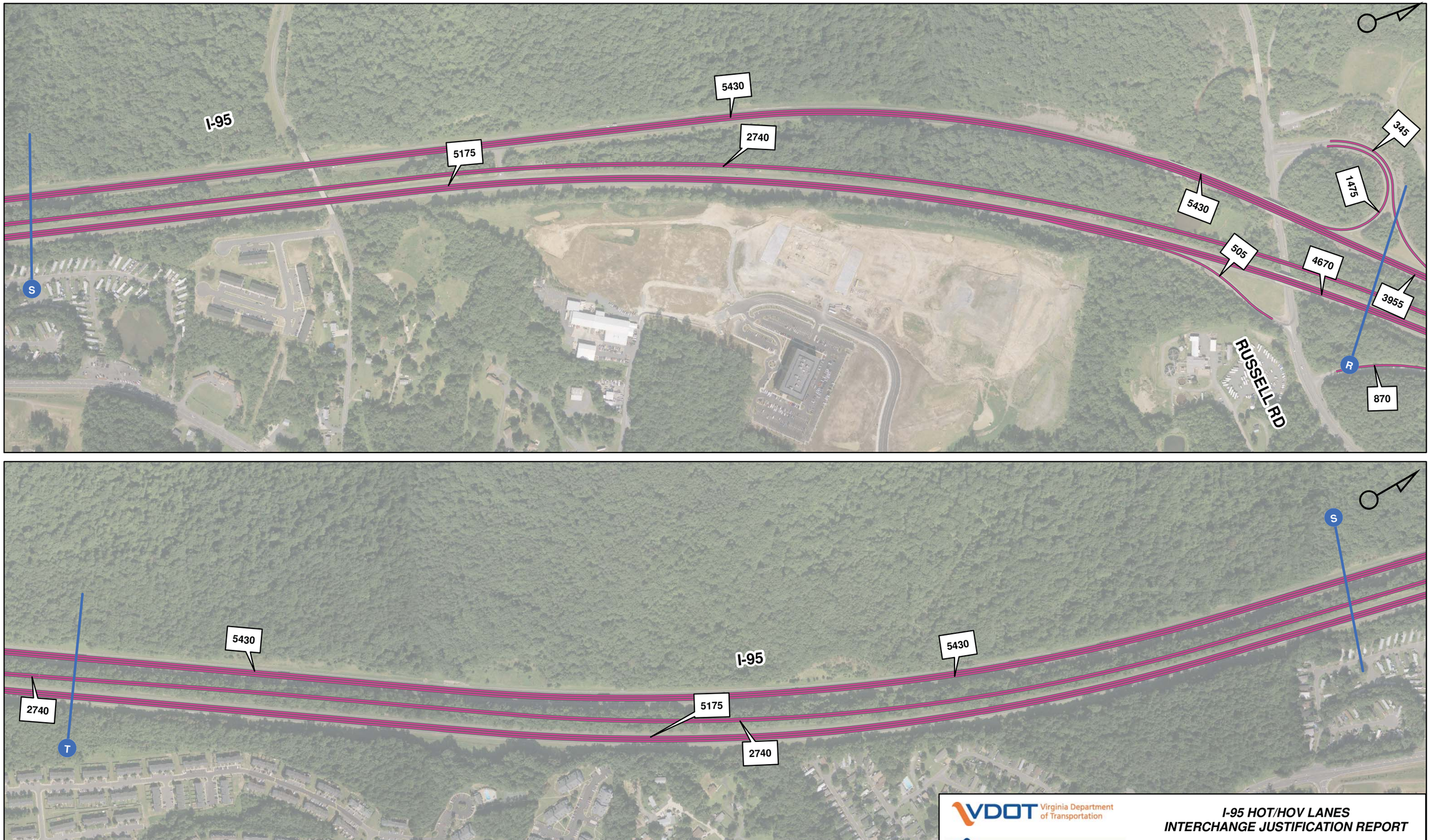


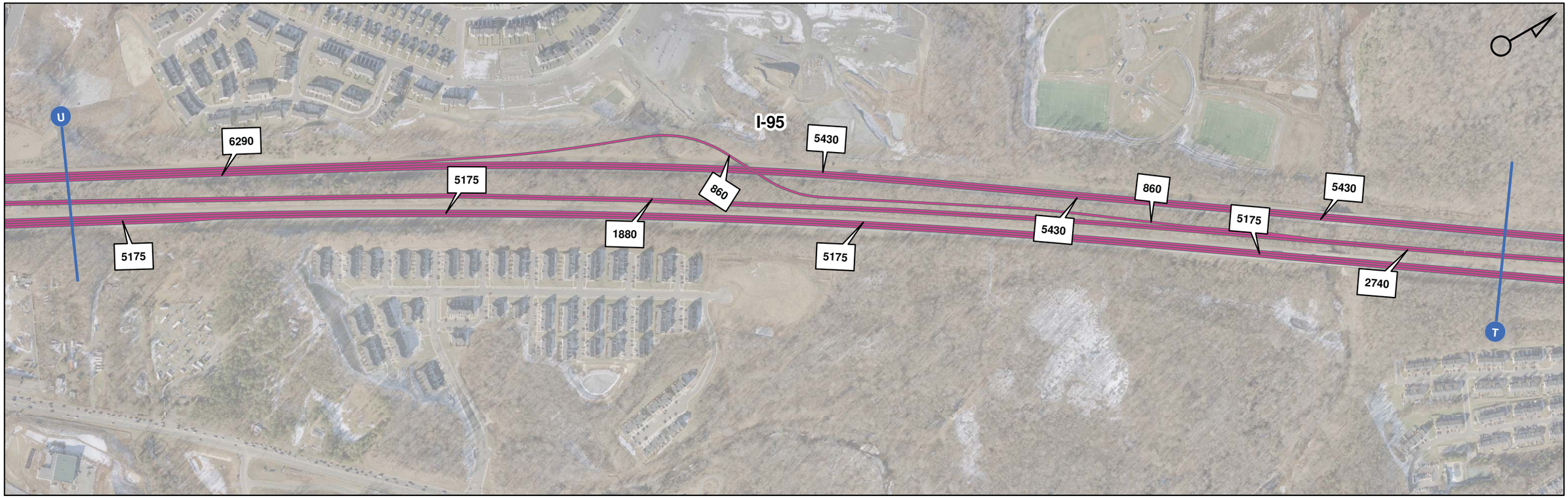
VDOT Virginia Department of Transportation

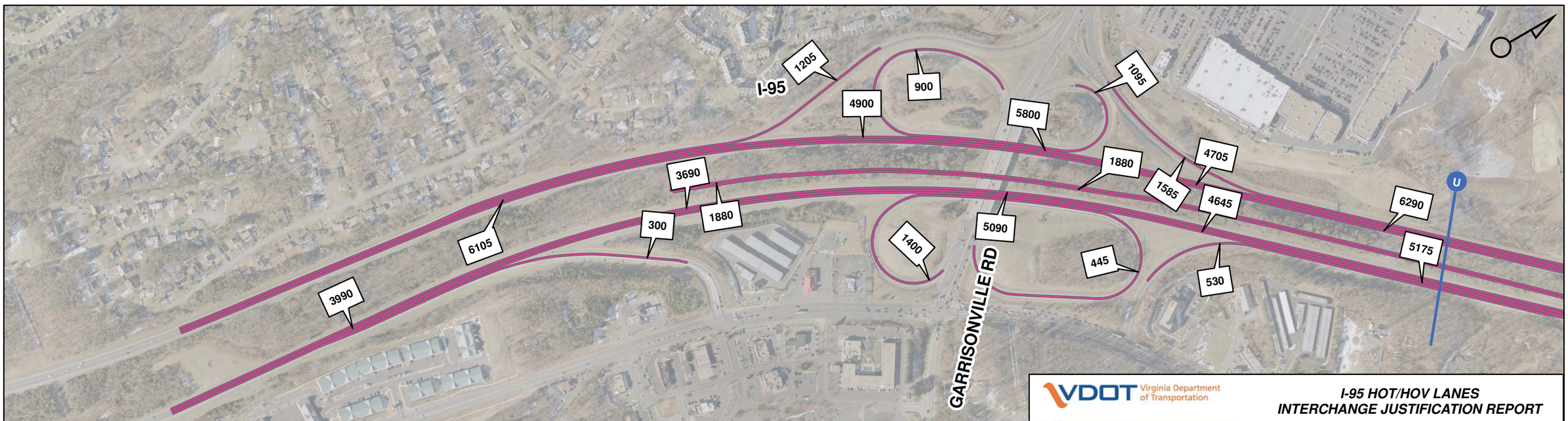
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

2035 BUILD PM - DEMAND VOLUMES
RUSSELL RD TO GARRISONVILLE RD

Figure: 8-10 J	Scale: 1" = 500'	Date: November 21, 2011	FINAL





0 250 500 1,000 Feet

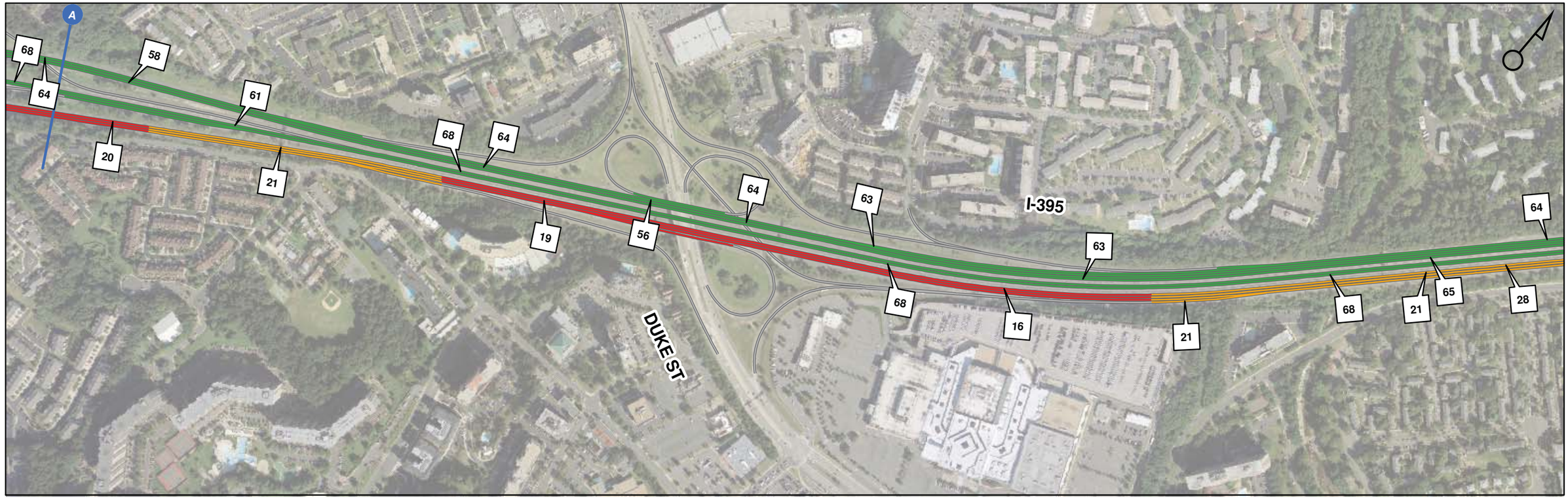
VDOT Virginia Department of Transportation

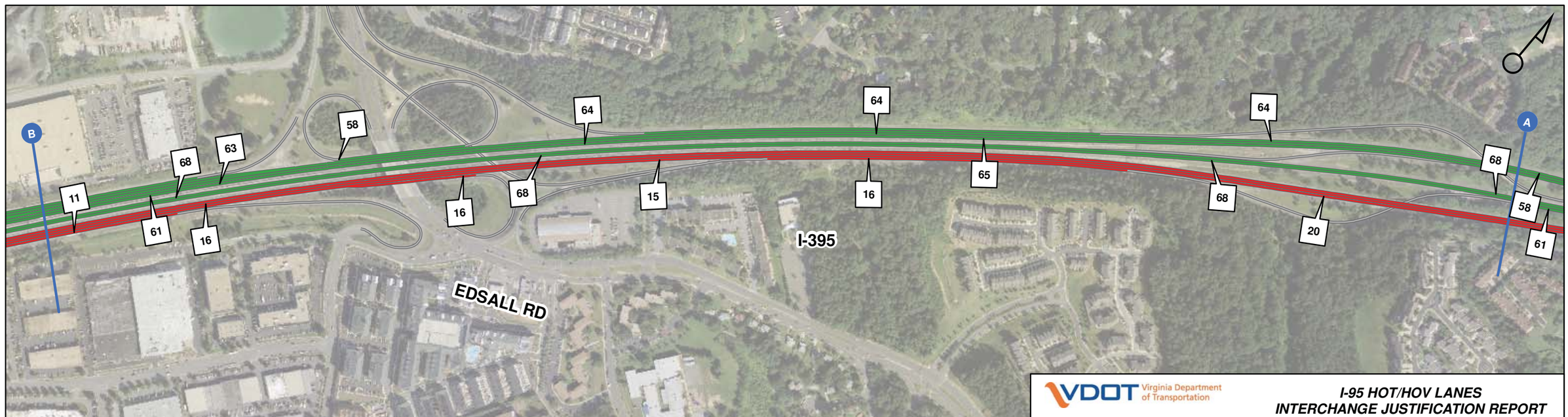
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

2035 BUILD PM - DEMAND VOLUMES
GARRISONVILLE RD INTERCHANGE

Figure: 8-10 K	Scale: 1" = 500'	Date: November 21, 2011	FINAL





0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 — 10 - 20 MPH — 20 - 30 MPH — 30 - 40 MPH — 40 - 50 MPH — > 50 MPH

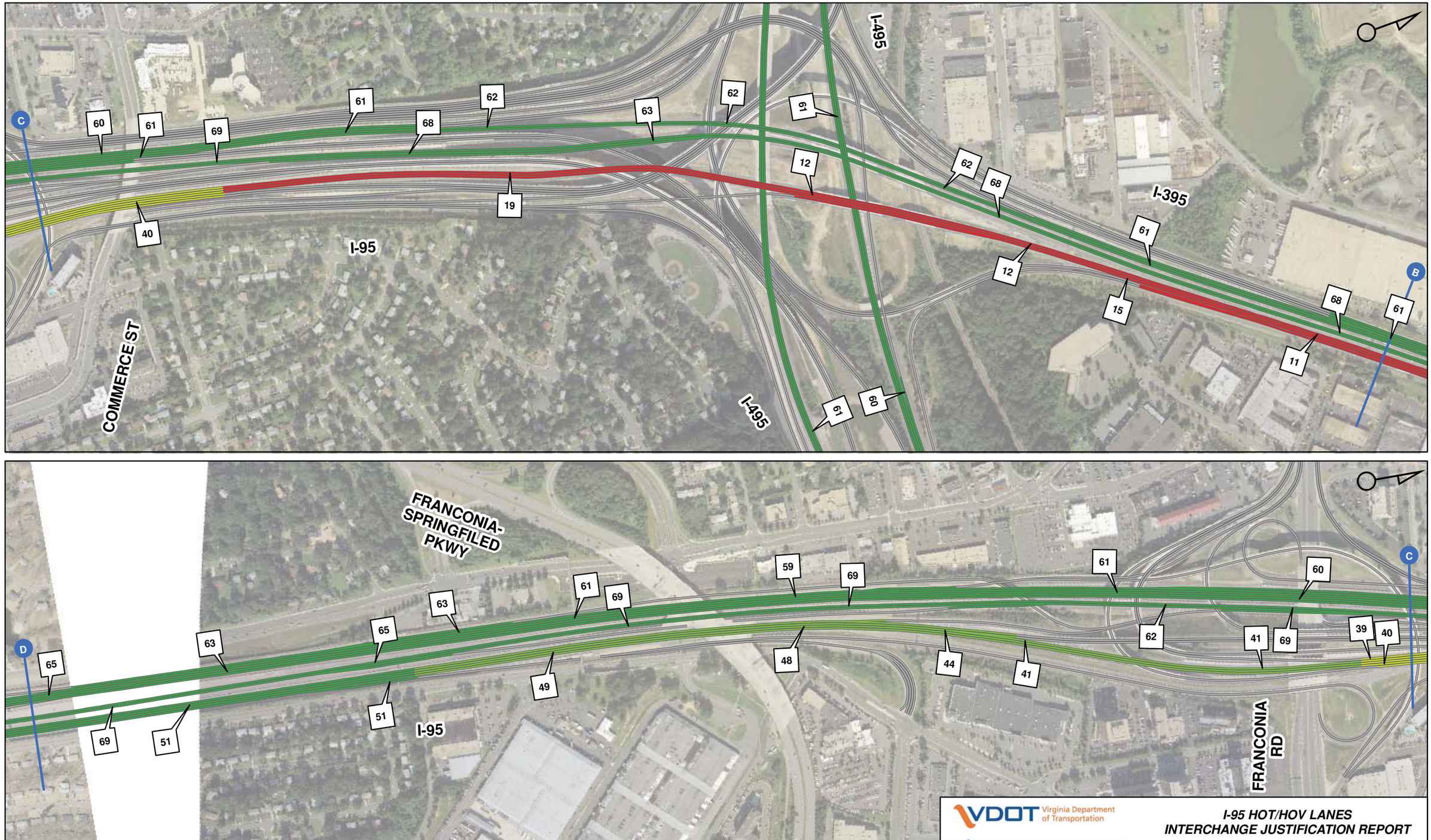
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
DUKE ST TO EDSALL RD

Figure: 9-1 A **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 | 10 - 20 MPH | 20 - 30 MPH | 30 - 40 MPH | 40 - 50 MPH | > 50 MPH

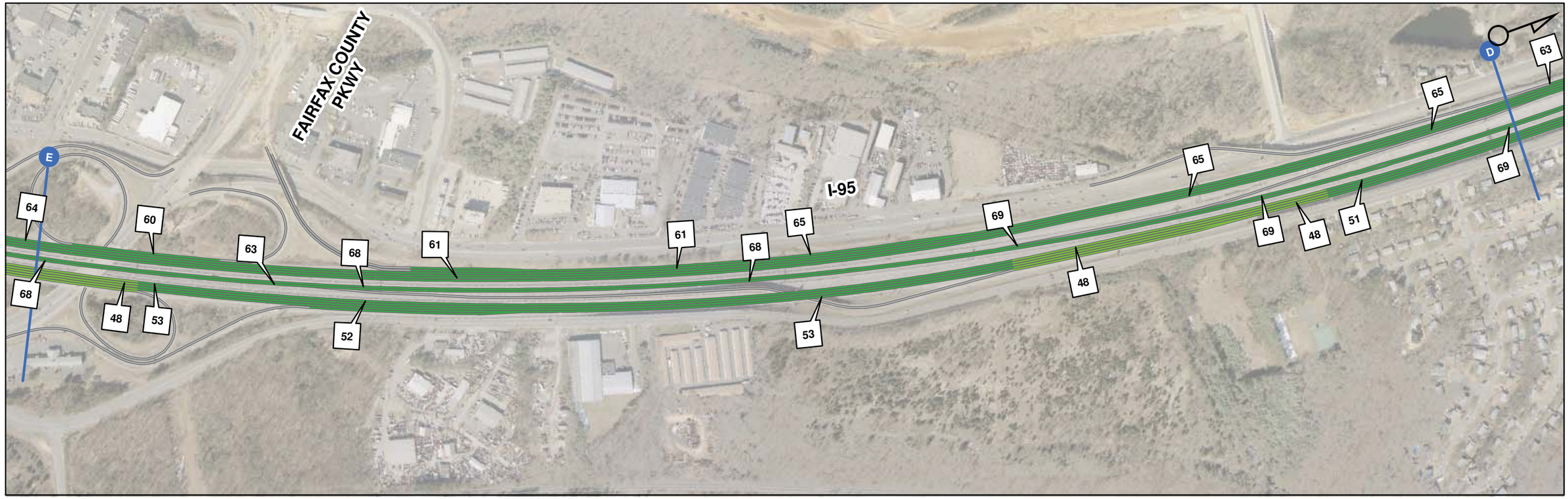
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
I-95/I-395/I-495 INTERCHANGE

Figure: 9-1 B **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 | 10 - 20 MPH | 20 - 30 MPH | 30 - 40 MPH | 40 - 50 MPH | > 50 MPH

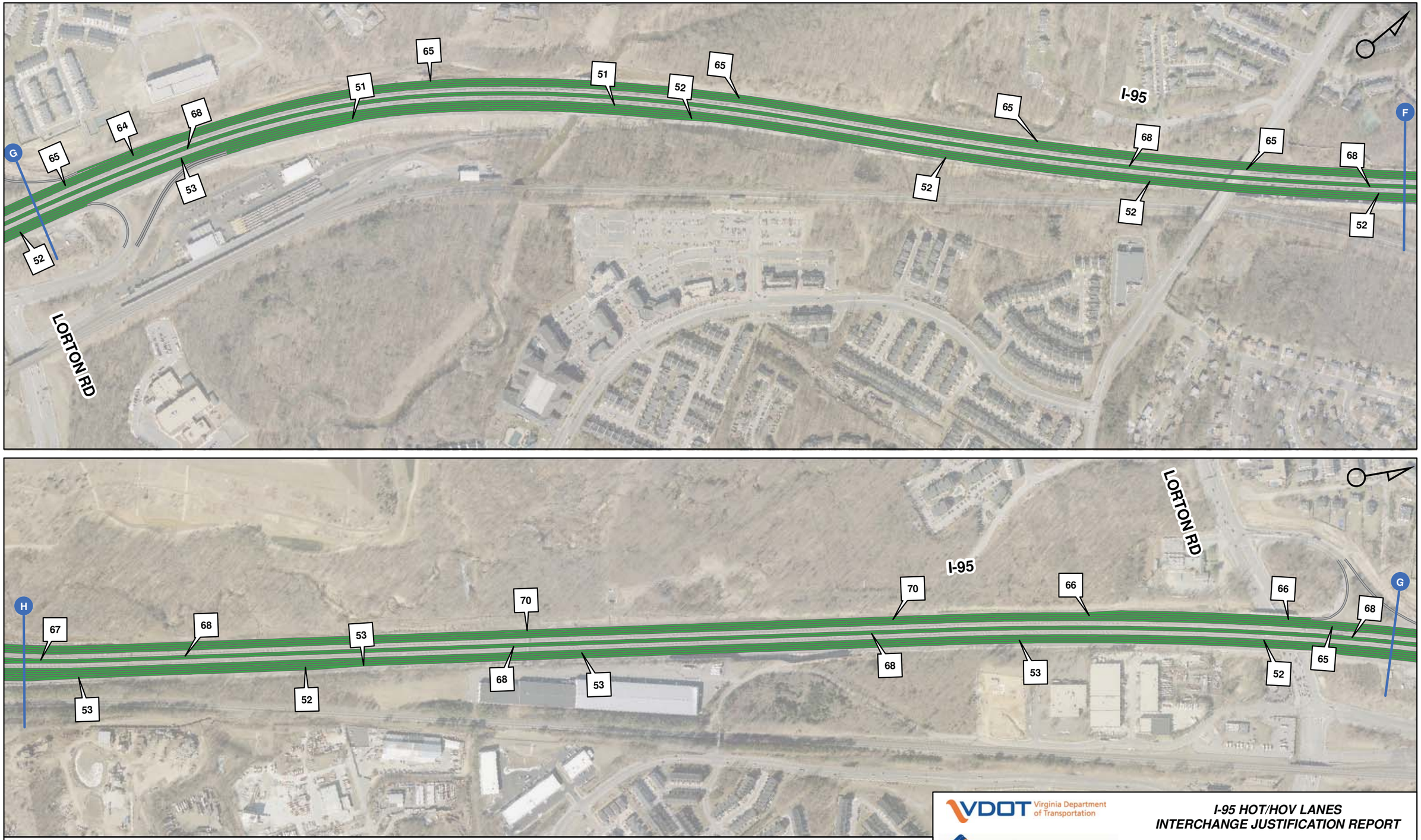
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
FRANCONIA-SPRINGFIELD PKWY TO
FAIRFAX COUNTY PKWY

Figure: 9-1 C **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



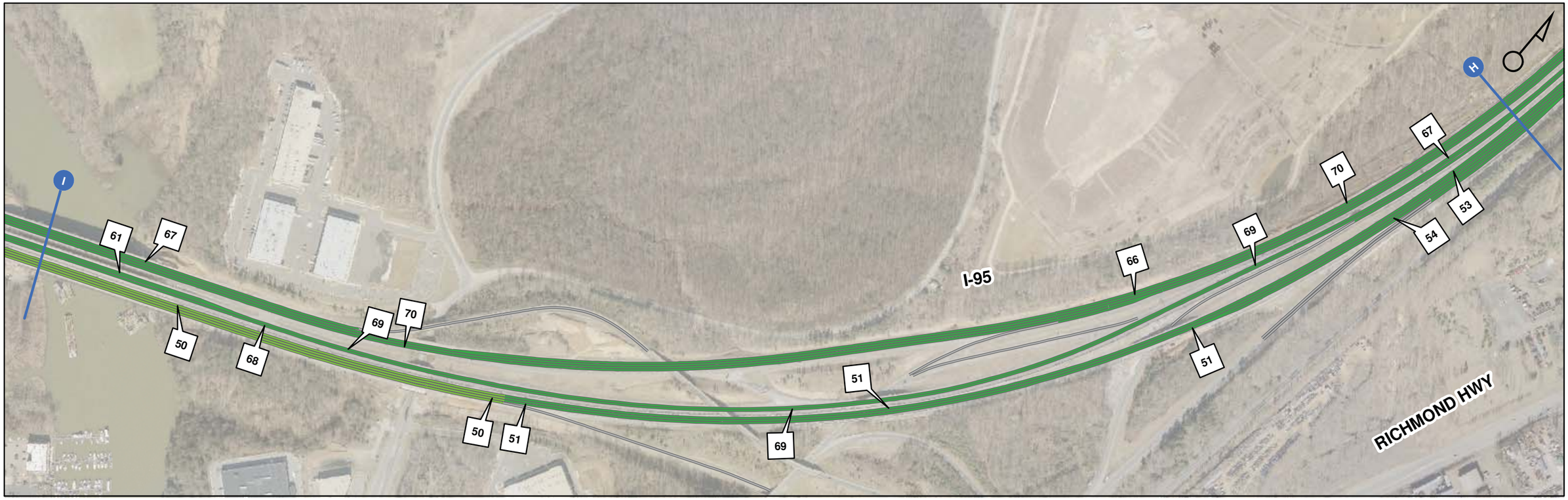
VDOT Virginia Department of Transportation

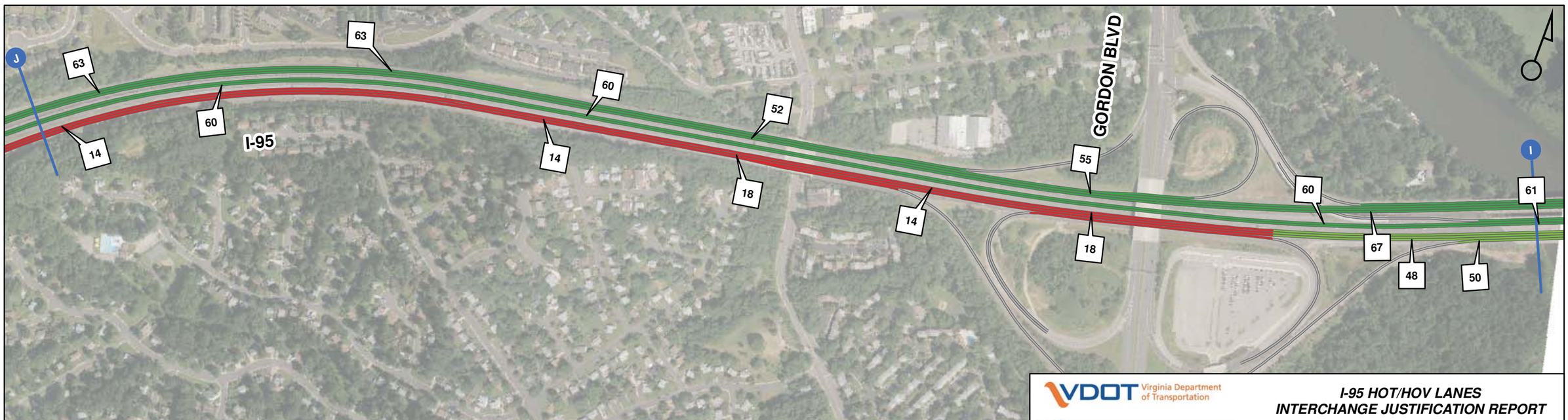
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
FAIRFAX COUNTY PKWY TO LORTON RD

Figure: 9-1 D | Scale: 1" = 500' | Date: November 21, 2011 | FINAL





0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 | 10 - 20 MPH | 20 - 30 MPH | 30 - 40 MPH | 40 - 50 MPH | > 50 MPH

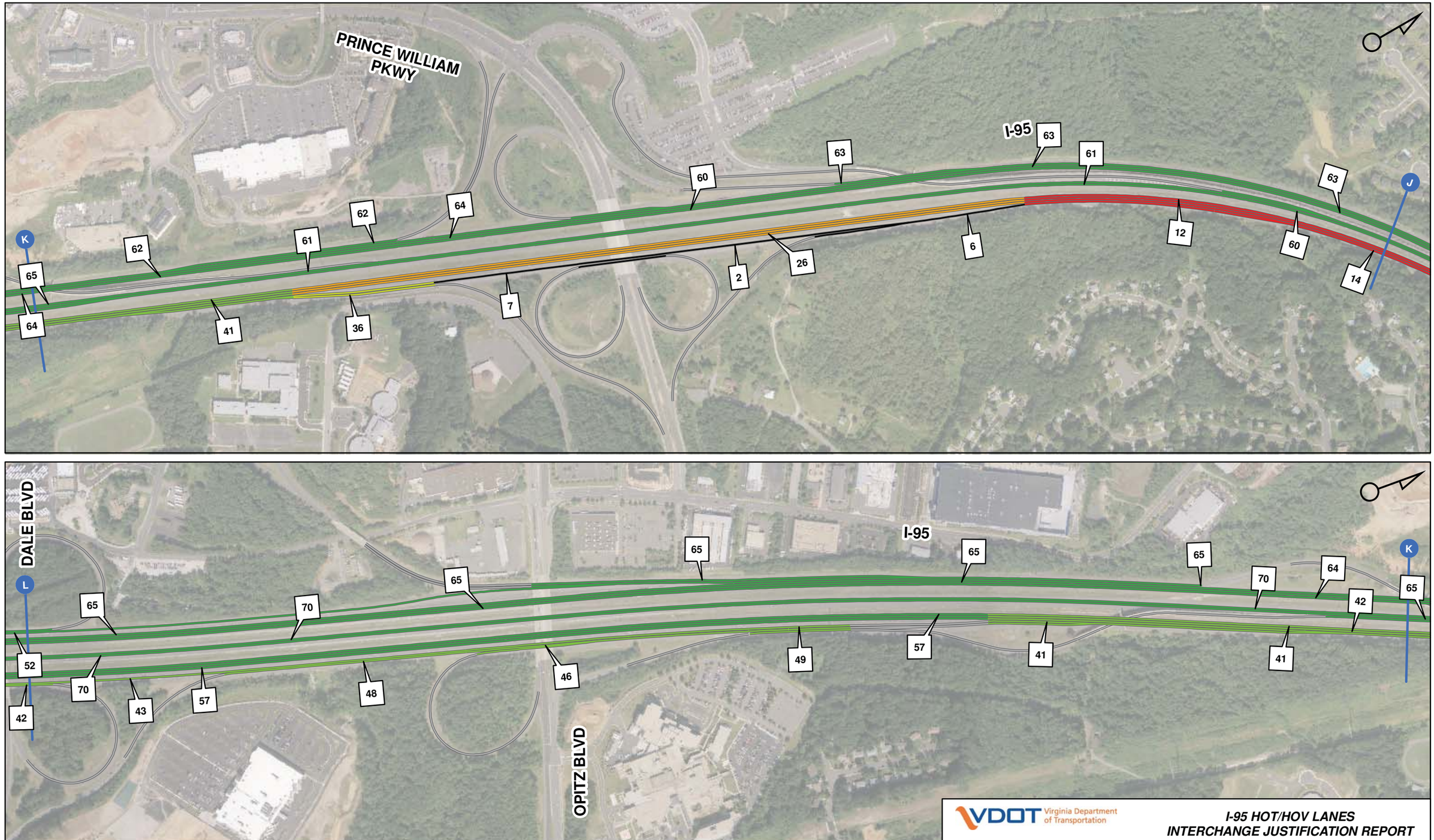
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
RICHMOND HWY TO GORDON BLVD

Figure: 9-1 E **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



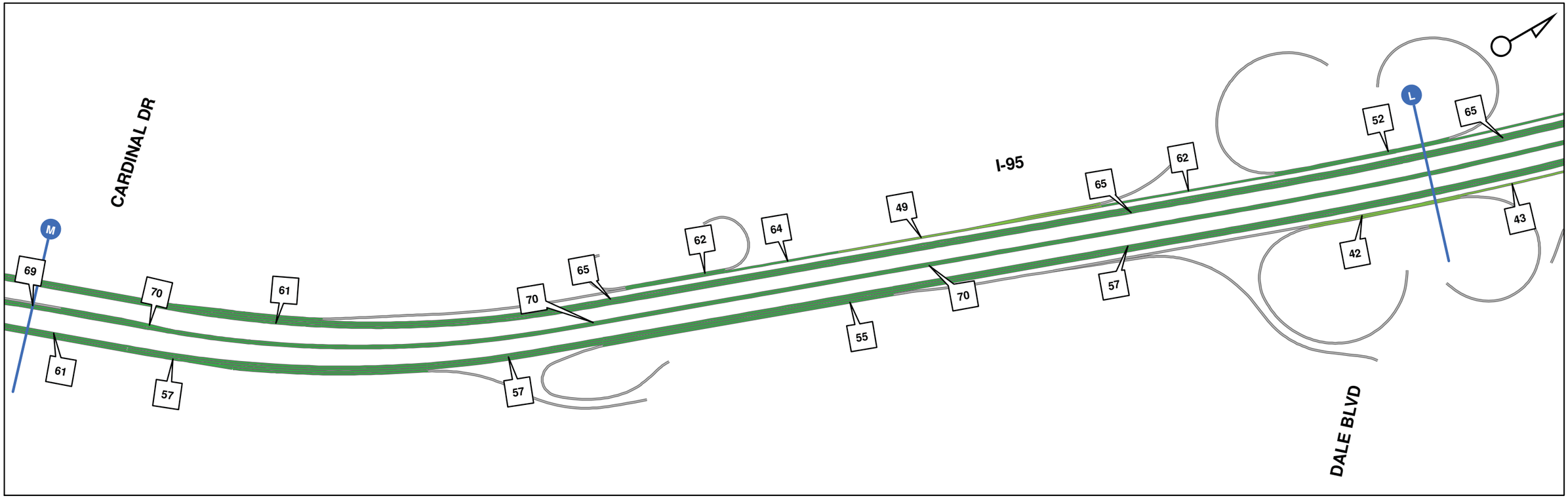
VDOT Virginia Department of Transportation

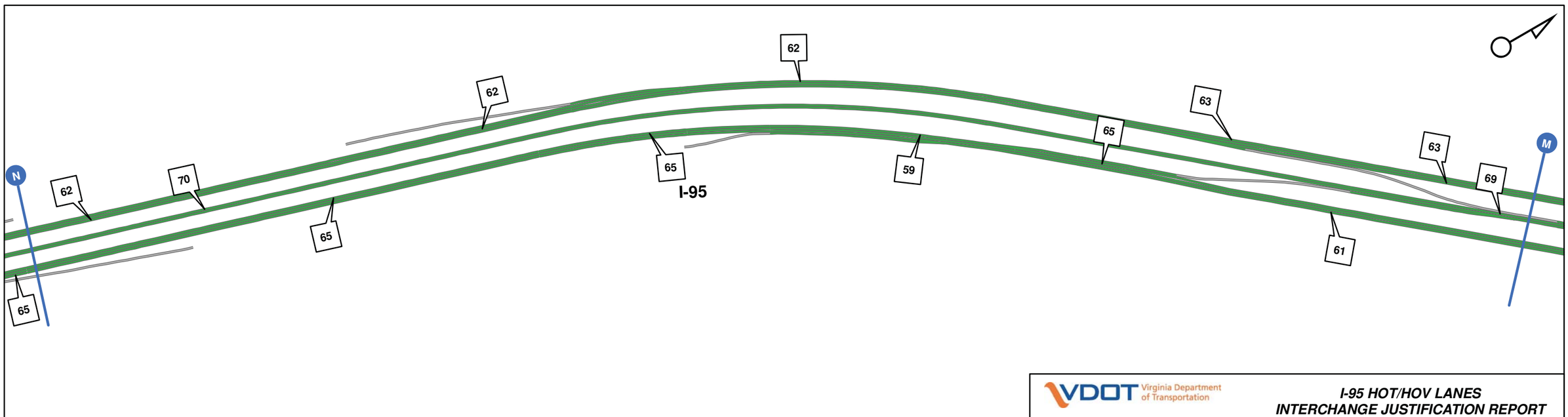
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
PRINCE WILLIAM PKWY TO DALE BLVD

Figure: 9-1 F | Scale: 1" = 500' | Date: November 21, 2011 | *FINAL*





0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 | 10 - 20 MPH | 20 - 30 MPH | 30 - 40 MPH | 40 - 50 MPH | > 50 MPH

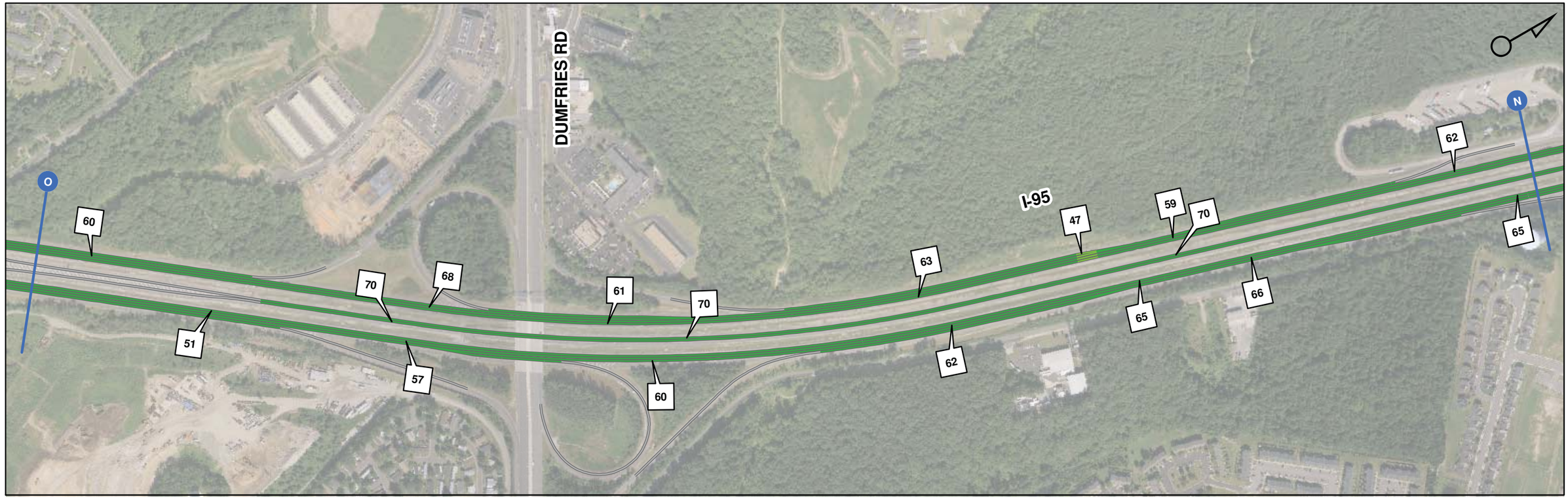
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
DALE BLVD INTERCHANGE

Figure: 9-1 G **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 | 10 - 20 MPH | 20 - 30 MPH | 30 - 40 MPH | 40 - 50 MPH | > 50 MPH

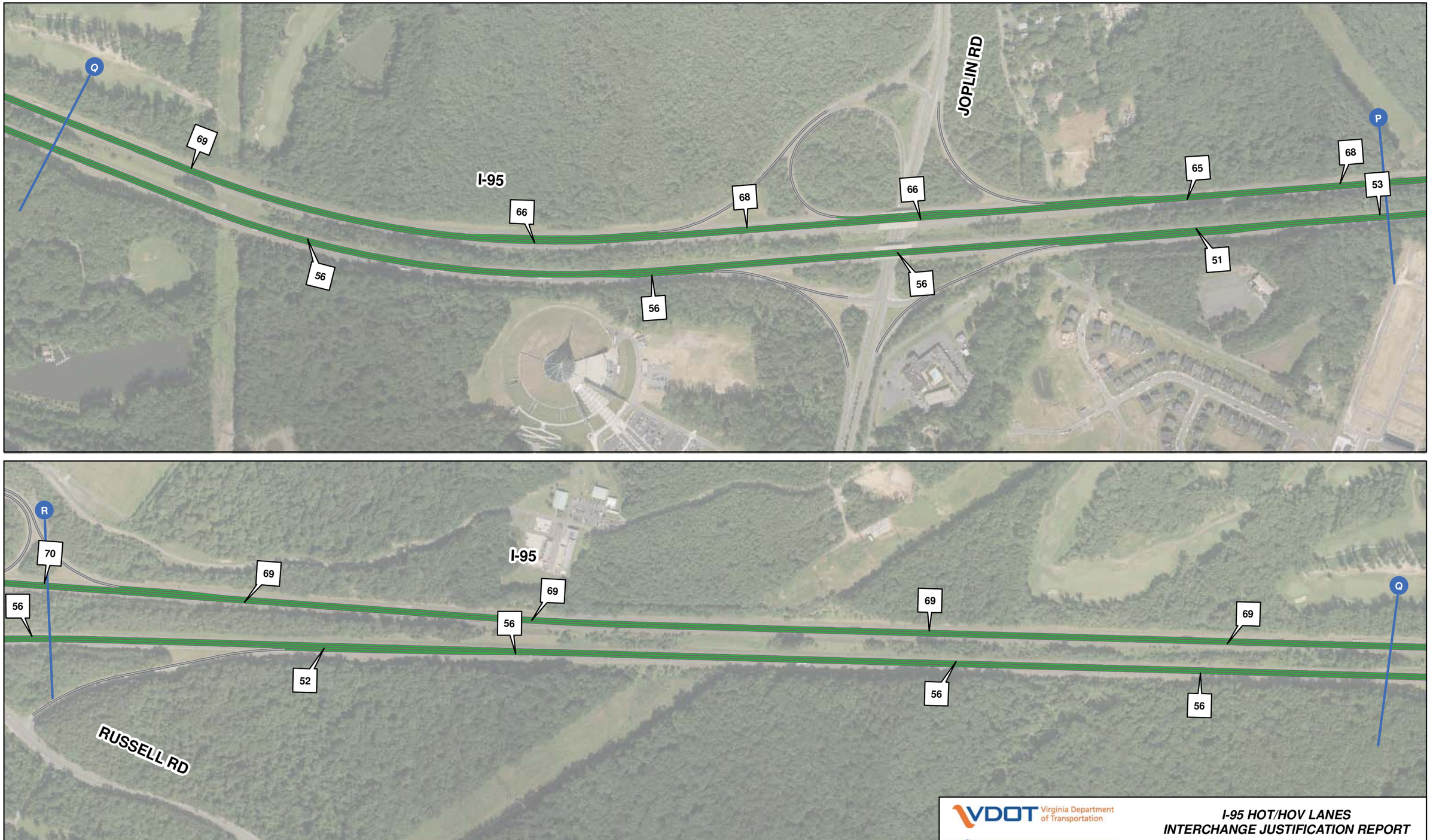
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
DUMFRIES RD INTERCHANGE

Figure: 9-1 H **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
JOPLIN RD TO RUSSELL RD

Figure: 9-1 I | Scale: 1" = 500' | Date: November 21, 2011 | *FINAL*

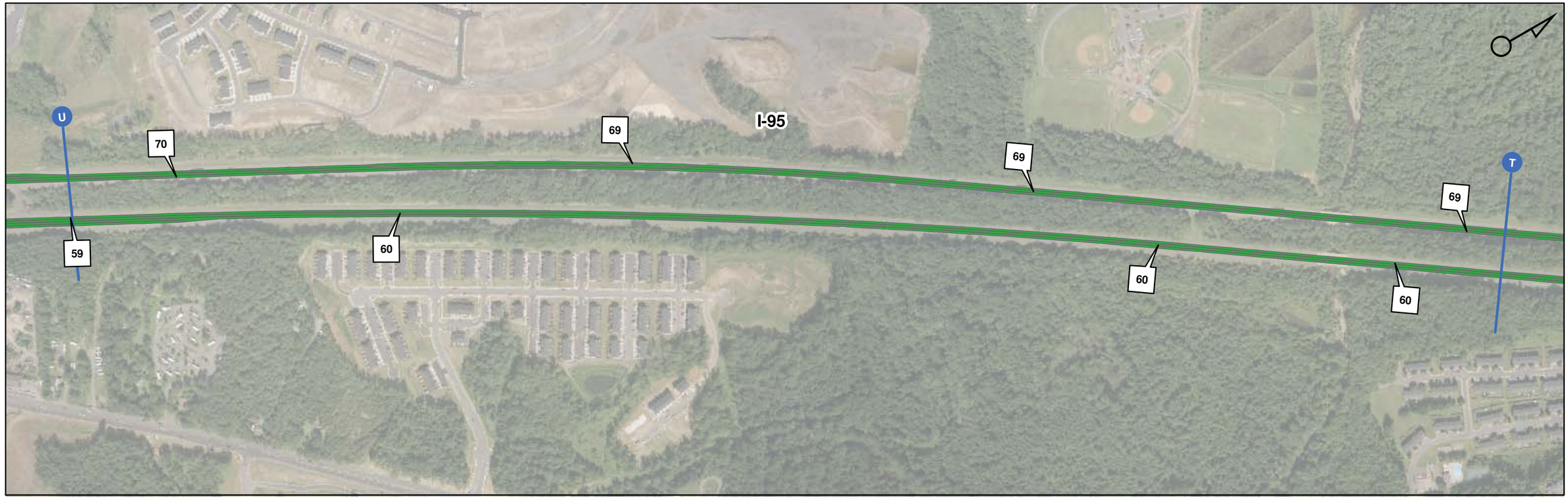
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
RUSSELL RD TO GARRISONVILLE RD

Figure: 9-1 J | Scale: 1" = 500' | Date: November 21, 2011 | FINAL



0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 — 10 - 20 MPH — 20 - 30 MPH — 30 - 40 MPH — 40 - 50 MPH — > 50 MPH

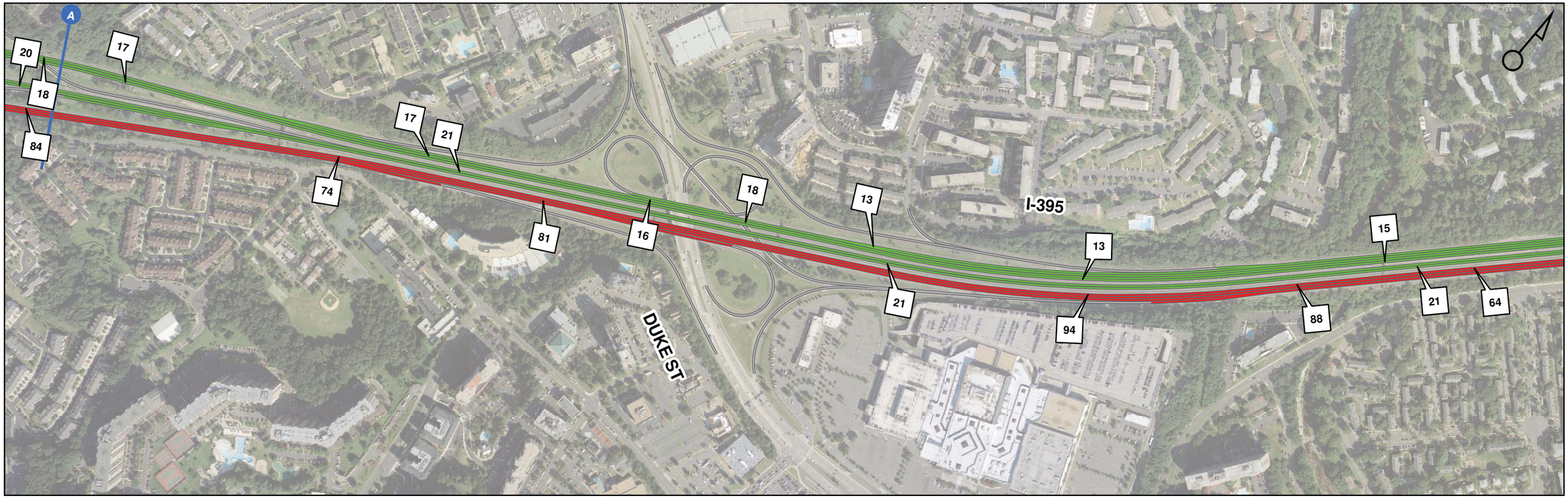
VDOT Virginia Department of Transportation

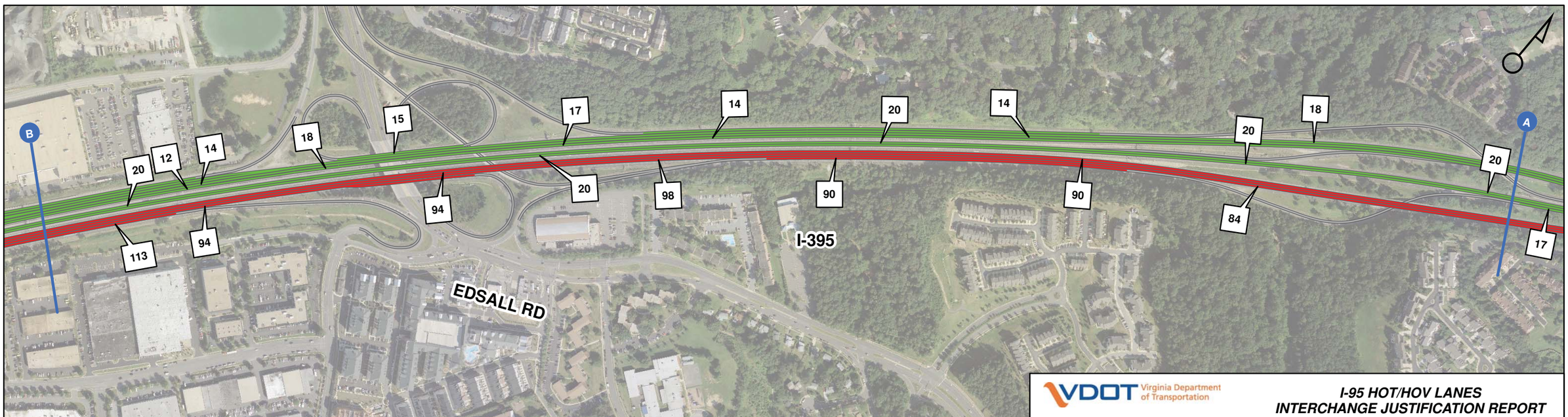
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM - AVERAGE SPEED
GARRISONVILLE RD INTERCHANGE

Figure: 9-1 K **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***





0 250 500 1,000 Feet

Density - vehicles per hour per lane

123

Level of Service

A - C D E F

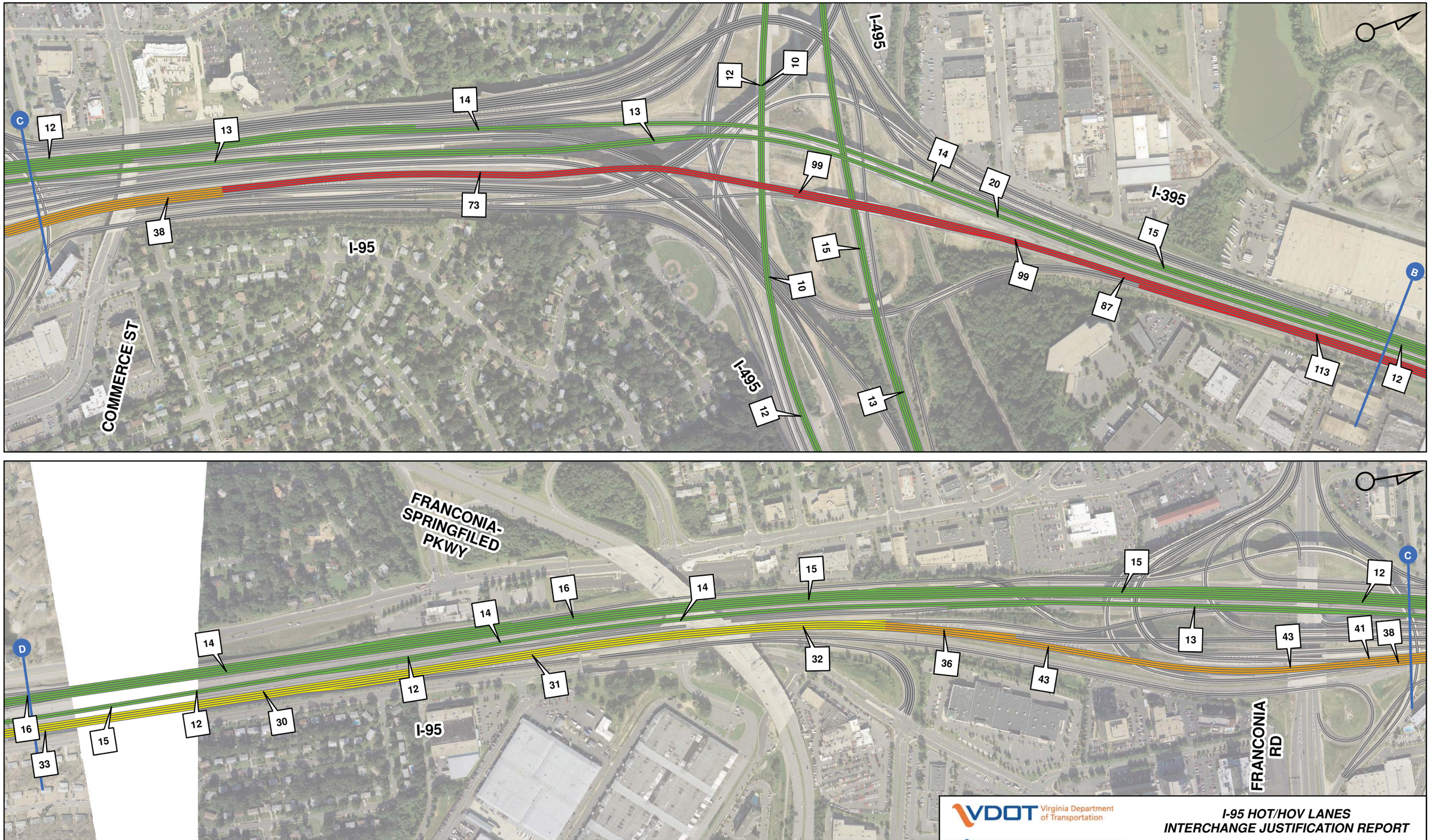
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
DUKE ST TO EDSALL RD

Figure: 9-2 A **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



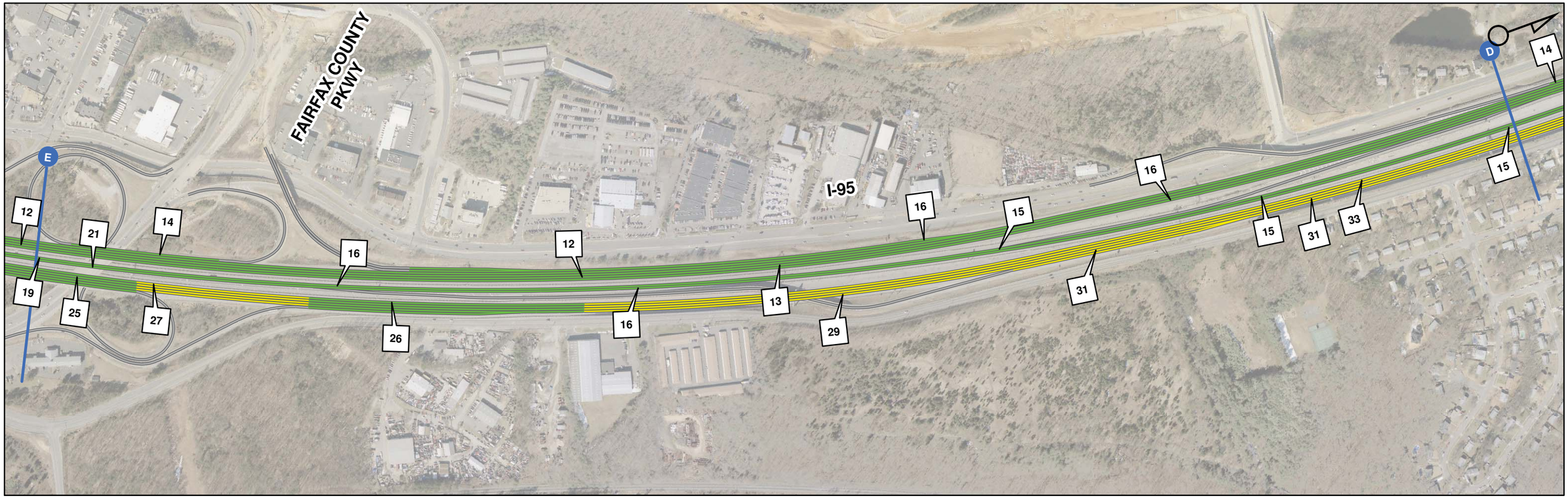
VDOT Virginia Department of Transportation

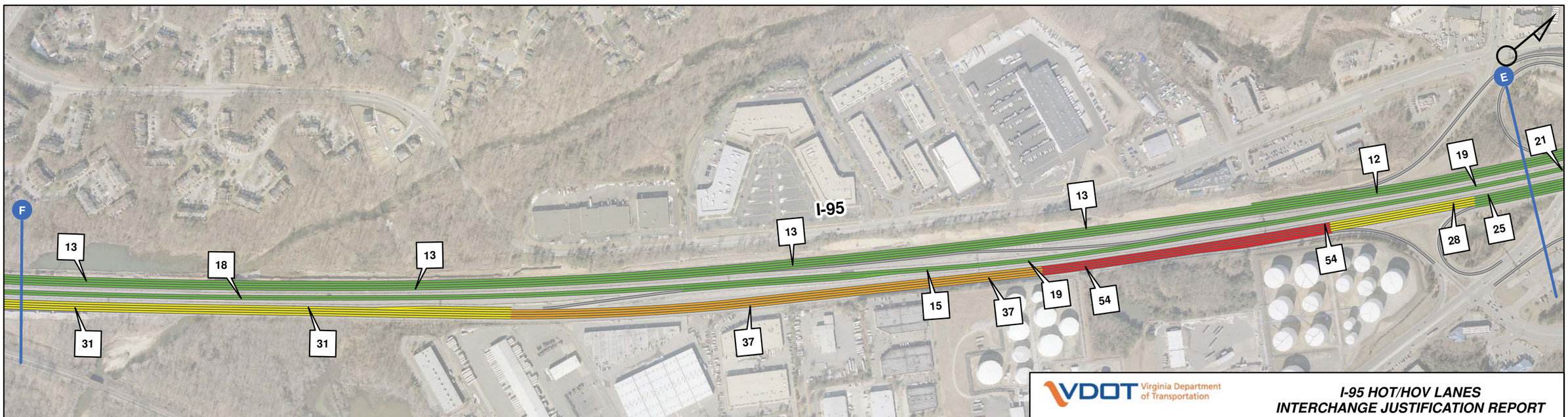
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
I-95/I-305/I-495 INTERCHANGE

Figure: 9-2 B | Scale: 1" = 500' | Date: November 21, 2011 | FINAL





0 250 500 1,000 Feet

Density - vehicles per hour per lane

123

Level of Service

A - C | D | E | F

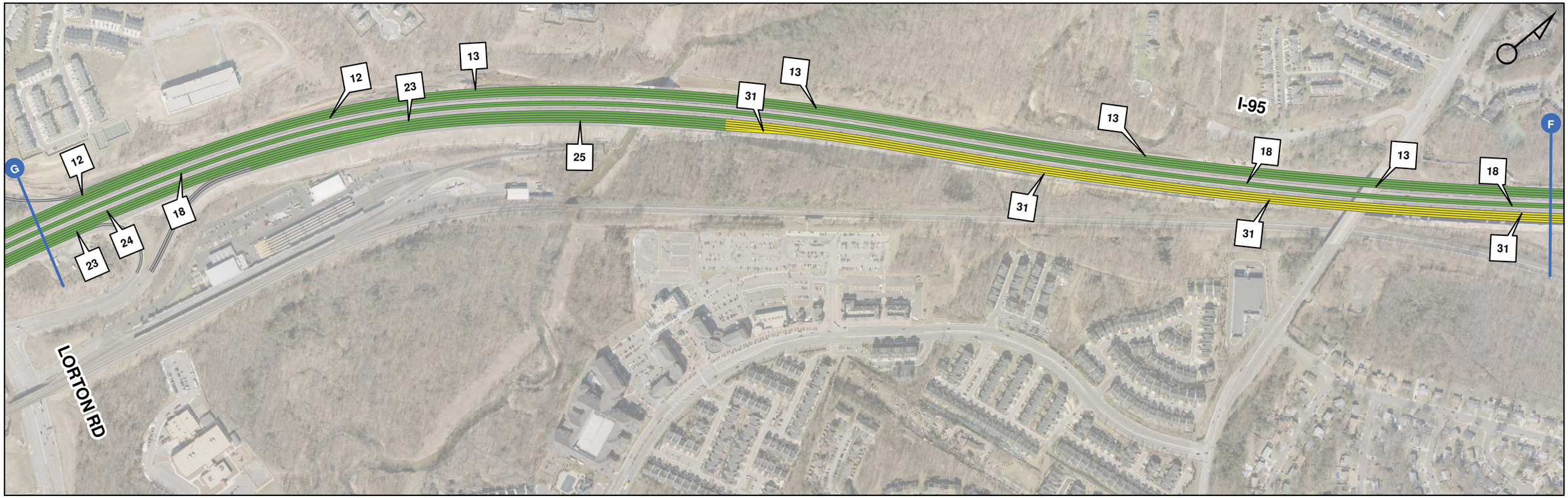
VDOT Virginia Department of Transportation

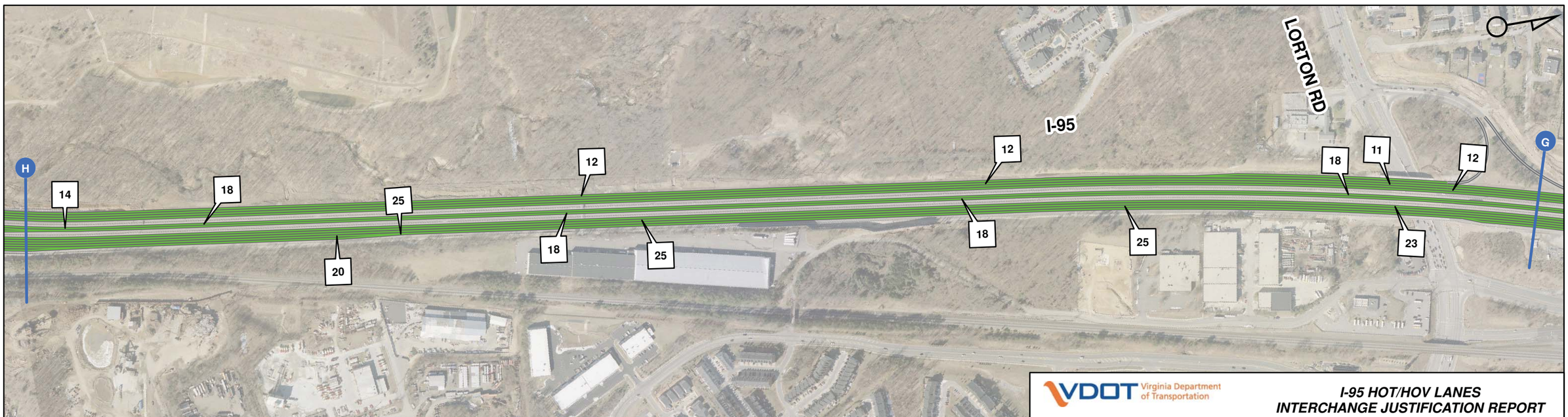
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
FRANCONIA-SPRINGFIELD PKWY TO
FAIRFAX COUNTY PKWY

Figure: 9-2 C **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***





0 250 500 1,000 Feet

Density - vehicles per hour per lane

123

Level of Service

A - C | D | E | F

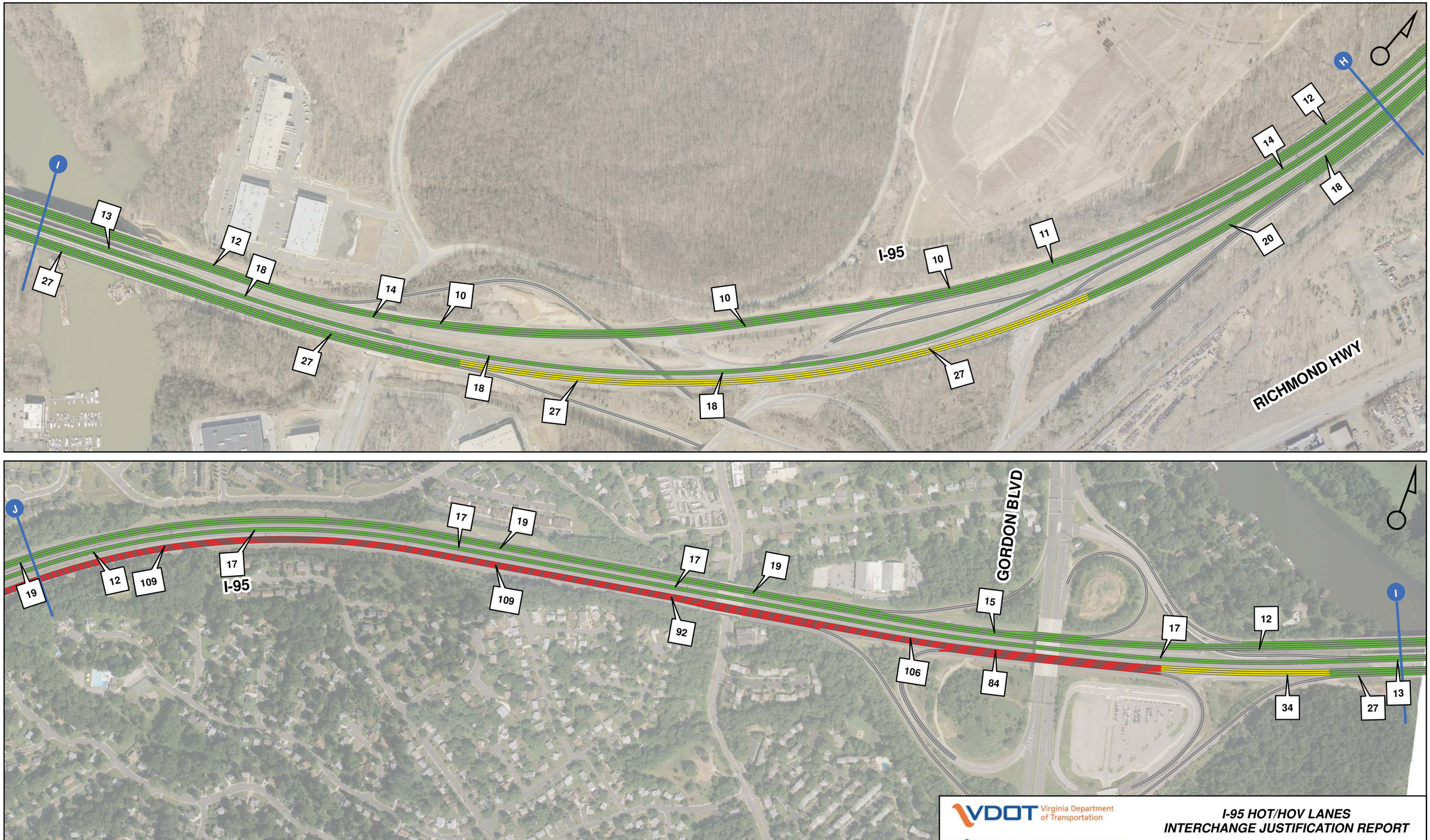
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
FAIRFAX COUNTY PKWY TO LORTON RD

Figure: 9-2 D **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



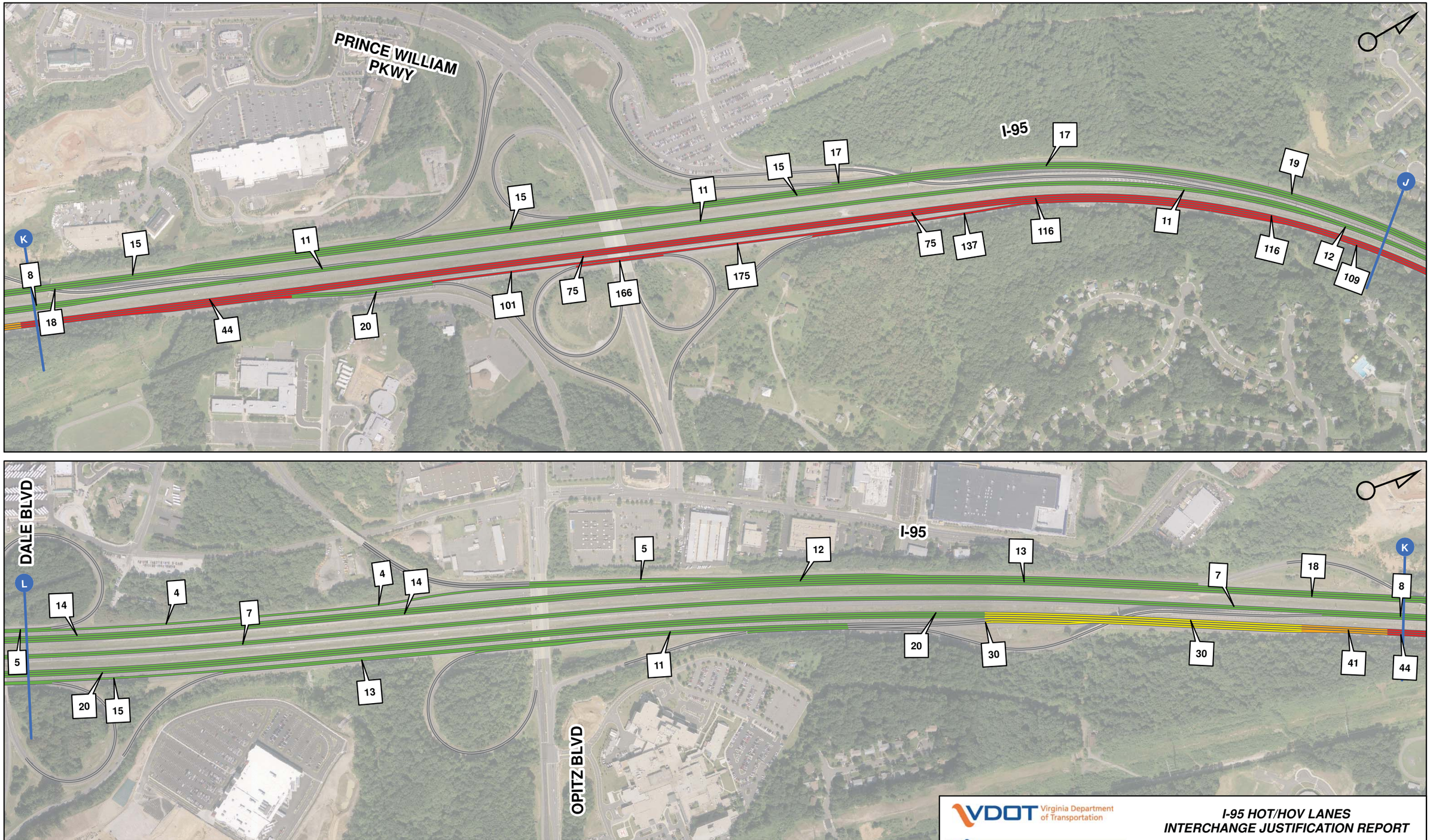
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
RICHMOND HWY TO GORDON BLVD

Figure: 9-2 E | Scale: 1" = 500' | Date: November 21, 2011 | FINAL



VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
PRINCE WILLIAM PKWY TO DALE BLVD

Figure: 9-2 F | Scale: 1" = 500' | Date: November 21, 2011 | FINAL

0 250 500 1,000 Feet

Density - vehicles per hour per lane

123

Level of Service

A - C | D | E | F

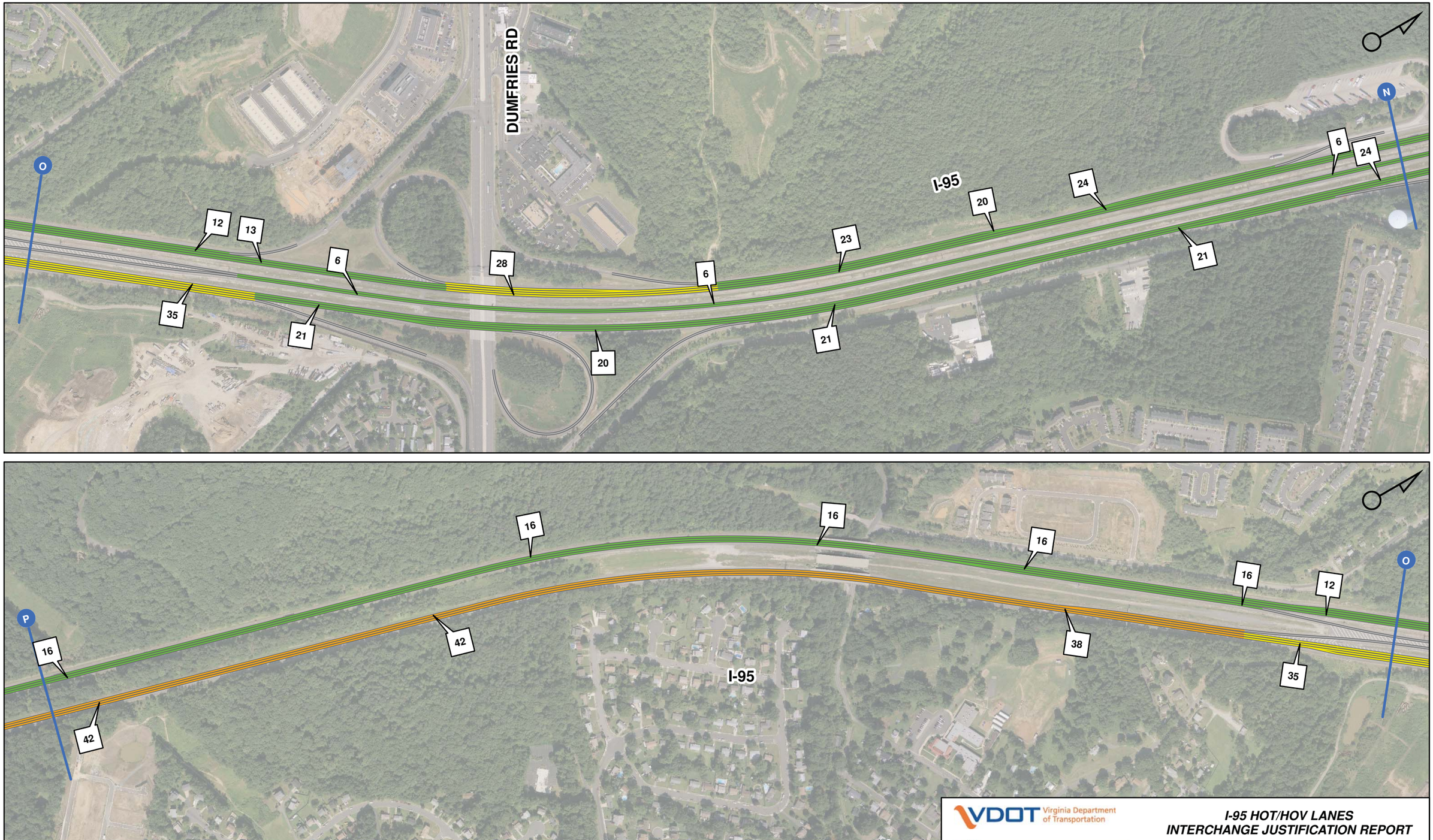
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
DALE BLVD INTERCHANGE

Figure: 9-2 G **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



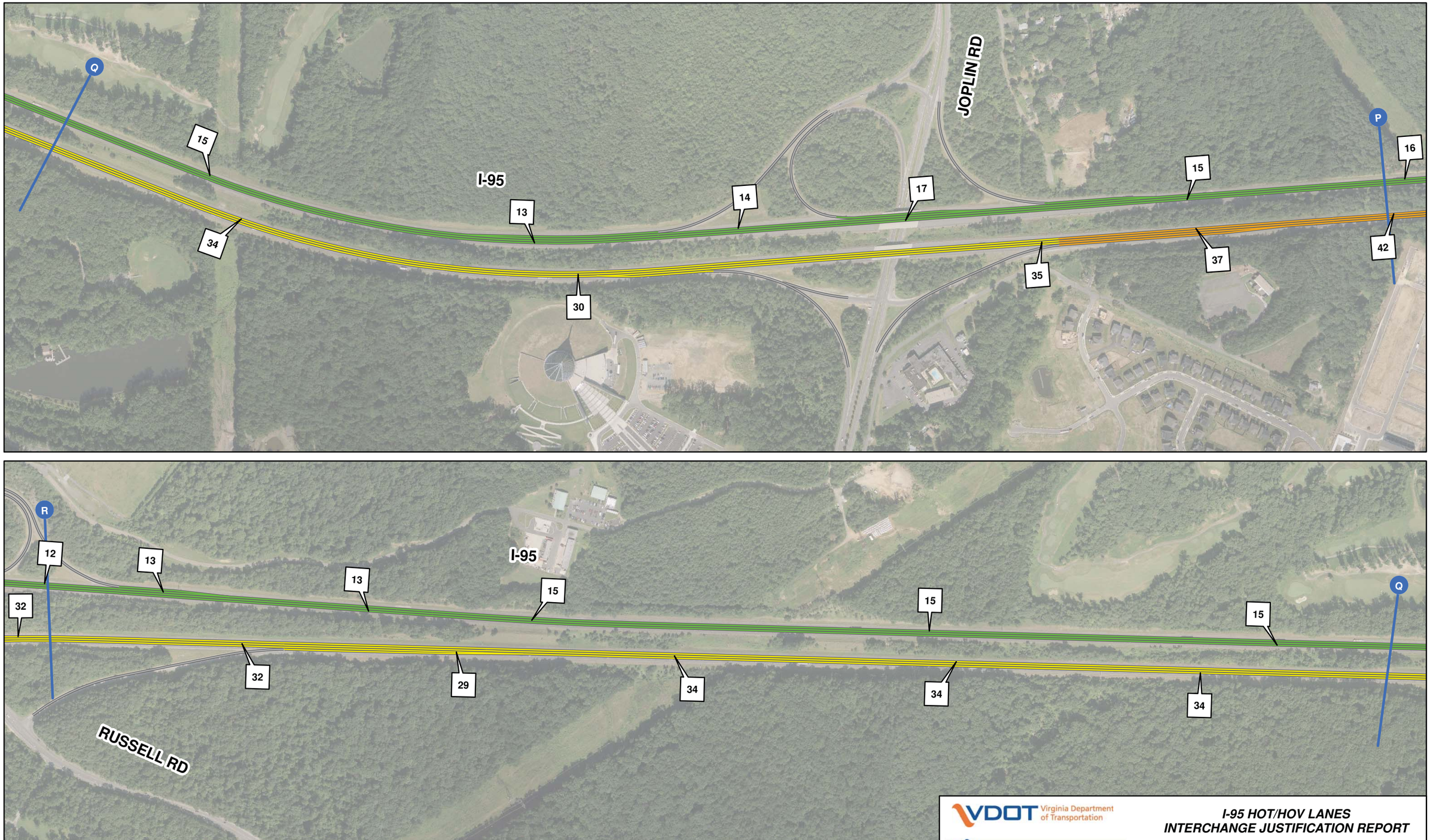
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
DUMFRIES RD INTERCHANGE

Figure: 9-2 H | Scale: 1" = 500' | Date: November 21, 2011 | FINAL



VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
JOPLIN RD TO RUSSELL RD

Figure: 9-2 I | Scale: 1" = 500' | Date: November 21, 2011 | FINAL

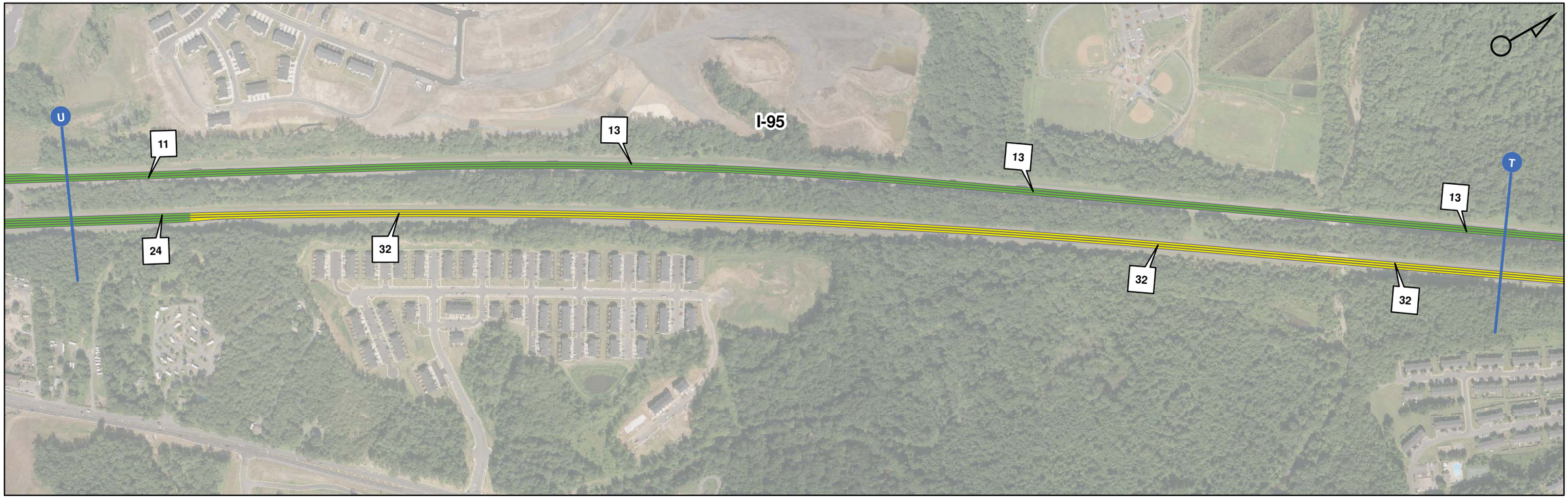
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
RUSSELL RD TO GARRISONVILLE RD

Figure: 9-2 J | Scale: 1" = 500' | Date: November 21, 2011 | FINAL



0 250 500 1,000 Feet

Density - vehicles per hour per lane

123

Level of Service

A - C D E F

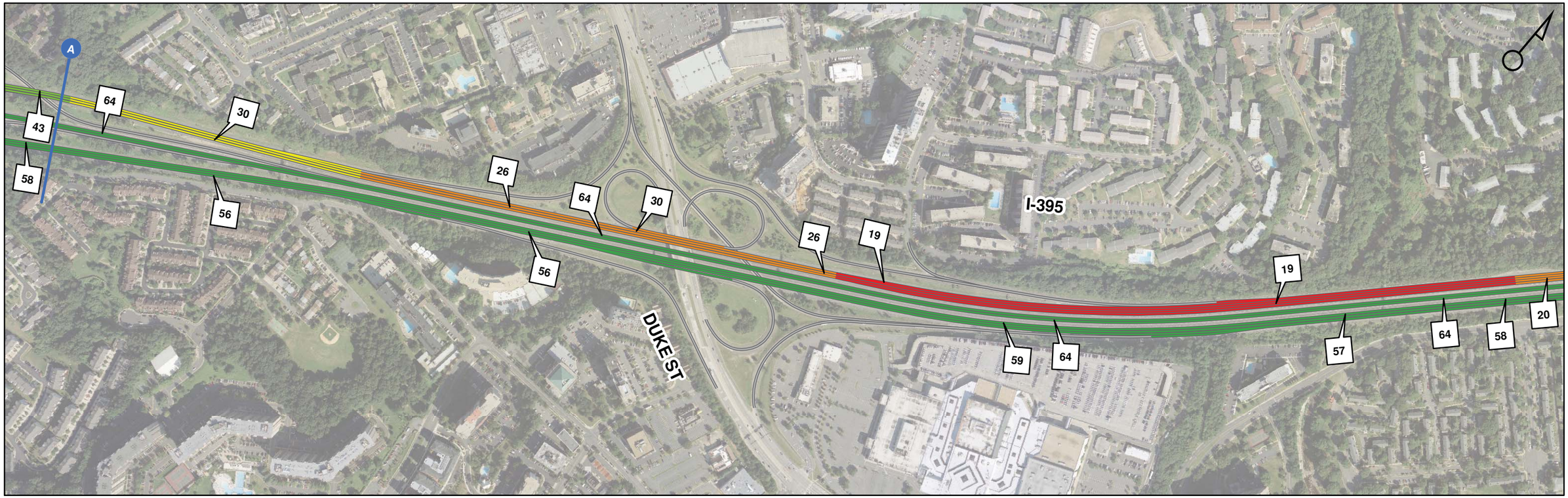
VDOT Virginia Department of Transportation

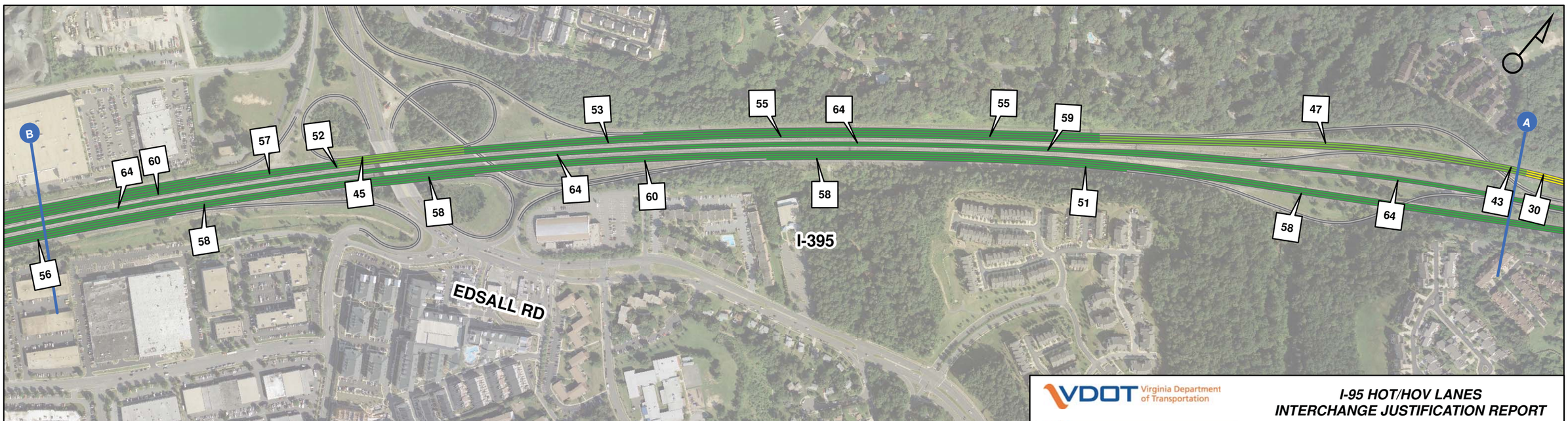
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING AM LEVEL OF SERVICE
GARRISONVILLE RD INTERCHANGE

Figure: 9-2 K **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***





0 250 500 1,000 Feet

Average Speed - miles per hour (MPH)

123 — 10 - 20 MPH — 20 - 30 MPH — 30 - 40 MPH — 40 - 50 MPH — > 50 MPH

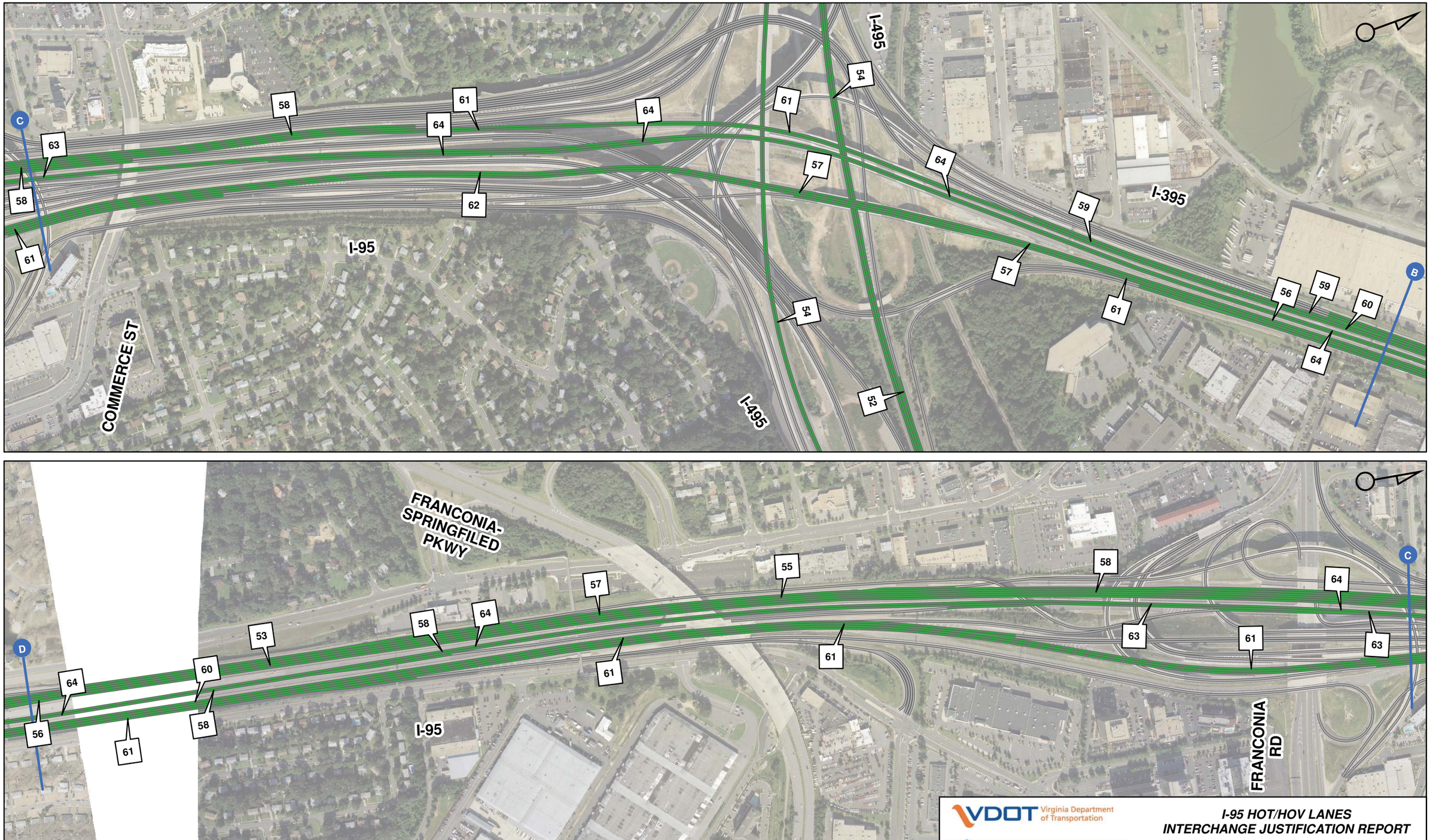
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING PM - AVERAGE SPEED
DUKE ST TO EDSALL RD

Figure: 9-3 A **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



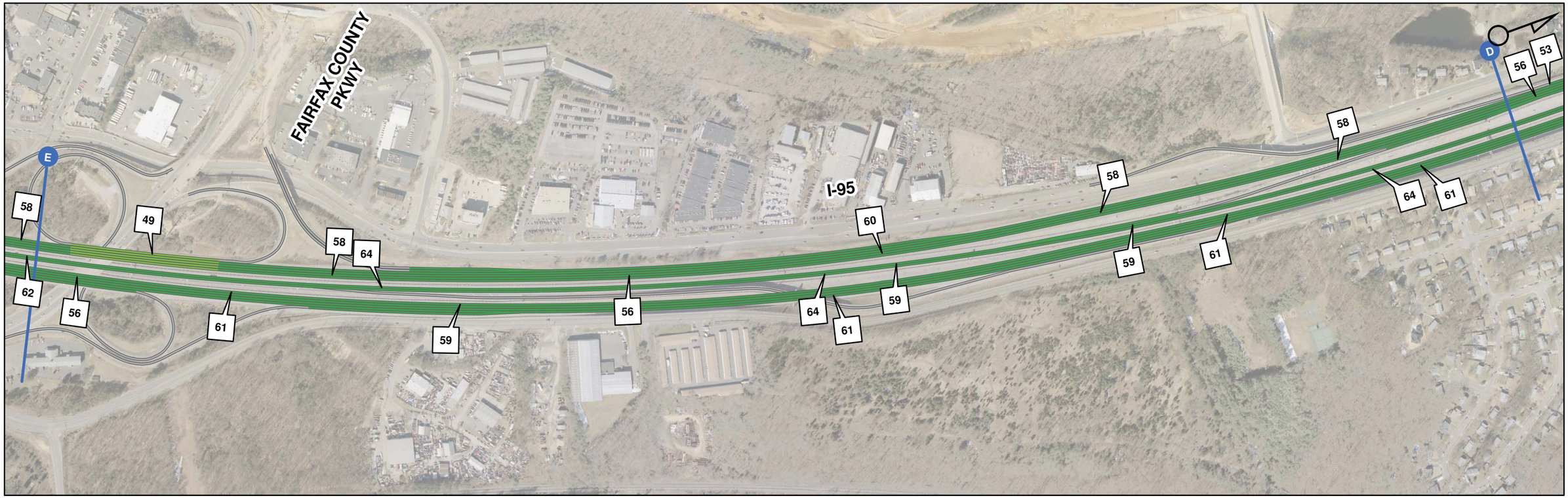
VDOT Virginia Department of Transportation

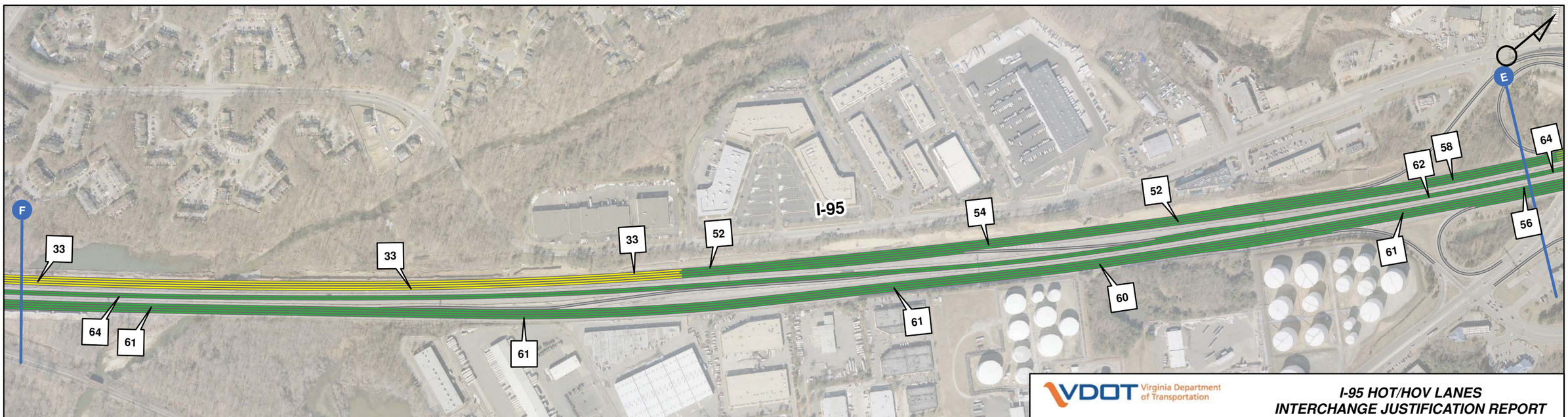
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING PM - AVERAGE SPEED
I-95/I-395/I-495 INTERCHANGE

Figure: 9-3 B | Scale: 1" = 500' | Date: November 21, 2011 | FINAL





Feet
0 250 500 1,000

Average Speed - miles per hour (MPH)

123 | 10 - 20 MPH | 20 - 30 MPH | 30 - 40 MPH | 40 - 50 MPH | > 50 MPH

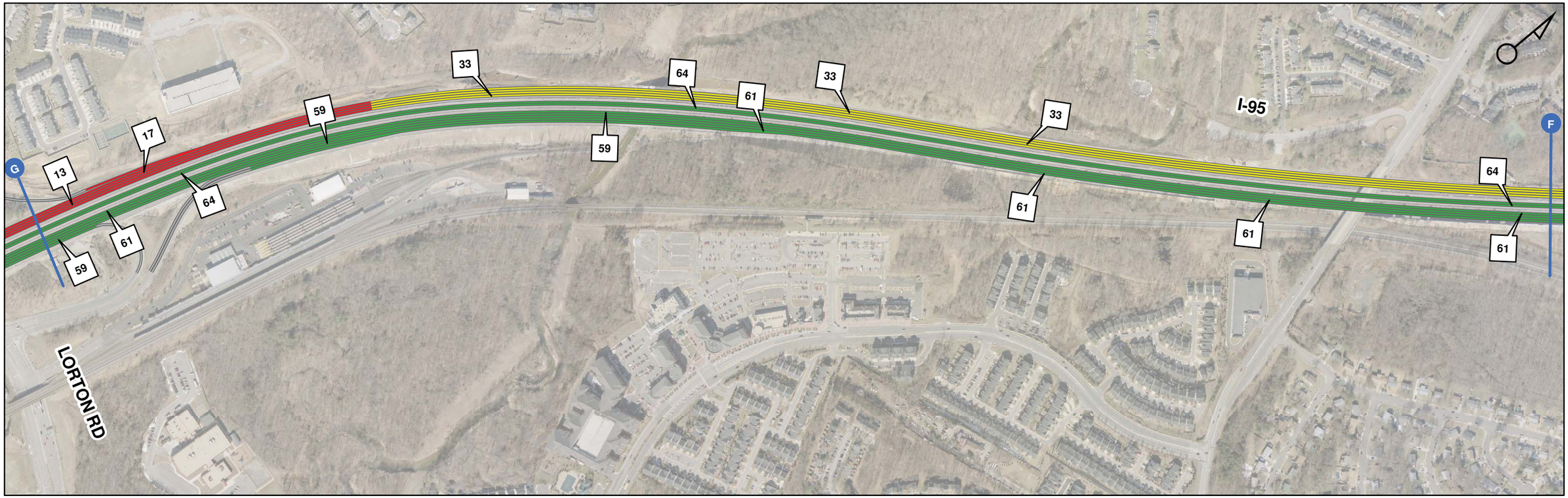
VDOT Virginia Department of Transportation

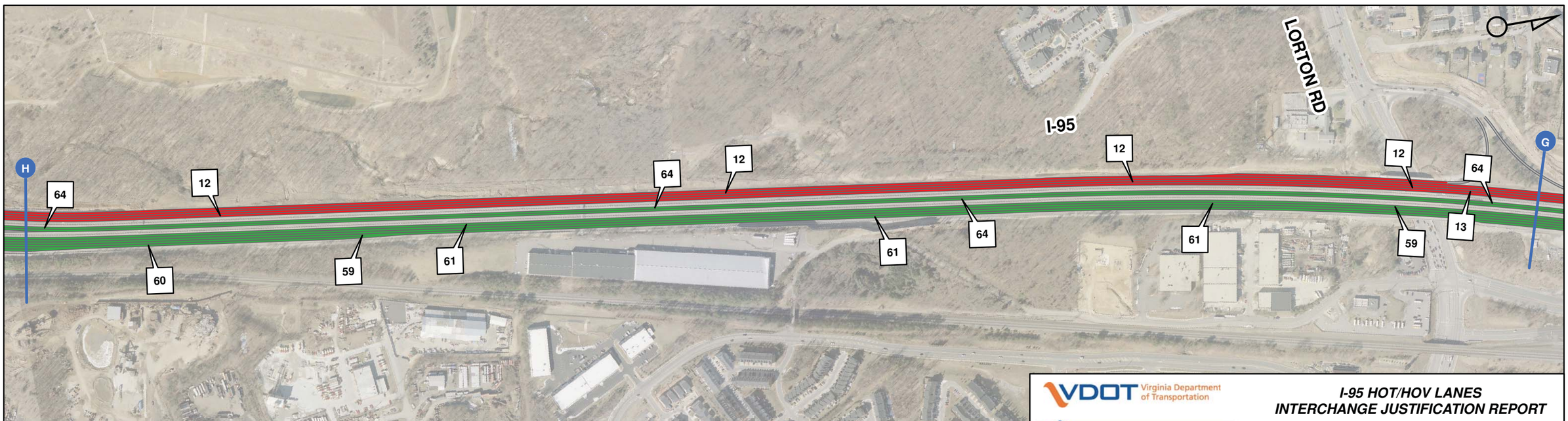
VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING PM - AVERAGE SPEED
I-95/I-395/I-495 INTERCHANGE TO
FAIRFAX COUNTY PKWY

Figure: 9-3 C **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***





Feet
0 250 500 1,000

Average Speed - miles per hour (MPH)

123 — 10 - 20 MPH — 20 - 30 MPH — 30 - 40 MPH — 40 - 50 MPH — > 50 MPH

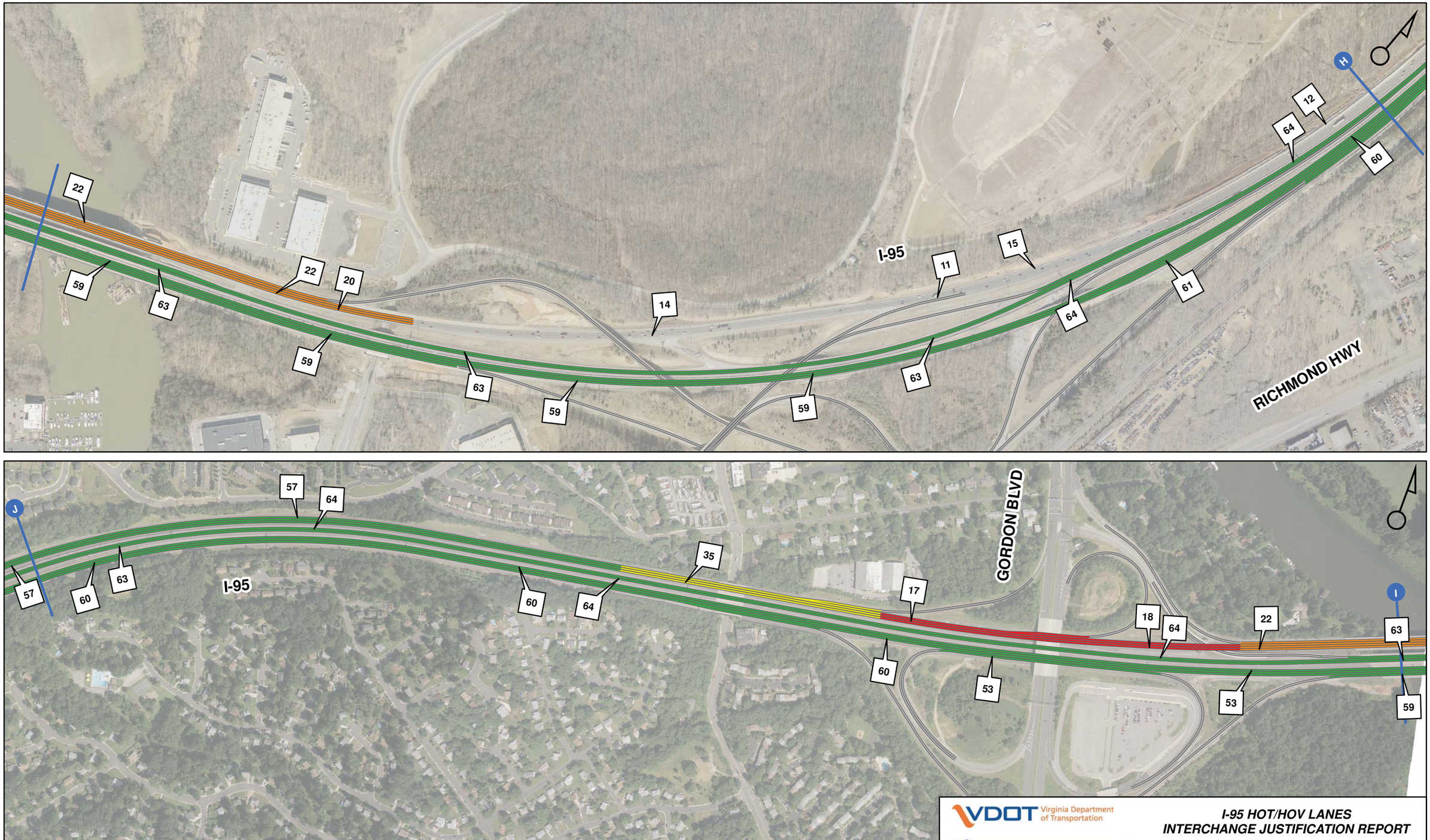
VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING PM - AVERAGE SPEED
FAIRFAX COUNTY PKWY TO LORTON RD

Figure: 9-3 D **Scale: 1" = 500'** **Date:** November 21, 2011 ***FINAL***



VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

I-95 HOT/HOV LANES
INTERCHANGE JUSTIFICATION REPORT

EXISTING PM - AVERAGE SPEED
RICHMOND HWY TO GORDON BLVD

Figure: 9-3 E | Scale: 1" = 500' | Date: November 21, 2011 | FINAL

Appendix A

Letters of Commitment / Support from Secretary of Transportation, Governor, & VDOT / Local MPOs

TPB R5-2011
November 17, 2010

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION FINDING THAT THE 2010 CONSTRAINED LONG RANGE PLAN AND THE TRANSPORTATION IMPROVEMENT PROGRAM FOR FY 2011-2016 CONFORM WITH THE REQUIREMENTS OF THE CLEAN AIR ACT AMENDMENTS OF 1990

WHEREAS, the National Capital Region Transportation Planning Board (TPB) has been designated by the Governors of Maryland and Virginia and the Mayor of the District of Columbia as the Metropolitan Planning Organization (MPO) for the Washington Metropolitan Area; and

WHEREAS, the U.S. EnvironmentalProtection Agency (EPA), inconjunction with the U.S. Department of Transportation (DOT), under the Clean Air Act Amendments of 1990 (CAAA), issued on November 24, 1993 "Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act," and, over the years, subsequently amended these regulations and provided additional guidance, which taken together provide the specific criteria for TPB to make a determination of conformity of its financially Constrained Long Range Transportation Plan (CLRP) and Transportation Improvement Program (TIP) with the state implementation plans for air quality attainment within the Metropolitan Washington non-attainment area; and

WHEREAS, a work program was developed to address all procedures and requirements, including public and interagency consultation, and the work program was released for public comment on April 15 and approved by the TPB at its May 19, 2010 meeting; and

WHEREAS, on May 19, 2010, the TPB approved the major projects submitted for inclusion in the air quality conformity assessment for the 2010 CLRP and FY 2011-2016 TIP; and

WHEREAS, in each year's update of the CLRP between 2000 and 2004, the TPB has explicitly accounted for the funding uncertainties affecting the Metrorail system capacity and levels of service beyond 2005 by constraining transit ridership to or through the core area to 2005 levels; and

WHEREAS, as a result of the "Metro Matters" commitments for Metro's near-term funding, the transit ridership constraint to or through the core area was applied in the 2005 through 2008 CLRP conformity analysis using 2010 ridership levels rather than 2005 levels; and

WHEREAS, in October 2008 federal legislationwas enacted to authorize $150 million per year for 10 years in funding for WMATA's capital and preventive maintenance projects, and, the legislatures of Mary land, Virginia, and District of Columbia have taken steps to identify the required dedicated local matc hing revenues and this additional revenue was assumed to be available in the financial pl an for the 2010 CLRP and the transit ridership constraint to or through the core area was applied in the 2010 CLRP conformity analysis using 2020 ridership levels for 2030 and 2040; and

WHEREAS, on October 14, 2010, the draft Air Quality Conformity Determination of the 2010 CLRP and FY 2011-2016 TIP was releasedfor a 30-day public comment period and inter-agency review; and

WHEREAS, the analysis reported in ***Air Quality Conformity Determination of the 2010 Constrained Long Range Plan and the FY 2011-2015 Transportation Improvement Program for the Washington Metropolitan Region***, dated October 14, 2010 demonstrates adherence to all mobile source emissions budgets for volatile organic compounds, nitrogen oxides, carbon monoxide and fine particle emissions (PM2.5), and demonstrates that PM2.5 emissions meet the requirement that such emissions are not greater than 2002 levels, meets all regulatory, planning and in teragency consultation requirements, and therefore provides the basis for a finding of conformity of the plan and program with the requirements of the CAAA; and

WHEREAS, in the attached letter of November 10, 2010,the Metropolitan Washington Air Quality Committee (MWAQC) states that it has reviewed the ***Air Quality Conformity Determination of the 2010 Constrained Long Range Plan and the FY 2011-2016 Transportation Improvement Program for the Washington Metropolitan Region***, and that the analysis demonstrates that all required emissions tests are being met.

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD determines that the 2010 Constrained Long Range Plan and the Transportation Improvement Program for FY 2011-2016 conform to all requirements of the Clean Air Act Amendments of 1990.

Adopted by the Transportation Planning Board at its regular meeting on November 17, 2010.

TPB R6-2011
November 17, 2010

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION APPROVING
THE 2010 CONSTRAINED LONG RANGE
TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) of 2005 for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, the Federal Planning Regulations of the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) implementing SAFETEA-LU, which became effective July 14, 2007, specify the development and content of the long range transportation plan and require that it be reviewed and updated at least every four years; and

WHEREAS, on July 15, 2009, the TPB approved the 2009 Constrained Long-Range Transportation Plan (CLRP) and FY 2010-2015 TIP which were developed as specified in the Federal Planning Regulations; and

WHEREAS, on November 18, 2009, the TPB issued a solicitation document for projects and strategies to be included in the 2010 CLRP and FY 2011-2016 TIP that will meet federal planning requirements and address the federal planning factors and goals in the TPB Vision; and

WHEREAS, the transportation implementing agencies in the region provided submissions for the 2010 CLRP and inputs to the FY 2011-2016 TIP, and the TPB Technical Committee and the TPB reviewed the submissions at meetings in April and May 2010; and

WHEREAS, on May 19, 2010, the TPB approved the major projects submitted for inclusion in the air quality conformity assessment for the 2010 CLRP and FY 2011-2016 TIP; and

WHEREAS, on October 14, 2010, the draft 2010 CLRP, the FY 2011-2016 TIP, and conformity assessment were released for a 30-day public comment period and inter-agency review at the TPB Citizens Advisory Committee (CAC) meeting; and

WHEREAS, the significant changes for the 2010 CLRP are described in the attached memorandum of November 10, 2010 and on the TPB web site, and detailed information on all of the projects in the 2010 CLRP is provided on the TPB web site and in Appendix B of the Air Quality Conformity report as adopted November 17, 2010; and

WHEREAS, an updated comprehensive financial plan for the 2010 CLRP demonstrates that the forecast revenues reasonably expected to be available are equal to the estimated costs of expanding and adequately maintaining and operating the highway and transit system in the region through 2040; and

WHEREAS, in each year's update of the CLRP between 2000 and 2004, the TPB has explicitly accounted for the funding uncertainties affecting the Metrorail system capacity and levels of service beyond 2005 by constraining transit ridership to or through the core area to 2005 levels; and

WHEREAS, as a result of the "Metro Matters" commitments for Metro's near-term funding, the transit ridership constraint to or through the core area was applied in the 2005 through 2008 CLRP conformity analysis using 2010 ridership levels rather than 2005 levels; and

WHEREAS, as a result of the federal legislation enacted in October 2008 to authorize $150 million per year for 10 years in funding for WMATA's capital and preventive maintenance projects, and steps taken by the legislatures of Maryland, Virginia, and District of Columbia to identify the required dedicated local matching revenues, this additional revenue was assumed to be available in the financial plan for the 2010 CLRP and the transit ridership constraint to or through the core area was applied in the 2010 CLRP conformity analysis using 2020 ridership levels for 2030 and 2040; and

WHEREAS, on October 14, 2010, the draft Air Quality Conformity Determination of the 2010 CLRP and FY 2011-2016 TIP and web-based information were released for a 30-day public comment period and inter-agency review; and

WHEREAS, during the development of the 2010 CLRP, the TPB Participation Plan was followed, and numerous opportunities were provided for public comment: (1) At the April 15, 2010 TPB Citizens Advisory Committee (CAC) meeting, the project submissions for inclusion in the air quality conformity analysis of the plan and the and the air quality conformity work scope were released, and an opportunity for public comment on these submissions was provided at the beginning of the May TPB meeting; (2) At the May 19 meeting, the TPB approved a set of responses to the public comments on the project submissions for inclusion in the CLRP and TIP documents; (3) On July 8, 2010 the 2010 CLRP was presented to the TPB's Access for All Advisory Committee for their consideration and comment; (4) On October 14 in conjunction with the CAC meeting, a public meeting was held on the draft 2010 CLRP and the 2010 financial analysis, the draft FY 2011-2016 TIP, and the draft air quality conformity analysis, and the plan and TIP documents were released for a 30-day public comment period which closed on

November 13, (5) An opportunity for public comment on these documents was provided on the TPB web page and at the beginning of the October and November TPB meetings; and (6) the final version of the TIP will include summaries of all comments and responses; and

WHEREAS, on November 17, 2010, the TPB determined that the 2010 CLRP conforms with the requirements of the Clean Air Act Amendments of 1990; and

WHEREAS, the TPB Technical Committee has recommended favorable action on the 2010 CLRP by the Board,

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD approves the 2010 Constrained Long-Range Transportation Plan for the National Capital Region, as described in the attached memorandum and the TPB web site, and Appendix B of the Air Quality Conformity report.

Adopted by the Transportation Planning Board at its regular meeting on November 17, 2010.

TPB R7-2011
November 17, 2010

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION APPROVING
THE TRANSPORTATION IMPROVEMENT PROGRAM FOR FY 2011-2016

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) of 2005 for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, the Federal Planning Regulations of the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) implementing SAFETEA-LU, which became effective July 14, 2007, specify the development and content of the long range transportation plan and require that it be reviewed and updated at least every four years; and

WHEREAS, the TIP is required by FHWA and FTA as a basis and condition for all federal funding assistance to state, local and regional agencies for transportation improvements within the Washington planning area; and

WHEREAS, on July 15, 2009, the TPB approved the 2009 Constrained Long-Range Transportation Plan (CLRP) and FY 2010-2015 TIP which were developed as specified in the Federal Planning Regulations; and

WHEREAS, on July 15, 2009, the TPB directed TPB staff to include in the FY 2010-2015 TIP and subsequent TIPs a separate analysis and description of bicycle and pedestrian projects with funding levels where possible; and

WHEREAS, on November 18, 2009, the TPB issued a solicitation document for projects and strategies to be included in the 2010 CLRP and FY 2011-2016 TIP that will meet federal planning requirements and address the federal planning factors and goals in the TPB Vision; and

WHEREAS, the transportation implementing agencies in the region provided submissions for the 2010 CLRP and inputs to the FY 2011-2016 TIP, and the TPB Technical Committee and the TPB reviewed the submissions at meetings in April, September and October 2010; and

WHEREAS, on May 19, 2010, the TPB approved the major projects submitted for inclusion in the air quality conformity assessment for the 2010 CLRP and FY 2011-2016 TIP; and

WHEREAS, on October 14, 2010, the draft 2010 CLRP, the FY 2011- 2016 TIP, and conformity assessment were released for a 30-day public comment period and inter-agency review at the TPB Citizens Advisory Committee (CAC) meeting; and

WHEREAS, the FY 2011-2016 TIP proj ects are consistent with the 2010 CLRP as approved by the TPB on Nov ember 17, 2010; and are selected in accor dance with the Federal Planning Regulations; and

WHEREAS, the FY 2011-2016 TIP has been developed to meet the financial requirements in the Federal Planning Regulations; and

WHEREAS, on November 17, 2010, the TPB dete rmined that the 2010 CLRP and F Y 2011-2016 TIP conform with the requirements of the Clean Air Act Amendments of 1990; and

WHEREAS, the U.S. Department of Transportation issued regulations in 1991 on providing transit services to persons with disabilities to conform to the Americans With Disabilities Act (ADA) of 1990, and by January 1997, both the Washington Metropolitan Area Tr ansit Authority and Frederick County AD A Paratransit services were operating as planned in conformance with the regulations; and

WHEREAS, during the development of the 2010 CLRP and F Y 2011-2016 TIP, the TPB Participation Plan was followe d, and num erous opportunities were provided for public comment: (1) At the April 15, 2010 TPB Citizens Advisory Committee (CAC) meeting, the project submissions for inclusion in the air quality conformity analysis of the plan and t he and the air quality c onformity work scope were released, and an oppo rtunity for public comment on these submissions was provided at the beginning of the May TPB meeting; (2) At the May 19 meeting, the TPB approved a set of responses to the public comments on the project submissions for inclusion in the CLRP and TIP documents; (3) On July 8, 2010 the 2010 CLRP was presented to the TPB's Acc ess for All Advisory Committee for their consideration and comment; (4) On October 14 in conjuncti on with the CAC meeting, a public meeting was held on the draft 2010 CLRP and the 2010 financial analysis, the draft FY 2011-2016 TIP, and the dr aft air qualit y conformity analys is, and the plan and TI P documents were released for a 30-day public comment period which closed on November 13, (5) An opportunity for public comment on these documents was provided on the T PB web page and at the beginning of the October and November TPB meetings; and (6) the final version of the TIP will include summaries of all comments and responses; and

WHEREAS, the TPB Technical Committee has reco mmended favorable action on the F Y 2011-2016 TIP by the Board,

NOW, THEREFORE, BE IT RESOLVED THAT t he NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD approves the enclosed Transportation Improvement Program for FY 2011-2016.

Adopted by the Transportation Planning Board at its regular meeting on November 17, 2010.

TPB R8-2011
November 17, 2010

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ENDORSING THE 2010 CERTIFICATION OF THE URBAN TRANSPORTATION PLANNING PROCESS FOR THE NATIONAL CAPITAL REGION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) of 2005 for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Washington Metropolitan Area; and

WHEREAS, in the March 27, 2006 report: ***Transportation Planning Certification Summary Report Washington, DC-VA-MD, Transportation Management Area,*** FHWA and FTA determined that " the transportation planning process of the Transportation Planning Board of the Washington DC-VA-MD TMA meets the requirements of the Metropolitan Planning Rule at 23 CFR Part 450 Subpart C and 49 CFR Part 613;" and

WHEREAS, the Federal Planning Regulations implementing SAFETEA-LU, which were issued February 14, 2007 by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA), require that " the state and MPO shall certify at least every four years that the metropolitan transportation planning process is addressing the major issues facing the area and is being carried out in accordance with all applicable requirements..."; and

WHEREAS, on July 15, 2009 the TPB approved the 2009 Constrained Long-Range Transportation Plan (CLRP) and FY 2010-2015 TIP which meet the Federal Planning Regulations and are fully documented on the TPB web site; and

WHEREAS, on November 19, 2009, FHWA and FTA found that the 2009 CLRP and FY 2010-2015 TIP conform to the region's State Implementation Plans; and

WHEREAS, on November 17, 2010, the TPB approved the 2010 CLRP and the FY 2011-20016 TIP; and

WHEREAS, a Statement of Certification, dated November 17, 2010 has been prepared with signatures of officials from the District of Columbia Department of Transportation, the Maryland Department of Transportation, the Virginia Department of Transportation, and the TPB and is appended to this resolution.

NOW, THEREFORE BE IT RESOLVED BY THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD THAT:

The appended Statement of Certification, dated November 17, 2010 which finds that the transportation planning process is addressing the major issues in the National Capital Region and that the process is being conducted in accordance with all applicable requirements, is hereby endorsed and the Chair of the TPB is authorized to sign it.

Adopted by the Transportation Planning Board at its regular meeting on November 17, 2010.

TPB R19- 2011
June 15, 2011

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON AN AMENDMENT TO THE FY 2011- 2016 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) THAT IS EXEMPT FROM THE AIR QUALITY CONFORMITY REQUIREMENT TO UPDATE PROJECT FUNDING IN THE VIRGNIIA SECTION, AS REQUESTED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, the TIP is required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) as a basis and condition for all federal funding assistance to state, local and regional agencies for transportation improvements within the Washington planning area; and

WHEREAS, on November 17, 2010 the TPB adopted the FY 2011-2016 TIP; and

WHEREAS, the TIP is available online at www.mwcog.org/clrp/tip/ in both a searchable database and PDF formats and is updated as necessary to reflect amendments and administrative modifications; and

WHEREAS, notice was provided at the TPB Citizens Advisory Committee (CAC) meeting on May 12, 2011 that VDOT had requested an amendment to the FY 2011-2016 TIP to update funding information and amounts in the Virginia section to match VDOT's FY 2011-2016 Six Year Improvement Program, as described in the attached materials; and

WHEREAS, copies of the 86-page proposed TIP update document were available at the May 18 and June 15 TPB meetings and on the web at www.mwcog.org/clrp/tip/vdot-update/; and

WHEREAS, the proposed changes are exempt from the air quality conformity requirement, as defined in Environmental Protection Agency (EPA) regulations "40 CFR Parts 51 and 93 Transportation Conformity Rule Amendments: Flexibility and Streamlining; Final Rule," issued in the May 6, 2005, ***Federal Register;***

NOW, THEREFORE, BE IT RESOLVED THAT the National Capital Region Transportation Planning Board amends the FY 2011-2016 TIP to update funding information and amounts in the Virginia section to match VDOT's FY 2011-2016 Six Year Improvement Program, as described in the attached materials.

Adopted by the Transportation Planning Board at its regular meeting on June 15, 2011.

National Capital Region Transportation Planning Board

777 North Capitol Street, N.E., Suite 300, Washington, D.C. 20002-4290 (202) 962-3310 Fax: (202) 962-3202 TDD: (202) 962-3213

MEMORANDUM

June 9, 2011

To: Transportation Planning Board

From: Ronald F. Kirby
Director, Department of Transportation Planning

Re: Approval of Proposed Amendment to Update Projects and Funding in the Virginia Section of the FY 2011-2016 Transportation Improvement Program

On May 12, 2011 the Virginia Department of Transportation provided notice of a request for an amendment to update projects and funding in its section of the FY 2011-2016 Transportation Improvement Program (TIP). The proposed update reflects the latest planned funding obligation for both Highway and Transit projects as reflected in the Commonwealth of Virginia's currently approved FY 2011-2016 Six Year Improvement program (SYIP) as amended by the Commonwealth Transportation Board (CTB). The update does not reflect the proposed FY 2012-2017 SYIP that is currently under review by the CTB. The planned funding obligation continues the CTB's Federal Strategy obligating funds for the various projects and its phases as merited by the project's estimates and schedules with the objective of maximizing the Commonwealth's use of federal and state funds. This update is similar to the annual TIP update performed by the TPB.

The changes in project funding included in this update include: (1) changes in funding amounts to reflect latest project or project phase estimates; (2) changes in planned year of funding obligation to reflect latest project or project phase's schedule; (3) changes to the type of funds planned to be obligated for a project or project phase to maximize the agency's funding strategy; and (4) funding for a new project or a new phase of an existing project that does not affect the approved air quality conformity analyses of the 2010 CLRP.

During the 30-day public comment period, comments were submitted by the Virginia Department of Rail and Public Transportation (DRPT) and Virginia Railway Express (VRE) to correct funding amounts and sources shown in the transit portion of the TIP.

Three tables follow this memo that summarize the proposed update to the FY 2011-2016 TIP. Tables A and B compare the proposed update to current funding amounts in the approved TIP by funding source and project type, respectively. These two tables show an increase in TIP funding of $1.57 billion – an approximate increase of 22%. The currently approved TIP is based on VDOT's FY 2009-2012 STIP which programmed funds through FY 2012. The proposed updates are based on the proposed FY 2012-2015 STIP which extends funding through FY 2015, providing an additional three years of funding. Table C compares the funding amounts programmed in each fiscal year against the estimated revenue from each source, in order to demonstrate the financial constraint of the proposed update to the TIP.

Copies of the 86-page TIP update document will be made available at the TPB meeting on June 15, and can be seen online at www.mwcog.org/clrp/tip/vdot-update/.

	Source	Fed/St/Loc	Previous Funding	FY 11	FY 12	FY 13	FY 14	FY15	FY 16	Source Total

I-95 Provide 4th Lane Both Directions

TIP ID: **4533** Agency ID: **57017** Title: **I-95 Provide 4th Lane Both Directions** Complete: **2011**

Facility: I 95 (provide 4th lane)
From: VA 7100 Newington
To: VA 123 Occoquan Road
Description: Widen from six to eight lanes.

Source	Fed/St/Loc	Previous Funding	FY 11	FY 12	FY 13	FY 14	FY15	FY 16	Source Total
AC Conversion	80/20/0	34,597 c	13,908 c	5,351 c					19,259
								Total Funds:	***19,259***

I-95/I-395 HOV / Bus / HOT Lanes Project

TIP ID: **4212** Agency ID: **70849 VI3b** Title: **I-95/I-395 HOV / Bus / HOT Lanes Project** Complete: **2015**

Facility: I 95 I-395 HOV/Bus/HOT
From: Approx. 2 mi. N. of I-495 in Fairfax County
To: VA 610 Garrisonville Road in Stafford County

Source	Fed/St/Loc	Previous Funding	FY 11	FY 12	FY 13	FY 14	FY15	FY 16	Source Total
AC	80/20/0			180 a					180
NHS	80/20/0			2,473 a					2,473
State/DC	0/100/0	2,000 b 370,200 c							
								Total Funds:	***2,653***

Description: Reconfigure the existing HOV facility approx. 2 mi. north of I-495 and just south of the Town of Dumfries from 2 to 3 lanes. Convert HOV to High Occupancy Toll (HOT) lanes.
• HOV-3, transit and emergency response vehicles will use these lanes free of charge.
• Other vehicles may use the facility by paying an electronic toll.
• Tolls will vary based on time of day, day of week, and level of congestion in order to maintain free-flow conditions.

In the southbound direction, construct an extended transition lane and a new fly-over ramp, from the HOV/BUS/HOT lanes to ease congestion as traffic merges into the general purpose lanes. Create or modify a number of connections to the existing HOV lanes to improve access to the HOT lane system for HOV and transit users.

The following enhancements to transit services are included as a part of the project:
• 13 new bus routes
• Increased frequency of bus service on existing and new routes incrementally in 2010, 2020 and 2030.
• Addition of bus-only ramps in and out of the Pentagon at Eads St., an in-line bus station near the Lorton VRE station, and a bus-only access ramp at Seminary Rd.
• 6 new Park & Ride facilities with a total of 3,000 additional parking spaces.

Total capital, operating, maintenance and maintenance facility costs for the Transit Service Plan are $390 million. The proposed transit element is likely to be refined based on the findings of a detailed Transit/TDM Plan being developed by the Transit Advisory Committee (TAC).

Eads St to VA 234, from 2 to 3 lanes. VA 234 to Joplin Rd, from zero to 2 lanes. Joplin Rd to Garrisonville Rd, from zero to 1 lane.

TPB R5-2012
November 16, 2011

NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION FINDING THAT THE 2011 CONSTRAINED LONG RANGE PLAN CONFORMS WITH THE REQUIREMENTS OF THE CLEAN AIR ACT AMENDMENTS OF 1990

WHEREAS, the National Capital Region Transportation Planning Board (TPB) has been designated by the Governors of Maryland and Virginia and the Mayor of the District of Columbia as the Metropolitan Planning Organization (MPO) for the Washington Metropolitan Area; and

WHEREAS, the U.S. Environmental Protection Agency (EPA), in conjunction with the U.S. Department of Transportation (DOT), under the Clean Air Act Amendments of 1990 (CAAA), issued on November 24, 1993 "Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act," and, over the years, subsequently amended these regulations and provided additional guidance, which taken together provide the specific criteria for TPB to make a determination of conformity of its financially Constrained Long Range Transportation Plan (CLRP) with the state implementation plans for air quality attainment within the Metropolitan Washington non-attainment area; and

WHEREAS, a work program was developed to address all procedures and requirements, including public and interagency consultation, and the work program was released for public comment on February 10 and approved by the TPB at its March 16, 2011 meeting; and

WHEREAS, on March 16, 2011, the TPB approved the projects submitted for inclusion in the air quality conformity assessment for the 2011 CLRP; and

WHEREAS, in each year's update of the CLRP between 2000 and 2011, the TPB has explicitly accounted for the funding uncertainties affecting the Metrorail system capacity and levels of service beyond 2005 by constraining transit ridership to or through the core area; and

WHEREAS, after accounting for the "Metro Matters" commitments for Metro's near-term funding and the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) legislation and state matching, the transit ridership constraint to or through the

core area was applied in the both the 2010 CLRP and 2011 CLRP conformity analyses using 2020 ridership levels for 2030 and 2040; and

WHEREAS, on October 11, 2011, the draft results of the Air Quality Conformity Determination of the 2011 CLRP were released for a 30-day public comment period and inter-agency review; and

WHEREAS, the analysis reported in ***Air Quality Conformity Determination of the 2011 Constrained Long Range Plan for the Washington Metropolitan Region***, dated November 16, 2011, demonstrates adherence to all mobile source emissions budgets for volatile organic compounds, nitrogen oxides, carbon monoxide and fine particle emissions ($PM_{2.5}$), and demonstrates that $PM_{2.5}$ emissions meet the requirement that such emissions are not greater than 2002 levels, meets all regulatory, planning and interagency consultation requirements, and therefore provides the basis for a finding of conformity of the plan with the requirements of the CAAA; and

WHEREAS, in the attached letter of November 9, 2011, the Metropolitan Washington Air Quality Committee (MWAQC) has provided favorable comments on the Air Quality Conformity Determination of the 2011 Constrained Long Range Plan for the Washington Metropolitan Region;

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD determines that the 2011 Constrained Long Range Plan conforms to all requirements of the Clean Air Act Amendments of 1990.

Adopted by the Transportation Planning Board at its regular meeting on November 16, 2011

2011 CLRP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status
VDOT	VI2p	Widen	I-95 (provide 4th lane)	Newington	VA 123	1	1	6	8	Yes	2011
VDOT	VI2ab	Reconstruct	I-95 Interchange	@ VA 642 (Lorton Road)		1	1	-	-	No	2010
VDOT	VI2RB	Widen	I-395 HOV Lanes ramp	exit to Eads St.		1	1	1	2	No	2014
VDOT	VI2r	Widen / Construct	I-395/I-95 HOV/ BUS/ HOT Lanes	Approx. 2 mi. N. of I-495	VA 3000 (Prince William Pkwy)	1	1	2	3	No	2015
VDOT	VI2r	Construct	I-395/I-95 HOV/ BUS/ HOT Lanes	VA 3000 (Prince William Parkway)	S. of VA 234 (Dumfries Rd.)	1	1	2	2	No	2015
VDOT	VI2r	Construct	I-395/I-95 HOV/ BUS/ HOT Lanes	S. of VA 234 (Dumfries Rd.)	VA 610 (Garrisonville Rd.) in Stafford Co.	1	1	0	2	No	2015
~~VDOT~~	~~VI2r~~	~~Widen~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~NB HOV/Bus/HOT lanes~~	~~Eads Street~~	~~1~~	~~1~~	~~1~~	~~2~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Widen~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~Eads St.~~	~~SB HOV/Bus/HOT lanes~~	~~1~~	~~1~~	~~2~~	~~3~~	~~No~~	~~2015~~
~~VDOT~~	~~VI2r~~	~~Remove~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~SB Express to SB Gen. use lanes~~	~~Between S Hayes St. & Washington Blvd.~~	~~1~~	~~-~~	~~1~~	~~0~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~NB HOV/Bus/HOT Lanes~~	~~Shirlington Circle~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~Shirlington Circle~~	~~SB HOV/Bus/HOT Lanes~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95 : HOV / Bus / HOT Bus Only Ramp:~~	~~NB HOV/Bus/HOT Lanes~~	~~VA 420 (Seminary Road) (bus only)~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~VA 420 (Seminary Road) (bus only)~~	~~SB HOV/Bus/HOT Lanes~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
VDOT	VI2r11	Construct	I 95: HOV / Bus / HOT Lanes Ramp: Between VA 648 (Edsall) and Turkeycock Run	NB I-395 HOV/HOT lanes	NB I-395 GP	-	1	0	1	No	2015
VDOT	VI2r24	Construct	I 95: HOV / Bus / HOT **Reversible** Ramp:	NB HOV/Bus/HOT Lanes	VA 7100 (Fairfax Co. Pkwy) (Alban Rd.)	-	1	0	1	No	2015
VDOT	VI2r24	Construct	I 95: HOV / Bus / HOT **Reversible** Ramp:	VA 7100 (Fairfax Co. Pkwy) (Alban Rd.)	SB HOV/Bus/HOT Lanes	-	1	0	1	No	2015
VDOT	BRAC0004 / VI2ra	Construct	I-95 Reversible Ramp (Colocated w/ existing slip ramp from HOV to GP lanes)	NB HOV/BUS/HOT Lanes - Located N of Rte. 7100/I 95 I/C **Phase II DAR**	EPG Southern Loop Road. - AM Only	1	1	0	1	No	2016

Note: Shaded areas represent changes from the 2010 CLRP and FY2011-2016 TIP Amendments

2011 CLRP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status
VDOT	BRAC0004 / VI2rb	Construct	I-95 Reversible Ramp (Colocated w/ existing slip ramp from HOV to GP lanes)	EPG Southern Loop Road. - PM Only **Phase I DAR**	SB HOV/BUS/HOT Lanes - N of Rte. 7100/I 95 I/C	1	1	0	1	No	2012
VDOT	BRAC0004/ VI2rc	Construct	I-95 Ramp (Colocated w/ existing slip ramp from HOV to GP lanes)	EPG Southern Loop Road. - PM Only **Phase I DAR**	NB I 95 GP Lanes	1	1	0	1	No	2012
as represent c	BRAC0005 / VI2rd	Widen	I-95 Ramp	SB I 95 General Purpose Lanes	NB Fairfax Co. Parkway / EPG Southern Loop Road	1	1	1	2	complete	2010
FY2011-2016 T	BRAC	Construct	I-95 NB Off Ramp @ Newington	NB I-95	NB Fairfax County Parkway	1	1	0	1	No	2020
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~NB HOT lanes to new bus station, back to NB HOT lanes (bus only)~~	~~Between VA 7100 (Fairfax Co. Pkwy.) and VA 642 (Lorton Rd.)~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~SB HOT lanes to new bus station, back to SB HOT lanes (bus only)~~	~~Between VA 7100 (Fairfax Co. Pkwy.) and VA 642 (Lorton Rd.)~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~NB HOV/Bus/HOT to Gen. use lanes~~	~~Between VA 7100 (Fairfax Co. Pkwy.) and VA 642 (Lorton Rd.)~~	~~0~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
VDOT	VI2r31	Construct	I 95: HOV / Bus / HOT Ramp:	SB Gen Purpose Lanes to SB HOV/Bus/HOT lanes	Between US 1 & VA 123	-	1	0	1	No	2015
VDOT	VI2r37	Construct	I 95: HOV / Bus / HOT Ramp:	SB Gen Purpose Lanes to SB HOV/Bus/HOT lanes	Between Opitz Blvd. and Dale Blvd.	-	1	0	1	No	2015
VDOT	VI2r34	Construct	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT to Gen. use lanes	Between VA 123 (Gordon Rd.) & VA 3000 (Prince William Pkwy.)	-	1	0	1	No	2015
~~VDOT~~	~~VI2r~~	~~Construct~~	~~I 95: HOV / Bus / HOT Ramp:~~	~~NB HOV/Bus/HOT to Gen. use lanes~~	~~Between VA 610 (Cardinal Rd.) & VA 234 (Dumfries Rd.)~~	~~-~~	~~1~~	~~0~~	~~1~~	~~No~~	~~2012~~
VDOT	VI2r43	Construct	I 95: HOV / Bus / HOT Ramp:	SB HOV/Bus/HOT lanes to SB Gen Purpose Lanes	Between Dumfries Rd. and Joplin Rd.	-	1	0	1	No	2015

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2011 CLRP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status
VDOT	VI2r43a	Construct	I 95: HOV / Bus / HOT Ramp:	SB Gen Purpose Lanes to SB HOV/Bus/HOT lanes	Between Dumfries Rd. and Joplin Rd.	-	1	0	1	No	2018
VDOT	VI2r45a	Construct	I 95: HOV / Bus / HOT Ramp:	NB HOV/Bus/HOT lanes to NB Gen Purpose Lanes	Between Joplin Rd. and Russell Rd.	-	1	0	1	No	2018
VDOT	VI2r44	Construct	I 95: HOV / Bus / HOT Ramp:	SB HOV/BUS/HOT lanes to SB GP lanes	Between VA 619 (Joplin Rd.) and VA 610 (Garrisonville Rd.)	-	1	0	1	No	2015
VDOT	VI2r45	Construct	I 95: HOV / Bus / HOT Ramp:	NB GP lanes to NB HOV/BUS/HOT Lanes	Between VA 619 (Joplin Rd.) and VA 610 (Garrisonville Rd.)	-	1	0	1	No	2015
VDOT	VI2R6A	Construct	I-395 HOV Lanes Reversible Ramp	NB HOV off-ramp to Seminary Rd. & Seminary Rd. on-ramp to SB HOV		1	1	0	1	No	2015
VDOT	VI2ca	Construct	I-495 access ramps (Phase VIII of I-95/394/495 Interchange)	Backlick Rd. to 1. mi. E. of I95/I395/I495	& SB main & HOT to/from I-495/I-95 EB & WB main & HOV lanes)	1	1	-	-	No	2013
VDOT	VI4Iaux	Widen	I-495 NB Auxiliary Lane	1. mi. East of I-95/395/495	North of Hemming Ave. underpass	1	1	4+2	5+1	Yes	2013
VDOT	VI4Iaux	Widen	I-495 SB Auxiliary Lane	North of Hemming Ave. Underpass	1. mi. East of I-95/395/495	1	1	4+2	5+1	Yes	2013
VDOT	VI4Iaux	Widen	I-495 NB Auxiliary Lane	North of Hemming Ave. Underpass	Off Ramp to Braddock Rd	1	1	4+2	5+2	Yes	2030
VDOT	VI4Iaux	Widen	I-495 SB Auxiliary Lane	On Ramp from Braddock Rd	North of Hemming Ave. Underpass	1	1	4+2	5+2	Yes	2030
VDOT	VI4Iaux	Widen	I-495 NB Auxiliary Lane	On Ramp from Braddock Rd	Off Ramp to Rte 236	1	1	4+2	5+2	Yes	2030
VDOT	VI4Iaux	Widen	I-495 SB Auxiliary Lane	On Ramp from Rte 236	Off Ramp to Braddock Rd	1	1	4+2	5+2	Yes	2013
VDOT	VI4Iaux	Widen	I-495 NB Auxiliary Lane	On Ramp from Rte 236	Off Ramp to Gallows Road	1	1	4+2	5+2	Yes	2030
VDOT	VI4Iaux	Widen	I-495 SB Auxiliary Lane	On Ramp from Gallows Road	Off Ramp to Rte 236	1	1	4+2	5+2	Yes	2030
VDOT	VI4Iaux	Widen	I-495 NB Auxiliary Lane	On Ramp from Gallows Road	Off Ramp to Route 50	1	1	4+2	6+2	Yes	2013

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2011 CLRP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

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VDOT	VSP23e	Widen	VA 3000 (Prince William Pkwy.)	Hoadley Rd.	Old Bridge Rd.	2	2	4	6	Yes	2012
VDOT	VSP23f	Widen	VA 3000 (Prince William Pkwy.)	Old Bridge Rd.	Minnieville Rd.	2	2	4	6	No	2020
VDOT	VSP3a	Widen/ Upgrade	VA 621 (Balls Ford Road)	VA 234 (Sudley Road)	Bethlehem Road	4	3	2	4	No	2040
VDOT	VSP3b	Widen/ Upgrade	VA 621 (Balls Ford Road)	Bethlehem Road	VA 234 Bypass	4	3	2	4	No	2040
VDOT	VSP5e	Widen	VA 640 (Minnieville Road)	VA 643 (Spriggs Road)	VA 234	3	3	2	4	No	2016
VDOT	VSP8a	Widen	VA 643 (Purcell Rd.)	VA 234 (Dumfries Rd.)	VA 642 (Hoadly Rd.)	3	3	2	4	No	2025
VDOT	VSP17b	Widen	VA 674 (Wellington Rd.)	VA 621 (Devlin Road)	VA 668 (Rixlew Lane)	3	3	2	4	No	2035
VDOT	VSP18	Widen	VA 676 (Catharpin Rd.)	VA 55 (John Marshall Highway)	Heathcote Blvd.	3	3	2	4	No	2040
VDOT	VSP20c	Widen/ Upgrade	VA 1392 (Rippon Boulevard Extension)	West of Wigeon Way	Rippon VRE Station	4	3	2	4	No	2040
VDOT	VSP47d	Construct	VA 840 (University Blvd.) (nee East-West Connector)	Route 660 (Hornbaker Road)	Sudley Manor Dr.	0	3	0	4	No	2016
VDOT		Widen	Hornbaker Rd.	N. of its intersection with University Blvd.	Thomason Barn Rd.			2	4	No	2016
VDOT	VSP62	Construct	Rollins Ford Rd.	Songsparrow Dr.	VA 215 (Vint Hill Rd.)	0		0	4	No	2016
FAMPO											
	VI2rf	Construct	I 95 : HOV / Bus / HOT Lanes	Rte. 610 (Garrisonville Rd.) in Stafford County	VA 17 in Spotsylvania County (exit 126)	1	1	0	2	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	South of Telegraph Road (North of Aquia Creek)	SB GP Lanes to SB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	South of Telegraph Road (North of Aquia Creek)	NB HOT Lanes to NB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	North of Garrisonville Road (south of Aquia Creek)	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Garrisonsville Road and Courthouse Road	SB GP Lanes to SB HOT Lanes	1	1	0	1	No	2015

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2011 CLRP AIR QUALITY CONFORMITY INPUTS

(Highway and HOV)

Agency	Project ID	Improv.	Facility	From	To	Facility from	Facility to	Lanes from	Lanes to	Under Const. or ROW acquired?	Complt. Date or Status
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Garrisonsville Road and Courthouse Road	NB HOT Lanes to NB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Garrisonsville Road and Courthouse Road	SB HOT Lanes to SB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Garrisonsville Road and Courthouse Road	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	South of Rt 628 (North of Stafford Regional Airport)	SB HOT Lanes to SB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	South of Rt 628 (North of Stafford Regional Airport)	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	(St.Co.Airport Access Rd.) and Rt 652	SB GP Lanes to SB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	(St.Co.Airport Access Rd.) and Rt 652	NB HOT Lanes to NB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	(St.Co.Airport Access Rd.) and Rt 652	SB HOT Lanes to SB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	(St.Co.Airport Access Rd.) and Rt 652	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	South of Rt 17 (North of Rappahannock River)	NB HOT Lanes to NB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Just South of Rappahannock River	SB HOT Lanes to SB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Just north of Rt 3	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Rt 620 and Rt 208	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Rt 620 and Rt 208	SB HOT Lanes to SB GP Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Rt 1 and Rt 17	NB GP Lanes to NB HOT Lanes	1	1	0	1	No	2015
		Construct	I 95 : HOV / Bus / HOT Lanes: Ramp	Between Rt 1 and Rt 17	SB HOT Lanes to SB GP Lanes	1	1	0	1	No	2015
	FAI1D	Reconstruct	I-95 interchange	Bypass)/Spotsvlvania Parkway		1	1	0	0	No	2020
	FAP5F	Widen	US 1	Prince William County Line	US 17(Warrenton Rd)/VA 218	2	2	4	6	No	2020

Note: Shaded areas represent changes from the 2010 CLRP and FY2011-2016 TIP Amendments

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
6363 Walker Lane, Suite 500
Alexandria, VA 22310
Office (571) 483-2600
Fax (571) 483-2601

GREGORY A. WHIRLEY
COMMISSIONER

MEMORANDUM

I95-00060

TO: Mohammad Mirshahi, P.E.
State Location and Design Engineer

ATTN: Barton A. Thrasher, P.E.
Assistant State Location and Design Engineer

FROM: John D. Lynch, P.E.
Regional Transportation Program Director

Randall A. Dittberner, P.E., P.T.O.E.
Regional Traffic Engineer

DATE: November 21, 2011

REF: I-95 HOV/HOT Lanes Project
Project Number 0095-96A-107, PE-101, P101 UPC # 70849

SUBJECT: Final Interchange Justification Report

Please find the attached I-95 HOV/HOT Lanes Project Final Interchange Justification Report for your review and action. This document was prepared to satisfy the requirements set forth by Federal and State Policy for changes in access to the interstate system. It is consistent with the Virginia Department of Transportation's Location and Design Division Instructional and Informational Memorandum LD-200.4, and reflects the latest revised FHWA policy statement regarding *Access to the Interstate System* (revised by FHWA on August 27, 2009).

The I-95 Draft Interchange Justification Report (IJR) was initially submitted to the Virginia Department of Transportation (VDOT) Central Office and to the Federal Highway Administration (FHWA) Division Office on September 23, 2011 by VDOT's MegaProjects office. Review comments on the draft document were received by FHWA on October 27 and 28, 2011 and resolution of those comments was agreed to at meetings between VDOT and FHWA on October 14, 2011 and November 7, 2011. In accordance with the discussions at the IJR comment resolution meeting, the Draft IJR document was revised to address comments from FHWA and VDOT. After a review of the IJR by VDOT staff, we are recommending approval of the proposed change in interstate access, subject to the following provisions:

1. Approval of the corresponding Environmental Assessment (EA) and issuance of Finding of No Significant Impact (FONSI) by FHWA for the Proposed Action in the IJR constitutes the final approval of the proposed interstate access modifications. The Draft EA was submitted by VDOT to FHWA in August, pursuant to 42 U.S.C. 4332(2) (C), and Approval for Public Availability was signed by FHWA on September 8, 2011. Public Hearings on the project were held on September 26, 28, and 29, 2011. Final approval of the EA and issuance of the FONSI is anticipated prior to the end of this year.

2. Final approval of the IJR is conditional on the final design of this project (as produced by the Concessionaire, Fluor/Transurban, through a PPTA Design-Build Contract) being consistent with the configuration shown in the corresponding EA and IJR. An additional reevaluation of the proposed changes in access may be warranted if a subsequent modification occurs in the design or proposed operations of this project or if its construction is delayed (as specified in 23 CFR 771.129).

3. The proposed auxiliary lane for the weave segment on the northbound I-395 mainline between Route 236 (Duke Street/Little River Turnpike) and Route 420 (Seminary Road), as discussed in the northern terminus mitigation section of the IJR, shall be implemented as different project with independent utility and under a separate contract. Design and construction of the proposed auxiliary lane is not considered an element of the I-95 HOV/HOT Lanes Project and will not be included as part of the Concessionaire's Design-Build contract or Comprehensive Agreement.

4. Design exceptions and waivers have been discussed in the Draft and Final IJR documents. Since the Draft IJR was submitted, several design exceptions and waivers have been updated during processing and review by VDOT Central Office staff and FHWA. FHWA has not yet approved any design exceptions. The Final Design Exception / Design Waiver Submittal Package is concurrently being reviewed for approval in conjunction with this IJR. Final approval of the IJR is contingent upon the completion of the review of the design exceptions and their approval by VDOT and FHWA.

5. As part of the continued development of the project, final design and details of the signing and pavement markings will be produced in accordance with the latest version of the MUTCD and VDOT and FHWA guidance. A conceptual signing and striping plan are included as part of the IJR in order to satisfy FHWA requirements; however approval of this IJR does not constitute approval of the final design for signing and striping. This effort will be subject to standard VDOT and FHWA design approvals in accordance with typical procedures and practice.

Upon your review and following approval by the Chief Engineer of the attached Final IJR document, indicating a *Finding of Engineering and Operational Acceptability*, please forward to the FHWA Virginia Division Office for their review/action indicating concurrence with the acceptability of the proposed modifications in interstate access. Your earliest attention to this matter is appreciated.

Attachments: Final IJR Report (Volumes I & II) and Comment Resolution Sheets (2 copies)
CD (w/all documents included), (2 copies)

RP/mb/y

CC: Garrett W. Moore, P.E., VDOT NOVA District Administrator W/O Attachments
William C. Cuttler, P.E., VDOT W/O Attachments
Hari K. Sripathi, P.E., VDOT W/O Attachments
Harinderbir S. Warraich, VDOT MegaProjects Office W/ Attachments
Timothy Young, Transurban W/O Attachments
Robert T. Kerns, P.E., P.T.O.E. Transurban W/Attachments
Matthew C. Stennes, Flour W/O Attachments
John C. Thomas, Flour W/Attachments
John A. DePasquale, P.E., VA MegaProjects W/O Attachments
Young Ho Chang, P.E., VA MegaProjects W/O Attachments
Michelle W. Corum, VA MegaProjects W/ Attachments
Michael T. Snare, P.E., VA MegaProjects W/ Attachments
Document Control I-95 W/Attachments

INTERSTATE 95 HOV/HOT LANES PROJECT

Commonwealth of Virginia

VIRGINIA MEGAPROJECTS

Interchange Justification Report

This document has been prepared to satisfy the requirements set forth by Federal and State Policy for changes in interstate access. It is consistent with the Virginia Department of Transportation's Location and Design Division Instructional and Informational Memorandum LD-200.4, and in accordance with the most recent update to FHWA's policy on *Access to the Interstate System* dated August 27, 2009.

Submitted to:

United States Department of Transportation

Federal Highway Administration

Submitted by:

VDOT Virginia Department of Transportation

Prepared under the direction and review of:

John D. Lynch, PE
Regional Transportation Program Director
Virginia Department of Transportation

11/19/11
Date

Randy Dittberner, PE, P.T.O.E
Regional Traffic Engineer
Virginia Department of Transportation

11/18/11
Date

VIRGINIA MEGAPROJECTS

TRANSMITTAL
No. 00155

PROJECT: 8.0 I-95/I-395 HOT Lanes

DATE: 11/23/2011

TO: Virginia Dept of Transportation
1401 East Broad Street
Annex Bldg. - 7th Floor
Richmond, VA 23219

REF: Final Interchange Justification Report

ATTN: Mohammad Mirshahi

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☑ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☐ Specifications	☑ Attached	☐ Returned for Corrections
☑ Other: Final Interchange Justification Report	☐ Separate Cover Via:	☐ Due Date:

Remarks: Please find the attached I-95 HOV/HOT Lanes Project Final Interchange Justification Report for your review and action.

Cc: Garrett W. Moore, P.E., VDOT NOVA District Administrator W/O Attachments
William C. Cuttler, P.E., VDOT W/O Attachments
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Michael T. Snare, P.E., VA MegaProjects W/ Attachments
Document Control I-95 W/Attachments

CC:

Signed: _____
Rob Prunty

VIRGINIA MEGAPROJECTS

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Michael T. Snare, P.E., VA MegaProjects W/ Attachments
Document Control I-95 W/Attachments

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Signed: _____
Rob Prunty

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☑ Other: Final Interchange Justification Report	☐ Separate Cover Via:	☐ Due Date:

Remarks: Please find the attached I-95 HOV/HOT Lanes Project Final Interchange Justification Report for your review and action.

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Michael T. Snare, P.E., VA MegaProjects W/ Attachments
Document Control I-95 W/Attachments

CC:

Signed: _____
Rob Prunty

VIRGINIA MEGAPROJECTS

TRANSMITTAL
No. 00155

PROJECT: 8.0 I-95/I-395 HOT Lanes

DATE: 11/23/2011

TO: Virginia Dept of Transportation
1401 East Broad Street
Annex Bldg. - 7th Floor
Richmond, VA 23219

REF: Final Interchange Justification Report

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COMMONWEALTH of VIRGINIA

Office of the Governor

Sean T. Connaughton
Secretary of Transportation

February 2, 2011

The Honorable Sharon Bulova, Chairman
Fairfax County Board of Supervisors
12000 Government Center Parkway,
Suite 530
Fairfax, Virginia 22035-0071

The Honorable William Euille, Mayor
City of Alexandria
301 King Street, Room 2300
Alexandria. Virginia 22314

The Honorable Chris Zimmerman, Chairman
Arlington County Board,
Suite 300
2100 Clarendon Boulevard
Arlington, Virginia, 22201

The Honorable Corey A. Stewart, Chairman
Prince William County Board of Supervisors
1 County Complex Court
Prince William, VA 22192

The Honorable L. Mark Dudenhefer, Chairman
Stafford County Board of Supervisors
3 Legal Court
Stafford, Virginia 22554

The Honorable Benjamin T. Pitts, Chairman
Spotsylvania Board of Supervisors
PO Box 99
Spotsylvania, VA 22553

The Honorable Thomas Tomzak, M.D., Mayor
City of Fredericksburg
PO Box 7447
Fredericksburg, VA 22404

Subject: Advancing New I-95 HOV/HOT Lanes Project, HOV/transit ramp at Mark Center

Dear Chairman Bulova, Mayor Euille, Chairman Zimmerman, Chairman Stewart, Chairman Dudenhefer, Chairman Pitts, and Mayor Tomzak:

Traffic congestion in the I-95/395 corridor is negatively impacting the economy and quality of life of the citizens of your localities. Growing employment at military sites affected by the Base Realignment and Closure Act (BRAC) is bringing new quality jobs to the region, but we are currently unequipped to meet the resulting transportation needs.

Upgrades to this critical corridor have been delayed for too long. The Commonwealth is taking immediate action to advance a package of improvements to address these critical needs and bring congestion relief and new travel choices to the region.

(1) VDOT is initiating a new I-95 HOV/HOT Lanes Project and beginning the environmental review process to enable the project to move forward to create an HOV/HOT Lanes network on I-95 from Garrisonville Road in Stafford County to Edsall Road in Fairfax County, as well as link the lanes directly to the new I-495 Capital Beltway HOT Lanes and into Tysons Corner.

(2) VDOT is advancing plans to construct a direct ramp from the existing HOV lanes on I-395 to Seminary Road which will connect the growing Mark Center site to this expanded regional transit and HOV network. The ramp will be restricted to transit and HOV use only.

(3) The Commonwealth is working with affected localities to develop and fund Park & Ride expansions and transit service to help maximize this new HOV/HOT network.

VDOT previously developed the I-95/395 HOV/HOT Lanes project to expand highway capacity, enhance carpooling opportunities, and fund transit in the corridor. Unfortunately, the project has been severely delayed due to a lawsuit filed by Arlington County. The delay has had a detrimental impact on the timing, scope and private finances of the project as originally envisioned.

The Commonwealth has worked for more than 18 months to resolve Arlington County's lawsuit against the project and individuals involved in the project. Despite efforts on both sides of the dispute, we have been unable to reach a settlement agreement.

VDOT has initiated a new HOV/HOT Lanes project so that we can move forward and deliver critical improvements to the region quickly. VDOT will undertake an environmental review process for the project that will extend and add capacity to the HOV lanes on I-95 to create an HOV/HOT Lanes network from the vicinity of Edsall Road in Fairfax County to Garrisonville Road in Stafford County. The project will also add new access points and connect directly to the I-495 Capital Beltway HOT Lanes, currently under construction.

The new HOT Lanes project will not include originally planned construction of six miles of HOV/HOT Lanes on I-395 in Alexandria or Arlington County or upgrades to key interchanges at Shirlington and Eads Street in Arlington County. Those lanes will continue to be restricted to HOV, transit, eligible hybrids, and motorcycles during rush hours.

The new I-95 HOV/HOT Lanes project will also relieve one of the worst traffic bottlenecks in the region where the existing HOV lanes currently end at Dumfries. Active management and dynamic tolling will be used to manage traffic across the HOV/HOT network, enhance incident response, provide reliable travel times, and reduce violators. Carpools with three or more people, vanpools and transit vehicles will have free access to the HOV/HOT Lanes network.

The new project will create a seamless, regional network of managed lanes connecting the I-95 and Capital Beltway corridors and serve Virginia's growing employment centers and military sites, including Tysons Corner, Ft. Belvoir, and Quantico. The network will create a free-flowing path for transit and provide the region's travelers new options, including first-time opportunities for carpooling and transit in many locations.

The Commonwealth will work with local jurisdictions in the geographical area of the new project to finalize and fund Park & Ride expansions and transit improvements to be delivered in parallel with the HOV/HOT Lanes project.

Concurrently, VDOT will proceed with plans to construct a new single-lane, reversible ramp to connect the existing HOV lanes on I-395 to Seminary Road. This ramp will provide direct HOV and transit access to Seminary Road to address the anticipated impact of the opening of the BRAC facility at the Mark Center. The ramp will be open only to HOV and transit.

We are committed to working collaboratively with local jurisdictions on the new I-95 HOV/HOT Lanes project scope and Seminary Road HOV/transit ramp to ensure we address the needs of adjacent communities and all travelers, including carpoolers, sluggers, and transit operators.

VDOT will submit these improvements as two separate amendments to this year's National Capital Region Financially Constrained Long-Range Transportation Plan. We will soon commence a series of technical sessions with local jurisdiction staff and other stakeholders to provide more detail on the design and operations issues we know are important to you and your constituents. These priorities include, but are not limited to, issues such as access points, traffic operations, interfaces with adjacent roadways, noise abatement, safety and incident management, stormwater management, the efficient movement of transit vehicles, and long-term service quality on the HOV/HOT network.

VDOT and its partners have launched a renewed communications and outreach program to keep residents and travelers informed as the new I-95 HOV/HOT project and Seminary Road HOV/transit ramp proceed. VDOT will host citizen information meetings as part of the environmental review process for the improvements, currently anticipated to be held in late 2011.

VDOT expects to complete federal environmental review requirements for the new HOV/HOT Lanes and to be prepared to begin construction by the 2012 construction season. Environmental reviews are expected to begin for the new HOV/transit ramp at Seminary Road in 2011, with construction commencing as early as 2012.

The Commonwealth will provide funding to support the improvements, along with a substantial equity commitment from the private sector for the HOV/HOT Lanes project.

Together, these improvements will be critical first steps in VDOT's effort to ultimately extend the HOV/HOT Lanes network to Spotsylvania County.

Now is the time to address the urgent transportation needs in the I-95 corridor – it is critical to the quality of life of our citizens and to our economic prosperity. We look forward to working collaboratively with you to advance this important package of improvements.

Sincerely,

Sean T. Connaughton

SC:ja

Cc: Members, Alexandria City Council
Members, Arlington County Board
Members, Fairfax County Board of Supervisors
Members, Prince William County Board of Supervisors
Members, Stafford County Board of Supervisors
Members, Spotsylvania County Board of Supervisors
Members, Fredericksburg City Council
The Honorable Gregory A. Whirley, Commissioner, Virginia Department of Transportation
Mr. Mal Kerley, Chief Engineer, Virginia Department of Transportation

Commonwealth of Virginia
Office of Governor Bob McDonnell

FOR IMMEDIATE RELEASE
December 6, 2011

Office of the Governor
Contact: Jeff Caldwell
Phone: (804) 225-4260
Email: Jeff.Caldwell@Governor.Virginia.Gov

Virginia Department of Transportation
Contact: Tamara Rollison
Phone: (804) 786-2715
Email: Tamara.Rollison@VDOT.Virginia.Gov

Governor McDonnell Announces I-95 HOV/HOT Lanes Project in Northern Virginia Advances
~Construction could begin as soon as spring 2012~

RICHMOND – Governor Bob McDonnell announced today that the Virginia Department of Transportation (VDOT) and Fluor-Transurban have come to an in-principle agreement on the major commercial terms to build the I-95 High Occupancy Vehicle/High Occupancy Toll (HOV/HOT) Lanes Project in Northern Virginia. Agreement on the commercial terms means both parties have established the major tenets of a contract. This step forward enables VDOT and Fluor-Transurban to finalize the details of a comprehensive agreement and financing package for the $940 million project.

"Through this action, we will put to work nearly $1 billion in private sector investment to address one of Virginia's most critical transportation needs," said Governor McDonnell "The project will bring congestion relief and new travel choices to Northern Virginians. It will also

provide an economic boost by supporting nearly 8,000 jobs over the construction period and stimulating $2 billion in economic activity."

The in-principle agreement was negotiated between Fluor-Transurban, VDOT Commissioner Greg Whirley, and Virginia's new Office of Transportation Public-Private Partnerships (OTP3). The project is being financed and constructed under Virginia's Public-Private Transportation Act with $843 million financed by Fluor-Transurban, with financial close targeted to occur in mid 2012. The state contribution is $97 million, which will be used in part to advance construction activities as early as spring 2012.

The project will expand the existing HOV facility on I-95 to create 29 miles of HOV/HOT Lanes between Edsall Road in Fairfax County and Garrisonville Road in Stafford County, with improved access to major Virginia employment centers and military sites. Motorists will have an option to pay a toll to use the HOT Lanes, while carpools with three people or more and buses will have free access to the lanes.

"Virginia recognizes it must get the most out of its existing transportation assets and find innovative solutions to move people and freight more efficiently," said Transportation Secretary Sean T. Connaughton. "With HOT lanes on both the Beltway and I-95, we will create a region-wide network of managed lanes that will enable travelers to get to and from some of Virginia's most important employment centers and military sites."

To maximize the benefits of the new HOT Lanes network, the Commonwealth will invest $200 million to expand bus service in Spotsylvania, Stafford, Prince William and Fairfax counties, and construct more than 3,000 new park and ride spaces.

Whirley added, "VDOT expects carpools and other travelers who use the existing HOV lanes will see faster, and more reliable commuting times when HOT lanes are introduced. The project will help keep traffic moving with improved enforcement and incident response, and by eliminating what is one of the worst traffic bottlenecks in the region at Dumfries."

Key aspects of the agreement require Fluor-Transurban to:

- Provide a fixed-price, fixed-date, design-build contract
- Finance, design and build the facility; manage and fund all operations and maintenance for a period of 73 years following construction
- Share revenue with the Commonwealth at agreed upon rates to fund other transportation improvements in the corridor should the HOT Lanes be a financial success
- Provide substantial contract opportunities for Disadvantaged Business Enterprises and Small, Women and Minority-Owned businesses
- Maintain free access for High Occupancy Vehicles (HOV) meeting state eligibility requirements and buses
- Manage traffic levels over the long-term to facilitate quality, reliable travel for HOV and buses
- Develop and operate a dynamic tolling system. Tolls will vary based on demand to provide fast, reliable travel times. All tolls will be paid with an E-ZPass and there will be

no toll booths. Electronic signs will alert travelers to current toll rates so they can make an informed choice whether or not to use the HOT Lanes.

- Return the asset to the Commonwealth in good working order at the end of the agreement

VDOT will continue to own and oversee all aspects of the facility to ensure the HOV/HOT lanes are constructed, operated and maintained in accordance with agreed-upon standards.

The I-95 HOV/HOT lanes will:

- Expand the I-95 HOV lanes from two to three lanes for 14 miles from Edsall Road to the Prince William Parkway, improve six miles of existing HOV lanes from the Prince William Parkway to Route 234, and extend the HOV lanes for nine miles from Dumfries in Prince William County to Garrisonville Road in Stafford County, alleviating the worst bottleneck in the region. Stafford County would have HOV lanes for the first time.
- Provide a seamless connection to the I-495 HOT Lanes (under construction) and Tysons Corner
- Allow free travel for carpools with three or more persons as well as buses, vanpools, motorcycles and emergency vehicles. Charge single-person vehicles a toll based on time of day and travel distance.

The Department of Rail and Public Transportation recently completed a study to fully maximize the benefits of the HOV/HOT lanes by identifying multi-modal solutions. Recommendations include an additional 9,575 park and ride spaces (over 3,000 of those spaces will be provided by VDOT); expanded transit routes and services from Spotsylvania, Stafford, Prince William and Fairfax counties, including adding 46 buses; 750 off-site parking spaces and shuttle services at the Franconia-Springfield Metrorail station; and vanpool, carpool and telework program assistance. Improvements are or will be funded in the Commonwealth's Six-Year Improvement Program.

Go to www.VirginiaDOT.org for more information.

Appendix B

Functional Geometry Plan Set

Preliminary plan sets submitted under separate cover directly from Fluor-Transurban

Appendix C

HCM and Synchro Analysis Files (CD)

HCS & Synchro input files recorded on the CD

Appendix D

Traffic Analysis Data

HCS Outputs and VISSIM Simulation Files (CD)

HCS Outputs and VISSIM Simulation Files recorded on the CD

Appendix E

Traffic Analysis Methods, Assumptions, and Calibration Documentation

TECHNICAL MEMORANDUM

I-95 HOT Lanes - Interchange Access and Operation Analysis

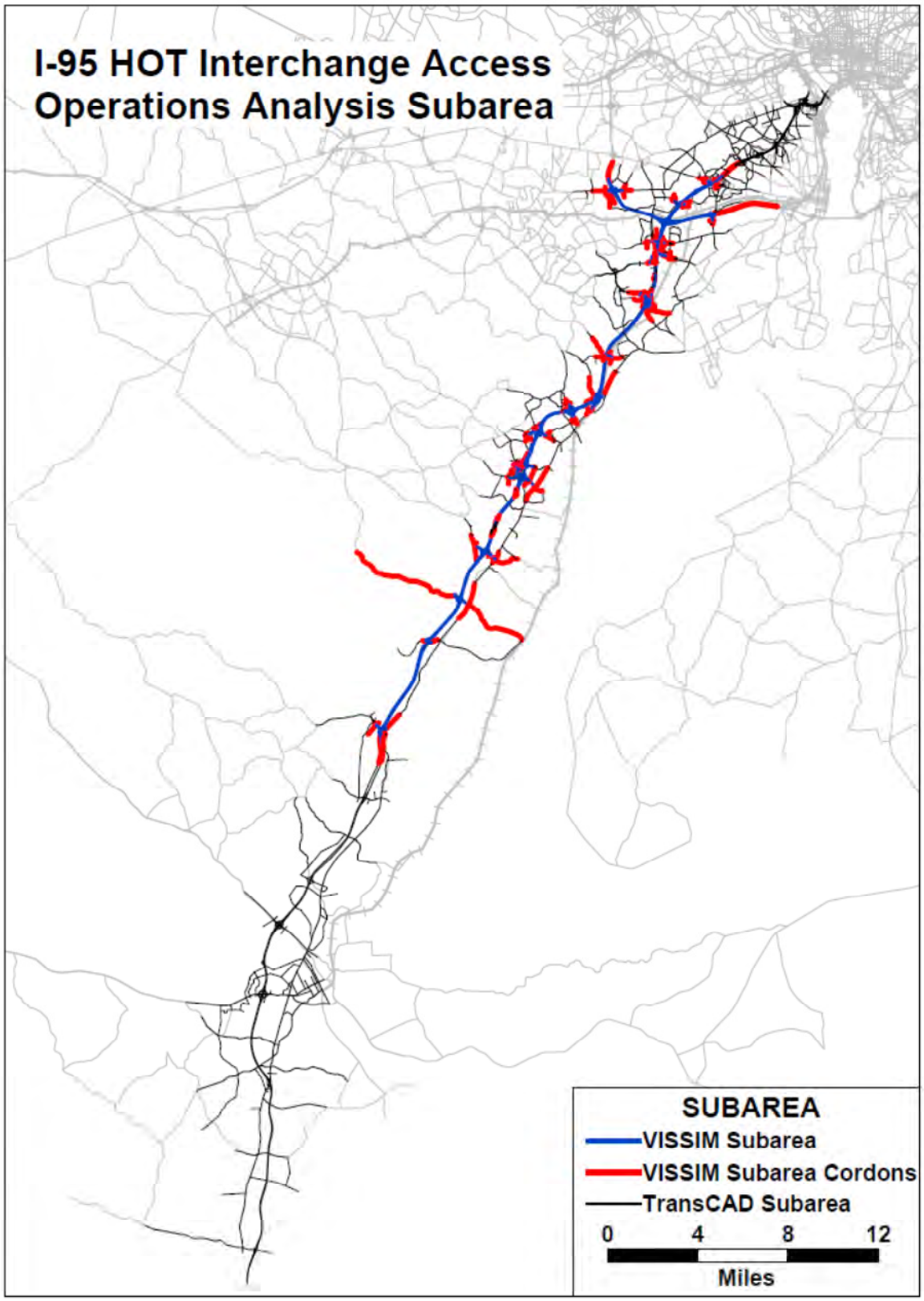
TO:	Kanti Srikanth /VDOT	Bahram Jamei/VDOT
COPIES:	Brian Dearing/GEC Bill Thomas /GEC	Giri Kilim /GEC Paul Prideaux /GEC
	Ed Granzow /GEC	Bill Love /GEC
FROM:	Rob Prunty/GEC	
DATE:	March 30, 2011	
SUBJECT:	Travel Demand Model & Post Processing Methodology & Assumptions	

This memorandum provides a broad overview of the assumptions and procedures being used for travel demand modeling and post processing of modeling results for the I-95 HOT Lanes Interstate Access and Operation Study; and serves as a point of departure for more detailed discussions.

Travel Demand Modeling Methodology and Key Assumptions

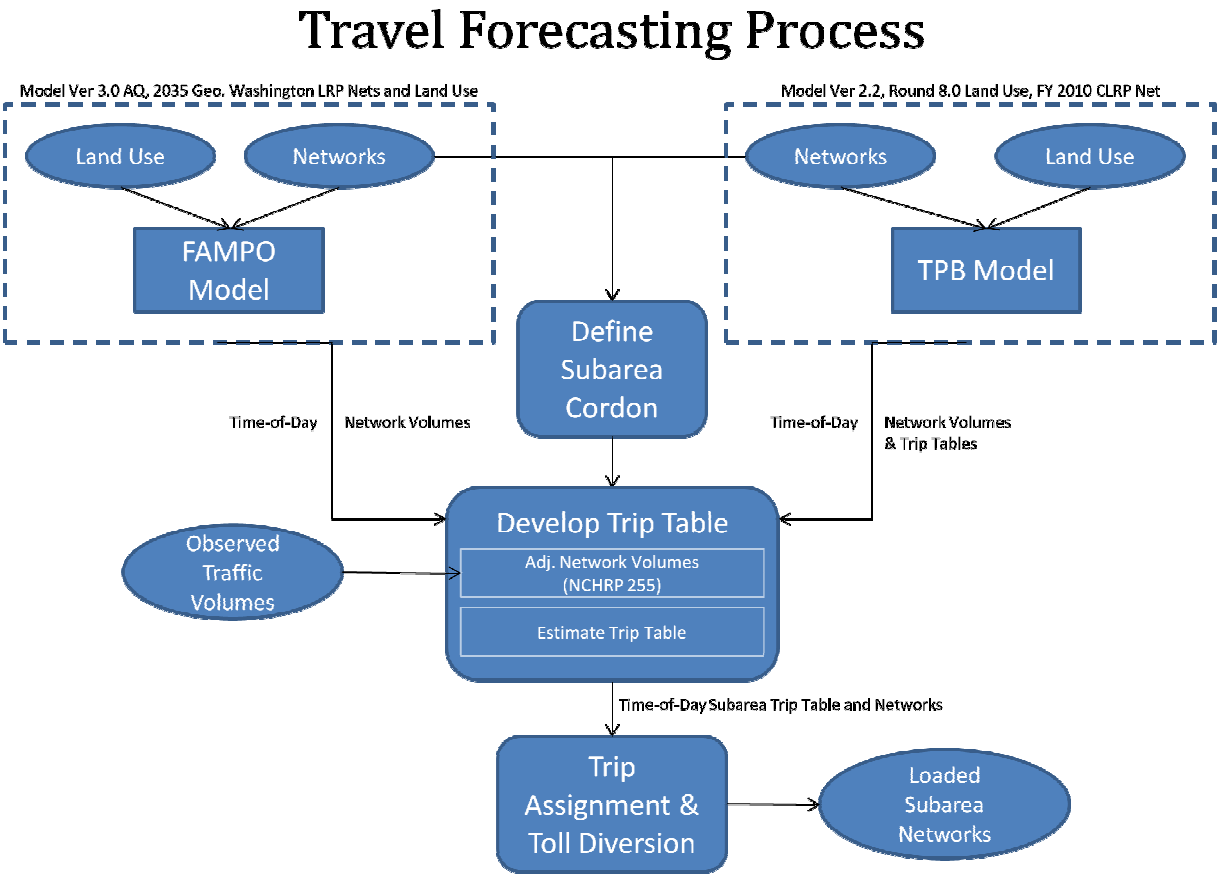
The demand forecasting approach leverages a corridor/subarea highway assignment process. This assignment process will use an estimated trip table based on travel patterns implied by the regional TPB model, further adjusted by link-level traffic assignments provided by the FAMPO model – effectively a merging of results from two separate travel demand models. The FAMPO model covers the southern portion of the study area (Stafford County and south). The TPB model covers the northern section of the study area (Prince William and Fairfax counties).

This approach provides a mechanized means of resolving volume differences between the two travel models that would otherwise require substantial manual adjustment and judgment that may not be as tractable or unbiased. Moreover, having one contiguous network provides a means to communicate consistent and balanced traffic volumes on a single platform to processes that will subsequently assess traffic operations. The figure below illustrates the travel demand forecasting subarea coverage (black color network) that was used in TransCAD to provide a common platform to handle the highway assignment and toll diversion processes. The figure also shows the overlaying traffic operations subarea coverage (blue and red color networks) used in the subsequent VISSIM microsimulation.


I-95 HOT Interchange Access
Operations Analysis Subarea
SUBAREA
VISSIM Subarea
VISSIM Subarea Cordons
TransCAD Subarea
0
4
8
12
Miles

The flow chart below summarizes the travel demand forecasting approach. Development of "existing" traffic volumes differs in that the subarea trip table is based only on observed link volumes and a seed matrix (Year 2011) from the TPB model. Approach features include:

- Implementation of subarea model in TransCAD for years 2011 (base year), 2018, and 2035 encompassing network detail from MWCOG in the northern portion of study area and network detail from FAMPO in the southern portion of study area
- Separate MWCOG and FAMPO model run outputs by time-of-day and develop subarea seed trip table
- *NCHRP 255*-based adjustment of observed travel volumes by growth implied by base year and forecast year demand from the travel models and development of a subarea trip table
- Trip assignment will include a toll diversion model similar to the one present in the FAMPO model



The tables below list key assumptions associated with the travel forecasting process.

<table>
<tr><th>Assumption</th><th colspan="2">Base Case</th><th>Comments</th></tr>
<tr><td colspan="4">Model</td></tr>
<tr><td>Analysis Years:
2011 (Existing Year)
2018 (Opening Year – Phase I & II)
2035 (Design Year)</td><td><u>TPB Model</u>
2005 (Validation year)
2010
2020
2030
2040</td><td><u>FAMPO Model</u>
2006 (Validation year)
2009
2015
2025
2035</td><td>Aligned with TPB and FAMPO model forecast years.</td></tr>
<tr><td>Time Periods Modeled</td><td colspan="2">Three time periods representing:
<table><tr><th>Period</th><th>Hours</th></tr><tr><td>AM</td><td>6am – 9am</td></tr><tr><td>PM</td><td>4pm – 7pm</td></tr><tr><td>Off-Peak</td><td>Remaining 18 hrs</td></tr></table></td><td>Hours split based on MWCOG household survey data (1994). Same time periods for both the TPB and FAMPO models.</td></tr>
<tr><td>Speeds</td><td colspan="2">➢ Consistent with current conditions in the HOV and GP lanes.</td><td>Consistent with existing conditions. Same as speed/travel time curves based on MWCOG.</td></tr>
<tr><td>Link Capacity</td><td colspan="2">➢ Lane capacities are defined consistent with the TPB model approach.</td><td>The MWCOG facility and area type capacity tables are used to determine link capacities. Use same speed-flow curves consistent with TPB model.</td></tr>
<tr><td>Peak Spreading</td><td colspan="2">➢ Peak Period to Peak Hour factors:
➢
<table><tr><th>Period</th><th>2011</th><th>2018</th><th>2035</th></tr><tr><td>AM</td><td>0.38</td><td>0.36</td><td>0.34</td></tr><tr><td>PM</td><td>0.36</td><td>0.35</td><td>0.34</td></tr></table></td><td>Peak period values were derived from traffic survey information included in the previous IJR, and decline in recognition of the increased congestion expected in the region.</td></tr>
<tr><td>Value of Time (VoT)</td><td colspan="2">1.0% escalation over inflation p.a.</td><td>Consistent with Capital Beltway project.</td></tr>
</table>

Land Use	MWCOG, consistent w/ TPB version v8.0 land use ; FAMPO, consistent w/ 2035 George Washington Regional Commission (GWRC) land use forecasts	Land use assumptions in place for individual model forecasts

Assumption	Base Case	Comments
Network Assumptions		
General	TPB ver 2.2 with changes relating to FY2011-2016 TIP and 2011 CLRP publications on Air Quality Conformity Inputs (dated 3/9/2011); FAMPO ver. 3.3 Air Quality with changes relating to FY2009-2012 TIP and 2035 LRTP list of the Regional Conformity Analysis.	
Project Description (I95 HOT Lanes)	➢ Reversible HOT lanes. ➢ 3 Lanes between Turkeycock Run and (approximately) Prince William Parkway (Phase I) ➢ 2 Lanes from Prince William Parkway to Dumfries Road Garrisonville Rd. (Phase I) ➢ 2 Lanes from Garrisonville Road to Massaponax Area (Phase II)	Consistent with revised CLRP submission.
Project Extent	➢ Turkeycock Run to Southern terminus between the Massaponax Area	Consistent with revised CLRP submission.
I495 (Capital Beltway)	➢ HOT lanes on the beltway from 2013.	
Springfield Interchange	➢ Springfield Interchange Phase VIII complete. ➢ HOT access allowed from I95 and I395 to/from HOT lanes on Capital Beltway via directional ramps.	Consistent with Capital Beltway project.
HOV	➢ All HOV facilities in the network are assumed to become HOV3+ in 2020.	
Toll Assumptions		
Tolling Methodology	Toll Diversion Curves (TDC).	Similar in form to the FAMPO diversion model recalibrated for this application
Toll Approach	Variable toll rates by roadway segment, based on maintaining managed lane speed goal of 55 mph.	Adopted to account for varying demand levels along the length of the project.
Tolls	In 2005 minimum toll rate @ $0.05/mi; maximum toll rate @ $0.25/mi.	The toll rate ranges have been set to align with limits in the FAMPO model.

Assumption	Base Case	Comments
Mode Assumptions		
Vehicle Class	➢ HOV3+: Free ➢ Other Cars & Medium Trucks: Tolled ➢ Heavy Trucks: Banned	Consistent with project definition.
HOV Vehicles	➢ Modeled using the TPB Model HOV module. ➢ Starting in 2020, all HOV facilities in Northern Virginia area will be HOV-3+	The HOV estimates provided are an output of the *mode choice* and *carpool occupancy* models developed by MWCOG.
Hybrid/Violators	➢ Modeled as a single class ➢ **No-Build**: assume violation rate @ 50% and 0% of Existing in 2018 & 2035, respectively on HOV facility ➢ **Build**: assume no violators on HOT facility in 2018 & 2035.	Based on discussions with VDOT (progressive technological advancement and improved enforcement over years).
Buses	➢ Not assigned to the subarea model network	
Transit Capacity Constraint	➢ None.	

Methodology and Key Assumptions for Post Processing of Modeling Results

Post processing of travel demand model output is necessary in order to analyze traffic operations during peak hour conditions using peak period model output. Post processing followed NCHRP 255 guidelines for estimating balanced existing, no-build, and build peak hour volumes.

Extensive data collection occurred in early March 2011. This included:

- 24 hour traffic counts with vehicle classifications at all ramp locations within study area and along the mainline of I-95, I-395, and I-495.
- AM and PM peak period turn movement traffic counts. Counts generally occurred between 6:00 AM and 8:30 AM for the morning peak period and between 4:30 PM and 6:30 PM for the evening peak period.
- Travel time runs along the entire corridor for the AM and PM peak periods. This information along with INRIX travel time data for I-95, I-395, and I-495 will be used to identify where ramp counts may be constrained due to mainline congestion.

The following table outlines proposed steps for estimating existing, no-build, and build, peak hour volumes.

Step	Description
Existing Peak Hour Volumes	
1	Collect and review raw count information (ramps, mainline, and intersections).
2	Check for suspect/bad count data.
3	Calculate system peak hours.
4	Review volume-time profile to check for congestion-constrained locations.
5	Use Demand smoothing adjustments.
6	Balance adjustments.
7	Produce final rounded and balanced 2011 peak-hour volumes.
No-Build Peak Hour Volumes	
1	Apply peak period-to-peak hour factors to forecasted link demand from the travel model (base year and "no-build" future year)
2	Estimate future year peak-hour turn movement demand at intersections that are present in both base year model and future year "no-build" model using existing peak-hour turn movement counts and NCHRP 255 procedures
3	Balance between intersections where possible.
4	Produce final rounded and balanced 2018 and 2035 peak-hour "no-build" volumes.
Build Peak Hour Volumes	
1	Apply peak period-to-peak hour factors to forecasted "build" link demand from the travel model
2	Compute change between future year "no-build" and future year "build" link volumes.
3	Add computed change to "no-build" final rounded link volumes.
4	Adjust future year peak-hour turn movement demand at intersections in response to changes
5	Balance between intersections where possible.
6	Produce final rounded and balanced 2018 and 2035 "build" peak-hour volumes.

The following table summarizes proposed assumptions to be used in post processing.

Elements	Assumption
System-wide peak hour for developing balanced existing peak hour volumes	7:00 - 8:00 AM 4:45 - 5:45 PM
Peak period to peak hour factors	2018 No-Build and Build: 36% AM; 35% PM 2035 No-Build and Build: 34% AM; 34% PM
Ramp capacity	1,600 vehicles per lane per hour
HOV/HOT lane capacity	1,800 vehicles per lane per hour
Vehicle classifications	Existing classification data will be used for link specific vehicle classifications

I-95 HOV/HOT Lanes - Interchange Access and Operation Study

TO:	Tarsem Lal/FHWA Hari Sripathi/VDOT John Lynch/VDOT	Jim Sturrock /FHWA Randy Dittberner /VDOT
COPIES:	Ho Chang/GEC Mike Snare/GEC Rob Kerns/Transurban	Michelle Corum /GEC Pat Timbrook/GEC
FROM:	Rob Prunty/GEC & Gustavo Ceballos/GEC	
DATE:	June 8, 2011	
SUBJECT:	**Traffic Analysis, Simulation and Calibration Methodology and Assumptions used for I-95 HOV/HOT Lanes Project**	

This memorandum provides a broad overview of the assumptions and procedures being used for the traffic analysis, traffic simulation, and calibration procedures for the I-95 HOT Lanes Interstate Access and Operation Study (IAOS), and serves as a point of departure for more detailed discussions. This memorandum also sets the framework for the transportation analysis for the IAOS, as it identifies the analysis years, the limits of the study, peak-hour demand estimates, modeling methodologies, and operational parameters and methods.

I. Project Scope

The Project Scope encompasses two phases of anticipated improvements. The first phase will include capacity expansion of the existing two-lane reversible HOV facilities in Prince William and Fairfax Counties to a three-lane reversible section between the Prince William Parkway and I-495. It will also include conversion of the barrier-separated reversible lane facility to HOT Lanes (HOV 3+ and toll-paying motorists). North of the Beltway on I-395, the proposed HOT Lanes will convert back to HOV 3+ at the Turkeycock ramps, north of the Edsall Road interchange. Provision of additional ramps or ramp modifications within the corridor will be a component of this phase of the project. The first phase of the project also includes construction of a two-lane extension of the HOT lanes south of the current barrier-separated HOV facility terminus at Route 234, with an extension down to Garrisonville. Construction of Phase 1is anticipated to commence in 2012, with an opening year of 2015.

The second phase of the project would extend the two-lane reversible HOT lanes from Garrisonville down to Massaponax, and include additional slip ramps and access points, Construction would begin within the next few years, with an opening date of 2018. The complete system is anticipated to be fully operational by 2018 for the entire 47-mile corridor.

II. Study Area Limits

Figure 1 shows the various components of the project study area. The figure is color-coded as follows:

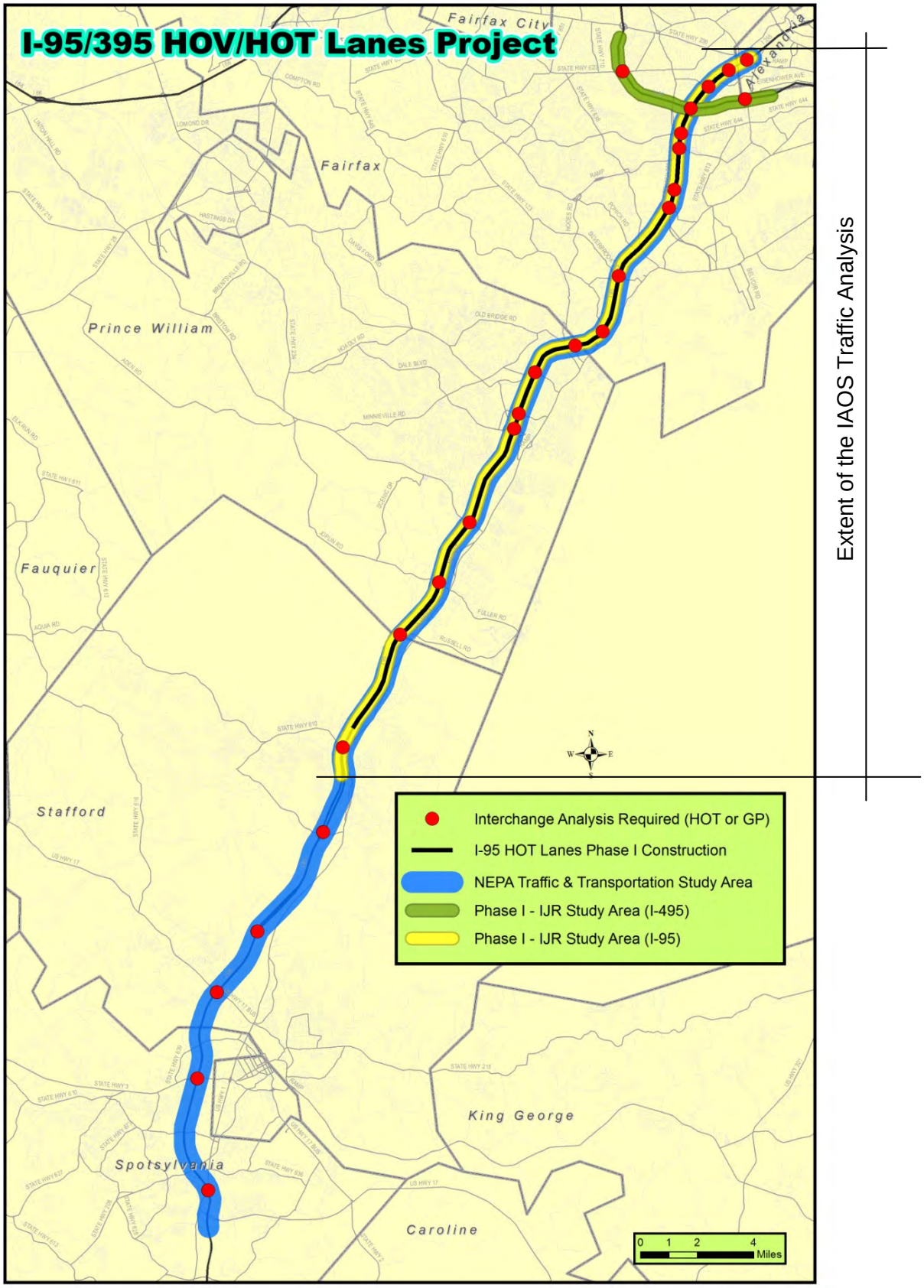


Figure 1: Study Area for the I-95 HOV/HOT Lanes Project

- Black - Actual footprint for the I-95 HOT Lanes Project – Phase 1(I-95 at Garrisonville to I-395 at the Turkeycock Run interchange ramps on the north side of Edsall Road interchange). This is the extent of the traffic simulation analysis (VISSIM)
- Blue - NEPA Study Area for I-95 HOT Lanes Project Phases 1 and 2 – I-95/395 from Massaponax (US 1) to Duke Street (Route 236) – Traffic operations of the southern section from the Garrisonville interchange to Massaponax is being conducted by using the Highway Capacity Software (HCS) and Synchro. No traffic simulation is being conducted in this section.
- Yellow - Interstate Access Operations Study Area for Phase 1 – I-95/I-395 corridor:
  - I-395 (Shirley Highway) from the diverge point at I-95 to north of Duke Street interchange (to assess operations of the Turkeycock Run ramps);
  - I-95 from south of the Garrisonville interchange to the I-495 interchange for the IAOS study, and south of Massaponax to I-495 for the Environmental Assessment Traffic Technical Report;
  - Study Area Intersections - 72 General Purpose (GP) intersections at the interchange ramp terminals included in the study area.
  - Green - I-495 (Capital Beltway) from north of Braddock Road interchange to east of Van Dorn Street interchange.

a. Interstate Access Operations Study – Scope and Study Area

While the traffic analysis conducted for the NEPA process covers the entire corridor from the Duke Street interchange to Massaponax (Phases I and II of the I-95 HOT Lanes Project), the IAOS encompasses only the portion of the corridor related to the Phase I of the project from the Duke Street interchange to the Garrisonville interchange. Due to schedule constraints, the traffic analysis conducted for the NEPA process will only entail using the Highway Capacity Manual (HCM) methodologies to determine levels of service (LOS) and other traffic data required for the air quality and noise modeling. On the other hand, the traffic analysis conducted as part of the IAOS will entitle a more detailed evaluation than that of the NEPA, including traffic simulation for the entire Phase I corridor.

It is important to note that given the different detail associated with both traffic analyses (NEPA and IAOS), there is the potential for some inconsistency of results between the HCM analysis and the VISSIM traffic simulation analysis. This is due to the traffic simulation is able to account for system-wide operation including upstream and downstream conditions at any roadway segment. These differences are particularly likely to occur when there is a congestion and queuing. The potential for inconsistencies between both analyses has been discussed with VDOT and key VDOT staff is aware and in agreement with the scope, schedule, and methodologies for each analysis.

b. Roadway Facilities Included in the Analysis

Table 1 summarizes the freeway interchanges and arterial intersections included in the IOAS traffic analysis. In all cases, the study area includes at least one intersection adjacent to the ramp terminal intersection at each interchange.

Table 1 –Intersections – I-95/I-395 between Garrisonville Road and Duke Street, and I-495 between Braddock Road and Van Dorn Street

Series	Node Number	Intersection Name	Intersection Type	Interstate	Interchange	Exit Number
	101	Duke St and Beauregard St	Signalized			
	102	Duke St and Bragg St	Signalized			
100	103	Duke St and S Walker St	Signalized	I-395	Duke St (Rte.236)	3
	201	Edsall Rd & Mitchell St	Signalized			
	202	Edsall Rd & Cherokee Ave/Shawnee Rd	Signalized			
	203	Edsall Rd, Bren Mar Dr, & I-395 NB Off-Ramp	Signalized			
	204	Edsall Rd & Bloomfield Dr & I-395 NB On-Ramp	Signalized			
200	205	Edsall Rd & Beryl Rd	Signalized	I-395	Edsall Rd (Rte.648)	2
	301	Braddock Rd & Queensberry Ave	Signalized			
	302	Braddock Rd & Port Royal Rd	Signalized			
	303	Braddock Rd & Ravensworth Rd	Signalized			
300	304	Braddock Rd & I-495 WB Off Ramp (MOT Condition)	Signalized	I-495	Braddock Rd (Rte.645)	54
	401	S Van Dorn St & I-95 Ramps	Signalized			
400	402	S Van Dorn St & Oakwood Rd	Signalized	I-95/I-495	S Van Dorn (Rte.401)	173
	601	Commerce St & Brandon Ave	Signalized			
	602	Commerce St & I-95 NB/I-495 WB on Ramp	Signalized			
	603	Commerce St & Bowie Dr	Signalized		Commerce St (Rte.789)	170
	604	Old Keene Mill Rd & Spring Rd	Signalized			
	605	Old Keene Mill Rd & I-95 SB Ramps	Signalized			
	606	Old Keene Mill Rd & Backlick Rd/I-95 NB&SB Ramps	Unsignalized			
600	607	Franconia Rd & Commerce St/Loisdale Rd	Signalized	I-95	Franconia Rd (Rte.644)	170
	701	Franconia Springfield Pkwy WB Ramps & Backlick Rd	Signalized			
	702	Franconia Springfield Pkwy EB Ramps & Backlick Rd	Signalized			
	703	Franconia Springfield Pkwy & I-95 HOV Ramp	Signalized			
	704	I-95 NB Off Ramp, Loisdale Rd & Spring Mall Dr	Signalized			
	705	Loisdale Rd & Loisdale Ct	Signalized			
	706	Franconia Springfield Pkwy EB & Frontier Dr	Signalized			
700	707	Franconia Springfield Pkwy WB & Frontier Dr	Signalized	I-95	Franc-Springfield Pkwy (	169

Series	Node Number	Intersection Name	Intersection Type	Interstate	Interchange	Exit Number
	801	Backlick Rd & Fullerton Rd	Signalized			
	802	Boudinot Dr & Fullerton Rd	Signalized			
	803	Alban Rd, Boudinot Dr, and I-95 SB On-Ramp	Signalized			
	804	Fairfax County Pkwy, I-95 NB Off-Ramp,& Loisdale Rd	Signalized			
	805	Fairfax County Pkwy & Terminal Rd	Signalized			
800	806	Loisdale Rd & Newington Rd	Signalized	I-95	Fairfax County Pkwy (Rte	166
	901	Lorton Rd & Sanger St/Silverbrook Rd	Signalized			
	902	Lorton Rd & I-95 SB On-Ramp/Off-Ramp	Signalized			
	903	Lorton Rd, I-95 NB On-Ramp/Off-Ramp, and Gunston Cove Rd	Signalized			
	904	Lorton Rd & AMTRAK Station	Signalized			
900	905	Lorton Rd & Lorton Market St	Signalized	I-95	Lorton Rd (Rte.642)	163
	1001	Furnace Rd & Richmond Hwy	Signalized			
1000	1002	Richmond Hwy & Hassett St	Unsignalized	I-95	Richmond Hwy (US-1)	161
	1101	Gordon Blvd & Old Bridge Rd	Signalized			
	1102	Gordon Blvd & Devils Reach Rd	Signalized			
	1103	Gordon Blvd & I-95 HOV Ramp	Signalized			
	1104	Gordon Blvd & Annapolis Way	Signalized			
1100	1105	Gordon Blvd & Horner Rd	Signalized	I-95	Gordon Blvd (Rte.123)	160
	1201	Prince Willam Pkwy & Crossing Pl	Signalized			
	1202	Prince William Pkwy & I-95 SB On Ramp	Signalized			
	1203	HOV Ramp and Park & Ride	Unsignalized			
1200	1204	Prince William Pkwy & Summerland Dr/York Dr	Signalized	I-95	Prince William Pkwy (Rte	158
	1301	Opitz Blvd & Telegraph Rd	Signalized			
	1302	Opitz Blvd & Potomac Hospital	Signalized			
	1303	Potomac Mills Rd & I-95 SB Off Ramp	Unsignalized			
1300	1304	Potomac Mills Rd & Town Center Rd	Unsignalized	I-95	Opitz Blvd (Rte.642)	156
	1401	Dale Blvd & Giddeon Rd	Signalized			
	1402	Dale Blvd & Ashdale Plaza Shopping Center	Signalized			
	1403	Dale Blvd & Neabsco Mills Rd	Signalized			
1400	1404	Dale Blvd & Jefferson Davis Highway	Signalized	I-95	Dale Blvd (Rte. 784)	156

Series	Node Number	Intersection Name	Intersection Type	Interstate	Interchange	Exit Number
	1501	Dumfries Rd & Van Buren Rd	Signalized			
	1502	Dumfries Rd & I-95 SB Ramps	Signalized			
	1503	Dumfries Rd & I-95 NB Ramps	Signalized			
	1504	Dumfries Rd & Park and Ride	Unsignalized			
1500	1505	Dumfries Rd & Jefferson Davis Highway	Signalized	I-95	Dumfries (Rte. 234)	152
	1601	Joplin Rd & I-95 SB Ramps	Unsignalized			
	1602	Joplin Rd & I-95 NB Ramps	Unsignalized			
1600	1603	Joplin Rd & Jefferson Davis Highway	Signalized	I-95	Joplin Rd (Rte. 619)	150
	1701	I-95 SB Off ramp & Russell Rd	Unsignalized			
	1702	I-95 NB Off ramp & USMC Truck Hwy	Unsignalized			
1700	1703	I-95 NB On ramp & USMC Truck Hwy	Unsignalized	I-95	Russell Rd	148
	1801	Garrisonville Rd & Stafford Market Pl/Salisbury Drive	Signalized			
	1802	Garrisonville Rd & I-95 SB Off Ramp to WB Garrisonville Rd	Signalized			
	1803	I-95 NB On ramp & Jefferson Davis Highway	Unsignalized			
	1804	Garrisonville Rd & Jefferson Davis Highway	Signalized			
1800	1805	I-95 NB Off ramp & Jefferson Davis Highway	Signalized	I-95	Garrisonville (Rte. 610)	143

III. Scenario Years

The following scenarios have being identified for the traffic analysis:

- Existing Year - 2011
- Opening Year - 2018
- Design Year – 2035

IV. Future Network Improvements

Assumptions for future conditions include:

- **No-Build Conditions** – Opening Year and Design Horizon Year (2018 & 2035) – Assumes improvements associated with the I-495 Beltway HOT lanes project in Virginia. 2035 improvements assume additional improvements associated with other I-95 improvements throughout the corridor;
- **Build Conditions**
  - Opening Year (2018) – Assumes No-Build configuration as a base condition (Springfield Interchange Phase VIII), plus the new ramp improvements identified in **Table 2**.
  - Design Horizon Year (2035) – Assumes Build 2018 Build configuration, plus modification of roadway network for other area improvements, including I-95 HOV/HOT Lanes between Garrisonville and Massaponax.

Table 2. I-95 HOT Lanes Project Scope – ramps impacted for Phase 1:

No.	Route	Connection Location:	Morning connections:	Evening connections:	Type of Modification:
1	I-95	VA 7100 (Fairfax County Parkway)	NB HOT Lanes to Fairfax County Parkway (Alban Rd.)	Fairfax County Parkway to SB HOT Lanes	New
2	I-95	Between VA 7100 (Fairfax County Pkwy) and VA 638 (Pohick Road)	N/A	SB HOV Lanes to SB general purpose lanes	Deleted (to accommodate No. 1 above)
3	I-95	Between VA 642 (Lorton Road) and Rt 1	N/A	SB GP to SB HOT Lanes	New
4	I-95	Between VA 123 (Gordon Road) and VA 3000 (Prince William County Parkway)	NB HOT Lanes to NB general purpose lanes	N/A	New
5	I-95	Between Opitz and Dale Blvd	N/A	SB GP to SB HOT Lanes	New
6	I-95	Between US 234 (Dumfries Road) and VA 619 (Joplin Road)	N/A	SB HOT Lanes to SB general purpose lanes	Expanded
7	I-95	Between VA 619 (Joplin Road) and VA 610 (Garrisonville Road)	NB general purpose lanes to NB HOT lanes	SB HOT Lanes to SB general purpose lanes	New

The complete list of roadway improvements associated with the opening year and the design year for both the No-build and the Build scenarios are listed in **Table 3**. These are consistent with those included in the 2010 Revised Comprehensive Long Range Plan (CLRP).

Table 3: List of Roadway Improvements to be Included in Future VISSIM Networks

Corridor	From	To	VISSIM Scenarios				Opening Year
			Build		No-Build		
			2018	2035	2018	2035	
I-495	Springfield Interchange	North of Dulles Toll Rd (Route 267)	X	X	X	X	Late 2012/2013
I-495/Braddock Interchange	Braddock Road	I-495 HOV/Bus/HOT	X	X	X	X	2012
I-495/Braddock Interchange	Braddock Road	I-495 HOV/Bus/HOT		X		X	2030
I-495 NB	1 mile east of I-95/395/495 interchange	North of Hemming Ave Underpass	X	X	X	X	2013
I-495 SB	North of Hemming Ave Underpass	1 mile east of I-95/395/495 interchange	X	X	X	X	2013
I-495 NB	North of Hemming Ave Underpass	Off-ramp to Braddock Rd		X		X	2030
I-495 SB	On-ramp from Braddock Rd	North of Hemming Ave Underpass		X		X	2030
I-495 NB	On-ramp from Braddock Rd	Off-ramp to Route 236 (Little River Turnpike)		X		X	2030
I-495 SB	On-ramp from Route 236 (Little River Turnpike)	Off-ramp to Braddock Rd	X	X	X	X	2013
I-495	South of Old Dominon Drive	Hemming Ave Underpass	X	X	X	X	2013
I-495 NB	1 mile east of I-95/395/495 interchange	North of Hemming Ave Underpass	X	X	X	X	2013
I-495 SB	North of Hemming Ave Underpass	1 mile east of I-95/395/495 interchange	X	X	X	X	2013
US-1	Brady's Hill Rd	Featherstone Rd		X		X	2025
Gordon Blvd	Route 1	Horner Rd	X	X	X	X	2017
Little River Turnpike (Route 236)	Pickett Road	I-395		X		X	2025
I-495	Backlick Road	1 mile east of I95/395/495 interchange	X	X	X	X	2013
I-495/95	2.08 miles west of Telegraph Road	0.5 miles east of Telegraph	X	X	X	X	2013
I-95	Approximately 2 miles north of I-495 (near Edsall Rd)	Prince William Parkway (Route 3000)	X	X			2015
I-95	Prince William Pkwy	South of Dumfries Road	X	X			2015
I-95	South of Dumfries Road	Garrisonville Road	X	X			2015
I-95	Garrisonville Road (Route 610)	VA 17 in Spotsylvania County (Exit 126)	X	X			2014
I-95 HOT Ramp	Between Edsall Road and Turkeycock Run		X	X			2015
I-95 HOT Reversible Ramp	I-95 NB HOT/Bus/HOV Lanes	Fairfax County Parkway (VA 7100)	X	X			2015
I-95 HOT Reversible Ramp	Fairfax County Parkway (VA 7100)	I-95 SB HOT/Bus/HOV Lanes	X	X			2015
I-95 HOT Ramp	Between Lorton Rd and US 1		X	X			2015
I-95 HOT Ramp	Between Opitz Blvd and Dale Blvd		X	X			2015
I-95 HOT Ramp	Between Gordon Road and Prince William Pkwy		X	X			2015
I-95 HOT Ramp	Between Dumfries Rd and Joplin Rd		X	X			2018

Corridor	From	To	VISSIM Scenarios				Opening Year
			Build		No-Build		
			2018	2035	2018	2035	
I-95 HOT Ramp	Between Joplin and Russell Rd		X	X			2018
I-95 HOT Ramp	Between Joplin Rd and Garrisonville Rd		X	X			2015
I-95 HOT Ramp	Between Telegraph Rd and Aquia Creek		X	X			2014
I-95 HOT Ramp	Between Telegraph Rd and Aquia Creek		X	X			2014
I-95 HOT Ramp	Between Aquia Creek and Garrisonville Road		X	X			2014
I-95 HOT Ramp	Between Garrisonville and Courthouse Rd		X	X			2014
I-95 HOT Ramp	Between Garrisonville and Courthouse Rd		X	X			2014
I-95 HOT Ramp	Between Garrisonville and Courthouse Rd		X	X			2014
I-95 Reversible HOT Ramp- AM ONLY	NB I-95 HOV/Bus/HOT ramp, north of FF County Pkwy	Engineering Proving Ground (EPG) Southern Loop Road	X	X	X	X	2016
I-95 Reversible HOT Ramp- PM ONLY	EPG Southern Loop Road	I-95 SB HOV/Bus/HOT lanes north of I-95/FF Co Pkwy)	X	X	X	X	2012
I-95 HOT Ramp	EPG Southern Loop Road	NB I-95 GP Lanes	X	X	X	X	2012
I-95 @ Newington	I-95 NB	Fairfax County Parkway NB		X		X	2020
I-395 HOT/HOV Reversible Ramp	I-395 SB	Seminary Road	X	X	X	X	2015
Lorton Road	VA 123 (Ox Road)	Silverbrook Road (VA 600)	X	X	X	X	2013
Prince William Pkwy (VA 3000)	Hoadley Rd	Old Bridge Road	X	X	X	X	2012
Prince William Pkwy (VA 3000)	Old Bridge Road	Minnieville Road		X		X	2020
Garrisonville Road (VA 610)	Existing 4-lane section	VA 643	X	X	X	X	2015
I-95 Ramp (PM Only)	Heller Rd	SB HOV/BUS/HOT Lanes, NB GP	X	X	X	X	2012
I-95 Reversible Ramp (AM)	NB HOV/BUS/HOT Lanes	Heller Rd	X	X	X	X	2016
FFCP @ Boudinot Dr Ramp	FFCP @ Boudinot Dr interchange		X	X	X	X	2011
Rt 123@ I-95 SB ramp	Rt 1 @ I-95 SB on ramp, part of I-95 widening		X	X	X	X	2011
Rt 1	Occoquan Rd	Annapolis Way	X	X	X	X	2017
Rt 123	Route 1	East of I-95 Interchange	X	X	X	X	2017
Rt 1	Mary's Way	Occoquan River	X	X	X	X	2017
Franconia-Springfield Pkwy (VA 7900)	Rolling Rd (VA 638)	Backlick Rd (VA 617)		X		X	2025
Franconia-Springfield Pkwy (VA 7900)	Interchange at Neuman St			X		X	2025

Source: 2010 Revised CLRP, I-95/I-395 HOT Lanes Conceptual Design Plans, and other sources.

V. Methodology and Key Assumptions for Traffic Demand Estimates

Post processing of travel demand model output is necessary to develop peak-hour traffic demand to analyze traffic operations during peak hour conditions. Post processing will follow NCHRP 255 guidelines for estimating balanced existing, no-build, and build peak hour volumes. A combination of sources and tools will be used to develop peak-hour volumes for each scenario. 2011 existing conditions peak-hour volumes will be developed based on available traffic data within the study area.

a. Traffic Data

Extensive data collection occurred in early March 2011. This included:

- 24-hour traffic counts with vehicle classifications at all ramp locations within study area and along mainline segments of I-95, I-395, and I-495.
- AM and PM three-hour peak period turn movement traffic counts. Counts generally occurred between 6:00 AM and 8:30 AM for the morning peak period and between 4:30 PM and 6:30 PM for the evening peak period.

b. Balanced Peak-hour Volumes

Both 24-hour traffic counts and peak-period turn movement counts will be used in developing the existing conditions balanced peak-hour volumes. **Table 4** outlines proposed steps for estimating existing, no-build, and build, peak hour volumes.

Table 4 – Steps for Estimating Peak Hour Volumes

Step	Description
Existing Peak Hour Volumes	
1	Collect and review raw count information (ramps, mainline, and intersections).
2	Check for suspect/bad count data.
3	Calculate system peak hours.
4	Review volume-time profile to check for congestion-constrained locations.
5	Use demand smoothing adjustments.
6	Balance adjustments.
7	Produce final rounded and balanced 2011 peak-hour volumes.
No-Build Peak Hour Volumes	
1	Apply peak period-to-peak hour factors to forecasted link demand from the travel model (base year and “no-build” future year)
2	Estimate future year peak-hour turn movement demand at intersections that are present in both base year model and future year “no-build” model using existing peak-hour turn movement counts and NCHRP 255 procedures
3	Balance between intersections where possible.
4	Produce final rounded and balanced 2018 and 2035 peak-hour “no-build” volumes.
Build Peak Hour Volumes	
1	Apply peak period-to-peak hour factors to forecasted “build” link demand from the travel model
2	Compute change between future year “no-build” and future year “build” link volumes.
3	Add computed change to “no-build” final rounded link volumes.
4	Adjust future year peak-hour turn movement demand at intersections in response to changes
5	Balance between intersections where possible.
6	Produce final rounded and balanced 2018 and 2035 “build” peak-hour volumes.

Table 5 summarizes proposed assumptions to be used in post processing. System-wide peak hour definition was obtained based on available 24-hr traffic counts collected for mainline segments and on and off interchange ramps. HOV/HOT lane capacity is based on the assumption of a minimum operational speed of 55 mph.

Table 5 – Post Processing Assumptions

Elements	Assumption
System-wide peak hour for developing balanced existing peak hour volumes	7:00 - 8:00 AM 4:45 - 5:45 PM
Peak period to peak hour factors	2018 No-Build and Build: 36% AM; 35% PM 2035 No-Build and Build: 34% AM; 34% PM
Ramp capacity	1,600 vehicles per lane per hour
General purpose mainline capacity	2,200 vehicles per lane per hour
HOV/HOT lane capacity	1,850 vehicles per lane per hour
Vehicle classifications	Existing classification data will be used for link specific classification volumes by vehicle class

c. Final Peak-hour Volumes and Origin-Destination Information

Traffic analysis using the VISSIM traffic simulation model requires routing information (origin-destination data—O-D) for each scenario. Peak-hour turn movements and link volumes will be converted to O-D data by using the TFlowFuzzy[1] methodology employed in the VISUM[2] planning software. **Figure 2** summarizes the complete methodology that will be used in developing VISSIM volumes and routing data.

In essence, trip tables obtained from the regional models (see Technical Memorandum #1 for a detailed explanation of the travel demand methodology and assumptions) are used as "seed" matrices in VISUM. These are combined with balanced target volumes for all turn movements in the network under each scenario and post-processed until convergence using the TFlowFuzzy iterative technique.

The result from this process is a refined trip table (O-D matrix) for each vehicle class that, based on a degree of tolerance previously determined, reflects the target turn movement volumes for each particular scenario.

The final step in the process consists on converting trip-table O-D pairs into class-specific routes in VISSIM. For this, a proprietary COM script[3] is used to read every single O-D pair and assign the trip on the network. The scripts uses procedures for minimum paths available in the VISSIM software.

[1] TFlowFuzzy is a matrix correction methodology included in the PTV VISUM Planning Software. TFlowFuzzy is meant to adjust a demand matrix, so that its assignment results for a supply actually match the real supply observed (source/target traffic)

[2] VISUM is a product of PTV AG and it is commercialized in the U.S by PTV America.

[3] Component Object Model (COM) is a binary-interface standard used to enable interprocess communication and dynamic object creation in a large range of programming languages.

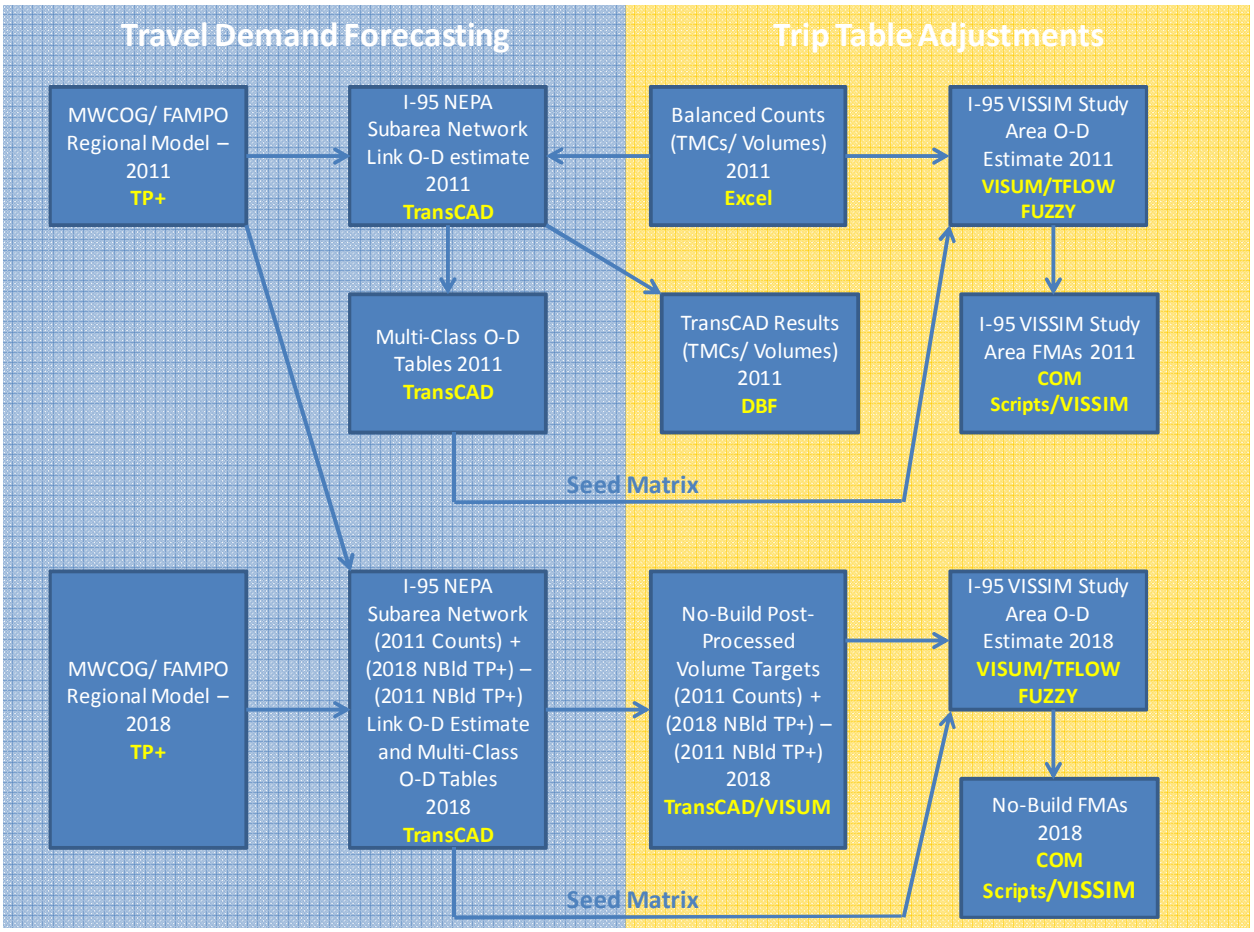


Figure 2: Traffic Volume Adjustments and Development of Routing Data for VISSIM

VI. Traffic Operational Analysis Methods/Parameters

a. Traffic Analysis Tools

Several analysis tools are being applied to assess the existing and future traffic conditions in the corridor. The HCM techniques are applied by using the HCS, Synchro signal optimization software, and VISSIM traffic simulation software.

As explained in Section II, the HCS analyses are being conducted to evaluate traffic in the entire I-95/395 corridor (Phase I and Phase II). The traffic analysis includes evaluating LOS for mainline and ramp freeway segments for the NEPA process, and to complement the IOAS traffic analysis. In a similar fashion, Synchro is being used to analyze traffic operations at all arterial intersections included in the study area and to provide basic signal timing information to the VISSIM model. It is important to note that intersection capacity and LOS will be obtained based on HCM methodology. VISSIM (version 5.3) is being used to simulate the traffic operations of the portion of the corridor between the Garrisonville interchange and the Duke Street interchange. The VISSIM network includes freeway segments, ramp-freeway junctions, and part of the arterials adjacent to freeway interchanges.

b. HCM/HCS+ Analysis Methodology

The procedures in HCM are implemented in the HCS+ software. The HCM freeway and ramp analysis procedures calculate density based on traffic volumes, number of lanes, length of

deceleration/acceleration lanes, and free flow speed at each freeway segment and ramp (merge/diverge) junction.

The density calculated at each freeway segment and ramp junction is assigned a LOS ranging from A to F. LOS F occurs when the total demand exceeds the capacity of the segment. The LOS criteria as defined by HCM are shown in **Table 6** and **Table 7** for freeway segments and ramp-freeway junctions, with density expressed in terms of passenger cars per mile per lane (pc/mi/ln).

Table 6: LOS Criteria for Basic Freeway Segments

LOS	Density (pc/mi/ln)
A	0 -11
B	> 11 - 18
C	> 18 - 26
D	> 26 - 35
E	> 35 - 45
F	> 45

Table 7: LOS Criteria for Ramp Junctions

LOS	Density (pc/mi/ln)
A	≤ 10
B	> 10 - 20
C	> 20 - 28
D	> 28 - 35
E	> 35
F	Demand exceeds capacity

i) HCM Freeway Parameters

Table 8 is a summary of the assumptions for freeway parameters/inputs. It is assumed that these parameters will be consistently used across analysis scenarios.

Table 8 - Freeway Operations Parameters for HCM / Assumptions by Scenario

	Scenarios				
Freeway Operations Parameters	2011 Existing	2018 No-Build	2018 Build	2035 No-Build	2035 Build
Peak Hour Volumes	Based on traffic Counts	Travel Demand Forecasting			
Peak Hour Factor	.90	.90	.90	.90	.90
Terrain / Grades	Available plans Google Earth	Available plans Google Earth	Functional Plans	Available plans Google Earth	Functional Plans
Percent Heavy Vehicles	Classification Counts	Travel Demand Modeling/ Class Trip Tables			
Driver Population Adjustment	1.0	1.0	1.0	1.0	1.0
Base Free-flow Speed	55 GP 65 HOV	55 GP 65 HOV	55 GP 65 HOV/HOT	55 GP 65 HOV	55 GP 65 HOV/HOT
Lane Width	Available aerial photographs	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements
Right-shoulder Lateral Clearance	Available aerial photographs	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements
Interchange Density (per mile)	Existing density	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements	Same as existing or functional plans for improvements
Ramp Free-flow Speeds (mph)	Diamond ramp: 35 Loop ramp: 25 Directional ramp: 35				

ii) Arterial Intersection Parameters

Table 9 provides a list of the assumed arterial intersection parameters/inputs.

Table 9 - Arterial – Intersection Operations Parameters / Assumptions by Scenario

	Scenarios				
Arterial - Intersection Operations Parameters	2011 Existing	2018 No Build	2018 Build	2035 No-Build	2035 Build
Peak Hour Volumes	Turning movement counts	Travel demand forecast			
Conflicting Peds / Bikes per Hour	None assumed				
Percent Heavy Vehicles	Classification Counts	Trip tables by class from travel demand forecast			
Lane Width	From available aerial photography	Same as existing or from functional plans	From functional plans, otherwise 12 feet	Same as existing or from functional plans	From functional plans, otherwise 12 feet
Signal Phasing and Coordination	Available Synchro files from VDOT and field verification	Same as existing			
Signal Timing – Cycle Length	Based on VDOT Synchro files and field verification	• Cycle lengths will we kept as existing unless changes in volumes warrant a change. Proposed changes in cycle length will have to be approved by VDOT • Signal splits will be re-optimized using Synchro to reflect changes in traffic volumes			
Signal Timing – Minimum Green	Based on VDOT Synchro files	Same as existing			
Signal Timing – Yellow + All-red	Based on VDOT Synchro files	Same as existing			
Right Turn on Red	Based on VDOT Synchro files and field verification	Same as existing			
Intersection LOS Criteria	Average control delay per HCM 2000				

c. Measures of Effectiveness (MOE)

The following MOEs will be used for the operational analysis of the roadway network under existing and future build and no-build scenarios:

Freeway Mainline segments:

- Average density (vehicles per mile per lane)
- Average speed (miles per hour)
- Average travel times from consecutive interchanges (minutes)
- Duration of congestion (hours at defined density, speed or flow rate)
- Congestion extent (segment miles congested)
- LOS as defined by HCM2000

Freeway Ramps

- Maximum Queue Length (feet)
- Average queue length (feet)
- Average speed (miles per hour)
- % of demand served in peak hour
- % of capacity used on signalized ramp terminals

Arterial MOEs

- Average intersection control delay (seconds per vehicle)
- Average intersection approach delay (seconds per vehicle)
- LOS as defined by HCM2000
- Average queue length by intersection approach (feet)
- Maximum queue length by intersection approach (feet)

Overall Network

- Travel Time on Network (vehicle-hours)
- Vehicles served (vehicle-miles)
- Average network speed (miles per hour)
- Average network delay (hours)

d. Traffic Modeling Methodology and Main Assumptions

Figure 3 (next page) depicts the general workflow for the traffic analysis based on the VISSIM modeling.

i) Calibration Methodology for Base Models

The VISSIM base models will be calibrated following the guidelines of the FHWA Traffic Analysis Toolbox Volume III. **Figure 4** shows the criteria and acceptance targets that will be used in determining when calibration is achieved. The following measures of effectiveness (MOEs) will be use to verify the adequacy of the calibration:

- Mainline travel times measured for the entire corridor (both directions) and between consecutive interchanges (center of interchange to center of interchange).
- Traffic flow rates measured at selected locations on the corridor (both mainline and ramps) and compared with traffic counts through the GEH index (See Figure 4).
- Bottleneck locations and length of backups

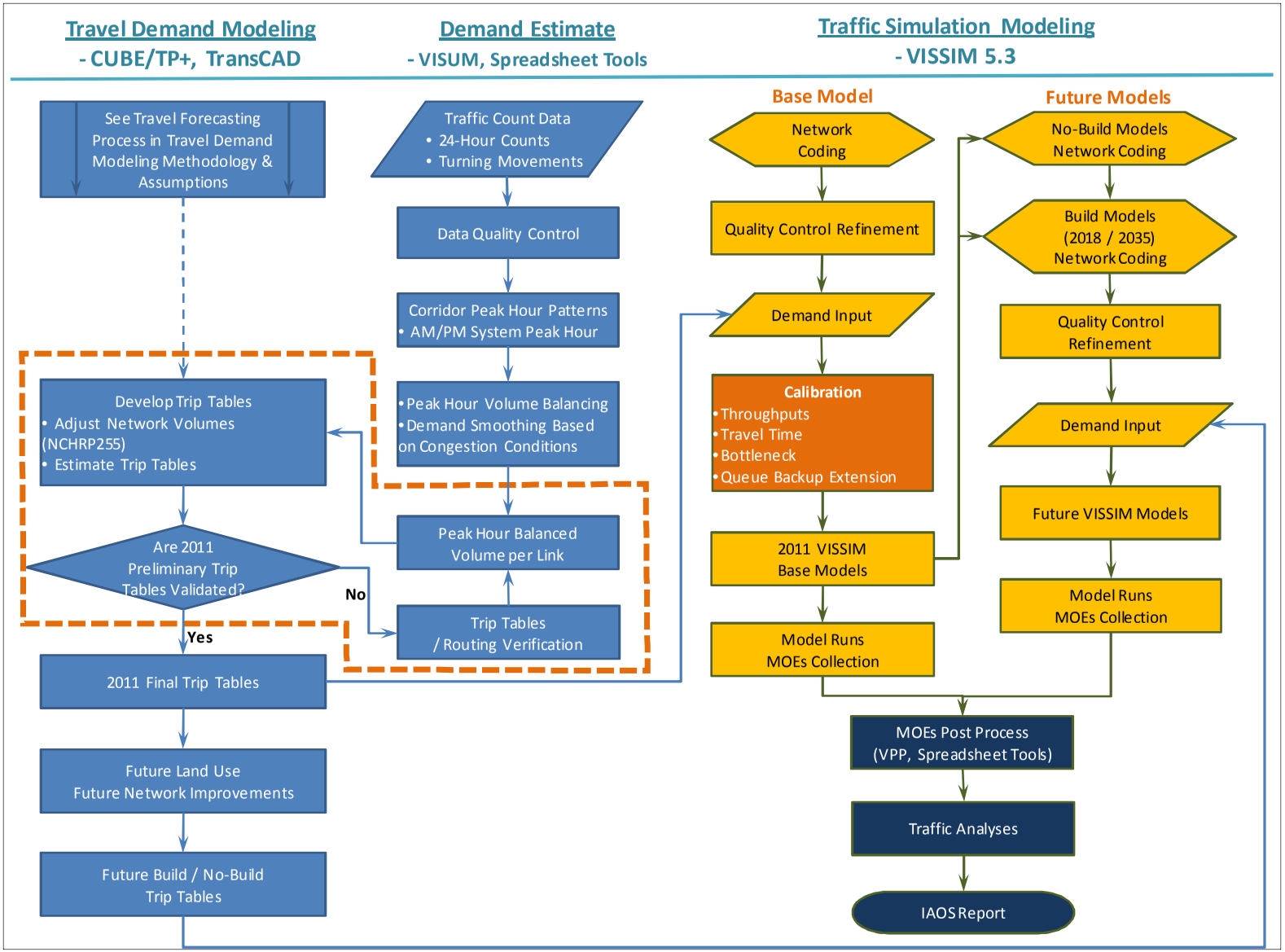


Figure 3: IOAS Traffic Analysis Workflow

Criteria and Measures	Calibration Acceptance Targets
Hourly Flows, Model Versus Observed	
Individual Link Flows	
Within 15%, for 700 veh/h < Flow < 2700 veh/h	> 85% of cases
Within 100 veh/h, for Flow < 700 veh/h	> 85% of cases
Within 400 veh/h, for Flow > 2700 veh/h	> 85% of cases
Sum of All Link Flows	Within 5% of sum of all link counts
GEH Statistic < 5 for Individual Link Flows*	> 85% of cases
GEH Statistic for Sum of All Link Flows	GEH < 4 for sum of all link counts
Travel Times, Model Versus Observed	
Journey Times, Network	
Within 15% (or 1 min, if higher)	> 85% of cases
Visual Audits	
Individual Link Speeds	
Visually Acceptable Speed-Flow Relationship	To analyst's satisfaction
Bottlenecks	
Visually Acceptable Queuing	To analyst's satisfaction

*The GEH statistic is computed as follows:

$$GEH = \sqrt{\frac{(E-V)^2}{(E+V)/2}}$$

Figure 4: Calibration Criteria and Acceptance Targets

The general procedure used for calibration is schematically depicted in **Figure 5**.

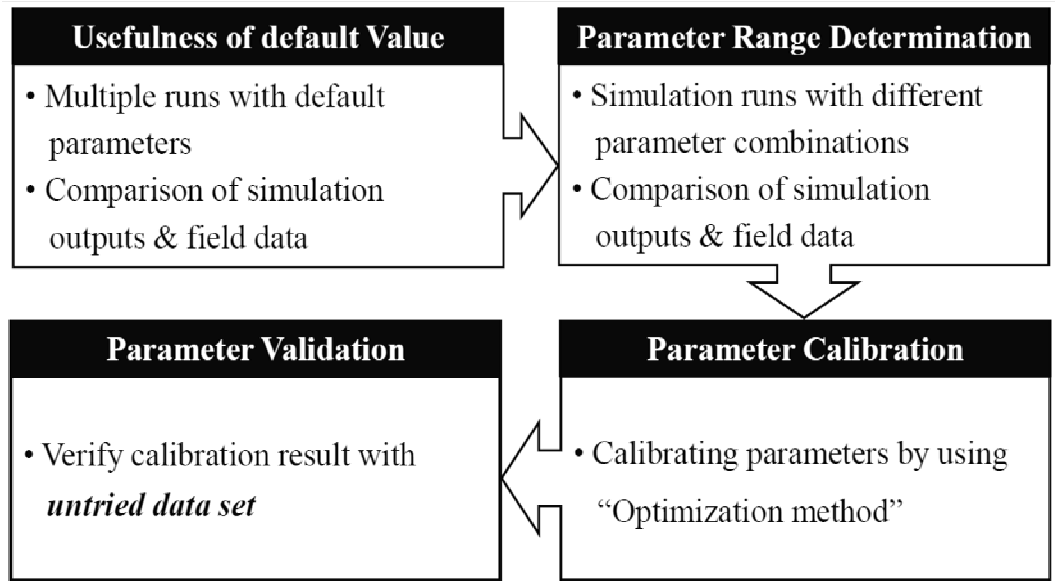


Figure 5: Calibration Process

ii) Potential Adjustments for Calibration

Balanced existing volumes and origin-destination data developed for the 2011 existing conditions will be used as the inputs to the VISSIM models. Since the corridor operates at constrained conditions during the AM and PM peak hours, the free flow speeds at the roadway network termini will be reduced to replicate the conditions observed and measured on field. These speed reductions aid in replicating the stop-and-go traffic conditions that occur regularly beyond the edges of the roadway network used in the VISSIM micro-simulation models. Modification of free flow speeds at the edge of the network to help replicate downstream and upstream congestion is an acceptable technique commonly used in calibration of micro-simulation models. The speed reductions will be applied at the following locations:

- I-395 Northbound, north of Duke Street (AM)
- Beltway (I-495) north of Braddock Road (AM)
- I-95 Southbound, south of Garrisonville interchange (PM)

Additional adjustments to be done on the existing models include changes in the distances over which lane changes are made. The lane change distance adjustments will be changed at different locations with the goal of calibrating existing queues and travel times within the study area. In addition, in areas where significant lane-change conditions are found, default driving behavior will be adjusted in the model to account for more aggressive/cooperative lane-change behavior. Adjustments in the lane change parameters will be used to avoid unrealistic gridlock conditions due to some limitations in VISSIM to replicate realistic behavior under very congested/severe weaving conditions. In most cases the same parameters will be used for all existing and future scenarios. However, there may be cases where a particular congested operation will warrant coding more aggressive behavior in one scenario and not in others. It is

important to note that changes in behavior parameters will only be used when congested conditions are present.

The development of the VISSIM models includes an extensive quality assurance/quality control process. All network inputs entered by a modeler will be checked by another modeler. All routes and signal settings will checked by a modeler different from the one who entered the inputs into the VISSIM models. Close coordination is being maintained throughout the modeling effort to incorporate adequate geometric improvements into the VISSIM models. A log of modifications is maintained to communicate to all modelers the correct set of inputs and assumptions to be used with the VISSIM models for this project.

iii) Seeding Time, Simulation Time, and Number of Runs

Each model will be run for at least one hour after a one and a half hour initialization period (for a total of 150 minutes of micro-simulation modeling time). During calibration, both the initialization time and the simulation time will be verified to ensure that calibration can be achieved and that both initial and ending time of the simulation replicate typical peak conditions in the corridor.

Given the stochastic nature of the VISSIM models, they need to be run with several different random seeds (to be determined base on statistical analysis) and the results need to be post-processed and averaged to determine the current state of traffic operations in the corridor. The total number of runs necessary for the analysis will be determined based on the following methodology:

$$CI_{1-\alpha\%} = 2 * t_{(1-\alpha/2),N-1} \frac{s}{\sqrt{N}}$$

Where:

$CI_{(1\text{-alpha})\%}$ = (1-alpha)% confidence interval for the true mean, where alpha equals the probability of the true mean not lying within the confidence interval

$t_{(1\text{-alpha}/2),N-1}$ = Student's t-statistic for the probability of a two-sided error summing to alpha with N-1 degrees of freedom, where N equals the number of repetitions

s = standard deviation of the model results

The procedure will be applied on travel time outputs from the VISSIM calibrated. The confidence intervals will be defined based on the standard deviations obtained from field travel time runs. Travel time data was collected in March 2011 during a period of 2 weeks for the entire corridor (both general purpose mainline and HOV lanes.

For this project, the CI will be defined as ±1.5 times the standard deviation obtained from the field travel time run sample.

iv) Calibration Matching Criteria

Travel time match will be the primary criterion to determine when calibration is achieved. The analysis will focus on matching travel times in the following segments, both in the northbound and southbound directions and for the general purpose as well as the HOV lanes:

- I-95 from Garrisonville Road to Dale Boulevard
- I-95 from Dale Boulevard to Fairfax County Parkway
- I-95 from Fairfax County Parkway to the Springfield Interchange
- I-95/I-395 from Springfield Interchange to Duke Street
- I-495 from Braddock Road to Van Dorn Street

While travel times will be measured and compared to field values at all intermediate segments (between interchanges), given the length and the saturated conditions of this corridor, it is not expected that a good match can be obtained on every single travel time segment in the network. The use of the average travel times for the above listed consolidated segments is considered adequate because the corridor has a consistently high demand during the entire peak hour. **Table 10** shows the template that will be used to report travel time calibration results.

In addition to the travel time comparisons, VISSIM vehicle throughputs will be compared to available traffic counts on the same segments listed above. The GEH statistic[4] will be computed for all links and consolidated for the above segments. GEH results will be segregated by mainline segments and ramps. **Table 11** shows the template that will be used to report volume calibration results.

Lastly, average speeds, bottleneck locations, and extent of congestion on the existing conditions models will be compared to the observed I-95 and I-395 speeds as well as observed queues throughout the study area. **Figure 6** depicts an example of average mainline speed for the corridor during the AM peak hour. Speed diagrams will be based on INRIX data available for the same days where traffic counts and travel time runs were conducted on the field. Diagrams similar to that shown in Figure 6 will be used during calibration to compare with average speeds, bottleneck locations, and congestion extent shown in the VISSIM models.

[4] The GEH Statistic is a formula used in traffic engineering, traffic forecasting, and traffic modelling to compare two sets of traffic volumes. The GEH formula gets its name from Geoffrey E. Havers, who invented it in the 1970s while working as a transport planner in London, England.

Table 10 – Travel Time Calibration Results – Reporting Template

Peak	Dir.	Segment	Field Travel Time	Actual Travel Time	Percent Difference	Mainline Congestion
AM	Overall Study Area					
	NB	I-95 Garrisonville to Dale Boulevard				
		I-95 Dale Boulevard to Fairfax Co. Parkway				
		I-95 Fairfax Co. Parkway to Springfield IC				
		I-95 Springfield to I-395 Duke Street				
		Total				
	SB	I-395 Duke Street to I-95 Springfield				
		I-95 Springfield to I-95 Fairfax Co. Parkway				
		I-95 Fairfax Co Parkway to Dale Boulevard				
		I-95 Dale Boulevard to Garrisonville				
		Total				
	IL	I-495 Entire Corridor				
	OL	I-495 Entire Corridor				
	SB	I-395/I-95 HOV Lanes Entire Corridor				

Table 11 – Volumes and GEH Calibration Results – Reporting Template

Peak	Dir.	Segment	Number of Locations			Locations Meeting GEH (Demand)		
			Mainline	Ramps	Overall	Mainline	Ramps	Overall
AM	Overall Study Area							
	NB	I-95 Garrisonville to Dale Boulevard						
		I-95 Dale Boulevard to Fairfax Co. Parkway						
		I-95 Fairfax Co. Parkway to Springfield IC						
		I-95 Springfield to I-395 Duke Street						
		Total						
	SB	I-395 Duke Street to I-95 Springfield						
		I-95 Springfield to I-95 Fairfax Co. Parkway						
		I-95 Fairfax Co Parkway to Dale Boulevard						
		I-95 Dale Boulevard to Garrisonville						
		Total						
	IL	I-495 Entire Corridor						
	OL	I-495 Entire Corridor						
	SB	I-395/I-95 HOV Lanes Entire Corridor						

General Purpose Lanes

Interchange	Average of speed (mph)
US-17/US-1/EXIT 126	68
US-17/US-1/EXIT 126	65
VA-3/EXIT 130	67
VA-3/EXIT 130	66
FREDERICKSBURG/STAFFORD CO LINE (FREDERICKSBURG)	64
US-17/EXIT 133	62
US-17/EXIT 133	66
VA-630/EXIT 140	64
VA-630/EXIT 140	64
US-1/VA-610/EXIT 143	62
US-1/VA-610/EXIT 143	57
RUSSELL RD/EXIT 148	63
RUSSELL RD/EXIT 148	68
EXIT 150	68
EXIT 150	67
VA-234/EXIT 152	67
VA-234/EXIT 152	66
DALE BLVD/SMOKETOWN RD/EB EXIT 156	65
OPITZ BLVD	34
VA 3000/EXIT 158	28
VA 3000/EXIT 158	26
VA-123/EXIT 160	26
VA-123/EXIT 160	36
US-1/EXIT 161	50
US-1/EXIT 161	40
EXIT 163	34
EXIT 163	32
VA-7100/EXIT 166	36
VA-7100/EXIT 166	37
BACKLICK RD/EXIT 167	38
VA-7900/EXIT 169	40
VA-7900/EXIT 169	43
FRANCONIA RD/EXIT 169	38
FRANCONIA RD/EXIT 169	31
I-395	29
EDSALL RD/EXIT 2	16
EDSALL RD/EXIT 2	16
VA-236/DUKE ST/EXIT 3	17
VA-236/DUKE ST/EXIT 3	13
SEMINARY RD/EXIT 4	22
SEMINARY RD/EXIT 4	24

HOV Lanes

Interchange	Average of speed (mph)
VA-234/EXIT 152	64
VA-234/EXIT 152	66
DALE BLVD/SMOKETOWN RD	66
DALE BLVD/SMOKETOWN RD	64
OPITZ BLVD	63
OPITZ BLVD	60
VA 3000/EXIT 158	58
VA 3000/EXIT 158	52
VA-123/EXIT 160	42
VA-123/EXIT 160	45
US-1/EXIT 161	46
US-1/EXIT 161	61
EXIT 163	57
VA-7100/EXIT 166	53
VA-7100/EXIT 166	61
BACKLICK RD/EXIT 167	59
BACKLICK RD/EXIT 167	65
VA-7900/EXIT 169	65
VA-7900/EXIT 169	63
FRANCONIA RD/EXIT 169	64
FRANCONIA RD/EXIT 169	66
I-495/I-95	63
I-495/I-95	60
EDSALL RD/EXIT 2	52
EDSALL RD/EXIT 2	49
VA-236/DUKE ST/EXIT 3	47
VA-236/DUKE ST/EXIT 3	39
SEMINARY RD/EXIT 4	46
SEMINARY RD/EXIT 4	50

Figure 6 – Average Speed Diagrams – Sample Diagram for I-95/I-395 AM Peak Northbound Direction (Data from INRIX March 2011)

v) Initial Setup of VISSIM Parameters

Table 12 summarizes some of the most important VISSIM parameters and their initial setup and values.

Table 12 – VISSIM Model Detail Parameter Setup

Parameter	2011 Existing Conditions	2018/2035 No Build Models	2018/2035 Build Models
Simulation Parameters			
VISSIM Version	5.30-03	Same as Existing	Same as Existing
Simulation Resolution	10 time steps/sec	Same as Existing	Same as Existing
Seeding Time	TBD - Minimum of 30 minutes	Same as Existing	Same as Existing
Recording Time	1 hr	Same as Existing	Same as Existing
# of random seeds	Starting seed # 111, random seed increment of 111. Start with 5 random seed runs, final # based on meeting travel time and volume throughput calibration and established confidence intervals.	Same as Existing	Same as Existing
Vehicle Parameters			
Vehicle 3D Model	* Car = PTV Default North American Models and Distributions * HGV Single Unit = start with PTV Default North American 3D Model Distribution but review with localized vehicle classification counts if available. * Bus = Default Bus vehicle type 38' in length	* Car/HGV/Bus = Same as Existing	Same as No Build
Vehicle Types	* GP Car (Vehicle Model = Car, occupancy = 1.X) * HOV3+ (Vehicle Model = Car, occupancy = 3.X) * HGV (Vehicle Model = HGV, occupancy = 1.0) * Bus (Vehicle Model = Bus, occupancy = ?)	Same as Existing	* GP Car (Same as Existing) * HOV3+ (Same as Existing) * HGV (Same as Existing) * Bus (Same as Existing) * HOT Car (Vehicle Model = Car, occupancy = 1.X)
Vehicle Classes	* GP Car (vehicle type = Car) * HOV3+ (vehicle type = HOV3+) * All HGV (vehicle type = HGV) * Bus (vehicle type = Bus)	Same as Existing	* GP Car (Same as Existing) * HOV3+ (Same as Existing) * All HGV (Same as Existing) * Bus (Same as Existing) * HOT (vehicle type = Car)
Vehicle Compositions	From Existing count	From Travel Demand Forecasts	From Travel Demand Forecasts
Acceleration Curves	Default per vehicle category	Same as Existing	Same as Existing

Arterial Driver Behavior Parameters			
Car following model	Wiedemann 74	Same as Existing	Same as Existing
Avg. standstill distance	global value = 6.56 ft; adjust for calibration on link basis	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Add. part of safety distance	global value = 2.2 ; adjust for calibration on link basis	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Mult. part of safety distance	global value = 3.3 ; adjust for calibration on link basis	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Look ahead distance	min: 0'; max: 820'; Observed vehicles: 4	Same as Existing	Same as Existing
Necessary Lane Change (route)	default; adjust for calibration	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Safety distance reduction factor	default; adjust for calibration on link basis	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Freeway Driver Behavior Parameters			
Car following model	Wiedemann 99	Same as Existing	Same as Existing
CC0	4.92 ft; adjust for mainline calibration	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
CC1	0.90 sec; adjust for mainline calibration but keep within 0.80 to 1.30 seconds	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
CC2 - CC9	Default - don't change for calibration	Same as Existing	Same as Existing

Freeway Driver Behavior Parameters			
Necessary Lane Change	Default - adjust for merge and weave segment calibration (don't exceed -28 ft/s/s deceleration rate)	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Safety distance reduction factor	default; adjust for calibration on link basis	If No Build improvement significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as Existing	If proposed design significantly changes segment, use engineering judgment to roll back calibration adjustment; otherwise Same as No Build
Traffic Signal Parameters			
Controller Type	Based on Timing Sheets or recon; otherwise assume actuated-coordinated RBC controller	Same as Existing; new or modified intersections will assume actuated-coordinated RBC controller	Same as Existing; new or modified intersections will assume actuated-coordinated RBC controller
Controller Frequency	10	Same as Existing	Same as Existing
Cycle Length	Based on Timing Sheets or recon	Optimized from Synchro; range from 60-150 seconds	Optimized from Synchro; range from 60-150 seconds
Coordination	Based on Timing Sheets or recon	Optimized from Synchro and manually adjusted as necessary	Optimized from Synchro and manually adjusted as necessary
Actuated Parameters	Based on timing sheet data; otherwise, * vehicle extension = 3.0 seconds;	Same as Existing	Same as Existing;
Minimum Green Time	Based on timing sheet data; otherwise, * arterial through movement = 15.0 seconds * all other movements = 5 seconds	Same as Existing	Same as Existing
Clearance Interval	Based on timing sheet data or recon; otherwise, * Yellow = 4.0 sec Thru & 3.0 sec Left; * All-red = 1.0 sec	Same as Existing	Same as Existing
Pedestrian Crossing Time	Based on timing sheet data; otherwise: * walk time = 7 sec * FDW time = (cross distance)/3.5 ft-s minus Clearance (Y + AR)	Same as Existing	Same as Existing
Ramp Meters	Location of ramp meters based on existing data or recon; RBC controller with metering rate set by VDOT	Same as Existing; Metering rate set by VDOT	Same as Existing; Metering rate set by VDOT
Transit Signal Priority	Based on Timing Sheets or recon; otherwise assume no TSP present	Same as Existing	Same as Existing

Bus Transit Parameters			
Bus Stop Location	from recon and/or Google Streetview	Same as Existing	From proposed plans, otherwise same as No Build
Bus Stop Dwell Time	assumes 30 sec dwell time at bus stop with 10 sec st dev	Same as Existing	From Future Forecast Data, otherwise same as Existing
Bus Route	From latest WMATA route maps or other governing transit agencies	Same as Existing	From proposed plans, otherwise same as No Build
Bus Headways	From latest WMATA time tables	Same as Existing	From proposed plans, otherwise same as No Build
Other Parameters			
Grade	* From As-built plans, otherwise 0% * cut links based on changes of grades at least 1%	From future No Build improvement plans, otherwise same as Existing	From proposed plans, otherwise same as No Build
Intersection Turning Speed	* Use reduced speed areas; * Right = 11-13 mph; * Left = 13-17 mph; * If non-standard turning radius, use AASHTO Exhibit 3-16	Use AASHTO Exhibit 3-16 for No Build improvements, otherwise same as Existing	Use AASHTO Exhibit 3-16 for improvements, otherwise same as No Build
Ramp curve speed	* Use reduced speed areas * From As-built plans, otherwise use AASHTO Exhibit 3-16	Use AASHTO Exhibit 3-16 for No Build improvements, otherwise same as Existing	Use AASHTO Exhibit 3-16 for improvements, otherwise same as No Build
Roadway speed limit	* Use speed decision points * Arterials: Existing recon or Google Streetview for posted speed +/- 3 mph * Freeway: Based on available free-flow speed profiles, otherwise posted speed +10/-3 mph	From future No Build improvement plans, otherwise same as Existing	From proposed plans, otherwise same as No Build
Vehicle Input	Exact Volume	Same as Existing	Same as Existing
Pedestrian crossing volume	Not modeled	Not modeled	Not modeled
Lane Change Distance	* Freeways: based on exit sign location; adjust for calibration * Arterial: default (656 ft); adjust for calibration	* if No Build improvement signficantly changes network, modify calibrated value; otherwise same as Existing	* if Build improvement signficantly changes network, modify calibrated or No Build value; otherwise same as No Build

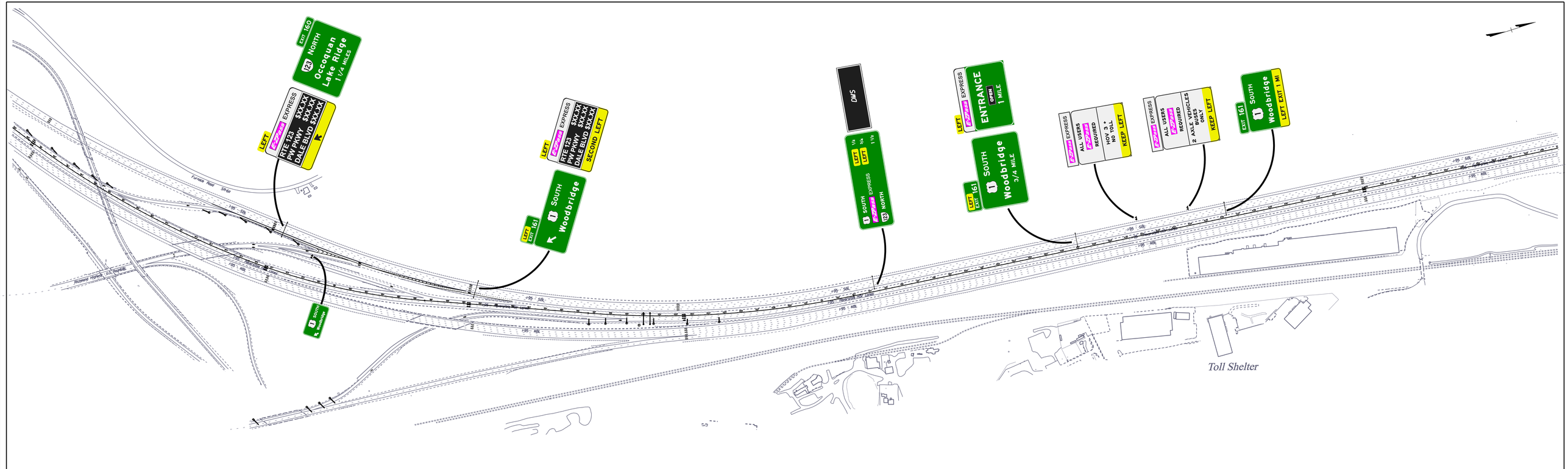
Appendix F

Crashes by Type and Severity Data (CD)

Crash Data recorded on the CD

Appendix G

Preliminary Signing Plan



VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

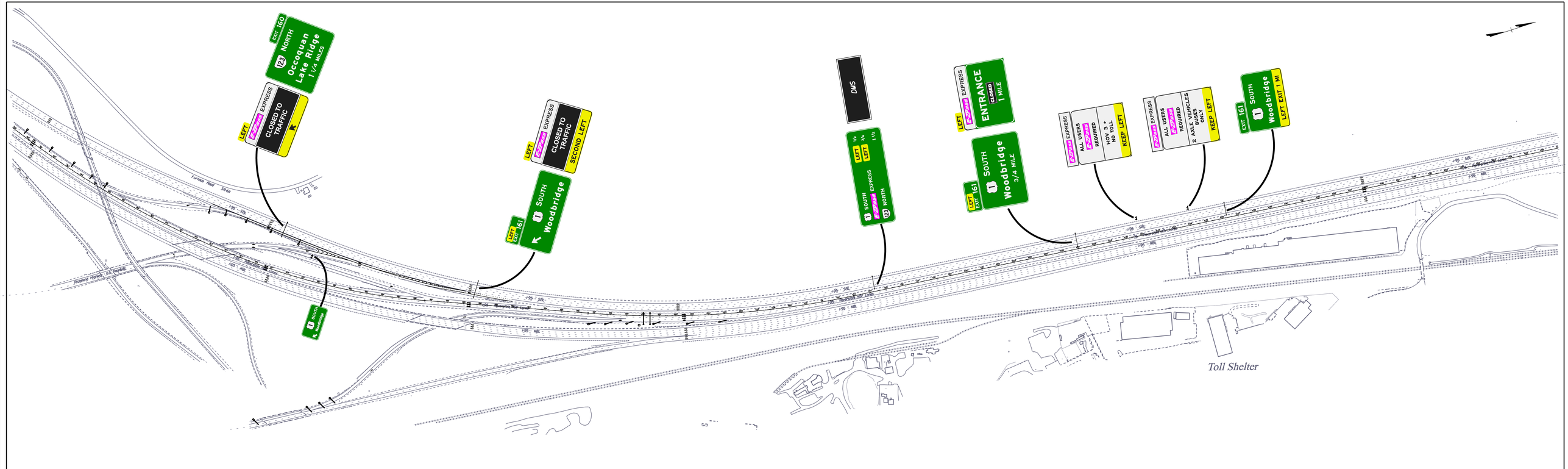
VDOT NORTHERN REGION OPERATION

SIGNAGE EXHIBIT

I-95 & ROUTE 1

PM CONDITION

SCALE: 1" = 200' | SHEET: 1 OF 3 | DATE: NOVEMBER 2011



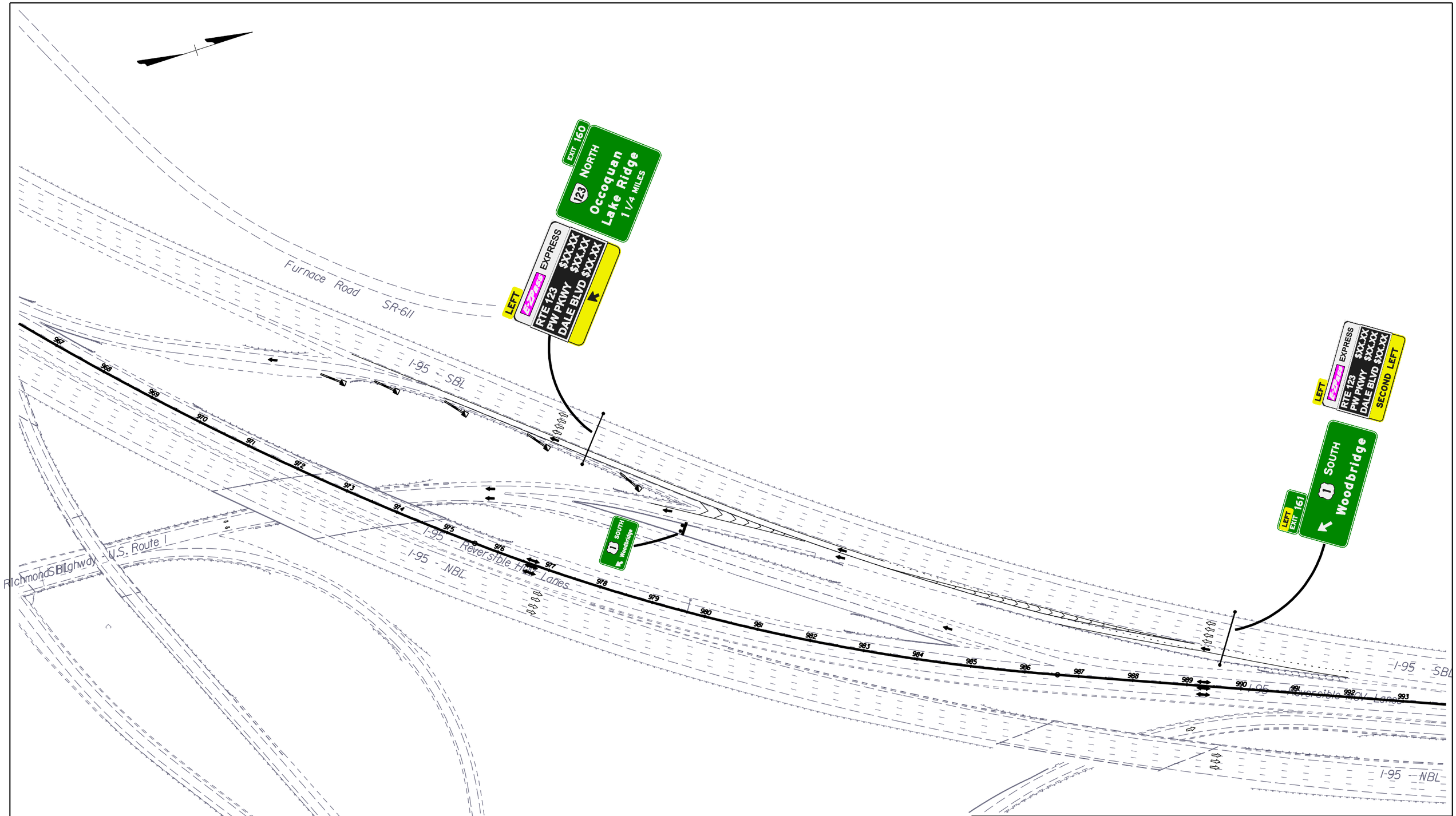
SCALE
0 100' 200'

VDOT Virginia Department of Transportation
VIRGINIA MEGAPROJECTS

VDOT NORTHERN REGION OPERATION

SIGNAGE EXHIBIT
I-95 & ROUTE 1
AM CONDITION

SCALE: 1" = 200' | SHEET: 2 OF 3 | DATE: NOVEMBER 2011



SCALE

0 100′ 200′

VDOT Virginia Department of Transportation

VIRGINIA MEGAPROJECTS

VDOT NORTHERN REGION OPERATION

SIGNAGE EXHIBIT
I-95 & ROUTE 1
RAMP STRIPING

SCALE: 1" = 40′	SHEET: 3 OF 3	DATE: NOVEMBER 2011

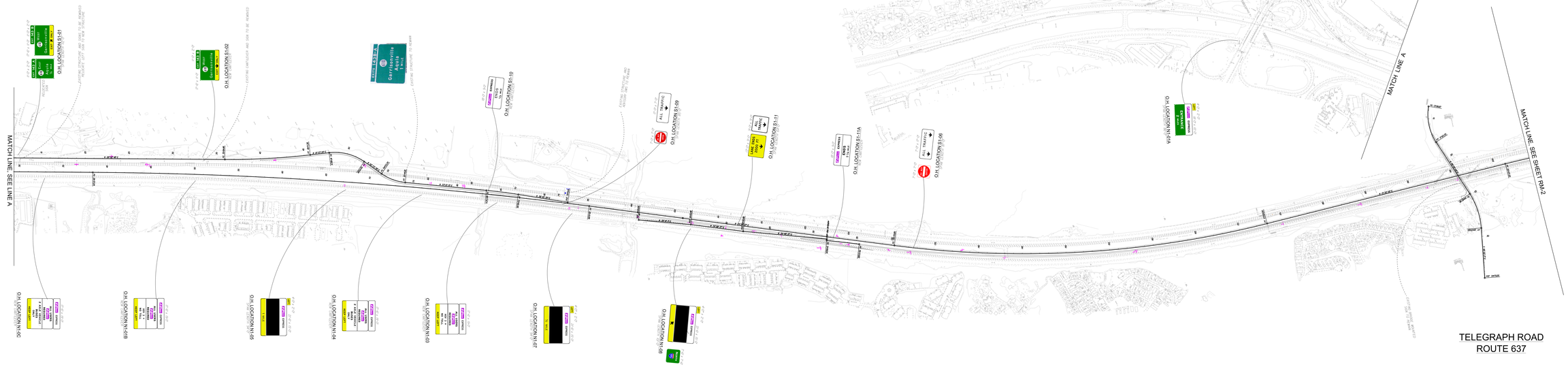
LIMITED ACCESS HIGHWAY By Resolution of Commonwealth Transportation Board dated January 18, 2007

REVISION	DATE	DESIGN STATE	STATE	ROUTE	PROJECT	SHEET	TOTAL SHEETS	PROJECT NUMBER	KEY NO.
			3	VA	NH-095-2(483)	95/ 395		0095-96A-107-P101	

PROJECT MANAGER MORDAUD ARCHUNDEGUI , HNTB CORP . (703)253-5042
SURVEYED BY RICHARD ZEBEL - BURGESS & NIPLE , (703)573-5120 .
DESIGN SUPERVISED BY THOMAS FLEMMING , HNTB CORP . (703)253-5046 .
DESIGNED BY HNTB CORPORATION (703)934-0700 .

SOUTH BOUND
TOLLING ZONE 3

NORTH BOUND
TOLLING ZONE 2



TELEGRAPH ROAD
ROUTE 637

SIGNING LEGEND

- EXISTING CANTILEVER SIGN STRUCTURE
- EXISTING SPAN SIGN STRUCTURE
- PROPOSED CANTILEVER SIGN STRUCTURE
- PROPOSED SPAN SIGN STRUCTURE
- PROPOSED DYNAMIC MESSAGE SIGN

TOLL LEGEND

- PROPOSED TOLL GANTRY STRUCTURE
- PROPOSED SERVICE PANEL W/ GENERATOR
- PROPOSED TOLL SHELTER

SCALE
20' 10' 0' 20'

FLUOR

U.0095-96 HOVBuild-I-07 Lanes
ROADWAY MISCELLANEOUS PLAN
STA. 30+60.33 GHS TO STA. 203+00.00 BGT

HNTB CORPORATION
ENGINEERS ARCHITECTS PLANNERS
8484 GEORGE WASHINGTON HIGHWAY, YORKTOWN, VA 23693

DESIGNED	REVIEWED	DATE	SCALE	PROJECT NUMBER	PLAN SHEET NO.
T. FLEMMING	M. ARCHUNDEGUI	11/2011	1" = 20'	NH-095-2(483)	0095-96A-107-P101	RM-1

Not for Construction

REVISIONS	DATE

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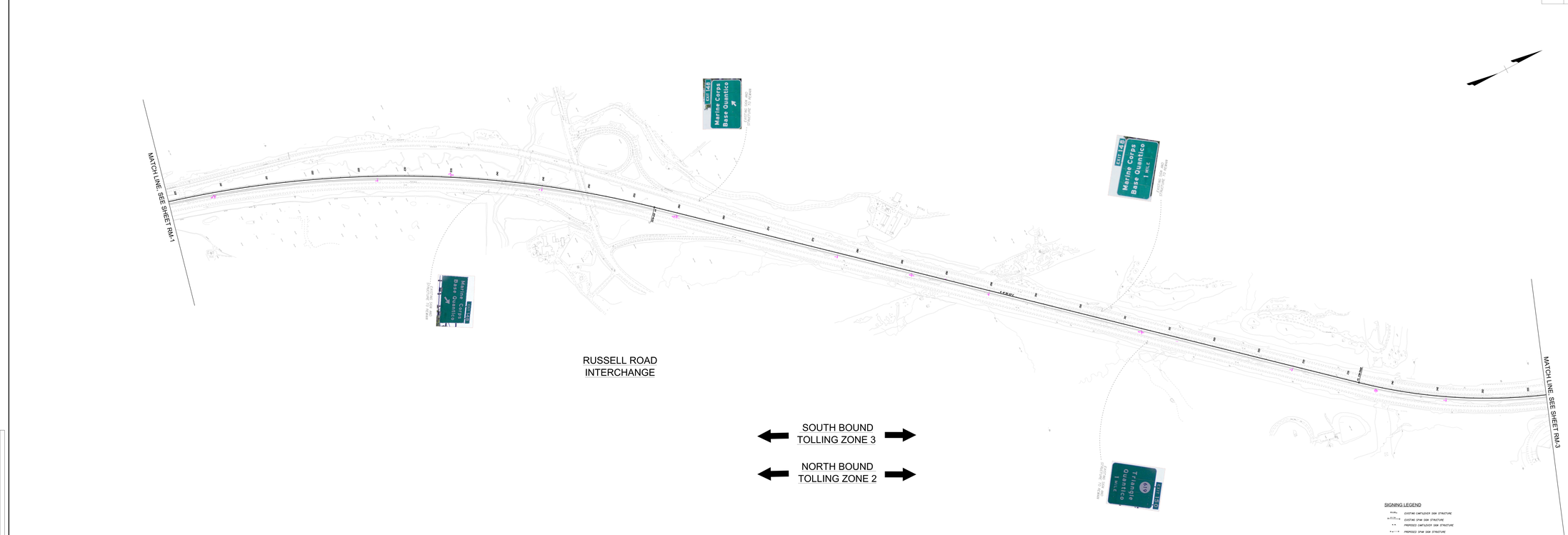
5/24/2011 Adobe PM
Per Table 1 Values\Shared\Braddock\Transport\Agency\CDT_\FSPLPrint\LineWeight\0023-Fairlight_Cn-Rail_RP2.pen

PROJECT MANAGER MONSEAS ARCHUNDEGUIA , HNTB CORP . (703)253-5042
SURVEYED BY RICHARD ZEBEL - BURGESS & NIPLE , (703)573-5320 .
DESIGN SUPERVISED BY THOMAS FLEMMINGS , HNTB CORP . (703)253-5046 .
DESIGNED BY HNTB CORPORATION (703)641-9000 . . . . . .

LIMITED ACCESS HIGHWAY By Permission of Commonwealth Transportation Board dated January 28, 2021

REVISION	DATE	SHEET REVISION	STATE	PROJECT NUMBER	ROUTE	PROJECT NUMBER	SHEET NO.
		3	VA	NH-095-2(483)	95/ 395	0095-96A-107-P101	



SIGNING LEGEND

- EXISTING CANTILEVER SIGN STRUCTURE
- EXISTING SPAN SIGN STRUCTURE
- PROPOSED CANTILEVER SIGN STRUCTURE
- PROPOSED SPAN SIGN STRUCTURE
- PROPOSED DYNAMIC MESSAGE SIGN

TOLL LEGEND

- PROPOSED TOLL GANTRY STRUCTURE
- PROPOSED SERVICE PANEL W/ GENERATOR
- PROPOSED TOLL SHELTER

SCALE
0 20' 40'

FLUOR

U.0095-00 HOV/Bus+01 Lanes
ROADWAY MISCELLANEOUS PLAN
STA 203-00.00 HOT TO STA. 357-00.00 HOT

HNTB HNTB CORPORATION
ENGINEERS ARCHITECTS PLANNERS
8484 GEORGIA AVENUE, SUITE 900, SILVER SPRING, MD 20910

DESIGNED	REVIEWED	DATE	DATE	DATE
T. FLEMMINGS				
DRAWN	CHECKED			
R. ZEBEL				

STATE	PROJECT NUMBER	SHEET NO.
VA	NH-095-2(483)	0095-96A-107-P101	RM-2

Not for Construction

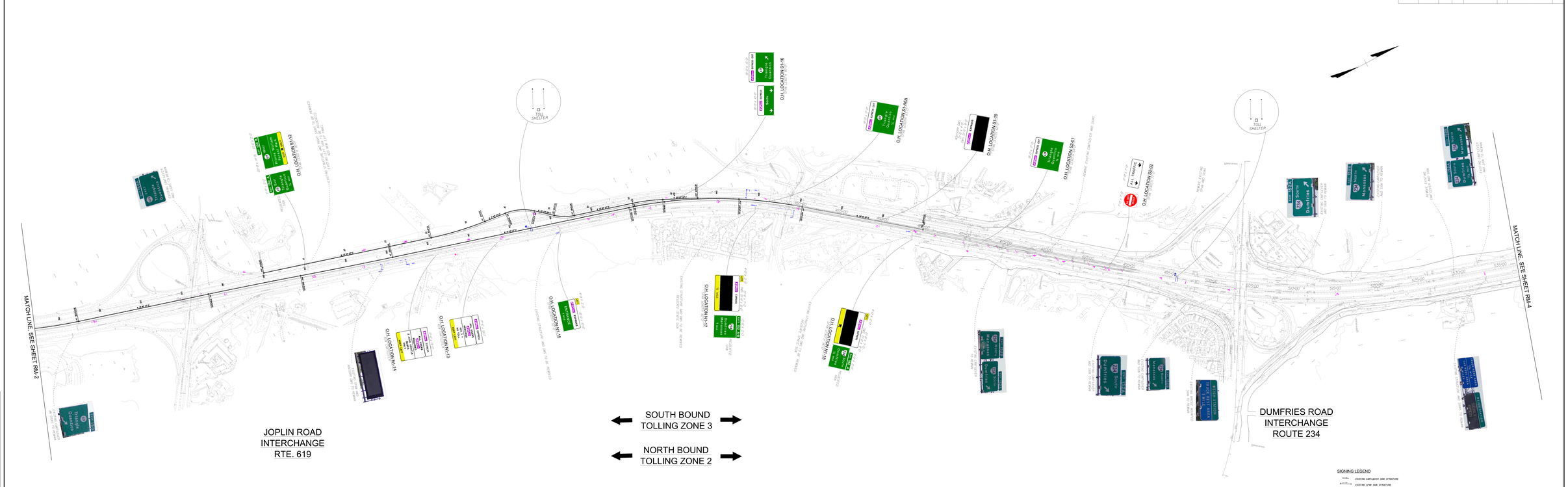
Date	Description	Initials

Contract Number

PROJECT MANAGER MORGAN ARCHBOLDT , HNTB CORP . (703)253-5042
SURVEYED BY RICHARD ZEBEL - BURGESS & NIPLE . (703)573-5320 .
DESIGN SUPERVISED BY THOMAS FLEMMONS , HNTB CORP . (703)253-5046 .
DESIGNED BY HNTB CORPORATION (703)934-0700 . . . . . .

LIMITED ACCESS HIGHWAY By Permission of Commonwealth Transportation Board dated January 18, 2001

REVISION			DATE	STATE	PROJECT	SHEET	TOTAL SHEETS
			3	VA	NH-095-2(483)	95/395	0095-96A-107-P101



SIGNING LEGEND

- EXISTING CANTILEVER SIGN STRUCTURE
- EXISTING SPAN SIGN STRUCTURE
- PROPOSED CANTILEVER SIGN STRUCTURE
- PROPOSED SPAN SIGN STRUCTURE
- PROPOSED DYNAMIC MESSAGE SIGN

TOLL LEGEND

- PROPOSED TOLL GANTRY STRUCTURE
- PROPOSED SERVICE PANEL W/ GENERATOR
- PROPOSED TOLL SHELTER

SCALE 1" = 200'

FLUOR

I-395/I-95 HOV/Bus+HOT Lanes

ROADWAY MISCELLANEOUS PLAN

STA. 397+00.00 HOT TO STA. 537+00.00 HOT

HNTB CORPORATION
ENGINEERS ARCHITECTS PLANNERS
8484 GEORGE WASHINGTON HIGHWAY, YORKTOWN, VA 23693

DESIGNED	DRAWN	REVIEWED	DATE	SCALE
K. SCHAFER	K. SCHAFER	T. FLEMMONS	1 OCT 2008	1" = 200'

STATE	PROJECT	SHEET
VA	NH-095-2(483)	0095-96A-107-P101

FIGURE 3

Not for Construction

Rev.	Date	Description

P:\PWWorkdir\0107\38663\Hwy\Sign
9/26/2008 10:46:06 PM
Per Table 1 Yulan\Shared\Admin\Approval\Agency\VDOT_JF\PrePrint\Jackfish\38663\Fig 38663_Cn-Rd_HOT.pen

PROJECT MANAGER NICHOLAS ANTONUCCI, PE - HNTB CORP - (703) 253-5842
SURVEYED BY RICHARD ZIEMS - BURGESS & NIPLE - (703) 631-5325
DESIGN SUPERVISED BY THOMAS FLEMING, PE - HNTB CORP - (703) 253-5845
DESIGNED BY HNTB CORPORATION (703) 824-5100

LIMITED ACCESS HIGHWAY By Resolution of Commonwealth Transportation Board dated January 18, 2001

REVISION	DATE	FHWA REGION	STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
		3	VA.	NH-095-2(481)	95/395	0095-96A-107-P101	

SIGNING LEGEND

EXISTING CANTILEVER SIGN STRUCTURE
EXISTING SPAN SIGN STRUCTURE
PROPOSED CANTILEVER SIGN STRUCTURE
PROPOSED SPAN SIGN STRUCTURE
PROPOSED DYNAMIC MESSAGE SIGN

TOLL LEGEND

PROPOSED TOLL GANTRY STRUCTURE
PROPOSED SERVICE PANEL W/ GENERATOR
PROPOSED TOLL SHELTER

SCALE 0 200' 400'

FLUOR

I-395/I-95 HOV/Bus/HOT Lanes
ROADWAY MISCELLANEOUS PLAN
STA. 537+00.00 HOT TO STA. 714+00.00 HOT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

Scale 1"=200'-0"	Date DATE	Sheet of	
PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	NH-095-2(481)	0095-96A-107-P101	RM-4

Not for Construction