Richmond, Virginia
8-Hour Ozone Maintenance Area
Transportation Conformity Analysis

Amended FY 09-12 Transportation Improvement Program and 2031 Long Range Transportation Plan

Final Report

Virginia Department of Transportation

Prepared by: Virginia Department of Transportation

February 2010

Table of Contents

APPENDICES

LIST OF TABLES

LIST OF FIGURES

Acronym List

AADT	Average Annualized Daily Traffic
BHP-hr	Brake-horsepower-hour
BPR	Bureau of Public Roads
CAA	United States Clean Air Act, as amended
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality
CPDC	Crater Planning District Commission
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
FY	Fiscal Year
g	grams
GRTC	Greater Richmond Transit Company
HCM	Highway Capacity Manual
HDDV	Heavy-Duty Diesel Vehicle
HPMS	Highway Performance Monitoring System
ICG	Interagency Consultation Group
RRPDC	Richmond Regional Planning District Commission
I/M	Vehicle Emission Inspection and Maintenance Program
LRTP	Long Range Transportation Plan
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NLEV	National Low Emission Vehicle Program
NO_X	Nitrogen Oxides
PPAQ	Post Processor for Air Quality
psi	Pounds per square inch
RAMPO	Richmond Area Metropolitan Planning Organization
RFG	Reformulated Gasoline
RRPDC	Richmond Regional Planning District Commission
RVP	Reid Vapor Pressure
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SIP	State Implementation Plan (for air quality)
STIP	State Transportation Improvement Program
TAZ	Traffic Analysis Zone
TCM	Transportation Control Measure
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TSD	Technical Support Document (for SIPs or SIP revisions)
V/C	Volume-to-Capacity (Ratio)
VDEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VDRPT	Virginia Department of Rail and Public Transportation
VEC	Virginia Employment Commission
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles of Travel
VOC	Volatile Organic Compounds
VRS	Vapor Recovery System

Executive Summary

In compliance with the federal transportation conformity rule (40 CFR Parts 51 and 93), this report presents the air quality conformity assessment for the amended fiscally-constrained Fiscal Year (FY) 2009-2012 Transportation Improvement Program (TIP)) and 2031 Long Range Transportation Plan (LRTP) developed by the Richmond and Tri-Cities Metropolitan Planning Organizations (MPO).

The conformity demonstration applies to the Richmond, Virginia area, which was re-designated to attainment for the 8-hour ozone national ambient air quality standard (72 FR 30485, effective June 18, 2007). The re-designated area was made subject to a concurrently-approved air quality maintenance plan, however, so federal conformity requirements still apply. The maintenance area includes the counties of Hanover, Henrico, Charles City, Prince George and Chesterfield, the cities of Colonial Heights, Hopewell, Petersburg, and Richmond, and the town of Ashland.

As indicated in Table ES-1, the amended FY 09-12 TIP and 2031 LRTP meet all applicable requirements of the federal and state transportation conformity rules. A recommendation for a finding of conformity for the TIP is therefore made, but is conditional upon any further and separate review as may be required by the US DOT for the fiscal constraint criterion consistent with Section 93.108 of the federal conformity rule and the requirements of federal planning regulations specified at 23 CFR Part 450.

Table ES-1: Conformity Criteria Summary*

Section	Criteria	Demonstrated for the:	
		LRTP	TIP
93.108	Fiscal constraint	Yes**	Yes**
93.110	Latest planning assumptions	Yes	Yes
93.111	Latest emissions model	Yes	Yes
93.112	Consultation	Yes	Yes
93.113(b) & (c)	TCMs	na***	na***
93.118	Emissions Budget	Yes	Yes

* *As specified in the federal conformity rule at 40 CFR 93.109, "Table 1 – Conformity Criteria", with the addition of fiscal constraint as required in Section 93.108.*

** *As indicated by MPO approval of the project list and amendments for the TIP and documented with those reports, and subject to federal review consistent with 23 CFR Part 450 as referenced in Section 93.108.*

*** *The applicable implementation (maintenance) plan for Richmond does not include transportation control measures (TCMs), and therefore they are not required for the conformity analysis or determination. See 72 FR 30485, effective June 18, 2007.*

The criteria listed in Table ES-1 are reviewed in turn below. Key sections of the main report are referenced where supporting documentation for the demonstration may be found.

- Section 93.108: This section states: "*Transportation plans and TIPs must be fiscally constrained consistent with [US Dept. of Transportation] DOT's planning regulations at 23 CFR Part 450 in order to be found in conformity*." The MPO documents fiscal constraint with the development of the LRTP and TIP, and includes specific sections or chapters addressing cost estimates and financial constraint. For the purposes of this conformity demonstration, therefore, fiscal constraint is indicated by MPO approval of the project lists for the amended FY 09-12 TIP and 2031 LRTP, and the documentation provided with those reports.
  A recommendation for a finding of conformity is therefore made, but is conditional upon any further and separate review as may be required by the US DOT for the fiscal constraint criterion consistent with Section 93.108 of the federal conformity rule as well as requirements of federal planning regulations specified at 23 CFR Part 450.

- Sections 93.110 and 93.111: The latest planning assumptions and emission model were applied as required by the rule for this conformity analysis.

  Central to the planning assumptions are the socioeconomic forecasts. For this analysis, the latest population and employment forecasts through 2031 available at the Traffic Analysis Zone (TAZ) level were applied for the development of traffic volume and vehicle-miles-traveled (VMT) forecasts. The traffic forecasts were generated using a regional travel demand network model (Cube/Voyager) with the socioeconomic forecasts and regional roadway and transit networks coded based upon LRTP and TIP project lists that were subjected to interagency review and approval as described in the section below addressing consultation.

  On December 23, 2009, EPA released the final version of the Motor Vehicle Emission Simulator Model (MOVES), called MOVES2010. MOVES2010 is EPA's latest mobile source emission model and replaces EPA's previous mobile source emission model, MOBILE6.2. EPA will be publishing a *Federal Register* notice of availability in the near future to approve MOVES2010 for meeting official state implementation plan (SIP) and transportation conformity requirements. Upon publication of the *Federal Register* notice, MOVES2010 will become EPA's approved motor vehicle emission factor. EPA intends to include in the notice a two-year grace period before MOVES2010 is required for transportation conformity determinations. For this analysis, The MOBILE6.2 emission (factor) model, as approved by EPA was applied. Key inputs to the emission factor model were made consistent with the modeling conducted for the approved maintenance plan revision to the State Implementation Plan (SIP) (72 FR 30485, effective June 18, 2007). Updated VMT distributions by vehicle type and roadway functional class and ozone season weekday traffic adjustment factors were also applied, based upon an analysis of 2008 Highway Performance Monitoring System (HPMS) data by the Virginia Department of Transportation (VDOT, 2009).

  Chapter 2 of this report documents the transportation and emission modeling methodology and key assumptions as applied in this analysis. Chapter 4 summarizes the conformity demonstration and conclusion, including compliance with more general requirements specified in Section 93.122 ("Procedures for determining regional transportation-related emissions"), which link to and support the demonstrations required in Sections 93.110 and 93.111.

- Section 93.112: Consultation for this conformity analyses was conducted following

procedures established for the Richmond area as documented in the report entitled "*Consultation Procedures for the Richmond Ozone Nonattainment Area: In Support of the Transportation Conformity Regulations*", which was approved on October 13, 2005 by the Richmond and Tri-Cities MPOs. These procedures were developed pursuant to federal conformity rule requirements (93.105 as referenced by 93.112) and include the formation of an Interagency Consultation Group (ICG).

The ICG is comprised of representatives of federal, state and local air and transportation agencies, including the US Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Virginia Department of Rail and Public Transportation (VDRPT), Virginia Department of Environmental Quality (VDEQ), VDOT, and members of the Richmond and Tri-Cities MPO. No changes were made to the Tri-Cities TIP or LRTP and therefore coordination and approval with the Tri-Cities MPO was not necessary, and a letter certifying that is included in Appendix D.

For this conformity analysis, the ICG met on November 19, 2009 to review and approve the conformity analysis schedule, modeling methodology and key assumptions to be applied in the conformity analysis, and projects lists for the amended TIP. Public input was sought as part of the conformity consultation process, both at the ICG meeting and in the public review period for the draft analysis.

The consultation was also conducted in a manner consistent with requirements specified in the "Virginia Regulation for Transportation Conformity" (9 VAC 5-151), which was passed into state law in 2007 in response to the requirements of Section 51.390 of the federal conformity rule. The regulation is also referred to as the "conformity SIP". The Conformity SIP was approved by EPA and published in the Federal Register on November 20, 2009. See 73 FR 223 effective January 19th, 2010. The consultation requirements in the conformity SIP are generally consistent with the Federal Transportation Conformity Rule, although it also requires consultation with the Lead Planning Organization (LPO) established pursuant to Section 174 of the federal Clean Air Act as amended (CAA). The Metropolitan Richmond Air Quality Committee is the designated LPO for the region.

Chapter 3 of this report provides an overview of the applicable consultation requirements as well as a chronological consultation record of meetings and events related to the analysis. Copies of consultation materials including meeting agenda, minutes, conformity analysis schedule, presentation and handouts are provided in Appendix D. Project lists as finalized following the November 19, 2009 ICG meeting are provided in Appendix E.

- Sections 93.113: The applicable implementation plan for the Richmond region does not include transportation control measures (TCMs). They are therefore not required for the conformity analysis or determination. See 72 FR 30485, effective June 18, 2007.

- Section 93.118: The emission budget tests required in Section 93.118 of the federal conformity rule were satisfied for the conformity analysis for all years modeled. Emission budgets specified in the maintenance plan (72 FR 30485, effective June 18, 2007) for the years 2011 and 2018 were applied for this analysis.

  The years selected for analysis are consistent with the requirements of this section of the conformity rule. The maintenance plan specifies budgets for 2011 and 2018, and years for which budgets are established are required to be analyzed. Additionally, the

conformity rule requires modeling for the last year of the transportation plan (2031), and that years modeled be no more than ten years apart. To meet the latter requirement, the year 2021 was selected.

Table ES-2 summarizes the emissions test results for the Richmond maintenance area for the 8-hour ozone standard for each year modeled. For this area, the projected emissions for nitrogen oxides (NO_x) and volatile organic compounds (VOC), both precursors to ozone formation, are less than budgets established in the maintenance plan for all years tested. The emission tests therefore are passed as required in the federal and state conformity rules.

Note, for transparency and to demonstrate consistency with the methodology applied in the maintenance plan, Table ES-2 presents separate emission totals for network and off-network emissions within the Richmond maintenance area. Network emissions include all regionally significant roadway and transit projects planned and/or programmed for opening within the timeframe of the plan that were included in the travel demand modeling for the conformity assessment for each year modeled. Off-network emissions are similar but account for travel on local and collector streets not included in the network model and therefore estimated separately. The regional total emissions presented for each year modeled include the contributions from each of these categories.

Finally, for reference, Chapter 1 provides a review of applicable federal, state and local regulatory requirements, including those relating to the air quality maintenance plan.

Table ES-2: Conformity (Emission Budget) Tests

Year		Regional Emissions *(tons per ozone season weekday)*	
		NO_x	**VOC**
2011	**Budget Year**		
	LRP/TIP Forecast:	35.27	27.57
	Network	*29.63*	*20.85*
	Off-Network	*5.63*	*6.72*
	Budget:	43.661	32.343
	Conformity Test:	PASSED	PASSED
2018	**Budget Year**		
	LRP/TIP Forecast:	19.79	18.65
	Network	*16.31*	*14.08*
	Off-Network	*3.48*	*4.57*
	Budget:	26.827	23.845
	Conformity Test:	PASSED	PASSED
2021	**Interim Year** (within ten years of other years modeled)		
	LRP/TIP Forecast:	17.21	16.26
	Network	*14.07*	*12.20*
	Off-Network	*3.15*	*4.06*
	Budget:	26.827	23.845
	Conformity Test:	PASSED	PASSED
2031	**LRP Horizon Year**		
	LRP/TIP Forecast:	15.42	16.73
	Network	*12.34*	*12.39*
	Off-Network	*3.08*	*4.34*
	Budget:	26.827	23.845
	Conformity Test:	PASSED	PASSED

(Numbers may not add exactly due to rounding.)

This assessment complies with applicable federal and state requirements for transportation conformity, which include the final rule for transportation conformity published in the November 24, 1993 Federal Register as well as subsequent amendments introduced by EPA and the U.S. DOT. Several sections of the amended rule have also been modified and/or remanded due to court rulings.

Amendments to the conformity rule include those made on August 7 and November 14, 1995, August 15, 1997 as well more recent amendments including the July 1, 2004 final conformity rule (69 FR 40004) that addresses conformity for the new ozone and $PM_{2.5}$ air quality standards and the March 1999 court decision, the May 6, 2005 final conformity rule (70 FR 31354) that addresses $PM_{2.5}$ precursors, the March 10, 2006 final conformity rule (71 FR 12468) that addresses $PM_{2.5}$ and PM_{10} hot-spot analyses, and the January 24, 2008 final conformity rule (73 FR 4420) that addresses the provisions contained in SAFETEA-LU.

The assessment also complies with additional federal guidance published jointly by the EPA and the U.S. DOT dated February 2006, by EPA on May 14, 1999, and by FHWA and FTA on June 14, 1999.

Chapter 1: Introduction and Overview

This report documents the procedures and results of the transportation conformity analysis in the Richmond, Virginia 8-hour ozone maintenance area for the Richmond Metropolitan Planning Organization (MPO) and the Tri-Cities MPO amended Fiscal Year (FY) 2009-2012 Transportation Improvement Program (TIP).

The Richmond and Tri-Cities Metropolitan Planning Organizations serve as the forum for cooperative transportation decision-making for the area and, in this capacity, lead the development of the LRTP and TIP, in consultation and coordination with the Virginia Department of Transportation (VDOT) and other public and private stakeholders, as appropriate. The Richmond Regional Planning District Commission (RRPDC) and Crater Planning District Commission (CPDC) serve as staff for the Richmond and Tri-Cities MPO, respectively. VDOT, working with the MPO's and in consultation and coordination with other agencies and public and private stakeholders, as appropriate, leads the development of the requisite conformity analyses.

The report is organized as follows:

Chapter 1 (this chapter) provides an overview of applicable federal, state and local regulatory requirements and guidance, focusing on transportation conformity but also including a brief review of local air quality designations and related air quality plan development.

Chapter 2 provides a detailed review of the modeling methodology and assumptions as applied in the conformity analysis.

Chapter 3 summarizes the consultation process and results, which begins before the conformity (technical) analysis is initiated with inter-agency review of the methods, assumptions, schedule and project lists to be analyzed and concludes with MPO approval of the draft conformity analysis and subsequent review and approval by the US DOT in consultation with the US EPA.

Chapter 4 documents the results of the conformity analysis, supporting a recommendation for a finding of conformity for the amended FY 09-12 TIP and 2031 LRTP.

Transportation Conformity

Federal, state and local requirements addressing transportation conformity apply for specified air quality nonattainment and maintenance areas in the Commonwealth of Virginia. These requirements originate from Section 176(c) of the Clean Air Act (CAA) as amended, which requires that federal agencies and MPOs not approve any transportation project, program, or plan that does not conform with an approved State Implementation Plan (SIP) for air quality.

On November 24, 1993, in keeping with CAA requirements, the U.S. Environmental Protection Agency (EPA) promulgated a rule (40 CFR Part 51, Subpart T) establishing "criteria and procedures for determining conformity to state and federal implementation plans of transportation plans, programs, and projects funded or

approved under Title 23 U.S.C. or the Federal Transit Act." The final rule for transportation conformity became effective on December 27, 1993.

EPA and the U.S. DOT have subsequently finalized a number of amendments to the federal conformity rule. Several sections of the amended rule have also been modified and/or remanded due to court rulings. This conformity analysis meets the requirements of the conformity rule as amended to date by such actions.

This includes amendments made on August 7 and November 14, 1995, August 15, 1997 as well as more recent amendments including the July 1, 2004 final conformity rule (69 FR 40004) that addresses conformity for the new ozone and $PM_{2.5}$ air quality standards and the March 1999 court decision, the May 6, 2005 final conformity rule (70 FR 31354) that addresses $PM_{2.5}$ precursors, the March 10, 2006 final conformity rule (71 FR 12468) that addresses $PM_{2.5}$ and PM_{10} hot-spot analyses, and the January 24, 2008 final conformity rule (73 FR 4420) that addresses the provisions contained in SAFETEA-LU.

The assessment also complies with additional federal guidance published jointly by the EPA and the US Department of Transportation (USDOT) dated February 2006, by EPA on May 14, 1999, and by FHWA and FTA on June 14, 1999.

The federal transportation conformity rule ensures conformity to a SIP's purpose of: (1) eliminating or reducing the number and severity of violations of national ambient air quality standards (NAAQS) and (2) attaining these standards. It also ensures that neither a transportation system as a whole nor an individual project will cause or contribute to new air quality violations or will increase the frequency or severity of existing violations.

Under the federal conformity rule, MPOs, state departments of transportation and the FHWA along with the FTA are responsible for conformity determinations for: (1) LRTPs, (2) TIPs, (3) transportation projects that receive federal funding or require FHWA or FTA approval, and (4) regionally significant non-federal projects, if these actions occur in areas that have been designated by EPA as nonattainment or maintenance areas for any of the criteria pollutants.

The assessment also complies with the corresponding state conformity regulations specified at 9 VAC 5-151, also known as the conformity SIP. The Conformity SIP was approved by EPA and published in the Federal Register on November 20, 2009. See 73 FR 223 effective January 19th, 2010.

Transportation Conformity Rule Criteria

Section 93.109 of the federal transportation conformity rule lists specific criteria required for conformity demonstrations for transportation plans, programs and projects. An excerpt showing the criteria specific to plans and programs is provided below. The criteria and how each are met in this conformity analysis are reviewed in Chapter 4. A brief summary of each of the criteria is provided below:

- §93.110 requires that conformity determinations be based upon the latest planning assumptions in force at the time of the determination.

- §93.111 requires that the latest emissions model available be used for the conformity analysis.

Table 1-1: Excerpt from 40 CFR 93.109 ("Table 1 - Conformity Criteria") of the Federal Transportation Conformity Rule

All Actions at all times:	
§93.110	Latest planning assumptions
§93.111	Latest emissions model
§93.112	Consultation
Transportation Plan:	
§93.113(b)	TCMs
§93.118 and/or §93.119	Emissions budget and/or Interim emissions
TIP:	
§93.113(c)	TCMs
§93.118 and/or §93.119	Emissions budget and/or Interim emissions

- §93.112 requires that the conformity determination be made in accordance with the specified consultation procedures. These procedures include: (1) providing reasonable opportunity for consultation with state air agencies, local air quality and transportation agencies, DOT, and EPA (§93.105(a)(2)), and (2) establishing a proactive public involvement process that provides an opportunity for public review and comment prior to taking formal action on a conformity determination (§93.105(e)). Consultation requirements are reviewed in more detail in Chapter 3.

- §93.113 details the steps necessary to demonstrate that the LRTP provides for the timely implementation of transportation control measures (TCMs) and is not interfering with their implementation.

- §93.118 requires the LRTP and TIP be consistent with the motor vehicle emission budget in the applicable SIP. Since emission budgets have been established for the Richmond area, as reviewed later in this chapter, the emission budget tests are applicable (and the Section 93.119 interim tests are not required.)

  For reference, section 93.118(b)(1)(ii) indicates that "*Emissions in years for which no motor vehicle emission budget(s) are specifically established must be less than or equal to the motor vehicle emissions budget(s) established for the most recent prior year. …*"

Additional requirements include or provide:

- §93.122 addresses "*procedures for determining regional transportation-related emissions*". It requires that all regionally significant projects included in the LRTP or TIP be included in the regional emissions analysis, and includes specific requirements for the conduct of both transportation and emission modeling. The applicable modeling requirements of this section are summarized with the conformity demonstration in Chapter 4.

- §93.126 & §93.127 allow certain types of projects (such as safety projects) that do not have adverse emissions impacts to be exempt from being included in the regional emissions analysis.

For reference, related requirements apply for project-level determinations:

- §93.114 requires a currently conforming plan and TIP at the time of project approval.

- §93.115 requires projects to be from a conforming transportation plan and program.

Requirements for consultation are detailed in §93.105 of the federal transportation conformity rule and the Virginia Regulation for Transportation Conformity (9 VAC 5-151) also known as the conformity SIP. The Conformity SIP was approved by EPA and published in the Federal Register on November 20, 2009. See 73 FR 223 effective January 19th, 2010. Consultation requirements and processes are reviewed in detail in Chapter 3.

Air Quality Designation Status for Richmond

The Richmond area is currently in attainment for all of the NAAQS, which are summarized in Table 1-2. However, as the area has previously been designated as nonattainment for ozone and since been redesignated to attainment, it is subject to a maintenance plan and as such is subject to transportation conformity requirements. Note emission budgets, presented later in this chapter, are established for the primary precursors to ozone, namely nitrogen oxides (NO_x) and volatile organic compounds (VOC).

On November 6, 1991, the Richmond, Virginia region was classified by EPA as a moderate ozone non-attainment area for the one-hour ozone standard (56 FR 56694). The designated non-attainment area included the town of Ashland, Charles City County (partial), Chesterfield County, City of Colonial Heights, Hanover County, Henrico County, City of Hopewell, and the City of Richmond.

On November 17, 1997, EPA approved Virginia's request for redesignation of the Richmond moderate 1-hour ozone nonattainment area from nonattainment to attainment and approved the area's maintenance plan. This redesignation was based upon three years of quality-assured ambient air monitoring data for the area, which demonstrated that the NAAQS for ozone had been attained.

On July 18, 1997, EPA promulgated a revised (8-hour) ozone NAAQS of 0.08 parts per million (ppm). Designation of areas across the nation as attainment or nonattainment for the new standard was to be conducted at a later point by EPA.

Table 1-2: National Ambient Air Quality Standards*

	Primary Standards		Secondary Standards	
Pollutant	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm (10 mg/m³)	8-hour (1)	None	
	35 ppm (40 mg/m³)	1-hour (1)		
Lead	0.15 µg/m³ (2)	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m³	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 µg/m³)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM_{10})	150 µg/m³	24-hour (3)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m³	Annual (4) (Arithmetic Mean)	Same as Primary	
	35 µg/m³	24-hour (5)	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour (6)	Same as Primary	
	0.08 ppm (1997 std)	8-hour (7)	Same as Primary	
	0.12 ppm	1-hour (8)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 µg/m³)	3-hour (1)
	0.14 ppm	24-hour (1)		

(1) Not to be exceeded more than once per year.
(2) Final rule signed October 15, 2008.
(3) Not to be exceeded more than once per year on average over 3 years.
(4) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.
(5) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).
(6) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
(7) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(8) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.
(b) As of June 15, 2005 EPA has revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas. For one of the 14 EAC areas (Denver, CO), the 1-hour standard was revoked on November 20, 2008. For the other 13 EAC areas, the 1-hour standard was revoked on April 15, 2009.
** Source: Table including footnotes listed above are as excerpted from US Environmental Protection Agency (US EPA) web site (http://www.epa.gov/air/criteria.html, accessed November 3, 2009).*

Additional Notes:

(i) EPA introductory text for the table presented above: "The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. They are listed below. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m3), and micrograms per cubic meter of air (µg/m3)."

(ii) $PM_{2.5}$ standards are as specified in the Final Rule published in the Federal Register on October 17, 2006 (FR Volume 71, No. 200, pp.61144—61233) and made effective December 18, 2006. The previous (1997) 24-hour standard of 65 µg/m3 applies for conformity analyses and determinations for areas previously designated as in nonattainment for that standard, as indicated in the EPA guidance memorandum issued April 16, 2007 for "Transportation Conformity and the Revised 24-Hour PM2.5 Standard". The EPA guidance memo also indicates that "[t]ransportation conformity for the 2006 24-hour PM2.5 standard does not apply until one year after the effective date of nonattainment designations that consider that standard…". As of the date of preparation of this report, no areas in Virginia have been designated in nonattainment for the new standard.

On April 30, 2004, the EPA published a final rule designating Richmond as a moderate nonattainment area for ozone, effective June 15, 2004. This reclassification occurred as a result of the EPA promulgating the new 8-hour ozone standard (62 FR 38856). In addition to the jurisdictions included under the 1-hour ozone maintenance SIP (the town of Ashland, Charles City County (partial), Chesterfield County, City of Colonial Heights, Hanover County, Henrico County, City of Hopewell and City of Richmond), the newly designated 8-hour ozone nonattainment area included three more jurisdictions: Charles City County (in entirety), the City of Petersburg and Prince George County.

On November 22, 2004, following a petition from the Commonwealth of Virginia, the EPA reclassified the Richmond area as a marginal nonattainment area for the 8-hour ozone standard (69 FR 23951).

In October 2006, VDEQ submitted a redesignation request to EPA that included a maintenance plan and new motor vehicle emission budgets. EPA approved the redesignation request, and the Richmond area was redesignated into attainment with the 8-hour ozone standard, effective June 18, 2007.

EPA also approved the associated maintenance plan, including the motor vehicle emission budgets and base year inventory (72 FR 30485)[1]. Table 1-3 below presents the motor vehicle emission budgets, excerpted from the final rule (72 FR 30485).

Note, while the table lists units of tons per day, the methodology presented in the Technical Support Document for the maintenance plan indicates the "day" selected to represent an average ozone season weekday. Also, for compliance with the federal conformity rule (Section 93.122, procedures for determining regional emissions), modeling for conformity analyses to meet the budgets specified in the maintenance plan would need to be consistent with certain key inputs, such as temperature profiles, as applied in the emission factor modeling for the maintenance plan. The modeling methodology and inputs for this conformity analysis are presented in the next chapter.

Table 1-3: Budget Table Excerpt from the Final Rule Approving the Redesignation Request and Maintenance Plan (72 FR 30485)

ADEQUATE AND APPROVED MOTOR VEHICLE EMISSIONS BUDGETS (MVEBs) IN TONS PER DAY (TPD)		
Budget year	NO_x	VOC
2011	43.661	32.343
2018	26.827	23.845

Source: Excerpted from 72 FR 30485, effective June 18, 2007.

[1] Federal Register, Volume 72, Number 105, Friday, June 1, 2007, 40 CFR Parts 52 and 81, Final Rule, pp. 30485-30490, "Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Richmond 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory".

For reference, the Richmond maintenance area for the 8-hour ozone standard as specified in the maintenance plan is presented in Figure 1-1. The area includes the counties of Charles City, Chesterfield, Hanover, Henrico, Prince George, the cities of Colonial Heights, Hopewell, Petersburg and Richmond, and the town of Ashland.

On June 8, 2007, the DC Circuit Court of Appeals denied the petitions relating to the December 22, 2006 ruling. The Court however granted the joint request of EPA and (other) environmental petitioners and clarified the December 22, 2006 ruling regarding conformity determinations[2] and the scope of the vacatur of the 2004 Final Rule[3]. With the clarifications provided by the Court, and effective June 1, 2007, the budgets as presented in Table 1-3 above from the Final Rule (72 FR 30485) supersede the previous budgets established for the Richmond area for the one-hour ozone standard.

On March 12, 2008 the EPA lowered the 8-hour ozone standard from 0.08 to 0.075 ppm, which had an effective date of May 27, 2008 (see 73 FR 16436). In May 2008, states, environmental groups and industry groups filed petitions with the D.C. Circuit Court of Appeals for review of the 2008 ozone standards. The ozone standards set in 2008 were not as protective as recommended by EPA's panel of science advisors, the Clean Air Scientific Advisory Committee (CASAC). In March 2009, the court granted EPA's request to stay the litigation so the new administration could review the standards and determine whether they should be reconsidered.

On September 16, 2009, the U.S. Environmental Protection Agency (EPA) announced it would reconsider the 2008 national ambient air quality standards (NAAQS) for ground-level ozone, the primary component of smog. The reconsideration will be based on the scientific and technical record used in the March 2008 review, which included more than 1,700 scientific studies. The reconsideration affects both the "primary" ozone standard, designed to protect public health, and the "secondary" standard, designed to protect the environment. The final reconsidered NAAQS is expected By August 2010 with final designations issued August 2011. If EPA issues final designations in 2011, then SIPs would be due no later than December 2013.

On January 6, 2010, EPA proposed to strengthen the national ambient air quality standards (NAAQS) for ground-level ozone. EPA is proposing to strengthen the 8-hour "primary" ozone standard, designed to protect public health, to a level within the range of 0.060-0.070 parts per million (ppm). EPA is also proposing to establish a distinct cumulative, seasonal "secondary" standard, designed to protect sensitive vegetation and ecosystems, including forests, parks, wildlife refuges and wilderness areas. EPA is proposing to set the level of the secondary standard within the range of 7-15 ppm-hours. Following a public hearing and comment period EPA will issue final standards by August 31, 2010. Because of the significant uncertainty that the ozone NAAQS reconsideration creates regarding the continued applicability of the

[2] On conformity, the ruling stated: "We grant the joint request by EPA and the Environmental Petitioners to make explicit that the court's reference to conformity determinations speaks only to the use of one-hour motor vehicle emissions budgets as part of 8-hour conformity determinations until 8-hour motor vehicle emissions budgets are available." (Section III, paragraph 1, page 7).

[3] On vacatur of the 2004 Final Rule, the ruling stated: "We also grant their request that the 2004 Rule be vacated only to the extent that the court has sustained challenges to it. …EPA is urged to act promptly in promulgating a revised rule that effectuates the statutory mandate by implementing the 8-hour standard…", (Section III, paragraph 2, pp.7-8).

2008 NAAQS, EPA has determined that there is insufficient information to complete designations for those standards by March 12, 2010. Extending the designations deadline until March 12, 2011, will allow EPA to complete its reconsideration of the 2008 ozone NAAQS before determining whether designations for those standards are necessary. If, as a result of the reconsideration, EPA issues different ozone standards in 2010, the new ozone standards would replace the 2008 ozone NAAQS and implementation requirements associated with the replaced 2008 ozone NAAQS, including area designations, would no longer apply. Instead, EPA would begin a new process to designate areas for the 2010 ozone NAAQS on an accelerated schedule with final designations issued effective August 2011.

Figure 1-1: Maintenance Area for the 8-Hour Ozone Standard

Chapter 2: Modeling Methodology and Assumptions

This chapter presents an overview of the modeling approach including key input data and assumptions as applied for the regional conformity analysis for the amended FY 09-12 TIP and 2031 LRTP for the Richmond 8-hour ozone maintenance area.

General Emission Calculation Methodology

Emission forecasts for the Richmond maintenance area were developed using a traditional four-step transportation planning model, the EPA approved emission factor model (MOBILE6.2), and a post-processor developed by VDOT to combine the modeled and non-modeled VMT and emission factors to generate emission forecasts. It should be noted that on December 23, 2009, EPA released the final version of the Motor Vehicle Emission Simulator Model (MOVES), called MOVES2010. MOVES2010 is EPA's latest mobile source emission model and replaces EPA's previous mobile source emission model, MOBILE6.2. EPA will be publishing a *Federal Register* notice of availability in the near future to approve MOVES2010 for meeting official state implementation plan (SIP) and transportation conformity requirements. Upon publication of the *Federal Register* notice, MOVES2010 will become EPA's approved motor vehicle emission factor. However, EPA intends to include in the notice a two-year grace period before the use of MOVES2010 is required for transportation conformity determinations.

Figure 2-1 below summarizes the key steps in the development of regional emission forecasts for the conformity analysis. The process begins with development of forecasts for traffic volumes on the regional transportation network, for which key inputs include the latest available socioeconomic forecasts (including population and employment) and LRTP and TIP project lists. Traffic forecast volumes for the horizon year (2031) of the LRTP were developed with a standard four-step model developed and maintained by VDOT and the model was recently moved into the Cube/Voyager scripting language. The Tri Cities and Richmond MPO staffs are responsible for running the Travel Demand Model for conformity purposes. Changes to the model are discussed later in this document.

The travel model networks include all functionally classified roadways: interstates, freeways, expressways, principal arterials, minor arterials, and collector streets. In addition a small number of local streets necessary to maintain roadway network connectivity are also coded. For each conformity analysis year (2011, 2018, 2021 and 2031), estimates of socio-economic growth were prepared, significant highway and transit projects were coded, and model runs were performed. The networks are developed for conformity analysis years selected to meet the requirements of the transportation conformity rule, and must include years for which regional emission budgets are specified in the applicable maintenance plan, as well as the last year of the LRTP.

Concurrently, forecasts for emission factors are developed using the EPA-approved emission factor model (currently MOBILE6.2) for each forecast year. For each year, emission factors are generated (in units of grams of pollutant emitted per mile) for

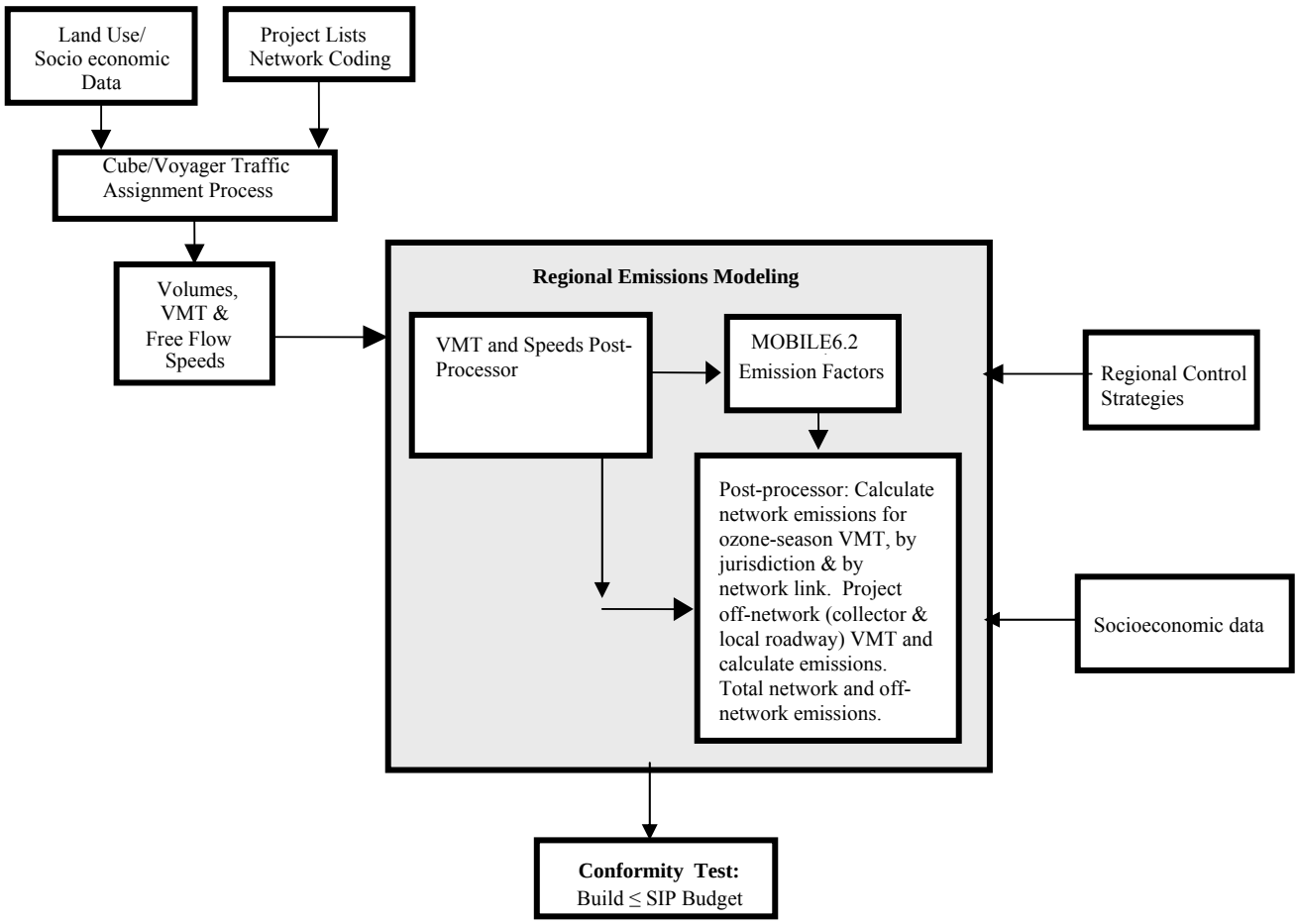
each pollutant to be modeled, roadway class or facility type, and jurisdiction for speeds ranging from 2.5 to 65 miles per hour.

The output from the travel demand model and the emission factor model serve as inputs to a post-processor that is then applied to calculate regional total emissions. The forecast VMT for each year (by link including jurisdiction, vehicle class, facility type and speed) is combined in the post-processor with the forecast emission factors for each pollutant (by facility type and speed) to generate forecast emissions for each pollutant for each network link in each jurisdiction for each analysis year.

Emissions for traffic operating on "off-network" facilities (collectors and local streets) are too small to be included in the regional transportation model networks and are estimated separately. The post-processor is applied to develop estimates of VMT for these facilities by extrapolating current traffic counts based on socioeconomic forecasts. Emission factors are applied to the projections for local and collector VMT to generate forecasts for off-network emissions by jurisdiction for each analysis year.

The network and off-network emissions are then totaled to arrive at forecasts for regional total emissions for the maintenance area for each analysis year. Emission tests as described in the previous chapter are then applied to demonstrate regional transportation conformity.

Figure 2-1: Conformity Analysis Process



The selection of analysis years and associated emission tests is presented first. The models and processors used in the analysis are reviewed, with a discussion of methodology as well as key inputs and assumptions for the modeling. The modeling discussion addresses transportation demand forecasts first, then the development of forecasts for emission factors.

The modeling results for this conformity analysis are presented in Chapter 4.

Analysis Years and Budgets

Table 2-1 presents the motor vehicle emission budgets as specified in the maintenance plan (reviewed in the previous chapter) as well as the years selected for modeling for this conformity analysis. Previously applicable budgets established for the one-hour standard are superseded by these budgets.

Table 2-1: Analysis Years and Budgets

Year	**Regional Emission Budgets** *(tons per ozone season weekday)*	
	NOx	**VOC**
2011 *	43.661	32.343
2018 *	26.827	23.845
2021	26.827	23.845
2031	26.827	23.845

** Budgets specified in 72 FR 30485, effective June 18, 2007.*

The years selected for analysis are consistent with the requirements of Section 93.118 of the conformity rule. The maintenance plan specifies budgets for 2011 and 2018, and years for which budgets are established are required in the conformity rule to be analyzed. Additionally, the conformity rule requires modeling for the last year of the transportation plan (2031), and that years modeled be no more than ten years apart. To meet the latter requirement, the year 2021 was selected.

Note section 93.118 the conformity rule requires budgets established “for the most recent prior year” to apply for years for which budgets have not been “specifically established”. For this analysis, the 2018 budgets as listed above are applicable for the years 2021 and 2031 as well.

Transportation Demand Forecasting - Cube/Voyager Model

The Cube/Voyager modeling platform consists of a library of scriptable programs that facilitate construction of travel demand forecasting models. Using that modeling platform, technical staff at VDOT have developed and maintain a regional travel demand model for the Richmond and Tri-Cities MPO study areas. The model is a four-step travel demand model that includes trip generation, trip distribution, mode split and traffic assignment. The model includes feedback between highway assignment and trip distribution. The coverage area of the model as shown in Figure 1-1 includes the Richmond 8-hour ozone maintenance area as well as parts of Goochland, Powhatan, Dinwiddie and New Kent counties. The Cube/Voyager model was recently validated against 2000 traffic volumes, land use, demographics, and other socio-economic factors. The validated model was then used to develop future year traffic models and volume estimates.

Highway and transit system data are coded by the model developers to create a representation of the regional transportation network. Attributes coded into the network include highway features such as road segment length, capacity, number of lanes, and free-flow speed, and transit operating characteristics such as fares, bus stops, and hours and frequency of service. The networks include all available motorized modes of travel, including single-occupant automobiles, multiple-occupant ("high occupancy") automobiles, park-and-ride express bus service, and standard bus service. Based on the coded network, travel time and cost data are tabulated for use in subsequent model steps.

Trip making activity is estimated during the trip generation and trip distribution steps. Trip generation uses summary information from each traffic analysis zone (TAZ) to compute the number of trips produced in and attracted to each TAZ. The summary information includes number of households, total population, group-quarters population, retail and non-retail employment, and number of automobiles available to households. These socio-economic data are prepared by each of the MPO's and compiled for use in the model. Trips are generated by purpose (home to work, home to non-work locations, and non-home trips). Commercial vehicle activity is accounted for through the non-home trip purpose. Trips that start or end outside the Richmond region, as well as trips that simply pass through the region, are treated as separate trip purposes. These external trips were estimated from traffic counts observed at major exit stations in the year 2000 and then expanded for future years using growth trend estimates of traffic at the external stations.

The trip distribution step joins the production and attraction end of each trip using factors designed to reproduce observed traffic volumes and trip times in the base year. The trip distribution step uses a standard gravity model, with different factors for each trip purpose. Both the previous TP+ model and the new Cube/Voyager model were designed to use feedback from the highway assignment into trip distribution to better approximate observed traffic conditions (and, in the future years, to better estimate the differential effects of additional trips and transportation facilities). The feedback takes into account the effect of congestion on route choice, since the most commonly chosen route to a destination will depend on whether or not a particular route is congested or free-flowing, and the level of congestion in turn depends on what route travelers are most inclined to choose.

Trip tables from trip distribution, along with network-based travel time and cost data,

are input to the mode split step to estimate trip tables by trip purpose, travel period (peak or off-peak) and mode. The mode split step uses a nested logit model to allocate trips between automobile, regular bus and express bus, based on differences in time and cost among the modes. Auto-occupancy rates that vary by trip purpose are applied to automobile trips, and the trip tables are assembled for assignment to the highway and transit networks.

During the highway assignment step, trips between each zone pair are loaded onto the highway network and balanced with congestion effects. Highway assignment uses a capacity restraint formula that limits how many trips can be assigned to each roadway link based on its practical capacity. During assignment, routes are assembled between each zone pair based on the shortest routes under congested conditions. A feedback loop prior to the final assignment adjusts the trip distribution to account for the effect of congestion on travelers' likely choice of destination, so the number of trips between zones may be altered due to congestion in addition to the actual routes taken.

In transit assignment, trips are assigned to the most efficient transit route available, taking into account waiting time, travel time, transfers required, and fare. Transit assignment is based on the best route, and does not have a capacity restraint or congestion balancing component.

The output of the highway assignment process is a network file that includes forecast traffic volumes on each roadway segment, as well as an estimate of congested travel speed. That file is referred to as a "loaded network".

This overall modeling process is applied for each analysis year.

Key inputs to the network model are reviewed below.

Socioeconomic Forecasts

The RRPDC and CPDC provided the socioeconomic data to be used in the transportation model. The RRPDC, CPDC, and the member governments in the counties of Charles City, Chesterfield, Hanover, Henrico and Prince George as well as the cities of Colonial Heights, Richmond, Hopewell and Petersburg developed a distribution of the regional population and employment projections to TAZs used in the transportation model. The counties of Goochland, Powhatan, New Kent and Dinwiddie are not part of the 8-hour ozone maintenance area, but provided socioeconomic data, as they are part of the modeled region.

To estimate population and employment numbers, documentation from the 2000 US Census as well as the Virginia Employment Commission (VEC) was collected. Projections for 2031 were estimated starting with the compilation of 2000 figures in the Richmond and Tri-Cities MPO areas, and then a regionally collaborated estimate of figures for 2031 was developed. The forecasted numbers were prepared under the guidance of the member governments and approved by the respective MPOs.

The average household size and the number of autos for the year 2031 were estimated from the 2000 Census using growth rates derived from historical trends in the region.

Table 2-2 presents the socioeconomic forecast totals for the jurisdictions that lie within the 8-hour ozone maintenance area. This data was used to develop the travel demand modeling forecasts for this conformity analysis.

Table 2-2: Socioeconomic Forecasts*

Year	Richmond LRTP Study Area			
	Population	Households	Automobiles	Employment
2011	1,056,703	428,434	763,310	743,822
2018	1,155,450	469,000	852,359	803,475
2021	1,197,762	486,377	890,546	829,037
2031	1,338,851	544,362	1,017,813	914,278

**This summary developed by VDOT is based on the data approved by the Tri-Cities and Richmond MPOs.*

Project Lists & Regional Network Development

A project list was generated to develop the transportation networks by analysis year, and to identify projects that are regionally significant (or otherwise subject to transportation conformity analysis). Projects subject to conformity that could not be modeled in the Travel Demand Forecast Model were analyzed "off-model". All projects occurring on roadway segments bearing a Federal Functional Classification were coded, provided that the nature of the project was amenable to network coding. In general, changes were coded for new facilities, road widenings that increase the number of through travel lanes, interchanges on limited access facilities, and alterations to the road's operating characteristics (such as speed limit and presence of traffic signals). Turn lanes and at-grade intersection improvements were not included in the modeled network, as such improvements are not amenable to modeling at a regional scale.

This conformity analysis is based on the region's amended FY 09-12 TIP and 2031 LRTP. Consistent with the requirements of the Rule, regional emission analyses were performed for 2011, 2018, 2021 and 2031 for the TIP and LRTP. The Cube/Voyager transportation networks for each of the four analysis years include all regionally significant modeled projects included in the LRTP and TIP, and coded into the appropriate year based on anticipated construction completion dates. Where possible, completion dates reflect estimates included in the LRTP/TIP project descriptions or in VDOT's six-year plan. For projects without completion date estimates, they were determined by adding three years to the anticipated project start date.

The modeled network for each analysis year reflects the travel conditions expected to be in place during that analysis year. For example, the 2011 network includes existing roadways as well as projects listed in the amended FY 09-12 TIP and 2031 LRTP that are anticipated to be open to traffic by 2011. Subsequent networks include existing networks plus completed projects from earlier analysis years. Thus,

the 2018 network includes all the 2011 projects plus additional projects completed by 2018.

Appendix E presents the final project lists used to develop the LRTP and TIP networks for each analysis year, including the first analysis year for all regionally significant projects.

Travel Demand Forecast Model Output

The Cube/Voyager travel demand model generates estimates of VMT for all major roadway classes (minor arterial and above). Collector and local roadway VMT are estimated through off-model procedures. The final assigned volumes from the Cube/Voyager transportation model are extracted from the loaded network that is computed during the highway assignment step. Vehicle miles traveled are computed within the model by multiplying the volume estimated for each network link by the length of the link. The post processor uses the loaded network volumes and capacities, along with other relevant travel information such as number of lanes, free flow speed, and link length to calculate congested speeds for each of the highway functional classes. The VMT and congested speed results are then used as input to MOBILE6.2 to calculate emission factors. Appendix B contains VMT estimates by jurisdiction, roadway class, and time of day for each analysis year.

The roadway capacity per lane, which is used for capacity restraint in the travel demand model, is extracted from the model network, and is used along with traffic volumes and number of lanes to compute congested roadway speeds in the post-processor.

Other Off-line Analyses

Some transportation projects that have a potentially significant impact on regional air quality cannot be coded into the transportation modeling network. These are categorized as “off-line projects” and are analyzed using a variety of methodologies that include elasticity/pivot-point analysis and the use of traffic engineering principles to estimate their traffic and emission impacts.

Off-line analyses for Richmond can also include transit bus replacements, Congestion Mitigation and Air Quality (CMAQ) funded projects, van pools, and park-and-ride lots.

Since these adjustments were not needed to demonstrate conformity for this update of the amended FY 09-12 TIP and 2031 LRTP, they were not applied.

Emission Factor Forecasting (US EPA MOBILE6.2 Model)

MOBILE6.2 is the current version of the MOBILE emission factor modeling software application developed and required by EPA for use in conformity determinations and the development of SIPs and associated revisions. As stated previously, on December 23, 2009, EPA released the final version of the Motor Vehicle Emission Simulator Model (MOVES), called MOVES2010. MOVES2010 is EPA's latest mobile source emission model and replaces EPA’s previous mobile source emission model, MOBILE6.2. EPA will be publishing a *Federal Register* notice of availability in the

near future to approve MOVES2010 for meeting official state implementation plan (SIP) and transportation conformity requirements. Upon publication of the *Federal Register* notice, MOVES2010 will become EPA's approved motor vehicle emission factor model. However, EPA intends to include in the notice a two-year grace period before the use of MOVES2010 is required for transportation conformity determinations.

The MOBILE6.2 model was designed to be used to develop estimates of historic, current and future emission factors for area-wide (e.g., regional) on-road motor vehicle fleets. MOBILE6.2 can calculate in-use fleet average emission factors for:

- Criteria pollutants: hydrocarbons, carbon monoxide, nitrogen oxides, exhaust particulate, hazardous air pollutants (HAP), and carbon dioxide.
- Gas, diesel, and natural gas-fueled cars, trucks, buses and motorcycles.
- Calendar years between 1952 and 2050.

Emission factors are generated by the model in units of grams of pollutant per vehicle mile of travel. As noted previously, emission factors are combined with VMT projections obtained from the regional travel demand model to generate estimates of regional emissions. Modeled emission factors vary with vehicle class, age (registration distribution by vehicle class), humidity, ambient temperatures, fuel specifications, and operation (speed, by roadway functional class).

For this analysis, both national default data and region-specific inputs were used with MOBILE6.2 to determine emission factors for this analysis. Input data applied for this analysis that are specific to Richmond include: reformulated gasoline (with the exception of the county of Prince George and City of Petersburg, which use conventional gasoline), registration distributions, VMT fraction by vehicle and roadway class, average speed for each roadway link, hourly temperatures, hourly relative humidity values, and average barometric pressure.

Key MOBILE6.2 input data for the Richmond 8-hour ozone maintenance area are summarized below and in Appendix C.

Emission Control Programs

Table 2-4 lists emission control programs in effect for the Richmond area as input to the MOBILE6.2 model. The locality-specific MOBILE input parameters are consistent with the approved maintenance SIP and are based on the latest planning assumptions.

The programs include:

- Reformulated gasoline (RFG), and gasoline Reid Vapor Pressure (RVP): RFG was modeled for all jurisdictions within the maintenance area, with the exception of the County of Prince George and the City of Petersburg which both use conventional gasoline. RFG benefits were modeled for all analysis years after 1996, consistent with Virginia regulations requiring RFG.

  RFG Phase 2, which is currently in effect, has a Reid vapor pressure (RVP) of approximately 6.8 pounds per square inch (PSI). For the County of Prince George and the City of Petersburg, the RVP of conventional gasoline was

taken as 8.4 PSI.

Table 2-4: Emission Control Programs

Programs	2011	2018	2021	2031
Reformulated Gasoline*	Yes	Yes	Yes	Yes
RVP (PSI):				
• All jurisdictions except Prince George and Petersburg	6.8	6.8	6.8	6.8
• Petersburg and Prince George	8.4	8.4	8.4	8.4
2004 & 2007 HDDV Programs	Yes	Yes	Yes	Yes
NLEV	Yes	Yes	Yes	Yes
Tier 2 Standards	Yes	Yes	Yes	Yes

**Except for the county of Prince George, and the city of Petersburg which use conventional gasoline.*

- 2007 Heavy Duty Diesel Vehicle (HDDV) Program: The 2007 Heavy Duty Diesel Vehicle (HDDV) program including the implementation of ultra low sulfur diesel was specified for the emission factor modeling for the conformity analysis. From the regulatory announcement[4]:

  New Standards for Heavy-Duty Highway Engines and Vehicles
  [EPA is] finalizing a PM emissions standard for new heavy-duty engines of 0.01 grams per brake-horsepower-hour (g/bhp-hr), to take full effect for diesels in the 2007 model year. [EPA is] also finalizing standards for NOx and non-methane hydrocarbons (NMHC) of 0.20 g/bhp-hr and 0.14 g/bhp-hr, respectively. These NOx and NMHC standards will be phased in together between 2007 and 2010, for diesel engines. The phase-in will be on a percent of-sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010. Gasoline engines will be subject to these standards based on a phase in requiring 50 percent compliance in the 2008 model year and 100 percent compliance in the 2009 model year.

  The program includes flexibility provisions to facilitate the transition to the new standards and to encourage the early introduction of clean technologies, and adjustments to various testing and compliance requirements to address differences between the new technologies and existing engine based technologies.

  New Standards for Diesel Fuel
  Refiners will be required to start producing diesel fuel for use in highway vehicles with a sulfur content of no more than 15 parts per million (ppm), beginning June 1, 2006. At the terminal level, highway diesel fuel sold as low sulfur fuel will be required to meet the 15 ppm sulfur standard as of July 15, 2006. For retail stations and fleets, highway diesel fuel sold as low sulfur fuel must meet the 15 ppm sulfur standard by September 1, 2006.

  This program includes a combination of flexibilities available to refiners to ensure a smooth transition to low sulfur highway diesel fuel.

[4] EPA Office of Transportation and Air Quality, December 2000, "Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements", EPA420-F-00-057.

- National Low Emission Vehicle (NLEV) Program: The NLEV program was specified in the emission factor modeling for the conformity analysis. The NLEV program, finalized by EPA in March 1998, implemented cleaner light-duty gasoline vehicles beginning in model year 1999.

- Tier 2 Vehicle Emission Standards: EPA Tier 2 vehicle emission standards implementation beginning with the 2004 model year was specified for the modeling for the conformity analysis. Gasoline sulfur levels as required for the Tier 2 standards were incorporated into the modeling. From the supplementary information included with the final Tier 2 rule[5]:

  Highlights of the Tier2/Gasoline Sulfur Program

  For cars, and light trucks, and larger passenger vehicles, the program will—
  - o *Starting in 2004, through a phase in, apply for the first time the same set of emission standards covering passenger cars, light trucks, and large SUVs and passenger vehicles. …*
  - o *Introduce a new category of vehicles, "medium-duty passenger vehicles," thus bringing larger passenger vans and SUVs into the Tier 2 program.*
  - o *During the phase-in, apply interim fleet emission average standards that match or are more stringent than current federal and California "LEV I" (Low-Emission Vehicle, Phase I) standards.*
  - o *Apply the same standards to vehicles operated on any fuel.*
  - o *Allow auto manufacturers to comply with the very stringent new standards in a flexible way while ensuring that the needed environmental benefits occur.*
  - o *Build on the recent technology improvements resulting from the successful National Low-Emission Vehicles (NLEV) program and improve the performance of these vehicles through lower sulfur gasoline.*
  - o *Set more stringent particulate matter standards.*
  - o *Set more stringent evaporative emission standards.*

  For commercial gasoline, the program will—
  - o *Significantly reduce average gasoline sulfur levels nationwide as early as 2000, fully phased in in 2006. Refiners will generally add refining equipment to remove sulfur in their refining processes. Importers of gasoline will be required to import and market only gasoline meeting the sulfur limits.*

    …
  - o *Enable the new Tier 2 vehicles to meet the emission standards by greatly reducing the degradation of vehicle emission control performance from sulfur in gasoline. Lower sulfur gasoline also appears to be necessary for the introduction of advanced technologies that promise higher fuel economy but are very susceptible to sulfur poisoning (for example, gasoline direct injection engines).*
  - o *Reduce emissions from NLEV vehicles and other vehicles already on the road.*

Vehicle age distributions for 2008 were incorporated into the MOBILE6.2 input files for this conformity analysis.

A sample of a MOBILE6.2 input file is provided in Appendix C.

Consistent with modeling presented in the Technical Support Document for the maintenance plan, inspection and maintenance or anti-tampering programs were not included in the modeling for this analysis.

Ambient Conditions

[5] 65 FR 6698-6822, February 10, 2000, "40 CFR Parts 80, 85, and 86, Control of Air Pollution From New Motor Vehicles: Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements; Final Rule".

Table 2-5 presents average hourly ambient temperatures, relative humidity and barometric pressure data as excerpted from the Technical Support Document for the maintenance plan and applied in the modeling with MOBILE6.2.

The hourly data for ambient temperature and relative humidity as presented in the table were applied for this analysis, as well as the average daily value for barometric pressure as presented in the table was applied for this analysis.

Table 2-5: Ambient Conditions - Ozone Season

Average Hourly Meteorological Data				
Time (EDT)	Temperature (F)	Dew Point (F)	Relative Humidity (%)	Pressure (In)
6:00 AM	71.97	69.00	90.3	30.042
7:00 AM	75.32	69.98	83.8	30.052
8:00 AM	79.73	70.41	73.8	30.056
9:00 AM	83.61	70.02	63.9	30.059
10:00 AM	86.70	69.67	57.0	30.060
11:00 AM	88.72	69.80	53.6	30.052
12:00 PM	90.40	68.37	48.6	30.040
1:00 PM	91.59	68.20	46.7	30.027
2:00 PM	92.50	67.46	44.2	30.010
3:00 PM	92.89	68.18	44.8	29.997
4:00 PM	92.28	68.20	45.8	29.984
5:00 PM	91.61	68.80	47.5	29.977
6:00 PM	90.01	69.93	52.0	29.972
7:00 PM	85.98	71.43	62.5	29.976
8:00 PM	83.30	71.69	68.2	29.981
9:00 PM	80.10	72.31	77.2	29.998
10:00 PM	78.63	72.50	81.4	30.005
11:00 PM	77.93	72.30	82.6	30.004
12:00 AM	74.51	70.51	87.5	30.030
1:00 AM	74.10	70.01	87.4	30.027
2:00 AM	73.41	69.42	87.7	30.022
3:00 AM	72.37	68.82	88.7	30.018
4:00 AM	72.21	68.91	89.6	30.019
5:00 AM	71.50	68.91	91.6	30.030
	Avg Min T	70.97		
	Avg Max T	93.00		
	Avg Pressure	30.018		

Source: Commonwealth of Virginia, Department of Environmental Quality, "Technical Support Document for the Redesignation Request and Maintenance Plan for Richmond 8-Hour Ozone Nonattainment Area, Final", as approved June 18, 2007, 72 FR 30485. Reproduced with permission.

Volume and VMT Distributions

Tables 2-6 and 2-7 present federal roadway functional classes and updated VMT distributions by federal roadway functional class based on data recently published by VDOT[6]. The reported distributions were allocated to the vehicle classes used in the MOBILE6.2 model.

Table 2-6: FHWA Roadway Functional Classes

FHWA Roadway Functional Classes	
1	**Rural Interstate**
2	**Rural Principal Arterial**
6	**Rural Minor Arterial**
7	**Rural Major Collector**
8	**Rural Minor Collector**
9	**Rural Local**
11	**Urban Interstate**
12	**Urban Freeway/Expressway**
14	**Urban Principal Arterial**
16	**Urban Minor Arterial**
17	**Urban Collector**
19	**Urban Local**

[6] VDOT, 2009, "Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory, Richmond"

Table 2-7: Volume Distribution by Roadway Functional Class

FHWA Roadway Functional Class		Richmond Ozone Maintenance Area Daily VMT Distribution															
		LDV	LDT1	LDT2	LDT3	LDT4	HDV2b	HDV3	HDV4	HDV5	HDV6	HDV7	HDV8a	HDV8b	HDBS	HDBT	MC
1	Rural Interstate	0.35918	0.08280	0.27563	0.08393	0.03859	0.05045	0.00497	0.00408	0.00304	0.01126	0.01330	0.01444	0.05152	0.00256	0.00118	0.00307
2	Rural Principal Arterial	0.39229	0.09043	0.30103	0.09166	0.04215	0.02563	0.00252	0.00207	0.00155	0.00572	0.00675	0.00733	0.02617	0.00130	0.00060	0.00280
6	Rural Minor Arterial	0.38876	0.08961	0.29832	0.09084	0.04177	0.02730	0.00269	0.00221	0.00165	0.00609	0.00719	0.00781	0.02788	0.00138	0.00064	0.00586
7	Rural Major Collector	0.39142	0.09022	0.30035	0.09145	0.04206	0.02562	0.00252	0.00207	0.00154	0.00572	0.00675	0.00733	0.02617	0.00130	0.00060	0.00488
8	Rural Minor Collector	0.41486	0.09563	0.31834	0.09693	0.04457	0.00783	0.00077	0.00063	0.00047	0.00175	0.00206	0.00224	0.00800	0.00040	0.00018	0.00534
9	Rural Local	0.41117	0.09478	0.31552	0.09608	0.04418	0.01159	0.00114	0.00094	0.00070	0.00259	0.00306	0.00332	0.01184	0.00059	0.00027	0.00223
11	Urban Interstate	0.39357	0.09072	0.30201	0.09196	0.04229	0.02484	0.00245	0.00201	0.00150	0.00554	0.00655	0.00711	0.02536	0.00126	0.00058	0.00225
12	Urban Freeway/Expressway	0.41490	0.09564	0.31837	0.09694	0.04458	0.00874	0.00086	0.00071	0.00053	0.00195	0.00230	0.00250	0.00893	0.00044	0.00020	0.00241
14	Urban Principal Arterial	0.41615	0.09593	0.31934	0.09724	0.04471	0.00733	0.00072	0.00059	0.00044	0.00164	0.00193	0.00210	0.00748	0.00037	0.00017	0.00386
16	Urban Minor Arterial	0.40556	0.09349	0.31121	0.09476	0.04358	0.01519	0.00150	0.00123	0.00092	0.00339	0.00400	0.00435	0.01551	0.00077	0.00035	0.00419
17	Urban Collector	0.41631	0.09596	0.31945	0.09727	0.04473	0.00739	0.00073	0.00060	0.00045	0.00165	0.00195	0.00211	0.00754	0.00037	0.00017	0.00332
19	Urban Local	0.41675	0.09606	0.31978	0.09737	0.04478	0.00719	0.00071	0.00058	0.00043	0.00160	0.00189	0.00206	0.00734	0.00036	0.00017	0.00293
All Functional Classes		**0.40672**	**0.09375**	**0.31209**	**0.09503**	**0.04370**	**0.01464**	**0.00144**	**0.00118**	**0.00088**	**0.00327**	**0.00386**	**0.00419**	**0.01495**	**0.00074**	**0.00034**	**0.00322**

Source: VDOT, 2009, "Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory, Richmond"

Post-Processing

An overview of the general approach applied in the analysis for calculating regional total emissions from on-road motor vehicles emission was provided at the beginning of this chapter. This section summarizes specific adjustments made in the post-processor to the travel demand forecasts to improve the emission forecasts.

The post-processor first adjusts travel demand forecasts and related parameters as needed for the emission calculations, and then generates the emission estimates using the forecast VMT by roadway type and jurisdiction with the emission factors that were generated using MOBILE6.2. The specific adjustments to the traffic forecasts are reviewed in turn below.

The post-processor was developed using accepted transportation engineering methods based on the 2000 *Highway Capacity Manual (HCM) and National Cooperative Highway Research Program (NCHRP) Report 387*.

Congested Speed Calculation

The post-processor estimates congested speeds using standard Bureau of Public Roads (BPR) formulae that are based upon free flow speeds, volumes and capacity. Free flow speed is the speed at which a vehicle on the roadway segment would travel given no conflict with other traffic, i.e., no congestion. As traffic volumes increase and the carrying capacity of the roadway is reached (i.e. congestion increases), average speeds decrease. The free flow speeds used are consistent with those used in the Cube/Voyager model.

The formulae originally developed by the BPR to describe the relationship between congested speeds and roadway free flow speeds, volumes and capacities are now applied in transportation models as standard practice. The post-processor uses two forms of the BPR equation. The first is for non-signalized roadway segments:

$$speed\ \ for\ unsignalized\ \ facilities = \frac{corridor\ \ free\ \ flow\ speed}{1 + 0.2\left(volume / capacity\right)^{10}}$$

The second is for signalized roadway segments, defined as signalized facilities on which traffic signals are spaced two miles or less apart:

$$speed\ \ for\ signalized\ \ facilities = \frac{corridor\ \ free\ \ flow\ speed}{1 + 0.05\left(volume / capacity\right)^{10}}$$

Emission factors calculated using MOBILE6.2 are imported into the post-processor and applied with the VMT and speed data for both network and off-network facilities to generate estimates of emissions by jurisdiction and facility type for the maintenance area.

Traffic Adjustment Factors

The vehicle activity estimates were forecast through the Cube/Voyager model, and are reported as Vehicle Miles Traveled (VMT). As noted above, the roadway network representing the transportation conditions for each analysis year forms the basis for the estimation of highway volumes. The model produces VMT estimates that correspond to Average Annualized Daily Traffic (AADT). An ozone season weekday adjustment factor is applied to the modeled VMT on each roadway to estimate average daily summer traffic, consistent with the method used in the 8-hour ozone maintenance plan.

Table 2-8 presents average weekday adjustment factors for the Richmond area. These are based upon HPMS data for 2008 as presented in "*Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory, Richmond*" (VDOT, 2009). The tabulated factors were obtained as the average for the values reported for months of May through September for the Richmond area. The factors are presented by FHWA roadway functional class.

Table 2-8: Traffic Adjustment Factors

Functional Classification	FHWA Code	Weekday Adjustment Factors
Interstate	1	1.0222
Principal Arterial	2	1.0599
Minor Arterial	6	1.0805
Rural Major Collector	7	1.0832
Rural Minor Collector	8	1.0798
Rural Local	9	1.0001
Urban Interstate	11	1.0659
Urban Freeways and Expressways	12	1.0995
Urban Principal Arterial	14	1.0827
Urban Minor Arterial	16	1.0939
Urban Collector	17	1.1003
Urban Local	19	1.0408

Source: VDOT, 2009, "Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory, Richmond"

Hourly Traffic Volumes

Table 2-9 presents the hourly traffic volumes applied for this analysis. The data were obtained from "Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory, Richmond" (VDOT, 2009). The hourly data are presented by federal roadway functional class.

Table 2-9: Hourly Traffic Distribution by Roadway Functional Class

Time Period	Hour	Rural Inter-state	Rural Prin. Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	Urban Inter-state	Free-way	Urban Prin. Arterial	Urban Minor Arterial	Urban Collector	Urban local
FC		1	2	6	7	8	9	11	12	14	16	17	19
Night	0	1.43%	0.78%	0.49%	0.39%	0.42%	0.21%	1.15%	0.93%	0.94%	0.64%	0.58%	0.59%
Night	1	1.13%	0.54%	0.31%	0.25%	0.25%	0.14%	0.81%	0.59%	0.60%	0.37%	0.34%	0.32%
Night	2	1.00%	0.45%	0.27%	0.25%	0.18%	0.17%	0.70%	0.47%	0.48%	0.29%	0.26%	0.27%
Night	3	1.04%	0.50%	0.30%	0.27%	0.22%	0.14%	0.65%	0.38%	0.40%	0.28%	0.25%	0.22%
Night	4	1.27%	0.80%	0.67%	0.53%	0.52%	0.39%	0.84%	0.55%	0.52%	0.49%	0.37%	0.33%
Night	5	1.94%	2.21%	2.33%	1.88%	1.84%	1.50%	1.67%	1.47%	1.20%	1.31%	1.08%	1.03%
Night	6	3.48%	4.19%	5.97%	5.00%	5.90%	6.44%	4.15%	4.40%	3.08%	3.68%	3.39%	3.43%
AM Peak	7	4.88%	5.42%	8.26%	7.40%	9.25%	9.55%	6.71%	7.41%	5.20%	6.50%	6.97%	6.68%
AM Peak	8	5.21%	5.49%	6.29%	6.53%	6.47%	7.18%	6.27%	6.98%	5.31%	5.95%	6.44%	6.08%
AM Peak	9	5.37%	5.65%	5.08%	5.27%	4.43%	4.73%	5.13%	5.19%	5.08%	5.29%	4.81%	4.82%
Midday	10	5.78%	5.82%	4.97%	5.28%	3.97%	4.73%	5.14%	4.85%	5.52%	5.56%	4.55%	4.33%
Midday	11	6.13%	6.10%	5.05%	5.55%	4.21%	4.99%	5.44%	5.08%	6.28%	5.83%	5.30%	4.88%
Midday	12	6.29%	6.56%	5.56%	6.31%	4.55%	6.72%	5.78%	5.53%	7.14%	6.52%	6.15%	5.74%
Midday	13	6.45%	6.42%	5.55%	5.89%	4.66%	5.68%	5.90%	5.59%	6.97%	6.34%	5.87%	5.62%
Midday	14	6.66%	6.55%	5.84%	6.13%	5.08%	5.63%	6.26%	5.95%	6.96%	6.49%	6.13%	6.22%
Midday	15	6.90%	7.21%	6.73%	7.46%	6.42%	7.41%	6.97%	6.92%	7.36%	7.27%	6.94%	7.14%
PM Peak	16	6.98%	7.92%	8.07%	8.45%	8.46%	8.67%	7.78%	8.28%	7.86%	8.16%	8.09%	8.56%
PM Peak	17	6.63%	7.77%	8.74%	8.97%	10.30%	8.70%	7.96%	9.01%	7.88%	8.87%	9.55%	10.31%
PM Peak	18	5.40%	6.07%	6.37%	6.30%	7.75%	6.40%	5.82%	6.28%	6.13%	6.39%	7.20%	7.72%
Night	19	4.46%	4.45%	4.39%	4.08%	5.40%	3.84%	4.28%	4.28%	4.70%	4.64%	5.32%	5.36%
Night	20	3.89%	3.45%	3.47%	3.26%	4.11%	2.99%	3.51%	3.38%	3.78%	3.57%	4.28%	4.18%
Night	21	3.27%	2.64%	2.65%	2.37%	2.96%	1.97%	3.03%	2.85%	3.01%	2.62%	3.10%	3.11%
Night	22	2.53%	1.82%	1.68%	1.34%	1.72%	1.30%	2.32%	2.14%	2.13%	1.79%	1.90%	1.94%
Night	23	1.88%	1.19%	0.95%	0.83%	0.94%	0.51%	1.72%	1.51%	1.47%	1.12%	1.13%	1.13%

Source: Data presented in VDOT, 2009, "Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory, Richmond"

VMT Growth Rates for Local and Collector Roads

Forecasts are required for VMT for local and collector roads that are not captured by the regional network model. The required forecasts are obtained by apply expected average annual growth rates for traffic on these facilities to specific base year data for the area.

For this analysis, the base year VMT data for local and collector roads were obtained from the VDOT 2008 Highway Performance Monitoring System (HPMS) database. The base year VMT was grown to each future conformity analysis year by applying growth rates that are based on the annual growth in auto ownership as reported in the socioeconomic data for each jurisdiction in the Richmond maintenance area.

Table 2-10 presents the annual average growth rates for local and collector road VMT that were used for each jurisdiction in the Richmond area. Forecast VMT generated based on these rates are included with Appendix B.

Table 2-10: Annual Growth Rates for Local and Collector Road VMT*

Jurisdiction	Annual Growth Rate
Ashland	1.028373
Charles City	1.013044
Chesterfield	1.015869
Colonial Heights	1.019630
Hanover	1.024400
Henrico	1.013712
Hopewell	1.014259
Petersburg	1.002307
Prince George	1.022138
Richmond	1.000668

***** Based on forecasted growth in auto ownership between 2011 and 2031

Chapter 3: Consultation

In addition to detailed requirements specified in the federal conformity rule for consultation on conformity analyses, related state and local requirements apply. Consultation conducted for conformity purposes is generally in addition to that conducted in the development of the LRTP and TIP (and their respective amendments or updates). This section documents applicable regulatory requirements for consultation related to conformity analyses and that conducted for this analysis to meet those requirements.

Consultation Requirements and Processes

Federal conformity rule requirements address both interagency and public consultation. Section 93.112 *(Criteria and procedures: Consultation)* requires that: *"Conformity must be determined according to the consultation procedures in this subpart and in the applicable implementation plan, and according to the public involvement procedures established in compliance with 23 CFR Part 450. Until the implementation plan revision required by §51.390 of this chapter is fully approved by EPA, the conformity determination must be made according to §93.105 (a)(2) and (e) and the requirements of 23 CFR Part 450."*

In response to the requirements of Section 51.390, the "Virginia Regulation for Transportation Conformity" (9 VAC 5-151)[7] was passed into state law in 2007. The Conformity SIP required by §51.390 was approved by EPA and published in the Federal Register on November 20, 2009 (See 73 FR 223 with an effective date of January 19th, 2010). The consultation requirements in the conformity SIP are generally consistent with the Federal Transportation Conformity Rule, although it also requires consultation with the Lead Planning Organization (LPO) established pursuant to Section 174 of the federal Clean Air Act as amended (CAA). The Metropolitan Richmond Air Quality Committee is the designated LPO for the region.

Section 93.105(a)(2) requires that: *"Before EPA approves the conformity implementation plan revision required by §51.390 of this chapter, MPOs and State departments of transportation must provide reasonable opportunity for consultation with State air agencies, local air quality and transportation agencies, DOT and EPA, including consultation on the issues described in paragraph (c)(1) of this section, before making conformity determinations."*

The referenced Section 93.105(c)[(1)] requires that: *"Interagency consultation procedures shall also include the following specific process: (1) A process involving the MPO, State and local air quality planning agencies, State and local transportation agencies, EPA and DOT for the following:*

> *(i) Evaluating and choosing a model (or models) and associated methods and assumptions to be used in hot-spot analyses and regional emissions analyses;*
>
> *(ii) Determining which minor arterials and other transportation projects should be considered "regionally significant" for the purposes of regional emissions analysis (in addition to those functionally classified as principal arterial or higher or fixed*

[7] See http://leg1.state.va.us/000/reg/TOC09005.HTM#C0151.

guideway systems or extensions that offer an alternative to regional highway travel), and which projects should be considered to have a significant change in design concept and scope from the transportation plan or TIP;

(iii) Evaluating whether projects otherwise exempted from meeting the requirements of this subpart (see §93.126 and §93.127) should be treated as non-exempt in cases where potential adverse emissions impacts may exist for any reason;

(iv) Making a determination, as required by §93.113(c)(1), whether past obstacles to implementation of TCMs which are behind the schedule established in the applicable implementation plan have been identified and are being overcome, and whether State and local agencies with influence over approvals or funding for TCMs are giving maximum priority to approval or funding for TCMs. This process shall also consider whether delays in TCM implementation necessitate revisions to the applicable implementation plan to remove TCMs or substitute TCMs or other emission reduction measures;

(v) Notification of transportation plan or TIP revisions or amendments which merely add or delete exempt projects listed in §93.126 or §93.127; and

(vi) Choosing conformity tests and methodologies for isolated rural nonattainment and maintenance areas, as required by §93.109(1)(2)(iii).”

Section 93.105(e) requires that: *“Public consultation procedures. Affected agencies making conformity determinations on transportation plans, programs, and projects shall establish a proactive public involvement process which provides opportunity for public review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by the agency at the beginning of the public comment period and prior to taking formal action on a conformity determination for all transportation plans and TIPs, consistent with these requirements and those of 23 CFR450.316(b). Any charges imposed for public inspection and copying should be consistent with the fee schedule contained in 49 CFR 7.43. In addition, these agencies must specifically address in writing all public comments that known plans for a regionally significant project which is not receiving FHWA or FTA funding or approval have not been properly reflected in the emissions analysis supporting a proposed conformity finding for a transportation plan or TIP. These agencies shall also provide opportunity for public involvement in conformity determinations for projects where otherwise required by law.”*

In response to the requirements of 93.105(c)(1) and (e) as stated above, on September 30, 2001 and October 29, 2001, respectively, the Richmond and Tri-Cities MPO’s approved the Interagency Consultation Procedures for the Richmond 1-hour ozone maintenance area. On October 13, 2005, the Richmond and Tri-Cities MPO’s approved revised Interagency Consultation Procedures to address the expanded 8-hour ozone maintenance area. These procedures were developed to meet the federal requirements for consultation as cited above, and included the formation of an Interagency Consultation Group (ICG) comprised of representatives of federal, state and local air and transportation agencies. Table 3-1 presents the current membership of the ICG.

Overall, MPOs are the lead agencies when developing planning work programs, LRTPs, TIPs and any revisions to the preceding documents, and associated

conformity determinations. The RRPDC and CPDC, as the staff to the MPO's, in conjunction with VDOT as appropriate, conducts consultation in compliance with federal planning requirements:

- Provide adequate public notice of public participation activities and time for public review and comment at key decision points, including but not limited to a reasonable opportunity to comment on the proposed LRTP and TIP.
- Provide timely notice and reasonable access to information about transportation issues and processes.
- Employ visualization techniques to describe the LRTP and TIP.
- Make public information (technical information and meeting notices) available in electronically accessible formats and means, such as the World Wide Web.
- Hold any public meetings at convenient and accessible locations and times.
- Demonstrate explicit consideration and response to public input received during the development of the LRTP and TIP.
- Seek out and consider the needs of those traditionally underserved by the existing transportation systems, such as low-income and minority households, who may face challenges accessing employment and other services.
- Provide an additional opportunity for public comment if the final LRTP or TIP differs significantly from the version that was made available for public comment by the MPO and raises new material issues which interested parties could not reasonably have foreseen from the public involvement efforts.
- Coordinate with the statewide transportation planning public involvement and consultation processes.
- Periodically review the effectiveness of the procedures and strategies contained in the participation plan to ensure a full and open participation process.

Table 3-1: Richmond Interagency Consultation Group

Agency	*Designated Staff*
MPO Members	
Charles City County	Mr. William Britton
Chesterfield County	Ms. Barb Smith
City of Colonial Heights	Mr. George Schanzenbacher
City of Hopewell	Mr. March Altman
City of Petersburg	Mr. Mark Briddell
City of Richmond	Ms. Victoria Badger
Hanover County	Mr. Joe Vidunas
Henrico County	Mr. Todd Eure
Prince George County	Ms. Sharon Williams
Town of Ashland	Ms. Nora Amos
Regional	
Crater Planning District Commission	Mr. Joseph Vinsh
Greater Richmond Transit Company	Mr. Larry Hagin
Ridefinders	Ms. Von Tisdale
Richmond Regional Planning District	Mr. Dan Lysy
State	
Dept. of Environmental Quality	Ms. Sonya Lewis-Cheatham
Dept. of Transportation – Environmental	Mr. Jim Ponticello
Dept. of Rail & Public Transportation	Mr. Joe Swartz
Federal	
Environmental Protection Agency	Mr. Martin Kotsch
Federal Highway Administration	Ms. Marisel Lopez-Cruz
Federal Transit Administration	Mr. Tony Cho

Interagency consultation occurs through several mechanisms including:

- Regularly scheduled MPO and technical advisory committee (TAC) meetings;
- Interagency Consultation Group meetings held specifically for the purpose of discussing conformity-related issues; and
- Meetings convened by VDOT and/or VDEQ at which Richmond and Tri-Cities issues relating to conformity may be one of several topics discussed.

Topics discussed at ICG meetings include:

- Approval of conformity analysis methodology, including latest planning assumptions and transportation and emission models to be used in the conformity analysis;
- Approval of the emission test(s) to use for the maintenance area
- Approval of the conformity analysis schedule and process;
- Approval of the LRTP and TIP project lists for conformity analysis;

- ICG Membership updates.

The VDOT, VDRPT, VDEQ, FHWA, and local jurisdictions are represented at MPO and ICG meetings. The ICG also includes representatives of the FTA and EPA.

Consultation Record

Interagency and public consultation opportunities for the conformity analysis for the amended FY 09-12 TIP and 2031 LRTP were provided at the following meetings and events (supporting documentation is provided in Appendix D):

- November 2, 2009; CPDC letter to FHWA acknowledging Tri-Cities involvement not necessary for this amendment since no changes were made to the Tri-Cities MPO TIP or CLRP.

- November 12, 2009; Richmond MPO approved the 2031 LRTP project list for conformity.

- November 19, 2009; Interagency Consultation Group (ICG) meeting, at which the conformity methodology and assumptions, conformity schedule, project lists for the conformity analysis were approved by the ICG. An opportunity for public input was provided at this meeting but no comments were received.

- January 25-February 9, 2010; Richmond public review period for the conformity determination.

- February 11, 2010; Richmond MPO approval of the Conformity Analysis for the amended FY 09-12 TIP and 2031 LRTP.

Copies of materials distributed for and at the ICG Meeting held November 19, 2009 are provided in Appendix D. This meeting marks the beginning of the conformity analysis process and provides an opportunity for detailed review and comment on all aspects of the process, including methods, assumptions, schedule, and project lists. Finalized versions of the project lists are provided in Appendix E.

The attached meeting materials include the agenda, conformity analysis schedule, and presentation (PowerPoint slides). The presentation addressed updates to the ICG membership list; methodology and assumptions for the conformity analysis (including models to be applied); ICG procedures; conformity schedule and process (reflected in the list of meetings presented above); and projects lists to be used for the conformity analysis for the amended FY 09-12 TIP and 2031 LRTP.

Meeting notices were distributed by email, and the distribution list included the members of the Richmond and Tri-Cities TACs in addition to the members of the ICG listed in Table 3-1. Draft meeting minutes and an updated conformity project list were distributed for comment to all meeting participants and invitees on November 20, 2009. No comments were received.

For reference, the project lists for the amended FY 09-12 TIP and 2031 LRTP as modeled in the conformity analysis were presented to, and approved by, the ICG. Final versions of the lists are provided in Appendix E.

Chapter 4: Conformity Demonstration & Conclusion

The results of the conformity analysis for the 2031 LRTP and FY 09-12 TIP are presented in this chapter. The analysis was conducted to meet all applicable federal, state, and local requirements, applying the methodology and key input data and assumptions as presented in the previous chapters. With conformity so demonstrated based on the criteria specified in the federal conformity rule, including emission tests for the LRTP and TIP as well as other criteria, a finding of conformity for the LRTP and TIP is supported.

Conformity Demonstration

Emission Tests for the amended FY 09-12 TIP and 2031 LRTP

Table 4-1 presents the results of the emission (budget) tests required by Section 93.118 of the federal conformity rule. Emission budgets specified in the maintenance plan for the years 2011 and 2018 were applied for this analysis. For all years tested, the forecasts (build) emissions for NO_x and VOC are less than the applicable budgets. The conformity budget tests are therefore satisfied for the amended FY 09-12 TIP and 2031 LRTP.

Other Conformity Requirements

Section 93.109 of the federal conformity rule, and in particular "Table 1 - Conformity Criteria" as presented in that section, list criteria for demonstrating conformity. Compliance with these criteria as well as a fiscal constraint requirement also specified in the federal conformity rule is documented below for the amended FY 09-12 TIP and 2031 LRTP, with applicable sections of the rule excerpted for reference:

- *§93.108 Fiscal Constraints for transportation plans and TIPs. "Transportation Plans and TIPs must fiscally consistent with DOT's metropolitan planning regulations at 23 CFR Part 450 in order to be found in conformity".*
    - The MPO documents fiscal constraint with the development of the LRTP and TIP, and includes specific sections or chapters addressing cost estimates and financial constraint. For the purposes of this conformity demonstration, therefore, fiscal constraint is indicated by MPO approval of the project lists for the LRTP and TIP and the documentation provided with those reports.

      Additionally, a recommendation for a finding of conformity is conditional upon any further and separate review as may be required by the US DOT for the fiscal constraint criterion consistent with Section 93.108 of the federal conformity rule as well as requirements of federal planning regulations specified at 23 CFR Part 450.

Table 4-1: Conformity (Emission Budget) Tests

Year		Regional Emissions *(tons per ozone season weekday)*	
		NO_x	**VOC**
2011	**Budget Year**		
	LRP/TIP Forecast:	35.27	27.57
	Network	*29.63*	*20.85*
	Off-Network	*5.63*	*6.72*
	Budget:	43.661	32.343
	Conformity Test:	PASSED	PASSED
2018	**Budget Year**		
	LRP/TIP Forecast:	19.79	18.65
	Network	*16.31*	*14.08*
	Off-Network	*3.48*	*4.57*
	Budget:	26.827	23.845
	Conformity Test:	PASSED	PASSED
2021	**Interim Year** (within ten years of other years modeled)		
	LRP/TIP Forecast:	17.21	16.26
	Network	*14.07*	*12.20*
	Off-Network	*3.15*	*4.06*
	Budget:	26.827	23.845
	Conformity Test:	PASSED	PASSED
2031	**LRP Horizon Year**		
	LRP/TIP Forecast:	15.42	16.73
	Network	*12.34*	*12.39*
	Off-Network	*3.08*	*4.34*
	Budget:	26.827	23.845
	Conformity Test:	PASSED	PASSED

(Numbers may not add exactly due to rounding.)

- *§93.110 Criteria and procedures: Latest planning assumptions:*

  - The conformity determination was based upon the latest planning assumptions including the use of new traffic forecasts, updated vehicle age distribution data (2008), and the most recent socio-economic data.

- *§93.111 Criteria and procedures: Latest emissions model:*

  - The latest EPA approved version of the emission (factor) model MOBILE6.2, was applied for this conformity analysis as allowed by a 2 year grace period while transitioning to the new MOVES model.

- *§93.112 Criteria and procedures: Consultation. "Until the implementation plan revision required by §51.390 of this chapter is fully approved by EPA, the conformity determination must be made according to §93.105 (a)(2) and (e) and the requirements of 23 CFR part 450."* The Conformity SIP required by §51.390 was approved by EPA and published in the Federal Register on November 20, 2009 (See 73 FR 223 with an effective date of January 19th, 2010). The consultation requirements in the conformity SIP are generally consistent with the Federal Transportation Conformity Rule, although it also requires consultation with the Lead Planning Organization (LPO) established pursuant to Section 174 of the federal Clean Air Act as amended (CAA). The Metropolitan Richmond Air Quality Committee is the designated LPO for the region.

  - The consultation procedures employed follow the requirements outlined in § 93.105(a)(2) and (e), 9 VAC 5-151, and the requirements of 23 CFR part 450. The consultation conducted for this conformity analysis is documented in detail in Chapter 3 with meeting and related materials including minutes copied in Appendix D. That consultation is summarized below:

    - As noted in Chapter 3, documentation of the consultation conducted including the ICG membership list, meeting agenda and presentation materials, schedule, handouts, and minutes is provided in Appendix D. An opportunity for public input was provided at the ICG meeting held at the beginning of the conformity analysis process at which the conformity methodology, schedule and project lists were presented. Project lists as finalized following consultation are presented in Appendix E.

    - Further, the consultation conducted for this conformity analysis followed the Richmond and Tri-Cities MPO approved Interagency Consultation Group Procedures.

- *§93.113 Criteria and procedures: Timely implementation of TCMs. "The transportation plan, TIP… must provide for the timely implementation of TCMs from the applicable implementation plan"*… Paragraph (b) identifies specific requirements for plans, and paragraph (c) for TIPs.

  - TCMs were not included in the applicable implementation plan or revision for the Richmond maintenance area for the 8-hour ozone standard. The criteria may therefore be considered as not applicable or as satisfied without further action for this area.

- *§93.118 - Criteria and procedures: Motor vehicle emissions budget.*

(a) "The transportation plan, TIP… must be consistent with the motor vehicle emissions budget(s) specified in the applicable implementation plan… This criterion is satisfied if it is demonstrated that emissions of the pollutants … are less than or equal to the motor vehicle emissions budget(s)…":

(b) "Consistency with the motor vehicle emissions budget(s) must be demonstrated for each year for which the applicable … implementation plan specifically establishes motor vehicle emissions budget(s), for the attainment year (if it is within the timeframe of the transportation plan), for the last year of the transportation plan's forecast period, and for any intermediate years as necessary so that the years for which consistency is demonstrated are no more than ten years apart… "

(c) "Consistency with the motor vehicle emissions budget(s) must be demonstrated for each pollutant… for which the area is in nonattainment or maintenance…and for which the applicable implementation plan … establishes a motor vehicle emissions budget."

(d) "Consistency with the motor vehicle emission budget(s) must be demonstrated by including emissions from the entire transportation system… "

- The applicable implementation plan is the maintenance plan for the 8-hour ozone standard approved and made effective by EPA as of June 18, 2007, which established motor vehicle emission budgets for VOC and NO_x for the years 2011 and 2018.

  As documented above, total VOC and NO_x emissions associated with the regional transportation system as planned and programmed in the amended FY 09-12 TIP and 2031 LRTP for all analysis years have been modeled and demonstrated to be consistent with (i.e., less than) the motor vehicle emission budgets established in the maintenance plan for those pollutants for all years modeled.

  The years selected for analysis are consistent with the requirements of this section of the conformity rule. The maintenance plan specifies budgets for 2011 and 2018, and years for which budgets are established are required to be analyzed. Additionally, the conformity rule requires modeling for the last year of the transportation plan (2031), and that years modeled be no more than ten years apart. To meet the latter requirement, the year 2021 was selected. The motor vehicle emissions budget criterion is therefore met.

  Applicable budgets and the selection of years for modeling are reviewed in Chapters 1 and 2.

Other related requirements that were not specifically included as criteria in "Table 1 - Conformity Criteria" (Section 93.109) are reviewed below:

- *§93.122 – Procedures for determining regional transportation-related emissions.*

  - All applicable requirements of this section were met, as documented in Chapter 2, including:

    (a) (1) all regionally significant projects included in the LRTP and TIP were included in the regional emissions analysis…; (6) ambient temperatures used in the conformity analysis are consistent with those used to establish the emission budget in the applicable implementation plan (and, similarly, relative humidity data and average barometric pressure as applied are consistent);

and (7) reasonable methods were applied to estimate VMT on off-network roadways,

(b) (1) A regional network model was applied. The model was last validated in 2000. Land use, population, employment and other assumptions were documented and based on the best available information. Assumed land use development is consistent with the future transportation system. A capacity sensitive assignment methodology was applied, and (via the post-processor) emission estimates are based on speeds derived from final assigned volumes. Zonal travel impedances are in reasonable agreement with the final assigned volumes. The model is reasonably sensitive to changes in times, costs and other factors affecting travel choices; (2) reasonable methods were applied to estimate traffic speeds sensitive to estimated volumes on each roadway segment; (3) The network model was reconciled to HPMS data for the base year.

- *§93.126 & §93.127 - Certain types of projects (such as safety projects, transit projects, and intersection improvements) that do not have adverse emission impacts are exempt from being included in the regional emissions analysis and will not be stopped in the absence of conforming LRTP or TIP:*

  - All projects that are exempt under the federal conformity rule and would not typically be included in the regional network model were not included in the regional emissions analysis.

Conclusion and Conformity Finding

Table 4-2 presents the results of the conformity analysis for the amended FY 09-12 TIP and 2031 LRTP. As indicated in the table, the TIP and LRTP meet all applicable requirements of the federal and state transportation conformity rules. A recommendation for a finding of conformity for the TIP and LRTP is therefore made, but is conditional upon any further and separate review as may be required by the US DOT for the fiscal constraint criterion consistent with Section 93.108 of the federal conformity rule and the requirements of federal planning regulations specified at 23 CFR Part 450.

Table 4-2: Conformity Criteria Summary*

Section	Criteria	Demonstrated for the:	
		LRTP	TIP
93.108	Fiscal constraint	Yes**	Yes**
93.110	Latest planning assumptions	Yes	Yes
93.111	Latest emissions model	Yes	Yes
93.112	Consultation	Yes	Yes
93.113(b) & (c)	TCMs	na***	na***
93.118	Emissions Budget	Yes	Yes

* *As specified in the federal conformity rule at 40 CFR 93.109, "Table 1 – Conformity Criteria", with the addition of fiscal constraint as required in Section 93.108.*

** *As indicated by MPO approval of the project list and amendments for the TIP and documented with those reports, and subject to federal review consistent with 23 CFR Part 450 as referenced in Section 93.108.*

*** *The applicable implementation (maintenance) plan for Richmond does not include transportation control measures (TCMs), and therefore they are not required for the conformity analysis or determination. See 72 FR 30485, effective June 18, 2007.*

APPENDICES

Appendix A: Socioeconomic Forecast by Jurisdiction

2011	Population	Auto	Households	Employment
Ashland	7,801	6,493	2,827	8,695
Charles City	6,678	5,678	2,638	1,934
Chesterfield	316,446	241,437	121,665	177,298
Colonial Heights	18,426	11,025	7,772	9,520
Hanover	105,058	98,772	37,944	47,617
Henrico	316,620	236,867	132,270	260,985
Hopewell	25,328	13,916	10,413	8,529
Petersburg	37,031	20,011	15,384	15,130
Prince George	29,813	20,095	10,685	9,278
Richmond	193,502	109,016	86,836	204,836
Total	**1,056,703**	**763,310**	**428,434**	**743,822**

2018	Population	Auto	Households	Employment
Ashland	9,283	8,197	3,163	9,476
Charles City	7,313	6,266	2,917	2,339
Chesterfield	352,305	272,709	138,179	210,078
Colonial Heights	19,756	12,855	8,330	10,232
Hanover	120,675	120,189	43,324	53,539
Henrico	351,692	262,815	146,808	279,014
Hopewell	26,520	15,511	10,902	8,657
Petersburg	36,352	20,338	15,112	16,082
Prince George	33,986	23,958	12,209	11,987
Richmond	197,568	109,521	88,056	202,071
Total	**1,155,450**	**852,359**	**469,000**	**803,475**

2021	Population	Auto	Households	Employment
Ashland	9,919	8,928	3,307	9,811
Charles City	7,583	6,516	3,038	2,514
Chesterfield	367,665	286,113	145,258	224,130
Colonial Heights	20,331	13,648	8,570	10,536
Hanover	127,371	129,366	45,624	56,077
Henrico	366,717	273,943	153,039	286,746
Hopewell	27,028	16,192	11,112	8,710
Petersburg	36,065	20,485	14,993	16,484
Prince George	35,775	25,615	12,860	13,147
Richmond	199,308	109,740	88,576	200,882
Total	**1,197,762**	**890,546**	**486,377**	**829,037**

2031	Population	Auto	Households	Employment
Ashland	12,035	11,362	3,787	10,927
Charles City	8,491	7,358	3,437	3,090
Chesterfield	418,896	330,793	168,854	270,975
Colonial Heights	22,235	16,264	9,368	11,547
Hanover	149,690	159,965	53,319	64,540
Henrico	416,819	311,027	173,809	312,524
Hopewell	28,726	18,471	11,814	8,896
Petersburg	35,099	20,955	14,601	17,844
Prince George	41,739	31,137	15,041	17,017
Richmond	205,121	110,481	90,332	196,918
Total	**1,338,851**	**1,017,813**	**544,362**	**914,278**

Appendix B: Traffic Forecast by Jurisdiction

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Ashland											
Urban Minor Arterial	16	27,278	36	36,013	36	58,440	36	32,016	36	153,747	36
Urban Collector	17	1,745	23	2,378	23	3,346	23	2,106	23	9,576	23
Urban Local	19	3,843	13	5,810	13	7,411	13	4,782	13	21,847	13
TOTAL		32,867		44,200		69,198		38,904		185,170	
Charles City											
Rural Minor Arterial	6	31,522	45	37,219	45	54,117	45	37,687	45	160,545	45
Rural Major Collector	7	5,598	37	6,914	37	10,673	37	5,962	37	29,147	37
Rural Minor Collector	8	3,935	35	5,178	35	5,640	35	4,779	35	19,533	35
Rural Local	9	9,032	25	10,002	25	14,796	25	8,246	25	42,076	25
TOTAL		50,087		59,314		85,226		56,674		251,301	
Chesterfield											
Rural Interstate	1	41,079	65	50,555	65	101,571	65	72,646	65	265,851	65
Rural Principal Arterial	2	50,540	42	66,420	42	117,965	42	70,290	42	305,217	42
Rural Minor Arterial	6	23,750	40	28,042	40	40,774	40	28,395	40	120,961	40
Rural Major Collector	7	24,771	34	30,597	34	47,232	34	26,384	34	128,984	34
Rural Local	9	16,599	25	18,383	25	27,193	25	15,155	25	77,330	25
Urban Interstate	11	271,512	58	323,151	58	532,331	58	372,381	58	1,499,376	58
Freeway/Expressway	12	662,505	56	797,741	56	1,147,837	56	776,603	56	3,384,686	56
Urban Principal Arterial	14	360,839	32	505,676	32	930,163	32	516,082	32	2,312,760	32
Urban Minor Arterial	16	199,543	34	263,438	34	427,497	34	234,201	34	1,124,679	34
Urban Collector	17	121,913	22	166,102	22	233,756	22	147,123	22	668,894	22
Urban Local	19	147,552	13	223,053	13	284,550	13	183,609	13	838,764	13
TOTAL		1,920,604		2,473,160		3,890,870		2,442,869		10,727,503	
Colonial Heights											
Urban Interstate	11	61,901	50	73,673	50	121,363	50	84,897	50	341,834	50
Urban Principal Arterial	14	17,718	32	24,830	32	45,673	32	25,341	32	113,561	32
Urban Minor Arterial	16	9,271	34	12,239	34	19,861	34	10,881	34	52,251	34

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Collector	17	12,731	24	17,345	24	24,410	24	15,363	24	69,849	24
Urban Local	19	8,934	13	13,506	13	17,229	13	11,117	13	50,787	13
TOTAL		110,554		141,593		228,536		147,599		628,283	
Hanover											
Rural Interstate	1	173,049	65	212,968	65	427,879	65	306,027	65	1,119,923	65
Rural Principal Arterial	2	28,244	53	37,118	53	65,923	53	39,281	53	170,566	53
Rural Minor Arterial	6	65,886	44	77,793	44	113,112	44	78,771	44	335,561	44
Rural Major Collector	7	53,410	34	65,972	34	101,838	34	56,887	34	278,107	34
Rural Minor Collector	8	23,399	35	30,789	35	33,536	35	28,414	35	116,139	35
Rural Local	9	52,228	25	57,840	25	85,558	25	47,683	25	243,308	25
Urban Interstate	11	227,764	61	271,082	61	446,557	61	312,380	61	1,257,782	61
Freeway/Expressway	12	8,452	38	10,177	38	14,644	38	9,908	38	43,181	38
Urban Principal Arterial	14	35,813	35	50,188	35	92,318	35	51,221	35	229,539	35
Urban Minor Arterial	16	41,992	37	55,438	37	89,962	37	49,285	37	236,676	37
Urban Collector	17	72,561	23	98,862	23	139,129	23	87,566	23	398,118	23
Urban Local	19	26,557	13	40,146	13	51,214	13	33,047	13	150,964	13
TOTAL		809,354		1,008,371		1,661,670		1,100,467		4,579,863	
Henrico											
Rural Interstate	1	26,480	61	32,588	61	65,474	61	46,828	61	171,370	61
Rural Minor Arterial	6	7,038	42	8,310	42	12,082	42	8,414	42	35,844	42
Rural Major Collector	7	4,355	18	5,380	18	8,305	18	4,639	18	22,679	18
Rural Local	9	4,572	25	5,063	25	7,490	25	4,174	25	21,299	25
Urban Interstate	11	701,271	60	834,644	60	1,374,923	60	961,799	60	3,872,637	60
Freeway/Expressway	12	8,795	39	10,590	39	15,238	39	10,310	39	44,932	39
Urban Principal Arterial	14	228,721	32	320,527	32	589,591	32	327,123	32	1,465,962	32
Urban Minor Arterial	16	346,756	34	457,790	34	742,883	34	406,982	34	1,954,411	34
Urban Collector	17	99,927	22	136,147	22	191,600	22	120,591	22	548,265	22
Urban Local	19	223,812	13	338,336	13	431,617	13	278,505	13	1,272,271	13
TOTAL		1,651,727		2,149,375		3,439,202		2,169,364		9,409,669	

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Hopewell											
Urban Interstate	11	54,234	59	64,548	59	106,332	59	74,382	59	299,496	59
Urban Principal Arterial	14	24,470	32	34,292	32	63,078	32	34,997	32	156,837	32
Urban Minor Arterial	16	13,882	33	18,328	33	29,741	33	16,294	33	78,245	33
Urban Collector	17	3,501	19	4,770	19	6,713	19	4,225	19	19,210	19
Urban Local	19	9,349	13	14,133	13	18,029	13	11,633	13	53,144	13
TOTAL		105,436		136,071		223,893		141,532		606,932	
Petersburg											
Urban Interstate	11	79,522	52	94,647	52	155,913	52	109,065	52	439,147	52
Urban Principal Arterial	14	38,247	35	53,598	35	98,591	35	54,701	35	245,138	35
Urban Minor Arterial	16	18,618	34	24,579	34	39,886	34	21,851	34	104,935	34
Urban Collector	17	11,158	23	15,202	23	21,394	23	13,465	23	61,219	23
Urban Local	19	23,291	13	35,209	13	44,916	13	28,982	13	132,398	13
TOTAL		170,835		223,235		360,700		228,066		982,837	
Prince George											
Rural Interstate	1	35,823	63	44,087	63	88,575	63	63,351	63	231,836	63
Rural Principal Arterial	2	33,283	53	43,741	53	77,686	53	46,290	53	201,000	53
Rural Minor Arterial	6	24,916	42	29,419	42	42,776	42	29,789	42	126,901	42
Rural Major Collector	7	14,080	37	17,392	37	26,847	37	14,997	37	73,317	37
Rural Minor Collector	8	3,180	38	4,185	38	4,558	38	3,862	38	15,785	38
Rural Local	9	10,997	25	12,178	25	18,015	25	10,040	25	51,230	25
Urban Interstate	11	59,295	58	70,572	58	116,254	58	81,323	58	327,443	58
Urban Principal Arterial	14	23,665	38	33,165	38	61,004	38	33,847	38	151,681	38
Urban Minor Arterial	16	16,144	38	21,313	38	34,586	38	18,947	38	90,990	38
Urban Collector	17	23,951	25	32,632	25	45,924	25	28,904	25	131,411	25
Urban Local	19	4,628	13	6,996	13	8,925	13	5,759	13	26,308	13
TOTAL		249,963		315,680		525,150		337,109		1,427,902	
Richmond											

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Interstate	11	276,045	59	328,545	59	541,218	59	378,598	59	1,524,405	59
Freeway/Expressway	12	132,074	57	159,034	57	228,828	57	154,820	57	674,756	57
Urban Principal Arterial	14	209,393	29	293,441	29	539,769	29	299,480	29	1,342,083	29
Urban Minor Arterial	16	197,620	30	260,899	30	423,376	30	231,943	30	1,113,838	30
Urban Collector	17	62,590	21	85,276	21	120,009	21	75,532	21	343,406	21
Urban Local	19	134,389	13	203,155	13	259,165	13	167,229	13	763,937	13
TOTAL		1,012,110		1,330,350		2,112,365		1,307,602		5,762,426	
Richmond Total		6,113,537		7,881,350		12,596,811		7,970,186		34,561,884	

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Ashland											
Urban Minor Arterial	16	36,565	36	48,274	34	78,337	35	42,916	36	206,093	36
Urban Collector	17	2,123	23	2,892	23	4,070	23	2,562	23	11,647	23
Urban Local	19	4,675	13	7,067	13	9,015	13	5,817	13	26,573	13
TOTAL		43,363		58,233		91,422		51,295		244,313	
Charles City											
Rural Minor Arterial	6	33,147	45	39,137	44	56,906	45	39,629	45	168,819	45
Rural Major Collector	7	6,129	37	7,571	37	11,687	37	6,528	37	31,915	37
Rural Minor Collector	8	4,309	35	5,670	35	6,176	35	5,232	35	21,387	35
Rural Local	9	9,889	25	10,952	25	16,201	25	9,029	25	46,071	25
TOTAL		53,475		63,330		90,969		60,419		268,193	
Chesterfield											
Rural Interstate	1	42,498	65	52,302	65	105,081	65	75,156	65	275,038	65
Rural Principal Arterial	2	59,228	43	77,837	43	138,242	43	82,372	43	357,679	43
Rural Minor Arterial	6	26,825	39	31,672	37	46,052	39	32,071	40	136,620	40
Rural Major Collector	7	27,657	34	34,162	34	52,735	34	29,458	34	144,013	34
Rural Local	9	18,533	25	20,525	25	30,361	25	16,921	25	86,340	25
Urban Interstate	11	283,505	58	337,424	58	555,844	58	388,829	58	1,565,603	58
Freeway/Expressway	12	724,217	56	872,051	56	1,254,758	56	848,944	56	3,699,971	56
Urban Principal Arterial	14	415,306	32	582,006	32	1,070,567	32	593,983	32	2,661,861	32
Urban Minor Arterial	16	242,756	33	320,488	32	520,074	33	284,919	34	1,368,237	34
Urban Collector	17	136,118	22	185,455	22	260,991	22	164,265	22	746,829	22
Urban Local	19	164,743	13	249,042	13	317,704	13	205,001	13	936,490	13
TOTAL		2,141,386		2,762,964		4,352,410		2,721,918		11,978,678	
Colonial Heights											
Urban Interstate	11	63,892	50	76,044	50	125,268	50	87,629	50	352,834	50
Urban Principal Arterial	14	19,690	32	27,594	32	50,757	32	28,162	32	126,203	32
Urban Minor Arterial	16	10,216	33	13,487	33	21,887	33	11,991	33	57,581	33

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Collector	17	14,587	24	19,874	24	27,968	24	17,603	24	80,031	24
Urban Local	19	10,237	13	15,475	13	19,741	13	12,738	13	58,190	13
TOTAL		118,622		152,473		245,622		158,122		674,839	
Hanover											
Rural Interstate	1	187,764	65	231,078	65	464,264	65	332,051	65	1,215,157	65
Rural Principal Arterial	2	33,311	53	43,778	53	77,751	53	46,328	53	201,169	53
Rural Minor Arterial	6	87,181	45	102,937	41	149,671	46	104,231	47	444,020	47
Rural Major Collector	7	63,228	34	78,099	34	120,559	34	67,344	34	329,230	34
Rural Minor Collector	8	27,701	35	36,449	35	39,701	35	33,637	35	137,488	35
Rural Local	9	61,828	25	68,472	25	101,286	25	56,448	25	288,034	25
Urban Interstate	11	245,439	61	292,118	61	481,211	61	336,621	61	1,355,389	61
Freeway/Expressway	12	8,859	38	10,668	38	15,349	38	10,385	38	45,261	38
Urban Principal Arterial	14	41,805	35	58,585	35	107,763	35	59,790	35	267,943	35
Urban Minor Arterial	16	52,429	37	69,218	37	112,324	37	61,536	37	295,506	37
Urban Collector	17	85,900	23	117,035	23	164,704	23	103,662	23	471,301	23
Urban Local	19	31,439	13	47,526	13	60,629	13	39,121	13	178,714	13
TOTAL		926,884		1,155,961		1,895,212		1,251,154		5,229,211	
Henrico											
Rural Interstate	1	33,225	61	40,889	61	82,151	61	58,756	61	215,021	61
Rural Minor Arterial	6	6,857	41	8,096	38	11,771	42	8,198	43	34,921	43
Rural Major Collector	7	4,791	18	5,918	18	9,135	18	5,103	18	24,947	18
Rural Local	9	5,029	25	5,570	25	8,239	25	4,592	25	23,429	25
Urban Interstate	11	772,561	60	919,493	60	1,514,696	60	1,059,574	60	4,266,325	60
Freeway/Expressway	12	9,468	39	11,401	39	16,404	39	11,099	39	48,373	39
Urban Principal Arterial	14	254,427	32	356,552	32	655,856	32	363,889	32	1,630,724	32
Urban Minor Arterial	16	386,679	34	510,496	34	828,412	34	453,839	34	2,179,426	34
Urban Collector	17	109,923	22	149,765	22	210,765	22	132,653	22	603,105	22
Urban Local	19	246,199	13	372,178	13	474,790	13	306,362	13	1,399,530	13
TOTAL		1,829,159		2,380,358		3,812,220		2,404,064		10,425,801	

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Hopewell											
Urban Interstate	11	59,718	59	71,075	59	117,083	59	81,903	59	329,779	59
Urban Principal Arterial	14	25,483	31	35,711	31	65,689	31	36,446	31	163,328	31
Urban Minor Arterial	16	15,116	33	19,957	33	32,385	33	17,742	33	85,200	33
Urban Collector	17	3,866	19	5,267	19	7,413	19	4,665	19	21,211	19
Urban Local	19	10,323	13	15,605	13	19,907	13	12,845	13	58,681	13
TOTAL		114,505		147,615		242,477		153,602		658,199	
Petersburg											
Urban Interstate	11	86,109	52	102,486	52	168,826	52	118,099	52	475,519	52
Urban Principal Arterial	14	42,529	35	59,600	35	109,631	35	60,826	35	272,587	35
Urban Minor Arterial	16	20,332	34	26,842	33	43,559	34	23,863	34	114,597	34
Urban Collector	17	11,339	23	15,449	23	21,742	23	13,684	23	62,215	23
Urban Local	19	23,670	13	35,781	13	45,646	13	29,454	13	134,551	13
TOTAL		183,979		240,159		389,404		245,927		1,059,469	
Prince George											
Rural Interstate	1	40,844	63	50,266	63	100,990	63	72,230	63	264,329	63
Rural Principal Arterial	2	36,731	53	48,272	53	85,733	53	51,085	53	221,821	53
Rural Minor Arterial	6	27,155	42	32,063	42	46,620	42	32,466	42	138,303	42
Rural Major Collector	7	16,413	37	20,273	37	31,295	37	17,481	37	85,461	37
Rural Minor Collector	8	3,707	38	4,878	38	5,313	38	4,501	38	18,399	38
Rural Local	9	12,818	25	14,196	25	20,999	25	11,703	25	59,716	25
Urban Interstate	11	70,185	58	83,533	58	137,605	58	96,259	58	387,581	58
Urban Principal Arterial	14	26,421	39	37,026	39	68,107	39	37,788	39	169,341	39
Urban Minor Arterial	16	16,938	38	22,362	37	36,288	38	19,880	38	95,468	38
Urban Collector	17	27,918	25	38,038	25	53,531	25	33,692	25	153,179	25
Urban Local	19	5,395	13	8,155	13	10,403	13	6,713	13	30,666	13
TOTAL		284,525		359,060		596,883		383,796		1,624,264	
Richmond											

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Interstate	11	280,598	59	333,964	59	550,145	59	384,842	59	1,549,550	59
Freeway/Expressway	12	134,630	57	162,111	57	233,256	57	157,816	57	687,813	57
Urban Principal Arterial	14	223,498	29	313,208	29	576,129	29	319,654	29	1,432,489	29
Urban Minor Arterial	16	214,140	30	282,709	30	458,768	30	251,333	30	1,206,950	30
Urban Collector	17	62,883	21	85,675	21	120,571	21	75,886	21	345,015	21
Urban Local	19	135,018	13	204,106	13	260,379	13	168,012	13	767,515	13
TOTAL		1,050,766		1,381,774		2,199,248		1,357,543		5,989,331	
Richmond Total		6,746,664		8,701,927		13,915,868		8,787,840		38,152,299	

2021 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Ashland											
Urban Minor Arterial	16	40,355	36	53,278	34	86,457	35	47,365	36	227,454	36
Urban Collector	17	2,309	23	3,146	23	4,427	23	2,786	23	12,667	23
Urban Local	19	5,084	13	7,685	13	9,804	13	6,326	13	28,900	13
TOTAL		47,748		64,108		100,688		56,477		269,021	
Charles City											
Rural Minor Arterial	6	34,759	45	41,041	43	59,674	45	41,557	45	177,031	45
Rural Major Collector	7	6,372	37	7,871	37	12,150	37	6,787	37	33,180	37
Rural Minor Collector	8	4,480	35	5,895	35	6,421	35	5,440	35	22,235	35
Rural Local	9	10,282	25	11,386	25	16,843	25	9,387	25	47,898	25
TOTAL		55,893		66,193		95,088		63,171		280,344	
Chesterfield											
Rural Interstate	1	44,107	65	54,282	65	109,060	65	78,002	65	285,451	65
Rural Principal Arterial	2	62,829	43	82,570	43	146,648	43	87,381	43	379,429	43
Rural Minor Arterial	6	27,666	39	32,666	37	47,497	39	33,076	40	140,905	40
Rural Major Collector	7	28,995	34	35,814	34	55,286	34	30,883	34	150,978	34
Rural Local	9	19,430	25	21,518	25	31,830	25	17,739	25	90,516	25
Urban Interstate	11	289,393	58	344,432	58	567,387	58	396,904	58	1,598,115	58
Freeway/Expressway	12	751,641	56	905,073	56	1,302,272	56	881,092	56	3,840,078	56
Urban Principal Arterial	14	430,102	32	602,741	32	1,108,707	32	615,144	32	2,756,694	32
Urban Minor Arterial	16	258,582	34	341,382	33	553,981	34	303,494	35	1,457,440	34
Urban Collector	17	142,701	22	194,425	22	273,615	22	172,209	22	782,950	22
Urban Local	19	172,711	13	261,087	13	333,070	13	214,916	13	981,784	13
TOTAL		2,228,158		2,875,989		4,529,352		2,830,840		12,464,340	
Colonial Heights											
Urban Interstate	11	65,472	50	77,924	50	128,365	50	89,795	50	361,557	50
Urban Principal Arterial	14	20,836	32	29,200	32	53,712	32	29,801	32	133,549	32
Urban Minor Arterial	16	10,812	33	14,274	33	23,164	33	12,690	33	60,941	33

2021 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Collector	17	15,463	24	21,067	24	29,648	24	18,660	24	84,837	24
Urban Local	19	10,851	13	16,404	13	20,926	13	13,503	13	61,685	13
TOTAL		123,435		158,869		255,816		164,449		702,569	
Hanover											
Rural Interstate	1	195,105	65	240,113	65	482,416	65	345,033	65	1,262,667	65
Rural Principal Arterial	2	35,361	53	46,471	53	82,535	53	49,179	53	213,545	53
Rural Minor Arterial	6	91,496	45	108,032	41	157,080	46	109,390	47	465,998	47
Rural Major Collector	7	67,970	34	83,956	34	129,601	34	72,395	34	353,922	34
Rural Minor Collector	8	29,778	35	39,183	35	42,679	35	36,160	35	147,799	35
Rural Local	9	66,465	25	73,607	25	108,882	25	60,682	25	309,637	25
Urban Interstate	11	252,828	61	300,912	61	495,698	61	346,755	61	1,396,193	61
Freeway/Expressway	12	9,004	38	10,842	38	15,600	38	10,555	38	46,000	38
Urban Principal Arterial	14	42,915	35	60,141	35	110,626	35	61,378	35	275,060	35
Urban Minor Arterial	16	56,665	37	74,810	37	121,398	37	66,507	37	319,380	37
Urban Collector	17	92,342	23	125,813	23	177,057	23	111,437	23	506,649	23
Urban Local	19	33,797	13	51,090	13	65,176	13	42,055	13	192,118	13
TOTAL		973,727		1,214,969		1,988,746		1,311,526		5,488,969	
Henrico											
Rural Interstate	1	34,080	61	41,942	61	84,267	61	60,270	61	220,560	61
Rural Minor Arterial	6	6,962	41	8,220	38	11,951	42	8,323	43	35,456	43
Rural Major Collector	7	4,991	18	6,165	18	9,516	18	5,316	18	25,988	18
Rural Local	9	5,239	25	5,802	25	8,582	25	4,783	25	24,406	25
Urban Interstate	11	789,964	60	940,205	60	1,548,815	60	1,083,441	60	4,362,426	60
Freeway/Expressway	12	9,694	39	11,673	39	16,796	39	11,364	39	49,528	39
Urban Principal Arterial	14	264,501	32	370,669	32	681,825	32	378,297	32	1,695,293	32
Urban Minor Arterial	16	411,494	35	543,257	34	881,576	34	482,964	35	2,319,291	35
Urban Collector	17	114,507	22	156,011	22	219,555	22	138,185	22	628,257	22
Urban Local	19	256,467	13	387,699	13	494,590	13	319,139	13	1,457,895	13
TOTAL		1,897,899		2,471,644		3,957,475		2,492,082		10,819,099	

2021 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Hopewell											
Urban Interstate	11	61,977	59	73,764	59	121,513	59	85,002	59	342,256	59
Urban Principal Arterial	14	27,162	31	38,064	31	70,017	31	38,848	31	174,091	31
Urban Minor Arterial	16	15,795	33	20,853	32	33,839	33	18,538	33	89,025	33
Urban Collector	17	4,034	19	5,496	19	7,734	19	4,868	19	22,132	19
Urban Local	19	10,771	13	16,282	13	20,771	13	13,403	13	61,227	13
TOTAL		119,738		154,459		253,875		160,659		688,731	
Petersburg											
Urban Interstate	11	89,661	52	106,714	52	175,792	52	122,971	52	495,139	52
Urban Principal Arterial	14	44,601	35	62,504	35	114,972	35	63,790	35	285,866	35
Urban Minor Arterial	16	21,473	34	28,349	33	46,004	34	25,203	34	121,028	34
Urban Collector	17	11,418	23	15,557	23	21,893	23	13,779	23	62,646	23
Urban Local	19	23,834	13	36,030	13	45,963	13	29,658	13	135,485	13
TOTAL		190,988		249,153		404,623		255,401		1,100,164	
Prince George											
Rural Interstate	1	42,720	63	52,575	63	105,629	63	75,548	63	276,471	63
Rural Principal Arterial	2	39,431	53	51,821	53	92,036	53	54,840	53	238,128	53
Rural Minor Arterial	6	29,097	42	34,356	41	49,953	42	34,787	42	148,193	42
Rural Major Collector	7	17,527	37	21,649	37	33,419	37	18,668	37	91,264	37
Rural Minor Collector	8	3,959	38	5,209	38	5,674	38	4,807	38	19,649	38
Rural Local	9	13,689	25	15,159	25	22,424	25	12,497	25	63,770	25
Urban Interstate	11	73,695	58	87,711	58	144,487	58	101,073	58	406,965	58
Urban Principal Arterial	14	28,265	39	39,610	39	72,861	39	40,425	39	181,161	39
Urban Minor Arterial	16	17,832	38	23,542	37	38,203	38	20,929	38	100,507	38
Urban Collector	17	29,814	25	40,620	25	57,165	25	35,979	25	163,579	25
Urban Local	19	5,761	13	8,709	13	11,110	13	7,169	13	32,748	13
TOTAL		301,789		380,960		632,961		406,723		1,722,433	
Richmond											

2021 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Interstate	11	283,651	59	337,598	59	556,131	59	389,030	59	1,566,410	59
Freeway/Expressway	12	136,060	57	163,834	57	235,734	57	159,493	57	695,122	57
Urban Principal Arterial	14	231,517	29	324,446	29	596,800	29	331,123	29	1,483,886	29
Urban Minor Arterial	16	222,417	30	293,636	30	476,501	30	261,047	30	1,253,602	30
Urban Collector	17	63,009	21	85,847	21	120,813	21	76,038	21	345,706	21
Urban Local	19	135,289	13	204,515	13	260,901	13	168,349	13	769,053	13
TOTAL		1,071,943		1,409,877		2,246,880		1,385,079		6,113,779	
Richmond Total		7,011,317		9,046,223		14,465,503		9,126,407		39,649,449	

2031 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Ashland											
Urban Minor Arterial	16	52,551	36	69,378	34	112,583	35	61,678	36	296,190	36
Urban Collector	17	3,054	23	4,161	23	5,856	23	3,686	23	16,756	23
Urban Local	19	6,725	13	10,166	13	12,969	13	8,369	13	38,229	13
TOTAL		62,330		83,705		131,408		73,732		351,175	
Charles City											
Rural Minor Arterial	6	40,366	44	47,661	42	69,300	45	48,261	45	205,589	45
Rural Major Collector	7	7,254	37	8,960	37	13,831	37	7,726	37	37,771	37
Rural Minor Collector	8	5,100	35	6,710	35	7,309	35	6,193	35	25,312	35
Rural Local	9	11,704	25	12,962	25	19,173	25	10,686	25	54,525	25
TOTAL		64,424		76,294		109,614		72,865		323,197	
Chesterfield											
Rural Interstate	1	47,599	65	58,579	65	117,693	65	84,176	65	308,048	65
Rural Principal Arterial	2	71,924	43	94,522	43	167,875	43	100,029	43	434,350	43
Rural Minor Arterial	6	30,502	38	36,014	35	52,365	39	36,467	40	155,347	40
Rural Major Collector	7	33,939	34	41,921	34	64,713	34	36,149	34	176,721	34
Rural Local	9	22,743	25	25,187	25	37,257	25	20,764	25	105,950	25
Urban Interstate	11	305,174	58	363,214	58	598,328	58	418,548	58	1,685,264	58
Freeway/Expressway	12	829,012	56	998,237	56	1,436,323	56	971,787	56	4,235,360	56
Urban Principal Arterial	14	491,438	32	688,697	32	1,266,819	32	702,869	32	3,149,822	32
Urban Minor Arterial	16	284,190	33	375,190	32	608,843	33	333,550	34	1,601,772	34
Urban Collector	17	167,034	22	227,577	22	320,269	22	201,573	22	916,453	22
Urban Local	19	202,161	13	305,605	13	389,862	13	251,562	13	1,149,191	13
TOTAL		2,485,715		3,214,743		5,060,347		3,157,475		13,918,280	
Colonial Heights											
Urban Interstate	11	69,669	50	82,919	50	136,594	50	95,551	50	384,732	50
Urban Principal Arterial	14	24,311	32	34,069	32	62,668	32	34,770	32	155,817	32
Urban Minor Arterial	16	12,801	33	16,900	33	27,424	33	15,024	33	72,149	33

2031 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Collector	17	18,780	24	25,588	24	36,009	24	22,664	24	103,041	24
Urban Local	19	13,180	13	19,924	13	25,417	13	16,400	13	74,921	13
TOTAL		138,740		179,399		288,112		184,410		790,660	
Hanover											
Rural Interstate	1	211,146	65	259,854	65	522,079	65	373,400	65	1,366,479	65
Rural Principal Arterial	2	42,496	53	55,848	53	99,188	53	59,102	53	256,634	53
Rural Minor Arterial	6	104,163	44	122,988	39	178,826	46	124,534	47	530,512	47
Rural Major Collector	7	86,500	34	106,843	34	164,931	34	92,131	34	450,405	34
Rural Minor Collector	8	37,896	35	49,864	35	54,314	35	46,017	35	188,091	35
Rural Local	9	84,585	25	93,673	25	138,565	25	77,224	25	394,047	25
Urban Interstate	11	272,495	61	324,320	61	534,258	61	373,729	61	1,504,801	61
Freeway/Expressway	12	9,471	39	11,404	38	16,409	39	11,102	39	48,386	39
Urban Principal Arterial	14	49,847	35	69,856	35	128,496	35	71,293	35	319,492	35
Urban Minor Arterial	16	66,373	37	87,626	37	142,195	37	77,901	37	374,094	37
Urban Collector	17	117,516	23	160,111	23	225,324	23	141,816	23	644,767	23
Urban Local	19	43,010	13	65,018	13	82,944	13	53,520	13	244,491	13
TOTAL		1,125,497		1,407,405		2,287,528		1,501,769		6,322,200	
Henrico											
Rural Interstate	1	37,578	61	46,246	61	92,915	61	66,454	61	243,193	61
Rural Minor Arterial	6	7,456	40	8,803	36	12,800	41	8,914	43	37,972	42
Rural Major Collector	7	5,719	18	7,064	18	10,905	18	6,091	18	29,779	18
Rural Local	9	6,003	25	6,648	25	9,835	25	5,481	25	27,967	25
Urban Interstate	11	856,288	60	,019,144	60	1,678,852	60	1,174,406	60	4,728,691	60
Freeway/Expressway	12	10,523	39	12,672	39	18,233	39	12,336	39	53,763	39
Urban Principal Arterial	14	297,336	32	416,684	32	766,466	32	425,258	32	1,905,744	32
Urban Minor Arterial	16	470,977	35	621,787	34	1,009,010	35	552,778	35	2,654,551	35
Urban Collector	17	131,213	22	178,773	22	251,588	22	158,346	22	719,919	22
Urban Local	19	293,885	13	444,265	13	566,751	13	365,701	13	1,670,602	13
TOTAL		2,116,979		2,762,086		4,417,353		2,775,766		12,072,183	

2031 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Hopewell											
Urban Interstate	11	67,812	59	80,709	59	132,954	59	93,005	59	374,481	59
Urban Principal Arterial	14	30,893	31	43,294	31	79,637	31	44,185	31	198,009	31
Urban Minor Arterial	16	19,436	34	25,660	34	41,640	34	22,812	34	109,548	34
Urban Collector	17	4,647	19	6,332	19	8,911	19	5,608	19	25,498	19
Urban Local	19	12,409	13	18,759	13	23,930	13	15,441	13	70,539	13
TOTAL		135,198		174,753		287,071		181,051		778,075	
Petersburg											
Urban Interstate	11	98,422	52	117,141	52	192,968	52	134,987	52	543,517	52
Urban Principal Arterial	14	50,999	35	71,469	35	131,464	35	72,940	35	326,872	35
Urban Minor Arterial	16	24,420	34	32,239	33	52,316	34	28,661	34	137,636	34
Urban Collector	17	11,684	23	15,919	23	22,403	23	14,100	23	64,107	23
Urban Local	19	24,390	13	36,870	13	47,035	13	30,350	13	138,644	13
TOTAL		209,914		273,638		446,186		281,037		1,210,775	
Prince George											
Rural Interstate	1	48,635	63	59,855	63	120,255	63	86,009	63	314,754	63
Rural Principal Arterial	2	48,163	53	63,296	53	112,416	53	66,984	53	290,858	53
Rural Minor Arterial	6	34,168	42	40,343	40	58,660	42	40,851	42	174,022	42
Rural Major Collector	7	21,817	37	26,949	37	41,600	37	23,238	37	113,604	37
Rural Minor Collector	8	4,928	38	6,484	38	7,063	38	5,984	38	24,458	38
Rural Local	9	17,039	25	18,870	25	27,914	25	15,557	25	79,380	25
Urban Interstate	11	84,842	58	100,978	58	166,343	58	116,362	58	468,524	58
Urban Principal Arterial	14	33,426	39	46,842	39	86,164	39	47,806	39	214,239	39
Urban Minor Arterial	16	20,112	38	26,552	36	43,087	37	23,605	38	113,356	38
Urban Collector	17	37,112	25	50,564	25	71,158	25	44,786	25	203,620	25
Urban Local	19	7,171	13	10,840	13	13,829	13	8,923	13	40,764	13
TOTAL		357,414		451,573		748,488		480,103		2,037,578	
Richmond											

2031 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Interstate	11	293,686	59	349,542	59	575,805	59	402,793	59	1,621,826	59
Freeway/Expressway	12	141,814	57	170,762	57	245,703	57	166,238	57	724,517	57
Urban Principal Arterial	14	251,509	29	352,463	29	648,335	29	359,716	29	1,612,022	29
Urban Minor Arterial	16	255,104	30	336,790	30	546,529	30	299,411	30	1,437,833	30
Urban Collector	17	63,431	21	86,422	21	121,622	21	76,547	21	348,021	21
Urban Local	19	136,195	13	205,885	13	262,648	13	169,476	13	774,203	13
TOTAL		1,141,738		1,501,863		2,400,642		1,474,181		6,518,423	
Richmond Total		7,837,949		10,125,459		16,176,749		10,182,389		44,322,546	

Appendix C: Mobile 6.2 Sample Input

The following table provides a guide to the MOBILE 6.2 Input files included in the appendix. A sample portion of a 2031 input files as used in the analysis for Chesterfield County is provided. Copies of complete input files are available upon request.

Header section of the input file:	
MOBILE6 Input Header	What the header means:
DATABASE OUTPUT	Specifies MOBILE6 to report output in database format for all scenarios.
DAILY OUTPUT	Database output will represent daily rather than hourly time periods.
WITH FIELDNAMES	Directs MOBILE6 to place a row of column names in the first row of the database output table.
AGGEGATED OUTPUT	Database output will represent daily rather than hourly time periods that will reduce the volume of reported output.
Run Segment:	
RUN DATA	Marks the end of the header section and beginning of run section of command input file. Administrative function—no information required.
EXPRESS HC AS VOC	Directs MOBILE6 to output exhaust HC as volatile organic compounds.
REG DIST	Allows user to supply vehicle registration distributions by vehicle age for all 16 composite vehicle types. Command requires an external data file.
NO REFUELING	Directs MOBILE6 not to calculate the refueling emissions from gasoline-fueled vehicles.
94+ LDG IMP	Allows the user to input optional 1994 and later fleet penetration fractions for light-duty gasoline vehicles under NLEV.
HOURLY TEMPERATURE	Specifies hourly temperatures that the user wishes to model in a scenario.
FUEL PROGRAM	Designates fuel sulfur level of gasoline and whether RFG use should be assumed
FUEL RVP	Required input of average fuel Reid vapor pressure.
SEASON	Allows users to specify winter or summer RVP independent of evaluation month

Scenario Segment:	
SCENARIO RECORD	Allows MOBILE6 users to label individual scenario results. Marks start of new scenario.
CALENDAR YEAR	Calendar year of the scenario evaluated. Four-digit value for year must be entered. ***Example:*** **CALENDAR YEAR : 2015**
EVALUTION MONTH	Specifies January 1 (*winter RFG rules)* or July 1 (*summer RFG rules)* for calendar year of interest. ***Example:*** **EVALUATION MONTH : 7**
VMT FRACTIONS	Allows user to supply vehicle travel data specific to the geographical location they wish to model. Set of 16 fractional values between 0 and 1 in which all 16 values add up to 1.0 ***Example:*** **VMT FRACTIONS :** **0.3540.089 0.297 0.092 0.041 0.040 0.004 0.003** **0.002 0.008 0.010 0.012 0.040 0.002 0.001 0.005**
AVERAGE SPEED	Allows the user to enter a single average speed to use for all freeways and/or arterial/collectors for the entire day, rather than an average speed distribution
RELATIVE HUMIDITY	Allows user to specify hourly relative humidity values and relate them directly to the hourly temperature values.
BAROMETRIC PRESSURE	Allows user to specify a daily average barometric pressure.
END OF RUN	Marks the end of each Run section and required to separate multiple runs in command input files.

MOBILE 6.2 INPUT FILE EXCERPT

```
MOBILE6 INPUT FILE :
>
>  Richmond Nonattainment Area - ANALYSIS OF 2031 LRP, FY 09-12 TIP
>  2031 MOBILE SOURCE EMISSIONS - Speeds from post processor
>  2031 analysis year
>  2008 registration data provided by DEQ
>  VMT Mix based on 2008 Traffic Study for Emissions Inventory
>  RFG, NLEV, AND NO REFUELING EMISSIONS
>  New temps, humidity, pressure, VMT mixes

REPORT FILE        : C:\Access\Rich2031\31RICH08.OUT
DATABASE OUTPUT    :
WITH FIELDNAMES    :
POLLUTANTS         : HC NOX
AGGREGATED OUTPUT  :
EMISSIONS TABLE    : C:\Access\Rich2031\31RICH08.TXT   REPLACE


RUN DATA           :
EXPRESS HC AS VOC  :
REG DIST           : C:\Access\Rich2031\CHES08.rdt
NO REFUELING       :
94+ LDG IMP        : C:\Access\Rich2031\NLEVNE.D
HOURLY TEMPERATURES: 71.97 75.32 79.73 83.61 86.70 88.72 90.40 91.59
92.50 92.89 92.28 91.61
                     90.01 85.98 83.30 80.10 78.63 77.93 74.51 74.10
73.41 72.37 72.21 71.50
FUEL PROGRAM       : 4
 150  149  129  120 120  90  30  30
  30   30   30   30  30  30  30  30
1000 1000 1000 1000 303 303  87  87
  80   80   80   80  80  80  80  80
FUEL RVP           : 6.8
OXYGENATED FUELS   : 1.00 0.00 0.021 0.00 1
SEASON             : 1

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 2.5 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
```

```
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 3.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 4.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 5.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 6.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018
```

```
SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 7.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 8.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 9.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 10.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
```

```
                    52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 11.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                    52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 12.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                    52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 13.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                    52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
```

```
AVERAGE SPEED      : 14.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 15.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 16.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 17.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
```

```
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 18.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 19.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 20.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 21.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
```

```
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 22.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 23.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 24.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 25.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
```

```
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 26.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018

SCENARIO RECORD    : Chesterfield, Rural Interstate
CALENDAR YEAR      : 2031
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.35918     0.08280     0.27563     0.08393     0.03859     0.05045
      0.00497     0.00408
0.00304     0.01126     0.01330     0.01444     0.05152     0.00256
      0.00118     0.00307
AVERAGE SPEED      : 27.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 90.3 83.8 73.8 63.9 57.0 53.6 48.6 46.7 44.2 44.8
45.8 47.5
                     52.0 62.5 68.2 77.2 81.4 82.6 87.5 87.4 87.7 88.7
89.6 91.6
BAROMETRIC PRES    : 30.018
```

Appendix D: Consultation

This appendix includes Inter-Agency Consultation Group (ICG) meeting minutes and public consultation materials for the conformity analysis for the Richmond and Tri-Cities Amended FY 09-12 TIP and 2031 LRTP.

Attachments:

- November 2, 2009; CPDC letter to FHWA acknowledging tri-cities involvement not necessary for this amendment since no changes were made to the tri-cities MPO TIP or CLRP.
- November 12, 2009; Richmond MPO approved the 2031 LRTP project list for conformity.
- November 19, 2009; Interagency Consultation Group (ICG) meeting, at which the conformity methodology and assumptions, conformity schedule, project lists for the conformity analysis were approved by the ICG. An opportunity for public input was provided at this meeting but no comments were received.
- January 25-February 9, 2010; Richmond public review period for the conformity determination.
- February 11, 2010; Richmond MPO approval of the Conformity Analysis for the amended FY 09-12 TIP and 2031 LRTP.

Project lists showing proposed modeling for the 2031 LRTP and the FY 09-12 TIP for the conformity analysis were distributed for the November 19, 2009 ICG meeting but are not reproduced here.

CRATER PLANNING DISTRICT COMMISSION

Monument Professional Building • 1964 Wakefield Street • Post Office Box 1808 • Petersburg, Virginia 23805
PHONE: (804) 861-1666 • FAX 804-732-8972 • E-MAIL: craterpd@cpd.state.va.us • WEBSITE: www.craterpdc.state.va.us
Dennis K. Morris, Executive Director

November 2, 2009

Mr. Ed Sundra
Federal Highway Administration
Planning/Environment Program Manager
400 North 8th Street, Suite 750
Richmond, VA 23219

Dear Mr. Sundra:

Recently, I was apprised by VDOT of the need for a new conformity analysis of the FY 09 – FY 12 Transportation Improvement Programs for the Richmond, Virginia TMA. The focus of this analysis is to include an evaluation of the air quality impact of the planned I-295 interchange at Meadowville Road in Chesterfield County. At this time, I am not aware of a need to evaluate any additional projects for inclusion in the FY 09 – FY 12 TIP for the Tri-Cities portion of the Richmond TMA.

Sincerely,

Joseph Vinsh
Regional Planner

CC: Dan Lysy, Richmond Regional Planning District Commission
Dan Grinnell, Virginia Department of Transportation

Richmond Regional Planning District Commission

Metropolitan Planning Organization

MPO AGENDA 11/12/09; ITEM III.A.1

AIR QUALITY CONFORMITY ANALYSIS FOR I-295/MEADOWVILLE ROAD INTERCHANGE AND TIP AMENDMENT REQUEST

Richmond Area Metropolitan Planning Organization

On motion of Kathy C. Graziano, seconded by Robert R. Setliff, the Richmond Area Metropolitan Planning Organization unanimously approved the following resolution:

RESOLVED, that the Richmond Area Metropolitan Planning Organization (MPO) requests action by the Virginia Department of Transportation (VDOT) and Richmond Regional Planning District Commission (RRPDC) to conduct the air quality conformity analysis of the proposed Chesterfield County I-295/Meadowville Road interchange project in order to proceed with amending the MPO's FY 09 – FY 12 Transportation Improvement Program (TIP).

****

This is to certify that the Richmond Area Metropolitan Planning Organization (MPO) approved the above resolution at its meeting held November 12, 2009.

WITNESS:

Sharon E. Robeson
Administrative Secretary
Richmond Regional Planning
District Commission

BY:

Daniel N. Lysy
MPO Secretary

MINUTES OF THE RICHMOND
INTER-AGENCY CONSULTATION GROUP (ICG) MEETING

November 19, 2009
Richmond Regional Planning District Commission
Conference Room
9211 Forest Hill Ave., Suite 200 Richmond, VA 23235

MEMBERS ATTENDING:

Victoria Badger, City of Richmond
Todd Eure, County of Henrico
Barbara Smith, County of Chesterfield
Larry Hagin, GRTC
Martin Kotsch, USEPA
Sonya Lewis-Cheatham, VDEQ
Marisel Lopez-Cruz, FHWA
Jim Ponticello, VDOT
Dan Lysy, RRPDC
Nora Amos, City of Ashland
Joe Swartz, VDRPT
Von Tisdale, Ridefinders
Christina Bartscher, County of Charles City
Mike Flagg for Joseph Vidunas, County of Hanover

OTHERS:

Ed Sundra, FHWA
Tammye Davis, FHWA
Mark Riblett, VDOT
Ron Svejkovsky, VDOT
Jeremy Raw, VDOT
Dan Grinnell, VDOT
Jin Lee, RRPDC
Barb Nelson, RRPDC
Lee Yolton RRPDC
Cherika Ruffin, Ridefinders
Andy Boenan, AECOM
Chris Lloyd, AECOM
Richard Lockwood, VHB

 # participated by telephone conference call.

FHWA – Federal Highway Administration
FTA – Federal Transit Administration
CPDC – Crater Planning District Commission
GRTC – Greater Richmond Transit Commission
USEPA – US Environmental Protection Agency
VDEQ – Virginia Dept. of Environmental Quality
VDOT – Virginia Dept. of Transportation
RRPDC –Richmond Regional Planning District Commission
VDRPT- Virginia Department of Rail and Public Transportation

1. Call to Order and Introduction

The meeting convened at approximately 9:00 a.m. Martin Kotsch, USEPA participated by teleconference.

Dan Grinnell, VDOT presented the consultation items for discussion.

2. ICG Membership Update

Members were requested to provide any updates to VDOT. The following representatives were updated:

Christina Bartscher ,Charles City County
Joe Swartz, VDRPT
Marisel Lopez-Cruz, FHWA
Nora Amos, City of Ashland
Von Tisdale, Ridefinders
Mark Briddell, Petersburg
Sharon Williams, Prince George County

3. Consultation Items (for approval)

3(a). Draft Conformity Analysis Schedule

The proposed schedule for the conformity analysis was presented as follows:

Date	Task
Nov, 12, 2009	Richmond MPO approves amended FY 09-12 TIP and 2031 LRP project list for conformity
Nov. 19, 2009	Interagency Consultation Group (ICG) Conformity Kickoff Meeting on amended FY 09-12 TIP and 2031 LRP
January 12, 2010	VDOT completes conformity modeling and prepares draft Conformity Report
January 13 - 19, 2010	Internal review of draft Conformity Determination among VDEQ, VDOT, and PDC
January 21, 2010	Richmond TAC reviews & authorizes Conformity Determination for public review on behalf of MPO
Jan. 25 - Feb. 8, 2010	14 day public review period
Feb. 9 - 10, 2010	VDOT/PDC staff review and address public comments
Feb 11, 2010	Richmond MPO approves Conformity Finding for FHWA review.
Feb 18, 2010	VDOT submits conformity analysis to FHWA; 45-day Federal review period begins
April 5, 2010	Federal Conformity Determination received

Schedule subject to change, e.g. if any changes are made to the project lists

No comments were received on the schedule.

3(b). Conformity Analysis Methodology & Assumptions

A general overview of the methodology and assumptions to be applied in the analysis was provided at the meeting. The traffic forecasts would be developed based on the new project lists, using the approved 2031 socioeconomic data. EPA's latest emissions model, Mobile 6.2, would be used to generate motor vehicle emissions factors. Inputs for reformulated gasoline would use a reid vapor pressure (RVP) of 6.8 for all localities with the exception of Petersburg and Prince George County. A RVP of 8.4 for conventional gasoline would be used in these jurisdictions. Hourly temperatures and relative humidity values would be consistent with the Air Quality Maintenance Plan. Vehicle registration data is based on 2008 data provided by the Virginia Department of Motor Vehicles. 2008 VMT fractions will be used that are based on traffic counts provided by the VDOT Traffic Engineering Division.

Transportation conformity budget tests will be applied for the analysis years of 2011, 2018, 2021 and 2031. These years were selected to meet specific conformity rule requirements: 2011 and 2018 are years for which mobile source emission budgets were established in the recently approved maintenance plan for the Richmond/Tri Cities area, and 2031 is the horizon year of the long range plan (LRP). The year 2021 was selected as an interim year to meet federal transportation conformity rule requirements for the years selected to be no more than ten years apart.

No comments were received on the proposed methodology or assumptions.

3(c). Project Lists for the Conformity Analysis

Project lists for the Amended FY 09-12 TIP were emailed to the ICG a few days before the meeting. Only one project has been revised on the previously approved list.

Comments were received on the following projects and addressed as indicated:

- Meadowville Interchange- After discussion, the ICG agreed that it would be more appropriate to model the project as being open to traffic by the 2018 analysis year rather than 2011, since the project would not likely be open to traffic prior to the start of the 2011 ozone season.

4. Public Input

An opportunity was given for members of the public to provide comments. No comments were received.

5. Approvals & Next Steps

Approvals for following items as presented was requested:

- Conformity Methodology & Assumptions
- Conformity Schedule
- Amended FY 09-12 TIP Project Lists for Conformity Analysis, as discussed and agreed upon.

The ICG voted unanimously to approve the items as presented and discussed.

Attachments:

1 - VDOT Presentation (print copy provided on-table);
2 – Project lists

Richmond Regional Planning District Commission

Metropolitan Planning Organization

MEMORANDUM

To: Richmond Area MPO

From: Barbara Nelson, RRPDC

Date: February 10, 2010

Subj: Documentation of Public Comment for Air Quality Conformity Analysis and TIP Amendment: I-295/Meadowville Road Interchange

---

The Richmond Area MPO opened a 14-day public review period for a proposed amendment to the *FY09-FY12 Transportation Improvement Program (TIP).* The proposed amendment would add a new project to the TIP: the construction of a new interchange at I-295 and Meadowville Road in Chesterfield County.

Notice of invitation for public comment was placed in the *Richmond Times Dispatch*, the *Centro de Richmond* and in the *Richmond Free Press*. MPO Technical Advisory Committee and Citizens Transportation Advisory Committee members, along with interested parties, were notified of the proposed amendment and the open comment period which ran from January 25, 2010 through February 9, 2010. A copy of the notice is attached.

In response to the public notice, one written comment was received; no other comments have been received. The comment, submitted on behalf of the Chesterfield County Chamber of Commerce, supports the construction of the project (copy of comment letter attached).

Staff Response: staff appreciates the comments and support of the Chesterfield County Chamber of Commerce in advancing this important regional project.

BSN/bsn

pc: MPO Interested Parties

PUBLIC COMMENT OPPORTUNITY

MEADOWVILLE RD./I-295 INTERCHANGE

The Richmond Area Metropolitan Planning Organization (MPO) has opened a 14-day public review period for a proposed amendment to its *FY 09 – FY 12 Transportation Improvement Program* (TIP) to include the following project:

I-295: Construct Interchange at Meadowville Road (Rt. 618) in Chesterfield County

A revised conformity analysis that demonstrates the proposed project meets federal air quality standards is required before the MPO can amend the TIP to add this project. This technical review has been completed and is posted on the RRPDC website (www.richmondregional.org); a copy is also available at the RRPDC office for public review.

Those wishing to comment on the report or project may submit written comments for MPO consideration. Please fax, e-mail, or mail written comments to Barbara Nelson at the RRPDC by 4:30 p.m. on Tuesday, February 9, 2010. Hearing impaired: call the Virginia Relay Center at 1-800-828-1120 (or 711).

Richmond Regional Planning District Commission
Attn: Barbara Nelson
9211 Forest Hill Avenue, Suite 200
Richmond, VA 23235
Phone: (804) 323-2033 • Fax: (804) 323-2025
bnelson@richmondregional.org
www.richmondregional.org

WHERE BUSINESS **STARTS...**

CHESTERFIELD
CHAMBER of COMMERCE

February 9, 2010

Robert Crum
Richmond Planning District Commission
9211 Forest Hill Avenue, Suite 200
Richmond, VA 23235

Dear Mr. Crum,

On behalf of the Chesterfield County Chamber of Commerce, please allow this to serve as our letter of support for the construction of an interchange to serve the Meadowville Technology Park and to encourage you to fund this project. In our opinion this interchange will be the key to future development of the park; and further develops an area that is a strategic economic development location for both Chesterfield County and the Commonwealth of Virginia.

We certainly support economic development in Chesterfield and the Meadowville Technology Park serves as one of our strategic gateways for technology driven companies such as Northrop Grumman. Please consider:

- Chesterfield has secured approval from the federal level as well as partial funding for this project.
- The Meadowville Technology Park is one of only five economic development sites in Virginia and this interchange will be necessary to properly market the park. This interchange and the resulting impact, better positions Virginia to be successful with future projects.
- This project is "ready to go" and Chesterfield County is prepared to financially partner with Virginia to insure its completion.
- When full, the Meadowville Technology Park will provide significant employment and capital investment that will benefit both Chesterfield and Virginia.

Thank you for your consideration of this priority project. Your support would be most appreciated.

Sincerely,

Frank Beale
Chairman

9330 Iron Bridge Road, Suite B * Chesterfield, VA 23832
Phone 804.748.6364 * Fax 804.425.5669
www.chesterfieldchamber.com

Richmond Regional Planning District Commission

Metropolitan Planning Organization

MPO AGENDA 2/11/10; ITEM III.E.

I-295/MEADOWVILLE ROAD INTERCHANGE AIR QUALITY CONFORMITY ANALYSIS AND TIP AMENDMENT REQUEST

Richmond Area Metropolitan Planning Organization

On motion of Daniel K. Gecker, seconded by Marleen A. Durfee, the Richmond Area Metropolitan Planning Organization unanimously approved the following resolution:

RESOLVED, that the Richmond Area Metropolitan Planning Organization (MPO) finds the proposed amendment to the FY 2009 – FY 2012 Transportation Improvement Program (TIP) to add the I-295/Meadowville Road Interchange project (UPC #70550) to be in conformance with all applicable air quality conformity analysis requirements and hereby amends the FY 09 – FY 12 TIP to include the I-295/Meadowville Road Interchange project as presented.

****

This is to certify that the Richmond Area Metropolitan Planning Organization (MPO) approved the above resolution at its meeting held February 11, 2010.

WITNESS:

Sharon E. Robeson
Administrative Secretary
Richmond Regional Planning
District Commission

BY:

Daniel N. Lysy
MPO Secretary

9211 Forest Hill Avenue, Suite 200 • Richmond, Virginia 23235 • Telephone: (804) 323-2033 • Fax: (804) 323-2025
www.richmondregional.org

Appendix E:
Amended FY 09-12 TIP and 2031 LRTP Project List

This appendix includes final project lists (as amended following the November 19, 2009 ICG meeting) included in the conformity analysis for the Richmond Amended FY09-12 TIP and 2031 LRTP.

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Ashland	17607	SIDEWALK AND BIKE TRAIL	TO PROVIDE 0.7 MILE SIDEWALK AND BICYCLE TRAIL	IN THE TOWN OF ASHLAND	Construct sidewalk				x	x	No
Richmond	Ashland	8651	RTE 1 - WIDEN TO 6 LANES	0.008 MILE NORTH OF ASHCAKE ROAD	0.015 MILE SOUTH OF PLEASANT ROAD	Major Widening	4	6	2018	x	x	Yes
Richmond	Ashland	8652	Route 1 - Roadway Improvements	0.027 MILE NORTH OF PLEASANT STREET	0.086 MILE SOUTH OF ENGLAND STREET	Minor Widening/Improvements				x	x	No
Richmond	Ashland	13461	RTE 1 - INSTALL SIDEWALKS	VARIOUS LOCATIONS ON ROUTE 1 AND ROUTE 54	IN THE TOWN OF ASHLAND	Install sidewalk				x	x	No
Richmond	Ashland	13463	RTE 1 - RIGHT TURN LANES	0.027 MI. SOUTH OF INTER. WITH ROUTE 54	0.076 MI. NORTH OF INTER. WITH ROUTE 54	Safety/Traffic Opers/TSM				x	x	No
Richmond	Ashland	14651	HILL CARTER PARKWAY - INTERSECTION IMPROVEMENTS	AT ENGLAND STREET		Insters Improvement				x	x	No
Richmond	Charles City	15969	WETLAND MITIGATION BANK			Environmental				x	x	No
Richmond	Charles City	17763	RTE 5 - CONSTRUCT TURN LANE WB - PE & RW ONLY	0.224 MILES SOUTH OF ROUTE 608	0.155 MILES NORTH OF ROUTE 608	Safety/Traffic Opers/TSM				x	x	No
Richmond	Charles City	17766	RTE 106 - CONSTRUCT TURN LANES NORTH & SOUTHBOUND	0.18 MILE SOUTH ROUTE 607	0.20 MILE NORTH ROUTE 607	Safety/Traffic Opers/TSM				x	x	No
Richmond	Charles City	71910	RTE 5 - VIRGINIA CAPITAL TRAIL-CHARLES CITY COURTHOUSE PHASE	Rte 658 (Kimages Rd)	0.13 Mile West of Rte 643 (Crossover Rd)	Enhancement				x	x	No
Richmond	Charles City	81561	RTE 5- VIRGINIA CAPITAL TRAIL-CHARLES CITY INTERPRETIVE SITE	CHARLES CITY COUNTY-2 Interpertive sites		Enhancement				x	x	No
Richmond	Charles City	86279	Virginia Capital Trail Project - New Market Heights Phase	Rte 658 - Kimages Rd	0.2 Miles East Route 295	Enhancement				x	x	No
Richmond	Charles City	-4606	FUTURE BR FUNDS			Funds accrual					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Charles City	8499	RTE 607 - RECONSTRUCT EXISTING ROADWAY	ROUTE 5	ROUTE 106	Reconstruction					x	No
Richmond	Charles City	16835	RTE 618 - BRIDGE REPLACEMENT	BRIDGE REPLACEMENT OVER GUNNS RUN	(BETWEEN ROUTE 5 AND ROUTE 649)	Bridge Replacement					x	No
Richmond	Charles City	51685	RTE 600 - RECONSTRUCTION	HENRICO COUNTY LINE	ROUTE 603	Reconstruction					x	No
Richmond	Charles City	59166	RTE 607 - WAYSIDE RD - WIDEN & STRENGTHEN RD SURFACE	RTE 639	RTE 642	Widen & Strengthen					x	No
Richmond	Charles City	59167	RTE 618 - ADKINS RD - IMPRV APPROACH CHICKAHOMINEY RVR BR	1.40 MILES NORTH RTE 629	1.90 MILES NORTH RTE 629	Improve Approach				x	x	No
Richmond	Charles City	75965	RTE 628 - COURTHOUSE GREEN WAY	ROUTE 644	END STATE MAINTENANCE	Restoration & Rehab					x	No
Richmond	Charles City	85337	Rte 603	Rte 603	Rte 602	Reconstruction				x	x	No
Richmond	Charles City	87911	ROUTE 648 - SURFACE TREAT UNPAVED ROAD	Route 607	Dead End	Surface Treatment					x	No
Richmond	Charles City	87955	Route 649 - Surface Treat Unpaved Road	Route 618	Dead End	Surface Treatment					x	No
Richmond	Charles City		Barnetts Rd (VA 609)	Lott Cary Rd (VA 602)	Old Union Rd (VA 603)	Reconstruction					x	No
Richmond	Charles City		Wayside Rd (VA 607)	Barnetts Rd (VA 609)	Stagg Run Rd (VA 642)	Reconstruction					x	No
Richmond	Charles City		Virginia Capital Trail - Phase 1 (Widen VA 5 3 ft each side)	Chickahominy River	Long Bridge Rd	Enhancement & Widening Shldrs					x	No
Richmond	Charles City		Rte 602	Adkins Store	Rte 155	Reconstruction					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Charles City		Rte 155/Rte 602			Intersection Improvements					x	No
Richmond	Charles City		Adkins Road (VA 618)	New Kent County Line	Route 602 - Adkins Store	Widen/Recon/Shldr Imprv					x	No
Richmond	Charles City		Charles City Rd (VA 600)	HENRICO COUNTY LINE	Route 603	Reconstruction					x	No
Richmond	Chesterfield	16086	LOWER FALLING CREEK GREENWAY	CONSTRUCT A LINEAR PARK WITH MULTI-PURPOSE TRAILS AND	HISTORICAL INTERPRETIVE AREAS.	Enhancement				x	x	No
Richmond	Chesterfield	16616	RTE 10 - LANDSCAPING - PHASE I	CONSTRUCT BRICK SIDEWALK AND LANDSCAPE TO CONNECT	HISTORIC MAGNOLIA GRANGE HOUSE WITH HISTORIC COURTHOUSE	Landscaping				x	x	No
Richmond	Chesterfield	17610	SPIREA ROAD SIDEWALK	ROUTE 2776 GORDON SCHOOL ROAD	ROUTE 3103 MOUNTAIN LAUREL DRIVE	Sidewalk				x	x	No
Richmond	Chesterfield	18794	CHESTER VILLAGE STREETSCAPE BEAUTIFICATION	PLACEMENT OF VIRGINIA POWER 'ACORN' STYLE	STREET LIGHTS AT 150 FOOT INTERVALS	Enhancement				x	x	No
Richmond	Chesterfield	50112	LANDSCAPING FROM TURNER ROAD TO COURTHOUSE ROAD	ROUTE 360		Landscaping					x	No
Richmond	Chesterfield	75261	CHESTERFIELD COUNTY - THE COMMONS AT WINCHESTER GREENS	SIDEWALKS & STREETSCAPING IMPROVEMENTS ALONG JEFFERSON	DAVIS HWY FRONTING WINCHESTER GREEN COMMUNITY DEVELOPMENT	Sidewalk & Streetscaping				x	x	No
Richmond	Chesterfield	13802	RTE 95 - RICHMOND-PETERSBURG TRNPK - BRIDGE REHABILITATION	N & SBL OVER A ROAD AND FALLING CREEK		Bridge Rehabilitaion					x	No
Richmond	Chesterfield	-4465	Future BR funds			Misc					x	No
Richmond	Chesterfield	86561	Construct Sidewalk	Meadowdale Library at Rte. 770 & Rte. 637	Meadowbrook High School at Rte. 638 & Rte. 793	Sidewalk				x	x	No
Richmond	Chesterfield	86682	HSIP Proactive Safety Projects Chesterfield County			Misc Safety				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield	86686	Extend Sidewalk along Coalfield Road	Route 4671 (Sycamore Village Drive)	Shopping Center entrance approx. 0.1 mi. s Rte. 60	Sidewalk				x	x	No
Richmond	Chesterfield	8445	RTE 150 (CHIPPENHAM PKWY) - WIDEN TO 6 LANES	0.90 MILE SOUTH EBL ROUTE 360 (HULL STREET)	ROUTE 76 (POWHITE PARKWAY)	Major Widening	4	6	2011		x	Yes
Richmond	Chesterfield	8446	RTE 150 (CHIPPENHAM PKWY) - WIDEN TO 6 LANES	ROUTE 1 (JEFFERSON DAVIS HIGHWAY)	0.9 MILE EAST ROUTE 360 (HULL STREET)	Major Widening	4	6	2011		x	Yes
Richmond	Chesterfield	13548	RTE 288 - NEW LOCATION- PE & R/W ONLY IN SYP	1.759 KILOMETERS SOUTH ROUTE 76	2.694 KILOMETERS NORTH ROUTE 76(CHESTERFIELD/POWHATAN CO.LN)	New Facility	0	4	2011	x	x	Yes
Richmond	Chesterfield	15988	RTE 1 - BR REPLACEMENT & MOD LTL @ DSCR	Int. Route 145 (CHESTER ROAD)	0.36 Miles North Route 145 (CHESTER ROAD)	Bridge Rpl & Mod LTL			Exempt	x	x	N/A
Richmond	Chesterfield	18460	RTE 288 - 4 LANES ON NEW LOCATION	2.907 KILOMETERS NORTH ROUTE 76	2.694 KILOMETERS NORTH OF WBL ROUTE 60	relocation??	0	4	2011		x	Yes
Richmond	Chesterfield	50017	RTE 10 - EXTEND TURN LANE & SIGNAL MODIFICATION	AT LEWIS ROAD		Extend turn lanes & sig modificaiton					x	No
Richmond	Chesterfield	50026	RTE 145 - CONSTRUCT TURN LANES AND SIGNAL	0.128 MILE SOUTH ROUTE 1495 (KINGSDALE ROAD)	0.202 MILE NORTH ROUTE 1495 (KINGSDALE ROAD)	Construct turn lanes & inst signal					x	No
Richmond	Chesterfield	50029	RTE 360 - 6 LANE	0.211 MILE WEST ROUTE 621 (WINTERPOCK ROAD)	0.227 MILE WEST SWIFT CREEK	Widen to 6 lanes??	4	8	2018	x	x	Yes
Richmond	Chesterfield	51242	RTE 145 - INSTALL LEFT TURN LANE	0.093 MILE WEST ROUTE 632 (CHALKLEY ROAD)	0.162 MILE EAST ROUTE 632 (CHALKLEY ROAD)	install LTL					x	No
Richmond	Chesterfield	62148	RTE 1 - CONSTRUCT RIGHT TURN LANE SOUTHBOUND	AT ROUTE 1135 (SOUTH OF WALTHALL ROAD)		Construct RTL					x	No
Richmond	Chesterfield	68725	RTE 360 (Hull St. Rd.) - WIDEN WEST BOUND LANES	0.211 MILE WEST ROUTE 621 (WINTERPOCK ROAD)	0.042 MILE WEST SWIFT CREEK	Widening			Complete	x	x	Yes
Richmond	Chesterfield	69231	RTE 76 -EVALUATION OF PPTA PROPOSALS - WEST EXT POWHITE PKWY	OLD HUNDRED ROAD (ROUTE 652)	ROUTE 360 NEAR SKINQUARTER	Study					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield	77071	INSTALL DOUBLE LTLS ON RTE. 10 WB TO RTE. 655	0.13 MILE WEST ROUTE 903	ROUTE 655	install dual LTLs			2018	x	x	Yes
Richmond	Chesterfield	77139	RTE 360 - INSTALL OVERHEAD ROADWAY LIGHTING	ROUTE 288 RAMPS	WEST OF COMMONWEALTH PARKWAY	Install lighting				x	x	No
Richmond	Chesterfield	77142	RTE 1 - CONSTRUCT N & SB LTLS FOR 200 FT & 200 FT OF TAPER	0.2 Miles N. of Rte. 1 and Rte. 859 Inter.	0.2 Miles S. of Rte. 1 and Rte. 859 Inter.	Constuct turn lanes				x	x	No
Richmond	Chesterfield	80330	ELECTRONIC TOLL CUSTOMER SERV. & VIOLATION ENFORCEMENT SYS.	AT THE POWHITE PARKWAY EXTENSION		ITS				x	x	No
Richmond	Chesterfield	80529	RTE 10 - WIDEN TO SIX LANES	Ware Bottom Spring Road	MEADOWVILLE ROAD	Widening PE Only		6	2018	x	x	Yes
Richmond	Chesterfield	86562	Add Sidewalk, Shoulder, Replace Guardrail End Treatments	Rte. 746, Ruffin Mill Road	Approximately 0.1 mi. south of Rte. 746, Ruffin Mill Rd.	Construct Sidewalk, shldr, grd rail				x	x	No
Richmond	Chesterfield	-2131	Expansion of Bus Service	Along Hull St Corridor and Downtown Richmond		Bus Service Expansion			2011	x	x	Yes
Richmond	Chesterfield	54810	RTE 656 - INSTALL RUBBERIZED CROSSING SURFACE	AT CSX RAILROAD - DOT # 623-575T	(0.39 MILE EAST ROUTE 1)	Install crossing				x	x	No
Richmond	Chesterfield	54812	RTE 617 - INSTALL RUBBERIZED CROSSING SURFACE	AT CSX RAILROAD - DOT # 623-585Y	(0.40 MILE NORTH ROUTE 618)	Install crossing				x	x	No
Richmond	Chesterfield	57207	RTE 671 - INSTALL FLASHING LIGHTS & GATES	AT NORFOLK SOUTHERN RAILROAD - DOT # 715-238H	(0.01 MILE SOUTH ROUTE 684)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	57212	RTE 606 - INSTALL FLASHING LIGHTS & GATES	AT NORFOLK SOUTHERN RAILROAD - DOT # NS 715-236U	(0.11 MILE NORTH ROUTE 671 SOUTH)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	57220	RTE 613 - INSTALL RUBBER CROSSING SURFACE	AT CSX RAILROAD - DOT # CSX 623-577G	(0.01 MILE WEST ROUTE 614)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	65141	RTE 617 - INSTALL RUBBER CROSSING SURFACE	AT CSX RAILROAD - DOT # 623-589B	(0.31 MILE EAST ROUTE 620)	Safety/Traffic Opers/TSM				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield	65142	RTE 617 - INSTALL RUBBER CROSSING SURFACE	AT CSX RAILROAD - DOT # 623-587M	(0.39 MILE EAST ROUTE 618)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	86548	RT 714 - Install Lay-In Concrete Crossing Surface	.07 MI N of RT 1002		Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	86552	RT 718 - Install Lay-In Concrete Crossing Surface	.10 MI W of RT 1709		Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	86553	RT 620 - Install Lay-In Concrete Crossing Surface	.34 MI E of RT 1		Safety/Traffic Opers/TSM				x	x	No
Richmond	Chesterfield	86557	RT 1144 - Install Lay-In Concrete Crossing Surface	.40 MI E of RT 1		Safety/Traffic Opers/TSM					x	No
Richmond	Chesterfield	1326	RTE 683 - (FOREST HILL AVE) - PROV SIDEWALKS & IMP DRAIN	0.210 MILE WEST ROUTE 678 (BUFORD ROAD)	0.178 MILE EAST ROUTE 678 (BUFORD ROAD)	Const Sidewalk, imprv drainage					x	No
Richmond	Chesterfield	1489	RTE 642 - RECONSTRUCTION	0.145 KILOMETER NORTH ROUTE 611 (KINGSLAND RD)	ROUTE 641 (BEULAH ROAD)	Reconstruction					x	No
Richmond	Chesterfield	1652	RTE 604-RECONSTRUCTION & WIDEND TO 4 LANES	0.030 KILOMETER SOUTH ROUTE 651 (BELMONT ROAD)	1.124 KILOMETER EAST ROUTE 360 (HULL STREET)	Recon/Widen to 4 lanes		4	Complete		x	Yes
Richmond	Chesterfield	8503	BRANDERS BRIDGE RD.	0.25 MILES S OF INTERSECTION RTE 631	0.07 MILES N OF INTERSECTION RTE 631	Recon/Intersection relocation				x	x	No
Richmond	Chesterfield	12814	RTE 631 - RECONSTRUCT & SURFACE TREAT NON-HARDSURFACED ROAD	0.50 MILE NORTH ROUTE 669	0.704 MILE SOUTH ROUTE 626	Recon/Resurface					x	No
Richmond	Chesterfield	12818	RTE 653 - RECONSTRUCT & WIDEN TO 4 LANES	1.550 KILOMETER SOUTH ROUTE 360 (HULL STREET)	0.233 KILOMETER SOUTH ROUTE 360 (HULL STREET)	Recon/Widen to 4 lanes		4	Complete		x	Yes
Richmond	Chesterfield	14966	RTE 711 - WIDEN TO FOUR LANES	0.023 KILOMETER EAST ROUTE 832	0.280 KILOMETER WEST ROUTE 902	widen to 4 lanes??	2	4	2011		x	Yes
Richmond	Chesterfield	16338	RTE 647 - EXTEND TURN LANES	0.285 KILOMETER WEST ROUTE 650	0.209 KILOMETER EAST ROUTE 650	Extend turn lanes					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield	16409	RTE 636 - WIDENING & RECONSTRUCTION	0.108 MILE SOUTH ROUTE 5186 (EAST FAIR DRIVE)	0.703 MILE SOUTH ROUTE 655 (BEACH ROAD)	Recon & Minor Widening				x	x	No
Richmond	Chesterfield	17147	RTE 647 - PROVIDE TURN LANES	0.323 KILOMETER WEST ROUTE 649 (NEWBY'S BRIDGE ROAD)	0.297 KILOMETER EAST ROUTE 649 (NEWBY'S BRIDGE ROAD)	Construct turn lanes					x	No
Richmond	Chesterfield	17148	RTE 647 - PROVIDE TURN LANES	0.143 KILOMETER WEST ROUTE 1262 (HOLRIDGE ST)	0.267 KILOMETER EAST ROUTE 1262 (HOLRIDGE ST)	Construct turn lanes					x	No
Richmond	Chesterfield	17177	RTE 662 - RECONSTRUCTION AND WIDEN	0.23 Mi South fo McEnally Rd	0.11 Mi North of McEnally Rd	Recon/Widening					x	No
Richmond	Chesterfield	17178	RTE 641 - PROVIDE TURN LANES	0.252 KILOMETER WEST ROUTE 1607	0.241 KILOMETER EAST ROUTE 1607	Construct turn lanes					x	No
Richmond	Chesterfield	17179	NEWBYS BRIDGE ROAD	FALLING CREEK	ROUTE 647	Reconstruction				x	x	No
Richmond	Chesterfield	17180	RTE 649 - RECONSTRUCTION	ROUTE 743	FALLING CREEK	Reconstruction				x	x	No
Richmond	Chesterfield	17181	RTE 654 - RECONSTRUCTION	1.029 MI SOUTH CONN RTE 651	0.107 MI NORTH CONN RTE 651	Reconstruction				x	x	No
Richmond	Chesterfield	17182	RTE 626 - PROVIDE TURN LANES	0.170 KILOMETER WEST ROUTE 627 WEST	0.240 KILOMETER EAST ROUTE 627 WEST	Construct turn lanes					x	No
Richmond	Chesterfield	17184	RTE 651 (NEWBYS BRIDGE ROAD) - IMPROVE HORIZONTAL CURVE	ROUTE 653 (QUALLA ROAD)	0.620 KILOMETERS EAST ROUTE 653 (QUALLA ROAD)	Improve Curve					x	No
Richmond	Chesterfield	17820	RTE 668 (WOOLRIDGE RD EXT) - 4 LANES ON NEW LOCATION	ROUTE 754 (COALFIELD RD)	ROUTE 60 (MIDLOTHIAN TURNPIKE)	New Facility		4	Complete		x	Yes
Richmond	Chesterfield	19060	RTE 668 - WIDEN PAVEMENT & SHOULDER; REALIGN CURVE	ROUTE 4329	ROUTE 3699	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt	x	x	N/A
Richmond	Chesterfield	52650	RTE 683 - INSTALL LIGHTING	AT ROUTE 678		Safety/Traffic Opers/TSM					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield	52979	RTE 718 - REALIGN TO IMPROVE SUBSTANDARD GEOMETRICS	0.013 MILE NORTH ROUTE 2652 (IRON MILL ROAD)	0.236 MILE NORTH ROUTE 2652	Realignment					x	No
Richmond	Chesterfield	54446	RTE 677 - IMPR HORIZ/VERT ALIGN; INST SHLDRS; INSTALL LTL	0.019 MILE SOUTHWEST ROUTE 1232 (UNISON DRIVE)	0.088 MILE NORTHEAST ROUTE 1232 (UNISON DRIVE)	Construct LTL, shldr, imprv align					x	No
Richmond	Chesterfield	58641	RTE 653 - IMPROVE HORIZONTAL ALIGNMT;WIDEN PAVEMENT & SHLDRS	0.08 MI. S. INT. RTE 745 (BELCHERWOOD RD.)	0.11 MILE N. INT. ROUTE 745 (BELCHERWOOD RD.)	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt	x	x	N/A
Richmond	Chesterfield	58642	RTE 649 - IMPROVE HORIZONTAL ALIGNMT;WIDEN PAVEMENT & SHLDRS	0.05 MILE SOUTH INT. ROUTE 2767 (DORTONWAY DRIVE)	0.07 MILE NORTH INT. ROUTE 2767 (DORTONWAY DRIVE)	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt		x	N/A
Richmond	Chesterfield	58643	RTE 637-WIDEN PAVEMENT & SHLDRS; IMPROVE ALIGN; REMOVE TREES	ROUTE 2062 (JAYMONT DRIVE)	ROUTE 4242 (OLD CANNON ROAD)	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt		x	N/A
Richmond	Chesterfield	58644	RTE 604 - WIDEN PAVEMENT & IMPROVE ALIGNMENT (OC PROGRAM)	0.10 MILE NORTH ROUTE 811 (YATESDALE)	0.35 MILE NORTH ROUTE 811	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt	x	x	N/A
Richmond	Chesterfield	60639	RTE 654 - WIDEN PAVEMENT & SHOULDERS	ROUTE 662 (SPRING RUN ROAD)	ROUTE 4700 (DEER RUN ROAD)	Widen pvmnt & shldrs			Exempt		x	N/A
Richmond	Chesterfield	60640	RTE 654 - WIDEN PAVEMENT & SHOULDERS	0.218 MILE SOUTH ROUTE 5013 (BATTLECREEK DRIVE)	0.071 MILE SOUTH ROUTE 5013 (BATTLECREEK DRIVE)	Widen pvmnt & shldrs			Exempt		x	N/A
Richmond	Chesterfield	60641	RTE 654 - WIDEN PAVEMENT & SHOULDERS & IMPROVE ALIGNMENT	0.200 MILE SOUTH ROUTE 4728 (HOLLY VIEW PARKWAY)	0.012 MILE SOUTH ROUTE 4728 (HOLLY VIEW PARKWAY)	Widen pvmnt & shldrs			Exempt		x	N/A
Richmond	Chesterfield	64207	RTE 632 - WIDEN PAVEMENT & IMPROVE ALIGNMENT (OC PROGRAM)	0.02 MILE NORTH INT. ROUTE 5351 (GRAVEL NECK DRIVE)	0.14 MILE NORTH INT. ROUTE 5351 (GRAVEL NECK DRIVE)	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt		x	N/A
Richmond	Chesterfield	65070	RTE 653 - IMPROVE SIGHT DISTANCE	0.30 MILE SOUTH ROUTE 651	0.30 MILE NORTH ROUTE 651	Safety/Traffic Opers/TSM					x	No
Richmond	Chesterfield	65499	RTE 625 - BRANDERS BRIDGE ROAD - STRAIGHTEN CURVES	ROUTE 631, BRADLEY BRIDGE ROAD	ROUTE 619, SOUTH HAPPY HILL ROAD	Safety/Traffic Opers/TSM					x	No
Richmond	Chesterfield	67967	At Route 360	AT ROUTE 360	0.18 Mile N. Route 360	Safety/Traffic Opers/TSM			2018	x	x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield	70092	RTE 647 - REAMS RD; LTL AT INTERSECTIONS; RSTP/CMAQ; CO ADM	0.15 MILE WEST INTERSECTION RTE 2588 (ROSEGILL)	0.15 MILE EAST INTERSECTION RTE 2588 (ROSEGILL)	Construct LTL				x	x	No
Richmond	Chesterfield	71472	RTE 641 - WIDEN PAVEMENT/SHOULDER AND REALIGN CURVE	0.11 M. EAST RTE. 4030 (MASON WOOD DR.)	INTERS. OF RTE. 4020 (MASON CREST DR.)	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt		x	N/A
Richmond	Chesterfield	77047	RTE 849 - INSTALL TRAFFIC SIGNAL (HES PROJECT)	0.1 MILE WEST OF ROUTE 819 (MALL DRIVE)	0.1 MILE EAST OF ROUTE 819 (MALL DRIVE)	Install signal				x	x	No
Richmond	Chesterfield	77048	RTE 638 COGBILL RD.- RESURFACE WITH SKID RES. MAT. (HES)	BRIDGE OVER FALLING CREEK		Resurface bridge					x	No
Richmond	Chesterfield	77240	RTE 647 - CONSTRUCT 300' OF SIDEWALK (BIKE & PED SAFETY)	0.22 MILE WEST OF ROUTE 650	0.16 MILE WEST OF ROUTE 650	Construct Sidewalk				x	x	No
Richmond	Chesterfield		Bailey Bridge Rd (VA 654)	Bailey Br (0.3 mi west of Rt. 288)	Spring Run Rd (VA 662)	Reconstruction					x	No
Richmond	Chesterfield		Branders Bridge Rd (VA 625)	Iron Bridge Rd (VA 10)	Bradley Rd	Reconstruction					x	No
Richmond	Chesterfield		Genito Road	Fox Chase Lane	Watercove Road	Street Lights					x	No
Richmond	Chesterfield		Hull Street Rd (US 360)	Otterdale Rd (VA 667)	Winterpock Rd (VA 621)	Widen 4 to 8	4	8	2031		x	Yes
Richmond	Chesterfield		Hull Street Rd (US 360)	VA 288	Genito Rd (VA 604)	Widen to 6 Lanes	4	6	2031		x	Yes
Richmond	Chesterfield		I-295	Interchange	at Meadowville Rd. (VA 618)	New Facility			2018	x	x	Yes
Richmond	Chesterfield		Midlothian Tpke. (US 60)	Old Buckingham Rd (VA 677)	Courthouse Rd (VA 653)	Widen 4 to 6	4	6	2018		x	Yes
Richmond	Chesterfield		Newbys Bridge Rd (VA 649)	Hagood Rd	Falling Creek	Widen Pvmt, Shldrs, Horiz Algnmnt			Exempt		x	N/A

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield		Otterdale Road	Genito Road	Woolridge Road	Reconstruction					x	No
Richmond	Chesterfield		Providence Rd (VA 678)	Courthouse Rd (VA 653)	Hicks Rd (VA 647)	Reconstruction					x	No
Richmond	Chesterfield		Qualla Rd (VA 653)	Beach Rd (VA 655)	Trailwood Dr (SR 1260)	Reconstruction					x	No
Richmond	Chesterfield		Qualla Rd (VA 653)	Trailwood Dr (SR 1260)	Spring Run (SR 654)	Reconstruction					x	No
Richmond	Chesterfield		Qualla Rd (VA 653)	Spring Run (SR 654)	Claypoint (SR 651)	Reconstruction					x	No
Richmond	Chesterfield		Reams Road	Courthouse Road	Adkins Road	Reconstruction					x	No
Richmond	Chesterfield		Route 1	at Old Bermuda Hundred Road		Improve Intersection					x	No
Richmond	Chesterfield		Route 1	at Falling Creek		Bridge Restoration					x	No
Richmond	Chesterfield		Route 10	Route 288	Greenyard Road	Widen to 6 Lanes		6	2031		x	Yes
Richmond	Chesterfield		Route 288	at Chester Road		Add Northwest Loop			2031		x	Yes
Richmond	Chesterfield		Walton Park Road	Between N Woolridge Road	Queensgate Road	Phase II Sidewalk					x	No
Richmond	Chesterfield		Otterdale Road	Genito Rd (VA 604)	Westerleigh	??		4	2031		x	Yes
Richmond	Chesterfield		Route 10	at Bradley Bridge Rd		Right turn lane					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield		Nash Rd Curve	Woodland Pond Pkwy	First Branch Road	Improve Curve					x	No
Richmond	Chesterfield		Winterfield Rd	at RR Crossing		Resurface crossing					x	No
Richmond	Chesterfield		Rockaway Rd	at RR Crossing		Resurface crossing					x	No
Richmond	Chesterfield		Spring Run Rd	Mcennally Rd	Spring Run Creek	Realign curve					x	No
Richmond	Chesterfield		Bailey Bridge Rd (VA 654)	Claypoint Rd	Manchester HS	Improve 2-lane	2	2			x	No
Richmond	Chesterfield		Branders Bridge Rd	Bradley Bridge Rd	S. Happy Hill Rd	Improve 2-lane	2	2			x	No
Richmond	Chesterfield		Newbys Bridge Rd (VA 649)	FALLING CREEK	Hagood Rd	Improve 2-lane	2	2			x	No
Richmond	Chesterfield		Beulah Rd	Salem Church Rd	Hopkins Rd	Shoulders					x	No
Richmond	Chesterfield		Branders Bridge	at Stoney Glen South		Improve Curve					x	No
Richmond	Chesterfield		Forest Drive			Improvement					x	No
Richmond	Chesterfield		Centralia Road	Iron Bridge Rd (VA 10)	Chester Rd	Intersection					x	No
Richmond	Chesterfield		Chalkey Road	Deep Forest Rd	Red Leaf Rd	Improve Curve					x	No
Richmond	Chesterfield		Chalkey Road	Rte 10	Beckinham Drive	Add shoulders					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield		Chesterwood Dr - west side of road	Meadowdale Library at Rte. 770 & Rte. 637	Cogbill Rd	Sidewalk					x	No
Richmond	Chesterfield		Genito Road	Otterdale Rd (VA 667)		Shldr & Sght Dist Imprv, PE/RW Only					x	No
Richmond	Chesterfield		Happy Hill Rd	Goodman Rd	Longmeadow Blvd	Shoulders					x	No
Richmond	Chesterfield		McEnnally Rd	Spring Run Rd	Winterpock Rd (VA 621)	Widen & add shldrs					x	No
Richmond	Chesterfield		Midlothian District, various locations			Sidewalk					x	No
Richmond	Chesterfield		Newby's Bridge	Jacobs Rd		Improve Curve					x	No
Richmond	Chesterfield		Otterdale Bridge			Bridge rplcmnt, PE only					x	No
Richmond	Chesterfield		Otterdale Road	Rte 360	Woolridge Road	Widening		4	2011		x	Yes
Richmond	Chesterfield		Powhite Pkwy/Charter Colony Pkwy			Interchange Improvement			2018		x	Yes
Richmond	Chesterfield		Robious Rd	James River Rd	Riverdowns South Drive	Widening		4	2011		x	Yes
Richmond	Chesterfield		Rte 10	I-95	Ware Bottom Spring Rd	Widening to 6/8 lanes		6/8	2011		x	Yes
Richmond	Chesterfield		Rte 10	Frith Lane	Greenyard Road & Beach Road	Widening & add turn lanes		6	2011		x	Yes
Richmond	Chesterfield		Rte 288/Rte 60			Interchng Improv; add. access pts			2011		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield		Woolridge Rd	Otterdale Rd (VA 667)	Swift Creek Resevoir	Widening		4	2011		x	Yes
Richmond	Chesterfield		Woolridge Rd	Swift Creek Resevoir	Genito Rd (VA 604)	Widening		4	2011		x	Yes
Richmond	Chesterfield		VA 150 / VA 76			New Facility			2021		x	Yes
Richmond	Chesterfield		Huguenot Rd (VA 147)	Midlothian Tpke	Alverser Dr	Widening		6	2018		x	Yes
Richmond	Chesterfield		Meadowville Rd (VA 618)	I-295	N/S Access Rd	Widening		4	2018		x	Yes
Richmond	Chesterfield		N/S Arterial Access Rd	Meadowville	Bermuda Hundred	New Facility	0	4	2018		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	Genito Rd (VA 604)	Woolridge Road	New Facility	0	4	2021		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	Hull St Rd	Genito Rd (VA 604)	New Facility	0	4	2031		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	at Hull St Rd		New Facility (Interchange)			2031		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	at N/S Arterial		New Facility (Interchange)			2031		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	at Genito Rd		New Facility (Interchange)			2031		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	at Woolridge Rd		New Facility (Interchange)			2031		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	at Coalfield Rd		New Facility (Interchange)			2031		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	OLD HUNDRED ROAD (ROUTE 652)	Charter Colony Pkwy	Widening		4	2021		x	Yes
Richmond	Chesterfield		Powhite Pkwy Ext (VA 76)	Woolridge Rd (ext)	Old Hundred Rd	New Facility	0	4	2018		x	Yes
Richmond	Chesterfield		VA 288	Midlothian Tpke	C/D Access System	New Facility	0	4	2018		x	Yes
Richmond	Chesterfield		E/W Freeway	Powhite Pkwy	I-95	PE and ROW only					x	No
Richmond	Chesterfield		N/S Freeway	E/W Freeway	I-85	PE and ROW only					x	No
Richmond	Chesterfield		Powhite Pkwy	Chippenham Pkwy	Midlothian Tpk	Widen to 6 lanes		6	2031		x	Yes
Richmond	Goochland	56422	LIGHTING, SIDEWALK, LANDSCAPING & VARIOUS ENHANCEMENTS	ALONG STATE ROUTES IN HISTORIC VILLAGE COURTHOUSE SQUARE		Enhancement				x	x	No
Richmond	Goochland	17756	RTE 64/288 CONSTRUCT 4 LANES ON NEW ALIGN & INTERCHANGES	0.330 KILOMETER SOUTH OF ROUTE 250	ROUTE 64	New Facility			Complete		x	No
Richmond	Goochland	70542	RTE 64 - WIDEN FROM 4 TO 6 LANES	0.99 MILES WEST ROUTE 623	0.38 MILES WEST ROUTE 295 (SHORT PUMP)	Major Widening			2018	x	x	Yes
Richmond	Goochland	12921	RTE 250-WIDEN TO 6 LANES & INTERSECTION REALIGNMENT	ROUTE 623	0.810 KILOMETER WEST GOOCHLAND/HENRICO CO. LINE	Widen & Intersection imprv		6	Complete		x	No
Richmond	Goochland	13547	RTE 288 - 2 LANES ON NEW LOCATION (PE & RW ONLY)	NORTH OF THE JAMES RIVER	ROUTE 64	New location, PE & RW only	0	2		x	x	No
Richmond	Goochland	17767	RTE 250 - INTERSECTION IMPROVEMENT	ROUTE 617		Intersection improvement					x	No
Richmond	Goochland	18424	RTE 6 - CONSTRUCT LEFT TURN LANES & INSTALL SIGNAL	AT EAST INTERSECTION ROUTE 522		Construct LTL & Insl signal					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Goochland	52448	RTE 250 - 4 LANE	0.227 MILE WEST INTERSECTION ROUTE 621	0.131 MILE EAST INTERSECTION ROUTE 623 WEST	Major Widening	2	4		x	x	No
Richmond	Goochland	8525	MANAKIN ROAD	0.08 MILE WEST OF ROUTE 612	0.19 MILE EAST OF ROUTE 676	Recon & Intersect. imprvs				x	x	No
Richmond	Goochland	8526	RTE 670 - INTERSECTION IMPROVEMENTS	ROUTE 250	ROUTE 6	Intersection imprvs					x	No
Richmond	Goochland	12483	RTE 622 - RECONSTRUCT & SURFACE TREAT NON-HARDSURFACED ROAD	ROUTE 623	HANOVER COUNTY LINE	Recon & surface treatments					x	No
Richmond	Goochland	57337	RTE 621 - RECONSTRUCTION	0.10 MILE NORTH OF I-64	ROUTE 725	Reconstruction				x	x	No
Richmond	Goochland	66897	RTE 653 - RURAL RUSTIC ROAD (SURFACE TREAT NON-HARDSURFACE)	ROUTE 605	ROUTE 604	Surface Treatment					x	No
Richmond	Goochland	72459	RTE 622 - IMPROVE VERTICAL ALIGNMENT	0.30 MILE WEST ROUTE 708	0.70 MILE WEST ROUTE 708	Imprv vert alignment					x	No
Richmond	Goochland	81669	RTE 649 - BLAIR ROAD - DRAINAGE IMPROVEMENTS	River Road	Patterson Avenue	Drainage Improvement				x	x	No
Richmond	Goochland	85443	LEE ROAD - RURAL RUSTIC	End Exist. Pvmt.	Cul de sac	Recon & surface treatments				x	x	No
Richmond	Goochland		Rte 250 (Broad St Rd)	at Rte 623 (Hockett Rd)	at Rte. 623	Improve Intersection					x	No
Richmond	Goochland		Rte. 250 (Broad St Rd)	at Rte 632 (fairgrounds Rd)	ar Rte. 632	Improve Intersection					x	No
Richmond	Goochland		Rte 650 (River Rd West)	at Rte 6 (Patterson Ave)		Improve Intersection					x	No
Richmond	Goochland		Rte 1250 (West Creek Parkway)	at Rte 6 (Patterson Ave)		Improve Intersection					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Goochland		Rte. 740 (Tuckahoe Creek Parkway)	at Rte 676 (Hermitage Rd)		Improve Intersection					x	No
Richmond	Goochland		Patterson Ave. (VA 6)	Bridge	at Genito Creek	Widening		4			x	No
Richmond	Goochland		Ashland Rd (VA 623)	I-64	Broad St. (US 250)	Widening		4			x	No
Richmond	Goochland		Blair Rd (VA 649)	Patterson Ave (VA 6)	River Rd (VA 650)	Reconstruction					x	No
Richmond	Goochland		Oilville Rd (VA 617)	Broad St. (US 250)	I-64	Widening		4			x	No
Richmond	Goochland		MANAKIN ROAD	at Rte 612	at Rte 676	Intersection Improvements					x	No
Richmond	Goochland		MANAKIN ROAD	.1 mile N of I-64	Rte 725	Reconstruction					x	No
Richmond	Goochland		Whitehall Road	Rte 673	at Int of Rte 522/Rte 673	Intersection Realignment					x	No
Richmond	Goochland		Hadensville-Fife Rd	.1 S of Int Rte 606/Rte 667	.1 N of Int Rte 606/Rte 667	Intersection Improvements					x	No
Richmond	Goochland		Rockville Rd	Rte 623	HANOVER COUNTY LINE	Reconstruction					x	No
Richmond	Goochland		Rockville Rd	.3 mile W of Rte 708	.7 mile W of Rte 708	Imprv vert alignment					x	No
Richmond	Goochland		Cardwell Rd	Rte 250	Rte 6	Intersection Improvements					x	No
Richmond	Goochland		Blair Rd (VA 649)	River Road	Patterson Avenue	Drainage Improvement					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Goochland		Marlin Rd	Rte 616	End of state maintenance	Surface Treatment					x	No
Richmond	Goochland		Three Chopt Rd	Rte 605	Rte 604	Surface Treatment					x	No
Richmond	Goochland		Ransome Rd	Rte 6	Rte 6	Surface Treatment					x	No
Richmond	Goochland		Lee Rd	End of Existing Pavement	Cul de sac	Surface Treatment					x	No
Richmond	Goochland		Soldiers Lodge Rd	Rte 639	End of state maintenance	Surface Treatment					x	No
Richmond	Goochland		Youngstown Rd	.75 M S of Rte 6	Rte 676	Surface Treatment					x	No
Richmond	Hanover	16079	CAMPAIGN TO PRESERVE HANOVER TAVERN	REHABILITATE WITH HANDICAP ACCESS, NEW KITCHEN, LANDSCAPING,	AND EXPANSION OF EXISTING PARKING LOT.	Enhancemnt; prkng lot expansion				x	x	No
Richmond	Hanover	78221	HANOVER TAVERN - LANDSCAPING & INFORMATIONAL KIOSK	LANDSCAPING SITE AND RELOCATION AND RESTORATION OF A	SMOKEHOUSE FOR USE AS A KIOSK	Landscaping, relocation				x	x	No
Richmond	Hanover	58920	RTE 95 - INTERCHANGE MODIFICATION	0.061 Mi. W. Int. Rte. 743	0.367 Mi. E. Int. Rte. 743	Interchange Modification				x	x	No
Richmond	Hanover	81033	RTE 95 - REPAIR OF MOISTURE SEEPAGE THROUGH PAVEMENT	0.311 MI W OF ATLEE STATION ROAD	0.264 MI W OF ATLEE STATION ROAD	Rehabilitation				x	x	No
Richmond	Hanover	77408	PLANNING STUDY - COUNTYWIDE	HANOVER COUNTY		Study				x	x	No
Richmond	Hanover	81073	ROUTE 746 - INSTALL CONCRETE CROSSING SURFACE (DOT#225-017C)	.05 MILE N ROUTE 684		Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	81075	RTE 726 - INSTALL FLASHING LIGHTS & GATES (DOT# 225-025U)	43 FEET NORTH OF ROUTE 684		Safety/Traffic Opers/TSM				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	86685	HSIP Proactive Safety Projects County of Hanover			Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	4412	RTE 271 - REHABILITATION	0.245 KM N RTE 623 (ASHLAND ROAD)	ROUTE 622 (ROCKVILLE ROAD)	Rehabilitation				x	x	No
Richmond	Hanover	13551	RTE 360 - INTERSECTION IMPROVEMENTS	AT LEE DAVIS ROAD (0.2 MILE WEST LEE DAVIS ROAD)	0.2 MILE EAST LEE DAVIS ROAD	Intersection Improvements				x	x	No
Richmond	Hanover	17527	RTE 156 - CONSTRUCT LEFT TURN LANE SOUTHBOUND	0.015 MILE EAST OF INTERSECTION OF BELL CREEK ROAD	0.159 MILE EAST OF WALNUT GROVE DRIVE	Construct LTL				x	x	No
Richmond	Hanover	17768	RTE 360 - WIDENING FROM 4 TO 6 & 8 LANES	ROUTE 295	0.2 MILE WEST LEE DAVIS ROAD	Major Widening	4	6& 8	2018	x	x	Yes
Richmond	Hanover	17959	ROUTE 360 - BRIDGE REPLACEMENT	CHICKAHOMINY RIVER:	(0.1 MILE EAST HENRICO COUNTY LINE)	Bridge Replacement				x	x	No
Richmond	Hanover	18946	RTE 1 - WIDEN TO 6 LANES - PE ONLY	CEDAR LANE	ASHLAND CORPORATE LIMITS	Widening - PE Only	4	6		x	x	No
Richmond	Hanover	18947	RTE 30 - BRIDGE REPLACEMENT OVER CSX RR	0.213 MILE WEST ROUTE 725	0.043 MILE EAST ROUTE 725	Bridge Replacement					x	No
Richmond	Hanover	18948	REALIGN INTERSECTION OF RTE 33 & RTE 54	0.337 MILE WEST ROUTE 54	0.174 MILE EAST ROUTE 54	Realign Intersection				x	x	No
Richmond	Hanover	18950	RTE 54 - RUBBERIZED TRACK CROSSING	AT CSX RAILROAD		Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	18951	RTE 54 - CONSTRUCT TURN LANES	AT ROUTE 666		Construct turn lanes					x	No
Richmond	Hanover	18960	RTE 301 - BYPASS STUDY AND STREET LIGHTING - PE ONLY	COURTHOUSE AREA		Study and PE only					x	No
Richmond	Hanover	18962	RTE 360 - RELOCATION	BELL CREEK ROAD RELOCATED	(INCL. CLOSING CROSSOVER & ELIMINATE SIGNAL @ EXIST BELL CK)	Relocation				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	18963	RTE 360 - WIDENING FROM 4 TO 6 LANES - PE ONLY	0.2 MILE EAST LEE DAVIS ROAD	WALNUT GROVE ROAD	Widening - PE Only	4	6	2018	x	x	No
Richmond	Hanover	56181	RTE 33 - WIDENING TO 4 LANES	0.331 MILES NORTH OF HENRICO / HANOVER COUNTYLINE	1.226 MILES NORTH RTE 623 (ASHLAND ROAD)	Major Widening		4	2018	x	x	Yes
Richmond	Hanover	68239	RTE 33 - SHOULDER IMPROVEMENTS	ROUTE 623 ASHLAND ROAD	1.5 MILES EAST LOUISA COUNTY LINE	Shoulder Improvs					x	No
Richmond	Hanover	73198	RTE 54 - SHOULDER WEDGE	ASHLAND CORPORATE LIMITS	ROUTE 301	Shoulder Improvs					x	No
Richmond	Hanover	76945	RTE 33 - SHOULDER IMPROVEMENTS	1.47 MILES EAST LOUISA COUNTY LINE	LOUISA COUNTY LINE	Shoulder Improvs				x	x	No
Richmond	Hanover	77181	RTE 30 - ADD ADDITIONAL THRU LANE EB	0.12 MILE EAST OF ROUTE I-95 (SBL)	0.035 MILE EAST OF HANOVER/CAROLINE COUNTY LINE	Major Widening			Complete	x	x	Yes
Richmond	Hanover	18482	RTE 602 - INSTALL FLASHING LIGHTS & GATES	AT CSX RAILROAD (DOT # 225-009K)	(0.01 MILE SOUTH ROUTE 684)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	18484	RTE 603 - INSTALL FLASHING LTS & GATES; IMPROVE HUMP X-ING	AT CSX RAILROAD (DOT # 225-024M)	(0.03 MILE NORTH ROUTE 684)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	60665	RTE 646 - INSTALL FLASHING LIGHTS & GATES	AT CSX RAILROAD - DOT # 224-992B	(0.90 MILE NORTHWEST ROUTE 54)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	60666	RTE 657 - ADD GATES & UPGRADE FLASHING LIGHTS	AT CSX RAILROAD - DOT # 224-984J	(0.30 MILE WEST ROUTE 695)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	60667	RTE 746 - INSTALL FLASHING LIGHTS & GATES	AT CSX RAILROAD - DOT # 225-017C	(0.05 MILE NORTH ROUTE 684)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	69048	RTE 688 - UPGRADE FLASHING LIGHTS & GATES; INSTALL CWT	PREDICTOR WITH EVENT RECORDER AT CSX RAILROAD	DOT # 860-520G (0.30 MILE EAST ROUTE 1)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	70819	RTE 715 - ADD GATES AND UPGRADE FLASHING LIGHTS	AT CSX RAILROAD - DOT # 225-032E	(34 FT SOUTH ROUTE 739)	Safety/Traffic Opers/TSM				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	11273	RTE 637 - RECONSTRUCTION	0.132 MILE NORTHWEST OF INTERSECTION HONEY MEADOWS ROAD	ROUTE 301	Reconstruction				x	x	No
Richmond	Hanover	16925	RTE 656 - REALIGNMENT,RTL AT ROUTE 643 & SIGNAL INSTALLATION	0.450 KILOMETER WEST ROUTE 643 (NEW ASHCAKE ROAD)	0.580 KILOMETER EAST ROUTE 643 (NEW ASHCAKE ROAD)	Realignment				x	x	No
Richmond	Hanover	17389	RTE 656 - WIDEN FROM TWO TO FOUR LANES	0.3 KILOMETER EAST OF ROUTE 637 (LEADBETTER ROAD)	ROUTE 643 (ASHCAKE ROAD)	Widening	2	4			x	No
Richmond	Hanover	17861	RTE 627 - WIDENING TO 4 LANES	0.048 KILOMETER WEST HENRICO/HANOVER COUNTY LINE	0.422 KILOMETER EAST HENRICO/HANOVER COUNTY LINE	Widening	2	5	2018	x	x	Yes
Richmond	Hanover	17862	RTE 615 - SHOULDER WEDGE AND OVERLAY	ROUTE 156 (COLD HARBOR ROAD)	ROUTE 636 (WALNUT GROVE ROAD)	Shoulder wedge & overlay				x	x	No
Richmond	Hanover	17863	RTE 617 - BRIDGE REPLACEMENT	APPROACHES AND BRIDGE OVER SOUTH ANNA RIVER	(1.10 MILES NORTH ROUTE 611)	Bridge Replacement					x	No
Richmond	Hanover	17866	RTE 643 - TURN LANES & MODIFY SIGNALS	0.147 MILE SOUTH OF ROUTES 156 & 643	0.098 MILE NORTH OF ROUTES 156 & 643	Constr turn lanes & modify signals				x	x	No
Richmond	Hanover	18485	RTE 739 - ADD GATES & UPGRADE FLASHING LIGHTS	AT CSX RAILROAD (DOT # 225-030R)	(0.33 MILE EAST ROUTE 715)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	50052	RTE 820 - RECONSTRUCTION	ROUTE 301	0.35 MILE EAST ROUTE 301	Reconstruction					x	No
Richmond	Hanover	50522	RTE 643 - INSTALL RUBBERIZED CROSSING CSX RR(DOT #224-979M)	(0.02 MILE NORTHWEST ROUTE 766)		Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	50527	RTE 643 -CORRIDOR STUDY - BROWN GROVE & NEW ASHCAKE ROAD EXT	ROUTE 656	ROUTE 657	Study					x	No
Richmond	Hanover	50697	RTE 738 - ADD GATES & UPGRADE FLASHING LIGHTS	AT CSX RAILROAD (DOT # 225-028P)	(0.01 MILE NORTHWEST ROUTE 684)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	51253	RTE 637 - SHOULDER WEDGE AND OVERLAY	ROUTE 2043	ROUTE 1858	Shldr wedge & overlay					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	51261	RTE 651 - BRIDGE REPLACEMENT	APPROACHES AND BRIDGE OVER CRUMP CREEK		Bridge Replacement				x	x	No
Richmond	Hanover	58187	RTE 627 - WIDENING	0.429 MILE WEST ROUTE 642	0.145 MILE WEST ROUTE 642	Major Widening	2	4			x	No
Richmond	Hanover	58188	RTE 643 - SHOULDER WEDGE AND OVERLAY	ROUTE 156 (COLD HARBOR ROAD)	ROUTE 360 (MECHANICSVILLE TURNPIKE)	Shldr wedge & overlay					x	No
Richmond	Hanover	58189	RTE 643 - SHOULDER WEDGE AND OVERLAY	ROUTE 360 (MECHANICSVILLE TURNPIKE)	ROUTE 627 (POLE GREEN ROAD)	Shldr wedge & overlay				x	x	No
Richmond	Hanover	59946	RTE 627 - WIDEN FROM TWO TO FOUR LANES - STUDY ONLY	ROUTE 642 (BELL CREEK ROAD)	ROUTE 360	Study					x	No
Richmond	Hanover	66974	RTE 795 - PAVE IN PLACE (SURFACE TREAT NON-HARDSURFACE ROAD)	ROUTE 686 EAST	0.309 MILE EAST ROUTE 686 EAST	Surface Treatment					x	No
Richmond	Hanover	67899	RTE 684 - IMPROVE SURFACE CROSSING AT RAILROAD	AT CSX RAILROAD CROSSING - DOT # 225-013A	(1.19 MILE WEST ROUTE 685)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	67900	RTE 738 - IMPROVE SURFACE CROSSING AT RAILROAD	AT CSX RAILROAD CROSSING - DOT # 225-028P	(0.01 MILE SOUTH ROUTE 684)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	67901	RTE 739 - IMPROVE SURFACE CROSSING AT RAILROAD	AT CSX RAILROAD CROSSING - DOT # 225-030R	(0.33 MILE EAST ROUTE 715)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	67903	RTE 715 - IMPROVE SURFACE CROSSING AT RAILROAD	AT CSX RAILROAD CROSSING - DOT # 225-032E	(0.01 MILE SOUTH ROUTE 739)	Safety/Traffic Opers/TSM					x	No
Richmond	Hanover	68890	BELL CREEK ROAD	ROUTE 627	100 FEET SOUTH OF ROUTE 1126	Resurfacing					x	No
Richmond	Hanover	68891	WALNUT GROVE ROAD	ROUTE 156	0.2 MILE EAST ROUTE 1560	Resurfacing					x	No
Richmond	Hanover	68893	CAUTHORNE ROAD	ROUTE 623	1.55 MILES SOUTH ROUTE 623	Resurfacing					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	68894	ASHLAND ROAD	ROUTE 666	0.2 MILE SOUTH ROUTE 666	Resurfacing					x	No
Richmond	Hanover	68895	ASHLAND ROAD	ROUTE 623	ROUTE 657	Resurfacing					x	No
Richmond	Hanover	68896	ASHCAKE ROAD	ROUTE 666	0.50 MILES EAST OF ROUTE 666	Resurfacing					x	No
Richmond	Hanover	68900	OLD WASHINGTON HIGHWAY	ROUTE 623	HENRICO COUNTY LINE	Resurfacing					x	No
Richmond	Hanover	68901	CEDAR LANE	ROUTE 1	ROUTE 1305	Resurfacing					x	No
Richmond	Hanover	68902	OLD RIDGE ROAD	ROUTE 680	ROUTE 722	Resurfacing					x	No
Richmond	Hanover	68913	LAKERIDGE PARKWAY (NORTH)	0.793 MILE NORTH OF LEWISTOWN RD ROUTE 802	0.012 MILE EAST OF US ROUTE 1	New Facility			Complete		x	Yes
Richmond	Hanover	71350	RTE 656 - SHOULDER WEDGE & OVERLAY	ROUTE 637	ROUTE 643	Shldr wedge & overlay					x	No
Richmond	Hanover	71351	RTE 615 - SHOULDER WEDGE & OVERLAY	END OF 4-LANE SECTION	ROUTE 156	Shldr wedge & overlay					x	No
Richmond	Hanover	71353	RTE 627 - SHOULDER WEDGE & OVERLAY	PINE HILL ROAD	ROUTE 360	Shldr wedge & overlay					x	No
Richmond	Hanover	71354	RTE 656 - LEFT TURN LANE AND SIGNAL	0.20 mile west of Rte 813 (Air Park Road)	0.12 mile east of Rte 813 (Air Park Road)	LTL & Signal				x	x	No
Richmond	Hanover	71553	RTE 637 - SHOULDER WEDGE & OVERLAY	ROUTE 1858	HONEY MEADOWS ROAD	Shldr wedge & overlay				x	x	No
Richmond	Hanover	72466	RTE 605 - RURAL RUSTIC ROAD (SURFACE TREAT NON-HARDSURFACE)	ROUTE 604	ROUTE 360	Surface Treatment					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	72467	RTE 710 - RECONSTRUCT & SURFACE TREAT NON-HARDSURFACED ROAD	ACADEMY DRIVE	ROUTE 1417	Recon & surface treatments					x	No
Richmond	Hanover	77121	INSTALL DOUBLE LTL & RTL ON NB ROUTE 638	0.2 MILE NORTH ROUTE 606	ROUTE 301	Install turn lanes					x	No
Richmond	Hanover	77653	RTE 643 - SHOULDER WEDGE AND OVERLAY	ROUTE 156 (COLD HARBOR ROAD)	ROUTE 360 (MECHANICSVILLE TURNPIKE)	Shldr wedge & overlay				x	x	No
Richmond	Hanover	81071	RTE 658 - ADD GATES (DOT# 225-035A)	0.73 MILE SOUTHWEST OF ROUTE 715		Safety/Traffic Opers/TSM				x	x	No
Richmond	Hanover	81663	RTE 627 - POLE GREEN RD, PH II-WIDEN FROM 2 TO 4 LANES	Bell Creek Road	Verdi Lane	Widenging	2	4	2018	x	x	Yes
Richmond	Hanover		I-95	at Lewistown Rd. (Rt. 802)		Interchange & Bridge Widening			2018		x	Yes
Richmond	Hanover		Kings Dominion Blvd. (Rt. 30)	Rt. 1	I-95	Widening	2	4	2031		x	Yes
Richmond	Hanover		Mountain Road (U.S. Rt. 33)	Beaver Dam Rd (Rt. 715)	Louisa County Line	PE and ROW only					x	No
Richmond	Hanover		New Ashcake Rd (Extended)	Sliding Hill Rd (Rt. 656)	Lewistown Rd (Rt. 802)	New Connection			2031		x	Yes
Richmond	Hanover		Ashland Rd (Rt. 623)	Cedar Lane (Rt. 623)	Ashcake Rd (Rt. 657)	Widening	2	4	2031		x	Yes
Richmond	Hanover		Ashcake Rd (Rt. 657)	Town of Ashland ECL	I-95	Reconstruction					x	No
Richmond	Hanover		Pole Green Rd (Rt. 627)	Verdi Lane	Lee Davis Rd (Rt. 643)	Widening	2	4	2021		x	Yes
Richmond	Hanover		New Ashcake Rd (Extended)	Sliding Hill Rd (Rt. 656)	Lewistown Rd (Rt. 802)	New Facility	0	4	2018		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover		Cedar Lane Realighnment	Rte 1	Cedar Lane	New Facility	0	4	2011		x	Yes
Richmond	Hanover		N. Lakeridge Pkwy (Extended)	Rte 1	0.5 M W of Rte 1	New Facility	0	4	2011		x	Yes
Richmond	Hanover		Lakeridge Pkwy (Rte 782)	0.5 M S of End (Lake. Ind. Park)	End (Lake. Ind. Park)	Widening			2011		x	Yes
Richmond	Hanover		Lakeridge Pkwy - S. Extension	0.5 S. Lewistown Rd	1.5 S. Lewistown Rd	New Construction			2011		x	Yes
Richmond	Hanover		Rte 301	New Ashcake Rd	Rural Point Rd	Turn Lane					x	No
Richmond	Hanover		Teman Rd	at Tyler Station Rd.		Intersection Realign					x	No
Richmond	Hanover		Bell Creek Rd	at Hanover Sq. Shop Cntr		Traffic Signal					x	No
Richmond	Hanover	81668	Rte 678 Union Church Road - Unpaved Road	Beaver Dam Rd	Teman Rd.	Pave in place						No
Richmond	Hanover		Pole Green Rd	at Bell Creek Rd		Intersection					x	No
Richmond	Hanover	16097	Rte 360 - Install closed-loop traffic signal system	Rte 360 Corridor		signal improvements				x		No
Richmond	Hanover	72468	(T1549) Rte 736, Dunn Road	Rte 33	1.25 M south of Rte 33 (end of maintenance)	Reconstruction					x	No
Richmond	Hanover	81667	Creighton Rd	Int @ Cold Harbor Road		Reconstruction					x	No
Richmond	Hanover	82378	(T4261) Rte 689	0.2 M from Rte 725	0.5 M from Rte 738	Bridge Replacement					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Hanover	82399	(T4294) Rte 625	At Henrico Co Line		Bridge Replacement					x	No
Richmond	Hanover	-4813	HSIP PROACTIVE SAFETY PROJECTS - Co of Hanover	VarIOUS LOCATIONS		Safety/Traffic Opers/TSM					x	No
Richmond	Henrico	16617	FROM PARK TO THE GARDEN - LAKESIDE AVENUE	LANDSCAPING AND STREETSCAPING OF LAKESIDE AVENUE	FROM RICHMOND CITY LINE TO LEWIS GINTER BOTANTIAL GARDEN	Landscaping				x	x	No
Richmond	Henrico	50114	LANDSCAPING AND CONSTRUCTION OF A CART PATH	BREASTWORK PARK/AVIATION MUSEUM	ACCESS ROAD	Landscaping					x	No
Richmond	Henrico	75262	HENRICO CO - BROOK ROAD IMPROVEMENTS	GATEWAY FEATURES BETWEEN RICHMOND CORPORATE LIMITS AND	PARHAM ROAD	Enhancement				x	x	No
Richmond	Henrico	1715	RTE 895 - 95/295 CONNECTOR (PE ONLY IN SYP)	CHESTERFIELD/HENRICO COUNTY LINE	ROUTE I-295	New Construction - PE Only				x	x	No
Richmond	Henrico	12799	RTE 64 - PAVEMENT REHABILITATION & WIDENING	1.0 MILE WEST AIRPORT DRIVE	1.0 MILE EAST ROUTE 295	Wideng & pvmnt rehab	4	6	2018	x	x	Yes
Richmond	Henrico	16559	RTE 95 - CONSTRUCT NEW INTERCHANGE	0.384 MILE SOUTH HENRICO/HANOVER COUNTY LINE	1.091 MILE NORTH HENRICO/HANOVER COUNTY LINE	New Interchange			2011		x	Yes
Richmond	Henrico	17757	RTE 64 - BRIDGE WIDENING & DECK REPLACEMENT	C501 -- 0.055 MILE EAST ROUTE 33 - 0.661 MILE EAST ROUTE 33	C502 -- 0.151 MILE EAST ROUTE 33 - 0.179 MILE EAST ROUTE 33	Bridge Widening & deck rplcmnt			Exempt	x	x	N/A
Richmond	Henrico	50020	RTE 64 - GLENSIDE DRIVE - EXTEND NORTHBOUND TURN LANE	AT I-64		Extn turn lane				x	x	No
Richmond	Henrico	50122	RTE 64 - I-64/I-295 INTERCHANGE MODIFICATION (W OF RICHMOND)	3.193 KILOMETERS WEST ROUTE I-295 SBL	0.9115 KILOMETERS EAST ROUTE I-295 SBL	Interchange Modification			2011	x	x	Yes
Richmond	Henrico	67917	RTE 295 - EXTEND SB I-295 TO SOUTHBOUND NUCKOLS ROAD RAMP	AT NUCKOLS ROAD INTERCHANGE		Extend ramp				x	x	No
Richmond	Henrico	72199	RTE 295 - EXTEND NB I-295 TO NORTHBOUND NUCKOLS ROAD RAMP	AT NUCKOLS ROAD INTERCHANGE		Extend ramp				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Henrico	72500	RTE 895 - CONSTRUCT RAMP & LOOP FROM I-295 TO ROUTE 895	LOOP FROM ROUTE I-295 NORTH TO ROUTE 895 WEST	RAMP FROM ROUTE 895 EAST TO ROUTE I-295 SOUTH	Construct ramp & loop			Complete		x	Yes
Richmond	Henrico	83522	POCAHONTAS PARKWAY TOLL COLLECTION UPGRADE	POCAHONTAS PARKWAY TOLL COLLECTION UPGRADE		Toll upgrade				x	x	No
Richmond	Henrico	50024	CAPITAL REGION AIRPORT COMMISSION	IMPLEMENTATION OF INTERMODAL STUDY RECOMMENDATIONS		Study Implementation			Exempt	x	x	N/A
Richmond	Henrico	50025	CAPITAL REGION AIRPORT COMMISSION	COMPATIBILITY WITH VDOT'S AVI ELECTRONIC TOLL		Toll upgrade				x	x	No
Richmond	Henrico	81104	INSTALL CONCRETE CROSSING SURFACE DOT# 224-967T	.02 MILE WEST OF WAVERLY ROAD		Safety/Traffic Opers/TSM				x	x	No
Richmond	Henrico	84348	CRAC "Cell Lots"	Parking lots - RIC	Parking lots - RIC	construct parking lot				x	x	No
Richmond	Henrico	86427	Randolph Landing	Rte 5	Wilton Development	Enhancement				x	x	No
Richmond	Henrico	86683	HSIP Proactive Safety Henrico County			Safety/Traffic Opers/TSM				x	x	No
Richmond	Henrico	12937	RTE 250 - CONSTRUCT RIGHT TURN LANE	AT GLENSIDE DRIVE		Construct RTL					x	No
Richmond	Henrico	14767	RTE 156 - BRIDGE REPLACEMENT	0.250 KILOMETER SOUTH HUGHES ROAD	0.430 KILOMETER NORTH HUGHES ROAD	Bridge Replacement					x	No
Richmond	Henrico	15428	RTE 1 - WIDEN TO 6 LANES	0.600 KILOMETER SOUTH OF ROUTE 295	0.040 KILOMETER SOUTH OF HENRICO/HANOVER COUNTY LINE	Major Widening	4	6	2011		x	Yes
Richmond	Henrico	16519	RTE 147 - HUGUENOT BRIDGE REPLACEMENT	0.20 MILE SOUTH RIVERSIDE ROAD	0.20 MILE WEST RIVER ROAD	Bridge Replacement				x	x	No
Richmond	Henrico	19004	CAPITAL REGIONAL AIRPORT COMMISSION - NEW EXIT TOLL RD PLAZA	NEW EXIT TOLL ROAD	LONG TERM ENTRY PLAZA	New Facility			Complete	x	x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Henrico	50021	RTE 1 - SIGNAL MODIFICATION - PE ONLY	AT RIDGE ROAD		signal modification - PE Only					x	No
Richmond	Henrico	50022	RTE 360 - IMPROVE INTERSECTION & SIGNALIZATION	RICHMOND CORPORATE LIMITS	0.1 MILE EAST NEALS STREET	intersection imprvs				x	x	No
Richmond	Henrico	50428	RTE 250 - INSTALL ROADWAY LIGHTING	0.18 MILE WEST DICKENS ROAD	GLENSIDE DRIVE	Safety/Traffic Opers/TSM					x	No
Richmond	Henrico	54758	RTE 5 - SCENIC BYWAYS - INTERPRETIVE SITE	SPOT LOCATION, NORTH SIDE OF RTE 5 EAST OF I-295	AT FOUR MILE CREEK PARK	Enhancement				x	x	No
Richmond	Henrico	56331	RTE 895 AIRPORT CONNECTOR	0.170 KILOMETER SOUTH ROUTE 895	0.137 KILOMETER NORTH CHARLES CITY ROAD	New Facility	0	2	2031	x	x	Yes
Richmond	Henrico	58911	IMPROVE TRAFFIC OPERATIONS	THRU SIGNALIZATION, TURN LANES AND ITS ADVANCES	AT VARIOUS LOCATIONS	Safety/Traffic Opers/TSM				x	x	No
Richmond	Henrico	60405	RTE 156- DUAL SB LTL, CHANNELIZED ISLAND ON RT. 60WB	0.10 MILE NORTH AND SOUTH OF ROUTE 156	0.10 MILE EAST AND WEST OF ROUTE 60	dual LTLs & channelization					x	No
Richmond	Henrico	65418	RTE 60 - CONSTRUCT MOBILE WEIGH SCALE TURNOUT	0.29 MILE EAST OF TECHNOLOGY BOULEVARD	0.17 MILE WEST OF RISING MOUNT ZION ROAD	Safety/Traffic Opers/TSM					x	No
Richmond	Henrico	66786	AIRPORT DRIVE	0.170 MILE NORTH CLARKSON ROAD	CHARLES CITY ROAD	Major Widening	0	2	2031	x	x	Yes
Richmond	Henrico	72198	RTE 73 - INSTALL EASTBOUND & WESTBOUND DUAL LEFT TURN LANES	0.2 mi east of Rte 1 (Brook Road)	0.2 mi west of Rte 1 (Brook Road)	install dual R&LTLs				x	x	No
Richmond	Henrico	77072	RTE 33 - EXTENSION OF EXISTING RTL & INTERS. IMPROVEMENT	125 FEET SOUTH EAST INTERSECTION PARHAM ROAD	558.08 FEET NORTH WEST OF INTERSECTION PARHAM ROAD	extn of RTL & int imprv			2011	x	x	Yes
Richmond	Henrico	77074	RTE 250 - INSTALL RTL ON WBL & EXTEND RTL ON SBL PARHAM ROAD	INTERSECTION OF BROAD STREET	0.17 MI NORTH INTERSECTION OF BROAD STREET	install & extnd RTL			2018	x	x	Yes
Richmond	Henrico	77076	RTE 197 - INSTALL DOUBLE LTLS ON SBL LABURNUM AVE TO RTE 360	RONNIE AVENUE	ROUTE 360	install dual LTLs			2018	x	x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Henrico	77129	RTE 1 - INSTALL OVERHEAD ROADWAY LIGHTING	ROUTE I-295 INTERCHANGE	JUST NORTH OF VIRGINIA CENTER COMMONS	Safety/Traffic Opers/TSM				x	x	No
Richmond	Henrico	81254	RTE 33 & Pleasant Street - Install traffic signal	0.1 Mi. East of Pleasant Street	0.1 Mi. West of Pleasant Street	Install signal				x	x	No
Richmond	Henrico	86280	Virginia Capital Trail - Varina Phase	0.2 Miles East of Rte 295	Richmond City Limits	Enhancement				x	x	No
Richmond	Henrico	12938	ANOKA ROAD - RECONSTRUCT INTERSECTION & SIGNALIZE	0.11 MILE SOUTH SKIPWITH ROAD	0.095 MILE NORTH SKIPWITH ROAD	Reconstruction				x	x	No
Richmond	Henrico	12945	HENRICO COUNTY TRAFFIC SIGNAL SYSTEM	COUNTYWIDE TRAFFIC SIGNAL CONTROL SYSTEM	(HENRICO COUNTY TO ADMINISTER)	signal system			Exempt	x	x	N/A
Richmond	Henrico	13553	COMPUTERIZED SIGNAL SYSTEM	VARIOUS LOCATIONS	HENRICO COUNTYWIDE	signal system			Exempt	x	x	N/A
Richmond	Henrico	16152	RTE 7679 - HUNGARY SPRINGS ROAD - WIDENING	ROUTE 250 (BROAD STREET)	ROUTE 33 (STAPLES MILLS ROAD)	Major Widening	2	4	2011	x	x	Yes
Richmond	Henrico	16153	RTE 7555 (LABURNUM AVENUE) - WIDENING	ECL RICHMOND	CAROLINA AVENUE	Major Widening	4	6	2018	x	x	Yes
Richmond	Henrico	16286	RTE 705 - QUIOCCASIN ROAD	0.027 MILE WEST PEMBERTON ROAD	0.013 MILE EAST BLUE JAY LANE	Major Widening	2	4	2011	x	x	Yes
Richmond	Henrico	18122	RTE 627 - RECONSTRUCTION	0.41 KILOMETER WEST OF AZALEA AVENUE	0.04 KILOMETER WEST OF HENRICO/HANOVER COUNTY LINE	Reconstruction	2	5	2018	x	x	Yes
Richmond	Henrico	18124	RTE 9999 - INTERSECTION IMPROVEMENT AND SIGNALIZATION	AT MASONIC LANE, GAY AVENUE, AND BRITTLES LANE		Intersection imprv & signal				x	x	No
Richmond	Henrico	50525	RTE 9999 (THREE CHOPT ROAD) WIDEN TO 4 LANES	BARRINGTON HILLS DRIVE	COX ROAD	Major Widening	2	4	2011	x	x	Yes
Richmond	Henrico	50528	RTE 9999 (THREE CHOPT ROAD) - WIDENING - PE ONLY	BARRINGTON HILL DRIVE	GASKINS ROAD	Widening - PE Only				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Henrico	50529	RTE 9999 (THREE CHOPT ROAD) WIDEN TO 4 LANES	COX ROAD	GASKINS ROAD	Major Widening	2	4	2011	x	x	Yes
Richmond	Henrico	53314	RTE 9999 - NUCKOLS ROAD	0.01 MILE WEST OF SPRINGFIELD ROAD	0.13 MILE WEST OF COX ROAD	Major Widening	2	4	2011	x	x	Yes
Richmond	Henrico	53315	RTE 9999 (JOHN ROLFE PARKWAY) - NEW CONSTRUCTION	0.31 Mile South of Church Road	0.026 MILE SOUTH WEST BROAD STREET (ROUTE 250)	New facility	0	4	2011	x	x	Yes
Richmond	Henrico	53318	RTE 9999 - COX ROAD - NEW CONSTRUCTION	0.10 MILE SOUTH CHURCH ROAD	CHURCH ROAD	New Facility	0	4	2011	x	x	Yes
Richmond	Henrico	53525	RTE 9999 (CAROLINA AVENUE) - RECONSTRUCTION	LABURNUM AVENUE	AZALEA AVENUE	Reconstruction	2	4		x	x	No
Richmond	Henrico	60933	RTE 9999 - DABBS HOUSE RD; WIDEN TO 4 LANES; FED ESCROW PROJ	NINE MILE ROAD	CREIGHTON ROAD	Major Widening	2	4	2018	x	x	Yes
Richmond	Henrico	60934	RTE 9999 - SADLER RD; WIDEN & RECONSTRUCT; FED ESCROW PROJ	DOMINION BOULEVARD	CEDAR FOREST ROAD	Reconstruction	2	4		x	x	No
Richmond	Henrico		I-295	Interchange at Charles City Road	at Charles City Rd	New Facility			2031		x	Yes
Richmond	Henrico		I-64	at Gaskins Rd		Interchange Mod					x	No
Richmond	Henrico		Cox Road Bridge	AT I-64		Bridge Widening/Rehabilitation	2	4	2021		x	Yes
Richmond	Henrico		Lauderdale Drive	Patterson	Old Compton	Widening	2	4	2021		x	Yes
Richmond	Henrico		Springfield Road	Nuckols	Francistown	New Facility/realignment/widening	0	4	2031		x	Yes
Richmond	Henrico		Shady Grove Road	Twin Hickory Rd	Nuckols Rd	Widening	2	4	2031		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Henrico		Pouncey Tract	Bacova	Nuckols Rd	Widening	2	4	2031		x	Yes
Richmond	Henrico		I-64	at North Gayton Road		New Interchange			2031		x	Yes
Richmond	Henrico		N. Gayton Road	Broad	Causeway	Widening	2	4	2031		x	Yes
Richmond	Henrico		Route 5	Richmond CL	Laburnum	Widening	2	4	2021		x	Yes
Richmond	Henrico		Parham Rd/Patterson Ave			Urban Interchange			2031		x	Yes
Richmond	Henrico		Woodman Rd	Hungary Rd	Mountain Rd	Widening	2	4			x	No
Richmond	Henrico		Watts Lane	Sandy Lane	Laburnum Ave	New Facility	0	4			x	No
Richmond	Henrico		IMPROVE TRAFFIC OPERATIONS			ITS					x	No
Richmond	Henrico		North Gayton Extended	W. Broad St.	Pouncey Tract Rd.	New Faciliy	2	4 and 6	2018		x	Yes
Richmond	Henrico		Charles City Rd	Laburnam Ave.	Monahan Rd.	Widening	2	4	2018		x	Yes
Richmond	Henrico		Creighton Rd	Laburnam Ave.	Richmond City Limits	Widening/Realignment	2	4	2018		x	Yes
Richmond	Henrico		Cedar Fok Rd Bridge	at Meadowview		New Faciltiy	0	4	2018		x	Yes
Richmond	Henrico		Courtney Road	Staples Mill Rd.	Mountain Rd	Widening	2	4	2018		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Henrico		White Oak Rd	Elko Rd.	Route 60	Widening	2	4	2018		x	Yes
Richmond	Henrico		Wilton Pkwy	Route 5	Osbourne Tpke	New Facility	0	4	2011		x	Yes
Richmond	Henrico		Brook Road	Parham Rd.	Villa Park Dr.	Widening/Pedestrian Accom	5	6			x	No
Richmond	Henrico	-4787	Pocahontas Parkway Refinancing	Pocahontas Pkwy		Funds Monitoring				x		No
Richmond	Henrico	53317	Rte 9999 - Cox Road - Signalize Intersection	at Ridgefield Parkway		Intersection Improvement				x		No
Richmond	Multi-jurisdictional: Richmond MPO	-3406	Telework!VA			air pollution reduction			2011	x	x	Yes
Richmond	Multi-jurisdictional: Richmond MPO	5849	(T25) Traffic Operations and Safety Improvement Program	Various locations		Safety/Traffic Opers/TSM					x	No
Richmond	Multi-jurisdictional: Richmond MPO	70681	(T819) Districtwide Primary Beautification Improvement	Various locations		Enhancement					x	No
Richmond	Multi-jurisdictional: Richmond MPO	70684	(T22) Districtwide Pavement Markers	VARIOUS LOCATIONS		Safety/Traffic Opers/TSM					x	No
Richmond	Multi-jurisdictional: Richmond MPO	70690	(T23) Districtwide signs	VARIOUS LOCATIONS		Safety/Traffic Opers/TSM					x	No
Richmond	Multi-jurisdictional: Richmond MPO	71668	Districtwide Rumblestrips	VARIOUS LOCATIONS		Safety/Traffic Opers/TSM					x	No
Richmond	Multi-jurisdictional: Richmond MPO	86357	(T4949) Richmond MPO Multi-Modal LRP (study only)	study		Study					x	No
Richmond	Multi-jurisdictional: Richmond MPO	-1812	Undesignated Terms			Allocation Line Item					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	New Kent	17609	NEW KENT COUNTY GOVERNMENT COMPLEX PEDESTRIAN PLAN	CONSTRUCT SIDEWALK IN AND AROUND THE COUNTY GOVERNMENT	COMPLEX	Construct Sidewalk				x	x	No
Richmond	New Kent	81762	NEW KENT COUNTY - SIGNAGE FOR 7 BICYCLE RTES	NEAR TALLEYSVILLE	VARIOUS LOCATIONS	Enhancement				x	x	No
Richmond	New Kent	11800	RTE 64 - PAVEMENT REHAB & WIDENING (SEE LINEAGES)	1.0 MILE EAST ROUTE 249	1.0 MILE EAST ROUTE 33	pvmnt rehab & Major Widening				x	x	No
Richmond	New Kent	14759	RTE 64 - UPGRADE SEWER SYSTEM	AT REST AREA 6 E&W		sewer upgrade					x	No
Richmond	New Kent	18939	RTE 64 - EXPAND RESTROOM & PARKING, IMPROVE LIGHTING	AT COLONIAL DOWNS (MM213 E&W)	(6 E&W)	facility upgrade (non road)					x	No
Richmond	New Kent	67913	Rte 64 - PAVEMENT REHABILITATION AT SELECTED LOCATIONS			pavement rehab				x	x	No
Richmond	New Kent	16562	RTE 60 - CORRECT GRADE SEPARATION	0.130 MILE WEST ROUTE 33	0.126 MILE EAST ROUTE 33	Safety/Traffic Opers/TSM					x	No
Richmond	New Kent	16564	RTE 249 - CONSTRUCT LEFT TURN LANE ON EBL	0.16 KILOMETER WEST ROUTE 613	0.28 KILOMETER EAST ROUTE 613	construct LTLs				x	x	No
Richmond	New Kent	16567	RTE 249 - CONSTRUCT LEFT TURN LANE (E & WBL)	0.264 KILOMETER WEST ROUTE 665 (NORTH HENPECK ROAD)	0.266 KILOMETER EAST ROUTE 665 (NORTH HENPECK ROAD)	construct LTLs					x	No
Richmond	New Kent	18204	RTE 33 - APPROACHES TO BRIDGE OVER PAMUNKEY RIVER	0.811 MILE WEST NEW KENT/KING WILLIAM COUNTY LINE	0.704 MILE WEST NEW KENT/KING WILLIAM COUNTY LINE	bridge approaches/replacement				x	x	No
Richmond	New Kent	52414	RTE 249 - CONSTRUCT ROUNDABOUT AT ROUTE 612	AT ROUTE 612		Construct Roundabout				x	x	No
Richmond	New Kent	67939	RTE 155 - SAFETY SHOULDER & BICYCLE/PEDESTRIAN ACCOMMODATION	FROM: CHARLES CITY COUNTY LINE -- TO: BOULEVARD ROAD	FROM: ROUTE 60 -- TO: OLD FORGE ROAD	shldr & bike/ped accommodation				x	x	No
Richmond	New Kent	18709	RTE 9999 - CONSTRUCT ALTERNATE ACCESS (HIGH SPEED RAIL)	ROUTE 627	0.32 MILES EAST OF ROUTE 627	rail - construct alt access				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	New Kent	-4671	FUTURE BR FUNDS			BR funds accrual					x	No
Richmond	New Kent	14881	RTE 632 - RECONSTRUCT & SURFACE TREAT NON-HARDSURFACED ROAD	ROUTE 33	0.145 MILE EAST ROUTE 634	Recon & surface treatments					x	No
Richmond	New Kent	16896	RTE 628 - REHABILITATION OF EXISTING NON-HARDSURFACED ROAD	0.40 MILE NORTH ROUTE 1102	1.50 MILES NORTH ROUTE 1102	Rehabilitation					x	No
Richmond	New Kent	16897	RTE 665 - RECONSTRUCT & SURFACE TREAT NON-HARDSURFACED ROAD	ROUTE 640	0.2 MILE NORTH ROUTE 1208	Recon & surface treatments					x	No
Richmond	New Kent	57497	RTE 686 - RECONSTRUCTION	ROUTE 612	0.484 MILE NORTH EAST ROUTE 612	Reconstruction					x	No
Richmond	New Kent	68214	RTE 602 - RURAL RUSTIC	0.25 MILE EAST ROUTE 155	0.40 MILE WEST ROUTE 629	Resurfacing				x	x	No
Richmond	New Kent	68215	RTE 628 - RURAL RUSTIC	4.30 MILES NORTH ROUTE 1102	ROUTE 627	Resurfacing				x	x	No
Richmond	New Kent	87949	ROUTE 620 - RURAL RUSTIC	ROUTE 632	2.2 MILES SOUTH OF ROUTE 632	Resurfacing				x	x	No
Richmond	New Kent		I-64 - 6 Lanes on 8-Lane R-O-W (Inc. Interchange Modification at 249)	New Kent C.L.	New Kent Hwy. (VA 249)	Widen & Interchange Modification		6			x	No
Richmond	New Kent		Courthouse Rd (VA 155) - Courthouse to Courthouse Connector Bike/Ped Facility	Charles City C.L.	New Kent Hwy (VA 249)	Bike/Ped Facility					x	No
Richmond	New Kent		Dispatch Rd (VA 613)	Hanover C.L.	Quaker Rd (VA 611)/New Kent Hwy (VA 249)	Safety/Shoulder Improvements					x	No
Richmond	New Kent		Henpeck Rd (VA 665)	Quaker Rd (VA 611)	Quinton Rd (VA 640)	Safety/Shoulder Improvements					x	No
Richmond	New Kent		Pocohontas Trail (US 60)	Boulevard Rd (VA 629)	0.75 mi E of Courthouse Rd (VA 155)	Sidewalks, Lighting, On-St Prkng, Median Imprvs					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	New Kent		New Kent Hwy (VA 249)	Intersection	at Old Roxbury Rd (VA 640)	Safety/Shoulder Improvements					x	No
Richmond	New Kent		Emmaus Church Rd (VA 106)	I-64	0.5 mi S of I-64	TWLTL, Shoulder Improvements					x	No
Richmond	New Kent		Terminal Rd	Rte 612	.484 M N of Rte 612	Reconstruction					x	No
Richmond	New Kent		Adkin's Rd	Charles City C.L.	U.S. 80 W; Gap terminus	Widen, Recon, Shldrs					x	No
Richmond	New Kent		Homestead Rd	Rte 632	2.2 M S of Rte 632	Rural rustic					x	No
Richmond	New Kent		Mt Pleasant Rd	.4 M N of Rte 1102	1.5 M N of Rte 1102	Rehab of existing Non-hard					x	No
Richmond	New Kent		Henpeck Rd (VA 665)	Rte 640	.2 M N of Rte 1208	Reconstruction					x	No
Richmond	New Kent		Cosby Mill Rd	at Black Creek		Drainage Improvement					x	No
Richmond	New Kent		Rte 647	East Rte 650	Rte 649	Surface Treatment					x	No
Richmond	New Kent		Rte 628	4.3 M N of Rte 1102	Rte 627	Surface Treatment					x	No
Richmond	New Kent		Rte 602	.25 M E of Rte 165	W Rte 629	Surface Treatment					x	No
Richmond	New Kent		Vineyards Parkway (Rte 106)			Widening w/Roundabouts @ Ints					x	No
Richmond	New Kent		I-64	Rte 106 - construct roundabouts @ the ramp terminals of existing diamond int		Interchange					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Powhatan	53316	RECONST SIDEWALKS,STORM WATER CTRL & ADD LIGHTING CH SQUARE			Safety/Traffic Opers/TSM				x	x	No
Richmond	Powhatan	86560	Construct Centerline Rumble Strips			construct rumblestrips				x	x	No
Richmond	Powhatan	86563	Construct Centerline Rumble Strips			construct rumblestrips				x	x	No
Richmond	Powhatan	86564	Install Centerline Rumble Strips			inst rumblestrips				x	x	No
Richmond	Powhatan	17155	RTE 288 - 4 LANES ON 6 LANE RW/ NEW LOCATION (PE & RW ONLY)	CHESTERFIELD/POWHATAN CO LINE	NORTH OF JAMES RIVER	New Facility - PE Only					x	No
Richmond	Powhatan	50028	RTE 13 - SIDEWALK INSTALLATION & IMPROVEMENTS	0.229 MI. WEST OF RTE 13 ON RTE 687	0.875 MI. SOUTH OF RTE 687 ON RTE 13	Safety/Traffic Opers/TSM				x	x	No
Richmond	Powhatan	56361	RTE 60 - INTERSECTION/CROSSOVER	AT JUDES FERRY		Safety/Traffic Opers/TSM					x	No
Richmond	Powhatan	8216	RTE 675 - RECONSTRUCTION	INTERSECTION OF RTE 60 APPROX 2 MI FROM CHESTERFIELD CO LINE	0.10 MILE NORTH OF ROUTE 60	Reconstruction				x	x	No
Richmond	Powhatan	17874	RTE 614 - REALIGN EXISTING 2-LN ROAD, IMPROVE INTERSECTION	0.28 KILOMETERS SOUTH ROUTE 643	0.44 KILIMETERS NORTH ROUTE 643	imprv intrsctn & realign					x	No
Richmond	Powhatan	19049	RTE 603 - CONSTRUCT TURN LANES ON ROUTE 13	ON ROUTE 13		Construct turn lanes					x	No
Richmond	Powhatan	19056	RTE 711 - IMPROVE SIGHT DISTANCE AT PLEASANTS ROAD	AT ROUTE 616 PLEASANTS ROAD		Improve sight distance					x	No
Richmond	Powhatan	50521	RTE 711 - SAFETY IMPROVEMENTS	Route 607, Huguenot Springs Rd.	Route 614, Mill Road	Safety/Traffic Opers/TSM					x	No
Richmond	Powhatan	52145	RTE 614 - WIDEN PAVEMENT & OVERLAY TO PROVIDE FOR STRIPING	ROUTE 1211	0.15 Mi East of intersection ROUTE 613	widen pvmnt & overlay; recon				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Powhatan	64718	RTE 711 - LANDSCAPING	AT INTERSECTION OF ROUTE 288		Landscaping					x	No
Richmond	Powhatan	72472	RTE 620 - STRAIGHTEN CURVES & WIDEN PAVEMENT	1.14 MILES SOUTH ROUTE 13	0.715 MILES SOUTH ROUTE 13	widen pvmnt & strghten crvs; recon					x	No
Richmond	Powhatan	86439	Rte. 717, Tucker Rd. - Surface treat nonhardsurface road.	Route 684	Route 684	Surface Treatment					x	No
Richmond	Powhatan	86440	Rte. 608, Moore Rd. - Surface treat nonhardsurface road	Norfolk Southern Railroad tracks	End of state maintenance	Surface Treatment					x	No
Richmond	Powhatan	86441	Rte. 655 (Kool Lane) - Surface treat nonhardsurfaced road	Route 522 (Maidens Road)	Cul-de-sac	Surface Treatment					x	No
Richmond	Powhatan	86442	Widen Rte. 711 and replace bridge over Bernard's Creek.	Rte. 288	Chesterfield/Powhatan County line	widen & replc bridge				x	x	No
Richmond	Powhatan	86443	Rte. 711, Huguenot Trail, at Rte. 614, Judes Ferry Road	At Rte. 614, Judes Ferry Road		Reconstruction				x	x	No
Richmond	Powhatan	86444	Rte. 711, Huguenot Trail, at Rte. 635, Manakin Town Ferry Rd	At Rte. 635, Manakin Town Ferry Road		Reconstruction				x	x	No
Richmond	Powhatan	86445	Rte. 711, Huguenot Trail, at Rte. 615, Three Bridge Road	At Rte. 615, Three Bridge Road		Reconstruction				x	x	No
Richmond	Powhatan	86446	Rte719 Harris Rd Reconstr-Surface treat nonhardsurface road.	Route 711	End of state maintenance	Recon & surface treatments					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	Intersection	at Judes Ferry Rd (VA 614)	Modification					x	No
Richmond	Powhatan		Anderson Hwy (US 60)	Intersection	Page Rd (VA 675)	Intersection Relocation/Imprv					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	Rte 288	Chestefield CL	Recon/widen & Improve Bridge		4			x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Powhatan		Huguenot Tr. (VA 711)	Rte 288	Huguenot Springs Rd (VA 607)	Reconst & Realign Intersection		2			x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	Intersection	at Manakintown Ferry Rd (VA 635)	Improve Intersection & Add RTLs					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	Intersection	Three Bridge Rd (VA 615)	Improve Intersection					x	No
Richmond	Powhatan		Dorset Rd (VA 622)	Intersection	at US 60	Improve Intersection & Add TLs					x	No
Richmond	Powhatan		Rockey Ford Rd	ON ROUTE 13		Construct turn lanes					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	AT INTERSECTION OF ROUTE 288		Landscaping					x	No
Richmond	Powhatan		Duke Rd	.55 M N of Rte 725	Rte 684	Surface Treatment					x	No
Richmond	Powhatan		Mill Rd	Rte 1211	Rte 613	Widen pavement					x	No
Richmond	Powhatan		Mill Quarter Rd	1.14 M S of Rte 13	.72M S of Rte 13	Straighten curves & widen					x	No
Richmond	Powhatan		Swann Rd	End of State Maintenance	Rte 715	Surface Treatment					x	No
Richmond	Powhatan		Page Rd	at Rte 60		Intersection Improvements					x	No
Richmond	Powhatan		Rte 649	Rte 684	Rte 717	Surface Treatment					x	No
Richmond	Powhatan		Pleasants Rd	at Rte 711		Improve sight distance					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Powhatan		Huguenot Tr. (VA 711)	at Rte 614		Reconstruction					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	Rte 635		Reconstruction					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	at Rte 615		Reconstruction					x	No
Richmond	Powhatan		Harris Rd	Rte 711	Dead End	Surface Treatment					x	No
Richmond	Powhatan		Tucker Rd	Rte 684	Rte 684	Surface Treatment					x	No
Richmond	Powhatan		Moore Rd	Norfolk Southern Railroad tracks	End of state maintenance	Surface Treatment					x	No
Richmond	Powhatan		Kool Lane	Rte 522	Cul-de-sac	Surface Treatment					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	Rte 288	Chesterfield/Powhatan County line	Widen & replace Rte 711					x	No
Richmond	Powhatan		Dorset Rd (VA 622)	at Rte 60		Improve Intersection & Add TLs					x	No
Richmond	Powhatan		Huguenot Tr. (VA 711)	at Rte 607 & Rte 614		Safety Improvements					x	No
Richmond	Powhatan	-4906	Rte 622 - Dorset Rd	at Anderson Highway		Intersection imprv, add turn lanes				x		No
Richmond	Powhatan	19050	Dorset Rd (VA 622)	at Rte 610	0.2600 KM	Intersection Realignment					x	No
Richmond	Richmond	13791	LANDSCAPING ON VARIOUS SITES	VARIOUS LOCATIONS WITHIN THE CITY OF RICHMOND		Landscaping				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	18797	ADAPTIVE REUSE OF HISTORICAL TRANSPORTATION SITE	ADAPTIVE REUSE OF THE STEAM PLANT BUILDING AND	THE RESTORATION OF TRACK #8	Enhancement				x	x	No
Richmond	Richmond	51999	A STATE OF THE ART MAP AT RICHMOND'S CIVIL WAR CENTER	PRINT VIRGINIA CIVIL WAR TRAILS MAP GUIDES		Enhancement				x	x	No
Richmond	Richmond	52000	REHABILITATION OF THE HULL STREET PASSENGER STATION	AND SURROUNDING AREA FOR A MUSEUM.		Rehabilitation				x	x	No
Richmond	Richmond	52046	CONSTRUCTION & RESTORATION	SITE WORK FOR THE TROLLEY LOOP		construction & restoration/enhncmnt				x	x	No
Richmond	Richmond	52049	CONSTRUCTION OF EDUCATIONAL INTERACTIVE EXHIBIT			Enhancement				x	x	No
Richmond	Richmond	56419	LANDSCAPE, CONST SIDEWALK, CROSSWALK & LIGHTING IMPROVEMENTS	ALONG THE EAST BROAD STREET CORRIDOR		Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	56420	CONSTRUCT SIDEWALK, LANDSCAPE AND LIGHTING IMPROVEMENTS	TO THE BROWN'S ISLAND AREA		Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	56426	RICHMOND CONVENTION AND VISITORS BUREAU			Enhancement				x	x	No
Richmond	Richmond	70692	BROWN'S ISLAND PEDESTRIAN IMPROVEMENTS - PHASE II			Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	78146	CITY OF RICHMOND - BROWN'S ISLAND ENHANCEMENT	CONSTRUCTION OF REINFORCED CONC. EXPOSED AGGREGATE WALKWAY		Enhancement				x	x	No
Richmond	Richmond	78223	CITY OF RICHMOND - OREGON HILL GREENWAY			Enhancement				x	x	No
Richmond	Richmond	78224	CITY OF RICHMOND - COMMONWEALTH GATEWAY LANDSCAPING	LANDSCAPING AND CONSTRUCTION OF CROSSWALKS ALONG	BELVIDERE STREET FROM FRANKLIN AND CANAL STREETS	Enhancement				x	x	No
Richmond	Richmond	78244	VA CAPITOL SQUARE SIDEWALKS	CONSTRUCTION OF PEDESTRIAN MALL, CROSSWALKS, BRICK SIDEWALKS	ALONG BANK STREET AND LANDSCAPING	Safety/Traffic Opers/TSM				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	78245	VIRGINIA CAPITAL TRAIL - WESTERN SECTION	0.02 Mile South Intersection of 18th & Dock St.	0.02 Mile South Intersection of Pear & Dock St.	Enhancement				x	x	No
Richmond	Richmond	81763	CITY OF RICHMOND - INSTALLATION OF BIKE RACKS	IN THE CAPITAL AREA		Enhancement				x	x	No
Richmond	Richmond	83937	City of Richmond, Commonwealth Gateway Phase C502	Main Street	Main Street	Enhancement				x	x	No
Richmond	Richmond	86556	Replace Pedestal Mounted Poles on Grace Street			Enhancement				x	x	No
Richmond	Richmond	19041	ROUTE 95 - INTERIM IMPROVE.ON RTE.1 FOR TRAFFIC MANAGEMNT	DECATUR STREET	ROUTE 150	Minor improvements					x	No
Richmond	Richmond	-1811	City of Richmond: Employee TripReduction Program			Trip reduction				x	x	No
Richmond	Richmond	80510	CN OF TRANSPORTATION ENHANCE & INFRSTRUCTURE OF VMFA PROJECT	SAFETEA-LU EARMARK PROJ. #981.		Enhancement				x	x	No
Richmond	Richmond	86429	Virginia Capital Trail - Richmond East			Enhancement					x	No
Richmond	Richmond	-1807	Purchase replacemet paratransit vans			Transit Vehcl purchase			Exempt	x	x	N/A
Richmond	Richmond	-1806	New marking campaign: Educate users about transit technology			Transit education				x	x	No
Richmond	Richmond	-998	Global Positioning System/Auto Vehicle Location/Auto Passenger Counting Project			Transit ITS			Exempt	x	x	N/A
Richmond	Richmond	-240	Transit Information Software			Transit ITS			Exempt	x	x	N/A
Richmond	Richmond	-206	Alternative Fuel Trolley Vehicle Replacement			Transit Vehcl purchase			Exempt	x	x	N/A

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	-203	Regionwide Air Pollution Reduction Program	Regionwide Air Pollution Reduction Program		air pollution reduction			2011	x	x	Yes
Richmond	Richmond	-201	Vanpool Fleet Expansion			Transit expansion/vhcle purchase			Exempt	x	x	N/A
Richmond	Richmond	-198	Marketing Campaign To Attract Choice Riders			air pollution reduction			2011	x	x	Yes
Richmond	Richmond	-41	Renovation of Transportation Facility			Renovation				x	x	No
Richmond	Richmond	-40	Expansion of Current Maintenance Facility			Maint. facility expansion			Exempt	x	x	N/A
Richmond	Richmond	-39	Bus Transfer Station on Broad Street between 7th and 8th Streets			Transfer system				x	x	No
Richmond	Richmond	16346	FOREST HILL AVENUE - ADD GATES	0.04 MILE SOUTH POWHITE PARKWAY	(DOT# 714-073J - SOU RAILROAD)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	17280	Rte 360 - INTERCONNECT SIGNALS W/PRE-EMPTION FEATURE AT DOCK STREET	SOUTHERN RAILROAD (DOT# 714-220U)	(14TH STREET - INTERSECTION BYRD STREET)	Signal Enhancements				x	x	No
Richmond	Richmond	55824	HOSPITAL STREET - UPGRADE FLASHING LIGHTS, ADD GATES, ETC.	AT RAILROAD CROSSING	(AT 7TH STREET)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	76966	FLASHING LIGHTS,& GATES, MEDIAN BARRIER CONSTANT WARNING	AT CSX TRANSPORTATION RAILROAD CROSSING - DOT# 623522U	54 FT SOUTH OF WEBSTER STREET	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	76968	FLASHING LIGHTS & GATES MEDIAN CONSTANT WARNING T/P & E/R	AT CSX TRANSPORTION RAILROAD CROSSING DOT# 623518E	0.14 MILE EAST OF LEIGH STREET	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	76969	REALIGN HOSPITAL ST., LIGHTS & GATES & CONSTANT WARNING	AT CSX TRANSPORTATION RAILROAD CROSSING DOT# 623530L	INTERSECTION OF 7TH STREET	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	86550	Broad Rock Rd. - Interconnect RR Signals with Hwy Signals	.08 MI W of RT 161		Signal Enhancements				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	86551	Bells Rd - Interconnect RR signals with Hwy Signals	.07 MI E of Commerce Rd.		Signal Enhancements				x	x	No
Richmond	Richmond	15834	RTE 60 (MIDLOTHIAN TURNPIKE) - RECONSTRUCTION	0.058 KILOMETER EAST OF WEST RICHMOND CITY LIMITS	2.850 KILOMETERS EAST OF WEST RICHMOND CITY LIMITS	Reconstruction			Exempt	x	x	N/A
Richmond	Richmond	15835	GERMAN SCHOOL ROAD - MAJOR WIDENING	0.232 KILOMETER NORTH OF WARWICK ROAD	0.006 KILOMETER SOUTH OF GLENWAY DRIVE EAST	Major Widening			2018	x	x	Yes
Richmond	Richmond	15852	RTE 1 - PROVIDE LEFT TURN LANE AND CHANNELIZATION	AT LEIGH STREET		const RTL & channelization			Exempt	x	x	N/A
Richmond	Richmond	15953	ROYAL AVENUE - RECONSTRUCTION	LYNHAVEN AVENUE	COMMERCE ROAD	Reconstruction					x	No
Richmond	Richmond	15954	WHITEHEAD ROAD - MAJOR WIDENING - PE ONLY	WARWICK ROAD	ROUTE 360 AND ELKHARDT ROAD	Widening - PE Only	2	4	2031	x	x	Yes
Richmond	Richmond	15955	RTE 1 - MAJOR WIDENING	0.010 KM SOUTH OF CHESTERMAN AVENUE	0.016 KM NORTH OF DECATUR STREET	Major Widening	4	6	2018	x	x	Yes
Richmond	Richmond	15958	COMMERCE ROAD - MAJOR WIDENING	BELLS ROAD (NORTH JUNCTION)	0.266 KILOMETER BELLEMEADE ROAD	Major Widening	2	4	2018	x	x	Yes
Richmond	Richmond	15959	RTE 360 - MAJOR WIDENING	ELKHARDT ROAD	DIXON STREET	Major Widening	4	6	2018	x	x	Yes
Richmond	Richmond	16432	RTE. 161 - CASTLEWOOD RD - INSTALL TRAFFIC SIGNAL	AT BELLS ROAD		Install signal					x	No
Richmond	Richmond	16434	8TH STREET - UPGRADE TRAFFIC SIGNALS (4 LOCATIONS)	CLAY STREET	FRANKLIN STREET	Upgrade mult. signals			Complete		x	Yes
Richmond	Richmond	16435	RTE 147 - MAIN STREET - UPGRADE TRAFFIC SIGNALS	13TH STREET	LAUREL STREET (6 LOCATIONS)	Upgrade mult. signals					x	No
Richmond	Richmond	16572	BELVIDERE STREET - INTERSECTION IMPROVEMENTS	AT BROAD STREET		intersection imprvs			Exempt	x	x	N/A

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	16573	BELVIDERE STREET - INTERSECTION IMPROVEMENTS	AT MARSHALL STREET		intersection imprvs			Exempt	x	x	N/A
Richmond	Richmond	16575	RICHMOND BOULEVARD - MEDIAN IMPROVEMENTS	BROAD STREET	WESTWOOD AVENUE	median imprvs			Exempt		x	N/A
Richmond	Richmond	16576	14TH STREET - CORRIDOR IMPROVEMENTS	MAIN STREET	DOCK STREET	Corridor Improvements			Exempt	x	x	N/A
Richmond	Richmond	16577	FRANKLIN STREET-RAMP IMPROVEMENTS-RELOCATION OF 15TH STREET	FRANKLIN STREET	MAIN STREET	ramp imprvs & reloc			Exempt	x	x	N/A
Richmond	Richmond	17530	RTE 60 - CHANNELIZATION & NEW SIGNALS	AT CRUTCHFIELD STREET		Channelization & New Signals			2031		x	Yes
Richmond	Richmond	17774	RTE 1 - SIGNAL SYSTEM PHASE I & II	COWARDIN AVENUE CORRIDOR		signal system			Complete		x	Yes
Richmond	Richmond	17777	JENNIE SCHER ROAD - APPROACHES AND BRIDGE OVER GILLIES CREEK	0.17 MILE SOUTH OF GILLIES CREEK	0.13 MILE NORTH OF GILLIES CREEK	approaches & bridge			Exempt	x	x	N/A
Richmond	Richmond	19001	MIDLOTHIAN TURNPIKE INTERCHANGE STUDY	AT BELT BOULEVARD		Study			Exempt	x	x	N/A
Richmond	Richmond	19002	RTE 60 - INSTALL SIGNAL & CHANNELIZE	AT ADMIRAL GRAVELY BLVD		Install signal & channelization					x	No
Richmond	Richmond	19035	JAHNKE ROAD-WIDENING	BLAKEMORE ROAD	CLARENCE STREET	Major Widening	2	4	2031	x	x	Yes
Richmond	Richmond	19036	FOREST HILL AVE-WIDENING	HATHAWAY ROAD	EAST JUNCTION POWHITE PARKWAY	Widening			2018	x	x	Yes
Richmond	Richmond	50023	COMMERCE ROAD - SIGNALIZATION CHANNELIZATION ENHANCEMENTS	ALONG COMMERCE ROAD		Signal enhanc & channelization				x	x	No
Richmond	Richmond	52504	RTE 1 - INSTALL POSITIVE GUIDANCE SYSTEM (HES PROJECT)	SEMMES AVENUE	SOUTH OF LEE BRIDGE AT COWARDIN AVENUE	ITS??			Exempt		x	N/A

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	52508	3RD STREET - SIGNAL MODERNIZATION	AT INTERSECTION GRACE STREET		signal modernization					x	No
Richmond	Richmond	52509	7TH STREET - SIGNAL MODERNIZATION	AT INTERSECTION MARSHALL STREET		signal modernization					x	No
Richmond	Richmond	52510	7TH STREET - SIGNAL MODERNIZATION	AT INTERSECTION FRANKLIN STREET		signal modernization					x	No
Richmond	Richmond	56294	CITY OF RICHMOND - RETIME SIGNALS	OUTSIDE RICHMOND SIGNAL SYSTEM	(PAYMENT FOR RETIMING OF SIGNALS - MONITORING OF FUNDS ONLY)	signal retiming			2018	x	x	Yes
Richmond	Richmond	56797	CITY OF RICHMOND-INSTALL TRAFFIC SIGNAL-WALMSLEY BLVD.	AT CASTLEWOOD ROAD		install signal				x	x	No
Richmond	Richmond	58486	5TH STREET - INSTALL TRAFFIC SIGNAL	AT BYRD STREET		install signal					x	No
Richmond	Richmond	60829	RTE 1 - BRIDGE REHABILITATION - CONTRACT #2	ROBERT E LEE BRIDGE		Bridge rehab					x	No
Richmond	Richmond	60964	BROAD STREET - BUS LANES	2ND STREET	14TH STREET	Bus Lanes			2011	x	x	Yes
Richmond	Richmond	61454	RTE 161 - (THE BOULEVARD) - INSTALL PEDESTRIAN SIGNALS	0.05 MILE SOUTH OF IDLEWOOD AVENUE	0.05 MILE NORTH OF GRACE STREET	Safety/Traffic Opers/TSM			Exempt	x	x	N/A
Richmond	Richmond	64218	DOWNTOWN TRANSIT CENTER - SHORT TERM	(PAYMENT FOR DOWNTOWN TRANSIT CENTER - MONITORING OF	FUNDS ONLY)	transit center - funds monitoring			Exempt	x	x	N/A
Richmond	Richmond	64219	MAIN STREET STATION CAPITAL FUNDS	(PAYMENT FOR MAINSTREET STATION - MONITORING OF FUNDS	ONLY)	transit center - funds monitoring			Exempt	x	x	N/A
Richmond	Richmond	64220	GEOGRAPHIC INFORMATION SYSTEM	(PAYMENT FOR STUDY OF GIS - MONITORING OF FUNDS ONLY)		GIS - funds monitoring				x	x	No
Richmond	Richmond	64222	TRANSPORTATION PLAN UPDATE	(PAYMENT FOR TRANSPORTATION PLAN UPDATE -	MONITORING OF FUNDS ONLY)	Plan update				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	66857	MAIN STREET STATION OPERATIONS	(PAYMENT FOR MAIN STREET STATION OPERATIONS -	MONITORING OF FUNDS ONLY)	Transit/rail operations			Exempt	x	x	N/A
Richmond	Richmond	66858	SHOCKOE BOTTOM OPERATIONS IMPROVEMENTS	(MONITORING OF FUNDS ONLY)		ops improvements			Exempt	x	x	N/A
Richmond	Richmond	67740	RTE 161 - SIGNAL MODIFICATION	AT MONUMENT AVENUE		signal modification				x	x	No
Richmond	Richmond	67741	RTE 250 - SIGNAL MODIFICATION	INTERSECTIONS OF EAST BROAD STREET	WITH N. 1ST STREET, N. 2ND STREET, N. 3RD STREET	signal modification				x	x	No
Richmond	Richmond	67742	RTE 250 - SIGNAL MODIFICATION	INTERSECTIONS OF EAST BROAD STREET	WITH N. 7TH STREET, N. 8TH STREET, N. 9TH STREET	signal modification				x	x	No
Richmond	Richmond	67743	RTE 250 - SIGNAL MODIFICATION	INTERSECTION OF EAST BROAD STREET	WITH N MEADOW ST., N ALLEN ST., N LOMBARDY ST., BOWE ST.	signal modification				x	x	No
Richmond	Richmond	70589	RTE 5 - CITY OF RICHMOND - MAIN STREET STATION SIGNAL	Main Street Between 15th and 17th	(Intersection Improvements)	Intersection improvements				x	x	No
Richmond	Richmond	70591	CITY OF RICHMOND - TRAFFIC CONTROL & SAFETY ENHANCEMENTS	(MPO PROJECT)		Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	70593	CITY OF RICHMOND - SIGNAL SYSTEM ENHANCEMENT (MPO PROJECT)	MPO PROJECT		Signal system enhancement			Exempt	x	x	N/A
Richmond	Richmond	71451	RTE 1 - MODERNIZE 2 INTERSECTIONS & ENHANCE PAVEMENT MARKNGS	AT 250 FEET SOUTH OF SCHOOL STREET	AND AT 250 FEET NORTH OF NORTH AVENUE (HES PROJECT)	Signal modern. & pvmnt markings				x	x	No
Richmond	Richmond	71452	RTE 360 - SIGNALIZE INTERSECTION & ENHANCED PAVEMENT	AT 32ND STREET	(HES PROJECT)	install signal & ehnce pvmnt				x	x	No
Richmond	Richmond	71454	FRANKLIN STREET-MODERNIZE 2 INTERSECTIONS; ENHANCE MARKINGS	AT 250 FEET WEST OF 2ND STREET (HES PROJECT)	AND AT 250 FEET EAST OF 3RD STREET	Signal modern. & pvmnt markings				x	x	No
Richmond	Richmond	71457	FRANKLIN ST - REPLACE EXISTING SIGNALS; ENHANCE MARKINGS	AT LAUREL STREET		signal replcmnt & pvmnt markings				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	71458	RTE 250 - MODERNIZE 2 SIGNALS & ENHANCE PAVEMENT MARKINGS	AT 250 FEET WEST OF 17TH STREET (HES PROJECT)	AND AT 250 FEET EAST OF 21ST STREET	Signal modern. & pvmnt markings				x	x	No
Richmond	Richmond	71459	RTE 250 - REPLACE EXISTING SIGNALS; ENHANCE PAVEMENT MARKNGS	AT 250 FEET WEST OF THOMPSON STREET	AND AT 250 FEET EAST OF ROSENEATH STREET	signal replcmnt & pvmnt markings					x	No
Richmond	Richmond	71730	RTE 10 - SIDEWALK, HANDICAP RAMPS, X-WALKS, SIGNALIZED X-ING	SOUTH BELT BOULEVARD (ROUTE 161)	NORTH BELT BOULEVARD (ROUTE 161)	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	71786	CITY OF RICHMOND - FORMULA CITY PAYMENT			Funds monitoring??				x	x	No
Richmond	Richmond	72706	CITY OF RICHMOND - PAINTING & REHABILITATION	MANCHESTER BRIDGE		Painting and rehabilitation				x	x	No
Richmond	Richmond	72795	LOMBARDY STREET - REHABILITATION - PHASE II	BROOK ROAD	ADMIRAL STREET	Rehabilitation				x	x	No
Richmond	Richmond	73022	GERMAN SCHOOL ROAD - DRAINAGE STRUCTURE AT REEDY CREEK	TO BE ADMINISTERED BY CITY OF RICHMOND; SPLIT FROM ID 15835		Drainage Improvement				x	x	No
Richmond	Richmond	77151	RTE 197 - CONVERT EXIST HORZNTL ALGNMNT OF MODERN ROUNDABOUT	250 FEET WEST HERMITAGE ROAD	250 FEET EAST HERMITAGE ROAD	horiz alignment improvmnt				x	x	No
Richmond	Richmond	77154	90 DEGREE MAST ARM, SIGNAL INDICATIONS, P/MARKINGS TURN LANE	FOREST HILL AVE AT SOUTHBOUND CHIPPENHAM PARKWAY OFF RAMP		Intersection improvements				x	x	No
Richmond	Richmond	77155	90 DEGREE MAST ARM LANE INDICATIONS, P/MARKING AND MEDIANS	THOMPSON STREET AT INTERSECTION OF CARY STREET		Intersection improvements				x	x	No
Richmond	Richmond	77156	90 DEGREE MAST ARM LANE INDICATIONS, PAVEMENT MARKINGS	250' NORTH OF GRACE STREET	250' SOUTH OF FRANKLIN STREET	Intersection improvements				x	x	No
Richmond	Richmond	77157	RTE 1 - 90 DEGREE MAST ARM, LN INDICATIONS, P/MARKNGS TRN LN	250 FEET SOUTH MAIN STREET	250 FEET NORTH FRANKLIN STREET	Intersection improvements				x	x	No
Richmond	Richmond	77158	RTE 250 - 90 DEGREE MAST ARM, LN INDICATIONS, PAVMNT MARKNGS	250 FEET WEST 11TH STREET	250 FEET EAST 11TH STREET	Intersection improvements				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	77159	90 DEGREE MAST ARM, LANE INDICATIONS , P/MARKING, TURN LANE	1,000' NORTH OF LOMBARDY STREET	1,000' SOUTH OF LOMBARDY STREET	Intersection improvements				x	x	No
Richmond	Richmond	77160	90 DEGREE MAST ARM, LANE INDICATIONS, PAVEMENT MARKINGS	250' WEST OF JAHNKE ROAD	250' EAST OF ROANOKE ROAD	Intersection improvements				x	x	No
Richmond	Richmond	77161	RTE 147 - CURB EXTENSIONS, 6 INTR CROSSWALKS AND STOP BARS	250 FEET WEST THOMPSON STREET	250 FEET EAST BOULEVARD	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	77162	ADDITIONAL STREET LIGHTS ENHANCE CROSSWALKS AND STOP BARS	250' EAST OF CHEROKEE ROAD	250' WEST OF KENMORE ROAD	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	77163	RTE 147 -UPGRD SGNLS W/MAST ARM POLES LN INDICATNS, P/MARKNG	250 FEET WEST 10TH STREET	250 FEET EAST 12TH STREET	Intersection improvements				x	x	No
Richmond	Richmond	77167	RTE 60 - CURB EXTENSION AT 6 INTERSECTNS & PAVEMENT MARKING	250 FEET WEST 33RD STREET	250 FEET EAST CLOPTON STREET	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	80530	IMPROVEMENTS TO PUBLIC ROADWAYS W/IN CAMPUS VA BIOTECH PARK	5th	8th	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	81249	5TH STREET - UPGRADE EXIST SIGNAL, ENHANCE PAVEMENT MARKINGS	250 FEET SOUTH OF JACKSON STREET	250 FEET NORTH OF JACKSON STREET	Upgrade signal & pvmnt mrkngs				x	x	No
Richmond	Richmond	81252	GRACE STREET-UPGRADE EXIST SIGNAL, ENHANCE PAVEMENT MARKINGS	250 FEET EAST OF BELVIDERE STREET	250 FEET WEST OF LOMBARDY STREET	Upgrade signal & pvmnt mrkngs				x	x	No
Richmond	Richmond	81253	FRANKLIN STREET-UPGRADE EXIST SIGNAL, ENHANCE PVMT MARKINGS	250 FEET WEST OF 4TH STREET	250 FEET EAST OF 6TH STREET	Upgrade signal & pvmnt mrkngs				x	x	No
Richmond	Richmond	81345	CONSTRUCT PEDESTRIAN REFUGE ISLAND, MODIFY EXISTING SIGNAL	250 FEET EAST OF CLIFF AVENUE	250 FEET WEST OF GARLAND AVENUE	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	81346	RTE 360 -CONSTR PEDESTRIAN REFUGE ISLAND, MODFY EXIST SIGNAL	250 FEET SOUTH OF O STREET	250 FEET NORTH OF FAIRFIELD WAY	Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond	82110	CONDUCT PLANNING & ENGINEERING FOR MAYO BRIDGE	MAYO BRIDGE OVER JAMES RIVER		PE Only				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond	83930	Realign Duval Street- Biotech Park Phase II	150 feet West of N. 7th Street	150 feet East of N. 8th Street	Realignment				x	x	No
Richmond	Richmond	84086	Greyhound Bus Terminal improvements and traffic signal	at Greyhound Bus terminal		signal & bus terminal imprvmts				x	x	No
Richmond	Richmond	86559	Upgrade Traffic Signal on Patterson Ave			upgrade signal				x	x	No
Richmond	Richmond	86733	HSIP Proactive Safety Projects City of Richmond			Safety/Traffic Opers/TSM				x	x	No
Richmond	Richmond		I-95 Interchange	at Belvidere St	at Belvidere St	Interchange Modification					x	No
Richmond	Richmond		I-95 Interchange	at Duval St	at Duval St	Interchange Modification					x	No
Richmond	Richmond		I-95 Interchange	at Maury St	at Maury St	Interchange Modification					x	No
Richmond	Richmond		17th St & 18th St - One way pairs	BROAD STREET (Rte 250)	DOCK STREET	Enhancements					x	No
Richmond	Richmond		Bells Rd (VA 161)	at .07 mi E Commerce Rd		Interconnect sign w/Pre-emp					x	No
Richmond	Richmond		Broad Rock Blvd (VA 10)	at .008 mi W of Belt Blvd (VA 161)		RR Crossing Imprv					x	No
Richmond	Richmond		Brook Rd/Chamberlayne Ave	Azalea Ave	Admiral St/School St	Signal Enhancements					x	No
Richmond	Richmond		Commerce Rd	Walmsley Blvd	Bellemeade Road	Recon/Signalization					x	No
Richmond	Richmond		Darbytown Rd	Williamsburg Rd (US 60)	Richmond E.C,L.	Feasibility Study					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond		Grove Ave/Cary St	Three Chopt Rd	I-195	Signal Enhancements					x	No
Richmond	Richmond		Lombardy St.	Leigh St.	Admiral St.	Bridge					x	No
Richmond	Richmond		Maury St.	I-95 Ramp	Commerce Rd	Corridor Improvements					x	No
Richmond	Richmond		Mayo Bridge	Over James River		New/Rehab Bridge PE only					x	No
Richmond	Richmond		Midlothian Tpke (US 60)	Broad Rock Blvd (VA 10)	Belt Blvd (VA 161)	Rehabilitation					x	No
Richmond	Richmond		Patterson Ave (VA 6)	Malvern Ave	Richmond C.L.	Signal Enhancements					x	No
Richmond	Richmond		Walmsley Blvd (VA 647)	Broad Rock Blvd (VA 10)	Commerce Rd	Widen to 4 Lanes and RR		4	2031		x	Yes
Richmond	Richmond		Midlothian Tpke (US 60)	Belt Blvd (VA 161)		Interchange/Bridge Recon					x	No
Richmond	Richmond		Multi-modal	Main St. Station Multi-Modal Center	Downtown Richmond	Multi-modal center			Exempt		x	N/A
Richmond	Richmond		Citywide	Safety Projects		Safety Projects					x	No
Richmond	Richmond		I-95	Interchange	Broad Street/17th Street	Improvements					x	No
Richmond	Richmond		I-95	Interchange	at I-95/I-64 W (11B)	Modification					x	No
Richmond	Richmond		I-95 / I-64	I-64	VA 161 on-ramp	Widen 8ln		8	2031		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond		I-64	Interchange	Jennie Scher Road/Stony Run Drive	New Facility			2031		x	Yes
Richmond	Richmond		I-64/I-95 SE	Interchange	2nd Street	Widen 8ln		8	2031		x	Yes
Richmond	Richmond		Huguenot and River Rds. Roundabout			Intersection Improvements					x	No
Richmond	Richmond		Leigh St/Hermitage Road Roundabout	Leigh St.	at Hermitage	Intersection Improvements					x	No
Richmond	Richmond		Leigh St/DMV Drive Roundabout	Leigh St.	DMV Drive	Intersection Improvements					x	No
Richmond	Richmond		Hermitage, Brookland Pkwy. Boulevard, Westwood Roundabout			Intersection Improvements					x	No
Richmond	Richmond		East Broad Street Enhancements	I-95	21st Street	Enhancement					x	No
Richmond	Richmond		Rt. 5 Relocation	Main St./Williamsburg Rd	to E.C.L	Relocation					x	No
Richmond	Richmond		15th Street Improvements	Main Street	Dock Street	Improvements					x	No
Richmond	Richmond		Main Street Station/Shockoe Bottom Development Street Improvements	TBD	TBD	Streetscaping					x	No
Richmond	Richmond		Sidewalk/Signal Improvements	Districtwide		Safety/Traffic Opers/TSM					x	No
Richmond	Richmond		Port of Richmond	Richmond MPO	Hampton Roads MPO (incl Tri-cities MPO)	Marine Highway Initiative			2031		x	Yes
Richmond	Richmond		City of Richmond Employee Trip Reduction Program		UPC# T1811	air pollution reduction			2011		x	Yes

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Richmond		Virginia Capital Trail - Richmond East		Great Shiplock Park to CL	New constructcion					x	No
Richmond	Richmond		Main Street Station Operations			transit operations					x	No
Richmond	Richmond		Manchester Bridge			Painting and rehabilitation					x	No
Richmond	Richmond		I-95	Interchange	Broad St (US 250)	Modification					x	No
Richmond	Richmond		Citywide			Intersectn Pvmnt Marking Prgrm					x	No
Richmond	Richmond		Citywide			Roundabouts Planning Studies					x	No
Richmond	Richmond		Additional Train Service	Main Street Station	Locations in Virginia	Services					x	No
Richmond	Richmond		Marshall St. ext to Main St.	17th St	Main Street Station	New					x	No
Richmond	Richmond		Lombardy Street	Chamberlayne Ave (US 1)	Admiral St	??					x	No
Richmond	Richmond	17278	Rte 10 - Interconnect w/pre-emption feature @ Rte 161 (Belt Blvd)	CSX railroad	Broad Rock Rd, 0.08 M W of Rte 161	signal improvements				x		No
Richmond	Richmond	54912	ADAPTIVE REUSE OF HISTORICAL TRANSPORTATION SITE			Enhancement				x		No
Richmond	Richmond	69073	HULL STREET PASSENGER STATION, ROOF REPAIRS			Rehabilitation				x		No
Richmond	Richmond	-4798	HSIP PROACTIVE SAFETY PROJECTS - City of Richmond	various locations		Safety/Traffic Opers/TSM					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Rich/Henrico		Rail Improvements - Phase 1	Main Street Station	Staples Mill Station	Rail improvements					x	No
Richmond	Rich/Hanover		Rail Improvements - Phase 2	Centralia	Doswell	Rail improvements					x	No
Richmond	Rchmd District	-4562	PE - Future Projects to be Determined			PE Only					x	No
Richmond	Rchmd District	-286	511 Virginia - Travel Information			??				x	x	No
Richmond	Rchmd District	18944	RTE 95 - BRIDGE REHABILITATION- PE & RW ONLY	BETWEEN BROAD STREET RAMP BRIDGE AND UPHAM BROOK		Bridge rehab - PE & RW Only				x	x	No
Richmond	Rchmd District	52443	RTE 64 - PAVEMENT REHABILITATION & WIDENING	1.0 MILE EAST ROUTE 295	1.0 MILE EAST ROUTE 249	pvmnt rehab & Major Widening			2018	x	x	Yes
Richmond	Rchmd District	59029	RIC SIGN REPLACEMENT	VARIOUS LOCATIONS		sign replacement				x	x	No
Richmond	Rchmd District	70671	RICHMOND INTERSTATE DISTRICTWIDE GUARDRAIL	VARIOUS ROUTES		Safety/Traffic Opers/TSM				x	x	No
Richmond	Rchmd District	70675	RICHMOND INTERSTATE DISTRICTWIDE PAVEMENT MARKERS	VARIOUS ROUTES		Safety/Traffic Opers/TSM				x	x	No
Richmond	Rchmd District	70679	RICHMOND INTERSTATE DISTRICTWIDE SIGNALS	VARIOUS ROUTES		Safety/Traffic Opers/TSM				x	x	No
Richmond	Rchmd District	70680	RICHMOND INTERSTATE DISTRICTWIDE SIGNS	VARIOUS ROUTES		Install signs				x	x	No
Richmond	Rchmd District	75144	INSTALL CLOSED CIRCUIT CAMERAS FOR RICHMOND SMART TRAFF. CTR			ITS				x	x	No
Richmond	Rchmd District	17371	CAPTIAL REGION AIRPORT COMMISSION MODAL - PE ONLY	COMPATABILITY STUDY		PE Only				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Rchmd District	50650	RIDEFINDERS - REGIONWIDE	RIDEFINDERS - RICHMOND REGIONWIDE		air pollution reduction				x	x	No
Richmond	Rchmd District	70719	RICHMOND DISTRICT CMAQ BALANCE ENTRY			Funds monitoring					x	No
Richmond	Rchmd District	70721	RICHMOND DISTRICT REGIONAL STP (RSTP) BALANCE ENTRY			Funds monitoring					x	No
Richmond	Rchmd District	86684	(T4601) HSIP District-wide High Risk Rural Roads Richmond			Safety/Traffic Opers/TSM				x	x	No
Richmond	Rchmd District	4012	DISTRICTWIDE BRIDGE STRENGTHENING AND WIDENING	PRIMARY SYSTEM	RICHMOND DISTRICT	Bridge Rehab				x	x	No
Richmond	Rchmd MPO	57567	RTE 288 - CONSTRUCT 4 LANES ON NEW LOCATION	SOUTH OF ROUTE 76	ROUTE 250	New Facility	0	4	2011	x	x	Yes
Richmond	Rchmd District	59552	RTE 288 - MITIGATION SITE	45 ACRE WETLAND COMPENSATION SITE ALONG THE APPOMATTOX	RIVER OFF OF ROUTE 682	Environmental mitigation				x	x	No
Richmond	Rchmd District	68973	RTE 58 - OUTSTANDING R/W & CN	DISTRICTWIDE (UPC'S 9879, 9880, 9882, 9883, 11314, 13734,	13835, 16093, 10178, 15538, 50434 & 50435)	Funds monitoring					x	No
Richmond	Rchmd District	70682	RICHMOND PRIMARY DISTRICTWIDE GUARDRAILS	VARIOUS ROUTES		Safety/Traffic Opers/TSM					x	No
Richmond	Rchmd District	70686	RICHMOND PRIMARY DISTRICTWIDE SIGNALS	AT GLENSIDE DRIVE		Install signal(s)					x	No
Richmond	Rchmd District	70708	RICHMOND PRIMARY DISTRICTWIDE TECHNOLOGY	VARIOUS ROUTES		ITS					x	No
Richmond	Rchmd District	86428	Virginia Capital Trail Coordination - PE Only	Smithsonian Funds for VA Capital Trail Coordination		Enhancement					x	No
Richmond	Rchmd District	-4314	RICHMOND GRTC - PURCHASE 15 TRANSIT BUSES	RICHMOND GRTC - PURCHASE 15 TRANSIT BUSES		Transit Vehcl purchase				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	Rchmd District	72689	EZPASS - Richmond Metro Area (For RMA)			Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	16840	RUMBLE STRIPS	Various locations		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	70673	RICHMOND INTERSTATE ITS DISTRICTWIDE	VARIOUS ROUTES		ITS				x		No
Richmond	Rchmd District	81374	HSIP DISTRICTWIDE RUMBLE STRIPS	VARIOUS ROUTES		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81369	HSIP DISTRICTWIDE GUARDRAIL	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81371	HSIP DISTRICTWIDE ROADSIDE SAFETY	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81372	HSIP DISTRICTWIDE ROADWAY LIGHTNING	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81373	HSIP DISTRICTWIDE ROADWAY SAFETY ASSESSMENT	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81386	HSIP SHOULDER IMPROVEMENT	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81387	HSIP DISTRICTWIDE TRAFFIC MARKINGS	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81388	HSIP DISTRICTWIDE TRAFFIC SIGNALS AND ITS	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	Rchmd District	81390	HSIP DISTRICTWIDE TRAFFIC SIGNS	RICHMOND VARIOUS LOCATIONS		Safety/Traffic Opers/TSM				x		No
Richmond	State-wide	-1858	RAIL SAFETY PROJECTS - STATEWIDE (STIP)			Rail safety				x		No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	State-wide	-4152	PREVENTATIVE MAINTENANCE AND SYSTEMS OPERATIONS			Safety/Traffic Opers/TSM				x		No
Richmond	State-wide	-3748	BRIDGE SAFETY INSPECTION REHABILITATION & RECONSTRUCTION			Bridge Rehab & Recon				x		No
Richmond	State-wide	-3746	TRAFFIC AND SAFETY OPERATIONS			Safety/Traffic Opers/TSM				x		No
Richmond	RideFinders		TDM Promotion and Ozone Awareness	Districtwide		TDM Program			2011		x	Yes
Richmond	GRTC		Reg. Bus Service	US 60 Trunk Route Expansion	Richmond CL West to Courthouse Rd	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Patterson Ave. Trunk Route Expansion	Terminus of Rtes 1 and 2 West to Gaskins Rd.	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	West Henrico County Circulator/Feeder Service	Areas North of Parham Rd. and South of Broad St.	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	US 60 Area Circulator/Feeder Service	Cloverleaf Mall/Courthouse Rd. Area	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Westside Crosstown	Broad St. Corridor in Henrico Co. to US 60 in Chesterfield County	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Rt. 76 Express	Rt. 288 (Watkins Center) to CBD	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	US 1 South Trunk Route Expansion	City of Richmond South to Rt. 10 in Chesterfield County	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	East Henrico County Circulator / Feeder Service	Nine Mile Rd./Williamsburg Rd. East of RIC Airport	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	US 1 / Rt. 10 Circulator / Feeder Service	US 1/Rt. 288/Rt. 10 Area South of Richmond	transit operations					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	GRTC		Reg. Bus Service	Mechanicsville Circulator / Feeder Service	Mechanicsville Area of Hanover County	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Ashland Circulator / Feeder Service	Hanover County Near Ashland and Industrial Park Areas	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Southside Crosstown Connection	Cloverleaf Mall / Chippenham, I-95 Intersection	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	I-95 N. Express Bus	Downtown to Ashland	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	I-64 E. Express Bus	Downtown to Richmond Airport	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	West Creek Express Bus	Downtown to West Creek	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	288 Express Bus	Powhite to I-64	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Broad St. Trunk Route	Downtown to Short Pump	transit operations					x	No
Richmond	GRTC		Reg. Bus Service	Transit Security	NA	Transit security					x	No
Richmond	GRTC		Reg. Bus Service	Replacement Buses	NA	Transit Vehcl purchase					x	No
Richmond	GRTC		Reg. Bus Service	Replacement Paratransit Vehicles	NA	Transit Vehcl purchase					x	No
Richmond	GRTC		Reg. Bus Service	Preventive Maintenance	NA	Transit maintenance					x	No
Richmond	GRTC		Reg. Bus Service	ADA	NA	transit operations					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	GRTC		Reg. Bus Service	Associated Capital Maintenance	NA	Transit maintenance					x	No
Richmond	GRTC		Reg. Bus Service	Computer Hardware & Software	NA	Transit ITS					x	No
Richmond	GRTC		Reg. Bus Service	Capital Cost of Contracting	NA	Transit capital					x	No
Richmond	GRTC		Reg. Bus Service	Transit Enhancements	NA	Transit enhancements					x	No
Richmond	GRTC		New Service	Bus Rapid Transit (BRT)	Broad Street	transit operations					x	No
Richmond	GRTC		Multi-modal	Transfer Station	CBD	Constr/operate Transfer station					x	No
Richmond	GRTC		Multi-modal	Transfer Centers	Willow Lawn	Constr Transfer center					x	No
Richmond	GRTC			Transfer Centers	Southside Plaza	Constr Transfer center					x	No
Richmond	GRTC			Transfer Centers	Manchester	Constr Transfer center					x	No
Richmond	GRTC		Park & Ride (2)	Park & Ride Facilities	Various Locations - Chesterfield	Obtain/Constr Park-n-Ride lots					x	No
Richmond	GRTC		Park & Ride (2)	Park & Ride Facilities	I-95 at Ashland	Obtain/Constr Park-n-Ride lots					x	No
Richmond	GRTC		Park & Ride (2)	Park & Ride Facilities	I-95 at Rt. 10 Southside	Obtain/Constr Park-n-Ride lots					x	No
Richmond	GRTC		Park & Ride (2)	Park & Ride Facilities	I-95 at Chippenham Southside	Obtain/Constr Park-n-Ride lots					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Richmond	RMA		Powhite Pkwy (VA 76)	Forest Hill Blvd	Chippenham Pkwy (VA 150)	Widen through toll plaza			Complete		x	Yes
Tri-Cities	Chesterfield	62147	Rt. 144 at Treely Rd			Install left turn lane for NB traffic				x	x	No
Tri-Cities	Chesterfield		Rt. 144 Harrowgate Rd	at South Street		SB Right TL					x	No
Tri-Cities	Chesterfield	50113	Halloway Ave. Sidewalks	Hickory Rd.	1.0 Mi. S. Hickory Rd	Section 3				x	x	No
Tri-Cities	Chesterfield		VSU Sidewalk Project	Woodpecker Rd.	East River Rd	Sidewalk Construction				x	x	No
Tri-Cities	Chesterfield		Rt. 1	at Woods Edge Rd		Right TL					x	No
Tri-Cities	Chesterfield		Harrowgate Rd	at South Street		SB Right TL					x	No
Tri-Cities	Chesterfield		East/West Freeway	Harrowgate Rd	I-95 at Woods Edge Rd	New Facility	0	2	2018		x	Yes
Tri-Cities	Chesterfield		East/West Freeway	Harrowgate Rd	North/South Connector	New Faciltiy	0	2	2018		x	Yes
Tri-Cities	Chesterfield		Rt. 625 Branders Br. Rd	At Stoney Glen South		Curve Realignment					x	No
Tri-Cities	Chesterfield	14760	I-95	Woods Edge Road Interchange		Reconstruction				x	x	No
Tri-Cities	Chesterfield	60637	Rt. 625 Branders Br. Rd	.357 Mi. N. Rt. 1129 Whitehouse Rd	.075 Mi.N. Rt. 1129	Safety Improvements				x	x	No
Tri-Cities	Chesterfield	52980	Rt. 628 Hickory Rd	.285 Mi. W. Rt. 812	,011 Mi. E Rt. 812	Eliminate Curve				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Tri-Cities	Chesterfield		Rt. 619 Happy Hill	S. Happy Hill	Rt. 144 Harrowgate Rd	Reconstruction					x	No
Tri-Cities	Chesterfield		Rt. 626 Woodpecker Rd	Bixby Lane	Matoaca Rd (Rt. 600)	Shoulder Improve.					x	No
Tri-Cities	Chesterfield		Rt. 626 Woodpecker Rd	Temple Ave.	Southlawn Ave.	Shoulder Improve.					x	No
Tri-Cities	Chesterfield		Rt. 600 Matoaca Rd	at Rt. 628 Hickory Rd		Intersection Improve.					x	No
Tri-Cities	Chesterfield		Rt. 626 Woodpecker Rd	Rt. 600 Matoaca Rd	Rt. 626 Lakeview Dr	Reconstruction					x	No
Tri-Cities	Chesterfield		Rt. 600 Matoaca Rd	.96 Mil E. Rt. 628 Hickory Rd		Reconstruction					x	No
Tri-Cities	Chesterfield		Rt. 626 Woodpecker Rd	at Rt. 669 Sandy Ford Rd		Intesection Improv					x	No
Tri-Cities	Colonial Heights	3945	Dupuy Ave.	Battery Place	Lee Ave.	Intersection Improvement				x	x	No
Tri-Cities	Colonial Heights	18943	I-95	Construction of NB Ramp at Temple Ave.		Interchange Improv.				x	x	No
Tri-Cities	Colonial Heights	85623	I-95	Construction of SB Ramp at Temple Ave.		Interchange Improv.				x	x	No
Tri-Cities	Colonial Heights	-204	Ozone Alert Program	Ozone Alert Program	N/A	N/A			2011		x	Yes
Tri-Cities	Colonial Heights	52434	Route 1 (Boulevard)	Westover Ave.	Windsor Avenue	Add Turning Lane				x	x	No
Tri-Cities	Colonial Heights	4594	Rt. 1 (Boulevard)	Lee Ave.	SCL	Reconstruction Widening				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Tri-Cities	Colonial Heights	77600	Rt1/301	Sherwood Dr.	Temple Avenue Ramp	Traffic Signal Coord.			2011		x	Yes
Tri-Cities	Colonial Heights		Rt. 144	Rt. 1/301 Temple Ave	C.H. East C.L.	Signal Coord. Study			2011		x	Yes
Tri-Cities	Colonial Heights		Southpark Blvd	at Dimmock Parkway		Construct RTL					x	No
Tri-Cities	Colonial Heights		Rt. 1 Boulevard	Windsor	Pickwick	Add turn lane				x	x	No
Tri-Cities	Colonial Heights		Rt. 144 (Temple Ave.)	Removal of RR Bridges W. of I-95		Demolition					x	No
Tri-Cities	Hopewell/P G	89720	Oaklawn Boulevard	Sisisky Gate to Jefferson Park (Rt. 630) to West Corporate Limits	Sisisky Gate to Jefferson Park (Rt. 630) to West Corporate Limits	Widening - add EB lane	5	6	2011		x	Yes
Tri-Cities	Hopewell	57963	Route 36	Jefferson Park (Rt. 630)	Temple Avenue Ramp	Signal Computer Sys.			2018		x	Yes
Tri-Cities	Hopewell	1436	Cedar Level Rd.	Kippax Dr.	Mesa Dr.	Widening	2	4	2031	x	x	Yes
Tri-Cities	Hopewell		Ozone Alert Program	N/A	N/A	N/A			2011		x	Yes
Tri-Cities	Hopewell	15831	River Rd. (Rt. 645)	WCL	Mesa Dr.	Reconstruction				x	x	No
Tri-Cities	Hopewell	59118	Route 36	Colonial Corner		Turn Lanes				x	x	No
Tri-Cities	Hopewell	12955	Rt. 10 Randolph Rd.	Hummel Ross Rd.		Signalization & Turn Lane				x	x	No
Tri-Cities	Hopewell	19003	W. Churchill Dr	Jefferson Park (Rt. 630)	N/A	Turn Lane				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Tri-Cities	Hopewell	55627	Winston Churchill dr. at CSX Railroad	.10 Mi. NE of Rt. 36		Safety				x	x	No
Tri-Cities	Hopewell	68122	Rt. 156 - Winston Churchill Dr. at NS Railroad	.06 Mi.NE of 1st St.		Safety				x	x	No
Tri-Cities	Hopewell	58410	S. 15St. At CSX Railroad	.01 Mi. N. or Spruce St.		Safety				x	x	No
Tri-Cities	other		Commuter Rail			Study					x	No
Tri-Cities	other		Intercity Rail			Study					x	No
Tri-Cities	Petersburg		I-85/I-95/Rt.460 Inter.			Ramp reconfigurations					x	No
Tri-Cities	Petersburg		I-95	at Rives Rd.		Reconstruct & Reloc.					x	No
Tri-Cities	Petersburg		Second St. Rts. 1 & 301	NCL Petersburg	Washington St.	Bridge Replacement					x	No
Tri-Cities	Petersburg	76618	Transit Center	Union & Washington Sts.		New Facility				x	x	No
Tri-Cities	Petersburg	68730	Hinton Street	Over Brickhouse Run	-----	Culvert repl					x	No
Tri-Cities	Petersburg		Rt, 36 E. Washington St	at Puddledock Rd		Signal Mod. @ Intersection					x	No
Tri-Cities	Petersburg		Rt. 36 E. Washington St	Amelia St (Wythe St.)	E. Bank St.	Reconstruction					x	No
Tri-Cities	Petersburg	84728	Rt. 109 (Hickory Hill Rd.)	Rt. 460 County Dr.	Mahone Gate Fort Lee	Intersection Improvement				x	x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Tri-Cities	Petersburg	77537	Downtown Signal Optimization			signal optimization			2011		x	Yes
Tri-Cities	Petersburg	15832	Rives Rd.	S. Crater Rd.	Interstate 95	Reconstruction				x	x	No
Tri-Cities	Petersburg	68731	Bollingbrook St. (Rt. 36)	Over Lieutenant Run	-----	Bridge Replacement					x	No
Tri-Cities	Petersburg		Fleet Street (Rt. 36)	Appomattox River Canal	Petersburg NCL	Bridge Replacement					x	No
Tri-Cities	Petersburg	15957	Graham Rd.	Jefferson St.	S. Crater Rd.	Reconstruction					x	No
Tri-Cities	Petersburg		Saint Andrews St.	Bridge @ Lieutenant R.		Reconstruction					x	No
Tri-Cities	Petersburg	76977	Squirrel Level Rd.	WCL Petersburg	Wells Rd.	Bridge Replacement & Road Improvement				x	x	No
Tri-Cities	Prince George		US 460	I-295	Rte. 618 (SAB)	4 lanes on new location	0	4	2018		x	Yes
Tri-Cities	Prince George		Route 460	at Courthouse Rd.		Modify Signal					x	No
Tri-Cities	Prince George		Rt. 144 Temple Ave.	at Puddledock Rd		Turn lanes & Modify Signal					x	No
Tri-Cities	Prince George		Rt. 36	Oaklawn Boulevard @ Hill Drive/Lee Avenue		Add LTL & Signal					x	No
Tri-Cities	Prince George		Rt. 36	Oaklawn Boulevard @ River Road		Add LTL & Signal					x	No
Tri-Cities	Prince George	89558	Rt. 144 & Puddledock			Intersection Improv & Signal Mod.					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Tri-Cities	Prince George	52506	Rt. 106 Courthouse Rd	at Allin Rd.		Construct Roundabout				x	x	No
Tri-Cities	Prince George		Jeff Park/Allin/Bull Hill/ Adams Ave			Construct Roundabout					x	No
Tri-Cities	Prince George		Rt. 630 (Jefferson Park) & Rt. 646 (Middle Rd)			Improve intersection & Install Signal					x	No
Tri-Cities	Prince George		Rt. 106 & Rt. 630			Const Split Intersection & Int Signal					x	No
Tri-Cities	Prince George		Rt. 106 & Rt. 630			Install Signal					x	No
Tri-Cities	Prince George		Rt. 106 Courthouse Rd & Rt. 603			Install Traffic Signal					x	No
Tri-Cities	Prince George	71861	Lamore Dr Relocation	Rives Road	.3 Mi. E. Rives Rd.	Relocation				x	x	No
Tri-Cities	Prince George	65143	Rt. 775 at railroad crossing upgrade lights			Safety Improvements				x	x	No
Tri-Cities	Prince George	18997	Rte 460	at Bull Hill		Left Turn Lane					x	No
Tri-Cities	Prince George	80986	Route 156 (Prince George Drive)	at Middle Road (Route 646)		Intersection Improvement				x	x	No
Tri-Cities	Prince George	10874	Rt. 630 Lamore Dr.	.59 Mi. S. Rt. 649	Rt. 156	Reconstruction/Rehab				x	x	No
Tri-Cities	Prince George	87953	Rt. 646 Middle Rd.	350' E. Rt. 630	Rt. 630	Intersection Improvement LT Lane					x	No
Tri-Cities	Prince George	85970	Rt. 630 Jefferson Park Rd.	at Shop Gate Rd		Add signal					x	No

MPO	Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Exist.	Prop.	First Analysis Year	TIP	LRTP	Reg Sig
Tri-Cities	Prince George	87464	Route 36 Interchange	Temple Avenue & 6th Street (Sisisky) intersection		Intersection Improvement					x	No
Tri-Cities	Prince George		Roadway A	Hardware Drive	Rte 629 (West Quaker Rd)	New Facility	0	2	2011		x	Yes
Tri-Cities	Prince George		Rte 629 (West Quaker Rd)	.1 M N of Rte 460	1.86 M N or Rte 460	Reconstruction					x	No
Tri-Cities	Prince George		Roadway B	Rte 629 (West Quaker Rd)	Rte 460	New Facility	0	2	2011		x	Yes
Tri-Cities	Regionwide		I-95	Intelligent Transportation Systems		ITS					x	No
Tri-Cities	Regionwide		Intelligent Transportation System (ITS)	Regionwide		ITS improvements					x	No
Tri-Cities	Regionwide		Light Rail Transit			Study					x	No
Tri-Cities	Regionwide		Park & Ride Facilities [(2)]	various locations		Construct Park & Ride Facilities					x	No
Tri-Cities	Regionwide		Regionwide Air Pollution Reduction Program	Ridefinders		air pollution reduction			2011		x	Yes
Tri-Cities	Regionwide		TDM Program	Ridefinders		Commuter Assist/Support Svcs			2011		x	Yes
Tri-Cities	Regionwide		Local Safety Projects			Locally initiated projects					x	No