2040 Long Range Transportation Plan

Adopted: April 15, 2013

APPENDIX K
AIR QUALITY CONFORMITY DETERMINATION

FAMPO
Fredericksburg Area Metropolitan Planning Organization

GEORGE WASHINGTON
REGIONAL COMMISSION

Fredericksburg, Virginia Eight-Hour Ozone Maintenance Area

Transportation Conformity Analysis

2040 Long Range Transportation Plan and FY 12-15 Transportation Improvement Program

FINAL REPORT

Prepared by: Virginia Department of Transportation

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Virginia Department of Transportation
VDOT

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Acronym List

BHP-hr	Brake-horsepower-hour
BPR	Bureau of Public Roads
BRT	Bus Rapid Transit
CAA	United States Clean Air Act, as amended
CFR	Code of Federal Regulations
DOT	United States Department of Transportation
EPA	United States Environmental Protection Agency
FAMPO	Fredericksburg Area Metropolitan Planning Organization
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
FY	Fiscal Year
g	grams
GWAQC	George Washington Air Quality Committee
GWRC	George Washington Regional Commission
HCM	Highway Capacity Manual
HDDE	Heavy-Duty Diesel Engine
HDDV	Heavy-Duty Diesel Vehicle
HPMS	Highway Performance Monitoring System
I/M	Vehicle Emission Inspection and Maintenance Program
LRTP	Long Range Transportation Plan
LRT	Light Rail Transit
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NLEV	National Low Emission Vehicle Program
NO_X	Nitrogen Oxides
PRTC	Potomac and Rappahannock Transportation Commission
psi	Pounds per square inch
RFG	Reformulated Gasoline
RVP	Reid Vapor Pressure
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SPS	Statewide Planning System
SIP	State Implementation Plan (for air quality)
STIP	State Transportation Improvement Program
TAZ	Traffic Analysis Zone
TCM	Transportation Control Measure
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
VDMV	Virginia Department of Motor Vehicles
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
VRE	Virginia Railway Express

Executive Summary

In compliance with the federal transportation conformity rule (40 CFR Parts 51 and 93) and the corresponding state conformity regulation (9 VAC 5-151), this report presents the air quality conformity assessment for the financially constrained 2040 Long Range Transportation Plan (LRTP) and Fiscal Year (FY) 2012-2015 Transportation Improvement Program (TIP) developed by the Fredericksburg Area Metropolitan Planning Organization (FAMPO).

The conformity demonstration applies to the Fredericksburg, Virginia region, which was re-designated to attainment for the 8-hour ozone national ambient air quality standard (70 FR 76165, effective January 23, 2006). 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 Stafford County, Spotsylvania County and the City of Fredericksburg.

As indicated in Table ES-1, this conformity determination meets all applicable requirements of the federal transportation conformity rule. A recommendation for a finding of conformity for the LRTP and 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 FAMPO approval of the conformity project lists, 2040 LRTP, FY 12-15 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 the Fredericksburg region does not include transportation control measures (TCMs), and therefore they are not required for the conformity analysis or determination. See 70 FR 76165, effective January 23, 2006.*

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 FY 12-15 TIP and 2040 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.

- *§93.110 Criteria and procedures: Latest planning assumptions:*
  - 93.110(a) Latest Planning Assumptions: This section requires that: "*the conformity determination … must be based upon the most recent planning assumptions in force at the time the conformity analysis begins...*"

    In general, the latest available and approved population and employment forecasts for 2040 by Traffic Analysis Zone (TAZ) were employed with the regional travel demand network model (Cube) to generate the traffic volume and vehicle-miles-traveled (VMT) forecasts applied in this conformity analysis. Regional roadway and transit networks were updated as appropriate using the Plan and Program project lists, which were subjected to interagency consultation as described below. Emission controls assumed for the analysis were consistent with those specified in the applicable implementation (maintenance) plan revision.

    All of the latest planning assumptions and other aspects of the conformity analysis were reviewed by the Interagency Consultation Group (ICG) at the beginning of the conformity analysis process, as documented in the chapter on consultation and in Appendix D. Additional details are provided below.

  - 93.110 (b) Socioeconomic Forecasts: This section requires that "*Assumptions must be derived from the estimates of current and future population, employment, travel, and congestion most recently developed by the MPO or other agency authorized to make such estimates and approved by the MPO*". Further, Section 93.122(b)(1)(ii) requires that "*Land use, population, employment, and other network-based travel model assumptions must be documented and based on the best available information*". Section 93.122(b)(1)(iii) adds that "*Scenarios of land development and use must be consistent with the future transportation system alternatives for which emissions are being estimated*."

    As documented in the main report, the socioeconomic forecasts for 2040 (including interim years and sub-allocations as appropriate) represent the latest projections available and approved for use with the 2040 LRTP.

  - 93.110(c) and (d) Transit: These sections respectively require that "*The conformity determination for each transportation plan and TIP must discuss how transit operating policies (including fares and service levels) and assumed transit ridership has changed since the previous conformity determination*" and "*The conformity*

determination must include reasonable assumptions about transit service and increases in transit fares and road and bridge tolls over time".

Transit operating policies (including fares and service levels) and modeling for transit (ridership) have not changed significantly since the previous conformity determination. Transit service is included in future networks for the region. While future transit ridership is effectively determined in the course of modeling for the conformity analysis, details on current transit operating policies including fares and service levels may be found on the Fredericksburg Regional Transit (FRED) and website[1]. Transit service is also addressed in supporting documentation for the LRTP and associated modeling.

- 93.110(e) Transportation Control Measures (TCMs) and Other Measures: This section requires that "*The conformity determination must use the latest existing information regarding the effectiveness of the TCMs [transportation control measures] and other implementation plan measures which have already been implemented*."

  The applicable SIP revision (maintenance plan) for the Fredericksburg maintenance area does not include transportation control measures (TCMs). TCMs are therefore not required for the conformity analysis or determination. Accordingly, credit for TCMs was not taken in this analysis. See 70 FR 76165, effective January 23, 2006.

- *§93.111 Criteria and procedures: Latest emissions model [2]:*

  - On March 2, 2010, EPA officially released the next generation Motor Vehicle Emission Simulator (MOVES2010) model for use in SIP development and regional conformity applications[3]. The EPA notice indicated that a two-year grace period (ending March 2, 2012) will apply for use of the new model in regional emissions analyses for transportation conformity determinations. On February 27th, 2012, the EPA extended the two year grace period adding another year (to effectively March 2, 2013).

  - FAMPO utilized the grace period to evaluate the impact that MOVES2010 would have on emissions estimates prior to its required use in regional emissions analyses. FAMPO found that, with all traffic inputs remaining the same, MOVES2010 produced significantly higher emissions estimates for NO_x, and also found that the regional emissions estimates were significantly higher than the motor vehicle emissions budgets (MVEBs) contained in the 8-Hour Ozone Maintenance Plan which were

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1 See http://www.ridefred.com .

2 Federal Conformity Rule, 40 CFR 93.111 *Criteria and Procedures: Latest Emissions Model* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.111.htm

3 US EPA, 75 FR 9411, [FRL–9121–1], *Official Release of the MOVES2010 Motor Vehicle Emissions Model for Emissions Inventories in SIPs and Transportation Conformity*, Notice of Availability, March 2, 2010. Available at: http://edocket.access.gpo.gov/2010/2010-4312.htm. While the official name of the current model is "MOVES2010", it is abbreviated here as "MOVES" to allow for pending future revisions to the model and any associated revisions to the model name. For additional information, see:
- EPA website for MOVES: http://www.epa.gov/otaq/models/moves/index.htm.
- US EPA, *Policy Guidance on the Use of MOVES2010 for State Implementation Plan Development, Transportation Conformity, and Other Purposes*, EPA-420-B-09-046, December 2009. Direct link: http://www.epa.gov/otaq/models/moves/420b09046.pdf.

created using the previous mobile model, MOBILE6.2. As a result, FAMPO worked with the Virginia Department of Environmental Quality (VDEQ) and the Interagency Consultation Group (ICG) to update the NO_x MVEBs in the Maintenance Plan using the new MOVES2010a model.

- VDEQ submitted the updated Maintenance Plan to EPA on September 26, 2011. EPA issued a Federal Register (FR) notice on August 6, 2012, that proposed approval of the Maintenance Plan revision and the updated NO_x MVEBs, and subsequently issued a final approval on October 29, 2012. However, the notice of final approval inadvertently published incorrect NO_x MVEBs, so EPA published a correction in the FR on December 20, 2012.

- The selection of latest emission model for the conformity analysis was considered by the ICG at the beginning of the conformity analysis process, as documented in the chapter on consultation and in Appendix D. The consensus of the ICG was to use the MOVES2010b model for this analysis, since the transportation conformity regulations require the use of MOVES2010 for areas that have approved MVEBs that were created using MOVES.

- *§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 19, 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 George Washington Regional Air Quality Committee (GWAQC) is the designated LPO for the region. Involvement of the VDEQ staff representative for that Committee in the local inter-agency consultation process for conformity is considered to fulfill that requirement.

  - 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 that initiated 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 FAMPO 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 Fredericksburg 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 January 23, 2006 and revised as of December 20, 2012, which established motor vehicle emission budgets for VOC and NO_x for the years 2009 and 2015.

    As documented above, total VOC and NO_x emissions associated with the regional transportation system as planned and programmed in the FY 12-15 TIP and 2040 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 MVEBs for 2015, and years for which MVEBs are established are required to be analyzed. Additionally, the conformity rule requires modeling for the last year of the transportation plan (2040), and that years modeled be no more than ten years apart. To meet the latter requirement, the years 2020 and 2030 were selected for analysis. 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 ES1 - 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. 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.

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. On March 24, 2010 an update to the transportation conformity regulations was issued by EPA promulgating revisions to the transportation conformity rule to address the 2006 24-hour PM2.5 NAAQS, revocation of the annual PM10 NAAQS, and a court remand concerning hot-spot analyses in PM2.5, PM10 and CO areas. On March 14, 2012 EPA published the transportation conformity rule restructuring amendments (77 FR 14979). The amendments restructure sections 40 CFR 93.109 and 40 CFR 93.119 so that the existing rule requirements apply to areas under any future new or revised NAAQS.

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.

Table ES-2 summarizes the emissions test results for the Fredericksburg 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 conformity rule.

In addition, the Fredericksburg region has also recently approved and/or implemented several Congestion Mitigation and Air Quality (CMAQ) projects that have been demonstrated to improve air quality in the area. Some of these CMAQ projects include;

- 610/Oinville Rd. Intersection Improvement
- US 1/ Harrison Rd intersection Improvement
- US 1& Morris/ Mudd Tavern Intersection Improvement
- US 1/Augustine Ave. Intersection Improvement
- Lafayette Blvd and Kenmore Ave. Roundabout
- US-1 & Potomac Creek Dr. Turn Lanes
- Spotsylvania VRE Station Plank Rd
- Staffordboro Commuter Parking Expansion
- Rte 1 Signal Optimization
- Gordon Rd. Commuter Parking Expansion
- Rte 3 Signal Optimization
- GWRideConnect/TDM Assistance Activities
- FRED Replacement Buses

The air quality benefit from these projects was not included in this conformity determination since conformity was demonstrated without the need for additional air quality credits.

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

Table ES-2: Conformity (Emission Budget) Tests

Year		Regional Emissions *(tons per day)*	
		NO_x	**VOC**
2015	**Budget Year**		
	LRP/TIP Forecast:	10.84	4.20
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED
2020	**Interim Year** (within ten years of other years modeled)		
	LRP/TIP Forecast:	7.14	3.32
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED
2030	**Interim Year** (within ten years of other years modeled)		
	LRP/TIP Forecast:	5.67	2.94
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED
2040	**LRP Horizon Year**		
	LRP/TIP Forecast:	7.44	3.73
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED

(Numbers may not add exactly due to rounding.)

Chapter 1: Introduction and Overview

This report documents the procedures and results of the transportation conformity analysis in the Fredericksburg, Virginia 8-hour ozone maintenance area for the Fredericksburg Area Metropolitan Planning Organization's (FAMPO) 2040 Long Range Transportation Plan (LRTP) and Fiscal Year (FY) 12-15 Transportation Improvement Program (TIP).

FAMPO serves 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 George Washington Regional Commission (GWRC) serves as staff for the FAMPO. VDOT, working with FAMPO 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 LRTP and TIP.

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. On March 24, 2010 an update to the transportation conformity regulations was issued by EPA promulgating revisions to the transportation conformity rule to address the 2006 24-hour $PM_{2.5}$ NAAQS, revocation of the annual PM_{10} NAAQS, and a court remand concerning hot-spot analyses in $PM_{2.5}$, PM_{10} and CO areas. On March 14, 2012 EPA published the transportation conformity rule restructuring amendments (77 FR 14979) that restructured sections 40 CFR 93.109 and 40 CFR 93.119 so that the existing rule requirements may apply to areas under any future new or revised NAAQS.

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 19, 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 Fredericksburg 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, the federal rule also specifies 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 19, 2010. Consultation requirements and processes are reviewed in detail in Chapter 3.

Air Quality Designation Status for the Fredericksburg Region

The Fredericksburg 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).

Table 1-2: National Ambient Air Quality Standards*

Pollutant [final rule cite]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide [76 FR 54294, Aug 31, 2011]		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead [73 FR 66964, Nov 12, 2008]		primary and secondary	Rolling 3 month average	0.15 $\mu g/m^3$ (1)	Not to be exceeded
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]		primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		primary and secondary	Annual	53 ppb (2)	Annual Mean
Ozone [73 FR 16436, Mar 27, 2008]		primary and secondary	8-hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particle Pollution Dec 14, 2012	$PM_{2.5}$	primary	Annual	12 $\mu g/m^3$	annual mean, averaged over 3 years
		secondary	Annual	15 $\mu g/m^3$	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sept 14, 1973]		primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
(2) The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.
(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

(Source USEPA http://www.epa.gov/air/criteria.html accessed 01/04/13)

On June 15, 2004, EPA classified the localities of the City of Fredericksburg, Spotsylvania County, and Stafford County as a Moderate 8-hour Ozone Nonattainment area (56 FR 56694). Prior to this date, Stafford county was part of the Northern Virginia 1-hour Ozone Nonattainment area, while the City of Fredericksburg and Spotsylvania County were in attainment with the ozone NAAQS.

On January 23, 2006, the Fredericksburg 8-hour Ozone Nonattainment area was officially redesignated as an 8-hour Ozone Maintenance area (70 FR 76165). At that time, a SIP revision that contained a Maintenance Plan was approved for the Fredericksburg area that outlines how the region will continue to attain the 8-hour ozone NAAQS for the next ten years. Included in the Maintenance Plan are motor vehicle emission budgets for the Fredericksburg 8-hour Ozone Maintenance area to be used in all future conformity determinations. Table 1-3 presents the motor vehicle emission budgets, excerpted from the final rule.

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. 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 January 6, 2010, EPA proposed to strengthen the NAAQS for ground-level ozone. EPA was 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 was 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. Following a public hearing and comment period EPA was planning to issue final standards by August 31, 2010.

On September 2, 2011 EPA withdrew its reconsideration of the 2008 ozone standard and instead began moving forward on implementation of the 2008 ozone standard.

On February 14, 2012, EPA proposed a rule (77 FR 8197: Implementing the 2008 National Ambient Air Quality Standards for Ozone: Proposed Nonattainment Area Classifications Approach and Attainment Deadlines.) that would take a necessary step to implement the 2008 NAAQS for ground-level ozone. Under this rule EPA also proposed to revoke the 1997 ozone standards one year after designations for the 2008 standards are effective for purposes of transportation conformity.

On May 21, 2012, EPA finalized a rule (77 FR 30088: Air Quality Designations for the 2008 Ozone National Ambient Air Quality Standards) that designated the Fredericksburg region as in attainment for the 2008 ozone standard and revoked the 1997 ozone standard for purposes of transportation conformity. The attainment designation with the 2008 ozone standard became effective July 20, 2012, and the revocation of the 1997 ozone standard for transportation conformity purposes will become effective on July 20, 2013.

After the initial release of MOVES2010, FAMPO utilized the grace period to evaluate the impact that MOVES2010 would have on emissions estimates prior to its required use in regional emissions analyses. FAMPO found that, with all traffic inputs remaining the same, MOVES2010 produced significantly higher emissions estimates for NO_x, and also found that the regional emissions estimates were significantly higher than the motor vehicle emissions budgets (MVEBs) contained in the 8-Hour Ozone Maintenance Plan which were created using the previous mobile model, MOBILE6.2. As a result, FAMPO worked with the Virginia Department of Environmental Quality (VDEQ) and the Interagency Consultation Group (ICG) to update the NO_x MVEBs in the Maintenance Plan using the new MOVES2010a model.

VDEQ submitted an updated Maintenance Plan to EPA on September 26, 2011. EPA issued a Federal Register (FR) notice on August 6, 2012, that proposed approval of the Maintenance Plan revision and the updated NO_x MVEBs, and subsequently issued a final approval on October 29, 2012. However, the notice of final approval inadvertently published incorrect NO_x MVEBs, so EPA published a correction in the FR on December 20, 2012. Table 1-3 below displays the MVEBs that come from the approved revision to the 8-hour ozone maintenance plan.

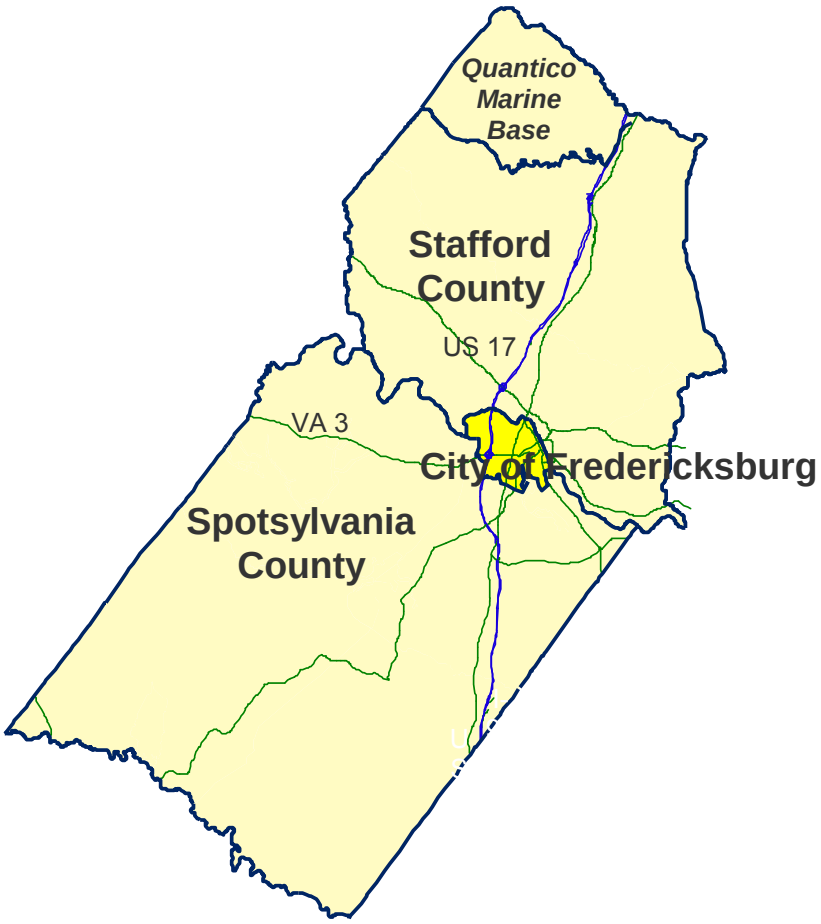
Note that, while the table displays units of tons per day, the methodology presented in the Technical Support Document for the maintenance plan indicates the "day" selected to represent an average ozone season weekday. Also, for compliance with the federal conformity rule (Section 93.122, procedures 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: Fredericksburg Area Motor Vehicle Emission Budgets

Budget Year	VOC (tons/day)	NOx (tons/day)
2009	8.346	19.615
2015	7.334	12.933

For reference, the Fredericksburg maintenance area for the 8-hour ozone standard as specified in the maintenance plan is presented in Figure 1-1. The area includes Stafford County, Spotsylvania County and the City of Fredericksburg.

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 2040 LRTP and FY 12-15 TIP for the Fredericksburg 8-hour ozone maintenance area.

General Emission Calculation Methodology

Emission forecasts for the Fredericksburg 8-hour ozone maintenance area were developed using a traditional four-step transportation planning model (CUBE Voyager) and the latest EPA approved emission factor model (MOVES2010b) to generate emission forecasts.

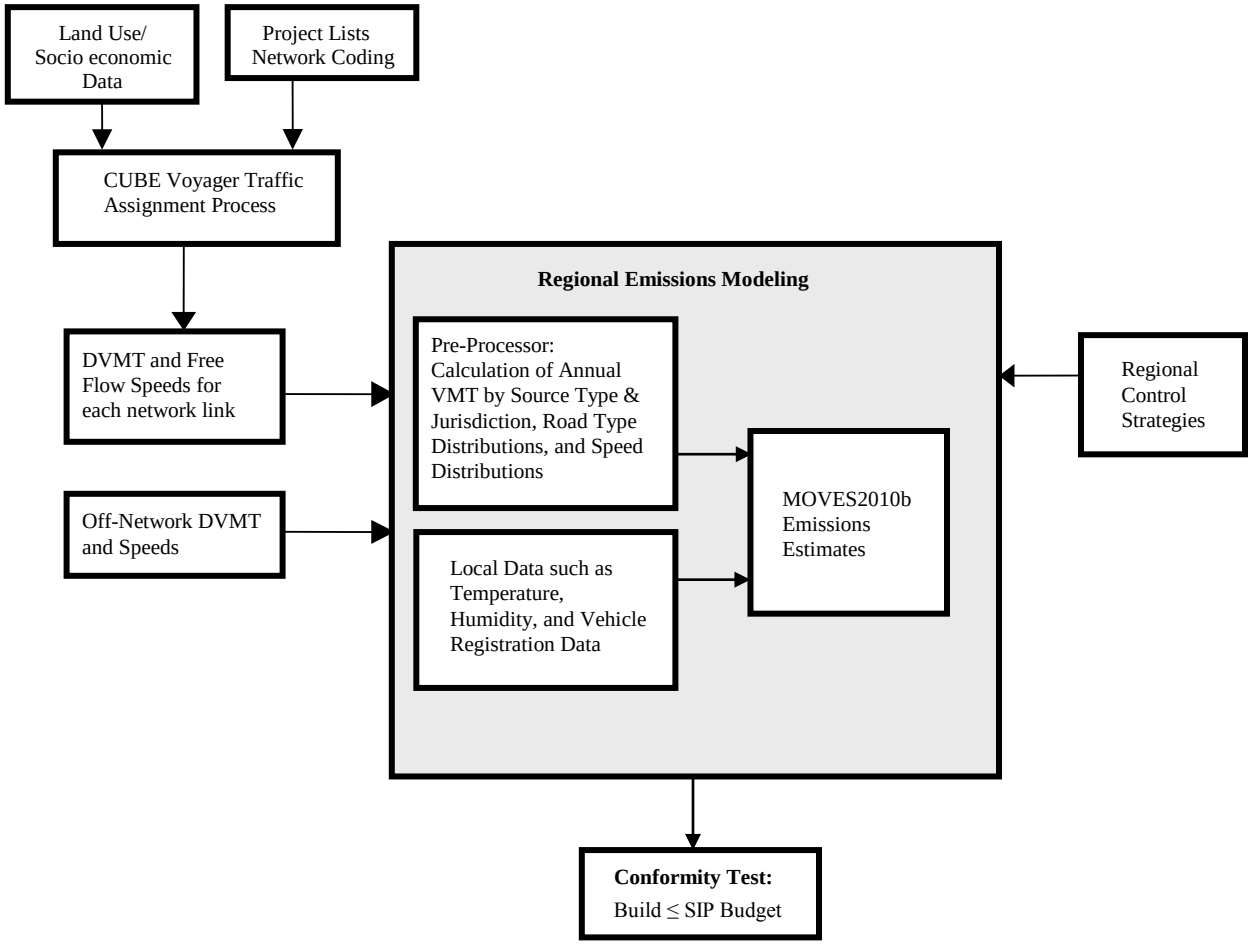
Figure 2-1 below summarizes the key steps in the development of regional emission forecasts for the conformity analysis. The process begins with development of forecasts for traffic volumes on the regional transportation network, for which key inputs include the latest available socioeconomic forecasts (including population and employment) and LRTP and TIP project lists. Traffic forecast volumes and annual average daily vehicle miles traveled (AADVMT) for all conformity analysis years (2015, 2020, 2030, and 2040) were developed with a standard four-step travel demand model developed and maintained by VDOT.

The travel model networks include all functionally classified roadways: interstates, freeways, expressways, principal arterials, minor arterials, and many collector streets as specified in the LRTP and TIP for the maintenance area. In addition, a small number of local streets necessary to maintain roadway network connectivity are also coded. For each conformity analysis year (2015, 2020, 2030 and 2040), estimates of socio-economic growth were prepared, significant highway and transit projects were coded, and model runs were performed. The networks are developed for each conformity analysis year selected to meet specific requirements of the transportation conformity rule. The selection of years to be analyzed is based on federal conformity regulation requirements and must include years for which regional emission budgets are specified in the applicable maintenance plan, which was reviewed in the previous chapter.

Traffic operating on local and collector roadways are developed “off-network” since many of these roadways are too small to be included in the regional transportation demand model networks. Current estimates of VMT for these facilities are obtained from the VDOT Traffic Engineering Division and are grown to the future conformity analysis years by applying annual growth factors based on the anticipated growth in auto ownership as reflected in the 2040 LRTP socio-economic data approved by FAMPO.

The network and off-network daily VMT is then combined and converted to annual VMT by jurisdiction and source type prior to being input into the MOVES2010b model for emissions processing. A number of additional traffic and meteorological data inputs are developed for incorporation into the MOVES2010b model which are described in detail below. Emission tests as described in the previous chapter are then applied to demonstrate regional transportation conformity.

Figure 2-1: Transportation Conformity Analysis Process



The remainder of this Chapter provides additional detail on the various models, methods, and assumptions used in the development of the regional emissions analysis that was prepared for this conformity analysis.

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 1-hour ozone standard are superseded by these budgets.

Table 2-1: Analysis Years and Budgets

Year	Regional Emission Budgets *(tons per ozone season weekday)*	
	NOx*	**VOC**
2015	12.933	7.334
2020	12.933	7.334
2030	12.933	7.334
2040	12.933	7.334

** Budgets specified in 77 FR 75386, effective December 20, 2012*

The years selected for analysis are consistent with the requirements of Section 93.118 of the conformity rule. The maintenance plan specifies a budget for 2015, 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 (2040), and that years modeled be no more than ten years apart. To meet the latter requirement, the years 2020 and 2030 were 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 2015 budgets as listed above are also applicable for the analysis years of 2020, 2030, and 2040 as well.

Transportation Demand Forecasting – FAMPO Version 3.0 Model

The FAMPO travel demand model used to support the 2040 LRTP and FY 12-15 TIP air quality conformity process is the FAMPO Version 3.0 model that operates on the CUBE Voyager modeling platform consisting of two primary software programs: CUBE Base and CUBE Voyager. CUBE Base is used to develop a model's organizational structure using the CUBE Catalog format and for editing files including transportation networks. CUBE Voyager, is the successor to TP+ and MINUTP, and provides the engine that actually runs the CUBE Voyager model. Over the course of the past few years, VDOT has moved all the travel demand models within Virginia from older platforms, e.g., MINUTP, into the new CUBE Voyager format. Using this new modeling platform, technical staff at VDOT have developed and maintain a regional travel demand model for the FAMPO study area. 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 model covers the entire George Washington Regional Commission (GWRC) planning area which includes both the FAMPO and the Fredericksburg 8-hour ozone maintenance areas in their entirety. The jurisdictions included in the model include Stafford County, Spotsylvania County, City of Fredericksburg, King George County, and Caroline County. The CITILABS model has been validated against 2003 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. Highway network attributes include highway features such as number of lanes, capacity per lane, and speed. Travel time and cost data are calculated from the transportation network 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 GWRC 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 Fredericksburg 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. The FAMPO model was 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 single occupant vehicle, high occupancy 2 vehicle, and high occupancy 3+ vehicles for automobiles and for the Virginia Rail Express (VRE) based on differences in time and cost among the modes. The FAMPO version 3.0 model also can determine paying vs. non-paying users of the planned I-95 HOT lanes within the Fredericksburg region so that off-model analysis of this planned HOT lane project is no longer necessary. The final trip tables by mode and purpose 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 GWRC provided the socioeconomic data to be used in the transportation model. The GWRC and the member governments in the counties of Spotsylvania, Stafford, King George, and Caroline as well as the city of Fredericksburg developed a distribution of the regional population and employment projections to TAZs used in the transportation model. The counties of King George and Caroline 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 2040 were estimated starting with the compilation of 2006 figures in the FAMPO area, and then a regionally collaborated estimate of figures for 2040 was developed. The forecasted numbers were prepared under the guidance of the member governments and approved by the respective MPO.

The average household size and the number of autos for the year 2040 were estimated from the 2000 Census using growth rates derived from historical trends and anticipated growth within 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	Fredericksburg Maintenance Area Totals*			
	Population	Households	Automobiles	Employment
2015	317,027	109,338	237,821	135,885
2020	358,410	125,460	273,509	148,323
2030	445,990	158,780	347,223	178,369
2040	526,040	187,510	410,906	209,976

**This summary is based on the data approved by the FAMPO.*

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). 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 and new interchanges on limited access facilities. Turn lanes and at-grade intersection improvements were not included in the model network; as such improvements are not amenable to modeling at a regional scale.

This conformity analysis was performed on the region's 2040 LRTP and FY 12-15 TIP. Consistent with the requirements of the transportation conformity rule, regional emission analyses were performed for 2015, 2020, 2030 and 2040. The CUBE voyager transportation networks for each of the four analysis years include all regionally significant projects included in the TIP and LRTP, and coded into the appropriate year based on anticipated construction completion dates. Where possible, completion dates reflect estimates included in the TIP project descriptions or in VDOT's six-year plan. For future projects, completion dates were determined by adding three years to the anticipated project start date when more specific anticipated completion dates were unavailable.

The modeled network for each analysis year reflects the travel conditions expected to be in place during that analysis year. For example, the 2015 network includes existing roadways as well as projects listed in the 2040 LRTP and FY 12-15 TIP that are anticipated to be complete by 2015. Subsequent networks include existing networks plus completed projects from earlier analysis years. Thus, the 2020 network includes all the 2015 projects plus additional projects expected to be complete by 2020.

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

Travel Demand Forecast Model Output

The FAMPO 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 FAMPO 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 pre-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 link in the travel demand model output. The VMT and congested speed results are then used to develop a variety of required inputs (described below) to MOVES2010b that is used to calculate the regional mobile emissions estimates. 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 pre-processor.

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 analysis can also include Congestion Mitigation and Air Quality (CMAQ) funded projects such as van pools, transit bus replacements, and park-and-ride lots. Since additional air quality credits were not needed to demonstrate conformity for the 2040 LRTP and FY 12-15 TIP, they were not applied in the regional emissions analysis.

Emissions Forecasting (US EPA MOVES2010b Mobile Model)

MOVES2010b is the latest version of the MOBILE emissions modeling software application developed and required by EPA for use in conformity determinations and the development of SIPs and associated revisions. The model was designed to be used to develop estimates of historic, current and future emissions for area-wide (e.g., regional) on-road motor vehicle fleets. MOVES2010b can calculate in-use fleet average emissions estimates 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 1999 and 2050.

The process of estimating on-road mobile source emissions using MOVES2010b requires the input of motor vehicle and traffic related information such as vehicle

miles traveled (VMT), vehicle populations, age distributions of registered vehicles, vehicle speeds, fuel specifications, and mobile control programs such as inspection and maintenance programs. While the MOBILE6.2 model estimated the pollutant emission rate associated with a particular level of activity, MOVES2010b estimates pollutant emissions for the collection of inputs supplied.

For this analysis, both national default data and region-specific inputs were used with MOVES2010b to determine mobile source emissions estimates for this analysis. The effects of reformulated gasoline (RFG) and an Inspection and Maintenance (I/M) program were modeled in Stafford County for all analysis years, as Virginia regulations require RFG and I/M in Stafford dating back to its inclusion in the Northern Virginia 1-hour Ozone Nonattainment area. Fredericksburg City and Spotsylvania County were modeled with conventional gasoline. Additional input data applied for this analysis that are specific to the Fredericksburg area include jurisdiction-specific registration distributions, source type populations by vehicle type, road type VMT fractions by vehicle source type and roadway type, average congested speed distributions for each jurisdiction and roadway type, ozone season monthly and weekday adjustment factors by source type and roadway type, and hourly temperatures and relative humidity values consistent with the Fredericksburg 8-hour ozone maintenance plan.

Key MOVES2010b input data for the Fredericksburg 8-Hour Ozone Maintenance area are summarized below and in Appendix C.

Emission Control Programs

Table 2-3 lists emission control programs in effect for the Fredericksburg area as incorporated into the MOVES2010b model. The locality-specific input parameters are consistent with the approved 8-hour ozone maintenance plan and are based on the latest planning assumptions.

The programs include:

- Reformulated gasoline (RFG), and gasoline Reid Vapor Pressure (RVP): RFG was modeled for Stafford County, whereas Fredericksburg City and Spotsylvania County were modeled with conventional gasoline. Where applicable, RFG benefits were modeled for all analysis years after 1996, consistent with Virginia regulations requiring RFG. Fuel supply and formulation data for the Fredericksburg region were provided by the Virginia Department of Environmental Quality.

  RFG Phase 2, which is currently in effect, has a summertime Reid vapor pressure (RVP) of approximately 6.8 pounds per square inch (PSI). For the County of Spotsylvania and the City of Fredericksburg, the summertime RVP of conventional gasoline was taken as approximately 8.4 PSI.

- 2007 Heavy Duty Diesel Vehicle (HDDV): 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.

Table 2-3: Emission Control Programs

	2015	2020	2030	2040
Reformulated Gasoline	Stafford Only	Stafford Only	Stafford Only	Stafford Only
I/M Program	Stafford Only	Stafford Only	Stafford Only	Stafford Only
NLEV	Yes	Yes	Yes	Yes
2007 HDDV Standard	Yes	Yes	Yes	Yes
TIER 2/Low Sulfur Gasoline	Yes	Yes	Yes	Yes

- National Low Emission Vehicle (NLEV) program: The early implementation of 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.

[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.

- 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—
  - *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. …*
  - *Introduce a new category of vehicles, "medium-duty passenger vehicles," thus bringing larger passenger vans and SUVs into the Tier 2 program.*
  - *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.*
  - *Apply the same standards to vehicles operated on any fuel.*
  - *Allow auto manufacturers to comply with the very stringent new standards in a flexible way while ensuring that the needed environmental benefits occur.*
  - *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.*
  - *Set more stringent particulate matter standards.*
  - *Set more stringent evaporative emission standards.*

  For commercial gasoline, the program will—
  - *Significantly reduce average gasoline sulfur levels nationwide as early as 2000, and was fully phased in by 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.*

    …
  - *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).*
  - *Reduce emissions from NLEV vehicles and other vehicles already on the road.*

Consistent with modeling presented in the Technical Support Document for the Fredericksburg 8-Hour Ozone Maintenance Plan, an inspection and maintenance (I/M) program was included in the modeling for this analysis for Stafford County only. MOVES2010b inputs for the Stafford I/M program were provided by the Virginia Department of Environmental Quality.

[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".

Ambient Conditions

Table 2-4 presents average hourly ambient temperature and relative humidity data as excerpted from the Technical Support Document for the Fredericksburg 8-hour ozone maintenance plan and applied in the MOVES2010b modeling in this conformity analysis.

Table 2-4: Ambient Conditions - Ozone Season

Time	Temperature (°F)	Relative Humidity (%)
6 AM	68	80
7 AM	69	80
8 AM	73	72
9 AM	79	64
10 AM	85	52
11 AM	90	47
12 PM	93	42
1 PM	94	39
2 PM	96	36
3 PM	95	39
4 PM	96	36
5 PM	95	36
6 PM	94	37
7 PM	92	41
8 PM	87	51
9 PM	82	60
10 PM	80	63
11 PM	77	68
12 AM	74	72
1 AM	73	74
2 AM	72	74
3 AM	71	76
4 AM	70	78
5 AM	69	78

Source: Commonwealth of Virginia, Department of Environmental Quality, "Technical Support Document for the Redesignation Request and Maintenance Plan for the Fredericksburg 8-Hour Ozone Nonattainment Area, Final"

MOVES Vehicle and Road Types

The on-road mobile source emissions estimates include emissions produced by the operation of highway motor vehicles that are registered for use on public roadways and that burn gasoline, diesel, or compressed natural gas fuel. This conformity analysis included all classes of vehicles from motorcycles to heavy-duty tractor trailers operating on roads ranging from rural access roads to interstate highways.

Table 2-5 shows each of the 13 FHWA vehicle types, and the mapping that was applied for conversion into the 6 vehicle classes and 13 vehicle types required by MOVES2010b.

Table 2-5: MOVES Vehicle Types

FHWA Vehicle Type		MOVES Vehicle Class		MOVES Vehicle Type	
1	Motorcycles	10	Motorcycles	11	Motorcycle
2	Passenger Cars	20	Passenger Cars	21	Passenger Car
3	Two Axle, 4 Tire Single Unit Vehicles	30	Other 2-axle / 4-tire Vehicles	31	Passenger Truck
				32	Light Commercial Truck
4	Buses	40	Buses	41	Intercity Bus
				42	Transit Bus
				43	School Bus
5	Two Axle, 6 Tire Single Unit Trucks	50	Single Unit Trucks	51	Refuse Truck
6	Three Axle Single Unit Trucks			52	Single Unit Short-haul Truck
7	Four or More Axle Single Unit Trucks			53	Single Unit Long-haul Truck
				54	Motor Home
8	Four Axle or Fewer Single Trailers	60	Combination Trucks	61	Combination Short-haul Truck
9	Five Axle Single Trailers				
10	Six or More Axle Single Trailers				
11	Five Axle or Fewer Multi-Trailers			62	Combination Long-haul Truck
12	Six Axle Multi-Trailers				
13	Seven or More Axle Multi-Trailers				

Table 2-6 shows each of roadway types present in MOVES2010b. Included are road types that represent urban and rural driving on roads with both restricted and unrestricted vehicle access. Restricted access road types are usually used to model freeways and interstates, and ramps are considered part of restricted access road types. The "off-network" road type is used to model start and/or extended idle processes that do not occur on the roadway network, and all road types are included to model evaporative emission processes.

Table 2-6: MOVES Road Types

Road Type ID	Road Type Name
1	Off-Network
2	Rural Restricted Access
3	Rural Unrestricted Access
4	Urban Restricted Access
5	Urban Unrestricted Access

Vehicle Miles Traveled (VMT)

Annual VMT by HPMS vehicle class is required as an input to MOVES2010b, and they were created by utilizing the relational database capabilities of Microsoft Access and by running a series of queries to modify and format the input data as required by MOVES2010b. As described above and for each conformity analysis year, a regional travel demand model (TDM) was used to develop the network VMT estimates for each arterial and larger roadway in the FAMPO 8-Hour Ozone Maintenance Area. The network VMT was provided by the TDM in units of annual average daily VMT (AADVMT), and was converted to annual VMT by simply multiplying by 365. The off-network VMT for local and collector roadways was obtained from VDOT Traffic Engineering (as AADVMT) for 2011 and subsequently grown to each future analysis year by applying the appropriate annual VMT growth rate (described below).

The network and off-network AADVMT by jurisdiction and FHWA road type was then combined in a table and subsequently split into appropriate MOVES vehicle classes by utilizing the FHWA vehicle type apportionments provided in the VDOT Traffic Engineering report titled "*1236 - DVMT by Physical Jurisdiction by Federal Functional Class by Federal Vehicle Class All Roads; Towns Combined into Counties*." The resulting annual VMT was then summed by jurisdiction and MOVES vehicle class for input into MOVES2010b.

MOVES Road Type Distributions

The fraction of VMT by road type varies from area to area and can have a significant effect on overall emissions from on-road mobile sources. For each source type, a jurisdictionally-specific road type distribution was created that contains the distribution of VMT for each road type (e.g., the fraction of passenger car VMT on each of the MOVES road types). The VMT fractions that were created for use in this analysis were based on updated local traffic data and are therefore consistent with the most recent information used for transportation planning.

The jurisdictionally-specific road type distributions were created in Microsoft Access by running a series of queries to modify and format the input data as required by MOVES2010b. The basic process first involves converting the link-level AADVMT provided by each respective TDM output file into weekday summertime DVMT by applying summertime and weekday adjustment factors (described below). This was done to maintain consistency with the motor vehicle emissions budgets (MVEBs) contained in the Fredericksburg 8-Hour Ozone Maintenance Plan. Similarly, the off-network AADVMT for local and collector roadways was grown to each future analysis year and also adjusted to represent weekday summertime VMT. The network and off-network DVMT was then combined in a table for each jurisdictionally-specific MOVES road type and source type, and the appropriate road type distributions were subsequently computed and formatted for input into MOVES2010b.

MOVES Speed Type Distributions

Vehicle power, speed, and acceleration have a significant effect on vehicle emissions. At the County scale, MOVES models those emission effects by using a distribution of vehicles hour traveled (VHT) by average speed. MOVES in turn uses the speed distribution to select specific drive cycles, and MOVES then uses these drive cycles to calculate operating mode distributions. The operating mode distributions in turn determine the calculated emissions rates that are used in the regional emissions analysis.

For the development of regional conformity analyses, where activity is averaged over a wide variety of driving patterns, a local speed distribution by road type and source type is necessary. MOVES requires a speed distribution in VHT in 16 speed bins, by each road type, source type, and hour of the day included in the analysis.

Average speed, as defined for use in MOVES, is the distance traveled (in miles) divided by the time (in hours). This is not the same as the instantaneous velocity of vehicles or the nominal speed limit on the roadway link. The MOVES definition of speed includes all operation of vehicles including intersections and other obstacles to travel which may result in stopping and idling. As a result, average speeds, as used in MOVES, will tend to be less than nominal speed limits for individual roadway links.

The recommended approach for estimating average speeds is to post-process the output from a travel demand network model. In most transportation models, speed is estimated primarily to allocate travel across the roadway network. Speed is used as a measure of impedance to travel rather than as a prediction of accurate travel times. For this reason, speed results from most travel demand models must be adjusted to properly estimate actual average speeds.

For this analysis, TDM link-level speeds were post-processed using accepted transportation engineering methods based on the 2000 Highway Capacity Manual (HCM) and National Cooperative Highway Research Program (NCHRP) Report 387. 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 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:

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

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

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

Speed is entered in MOVES as a distribution (of vehicle hours of travel) rather than a single value, since the use of a distribution provides more accurate emissions estimates than that of a single average speed. The speed type distributions by jurisdiction were created by utilizing the relational database capabilities of Microsoft Access and by running a series of queries to modify and format the input data as required by MOVES2010b. The basic process first involves converting the link-level AADVMT provided by each respective TDM output file into weekday summertime VMT for consistency with the MVEBs contained in the Fredericksburg 8-Hour Ozone Maintenance Plan. Congested speeds and VHT were then calculated for each link using the appropriate BPR equation noted above.

Similarly, the off-network AADVMT for local and collector roadways was grown to each future analysis year and adjusted to represent weekday summertime VMT. Speeds on local and collector roadways were obtained from VDOT's Statewide Planning System (SPS) database or from established EPA defaults (e.g., 12.9 mph for urban local roadways), and VHT was subsequently calculated. The network and off-network DVMT, speeds, and VHT were then combined in a table within Microsoft Access for each roadway, and speed type distributions for each jurisdiction were then computed via queries and formatted for input into MOVES2010b.

Source Type Populations

Source type (vehicle type) population is used by MOVES to calculate start, extended idle and evaporative emissions. Start and evaporative emissions depend more on how long a vehicle is parked than how many miles it is driven. In MOVES, start and resting evaporative emissions are related to the population of vehicles in an area. Chained trips may involve multiple starts with relatively low VMT. Because vehicle population directly determines start, extended idle and evaporative emission, users must develop local data for this input. MOVES categorizes vehicles into 13 source types, which are subsets of 6 HPMS vehicle types in MOVES, as shown in Table 2-5 above.

Source type population data for input into MOVES was derived directly from vehicle registration data obtained from the Virginia Department of Motor Vehicles (VDMV) which represented the entire Virginia fleet as of July 1, 2011. VDMV provided a database of almost 7 million vehicle identification numbers (VINs) that were subsequently decoded into each of the 28 MOBILE6.2 vehicle types by using the services of ESP Data Solutions, Inc. The resultant dataset was converted to the appropriate MOVES source types by using Table A.1 of the MOVES2010b Technical Guidance titled "Population Mapping from MOBILE6.2 Vehicle Types to MOVES

Source Types." The 2011 source type population data was then summed by jurisdiction and MOVES vehicle type, and then grown to each future analysis year by applying the appropriate annual VMT growth rate (described below).

Monthly, Daily, and Hourly VMT Fractions

The network vehicle activity estimates were forecast through the CUBE voyager model, and are reported as Vehicle Miles Traveled (VMT). As previously noted, 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). The AADT then needs to be adjusted to represent ozone-season weekday conditions to be consistent with the motor vehicle emissions budgets (MVEBs) contained in the Fredericksburg 8-Hour Ozone Maintenance Plan.

Table 2-7 presents average ozone season monthly adjustment factors for the Fredericksburg area. The adjustment factors were applied to the forecast annualized VMT within MOVES to more accurately account for observed summertime traffic levels, and were based upon HPMS data for 2011 as presented in "*Traffic Data for the 2011 Periodic Emissions Inventory* (VDOT, 2012). The tabulated factors were obtained as the average for the values reported for May through September (i.e., the ozone season) for the Fredericksburg Maintenance area, and are input into MOVES2010b as representing July.

Table 2-7: Monthly VMT Fractions

HPMS Vehicle Class	HPMS Vehicle Class Name	Ozone Season Factor
10	Motorcycles	0.12417
20	Passenger Cars	0.08792
30	Other 2-Axle/4-Tire Vehicles	0.08603
40	Buses	0.08530
50	Single Unit Trucks	0.08582
60	Combination Trucks	0.08564

Source: VDOT, 2012, "Traffic Data for the 2011 Periodic Emissions Inventory"

Table 2-8 presents the weekday VMT fractions that were used in this analysis. The weekday fractions were obtained from the document titled ""*Traffic Data for the 2011 Periodic Emissions Inventory* (VDOT, 2012), and are presented for each HPMS vehicle class within the Fredericksburg 8-Hour Ozone Maintenance Area. The corresponding weekend fractions can be obtained by subtracting the weekday fraction from one.

This analysis used the default hourly VMT fractions contained within the MOVES2010b database.

Table 2-8: Weekday VMT Fractions

HPMS Vehicle Class	MOVES Road Type			
	2 - Rural Restricted	3- Rural Unrestricted	4 - Urban Restricted	5 - Urban Unrestricted
10	0.62069	0.56795	0.66477	0.65353
20	0.63349	0.70476	0.65583	0.74803
30	0.69063	0.74203	0.71793	0.77888
40	0.79013	0.87491	0.79479	0.89842
50	0.80704	0.87887	0.81878	0.89994
60	0.84457	0.87801	0.84307	0.90015

** Five-day averages. The corresponding weekend fractions may be obtained as one minus the weekday fraction.*

Annual VMT Growth Rates

Forecasts are required for VMT for local and collector roadways that are not captured by the regional network model. The required forecasts are obtained by applying 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 roadways were obtained from the VDOT 2011 HPMS database. The growth rates were obtained as the annual average growth rates for auto ownership in the Fredericksburg 8-hour ozone maintenance area, and are based on the socioeconomic forecasts approved by FAMPO for auto ownership as reported in Table 2-2.

Table 2-9 presents the annual growth rates for local and collector roadways for the Fredericksburg area. Forecast VMT generated based on these rates are included in Appendix B. These annual growth rates were also applied to the 2011 source type population data to development source type populations appropriate for each conformity analysis year.

Table 2-9: Annual Growth Rates

Jurisdiction	Annual Growth Rate*
Fredericksburg	1.012358
Stafford	1.024259
Spotsylvania	1.025026

***Based on forecasted growth in auto ownership between 2010 and 2040*

Hourly Traffic Volumes

Table 2-10 presents the hourly traffic volumes applied for this analysis. The data were obtained from "Traffic Trends and Characteristics for the 2008 Highway Emissions Inventory" (VDOT, 2009). These profiles were applied in the generation of the VMT tables that are presented in Appendix B.

Table 2-10: Hourly Traffic Distribution by Roadway Functional Class

Time Period	Hour	rural Interstate	Rural Prin. Arterial	Rural Minor Arterial	Rural Major Collector	Rural Minor Collector	Rural Local	urban interstate	freeway	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	1.53%	0.85%	0.93%	0.57%	0.56%	0.96%	1.44%	1.44%	0.74%	0.54%	0.57%	0.38%
Night	1	1.23%	0.54%	0.65%	0.47%	0.34%	0.55%	1.07%	1.07%	0.47%	0.36%	0.34%	0.26%
Night	2	1.13%	0.70%	0.54%	0.41%	0.40%	0.78%	0.95%	0.95%	0.36%	0.31%	0.27%	0.26%
Night	3	1.28%	1.10%	0.60%	0.71%	0.71%	0.33%	1.06%	1.06%	0.35%	0.45%	0.44%	0.41%
Night	4	1.79%	1.57%	1.00%	1.57%	1.28%	0.55%	2.07%	2.07%	0.69%	1.12%	1.16%	1.76%
Night	5	2.43%	3.65%	2.05%	2.98%	2.70%	2.88%	3.16%	3.16%	1.86%	2.27%	2.39%	3.04%
Night	6	3.56%	6.46%	4.06%	5.67%	5.39%	6.42%	4.19%	4.19%	3.84%	3.92%	4.20%	5.23%
AM Peak	7	4.49%	9.45%	5.90%	6.97%	6.14%	8.15%	4.86%	4.86%	5.39%	5.99%	6.34%	7.51%
AM Peak	8	4.87%	7.42%	5.25%	5.74%	5.30%	4.80%	4.83%	4.83%	5.10%	6.00%	5.87%	6.11%
AM Peak	9	5.25%	5.26%	5.36%	4.75%	4.89%	4.24%	5.06%	5.06%	4.89%	5.56%	4.93%	4.71%
Midday	10	5.80%	4.92%	5.76%	4.53%	4.28%	3.39%	5.38%	5.38%	5.39%	5.25%	4.66%	4.28%
Midday	11	6.10%	5.15%	5.93%	4.82%	5.26%	3.61%	5.53%	5.53%	5.94%	5.76%	5.07%	4.43%
Midday	12	6.19%	5.47%	6.11%	5.25%	5.07%	3.70%	5.66%	5.66%	6.48%	6.37%	5.78%	4.79%
Midday	13	6.38%	5.43%	6.36%	5.20%	5.51%	4.95%	5.86%	5.86%	6.48%	6.11%	5.52%	4.89%
Midday	14	6.56%	5.88%	7.06%	5.77%	5.63%	4.42%	6.32%	6.32%	6.79%	6.41%	5.94%	5.41%
Midday	15	6.55%	6.09%	7.39%	6.84%	6.96%	6.98%	6.56%	6.56%	7.84%	7.16%	7.14%	7.47%
PM Peak	16	6.39%	5.94%	7.67%	8.03%	7.92%	7.90%	6.53%	6.53%	8.47%	7.92%	7.99%	9.10%
PM Peak	17	6.15%	6.12%	7.36%	8.68%	8.05%	8.89%	6.31%	6.31%	8.22%	8.50%	8.91%	9.89%
PM Peak	18	5.46%	4.47%	5.85%	6.48%	6.95%	7.53%	5.72%	5.72%	6.49%	6.53%	7.13%	7.22%
Night	19	4.72%	3.97%	4.49%	4.87%	5.58%	6.13%	5.01%	5.01%	4.73%	4.73%	5.27%	4.87%
Night	20	4.12%	3.51%	3.52%	3.84%	4.67%	4.95%	4.20%	4.20%	3.60%	3.54%	4.20%	3.59%
Night	21	3.41%	2.89%	2.73%	2.90%	3.32%	3.80%	3.50%	3.50%	2.74%	2.63%	3.05%	2.44%
Night	22	2.63%	1.84%	2.03%	1.83%	2.10%	2.29%	2.74%	2.74%	1.88%	1.56%	1.78%	1.15%
Night	23	1.98%	1.32%	1.39%	1.13%	0.99%	1.78%	2.00%	2.00%	1.26%	1.01%	1.09%	0.78%

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

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)[6] 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 George Washington Air Quality Committee (GWAQC) is the designated LPO for the region. Although not specifically listed in the current (2004) ICG procedures, but consistent with the new Virginia Regulation for Transportation Conformity, a representative of the designated Lead Planning Organization (LPO) for the region is also invited to participate in inter-agency consultation on conformity issues.

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

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

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 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 August 2004 the FAMPO approved the Interagency Consultation Procedures for 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 GWRC, as the staff to FAMPO, 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: FAMPO Interagency Consultation Group

Agency	*Designated Staff*
MPO Members	
Stafford County	Mr. Joey Hess
City of Fredericksburg	Mr. Erik Nelson
County of Spotsylvania	Mr. Doug Morgan
Regional	
FAMPO	Mr. David Lee
George Washington Regional Commission	Ms. Diana Utz
FRED Transit	Ms. Kathy Beck
Potomac and Rappahannock Transportation Commission	Mr. Nick Alexandrow
Virginia Railway Express	Ms. Christine Hoeffner
State	
Dept. of Environmental Quality	Ms. Sonya Lewis-Cheatham
Dept. of Transportation (Central Office)	Mr. Jim Ponticello
Dept. of Transportation (District Office)	Mr. Craig Van Dussen
Dept. of Rail & Public Transportation	Mr. Christopher Arabia
Federal	
Environmental Protection Agency	Mr. Martin Kotsch
Federal Highway Administration	Ms. Marisel Lopez-Cruz
Federal Transit Administration	Mr. Ryan Long

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 FAMPO issues relating to conformity and/or air quality 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 and FHWA 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 2040 LRTP and FY 12-15 TIP were provided at the following meetings and events:

- October 15, 2012; FAMPO Technical Advisory Committee approved the 2040 LRTP constrained project list for conformity.

- October 22, 2012; FAMPO approved the 2040 LRTP constrained project list for conformity and authorizes the FTC to approve the conformity analysis for public review.

- November 16, 2012; 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 14, 2013; FTC approved the FY12-15 TIP and 2040 LRTP conformity analysis for public review.

- January 15 - February 14, 2013; public review period for the conformity determination. No adverse comments were received.

- February 25, 2012; FAMPO approved the FY 12-15 TIP and 2040 LRTP draft Conformity Report for submittal to FHWA for approval.

Copies of the above noted MPO resolutions, public notices and materials distributed before and at the ICG Meeting held November 16, 2012 are provided in Appendix D. That meeting marked the beginning of the conformity analysis process and provided an opportunity for detailed review and comment on all aspects of the process, including methods, assumptions, schedule, and project lists.

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 2040 LRTP and FY 12-15 TIP.

Meeting notices were distributed by email, and the distribution list included the members of the FAMPO TAC 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 November 28, 2012. No comments were received prior to the distribution of the final minutes.

For reference, the project lists for the 2040 LRTP and FY 12-15 TIP as modeled for the conformity analysis were presented to, and approved by, the ICG. Final versions of the project lists are provided in Appendix E.

Chapter 4: Conformity Demonstration & Conclusion

The results of the conformity analysis for the 2040 LRTP and FY 12-15 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 LRTP and TIP

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 Fredericksburg 8-hour ozone maintenance plan 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 in this conformity determination.

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 LRTP and TIP, with applicable sections of the rule excerpted for reference:

- *§93.108 - Fiscal Constraints for transportation plans and TIPs. "Transportation Plans and TIPs must be 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 day)*	
		NO_x	**VOC**
2015	**Budget Year**		
	LRP/TIP Forecast:	10.84	4.20
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED
2020	**Interim Year** (within ten years of other years modeled)		
	LRP/TIP Forecast:	7.14	3.32
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED
2030	**Interim Year** (within ten years of other years modeled)		
	LRP/TIP Forecast:	5.67	2.94
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED
2040	**LRP Horizon Year**		
	LRP/TIP Forecast:	7.44	3.73
	Budget:	12.933	7.334
	Conformity Test:	PASSED	PASSED

(Numbers may not add exactly due to rounding.)

- *§93.110 Criteria and procedures: Latest planning assumptions:*
    - 93.110(a) Latest Planning Assumptions: This section requires that: "*the conformity determination … must be based upon the most recent planning assumptions in force at the time the conformity analysis begins...*"

      In general, the latest available and approved population and employment forecasts for 2040 by Traffic Analysis Zone (TAZ) were employed with the regional travel demand network model (Cube) to generate the traffic volume and vehicle-miles-traveled (VMT) forecasts applied in this conformity analysis. Regional roadway and transit networks were updated as appropriate using the Plan and Program project lists, which were subjected to interagency consultation as described below. Emission controls assumed for the analysis were consistent with those specified in the applicable implementation (maintenance) plan revision.

      All of the latest planning assumptions and other aspects of the conformity analysis were reviewed by the Interagency Consultation Group (ICG) at the beginning of the conformity analysis process, as documented in the chapter on consultation and in Appendix D. Additional details are provided below.

    - 93.110 (b) Socioeconomic Forecasts: This section requires that "*Assumptions must be derived from the estimates of current and future population, employment, travel, and congestion most recently developed by the MPO or other agency authorized to make such estimates and approved by the MPO*". Further, Section 93.122(b)(1)(ii) requires that "*Land use, population, employment, and other network-based travel model assumptions must be documented and based on the best available information*". Section 93.122(b)(1)(iii) adds that "*Scenarios of land development and use must be consistent with the future transportation system alternatives for which emissions are being estimated*."

      As documented in the main report, the socioeconomic forecasts for 2040 (including interim years and sub-allocations as appropriate) represent the latest projections available and approved for use with the 2040 LRTP.

    - 93.110(c) and (d) Transit: These sections respectively require that "*The conformity determination for each transportation plan and TIP must discuss how transit operating policies (including fares and service levels) and assumed transit ridership have changed since the previous conformity determination*" and "*The conformity determination must include reasonable assumptions about transit service and increases in transit fares and road and bridge tolls over time*".

      Transit operating policies (including fares and service levels) and modeling for transit (ridership) have not changed significantly since the previous conformity determination. Transit service is included in future networks for the region. While future transit ridership is effectively

determined in the course of modeling for the conformity analysis, details on current transit operating policies including fares and service levels may be found on the Fredericksburg Regional Transit (FRED) and website[7]. Transit service and fares as well as road tolls are also addressed in supporting documentation for the Plan and associated modeling.

- 93.110(e) Transportation Control Measures (TCMs) and Other Measures: This section requires that "*The conformity determination must use the latest existing information regarding the effectiveness of the TCMs [transportation control measures] and other implementation plan measures which have already been implemented*."

  The applicable SIP revision (8-hour ozone maintenance plan) for the Fredericksburg 8-hour ozone maintenance area does not include transportation control measures (TCMs). TCMs are therefore not required for the conformity analysis or determination. Accordingly, credit for TCMs was not taken in this analysis. See *70 FR 76165, effective January 23, 2006.*

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

  - On March 2, 2010, EPA officially released the next generation Motor Vehicle Emission Simulator (MOVES2010) model for use in SIP development and regional conformity applications. The EPA notice indicated that a two-year grace period (ending March 2, 2012) will apply for use of the new model in regional emissions analyses for transportation conformity determinations. On February 27th, 2012, the EPA extended the two year grace period adding another year (to effectively March 2, 2013).

  - FAMPO utilized the grace period to evaluate the impact that MOVES2010 would have on emissions estimates prior to its required use in regional emissions analyses. FAMPO found that, with all traffic inputs remaining the same, MOVES2010 produced significantly higher emissions estimates for NO_x, and also found that the regional emissions estimates were significantly higher than the motor vehicle emissions budgets (MVEBs) contained in the 8-Hour Ozone Maintenance Plan which were created using the previous mobile model, MOBILE6.2. As a result, FAMPO worked with the Virginia Department of Environmental Quality (VDEQ) and the Interagency Consultation Group (ICG) to update the NO_x MVEBs in the Maintenance Plan using the new MOVES2010a model.

  - VDEQ submitted the updated Maintenance Plan to EPA on September 26, 2011. EPA issued a Federal Register (FR) notice on August 6, 2012, that proposed approval of the Maintenance Plan revision and the updated NO_x MVEBs, and subsequently issued a final approval on October 29, 2012. However, the notice of final approval inadvertently published incorrect NO_x MVEBs, so EPA published a correction in the FR on December 20, 2012.

[7] See www.ridefred.com.

- The selection of latest emission model for the conformity analysis was considered by the ICG at the beginning of the conformity analysis process, as documented in the chapter on consultation and in Appendix D. The consensus of the ICG was to use the MOVES2010b model for this analysis, since the transportation conformity regulations require the use of MOVES2010 for areas that have approved MVEBs that were created using MOVES.

- *§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 19, 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 Greater Washington Air Quality Committee is the designated LPO for the region**.** Involvement of the VDEQ staff representative for that Committee in the local inter-agency consultation process for conformity is considered to fulfill that requirement.

  - 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 FAMPO 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 Fredericksburg 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 January 23, 2006 and revised effective December 20, 2012 which established motor vehicle emission budgets for VOC and NO_x for the years 2009 and 2015.

- As documented above, total VOC and NO_x emissions associated with the regional transportation system as planned and programmed in the FY 12-15 TIP and 2040 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 2015, 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 (2040), and that years modeled be no more than ten years apart. To meet the latter requirement, the years 2020 and 2030 were 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. 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.

Conclusion and Conformity Finding

Table 4-2 presents the results of the conformity analysis for the 2040 LRTP and FY 12-15 TIP. As indicated in the table, the LRTP and TIP meets all applicable requirements of the federal transportation conformity rule. A recommendation for a finding of conformity for the LRTP and 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 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 to the LRTP and 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 the Fredericksburg region does not include transportation control measures (TCMs), and therefore they are not required for the conformity analysis or determination (70 FR 76165, effective January 23, 2006).*

APPENDICES

Appendix A: Socioeconomic Forecast by Jurisdiction

The Fredericksburg Area Land Use Data below were developed by the George Washington Regional Commission. These contain data by jurisdiction for the maintenance areas and the remainder of the FAMPO service areas (including King George and Caroline Counties).

Year 2010				
JURIS	**Households**	**Population**	**Employment**	**Autos**
City of Fredericksburg Total	9,505	24,286	31,491	13,782
Caroline Co Total	10,456	28,545	9,896	23,944
King Geoge Co Total	8,376	23,584	16,209	19,265
Spotsylvania Co Total	41,942	122,397	45,303	94,370
Stafford Co Total	41,769	128,961	46,652	93,980
Grand Total	112,048	327,773	149,551	245,341

Year 2020				
JURIS	**Households**	**Population**	**Employment**	**Autos**
City of Fredericksburg Total	10,970	27,160	36,411	15,907
Caroline Co Total	13,450	34,870	11,824	30,801
King Geoge Co Total	11,230	30,230	18,988	25,829
Spotsylvania Co Total	57,100	161,470	54,449	128,475
Stafford Co Total	57,390	169,780	57,463	129,128
Grand Total	150,140	423,510	179,135	330,139

Year 2030				
JURIS	**Households**	**Population**	**Employment**	**Autos**
City of Fredericksburg Total	12,540	30,570	42,353	18,183
Caroline Co Total	16,510	41,220	14,099	37,808
King Geoge Co Total	14,360	37,820	22,481	33,028
Spotsylvania Co Total	72,850	202,740	65,842	163,913
Stafford Co Total	73,390	212,680	70,174	165,128
Grand Total	189,650	525,030	214,949	418,059

Year 2040				
JURIS	**Households**	**Population**	**Employment**	**Autos**
City of Fredericksburg Total	13,740	33,620	49,391	19,923
Caroline Co Total	19,070	46,600	16,615	43,670
King Geoge Co Total	17,130	44,700	25,698	39,399
Spotsylvania Co Total	86,090	240,570	76,444	193,703
Stafford Co Total	87,680	251,850	84,141	197,280
Grand Total	223,710	617,340	252,289	493,975

Appendix B: Traffic Forecast by Jurisdiction

2015 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
FREDERICKSBURG											
Urban Interstate	11	65,783	62	82,769	61	157,391	62	139,937	64	445,880	63
Urban Principal Arterial	14	56,573	40	85,218	34	143,131	38	82,777	41	367,699	41
Urban Minor Arterial	16	23,335	39	30,521	36	49,290	38	29,845	39	132,991	39
Urban Collector	17	15,099	27	21,179	27	30,049	27	21,816	27	88,142	27
Urban Local	19	16,491	13	23,576	13	28,130	13	21,758	13	89,956	13
Rural Principal Arterial	2	3,150	47	2,353	47	4,688	47	4,041	47	14,231	47
TOTAL		180,430		**245,616**		**412,679**		**300,174**		**1,138,899**	
SPOTSYLVANIA											
Rural Interstate	1	83,562	65	102,949	65	214,923	65	170,480	65	571,914	65
Urban Interstate	11	102,919	64	129,496	64	246,244	64	218,936	64	697,595	64
Urban Principal Arterial	14	94,246	40	141,968	32	238,445	37	137,901	40	612,560	40
Urban Minor Arterial	16	46,362	41	60,638	38	97,929	41	59,295	43	264,224	43
Urban Collector	17	65,584	41	91,993	41	130,522	41	94,762	41	382,860	41
Urban Local	19	48,849	13	69,837	13	83,327	13	64,450	13	266,462	13
Rural Principal Arterial	2	19,966	49	14,914	53	29,718	53	25,616	53	90,214	53
Rural Minor Arterial	6	85,240	51	107,792	51	199,359	51	123,788	51	516,178	51
Rural Major Collector	7	59,560	44	79,106	44	110,491	44	91,850	44	341,007	44
Rural Minor Collector	8	6,962	44	9,773	44	13,942	44	11,954	44	42,632	44
Rural Local	9	27,235	25	38,542	25	42,881	25	49,803	25	158,461	25
TOTAL		640,486		**847,006**		**1,407,780**		**1,048,837**		**3,944,109**	
STAFFORD											
Urban Interstate	11	369,808	56	465,302	55	884,800	55	786,679	56	2,506,589	56
Urban Principal Arterial	14	53,641	37	80,802	33	135,713	35	78,487	39	348,644	38
Urban Minor Arterial	16	127,590	43	166,880	42	269,508	43	163,185	43	727,163	43
Urban Collector	17	107,607	38	150,938	38	214,154	38	155,481	38	628,180	38
Urban Local	19	46,569	13	66,577	13	79,437	13	61,442	13	254,024	13
Rural Principal Arterial	2	52,140	53	38,946	53	77,604	53	66,894	53	235,584	53
Rural Minor Arterial	6	20,336	54	25,717	54	47,562	54	29,533	54	123,148	54
Rural Major Collector	7	31,213	44	41,457	44	57,904	44	48,135	44	178,709	44

2015 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
Rural Minor Collector	8	868	42	1,219	42	1,739	42	1,491	42	5,318	42
Rural Local	9	42,344	25	59,922	25	66,668	25	77,430	25	246,363	25
TOTAL		852,116		**1,097,758**		**1,835,090**		**1,468,757**		**5,253,722**	
Fredericksburg Total		1,673,032		2,190,380		3,655,549		2,817,768		10,336,730	

2020 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
FREDERICKSBURG											
Urban Interstate	11	73,795	62	92,851	60	176,562	61	156,982	64	500,190	63
Urban Principal Arterial	14	68,140	40	102,642	30	172,395	36	99,702	41	442,878	41
Urban Minor Arterial	16	26,564	38	34,744	31	56,111	37	33,974	39	151,393	39
Urban Collector	17	16,055	27	22,520	27	31,952	27	23,198	27	93,725	27
Urban Local	19	17,536	13	25,070	13	29,912	13	23,136	13	95,654	13
Rural Principal Arterial	2	4,226	47	3,157	47	6,290	47	5,422	47	19,096	47
TOTAL		206,316		**280,983**		**473,222**		**342,414**		**1,302,935**	
SPOTSYLVANIA											
Rural Interstate	1	89,677	65	110,482	65	230,650	65	182,956	65	613,766	65
Urban Interstate	11	114,582	64	144,170	63	274,148	64	243,746	64	776,647	64
Urban Principal Arterial	14	116,543	39	175,555	27	294,857	34	170,526	40	757,481	40
Urban Minor Arterial	16	58,640	41	76,697	37	123,864	40	74,999	43	334,199	43
Urban Collector	17	73,934	41	103,706	41	147,141	41	106,828	41	431,609	41
Urban Local	19	55,069	13	78,729	13	93,936	13	72,657	13	300,391	13
Rural Principal Arterial	2	21,929	42	16,380	51	32,638	51	28,134	53	99,080	53
Rural Minor Arterial	6	104,135	51	131,688	51	243,552	51	151,229	51	630,603	51
Rural Major Collector	7	67,144	44	89,179	44	124,560	44	103,545	44	384,427	44
Rural Minor Collector	8	7,849	44	11,017	44	15,718	44	13,477	44	48,060	44
Rural Local	9	30,703	25	43,449	25	48,341	25	56,144	25	178,637	25
TOTAL		740,205		**981,050**		**1,629,405**		**1,204,239**		**4,554,900**	
STAFFORD											
Urban Interstate	11	400,960	55	504,497	54	959,332	55	852,946	56	2,717,735	56
Urban Principal Arterial	14	65,859	35	99,206	29	166,623	33	96,364	39	428,051	38
Urban Minor Arterial	16	176,738	43	231,162	40	373,324	43	226,044	43	1,007,268	43
Urban Collector	17	121,762	38	170,794	38	242,327	38	175,935	38	710,818	38
Urban Local	19	52,695	13	75,335	13	89,887	13	69,525	13	287,442	13
Rural Principal Arterial	2	63,495	53	47,429	53	94,505	53	81,463	53	286,891	53
Rural Minor Arterial	6	26,381	54	33,362	54	61,701	54	38,312	54	159,756	54
Rural Major Collector	7	35,319	44	46,910	44	65,521	44	54,467	44	202,219	44

2020 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
Rural Minor Collector	8	983	42	1,379	42	1,968	42	1,687	42	6,017	42
Rural Local	9	47,914	25	67,804	25	75,439	25	87,616	25	278,773	25
TOTAL		992,107		**1,277,878**		**2,130,627**		**1,684,359**		**6,084,970**	
Fredericksburg Total		1,938,627		2,539,911		4,233,254		3,231,012		11,942,805	

2030 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
FREDERICKSBURG											
Urban Interstate	11	84,488	62	106,305	60	202,146	61	179,729	64	572,669	63
Urban Principal Arterial	14	65,946	41	99,337	27	166,844	36	96,492	42	428,618	42
Urban Minor Arterial	16	42,611	42	55,732	41	90,007	42	54,498	42	242,848	42
Urban Collector	17	18,153	27	25,463	27	36,128	27	26,230	27	105,974	27
Urban Local	19	19,827	13	28,346	13	33,822	13	26,160	13	108,155	13
Rural Principal Arterial	2	6,035	40	4,508	47	8,983	47	7,743	47	27,270	47
TOTAL		237,061		**319,692**		**537,929**		**390,852**		**1,485,534**	
SPOTSYLVANIA											
Rural Interstate	1	100,611	65	123,953	65	258,774	65	205,264	65	688,602	65
Urban Interstate	11	129,041	64	162,362	64	308,741	64	274,503	64	874,647	64
Urban Principal Arterial	14	165,210	41	248,863	33	417,984	38	241,734	42	1,073,792	42
Urban Minor Arterial	16	63,758	43	83,391	40	134,675	43	81,544	44	363,368	44
Urban Collector	17	93,961	41	131,797	41	186,997	41	135,764	41	548,519	41
Urban Local	19	69,985	13	100,054	13	119,381	13	92,337	13	381,757	13
Rural Principal Arterial	2	69,747	55	52,098	55	103,809	55	89,483	55	315,136	55
Rural Minor Arterial	6	129,967	51	164,354	51	303,968	51	188,743	52	787,033	52
Rural Major Collector	7	85,331	44	113,335	44	158,299	44	131,592	44	488,557	44
Rural Minor Collector	8	9,975	44	14,001	44	19,975	44	17,127	44	61,078	44
Rural Local	9	39,020	25	55,218	25	61,435	25	71,352	25	227,025	25
TOTAL		956,606		**1,249,427**		**2,074,039**		**1,529,444**		**5,809,515**	
STAFFORD											
Urban Interstate	11	465,287	56	585,435	54	1,113,242	55	989,788	56	3,153,753	56
Urban Principal Arterial	14	86,325	38	130,035	25	218,403	32	126,310	39	561,072	39
Urban Minor Arterial	16	264,183	43	345,534	39	558,033	42	337,884	43	1,505,635	43
Urban Collector	17	155,906	38	218,686	38	310,277	38	225,269	38	910,138	38
Urban Local	19	67,471	13	96,460	13	115,092	13	89,020	13	368,043	13
Rural Principal Arterial	2	78,833	52	58,886	53	117,334	53	101,141	53	356,194	53
Rural Minor Arterial	6	34,542	53	43,682	53	80,788	53	50,163	53	209,175	53
Rural Major Collector	7	45,223	44	60,064	44	83,894	44	69,740	44	258,923	44

2030 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
Rural Minor Collector	8	1,258	42	1,766	42	2,520	42	2,160	42	7,705	42
Rural Local	9	61,349	25	86,817	25	96,592	25	112,184	25	356,943	25
TOTAL		1,260,379		**1,627,366**		**2,696,176**		**2,103,661**		**7,687,581**	
Fredericksburg Total		2,454,046		3,196,484		5,308,144		4,023,957		14,982,631	

2040 Summertime VMT and Average Speeds

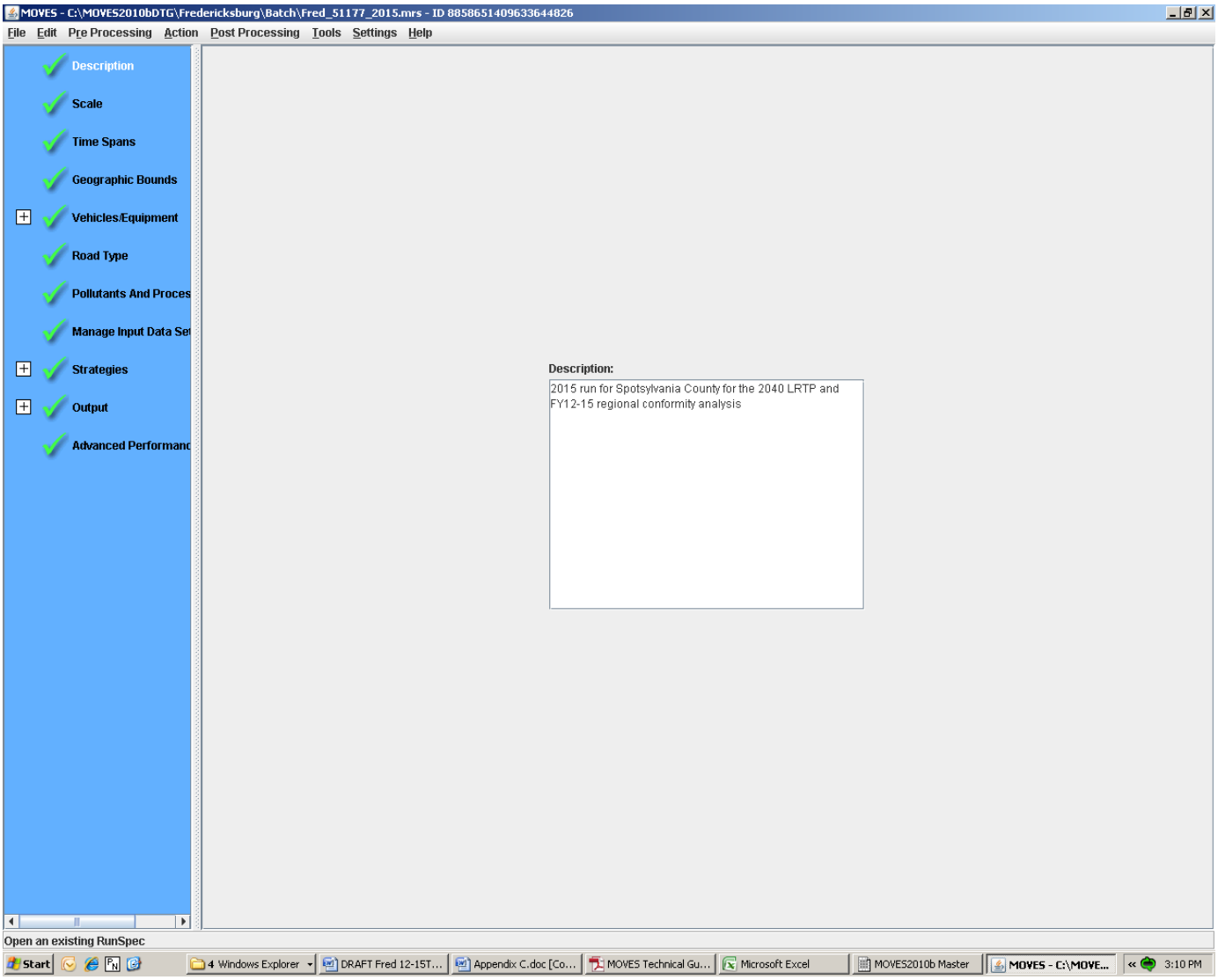
JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
FREDERICKSBURG											
Urban Interstate	11	94,549	61	118,964	50	226,217	54	201,131	63	640,861	62
Urban Principal Arterial	14	108,562	28	163,532	5	274,665	12	158,848	41	705,607	37
Urban Minor Arterial	16	35,451	31	46,367	24	74,882	30	45,340	39	202,040	37
Urban Collector	17	20,526	27	28,791	27	40,850	27	29,658	27	119,824	27
Urban Local	19	22,419	13	32,051	13	38,242	13	29,579	13	122,290	13
Rural Principal Arterial	2	6,587	32	4,920	46	9,804	46	8,451	47	29,762	47
TOTAL		288,094		**394,625**		**664,660**		**473,007**		**1,820,385**	
SPOTSYLVANIA											
Rural Interstate	1	113,010	65	139,229	65	290,664	65	230,560	65	773,463	65
Urban Interstate	11	148,634	63	187,014	61	355,620	62	316,183	64	1,007,451	64
Urban Principal Arterial	14	165,591	32	249,437	10	418,948	20	242,292	40	1,076,268	39
Urban Minor Arterial	16	92,135	39	120,507	31	194,617	37	117,839	44	525,097	43
Urban Collector	17	119,412	41	167,497	41	237,649	41	172,539	41	697,097	41
Urban Local	19	88,942	13	127,156	13	151,718	13	117,348	13	485,164	13
Rural Principal Arterial	2	27,274	34	20,372	45	40,594	45	34,991	53	123,231	51
Rural Minor Arterial	6	165,993	49	209,912	47	388,225	48	241,060	51	1,005,189	51
Rural Major Collector	7	108,445	44	144,034	44	201,178	44	167,237	44	620,893	44
Rural Minor Collector	8	12,677	44	17,793	44	25,386	44	21,766	44	77,622	44
Rural Local	9	49,589	25	70,175	25	78,076	25	90,679	25	288,519	25
TOTAL		1,091,702		**1,453,126**		**2,382,672**		**1,752,494**		**6,679,994**	
STAFFORD											
Urban Interstate	11	496,370	53	624,544	40	1,187,610	45	1,055,909	55	3,364,434	55
Urban Principal Arterial	14	101,947	22	153,567	7	257,928	13	149,168	39	662,611	28
Urban Minor Arterial	16	342,822	28	448,389	11	724,142	25	438,462	43	1,953,815	41
Urban Collector	17	199,623	38	280,008	38	397,282	38	288,437	38	1,165,350	38
Urban Local	19	86,391	13	123,508	13	147,365	13	113,982	13	471,246	13
Rural Principal Arterial	2	100,349	50	74,957	52	149,358	52	128,745	53	453,410	53
Rural Minor Arterial	6	42,121	54	53,266	54	98,514	54	61,170	54	255,071	54
Rural Major Collector	7	57,904	44	76,907	44	107,419	44	89,296	44	331,527	44

2040 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
Rural Minor Collector	8	1,611	42	2,261	42	3,226	42	2,766	42	9,865	42
Rural Local	9	78,552	25	111,162	25	123,678	25	143,641	25	457,034	25
TOTAL		1,507,692		**1,948,570**		**3,196,523**		**2,471,577**		**9,124,362**	
Fredericksburg Total		2,887,487		3,796,321		6,243,855		4,697,078		17,624,741	

Appendix C: MOVES 2010b Run Specification File

The Navigation Panel in MOVES is used to select a series of panels which specify the parameters used for creation of the Run Specification file. A copy of the 2015 run spec file as used in the analysis for Spotsylvania County is provided. Copies of all input files are available upon request.



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Appendix D: Consultation

This appendix includes Inter-Agency Consultation Group (ICG) meeting minutes and public consultation materials for the conformity analysis for the Fredericksburg FY 12-15 TIP and 2040 LRTP.

Attached in chronological order:

- FAMPO resolution dated October 15, 2012 approving the 2040 LRTP project list for conformity and authorizing the FTC to approve the conformity analysis for public review.
- Minutes from the November 16, 2012; 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.
- Minutes from the January 14, 2013 FTC meeting where the technical committee approved the conformity analysis for public review.
- Public notice for the conformity determination which ran from January 15- February 14, 2013. No adverse comments from the public were received.
- FAMPO resolution dated February 25, 2013 approving the 2040 LRTP and FY12-15 TIP draft conformity report for submittal to FHWA for approval.

Project lists showing proposed modeling for the 2040 LRTP and the FY 12-15 TIP for the conformity analysis were distributed for the November 16, 2012 ICG meeting but are not reproduced here. Final versions of the TIP and LRTP projects lists that were approved by the ICG are provided in Appendix E.

FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION (FAMPO)

Fredericksburg City
Spotsylvania County
Stafford County

Gary Skinner
Chairperson

Lloyd Robinson
FAMPO Administrator

FAMPO RESOLUTION 12-29

A RESOLUTION OF THE FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION ENDORSING THE 2040 FISCALLY CONSTRAINED LONG RANGE PLAN PROJECT LIST

WHEREAS, the U.S. Department of Transportation provides financial assistance to public agencies for transportation technical studies; and

WHEREAS, the U.S. Department of Transportation requires approval of regional transportation plans and programs by the metropolitan Planning Organization (MPO) in accordance with 23 U.S.C. part 450; and

WHEREAS, the Fredericksburg Area Metropolitan Planning Organization Policy Committee is the duly designated Metropolitan Planning Organization for the Fredericksburg Area; and

WHEREAS, the Fredericksburg Area Metropolitan Planning Organization has considered the 2040 Fiscally Constrained Long Range Plan project list; and

NOW, THEREFORE, BE IT RESOLVED BY THE FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION POLICY COMMITTEE THAT IT ENDORSES THE 2040 FISCALLY CONSTRAINED LONG RANGE PLAN PROJECT LIST AS ATTACHED FOR AIR QUALITY CONFORMITY ANALYSIS; AND

BE IT FURTHER RESOLVED BY THE FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION THAT THE FAMPO TECHNICAL COMMITTEE IS HEREBY AUTHORIZED TO APPROVE THE DRAFT CONFORMITY REPORT FOR PUBLIC COMMENT ON BEHALF OF THE FAMPO POLICY COMMITTEE.

Adopted by the FAMPO Policy Committee at its meeting on October 22, 2012.

FAMPO Resolution 12-29

Mary F. Stimmel

Chairman
Fredericksburg Area Metropolitan Planning Organization

Date: 10/22/12

406 Princess Anne St.
Fredericksburg, Virginia 22401

(540) 373-2890
FAX: (540) 899-4808
www.fampo.gwregion.org

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

November 16, 2012
George Washington Regional Commission
Gibbons Conference Room
406 Princess Anne Street, Fredericksburg, Virginia 22404

MEMBERS ATTENDING:

Andy Waple, FAMPO
Joey Hess, Stafford County
Erik Nelson, City of Fredericksburg
Sonya Lewis-Cheatham, VDEQ
Jim Ponticello, VDOT
Craig Van Dussen, VDOT
Diana Utz, GWRC
Chris Arabia, DRPT
Doug Morgan, Spotsylvania

OTHERS:

Lloyd Robinson, FAMPO
Rodney White, FAMPO
Daniel Reese, FAMPO
Dan Grinnell, VDOT
Bassam Amin, City of Fredericksburg

FHWA – Federal Highway Administration
USEPA – US Environmental Protection Agency
FAMPO- Fredericksburg Area Metropolitan Planning Organization
VDEQ – Virginia Dept. of Environmental Quality
GWRC –George Washington Regional Commission
VDOT – Virginia Dept. of Transportation
VRE- Virginia Railway Express
DRPT-Department of Rail and Public Transportation

1. Call to Order and Introduction

Chairman Erik Nelson convened the meeting at approximately 9:00 a.m.

Dan Grinnell, VDOT, reviewed the agenda for the meeting. No changes were requested.

2. ICG Membership Update

Members were requested to provide any updates to VDOT. No updates were needed

3. Consultation Items (for approval)

3(a). Draft Conformity Analysis Schedule

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

Date	Task
Oct 15, 2012	FTC approves the 2040 LRTP project list for conformity
Oct 22, 2012	FAMPO approves the 2040 LRTP project list for conformity **and authorizes the FTC to approve the conformity analysis for public review period.**
Nov. 16, 2012	Interagency Consultation Group (ICG) Conformity Kickoff Meeting on 2040 LRTP and FY 12-15 TIP
Dec 11, 2012	GWRC delivers TDM files to VDOT Environmental
Jan 8, 2013	VDOT Environmental completes emissions modeling and draft Conformity Report
Jan 9 -11, 2013	Internal review of draft Conformity Report among VDEQ, VDOT, and GWRC
Jan 14, 2013	**FTC approves draft Conformity Report for public comment on behalf of MPO**
Jan 15 - Feb 14, 2013	30-day public comment period
Feb 15 - 18, 2013	VDOT/PDC staff review and address public comments (if necessary)
Feb 25, 2013	FAMPO approves Conformity Report for submittal to FHWA
Feb 26, 2013	VDOT submits e-copy of conformity analysis to FHWA; 45-day federal review period begins
April 12, 2013	Federal Conformity Determination received

Schedule subject to change, e.g., if any regionally significant 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 will be developed based on the approved project lists, using the 2040

socioeconomic data provided by GWRC and approved by FAMPO. EPA's latest emissions model, MOVES2010b, will be used to generate motor vehicle emissions estimates. Gasoline inputs will be provided by VDEQ. Reformulated gasoline (RFG) with a reid vapor pressure (RVP) of 6.8 will be used in Stafford County and conventional gasoline with an RVP of 6.8 will be used in the City of Fredericksburg and Spotsylvania County. Hourly temperature and relative humidity values would be consistent with those used in the Air Quality 8-Hour Ozone Maintenance Plan. MOVES2010b local inputs were discussed during the presentation (attached) and will include locally-derived age distributions, source type populations, road type distributions, speed distributions, annual vehicle miles traveled, and monthly and daily adjustment factors to account for ozone season vehicle activity. All local data will be based on vehicle registration data for 2011 provided by the Virginia Department of Motor Vehicles, 2011 HPMS data provided by the VDOT Traffic Engineering Division and documented in "Traffic Data for the 2011 Periodic Emissions Inventory," as well as the latest TDM outputs that will be provided by GWRC.

During the presentation it was noted that EPA recently approved the revised motor vehicle emissions budgets (MVEBs) in the 8-Hour Ozone Maintenance Plan that were created using MOVES2010, although the new MVEBs contained in the Federal Register notice were inadvertently listed incorrectly. EPA has advised that they are currently in the process of issuing a correction, as this will be needed in order for the region to be able to demonstrate transportation conformity using the new MOVES2010 mobile emissions model. It is anticipated that the correction will be effective in advance of the completion of the draft conformity report and scheduled public review period.

Transportation conformity budget tests will be applied for the forecast years 2015, 2020, 2030 and 2040. These years were selected to meet specific conformity rule requirements: 2015 is the year for which motor vehicle emission budgets were established in the approved Air Quality Maintenance Plan for the Fredericksburg area, and 2040 is the horizon year of the long range transportation plan (LRTP). The years 2020 and 2030 were selected as interim years 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 conformity analysis methodology and assumptions.

3(c). Project Lists for the Conformity Analysis

Project lists for the 2040 LRP and FY 12-15 TIP were emailed to the ICG prior to the meeting, and they were also included with the agenda package and distributed at the ICG meeting. The project lists included the fiscally constrained 2040 LRTP projects as approved by FAMPO, and also noted whether each project was considered to be regionally significant and, if so, it's anticipated first conformity analysis year.

There was discussion about some older, non-regionally significant projects that had already been completed, although it was noted that these projects still appear on the project list because they hadn't been financially closed-out by VDOT Programming as of yet, and that leaving them on the project list would have no impact on the conformity analysis. No other comments on the project lists were received.

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
- Project Lists for Conformity Analysis (2040 LRP and FY 12-15 TIP).

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

Attachments:

1 - VDOT Presentation
2 - Project lists

Virginia Department of Transportation

FAMPO Regional Conformity Analysis
2040 LRTP and FY12-15 TIP

Interagency Consultation Group Meeting

Dan Grinnell, VDOT Environmental Division

November 16, 2012 - 9:00 a.m.
George Washington Regional Commission, Fredericksburg, VA

Agenda

1. Introduction & Overview
2. ICG Membership Update
3. Consultation Items:
   a. Models, Methodology & Assumptions
   b. Conformity Analysis Schedule
   c. Project list for conformity analysis
4. Public Comment Period
5. Approvals & Next Steps

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1. Introduction & Overview

- **Interagency consultation is required by the Clean Air Act and Transportation Conformity Rule**
  - **ICG Membership specified by agency**
  - **FAMPO approved ICG Consultation Procedures in August 2004.**
- **Consultation required for:**
  - **Most recent models, methods, and planning assumptions**
    - Consistent with the eight-hour ozone maintenance plan approved by EPA on January 23rd, 2006
  - **Schedule**
  - **Project lists for the conformity analysis**

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2. ICG Membership Update

Agency	*Designated Staff*
MPO Members	
Stafford County	Mr. Joey Hess
City of Fredericksburg	Mr. Erik Nelson (Chair)
County of Spotsylvania	Mr. Doug Morgan
Regional	
FAMPO	Mr. Andy Waple
George Washington Regional Commission	Ms. Diana Utz
FRED Transit	Ms. Kathy Beck
Potomac and Rappahannock Transportation Commission	Mr. Nick Alexandrow
Virginia Railway Express	Ms. Christine Hoeffner
State	
Dept. of Environmental Quality	Ms. Sonya Lewis-Cheatham
Dept. of Transportation (Central Office)	Mr. Jim Ponticello
Dept. of Transportation (District Office)	Mr. Craig Van Dussen
Dept. of Rail & Public Transportation	Mr. Christopher Arabia
Federal	
Environmental Protection Agency	Mr. Martin Kotsch
Federal Highway Administration	Ms. Marisel Lopez-Cruz
Federal Transit Administration	Mr. Ryan Long

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Fredericksburg 8-Hour Ozone Maintenance Area

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3(a). Methodology: Emissions Budgets

Design Year	VOC (tons/day)	NOx* (tons/day)
2015	7.334	12.933

- On September 26, 2011, DEQ submitted a Maintenance Plan revision to EPA that updated the NOx emissions budget for 2015 using the new MOVES model.
- On October 29, 2012, EPA published an approval of the NOx emissions budget in the Federal Register, although the level of the NOx budget was incorrectly listed.
- EPA is currently in the process of publishing a correction.

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3(a). Methodology: Analysis Years

2015:
Budget Years established in the Air Quality Maintenance Plan

2020 and 2030:
Ten-year interval limit

2040:
Horizon Year of CLRP

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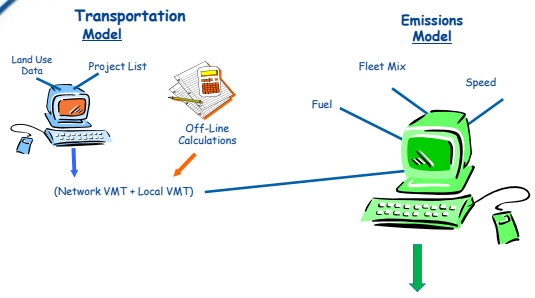
3(a). Regional Emissions Analysis



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3(a). Socio-Economic Data Summary

Year	Fredericksburg Maintenance Area Total*			
	Population	Households	Automobiles	Employment
2015	317,027	109,338	237,821	135,885
2020	358,410	125,460	273,509	148,323
2030	445,990	158,780	347,223	178,369
2040	526,040	187,510	410,906	209,976

** As approved by FAMPO*

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3(a). Models, Methods and Assumptions

- Using MOVES2010b motor vehicle emissions model
- Meteorological Data - consistent with Maintenance Plan
- Source Type Age Distributions - based on 2011 DMV registration data
- Source Type Populations
  - Based on 2011 DMV registration data counts
  - Grown to future years consistent with S-E auto growth rates
- Road Type Distributions
  - Source type fractions obtained from 2011 HPMS data
  - Based on TDM output for arterials and larger roadways; HPMS for locals and collector roadways

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3(a). Additional MOVES Inputs

- Speed Distributions
  - Source type fractions obtained from 2011 HPMS data
  - Based on TDM link congested speeds for arterials and larger roadways; HPMS and SPS for locals and collector roadways
- Fuels data obtained from VDEQ
  - RFG in Stafford; conventional gasoline in Fredericksburg and Spotsylvania
- I&M in Stafford county only
- Vehicle Miles traveled (VMT)
  - TDM for arterial and larger roadways
  - HPMS for local and collector roadways, grown to future years consistent with S-E auto growth rates
- Hourly VMT Fractions - default

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3(a). MOVES Weekday VMT Fractions

HPMS Vehicle Type	MOVES Road Type			
	2 - Rural Restricted	3- Rural Unrestricted	4 - Urban Restricted	5 - Urban Unrestricted
Motorcycles	0.62069	0.56795	0.66477	0.65353
Passenger Cars	0.63349	0.70476	0.65583	0.74803
Other 2 Axle, 4 Tire Vehicles	0.69063	0.74203	0.71793	0.77888
Buses	0.79013	0.87491	0.79479	0.89842
Single Unit Trucks	0.80704	0.87887	0.81878	0.89994
Combination Trucks	0.84457	0.87801	0.84307	0.90015

**Based on 2011 HPMS Data*

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3(a). MOVES Ozone Season VMT Fractions

HPMS Vehicle Type	July VMT Fraction (represents ozone season)
Motorcycles	0.12417
Passenger Cars	0.08792
Other 2 Axle, 4 Tire Vehicles	0.08603
Buses	0.08530
Single Unit Trucks	0.08582
Combination Trucks	0.08564

*Based on 2011 HPMS Data

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3(b). Conformity Analysis Schedule

Date	Task
Oct 15, 2012	FTC approves the 2040 LRTP project list for conformity
Oct 22, 2012	FAMPO approves the 2040 LRTP project list for conformity and authorizes the FTC to approve the conformity analysis for public review period.
Nov. 16, 2012	Interagency Consultation Group (ICG) Conformity Kickoff Meeting on 2040 LRTP and FY 12-15 TIP
Dec 11, 2012	GWRC delivers TDM files to VDOT Environmental
Jan 8, 2013	**VDOT Environmental completes emissions modeling and draft Conformity Report**
Jan 9 -11, 2013	Internal review of draft Conformity Report among VDEQ, VDOT, and GWRC
Jan 14, 2013	**FTC approves draft Conformity Report for public comment on behalf of MPO**
Jan 15 - Feb 14, 2013	30-day public comment period
Feb 15 - 18, 2013	VDOT/PDC staff review and address public comments (if necessary)
Feb 25, 2013	**FAMPO approves Conformity Report for submittal to FHWA**
Feb 26, 2013	VDOT submits e-copy of conformity analysis to FHWA; 45-day federal review period begins
April 12, 2013	**Federal Conformity Determination received**

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3(c). Project Lists for Conformity Analysis

- **TIP/LRTP conformity lists focus on projects that are regionally significant and would normally need to be included in the network model for conformity analysis.**
- **Projects not regionally significant or not typically modeled will not impact the conformity analysis.**
- **Discussion on project lists?**

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4. Public Comment Period

Three minute limit on comments

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5. Wrap-Up & Next Steps

APPROVALS:

- **Conformity Methodology & Assumptions**
- **Conformity Schedule**
- **Project Lists for Conformity Analysis**
  - **2040 LRTP and FY 12-15 TIP**

NEXT STEPS:

- **Development of draft conformity analysis for public review that would begin in mid-January 2013**

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FAMPO Technical Committee Meeting Minutes
January 14, 2013
http://www.fampo.gwregion.org/committees/fampo-technical-committee/

Members Present:
Bassam Amin, City of Fredericksburg
Erik Nelson, City of Fredericksburg
Joey Hess, County of Stafford
Ed Keasler, County of Stafford
Angeline Pitts, Caroline County
Craig VanDussen, Virginia Department of Transportation (VDOT)
Dan Grinnell, Virginia Department of Transportation (VDOT)
Jim Ponticello, Virginia Department of Transportation (VDOT)
Allison Richter, Virginia Department of Transportation (VDOT)
Wendy Kimball, Fredericksburg Regional Transit (FRED)
Ann King, Virginia Railway Express (VRE)
Nick Alexandrow, Potomac and Rappahannock Transportation Commission (PRTC)

Others Present:
Chris Gay, Parsons Brinckerhoff
Rupert Farley, Transportation Advisory Group (TAG)

Staff Members Present:
Lloyd Robinson, Fredericksburg Area Metropolitan Planning Organization (FAMPO)
Rodney White, Fredericksburg Area Metropolitan Planning Organization (FAMPO)
Marti Donley, Fredericksburg Area Metropolitan Planning Organization (FAMPO)
Danny Reese, Fredericksburg Area Metropolitan Planning Organization (FAMPO)
Diana Utz, George Washington Regional Commission (GWRC)
JoAnna Roberson, George Washington Regional Commission (GWRC)

CALL TO ORDER

The FAMPO Technical Committee meeting was called to order by Vice-Chairman, Mr. Bassam Amin, at 9:01 a.m.

APPROVAL OF TECHNICAL COMMITTEE AGENDA

The Technical Committee agenda for January 14, 2013 was approved as submitted.

APPROVAL OF TECHNICAL COMMITTEE MEETING MINUTES OF NOVEMBER 12, 2012

The minutes from the Technical Committee meeting for November 12, 2012 were approved as submitted with revisions requested by Mr. Van Dussen. Mr. Van Dussen relayed that there was an error on page two in regard to $90 thousand dollars that the region would receive from the MAP-21 funding allocations (the November minutes mistakenly had $90 million dollars). Mr. Van Dussen also relayed that on page three of the minutes, under Resolution No. 12-32, that he too had abstained. The committee was advised that these revisions would be made accordingly and there was committee consensus to approve the minutes from the November 12th meeting.

population growth figure forecasted is for the region to grow is 617,000 persons by 2040. The population growth figures used by VEC were 700,000 persons by 2040 and this figure would be used by staff with the next update.

Mr. Robinson stated that the land use controls are regulated at local government levels and are not mandated by FAMPO. Mr. Robinson also relayed that detailed demographic information is also provided from each governing locality and also not mandated by FAMPO. Mr. Robinson stated that Resolution 13-02 is requesting that a public comment period and a public hearing be held prior to the adoption of the 2040 LRTP. Mr. Robinson stated that the Technical Committee was asked to endorse this Resolution as well.

Mr. Nelson asked that as the Plan covers projects that will never be completed, is this really an efficient use of Long Range Planning. Mr. Amin asked if FAMPO could develop a program for Land Use Scenario Planning. Mr. Nelson stated that he thought staff should include an additional slide within the Power Point Presentation that specifically addresses that the regional needs far outweigh the money available and that this is not an issue that staff has ignored. Mr. Robinson stated that staff could include an additional slide to reflect Mr. Nelson's thoughts. Mr. Robinson also relayed that the first round of Scenario Planning has been completed. Mr. Robinson stated that this is being reviewed and revised to include edits and comments made from all three of the FAMPO committees. Mr. Robinson advised that the edited copy will be forwarded to the Technical Committee for final review before it is submitted to the Policy Committee for their endorsement. Mr. Nelson approved and Mr. Hess seconded.

c.) Resolution No. 13-03, Endorsing the City of Fredericksburg and Stafford County's Grant Applications to the Virginia Department of Transportation for Fiscal Year 2014 Transportation Alternatives Funding – Lloyd Robinson

Mr. Robinson advised that staff was in receipt of a total of three Transportation Alternative Funding projects from the region; two of which were submitted by Stafford County and one that was submitted by the City of Fredericksburg. Upon recommendation by Mr. Nelson and seconded by Mr. Amin, with there being unanimous consensus from the Technical Committee, Resolution No. 13-03 will be presented to the Policy Committee at the upcoming January meeting requesting that they approve accordingly.

d.) Approval of Draft Fredericksburg Region 8-Hour Air Quality Maintenance Area Transportation Conformity Analysis for the 2040 Long Range Transportation Plan and for the FY2012-2015 Transportation Improvement Program (TIP) – Lloyd Robinson

Mr. Robinson advised that Mr. Grinnell and Mr. Ponticello with VDOT would provide the presentation in regard to the above-mentioned topic.

Mr. Grinnell distributed a handout that was reviewed with the Technical Committee. Mr. Grinnell relayed that the Fredericksburg 8-Hour Ozone Maintenance area includes the emissions of vehicles within the City of Fredericksburg and the Counties of Spotsylvania and Stafford. Mr. Grinnell advised that VDOT did analysis data for 2015 as the initial year; the ten-year interval data years were for 2020 and 2030; and the horizon year data was forecasted for 2040.

Mr. Ponticello advised the Conformity Analysis results indicate that the region passed. Mr. Ponticello stated that as the region is currently in maintenance attainment status through July 2013 so this means that the region is officially in attainment with all of the ozone controls. Mr. Ponticello relayed that the MAP-21 project funding classifications will still result in the region receiving funding from this category.

Mr. Robinson relayed that the Policy Committee approved the draft analysis to allow for the thirty-day comment period to begin. Mr. Robinson stated that the Public Comment period begins tomorrow and will conclude with a

Public Hearing on February 25th. At the upcoming February 25th Policy Committee meeting, the committee will be asked to adopt the Plan accordingly. Mr. Robinson stated that this will result in the Plan being finalized by April of 2013. There was unanimous consensus from the Technical Committee to proceed with the dates listed above.

DISCUSSION ITEMS

a.) **FY2014-2019 Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Regional Surface Transportation Program (RSTP) Funding** –
Lloyd Robinson and Rodney White

Mr. White distributed a handout for review by the Technical Committee members. This handout provided a preview of both CMAQ and RSTP projects. The project list includes both existing projects and new projects.

Mr. White stated that the handout depicts the total project cost by phases in the light blue column. Mr. White did advise that some of these phased cost estimates have now increased. Mr. White relayed that the figures depicted in red are RSTP funds and the CMAQ funds are reflected in blue. Mr. White stated that the next step for FAMPO is to check the project schedules with VDOT staff and update the project ranking status. Mr. White stated that if there are still projects shown on the handout that have in fact become fully funded and no additional funding is needed for the project to please let staff know so these updates can be made accordingly. Mr. White stated that CMAQ and RSTP funds have been allocated for FY2014-2018. Mr. White stated that this will be submitted to both the Policy Committee and the CTB representative in February and March of 2013, respectively. Mr. White relayed that the final ranking and project selection should be finalized in February for review by the Technical Committee.

Mr. Robinson advised that staff had made an error on the RSTP and CMAQ project list by programming funding for Land Use Scenario Planning Support and CMP Update Support for FY15. However, some of the funding will actually be needed and utilized in 2014. Mr. Robinson relayed that staff internally will be looking to shift and re-allocate funding from projects that may not be ready to compensate for the error. Mr. Robinson stated that it would mean that some of the 2015 allocated funds would need to cover the 2014 expenses and the dollar amounts adjusted accordingly in the 2015 Plan.

STAFF REPORT

Mr. Robinson advised that Mr. Waple is not in attendance at today's meeting as he is at Mary Washington Hospital awaiting the birth of his son. Mr. Robinson relayed that VAMPO's winter meeting will be held on February 1st and that he will be in attendance at this meeting. Mr. Robinson stated that both VDOT and DRPT are looking at updating the PL funding categories and as of now, these negotiations are still underway.

MEMBER REPORTS

GWRC

Ms. Utz advised that the new "Commute Fairy" radio advertisements are underway and this season's radio personalities are Danny Reese from FAMPO and Jacob Pastwik from Spotsylvania County.

CORRESPONDENCE

Mr. Robinson stated that correspondence is included in today's packet and is self-explanatory.

NEXT TECHNICAL COMMITTEE MEETING, FEBRUARY 11, 2013/ADJOURN

FAMPO
Fredericksburg Area Metropolitan Planning Organization

PUBLIC NOTICE

Fredericksburg Area Metropolitan Planning Organization (FAMPO) Request for Comment

The Fredericksburg Area Metropolitan Planning Organization (FAMPO) has opened a Public Comment Period beginning Tuesday, January 15, 2013 until Thursday, February 14, 2013 regarding the **Draft Transportation Conformity Analysis Report for the Fredericksburg Virginia 8-Hour Ozone Air Quality Maintenance Area**. It evaluates the impact upon air quality resulting from the implementation of the FAMPO FY 2012-2015 Transportation Improvement Program (TIP) and the FAMPO 2040 Long Range Transportation Plan (LRTP). The analysis document is available for public review by visiting the FAMPO website at http://www.fampo.gwregion.org/public-notices/ or by contacting the FAMPO office at (540) 373-2890.

Comments must be received by 4 p.m. on Thursday, February 14, 2013.

A Public Hearing will take place during the FAMPO Policy Committee on **Monday, February 25, 2013**. The meeting will begin at 7 p.m., and the Public Comment portion of the meeting is scheduled for approximately 7:10 p.m. The meeting will be held at the GWRC/FAMPO office located on 406 Princess Anne Street in Fredericksburg, Virginia.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status. Persons who require special accommodations under the American with Disabilities Act or persons who require translation services (free of charge) should contact the GWRC/FAMPO at 540-373-2890 or fampo@gwregion.org at least two days prior to the meeting. If hearing impaired, telephone 1-800-273-7545 (TDD).

La participación pública es solicitada sin distinción de raza, color, origen nacional, edad, sexo, religión, discapacidad o su estado familiar. Las personas que requieren alojamiento especial de acuerdo con el American with Disabilities Act, o personas que requieren servicios de traducción (libre de cargo) deben comunicarse con la GWRC / FAMPO al 540-373-2890 o fampo@gwregion.org al menos dos días antes de la reunión. Personas con problemas auditivos, llama 800-273-7545 (TDD).

FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION (FAMPO)

Fredericksburg City
Spotsylvania County
Stafford County

Gary Skinner
Chairperson

Lloyd Robinson
FAMPO Administrator

FAMPO RESOLUTION 13-05

A RESOLUTION OF THE FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION ENDORSING THE AIR QUALITY CONFORMITY DETERMINATION FOR THE 2040 CONSTRAINED LONG-RANGE TRANSPORTATION PLAN (LRTP) AND FISCAL YEAR 2012-2015 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

WHEREAS, the Fredericksburg Area Metropolitan Planning Organization (FAMPO) is responsible for ensuring that the Federally required metropolitan transportation planning process is carried out in the Fredericksburg Region, and

WHEREAS, the FAMPO planning area is included in an air quality maintenance area, and

WHEREAS, federal regulations (Section 93.108 of the federal conformity rule and 23CFR part 450) require that projects identified in the Constrained Long-Range Plan and the Transportation Improvement Program from a maintenance region demonstrate conformity to all applicable air quality regulations, and

WHEREAS, the Virginia Department of Transportation (VDOT) has performed the Air Quality Conformity Analysis demonstrating compliance of the FAMPO 2040 Constrained LRTP and the FY2012-2015 TIP, and

WHEREAS, the public has been given the opportunity to comment on the Air Quality Conformity Report, and

WHEREAS, FAMPO has received no public comments on the Air Quality Conformity Report.

NOW THEREFORE BE IT RESOLVED BY THE FREDERICKSBURG AREA METROPOLITAN PLANNING ORGANIZATION THAT THE AIR QUALITY CONFORMITY REPORT FOR THE 2040 CONSTRAINED LONG-RANGE TRANSPORTATION PLAN (LRTP) AND THE FISCAL YEAR 2012-2015 TRANSPORTATION IMPROVEMENT PROGRAM (TIP) IS HEREBY ENDORSED FOR SUBMITTAL TO THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA).

Adopted by the FAMPO Policy Committee at its meeting on February 25, 2013.

FAMPO Resolution 13-05

Mary F. Stevens

Chairman
Fredericksburg Area Metropolitan Planning Organization

Date: 2/25/13

406 Princess Anne St.
Fredericksburg, Virginia 22401

(540) 373-2890
FAX: (540) 899-4808
www.fampo.gwregion.org

Appendix E: 2040 LRTP and FY 12-15 TIP Project List

This appendix includes final project lists included in the conformity analysis for the Fredericksburg 2040 LRTP and FY12-15 TIP.

Jurisdiction	Functional Class	System	UPC	Description	From	To	Length	Improvement Description	Exist.	Prop.	Modeled Analysis Year	TIP	LRTP	Reg Sig
Stafford County	Interstate	Interstate	13558	I-95 New Interchange Route 630 - Courthouse Rd.				I-95 Construct New Interchange with Route 630 And Relocate Route 630 From Route 1 To Cedar Lane			2030	X	X	Y
Multi-jurisdictional	Interstate	Interstate	103106 70849 102711	I-95 HOV/HOT Lanes/Express Lanes Construction I-95 (Northern Segment)	One Mile north of Edsall Rd.	Route 610 (Exit #143)	28 Mi.	Add 2 reversible HOV/HOT lanes to I-95			2015	X	X	Y
Multi-jurisdictional	Interstate	Interstate		I-95 Express Lanes (Southern Section)	Route 610 (Exit #143)	I-95 Exit #126		Add reversible HOV/HOT lane(s) to I-95			2030		X	Y
Multi-jurisdictional	Interstate	Interstate	87768	I-95 Interchange & Limited Access Toll Road IJR	Route 17 Interchange (Exit # 133)	Gordon Rd. (Route 627)		Studies Only				X	X	
Spotsylvania County	Interstate	Interstate	90830	Jackson Gateway Area I-95 Improvements Study	Route 1 Interchange (Exit # 126)	I-95 MM #123		Studies Only				X	X	
Stafford County	Interstate	Interstate	101595	Rappahannock River Crossing I-95 Improvements (fr,st) Study	Route 17 Interchange (Exit # 133)	Route 3 Interchange (Exit 130)		Studies Only				X	X	
Spotsylvania County	Interstate	Unknown	101595	Rappahannock Parkway Toll Road (fr,sp) Study	I-95 (Near existing Rest Area)	Gordon Rd. (Route 627)		Studies Only				X	X	
Stafford County	Interstate	Interstate		I-95 Shoulder Running Lane Improvements	I-95 MM # 145	I-95 MM # 139	6 Mi.	Improve both north and south bound inside shoulders for use as a travel lane during peak periods			2020		X	Y
Multi-jurisdictional	Interstate	Interstate		I-95 ICM Program Improvements (ITS)	I-95 MM # 145	I-95 MM # 126	19 Mi.	Improved ITS on I-95 & Arterials					X	
Stafford County	Interstate	Secondary	87764	Lease Commuter Parking Spaces	Route 1	Route 643		Lease Commuter Parking Spaces				X		
Fredericksburg MPO	Interstate	Miscellaneous	92909	Hot Lanes Parking Study		Various		Studies Only				X		
Spotsylvania County	Interstate	Interstate	97549	Route 95N Paving Spotsylvania County	Route 95N	Route 95N		Resurfacing				X		
Fredericksburg District-Wide	Interstate	Interstate	98448	I-95 Upgrade Guardrail And Signing	M.P. 91.93	M.P. 124.6		Safety/Traffic Opers/TSM				X		
Stafford County	Urban Principal Arterial	Primary	57044	Intersection Improvements (Routes 1, 17 And 218) - Falmouth	Intersection Route 1	0.147 Mi. East Of Int. Route 1	0.147 Mi.	Construct turn lanes on all intersection legs - Safety/Traffic Opers/TSM			2020	X	X	Y
Spotsylvania County	Urban Principal Arterial	Primary	87000	Mills Dr Rte-17	I-95	Route 2 - Tidewater Trail		Widen From 2 To 4 Lanes Divided With Sidewalk And Shared Use Trail and replace bridge over I-95	2	4	2030	X	X	Y
Spotsylvania County	Urban Principal Arterial	Primary	92990	ARRA Rte. 3 Add Through & Right Turn Lanes EBL & WBL	Route 1112 (Rutherford Drive)	Route 627 (Gordon Road) (1.2100 Mi)		Reconstruction	4	6	2015	X	X	Y
Stafford County	Urban Principal Arterial	Primary	100456	Route 1 Widening	Telegraph Rd. (Northern Intersection)	PWC Line	1 Mi.	Widen from 4 to 6 lane facility with bike/ped accommodations	4	6	2030	X	X	Y
Stafford County	Urban Principal Arterial	Primary		Route 1 - Falmouth Bridge				Bridge Replacement With 6 Lane Bridge + Bike/Ped Facilities	4	6	2030		X	Y
Fredericksburg	Urban Principal Arterial	Primary		William St. Widening	Gateway Blvd.	William St./Blue Gray Pkwy.	0.8 Mi.	Widen Route-3 to 6 lanes divided with bike/ped accommodations	4	6	2030		X	Y

Jurisdiction	Functional Class	System	UPC	Description	From	To	Length	Improvement Description	Exist.	Prop.	Modeled Analysis Year	TIP	LRTP	Reg Sig
Spotsylvania County	Urban Principal Arterial	Primary		Courthouse Rd. Route 208	Route 1	Smith Station Road		Widen From 4 To 6 Lanes Divided With Paved Highway Shoulders	4	6	2040		X	Y
Spotsylvania County	Urban Principal Arterial	Primary	74002	Route 1 - Widening	0.466 Mile North Of Int. Route 1 And 17 (Mills Dr)	I-95 Exit #126 SBL Exit Ramp	0.118 Mi.	Minor Widening	4	6		X	X	
Fredericksburg	Urban Principal Arterial	Urban	85956	Jeff Davis Bypass Over Rte. 3 Va Struc 1803				Bridge Replacement , no added capacity				X	X	
Fredericksburg	Urban Principal Arterial	Primary	90077	Route 1 over Canal Bridge Replacement			0.03 Mi.	Replace bridge, no added capacity				X	X	
Fredericksburg	Urban Principal Arterial	Primary	100444	Route 1 over Hazel Run Bridge replacement			0.06 Mi.	Replace bridge, no added capacity				X	X	
Stafford County	Urban Principal Arterial	Primary	102936	Route 1 Bridge over Potomac Creek				Replace bridge, no added capacity				X	X	
Stafford County	Urban Principal Arterial	Primary	103083	Stafford Parkway Study	Centreport Pkwy.	Route 17		Route 17 to I-95 Connector on New Location (aka Berea Parkway)-Study Only				X	X	
Multi-jurisdictional	Urban Principal Arterial	Primary		Route 1 Widening/Operational Improvements (Region Wide) Study	Telegraph Rd. North Intersection	Massaponax Church Rd.		Studies Only					X	
Fredericksburg	Urban Principal Arterial	Primary		Route 1/Route 3 Interchange Replacement Study				Studies Only					X	
Fredericksburg District-Wide	Urban Principal Arterial	Miscellaneous	77061	Signal Optimization & Timing In Stafford, Spot, Kg Counties			5.0 Mi	Various Routes				X		
Fredericksburg	Urban Principal Arterial	Urban	93963	Route 1 Corridor Signal Coordination City Of Fredericksburg	Stafford County Line	Spotsylvania County Line		Safety/Traffic Opers/TSM				X		
Stafford County	Urban Principal Arterial	Primary	94835	Upgrade Existing Signal At Jeff Davis Hwy And Telegraph Rd	Jefferson Davis Hwy (Rte. 1)	Telegraph Rd. (Rte. 637)		Safety/Traffic Opers/TSM				X		
Spotsylvania County	Urban Principal Arterial	Primary	94837	Upgrade Existing Signal At Courthouse Rd. And Hood Dr.	Courthouse Road (Rte. 208)	Hood Drive (Rte. 636)		Safety/Traffic Opers/TSM				X		
Spotsylvania County	Urban Principal Arterial	Primary	98439	Upgrd Sgnl+Ped Xing @ Route 3 Plank Rd. & Route 639 Bragg Rd.	Route 639 Bragg Road	Route 639 Bragg Road		Safety/Traffic Opers/TSM				X		
Stafford County	Rural Principal Arterial	Primary	71774	Rte. 17 - Reconstruction	0.009 Mi. South Of McLane Drive	0.126 Mi. North Of Stafford Lakes Parkway	2.018 Mi.	Reconstruction	4	8	2020	X	X	Y
Stafford County	Rural Principal Arterial	Primary		Route 17 Widening	Stafford Lakes Parkway	Hartwood Rd. (Route 612)	3.5 Mi.	Widen from 4 to 6 lane facility with paved shoulders			2040		X	Y
Spotsylvania County	Urban Minor Arterial	Secondary		Harrison Road Route 620	Salem Church Road (Route 639)	Lafayette Blvd Route 1 Bus		Reconstruct Route 620			2030		X	Y
Fredericksburg	Urban Minor Arterial	Urban	93974	Princess Anne Street Improvements	Jefferson Davis Highway	Herndon Street	0.7 Mi.	Reconfigure And Restripe Roadway				X	X	
Fredericksburg	Urban Minor Arterial	Primary	100439	Lafayette Blvd. Improvements Phase I	Sophia St.	Blue & Gray Pkwy.	1.2 Mi.	Roundabout at the intersection of Kenmore Ave. and streetscape, parking, and bike/ped improvements				X	X	

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Fredericksburg	Urban Minor Arterial	Primary	100459	Princess Anne St. Improvements Phase II	Route 1	Herndon St.	0.7 Mi.	Road Resurfacing, drainage improvements				X	X	
Spotsylvania County	Urban Minor Arterial	Secondary		Harrison Road Route 620	Old Plank Rd. - Route 610	Salem Church Rd. Route 639		Upgrade With Turn Lanes , Intersection And Other Operational Improvements					X	
Spotsylvania County	Urban Minor Arterial	Primary		Tidewater Trail Route 2/Route 17 Bus	Fredericksburg City Line	Route 17 Bypass		Widen From 2 To 4 Lanes With Sidewalks And Paved Highway Shoulders	2	4	2040		X	Y
Stafford County	Urban Minor Arterial	Primary		Chatham Bridge Replacement (fr/st)			0.2 Mi.	Replace Bridge and include bike/ped accommodation, no added capacity					X	
Spotsylvania County	Urban Minor Arterial	Secondary		Harrison Road Route 620	Gordon Rd. Route 627	Old Plank Rd. - Route 610		Widen From 2 To 4 Lanes With Sidewalks	2	4			X	
Fredericksburg	Urban Minor Arterial	Urban		Lafayette Blvd Route 1 Bus Study	Blue-Gray Pkwy	South City Limit		Widen From 2 To 4 Lanes With Sidewalk And Shared Use Path-Study Only	2	4			X	
Spotsylvania	Urban Minor Arterial	Urban		Lafayette Blvd Route 1 Bus Study	South City Limit	Route 1		Widen From 2 To 4 Lanes With Sidewalk And Shared Use Path-Study Only	2	4			X	
Spotsylvania County	Urban Minor Arterial	Miscellaneous	86621	HSIP Proactive Safety Projects County Of Spotsylvania				County-Wide Projects In Spotsylvania.				X		
Fredericksburg	Urban Minor Arterial	Urban	86996	Intersection Improvement William And Sophia Street	.02 Mi. S. Of Williams St.	.02 Mi. N Of Williams St.						X		
Fredericksburg	Urban Minor Arterial	Urban	86997	Install Safety Lighting On Falmouth Bridge				Falmouth Br. Over Rappahannock River On Rte. 1				X		
Fredericksburg	Urban Minor Arterial	Urban	87006	Intersection Improvement, Dixon Street And Lansdowne Road	Intersection Of Route 2 (Dixon Street)	Route 638 (Lansdowne Road)						X		
Fredericksburg District-Wide	Urban Minor Arterial	Primary	90406	Rideshare Signs And Bike Rack At Regional Commuter Lots				Various Commuter Lots				X		
Spotsylvania County	Rural Minor Arterial	Primary		Lake Anna Parkway Improvements/Widening Study	Spotsylvania Courthouse BYP.	Southern Terminus of Lake Anna Pkwy.		Studies Only					X	
Stafford County	Urban Collector	Primary		Butler Rd. Widening	Route 1	Chatham Heights Rd.	1.1 Mi.	Widen Butler Rd. to 4 lanes divided with bike/ped accommodations			2030		X	Y
Stafford County	Urban Collector	Secondary	4632	Rte. 630 - Widen To 4 Lanes	Route 732	0.2 Mile West Of Route 628	2.05 Mi	Widen Courthouse Rd. to a 4-lane facility with bike/ped accommodations				X	X	
Spotsylvania County	Urban Collector	Secondary	51845	Rte. 620 - Reconstruction	0.22 Mile West Of Route 1 (Jefferson Davis Hwy)	Route 1 (Jefferson Davis Hwy)	0.22 Mi	Reconstruction				X	X	
Fredericksburg	Urban Collector	Urban	88699	Fall Hill Ave/Mary Washington Blvd	Route 1 (Via Mary Washington Blvd.)	Gordon Shelton Blvd.	0.6 Mi.	Widen Fall Hill Ave to a 4 lanes with bike/ped accommodations and extend Mary Washington Blvd.	2	4		X	X	
Stafford County	Urban Collector	Secondary		Onville Rd. Route 641	Garrisonville Rd. Route 610	MCB Quantico		Widen From 2 To 4 Lanes Divided With Sidewalks & Wide Right Travel Lanes	2	4			X	
Spotsylvania County	Urban Collector	Secondary		Leavells Rd. Widening	Courthouse Rd. (Route 208)	Smith Station Rd. (Route 628)	2.6 Mi.	Widen Leavells Rd. from 2 to 4 lanes divided with bike/ped accommodations					X	

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Stafford County	Urban Collector	Secondary		Ferry Road Route 606	Route 3	Brooke Rd. Route 608	3.4 Mi.	Upgrade Road With Paved Highway Shoulders, Turn Lanes And Intersection Improvements					X	
Spotsylvania County	Urban Collector	Secondary		Smith Station Rd. Widening	Gordon Rd. (Route 627)	Massaponax Church Rd. (Route 608)	5.9 Mi.	Widen Smith Station Rd. to 4 lanes divided with bike/ped accommodations					X	
Stafford County	Urban Collector	Secondary		Courthouse Rd. Widening	Winding Creek Dr.	Shelton Shop Rd. (Route 648)	1.5 Mi.	Widen Courthouse Rd. to a 4-lane facility with bike/ped accommodations					X	
Stafford County	Urban Collector	Secondary		Shelton Shop Rd. Widening	Garrisonville Rd. (Route 610)	Mountain View Rd. (Route 627)	2.2 Mi.	Widen Shelton Shop Rd. to 4 lanes with bike/ped accommodations					X	
Fredericksburg	Urban Collector	Secondary		Gateway Blvd. Extended	William St. (Route 3)	Fall Hill Ave	1.1 Mi.	New 4-lane divided roadway with bike/ped accommodations					X	
Stafford County	Urban Collector	Secondary		Truslow Rd. Route 652	Poplar Rd. Route 616	Route Route 1		Upgrade Shoulders With Paved Highway Shoulders, Turn Lanes And Intersection Improvements					X	
Spotsylvania County	Urban Collector	Secondary		Hood Dr. Widening	Courthouse Rd. (Route 208)	Route 1	0.4 Mi.	Widen to 4 lanes with bike/ped accommodations					X	
Stafford County	Urban Collector	Secondary		Telegraph Rd. Improvements	Russell Rd.	Route 1 via Woodstock Ln	3.9 Mi.	Operational improvements, turn lanes, bike/ped accommodations and access management					X	
Spotsylvania County	Urban Collector	Secondary		Gordon Rd. Route 627 Study	Harrison Rd. Route 620	Smith Station Rd. Route 628		Widen From 2 To 4 Lanes Divided With Sidewalk And Shared Use Path - Study Only	2	4			X	
Spotsylvania County	Urban Collector	Secondary		Route 608 - Massaponax Church Rd. Improvements/Widening Study	Smith Station Rd.	Mills Dr. (Route 17)		Study Only					X	
Stafford County	Urban Collector	Secondary		Route 626 - Leeland Rd. Improvements/Widening Study	Deacon Rd. (Route 607)	Morton Rd. (Route 624)		Study Only					X	
Fredericksburg District-Wide	Urban Interstate	Interstate	80531	I-95 - Replace Three O/H Sign Structures On SBL				At Exits 118, 126 & 140 (Thornburg, Spotsylvania & Stafford)				X		
Spotsylvania County	Urban Collector	Secondary	85753	Route 639 - Build New 2-Lane Bridge And Approaches Over Massaponax Creek	0.45 Miles South Of Route 208	0.85 Miles South Of Route 208	0.4 Mi	Bridge Replacement				X		
Spotsylvania County	Urban Interstate	Interstate	90830	Spotsylvania Interchange Justification Report - Study	Exit 118	Exit 126		Studies Only				X		
Stafford County	Urban Collector	Secondary	93225	610 - Left Turn Lanes To And From Onville Road	0.114 Miles West Of Route 641	0.057 Miles East Of Route 641	0.1710 Mi	Safety/Traffic Opers/TSM				X		
Stafford County	Urban Collector	Secondary	98440	Upgrd Sgnl+Ped Xing @ Route 610 & Route 641, Center St. & Route 751	Route 641 Onville Road	Route 751 Eustace Dr	0.64 Mi.	Safety/Traffic Opers/TSM				X		
Stafford County	Urban Collector	Secondary	98441	Upgrd Sgnl+Ped Xing @ Route 610 & Route 1256 Brafferton & Dunn Dr.	Route 1256 Brafferton Blvd	Route 641 Onville Rd	0.32 Mi.	Safety/Traffic Opers/TSM				X		
Stafford County	Rural Major Collector	Secondary	11671	Route 630 - Widen To 4 Lanes	0.2 Mile West Of Route 628	Route 648	1.3 Mi	Major Widening				X	X	
Spotsylvania County	Rural Major Collector	Secondary	100829	Mudd Tavern Rd. over I-95 Bridge Replacement				Replace bridge over I-95, no added capacity				X	X	

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Spotsylvania County	Rural Major Collector	Secondary		Route 610 - Old Plank Rd. Improvements/Widening	Gordon Rd.	Catharpin Rd.		Study Only					X	
Stafford County	Rural Major Collector	Secondary	73555	Route 629 - Reconstruction (Split From Id 15458)	Route 630	Route 608	0.89 Mi	New Construction				X		
Fredericksburg District-Wide	Rural Major Collector	Miscellaneous	81375	Districtwide Guardrail				Safety/Traffic Opers/TSM				X		
Spotsylvania County	Rural Major Collector	Secondary	81501	Route 658 - Bridge Replacement				Bridge Over North Anna River				X		
Fredericksburg District-Wide	Rural Major Collector	Miscellaneous	86620	HSIP District-Wide High Risk Rural Roads Fredericksburg				Fredericksburg High Risk Rural Roads Safety Projects				X		
Spotsylvania County	Rural Major Collector	Secondary	87008	Route 636 - Int. Improvement, Install Traffic Signals And Turn Lanes	0.170 Miles West Of Route 638 Lansdowne Road	0.110 Miles East Of Route 638 Lansdowne Road	0.28 Mi	Minor Widening				X		
Spotsylvania County	Rural Major Collector	Primary	93136	Route 1 - Intersection Improvement At Rte. 1 & 606 (PE Only)	0.330 Mile South Of Route 606 (Morris/Muddtavern Rd)	0.190 Mile North Of Route 606 (Morris/Mudd Tavern Rd)	0.52 Mi	Safety/Traffic Opers/TSM				X		
Fredericksburg District-Wide	Rural Major Collector	Primary	96043	Upgrade Guardrail			20.0 Mi.	Safety/Traffic Opers/TSM				X		
Spotsylvania County	Urban Local	Primary	56436	Provide Pedestrian Facilities Linking Each Of The County	Richard Samuels Drive	400' South Of Intersection State Route 208 And 611						X		
Stafford County	Urban Local	Miscellaneous	76917	Commuter Rail Parking Expansion - Brooke & Leeland				Stafford County Commuter Rail Stations				X		
Fredericksburg	Urban Local	Enhancement	85326	Fredericksburg Market Square - Alleyway - Phase III				Market Square Alleyway Improvements				X		
Fredericksburg	Urban Local	Urban	91174	Virginia Central Railway Trail, Fredericksburg	Downtown Fredericksburg	Near Route 1		Reconstruction				X		
Fredericksburg MPO	Urban Local	Miscellaneous	91856	Congestion Management System & Project Definitions				Studies Only				X		
Fredericksburg	Urban Local	Primary	93962	Route 3 Corridor Signal Coordination	Blue Gray Parkway/Plank Road	Route 3 Business (William St.)	2.83 Mi	Safety/Traffic Opers/TSM				X		
Fredericksburg District-Wide	Urban Local	Miscellaneous	93975	Regional Land Use Scenario Planning				Regional Land Use Scenario Planning				X		
Fredericksburg MPO	Urban Local	Miscellaneous	96039	Advance Design For Local Projects For Design-Build Candidacy				R/W Or Eng				X		
Stafford County	Urban Local	Secondary	97552	Staffordboro Boulevard Commuter Parking Lot Expansion	Staffordboro Boulevard	Commuter Parking Lot		Reconstr. With Added Capacity				X		
Statewide	Rural Local	Enhancement	70327	Battlefield Of Chancellorsville				Acquire Three Parcels Of Land				X		
Stafford County	Rural Local	Secondary	77409	Improvements To Airport	0.102 Mi. South Int. Route 628	Int. Route 628	0.102 Mi.		N/A	2		X		

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Stafford County	Rural Local	Enhancement	79843	Phase III - Fredericksburg/Stafford Park Authority Trail	Route 1 Bridge, Falmouth Waterfront	Brooks Park		Environmentally Related				X		
Fredericksburg	Rural Local	Enhancement	94280	Cowan Boulevard Trail Extension				Cowan Boulevard Existing Sidewalk System				X		
Stafford County	Rural Local	Secondary	97188	Stafford - Starts - Thompson MS - Construct Sidewalk	Rodney Thompson Middle	Courthouse Rd	0.2 Mi	Safety/Traffic Opers/TSM				X		
Multi-jurisdictional	N/A	Miscellaneous		TSM/Park and Ride Lots									X	
Fredericksburg District-Wide	N/A	Miscellaneous	1852	Fareboxes And Signs For Current BUS Fleet Serving FAMPO Area								X		
Statewide	N/A	Miscellaneous	4152	Preventative Maintenance And Systems Operations								X		
Stafford County	N/A	Miscellaneous	4312	North Stafford County BUS Service								X		
Fredericksburg	N/A	Miscellaneous	6725	Fredericksburg Transit Operational Assistance				Various				X		
Fredericksburg MPO	N/A	Enhancement	6742	Fredericksburg Regional Transit - New Buses								X		
Spotsylvania County	N/A	Enhancement	13785	Virginia Central Railway Trail - Phase I				Bicycle/Pedestrian Corridor Of 1.25 Mile Section Connecting Residential Areas To Commercial & Recreational Facilities				X		
Stafford County	N/A	Enhancement	15112	Hiking/Biking Trail				Paved Trail North Side Rappahannock River From Rte. 1 To Rte. 3 Linking Hist, Archlgcl, Commercl Destinatns W/Trans Facility (2.4800 Mi)				X		
Stafford County	N/A	Enhancement	17570	Belmont/Ferry Farm Trail				Construction Of A Bicycle/Pedestrian Trail And Sidewalk Improvements				X		
Fredericksburg	N/A	Urban	18716	Renovation Of Fredericksburg's Market Square				The Square Will Be Regraded, Overhead Power Lines Will Be Placed Underground With Adequate Drainage.				X		
Stafford County	N/A	Primary	52017	Stafford County - Transp Related Activities, Include Study				To Restore & Operate Historic Ferry Service, Archaeological Evaluate Ferry Landings & Colonial Era Toll Keeper's House,				X		
Statewide	N/A	Miscellaneous	81509	Projects Improvements Grants For Starts Program				Safety/Traffic Opers/TSM				X		
Fredericksburg District-Wide	N/A	Miscellaneous	83521	Long Range Regional Transit Study				R/W Or Eng				X		
Fredericksburg	N/A	Miscellaneous	87013	Bike Racks At Commuter Lots				Park And Ride Lots				X		
Fredericksburg MPO	N/A	Miscellaneous	90268	FAMPO's CLRP Planning Assistance	Area-Wide	Various		Studies Only				X		
Fredericksburg MPO	N/A	Miscellaneous	90269	Transit Authority Planning Assistance	Area-Wide	Various		Studies Only				X		

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Stafford County	N/A	Enhancement	91238	Const. Of Sidewalks, Installation Of Signage & BUS Stops				Environmentally Related				X		
Fredericksburg	N/A	Enhancement	91239	Fredericksburg Rappahannock River Trail				Environmentally Related				X		
Spotsylvania	N/A	Enhancement	91249	Spotsy. C.H. Improvements				Site Imp. to Spotsy. Courthouse				X		
Fredericksburg	N/A	Miscellaneous	91838	Guaranteed Ride Home Program Assistance	Fredericksburg	King George		Safety/Traffic Opers/TSM				X		
Fredericksburg MPO	N/A	Miscellaneous	91855	Public Involvement Survey	Fredericksburg	Various		Studies Only				X		
Fredericksburg MPO	N/A	Primary	92132	Van Start Support		Region Wide		Safety/Traffic Opers/TSM				X		
Fredericksburg MPO	N/A	Miscellaneous	93065	Replacement Buses For Fred Transit				Transit Vehicles				X		
Spotsylvania County	N/A	Miscellaneous	93066	VRE Commuter Rail Station In Spotsylvania				VRE Commuter Rail Station In Spotsylvania	N/A	N/A		X		
Fredericksburg MPO	N/A	Miscellaneous	93067	New Fred Transit Routes				Five Transit Routes				X		
Fredericksburg District-Wide	N/A	Miscellaneous	93068	Five Transit Vehicles For Routes In FAMPO Area								X		
Statewide	N/A	Miscellaneous	93174	Safety analyst Project				Safety/Traffic Opers/TSM				X		
Fredericksburg District-Wide	N/A	Miscellaneous	93976	GWRC GIS System Upgrade				Studies Only				X		
Fredericksburg District-Wide	N/A	Miscellaneous	93977	Human Services Transportation				Studies Only				X		
Fredericksburg	N/A	Miscellaneous	94027	GW Ride Connect Marketing				Studies Only				X		
Fredericksburg MPO	N/A	Miscellaneous	95531	Develop A Program To Collect And Report Vanpool Statistics				Studies Only				X		
Spotsylvania County	N/A	Miscellaneous	97554	VCR Trail Conceptual Design	Spotsylvania County Line	Orange County Line		Studies Only				X		