

AGENDA ITEM #3
September 11, 2018
Briefing

September 7, 2018

TO: County Council
FROM: Glenn Orlin, Deputy Director
SUBJECT: I-495 & I-270 Managed Lanes Study
PURPOSE: Briefing

Last year Governor Hogan announced that the State Highway Administration (SHA) would initiate a study with the maximum goal of widening both the entirety of the Capital Beltway (I-495) within Maryland and the entirety of I-270 from the Beltway to I-70 in Frederick, each by four lanes (two in each direction). The lanes would be designed, constructed, and operated by a concessionaire under a public-private partnership (P3) arrangement; revenue to pay for this effort would be derived by tolls on these additional lanes.

The study proceeded earlier this year. Under the National Environmental Policy Act (NEPA) process, the first steps were the preparation of a Purpose and Need Statement and identification of preliminary alternatives. SHA held several public workshops in July, and the public comment time-period closed effective Monday, August 27. SHA is currently reviewing the public input, which has come from agencies, advocacy groups, and individuals:

The Planning Board was briefed on the study in mid-July. Subsequently the Transportation, Infrastructure, Energy, and Environment (T&E) Committee was concerned that the Council had not been kept sufficiently abreast of the progress of this study, and asked that this briefing be scheduled. SHA was invited to make a presentation, but its staff indicated a preference to present late this year instead, once it has had time to develop more details above what we presented at the July workshops and the Planning Board briefing. SHA believes that once this work is completed it would allow for a more meaningful discussion with the Council.

This briefing will be conducted in two parts. In the first part, Council staff will present a somewhat abbreviated version of what SHA presented to the Planning Board in July. In the second part, Planning Board and County Department of Transportation officials will describe their respective input into the Managed Lanes Study to date.

Current County positions on improvements to I-495 and I-270. The most recent positions on improvements to these two roads are reflected in master plans, comments on earlier studies, and the periodic State transportation priority letters co-signed by the Council and Executive.

Regarding I-495, the County's master plan calls for widening the Beltway by two lanes (one in each direction) between the Virginia boundary and the junction with the I-270 West Spur. The plan calls for these two lanes to be high-occupancy-vehicle (HOV) or high-occupancy-toll (HOT) lanes. In this section of the Beltway the right-of-way is 300' wide, sufficiently wide to add two lanes without major impacts to abutting properties. East of the West Spur, however, the right-of-way is generally about 200' wide; the County has long believed that even widening this section by two lanes would result in very significant property impacts, with the likelihood that scores of abutting homes would be taken.

There has been a Capital Beltway Corridor Study in the State's Consolidated Transportation Program (CTP) for two decades, but it was never brought to conclusion. The County's priority letters have given a relatively high priority to completing this study. The current Managed Lane Study essentially succeeds the Capital Beltway Corridor Study.

Two decades ago SHA and the Maryland Transit Administration (MTA) also initiated as major project planning study: the I-270/US 15 Corridor Study, from I-370 to north of the City of Frederick. That study produced both highway improvement alternatives (widening and new interchanges) and transit improvement alternatives. The study was completed in 2009, at which time the Council and the Executive recommended that, within Montgomery County, the State add two lanes to I-270 between I-370 and the Frederick County boundary. The two lanes would be operated in a reversible fashion: both lanes southbound in the weekday morning peak and northbound during the weekday evening peak. Furthermore, these lanes would be reserved as HOV or HOT lanes. There have been no recommendations to add continuous through lanes on I-270 south of I-370. The I-270 Innovative Congestion Management Plan includes some spot widening in this section which will provide measurable relief, but it will not add more continuous through lanes above the 12 that have been in existence since the early 1990s.

Included in this packet are two sets of correspondence. On October 12, 2017 the T&E Committee wrote to Secretary Pete Rahn of the Maryland Department of Transportation asking several questions about the scope of what is now the Managed Lanes Study (©1-2); Secretary Rahn's October 23, 2017 reply is on ©3-5. This past spring SHA announced that it was segmenting the Managed Lanes Study, such that the segment of I-270 north of I-370 to the City of Frederick would be done later. The Executives and Councils of Frederick and Montgomery Counties raised serious concern about this decision in a May 1, 2018 joint letter (©6); Secretary Rahn responded that this was a common practice for studies this large, and that a separate study of the northern segment of I-270 would commence in 2019 (©7-8).

Briefing documents. The lead briefers are:

Glenn Orlin, Deputy Director, County Council
Chris Conklin, Deputy Director for Transportation Policy, County DOT
Carol Rubin, Acting Deputy Planning Director, Montgomery County Planning Department
(Other County DOT and Planning Departments staff will attend to address technical questions.)

The following information will be referred to during this briefing. The July presentation given to the Planning Board is on ©9-59. The County DOT’s comments on Purpose and Need are on ©60-61, and its comments on the preliminary alternatives and screening metrics are on ©62-65. While County DOT—like the Council itself—is only a “participating” (commenting) agency and not a “cooperating” (concurring) agency, the Planning Board has taken the stance that it will work with County DOT so that they have the same positions.

The Montgomery County Planning Board staff’s comments on Purpose and Need are on ©66-121. The Planning staff will begin focusing on the alternatives once they have come to conclusion with SHA on the Purpose and Need. They have a meeting with the Federal Highway Administration (FHWA) on September 25 to finalize the respective positions so the Planning Board can be assured that its comments/issues make it into the final Record of Decision. Planning staff’s hope is to get very close and take a staff recommendation to the full Commission (since they are working together with Prince George’s County and County DOT) to reach concurrence with comment at the Commission meeting on October 17.

The Council should take this opportunity to develop an understanding and process by which the Planning Board, County DOT, the Executive, and the Council will coordinate so that all are speaking from the same page on forthcoming facets of the Managed Lanes Study.



MONTGOMERY COUNTY COUNCIL
ROCKVILLE, MARYLAND

October 12, 2017

Peter K. Rahn, Secretary
Maryland Department of Transportation
P.O. Box 548
7201 Corporate Center Drive
Hanover, MD 21076

FROM: Roger Berliner, Chair, Transportation, Infrastructure, Energy & Environment Committee
Nancy Floreen, Transportation, Infrastructure, Energy & Environment Committee
Tom Hucker, Transportation, Infrastructure, Energy & Environment Committee

Dear Secretary Rahn,

Congestion in our community is one of the biggest detriments to our quality of life. Accordingly, while we appreciate Governor Hogan's focus on this top priority issue with the release of the state's Traffic Relief Plan last month, we need to understand more clearly what the plan will do and will not do. Please accept this invitation to join the Montgomery County Council's Transportation, Infrastructure, Energy & Environment Committee to discuss the Traffic Relief Plan on October 24 at either 9 a.m. to 11 a.m. or 2 p.m. to 4 p.m. at the County Council Office Building.

As you appreciate, I-270 and I-495 serve as the backbone of Montgomery County's highway network – and by extension the county's entire transportation system. In June, this Council and County Executive Leggett submitted to you the attached Transportation Priorities Letter for consideration in the development of the state's next Consolidated Transportation Program (CTP). In the letter, the Council and County Executive identify the need to complete the study of two reversible high-occupancy/toll lanes on I-270 between Shady Grove Road and Frederick County as well as one high-occupancy toll lane in each direction on I-495 between the I-270 West Spur and Virginia in order to address traffic congestion.

Our Council also requested that the state advance the study of capacity and operational strategies from I-270 and along I-495 into Virginia that include transit, pedestrian and bicycle connections over the Potomac River and that the state address traffic congestion on I-495 east of the I-270 spur "through other spot improvements that are respectful of our natural resources and communities."

It will be important for the Council to get answers to the following questions regarding the state's Traffic Relief Plan, which proposes four additional toll lanes on all sections of I-270 and I-495 that run through Montgomery County:

- 1) Does the state plan to regularly and substantially consult with Montgomery County in the development and refinement of this plan? If so, what form will that consultation take? If not, why not?

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- 2) Please provide any studies or analyses done before proposing this plan.
- 3) What, if any, assumptions were made as to the pricing of tolls necessary to fund the infrastructure contemplated in this plan?
- 4) The incomplete I-270/U.S. 15 Multimodal Corridor Study had focused on a multimodal approach to traffic congestion. What is the state's plan to implement the transit component of that study, especially the Corridor Cities Transitway from Gaithersburg to Clarksburg?
- 5) Did the state consider the Council's proposed solution to I-270 and I-495 west of the I-270 spur?
- 6) What spatial and cost analysis was done that supports the ability to add four lanes to I-270 and I-495, especially on I-495 east of the I-270 spur where neighborhoods, businesses and parkland are in close proximity to the existing highway?
- 7) Does the plan include adding capacity to the American Legion Bridge, and if so, will that additional capacity accommodate transit? If the plan does not include adding capacity to the American Legion Bridge, has the state assessed the magnitude of the increased congestion at this chokepoint?
- 8) Has the state considered high-occupancy toll lanes, which would tie into Virginia's plans to extend its existing high-occupancy toll lanes to the American Legion Bridge?

Please let us know if you or a representative would be able to join our committee to discuss these questions and this important proposal. If you or a representative is unable to attend, we would appreciate written responses to these questions before October 24. We look forward to your response.

Sincerely,



Roger Berliner
District 1



Nancy Floreen
At-Large



Tom Hucker
District 5

CC: Gregory Slater, Administrator, Maryland State Highway Administration
Al Roshdieh, Director, Montgomery County Department of Transportation
Glenn Orlin, Deputy Council Administrator, Montgomery County Council

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Maryland Department of Transportation
The Secretary's Office

Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Pete K. Rahn
Secretary

October 23, 2017

The Honorable Roger Berliner
Montgomery County Council
100 Maryland Avenue, 6th Floor
Rockville MD 20850

The Honorable Tom Hucker
Montgomery County Council
100 Maryland Avenue, 6th Floor
Rockville MD 20850

The Honorable Nancy Floreen
Montgomery County Council
100 Maryland Avenue, 6th Floor
Rockville MD 20850

Dear County Councilmembers Berliner, Hucker, and Floreen:

Thank you for your letter regarding the Governor Larry Hogan's Traffic Relief Plan. I appreciate your concerns and interest in this key Maryland transportation initiative. I am very interested in coming to Montgomery County to discuss the Governor's plans with the County Council's Transportation, Infrastructure, Energy & Environment Committee. I am scheduled to meet with you on November 16, 2017.

As you are aware, Maryland's transportation needs far outweigh the available funding. The Governor firmly believes that pursuing a Public-Private Partnership (P3) is the only way to achieve significant congestion relief. I look forward to addressing all of your questions in our meeting, but the following is a starting point to that discussion:

- 1) Does the State plan to regularly and substantially consult with Montgomery County in the development and refinement of this plan? If so, what form will that consultation take? If not, why not?

Once the Request for Information (RFI) stage is complete and MDOT moves to the Request for Proposals (RFP) stage, coordination with partners and stakeholders will be a regular part of the process.

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My telephone number is 410-865-1000
Toll Free Number 1-888-713-1414 TTY Users Call Via MD Relay
7201 Corporate Center Drive, Hanover, Maryland 21076

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MONTGOMERY COUNTY
COUNTY

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The Honorable Roger Berliner
The Honorable Tom Hucker
The Honorable Nancy Floreen
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- 2) Please provide any studies or analyses done before proposing this plan.

The framework for the plan was developed based on previous studies including the Capital Beltway Planning Study, West Side Mobility Study, I-270 Multi-Modal Corridor Study, learned successes from other states across the country using P3s to tackle large infrastructure needs, and requests from local partners to consider tolled facilities as a long-term solution. These previous studies contain valuable technical information and will provide insight as MDOT delivers transformative, innovative solutions.

- 3) What, if any, assumptions were made as to the pricing of tolls necessary to fund the infrastructure contemplated in this plan?

No assumptions on toll pricing have been made at this stage. This issue will be analyzed later in the process as RFPs are developed.

- 4) The incomplete I-270/U.S. 15 Multi-Modal Corridor Study had focused on a multimodal approach to traffic congestion. What is the State's plan to implement the transit component of that study, especially the Corridor Cities Transitway from Gaithersburg to Clarksburg?

The Corridor Cities Transitway has previously been broken out from the Multi-Modal study. This is reflected in the Consolidated Transportation Program under the Maryland Department of Transportation Maryland Transit Administration.

- 5) Did the State consider the Council's proposed solution to I-270 and I-495 west of the I-270 spur?

The approach we are taking, beginning with the RFI process, will leverage creative and innovative ideas proposed by the private sector. The MDOT will evaluate the alternatives proposed.

- 6) What spatial and cost analysis was done that supports the ability to add four lanes to I-270 and I-495, especially on I-495 east of the I-270 spur where neighborhoods, businesses and parkland are in close proximity to the existing highway?

The Honorable Roger Berliner
The Honorable Tom Hucker
The Honorable Nancy Floreen
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The RFI and subsequent RFP phase will continue to prioritize accelerated project delivery and innovation in the solutions. In preparation for this RFI, the team looked at some innovative solutions developed in other states that greatly minimized impacts through innovation. When thinking about this project, the State is delivering highway solutions that are different than they ever have been. Thinking about this in a traditional sense at this stage in the game should not be the assumption.

- 7) Does the plan include adding capacity to the American Legion Bridge, and if so, will that additional capacity accommodate transit? If the plan does not include adding capacity to the American Legion Bridge, has the state assessed the magnitude of the increased congestion at this chokepoint?

The additional capacity proposed is for all of I-270 and all of I-495 including the American Legion Bridge. The details of that work will be examined through the RFP process.

- 8) Has the State considered high-occupancy toll lanes, which would tie into Virginia's plans to extend its existing high-occupancy toll lanes to the American Legion Bridge?

The expectation is that Maryland's managed lanes will tie into Virginia's managed lanes at the American Legion Bridge. All types of managed lane solutions are being considered.

Thank you again for your letter. If you have any questions or concerns, please contact Ms. Heather Murphy, MDOT Office of Planning and Capital Programming (OPCP) Director, at 410-865-1275 or hmurphy@mdot.state.md.us. Ms. Murphy will be happy to assist you. Of course, you may always contact me directly.

Sincerely,



Pete K. Rahn
Secretary

cc: Ms. Heather Murphy, Director, OCP, MDOT

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Frederick County Government
12 East Church St.
Frederick, MD 21701
301-600-9000



Montgomery County Government
101 Monroe Street
Rockville, MD 20850
240-777-2500

May 1, 2018

The Honorable Lawrence J. Hogan, Governor
State of Maryland
State House
100 State Circle
Annapolis, MD 21401

Pete K. Rahn, Secretary
Maryland Department of Transportation
P.O. Box 548
7201 Corporate Center Drive
Hanover, MD 21076

Re: I-270 Corridor Needs in Montgomery and Frederick Counties


Dear Governor Hogan and Secretary Rahn:

On October 5, 2016 we wrote urging you to re-start the long-shelved *I-270/U.S. 15 Multimodal Corridor Study*. About a year later, you announced the Traffic Relief Plan (TRP) based on the concept of Express Toll Lanes (ETLs) as the long-term solution for I-270 from the City of Frederick to the Capital Beltway (I-495) and for the Capital Beltway itself. Recently, MDOT commenced a National Environmental Policy Act (NEPA) study of the Capital Beltway and the southern end of I-270 to determine the environmental envelope that will define the range of feasible improvements for the Traffic Relief Plan.


While we are gratified that a portion of the I-270 corridor will be analyzed, we are very concerned about the MDOT's announcement that it intends to postpone – indefinitely – the study of improvements on I-270 between I-370 and the City of Frederick. Without changes to the northern portion of I-270, the major expansion of southern I-270 will only exacerbate the severe congestion between Gaithersburg and Frederick. This congestion results from the significant reduction in existing capacity (from 12 to 4 lanes) that occurs as one travels north along I-270 between I-370 and Frederick.


We also strongly urge you to incorporate in the study one or more transit elements to complement your proposed the highway improvements. We have long believed that the solution to mobility in the I-270 Corridor is one that provides more options to travelers. Transit improves commutes for drivers by taking cars off the road, moving more people per lane, and making the transportation network more efficient. This is an essential component of the long-term solution for this corridor.

Sincerely,


The Honorable Jan H. Gardner
Frederick County Executive


The Honorable Bud Otis, President
Frederick County Council


The Honorable Ian Leggett
Montgomery County Executive


The Honorable Hans Riemer, President
Montgomery County Council

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Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
Pete K. Rahn
Secretary

*CO
CC
MA
MR*

Office of the Secretary

15 JUN 2018

June 6, 2018

RECEIVED
MONTGOMERY COUNTY
EXECUTIVE

The Honorable Jan H. Gardner
Frederick County Executive
12 East Church Street
Frederick MD 21701

The Honorable Isiah Leggett
Montgomery County Executive
101 Monroe Street
Rockville MD 20850

The Honorable Bud Otis
President
Frederick County Council
12 East Church Street
Frederick MD 21701

The Honorable Hans Riemer
President
Montgomery County Council
101 Monroe Street
Rockville MD 20850

Dear County Executives Gardner and Leggett, and Presidents Otis and Riemer:

Thank you for contacting Governor Larry Hogan and me regarding the I-270 corridor needs in Montgomery and Frederick Counties. The Governor asked that I respond on his behalf.

The Maryland Department of Transportation (MDOT) is committed to providing a comprehensive transportation network that relieves congestion and effectively benefits its millions of users. The Traffic Relief Plan (TRP) is a Statewide initiative to provide a "system of systems" for users, including improvements for highways and transit. The TRP is not a single project.

The I-495 and I-270 Public-Private Partnership (P3) Program is the largest effort under the TRP and includes the entirety of I-495 in Maryland and I-270 from I-495 to I-70. The MDOT State Highway Administration (SHA) recently initiated an environmental study as the first element of the I-495 and I-270 P3 Program. The initial environmental study, known as the I-495 and I-270 Managed Lanes Study, includes I-495 from south of the American Legion Bridge to east of the Woodrow Wilson Bridge and I-270 from I-495 to I-370 including the east and west spurs of I-270.

The limits of the I-495 and I-270 Managed Lanes Study were established based on federal requirements including setting limits based on logical termini and independent utility. In determining the limits of the study, MDOT SHA considered travel patterns and characteristics and found that there are distinct differences south and north of I-370. The prior I-270/US 15 Multimodal Study also reflected these differences.

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The Honorable Jan H. Gardner
The Honorable Isiah Leggett
The Honorable Bud Otis
The Honorable Hans Riemer
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The significant traffic congestion along I-495 and I-270 south of I-370 was also considered in establishing the I-495 and I-270 Managed Lanes Study limits. These sections of roadway are among the most congested and unreliable freeway segments in Maryland. It is important to note that the overall I-270 corridor is currently being improved by the I-270 Innovative Congestion Management Contract. These near-term improvements, slated to be completed by the end of 2019, will provide significant reduction in travel times and improve reliability for travelers on I-270. These improvements were strategically planned to ensure traffic along I-270 can flow while long-term improvements are being developed and delivered along the entire I-495 and I-270 corridors.

To be clear, MDOT SHA has not indefinitely postponed a study of improvements along I-270 from I-370 to I-70. We will complete a separate study for these limits, beginning in 2019.

We recognize that the extensive highway linkage of I-495 and I-270 to other regional transportation facilities causes these corridors to experience severe congestion and has a region-wide effect on all transportation modes. As such, transportation improvements to provide congestion relief on I-495 and I-270 will look to enhance existing and proposed multimodal transportation services. The MDOT SHA will evaluate alternatives that will improve multimodal connectivity and service, enhance trip reliability, and provide additional multimodal travel choices for more efficient travel along I-495 and I-270 during times of extensive congestion.

Thank you again for contacting the Governor. We appreciate hearing from you. If you need further assistance, please contact Ms. Lisa B. Choplin, MDOT SHA I-495 and I-270 P3 Office Director, at 410-637-3320 or lchoplin@sha.state.md.us. Ms. Choplin will be happy to assist you.

Sincerely,



Pete K. Rahn
Secretary

cc: Lisa B. Choplin, DBIA, Director, I-495 and I-270 P3 Office, MDOT SHA
Mr. Gregory Slater, Administrator, MDOT SHA

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MANAGED
LANES STUDY



Commission Briefing

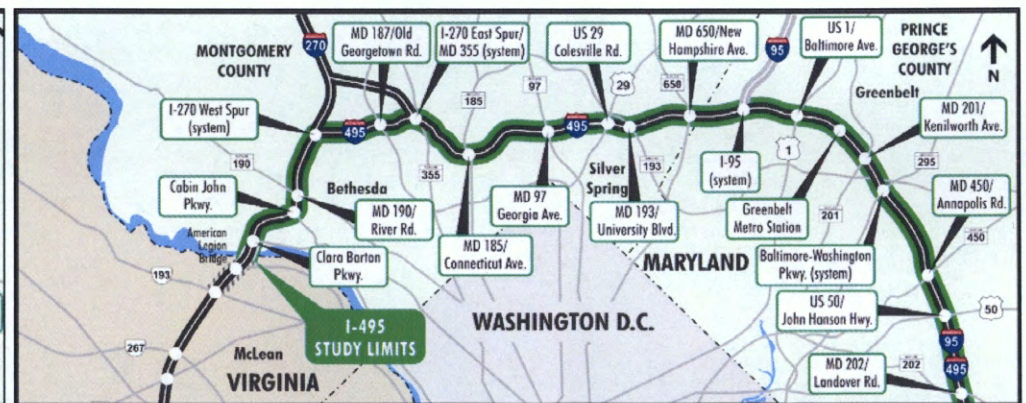
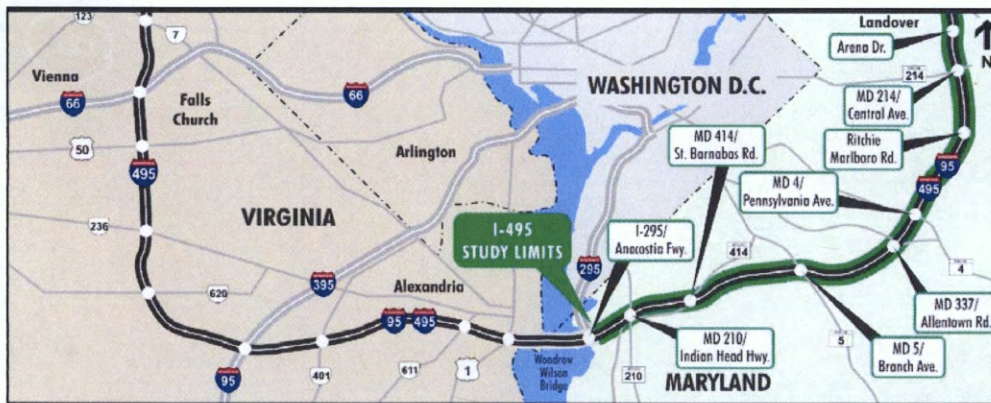
I-495 & I-270 Managed Lanes Study

MOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Purpose of Today's Presentation

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- Provide update on Study Status and Schedule
- Provide summary of Purpose and Need
- Present Preliminary Range of Alternatives
- Present Screening Criteria to evaluate alternatives



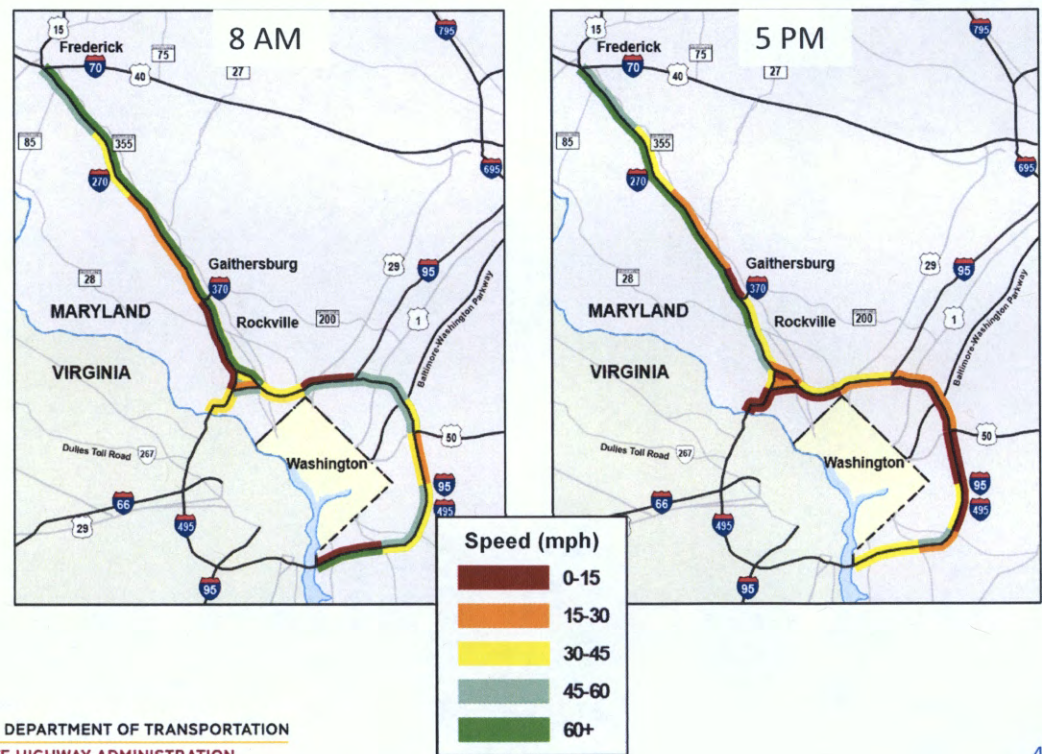
What is the Traffic Relief Plan (TRP)?

- To address Maryland's congestion, a balanced approach to transportation infrastructure improvements is needed for both transit and highways
- MDOT is moving forward with \$5.6 B Purple Line LRT construction and providing over \$1.5 B in funding for Metro
- The TRP is an ambitious plan to bring innovative solutions to address the transportation challenges on Maryland's most congested roads: I-495, I-270, MD 295, I-695, I-95, and other major corridors
- Congestion on these routes has a region-wide effect on other transportation modes, including transit



Traffic Conditions - Existing

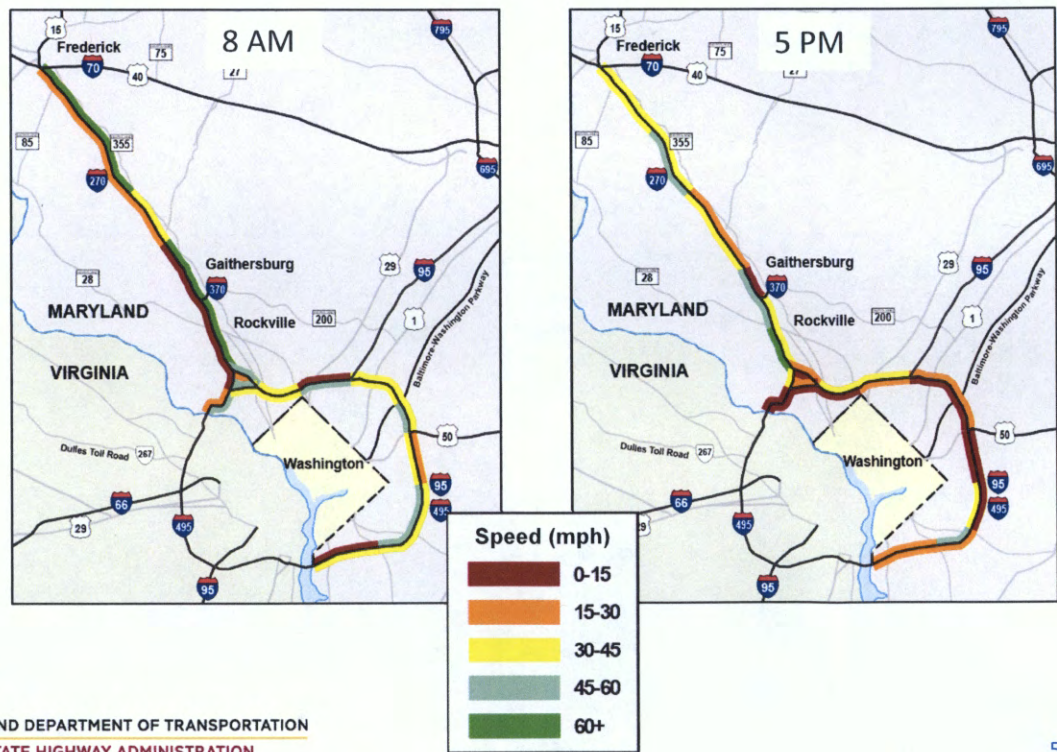
- Top 5 highest volume freeway sections in Maryland are within study area
- 12) • Today, on average, severe congestion lasts for 7 hours each day on I-270 and 10 hours each day on I-495
- Study area includes several of the most unreliable freeway sections in Maryland (highly variable travel times day to day)
- Many sections experience speeds less than 15 mph under existing conditions and traffic is expected to deteriorate



Traffic Conditions - No Build

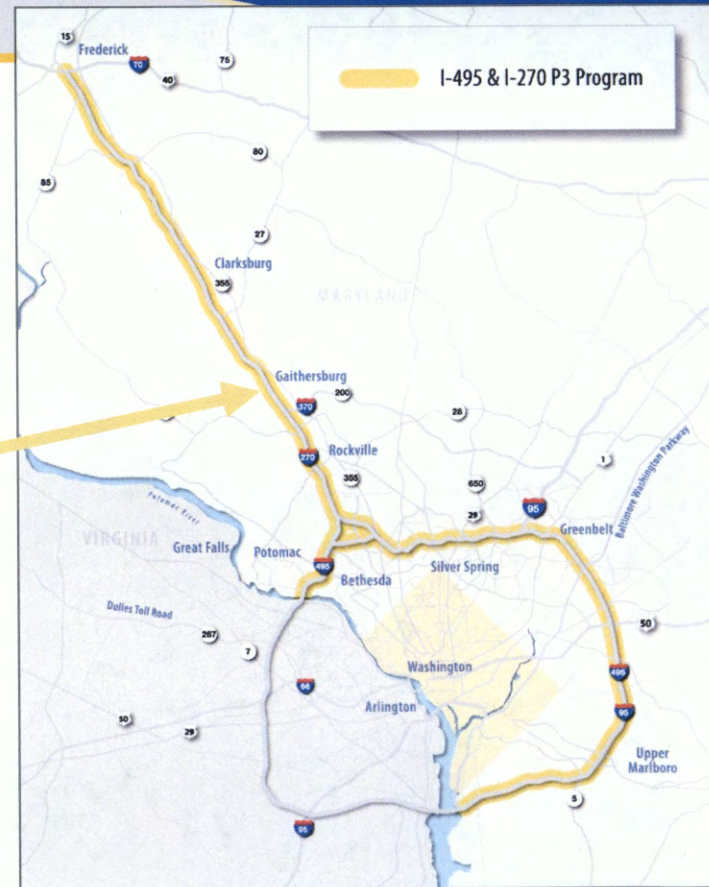
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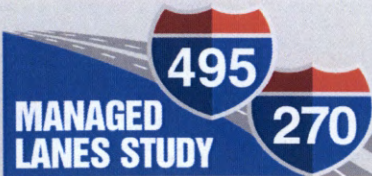
Average Annual Daily Traffic (AADT)		
Location	2018	2040
I-270: I-370 to I-495	259,000	299,000
I-495: VA Line to I-270	253,000	282,000
I-495: I-270 to I-95	235,000	252,000
I-495: I-95 to MD 4	230,000	245,000



I-495 & I-270 P3 Program

- I-495 (Capital Beltway) from south of the American Legion Bridge (ALB) to east of the Woodrow Wilson Bridge (WWB)
- I-270 from I-495 to I-70, including the east and west I-270 spurs
- Over 70 miles of interstate improvements in Maryland





Public-Private Partnership (P3)

- A P3 is a single agreement with a private sector partner, known as a concessionaire, to perform functions under a single agreement that are normally completed through multiple contracts and/or public resources. Functions for a transportation facility may include:

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- **Designing**
- **Building**
- **Financing**
- **Operating**
- **Maintaining**

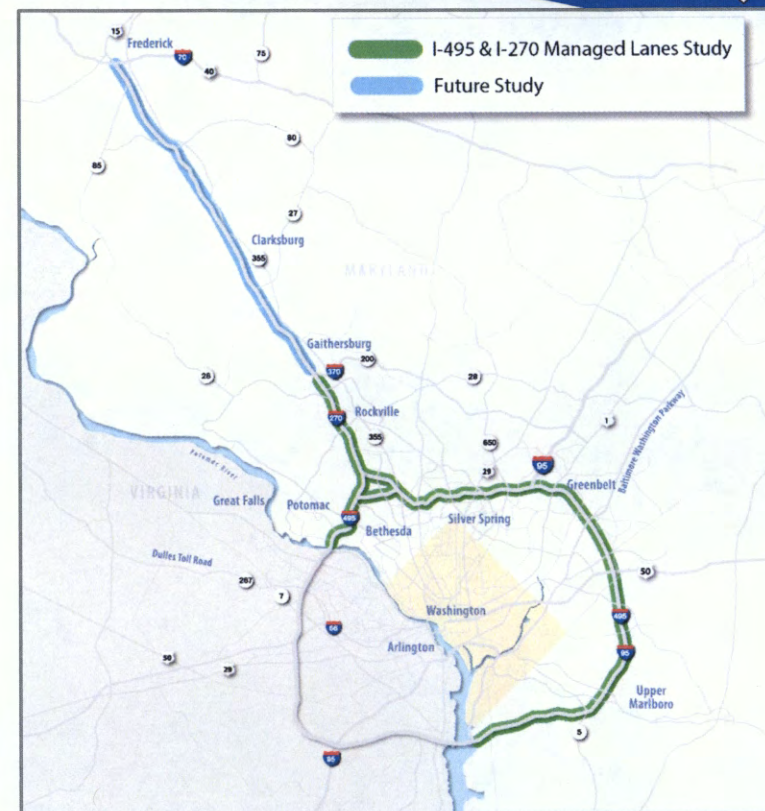
- Using a P3 can construct projects faster, better manage risks, provide operations and maintenance more efficiently, and be delivered with significantly lesser or no tax-payer funded contribution
- State will maintain ownership and function of transportation facilities and ensure they meet public functions

I-495 & I-270 MANAGED LANES STUDY

- I-495 from south of American Legion Bridge (ALB) to east of the Woodrow Wilson Bridge (WWB)
- I-270 from I-495 to I-370, including the east and west I-270 spurs

FUTURE STUDY

- I-270 from I-370 north to I-70, beginning in 2019





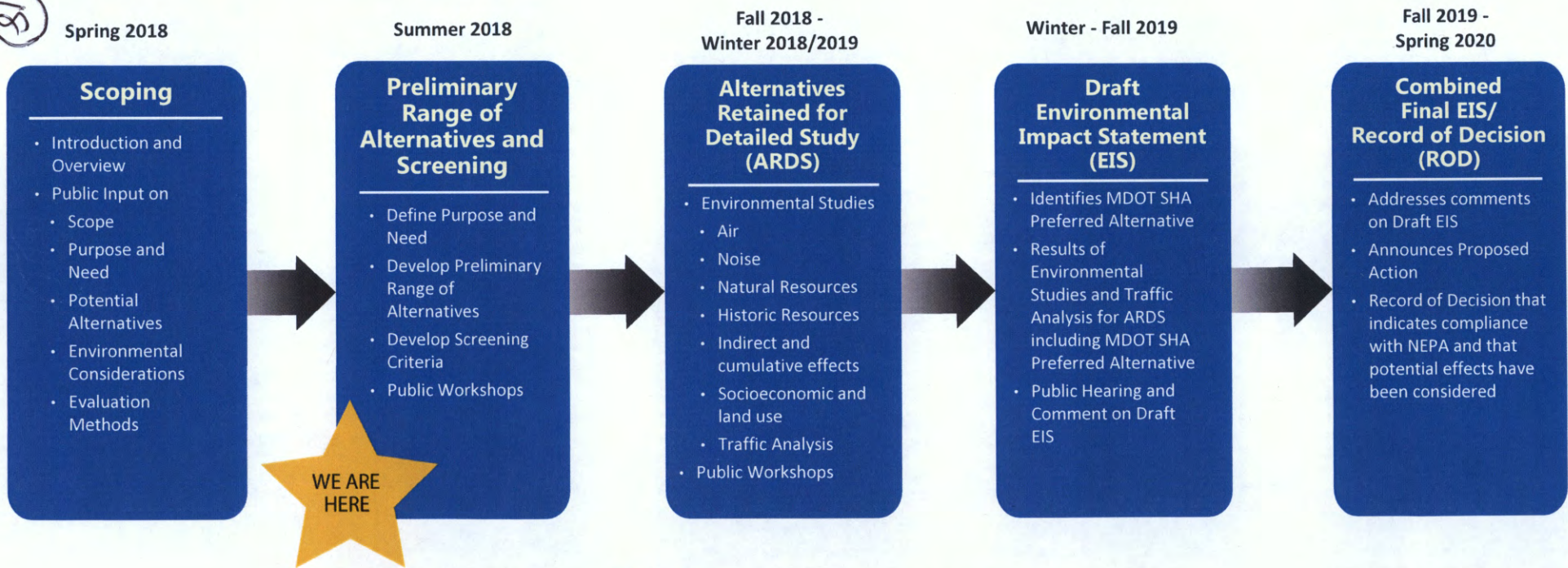
The National Environmental Policy Act (NEPA) Process

- NEPA requires federal agencies to evaluate the environmental effects of their proposed actions
- The I-495 & I-270 Managed Lanes Study will include the development of an Environmental Impact Statement (EIS), which will document the potential natural, cultural, and socioeconomic effects of the study's alternatives
- The Federal Highway Administration (FHWA) serves as the lead federal agency for the EIS
- The Maryland Department of Transportation State Highway Administration (MDOT SHA) is serving as the local project sponsor and joint lead agency

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The NEPA Process





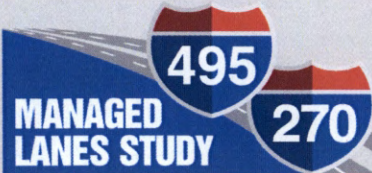
Environmental Streamlining Directives

- **TEA-21** (1998)- Established a coordinated environmental review process for major highway and transit project (**MDOT SHA developed a NEPA/Permitting streamlined process that same year**);
- **SAFETEA-LU** (2005)- Strengthened the environmental review process, required development of an agency and public coordination plan and formalized the NEPA conflict resolution process;
- **MAP-21** (2012)- Significant provisions to streamline the environmental review process to ensure timely delivery of transportation projects;
- **FAST Act** (2015)- Scheduled required under agency coordination plan; use of one single NEPA document to the maximum extent practicable to satisfy all federal actions.
- **Presidential Executive Order** (2012)- Established steering committee and process for elevating conflicts on major infrastructure projects.
- **Presidential Executive Order** (2017)- Established goal of completing NEPA and permitting for major infrastructure projects within 2 years.



Maryland's Transportation Environmental Regulatory Process (TERP) NEPA and Permitting Streamline Process

- (20) TERP is used to allow the documentation developed by FHWA and MDOT SHA in compliance with NEPA to serve as a substantial part of the documentation required by the reviewing, permitting and funding agencies in accordance with applicable laws and regulations.
- TERP is intended to facilitate the timely and efficient identification, evaluation, and resolution of environmental and regulatory issues.
- Agency representatives are expected to participate actively, adhere to the agreed upon schedule, and make timely decision on behalf of the agency.



TERP Process

- Level of responsibility is based on NEPA status:

Cooperating agency = *concurring* agency

Participating agency = *commenting* agency

- Formal concurrence and comments requested at **three** milestones:
 - Purpose and Need, Alternatives Retained for Detailed Study, and Selected Alternative
- MDOT SHA and FHWA presents information to the agencies during a regularly scheduled interagency meeting, seeks comments during a specified timeframe, and requests written and verbal concurrence (or comments) at a subsequent interagency meeting.

Roles and Responsibilities

- **Lead Agencies:** MDOT SHA and FHWA
 - Work collaboratively and respectfully with interagency partners throughout the process
 - 22 ▪ Make every effort to provide project information for review prior to meetings to facilitate meeting discussions
 - Set upfront, clear and reasonable deadlines for receiving agency comments
 - Consider and address agency comments in a timely manner

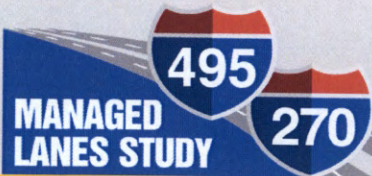


Roles and Responsibilities

- **Cooperating and Participating Agencies**

- Work collaboratively and respectfully with lead agency partners and study team throughout the process
- Provide data, data contacts, and other information as appropriate for their areas of expertise or jurisdiction
- “Identify and resolve issues that could delay the environmental review process or affect approvals required for the project under applicable laws” (23 USC 139.h)
- Review provided materials prior to meetings to facilitate discussion
- Adhere to established review and comment deadlines

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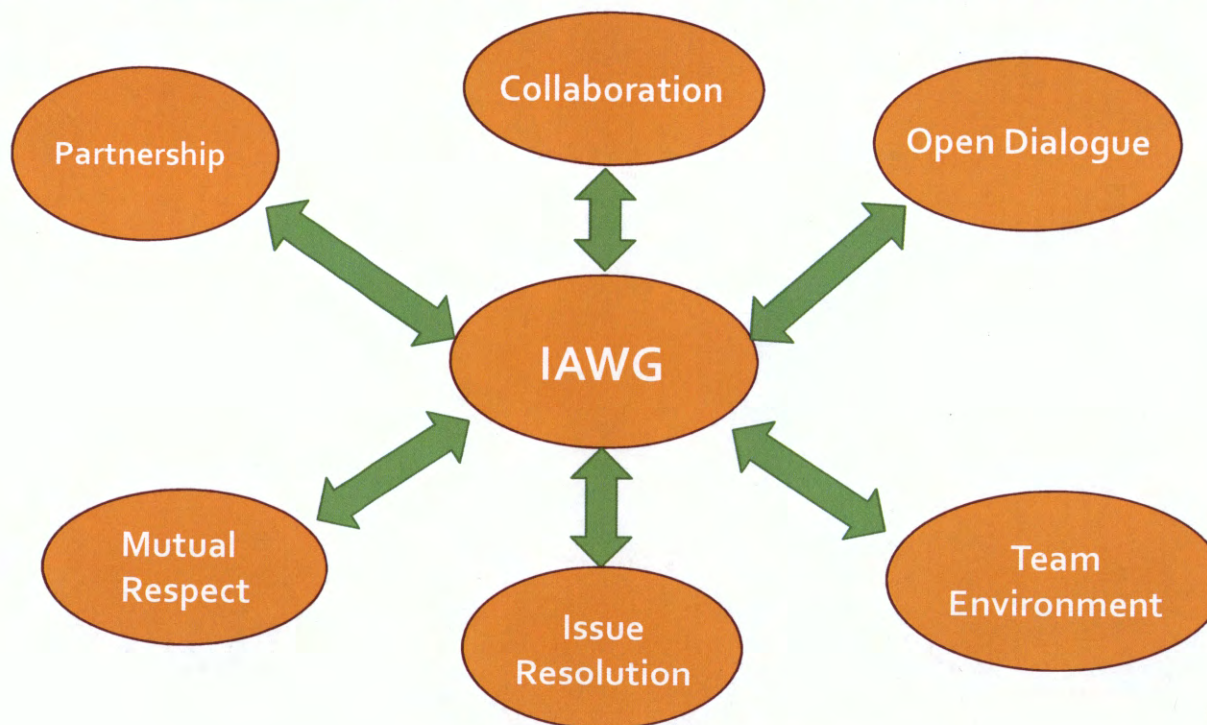


Interagency Working Group (IAWG) Framework

- Monthly meeting with Lead, Cooperating, and Participating Agencies
- Meeting agenda based on concurred upon schedule in the Agency Coordination Plan
- Goals of IAWG include:
 - Identify, evaluate, and resolve environmental and regulatory concerns in a collaborative format to inform the EIS
 - Identify additional data sources or stakeholders
 - Obtain Cooperating Agency concurrence and Participating Agency comments on project milestones

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Interagency Working Group (IAWG) Framework



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Cooperating Agencies

Federal Agencies:

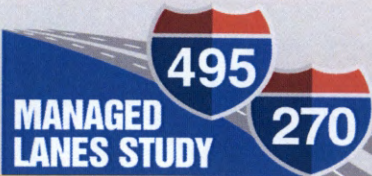
- US Army Corps of Engineers (USACE) Baltimore District
- 26 ▪ Environmental Protection Agency (EPA)
- National Park Service (NPS)
- US Coast Guard (USCG)
- National Capital Planning Commission (NCPC)

State Agencies:

- MD Department of Environment (MDE)
- Maryland Department of Natural Resources (MDNR)
- Virginia Department of Transportation (VDOT)

Local Agencies:

- Maryland-National Capital Park and Planning Commission (M-NCPPC)



Participating Agencies

Federal Agencies:

- US Department of Agriculture (Beltsville)
- US Postal Service (USPS)
- US Navy
- Natural Resource Conservation Service (NRCS)
- Federal Transit Administration (FTA)
- US Fish and Wildlife Service (USFWS)
- Federal Railroad Administration (FRA - Amtrak)
- National Marine Fisheries Service (NMFS)- NOAA
- US Department of Defense (Joint Base Andrews)

State Agencies:

- Maryland Department of Planning (MDP)
- Maryland Historical Trust (MHT)
- MDOT MTA
- MDOT MdTA
- Virginia Department of Historic Resources
- Virginia Department of Conservation and Recreation

Local Agencies:

- Prince George's County Public Works and Transportation
- Montgomery County Department of Transportation

Notified Agencies:

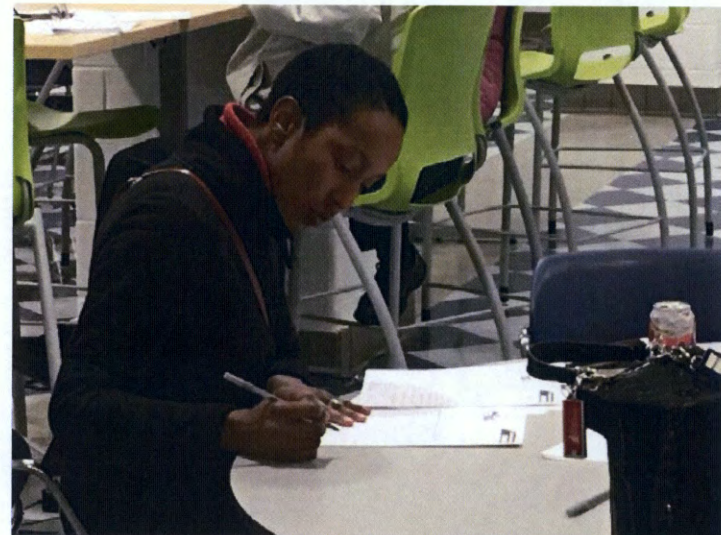
- Advisory Council on Historic Preservation
- National Institute of Technology and Standards
- Federal Emergency Management Administration
- MWCOG
- Frederick County
- Howard County

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Scoping Update from March/April 2018

- Notice of Intent (NOI) published in Federal Register (March 16, 2018)
- Launched study website:
 - Overview
 - Contact Information
 - Questions from Public
 - Surveys
- Hosted four (4) Open Houses to share study information and obtain feedback
- Participated in Local, State, and Federal Coordination Meetings

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Public Scoping Comments (March 16 – May 1, 2018)

143

Written comments from Public Open Houses

126

Submitted via the P3 website, email and US mail

620

Total comments received

345

Comments via Study Survey

6

Submitted via Phone (toll-free #)

29

Major Themes from Public Scoping Comments

- Support for the study, specific recommendations, or fixing congestion
- Statements about tolls and the partnership with the private sector
- 30 • Concerns with effects to the environment, noise, air, and properties
- Support for improvements to transit
- Questions about the study timeline and initial outreach

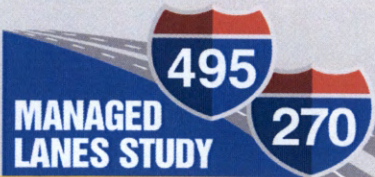
Purpose and Need

- Purpose is to develop a travel demand solution that addresses congestion, improves trip reliability, and enhances existing and planned multimodal mobility and connectivity
- Study will address the following Needs:
 - Accommodate existing traffic and long-term traffic growth
 - Enhance trip reliability
 - Provide additional roadway travel choices
 - Accommodate homeland security and
 - Improve movement of goods and services
- Additional Goals of study include incorporating funding sources for financial viability and developing the study in an environmentally responsible manner

(51)

Preliminary Range of Alternatives

- Reasonable Alternatives will be considered and objectively evaluated as part of the study
- The Preliminary Range of Alternatives are the high-level alternatives to be evaluated based on the Screening Criteria
- The alternatives that best meet the Screening Criteria will be carried forward for further, detailed study
- Public feedback is critical on the Preliminary Range of Alternatives and in determining the Alternatives Retained for Detailed Study



Preliminary Range of Alternatives: 15

- No-Build
- Transportation Systems Management/Travel Demand Management
- General Purpose Lanes
- Managed Lanes
 - High-Occupancy Vehicle
 - Priced
 - Bus
 - Contraflow
 - Reversible
- Transit

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Definitions

- **General Purpose (GP) Lanes:** freeway or expressway lanes open to all motor vehicles
- **Managed Lanes:** highway facility or set of lanes where operating strategies are used to control number of vehicles using the lanes
- **Priced Managed Lanes** combines two highway management tools:
 - *Congestion Pricing:* use of road user pricing that varies with the level of congestion and/or time of day to control traffic demand during peak periods, providing incentives for some motorists to shift trips to off-peak times, less-congested routes, or alternative modes
 - *Lane Management:* approach that restricts access to designated highway lanes based on occupancy or vehicle type in designated lanes to maintain a desirable level of traffic service
- **High-occupancy Vehicle Lanes (HOV):** lanes reserved for high-occupancy vehicles, a motor vehicle carrying at least two or more persons including carpools, vanpools, and buses

34

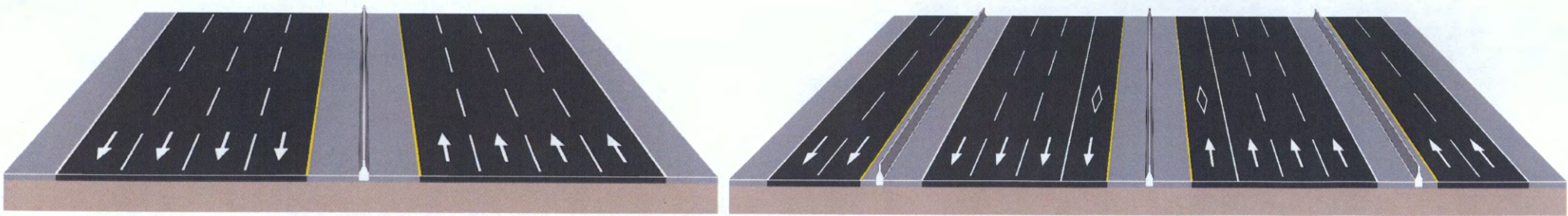
Definitions





- **Contraflow Lanes:** lanes operating adjacent to but in the opposite direction of the normal flow of traffic during peak-direction travel; usually separated by pylons or movable barrier
- **Reversible Lanes:** lanes where direction of traffic flow can be changed to match peak direction of travel, typically inbound in the morning and outbound in the afternoon
- **Transportation Systems Management (TSM):** operating strategies that improve the operation and coordination of transportation facilities
- **Travel Demand Management (TDM):** strategies or incentives to provide the most efficient and effective use of existing transportation services and facilities (e.g., rideshare and telecommuting promotion, managed lanes, preferential parking, road pricing, etc.)

1 No Build (Existing)

All projects in Constrained Long-Range Plan (CLRP) including I-270 Innovative Congestion Management (ICM) Improvements

36



Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes

* Note: Managed Lanes Could Include Buses

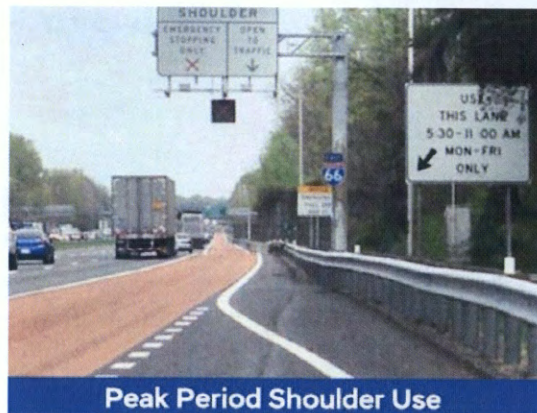
2 Transportation System Management (TSM) / Travel Demand Management (TDM)

Solutions along I-495 and I-270: restriping within existing pavement, peak period shoulder use, ramp metering and Active Traffic Management (ATM) strategies

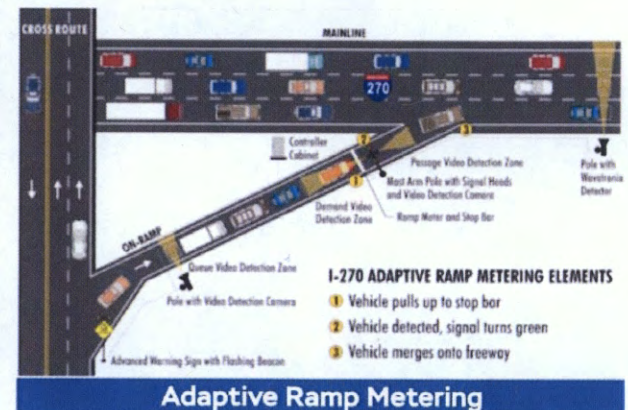
371



Active Traffic Management



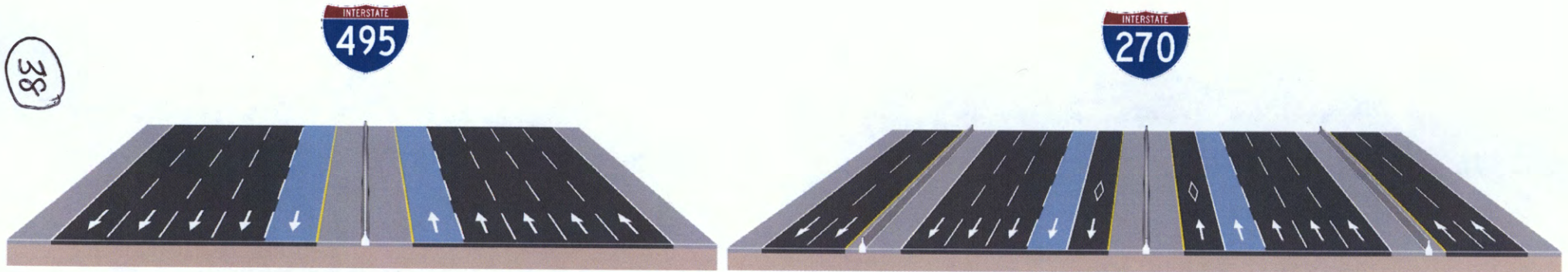
Peak Period Shoulder Use







Adaptive Ramp Metering

3 Add 1 General Purpose (GP) Lane

Add one general-purpose lane in each direction on I-495 and I-270

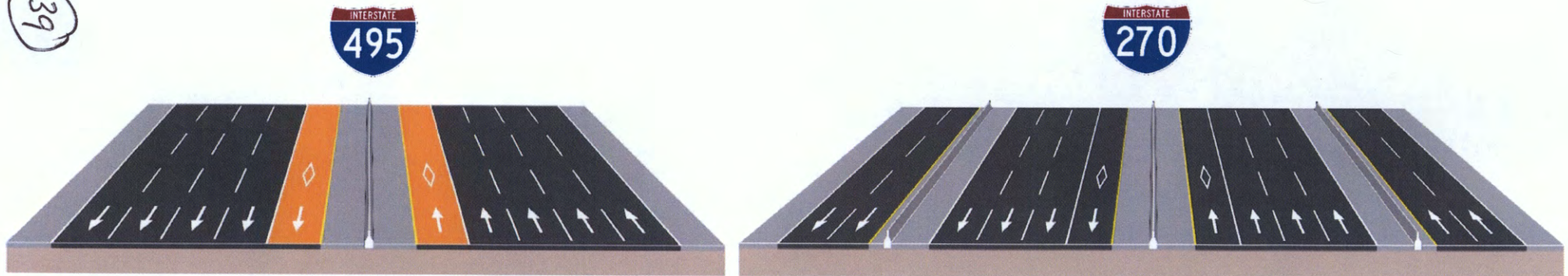






Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes
* Note: Managed Lanes Could Include Buses	

4 1-Lane, High-Occupancy Vehicle (HOV) Managed Lane Network

Add one lane in each direction on I-495 and retain existing HOV lane in each direction on I-270

39

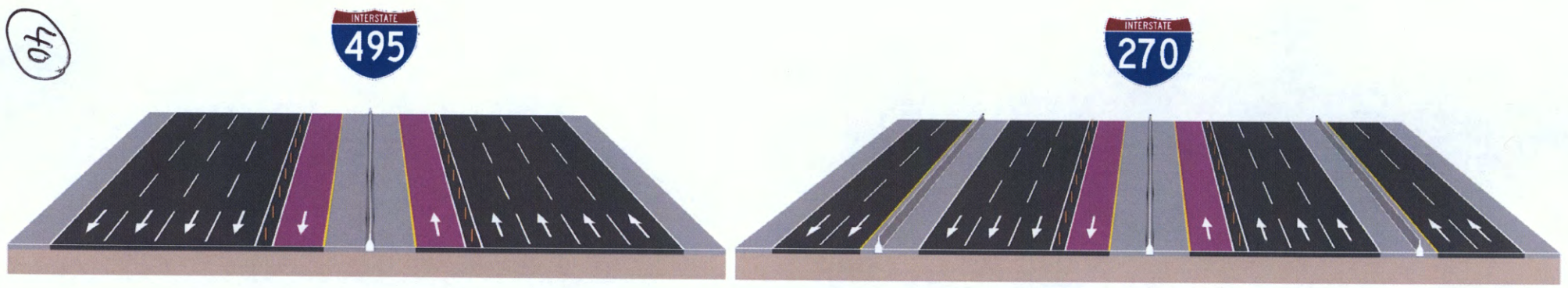






Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes

* Note: Managed Lanes Could Include Buses

5 1-Lane, Priced Managed Lane Network

Add one priced managed lane in each direction on I-495 and convert one existing HOV lane in each direction to a price managed lane on I-270







Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes
* Note: Managed Lanes Could Include Buses	

6 Add 2 General Purpose (GP) Lanes

Add two general-purpose lanes in each direction on I-495 and I-270

14

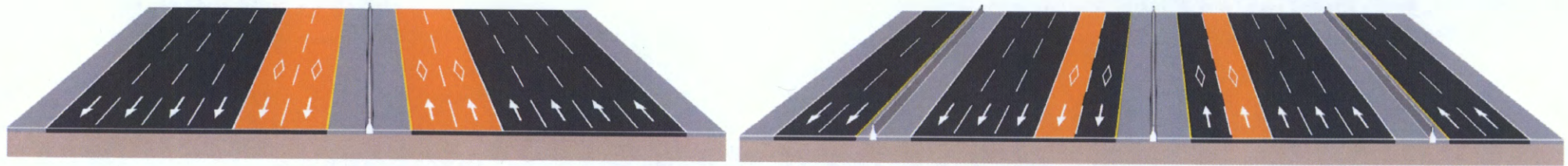






Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes
* Note: Managed Lanes Could Include Buses	

7 2-Lane, High-Occupancy Vehicle (HOV) Managed Lane Network

Add two HOV managed lanes in each direction on I-495 and retain one existing HOV managed lane and add one HOV lane in each direction on I-270

42



Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes

* Note: Managed Lanes Could Include Buses



8 2-Lane, Priced Managed Lanes Network on I-495, 1-Lane Priced and 1-Lane, HOV Managed Lane Network on I-270 Only:

43

Add two priced managed lanes in each direction on I-495 and add priced managed lane and retain one HOV lane in each direction on I-270



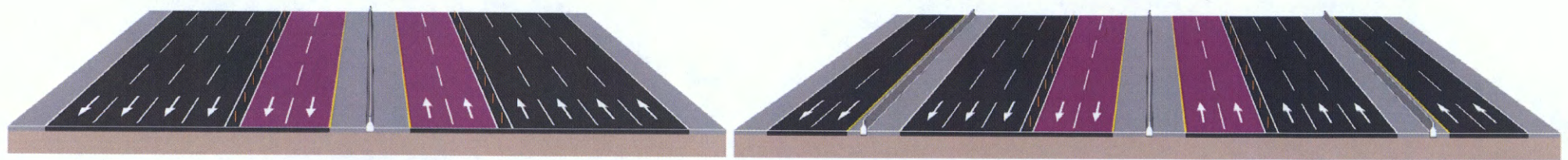
Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes





* Note: Managed Lanes Could Include Buses

9 2-Lane, Priced Managed Lane Network

Add two priced managed lanes in each direction **on I-495** and convert one existing HOV lane to a priced managed lane and add one priced managed lane in each direction **on I-270**

hh



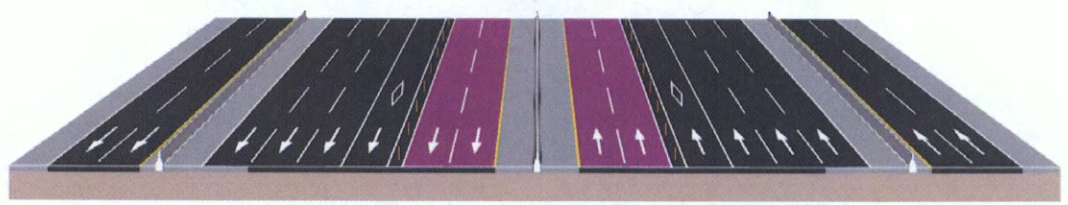
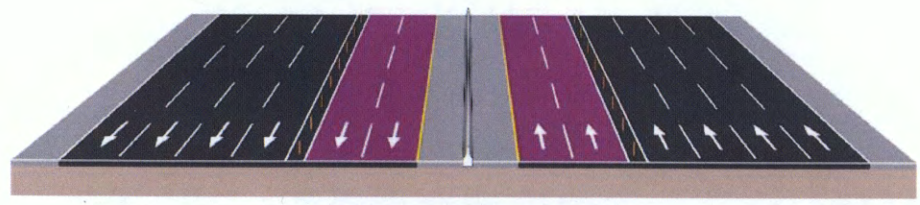
Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes





* Note: Managed Lanes Could Include Buses

10 2-Lane, Priced Managed Lane Network and 1-Lane HOV Managed Lane Network on I-270 Only

Add two priced managed lanes in each direction on I-495 and on I-270 and retain one existing HOV lane in each direction on I-270 only

45

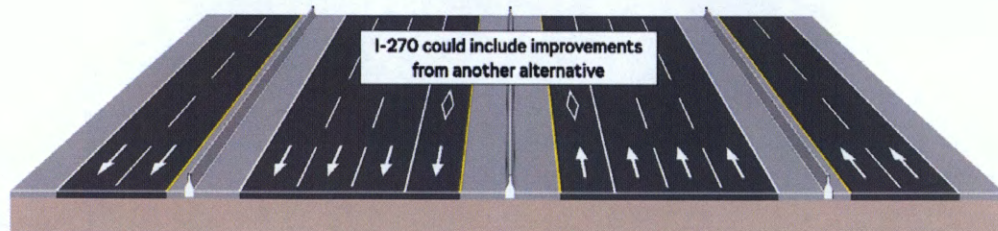
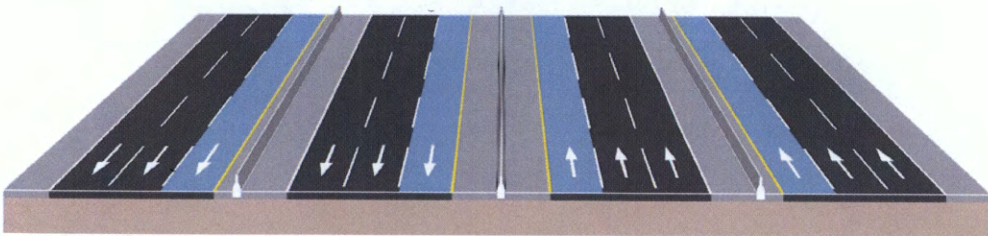






Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes
* Note: Managed Lanes Could Include Buses	

11 Collector/Distributor on I-495

Physically separate traffic using collector-distributor (C-D) lanes, adding two GP lanes in each direction **on I-495**; retain existing lanes and **on I-270**

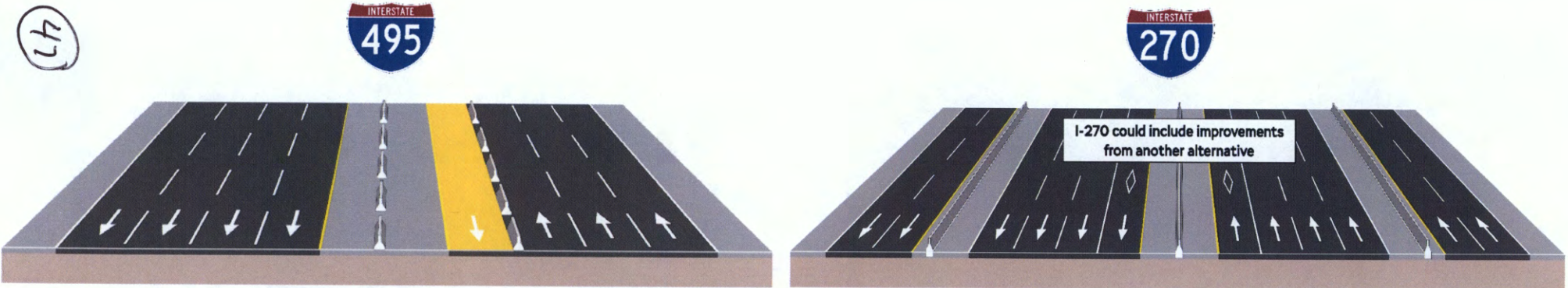
9/7







Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes
* Note: Managed Lanes Could Include Buses	

12A Contraflow on I-495

Convert existing general-purpose lane on I-495 to contraflow lane during peak periods

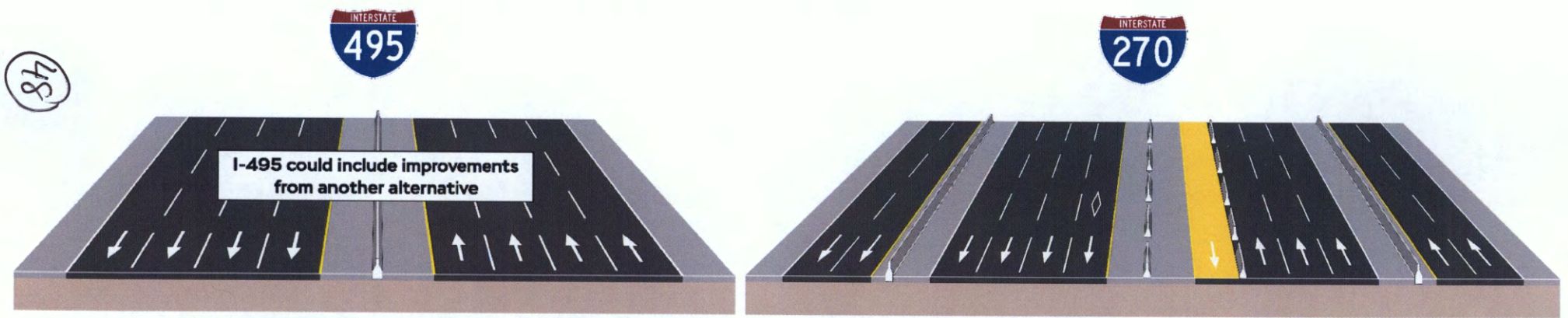






Legend

	New GP Lanes	
	New HOV Managed Lanes	* Note: Managed Lanes Could Include Buses
	New Priced Managed Lanes	
	Contraflow Lanes	

12B Contraflow on I-270

Convert existing HOV lane on I-270 to contraflow lane during peak periods

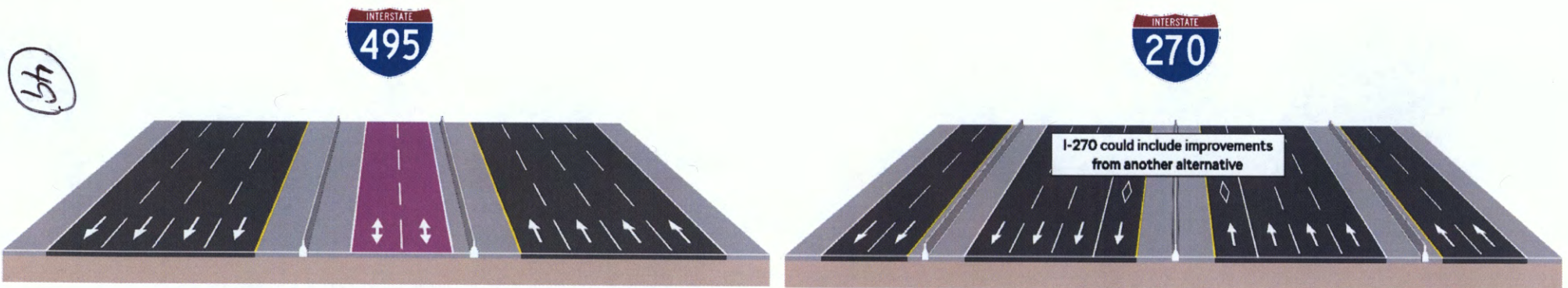


Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes


* Note: Managed Lanes Could Include Buses

13A Priced Managed, Reversible Lane Network on I-495

Add two priced managed reversible lanes on I-495



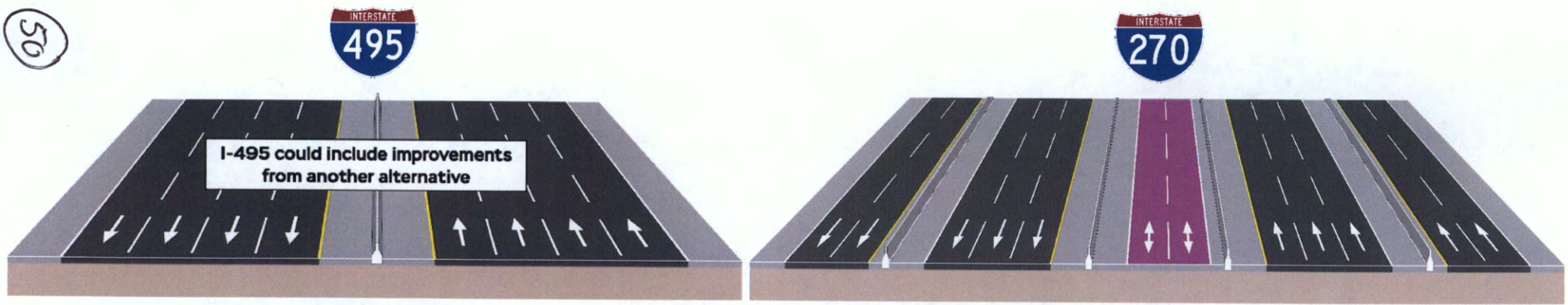
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Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes

* Note: Managed Lanes Could Include Buses

13B Price Managed, Reversible Lane Network on I-270:

Convert existing HOV lanes to two priced managed reversible lanes on I-270



Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes

* Note: Managed Lanes Could Include Buses

Rail and Bus Transit

14A

Heavy Rail: This alternative considers heavy rail transit parallel to the existing I-495 and/or I-270 corridors



14B

Light Rail: This alternative considers light rail transit parallel to the existing I-495 and I-270 corridors, such as the Purple Line currently under construction



14C

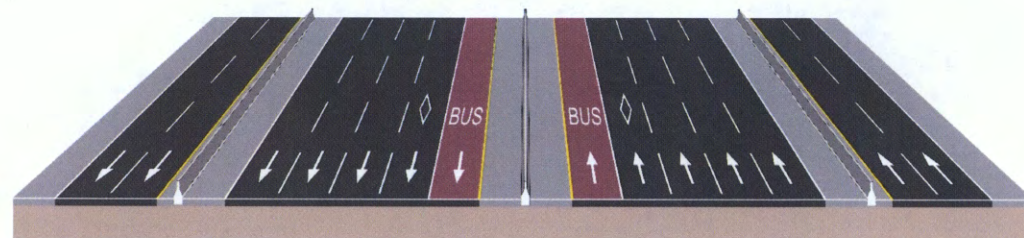
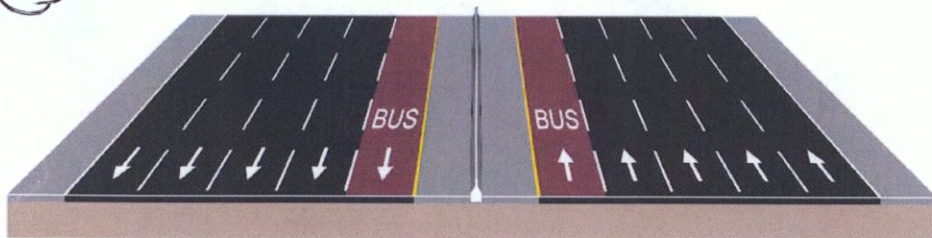
Fixed Guideway Bus Rapid Transit (Off Alignment): This alternative considers fixed guideway bus rapid transit (BRT) along a new alignment parallel to the existing I-495 and I-270 corridors







15 Dedicated Bus Managed Lane

Dedicated Bus Managed Lane on I-495 and I-270 Roadways

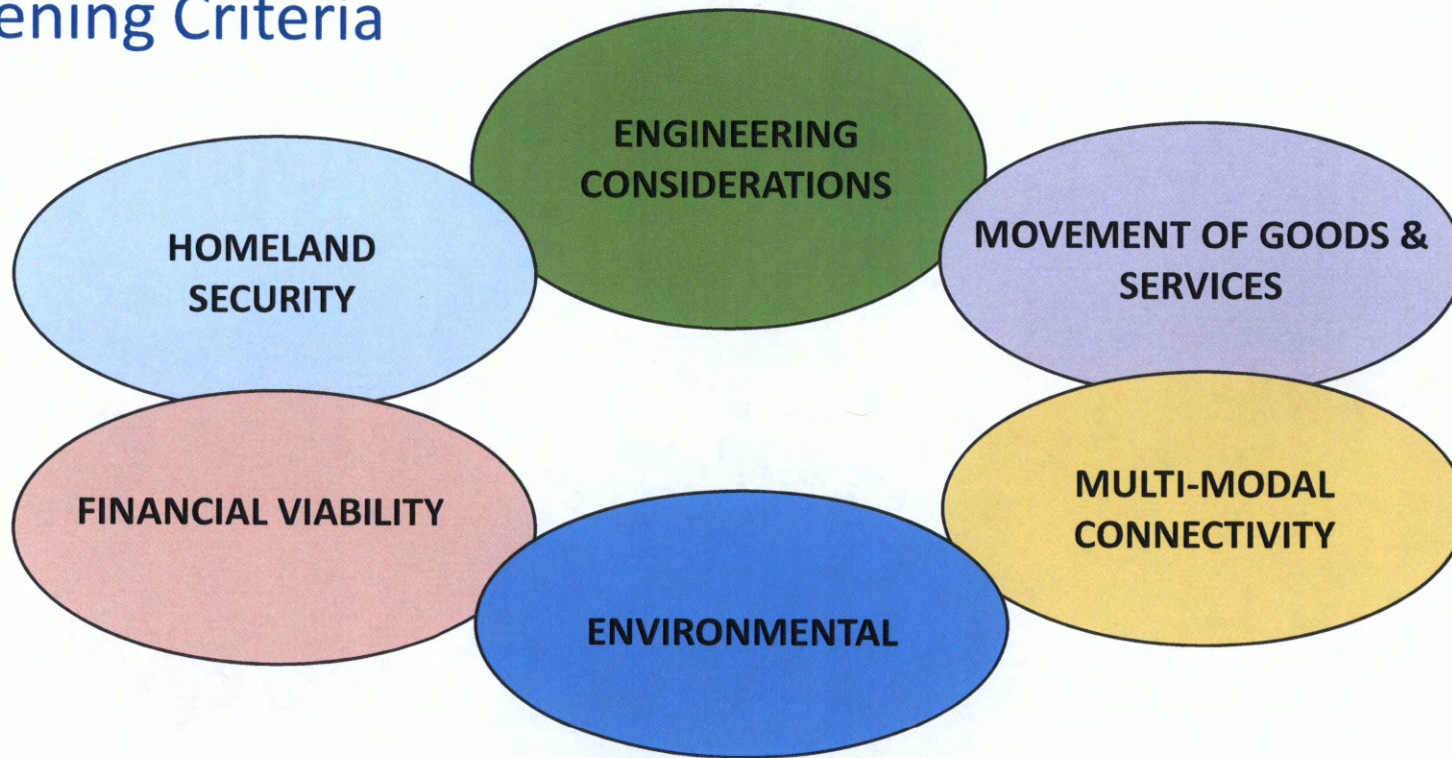
52



Legend	
	New GP Lanes
	New HOV Managed Lanes
	New Priced Managed Lanes
	Contraflow Lanes

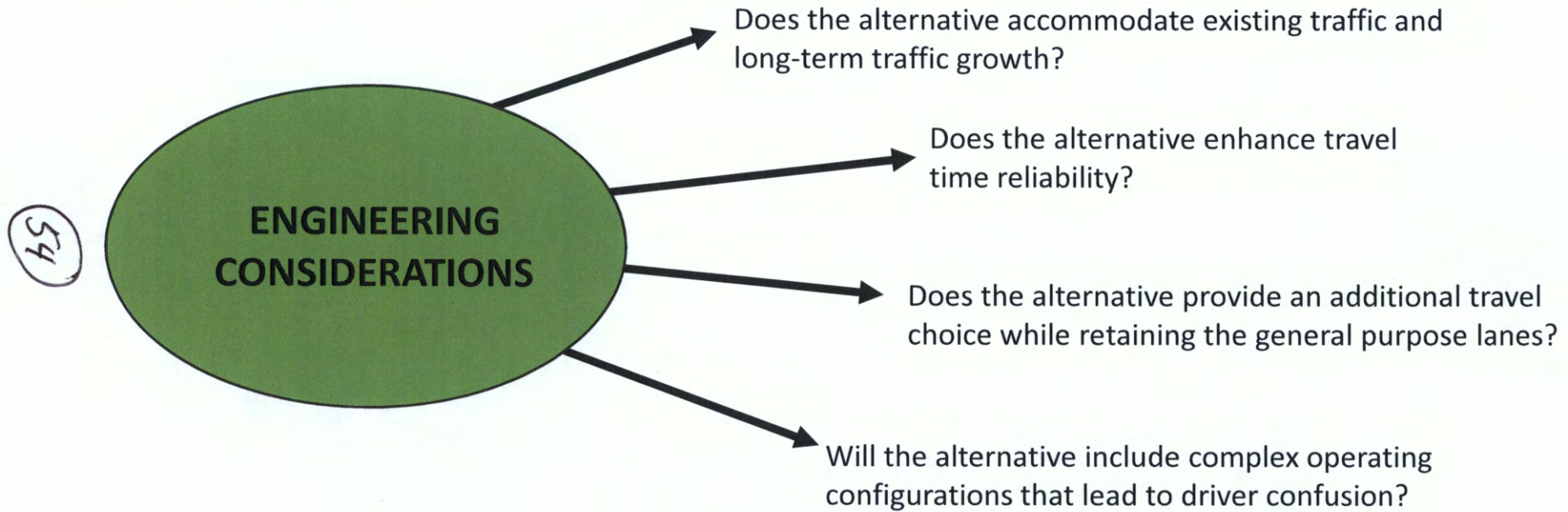
* Note: Managed Lanes Could Include Buses

Screening Criteria

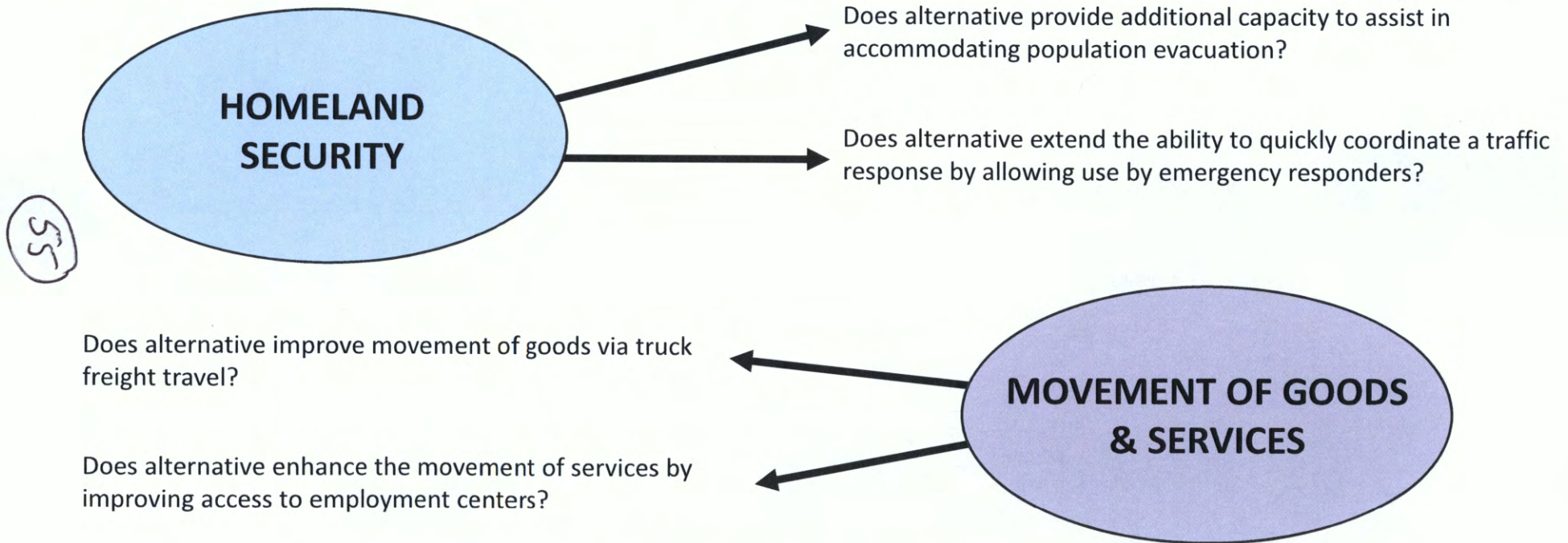


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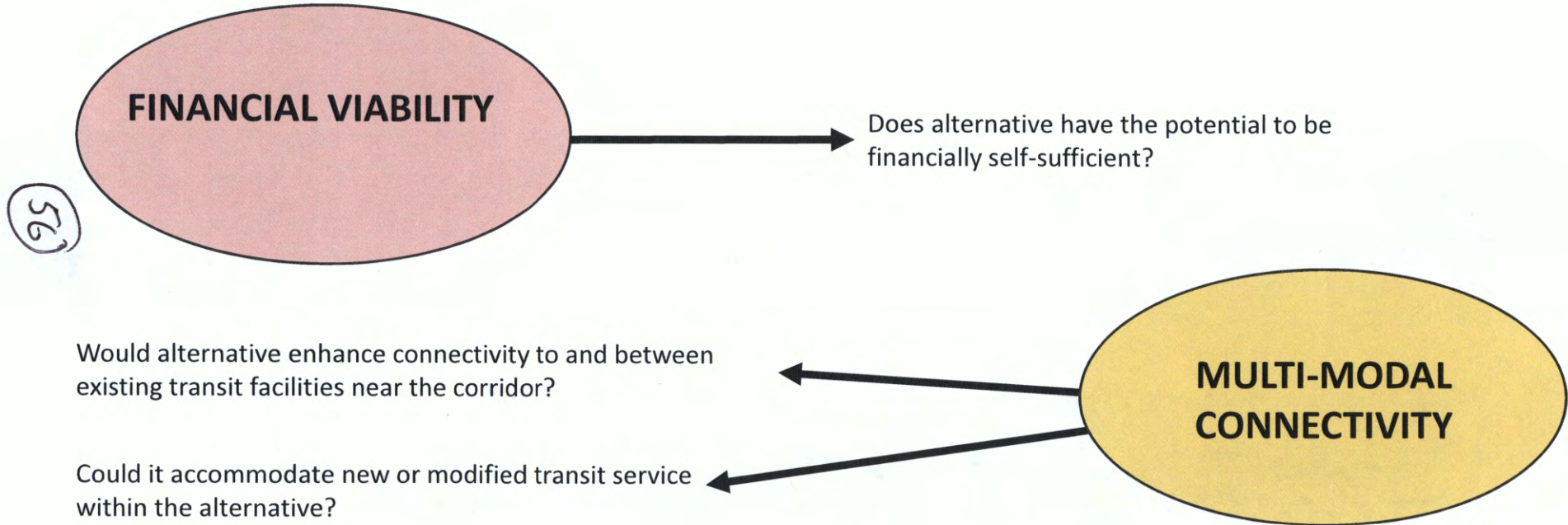
Screening Criteria



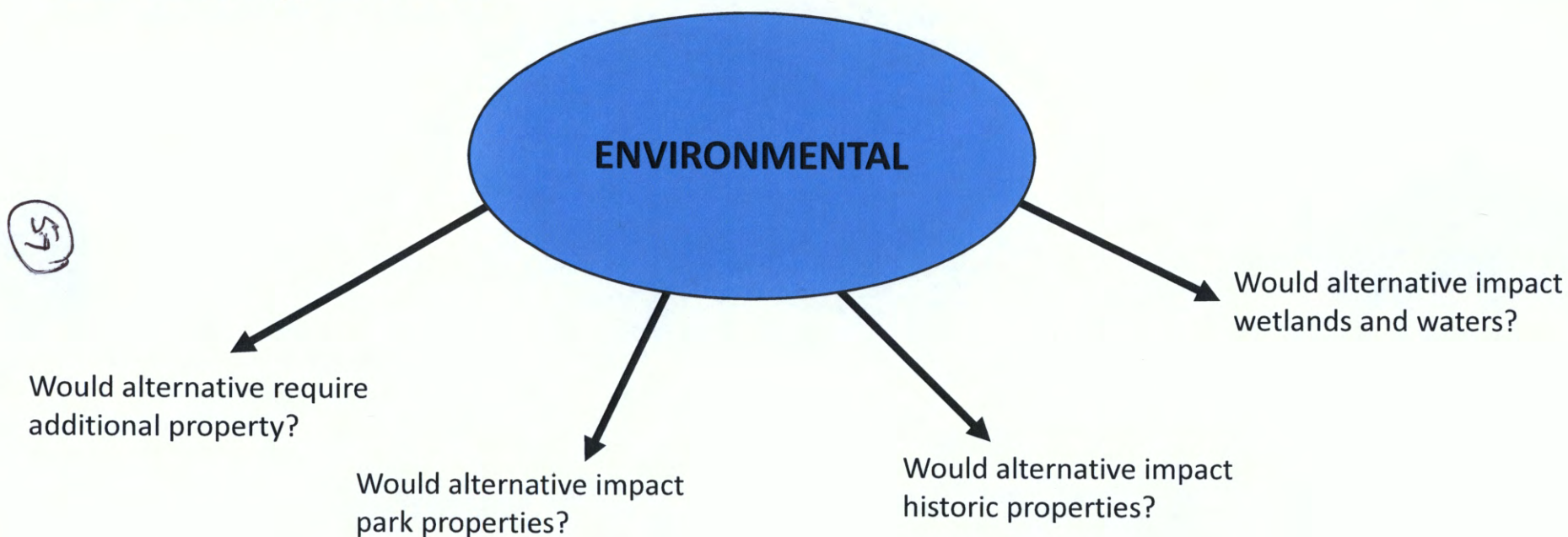
Screening Criteria



Screening Criteria



Screening Criteria





Next Steps

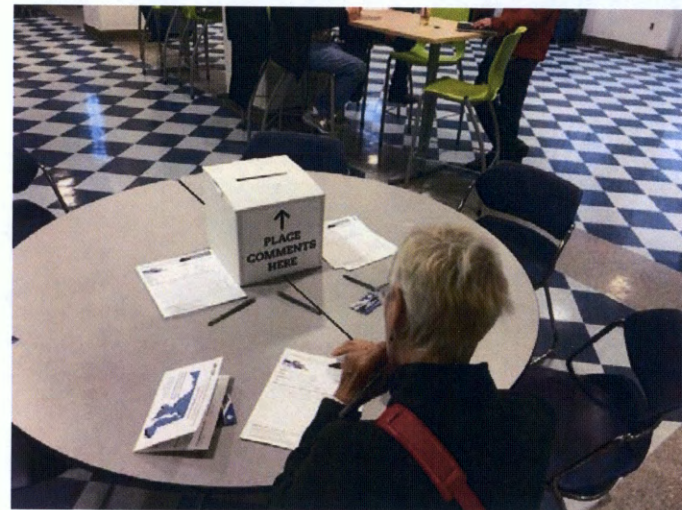
- Evaluate input from the public and environmental agencies and screen the Preliminary Range of Alternatives to the Alternatives Retained for Detailed Study (ARDS)
- SS • Complete detailed environmental studies and traffic analysis on the ARDS
- Present the results of the analysis on the ARDS for public feedback in Winter 2018/2019 to help inform MDOT SHA in the identification of its Preferred Alternative at a later date

Questions?

Contact Information:

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- Website: 495-270-P3.com
- 495-270-p3@sha.state.md.us
- Toll-free Number: 833.858.5960





DEPARTMENT OF TRANSPORTATION


Isiah Leggett
County Executive

Al R. Roshdieh
Director

MEMORANDUM

August 29, 2018

TO: Caryn Brookman, Environmental Program Manager
Maryland State Highway Administration, I-495 & I-270 P3 Office

FROM: Christopher Conklin, P.E., Deputy Director for Policy 
Department of Transportation

SUBJECT: I-495 and I-270 Managed Lane Study – Inter-Agency Working Group
Reiterated Comments on the Purpose and Need

Thank you for the continued opportunities through the Inter-Agency Working Group to provide input on the I-495 and I-270 Managed Lanes Study. As stated previously in correspondence and during the LAWG's meetings, we continue to have reservations about the Project's Purpose and Need. Our reservations are primarily related to the focus on congestion relief instead of a broader goal of mobility improvement for the area served by the highway corridors. While we agree that these highways are subject to significant, recurring congestion, the Project should incorporate solutions other than expanding and managing highway capacity.

The Purpose and Need should be modified to account for the mobility benefits of transit and high-occupancy vehicle (HOV) alternatives that are additive to any impact they may have on congestion. Additional language should be included to expand upon the prioritization of transit and other high-occupancy vehicles serving the corridor. Metrics such as person-throughput, household and employment center accessibility, and the Non-Auto Drive Mode Share (NADMS) for these corridors are possibly more important than metrics related to highway congestion mitigation. Expansion of the Purpose and Need will help ensure that the proposed solutions are in keeping with the County's master plans, programs, and policies that are broadly based on improved transportation sustainability and expanding the range of travel options – including improvements to the highway system.

With an improved Purpose and Need, we support inclusion of transit alternatives both within the highway corridors and those that serve the travel markets of the highway corridors. Stronger language in the Purpose & Need toward high occupancy vehicles would also help to ensure that there is no reduction in HOV incentives from existing conditions, which currently help to increase the capacity of I-270 and move a greater volume of people through the corridor. The continued provision of HOV access may also be a component of equity considerations. Some variation of priority access for HOV and transit must be maintained at least for I-270 and we urge it be considered also for I-495.

Office of the Director

101 Monroe St., 10th Floor • Rockville, Maryland 20850 • 240-777-7170 • 240-777-7178 FAX

www.montgomerycountymd.gov/dot

montgomerycountymd.gov/311



301-251-4850 TTY

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Caryn Brookman
August 29, 2018
Page 2

We also suggest that the study area be expanded back to I-70. While we recognize that the State feels the area north of I-370 may not be as pressing a need, we feel that congestion in the vicinity of MD 117 and MD 124 as well as near the northbound bottleneck north of MD 121 are all issues that may benefit from this project's evaluations.

Should you have any questions regarding our comments on the plan, please feel free to contact me or Mr. Andrew Bossi, Senior Engineer, at 240-777-7200.

CC: ab

cc: Al Roshdieh, MCDOT
Gary Erenrich, MCDOT
Andrew Bossi, MCDOT
Casey Anderson, MNCPPC
Stephen Aldrich, MNCPPC
Glenn Orlin, Montgomery County Council
Craig Simoneau, City of Rockville
Ollie Mumpower, City of Gaithersburg
Vic Weissberg, PG-DPWT
Matt Baker, SHA

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DEPARTMENT OF TRANSPORTATION


Isiah Leggett
County Executive

Al R. Roshdich
Director

MEMORANDUM

August 29, 2018

TO: Caryn Brookman, Environmental Program Manager
Maryland State Highway Administration, I-495 & I-270 P3 Office

FROM: Christopher Conklin, P.E., Deputy Director for Policy
Montgomery County Department of Transportation 

SUBJECT: I-495 and I-270 Managed Lane Study – Inter-Agency Working Group
Comments on Alternatives and Screening Criteria

Thank you for the continued opportunities through the Inter-Agency Working Group to provide input on the I-495 and I-270 Managed Lanes Study. We would like to offer the following comments on the screening criteria shown at the Inter-Agency Working Group meeting on July 11, 2018:

- 1) **Existing Conditions / Needs:** Data collection and analysis should identify the current needs and congestion points. While the I-270 corridor may be able to utilize past studies and projects (including the ongoing ICM project), the I-495 corridor has not had as much past study and could potentially benefit significantly from a similar approach as the series of small treatments included in the I-270 ICM project.
- 2) **Transit Alternatives:** We feel that potential transit projects serving the target areas could score highly as potential alternatives, and urge that transit be thoroughly considered as part of the solution to mobility needs on the I-270 and I-495 corridors. We suggest the following alternatives for consideration:
 - a. 14A HRT – 3rd Track MARC and service improvements; run MARC trains two-way throughout the day the weekends
 - b. 14A HRT – Extend Red Line to Metropolitan Grove
 - c. 14A HRT – Extend Red Line to the Germantown Transit Center
 - d. 14B LRT – A light rail alignment along MD 355
 - e. 14B LRT – Extend Purple Line to Tysons Corner
 - f. 14B LRT – Extend Purple Line to Largo Town Center
 - g. 14B LRT – Extend Purple Line to National Harbor / Alexandria
 - h. 14C BRT – The MD 355 North and South BRT corridors

Office of the Director

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www.montgomerycountymd.gov/dot



- i. 14C BRT – The MD 586/MD193 BRT corridor
- j. 14C BRT – The Randolph Rd/North Bethesda Transitway BRT corridor
- k. 14C BRT – Provide BRT from Montgomery Mall to Tysons Corner
- l. 14C BRT – Provide BRT from New Carrollton to Largo Town Center
- m. 14C BRT – Provide BRT from New Carrollton to National Harbor / Alexandria
- n. 15 BRT – Bus on Shoulder

- 3) **Additional Alternatives:** In addition to the transit alternatives noted above, we also suggest that the State give consideration toward the expansion of alternative routes around the DC region to shift traffic away from the I-95/495 corridors. This evaluation could build on past study of corridors such as:
- a. I-97/US 301 to the east of the Washington D.C. region
 - b. US 15, I-66, VA 234 corridor to the west of the Washington D.C. region.

4) **Screening Metric Comments:**

- a. **ENGINEERING #1**
Replace “Traffic” with “Travel Demand” to generalize vehicles to people.
- b. **ENGINEERING #2**
Add “for all modes”
- c. **ENGINEERING #3**
Expand to include options beyond highway travel, or add another metric related to the availability of alternate modes to highway travel.
- d. **ENGINEERING #4**
Consider combining this with general phrasing related to safety and reducing the risk of collisions. Alternately, Safety might be a screening metric in its own right.
- e. **HOMELAND SECURITY #1**
How will the transit alternatives be measured against this criterion? To what distance or destination is it deemed adequate to evacuate to for purposes of this measurement, and under what conditions would an evacuation be likely?
- f. **HOMELAND SECURITY #2**
How will the transit alternatives be measured against this criterion? Would this be given as N/A, or would it be a “Yes” presuming emergency services have access to transit facilities/vehicles?
- g. **HOMELAND SECURITY #3 (NEW)**
Does the alternative provide a redundant travel option in the event of a disaster or attack on the highway corridor?

- h. **MOVEMENT OF GOODS & SERVICES #1**
How will the transit alternatives be measured against this criterion? Will it be "N/A" as trucks would not be on heavy rail or are unlikely to be on LRT/BRT facilities? Or "No" for the same reason: trucks would be barred from their facilities? Or "Yes" on a presumption that mode shift would expand capacity for trucks?
- i. **FINANCIAL VIABILITY**
What range of revenue tools is the state willing to consider – for example a regional revenue model, like Northern Virginia, could provide a revenue stream to substitute for P3 generated revenue to support some alternatives?
- j. **ENVIRONMENTAL (ALL)**
Consider rephrasing each metric into a response of Low, Med, High.

5) **Additional Screening Metrics:**

- a. **ENGINEERING** – Consider an additional metric evaluating the constructability / MOT impacts on a scale of Low, Med, High.
- b. **ENGINEERING** – Consider an additional metric evaluating an alternative's ease of access to between the new lanes and the arterials directly serving / served by I-270.
- c. **HOMELAND SECURITY** – Consider an additional yes/no metric "Does the alternative provide adequate area for traffic enforcement to operate?" This would particularly be affected by the loss of shoulders along the left and/or right sides of any sections with 3+ lanes.
- d. **FINANCIAL VIABILITY** – Consider an additional metric evaluating each alternative's cost to the facility users by Low, Med, High.
- e. **MULTI-MODAL CONNECTIVITY** – Consider an additional metric related to Engineering #3: Does the alternative increase or reduce the incentive for users to utilize vehicles at a higher occupancy?
- f. **MULTI-MODAL CONNECTIVITY** – Consider an additional metric evaluating the alternative's impacts on the NADMS goals of area master plans by Low, Med, High.
- g. **ENVIRONMENTAL** – Consider additional metrics relating to environmental/social justice, such as equity, toll affordability across socioeconomic populations, and access to the facilities by transit vehicles.
- h. **ENVIRONMENTAL** – Consider an additional low/med/high metric "What is the alternative's scale of impact on adjacent properties?"

Caryn Brookman
August 29, 2018
Page 4

- i. **ENVIRONMENTAL** – Consider an additional low/med/high metric “What is the alternative’s scale of impact on the tree canopy?”
 - j. **ENVIRONMENTAL** – Consider an additional low/med/high metric “What is the alternative’s scale of impact on Vehicle-Miles Traveled?” [this could potentially satisfy any interest in considering Fuel Consumption and Emissions]
- 6) **Individual Segments:** Consider separate & distinct alternatives for each of at least four segments, as noted below. There may not be a “one-size fits all” alternative, and different options – minding transitions – may better fit some segments than others.
- a. I-270
 - b. I-495 west of I-270
 - c. I-495 between the I-270 spurs
 - d. I-495 between I-270 and I-95
 - e. I-495 east of I-95

Should you have any questions regarding our comments on the plan, please feel free to contact me or Mr. Andrew Bossi, Senior Engineer, at 240-777-7200.

CC:ab

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Matt Baker, SHA

(65)



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
6611 Kenilworth Avenue • Riverdale, Maryland 20737

MEMORANDUM

August 3, 2018

TO: Lisa Choplin, Director, I-495 & I-270 P3 Office
Jeffrey T. Folden, Deputy Director, I-495 & I-270 P3 Office
Caryn Brookman, Environmental Program Manager, I-495 & I-270 P3 Office

FROM: Carol S. Rubin, Acting Deputy Director, M-NCPPC Montgomery County Planning Department
Debra Borden, Principal Counsel, M-NCPPC Office of the General Counsel

RE: I-495 and I-270 Managed Lanes Study Purpose and Need Statement
M-NCPPC Comments

At a meeting several weeks ago between Lisa Choplin and Jeffrey Folden on behalf of MDOT SHA, and Mike Riley, Gwen Wright and Carol Rubin on behalf of the Montgomery County side of The Maryland-National Capital Park and Planning Commission (MNCPPC), we committed to send you a redline version of the latest draft of the Purpose and Need Statement with consolidated comments from MNCPPC in early August. As the Executive Level representatives to the IAWG on behalf of MNCPPC, we have enclosed that document. Due to some vacation schedules, we expect a few more eyes on this draft, but we do not expect much to change. The final comments will be submitted to you by the end of August.

MNCPPC strongly recommends three key changes to the I-495 & I-270 Managed Lanes Study Purpose and Need Statement to align it with the National Environmental Policy Act (NEPA) requirements and best practices. This marked-up version of the Purpose and Need Statement with specific language (or comments) addresses what we consider to be deficiencies in the document as presented by MDOT SHA. The critical issues are that the Purpose and Need Statement must:

1. Delete references to managed lanes as this defines a solution rather than the problem or need;
2. Include a more-thorough analysis and explanation of the problems that are to be addressed;
3. Establish and include more robust, measurable objectives; and
4. Emphasize equitable transportation solutions that address the mobility of all users by providing a range of transportation options.

Consistent with NEPA, the Purpose and Need Statement should be an account of a transportation problem, not a justification for a desired solution. As written, the Purpose and Need Statement appears to be a rationalization for managed lanes. In fact, the detailed discussions in Section V which lists the specific needs, three of those listed: "Accommodate Existing Traffic and Long-Term Traffic Growth," "Enhance Trip Reliability" and "Provide Additional Roadway Travel Choice" identify managed lanes as the *only* solution. Since there are many possible solutions to the problems identified, an objective

Purpose and Need Statement must either remove all references to managed lanes or give equal consideration/discussion to other potential solutions.

To properly frame a Purpose and Need Statement, the document must demonstrate a comprehensive analysis and understanding of the problem. To provide the foundation for effective design alternatives, a few of the critical questions that need to be addressed and thoroughly analyzed are:

1. What are the regional travel patterns that contribute to the congestion now experienced on I-495 and I-270?
2. What type of congestion is occurring, where is it occurring and how frequently does it occur?
3. What is causing this congestion; whether it is link or merge and weaving capacity?

As presented, the Purpose and Need Statement does not raise or address any of these questions. If analysis of regional travel patterns was conducted, it is not presented in the document or in the appendices. The Purpose and Need Statement *explains* that congestion has been an increasing problem over several decades, but specific basic conditions that contribute to the problem, such as times and locations where congestion occurs along the corridor is glaringly absent from the document. Moving forward without answering these questions makes MDOT SHA vulnerable to challenge and misses an opportunity to build support for the ultimate alignment and design.

In February 2005, the Federal Highway Administration and the Federal Transit Administration issued joint guidance to better connect the transportation planning and environmental review processes (23 CFR Part 450 – Appendix A). This document identifies ways that transportation planning can be incorporated into a purpose and need statement and states that “goals and objectives from the transportation planning process may be part of the project’s purpose and need statement.”

Objectives are a critical part of *any* planning process because they define the problem, convey to all stakeholders the standards and metrics by which the project alternatives will be compared, and they ensure that the preferred alternative will mitigate the problems that the project is intended to address. Therefore, MNCPPC strongly encourages the inclusion of quantifiable objectives for each of the goals in the Purpose and Need Statement. At a minimum, the screening criteria that are proposed to refine or condense the initial alternatives must be enhanced and incorporated into the goals of the Purpose and Need Statement. MNCPPC believes that MDOT SHA must develop more rigorous objectives that better differentiate among alternatives to appropriately address the needs of the project. In future correspondence, MNCPPC will provide suggested objectives that are more detailed for the project team’s consideration as discussed below.

By way of example, the Purpose and Need Statement from the ICC FEIS (Volume 2, Chapter 1) includes multiple objectives that were evaluated for both existing and future conditions, including:

- The existing and future (no-action 2030) traffic volumes at six screenlines across the study area.
- The existing and future (no-action 2030) levels of service at 51 key intersections in the study area.

In addition, the ICC project also considered several other factors that addressed multimodal and accessibility issues, including:

- Accessibility to jobs.

- Ridership forecasts for transit service.
- The length of the congested period to identify whether the length of the peak period would be reduced under some alternatives.

Transportation improvements that address the mobility needs of lower income residents and residents without access to private automobiles are needed to ensure that social and environmental justice issues are addressed in the Study. The criteria for selection of alternatives must include consideration of equitable transportation solutions that address the mobility of all users, including public transit accessibility and performance. Equity in investment decisions is critical to MNCPPC and the impression that MDOT SHA it is solely focused on improving the mobility of those who can afford to pay a toll will be unacceptable to the community.

MNCPPC recognizes there is pressure on the MDOT SHA to produce a concise Purpose and Need Statement as an early step of an accelerated project timeline in keeping with Executive Order 13807. However, refining this document is critical to the remaining steps of the Study, as all future analyses and recommendations must align with and uphold the goals established in the Purpose and Need Statement. Unless a comprehensive analysis and well-defined understanding of the problem is provided, and robust and measurable objectives are included, then cost and feasibility will be perceived as the only metrics considered for the ultimate alternative selection and design, and the impartiality of the study will be questioned.

MNCPPC seeks to cooperatively participate with the MDOT SHA and other stakeholders to identify a solution, or solutions that improve safety and effectively and equitably mitigate the congestion resulting from the region's complex transportation challenges. This must be developed without significantly impacting the trip mitigation programs established by Montgomery and Prince George's Counties (Transportation Management Districts, Master Plan Mode Share and Staging Targets, Countywide Sustainability and GHG Emissions efforts, Vision Zero). Furthermore, MNCPPC has an expectation that any improvements needed for this project will be done in an environmentally responsible manner that minimizes impacts to existing resources, mitigates for unavoidable impacts at an equal or greater value, and addresses storm water management of existing untreated portions of these highways in addition to any new construction to the extent practicable. To do this, the Purpose and Need Statement, the foundation of this Study must be non-prescriptive in the problem statement, must demonstrate a thorough understanding of the problem through comprehensive analyses, and must provide quantitative and objective metrics to measure its estimated outcome, and must commit to meaningful environmental, cultural, and community responsibility and stewardship.

We look forward to discussing our comments and concerns in more detail in order to resolve our many issues and ultimately reach a point where MNCPPC can concur with comments to the Purpose and Need Statement.

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I-495 & I-270 Managed Lanes Study Purpose and Need

I. Introduction

The Federal Highway Administration (FHWA), as the Lead Federal Agency and Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, are preparing an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) for the I-495 & I-270 Managed Lanes Study. The I-495 & I-270 Managed Lanes Study is the first element of the broader I-495 & I-270 Public Private Partnership (P3) Program. The Program considers improvements along the entire length of I-495 (Capital Beltway), as well as the entire length of I-270 (Dwight D. Eisenhower Memorial Highway) up to I-70 in Frederick County, Maryland (**Figure 1-1**). This I-495 & I-270 Managed Lanes Study EIS will evaluate the potential environmental impacts of alternatives that address congestion within the specific study scope of I-495 from south of the American Legion Bridge in Fairfax County, Virginia to east of the Woodrow Wilson Bridge and on I-270 from I-495 to I-370, including the east and west I-270 spurs (**Figure 1-1**).

This EIS is prepared in accordance with FHWA and Council on Environmental Quality (CEQ) regulations implementing NEPA and provisions of the Fixing America's Surface Transportation (FAST) Act. The content of the EIS also conforms to CEQ guidelines, which provide direction regarding implementation of the procedural provisions of NEPA, and the FHWA's *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (Technical Advisory T6640.8A, October 1987).

The following sections provide additional details to support the general purpose and need statement that was shared with the Federal Highway Administration (FHWA) and MDOT SHA's regulatory partners. Summarized in this document is an overview of the I-495 and I-270 study corridors, a series of past studies or analyses that have considered congestion relief solutions within those corridors, and the factual bases to support the stated transportation needs for the I-495 & I-270 Managed Lanes Study.

II. Overview of Study Corridors

I-495 and I-270 in Maryland are the two most heavily traveled freeways in the National Capital Region, each with Average Annual Daily Traffic (AADT) volume up to 260,000 vehicles per day in 2016 (MDOT SHA, 2017). I-495 is the only circumferential route in the region that provides interregional connections to many radial routes in the National Capital Region, such as I-270, US 29 (Colesville Road), I-95, and MD 295/Baltimore-Washington Parkway (**Figure 1-1**). I-270 is the only freeway link between I-495 and the fast-growing northwest suburbs of Frederick County. In addition to heavy commuter traffic demand, I-495 is merged with I-95 in Maryland for 25 miles around the east side of Washington, D.C. providing connectivity along the East Coast.

I-270 is also the predominant route for freight and long-distance travel between the National Capital Region and points west (US Department of Transportation et al., 2009). The following summarizes the background of each study corridor.



Figure 1-1: I-495 & I-270 Managed Lanes Study Corridors





I-495 & I-270 Managed Lanes Study Purpose and Need

A. I-495 Study Corridor

The federal government approved construction of I-495 in 1956 and construction began in 1957. The first section, from MD 355 to MD 185, opened to traffic in 1962 and the last section was opened in 1964. The original construction of all 41.7 miles of I-495 in Maryland was six lanes, three in each direction. I-495 has been widened in segments over time to its current configuration as a six to eight-lane freeway in each direction plus auxiliary lanes in some locations. The median width varies from approximately ten feet wide to 36 feet wide.

In Montgomery County, I-495 enters Maryland on the American Legion Bridge over the Potomac River as a ten-lane section with eight through lanes and two auxiliary lanes that connect Clara Barton Parkway in Maryland and George Washington Parkway in Virginia (Figure 1-1). Moving east, I-495 remains eight lanes except between the I-270 spurs where it remains only six-lanes wide. I-495 continues east through Prince George's County as an eight-lane roadway until east of the Woodrow Wilson Bridge where an express/local split occurs. This eastern half of I-495 is also designated I-95 and constitutes a link in the Maine to Florida I-95 system. Many radial roadway networks starting in the District of Columbia (DC) intersect I-495 over its 41.7 miles. Approximately 26 interchanges connect these radial routes to I-495 through the study corridor. Major, high volume north/south and east/west highways intersect I-495 including I-270, US 29, I-95, US 50, MD 5, and MD 210.

Numerous large and small retail centers, schools, sports stadiums, and major government and corporate employment centers are located immediately adjacent to I-495. The area surrounding the I-495 study corridor is highly populated and consists mostly of low, medium ~~to~~ and high density residential uses. Within much of Montgomery County the corridor is flanked by low-density homeshousing, many community serving facilities such as hospitals, community and recreational facilities, and significant parkland. Within Prince George's County [to be completed by MDOT / SHA]. Over 24 miles of noise barriers extend along both sides of I-495 for an extensive portion in both Montgomery and Prince George's Counties.

B. I-270 Study Corridor

The oldest portions of I-270, originally known as US 240, were constructed from 1953 to 1960 between Bethesda and Frederick. These routes were incorporated into I-70S in 1956 after the creation of the Interstate System. The section of I-70S, north of the spur, was renumbered to I-270 in 1975, making a single highway designation from Frederick County to the Capital Beltway (AARoads, 2014). Today, I-270 is a fully access-controlled interstate with the number of lanes varying between four and twelve.

Where the I-270 east and west spurs intersect with I-495, I-270 carries six-lanes with the left lane of both directions used as a high-occupancy vehicle (HOV) lane during peak periods. North of the spurs, I-270 is a twelve-lane freeway with one HOV lane and five travel lanes in each direction. The median of I-270 is barrier-separated with full-width shoulders.

Between where the I-270 spurs join and the I-270/Montrose Road interchange, I-270 includes two collector-distributor (CD) lanes that are barrier-separated from the three mainline lanes and the HOV lane



I-495 & I-270 Managed Lanes Study Purpose and Need

(Figure 1-1). I-270 intersects I-370 near Gaithersburg and connects to MD 200, the all-electronic toll highway that connects to I-95, north of I-495. I-370 also provides access to a park and ride lot and the Shady Grove Metro station, the northern-most station on the Washington Metropolitan Area Transit Authority (WMATA) Metrorail Red Line. Heading southbound, HOV restrictions begin north of the interchange with MD 117 and the northbound HOV restrictions end past the MD 121 interchange. I-270 narrows to a four-lane interstate as it continues north to Frederick.

The southern portion of I-270 near the east and west spurs consists of medium density residential land use with schools and mixed-use development. Suburban residential development and retail/commercial development continues along I-270 north of the spurs. Major government and corporate employment centers as well as commercial development are located adjacent to I-270 especially north of MD 28 to the interchange with I-370. Similar to I-495, noise barriers are located along a portion of the I-270 corridor with approximately 5.8 miles located along the length of the study area.

III. Regional Transportation Studies and Projects

A. Previous Regional Transportation Studies

Congestion has plagued this region for decades. MDOT SHA, MDOT Maryland Transit Administration (MTA) and Virginia Department of Transportation (VDOT) have performed numerous studies to evaluate a myriad of transportation solutions. Those solutions have demonstrated the need in this region for a synergistic system of transportation options. MDOT SHA and other regional transportation partners have studied and in many cases already constructed and improved elements of the transportation system. Those transportation facilities consist of interstate, circumferential and arterial highways, bus rapid transit, local bus services, commuter and freight rail, one of the world's most extensive metro rail, and light rail systems that move people and goods throughout the region.

Since 1990, several studies have examined various sections of I-495 and I-270 within the current study limits in an effort to evaluate potential congestion relief and operational improvements. Each of these studies included, in part, proposed transportation solutions reflecting some of the operational and/or engineering alternatives that will be part of this EIS. In particular, the studies evaluated the implementation of managed lanes¹ including Express Toll Lanes² (ETL), High-Occupancy vehicle (HOV) lanes³, High-Occupancy Toll (HOT) lanes⁴ and parallel transit facilities on I-495, I-270 and I-95. These

¹ Managed lane is defined as a highway lane or set of lanes, or a highway facility, for which operational strategies such as managing access, restricting eligibility, or employing variable pricing are implemented and managed during peak periods and often in real time in response to changing conditions. Are typically buffer- or barrier-separated concurrent flow lanes parallel to the general-purpose lanes of a freeway.

² Express toll lane is defined as dedicated lanes that are typically access restricted and employ electronic toll collection to manage demand.

³ High-occupancy vehicle lane is defined as a highway or street lane reserved for the use of high-occupancy vehicles, a motor vehicle carrying at least two or more persons, including carpools, vanpools, and buses.

⁴ High-occupancy toll lane is defined as HOV facilities that allow lower-occupancy vehicles, such as solo drivers, to use the facilities in return for toll payments, which could vary by time of day and level of congestion.

NOTE: The definitions above are from the *National Cooperative Highway Research Program, Research Report 835, Guidelines for Implementing Managed Lanes*. Transportation Research Board. 2016.



I-495 & I-270 Managed Lanes Study Purpose and Need

studies considered the potential to provide additional capacity along I-495 and I-270 that would connect with other regional transportation facilities.

The Maryland Department of Transportation (MDOT) sponsored the Statewide Commuter Assistance Study Corridor Profile Reports (MDOT, 1990) that identified, evaluated, and recommended actions that would improve travel along the state's 24 most heavily congested corridors. The study identified the need for additional capacity on the Capital Beltway (I-495) to handle existing and future traffic volumes, and recommended HOV lanes from MD 214 (Central Avenue) to I-295 and I-95 to the American Legion Bridge.

In 1992, the MDOT SHA initiated the Capital Beltway HOV Feasibility Study (MDOT SHA, 1992), which was renamed the Capital Beltway Corridor Transportation Study in 1998. The purpose of the study was to investigate the physical feasibility of adding an HOV lane on the Maryland portion of the Capital Beltway. This study concluded that the physical feasibility of implementing HOV lanes varies throughout the project area; however, the majority of the Capital Beltway would be able to accommodate an additional lane or the median lane would need to be converted to accommodate an HOV lane.

Following up on the 1992 HOV Feasibility Study, another study to include transit alternatives around the Capital Beltway was initiated by the Metropolitan Washington Council of Governments (MWCOC). The report titled *The Potential for Circumferential Transit in the Washington Region* (MWCOC, August 1993) concluded that sufficient demand exists for the staged addition of HOV lanes on the Capital Beltway along with additional radial HOV facilities, (i.e., I-270 and I-95). However, the study also concluded that the pattern of land use activity inherent in the 20-year forecasts done at that time did not provide a viable basis for circumferential rail transit along the Capital Beltway or along outer suburban corridors.

Consequently, in 2002, the Capital Beltway/Purple Line Study was initiated by MDOT SHA and MDOT MTA, which identified adding an HOV lane to I-495 and constructing the Purple Line as a transit alignment inside the Beltway. This study also concluded that fixed guideway transit was not recommended wholly along the Capital Beltway itself. A beltway corridor would take advantage of existing transportation right-of-way where available, but it does not effectively connect activity centers. Adding that people do not live and work "on the Beltway;" transit will be better serve patrons by more directly connecting activity center locations.

In 2003, the transit and highway portions of the Capital Beltway/Purple Line Study were separated into two independent studies, the Purple Line Project and the Capital Beltway Study (MDOT SHA et al., 2013), with the justification that both projects were needed to meet the demands of the corridor. The Purple Line Project Final Environmental Impact Statement (FEIS) and Draft Section 4(f) Evaluation was signed in 2013 and a Record of Decision (ROD) was issued in 2014. This project is currently under construction with operation scheduled to begin in 2022 on a 16-mile, two-track light rail system from Bethesda to New Carrollton.

The 2004 Capital Beltway Study focused on roadway improvements that would address congestion of the Beltway. MDOT SHA carried three alternatives forward into the Alternatives Retained for Detailed Study (ARDS): 1) No-build; 2) Build Alternative 2 – six general-purpose and four ETLs; and 3) Build Alternative 3 – eight general-purpose and two ETLs. In 2004, environmental technical reports were completed analyzing



I-495 & I-270 Managed Lanes Study Purpose and Need

the potential impacts to these three alternatives, in anticipation of completing the NEPA process. However, due to changes in transportation priorities, the NEPA process of the Capital Beltway Study was not completed and a Draft Environmental Impact Statement was not published.

In May 2002, the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) published a Draft Environmental Impact Statement (DEIS) for the I-270/US 15 Multi-Modal Corridor Study for public review and comment. The DEIS evaluated the impacts of 35 miles of highway improvements along the I-270/US 15 corridor and a 13.5-mile Corridor Cities Transitway (CCT). The DEIS evaluated three build alternatives (plus No-Build and TSM) from the Shady Grove Metrorail Station in Montgomery County to north of Biggs Ford Road in Frederick County; two of the build alternatives included HOV lanes. A selected alternative from the DEIS alternatives was not determined following the June 2002 Public Hearing. In 2003, MDOT initiated a feasibility evaluation of Express Toll Lanes for I-270. A subsequent Alternatives Analysis/Environmental Assessment (AA/EA) was completed in 2009 to evaluate the environmental effects of the two Express Toll Lane alternatives and reviewed the previously studied CCT alternatives using the updated ridership forecasting model to provide a comparison of overall study area conditions to the DEIS alternatives. The results of the AA/EA were presented at a 2009 public hearing; however, a final NEPA decision document was not prepared nor was a selected alternative determined by MDOT following the public hearing. In November 2010, the MDOT MTA completed a Supplemental Environmental Assessment (SEA) to provide more detailed environmental and engineering analysis on new CCT alternatives to better serve the proposed developments of Crown Farm, Life Sciences Center, and Kentlands. In December 2011, FHWA and FTA jointly concurred that the CCT had independent utility from the highway components of the I-270/US 15 Multi-Modal Corridor Study and the CCT would proceed with NEPA compliance separate from the highway alternatives of the I-270 Multi-Modal Corridor Study. MDOT MTA prepared an EA including alternative analysis and environmental technical studies. MDOT MTA published the EA with a preferred alternative in 2017. However, funding for design and construction of the project has been deferred until 2023; therefore, a final environmental document has not been prepared.

VDOT's I-495 Capital Beltway Study, reviewed proposed improvements to a 14-mile section of the Capital Beltway between the I-95/I-395/I-495 Interchange and the American Legion Bridge in Fairfax County, VA. The study identified improvements to increase the Beltway's capacity to accommodate expected growth in daily traffic volumes and remedy congestion, operational, and safety problems. The EIS led to a 2006 ROD which selected a 12-lane alternative to add two HOT lanes to the Capital Beltway in each direction with interchange modifications. A 2007 Reevaluation was conducted which updated traffic analysis and minor refinements to the 2006 Record of Decision selected alternative.

The Maryland's Statewide Express Toll Lanes Network Initiative (MDOT, 2007) provided an overview of the state's vision for regional connectivity through the implementation of managed lanes (including ETLs, HOV lanes, and HOT lanes) on major transportation routes. The implementation of ETLs on I-270 between I-495 and I-70, and HOT lanes along the entire portion of I-270 in Maryland, were included in the constrained long-range regional plan to identify individual studies.



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The 2009 West Side Mobility Study, a joint study conducted by MDOT SHA and VDOT, evaluated potential improvements along I-495, the I-270 spurs, and the I-270 mainline between the VDOT HOT Lanes and I-370/Intercountry Connector/MD 200 (MDOT and VDOT, 2009). In this feasibility study, a wide range of alternatives were considered. The study resulted in a narrowed range of three alternatives and the recommended road widening and managed lane system consisted of one or two managed lanes in both directions that would connect the VDOT HOT lanes with the ETLs planned as part of the I-270/US 15 Multi-Modal Corridor Study and the all-electronic toll lanes on MD 200.

In April 2017, the Governor announced the \$100 million I-270 Innovative Congestion Management Contract (ICM) to be implemented as a progressive design-build contract. The I-270 ICM is providing a series of projects to improve mobility and safety at key points along I-270. The programmatic approach is to implement a series of improvement projects targeted to reduce congestion at key bottlenecks along the corridor. The overall program would consist of fourteen distinct roadway improvements that increase capacity and vehicular throughput and address safety deficiencies by strategically reducing or eliminating these existing bottlenecks. The projects that make up this contract will result in an automated, smart traffic system on I-270 between I-70 and I-495. Improvements include the addition of general-purpose lanes, the addition or extension of auxiliary lanes, corridor wide, adaptive ramp metering, and active traffic management solutions such as dynamic message signs and dynamic speed limit signs. The additional lanes are being added through the narrowing of lanes and shoulders along with minimal widening where needed. All improvements are being implemented within the existing roadway right-of-way and will be completed by the end of 2019. While these improvements will improve mobility and safety, they will not address the long-term capacity need for the I-270 corridor.

In July 2017, the National Capital Region (TPB) at the MWCOG approved a set of 10 regional initiatives for further study, which includes analyzing managed lanes on the portions of I-495 and I-270 that are included in the I-495 & I-270 Managed Lanes Study. In September 2017, the Governor of Maryland announced the first portion of the statewide Traffic Relief Plan to evaluate additional capacity along sections of I-270, I-495, and the Baltimore-Washington Parkway (MD 295). The I-495 & I-270 Managed Lanes Study is the first element of this larger program.

B. Long-Range Plans & Improvements

MWCOG and Montgomery and Prince George's Counties have adopted long-range transportation and master plans which include projects relevant to the study corridors and the transportation network in the National Capital region. A complete list of the project can be found through these agencies and is included in Appendix A of this Purpose and Need Statement.

Financially Constrained Long-Range Plan, 2016

The 2016 Financially Constrained Long-Range Plan (CLRP) Amendment document was approved by the National Capital Region TPB at the MWCOG in November 2016. "The CLRP identifies all the regionally significant capital improvements to the region's highway and transit systems that area transportation agencies expect to make and to be able to afford through 2040. The 2016 CLRP Amendment identifies more than 350 "regionally-significant" capital improvements that add or remove highway or transit



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capacity and therefore might affect future air quality. In all the plan includes 1,182 new lane-miles of roadway and 76 new miles of high-capacity transit." (2016 CLRP Amendment, page 18).

Montgomery County Plans and Improvements

The *Montgomery County General Plan*, adopted in 1964, relies on the concept of "wedges and corridors," which direct growth to be concentrated along the I-270 Corridor, Metrorail Red Line corridors and the urban ring communities closest to Washington, D.C. A master plan conveys land use policy for a defined geographic area and sets a vision for the future with specific recommendations intended to help implement that vision. It provides recommendations for land use, density, zoning, historic preservation, transportation, environment, parks and community facilities. The Master Plan of Highways and Transitways classifies each Montgomery County road in the transportation network and ~~is currently being~~ was recently amended ~~revised~~ by the County. Refer to Appendix A and <http://montgomeryplanning.org/planning/master-plan-list/general-plans/> for additional information.

Prince George's County Plans and Improvements

Plan Prince George's 2035 was adopted in 2014 and includes comprehensive recommendations for guiding future development within Prince George's County. The plan includes general policy recommendations related to transportation and mobility such as expanding transit service, maintaining levels of service on roadways, and improving safety. The *Countywide Master Plan of Transportation for Prince George's County* was approved in 2009. This master plan includes recommendations for transportation policies, strategies, and projects including bike and pedestrian, transit, highway, and other transportation improvements throughout Prince George's County. Refer to Appendix A and <http://www.pgplanning.org/374/General-Plan> for additional information.

IV. System Connectivity

System connectivity refers to the role of a specific transportation project in a larger transportation network. One of the objectives of any major investment study is to identify facility improvements that also improve the linkage of the regional transportation system. I-495 and I-270 are important elements of the National Highway System and the local transportation network. These highways have interregional connections to many radial routes in Maryland and Virginia that provide access to and from Washington, DC. Residential and employment activity centers and recreational facilities are located along I-495 and I-270. I-270 provides the highway link from I-495 to I-370/ MD 200 and to I-70. For long distance travelers, a portion of I-495 is also I-95 which serves as a critical link in the Maine to Florida interstate route. I-95 is designated as a portion of the National Highway System, a key element of the multimodal National Transportation System.

I-495 also provides a highway link to many of the region's other transportation modes including the Baltimore-Washington International, National and Dulles airports, and the Metrorail and Metrobus mass transit services operated by the WMATA. WMATA park and ride lots dot the perimeter of I-495; many of which also provide links to intercity and local bus and commuter rail transit services.

The regional roadway network and transit system are shown on **Figure 1-2**.

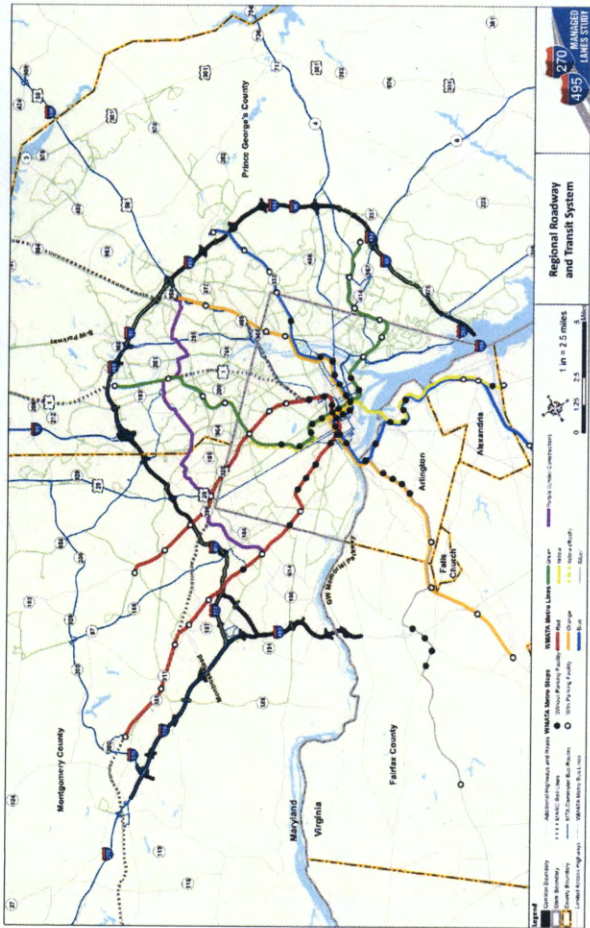


I-495 & I-270 Managed Lanes Study Purpose and Need

A. Metrorail

The WMATA heavy rail system serves the National Capital region with primary service to and from the District of Columbia. Two branches of the Metrorail's Red Line serve Montgomery County extending to

Figure 3-2: Regional Roadways and Transit System



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I-495 & I-270 Managed Lanes Study Purpose and Need

Shady Grove and Glenmont. The Green Line serves Prince George's County, intersecting the Beltway at Greenbelt and Branch Avenue. The Orange Line serves Prince George's County intersecting I-495 at New Carrollton. The Blue and Silver Lines serve Prince George's County at the Largo Town Center station.

B. Commuter Rail

The Maryland Area Regional Commuter (MARC) train service operated by the MDOT MTA connects Montgomery and Prince George's Counties to Washington DC, Baltimore and Martinsburg, West Virginia. The Penn and Camden MARC commuter rail line which extend from Washington, DC to Baltimore intersect with I-495 at New Carrollton and Greenbelt, respectively. Both of these stations also serve as Metrorail station stops. The MARC New Brunswick, Maryland and Martinsburg, West Virginia intersect with I-495 near Georgia Avenue. I-270 also serves access to the Gaithersburg and Metropolitan Grove MARC Stations on the New Brunswick Line.

C. Park and Ride, Commuter and Local Bus

Commuters also use the I-495 and I-270 to access park and ride lots throughout Montgomery and Prince George's Counties to board carpools, commuter rail, or transfer to public transit. Express bus service operates to and from area WMATA park and ride lots. Additional local bus service is provided to the Montgomery and Prince George's County by Metrobus and MDOT MTA. Montgomery County operates "Ride On" bus service and Prince George's County operates "The Bus" to supplement Metrobus service.

Montgomery County is in the process of developing an extensive bus rapid transit (BRT) system, as envisioned in the 2013 Countywide Transit Corridors Functional Master Plan. The first corridor to be implemented is along US Route 29 between Burtonsville and Silver Spring. The Montgomery County is also moving forward with design of the MD 355 BRT corridor between Clarksburg and Bethesda. Additional BRT service has long been envisioned as part of the Corridor Cities Transitway, which generally parallels I-270. In addition, Montgomery County master plans include BRT service between the Red Line (either White Flint or Grosvenor) and Rock Spring as well as and bus service on managed lanes between Rock Spring and Tysons, with a new HOV ramp at Fernwood Road.

D. Bicycles and Pedestrians

The region contains hundreds of miles of on-street and off-street bikeways, trails and sidewalks. Many off-street bikeways also serve pedestrians. Most local jurisdictions in the area have developed bicycle and pedestrian transportation plans to coordinate the establish bicycle and pedestrian transportation priorities and programs. Local jurisdictions encourage bicycling to Metrorail stations by providing improved bicycle access, bicycle storage facilities, and bicycles on Metrorail trains during lower ridership periods. In the 2016 CLRP, MWCOG projects bike and pedestrian usage as a mode of commuting to increase by 47 percent by 2040.

E. Summary

Severe congestion on I-495 and I-270 adversely affects the regional and local roadway network, especially in and around the interchanges and arterial roads in the study area. The congestion on these corridors



I-495 & I-270 Managed Lanes Study Purpose and Need

also has negative effects on access to and usage of other transportation modes. Besides enhanced performance on I-495 and I-270 themselves, improvements to provide congestion relief on these facilities will also enhance existing and proposed multimodal transportation services by improving connectivity and mobility through enhancing trip reliability and providing additional travel choices for efficient travel during times of extensive congestion. Improved direct and indirect connections to park and ride lots, Metrorail, bus and other transit facilities are anticipated to occur as a result of addressing congestion on these regional roadways, thus providing a system of systems approach to addressing overall transportation needs in the National Capital Region.

V. Study Purpose and Need

The study purpose and need were developed through a comprehensive process that included the examination of past studies, a review of existing regional plans, and an analysis of the environmental and socioeconomic conditions of the region. The purpose of the I-495 & I-270 Managed Lanes Study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits and includes and enhances existing and planned multimodal mobility and connectivity. The study will address the following needs.

- **Accommodate Existing Traffic and Long-Term Traffic Growth Travel Demands.** High travel demand from commuter, business, and recreational trips results in severe congestion from 7 to 10 hours per day on the study corridors, which is expected to deteriorate further by the planning horizon year of 2040. Additional capacity is needed to address existing and future travel demand and allow travelers to use the facilities efficiently.
- **Enhance Trip Reliability.** Congestion on I-495 and I-270 results in unpredictable travel times. Travelers and freight commodities place a high value on reaching their destinations in a timely and safe manner, and in recent years, the study corridors have become so unreliable that uncertain travel times are experienced daily. More dependable travel times are needed to ensure trip reliability.
- **Provide Additional Roadway Transportation Travel Choices.** Travelers on I-495 and I-270 do not have enough options for efficient travel during extensive periods of congestion. Additional roadway transportation management options are needed to improve travel choices, while retaining the general-purpose lanes. Analysis will include person throughput along the corridor and incorporate low-stress / grade-separated pedestrian and bicycle travel both along and across I-495 and I-270.
- **Accommodate Homeland Security.** The National Capital Region is considered the main hub of government, military, and community installations related to homeland security. These agencies and installations rely on quick, unobstructed roadway access during a homeland security threat. Additional capacity would assist in accommodating a population evacuation and improving emergency response access should an event related to homeland security occur.
- **Improve Movement of Goods and Services.** I-495 and I-270 are major regional transportation networks that support the movement of passenger and freight travel within the National Capital Region. Existing congestion along both corridors increases the cost of doing business due to longer travel times and unreliable trips. The effects of this congestion on the movement of goods and services is a detriment to the health of the local, regional, and national economy. Efficient and reliable highway movement is necessary to accommodate passenger and freight travel, moving goods and services through the region.

Commented [AD1]: The Purpose and Need needs to be less road focused and more transportation focused.

Add objectives in this section for each need with quantifiable metrics. In later sections, evaluate the metrics for existing conditions and future no build conditions. Provide a summary table of the evaluation at the end of the document for all goals, objectives and metrics for both existing and future no build conditions.

The development of transportation solutions should not be initiated until the problem or need is accurately diagnosed.

Commented [AD2]: Where is this information coming from? The Purpose and Need Statement does not document the hours of severe congestion today or in 2040.



I-495 & I-270 Managed Lanes Study Purpose and Need

- **Safety.** Crashes are a major source of non-recurring congestion and are a result of inadequate or outdated road design at bottlenecks/merge-weave locations. Reduction in serious injury and fatal collisions within the study corridors is consistent with Vision Zero.
- **Develop Transportation Solutions within a Multimodal Context.** Managed lanes projects can and should contain public transportation and non-motorized components. Planning for a transit-friendly or equitable response to a managed lane concept might include some investment along the study corridors to fund future public transportation projects based on a portion of the toll revenue. This should be identified in advance of advertising this project to a Public/Private Partnership bid based on forecasts of need to support these public transportation investments. The Transform 66 project in Virginia is one recent example of a managed lanes project where significant investment was committed to public transportation, bikeshare and park-and-ride lots, and these elements need to be part of the I-495/I-270 Managed Lanes project.
- **Provide equitable transportation investments.** Many community members have limited access to private automobiles. Transportation improvements that address the mobility needs of lower income residents and residents without access to private automobiles are needed to address equity.

Additional capacity and improvements to enhance reliability must be financially viable. MDOT's traditional funding sources would be unable to effectively finance, construct, operate, and maintain improvements of this magnitude. Revenue sources that provide adequate funding, such as pricing options, are needed to achieve congestion relief and address existing high travel demand.

Given the highly constrained area surrounding the interstates, MDOT SHA recognizes the need to plan and design this project in an environmentally responsible manner. MDOT SHA will strive to avoid and minimize community, natural, cultural, and other environmental impacts, and mitigate for these unavoidable impacts when not avoidable at an equal or greater value. MDOT SHA will work with our federal, state, and local resource agency partners in a streamlined, collaborative, and cooperative way to meet all regulatory requirements to ensure the protection of significant environmental resources. Any build alternatives will adequately offset unavoidable impacts while prioritizing and coordinating comprehensive mitigation measures near the study area which are meaningful to the environment and the community.

The following sections describe existing conditions and transportation issues that shape the project needs.

F. Accommodate Existing Traffic and Long-Term Traffic Growth/Travel Demands

The state of Maryland experiences the second longest commuting times in the nation, according to 2015 US Census American Community Survey data. The National Capital Region is the most congested region in the nation based on annual delay and congestion per auto commuter. Specifically, the I-270 and I-495 corridors are among the most congested corridors in Maryland. More than 240,000 vehicles travel on I-495 on a daily basis, and it is congested an average of 10 hours per day. Over 260,000 vehicles travel on I-270 on a daily basis, and it is congested seven hours per day on average.



I-495 & I-270 Managed Lanes Study Purpose and Need

The 2016 *Maryland State Highway Mobility Report* (MODT SHA, 2016b) documents substantial traffic growth in the National Capital Region as a result of increasing population and employment levels. This employment and population growth is occurring not only in Washington DC (DC), but also in the near and far suburbs of DC, creating demand for suburb-to-suburb travel in the region, as well as suburb to DC travel. Approximately 240,000 vehicles commute daily from Maryland into DC and an additional 120,000 vehicles commute to the suburbs of Montgomery and Prince George's Counties from out of state (MDOT SHA, 2016b). Both of these statistics show the large movement of people into and around the National Capital Region at peak periods and the movement of goods throughout the day; all of this movement focused around the major interstates.

Population and Employment Growth

I-495 connects key employment centers within the study area, many of which are undergoing redevelopment as multi-use activity centers with mixed land uses, including residential and retail activity. Bethesda, Rock Spring Technology Park, Silver Spring, Wheaton, College Park, Greenbelt, New Carrollton, Largo, and Suitland are all points of origin and destinations for large numbers of travelers. This creates travel demand during a broad range of time during the day and throughout the week as demonstrated by the fairly even traffic directional splits during the peak periods. The Outer Loop generally carries a little more traffic between I-95 and the Virginia Line during the AM and PM peak hours, carrying between 51 percent and 55 percent of the traffic, while the Inner Loop carries between 45 percent and 49 percent of the traffic. East of I-95, the Inner Loop carries more traffic during the AM peak hour (60 percent vs. 40 percent), while traffic is split nearly evenly during the PM peak.

Additionally, I-495 provides connections to many of the region's other transportation services including airports (Ronald Reagan National Airport, [Dulles International Airport](#)), rail terminals (Amtrak, Maryland Rail Commuter stations), inter-city bus (Greyhound, Mega Bus), and rail transit services (Amtrak, Metrorail).

The I-270 corridor provides an essential connection between the National Capital Region, central and western Maryland, and longer-distance trips to the Midwestern United States, through use of I-70 and I-68. It is an important corridor for both local and long-distance trips. The area up to I-370 includes residential, retail/commercial, and growing mixed-use development including Downtown Crown in Gaithersburg. Major government and corporate employment centers such as National Institute Standards and Technology (NIST) and pharmaceutical corporations are spread throughout the county generating travel in both directions of I-270 during peak periods. However, there is a clear directional split in traffic on I-270. During the AM peak, the traffic split is approximately 65 percent/ 35 percent in favor of the southbound direction, while the traffic split is the opposite in the PM peak (approximately 65 percent/ 35 percent in favor of northbound).

I-270 is the primary route from the population centers around the National Capital Region to many recreational and tourism points of interest to the northwest including Monocacy National Battlefield, C&O Canal National Historical Park, Harpers Ferry National Historical Park, and Antietam National Battlefield.

Commented [C3]: Add "Movement of Commuting Employees" into this section.



**I-495 & I-270 Managed Lanes Study
Purpose and Need**

Traffic growth along I-495 and I-270 is related in part to increased regional population. A growing population results in the need for additional mobility to intended destinations such as work, school, sites of commerce, and recreational/tourism points of interest.

The population in Prince George’s and Montgomery Counties have increased approximately 12.3 and 15.9 percent, respectively, between 2000 and 2015 (Table 1-1). The MWCOG estimates that between 2015 and 2040, the population in Montgomery County and Prince George’s County will increase approximately 17.9 percent and 8.6 percent, respectively (Table 1-1). According to MWCOG 2000 and 2015 data, employment in Prince George’s and Montgomery Counties has increased less than ten percent. The MWCOG estimates that between 2015 and 2040, employment in Montgomery County and Prince George’s County will increase approximately 25.7 percent and 16.2 percent, respectively (Table 1-2).

Additionally, the population growth experienced in Calvert, Charles, and Frederick Counties (defined by MWCOG as inner DC suburbs) has increased by approximately 25.2 percent since 2000. This growth has created demand for suburb-to-suburb travel (circumferential travel) in the region, as well as suburb to DC travel (radial travel), resulting in congestion along the study corridors which provide access to, and between, the suburbs. Approximately 33.4 percent growth is predicted for Calvert, Charles, and Frederick Counties by 2040, which are serviced by the many radial feeder routes of I-495, including I-270. Similarly, the region has experienced an increase in employment levels since 2000, further contributing to traffic growth (Table 1-2).

Table 1-1: Regional Population Growth

Geography	2000	2015	% Increase Since 2000	2040 Forecast	% Increase Since 2015
Montgomery County	875,672	1,015,300	15.9%	1,197,100	17.9%
Prince George’s County	805,723	904,400	12.3%	982,400	8.6%
Inner DC Suburbs ¹	390,386	488,900	25.2%	652,200	33.4%
Outer DC Suburbs ²	891,273	1,039,200	16.6%	1,184,00	13.9%
MWCOG Planning Area Total	4,385,759	5,372,00	22.5%	6,665,300	24.1%

Sources: MWCOG (2006; 2016b)

¹ As defined by MWCOG and includes Calvert, Charles, and Frederick Counties.

² As defined by MWCOG and includes Anne Arundel, Carroll, and Howard Counties.



I-495 & I-270 Managed Lanes Study Purpose and Need

Table 1-2: Regional Employment Growth

Geography	2000	2015	% Increase Since 2000	2040 Forecast	Forecasted % Increase Since 2015
Montgomery County	474,602	520,200	9.6%	653,900	25.7%
Prince George's County	337,976	338,600	0.2%	393,300	16.2%
Inner DC Suburbs ¹	161,003	186,800	16.0%	235,800	26.2%
Outer DC Suburbs ²	525,294	611,500	16.4%	769,700	25.9%
MWCOG Planning Area Total	2,791,859	3,151,700	12.9%	4,125,000	30.9%

Sources: MWCOG (2006; 2016b)

¹ Includes Calvert, Charles, and Frederick Counties.

² Includes Anne Arundel, Carrol, and Howard Counties.

Further, substantial employment growth has occurred in the inner and outer DC suburbs, including Calvert, Charles, Frederick, Anne Arundel, and Carroll Counties creating radial and circumferential demand along the study corridors within the National Capital Region. The increase in employment results in increased travel demand for resident and commuter workers and increased freight/goods to supply the businesses. **INSERT FOOTNOTE AND SOURCE.** Employment for the inner DC suburbs is projected to increase by 26.2 percent between 2015 and 2040. (Table 1-2).

The regional population and employment trends and projections, as shown in Tables 1-1 and 1-2, reveal that the growth in Montgomery and Prince George's Counties has steadily increased over the last 15 to 20 years and is expected to continue to grow, regardless of the congestion relief solutions in the region. This residential and employment growth is occurring and projected to occur in the inner and outer DC Suburb counties at an even higher rate. This continuing growth in the surrounding DC suburb counties is contributing to the congestion and long commuting times residents and employees experience on a daily basis.

Travel Demand

Traffic Growth

Maryland measures traffic volume using the annual average daily traffic (AADT) statistic. The AADT is the total volume of vehicle traffic on a highway or road for a year divided by 365 days. The top five highest MDOT SHA, AADT volume freeway sections in 2016 were located within the study corridors (Table 1-3 and Figure 1-1). The highest demand in the region occurred along I-270 north of Montrose Road, with an AADT higher than of 256,257,000 vehicles. The highest AADT observed along I-495 in the study corridor occurred between the MD 650 (New Hampshire Avenue, Exit 28) interchange and the I-95 interchange (Exit 27).

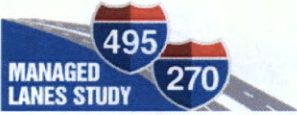
Table 1-3: Maryland Top Five Highest Freeway AADT Volumes

Freeway Section	2016 AADT
I-270 (Montrose Road to MD 189)	257,000

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Commented [C4]: Add a section that discusses how existing and future regional travel patterns contribute to existing congestion and future congestion.

There is considerable summary of general commuting patterns by County and major employers, but no tie-in between resulting origin-designation (O-D) pairs and congestion experienced on I-495 and I-270.



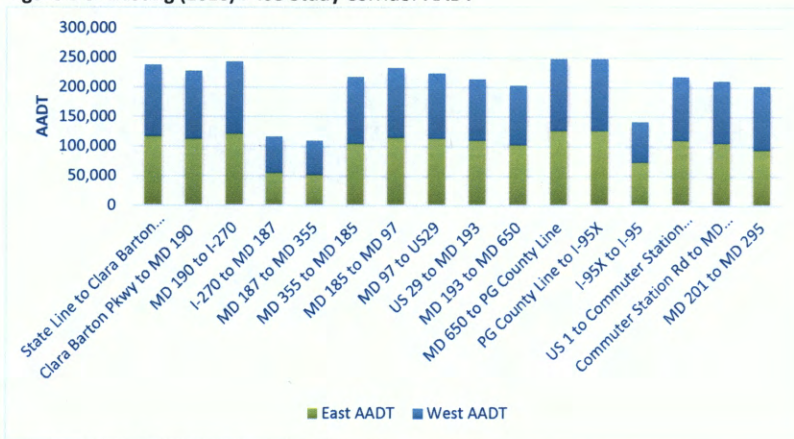
I-495 & I-270 Managed Lanes Study Purpose and Need

Freeway Section	2016 AADT
I-495 (MD 650 to I-95 Interchange)	248,000
I-495 (MD 190 to I-270)	243,000
I-270 (MD 189 to MD 28)	242,000
I-495 (VA State Line to Clara Barton Pkwy)	238,000

Source: MDOT SHA (2017)

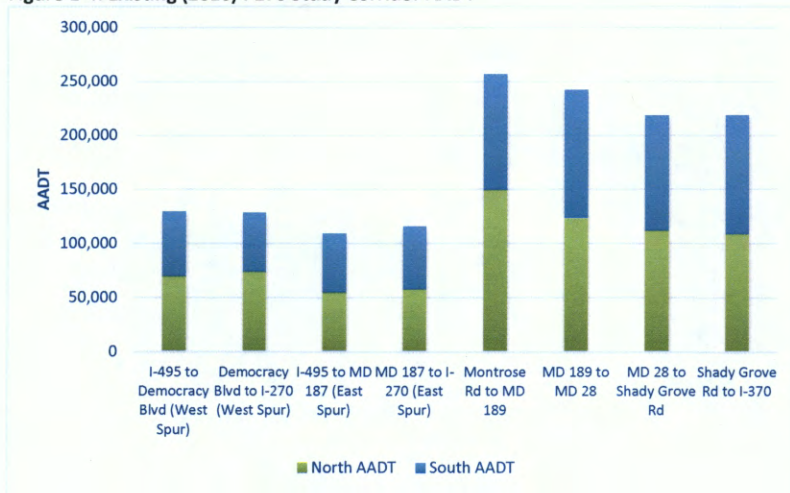
AADT volumes in 2016, along I-495, averaged over 200,000 vehicles per day for all roadway sections except for those between the I-270 spurs and within the I-95 interchange (Figure 1-3). Along I-270, traffic volumes appear to decrease south of Montrose Road to I-495 (Figure 1-4), however, traffic volumes in that area are split between those traveling to, or from, I-495 to the west and east spurs of I-270. Combined, volumes along the spurs reached an average of 245,392 vehicles per day in 2016.

Figure 1-3: Existing (2016) I-495 Study Corridor AADT



Source: MDOT SHA (2017)

Figure 1-4: Existing (2016) I-270 Study Corridor AADT



Source: MDOT SHA (2017)

Resulting Congestion

The high demand depicted in Figure 1-3 and Figure 1-4 results from commuter, commercial, and recreational use of the study corridors and has created congestion along the roadways. The congestion occurs during peak travel periods when demand exceeds roadway capacity. Along I-495, these peak travel periods occur at various times throughout the day, not just during the typical AM and PM peak periods, for as long as 10 hours per day. This type of recurring congestion makes roadways in the study corridors susceptible to exponential increases in delay, as the systems have a fixed capacity base (Cambridge Systematics, Inc., 2005). This exponential increase in delay occurs after a traffic queue has formed and new vehicles arrive, thereby increasing the delay for those vehicles arriving behind them (Cambridge Systematics, Inc., 2005).

Commented [AD5]: Would suggest citing a more recent study.

MDOT SHA uses the Travel Time Index (TTI) as one of the primary measures of congestion on freeways/expressways. The TTI compares the 50th percentile travel time of a trip on a segment of freeway/expressway for a particular hour to the travel time of a trip during off peak (free-flow or uncongested) conditions. The higher the TTI, for a given hour of the day, the longer the travel times (MDOT SHA, 2016b). Free flow conditions equate to TTI 1.0, and a TTI of 2.0 indicates a trip takes twice as long as free flow conditions, and greater than 2.0 indicated severe congestion (Tables 1-4 and 1-5).

However, longer travel times are only part of the congestion picture along the study corridors. A user can plan accordingly if they know their trip will take extra time; however, when travel times vary greatly such as within the study corridors, trip reliability is uncertain (MDOT SHA, 2016b). MDOT SHA uses three key additional metrics to measure congestion: 1) percent system congested, 2) percent peak hour VMT in

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congested conditions, and 3) annual cost of congestion. For metrics one and three, any accurate determination requires evaluation not limited to commuter peak hour conditions.

It is very difficult to improve conditions in the peak hour and sometimes even the peak period. For the ICC and Woodrow Wilson Bridge studies, the metric of analysis was hours of congestion. This is appropriate for the I-495 / I-270 study as well, since the hours of congestion are not confined to the peak periods.

Table 1-X and Table 1-X show the number of hours of congestion severity for each road segment along I-495 and I-270 in 2018. Overall, Table 1-X shows that X percent of the I-495 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion. The most congested segments are...

Table 1-X: Number of Hours of Congestion Severity by Road Segment for I-495 in 2018

Location	Direction	Length (Miles)	# of Hours of Congestion per Day			
			Uncongested	Moderate	Heavy	Severe
American Legion Bridge to Clara Barton Pkwy	Inner					
American Legion Bridge to Clara Barton Pkwy	Outer					
Clara Barton Pkwy to River Rd	Inner					
Clara Barton Pkwy to River Rd	Outer					
Add remaining segments						
TOTAL						

Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

MDOT SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).

Table 1-Y shows that X percent of the I-270 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion. The most congested segments are...

Table 1-Y: Number of Hours of Congestion Severity by Road Segment for I-270 in 2018

			# of Hours of Congestion per Day

Commented [C6]: Existing and future congestion information is CRITICAL to demonstrating a thorough understanding of the problem.

In addition to the suggested tables below for the entire I-495 corridor, please provide summary of number of hours of congestion between interstate system interchanges. For example:

- American Legion Bridge to I-270
- I-270 Spur to I-270 Spur
- I-270 Spur to I-95
- I-95 to MD 295
- MD 295 to US 50 / I-585
- US 50 / I-585 to I-295
- I-295 to Woodrow Wilson Bridge



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Location	Direction	Length (Miles)	Uncongested	Moderate	Heavy	Severe
I-370 to Shady Grove Road	Northbound					
I-370 to Shady Grove Road	Southbound					
Shady Grove Road to MD 28	Northbound					
Shady Grove Road to MD 28	Southbound					
Add remaining segments						
TOTAL						

Source: MDOT SHA (2015; 2016b)

Note: NL = Not listed in ranking.

MDOT SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).

Table 1-XX and Table 1-YY show the number of hours of congestion severity for each road segment along I-495 and I-270 in 2040. Table 1-XX shows that X percent of the I-495 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion. The most congested segments are...

Table 1-XX: Number of Hours of Congestion Severity by Road Segment for I-495 in 2040

Location	Direction	Length (Miles)	# of Hours of Congestion per Day			
			Uncongested	Moderate	Heavy	Severe
American Legion Bridge to Clara Barton Pkwy	Inner					
American Legion Bridge to Clara Barton Pkwy	Outer					
Clara Barton Pkwy to River Rd	Inner					
Clara Barton Pkwy to River Rd	Outer					
Add remaining segments						



I-495 & I-270 Managed Lanes Study Purpose and Need

TOTAL						
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Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

MDOT SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).

Table 1-YY shows that X percent of the I-270 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion. The most congested segments are...

Table 1-YY: Number of Hours of Congestion Severity by Road Segment for I-270 in 2040

Location	Direction	Length (Miles)	# of Hours of Congestion per Day			
			Uncongested	Moderate	Heavy	Severe
I-370 to Shady Grove Road	Northbound					
I-370 to Shady Grove Road	Southbound					
Shady Grove Road to MD 28	Northbound					
Shady Grove Road to MD 28	Southbound					
Add Remaining Segments						
TOTAL						

Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

MDOT SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).

Additionally, as the congestion increases, the speeds decrease and the roadways in the study corridors become more susceptible to traffic incidents, such as vehicle crashes which cause non-recurring congestion. Crashes are unpredictable and can result from decreased vehicle spacing (rear end collisions) and weaving and merging maneuvers (sideswipes) to change lanes. Heavily trafficked areas and construction zones are especially prone to these types of incidents (TPB, 2016d). After a crash occurs, it produces stop and go traffic movements and can result in lane closures on these capacity limited systems. These non-recurring delays make the highway systems unreliable, thus negatively affecting travel times and speeds.



I-495 & I-270 Managed Lanes Study Purpose and Need

Long-term traffic management options are needed to address the existing and future recurring congestion along the study corridors. If the capacity is increased by adding general-purpose travel lanes, those lanes may draw from the local, slower road network or from users who switch from transit/carpooling to driving on the expanded roadway, thereby resulting in congested conditions on the new lanes, sooner than expected. In the National Capital Region, as well as across the country, the addition of roadway capacity cannot keep up with the growing demand for mobility due to the expanding populations and growth in and around the cities.

~~Therefore, the need exists to provide options/choices and reliable travel times for automobile occupants and transit riders in order to provide users with choice of how, where, and when they travel to avoid recurring and non-recurring congestion, which cannot be predicted at the beginning of a trip. Management strategies are one option in the transportation "tool kit" that could be used to address the growing congestion. Managed lanes will maintain traffic operations at a relatively free flow condition with little congestion because the number of vehicles entering the lanes is controlled. Management strategies were evaluated in the prior studies for these corridors: Capital Beltway Study, I-270 Multi-modal Corridor Study, and the West Side Mobility Study. The management strategies previously evaluated include HOV, HOT, or express toll lanes (ETLs).~~

Causes of Congestion

Provide a detailed discussion of the causes of congestion and any conclusions.

G. Enhance Trip Reliability

Current high travel demand is negatively affecting performance along the study corridors. As described, this high demand from commuter, commercial, and recreational trips have increased, and will continue to do so, with population and employment growth. As demand has increased, these roadway systems operate poorly, negatively affecting the efficient movement of people and goods.

Changes in travel time and planning time indices reveal these growing congestion trends. Past trends indicate that the region's rapid growth, combined with its high traffic volume, commuting patterns, and limited capacity, has caused congestion to increase considerably, thus increasing travel and planning times.

~~MDOT SHA uses the Travel Time Index (TTI) as one of the primary measures of congestion on freeways/expressways. The TTI compares the 50th percentile travel time of a trip on a segment of freeway/expressway for a particular hour to the travel time of a trip during off peak (free flow or uncongested) conditions. The higher the TTI, for a given hour of the day, the longer the travel times~~

Commented [AS7]: Provide a summary paragraph that compares the existing versus 2040 congestion indices.

Commented [AD8]: It premature in a purpose and need statement to justify a particular alternative. Purpose and need statements should be neutral on solutions.

Commented [AD9]: A section is needed to demonstrate a comprehensive understanding of the problem. Congestion can have many causes and many potential solutions. Is congestion primarily based on design deficiencies (tight horizontal or vertical geometry), inadequate lane merges and weaving sections, throughput capacity deficiencies or a combination of the above? Where are the existing congestion bottlenecks and to what extent do these bottlenecks constrain the freeway both upstream and downstream? To what extent do projects already in the Constrained Long-Range Plan address this congestion? Can the Intercounty Connector (MD 200) play any role in helping to modify regional travel behavior on I-495 for autos or trucks?

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I-495 & I-270 Managed Lanes Study Purpose and Need

(MDOT SHA, 2016b). Free flow conditions equate to TTI 1.0, and a TTI of 2.0 indicates a trip takes twice as long as free flow conditions, and greater than 2.0 indicated severe congestion (Tables 1-4 and 1-5).

However, longer travel times are only part of the congestion picture along the study corridors. A user can plan accordingly if they know their trip will take extra time; however, when travel times vary greatly such as within the study corridors, trip reliability is uncertain (MDOT SHA, 2016b).

MDOT SHA measures trip reliability using the Planning Time Index (PTI). The PTI represents the total time travelers should allow to ensure they arrive at their destination on-time while taking into account potential delays due to non-recurring congestion. In Maryland, the 95th percentile travel time for a section of roadway is used as the baseline. Travelers travelling in free flow conditions that take five minutes to traverse a section of roadway should allow for 15 minutes to ensure arriving on time when the PTI is 3.0. The lower the PTI number, the more reliable the trip. The higher the value, the less reliable and longer a trip might take (MDOT SHA, 2016b) (Tables 1-4 and 1-5).

Users traveling along roadways that experience high levels of congestion are more likely to be impacted by minor incidents. These incidents can produce severe back-ups and system level unreliable conditions for hours. Therefore, there is a strong correlation between average congestion and reliability (MDOT SHA, 2016b). Recent trends indicate that congestion is continuing to negatively affect the region.

In the 2016 Maryland State Highway Mobility Report and 2014 Maryland State Highway Mobility Report, MDOT SHA lists the top 30 congested freeway/expressway segments, for the AM and PM peaks, and their reliability values, for 2015 and 2014, and 2013, respectively. Those segments occurring in the study corridors ranked in the top 15, for 2015, are provided below in Table 1-4 and Table 1-5.

All roadway segments listed and ranked in Table 1-4 and Table 1-5 experienced severe congestion (TTI > 2.0) during the peak tra. Additionally, as the congestion increases, the speeds decrease and the roadways in the study corridors become more susceptible to traffic incidents, such as vehicle crashes which cause non-recurring congestion. Crashes are unpredictable and can result from decreased vehicle spacing (rear end collisions) and weaving and merging maneuvers (sideswipes) to change lanes. Heavily trafficked areas and construction zones are especially prone to these types of incidents. After a crash occurs, it produces stop-and-go traffic movements and can result in lane closures on these capacity-limited systems. These non-recurring delays make the highway systems unreliable, thus negatively affecting travel times and speeds.

el times for 2015, 2014, and 2013. All roadway segments listed, and ranked, also experienced high to extreme unreliability (PTI > 2.5) during the three reported years.

Table 1-X and Table 1-Y show the number of hours of reliability severity for each road segment along I-495 and I-270 in 2018. Table 1-X shows that X percent of the I-495 corridor experiences reliability issues, X percent experiences heavy congestion and X percent experiences moderate congestion. The most unreliable sections are...

Table 1-X: Number of Hours of Reliability Severity by Road Segment for I-495 in 2018

		# of Hours of Reliability Severity per Day

Commented [AD10]: PTI needs to factor in people, not just vehicles. This is critical to understanding multimodal reliability issues. PTI can be broken out for automobiles and transit, but an overall PTI for people should be included.

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Commented [AS11]: Support with crash data / non-recurring congestion data. A separate discussion or summary of non-recurring congestion (i.e., incidents) is needed in this section of the document. During past years, how many incidents occur on each corridor, how long do these incidents last, are there recurring patterns/clusters, time of day, etc.? Are these incidents occurring at merge/weave locations or along the mainline?

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Commented [C12]: Existing and future congestion information is CRITICAL to demonstrating a thorough understanding of the problem.

In addition to the suggested tables below, please provide summary of number of hours of congestion between interstate interchanges. For example:

- American Legion Bridge to I-270
- I-270 Spur to I-270 Spur
- I-270 Spur to I-95
- I-95 to MD 295
- MD 295 to US 50 / I-585
- US 50 / I-585 to I-295
- I-295 to Woodrow Wilson Bridge





**I-495 & I-270 Managed Lanes Study
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Location	Direction	Length (Miles)	Reliable	Moderately Unreliable	Highly to Extremely Unreliable
American Legion Bridge to Clara Barton Pkwy	Inner				
American Legion Bridge to Clara Barton Pkwy	Outer				
Clara Barton Pkwy to River Rd	Inner				
Clara Barton Pkwy to River Rd	Outer				
Add Remaining Segments					
TOTAL					

Source: MDOT SHA (2015; 2016b)

Note: NL = Not listed in ranking.

For reporting purposes, MDOT SHA categorize PTI for freeways/expressways as:

- Reliable (PTI < 1.5);
- Moderately Unreliable (1.5 < PTI < 2.5); or
- Highly to Extremely Unreliable (PTI > 2.5).

Table 1-Y shows that X percent of the I-270 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion. The most unreliable sections are...

Table 1-Y: Number of Hours of Reliability Severity by Road Segment for I-270 in 2018

Location	Direction	Length (Miles)	# of Hours of Reliability Severity per Day		
			Reliable	Moderately Unreliable	Highly to Extremely Unreliable
American Legion Bridge to Clara Barton Pkwy	Inner				
American Legion Bridge to Clara Barton Pkwy	Outer				
Clara Barton Pkwy to River Rd	Inner				



I-495 & I-270 Managed Lanes Study Purpose and Need

Clara Barton Pkwy to River Rd	Outer					
Add Remaining Segments						
TOTAL						

Source: MDOT SHA (2015-2016b)

Note: NL=Not listed in ranking.

For reporting purposes, MDOT SHA categorize PTI for freeways/expressways as:

- Reliable (PTI < 1.5);
- Moderately Unreliable (1.5 < PTI < 2.5); or
- Highly to Extremely Unreliable (PTI > 2.5).

Table 1-XX and Table 1-YY show the number of hours of congestion severity for each road segment along I-495 and I-270 in 2040. Table 1-XX shows that X percent of the I-495 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion.

Table 1-YY shows that X percent of the I-270 corridor experiences severe congestion, X percent experiences heavy congestion and X percent experiences moderate congestion. By 2040, travel times along the study corridors will increase and users will have to increase their planned time to reach their intended destinations. In addition, increased amounts of congestion will decrease vehicle spacing along the roadways, thereby increasing the potential for congestion-related crashes (rear end and sideswipe collisions). When these occur, traffic incidents and non-recurring congestion will further degrade the performance and reliability of I-495 and I-270, causing delay for over 300,000 commuters each weekday by 2040 and increasing travel costs.

Table 1-XX: Number of Hours of Reliability Severity by Road Segment for I-495 in 2040

Location	Direction	Length (Miles)	# of Hours of Reliability Severity per Day		
			Reliable	Moderately Unreliable	Highly to Extremely Unreliable
American Legion Bridge to Clara Barton Pkwy	Inner				
American Legion Bridge to Clara Barton Pkwy	Outer				
Clara Barton Pkwy to River Rd	Inner				
Clara Barton Pkwy to River Rd	Outer				



**I-495 & I-270 Managed Lanes Study
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Add Remaining Segments						
TOTAL						

Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

For reporting purposes, MDOT SHA categorize PTI for freeways/expressways as:

- Reliable (PTI < 1.5);
- Moderately Unreliable (1.5 < PTI < 2.5); or
- Highly to Extremely Unreliable (PTI > 2.5).

Table 1-YY: Number of Hours of Reliability Severity by Road Segment for I-270 in 2040

Location	Direction	Length (Miles)	# of Hours of Reliability Severity per Day		
			Reliable	Moderately Unreliable	Highly to Extremely Unreliable
I-370 to Shady Grove Road	Northbound				
I-370 to Shady Grove Road	Southbound				
Shady Grove Road to MD 28	Northbound				
Shady Grove Road to MD 28	Southbound				
Add Remaining Segments					
TOTAL					

Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

For reporting purposes, MDOT SHA categorize PTI for freeways/expressways as:

- Reliable (PTI < 1.5);
- Moderately Unreliable (1.5 < PTI < 2.5); or
- Highly to Extremely Unreliable (PTI > 2.5).

Table 1-4: Top Congested Segments in the Study Area and Associated Reliability Values (AM Peak)

Read	Location	Direction	2015 Rank (TTI)	2014 Rank (TTI)	2013 Rank (TTI)	2015 Rank (PTI)	2014 Rank (PTI)	2013 Rank (PTI)
I-495	MD-650 to MD-193	Outer	1 (4.4)	2 (3.9)	2 (3.82)	6 (8.5)	6 (7.5)	10 (7.13)
I-495	@ MD-650	Outer	2 (4.4)	1 (4.0)	1 (4.14)	1 (9.2)	1 (9.0)	1 (8.29)
I-495	PG County Line to MD-650	Outer	3 (3.7)	3 (3.6)	3 (3.56)	2 (9.1)	2 (8.7)	3 (7.86)
I-495	MD-193 to US-29	Outer	4 (3.6)	4 (3.2)	4 (3.15)	15 (6.3)	15 (5.8)	22 (5.45)
I-495	US-29 to MD-97	Outer	8 (2.8)	7 (2.5)	17 (2.42)	48 (4.4)	47 (4.0)	NL
I-270	@ MD-189	South	13 (2.5)	17 (2.2)	15 (2.44)	36 (4.9)	43 (4.2)	NL
I-270	Shady Grove Rd to MD-28	South	14 (2.4)	10 (2.5)	9 (2.66)	20 (5.6)	17 (5.6)	14 (6.18)
I-495	I-95 to Mont. County Line	Outer	15 (2.4)	8 (2.5)	12 (2.52)	4 (9.0)	3 (8.6)	2 (8.18)

Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

MDOT SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).

Table 1-5: Top Congested Segments in the Study Area and Associated Reliability Values (PM Peak)

Read	Location	Direction	2015 Rank (TTI)	2014 Rank (TTI)	2013 Rank (TTI)	2015 Rank (PTI)	2014 Rank (PTI)	2013 Rank (PTI)
I-495	Cabin John Pkwy to MD-190	Inner	4 (3.7)	3 (3.6)	1 (3.81)	9 (7.4)	9 (7.1)	8 (6.96)
I-270 Spur	@ I-495	South	5 (3.6)	50 (2.0)	NL	2 (12.0)	3 (9.6)	2 (8.86)
I-495	Clara Barton Pkwy to Cabin John Pkwy	Inner	8 (3.2)	7 (3.1)	6 (3.06)	17 (6.3)	20 (5.6)	25 (5.17)
I-495	MD-190 to I-270 Spur (West)	Inner	9 (3.1)	8 (3.1)	8 (2.95)	38 (5.1)	26 (5.3)	NL
I-495	@ Clara Barton Pkwy	Inner	11 (3.0)	11 (2.9)	10 (2.84)	27 (5.5)	25 (5.3)	NL
I-270 Spur	@ Democracy Blvd	South	12 (3.0)	74 (1.8)	24 (2.31)	1 (15.0)	1 (11.7)	1 (9.30)
I-495	MD-191 to MD-190	Outer	13 (2.9)	62 (1.9)	NL	19 (6.2)	40 (4.7)	NL
I-495	US-1 to Greenbelt Metro	Inner	14 (2.9)	16 (2.5)	27 (2.26)	40 (5.0)	48 (4.6)	NL

Source: MDOT SHA (2015; 2016b)

Note: NL=Not listed in ranking.

For reporting purposes, MDOT SHA categorize PTI for freeways/expressways as:

- Reliable (PTI < 1.5);
- Moderately Unreliable (1.5 < PTI < 2.5); or
- Highly to Extremely Unreliable (PTI > 2.5).



I-495 & I-270 Managed Lanes Study Purpose and Need

The 2040 TTI projections show even greater travel times with over a 25 percent increase in travel times in all locations along I-495 in the AM peak period, and even greater travel time increases in the 2040 PM peak condition, as shown in Table 1-6 and Table 1-7. Travel times along the study corridors will increase and users will have to increase their planned time to reach their intended destinations. In addition, increased amounts of congestion will decrease vehicle spacing along the roadways, thereby increasing the potential for congestion related crashes (rear end and sideswipe collisions). When these occur, traffic incidents and non-recurring congestion will further degrade the performance and reliability of I-495 and I-270, causing delay for over 300,000 commuters each weekday by 2040 and increasing travel costs.

Table 1-6: 2015 and 2040 No-Build Study Corridors TTI (AM Peak)

Road	Location	Direction	2015 TTI	2040 TTI	Forecasted % Increase
I-495	MD-650 to MD-193	Outer	4.4	5.6	27%
I-495	at MD-650	Outer	4.4	5.6	27%
I-495	PG County Line to MD-650	Outer	3.7	4.7	27%
I-495	MD-193 to US-29	Outer	3.6	4.6	28%
I-495	US-29 to MD-97	Outer	2.8	3.6	26%
I-270	at MD-189	South	2.5	2.5	0%
I-270	Shady Grove Rd to MD-28	South	2.4	2.4	0%
I-495	I-95 to Mont. County Line	Outer	2.4	3.1	29%

Source: MDOT-SHA (2016b) Note: MDOT-SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).

Table 1-7: 2015 and 2040 No-Build Study Corridors TTI (PM Peak)

Road	Location	Direction	2015 TTI	2040 TTI	Forecasted % Increase
I-495	Cabin John Pkwy to MD-190	Inner	3.7	6.6	78%
I-270 Spur	at I-495	South	3.6	4.5	25%
I-495	Clara Barton Pkwy to Cabin John Pkwy	Inner	3.2	5.7	78%
I-495	MD-190 to I-270 Spur (West)	Inner	3.1	5.5	77%
I-495	at Clara Barton Pkwy	Inner	3.0	5.4	80%
I-270 Spur	At Democracy Blvd	South	3.0	3.8	27%
I-495	MD-191 to MD-190	Outer	2.9	5.2	79%
I-495	US-1 to Greenbelt Metro	Inner	2.9	2.9	0%

Source: MDOT-SHA (2016b) Note: MDOT-SHA defines the various levels of congestion in four categories based on TTI. These are:

- Uncongested (TTI < 1.15);
- Moderate Congestion (1.15 < TTI < 1.3);
- Heavy Congestion (1.3 < TTI < 2.0); or
- Severe Congestion (TTI > 2.0).





I-495 & I-270 Managed Lanes Study Purpose and Need

Overall, this TTI and PTI data shows that users in the corridor need an option for a reliable trip when the general-purpose lanes are congested due to recurring or non-reoccurring congestion. ~~Managed lanes are an option to provide users with a more reliable travel time for their trip. Managed lanes are designed to operate at an acceptable level of service even when the adjacent general-purpose lanes are congested, because they are managed to control the number of vehicles using the lane to keep them flowing, thus providing users with a more reliable option to reach their destination.~~

Commented [AS13]: Provide a summary paragraph that compares the existing versus 2040 reliability indices.

H. Provide Additional Roadway-Transportation Travel Choice

Travelers on I-495 and I-270 do not have free-flowing travel options in the study corridors during peak periods. Existing low-occupancy vehicle, truck, bus, carpool, and vanpool users are limited to general-purpose lanes along these roadways. These users must either plan for recurring delays during peak periods, attempt to bypass high volume ramps/locations using arterial streets, or adjust their travel schedule to avoid these typical delays. In addition, other than choosing alternate non-freeway routes, no options exist for roadway users to avoid non-recurring delays, such as during crashes, which can close travel lanes on these interstates in the study corridors. Additional roadway management options are needed to improve travel choice for time-sensitive trips, provide opportunities to bypass delays, and manage demand, while improving reliability and maintaining the existing number of general-purpose lanes in the study corridors.

~~Managed lanes are an option to provide drivers with a choice to carpool or pay for a less congested trip because they are managed to control the number of vehicles using the lanes. The option allows drivers to choose the managed lanes if their particular trip purpose warrants a relatively free flow condition. The management strategies could include HOV, HOT, or express toll lanes (ETLs). Managed lanes also can provide reliable, more efficient transit service such as express and commuter bus routes. Optimizing free flow conditions has the potential to increase overall mobility by making transit usage on those lanes faster and more effective. Accommodating transit usage on the managed lanes, coupled with enhancing connectivity through reduced congestion on the study corridors, presents the opportunity to incorporate multimodal solutions to the identified transportation needs.~~

When travelers on I-495 and I-270 experience seven to ten hours of congestion, a region-wide transportation system "toolkit" is needed to address congestion. The State, therefore, is considering other transportation improvements, outside the scope of the I-495 and I-270 Managed Lanes Study, to provide additional travel choices for residents, including the Purple Line light rail project, increased annual funding for WMATA bus and Metro improvements, Smart Signal timing systems, and additional capacity on MD 295.

This project should include public transportation elements as part of any solution and address transit accessibility and transit performance. This would certainly support this need to provide transportation travel choices, increase person throughput along these freeway corridors and connecting roadway corridors, and help to alleviate congestion. This project should also thoroughly address any potential

Commented [AS14]: Metrobus funding has no guarantee to be supportive of this project, as WMATA has total discretion where to allocate those funds. If you want public transit to support this project, they need to be included as part of the alternatives considered. One key example in Montgomery County is the master-planned BRT service from Rock Spring to Tysons.



I-495 & I-270 Managed Lanes Study Purpose and Need

[impact to Montgomery County's trip mitigation programs \(Transportation Management Districts, Master Plan Mode Share and Staging Targets, Countywide Sustainability and Greenhouse Gas Emissions efforts and the County's Vision Zero Action Plan\).](#)

[In addition, this project should incorporate pedestrian and bicycle needs and incorporate some elements into the project. A pedestrian and bicycle connection is needed across the Potomac River to link the two National Park Service parks and existing Montgomery County and Fairfax County trails. The project should also facilitate high-quality / grade-separated pedestrian and bicycle connections across I-495 and I-270, since the existing ramps are a major impediment and safety concern for walking and bicycling.](#)

M.I. Accommodate Homeland Security

The National Capital Region is one of our nation's primary hubs for government agencies, military installations, and other facilities related to homeland security. During a homeland security event, these facilities along the I-495 and I-270 study corridors, as well as beyond the limits of the study corridors into the Baltimore Metropolitan Area and Northern Virginia, may be required to utilize I-495 and I-270 to perform the following actions:

- Mobilize military, law enforcement, and specialized incident management personnel;
- Connect affected populations to medical services;
- Provide emergency evacuation and rescue/recovery from natural resource disasters and man-made threats;
- Provide protection for critical infrastructure, agriculture, food, and animals;
- Provide access to medical services; and
- Redistribute food and fuel.

An overview of these homeland and emergency response agencies and facilities is provided in **Table 1-8**, and an overview of major hospitals is provided in **Table 1-9**.

As shown in **Figure 1-5**, a variety of radial corridors in the National Capital Region are designated emergency evacuation routes, all of which lead from downtown DC to I-495. I-495 and I-270 are primary connections to and from densely populated communities in the National Capital Region, and the daily high travel demand on these highways results in severe congestion. Mobility and access for emergency response vehicles are limited by the traffic conditions on these highways, where high vehicle volume may reduce the ability for emergency response vehicles to navigate and pass through congestion. This may result in longer response times. The study, *Emergency Medical Service Providers' Experiences with Traffic Congestion*, based on surveys from Emergency Medical Services (EMS) first responders, supports this idea. The study results indicate that traffic congestion is more often experienced on interstates and national





**I-495 & I-270 Managed Lanes Study
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highways than city streets, and that traffic congestion, on average, contributes to an extra ten minutes in emergency response time (Griffin and McGwin, 2013).

Furthermore, congestion would be exacerbated in the event of an emergency evacuation and/or homeland security event in the National Capital Region. Per the FHWA study, *Highway Evacuations in Selected Metropolitan Areas: Assessment of Impediments*, a primary impediment to effective large-scale evacuations in National Capital Region is limited by roadway capacity (FHWA, 2010).

Table 1-8: Emergency Response Agencies and Facilities in the National Capital Region

FEDERAL	AGENCY	AREA/COUNTY
U.S. Department of Homeland Security (DHS)	U.S. Citizenship and Immigration Services (USCIS)	Washington, DC
	U.S. Customs and Border Protection (CBP)	Washington, DC
	U.S. Coast Guard (USCG)	Washington, DC
	Federal Emergency Management Agency (FEMA)	Washington, DC
	Federal Law Enforcement Training Center (FLETC)	Washington, DC
	U.S. Immigration and Customs Enforcement (ICE)	Washington, DC
	Transportation Security Administration (TSA)	Washington, DC
	United States Secret Service (USSS)	Washington, DC
	Directorate for Management	Washington, DC
	National Protection and Programs Directorate	Washington, DC
	Science and Technology Directorate	Washington, DC
	Countering Weapons of Mass Destruction Office	Washington, DC
	Office of Intelligence and Analysis	Washington, DC
	Office of Operations Coordination	Washington, DC
U.S. Department of Defense (DoD)—Offices/Headquarters	National Geospatial-Intelligence Agency	Washington, DC
	Defense Intelligence Agency	Washington, DC & Bethesda, MD
	Defense Logistics Agency	Fort Belvoir, VA
	Defense Commissary Agency	Fort Lee, VA
	National Reconnaissance Office	Chantilly, VA
	Air National Guard	The Pentagon; Arlington County, VA
	U.S. Marine Corps	Arlington County, VA
	U.S. Department of the Army	The Pentagon; Arlington County, VA
	U.S. Department of the Navy	The Pentagon; Arlington County, VA
	U.S. Department of the Air Force	The Pentagon; Arlington County, VA





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FEDERAL	AGENCY	AREA/COUNTY
U.S. Department of State		Washington, DC
U.S. Department of Veterans Affairs		Washington, DC
Central Intelligence Agency		McLean, VA
The National Counterterrorism Center		McLean, VA
The Defense Advanced Research Projects Agency (DARPA)		Arlington County, VA
Federal Bureau of Investigation		Washington, DC
National Security Agency		Fort Meade, MD
U.S. Dept. of Justice	Drug Enforcement Agency	Springfield, VA
National Maritime Intelligence Integration Office (U.S. Navy)		Prince George's County, MD

Table 1-9: Major Hospitals in the National Capital Region

Military Health System	Andrew Radar Army Health Clinic	Fort Myer, VA
	DiLorenzo TRICARE Health Clinic	The Pentagon; Arlington County, VA
	Dumfries Health Center	Dumfries, VA
	Fairfax Health Center	Fairfax, VA
	Fort Belvoir Community Hospital	Fort Belvoir, VA
	Fort McNair Army Health Clinic	Washington, D.C.
	Joint Base Anacostia-Bolling Clinic	Washington, D.C.
	Kimbrough Ambulatory Care Center	Fort George G. Meade, MD
	Malcolm Grow Medical Clinics and Surgery Center	Joint Base Andrews, MD
	Naval Health Clinic Annapolis	Annapolis, MD
	Naval Health Clinic Quantico	Quantico, VA
	Naval Health Clinic Washington Navy Yard	Washington, D.C.
Walter Reed National Military Medical Center	Bethesda, MD	
Montgomery County, MD	Adventist Healthcare	Takoma Park, MD Rockville, MD Germantown, MD
	Holy Cross Germantown Hospital	Germantown, MD
	Holy Cross Hospital	Silver Spring, MD
	Montgomery Medical Center	Olney, MD
	National Institutes of Health Clinical Center	Bethesda, MD
	Suburban Hospital	Bethesda, MD
Prince George's County, MD	Doctors Community Hospital	Lanham, MD
	Fort Washington Medical Center	Fort Washington, MD
	Prince George's Hospital Center	Cheverly, MD



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	Southern Maryland Hospital Center	Clinton, MD
	University of Maryland Bowie Health Center	Bowie, MD
	University of Maryland Laurel Regional Hospital	Laurel, MD

Source: Maryland Hospitals, Maryland Manual On-Line,
<<http://msa.maryland.gov/msa/mdmanual/01glance/html/hospital.html#mo>>



Figure 1-5: National Capital Region Emergency Event Routes



Source: District Department of Transportation (<https://ddot.dc.gov/node/481502>)

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N.J. Improve Movement of Goods and Services

The transportation connections that I-495 and I-270 provide are essential to the productivity of the National Capital Region's economy. The study corridors allow the movement of goods and services, including freight and commuting employees, throughout the region.

The ability to move freight and commuting employees through the study corridors will increasingly depend on the performance of the existing travel lanes on I-495 and I-270. Travelers, commuting employees, and freight trucks are especially sensitive to non-recurring delays (unanticipated disruptions), which are indicative of poor reliability, as they disrupt scheduled activities and manufacturing/distribution activities (TPB, 2016d). The MDOT SHA has estimated the cost of delays and unreliability to users on the freeway/expressway network on a statewide and regional basis. For the reported years (2015, 2014, and 2013), the total congestion cost to users in the National Capital Region has exceeded all other regions in the state of Maryland (Table 1-10). In 2015, the percentage of congestion cost by source was attributed to auto delay (89 percent), freight truck delay (five percent), wasted fuel (three percent), and air emissions cost (three percent) (MDOT SHA, 2016b).

Table 1-10: Total Cost of Congestion on Maryland Freeways/Expressways (\$ Millions)

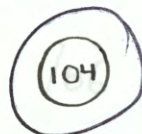
Region	2013	2014	2015	Change 2013 to 2015
Statewide	\$1,676	\$1,698	\$2,052	+\$376
National Capital	\$949	\$954	\$1,222	+\$273
Baltimore	\$681	\$686	\$806	+\$125
Eastern Shore	\$31	\$47	\$20	-\$11
Southern	\$4	\$5	\$1	-\$3
Western	\$11	\$6	\$3	-\$8

Source: MDOT SHA (2016b)

Movement of Freight Goods

Freight-dependent industries, including goods transportation services, raw materials/intermediate products transportation services, and retail/consumer outlets, account for 19 percent of the National Capital Region's Gross Domestic Product (GDP), which totaled \$464 billion in 2013 (National Capital Region Transportation Planning Board, 2016c). Among these industries within the National Capital Region, the truck transportation mode accounts for 86 percent of the total weight and 79 percent of the total value of freight moved (National Capital Region Transportation Planning Board, 2016c).⁵ Reliable travel times are critical to the movement of freight trucks and, therefore, the economy of the National Capital Region. The movement of freight occurs around the clock and requires a transportation system that can ensure efficient, predictable connections. This is another reason why congestion measures presented previously need to focus on hours of congestion to ensure that design solutions will help to improve the movement of freight through this region.

⁵ The freight weight and value percentages presented here are based on the National Capital Region Transportation Planning Board's *National Capital Region Freight Plan* (July 2016). The most recently available freight demand analysis data used in the 2016 *Freight Plan* is from 2007. See page 45 of the 2016 *Freight Plan* for additional information.





I-495 & I-270 Managed Lanes Study Purpose and Need Statement

The I-95 corridor is a nationally important highway providing for freight movement along the East Coast from Maine to the southern tip of Florida, also providing connections to/from the Port of Baltimore. It connects the largest population centers along the East Coast, serving as a key connection and fundamental backbone of roadway transportation in the eastern US. As such, the portion of I-95 which coincides with the east side of I-495 and serves as a through route for freight, is an important link in a much larger system. Therefore, maintaining the movement of freight goods is important to the economy of the region as well as the entire East Coast.

As shown in **Figure 1-6**, both I-495 and I-270 are designated Tier 1 truck routes under the Regional Freight-Significant Network. Tier 1 roadways are state-designated truck routes, interstates, and other high-volume roadways on which most freight enters and leaves the National Capital Region and are typically used by pass-through trucks. I-495 provides connections for freight trucks from the Virginia-Maryland state line, through the Montgomery County-Prince George's County line, to I-95. I-270 provides similar connections from I-495, through the Montgomery County-Frederick County line, to I-70.

Freight trucks contribute to daily traffic flow conditions along I-495 and I-270. As shown in **Figure 1-7**, the study corridors experience the highest volume of freight trucks and greater percentages of freight trucks relative to other vehicles in the Freight-Significant Network. Based on annual average data, both the I-495 study corridor and I-270 study corridor serve between 12,000 and 20,000, and over 20,000, trucks per day.

Based on 2016 MDOT SHA truck data, daily truck percentages on these study corridors are:

- I-270 between I-495 and I-370: approximately 4 to 9% trucks
- I-495 between American Legion Bridge and US 29: approximately 8 to 9% trucks
- I-495 between US 29 and I-95: approximately 5 to 6% trucks
- I-495 between I-95 and Baltimore-Washington Parkway: approximately 8 to 9% trucks

Freight trucks provide vital connections in multimodal supply chains, including air cargo operations. The I-495 and I-270 study corridors provide freight truck access to international airports in the region, including Baltimore-Washington International Airport (BWI), which serves five cargo airlines, and Washington Dulles International Airport (IAD), which serves 34 cargo airlines. In 2016, BWI processed 118,054 metric tons of freight and mail and IAD processed 266,000 metric tons of freight and mail (Federal Aviation Administration, 2016).

Per the National Capital Region Freight Plan (National Capital Region Transportation Planning Board, 2016c):

The ultimate efficiency of airport cargo facilities depends largely on the degree of connectivity among freight forwarders, cross-dock and warehouse facilities, and off airport properties. Access in and out of the airport is important to air cargo businesses, and truck transportation is the critical link to the end-user. (National Capital Region Transportation Planning Board, pg. 73)

Commented [AS15]: Some discussion is needed about MD 200. It is part of the Tier 1 freight network, yet it has lower daily truck volumes. I assume this is due to the toll. As alternatives are developed, can a truck toll reduction on MD 200 be considered as part of the P3 project? This would help to divert some truck traffic off I-495 and I-95.



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The demand for freight increases with population size. Each person in the United States generates demand for more than 60 tons of freight per year (MWCOG, 2016a), and with each new resident added, the demand for consumer goods increases. Therefore, as the population increases in the region, so does a corresponding demand for freight transportation.

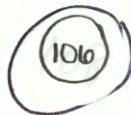
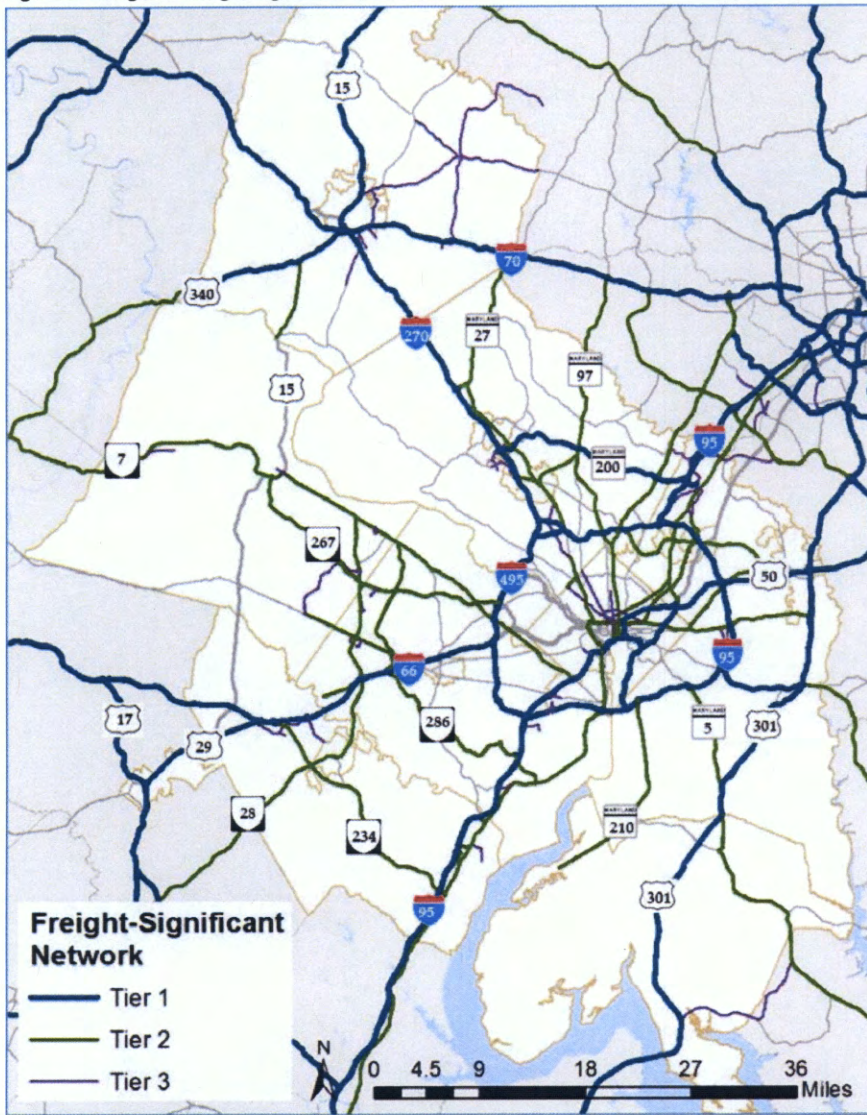


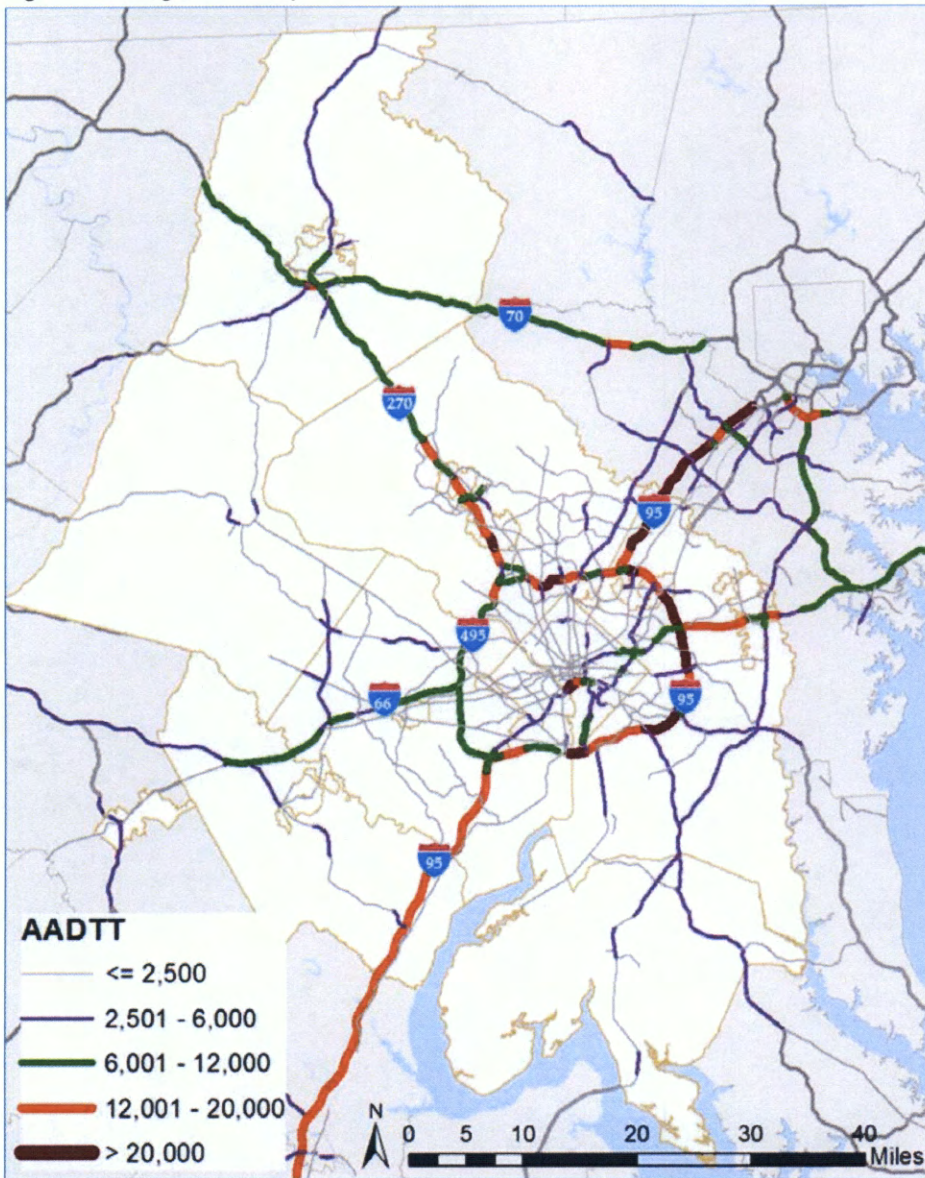
Figure 1-6: Regional Freight-Significant Network



Note: Tier 1 - roadways in this tier include state-designated truck routes, interstates, and other high-volume roadways. These roads are the means by which most freight enters and leaves the Region and are typically used by pass-through trucks. Tier 2 - roadways in this tier allow trucks to permeate the Region and provide access to important freight generators and attractors. Tier 3 - roadways in this tier provide last mile connectivity.

Source: National Capital Region Freight Plan, page 27. National Capital Region Transportation Planning Board, 2016c.

Figure 1-7: Average Annual Daily Truck Traffic



Source: National Capital Region Freight Plan, page 31. National Capital Region Transportation Planning Board, 2016.



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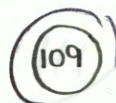
Movement of Commuting Employees

Thousands of employers in the National Capital Region depend on the study corridors for employee commuting and delivery access. Major employers, in particular, draw a large number of people to and from employment locations each day. Major employers, those companies having 1,000 or more employees, in Montgomery County and Prince George's County are listed in **Table 1-11**. While a few of the major employers in **Table 1-11** have locations throughout the respective counties, the majority of the employers are located less than ten miles from the I-495 and I-270 study area corridors.

Commented [AD16]: It's unclear what this has to do with the movement of goods and services. This section should be moved to the travel demand section on "Population and Employment Growth"

Table 1-11: Major Employers in Montgomery County and Prince George's County

Montgomery County			Prince George's County		
Company	Location	Number Employed	Company	Location	Number Employed
National Institutes of Health	North Bethesda, Rockville	17,300	University System of Maryland	Bowie, College Park	18,726
U.S. Food and Drug Administration	Silver Spring	13,130	Joint Base Andrews Naval Air Facility	Clinton-area	17,500
Naval Support Activity Bethesda	Bethesda	11,690	U.S. Internal Revenue Service	Landover, Lanham	5,539
Marriott International	Bethesda	5,500	U.S. Census Bureau	Suitland	4,414
Lockheed Martin	North Bethesda, Gaithersburg	4,690	United Parcel Service (UPS)	(throughout)	4,220
National Oceanic and Atmospheric Administration	Silver Spring	4,600	NASA - Goddard Space Flight Center	Greenbelt	3,397
Adventist HealthCare	Rockville, Germantown	4,290	Giant Food	(throughout)	3,000
Holy Cross Hospital	Silver Spring	3,900	Prince George's Community College	Largo	2,785
Giant Food	(throughout)	3,150	Verizon	(throughout)	2,738
Verizon	(throughout)	2,870	Dimensions Healthcare System	Cheverly	2,500
Montgomery College	Takoma Park/ Silver Spring, Rockville, Germantown	2,850	Marriott International/Gaylord Resort and Convention Center	National Harbor	2,412
National Institute of Standards and Technology	Gaithersburg	2,730	Shoppers Food Warehouse	(throughout)	1,975
U.S. Nuclear Regulatory Commission	North Bethesda, Rockville	2,700	U.S. Department of Agriculture	Beltsville	1,850
Kaiser Foundation Health Plan	North Bethesda, Rockville, Gaithersburg	2,640	National Maritime Intelligence-Integration Office	Suitland	1,724





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Montgomery County			Prince George's County		
Company	Location	Number Employed	Company	Location	Number Employed
MedImmune	Gaithersburg	2,290	MedStar Southern Maryland Hospital Center	Clinton	1,709
Westat	Rockville	2,280	Safeway	(throughout)	1,605
GEICO	(throughout)	2,270	Melwood	Upper Marlboro	1,428
U.S. Department of Energy	Germantown	1,800	Target	(throughout)	1,400
The Henry M. Jackson Foundation for the Advancement of Military Medicine	Bethesda	1,780	National Oceanic and Atmospheric Administration (NOAA)	Suitland	1,350
Suburban Hospital	Bethesda	1,770	Doctors Community Hospital	Lanham	1,300
Red Coats	Silver Spring, Bethesda, Rockville	1,640	Adelphi Laboratory Center	Adelphi	1,200
Naval Surface Warfare Center, Carderock Division	Bethesda	1,580	Walmart	(throughout)	1,200
Whole Foods Market	(throughout)	1,280	Home Depot	(throughout)	1,184
IBM	North Bethesda	1,500	U.S. Food and Drug Administration	College Park, Beltsville	1,061
Riderwood Village	Silver Spring	1,330			
Hughes Network Systems	Germantown	1,300			

Note: Excludes post offices, state and local governments.

Sources: Montgomery County Department of Economic and Maryland Department of Commerce, October 2015; Prince George's County Economic Development Corporation and Maryland Department of Commerce, October 2015.

In Montgomery County, 54 percent of residents travel ten or more miles from their homes for work (MD DLLR, 2018). As shown in **Figure 1-8** and **Figure 1-9** and detailed in **Table 1-12**, both Montgomery County residents' employment destinations and Montgomery County workers' home destinations are densely clustered along the I-495 and I-270 study corridors.

In Prince George's County, 56 percent of residents travel ten or more miles from their homes for work with the greatest majority traveling into DC (MD DLLR, 2018). As shown in **Figure 1-10** and **Figure 1-11**, and detailed in **Table 1-12**, both Prince George's County residents' employment destinations and Prince George's County workers' home destinations are densely clustered within and along the eastern portion of the I-495 study corridor.





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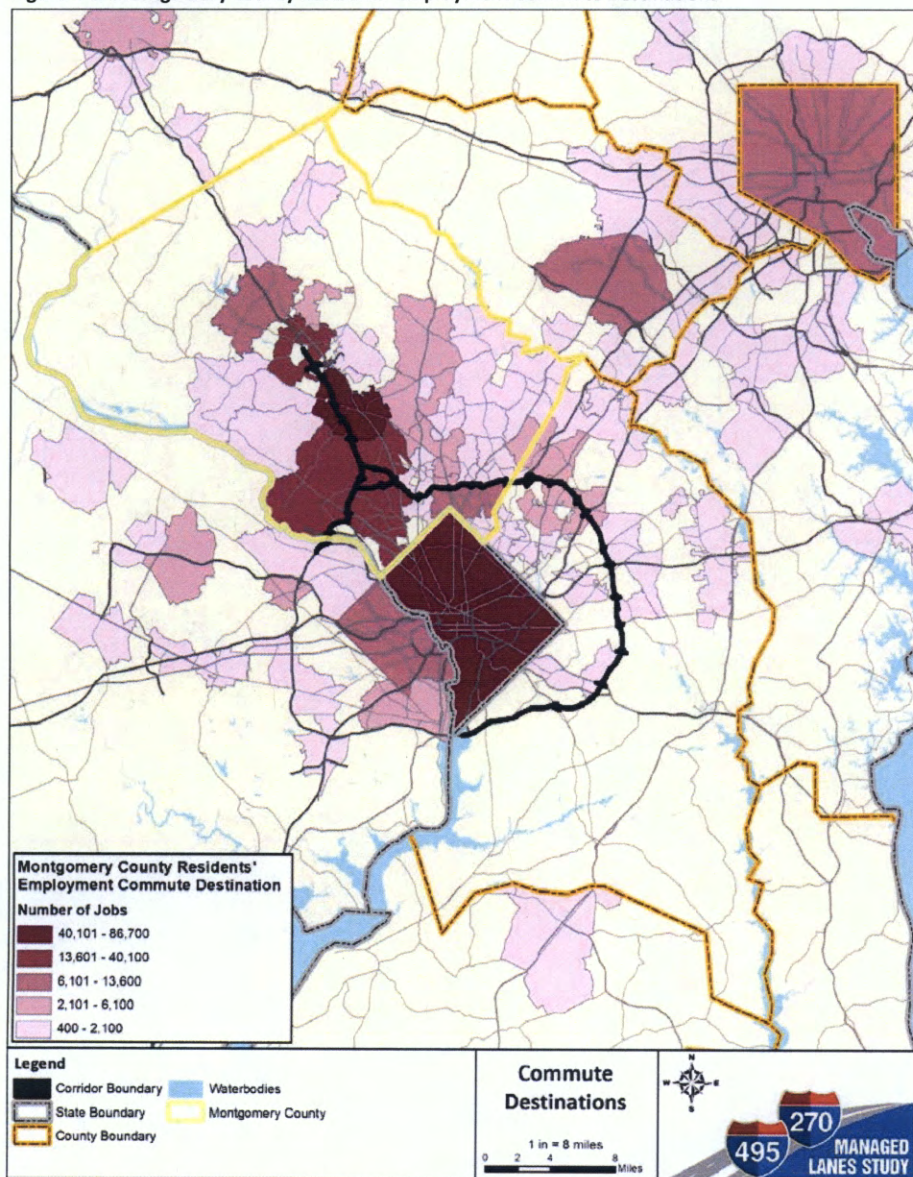
Table 1-12: Employment and Home Commute Destinations

Top Five Employment Destinations for County Residents		Top Five Home Destinations for County Workers	
Montgomery County			
Washington, D.C.	19.3%	Germantown, MD	5.7%
Rockville, MD	9.0%	Washington, D.C.	5.0%
Bethesda, MD	7.5%	Gaithersburg, MD	3.8%
North Bethesda, MD	5.1%	Rockville, MD	3.4%
Gaithersburg, MD	5.0%	Silver Spring, MD	2.7%
Prince George's County			
Washington, D.C.	30.3%	Washington, D.C.	6.1%
Arlington, VA	2.7%	Bowie, MD	3.0%
Baltimore, MD	2.2%	Baltimore, MD	2.3%
College Park, MD	2.1%	Waldorf, MD	2.2%
Bethesda, MD	2.1%	Clinton, MD	1.7%
Anne Arundel County			
Baltimore, MD	10.2%	Baltimore, MD	8.1%
Parole, MD	7.8%	Glen Burnie, MD	5.7%
Washington, D.C.	5.5%	Annapolis, MD	3.7%
Annapolis, MD	4.8%	Severna Park, MD	3.2%
Glen Burnie, MD	4.0%	Severn, MD	3.0%
Calvert County			
Prince Frederick, MD	10.5%	Chesapeake Ranch Estates, MD	6.5%
Washington, D.C.	6.4%	Chesapeake Beach, MD	2.9%
Waldorf, MD	2.5%	Prince Frederick, MD	2.1%
California, MD	2.2%	Huntington, MD	2.0%
Melwood, MD	2.2%	Waldorf, MD	1.9%
Carroll County			
Baltimore, MD	8.7%	Westminster, MD	6.1%
Westminster, MD	8.2%	Eldersburg, MD	6.1%
Eldersburg, MD	4.7%	Baltimore, MD	3.1%
Columbia, MD	4.7%	Taneytown, MD	2.5%
Cockeysville, MD	2.8%	Hampstead, MD	1.9%
Charles County			
Washington, D.C.	19.9%	Waldorf, MD	17.9%
Waldorf, MD	11.3%	La Plata, MD	3.8%
La Plata, MD	6.1%	Bensville, MD	2.8%
Arlington, VA	2.5%	Bryans Road, MD	1.9%
Alexandria, VA	2.1%	Clinton, MD	1.4%
Frederick County			
Frederick (City), MD	20.8%	Frederick (City), MD	15.4%
Ballenger Creek, MD	6.8%	Ballenger Creek, MD	3.9%
Rockville, MD	4.8%	Hagerstown, MD	2.1%
Gaithersburg, MD	3.9%	Thurmont, MD	1.8%
Washington, D.C.	2.7%	Linganore, MD	1.6%
Howard County			
Columbia, MD	14.7%	Columbia, MD	9.2%
Baltimore, MD	13.0%	Baltimore, MD	7.9%
Washington, D.C.	5.4%	Ellicott City, MD	5.8%
Ellicott City, MD	5.0%	Ilchester, MD	2.2%
Rockville, MD	1.8%	Catonsville, MD	2.0%

Source: *Commuting Pattern*: for Montgomery, Prince George's, Calvert, Charles, Frederick, Anne Arundel, Carrol, and Howard Workforce Regions, Maryland Department of Labor, Licensing, and Regulation, 2018.

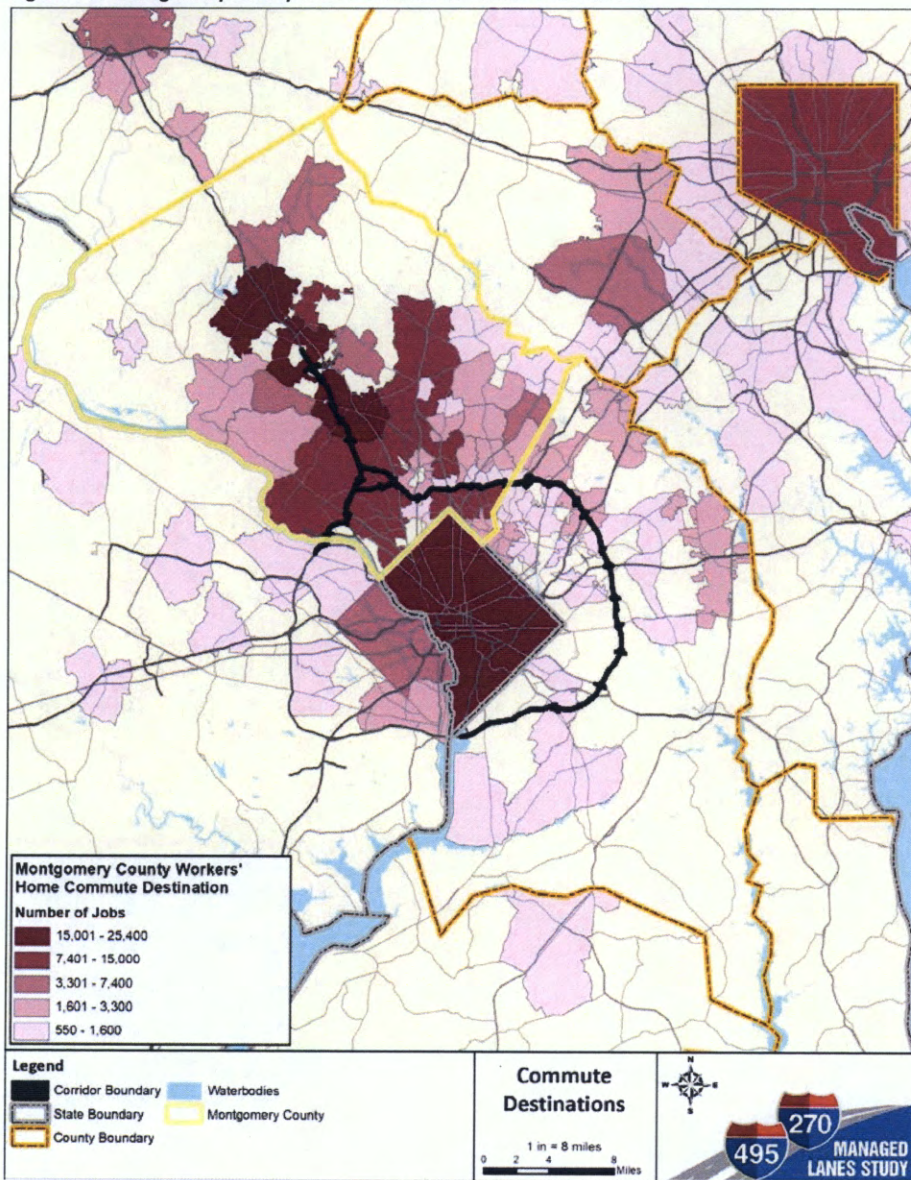


Figure 1-8: Montgomery County Residents' Employment Commute Destinations



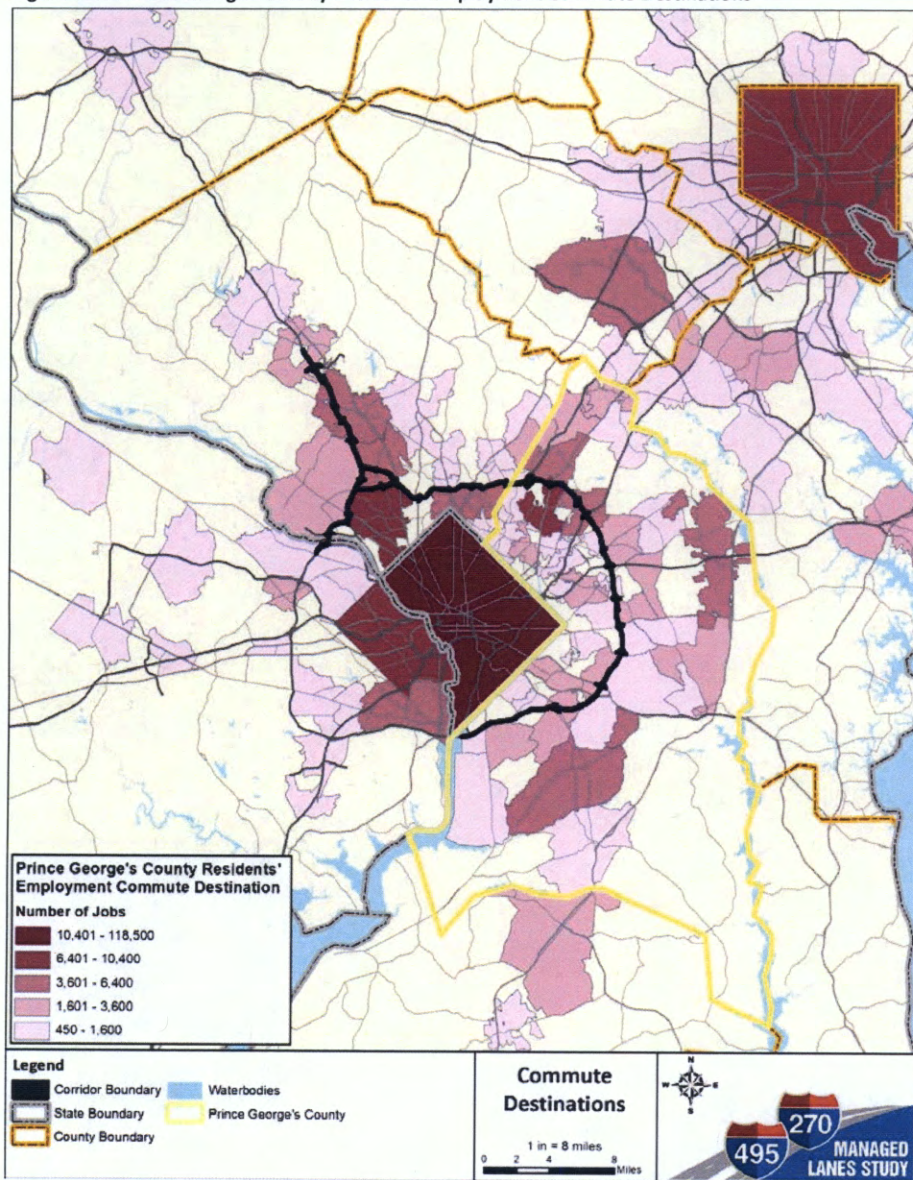
Source: U.S. Census Bureau, Center for Economic Studies, OnTheMap (<https://onthemap.ces.census.gov>)

Figure 1-9: Montgomery County Workers' Home Commute Destinations



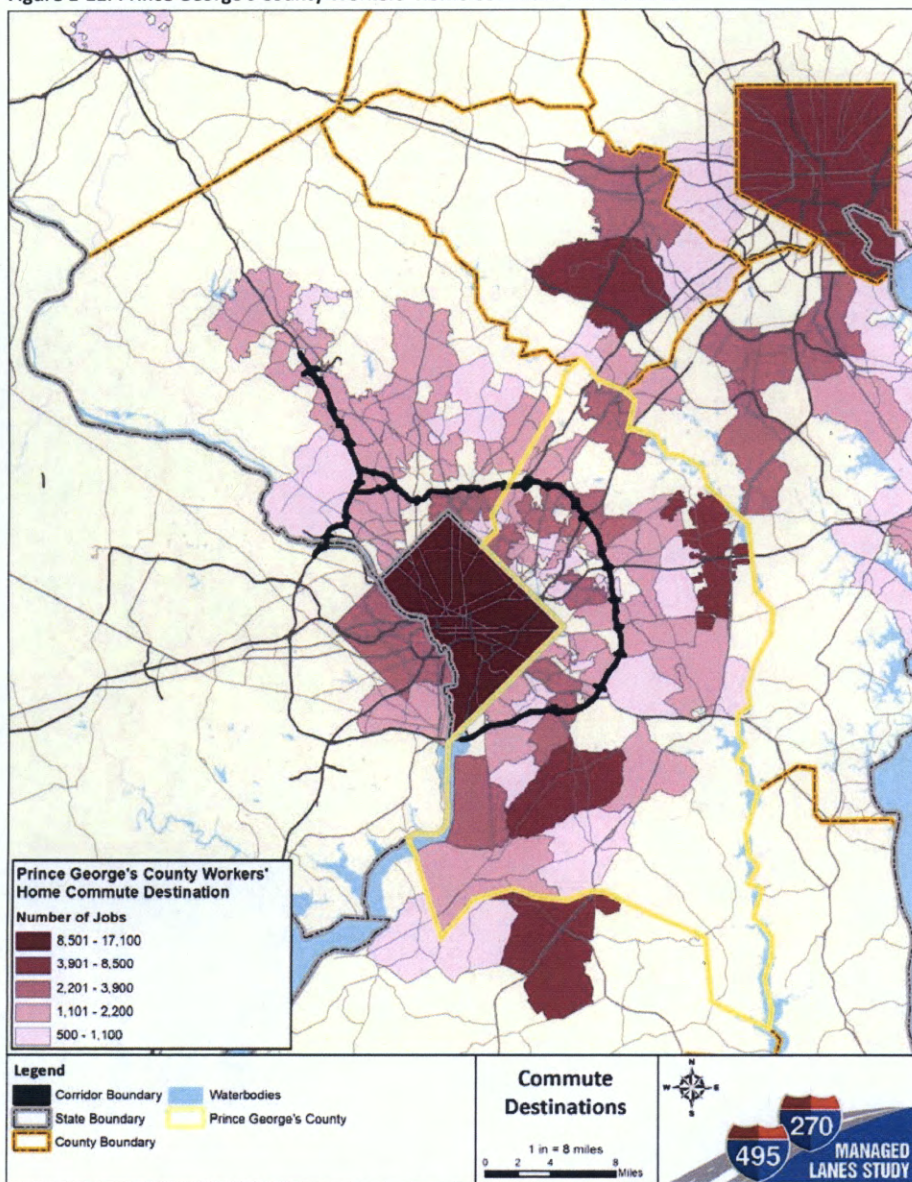
Source: U.S. Census Bureau, Center for Economic Studies, OnTheMap (<https://onthemap.ces.census.gov>)

Figure 1-10: Prince George's County Residents' Employment Commute Destinations



Source: U.S. Census Bureau, Center for Economic Studies, OnTheMap (<https://onthemap.ces.census.gov>)

Figure 1-11: Prince George's County Workers' Home Commute Destinations



Source: U.S. Census Bureau, Center for Economic Studies, OnTheMap (<https://onthemap.ces.census.gov>)



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Q.K. Focus on Improving Safety

Crashes are a major source of non-recurring congestion and are a result of inadequate or outdated road design at bottlenecks/merge-weave locations. Reduction in serious injury and fatal collisions within the study corridors is consistent with Vision Zero.

L. Provide Equitable Transportation Investments

Many community members have limited access to private automobiles. Transportation improvements that address the mobility needs of lower income residents and residents without access to private automobiles are needed to address equity.

P.M. Incorporate Funding Sources for Financial Viability

The State of Maryland is committed to provide timely transportation improvements that can accommodate existing and long-term traffic growth demands. Typical roadway infrastructure improvements are funded through use of Maryland's Transportation Trust Fund. The Trust Fund primarily comprises revenue from the gas tax and motor vehicle registration and titling fees. All funds dedicated to MDOT are deposited in the Trust Fund, and disbursements for all programs and projects are made from the Trust Fund. Revenues are not earmarked for specific programs.

However, the State's traditional funding sources, including the Trust Fund, may be unable to effectively finance, construct, operate, and maintain highway systems of the magnitude which may be needed to enhance trip reliability in these study corridors, due to the fiscal constraints of the program and the state-wide transportation needs. For these types of large projects, revenue sources that provide adequate funding are needed to support more immediate capacity improvements.

Large-scale improvements over 55 miles, such as those being considered with the I-495 & I-270 Managed Lanes Study, would require decades to accumulate enough revenue in the State's Transportation Trust Fund to deliver the improvements with traditional funding. For large-scale improvements, MDOT SHA may seek to use innovative financing methods such as a Public-Private Partnership (P3) in order to design, construct, operate, and maintain the infrastructure improvements.

The use of alternative funding approaches, such as pricing options, provides needed large-scale improvements decades earlier than would otherwise be realized using traditional funding and allows the project to be fiscally-constrained in the metropolitan transportation plan. This is a critical step in the NEPA decision process, as current federal policy restricts issuance of a NEPA decision document unless the project is fiscally-constrained.

Q.N. Environmental Responsibility

Given the highly constrained area surrounding the interstates in the study area, the natural, cultural, historical, and recreational amenities that exist along this alignment are finite resources that cannot be easily replaced or replenished. MDOT SHA will ~~work~~ commit to avoid and minimize community, ~~wetlands, waterways,~~ cultural, noise, air quality, environmental, and parkland impacts, and mitigate for unavoidable

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impacts when not avoidable and to the extent practicable at an equal or greater value. MDOT SHA will work with our federal, state, and local resource agency partners in a streamlined, collaborative, and cooperative way to meet all regulatory requirements to ensure the protection of significant environmental and community resources.

In planning mitigation for a build alternative, MDOT SHA will strive to provide meaningful benefits to adjacent resources and improve the values, services, attributes, and functions which may be compromised. MDOT SHA will work in good faith with our agency partners to plan comprehensive mitigation based on identified priorities that would, at a minimum, bring no net loss to impacted resources, with a goal of net benefit. Innovative, creative solutions, including modern urban stormwater management and environmentally sensitive design techniques, will be utilized to mitigate for unavoidable impacts resulting from the project. Both I-495 and I-270 were constructed prior to modern stormwater regulations and as a result, significant portions of these existing highway networks have no treatment of the uncontrolled, contaminated runoff generated from these heavily trafficked systems, resulting in severely compromised downstream resources. In addition to the regulatory stormwater management treatment that would be required as part of any new roadway construction/redevelopment, MDOT SHA is also committed to incorporating innovative stormwater solutions to improve identified priority resources affected by the existing untreated portions of these highways to the extent practicable. Mitigation commitments will be identified and included in the Record of Decision. Commitments in the combined Final Environmental Impact Statement/ Record of Decision will also be included in any contract documents regardless of project delivery method, including a Public-Private Partnership (P3).

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PLEASE ADD THE FOLLOWING INPUT INTO APPENDIX A: This should be added into the discussion on Montgomery County Planning.

- a. Insufficient Review of Montgomery County Master Plans. The document does not include or address all relevant Montgomery County Master Plans in its review (Plans reviewed were listed provided in the Appendix A to the Purpose and Need Statement). Plans relevant to the study area include all Master Plans where the transportation analysis area includes and/or abuts the I-495 and I-270 corridors within the P3 project limits. Master/Sector Plans omitted are as follows:
- Aspen Hill Master Plan - 1994
 - Bethesda Downtown Plan - 2017
 - Bethesda Purple Line Station Minor Master Plan Amendment - 2014
 - Capital View & Vicinity Sector Plan - 1982
 - Chevy Chase Lake Master Plan - 2013
 - Gaithersburg & Vicinity Master Plan - 1985
 - Great Seneca Science Corridor Master Plan - 2010
 - Greater Lyttonsville Sector Plan - 2017

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- Grosvenor-Strathmore Minor Area Master Plan - 2017
- Kensington Sector Plan – 2012
- Long Branch Sector Plan - 2013
- Montgomery Village Master Plan - 2016
- Rock Spring Master Plan - 2017
- Shady Grove Sector Plan - 2006
- Silver Spring CBD Sector Plan
- Takoma/Langley Crossroads Sector Plan – 2012
- Takoma Park Master Plan - 2001
- Twinbrook Sector Plan - 2009
- White Flint Master Plan - 2010
- White Flint 2 Sector Plan - 2017
- Wheaton Sector Plan – 2011

Several Functional Master Plans omitted are as follows:

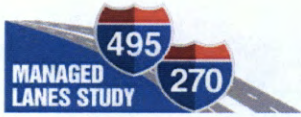
- Capital Beltway HOV Lane Project and Interchange at the Intersection of Randolph Road and Veirs Mill Road – Amendment to the Master Plan of Highways within Montgomery County – 2004
- Countywide Bikeways Functional Master Plan – 2005
- Countywide Transit Corridors Functional Master Plan – 2013
- Master Plan for Historic Preservation - 2011
- Purple Line Functional Plan and the Capital Crescent Trail – 2009

There are also two functional master plans now nearing completion, the Bicycle Master Plan and the Technical Update to the Master Plan of Highways and Transitways. These ongoing Master Plans are now being considered by the County Council with anticipation to be adopted in 2017 and should be considered for this project.

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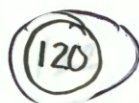
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