
# APPENDIX K
# HAZARDOUS MATERIALS TECHNICAL REPORT
## MAY 2020

U.S. Department of Transportation
Federal Highway Administration

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

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## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AADT | Average Annual Daily Traffic |
| AIRS | Aerometric Information Retrieval System |
| ARDS | Alternatives Retained for Detailed Study |
| AST | Aboveground Storage Tank |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CEQ | Council on Environmental Quality |
| CLRP | Constrained Long-Range Plan |
| ECHO | Enforcement & Compliance History Online |
| EDR | Environmental Data Resources |
| EIS | Environmental Impact Statement |
| ETL | Express Toll Lanes |
| FAST | Fixing America's Surface Transportation Act |
| FEMA | Federal Emergency Management Agency |
| FHWA | Federal Highway Administration |
| FIFRA | Federal Insecticide, Fungicide, & Rodenticide Act |
| FTTS | FIFRA/TSCA Tracking System |
| GP | General Purpose |
| HMTR | Hazardous Materials Technical Report |
| HOT | High-Occupancy Toll |
| HOV | High-Occupancy Vehicle |
| HWS | Hazardous Waste Site |
| IAWG | Interagency Working Group |
| ICIS | Integrated Compliance Information System |
| ICM | Innovative Congestion Management |
| ISA | Initial Site Assessment |
| JBA | Joint Base Andrews |

| | |
|---|---|
| LOD | Limit of Disturbance |
| LRP | Land Restoration Program |
| LUST | Leaking Underground Storage Tank |
| MD Historical LUST | Maryland Leaking Underground Storage Tank database, through 3/1/1999 |
| MD NPDES | Maryland National Pollutant Discharge Elimination System |
| MD OCPCASES | Maryland Oil Control Program cases |
| MD SHWS | Maryland State Hazardous Waste Sites records |
| MD VCP | Maryland Voluntary Cleanup Program sites |
| MDE | Maryland Department of the Environment |
| MDOT SHA | Maryland Department of Transportation State Highway Administration |
| MGS | Maryland Geological Survey |
| MSL | Mean Sea Level |
| MWCOG | Metropolitan Washington Council of Governments |
| NEPA | National Environmental Policy Act |
| NPL | National Priorities List (Superfund) |
| PCB | Polychlorinated biphenyl |
| PEC | Potential Environmental Concern |
| PSI | Preliminary Site Investigation |
| RAATS | RCRA Administrative Action Tracking System |
| RCRA | Resource Conservation and Recovery Act |
| RCRA-CESQG | RCRA – Conditionally Exempt Small Quantity Generator |
| RCRA-LQG | RCRA – Large Quantity Generator |
| RCRA-NonGen | RCRA – Non-Generator |
| RCRA-SQG | RCRA – Small Quantity Generator |
| RCRA-TSDF | RCRA – Treatment, Storage and Disposal |
| RGA | Recovered Government Archive |
| SEMS | Superfund Enterprise Management System |
| SVOCs | Semi-volatile organic compounds |
| TCLP | Toxicity characteristic leaching procedure |
| TPB | Transportation Planning Board |
| TPH DRO/GRO | Total petroleum hydrocarbons diesel/gasoline range organics |
| TSCA | Toxic Substances Control Act |
| USEPA | United States Environmental Protection Agency |
| USGS | United States Geological Survey |
| UST | Underground Storage Tank |
| VCP | Voluntary Cleanup Program |
| VDEQ | Virginia Department of Environmental Quality |
| VOCs | Volatile organic compounds |
| VRP | Voluntary Remediation Program |

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# 1 INTRODUCTION

## 1.1 Overview

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and the Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, are preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) for the I-495 & I-270 Managed Lanes Study (Study). The Study is evaluating potential transportation improvements to portions of the I-495 and I-270 corridors in Montgomery and Prince George's Counties, Maryland, and Fairfax County, Virginia.

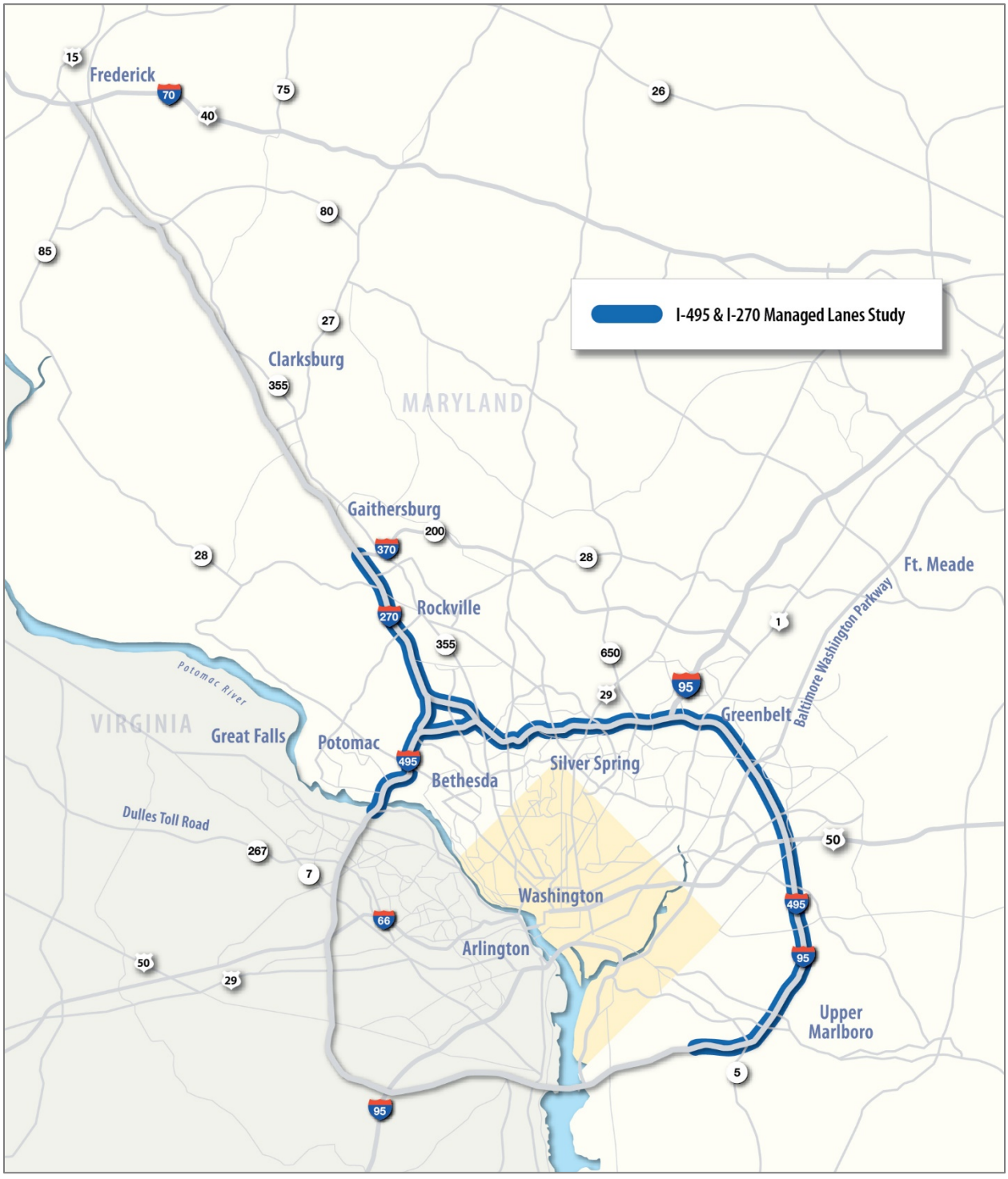
This EIS is being prepared in accordance with FHWA and Council on Environmental Quality (CEQ) regulations implementing NEPA and provisions of the Fixing America's Surface Transportation (FAST) Act. The content of the EIS also conforms to CEQ guidelines, which provide direction regarding implementation 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 purpose of the Hazardous Materials Technical Report (HMTR) is to present the existing conditions associated with contaminants and hazardous materials, and the potential impacts from the Screened Alternatives. The HMTR was prepared to support and inform the EIS. The report begins with a description of the study corridors, followed by a summary of the Purpose and Need, and a description of the alternatives evaluated.

## 1.2 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 2018 (MDOT SHA, 2019). I-495 is the only circumferential route in the region that provides interregional connections to many radial routes in the region, such as I-270, US-29 (Colesville Road), I-95, the Baltimore-Washington Parkway, US-50 (John Hanson Highway), and MD-5 (Branch Avenue). I-270 is the only freeway link between I-495 and the fast-growing northwest suburbs in northern Montgomery County and the suburban areas in Frederick County. In addition to heavy commuter traffic demand, I-495 provides connectivity along the East Coast, as it merges with I-95 in Maryland for 25 miles around the east side of Washington DC (**Figure 1-1**).

**Figure 1-1: Study Area Corridors**



## 1.3 Study Purpose and Need

The purpose of the Study is to develop a travel demand management solution(s) that addresses congestion and improves trip reliability on I-495 and I-270 within the Study limits and enhances existing and planned multimodal mobility and connectivity. The Study will address the following needs:

- **Accommodate Existing Traffic and Long-Term Traffic Growth** – 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 roadway capacity is needed to address existing and future travel demand and congestion, reduce travel times, 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 Travel Choices** – Travelers on I-495 and I-270 do not have enough roadway options for efficient travel during extensive periods of congestion. Additional roadway management options are needed to improve travel choices, while retaining the general-purpose lanes.

- **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.

Additional roadway 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 in the Study corridors, 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 any unavoidable impacts 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 environmental resources to the maximum extent practicable. Any build alternatives will offset unavoidable impacts while prioritizing and coordinating comprehensive mitigation measures in or near the study area, which are meaningful to the environment and the community.

## 1.4 Alternatives Evaluated

Seven alternatives are being evaluated and compared in the technical reports supporting the EIS. These Screened Alternatives include Alternatives 1, 5, 8, 9, 10, 13B, and 13C and are illustrated in the typical sections shown in **Figure 1-2**.

The following terms are used in the description of the alternatives.

- **General Purpose (GP) Lanes** are lanes on a freeway or expressway that are open to all motor vehicles.[1]
- **Managed Lanes** are highway facilities, or a set of lanes, where operational strategies are proactively implemented and managed in response to changing conditions.[2]
- **High-Occupancy Toll (HOT) Lanes** are High-Occupancy Vehicle (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.[1]
- **Express Toll Lanes (ETL)** are dedicated managed lanes within highway rights-of-way that motorists may use by paying a variably priced toll.[3]
- **High-Occupancy Vehicle (HOV) Lanes** are any preferential lane designated for exclusive use by vehicles with two or more occupants for all or part of a day, including a designated lane on a freeway, other highway or a street, or independent roadway on a separate right-of-way.[4]
- **Reversible Lanes** are facilities in which the direction of traffic flow can be changed at different times of the day to match peak direction of travel, typically inbound in the morning and outbound in the afternoon.[1]

### A. Alternative 1: No Build

The No Build Alternative, often called the base case, includes all projects in the 2040 financially Constrained Long-Range Plan (CLRP) for the National Capital Region adopted by the Metropolitan Washington Council of Governments (MWCOG) – Transportation Planning Board (TPB). This includes other projects impacting the facilities that are subject to this Study. Specifically, the CLRP reflects the Purple Line which is currently under construction (Spring 2019), and the extension of the I-495 Express Lanes in Virginia from north of the Dulles Toll Road interchange to the American Legion Bridge (Virginia's 495 Express Lanes Northern Extension [NEXT] Project). Alternative 1 also includes the I-270 Innovative Congestion Management (ICM) Contracts, which are providing a series of construction projects to improve

[1] *National Cooperative Highway Research Program, Research Report 835, Guidelines for Implementing Managed Lanes*. Transportation Research Board. 2016

[2] https://ops.fhwa.dot.gov/publications/managelanes_primer/index.htm

[3] https://www.fhwa.dot.gov/ipd/tolling_and_pricing/defined/demand_mgmt_tool.aspx

[4] https://ops.fhwa.dot.gov/freewaymgmt/hovguidance/glossary.htm

mobility and safety at key points along I-270 targeted to reduce congestion at key bottlenecks along the corridor. All improvements are being implemented within the existing roadway right-of-way and are anticipated to be completed in 2021. While these improvements will improve mobility and safety, they will not address the long-term roadway capacity needs for the I-270 corridor. Routine maintenance and safety improvements along I-495 and I-270 are included in the No Build Alternative, but it does not include new capacity improvements to I-495 and I-270. Consistent with NEPA requirements, Alternative 1 will be carried forward for further evaluation to serve as a base case for comparing the other alternatives.

### B. Alternative 5: 1-Lane, High-Occupancy Toll Managed Lanes Network

This alternative consists of adding one HOT managed lane in each direction on I-495 and converting the one existing HOV lane in each direction to a HOT managed lane on I-270. Buses would be permitted to use the managed lanes.

### C. Alternative 8: 2-Lane, Express Toll Lane Managed Lanes Network on I-495 and 1-Lane Express Toll Lane and 1-Lane HOV Managed Lane Network on I-270

This alternative consists of adding two ETL managed lanes in each direction on I-495, retaining one existing HOV lane in each direction on I-270, and adding one ETL managed lane in each direction on I-270. Buses would be permitted to use the managed lanes.

### D. Alternative 9: 2-Lane, High-Occupancy Toll Managed Lanes Network

This alternative consists of adding two HOT managed lanes in each direction on I-495, converting the one existing HOV lane in each direction on I-270 to a HOT managed lane, and adding one HOT managed lane in each direction on I-270, resulting in a two-lane, managed lane network on both highways. Buses would be permitted to use the managed lanes.

### E. Alternative 10: 2-Lane, Express Toll Lane Managed Lanes Network and 1-Lane HOV Managed Lane Network on I-270 Only

This alternative consists of adding two ETL managed lanes in each direction on I-495, retaining one existing HOV lane per direction on I-270, and adding two ETL managed lanes in each direction on I-270. Buses would be permitted to use the managed lanes.

### F. Alternative 13B: 2-Lane, High-Occupancy Toll Managed Lanes Network on I-495 and HOT Managed Reversible Lanes Network on I-270

This alternative consists of adding two HOT managed lanes in each direction on I-495 and converting the existing HOV lanes in both directions to two HOT managed, reversible lanes on I-270. Buses would be permitted to use the managed lanes.

### G. Alternative 13C: 2-Lane, ETL Managed Lanes Network on I-495 and ETL Managed, Reversible Lanes Network and 1-Lane HOV Managed Lane Network on I-270

This alternative consists of adding two ETL managed lanes in each direction on I-495 and retaining the existing HOV lanes in both directions and adding two ETL managed, reversible lanes on I-270. Alternative 13C would maintain the existing roadway network on I-270 with HOV lanes to allow for free HOV travel while adding two managed, reversible lanes. Buses would be permitted to use the managed lanes.

### H. Consideration of Alternative 9M

The analysis for the Screened Alternatives summarized above was completed in Spring of 2019 and reflects information available to MDOT SHA at that time. As the Study progressed through the NEPA process, the project team obtained comments as a result of cooperating agency coordination. As a result of this continued effort, MDOT SHA and FHWA have evaluated an additional alternative for the Study known as Alternative 9M. Alternative 9M is considered a blend of two Screened Alternatives, Alternative 5 (one-lane HOT) and Alternative 9 (two-lane HOT).

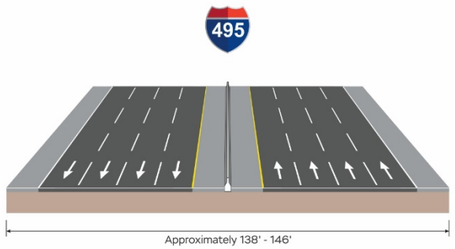
Alternative 9M has the same LOD as Alternative 9 along I-495 from south of the George Washington Memorial Parkway in Virginia to the I-270 West Spur and from the I-95 interchange to west of MD 5 as well as along I-270 from I-495 to I-370. Alternative 9M has the same LOD as Alternative 5 along I-495 from I-270 West Spur to the I-95 interchange. Alternative 9M includes the same build elements as the other Screened Alternatives including direct access locations and interchange improvements.

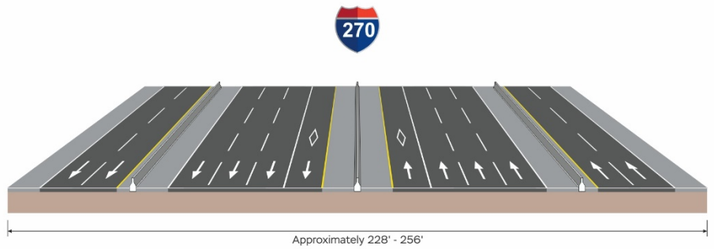
Because Alternative 9M is a blend of Alternatives 9 and 5, the environmental impacts associated with Alternative 9M are covered in this Technical Report. Specific impacts associated with Alternative 9M have been quantified and are shown in the DEIS for comparison with the other Build Alternatives. Any differences in the quantity or intensity of impacts between Alternative 9M and other alternatives are noted either in tables or text in the DEIS.

Figure 1-2: Typical Sections of Alternatives Considered

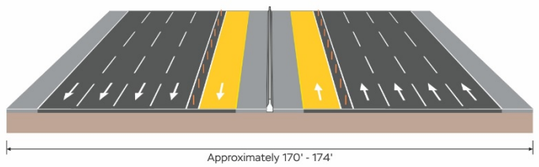
# SCREENED ALTERNATIVES

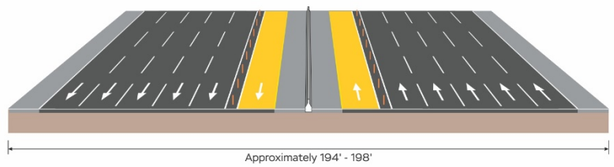
**1 No Build (Existing):**
All projects in Constrained Long-Range Plan (CLRP) (including I-270 Innovative Congestion Management (ICM) improvements)



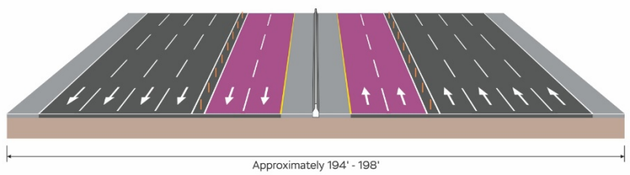



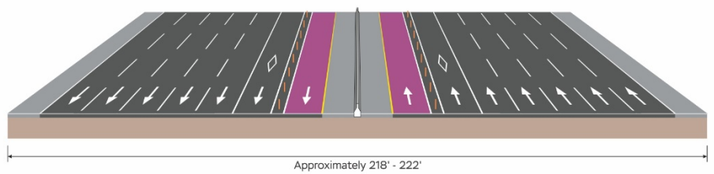

**5 1-Lane, HOT Managed Lane Network:**
Add one HOT managed lane in each direction **on I-495** and convert one existing HOV lane in each direction to a HOT managed lane **on I-270**



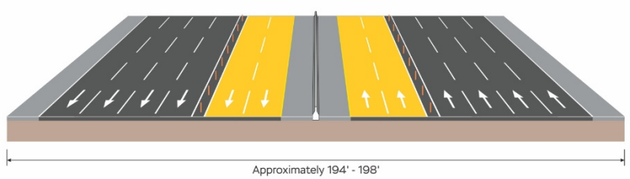



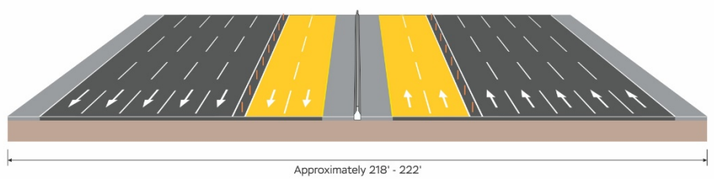

**8 2-Lane, ETL Managed Lanes Network on I-495, 1-Lane ETL and 1-Lane HOV Managed Lane network on I-270 only**
Add two ETL managed lanes in each direction **on I-495** and add one ETL managed lane and retain one HOV lane in each direction **on I-270**




**9 2-Lane, HOT Managed Lane Network:**
Add two HOT managed lanes in each direction **on I-495** and convert one existing HOV lane to a HOT managed lane and add one HOT managed lane in each direction **on I-270**




**Legend**
New HOT Managed Lanes
New ETL Managed Lanes
* **Note:** Managed Lanes Could Include Buses

NOT TO SCALE

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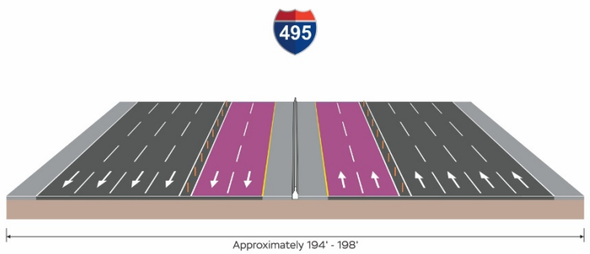
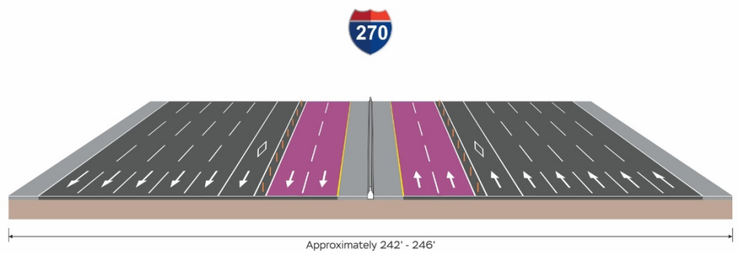
# SCREENED ALTERNATIVES

## 10
**2-Lane, ETL Managed Lane Network and 1-Lane HOV Managed Lane Network on I-270 only**

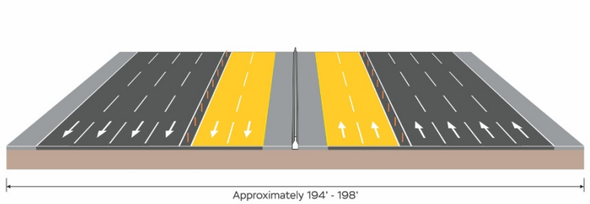
Add two ETL managed lanes in each direction **on I-495 and on I-270** and retain one existing HOV lane in each direction **on I-270 only**

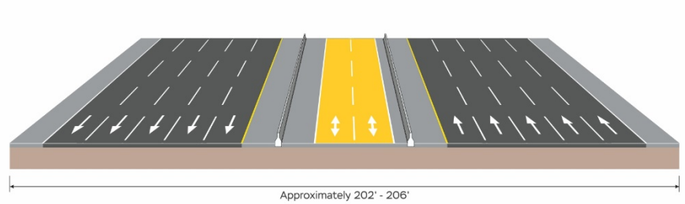



## 13B
**2-Lane, HOT Managed Lane Network on I-495; HOT Managed, Reversible Lane Network on I-270:**

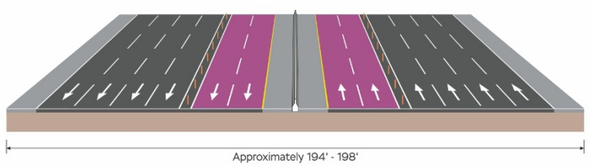
Add two HOT managed lanes in each direction on I-495 and convert existing HOV lanes to two HOT managed reversible lanes **on I-270** while maintaining GP lanes

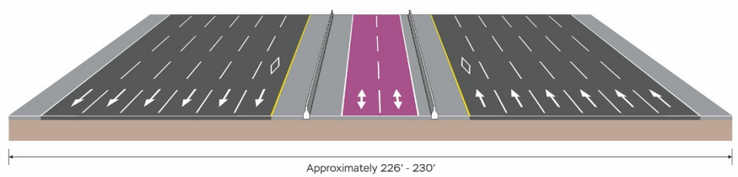



## 13C
**2-Lane, ETL Managed Lane Network on I-495; ETL Managed, Reversible Lane Network and 1-Lane HOV Managed Lane Network on I-270**

Add two ETL managed lanes in each direction on I-495, maintain existing HOV managed lanes on I-270 and add two reversible ETL managed lanes on I-270




**Legend**

New HOT Managed Lanes

New ETL Managed Lanes

* **Note:** Managed Lanes Could Include Buses

NOT TO SCALE

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# 2 OVERIVEW AND METHODOLOGY

This Hazardous Materials Technical Report (HMTR) was prepared in accordance with FHWA and MDOT SHA guidance. The HMTR presents an evaluation of the potential for hazardous materials or contaminant mobilization during the construction of transportation improvements within any of the proposed Screened Alternatives. The evaluation relies on data from multiple public sources including: a regulatory database review from Environmental Data Resources, Inc. (EDR), Maryland Department of the Environment (MDE) fact sheets, United States Environmental Protection Agency (USEPA) records, historical site documents and mapping, aerial photographs and a non-intrusive field reconnaissance of current site conditions.

In support of the initial planning process, the HMTR identifies the location of ***sites of concern*** where hazardous waste and contaminated listings are documented within one-quarter mile of the limit of disturbance (LOD) for each of Screened Alternatives. The one-quarter mile buffer area was selected to capture potential off-site contamination releases that could migrate within the proposed LOD as well as accommodate minor changes to the LOD as the design progresses over time. In addition, ***Potential Environmental Concerns*** **(PECs)**, such as observable fuel storage tanks, dry cleaning operations or chemical drum storage, are identified. For the purposes of this report, the one-quarter mile buffer area surrounding the LODs will be referred to as the ***hazardous materials investigation area*** (see corridor overview map in **Appendix B**).

Details regarding known or potential sites of concern are identified in the table provided in **Appendix A**, while the sites of concern are identified in mapping provided in **Appendix B**. Specific PEC locations identified during the site reconnaissance are included in **Appendix C**. At the time of this assessment, the anticipated depths of subsurface disturbance for areas with known or potential hazardous waste or contaminants is uncertain and additional design modifications may avoid many, if not all, of the identified sites of concern and PECs. If, following the selection of a preferred alternative, proposed construction could impact an identified or potentially hazardous waste or contaminated site, the Final EIS would address and resolve issues associated with the site(s), identified by the Study Team, raised by the public and responsible government agencies.

## 2.1 Methodology

The HMTR is focused on the Screened Alternatives of the I-495 & I-270 Managed Lanes Study. The LOD widths of the Screened Alternatives 1, 5, 8, 9, 10, 13B, and 13C vary by less than 150-feet (**Figure 1-2**). The distribution of subsurface or airborne contaminant plumes and hots spots may vary considerably from documented release reports or surface observations.

The possibility and uncertainty of airborne or subsurface contaminant migration from an off-site location was assessed by evaluating potential sites of concern within a one-quarter mile buffer of each of the screened alternative LODs (the hazardous materials investigation area, see corridor overview map in **Appendix B**). For continuity and comparison with previous NEPA investigations along the I-495 corridor, the assessment of sites of concern uses a methodology comparable with the 2005 Initial Site Assessment for the Capital Beltway Study (MDOT SHA, 2005).

Within the hazardous materials investigation area, the HMTR evaluated:

- Resource Conservation and Recovery Act (RCRA) sites;
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites;
- Brownfields/remediation parcels;
- Manufacturing/industrial sites;
- MDE Land Restoration Program (LRP) Voluntary Cleanup Program (VCP) sites;
- Virginia Department of Environmental Quality (VDEQ) Voluntary Remediation Program (VRP) sites;
- Gasoline stations/auto repair facilities;
- Aboveground/Underground Storage Tanks (ASTs/USTs);
- Transformers/polychlorinated biphenyl (PCB) releases;
- Dry cleaning operations; and
- Landfills/dumping areas.

During the field reconnaissance, visible PECs were identified, including:

- ASTs;
- Drums/chemical storage;
- Dumping Area;
- Fuel Dispensers;
- Hydraulic Equipment;
- MDE LRP cleanup sites;
- Oil/Water Separator;
- Soil Stockpiles;
- Transformers;
- USTs; and
- Monitoring/remediation wells.

### 2.1.1 Data Collection

The primary investigative and data collection methods included a review of physical setting data, an assessment of historical information and regulatory database records, and a series of non-intrusive site reconnaissance in December 2018 of identified sites of concern located within the hazardous materials investigation area. Specifically, the procedures for the collection and evaluation of data for this HMTR included:

- Environmental Setting – a review of physical setting data was performed to characterize topography, surface water, geology, groundwater, and soils in the hazardous materials investigation area (Section **3**). The evaluation used geologic documentation sourced from the United States Geological Survey (USGS) (USGS, 1975) and Maryland Geological Survey (MGS) (MGS, 1968), soil information from the United States Department of Agriculture (USDA) (USDA, 1995), watershed mapping and groundwater data from the US groundwater atlas (Trapp & Horn, 1997).
- Records Review – an evaluation of current and historical regulatory database information from EDR (**Appendix D**) and documentation from MDE, VDEQ and the USEPA (**Appendix E**) identified potential sites of concern within the hazardous materials investigation area (Section **4**).
- Site reconnaissance – verification of current site conditions and the identification of PECs in December 2018, such as the observable presence of USTs, ASTs, 55-gallon drums, dumping piles, transformers, fuel dispensers, liquid pooling or stressed vegetation was conducted during the site reconnaissance and photo documentation (Section **5** and **Appendix F**).

### 2.1.2 Ranking Criteria

Each site of concern within the hazardous materials investigation area was evaluated and given a ranking based on a combination of the data review, site reconnaissance findings and distance from the LOD for each Alternative. Because Alternatives 8 and 9 have the same LOD, these Alternatives were evaluated as a single Alternative. Seven criteria were used to rank the sites of concerns based on the general ranking methodology used in the Draft December 2005 Initial Site Assessment Capital Beltway Study to allow for consistency and comparison between the investigations. Each identified site was ranked in accordance with the following criteria:

1) High Priority (require additional investigation due to the potential for contaminant impacts based on historical records and/or current use of the site):

   - Industrial facilities;
   - Gasoline stations;
   - Auto repair facilities;
   - Paint manufacturing facilities;
   - ASTs with a large amount of staining;
   - USTs containing gasoline, jet fuel, kerosene fuel, waste oil or solvents;
   - Landfills;

- Remediation systems in place;
- Disposal pits and lagoons;
- Dry cleaners; or
- PCB transformers with major stains.

2) Listed Sites (indicate potential additional investigation warranted due to significant data gaps in available sources):

- Site has incomplete information regarding location; or
- Site has incomplete information regarding potential contaminant or hazardous material issues; or
- Site could not otherwise be classified due to insufficient data.

3) Moderate/High Priority (indicate the suspected presence of historical contaminants):

- High priority categories outside of the LODs but within the hazardous materials investigation area;
- USTs containing materials other than those listed under the High Priority category;
- Surface dump with empty drums or other materials of concern;
- Unidentifiable mounds;
- ASTs with several stain areas greater than five feet in diameter; or
- Suspect PCB containing transformers with minor stains.

4) Moderate Priority (indicate the suspected presence of controlled or historical contaminants):

- Small amounts of surface staining (multiple stains less than five feet in diameter each);
- Slightly discolored surface water;
- Suspect PCB containing transformers, no staining;
- Stressed vegetation;
- Unmarked transformers;
- Large surface dumps containing household wastes (greater than ten feet in diameter);
- ASTs with a few small stains or no staining, but questionable integrity; or
- Hazardous materials storage sites.

5) Low Priority (the site is outside of the LOD):

- All regulatory database identified facilities that are not located within the LOD for the Alternative and are not expected to result in impacts at this time.

6) Low Priority (the site is inside an Alternative's LOD):

- Small surface dumps containing household wastes less than ten feet in diameter;

- Closed MDE Oil Control Program (OCP) cases;
- Residential heating oil sites;
- ASTs (relatively new) with no staining or evidence of poor structural integrity;
- Septic systems; or
- Auto repair/vehicle maintenance facilities on non-adjacent properties that are not expected to result in impacts to the project site.

7) Not Included (the site is listed but not anticipated to impact construction within the LOD):

- Site has no history of contamination or spills;
- Site only listed as a conditionally exempt small quantity generator/small quantity generator (CESQG/SQG); or
- Site is down or cross gradient and greater than 1/4 mile from the LOD.

See **Section 6** for a summary of the assessment findings.

## 2.2 Significant Assumptions

The HMTR was prepared using information obtained from and/or provided by the following sources:

- EDR database searches (see **Appendix D**);
- Publicly available regulatory information (see **Appendix E**); and
- Observations made during the non-intrusive site reconnaissance within the hazardous materials investigation area (see **Appendix F**).

The information obtained through the listed methods is assumed valid and accurate as provided. Information obtained for the HMTR was received from sources that were considered reliable; although the authenticity or reliability of these sources cannot be warranted.

## 2.3 Limitations and Exceptions

Based upon the scope-of-services, the HMTR did not include subsurface or other invasive assessments, business environmental risk evaluations or other services not identified in the contract scope. The assessment did not include a detailed review of regulatory agency documentation beyond the database listings and regulatory fact sheets.

Field observations were based upon conditions readily visible along the hazardous materials investigation area at the time of the inspection and did not include intrusive site investigation services. Significant changes to the LODs, the manifestation of latent conditions or changes to existing codes and regulations may alter the conclusions and recommendations of this report.

While the site reconnaissance recorded current site conditions for sites identified with potential contaminant or hazardous material risks, incidental impacts from unrecorded spills and leaks along the hazardous materials investigation area may not have been identified due to limited site access or field conditions present at the time of the site visit.

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# 3 ENVIRONMENTAL SETTING

## 3.1 Hazardous Materials Investigation Area

Due to the potential for subsurface, surface spill or windborne contaminant migration from a point of origin outside of the LODs, the hazardous materials investigation area includes a one-quarter mile buffer surrounding each of the alternatives, identified as the hazardous materials investigation area. In order to manage the evaluation of data and the site reconnaissance, the hazardous materials investigation area was sub-divided into four investigation units:

- I-495 West – from the George Washington Parkway interchange in Fairfax County, Virginia to the interchange of I-270, I-495 and Rockville Pike;
- I-495 Center – from the interchange of I-270, I-495 and Rockville Pike to the interchange of I-495 and the Baltimore-Washington Parkway;
- I-495 East – from the interchange of I-495 and the Baltimore-Washington Parkway to Barry Drive in Temple Hills, Maryland; and
- I-270 – from the east and west interchanges of I-270 with I-495 to the interchange of I-270 and I-370.

## 3.2 Topography

Topographic contours obtained from Montgomery and Prince George's Counties in Maryland and Fairfax County in Virginia show an elevation range above Mean Sea Level (MSL) from 30 to 520 feet. The lowest elevations occur as I-495 approaches the Woodrow Wilson Bridge over the Potomac River on the eastern side of the hazardous materials investigation area. The areas of highest elevation occur near the terminus of the hazardous materials investigation area at the convergence of I-270 and I-370 along Shady Grove Road.

## 3.3 Surface Water

The hazardous materials investigation area is located within the Potomac River drainage basin, with the eastern-most portion of the hazardous materials investigation area, between approximately US-50 and MD-4, falling within the Patuxent River drainage basin. Within the Potomac River drainage basin, the hazardous materials investigation area is in the State-designated Metropolitan Washington watershed, encompassing the Potomac River-Montgomery County, Cabin John Creek, Rock Creek, Anacostia River,

Potomac River Upper Tidal, and Oxon Creek sub-basins. Within the State-designated Patuxent River watershed, the hazardous materials investigation area falls within the Western Branch sub-basin.

Streams crossing the hazardous materials investigation area include the Potomac River/Rock Run, Cabin John Creek, Rock Creek, Sligo Creek, Northwest Branch, Paint Branch, Little Paint Branch, Northeast Branch, Bald Hill Branch, Upper Beaverdam Creek, Upper Southwest Branch, Lower Southwest Branch, Upper Henson Creek, Watts Branch, and Muddy Branch.

## 3.4 Geology and Groundwater

The hazardous materials investigation area is located along the US East Coast Fall Line between the Piedmont Uplands physiographic province of crystalline basement rock to the northwest and the Atlantic Coastal Plain province of unconsolidated sedimentary deposits of sand, gravel, silt, and clay to the southeast. The Fall Line roughly parallels the northeast-southwest sections of I-95 outside the Beltway, running through the center of Washington DC. To the west of this geomorphologic boundary, most areas are underlain with hard, metamorphic bedrock, remnants of several mountain-building events; to the east, most areas are underlain with sandy, relatively flat outwash plains, forming the upper continental shelf of unconsolidated Cretaceous and Tertiary sediments. The portion of the hazardous materials investigation area is in Seismic Zone I, indicating a zone of low seismic activity (Trapp & Horn, 1997).

### 3.4.1 Montgomery County

The *Soil Survey of Montgomery County, Maryland* (USDA, 1995) indicates that this section of I-270 is underlain by the Piedmont Physiographic Province. The Piedmont is comprised of crystalline rocks of pre-Cambrian age.

The Bedrock Map of Montgomery County, Maryland (USGS, 1975) indicates that most of Montgomery County is underlain by belts of metamorphic bedrock formed from metamorphic processes in the Paleozoic age. These belts strike north-northeast and tend to dip to the southeast or northwest. The assemblage of rock types is heterogeneous and ranges from coarse-grained gneiss to fine grained schistose phyllite. Most of the rocks and geologic formations located in this section were formed through high heat and pressure, which have intensely folded and faulted. I-270 from Shady Grove and moving through Gaithersburg contains the Sykesville Formation, Morgan Run Formation, and Conowingo Diamictite. Each of these formations are layered on top of one another, with the Conowingo Diamictite being the youngest in the series. All formations consist of a mixture of sediments, schists, and ultramafic rocks.

The Geologic Map of Maryland (MGS, 1968) indicates that the Montgomery County portion of the hazardous materials investigation area is underlain by various materials from the Cretaceous, Early Paleozoic and Late Precambrian periods. The five primary formations identified include:

- Potomac Group which consists of interbedded quartzose gravels, and may include various silts, clays, and sands;
- Boulder Gneiss which consists of thick-bedded metamorphic bedrock that includes pebbles and boulder-sized materials;
- Lower Pelitic Schist which consists of fine to coarse-grained schists containing various minerals such as garnet, staurolite, kyanite, and quartz;

- Upper Pelitic Schist which consists of sporadic thin beds of micaceous quartzite and areas of albite-chlorite-muscovite-quartz schist; and
- Georgetown Mafic Complex which consists of a complex of tonalite, dark quartz diorite, gabbro, amphibolite, and undifferentiated basic rocks.

The Groundwater Atlas of the United States: Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, West Virginia HA 730-L (Trapp & Horn, 1997) indicates that the Montgomery County portion of the hazardous materials investigation area is underlain by Crystalline-Rock aquifers where the regolith and fractures in the bedrock provide for the storage and transmission of groundwater. Groundwater is assumed to generally follow the topographic gradient from upland recharge areas to the nearest spring or stream.

### 3.4.2 Prince George's County

The *Soil Survey of Prince George's County, Maryland* (USDA, 1967) indicates that the portion of I-495 within Prince George's County along the Montgomery County line is also within the Piedmont Physiographic Province. Further east, Prince George's County is underlain by the Atlantic Coastal Plain Province. The Atlantic Coastal Plain is comprised of a combination of unconsolidated gravel, sand, silt, and clay of non-marine, fluvial origin. The underlying bedrock dips to the southeast at an approximate two percent slope. Saprolite, usually a residual clay-rich material derived by the chemical weathering of the crystalline bedrock and retaining the structure and fabric of the bedrock, is typically several-feet thick below the Coastal Plain sediments. Elevations in the Prince George's County portion of the hazardous materials investigation area range from 60-feet to 326 feet above the MSL.

The Geologic Map of Maryland (MGS, 1968) indicates that the Prince George's County portion of hazardous materials investigation area is underlain by various materials from the Miocene, Pliocene, Paleocene, and Cretaceous periods. The five primary formations identified include:

- Potomac Group which consists of interbedded quartzose gravels, and may include various silts, clays, and sands;
- Monmouth Formation which consists of course-grained sand with mica and glauconite;
- Calvert Formation which consists primarily of sand and sandy clay with shell beds and some sandstone;
- Upland Deposits which include gravel and sand, with some clay; and
- Aquia Formation which includes fine- to medium-grained sand with some shell beds.

The Groundwater Atlas of the United States: Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, West Virginia HA 730-L (Trapp & Horn, 1997) indicates that the Prince George's County portion of the hazardous materials investigation area is underlain by the Potomac Aquifer of the Northern Atlantic Coastal Plain aquifer system. Regional groundwater movement in the aquifer is generally to the east, except where water is diverted by pumping stations. As in Montgomery County, groundwater is assumed to generally follow the topographic gradient from upland recharge areas to the nearest spring or stream.

## 3.5 Soils

The *Soil Survey of Montgomery County, Maryland* (USDA, 1995) indicates that the western portion of I-495 and all of I-270 are underlain by two general soil associations:

- Glenelg-Gaila-Occoquan Association is composed of deep, nearly level to strongly sloping, well drained loamy soils on broad-ridges and side slopes of uplands; and
- Urban Land-Wheaton-Glenelg Association is composed of urban land with very deep, nearly level to strongly sloping, well drained loamy soils on broad ridges and side slopes of uplands.

The *Soil Survey of Prince George's County, Maryland* (USDA, 1967) indicates that the portion of I-495 in Prince George's County is underlain by six general soil associations:

- Beltsville-Leonardtown-Chillum Association is composed of moderately deep, poorly drained to well drained, gently sloping soils with a dense subsoil;
- Collington-Adelphia-Monmouth Association is composed of deep, nearly level to strongly sloping well drained upland soils that developed in glauconitic sediments;
- Bibb-Tidal Marsh Association is composed of poorly drained soils within floodplains and marshes subject to tidal flooding;
- Sassafras-Keyport-Elkton Association is composed of nearly level to strongly sloping, poorly drained to well drained soils along river terraces;
- Sassafras-Croom Association is composed of gently sloping to steep, well drained gravelly soils with a compact subsoil; and
- Westphalia-Evesboro-Sassafras Association is composed of deep, well-drained to excessively drained moderately sloping to steep upland soils.

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# 4 RECORDS REVIEW

The HMTR identified historical and existing conditions on or within the hazardous materials investigation area that are considered to be sites of concern. A site of concern represents the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to any release to the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment via the ground, groundwater or surface water migration.

The term 'site of concern', as used in this evaluation, includes hazardous substances or petroleum products, even under conditions in compliance with applicable laws. A site of concern does not include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and are not generally the subject of an enforcement action if brought to the attention of appropriate governmental agencies (ASTM, 2013).

Federal and state environmental databases and records were reviewed in an effort to evaluate documented environmental records with the potential for mobilization within the defined hazardous materials investigation area (**Table 4-1**). Regulatory database records were received from EDR on May 11 and 15, 2018 (see **Appendix D**).

**Table 4-1: Federal and State Database Summary**

| Database | Number of Database Listings | | | | |
|---|---|---|---|---|---|
| | I-495 West | I-495 Center | I-495 East | I-270 | Total |
| 2020 Corrective Action List | 0 | 0 | 0 | 0 | **0** |
| Abandoned Mines | 0 | 0 | 0 | 0 | **0** |
| Department of Energy Coal Ash | 0 | 0 | 0 | 0 | **0** |
| Superfund Consent Decrees | 0 | 0 | 0 | 0 | **0** |
| Corrective Action Report | 0 | 1 | 1 | 0 | **2** |
| Torres Martinez Reservation Illegal Dump Site Locations | 0 | 0 | 0 | 0 | **0** |
| Delisted NPL | 0 | 0 | 0 | 0 | **0** |

| Database | Number of Database Listings | | | | |
|---|---|---|---|---|---|
| | I-495 West | I-495 Center | I-495 East | I-270 | Total |
| Hazardous Waste Compliance Docket Listing | 0 | 0 | 0 | 0 | **0** |
| Department of Defense | 0 | 0 | 1 | 0 | **1** |
| DOT Office of Pipeline Safety | 0 | 0 | 0 | 0 | **0** |
| ECHO | 1 | 18 | 45 | 41 | **105** |
| EDR Historical Auto | 3 | 17 | 17 | 8 | **45** |
| EDR Historical Cleaners | 6 | 14 | 7 | 15 | **42** |
| EDR Manufacture Gas Plant | 0 | 0 | 0 | 0 | **0** |
| EPA Watch List | 0 | 0 | 0 | 0 | **0** |
| Emergency Response Notification System | 0 | 1 | 0 | 0 | **1** |
| Federal Facility Listing | 0 | 0 | 0 | 0 | **0** |
| FEMA UST | 0 | 0 | 0 | 0 | **0** |
| Facility Index System | 1 | 18 | 47 | 42 | **108** |
| FTTS | 0 | 0 | 1 | 0 | **1** |
| Formerly Used Defense Sites | 0 | 0 | 0 | 0 | **0** |
| Fuels Program | 0 | 0 | 0 | 0 | **0** |
| Formerly Utilized Sites Remedial Action Program | 0 | 0 | 0 | 0 | **0** |
| Historical FTTS | 0 | 0 | 0 | 0 | **0** |
| Hazardous Materials Information Resource System | 0 | 0 | 0 | 0 | **0** |
| ICIS | 0 | 3 | 4 | 4 | **11** |
| Indian Health Service Open Dumps | 0 | 0 | 0 | 0 | **0** |
| Indian LUST | 0 | 0 | 0 | 0 | **0** |
| Indian Open Dumps Inventory | 0 | 0 | 0 | 0 | **0** |
| Indian Reservations | 0 | 0 | 0 | 0 | **0** |
| Indian UST | 0 | 0 | 0 | 0 | **0** |
| Indian VCP | 0 | 0 | 0 | 0 | **0** |
| Lead Smelters | 0 | 0 | 0 | 0 | **0** |
| CERCLA Lien Information | 0 | 0 | 0 | 0 | **0** |
| Land Use Control Information System | 0 | 0 | 0 | 0 | **0** |
| MD AIRS | 0 | 0 | 1 | 0 | **1** |
| MD Asbestos | 0 | 0 | 0 | 0 | **0** |
| MD AST | 0 | 0 | 1 | 0 | **1** |

| Database | Number of Database Listings | | | | |
|---|---|---|---|---|---|
| | I-495 West | I-495 Center | I-495 East | I-270 | Total |
| MD Brownfields | 0 | 2 | 0 | 0 | **2** |
| MD Coal Ash | 0 | 0 | 0 | 0 | **0** |
| MD Drycleaners | 0 | 4 | 5 | 1 | **10** |
| MD Engineering Controls | 0 | 0 | 1 | 0 | **1** |
| MD Historical LUST | 0 | 7 | 4 | 3 | **14** |
| MD Historical UST | 8 | 37 | 52 | 63 | **160** |
| MD Institutional Control | 0 | 2 | 2 | 4 | **8** |
| MD Lead | 1 | 2 | 1 | 3 | **7** |
| MD LRP | 1 | 3 | 4 | 6 | **14** |
| MD NPDES | 2 | 3 | 7 | 4 | **16** |
| MD OCPCASES | 29 | 63 | 137 | 110 | **339** |
| MD RGA HWS | 0 | 0 | 0 | 0 | **0** |
| MD RGA Landfill | 0 | 0 | 0 | 0 | **0** |
| MD RGA LUST | 0 | 0 | 0 | 0 | **0** |
| MD SHWS | 0 | 2 | 1 | 1 | **4** |
| MD Solid Waste/Landfill | 0 | 0 | 0 | 0 | **0** |
| MD Sold Waste Recycling | 0 | 0 | 0 | 0 | **0** |
| MD Underground Injection Well | 0 | 0 | 0 | 0 | **0** |
| MD UST | 9 | 42 | 61 | 76 | **188** |
| MD VCP | 0 | 2 | 2 | 4 | **8** |
| Material Licensing Tracking System | 0 | 0 | 0 | 0 | **0** |
| NJ Manifest | 0 | 1 | 3 | 6 | **10** |
| NPL | 0 | 1 | 1 | 0 | **2** |
| NPL Liens | 0 | 0 | 0 | 0 | **0** |
| NY Manifest | 0 | 3 | 2 | 5 | **10** |
| Open Dump Inventory | 0 | 0 | 0 | 0 | **0** |
| PA Manifest | 0 | 0 | 1 | 2 | **3** |
| PCB Activity Database System | 0 | 0 | 0 | 0 | **0** |
| PCB Transformer | 0 | 0 | 0 | 0 | **0** |
| Proposed NPL | 0 | 0 | 0 | 0 | **0** |
| Potentially Responsible Party | 0 | 0 | 0 | 0 | **0** |
| RAATS | 0 | 1 | 0 | 0 | **1** |
| Radiation Information Database | 0 | 0 | 0 | 0 | **0** |
| RCRA-CESQG | 1 | 13 | 23 | 28 | **65** |

| Database | Number of Database Listings | | | | |
|---|---|---|---|---|---|
| | I-495 West | I-495 Center | I-495 East | I-270 | Total |
| RCRA-LQG | 0 | 5 | 5 | 1 | **11** |
| RCRA-Non-Generator | 0 | 4 | 21 | 11 | **36** |
| RCRA-SQG | 0 | 6 | 31 | 30 | **67** |
| RCRA-TSDF | 0 | 0 | 0 | 0 | **0** |
| RI Manifest | 0 | 1 | 0 | 0 | **1** |
| Risk Management Plans | 0 | 0 | 0 | 0 | **0** |
| Record of Decision EPA Determination | 0 | 1 | 1 | 0 | **2** |
| State Coalition for Remediation of Drycleaners | 0 | 0 | 0 | 0 | **0** |
| SEMS | 0 | 1 | 1 | 0 | **2** |
| SEMS-Archive | 0 | 0 | 0 | 1 | **1** |
| Section 7 Tracking Systems | 0 | 0 | 0 | 0 | **0** |
| Toxic Chemical Release Inventory System | 0 | 0 | 0 | 0 | **0** |
| TSCA | 0 | 0 | 0 | 0 | **0** |
| Uranium Mill Tailings Sites | 0 | 0 | 0 | 0 | **0** |
| US AIRS | 1 | 8 | 14 | 10 | **33** |
| US Brownfields | 0 | 1 | 0 | 0 | **1** |
| US Clandestine Laboratory Register | 0 | 0 | 0 | 0 | **0** |
| US Engineering Controls | 0 | 1 | 1 | 0 | **2** |
| US Financial Assurance | 0 | 0 | 0 | 0 | **0** |
| US Historical CDL | 0 | 0 | 0 | 0 | **0** |
| US Institutional Controls | 0 | 1 | 1 | 0 | **2** |
| US Mines | 0 | 0 | 0 | 0 | **0** |
| Unexploded Ordnance Sites | 0 | 0 | 0 | 0 | **0** |
| VA UST | 2 | 0 | 0 | 0 | **2** |

*Note: Sites may be listed in more than one database.*

The environmental investigation reviewed 883 EDR regulatory database listings (see **Appendix D**), 40 Maryland LRP site summaries and 1 USEPA National Priorities List (NPL) site review (see **Appendix E**). Following a field reconnaissance of the entire hazardous materials investigation area (see **Appendices E** and **F**), the assessment reduced the number of hazardous material or contaminant locations to 501 sites of concern within hazardous materials investigation area.

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# 5 SITE RECONNAISSANCE

All reconnaissance was performed from public rights-of-way to assess the physical characteristics of within the hazardous materials investigation area. Field mobilizations occurred between July 25, 26, and 27 and August 1 and 2, 2018. The weather was highly variable, including afternoon storms that limited some field observations. Reconnaissance at some properties was limited by perimeter fences, gates, vegetation, and other security measures.

Photographs of each identified site were taken from publicly accessible areas, except where noted in **Appendix A**. During the site reconnaissance, a number of inaccurate database records were corrected and the field observations factored into the final ranking for each evaluated site of concern. Observable evidence of contamination and PECs were geolocated using an iPad with external GPS antenna and mapped in **Appendix C**, while photo-documentation of the field reconnaissance is included as **Appendix F**.

## 5.1 Findings

Of the 501 identified sites of concern, site reconnaissance visited 209 sites within the hazardous materials investigation area. Site reconnaissance also performed at previously unidentified locations where environmental concerns were visible from public rights-of-way. The site reconnaissance focused on sites that were observable from public rights-of-way and had a higher risk of contaminant or hazard mobilization during construction efforts within the LOD.

Following the site reconnaissance and additional desktop evaluation of the 501 identified sites of concern, 86 locations were categorized as 'Not Included' due to inaccurate historical documentation, field observations or *de minimus* conditions within the hazardous materials investigation area.

From the 209 sites visited in the field, 317 PECs were geolocated and mapped in **Appendix E**. PECs were potential environmental features identifiable from public rights-of-way that could be geolocated while in the field. For a number of sites, PECs were not visible from the public rights-of-way or the condition could not be photographed, such as a subsurface spill or release. Site conditions observed and photo-documented in **Appendix F** include:

- Evidence of active or former dump sites which included, but are not limited to, the surface dumping of suspicious drums, containers, construction debris, rubble, household garbage, and miscellaneous refuse;

- Potential sources of hazardous materials contamination (e.g., 55-gallon drums, evidence of USTs, ASTs, and any other suspect chemical containers);
- Unusual excavated or filled areas, major depressions, escarpments, or unusual grades that might indicate dumping or excavation for the burial of hazardous wastes;
- Areas exhibiting discolored soils and/or vegetative stress, discolored surface water, or noticeable odors; and
- Other indications of contaminant release or hazardous condition.

**Table 5-1** summarizes the field reconnaissance findings:

**Table 5-1: Identified PEC Summary**

| Symbol | Definition | # of Sites |
|---|---|---|
| | MDE LRP Site | 2 |
| | Above Ground Storage Tank | 84 |
| | Drums/Chemical Storage | 40 |
| | Dumping Area | 23 |
| | Dumpster | 2 |
| | Fuel Dispenser | 47 |
| | Hydraulic Equipment | 6 |
| | Oil/Water Separator | 1 |
| | Soil Staining/Stressed Vegetation | 5 |
| | Soil Stockpile/Cut & Fill Area | 10 |
| | Stormwater Swale/Ditch | 13 |
| | Transformers | 2 |
| | Underground Storage Tank | 62 |
| | Well | 20 |
| | **Total Sites** | **317** |

The Sites of Concern Priority Ranking Table provided in **Appendix A** includes a summary of the field observation summaries and resulting priority ranking for each site of concern.

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# 6 CONCLUSIONS AND RECOMMENDATIONS

The HMTR categorized 501 identified sites of concern, eliminating 86 of these as 'Not Included' due to inaccurate documentation, field observations or *de minimus* conditions within the hazardous materials investigation area (**Table 6-1** and **Table 6-2**). The locations of each site of concern listed in the table in **Appendix A** are included in the mapping provided in **Appendix B**. Each site of concern was given a unique number 1 through 501, moving west to east along the I-495 corridor and then south to north along the I-270 corridor. The final site rankings were based on a weight of evidence approach using the regulatory database information, historical documentation and site reconnaissance feedback for each Alternative evaluated (see Section **2.1.2**). Based on changes in the width of the LOD, the results for Alternative 5 are listed in **Table 6-1**, while the evaluation of Alternatives 8 & 9, 10, 13B and 13C, resulted in identical sites of concern rankings summarized in **Table 6-2**.

**Table 6-1: Sites of Potential Concern Priority Summary, Alternative 5**

| Priority Ranking | Definition | # of Sites |
|---|---|---|
| 1 | High Priority | 65 |
| 2 | Listed Site/Unknowns | 22 |
| 3 | Moderate/High Priority | 83 |
| 4 | Moderate Priority | 34 |
| 5 | Low Priority (Outside LOD) | 147 |
| 6 | Low Priority (Inside LOD) | 64 |
| 7 | Not Included | 86 |
| | **Total Sites** | 501 |

**Table 6-2: Sites of Potential Concern Priority Summary, Alternatives 8, 9, 10, 13B and 13C**

| Priority Ranking | Definition | # of Sites |
|---|---|---|
| 1 | High Priority | 65 |
| 2 | Listed Site/Unknowns | 22 |
| 3 | Moderate/High Priority | 83 |
| 4 | Moderate Priority | 34 |
| 5 | Low Priority (Outside LOD) | 145 |
| 6 | Low Priority (Inside LOD) | 66 |
| 7 | Not Included | 86 |
| | **Total Sites** | 501 |

Of the 501 sites retained for ranking, 66 sites were classified with a high priority for all Alternatives due to the potential for contaminant mobilization within or adjacent to the LODs. These properties include: gasoline stations, businesses operating at former gasoline stations, auto repair facilities, dry cleaning facilities, former dry-cleaning facilities, government facilities, landfills, and the Joint Base Andrews (JBA) Air Force base NPL site. Identified high priority sites of concern may require additional investigation activities to determine the extent and location of existing impacts and whether or not the identified contaminants would impact construction activities. These sites have a high potential for contaminant mobilization from leaking underground storage tank (LUST) facilities, or other facilities with PECs relating to petroleum contamination. Several of the LUST facilities, as well as other properties not listed as LUST facilities, have evidence of environmental monitoring and/or remediation activity likely related to past petroleum releases.

An additional 22 sites were classified as Listed Site/Unknowns for all Alternatives, meaning the sites have insufficient information to evaluate the potential impact to the LODs due to a lack of sufficient regulatory records or site access to define the location and extent of potential contaminant issues associated with these sites. A review of detailed site documentation may be sufficient to characterize contaminant distributions and their potential for mobilization during construction activities and re-rank these properties into another category.

The 83 sites identified as moderate/high priority and 34 sites identified as moderate priority have hazardous materials or contaminant documentation related to their current or historical use for all Alternatives, outside of the LODs. These activities include: USTs containing materials other than gasoline, jet fuel, kerosene fuel, waste oil or solvents, surface dumps with empty drums, unidentifiable mounds, ASTs with surface stains, suspected PCB containing transformers, stressed vegetation, and hazardous materials storage sites. These sites may or may not require additional evaluation and characterization based on the needs of the design and construction in the area.

The 147 low priority sites outside the LOD and 64 sites within the LOD for Alternative 5 are also the 145 low priority sites outside the LODs and 66 sites within the LODs for Alternatives 8, 9, 10, 13B and 13C. They represent a low likelihood of additional mobilization or impact to the project construction. The

distinction in the two pairs of numbers is due to the widening of the LODs for Alternatives 8, 9, 10, 13B and 13C in relation to Alternative 5. This resulted in two sites that are outside the LOD for Alternative 5 to be inside the LODs for the other Alternatives (site number 138, a multi-unit office building at 6303 Ivy Lane in Greenbelt; and site number 163, Hanover Apartments at 7232 Hanover Parkway in Lanham). All sites are mapped and listed to document their location relative to the project corridor in the event significant changes to the proposed design require a reevaluation of the potential sites of concern. In addition, if hazardous materials or contamination is mobilized during construction, identification of these potential sites of concern may help to identify the contaminant source.

The **Table 6-3** provides a general summary of the type of sites identified in the overall assessment:

**Table 6-3: Sites of Concern Type Summary**

| Type of Site | # of Sites |
|---|---|
| AST/UST | 169 |
| Dry Cleaner | 21 |
| Gas Station | 50 |
| Heating Oil | 58 |
| Landfill/Dumping | 28 |
| MDE/USEPA | 37 |
| Not Included | 70 |
| Other | 13 |
| Repair | 37 |
| Spill | 3 |
| Transformers | 4 |
| Waste | 11 |
| **Total** | **501** |

Based on the findings of the HMTR, it is recommended that Preliminary Site Investigations (PSIs) be conducted prior to construction of the proposed improvements within the hazardous materials investigation area. The PSIs would be conducted by MDOT SHA based on the proposed construction schedule and the progress of the design. Following additional evaluation, sites identified with contamination that may be mobilized as a result of construction activities should be sampled so potential contamination mitigation.

Because the study corridors have been used for vehicular traffic since its construction in the 1950s, it's reasonable to assume that the highway has been the scene of several vehicle accidents, break-downs, and other automotive issues – due to both its daily use and its required maintenance activities. These would have resulted in numerous releases of fuel and other petroleum oils – including leaded gasoline before its gradual phase-out in the late 1970s. Since the locations of these releases and their subsequent subsurface transport are poorly documented, this hazardous material concern would need to be considered a non-point source pollution concern affecting the entire corridor. Pollutants of concern would be diesel-range and gasoline-range petroleum products, and hazardous metals. This concern would be most pronounced within the urbanized areas and other sections of high vehicle use along the corridor. Since this

contaminant risk cannot be quantified or used in addressing areas of greater or lesser priority, this concern was not evaluated as part of this assessment. However, it is recommended that this non-point source pollution concern should be addressed in any PSI conducted within the investigation area, with the possibility that contingency plans for contaminated soils would need to be initiated.

Site owners of many of the identified properties may have undertaken additional site characterization studies and/or remediation pursuant to various state and federal regulatory programs, including UST, RCRA, CERCLA and VCP requirements. Prior to designing the PSI, coordination should be made with MDE, VDEQ and USEPA to obtain additional information on the identified properties in order to further assess potential impacts anticipated during project construction and develop the scope for additional investigation.

Following the evaluation of additional information, subsurface sampling should be conducted for those properties deemed to require additional soil and/or groundwater analysis beyond the information documented in detailed regulatory records. Based on the limitations of the HMTR, the PSI should implement a tiered approach to any additional investigation based on the risk of contaminant mobilization, distance from the alignment and likelihood of impact due to environmental factors such as depth to groundwater and construction requirements.

For petroleum or solvent release locations, a minimum of three sampling locations are recommended. Sampling locations should be determined based on directional and topographic relationship of the suspected contaminant source(s) to the LODs. In general, one boring should be advanced up-gradient of the suspected contamination source(s) for each property. Additional borings should be advanced adjacent to and downgradient of the suspected source of contamination.

For each surface dumping site, soil sampling should be conducted in close proximity to drums or other suspected sources of contamination. Groundwater sampling may be required for those sites where soil contamination is identified.

Soil and groundwater analysis should be based on historical contaminants of concern at each investigation site and the proposed analytical parameters could include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH DRO/GRO), PCBs and metals. Additionally, solid waste in surface dump sites should be further assessed and tested for asbestos content and hazardous waste characteristics, as necessary for proper handling and disposal.

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