Grant Applicant: **City of Alexandria**

Proposed Project: **West End Transitway**

Date: **March 20, 2017**

INFORMATION REQUIRED FOR PROBABLE CATEGORICAL EXCLUSION PURSUANT TO 23 CFR § 771.118(d)

A. DETAILED PROJECT DESCRIPTON: See Chapter 1.

B. LOCATION: See Chapter 1, Figure 1: Project Corridor and Study Area.

C. PUBLIC PARKLAND & RECREATION AREAS: See Chapter 4, "Resources with No Concern" and Appendix A: Section 4(f) Evaluation.

D. IMPACTS ON ECOLOGICALLY-SENSITIVE AREAS & ENDANGERED SPECIES: See Chapter 4, "Resources with No Concern."

E. TRANSPORTATION IMPACTS: See Chapter 4, Section 1: Transportation Network.

F. ACQUISITIONS & RELOCATIONS REQUIRED: See Chapter 4, Section 2: Land Acquisition and Displacements.

G. PLANNING CONSISTENCY LAND USE & ZONING: See Chapter 4, Section 3: Consistency with Local Plans, Land Use, and Zoning and Figure 11: Zoning Map.

H CULTURAL RESOURCES: See Chapter 4, Section 5: Cultural Resources and Section 106 and Appendix D: Historic Architectural Survey and Effects Assessment Report and Archaeological Investigation Memo.

I. AESTHETICS: See Chapter 4, Section 6: Visual Resources

J. NOISE: See Chapter 4, Section 6: Noise and Vibration.

K. VIBRATION: See Chapter 4, Section 6: Noise and Vibration.

L. AIR QUALITY: See Chapter 4, Section 8: Air Quality.

M. WETLAND IMPACTS: See Chapter 4, Section 9: Water Resources and Appendix B: Federal Consistency Determination Package.

N. FLOODPLAIN IMPACTS: See Chapter 4, Section 9: Water Resources.

O. IMPACTS ON NAVIGABLE WATERWAYS, WATER QUALITY & COASTAL ZONES: See Chapter 4, Section 9: Water Quality and Appendix B: Federal Consistency Determination Package.

P. HAZARDOUS MATERIALS: See Chapter 4, Section 10: Hazardous Material.

Q. ENVIRONMENTAL JUSTICE: See Chapter 4, Section 12: Environmental Justice Communities.

R. IMPACTS CAUSED BY CONSTRUCTION: See Chapter 4, Section 11: Construction Effects.

S. SECONDARY AND CUMULATIVE EFFECTS: See Chapter 4, Section 13: Secondary and Cumulative Effects.

T. PUBLIC INVOLVEMENT: See Chapter 5: Public and Agency Coordination

APPENDICES

Appendix A: Section 4(f) Evaluation
Appendix B: Federal Consistency Determination Package
Appendix C: Agency Correspondence (VDCR, VDHR, VDGIF, and USFWS)
Appendix D: Historic Architectural Survey and Effects Assessment Report and Archaeological Investigation Memo

The action described above meets the criteria for a NEPA categorical exclusion (CE) in accordance with 23 CFR Part 771.118(d) _____.

_____ _____
Applicant's Environmental Reviewer **Date**

_____ _____
FTA Grant Representative **Date**

Table of Contents

List of Figures

List of Tables

List of Appendices:

1. INTRODUCTION

The City of Alexandria, Virginia is proposing transit improvements, referred to as the West End Transitway or the "project", along portions of Eisenhower Avenue, Van Dorn Street, Sanger Avenue, Mark Center Drive, and North Beauregard Street in the City's West End. The corridor and the project study area are shown in **Figure 1** on the following page.

The proposed West End Transitway project builds on previous City of Alexandria efforts spanning more than seven years. The project corridor is referred to in previous plans and studies as "Corridor C." The project advances City policy established in its *Transportation Master Plan* (2008) and reinforced through the added specificity of transit recommendations within other City studies and plans, including the *Landmark/Van Dorn Corridor Plan* (2009), *Transitway Corridors Feasibility Study* (2012), and *Beauregard Small Area Plan* (2012).

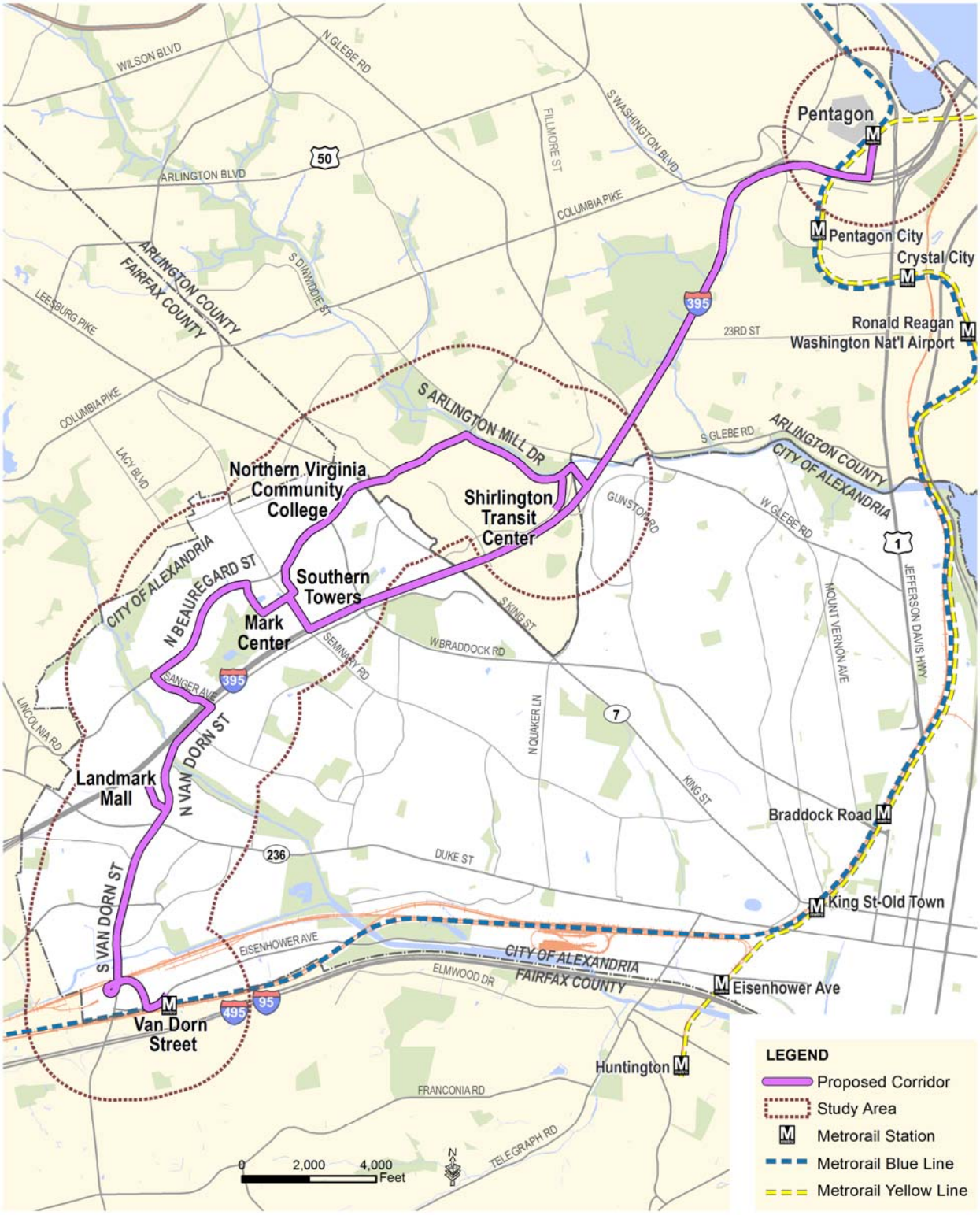
The City of Alexandria is undertaking the proposed project in accordance with the Federal Transit Administration's (FTA) procedures for new transit projects. FTA, as the lead federal agency, must make a determination regarding the project's environmental effects in accordance with the National Environmental Policy Act of 1969 (NEPA) before the agency can approve development of the final design for the project and before it can provide funding.

This Environmental Assessment (EA) is being prepared to meet the environmental review requirements for FTA's funding programs and complies with the requirements of FTA's Environmental Impact and Related Procedures (23 CFR Part 771), Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500), as well as Section 106 of the National Historic Preservation Act (NHPA) of 1966, Section 4(f) of the U.S. Department of Transportation Act (1966), Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and other relevant regulations. The purpose of the EA is to determine the significance of the proposed project's environmental effects and to assess the alternative means of achieving its objectives.

This EA document:

- Identifies the project purpose and need (**Chapter 2**);
- Describes the alternatives evaluated (**Chapter 3**);
- Assesses the environmental consequences of the alternatives (**Chapter 4**); and
- Summarizes public and agency coordination activities associated with the project (**Chapter 5**).

Figure 1: Project Corridor and Study Area



2. PURPOSE AND NEED

2.1. Project Location

The proposed Transitway is located in the Van Dorn/Beauregard corridor in the City of Alexandria, and its transit services would continue through Arlington County to the Pentagon. **Figure 1** shows the study area limits, extending approximately eight miles between the Van Dorn Metrorail station and the Pentagon. The proposed alignment for the corridor originates at the Van Dorn Metrorail station in Alexandria and follows Eisenhower Avenue, Van Dorn Street, Sanger Avenue, North Beauregard Street, and Mark Center Drive to the BRAC-133 facility. At this point, the proposed Transitway service splits into two lines to the Pentagon:

- **Via Shirlington Transit Center** – continues along North Beauregard Street to Arlington Mill Road, the Shirlington Transit Center, and I-395 to the Pentagon; and

- **Directly via I-395** – uses Seminary Road to access I-395 to the Pentagon.

The study area consists of the area anticipated to be most directly served by the project, which is the quarter-mile area adjacent to the transit corridor between the Van Dorn Metrorail station and the Shirlington Transit Center and an additional quarter-mile area around the Pentagon Transit Center.

2.2. Purpose of the Project

The West End Transitway project will improve transit access and mobility by providing a reliable, higher-capacity transit “trunk line” through the corridor. By responding to the City’s proposed land use changes, and by coordinating with existing and future regional transit network connections, the project intends to prompt a mode shift to transit in order to curtail traffic congestion. The result will be a corridor transportation system that serves the mobility needs of a growing population and serves as a catalyst for continued economic development.

2.3. Project Need

The combined effect of issues related to land use and economic development, traffic congestion, and transit service creates a need for improved transportation alternatives and connections in the Van Dorn/Beauregard corridor. High-quality and high-capacity transit options will be necessary to plan for future population and employment growth, existing and future travel demand and congestion relief along the Van Dorn/Beauregard corridor. **Table 1** summarizes the needs along the Van Dorn/Beauregard corridor.

Table 1: Corridor Issues and Needs

Element	Issues	Needs
Land Use and Economic Development	• Future land use changes proposed in small area plans anticipate more than twice the density of existing development patterns; and • Population and employment within a quarter mile of the corridor will increase 31 and 48 percent, respectively in the next 20 years.	• Plan for future land use changes envisioned by the Landmark/Van Dorn Corridor Plan and the Beauregard Small Area Plan; and • Accommodate the mobility needs of new residents and employees in the area to create a supportive environment for continued economic development and maintain the area's competitiveness in the region.
Traffic Congestion	• Future higher density land uses will result in increases in travel demand; • Road network will not adequately meet the anticipated travel demand, resulting in traffic congestion in the corridor; • Traffic congestion will lead to delays and unpredictable travel times for motorists; and • Peak hour traffic congestion will lead to delays for transit services, increase in transit travel time, reduced service reliability and efficiency, and decreased attractiveness for transit services.	• Increase modal choice by providing a fast, reliable and efficient transit system as an attractive alternative to driving; • Provide peak hour congestion relief by reducing private vehicular traffic on the corridor; and • Reduce effects of congestion including delays and reduced reliability for transit services.
Transit Service	• Significant unmet transit demand exists for trips that begin and end in the study area; • Corridor lacks a unified transit route, resulting in poor connectivity between home, school, work, and services within the corridor; and • Corridor has a sizeable feeder market to the Pentagon Transit Center and Metrorail station.	• Provide improved transit capacity and frequency to support existing and future travel demand, and the study area's transit-reliant population; • Enhance regional access by providing better connectivity between activity centers within the study corridor and the Van Dorn and Pentagon Metrorail stations, and support the feeder market to the Pentagon; and • Enhance pedestrian and bicycle access between adjacent neighborhoods and the transit corridor.

3. ALTERNATIVES EVALUATED

The chapter describes the three alternatives evaluated in the EA:

- No Build Alternative
- Transportation Systems Management (TSM) Alternative
- Build Alternative

3.1. No Build

The No Build Alternative is used as a basis of comparison for the TSM and Build Alternatives. It assumes that no new fixed guideway transit investment would be made in the corridor and that transit services would operate in shared lanes, similar to current conditions.

The No Build Alternative includes other programmed capital and operational improvements that would enhance transit service within the study corridor. Transportation projects in the No Build Alternative are from the following adopted plans and improvement programs:

- *Financially Constrained Long-Range Plan for the National Capital Region* (CLRP), National Capital Region Transportation Planning Board, 2015 Update;
- *FY 2015-2020 Transportation Improvement Program for the Washington Metropolitan Region* (TIP), National Capital Region Transportation Planning Board, adopted 2014;
- *City of Alexandria FY 2017-2026 Capital Improvement Program* (CIP), adopted 2016;
- *Alexandria Transit Comprehensive Operational Analysis, April 2014;*[1]
- *Landmark/Van Dorn Corridor Plan*, City of Alexandria, adopted 2009;
- *Beauregard Small Area Plan*, City of Alexandria, adopted 2012; and
- *Coordinated Development District (CDD) #22,* City of Alexandria, adopted 2012.

Transit improvements include transit operational improvements funded by the TIGER grant program such as signal priority and queue jump lanes at selected locations throughout the corridor. Likewise, the No Build Alternative also includes programmed transit service changes (to DASH and MetroBus) in the study corridor; however, none of these improvements include a continuous transit service between the Van Dorn Metrorail station and the Pentagon Metrorail station, along Van Dorn and North Beauregard Streets.

Roadway infrastructure modifications in the No Build Alternative include:

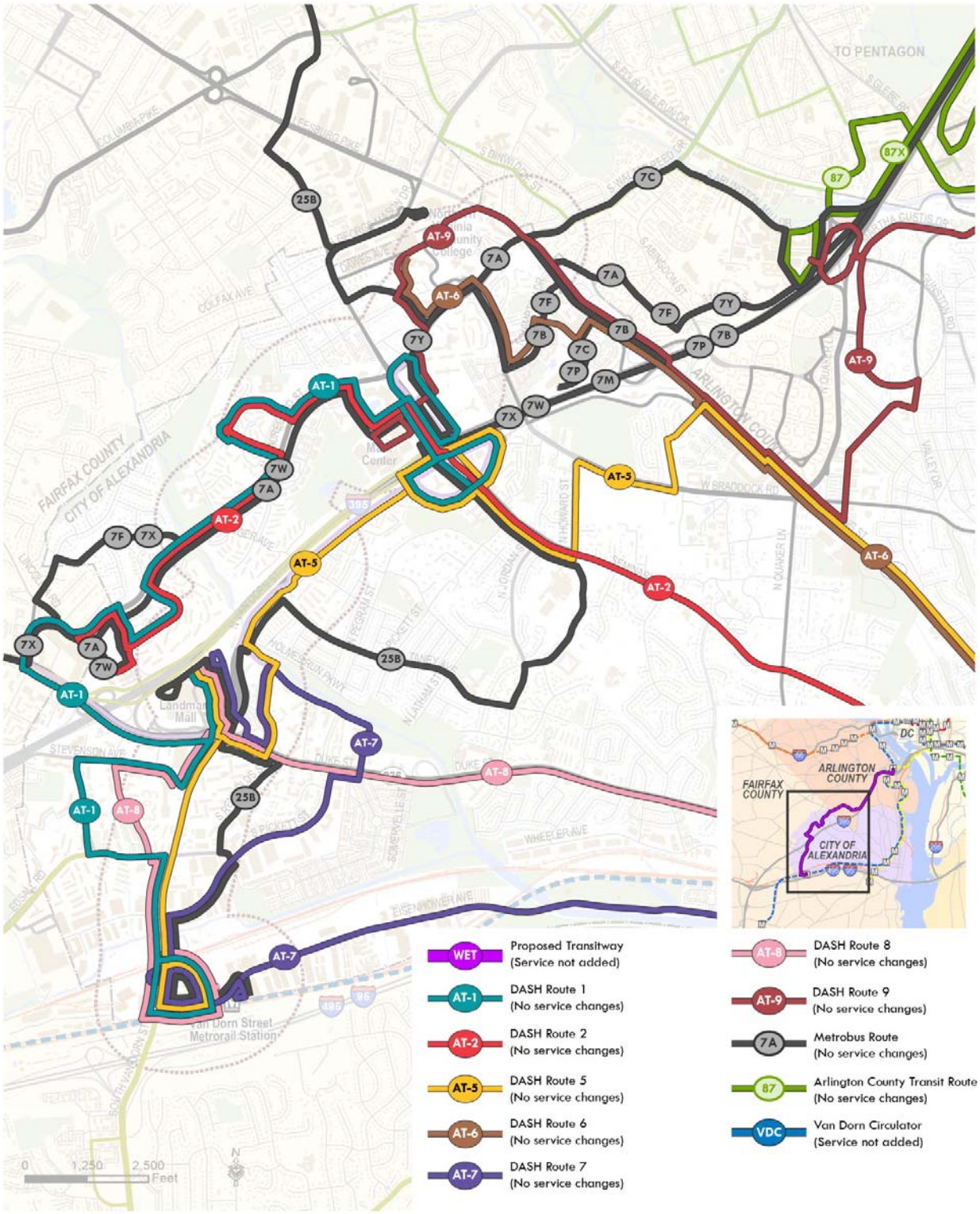
- King Street - North Beauregard Street intersection improvement (under construction);
- Westbound (Edsall Road) right-turn lane: South Van Dorn Street/Edsall Road intersection; and
- Intersection reconstruction (Ellipse project): Seminary Road/North Beauregard Street intersection.

[1] Because the Comprehensive Operational Analysis (COA) of the DASH Transit System, completed in April 2014, is financially unconstrained, modifications to DASH routes by 2035 were identified in consultation with the City of Alexandria and DASH staff. Staff identified the COA service improvements which are the most likely to be implemented by 2035 taking into consideration a conservative estimate of future funding levels.

Table 2 lists the system operations, infrastructure, and service elements of the No Build Alternative.

Figure 2 shows the existing and No Build bus route structure.

Figure 2: Existing and No Build Bus Services



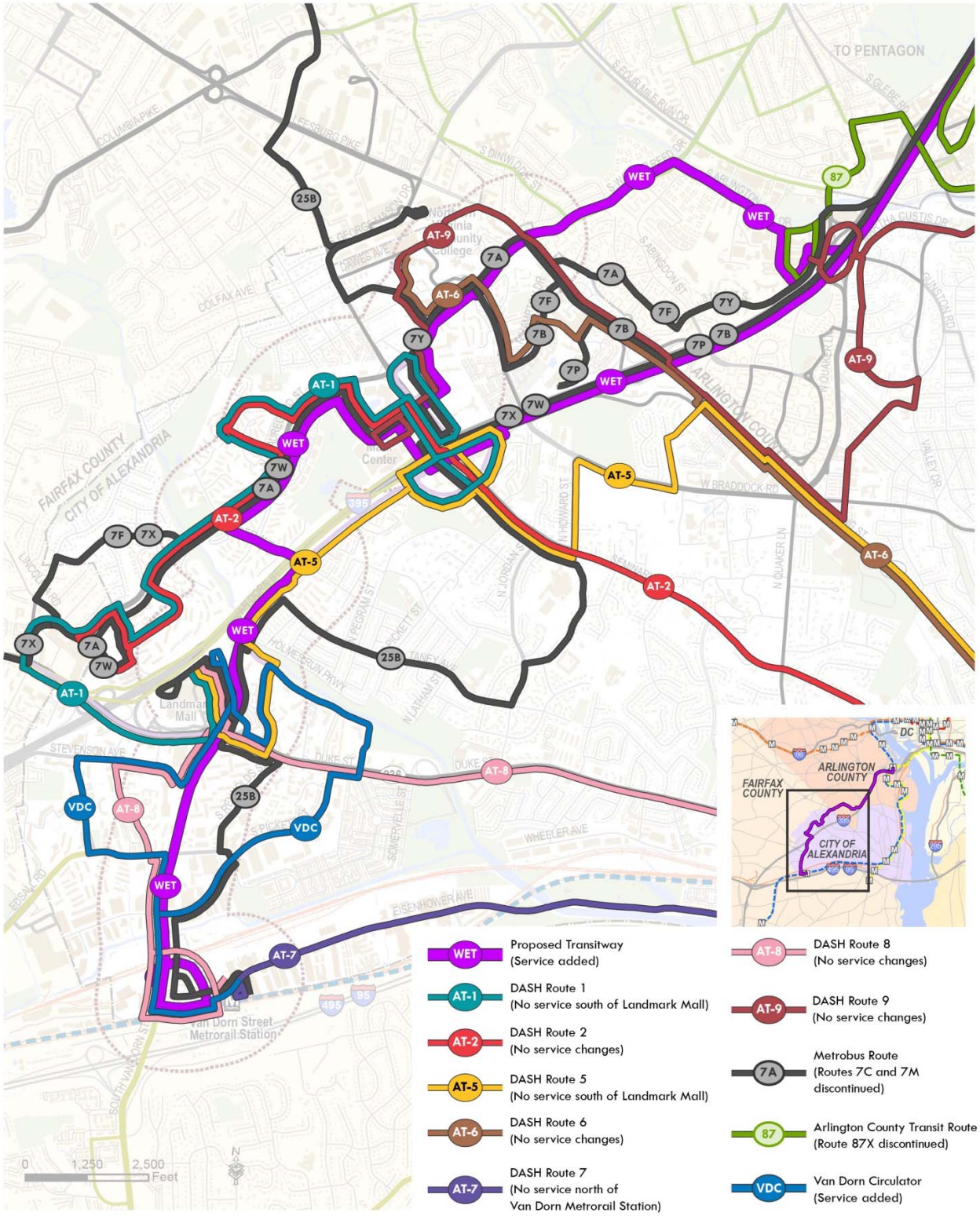
3.2. TSM

The TSM Alternative includes the programmed capital, operational, and service modifications within the study corridor, as planned under the No Build Alternative. Differing from the No Build Alternative, the TSM Alternative includes additional minor capital and operational improvements along with a new frequent, continuous transit service between the Van Dorn Metrorail station and the Pentagon Metrorail station, along Van Dorn and North Beauregard Streets. TSM bus stops would include additional amenities within the existing public right-of-way. The TSM Alternative transit service would operate in a limited-stop configuration to reduce travel time and enhance service efficiency. Like the No Build Alternative, all transit service in the study corridor would operate in shared travel lanes.

Table 2 lists the system operations, infrastructure, and service elements of the TSM Alternative. The service characteristics are described in more detail in **Section 4.1, Transportation Network**.

Figure 3 shows the proposed TSM and Build bus network with the West End Transitway.

Figure 3: TSM and Build Alternative Bus Services



3.3. Build

The Build Alternative includes significant capital and operational modifications within the study corridor. The Build Alternative evaluated in the EA is a further refined version of the recommended alternative from the City of Alexandria's *Transitway Corridors Feasibility Study* (2012).

Similar to the TSM Alternative, the Build Alternative includes the new, continuous and frequent transit service between the Van Dorn Metrorail station and the Pentagon Metrorail station, along Van Dorn and North Beauregard Streets. The capital investment in the Build Alternative consists of intersection and roadway modifications to provide sections of dedicated transit lanes, bicycle facilities, streetscape enhancements, transit stations with shelters and level boarding, and improved sidewalks. Transit stations could have the following characteristics and features:

- Capacity to accommodate up to two vehicles (75-foot long platforms)
- Approximately 12 feet of improved width for waiting passengers
- Shelters that are approximately 46 feet in length, 8 feet in width, and 8 feet in height
- Service-specific branding
- Crosswalks and sidewalks accessing platforms/stations
- Accessible boarding zone
- Real-time service information display
- Benches
- Off-board fare collection system
- Informational display area
- Level or near-level boarding
- Lighting
- Bike racks
- Identification pylon and/or station markers
- Station/community way-finding signage
- Emergency communication system
- Enhanced landscape and hardscape

Operational investments consist principally of the provision of transit signal priority at nearly all signalized intersections in the corridor and signal preemption at key transition points.

Table 2 lists the system operations, infrastructure, and service elements of the Build Alternative. The service characteristics and proposed locations for dedicated transit lanes are described in more detail in **Section 4.1 Transportation Network**.

Figure 4 shows the locations of proposed Transitway improvements, including areas of dedicated lanes.

Figure 4: Build Alternative Transitway Improvements

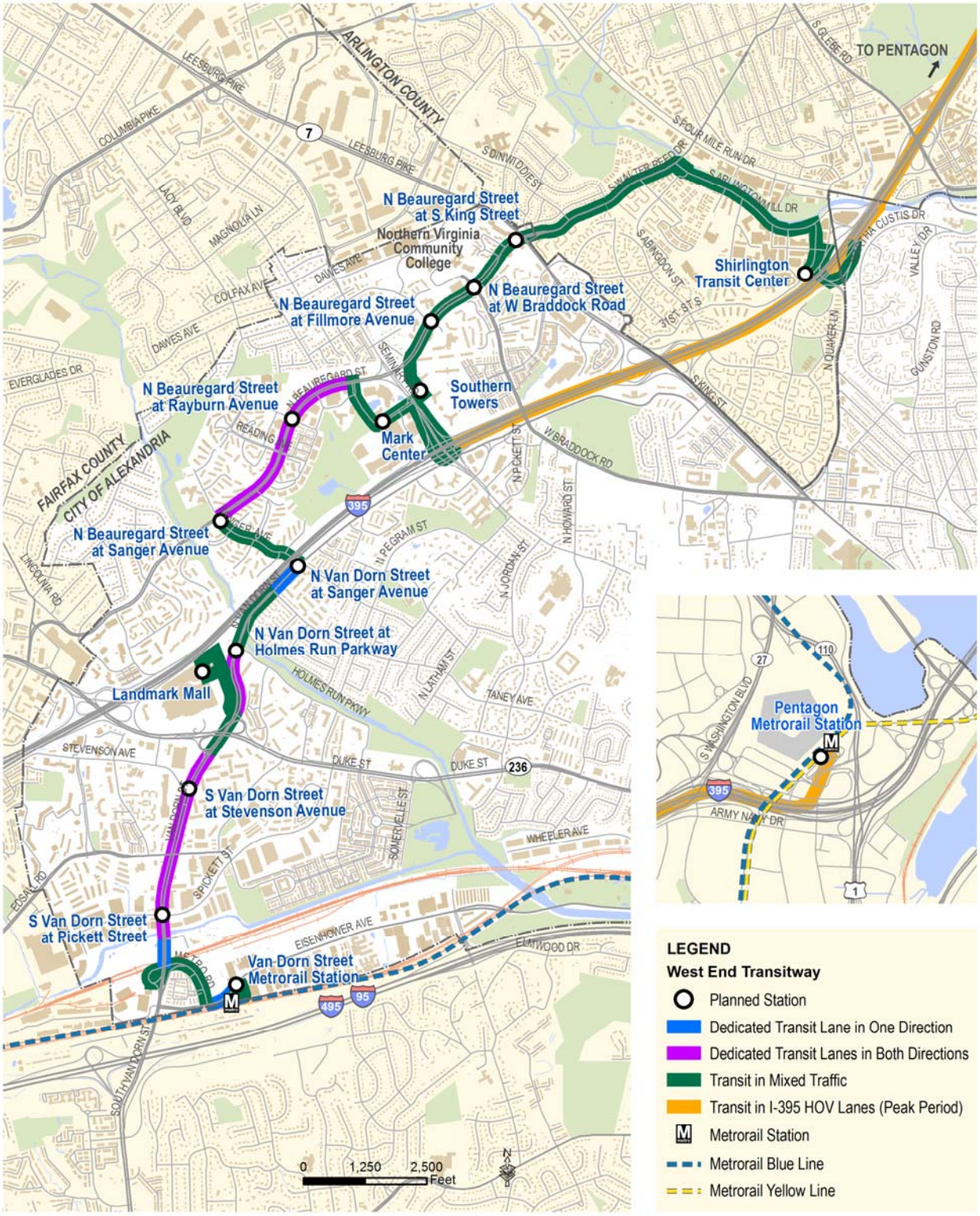


Table 2: System Operations, Infrastructure and Service Elements of the Alternatives

Element	No Build Alternative	TSM Alternative	Build Alternative
System Operations Elements			
Transit Signal Priority	Up to 9 locations	Up to 13 locations	Up to 17 locations
Queue Jump Lanes	1 location	1 location	None
Increased Service	Some	Significant	Significant
Transit-Dedicated Lanes	None	None	2.3 miles
Stop or Station Improvements	Maintain existing transit stop locations; Stop accessibility and amenity improvements currently planned by the City (ongoing program)	New TSM bus routes would stop at new or relocated simple bus stops; locations match Build Alternative station locations; Stop accessibility and amenity improvements currently planned by the City (ongoing program)	New bus stations at all proposed transitway stops that include amenities like real-time passenger information, large shelters, and level or near-level bus boarding.
Vehicle Type	Same as agency fleet	Same as agency fleet	Build Alternative-specific
Infrastructure Elements			
Modifications Planned by Others	Right turn lane at Westbound Edsall Road at South Van Dorn Street; Intersection reconstruction at North Beauregard Street and Seminary Road	Same as No Build	Same as No Build
Transit Runningway Modifications	None	None	Curbside dedicated lanes: 0.4 miles Median dedicated lanes: 1.9 miles
Other Modifications	None	None	Shared use bicycle/ pedestrian path and streetscape improvements: 6 locations (approximately 1.9 miles) Widen sidewalks: 3 locations (approximately 2.3 miles)
Service Elements			
2035 West End Transitway Service	N/A	Two WET routes: • Van Dorn to Pentagon via Shirlington Station • Van Dorn to Pentagon via Seminary Road Weekday service levels for each – 10 peak, 15 midday	Two WET routes: • Van Dorn to Pentagon via Shirlington Station • Van Dorn to Pentagon via Seminary Road Weekday service levels for each – 10 peak, 15 midday

Element	No Build Alternative	TSM Alternative	Build Alternative
		Weeknight and weekend service levels for Shirlington pattern – 30 in late evening, 15 all other times	Weeknight and weekend service levels for Shirlington pattern – 30 in late evening, 15 all other times
Alignment and Stations	Shared lane service; Existing stops	Shared lane service; 15 stops	Dedicated transit lane service in some locations; 15 new stations
Bus Service Span	Existing service	Weekdays: 19 daily hours of operation Weekends: 17 daily hours of operation	Weekdays: 19 daily hours of operation Weekends: 17 daily hours of operation
Travel Time Estimate 2015/2035 (peak period in the peak direction)	Existing service	Van Dorn to Pentagon via Shirlington: 40 minutes/41 minutes Van Dorn to Pentagon via I-395: 33 minutes/34 minutes	Van Dorn to Pentagon via Shirlington: 35 minutes/35 minutes Van Dorn to Pentagon via I-395: 29 minutes/29 minutes
Vehicle Fleet Requirements	Existing service requirements	Weekday peak/fleet vehicles: • 2015: 18/22 • 2035: 19/23	Weekday peak/fleet vehicles: • 2015: 16/20 • 2035: 16/20
2035 Supporting Bus Service	DASH – Same as existing, except: • Improve service on AT1 and AT8 • Truncate AT7 at Van Dorn Metro • Add Van Dorn Circulator Metrobus – Same as existing, except: • Improve service on 7M ART – Same as existing	DASH – Same as existing, except: • Improve service on AT8 • Truncate AT1 and AT5 at Landmark Mall • Truncate AT7 at Van Dorn Metro • Add Van Dorn Circulator Metrobus – Same as existing, except: • Eliminate 7M • Eliminate 7P ART – Eliminate 87X	DASH – Same as existing, except: • Improve service on AT8 • Truncate AT1 and AT5 at Landmark Mall • Truncate AT7 at Van Dorn Metro • Add Van Dorn Circulator Metrobus – Same as existing, except: • Eliminate 7M • Eliminate 7P ART – Eliminate 87X

3.4. Capital and Operating Costs

Table 3 summarizes the capital cost estimate (expressed as the total project cost, including capital, fleet, development, and contingency) and the operating cost estimate (including maintenance) for each alternative evaluated. These costs assume that projects associated with the No Build Alternative are already funded.

Table 3: Estimated Project Capital Costs and Operating & Maintenance Costs

Project Costs (2015 Dollars)	TSM Alternative	Build Alternative
Capital Construction (includes roadway, stations, systems, ROW & utilities)	$15 to 16 million	$61.5 to 70 million
Fleet (buses, including spares)	$19.5 to 22 million	$17 to 19.5 million
Project Development (design, fees, permitting, legal, surveys, testing, etc.)	$4.5 to 5.5 million	$16 to 18.5 million
Contingency	$12 to 14 million	$28 to 32 million
Total Project Cost	**$51 to $57.5 million**	**$122.5 to 140 million**

Operating & Maintenance Costs (2015 Dollars)	TSM Alternative	Build Alternative
Yearly Total O&M Cost	$6.0 to $9.9 million	$6.7 to $10.2 million

Note: Lower range correspondence to estimated cost for DASH to operate; higher end assumes WMATA operation.

4. ENVIRONMENTAL CONSEQUENCES

This chapter evaluates the effects on the human and natural environment that could result from implementation of the alternatives presented in **Chapter 3**.

Resources Potentially Affected

The evaluation focuses on the following resources identified as potentially affected:

- Transportation
- Land Acquisitions
- Consistency with Local Plans, Land Use, and Zoning
- Neighborhood and Community Facilities
- Economic Development
- Cultural Resources and Section 106
- Visual Conditions
- Noise and Vibration
- Air Quality
- Water Resources
- Hazardous Materials
- Construction Impacts and Potential Permits
- Environmental Justice Communities
- Secondary and Cumulative Effects

The evaluations of these resources are described in detail in the following sections.

Resources with No Concern

For those resources below that were found not to be in the study corridor or for which there would be no effect or negligible effects, no detailed evaluation is presented:

- **Public Parkland and Recreation Areas:** A number of public parks and recreation areas including two Section 6(f) Land and Water Conservation Fund Grant Recipient parks, Dora Kelley Park, including the Jerome Buddie Ford Nature Center, and the Holmes Run Scenic Easement are located within the study area. These public parks and recreation areas are considered Section 4(f) resources; however, no impacts or uses to these resources are anticipated with any of the alternatives. **Appendix A** contains the Section 4(f) Evaluation.
- **Navigable Waterways:** No navigable waterways exist in the study area.
- **Coastal Zones**: The City of Alexandria lies within Virginia's coastal zone and all Federal Actions located within the City must be consistent with Virginia's Coastal Zone Management Program. No impacts are anticipated. **Appendix B** contains the Federal Consistency Determination Package.
- **Ecologically Sensitive Areas:** No State Natural Area Preserves, National Wildlife Refuges, or National Waterfowl Refuges, or federally designated critical habitat are located within the study area. **Appendix C** contains correspondence with the Virginia Department of Conservation and Recreation (VDCR), Virginia Department of Game and Inland Fisheries (VDGIF), and the U.S. Fish and Wildlife Service (USFWS).

- **Threatened and Endangered Species:** Two federally listed threatened species, the Small Whorled Pogonia (Aeschynomene virginica) plant and Sensitive Joint-vetch (Aeschynomene virginica) plant were preliminarily identified to have habitat potential in proximity to the Pentagon. No federally listed endangered species are located within the study area. No impact to threatened or endangered species is anticipated due to the scope of the proposed alternatives. **Appendix C** contains correspondence with VDCR, VDGIF, and USFWS.
- **Urban Forestry and Vegetation:** Mature street trees exist along Sanger Avenue and North Beauregard Street. Although there may be potential loss of some mature trees along North Beauregard Street between Sanger Avenue and Mark Center Drive related to the implementation of the Build Alternative, new replacement landscaping and trees will minimize and mitigate this effect.
- **Soils, Topography and Geology:** No effects are anticipated to study area soils which are primarily considered generic classifications for man-made or developed areas.

Data and Methodology

The resource definitions, study corridor, and methodology used for evaluating impacts are discussed within the introduction of each resource section of this chapter. For some resources, the study corridor was designated as the area within a quarter-mile of the proposed transit alignment. For other resources, the analyses to assess potential physical impacts were limited to where permanent infrastructure would be located or construction activities would take place. Such potential impacts were accounted for within 100 feet of either side of the centerline of the existing roadway alignment or within an otherwise defined area of potential effect. A list of all data sources used to conduct the analyses is provided in the References section at the beginning of the document. Technical memoranda have been prepared for resource areas where appropriate and are included as appendices.

Summary of Impacts and Proposed Minimization and Mitigation Measures

A summary of the environmental impacts under the TSM and Build Alternatives for each resource and proposed minimization and mitigation measures are presented in **Table 4**. No effects associated with any of the alternatives that are anticipated to be significant. Furthermore, all identified negative effects will be minimized or mitigated to the maximum extent practicable.

Table 4: Identified Potential Effects Summary

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
4.1	Transportation Network - Transit Service and Operations	• Well-served by existing transit services. • No single bus route that runs through the entirety of the corridor. • Regional bus and rail connections via transit centers at the Van Dorn Metrorail station, Landmark Mall, Mark Center, Shirlington and the Pentagon.	No effects on existing transit service.	New transit route will provide a frequent and direct connection to transit centers along the corridor as well as tranfer opportunities to east-west connections.	New transit route will provide a high-quality, frequent and direct connection to transit centers along the corridor as well as tranfer opportunities to east-west connections.
4.1	Transportation Network - Traffic Operations	• Van Dorn Street carries approximately 49,000 vehicles daily between Eisenhower Avenue and Sanger Avenue. • North Beauregard Street/South Walter Reed Drive carries approximately 18,000 vehicles daily between Sanger Avenue and South Arlington Mill Drive. • Of the 43 study area intersections, all but three, North Beauregard Street/Roanoke Avenue, North Beauregard Street/Sanger Avenue, and Mark Center Avenue and Driveway, currently operate at	No effects on traffic network due to planned improvements. 745 seconds of intersection delay in 2015; 15.7 minutes automobile corridor travel time.	Marginal additional delay at study intersections: 888 seconds of intersection delay in 2015. 16.0 minutes automobile corridor travel time. •	Marginal additional delay at study intersections: 925 seconds of intersection delay in 2015. 16.5 minutes automobile corridor travel time.

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
		LOS D or better.			
4.1	Transportation Network - Parking and Access	• Approximately 100 on-street parking spaces exist on Sanger Avenue between North Van Dorn and North Beauregard Streets. Off-street parking is generally accommodated within the study corridor at the major activity centers located along the proposed transit alignment.	No effects on parking or access.	No effects on parking or access.	• Proposed improvements along South Van Dorn Street may require the removal of the following number of parking spaces: • 165 retail/commercial spaces • 60 residential spaces Proposed improvements may require restricting left-turn access along segments of South Van Dorn Street
4.1	Transportation Network - Pedestrian and Bicycle	- Generally a complete network of sidewalks but many are narrower than 5' feet in width, immediately adjacent to vehicular travel lanes, and in poor condition. - Bicycle facilities are limited along most of the proposed transit corridor and not well-connected to one another or important destinations.	No effects on pedestrian and bicycle networks.	No effects on pedestrian and bicycle networks.	- Provides approximately 1.9 miles of shared use bicycle/pedestrian path improvements. - Provides approximately 2.3 miles of sidewalk improvements.
4.2	Land Acquisition	- Mix of public and private owners.	- No additional right-of-way or property acquisition required.	- No additional right-of-way or property acquisition required.	- Additional 3.3 acres of frontage right-of-way may be required. - One potential commercial property

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
					acquisition.
4.3	Compliance with Local Plans, Land Use, and Zoning	- Relevant local plans include the City's 2008 Transportation Master Plan, the Landmark/Van Dorn Corridor Plan, the Beauregard Small Area Plan, and Beauregard Urban Design Guidelines. - Existing Land Use – Mix of residential, office, retail/commercial, government/institutional, parks and industrial uses. - Future Land Use– Contingent on the provision of transit, more than twice the density of existing development patterns and a greater mix of uses. - Zoning - Large areas designated as CDDs, remaining mostly of residential and scattered commercial zoning.	- Not consistent with the 2008 Transportation Master Plan or the Landmark/Van Dorn Corridor Plan which recommend dedicated transit lanes. - Not consistent with the Beauregard Urban Design Guidelines which include North Beauregard Street cross-sections showing a 26'-wide high capacity dedicated transitway. - New development is capped at 0.75M sq. ft. with the Landmark/Van Dorn Plan and at 1.5M sq. ft. with the Beauregard Small Area Plan. - No re-zoning required.	- Not consistent with the City's 2008 Transportation Master Plan that recommends dedicated transit lanes. - Consistent with local Small Area Plans to provide enhanced high-capacity transit service. - Contingent on the provision of transit, allows 9M sq. ft. of new development under the local Small Area plans. - No re-zoning required.	- Consistent with the City's 2008 Transportation Master Plan and other local plans that recommend dedicated transit lanes and enhanced high-capacity transit service. - Contingent on the provision of transit, allows 9M sq. ft. of new development under the local Small Area plans. - No re-zoning required.

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
4.4	Neighborhoods and Community Facilities	- Neighborhoods include: Springfield/Franconia, Landmark/Van Dorn, Alexandria West, Beauregard, Seminary Hill, Bailey's Crossroad, Claremont, Shirlington, Fairlington, Douglas Park and Nauck. - Community facilities include: nursing homes, educational institutions, places of worship, public facilities, post offices and federal facilities.	- No isolation of neighborhoods through the creation of barriers. - No restriction of access or direct impact to community facilities.	- Provides enhanced connectivity to corridor neighborhoods and more reliable and frequent mobility options to residents. - No isolation of neighborhoods through the creation of barriers. - No restriction of access or direct impact to community facilities.	- Provides enhanced connectivity to corridor neighborhoods and more reliable and frequent mobility options to residents. - No isolation of neighborhoods through the creation of barriers. - No restriction of access or direct impact to community facilities.
4.5	Cultural Resources and Section 106	- Preliminary architectural investigations identified eight undocumented historic architectural resources over 50 years in age within the Area of Potential Effect (APE). - No previously documented archaeological resources have been recorded with Virginia Department of Historic Resources (VDHR) within the current APE.	No impacts to identified historic architectural resources or to below-ground resources.	- No impacts to identified historic architectural resources are anticipated. - All improvements are proposed within the public right-of-way; therefore, no impacts to below-ground resources are anticipated.	- No impacts to identified historic architectural resources are anticipated. - All improvements are proposed within areas that have been previously disturbed; therefore, no impacts to below-ground resources are anticipated. Any additional impacts to below-ground resources would be assessed during construction.
4.6	Visual Resources	Numerous visual conditions encompassing land uses which are	Changes consistent with existing visual character.	Changes consistent with existing visual character.	Changes in visual character related to the implementation of

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
		primarily transportation infrastructure, residential, commercial, and parks. The overall quality of the viewshed along Van Dorn Street is rated 'moderately low', while that along North Beauregard Street is rated 'moderately high'.			dedicated transit lanes in certain segments of the corridor. Project consistent with long-term visions for Van Dorn Street and Beauregard streetscapes.
4.7	Noise and Vibration	- Baseline noise levels were developed for two representative sensitive receptor sites at residences along the corridor. - Baseline vibration measurements were not conducted along the project corridor due to the distance between the proposed transitway alignment and the closest receptors.	- No effects on noise or vibration are anticipated.	- Noise levels are anticipated to remain within the existing ambient noise level for the corridor. - Vibration impacts due to transitway passbys are unlikely due to the soft suspensions and the relatively smooth roadway pavement.	- Noise levels are anticipated to remain within the existing ambient noise level for the corridor. - Vibration impacts due to transitway passbys are unlikely due to the soft suspensions and the relatively smooth roadway pavement.
4.8	Air Quality	- Regionally, recent monitoring data indicates no exceedances of the NAAQS through May 2014 except for one PM2.5 violation in 2012. - The project would not rise to a level of a "project of air quality concern", so no hot-spot analysis was undertaken.	No changes due to the proposed project.	Additional transit service may reduce vehicular demand, thereby providing a minor to moderate improvement to air quality.	Additional transit service may reduce vehicular demand, thereby providing a minor to moderate improvement to air quality.

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
4.9	Water Resources Waters of the U.S. including Wetlands, Floodplains, and Water Quality	- Water resources in the study area are associated with the three streams, Backlick Run, Holmes Run, and Four Mile Run. - All three streams are VDEQ-listed impaired waters for the stream segments in the study area	No effects are anticipated.	No effects are anticipated.	The project will add 20-25% new impervious area to existing roadway surfaces, but effects will be mitigated to meet State (Virginia) Water Control Law.
4.10	Hazardous and Contaminated Materials	33 sites are located immediately adjacent to the existing right-of-way between the Van Dorn Metrorail and the Shirlington Transit Center and could be encountered during project activities.	No effects are anticipated.	Potential direct impacts on RECs (Recognized Environmental Conditions) in the vicinity of three transit stops.	• Potential widening of portions of Van Dorn and North Beauregard Streets may affect existing hazardous and contaminated sites. Contaminated and hazardous material sites include: - Former or current auto service and fueling stations - Sites with leaking or secure underground storage tanks - Former or current dry cleaners • Potential direct impacts on RECs in the vicinity of three transit stops.
4.11	Construction Effects	Multiple underground and aboveground utilities exist within the study area.	Temporary construction effects as a result of various transportation improvement projects.	Minor temporary construction effects as a result of bus stop consolidation.	• Temporary minor impact on traffic and access related to transit stop consolidation and transit station

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
					improvements: • Temporary lane closures for short segments of roadways • Temporary access relocations and/or closures for limited number of driveways • Temporary sidewalk closures for short segments • Temporary bus stop relocations • May involve temporary utility service interruptions associated with transit stop construction
4.12	Environmental Justice	Within the quarter mile study area: - Approximately 62 percent of the study area population belongs to a minority group, compared to 46 percent in the City of Alexandria. Nearly 10 percent of the study area population is low-income, compared to 8 percent in Alexandria.	- No disproportionate adverse effects on minority and/or low-income communities.	- Community benefits from frequent and continuous transit service along the entirety of the corridor. - No disproportionate adverse effects on minority and/or low-income communities.	- Community benefits from frequent and continuous transit service along the entirety of the corridor. - Annual savings on transportation costs provides a greater benefit to EJ populations than the rest of the community. - Minor parking and land acquisition impacts would not be disproportionately borne by EJ populations.
4.13	Secondary and Cumulative Effects	A number of existing plans and construction	None due to the project.	- No secondary effects are anticipated.	- Potential secondary effects are anticipated

Section	Environmental Resource	Existing Conditions	No Build Alternative	TSM Alternative	Build Alternative
		projects exist along the corridor.		- Cumulative effects due to the implementation of Small Area Plans, as well as numerous transportation projects in the study area are anticipated.	related to corridor growth and development that is tied to transit improvements - Potential cumulative effects are anticipated due to ROW/property acquisition, implementation of Small Area Plans, as well as numerous transportation projects in the study area.

4.1. Transportation Network

4.1.1. Introduction

This section discusses transportation conditions in the corridor and assesses the potential effects of the No Build, TSM, and Build Alternatives. Areas of the transportation network's service and performance evaluated are:

- Transit Service and Operations
- Traffic Operations
- Parking and Access
- Bicycle and Pedestrian

The evaluation of impacts of the alternatives relative to existing conditions are forecast using computer simulation models, analysis of existing transit conditions, and the Build Alternative conceptual design. Evaluation is performed for the existing year (2015) and project horizon year (2035). More detailed information regarding analysis methodologies, existing conditions, and transit operations are provided in the *Alternatives Analysis Report* (July 2016).

The corridor is served by Alexandria Transit DASH, WMATA Metrobus, Arlington Transit (ART), and the WMATA Metrorail system. These transit services provide access to regional employment and activity centers including downtown District of Columbia, the Pentagon, the Mark Center, Shirlington, and various business districts within Alexandria.

4.1.2. Key Findings

Transit Service and Operations

Table 5 summarizes key transit indicators by alternative in 2015 and 2035.

Table 5: Transit Criteria Evaluation Summary

Category	Evaluation Measures	No Build	TSM	Build	No Build	TSM	Build
		2015			2035		
Ridership	Corridor daily transit ridership[1]	26,400	30,200	31,700	32,400	39,100	41,000
Coverage	Residents within stop/station walkshed[2]	11,700	28,200	28,200	17,300	39,000	39,000
	Jobs within stop/station walkshed[2]	10,100	17,300	17,300	16,400	27,300	27,300
	Transit-dependent households within stop/station walkshed [2,3]	700	1,800	1,800	1,100	2,700	2,700
Transit Connectivity	Connectivity between corridor and activity centers (transit travel time in minutes)[4]	71	62	58	69	63	58
Transit Operations	Transit travel time in corridor (minutes)[5]	51.1	36.5	31.7	53.7	37.5	32.0
	Headway Reliability (standard deviation, in minutes)[5]	2.7	2.7	2.4	3.0	2.9	2.3
	Utilization (peak transit load)[6]	24	43	52	26	48	50

1. Ridership forecast using the MWCOG travel demand model, with validation and calibration based on recent travel surveys and traffic counts and the 8.2 Cooperative Land Use Forecast.
2. Walkshed is defined as 5-minute walk of an existing bus stop or within a 10-minute walk of proposed transitway stations. Population and Employment data from MWCOG Round 8.2 Cooperative Land Use Forecast.
3. Zero-car households from 2012 U.S Census Bureau American Community Survey.
4. Average transit travel time between a representative subset of origins and destinations in the peak and off-peak periods: South Van Dorn Street at Pickett Street station to Baileys Crossroads; North Van Dorn Street at Holmes Run Parkway station to Crystal City; and North Beauregard Street at Rayburn Avenue station to Springfield Town Center.
5. Travel times modeled using VISSIM traffic simulation software based on travel demand forecast.
6. The total number of people on a bus at the peak passenger load point of the route.

No Build Alternative

The No Build Alternative transit network is comparable to the current network, assuming no new fixed guideway transit investment in the corridor. Transit services would operate in shared lanes, similar to current conditions. However, the network includes a number of infrastructure and traffic operational improvements that are already planned and programmed to enhance existing and new transit service within the corridor. Similarly, transit service changes included in the No Build Alternative are limited to those already planned and programmed.

Between 2015 and 2035, some indicators, such as ridership and job coverage, would improve while others, such as corridor travel times and reliability, decline slightly.

TSM Alternative

The TSM Alternative transit network includes frequent, continuous, limited-stop bus service along Van Dorn and North Beauregard Streets, but does not include major capital investment for dedicated transit lanes. Transit service in this alternative would continue to operate in shared lanes. The TSM Alternative includes traffic operational enhancements over and above those included in the No Build Alternative to improve transit performance. A schematic alignment of the transit service is shown in **Figure 5** with proposed headways shown in **Table 6**.

Figure 5: Weekday Peak and Midday Route Patterns (TSM and Build Alternatives)

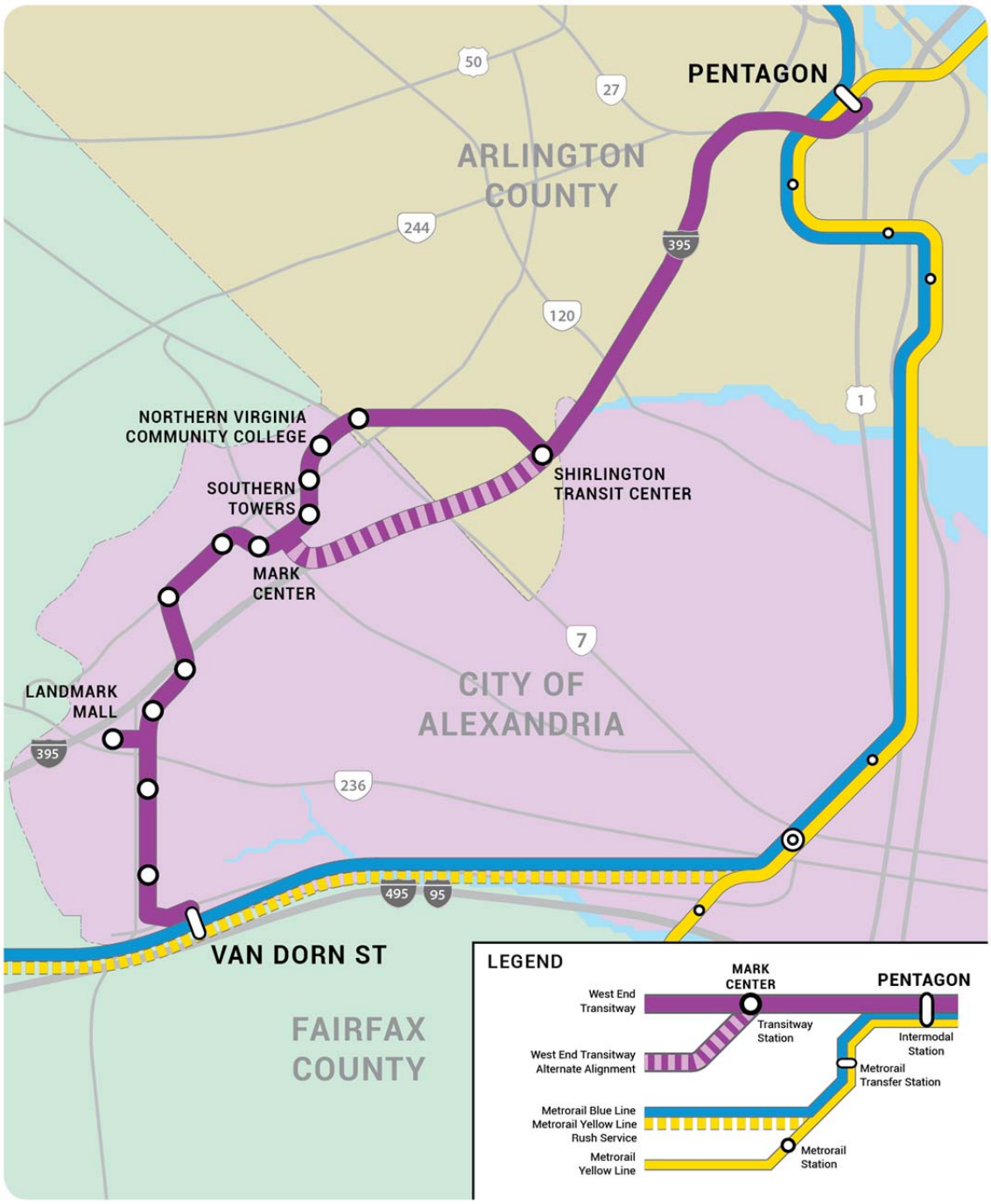


Table 6: Proposed Headways (TSM and Build Alternative)

		Headway (minutes)						
		To Van Dorn Street Metro or Mark Center			To Pentagon			To Shirlington
		Via Shirlington	Via I-395	Combined	Via Shirlington	Via I-395	Combined	Via Shirlington
Weekday	Peak	10	10	5	10	10	5	10
	Midday	15	15	7.5	15	15	7.5	15
	Early Evening	15	N/A	15	15	N/A	15	15
	Late Evening	30	N/A	30	30	N/A	30	30
Weekend	Day	15	N/A	15	15	N/A	15	15
	Early Evening	15	N/A	15	15	N/A	15	15
	Late Evening	30	N/A	30	30	N/A	30	30

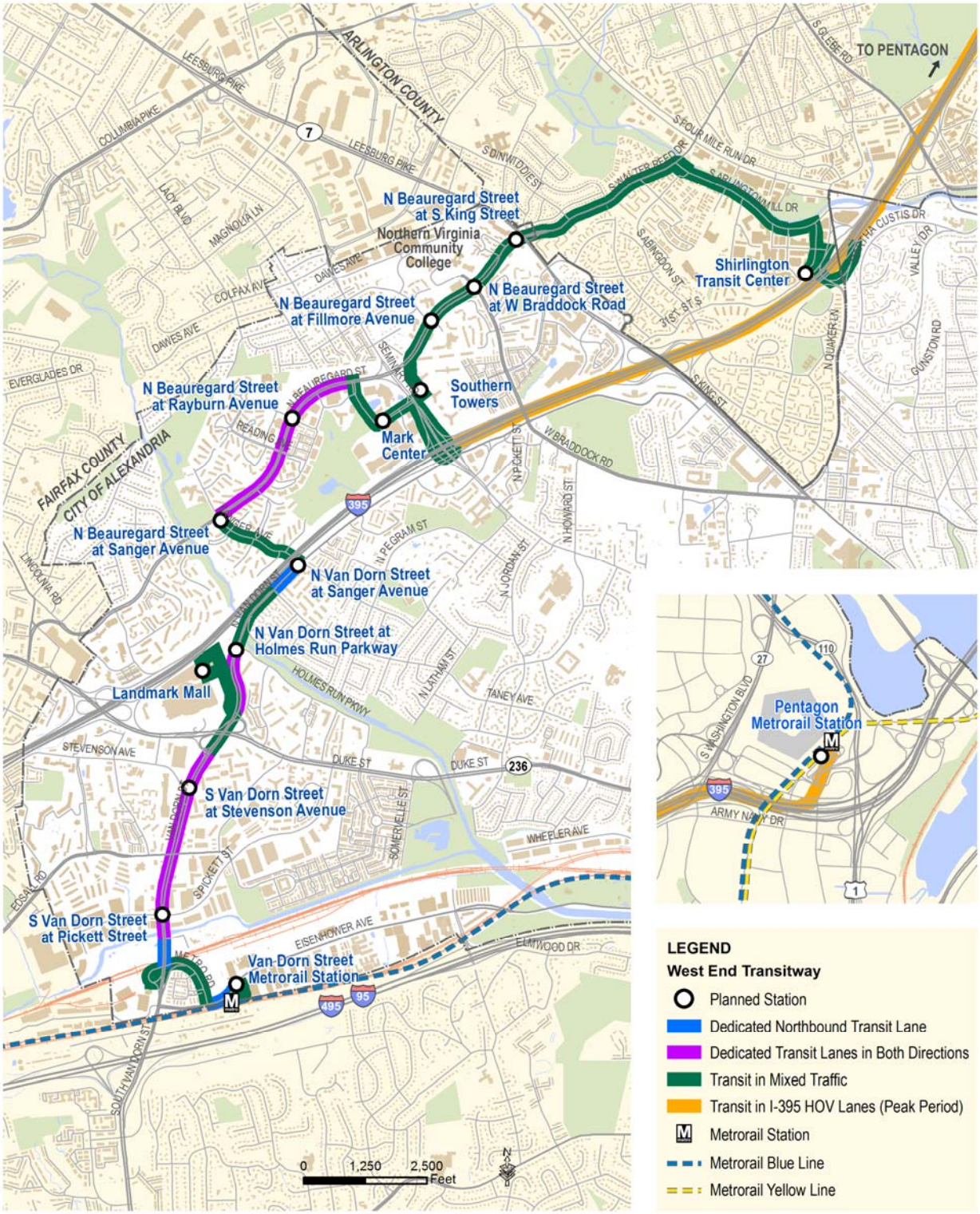
The TSM Alternative generally would have beneficial effects on transit service in the corridor compared to the No Build Alternative. The TSM Alternative would attract higher ridership, indicative of the enhanced transit option that it provides. The coverage area would serve greater than twice the number of residents and transit-dependent households compared to the No Build, based on the experience that people walk further to access higher-quality transit services. For transit operations, the TSM Alternative would have beneficial impacts by making the transit faster, more reliable, and better utilized than the No Build Alternative.

Build Alternative

The Build Alternative transit network includes frequent, continuous transit service along Van Dorn and North Beauregard Streets. Along much of the corridor, dedicated lanes would be constructed for transit vehicles. The Build Alternative follows the same transit route and has the same limited-stop locations as the TSM Alternative, but makes use of a combination of infrastructure and operational elements to enhance transit operations. The proposed project alignment including locations with dedicated bus lanes is shown in **Figure 6**.

The Build Alternative generally would have the most beneficial effects on transit service in the corridor of the alternatives considered. The Build Alternative would have the highest ridership of the alternatives, indicative of the further enhanced transit option that it provides compared to the TSM Alternative and No Build Alternative. The Build Alternative coverage is the same as the TSM Alternative coverage, because both alternatives follow the same route, have the same stop locations, and offer enhanced transit services that attract riders from a wider coverage areas compared to the No Build Alternative local bus services. For transit operations, the Build Alternative would have beneficial impacts by making the transit the fastest, most reliable, and best utilized of the alternatives.

Figure 6: Bus Rapid Transit Routing and Lane Designations (Build Alternative)



Traffic Operations

Table 7 summarizes intersection performance and travel time for all vehicular traffic in the corridor under each alternative.

Table 7: Transportation Criteria Evaluation Summary

Category	Evaluation Measures	No Build	TSM	Build	No Build	TSM	Build
		2015			2035		
Traffic Operations	Intersection performance (change in LOS at specific intersections)	N/A	4 int change from C to D in AM; 1 int change from E to F in PM	3 int change from C to D & 1 int change from E to F in AM; 2 int change from C to D & 2 int change from D to E in PM	N/A	1 int improves from D to C & 2 int change from D to E in AM	1 int improves from D to C & 1 int change from D to E in AM
	Intersection performance (total seconds of delay)[1]	745	888	925	818	910	998
	Vehicular travel time in corridor (minutes)[2]	15.7	16.0	16.5	15.9	16.1	16.5

1. Combined intersection delay for all movements at all corridor intersections; 2015: average of AM and PM peak periods; 2035: AM peak period.
2. Travel time for all passenger vehicles; modeled in AM peak period; average of both Transitway routes (Van Dorn to Shirlington to Pentagon; Van Dorn to Seminary Rd to Pentagon).

No Build Alternative

The No Build Alternative includes several planned and programmed facility improvements (by the City of Alexandria or the Virginia Department of Transportation) not present in the current street network, including:

- Right turn lane on westbound Edsall Road at South Van Dorn Street
- Intersection reconstruction at North Beauregard Street and Seminary Road

TSM Alternative

There are no changes in the corridor street network from the No Build Alternative. The TSM Alternative would have minor adverse effects on average intersection delay and travel times for all vehicles in the corridor compared to the No Build Alternative. The higher number of intersections with transit signal priority under the TSM Alternative compared to the No Build Alternative would lower intersection delay and travel time for transit vehicles, and as a result would incrementally lengthen these measures for other vehicles in the corridor at each intersection.

In 2015, the intersections of Van Dorn Street and Edsall Road; Van Dorn Street and Sanger Avenue; Mark Center Avenue and Seminary Road; and Beauregard Street and Seminary Road would operate at LOS D during the AM peak period compared to LOS C for the No Build Alternative. One

intersection, Beauregard Street and Sanger Avenue, would operate at LOS F during the PM peak period compared to LOS E for the No Build Alternative.

In 2035, the intersections of Mark Center Avenue and Seminary Road and the I-395 ramps and Seminary Road rotary would operate at LOS E compared to LOS D for the No Build Alternative. The Van Dorn Street and Edsall Road intersection would operate at LOS C compared to LOS D in the No Build Alternative.

Build Alternative

The Build Alternative includes all roadway improvements in the No Build Alternative, plus:

- 0.4 miles of curbside-running dedicated bus lanes;
- 1.9 miles of median-running dedicated bus lanes; and

The Build Alternative would have minor adverse effects on average intersection delay and travel times for all vehicles in the corridor. The higher number of intersections with transit signal priority under the Build Alternative compared to the TSM Alternative and No Build Alternative would lower intersection delay and travel time for transit vehicles, and as a result would incrementally lengthen these measures for other vehicles in the corridor at each intersection. These improvements result in less than one minute of additional delay compared to the No Build Alternative, as measured by total delay across the entire length of the corridor.

In 2015, the intersections of Van Dorn Street and Sanger Avenue; Mark Center Avenue and Seminary Road; and Beauregard Street and Seminary Road would operate at LOS D during the AM peak period compared to LOS C for the No Build Alternative. The intersections of Van Dorn Street with Eisenhower Avenue and with Pickett Street would operate at LOS D in the PM peak period compared with LOS C for the No Build Alternative.

In 2035, the intersection of Van Dorn Street with Sanger Avenue would operate at LOS E during the AM peak period compared to LOS D for the No Build Alternative. The I-395 ramps and Seminary Road rotary would operate at LOS C in the Build Alternative compared to LOS D in the No Build Alternative.

Parking and Access

The alternatives would include the addition or removal of off-street parking spaces and the closure and relocation of some driveways.

No Build Alternative

The No Build Alternative would have no impact on existing or planned parking or on private driveways and access points along the corridor.

TSM Alternative

The TSM Alternative would have no impact on existing or planned parking or on private driveways and access points along the corridor.

Build Alternative

Parking

The Build Alternative would remove parking in some locations along the corridor, specifically along Van Dorn Street and North Beauregard Street. **Table 8** summarizes the maximum number of potential parking spaces that could be affected by the Build Alternative. As the project progresses into final design, the number of parking spaces impacted could decrease as the project design is refined.

Table 8: Maximum Impact to Parking (Build Alternative)

Type	Parking Spaces Impacted
Residential	60
Commercial	165
Total	**225**

Parking impacts would be primarily on commercial properties. Some of the existing parking spaces impacted would be on sites with approved redevelopment plans.

Driveways and Access Points

The Build Alternative would impact driveways for some commercial properties along the corridor by restricting left-turn access. The construction of the medians as a part of the dedicated transit lanes in the Build Alternative on South Van Dorn Street would necessitate removing mid-block (between traffic signals) left-turn access at two locations:

- North of Dow Avenue
- South of Stevenson Avenue

All businesses with existing access are expected to retain their access to South Van Dorn Street and North Beauregard Street, but some will be modified to be right-in, right-out only.

At North Van Dorn Street and Richenbacher Avenue, a small portion of the North Van Dorn Street Service Road would be restricted to bicycles only for through travel. The service road would still provide access to Richenbacher Avenue via North Van Dorn Street.

Bicycle and Pedestrian Facilities

No Build Alternative

No new bicycle or pedestrian facilities or facility improvements are proposed as a part of the No Build Alternative.

TSM Alternative

No new bicycle or pedestrian facilities or facility improvements are proposed as a part of the TSM Alternative.

Build Alternative

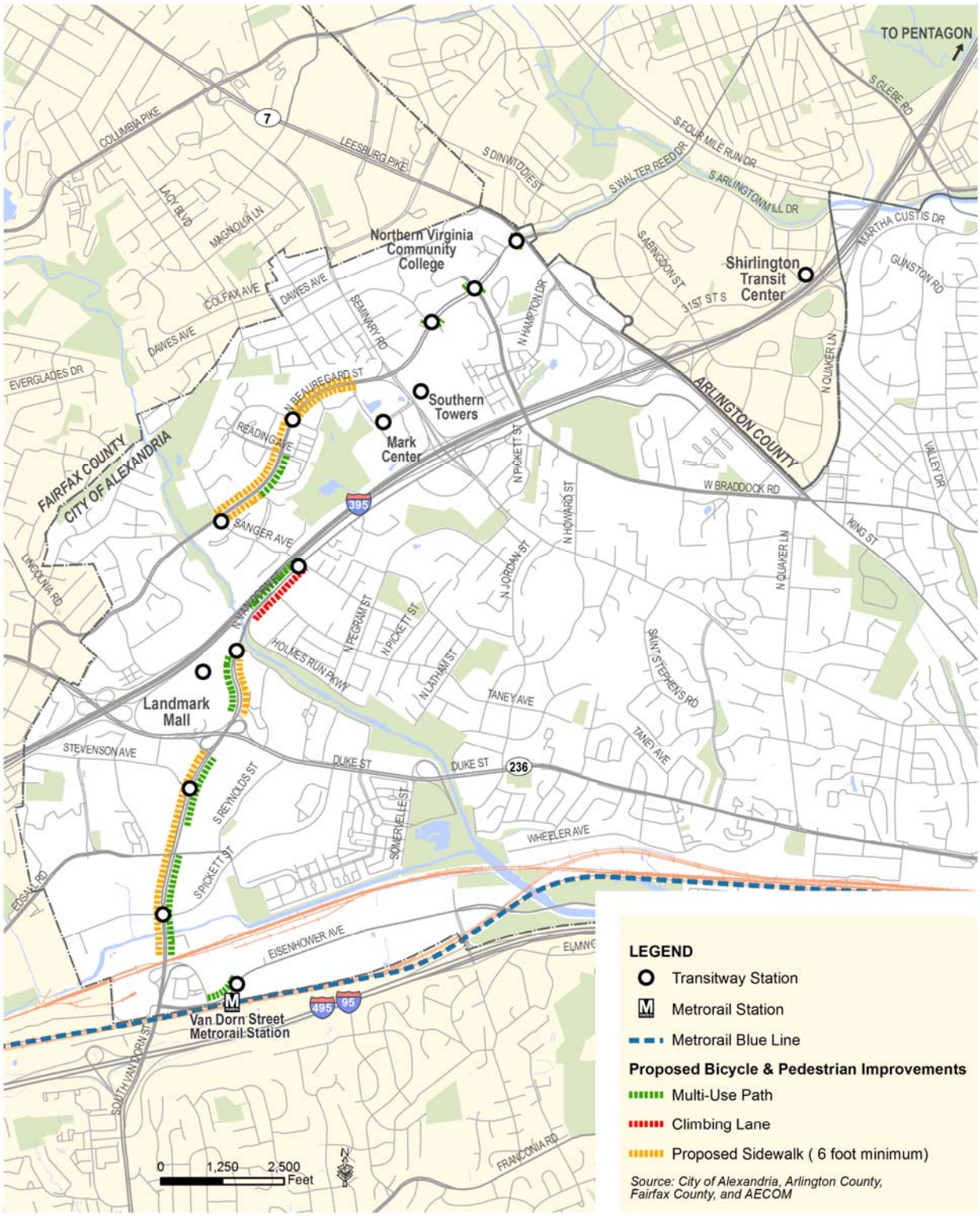
The Build Alternative would provide 1.9 miles of bicycle improvements and 2.3 miles of sidewalk improvements. The following new bicycle or pedestrian facilities, shown in **Table 9** and **Figure 7**, are proposed.

Table 9: Proposed Pedestrian and Bicycle Facilities

Along	From	To	Proposed Improvements
Eisenhower Avenue	Van Dorn Street Metrorail station	Metro Road	• North side: 12 foot shared use path
South Van Dorn Street	Eisenhower Avenue	Metro Road	• East side: wide sidewalk (width varying from 7 to 10 feet)
South Van Dorn Street	Railroad Tracks	Duke Street	• East side: 12 foot shared use path • West side: 6 foot sidewalks
North Van Dorn Street	Landmark Mall	Holmes Run Parkway	• East side: 6 foot sidewalk • West side: 12 foot shared use path
North Van Dorn Street	Holmes Run Parkway	Sanger Avenue	• East side: bicycle climbing lane utilizing the service road • West side: 10 foot multi-use path
North Beauregard Street	Sanger Avenue	Roanoke Avenue	• Both sides: 6 foot sidewalks
North Beauregard Street	Roanoke Avenue	Reading Avenue	• East side: 10 foot multi-use path • West side: 6 foot sidewalks
North Beauregard Street	Reading Avenue	Rayburn Avenue	• East side: 8 foot sidewalk • West side: 6 foot sidewalk
North Beauregard Street	Rayburn Avenue	Mark Center Drive	• Both sides: 6 foot sidewalk

Additional sidewalk and bicycle improvements are planned on North Beauregard Street immediately adjacent to transitway stations at Fillmore Avenue, West Braddock Road, and King Street.

Figure 7: Proposed Pedestrian and Bicycle Facilities



4.1.3. Minimization and Mitigation Measures

Minimization and mitigation measures for identified adverse effects on transportation conditions are described by each alternative. Construction related effects and corresponding mitigation measures are described in **Section 4.11**.

No Build Alternative

For adverse effects resulting from projects included in the No Build Alternative, this evaluation assumes that appropriate measures will be implemented by the sponsoring party.

TSM Alternative

Traffic Operations

Traffic operations impacts from implementation of transit signal priority can be mitigated by corridor-wide traffic signal optimization.

Parking and Access

No adverse parking or access impacts are anticipated as a result of the TSM Alternative.

Bicycle and Pedestrian

No adverse impacts to the bicycle or pedestrian network are anticipated as a result of the TSM Alternative.

Build Alternative

Traffic Operations

Traffic operations impacts from implementation of transit signal priority can be mitigated by corridor-wide traffic signal optimization.

Parking and Access

The transitway design would incorporate the following measures to minimize parking and access impacts:

- Shifting portions of the roadway alignment to avoid or minimize impacts to parking, specifically residential parking;
- Inclusion of retaining walls to limit impacts related to changes in grade between the roadway and adjacent properties; and
- Targeted reductions in the width of travel lanes, medians, sidewalks, and bicycle facilities to reduce the overall right-of-way width.

During further design phases and implementation, the following measures could be used:

- Minor reconfiguration of parking layouts on adjacent properties to minimize loss of parking spaces; and
- Use of acquired properties for new parking to mitigate loss of parking due to the project.

Bicycle and Pedestrian

No adverse impacts to the bicycle or pedestrian network are anticipated as a result of the Build Alternative.

4.2. Land Acquisition and Displacements

4.2.1. Introduction

This section identifies potential right-of-way (ROW) acquisition needs of the project alternatives. ROW acquisition could constitute any of various forms of site control that would be needed for the location and operation of permanent project facilities over the lifetime of the project, including fee simple land acquisition, easement, lease, proffer, or other means.

A GIS analysis assessed the footprints of proposed elements of the West End Transitway based on conceptual design and their relationship to existing public ROW and land parcels[2]. The analysis then identified the portions of land parcels where permanent ROW acquisition would be needed to accommodate project facilities.

Temporary property impacts during construction are discussed in **Section 4.11 Construction Effects**.

4.2.2. Key Findings

No Build

The No Build Alternative is not anticipated to have any permanent land acquisition impacts.

TSM

The TSM Alternative does not involve new facilities or infrastructure outside of the public ROW and is not anticipated to have any permanent land acquisition impacts.

Build

The Build Alternative is anticipated to have minor impacts to multiple parcels along the corridor, mainly associated with expanded cross section width to accommodate the proposed transitway. Primarily, the ROW impacts would be to relatively small areas of properties, limited to frontage of parcels, and would not substantially negatively impact the continued use of the property in its current form. Some parcels along the corridor would have vehicular access and parking impacts, which are described in **Section 4.1 Transportation Network**.

Figure 8 and **Table 10** show potential land acquisition needs and ROW impacts. Property currently owned by the City of Alexandria and property that the landowner has already agreed to transfer for the transitway project (total of 3.8 acres) are excluded from the impact acreages.[3]

---

[2] *Parcel data obtained from City of Alexandria, 2014.*

[3] *The City of Alexandria has pre-development right-of-way dedications and easements along North Beauregard Street as the condition of approval (E.20.a) of the Coordinated Development District (CDD) #21 rezoning that was adopted by the Alexandria City Council on April 13, 2013. Specifically, the condition states, "within ninety (90) days of written request by the City, based on plans provided by the City, the Applicant(s) shall submit all necessary plans and documentation to dedicate and/or provide easement(s) for the Transitway, including any associated temporary construction and maintenance easements for the interim dedication as set forth in the CDD Concept Plan".*

The Build Alternative would impact portions of 46 parcels. This ROW acquisition would directly impact or disrupt use of three existing commercial buildings; the impacts to one of the buildings would likely result in the displacement of one business.

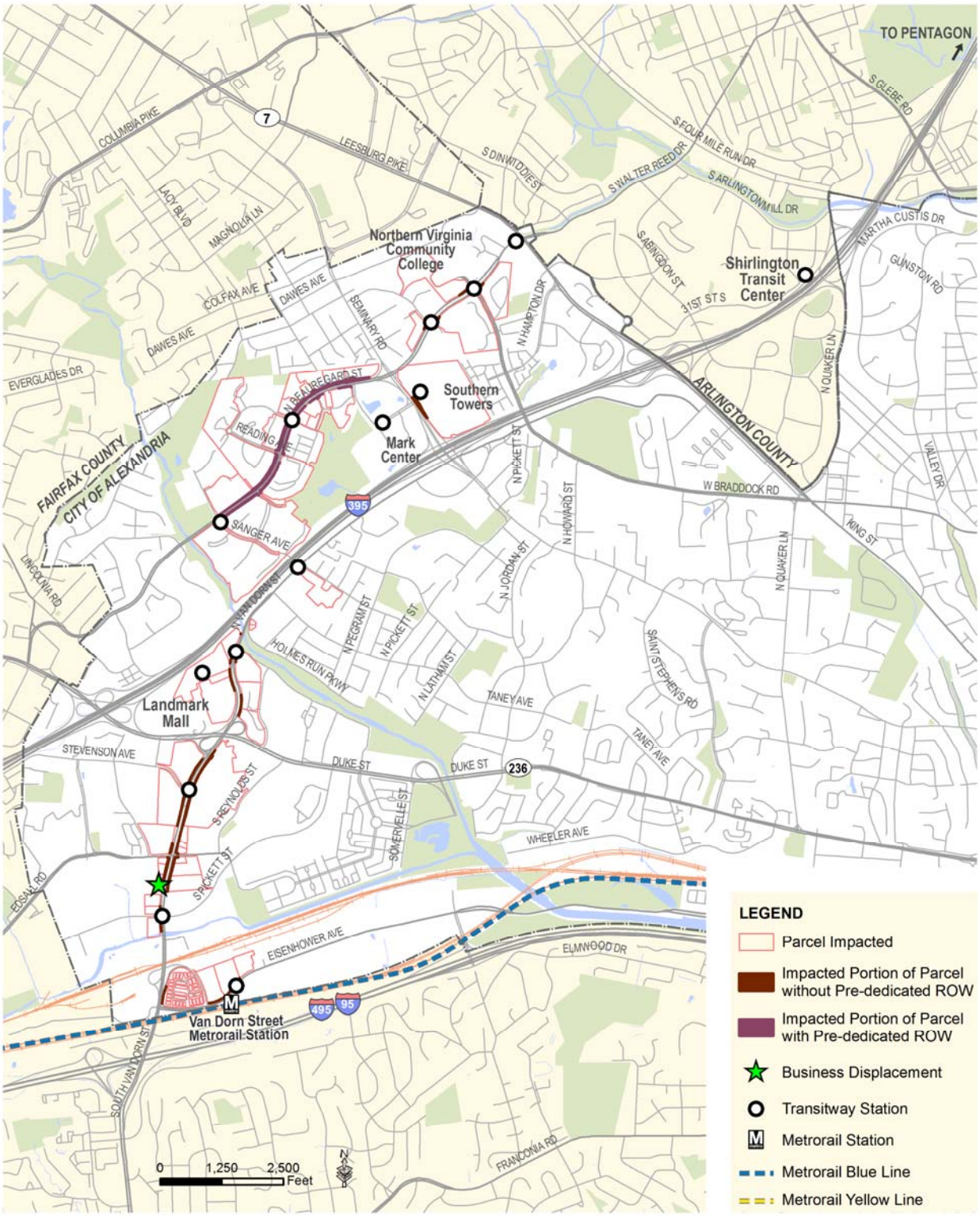
Table 10: Summary of Land Acquisition Impacts (Build Alternative)

Property Type	Partial Acquisition		Full Acquisition	
	Number of Parcels	Acres	Number of Parcels	Acres
Residential	19	3.23	0	0.00
Commercial	26 (includes impacts to 2 buildings)	3.00	1 (includes impact to 1 building and displacement of 1 business)	0.55
Industrial/Other[4]	1	0.04	0	0.00
TOTAL	**46**	**6.27**	**1**	**0.55**

(http://www.alexandriava.gov/uploadedFiles/planning/beauregard/CDD%2021%20Conditions_FINAL_Post%20CC_ADOPTED.pdf. accessed on April 27, 2015)

[4] *Property owned by the Washington Metropolitan Area Transit Authority (WMATA)*

Figure 8: Land Acquisition and ROW Impacts



4.2.3. Minimization and Mitigation Measures

To minimize the number of parcels and amount of area impacted as part of the Build Alternative, the following measures were applied during the concept design process:

- Shifting the roadway alignment to avoid or minimize impact to parcels, specifically impacts to buildings;
- Inclusion of retaining walls to limit the extent of impacts created by changes in grade between the roadway and adjacent properties; and
- Targeted reductions in the width of travel lanes, medians, sidewalks, and bicycle facilities to reduce the overall ROW width.

During further design phases and implementation, the following measures could also be used:

- Continuing to work with land owners and developers to secure or reserve the full future ROW for the corridor as they pursue site redevelopment.

Any land acquisition by the project would be subject to the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, which ensures that property owners, residents, and businesses affected by the acquisition or demolition of real property during the construction of federally funded projects are treated fairly, consistently and equitably and that they do not suffer disproportionate injuries. Additionally, the project will adhere to any state or local policies relating to relocation and property acquisition.

4.3. Consistency with Local Plans, Land Use, and Zoning

4.3.1. Introduction

This section describes the effects of the alternatives described in Chapter 2 on existing land use, future land use, and zoning and assesses consistency with local plans. The study area for consistency of local plans, land use, and zoning is a quarter-mile area on both sides of the proposed transitway corridor. For effects on land use and zoning, the analysis focuses on those areas where a new use is proposed or where a need for additional right-of-way (ROW) has been identified for any of the alternatives. Local and regional adopted plans were reviewed to assess whether or not the alternatives presented are consistent with those plans in terms of their transportation and land use policies and recommendations for the study area.

Consistency with Local Plans: Local plans from the City of Alexandria, Fairfax County, Washington Metropolitan Area Transit Authority, and Metropolitan Washington Council of Governments were reviewed for land use and transportation recommendations in the project corridor.

Table 11 summarizes the relevant plans in the study area. Land use and transportation plans relevant to the project corridor largely focus on the creation of a high-capacity transit corridor along Van Dorn and North Beauregard Streets, and several of the plans explicitly recommend dedicated transit lanes and BRT for the corridor. Another recurring theme across the plans is the recommendation of higher-density, transit-supportive land uses in the planning areas.

Table 11: Local Plans for the Project Corridor

Title, Author, and Date	Project Corridor Recommendations
Alexandria West Small Area Plan City of Alexandria 1992 (Amended 1993, 1995, 1998, 1999, 2012, and 2015)	• Identifies North Beauregard Street as an arterial that needs improvements to provide for the efficient movement of traffic. • Recommendations for areas along North Beauregard Street have been superseded by the Beauregard Small Area Plan (2012).
Comprehensive Transportation Master Plan City of Alexandria 2008 (Amended 2013)	• Identifies "Corridor C", which follows the current West End Transitway alignment within the study area, as a primary transit corridor. Corridor C also includes Kingstown and points south of the study area in Fairfax County.
Landmark/Van Dorn Corridor Plan City of Alexandria 2009	• Proposes higher-density mixed-use development in the Landmark Mall and Pickett Place areas. • Recommends a dedicated right-of-way for transit along "Corridor C", consistent with the Comprehensive Transportation Master Plan. • Identifies locations for enhanced bicycle facilities along Van Dorn Street and Duke Street. • Proposes two CDDs, which allow for up to 13.3 million square feet of total development, contingent on the provision of enhanced transit and other improvements described in the plan.
Beauregard Small Area Plan City of Alexandria 2012	• Recommends high-capacity BRT service in dedicated lanes along North Beauregard Street and serving Mark Center and Southern Towers. • Proposes off-street bicycle facilities along North Beauregard Street, Seminary Road, and Sanger Avenue. • Recommends the creation of the CDD, which would allow for up to 12.4 million square feet of total development, contingent on the provision of enhanced transit improvements described in the plan.
Transitway Corridors Feasibility Study City of Alexandria 2012	• Proposes BRT operating along mostly transit-exclusive guideway from Van Dorn Street Metrorail station to Shirlington and the Pentagon.
Regional Transportation Priorities Plan for the National Capital Region Metropolitan Washington Council of Governments 2014	• Recommends near-term improvements to transit stop and station access and expanded pedestrian and bicycle infrastructure. • Proposes application of priority bus treatments as an ongoing strategy. • Recommends long-term strategies for enhanced circulation within activity centers and implementation of BRT systems in areas unlikely to be served by Metrorail expansion.
Eisenhower West Small Area Plan City of Alexandria 2015	• Proposes higher-density commercial and residential development near the Van Dorn Metrorail station. • Recommends primary sidewalk facilities and enhanced bicycle corridors along South Van Dorn Street and Eisenhower Street, as well as space dedicated to transit on South Van Dorn Street.
Fairfax County Transit Network Study Fairfax County Ongoing	• Identifies Van Dorn/Beauregard corridor as a critical regional transit corridor.
City of Alexandria Pedestrian & Bicycle Master Plan Update	• Identifies Van Dorn Street between Eisenhower Street and Sanger Avenue and North Beauregard Street between Holmes Run

Title, Author, and Date	Project Corridor Recommendations
City of Alexandria Ongoing	Parkway and King Street as locations of priority bicycle projects. • Recommends enhanced bicycle corridors throughout the West End Transitway corridor. • Proposes prioritization of pedestrian improvements near transit stations/stops.

Land Use and Zoning: Existing and future land uses and current zoning are depicted in **Figure 9**, **Figure 10**, and **Figure 11**.

Existing land use information is based on site visits, aerial photographs, studies by the City of Alexandria, Arlington County and Fairfax County, and Geographic Information Systems (GIS) data provided by each of those jurisdictions. Future land use information for the City of Alexandria was obtained from the City of Alexandria's Master Plan, which contains Small Area Plans covering neighborhoods throughout the City. Future land use for the portions of the study area in Fairfax County was obtained from Fairfax County GIS data based on adopted future land use plans. Future land use for the portions of the study area in Arlington County was obtained from Arlington County's General Land Use Plan (GLUP). A wide variety of land uses exists within the study corridor and can be broadly characterized as residential, office, retail/commercial, government/institutional, parks, cemeteries, and industrial uses.

Zoning information used GIS data provided by the City of Alexandria, Arlington County, and Fairfax County and each jurisdiction's respective municipal zoning codes. Zoning districts vary across jurisdictions and were aggregated in this analysis to create generalized zoning categories for the three local and county government jurisdictions. The underlying zoning categories of the study corridor include residential, commercial office and retail, industrial, and parkland. The study corridor also includes a number of Coordinated Development Districts (CDDs), which are intended to encourage land assemblage and/or cooperation and joint planning where there are multiple owners for a mixture of uses.

Figure 9: Existing Land Use

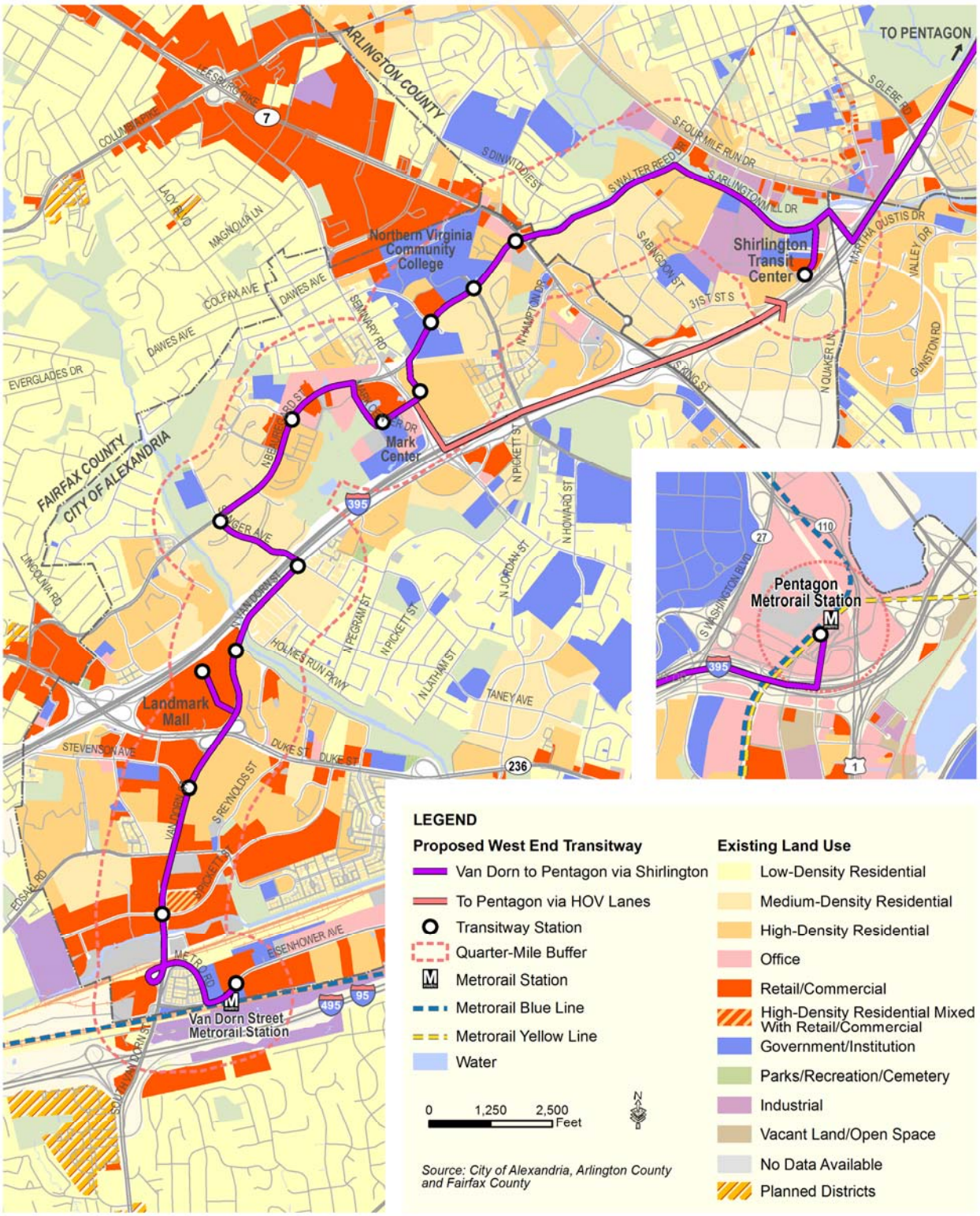


Figure 10: Future Land Use

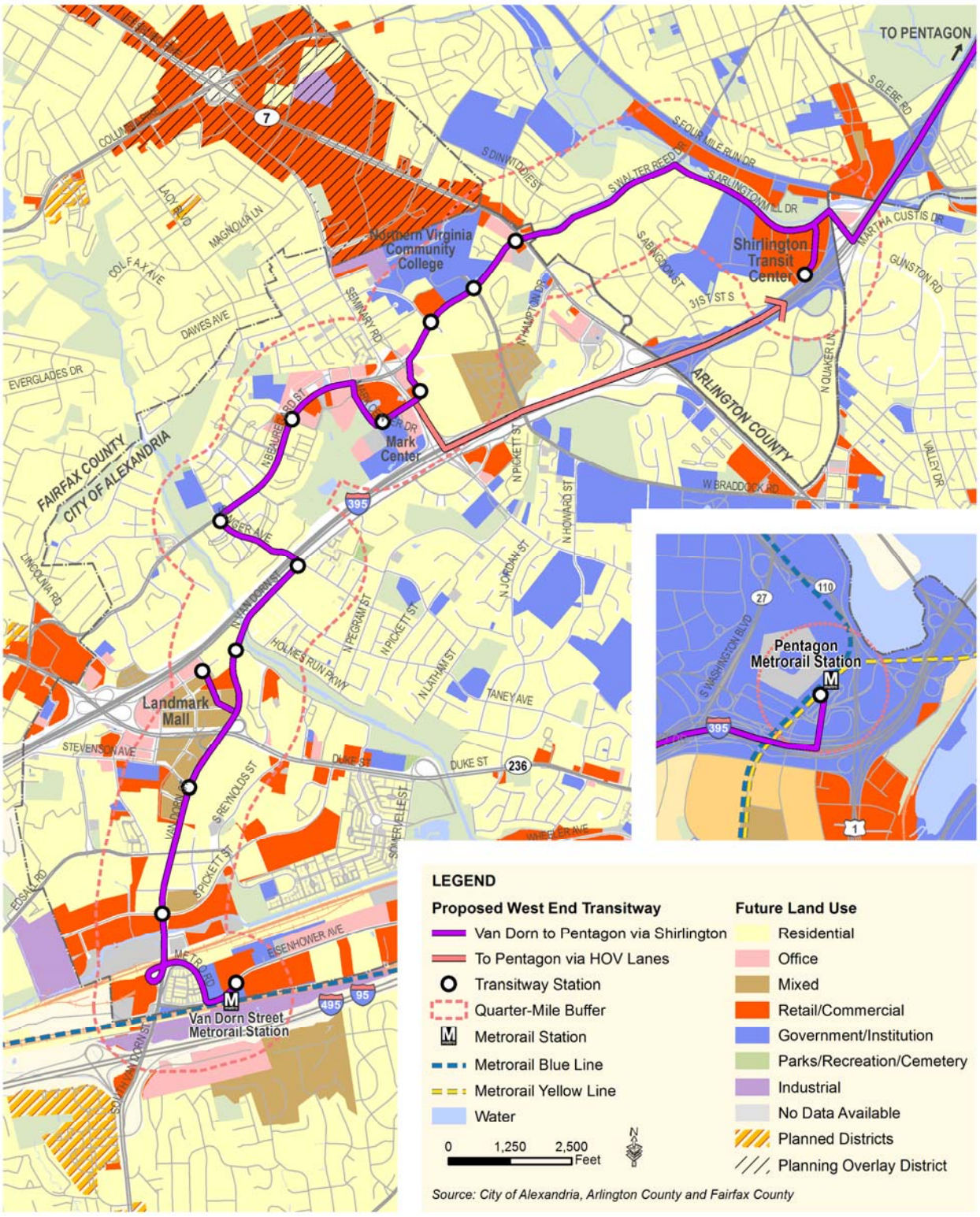
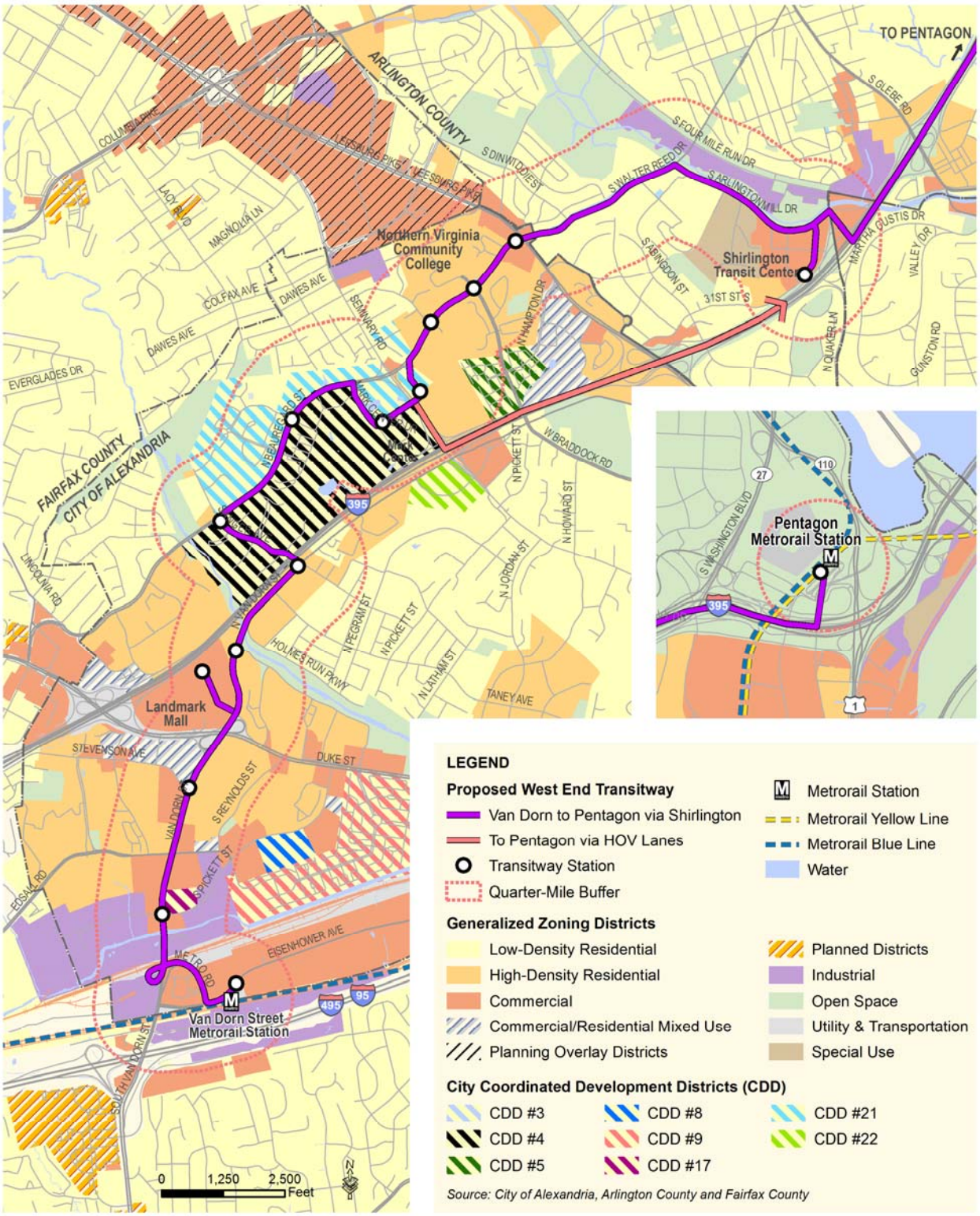


Figure 11: Existing Zoning



4.3.2. Key Findings

No Build Alternative

The No Build Alternative would not provide transportation improvements that are included in the City of Alexandria's Comprehensive Transportation Master Plan, which recommends dedicated transit lanes in the corridor. Planned future land use, reflected in the existing zoning, includes higher densities and a mix of uses, which would not be supported by the No Build Alternative transportation network. Densities would be capped by existing zoning without the provision of enhanced transit service, as required by the regulations of the CDDs established to implement the Landmark/Van Dorn Corridor Plan and the Beauregard Small Area Plan. Improvements included in the No Build Alternative would not result in any conversion of land use or rezoning.

TSM Alternative

The TSM Alternative is not consistent with the City of Alexandria's Comprehensive Transportation Master Plan, which recommends dedicated transit lanes in the corridor; however, this alternative is consistent with local plans to introduce high-capacity transit service and would fulfill the requirements for improved transit service as established in the CDDs for the Landmark/Van Dorn Corridor Plan and the Beauregard Small Area Plan.

Improvements included in the TSM Alternative would not result in any conversion of land use or rezoning. The TSM Alternative would be partially consistent with planned future land use because TSM service was considered "improved" transit but not high-capacity; therefore, by not providing a high-capacity transit service, densities would be capped by existing zoning as required by the regulations of the CDDs established to implement the Landmark/Van Dorn Corridor Plan and the Beauregard Small Area Plan.

Build Alternative

The Build Alternative is consistent with the City of Alexandria's Comprehensive Transportation Master Plan and other local plans, which recommend dedicated transit lanes and enhanced high-capacity transit service. The Build Alternative would fulfill the requirements for improved transit service as established in the CDDs for the Landmark/Van Dorn Corridor Plan and the Beauregard Small Area Plan.

Improvements included in the Build Alternative could result in the conversion of land use for one parcel. Improvements included in the Build Alternative would be consistent with planned future land use.

The Build Alternative is consistent with existing zoning.

4.3.3. Minimization and Mitigation Measures

No adverse effects on land use or zoning have been identified for the No Build or TSM; therefore, no minimization or mitigation measures are proposed for these alternatives.

4.4. Neighborhood and Community Facilities

4.4.1. Introduction

This section describes the effects of the alternatives on neighborhoods and community facilities within the study corridor. Existing information on neighborhoods and community facilities was gathered through site visits, examination of recent aerial photographs, other studies undertaken by the City of Alexandria, including the Comprehensive Transportation Master Plan (2008, amended 2013), Transitway Corridors Feasibility Study (2012), and various Small Area Plans, and GIS data obtained from the City of Alexandria, Arlington County and Fairfax County.

For purposes of this analysis, the study area is a quarter-mile area on both sides of the proposed transitway corridor. An adverse effect on neighborhoods was found if an alternative presented a situation that resulted in a neighborhood being isolated through the creation of barriers that would dramatically change typical travel patterns for that neighborhood. An adverse effect on a community facility would result from an alternative restricting access to a community facility or one that would result in a direct impact on that facility, rendering it unusable or displacing it.

Figure 12 shows neighborhoods and community facilities located within the study corridor. Community facilities include schools, places of worship, government facilities, hospitals, libraries, and community centers.

4.4.2. Key Findings

No Build

Under the No Build Alternative, existing conditions would remain unchanged. No isolation of neighborhoods would occur through the creation of barriers. No direct impacts or restriction of access to community facilities would occur from the No Build Alternative. However, residents, workers, and visitors would not benefit from an additional transit option that would enhance connectivity among activity centers in the corridor and to/from regional activity centers outside the corridor.

TSM

Neighborhoods and community facilities would benefit from the increased mobility, and improved transit service and station amenities that would be provided by the TSM Alternative, including faster limited-stop transit connections between activity centers along the corridor. No isolation of neighborhoods would occur through the creation of barriers. No direct impacts or restriction of access to community facilities would occur from the TSM Alternative.

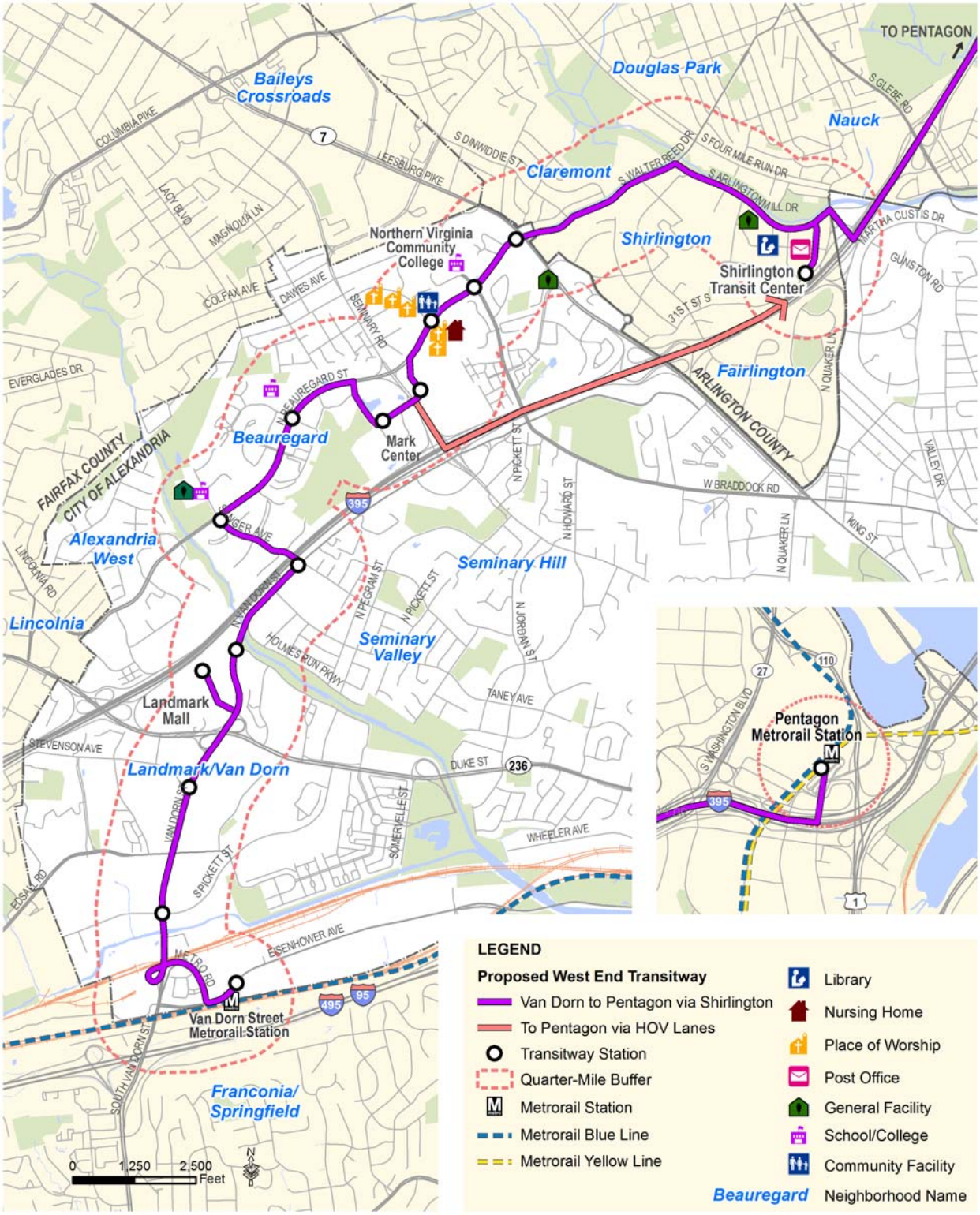
Build

Neighborhoods and community facilities would benefit from the increased mobility and improved transit service that would be provided by the Build Alternative, including faster limited-stop transit connections between activity centers along the corridor. The Build Alternative would not result in the isolation of neighborhoods or the creation of barriers within neighborhoods, nor would it result in direct impacts to community facilities.

4.4.3. Minimization and Mitigation Measures

No adverse effects on neighborhoods or community facilities were identified for any of the alternatives; therefore, no minimization or mitigation measures would be required.

Figure 12: Neighborhoods and Community Facilities



4.5. Cultural Resources and Section 106

4.5.1. Introduction

This section describes the effects of the alternatives on cultural resources, which include archaeological and historic architectural resources, within the study area. The cultural resource analysis is described in more detail in the *Historic Architectural Survey and Assessment of Effects Report* and *Archaeological Investigation Memo* found in **Appendix D**. The cultural resource analysis was conducted in accordance with federal, state and local laws and regulations, including NEPA (42 U.S.C. 4321) and Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulations (36 CFR Part 800). Cultural resources were identified within the Areas of Potential Effect (APEs) proposed for the project.

- **APE for Archaeology** – encompasses the project construction footprint, or the direct physical impact area, and is sufficiently large to include all potential areas that might be required for the current undertaking. The maximum depth of disturbance would be two feet where the roadway or station would be reconstructed, and six to ten feet where utility poles would be relocated.
- **APE for Architecture** – comprises the area within which the proposed undertaking could reasonably be expected to have a physical or visual effect on historic properties. The APE includes all properties fronting the project corridor between Van Dorn Street Metrorail station and Shirlington. All historic architectural resources 50 years of age or greater at the time of this evaluation, falling within the APE and fronting the proposed improvements, were surveyed and evaluated.

The proposed APEs were reviewed and approved by the Virginia Department of Historic Resources (VDHR) (see **Appendix C** for agency correspondence). Resources identified within the APEs were surveyed and evaluated per VDHR guidelines, and consultation with VDHR and relevant consulting parties was undertaken as appropriate in accordance with Section 106. Any substantive changes to the location of the proposed alignment or facilities would require a reassessment of the proposed APE.

Archaeological Resources – No previously documented archaeological resources have been recorded with VDHR within the current APE; however three archaeological sites are located within close proximity to the APE . The majority of the proposed study corridor has been subjected to significant commercial, residential, and industrial development and associated ground disturbance.

Historic Architectural Resources – Based upon background research and a historic structures field survey, the APE contains eleven architectural resources that are 50 years of age or older and have not been previously recorded. Of the eleven newly identified resources, eight are recommended eligible for listing in the National Register of Historic Places (NRHP). In a letter dated March 17, 2017, VDHR concurred with FTA's eligibility recommendations for the newly identified architectural resources (see **Appendix C** for agency correspondence). These resources are shown in **Figure 13** and listed in **Table 12**. No NRHP-listed resources are located within the APE.

Figure 13: Identified Historical Architectural Resources in the APE

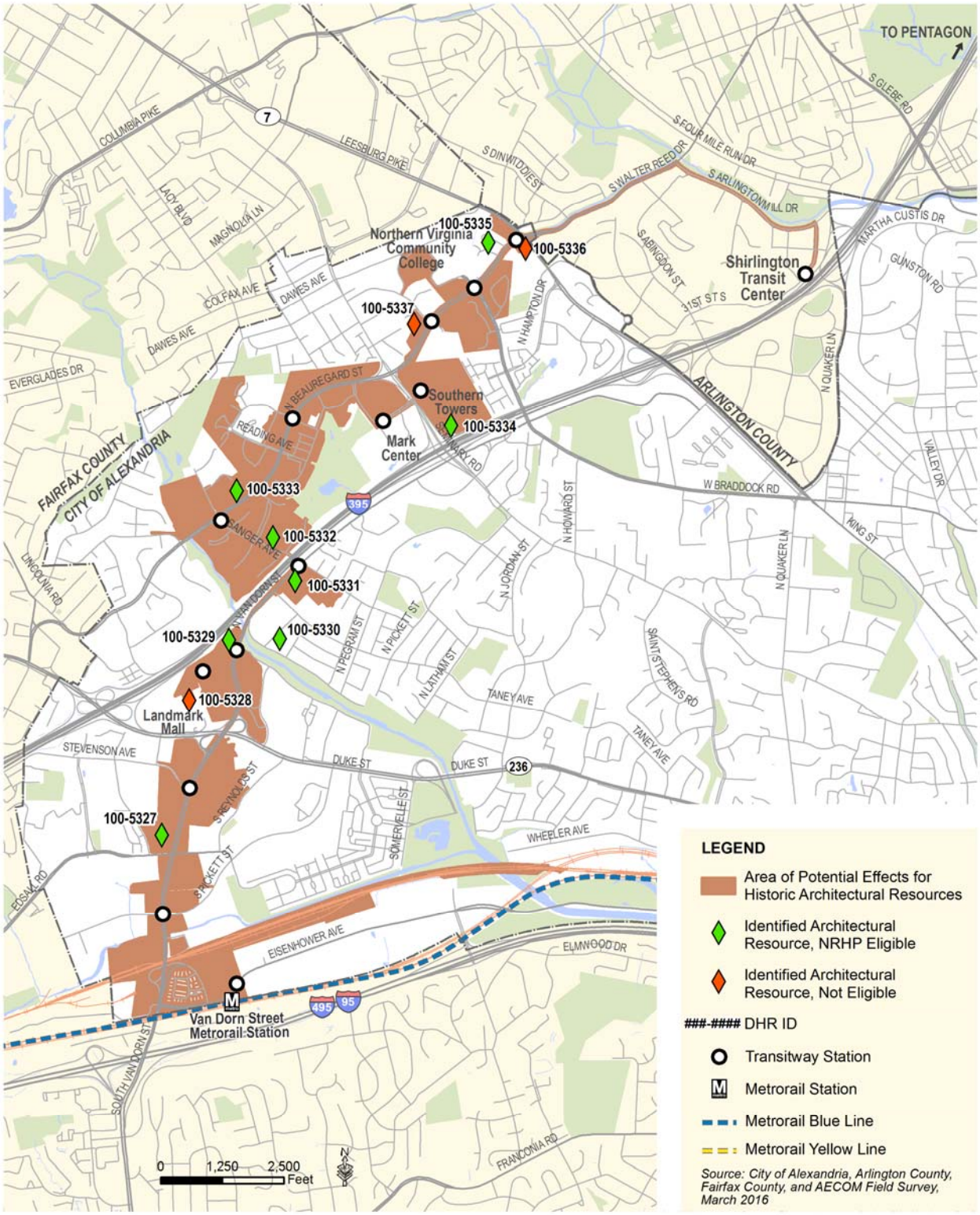


Table 12: Identified Historic Architectural Resources

DHR ID #	Name/Address	Date	Type	NRHP Recommendation
100-5327	Landmark Terrace Apartments 400 South Whiting Street	1964	Mid-Rise Apartment Complex	Eligible, Criterion A
100-5328	Landmark Mall 5801 Duke Street	1965	Shopping Mall	Not Eligible
100-5329	Broadstone Van Dorn Apartments 420 North Van Dorn Street	1963	High-Rise Apartment	Eligible, Criterion A
100-5330	Brookville Townhomes 5402 Taney Avenue	1952	Garden Apartments	Eligible, Criterion A and C
100-5331	Willow Run Apartments 935 North Van Dorn Street	1962-1964	Mid-Rise Apartment Complex	Eligible, Criterion A
100-5332	Meadowcreek Lynbrook Apartments 5501 Sanger Avenue	1961-1964	Mid-Rise Apartment Complex	Eligible, Criterion A
100-5333	Brookdale Apartments 1400 North Beauregard Street	1959-1962	Mid-Rise Apartment Complex	Eligible, Criterion A
100-5334	Southern Towers 5055 Seminary Road	1962-1970	High-Rise Apartment Complex	Eligible, Criterion A and C
100-5335	Hermitage in Northern Virginia 5000 Fairbanks Avenue	1962	Senior Care Facility	Not Eligible
100-5336	Larchmont Village Apartments 3400 North Beauregard Street	1960	Mid-Rise Apartment Complex	Eligible, Criterion A
100-5337	Mattress & Furniture Outlet/ Car Title Loans 4622 King Street	1955	Commercial Building	Not Eligible

Source: AECOM field survey, March 2016; VDHR letter, March 17, 2017

4.5.2. Key Findings

No Build Alternative

No construction is proposed in the No Build Alternative, and would therefore have no effects on architectural or archaeological resources in the study area.

TSM Alternative

The TSM Alternative would improve transit stops, enlarging their footprints to install additional amenities at locations where public right-of-way is available. All construction and disturbance would remain within the public right-of-way and would have no effects on architectural or archaeological resources in the study area. Under Section 106, VDHR concurred with FTA's finding that the project would have *No Adverse Effect* to any of the NRHP eligible resources (see **Appendix C** for agency correspondence).

Build Alternative

Similar to the TSM Alternative, the Build Alternative would include new consolidated transit stops which would involve larger footprints and infrastructure than the No Build Alternative, and transitway construction which would involve expanding the existing street cross-section of segments of the proposed alignment with some portions outside of the existing public right-of-way. Partial right-of-

way impacts are anticipated to four parcels that are potentially eligible historic architectural resources (Broadstone Van Dorn Apartments, Meadowcreek Lynbrook Apartments, Southern Towers, and Landmark Terrace Apartments). However, these impacts are limited to the frontage of the roadway and would not change any of the historic structures or the visual/aesthetic setting of these potentially eligible resources.

Although three (3) previously recorded archaeological sites (44AX0054, 44AX0124 and 44AX0178) were found in close proximity to the project (60 feet, 40 feet and 375 feet away from LOD respectively), the project would have no potential to affect these sites.

Under Section 106, VDHR concurred with FTA's finding that the project would have *No Adverse Effect* to any architectural or archaeological resources (see **Appendix C** for agency correspondence).

4.5.3. Minimization and Mitigation Measures

FTA, with concurrence from VDHR, determined the project will result in *No Adverse Effect*. However, since three previous archaeological sites are located within proximity to the project, a plan for responding to unanticipated discoveries will be developed prior to project construction and will include appropriate measures to identify, assess and, if required, mitigate adverse impacts to resources discovered during construction. FTA and the City of Alexandria will implement the aforementioned plan should any archaeological and/or human remain be encountered during the undertaking. VDHR also requested that for site 44AX0124, protective measures be installed in the buffer area during construction to prevent any potential adverse effects.

4.6. Visual Resources

4.6.1. Introduction

This section describes potential changes in the visual and aesthetic character of the corridor related to each of the alternatives. The evaluation takes into account physical development, vegetation and other natural features, and visually sensitive landmarks and views. The evaluation focuses on project elements that would result in a change to existing visual resources or introduce a new visual element to the corridor and whether or not new elements are consistent with the existing visual character. The West End Transitway project has a number of elements that would have a visual presence within the corridor, including transit vehicles, bus-only lanes, and transit stations.

The methodology used for this analysis is composed of two primary aspects: inventory of existing visual features (natural and build) and qualitative assessment of project effects on those features. The viewshed identification and characterization was developed consistent with the Federal Highway Administration's Visual Impact Assessment for Highway Projects (1981) guidance..

Five existing viewshed locations that are proximate to the transitway corridor and representative of views within the project area were identified. The following tiered scale was used to describe the degree of visual impact of the project elements:

- **High**: Project introduces new elements that would substantially affect the quality of visual/aesthetic features;
- **Medium**: Project introduces new elements that may affect the quality of visual/aesthetic features;
- **Low**: Project introduces new elements that are not likely to affect the quality of visual/aesthetic features; and
- **None**: Project does not introduce new elements in this location or current views would not change.

Visual Context

The study corridor is generally suburban in nature with a mix of commercial/retail, hotel, industrial, and residential uses. The corridor has a mix of old and new buildings. There are no identified historic districts or landmarks in the corridor.

Figure 14 shows the locations used to analyze existing conditions of and potential changes to corridor viewsheds.

Table 13 summarizes corridor viewsheds and their existing condition. **Figure 15** shows the generalized streetscape characteristics of North Beauregard and Van Dorn Streets along the corridor.

Figure 14: Viewshed Locations

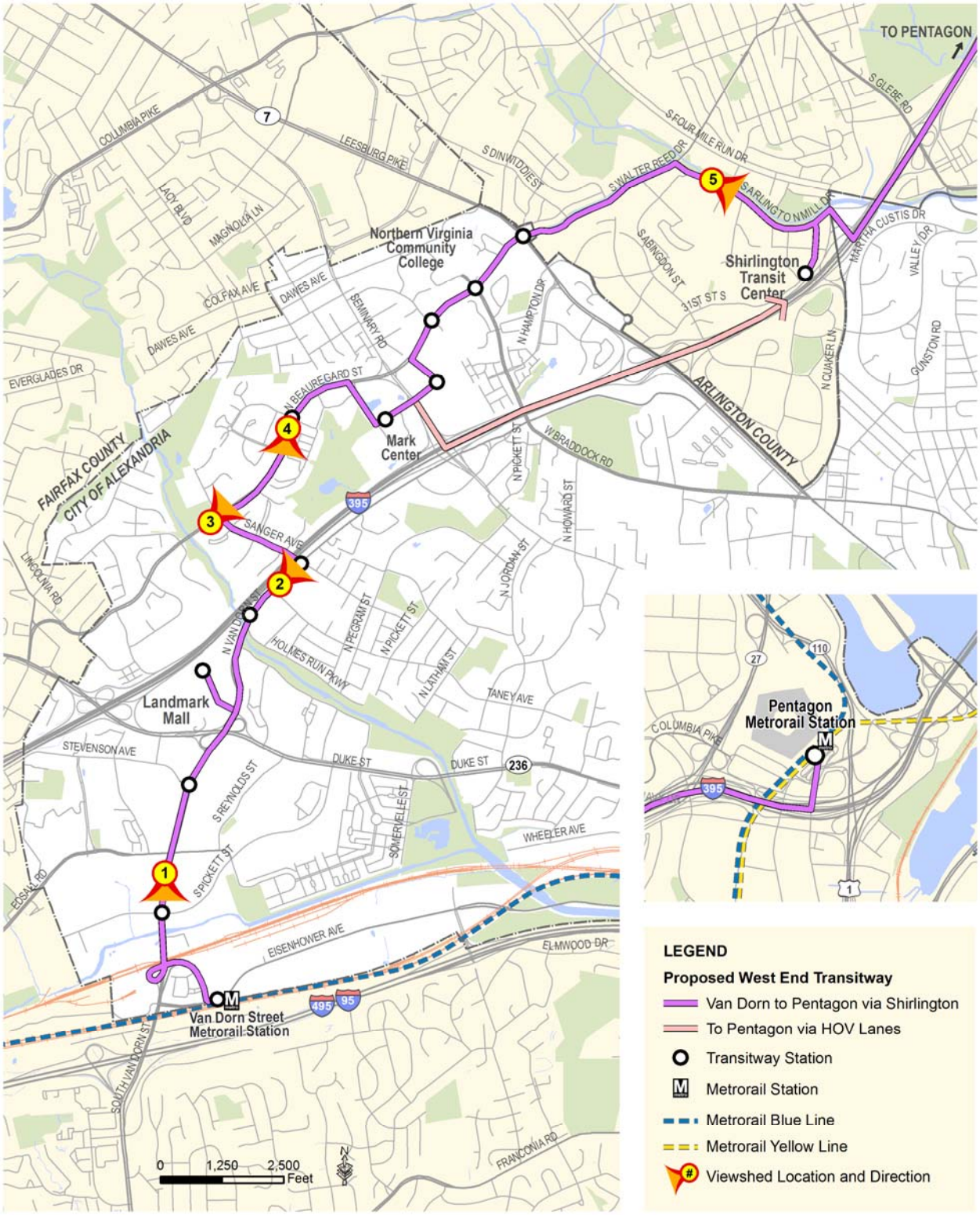
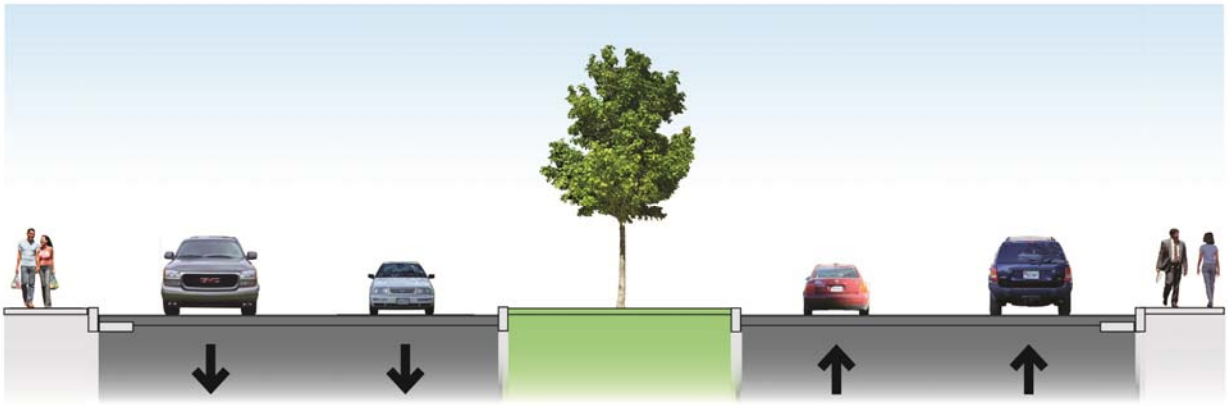


Table 13: Visual Character of Existing Viewsheds

Viewshed	Existing Visual Character	Existing Visual Quality	Existing Viewer Sensitivity
1. South Van Dorn Street (looking south toward Pickett Street)	Architectural: mid- and low-rise commercial development Natural: vegetation of Backlick Run present in the background Streetscape: broad, four-lane roadway with vegetated median and intermittent left-turn lanes	Moderately low	Moderately low
2. North Van Dorn Street (looking north toward Sanger Road)	Architectural: mid-rise residential development adjacent, large office building in the background Natural: service road framed by mature trees to the east Streetscape: four-lane roadway with alternating left-turn lanes and adjacent parking lot/service road	Moderate	Moderate
3. Intersection of North Beauregard Street and Sanger Avenue (looking northeast along North Beauregard Street)	Architectural: mid-rise residential with deep setbacks and parkland to the southeast Natural: full vegetation and sidewalks frame the roadway to the south Streetscape: four-lane roadway with alternating left-turn lanes, a tree-lined median and sidewalks	Moderately high	High
4. North Beauregard Street (looking southwest toward Reading Avenue)	Architectural: commercial office park, residential development, low-rise shopping center with parking Natural: dense vegetation to the west, landscaping and street trees to the east Streetscape: four-lane roadway with sidewalks and a tree-lined median	Moderately high	Moderate
5. Shirlington Park (looking east from north of South Arlington Mill Drive)	Architectural: Mixed commercial, residential, and linear Shirlington Park Natural: tree-lined corridor with vegetated area in the background Streetscape: four-lane roadway with tree-lined median and adjacent landscape trip and two-lane trail	Moderately high	High

Figure 15: Generalized Existing Streetscape along Van Dorn and North Beauregard Streets



4.6.2. Key Findings

No Build

Improvements relevant to visual resources in the corridor are improvements at two existing bus stops and roadway network modifications. The bus stop improvements are consistent with the existing visual character of the corridor. It is assumed that No Build Alternative roadway network modifications are documented separately.

Future changes in the built environment of the corridor are anticipated under the No Build Alternative based on adopted small area plans and zoning that guide and regulate ongoing redevelopment efforts. Specifically, the segments of the corridor between Van Dorn Metrorail station and Landmark Mall and between Sanger Avenue and Seminary Road are planned to have higher-density development with buildings adjacent to the streetscape rather than setback behind parking lots and lawns. The streetscapes are planned to have wider sidewalks with street trees and other amenities. As a result, the visual character of the architectural and streetscape elements in Viewsheds 1, 3, and 4 would change under the No Build Alternative. The visual character in Viewsheds 2 and 5 is not anticipated to significantly change under the No Build Alternative based on adopted local plans which maintain the existing uses and general streetscapes in these locations.

TSM

The TSM alternative includes the No Build visual elements and some additional amenities provided at transit stops within the public right-of-way. The vehicles are the same as existing agency bus fleets currently operating in the corridor and none of the additional roadway operational improvements above those in the No Build Alternative would entail new visible facilities. Therefore, the TSM Alternative would have no significant effect on visual character or quality.

Build

In addition to the No Build visual elements, the Build alternative introduces new elements to the corridor:

- **Transit vehicles**: Project would introduce additional standard-size transit buses in the corridor.

- **Bus-only lanes**: Project would introduce bus-only lanes along sections of South Van Dorn Street and North Beauregard Street (see **Figures 16** and **17**).
- **Transit stations**: Project would introduce transit stations as a new visual element in the corridor. Stations would be significantly larger than existing bus stops, with raised boarding areas, larger shelters, and additional amenities, such as real-time information displays, identification pylon and/or station markers, bike racks, and enhanced lighting and landscaping.
- **Streetscape and landscaping**: Project would alter streetscapes in locations where dedicated bus lanes are constructed, including widening sidewalks and planting street trees. The project would result in a 63 percent net increase in street trees along the corridor with the additional planting of approximately 400 street trees. In the short-term following construction, some areas of the corridor would have less mature tree coverage compared to current conditions, as newly planted trees would require time to reach maturity.

Figure 16: Proposed Streetscape along South Van Dorn Street

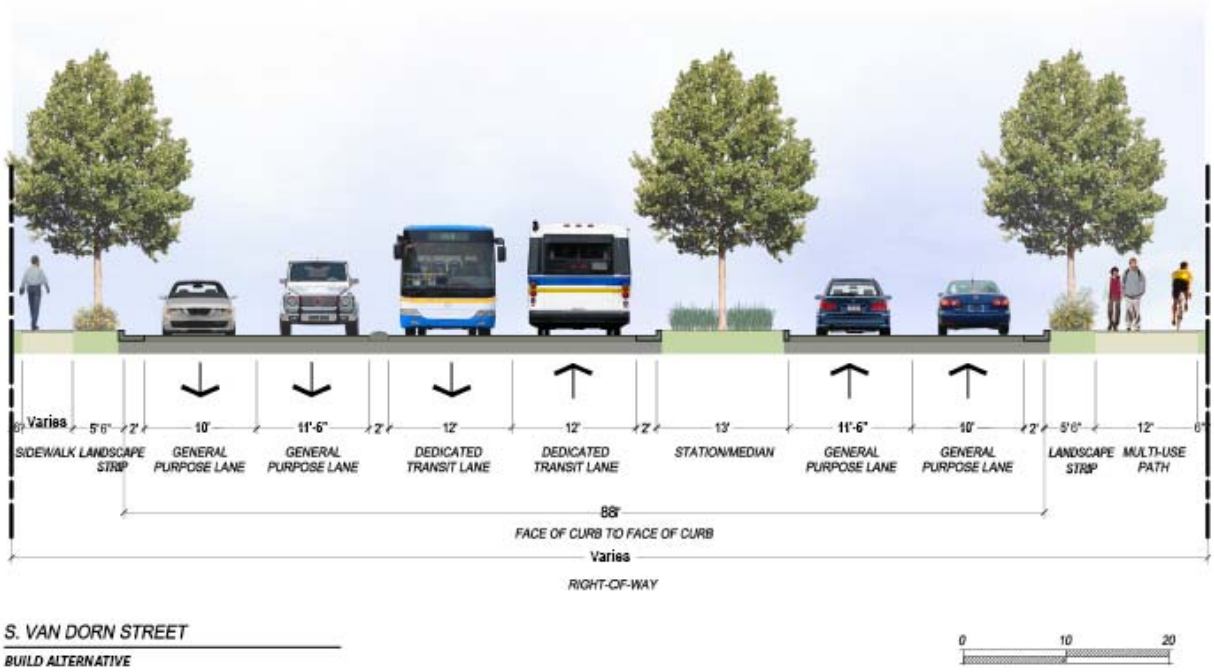


Figure 17: Proposed Streetscape along North Beauregard Street

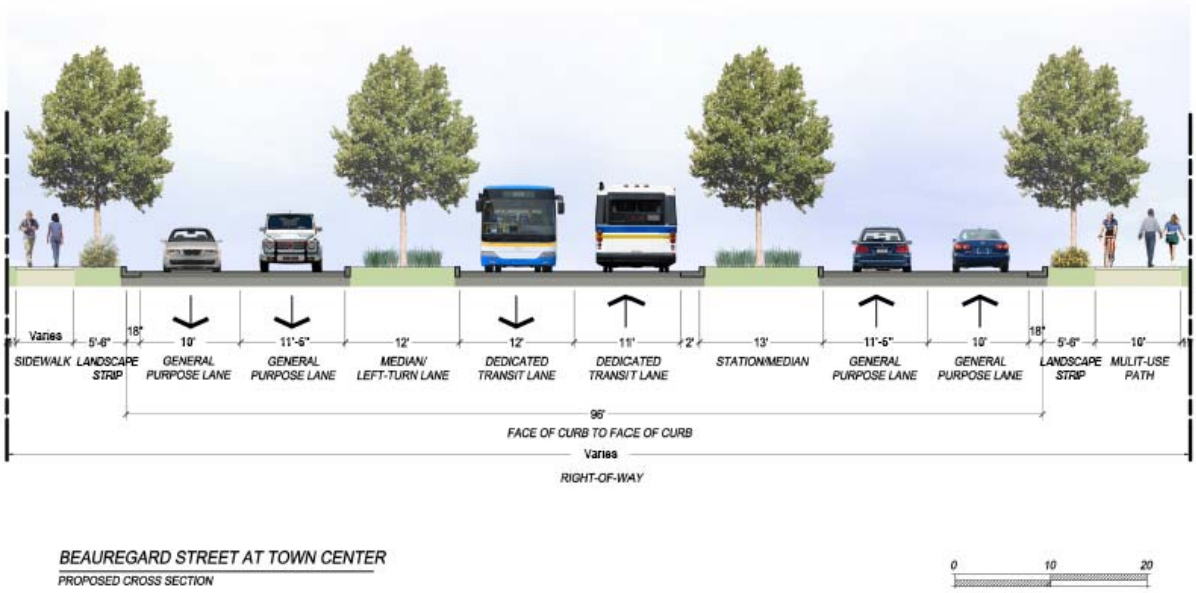


Table 14 summarizes potential effects on representative corridor viewsheds. With regard to views to the corridor from adjacent parkland, the new visual elements under the Build Alternative would not be visible from the parkland areas along Backlick Run and Holmes Run, because these stream valleys are located below the grade of the corridor roadway.

Table 14: Build Alternative Visual Resource Impacts

Viewshed	Impact	Description of Impact
South Van Dorn Street (looking south toward Pickett Street)	Low	Introduces bus-only lanes and stations within existing multi-lane urban arterial roadway. No significant changes to sidewalk and landscaping from those included in No Build Alternative.
North Van Dorn Street (looking north toward Sanger Road)	Medium	Introduces bus-only lanes and stations within existing multi-lane urban arterial roadway. Also introduces streetscape changes not included in No Build Alternative.
Intersection of North Beauregard Street and Sanger Avenue (looking northwest along North Beauregard Street)	Low	Introduces bus-only lanes and stations within existing multi-lane urban arterial roadway. No significant changes to sidewalk and landscaping from those included in No Build Alternative.
North Beauregard Street (looking southwest toward Reading Avenue)	Low	Introduces bus-only lanes and stations within existing multi-lane urban arterial roadway. No significant changes to sidewalk and landscaping from those included in No Build Alternative.
Shirlington Park (looking east from north of South Arlington Mill Drive)	None	No changes proposed.

4.6.3. Minimization and Mitigation Measures

Low to moderate visual impacts are expected as a result of the Build Alternative. The impacts fit within the context of the existing Van Dorn Street and North Beauregard Street corridors. The impacts of transit stations along the Transitway could be mitigated with context-sensitive design. The impacts of streetscape improvements to sidewalks and landscaping under the Build Alternative where dedicated bus lanes are constructed can be mitigated by integrating the streetscape to the existing or planned No Build Alternative visual character of the corridor through design elements and vegetation.

Low to moderate impacts are anticipated as a result of bus-only lanes along sections of Van Dorn Street and North Beauregard Street. In most locations, bus-only lanes are proposed in areas with approved small area plans for which the proposed Build Alternative is consistent with the roadway cross-sections adopted in the plans. The northbound bus-only lane on North Van Dorn Street between Holmes Run Parkway and Sanger Avenue is expected to have a medium impact; it is not included in a small area plan. The current concept design serves to mitigate visual impacts by integrating the streetscape to the existing visual character of the corridor through design elements and vegetation.

4.7. Noise and Vibration

4.7.1. Introduction

This section describes potential noise and vibration effects of the proposed alternatives. Noise is "unwanted sound"; by this definition, the perception of noise is a subjective process. However, federal guidelines for noise assessment do exist. Ground-borne vibration associated with vehicle movements is usually the result of uneven interactions between wheels and the road surface. The noise and vibration assessment was prepared in accordance with the guidelines set forth by FTA's *Transit Noise and Vibration Impact Assessment.*

Sensitive land uses were identified and evaluated within 200 feet of the corridor. The sensitive land use category present within this screening distance is residential. Ambient noise measurements were taken at two sensitive receptor locations, representative of the residential land use along the corridor (see **Figure 18**):

- Measurement Location 1 – South Van Dorn Street, immediately north of Pickett Street: new mid-rise apartment building, built to the sidewalk, representative of urban design guidelines for new development along the corridor.

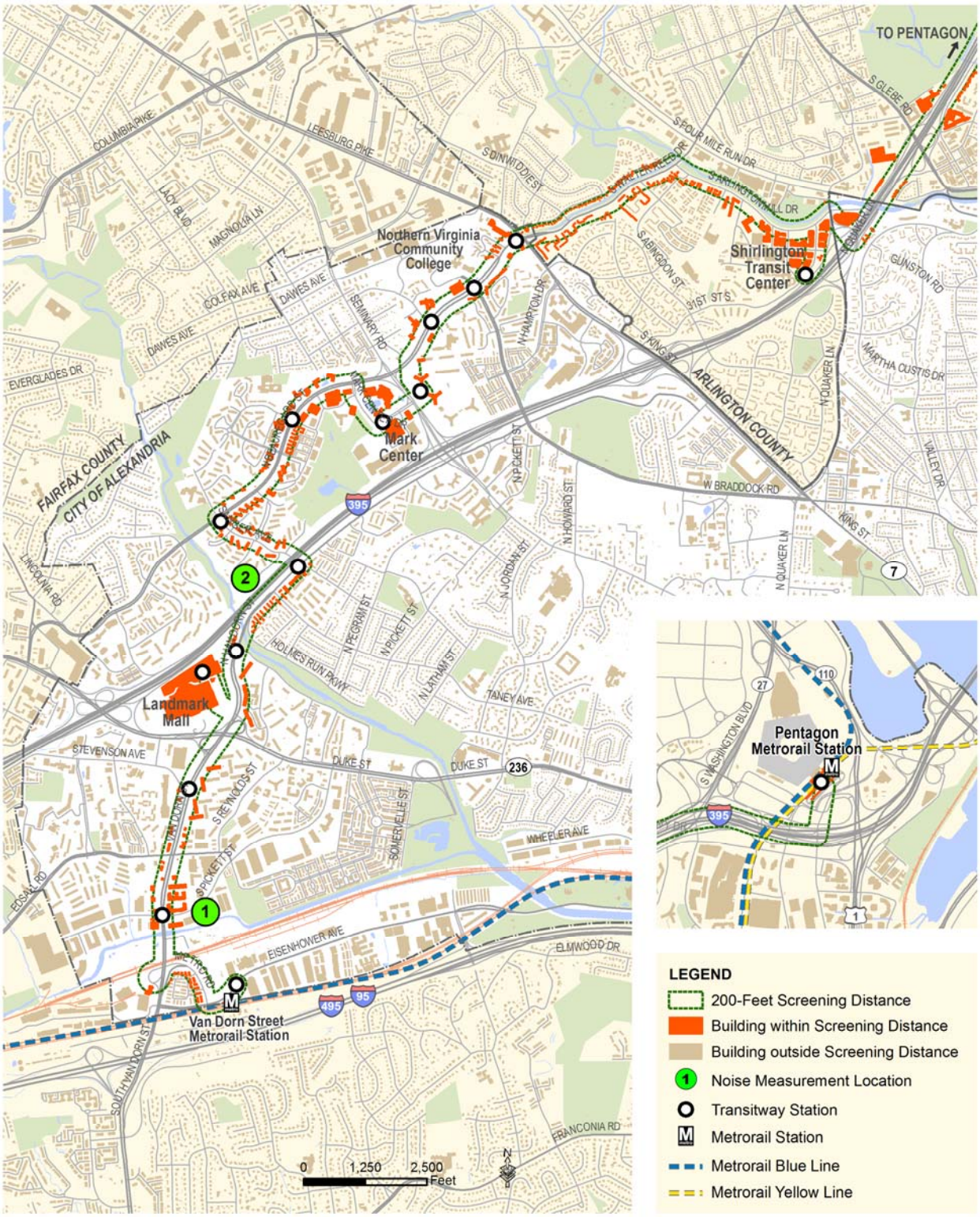
- Measurement Location 2 – Sanger Avenue: older garden apartment buildings set back from the street, representative of many of the existing residential uses.

Ambient noise within the study corridor is affected by traffic along major arterial streets (South/North Van Dorn Street and North Beauregard Street) and nearby highways (I-495 and I-395). Existing ambient noise levels measured at the representative receptors range from 65 dBA to 70 dBA. For comparison, an outdoor noise source such as a lawn mower is perceived by the human ear around 70 dBA within 50 feet of the lawn mower. Noise sources associated with the project are vehicular roadway traffic, both bus transit vehicles and private automobiles.

The No Build, TSM, and Build Alternatives would comply with local noise ordinances, including the City of Alexandria's Noise Control Code (Section 11-5 in the Alexandria City Code) and the Arlington County Noise Control Code (Chapter 15).

No sensitive receptors for vibration were found within the 50-foot screening distance of the corridor, and, as a result, no baseline vibration measurements were conducted. Additionally, vibration impacts due to transitway bus passbys are unlikely due to the soft suspensions (compared to steel wheels on trains) and the relatively smooth roadway pavement. Furthermore, vibration from existing volumes of buses and heavy trucks along the project corridor would continue to dominate the ambient vibration levels at sensitive receptors along the highway and local roadways.

Figure 18: Noise Measurement Locations and Screening Distance



4.7.2. Key Findings

Noise

No Build Alternative

Future noise levels in the study area under the No Build are expected to be similar to those measured under the existing conditions.

TSM Alternative

Analysis of potential noise effects associated with the TSM Alternative considered bus passbys and passenger loading and unloading activity at proposed transit stations. The TSM Alternative would result in more frequent bus passbys and additional levels of passenger loading and unloading activity at transit stops compared with the No Build Alternative. By comparing the predicted noise levels of bus and general vehicular traffic for the existing condition with the TSM Alternative, the net change in noise at a typical residence 50 feet from the roadway centerline is not predicted to exceed the FTA allowable “moderate” or “severe” increase criteria. Therefore, no exceedances of the FTA criteria are predicted.

Build Alternative

Similar to the TSM Alternative, the Build Alternative would result in more frequent bus passbys and additional levels of passenger loading and unloading activity at transit stops compared with the No Build Alternative. By comparing the predicted noise levels of bus and general vehicular traffic for the existing condition with the future Build Alternative, the net change in noise at a typical residence 50 feet from the roadway centerline is not predicted to exceed the FTA allowable “moderate” or “severe” increase criteria. Therefore, no exceedances of the FTA criteria are predicted. Furthermore, the additional vehicles and stations associated with the Build Alternative would be located along the center median, separated from existing sensitive receptors by two lanes of vehicular traffic.

Vibration

No vibration impacts are predicted at any residences, parks or institutions under the No Build or TSM Alternatives. No vibration-sensitive receptors were identified with the FTA screening distance of 50 feet (for Category 2 land uses). Since the area of vibration impact for bus passbys at 50 mph is approximately 20 feet from the proposed travel lane, sensitive receptors in the project corridor are located well outside this distance. Therefore, no exceedances of the FTA vibration “annoyance” impact criterion of 72 VdB for frequent events are expected to occur at residences (FTA Category 2 land-uses) or other institutional land-uses such as schools or churches (FTA Category 3 land-uses) under the Build Alternative.

4.7.3. Minimization or Mitigation Measures

There would be no temporary or permanent adverse effects from noise or vibration as a result of the No Build, TSM or Build Alternatives; therefore, no minimization or mitigation measures are proposed.

4.8. Air Quality

4.8.1. Introduction

This section identifies and assesses the potential effects of the West End Transitway on air quality at the localized and regional levels. The Clean Air Act, as amended, is the basis for most federal air pollution control programs. The EPA under the Clean Air Act regulates air quality nationally. The EPA delegates authority to the Virginia Department of Environmental Quality (VDEQ) for monitoring and enforcing air quality regulations in the Commonwealth of Virginia. The Virginia State Implementation Plan (SIP), developed in accordance with the Clean Air Act, contains the major state-level requirements with respect to transportation in general.

Any project constructed in the Commonwealth of Virginia has to achieve compliance with the National Ambient Air Quality Standards (NAAQS), a set of standards established by the EPA under the authority of the Clean Air Act for various "criteria" air pollutants. The West End Transitway project is located in both the City of Alexandria and Arlington County, which are part of the EPA-defined Metropolitan Washington Air Quality Designation Area. The greater metropolitan Washington area is currently designated as moderate non-attainment for 8-hour ozone (O_3) and non-attainment for annual average $PM_{2.5}$. However, the metropolitan Washington area is in attainment for all other criteria pollutants including CO, PM_{10}, NO_2, SO_2, and Pb.

Under the Clean Air Act, it is the responsibility of federal agencies, such as the FTA, to ensure that a proposed project conforms to the SIP. Transportation conformity is a process required of the Metropolitan Washington Council of Governments (MWCOG) as the region's metropolitan planning organization, to ensure that those transportation activities that are consistent with air quality goals receive federal funding and approval.

For the current study, the air quality analysis focuses on three pollutants: particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), and ozone (O_3).

- Projects of concern for $PM_{2.5}$ are defined in 40 CFR 93.123(b)(1) as those that have a significant number of diesel vehicles or propose significant increases in the number of diesel vehicles. "Significant" number of diesel vehicles is in the order of 50-100 diesel buses congregating in the same spot for 15 minutes or more. The West End Transitway alternatives do not meet any of these definitions; therefore, no $PM_{2.5}$ hot-spot analysis is required.
- The results of the project-specific traffic analysis indicate that overall, the West End Transitway TSM and Build alternatives would have a minimal impact on intersection level of service and delay as compared to the No Build alternative. A project-specific CO hot spot analysis was not performed.
- The evaluation of air quality impacts due to the West End Transitway project were evaluated qualitatively based on the region's attainment status, using ambient air quality conditions established by reviewing data from existing air quality monitoring stations, and the project's traffic projections.

Recent monitoring data indicate that no exceedances of the NAAQS have been reported through May 2014 (the last period for which data is available) except for one $PM_{2.5}$ violation in 2012. The data also indicate CO levels are significantly below the NAAQS threshold.

4.8.2. Key Findings

As described above, neither a $PM_{2.5}$ nor a CO hot spot analysis is required due to the nature of the alternatives and the results of the traffic analysis which indicate that increased traffic delays at selected intersections due to the project are minimal. Moreover, recent ambient air quality conditions indicate CO levels are significantly below the NAAQS threshold. Furthermore, the project is included in the approved National Capital Region Transportation Planning Board's 2014 Financially Constrained Long-Range Plan (CLRP) ID 2930 and regional air quality conformity analysis. Therefore, the West End Transitway is determined to be in conformity with the region's air quality goals.

All project alternatives meet the project-level conformity requirements in 40 CFR Part 93 for ozone, $PM_{2.5,}$ and CO, and will not cause or contribute to any new localized violations, increase the frequency or severity of existing violations, or delay timely attainment of any NAAQS or any interim milestone.

4.8.3. Minimization and Mitigation Measures

Since the project is determined to be in conformity with the region's air quality goals, no mitigation measures are necessary.

4.9. Water Resources

4.9.1. Introduction

This section identifies Waters of the U.S. including wetlands, floodplains, coastal resources, and flood hazard zones, and assesses the potential effects of the alternatives on these water resources and water quality. Detailed information regarding regulations applicable to this analysis is provided in the Federal Consistency Certification Package in **Appendix B**.

Water resources were identified using existing information provided by the National Wetlands Inventory (NWI); the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps; GIS data and other information provided by the City of Alexandria, Arlington County and Fairfax County; maps, including the United States Geological Survey topographical maps (Alexandria, VA-DC-MD and Annandale, VA quadrangles); examination of recent aerial photographs; and field visits. Preliminary field investigations for the presence of wetland and Waters of the U.S. were conducted in May 2014. Impaired waters were identified using the Virginia VDEQ Final 2012 305(b)/303(d) Water Quality Assessment Integrated Report (December 2013).

For purposes of this analysis, the study corridor was designated as the area within a quarter-mile from either side of the centerline of the proposed transit alignment. Potential effects on water resources and water quality were evaluated based on physical changes being proposed in the vicinity of identified water resources, and potential changes in stormwater runoff or altered surface or sub-surface drainage patterns.

All water resources within the study corridor are shown in **Figure 19**. Many of these resources are associated with the three surface waters identified and described in **Table 15**. The Pentagon Lagoon associated with the Potomac River is at the edge of the quarter-mile buffer study area; as no improvements associated with the alternatives in the vicinity of the Pentagon will occur outside of existing roadway and transit center facilities, this water resource is not analyzed in detail. Water resources within the project corridor are subject to the provisions of the Chesapeake Bay Preservation Act.

Project-specific wetland delineation was not completed for this project because preliminary GIS investigation and desktop research did not find any wetlands within the limits of disturbance of the Build Alternative.

Resource Protection Areas (RPAs) exist in the vicinity of Backlick Run, Holmes Run, and Four Mile Run. In addition, three Special Flood Hazard Areas (SFHAs) are located within the study corridor; two of them cross the proposed transit alignment, while the transitway travels over one of them on an elevated structure. SFHAs are defined as the areas that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year (also referred to as the base flood or 100-year flood). SFHAs are shown as 100 year (Zone AE) and moderate flood hazard areas are shown as 500 year (Zone X).

Backlick Run, Holmes Run and Four Mile Run are all VDEQ-listed impaired waters for the stream segments within the study area. The impairments are a result of Escherichia coli (E. coli) bacteria contaminants from illicit connections to storm sewers, and wastes from pets and waterfowl. The streams are classified as Category 5 impaired waters, which requires a Total Maximum Daily Load

(TMDL) to be developed to calculate the maximum amount of contaminants that the stream can receive and still safely meet VDEQ water quality standards. There is one VDEQ water quality monitoring station in the study area at Backlick Run.

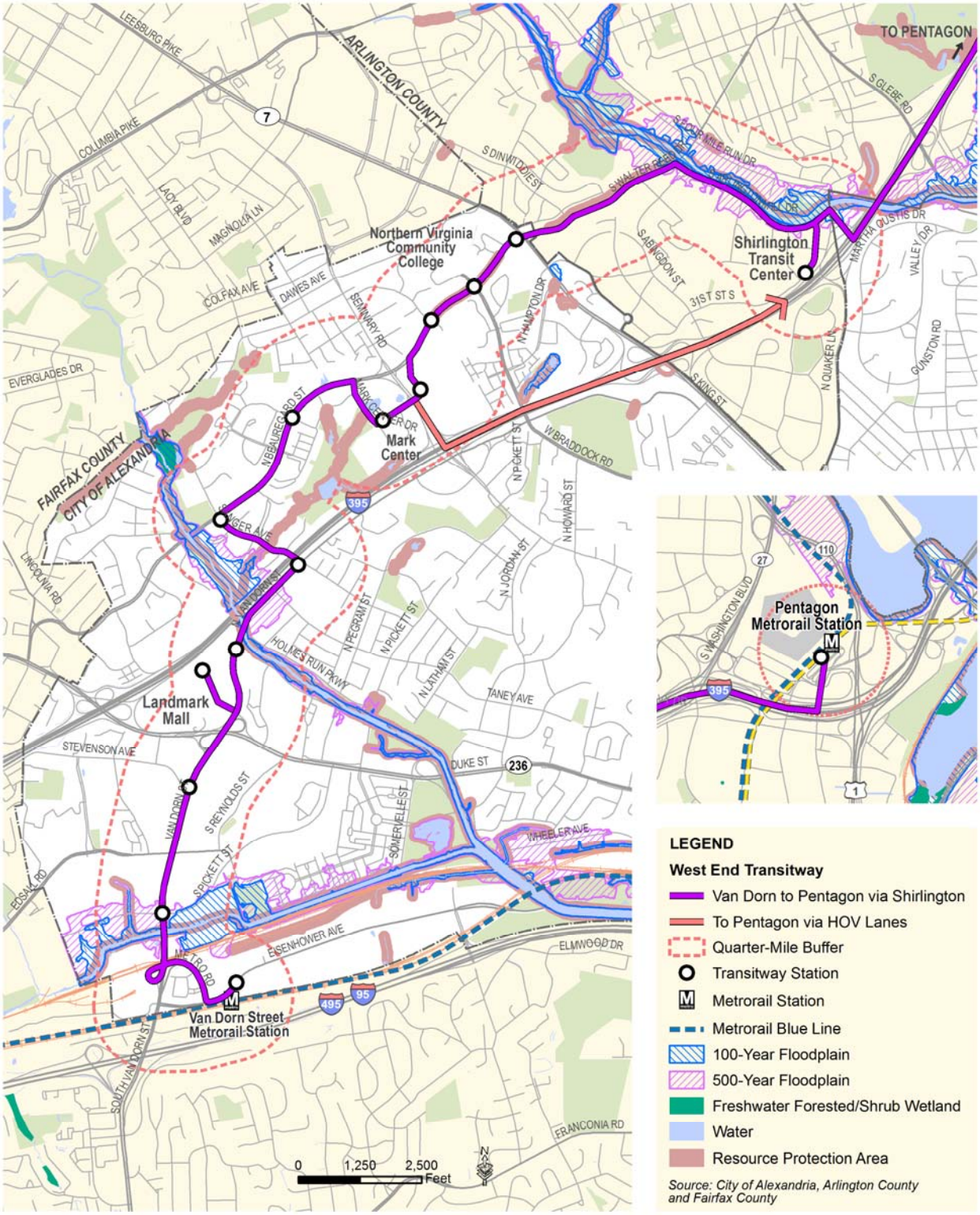
All areas located outside of an RPA, but within the City of Alexandria and Arlington County are designated as Resource Management Areas (RMA). Therefore, the entire study corridor, with the exception of those areas located within an RPA, is located within an RMA.

Table 15: Major Streams in the Study Area

Surface Water	Description	Location within Study Corridor	Associated Resources
Backlick Run	Tributary to Cameron Run	The proposed transit corridor crosses over Backlick Run on South Van Dorn Street in proximity to the southern terminus.	- Flood Zones AE and Flood Zone X along stream banks. - VDEQ-listed Category 5 impaired waters. - Resource Protection Areas.
Holmes Run	Tributary to Cameron Run	The proposed transit corridor crosses over Holmes Run on North Van Dorn Street in proximity to Holmes Run Parkway.	- Flood Zones AE and Flood Zone X along stream banks. - VDEQ-listed Category 5 impaired waters. - Resource Protection Areas.
Four Mile Run	Tributary to the Potomac River	The proposed transit corridor travels on South Arlington Mill Drive adjacent to Four Mile Run in Arlington County.	- Flood Zones AE and Flood Zone X along South Arlington Mill Drive. - VDEQ-listed Category 5 impaired waters. - Resource Protection Areas.

Source: US Geological Survey, 1:24,000 Topographic Map, Alexandria, VA-DC-MD and Annandale, VA quadrangles

Figure 19: Water Resources, Regulated Floodplains and Resource Protection Areas



4.9.1. Key Findings

No Build Alternative

Under the No Build Alternative, various transportation improvement projects may affect water resources within the project corridor. Impacts to water resources by projects included in the No Build Alternative would be or have been documented by separate environmental documentation.

It is assumed that all projects under the No Build Alternative would meet both local and state requirements in terms of sediment and erosion control and stormwater management and that actions considered as part of the No Build Alternative requiring coastal zone certification are consistent with the State (Virginia) Water Control Law (§62.1-44.2 et seq) under the jurisdiction of the State Water Control Board.

TSM Alternative

No adverse impacts to water resources or water quality are expected. The TSM Alternative would contribute to minor increases in impervious surface along the project corridor due to proposed stations. All of the proposed stations would be within already developed, mostly impervious surface areas. No direct impacts to water resources identified within the project corridor would result from the TSM Alternative.

The TSM Alternative would meet both local and state requirements in terms of sediment and erosion control and stormwater management and actions considered as part of the TSM Alternative requiring coastal zone certification will be consistent with the State Water Control Law under the jurisdiction of the State Water Control Board.

Build Alternative

None of the improvements associated with the Build Alternative would directly impact streams, wetlands, or 100-year floodplains. The Build Alternative would impact minor portions of the 500-year floodplain due to the construction of new transit stations in two locations as shown in **Table 16**. The Build Alternative would encroach upon RPAs around four of the proposed transit stations as shown in **Table 17**. The Build Alternative would add 20-25% to the current impervious roadway and streetscape surface within the project corridor with the addition of dedicated transit lanes and stations. All improvements would be constructed in compliance with both local and state requirements in terms of sediment and erosion control and stormwater management.

Table 16: 500-Year Floodplain Impacts

Transit Station Location	500-Year Floodplain Impact (in square feet)
South Van Dorn Street at Pickett Street	1,339
North Van Dorn Street at Holmes Run Parkway	155
Total	**1,494**

Table 17: Resource Protection Area Encroachment

Watershed	RPA Impact (in square feet)
South Van Dorn Street at Pickett Street	472
North Van Dorn Street at Holmes Run Parkway	0.1
North Beauregard Street at Fillmore Avenue	2,383
North Beauregard Street at West Braddock Road	4,082
Total	**6,937**

4.9.2. Minimization and Mitigation Measures

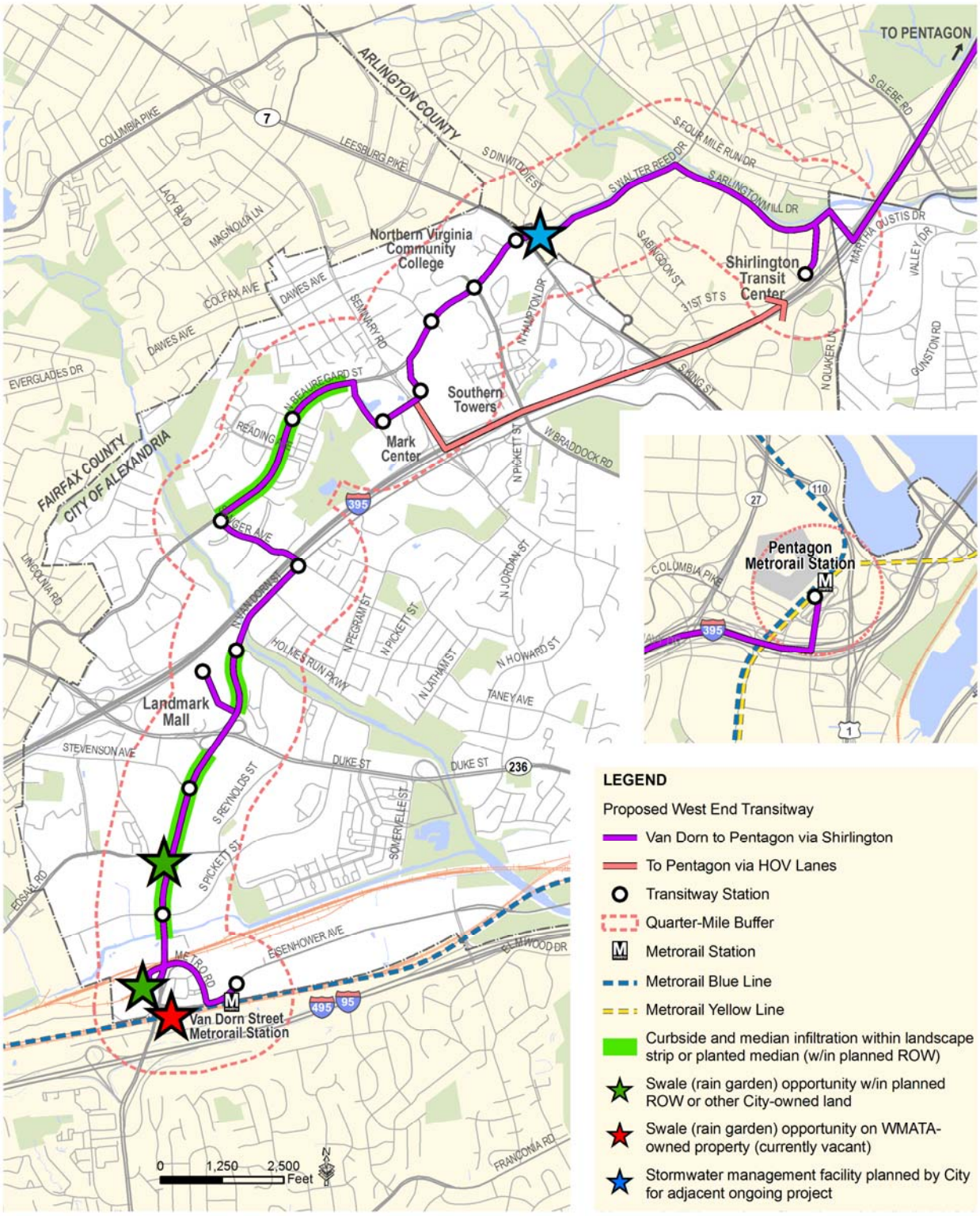
In compliance with the State Water Control Law (§62.1-44.2 et seq), the Build Alternative will "maintain after-development runoff rate of flow and characteristics that replicate, as nearly as practicable, the existing predevelopment runoff characteristics and site hydrology, or improve upon the contributing share of the existing predevelopment runoff characteristics and site hydrology if stream channel erosion or localized flooding is an existing predevelopment condition". The Build Alternative identified, in coordination with the City of Alexandria's Office of Environmental Quality, potential locations for stormwater treatment facilities or Best Management Practices (BMPs) within each watershed (see **Figure 20**). **Table 18** shows the mitigation measures proposed for the impervious surfaces added to each watershed. As the project progresses into final design, impervious surface calculations are expected to decrease from the initial estimates as the project design is refined.

To minimize the impacts to RPAs, the project will be designed and constructed with stormwater management facilities to meet the performance criteria of the City of Alexandria's Chesapeake Bay Preservation Ordinance. After mitigation, the Build Alternative is expected to be in compliance with the State Water Control Law under the jurisdiction of the State Water Control Board, and, therefore, would not have an adverse impact on the designated coastal zone (see **Appendix B** for the federal coastal zone consistency determination).

Table 18: Impervious Surface Added and Proposed Mitigation

Watershed	Impervious Surface Added (in acres)	Mitigation Measure (volume in cubic feet)
Backlick Run	0.92	7 continuous planting strips treating 1,869 CF of runoff
Holmes Run	4.77	33 continuous planting strips treating 8,811 CF of runoff
Four Mile Run	0.10	1 continuous planting strip treating 267 CF of runoff
Total	**5.79**	

Figure 20: Proposed Locations of Stormwater Treatment Facilities



4.10. Hazardous Material

4.10.1. Introduction

This section identifies hazardous materials and contaminated material sites and assesses potential effects on them from the alternatives. A regulatory database search for Recognized Environmental Conditions (RECs) within a quarter-mile study area on both sides of the proposed transit corridor and half-mile radius around the Pentagon Metrorail station was obtained from Environmental Data Resources Inc. (EDR), which identifies the location of RECs from state, federal and proprietary databases.

The American Society of Testing and Materials (ASTM) methodologies are used to evaluate the presence of and potential impacts to sites with hazardous or contaminated materials. ASTM defines RECs as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under site conditions that may be in compliance with federal, state, and local laws and regulations."[5]

Forty-eight existing hazardous and contaminated material REC sites were identified within the quarter-mile study area of the proposed transit alignment. **Figure 21** shows the locations of these sites within the proposed transit corridor. Sites within the quarter-mile Pentagon study area are not shown, as all improvements in this portion of the study area associated with the alternatives would occur within the existing roadway and Pentagon transit center facilities

4.10.2. Key Findings

A total of 48 REC sites were identified within a quarter-mile of the project alignment; however, the No Build, TSM and Build Alternatives would have limited potential to encounter contaminated or hazardous materials. Impacted media or materials that could possibly be encountered include spill locations, former or current auto service and fueling stations, sites with leaking or secure underground tanks, and former or current dry cleaners.

The at-grade or near-grade construction of the majority of the alignments of the alternatives greatly limits potential impacts. The most likely scenario for encountering contaminated or hazardous materials would be related to the construction of the station stops and/or at locations where deeper-seated excavations related to foundations and/or utility realignments or installations in close proximity to potential contaminated sites would occur. The activities may also require removal of materials which could include disposal of solid and contaminated waste.

[5] American Society of Testing and Materials, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (Designation: E1527 – 13)*

No Build Alternative

Impacts to identified RECs along the project study corridor associated with the No Build Alternative, such as the intersection improvements at the King Street/North Beauregard Street Intersection, would be documented as part of these projects.

TSM Alternative

The TSM Alternative would have potential direct impacts on identified RECs within the project study corridor due to the construction of transit stops in the vicinity of:

- North Beauregard Street at Rayburn Avenue;
- North Beauregard Street at West Braddock Road; and
- North Beauregard Street at King Street.

Build Alternative

The Build Alternative would have potential direct impacts on identified RECs along Van Dorn Street and North Beauregard Streets where right-of-way widening is proposed to accommodate an additional lane for dedicated transit use. In addition, there may be potential direct impacts on identified RECs due to the construction of transit stops in the vicinity of:

- North Beauregard Street at Rayburn Avenue;
- North Beauregard Street at West Braddock Road; and
- North Beauregard Street at King Street.

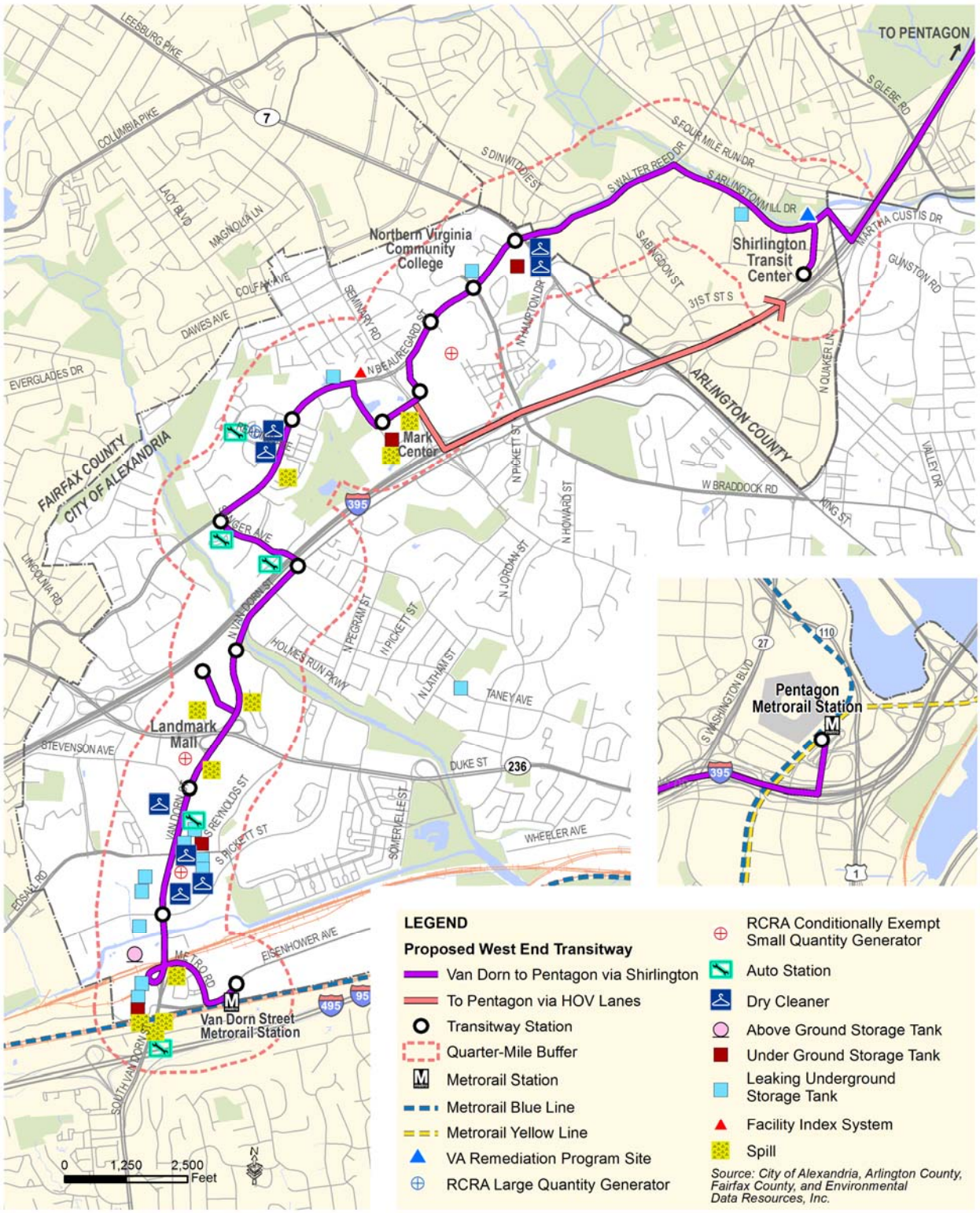
The Build Alternative is not anticipated to result in long-term or permanent adverse effects related to RECs due to risk mitigation and engineering controls and measures that would be undertaken, if necessary, during construction.

Temporary construction impacts from REC sites could be encountered during construction activities where documented or undocumented hazardous materials could be uncovered.

4.10.3. Mitigation Measures

A Phase II ESA for high-risk to moderate-risk RECs will be completed prior to construction where substantial soil disturbance is planned. The investigation should include soil and groundwater sampling and analysis.

Figure 21: Recognized Environmental Conditions Sites



4.11. Construction Effects

4.11.1. Introduction

This section describes the potential temporary construction impacts that could result from the construction of the alternatives. The duration of project construction is estimated to be approximately 18 months.

4.11.2. Key Findings

No Build Alternative

Temporary construction effects are likely to occur along the corridor, as a result of the various transportation improvement projects under the No Build Alternative. The construction effects of those projects are not documented in this EA. It is assumed that for each individual project conducted as part of the No Build Alternative, construction activities have been approved and all applicable permits would be required.

TSM Alternative

Potential construction impacts would be minimal for implementation of the TSM Alternative. Construction activities under this alternative would be focused on construction of new stops and one queue jump lane and relocation of existing transit stops along the corridor, which may result in minor noise, vibration, and air quality effects that would be temporary in duration. Transit signal priority upgrades would require minor utility work,

Build Alternative

Construction would primarily consist of earth removal and hauling, grading, repaving and restriping of lanes, median and landscaping improvements, sidewalk improvements, streetscaping and installation of curb extensions for enhanced pedestrian space at transit station intersections, and placement of shelters and other transit station features. Construction would be phased to minimize disruption to businesses and communities, and access to businesses and communities would be maintained throughout the duration of construction.

Specific construction staging requirements would be determined during final design and provided in constructing staging plans. Although detailed construction pans are not yet determined, there are options to establish work areas such that several non-contiguous segments could be constructed at the same time. This could assist in minimizing impacts during construction and shorten overall duration such that no more than a few contiguous blocks are under construction at any one time.

The City would keep community members apprised of construction schedules, and seek community input when developing construction plans. Construction schedules would be publicly available and posted on the City's website. Construction would predominantly take place during daylight hours, and would take into account peak travel hours so as to minimize delays wherever possible.

Traffic Operations

Traffic delays would likely occur during construction, but would be temporary in nature. Adherence to local, state, and federal construction and temporary traffic management guidelines would result in no lasting adverse direct traffic impacts from the Build Alternative. Detours with alternative routing and appropriate signage would be provided to maintain access for motorists, transit riders, and pedestrians. Some temporary closures to travel lanes, sidewalks, and on-street parking may occur; however, these closures would be limited in duration. Detailed maintenance of traffic plans would be developed during final design to ensure safety during construction.

Transit Service and Operations

Existing bus service will continue to operate within the corridor, with temporary changes to headways and routing anticipated at certain stages of construction. Some temporary closures to existing bus stops may occur as transit stations are constructed. Should this occur, temporary bus stops would be established and may include placement of temporary sidewalks and wheelchair access ramps. Passengers and the general public would be informed of construction effects in advance through a variety of communication means. This would include press releases to community organizations and news outlets, website materials, and notifications on local buses and rail stations potentially impacted.

Noise and Vibration

Temporary noise and vibration impacts due to construction activities would occur. Various noise and vibration control measures would be used to minimize these potential impacts, including measures such as equipment shrouds, temporary barriers, and shifting the loudest equipment operations to less-sensitive periods of the daytime. Noise levels from construction vehicles and equipment could create a temporary nuisance at some receptors along the corridor, but sound levels are not expected to enter into a range that would be unsafe for human hearing. Contractors would be required to comply with all local noise ordinances.

Air Quality

Construction activities could result in temporary impacts to air quality. Sources of these potential impacts include direct emissions from construction equipment and trucks, increased emissions from motor vehicles on streets due to disruption of traffic flow, and fugitive dust emissions. These impacts would be temporary, and would affect only the immediate vicinity of the construction sites and their access routes. Standard measures to minimize these impacts would be used; these measures may include:

- Minimization of exposed erodible earth;
- Stabilization of exposed earth;
- Application of stabilizing agent (i.e., calcium chloride, water) to minimize dust;
- Revegetation of any disturbed land post-construction;
- Use of low-emission construction equipment; and
- Elimination of any unnecessary idling to no more than three minutes.

Emissions from project-related construction equipment would be much less than the total emissions from other industrial and transportation sources in the region, and therefore are expected to be insignificant with respect to NAAQS compliance.

Water Resources

No major impacts would occur to water resources during construction. Best management practices and the appropriate erosion and sediment control measures would be employed during construction to offset any potential surface run-off or soil erosion.

Hazardous and Contaminated Materials

Prior to construction, procedures for identifying, characterizing, managing, handling, storing, and disposing of contaminated soil and groundwater encountered during construction activities would be developed by the construction contractor as part of the project construction plan. Contaminated material encountered during construction would be disposed of at a facility permitted to accept such material.

Utilities

No relocation of utilities under the proposed transitway would be needed. Utility relocation at station areas would consist of valves, fire hydrants, electric poles, utility boxes, and vaults. Where utility access is required underneath station areas, utility relocations may be required; however, this work would be short-term in duration and could be complemented in tandem with other land closure work to minimize impacts to traffic flow during this time.

4.11.3. Minimization and Mitigation Measures

To offset potential effects, construction activities would be coordinated to occur at times that would have the least effect on corridor activities and persons living along the corridor. Best Management Practices (BMPs) would be used to minimize the temporary effects associated with construction activities. In addition, site-specific environmental health and safety plans would be used to ensure the protection of workers at construction sites and of residents whose properties are adjacent to the site.

4.12. Environmental Justice Communities

4.12.1. Introduction

This section identifies and assesses the potential effects of the proposed alternatives on minority populations and/or low-income populations (collectively “EJ populations”). Environmental justice is defined by Executive Order 12898 (EO 12898), *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. EO 12898 requires that federal agencies identify and address disproportionately high and adverse federal impacts on minority and low-income populations. The US Department of Transportation (USDOT) is committed to the principles of environmental justice, which include:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;

- To ensure the full and fair participation by all potentially affected communities in the transportation-decision making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The environmental justice analysis was prepared in accordance with the following Federal guidance documents:

- USDOT Order 5610.2(a), Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, May 10, 2012;
- FTA Circular 4703.1, Environmental Justice Policy Guidance for Federal Transit Administration Recipients, August 15, 2012; and
- Council on Environmental Quality (CEQ), Environmental Justice – Guidance under the National Environmental Policy Act (NEPA) of 1969, December 10, 1997.

The USDOT Order on Environmental Justice (5610.2a) and FTA Circular 4703.1 define minority and low-income populations as follows:

- **Minority Populations**: Minority populations include persons who are American Indian or Alaskan Native, Asian American, Native Hawaiian or Other Pacific Islander, Black (not of Hispanic Origin), and Hispanic or Latino.
- **Low-Income Populations**: Any readily identifiable group of low-income persons whose household income is at or below the U.S. Department of Health and Human Services (DHHS) poverty guidelines. For low-income populations, FTA encourages the use of a locally developed threshold, such as that used for FTA's grant program (Public Law 112-141), which defines "low-income individual" to mean "an individual whose family income is at or below 150 percent of the poverty line."

This assessment uses a quarter-mile area on both sides of the proposed transitway corridor as the study area boundary to analyze the presence of EJ populations; census block groups within the boundary were included. For broader context and reference, three comparison areas were selected for the environmental justice analysis: the City of Alexandria, Arlington County, and Fairfax County.

Minority and low-income statistics were then analyzed at the Census block group level using population and income data from the U.S. Census Bureau's American Community Survey 5-Year Estimates (2008-2012). The presence of minority populations in the study areas was evaluated by comparing the proportion of the population belonging to a minority group to the proportion of the population in the comparison areas belonging to a minority group. The presence of low-income populations in the study areas was evaluated by comparing the proportion of the population below 150 percent of the poverty line to the proportion of the population in the comparison areas below 150 percent of the poverty line.

Analysis of Potential for Disproportionately High and Adverse Effects

USDOT Order 5610.2(a) defines a disproportionately high and adverse effect on minority and low-income populations as an impact that:

- Is predominately borne by a minority and/or low-income population; or
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population.

The following multi-step process was used in the environmental justice analysis to identify the potential for disproportionately high and adverse effects on environmental justice populations:

- Impact categories with localized impacts and the potential for high and disproportionate impacts to environmental justice populations were considered: traffic, bicycle and pedestrian facilities, parking, land acquisition and displacements, land use, neighborhoods and community facilities, visual resources, parklands, noise, vibration, air quality, and construction effects.
- Each project alternative was then evaluated in each category using the findings of the specific environmental resource analysis, as shown in **Table 19**. The methodologies used in those resource analyses and their findings are reported in the other sections of **Chapter 4**. Impact categories with potential effects were then analyzed to determine whether those effects were high or disproportionate to environmental justice populations. Resources with no effects were not carried forward for further analysis. The following resources were carried forward for further analysis:
    - Vehicular Operations
    - Parking
    - Land Acquisitions and Displacements; and
    - Construction Effects.

Table 19: Potential Adverse Impacts by Alternative

Impact Categories	No Build Alternative	TSM Alternative	Build Alternative	Analyze for Potential High & Adverse Effects to EJ populations
Vehicular Operations	No	Yes	Yes	Yes
Bicycle and Pedestrian Facilities	No	No	No	No
Parking	No	No	Yes	Yes
Land Acquisition and Displacements	No	No	Yes	Yes
Land Use	No	No	No	No
Neighborhoods and Community Facilities	No	No	No	No
Visual Resources	No	No	No	No
Parklands	No	No	No	No
Noise	No	No	No	No
Vibration	No	No	No	No
Air Quality	No	No	No	No
Construction Effects	No	No	Yes	Yes

Existing Conditions

Table 20 summarizes the minority populations of the project study area in comparison to the surrounding jurisdictions. Minority groups make up approximately 62 percent of the total population in the study area, Thirty-one of the 55 Census block groups within the study area have higher proportions of minority residents than the comparison areas as shown in **Figure 22**.

Table 20: Minority Population Summary

Population Type	Project Study Area	City of Alexandria	Arlington County	Fairfax County
Total Population	40,683	140,337	209,077	1,083,770
Minority Population	25,118	65,085	75,731	491,570
Percent of Total Population	61.7%	46.4%	36.2%	45.4%

Source: U.S. Census Bureau, ACS 5-Year Estimates 2008-2012

Table 21 provides a breakdown of the minority groups present within the study area. The two largest minority groups within the study area are Black/African Americans (29.8 percent) and Hispanics (20.1 percent).

Table 21: Minority Groups in Study Area

Race/Ethnicity	Project Study Area	City of Alexandria	Arlington County	Fairfax County
Black	12,121 (29.8%)	29,577 (21.1%)	17,518 (8.4%)	96,134 (8.9%)
American Indian and Alaskan Native	147 (0.4%)	359 (0.3%)	425 (0.2%)	1,881 (0.2%)
Asian	3,491 (8.6%)	8,333 (5.9%)	19,948 (9.5%)	189,706 (17.5%)
Native Hawaiian or Other Pacific Islander	24 (0.1%)	143 (0.1%)	107 (0.1%)	909 (0.1%)
Other	130 (0.3%)	312 (0.2%)	1,120 (0.5%)	3,484 (0.3%)
Two or More Races	1,027 (2.5%)	3,923 (2.8%)	5,108 (2.4%)	31,682 (2.9%)
Hispanic	8,180 (20.1%)	22,438 (16.0%)	31,505 (15.1%)	167,774 (15.5%)
Minority Total	25,118 (61.7%)	65,085 (46.4%)	75,731 (36.2%)	491,570 (45.4%)

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates (2008-2012).

Table 22 summarizes the low-income populations of the study area in comparison to the surrounding jurisdictions. Nearly 10 percent of the study area population is low-income, a higher percentage than the comparison areas. Twenty-five census block groups within the study area have higher proportions of low-income residents than the comparison areas as shown in **Figure 23**.

Table 22 : Low-Income Population Summary

Population Type	Quarter-Mile Study Area	City of Alexandria	Arlington County	Fairfax County
Population for whom poverty status is determined*	40,346	138,832	206,123	1,074,652
Low-Income Population	3,813	11,102	14,935	59,822
Percent of Population for whom poverty status is determined	9.5%	8.0%	7.2%	5.6%

**The population for whom poverty is determined is determined by the U.S. Census Bureau. For the ACS 5-Year Estimates (2008-2012), poverty status was determined for all people except for unrelated individuals under 15 years of age, and people in institutional group quarters, college dormitories, military barracks, and living situations without conventional housing.*

Source: U.S. Census Bureau, ACS 5-Year Estimates 2008-2012.

Figure 22: Minority Populations in the Study Area

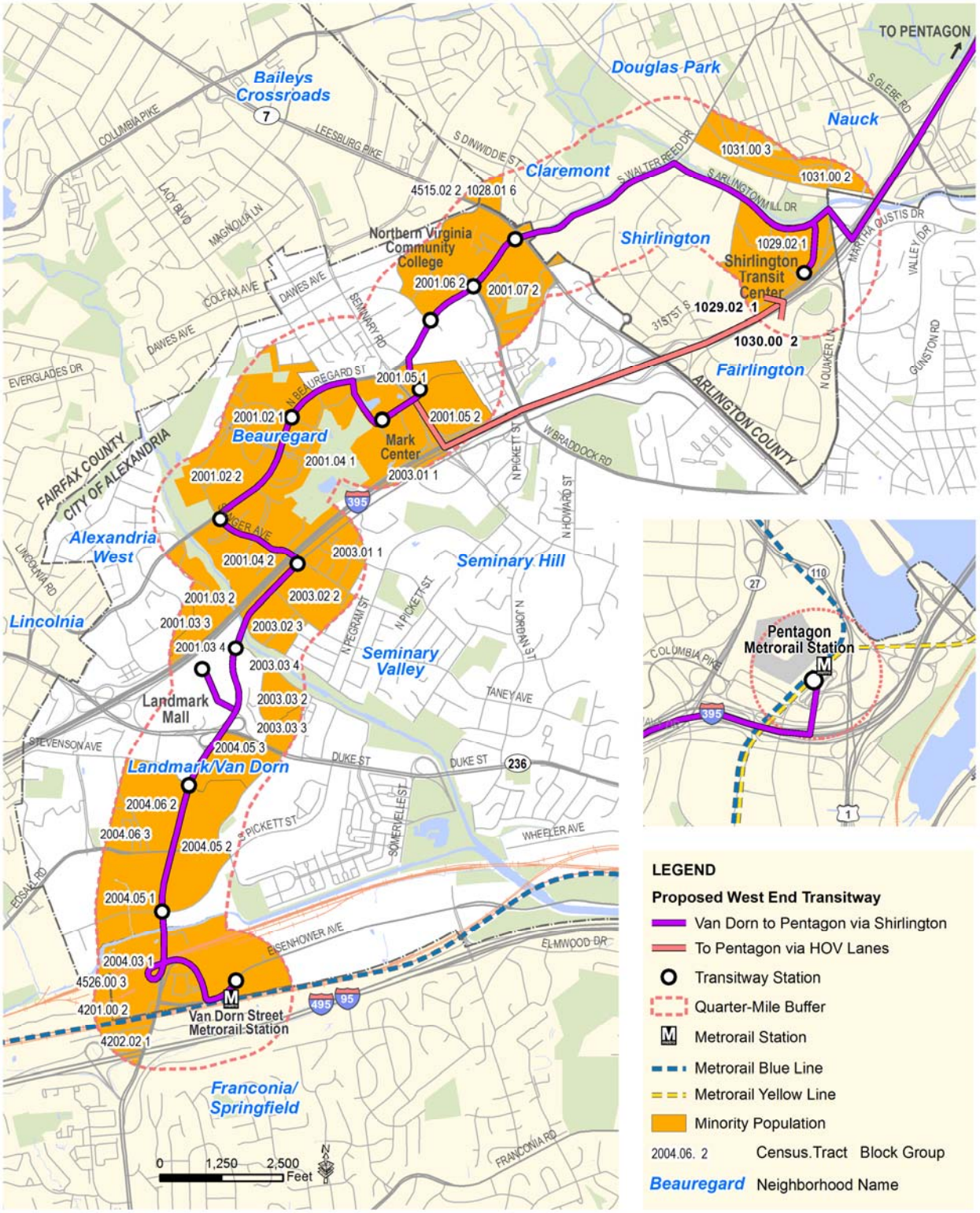
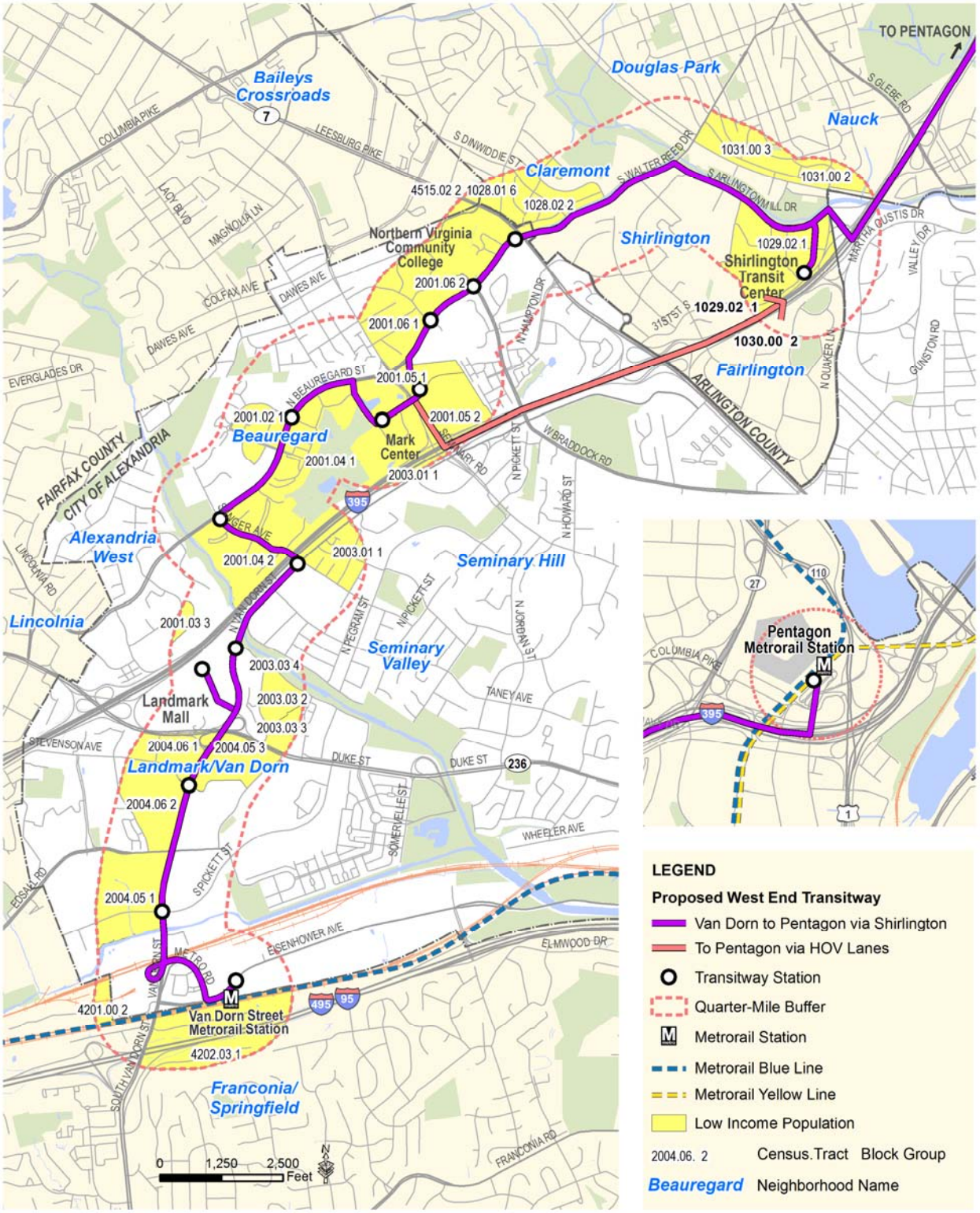


Figure 23: Low-Income Populations



4.12.2. Key Findings

No Build Alternative

The No Build Alternative would not result in disproportionately high and adverse effects to EJ populations. Vehicular operations, parking, and land acquisitions were analyzed to arrive at this finding. Since no adverse impacts resulting from the No Build Alternative were identified, there is no potential for any high or adverse impacts to be disproportionately borne by EJ populations.

However, the positive effects of the project would also not be realized, such as improved transit travel times, frequency of service, reliability of service, pedestrian and bicycle improvements, and enhanced regional access through better connectivity between activity centers within the study corridor and the Van Dorn and Pentagon Metrorail stations.

TSM Alternative

The TSM Alternative would not result in disproportionately high and adverse effects to EJ populations. Vehicular operations, parking, and land acquisitions were analyzed to arrive at this finding. Although the implementation of TSM improvements, and growth in traffic, would degrade operations for vehicular traffic at a few intersections in 2015 and 2035, there is no potential for any high or adverse impacts to be disproportionately borne by EJ populations, because these intersections serve general corridor traffic and are not located in the vicinity of EJ communities.

Further, the TSM Alternative provides beneficial effects to the community, including minority and low-income populations, by providing frequent and continuous transit service along the entirety of the corridor. This new transit route would also provide the additional benefit of having a direct connection to transit centers along the corridor, as well as transfer opportunities to east-west connections.

Build Alternative

The Build Alternative would provide beneficial effects to EJ populations, such as improved transit travel times, frequency of service, reliability of service, pedestrian and bicycle improvements, and enhanced regional access through better connectivity between activity centers within the study corridor and the Van Dorn and Pentagon Metrorail stations. Additionally, according to the American Public Transportation Association's (APTA) August 2014 *Transit Savings Report*, individuals who ride public transportation instead of driving save, on average, more than $800 each month[6]; this benefit especially serves low income populations who are more likely to be transit-dependent.

Although the implementation of the Build Alternative improvements and growth in traffic would degrade operations for vehicular traffic at a few intersections in 2015 and 2035, there is no potential for any high or adverse impacts to be disproportionately borne by EJ populations, because these intersections serve general corridor traffic and are not located in the vicinity of EJ communities. The Build Alternative would also result in minor residential and commercial parking impacts, one commercial displacement, and approximately 2.7 acres of partial land acquisition along South Van

[6] *http://www.apta.com/mediacenter/pressreleases/2014/Pages/140814_Transit-Savings.aspx*

Dorn Street between Pickett Street and Duke Street; however, these impacts would not be disproportionately borne by EJ populations.

Public Involvement

Full and fair access to meaningful involvement by minority and low-income populations in project planning and development is an important aspect of environmental justice. The engagement of local residents, business owners, and other stakeholders began in May 2014 and continued throughout the duration of the environmental review process. Participation of minority and low-income populations was advanced through:

- One public kick-off meeting at the Landmark Mall in the Landmark/Van Dorn neighborhood in the study area, which has a high proportion of minority and low-income residents. The facility is accessible by multiple public transportation services. This meeting was held on May 22, 2014 from 4:00 to 8:00 pm. A total of 32 members of the public attended this meeting and many provided comments and feedback;
- Two outdoor pop-up meetings, which were held at popular destinations in the project study area. 20 individuals participated in the Van Dorn Street Gold's Gym pop-up on July 16, 2014 from 4:30 to 6:30 pm and 42 individuals participated in the Van Dorn Metro Station pop-up on July 17, 2014 from 4:30 to 6:30 pm;
- One public meeting presenting project alternatives, held at the Pavilion at Mark Center, which has a high proportion of minority and low-income residents and is within the project's study area. The facility is accessible by multiple public transportation services. This meeting was held on October 22, 2014 from 6:30 to 8:30 pm. A total of 29 members of the public attended this meeting and many provided comments and feedback;
- One project briefing meeting in Spanish, held at the Queen of the Apostles Catholic Church, which has a high proportion of minority and low-income residents. Twenty four individuals participated in the first session from 9:00 to 9:30 am and 12 individuals participated in the second session from 10:30 to 11:00 am.
- Availability of Spanish-speaking staff at all public involvement events;
- Translation of outreach materials into Spanish pursuant to Executive Order 13166 ("Improving Access to Services for Persons with Limited English Proficiency");

Concerns and issues raised by community members through this outreach process have been considered carefully in the development of the project. The City of Alexandria will continue to work collaboratively with members of the public to address their concerns. See **Chapter 7** for a more detailed discussion on public involvement.

4.12.3. Minimizations and Mitigation Measures

Potential mitigation measures related to parking, land acquisition and displacements, and vehicular operations are addressed under the respective sections of this document.

4.13. Secondary and Cumulative Effects

4.13.1. Introduction

This section summarizes potential secondary effects of the project and the cumulative effects of the project combined with other ongoing and planned projects included in the No Build Alternative.

Secondary Effects

Secondary effects, or indirect effects, are defined as those that are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8(b)). For potential secondary effects, the assessment identified resources that would be affected by long-term patterns of land use related to additional corridor population and employment growth expected to occur as a result of the implementation of the project alternatives. Future development and changes in property values, related to forecast population and employment growth both with and without the project, are detailed in the *Development Potential Analysis Technical Memorandum* (December 2015).

Cumulative Effects

Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). For potential cumulative effects, the assessment identified resources with potential effects documented in previous sections that would also be potentially affected by other projects included in the No Build Alternative, which is described in detail in **Section 3.1**. Key infrastructure projects that would contribute to potential cumulative effects are:

- I-395 widening and shoulder improvements: vicinity of North Van Dorn Street/Sanger Avenue (under construction);
- King Street - North Beauregard Street intersection improvement (under construction);
- Westbound (Edsall Road) right-turn lane: South Van Dorn Street/Edsall Road intersection;
- Northbound (South Van Dorn Street) right-turn lane: South Van Dorn Street/Pickett Street intersection; and
- Intersection reconstruction (Ellipse project): Seminary Road/North Beauregard Street intersection.

In addition, planned future redevelopment projects based on the following adopted small area plans and zoning are anticipated to contribute to potential cumulative effects:

- *Landmark/Van Dorn Corridor Plan*, City of Alexandria, adopted 2009;
- *Beauregard Small Area Plan*, City of Alexandria, adopted 2012; and
- *Coordinated Development District (CDD) #22,* City of Alexandria, adopted 2012.

4.13.2. Key Findings

Secondary Effects

No Build Alternative

Improvements associated with the No Build Alternative are unlikely to contribute to changes in the corridor that would result in notable secondary effects.

TSM Alternative

The TSM Alternative is unlikely to contribute to changes in the corridor that would result in notable secondary effects throughout its length. The amount of total new development occurring in the corridor under the TSM Alternative is expected to be similar to that occurring under the No Build Alternative. Within the area of the Beauregard Small Area Plan, the City of Alexandria anticipates approximately 10 percent more development under the TSM Alternative compared to the No Build Alternative, which could lead to minor localized increases in traffic volumes.

Build Alternative

The Build Alternative is expected to contribute to changes in the corridor that would result in notable secondary effects. Potential secondary effects are primarily related to corridor growth anticipated to occur in response to improved mobility and accessibility along the proposed transitway corridor. Implementation of the Build Alternative may result in secondary effects associated with greater levels of growth and development, and associated increases in land values, along the corridor.

Under the Build Alternative, approximately 10.2 million square feet of new development is forecast between 2015 and 2035, compared to 4.8 million square feet of new development forecast under the No Build and TSM Alternatives during the same time period. With implementation of the transitway, the corridor would become more attractive to both residents and commercial enterprises than it would without this improvement to local accessibility. Development volumes and pace of development in the corridor are likely to increase as a result, raising the overall value of properties. In addition, for the No Build and TSM Alternatives, a cap on total new development was assumed for the area of the Beauregard Small Area Plan and CDD #22, set at 1,500,000 square feet without the Transitway.

Potential secondary effects due to this additional development anticipated as a result of the Build Alternative include increased traffic and demand for community facilities.

- The Beauregard Small Area Plan includes additional planned transportation improvements to address demand from new development recommended by the plan. These improvements include improvements that are in the No Build Alternative, such as the Seminary-Beauregard Ellipse, the Transitway in the Build Alternative, and additional transportation improvements associated with the planned redevelopment, such as the interconnected roadway network. The Beauregard Small Area Plan's transportation assessment found that traffic operations in 2035 with these transportation improvements and with the full volume of new development recommended under the Small Area Plan would perform better than baseline development under the previously adopted zoning without the Plan's additional traffic improvements.

- The Landmark/Van Dorn Corridor Plan includes additional planned transportation improvements to address demand from new development recommended by the plan. The Landmark/VanDorn Corridor Plan's transportation assessment found that the full volume of new development recommended under the Small Area Plan in 2030 would have mixed results on travel times and intersection level of performance compared to conditions with the baseline level of development under the previous adopted zoning. Some travel times would increase, while some would remain the same, and some intersections would have lower levels of service while others would improve as a result of the transportation improvements combined with the higher levels of development and travel demand.

- Adopted City of Alexandria Small Area Plans address the adequate provision of community facilities for the higher levels of developed forecast in the corridor with the Build Alternative.

Additionally, empirical economic research on the economic impact of access to bus rapid transit and the value of walkable community centers indicates that there are often positive impacts on existing property values associated with such investments. Existing properties will appreciate in value, reflecting that premium.

This in turn would have a positive secondary effect on the local tax base.

An adverse secondary effect of higher property values may be the continued challenge of retaining affordable housing for low-income residents currently residing along the corridor. In anticipation of this potential effect, the City of Alexandria has adopted plans and policies to ensure that the current residents of the corridor can remain in the corridor and share in the benefits offered by the alternative.

- The Beauregard Small Area Plan and associated rezonings commit developers to provide dedicated affordable and workforce housing units, including committing a minimum of 32 percent of replacement units to serve a range of income levels: households with incomes at or below 40, 50, 55, 60, and 75 percent of the area median income (AMI)). The Beauregard Small Area Plan commits developers to additional strategies to enhance affordability of new developments and provide assistance to tenants displaced by redevelopment of residential properties.

- The Landmark/Van Dorn Corridor Plan also emphasizes the preservation or replacement of existing assisted or market affordable rental units through voluntary developer contributions and through requiring increased housing contributions for additional density provided through rezoning.

- The City of Alexandria Housing Master Plan (January 2014) provides citywide targets for providing, preserving, or assisting affordable and workforce housing units and establishes a number of strategies for achieving the goal.

Cumulative Effects

No Build

Improvements associated with the No Build Alternative are unlikely to contribute to changes in the corridor that would result in notable cumulative effects.

TSM

Improvements associated with the TSM Alternative are unlikely to contribute to changes in the corridor that would result in notable cumulative effects.

Build

Potential cumulative effects are anticipated due to the implementation of transportation projects and redevelopment projects anticipated in accordance with adopted Small Area Plans for the study area.

- Roadway improvement projects under construction or planned are anticipated to have some minor right-of-way impacts on a few properties fronting the corridor due to streetscape widening. These impacts include right-of-way acquisition for the King Street – North Beauregard Street Intersection Improvements. Measures to mitigate impacts to properties are described in **Section 4.2 Land Acquisitions and Displacements**.

- Redevelopment anticipated under adopted Small Area Plans will be allowed to construct higher-density residential, commercial, and office development, contributing to an increased area of impervious surface in the corridor. Measures to mitigate impacts to water quality associated with impervious surface are described in **Section 4.9 Water Resources**. After mitigation, the Build Alternative is expected to be in compliance with the State Water Control Law and will use Best Management Practices (BMPs) for stormwater management within each watershed in coordination with the City of Alexandria's Office of Environmental Quality.

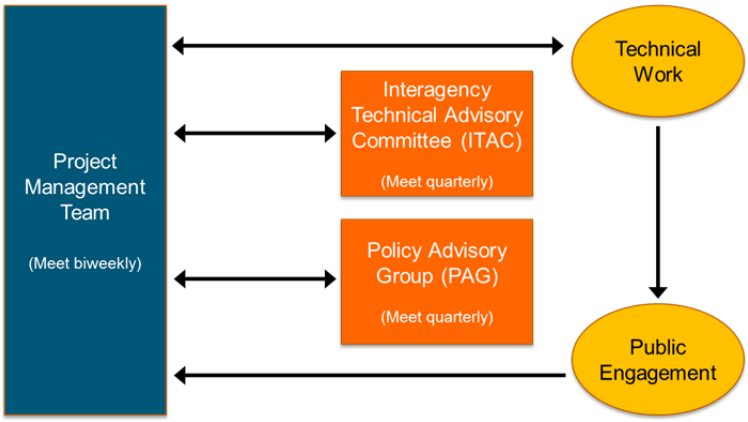
- Construction of the transitway would likely occur in tandem with roadway and streetscape improvements and new residential, commercial, and office development planned as part of the adopted Small Area Plans. Cumulative effects are likely to occur from temporary noise, vibration, dust, and traffic due to construction activities. Measures to mitigate construction impacts are described in **Section 4.11 Construction Effects**.

5. PUBLIC AND AGENCY COORDINATION

Coordination with federal, state, and local agencies as well as with key stakeholders and the public has been integral to the project planning and development process and has been a key component of the West End Transitway EA. This chapter describes coordination with agencies at all levels and past, present, and future public involvement activities for local citizens and stakeholder groups. See Appendix C for agency correspondence.

Public participation for the project was designed to be proactive and in compliance with the requirements of the National Environmental Policy Act of 1969, as amended (NEPA). **Figure 24** shows the relationship between the Project Management Team (PMT), committees, and the public.

Figure 24: Public and Agency Coordination Process



5.1. Agency Coordination

Three policy and advisory committees with different perspectives have provided structure and guidance in facilitating public and agency coordination during the planning process. The PMT, Interagency Technical Advisory Committee (ITAC), and the Policy Advisory Group (PAG) are described in the following sections.

5.1.1. Project Management Team

The PMT has been responsible for providing direction on project work activities and study materials. Members include representatives from the City of Alexandria, FTA, and the consultant team. The PMT generally meets bi-weekly.

Outside of the bi-weekly PMT meetings, the team has met various times with FTA to discuss the project. **Table 23** lists the meetings held with FTA for the West End Transitway.

Table 23 : FTA Meetings

Meeting Date	Topic
January 28, 2014	Project Overview
September 4, 2014	Site Visit of Study Corridor
May 11, 2015	Project Update and Environmental Discussion

5.1.2. Interagency Technical Advisory Committee

The ITAC is composed of technical staff from local, regional, and federal project stakeholders. Meeting periodically, their role has been to provide staff recommendations and advice on technical matters related to the project. **Table 24** lists the meeting dates of the ITAC. Members of the ITAC have included representatives from:

- City of Alexandria Transportation and Environmental Services
- City of Alexandria Department of Planning and Zoning
- City of Alexandria Economic Development
- City of Alexandria Transit Company (DASH)
- Arlington County
- Fairfax County
- Virginia Department of Historic Resources (VDHR)
- Virginia Department of Rail and Public Transportation (DRPT)
- Virginia Department of Transportation (VDOT)
- Northern Virginia Transportation Authority (NVTA)
- Northern Virginia Transportation Commission (NVTC)
- Washington Metropolitan Area Transit Authority (WMATA)
- FTA
- U.S. Army Corps of Engineers (USACE)
- U.S. Department of Defense
- U.S. Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)

Table 24 : Interagency Technical Advisory Committee Meetings

Meeting Date/Time	Location
May 13, 2014 – 3:00pm to 5:00pm	City Hall – Chet & Sabra Avery Conference Room 2000
September 16, 2014 – 2:30pm to 4:30pm	City Hall – Chet & Sabra Avery Conference Room 2000
May 19, 2015 - 2:00pm to 4:00pm	City Council Work Room

5.1.3. Policy Advisory Group

On March 11, 2014, the Alexandria City Council passed a resolution to establish a West End Transitway PAG to provide feedback and project guidance to City staff and the project team. City Council appointed nine PAG members including representatives from the community, the City's Transportation and Planning Commissions, Budget and Fiscal Affairs Advisory Committee, industry

experts, and a developer representative. **Table 25** lists the meetings of the PAG. All PAG meetings have been open to the public and have been a venue for public feedback and dialogue. Feedback from the PAG and the public has influenced design and operating decisions made through the environmental documentation process.

Table 25 : Policy Advisory Group Meetings

Meeting Date/Time	Location
July 30, 2014 – 6:30pm to 8:30pm	City Hall – Sister Cities Conference Room 1101
September 18, 2014 – 6:30pm to 8:30pm	City Hall – Sister Cities Conference Room 1101
October 23, 2014 - 7:00pm to 9:00pm	City Hall – Chet & Sabra Avery Conference Room 2000
December 18, 2014 – 6:30pm to 8:30pm	The Pavilion at Mark Center
May 28, 2015 – 6:30pm to 8:30pm	The Pavilion at Mark Center
December 3, 2015 – 6:30pm to 8:30pm	The Pavilion at Mark Center

5.1.4. Additional Briefings

The City of Alexandria held several commission and stakeholder briefings throughout the planning process to collect feedback prior to key decision points. **Table 26** lists the additional project briefings.

Table 26 : Additional Project Briefings

Agency/Stakeholder	Meeting Date	Location
City of Alexandria Meetings		
City Kick-off Meeting	December 10, 2013	City Hall – Sister Cities Conference Room 1102A
City Council	March 11, 2014	City Hall – Council Chambers Room 2400
Bicycle and Pedestrian Advisory Committee	July 8, 2015	Durant Recreation Center
Transportation Commission	July 23, 2014	City Hall – Sister Cities Conference Room 1101
Transportation Commission	October 15, 2014	City Hall – Council Work Room (2nd Floor)
Transportation Commission	July 22, 2015	City Hall – Council Work Room (2nd Floor)
Development Coordination Committee	September 2, 2015	City Hall – City Manager Conference Room
Environmental Policy Commission	September 28, 2015	City Hall –Chet & Sabra Avery Conference Room 2000
City Council	October 13, 2015	City Hall – Council Chambers Room 2400
Parks & Recreation Commission	October 15, 2015	Charles Houston Recreation Center, 901 Wythe Street
Transportation Commission	February 17, 2016	City Hall – Council Work Room (2nd Floor)
City Council	March 29, 2016	City Hall – Council Chambers Room 2400
Budget and Fiscal Affairs	November 17, 2015	City Hall – Sister Cities Conference Room 1101
City Council	March 29, 2016	City Hall – Council Chambers Room 2400
Stakeholder Meetings		
Northern Virginia Community College	September 19, 2014	NVCC Alexandria Campus
Southern Towers	September 1, 2015	TES Transit Services Offices
Southern Towers	December 21, 2015	TES Transit Services Offices
Southern Towers	August 4, 2016	TES Transit Service Offices

5.2. Public Involvement

This section describes public involvement events and activities held during the West End Transitway environmental documentation process to date. Ongoing public outreach was conducted throughout the process, and specific public meetings were held to present project information and solicit public comments on the project. Informational materials at all public meetings were available in Spanish as well as English. In addition, a Spanish-speaking staff member was present at all meetings for participants who needed to ask questions or give comments verbally in Spanish.

5.2.1. First Phase of Public Outreach

During the first phase of public outreach for the West End Transitway project, the City of Alexandria engaged over 90 residents through a public kick-off meeting in May 2014 and two outdoor pop-up meetings in July.

The public kick-off meeting was hosted by the City of Alexandria on Thursday, May 22, 2014 from 4:00 to 8:00 pm. The meeting was held in Landmark Mall, a regional shopping destination accessible

by transit. The event was “open house” style, where the public was welcome to attend at any time, view materials with meeting facilitators, take part in the various interactive displays/activities at stations, and give comments on the proposed transitway. The stations at the public kick-off meeting included a narrated video presentation of the project, displays/activities containing existing conditions data, the purpose and need statement, design options for the transitway, and public engagement options for the planning process. 32 individuals attended the meeting and many provided comments and feedback.

Following the public kick-off meeting, the City of Alexandria hosted two outdoor pop-up meetings at popular destinations in the project area to engage a broader demographic of stakeholders. 20 individuals participated in the Van Dorn Street Gold’s Gym pop-up on July 16, 2014 from 4:30 to 6:30 pm and 42 individuals participated in the Van Dorn Metrorail Station pop-up on July 17, 2014 from 4:30 to 6:30 pm. Facilitators informed residents about the project and encouraged them to register with eNews to learn more. Many individuals provided feedback about the project.

5.2.2. Second Phase of Public Outreach

During the second phase of public outreach for the West End Transitway project, the City of Alexandria engaged over 80 residents through a public meeting in October 2014 and a project briefing meeting in November 2014.

The second public meeting was hosted by the City of Alexandria on Wednesday, October 22, 2014 from 6:30 to 8:30 pm at the Pavilion at Mark Center. The event began with a brief presentation on the project’s progress. Participants were then encouraged to join working groups to discuss the proposed alternatives. The working groups then came together to discuss key concerns and opportunities identified during the breakout sessions. 29 individuals attended the meeting and many provided comments and feedback.

The City of Alexandria hosted a project briefing meeting in Spanish at the Queen of the Apostles Catholic Church on Sunday, November 9, 2014 to engage a broader demographic of stakeholders. 24 individuals participated in the first session from 9:00 to 9:30 am and 12 individuals participated in the second session from 10:30 to 11:00 am. The project team presented an overview of the project in Spanish, followed by a question and answer session. Participants were encouraged to provide their contact information to stay informed.

5.2.3. On-going Public Outreach Activities and Information Exchange

A number of different approaches were used over the course of the environmental review process to ensure that the public remained informed of project developments and were provided an opportunity to comment through the project planning and design process. In addition to the public meetings described above, a project website, e-mail list, and flyers were developed and maintained; project materials were distributed throughout the community in both English and Spanish; and project presentations were made to key stakeholders. These activities are listed in more detail below:

- **Project website (http://www.alexandriava.gov/WestEndTransitway):** The project website has been updated on an ongoing basis to provide information about the project, including project overview, schedule, public involvement opportunities, frequently asked questions,

and other related project materials. The website has also offered a link to contact the project manager directly for those who have questions, suggestions and comments.

- **Project E-mail List (via eNews):** A project e-mail list was developed, maintained and used to distribute updates, meeting notices, and other project materials via the City of Alexandria's eNews communication service.
- **Project flyers:** To inform the public of upcoming meetings, flyers were posted online, emailed to the project e-mail list via eNews, and hundreds of printed copies were distributed to residents and businesses along the corridor.
- **Stakeholder presentations**: Presentations were made to key stakeholders to provide information about the project and solicit input, including Southern Towers and the Summer's Grove Homeowner's Association.

5.2.4. Future Public Outreach and Next Steps

The project team will conduct additional public outreach as the project progresses. The project team will notify stakeholders and the public about project updates through e-mail alerts, updates provided to community list serves and blogs, print media advertisements, and the project website.

In February 2016, the City of Alexandria's Transportation Commission endorsed the Build Alternative by an 8-1 vote. Following the Transportation Commission meeting, the project was presented at the City Council Legislative Meeting on March 29, 2016. The City Council, in a unanimous 7-0 vote, passed a resolution of re-concurrence for the West End Transitway Locally Preferred Alternative (LPA) originally approved by City Council on November 17, 2012. This decision confirms the Build Alternative as the LPA for the West End Transitway and as the alternative that the City will carry forward in the next steps of project development.

The City of Alexandria's West End Transitway was granted entry into the Project Development (PD) phase under the FTA's Small Starts program in July 2016. Entry into PD formally establishes the City's intent to further develop a transit project in the City and pursue partial federal funds for its implementation.

Next steps in the process of bringing a high-capacity transit investment to the City of Alexandria's West End include:

- Completion of National Environmental Policy Act (NEPA) documentation
- Completion of engineering and project delivery actions
- Continued public engagement and co-ordination with individual stakeholders