Date of Meeting: September 20, 2018

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BOARD OF SUPERVISORS
BUSINESS MEETING
ACTION ITEM

SUBJECT: **Potomac River Crossing Study**

ELECTION DISTRICT: Countywide

CRITICAL ACTION DATE: At the pleasure of the Board

STAFF CONTACT(S): Lou Mosurak, Transportation and Capital Infrastructure
Joe Kroboth, III, Transportation and Capital Infrastructure

PURPOSE: To provide the Board of Supervisors (Board) with an update on the study to identify potential roadway corridor locations for a future Potomac River Crossing from Virginia to Maryland in Loudoun County.

RECOMMENDATION: Staff recommends that should the Board desire to continue work on a future Potomac River Crossing, staff be directed to incorporate the substantive findings of this Report into the Draft Countywide Transportation Plan update with policy direction committing to the County's on-going study of a future Potomac River Crossing. Staff further recommends the Board direct staff to develop a plan for regional coordination and collaboration with local, state and federal jurisdictions to advance the concept of a future Potomac River Crossing and report back to the Board for approval of the plan prior to implementation.

BACKGROUND: For more than fifty years, various studies and regional plans have considered an additional roadway connection between Virginia and Maryland west of the Interstate 495, commonly known as the American Legion Memorial Bridge. In September 2016, the Board of Supervisors (Board) met and initiated a process of developing a Strategic Plan for addressing a multitude of local government issues including a potential future Potomac River crossing. An update on the Strategic Plan initiatives and a work plan (Objective 1, Initiative H) was presented to the Board at its January 19, 2017 Business Meeting[1].

On June 29, 2017, the Board held a Transportation Summit to discuss transportation related issues affecting Loudoun County. Among the topics discussed during the summit was the concept of a new bridge connecting Virginia and Maryland between the American Legion Memorial Bridge (Interstate 495) and the Point of Rocks Bridge (U.S. Route 15)[2]. During the summit, Mr. David Birtwistle, Chief Executive Officer of the Northern Virginia Transportation Alliance (NVTA)

[1] January 19, 2017 Board Business Meeting Item #3, Strategic Plan Update / Work Plan
[2] June 29, 2017 Board Transportation Summit Item #4, Potomac River Crossing

provided the Board with a summary of the history of the proposed Potomac River crossing as well as data resulting from previous studies.

The Board directed staff (9-0) to initiate a study to identify potential Potomac River crossing corridors that staff recommends for further analysis of the social, cultural, historical, environmental, and transportation impacts of a future Potomac River crossing in the study area as outlined in Attachment 1. Additional direction from the Board included development of a narrative statement to insert in the Countywide Transportation Plan update that expresses the Board's intent and support for a future Potomac River Crossing, east of Goose Creek in Loudoun County. The narrative should also include a summary of the economic development and transportation benefits that could be realized from such a new crossing. Direction was also provided to continue regional and multi-state coordination efforts, at the Board's direction, that advance the concept of a new Potomac River Crossing and monitor funding source availability to plan for future implementation.

Kimley-Horn and Associates was contracted to prepare the study (report), which provides an overview of the potential benefits and challenges of a new Potomac River crossing including improved transportation access that could be realized from such a crossing (Attachment 2). Transportation and economic benefits identified within the report have been primarily derived from previous crossing studies and from similar projects undertaken nationwide. The report does not identify corridors within the state of Maryland and has not been prepared to compare the corridors to each other or recommend one corridor over another. The report does not establish a purpose or need for a Potomac River Crossing. Recommendations contained within the report are based on Federal, State and Local regulations currently in effect.

Overview of Potential Challenges & Benefits: As detailed in the NVTA presentation at the June 29, 2017, Board Transportation Summit, a new Potomac River Crossing in the vicinity of the study area has been the subject of numerous regional planning efforts and studies. These planning efforts date back to as early as 1950. Planning efforts and studies cited in the NVTA presentation included the Joint Maryland-Virginia Regional Bypass Study completed in 1990, the Greater Washington Board of Trade (BoT) Regional Transportation Study completed in 1997, the Virginia Department of Transportation (VDOT) Travel Demand Study completed in 1998 and the Montgomery County TPR II Study completed in 2002. Potential needs met by a new Potomac River Crossing as well as project benefits identified in the above referenced reports were summarized in the NVTA presentation and are reflected in Table 1.

Table 1 - Summary of Potential Potomac River Crossing Benefits

Need Met/Benefit	Study Source
Key Economic Centers Serviced	**Joint MD-VA Regional Bypass Study**
Provides Capital Beltway, I-95 alternatives	**Joint MD-VA Regional Bypass Study**
Reduces US 15 traffic	**Joint MD-VA Regional Bypass Study**
Enhances overall road network safety	**Joint MD-VA Regional Bypass Study**
Supports economic development associated with Dulles Airport	**Joint MD-VA Regional Bypass Study**
Lowers volumes and capacity deficits on American Legion Bridge	**Greater Washington BoT Regional Transportation Study**
Improves peak period travel speed by 27%	**Greater Washington BoT Regional Transportation Study**
Increases suburb to suburb capacity along corridor	**Greater Washington BoT Regional Transportation Study**
Would carry 87,000 trips per day (Route 28 option)	**VDOT Travel Demand Study**
Increase average speed by 8%	**Montgomery County TPR II Study**

In addition to the studies cited above, a recent report dated November 15, 2017, was presented by the Long-Range Plan Task Force to the National Capital Regional Transportation Planning Board. The report summarized an analysis of ten significant regional transportation initiatives in the Washington D.C. metropolitan area. One of the initiatives studied was an additional northern bridge crossing of the Potomac River.

The November 2017 report assessed each initiative against a series of quantitative measures. Those measures include travel time, traditional congestion, accessibility by transit, accessibility by auto, mode share, vehicle miles traveled, reliable travel, transit options for households, transit options for employment and mobile source emissions.

Based on the results of the November 2017 study, a new Potomac River bridge would have “low” benefits to road congestion, incidents and safety, bottlenecks and reliable access to intercity hubs when compared to the current 2040 Constrained Long-Range Plan (CLRP). A new Potomac River bridge would have neutral impacts to transit crowding, inadequate bus services, and access to bike/pedestrian options, development around Metrorail, housing and job location, Metrorail repair needs and pedestrian and bicyclist safety when compared to the current 2040 CLRP. A new Potomac River bridge would have negative impacts to roadway repair needs, environmental quality and open space development when compared to the current 2040 CLRP. A full copy of the referenced study can be found in Appendix B of Attachment 2.

Corridor Development: For the purposes of identifying potential corridors for the current study effort, limits were established at the Fairfax County border to the east and Goose Creek to the west. The Potomac River was established as the northern limit while Route 7 was the southern limit for corridor establishment. Several identified corridors extend south of Route 7 to denote potential improvements that may be necessary to connect to existing infrastructure. Each of the eight (8) interchanges along Route 7 were established as potential southern termini of a Potomac River crossing corridor. With the establishment of logical southern termini, each corridor was established to minimize impacts to existing developed land, particularly residential developments. The potential corridors were mapped as 2,000-foot-wide segments to establish and identify the existing conditions and environmental concerns of each potential corridor and the surrounding areas. Specific roadway alignments were not established within the eight identified corridors. Table 2 identifies the eight (8) corridors labeled A-H and identified based on the methodology discussed above.

Table 2 – Potomac River Crossing Corridors

Corridor ID	Southern Terminal
A	**Interchange of Route 7 and Fairfax County Parkway/Algonkian Parkway**
B	**Interchange of Route 7 and Cascades Parkway**
C	**Interchange of Route 7 and Algonkian Parkway/Atlantic Boulevard**
D	**Interchange of Route 7 and Route 28**
E	**Interchange of Route 7 and Loudoun County Parkway**
F	**Interchange of Route 7 and Ashburn Village Boulevard**
G	**Interchange of Route 7 and Claiborne Parkway/Lansdowne Boulevard**
H	**Interchange of Route 7 and Belmont Ridge Road**

Once potential corridors were established, a set of criteria was established to analyze social, cultural, historical, environmental, and transportation impacts of each corridor. Tables 3 and 4 provide a summary of the criteria established and depicts each of the potential crossings impacts in relation to the methods described in Section 3 of the attached report.

Table 3 – Potomac River Crossing Corridor Impact Criteria and Summary

Impact	Potential Corridor ID's							
	A	B	C	D	E	F	G	H
Residential Property Impacts	●	●	●	●	●	○	●	●
100-year Floodplain Impacts*	●	○	○	●	○	○	○	○
Wetland Impacts	●	○	○	○	○	○	○	○
Recognized Environmental Condition Impacts	○	●	○	○	○	●	○	●
Public Facilities Impacts	○	●	○	○	○	○	○	●
Impacts to Existing Transporation Infrastructure	○	●	○	○	○	○	●	○
Park/Wildlife Refuge Impacts	●	●	○	●	○	○	○	○
Historic Resource Impacts	○	○	●	○	○	●	●	●
Significant Utility Impacts	○	○	○	○	○	○	○	○
Community Impacts	●	●	●	○	○	○	○	●
Regional Connectivity**	○	●	●	○	○	●	●	○
Commercial Property Impacts	○	○	○	○	●	○	○	●

* All potential corridors impact the 100 Year Potomac River FEMA Floodplain, for the purposes of this study only those impacts outside of the Potomac River Floodplain are being evaluated.
**Ability of the roadway to connect to regional routes.

Table 4 – Corridor Impact Label Key

Associated Corridor Impact	Label
Larger Impacts	●
Moderate Impacts	●
Minor Impacts	○

Potential Next Steps: Should the Board of Supervisors wish to continue with this effort, the next steps would include a plan to engage local, State and Federal jurisdictions, including but not limited to, the State of Maryland, Montgomery County, Maryland, Fairfax County, Virginia, the Commonwealth of Virginia and the Federal Government. The purpose of this engagement would be to build regional interest and to advance the concept of a future Potomac River Crossing. A similar study to the one being presented as part of this Board item would be necessary within Montgomery County's jurisdictional boundary to complete the overall corridor selection and determine how the corridors identified by Montgomery County might align with those identified in the Loudoun Report. To date, staff has not initiated any coordination efforts with any other jurisdiction.

The Board could also direct that staff complete the prior direction on this topic from the 2017 Transportation Summit. This direction was for staff to develop and include a narrative statement in the update to the Countywide Transportation Plan that expresses the Board's intent and support for a future Potomac River Crossing, east of Goose Creek in Loudoun County. That narrative was

to include a summary of the economic development and transportation benefits that could be realized from such a new crossing.

In directing staff to identify a series of potential corridors to be recommended for further analysis and to position the County for use of federal and state funding, the Board also stipulated that all identified potential corridors would be shown in the updated Countywide Transportation Plan.

Staff was also directed to continue regional and multi-state coordination efforts that advance the concept of a new crossing and to continue to monitor funding source availability to plan for future implementation of the project.

ISSUES: The significant issues involved with a potential Potomac River Crossing are identified in Table 4. The major issues would be related to property impacts, specifically residential neighborhoods, historical and environmental impacts related to the construction of a new roadway, and communities within the potential corridor.

Federal Funding and Environmental Assessment: In order to receive federal funding, the Potomac River crossing project must be included in the Constrained Long-Range Transportation Plan (CLRP) and the Transportation Improvement Program (TIP), prepared by the National Capital Region Transportation Planning Board (TPB). The CLRP includes all major transportation projects reasonably expected to be funded and built in the region through 2040. The CLRP is updated annually. Projects can be submitted by any municipal, county, state, regional, or federal agency with the fiscal authority to fund transportation projects. Submissions must include a project description, cost estimates, identification of available funding, air quality conformity input information, and congestion management documentation, in accordance with the annual CLRP Call for Projects.

If a source of federal funding is identified and the project is included in the CLRP, the project will be required to comply with the National Environmental Policy Act of 1969 (NEPA). NEPA provides an interdisciplinary, consolidated framework for documenting compliance with all applicable Federal, state, and local laws, regulations, policies, and guidance.

As the primary approver of large-scale highway projects in the United States, the Federal Highway Administration (FHWA) would act as the lead Federal agency for a Potomac River crossing project. VDOT would act as a joint lead agency and local project sponsor. Therefore, VDOT would prepare the EIS in accordance with the FHWA Environmental Impact and Related Procedures (23 CFR §771) and FHWA Technical Advisory T 6640.8A: Guidance for Preparing and Processing Environmental and Section 4(F) Documents. However, according to Executive Order (EO) 13807, the EIS would also need to satisfy the NEPA implementation guidelines of any other Federal cooperating agencies, which include any agencies that are required to make an approval or take an action for the project. In doing so, one single EIS can be used as a reference to fulfill the NEPA and permitting requirements for all cooperating Federal agencies. State and local permitting agencies may also agree during project scoping to act as cooperating agencies and would accept the EIS as a permit application.

NEPA requires FHWA/VDOT to conduct early coordination, or scoping, with Federal, state, and local agencies, the public, and other stakeholders with interests in the project area regarding the project's purpose and need, alternatives to be evaluated, resources over which agencies have approval authority or special expertise, and any other relevant issues. FHWA/VDOT will also take this opportunity to formally invite agencies to participate in the EIS process as cooperating or participating agencies. Agencies generally have 30 days to respond to a scoping request and to formally accept an invitation to participate as a cooperating or participating agency.

Because there would likely be multiple alternatives evaluated in the EIS, the project would be subject to the NEPA and Clean Water Act (Section 404) Merged Process for Highway Projects in Virginia Memorandum of Understanding (MOU). The MOU establishes a schedule and procedure for coordination and concurrence among FHWA, United States Army Corp of Engineers (USACE) Norfolk District, Environmental Protection Agency (EPA), United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-NMFS), and VDOT.

While scoping and preliminary agency coordination should begin as early as possible, the NEPA process officially begins with the publication of a Notice of Intent (NOI) to prepare an EIS in the Federal Register. In order to publish an NOI, the VDOT must prepare and submit an Initiation Letter to FHWA, which must include a Draft Purpose and Need, Draft Alternatives, draft agency coordination and public involvement plans, draft schedule, and draft NOI. Once FHWA approves the Initiation Letter, FHWA publishes the NOI in the Federal Register. The public and other agencies have 30 days to review and comment on the NOI. FHWA confirms the selection of a Preferred Alternative, if applicable.

Once any comments have been addressed and FHWA has approved and finalized the Purpose and Need, alternatives, and other documents, VDOT can begin the preparation of a Draft EIS, which takes an average of 14 months. The impact topics to be addressed in an EIS for a new Potomac River crossing may include, but are not limited to:

- Land Use
- Right-of-way Acquisition & Relocations
- Farmland
- Community Facilities and Character
- Population and Housing
- Economics
- Environmental Justice
- Cultural Resources
- Section 4(f)
- Section 6(f)
- Air Quality
- Noise
- Visual and Aesthetics
- Streams and Wetlands
- Water Quality
- Floodplains
- Coastal Zone Management
- Wildlife and Habitat
- Threatened and Endangered Species
- Hazardous Materials
- Energy
- Indirect and Cumulative Impacts

Many EISs rely upon technical reports or technical memorandums, which are in-depth analysis documents developed for a specific resource topic to support an EIS. Technical reports provide additional background information about complex methodologies and tools used to complete the

analysis, which can then be summarized briefly in the EIS. Impact topics that generally benefit from a technical report include air quality, noise, socioeconomic resources and land use, natural resources, cultural resources, traffic, hazardous materials, and indirect and cumulative effects.

When a Draft EIS is completed, a Notice of Availability is published in the Federal Register and a 45-day public review and comment period begins. A public hearing is not always required, but must be held upon request. Following the public review and comment period for the Draft EIS, the FHWA and VDOT will address any comments received in a Final EIS, which is published concurrently with a Record of Decision (ROD). In accordance with EO 13807, a joint ROD, developed and signed by all Federal cooperating agencies, must be issued within two years of publication of the NOI, and all federal authorizations and permits should be issued within 90 days of issuance of the Final EIS/ROD. State and local permitting agencies may also agree during project scoping to accept the EIS as a permit application and issue any permits or authorizations upon publication of the ROD. Therefore, the overall NEPA process, including preliminary scoping and permitting, can theoretically be completed in two to three years.

The construction of a future crossing of the Potomac River would impact transportation across the entire Washington D.C. metropolitan region. As such, decisions regarding the need and feasibility of a future Potomac River crossing will require the consensus of a large number of public jurisdictions and agencies, the public, and private organizations. Further study into the eight potential corridors outlined in the study would be required.

FISCAL IMPACT: There is no fiscal impact associated with this item.

ALTERNATIVES:

1. The Board could direct staff to incorporate the substantive findings of this Report into the Draft Countywide Transportation Plan update with policy direction committing to the County's on-going study of a future Potomac River Crossing.
2. The Board, in addition to alternative 1, could direct staff to also develop a plan for regional coordination and collaboration with local, state, and federal jurisdictions to advance the concept of developing a future Potomac River Crossing and report back to Board of Supervisors with scheduled updates.
3. The Board could direct that all efforts related to the on-going study and future policy guidance regarding a future Potomac River Crossing be ceased at this time.

DRAFT MOTIONS:

1. I move that the Board of Supervisors direct staff to incorporate the substantive findings of the Final Report on Identification of Potential Locations of Potomac River Crossing dated August 21, 2018, into the Draft Countywide Transportation Plan update with policy direction committing to the County's on-going study of a future Potomac River Crossing.

   I further move that the Board of Supervisors direct staff to develop a plan for regional coordination and collaboration with local, state, and federal jurisdictions to advance the

concept of developing a future Potomac River Crossing and report back to Board of Supervisors with scheduled updates.

OR

2. I move that the Board of Supervisors direct that all efforts related to the on-going study and development of future policy guidance regarding a future Potomac River Crossing be ceased at this time.

OR

3. I move an alternate motion.

ATTACHMENTS:

1. Study Area Map
2. Potential Locations of a New Potomac River Crossing Report (August 21, 2018)

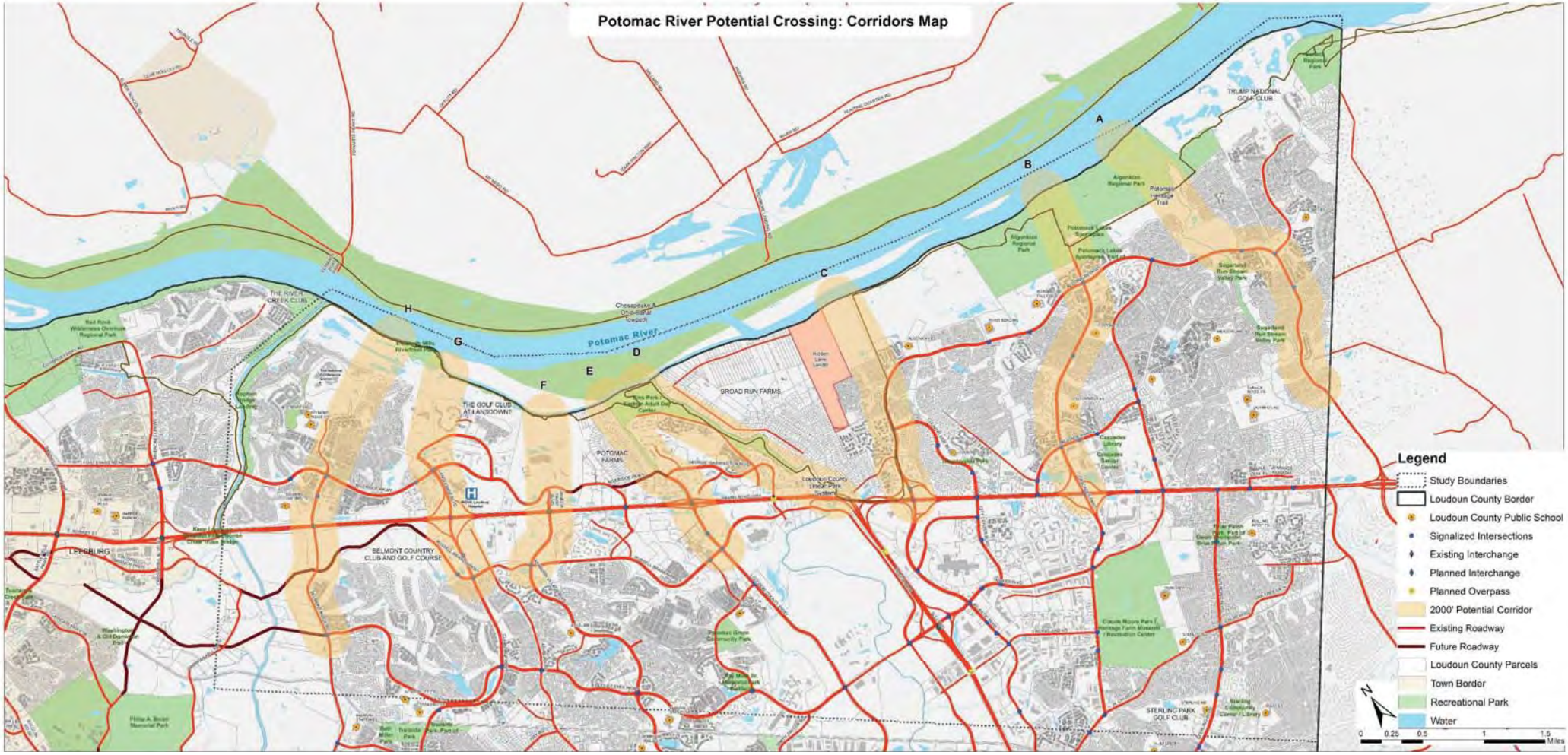

Figure 3-1 – Potomac River Potential Crossings: Corridor Map

ATTACHMENT 1

Final Report

Loudoun County

Identification of Potential Locations for a New Potomac River Crossing

August 21, 2018

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Executive Summary

For more than fifty years, various studies and regional plans have considered an additional roadway connection between Virginia and Maryland west of the Interstate 495 American Legion Memorial Bridge. In 2016, the Loudoun County Board of Supervisors met and initiated a process of developing a Strategic Plan for addressing a multitude of local government issues including a potential new Potomac River crossing/

On June 29, 2017, the Loudoun County Board of Supervisors (Board) held a Transportation Summit to discuss transportation related issues affecting Loudoun County. Among the topics discussed during the summit, was the concept of a new bridge connecting Virginia and Maryland between the American Legion Memorial Bridge (Interstate 495) and the Point of Rocks Bridge (U.S. Route 15). During the summit, Mr. David Birtwistle, Chief Executive Officer of the Northern Virginia Transportation Alliance (NVTA) provided the Board with a summary of the history of the proposed Potomac River crossing as well as data resulting from previous studies.

The purpose of this report is to identify a series of potential corridors that staff recommends for further analysis of the social, cultural, historical, environmental and transportation impacts of a future Potomac River crossing. This report provides an overview of the potential benefits and challenges of a new Potomac River crossing including improved transportation access that could be realized from such a crossing. Transportation and economic benefits identified within this report have been primarily derived from previous crossing studies and from similar projects undertaken nationwide. This report does not identify corridors within the state of Maryland. This report has not been prepared to compare the corridors to each other or recommend one corridor over another. This report does not establish a purpose or need for a Potomac River Crossing. Recommendations contained within this report are based on Federal, State and Local regulations in effect as of the date of this report.

For the purposes of identifying potential corridors, limits were established at the Fairfax County border to the east and Goose Creek to the west. The Potomac River was established as the northern limit while Route 7 was the southern limit for corridor establishment. Several identified corridors extend south of Route 7 to denote potential improvements that may be necessary to existing infrastructure. Each of the eight interchanges along Route 7 were established as potential southern termini of a Potomac River crossing corridor. With the establishment of logical southern termini, each corridor was established to minimize impacts to existing developed land, particularly residential developments. The potential corridors were mapped as a 2,000-foot-wide segments to establish and identify the existing conditions and environmental concerns of each potential corridor and the surrounding areas. Specific roadway alignments were not established within the eight identified corridors. Table 2 identifies the eight (8) corridors identified based on the methodology discussed above.

Corridor ID	Southern Terminal
A	Interchange of Route 7 and Fairfax County Parkway/Algonkian Parkway
B	Interchange of Route 7 and Cascades Parkway
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F	Interchange of Route 7 and Ashburn Village Boulevard
G	Interchange of Route 7 and Claiborne Parkway/Lansdowne Boulevard
H	Interchange of Route 7 and Belmont Ridge Road

Once potential corridors were established, a set of criteria was established to analyze social, cultural, historical, environmental and transportation impacts of each corridor. Table 3 below provides a summary of the criteria established and depicts each of the potential crossings impacts in relation to the methods described in Section 3 of this report.

Impact	Potential Corridor ID's							
	A	B	C	D	E	F	G	H
Residential Property Impacts	●	●	●	●	●	○	◉	●
100-year Floodplain Impacts*	●	◉	◉	●	○	○	○	○
Wetland Impacts	●	◉	◉	○	○	○	○	◉
Recognized Environmental Condition Impacts	◉	●	○	◉	○	●	○	●
Public Facilities Impacts	○	●	○	◉	○	○	◉	●
Impacts to Existing Transporation Infrastructure	○	●	◉	○	○	○	●	○
Park/Wildlife Refuge Impacts	●	●	○	●	◉	○	◉	◉
Historic Resource Impacts	◉	○	●	◉	○	●	●	●
Significant Utility Impacts	◉	◉	◉	○	○	○	○	○
Community Impacts	●	●	●	◉	◉	○	◉	●
Regional Connectivity**	○	●	●	○	◉	●	●	◉
Commercial Property Impacts	○	○	○	○	●	◉	◉	●

The construction of a new crossing of the Potomac River will significantly impact transportation across the entire Washington D.C. metropolitan region. As such, decisions regarding the need and feasibility of a new Potomac River crossing will require the consensus of a large number of public jurisdictions and agencies, the public, and private organizations. Further study into the eight potential corridors outlined in this report would be required.

1. Introduction

For more than fifty years, various studies and regional plans have considered an additional roadway connection between Virginia and Maryland west of the Interstate 495 American Legion Memorial Bridge. In 2016, the Loudoun County Board of Supervisors met and initiated a process of developing a Strategic Plan for addressing a multitude of local government issues. Including a potential new Potomac River crossing was discussed.

1.1. Background

On June 29, 2017, the Loudoun County Board of Supervisors (Board) held a Transportation Summit to discuss transportation related issues affecting Loudoun County. Among the topics discussed during the summit, was the concept of a new bridge connecting Virginia and Maryland between the American Legion Memorial Bridge (Interstate 495) and the Point of Rocks Bridge (U.S. Route 15). During the summit, Mr. David Birtwistle, Chief Executive Officer of the Northern Virginia Transportation Alliance (NVTA) provided the Board with a summary of the history of the proposed Potomac River crossing as well as data resulting from previous studies. A copy of the board item and presentation can be found in Appendix A.

Based on information provided, the Board (9-0-0) directed that staff 1) develop and include a narrative statement in the update to the Countywide Transportation Plan that expresses the Board's intent and support for a future Potomac River crossing, east of the Goose Creek in Loudoun County. The narrative was to include a summary of the economic development and transportation benefits that could be realized from a such a new crossing. 2) identify a series of potential corridors that staff recommends for further analysis of the social, cultural, historical, environmental and transportation impacts of a future crossing to better position the County for use of Federal and State funding where a formal environmental assessment document would be required to move a project forward. All identified potential corridors would be shown in the updated Countywide Transportation Plan and 3) continue regional and multi-state coordination efforts, at the Board's direction, that advance the concept of a new Potomac River Crossing and monitor funding source availability to plan for future implementation of the project.

1.2. Purpose

This report has been prepared to respond to the Board's direction that Loudoun County staff identify a series of potential corridors that staff recommends for further analysis of the social, cultural, historical, environmental and transportation impacts of a future Potomac River crossing. This report provides an overview of the potential benefits and challenges of a new Potomac River crossing including improved transportation access that could be realized from such a crossing. Transportation and economic benefits identified within this report have been primarily derived from previous crossing studies and from similar projects undertaken nationwide.

This report also provides a discussion of each identified corridor, its connection points along Route 7 and its location within Loudoun County. As part of the discussion of each corridor, significant natural and man-made features impacted by each corridor are detailed.

Finally, this report identifies potential next steps for identifying, designing, and constructing a crossing, including consideration of social, cultural, historical, environmental, and transportation impacts of a future crossing. The description of the next steps is based on current federal and state regulations, and includes a summary of required environmental clearance processes and permitting. The description of next steps also summarizes the technical analyses that will be required to identify and analyze the above impacts, and milestones at which public outreach could occur. The description of next steps also describes potential methods by which the County could best position itself to ensure the receipt of state and federal funding for a future crossing.

1.3. Report Limitations

This report does not identify corridors within the state of Maryland. This report has not been prepared to compare the corridors to each other or recommend one corridor over another. This report does not establish a purpose or need for a Potomac River Crossing. Recommendations contained within this report are based on Federal, State and Local regulations in effect as of the date of this report.

2. Overview of Potential Challenges & Benefits

As detailed in the Northern Virginia Transportation Alliance (NVTA) presentation at the June 29, 2017, Loudoun County Board of Supervisors Transportation Summit, a new Potomac River Crossing in the vicinity of the study area has been the subject to numerous regional planning efforts and studies. These planning efforts date back to as early as 1950. Planning efforts and studies cited in the NVTA presentation included the Joint Maryland-Virginia Regional Bypass Study completed in 1990, the Greater Washington BoT Regional Transportation Study completed in 1997, the Virginia Department of Transportation (VDOT) Travel Demand Study completed in 1998 and the Montgomery County TPR II Study completed in 2002.

Potential needs met by a new Potomac River Crossing as well as project benefits identified in the above referenced reports were summarized in the NVTA presentation and are reflected in Table 1.

Table 1 – Summary of Potential Potomac River Crossing Benefits

Need Met/Benefit	Study Source
Key Economic Centers Serviced	Joint MD-VA Regional Bypass Study
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In addition to the studies cited above, a recent report dated November 15, 2017, was presented by the Long-Range Plan Task Force to the National Capital Regional Transportation Planning Board. The report summarized an analysis of ten significant regional transportation initiatives in the Washington D.C. metropolitan area. One of the initiatives studied was an additional northern bridge crossing of the Potomac River.

The report assessed each initiative against a series of quantitative measures. Those measures include travel time, traditional congestion, accessibility by transit, accessibility by auto, mode shar, vehicle miles traveled, reliable travel, transit options for households, transit options for employment and mobile source emissions.

Based on the results of the study, a new Potomac River bridge would have “low” benefits to road congestions, incidents and safety, bottlenecks and reliable access to intercity hubs when compared to the current 2040 Constrained Long-Range Plan (CLRP). A new Potomac River bridge would have neutral impacts to transit crowding, inadequate bus services, access to bike/pedestrian options, development around Metrorail, housing and job location, Metrorail repair needs and pedestrian and bicyclist safety when compared to the current 2040 CLRP. A new Potomac River bridge would have negative impacts to roadway repair needs, environmental quality and open space development when compared to the current 2040 CLRP. A full copy of the referenced study can be found in Appendix B to this report.

3. Corridor Development

3.1. Corridor Identification Methodology

For the purposes of identifying potential corridors, limits were established at the Fairfax County border to the east and Goose Creek to the west. The Potomac River was established as the northern limit while Route 7 was the southern limit for corridor establishment. Several identified corridors extend south of Route 7 to denote potential improvements that may be necessary to existing infrastructure. The methodology utilized to identify potential corridors is as follows:

Route 7 was analyzed to determine feasible southern terminal points for potential Potomac River crossing corridors. Review of the Loudoun County 2010 Countywide Transportation Plan (CTP) shows that Route 7 is a planned limited access highway. Based on the 2010 CTP, there are seven (7) existing and proposed interchanges along Route 7 between Goose Creek and the Fairfax County border with one additional interchange just to the east of the Loudoun County / Fairfax County border. Each of the eight interchanges were established as potential southern termini of a Potomac River crossing corridor.

With the establishment of logical southern termini, each corridor was established to minimize impacts to existing developed land, particularly residential developments.

The potential corridors were mapped as a 2,000-foot-wide segment to establish and identify the existing conditions and environmental concerns of each potential corridor and the surrounding areas. Specific roadway alignments were not established within the eight identified corridors. Table 2 identifies the eight (8) corridors identified based on the methodology discussed above.

Table 2 – Potomac River Crossing Corridors

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B	Interchange of Route 7 and Cascades Parkway
C	Interchange of Route 7 and Algonkian Parkway/Atlantic Boulevard
D	Interchange of Route 7 and Route 28
E	Interchange of Route 7 and Loudoun County Parkway
F	Interchange of Route 7 and Ashburn Village Boulevard
G	Interchange of Route 7 and Claiborne Parkway/Lansdowne Boulevard
H	Interchange of Route 7 and Belmont Ridge Road

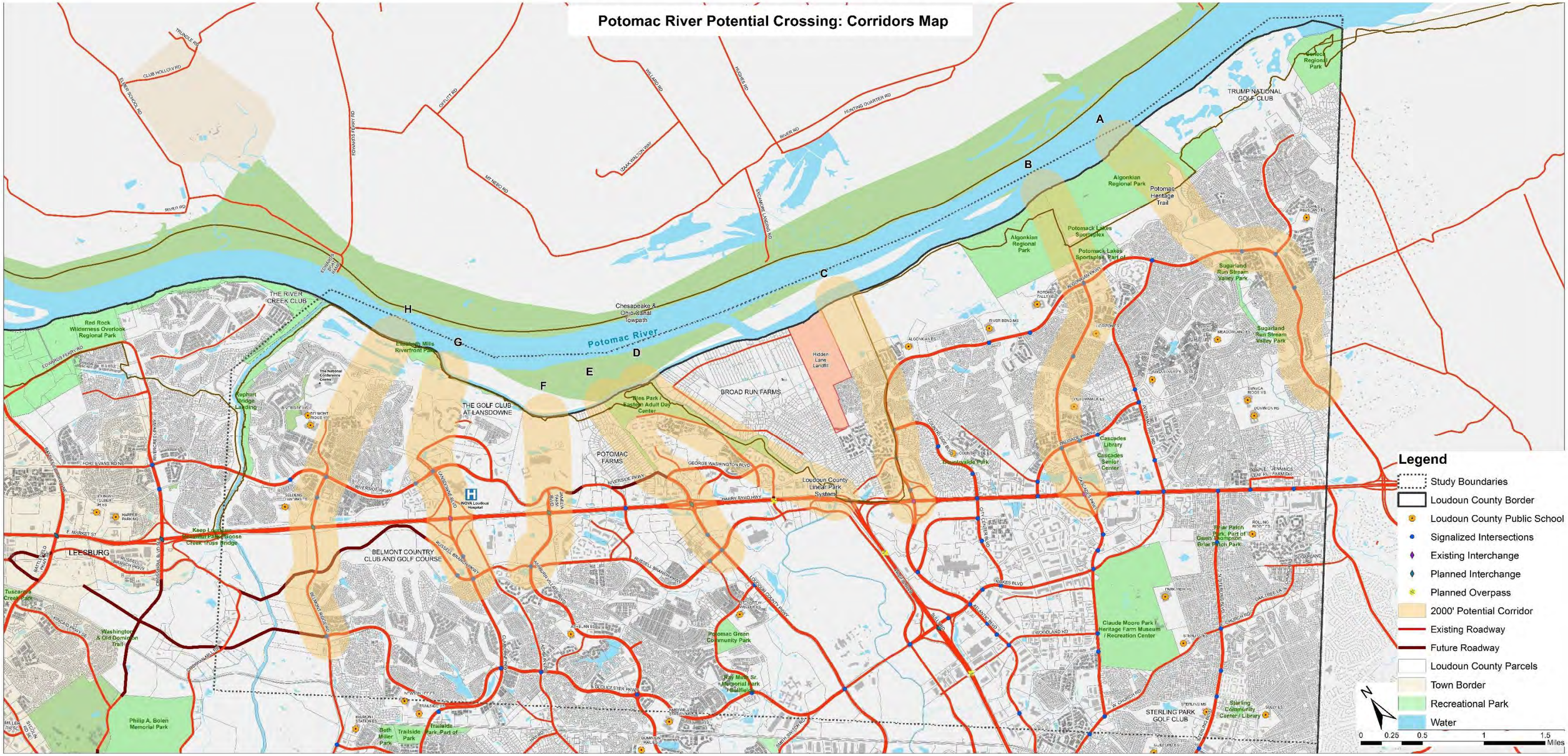


Figure 3-1 – Potomac River Potential Crossings: Corridor Map

3.2. Corridor Impact Criteria

Once potential corridors were established, a set of criteria was established to analyze social, cultural, historical, environmental and transportation impacts of each corridor. Table 3 provides a summary of the criteria established

Table 3 – Corridor Impact Criteria

Criteria #	Corridor Impact Criteria
1	Residential Property Impacts
2	100-year Floodplain Impacts
3	Wetland Impacts
4	Recognized Environmental Condition Impacts
5	Public Facilities Impacts
6	Impacts to Existing Transportation Infrastructure
7	Park/Wildlife Refuge Impacts
8	Historic Resource Impacts
9	Significant Utility Impacts
10	Community Impacts
11	Regional Connectivity
12	Commercial Property Impacts

Each of the identified criteria were established to generally account for those criteria that would be considered at such time as an environmental impact study (EIS) would be performed. A description of each criteria can be found below:

Table 4 – Corridor Impact Label Key

Associated Corridor Impact	Label
Larger Impacts	●
Moderate Impacts	●
Minor Impacts	●

Table 5 depicts the potential impacts for each corridor based on the criteria set in Section 2.2 of this report. The evaluation used ArcGIS software and Loudoun County GIS data to analyze the environmental, historical, and property impacts along the potential corridors.

Table 5 – Potomac River Crossing Corridor Impact Summary

Impact	Potential Corridor ID's							
	A	B	C	D	E	F	G	H
Residential Property Impacts	●	●	●	●	●	○	◉	●
100-year Floodplain Impacts*	●	◉	◉	●	○	○	○	○
Wetland Impacts	●	◉	◉	○	○	○	○	◉
Recognized Environmental Condition Impacts	◉	●	○	◉	○	●	○	●
Public Facilities Impacts	○	●	○	◉	○	○	◉	●
Impacts to Existing Transporation Infrastructure	○	●	◉	○	○	○	●	○
Park/Wildlife Refuge Impacts	●	●	○	●	◉	○	◉	◉
Historic Resource Impacts	◉	○	●	◉	○	●	●	●
Significant Utility Impacts	◉	◉	◉	○	○	○	○	○
Community Impacts	●	●	●	◉	◉	○	◉	●
Regional Connectivity**	○	●	●	○	◉	●	●	◉
Commercial Property Impacts	○	○	○	○	●	◉	◉	●

* All potential corridors impact the 100 Year Potomac River FEMA Floodplain, for this study only those outside of the River impacts are being evaluated

** Ability of the roadway to connect to regional routes

3.2.1. Residential Property Impacts

Residential properties are defined as properties on which a single-or multi-family residential unit is located. Vacant properties which are zoned residential are also considered residential properties but are accounted for separately. A residential property is considered an impacted property if any portion of the property is located within a potential corridor.

Residential properties in the study area vary in their makeup. Residential properties located north of Route 7 and east of Route 28 are primarily located in the master planned communities of Cascades, Lowes Island and Countryside and are comprised of single family detached or single family attached dwellings. Lot sizes in this area average less than one-quarter acre in size. Within this mix of single family dwellings, Falcons Landing Military Retirement Community consists of a mix of single faimly and multi-family dwellings at the intersection of Potomac View Road and Algnonkian Parkway. Additionally, The Reserve at Town Center Apartments and Village at

Potomac Falls are multi-family dwellings at the intersection of Algonkian Parkway and Winding Road.

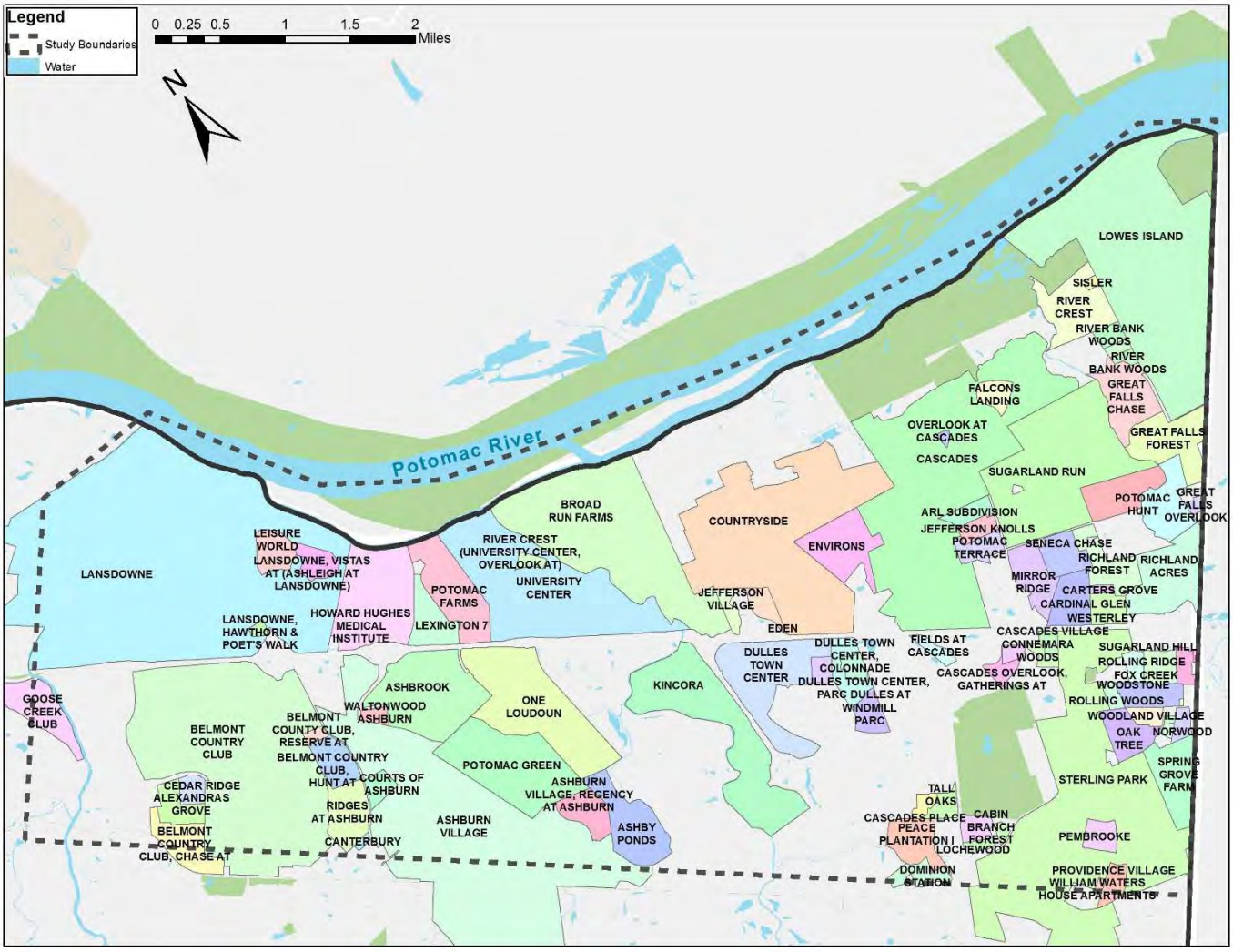


Figure 3-2 – Existing Residential Subdivisions within the Study Area

North of Route 7 near its interchange with Route 28, the community of Broad Run Farms is comprised of single family dwellings with lot sizes ranging from one-half acre to more than six acres in size.

Residential properties north of Route 7, between Route 28 and the Loudoun County Parkway consist of a mix of single-family attached and multi-family dwellings. Developments in this area include University Center, Loudoun Heights Apartments, University Heights, Chelsea Courts and Acadia by Cortland. Multi-family units in this area are generally no more than four stories in height.

The community of Potomac Farms is located to the west Loudoun County Parkway and north of Route 7. The community is made up exclusively of single-family detached dwellings. Average lot size in this community is more than one acre.

Residental properties located north or Route 7 between Lansdowne Boulevard and Goose Creek are primariliy located in the master-lanned community of Lansdowne and are comprised of single family detached or single family attached dwellings. Magnolias at Lansdowne consists of ten to twelve-story buildings containing multi-family dwellings. Camden Lansdowne Apartments are multi-family dwellings near the interchange of Route 7 and Lansdowne Boulevard.

Loudoun County Geographic Information System (GIS) was utilized to identify residential properties within the study area.

For purposes of this analysis, residential property impacts resulting from each corridor are evaluated as reflected in Figure 3-2. The number of residential properties that are ultimately impacted will vary depending on the establishment of a final roadway alignment through a given corridor.

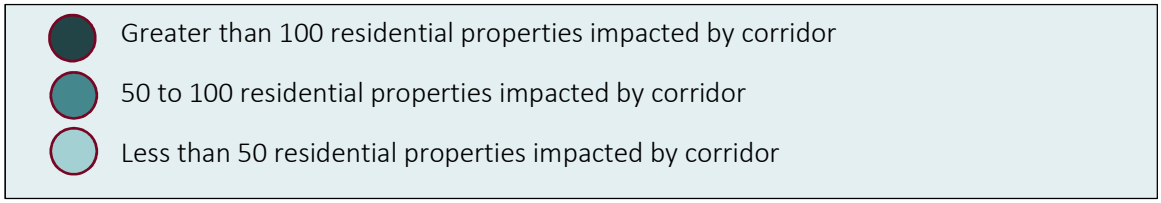


Figure 3-3 – Residential Property Impact Evaluation Methodology

3.2.2. 100-Year Floodplain Impacts

A 100-year floodplain is defined as areas of land that have been identified by the Federal Emergency Management Agency (FEMA) as being inundated by a flood event having a one percent (1%) chance of being equaled or exceeded in any given year. 100-year floodplains are regulated by FEMA. Physical changes made within a 100-year floodplain including the construction of bridges or elevated roadways must be reviewed by FEMA to ensure the change does not increase calculated flood elevations and negatively impact properties upstream or downstream of the physical change. As 100-year floodplains are generally associated with larger streams and rivers, these floodplains are often located in areas containing sensitive environmental features.

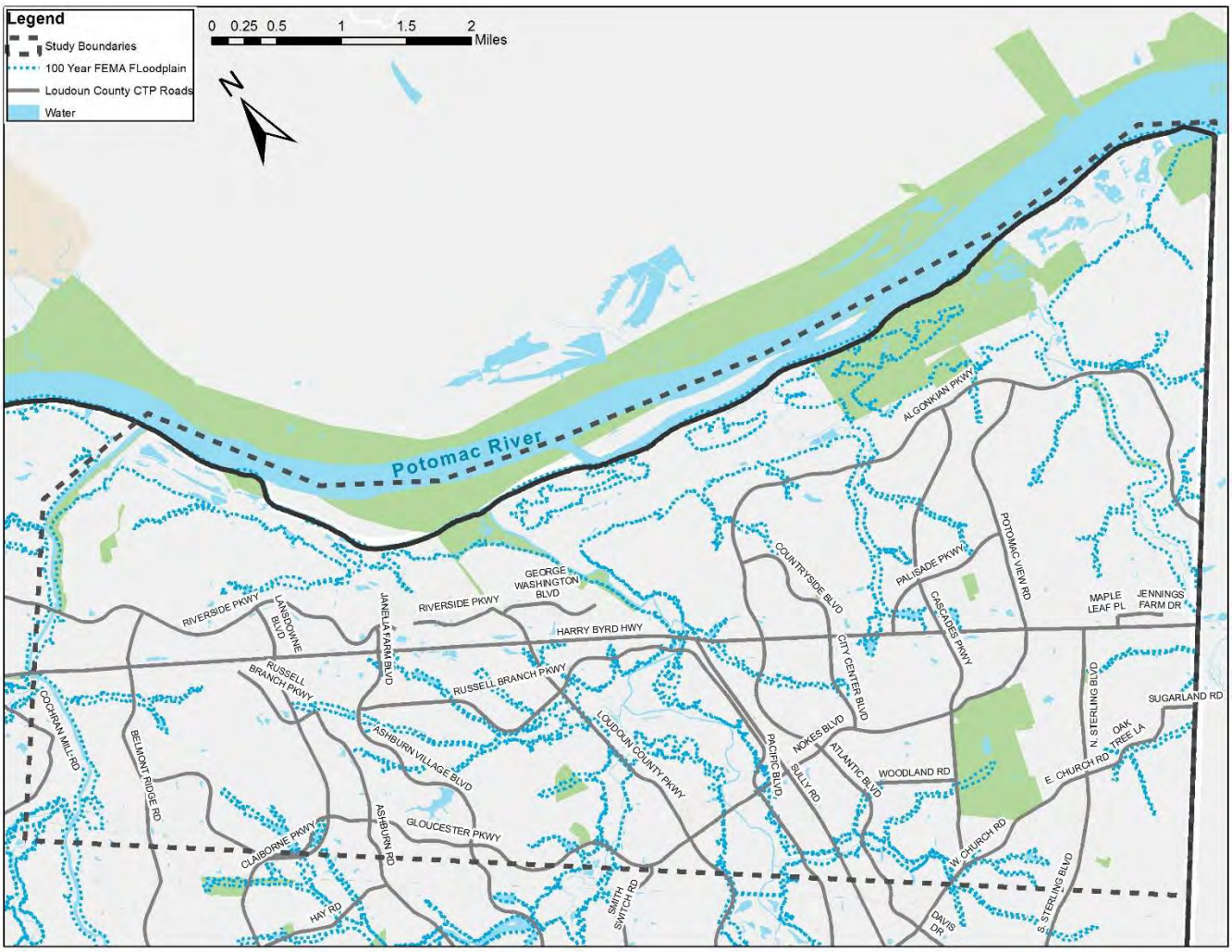


Figure 3-4 – Existing Floodplains within the Study Area

Within the study area, there are five streams/rivers with associated 100-year floodplains. Those streams/rivers consist of Sugarland Run, Horsepen Run, Broad Run, Goose Creek and the Potomac River.

Sugarland Run crosses Route 7 just east of the intersection of Route 7 and Dranesville Road and flows north to the east and parallel to Algonkian Parkway. As it flows north, Sugarland Run crosses under Algonkian Parkway west of the intersection of Algonkian Parkway and River Bank Street. From that point, Sugarland Run continues to flow north between the communities of Lowes Island and Cascades through the Potomac River flood plain before emptying into the Potomac River.

Horsepen Run begins as outfalls from stormwater management ponds near the interchange of Route 7 and Cascades Boulevard. Horsepen flows north through the Cacades community and crosses Algonkian Parkway west of the intersection of Algonkian Parkway and Chelmsford Court.

From that point, Horsepen Run flows north and west through the Potomac River flood plain before emptying into the Potomac River.

Broad Run crosses Route 7 just west of its interchange with Route 28. Broad Run flows northwest just to the east of the Broad Run Farms Community. Broad Run continues to flow northwest through the Potomac River flood plain before emptying into the Potomac River.

Goose Creek forms the western boundary of the study area and crosses Route 7 west of its interchange with Belmont Ridge Road. Goose Creek flows northeast along the western edge of the community of Lansdowne and through the Potomac River floodplain before emptying into the Potomac River.

The Potomac River forms the northern boundary of the study area and flows generally west to east. Given the size of the Potomac River, its 100-year floodplain stretches more than one-half mile from its southern bank in places. Uses in the Potomac River floodplain are generally limited to parks, agriculture and golf courses.

Loudoun County Geographic Information System (GIS) was utilized to identify 100-year floodplain within the study area. Locations of 100-year floodplain based on Loudoun County GIS mapping are reflected in Figure 3-5.

For purposes of this analysis, 100-year floodplain impacts associated with each corridor are evaluated as reflected in Figure 2. Because each corridor has similar impacts the Potomac River floodplain, impacts to the Potomac River floodplain are ignored for purposes of rating impcacts.

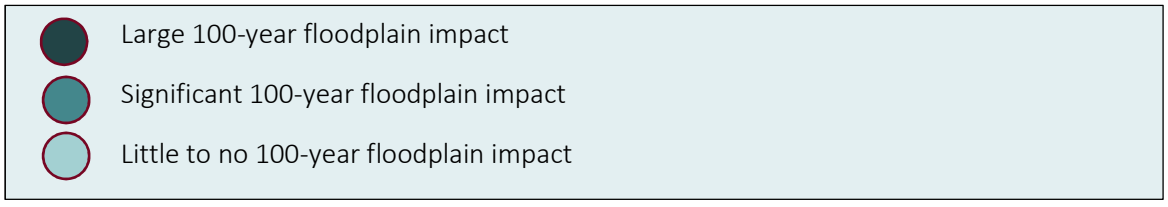


Figure 3-5 – 100-Year Floodplain Impact Evaluation Methodology

3.2.3. Wetland & Stream Impacts

Wetlands are transition zones between open water and upland areas. Typically, they are covered by water or have waterlogged soils for long periods of time. Wetlands provide many ecological, economic, and recreational benefits such as food and shelter for fish and wildlife; flood protection; shoreline erosion control; natural products for human use; water quality improvement; and opportunities for recreation, education, and research. Wetlands are regulated by the United States Enivronmental Protection Agency under Section 404 of the Clean Water Act.

Within the study area, wetlands are generally either found in the immediate vicinity of streams and drainage ditches or within the 100-year floodplain of the Potomac River. When found along streams and drainage ditches, wetlands tend to fall within the streambeds and are linear in

nature. Within the 100-year floodplain of the Potomac River, wetlands tend to be much larger and provide greater habitat to wetland plants and animals.

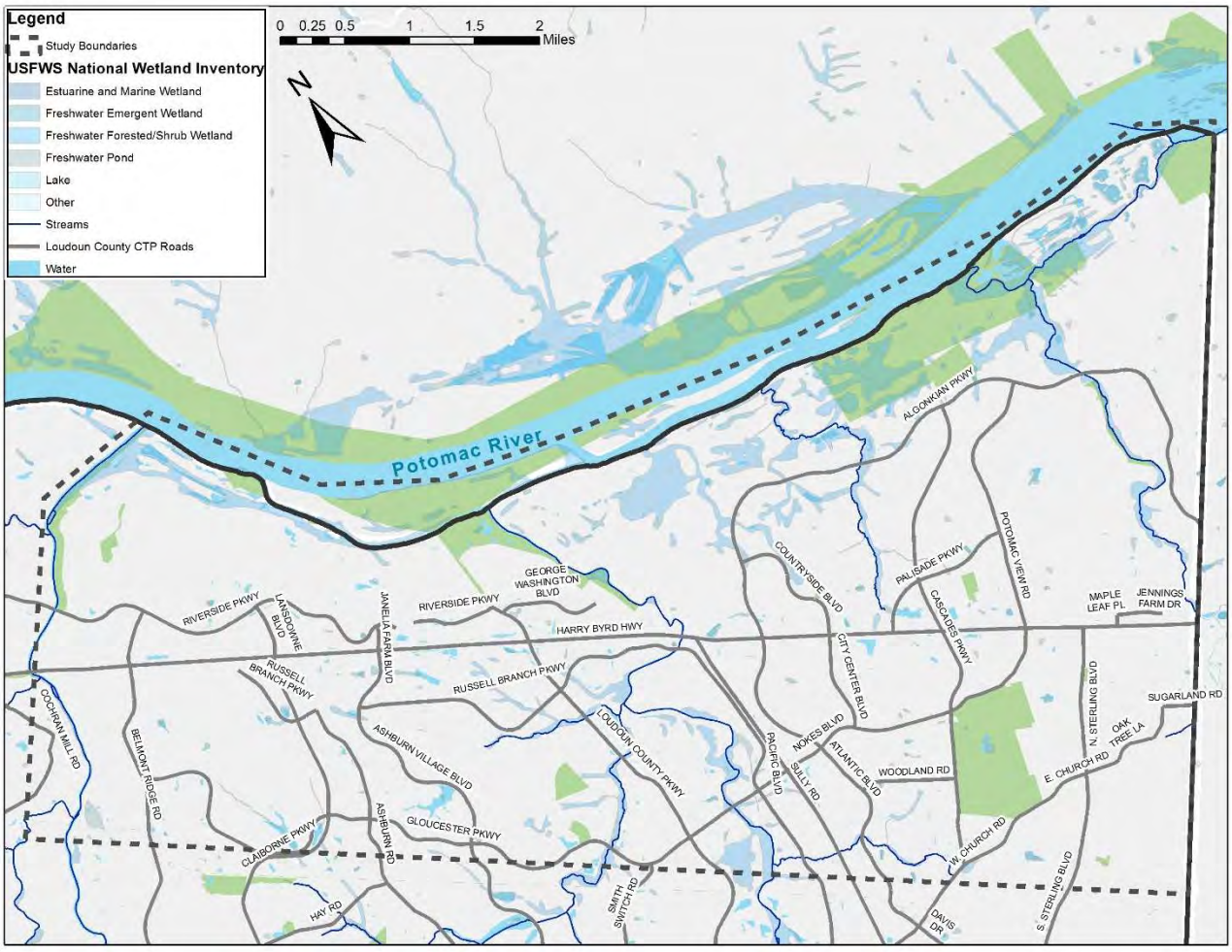


Figure 3-6 – Wetlands within the Study Area

Loudoun County Geographic Information System (GIS) and information obtained from the Virginia Department of Environmental Quality was utilized to identify wetlands within the study area. Wetland locations based on Loudoun County GIS mapping are reflected in Figure 3-6.

For the purposes of this analysis, wetland and stream impacts associated with each corridor are evaluated as reflected in Figure 3-7.

- Greater than 100 acres of wetland impacts
- 50 to 100 acres of wetland impacts
- Less than 50 acres of wetland impacts

Figure 3-7– Wetland & Stream Impact Evaluation Methodology

3.2.4. Recognized Environmental Conditions Impacts

Recognized environmental conditions (RECs) are defined 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 pertroeum products in to structures on the property or into the ground, groundwater or surface water of the property. Identified RECs within a corridor would require removal and mitigation to ensure any hazardous substance release would not be impacted by a new roadway.

Within the study area, most RECs are identified as petroleum releases. The releases tend to be located in the communites of Broad Run Farms and Potomac Farms and appear to be home heating oil spills.

In addition to the petroleum releases in the study area, the Hidden Lane Landfill is located north of the interchange of Route 7 and Route 28. The landfill iis a former 25-acre privately owned and operated dispolsal facility. In 1989, testing of private water wells in the community of Broad Run Farms revealed the presence of a degreasing solvent named trichloroethlene (TCE). Loudoun County and Virginia State health officials identified the Hidden Lane Landfill as the source of the TCE contaminant. In all, 32 private water wells showed some level of TCE contamination. In 2008, the U.S. Environmental Protection Agency added the Hidden Lane Landfill ot the National Priorities List of most hazardous wate sites making the site eligible for funding from the federal Superfund cleanup program. Work continues presently to resolve the environmental and health

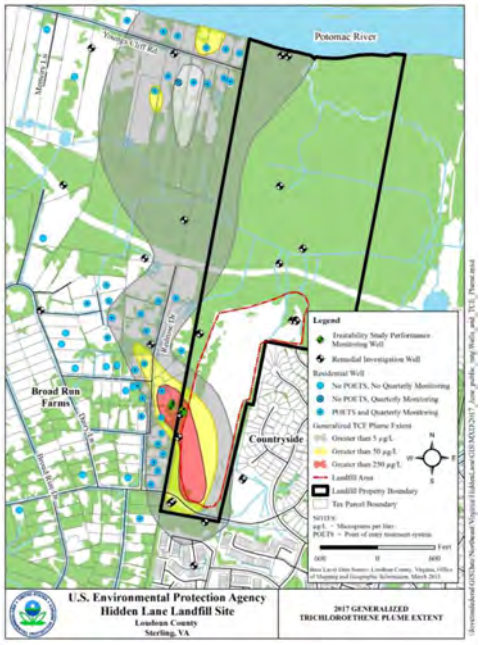


Figure 3-8 – Hidden Lane Landfill Environmental Impacts

risks resulting from this condition. A graphic showing environmental impacts from the Hidden Lane Landfill can be found as Figure 3-8.

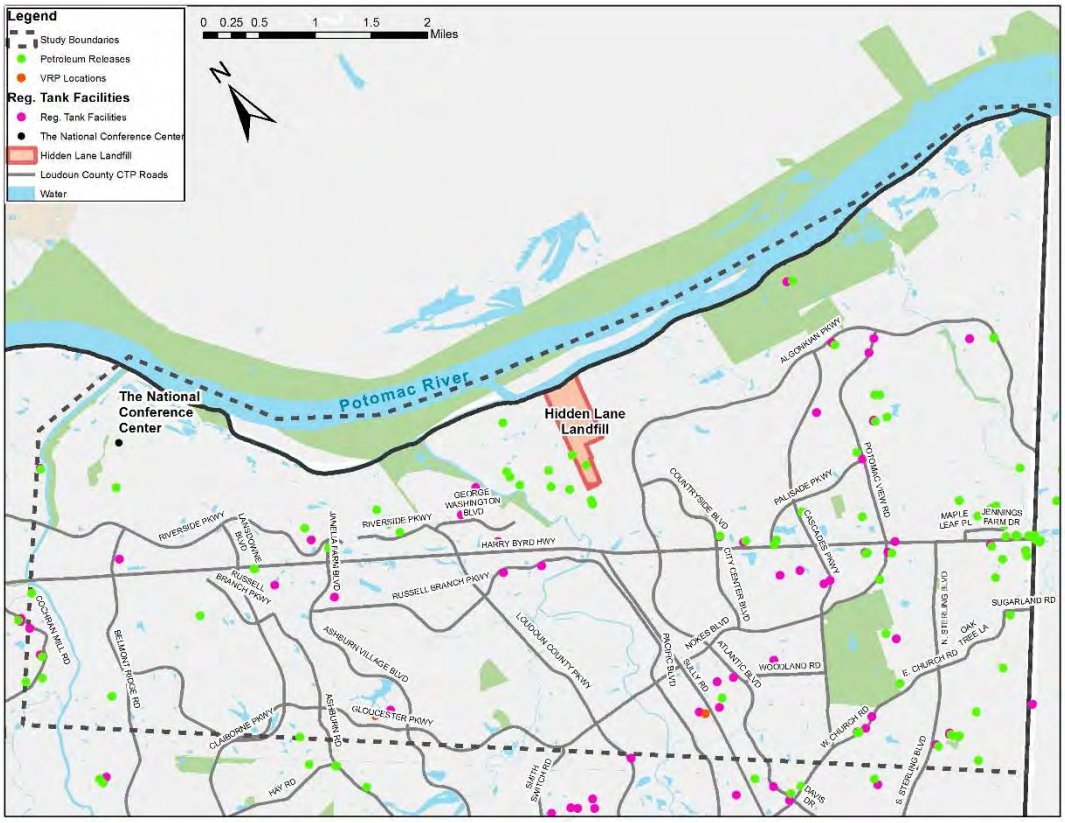


Figure 3-9 – Recognized Environmental Conditions within the Study Area

Information obtained from the Virginia Department of Environmental Quality was utilized to identify RECs within the study area. REC locations based on Virginia Department of Environmental Quality information as well as the Hidden Lane Landfill are reflected in Figure 3-9.

For purposes of this analysis, REC impacts associated with each corridor are evaluated as reflected in Figure 3-10.

Figure 3-10 – REC Impact Evaluation Methodology

3.2.5. Public Facilities Impacts

Public facilities are defined as community or regional facilities other than parks that serve the public. Examples of public facilities include hospitals, fire stations, police stations, public recreation centers, libraries, public senior centers and public elementary, middle and high schools. Impacts to these facilities may result in signficant mitigation measures including complete relocation of the facility. A public facility is considered an impacted facility if any portion of the property on which the facility is located falls within a potential corridor.

Loudoun County Geographic Information System (GIS) was utilized to identify public facilities within the study area. Table 6 provides a summary of all public facilities located within the study area. Locations of public facilities based on Loudoun County GIS mapping are reflected in Figure 3-12.

Table 6 – Public Facilities within Study Area

Facility	Address
Police Stations	
University Station	45299 Research Place, Suite 100
Fire/Rescue Stations	
Lansdowne Public Safety Center, Company 22	19485 Sandridge Way
Cascades Public Safety Station 18 & 25	46700 Middlefield Drive
Hospitals	
Inova Loudoun Hospital	44045 Riverside Parkway
Libraries	
Cascades Library	20130 Whitfield Place
Senior Centers	
Loudoun Senior Center at Cascades	21060 Whitfield Place
Eastern Loudoun Adult Day Center	45140 Riverside Parkway
Colleges/Universities	
Northern Virginia Community College	44160 Scholar Plaza #100
George Washington University	44983 Knoll Square
Shenandoah University	21200 Campus Drive
High Schools	
Riverside High School	19019 Upper Belmont Place
Potomac Falls High School	46400 Algonkian Parkway
Dominion High School	21326 Augusta Drive
Middle Schools	
Seneca Ridge Middle School	98 Seneca Ridge Drive
River Bend Middle School	46240 Algonkian Parkway
Belmont Ridge Middle School	19045 Upper Belmont Place
Elementary Schools	
Seldens Landing Elementary School	43345 Coton Commons Drive
Countryside Elementary School	20624 Countryside Boulevard
Algonkian Elementary School	20196 Carter Court

Potowmack Elementary School	46465 Esterbrook Circle
Horizon Elementary School	46665 Broadmore Drive
Sugarland Elementary School	65 Sugarland Run Drive
Meadowland Elementary School	729 Sugarland Run Drive
Lowes Island Elementary School	20755 Whitewater Drive

For purposes of this analysis, public facility impacts associated with each corridor are evaluated as reflected in Figure 3-12.

More than 2 public facilities impacted

1-2 public facilities impacted

No public facilities impacted

Figure 3-11 – Public Facility Impact Criteria

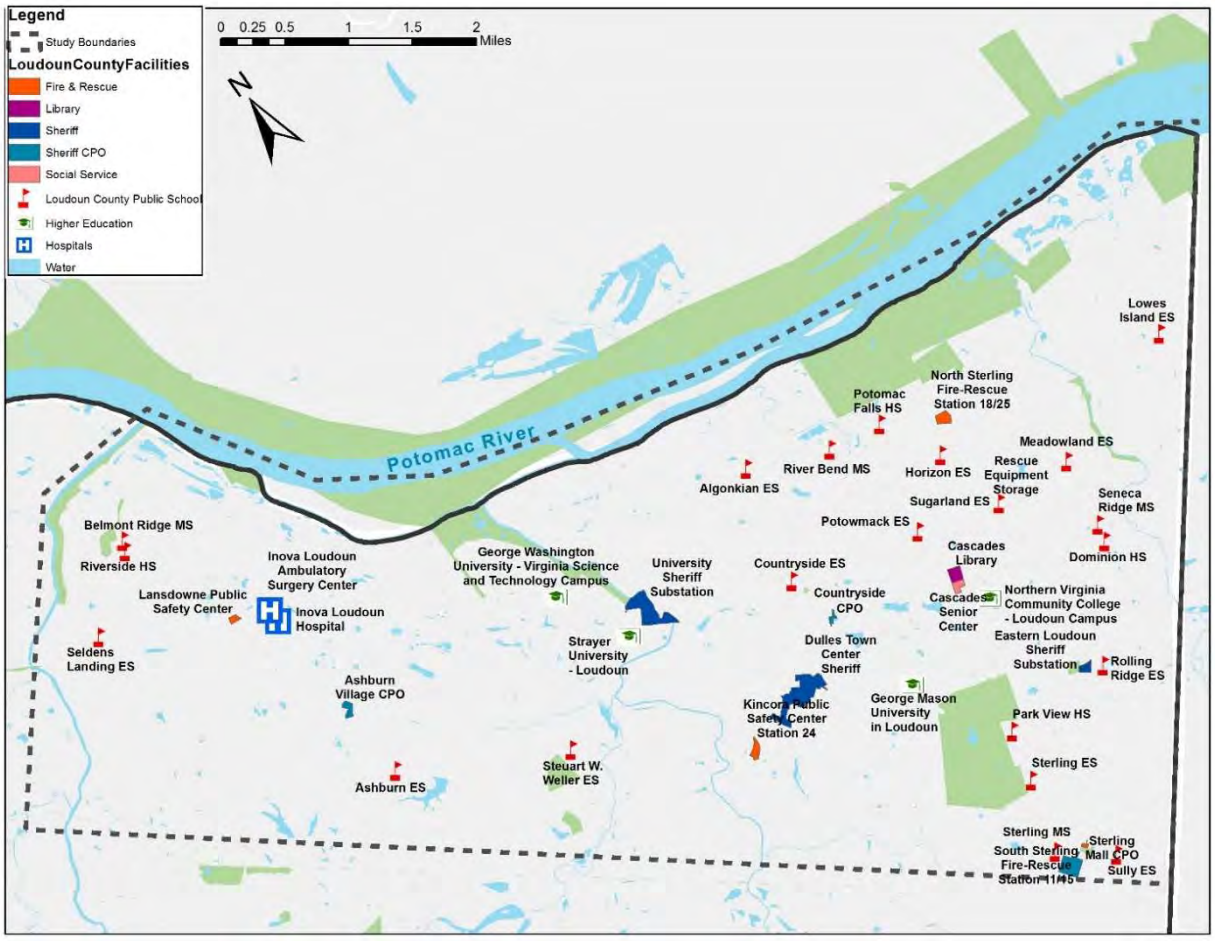


Figure 3-12 – Public Facilities Location Map

3.2.6. Impacts to Existing Transportation Infrastructure

For the purposes of this study, existing transportation infrastructure is defined as the network of significant roadways that make up the backbone of the County's transportation system. This infrastructure is the result of extensive planning efforts and financial investment over the past twenty years. Significant roadways are identified in the Loudoun County "Revised 2030 Countywide Transportation Plan" (CTP). The CTP reflects two distinct areas of CTP roadways in the study area divided by Broad Run.

East of Broad Run, CTP roadways consist of Algonkian Parkway, Cascades Parkway, Potomac View Road, Palisade Parkway, Countryside Boulevard and Augusta Drive. Algonkian Parkway is identified as an urban, 4-lane divided roadway and connects to Route 7 in two locations. The first location is in Fairfax County at the tereminus of the Fairfax County Parkway. The second location is at the interchange of Route 7 and Atlantic Boulevard. Between its two tie-in points with Route 7, Algonkian Parkway arcs through the communities of Lowes Island, Cascades and Countryside.

Cascades Parkway is identified as an urban, 4-lane divided roadway and runs in a north-south direction tying to Route 7 via an interchange and terminating at its intersection with Algonkian Parkway near the mid-point of Algonkian Parkway.

Potomac View Road is identified as a rural, 4-lane divided roadway and is located to the east of Cascades Parkway. Potomac View Road runs generally parallel with Cascades Parkway connecting to both Route 7 and Algonkian Parkway at intersections.

Palisade Parkway is identified as and urban, 4-lane divided roadway and begins at its intersection with Route 7 to the west of the Route 7/Cascades Parkway interchange. Palisade Parkway runs northeast from its intersection with Route 7, crosses Cascades Parkway at an at-grade intersection and terminates at Potomac View Road near its midpoint.

Countryside Boulevard is identified as an urban, 4-lane divided roadway and begins at its intersection with Rout 7 west of the Palisade Parkway/Route 7 intersection. Countryside Boulevard then runs northwest to its terminal at an at-grade intersection with Algonkian Parkway.

Only a small portion (approximately 200 feet) of Augusta Drive between Route 7 and Maple Leaf Place is included in the CTP. Augusta Drive provides access from Route 7 to residential areas within the study area. Figure 3-1 reflects the CTP roadways east of Broad Run.

West of Broad Run, CTP roadways consist of Riverside Parkway, George Washington Boulevard, Loudoun County Parkway, Ashburn Village Boulevard, Lansdowne Boulevard and Belmont Ridge Road. Riverside Parkway serves as a parallel collector road to Route 7 and identified as an urban, 4-lane divided roadway. Riverside Parkway begins west of Broad Run at George Washington Parkway and runs west through the study area. As Riverside Parkway crosses the western boundary of the study area (Goose Creek), it continues westward towards the Town of Leesburg. George Washington Boulevard is identified as an urban, 4-lane divided roadway and will cross

Route 7 west of Broad Run via a bridge connecting the eastern terminal of Riverside Parkway to Russell Branch Parkway, the southern parallel collector parallel to Route 7. Loudoun County Parkway, Ashburn Village Boulevard, Lansdowne Boulevard and Belmont Ridge Road are all significant north-south roadways in Loudoun County. All four roadways are identified as urban, 4-lane divided roadways and tie to Route 7 via interchanges before continuing north and terminating at Riverside Parkway.

Impacts to these facilities may be the result of induced demand or necessary capacity improvements related to the facility. For purposes of this analysis, existing transportation infrastructure impacts associated with each corridor are evaluated as reflected in 3-13.

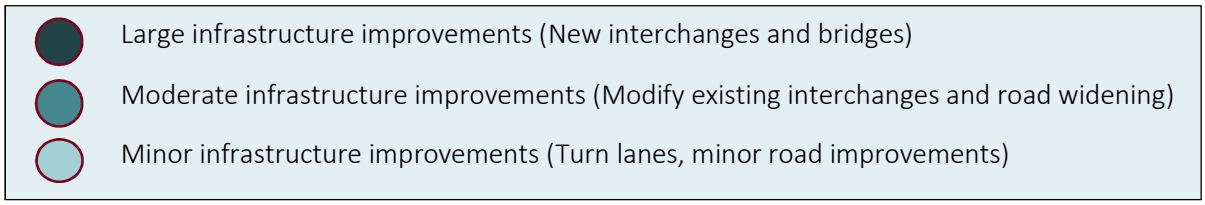


Figure 3-13 – Infrastructure Improvement Evaluation Methodology

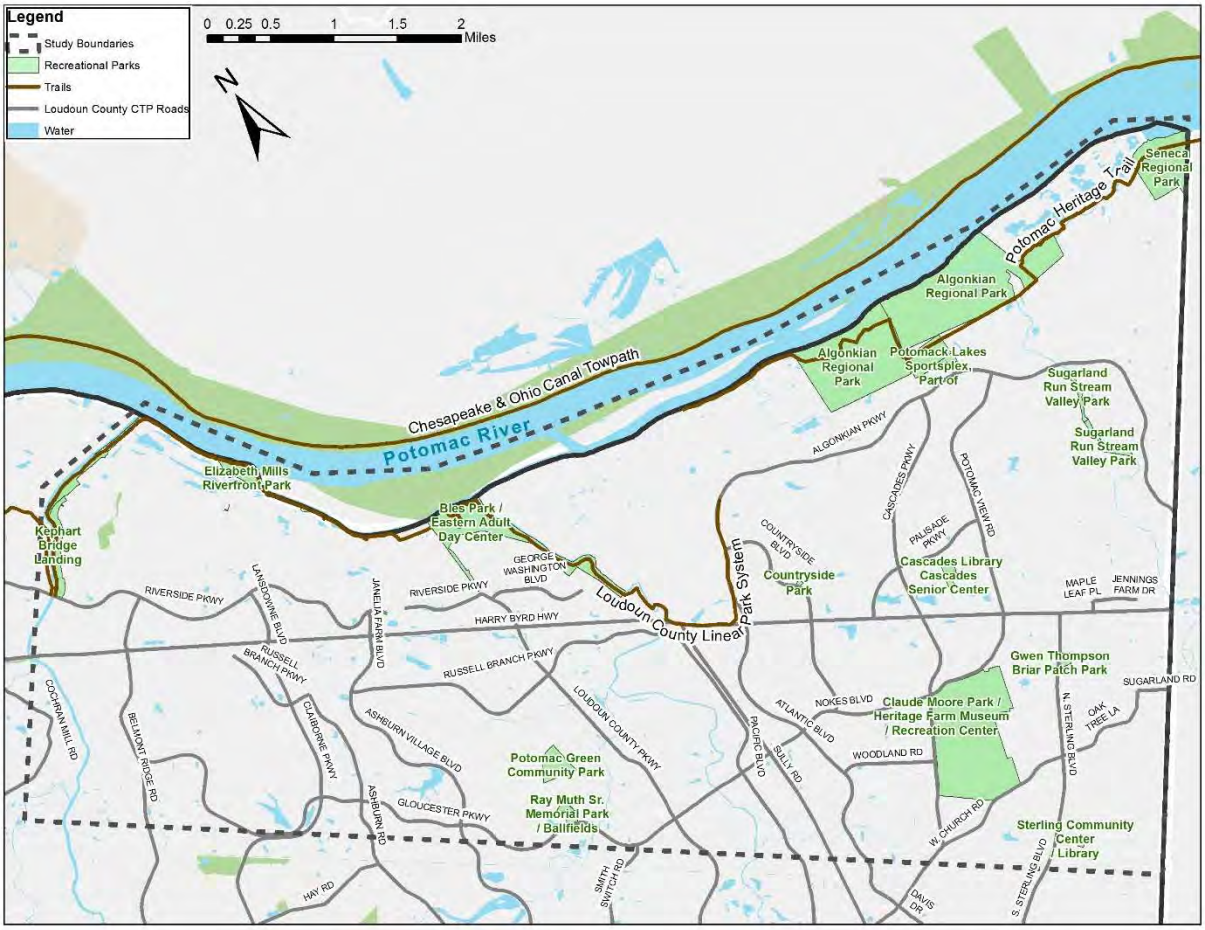
3.2.7. Park/Wildlife Refuge Impacts

Parks and Wildlife Refuges are defined as Federal, State, and Local recreational facilities that serve the public, and is the system of public lands and waters set aside to conserve America's fish, wildlife and plants respectively. Examples of park facilities include regional parks, battlefields, local parks. Table 7 lists the parks located within the study area for the project along with the location within the County.

Table 7 – Parks within the Study Area

Park Name	Location
Elizabeth Mills Waterfront Park	43513 Squirrel Ridge Pl, Leesburg, VA 20176
Bles Park	44830 Bles Park Drive, Ashburn, VA 20147
Loudoun County Linear Park System	Regionally along Streams and Roadways
Potomac Lakes Sportsplex	20280 Cascades Pkwy, Sterling, VA 20165
Algonkian Regional Park	47001 Fairway Dr, Sterling, VA 20165
Sugarland Run Stream Valley Park	Algonkian Parkway, Sterling VA 20165
Potomac Heritage Trail	National Scenic Park Along the Potomac River

Figure 3-14 – Existing Parks within the Project Area



Elizabeth Mills Waterfront Park is a Loudoun County owned park and consists of over one hundred acres of passive parkland with access to the Potomac River and Goose Creek. The Elizabeth Mills canal lock system and a portion of the Potomac Heritage National Scenic Trail is located within the limits of the park.

Bles Park is a Loudoun County owned park, consists of approximately 124 acres of land and is bordered by Broad Run to the east and the Potomac River to the north. The park features three full-size rectangular sports fields with associated parking and restrooms. The park also contains passive recreation area and a portion of the Potomac Heritage National Scenic Trail.

Potomack Lakes Sportsplex is owned by Loudoun County and consists of approximately 40 acres of active-use parkland. The park consists of four baseball/softball fields and six full-size rectangular sports fields with associated parking and restrooms. In addition, the park features playgrounds, picnic pavilions and an ADA accessible multipurpose trail.

Algonkian Regional Park is owned by the NOVA Parks and consists of approximately 838 acres of land. The park features an 18-hole golf course, a water park, picnic pavilions, vacation cottages, paved and natural surface hiking trails and a boat launch on the Potomac River.

Sugarland Run Stream Valley Park is owned by Loudoun County and consists of approximately 18 acres of land. The park is a passive park and consists of land contained within the floodplain of Sugarland Run.

The Potomac Heritage National Scenic Trail consists of approximately 830 miles of existing and planned trails managed by various agencies and organizations. Within Loudoun County, the Potomac Heritage National Scenic Trail. generally, parallels the Potomac River on its southern bank and is located both within public park land and in easements on privately owned property.

For purposes of this analysis, Park/Wildlife impacts associated with each corridor are evaluated as reflected in Figure 3-15

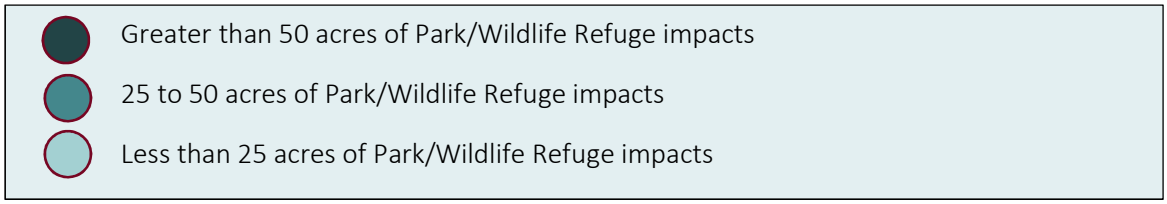


Figure 3-15 – Park & Wildlife Refuge Impacts Methodology

3.2.8. Historic Resource Impacts

For purposes of this analysis, historic resources are defined as areas or specific locations as indicated by the Virginia Department of Historic Resources (DHR). Examples of historic resources within the study area range from Balls Bluff Battlefield Historic District and Belmont Manor to the Fisher Site. The Fisher site is the site of a native american village located in the the Broad Run Farms community along the Potomac River just southeast of Selden Island. The Fisher site is a native american The DHR database notes that the Fisher site is contains “numerous pit features, post molds, and one burial suggests that this village served both residential functions, ceremonial functions, and with the establishment of a possible palisade fence, a defensive function.” The Fisher Site is one of many archealogical sites related to native american culture that are found along and within the floodplain of the Potomac River. While the review of historic resource impacts was limited to within the study area, research indicates that native american sites are also located on Selden Island as well.

Impacts to historic resource sites may result in signficant mitigation measures including complete relocation of facilities and artificacts. For purposes of this analysis, historic resource impacts associated with each corridor are evaluated as reflected in Figures 3-16 and 3-17.

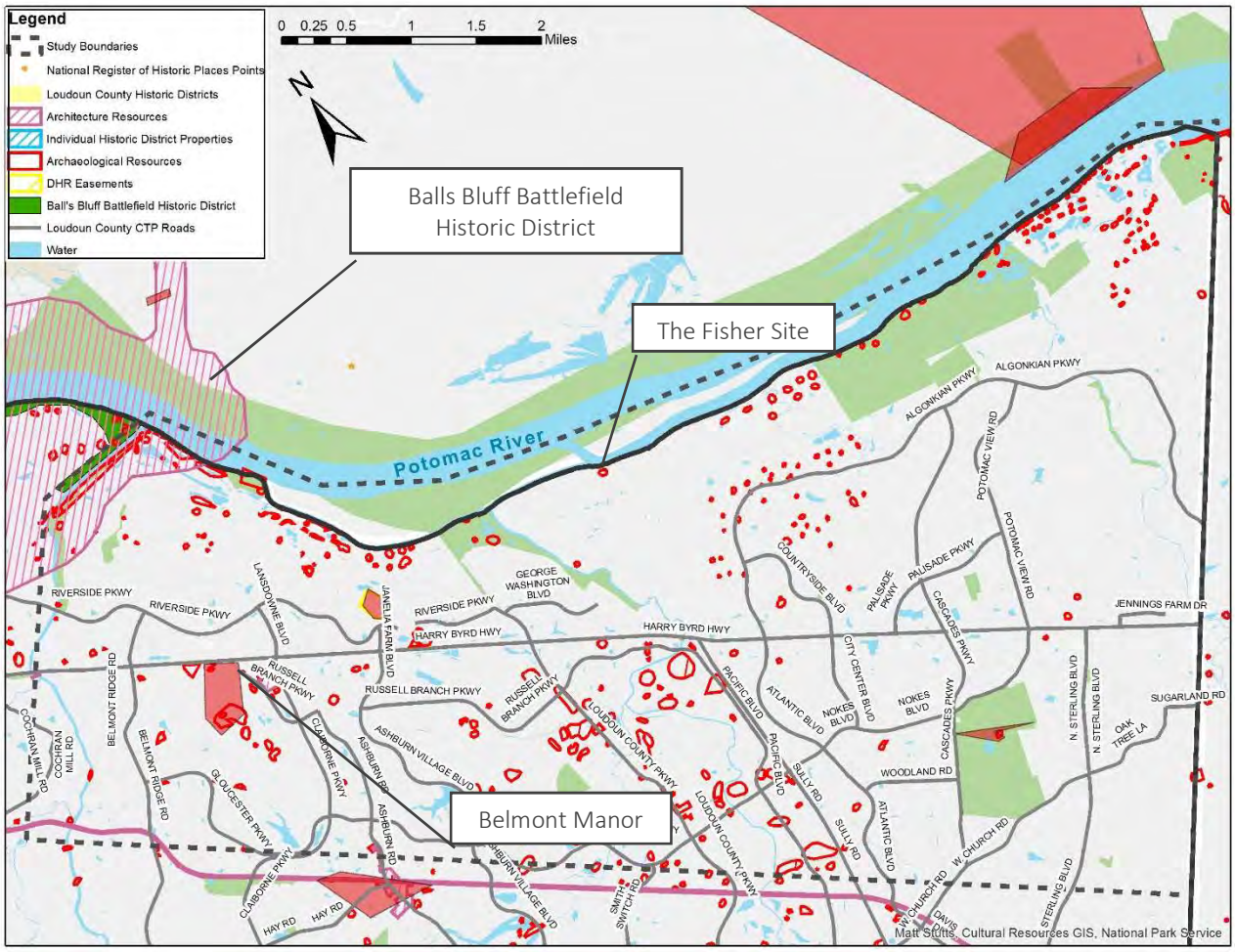


Figure 3-16 – Map of the Historic Resources within the Project Area

- More than 8 Significant Historic Resource Impacts
- 4 to 7 Historic Resource Impacts
- Less than 4 Historic Resource Impacts

Figure 3-17 – Historic Resource Impacts

3.2.9. Significant Utility Impacts

For purposes of this analysis, utility impacts are defined as major utilities such as electric, fiber, waterline, storm sewer, and sanitary sewer that exists within the potential corridor. Impacts to these facilities may require significant financial investments and complete mitigation and relocation of the utility. A utility is considered impacted if any portion of the utility is located

within a potential corridor. The two major utlities located within the project area are the Potomac Interceptor sanitary sewer mainline and the water intake along the Potomac River near the Algonkian Regional Park. For the purposes of this study Figure 3-18 outlines the impact criteria for significant utility impacts.

- Large Utility Impacts/ Significant Relocation and Removal Efforts
- Moderate Utility Impacts/ Relocation of existing Major Utilities
- No Significant Utility Impacts

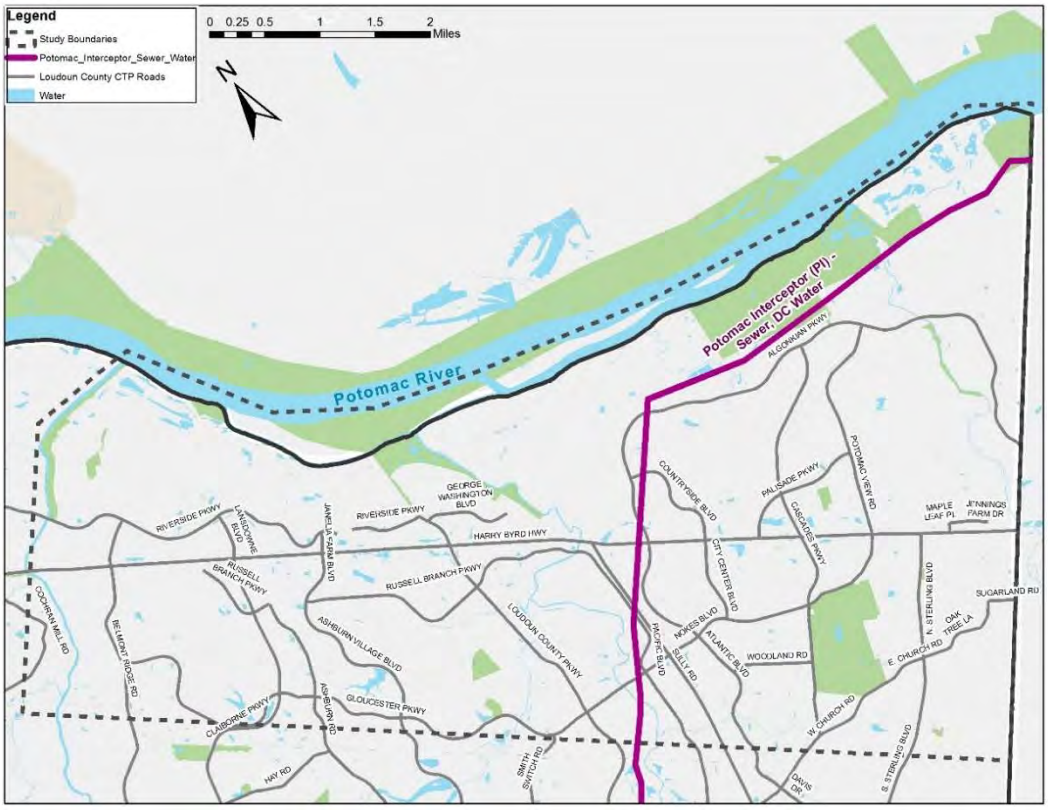


Figure 3-18– Significant Utility Impacts and Significant Utility Map

3.2.10. Community Impacts

For purposes of this analysis, communities are defined as a unified group of residential homeowners, and HOAs with common interests living in a particular area. A community is considered an impacted community if any portion of the community is located within a potential corridor. Community impacts were evaluated by the type of existing roadway facility and the anticipated effect of a new bridge crossing on the communities impacted. Table 8 below lists the communities located within the study area.

Table 8 – Communities located within the Study Area

Community Name	Community Name Cont....
Lowes Island	University Center
Sugarland Run	Ashburn
Sterling	Lansdowne
Cascades	Belmont
Countryside	Potomac Farms
Dulles Town Center	Broad Run Farms
Ashburn Village	One Loudoun

For the purposes of this study Figure 3-19 outlines the impact criteria for community impacts.

- Significant Community Impacts (Corridor Traveling along Collector and Local Roads)
- Minimal Community Impacts (Corridor Traveling along the outside of the Community)
- No Community Impacts (Corridor avoids the Communities altogether)

Figure 3-19 – Community Impacts

3.2.11. Regional Connectivity

For the purposes of this analysis, regional connectivity is defined as the potential corridor's ability to connect to major roadways which have the ability to move traffic regionally through the transportation network in Northern Virginia. Regionally significant roads in the study area consist of the Fairfax County Parkway, Route 28, the Loudoun County Parkway and Belmont Ridge Road.

The Farifax County Parkway is a north-south, 4-lane divided highway connecting Route 7 to Intersetate 95 in Fairfax County. Fairfax County Parkway crosses Interstate 66 at Fair Lakes and is a major commuter route in Fairfax County.

Route 28 connects Route 7 in Loudoun County to Route 29 in Fauquier County. With proposed improvements including the wideing of Route 28 in Fairfax County and the construction of a Route 28 bypass in Manassas, Route 28 has the potential to connect traffic from Interstate 95 via Route 234 to Interstate 66 noth of Manassas.

The Loudoun County Parkway connects Route 50 in southern Loudoun County to Route 7. The Loudoun County Parkway has the potential to be a regionally significant corridor if it were extended south to Manassas via the proposed Tri-County Parkway.

Belmont Ridge Road also connects Route 50 to Route 7 in Loudoun County. Similarly to the Loudoun County Parkway, Belmont Ridge Road has the potential to be a regionally significant

corridor if it were extended south and connected to Route 234 at Interstate 66 via the propsoed Bi-County Parkway..

- No regional Connectivity, significant re-routing required
- Minimal connectivity potential re-routing required
- Regionally connected, existing highway connection

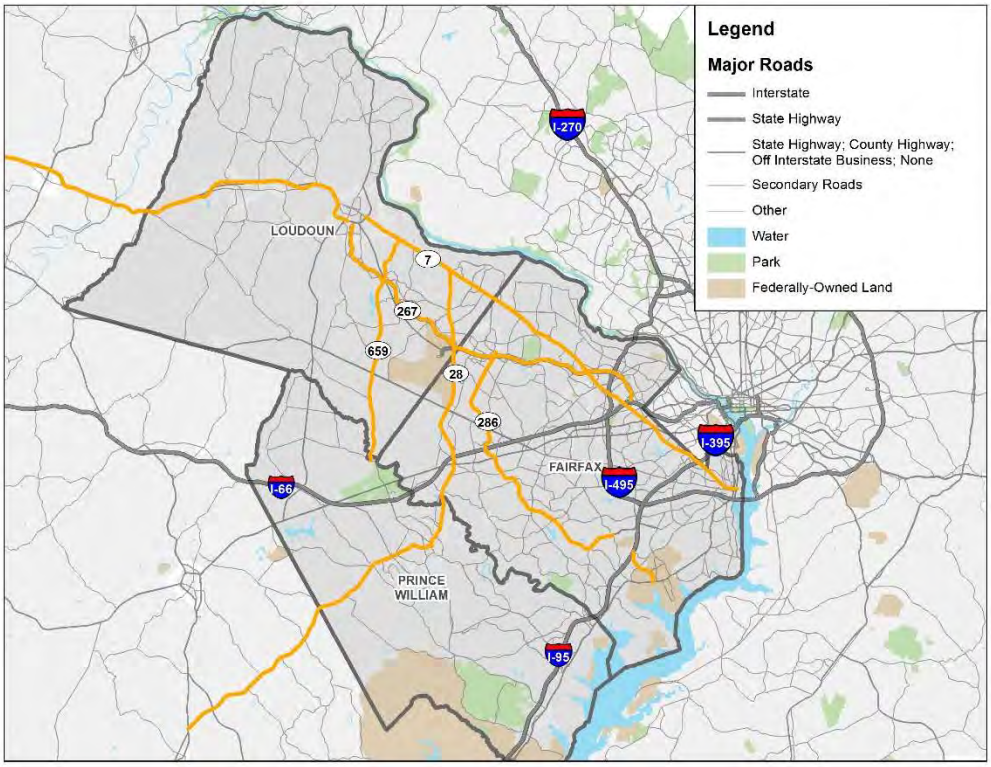


Figure 3-20 – Regional Connectivity Methodology and Map

3.2.12. Commercial Property Impacts

For the purposes of this analysis, economic impacts are defined as impacts to commercial and retail properties and loss of business due to the potential corridor. A commercial property is considered an impacted property if any portion of the property is located within a potential corridor.

Table 9 – Major Commercial Properties within the Study Area

Commercial Properties	Commercial Properties Cont....
Great Falls Plaza	Potomac Run Plaza
University Center Research Park	Cascades Marketplace
One Loudoun	Lakeview Overlook Plaza
Ashbrook Commons Plaza	Janelia Research Campus
Belmont Chase	Inova Hospital Campus
Lansdowne Town Center	

For purposes of this analysis, commercial property impacts resulting from each corridor are evaluated as reflected in Figure 3-3-21.

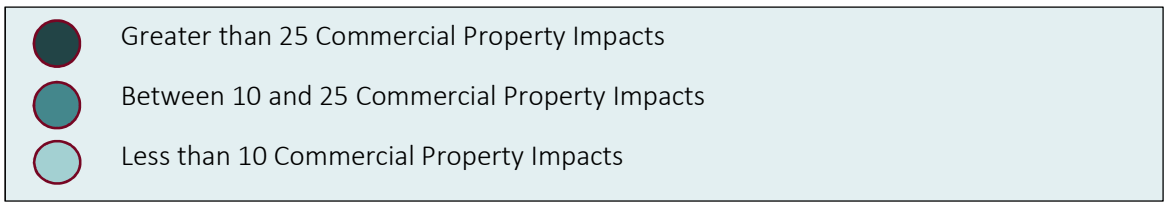


Figure 3-21 – Commercial Property Impacts

4. Potential Corridors

Eight potential corridors, identified as Corridors A through H, were identified utilizing the methodology developed in Section 2 of this report. Each potential corridor was analyzed using the corridor impact criteria developed using ArcGIS 10.5.1 software and site visits to each of the eight potential corridor locations. Figure 3-1 identifies each of the corridors and the 2000' buffer for impact analysis of each corridor.

This information guided the determination of potential corridors by considering routes with the least impact to residences, businesses, and the extent of potential infrastructure improvements for each corridor.

4.1. Potential Crossing Descriptions and Impacts

Potential impacts for each corridor based on the criteria set in Section 2.2 of this report were assessed. The evaluation used ArcGIS software and Loudoun County GIS data to analyze the environmental, historical, and property impacts along the potential corridors. The following sections provide a summary of the analysis performed for each corridor.

4.1.1. Corridor A

The southern terminal point of Corridor A is located at the interchange of the Fairfax County Parkway/Algonkian Parkway and Route 7 in Fairfax County. From the southern terminal point, Corridor A runs north and then northwest following the existing alignment of Algonkian Parkway. Just to the northeast of the intersection of Algnonkian Parkway and Hardwood Forest Drive / River Bank Street, Corridor A turns north along the Sugarland Run stream valley between the residential developments of South Bank, Section 3A and River Crest Section 2 to the east and Potomac Lakes Section 13D to the west. Corridor A continues north through the eastern portion of Algonkian Regional Park and terminates on the southern bank of the Potomac River just east of the mouth of Sugarland Run and Sharpshin Island in the Potomac River.

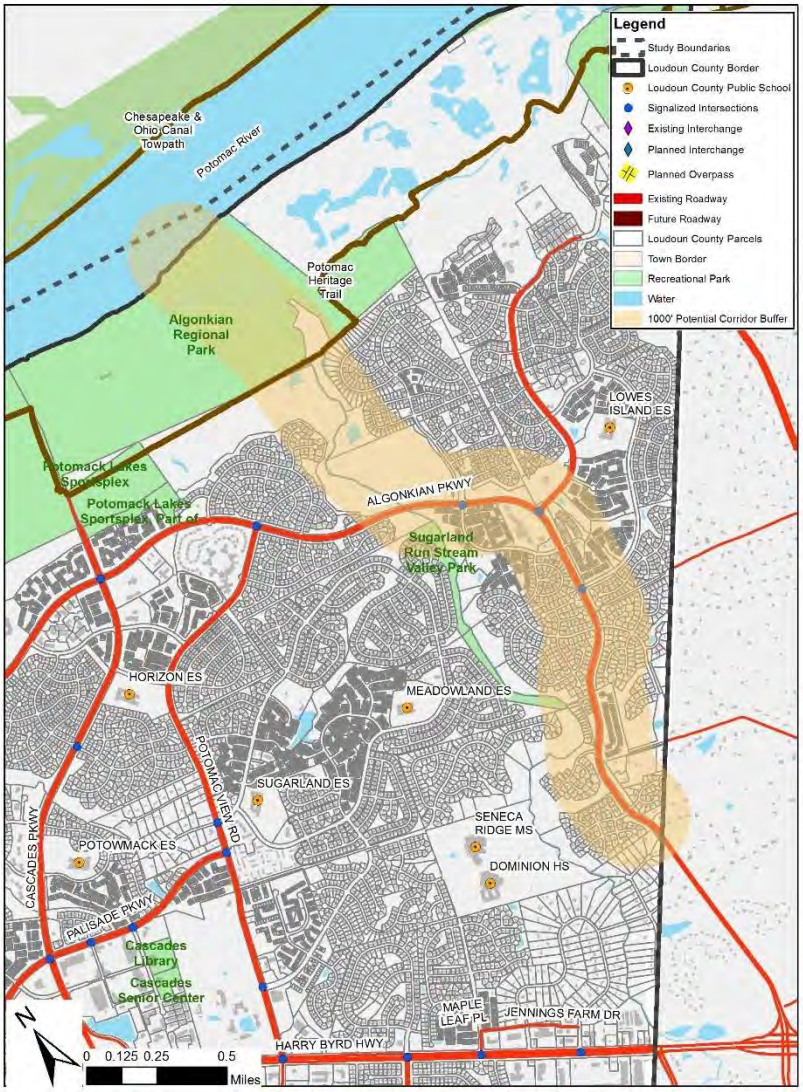


Figure 4-1 – Corridor A Potential Corridor Map

Residential Property Impacts

As reflected in Figure 4-2, Corridor A generally follows the alignment of Algonkian Parkway in eastern Loudoun County and is generally located in an area of intense residential development. Residential properties which fall within the corridor limits include homes in the following subdivisions:

Table 10 – Subdivisions Impacted by Corridor A

Subdivision Name	Subdivision Name Cont....
Great Falls Overlook	Central Parke at Lowes Island
Potomac Hunt	River Banks Woods 1
Seneca Ridge	Lowes Point
Great Falls Forest	Sugarland Run
Cascades	Potomac Lakes
Great Falls Chase	River Crest
South Bank	

Based on an analysis of residential properties using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area as shown in Figure 4-14-2, approximately 1,340 residential properties are located within the limits of Corridor A. Based on this assessment Corridor A is identified as having a larger impact on residential properties.

100 Year Floodplain Impacts

Utilizing FEMA floodplain GIS data and the 2,000-foot-wide corridor area shown in Figure 4-1, areas of potential 100-year floodplain impacts were quantified. Based on analysis, approximately 250 acres of floodplain are located within the limits of this corridor. 100-year impacts are primarily due to the corridor traveling along the Sugarland Run stream valley for approximately 1.2 miles until reaching the Potomac River. Based on this assessment, Corridor A is identified as having a larger impact on 100-year floodplains.

Figure 4-2 – Sugarland Run Traveling North into the Potomac River

Wetland Impacts

The wetland impacts for Corridor A correlate with the floodplain impacts discussed above. The impacts were analyzed using wetland GIS data, information obtained from the Virginia Department of Environmental Quality, and the 2,000-foot-wide corridor area shown in Figure 4-1. This data was utilized to determine the potential wetland impact areas within the corridor. From the analysis, it was found that approximately 100 acres of wetlands are located within the limits of Corridor A. These impacts are primarily due to the corridor traveling along the Sugarland Run stream valley for approximately 1.2 miles until reaching the Potomac River. Based on this assessment, Corridor A is identified as having a larger impact on wetland areas.

Figure 4-3 - Algonkian Parkway Bridge Traveling over Sugarland Run

Recognized Environmental Condition Impacts

Recognized environmental conditions (RECs) within the limits of Corridor A were analyzed using information obtained from the Virginia Department of Environmental Quality. From the analysis, it was found that one recognized environmental condition is located within the limits of Corridor A. The identified REC is the Sunoco Gas Station at the intersection of Algonkian Parkway and Hardwood Forest Drive. Information related to the REC did not indicate that that there are current environmental impacts taking place, only that an environmental condition is present. In this case, notes related to the REC

indicate that the potential for petroleum releases must be continually monitored. Based on this assessment, Corridor A is identified as having a minor impact on REC's.

Figure 4-4 – Sunoco Gas Station

Public Facilities Impacts

No public facilities are located within the limits of Corridor A. While no public facilities are located within the limits of Corridor A, Lowes Island Elementary School is located approximately 1,000 feet from the eastern edge of the corridor. While no direct impacts to the school are anticipated, travel patterns to and from the school would likely be impacted as a result of the corridor. Based on this assessment, Corridor A is identified as having a minor impact on public facilities.

Existing Transportation Infrastructure Impacts

The southern half of Corridor A is generally centered along the alignment of Algonkian Parkway. Algonkian Parkway is an existing 4 lane median divided roadway with turn lanes and signals throughout the corridor. The roadway is posted at 45 mph and functions as a minor arterial per VDOT's roadway functional classification. Algonkian Parkway primarily moves residential and local traffic in and out of the communities which stem from the roadway. Algonkian Parkway benefits from having an existing interchange with Route 7 and Fairfax County Parkway that would require little to no improvement to distribute additional traffic from a potential bridge crossing. Six existing signalized intersections and four unsignalized intersections are located along the portion of Algonkian Parkway on which Corridor A is centered.

The use of Algonkian Parkway to connect to Potomac River bridge would likely require modifications to the ten previously mentioned existing intersections. Modifications could include rerouting of local traffic to allow for the closure of median breaks, installation of urban-type interchanges to replace existing traffic signals and/or reconfiguration of existing intersections to allow for greater through traffic volumes. In addition, a new interchange may be required at the point at which Corridor A leaves the alignment of Algonkian Parkway. Based on this assessment, Corridor A is identified as having a moderate impact on the existing transportation infrastructure.

Figure 4-6 – Algonkian Parkway Northbound Typical Section

Figure 4-5 – Algonkian Parkway Northbound, North of Route 7 with Soundwall

Park/Wildlife Refuge Impacts

Utilizing GIS data and the 2,000-foot-wide corridor of Corridor A, impacts to parks and wildlife refuges were identified. Based on analysis, portions of both Sugarland Run Stream Valley Park and Algonkian Regional Park fall within the limits of Corridor A. In total, approximately 140 acres of parkland fall within the limits of Corridor A. In addition, Corridor A would cross the Potomac Heritage Trail which travels across the corridor near the Potomac River. Based on this assessment, Corridor A is identified as having a larger impact on parks and wildlife refuges.

Historic Resource Impacts

Based on analysis from the Virginia Cultural Resource Information System database, four historic resource locations were identified as falling within the limits of Corridor A. The four impacted sites are located adjacent to the Potomac River and were identified as historic archeological resource locations. Based on this assessment, Corridor A is identified as having a minor impact on historic resources.

Significant Utility Impacts

Based on a review of GIS information and field visits, two significant utilities were identified within the limits of Corridor A. The existing Potomac River Interceptor sanitary sewer crosses Corridor A near it northern terminus at the proposed bridge crossing. Additional research and investigation would be required to ensure minimal impacts to this facility. In addition, the Potomac River raw water intake pipe is located parallel to Algonkian Parkway. This facility is a primary source of drinking water for a large portion of Fairfax County. Additional research and investigation would be required to ensure minimal

impacts to this facility as well. Based on this assessment, Corridor A is identified as having a moderate impact to significant utilities.

Community Impacts

Corridor A impacts several communities along Algonkian Parkway including the Cascades, Sugarland Run, and Lowes Island communities. The impacts to the communities would primarily be due to the change in traffic patterns and volume traveling along the roadway, which currently acts as a minor arterial moving local and residential traffic with no regional connectivity. The potential corridor would change the dynamic of the roadway and result in a new volume of regional traffic traveling through the communities and changing the aesthetics of the area. As a result of this assessment, Corridor A is identified as having a larger impact to surrounding communities.

Regional Connectivity

Utilizing regional Northern Virginia mapping, the regional connectivity of Corridor A was assessed. As previously mentioned, the southern portion of Corridor A is centered on Algonkian Parkway. At its interchange with Route 7, Algonkian Parkway becomes the Fairfax County Parkway. The Fairfax County Parkway serves as a major north-south corridor reaching major roadways and regional routes such as U.S. Route 50, Interstate 66, the Dulles Toll Road and Interstate 95. Corridor A allows for traffic utilizing the new potential river crossing to easily disperse through the existing transportation network to reach major commuter hubs and destinations. As a result of this assessment, Corridor A is identified as having good regional connectivity.

Commercial Property Impacts

Based on an analysis of commercial properties using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area as shown in Figure 4-1, one significant commercial property is located within the limits of Corridor A. The property is a shopping center known as Great Falls Plaza at the intersection of Algonkian Parkway and Lowes Island Boulevard. As no additional commercial properties are located within the limits of Corridor A, the corridor is identified as having a minor impact to commercial properties.

Figure 4-7 – Great Falls Plaza

4.1.2. Corridor B

The southern terminal point of Corridor B is located at the interchange of Cascades Parkway and Route 7. From the southern terminal point, Corridor B runs north and northeast following the existing alignment of Cascades Parkway to its intersection with Algonkian Parkway. From Algonkian Parkway, Corridor B continues north following Cascades Parkway to the west of Potomack Lakes Sportsplex and into the Algonkian Regional Park. Upon entering Algonkian Regional Park, Corridor B continues north along the alignment of the Potomac Heritage Trail through the public golf course and the public boat launch ramp. Corridor B terminates on the southern bank of the Potomac River near the Algonkian Regional Park public boat launch ramp between Tenfoot Island and Sharpshin Island in the Potomac River.

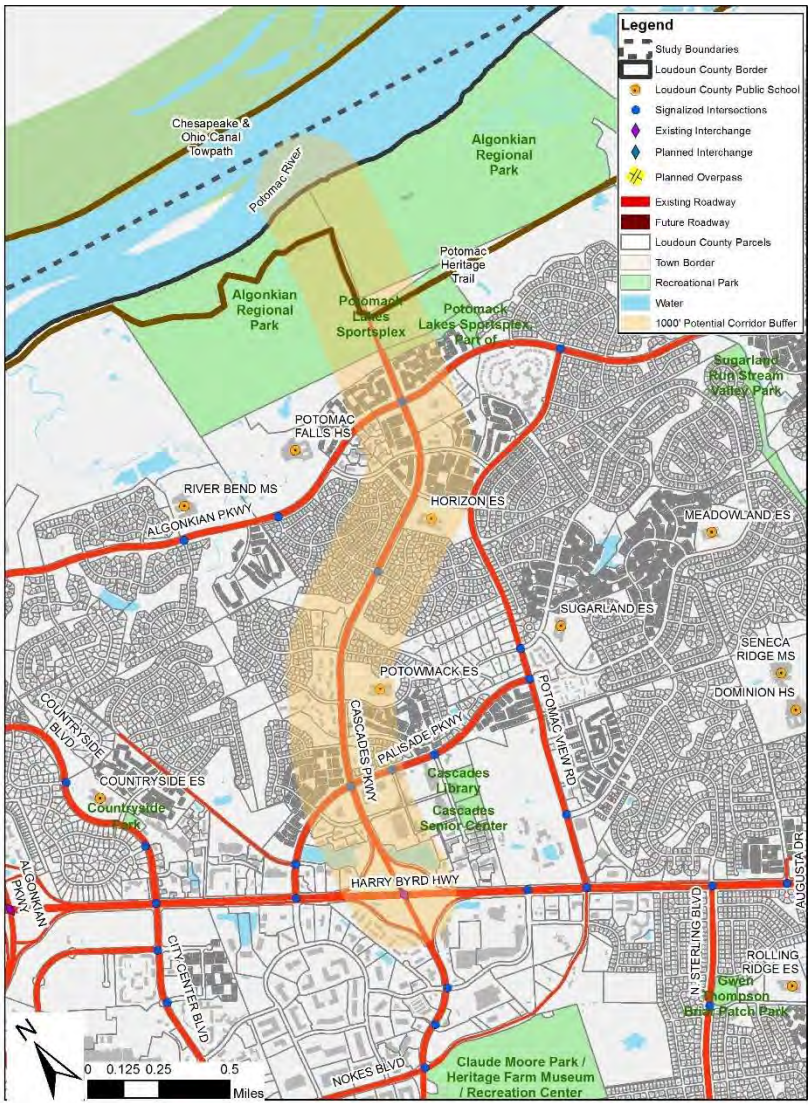


Figure 4-8 – Corridor B Potential Corridor Map

Residential Property Impacts

As reflected in Figure 21, Corridor B generally follows the alignment of Cascades Parkway in eastern Loudoun County and is generally located in an area of intense residential development. Residential properties which fall within the corridor limits include homes in the following subdivisions:

Table 11 – Subdivisions Impacted by Corridor B

Subdivision Name	Subdivision Name Cont....
Potomac Lakes	Overlook at Cascades
Riverbend at Cascades	Potomac Terrace

Based on an analysis of residential properties using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area as shown in Figure 4-1, approximately 1,550 residential properties are located within the limits of Corridor B. Residential properties within the corridor consist of single family detached, single-family attached and multi-family homes. Based on this assessment Corridor B is identified as having a larger impact on residential properties.

100 Year Floodplain Impacts

Utilizing FEMA floodplain GIS data and the 2,000-foot-wide corridor area shown in Figure 21, areas of potential 100-year floodplain impacts were quantified. Based on analysis, approximately 120 acres of floodplain are located within the limits of the corridor. The floodplain within the corridor is primarily associated with a tributary to Horsepen Run and Sugarland Run. Based on this assessment, Corridor B is identified as having a larger impact on 100-year floodplains.

Figure 4-9 – Algonkian Regional Park Boat Landing

Wetland Impacts

The wetland impacts for Corridor B correlate to the floodplain impacts described in the preceding section. Wetland analysis was performed using the FEMA Wetland GIS data and the 2,000-foot corridor area to determine the wetland impact area. From the analysis, approximately 60 acres of wetlands are located within the corridor limits. A significant portion of impacted wetlands are associated with Horsepen Run,

Sugarland Run, and associated tributaries. Based on this assessment, Corridor B is identified as having a moderate impact on wetlands.

Recognized Environmental Condition Impacts

Recognized environmental conditions (RECs) within the limits of Corridor B were analyzed using information obtained from the Virginia Department of Environmental Quality. From the analysis, it was found that four recognized environmental conditions are located within the limits of Corridor B. The RECs are identified as the Virginia Tire & Auto of Cascades near the intersection of Cascades Parkway and Algonkian Parkway, the Seven-Eleven gas station near the intersection of Cascades Parkway and Algonkian Parkway, the Algonkian Park regional boat storage and ramp facility, and the Cascades Marketplace. Information related to the RECs did not indicate that that there are current environmental impacts taking place, only that an environmental condition is present. In this case, notes related to the RECs indicate that the potential for petroleum releases must be continually monitored. Based on this assessment, Corridor B is identified as having a larger impact on RECs.

Figure 4-11 – Virginia Tire & Auto

Figure 4-10 – Shell Station

Public Facilities Impacts

Based on analysis of Loudoun County GIS data and the limits of Corridor B as reflected in Figure 21, four public facilities were identified as falling within the limits of Corridor B. The public facilities within the Corridor B limits are the Potowmack Elementary School, the Horizon Elementary School, the Cascades Public Safety Station, and the Potomac Falls Postal Service Office. The proximity of both Potowmack Elementary School and Horizon Elementary School to the corridor would likely result in significant impacts

to travel patterns to and from the schools. Based on the assessment above, Corridor B is identified as having a larger impact on public facilities.

Figure 4-12 – Potowmack Elementary School

Existing Transportation Infrastructure Impacts

Corridor B generally follows the alignment of Cascades Parkway between Route 7 and Algonkian Parkway. Cascades Parkway is an existing 4 lane median divided roadway with turn lanes and signals along the

Figure 4-13 – Cascades Parkway looking

Figure 4-14 – Cascades Parkway Typical Section

corridor. Significant intersection improvements/interchanges would likely be required to allow Cascades Parkway to serve as a river crossing route. The roadway currently serves residential communities and schools. The roadway would require intersection improvements as well as median and turn lane closures to operate with the potential bridge crossing. While Cascades Parkway benefits from having an existing interchange with Route 7, the interchange would likely require upgrades to distribute additional traffic from the crossing onto Route 7. Based on the assessment, Corridor B is identified as having a larger impact on the existing transportation infrastructure.

Park/Wildlife Refuge Impacts

Utilizing GIS data and the 2,000-foot-wide corridor of Corridor B, impacts to parks and wildlife refuges were identified. Based on analysis, portions of both Algonkian Regional Park and the Potomac Lakes Sportsplex fall within the limits of Corridor B. In total, approximately 150 acres of parkland fall within the limits of Corridor B. Corridor B bisects Algonkian Regional Park and would directly impact the golf course and boat launch facilities contained within the park. In addition, Corridor B would cross the Potomac Heritage Trail which crosses the corridor near the Potomac River. Based on this assessment, Corridor B is identified as having a larger impact on parks and wildlife refuges.

Figure 4-15 – Algonkian Regional Park Potomac Heritage Trail along Fairway Dr.

Figure 4-16 – Potomack Lakes Sportsplex

Historic Resource Impacts

Based on analysis from the Virginia Cultural Resource Information System database, two historic resource locations were identified within the limits of Corridor B. The two sites are located adjacent to the Potomac River and were identified as historic archeological resource locations by the database. Based on information above, Corridor B is identified as having a minor impact on historic resources.

Significant Utility Impacts

Based on a review of GIS information and field visits, one significant utility was identified within the limits of Corridor B. Corridor B crosses over the existing Potomac River Interceptor sanitary sewer main near the Potomac River. While significant impacts due to the potential crossing are not anticipated, research and investigation must be considered to ensure impacts to the sewer are avoided. Based on this assessment, Corridor B is identified as having a moderate impact on significant utilities.

Community Impacts

Corridor B has several large residential communities within the corridor including the Sugarland Run, Dulles Town Center, Countryside and Cascades communities. The communities would be impacted by the potential corridor primarily due to the change in traffic patterns and volume traveling along the roadway. Currently the roadway operates as a minor arterial primarily moving residential traffic in and out of the communities with no regional movement. It is expected that the corridor would change the dynamic of

the community with an increase in traffic and travel patterns through the communities and changing the aesthetic feel of the area. Based on the assessment, Corridor B is identified as having a larger impact on community impacts.

Regional Connectivity

Utilizing regional Northern Virginia mapping, the regional connectivity of Corridor B was assessed. As previously mentioned, Corridor B is generally centered on Cascades Boulevard north of Route 7. South of Route 7, Cascades Boulevard serves multiple commercial properties and terminates at Church Road. Cascades Boulevard does not offer regional connectivity to points south of the corridor. As such, regional traffic travelling over a Potomac River bridge on Corridor B would be obligated to utilize Route 7 to connect to major north-south regional roadways such as the Fairfax County Parkway or Route 28.

In the vicinity of Cascades Parkway, Route 7 is a major east-west commuter route. Multiple traffic signals are located along this stretch of Route 7 providing access to significant commercial development. Given the lack of direct connection to regionally significant north-south roadways, Corridor B is identified as having poor regional connectivity.

Commercial Property Impacts

Based on an analysis of commercial properties using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area as shown in Figure 21, one significant commercial property is located within the limits

Figure 4-17 – Cascades Marketplace

of Corridor B. The property is a shopping center identified as Cascades Marketplace at the intersection of Cascades Parkway and Palisade Parkway. Cascades Marketplace is a regionally significant shopping center containing multiple “big box” retailers. Based on this assessment, Corridor B is identified as having one commercial property impact but this commercial property serves an entire community and impacting this will have significant community impacts.

4.1.3. Corridor C

The southern terminal point of Corridor C is located at the interchange of Atlantic Boulevard / Algonkian Parkway and Route 7. From the southern terminal point, Corridor C runs north following the existing alignment of Algonkian Parkway to the intersection of Algonkian Parkway and Askegrens Lane. From the intersection, Corridor C follows the general alignment of Askegrens Lane between the residential developments of Countryside Section T6B to the east and Countryside Section 3 to the west. Corridor C continues north beyond the northern terminal point of Askegrens Lane along the east side of the existing Hidden Lane landfill. Alignment C terminates on the southern bank of the Potomac River near the center of Van Deventer Island in the Potomac River.

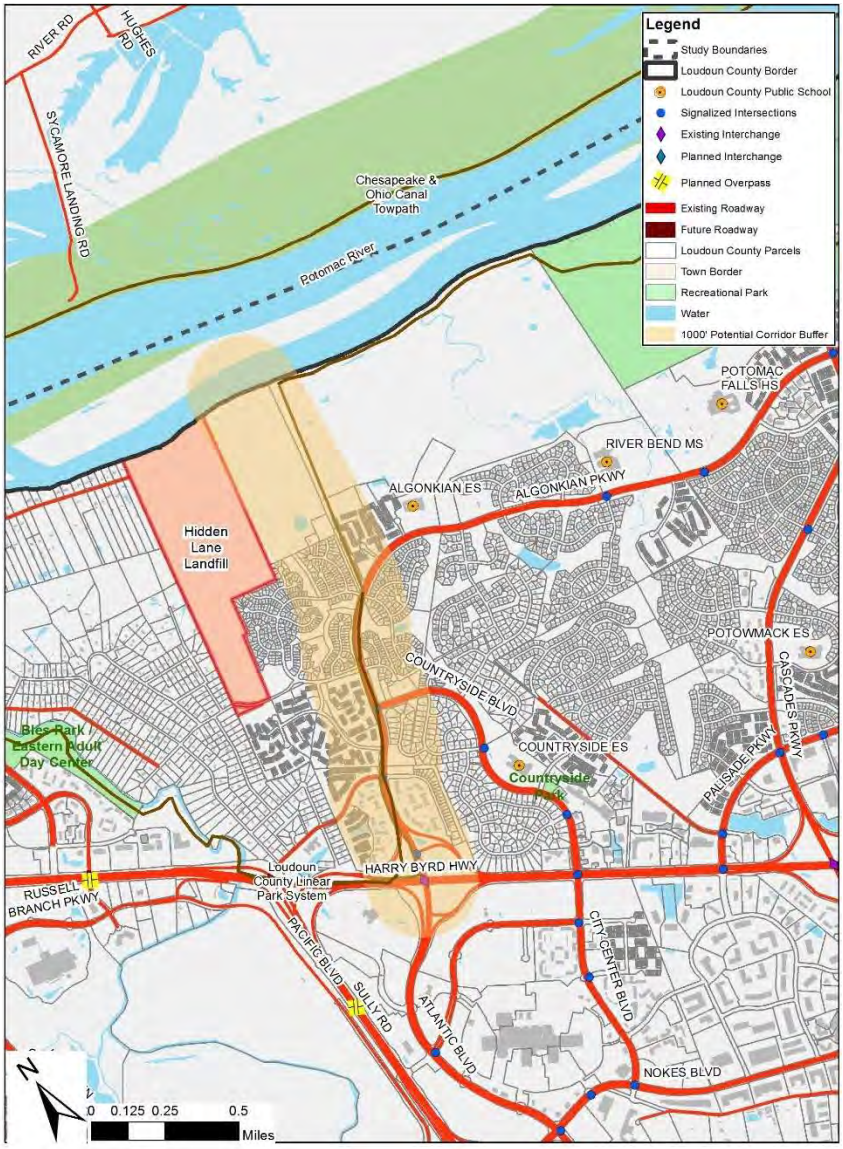


Figure 4-18 – Corridor C Potential Corridor Map

Residential Property Impacts

As reflected in Figure 26, Corridor C generally follows the alignment of Algonkian Parkway and Askegrens Lane in eastern Loudoun County and is generally located in an area of intense residential development. Residential properties which fall within the corridor limits include homes in the following subdivisions:

Subdivision Name	Subdivision Name Cont....
Countryside	Jefferson Village
Eden	EQR Lincoln & Sunnygate

Based on the analysis using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area approximately 1,050 residential properties are located within potential corridor limits. Residential properties within the corridor consist of single family detached, single-family attached and multi-family homes. Based on this assessment Corridor C is identified as having a larger impact on residential properties.

Figure 4-19 – Askegrens Lane looking Northbound to the Potomac River

100 Year Floodplain Impacts

Utilizing FEMA floodplain GIS data and the 2,000-foot-wide corridor area shown in Figure 21, areas of potential 100-year floodplain impacts were quantified. Based on analysis, approximately 110 acres of floodplain are located within the limits of the corridor. Floodplain areas within the corridor are

associated with an unnamed tributary to the Potomac River and the Potomac River itself. Based on this assessment, Corridor C is identified as having a moderate impact on 100-year floodplains.

Wetland Impacts

Utilizing Loudoun County GIS data and the 2,000-foot wide corridor of Corridor C, an assessment of wetland impacts was undertaken. Based on the assessment, approximately 60 acres of wetlands are located within the limits of Corridor C. Wetlands are primarily located within the floodplain of the Potomac River. Based on this assessment, Corridor C is identified as having a moderate impact on wetlands.

Recognized Environmental Condition Impacts

Recognized environmental conditions (RECs) within the limits of Corridor C were analyzed using information obtained from the Virginia Department of Environmental Quality. Based on a review of the data, no RECs are located within the limits of Corridor C. It should be noted that the Hidden Lane Landfill is located directly west of Corridor C and is listed as a superfund cleanup site. Further study may be required to ensure there is no conflict or environmental concerns related to the Hidden Lane Landfill. Based on this assessment, Corridor C is identified as having a minor impact on RECs.

Public Facilities Impacts

Based on an analysis of Loudoun County GIS data, it was determined that there are no public facilities located within the limits of Corridor C. It should be noted that both Algonkian Elementary School and Countryside Elementary School are located within 0.25 miles of the corridor limits. As such, travel patterns to and from the two schools would likely be impacted by the corridor. Based on this assessment, Corridor C was identified as having minor impacts to public facilities.

Existing Transportation Infrastructure Impacts

Corridor C follows the Algonkian Parkway alignment which is an existing 4 lane median divided roadway with turn lanes and multiple signals along the corridor. The roadway is posted at 45 mph and listed as a minor arterial by VDOT's functional classification map. Along the portion of Algonkian Parkway on which Corridor C is located, there are a total of five median break intersections. The intersections of Algonkian Parkway and Countryside Boulevard and Algonkian Parkway and Winding Road are signalized. The other three intersections are not. Establishment of a Potomac River Crossing along this corridor would likely require the closure of the three unsignalized intersections and rerouting of residential traffic served by those intersections. Algonkian Parkway benefits from having an existing interchange with Route 7 and Atlantic Boulevard. The roadway is built to standard and would require minimal improvements to receive

a potential river crossing. Based on this analysis, Corridor C is identified as having a minor impact on existing infrastructure.

Figure 4-21 – Algonkian Parkway Northbound

Figure 4-20 Askegrens Lane looking southbound at Algonkian Parkway

Park/Wildlife Refuge Impacts

Corridor C has no impacts to existing parks or wildlife refuges. Corridor C travels through primarily residential property, utilizing the existing Algonkian Parkway and Askegrens Lane alignment. Based on these facts, Corridor C is identified as having a minor impact to parks and wildlife refuges.

Historic Resource Impacts

Based on analysis from the Virginia Cultural Resource Information System database, eight historic resource locations were identified within the limits of Corridor C. The eight identified sites are located adjacent to the Potomac River and were detailed as historic archeological resource locations. Based on this assessment, Corridor C is identified as having a larger impact on historic resources.

Significant Utility Impacts

Based on a review of GIS information and field visits, one significant utility was identified within the limits of Corridor C. Corridor C crosses over the existing Potomac River Interceptor sanitary sewer main near the Potomac River. While significant impacts due to the potential crossing are not anticipated, research and investigation must be considered to ensure impacts to the sewer are avoided. Based on this assessment, Corridor C is identified as having a moderate impact on significant utilities.

Community Impacts

Corridor C has several communities including the Dulles Town Center, Countryside, and Potomac Farms communities within the corridor limits. The communities would potentially be impacted by the corridor due to the change in traffic patterns and volume traveling along the roadway. Currently the roadway

operates as a collector road primarily moving residential traffic in and out of the communities with very little through traffic. The potential corridor would change the dynamic of the roadway to have a heavy volume of through traffic coming through the communities and changing the aesthetic feel of the area. Based on this assessment, Corridor C is identified as having a larger impact to the community.

Regional Connectivity

Utilizing regional Northern Virginia mapping, the regional connectivity of Corridor C was assessed. As previously mentioned, Corridor C is generally centered on Algonkian Parkway north of Route 7. South of Route 7, Algonkian Parkway becomes Atlantic Boulevard. Atlantic Boulevard serves as a parallel collector road to Route 28 and does not offer regional connectivity to points south. Use of Corridor C as a Potomac River crossing would require traffic to exit on to Route 7 and travel to Route 28 or Route 286 to continue to move regionally through northern Virginia. Likely the interchange at Algonkian Parkway and Route 7 would be modified to accommodate a more efficient movement between Algonkian Parkway and Route 28. Based on this assessment, Corridor C is identified as having poor regional connectivity.

Commercial Property Impacts

Based on an analysis of commercial properties using Loudoun County GIS Parcel data and the 2,000-foot-wide Corridor C, one commercial property was identified within the limits of Corridor C. That property is the Dulles Town Center located in the southeast quadrant of the interchange of Route 7 and Algonkian Parkway. Impacts to Dulles Town Center would be limited to potential interchange upgrades associated with the interchange of Route 7 and Algonkian Parkway. Based on this assessment, Corridor C Is identified as having a minor impact on commercial properties.

4.1.4. Corridor D

The southern terminal point of Corridor D is located at the interchange of Route 28 and Route 7. From the southern terminal point, Corridor D runs northwest following the general alignment of Broad Run. Corridor D runs through the eastern portion of Bles Park and terminates on the southern bank of the Potomac River just west of the mouth of Broad Run and near the eastern end of Selden Island in the Potomac River.

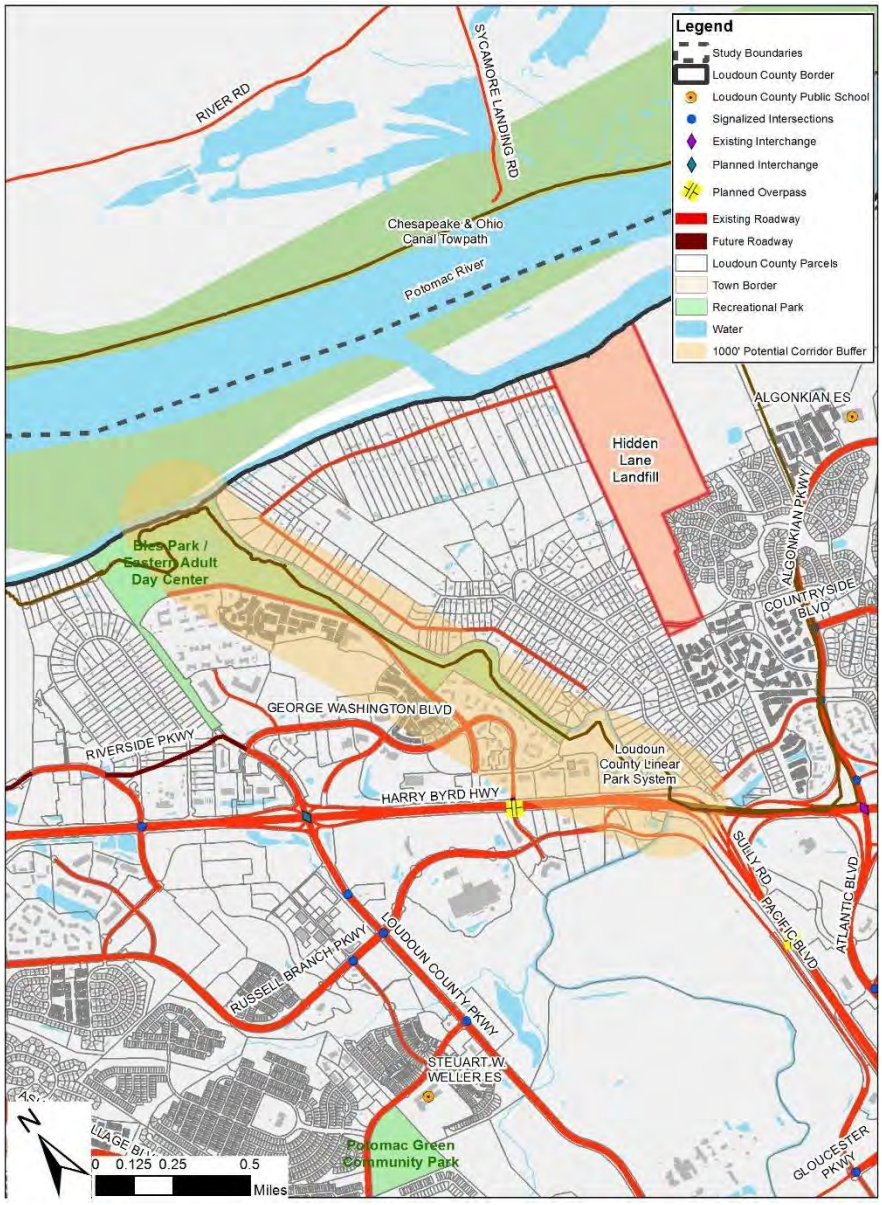


Figure 4-22 – Corridor D Potential Corridor Map

Residential Property Impacts

Corridor D travels north along the Broad Run Stream alignment from the existing interchange of Route 7 and Route 28. Corridor D is located primarily within the Broad Run floodplain between what is primarily residential suburban developments. Residential properties which fall within the corridor limits include homes in the following subdivisions.

Subdivision Name	Subdivision Name Cont....
Broad Run Farms	University Center
Overlook at University Center	Riverside Villages

Based on an analysis using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area approximately 580 residential properties are located within the limits of the corridor. Based on this assessment, Corridor D is identified as having a larger impact on residential properties.

100 Year Floodplain Impacts

Utilizing FEMA floodplain GIS data and the 2,000-foot-wide corridor area shown in Figure 30, areas of potential 100-year floodplain impacts were quantified. Based on analysis, approximately 205 acres of floodplain are located within the limits of the corridor. Floodplain areas within the corridor are associated with Broad Run and the Potomac River. Corridor D encompasses the entire Broad Run floodplain north of Route 28 for a distance of approximately 1.8 miles. Based on this assessment, Corridor D is identified as having a larger impact on 100-year floodplains.

Figure 4-23 – Potomac River between Selden Island and the County Border

Wetland Impacts

Utilizing Loudoun County GIS data and the 2,000-foot wide corridor of Corridor D, an assessment of wetland impacts was undertaken. Based on the assessment, approximately 50 acres of wetlands are located within the limits of Corridor D. Wetlands are primarily located within the floodplain of Broad Run and the Potomac River. Based on this assessment, Corridor D is identified as having a minor impact on wetlands.

Recognized Environmental Condition Impacts

Recognized environmental conditions (RECs) within the limits of Corridor D were analyzed using information obtained from the Virginia Department of Environmental Quality. From the analysis, it was found that one recognized environmental condition is located within the limits of Corridor D. The identified REC is the National Transportation Safety Board building along George Washington Boulevard. Information related to the REC did not indicate that that there are current environmental impacts taking place, only that an environmental condition is present. Based on this assessment, Corridor D is identified as having a minor impact on RECs.

Public Facilities Impacts

Based on analysis of Loudoun County GIS data and the limits of Corridor D, two public facilities were identified as falling within the limits of Corridor D. The public facilities within the Corridor D limits are the University Station Sherriff's Station and the Eastern Loudoun Adult Day Center. Based on the assessment of these facilities, Corridor D is identified as having a moderate impact to public facilities.

Figure 4-24 – Eastern Loudoun Adult Day Center

Existing Transportation Infrastructure Impacts

From the interchange of Route 28 and Route 7, Corridor D travels north along the Broad Run floodplain on a new alignment. As such, little impact to the existing transportation infrastructure is anticipated. Some potential for impacts to Bles Park Drive can be expected as a result of a Potomac River crossing along this corridor. Based on this assessment, Corridor D is identified as having minor impacts to existing transportation infrastructure.

Figure 4-26 – George Washington Boulevard Northbound, Potential Corridor would be on the right

Figure 4-25 – Route 28 Interchange with Route 7

Park/Wildlife Refuge Impacts

Utilizing GIS data and the 2,000-foot-wide corridor of Corridor D, impacts to parks and wildlife refuges were identified. Based on analysis, a significant portion of Bles Park is located within the limits of Corridor D. In total, approximately 100 acres of park are located within the corridor. In addition, a portion of the Potomac Heritage Trail is located within Corridor D. Based on this assessment, Corridor D is identified as having a larger impact on parks and wildlife refuges.

Figure 4-27 – Bles Park Entry Sign

Historic Resource Impacts

Corridor D has seven Historic resource locations located within the corridor limits as analyzed from the Virginia Cultural Resource Information System database. Six of the historic resource sites are located adjacent to the Broad Run stream and were identified as historic archeological resource locations. The other historic resource is a historic property located between Russell Branch Parkway, Route 28, and Route 7. Corridor D also crosses Selden Island. While Selden Island lies outside of the study limits, research indicates that archaeologically significant Native American remains have been discovered on the island. Based on this assessment, Corridor D is identified as having a moderate impact on historic resources. Potential mitigation and further research would be required for the potential bridge crossing.

Significant Utility Impacts

Corridor D does not have any known significant utility impacts. There are minimal utility impacts expected with this potential corridor making it a corridor with minor impacts to utilities.

Community Impacts

Corridor D has several communities within the corridor limits including the Dulles Town Center, University Center, and Broad Run Farms communities. Corridor D does not bisect these communities, but does impact them along their peripheries. Based on this assessment, Corridor D is identified as having a moderate impact to communities.

Regional Connectivity

Utilizing regional Northern Virginia mapping, the regional connectivity of Corridor D was assessed. As previously mentioned, the southern terminus of Corridor D is the interchange of Route 7 and Route 28. Route 28 is a regionally significant roadway providing a limited access connection to Interstate 66. Future improvements to Route 28 south of Interstate 66 including the widening of Route 28 from Interstate 66 to the Prince William County border and the construction of a Route 28 by-pass through the City of Manassas would ultimately allow for good access to Interstate 95 via the Route 28/Route 234 interchange south of Manassas. Based on this assessment, Corridor D is identified as having good regional connectivity.

Commercial Property Impacts

Based on analysis of Loudoun County GIS data, ten commercial properties were identified within the corridor limits. Most of properties are located on the west side of Broad Run near the interchange of Route 28 and Route 7. The existing commercial properties are clustered along Research Place and Russell Branch Parkway. Based on an assessment of these properties, Corridor D is identified as having a minor impact to commercial properties.

4.1.5. Corridor E

The southern terminal point of Corridor E is located at the interchange of Loudoun County Parkway and Route 7. Corridor E runs northwest following the existing alignment of Loudoun County Parkway to the intersection of Loudoun County Parkway and George Washington Boulevard. From the intersection, Corridor E continues along the Western edge of the University Center Development just east of the Potomac Farms subdivision and into Bles Park. Corridor C terminates on the southern bank of the Potomac River near the center of Selden Island in the Potomac River.

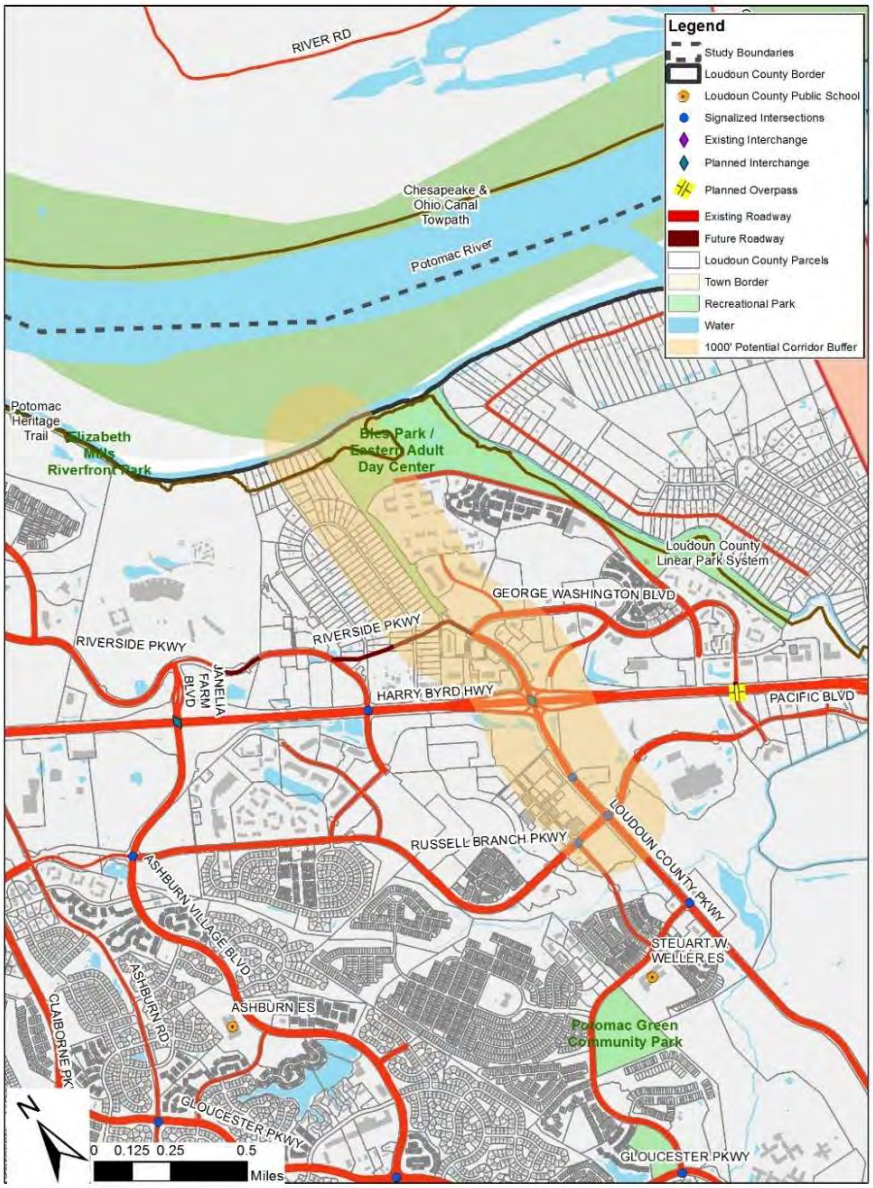


Figure 4-28 – Corridor E Potential Corridor Map

Residential Property Impacts

Corridor E travels along Loudoun County Parkway and continues north through a portion of Bles Park (previously a right-of-way reservation for Riverside Parkway). Corridor E is generally located in an area of significant residential development. Residential properties which fall within the corridor limits include homes in the following subdivisions:

Subdivision Name	Subdivision Name Cont....
University Center	Potomac Farms

Based on an analysis using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area approximately 135 residential properties are located within the corridor limits. Based on this assessment, Corridor E is identified as having a larger impact on residential properties.

100 Year Floodplain Impacts

Using FEMA floodplain GIS data and the 2,000-foot corridor area, areas of 100-year floodplain were identified within the corridor. Based on research, approximately 65 acres of floodplain are located within the corridor limits. Floodplain within the corridor is primarily associated with the Potomac River. Based on this assessment Corridor E is evaluated as a minor impact to floodplains.

Figure 4-30 – Bles Park Looking North at Selden Island and the Potomac River

Figure 4-29 – Bles Park Trail Looking south along the Proposed Corridor Location

Wetland Impacts

Wetland impacts for Corridor E were analyzed using the FEMA Wetland GIS data and the 2,000-foot corridor area. The analysis shows that approximately 46 acres of wetlands are within the corridor limits. The wetlands within the limits are primarily along the Potomac River and the Russell Branch stream wetlands on the southern portion of the corridor. Based on this assessment, Corridor E was identified as having minor impacts to wetlands.

Recognized Environmental Condition Impacts

Corridor E has no recognized environmental conditions (REC) impacts based on the analysis using Virginia DEQ data. Based on this data, Corridor E is identified as having minor impacts to RECs.

Public Facilities Impacts

Based on analysis of Loudoun County GIS data and the limits of Corridor E, no public facilities were identified as falling within the limits of Corridor E. Based on this assessment, Corridor E was identified as having a minor impact to public facilities.

Existing Transportation Infrastructure Impacts

Corridor E travels along Loudoun County Parkway which is an existing 4 lane median divided roadway, under existing conditions within the corridor Loudoun County Parkway travels north from Russell Branch Parkway and ends at a signalized intersection with George Washington Boulevard. The roadway is posted at 45 mph and could conceivably handle additional traffic from a new bridge crossing with minimal to no improvements required to the existing roadway. Loudoun County Parkway is classified as a minor arterial and operates as a major north and south connection within the County. The corridor would likely require some additional intersection improvements. Based on this assessment, Corridor E is identified as having minor impacts to existing transportation infrastructure.

Figure 4-31 – Loudoun County Parkway at the Intersection of George Washington Boulevard

Park/Wildlife Refuge Impacts

Corridor E travels directly through Bles Park impacting the western portion of the park up to the Potomac River. Analysis based on Loudoun County GIS Park data and a 2,000-foot-wide corridor area determined that approximately 40 acres of the park are located within the corridor limits. Based on this assessment, Corridor E is identified as having moderate impacts to parks and wildlife refuges

Figure 4-32 – Western Portion of Bles Park looking South along the Potential Corridor E

Historic Resource Impacts

Corridor E has three Historic resource locations within the corridor limits as analyzed from the Virginia Cultural Resource Information System database. The three historic resource sites are located adjacent to the Potomac River and were identified as historic archeological resource locations. Corridor E also crosses Selden Island. While Selden Island lies outside of the study limits, research indicates that archaeologically significant Native American remains have been discovered on the island. Based on this assessment, Corridor E is identified as having minor impacts to historic resources.

Significant Utility Impacts

No known significant utilities were identified within the limits of Corridor E. As a result of this assessment, Corridor E is identified as having minor impacts to significant utilities.

Community Impacts

Corridor E has several communities within the corridor limits including the Ashburn, Potomac Farms, and University Center communities. Corridor E does not bisect these communities, but does impact them along their peripheries. Based on this assessment, Corridor E is identified as having a moderate impact to communities.

Regional Connectivity

Corridor E ranked as a moderate corridor for regional connectivity due to recent improvements to Loudoun County Parkways and opening to reach Route 50. The new improvements allow for a moderate amount of regional movement to get to the Dulles Greenway, and Route 50. The roadway is already functioning as a regionally connected road and provides for large volumes of traffic. Loudoun County

Parkway acts as an alternative to Route 28 within Loudoun County. Regional traffic looking to access Interstate 66 or Interstate 95 would need to utilize the Dulles Greenway or Route 50 from the Loudoun County Parkway. Based on this assessment, Corridor E is identified as having moderate regional connectivity.

Commercial Property Impacts

Based on analysis of Loudoun County GIS data, forty-three commercial properties were identified within the corridor limits. A large number of commercial properties are located in close vicinity to Loudoun County Parkway north and south of the interchange with Route 7. The commercial properties affected are within One Loudoun, Lakeview Center Plaza, Lakeview Overlook Plaza, and the Commonwealth Center. Based on this assessment, Corridor E is identified as having larger impacts to commercial properties.

4.1.6. Corridor F

The southern terminal point of Corridor F is located at the interchange of Ashburn Village Boulevard and Route 7. Corridor F runs northeast along the existing alignment of Ashburn Village Boulevard to its intersection with Riverside Parkway/Helix Drive. From the intersection, Corridor F continues northeast through the Howard Hughes Medical Institute. Corridor F terminates on the southern bank of the Potomac River near the western end of Selden Island in the Potomac River.

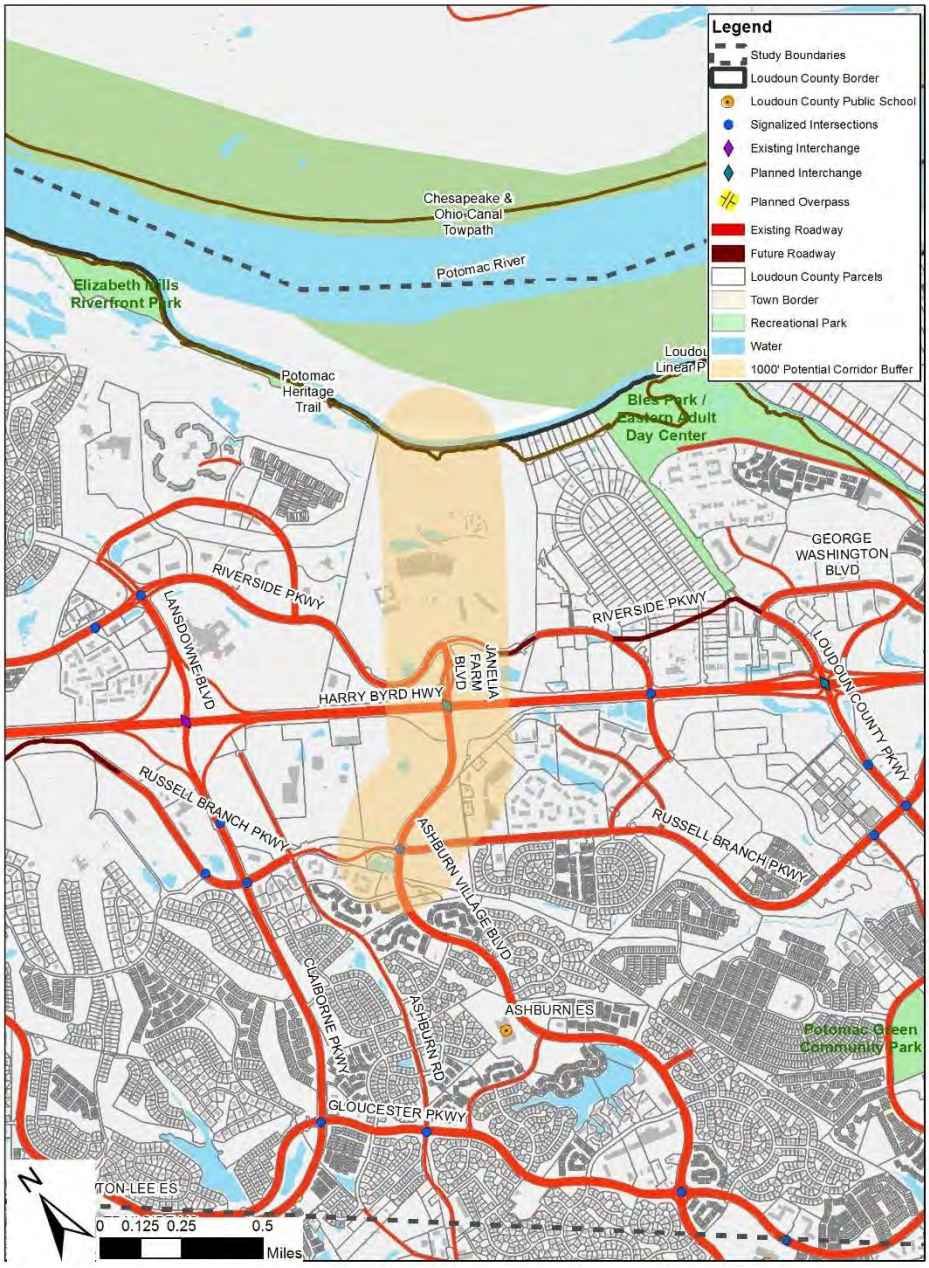


Figure 4-33 – Corridor F Potential Corridor Map

Residential Property Impacts

Corridor F travels along Ashburn Village Boulevard and continues north through the Janelia Farms Campus. Corridor F is generally located in an area of no residential development. Residential properties which fall within the corridor limits include homes in the following subdivisions:

Subdivision Name
Ashburn Village

Based on an analysis using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area approximately 32 residential properties are located within the corridor. These properties are located at the southern limits of the corridor near the intersection of Ashburn Village Parkway and Russell Branch Boulevard. Based on this assessment, Corridor F is identified as having minor impacts to residential properties.

100 Year Floodplain Impacts

Using FEMA floodplain GIS data and the 2,000-foot corridor area, areas of 100-year floodplain were identified within the corridor. Based on research, approximately 34 acres of floodplain are located within the corridor limits. Floodplain within the corridor is primarily associated with the Potomac River. There is some floodplain in the southern portion of the corridor associated with an unnamed tributary to Russell Branch. Based on this assessment Corridor F is evaluated as a minor impact to floodplains.

Wetland Impacts

Wetland impacts for Corridor F were analyzed using the FEMA Wetland GIS data and the 2,000-foot corridor area. The analysis shows that approximately 32 acres of wetlands are within the corridor limits. The wetlands within the limits are primarily along the Potomac River and the unnamed tributary to Russell Branch. Based on this assessment, Corridor F was identified as having minor impacts to wetlands.

Recognized Environmental Condition Impacts

Corridor F has three recognized environmental conditions within the corridor limits as identified using the Virginia DEQ database. Two of the three RECs are located on the Janelia Farm campus with the third just to the southwest of the interchange with Route 7 at the Shell Station listed as a regulated tank facility. These impacts do not assert that there are current environmental impacts taking place only that an environmental condition is present and in this case the petroleum releases must be continually monitored. Based on this assessment, Corridor F is identified as having a larger impact on RECs.

Public Facilities Impacts

Based on analysis of Loudoun County GIS data and the limits of Corridor F, no public facilities were identified as falling within the limits of Corridor F. Based on this assessment, Corridor F was identified as having a minor impact to public facilities.

Existing Transportation Infrastructure Impacts

Corridor F travels along Ashburn Village Boulevard which is an existing 4 lane median divided roadway, under existing conditions Ashburn Village Boulevard ends at Riverside Parkway where all traffic must travel either east or west via an all way stop. The roadway segment between Route 7 and Riverside

Parkway is posted at 45 mph. Upgrades to the intersection of Riverside Parkway and Ashburn Village Boulevard would be required as part of a Potomac River crossing on this corridor. Based on the assessment, Corridor F is identified as having minor impacts to the existing transportation infrastructure.

Figure 4-34 – Ashburn Village Boulevard

Park/Wildlife Refuge Impacts

Corridor F has no impacts to existing parks or wildlife refuges. Corridor F travels through commercial property, utilizing the existing Ashburn Village Boulevard alignment. Based on these facts, Corridor F is identified as having a minor impact to parks and wildlife refuges.

Historic Resource Impacts

Corridor F has nine Historic resource locations within the corridor limits as analyzed from the Virginia Cultural Resource Information System database. The nine historic resource sites are located along the potential corridor with a historic building at the center of the Janelia Farm campus. The existing building is the site of the historic Janelia Farm House. The other eight historic resources along the Potomac River and were identified as historic archeological resource locations. Corridor F also crosses Selden Island. While Selden Island lies outside of the study limits, research indicates that archaeologically significant Native American remains have been discovered on the island. Based on this Assessment, Corridor F is identified as having a larger impact to historic resources.

Significant Utility Impacts

No known significant utilities were identified within the limits of Corridor F. As a result of this assessment, Corridor F is identified as having minor impacts to significant utilities.

Community Impacts

Corridor F has two communities within the corridor limits; the Ashburn, and Lansdowne communities. The communities would likely be minimally impacted as the corridor avoids almost all residential property. Corridor F travels within the Janelia Farms campus and would not utilize existing residential streets. Based on this assessment, Corridor F is identified as having minor community impacts.

Regional Connectivity

Utilizing regional Northern Virginia mapping, the regional connectivity of Corridor F was assessed. As previously mentioned, Corridor F is generally centered on Ashburn Village Boulevard north of Route 7. South of Route 7, Ashburn Village Boulevard serves multiple residential and commercial developments and terminates ultimately at the Loudoun County Parkway. Ashburn Village Boulevard does not offer regional connectivity to points south of the corridor other than a connection to the Metro at Ashburn Station. As such, regional traffic travelling over a Potomac River bridge on Corridor F would be obligated to utilize Route 7 to connect to major north-south regional roadways such as Route 28. Given the lack of direct connection to regionally significant north-south roadways, Corridor F is identified as having poor regional connectivity.

Commercial Property Impacts

Corridor F has a moderate amount of commercial properties within the corridor limits as compared to the other corridors studied. A total of 13 properties are located within the limits, this is due to the large amount of commercial properties in close vicinity to Ashburn Village Boulevard south of the interchange with Route 7, and the Janelia Farm Campus. The commercial properties affected are within Ashbrook Commons, and Janelia Farms Research Campus. Corridor F is assessed as having a moderate impact to commercial properties.

4.1.7. Corridor G

The southern terminal point of Corridor G is located at the interchange of Claiborne Parkway / Lansdowne Boulevard and Route 7. Corridor G runs north and northwest along the existing alignment of Lansdowne Boulevard to its intersection with Woodridge Parkway. From the intersection, Corridor G bends north through the Lansdowne golf course and to the west of the Lansdowne resort. Corridor G continues north and terminates on the southern bank of the Potomac River at the western tip of Selden Island in the Potomac River.

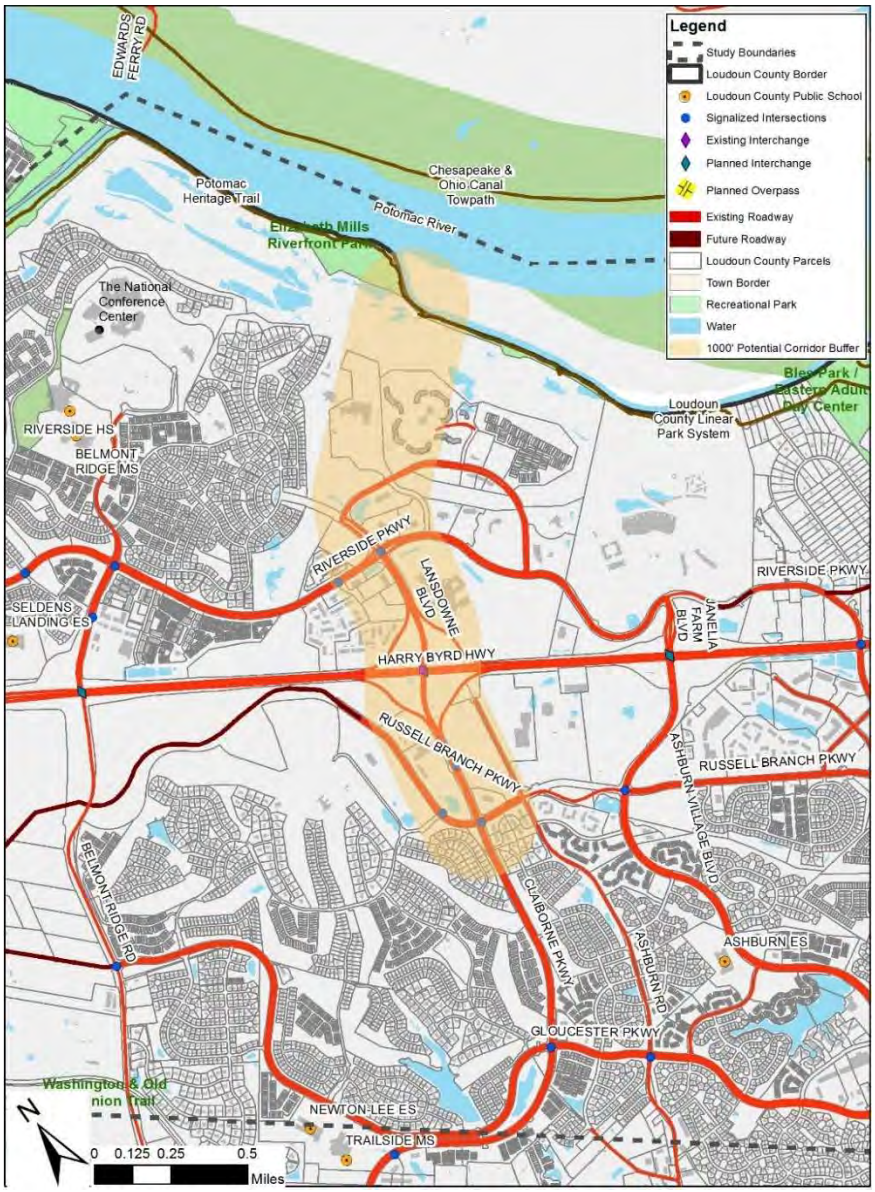


Figure 4-35 – Corridor G Potential Corridor Map

Residential Property Impacts

Corridor G travels along Claiborne Parkway and Lansdowne Boulevard to Woodridge Parkway where it then travels north east to the Potomac River. Residential properties which fall within the corridor limits include homes in the following subdivisions:

Subdivision Name	Subdivision Name Cont....
Belmont	Leisure World
Lansdowne	Lansdowne on the Potomac

Based on an analysis using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area approximately 93 residential properties are located within the corridor limits. Based on this assessment, Corridor G is identified as having a moderate impact to the residential property.

100 Year Floodplain Impacts

Using FEMA floodplain GIS data and the 2,000-foot corridor area, areas of 100-year floodplain were identified within the corridor. Based on research, approximately 50 acres of floodplain are located within the corridor limits. Floodplain within the corridor is primarily associated with the Potomac River. Based on this assessment Corridor G is evaluated as a minor impact to floodplains.

Wetland Impacts

Wetland impacts for Corridor G were analyzed using the Virginia DEQ Wetland GIS data and the 2,000-foot corridor area. The analysis shows that approximately 45 acres of wetlands are within the corridor limits. The wetlands within the limits are primarily located within the Potomac River floodplain. Based on this assessment, Corridor G was identified as having minor impacts to wetlands.

Recognized Environmental Condition Impacts

Corridor G has one Recognized Environmental Conditions within the corridor limits. The only recognized environmental condition is at the Inova Loudoun Hospital located on the east side of Lansdowne Boulevard. These impacts do not assert that there are current environmental impacts taking place only that an environmental condition is present and in this case the petroleum releases must be continually monitored. Based on assessment, Corridor G is identified as having a minor impact to RECs.

Public Facilities Impacts

Corridor G has two public facilities within the corridor limits both of which are beside Lansdowne Boulevard, the Inova Loudoun Hospital, and the Ashburn Volunteer Fire & Rescue Station #22, these two facilities are located within a primarily commercial area and there are no schools within the 2,000-foot-wide area of the potential corridor. Based on the assessment, Corridor G is identified as having a moderate level of impact.

Existing Transportation Infrastructure Impacts

Corridor G travels along Claiborne and Lansdowne Parkway which are both 4 lane median divided roadways, under existing conditions Lansdowne Boulevard ends at Riverpoint Drive. The roadway is posted at 45 mph and would require significant intersection and roadway improvements to handle the additional capacity. The existing signalized intersections would require improvements along with

geometric roadway design improvements at the intersection of Lansdowne Boulevard and Woodridge Parkway. Based on this assessment, Corridor G is identified as having a larger impact on existing transportation infrastructure.

Park/Wildlife Refuge Impacts

Corridor G has a moderate amount of parks within the study area. Corridor G travels through the Elizabeth Mills Riverfront Park prior to reaching the Potomac River. The overall park area based on Loudoun County GIS Park data and a 2,000-foot-wide corridor area determined that approximately 10 acres of the park lands are located within the limits of Corridor G. The corridor was assessed as having moderate impacts to the park and modifications would be required including for the existing trail networks in the region.

Historic Resource Impacts

Corridor G has 11 Historic resource locations within the corridor limits as analyzed from the Virginia Cultural Resource Information System database. Six of the historic resource sites are located adjacent to the Potomac River and were identified as historic archeological resource locations. The other five are located around the historic Belmont Manor property located south of Route 7 on Belmont Manor Lane. Based on an assessment of these impacts, Corridor G is identified as having a larger impact to historic resources.

Significant Utility Impacts

No known significant utilities were identified within the limits of Corridor G. As a result of this assessment, Corridor G is identified as having minor impacts to significant utilities.

Community Impacts

Corridor G has several communities located within the corridor limits including the Lansdowne, Belmont, and Ashburn communities. Corridor G does not bisect these communities, but does impact them along their peripheries. Specifically, Corridor G travels around the Lansdowne community along the Lansdowne Golf Club and would not utilize existing local street network beyond Lansdowne Boulevard. The potential corridor is assumed to change to the dynamic of the roadway with an increase in volume and modified traffic patterns but not expected to increase traffic within the nearby communities. Corridor G is assessed as having a moderate impact to communities due to the corridors proximity to the communities and route around them.

Regional Connectivity

Utilizing regional Northern Virginia mapping, the regional connectivity of Corridor G was assessed. As previously mentioned, Corridor G is generally centered on Lansdowne Boulevard north of Route 7. South of Route 7, Claiborne Parkway serves multiple residential and commercial developments and terminates ultimately at the Loudoun County Parkway. Claiborne Parkway does not offer regional connectivity to points south of the corridor. As such, regional traffic travelling over a Potomac River bridge on Corridor G would be obligated to utilize Route 7 to connect to major north-south regional roadways such as Route 28. Given the lack of direct connection to regionally significant north-south roadways, Corridor G is identified as having poor regional connectivity.

Commercial Property Impacts

Utilizing Loudoun County GIS data, the quantity of commercial properties located within the limits of Corridor G was assessed. The corridor was found to contain 25 commercial properties within its limits. Properties are primarily located along the southern segment of the corridor around the interchange with Route 7. The potential corridor travels directly through the Golf Club at Lansdowne and would impact associated facilities. The major commercial areas within the corridor are the Belmont Chase, and Inova Hospital Campus which is comprised of multiple buildings and facilities. Based on this assessment, Corridor G is identified as having a larger impact to commercial properties.

Figure 4-36 – INOVA Loudoun Campus

4.1.8. Corridor H

The southern terminal point of Corridor H is located at the interchange of Belmont Ridge Road and Route 7. Corridor H runs northeast along the existing alignment of Belmont Ridge Road to its intersection with Riverside Parkway. From the intersection, Corridor H continues northeast through the Lansdowne subdivision and just east of the National Conference Center. Corridor H terminates on the southern bank of the Potomac River just west of Elizabeth Mills Waterfront Park and west of Selden Island in the Potomac River.

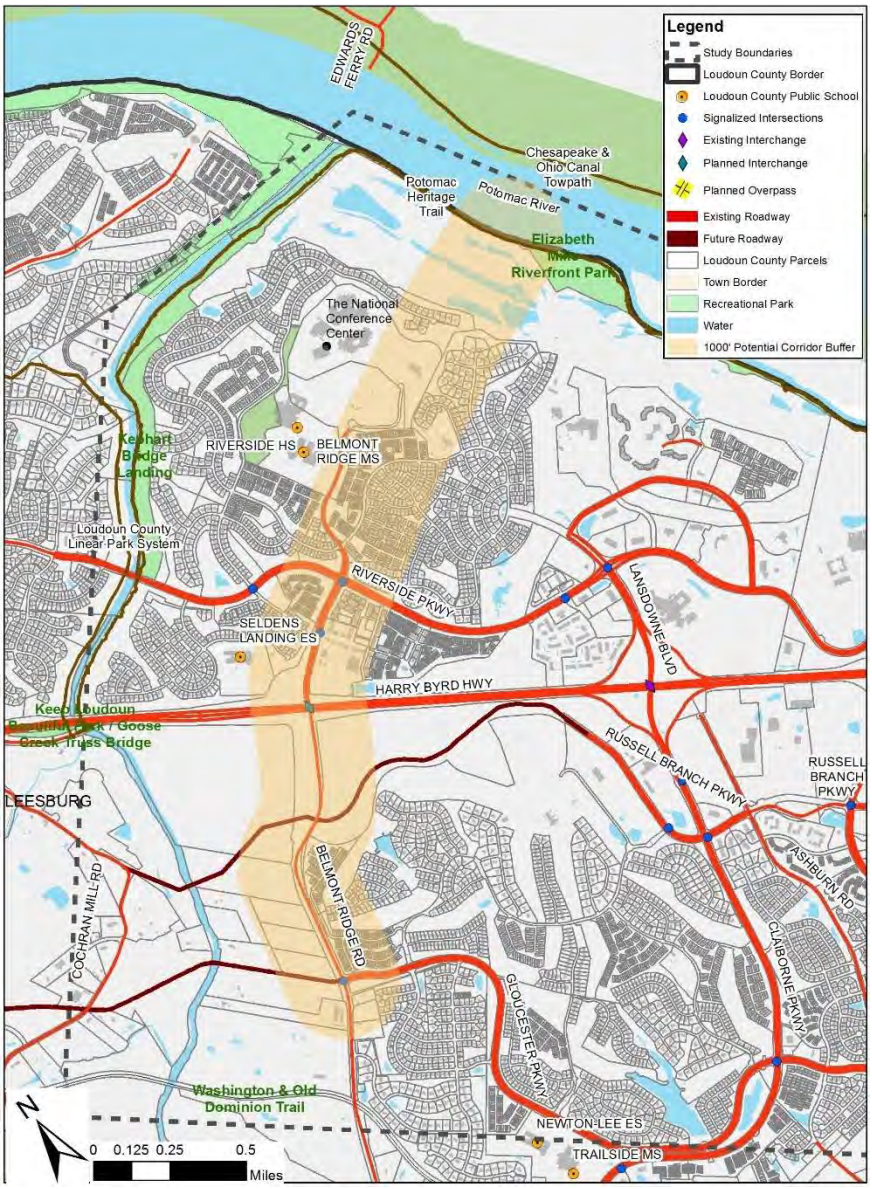


Figure 4-37 – Corridor H Potential Corridor Map

Residential Property Impacts

Corridor H travels along Belmont Ridge Road and Upper Belmont Place where it then travels north east to the Potomac River. The potential corridor travels within the Lansdowne, Belmont, and Ashburn Communities specifically with the largest portion of the corridor traveling through the Lansdowne community.

Subdivision Name	Subdivision Name Cont....
Belmont	Lansdowne Town Center
Coton Commons	Lansdowne on the Potomac

Based on an analysis using Loudoun County GIS Parcel data and a 2,000-foot-wide corridor area approximately 1,088 residential properties are located within the corridor limits. Based on this assessment, Corridor H is identified as having a larger impact to existing residential properties.

100 Year Floodplain Impacts

Using FEMA floodplain GIS data and the 2,000-foot corridor area, areas of 100-year floodplain were identified within the corridor. Based on research, approximately 80 acres of floodplain are located within the corridor limits. Floodplain within the corridor is primarily associated with the Potomac River and a small unnamed tributary to the Potomac River. Based on this assessment, Corridor H is evaluated as a minor impact to floodplains.

Wetland Impacts

Wetland impacts for Corridor H were analyzed using the Virginia DEQ Wetland GIS data and the 2,000-foot corridor area. The analysis shows that approximately 55 acres of wetlands are within the corridor limits. The wetlands within the limits are primarily located within the Potomac River floodplain. Based on this assessment, Corridor G was identified as having moderate impacts to wetlands.

Recognized Environmental Condition Impacts

Corridor H has two recognized environmental conditions within the corridor limits. The two recognized environmental conditions are located at the Shell Gas Station near the Lansdowne Town Center listed as a regulated tank facility and the other listed as a petroleum release near Belmont Ridge Middle School. These impacts do not assert that there are current environmental impacts taking place only that an environmental condition is present and in this case the petroleum releases must be continually monitored. Based on this assessment, Corridor H is identified as having a larger impact to RECs.

Public Facilities Impacts

Corridor H has three public facilities within the corridor limits along Belmont Ridge Road and Upper Belmont Place. The public facilities within the limits are the Belmont Ridge Middle School, Seldens

Landing Elementary School and Riverside High School. Impacts to these three schools are likely to be significant. Corridor H was assessed as having a larger impact to public facilities.

Figure 4-38 – Riverside High School

Existing Transportation Infrastructure Impacts

Corridor H travels along Belmont Ridge Road and Upper Belmont Place. Belmont Ridge Road is a 4-lane median divided roadway, while Upper Belmont Place is a 2-lane residential roadway. Complete reconstruction of Upper Belmont Place would be required to accommodate a Potomac River Crossing along this corridor. In addition, significant reconstruction of multiple residential roads would be required

Figure 4-39 – Belmont Ridge Road

Figure 4-40 – Upper Belmont Place

to enable a Potomac River crossing on this corridor. Based on this assessment, Corridor H is identified as having a larger impact to existing transportation infrastructure.

Park/Wildlife Refuge Impacts

Corridor H has moderate impacts to Parks and wildlife refuges as compared to the other corridors. Corridor H travels through the Elizabeth Mills Riverfront Park prior to reaching the Potomac River. The

overall area based on Loudoun County GIS Park data and a 2,000-foot-wide corridor area determined that approximately 8 acres of the park lands are located within the corridor limits. Corridor H is identified as having a moderate impact to parks and wildlife refuges.

Historic Resource Impacts

Corridor H has eight historic resource locations within the corridor limits as analyzed from the Virginia Cultural Resource Information System database. All eight of the historic resource sites are located adjacent to the Potomac River and were identified as historic archeological resource locations. Based on this assessment, Corridor H is identified as having a larger impact to historic resources.

Significant Utility Impacts

No significant utilities were identified within the limits of Corridor H. As a result of this assessment, Corridor H is identified as having minor impacts to significant utilities.

Community Impacts

Corridor H has two communities including the Ashburn and Lansdowne communities. The Lansdowne community would be severely impacted by the potential corridor due to the corridors proximity to dense residential and the existing utilization of the local streets. The potential corridor would change the dynamic of the community with an increase in volume and change in traffic patterns. Corridor H is identified as having a larger impact to the local community.

Regional Connectivity

As previously mentioned, Corridor H is generally centered on Belmont Ridge Road. Belmont Ridge Road currently extends south from Route 7 to Route 50 (changing names to Northstar Boulevard). Belmont Ridge Road in its current state provides only limited regional connectivity for a potential Potomac River bridge crossing. Should Northstar Boulevard ever be extended south into Prince William County as part of the Bi-County Parkway, regional connectivity associated with this corridor would be substantially improved directly connecting the corridor to I-66 and I-95. Based however, on the fact that there are currently no plans to construct the Bi-County Parkway, Corridor H is identified as having moderate regional connectivity.

Commercial Property Impacts

Utilizing Loudoun County GIS data, the quantity of commercial properties located within the limits of Corridor H was assessed. The corridor was found to contain three commercial properties located within the corridor limits. The commercial properties are primarily on the southern segment of the corridor located around the interchange of Route 7 and Belmont Ridge Road. The main commercial property is identified as Lansdowne Town Center. The potential corridor travels through parts of the National Conference Center and would likely impact the existing facilities. Based on the assessment, Corridor H is identified as having a larger impact to commercial properties.

Figure 4-41 – Lansdowne Town Center

5. Potential Next Steps

The construction of a new crossing of the Potomac River will significantly impact transportation across the entire Washington D.C. metropolitan region. As such, decisions regarding the need and feasibility of a new Potomac River crossing will require the consensus of a large number of public jurisdictions and agencies, the public, and private organizations.

In order to receive federal funding, the Potomac River crossing project must be included in the Constrained Long-Range Transportation Plan (CLRP) and the Transportation Improvement Program (TIP), prepared by the National Capital Region Transportation Planning Board (TPB). The CLRP includes all major transportation projects reasonably expected to be funded and built in the region through 2040. The CLRP is updated annually. Projects can be submitted by any municipal, county, state, regional, or federal agency with the fiscal authority to fund transportation projects. Submissions must include a project description, cost estimates, identification of available funding, air quality conformity input information, and congestion management documentation, in accordance with the annual CLRP Call For Projects.

If a source of federal funding is identified and the project is included in the CLRP, the project will be required to comply with the National Environmental Policy Act of 1969 (NEPA). NEPA provides an interdisciplinary, consolidated framework for documenting compliance with all applicable Federal, state, and local laws, regulations, policies, and guidance, including but not limited to:

- Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA
- Section 4(f) of the US Department of Transportation Act of 1966
- Section 6(f) of the Land and Water Conservation Act
- Farmland Protection Policy Act of 1981 (FPPA)
- Section 7 of the Endangered Species Act of 1973 (ESA)
- Section 106 of the National Historic Preservation Act of 1966 (NHPA)
- Archaeological and Historic Preservation Act
- Sections 401, 402, and 404 of the Clean Water Act of 1977 (CWA)
- Clean Air Act (CAA)
- General Bridge Act of 1946 (General Bridge Act)
- Sections 9 and 10 of the Rivers and Harbors Act (RHA)
- Magnuson-Stevens Fishery Conservation and Management Act (MSA)
- Marine Mammal Protection Act of 1972 (MMPA)
- Coastal Zone Management Act of 1972 (CZMA)
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)
- Title VI of the Civil Rights Act of 1964
- Resource Conservation and Recovery Act (RCRA)
- Safe Drinking Water Act
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- Noise Control Act of 1972

- Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality
- EO 11593, Protection and Enhancement of the Cultural Environment
- EO 11988, Floodplain Management
- EO 11990, Protection of Wetlands
- EO 12898, Environmental Justice
- EO 13693, Planning for Federal Sustainability in the Next Decade
- EO 13807, Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects
- USDOT Order 5650.2, Floodplain Management
- VA Solid Waste Management Regulations
- State and local stormwater management regulations and ordinances

As the primary approver of large-scale highway projects in the US, FHWA would act as the lead Federal agency for a Potomac River crossing project. VDOT would act as a joint lead agency and local project sponsor. Therefore, VDOT would prepare the EIS in accordance with the FHWA Environmental Impact and Related Procedures (23 CFR §771) and FHWA Technical Advisory T 6640.8A: Guidance for Preparing and Processing Environmental and Section 4(F) Documents. However, according to EO 13807, the EIS would also need to satisfy the NEPA implementation guidelines of any other Federal cooperating agencies, which include any agencies that are required to make an approval or take an action for the project. In doing so, one single EIS can be used as a reference to fulfill the NEPA and permitting requirements for all cooperating Federal agencies. State and local permitting agencies may also agree during project scoping to act as cooperating agencies and would accept the EIS as a permit application.

NEPA requires FHWA/VDOT to conduct early coordination, or scoping, with Federal, state, and local agencies, the public, and other stakeholders with interests in the project area regarding the project's purpose and need, alternatives to be evaluated, resources over which agencies have approval authority or special expertise, and any other relevant issues. FHWA/VDOT will also take this opportunity to formally invite agencies to participate in the EIS process as cooperating or participating agencies. Agencies generally have 30 days to respond to a scoping request and to formally accept an invitation to participate as a cooperating or participating agency. Agencies and stakeholders that would be invited to participate in the scoping process for the Potomac River Crossing project include, but are not limited to:

Cooperating Agencies or Agencies with approval authority:

- US Coast Guard (USCG)
- US Army Corps of Engineers (USACE)
- US Fish and Wildlife Service (USFWS)
- National Park Service (NPS)
- Environmental Protection Agency (EPA)
- Virginia Department of Environmental Quality (DEQ) –
- Virginia Marine Resources Commission (VMRC)

Federal Agencies

- National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-NMFS)
- US Department of the Interior, Office of Environmental Policy and Compliance
- US Forest Service
- Advisory Council on Historic Preservation (ACHP)
- US Department of Agriculture – Natural Resources Conservation Service (NRCS)
- Federal Emergency Management Agency (FEMA)
- US Department of Housing and Urban Development (HUD)
- National Capital Planning Commission (NCPC)
- US Commission of Fine Arts (CFA)

Regional Agencies

- Metropolitan Washington Council of Governments (MWCOG)
- Metropolitan Washington Airports Authority (MWAA)
- Northern Virginia Regional Park Authority
- Northern Virginia Regional Transportation Authority (NVTA)

Virginia State Agencies

- Department of Rail and Public Transportation (DRPT)
- Department of Aviation
- Virginia Economic Development Partnership
- Commonwealth Transportation Board (VCTB)
- Department of Conservation and Recreation (DCR)
- Department of Game and Inland Fisheries (DGIF)
- Marine Resources Commission (VMRC)
- Department of Agriculture and Consumer Services (VDACS)
- Department of Historic Resources (DHR)
- Department of Emergency Management (DEM)
- Department of Environmental Quality (DEQ)
- Department of Forestry (DOF)
- Department of Health (DOH)
- Department of Housing and Community Development (HCD)
- Department of Mines, Minerals, and Energy
- State Police Department

Maryland State Agencies

- State Highway Administration (SHA)
- Department of Transportation (MDOT)
- Department of Natural Resources (MDDNR)

Local Agencies

- Loudoun County
- Fairfax County
- Montgomery County
- Town of Leesburg
- Town of Herndon
- Maryland-National Capital Park and Planning Commission (M-NCPPC)
- DC Water

Other

- Virginia Outdoors Foundation (VOF)
- The Nature Conservancy

Because there would likely be multiple alternatives evaluated in the EIS, the project would be subject to the NEPA and Clean Water Act (Section 404) Merged Process for Highway Projects in Virginia Memorandum of Understanding (MOU). The MOU establishes a schedule and procedure for coordination and concurrence among FHWA, USACE Norfolk District, EPA, USFWS, NOAA-NMFS, and VDOT.

While scoping and preliminary agency coordination should begin as early as possible, the NEPA process officially begins with the publication of a Notice of Intent to Prepare an EIS (NOI) in the Federal Register. In order to publish an NOI, VDOT must prepare and submit an Initiation Letter to FHWA, which must include a Draft Purpose and Need, Draft Alternatives, draft agency coordination and public involvement plans, draft schedule, and draft NOI. Once FHWA approves the Initiation Letter, FHWA publishes the NOI in the Federal Register. The public and other agencies have 30 days to review and comment on the NOI. FHWA confirms the selection of a Preferred Alternative, if applicable.

Once any comments have been addressed and FHWA has approved and finalized the Purpose and Need, alternatives, and other documents, VDOT can begin the preparation of a Draft EIS, which takes an average of 14 months. The impact topics to be addressed in an EIS for a new Potomac River crossing may include, but are not limited to:

- Land Use
- Right-of-way acquisition and relocations
- Farmland
- Community facilities and character
- Population and Housing
- Economics
- Environmental justice
- Cultural Resources
- Section 4(f)
- Section 6(f)
- Air Quality

- Noise
- Visual and Aesthetics
- Streams and Wetlands
- Water Quality
- Floodplains
- Coastal Zone Management
- Wildlife and Habitat
- Threatened and Endangered Species
- Hazardous Materials
- Energy
- Indirect and cumulative impacts

Many EISs rely upon technical reports or technical memorandums, which are in-depth analysis documents developed for a specific resource topic to support an EIS. Technical reports provide additional background information about complex methodologies and tools used to complete the analysis, which can then be summarized briefly in the EIS. Impact topics that generally benefit from a technical report include air quality, noise, socioeconomic resources and land use, natural resources, cultural resources, traffic, hazardous materials, and indirect and cumulative effects.

When the Draft EIS is completed, a Notice of Availability is published in the Federal Register and a 45-day public review and comment period begins. A public hearing is not always required, but must be held upon request. Following the public review and comment period for the Draft EIS, FHWA and VDOT will address any comments received in a Final EIS, which is published concurrently with a Record of Decision (ROD). In accordance with EO 13807, a joint ROD, developed and signed by all Federal cooperating agencies, must be issued within two years of publication of the NOI, and all federal authorizations and permits should be issued within 90 days of issuance of the Final EIS/ROD. State and local permitting agencies may also agree during project scoping to accept the EIS as a permit application and issue any permits or authorizations upon publication of the ROD. Therefore, the overall NEPA process, including preliminary scoping and permitting, can theoretically be completed in two to three years.

APPENDIX A

Loudoun County, Virginia
www.loudoun.gov
Office of the County Administrator
1 Harrison Street, S.E., 5th Floor, P.O. Box 7000, Leesburg, VA 20177-7000
Telephone (703) 777-0200 • Fax (703) 777-0325

At a Transit Summit of the Board of Supervisors of Loudoun County, Virginia, held in the County Government Center, Board of Supervisors Meeting Room, 1 Harrison Street, S.E., Leesburg, Virginia, on Thursday, June 29, 2017 at 5:00 p.m.

IN RE: Potomac River Crossing (Countywide)

Vice Chairman Buona moved that the Board of Supervisors direct staff to develop and include a narrative statement in the update to the Countywide Transportation Plan that expresses the Board's intent and support for a future Potomac River Crossing, east of the Goose Creek in Loudoun County. The narrative should also include a summary of the economic development and transportation benefits that could be realized from such a new crossing.

Vice Chairman Buona further moved that the Board of Supervisors direct staff to identify a series of potential corridors that they recommend for further analysis of the social, cultural, historical, environmental and transportation impacts of a future crossing to better position the County for use of federal and state funding where a formal environmental assessment document would be required to move a project forward. All identified potential corridors would be shown in the updated Countywide Transportation Plan.

Vice Chairman Buona further moved that the Board of Supervisors direct staff to continue regional and multi-state coordination efforts, at the Board's direction, that advance the concept of a new Potomac River Crossing and monitor funding source availability to plan for future implementation of the project.

Seconded by Supervisor Meyer.

Vice Chairman Buona did not accept Supervisor Volpe's Friendly Amendment to include in the motion that the Board of Supervisors direct staff to look for viable corridors on both sides of the river.

Voting on the Motion: Supervisors Buffington, Buona, Higgins, Letourneau, Meyer, Randall, Saines, Umstattd, and Volpe – Yes; None – No.

A COPY TESTE:

DEPUTY CLERK TO THE LOUDOUN COUNTY
BOARD OF SUPERVISORS

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

A New Northern Potomac River Crossing
Documented Need and Benefits

Loudoun County Board of Supervisors

June 29, 2017

New Northern Potomac River Crossing

- Comprehensive Plan for the Nation's Capital and Its Environs - 1950
- National Capital Planning Commission Year 2000 Plan – 1961
- No VA Regional Planning and Economic Dev. Commission – 1965
- Joint MD – VA Regional Bypass Study – 1990
- Grtr. Washington BoT Regional Transportation Study – 1997
- VDoT Travel Demand Study – 1998
- Montgomery County TPR II – 2002
- 2030 Group Survey & Analysis – 2011 & 2013
- NVTAlliance & SMTA Survey - 2015

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

New Northern Potomac River Crossing

Comprehensive Plan for the Nation's Capital and Its Environs - 1950

The National Capital Park and Planning Commission

- Included 3 Different Circular Roads in and around DC
- Further endorsed in 1953 as part of Master Highways Plan
- Included in the General Plan of 1957
- On Wedges and Corridors Plan in 1964

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

New Northern Potomac River Crossing

National Capital Planning Commission Year 2000 Plan – 1961

525 – Memorandum on the Year 2000 Plan for the National Capital Region
November 27, 1962:

> *"Planning to meet future transportation requirements for the Region shall assume the need for a coordinated system including both efficient highway and mass transit facilities and making full use of the advantages of each mode of transportation."*
>
> President John F. Kennedy

- Logically Balanced Network of Radials and Circumferentials
  - Allowed for Regional Mobility
  - Provided Structure for Intelligent Land Use
- Included 2 Bridges Outside the Capital Beltway
  - Plan Anticipated the Year 2000 Regional Population at 5 million

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

New Northern Potomac River Crossing

No. VA Regional Planning and Economic Dev. Commission – 1965

- Major circumferential highways and more bridges were called for to minimize use of smaller north-south roads and prevent scattered development/loss of open space.
- Called for “a flexible system that can accommodate all methods of transit” with “a regional highway network as the backbone of this transportation plan”.
- Specifically recommended two more beltways beyond the Capital Beltway.

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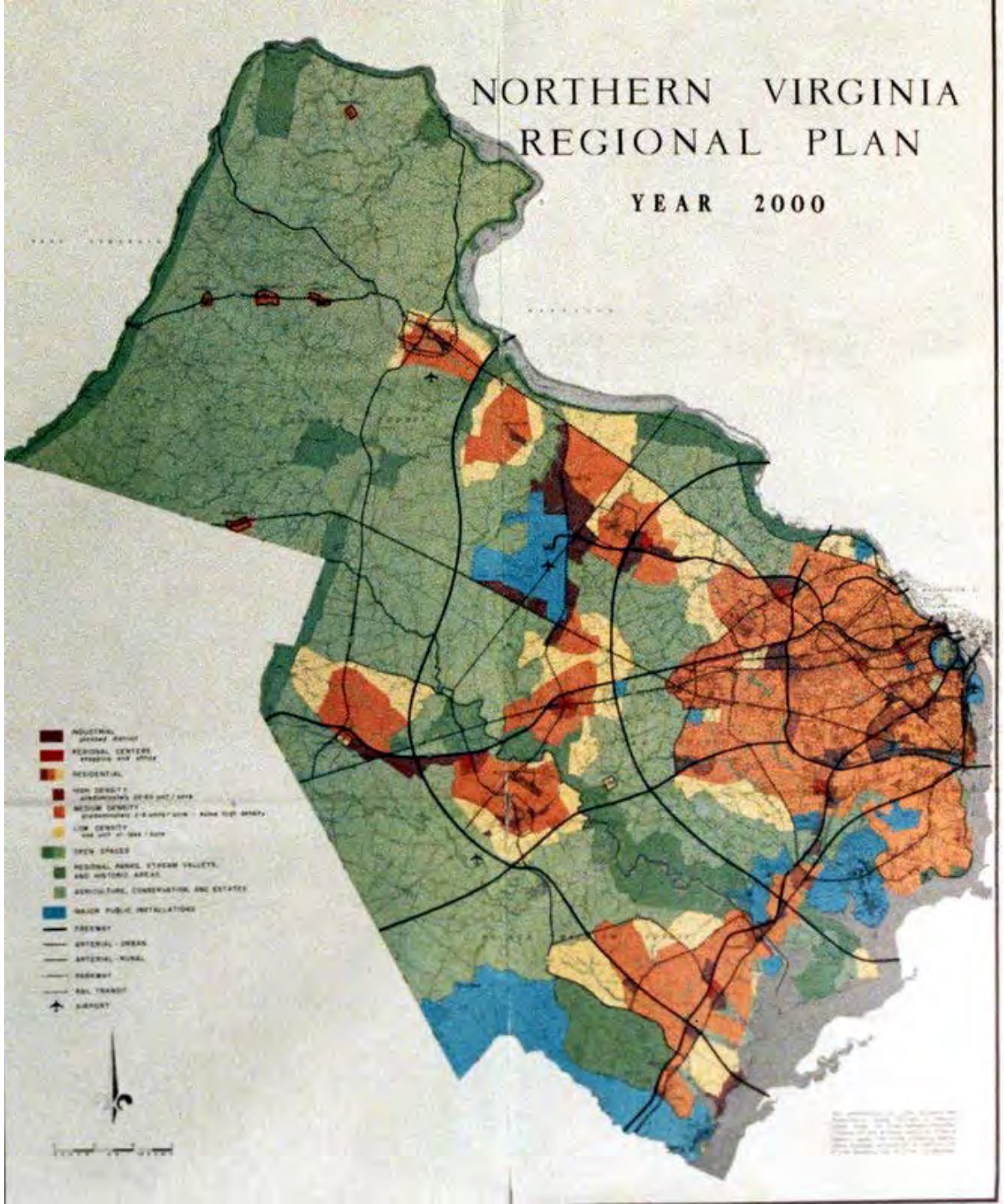

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New Northern Potomac River Crossing

NCPC Regional Development Guide 1966-2000 – 1966

- The report proposed a network for the Region consisting of 9 radial freeways and 3 circumferential freeways

- The 3 circumferential freeways include:
  - The Capital Beltway (which existed)
  - A second to be built by the early 80's crossing the Potomac at or about River Bend
  - The third freeway (exact location to be determined) might be open by 2000

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Year 2000 Road and Bridge Plans

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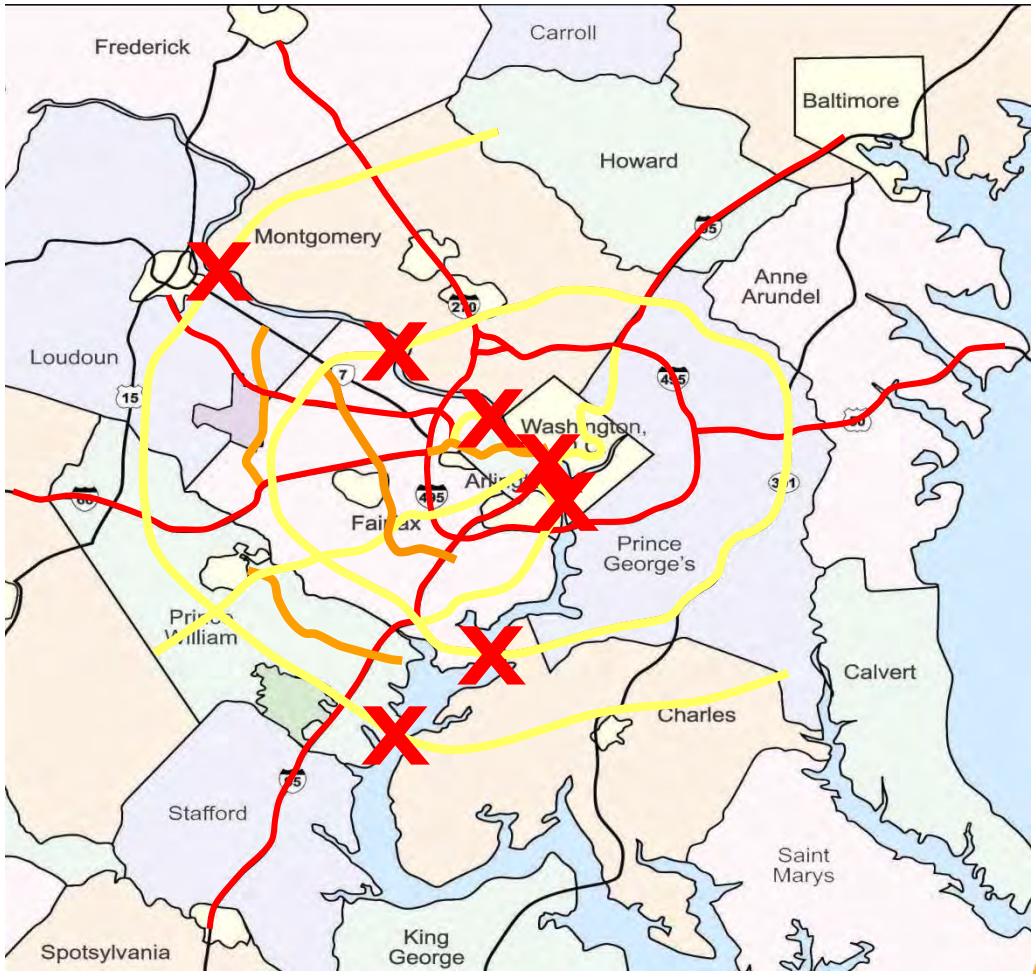
MAKING BETTER WAYS...

Year 2000 Road and Bridge Deletions

- I-95 in the District
- Monticello Freeway
- Potomac Freeway
- Second Beltway
- Third Beltway
- Pimmit Parkway
- I-66 Inside Beltway
- Northern Virginia Expressway (Fairfax County Parkway)
- Potomac River Bridges



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MAKING BETTER WAYS...

New Northern Potomac River Crossing

Outward Population Shift 1960–2040

Location	1960	2000	2040
Central	1,017,000 *(45%)*	889,900 *(19%)*	1,409,600 *(21%)*
Inner Suburbs	983,000 *(45%)*	2,682,900 *(59%)*	3,587,100 *(54%)*
Outer Suburbs	195,000 *(9%)*	979,400 *(22%)*	1,668,100 *(25%)*
TOTAL	2,295,000	4,552,200	6,665,300

Source: National Capital Region Transportation Planning Board

TPB Considers Fairfax/Montgomery/Pr. Georges/Reston/Herndon/Chantilly/Rockville/Germantown/Gaithersburg – Inner Suburbs

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE
MAKING BETTER WAYS...

New Northern Potomac River Crossing

Joint MD – VA Regional Bypass Study – 1990

- Studied the Need for an Eastern and/or Western Bypass

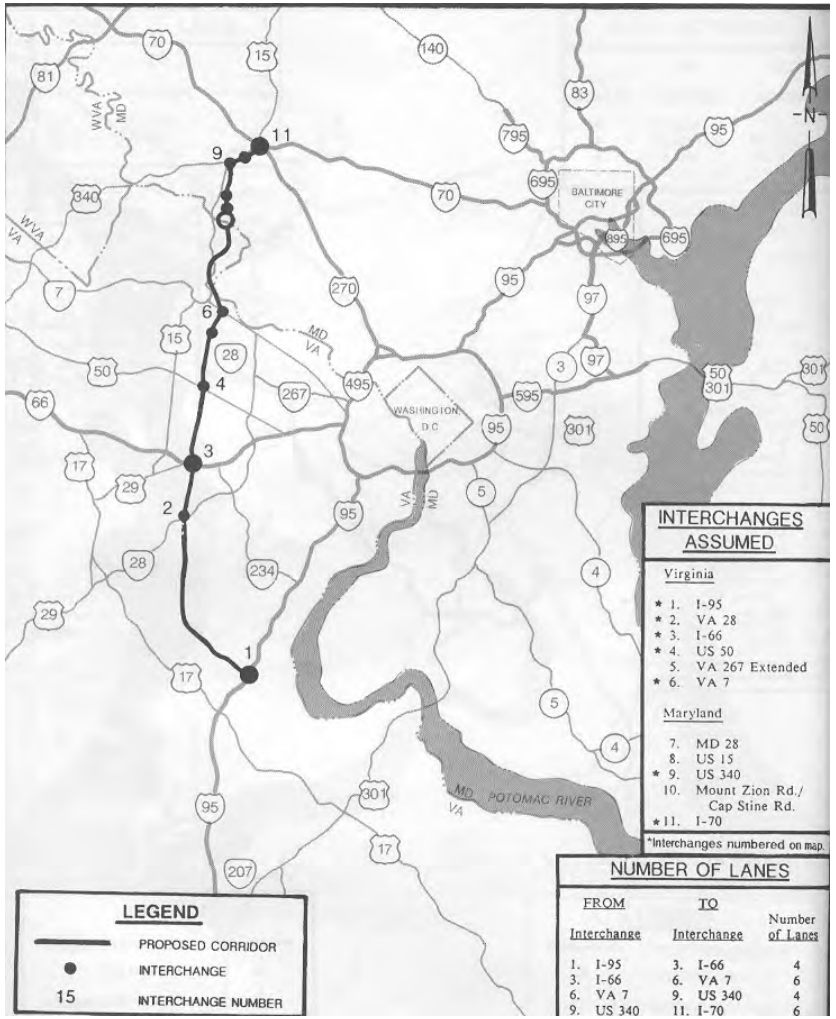
Observations:

- Congestion at River Crossings is a Major Travel Barrier
- Region Lacks Alternative Routes
- 1989 VCU Survey 80% DC Area Residents Supported a Bypass

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

New Northern Potomac River Crossing

Joint MD – VA Regional Bypass Study – Western Corridor – 1990



- Traffic volumes of 50,000 to 77,000 vehicles/day by 2010 (2x 1990 volumes)
- Services key economic centers
- Provides Capital Beltway, I-95 alternatives
- Reduces US 15 traffic
- Makes roads safer
- Supports Dulles Airport

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

New Northern Potomac River Crossing

Greater Washington BoT Regional Transportation Study – 1997

- **Conclusions:**
  - 1500 Lane Miles/7 Planned Bridges Removed from that Plan
  - Much of the Transit Network in the Plan was Complete/In Progress
  - Region had Highest Rate of Carpooling/3rd Highest Rate of Transit Usage
  - Of All Major Projects Studied, the Northern Connector has Greatest Potential Benefit (compared with CLRP)
    - Lowers Volumes and Capacity Deficits on American Legion Bridge
    - Would Carry 84,000 Vehicles Per Day in 2020
    - Improves Peak Period Travel Speed by 27%
    - Increases Suburb-to-Suburb Capacity in this Corridor

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New Northern Potomac River Crossing

VDoT Travel Demand Study – 1998

- Looked at 3 Potential Crossings
- The Closer the ALB – the Greater the Relief (year 2020 est.)
  - 107,000 Trips Per Day (Fairfax County Pkwy Option)
  - 87,000 Trips Per Day (Route 28 Option)
  - 54,000 Trips Per Day (Western Transportation Corridor near Point of Rocks)

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New Northern Potomac River Crossing

Montgomery County TPR II – 2002

- Studied 2 Alignments:
  - "High Techway" 6 Lanes/Limited Access
    - 10,000 Vehicles per Hour During Peak Periods
    - Increase VMT 18%
    - Increase Average Speed 8%
  - "Low Techway" 4 Lanes/Extends Current Network
    - 5,900 Vehicles per Hour During Peak Periods
    - Increase VMT 4%
    - Increase Average Speed 3%
- Analysis: New Crossing Would Be 2nd Most Beneficial (After the ICC)

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New Northern Potomac River Crossing

2030 Group Survey of Transportation Experts – 2011

"What Regional Investments Will Make Greatest Difference"

- **Experts Most Frequent Recommendation: New Potomac River Bridges**
  - **Northern Crossing**
  - Southern Crossing
- **Other Recommendations in Order of Frequency**
  - Metro – Maintenance/Operations/Reliability/Core Capacity
  - Create Regional Express Bus/Toll Network
  - Improve Maryland Beltway/ I-495
  - Build Regional Bypasses
  - Upgrade I-270 Corridor
  - Build Purple Line
  - Upgrade I-66 Corridor
  - Upgrade I-95/I-395 VA Corridor

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New Northern Potomac River Crossing

2030 Group Analysis – 2013

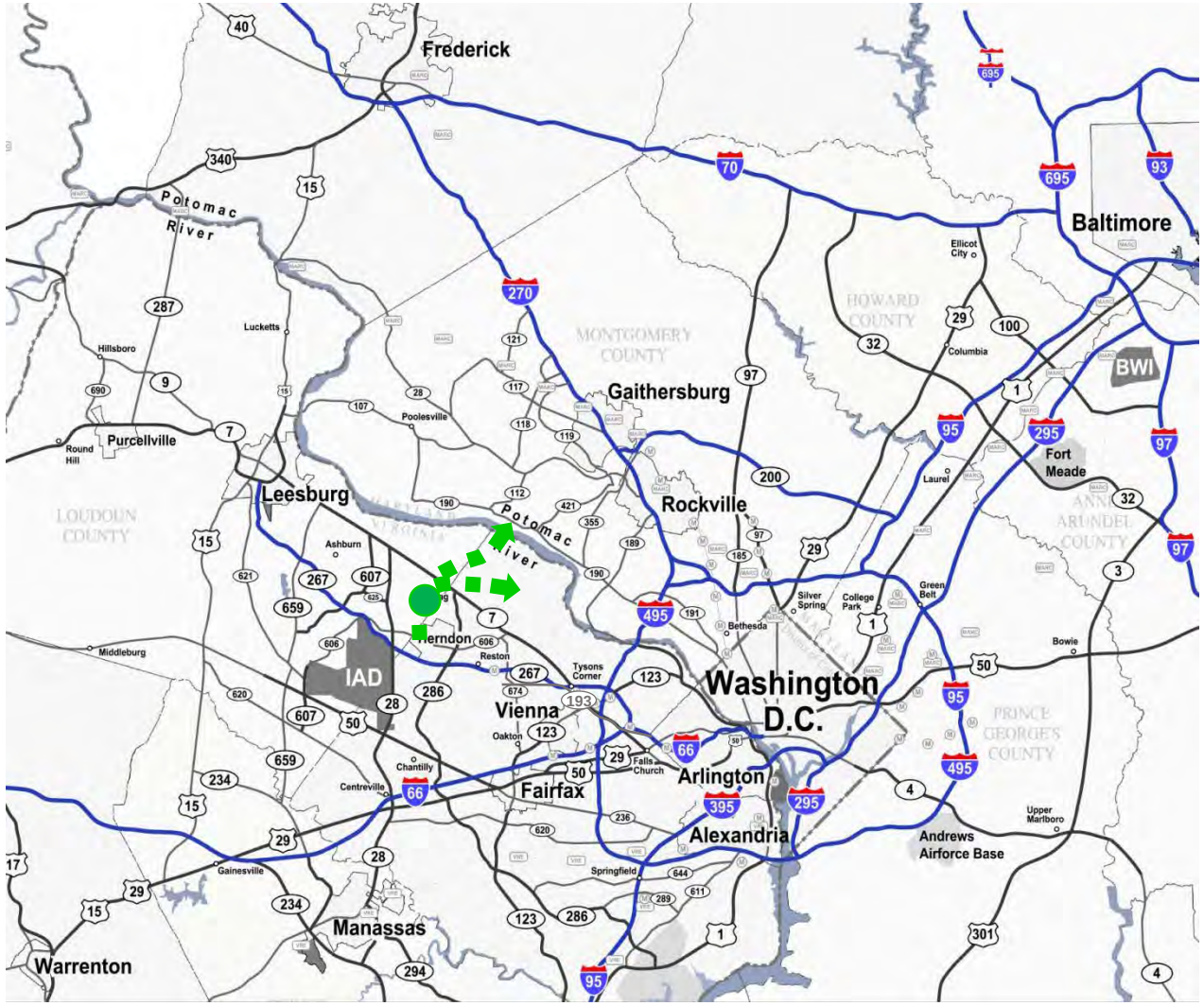
What the Follow Up Analysis Did

- Evaluated Projects Selected as Most Important by Transportation Professionals
  - Utilized Same Criteria/Model Employed by MWCOG/Transportation Planning Board
- Based on Criteria Transportation Professionals Considered Most Meaningful
  - Improve Travel Times/Reduce Delays
  - Reduce Congestions/Improve Level of Service
  - Vehicle Miles Traveled (VMT) Reduction

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

THE 2030 GROUP

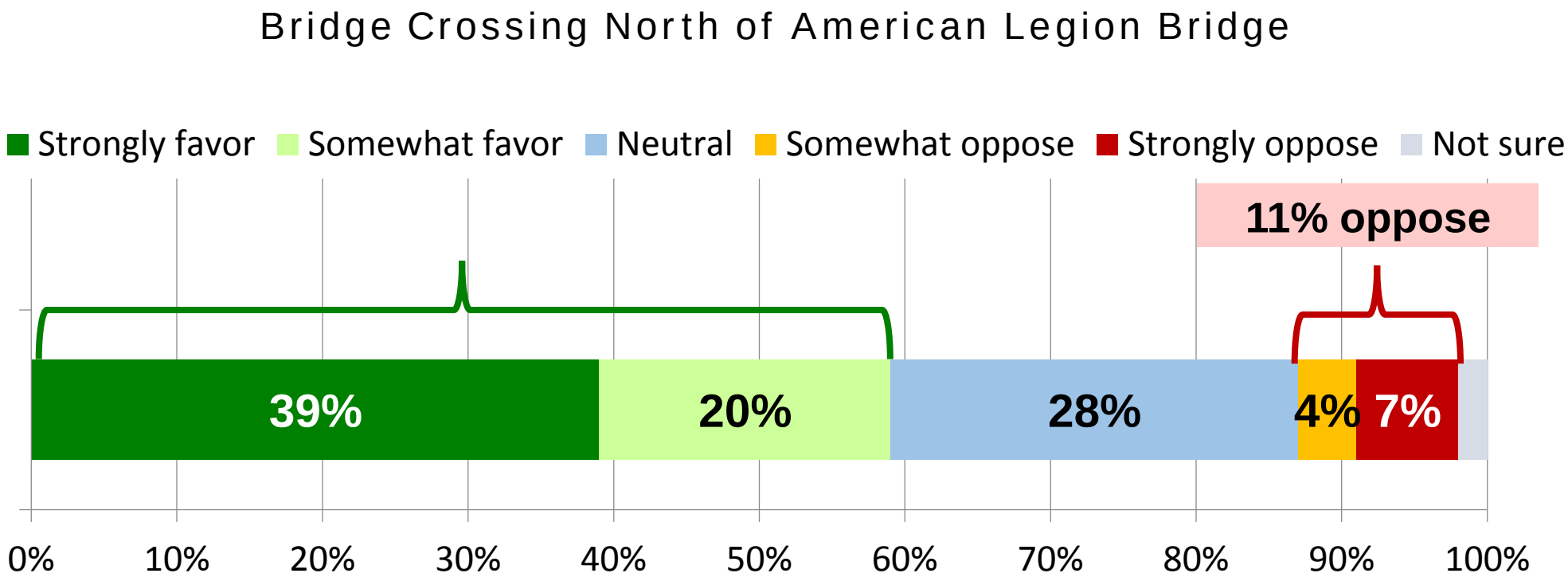
Transportation Prioritization Study Update *6.26.13*



Northern Potomac River Crossing
VA 28 Extended to MD 28/I-270

- Does Most to Improve Travel Speeds and Accessibility and Reduce Delays
- Traffic Diversion
  2030 Volume: 105,000
  (Comparable to Roosevelt Bridge)
- Reduces regional delays: 67,000 hours daily
- Reduces American Legion Bridge and U.S. 15 Volume/Delays
- Promotes Regional Economic Connectivity and Activity Center/Airport Accessibility
- Improves Regional Security

NVTAlliance & SMTA 2015 Survey Results



"Please tell me if you strongly favor, somewhat favor, are neutral, somewhat oppose, or strongly oppose…Adding another bridge crossing north of the American Legion Bridge, to provide a direct link between the I-270 corridor in Maryland and the Dulles corridor in Virginia."

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

NVTAlliance & SMTA 2015 Survey Results

Adding another bridge crossing north of the American Legion Bridge, to provide a direct link between the I-270 corridor in Maryland and the Dulles corridor in Virginia

	Region	NoVA	Montgmy Cty
• Strongly/somewhat favor	59%	55%	68%
• Neutral	28%	31%	18%
• Strongly/somewhat oppose	11%	12%	12%

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New Northern Potomac River Crossing

Common Themes

- Decades of Studies Have Documented the Clear Need and Substantial Regional Benefits of a Northern Potomac River Crossing
- Surveys Continue to Document Substantial Citizen Support and Minimal Opposition on Both Sides of the River
- Public/Private Transportation Professionals Continue to View This Crossing as Essential Regional Priority and Need

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New Northern Potomac River Crossing

Next Steps

- Declare and Continue to Promote a New Northern Potomac Crossing as a Regional Priority
- Conduct Necessary Studies to Identify Best Corridor and Acquire Right-of Way
- Not Either/Or – Both New Crossing and ALB Upgrade are Needed

Time Is Not On Our Side

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

New Northern Potomac River Crossing

"We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win."

President John F. Kennedy
Speaking at Rice University
September 12, 1962

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New Northern Potomac River Crossing

Thank you

www.nvta.org

NORTHERN VIRGINIA TRANSPORTATION ALLIANCE

APPENDIX B

Long-Range Plan Task Force: Draft Analysis Results

November 15, 2017

Prepared for:
National Capital Region Transportation Planning Board

Transportation Planning Board
Item #9

Presentation Components

- **Analysis Process** (slides 3-10)
  - 10 Initiatives Selected for Analysis
  - Regional Challenges and Measures of Effectiveness
  - Sketch Planning Analysis Approach

- **Draft Analysis Results – Overview** (slides 11-19)
- **Initiative-by-Initiative Draft Results** (slides 20-40)
- **Overall Comparisons of Initiatives** (slides 41-43)

- **Other Factors to Consider** (slides 44-52)
- **Next Steps** (slides 53-55)

Analysis Process

10 Initiatives Selected for Analysis

Multimodal	Transit	Policy-Focused
1. Regional Express Travel Network	4. Regionwide High-Capacity Transitways	8. Optimize Regional Land Use Balance
2. Operational Improvements & Hotspot Relief	5. Regional Commuter Rail Enhancements	9. Transit Fare Policy Changes
3. Additional Northern Bridge Crossing/Corridor	6. Metrorail Regional Core Capacity Improvements	10. Amplified Travel Demand Management (for commute trips)
	7. Transit Rail Extensions	

Regional Challenges

Challenge	Description
1. Roadway Congestion	The region's roadways are among the most congested in the nation, making it harder for people and goods to reliably get where they need to go.
2. Transit Crowding	The transit system currently experiences crowding during peak hours and lacks the capacity to support future population and job growth without reducing ridership.
3. Inadequate Bus Service	Existing bus service is too limited in its capacity, coverage, frequency, and reliability, making transit a less viable option, especially for people with disabilities and limited incomes.
4. Access to Bike/Ped Options (Unsafe Walking & Biking)	Too few people have access to safe pedestrian and bicycle infrastructure or live in areas where walking and bicycling are not practical options for reaching nearby destinations.
5. Development Around Metrorail	Too many Metrorail stations, especially on the eastern side of the region, are surrounded by undeveloped or underdeveloped land, limiting the number of people who can live or work close to transit and leaving unused capacity in reverse-commute directions on several lines.
6. Housing and Job Location	Most housing, especially affordable housing, and many of the region's jobs are located in areas outside of Activity Centers where transit, bicycling, and walking are not safe and viable options.

Regional Challenges

Challenge	Description
7. Metrorail Repair Needs	Deferred Metrorail maintenance over the years has led to unreliability, delays, and safety concerns today, as well as higher maintenance costs.
8. Roadway Repair Needs	Older bridges and roads are deteriorating and in need of major rehabilitation to ensure safe, reliable, and comfortable travel for cars, trucks, and buses.
9. Incidents and Safety	Major accidents and weather disruptions on roadways and transit systems cause severe delays and inconvenience. Reducing injuries and fatalities for all users of the transportation system must be prioritized, with particular focus on protecting vulnerable users.
10. Pedestrian and Bicyclist Safety	The number of bicycle and pedestrian fatalities each year is holding steady even as the number of vehicle fatalities has declined steadily.
11. Environmental Quality	Increasing amounts of vehicle travel resulting from population and job growth could threaten the quality of our region's air and water.
12. Open Space Development	Wildlife habitat, farmland, and other open spaces are threatened by construction of new transportation facilities and residential and commercial development.
13. Bottlenecks	Bottlenecks on the highway and rail systems cause delays in interregional travel for both freight and passengers, hurting the region's economic competitiveness.
14. Reliable Access to Intercity Hubs (Travel Time Reliability)	Travel times to and from the region's airports are becoming less reliable for people and goods movement.

Performance Measures (Measures of Effectiveness) Selected for Use

Quantitative Measure	Expressed as
Travel Time	Average commute travel time per trip for single-occupant vehicle (SOV), high-occupancy vehicle (HOV), and transit
Traditional Congestion	Daily vehicle hours of delay
Accessibility by Transit	# of jobs accessible within 45 min transit commute
Accessibility by Auto	# of jobs accessible within 45 min car commute
Mode Share (Work Trips)	SOV, HOV, transit, bicycle/pedestrian, telework
VMT	Amount of daily vehicle miles travel (VMT) and VMT per capita
Reliable Travel	Share of miles traveled on reliable modes (e.g., express lanes, BRT, transit rail, commuter rail)
Transit Options for Households	Share of households in high capacity transit zones
Transit Options for Employment	Share of jobs in high capacity transit zones
Mobile Source Emissions	VOC, NOx, and CO_2

Qualitatively Assess Each Challenge
Road Congestion
Transit Crowding
Inadequate Bus Service
Access to Bike/Ped Options
Development around Metrorail
Housing & Job Location
Metrorail Repair Needs
Roadway Repair Needs
Incidents and Safety
Pedestrian & Bicyclist Safety
Environmental Quality
Open Space Development
Bottlenecks
Reliable Access to Intercity Hubs

Sketch-Planning Analysis

What is Sketch Planning?

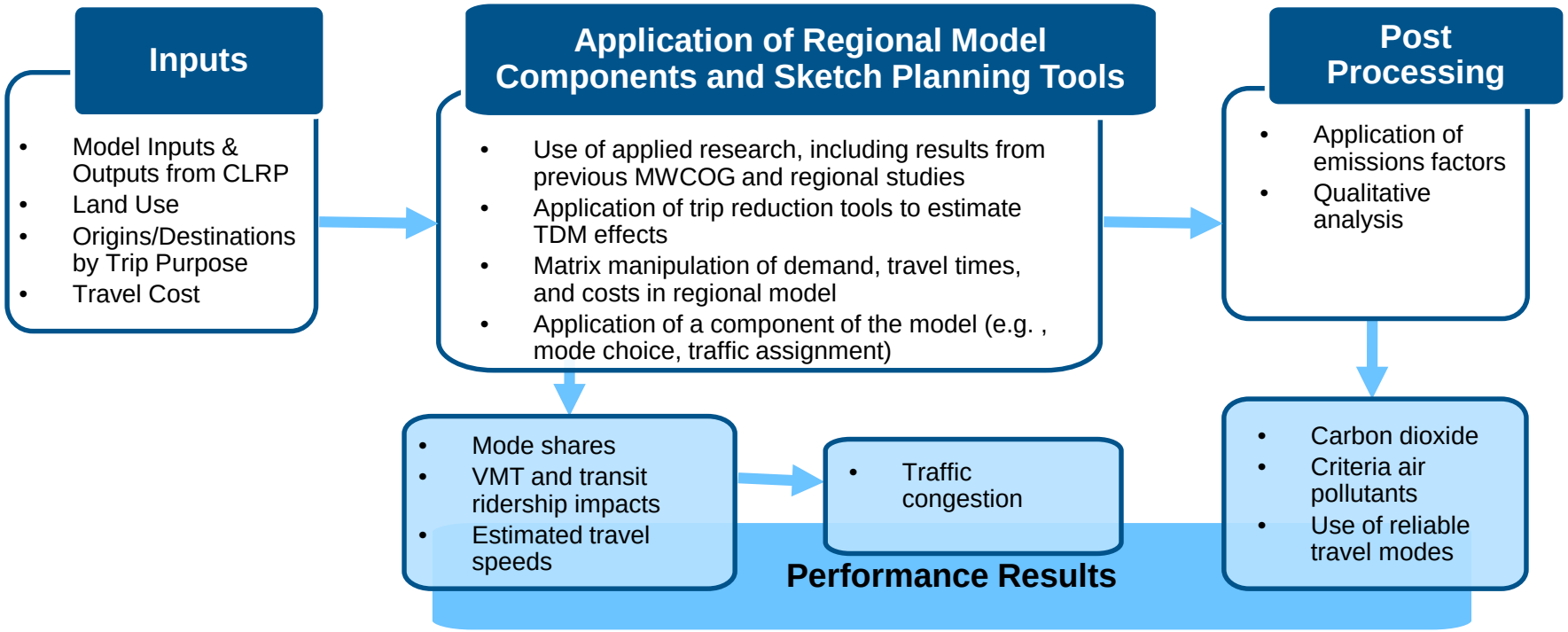
- Use of generally simplified methods and tools to conduct analysis, rather than full scale regional land use, travel demand, and emissions modeling.
- Relies on documented research, inputs/outputs/components of modeling tools, and spreadsheet analysis.
- Develops general estimates of effects; **not designed to assess individual project alignments or components that would require more detailed project-level studies.**

Why use a Sketch Planning approach here?

- Inform Task Force on the high-level impacts of various initiatives within a short time-frame, so that upon review, initiatives can be more thoroughly studied.
- Allows for vetting policy and investment ideas in a time- and cost-effective manner.

Sketch Planning Approach

- **Use of multiple tools**



Sketch-Planning Analysis Limitations

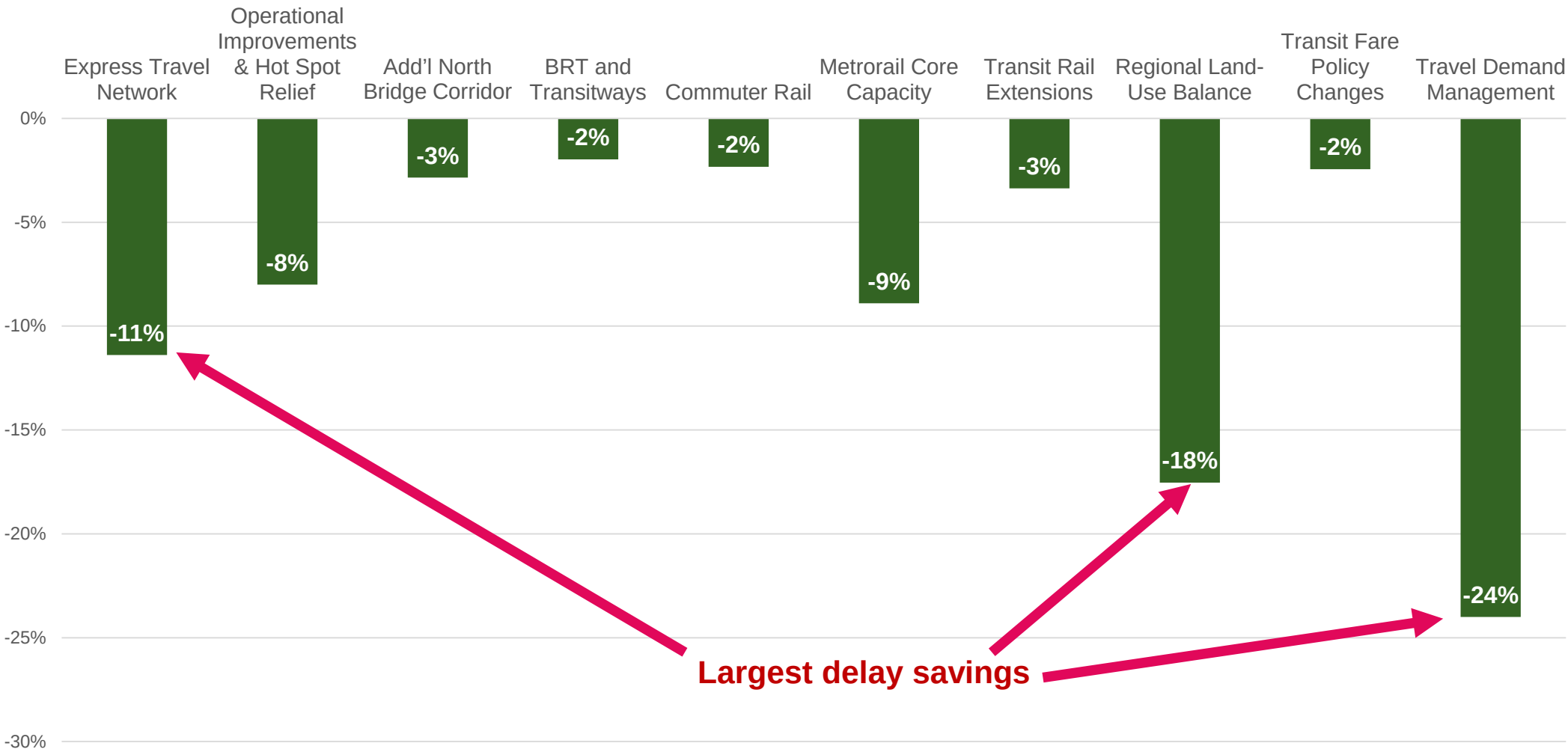
- Significant uncertainties regarding future travel demand impacts of emerging technologies and demographic changes not accounted for.
- Limited analysis of indirect effects of strategies (e.g., indirect effects of strategies on land use and trip-making behavior)
- Limited ability to examine conditions outside of the “typical” day (e.g., non-recurring congestion and reliability)

Draft Analysis Results - Overview

Observations

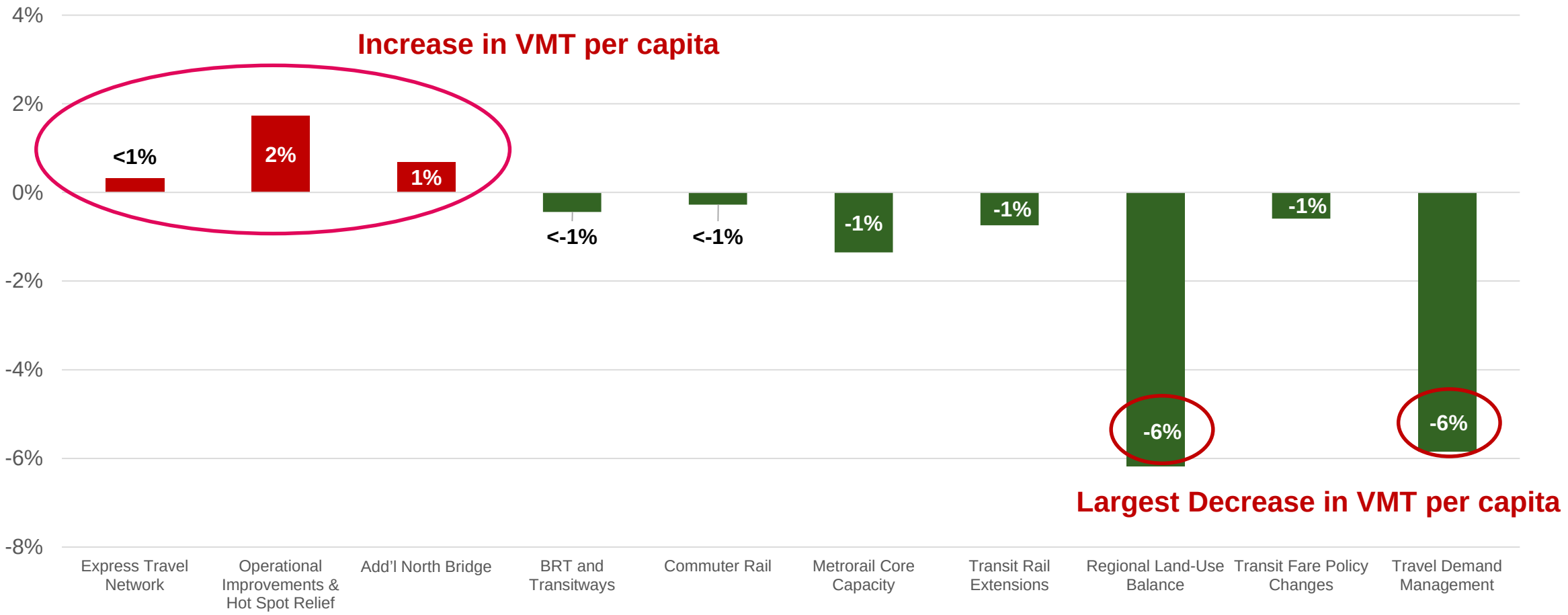
- At regional scale, many results look modest.
- However, small percentage changes at the regional scale can add up to a lot (of miles traveled, hours of delay, emissions).
- Also, there are often even more notable impacts in individual corridors or for specific segments of the population (e.g., lower income population).

Daily Vehicle Hours of Delay Improves under All Initiatives



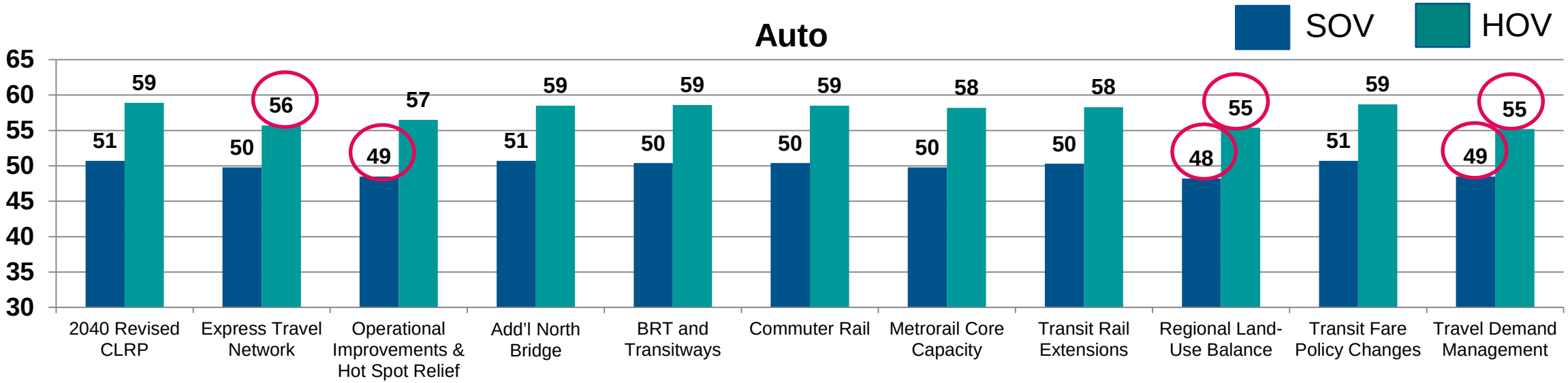
% change in daily vehicle hours of delay from 2040 CLRP

VMT per Capita Increases with Multimodal Initiatives, Decreases with Transit and Policy Initiatives

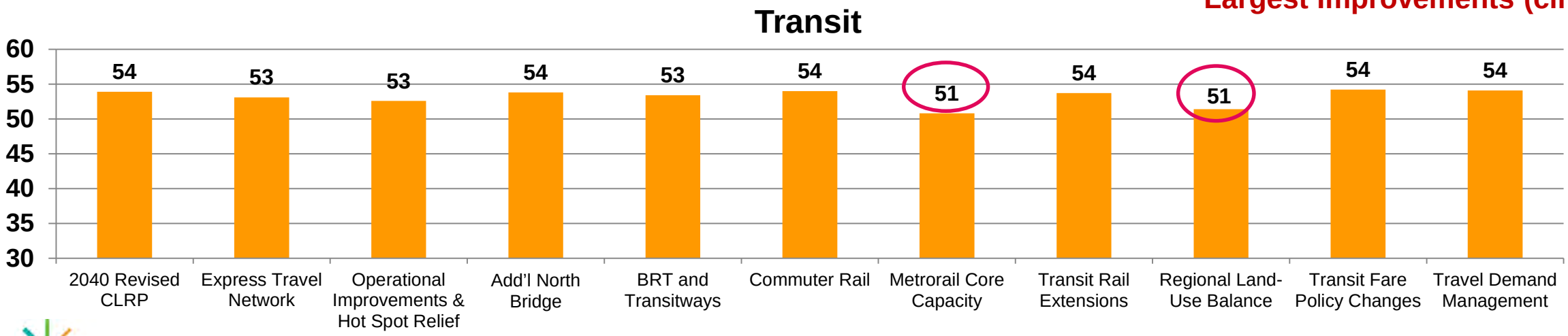


% Change in VMT per capita compared to 2040 CLRP

Average Commute Travel Times Have Small Changes: Best Initiatives achieve about 4 minute (up to 7%) time savings per trip



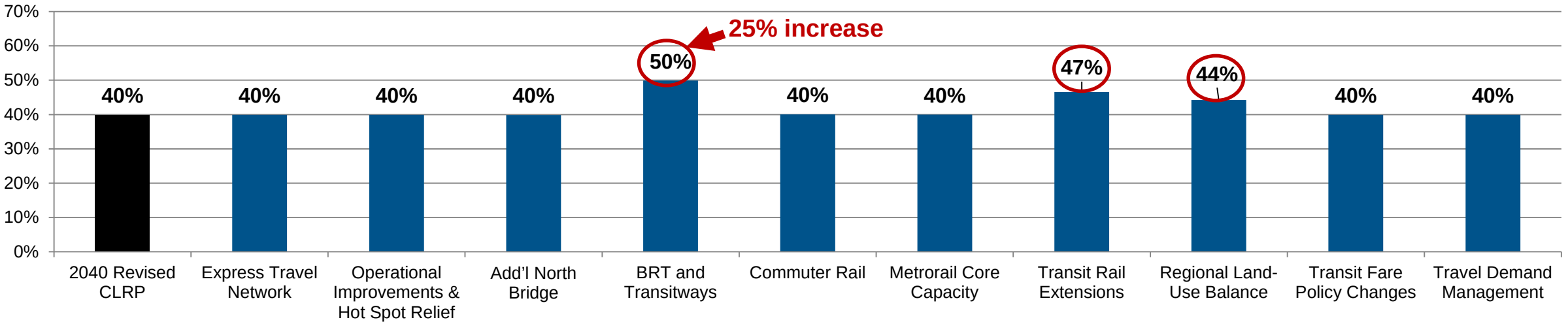
Largest Improvements (circled)



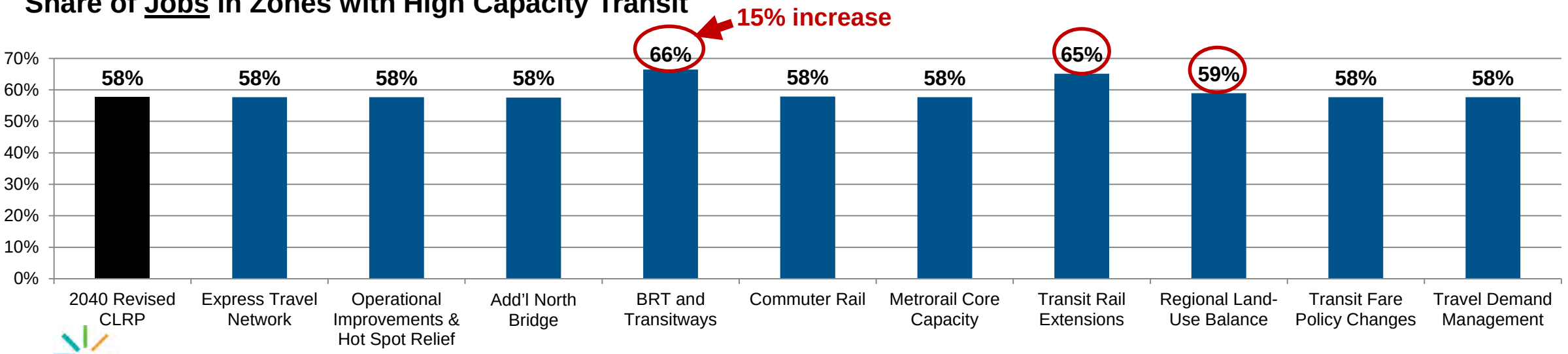
Average commute travel time per trip in minutes

Access to High Capacity Transit Increases for Three Initiatives

Share of Households in Zones with High Capacity Transit



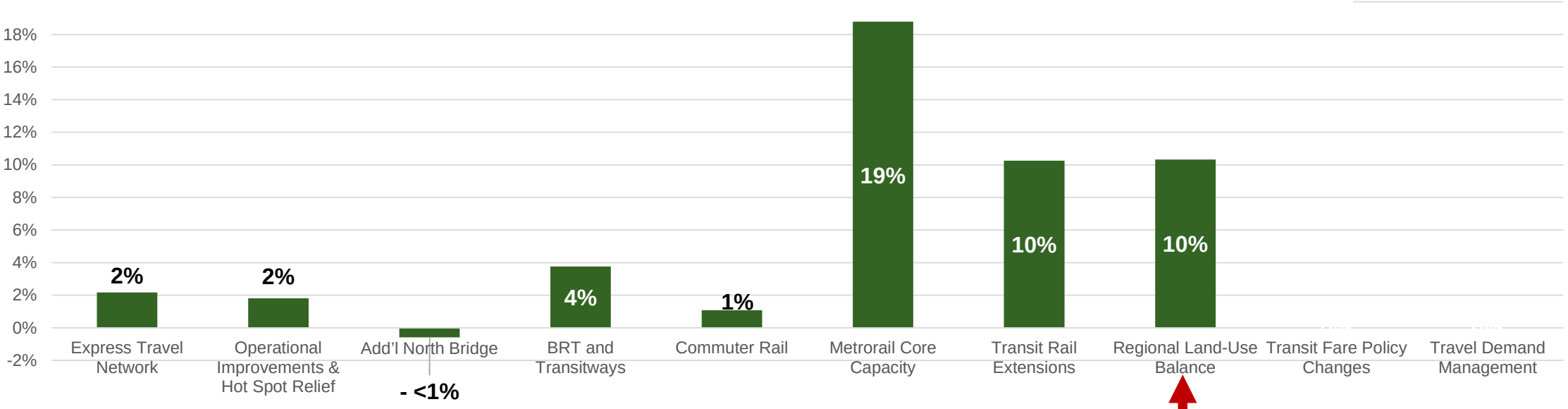
Share of Jobs in Zones with High Capacity Transit



ICF

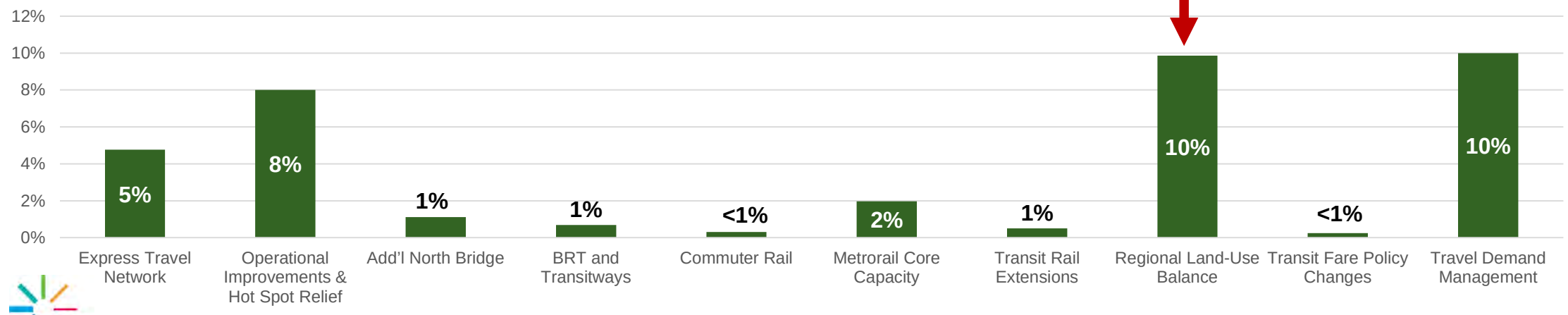
Job Access Improves under Most Initiatives

% Change in # of Jobs Accessible within 45-minute Transit Commute

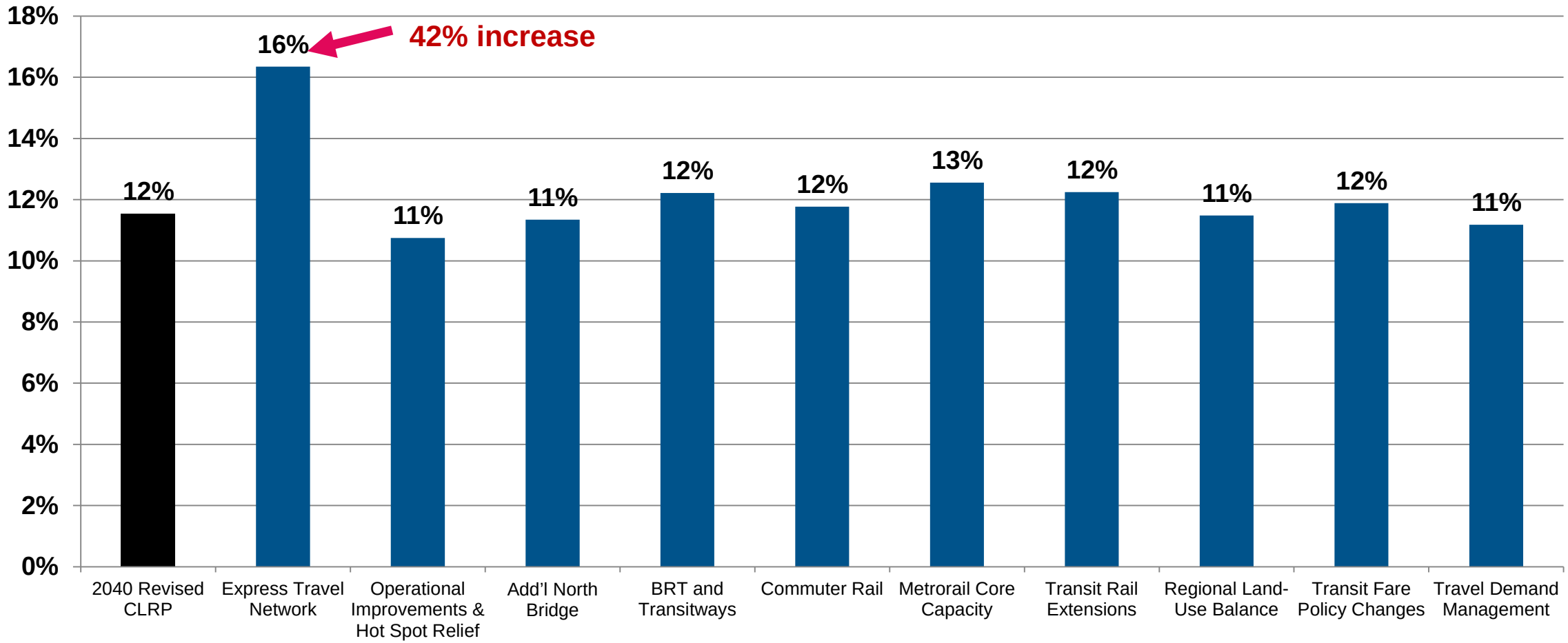


% Change in # of Jobs Accessible within 45-minute Auto Commute

Large benefit to both



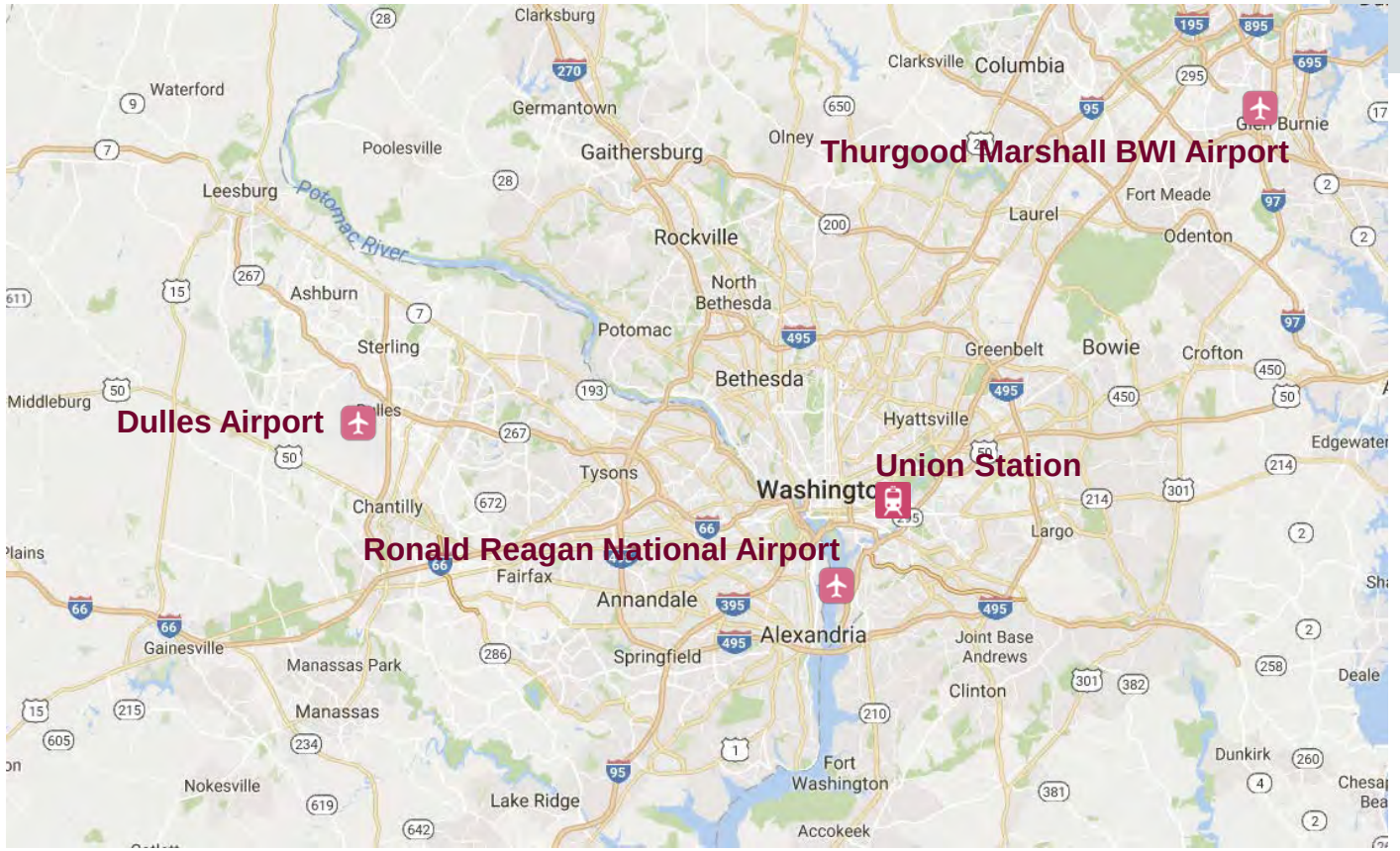
Use of Reliable Travel Options Increases the Most with the Express Travel Network



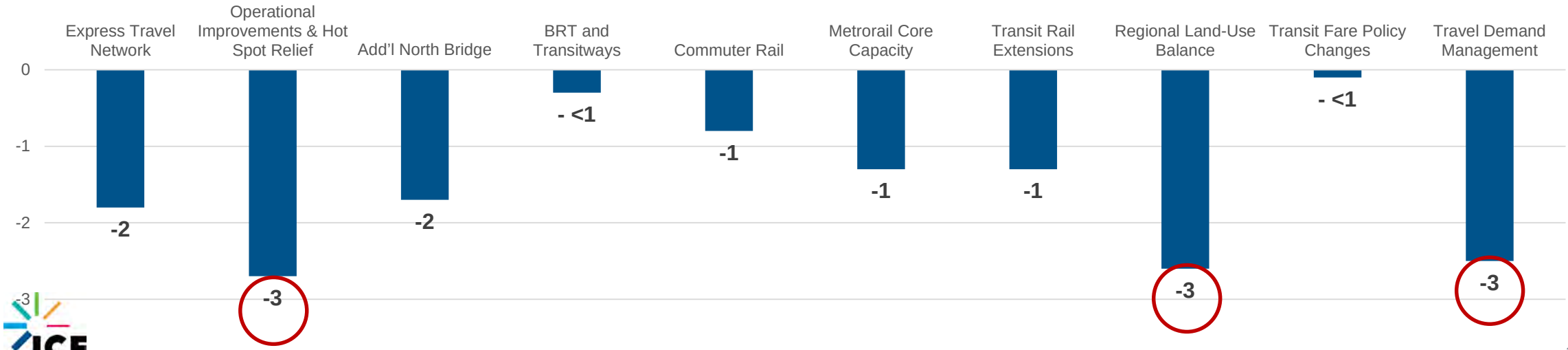
Share of Daily Miles Traveled on "Reliable" Modes (Express Lanes, Rail, BRT, Walk/Bike)

Average Best Travel Times to Intercity Hubs

Average change in time in minutes to all four hubs



Base = 81 minute average in 2040 CLRP



Initiative-By-Initiative Results

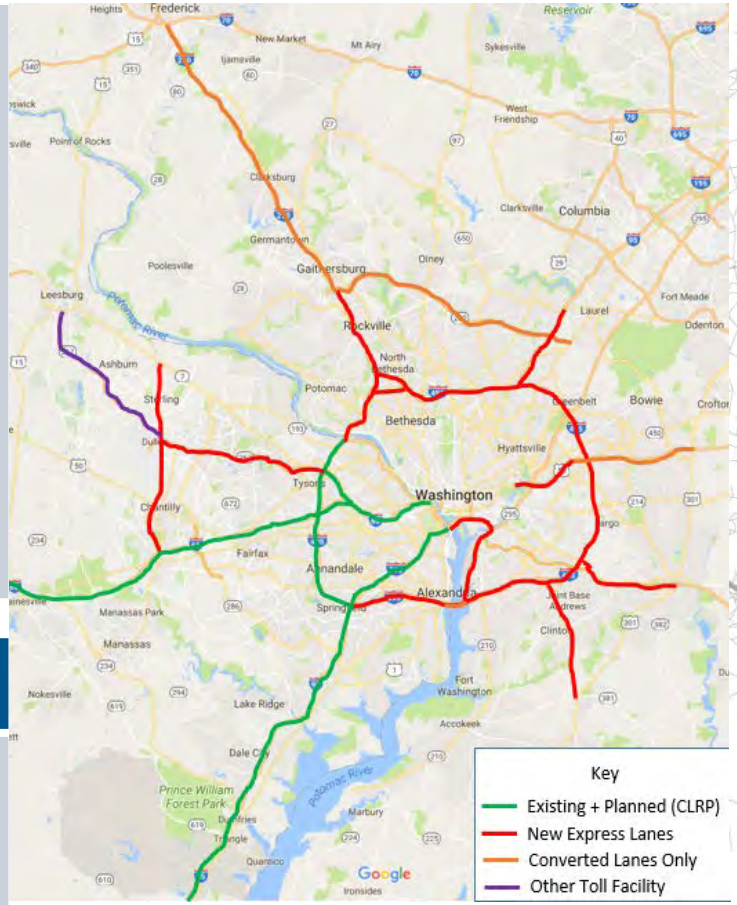
Initiative 1. Regional Express Travel Network

Components

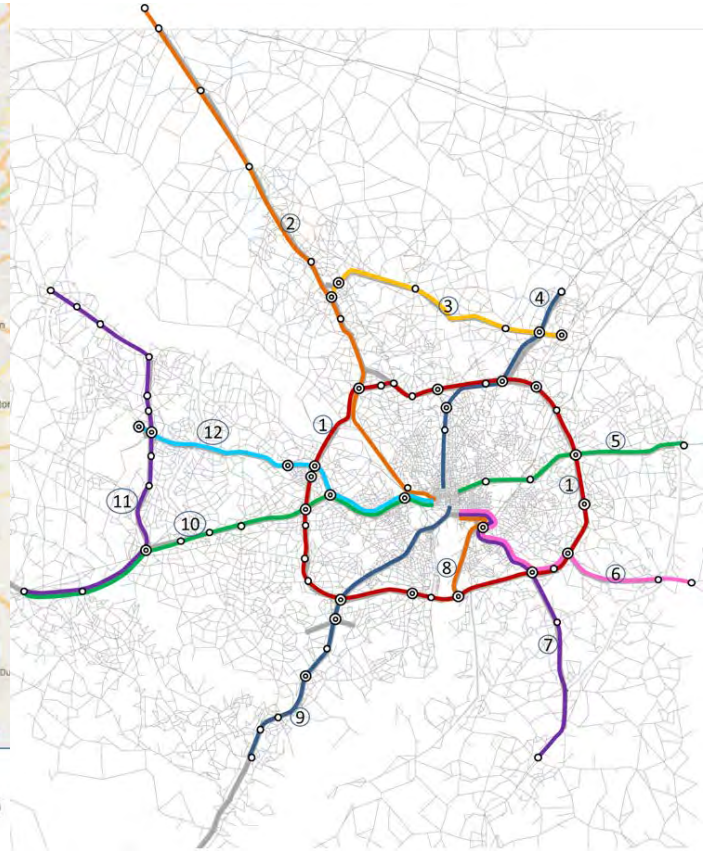
- Express toll lanes network on existing limited access highways
  - Through combination of new capacity and HOV lane conversion
- Expanded American Legion Bridge
  - 2 new express lanes in each direction
- Express bus services
  - Operating at 10 min headways peak, 20 min off-peak

Land Use

- 2040 CLRP Round 9.0 Cooperative Land Use Forecasts (unchanged)



Express Lane Network



Express Bus Network

(Source: Sabra Wang and Associates)

Initiative 1. Regional Express Travel Network - Results

Challenges	Compared to CLRP
Road Congestion	
Transit Crowding	
Inadequate Bus Service	
Access to Bike/Ped Options	
Development around Metrorail	
Housing & Job Location	
Metrorail Repair Needs	
Roadway Repair Needs	
Incidents and Safety	
Pedestrian & Bicyclist Safety	
Environmental Quality	
Open Space Development	
Bottlenecks	
Reliable Access to Intercity Hubs	

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	49.8	-2%
High-occupancy vehicle (HOV)	58.9	55.7	-5%
Transit	53.9	53.1	-1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.64 million	-11%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	534,000	2%
Auto: # of jobs accessible within 45-min auto commute	876,000	917,000	5%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	58.2	<1%
High-occupancy vehicle (HOV)	11.6	11.5	-1%
Transit	24.6	24.8	1%
Bicycle/Pedestrian	5.6	5.6	0%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	16.3%	42%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	142.37 million	<1%
Daily VMT per capita	21.2	21.2	<1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	39.9%	0%
Share of jobs in zones with high-capacity transit	57.7%	57.7%	0%

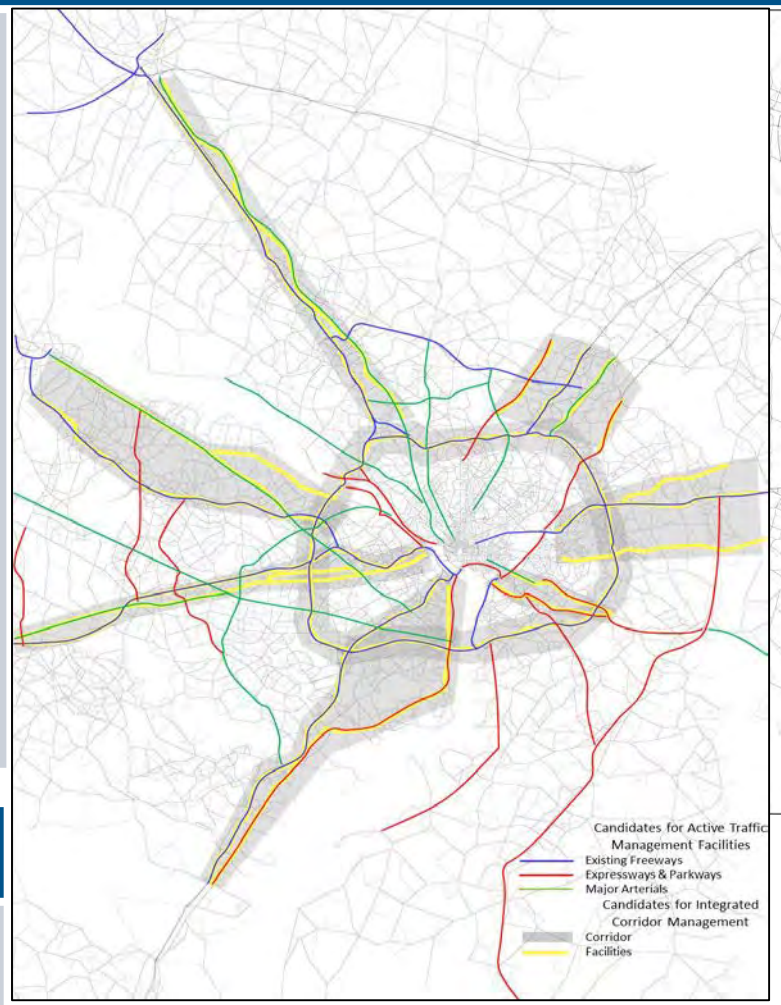
Initiative 2. Operational Improvements and Hotspot Relief

Components

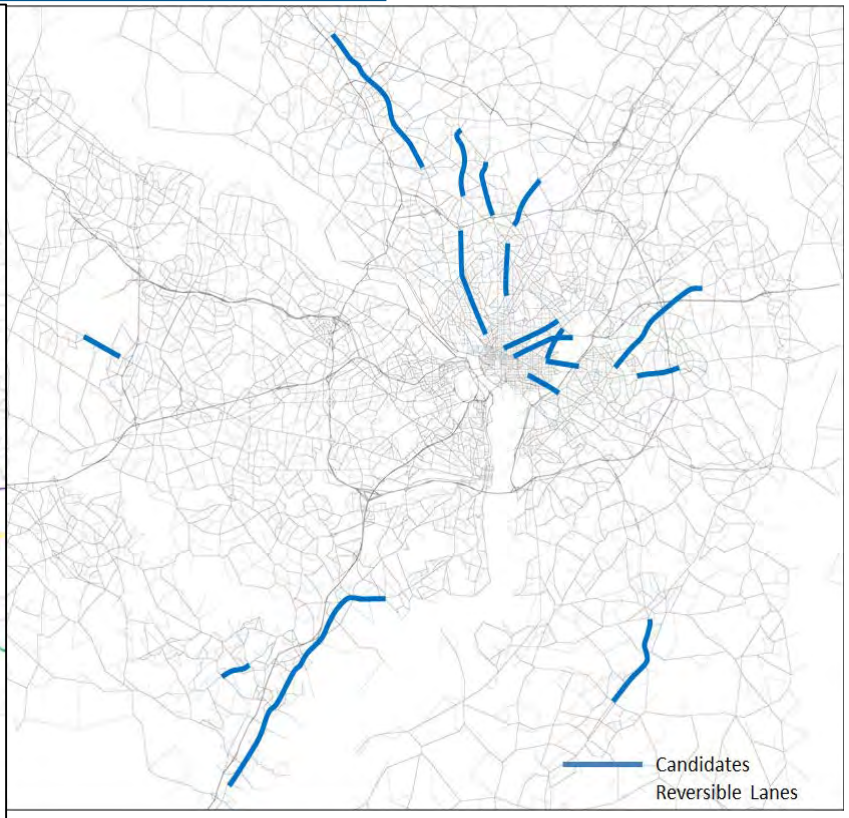
- Enhanced incident management, Active Traffic Management (ATM), and Integrated Corridor Mgmt. (ICM)
  - Improvement in effective capacity on freeways, parkways, and major arterials
- Top congestion hot spots
  - Application of technology & enhanced system operations strategies plus limited capacity enhancements
- Reversible lanes
  - Non-expressway segments with 3+ lanes with high directional volumes
- Demand-responsive services

Land Use

- 2040 CLRP Round 9.0 Cooperative Land Use Forecasts (unchanged)



ATM and ICM locations



Reversible Lane Candidates

(Source: Sabra Wang and Associates)

Initiative 2. Operational Improvements and Hotspot Relief - Results

Challenges	Compared to CLRP
Road Congestion	
Transit Crowding	
Inadequate Bus Service	
Access to Bike/Ped Options	
Development around Metrorail	
Housing & Job Location	
Metrorail Repair Needs	
Roadway Repair Needs	
Incidents and Safety	
Pedestrian & Bicyclist Safety	
Environmental Quality	
Open Space Development	
Bottlenecks	
Reliable Access to Intercity Hubs	

KEY: High, Medium, Low, Neutral, Negative

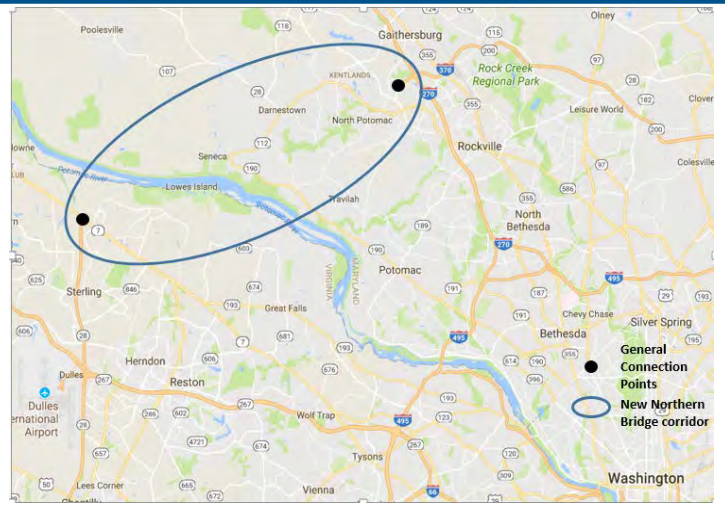
Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	48.5	-4%
High-occupancy vehicle (HOV)	58.9	56.5	-4%
Transit	53.9	52.6	-2%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.71 million	-8%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	532,000	2%
Auto: # of jobs accessible within 45-min auto commute	876,000	943,000	8%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	60.0	3%
High-occupancy vehicle (HOV)	11.6	10.8	-7%
Transit	24.6	23.7	-4%
Bicycle/Pedestrian	5.6	5.6	0%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	10.7%	-5%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	144.36 million	2%
Daily VMT per capita	21.2	21.5	2%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	39.9%	0%
Share of jobs in zones with high-capacity transit	57.7%	57.7%	0%

ICF

Initiative 3. Additional Northern Bridge Crossing /Corridor

Components

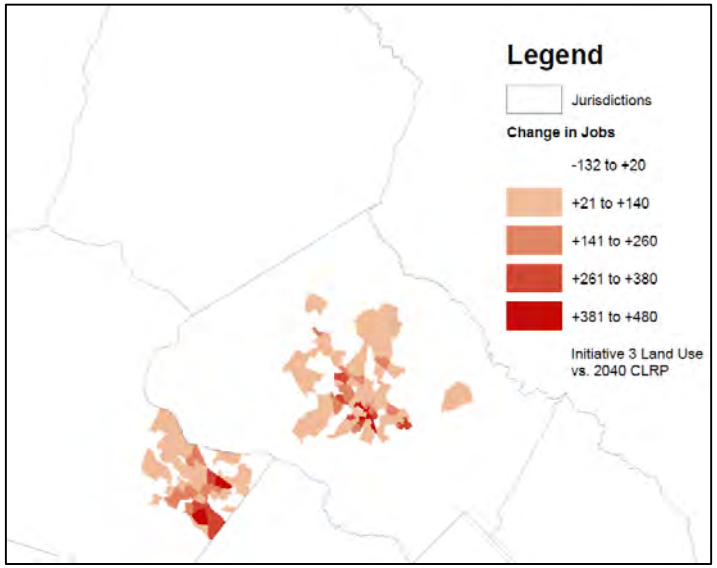
- New toll road (about 14 miles long)
  - Between VA28/VA 7 junction and I 270/I-370 junction (MD-200/Intercounty Connector)
  - 3-lanes each direction
  - Parkway-style facility with no interchanges between terminal points
  - Per-mile toll rates from MD-200
- New express bus service connecting Activity Centers along the corridor
  - 20 min peak, 30 min off-peak headways



General Connection Points for New Corridor

Land Use

- 2040 CLRP Round 9.0 Cooperative Land Use Forecasts altered
  - Modest increase in households and jobs in areas with existing development areas within Montgomery and Loudoun Counties impacted by the new facility



Location of Assumed Increase in Jobs in Corridor

(Source: Fehr & Peers)

Initiative 3. Additional Northern Bridge Crossing /Corridor - Results

Challenges	Compared to CLRP
Road Congestion	
Transit Crowding	
Inadequate Bus Service	
Access to Bike/Ped Options	
Development around Metrorail	
Housing & Job Location	
Metrorail Repair Needs	
Roadway Repair Needs	
Incidents and Safety	
Pedestrian & Bicyclist Safety	
Environmental Quality	
Open Space Development	
Bottlenecks	
Reliable Access to Intercity Hubs	

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	50.7	0%
High-occupancy vehicle (HOV)	58.9	58.5	-1%
Transit	53.9	53.8	- <1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.80 million	-3%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	520,000	- <1%
Auto: # of jobs accessible within 45-min auto commute	876,000	885,000	1%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	58.3	<1%
High-occupancy vehicle (HOV)	11.6	11.6	0%
Transit	24.6	24.5	- <1%
Bicycle/Pedestrian	5.6	5.6	0%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	11.3%	-2%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	142.93 million	1%
Daily VMT per capita	21.2	21.3	1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	39.8%	- <1%
Share of jobs in zones with high-capacity transit	57.7%	57.6%	- <1%

Initiative 4. Regionwide High Capacity Transitways

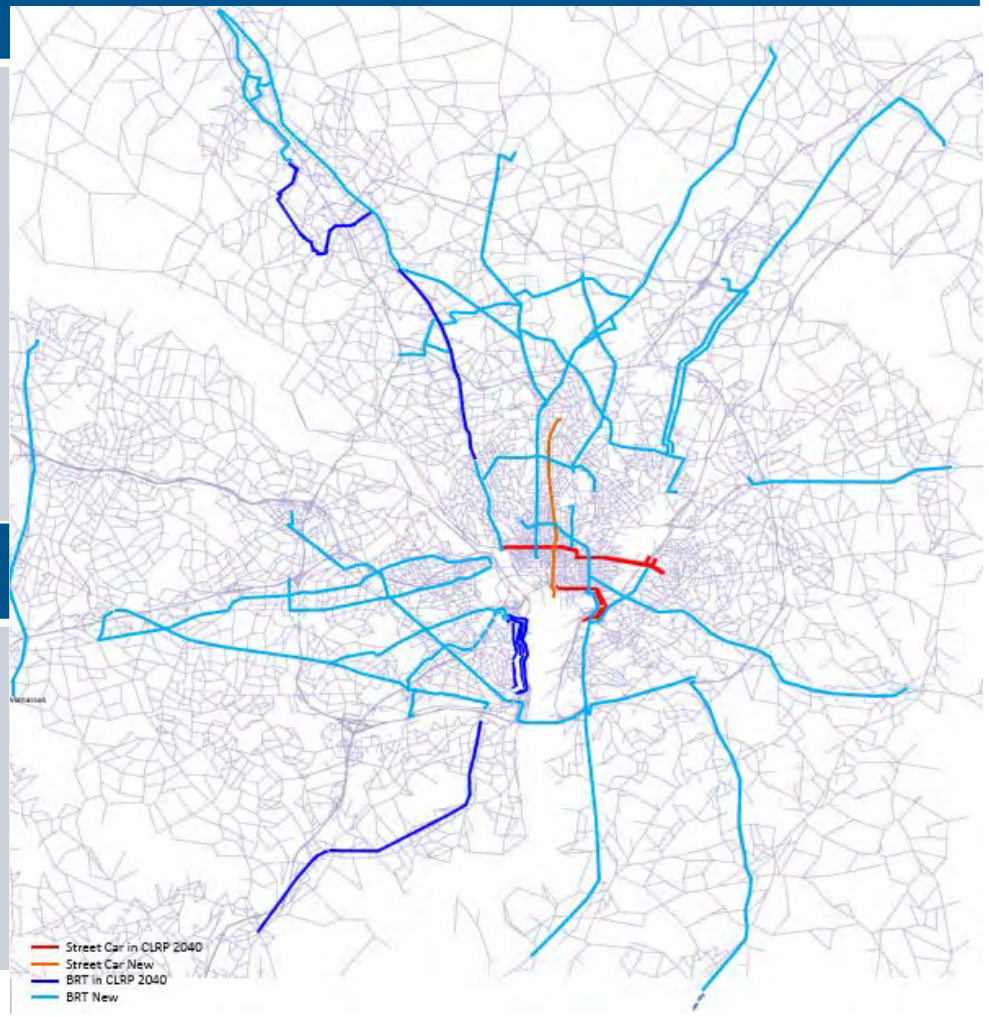
Components

- Additional bus rapid transit (BRT)/transitway networks in Montgomery County, Prince George's County, Northern Virginia (TransAction 2040), DC, and a transitway from Branch Ave to Waldorf

- Improved bicycle/pedestrian connections and access improvements
  - Bike/ped mode shares altered

Land Use

- 2040 CLRP Round 9.0 Cooperative land Use Forecasts adjusted to have modest increase in employment and household densities in zones with new services
  - Increase densities in zones with new BRT to 5 households/acre and 30 jobs/acre while maintaining the regional control totals



Initiative 4. Regionwide High Capacity Transitways - Results

Challenges	Compared to CLRP
Road Congestion	
Transit Crowding	
Inadequate Bus Service	
Access to Bike/Ped Options	
Development around Metrorail	
Housing & Job Location	
Metrorail Repair Needs	
Roadway Repair Needs	
Incidents and Safety	
Pedestrian & Bicyclist Safety	
Environmental Quality	
Open Space Development	
Bottlenecks	
Reliable Access to Intercity Hubs	

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	50.4	-1%
High-occupancy vehicle (HOV)	58.9	58.6	-1%
Transit	53.9	53.4	-1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.82 million	-2%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	542,000	4%
Auto: # of jobs accessible within 45-min auto commute	876,000	882,000	1%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	57.4	-1%
High-occupancy vehicle (HOV)	11.6	11.5	-1%
Transit	24.6	25.5	4%
Bicycle/Pedestrian	5.6	5.6	<1%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	12.2%	6%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	141.35 million	- <1%
Daily VMT per capita	21.2	21.1	- <1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	49.9%	25%
Share of jobs in zones with high-capacity transit	57.7%	66.5%	15%

ICF

Initiative 5. Regional Commuter Rail Enhancements

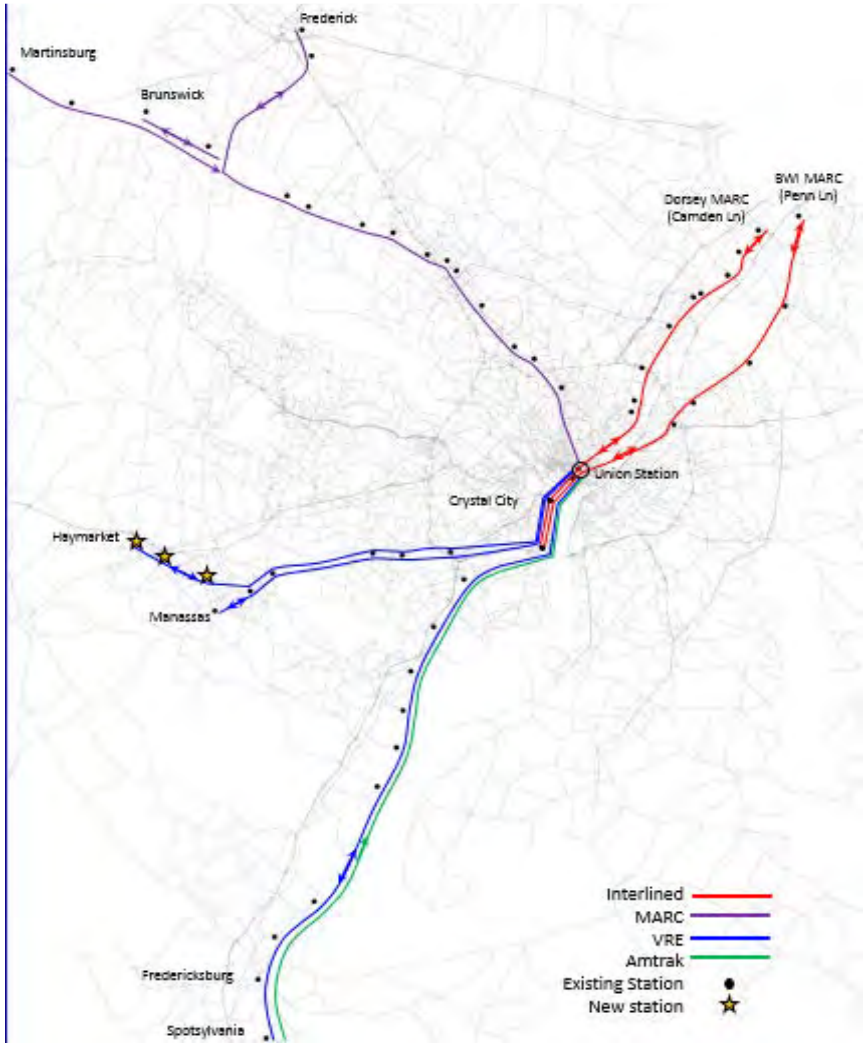
Components

- Improvements to MARC and VRE Commuter Rail Systems – Expand upon commuter rail enhancements already in CLRP
  - Upgrading all 60-min, peak-time headways in the CLRP to 30-min headways
  - Upgrading all 30-min headways in the CLRP to 20-min headways.
  - Establishing off-peak service on all MARC and VRE lines, if not already in CLRP, on 60-min headways.
  - Run-through services of the MARC Camden and Penn lines with VRE to extend to Alexandria.

- Improved bicycle/pedestrian connections and access improvements

Land Use

- 2040 CLRP Round 9.0 Cooperative Land Use Forecasts (unchanged)



Initiative 5. Regional Commuter Rail Enhancements - Results

Challenges	Compared to CLRP
Road Congestion	Medium
Transit Crowding	Neutral
Inadequate Bus Service	Neutral
Access to Bike/Ped Options	Medium
Development around Metrorail	Neutral
Housing & Job Location	Neutral
Metrorail Repair Needs	Neutral
Roadway Repair Needs	Neutral
Incidents and Safety	Medium
Pedestrian & Bicyclist Safety	Medium
Environmental Quality	Neutral
Open Space Development	Neutral
Bottlenecks	Neutral
Reliable Access to Intercity Hubs	Medium

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	50.4	-1%
High-occupancy vehicle (HOV)	58.9	58.5	-1%
Transit	53.9	54.0	<1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.81 million	-2%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	528,000	1%
Auto: # of jobs accessible within 45-min auto commute	876,000	878,000	<1%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	57.8	-1%
High-occupancy vehicle (HOV)	11.6	11.5	-1%
Transit	24.6	25.1	2%
Bicycle/Pedestrian	5.6	5.6	<1%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	11.8%	2%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	141.52 million	<1%
Daily VMT per capita	21.2	21.1	<1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	40.1%	<1%
Share of jobs in zones with high-capacity transit	57.7%	57.9%	<1%

Initiative 6. Metrorail Regional Core Capacity Improvements

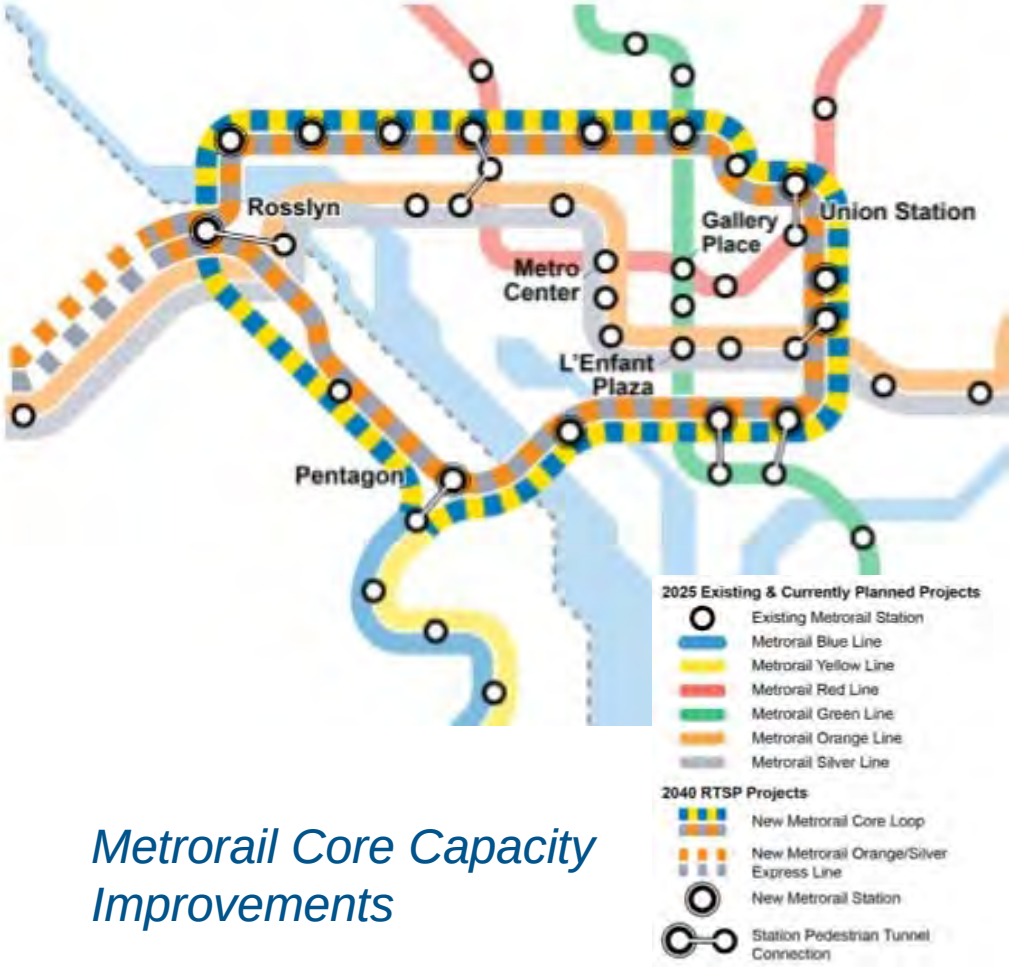
Components

Improvements
- 100% 8-car trains
- Station improvements at high-volume stations
- Improved bicycle/pedestrian connections and access improvements

New Additions
- Second Rosslyn station
- New Metrorail core line to add capacity across Potomac River (based on WMATA Momentum 2040).
- 14 new stations on the new core line (7 of which connect to existing stations)

Land Use

- 2040 CLRP Round 9.0 Cooperative Land Use Forecasts (unchanged)



Metrorail Core Capacity Improvements

Initiative 6. Metrorail Regional Core Capacity Improvements - Results

Challenges	Compared to CLRP
Road Congestion	
Transit Crowding	
Inadequate Bus Service	
Access to Bike/Ped Options	
Development around Metrorail	
Housing & Job Location	
Metrorail Repair Needs	
Roadway Repair Needs	
Incidents and Safety	
Pedestrian & Bicyclist Safety	
Environmental Quality	
Open Space Development	
Bottlenecks	
Reliable Access to Intercity Hubs	

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	49.8	-2%
High-occupancy vehicle (HOV)	58.9	58.2	-1%
Transit	53.9	50.8	-6%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.69 million	-9%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	621,000	19%
Auto: # of jobs accessible within 45-min auto commute	876,000	893,000	2%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	56.0	-4%
High-occupancy vehicle (HOV)	11.6	11.0	-5%
Transit	24.6	27.4	11%
Bicycle/Pedestrian	5.6	5.6	<1%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	12.6%	9%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	139.99 million	-1%
Daily VMT per capita	21.2	20.9	-1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	40.0%	<1%
Share of jobs in zones with high-capacity transit	57.7%	57.7%	0%

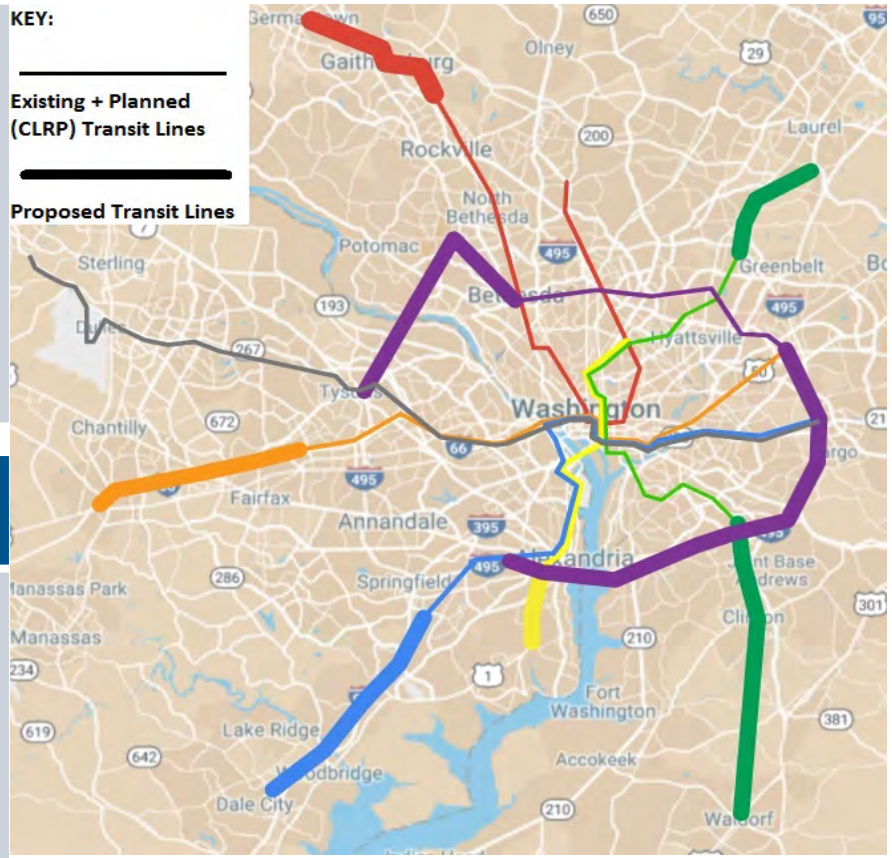
Initiative 7. Transit Rail Extensions

Components

- Extensions to all existing Metro lines (except Silver), with existing fare structures (cap on maximum fares)
- Purple Line light rail extension (as specified by Task Force to Tysons and Eisenhower Ave.)
- New light-rail from Branch Ave to Waldorf
- Improved bicycle and pedestrian connections and access improvements to rail stations

Land Use

- Assume some shift of land use to Activity Centers in these corridors
  - Increase densities in TAZs with new LRT to 7 households/acre and 45 jobs/acre
  - Increase densities in TAZs with new Metrorail to 15 households/acre and 90 jobs/acre
  - Maintain regional control totals, shift within jurisdictions



Existing Metrorail and Proposed Rail Extensions

Number of New Stations by Line	
Red	3
Blue	5
Green	4
Yellow	2
Orange	5
SMRT	11
Purple	32
Total	**62**

Initiative 7. Transit Rail Extensions - Results

Challenges	Compared to CLRP
Road Congestion	Low
Transit Crowding	Negative
Inadequate Bus Service	Low
Access to Bike/Ped Options	Medium
Development around Metrorail	High
Housing & Job Location	Medium
Metrorail Repair Needs	Negative
Roadway Repair Needs	Neutral
Incidents and Safety	Low
Pedestrian & Bicyclist Safety	Low
Environmental Quality	Low
Open Space Development	Neutral
Bottlenecks	Neutral
Reliable Access to Intercity Hubs	Medium

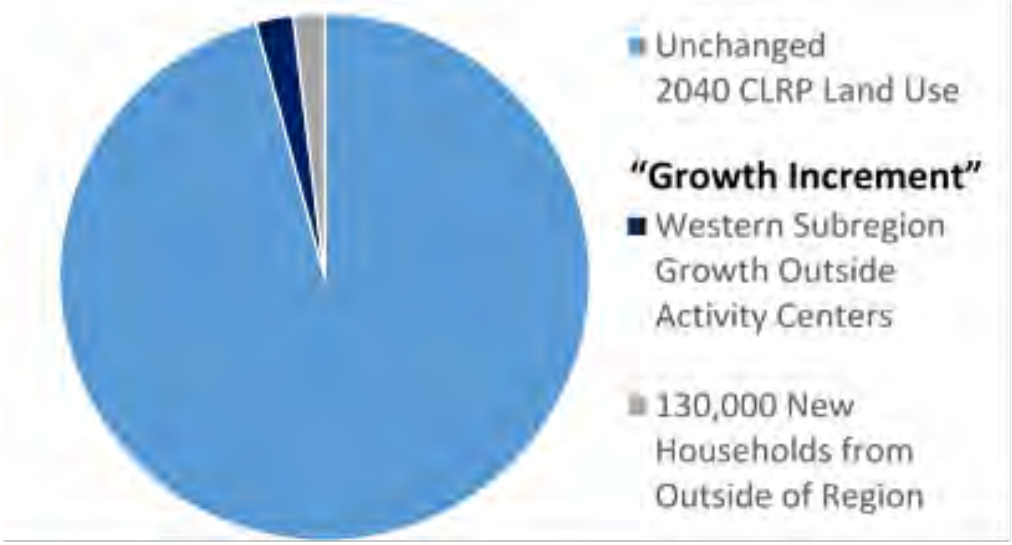
KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	50.3	-1%
High-occupancy vehicle (HOV)	58.9	58.3	-1%
Transit	53.9	53.7	-<1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.79 million	-3%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	576,000	10%
Auto: # of jobs accessible within 45-min auto commute	876,000	879,000	1%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	57.3	-1%
High-occupancy vehicle (HOV)	11.6	11.3	-3%
Transit	24.6	25.8	5%
Bicycle/Pedestrian	5.6	5.6	<1%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	12.2%	6%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	140.74 million	-1%
Daily VMT per capita	21.2	21.0	-1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	46.5%	17%
Share of jobs in zones with high-capacity transit	57.7%	65.1%	13%

Initiative 8. Optimize Regional Land-Use Balance

Land Use

- Add 130,000 more households from outside region (with adjustment to external travel).
- Allocate 2025-2040 growth increment to balance job/household ratio between eastern and western subregions, shifting jobs from outside of activity centers.
- Within each subregion, allocate growth increment to individual jurisdictions to approach regional job/household region and factor activity centers with high capacity transit.



Jurisdiction	2040 CLRP			Initiative 8 Land Use		
	HH	Jobs	Ratio	HH	Jobs	Ratio
Eastern Subregion	1,054,764	1,604,039	1.52	1,107,094	1,702,578	1.54
Western Subregion	1,513,958	2,546,274	1.68	1,591,628	2,447,735	1.54
TPB Planning Region Total	2,568,722	4,150,313	1.62	2,698,722	4,150,313	1.54

Initiative 8. Optimize Regional Land-Use Balance - Results

Challenges	Compared to CLRP
Road Congestion	High
Transit Crowding	Negative
Inadequate Bus Service	Neutral
Access to Bike/Ped Options	High
Development around Metrorail	High
Housing & Job Location	High
Metrorail Repair Needs	Neutral
Roadway Repair Needs	Neutral
Incidents and Safety	Medium
Pedestrian & Bicyclist Safety	Low
Environmental Quality	Medium
Open Space Development	Medium
Bottlenecks	Medium
Reliable Access to Intercity Hubs	Low

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	48.2	-5%
High-occupancy vehicle (HOV)	58.9	55.4	-6%
Transit	53.9	51.4	-5%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.53 million	-19%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	577,000	10%
Auto: # of jobs accessible within 45-min auto commute	876,000	962,000	10%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	57.0	-2%
High-occupancy vehicle (HOV)	11.6	11.2	-4%
Transit	24.6	24.6	<1%
Bicycle/Pedestrian	5.6	7.2	29%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	11.5%	0%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	137.44 million	-3%
Daily VMT per capita	21.2	19.9	-6%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	44.3%	9%
Share of jobs in zones with high-capacity transit	57.7%	59.0%	2%

Initiative 9. Transit Fare Policy Changes

Components

- **Reduced Off-Peak Fares** – Metrorail fares reduced for off-peak direction during peak period and on underutilized segments.

- **Reduced Fares for Low-Income Residents** – Metrorail fares for low-income residents reduced to zero. The low-income group is assumed to be the lowest income quartile from the MWCOG model.

Land Use

- 2040 CLRP Round 9.0 Cooperative Land Use Forecasts (no change)

Initiative 9. Transit Fare Policy Changes - Results

Challenges	Compared to CLRP
Road Congestion	Low
Transit Crowding	Negative
Inadequate Bus Service	Neutral
Access to Bike/Ped Options	Neutral
Development around Metrorail	Neutral
Housing & Job Location	Neutral
Metrorail Repair Needs	Neutral
Roadway Repair Needs	Neutral
Incidents and Safety	Low
Pedestrian & Bicyclist Safety	Neutral
Environmental Quality	Low
Open Space Development	Neutral
Bottlenecks	Low
Reliable Access to Intercity Hubs	Neutral

KEY: High, Medium, Low, Neutral, Negative

Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	50.7	0%
High-occupancy vehicle (HOV)	58.9	58.7	<1%
Transit	53.9	54.2	1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.81 million	-3%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	523,000	0%
Auto: # of jobs accessible within 45-min auto commute	876,000	878,000	<1%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	57.9	<1%
High-occupancy vehicle (HOV)	11.6	11.4	-2%
Transit	24.6	25.2	2%
Bicycle/Pedestrian	5.6	5.6	0%
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	11.9%	3%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	141.08 million	-1%
Daily VMT per capita	21.2	21.1	-1%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	39.9%	0%
Share of jobs in zones with high-capacity transit	57.7%	57.7%	0%

Initiative 10. Amplified Employer-based Travel Demand Management

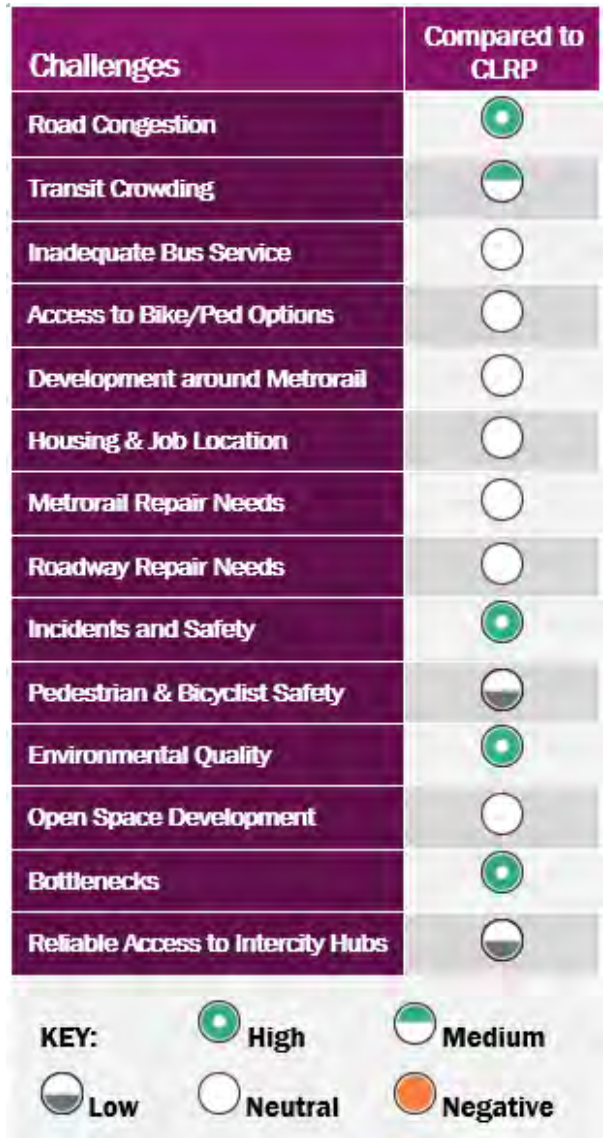
Components

- Substantial increase in telework and flexible schedule adoption
  - 20% telework share (yields about 15% reduction in work trips from base)
  - Teleworkers come proportionately from other modes (drive alone, carpool, transit, etc.)
- Expanded employer-based transit/vanpool benefits
  - Transit/vanpool subsidies averaging $50 per month are provided by 80% of employers
- Increase in priced parking in major activity centers
  - 90% of parking for work-trips in activity centers is priced, with parking costs assumed to range from $4/day minimum (could reflect employer-provided parking cash out).

Land Use

- Land use: 2040 CLRP Round 9.0 Cooperative Land Use Forecasts (no change)

Initiative 10. Amplified Employer-based TDM - Results



Quantitative MOEs	2040 CLRP	Initiative	Change from CLRP
Travel Time: average travel time per commute trip			
Single occupant vehicle (SOV)	50.7	48.5	-4%
High-occupancy vehicle (HOV)	58.9	55.2	-6%
Transit	53.9	54.8	<1%
Vehicle Hours of Delay			
Daily vehicle hours of delay	1.85 million	1.39million	-24%
Jobs Accessibility			
Transit: # of jobs accessible within 45-min transit commute	523,000	523,000	0%
Auto: # of jobs accessible within 45-min auto commute	876,000	922,000	10%
Commute Mode Share			
Single occupancy vehicle (SOV)	58.1	53.2*	-8%*
High-occupancy vehicle (HOV)	11.6	14.3*	24%*
Transit	24.6	26.0*	6%*
Bicycle/Pedestrian	5.6	6.5*	16%*
Reliable Trips			
Share of passenger miles on reliable modes	11.5%	11.2%	-3%
Vehicle Miles Traveled (VMT)			
Daily VMT	141.91 million	133.61 million	-6%
Daily VMT per capita	21.2	19.9	-6%
Transit Options			
Share of households in zones with high-capacity transit	39.9%	39.9%	0%
Share of jobs in zones with high-capacity transit	57.7%	57.7%	0%

*Mode shares reflect trips taken. Due to telework, actual number of transit trips declines; bicycle/pedestrian stays flat; HOV increases slightly.

Overall Comparison Tables

KEY

- High
- Medium
- Low
- Neutral
- Negative

All assessments are in relation to 2040 CLRP baseline

CHALLENGES	BASE: 2040 CLRP	I1: Express Travel Network	I2: Operational Improvements & Hotspot Relief	I3: Add' I Northern Bridge	I4: BRT and Transitways	I5: Commuter Rail	I6: Metrorail Core Capacity	I7: Transit Rail Extensions	I8: Optimize Regional Land-Use Balance	I9: Transit Fare Policy Changes	I10: Travel Demand Management
Road Congestion	BASELINE	Medium	Medium	Low	Low	Low	Medium	Low	High	Low	High
Transit Crowding	BASELINE	Neutral	Neutral	Neutral	Neutral	Neutral	High	Negative	Negative	Negative	Low
Inadequate Bus Service	BASELINE	Medium	Neutral	Neutral	High	Neutral	Neutral	Low	Neutral	Neutral	Neutral
Access to Bike/Ped	BASELINE	Neutral	Neutral	Neutral	Medium	Low	Medium	Medium	High	Neutral	Neutral
Development around Metrorail	BASELINE	Neutral	Neutral	Neutral	Medium	Neutral	Low	High	High	Neutral	Neutral
Housing & Job Location	BASELINE	Neutral	Neutral	Neutral	Medium	Neutral	Neutral	Medium	High	Neutral	Neutral
Metrorail Repair Needs	BASELINE	Neutral	Neutral	Neutral	Neutral	Neutral	Negative	Negative	Neutral	Neutral	Neutral
Roadway Repair Needs	BASELINE	Negative	Negative	Negative	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Incidents and Safety	BASELINE	Low	Low	Low	Low	Low	Low	Low	Medium	Low	High
Pedestrian & Bicyclist Safety	BASELINE	Neutral	Negative	Neutral	Neutral	Low	Low	Low	Low	Neutral	Low
Environmental Quality	BASELINE	Neutral	Low	Negative	Neutral	Neutral	Low	Low	Medium	Low	High
Open Space Development	BASELINE	Neutral	Neutral	Negative	Neutral	Neutral	Neutral	Neutral	Medium	Neutral	Neutral
Bottlenecks	BASELINE	Medium	Medium	Low	Neutral	Neutral	Medium	Neutral	Medium	Low	High
Reliable Access to Intercity Hubs	BASELINE	High	Low	Low	Low	Low	Medium	Medium	Low	Neutral	Low

QUANTITATIVE MOES	BASE 2040 CLRP	I1 Express Travel Network	I2 Operational Improvements & Hot Spot Relief	I3 Add'l North Bridge	I4 BRT and Transitways	I5 Commuter Rail	I6 Metrorail Core Capacity	I7 Transit Rail Extensions	I8 Regional Land-Use Balance	I9 Transit Fare Policy Changes	I10 Travel Demand Management
Travel Time (SOV)	50.7	-2%	-4%	0%	-1%	-1%	-2%	-1%	-5%	0%	-4%
Travel Time (HOV)	58.9	-5%	-4%	-1%	-1%	-1%	-1%	-1%	-6%	<1%	-6%
Travel Time (Transit)	53.9	-1%	-2%	- <1%	-1%	<1%	-6%	- <1%	-5%	1%	<1%
Daily Vehicle Hours of Delay	1.85 million	-11%	-8%	-3%	-2%	-2%	-9%	-3%	-19%	-3%	-24%
Jobs Accessible by Transit	523,000	2%	2%	- <1%	4%	1%	19%	10%	10%	0%	0%
Jobs Accessible by Auto	876,000	5%	8%	1%	1%	<1%	2%	1%	10%	<1%	10%
Mode Share: SOV	58.1%	<1%	3%	<1%	-1%	-1%	-4%	-1%	-2%	<1%	-8%*
Mode Share: HOV	11.6%	-1%	-7%	0%	-1%	-1%	-5%	-3%	-4%	-2%	24%*
Mode Share: Transit	24.6%	1%	-4%	- <1%	4%	2%	11%	5%	<1%	2%	6%*
Mode Share: Non-Motorized	5.6%	0%	0%	0%	<1%	<1%	<1%	<1%	29%	0%	16%*
Travel on Reliable Modes	11.5%	42%	-5%	-2%	6%	2%	9%	6%	0%	3%	-3%
VMT daily	141.91 million	<1%	2%	1%	- <1%	<1%	-1%	-1%	-3%	-1%	-6%
VMT daily per capita	21.17	<1%	2%	1%	- <1%	<1%	-1%	-1%	-6%	-1%	-6%
Share of Households in Zones with High-Capacity Transit	39.9%	0%	0%	- <1%	25%	<1%	<1%	17%	9%	0%	0%
Share of Jobs in Zones with High-Capacity Transit	57.7%	0%	0%	- <1%	15%	<1%	0%	13%	2%	0%	0%
VOC Emissions	18.9	0%	-3%	1%	-1%	0%	-2%	-1%	-4%	-1%	-8%
NOx Emissions	18.8	0%	0%	1%	0%	0%	-2%	-1%	-4%	-1%	-7%
CO_2 Emissions	47,082.3	0%	-1%	1%	-1%	0%	-2%	-1%	-4%	-1%	-7%

*Mode shares reflect trips taken. Due to telework, actual number of transit trips declines; bicycle/pedestrian stays flat; HOV increases slightly.

Other Factors to Consider

Factors to Consider in Selecting Among Initiatives

- **Measures of Effectiveness**
- **Other Factors**
  - Affordability and User Costs
  - Costs of Implementation
  - Equitable Distribution of Benefits
  - Placemaking
  - Right-of-Way and Community/Other Environmental Impacts
  - Public Support and Implementation Feasibility
- **Relationship of Initiatives**
  - Synergistic or antagonistic/overlapping effects

Affordability and User Costs

Initiative		Relative User Costs	Explanation of User Cost Ratings
I1	Express Travel Network	↑ / ↓	New express facilities require a toll to utilize for those with less than HOV3, with tolls that can be expensive. However, facilities are assumed to be free to HOV3+ and new express transit services could reduce out-of-pocket costs for travelers.
I2	Operational Improvements & Hotspot Relief	↓	Improvements in roadway operating conditions should yield some reduction in vehicle operating costs. .
I3	Additional Northern Bridge Crossing/Corridor	↑ / ↓	New facility is assumed to be tolled, which will add direct out-of-pocket costs for those who use the facility. However, new express bus services can help commuters save money and improvements in operating conditions on the Beltway should reduce vehicle operating costs.
I4	High-Capacity Transitways	↓	No changes to existing transit fare structures are assumed. Improved transit/bike/ped options provide some opportunities to shift from driving to transit or nonmotorized travel at lower cost.
I5	Commuter Rail Enhancements	↓	No changes to existing fare structures are assumed. Potential savings from new transit and bike/ped options.
I6	Metrorail Core Capacity Improvements	-	No expected changes to user costs and affordability.
I7	Transit Rail Extensions	↑ / ↓	Metrorail fares tend to be higher than existing bus services and may increase travel costs for some transit users. However, improved transit/bike/ped options provide opportunities to shift from driving to transit or nonmotorized travel at lower cost.
I8	Optimize Regional Land Use Balance	↓	Moving trip destinations closer should yield reduction in vehicle operating costs and more opportunities for low-cost bike/ped options.
I9	Transit Fare Policy Changes	↓↓↓	Free rail for low-income residents. Reduced fares for Metrorail commuters using underutilized, reverse commute segments.
I10	Amplified Employer-Based Travel Demand Management	↑ / ↓	Increased parking costs will increase out-of-pocket costs for some commuters. However, these will generally be offset by savings from transit subsidies, significant trip reductions, and trip sharing.

Key: ↓ = **Reduce user costs** ↑ = **Increase user costs**

Costs of Implementation

Initiative		Relative Costs to Implement	Explanation of Cost Ratings
I1	Express Travel Network	$	While total infrastructure costs would be high for new lane capacity, the private sector would largely cover the cost in exchange for toll revenue, with minimal public sector contribution (For instance, the I-66 express lane project outside the Beltway has the private developer responsible for all costs to develop, design, construct, maintain, and operate the project, as well as provide transit funding payments).
I2	Operational Improvements & Hotspot Relief	$$	Development of reversible lanes on major arterials, addition of integrated corridor management/active traffic management treatments, and targeted hot spot projects would likely be well over $1 billion across the region.
I3	Additional Northern Bridge Crossing/Corridor	$$	New corridor is somewhat similar in length to the $2.57 billion Intercounty Connector (MD-200). Tolls/toll revenue bonds would cover a portion of the cost.
I4	High-Capacity Transitways	$$	BRT lines on dedicated lanes generally cost $4-$50 million per mile. This initiative envisions dozens of new BRT and transitway services across the region, plus additional operating costs.
I5	Commuter Rail Enhancements	$$	New rail cars and station improvements will be required, plus additional operating costs.
I6	Metrorail Core Capacity Improvements	$$$	100% 8-car trains may cost $2.28 billion. A new core line, including new tunnel under the Potomac River would be several billion dollars. Costs per mile would be high in the urban core (for comparison, Second Avenue Subway in New York cost was $2.1 billion per mile).
I7	Transit Rail Extensions	$$$	Metrorail extensions may be comparable to the Silver line cost of about $250 million per mile, resulting in a total cost of several billion to build all extensions, plus additional operating costs. Light rail costs are extensive as well (For instance, existing purple line cost is about $2.65 billion for the 16-mile route; state will pay about $150 million/year for 30 years to cover debt service).
I8	Optimize Regional Land Use Balance	$	This initiative focuses primarily on policies and potential incentives to encourage more development in optimal locations. New revenue potential occurs from taxes to discourage development in certain locations.
I9	Transit Fare Policy Changes	$$	Low cost to implement but significant loss of fare revenue, likely above $150 million/year
I10	Amplified Employer-Based Travel Demand Management	$	This initiative primarily involves policies, with limited direct public sector expenditures. Costs may include increased public sector incentives to businesses, while new revenue potential occurs from parking taxes or fees.

Key: $ = **Low** (Less than $1 billion); $$ = **Medium** ($1 billion to $5 billion); $$$ = **High** (In excess of $5 billion)

Equitable Distribution of Benefits

Initiative		Impact to E/W Divide and Equity	Explanation of Rating
I1	Express Travel Network	Mixed	Transportation improvements appear equitably distributed. While express travel lanes with tolls may favor higher income and business travelers, combination with new express bus services supports equity. Needs additional analysis of distribution of benefits.
I2	Operational Improvements & Hotspot Relief	Positive	Demand responsive service for persons with disabilities improves access for disadvantaged populations. Need additional analysis of distribution of benefits.
I3	Additional Northern Bridge Crossing/Corridor	Negative	Investment and benefits primarily accrue to western areas, particularly around the Beltway
I4	High-Capacity Transitways	None	Transportation improvements appear equitably distributed. Need additional analysis of distribution of benefits.
I5	Commuter Rail Enhancements	None	Transportation improvements appear equitably distributed. Need additional analysis of distribution of benefits.
I6	Metrorail Core Capacity Improvements	None	Transportation improvements appear equitably distributed. Need additional analysis of distribution of benefits.
I7	Transit Rail Extensions	None	Transportation improvements appear equitably distributed. Need additional analysis of distribution of benefits.
I8	Optimize Regional Land Use Balance	Positive	Designed to reduce East-West Divide by shifting jobs to areas with poor jobs-housing balance.
I9	Transit Fare Policy Changes	Positive	Favors low-income residents and reverse commuters.
I10	Amplified Employer-Based Travel Demand Management	Mixed	May favor higher-income residents due to higher ability to telework, carpool, and absorb higher parking costs. However, transit benefits and reduced subsidies for parking may favor lower-income residents. Need additional analysis of distribution of benefits.

Placemaking

Initiative		Placemaking Impacts	Explanation of Rating
I1	Express Travel Network	Neutral	Potential for minor effect – Depending on design, express bus may support or detract from TOD in Activity Centers served.
I2	Operational Improvements & Hotspot Relief	Neutral	No clear relationship.
I3	Additional Northern Bridge Crossing/Corridor	Neutral	Potential for minor effect – Depending on design, express bus may support or detract from TOD in Activity Centers served.
I4	High-Capacity Transitways	Very Positive	Potential for significant positive effect if designed to support TOD and private investment in corridor; also assumed increased land use and bike/ped access at Activity Centers and stations.
I5	Commuter Rail Enhancements	Positive	Minor positive effect from improvements to bike/ped access at stations. No new stations.
I6	Metrorail Core Capacity Improvements	Positive	Potential positive effect on TOD from improvements to bike/ped access, stations, and rail service.
I7	Transit Rail Extensions	Very Positive	Potential for significant positive effect if designed to support TOD; also assumed increased land use in areas served.
I8	Optimize Regional Land Use Balance	Very Positive	Potential for significant positive effect from increasing development around underdeveloped station areas and the east side.
I9	Transit Fare Policy Changes	Neutral	No clear relationship.
I10	Amplified Employer-Based Travel Demand Management	Positive	Potential for positive effect if parking fees are used to improve placemaking.

Right of Way, Community, and Other Environmental Impacts

Initiative		Right of Way Needed	Explanation of Rating
I1	Express Travel Network	Yes	Roadway widening will occur along major highways, with potentially significant property impacts, particularly along the Beltway and I-270.
I2	Operational Improvements & Hotspot Relief	Yes	Limited roadway widening at congestion hot spots and development of reversible lanes may require right of way.
I3	Additional Northern Bridge Crossing/Corridor	Yes	New highway corridor will require significant new right-of-way and likely impacts to many properties along the estimated 14-mile route.
I4	High-Capacity Transitways	Yes	BRT lines and transitways will likely cause impacts to properties due to roadway widening needed for dedicated lanes.
I5	Commuter Rail Enhancements	Limited	No new rail lines or stations would be built. However, new run-through service may require expansions/adjustments to stations that may have some limited effects.
I6	Metrorail Core Capacity Improvements	Limited	New rail line would be underground. Disruption would occur during construction but with limited new land required for transportation infrastructure.
I7	Transit Rail Extensions	Yes	Significant rail extensions will create impacts on properties and other community impacts, but are generally assumed to be within existing highway rights of way.
I8	Optimize Regional Land Use Balance	No	No new land use requirements for roadways or rail systems.
I9	Transit Fare Policy Changes	No	No new land use requirements for roadways or rail systems.
I10	Amplified Employer-Based Travel Demand Management	No	No new land use requirements for roadways or rail systems.

Public Support and Implementation Feasibility

- TPB members represent different constituents with different priorities.
- The members may want to consider whether the projects will receive support or staunch opposition from any of the jurisdictions whose support would be necessary for implementation.
- They may also want to consider the likelihood of passing any required supporting legislation or policies.

Relationship of Initiatives

- Policy-focused Initiatives (#8, 9, and 10) generally support the benefits of other initiatives
- Several of the transit-focused initiatives may be drawing the same riders, so would not be expected to have additive effects
  - Example: Commuter Rail Enhancements (#5) vs. Transit Rail Extensions (#7)
  - However, Metrorail Core Capacity Improvements (#6) support Transit Rail Extensions (#7)
- Multimodal initiatives also serve some of the same functions
  - Example: Additional Northern Bridge Crossing/Corridor (#3) and Regional Express Travel Network (#1) both help to address delay on American Legion Bridge

Next Steps

Outcomes of this Process

“develop a process by which the TPB will later <u>endorse</u> a final selection…for future <u>concerted TPB action</u>.” [Resolution R16-2017]

Endorsement:

- Initiatives have potential to improve performance of the region’s transportation system and deserve to be comprehensively examined for implementation; would allow concepts represented by the initiatives in the aspirational element of *Visualize 2045.*

Concerted action:

- At a minimum would involve a commitment by all TPB member jurisdictions and agencies to collaborate and undertake further examination of the concepts

Upcoming Meetings

- Today, November 15 - Long-Range Plan Task Force discusses results. Determine whether to have 11/29 meeting.
- Wednesday, November 29 - Optional task force meeting for additional discussion
- Wednesday, December 6 - Task force meeting to finish discussion and vote on initiatives to recommend to TPB for its endorsement
- Wednesday, December 20 - TPB meeting to discuss and act upon task force's recommendation