County as a supplement to existing zoning regulations. For sections within the City of Staunton, these regulations could be incorporated into the Entrance Corridor Overlay District regulations for Route 250. This language is general and can be adjusted to meet the particular regulatory language of the individual jurisdiction or to fit with existing regulations, transportation plans or functional classification definitions

Funding Tools

Local governments are often limited in their financial capacity to undertake major redevelopment initiatives through their regular sources of revenue. General revenue from property taxes, permit fees, and the like are typically allocated toward a wide range of services and capital projects, all of which compete for scarce resources. Thus, most local governments turn to grants and creative financing strategies to help leverage private sector investment. Creating public-public and public-private partnerships is typically a necessary step in raising funds for capital projects that can serve as a catalyst for additional private investment.

The following pages describe some mechanisms for funding capital improvements along Richmond Road and summarize the numerous sources of funding that could be applicable to the Richmond Road corridor. Each funding source comes with unique requirements and qualification processes. In all likelihood, the ultimate funding of the recommended improvements will be satisfied through a combination of methods.

Community Development Authorities (CDA)

The Code of Virginia (§ 15.2-5152) empowers localities to consider petitions for the creation of Community Development Authorities (CDA). A CDA is initiated by landowners who may petition a locality to create a CDA. The owner or owners of at least 51 percent of the land area or assessed value of land in any tract or tracts of land may petition the locality for the creation of a CDA. Among other required provisions, the petition must specify the services and facilities proposed to be undertaken by the CDA. The locality may then adopt a resolution or ordinance creating the authority, after a public hearing held by the governing body. The resolution or ordinance is then recorded in the land

records of the circuit court for each parcel included in the district. (Note that two localities may jointly act to create such a district located in both localities).

The main powers of a CDA are to finance, fund, plan, establish, construct, operate, and maintain the infrastructure improvements enumerated in the ordinance establishing the district. These may include, but are not limited to: acquisition of land; construction or improvement of roads, bridges, parking facilities, curbs, gutters, sidewalks, traffic signals, storm water management and retention systems, gas and electric lines and street lights within or serving the district which meet or exceed the specifications of the locality in which the roads are located; parks, cultural and educational uses; fencing and landscaping; fire stations, water mains and plugs, fire trucks, rescue vehicles and other vehicles and equipment; and school buildings and related structures.

The CDA may issue revenue bonds, subject to terms and conditions as may be established in the ordinance or resolution establishing the district, for all costs associated with the improvements. Such revenue bonds should be payable solely from revenues received by the development authority. The revenue bonds issued by a CDA do not require the consent of the locality, except where consent is specifically required by the provisions of the authorizing resolution, and such bonds are not to be deemed to constitute a debt or obligation of the governing body of the locality.

The CDA may provide that the locality annually collect a special tax on taxable real property within the CDA's jurisdiction to finance the services and facilities provided by the authority. Unless requested by every property owner within the proposed district, the rate

of the special tax cannot be more than \$.25 per \$100 of the assessed fair market value of any taxable real estate.

Service Districts

The Code of Virginia (§ 15.2-2400) empowers localities to consider petitions for the creation of Service Districts (sometimes referred to as Special Service Districts).

Any locality may by ordinance, create service districts within the locality. The locality must hold a public hearing prior to the creation of any district. (Note that two localities may jointly act to create such a district located in both localities). Service districts are created to provide additional, more complete or more timely services of government than are desired in the locality as a whole.

Among other required provisions, the ordinance creating a service district must describe the boundaries of the proposed district; describe the purposes of the district and the facilities and services proposed within the district; and describe a proposed plan for providing such facilities and services within the district.

Once an ordinance creating a service district is adopted, the governing body has additional powers pertaining to the district, including:

- To construct, maintain, and operate such facilities and equipment as may be necessary or desirable to provide additional, more complete, or more timely governmental services within a service district, including but not limited to water supply, dams, sewerage, garbage removal and disposal, fire-fighting

equipment, sidewalks; economic development services; beautification and landscaping; public parking; extra security, street cleaning; and sponsorship and promotion of recreational and cultural activities.

- To provide construction, maintenance, and general upkeep of streets and roads, public transportation systems serving the district; including any new roads or improvements to existing roads; transportation management services; rehabilitation and replacement of existing transportation facilities or systems; and sound walls or sound barriers, including the acquisition of real estate necessary to provide such services (upon petition of over 50 percent of the property owners who own not less than 50 percent of the property to be served).
- To levy and collect an annual tax upon any property in the service district subject to local taxation to pay for providing the additional governmental services. Note, however, in contrast with the Community Development Authority provisions, such annual tax should not be levied for or used to pay for schools, police, or general government services.

In addition to the taxes and assessments provide for by the enabling legislation, a locality creating a service district may contribute from its general fund any amount of funds it deems appropriate to pay for the governmental services authorized.

The proceeds from any annual tax or portion thereof collected for road construction may be accumulated and set aside for such period of time as is necessary to finance such construction.

Funding Sources

Recognizing the need for new ways to complement and address gaps in traditional funding sources, VDOT and localities will need to look to a number of innovative funding and financing tools for transportation improvements. According to the Federal Highway Administration (FHWA), innovative financing encompasses a combination of techniques and mechanisms that include new or nontraditional sources of revenue; new financing mechanisms designed to leverage resources; new funds management techniques; and new institutional arrangements. It also includes new approaches to more traditional instruments, such as new bonding authorities.

The table on the following pages highlights numerous funding sources that could be applicable to the Richmond Road corridor. Each funding source comes with unique requirements and qualification processes. In all likelihood, the ultimate funding of the recommended improvements will be satisfied through a combination of methods.

Program	Applicability	Additional Information
Federal and State Transportation Financing Programs		
Safety Programs	The Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (P.L. 109-59) establishes DOT's Highway Safety Improvement Program as a core program. SAFETEA-LU provides flexibility to allow states to target funds to their most critical needs. States are required to create State Strategic Highway Safety Plans (SHSPs) to identify and analyze highway safety problems, which will enable them to allocate up to 10% of their Highway Safety Improvement Program (HSIP) funds for behavioral and other safety programs (after addressing rail grade and infrastructure safety issues identified in the SHSP). SAFETEA-LU expires in September, 2009. There are a number of programs identified within SAFETEA-LU that provide for the funding of bicycle and pedestrian projects.	http://www.fhwa.dot.gov/safetealu/summary.htm Recreational Trails Program http://www.dcr.virginia.gov/recreational_planning/trailfnd.shtml Congestion Mitigation/Air Quality Program http://www.fhwa.dot.gov/environment/cmaqpgs/08guide.htm
Regional Surface Transportation (RSTP) Funds	The federal Surface Transportation Program, which authorized about \$6.47 billion in federal funds in 2008, allocates resources based on lane miles and vehicle miles traveled on federal highways. The Regional Surface Transportation Program (RSTP) allocates funds based on population for urbanized areas with more than 200,000 people. It also provides flexibility to shift funds from highway to transit expenses. Examples of projects to which RSTP funds can be applied include: • Road widening; • Repaving; • Bicycle and pedestrian improvements (including on-street facilities, off-road trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and the modification of sidewalks to comply with the requirements of the Americans with Disabilities Act); • Transit capital; and • Research.	http://www.fhwa.dot.gov/safetealu/factsheets/stp.htm http://www.fhwa.dot.gov/legsregs/directives/notices/n4510674.htm
Earmarking	Earmarks consist of line items written into federal, state or local legislation designating funding for specific projects. These allocations circumvent the standard competitive assignment of funds normally required for projects. While there are earmarks for improvements to the Route 50/Route 15 interchange at Gilbert's Corner, the federal Office of Management and Budget does not list any federal earmarks within the immediate project area.	http://earmarks.omb.gov/

<i>Program</i>	<i>Applicability</i>	<i>Additional Information</i>
Federal and State Transportation Financing Programs		
Transportation Funding and Reform Act of 2007	The Transportation Funding and Reform Act of 2007 (HB 3202) allows counties to raise commercial property taxes as much as \$0.25. For FY 2009, the Fairfax County Board of Supervisors approved a tax rate increase of \$0.11, and is expected to generate approximately \$52 million transportation projects. Funds can be spent on roadway, pedestrian and transit projects.	https://leg1.state.va.us/cgi-bin/legp504.exe?071+ful+CHAP0896 http://www.fairfaxcounty.gov/dmb/adopted/FY2009/PDF/Volume2/sr_124.pdf
Transportation Partnership Opportunity Fund (TPOF)	The legal framework for the TPOF begins with Chapter 845 of the 2005 Acts of Assembly. The TPOF is to be used by the Governor of Virginia through the Design-Build provisions of the Virginia Code (§33.1-12(2)(b)) pursuant to the Public Private Partnership Act of 1995 (Virginia Code § 56-556 et seq.). The Governor can also use TPOF monies for transportation aspects of economic development projects. Grants can be up to \$5 million, while loans up to \$30 million can be obtained interest free, but require repayment within 7 years. While flexible, TPOF funds are limited to use when the capacity of existing funding mechanisms has been exceeded.	http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+33.1-221.1C8 http://www.virginiadot.org/projects/resources/tpofimplementationGuidelines10-2005.pdf
Revenue Sharing	The Virginia Department of Transportation Revenue-Sharing Program is authorized under Virginia Code §33.1-2305. The program allows for Virginia Department of Transportation funds to match locality funds for improvement, construction or reconstruction on any functional class of roadway. A locality can request funds for projects in other localities. The program is currently funded at a level of \$50 million; each locality may request up to \$1 million.	http://www.virginiadot.org/business/resources/local_assistance/Revenue_Sharing_Guide_2008.pdf
VDOT Primary and Secondary Roadways¹	VDOT Funds both primary and secondary roadways. Primary roads are designated by route numbers 1 – 599; secondary roads are designated by route numbers 600 and up. Funds for primary roads are allocated through a formula based 70% on vehicle miles traveled (VMT), 25 % on lane miles, and 5% on primary need. Project selections for secondary road projects, while funded by VDOT, are the responsibility of county boards and supervisors. No local match is required. The formula for allocating secondary road funding is 80% population, 20% land area. For urban roadways – those within the boundaries of cities and towns – a 2% match is required. Only a small percentage of secondary roads qualify for federal funding.	http://www.virginiadot.org/projects/reports-budget.asp

¹ The urban roadway system receives approximately 30% of state funding; these monies are allocated to cities and towns based on population.

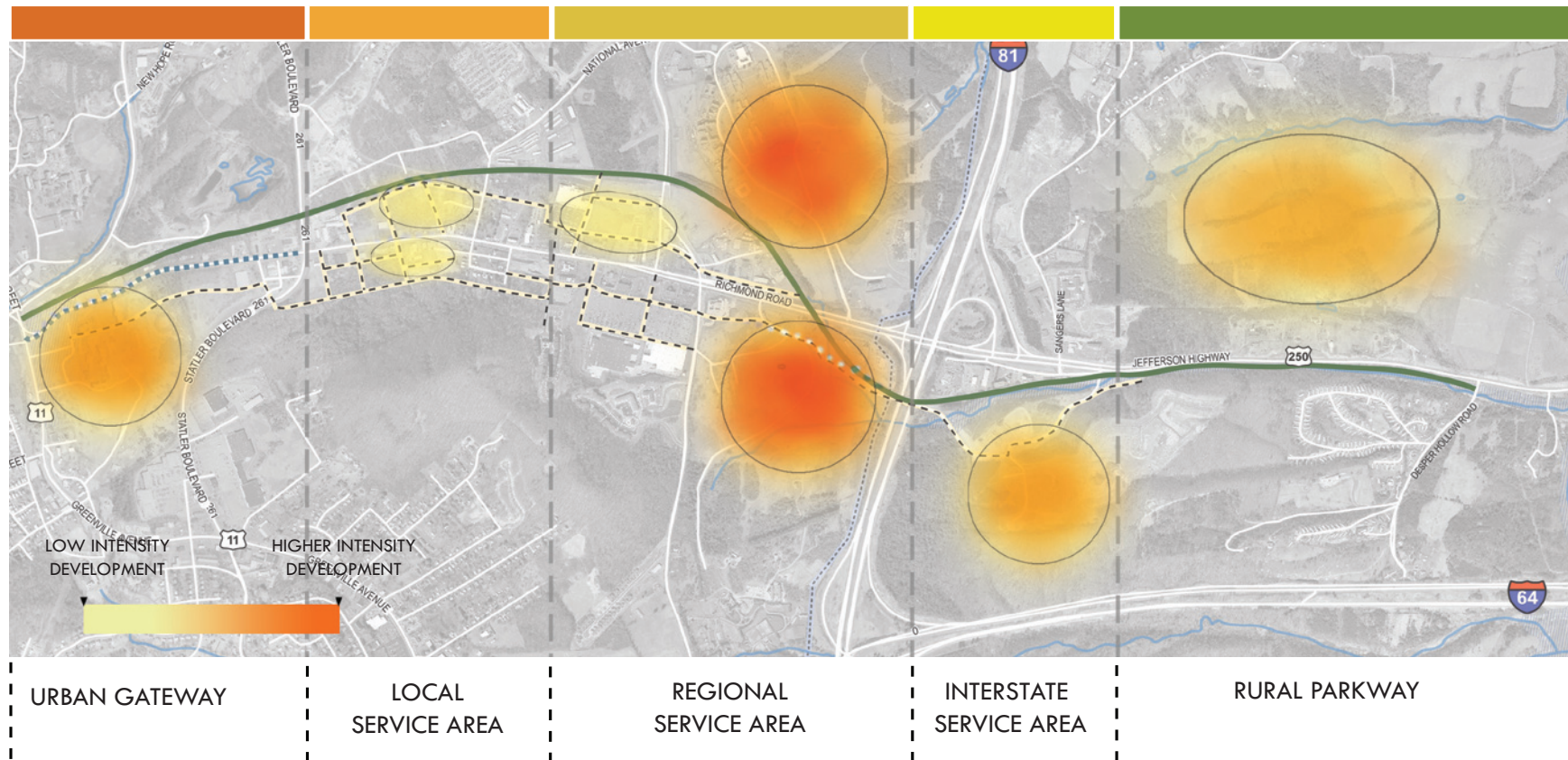
<i>Program</i>	<i>Applicability</i>	<i>Additional Information</i>
Local Transportation Financing Programs		
Community Development Authorities (CDA)	CDA's may be established by the governing body upon petition from 51% of the land area or assessed value of land in any tract or tracts of land in a proposed district. The main powers of a CDA are to finance, fund, plan, construct, operate, and maintain the infrastructure improvements enumerated in the ordinance establishing the district. These can include acquisition of land; construction or improvement of roads, bridges, parking facilities, curbs, gutters, sidewalks, traffic signals, storm water management and retention systems, gas and electric lines and street lights. The CDA may provide that the locality annually collect a special tax on real property within the CDA's jurisdiction to finance the services and facilities provided by the authority. Unless requested by every property owner within the proposed district, the rate of the special tax can not be more than \$.25 per \$100 of the assessed fair market value of any taxable real estate.	See Code of Virginia § 15.2-5152.
Service Districts	Any locality may by ordinance, create service districts within the locality. The locality must hold a public hearing prior to the creation of any district. (Note that two localities may jointly act to create such a district located in both localities). Service districts are created to provide additional, more complete or more timely services of government than are desired in the locality as a whole. Once an ordinance creating a service district is adopted, the governing body has additional powers pertaining to the district, including: • to construct, maintain, and operate such facilities and equipment as may be necessary or desirable to provide additional, more complete, or more timely governmental services within a service district. • to provide construction, maintenance, and general upkeep of streets and roads, public transportation systems serving the district, including the acquisition of real estate necessary to provide such services. • to levy and collect an annual tax upon any property in the service district subject to local taxation to pay for providing the additional governmental services. Note, however, in contrast with the Community Development Authority provisions, such annual tax shall not be levied for or used to pay for schools, police, or general government services.	See Code of Virginia § 15.2-2400.

<i>Program</i>	<i>Applicability</i>	<i>Additional Information</i>
Local Transportation Financing Programs		
County General Obligation Bonds	General obligation bonds provide up-front capital financed through a revenue stream backed by local government tax revenues (primarily property tax). In 2004, Fairfax County issued about \$165 million in transportation bonds. Another \$110 million in bonds for transportation was approved by voters in 2007.	http://www.fairfaxcounty.gov/dmb/bonds.html http://www.fairfaxcounty.gov/dmb/adopted/FY2009/pdf/Volume1/00140.pdf
Increment Financing/Urban Renewal Funds	Tax Increment Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Tax Increment Financing typically occurs within designated Urban Renewal Areas (URA) that meet certain economic criteria and approved by a local governing body. To be eligible for this financing, a project (or a portion of it) must be located within the URA.	
System Development Charges/Developer Impact Fees	System Development Charges (SDCs), also known as Developer Impact Fees, represent another potential local funding source. SDCs are typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- or off-site pedestrian improvements that will encourage residents to walk or use transit rather than drive. In-lieu parking fees may be used to help construct new or improved pedestrian facilities. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.	
Proffers	Proffers are a form of conditional zoning authorized under the Virginia Code (§15.2-2298 – 2303). Proffer rates are negotiated by localities and can include cash amounts, dedicated land, or capital improvements; Fairfax and Loudoun Counties are principle users of proffers to support transportation projects.	http://www.loudoun.gov/Portals/0/docs/Budget/DriftFY09/Proffer.pdf http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+15.2-2298
Private Funding Sources and Volunteer Services	Local businesses can help defray some of the costs associated with trail and greenway development and operation. Some examples include: • Cash donations • Donations of services, equipment, and labor • Discounted materials • Contribution of employee volunteer time Community organizations can be very successful at hosting fundraisers and providing volunteer labor for trail building and maintenance activities. Local examples include 4-H, Boy Scouts of America, Rotary Club, university service clubs, equestrian and cycling groups and others.	

Program	Applicability	Additional Information
Local Transportation Financing Programs		
Non-Profit Corporations (IRS Rule 63-20) <i>Note: not necessarily a funding source, but a strategy for raising funds for capital projects.</i>	This rule permits nonprofit corporations to raise tax exempt bonds and enter into agreements with contractors for infrastructure provision. The corporation must develop a facility that serves a public purpose, and be expressly authorized by the state. The completed facility is then leased back to the state, with the lease payments covering the debt service. At the end of the lease/debt service repayment, the facility becomes the property of the state. VDOT used this financing strategy for construction of the Pocahontas Parkway. The use of 63-20 corporations provides added flexibility with respect to project delivery methods and project timing. But a report by the state of Washington suggests that these entities incur higher financing costs than debt issued directly by a government agency.	http://www.wa.gov/tre/BondDebt/bnd_63-20cof.pdf http://www.fhwa.dot.gov/innovativeFinance/ifq62.htm

DESIGN GUIDELINES

MAP 7. RICHMOND ROAD CORRIDOR STUDY FUTURE CONTEXT ZONES



Introduction

The Richmond Road Corridor Study focuses on strategies to improve multi-modal connections throughout the region in ways that minimize traffic congestion, enhance traveler safety, and support future land use goals. The Corridor Design Guidelines incorporate transportation, land use and community design recommendations for each context zone along the corridor from Route 11/ Greenville Avenue to Desper Hollow Road.

The diagram on the left (Map 7) depicts the five context zones located along Richmond Road, as described in Chapter 1. These zones were delineated based on an analysis of existing conditions and future goals and preferences for transportation and community development as expressed in local plans and policies, as well as public meetings for this study. Zone edges, depicted as dashed lines on the map below, are transition areas between zones, where overlap is expected. Also indicated on the map are areas of varying development intensities identified through a scenario planning process conducted with community input, as well as guidance from the steering committee.

The matrix on the following pages summarizes recommended design elements, organized by context zone. Following the matrix is an illustrated description of each design element. This information is intended to provide local planners and stakeholders with a general understanding of each design element and how it can

be applied along the corridor. These guidelines are intended to inform the development of Corridor Overlay District standards for the Richmond Road corridor. The design elements are organized for consistency with context-sensitive thoroughfare design recommendations developed by the Institute for Transportation Engineers (ITE), in partnership with the Congress for New Urbanism (*“Context Sensitive Design for Walkable Urban Thoroughfares”* (2006)).

SUMMARY MATRIX - Richmond Road Corridor Study Design Guidelines

	context	URBAN GATEWAY	LOCAL SERVICE AREA
A	context realm		
	general street layout		
1	connectivity	connectivity is a general principle that is strongly encouraged in all context zones.	
2	block size	300'-500'	300'-500'
	site + building design		
3	lot coverage by zoning district (for maximum height without a special use permit (SUP))	B-2 zoning: 100% max. I-1 zoning: 75% max.	B-2 zoning: 100% max. I-1 zoning: 75% max.
4	maximum height (without SUP)	B2 zoning: 75' or 6 stories I-1 zoning: 45' or 4 stories	B2 zoning: 75' or 6 stories I-1 zoning: 45' or 4 stories
5	building frontage (orientation)	front	front and/or back
6	side setbacks	B-2 zoning: 0' min. I-1 zoning: side 15' (determined by adjacency)	B-2 zoning: 0' min. I-1 zoning: side 15' (determined by adjacency)
7	front setbacks	B-2 zoning: 5' min.; I-1 zoning: 25' min.	B-2 zoning: 5' min.; I-1 zoning: 25' min.
8	off-street parking location	Option: 1 (see page 84)	Options: 1, 2 (see page 84)
B	roadside realm		
1	sidewalk width	5' min.	5' min.
2	lighting and signage	pedestrian-scaled lighting and signage is encouraged on all streets where pedestrian activity is expected, placed no further than 50' apart on center.	
3	landscaping	A 5' wide min. planting strip is encouraged along all zones where development fronts the corridor. Street trees are recommended @ 25' (min.) spacing; 3.5' hedge where required.	
C	traveled way realm		
1	target (posted) speed	25 mph	35 mph
2	number of travel lanes	2	4
3	lane width	10-11'	11'-12'
4	bicycle lanes/shoulders	4' (min)	4'-5'
5	medians	12-16' (11' min. turn lane)	12-16'
6	access management	limit the number of driveways and encourage alley or parallel street access on all streets	
D	intersection realm		
1	crosswalks	yes	yes
2	roundabouts	consider double-lane roundabout intersections under 40,000 vehicles/day	

context	REGIONAL SERVICE AREA	INTERSTATE SERVICE AREA	RURAL PARKWAY
context realm			
general street layout			
connectivity	connectivity is a general principle that is strongly encouraged in all context zones		
block size	300'-600'	n/a	n/a
site + building design	site + building design		
lot coverage by zoning district (for maximum height without a special use permit (SUP))	B-1 zoning: 35% max. B-2 zoning: 100% max.	GA: n/a GB: n/a	GA: n/a
maximum height (without SUP)	B-1 zoning: 35' or 2.5 stories B-2 zoning: 75' or 6 stories	GA: 35' GB: 50'	GA: 35' All Residential: 35'
building frontage (orientation)	front and/or back	front and/or back	n/a
side setbacks	B-1 zoning: 25' min. ; 0' min. for commercial bldgs. B-2 zoning: 0' min.	GA: 25' min. GB: 0-25' min	GA: 25' min. All Residential: 15'
front setbacks	B-1 zoning: 20' min.; B-2: 5' min.	GA: 50' min; GB: 35-50'min	GA: 50' min; All Residential: 35' - 50'
off-street parking location	Options: 1, 2 and 3 (see pages 84-85)	Options: 1, 2, 3, and 4 (see pages 84-85)	Options: 1, 2, 3, and 4 (see pages 84-85)
roadside realm	roadside realm		
sidewalk width	N/A	N/A	N/A
lighting and signage	pedestrian-scaled lighting and signage is encouraged on all streets where pedestrian activity is expected, placed no further than 50' apart on center.		
landscaping	A 5' wide min. planting strip is encouraged along all zones where development fronts the corridor. Street trees are recommended @ 25' min. spacing; 3.5' hedge where required.		
traveled way realm	traveled way realm		
target (posted) speed	35 mph	35 mph	45-55 mph
number of travel lanes	4-6	4	4
lane width	11'-12'	11'-12'	11'-12'
bicycle lanes/shoulders	recommended off-corridor only	recommended off-corridor only	8'
medians	16' min.	16' min.	16' min.
access management	limit the number of driveways and encourage alley or parallel street access on all streets		
intersection realm	intersection realm		
crosswalks	yes	yes	yes, potential in the future

DESIGN ELEMENTS

CONTEXT REALM

GENERAL STREET LAYOUT

CONNECTIVITY

A1

Interconnected and parallel roadway networks can provide advantages such as enhanced access, reduced congestion, and more responsive emergency services. Well-connected areas promote pedestrian and bicycle activity and encourage these modes in place of driving for local trips.



discouraged

encouraged

BLOCK SIZE

A2

Smaller scaled blocks help to promote walkability and mixed-use development by: creating an increased sense of location and direction, breaking down the space between intersections and destinations, promoting a diversity of building types within closer proximity, and providing increased visibility for businesses and offices.

Recommended block sizes within the study area range from 300' - 600', depending on the context zone.

SITE + BUILDING DESIGN

LOT COVERAGE

A3

Lot coverage is the portion of a site that is permitted for development. Lot coverage is often specified as a percentage of the total parcel area. It includes parking and any structural element developed on the parcel. Lot coverage along with building height, setbacks, and sometimes floor-to-area ratio (FAR) help to define the development pattern over a given area.

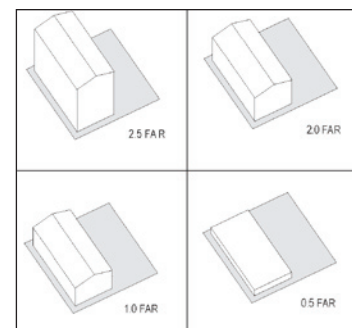


Illustration demonstrating Floor-Area-Ratio (FAR)

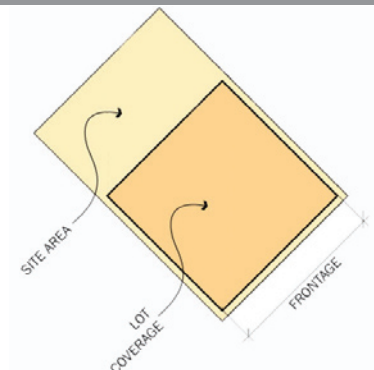


Illustration demonstrating Lot coverage

BUILDING HEIGHT

A4

Single story buildings are generally discouraged along Richmond Road. Single story buildings consume a greater land area than multi-story buildings of the same square footage, thus contributing to sprawl. Smaller building footprints can be accommodated on smaller sized blocks, increasing the degree of connectivity and promoting multi-modal activity along the corridor.

In general, maximum building heights along Richmond Road vary according to zoning standards. Greater building heights are permitted in certain areas with the approval of a special use permit.

BUILDING FRONTAGE: ARTICULATION, TRANSITIONAL SPACES, TRANSPARENCY, AND MIXTURE OF USES

A5

Successful site design balances car and pedestrian accessibility and creates a welcoming presence that defines the street as a public realm. Building facades are the interface between the public street and the building interior. The placement and size of the facade elements are critical to the way a building is perceived in terms of its scale and character. In general, the larger the expanse of blank wall on a building, the larger and more imposing the structure appears to be. The treatment of building frontage is a critical component of site design and should strive to incorporate several of the following principles:

- Draw buildings closer to the street's edge and relegate parking to the side or rear in order to minimize the visual impact of parking and enhance pedestrian access from the sidewalk.
- Where sidewalk activity is limited due to higher traffic speeds and volumes, strive to minimize building setbacks and screen parking lots adjacent to the street with a mixture of trees and shrubs.
- Limit overall building footprints by encouraging multi-story buildings.



encouraged



discouraged

a FACADE ARTICULATION

Building facades should incorporate elements to help break down the mass of the facade wall. These elements include: recesses and projections of the wall plane, entryways or storefront windows, changes in texture, material, or color, and arcades and balconies.



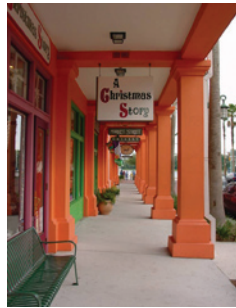
Incorporating building elements such as arcades and awnings, or recesses and projections of the wall plane help to articulate the street wall into a unified composition.

b | TRANSITIONAL SPACES

Transitional spaces are encouraged to bridge the gap between the public and the private realm and between indoor and outdoor spaces. A few examples of transitional spaces include: porches, stoops, arcades, courtyards, and outdoor cafes.

PORCHES + STOOPS

Porches and stoops are typically covered structures extending outward or recessed into the building structure. Porches and stoops help to break down the mass of a building to a pedestrian scale, accentuate the point of entry, and provide shelter from rain and snow.

ARCADES

Pedestrian arcades are permanent roof-covered walkways that span the length of a building or group of buildings. Arcades provide shade and protection from weather while often contributing to the interest and vitality of a streetscape.

Arcades span a reasonable distance so as to provide a distinct streetscape experience. Evenly spaced columns or openings create rhythm and articulation on the street. Arcades are open structures and should not be enclosed when fronting a primary street.

OUTDOOR CAFES/COURTYARDS

Outdoor cafes can help to activate the streetscape, bringing people and business outdoors. Along Richmond Road, outdoor cafes and courtyards are most appropriate in areas that have good landscape screening or buffers. A mixture of trees and shrubs defines the area's edge.

C TRANSPARENCY

Fenestration, or transparent door and window openings are encouraged on all floors of buildings located along the Richmond Road corridor. Blank lengths of wall without openings should not exceed 20 linear feet.



encouraged



discouraged

d MIXTURE OF USES

Creating a walkable environment typically includes providing a careful balance of land use, jobs, housing, restaurants and shopping within a compact, walkable area. In vertically mixed-use buildings, uses that attract pedestrians, such as retail or service uses, should be encouraged on the ground floor with office and residential uses above. Additionally, to be successful, development should incorporate both a vertical (multiple floors) and horizontal (adjacent buildings) mixture of uses.

vertical mixed-use



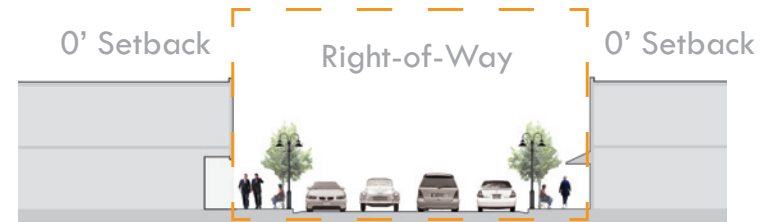
Setbacks represent the distance between the lot line and the building facade on the front, sides, and sometimes back of the building. For example, zero-front setbacks means a building may be located directly adjacent to public sidewalks in order to provide direct pedestrian access. A zero side setback is used to create a continuous and pedestrian-friendly street wall. On Richmond Road, this type of frontage and setback is most appropriate in the Urban Gateway, Local Service Area, and on smaller frontage parcels within the Regional Service Area, as well as the areas within the parallel local street grids.

Often along suburban corridors, buildings are set back from the street with parking lots located between the sidewalk and the building entrance. Many of these businesses rely on automobile access and may see very minimal business coming from bicyclists or pedestrians. Regulations that force small setbacks in auto-oriented areas may result in false or underutilized facades (especially if there is no sidewalk in front of the buildings).

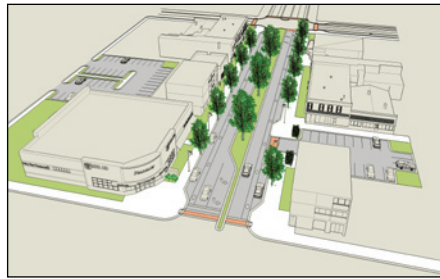
One solution for activating the front-facing facade of a building, is to provide a frontage road or an aisle with “on-street” parking in between the main corridor and the buildings. Sidewalks can be located on either or both sides of the aisle and enhanced to encourage pedestrian activity by including landscaping, lighting, and other pedestrian amenities. Additional parking should be placed at the rear or side of the building and buffers should screen parking from the sidewalk or roadway. This type of frontage and setback is most appropriate on portions of the Local Service Area, the Regional Service Area, and the Interstate Service Area.

Another option is to route pedestrians off the main corridor and onto a network of pedestrian-scaled local streets that provide more direct access to buildings. In these cases, the buildings should have multiple “front doors,” including at least one that does not require pedestrians to walk across a parking lot to get to the building. New development within the proposed local street networks along the Richmond Road corridor should be designed to allow for this kind of multiple orientation.

The optional design diagrams in the Parking Lot Configuration section illustrate these concepts.



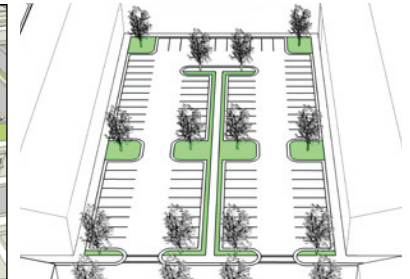
Surface lots should be placed to the rear, side of buildings or in block interiors to minimize visual impact (See illustrations to the right). Occasionally in commercial areas parking may be placed in the space between the sidewalk and the building front as a single or double lane of parking if well screened from the road. (See illustrations in previous section titled “Parking Configuration Options.”)



Example rendering of a “commercial street” with parking located to the rear and side of buildings



Example rendering of a “main street” with parking located to the rear of buildings



Example rendering of a well-connected and landscaped interior

a PARKING LOT - LANDSCAPING + PEDESTRIAN CIRCULATION

Landscaping and Pedestrian Circulation

Trees and landscaping should be used to break up large expanses of surface parking, provide refuge for pedestrians, shade vehicles, and collect stormwater runoff. Planting within parking lots helps to reduce stormwater runoff, filter air, provide shade, and maintain property values. Large and/or sub-canopy trees should be provided within the interior of a parking lot, the perimeter, and along entrances. Parking visible from the street should be screened with evergreen landscaping. Hedges can be used in addition to perimeter trees at 3.5' in height where parking is adjacent to the sidewalk or the corridor.

Pedestrian pathways are encouraged to break up parking rows and provide safe access between the parking lot and buildings. Along these pathways, subcanopy trees are recommended at 15' on center.



Landscaping breaks up a large expanse of surface pavement.



Surface parking is screened from view by landscaping and hedges.

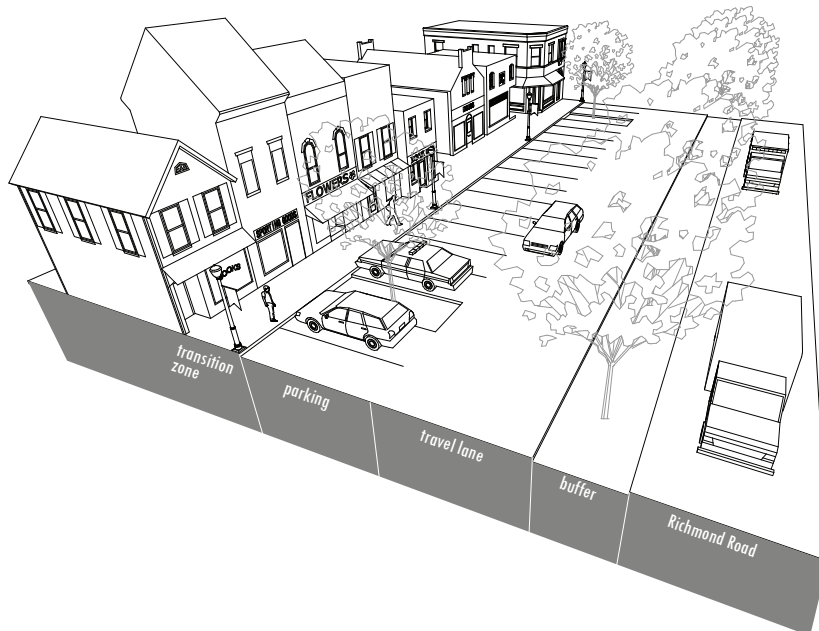


Well-marked circulation between parking spaces and building entrances creates a clear, direct route for pedestrians

a PARKING LOT CONFIGURATION OPTIONS (1+2)

OPTION 1: (small setbacks)

Draw the building to the street's edge and orient main entryways to the sidewalk. Parking is relegated to the rear and/or side of buildings and screened from the roadway. Street trees and wide sidewalks are recommended to create an active pedestrian realm.

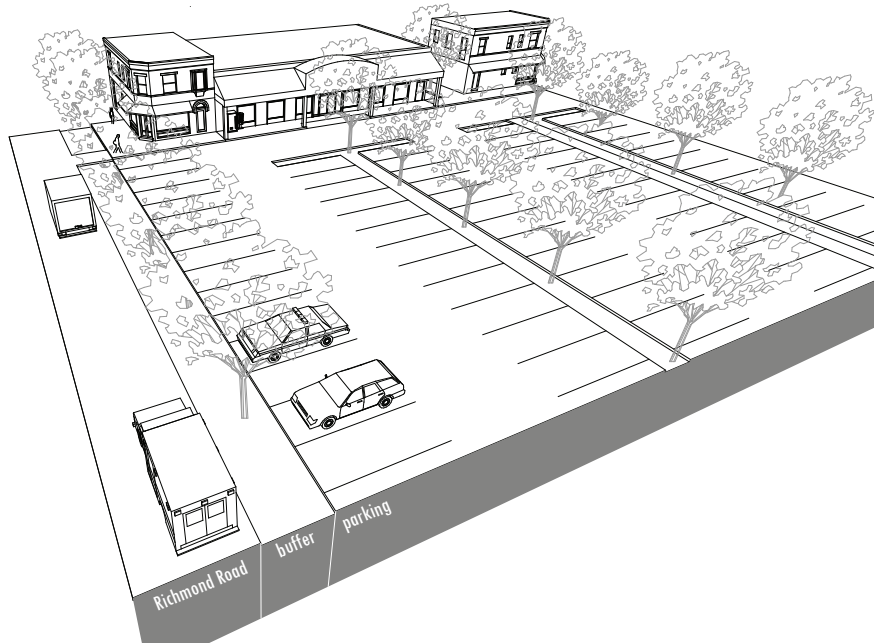
OPTIONS 2 (left) + 3 (next page): (one to two rows of parking, one aisle)

Set the building back to allow for a single or double row of parking fronting the building. This allows for both an active pedestrian realm and ease of access for vehicular traffic. Pedestrians should be given primary consideration in design, where wide, buffered sidewalks front the buildings and side setbacks are small. This helps to create a continuous wall of adjacent businesses and encourages a park once and walk environment. Additional parking may be included in the rear of the buildings.

a PARKING LOT CONFIGURATION OPTIONS (3+4)

OPTION 3:

See description on previous page under “Options 2+3”.

OPTION 4: (side-oriented building, parking on the side)

Orient buildings so that the front facade is perpendicular to the main corridor. The building's side is drawn close to the street for ease of pedestrian access from the sidewalk. Street trees and shrubs buffer the perimeter of the lot and are interspersed throughout the surface parking area. Pedestrian pathways are provided within the parking area for safe connection between the lot and the building. Allow for terracing of lots and buildings to better conform with existing topography.

* See Summary Matrix Table for more information on where each of these Options may apply

Cross-access easements reduce vehicle and pedestrian conflict points along thoroughfares. By connecting to adjacent sites they promote internal vehicular circulation and decrease the number of vehicle trips on thoroughfares.

Cross-access easements are recommended along Richmond Road. These features can be established by requesting or requiring that properties have an access and internal circulation system plan and agreement. The plan would identify on-site circulation and connections to adjacent sites, and could be required when new development or redevelopment is proposed.

Stub-outs, landscaping treatments, and other design features should be used to visually demonstrate locations where abutting properties can provide cross access via a service drive or street.



Example of a service drive connecting adjacent parcels and sharing a rear-located surface lot.

ROADSIDE REALM

SIDEWALKS

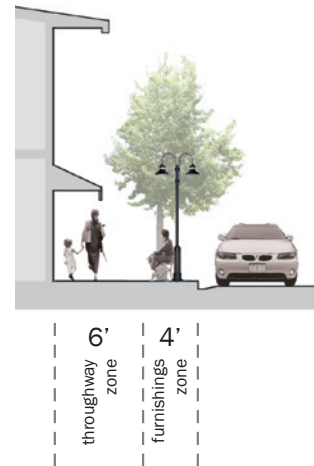
B1

Where pedestrian activity is expected along Richmond Road, sidewalks should be provided at a minimum width of 5', free of obstacles. Street trees, lighting and other amenities such as benches or trash cans should be located either in the "furnishings zone" between the street and sidewalk or "frontage zone" next to the buildings.

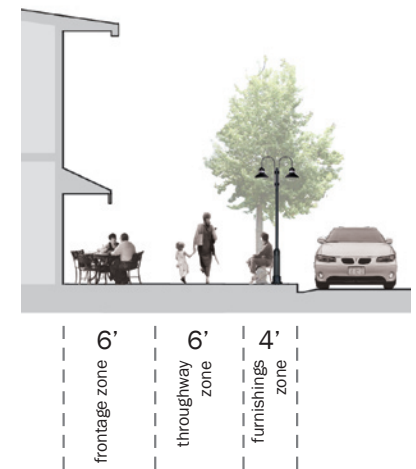
5' sidewalk design



10' sidewalk design



Enhanced 16' sidewalk design



LIGHTING + SIGNAGE

B2

On a commercial corridor where pedestrian activity is expected, lighting should be scaled to the pedestrian, and should be oriented towards both the sidewalk and the roadway. Street lights for pedestrians should not exceed 12' in height & should be placed no further than 50' apart. Similarly, commercial signage should be scaled for both automobile and pedestrian traffic. Large signage that competes for high speed motorists' attention and contributes to roadway clutter should be avoided. Instead, signage should be designed and scaled to provide a more consistent and unified streetscape character along the corridor.



encouraged: pedestrian-oriented lighting & signage



discouraged: auto-oriented lighting & signage



Appropriately scaled and well-integrated sign examples



discouraged

Signs that are incompatible with the desired character of Richmond Road. These signs do not contribute to building a unified streetscape character.

Street trees provide shade, separate sidewalks from roadways, and break down the scale of the street. In order to provide continuous shade coverage, street trees should be planted 25' apart. Typically an 8' vertical clear zone between the tree canopy and the sidewalk should be maintained in order to ensure clear visibility and security for pedestrians and motorists. In intensely developed areas, this zone may be increased in order to enhance readability of storefronts and signage. Planting strips are recommended along all areas of Richmond Road. Tree species with tap roots should be selected to prevent sidewalk breakage.



TRAVELED WAY REALM

TARGET (POSTED) SPEED

C1

The desired roadway Target/Design Speed should be determined by: the functional classification of a roadway, the context, land use and density, the surrounding terrain, and the modes of transportation expected to share the roadway. In traditional engineering practice, the design speed is 5-10 miles higher than the target (posted) speed. The roadway is designed to accommodate this higher speed because about 15% of all drivers consistently exceed the posted speed. However, in places that are seeking to promote pedestrian activity, the target and design speed should be one and the same, and as low as possible. In the pedestrian-oriented context zones along Richmond Road, the recommended target/design speed is 35 mph, or less.

NUMBER OF TRAVEL LANES

C2

The number of travel lanes should be determined by the functional classification of a roadway, the surrounding land use, and the types and volume of alternative modes of travel. In more developed areas where pedestrian activity is greater, the number of lanes should be minimized to reduce the roadway crossing distance for a pedestrian. Alternatively, on through roadways, where pedestrian activity is low, wider roadways may be more advantageous for efficiently moving vehicles. Where roadways have 4 lanes or more, pedestrian refuge islands are recommended to divide the crossing distance into two segments, making the road safer for everyone, especially older adults or people with disabilities.

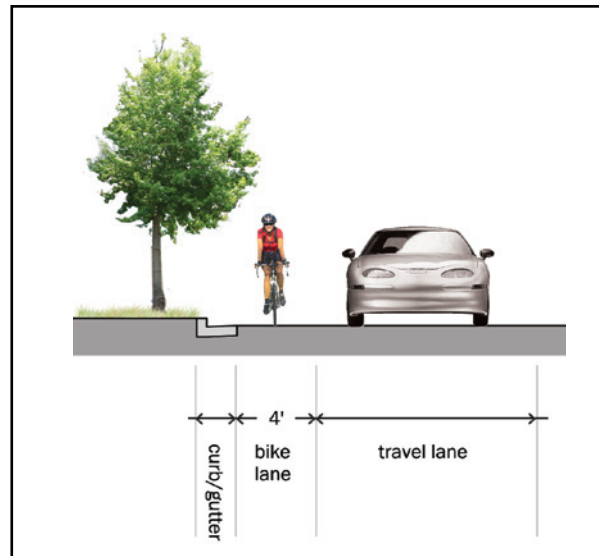
WIDTH OF TRAVEL LANES

C3

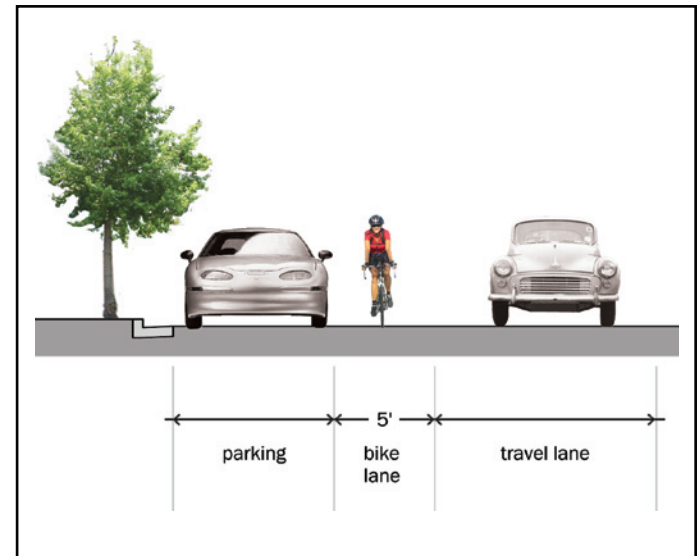
Narrower travel lanes are considered most appropriate for developed and populated areas. Lane widths in the 9'-11' range require drivers to move more slowly, while wider lanes (12' and greater) encourage faster speeds. However, the context and shared use of the roadway are important factors that contribute to this reduction in speed. For example, roadways with bicycle lanes, on-street parking and buildings oriented toward the street will affect the perceived width of the right of way among drivers, so that they drive more slowly and pay more attention to other roadway users. Wider lanes may be more appropriate in areas where the dominant roadway user is the automobile and the context is less developed. Wider lanes may be necessary to move larger vehicles in industrialized areas or along truck routes. However, strategies such as mountable curbs allow large vehicles to navigate tight turns in urban areas without requiring an actual widening of the street.

On-street bike lanes should be a minimum of 4' in width or 5' where vehicular speeds exceed 25 mph. Multi-use trails that allow for bicycle access should be a minimum of 10' in width and used instead of sidewalks. An 8' wide striped shoulder should be used in rural areas where no curb and gutter are present, to provide room for bicycle mobility.

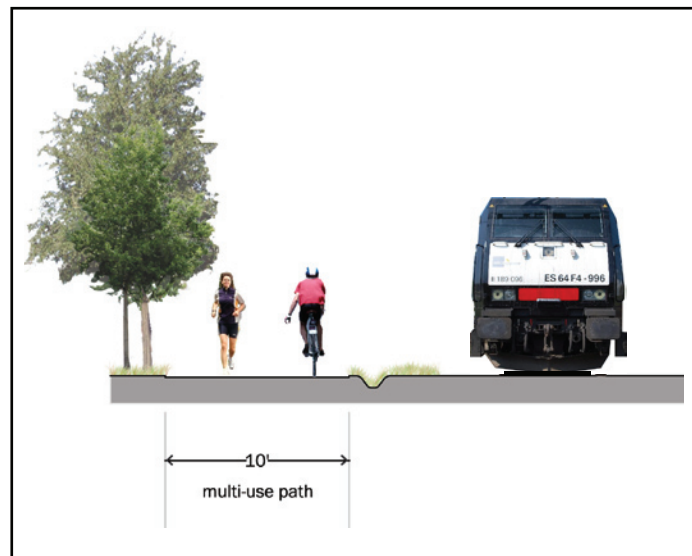
Development standards should also ensure that once a cyclist arrives at a destination, there is a secure location for bike storage.



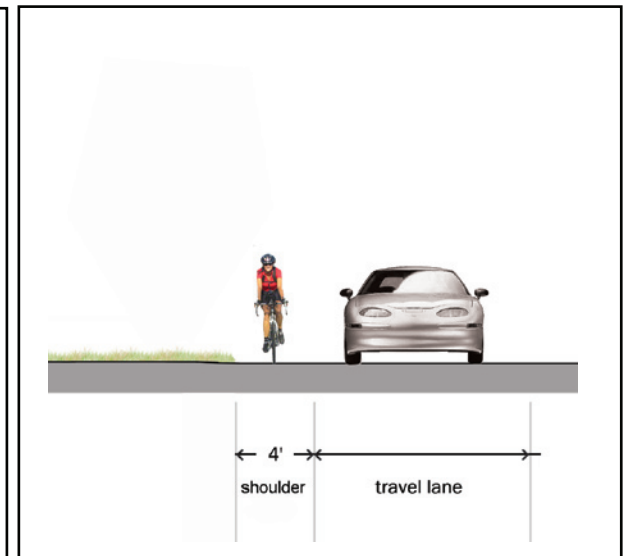
4' is the minimum for an on-street bicycle lane



A 5' on-street bicycle lane is located between on-street parking and through traffic



An 8' multi-use path (10' recommended) is used instead of a sidewalk where the right of way permits.



A 4' shoulder can be used as a bicycle lane in rural areas

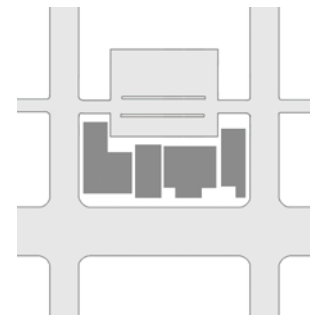
Medians are used to separate directional traffic and provide refuge space for pedestrian crossing. In urbanized areas, medians can contribute to traffic calming by reducing the perceived width of the roadway. Additionally, medians reinforce the sense of place with landscaping, pedestrian-scale lighting, and signage. In urban centers, medians may provide unnecessary width to the roadway, increasing the crossing distance for pedestrians. However, along the length of Richmond Road, landscaped medians are recommended, as the right of way allows. Medians used to divide 4-lane roads should ideally be wide enough to provide a turn lane with 6' remaining for pedestrian refuge.



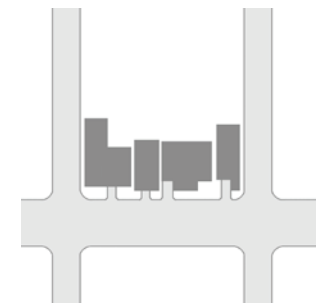
ACCESS MANAGEMENT

Successful access management makes travel for all roadway users safer and more efficient because it reduces the number and frequency of driveways along a corridor, particularly when they require a left turn. Several destinations are accessible by a common entrance at a well-designed intersection. By reducing turning movements, access management makes streets safer for pedestrians, reduces traffic and bottlenecks, and improves the appearance of a street.

Detailed access management recommendations for Richmond Road are presented in Chapter 3, Transportation Strategies.



encouraged: shared access & parking



discouraged: separate driveways

INTERSECTION REALM

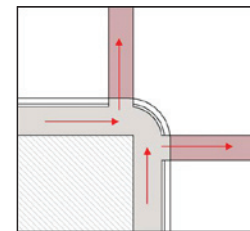
CROSSWALKS

D1

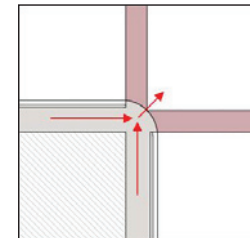
Crosswalks increase the safety and visibility of pedestrians crossing a roadway. Crosswalks should be provided on all legs of intersections and/or mid-block (where block lengths are longer) in pedestrian oriented areas. Curb ramps for wheelchairs should lead directly into the crosswalk at each juncture, rather than requiring people in wheelchairs to navigate from the ramp to the crosswalk.

Basic crosswalks consist of reflective white striping. Raised brick or textured crosswalks are also used to provide increased visibility, calm traffic, and improve the appearance and character of locations with a high volume of pedestrians. Textured walks should be designed with care so that the surface does not impede wheelchair access.

Crosswalk lighting should be provided at least to the level of general street illumination, although higher luminance should be used at key pedestrian crossings. Countdown pedestrian signals also facilitate pedestrian movement at intersections or signalized mid-block crossings.



encouraged



discouraged

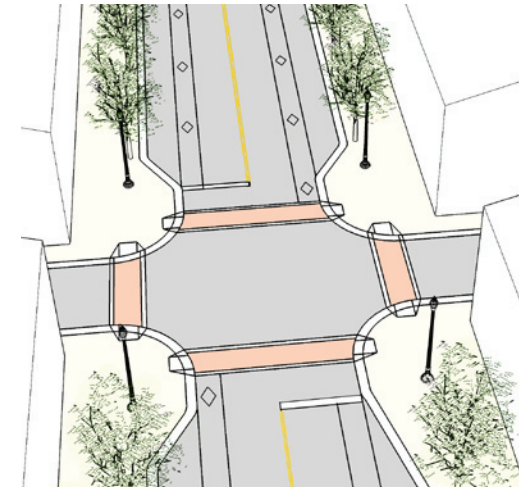
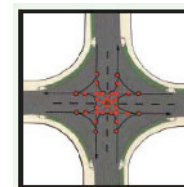


Illustration demonstrating encouraged crosswalk location and design

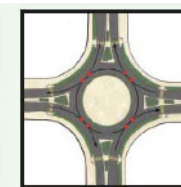
ROUNDBABOUTS

D2

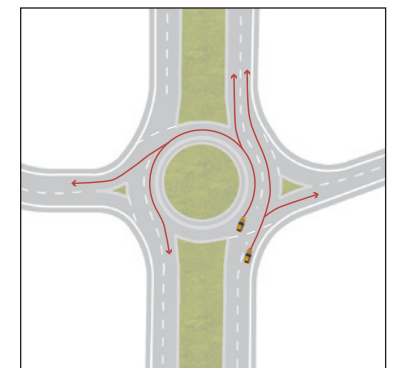
Modern roundabouts are used to channel traffic at an intersection into a one-way rotary. This method of traffic calming is useful in reducing potential points of conflict between vehicles and between vehicles and pedestrians. The size of the roundabout's inscribed circle should range between 50-120' before it becomes enough to allow speeds higher than 25 mph. Roundabouts are effective at slowing traffic while improving overall corridor travel flow by eliminating the bottlenecks and the need for traffic signals or turn lanes.



Traditional intersection:
32 conflict points



Roundabout:
8 conflict points

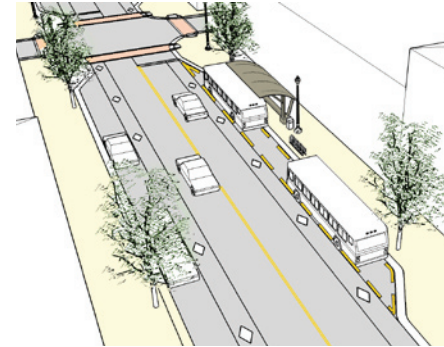


TRANSIT REALM

TRANSIT STOPS

D1

Transit stops should include a shelter, bench, trash receptacle, bicycle parking, lighting, and transit system information. Transit stops should be integrated with sidewalks and other site furnishings, should provide protection from the elements, and seating for at least two people. Shelters should not obstruct pedestrian movement along the sidewalk, and should typically be placed either on a bulb out or on additional paving on the far side of the right of way. Transit stops near signalized intersections are best located shortly beyond the traffic signal so that the pulloff does not interfere with turning movements.



BICYCLE PARKING

D1

Bicycle parking is a very important element of multimodal transportation planning. A lack of secure bicycle parking tends to deter bicycle transportation, particularly to such common destinations as employment centers, stores and schools. Short-term bicycle parking is needed to provide shoppers, customers, messengers and other visitors who generally park for two hours or less a convenient and readily accessible place to park bicycles. Bicycle racks should be placed in plain sight near the entrance to the building or facility they are intended to serve, and securely anchored. As a general rule bike racks should be located at least as close to an entrance as the nearest parking space.

In addition, long-term bicycle parking provides employees, students, residents, commuters and others who generally stay at a site for several hours a secure and weather-protected place to park bicycles. The measure of security for long-term bicycle parking must be greater than that provided by short-term parking. In areas where security is in question or where there is limited opportunity to provide weather protection, enclosed bike lockers are the best solution.



An ample amount of bicycle parking located close the building entrance encourages bicycle activity.

OFF-CORRIDOR DEVELOPMENT

The intention of this section is to provide general guidance for off-corridor future development in a manner that is compact, distinctive, accessible by many modes of travel, and accommodating to many daily activities such as living, working, recreation, shopping, and commuting. Anticipated future developments located off of the Richmond Road corridor consist of two primary types: Commercial/Mixed-Use or Neighborhood. Both types of development function well in the types of local grid street networks recommended by the Richmond Road study.

COMMERCIAL/MIXED-USE DEVELOPMENT

LAND USE

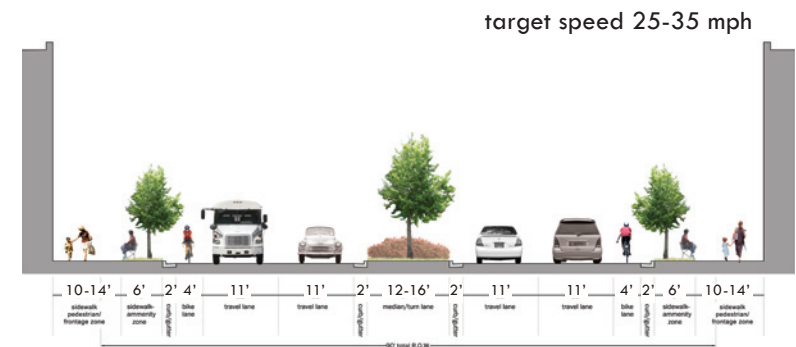
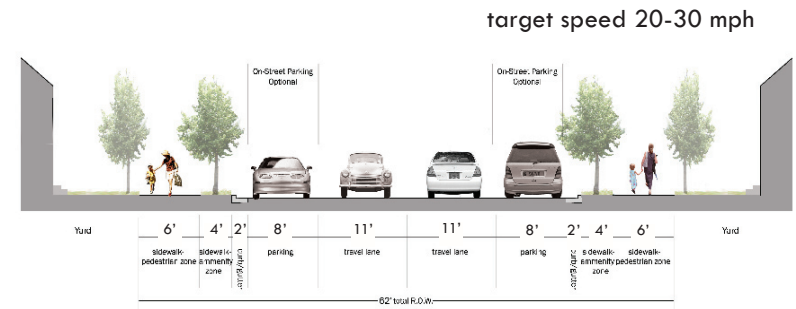
Conventional commercial development is predominately single-use, car-oriented destinations. Future development should strive to incorporate multiple uses into a walkable, pedestrian-friendly environment with compact and interconnected blocks. It includes buildings with a mix of retail and professional offices on the first floor with residential or office uses above. On sites where uses require larger block sizes, a smaller, pedestrian-oriented scale can be maintained by incorporating through-block pedestrian connections like sidewalks and pathways. Setbacks should be minimized, with the smallest setbacks along primary streets, particularly those with retail uses. Large parking areas should be minimized to optimize the potential density of the center. Larger uses, such as large footprint office or retail should be placed towards the edge.



COMMERCIAL STREETS

Commercial and mixed-use developments often contain a variety of street types. Main streets or boulevards generally serve as the “spine” of the development area with additional commercial and neighborhood streets branching off of the main connector. Main streets and boulevards should be pedestrian-friendly, providing wide sidewalks, shade trees, and safe crosswalks. Wider streets, such as boulevards, should incorporate medians with pedestrian refuges at intersections. Bicycle lanes should be included to form a continuous network.

Instead of a typical curb and gutter system to manage stormwater, a vegetated median, planting strips and street trees can be incorporated to help decrease stormwater runoff and improve overall water and air quality, while providing aesthetic value.



Actual features and dimensions will vary based on right of way availability. See page 35 for larger image.

NEIGHBORHOOD DEVELOPMENT

LAND USE

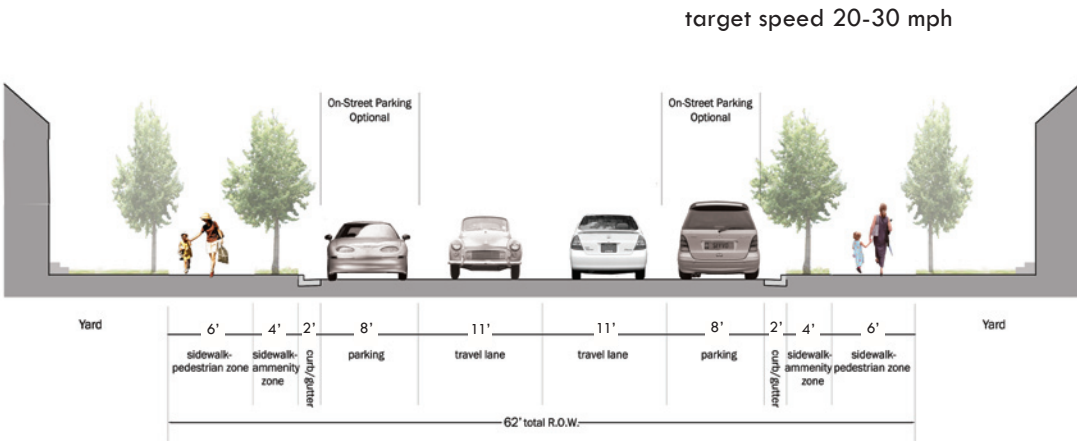
Residential development should strive to maintain a reasonably compact form, promoting a more walkable environment while also preserving green space that can serve as a shared amenity and natural resource. Block size should relate to the lot size and density of residences. Higher-density blocks allow for smaller block sizes with lower setbacks, where lower density areas may have larger scale blocks and slightly greater setbacks. Generally, blocks should not exceed 600.' Connectivity with adjacent land uses, primarily nearby neighborhoods and local commercial areas or public facilities, such as schools, is encouraged. Where street connections are not feasible, greenways are recommended. On-street parking is suggested in higher-density residential areas. Where block lengths are bigger, on-street parking may fully give way to residential driveways and garages. In either case it is important to keep the traveled way narrow (9'-11' lanes) in order to discourage speeding on neighborhoods streets. Where garages are present, it is important to set them to the side and rear of the residence, so that they do not dominate the residential frontage. Finally, limited neighborhood retail services and offices may be integrated into residential neighborhoods at a residential scale to provide local, walkable destinations for working, shopping or dining.



NEIGHBORHOOD STREETS

A Neighborhood street is a local low-speed thoroughfare connecting residential and mixed-use areas. Neighborhood streets typically include sidewalks, street trees, and residential on-street parking. Small building transitions, such as porch or stoop fronts, contribute to the street's spatial enclosure.

Typical Neighborhood streets have curb and gutter drainage. However, some localities are replacing these traditional systems with innovative stormwater management systems including bio-swales and rain gardens along the edges of the street or in medians. These neighborhoods are reducing watershed impacts, while beautifying their streets. Such a design should be considered as roadways are added to the multimodal network.



Actual features and dimensions will vary based on right of way availability. See page 35 for larger image.