Hampton Roads, Virginia Eight-Hour Ozone Maintenance Area

Regional Conformity Analysis

2034 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

Hampton Roads, Virginia
Eight-Hour Ozone Maintenance Area

Regional Conformity Analysis

for the

2034 Long Range Transportation Plan

and the

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Acronyms

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
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
FY	Fiscal Year
g	grams
HCM	Highway Capacity Manual
HDDE	Heavy-Duty Diesel Engine
HDDV	Heavy-Duty Diesel Vehicle
HPMS	Highway Performance Monitoring System
HRPDC	Hampton Roads Planning District Commission
HRTPO	Hampton Roads Transportation Planning Organization
HRT	Hampton Roads Transit
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
PPAQ	Post Processor for Air Quality
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
SHiPS	State Highway Planning System
SIP	State Implementation Plan (for air quality)
STIP	State Transportation Improvement Program
TAZ	Traffic Analysis Zone
TCM	Transportation Control Measure
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TSD	Technical Support Document (for SIPs or SIP revisions)
V/C	Volume-to-Capacity (Ratio)
VAC	Virginia Administrative Code
VDEQ (or DEQ)	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VDRPT	Virginia Department of Rail and Public Transportation
VEC	Virginia Employment Commission
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles of Travel
VOC	Volatile Organic Compounds
VRS	Vapor Recovery System
WATA	Williamsburg Area Transportation Authority

Executive Summary

This report presents the regional conformity analysis and recommendation for a finding of conformity for the new Hampton Roads 2034 Long Range Transportation Plan (LRTP, or "Plan") and the amended Fiscal Year (FY) 2012-2015 Transportation Improvement Program (TIP, or "Program"). The TIP and LRTP are developed by the Hampton Roads Transportation Planning Organization (HRTPO), which serves as the designated Metropolitan Planning Organization (MPO) for the Hampton Roads region[1]. The conformity analysis was conducted in compliance with the federal transportation conformity rule *(*40 CFR Parts 51 and 93*)*[2] and the corresponding state transportation conformity regulation *(*9 VAC 5-151*)*[3].

As summarized in Exhibit ES-1, the LRTP and TIP meet all applicable federal and state conformity requirements and criteria[4].

Exhibit ES-1: Conformity Analysis Summary*

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

* *As specified in 40 CFR 93.109, "Table 1 – Conformity Criteria", with the addition of fiscal constraint as required in Section 93.108. Additional requirements apply, e.g. as specified in 93.122, although not specifically listed above.*

** *As indicated by MPO (HRTPO) approval and/or provision of the project list(s) for the Plan and Program and the supporting information provided with those documents, and subject to federal review consistent with 23 CFR Part 450 as referenced in the conformity rule in Section 93.108.*

*** *Conducted to meet both state and federal requirements.*

**** *The applicable implementation (maintenance) plan (72 FR 30490, effective June 1, 2007) for Hampton Roads does not include transportation control measures (TCMs), which therefore are not required for the conformity analysis or determination.*

A recommendation for a finding of conformity is therefore made, conditional upon any further and separate review as may be required by the US Department of Transportation

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1 The Hampton Roads Metropolitan Planning Organization (HRMPO) was renamed the Hampton Roads Transportation Planning Organization (HRTPO) in 2009. See: http://www.hrtpo.org.

2 Federal Transportation Conformity Regulations (EPA Website): http://www.epa.gov/otaq/stateresources/transconf/conf-regs.htm.

3 Virginia *Regulation for Transportation Conformity* (9 VAC5-151), effective January 19, 2010: http://leg1.state.va.us/000/reg/TOC09005.HTM#C0151

4 Federal Conformity Rule, 40 CFR 93.109 (*Criteria*…). See "*Table 1 - Conformity Criteria*": http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.109.htm

(US DOT) for the fiscal constraint criterion consistent with Section 93.108[5] of the federal conformity rule and the requirements of the federal planning rule specified at 23 CFR Part 450[6].

Supporting information for each of these criteria demonstrations is provided below, following a summary of the current status of the region with regard to air quality. For context, an overview of the applicable regulatory requirements is also provided.

Hampton Roads Air Quality Planning Status

Hampton Roads is currently in attainment (maintenance) of the 1997 eight-hour ozone national ambient air quality standard (NAAQS) and in attainment of all of the other applicable NAAQS. The designated maintenance area includes the Counties of Gloucester, Isle of Wight, James City, and York, and the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg. Federal transportation conformity requirements apply for areas in nonattainment or maintenance, and therefore apply for Hampton Roads.

On June 1, 2007, the United State Environmental Protection Agency (US EPA) via Federal Register notice approved a redesignation request and State Implementation Plan (SIP) revision (maintenance plan) that had been submitted by the Virginia Department of Environmental Quality (VDEQ)[7]. EPA also found adequate and approved motor vehicle emission budgets for ozone precursors (nitrogen oxides or NO_x, and volatile organic compounds, or VOC) as specified in the maintenance plan. Pursuant to the requirements of the federal conformity rule, the maintenance plan budgets must be met in all regional conformity analyses for the Hampton Roads area.

Regulatory Requirements Overview

Conformity means, as indicated in Section 176(c) of the Clean Air Act (CAA)[8] as amended:

> *"(A) conformity to an [air quality] implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and*

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5 Federal Conformity Rule, 40 CFR 93.108 *Fiscal Constraints for Transportation Plans and TIPs*: http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.108.htm

6 US DOT - Federal Highway Administration (FHWA), 23 CFR Parts 450 and 500 and Federal Transit Administration (FTA), 49 CFR Part 613, *Statewide Transportation Planning; Metropolitan Transportation Planning,* Final Rule effective March 16, 2007. See: http://edocket.access.gpo.gov/2007/07-493.htm.

For reference, the FHWA also provides a compilation of transportation-related legislation, regulations and guidance on their website: http://www.fhwa.dot.gov/hep/legreg.htm.

7 US EPA, 72 FR 30490, 40 CFR Parts 52 and 81 [EPA–R03–OAR–2006–0919; FRL–8320–9], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory*, Final Rule, effective June 1, 2007. See: http://edocket.access.gpo.gov/2007/E7-10581.htm.

8 *Clean Air Act* (and amendments): http://www.epa.gov/air/caa/

> *(B) that such activities will not— (i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area. …"*

Section 176(c)(4)(B) of the CAA requires regulatory action in the form of criteria and procedures for conformity to be promulgated by EPA in concurrence with the US DOT:

> *"176(c)(4)(B) Transportation plans, programs, and projects.— The Administrator, with the concurrence of the Secretary of Transportation, shall promulgate, and periodically update, criteria and procedures for demonstrating and assuring conformity in the case of transportation plans, programs, and projects."*

The federal conformity rule was initially promulgated in 1993 and has been amended a number of times since. The most current compilation is that produced by EPA in March 2010[9]. Under the federal 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 federal conformity rule at 40 CFR Part 51 effectively requires certain conformity requirements, primarily addressing consultation, be enacted in state regulation. Accordingly, the VDEQ in 1997 developed the Virginia *Regulation for Transportation Conformity*[10]. The Virginia regulation was updated for consistency with EPA requirements in 2007 and amended again in 2008. The current version, specified in the Virginia Administrative Code (VAC) at 9 VAC 5-151[11], was approved by EPA via Federal Register notice on November 20, 2009 (effective January 19, 2010)[12]. The Virginia regulation closely reflects the requirements of the federal rule for inter-agency and public consultation.

Demonstrations of conformity are therefore conducted to meet the general objectives given in the CAA by satisfying the technical criteria and requirements specified in federal and state regulation, with consultation conducted to meet federal, state and local requirements for inter-agency and public consultation.

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9 US EPA, *Transportation Conformity Regulations Updated March 2010*, EPA-420-B-10-006, March 2010, available at: http://www.epa.gov/otaq/stateresources/transconf/regs/420b10006.pdf.

10 Specified in the Virginia Administrative Code (VAC) at 9 VAC 5-150. See: http://www.deq.virginia.gov/air/regulations/air150.html.

11 Virginia *Regulation for Transportation Conformity* (9 VAC 5-151). See: http://www.deq.virginia.gov/air/regulations/air151.html.

12 US EPA, 74 FR 60194, 40 CFR Part 52, [EPA-R03-OAR-2009-0674; FRL-8983-1], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Transportation Conformity Regulations*, Direct Final Rule, November 20, 2009, effective January 19, 2010. See: http://edocket.access.gpo.gov/2009/E9-27814.htm

Conformity Criteria Assessments

Summary assessments are presented below for each of the key conformity criteria listed in Exhibit ES-1, which includes not only the specific criteria identified for regional conformity analyses in Section 93.109[13] of the federal rule (namely, those specified in sections 93.110 through 93.113, and 93.118) but also fiscal constraint from Section 93.108 of that rule. However, as revenues and project costs are not generally assessed in air quality conformity analyses, but are instead assessed as required with the associated Plan and TIP, the fiscal constraint criterion effectively serves as a pre-requisite for the conformity analysis and determination. More detail and supporting information on the technical criteria and assessments are provided in the main report.

- *Section 93.108 (Fiscal Constraints for Transportation Plans and TIPs)*[14]: The federal conformity rule states: "*Transportation plans and TIPs must be fiscally constrained consistent with [US] DOT's planning regulations at 23 CFR part 450 in order to be found in conformity*."

  For Hampton Roads, the MPO (HRTPO) addresses fiscal constraint in the development of the Plan and Program as appropriate and typically includes specific sections or chapters addressing revenues, cost estimates, and financial constraint with those documents. For the purposes of this conformity demonstration, therefore, fiscal constraint is indicated by HRTPO provision and/or approval of the project lists for the Plan and Program and the supporting information referenced by those documents.

  A recommendation for a finding of conformity is therefore 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.

- *Section 93.110 (Latest Planning Assumptions)*[15]: All requirements for the application of latest planning assumptions were met as follows:

  - 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 2034 by Traffic Analysis Zone (TAZ) were employed with the regional travel demand network model (TP+) to generate the traffic volume and vehicle-miles-traveled (VMT) forecasts applied in this conformity analysis. Regional roadway and transit networks were updated as

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13 Federal Conformity Rule, 40 CFR 93.109 ("Criteria…"). See "*Table 1 - Conformity Criteria*": http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.109.htm

14 Federal Conformity Rule, 40 CFR 93.108 *Fiscal Constraints for Transportation Plans and TIPs*: http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.108.htm

15 Federal Conformity Rule, 40 CFR 93.110 *Criteria and Procedures: Latest Planning Assumptions* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.110.htm

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 Hampton Roads 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 2034 (including interim years and sub-allocations as appropriate) represent the latest projections available and approved for use with the 2034 LRTP. The Regional Economic Models, Inc. (REMI) econometric model was applied to develop control totals for key parameters such as population and employment for the Hampton Roads area. The HRTPO then sub-allocated the regional control totals to the local or jurisdiction level. The sub-allocations were reviewed by each locality and adjustments made where appropriate.

- 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 [40 CFR 93.110(c) and (d)]. Proposed light rail service is included in future networks for the region. Transit service and fares as well as road and bridge tolls are addressed in more detail in supporting documentation for the Plan and associated modeling. 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 Hampton Roads Transit (HRT) and Williamsburg Area Transportation Authority (WATA) websites[16].

In brief, local transit fares have not changed (or not changed significantly) since the last conformity analysis for either HRT or WATA. For HRT, the current single ticket fare for local bus and the recently introduced TIDE light rail service is $1.50; for seniors (60 and over) and disabled, a reduced fare of $0.75 applies. A day pass (the Go Pass) was introduced in 2008 with a fare of $3.50 for a one-day pass. In keeping with the Americans with Disabilities Act (ADA), door-to-door service is also available for those unable to use bus at a fare of $3.00 per one-way trip.

For WATA, the fare for a one-way trip is $1.25; for seniors (60 and over) and disabled, a reduced fare of $0.50 applies. An all-day pass (for unlimited trips) is also available for a fare of $1.50. In keeping with the ADA, door-to-door service is also available for those unable to use bus at a fare of $2.00 per one-way trip.

Finally, express bus service modeling includes the "Max" service, with fares currently $3.00 one-way, converted to constant 2000 dollars.

- 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 Hampton Roads 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 72 FR 30490, effective June 1, 2007.

  Other measures applicable for on-road motor vehicles as listed in the applicable implementation (maintenance) plan include *Tier 2/Low Sulfur Gasoline Rule*, *2007 On Road Diesel Engine Rule*, and *Reformulated gasoline (on-road)*[17]. Other or associated measures implemented in the region and documented in this report include gasoline Reid Vapor Pressure (RVP) limits and early implementation of the National Low Emission Vehicle

[16] See www.hrtransit.org and www.williamsburgtransport.com, respectively.

[17] VDEQ, *Maintenance Plan for the Hampton Roads Nonattainment Area Consisting of the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Suffolk, Virginia Beach, and Williamsburg and the Counties of James City, York, Gloucester, and Isle of Wight - Final*, ca October 2006. See Table 5.2.2-1 (*Maintenance Plan Control Measures and Emission Reductions*) on page 8.

The Technical Support Document (TSD) for the maintenance plan lists the same measures under slightly different headings, namely the *Federal Tier 2/Low Sulfur Gasoline Rule*, *Federal Heavy Duty Diesel Engine Rule*, and *Reformulated Gasoline (On-Road)*. See: VDEQ, *Technical Support Document for the Redesignation Request and Maintenance Plan for Hampton Roads 8-hour Ozone Nonattainment Area - Final*, ca October 2006, Table 8-1 (*Maintenance Plan Control Measures and Emission Reductions*), p.282.

(NLEV) Program. All of these measures have been implemented and were therefore credited in this analysis as appropriate.

Further, and though not specified in the implementation plan, other measures have been implemented that have or may have the effect of reducing emissions. Credit for these measures was not needed to demonstrate conformity and was therefore not taken for this analysis. These measures include transit bus replacements, Congestion Mitigation and Air Quality (CMAQ) funded projects, van pools, and park-and-ride lots.

- 93.110(f) Consultation on Key Assumptions: This section requires that "*Key assumptions shall be specified and included in the draft documents and supporting materials used for the interagency and public consultation required by Sec. 93.105*".

  Consultation was conducted on all key assumptions in accord with both federal and state regulations, as documented below in the summary on consultation.

- *Section 93.111 (Latest Emissions Model)*[18]. Requirements to apply the latest emission model were satisfied using MOBILE6.2 for this conformity analysis. The use of the latest emission model is specified in the federal conformity rule at 93.111(a) as follows: "*The conformity determination must be based on the latest emission estimation model available.*" However, when EPA issues a new model, a grace or transition period applies in which the previous model or version of the model may still be applied, per the federal conformity rule at 93.111(c) which states: "*Transportation plan and TIP conformity analyses for which the emissions analysis was begun during the grace period or before the Federal Register notice of availability of the latest emission model may continue to use the previous version of the 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[19]. 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. Therefore, for regional conformity analyses initiated before or within the two-year

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

[19] 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. The model name or version as initially released was "MOVES2010", and an updated version "MOVES2010a" was released in August 2010. To allow for pending future revisions to the model and any associated revisions to the model name, the current version of the model is referenced here generically as "MOVES". 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.

grace period, the MOBILE6.2 model (the model previously designated as the official model by EPA) may continue to be applied.

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 apply the MOBILE6.2 model for this analysis, within the grace period.

- *Section 93.112 (Consultation)*[20]: Regulatory requirements for consultation that were initially established at the federal level have been reflected in state regulations and requirements as well as locally developed inter-agency and public consultation procedures. Exhibit ES-2 presents an overview of applicable federal, state and local consultation requirements.

  Federal Regulation: Federal requirements for consultation as specified in the conformity rule in Section 93.105 were made subject in Section 93.112 to the establishment and approval by EPA of corresponding state requirements, as follows: "*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.*"

  The referenced section, 51.390, of the federal transportation conformity rule effectively requires the development of a state regulation to govern conformity consultation processes and further provides that the state regulation once approved by EPA effectively governs (over the federal) where they overlap. Section 51.390c provides that: *"Timing and approval... Following EPA approval of the state conformity provisions (or a portion thereof) in a revision to the state's conformity implementation plan, conformity determinations will be governed by the approved (or approved portion of the) state criteria and procedures as well as any applicable portions of the federal conformity rules that are not addressed by the approved conformity SIP."*

  Commonwealth of Virginia Regulation: The Virginia "*Regulation for Transportation Conformity*" (9 VAC 5-151) satisfies these requirements and is therefore the governing regulation for consultation for conformity purposes for the Commonwealth.

  Although the Virginia regulation generally mirrors the federal with regard to specific consultation requirements, one difference is that the Virginia regulation requires that the Lead (or Local) Planning Organization (LPO) for air quality planning that has been established for the region pursuant to Section 174 of the

[20] Federal Conformity Rule, 40 CFR 93.112 *Criteria and Procedures: Consultation* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.112.htm

federal Clean Air Act as amended specifically be included in consultation for conformity purposes. The Hampton Roads Air Quality Committee (HRAQC) is the designated LPO for the region, and the involvement of the VDEQ staff representative for that Committee in the local inter-agency consultation process for conformity is considered to fulfill that requirement.

Hampton Roads Procedures: Both inter-agency and public consultation procedures have been established for Hampton Roads. Inter-agency consultation procedures for conformity were approved in 2005[21,22]. An Interagency Consultation Group (ICG) has been established that includes representatives of member agencies of the HRTPO, Virginia Department of Rail and Public Transportation (VDRPT), VDOT, FHWA, FTA, VDEQ and the US EPA. A representative of the LPO also participates in consultation with the ICG. All meetings are open to the public.

Public consultation for the LRTP, TIP and conformity is conducted following the extensive procedures presented in the "*Public Participation Plan*" (PPP)[23] that was approved by the HRTPO in December 2009. The PPP responds to SAFETEA-LU requirements as implemented with the revised planning regulations (23 CFR Part 450). The ICG procedures are also referenced in the PPP, and the two processes are coordinated.

The main report includes a summary of all applicable federal, state and local consultation requirements as well as a record of inter-agency and public consultation activities conducted in support of this analysis. The consultation record is also reviewed below.

Interagency and public consultation opportunities relating to this conformity analysis, including the prior development of project lists, were (*or will be*) provided at the following meetings and events:

Consultation Record (italicized for upcoming events)

- June 16, 2011: HRTPO approval of the project list for the 2034 LRTP. HRTPO meetings are open to the public, with email announcements (including public notices) and agendas posted the week before the meeting.

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21 VDOT, *Consultation Procedures for the Hampton Roads Ozone Nonattainment Area in Support of the Transportation Conformity Regulations*, Revised July 18, 2005. See: http://www.hrtpo.org/Documents/Reports/Rev_HR_ICP2005.pdf

22 The recent approval by EPA of the Virginia *Regulation for Transportation Conformity* may require updates to currently established consultation procedures for MPOs across the Commonwealth, including the HRTPO. However, since the consultation requirements specified in the new Virginia regulation generally mirror those in the existing federal regulation, the updates are expected to be largely editorial in nature and not involve significant changes to established consultation processes.

For Hampton Roads, an update to existing consultation procedures is in the planning stages. The update is planned to not only reflect changes as appropriate to the applicable regulations for the new Virginia regulation but also to provide the ICG an opportunity to update and streamline existing consultation processes.

23 Hampton Roads TPO, *Public Participation Plan*, December 2009: http://www.hrtpo.org/Documents/Reports/HRTPO%20PPP%20-%20December%202009%20(Final).pdf

Exhibit ES-2: Federal, State and Local Consultation Requirements Relating to Transportation Conformity

DATE	REQUIREMENT
PENDING	
Update to Inter-Agency Consultation Procedures for Transportation Conformity	Update for the existing (2005) Hampton Roads Conformity Consultation Procedures, both to reflect the new Virginia Conformity SIP *(Regulation for Transportation Conformity* , 9 VAC 5-151) and to streamline and update existing processes as appropriate.
CURRENTLY APPLICABLE OR APPROVED	
Federal	***Legislation & Regulations***
US EPA Regulation for Transportation Conformity (40 CFR Parts 51 and 93). *Key requirements for consultation are addressed in Sections 51.390, 93.105, and 93.112.*	
March 24, 2010	*Transportation Conformity Regulations Updated March 2010* issued by EPA. This is the most current compilation by EPA of the Federal Transportation Conformity Rule (40 CFR Parts 51 and 93). It reflects all amendments made since the initial issuance by EPA of the rule in 1993 through March 24, 2010, including revisions promulgated pursuant to SAFETEA-LU in 2005.
US DOT Planning Assistance and Standards (23 CFR Part 450)(Transportation Planning & Programming Requirements). *Key requirements for consultation are addressed in Section 450.316 Interested parties, participation, and consultation.*	
February 14, 2007	US DOT, Federal Highway Administration, 23 CFR Parts 450 and 500, Federal Transit Administration, 49 CFR Part 613 [Docket No. FHWA–2005–22986] RIN 2125–AF09; FTA RIN 2132–AA82, *Statewide Transportation Planning; Metropolitan Transportation Planning* , Final Rule. Most recent major update to the federal planning regulations.
Legislation - Clean Air Act as amended, and subsequent SAFETEA-LU amendments.	
August 10, 2005	Federal Reauthorization (*Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users,* or *SAFETEA-LU* , Public Law 109-59), which addressed in part conformity.
November 15, 1990	Last set of major amendments to the *Clean Air Act* , although there have been minor amendments since. Conformity is addressed in Section 176(c).
State	***Federally-Required State Regulation for Transportation Conformity (9 VAC 5-151)***
January 19, 2010	Effective date for the new Virginia *Regulation for Transportation Conformity* (9 VAC 5-151) approved 11/20/09 by EPA via Federal Register notice. See US EPA, 74 FR 60194, 40 CFR Part 52, [EPA-R03-OAR-2009-0674; FRL-8983-1], "*Approval and Promulgation of Air Quality Implementation Plans; Virginia; Transportation Conformity Regulations* ", Direct Final Rule, November 20, 2009. The regulation was approved as submitted on March 23, 2009.
March 23, 2009	Submittal the Virginia *Regulation for Transportation Conformity* (9 VAC 5-151) by the VDEQ to the US EPA for approval in response to federal conformity rule requirements at 40 CFR Part 51. By the federal rule, the requirements of the new state regulation generally govern over the pre-existing federal requirements for consultation for conformity purposes (where they overlap, and as long as they are no less stringent).
Local	***Consultation Procedures***
Public Participation Plan	
December 16, 2009	MPO (HRTPO) approval of the *Hampton Roads Transportation Planning Organization Public Participation Plan* dated December 2009. This document responds to public and consultation stakeholder requirements specified in 23 CFR Part 450.
Inter-Agency Consultation Procedures for Transportation Conformity	
September 21, 2005	MPO (HRTPO) approval of (Inter-Agency) *Consultation Procedures for the Hampton Roads Ozone Nonattainment Area in Support of the Transportation Conformity Regulations (Revised July 18, 2005).* This revision updated the initial version approved in July 2001. These procedures were developed in response to requirements of the federal conformity rule at 40 CFR 93.105.

HRTPO staff transmitted a letter dated June 16, 2011 certifying that the HRTPO Board "approved the final list of projects for inclusion in the 2034 Long-Range Transportation Plan that must undergo air quality conformity analysis".

- July 6, 2011: ICG meeting, marking the beginning of the conformity analysis process. This meeting provided an opportunity for detailed review and comment on all aspects of the proposed analysis, including models, associated methods and assumptions, the project list for the Plan and TIP (including changes), and overall schedule.

  Exhibit ES-3 lists current members of the Hampton Roads ICG. The membership includes all parties identified in the both the federal and state conformity regulations and is consistent with the requirements given in the 2005 Conformity Consultation Procedures for Hampton Roads.

  The ICG meeting notice was distributed by email. The email distribution list included representatives of all of the ICG member agencies, including members of the Hampton Roads Transportation Technical Advisory Committee (TTAC), Hampton Roads Transportation Air Quality Committee (HRAQC (LPO), and federal agencies including the USDOT and US EPA.

  The ICG meeting was also listed on the agenda for the TTAC meeting that was scheduled to immediately follow the ICG meeting in the same room and on the same day. The public notice for the TTAC meeting was distributed by email by the HRTPO approximately one week before the meeting.

  The presentation given at the ICG meeting included a review of the membership list (including the involvement of the LPO in the consultation process), selection of the latest emission model for the analysis, modeling methodology and assumptions (including the selection of socioeconomic forecasts to meet latest planning assumption requirements), the project list to be applied in the conformity analysis for the Plan and TIP, and the conformity analysis schedule.

  Comments received from the ICG are documented in the minutes for the meeting, which are referenced below and copied in Appendix D. An opportunity for public input was provided at the ICG meeting. No comments from the public were received at the meeting. Draft meeting minutes (including attachments and an updated ICG Membership list) were distributed for comment. No material comments were received.

  Copies of all materials distributed for the ICG Meeting are provided in Appendix D, with the exception of the project list for the Plan and TIP which is presented separately (for convenient reference) in Appendix E. Appendix D includes the meeting agenda, membership list, draft modeling methodology and assumptions (draft chapter of conformity analysis report), draft conformity analysis schedule, presentation (PowerPoint slides), and email/website notices.

Exhibit ES-3: Hampton Roads Interagency Consultation Group (ICG)

Agency		***Staff***	
City/County			
City of Chesapeake		Earl	Sorey
City of Hampton		Lynn	Allsbrook
City of Newport News		Michael	King
City of Norfolk		Jeffrey	Raliski
City of Poquoson		Deborah	Vest
City of Portsmouth		Richard	Hartman
City of Suffolk		Robert	Lewis
City of Virginia Beach		Mark	Schnaufer
City of Williamsburg		Reed	Nester
Gloucester County		Anne	Ducey-Ortiz
Isle of Wight County		Jane	Hill
James City County		Steven	Hicks
York County		Timothy	Cross
Regional			
Hampton Roads Transportation Planning Organization		Dale	Stith
Hampton Roads Transit		Karen	Waterman
Williamsburg Area Transit Authority		Barbara	Creel
State			
Virginia Dept. of Environmental Quality		Sonya	Lewis-Cheatham
Virginia Dept. of Rail & Public Transportation		Steven	Hennessee
Virginia Dept. of Transportation – C/O Environmental		Jim	Ponticello
Virginia Dept. of Transportation – C/O Planning		Jaesup	Lee
Federal			
Environmental Protection Agency		Martin	Kotsch
Federal Highway Administration		Marisel	Lopez-Cruz
Federal Transit Administration		Tony	Cho
Alternates / Other (non-voting)			
City of Suffolk	*Alternate*	Sherry	Earley
	Other	Scott	Mills
Isle of Wight County		Michael	Stallings
James City County		Allen	Murphy
US Navy		Jennifer	Tabor

** Listing as of July 6, 2011.*

- August 24 – September 7, 2011: Fourteen-day public review period on the draft Regional Conformity Analysis and its proposed finding of conformity. A public notice with links to copies of the draft Conformity Analysis and its Executive Summary were posted on the HRTPO website.

- September 7, 2011: TTAC recommendation for approval of the draft Conformity Analysis and proposed finding of conformity for the FY 2012-2015 TIP, subject to no adverse comments received during the associated public review period that would require their review.

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- September 15, 2011: HRTPO approval of the draft Conformity Analysis and finding of conformity.

- *Section 93.113 (Timely Implementation of TCMs)*[24]: As indicated previously under "Latest Planning Assumptions", the applicable SIP revision (maintenance plan) for Hampton Roads does not include transportation control measures (TCMs). TCMs are therefore not required for the conformity analysis or determination. See 72 FR 30490, effective June 1, 2007.

- *Section 93.118 (Motor Vehicle Emissions Budget)*[25]: Requirements of the federal conformity rule with regard to the applicable motor vehicle emission budgets were met as follows:

  (a) The transportation plan, TIP… must be consistent with the motor vehicle emissions budget(s) 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)….",

  Exhibit ES-4 lists the motor vehicle emission budgets as specified in the applicable implementation plan revision, namely the 2007 maintenance plan for the eight-hour ozone standard as previously referenced. Budgets are specified for nitrogen oxides (NO_x) and for volatile organic compounds (VOC), both of which are precursors to ozone formation.

Exhibit ES-4: Motor Vehicle Emission Budgets for Hampton Roads

ADEQUATE AND APPROVED MOTOR VEHICLE EMISSIONS BUDGETS (MVEBS) IN TONS PER DAY (TPD)		
Budget year	NO_x	VOC
2011	50.387	37.846
2018	31.890	27.574

Source: Excerpted from 72 FR 30490, effective June 1, 2007.

Exhibit ES-5 presents the emission forecasts for the LRTP and TIP in comparison to the specified motor vehicle emission budgets. The forecast emissions are less than the corresponding budgets established in the applicable SIP revision (maintenance plan) for each pollutant and year tested. The emission tests required by the federal conformity rule are therefore passed.

[24] Federal Conformity Rule, 40 CFR 93.113 *Criteria and Procedures: Timely Implementation of TCMs* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.113.htm

[25] Federal Conformity Rule, 40 CFR 93.118 *Criteria and Procedures: Motor Vehicle Emissions Budget* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.118.htm

Exhibit ES-5: Conformity (Emission Budget) Tests

Year	Regional Emissions *(tons per average ozone season weekday)*	
	NO_x	**VOC**
2011 Budget Year		
Network	*34.31*	*26.31*
Off-Network	*8.27*	*8.56*
Miltary Base	*0.52*	*0.26*
TOTAL FORECAST:	43.11	35.13
Budget:	50.387	37.846
Conformity Test:	PASSED	PASSED
2018 Budget Year		
Network	*19.93*	*18.26*
Off-Network	*4.85*	*5.87*
Miltary Base	*0.52*	*0.26*
TOTAL FORECAST:	25.30	24.40
Budget:	31.890	27.574
Conformity Test:	PASSED	PASSED
2028 Interim Year (within ten years of other years modeled)		
Network	*16.25*	*15.58*
Off-Network	*3.90*	*5.36*
Miltary Base	*0.52*	*0.26*
TOTAL FORECAST:	20.67	21.20
Budget (from 2018):	31.890	27.574
Conformity Test:	PASSED	PASSED
2034 LRTP Horizon Year		
Network	*16.01*	*16.71*
Off-Network	*4.11*	*5.78*
Miltary Base	*0.52*	*0.26*
TOTAL FORECAST:	20.64	22.75
Budget (from 2018):	31.890	27.574
Conformity Test:	PASSED	PASSED

** Budgets specified in 72 FR 30490, effective June 1, 2007, with military base contributions from Table 4-7, p. 62, in the TSD for the referenced Maintenance Plan.*

For transparency and to demonstrate consistency with the methodology

applied in the maintenance plan, the Exhibit presents separate emission totals for network emissions, off-network emissions, and contributions from mobile sources operating on military bases within the Hampton Roads maintenance area.

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

The motor vehicle emission budget tests were satisfied for each pollutant and year modeled, as noted above. The years modeled were selected as follows:

- 2011 and 2018 are years for which motor vehicle emission budgets are specified in the applicable implementation plan revision (maintenance plan) referenced above, and the federal conformity rule requires that years for which budgets are established must be modeled.
- 2034 is the horizon year for the LRTP, which the federal conformity requires to be modeled.
- 2028 satisfies the interim year requirement (such that analysis years are no more than ten years apart) specified in the federal conformity rule.

Since the federal conformity rule requires that motor vehicle budgets established "for the most recent prior year" apply for years for which budgets have not been "specifically established", the 2018 budgets as listed are also applicable for the subsequent test years (2028 and 2034).

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

The motor vehicle emission budget tests were satisfied for each pollutant and year modeled, as noted above. The pollutants modeled (NO_x and VOC precursors to ozone) were ones for which motor vehicle emission budgets were specified in the applicable implementation plan revision, namely the 2007 maintenance plan for the eight-hour ozone standard) as noted above.

(d) *"Consistency with the motor vehicle emissions budget(s) must be demonstrated by including emissions from the entire transportation system, including all regionally significant projects contained in the transportation plan and all other regionally significant highway and transit projects expected in the nonattainment or maintenance area in the timeframe of the transportation plan… "*

The motor vehicle emission budget tests were satisfied for each pollutant and

year modeled, as noted above. Emissions from the entire transportation system, including "all regionally significant projects contained in the transportation plan and all other regionally significant highway and transit projects expected in the maintenance area in the timeframe of the transportation plan", were included in the analysis. For this purpose, separate emission forecasts were generated for motor vehicle traffic on network and off-network facilities and military bases.

Network emissions are those attributable to travel on roadways included in the regional travel demand (network) model. This includes all existing roadway facilities and transit service as well as all regionally significant roadway projects and transit services planned to be open or operational by each year modeled. Estimates for emissions attributable to travel on network facilities were estimated for each year modeled for the conformity analysis.

Off-network emissions are for travel on local and collector streets not included in the regional travel demand network model. Estimates for emissions attributable to travel on off-network facilities were also estimated for each year modeled for the conformity analysis.

Exhibit ES-6 presents the estimated emissions for on-road motor vehicles operating on military bases in the Hampton Roads area as reported in the technical support document for the maintenance plan and incorporated without change into the emission forecasts for the conformity analysis. The estimates do not vary by year.

Exhibit ES-6: Hampton Roads Military Base Emissions

Year	**Regional Emissions** *(tons per ozone season weekday)*	
	NOx	**VOC**
2011	0.52	0.26
2018	0.52	0.26

Source: Table 4-7, page 62, in the Technical Support Document for the Maintenance Plan approved effective June 1, 2007 (72 FR 30490)

1. Introduction and Overview

This report presents the transportation conformity analysis for the Hampton Roads 2034 Long Range Transportation Plan (LRTP, or "Plan") and the amended Fiscal Year (FY) 2012-2015 Transportation Improvement Program (TIP, or "Program").

The Hampton Roads Transportation Planning Organization (HRTPO) serves as the as the designated Metropolitan Planning Organization or MPO for the Hampton Roads region and, as such, the forum for cooperative transportation decision-making for the area[26].

The HRTPO leads 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. Per an interagency agreement developed to meet the requirements of the federal planning rule at 23 CFR 450.314[27], VDOT, working with the MPO and in consultation and coordination with other agencies and public and private stakeholders as appropriate, leads the development of the regional 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. For context, the chapter begins with a brief review of federal air quality requirements and associated designations and air quality plan development for the Hampton Roads area. The chapter concludes with a tabulation of the chronology of conformity determinations for the region.

- 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 proposed methods, assumptions, schedule and project lists to be analyzed and concludes with HRTPO approval of the draft conformity analysis and subsequent review and finding of conformity 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.

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[26] The Hampton Roads Metropolitan Planning Organization (HRMPO) was renamed the Hampton Roads Transportation Planning Organization (HRTPO) in 2009. Website: http://www.hrtpo.org.

[27] *Metropolitan Planning Agreement for the Hampton Roads Area,* effective July 15, 2009. This Agreement satisfies the requirements of 23 CFR 450.314.

1.1 Clean Air Act Requirements

The Clean Air Act (CAA)[28] was passed in 1963 and most recently amended in 1990. Requirements of the CAA that are relevant to this analysis include national ambient air quality standards (NAAQS) for specific "criteria" pollutants, motor vehicle emission standards, and transportation conformity. The first two requirements are reviewed briefly in this section, including an overview of related trends; requirements for transportation conformity are reviewed in more detail later in this chapter.

Exhibit 1-1 lists the currently applicable NAAQS[29]. Areas not meeting these standards may be designated as nonattainment and made subject to various provisions of the CAA until attainment is achieved. Development of a state implementation plan (SIP) that demonstrates attainment by a required date is one such provision; federal transportation conformity requirements are another. SIPs address not only direct emissions of a pollutant but also its precursors. For example, nitrogen oxides (NO_x) and volatile organic compounds (VOC) are considered the primary precursors to ozone, as emissions of these pollutants react in the atmosphere in the presence of sunlight and contribute to the atmospheric formation of ozone.

Areas designated nonattainment that subsequently attain or regain attainment may be redesignated to attainment, subject to maintenance requirements[30]. The development and implementation of a "maintenance" plan (as a revision to the SIP) to "*provide for the maintenance of the national primary ambient air quality standard for such air pollutant in the area concerned for at least 10 years after the redesignation*"[31] is one such requirement. A second maintenance plan, or "*an additional revision of the applicable State implementation plan for maintaining the national primary ambient air quality standard for 10 years after the expiration of the 10-year period referred to in subsection (a)*", is another such requirement[32]. Maintenance plans typically include the establishment of motor vehicle emission budgets (MVEBs) for the region, which are limits or caps on total regional emissions from the on-road motor vehicle fleet. Federal and state conformity requirements, including demonstrations of conformity to the SIP and the motor vehicle emission budgets established therein, remain in force until the designated maintenance periods are over.

National Trends

Long-term trends in emissions and ambient concentrations are informative, given the time that has elapsed since the CAA of 1963 was passed and the efforts made since then to reduce emissions through technology and other means.

Using ozone as an example, Exhibit 1-1 as previously referenced lists the currently applicable 2008 eight-hour ozone standard of 0.075 parts per million (75 parts per billion

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28 *Clean Air Act* (and amendments): http://www.epa.gov/air/caa/

29 Revisions are addressed in the next section in relation to the air quality status for Hampton Roads.

30 CAA, Title I, Part D, Section 175A - *Maintenance Plans* http://www.law.cornell.edu/uscode/html/uscode42/usc_sec_42_00007505---a000-.html

31 *Ibid*, subsection (a).

32 *Ibid*, subsection (b).

or ppb) as well as the previous standards of 0.08 ppm (1997) and 0.12 ppm. Reducing ambient levels of ozone to achieve the more stringent standards requires reductions in emissions of its precursors, namely NO_x and VOC.

Exhibit 1-1: National Ambient Air Quality Standards

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour (1)	None	
	35 ppm (40 mg/m^3)	1-hour (1)		
Lead	0.15 µg/m^3 (2)	Rolling 3-Month Average	Same as Primary	
Nitrogen Dioxide	53 ppb (3)	Annual (Arithmetic Average)	Same as Primary	
	100 ppb	1-hour (4)	None	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour (5)	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual (6) (Arithmetic Average)	Same as Primary	
	35 µg/m^3	24-hour (7)	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour (8)	Same as Primary	
	0.08 ppm (1997 std)	8-hour (9)	Same as Primary	
	0.12 ppm	1-hour (10)	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour (1)
	0.14 ppm	24-hour (1)		
	75 ppb (11)	1-hour	None	

(1) Not to be exceeded more than once per year.
(2) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m^3 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 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
(3) The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard
(4) To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
(5) Not to be exceeded more than once per year on average over 3 years.
(6) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
(7) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3 (effective December 17, 2006).
(8) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
(9) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(c) EPA is in the process of reconsidering these standards (set in March 2008).
(10) (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1.
(11) (a) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

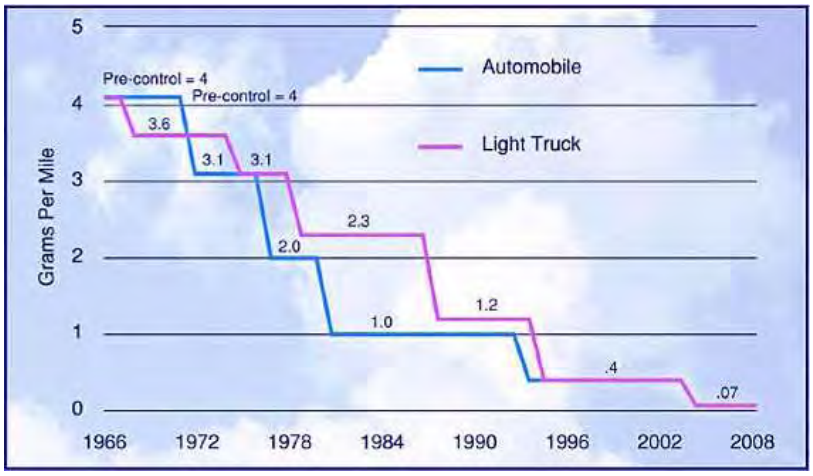
Source: US Environmental Protection Agency (http://www.epa.gov/air/criteria.htm, accessed August 2, 2011).

Exhibit 1-2 presents a simplified graphic of NO_x and VOC emission standards implemented since the 1960s for on-road light duty vehicles (cars and light trucks).

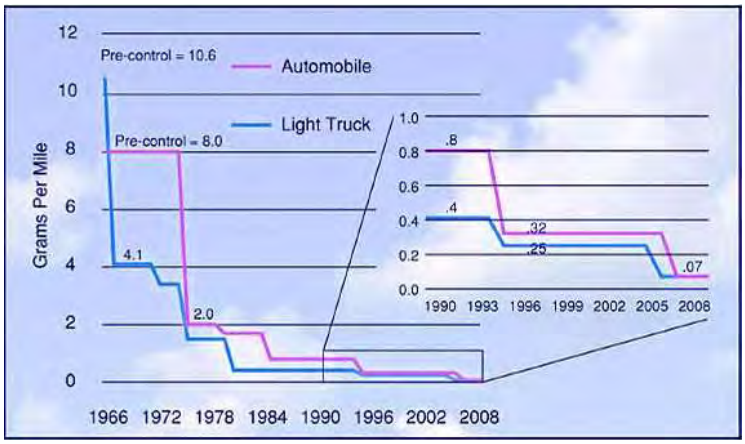
Emissions standards similarly apply for heavy duty vehicles (trucks and buses). Related fuel quality standards also apply. A complete listing of federal emission standards for on-road vehicles is available online from EPA[33]. The graphic gives a visual sense of how federal emission standards have been made increasing stringent over time.

Exhibit 1-2: Federal Emission Standards for Light Duty Vehicles and Trucks

(a) NO_x



(b) VOC



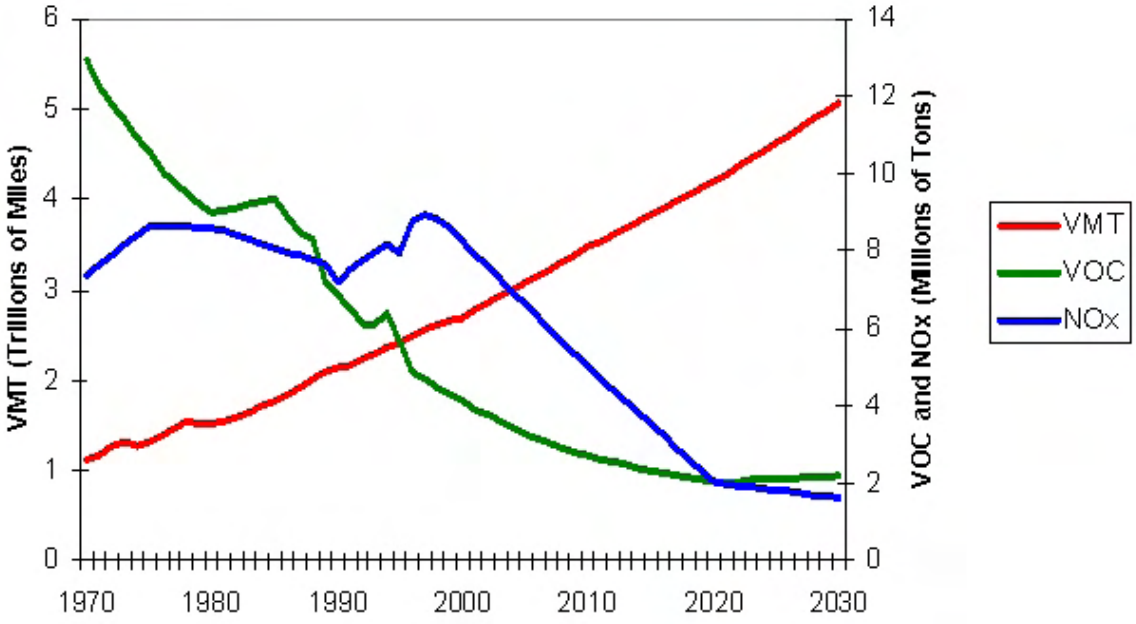
Source: FHWA website entitled "Federal Emissions Standards", accessed March 2010: http://www.fhwa.dot.gov/environment/aqfactbk/page14.htm

Exhibit 1-3 presents national trends in vehicle-miles-traveled (VMT) and associated emissions of NO_x and VOC from the on-road motor vehicle fleet. In general, despite ongoing and substantial increases in VMT across the nation, total emissions of NO_x and VOC have been reduced substantially over the same time period. The reduction in emissions from motor vehicles is attributable to the introduction of more stringent vehicle

[33] US EPA Office of Transportation & Air Quality website "*Emission Standards Reference Guide*": http://www.epa.gov/otaq/standards/allstandards.htm

and fuel quality standards and the emission controls implemented to meet those standards.

Exhibit 1-3: National Trends in Vehicle Miles Traveled (VMT) and Associated Emissions of Ozone Precursors



Source: Chart entitled "Vehicle Miles Traveled (VMT) vs. Vehicle Emissions", dated July 30, 2002, on FHWA website accessed March 2010: http://www.fhwa.dot.gov/environment/vmtems.htm

Exhibit 1-4 presents national trends in ambient ozone levels. The general trend is downward, that is, towards improved air quality with lower concentrations of ozone. This is attributable to the emission reductions across all sectors including transportation.

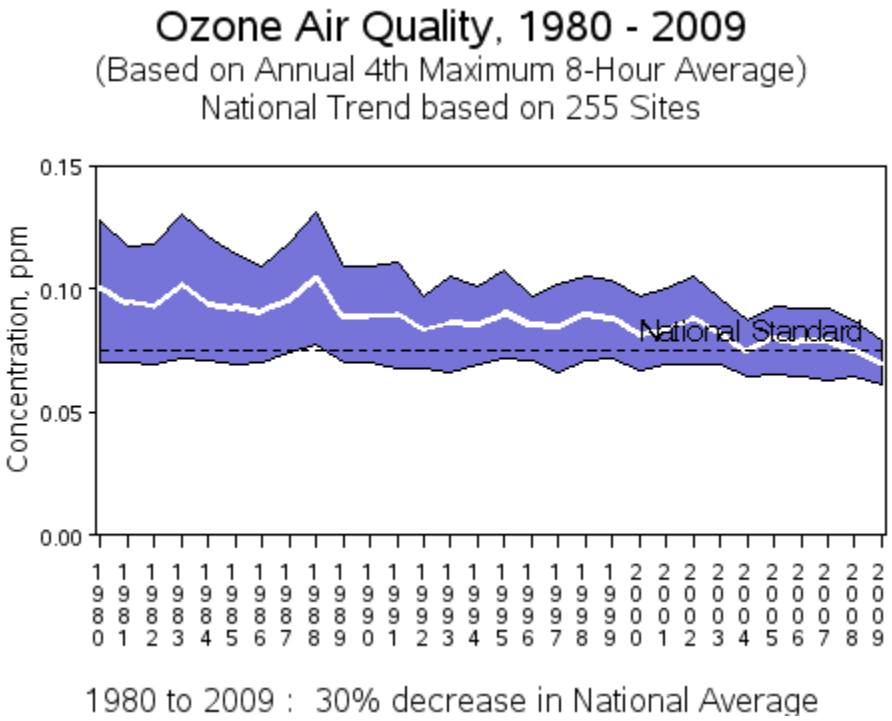
1.2 Air Quality Planning Status for Hampton Roads

The Hampton Roads area is currently in attainment for all of the NAAQS. However, as the area has previously been designated as nonattainment for ozone and then redesignated to attainment, it is subject to maintenance plan requirements and therefore to continued federal and state transportation conformity requirements. Motor vehicle emission budgets have accordingly been established for the region and most recently updated in the maintenance plan.

Chronology of Air Quality Designations for Hampton Roads

On November 6, 1991, the Hampton Roads, Virginia region was classified by EPA as a marginal ozone non-attainment area for the one-hour ozone standard (56 FR 56694). The designated non-attainment area included the Counties of James City and York as well as the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson,

Exhibit 1-4: National Trends in Ambient Ozone Levels



Source: US EPA website, accessed August 2, 2011.
See: http://www.epa.gov/airtrends/ozone.html

Portsmouth, Suffolk, Virginia Beach, and Williamsburg.

On March 12, 1997, EPA approved a redesignation of the Hampton Roads one-hour ozone non-attainment area to attainment in a direct final rule effective April 28, 1997[34]. At the same time, EPA approved the associated maintenance plan revision to the SIP. The redesignation was based upon three years of quality-assured ambient air quality monitoring data for the area that demonstrated that the one-hour ozone NAAQS had been attained.

On July 18, 1997, EPA promulgated a revised (eight-hour) ozone NAAQS of 0.08 parts per million (ppm), with designations of areas across the nation as attainment or nonattainment for the new standard to follow[35]. Implementation of the new ("1997") eight-hour ozone standard was however delayed by litigation.

On April 30, 2004, EPA, in a final rule effective June 15, 2004, re-classified the Hampton

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[34] US EPA, 62 FR 11337, 40 CFR Parts 52 and 81 [VA068-5018a, VA066-5018a; FRL-5688-8], *Approval and Promulgation of Air Quality Implementation Plans; Designation of Areas for Air Quality Planning Purposes; Virginia; Redesignation to Attainment of the Hampton Roads Ozone Nonattainment Area, Approval of the Maintenance Plan and Mobile Emissions Budget*, Direct Final Rule effective April 28, 1997. Available at: http://www.gpoaccess.gov/fr/index.html.

[35] US EPA, 62 FR 38855, *National Ambient Air Quality Standards for Ozone; Final Rule*, July 18, 1997, Final Rule effective September 16, 1997. Available at: http://www.gpoaccess.gov/fr/index.html.

Roads area to be in marginal non-attainment for the 1997 eight-hour ozone standard based on a review of local ambient air quality monitoring data for 2001 through 2003[36]. The area so designated included the area previously designated as non-attainment for the one-hour standard plus the Counties of Gloucester and Isle of Wight.

In September 2006, in response to the re-classification to nonattainment for the 1997 eight-hour ozone standard, VDEQ submitted to EPA a request[37] for redesignation to attainment along with a proposed maintenance plan[38] and base year inventory. Ambient air quality monitoring data for 2003 through 2005 showing attainment of the standard were presented with the redesignation request. The proposed maintenance plan included new motor vehicle emission budgets to be applied in future regional conformity analyses. As stated in the introduction of the redesignation request:

> "*Based on an analysis of air quality monitoring data, source emission reduction information, and the existing federal and state regulatory programs, the Commonwealth of Virginia has determined that the Hampton Roads 8-hour ozone nonattainment area qualifies for redesignation to attainment. The maintenance plan, which includes a mobile source budget, has also been developed in order for the acceptable ozone level to continue.*"

Exhibit 1-5, taken from the maintenance plan, shows the maintenance area for the 1997 eight-hour ozone standard.

On April 13, 2007, considering the VDEQ request and ambient air quality monitoring data showing attainment of the standard as well as other criteria for redesignation per the requirements of the CAA, EPA issued a proposed rule to redesignate the Hampton Roads area to attainment for the 1997 eight-hour ozone standard and approve the associated maintenance plan and base year inventory[39].

On June 1, 2007, EPA approved the request for redesignation of the Hampton Roads area to attainment for the 1997 eight-hour ozone standard[40]. EPA also approved the

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36 US EPA, 69 FR 23858, 40 CFR Part 81 [OAR-2003-0083; FRL-7651-8] RIN 2060-, *Air Quality Designations and Classifications for the 8-Hour Ozone National Ambient Air Quality Standards; Early Action Compact Areas With Deferred Effective Dates*, Final Rule, April 30, 2004. See: http://edocket.access.gpo.gov/2004/04-9152.htm.

37 Virginia DEQ, *Request for Redesignation to Attainment for the Hampton Roads Nonattainment Area Consisting of the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, and the Counties of Gloucester, Isle of Wight, James City, and York. Final*, October 2006.

38 Virginia DEQ, "*Maintenance Plan for The Hampton Roads Nonattainment Area Consisting of the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Suffolk, Virginia Beach, and Williamsburg and the Counties of James City, York, Gloucester, and Isle of Wight. Final*, October 2006.

39 US EPA, 72 FR 18602, 40 CFR Parts 52 and 81 [EPA-R03-OAR-2006-0919; FRL-8298-2], *Approval and Promulgation of Air Quality Implementation Plans: Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Associated Maintenance Plan and 2002 Base-Year Inventory*, Proposed Rule, Friday, April 13, 2007. See: http://edocket.access.gpo.gov/2007/E7-7017.htm.

40 US EPA, 72 FR 30490, 40 CFR Parts 52 and 81 [EPA-R03-OAR-2006-0919; FRL-8320-9], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory*, Final Rule, Friday, June 1, 2007 (effective the same day). See http://edocket.access.gpo.gov/2007/E7-10581.htm.

associated maintenance plan for the 1997 eight-hour ozone standard (superseding the maintenance plan for the one-hour standard), the associated motor vehicle emission budgets and 2002 base year inventory.

Exhibit 1-5: Hampton Roads Maintenance Area for the 1997 Eight-Hour Ozone Standard

Source: Virginia DEQ, "Maintenance Plan for The Hampton Roads Nonattainment Area Consisting of the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Suffolk, Virginia Beach, and Williamsburg and the Counties of James City, York, Gloucester, and Isle of Wight. Final", October 2006.

Exhibit 1-6 presents the motor vehicle emission budgets as excerpted from the final rule. Note, while the table lists units of tons per day (TPD), the methodology presented in the Technical Support Document (TSD) for the maintenance plan indicates the "day" selected represents an average ozone season weekday.

Exhibit 1-6: Motor Vehicle Emissions Budgets for Hampton Roads

ADEQUATE AND APPROVED MOTOR VEHICLE EMISSIONS BUDGETS (MVEBS) IN TONS PER DAY (TPD)		
Budget year	NO_x	VOC
2011	50.387	37.846
2018	31.890	27.574

Source: Excerpted from 72 FR 30490, effective June 1, 2007.

For reference, Exhibit 1-7 presents the estimated emissions as reported in the TSD for on-road motor vehicles operating on military bases in the Hampton Roads area. These emissions are included with the motor vehicle emission budget established for the region as reported above.

Exhibit 1-7: Hampton Roads Military Base Emissions

Year	**Regional Emissions** *(tons per ozone season weekday)*	
	NOx	**VOC**
2011	0.52	0.26
2018	0.52	0.26

Source: Table 4-7, page 62, in the TSD for the maintenance plan approved effective June 1, 2007 (72 FR 30490)

A legal review was undertaken in this same time period of certain aspects of the implementation rule[41] for the ozone standard. The result of the review was to confirm the status of that rule as well as the relative applicability of motor vehicle emission budgets associated with the one- and eight-hour standards.

In brief, the April 2007 proposed redesignation by EPA included a discussion of a December 22, 2006 DC Circuit Court of Appeals decision[42] regarding the Implementation Rule. Previously, on March 22, 2007, EPA had petitioned for a panel rehearing of that decision, and others had petitioned as well.

On June 8, 2007, the DC Circuit Court of Appeals issued a decision in which it denied

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41 US EPA, 69 FR 23951, 40 CFR Parts 50, 51 and 81 [OAR 2003-0079, FRL-7651-7] RIN 2060-AJ99, *Final Rule To Implement the 8-Hour Ozone National Ambient Air Quality Standard--Phase 1*, Final Rule, April 30, 2004, effective June 15, 2004. See http://edocket.access.gpo.gov/2004/04-9153.htm.

42 United States Court of Appeals for the District of Columbia Circuit, No. 04-1200, *South Coast Air Quality Management District, Petitioner v. Environmental Protection Agency, Respondent, National Environmental Development Association's Clean Air Regulatory Project, et al., Intervenors, Consolidated with No. 04-1201, et al., On Petitions for Review of a Final Rule of the Environmental Protection Agency*, Argued October 12, 2006, Decided December 22, 2006. See: http://pacer.cadc.uscourts.gov/docs/common/opinions/200612/04-1200a.pdf

the petitions[43]. However, it granted the joint request of EPA and other petitioners and clarified the December 22, 2006 ruling regarding both the (limited) scope of the vacatur of the 2004 Final Rule[44] as well as the relative applicability of motor vehicle emission budget for conformity determinations[45], such that budgets established for the eight-hour standard effectively supersede those previously set for the one-hour standard.

With the clarifications provided by the Court, the budgets for the 1997 eight-hour ozone standard as presented in the maintenance plan for Hampton Roads (and excerpted in the Exhibit above) superseded, effective June 1, 2007, the budgets previously established for the region for the one-hour ozone standard.

Pending Changes to the NAAQS

On July 11, 2007, EPA issued a proposed rule to further strengthen the eight-hour ozone standard[46]. On March 12, 2008, EPA announced the new primary and secondary standards and, on March 27, 2008, promulgated the final rule[47]. These are the "2008" standards that are presented in Exhibit 1-1.

On September 16, 2009, however, EPA announced it would "reconsider" the 2008 standards[48]. EPA indicated that this decision followed petitions in May 2008 from environmental and industry groups that had been filed with the D.C. Circuit Court of Appeals "*for review of the 2008 ozone standards*" and a subsequent Court decision, in March 2009, to grant an EPA "*request to stay the litigation so the new administration could review the standards and determine whether they should be reconsidered*".

Subsequently, on January 19, 2010, EPA issued a proposed rule to revise both the primary and secondary standards for ozone[49], stating: "*[b]ased on its reconsideration of the primary and secondary national ambient air quality standards (NAAQS) for ozone (O_3) set in March 2008, EPA proposes to set different primary and secondary standards*

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43 United States Court of Appeals for the District of Columbia Circuit, No. 04-1200, *South Coast Air Quality Management District, Petitioner v. Environmental Protection Agency, Respondent, National Environmental Development Association's Clean Air Regulatory Project, et al., Intervenors*, Consolidated with No. 04-1201, et al., filed June 8, 2007. See: http://pacer.cadc.uscourts.gov/docs/common/opinions/200706/04-1200b.pdf

44 *Ibid*, Section III, paragraph 2, pp.7-8. Regarding vacatur of the 2004 Final Rule, the June 2007 ruling stated: "*We also grant their request that the 2004 Rule be vacated only to the extent that the court has sustained challenges to it. …EPA is urged to act promptly in promulgating a revised rule that effectuates the statutory mandate by implementing the eight-hour standard*…".

45 *Ibid*, Section III, paragraph 1, page 7. Regarding conformity, the June 2007 ruling stated: "*We grant the joint request by EPA and the Environmental Petitioners to make explicit that the court's reference to conformity determinations speaks only to the use of one-hour motor vehicle emissions budgets as part of eight-hour conformity determinations until eight-hour motor vehicle emissions budgets are available*.".

46 US EPA, 72 FR 37818, 40 CFR Part 50 [EPA-HQ-OAR-2005-0172; FRL-8331-5] RIN 2060-AN24, *National Ambient Air Quality Standards for Ozone*, *Proposed Rule*, July 11, 2007. See: http://edocket.access.gpo.gov/2007/E7-12416.htm.

47 US EPA, 73 FR 16436, 40 CFR Parts 50 and 58 [EPA-HQ-OAR-2005-0172; FRL-8544-3] RIN 2060-AN24, *National Ambient Air Quality Standards for Ozone. Final Rule*, March 27, 2008, effective May 27, 2008. See: http://edocket.access.gpo.gov/2008/E8-5645.htm.

48 US EPA, *Fact Sheet - EPA to Reconsider Ozone Pollution Standards*, September 2009. See: http://www.epa.gov/air/ozonepollution/pdfs/O3_Reconsideration_FACT%20SHEET_091609.pdf

49 US EPA, 75 FR 2938, *National Ambient Air Quality Standards for Ozone. Proposed Rule*, January 19, 2010. See: http://edocket.access.gpo.gov/2010/2010-340.htm.

than those set in 2008 to provide requisite protection of public health and welfare, respectively[50]". Specifically, "[*w]ith regard to the primary standard for O_3, EPA proposes that the level of the 8-hour primary standard, which was set at 0.075 ppm in the 2008 final rule, should instead be set at a lower level within the range of 0.060 to 0.070 parts per million (ppm)…*", and "*[w]ith regard to the secondary standard for O3, EPA proposes that the secondary O_3 standard, which was set identical to the revised primary standard in the 2008 final rule, should instead be a new cumulative, seasonal standard expressed as an annual index of the sum of weighted hourly concentrations, cumulated over 12 hours per day (8 am to 8 pm) during the consecutive 3-month period within the O_3 season with the maximum index value, set at a level within the range of 7 to 15 ppm-hours…*"[51].

EPA set a due date for comments on the proposed rule of March 22, 2010. As noted in the preamble to the proposed rule: "*[i]n its [September 2009] notice to the Court, EPA stated that this notice of proposed rulemaking would be signed by December 21, 2009, and that the final rule will be signed by August 31, 2010*."[52] The Fact Sheet provided by EPA with the proposed rule restated this commitment for the schedule for the final rule, indicating that "*EPA will issue final standards by August 31, 2010*", and also outlined a general schedule for implementation of the new standards as follows[53]:

- *By January 2011: States make recommendations for areas to be designated attainment, nonattainment or unclassifiable.*
- *By July 2011: EPA makes final area designations.*
- *August 2011 Designations become effective.*
- *December 2013: State Implementation Plans, outlining how states will reduce pollution to meet the standards, are due to EPA.*
- *2014 to 2031: States are required to meet the primary standard, with deadlines depending on the severity of the problem.*

EPA did not meet the August 31, 2010 deadline for the final rule. On December 8, 2010 EPA deferred the final rule until the end of July 2011, providing the following explanation on their website[54]: "*In January 2010 EPA proposed stricter standards for smog. As part of EPA's extensive review of the science, Administrator Jackson will ask the Clean Air Scientific Advisory Committee (CASAC) for further interpretation of the epidemiological and clinical studies they used to make their recommendation. To ensure EPA's decision is grounded in the best science, EPA will review the input CASAC provides before the new standard is selected. Given this ongoing scientific review, EPA intends to set a final standard in the range recommended by the CASAC by the end of July, 2011*."

EPA however did not meet the July 2011 target for the final rule. They issued the following notice, dated July 26, 2011, on their website[55]: "*Administrator Jackson is fully committed to finalizing EPA's reconsideration of the Clean Air Act health standard for*

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50 *Ibid,* p.2938.
51 *Ibid*, p.2938.
52 *Ibid*, p.2944.
53 US EPA, *Fact Sheet Proposal to Revise the National Ambient Air Quality Standards for Ozone*, January 2010. See: http://www.epa.gov/air/ozonepollution/pdfs/fs20100106std.pdf.
54 See: http://www.epa.gov/air/ozonepollution/actions.html
55 See: http://www.epa.gov/groundlevelozone/actions.html (accessed August 2, 2011)

ground level ozone. That reconsideration is currently going through interagency review led by OMB. Following completion of this final step, EPA will finalize its reconsideration, but will not issue the final rule on July 29th, the date the agency had intended. We look forward to finalizing this standard shortly. A new ozone standard will be based on the best science and meet the obligation established under the Clean Air Act to protect the health of the American people. In implementing this new standard, EPA will use the long-standing flexibility in the Clean Air Act to consider costs, jobs and the economy."

On September 2, 2011, however, the White House Office of the Press Secretary issued a "*Statement by the President on the Ozone National Ambient Air Quality Standards*" that included the following: "...*I have requested that Administrator Jackson withdraw the draft Ozone National Ambient Air Quality Standards at this time. Work is already underway to update a 2006 review of the science that will result in the reconsideration of the ozone standard in 2013....*"

On September 2, 2011, immediately following the release of the statement noted above from the White House Office of the Press Secretary, EPA issued the following "*Statement by EPA Administrator Lisa P. Jackson on the Ozone National Ambient Air Quality Standards*": "*Since day one, under President Obama's leadership, EPA has worked to ensure health protections for the American people, and has made tremendous progress to ensure that Clean Air Act standards protect all Americans by reducing our exposures to harmful air pollution like mercury, arsenic and carbon dioxide. This Administration has put in place some of the most important standards and safeguards for clean air in U.S. history: the most significant reduction of sulfur dioxide and nitrogen oxide air pollution across state borders; a long-overdue proposal to finally cut mercury pollution from power plants; and the first-ever carbon pollution standards for cars and trucks. We will revisit the ozone standard, in compliance with the Clean Air Act."*

Typically, when new or revised standards are finalized, next steps involve a review of ambient air quality data and subsequent designation (as attainment or nonattainment) by EPA of areas across the country for the new or revised standards. Areas designated nonattainment will initiate preparation of revisions to SIPs as needed to show compliance to the new or revised standard. With regard to conformity, SIP revisions for new or revised NAAQS generally involve the establishment of new or revised motor vehicle emission budgets to suit.

For reference, Exhibit 1-8 presents recent trends in ambient ozone levels. The region is currently in attainment with the 2008 primary (and secondary) NAAQS of 75 ppb.

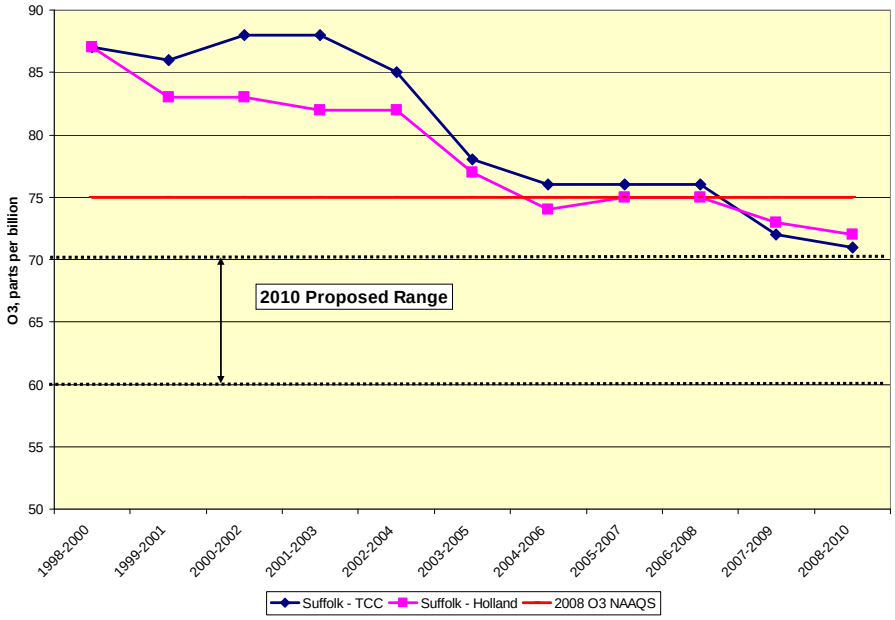
1.3 Transportation Conformity Requirements

Federal, state and local requirements addressing transportation conformity apply for air quality nonattainment and maintenance areas, of which there are several, including the Hampton Roads region, in the Commonwealth of Virginia. Conformity requirements originate from Section 176(c) of the Clean Air Act (CAA)[56] as amended, which requires that federal agencies and MPOs not approve any transportation project, program, or plan that does not conform with the approved State Implementation Plan (SIP) for air

[56] *Clean Air Act* (and amendments): http://www.epa.gov/air/caa/

quality.

Exhibit 1-8: Recent Trends in Ozone Levels for Hampton Roads



Source: VDEQ, Email update 2/4/2011 to chart included in the "2008 Ozone Standard Reconsideration", Presentation to the Hampton Roads Transportation Technical Advisory Committee, April 7, 2010

Section 176(c)(1) of the CAA provides a definition for conformity, stating:

> *"… Conformity to an implementation plan means—*
>
> *"(A) conformity to an [air quality] implementation plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and*
>
> *(B) that such activities will not— (i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area. …"*

Further, Section 176(c)(4)(B) of the CAA adds a requirement for regulatory action in the form of criteria and procedures for conformity to be promulgated by EPA in concurrence with the US DOT:

> *176(c)(4)(B) Transportation plans, programs, and projects.— The Administrator, with the concurrence of the Secretary of Transportation, shall promulgate, and periodically update, criteria and procedures for demonstrating and assuring conformity in the case of transportation plans, programs, and projects.*

Federal Conformity Regulation

On November 24, 1993, in keeping with CAA requirements, 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, e.g., following the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which was signed into law on August 10, 2005. Several sections of the amended rule have also been modified and/or remanded due to court rulings. The most current compilation is that produced by EPA in March 2010[57]. Although EPA has proposed amendments since then, they have not to date issued a final rule and the amendments as proposed would not affect this analysis[58].

In brief, the federal transportation conformity rule was written to meet CAA requirements and ensure conformity to SIPs for the 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 is intended to ensure 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.

State Conformity Regulation

Pursuant to the federal conformity rule at 40 CFR Part 51, a state conformity regulation implementing certain requirements (primarily addressing consultation) of the federal conformity rule is also required. Accordingly, the Virginia *Regulation for Transportation Conformity* was developed by the VDEQ in 1997 and amended for consistency with EPA requirements in 2007. The current version is specified in the Virginia Administrative Code (VAC) at 9 VAC 5-151. The Virginia regulation was approved by EPA via Federal Register notice in November 2009 (effective January 19, 2010)[59]. More detail on the requirements of the state regulation for consultation is presented in Chapter 3.

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[57] US EPA, *Transportation Conformity Regulations Updated March 2010*, EPA-420-B-10-006, March 2010, available at: http://www.epa.gov/otaq/stateresources/transconf/regs/420b10006.pdf.

[58] See http://www.epa.gov/otaq/stateresources/transconf/conf-regs.htm

[59] US EPA, 74 FR 60194, 40 CFR Part 52, [EPA-R03-OAR-2009-0674; FRL-8983-1], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Transportation Conformity Regulations*, Direct Final Rule, effective January 19, 2010.
See: http://edocket.access.gpo.gov/2009/E9-27814.htm

Federal Criteria

Section 93.109[60] of the federal transportation conformity rule identifies specific criteria that are required to be satisfied in conformity demonstrations for transportation plans, programs and projects.

Exhibit 1-9 presents an excerpt from the federal rule showing the criteria specific to just plans and programs. Each of these listed criteria is reviewed briefly below, with more detail provided in Chapter 4 with the results of the conformity analysis.

Exhibit 1-9: 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

- §93.110[61] requires that conformity determinations be based upon the latest planning assumptions in force at the time of the determination.
- §93.111[62] requires that the latest emissions model be applied.
- §93.112[63] requires that consultation be conducted following specified procedures. More detail on the requirements is presented in Chapter 3[64,65].

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60 Federal Conformity Rule, 40 CFR 93.109 *Criteria and Procedures for Determining Conformity of Transportation Plans, Programs, and Projects: General*.
http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.109.htm

61 Federal Conformity Rule, 40 CFR 93.110 *Criteria and Procedures: Latest Planning Assumptions*
http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.110.htm

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

63 Federal Conformity Rule, 40 CFR 93.112 *Criteria and Procedures: Consultation*
http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.112.htm

64 Section 93.112 states in part: "*Until the implementation plan revision required by Sec. 51.390 of this chapter is fully approved by EPA, the conformity determination must be made according to Sec. 93.105 (a)(2) and (e) and the requirements of 23 CFR part 450*."

65 Federal Conformity Rule, 40 CFR 93.105 *Consultation*
http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.105.htm

- §93.113[66] details the steps necessary to demonstrate that the Plan and Program provide for the timely implementation of transportation control measures (TCMs) and do not interfere with their implementation.
- §93.118[67] requires that the Plan and Program be consistent with the motor vehicle emission budgets specified in the applicable SIP. Since emission budgets have been established for the Hampton Roads area, as reviewed later in this chapter, emission budget tests as required in the federal rule are applicable for this region.[68]

  Budgets apply not only for the year for which they are established but also for subsequent years. Section 93.118(b)(1)(ii) specifically requires 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 detailed requirements for modeling are provided in §93.122[69], which addresses "*procedures for determining regional transportation-related emissions"*. This section requires that all regionally significant projects included in the Plan and Program be included in the regional emissions analysis. This section also specifies requirements for both transportation and emission modeling. The applicable modeling requirements for this analysis are summarized with the conformity demonstration in Chapter 4.

For reference, the federal rule also specifies related requirements apply for project-level determinations:

- §93.114[70] requires that a currently conforming plan and TIP at the time of project approval.
- §93.115[71] requires that projects be from a conforming transportation plan and program.
- §93.126[72] provides for exemptions for projects in certain categories from the requirement to determine conformity. It states in part that: "*Notwithstanding the other requirements of this subpart, highway and transit projects of the types listed in table 2 of this section are exempt from the requirement to determine conformity. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and TIP*." The categories listed in Table 2 are grouped as safety, mass transit, air quality, and other projects.

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66 Federal Conformity Rule, 40 CFR 93.113 *Criteria and Procedures: Timely Implementation of TCMs* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.113.htm

67 Federal Conformity Rule, 40 CFR 93.118 *Criteria and Procedures: Motor Vehicle Emissions Budget* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.118.htm

68 Since budget tests are applicable for this region, the interim tests provided in Section 93.119 are not required and are not reviewed here.

69 Federal Conformity Rule, 40 CFR 93.122 *Procedures for Determining Regional Transportation-Related Emissions*. http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.122.htm

70 Federal Conformity Rule, 40 CFR 93.114 *Criteria and procedures: Currently Conforming Transportation Plan and TIP*. http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.114.htm

71 Federal Conformity Rule, 40 CFR 93.115 *Criteria and procedures: Projects from a Transportation Plan and TIP*. http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.115.htm

72 Federal Conformity Rule, 40 CFR 93.126 *Exempt Projects*. http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.126.htm

- §93.127[73] provides for the exemption of certain project categories from the requirement to conduct regional emission analyses in support of conformity determinations. It states in part that: *"Notwithstanding the other requirements of this subpart, highway and transit projects of the types listed in Table 3 of this section are exempt from regional emissions analysis requirements."* Projects listed in Table 3 include: intersection channelization projects, intersection signalization projects at individual intersections, interchange reconfiguration projects, changes in vertical and horizontal alignment, truck size and weight inspection stations, and bus terminals and transfer points. If the project is not otherwise exempt, requirements for project-level conformity determinations may still apply for these projects.

1.4 Chronology of Conformity Determinations for Hampton Roads

Exhibit 1-10 presents the chronology of conformity determinations for plans and programs for Hampton Roads from 2001 to the present. The Exhibit also lists expiry dates for the current plan and TIP, i.e., the ones approved prior to this conformity analysis. Expiry dates apply as, pursuant to federal regulations, transportation plans and TIPs must be updated (and conformity re-determined) at least every four years. An additional limitation applies for TIPs, such that they also expire when FHWA/FTA approval of the state transportation improvement program (STIP) expires[74].

The update cycle requirements for plans and TIPs differ from those for conformity determinations. Plan and TIP cycles restart with updates only, and not amendments, to the Plan and/or TIP respectively. In contrast, conformity cycles for Plans and/or TIPs restart with either updates or amendments to the Plan and/or TIP respectively. Plan and TIP cycles therefore tend to be the limiting factor for new conformity determinations, as they are not restarted with amendments.

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[73] Federal Conformity Rule, 40 CFR 93.127, *Projects Exempt from Regional Emissions Analyses*. http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.127.htm

[74] See 23 CFR 450.322 & 450.324, and 40 CFR 93.104 respectively:

- Federal Planning Rule, 23 CFR 450.322 *Development and Content of the Metropolitan Transportation Plan* (April 1, 2009 CFR revision): http://edocket.access.gpo.gov/cfr_2009/aprqtr/23cfr450.322.htm
- Federal Planning Rule, 23 CFR 450.324 *Development and Content of the Transportation Improvement Program (TIP)* (April 1, 2009 CFR revision): http://edocket.access.gpo.gov/cfr_2009/aprqtr/23cfr450.324.htm
- Federal Conformity Rule, 40 CFR 93.104 *Frequency of Conformity Determinations* (July 1, 2009 CFR revision): http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.104.htm

Exhibit 1-10: Chronology of Conformity Determinations for Hampton Roads

Date	Plan	TIP	Cycle Length* (Years)
Expiry Dates for the Current Plan, TIP and Associated Conformity Status			
June 20, 2015	Conformity	Conformity	
July 30, 2012		FY 09-12 TIP	
January 22, 2012	2030 CLRP		
US DOT Conformity Finding (Approval Dates)			
PENDING AUGUST 2011	*[2030 LRTP unchanged]*	*FY 2012-2015 TIP*	*4*
June 20, 2011	2030 LRTP	FY 2009-2012 TIP	4
August 30, 2010	2030 LRTP	FY 2009-2012 TIP	4
July 30, 2008	*[2030 CLRP unchanged]*	FY 2009-2012 TIP	4
January 22, 2008	2030 CLRP	FY 2006-2009 TIP (Amended)	4
August 22, 2006	2026 CLRP (Amended)	FY 2006-2009 TIP	4
October 21, 2005	2026 CLRP (Amended)	FY 2005-2008 TIP (Amended)	4
August 10, 2005 - SAFETEA-LU signed, adding a year to planning & conformity cycles.			
December 10, 2004	2026 CLRP (Amended)	FY 2005-2008 TIP	3
August 27, 2004	*[2026 CLRP unchanged]*	FY 2005-2007 TIP	3
June 21, 2004	*[2026 CLRP unchanged]*	FY 2003-2005 TIP	3
February 3, 2004	2026 CLRP	*[FY 2003-2006 TIP unchanged]*	3

** Four years update cycles apply for transportation plans and TIPs and their respective conformity determinations. See 23 CFR 450.322 & 450.324, and 40 CFR 93.104. Note planning & TIP cycles restart with updates only, and not with amendments. In contrast, conformity cycles restart with both updates and amendments to the Plan and/or TIP respectively. Planning & TIP cycles therefore tend to be more limiting, as they are not restarted with amendments.*

Regulations on Plan, TIP and Conformity Cycles:

Plans: 23 CFR 450.322 - *Development and content of the metropolitan transportation plan... (c) The MPO shall review and update the transportation plan at least every four years in air quality nonattainment and maintenance areas...*

TIPs: 23 CFR 450.324 - *Development and content of the transportation improvement program (TIP). (a) ... The TIP shall ...be updated at least every four years, ... The TIP expires when the FHWA/FTA approval of the STIP expires....*

Conformity Cycle for Plans: 40 CFR § 93.104 - *Frequency of conformity determinations...(b) Frequency of conformity determinations for transportation plans...(3) The MPO and DOT must determine the conformity of the transportation plan (including a new regional emissions analysis) no less frequently than every four years...*

Conformity Cycle for TIPs: *(c) Frequency of conformity determinations for transportation improvement programs... (3) The MPO and DOT must determine the conformity of the TIP (including a new regional emissions analysis) no less frequently than every four years...*

2. Modeling

A review of the modeling methodology and assumptions applied in the conformity analysis is presented in this chapter, beginning with an overview of the general approach and the determination of the analysis years and motor vehicle emission budgets applicable for Hampton Roads. Then, in turn, reviews of the key input data and specific assumptions applied in each step of the modeling process (transportation modeling, emission factor modeling, and emission modeling) are presented.

2.1 General Approach

Emissions are generally calculated as the product of vehicle activity and an emission factor corresponding to that vehicle class and activity. Emission factors are typically expressed in units of grams per mile (effectively, grams of pollutant emitted per vehicle-mile-traveled), consistent with federal new vehicle exhaust emission standards that are expressed on a grams per mile basis. Estimates for regional emissions, therefore, typically are generated as the product of VMT (by speed, roadway class, vehicle class etc.) estimated with corresponding emission factors.

Three separate models are typically applied in the development of the regional emission forecasts for conformity analyses:

1) a regional travel demand forecasting model,
2) the latest EPA-approved model to generate forecasts for regional fleet-average emission factors, and
3) a post-processor designed to combine the results from the first two models and generate estimates for regional total emissions for each pollutant and year as required for the conformity analysis.

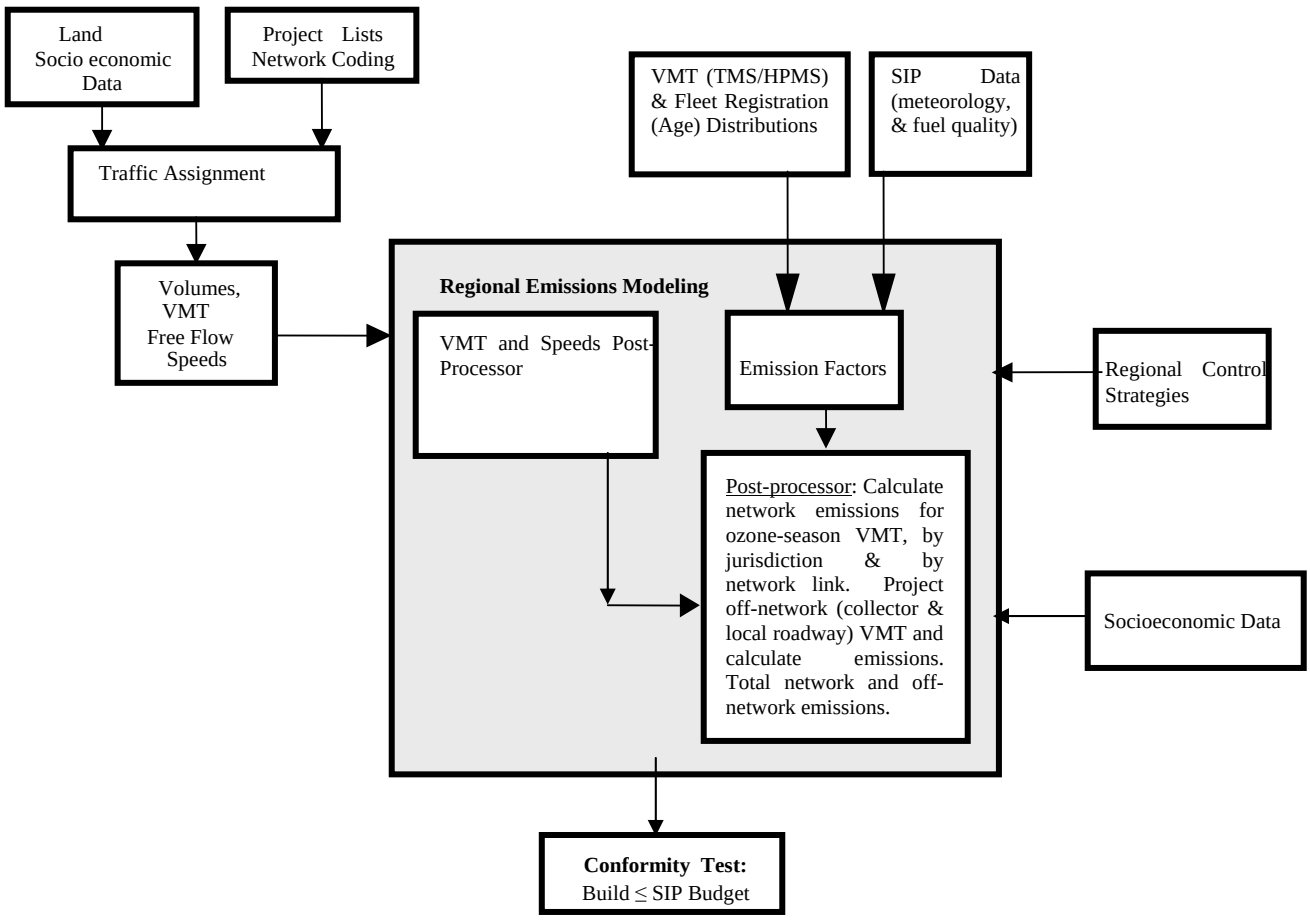
Exhibit 2-1 below presents the overall process. First, as shown on the left side of the exhibit, forecasts for travel demand for each year being modeled in the conformity analysis are developed. Key inputs for this step include the latest available socioeconomic forecasts and project lists. The latter are applied to update the regional transportation networks as appropriate for changes to the Plan and Program. The regional transportation networks include both existing and new regionally significant facilities, i.e. all interstates, freeways, expressways, principal arterials, and minor arterials as specified in the Plan and Program and expected to be open to traffic by the forecast year to be modeled for the conformity analysis. Separate networks are developed for each of the specific forecast years needed for the conformity analysis.

Concurrent with the development of travel demand forecasts, and as shown on the right side of the exhibit, emission factors (in unit of grams per mile) are generated using the latest EPA-approved emission factor model (MOBILE6.2)[75] for each pollutant and forecast year. The factors are generally tabulated by speed, vehicle class, roadway class

[75] As noted later in this chapter, on March 2, 2010, EPA has released a next generation emission model (MOVES2010, updated in August 2010 as MOVES2010a) that is planned as the replacement for the MOBILE6.2 model that is currently in use. EPA indicated that a two-year grace period applies for conformity purposes.

(or facility type), and, to allow for possible differences in fuel quality or emission control programs, jurisdiction. Key region-specific inputs include vehicle age distributions, VMT distributions, fuel quality data and meteorological data.

Exhibit 2-1: Conformity Analysis Process



Next, regional total emissions are calculated in the post-processor as the total of three major components: 1) network emissions, 2) off-network emissions, and 3) military base contributions.

Network emissions are calculated based on traffic forecasts generated for the regional network by the travel demand model and fleet-average emission factors.

Emissions for traffic operating on “off-network” facilities (collectors and local streets) that are not included in the regional transportation model networks are estimated based on VMT generated by a simple growth model to the modeled year from base year traffic counts. Estimates for vehicle travel were also developed for the portion of Gloucester County that are within the designated maintenance area but are not (at least as yet) included in the regional network model. Fleet-average emission factors as applied for the on-road network are also applied with the estimated off-road network VMT to generate estimates for off-network emissions.

Emissions for mobile sources operating on military facilities are taken as specified in the applicable SIP revision (maintenance plan)[76].

The post-processor calculations are repeated for each analysis year as needed. Emission budget tests as described in the previous chapter are then applied for each analysis year to demonstrate conformity. Additional detail for each of the modeling steps is provided below.

2.2 Analysis Years and Budgets

Exhibit 2-2 presents the years selected for modeling for this conformity analysis and the associated motor vehicle emission budgets as specified in the maintenance plan. The budgets listed in the table were generated using the US EPA MOBILE6.2 model.

Exhibit 2-2: Analysis Years and Budgets

Year	**Regional Emission Budgets** *(tons per ozone season weekday)*	
	NOx	**VOC**
2011*	50.387	37.846
2018*	31.890	27.574
2028	31.890	27.574
2034	31.890	27.574

** Budgets specified in 72 FR 30490, effective June 1, 2007.*

The years selected for analysis are consistent with the requirements of Section 93.118 of the conformity rule, which requires that years selected for the regional conformity analysis include the years for which budgets are established, the horizon year of the transportation plan, and an interim year such that analysis years are no more than ten years apart.

For this analysis, the years 2011 and 2018 were selected as they are years for which the maintenance plan specifies budgets. The year 2034 was selected as the horizon year for the transportation plan. To meet the interim year requirement (ten-year limit), the year 2028 was also selected.

Since 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", the 2018 budgets as listed above are also applicable for the subsequent years (2028 and 2034).

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[76] Hampton Roads Maintenance Plan for the 1997 Eight-Hour Ozone Standard, as previous referenced. See US EPA, 72 FR 30490, 40 CFR Parts 52 and 81 [EPA–R03–OAR–2006–0919; FRL–8320–9], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory*, Final Rule, effective June 1, 2007.
See: http://edocket.access.gpo.gov/2007/E7-10581.htm.

2.3 Transportation Demand Forecasting (TP+ Model)

The Hampton Roads regional traffic model is based on the TP+ transportation model, which is a suite of programs implementing a traditional four-step transportation model that includes trip generation, trip distribution, mode split and traffic assignment. The Hampton Roads regional traffic model covers the Counties of Gloucester (southern portion), Isle of Wight, James City, and York, as well as the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Williamsburg, and Virginia Beach. The model satisfies the requirements enumerated in 40 CFR 93.110 as well as the related requirements in 40 CFR 93.122 as summarized below.

The model was validated and calibrated for 2003 traffic volumes and land use conditions [40 CFR 93.122(b)(1)(i)][77].

Consistent with the requirements of federal conformity rule, all regionally significant projects in service or open to traffic in the year of analysis are included in the modeling [40 CFR 93.122(a)]. Roadway data input by the user (e.g., road segment length, capacity, number of lanes, and free-flow speeds by facility type) are used to create a representation of the regional transportation system for each analysis year, which includes all regionally significant projects identified for the Plan and TIP. A transportation system network is developed for all motorized modes of travel including single-occupant vehicle, high or multi-occupant vehicle (HOV), bus transit, and light rail transit. Following network development, travel time and cost estimates for all networks modeled are tabulated for use in subsequent model steps.

Trip making activity is estimated in the trip generation and trip distribution steps. Trip generation uses land use information aggregated by traffic analysis zone (TAZ), estimated trip rates, and standard equations to estimate the number of trips that will be generated by and attracted to each TAZ. The TAZ trip data are then used in the trip distribution step that links trip origins with trip destinations to create trip tables, which are disaggregated for work and non-work trip purposes. Trips that leave or pass through the Hampton Roads region were also estimated, using observed 2000 traffic counts at major exit points of the region, and expanded based on forecast traffic counts at those locations in future years.

Trip tables from trip distribution along with network-based travel time and cost data [40 CFR 93.122(b)(1)(v, vi)] are input to the mode split step to estimate trip tables by trip purpose and mode. In the mode split step, nested-logit equations are applied to allocate trips between auto and transit modes. Individual trip tables are created for auto and transit modes. Prior to traffic assignment, trip tables are processed to apply standard auto occupancy rates, convert the tables from model-based production-attraction format to standard origin-destination format, and aggregate results.

Finally, in the traffic assignment step, the trip tables are loaded onto the appropriate highway or transit network and the model run to produce forecasts for traffic volumes for each roadway or transit link. Highway assignment utilizes a capacity restraint formula to

[77] Documentation relating to the validation and calibration process may be obtained from VDOT Transportation and Mobility Planning.

simulate congestion effects on the roadway system [40 CFR 93.122(b)(1)(iv)]. The model makes route decisions based upon the estimated level of roadway congestion, redirecting trips to less congested routes until equilibrium is achieved (i.e., when shifting trips to alternative routes will no longer realize any time savings).

Output from the highway assignment is a network file that includes the assigned roadway volumes for each roadway link. Transit assignment is based upon best available route and does not have a modeled congestion process. The assigned volumes are applied to generate VMT estimates.

This overall modeling process is applied for each analysis year. Appendix B presents resulting forecasts by jurisdiction. Key inputs to the network model are reviewed below.

2.3.1 Socioeconomic Forecasts

The HRTPO developed the socioeconomic data to be used in the conformity analysis using the Regional Economic Models, Inc. (REMI) econometric model. The REMI model is a conjoined input-output and econometric model widely used by local, state and federal governments, colleges and universities, consulting firms and others for economic forecasting including impact analyses.

Following standard practice for the development of socioeconomic forecasts, the REMI model was applied to develop “control totals” for key parameters such as population and employment for the Hampton Roads area. The HRTPO then sub-allocated the regional control totals generated with the REMI model to the local or jurisdiction level for the Hampton Roads area. The sub-allocations were reviewed by each locality and adjustments were made where appropriate [40CFR93.110; 40CFR93.122(b)(1)(iii)].

Participants in this process included the Counties of Gloucester, Isle of Wight, James City, and York, as well as the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Williamsburg, and Virginia Beach. Representatives of these jurisdictions distributed the regional population and employment projections to the TAZs used in the transportation model, covering the LRTP Study Area.

Exhibit 2-3 presents the socioeconomic forecasts underlying the travel demand forecasts developed for this conformity analysis. The forecasts (including interim years and sub-allocations as appropriate) represent the latest projections available and approved for use with the 2034 LRTP [40CFR93.110(a,b); 40CFR93.122(b)(1)(ii)]. More detailed data are presented in Appendix A.

2.3.2 Transit Service

Transit operating policies (including fares and service levels) and modeling for transit (ridership) have not changed significantly since the previous conformity determination [40 CFR 93.110(c) and (d)]. Light rail service is included in the modeling networks. Transit service and fares as well as road and bridge tolls are addressed in more detail in supporting documentation for the Plan and associated modeling. 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 Hampton Roads Transit (HRT) and Williamsburg Area Transportation Authority (WATA) websites[78].

Exhibit 2-3: Socioeconomic Forecasts*

Year	Hampton Roads LRTP Study Area			
	Population	**Households**	**Automobiles**	**Employment**
2011	1,687,548	630,049	1,307,269	1,035,097
2018	1,787,236	672,902	1,449,002	1,085,370
2028	1,929,640	734,147	1,651,496	1,157,284
2034	2,015,100	770,900	1,773,000	1,200,400

* *The projections for 2034 were adopted by the Hampton Roads TPO in June 2007. The projections for other years were developed by interpolation, by TAZ, between 2000 and 2034, by TPO staff.*

In brief, local transit fares have not changed (or not changed significantly) since the last conformity analysis for either HRT or WATA. For HRT, the current single ticket fare for local bus and the recently introduced TIDE light rail service is $1.50; for seniors (60 and over) and disabled, a reduced fare of $0.75 applies. A day pass (the Go Pass) was introduced in 2008 with a fare of $3.50 for a one-day pass. In keeping with the Americans with Disabilities Act (ADA), door-to-door service is also available for those unable to use bus at a fare of $3.00 per one-way trip.

For WATA, the fare for a one-way trip is $1.25; for seniors (60 and over) and disabled, a reduced fare of $0.50 applies. An all-day pass (for unlimited trips) is also available for a fare of $1.50. In keeping with the ADA, door-to-door service is also available for those unable to use bus at a fare of $2.00 per one-way trip.

Finally, express bus service modeling includes the "Max" service, with fares currently $3.00 one-way, converted to constant 2000 dollars.

2.3.3 Project Lists & Regional Network Development

The federal conformity rule at 40 CFR 93.122(a) requires that "*General requirements. (1) The regional emissions analysis … for the transportation plan, TIP… must include all regionally significant projects expected in the nonattainment or maintenance area. The analysis shall include FHWA/FTA projects proposed in the transportation plan and TIP and all other regionally significant projects which are disclosed to the MPO as required by Sec. 93.105."*

[78] See www.hrtransit.org and www.williamsburgtransport.com, respectively.

All regionally significant and/or federally funded or approved projects identified in the Plan and Program were incorporated into the respective highway networks for each analysis year. The project list for the Plan and TIP was subjected to Interagency Consultation Group review (pursuant to Section 93.105 and the corresponding state regulation) as documented in the chapter on consultation.

Each network is a representation of the region's highway system as it is likely to appear by the specified year. Similarly, the transit network for each scenario and analysis year is coded to estimate transit volumes and ridership.

Regionally significant projects are defined in the federal conformity rule and generally include arterials and higher level facilities (freeways, expressways, interstates) that serve a regional function and are typically coded in the transportation model network for transportation analyses. Minor arterials, collectors, or local streets are usually only coded in the model if they enhance the capability of the traffic model to route trips on the network.

Since regional emission analyses are performed for a number of analysis years as needed for the conformity determination, the transportation networks were coded to include all regionally significant projects specified or included in the Plan and Program and open to traffic in each of the selected analysis years. Appendix E presents the project list for modeling (i.e., regionally significant changes to the existing roadway and transit system) including years modeled as open to traffic.

Projects were coded in the networks based on the first analysis year in which the project would be open to traffic or operational. For the most part, project opening dates were determined at the District level based upon detailed project information provided by either the localities or the associated VDOT project manager. In cases where that level of detail in scheduling was not available, reasonable assumptions were made. For example, completion dates where otherwise not available were estimated by adding three years to the advertisement date for major projects. Shorter times were allocated as appropriate for the completion of minor projects.

2.3.4 Adjustments for Gloucester County

The federal conformity rule at 40 CFR 93.122(a)(7) requires that "*Reasonable methods shall be used to estimate nonattainment or maintenance area VMT on off-network roadways within the urban transportation planning area, and on roadways outside the urban transportation planning area.*"

The Hampton Roads TP+ travel demand model covers the Hampton Roads MPO (TPO) study area. Although only a portion of Gloucester County is within the study area, the remainder of the county is also in the maintenance area and must be included in the conformity analysis. Therefore, for the off-network area within Gloucester County, traffic counts and forecasts as needed were extracted from the VDOT Statewide Planning System database.

The specific data extracted included the roadway functional class, posted speed, link distance, and traffic count / forecast for each analysis year for all links that were not inside the network area. Estimates of vehicle-miles-traveled (VMT) were computed by

multiplying link length by the traffic count forecast for each link. These off-network results were then added to the network VMT estimates produced by the regional travel demand model to obtain the regional forecasts needed, covering the entire County.

2.3.5 Treatment of Off-Network Facilities (Local and Collector Roads)

Local and collector roadways are not typically coded in regional transportation model networks and, consistent with that practice, are not coded in the TP+ regional network developed for Hampton Roads. However, the travel demand model output is not directly adjusted to account for traffic on these facilities. Instead, traffic and emissions for these facilities are addressed in the post-processor and, accordingly, documented with the post-processor.

See Section 2.5 on post-processing for more information on the adjustments for off-network facilities.

2.3.6 Optional Off-line Analyses

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

Off-line analyses for Hampton Roads would include transit bus replacements, Congestion Mitigation and Air Quality (CMAQ) funded projects, van pools, and park-and-ride lots. However, since these adjustments were not needed to demonstrate conformity for this conformity analysis, they were not applied.

2.4 Emission Factor Forecasting

This section presents the selection of the latest emission model as well as key inputs for that model.

2.4.1 Latest Emission Model

The federal conformity rule at 93.111(a) requires the use of the latest emission model as follows: "*The conformity determination must be based on the latest emission estimation model available.*"[79] However, when EPA issues a new model, a grace or transition period applies in which the previous version of the model may still be applied, per the federal conformity rule at 93.111(c) which states: "*Transportation plan and TIP conformity analyses for which the emissions analysis was begun during the grace period or before the Federal Register notice of availability of the latest emission model may continue to use the previous version of the model.*"

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

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[80]. The EPA notice indicated that a two-year grace period (ending March 2, 2012) applies for use of the new model in regional emissions analyses for transportation conformity determinations. Therefore, for regional conformity analyses initiated before or within the two-year grace period, the MOBILE6.2 model (the model previously designated as the official model by EPA) may continue to be applied.

Since this conformity analysis for Hampton Roads is being initiated within the two-year grace period, the MOBILE6.2 model may be applied. Given that the applicable budgets for the Hampton Roads region were developed based on the MOBILE6.2 model, and that this model has been applied successfully to meet those budgets in previous conformity analyses for the region, it was selected for application for this conformity analysis. The MOVES model may be applied in future analyses once appropriate steps have been taken, within the two-year grace period, to review and update as needed the applicable budgets[81].

2.4.2 MOBILE Model Inputs

The MOBILE6.2 model may be applied to generate estimates for historic, current and future emission factors for regional on-road motor vehicle fleets. Fleet average emission factors may be generated for:

- multiple pollutants, including hydrocarbons, carbon monoxide, nitrogen oxides, exhaust particulate, hazardous air pollutants (HAPs), and carbon dioxide,
- multiple vehicle and fuel-types, including gasoline, diesel, and natural gas-fueled cars, trucks, buses and motorcycles, and
- calendar years between 1952 and 2050.

Modeled emission factors also vary with age (registration distribution by vehicle class), humidity, ambient temperatures, detailed fuel specifications, and operation (speed, by roadway functional class).

Emission factors are generated by the model in units of grams of pollutant per vehicle mile of travel. Emission forecasts are obtained (as noted previously) as the product of these estimated emission factors with corresponding VMT forecasts.

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[80] 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. The model name or version as initially released was "MOVES2010", and an updated version "MOVES2010a" was released in August 2010. To allow for pending future revisions to the model and any associated revisions to the model name, the current version of the model is referenced here generically as "MOVES". 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.

[81] A separate process to review and update as appropriate (using MOVES) the motor vehicle emission budgets specified in the currently applicable SIP revision (maintenance plan) is planned. This budget review and update process would need to be completed before the new or revised budgets could be applied for the region in future conformity analyses.

For this analysis, both national default data and region-specific inputs were used with MOBILE6.2. Region-specific inputs include meteorological data, emission control programs, and on-road fleet registration and traffic distribution data, which are summarized in turn below. A sample of a MOBILE6.2 input file applied in this conformity analysis is provided in Appendix C.

2.4.2.1 Ambient Conditions

The federal conformity rule at 93.122(a)(6) requires that "*The ambient temperatures used for the regional emissions analysis shall be consistent with those used to establish the emissions budget in the applicable implementation plan.…*" [82].

Exhibit 2-4 presents average hourly ambient temperatures, hourly relative humidities, and barometric pressure data as presented in the Technical Support Document for the applicable implementation (maintenance) plan.

The hourly data for ambient temperature and relative humidity along with the average daily value for barometric pressure were applied in this conformity analysis, consistent with the maintenance plan.

2.4.2.2 Emission Control Programs

Exhibit 2-5 lists emission control programs in effect for the Hampton Roads area as input to the MOBILE6.2 model. The locality-specific MOBILE input parameters are consistent with the approved maintenance SIP and based on the latest planning assumptions.

Exhibit 2-5: Emission Control Programs

Programs	2011	2018	2028	2034
Reformulated Gasoline*	Yes	Yes	Yes	Yes
RVP (PSI): • All jurisdictions but Gloucester and Isle of Wight • Gloucester and Isle of Wight	 6.8 8.4	 6.8 8.4	 6.8 8.4	 6.8 8.4
2007 HDDV Program	Yes	Yes	Yes	Yes
NLEV Early Implementation	Yes	Yes	Yes	Yes
Tier 2 Standards	Yes	Yes	Yes	Yes

**Except for the counties of Gloucester and Isle of Wight, which use conventional gasoline.*

Emission control programs for Hampton Roads as modeled for this analysis include:

- Reformulated Gasoline (RFG), and Gasoline Reid Vapor Pressure (RVP): RFG was modeled for all jurisdictions within the maintenance area with the exception of the Counties of Gloucester and Isle of Wight, which use conventional gasoline. RFG benefits were modeled for all analysis years after 1996, consistent with Virginia regulations requiring RFG and the Maintenance Plan.

[82] Federal Conformity Rule, 40 CFR 93.122 *Procedures for Determining Regional Transportation-Related Emissions*: http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.122.htm

RFG Phase 2, which is currently in effect, has an approximate Reid vapor pressure (RVP) of 6.8 pounds per square inch (PSI). For the Counties of Gloucester and Isle of Wight, the RVP for conventional gasoline was taken as 8.4 PSI.

Exhibit 2-4: Ambient Conditions - Ozone Season

Average Hourly Meteorological Data				
Time (EDT)	Temperature (F)	Dew Point (F)	Relative Humidity (%)	Pressure (In)
6:00 AM	71.77	66.4	83.9	30.017
7:00 AM	75.2	67.7	78.1	30.029
8:00 AM	77.8	68.09	72.7	30.033
9:00 AM	81.07	67.22	63	30.034
10:00 AM	83.04	66.91	58.5	30.034
11:00 AM	84.34	65.99	54.5	30.027
12:00 PM	85.79	65.04	50	30.019
1:00 PM	86.59	64.81	48.9	30.009
2:00 PM	87.4	64.09	46.6	29.996
3:00 PM	87.27	63.82	46	29.985
4:00 PM	87.6	63.22	44.7	29.978
5:00 PM	87.01	63.86	46.7	29.974
6:00 PM	85.51	63.99	49.1	29.973
7:00 PM	83.21	65.42	55.9	29.982
8:00 PM	79.39	68.16	69	29.99
9:00 PM	77.9	68.5	73.3	30.004
10:00 PM	77.02	68.08	74.5	30.006
11:00 PM	75.38	67.87	78.1	30.007
12:00 AM	73.31	66.4	79.8	30.006
1:00 AM	72.91	66.31	80.7	30.004
2:00 AM	72.71	66.49	81.7	29.997
3:00 AM	71.9	63.8	78.1	29.995
4:00 AM	71.2	65.5	82.8	29.995
5:00 AM	70.73	65.49	84.3	30.006
	Avg Min T	70.51		
	Avg Max T	88.01		
	Avg Pres	30.004		

Source: VDEQ, "Technical Support Document for the Redesignation Request and Maintenance Plan for Hampton Roads 8-Hour Ozone Nonattainment Area, Final", as approved June 1, 2007, 72 FR 30490. See Table 4.1-2 on age 64. Reproduced with permission.

- 2007 Heavy Duty Diesel Vehicle (HDDV): The 2007 Heavy Duty Diesel Vehicle (HDDV) program including the implementation of ultra low sulfur diesel was included in the generation of emission factors for the conformity analysis. From the regulatory announcement[83]:

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

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.

- National Low Emission Vehicle (NLEV) Program Early Implementation: Early implementation of the NLEV program was included in the 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 throughout Virginia.

- 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[84]:

  Highlights of the Tier2/Gasoline Sulfur Program
  For cars, and light trucks, and larger passenger vehicles, the program will—

[84] US EPA, 65 FR 6698, 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*, February 10, 2000. Published in four sections spanning pages 6697-6870. See:
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6697-6746
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6747-6796
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6797-6846
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6847-6870

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

For commercial gasoline, the program will—

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

…

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

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

2.4.2.3 Fleet Distribution Data

Fleet data are input into the MOBILE6.2 model for vehicle age distributions by vehicle class and VMT distributions by vehicle and roadway class. Separate distributions are applied for each jurisdiction in the region.

Exhibit 2-6 presents a sample of vehicle registration distribution data (relative vehicle population by vehicle "age"[85] and class). The sample is for the entire regional on-road motor vehicle fleet in Hampton Roads in 2008, which is not applied directly in the conformity analysis. For greater accuracy, the conformity analysis was instead conducted using the corresponding age distributions developed for each individual jurisdiction within the Hampton Roads region.

[85] Defined by EPA as the calendar year minus model year, plus one. See: US EPA, *User's Guide to MOBILE6.1 and MOBILE6.2 Mobile Source Emission Factor Model*, EPA420-R-03-010, August 2003, p.95 (Section 2.8.7.1 *Distribution of Vehicle Registrations*)

The data for each jurisdiction in the region as well as the regional set presented here were developed by the VDEQ in support of the preparation of the federally-required 2008 Periodic Emission Inventory ("2008 PEI"). The VDEQ developed the update to the registration distribution data using detailed vehicle identification number (VIN) data for July 1, 2008 for all jurisdictions in the Commonwealth. The jurisdictional data for Hampton Roads so developed were incorporated into the MOBILE6.2 input files for this conformity analysis, consistent with but updating the data applied in the 2007 maintenance plan for the region.

Exhibit 2-6: 2008 Vehicle Registration Distributions for Hampton Roads

MOBILE Model	**Vehicle Age (Calendar Year - Model Year +1)**									
Composite Vehicle Class*	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
(Number, Abbreviation, Description)	**21**	**22**	**23**	**24**	**25+**					
1. LDV - Light-Duty Vehicles (Passenger Cars)	0.0471	0.0672	0.0626	0.0638	0.0646	0.0677	0.0669	0.0637	0.0698	0.0575
	0.0518	0.0505	0.0424	0.0441	0.0357	0.0298	0.0244	0.0194	0.0164	0.0132
	0.0109	0.0094	0.0073	0.0053	0.0084					
2. LDT1 - Light-Duty Trucks 1	0.0348	0.0000	0.0559	0.0722	0.0227	0.0646	0.0589	0.0546	0.0378	0.0355
(0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)	0.0305	0.0311	0.0540	0.0244	0.0178	0.0175	0.0181	0.0187	0.0162	0.0418
	0.0793	0.0814	0.0511	0.0277	0.0534					
3. LDT2 - Light-Duty Trucks 2	0.0395	0.0653	0.0626	0.0749	0.0781	0.0722	0.0774	0.0649	0.0695	0.0556
(0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW)	0.0542	0.0477	0.0372	0.0349	0.0315	0.0252	0.0178	0.0159	0.0132	0.0135
	0.0123	0.0105	0.0094	0.0060	0.0108					
4. LDT3 - Light-Duty Trucks 3	0.0443	0.0676	0.0759	0.0795	0.0985	0.0952	0.0796	0.0669	0.0610	0.0624
(6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW*)	0.0364	0.0339	0.0329	0.0363	0.0285	0.0185	0.0139	0.0087	0.0117	0.0122
	0.0098	0.0073	0.0070	0.0047	0.0076					
5. LDT4 - Light-Duty Trucks 4	0.0472	0.1382	0.0806	0.1090	0.1361	0.0843	0.0471	0.0543	0.0572	0.0730
(6,001-8,500 lbs. GVWR, 5,751 lbs. and greater ALVW)	0.0501	0.0431	0.0162	0.0131	0.0121	0.0083	0.0042	0.0026	0.0043	0.0048
	0.0056	0.0029	0.0015	0.0014	0.0031					
6. HDV2B Class 2b Heavy-Duty Vehicles	0.0432	0.0602	0.0913	0.0764	0.0957	0.0933	0.0660	0.0678	0.0691	0.0568
(8,501-10,000 lbs. GVWR)	0.0274	0.0428	0.0324	0.0342	0.0209	0.0166	0.0143	0.0093	0.0120	0.0152
	0.0112	0.0080	0.0113	0.0092	0.0155					
7. HDV3 - Class 3 Heavy-Duty Vehicles	0.0557	0.0591	0.1320	0.1044	0.0719	0.0636	0.0619	0.0620	0.0614	0.0638
(10,001-14,000 lbs. GVWR)	0.0266	0.0270	0.0186	0.0277	0.0192	0.0137	0.0125	0.0077	0.0148	0.0146
	0.0197	0.0154	0.0156	0.0111	0.0197					
8. HDV4 - Class 4 Heavy-Duty Vehicles	0.0296	0.0559	0.0531	0.0480	0.0432	0.0613	0.0527	0.0596	0.0722	0.0754
(14,001-16,000 lbs. GVWR)	0.0341	0.0765	0.0391	0.0490	0.0475	0.0223	0.0240	0.0195	0.0249	0.0289
	0.0220	0.0168	0.0121	0.0110	0.0214					
9. HDV5 - Class 5 Heavy-Duty Vehicles	0.0517	0.0848	0.1079	0.1326	0.0919	0.0693	0.0369	0.0369	0.0567	0.0649
(16,001-19,500 lbs. GVWR)	0.0193	0.0815	0.0226	0.0341	0.0270	0.0149	0.0110	0.0088	0.0072	0.0077
	0.0061	0.0094	0.0061	0.0044	0.0066					
10. HDV6 - Class 6 Heavy-Duty Vehicles	0.0329	0.0815	0.0778	0.0790	0.0787	0.0440	0.0544	0.0505	0.0774	0.0697
(19,501-26,000 lbs. GVWR)	0.0508	0.0350	0.0282	0.0463	0.0167	0.0217	0.0178	0.0178	0.0171	0.0144
	0.0124	0.0178	0.0153	0.0151	0.0275					
11. HDV7 - Class 7 Heavy-Duty Vehicles	0.0204	0.0527	0.0429	0.0422	0.0468	0.0281	0.0404	0.0408	0.0556	0.0492
(26,001-33,000 lbs. GVWR	0.0601	0.0348	0.0334	0.0745	0.0440	0.0222	0.0267	0.0366	0.0482	0.0323
	0.0411	0.0390	0.0274	0.0260	0.0345					
12. HDV8 - Class 8a Heavy-Duty Vehicles	0.0267	0.0768	0.0382	0.0398	0.0330	0.0298	0.0485	0.0605	0.0633	0.0700
(33,001-60,000 lbs. GVWR)	0.0633	0.0569	0.0374	0.0676	0.0378	0.0334	0.0227	0.0231	0.0302	0.0283
	0.0267	0.0251	0.0175	0.0231	0.0203					
13. HDV8B Class 8b Heavy-Duty Vehicles	0.0215	0.0786	0.0772	0.0664	0.0580	0.0458	0.0348	0.0776	0.0945	0.0723
(>60,000 lbs. GVWR)	0.0647	0.0510	0.0502	0.0481	0.0363	0.0230	0.0154	0.0160	0.0131	0.0143
	0.0120	0.0078	0.0072	0.0076	0.0067					
14. HDBS - School Buses	0.0026	0.0068	0.0047	0.0047	0.0350	0.0575	0.0178	0.0606	0.0721	0.0669
	0.0789	0.0418	0.0706	0.0664	0.0235	0.0355	0.0382	0.0486	0.0805	0.0711
	0.0105	0.0303	0.0314	0.0256	0.0183					
15. HDBT - Transit and Urban Buses	0.0324	0.0333	0.0182	0.0373	0.0280	0.0266	0.0506	0.0235	0.0200	0.0337
	0.0258	0.0129	0.0222	0.0706	0.0448	0.0608	0.0249	0.0262	0.0324	0.0626
	0.0710	0.0870	0.0586	0.0435	0.0528					
16. MC - Motorcycles (All)	0.0578	0.1231	0.1274	0.1053	0.0847	0.0957	0.0705	0.0555	0.0447	0.0362
	0.0249	0.0196	0.0203	0.0157	0.0146	0.0120	0.0087	0.0063	0.0060	0.0065
	0.0053	0.0073	0.0109	0.0111	0.0297					

* *EPA footnote for the vehicle class definitions*: ALVW = Alternative Loaded Vehicle Weight: The adjusted loaded vehicle weight is the numerical average (GVWR) of the vehicle curb weight and the gross vehicle weight rating (GVWR)

Source for the vehicle registration data: VDEQ Email to VDOT regarding "2008 Vehicle Registration Data (more)", September 9, 2009. Sums normalized in MOBILE model execution.

Source for the vehicle class definitions: *Appendix B, MOBILE6 Input Data Format Reference Tables, Table 1 - Composite Vehicle Classes for Vehicle Registration Data and Vehicle Miles Traveled Fractions (REG DIST and VMT FRACTIONS Commands)* from US EPA, *User's Guide to MOBILE6.1 and MOBILE6.2 Mobile Source Emission Factor Model,* EPA420-R-03-010, August 2003

Exhibit 2-7 presents VMT distributions by vehicle and federal roadway functional class. The distributions were generated using TMS/HPMS data compiled by VDOT[86]. Similar to the registration distribution data, the VMT distribution data were developed in support of the preparation of the federally-required 2008 PEI.

2.5 Post-Processing

The post-processor generates regional total emission forecasts based on estimates developed for three separate sub-categories, namely:

1) regional network VMT and emissions, which are generated using the VMT and emission factor output from the regional travel demand and emission factor modeling steps as described above,

2) "off-network" VMT and emissions, for which traffic (VMT and speeds) expected for roadways that are not typically coded in regional transportation model networks (i.e., local and collector roadways) are first projected and the results combined with the emission factors generated previously to generate emission estimates for these minor facilities, and

3) military base contributions to emissions, as specified in the applicable SIP revision (maintenance plan[87]). Following the procedure in the maintenance plan, the military base contributions are added without adjustment in the post-processor to the estimate for total regional emissions.

The post-processor is based upon transportation engineering methods presented in the 2000 *Highway Capacity Manual (HCM)* and *National Cooperative Highway Research Program (NCHRP) Report 387*.

While the development of estimates for VMT and emissions factors for traffic on the regional network has been presented, the calculation of emissions for the regional network involves two additional adjustments: i) for congested speeds, and ii) for seasonal traffic levels. These are reviewed in turn below.

The development of estimates for traffic and emissions on off-network facilities is then reviewed. This section concludes with a presentation of the hourly profiles that were applied for the VMT tables included in the appendices.

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86 VDOT, *Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester*, September 2009.

87 Hampton Roads Maintenance Plan for the 1997 Eight-Hour Ozone Standard, as previous referenced. See US EPA, 72 FR 30490, 40 CFR Parts 52 and 81 [EPA–R03–OAR–2006–0919; FRL–8320–9], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory*, Final Rule, effective June 1, 2007.
See: http://edocket.access.gpo.gov/2007/E7-10581.htm.

Exhibit 2-7: 2008 VMT Distribution by Roadway Functional Class for Hampton Roads

FHWA Roadway Functional Class		Hampton Roads Ozone Maintenance Area Daily VMT Distribution																
		LDV	LDT1	LDT2	LDT3	LDT4	HDV2b	HDV3	HDV4	HDV5	HDV6	HDV7	HDV8a	HDV8b	HDBS	HDBT	MC	SUM
1	Rural Interstate	0.38141	0.08791	0.29267	0.08912	0.04098	0.03405	0.00335	0.00275	0.00205	0.00760	0.00897	0.00975	0.03477	0.00172	0.00079	0.00211	1.00
2	Rural Principal Arterial	0.37691	0.08688	0.28923	0.08807	0.04050	0.03785	0.00373	0.00306	0.00228	0.00844	0.00997	0.01083	0.03865	0.00192	0.00088	0.00080	1.00
6	Rural Minor Arterial	0.38059	0.08773	0.29205	0.08893	0.04089	0.03373	0.00332	0.00273	0.00203	0.00753	0.00889	0.00965	0.03445	0.00171	0.00079	0.00498	1.00
7	Rural Major Collector	0.41055	0.09464	0.31505	0.09593	0.04411	0.01177	0.00116	0.00095	0.00071	0.00263	0.00310	0.00337	0.01202	0.00060	0.00027	0.00314	1.00
8	Rural Minor Collector	0.41590	0.09587	0.31915	0.09718	0.04469	0.00805	0.00079	0.00065	0.00049	0.00180	0.00212	0.00231	0.00822	0.00041	0.00019	0.00218	1.00
9	Rural Local	0.39413	0.09085	0.30245	0.09209	0.04235	0.02347	0.00231	0.00190	0.00142	0.00524	0.00619	0.00672	0.02397	0.00119	0.00055	0.00517	1.00
11	Urban Interstate	0.40916	0.09431	0.31396	0.09560	0.04396	0.01267	0.00125	0.00102	0.00076	0.00283	0.00334	0.00363	0.01294	0.00064	0.00030	0.00363	1.00
12	Urban Freeway/Expressway	0.40658	0.09372	0.31200	0.09500	0.04369	0.01456	0.00143	0.00118	0.00088	0.00325	0.00384	0.00417	0.01487	0.00074	0.00034	0.00375	1.00
14	Urban Principal Arterial	0.41686	0.09609	0.31989	0.09740	0.04479	0.00645	0.00064	0.00052	0.00039	0.00144	0.00170	0.00185	0.00658	0.00033	0.00015	0.00492	1.00
16	Urban Minor Arterial	0.41215	0.09500	0.31625	0.09630	0.04428	0.01000	0.00098	0.00081	0.00060	0.00223	0.00263	0.00286	0.01021	0.00051	0.00023	0.00496	1.00
17	Urban Collector	0.41485	0.09563	0.31835	0.09694	0.04458	0.00823	0.00081	0.00066	0.00050	0.00184	0.00217	0.00236	0.00840	0.00042	0.00019	0.00407	1.00
19	Urban Local	0.39980	0.09215	0.30678	0.09341	0.04296	0.01887	0.00186	0.00152	0.00114	0.00421	0.00497	0.00540	0.01926	0.00096	0.00044	0.00627	1.00
All Functional Classes		**0.41064**	**0.09465**	**0.31509**	**0.09594**	**0.04412**	**0.01129**	**0.00111**	**0.00091**	**0.00068**	**0.00252**	**0.00298**	**0.00323**	**0.01153**	**0.00057**	**0.00026**	**0.00448**	**1.00**

Source: *VDOT, "Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester", September 2009, Exhibit 29.*

2.5.1 Congested Speed Calculation

The post-processor estimates congested speeds using standard Bureau of Public Roads (BPR) formulae that are based upon free flow speeds, volumes and capacity[88]. Two forms of the BPR equation are applied:

1) for non-signalized roadway segments:

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

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

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

2.5.2 Seasonal Adjustments to Traffic

Exhibit 2-8 presents average ozone season weekday adjustment factors for the Hampton Roads area. The factors are applied to the forecast VMT to more accurately account for observed ozone (summer) season traffic levels.

Exhibit 2-8: Ozone Season Traffic Adjustment Factors

FHWA Roadway Functional Class		Average Ozone Season Weekday VMT Adjustment Factor
1	Rural Interstate	1.0582
2	Rural Principal Arterial	1.0602
6	Rural Minor Arterial	1.0765
7	Rural Major Collector	1.0798
8	Rural Minor Collector	1.0751
9	Rural Local	1.0004
11	Urban Interstate	1.0902
12	Urban Freeway/Expressway	1.0786
14	Urban Principal Arterial	1.0851
16	Urban Minor Arterial	1.1001
17	Urban Collector	1.1008
19	Urban Local	1.0854

Source: VDOT, "Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester", September 2009.

[88] Generally, free flow speed is taken here as 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 would be expected to e reduced. The free flow speeds used are consistent with those used in the TP+ model.

The tabulated factors were obtained as the average for the TMS/HPMS values reported for May through September (the summer ozone season) for the Hampton Roads area for 2008.

2.5.3 Adjustments for Off-Network Facilities (Local and Collector Roads)

The federal conformity rule at 40 CFR 93.122(a) requires that "*…Projects which are not regionally significant are not required to be explicitly modeled, but vehicle miles traveled (VMT) from such projects must be estimated in accordance with reasonable professional practice.*"

All regionally significant projects are included in the network modeling as summarized previously. However local and collector roadways are not typically coded in regional transportation model networks and are not coded in the TP+ regional network developed for Hampton Roads.

The post-processor was therefore designed to generate estimates for VMT for these minor facilities, projecting future traffic volumes using traffic count data for a base year and average annual growth rates applicable through the horizon year of the LRTP for the region. Speeds are taken from the VDOT Statewide Planning System (SPS) database or MOBILE model defaults. The base year VMT data for local and collector roads were obtained for 2009 from the VDOT TMS/HPMS database previously referenced. Tabulations of the VMT forecasts generated are presented in Appendix B.

Exhibit 2-9 presents forecast annual average growth rates for local and collector road VMT for the Hampton Roads area. As an approximation, the rates were taken as equivalent to the annual average growth rates reported with the socioeconomic data for auto ownership in Hampton Roads.

Exhibit 2-9: Annual Average Growth Rates for Local and Collector Road VMT

Jurisdiction	Annual Average Growth Rate
Chesapeake	1.69%
Gloucester	1.63%
Hampton	0.42%
Isle of Wight	2.54%
James City	2.50%
Newport News	1.07%
Norfolk	0.79%
Poquoson	1.16%
Portsmouth	0.62%
Suffolk	2.94%
Virginia Beach	0.86%
Williamsburg	1.37%
York	1.66%

2.5.4 Hourly Traffic Volumes

Exhibit 2-10 presents the hourly VMT distributions by vehicle class for the region. These profiles were applied in the generation of the VMT tables that are presented in Appendix B.

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

Hampton Roads Hourly VMT Distributions by Vehicle Class All FHWA Roadway Functional Classes																		
Hour	**LDV**	**LDT1**	**LDT2**	**LDT3**	**LDT4**	**HDV2b**	**HDV3**	**HDV4**	**HDV5**	**HDV6**	**HDV7**	**HDV8a**	**HDV8b**	**HDBS**	**HDBT**	**MC**	**Total for Hour**	**Percent of Daily**
0	0.41459	0.09557	0.31814	0.09687	0.04455	0.00842	0.00083	0.00068	0.00051	0.00188	0.00222	0.00241	0.00860	0.00043	0.00020	0.00410	1.00000	0.9552%
1	0.41017	0.09455	0.31476	0.09584	0.04407	0.01195	0.00118	0.00097	0.00072	0.00267	0.00315	0.00342	0.01220	0.00061	0.00028	0.00346	1.00000	0.6143%
2	0.40472	0.09329	0.31057	0.09457	0.04349	0.01626	0.00160	0.00131	0.00098	0.00363	0.00428	0.00465	0.01660	0.00082	0.00038	0.00285	1.00000	0.5130%
3	0.39574	0.09122	0.30366	0.09246	0.04252	0.02286	0.00225	0.00185	0.00138	0.00510	0.00603	0.00654	0.02335	0.00116	0.00053	0.00335	1.00000	0.4410%
4	0.39983	0.09217	0.30682	0.09343	0.04296	0.01941	0.00191	0.00157	0.00117	0.00433	0.00512	0.00556	0.01982	0.00098	0.00045	0.00447	1.00000	0.8194%
5	0.41000	0.09450	0.31461	0.09580	0.04405	0.01144	0.00113	0.00092	0.00069	0.00255	0.00301	0.00327	0.01168	0.00058	0.00027	0.00550	1.00000	2.3098%
6	0.41031	0.09457	0.31483	0.09587	0.04408	0.01130	0.00111	0.00091	0.00068	0.00252	0.00298	0.00323	0.01154	0.00057	0.00026	0.00524	1.00000	4.6178%
7	0.40881	0.09423	0.31369	0.09552	0.04392	0.01288	0.00127	0.00104	0.00078	0.00287	0.00339	0.00369	0.01316	0.00065	0.00030	0.00380	1.00000	5.9858%
8	0.40355	0.09303	0.30968	0.09430	0.04336	0.01702	0.00168	0.00138	0.00103	0.00380	0.00449	0.00487	0.01738	0.00086	0.00040	0.00317	1.00000	5.4590%
9	0.40099	0.09243	0.30770	0.09369	0.04309	0.01879	0.00185	0.00152	0.00113	0.00419	0.00495	0.00538	0.01919	0.00095	0.00044	0.00371	1.00000	4.9462%
10	0.40189	0.09265	0.30842	0.09391	0.04319	0.01809	0.00178	0.00146	0.00109	0.00404	0.00477	0.00518	0.01847	0.00092	0.00042	0.00372	1.00000	5.1546%
11	0.40365	0.09304	0.30974	0.09431	0.04337	0.01659	0.00163	0.00134	0.00100	0.00370	0.00437	0.00475	0.01694	0.00084	0.00039	0.00434	1.00000	5.6473%
12	0.40647	0.09370	0.31192	0.09498	0.04368	0.01440	0.00142	0.00116	0.00087	0.00321	0.00380	0.00412	0.01471	0.00073	0.00034	0.00449	1.00000	6.1765%
13	0.40601	0.09359	0.31155	0.09487	0.04362	0.01473	0.00145	0.00119	0.00089	0.00329	0.00388	0.00422	0.01504	0.00075	0.00034	0.00458	1.00000	6.1112%
14	0.40635	0.09366	0.31181	0.09494	0.04366	0.01431	0.00141	0.00116	0.00086	0.00319	0.00377	0.00409	0.01461	0.00072	0.00033	0.00513	1.00000	6.5444%
15	0.41017	0.09455	0.31474	0.09584	0.04407	0.01135	0.00112	0.00092	0.00068	0.00253	0.00299	0.00325	0.01158	0.00057	0.00026	0.00538	1.00000	7.3457%
16	0.41438	0.09552	0.31798	0.09682	0.04452	0.00820	0.00081	0.00066	0.00049	0.00183	0.00216	0.00235	0.00837	0.00042	0.00019	0.00530	1.00000	7.7849%
17	0.41846	0.09645	0.32110	0.09777	0.04496	0.00536	0.00053	0.00043	0.00032	0.00120	0.00141	0.00153	0.00547	0.00027	0.00012	0.00462	1.00000	7.7010%
18	0.41961	0.09672	0.32198	0.09804	0.04508	0.00445	0.00044	0.00036	0.00027	0.00099	0.00117	0.00127	0.00455	0.00023	0.00010	0.00474	1.00000	6.0557%
19	0.42016	0.09685	0.32240	0.09817	0.04514	0.00409	0.00040	0.00033	0.00025	0.00091	0.00108	0.00117	0.00418	0.00021	0.00010	0.00456	1.00000	4.4681%
20	0.42054	0.09694	0.32270	0.09826	0.04519	0.00386	0.00038	0.00031	0.00023	0.00086	0.00102	0.00110	0.00394	0.00020	0.00009	0.00438	1.00000	3.6562%
21	0.42062	0.09696	0.32276	0.09828	0.04519	0.00394	0.00039	0.00032	0.00024	0.00088	0.00104	0.00113	0.00402	0.00020	0.00009	0.00394	1.00000	3.0277%
22	0.41983	0.09678	0.32217	0.09810	0.04511	0.00457	0.00045	0.00037	0.00028	0.00102	0.00120	0.00131	0.00466	0.00023	0.00011	0.00381	1.00000	2.1751%
23	0.41823	0.09641	0.32094	0.09772	0.04494	0.00585	0.00058	0.00047	0.00035	0.00131	0.00154	0.00167	0.00597	0.00030	0.00014	0.00358	1.00000	1.4900%
Daily	**0.41064**	**0.09465**	**0.31509**	**0.09594**	**0.04412**	**0.01129**	**0.00111**	**0.00091**	**0.00068**	**0.00252**	**0.00298**	**0.00323**	**0.01153**	**0.00057**	**0.00026**	**0.00448**	**1.00000**	**100.00%**

Source: VDOT, "Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester", September 2009.

2.6 Modeling Results

This section presents the emission forecasts for NO_x and VOC generated using the US EPA model MOBILE6.2 for this conformity analysis following the methodology summarized previously in this chapter. Also presented in this section for reference purposes are summary statistics derived from the results of the analysis, including regional average emissions per mile, capita and household for each year modeled.

2.6.1 Motor Vehicle Emission Forecasts & Budget Test Results

Exhibits 2-11 and 2-12 respectively present the emission forecasts for NO_x and VOC generated for this conformity analysis following the methodology summarized in this chapter. The forecasts are presented graphically (in bar chart format) in comparison to the applicable motor vehicle emission budgets for each year. The emission forecasts are lower than the applicable budgets for all years tested, so the emission budget tests specified in the federal conformity rule are passed for this analysis.

2.6.2 Summary Statistics

Exhibit 2-13 presents, for reference, a tabulation of summary statistics derived from the results of the conformity analysis. In addition to total VMT and emissions, the tabulation of summary statistics includes for each year assessed estimates of regional average emissions per vehicle mile travelled, per vehicle, per capita, per household and per member of the labor force (employee) for each year analyzed. The forecasts are indexed to the base year for the analysis (2011) to show the relative changes over time.

Exhibits 2-14(a) through (f) present the same forecasts in graphical format. In each case, the trend in emissions is downward initially then flattening. The downward trend is a result of the implementation of more stringent vehicle emission and fuel quality standards as reviewed in Chapter 1. Since fleet turnover to vehicles constructed to meet the more stringent standards takes time to be fully implemented, the benefits in terms of reduced emissions also takes time to be fully realized. In the long run, without the introduction of additional new more stringent vehicle emission and/or fuel quality standards, the trend in vehicle emissions may be expected to turn upward given continued growth in VMT.

Exhibit 2-11: Motor Vehicle Emission Budget Test Results for NO_x

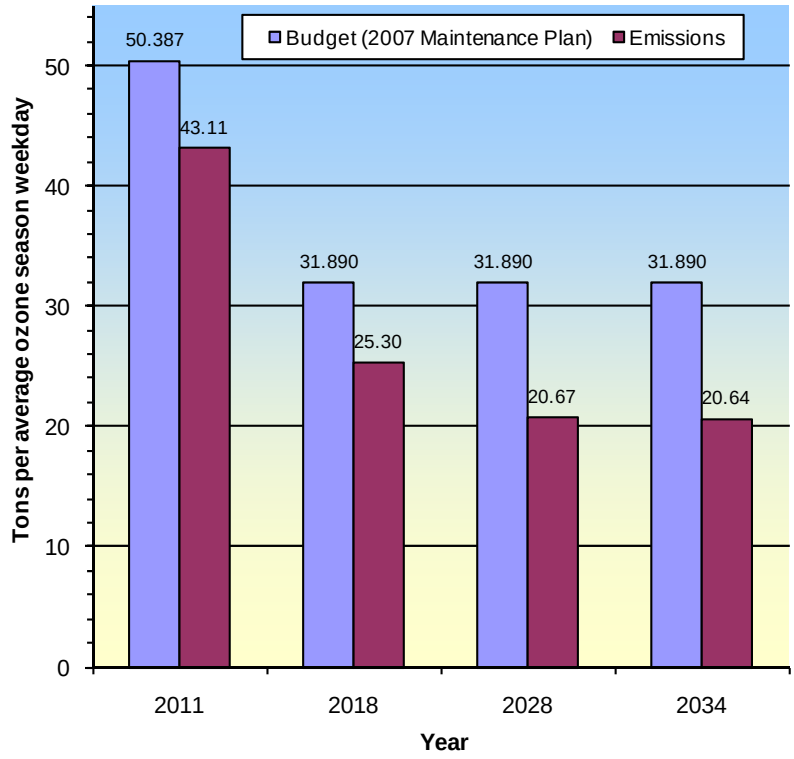


Exhibit 2-12: Motor Vehicle Emission Budget Test Results for VOC

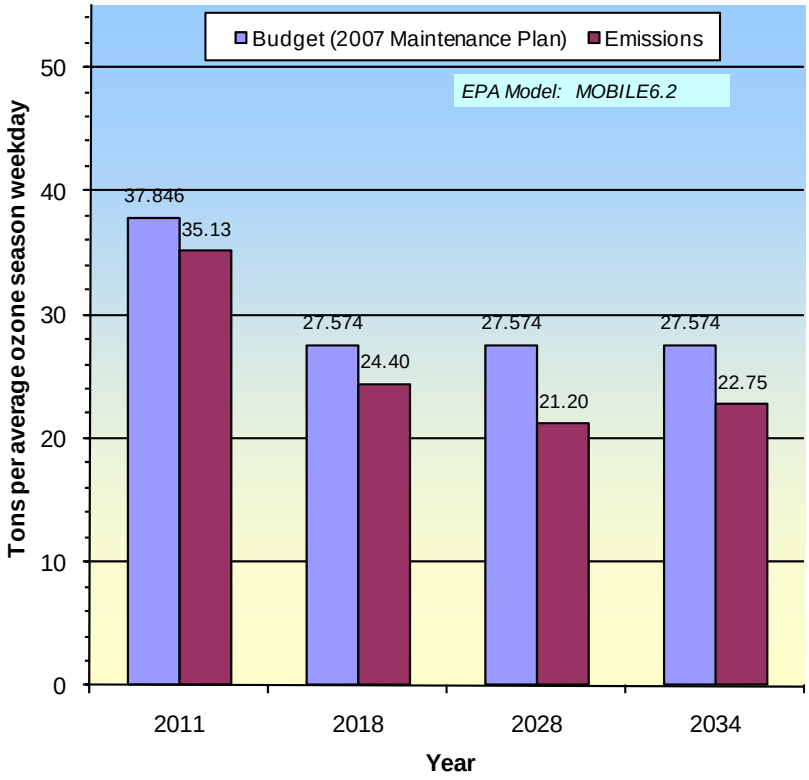


Exhibit 2-13: Summary Statistics

Parameter	2011	(Index)	2018	(Index)	2028	(Index)	2034	(Index)
Forecasts:								
VMT (millions/ozone season weekday):	46.0	*(100.0)*	50.1	*(108.8)*	57.7	*(125.4)*	58.9	*(128.0)*
NOx (tons/ozone season weekday):	43.1	*(100.0)*	25.3	*(58.7)*	20.7	*(48.0)*	20.6	*(47.9)*
VOC (tons/ozone season weekday):	35.1	*(100.0)*	24.4	*(69.4)*	21.2	*(60.3)*	22.7	*(64.8)*
Derived Statistics*:								
NOx (grams per VMT)	0.85	*(100.0)*	0.46	*(53.9)*	0.33	*(38.2)*	0.32	*(37.4)*
VOC (grams per VMT)	0.69	*(100.0)*	0.44	*(63.8)*	0.33	*(48.1)*	0.35	*(50.6)*
Ozone Season Weekday VMT (per vehicle)	35.18	*(100.0)*	34.55	*(98.2)*	34.92	*(99.3)*	33.20	*(94.4)*
NOx (grams per day per vehicle)	29.92	*(100.0)*	15.84	*(52.9)*	11.36	*(38.0)*	10.56	*(35.3)*
VOC (grams per day per vehicle)	24.38	*(100.0)*	15.27	*(62.7)*	11.64	*(47.8)*	11.64	*(47.7)*
Ozone Season Weekday VMT (per capita)	27.25	*(100.0)*	28.01	*(102.8)*	29.89	*(109.7)*	29.21	*(107.2)*
NOx (grams per day per capita)	23.17	*(100.0)*	12.84	*(55.4)*	9.72	*(41.9)*	9.29	*(40.1)*
VOC (grams per day per capita)	18.88	*(100.0)*	12.38	*(65.6)*	9.97	*(52.8)*	10.24	*(54.2)*
Ozone Season Weekday VMT (per household)	73.00	*(100.0)*	74.40	*(101.9)*	78.55	*(107.6)*	76.36	*(104.6)*
NOx (grams per day per household)	62.07	*(100.0)*	34.11	*(54.9)*	25.55	*(41.2)*	24.28	*(39.1)*
VOC (grams per day per household)	50.58	*(100.0)*	32.89	*(65.0)*	26.20	*(51.8)*	26.77	*(52.9)*
Ozone Season Weekday VMT (per employee)	44.43	*(100.0)*	46.13	*(103.8)*	49.83	*(112.1)*	49.04	*(110.4)*
NOx (grams per day per employee)	37.78	*(100.0)*	21.14	*(56.0)*	16.21	*(42.9)*	15.60	*(41.3)*
VOC (grams per day per employee)	30.79	*(100.0)*	20.39	*(66.2)*	16.62	*(54.0)*	17.19	*(55.8)*

** Based upon: 1) emission forecasts generated using the US EPA model MOBILE6.2, and 2) socioeconomic forecasts for for Hampton Roads for automobile ownership, population, households and employment as presented in Chapter 2.*

Exhibit 2-14(a): Regional Trends in VMT and Emissions

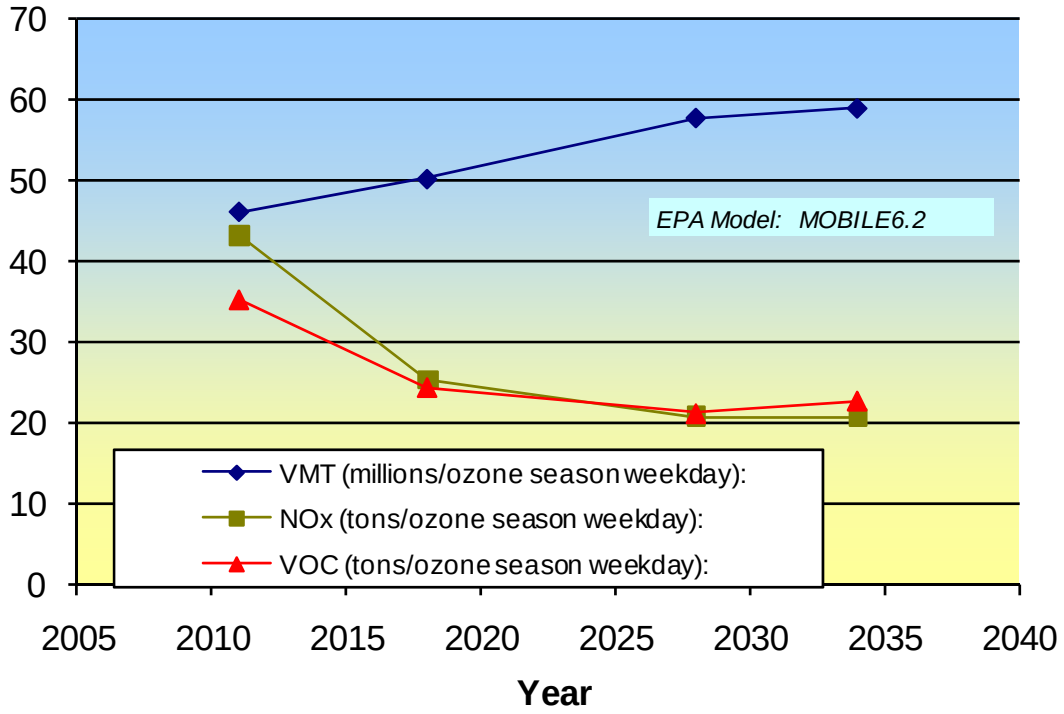


Exhibit 2-14(b): Regional Trends in Emissions per VMT

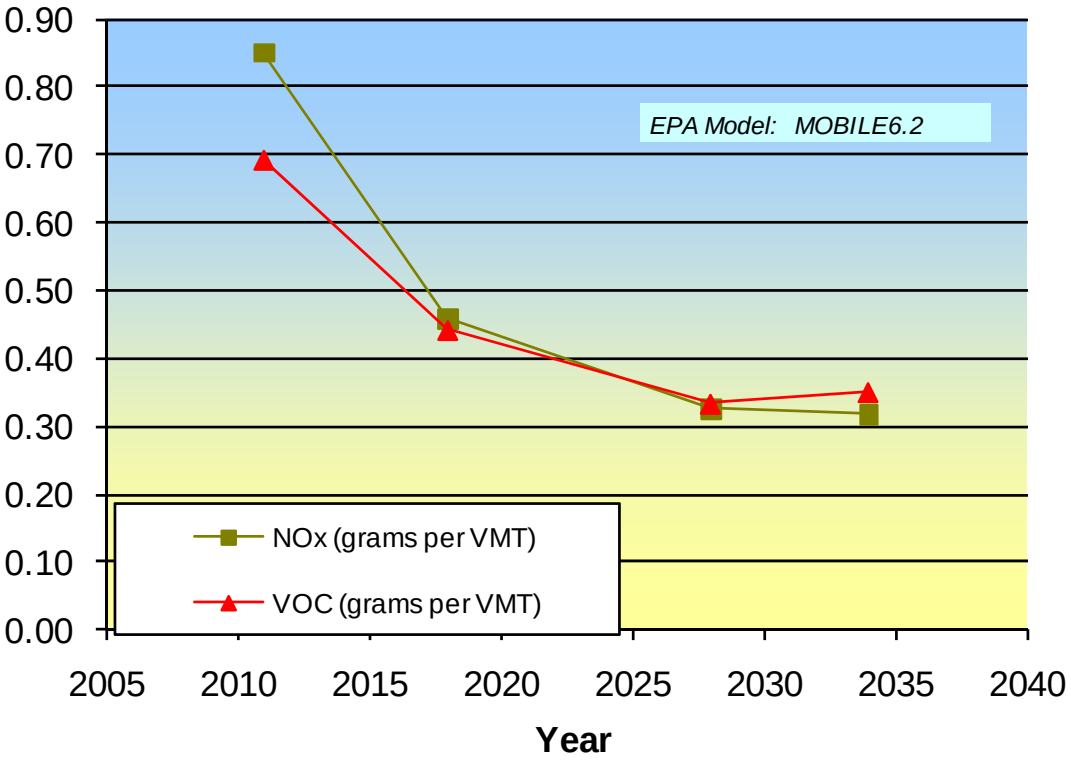


Exhibit 2-14(c): Regional Trends in Emissions per Vehicle

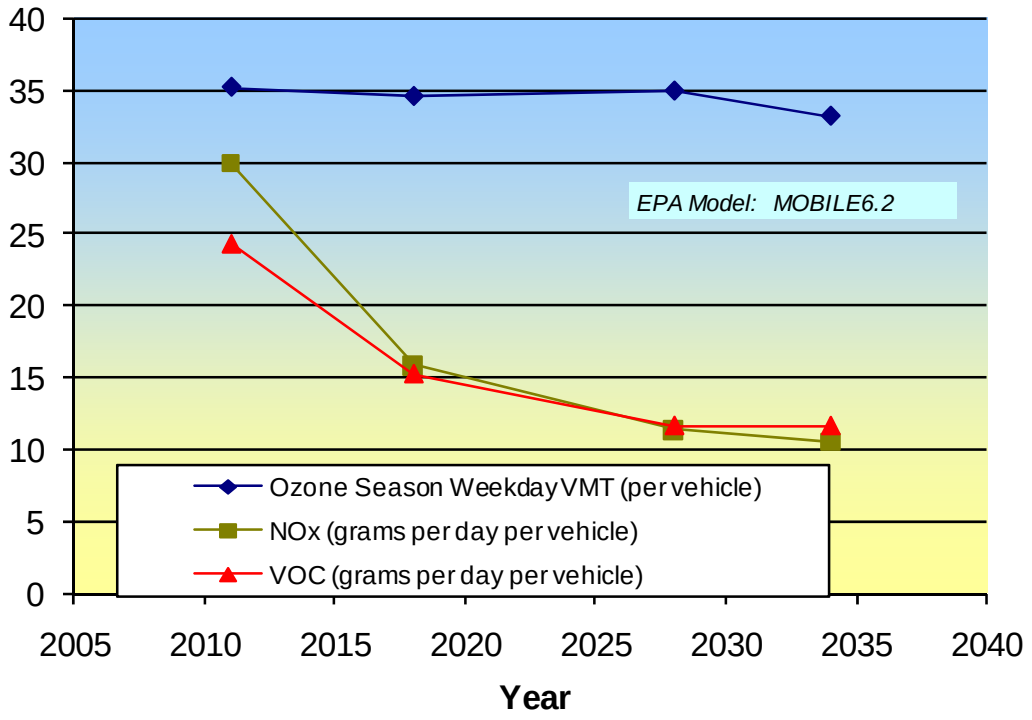


Exhibit 2-14(d): Regional Trends in Emissions per Capita

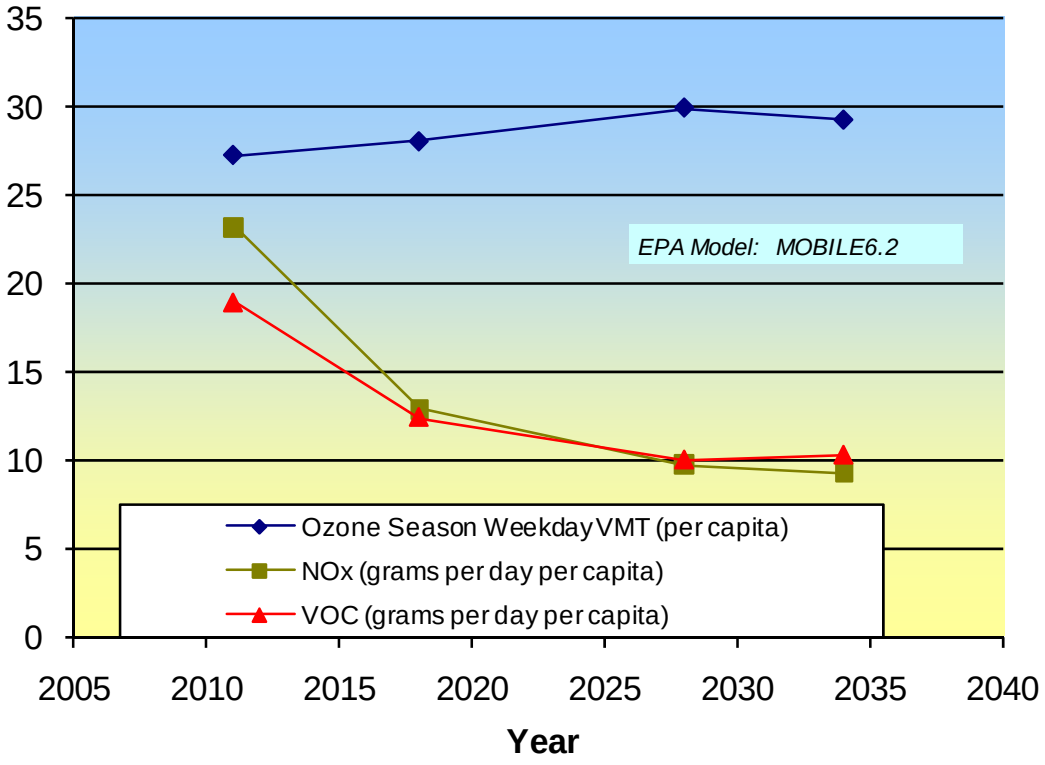


Exhibit 2-14(e): Regional Trends in Emissions per Household

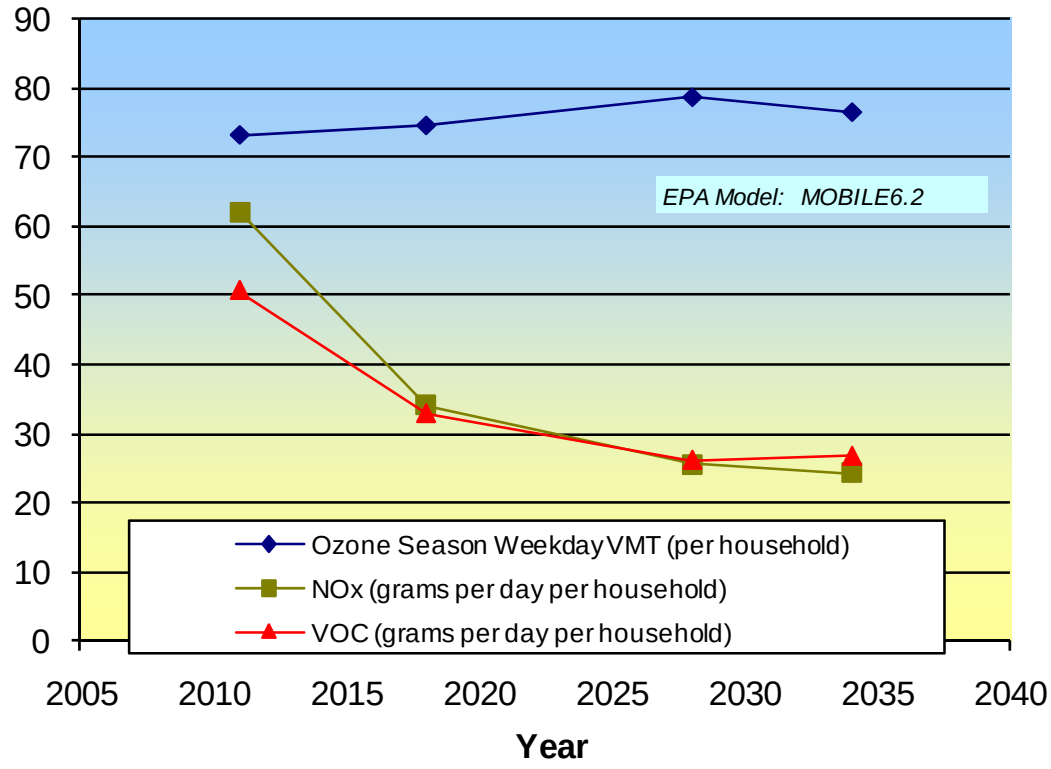
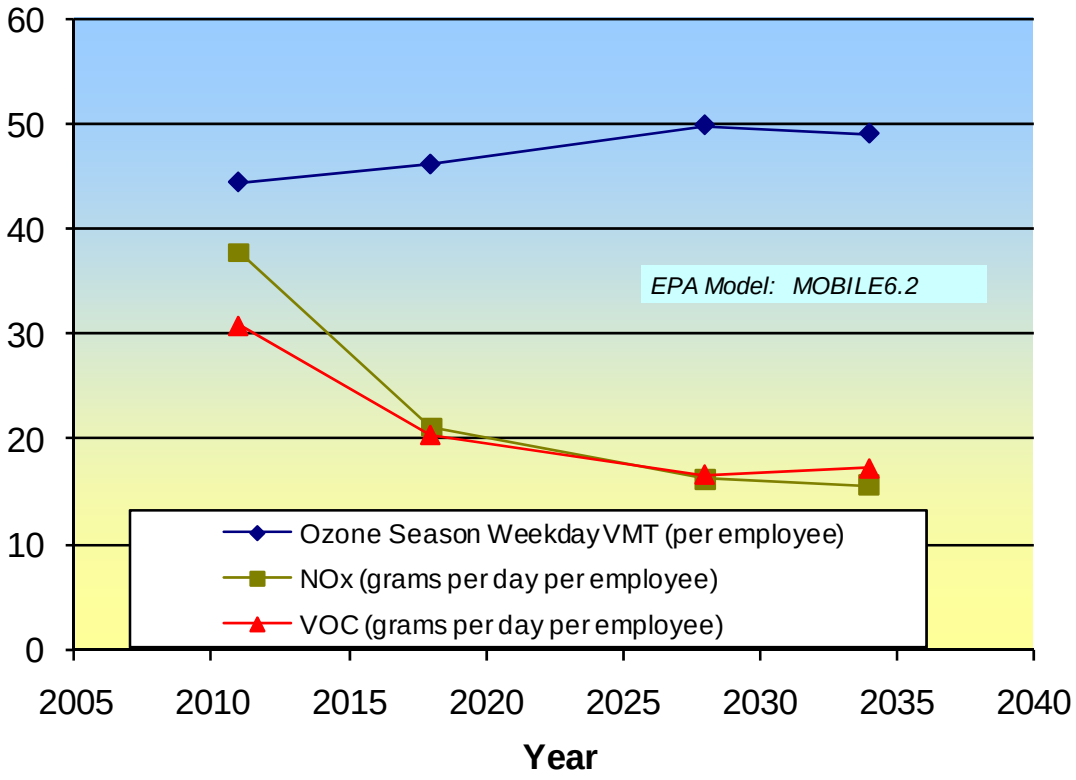


Exhibit 2-14(f): Regional Trends in Emissions per Employee



3. Consultation

Federal, state and local requirements for consultation apply for the development of transportation conformity analyses and determinations. This section documents both the applicable regulatory requirements and the consultation record for this analysis.

3.1 Regulatory Requirements

Regulatory requirements for consultation that were initially established at the federal level have been reflected in state regulations and requirements as well as locally-developed inter-agency and public consultation procedures. Exhibit 3-1 presents an overview of federal, state and local consultation requirements, which are reviewed in turn below.

3.1.1 Federal Requirements

While the federal transportation conformity rule includes specific requirements for consultation in Section 93.105, those requirements were made subject in Section 93.112 of the same rule to the establishment and approval by EPA of corresponding state requirements, as follows:

> *"§93.112 Criteria and procedures: Consultation. 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."*[89]

The referenced section, 93.105(a)(2), requires consultation with local, state and federal agencies, as follows:

> *"[§93.105 (a)(2)]: 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 paragraphs [(c)(1)] state:

> *"(c) Interagency consultation procedures: Specific processes. Interagency consultation procedures shall also include the following specific processes: (1) A process involving the MPO, State and local air quality planning agencies, State and local transportation agencies, EPA, and DOT for the following:…"*

[89] See Federal Conformity Rule, 40 CFR 93.112 *Criteria and Procedures: Consultation* http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.112.htm

Exhibit 3-1: Federal, State and Local Consultation Requirements Relating to Transportation Conformity

DATE	REQUIREMENT
PENDING	
Update to Inter-Agency Consultation Procedures for Transportation Conformity	
	Update for the existing (2005) Hampton Roads Conformity Consultation Procedures, both to reflect the new Virginia Conformity SIP *(Regulation for Transportation Conformity* , 9 VAC 5-151) and to streamline and update existing processes as appropriate.
CURRENTLY APPLICABLE OR APPROVED	
Federal	***Legislation & Regulations***
US EPA Regulation for Transportation Conformity (40 CFR Parts 51 and 93).	
Key requirements for consultation are addressed in Sections 51.390, 93.105, and 93.112.	
March 24, 2010	*Transportation Conformity Regulations Updated March 2010* issued by EPA. This is the most current compilation by EPA of the Federal Transportation Conformity Rule (40 CFR Parts 51 and 93). It reflects all amendments made since the initial issuance by EPA of the rule in 1993 through March 24, 2010, including revisions promulgated pursuant to SAFETEA-LU in 2005.
US DOT Planning Assistance and Standards (23 CFR Part 450)(Transportation Planning & Programming Requirements).	
Key requirements for consultation are addressed in Section 450.316 Interested parties, participation, and consultation.	
February 14, 2007	US DOT, Federal Highway Administration, 23 CFR Parts 450 and 500, Federal Transit Administration, 49 CFR Part 613 [Docket No. FHWA–2005–22986] RIN 2125–AF09; FTA RIN 2132–AA82, *Statewide Transportation Planning; Metropolitan Transportation Planning* , Final Rule. Most recent major update to the federal planning regulations.
Legislation - Clean Air Act as amended, and subsequent SAFETEA-LU amendments.	
August 10, 2005	Federal Reauthorization (*Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users,* or *SAFETEA-LU* , Public Law 109-59), which addressed in part conformity.
November 15, 1990	Last set of major amendments to the *Clean Air Act* , although there have been minor amendments since. Conformity is addressed in Section 176(c).
State	***Federally-Required State Regulation for Transportation Conformity (9 VAC 5-151)***
January 19, 2010	Effective date for the new Virginia *Regulation for Transportation Conformity* (9 VAC 5-151) approved 11/20/09 by EPA via Federal Register notice. See US EPA, 74 FR 60194, 40 CFR Part 52, [EPA-R03-OAR-2009-0674; FRL-8983-1], "*Approval and Promulgation of Air Quality Implementation Plans; Virginia; Transportation Conformity Regulations* ", Direct Final Rule, November 20, 2009. The regulation was approved as submitted on March 23, 2009.
March 23, 2009	Submittal the Virginia *Regulation for Transportation Conformity* (9 VAC 5-151) by the VDEQ to the US EPA for approval in response to federal conformity rule requirements at 40 CFR Part 51. By the federal rule, the requirements of the new state regulation generally govern over the pre-existing federal requirements for consultation for conformity purposes (where they overlap, and as long as they are no less stringent).
Local	***Consultation Procedures***
Public Participation Plan	
December 16, 2009	MPO (HRTPO) approval of the *Hampton Roads Transportation Planning Organization Public Participation Plan* dated December 2009. This document responds to public and consultation stakeholder requirements specified in 23 CFR Part 450.
Inter-Agency Consultation Procedures for Transportation Conformity	
September 21, 2005	MPO (HRTPO) approval of (Inter-Agency) *Consultation Procedures for the Hampton Roads Ozone Nonattainment Area in Support of the Transportation Conformity Regulations (Revised July 18, 2005).* This revision updated the initial version approved in July 2001. These procedures were developed in response to requirements of the federal conformity rule at 40 CFR 93.105.

The specific processes identified in the remainder of 93.105(c)(1) are lengthy but include, in general terms: the emission model(s) to be applied in regional (and project-level) conformity analyses as well as associated methods and assumptions, the identification of regionally significant projects, the treatment of exempt projects, TCMs, and other related items.

Federal Requirements for a State Regulation for Transportation Conformity

Section 51.390 of the federal transportation conformity rule effectively requires the development of a state regulation to govern conformity consultation processes and further provides that the state regulation once approved by EPA effectively governs (over the federal) where they overlap. Therefore, for example, the specific items listed in 93.105(c)(1) as referenced above are to be made enforceable in a corresponding state regulation.

Specifically, Section 51.390 provides in part that the federal requirements apply "until such time" as a requisite state regulation for transportation conformity is approved by EPA as part of a state implementation plan revision, as follows:

> *"§51.390 Implementation plan revision. (a) Purpose and applicability. The federal conformity rules under part 93, subpart A, of this chapter, in addition to any existing applicable state requirements, establish the conformity criteria and procedures necessary to meet the requirements of Clean Air Act section 176(c) until such time as EPA approves the conformity implementation plan revision required by this subpart…"*

The revision to the SIP for the transportation conformity regulation is also commonly referred to as the "Conformity SIP". Section 51.390 then requires that specific sections of the federal transportation conformity rule (including consultation requirements in Section 93.105)[90] must be addressed in a state conformity regulation, as follows:

> *"(b) Conformity implementation plan content. To satisfy the requirements of Clean Air Act section 176(c)(4)(E), the implementation plan revision required by this section must include the following three requirements of part 93, subpart A, of this chapter: §§93.105, 93.122(a)(4)(ii), and 93.125(c)..."*

Finally, Section 51.309 of the federal transportation conformity rule concludes that conformity determinations will be "governed" (where they overlap) by the federally-required state regulation or conformity SIP once it is approved, as follows:

> *"(c) Timing and approval... Following EPA approval of the state conformity provisions (or a portion thereof) in a revision to the state's conformity implementation plan, conformity determinations will be governed by the approved (or approved portion of the) state criteria and procedures as well as any applicable portions of the federal conformity rules that are not addressed by the approved conformity SIP."*

[90] Paragraphs 40 CFR 93.122(a)(4)(ii), and 93.125(c) respectively address commitments needed if any to emission reduction credits taken for control measures in the emissions analysis and any mitigation measures specified in the SIP.

3.1.2 Commonwealth of Virginia Requirements

Requirements in the federal conformity rule at 40 CFR Part 51.390 that certain elements (primarily addressing consultation) of the federal rule be established in state conformity regulations were addressed with the Virginia *Regulation for Transportation Conformity* that was initially developed by the VDEQ in 1997[91]. This version was updated for consistency with EPA requirements in 2007, and amended in 2008. The current version, specified in the Virginia Administrative Code (VAC) at 9 VAC 5-151[92], was approved by EPA via Federal Register notice on November 20, 2009 (effective January 19, 2010)[93].

General requirements for consultation are specified in Subsection 9 VAC 5-151-70 of the Virginia regulation. Subsection A[94] of this section requires that:

> *"The MPOs, LPOs, DEQ, VDOT and VDRPT shall undertake the procedures prescribed in this section for interagency consultation, conflict resolution and public consultation with each other and with local or regional offices of EPA, FHWA, and FTA on the development of control strategy implementation plan revisions, the list of TCMs in the applicable implementation plan, transportation plans, TIPs, and associated conformity determinations required by this chapter."*

Specific requirements in Virginia for inter-agency and public consultation are addressed in turn below.

3.1.2.1 Virginia Inter-Agency Consultation Requirements

Section 9 VAC 5-151-70 subsection C[95] of the Virginia regulation addresses inter-agency consultation. Subdivision C1 requires that:

> *C. The provisions of this subsection shall be followed with regard to general factors associated with interagency consultation.*
>
> *1. Representatives of the MPOs, VDOT, VDRPT, FHWA, and FTA shall undertake an interagency consultation process, in accordance with subdivisions 1 and 3 of this subsection and subsection D of this section, with the LPOs, DEQ and EPA on the development of implementation plans, transportation plans, TIPs, any revisions to the preceding documents, and associated conformity determinations.*"

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91 Specified in the Virginia Administrative Code (VAC) at 9 VAC 5-150. See: http://www.deq.virginia.gov/air/regulations/air150.html.

92 Virginia *Regulation for Transportation Conformity* (9 VAC 5-151): http://www.deq.virginia.gov/air/regulations/air151.html.

93 The state regulation as referenced above was approved by EPA via Federal Register notice effective January 19, 2010. US EPA, 74 FR 60194, 40 CFR Part 52, [EPA-R03-OAR-2009-0674; FRL-8983-1], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Transportation Conformity Regulations*, Direct Final Rule, November 20, 2009, effective January 19, 2010. See: http://edocket.access.gpo.gov/2009/E9-27814.htm

94 Corresponding to 40 CFR 93.105(a) of the federal rule.

95 Corresponding to 40 CFR 93.105(a)(2) of the federal rule. Subsection 9 VAC 5-151-70B, which also refers to inter-agency consultation, was applicable prior to the approval by EPA of the Virginia regulation. This subsection requires that: "*Until EPA grants approval of this chapter, the MPOs, and VDOT and VDRPT, prior to making conformity determinations, shall provide reasonable opportunity for consultation with LPOs, DEQ and EPA on the issues in subdivision D 1 of this section.*"

The referenced subsection D includes the following requirements under subdivision D1:

> "*D. The provisions of this subsection shall be followed with regard to specific processes associated with interagency consultation.*
>
> *1. An interagency consultation process involving the MPOs, LPOs, DEQ, VDOT, VDRPT, EPA, FHWA, and FTA shall be undertaken for the following:*
> *a. Evaluating and choosing each model (or models) and associated methods and assumptions to be used in hot-spot analyses and regional emission analyses, including vehicle miles traveled (VMT) forecasting, to be initiated by VDOT, in consultation with the MPOs, and conducted in accordance with subdivisions C 1 and 3 of this section.*
> *b. Determining which transportation projects should be considered "regionally significant" for the purpose of regional emission 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, to be initiated by VDOT, in consultation with the MPOs, and conducted in accordance with subdivisions C 1 and 3 of this section.*
> *c. Evaluating whether projects otherwise exempted from meeting the requirements of 40 CFR 93.126 and 40 CFR 93.127 should be treated as non-exempt in cases where potential adverse emissions impacts may exist for any reason, to be initiated by VDOT, in consultation with the MPOs, and conducted in accordance with subdivisions C 1 and 3 of this section.*
> *d. Making a determination, as required by 40 CFR 93.113(c)(1), whether past obstacles to implementation of TCMs that 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, to be initiated by VDOT as lead agency, in consultation with the MPOs and VDRPT, and conducted in accordance with subdivisions C 1 and 3 of this section. This consultation 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.*
> *e. Notifying all parties to the consultation process of transportation plan or TIP amendments which merely add or delete exempt projects listed in 40 CFR 93.126 or 40 CFR 93.127, to be initiated by VDOT in consultation with the MPOs, and conducted in accordance with subdivisions C 1 and 3 of this section.*
> *f. Choosing conformity tests and methodologies for isolated rural nonattainment and maintenance areas, as required by 40 CFR 93.109(l)(2)(iii), to be initiated by VDOT, in consultation with the MPOs, and in accordance with subdivisions C 1 and 3 of this section.*
> *g. Determining what forecast of vehicle miles traveled (VMT) to use in establishing or tracking emissions budgets, developing transportation plans, TIPs, of control strategy implementation plan revisions, or making conformity determinations, to be initiated by VDOT, in consultation with the MPOs, and in accordance with subdivisions C 1 and 3 of this section.*"

Other subdivisions of subsection D address respectively (paraphrasing) consultation requirements for events that trigger new conformity determinations and for emissions analyses for transportation activities that cross MPO borders or nonattainment areas (D2), for locations where the planning area does not include the entire nonattainment or maintenance area (D3), for the disclosure of regionally significant projects that are not

FHWA or FTA projects (D4), for assumptions for location, design concept and scope for projects identified in D4 but for which decisions have not yet been made on these elements (D5), and for the design, scheduling and funding of research and data collection and model development efforts for regional transportation (D6).

Subdivision C2 addresses consultation requirements for air agencies ("*LPOs, DEQ, and EPA*") in "*control strategy implementation plan revisions, the list of TCMs in the applicable implementation plan, and any revisions to the preceding documents.*" It does not address consultation requirements for conformity directly.

Subdivision C3 addresses the "*specific roles and responsibilities of various participants in the interagency consultation process.*" Note roles and responsibilities for transportation, air quality and related conformity planning activities for the Hampton Roads region specifically, in consideration of applicable federal and state requirements, are addressed in the *Metropolitan Planning Agreement for the Hampton Roads Area* that was executed on July 15, 2009 between VDOT, VDEQ, the HRTPO, the LPO and other parties.

3.1.2.2 Virginia Public Consultation Requirements

Section 9 VAC 5-151-70 subsection F[96] of the Virginia *Regulation for Transportation Conformity* includes the following requirements for public consultation:

> *"F. The provisions of this subsection shall be followed with regard to public consultation.*
>
> *1. The MPOs shall establish a proactive involvement process which provides reasonable opportunity for review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by the MPO 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 the requirements of 23 CFR 450.316(a).*
> *2. The MPOs shall specifically address in writing public comments regarding plans for a regionally significant project, not receiving FHWA or FTA funding or approval, and how the project is properly reflected in the emission analysis supporting a proposed conformity finding for a transportation plan or TIP.*
> *3. The MPOs shall also provide an opportunity for public involvement in conformity determinations for projects where otherwise required by law."*

The referenced requirements from the federal transportation planning rule at 23 CFR 450.316(a) are lengthy but include the following general introduction:

> "*§450.316 Interested parties, participation, and consultation. (a) The MPO shall develop and use a documented participation plan that defines a process for providing citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with reasonable opportunities to be involved in the metropolitan transportation planning process….*"

[96] Corresponding to 40 CFR 93.105(e) of the federal rule.

Additionally, for reference, requirements of the *Virginia Freedom of Information Act*[97] and the *Virginia Public Records Ac*[98]*t* also apply.

3.1.3 Local Requirements

In response to the applicable federal and Virginia conformity requirements summarized above, procedures have been established for Hampton Roads for both inter-agency and public consultation. These local procedures are reviewed in turn below.

3.1.3.1 Hampton Roads Inter-Agency Conformity Consultation Procedures

Inter-agency conformity consultation procedures were initially adopted by the MPO in 2001 and updated in 2005[99]. As these procedures reflect the federal regulations in force at the time of adoption, a review and update is being planned to reflect the specific language and requirements of the recently approved Virginia *Regulation for Transportation Conformity*.

In general, the Hampton Roads consultation procedures address the establishment and operation of an inter-agency consultation group (ICG). Membership in the ICG as specified in the Hampton Roads procedures includes representatives of each of the federal, state and local transportation and air agencies required by regulation. More specifically, ICG membership includes representatives of the HRTPO, HRTPO member agencies, VDOT, VDRPT, VDEQ, EPA, FHWA and FTA are represented at ICG meetings.

Although not specifically identified in the current (2005) 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. The LPO for this area is the Hampton Roads Air Quality Committee (HRAQC).

In keeping with the applicable regulatory requirements and approved Hampton Roads conformity consultation procedures, ICG meetings are held to initiate conformity analyses for amendments, revisions and/or updates to the LRTP and/or TIP as appropriate, with consensus sought on the following topics:

- ICG Membership updates,
- Latest emission model(s) selected for the conformity analysis, and associated methods and assumptions for the analysis,
- Regionally significant projects (list of LRTP and TIP project lists to be included in the network modeling for the conformity analysis), and
- Schedule for the conformity analysis.

The review of methods and assumptions covers a broad area and typically addresses the following key items:

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97 §2.2 Chapter 37 of the Code of Virginia. See: http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+TOC02020000037000000000000.

98 §42.1 Chapter 7 of the Code of Virginia. See: http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+TOC42010000007000000000000

99 VDOT, *Consultation Procedures for the Hampton Roads Ozone Nonattainment Area in Support of the Transportation Conformity Regulations*, Revised July 18, 2005. A copy is available at: http://www.hrtpo.org/Documents/Reports/Rev_HR_ICP2005.pdf

- Latest planning assumptions including socioeconomic data and forecasts to be employed in travel demand modeling for the conformity analysis,
- Transportation modeling approach, including the treatment of network and off-network travel, as well as the treatment of travel outside of the planning area but within the (larger) maintenance area,
- Emission modeling approach, including an overview of the inputs to the model(s) selected for the analysis,
- Emission test(s) to be applied (i.e., applicable budgets as specified in the Maintenance Plan, and years to be tested), and
- Key criteria for the conformity determination, based on the table provided in 40 CFR 93.109 of the federal conformity rule but also including fiscal constraint specified at 40 CFR 93.108 as effectively a pre-requisite for the conformity analysis (which does not include any financial analyses or otherwise address fiscal constraint).

Meeting notices and related correspondence are generally handled by email to the ICG with copies to all members of the Transportation Technical Advisory Committee (TTAC) as well as other interested parties[100]. Public notices (reviewed in the next section) are handled by the HRTPO and are typically posted on the Hampton Roads website and also provided to the media or designated outlets for media releases.

In addition to ICG meetings, inter-agency consultation also occurs through other HRTPO meetings including:

- Regularly scheduled HRTPO Board meetings,
- Regularly scheduled TTAC meetings, and
- Other meetings convened by the HRTPO, VDOT and/or VDEQ at which Hampton Roads issues relating to conformity may be one of several topics discussed.

Pending Update to ICG Consultation Procedures

The recent approval by EPA of the *Virginia Regulation for Transportation Conformity* will involve updates to currently established consultation procedures. However, since the consultation requirements specified in the new Virginia regulation generally mirror those in the existing federal regulation, the updates are expected to be largely editorial in nature and not involve significant changes to established consultation processes.

For Hampton Roads, an update to existing consultation procedures is in the planning states. The update is planned to not only reflect changes as appropriate to the applicable regulations for the new Virginia regulation but also to provide the ICG an opportunity to update and streamline existing consultation processes.

3.1.3.2 Hampton Roads Public Participation Plan (PPP)

In December 2009, the HRTPO approved a new "*Public Participation Plan*" (PPP)[101]. The PPP responds to SAFETEA-LU requirements as implemented with the revised planning regulations at 23 CFR Part 450.316, and serves to guide consultation

[100] Although not a requirement, many HRTPO member agencies are represented on the ICG by one of their TTAC representatives. ICG meetings are usually coordinated with TTAC meetings for convenience both in terms of meeting logistics and also for the TTAC to take action as needed (e.g. for changes to the project lists) as the need may occasionally arise following the ICG meeting, and to help ensure a quorum.

[101] Hampton Roads TPO, *Public Participation Plan*, December 2009: http://www.hrtpo.org/Documents/Reports/HRTPO%20PPP%20-%20December%202009%20(Final).pdf

conducted in support of the development and approval of the amendments, revisions and updates to the LRTP and TIP. Additionally, the processes provided in the PPP were designed to coordinate as appropriate with conformity consultation processes.

Goals and objectives are specified in the PPP as follows[102]:

> *"HRTPO public involvement and community outreach goals:*
> - *Inform Hampton Roads residents and other interested parties about the regional transportation planning and programming process and issues related to transportation.*
> - *Increase awareness of the agency's purpose and function.*
> - *Engage Hampton Roads residents and interested parties in an open dialogue about their transportation priorities and regional planning and programming issues through meaningful public involvement opportunities.*
>
> *HRTPO public involvement and community outreach objectives:*
> - *Provide broad-based access to HRTPO activities, plans, and programs.*
> - *Develop and disseminate information about the transportation planning and programming process through multiple media, with clear, non-technical language.*
> - *Seek to engage all interested parties, including minority, low-income, disabled, and elderly persons in meaningful exchange of ideas related to the transportation planning and programming process.*
> - *Establish working relationships with partner and peer organizations in the region for the purpose of information exchange and regional dialogue."*

Overall, following the procedures specified in the PPP, MPOs are the lead agencies when developing planning work programs, LRTPs, TIPs and any revisions to the preceding documents, and associated conformity determinations. From the PPP, the HRTPO, in conjunction with VDOT as appropriate, conducts consultation in compliance with federal planning requirements to include the follow key features:

- 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

[102] *Ibid*, p.1

consultation processes.

- Periodically review the effectiveness of the procedures and strategies contained in the participation plan to ensure a full and open participation process.

Public consultation relating to air quality conformity analyses is addressed as follows[103]:

"Air Quality Conformity Analysis (Conformity)

- *Conformity means a Clean Air Act (CAA) requirement that ensures that federal funding and approval are given to transportation plans, programs and projects that are consistent with the air quality goals established by a State Implementation Plan (SIP). Air Quality Conformity, to the purpose of the SIP, means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the air quality standards.*

- *Details on the conformity analysis procedures, including the required interagency consultation, are detailed in a separate document developed and updated periodically by the Interagency Consultation Group (ICG), made up of representatives from VDOT, DRPT, HRTPO, FHWA, FTA, EPA and the Virginia Department of Environmental Quality. The current version is entitled "Consultation Procedures for the Hampton Roads Ozone Nonattainment Area In Support of the Transportation Conformity Regulations, Revised July 18, 2005." This document is made available on the HRTPO website.*

  Generally, before the regional conformity analysis process as defined in the ICG Consultation Procedures document begins, the list of applicable projects from the LRTP and TIP are posted on the website to allow for public access and review. A public notice is published on the HRTPO website and distributed to HRTPO committees and interested parties through electronic mailing list to solicit comments from all interested parties on the project lists to be used in the conformity analysis. The project list comment period is typically 14 days and may overlap with the initiation of the conformity analysis process.

  Once the draft regional conformity analysis has been completed, then following the process defined in the ICG Consultation Procedures, the draft report is posted on the HRTPO website to facilitate public access and review. A press release is sent to regional news providers and distributed to HRTPO committees and interested parties to solicit comments. The public review and comment period is typically not less than 14 days or as otherwise defined in the ICG Consultation Procedures document. Comments received are summarized and considered as the final RCA [regional conformity analysis] is developed, with responses as appropriate included with the LRTP, TIP, and/or RCA."

[103] *Ibid*, p.11

3.2 Consultation Record

This section documents the specific consultation activities conducted in support of the development of this conformity analysis. Included in this summary are both inter-agency and public consultation activities.

All consultation was conducted to satisfy the applicable requirements of both the federal regulation and the new Virginia *Regulation for Transportation Conformity.* For example, requirements specified in the new Virginia regulation regarding parties to be consulted (to specifically include the LPO) and matters for consultation (to specifically include VMT forecasts), neither of which were listed requirements of the federal regulation at 40 CFR 93.105, were both satisfied for this analysis. Additional specifics on the consultation conducted for this analysis are provided with the consultation record presented below and in Appendix D.

Interagency and public consultation opportunities relating to this conformity analysis, including the prior development of project lists, were (*or will be*) provided at the following meetings and events:

- June 16, 2011: HRTPO approval of the project list for the 2034 LRTP. HRTPO meetings are open to the public, with email announcements (including public notices) and agendas posted the week before the meeting.

  HRTPO staff transmitted a letter dated June 16, 2011 certifying that the HRTPO Board "*approved the final list of projects for inclusion in the 2034 Long-Range Transportation Plan that must undergo air quality conformity analysis*".

- July 6, 2011: ICG meeting, marking the beginning of the conformity analysis process. This meeting provided an opportunity for detailed review and comment on all aspects of the proposed analysis, including models, associated methods and assumptions, the project list for the Plan and TIP (including changes), and overall schedule.

  Exhibit 3-2 lists current members of the Hampton Roads ICG. The membership includes all parties identified in the both the federal and state conformity regulations and is consistent with the requirements given in the 2005 Conformity Consultation Procedures for Hampton Roads.

  The ICG meeting notice was distributed by email. The email distribution list included representatives of all of the ICG member agencies, including members of the Hampton Roads Transportation Technical Advisory Committee (TTAC), Hampton Roads Transportation Air Quality Committee (HRAQC), and federal agencies including the USDOT and US EPA.

  The ICG meeting was also listed on the agenda for the TTAC meeting that was scheduled to immediately follow the ICG meeting in the same room and on the same day. The public notice for the TTAC meeting was distributed by email by the HRTPO approximately one week before the meeting.

  The presentation given at the ICG meeting included a review of the membership list (including the involvement of the LPO in the consultation process), selection of the latest emission model for the analysis, modeling methodology and assumptions (including the selection of socioeconomic forecasts to meet latest planning assumption requirements), the project list to be applied in the conformity analysis for the Plan and TIP, and the conformity analysis schedule.

Exhibit 3-2: Hampton Roads Interagency Consultation Group (ICG)

Agency		***Staff***	
City/County			
City of Chesapeake		Earl	Sorey
City of Hampton		Lynn	Allsbrook
City of Newport News		Michael	King
City of Norfolk		Jeffrey	Raliski
City of Poquoson		Deborah	Vest
City of Portsmouth		Richard	Hartman
City of Suffolk		Robert	Lewis
City of Virginia Beach		Mark	Schnaufer
City of Williamsburg		Reed	Nester
Gloucester County		Anne	Ducey-Ortiz
Isle of Wight County		Jane	Hill
James City County		Steven	Hicks
York County		Timothy	Cross
Regional			
Hampton Roads Transportation Planning Organization		Dale	Stith
Hampton Roads Transit		Karen	Waterman
Williamsburg Area Transit Authority		Barbara	Creel
State			
Virginia Dept. of Environmental Quality		Sonya	Lewis-Cheatham
Virginia Dept. of Rail & Public Transportation		Steven	Hennessee
Virginia Dept. of Transportation – C/O Environmental		Jim	Ponticello
Virginia Dept. of Transportation – C/O Planning		Jaesup	Lee
Federal			
Environmental Protection Agency		Martin	Kotsch
Federal Highway Administration		Marisel	Lopez-Cruz
Federal Transit Administration		Tony	Cho
Alternates / Other (non-voting)			
City of Suffolk	*Alternate*	Sherry	Earley
	Other	Scott	Mills
Isle of Wight County		Michael	Stallings
James City County		Allen	Murphy
US Navy		Jennifer	Tabor

** Listing as of July 6, 2011.*

Comments received from the ICG are documented in the minutes for the meeting, which are referenced below and copied in Appendix D. An opportunity for public input was provided at the ICG meeting. No comments from the public were received at the meeting. Draft meeting minutes (including attachments and an updated ICG Membership list) were distributed for comment. No material comments were received.

Copies of all materials distributed for the ICG Meeting are provided in Appendix D, with the exception of the project list for the Plan and TIP which is presented separately (for convenient reference) in Appendix E. Appendix D includes the meeting agenda, membership list, draft modeling methodology and assumptions (draft chapter of conformity analysis report), draft conformity analysis schedule,

presentation (PowerPoint slides), and email/website notices.

- August 24 – September 7, 2011: Fourteen-day public review period on the draft Regional Conformity Analysis and its proposed finding of conformity. A public notice with links to copies of the draft Conformity Analysis and its Executive Summary were posted on the HRTPO website. No comments material to the conformity analysis were received.

- September 7, 2011: TTAC recommendation for approval of the draft Conformity Analysis and proposed finding of conformity, subject to no adverse comments received during the associated public review period that would require their review. No comments material to the conformity analysis were received.

- September 15, 2011: HRTPO approval of the draft Conformity Analysis and finding of conformity. No comments material to the conformity analysis were received.

4. Conformity Demonstration & Conclusion

As summarized in Exhibit 4-1, the Plan and Program meet all applicable federal and state conformity requirements and criteria[104]. The conformity analysis was conducted in compliance with the federal transportation conformity rule *(*40 CFR Parts 51 and 93*)*[105] and the corresponding state conformity regulation *(*9 VAC 5-151*)*[106].

Exhibit 4-1: Conformity Analysis Summary*

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

* *As specified in 40 CFR 93.109, "Table 1 – Conformity Criteria", with the addition of fiscal constraint as required in Section 93.108. Additional requirements apply, e.g. as specified in 93.122, although not specifically listed above.*

** *As indicated by MPO (HRTPO) approval and/or provision of the project lists for the Plan and Program and the supporting information provided with those documents, and subject to federal review consistent with 23 CFR Part 450 as referenced in the conformity rule in Section 93.108.*

*** *Conducted to meet both state and federal requirements.*

**** *The applicable implementation (maintenance) plan (72 FR 30490, effective June 1, 2007) for Hampton Roads does not include transportation control measures (TCMs), which therefore are not required for the conformity analysis or determination.*

A recommendation for a finding of conformity is therefore made, conditional upon any further and separate review as may be required by the US Department of Transportation (US DOT) for the fiscal constraint criterion consistent with Section 93.108[107] of the federal conformity rule and the requirements of the federal planning rule specified at 23 CFR Part 450[108].

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104 Federal Conformity Rule, 40 CFR 93.109 (*Criteria*…). See "*Table 1 - Conformity Criteria*": http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.109.htm

105 Federal Transportation Conformity Regulations (EPA Website): http://www.epa.gov/otaq/stateresources/transconf/conf-regs.htm.

106 Virginia *Regulation for Transportation Conformity* (9 VAC5-151), effective January 19, 2010: http://leg1.state.va.us/000/reg/TOC09005.HTM#C0151

107 Federal Conformity Rule, 40 CFR 93.108 Fiscal Constraints for Transportation Plans and TIPs: http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.108.htm

108 US DOT - Federal Highway Administration (FHWA), 23 CFR Parts 450 and 500 and Federal Transit Administration (FTA), 49 CFR Part 613, *Statewide Transportation Planning; Metropolitan Transportation Planning,* Final Rule effective March 16, 2007. See: http://edocket.access.gpo.gov/2007/07-493.htm.

For reference, the FHWA also provides a compilation of transportation-related legislation, regulations and guidance on their website: http://www.fhwa.dot.gov/hep/legreg.htm.

APPENDICES

Appendix A: Socioeconomic Forecasts by Jurisdiction

2011	*Population*	*Households*	*Passenger Vehicles*	*Employment*
Chesapeake	236,202	84,362	191,100	122,035
Gloucester County (TPO Portion)	27,777	10,823	26,793	12,461
Hampton	149,112	55,772	102,941	84,221
Isle of Wight County	42,303	16,456	41,540	21,797
James City County	68,163	27,672	59,063	35,150
Newport News	191,135	74,773	147,231	124,753
Norfolk	236,342	88,118	159,190	228,507
Poquoson	12,678	4,630	11,736	2,713
Portsmouth	101,841	38,765	68,087	52,233
Suffolk	101,507	38,203	88,957	44,404
Virginia Beach	439,475	161,684	342,068	253,000
Williamsburg	14,297	4,713	12,074	25,606
York County	66,716	24,078	56,489	28,217
Total	**1,687,548**	**630,049**	**1,307,269**	**1,035,097**
2018				
Chesapeake	259,764	93,562	218,523	133,460
Gloucester County (TPO Portion)	30,493	12,001	30,475	13,657
Hampton	150,810	56,966	106,087	85,032
Isle of Wight County	50,308	19,727	51,389	26,150
James City County	80,924	33,189	72,827	40,642
Newport News	198,121	78,001	159,637	129,449
Norfolk	237,579	89,329	168,840	228,694
Poquoson	13,385	4,924	12,820	2,861
Portsmouth	102,648	39,135	71,230	51,647
Suffolk	125,579	47,698	114,592	55,753
Virginia Beach	448,520	166,289	364,786	260,017
Williamsburg	15,759	5,410	13,420	26,723
York County	73,346	26,671	64,376	31,285
Total	**1,787,236**	**672,902**	**1,449,002**	**1,085,370**
2028				
Chesapeake	293,400	106,708	257,695	149,801
Gloucester County (TPO Portion)	34,372	13,691	35,742	15,374
Hampton	153,239	58,673	110,597	86,204
Isle of Wight County	61,737	24,397	65,458	32,369
James City County	99,161	41,072	92,500	48,490
Newport News	208,107	82,629	177,362	136,168
Norfolk	239,345	91,054	182,623	228,951
Poquoson	14,393	5,348	14,371	3,072
Portsmouth	103,807	39,678	75,707	50,803
Suffolk	159,966	61,261	151,222	71,974
Virginia Beach	461,447	172,855	397,233	270,074
Williamsburg	17,846	6,403	15,345	28,336
York County	82,820	30,378	75,641	35,668
Total	**1,929,640**	**734,147**	**1,651,496**	**1,157,284**
2034				
Chesapeake	313,600	114,600	281,200	159,600
Gloucester County (TPO Portion)	36,700	14,700	38,900	16,400
Hampton	154,700	59,700	113,300	86,900
Isle of Wight County	68,600	27,200	73,900	36,100
James City County	110,100	45,800	104,300	53,200
Newport News	214,100	85,400	188,000	140,200
Norfolk	240,400	92,100	190,900	229,100
Poquoson	15,000	5,600	15,300	3,200
Portsmouth	104,500	40,000	78,400	50,300
Suffolk	180,600	69,400	173,200	81,700
Virginia Beach	469,200	176,800	416,700	276,100
Williamsburg	19,100	7,000	16,500	29,300
York County	88,500	32,600	82,400	38,300
Total	**2,015,100**	**770,900**	**1,773,000**	**1,200,400**

Source: HRTPO Transmittal June 2011

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Chesapeake											
Urban Interstate	11	322,136	56	378,527	56	678,406	56	521,552	56	1,900,617	56
Urban Freeways and	12	170,362	55	219,576	49	370,524	54	253,840	56	1,014,299	56
Urban Principal	14	127,364	45	174,744	42	312,225	43	193,098	46	807,431	46
Urban Minor Arterial	16	216,546	43	292,705	42	521,127	42	336,201	43	1,366,568	43
Urban Collector	17	73,255	20	102,004	20	153,985	20	100,359	20	429,599	20
Urban Local	19	169,957	13	220,267	13	317,915	13	220,089	13	928,220	13
TOTAL		1,079,620		1,387,822		2,354,183		1,625,138		6,446,734	
Gloucester											
Rural Principal Arterial	2	18,653	50	29,274	50	47,942	50	39,560	50	135,429	50
Rural Minor Arterial	6	21,590	54	28,271	54	43,480	54	30,818	54	124,159	54
Rural Major Collector	7	26,488	35	33,662	35	50,857	35	30,016	35	141,023	35
Rural Minor Collector	8	4,876	37	7,194	37	9,110	37	6,861	37	28,041	37
Rural Local	9	11,630	25	19,172	25	23,527	25	23,531	25	77,860	25
Urban Freeways and	12	21,836	55	28,144	55	47,492	55	32,536	55	130,008	55
Urban Principal	14	41,783	51	57,326	50	102,428	51	63,347	51	264,884	51
Urban Collector	17	9,457	27	13,168	27	19,879	27	12,956	27	55,459	27
Urban Local	19	3,649	13	4,729	13	6,825	13	4,725	13	19,928	13
TOTAL		159,962		220,941		351,540		244,349		976,790	
Hampton											
Urban Interstate	11	360,298	52	423,370	44	758,776	50	583,339	55	2,125,780	55
Urban Freeways and	12	23,196	50	29,897	50	50,450	50	34,563	50	138,106	50
Urban Principal	14	51,278	42	70,353	42	125,704	42	77,743	42	325,077	42
Urban Minor Arterial	16	164,569	40	222,448	39	396,042	39	255,503	40	1,038,554	40
Urban Collector	17	46,051	26	64,123	26	96,800	26	63,089	26	270,060	26
Urban Local	19	134,628	13	174,480	13	251,830	13	174,339	13	735,270	13
TOTAL		780,020		984,671		1,679,602		1,188,575		4,632,846	
Isle of Wight											
Rural Principal Arterial	2	96,070	54	150,777	54	246,924	54	203,751	54	697,525	54
Rural Minor Arterial	6	86,322	47	113,035	46	173,846	47	123,217	47	496,419	47

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	**FC#**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**
Rural Major Collector	7	19,118	38	24,295	38	36,705	38	21,663	38	101,781	38
Rural Minor Collector	8	2,745	43	4,050	43	5,128	43	3,862	43	15,784	43
Rural Local	9	20,543	25	33,865	25	41,557	25	41,565	25	137,529	25
Urban Collector	17	15,350	38	21,373	38	32,265	38	21,029	38	90,016	38
Urban Local	19	14,404	13	18,668	13	26,944	13	18,653	13	78,667	13
TOTAL		254,551		366,063		563,369		433,740		1,617,722	
James City											
Rural Minor Arterial	6	24,723	47	32,374	47	49,790	47	35,290	47	142,177	47
Rural Major Collector	7	20,770	37	26,395	37	39,878	37	23,536	37	110,580	37
Rural Minor Collector	8	3,285	35	4,846	35	6,137	35	4,621	35	18,888	35
Rural Local	9	13,826	25	22,792	25	27,969	25	27,975	25	92,562	25
Urban Interstate	11	97,239	56	114,261	50	204,782	55	157,434	58	573,714	58
Urban Freeways and	12	35,132	53	45,280	52	76,409	53	52,346	53	209,167	53
Urban Principal	14	28,220	50	38,718	50	69,180	50	42,785	50	178,904	50
Urban Minor Arterial	16	25,454	45	34,406	44	61,256	44	39,518	45	160,632	45
Urban Collector	17	13,335	35	18,568	35	28,030	35	18,268	35	78,199	35
Urban Local	19	19,241	13	24,936	13	35,991	13	24,916	13	105,082	13
TOTAL		281,224		362,577		599,421		426,690		1,669,905	
Newport News											
Urban Interstate	11	414,058	47	486,541	34	871,992	44	670,379	56	2,442,966	55
Urban Freeways and	12	5,962	47	7,685	47	12,968	47	8,884	47	35,499	47
Urban Principal	14	184,956	45	253,761	42	453,409	44	280,414	45	1,172,538	45
Urban Minor Arterial	16	173,967	40	235,151	37	418,659	39	270,094	40	1,097,862	40
Urban Collector	17	59,167	18	82,387	18	124,371	18	81,058	18	346,979	18
Urban Local	19	144,386	13	187,126	13	270,083	13	186,975	13	788,563	13
TOTAL		982,497		1,252,650		2,151,481		1,497,804		5,884,407	
Norfolk											
Urban Interstate	11	571,185	54	671,173	49	1,202,895	53	924,774	55	3,370,020	55
Urban Freeways and	12	5,334	54	6,875	43	11,601	52	7,948	55	31,758	55
Urban Principal	14	279,498	41	383,472	41	685,171	41	423,749	42	1,771,888	42

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Minor Arterial	16	173,397	38	234,380	37	417,287	38	269,209	38	1,094,264	38
Urban Collector	17	39,797	12	55,415	12	83,655	12	54,522	12	233,387	12
Urban Local	19	119,353	13	154,683	13	223,257	13	154,558	13	651,844	13
TOTAL		1,188,563		1,505,999		2,623,866		1,834,759		7,153,161	
Poquoson											
Urban Minor Arterial	16	11,074	44	14,968	42	26,649	43	17,192	44	69,883	44
Urban Collector	17	9,130	35	12,712	35	19,191	35	12,507	35	53,540	35
Urban Local	19	8,779	13	11,377	13	16,421	13	11,368	13	47,944	13
TOTAL		28,982		39,058		62,261		41,068		171,366	
Portsmouth											
Urban Interstate	11	60,111	54	70,634	52	126,592	54	97,323	55	354,659	55
Urban Freeways and	12	73,102	56	94,220	55	158,992	55	108,923	56	435,236	56
Urban Principal	14	41,281	43	56,637	43	101,197	43	62,586	43	261,702	43
Urban Minor Arterial	16	63,171	39	85,388	39	152,023	39	98,077	39	398,656	39
Urban Collector	17	26,145	23	36,406	23	54,959	23	35,819	23	153,328	23
Urban Local	19	39,627	13	51,357	13	74,125	13	51,316	13	216,424	13
TOTAL		303,438		394,643		667,888		454,043		1,820,004	
Suffolk											
Rural Principal Arterial	2	40,960	51	64,285	51	105,277	51	86,870	51	297,393	51
Rural Minor Arterial	6	2,592	47	3,394	47	5,220	47	3,700	47	14,906	47
Rural Major Collector	7	0		0		0		0		0	
Rural Minor Collector	8	0		0		0		0		0	
Rural Local	9	0		0		0		0		0	
Urban Interstate	11	88,752	58	104,288	56	186,908	57	143,693	58	523,640	58
Urban Freeways and	12	102,472	55	132,074	55	222,869	55	152,684	55	610,097	55
Urban Principal	14	97,973	50	134,419	50	240,174	50	148,537	50	621,102	50
Urban Minor Arterial	16	95,659	46	129,303	44	230,208	45	148,517	46	603,681	46
Urban Collector	17	23,499	28	32,720	28	49,395	28	32,193	28	137,805	28
Urban Local	19	55,675	13	72,155	13	104,143	13	72,097	13	304,067	13

2011 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
TOTAL		507,581		672,637		1,144,193		788,290		3,112,691	
Virginia Beach											
Urban Interstate	11	375,931	53	441,740	48	791,698	52	608,650	55	2,218,015	55
Urban Freeways and	12	38,589	55	49,736	55	83,927	55	57,497	55	229,749	55
Urban Principal	14	210,704	42	289,087	41	516,528	41	319,451	42	1,335,767	42
Urban Minor Arterial	16	673,134	36	909,874	32	1,619,923	34	1,045,079	42	4,247,975	38
Urban Collector	17	166,778	35	232,229	35	350,574	35	228,484	35	978,054	35
Urban Local	19	156,148	13	202,370	13	292,084	13	202,206	13	852,800	13
TOTAL		1,621,284		2,125,035		3,654,734		2,461,367		9,862,361	
Williamsburg											
Urban Freeways and	12	1,582	42	2,039	42	3,441	42	2,357	42	9,419	42
Urban Principal	14	17,308	46	23,746	44	42,429	45	26,240	46	109,722	46
Urban Minor Arterial	16	18,824	39	25,444	39	45,301	39	29,225	39	118,793	39
Urban Collector	17	4,928	25	6,862	25	10,358	25	6,751	25	28,899	25
Urban Local	19	8,757	13	11,350	13	16,381	13	11,341	13	47,829	13
TOTAL		51,399		69,441		117,909		75,914		314,661	
York											
Rural Minor Arterial	6	4,701	47	6,156	47	9,467	47	6,710	47	27,034	47
Rural Major Collector	7	12,021	32	15,277	32	23,081	32	13,622	32	64,001	32
Rural Local	9	5,273	25	8,693	25	10,667	25	10,669	25	35,301	25
Urban Interstate	11	117,210	58	137,729	57	246,841	58	189,769	58	691,547	58
Urban Freeways and	12	17,468	56	22,515	56	37,992	56	26,028	56	104,003	56
Urban Principal	14	131,183	48	179,984	45	321,588	47	198,889	49	831,643	49
Urban Minor Arterial	16	31,379	43	42,416	41	75,516	42	48,718	43	198,028	43
Urban Collector	17	25,894	35	36,055	35	54,429	35	35,474	35	151,851	35
Urban Local	19	41,690	13	54,030	13	77,983	13	53,987	13	227,689	13
TOTAL		386,820		502,854		857,565		583,866		2,331,097	
Hampton Roads Total		7,625,940		9,884,391		16,828,014		11,655,604		45,993,746	

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Chesapeake											
Urban Interstate	11	350,261	56	411,576	55	737,637	56	567,088	56	2,066,558	56
Urban Freeways and	12	183,700	54	236,767	47	399,534	52	273,714	56	1,093,714	55
Urban Principal	14	147,379	45	202,205	42	361,291	43	223,443	46	934,316	46
Urban Minor Arterial	16	245,930	43	332,422	41	591,839	42	381,820	43	1,551,998	43
Urban Collector	17	82,396	20	114,732	20	173,199	20	112,882	20	483,204	20
Urban Local	19	191,164	13	247,751	13	357,585	13	247,551	13	1,044,043	13
TOTAL		1,200,830		1,545,453		2,621,085		1,806,498		7,173,833	
Gloucester											
Rural Principal Arterial	2	21,318	50	33,458	50	54,793	50	45,213	50	154,783	50
Rural Minor Arterial	6	24,319	54	31,844	54	48,976	54	34,713	54	139,851	54
Rural Major Collector	7	29,671	35	37,706	35	56,967	35	33,622	35	157,966	35
Rural Minor Collector	8	5,462	37	8,059	37	10,205	37	7,685	37	31,410	37
Rural Local	9	13,027	25	21,476	25	26,353	25	26,358	25	87,214	25
Urban Freeways and	12	25,143	55	32,407	55	54,685	55	37,463	55	149,698	55
Urban Principal	14	47,302	51	64,898	49	115,957	50	71,715	51	299,871	51
Urban Collector	17	10,593	27	14,750	27	22,267	27	14,512	27	62,122	27
Urban Local	19	4,087	13	5,297	13	7,645	13	5,293	13	22,322	13
TOTAL		180,922		249,895		397,849		276,574		1,105,237	
Hampton											
Urban Interstate	11	383,038	49	450,090	40	806,664	47	620,155	55	2,259,943	55
Urban Freeways and	12	24,637	50	31,755	50	53,584	50	36,710	50	146,686	50
Urban Principal	14	54,124	42	74,258	42	132,682	42	82,058	42	343,121	42
Urban Minor Arterial	16	172,312	40	232,914	39	414,675	39	267,524	40	1,087,416	40
Urban Collector	17	47,415	26	66,023	26	99,668	26	64,958	26	278,061	26
Urban Local	19	138,617	13	179,649	13	259,292	13	179,504	13	757,056	13
TOTAL		820,143		1,034,689		1,766,565		1,250,909		4,872,283	
Isle of Wight											
Rural Principal Arterial	2	77,049	56	120,924	55	198,035	55	163,410	56	559,420	56
Rural Minor Arterial	6	97,118	47	127,171	43	195,588	47	138,627	47	558,504	47

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	**FC#**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**
Rural Major Collector	7	22,781	38	28,950	38	43,739	38	25,814	38	121,284	38
Rural Minor Collector	8	3,271	43	4,826	43	6,111	43	4,602	43	18,809	43
Rural Local	9	24,479	25	40,354	25	49,520	25	49,529	25	163,881	25
Urban Interstate	11	49,145	58	57,748	58	103,498	58	79,568	58	289,960	58
Urban Collector	17	18,291	38	25,469	38	38,448	38	25,058	38	107,264	38
Urban Local	19	17,164	13	22,245	13	32,106	13	22,227	13	93,741	13
TOTAL		309,297		427,687		667,044		508,835		1,912,862	
James City											
Rural Minor Arterial	6	29,351	47	38,434	47	59,110	47	41,896	47	168,790	47
Rural Major Collector	7	24,694	37	31,382	37	47,413	37	27,983	37	131,472	37
Rural Minor Collector	8	3,905	35	5,761	35	7,296	35	5,494	35	22,456	35
Rural Local	9	16,438	25	27,099	25	33,254	25	33,260	25	110,050	25
Urban Interstate	11	105,571	55	124,051	47	222,328	53	170,924	58	622,872	58
Urban Freeways and	12	40,097	53	51,680	52	87,207	53	59,744	53	238,728	53
Urban Principal	14	34,112	50	46,801	49	83,622	50	51,717	50	216,251	50
Urban Minor Arterial	16	27,779	45	37,549	44	66,852	44	43,129	45	175,307	45
Urban Collector	17	15,854	35	22,076	35	33,325	35	21,720	35	92,973	35
Urban Local	19	22,876	13	29,647	13	42,790	13	29,623	13	124,935	13
TOTAL		320,676		414,480		683,197		485,489		1,903,835	
Newport News											
Urban Interstate	11	444,593	43	522,422	27	936,298	38	719,817	56	2,623,125	55
Urban Freeways and	12	6,372	47	8,213	47	13,859	47	9,495	47	37,940	47
Urban Principal	14	197,471	45	270,931	42	484,088	44	299,388	45	1,251,877	45
Urban Minor Arterial	16	185,556	40	250,815	36	446,547	38	288,086	40	1,170,994	40
Urban Collector	17	63,734	18	88,747	18	133,972	18	87,316	18	373,765	18
Urban Local	19	155,532	13	201,572	13	290,933	13	201,409	13	849,439	13
TOTAL		1,053,259		1,342,700		2,305,698		1,605,510		6,307,139	
Norfolk											
Urban Interstate	11	599,696	53	704,675	47	1,262,938	52	970,934	55	3,538,236	55
Urban Freeways and	12	6,772	55	8,729	55	14,729	55	10,091	55	40,321	55

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Principal	14	287,926	41	395,036	41	705,833	41	436,528	42	1,825,321	42
Urban Minor Arterial	16	180,595	38	244,110	37	434,609	38	280,384	38	1,139,689	38
Urban Collector	17	42,060	12	58,566	12	88,411	12	57,621	12	246,655	12
Urban Local	19	126,138	13	163,476	13	235,948	13	163,344	13	688,901	13
TOTAL		1,243,186		1,574,592		2,742,469		1,918,903		7,479,123	
Poquoson											
Urban Minor Arterial	16	12,214	44	16,509	44	29,393	44	18,962	44	77,078	44
Urban Collector	17	9,897	35	13,781	35	20,804	35	13,559	35	58,041	35
Urban Local	19	9,517	13	12,334	13	17,801	13	12,324	13	51,975	13
TOTAL		31,628		42,624		67,999		44,845		187,094	
Portsmouth											
Urban Interstate	11	70,015	54	82,271	52	147,448	53	113,357	55	413,090	55
Urban Freeways and	12	90,779	56	117,002	55	197,436	56	135,260	56	540,477	56
Urban Principal	14	37,268	44	51,132	44	91,360	44	56,502	44	236,262	44
Urban Minor Arterial	16	62,469	39	84,439	39	150,334	39	96,987	39	394,226	39
Urban Collector	17	27,292	23	38,003	23	57,369	23	37,390	23	160,052	23
Urban Local	19	41,365	13	53,609	13	77,376	13	53,566	13	225,914	13
TOTAL		329,187		426,457		721,323		493,062		1,970,020	
Suffolk											
Rural Principal Arterial	2	43,375	51	68,075	51	111,485	51	91,993	51	314,930	51
Rural Minor Arterial	6	2,826	47	3,701	47	5,692	47	4,034	47	16,254	47
Rural Major Collector	7	0		0		0		0		0	
Rural Minor Collector	8	0		0		0		0		0	
Rural Local	9	0		0		0		0		0	
Urban Interstate	11	105,586	57	124,069	52	222,360	56	170,948	58	622,961	58
Urban Freeways and	12	121,730	55	156,896	54	264,754	55	181,379	56	724,759	56
Urban Principal	14	109,472	50	150,196	49	268,363	50	165,971	50	694,001	50
Urban Minor Arterial	16	111,753	43	151,056	37	268,937	40	173,502	46	705,241	46
Urban Collector	17	28,781	28	40,075	28	60,498	28	39,429	28	168,782	28
Urban Local	19	68,189	13	88,374	13	127,552	13	88,303	13	372,416	13

2018 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
TOTAL		591,712		782,442		1,329,642		915,560		3,619,344	
Virginia Beach											
Urban Interstate	11	385,152	53	452,574	47	811,116	52	623,578	55	2,272,416	55
Urban Freeways and	12	40,152	55	51,752	55	87,329	55	59,827	55	239,060	55
Urban Principal	14	215,591	42	295,792	41	528,509	41	326,860	42	1,366,750	42
Urban Minor Arterial	16	751,500	35	1,015,8	32	1,808,513	34	1,166,746	42	4,742,520	37
Urban Collector	17	177,105	35	246,610	35	372,282	35	242,633	35	1,038,619	35
Urban Local	19	165,817	13	214,901	13	310,171	13	214,727	13	905,608	13
TOTAL		1,735,317		2,277,429		3,917,919		2,634,372		10,564,973	
Williamsburg											
Urban Freeways and	12	1,717	42	2,213	42	3,735	42	2,559	42	10,225	42
Urban Principal	14	18,442	46	25,303	43	45,211	45	27,961	46	116,917	46
Urban Minor Arterial	16	20,461	39	27,657	39	49,240	39	31,767	39	129,124	39
Urban Collector	17	5,419	25	7,546	25	11,391	25	7,424	25	31,780	25
Urban Local	19	9,631	13	12,481	13	18,015	13	12,471	13	52,597	13
TOTAL		55,670		75,201		127,591		82,182		340,642	
York											
Rural Minor Arterial	6	5,406	47	7,078	47	10,887	47	7,716	47	31,087	47
Rural Major Collector	7	13,485	32	17,137	32	25,891	32	15,281	32	71,794	32
Rural Local	9	5,915	25	9,751	25	11,966	25	11,968	25	39,600	25
Urban Interstate	11	134,600	58	158,162	56	283,463	57	217,923	58	794,146	58
Urban Freeways and	12	19,492	56	25,123	56	42,393	56	29,043	56	116,051	56
Urban Principal	14	148,204	49	203,337	46	363,314	48	224,694	49	939,547	49
Urban Minor Arterial	16	33,015	43	44,627	41	79,453	42	51,258	43	208,352	43
Urban Collector	17	29,046	35	40,446	35	61,057	35	39,793	35	170,341	35
Urban Local	19	46,766	13	60,609	13	87,479	13	60,560	13	255,413	13
TOTAL		435,930		566,270		965,902		658,238		2,626,330	
Hampton Roads Total		8,307,758		10,759,918		18,314,283		12,680,977		50,062,715	

2028 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
Chesapeake											
Urban Interstate	11	387,778	56	455,661	54	816,648	56	627,831	56	2,287,913	56
Urban Freeways and	12	231,581	53	298,480	42	503,670	51	345,057	56	1,378,786	56
Urban Principal	14	203,588	46	279,324	41	499,084	44	308,662	47	1,290,656	46
Urban Minor Arterial	16	277,970	43	375,732	40	668,946	41	431,565	43	1,754,198	43
Urban Collector	17	97,467	20	135,718	20	204,880	20	133,529	20	571,588	20
Urban Local	19	226,131	13	293,069	13	422,992	13	292,832	13	1,235,013	13
TOTAL		1,424,516		1,837,982		3,116,220		2,139,475		8,518,154	
Gloucester											
Rural Principal Arterial	2	37,014	50	58,092	50	95,135	50	78,502	50	268,743	50
Rural Minor Arterial	6	36,593	51	47,917	50	73,696	51	52,234	52	210,440	52
Rural Major Collector	7	34,891	35	44,341	35	66,991	35	39,538	35	185,760	35
Rural Minor Collector	8	6,423	37	9,477	37	12,000	37	9,037	37	36,937	37
Rural Local	9	15,319	25	25,254	25	30,990	25	30,996	25	102,559	25
Urban Freeways and	12	29,057	55	37,451	55	63,196	55	43,295	55	172,999	55
Urban Principal	14	54,278	51	74,470	45	133,059	49	82,291	51	344,097	51
Urban Collector	17	12,457	27	17,346	27	26,185	27	17,066	27	73,052	27
Urban Local	19	4,806	13	6,229	13	8,991	13	6,224	13	26,250	13
TOTAL		230,839		320,576		510,244		359,182		1,420,839	
Hampton											
Urban Interstate	11	404,883	46	475,760	35	852,670	43	655,524	55	2,388,832	55
Urban Freeways and	12	27,207	50	35,067	50	59,174	50	40,539	50	161,986	50
Urban Principal	14	56,918	42	78,092	41	139,532	42	86,294	42	360,836	42
Urban Minor Arterial	16	182,723	39	246,987	39	439,731	39	283,688	40	1,153,120	40
Urban Collector	17	49,435	26	68,835	26	103,914	26	67,725	26	289,905	26
Urban Local	19	144,521	13	187,301	13	270,336	13	187,150	13	789,302	13
TOTAL		865,688		1,092,042		1,865,356		1,320,921		5,143,982	
Isle of Wight											
Rural Principal Arterial	2	87,828	55	137,841	54	225,739	55	186,271	55	637,682	55
Rural Minor Arterial	6	156,194	45	204,527	38	314,561	45	222,952	47	898,232	47

2028 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 Major Collector	7	29,264	38	37,189	38	56,186	38	33,161	38	155,800	38
Rural Minor Collector	8	4,202	43	6,199	43	7,850	43	5,911	43	24,161	43
Rural Local	9	31,445	25	51,838	25	63,613	25	63,624	25	210,519	25
Urban Interstate	11	90,622	58	106,485	58	190,846	58	146,721	58	534,673	58
Urban Collector	17	23,496	38	32,717	38	49,389	38	32,189	38	137,790	38
Urban Local	19	22,049	13	28,575	13	41,243	13	28,552	13	120,418	13
TOTAL		445,099		605,373		949,428		719,381		2,719,276	
James City											
Rural Minor Arterial	6	56,434	47	73,897	45	113,653	47	80,554	47	324,538	47
Rural Major Collector	7	31,620	37	40,184	37	60,710	37	35,831	37	168,344	37
Rural Minor Collector	8	5,000	35	7,377	35	9,342	35	7,035	35	28,755	35
Rural Local	9	21,048	25	34,699	25	42,580	25	42,588	25	140,914	25
Urban Interstate	11	243,894	47	286,589	35	513,633	43	394,876	58	1,438,989	57
Urban Freeways and	12	58,408	53	75,281	52	127,034	53	87,029	53	347,752	53
Urban Principal	14	49,644	50	68,112	47	121,699	49	75,266	50	314,720	50
Urban Minor Arterial	16	34,512	44	46,650	41	83,055	43	53,582	45	217,797	45
Urban Collector	17	20,300	35	28,267	35	42,672	35	27,811	35	119,049	35
Urban Local	19	29,291	13	37,962	13	54,791	13	37,931	13	159,974	13
TOTAL		550,153		699,018		1,169,169		842,503		3,260,832	
Newport News											
Urban Interstate	11	470,874	34	553,302	20	991,643	29	762,365	56	2,778,179	54
Urban Freeways and	12	7,066	47	9,108	46	15,369	47	10,529	47	42,072	47
Urban Principal	14	227,362	44	311,942	39	557,364	41	344,706	45	1,441,373	45
Urban Minor Arterial	16	209,702	39	283,454	33	504,656	37	325,574	40	1,323,374	40
Urban Collector	17	70,878	18	98,694	18	148,988	18	97,102	18	415,657	18
Urban Local	19	172,965	13	224,164	13	323,541	13	223,983	13	944,646	13
TOTAL		1,158,846		1,480,663		2,541,561		1,764,260		6,945,300	
Norfolk											
Urban Interstate	11	635,431	52	746,666	44	1,338,195	50	1,028,791	55	3,749,076	55
Urban Freeways and	12	8,210	55	10,581	54	17,855	55	12,232	55	48,878	55

2028 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	**FC#**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**	**VMT**	**Speed**
Urban Principal	14	301,824	41	414,104	40	739,903	41	457,599	41	1,913,427	41
Urban Minor Arterial	16	190,695	38	257,762	37	458,916	38	296,065	38	1,203,429	38
Urban Collector	17	45,516	12	63,379	12	95,677	12	62,357	12	266,927	12
Urban Local	19	136,505	13	176,912	13	255,341	13	176,769	13	745,522	13
TOTAL		1,318,181		1,669,405		2,905,888		2,033,814		7,927,259	
Poquoson											
Urban Minor Arterial	16	13,238	44	17,894	44	31,858	44	20,553	44	83,542	44
Urban Collector	17	11,107	35	15,466	35	23,348	35	15,217	35	65,137	35
Urban Local	19	10,680	13	13,841	13	19,978	13	13,830	13	58,329	13
TOTAL		35,025		47,201		75,183		49,600		207,008	
Portsmouth											
Urban Interstate	11	84,651	53	99,469	50	178,271	52	137,053	55	499,443	55
Urban Freeways and	12	105,978	55	136,593	54	230,494	55	157,908	56	630,972	56
Urban Principal	14	39,812	44	54,623	44	97,598	44	60,360	44	252,392	44
Urban Minor Arterial	16	68,486	39	92,572	39	164,814	39	106,328	39	432,196	39
Urban Collector	17	29,018	23	40,406	23	60,996	23	39,754	23	170,172	23
Urban Local	19	43,980	13	56,999	13	82,268	13	56,953	13	240,199	13
TOTAL		371,925		480,661		814,441		558,356		2,225,374	
Suffolk											
Rural Principal Arterial	2	72,852	51	114,338	51	187,249	51	154,510	51	528,951	51
Rural Minor Arterial	6	18,747	47	24,548	47	37,754	47	26,759	47	107,808	47
Rural Major Collector	7	0		0		0		0		0	
Rural Minor Collector	8	0		0		0		0		0	
Rural Local	9	0		0		0		0		0	
Urban Interstate	11	106,320	57	124,932	55	223,907	57	172,138	58	627,296	58
Urban Freeways and	12	169,582	55	218,570	47	368,827	53	252,677	56	1,009,655	56
Urban Principal	14	155,933	50	213,941	48	382,260	49	236,412	50	988,544	50
Urban Minor Arterial	16	147,629	40	199,550	34	355,276	37	229,203	46	931,650	44
Urban Collector	17	38,450	28	53,540	28	80,824	28	52,677	28	225,488	28
Urban Local	19	91,100	13	118,066	13	170,407	13	117,971	13	497,540	13

2028 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
TOTAL		800,613		1,067,485		1,806,504		1,242,346		4,916,932	
Virginia Beach											
Urban Interstate	11	416,395	52	489,287	44	876,913	50	674,162	55	2,456,752	55
Urban Freeways and	12	48,894	55	63,018	55	106,340	55	72,852	55	291,104	55
Urban Principal	14	227,518	42	312,156	40	557,747	41	344,943	42	1,442,362	42
Urban Minor Arterial	16	650,953	40	879,892	39	1,566,543	40	1,010,642	41	4,107,996	41
Urban Collector	17	192,978	35	268,711	35	405,647	35	264,378	35	1,131,701	35
Urban Local	19	180,678	13	234,161	13	337,969	13	233,972	13	986,771	13
TOTAL		1,717,415		2,247,224		3,851,159		2,600,948		10,416,685	
Williamsburg											
Urban Freeways and	12	2,349	42	3,027	42	5,109	42	3,500	42	13,985	42
Urban Principal	14	22,210	46	30,472	42	54,445	44	33,672	46	140,798	46
Urban Minor Arterial	16	25,505	39	34,475	38	61,380	39	39,598	39	160,957	39
Urban Collector	17	6,207	25	8,643	25	13,048	25	8,504	25	36,401	25
Urban Local	19	11,031	13	14,296	13	20,634	13	14,285	13	60,246	13
TOTAL		67,302		90,914		154,616		99,559		412,388	
York											
Rural Minor Arterial	6	4,793	47	6,276	47	9,653	47	6,842	47	27,564	47
Rural Major Collector	7	15,891	32	20,194	32	30,510	32	18,007	32	84,601	32
Rural Local	9	6,970	25	11,490	25	14,100	25	14,103	25	46,664	25
Urban Interstate	11	238,823	49	280,630	32	502,953	45	386,665	58	1,409,068	57
Urban Freeways and	12	18,762	57	24,183	57	40,807	57	27,956	57	111,708	57
Urban Principal	14	178,823	48	245,346	40	438,373	44	271,115	49	1,133,656	49
Urban Minor Arterial	16	38,308	43	51,780	40	92,189	41	59,475	43	241,749	43
Urban Collector	17	34,228	35	47,661	35	71,949	35	46,892	35	200,727	35
Urban Local	19	55,108	13	71,421	13	103,084	13	71,364	13	300,975	13
TOTAL		591,706		758,982		1,303,617		902,418		3,556,712	
Hampton Roads Total		9,577,309		12,397,527		21,063,384		14,632,764		57,670,741	

2034 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
Chesapeake											
Urban Interstate	11	411,633	56	483,691	53	866,884	55	666,452	56	2,428,654	56
Freeway/Expressway	12	221,093	51	284,962	36	480,861	47	329,430	56	1,316,345	55
Urban Principal	14	179,940	44	246,879	38	441,112	41	272,809	46	1,140,738	45
Urban Minor Arterial	16	301,534	42	407,583	39	725,653	41	468,149	43	1,902,903	43
Urban Collector	17	107,803	20	150,110	20	226,606	20	147,689	20	632,201	20
Urban Local	19	250,111	13	324,147	13	467,847	13	323,885	13	1,365,978	13
TOTAL		1,472,113		1,897,371		3,208,963		2,208,413		8,786,819	
Gloucester											
Rural Principal Arterial	2	25,865	50	40,594	50	66,480	50	54,856	50	187,796	50
Rural Minor Arterial	6	29,304	53	38,371	49	59,015	53	41,828	54	168,518	54
Rural Major Collector	7	38,455	35	48,870	35	73,833	35	43,576	35	204,733	35
Rural Minor Collector	8	7,079	37	10,444	37	13,226	37	9,960	37	40,710	37
Rural Local	9	16,884	25	27,834	25	34,156	25	34,162	25	113,034	25
Freeway/Expressway	12	31,283	55	40,320	55	68,038	55	46,612	55	186,252	55
Urban Principal	14	56,750	50	77,861	39	139,118	46	86,039	51	359,767	51
Urban Collector	17	13,729	27	19,117	27	28,859	27	18,809	27	80,513	27
Urban Local	19	5,297	13	6,865	13	9,909	13	6,860	13	28,931	13
TOTAL		224,646		310,276		492,633		342,701		1,370,253	
Hampton											
Urban Interstate	11	425,840	43	500,386	32	896,805	39	689,455	55	2,512,481	54
Freeway/Expressway	12	28,814	50	37,138	50	62,668	50	42,933	50	171,554	50
Urban Principal	14	61,441	42	84,298	41	150,620	41	93,152	42	389,510	42
Urban Minor Arterial	16	188,884	39	255,313	38	454,555	39	293,252	40	1,191,995	40
Urban Collector	17	50,688	26	70,580	26	106,547	26	69,441	26	297,253	26
Urban Local	19	148,184	13	192,048	13	277,187	13	191,893	13	809,306	13
TOTAL		903,851		1,139,763		1,948,383		1,380,127		5,372,099	
Isle of Wight											
Rural Principal Arterial	2	99,312	55	155,865	53	255,256	55	210,627	55	721,064	55
Rural Minor Arterial	6	132,875	44	173,992	36	267,598	43	189,666	47	764,130	47

2034 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 Major Collector	7	34,009	38	43,219	38	65,296	38	38,538	38	181,061	38
Rural Minor Collector	8	4,883	43	7,204	43	9,123	43	6,870	43	28,079	43
Rural Local	9	36,544	25	60,243	25	73,927	25	73,941	25	244,653	25
Urban Interstate	11	59,050	58	69,387	58	124,358	58	95,605	58	348,400	58
Urban Collector	17	27,306	38	38,022	38	57,397	38	37,408	38	160,131	38
Urban Local	19	25,624	13	33,208	13	47,930	13	33,182	13	139,943	13
TOTAL		419,601		581,141		900,886		685,836		2,587,460	
James City											
Rural Minor Arterial	6	42,821	47	56,071	46	86,237	47	61,122	47	246,251	47
Rural Major Collector	7	36,676	37	46,609	37	70,417	37	41,560	37	195,262	37
Rural Minor Collector	8	5,800	35	8,557	35	10,836	35	8,160	35	33,352	35
Rural Local	9	24,414	25	40,247	25	49,388	25	49,398	25	163,446	25
Urban Interstate	11	122,820	51	144,320	40	258,655	47	198,851	58	724,644	58
Freeway/Expressway	12	54,511	53	70,258	52	118,557	53	81,222	53	324,547	53
Urban Principal	14	44,894	50	61,595	47	110,056	49	68,065	50	284,610	50
Urban Minor Arterial	16	34,378	44	46,469	40	82,733	42	53,374	45	216,953	44
Urban Collector	17	23,546	35	32,787	35	49,495	35	32,258	35	138,084	35
Urban Local	19	33,975	13	44,032	13	63,552	13	43,996	13	185,554	13
TOTAL		423,835		550,945		899,926		638,006		2,512,703	
Newport News											
Urban Interstate	11	524,301	40	616,082	24	1,104,159	35	848,867	56	3,093,402	54
Freeway/Expressway	12	7,562	47	9,746	45	16,446	47	11,267	47	45,021	47
Urban Principal	14	229,157	44	314,404	40	561,763	42	347,427	45	1,452,749	45
Urban Minor Arterial	16	208,155	39	281,363	34	500,933	37	323,172	40	1,313,612	40
Urban Collector	17	75,543	18	105,189	18	158,794	18	103,493	18	443,014	18
Urban Local	19	184,348	13	238,918	13	344,835	13	238,725	13	1,006,818	13
TOTAL		1,229,065		1,565,702		2,686,930		1,872,951		7,354,616	
Norfolk											
Urban Interstate	11	648,573	51	762,109	41	1,365,872	48	1,050,069	55	3,826,616	55
Freeway/Expressway	12	7,894	55	10,174	54	17,169	55	11,762	55	46,999	55

2034 Summertime VMT and Average Speeds

JURISDICTION		AM Period		PM Period		Midday Period		Night Period		24-Hour Total	
Functional Class	FC#	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed	VMT	Speed
Urban Principal	14	312,729	41	429,066	40	766,637	41	474,132	41	1,982,562	41
Urban Minor Arterial	16	200,735	38	271,333	37	483,077	37	311,653	38	1,266,788	38
Urban Collector	17	47,726	12	66,455	12	100,321	12	65,384	12	279,882	12
Urban Local	19	143,130	13	185,498	13	267,734	13	185,349	13	781,704	13
TOTAL		1,360,787		1,724,636		3,000,809		2,098,349		8,184,551	
Poquoson											
Urban Minor Arterial	16	13,859	44	18,734	43	33,353	44	21,518	44	87,463	44
Urban Collector	17	11,903	35	16,574	35	25,020	35	16,307	35	69,804	35
Urban Local	19	11,445	13	14,833	13	21,409	13	14,821	13	62,508	13
TOTAL		37,208		50,141		79,783		52,646		219,775	
Portsmouth											
Urban Interstate	11	78,212	52	91,903	49	164,711	51	126,628	55	461,454	55
Freeway/Expressway	12	108,853	55	140,298	54	236,747	55	162,191	56	648,089	56
Urban Principal	14	40,773	44	55,941	43	99,952	44	61,816	44	258,481	44
Urban Minor Arterial	16	69,670	39	94,173	39	167,663	39	108,167	39	439,669	39
Urban Collector	17	30,105	23	41,920	23	63,282	23	41,244	23	176,548	23
Urban Local	19	45,628	13	59,135	13	85,351	13	59,087	13	249,200	13
TOTAL		373,241		483,369		817,707		559,134		2,233,441	
Suffolk											
Rural Principal Arterial	2	48,854	51	76,673	51	125,566	51	103,612	51	354,707	51
Rural Minor Arterial	6	3,661	47	4,794	47	7,373	47	5,226	47	21,053	47
Rural Major Collector	7	0		0		0		0		0	
Rural Minor Collector	8	0		0		0		0		0	
Rural Local	9	0		0		0		0		0	
Urban Interstate	11	122,166	53	143,551	39	257,277	50	197,792	58	720,784	58
Freeway/Expressway	12	155,703	54	200,682	45	338,641	52	231,998	56	927,022	55
Urban Principal	14	142,520	50	195,538	48	349,379	49	216,076	50	903,512	50
Urban Minor Arterial	16	147,215	40	198,990	34	354,278	37	228,560	46	929,035	44
Urban Collector	17	45,749	28	63,703	28	96,166	28	62,675	28	268,290	28
Urban Local	19	108,392	13	140,477	13	202,753	13	140,364	13	591,980	13

2034 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
TOTAL		774,258		1,024,408		1,731,433		1,186,302		4,716,384	
Virginia Beach											
Urban Interstate	11	409,946	51	481,709	43	863,332	49	663,721	55	2,418,703	55
Freeway/Expressway	12	44,040	55	56,762	55	95,784	55	65,620	55	262,206	55
Urban Principal	14	234,148	42	321,252	40	574,000	41	354,995	42	1,484,393	42
Urban Minor Arterial	16	864,828	34	1,168,9	31	2,081,242	32	1,342,695	41	5,457,708	35
Urban Collector	17	203,176	35	282,912	35	427,084	35	278,350	35	1,191,509	35
Urban Local	19	190,226	13	246,535	13	355,830	13	246,336	13	1,038,919	13
TOTAL		1,946,365		2,558,157		4,397,272		2,951,717		11,853,438	
Williamsburg											
Freeway/Expressway	12	2,120	42	2,733	42	4,612	42	3,159	42	12,624	42
Urban Principal	14	22,275	45	30,562	40	54,606	42	33,772	46	141,215	46
Urban Minor Arterial	16	24,947	39	33,721	38	60,036	39	38,732	39	157,435	39
Urban Collector	17	6,734	25	9,377	25	14,155	25	9,226	25	39,491	25
Urban Local	19	11,967	13	15,510	13	22,386	13	15,497	13	65,360	13
TOTAL		68,044		91,902		155,795		100,386		416,124	
York											
Rural Minor Arterial	6	6,681	47	8,748	47	13,455	47	9,536	47	38,421	47
Rural Major Collector	7	17,535	32	22,284	32	33,668	32	19,871	32	93,358	32
Rural Local	9	7,692	25	12,680	25	15,560	25	15,563	25	51,493	25
Urban Interstate	11	166,881	57	196,094	54	351,446	56	270,188	58	984,607	58
Freeway/Expressway	12	23,881	57	30,780	56	51,939	57	35,583	57	142,182	57
Urban Principal	14	180,770	48	248,017	40	443,146	44	274,067	49	1,145,998	49
Urban Minor Arterial	16	39,736	42	53,711	39	95,625	41	61,692	43	250,762	43
Urban Collector	17	37,771	35	52,593	35	79,395	35	51,745	35	221,502	35
Urban Local	19	60,812	13	78,813	13	113,753	13	78,750	13	332,126	13
TOTAL		541,758		703,721		1,197,987		816,994		3,260,448	
Hampton Roads Total		9,774,773		12,681,533		21,518,508		14,893,561		58,868,112	

Appendix C: MOBILE6.2 Sample Input File

The following table provides a guide to the MOBILE6.2 Input files included in this appendix. A sample portion of a 2034 input file used in the analysis for Chesapeake is provided. Copies of complete input files are available upon request.

Header section of the input file:	
MOBILE6 Input Header	What the header means:
DATABASE OUTPUT	Specifies MOBILE6 to report output in database format for all scenarios.
DAILY OUTPUT	Database output will represent daily rather than hourly time periods.
WITH FIELDNAMES	Directs MOBILE6 to place a row of column names in the first row of the database output table.
AGGREGATE OUTPUT	Database output will represent daily rather than hourly time periods that will reduce the volume of reported output.
Run Segment:	
RUN DATA	Marks the end of the header section and beginning of run section of command input file. Administrative function—no information required.
EXPRESS HC AS VOC	Directs MOBILE6 to output exhaust HC as volatile organic compounds.
REG DIST	Allows user to supply vehicle registration distributions by vehicle age for all 16 composite vehicle types. Command requires an external data file.
NO REFUELING	Directs MOBILE6 not to calculate the refueling emissions from gasoline-fueled vehicles.
94+ LDG IMP	Allows the user to input optional 1994 and later fleet penetration factors for light-duty gasoline vehicles under the Tier 1, NLEV, and Tier 2 standards.
HOURLY TEMPERATURES	Allows entry of 24 hourly temperatures.
FUEL PROGRAM	Designates fuel sulfur level of gasoline and whether RFG use should be assumed
FUEL RVP	Required input of average fuel Reid vapor pressure.
SEASON	Allows users to specify winter or summer RVP independent of evaluation month
RELATIVE HUMIDITY	Allows user to specify hourly relative humidity values and to relate these relative humidity values directly to the hourly temperature.
BAROMETRIC PRES	Allows user to supply a daily average barometric pressure.

Scenario Segment:	
SCENARIO RECORD	Allows MOBILE6 users to label individual scenario results. Marks start of new scenario.
CALENDAR YEAR	Calendar year of the scenario evaluated. Four-digit value for year must be entered. ***Example:*** **CALENDAR YEAR : 2034**
EVALUATION MONTH	Specifies January 1 (*winter RFG rules)* or July 1 (*summer RFG rules)* for calendar year of interest. ***Example:*** **EVALUATION MONTH : 7**
VMT FRACTIONS	Allows user to supply vehicle travel data specific to the geographical location they wish to model. Set of 16 fractional values between 0 and 1 in which all 16 values add up to 1.0 ***Example:*** **VMT FRACTIONS :** **0.354 0.089 0.297 0.092 0.041 0.040 0.004 0.003** **0.002 0.008 0.010 0.012 0.040 0.002 0.001 0.005**
AVERAGE SPEED	Allows the user to enter a single average speed to use for all freeways and/or arterial/collectors for the entire day, rather than an average speed distribution
END OF RUN	Marks the end of each Run section and required to separate multiple runs in command input files.

MOBILE6.2 INPUT FILE EXCERPT

```
MOBILE6 INPUT FILE :
>
>  ------------------------------
>  HAMPTON ROADS MAINTENANCE AREA
>  ------------------------------
>
>  ANALYSIS YEAR: 2034
>
>  ------------------------------
>  FLEET DATA:
>   *  2008 registration data for Hampton Roads member jurisdictions as provided by VDEQ
>   *  2008 VMT Mix for Hampton Roads based on the VDOT 2008 Traffic report (TMS/HPMS data)
>
>  ------------------------------
>  AMBIENT CONDITIONS
>   *  HR Ozone Maintenance Plan (eff. 6/1/07)
>      - Hourly temperature, relative humidity, and barometric pressure
>
>  ------------------------------
>  EMISSION CONTROLS:
>   * RFG (not applicable for Gloucester and Isle of Wight);
>   * 2007 HDDV including LSD;
>   * NLEV; and
>   * Tier 2 emission standards.
>   * Fuel Economy based on MOBILE6.2 model defaults.
>
>  -------------------------------------
>   * REFUELING EMISSIONS NOT INCLUDED *
>  -------------------------------------
>


REPORT FILE        : C:\M6_HR\RC\HR2034.OUT
DATABASE OUTPUT    :
WITH FIELDNAMES    :
POLLUTANTS         : HC NOX
AGGREGATED OUTPUT  :
EMISSIONS TABLE    : C:\M6_HR\RC\HR2034.TXT   REPLACE


RUN DATA           :
EXPRESS HC AS VOC  :
REG DIST           : C:\M6_HR\RC\CHESA08.RDT
NO REFUELING       :
94+ LDG IMP        : C:\M6_HR\RC\NLEVNE.D
HOURLY TEMPERATURES: 71.77 75.20 77.80 81.07 83.04 84.34 85.79 86.59 87.40 87.27 87.60 87.01
                     85.51 83.21 79.39 77.90 77.02 75.38 73.31 72.91 72.71 71.90 71.20 70.73
FUEL PROGRAM       : 4
 150  149  129  120 120  90  30  30
  30   30   30   30  30  30  30  30
1000 1000 1000 1000 303 303  87  87
  80   80   80   80  80  80  80  80
FUEL RVP           : 6.8
OXYGENATED FUELS   : 1.00 0.00 0.021 0.00 1
SEASON             : 1

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 2.5 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 3.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 4.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
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AVERAGE SPEED      : 5.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 6.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 7.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 8.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 9.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 10.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 11.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 12.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 13.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
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0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 14.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 15.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 16.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 17.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 18.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 19.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 20.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 21.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 22.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
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0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 23.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 24.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 25.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 26.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 27.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 28.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 29.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 30.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 31.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
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VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 32.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 33.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 34.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 35.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 36.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 37.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 38.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 39.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 40.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
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EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 41.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 42.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 43.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 44.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 45.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 46.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 47.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 48.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 49.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
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CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 50.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 51.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 52.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 53.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 54.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 55.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 56.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 57.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 58.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004
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SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 59.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 60.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 61.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 62.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 63.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 64.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

SCENARIO RECORD    : Chesapeake, ROADFHWA 11, Urban Interstate
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
VMT FRACTIONS      :
0.40916 0.09431 0.31396 0.09560 0.04396 0.01267 0.00125 0.00102
0.00076 0.00283 0.00334 0.00363 0.01294 0.00064 0.00030 0.00363
AVERAGE SPEED      : 65.0 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004
END OF RUN         :



EXPRESS HC AS VOC  :
REG DIST           : C:\M6_HR\RC\CHESA08.RDT
NO REFUELING       :
94+ LDG IMP        : C:\M6_HR\RC\NLEVNE.D
HOURLY TEMPERATURES: 71.77 75.20 77.80 81.07 83.04 84.34 85.79 86.59 87.40 87.27 87.60 87.01
                     85.51 83.21 79.39 77.90 77.02 75.38 73.31 72.91 72.71 71.90 71.20 70.73
FUEL PROGRAM       : 4
 150  149  129  120 120  90  30  30
  30   30   30   30  30  30  30  30
1000 1000 1000 1000 303 303  87  87
  80   80   80   80  80  80  80  80
FUEL RVP           : 6.8
OXYGENATED FUELS   : 1.00 0.00 0.021 0.00 1
SEASON             : 1

SCENARIO RECORD    : Chesapeake, ROADFHWA 12, Urban Freeway/Expressway
CALENDAR YEAR      : 2034
EVALUATION MONTH   : 7
```

```
VMT FRACTIONS      :
0.40658 0.09372 0.31200 0.09500 0.04369 0.01456 0.00143 0.00118
0.00088 0.00325 0.00384 0.00417 0.01487 0.00074 0.00034 0.00375
AVERAGE SPEED      : 2.5 FREEWAY 92.0 0.0 0.0 8.0
RELATIVE HUMIDITY  : 83.9 78.1 72.7 63.0 58.5 54.5 50.0 48.9 46.6 46.0 44.7 46.7
                     49.1 55.9 69.0 73.3 74.5 78.1 79.8 80.7 81.7 78.1 82.8 84.3
BAROMETRIC PRES    : 30.004

…
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Appendix D: Consultation

This appendix includes Inter-Agency Consultation Group (ICG) and public consultation materials for the conformity analysis. Attached in reverse chronological order are:

- Letter dated September 15, 2011 from the HRTPO documenting MPO approval of the draft conformity analysis and its finding of conformity

- September 15, 2011 HRTPO Meeting
    - Presentation (PowerPoint slides)

- Public notice for the draft conformity analysis (fourteen-day public review)(posted on the HRTPO website)

- Minutes for the July 6, 2011 ICG Meeting
    - Final Minutes
    - Email Transmittal to the ICG of the draft minutes (without attachment) for comment
        (No material comments received)

- July 7, 2011 HRTPO Website Listing for the ICG and TTAC Meetings:
    - Website list for TTAC meeting, including listing of presentations given
    - ICG Presentation (Adobe Acrobat version)

- July 6, 2011 ICG Meeting
    - Presentation (PowerPoint slides)

- June 30, 2011 Transmittal of the ICG Agenda Package:
    - Email Transmittal
    - ICG Agenda Package
        - ICG Agenda Attachment - Membership List
        - ICG Agenda Attachment - Modeling Methodology and Assumptions
        - ICG Agenda Attachment - Project Lists (*For convenient reference, the project list is attached separately to this report, as Appendix E.)*
        - ICG Agenda Attachment - Conformity Analysis Schedule

- June 29, 2011 HRTPO Public Notices
    - HRTPO Public notice email for the TTAC Meeting
    - HRTPO website notice for the TTAC meeting
    - TTAC agenda (which included a notice for the ICG meeting)

- HRTPO transmittal of certification letter for the project list
    - Email transmittal dated June 21, 2011
    - HRTPO letter dated June 16, 2011 (minus attached project list) certifying that the HRTPO Board "*approved the final list of projects for inclusion in the 2034 Long-Range Transportation Plan that must undergo air quality conformity analysis*".

Appendix D – Consultation Record

Letter from the HRTPO documenting MPO approval of the draft conformity analysis and finding of conformity

HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

WILLIAM D. SESSOMS, JR., CHAIRMAN · MOLLY J. WARD, VICE CHAIR
DWIGHT L. FARMER, EXECUTIVE DIRECTOR/SECRETARY

September 15, 2011

Mr. Dennis W. Heuer, P.E.
Hampton Roads District Administrator
Virginia Department of Transportation
1700 North Main Street
Suffolk, VA 23434

Re: HRTPO Action (2034 LRTP and FY 12-15 TIP Conformity)

Dear ~~Mr. Heuer~~ Dennis:

This is to certify that the Hampton Roads TPO Board, at its meeting on September 15, 2011, approved the Hampton Roads, Virginia Eight-Hour Ozone Maintenance Area Transportation Conformity Analysis for the 2034 Long-Range Transportation Plan (LRTP) and the FY 12-15 Transportation Improvement Program (TIP). The 2034 LRTP project list for the conformity analysis was previously approved by the HRTPO Board on June 16, 2011. The analysis determined that all applicable regulatory requirements and criteria are satisfied and a finding of conformity for the 2034 LRTP and FY 2012-2015 TIP, as amended, is therefore proposed. The draft air quality conformity analysis of the 2034 LRTP and FY 12-15 TIP was made available for public review from August 24, 2011 through September 7, 2011 and no comments were received.

The Executive Summary of the Hampton Roads, Virginia Eight-Hour Ozone Maintenance Area Transportation Conformity Analysis for the 2034 Long-Range Transportation Plan and FY 12-15 Transportation Improvement Program is available for viewing and printing through the HRTPO website at www.hrtpo.org.

Please advise me of any additional information you may need in regard to the foregoing.

Sincerely,

Dwight

Dwight L. Farmer
Executive Director/Secretary

JDP/kg

MAILED
SEP 15 2011
HRPDC

THE REGIONAL BUILDING ·723 WOODLAKE DRIVE · CHESAPEAKE, VIRGINIA 23320 ·757.420. 8300 · FAX 757.523.4881

JDP

Appendix D – Consultation Record

September 15, 2011 HRTPO Meeting:

- Presentation (PowerPoint slides)

Draft Regional Conformity Analysis

Hampton Roads 2034 Long Range Transportation Plan & FY 12-15 Transportation Improvement Program

HRTPO Transportation Planning Organization (TPO) Meeting
September 15, 2011 – 10:30 a.m.
The Regional Board Room, Chesapeake, Va

Christopher Voigt, VDOT Environmental

christopher.voigt@vdot.virginia.gov

(804) 371-6764

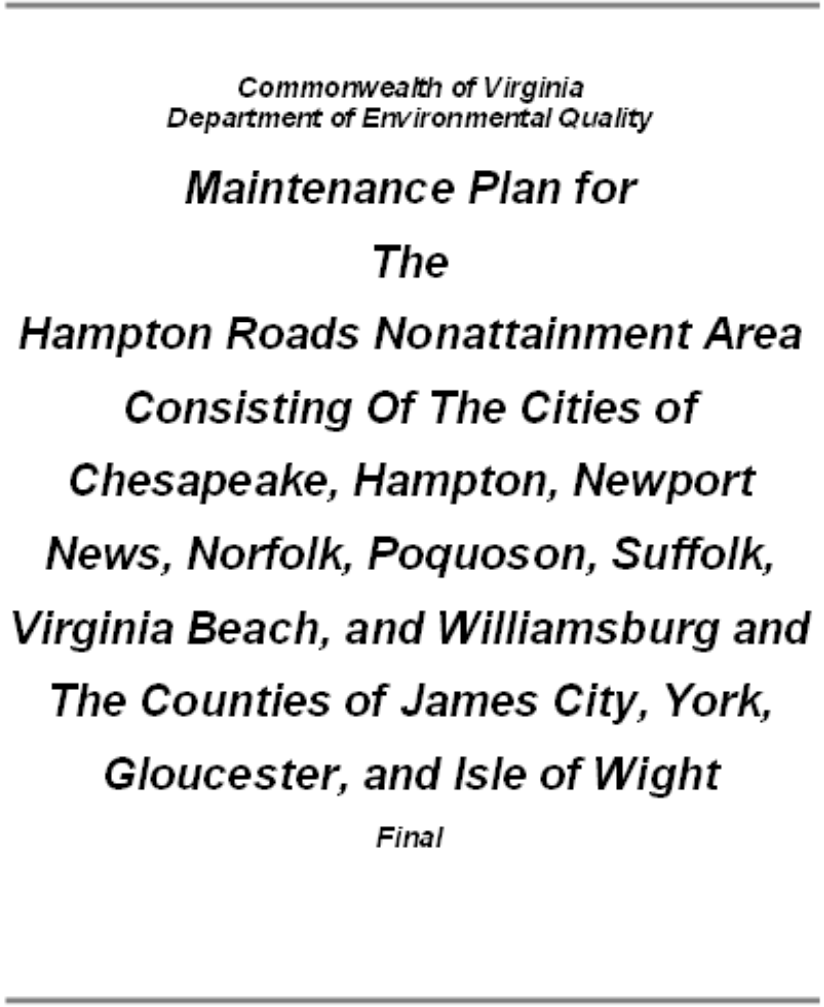
Transportation Conformity

- **Clean Air Act requirement linking air quality & transportation planning**
  - **State Implementation Plan (SIP): CAA Title I***
  - **Conformity in the CAA: CAA Title I §176(c)**
  - **Conformity Regulation: 40 CFR Parts 51 & 93**
- **Key Elements:**
  - **Applies only in air quality nonattainment and maintenance areas**
  - **Major criterion: Motor Vehicle Emission Budgets established in SIP**
    - *CAA Title I §176(c)(2): "...emissions expected from implementation of such [transportation] plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable implementation plan..."*
  - **Other criteria: consultation, fiscal constraint, fund TCMs *if* in SIP, methods**
- **Federal approval required ("finding of conformity")**
  - **Made by the US DOT in consultation with EPA**
  - **May withhold for fiscal constraint**
  - **Time limited: Conformity findings expire after four years (matching Plan and TIP cycles)**

**** http://www.epa.gov/air/caa/title1.html***

http://www.epa.gov/otaq/stateresources/transconf/conf-regs.htm

Hampton Roads 2007 Maintenance Plan for the Eight-Hour Ozone Standard



Commonwealth of Virginia
Department of Environmental Quality

Maintenance Plan for

The

Hampton Roads Nonattainment Area

Consisting Of The Cities of

Chesapeake, Hampton, Newport

News, Norfolk, Poquoson, Suffolk,

Virginia Beach, and Williamsburg and

The Counties of James City, York,

Gloucester, and Isle of Wight

Final

- Developed by DEQ working with the Hampton Roads LPO*
- Based on emission forecasts for all sectors (point, area, nonroad and mobile) for ozone precursors (NO_x and VOC)
  - The emission forecasts for on-road vehicles are the basis for MVEBs for conformity.
  - Assumes new vehicle emission & fuel quality standards (no TCMs).

ADEQUATE AND APPROVED MOTOR VEHICLE EMISSIONS BUDGETS (MVEBS) IN TONS PER DAY (TPD)

Budget year	NO_x	VOC
2011	50.387	37.846
2018	31.890	27.574

Source: Excerpted from 72 FR 30490, effective June 1, 2007.

** See: http://www.deq.virginia.gov/air/planning/lpo.html*

Conformity Analysis Summary*:
Hampton Roads 2034 LRTP & FY 12-15 TIP

Section	Criteria	Demonstrated:
93.108 ***(Pre-requisite)***	Fiscal constraint ***(TPO Determination)***	Yes**
93.110	Latest planning assumptions	Yes
93.111	Latest emissions model	Yes
93.112	Consultation	Yes***
93.113(b) & (c)	TCMs	na****
93.118	Emissions Budget	Yes

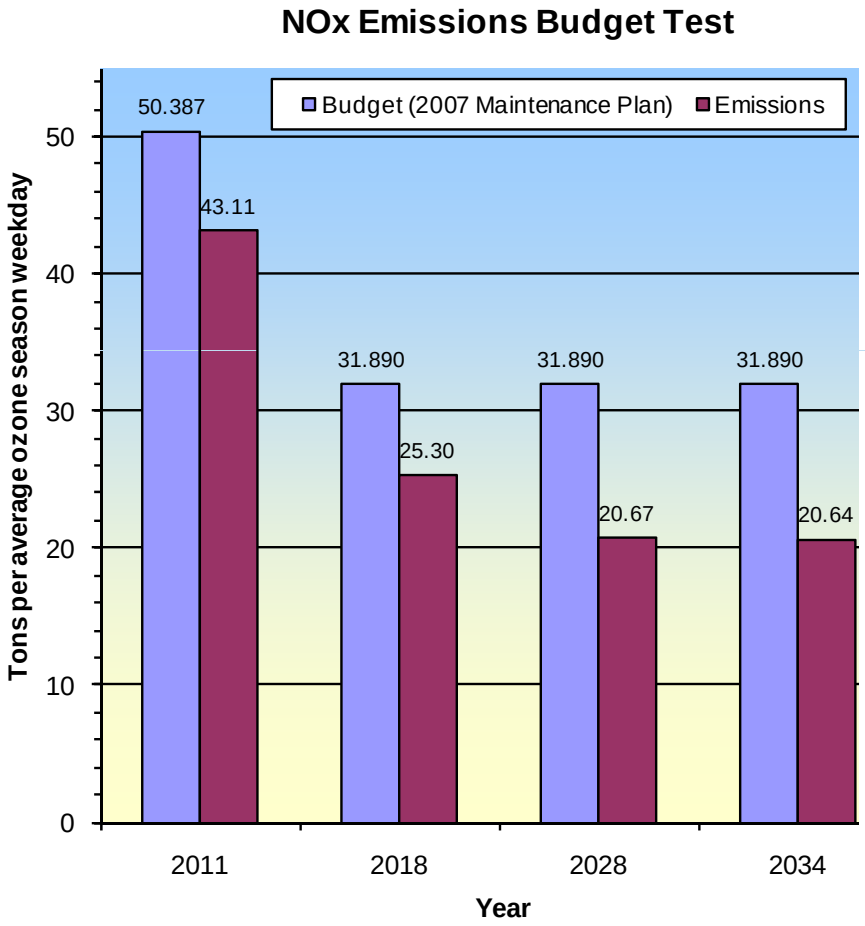
* *As specified in 40 CFR 93.109, "Table 1 – Conformity Criteria", with the addition of fiscal constraint as required in Section 93.108. Additional requirements apply, e.g. as specified in 93.122, although not specifically listed above.*

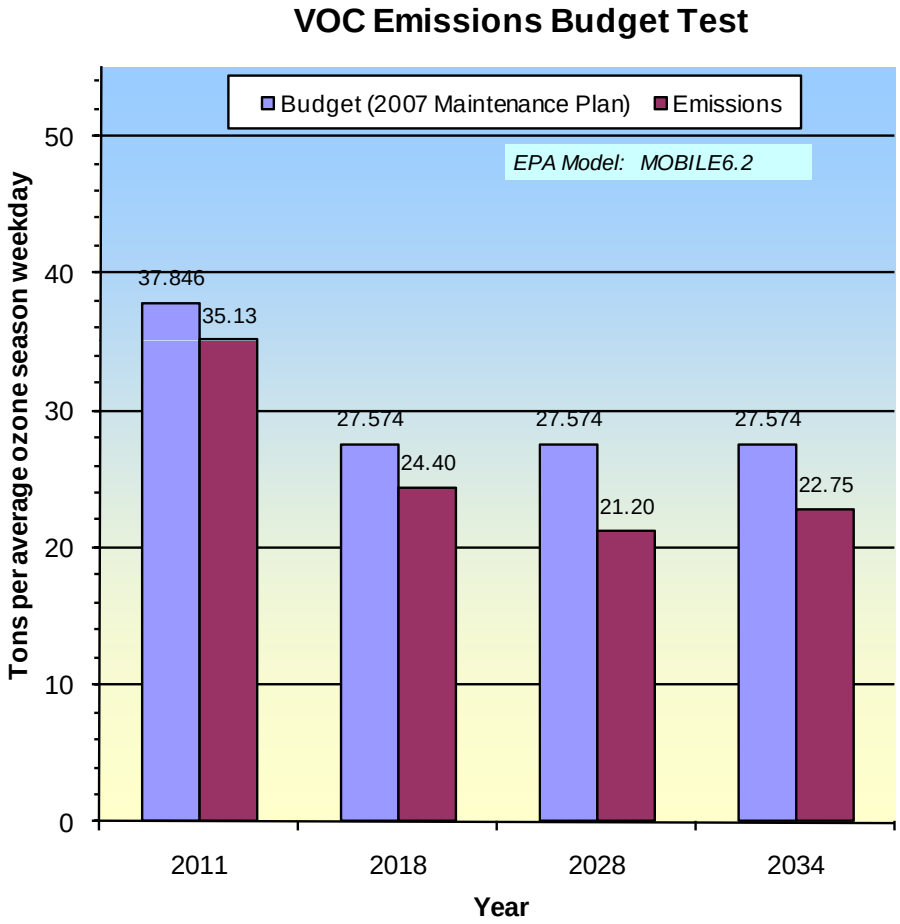
** *As indicated by MPO (HRTPO) approval and/or provision of the project lists for the Plan and Program and the supporting information provided with those documents, and subject to federal review consistent with 23 CFR Part 450 as referenced in the conformity rule in Section 93.108.*

*** *Conducted to meet both state and federal requirements.*

**** *The applicable implementation (maintenance) plan (72 FR 30490, effective June 1, 2007) for Hampton Roads does not include transportation control measures (TCMs), which therefore are not required for the conformity analysis or determination.*

Emission Budget Tests (40 CFR 93.118)*:
Hampton Roads 2034 LRTP & FY 12-15 TIP





* *Budgets as specified for ozone precursors (NO_x and VOC) in the "Maintenance Plan for the Hampton Roads Nonattainment Area..." for the 1997 Eight-Hour Ozone Standard, approved by EPA in June 2007. Both budgets were modeled using the US EPA model MOBILE6.2.*

Requested Action:

Approve the draft air quality conformity analysis and finding of conformity for the 2034 LRTP and FY 2012-2015 TIP

Next:

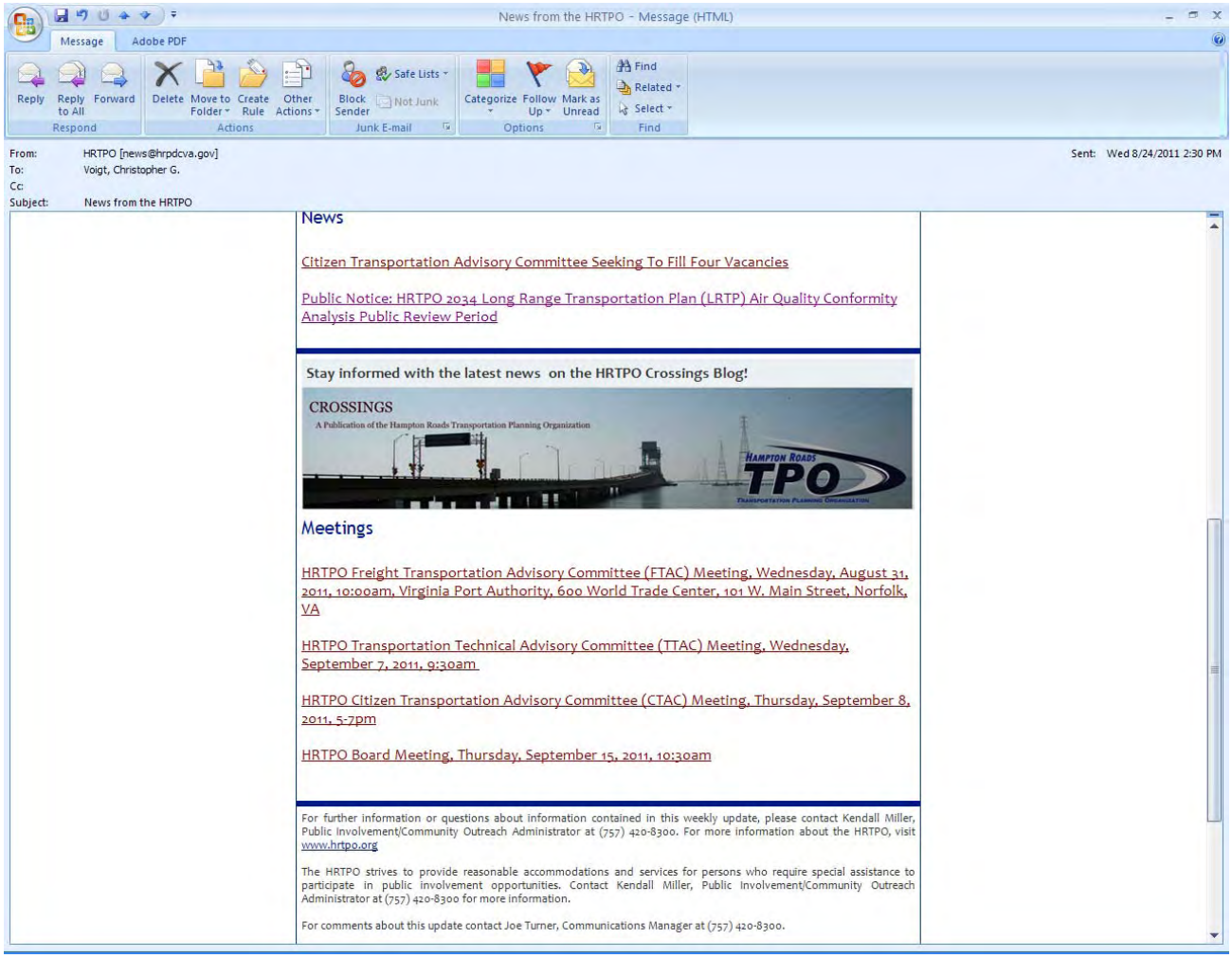
- **US DOT review & approval process**
  - **Conducted in consultation with EPA**
  - **Nominally 45 days**
- **Approval expected: November 2011**

Appendix D – Consultation Record

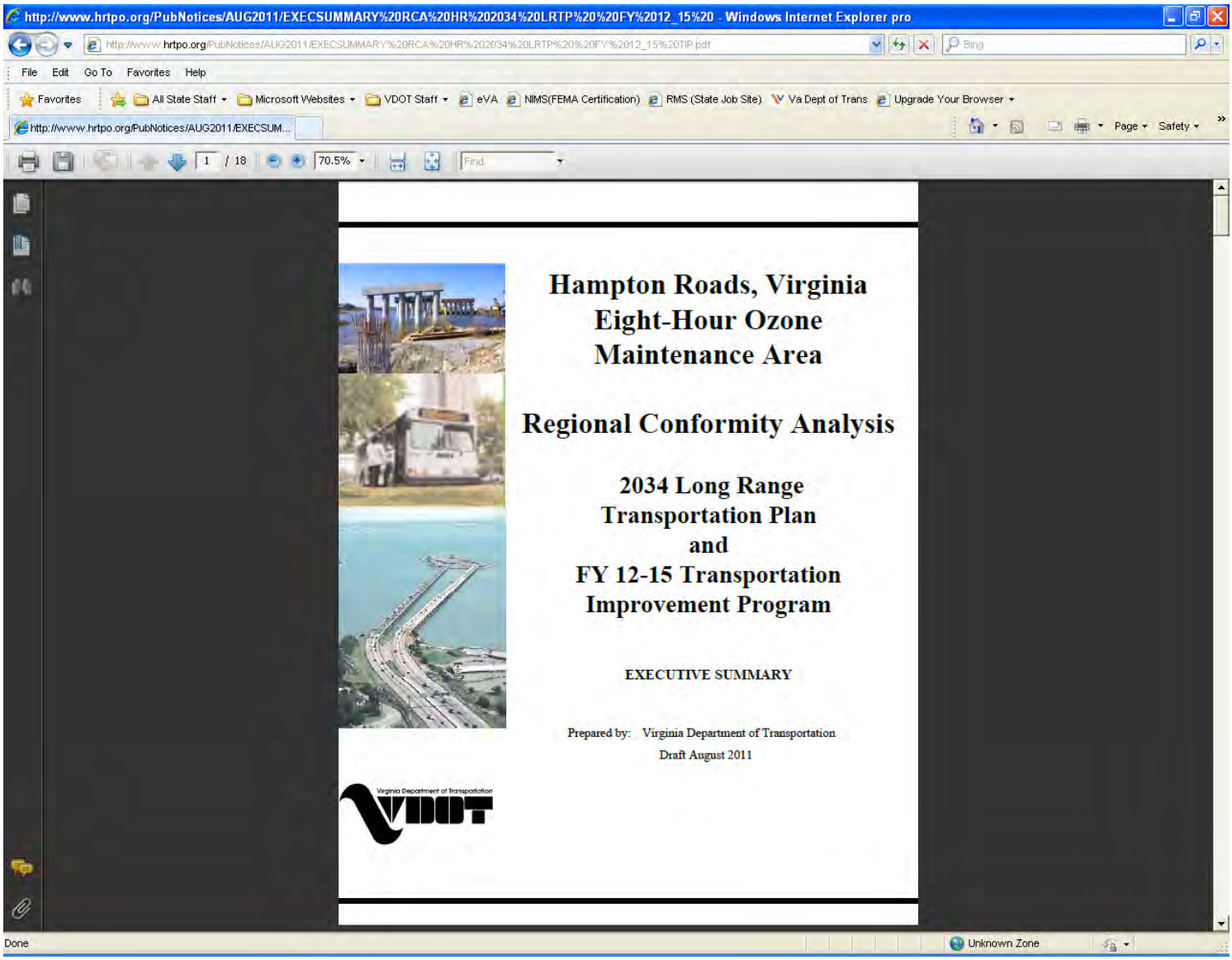
Public notice of a fourteen-day public review period for the draft Conformity Analysis and finding of conformity.

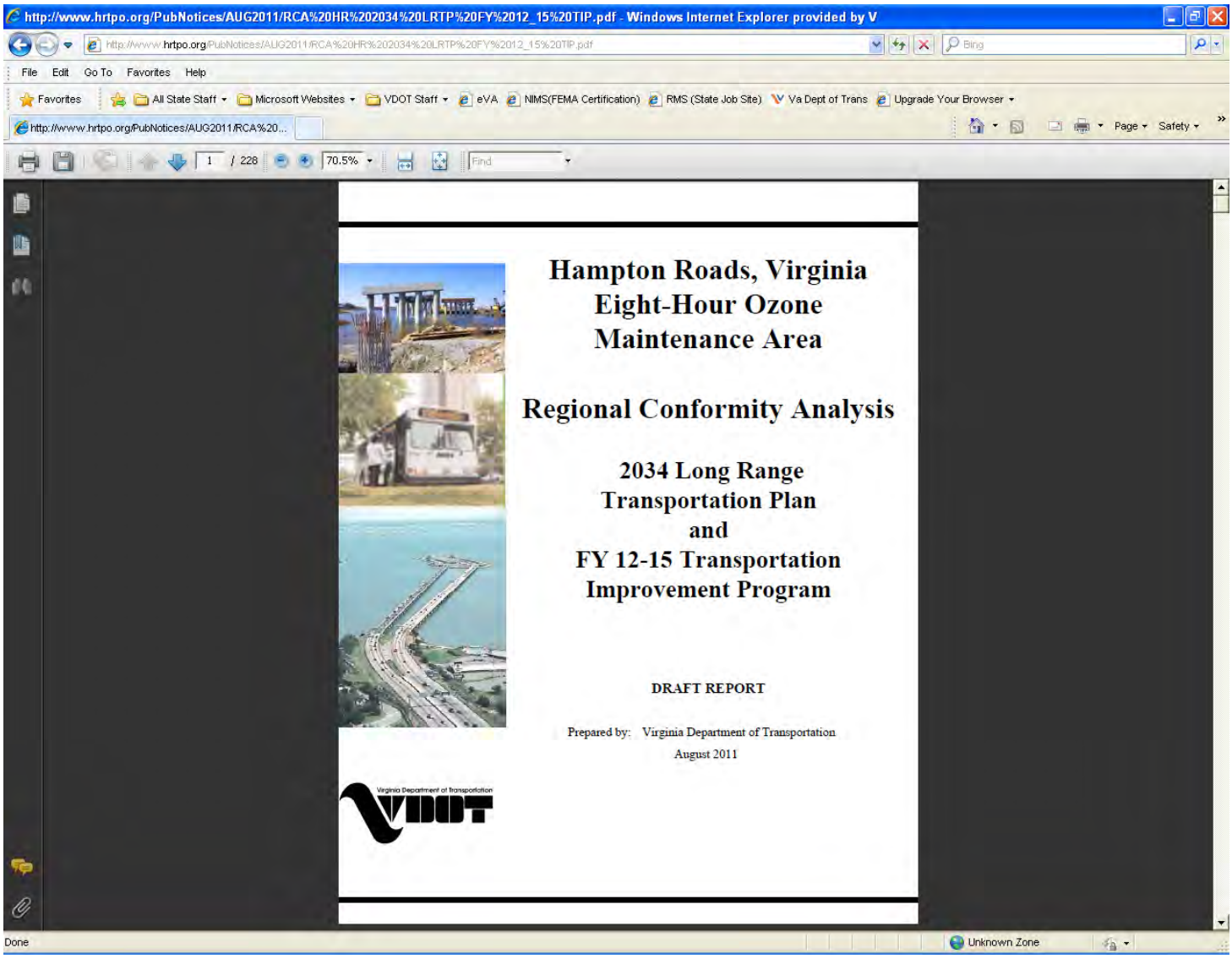
- Public Notice Email, and
- HRTPO Website Notice.


News from the HRTPO - Message (HTML)
Message
Adobe PDF
Reply
Reply to All
Forward
Delete
Move to Folder
Create Rule
Other Actions
Block Sender
Safe Lists
Not Junk
Categorize
Follow Up
Mark as Unread
Find
Related
Select
Respond
Actions
Junk E-mail
Options
Find
From: HRTPO [news@hrpdcva.gov]
To: Voigt, Christopher G.
Cc:
Subject: News from the HRTPO
Sent: Wed 8/24/2011 2:30 PM
Having trouble viewing this email? Click here
Like
HAMPTON ROADS TPO TRANSPORTATION PLANNING ORGANIZATION
Find us on Facebook
Visit our blog
View our videos on YouTube
HRTPO Update
Dwight L Farmer, Executive Director
dfarmer@hrpdcva.gov
Camelia Ravanbakht, Deputy Executive Director
cravanbakht@hrpdcva.gov
Kendall Lynn Miller, Public Involvement & Community Outreach Administrator
kmiller@hrpdcva.gov
Phone:757-420-8300
Fax: 757-523-4881
TTY: 757-390-2578
www.hrtpo.org
Information
FTA Announces $30 Million Initiative Aimed at America's Veterans and Military Families
Explosive Growth in Goods Movement
Virginia Fuel Taxes Among Lowest in Country
New Virginia Hurricane Evacuation Guide Available
News


News from the HRTPO - Message (HTML)
Message
Adobe PDF
Reply
Reply to All
Forward
Delete
Move to Folder
Create Rule
Other Actions
Block Sender
Safe Lists
Not Junk
Categorize
Follow Up
Mark as Unread
Find
Related
Select
Respond
Actions
Junk E-mail
Options
Find
From: HRTPO [news@hrpdcva.gov]
To: Voigt, Christopher G.
Cc:
Subject: News from the HRTPO
Sent: Wed 8/24/2011 2:30 PM
News
Citizen Transportation Advisory Committee Seeking To Fill Four Vacancies
Public Notice: HRTPO 2034 Long Range Transportation Plan (LRTP) Air Quality Conformity Analysis Public Review Period
Stay informed with the latest news on the HRTPO Crossings Blog!
CROSSINGS
A Publication of the Hampton Roads Transportation Planning Organization
HAMPTON ROADS TPO
Meetings
HRTPO Freight Transportation Advisory Committee (FTAC) Meeting, Wednesday, August 31, 2011, 10:00am, Virginia Port Authority, 600 World Trade Center, 101 W. Main Street, Norfolk, VA
HRTPO Transportation Technical Advisory Committee (TTAC) Meeting, Wednesday, September 7, 2011, 9:30am
HRTPO Citizen Transportation Advisory Committee (CTAC) Meeting, Thursday, September 8, 2011, 5-7pm
HRTPO Board Meeting, Thursday, September 15, 2011, 10:30am
For further information or questions about information contained in this weekly update, please contact Kendall Miller, Public Involvement/Community Outreach Administrator at (757) 420-8300. For more information about the HRTPO, visit www.hrtpo.org
The HRTPO strives to provide reasonable accommodations and services for persons who require special assistance to participate in public involvement opportunities. Contact Kendall Miller, Public Involvement/Community Outreach Administrator at (757) 420-8300 for more information.
For comments about this update contact Joe Turner, Communications Manager at (757) 420-8300.


TPO Public Notice - Windows Internet Explorer provided by Virginia IT Partnership
http://www.hrtpo.org/TPO_PubNotice.asp
File Edit View Favorites Tools Help
Favorites All State Staff Microsoft Websites VDOT Staff eVA NIMS(FEMA Certification) RMS (State Job Site) Va Dept of Trans Upgrade Your Browser
TPO Public Notice
Page Safety
About Us
Members
Programs
Get Informed!
Get Involved!
Frequent Questions
Links
Employment
RFP/RFQ
Public Notice
Contact Form
YouTube
Broadcast Yourself
Thoroughgood Elementary Public Outreach Event
Watch HRTPO Board Meetings
Check out the Presentation to the Commonwealth Transportation Board
View the CARMAGGEDON video
Public Notices
TRANSPORTATION AIR QUALITY CONFORMITY ANALYSIS
HRTPO 2034 LONG-RANGE TRANSPORTATION PLAN
AND
FY 2012-2015 TRANSPORTATION IMPROVEMENT PROGRAM
The HRTPO 2034 Long-Range Transportation Plan (LRTP) is currently under development. As part of the development process, the list of projects proposed to be included in the LRTP must undergo an air quality conformity analysis to ensure compliance with the Clean Air Act. The HRTPO Board approved the final LRTP project list for the conformity analysis on June 16, 2011 and the conformity analysis work was begun on July 6, 2011. In conjunction with the conformity analysis for the LRTP, the HRTPO FY 2012-2015 Transportation Improvement Program (TIP) was evaluated to ensure its continued compliance.
Due to the Ozone Maintenance Area designation, the HRTPO is required to perform an air quality conformity analysis whenever significant changes are made to the LRTP or TIP. The analysis ensures the emissions produced by future traffic do not exceed levels prescribed by the Environmental Protection Agency. This announcement provides all interested parties an opportunity to review and provide input regarding the air quality conformity analysis for the HRTPO 2034 LRTP Project List and FY 2012-2015 TIP.
You may access the documents by clicking on the following links:
Executive Summary of Draft Report: Air Quality Conformity Analysis for HRTPO 2034 LRTP Project List & FY 2012-2015 TIP
Draft Report: Air Quality Conformity Analysis for HRTPO 2034 LRTP Project List & FY 2012-2015 TIP
All interested parties are encouraged to review the proposed revisions and send comments to Pavithra Parthasarathi, Principal Transportation Engineer, at pparthasarathi@hrpdcva.gov or by mail to 723 Woodlake Drive, Chesapeake, Virginia 23320. The deadline for comments is September 7, 2011.
The public participation and notification processes of the HRTPO satisfy the individual public participation policies of HRTPO planning partners in accordance with Federal regulations and guidelines.
The HRTPO will strive to provide reasonable accommodations and services for persons who require special assistance to participate in this public involvement opportunity. Contact Kendall Miller, Public Involvement / Community Outreach Administrator at (757) 420-8300 for more information.
Hot Topics
2011 CMAQ/RSTP Project Selection Process
2011 Virginia Hurricane Guide Now Available
VIRGINIA HURRICANE EVACUATION GUIDE
The Draft Hampton Roads Military Transportation Needs Study has generated news media spots. Go to our HRTPO In The News page to watch.
DRAFT
TPO
Governor Bob McDonnell on the Introduction of The Virginia Outer Continental Shelf Energy Production Act of 2011
Governor Bob McDonnell Announces a Nearly $3 Billion Increase in Construction Funding As Commonwealth Transportation Board Adopts Fiscal Years 2012-2017 Six-Year Improvement Program
Internet
90%


http://www.hrtpo.org/PubNotices/AUG2011/EXECSUMMARY%20RCA%20HR%202034%20LRTP%20%20FY%2012_15%20 - Windows Internet Explorer pro
Hampton Roads, Virginia
Eight-Hour Ozone
Maintenance Area
Regional Conformity Analysis
2034 Long Range
Transportation Plan
and
FY 12-15 Transportation
Improvement Program
EXECUTIVE SUMMARY
Prepared by: Virginia Department of Transportation
Draft August 2011
Virginia Department of Transportation
VDOT
Done
Unknown Zone


http://www.hrtpo.org/PubNotices/AUG2011/RCA%20HR%202034%20LRTP%20FY%2012_15%20TIP.pdf - Windows Internet Explorer provided by V
Hampton Roads, Virginia
Eight-Hour Ozone
Maintenance Area
Regional Conformity Analysis
2034 Long Range
Transportation Plan
and
FY 12-15 Transportation
Improvement Program
DRAFT REPORT
Prepared by: Virginia Department of Transportation
August 2011
Virginia Department of Transportation
VDOT
Done
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Appendix D – Consultation Record

Minutes for the ICG Meeting

- Final Minutes
- Email transmittal to the ICG of the draft minutes (without attachment) for comment (no material comments received)

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

9:30 a.m., July 6, 2011
The Regional Boardroom
723 Woodlake Drive, Chesapeake, Virginia 23320

MEMBERS ATTENDING:

Earl Sorey (Chairman), City of Chesapeake
Lynn Allsbrook, City of Hampton
Tom Slaughter for Michael King, City of Newport News
Jeff Raliski, City of Norfolk
Ellen Roberts for Deborah Vest, City of Poquoson
Richard Hartman, City of Portsmouth
Robert Lewis, City of Suffolk
Mark Schnaufer, City of Virginia Beach
Reed Nester, City of Williamsburg
Anne Ducey-Ortiz, Gloucester County
Jane Hill, Isle of Wight County
Steven Hicks, James City County
Tim Cross, York County
Karen Waterman, HRT
Barbara Creel, Williamsburg Area Transport Authority
Dale Stith, HRTPO
Sonya Lewis-Cheatham, VDEQ
Steven Hennessee, VDRPT
Jim Ponticello, VDOT (C/O Environmental)
Jaesup Lee, VDOT (C/O Planning)
Marisel Lopez-Cruz, US DOT (FHWA)
* Tony Cho, US DOT (FTA)
# Martin Kotsch, US EPA

HAMPTON ROADS AIR QUALITY COMMITTEE (LOCAL PLANNING ORGANIZATION FOR AIR QUALITY):

Tom Ballou, Virginia Department of Environmental Quality

OTHER AGENCY:

Mark Shea, City of Chesapeake
John Yorks, City of Hampton
Carl Jackson, City of Newport News
Jackie Kassel, City of Newport News
Rob Brown, City of Norfolk
Kevin Wyne, City of Poquoson
Susan Wilson, City of Portsmouth
Sherry Earley, City of Suffolk
Travis Campbell, City of Virginia Beach
Phil Pullen, City of Virginia Beach
Richard Rudnicki, Isle of Wight County
Michael Stallings, Isle of Wight County
Kevan Danker, Williamsburg Area Transport Authority
Ray Armoruso, HRT
Ron Hodges, TRAFFIX/HRT
Jessica Banks, HRTPO
Sam Belfield, HRTPO
Rob Case, HRTPO
Kathleen Grauberger, HRTPO
Mike Kimbrel, HRTPO
Kendall Miller, HRTPO
Keith Nichols, HRTPO
Benito Pérez, HRTPO
Pavithra Parthasarathi, HRTPO
Joe Paulus, HRTPO
Camelia Ravanbakht, HRTPO
Stephanie Shealey, HRTPO
Caroline Azasoo, VDOT
Mike Estes, VDOT
Kim Farrar, VDOT
Ray Hunt, VDOT
Adam Jack, VDOT
Koustubh Jain, VDOT
Erik Johnson, VDOT
Darryll Lewis, VDOT
Nathan Milaszewski, VDOT
Nakazi Ntlabati, VDOT
Alex Pawlowski, VDOT
Bryant Porter, VDOT
Eric Stringfield, VDOT
Steve Rowan, VDOT
Christopher Voigt, VDOT
Heather Wood, Virginia Port Authority

Ivan Rucker, US DOT (FHWA)

PUBLIC:

John Herzke, Clark Nexsen
Ray Taylor, FHI
Stephen Brich, Kimley-Horn & Assoc.
Rich Clifton, RK&K

 # Participated by telephone conference call.
** Neither present nor represented by proxy.*

FHWA – Federal Highway Administration
FTA – Federal Transit Administration
HRTPO – Hampton Roads Transportation Planning Organization
HRT – Hampton Roads Transit
US EPA – US Environmental Protection Agency
US DOT – US Dept. of Transportation
VDEQ – Virginia Dept. of Environmental Quality
VDOT – Virginia Dept. of Transportation
VDRPT – Virginia Dept. of Rail and Public Transit
VPA – Virginia Port Authority

Call to Order

The meeting was called to order at approximately 9:30 a.m. by the Mr. Earl Sorey, City of Chesapeake, who serves the chairman of the HRTPO Transportation Technical Advisory Committee (TTAC) and agreed to serve as chairman for this meeting of the ICG.

Ms. Marisel Lopez-Cruz, FHWA and Mr. Martin Kotsch, US EPA joined the meeting via teleconference.

Public Comment Period

Mr. Sorey provided an opportunity for any members of the public that were present at the meeting to speak for up to three minutes each. No comments were received.

Approval of Agenda

Mr. Sorey requested comments on the agenda including suggestions for additions or deletions. No comments or requests for changes were received.

Mr. Sorey then introduced Mr. Christopher Voigt, VDOT, to give a presentation on the main agenda topics. Copies of the presentation had been distributed beforehand by email to those participating by teleconference.

MAIN AGENDA

1. Inter-Agency Consultation Group (ICG) Membership

Mr. Voigt presented a list of the current members of the ICG, a copy of which was included with the agenda package distributed by email a week before the meeting. An opportunity to make further updates to the list was provided to those in attendance. No requests for updates or changes to the membership list were received at the meeting.

Agenda Item #1: ICG Membership

Agency		*Staff*	
City/County			
City of Chesapeake		Earl	Sorey
City of Hampton		Lynn	Allsbrook
City of Newport News		Michael	King
City of Norfolk		Jeffrey	Raliski
City of Poquoson		Deborah	Vest
City of Portsmouth		Richard	Hartman
City of Suffolk		Robert	Lewis
City of Virginia Beach		*Mark*	*Schnaufer*
City of Williamsburg		Reed	Nester
Gloucester County		Anne	Ducey-Ortiz
Isle of Wight County		Jane	Hill
James City County		Steven	Hicks
York County		Timothy	Cross
Regional			
Hampton Roads Transportation Planning Organization		Dale	Stith
Hampton Roads Transit		Karen	Waterman
Williamsburg Area Transit Authority		*Barbara*	*Creel*
State			
Virginia Dept. of Environmental Quality		Sonya	Lewis-Cheatham
Virginia Dept. of Rail & Public Transportation		Steven	Hennessee
Virginia Dept. of Transportation – C/O Environmental		Jim	Ponticello
Virginia Dept. of Transportation – C/O Planning		Jaesup	Lee
Federal			
Environmental Protection Agency		Martin	Kotsch
Federal Highway Administration		Marisel	Lopez-Cruz
Federal Transit Administration		Tony	Cho
Alternates / Other (non-voting)			
City of Suffolk	*Alternate*	Sherry	Earley
	Other	Scott	Mills
Isle of Wight County		*Michael*	*Stallings*
James City County		Allen	Murphy
US Navy		Jennifer	Tabor

2. Regional Conformity Analysis for the Hampton Roads 2034 Long Range Transportation Plan (LRTP) and Amended FY 12-15 Transportation Improvement Program (TIP)

Mr. Voigt reviewed the general criteria and consultation requirements criteria for the conformity analysis as specified in the federal and state conformity rules and the ICG Consultation Procedures.

The key criteria specified in the federal conformity rule include: fiscal constraint (93.108); latest planning assumptions (93.110), latest emissions model (93.111), consultation (93.112), transportation control measures or TCMs (93.113b & c), and emissions budget (93.118).

Fiscal constraint is determined by the TPO for the LRTP and TIP and documented with those reports, and is effectively a prerequisite for the air quality conformity analysis. The project list as provided for the conformity analysis by HRTPO and District planning staff and considered by the ICG therefore must be fiscally constrained before the conformity analysis is initiated.

Federal and state regulations require consultation for transportation conformity purposes. Additionally, HRTPO consultation procedures for conformity, which are referenced in the HRTPO Transportation Participation Plan, are being followed for this conformity analysis. Consultation is specifically to be conducted for the:

- schedule for the conformity analysis, provided in draft form as Attachment 2a to the agenda,
- emission model and associated methods and assumptions, and
- the identification of regionally significant projects,.

Consultation on the schedule is a requirement of the ICG Procedures, and not the federal or state regulations. More detail on the models to be applied in the analysis and the modeling inputs and methodology is provided in Attachment 2b to the agenda. The project list for modeling is provided as Attachment 2c to the agenda.

2(a). Draft Conformity Analysis Schedule

A copy of the proposed schedule was included in the agenda package. An updated excerpt (copied below) showing just the future steps in the conformity analysis was presented at the meeting. Consultation items and approval steps were highlighted in the presentation.

2(b). Modeling Methodology and Assumptions

Mr. Voigt noted that a detailed review of the methodology and assumptions was included with the agenda package distributed before the meeting. A general overview of the methodology and assumptions to be applied in the analysis was then presented.

The conformity test to be applied for this analysis is the emission budget test. Emission budgets or caps were established in the applicable (air quality) state implementation plan revision for Hampton Roads, which is the maintenance plan for the eight-hour ozone standard approved by EPA in 2007. The 2007 maintenance plan specified budgets for the years 2011 and 2018 for the two primary precursors to ozone, i.e., nitrogen oxides (NO_x) and volatile organic compounds (VOC).

The federal conformity rule requires the conformity tests be applied not only for years for which emission budgets are specified but also for the horizon year of the LRTP (2034) as well as an interim year such that other analysis years are no more than ten years apart. The year 2028 was selected as an interim year to satisfy the latter requirement. Following the requirements of the federal conformity rule, the budget specified for 2018 also applies for the later years to be tested (in this case, 2028 and 2034).

Draft Conformity Analysis Schedule

CONFORMITY ANALYSIS & APPROVALS	
July	• 6th: **Interagency Consultation Group (ICG) Kickoff Meeting: Review of methodology, assumptions and the project list for modeling for the conformity analysis.** *PROJECT LIST FOR MODELING FINALIZED AT THE ICG. CHANGES MADE AT THE ICG MAY BE CONDITIONAL ON SUBSEQUENT TTAC/TPO APPROVAL WITHOUT FURTHER CHANGE. ANY CHANGES SUBSEQUENT TO THE ICG MEETING MAY REQUIRE RESTARTING THE CONFORMITY PROCESS.*
August	• 1st: Transportation network modeling completed & results transmitted to VDOT Air Quality. ○ Emission modeling and update of associated draft conformity analysis report text initiated. • 15th: **Draft conformity analysis completed.** Emission modeling, conformity determination & draft report. • 16th-18th: VDOT/VDEQ/HRTPO staff review of draft conformity analysis. • 22nd: Draft Conformity Analysis transmitted to HRTPO for the TTAC meeting agenda. • 24th: HRTPO Initiation of 14-day Public Review for the draft conformity analysis & finding (ends 9/7).
September	• 7th: TTAC reviews & recommends approval of draft conformity analysis & finding, subject to receipt of no adverse comment in public review or none requiring TTAC review. • 8th-9th as needed: VDOT/HRTPO staff review and draft response to comments received (if any) in public review, for consideration by the HRTPO. • 15th: **TPO approval of the final draft conformity analysis and finding** (and the response to comments if any). (Consent Agenda) Next Day: • TPO approval letter issued and signed copy emailed to VDOT. • VDOT emails the Final Conformity Analysis with the TPO Letter to FHWA to initiate the federal review and approval process. • VDOT sends Final Report with TPO approval letter to printing. Federal review period (typically 45 days) begins upon receipt of the final report by email. FHWA coordinates the review with FTA and consults with EPA. • 23rd: VDOT transmits print copies of the Final Conformity Analysis and TPO Letter to FHWA for their records.
November	• 4th: **US DOT Finding of Conformity** (letter from FHWA).

For context, Table 5.2-1 "*Hampton Roads Area VOC, NO_x and CO Emissions from 2005 to 2018*" from the 2007 maintenance plan was presented. The table shows the mobile source (on-road motor vehicle) emission budgets for 2011 and 2018 in relation to forecast emissions for all sources (i.e., including the point, area and non-road sectors). The motor vehicle emission budgets specified in the maintenance plan and listed in this table include estimates for emissions from all on-road motor vehicles operating on all roads within the Hampton Roads region for a "typical summer day" in each year listed. Therefore, the emission forecasts to be generated in conformity analyses for comparison to these budgets must similarly include all on-road traffic operating on all roadways in the region in each forecast year. This is why a conformity analysis may be initiated and a federal conformity determination or approval sought for an updated TIP (or LRTP) individually, but the modeling for the conformity analysis must still include estimates for emissions from all on-road vehicles on all roads in the region for each year being modeled. In other words, the regional modeling networks used in conformity analyses need to include all of the projects from both the TIP and Plan that are scheduled to be completed and open to traffic by each year to be modeled.

Hampton Roads 2007 Maintenance Plan Excerpt (Table 5.2-1)

Table 5.2-1
Hampton Roads Area VOC, NO_X, and CO Emissions from 2005 to 2018

Volatile Organic Compounds (VOC) in Tons/Day					
Year	Point	Area[1]	Nonroad	Mobile[3]	Total (tons/day)
Year 2005	20.091	91.980	42.320	50.591	204.982
Year 2011	23.280	100.960	33.912	37.846	195.998
DIFF. (05-11)	3.189	8.980	-8.408	-12.745	-8.984
Year 2018	26.700	112.790	31.315	27.574	198.379
DIFF. (05-18)	6.609	20.810	-11.005	-23.017	-6.603
Nitrogen Oxides (NO_X) in Tons/Day					
Year	Point	Area[2]	Nonroad	Mobile[3]	Total
Year 2005	62.536	55.207	30.208	78.169	226.120
Year 2011	69.333	56.974	29.116	50.387	205.810
DIFF. (05-11)	6.797	1.767	-1.092	-27.782	-20.310
Year 2018	75.241	60.105	23.093	31.890	190.329
DIFF. (05-18)	12.705	4.898	-7.115	-46.279	-35.791

The general approach to modeling emissions for the conformity analysis was then reviewed. Emissions are generally calculated as the product of estimates for emission factors and vehicle-miles-traveled (VMT).

To meet the requirements of the federal conformity rule at 93.111 for the use of the latest emission model, MOBILE6.2 will be applied for this analysis for the modeling of emission factors. The use of the MOBILE6.2 model is within the two-year grace period for the transition to the new MOVES2010 model, and is consistent with the emission budgets specified for the region as they were also developed using the MOBILE6.2 model. The MOBILE6.2 model was also applied in the previous conformity analysis for the Hampton Roads area.

Sensitivities for emission factors generated with the MOBILE6.2 model were noted generally as including vehicle type & age/mileage (regulatory class & condition), fuel specifications, meteorology, and operations (roadway class & speeds). There were no updates to the inputs for the modeling for emission factors for this analysis since the previous conformity analysis (completed in June of this year). The modeled emission factors to be applied in this analysis therefore will be the same as in the last analysis, with new factors generated using the same model inputs for the new modeling years (2028 and 2034). Emission factors will no longer be needed for the modeling years (2020 and 2030) selected in the previous conformity analysis but not needed for this analysis.

Updated forecasts for VMT will be developed using the regional transportation model (TP+) and a post-processor, following the same general approach as applied in the previous conformity analysis but with updated socioeconomic forecasts (for 2034) and the new project list (for the 2034 LRTP and amended FY 12-15 TIP). The latter is reviewed in more detail on the following slide.

The introduction of the new (2034) socioeconomic forecasts is consistent with the requirements for the use of latest planning assumptions requirements as specified in the federal conformity rule

at 40 CFR 93.110(b): "*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...*" A summary tabulation of the 2034 (and associated interim year) forecasts was presented as follows:

2034 Socioeconomic Forecasts Adopted by the HRTPO (June 2007)

Year	Hampton Roads LRTP Study Area			
	Population	Households	Automobiles	Employment
2011	1,687,548	630,049	1,307,269	1,035,097
2018	1,787,236	672,902	1,449,002	1,085,370
2028	1,929,640	734,147	1,651,496	1,157,284
2034	2,015,100	770,900	1,773,000	1,200,400

Note the post-processor also handles calculations for congested speeds as well as developing VMT and emission forecasts for off-network facilities. Congested speeds are estimated using standard Bureau of Public Roads (BPR) formulae for signalized and unsignalized facilities. The separate calculations conducted for "off-network" facilities are for minor facilities, namely local and collector roads, that are not captured in the regional network model.

No comments were received on the proposed methodology or assumptions.

2(c). Regionally Significant Projects (Draft Project List for the 2034 LRTP and the Amended FY 12-15 TIP)

Mr. Voigt noted that the draft project list for modeling for the conformity analysis was included with the agenda package distributed for the meeting. The combined list includes projects from both the new 2034 LRTP as well as the FY 12-15 TIP, and is as provided by TPO staff working with District staff. The project list for modeling for conformity includes one project, UPC 17568 (Nansemond Parkway, for which 2018 was listed as its first modeling year), for which TPO and District planning staff have advised that the FY 12-15 TIP needs to be amended for consistency with the new 2034 LRTP. The needed TIP amendment will be processed through the TTAC and HRTPO Board in September, and the conformity analysis will therefore be contingent on the approval of that amendment without change.

Key regulatory requirements for the project lists were presented as follows:

- 40 CFR 93.101: "*Regionally significant project means a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.*"

- 40 CFR 93.108: "*Transportation plans and TIPs must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450 in order to be found in conformity*."
- 23 CFR 450.324g: "*Each project or project phase included in the TIP shall be consistent with the approved metropolitan transportation plan.*"

In other words, the project list for modeling for the conformity analysis needs to include all regionally significant projects for both the Plan and TIP, which must meet fiscal constraint and consistency requirements. Additionally, any adjustments requested today would need to meet these same requirements.

Mr. Eric Stringfield, VDOT Hampton Roads District, noted additional changes may be processed at the same time as the proposed amendment in September.

No changes for regionally significant projects as presented in the draft project list were proposed.

Consensus Items (per ICG Procedures)

ICG consensus for the following items was requested:

- Schedule (Attachment 2a)

- Methodology & Assumptions (See Attachment 2b)
  Latest emission model: MOBILE6.2, within grace period for MOVES2010

- Latest Planning Assumptions (and associated modeling data and assumptions):
  2034 socioeconomic forecasts

- Regionally Significant Projects (Attachment 2c)
  2034 LRTP & amended FY 12-15 TIP, including UPC 17568 Nansemond Parkway (open by 2018), with amendments to the TIP subject to approvals by the TTAC and/or TPO as needed.

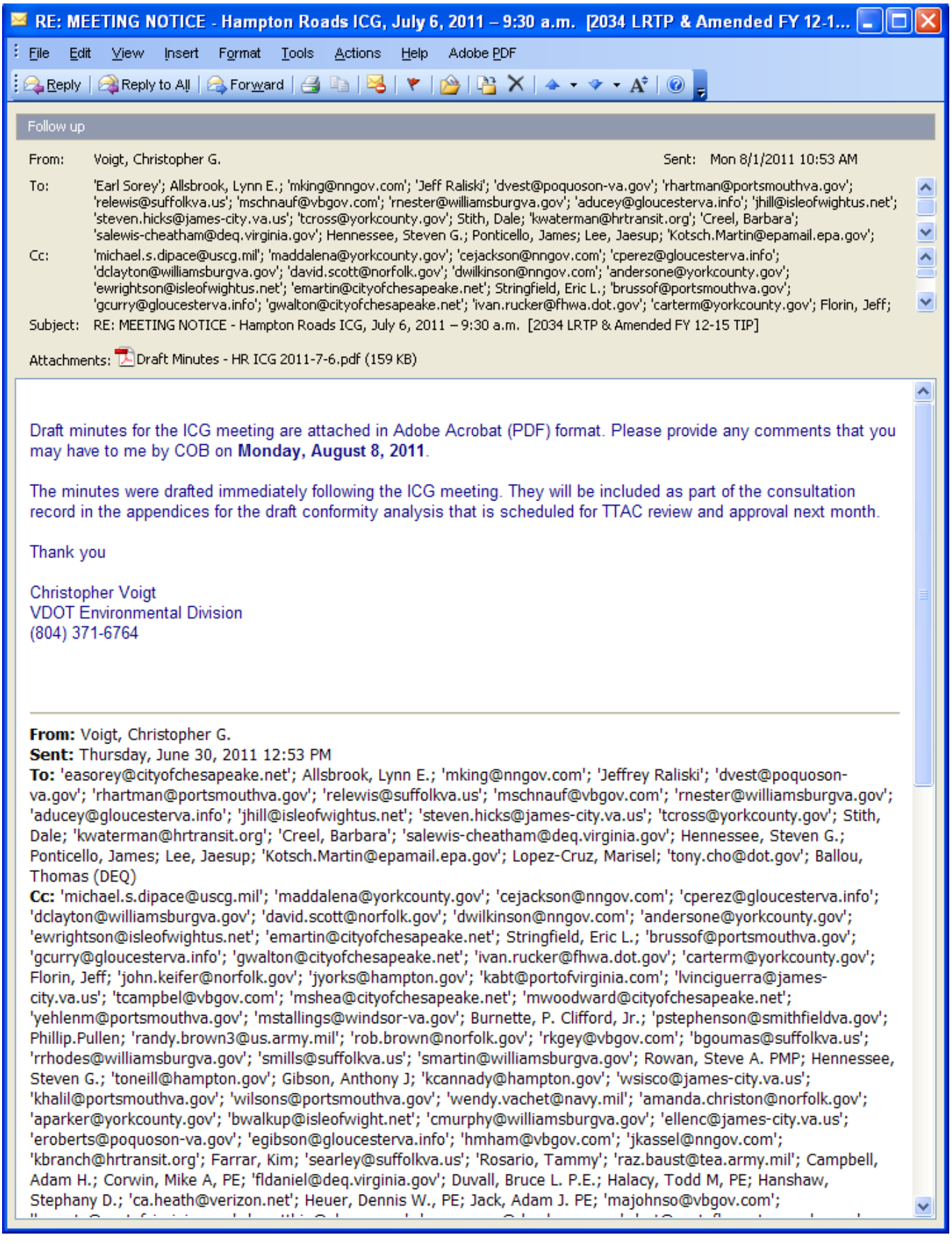
Mr. Jim Ponticello, VDOT, made a motion to approve the consensus items as presented, and project list changes as discussed. Mr. Mark Schnaufer, City of Virginia Beach, seconded the motion. The ICG voted unanimously to approve the motion.

3. Next Steps

Mr. Voigt noted the next steps would be to initiate modeling for the conformity analysis, with completion of the draft report scheduled for the September 2011 TTAC. The approval of the conformity analysis and its finding of conformity will be contingent on the concurrent approval in September of the amendment for UPC 17568 as discussed.

The ICG meeting was then adjourned.

CV



RE: MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-1...

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Follow up

From: Voigt, Christopher G. Sent: Mon 8/1/2011 10:53 AM

To: 'Earl Sorey'; Allsbrook, Lynn E.; 'mking@nngov.com'; 'Jeff Raliski'; 'dvest@poquoson-va.gov'; 'rhartman@portsmouthva.gov'; 'relewis@suffolkva.us'; 'mschnauf@vbgov.com'; 'rnester@williamsburgva.gov'; 'aducey@gloucesterva.info'; 'jhill@isleofwightus.net'; 'steven.hicks@james-city.va.us'; 'tcross@yorkcounty.gov'; Stith, Dale; 'kwaterman@hrtransit.org'; 'Creel, Barbara'; 'salewis-cheatham@deq.virginia.gov'; Hennessee, Steven G.; Ponticello, James; Lee, Jaesup; 'Kotsch.Martin@epamail.epa.gov';

Cc: 'michael.s.dipace@uscg.mil'; 'maddalena@yorkcounty.gov'; 'cejackson@nngov.com'; 'cperez@gloucesterva.info'; 'dclayton@williamsburgva.gov'; 'david.scott@norfolk.gov'; 'dwilkinson@nngov.com'; 'andersone@yorkcounty.gov'; 'ewrightson@isleofwightus.net'; 'emartin@cityofchesapeake.net'; Stringfield, Eric L.; 'brussof@portsmouthva.gov'; 'gcurry@gloucesterva.info'; 'gwalton@cityofchesapeake.net'; 'ivan.rucker@fhwa.dot.gov'; 'carterm@yorkcounty.gov'; Florin, Jeff;

Subject: RE: MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-15 TIP]

Attachments: Draft Minutes - HR ICG 2011-7-6.pdf (159 KB)

Draft minutes for the ICG meeting are attached in Adobe Acrobat (PDF) format. Please provide any comments that you may have to me by COB on **Monday, August 8, 2011**.

The minutes were drafted immediately following the ICG meeting. They will be included as part of the consultation record in the appendices for the draft conformity analysis that is scheduled for TTAC review and approval next month.

Thank you

Christopher Voigt
VDOT Environmental Division
(804) 371-6764

From: Voigt, Christopher G.
Sent: Thursday, June 30, 2011 12:53 PM
To: 'easorey@cityofchesapeake.net'; Allsbrook, Lynn E.; 'mking@nngov.com'; 'Jeffrey Raliski'; 'dvest@poquoson-va.gov'; 'rhartman@portsmouthva.gov'; 'relewis@suffolkva.us'; 'mschnauf@vbgov.com'; 'rnester@williamsburgva.gov'; 'aducey@gloucesterva.info'; 'jhill@isleofwightus.net'; 'steven.hicks@james-city.va.us'; 'tcross@yorkcounty.gov'; Stith, Dale; 'kwaterman@hrtransit.org'; 'Creel, Barbara'; 'salewis-cheatham@deq.virginia.gov'; Hennessee, Steven G.; Ponticello, James; Lee, Jaesup; 'Kotsch.Martin@epamail.epa.gov'; Lopez-Cruz, Marisel; 'tony.cho@dot.gov'; Ballou, Thomas (DEQ)
Cc: 'michael.s.dipace@uscg.mil'; 'maddalena@yorkcounty.gov'; 'cejackson@nngov.com'; 'cperez@gloucesterva.info'; 'dclayton@williamsburgva.gov'; 'david.scott@norfolk.gov'; 'dwilkinson@nngov.com'; 'andersone@yorkcounty.gov'; 'ewrightson@isleofwightus.net'; 'emartin@cityofchesapeake.net'; Stringfield, Eric L.; 'brussof@portsmouthva.gov'; 'gcurry@gloucesterva.info'; 'gwalton@cityofchesapeake.net'; 'ivan.rucker@fhwa.dot.gov'; 'carterm@yorkcounty.gov'; Florin, Jeff; 'john.keifer@norfolk.gov'; 'jyorks@hampton.gov'; 'kabt@portofvirginia.com'; 'lvinciguerra@james-city.va.us'; 'tcampbel@vbgov.com'; 'mshea@cityofchesapeake.net'; 'mwoodward@cityofchesapeake.net'; 'yehlenm@portsmouthva.gov'; 'mstallings@windsor-va.gov'; Burnette, P. Clifford, Jr.; 'pstephenson@smithfieldva.gov'; Phillip.Pullen; 'randy.brown3@us.army.mil'; 'rob.brown@norfolk.gov'; 'rkgey@vbgov.com'; 'bgoumas@suffolkva.us'; 'rrhodes@williamsburgva.gov'; 'smills@suffolkva.us'; 'smartin@williamsburgva.gov'; Rowan, Steve A. PMP; Hennessee, Steven G.; 'toneill@hampton.gov'; Gibson, Anthony J; 'kcannady@hampton.gov'; 'wsisco@james-city.va.us'; 'khalil@portsmouthva.gov'; 'wilsons@portsmouthva.gov'; 'wendy.vachet@navy.mil'; 'amanda.christon@norfolk.gov'; 'aparker@yorkcounty.gov'; 'bwalkup@isleofwight.net'; 'cmurphy@williamsburgva.gov'; 'ellenc@james-city.va.us'; 'eroberts@poquoson-va.gov'; 'egibson@gloucesterva.info'; 'hmham@vbgov.com'; 'jkassel@nngov.com'; 'kbranch@hrtransit.org'; Farrar, Kim; 'searley@suffolkva.us'; 'Rosario, Tammy'; 'raz.baust@tea.army.mil'; Campbell, Adam H.; Corwin, Mike A, PE; 'fldaniel@deq.virginia.gov'; Duvall, Bruce L. P.E.; Halacy, Todd M, PE; Hanshaw, Stephany D.; 'ca.heath@verizon.net'; Heuer, Dennis W., PE; Jack, Adam J. PE; 'majohnso@vbgov.com';

RE: MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-1...

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Follow up

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To: 'Earl Sorey'; Allsbrook, Lynn E.; 'mking@nngov.com'; 'Jeff Raliski'; 'dvest@poquoson-va.gov'; 'rhartman@portsmouthva.gov'; 'relewis@suffolkva.us'; 'mschnauf@vbgov.com'; 'rnester@williamsburgva.gov'; 'aducey@gloucesterva.info'; 'jhill@isleofwightus.net'; 'steven.hicks@james-city.va.us'; 'tcross@yorkcounty.gov'; Stith, Dale; 'kwaterman@hrtransit.org'; 'Creel, Barbara'; 'salewis-cheatham@deq.virginia.gov'; Hennessee, Steven G.; Ponticello, James; Lee, Jaesup; 'Kotsch.Martin@epamail.epa.gov';

Cc: 'michael.s.dipace@uscg.mil'; 'maddalena@yorkcounty.gov'; 'cejackson@nngov.com'; 'cperez@gloucesterva.info'; 'dclayton@williamsburgva.gov'; 'david.scott@norfolk.gov'; 'dwilkinson@nngov.com'; 'andersone@yorkcounty.gov'; 'ewrightson@isleofwightus.net'; 'emartin@cityofchesapeake.net'; Stringfield, Eric L.; 'brussof@portsmouthva.gov'; 'gcurry@gloucesterva.info'; 'gwalton@cityofchesapeake.net'; 'ivan.rucker@fhwa.dot.gov'; 'carterm@yorkcounty.gov'; Florin, Jeff;

Subject: RE: MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-15 TIP]

Attachments: Draft Minutes - HR ICG 2011-7-6.pdf (159 KB)

Stephany D.; 'ca.heath@verizon.net'; Heuer, Dennis W., PE; Jack, Adam J. PE; 'majohnso@vbgov.com'; 'hmantz@portofvirginia.com'; 'rmatthia@vbgov.com'; 'smoazzam@dewberry.com'; 'art@portofhamptonroads.com'; Partridge, Raymond T.; 'mrickards@james-city.va.us'; 'crussell@hrtransit.org'; 'kshaffer@cityofchesapeake.net'; 'dsullivan@hrtransit.org'; 'atsybin@nngov.com'; Van Dussen, Craig; 'bjwheele@vbgov.com'; 'Allen Murphy (ajmurphy@james-city.va.us)'; 'mstallings@windsor-va.gov'; 'jennifer.tabor@navy.mil'; Mannell, Robert B.; Tucker, Chad J.; Curling, Samuel F.; Farmer, Dwight L.; Ravanbakht, Camelia; Parthasarathi, Pavithra; 'Mike Kimbrel'; Perez, Benito; 'Joe Paulus'; Nichols, Keith; Case, Robert B.; 'Samuel BELFIELD'; 'Stephanie SHEALEY'; 'Jessica Banks'; 'Kendall Miller'; Gibson, Anthony J; Hunt, Alan R. 'Ray'; Sundra, Edward

Subject: MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-15 TIP]

To: Members of the Hampton Roads Interagency Consultation Group
Hampton Roads Air Quality Committee (DEQ Staff Representative)

Subject: Hampton Roads ICG Meeting

An Inter-Agency Consultation Group (ICG) meeting is scheduled for **Wednesday, July 6, 2011, beginning at 9:30 AM**. The regularly scheduled Transportation Technical Advisory Committee (TTAC) meeting will start immediately following the completion of the ICG meeting. The ICG meeting will serve to initiate the consultation process for the upcoming air quality conformity analysis for the new Hampton Roads 2034 Long Range Transportation Plan (LRTP) and amended FY 12-15 Transportation Improvement Program (TIP). A copy of the ICG agenda package in Adobe Acrobat (pdf) format is attached.

A call-in line will be arranged for those who would like to participate by teleconference. Please let me know by close of business on Friday, July 1, 2011 if you plan to call in.

Please note that a quorum is needed for this meeting. If you are unable to attend the meeting, please make arrangements for a proxy from your jurisdiction to represent you. Please let me know if you have any questions.

Thank You

Christopher Voigt
VDOT Environmental Division
(804) 371-6764

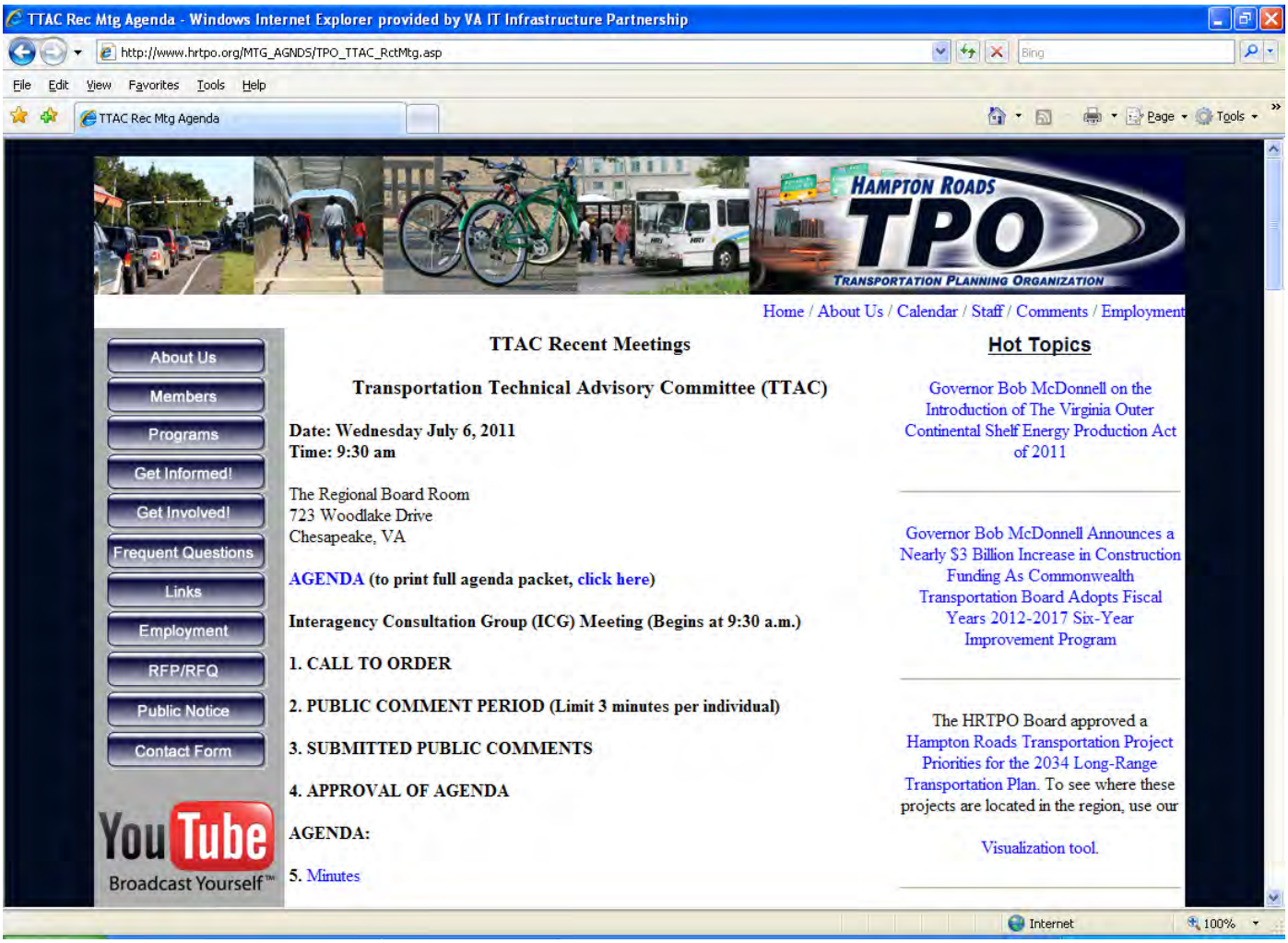
cc: Other interested parties (including all Hampton Roads TTAC Members)

Attachment: ICG Agenda Package

Appendix D – Consultation Record

July 7, 2011 HRTPO Website Listing for the ICG and TTAC Meetings:

- Website list for TTAC meeting, including listing of presentations given
- ICG Presentation (Adobe Acrobat version)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TTAC Recent Meetings
Transportation Technical Advisory Committee (TTAC)
Date: Wednesday July 6, 2011
Time: 9:30 am
The Regional Board Room
723 Woodlake Drive
Chesapeake, VA
AGENDA (to print full agenda packet, click here)
Interagency Consultation Group (ICG) Meeting (Begins at 9:30 a.m.)
1. CALL TO ORDER
2. PUBLIC COMMENT PERIOD (Limit 3 minutes per individual)
3. SUBMITTED PUBLIC COMMENTS
4. APPROVAL OF AGENDA
AGENDA:
5. Minutes
Hot Topics
Governor Bob McDonnell on the Introduction of The Virginia Outer Continental Shelf Energy Production Act of 2011
Governor Bob McDonnell Announces a Nearly $3 Billion Increase in Construction Funding As Commonwealth Transportation Board Adopts Fiscal Years 2012-2017 Six-Year Improvement Program
The HRTPO Board approved a Hampton Roads Transportation Project Priorities for the 2034 Long-Range Transportation Plan. To see where these projects are located in the region, use our
Visualization tool.
Internet
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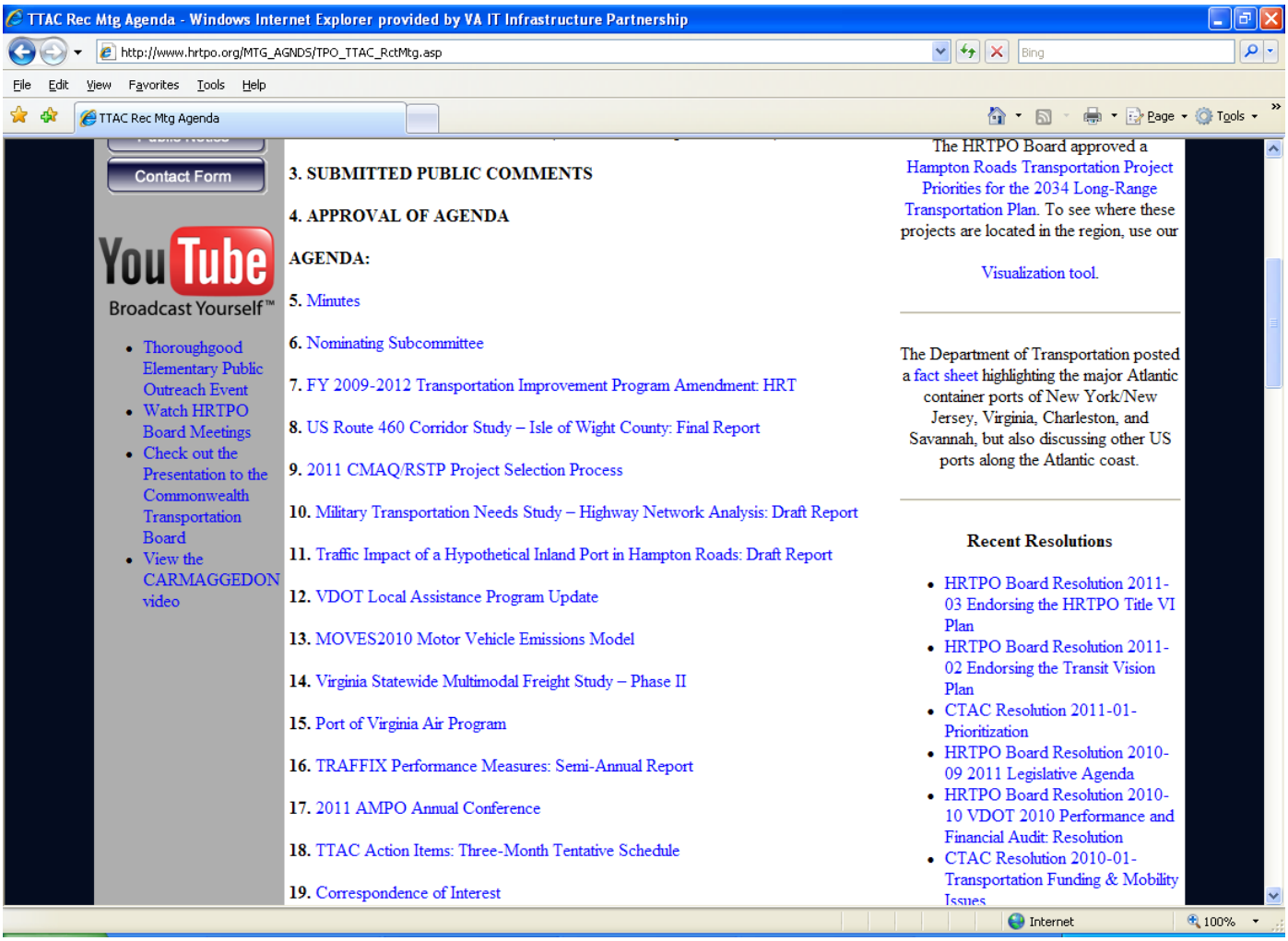
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Broadcast Yourself™
Thoroughgood Elementary Public Outreach Event
Watch HRTPO Board Meetings
Check out the Presentation to the Commonwealth Transportation Board
View the CARMAGGEDON video
3. SUBMITTED PUBLIC COMMENTS
4. APPROVAL OF AGENDA
AGENDA:
5. Minutes
6. Nominating Subcommittee
7. FY 2009-2012 Transportation Improvement Program Amendment: HRT
8. US Route 460 Corridor Study – Isle of Wight County: Final Report
9. 2011 CMAQ/RSTP Project Selection Process
10. Military Transportation Needs Study – Highway Network Analysis: Draft Report
11. Traffic Impact of a Hypothetical Inland Port in Hampton Roads: Draft Report
12. VDOT Local Assistance Program Update
13. MOVES2010 Motor Vehicle Emissions Model
14. Virginia Statewide Multimodal Freight Study – Phase II
15. Port of Virginia Air Program
16. TRAFFIX Performance Measures: Semi-Annual Report
17. 2011 AMPO Annual Conference
18. TTAC Action Items: Three-Month Tentative Schedule
19. Correspondence of Interest
The HRTPO Board approved a Hampton Roads Transportation Project Priorities for the 2034 Long-Range Transportation Plan. To see where these projects are located in the region, use our
Visualization tool.
The Department of Transportation posted a fact sheet highlighting the major Atlantic container ports of New York/New Jersey, Virginia, Charleston, and Savannah, but also discussing other US ports along the Atlantic coast.
Recent Resolutions
HRTPO Board Resolution 2011-03 Endorsing the HRTPO Title VI Plan
HRTPO Board Resolution 2011-02 Endorsing the Transit Vision Plan
CTAC Resolution 2011-01-Prioritization
HRTPO Board Resolution 2010-09 2011 Legislative Agenda
HRTPO Board Resolution 2010-10 VDOT 2010 Performance and Financial Audit: Resolution
CTAC Resolution 2010-01-Transportation Funding & Mobility Issues
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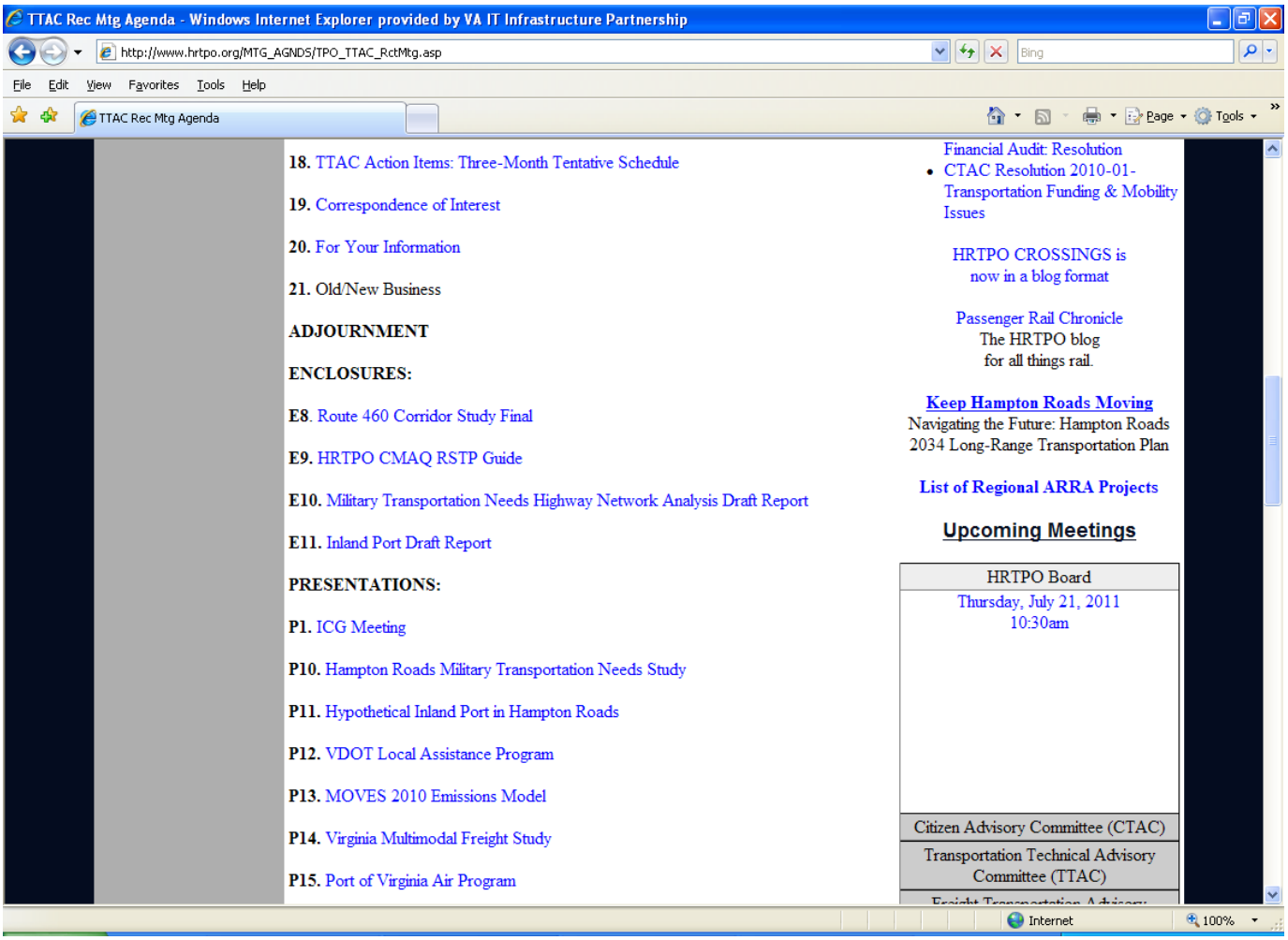
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TTAC Rec Mtg Agenda
18. TTAC Action Items: Three-Month Tentative Schedule
19. Correspondence of Interest
20. For Your Information
21. Old/New Business
ADJOURNMENT
ENCLOSURES:
E8. Route 460 Corridor Study Final
E9. HRTPO CMAQ RSTP Guide
E10. Military Transportation Needs Highway Network Analysis Draft Report
E11. Inland Port Draft Report
PRESENTATIONS:
P1. ICG Meeting
P10. Hampton Roads Military Transportation Needs Study
P11. Hypothetical Inland Port in Hampton Roads
P12. VDOT Local Assistance Program
P13. MOVES 2010 Emissions Model
P14. Virginia Multimodal Freight Study
P15. Port of Virginia Air Program
Financial Audit: Resolution
CTAC Resolution 2010-01- Transportation Funding & Mobility Issues
HRTPO CROSSINGS is now in a blog format
Passenger Rail Chronicle
The HRTPO blog for all things rail.
Keep Hampton Roads Moving
Navigating the Future: Hampton Roads 2034 Long-Range Transportation Plan
List of Regional ARRA Projects
Upcoming Meetings
HRTPO Board
Thursday, July 21, 2011
10:30am
Citizen Advisory Committee (CTAC)
Transportation Technical Advisory Committee (TTAC)
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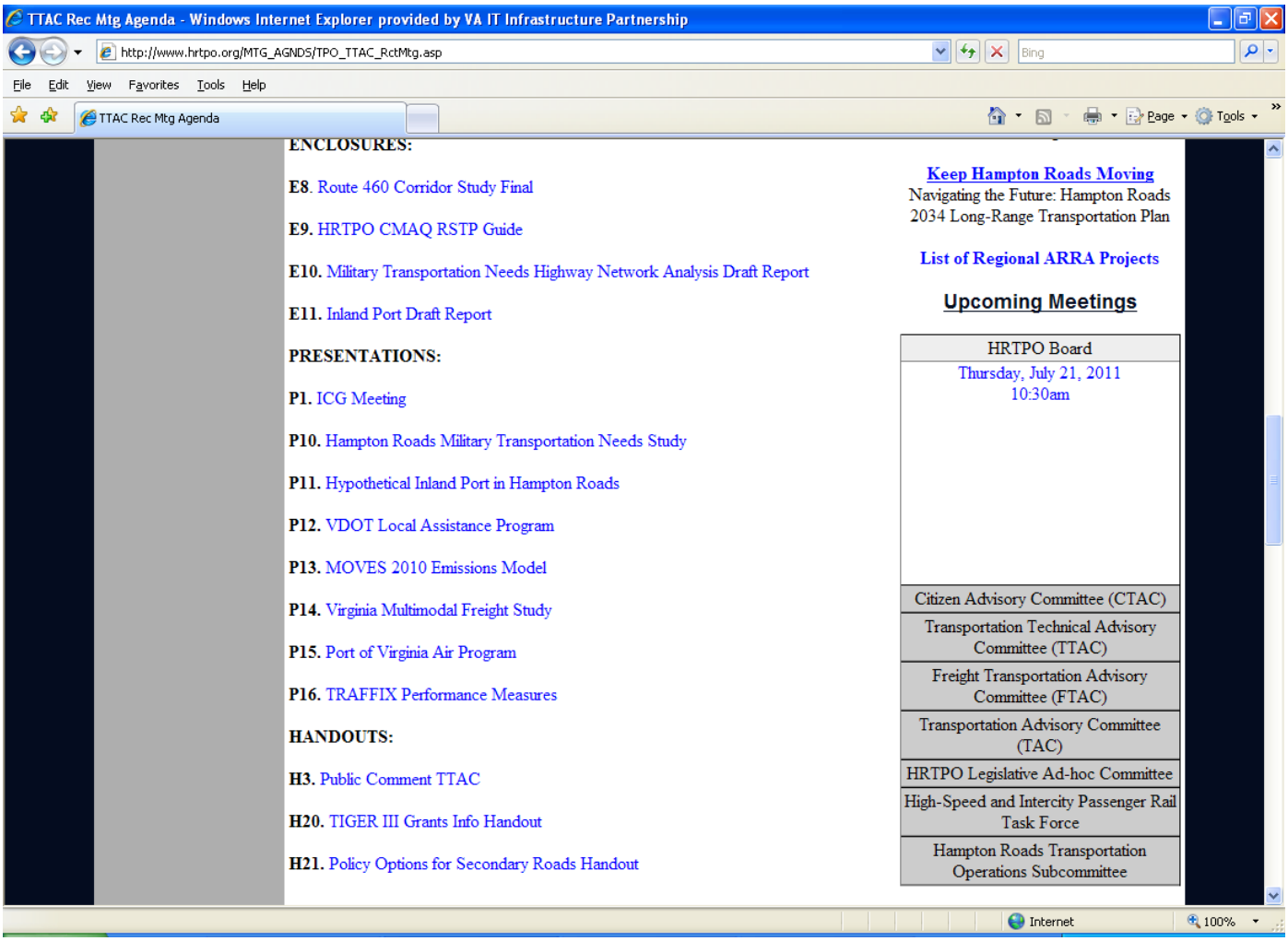
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http://www.hrtpo.org/MTG_AGNDS/TPO_TTAC_RctMtg.asp
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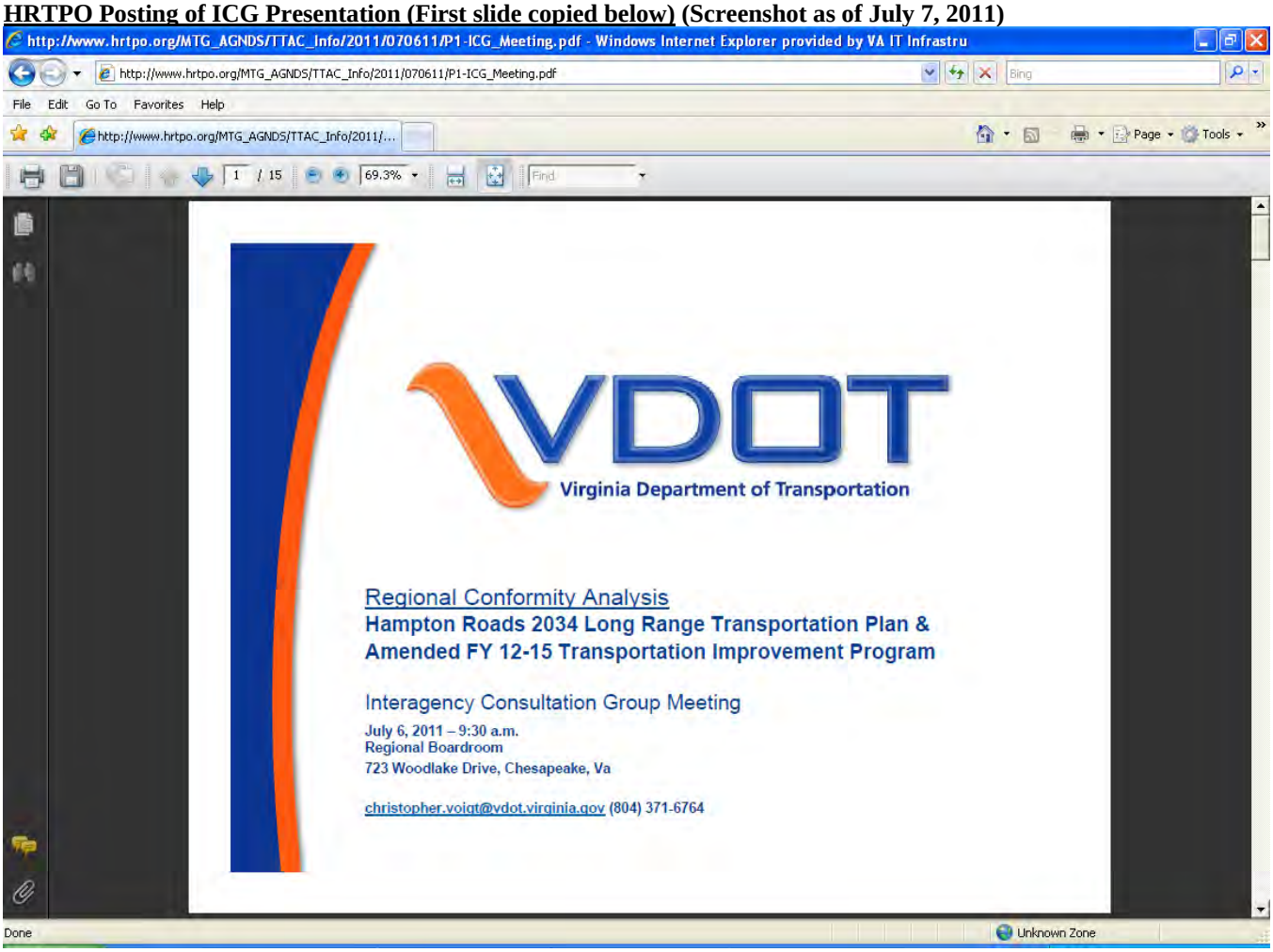
ENCLOSURES:
E8. Route 460 Corridor Study Final
E9. HRTPO CMAQ RSTP Guide
E10. Military Transportation Needs Highway Network Analysis Draft Report
E11. Inland Port Draft Report
PRESENTATIONS:
P1. ICG Meeting
P10. Hampton Roads Military Transportation Needs Study
P11. Hypothetical Inland Port in Hampton Roads
P12. VDOT Local Assistance Program
P13. MOVES 2010 Emissions Model
P14. Virginia Multimodal Freight Study
P15. Port of Virginia Air Program
P16. TRAFFIX Performance Measures
HANDOUTS:
H3. Public Comment TTAC
H20. TIGER III Grants Info Handout
H21. Policy Options for Secondary Roads Handout
Keep Hampton Roads Moving
Navigating the Future: Hampton Roads 2034 Long-Range Transportation Plan
List of Regional ARRA Projects
Upcoming Meetings
HRTPO Board
Thursday, July 21, 2011
10:30am
Citizen Advisory Committee (CTAC)
Transportation Technical Advisory Committee (TTAC)
Freight Transportation Advisory Committee (FTAC)
Transportation Advisory Committee (TAC)
HRTPO Legislative Ad-hoc Committee
High-Speed and Intercity Passenger Rail Task Force
Hampton Roads Transportation Operations Subcommittee
Internet
100%

HRTPO Posting of ICG Presentation (First slide copied below) (Screenshot as of July 7, 2011)



Appendix D – Consultation Record

July 6, 2011 ICG Meeting:

- Presentation (PowerPoint slides)

Regional Conformity Analysis

Hampton Roads 2034 Long Range Transportation Plan & Amended FY 12-15 Transportation Improvement Program

Interagency Consultation Group Meeting

July 6, 2011 – 9:30 a.m.
Regional Boardroom
723 Woodlake Drive, Chesapeake, Va

christopher.voigt@vdot.virginia.gov (804) 371-6764

Public Comment Period

Three minute limit per individual

Agenda

1. **ICG Membership Update**

2. **Regional Conformity Analysis (2034 LRTP & Amended FY 12-15 TIP):**
   - **General Criteria & Consultation Requirements**
   - **Key Consultation Items:**
     a) Schedule
     b) Models, Methods & Assumptions
     c) Regionally Significant Projects
        (Project list for modeling for the conformity analysis)

3. **Next Steps**

1. ICG Membership

Current Members

(Attachment #1 to the agenda)

Agency listing per the 2005 ICG "Consultation Procedures for the Hampton Roads Ozone Nonattainment Area in Support of the Transportation Conformity Regulations"

City/County			
City of Chesapeake		Earl	Sorey
City of Hampton		Lynn	Allsbrook
City of Newport News		Michael	King
City of Norfolk		Jeffrey	Raliski
City of Poquoson		Deborah	Vest
City of Portsmouth		Richard	Hartman
City of Suffolk		Robert	Lewis
City of Virginia Beach		*Mark*	*Schnaufer*
City of Williamsburg		Reed	Nester
Gloucester County		Anne	Ducey-Ortiz
Isle of Wight County		Jane	Hill
James City County		Steven	Hicks
York County		Timothy	Cross
Regional			
Hampton Roads Transportation Planning Organization		Dale	Stith
Hampton Roads Transit		Karen	Waterman
Williamsburg Area Transit Authority		*Barbara*	*Creel*
State			
Virginia Dept. of Environmental Quality		Sonya	Lewis-Cheatham
Virginia Dept. of Rail & Public Transportation		Steven	Hennessee
Virginia Dept. of Transportation – C/O Environmental		Jim	Ponticello
Virginia Dept. of Transportation – C/O Planning		Jaesup	Lee
Federal			
Environmental Protection Agency		Martin	Kotsch
Federal Highway Administration		Marisel	Lopez-Cruz
Federal Transit Administration		Tony	Cho
Alternates / Other (non-voting)			
City of Suffolk	*Alternate*	Sherry	Earley
	Other	Scott	Mills
Isle of Wight County		*Michael*	*Stallings*
James City County		Allen	Murphy
US Navy		Jennifer	Tabor

2. Regional Conformity Analysis: Key Conformity Criteria

Federal Conformity Rule Requirement 40 CFR Section:	Criteria (40 CFR 93.109+)	Demonstrated
93.108	Fiscal constraint (*Prerequisite*) (Final Determination with TPO)	
93.110	Latest planning assumptions	
93.111	Latest emissions model	
93.112	Consultation	
93.113(b) & (c)	TCMs	*na*
93.118	Emissions Budget	

2. Regional Conformity Analysis: Consultation Requirements

- **Regulations & Guidance**
  - Federal and State Transportation Conformity Rules
  - ICG Conformity Consultation Procedures (2005)
  - Public Consultation per Hampton Roads Public Participation Plan (2009)

- **Consultation specifically required for:**
  - **Schedule (ICG Procedural requirement)**
    - Draft: Attachment 2a
  - **Models and "Associated Methods and Assumptions"**
    - Draft report text: Attachment 2b
  - **Regionally Significant Projects (for Modeling)**
    - Entire system modeled per regulation (including all TIP & LRTP projects): Att.2c

2(a). Conformity Analysis Schedule (Att.2a)

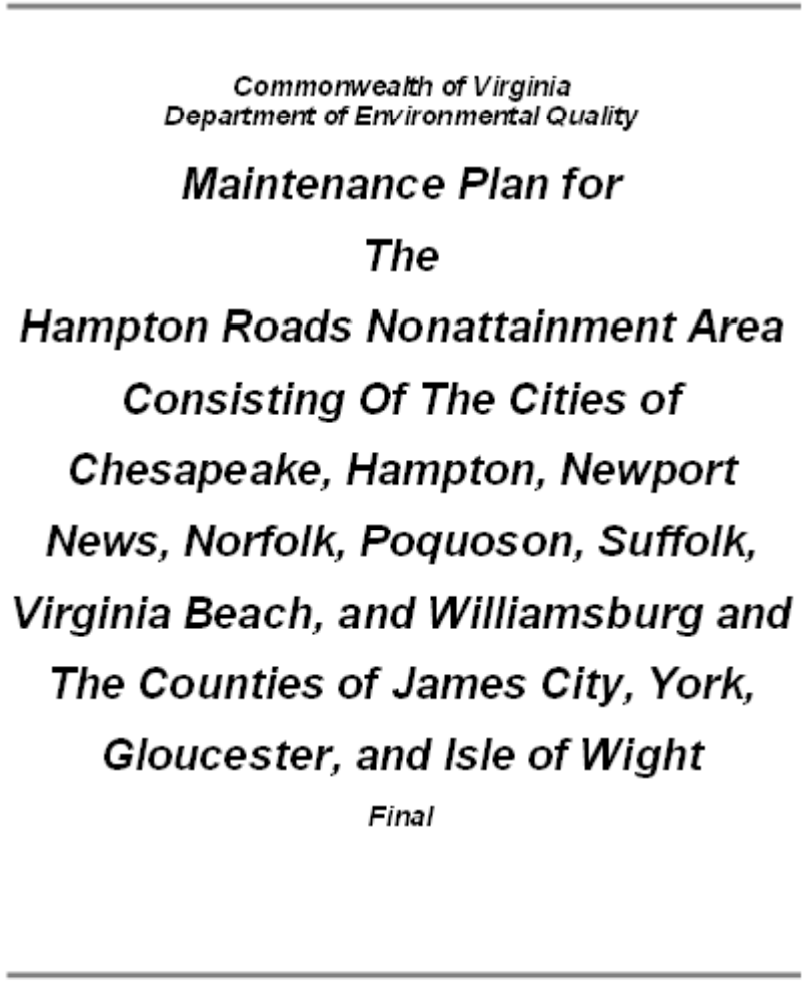
July	• **6th: Interagency Consultation Group (ICG) Kickoff Meeting: Review of methodology, assumptions and the project list for modeling for the conformity analysis.** *PROJECT LIST FOR MODELING FINALIZED AT THE ICG. CHANGES MADE AT THE ICG MAY BE CONDITIONAL ON SUBSEQUENT TTAC/TPO APPROVAL WITHOUT FURTHER CHANGE. ANY CHANGES SUBSEQUENT TO THE ICG MEETING MAY REQUIRE RESTARTING THE CONFORMITY PROCESS.*
August	• 1st: Transportation network modeling completed & results transmitted to VDOT Air Quality. o Emission modeling and update of associated draft conformity analysis report text initiated. • **15th: Draft conformity analysis completed.** Emission modeling, conformity determination & draft report. • 16th-18th: VDOT/VDEQ/HRTPO staff review of draft conformity analysis. • 22nd: Draft Conformity Analysis transmitted to HRTPO for the TTAC meeting agenda. • 24th: HRTPO Initiation of 14-day Public Review for the draft conformity analysis & finding (ends 9/7).
September	• 7th: TTAC reviews & recommends approval of draft conformity analysis & finding, subject to receipt of no adverse comment in public review or none requiring TTAC review. • 8th-9th as needed: VDOT/HRTPO staff review and draft response to comments received (if any) in public review, for consideration by the HRTPO. • **15th: TPO approval of the final draft conformity analysis and finding** (and the response to comments if any). (Consent Agenda) Next Day: • TPO approval letter issued and signed copy emailed to VDOT. • VDOT emails the Final Conformity Analysis with the TPO Letter to FHWA to initiate the federal review and approval process. • VDOT sends Final Report with TPO approval letter to printing. Federal review period (typically 45 days) begins upon receipt of the final report by email. FHWA coordinates the review with FTA and consults with EPA. • 23rd: VDOT transmits print copies of the Final Conformity Analysis and TPO Letter to FHWA for their records.
November	• **4th: US DOT Finding of Conformity** (letter from FHWA).

2(b) Models, Methods & Assumptions: Conformity tests (40 CFR 93.118)

Emission Budgets:

- Set in the applicable SIP revision*:
  - 2007 maintenance plan for the eight-hour ozone standard
- VOC and NO_x (ozone precursors)
- Analysis Years:
  - 2011 & 2018 (budgets from MP),
  - 2034 (LRTP horizon year),
  - 2028 (EPA 10 year rule)

See Exhibit 2-2 in Att.2b



Commonwealth of Virginia
Department of Environmental Quality

Maintenance Plan for

The

Hampton Roads Nonattainment Area

Consisting Of The Cities of

Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Suffolk, Virginia Beach, and Williamsburg and The Counties of James City, York, Gloucester, and Isle of Wight

Final

2(b) Models, Methods & Assumptions: Emission Budgets (2007 Maintenance Plan)

Table 5.2-1
Hampton Roads Area VOC, NO_X, and CO Emissions from 2005 to 2018

Volatile Organic Compounds (VOC) in Tons/Day					
Year	Point	Area[1]	Nonroad	Mobile[3]	Total (tons/day)
Year 2005	20.091	91.980	42.320	50.591	204.982
Year 2011	23.280	100.960	33.912	37.846	195.998
DIFF. (05-11)	3.189	8.980	-8.408	-12.745	-8.984
Year 2018	26.700	112.790	31.315	27.574	198.379
DIFF. (05-18)	6.609	20.810	-11.005	-23.017	-6.603
Nitrogen Oxides (NO_X) in Tons/Day					
Year	Point	Area[2]	Nonroad	Mobile[3]	Total
Year 2005	62.536	55.207	30.208	78.169	226.120
Year 2011	69.333	56.974	29.116	50.387	205.810
DIFF. (05-11)	6.797	1.767	-1.092	-27.782	-20.310
Year 2018	75.241	60.105	23.093	31.890	190.329
DIFF. (05-18)	12.705	4.898	-7.115	-46.279	-35.791

2(b) Models, Methods & Assumptions: Emission Factors

- **Emission estimate = Emission Factor * VMT**
- **Federal conformity rule requires "Latest emission estimation model" (40 CFR 93.111):**
  - MOBILE6.2, within two-year grace period for transition to the new MOVES model
- **Modeled on a grams per vehicle-mile-travelled basis**
- **Typical sensitivities:**
  - vehicle type & age/mileage (regulatory class & condition)
  - fuel specifications
  - meteorology
  - operations (roadway class & speeds)
- **No changes to input data since the previous conformity analysis**
  - April 2011 ICG for the FY 12-15 TIP
  - Other than analysis year (add 2028 & 2034; drop 2020 and 2030)

2(b) Models, Methods & Assumptions: Traffic Forecasting

- **Emission estimate = Emission Factor * VMT**
- **Regional transportation model (TP+)**
  - Federal conformity rule requires "Latest Planning Assumptions" (40 CFR 93.110):
    - **socioeconomic forecasts (2034)**
    - **regionally significant projects (new LRTP with amended TIP)**
- **Post-Processor:**
  - Congested speeds using BPR formulae
    - signalized & non-signalized roadways
  - Emission calculations
    - Network facilities using TP+ results
    - Off-network facilities
      - VMT projections for local & collector roads
      - military base contributions as specified by DEQ (2007 MP)

2(b) Models, Methods & Assumptions: Socioeconomic Forecasts

- **40 CFR 93.110(b), following CAA 176(c)(1):** "*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...*"

- **2034 forecasts adopted by the HRTPO (June 2007):**

Year	Hampton Roads LRTP Study Area			
	Population	Households	Automobiles	Employment
2011	1,687,548	630,049	1,307,269	1,035,097
2018	1,787,236	672,902	1,449,002	1,085,370
2028	1,929,640	734,147	1,651,496	1,157,284
2034	2,015,100	770,900	1,773,000	1,200,400

**See Exhibit 2-3 in Att.2b*

2(c). Models, Methods & Assumptions: Regionally Significant Projects

- **Project list for modeling (2034 LRTP with amended FY 12-15 TIP)**
  - Attachment #2c, as provided by TPO staff working with District planning staff
  - Conformity analysis being initiated contingent on TIP amendment planned for September
    - **UPC 17568 Nansemond Parkway (first modeling year – 2018)**
- **Keys:**
  - **Regional Significance - 40 CFR 93.101**: "*Regionally significant project means a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.*"
  - **Requirement for Fiscal Constraint - 40 CFR 93.108**: *"Transportation plans and TIPs must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450 in order to be found in conformity."*
  - **Requirement for TIP & Plan Consistency - 23 CFR 450.324g**: "*Each project or project phase included in the TIP shall be consistent with the approved metropolitan transportation plan."*
- **Project List Adjustments (*if any*):**
  - *Any changes today are subject to approvals by the TTAC and/or TPO as needed*
  - *If not approved, or other changes are made, then may need to restart the conformity analysis*

2. Regional Conformity Analysis: Consensus Items *(per ICG Procedures)*

- **Schedule (Attachment 2a)**

- **Methodology & Assumptions (See Attachment 2b)**
  - **Latest Emission Model:**
    MOBILE6.2 (within grace period for MOVES2010)
  - **Latest Planning Assumptions & Associated Modeling Data and Assumptions:**
    2034 socioeconomic forecasts

- **Regionally Significant Projects* (Attachment 2c)**

  2034 LRTP & amended FY 12-15 TIP

  - including UPC 17568 Nansemond Parkway (open by 2018)

** With amendments to the TIP subject to approvals by the TTAC and/or TPO as needed.*

3. Next Steps

- Initiate modeling
- TTAC/TPO approval pending for amendments as referenced
- Draft report completion for September 2011 TTAC

For more information, contact:

Christopher Voigt
VDOT Environmental
(804) 371-6764
christopher.voigt@vdot.virginia.gov

Appendix D – Consultation Record

June 30, 2011 Transmittal of the ICG Agenda Package

- Email Transmittal with ICG Agenda Package attached

- ICG Agenda Package:
  - ICG Agenda Attachment - Membership List
  - ICG Agenda Attachment - Modeling Methodology and Assumptions
  - ICG Agenda Attachment - Project Lists (*For convenient reference, the project list is attached separately to this report, as Appendix E.)*
  - ICG Agenda Attachment - Conformity Analysis Schedule

ICG Meeting Notice Transmittal (with agenda package attached)

MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-15 TI...

File Edit View Insert Format Tools Actions Help Adobe PDF

Reply | Reply to All | Forward

You replied on 7/7/2011 2:13 PM.

From: Voigt, Christopher G. Sent: Thu 6/30/2011 12:53 PM

To: 'easorey@cityofchesapeake.net'; Allsbrook, Lynn E.; 'mking@nngov.com'; 'Jeffrey Raliski'; 'dvest@poquoson-va.gov'; 'rhartman@portsmouthva.gov'; 'relewis@suffolkva.us'; 'mschnauf@vbgov.com'; 'rnester@williamsburgva.gov'; 'aducey@gloucesterva.info'; 'jhill@isleofwightus.net'; 'steven.hicks@james-city.va.us'; 'tcross@yorkcounty.gov'; Stith, Dale; 'kwaterman@hrtransit.org'; 'Creel, Barbara'; 'salewis-cheatham@deq.virginia.gov'; Hennessee, Steven G.; Ponticello, James; Lee,

Cc: 'michael.s.dipace@uscg.mil'; 'maddalena@yorkcounty.gov'; 'cejackson@nngov.com'; 'cperez@gloucesterva.info'; 'dclayton@williamsburgva.gov'; 'david.scott@norfolk.gov'; 'dwilkinson@nngov.com'; 'andersone@yorkcounty.gov'; 'ewrightson@isleofwightus.net'; 'emartin@cityofchesapeake.net'; Stringfield, Eric L.; 'brussof@portsmouthva.gov'; 'gcurry@gloucesterva.info'; 'gwalton@cityofchesapeake.net'; 'ivan.rucker@fhwa.dot.gov'; 'carterm@yorkcounty.gov'; Florin, Jeff;

Subject: MEETING NOTICE - Hampton Roads ICG, July 6, 2011 – 9:30 a.m. [2034 LRTP & Amended FY 12-15 TIP]

Attachments: ICG Agenda Pkg.pdf (584 KB)

To: Members of the Hampton Roads Interagency Consultation Group
Hampton Roads Air Quality Committee (DEQ Staff Representative)

Subject: Hampton Roads ICG Meeting

An Inter-Agency Consultation Group (ICG) meeting is scheduled for **Wednesday, July 6, 2011, beginning at 9:30 AM**. The regularly scheduled Transportation Technical Advisory Committee (TTAC) meeting will start immediately following the completion of the ICG meeting. The ICG meeting will serve to initiate the consultation process for the upcoming air quality conformity analysis for the new Hampton Roads 2034 Long Range Transportation Plan (LRTP) and amended FY 12-15 Transportation Improvement Program (TIP). A copy of the ICG agenda package in Adobe Acrobat (pdf) format is attached.

A call-in line will be arranged for those who would like to participate by teleconference. Please let me know by close of business on Friday, July 1, 2011 if you plan to call in.

Please note that a quorum is needed for this meeting. If you are unable to attend the meeting, please make arrangements for a proxy from your jurisdiction to represent you. Please let me know if you have any questions.

Thank You

Christopher Voigt
VDOT Environmental Division
(804) 371-6764

cc: Other interested parties (including all Hampton Roads TTAC Members)

Attachment: ICG Agenda Package

AGENDA

HAMPTON ROADS
INTERAGENCY CONSULTATION GROUP MEETING

July 6, 2011 -- 9:30 a.m.

The Regional Building, 723 Woodlake Drive, Chesapeake, VA 23320

CALL TO ORDER

PUBLIC COMMENT PERIOD (Limit 3 minutes per individual)

APPROVAL OF AGENDA

1. Interagency Consultation Group (ICG) Membership (Attachment #1): Current members of the ICG are listed in Attachment #1. All members are invited to review the list and advise VDOT of any changes. Updates will be incorporated into a revised membership list to be distributed with the draft minutes.

2. Regional Conformity Analysis for the Hampton Roads 2034 Long Range Transportation Plan (LRTP) and Amended FY 12-15 Transportation Improvement Program (TIP) (Attachments #2a-c): Comments are requested on the following:

   a) Draft schedule for the conformity analysis (Attachment #2a),

   b) Modeling Methodology & Assumptions, including latest planning assumptions as well as the selection of MOBILE6.2 for emission factor modeling (within the grace period for the MOVES model released 3/2/2010 by EPA) (Attachment #2b), and

   c) Regionally Significant Projects (Draft TIP & LRTP Project List for Modeling)(Attachment #2c): *Any changes requested subsequent to today's meeting may require restarting the conformity analysis from this point.*

3. Next Steps
   - Modeling for the conformity analysis will be initiated.
   - Draft Report to the TTAC

ADJOURNMENT

Attachment #1

Hampton Roads Interagency Consultation Group

As of April 11, 2011

Agency		*Staff*	
City/County			
City of Chesapeake		Earl	Sorey
City of Hampton		Lynn	Allsbrook
City of Newport News		Michael	King
City of Norfolk		Jeffrey	Raliski
City of Poquoson		Deborah	Vest
City of Portsmouth		Richard	Hartman
City of Suffolk		Robert	Lewis
City of Virginia Beach		*Mark*	*Schnaufer*
City of Williamsburg		Reed	Nester
Gloucester County		Anne	Ducey-Ortiz
Isle of Wight County		Jane	Hill
James City County		Steven	Hicks
York County		Timothy	Cross
Regional			
Hampton Roads Transportation Planning Organization		Dale	Stith
Hampton Roads Transit		Karen	Waterman
Williamsburg Area Transit Authority		*Barbara*	*Creel*
State			
Virginia Dept. of Environmental Quality		Sonya	Lewis-Cheatham
Virginia Dept. of Rail & Public Transportation		Steven	Hennessee
Virginia Dept. of Transportation – C/O Environmental		Jim	Ponticello
Virginia Dept. of Transportation – C/O Planning		Jaesup	Lee
Federal			
Environmental Protection Agency		Martin	Kotsch
Federal Highway Administration		Marisel	Lopez-Cruz
Federal Transit Administration		Tony	Cho
Alternates / Other (non-voting)			
City of Suffolk	*Alternate*	Sherry	Earley
	Other	Scott	Mills
Isle of Wight County		*Michael*	*Stallings*
James City County		Allen	Murphy
US Navy		Jennifer	Tabor

Attachment #2(a)

Regional Conformity Analysis Schedule (Revised 6/24/2011)
Hampton Roads 2034 LRTP & FY 12-15 TIP

Month	Task
PROJECT LIST DEVELOPMENT	
June 2011	• 16th: TPO approval of the project list for the 2034 LRTP. • *Development of combined Plan and TIP project list for modeling initiated by TPO and VDOT staff.*
CONFORMITY ANALYSIS & APPROVALS	
July	• 6th: Interagency Consultation Group (ICG) Kickoff Meeting: Review of methodology, assumptions and the project list for modeling for the conformity analysis. *PROJECT LIST FOR MODELING FINALIZED AT THE ICG. CHANGES MADE AT THE ICG MAY BE CONDITIONAL ON SUBSEQUENT TTAC/TPO APPROVAL WITHOUT FURTHER CHANGE. ANY CHANGES SUBSEQUENT TO THE ICG MEETING MAY REQUIRE RESTARTING THE CONFORMITY PROCESS.*
August	• 1st: Transportation network modeling completed & results transmitted to VDOT Air Quality. o Emission modeling and update of associated draft conformity analysis report text initiated. • 15th: Draft conformity analysis completed. Emission modeling, conformity determination & draft report. • 16th-18th: VDOT/VDEQ/HRTPO staff review of draft conformity analysis. • 22nd: Draft Conformity Analysis transmitted to HRTPO for the TTAC meeting agenda. • 24th: HRTPO Initiation of 14-day Public Review for the draft conformity analysis & finding (ends 9/7).
September	• 7th: TTAC reviews & recommends approval of draft conformity analysis & finding, subject to receipt of no adverse comment in public review or none requiring TTAC review. • 8th-9th as needed: VDOT/HRTPO staff review and draft response to comments received (if any) in public review, for consideration by the HRTPO. • 15th: TPO approval of the final draft conformity analysis and finding (and the response to comments if any). (Consent Agenda) Next Day: • TPO approval letter issued and signed copy emailed to VDOT. • VDOT emails the Final Conformity Analysis with the TPO Letter to FHWA to initiate the federal review and approval process. • VDOT sends Final Report with TPO approval letter to printing. Federal review period (typically 45 days) begins upon receipt of the final report by email. FHWA coordinates the review with FTA and consults with EPA. • 23rd: VDOT transmits print copies of the Final Conformity Analysis and TPO Letter to FHWA for their records.
November	• 4th: US DOT Finding of Conformity (letter from FHWA).

2. Modeling

A review of the modeling methodology and assumptions applied in the conformity analysis is presented in this chapter, beginning with an overview of the general approach and the determination of the analysis years and motor vehicle emission budgets applicable for Hampton Roads. Then, in turn, reviews of the key input data and specific assumptions applied in each step of the modeling process (transportation modeling, emission factor modeling, and emission modeling) are presented.

2.1 General Approach

Emissions are generally calculated as the product of vehicle activity and an emission factor corresponding to that vehicle class and activity. Emission factors are typically expressed in units of grams per mile (effectively, grams of pollutant emitted per vehicle-mile-traveled), consistent with federal new vehicle exhaust emission standards that are expressed on a grams per mile basis. Estimates for regional emissions, therefore, typically are generated as the product of VMT (by speed, roadway class, vehicle class etc.) estimated with corresponding emission factors.

Three separate models are typically applied in the development of the regional emission forecasts for conformity analyses:

1) a regional travel demand forecasting model,
2) the latest EPA-approved model to generate forecasts for regional fleet-average emission factors, and
3) a post-processor designed to combine the results from the first two models and generate estimates for regional total emissions for each pollutant and year as required for the conformity analysis.

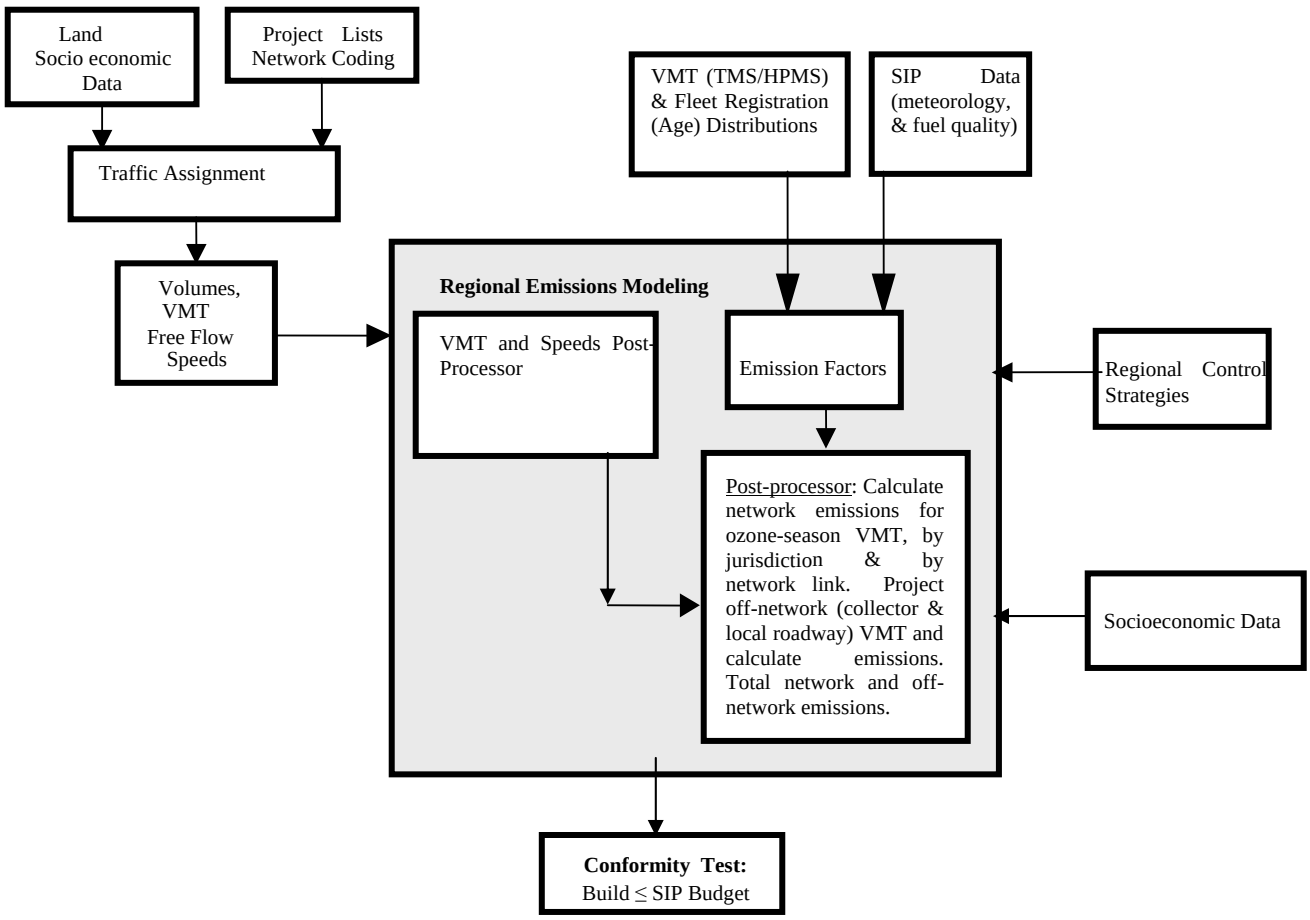
Exhibit 2-1 below presents the overall process. First, as shown on the left side of the exhibit, forecasts for travel demand for each year being modeled in the conformity analysis are developed. Key inputs for this step include the latest available socioeconomic forecasts and project lists. The latter are applied to update the regional transportation networks as appropriate for changes to the Plan and Program. The regional transportation networks include both existing and new regionally significant facilities, i.e. all interstates, freeways, expressways, principal arterials, and minor arterials as specified in the Plan and Program and expected to be open to traffic by the forecast year to be modeled for the conformity analysis. Separate networks are developed for each of the specific forecast years needed for the conformity analysis.

Concurrent with the development of travel demand forecasts, and as shown on the right side of the exhibit, emission factors (in unit of grams per mile) are generated using the latest EPA-approved emission factor model (MOBILE6.2)[76] for each pollutant and forecast year. The factors are generally tabulated by speed, vehicle class, roadway class

[76] As noted later in this chapter, on March 2, 2010, EPA has released a next generation emission model (MOVES2010, updated in August 2010 as MOVES2010a) that is planned as the replacement for the MOBILE6.2 model that is currently in use. EPA indicated that a two-year grace period applies for conformity purposes.

(or facility type), and, to allow for possible differences in fuel quality or emission control programs, jurisdiction. Key region-specific inputs include vehicle age distributions, VMT distributions, fuel quality data and meteorological data.

Exhibit 2-1: Conformity Analysis Process



Next, regional total emissions are calculated in the post-processor as the total of three major components: 1) network emissions, 2) off-network emissions, and 3) military base contributions.

Network emissions are calculated based on traffic forecasts generated for the regional network by the travel demand model and fleet-average emission factors.

Emissions for traffic operating on "off-network" facilities (collectors and local streets) that are not included in the regional transportation model networks are estimated based on VMT generated by a simple growth model to the modeled year from base year traffic counts. Estimates for vehicle travel were also developed for the portion of Gloucester County that are within the designated maintenance area but are not (at least as yet) included in the regional network model. Fleet-average emission factors as applied for the on-road network are also applied with the estimated off-road network VMT to generate estimates for off-network emissions.

Emissions for mobile sources operating on military facilities are taken as specified in the applicable SIP revision (maintenance plan)[77].

The post-processor calculations are repeated for each analysis year as needed. Emission budget tests as described in the previous chapter are then applied for each analysis year to demonstrate conformity. Additional detail for each of the modeling steps is provided below.

2.2 Analysis Years and Budgets

Exhibit 2-2 presents the years selected for modeling for this conformity analysis and the associated motor vehicle emission budgets as specified in the maintenance plan. The budgets listed in the table were generated using the US EPA MOBILE6.2 model.

Exhibit 2-2: Analysis Years and Budgets

Year	Regional Emission Budgets *(tons per ozone season weekday)*	
	NOx	**VOC**
2011*	50.387	37.846
2018*	31.890	27.574
2028	31.890	27.574
2034	31.890	27.574

** Budgets specified in 72 FR 30490, effective June 1, 2007.*

The years selected for analysis are consistent with the requirements of Section 93.118 of the conformity rule, which requires that years selected for the regional conformity analysis include the years for which budgets are established, the horizon year of the transportation plan, and an interim year such that analysis years are no more than ten years apart.

For this analysis, the years 2011 and 2018 were selected as they are years for which the maintenance plan specifies budgets. The year 2034 was selected as the horizon year for the transportation plan. To meet the interim year requirement (ten-year limit), the year 2028 was also selected.

Since 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", the 2018 budgets as listed above are also applicable for the subsequent years (2028 and 2034).

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[77] Hampton Roads Maintenance Plan for the 1997 Eight-Hour Ozone Standard, as previous referenced. See US EPA, 72 FR 30490, 40 CFR Parts 52 and 81 [EPA–R03–OAR–2006–0919; FRL–8320–9], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory*, Final Rule, effective June 1, 2007.
See: http://edocket.access.gpo.gov/2007/E7-10581.htm.

2.3 Transportation Demand Forecasting (TP+ Model)

The Hampton Roads regional traffic model is based on the TP+ transportation model, which is a suite of programs implementing a traditional four-step transportation model that includes trip generation, trip distribution, mode split and traffic assignment. The Hampton Roads regional traffic model covers the Counties of Gloucester (southern portion), Isle of Wight, James City, and York, as well as the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Williamsburg, and Virginia Beach. The model satisfies the requirements enumerated in 40 CFR 93.110 as well as the related requirements in 40 CFR 93.122 as summarized below.

The model was validated and calibrated for 2003 traffic volumes and land use conditions [40 CFR 93.122(b)(1)(i)][78].

Consistent with the requirements of federal conformity rule, all regionally significant projects in service or open to traffic in the year of analysis are included in the modeling [40 CFR 93.122(a)]. Roadway data input by the user (e.g., road segment length, capacity, number of lanes, and free-flow speeds by facility type) are used to create a representation of the regional transportation system for each analysis year, which includes all regionally significant projects identified for the Plan and TIP. A transportation system network is developed for all motorized modes of travel including single-occupant vehicle, high or multi-occupant vehicle (HOV), bus transit, and light rail transit. Following network development, travel time and cost estimates for all networks modeled are tabulated for use in subsequent model steps.

Trip making activity is estimated in the trip generation and trip distribution steps. Trip generation uses land use information aggregated by traffic analysis zone (TAZ), estimated trip rates, and standard equations to estimate the number of trips that will be generated by and attracted to each TAZ. The TAZ trip data are then used in the trip distribution step that links trip origins with trip destinations to create trip tables, which are disaggregated for work and non-work trip purposes. Trips that leave or pass through the Hampton Roads region were also estimated, using observed 2000 traffic counts at major exit points of the region, and expanded based on forecast traffic counts at those locations in future years.

Trip tables from trip distribution along with network-based travel time and cost data [40 CFR 93.122(b)(1)(v, vi)] are input to the mode split step to estimate trip tables by trip purpose and mode. In the mode split step, nested-logit equations are applied to allocate trips between auto and transit modes. Individual trip tables are created for auto and transit modes. Prior to traffic assignment, trip tables are processed to apply standard auto occupancy rates, convert the tables from model-based production-attraction format to standard origin-destination format, and aggregate results.

Finally, in the traffic assignment step, the trip tables are loaded onto the appropriate highway or transit network and the model run to produce forecasts for traffic volumes for each roadway or transit link. Highway assignment utilizes a capacity restraint formula to

[78] Documentation relating to the validation and calibration process may be obtained from VDOT Transportation and Mobility Planning.

simulate congestion effects on the roadway system [40 CFR 93.122(b)(1)(iv)]. The model makes route decisions based upon the estimated level of roadway congestion, redirecting trips to less congested routes until equilibrium is achieved (i.e., when shifting trips to alternative routes will no longer realize any time savings).

Output from the highway assignment is a network file that includes the assigned roadway volumes for each roadway link. Transit assignment is based upon best available route and does not have a modeled congestion process. The assigned volumes are applied to generate VMT estimates.

This overall modeling process is applied for each analysis year. Appendix B presents resulting forecasts by jurisdiction. Key inputs to the network model are reviewed below.

2.3.1 Socioeconomic Forecasts

The HRTPO developed the socioeconomic data to be used in the conformity analysis using the Regional Economic Models, Inc. (REMI) econometric model. The REMI model is a conjoined input-output and econometric model widely used by local, state and federal governments, colleges and universities, consulting firms and others for economic forecasting including impact analyses.

Following standard practice for the development of socioeconomic forecasts, the REMI model was applied to develop “control totals” for key parameters such as population and employment for the Hampton Roads area. The HRTPO then sub-allocated the regional control totals generated with the REMI model to the local or jurisdiction level for the Hampton Roads area. The sub-allocations were reviewed by each locality and adjustments were made where appropriate [40CFR93.110; 40CFR93.122(b)(1)(iii)].

Participants in this process included the Counties of Gloucester, Isle of Wight, James City, and York, as well as the Cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Williamsburg, and Virginia Beach. Representatives of these jurisdictions distributed the regional population and employment projections to the TAZs used in the transportation model, covering the LRTP Study Area.

Exhibit 2-3 presents the socioeconomic forecasts underlying the travel demand forecasts developed for this conformity analysis. The forecasts (including interim years and sub-allocations as appropriate) represent the latest projections available and approved for use with the 2034 LRTP [40CFR93.110(a,b); 40CFR93.122(b)(1)(ii)]. More detailed data are presented in Appendix A.

2.3.2 Transit Service

Transit operating policies (including fares and service levels) and modeling for transit (ridership) have not changed significantly since the previous conformity determination [40 CFR 93.110(c) and (d)]. Proposed light rail service is included in future networks for the region. Transit service and fares as well as road and bridge tolls are addressed in more detail in supporting documentation for the Plan and associated modeling. 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 Hampton Roads Transit (HRT) and Williamsburg Area Transportation Authority (WATA) websites[79].

Exhibit 2-3: Socioeconomic Forecasts*

Year	Hampton Roads LRTP Study Area			
	Population	**Households**	**Automobiles**	**Employment**
2011	1,687,548	630,049	1,307,269	1,035,097
2018	1,787,236	672,902	1,449,002	1,085,370
2028	1,929,640	734,147	1,651,496	1,157,284
2034	2,015,100	770,900	1,773,000	1,200,400

* *The projections for 2034 were adopted by the Hampton Roads TPO in June 2007. The projections for other years were obtained by interpolation, by TAZ, between 2000 and 2034.*

In brief, local transit fares have not changed (or not changed significantly) since the last conformity analysis for either HRT or WATA. For HRT, the current single ticket fare for local bus service is $1.50; for seniors (60 and over) and disabled, a reduced fare of $0.75 applies. A day pass (the Go Pass) was introduced in 2008 with a fare of $3.50 for a one-day pass. In keeping with the Americans with Disabilities Act (ADA), door-to-door service is also available for those unable to use bus at a fare of $3.00 per one-way trip.

For WATA, the fare for a one-way trip is $1.25; for seniors (60 and over) and disabled, a reduced fare of $0.50 applies. An all-day pass (for unlimited trips) is also available for a fare of $1.50. In keeping with the ADA, door-to-door service is also available for those unable to use bus at a fare of $2.00 per one-way trip.

Finally, express bus service modeling includes the "Max" service, with fares converted to constant 2000 dollars.

2.3.3 Project Lists & Regional Network Development

The federal conformity rule at 40 CFR 93.122(a) requires that "*General requirements. (1) The regional emissions analysis … for the transportation plan, TIP… must include all regionally significant projects expected in the nonattainment or maintenance area. The analysis shall include FHWA/FTA projects proposed in the transportation plan and TIP and all other regionally significant projects which are disclosed to the MPO as required by Sec. 93.105."*

[79] See www.hrtransit.org and www.williamsburgtransport.com, respectively.

All regionally significant and/or federally funded or approved projects identified in the Plan and Program were incorporated into the respective highway networks for each analysis year. The project list for the Plan and TIP was subjected to Interagency Consultation Group review (pursuant to Section 93.105 and the corresponding state regulation) as documented in the chapter on consultation.

Each network is a representation of the region's highway system as it is likely to appear by the specified year. Similarly, the transit network for each scenario and analysis year is coded to estimate transit volumes and ridership.

Regionally significant projects are defined in the federal conformity rule and generally include arterials and higher level facilities (freeways, expressways, interstates) that serve a regional function and are typically coded in the transportation model network for transportation analyses. Minor arterials, collectors, or local streets are usually only coded in the model if they enhance the capability of the traffic model to route trips on the network.

Since regional emission analyses are performed for a number of analysis years as needed for the conformity determination, the transportation networks were coded to include all regionally significant projects specified or included in the Plan and Program and open to traffic in each of the selected analysis years. Appendix E presents the project list for modeling (i.e., regionally significant changes to the existing roadway and transit system) including years modeled as open to traffic.

Projects were coded in the networks based on the first analysis year in which the project would be open to traffic or operational. For the most part, project opening dates were determined at the District level based upon detailed project information provided by either the localities or the associated VDOT project manager. In cases where that level of detail in scheduling was not available, reasonable assumptions were made. For example, completion dates where otherwise not available were estimated by adding three years to the advertisement date for major projects. Shorter times were allocated as appropriate for the completion of minor projects.

2.3.4 Adjustments for Gloucester County

The federal conformity rule at 40 CFR 93.122(a)(7) requires that "*Reasonable methods shall be used to estimate nonattainment or maintenance area VMT on off-network roadways within the urban transportation planning area, and on roadways outside the urban transportation planning area.*"

The Hampton Roads TP+ travel demand model covers the Hampton Roads MPO (TPO) study area. Although only a portion of Gloucester County is within the study area, the remainder of the county is also in the maintenance area and must be included in the conformity analysis. Therefore, for the off-network area within Gloucester County, traffic counts and forecasts as needed were extracted from the VDOT Statewide Planning System database.

The specific data extracted included the roadway functional class, posted speed, link distance, and traffic count / forecast for each analysis year for all links that were not inside the network area. Estimates of vehicle-miles-traveled (VMT) were computed by multiplying link length by the traffic count forecast for each link. These off-network results

were then added to the network VMT estimates produced by the regional travel demand model to obtain the regional forecasts needed, covering the entire County.

2.3.5 Treatment of Off-Network Facilities (Local and Collector Roads)

Local and collector roadways are not typically coded in regional transportation model networks and, consistent with that practice, are not coded in the TP+ regional network developed for Hampton Roads. However, the travel demand model output is not directly adjusted to account for traffic on these facilities. Instead, traffic and emissions for these facilities are addressed in the post-processor and, accordingly, documented with the post-processor.

See Section 2.5 on post-processing for more information on the adjustments for off-network facilities.

2.3.6 Optional Off-line Analyses

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

Off-line analyses for Hampton Roads would include transit bus replacements, Congestion Mitigation and Air Quality (CMAQ) funded projects, van pools, and park-and-ride lots. However, since these adjustments were not needed to demonstrate conformity for this conformity analysis, they were not applied.

2.4 Emission Factor Forecasting

This section presents the selection of the latest emission model as well as key inputs for that model.

2.4.1 Latest Emission Model

The federal conformity rule at 93.111(a) requires the use of the latest emission model as follows: "*The conformity determination must be based on the latest emission estimation model available.*"[80] However, when EPA issues a new model, a grace or transition period applies in which the previous version of the model may still be applied, per the federal conformity rule at 93.111(c) which states: "*Transportation plan and TIP conformity analyses for which the emissions analysis was begun during the grace period or before the Federal Register notice of availability of the latest emission model may continue to use the previous version of the 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

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

applications[81]. The EPA notice indicated that a two-year grace period (ending March 2, 2012) applies for use of the new model in regional emissions analyses for transportation conformity determinations. Therefore, for regional conformity analyses initiated before or within the two-year grace period, the MOBILE6.2 model (the model previously designated as the official model by EPA) may continue to be applied.

Since this conformity analysis for Hampton Roads is being initiated within the two-year grace period, the MOBILE6.2 model may be applied. Given that the applicable budgets for the Hampton Roads region were developed based on the MOBILE6.2 model, and that this model has been applied successfully to meet those budgets in previous conformity analyses for the region, it was selected for application for this conformity analysis. The MOVES model may be applied in future analyses once appropriate steps have been taken, within the two-year grace period, to review and update as needed the applicable budgets[82].

2.4.2 MOBILE Model Inputs

The MOBILE6.2 model may be applied to generate estimates for historic, current and future emission factors for regional on-road motor vehicle fleets. Fleet average emission factors may be generated for:

- multiple pollutants, including hydrocarbons, carbon monoxide, nitrogen oxides, exhaust particulate, hazardous air pollutants (HAPs), and carbon dioxide,
- multiple vehicle and fuel-types, including gasoline, diesel, and natural gas-fueled cars, trucks, buses and motorcycles, and
- calendar years between 1952 and 2050.

Modeled emission factors also vary with age (registration distribution by vehicle class), humidity, ambient temperatures, detailed fuel specifications, and operation (speed, by roadway functional class).

Emission factors are generated by the model in units of grams of pollutant per vehicle mile of travel. Emission forecasts are obtained (as noted previously) as the product of these estimated emission factors with corresponding VMT forecasts.

For this analysis, both national default data and region-specific inputs were used with

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[81] 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. The model name or version as initially released was "MOVES2010", and an updated version "MOVES2010a" was released in August 2010. To allow for pending future revisions to the model and any associated revisions to the model name, the current version of the model is referenced here generically as "MOVES". 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.

[82] A separate process to review and update as appropriate (using MOVES) the motor vehicle emission budgets specified in the currently applicable SIP revision (maintenance plan) is planned. This budget review and update process would need to be completed before the new or revised budgets could be applied for the region in future conformity analyses.

MOBILE6.2. Region-specific inputs include meteorological data, emission control programs, and on-road fleet registration and traffic distribution data, which are summarized in turn below. A sample of a MOBILE6.2 input file applied in this conformity analysis is provided in Appendix C.

2.4.2.1 Ambient Conditions

The federal conformity rule at 93.122(a)(6) requires that "*The ambient temperatures used for the regional emissions analysis shall be consistent with those used to establish the emissions budget in the applicable implementation plan.…*" [83].

Exhibit 2-4 presents average hourly ambient temperatures, hourly relative humidities, and barometric pressure data as presented in the Technical Support Document for the applicable implementation (maintenance) plan.

The hourly data for ambient temperature and relative humidity along with the average daily value for barometric pressure were applied in this conformity analysis, consistent with the maintenance plan.

2.4.2.2 Emission Control Programs

Exhibit 2-5 lists emission control programs in effect for the Hampton Roads area as input to the MOBILE6.2 model. The locality-specific MOBILE input parameters are consistent with the approved maintenance SIP and based on the latest planning assumptions.

Exhibit 2-5: Emission Control Programs

Programs	2011	2018	2028	2034
Reformulated Gasoline*	Yes	Yes	Yes	Yes
RVP (PSI):				
• All jurisdictions but Gloucester and Isle of Wight	6.8	6.8	6.8	6.8
• Gloucester and Isle of Wight	8.4	8.4	8.4	8.4
2007 HDDV Program	Yes	Yes	Yes	Yes
NLEV Early Implementation	Yes	Yes	Yes	Yes
Tier 2 Standards	Yes	Yes	Yes	Yes

**Except for the counties of Gloucester and Isle of Wight, which use conventional gasoline.*

Emission control programs for Hampton Roads as modeled for this analysis include:

- Reformulated Gasoline (RFG), and Gasoline Reid Vapor Pressure (RVP): RFG was modeled for all jurisdictions within the maintenance area with the exception of the Counties of Gloucester and Isle of Wight, which use conventional gasoline. RFG benefits were modeled for all analysis years after 1996, consistent with Virginia regulations requiring RFG and the Maintenance Plan.

  RFG Phase 2, which is currently in effect, has an approximate Reid vapor

[83] Federal Conformity Rule, 40 CFR 93.122 *Procedures for Determining Regional Transportation-Related Emissions*: http://edocket.access.gpo.gov/cfr_2009/julqtr/40cfr93.122.htm

pressure (RVP) of 6.8 pounds per square inch (PSI). For the Counties of Gloucester and Isle of Wight, the RVP for conventional gasoline was taken as 8.4 PSI.

Exhibit 2-4: Ambient Conditions - Ozone Season

Average Hourly Meteorological Data				
Time (EDT)	Temperature (F)	Dew Point (F)	Relative Humidity (%)	Pressure (In)
6:00 AM	71.77	66.4	83.9	30.017
7:00 AM	75.2	67.7	78.1	30.029
8:00 AM	77.8	68.09	72.7	30.033
9:00 AM	81.07	67.22	63	30.034
10:00 AM	83.04	66.91	58.5	30.034
11:00 AM	84.34	65.99	54.5	30.027
12:00 PM	85.79	65.04	50	30.019
1:00 PM	86.59	64.81	48.9	30.009
2:00 PM	87.4	64.09	46.6	29.996
3:00 PM	87.27	63.82	46	29.985
4:00 PM	87.6	63.22	44.7	29.978
5:00 PM	87.01	63.86	46.7	29.974
6:00 PM	85.51	63.99	49.1	29.973
7:00 PM	83.21	65.42	55.9	29.982
8:00 PM	79.39	68.16	69	29.99
9:00 PM	77.9	68.5	73.3	30.004
10:00 PM	77.02	68.08	74.5	30.006
11:00 PM	75.38	67.87	78.1	30.007
12:00 AM	73.31	66.4	79.8	30.006
1:00 AM	72.91	66.31	80.7	30.004
2:00 AM	72.71	66.49	81.7	29.997
3:00 AM	71.9	63.8	78.1	29.995
4:00 AM	71.2	65.5	82.8	29.995
5:00 AM	70.73	65.49	84.3	30.006
	Avg Min T	70.51		
	Avg Max T	88.01		
	Avg Pres	30.004		

Source: VDEQ, "Technical Support Document for the Redesignation Request and Maintenance Plan for Hampton Roads 8-Hour Ozone Nonattainment Area, Final", as approved June 1, 2007, 72 FR 30490. See Table 4.1-2 on age 64. Reproduced with permission.

- 2007 Heavy Duty Diesel Vehicle (HDDV): The 2007 Heavy Duty Diesel Vehicle (HDDV) program including the implementation of ultra low sulfur diesel was included in the generation of emission factors for the conformity analysis. From the regulatory announcement[84]:

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

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.

- National Low Emission Vehicle (NLEV) Program Early Implementation: Early implementation of the NLEV program was included in the 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 throughout Virginia.

- 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[85]:

Highlights of the Tier2/Gasoline Sulfur Program
For cars, and light trucks, and larger passenger vehicles, the program will—
o *Starting in 2004, through a phase in, apply for the first time the same set of emission standards covering passenger cars, light trucks, and large SUVs and passenger vehicles. …*

[85] US EPA, 65 FR 6698, 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*, February 10, 2000. Published in four sections spanning pages 6697-6870. See:
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6697-6746
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6747-6796
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6797-6846
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=page+6847-6870

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

For commercial gasoline, the program will—

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

…

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

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

2.4.2.3 Fleet Distribution Data

Fleet data are input into the MOBILE6.2 model for vehicle age distributions by vehicle class and VMT distributions by vehicle and roadway class. Separate distributions are applied for each jurisdiction in the region.

Exhibit 2-6 presents a sample of vehicle registration distribution data (relative vehicle population by vehicle "age"[86] and class). The sample is for the entire regional on-road motor vehicle fleet in Hampton Roads in 2008, which is not applied directly in the conformity analysis. For greater accuracy, the conformity analysis was instead conducted using the corresponding age distributions developed for each individual jurisdiction within the Hampton Roads region.

The data for each jurisdiction in the region as well as the regional set presented here were developed by the VDEQ in support of the preparation of the federally-required 2008 Periodic Emission Inventory ("2008 PEI"). The VDEQ developed the update to the registration distribution data using detailed vehicle identification number (VIN) data for

[86] Defined by EPA as the calendar year minus model year, plus one. See: US EPA, *User's Guide to MOBILE6.1 and MOBILE6.2 Mobile Source Emission Factor Model*, EPA420-R-03-010, August 2003, p.95 (Section 2.8.7.1 *Distribution of Vehicle Registrations*)

July 1, 2008 for all jurisdictions in the Commonwealth. The jurisdictional data for Hampton Roads so developed were incorporated into the MOBILE6.2 input files for this conformity analysis, consistent with but updating the data applied in the 2007 maintenance plan for the region.

Exhibit 2-6: 2008 Vehicle Registration Distributions for Hampton Roads

MOBILE Model	**Vehicle Age (Calendar Year - Model Year +1)**									
Composite Vehicle Class*	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
	11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
(Number, Abbreviation, Description)	**21**	**22**	**23**	**24**	**25+**					
1. LDV - Light-Duty Vehicles (Passenger Cars)	0.0471	0.0672	0.0626	0.0638	0.0646	0.0677	0.0669	0.0637	0.0698	0.0575
	0.0518	0.0505	0.0424	0.0441	0.0357	0.0298	0.0244	0.0194	0.0164	0.0132
	0.0109	0.0094	0.0073	0.0053	0.0084					
2. LDT1 - Light-Duty Trucks 1	0.0348	0.0000	0.0559	0.0722	0.0227	0.0646	0.0589	0.0546	0.0378	0.0355
(0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)	0.0305	0.0311	0.0540	0.0244	0.0178	0.0175	0.0181	0.0187	0.0162	0.0418
	0.0793	0.0814	0.0511	0.0277	0.0534					
3. LDT2 - Light-Duty Trucks 2	0.0395	0.0653	0.0626	0.0749	0.0781	0.0722	0.0774	0.0649	0.0695	0.0556
(0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW)	0.0542	0.0477	0.0372	0.0349	0.0315	0.0252	0.0178	0.0159	0.0132	0.0135
	0.0123	0.0105	0.0094	0.0060	0.0108					
4. LDT3 - Light-Duty Trucks 3	0.0443	0.0676	0.0759	0.0795	0.0985	0.0952	0.0796	0.0669	0.0610	0.0624
(6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW*)	0.0364	0.0339	0.0329	0.0363	0.0285	0.0185	0.0139	0.0087	0.0117	0.0122
	0.0098	0.0073	0.0070	0.0047	0.0076					
5. LDT4 - Light-Duty Trucks 4	0.0472	0.1382	0.0806	0.1090	0.1361	0.0843	0.0471	0.0543	0.0572	0.0730
(6,001-8,500 lbs. GVWR, 5,751 lbs. and greater ALVW)	0.0501	0.0431	0.0162	0.0131	0.0121	0.0083	0.0042	0.0026	0.0043	0.0048
	0.0056	0.0029	0.0015	0.0014	0.0031					
6. HDV2B Class 2b Heavy-Duty Vehicles	0.0432	0.0602	0.0913	0.0764	0.0957	0.0933	0.0660	0.0678	0.0691	0.0568
(8,501-10,000 lbs. GVWR)	0.0274	0.0428	0.0324	0.0342	0.0209	0.0166	0.0143	0.0093	0.0120	0.0152
	0.0112	0.0080	0.0113	0.0092	0.0155					
7. HDV3 - Class 3 Heavy-Duty Vehicles	0.0557	0.0591	0.1320	0.1044	0.0719	0.0636	0.0619	0.0620	0.0614	0.0638
(10,001-14,000 lbs. GVWR)	0.0266	0.0270	0.0186	0.0277	0.0192	0.0137	0.0125	0.0077	0.0148	0.0146
	0.0197	0.0154	0.0156	0.0111	0.0197					
8. HDV4 - Class 4 Heavy-Duty Vehicles	0.0296	0.0559	0.0531	0.0480	0.0432	0.0613	0.0527	0.0596	0.0722	0.0754
(14,001-16,000 lbs. GVWR)	0.0341	0.0765	0.0391	0.0490	0.0475	0.0223	0.0240	0.0195	0.0249	0.0289
	0.0220	0.0168	0.0121	0.0110	0.0214					
9. HDV5 - Class 5 Heavy-Duty Vehicles	0.0517	0.0848	0.1079	0.1326	0.0919	0.0693	0.0369	0.0369	0.0567	0.0649
(16,001-19,500 lbs. GVWR)	0.0193	0.0815	0.0226	0.0341	0.0270	0.0149	0.0110	0.0088	0.0072	0.0077
	0.0061	0.0094	0.0061	0.0044	0.0066					
10. HDV6 - Class 6 Heavy-Duty Vehicles	0.0329	0.0815	0.0778	0.0790	0.0787	0.0440	0.0544	0.0505	0.0774	0.0697
(19,501-26,000 lbs. GVWR)	0.0508	0.0350	0.0282	0.0463	0.0167	0.0217	0.0178	0.0178	0.0171	0.0144
	0.0124	0.0178	0.0153	0.0151	0.0275					
11. HDV7 - Class 7 Heavy-Duty Vehicles	0.0204	0.0527	0.0429	0.0422	0.0468	0.0281	0.0404	0.0408	0.0556	0.0492
(26,001-33,000 lbs. GVWR	0.0601	0.0348	0.0334	0.0745	0.0440	0.0222	0.0267	0.0366	0.0482	0.0323
	0.0411	0.0390	0.0274	0.0260	0.0345					
12. HDV8 - Class 8a Heavy-Duty Vehicles	0.0267	0.0768	0.0382	0.0398	0.0330	0.0298	0.0485	0.0605	0.0633	0.0700
(33,001-60,000 lbs. GVWR)	0.0633	0.0569	0.0374	0.0676	0.0378	0.0334	0.0227	0.0231	0.0302	0.0283
	0.0267	0.0251	0.0175	0.0231	0.0203					
13. HDV8B Class 8b Heavy-Duty Vehicles	0.0215	0.0786	0.0772	0.0664	0.0580	0.0458	0.0348	0.0776	0.0945	0.0723
(>60,000 lbs. GVWR)	0.0647	0.0510	0.0502	0.0481	0.0363	0.0230	0.0154	0.0160	0.0131	0.0143
	0.0120	0.0078	0.0072	0.0076	0.0067					
14. HDBS - School Buses	0.0026	0.0068	0.0047	0.0047	0.0350	0.0575	0.0178	0.0606	0.0721	0.0669
	0.0789	0.0418	0.0706	0.0664	0.0235	0.0355	0.0382	0.0486	0.0805	0.0711
	0.0105	0.0303	0.0314	0.0256	0.0183					
15. HDBT - Transit and Urban Buses	0.0324	0.0333	0.0182	0.0373	0.0280	0.0266	0.0506	0.0235	0.0200	0.0337
	0.0258	0.0129	0.0222	0.0706	0.0448	0.0608	0.0249	0.0262	0.0324	0.0626
	0.0710	0.0870	0.0586	0.0435	0.0528					
16. MC - Motorcycles (All)	0.0578	0.1231	0.1274	0.1053	0.0847	0.0957	0.0705	0.0555	0.0447	0.0362
	0.0249	0.0196	0.0203	0.0157	0.0146	0.0120	0.0087	0.0063	0.0060	0.0065
	0.0053	0.0073	0.0109	0.0111	0.0297					

* *EPA footnote for the vehicle class definitions* : ALVW = Alternative Loaded Vehicle Weight: The adjusted loaded vehicle weight is the numerical average (GVWR) of the vehicle curb weight and the gross vehicle weight rating (GVWR)

Source for the vehicle registration data: VDEQ Email to VDOT regarding "2008 Vehicle Registration Data (more)", September 9, 2009. Sums normalized in MOBILE model execution.

Source for the vehicle class definitions: *Appendix B, MOBILE6 Input Data Format Reference Tables, Table 1 - Composite Vehicle Classes for Vehicle Registration Data and Vehicle Miles Traveled Fractions (REG DIST and VMT FRACTIONS Commands)* from US EPA, *User's Guide to MOBILE6.1 and MOBILE6.2 Mobile Source Emission Factor Model,* EPA420-R-03-010, August 2003

Exhibit 2-7 presents VMT distributions by vehicle and federal roadway functional class. The distributions were generated using TMS/HPMS data compiled by VDOT[87]. Similar to the registration distribution data, the VMT distribution data were developed in support of the preparation of the federally-required 2008 PEI.

2.5 Post-Processing

The post-processor generates regional total emission forecasts based on estimates developed for three separate sub-categories, namely:

1) regional network VMT and emissions, which are generated using the VMT and emission factor output from the regional travel demand and emission factor modeling steps as described above,

2) "off-network" VMT and emissions, for which traffic (VMT and speeds) expected for roadways that are not typically coded in regional transportation model networks (i.e., local and collector roadways) are first projected and the results combined with the emission factors generated previously to generate emission estimates for these minor facilities, and

3) military base contributions to emissions, as specified in the applicable SIP revision (maintenance plan[88]). Following the procedure in the maintenance plan, the military base contributions are added without adjustment in the post-processor to the estimate for total regional emissions.

The post-processor is based upon transportation engineering methods presented in the 2000 *Highway Capacity Manual (HCM)* and *National Cooperative Highway Research Program (NCHRP) Report 387*.

While the development of estimates for VMT and emissions factors for traffic on the regional network has been presented, the calculation of emissions for the regional network involves two additional adjustments: i) for congested speeds, and ii) for seasonal traffic levels. These are reviewed in turn below.

The development of estimates for traffic and emissions on off-network facilities is then reviewed. This section concludes with a presentation of the hourly profiles that were applied for the VMT tables included in the appendices.

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87 VDOT, *Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester*, September 2009.

88 Hampton Roads Maintenance Plan for the 1997 Eight-Hour Ozone Standard, as previous referenced. See US EPA, 72 FR 30490, 40 CFR Parts 52 and 81 [EPA–R03–OAR–2006–0919; FRL–8320–9], *Approval and Promulgation of Air Quality Implementation Plans; Virginia; Redesignation of the Hampton Roads 8-Hour Ozone Nonattainment Area to Attainment and Approval of the Area's Maintenance Plan and 2002 Base-Year Inventory*, Final Rule, effective June 1, 2007.
See: http://edocket.access.gpo.gov/2007/E7-10581.htm.

Exhibit 2-7: 2008 VMT Distribution by Roadway Functional Class for Hampton Roads

FHWA Roadway Functional Class		Hampton Roads Ozone Maintenance Area Daily VMT Distribution																
		LDV	LDT1	LDT2	LDT3	LDT4	HDV2b	HDV3	HDV4	HDV5	HDV6	HDV7	HDV8a	HDV8b	HDBS	HDBT	MC	SUM
1	Rural Interstate	0.38141	0.08791	0.29267	0.08912	0.04098	0.03405	0.00335	0.00275	0.00205	0.00760	0.00897	0.00975	0.03477	0.00172	0.00079	0.00211	1.00
2	Rural Principal Arterial	0.37691	0.08688	0.28923	0.08807	0.04050	0.03785	0.00373	0.00306	0.00228	0.00844	0.00997	0.01083	0.03865	0.00192	0.00088	0.00080	1.00
6	Rural Minor Arterial	0.38059	0.08773	0.29205	0.08893	0.04089	0.03373	0.00332	0.00273	0.00203	0.00753	0.00889	0.00965	0.03445	0.00171	0.00079	0.00498	1.00
7	Rural Major Collector	0.41055	0.09464	0.31505	0.09593	0.04411	0.01177	0.00116	0.00095	0.00071	0.00263	0.00310	0.00337	0.01202	0.00060	0.00027	0.00314	1.00
8	Rural Minor Collector	0.41590	0.09587	0.31915	0.09718	0.04469	0.00805	0.00079	0.00065	0.00049	0.00180	0.00212	0.00231	0.00822	0.00041	0.00019	0.00218	1.00
9	Rural Local	0.39413	0.09085	0.30245	0.09209	0.04235	0.02347	0.00231	0.00190	0.00142	0.00524	0.00619	0.00672	0.02397	0.00119	0.00055	0.00517	1.00
11	Urban Interstate	0.40916	0.09431	0.31396	0.09560	0.04396	0.01267	0.00125	0.00102	0.00076	0.00283	0.00334	0.00363	0.01294	0.00064	0.00030	0.00363	1.00
12	Urban Freeway/Expressway	0.40658	0.09372	0.31200	0.09500	0.04369	0.01456	0.00143	0.00118	0.00088	0.00325	0.00384	0.00417	0.01487	0.00074	0.00034	0.00375	1.00
14	Urban Principal Arterial	0.41686	0.09609	0.31989	0.09740	0.04479	0.00645	0.00064	0.00052	0.00039	0.00144	0.00170	0.00185	0.00658	0.00033	0.00015	0.00492	1.00
16	Urban Minor Arterial	0.41215	0.09500	0.31625	0.09630	0.04428	0.01000	0.00098	0.00081	0.00060	0.00223	0.00263	0.00286	0.01021	0.00051	0.00023	0.00496	1.00
17	Urban Collector	0.41485	0.09563	0.31835	0.09694	0.04458	0.00823	0.00081	0.00066	0.00050	0.00184	0.00217	0.00236	0.00840	0.00042	0.00019	0.00407	1.00
19	Urban Local	0.39980	0.09215	0.30678	0.09341	0.04296	0.01887	0.00186	0.00152	0.00114	0.00421	0.00497	0.00540	0.01926	0.00096	0.00044	0.00627	1.00
All Functional Classes		**0.41064**	**0.09465**	**0.31509**	**0.09594**	**0.04412**	**0.01129**	**0.00111**	**0.00091**	**0.00068**	**0.00252**	**0.00298**	**0.00323**	**0.01153**	**0.00057**	**0.00026**	**0.00448**	**1.00**

Source: *VDOT, "Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester", September 2009, Exhibit 29.*

2.5.1 Congested Speed Calculation

The post-processor estimates congested speeds using standard Bureau of Public Roads (BPR) formulae that are based upon free flow speeds, volumes and capacity[89]. Two forms of the BPR equation are applied:

1) for non-signalized roadway segments:

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

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

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

2.5.2 Seasonal Adjustments to Traffic

Exhibit 2-8 presents average ozone season weekday adjustment factors for the Hampton Roads area. The factors are applied to the forecast VMT to more accurately account for observed ozone (summer) season traffic levels.

Exhibit 2-8: Ozone Season Traffic Adjustment Factors

FHWA Roadway Functional Class		Average Ozone Season Weekday VMT Adjustment Factor
1	Rural Interstate	1.0582
2	Rural Principal Arterial	1.0602
6	Rural Minor Arterial	1.0765
7	Rural Major Collector	1.0798
8	Rural Minor Collector	1.0751
9	Rural Local	1.0004
11	Urban Interstate	1.0902
12	Urban Freeway/Expressway	1.0786
14	Urban Principal Arterial	1.0851
16	Urban Minor Arterial	1.1001
17	Urban Collector	1.1008
19	Urban Local	1.0854

Source: VDOT, "Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester", September 2009.

[89] Generally, free flow speed is taken here as 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 would be expected to e reduced. The free flow speeds used are consistent with those used in the TP+ model.

The tabulated factors were obtained as the average for the TMS/HPMS values reported for May through September (the summer ozone season) for the Hampton Roads area for 2008.

2.5.3 Adjustments for Off-Network Facilities (Local and Collector Roads)

The federal conformity rule at 40 CFR 93.122(a) requires that "*…Projects which are not regionally significant are not required to be explicitly modeled, but vehicle miles traveled (VMT) from such projects must be estimated in accordance with reasonable professional practice.*"

All regionally significant projects are included in the network modeling as summarized previously. However local and collector roadways are not typically coded in regional transportation model networks and are not coded in the TP+ regional network developed for Hampton Roads.

The post-processor was therefore designed to generate estimates for VMT for these minor facilities, projecting future traffic volumes using traffic count data for a base year and average annual growth rates applicable through the horizon year of the LRTP for the region. Speeds are taken from the VDOT Statewide Planning System (SPS) database or MOBILE model defaults. The base year VMT data for local and collector roads were obtained for 2009 from the VDOT TMS/HPMS database previously referenced. Tabulations of the VMT forecasts generated are presented in Appendix B.

Exhibit 2-9 presents forecast annual average growth rates for local and collector road VMT for the Hampton Roads area. As an approximation, the rates were taken as equivalent to the annual average growth rates reported with the socioeconomic data for auto ownership in Hampton Roads.

Exhibit 2-9: Annual Average Growth Rates for Local and Collector Road VMT

Jurisdiction	Annual Average Growth Rate
Chesapeake	1.69%
Gloucester	1.63%
Hampton	0.42%
Isle of Wight	2.54%
James City	2.50%
Newport News	1.07%
Norfolk	0.79%
Poquoson	1.16%
Portsmouth	0.62%
Suffolk	2.94%
Virginia Beach	0.86%
Williamsburg	1.37%
York	1.66%

2.5.4 Hourly Traffic Volumes

Exhibit 2-10 presents the hourly VMT distributions by vehicle class for the region. These profiles were applied in the generation of the VMT tables that are presented in Appendix B.

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

Hampton Roads Hourly VMT Distributions by Vehicle Class All FHWA Roadway Functional Classes																		
Hour	**LDV**	**LDT1**	**LDT2**	**LDT3**	**LDT4**	**HDV2b**	**HDV3**	**HDV4**	**HDV5**	**HDV6**	**HDV7**	**HDV8a**	**HDV8b**	**HDBS**	**HDBT**	**MC**	**Total for Hour**	**Percent of Daily**
0	0.41459	0.09557	0.31814	0.09687	0.04455	0.00842	0.00083	0.00068	0.00051	0.00188	0.00222	0.00241	0.00860	0.00043	0.00020	0.00410	1.00000	0.9552%
1	0.41017	0.09455	0.31476	0.09584	0.04407	0.01195	0.00118	0.00097	0.00072	0.00267	0.00315	0.00342	0.01220	0.00061	0.00028	0.00346	1.00000	0.6143%
2	0.40472	0.09329	0.31057	0.09457	0.04349	0.01626	0.00160	0.00131	0.00098	0.00363	0.00428	0.00465	0.01660	0.00082	0.00038	0.00285	1.00000	0.5130%
3	0.39574	0.09122	0.30366	0.09246	0.04252	0.02286	0.00225	0.00185	0.00138	0.00510	0.00603	0.00654	0.02335	0.00116	0.00053	0.00335	1.00000	0.4410%
4	0.39983	0.09217	0.30682	0.09343	0.04296	0.01941	0.00191	0.00157	0.00117	0.00433	0.00512	0.00556	0.01982	0.00098	0.00045	0.00447	1.00000	0.8194%
5	0.41000	0.09450	0.31461	0.09580	0.04405	0.01144	0.00113	0.00092	0.00069	0.00255	0.00301	0.00327	0.01168	0.00058	0.00027	0.00550	1.00000	2.3098%
6	0.41031	0.09457	0.31483	0.09587	0.04408	0.01130	0.00111	0.00091	0.00068	0.00252	0.00298	0.00323	0.01154	0.00057	0.00026	0.00524	1.00000	4.6178%
7	0.40881	0.09423	0.31369	0.09552	0.04392	0.01288	0.00127	0.00104	0.00078	0.00287	0.00339	0.00369	0.01316	0.00065	0.00030	0.00380	1.00000	5.9858%
8	0.40355	0.09303	0.30968	0.09430	0.04336	0.01702	0.00168	0.00138	0.00103	0.00380	0.00449	0.00487	0.01738	0.00086	0.00040	0.00317	1.00000	5.4590%
9	0.40099	0.09243	0.30770	0.09369	0.04309	0.01879	0.00185	0.00152	0.00113	0.00419	0.00495	0.00538	0.01919	0.00095	0.00044	0.00371	1.00000	4.9462%
10	0.40189	0.09265	0.30842	0.09391	0.04319	0.01809	0.00178	0.00146	0.00109	0.00404	0.00477	0.00518	0.01847	0.00092	0.00042	0.00372	1.00000	5.1546%
11	0.40365	0.09304	0.30974	0.09431	0.04337	0.01659	0.00163	0.00134	0.00100	0.00370	0.00437	0.00475	0.01694	0.00084	0.00039	0.00434	1.00000	5.6473%
12	0.40647	0.09370	0.31192	0.09498	0.04368	0.01440	0.00142	0.00116	0.00087	0.00321	0.00380	0.00412	0.01471	0.00073	0.00034	0.00449	1.00000	6.1765%
13	0.40601	0.09359	0.31155	0.09487	0.04362	0.01473	0.00145	0.00119	0.00089	0.00329	0.00388	0.00422	0.01504	0.00075	0.00034	0.00458	1.00000	6.1112%
14	0.40635	0.09366	0.31181	0.09494	0.04366	0.01431	0.00141	0.00116	0.00086	0.00319	0.00377	0.00409	0.01461	0.00072	0.00033	0.00513	1.00000	6.5444%
15	0.41017	0.09455	0.31474	0.09584	0.04407	0.01135	0.00112	0.00092	0.00068	0.00253	0.00299	0.00325	0.01158	0.00057	0.00026	0.00538	1.00000	7.3457%
16	0.41438	0.09552	0.31798	0.09682	0.04452	0.00820	0.00081	0.00066	0.00049	0.00183	0.00216	0.00235	0.00837	0.00042	0.00019	0.00530	1.00000	7.7849%
17	0.41846	0.09645	0.32110	0.09777	0.04496	0.00536	0.00053	0.00043	0.00032	0.00120	0.00141	0.00153	0.00547	0.00027	0.00012	0.00462	1.00000	7.7010%
18	0.41961	0.09672	0.32198	0.09804	0.04508	0.00445	0.00044	0.00036	0.00027	0.00099	0.00117	0.00127	0.00455	0.00023	0.00010	0.00474	1.00000	6.0557%
19	0.42016	0.09685	0.32240	0.09817	0.04514	0.00409	0.00040	0.00033	0.00025	0.00091	0.00108	0.00117	0.00418	0.00021	0.00010	0.00456	1.00000	4.4681%
20	0.42054	0.09694	0.32270	0.09826	0.04519	0.00386	0.00038	0.00031	0.00023	0.00086	0.00102	0.00110	0.00394	0.00020	0.00009	0.00438	1.00000	3.6562%
21	0.42062	0.09696	0.32276	0.09828	0.04519	0.00394	0.00039	0.00032	0.00024	0.00088	0.00104	0.00113	0.00402	0.00020	0.00009	0.00394	1.00000	3.0277%
22	0.41983	0.09678	0.32217	0.09810	0.04511	0.00457	0.00045	0.00037	0.00028	0.00102	0.00120	0.00131	0.00466	0.00023	0.00011	0.00381	1.00000	2.1751%
23	0.41823	0.09641	0.32094	0.09772	0.04494	0.00585	0.00058	0.00047	0.00035	0.00131	0.00154	0.00167	0.00597	0.00030	0.00014	0.00358	1.00000	1.4900%
Daily	**0.41064**	**0.09465**	**0.31509**	**0.09594**	**0.04412**	**0.01129**	**0.00111**	**0.00091**	**0.00068**	**0.00252**	**0.00298**	**0.00323**	**0.01153**	**0.00057**	**0.00026**	**0.00448**	**1.00000**	**100.00%**

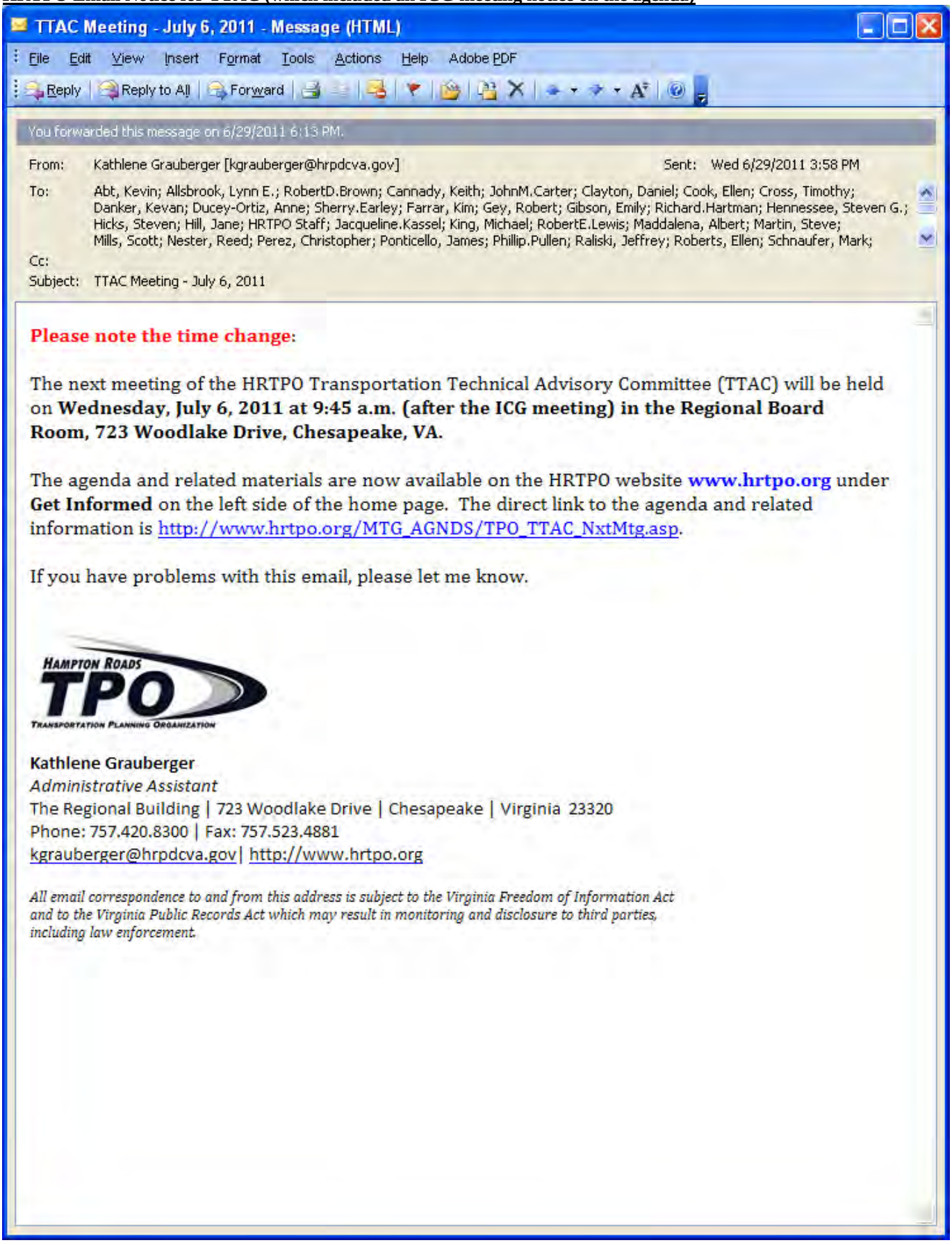
Source: VDOT, "Traffic Data for the 2008 Highway Emissions Inventory. Air Quality Planning Areas: Fredericksburg, Hampton Roads, Northern Virginia, Richmond, Roanoke & Winchester", September 2009.

Appendix D – Consultation Record

June 29, 2011 HRTPO Public Notice for the ICG and TTAC meetings

- HRTPO Public notice email for the TTAC Meeting
- HRTPO website notice for the TTAC meeting
- TTAC agenda *(which included a notice for the ICG meeting)*

HRTPO Email Notice for TTAC (which included an ICG meeting notice on the agenda)



TTAC Meeting - July 6, 2011 - Message (HTML)

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From: Kathlene Grauberger [kgrauberger@hrpdcva.gov] Sent: Wed 6/29/2011 3:58 PM

To: Abt, Kevin; Allsbrook, Lynn E.; RobertD.Brown; Cannady, Keith; JohnM.Carter; Clayton, Daniel; Cook, Ellen; Cross, Timothy; Danker, Kevan; Ducey-Ortiz, Anne; Sherry.Earley; Farrar, Kim; Gey, Robert; Gibson, Emily; Richard.Hartman; Hennessee, Steven G.; Hicks, Steven; Hill, Jane; HRTPO Staff; Jacqueline.Kassel; King, Michael; RobertE.Lewis; Maddalena, Albert; Martin, Steve; Mills, Scott; Nester, Reed; Perez, Christopher; Ponticello, James; Phillip.Pullen; Raliski, Jeffrey; Roberts, Ellen; Schnaufer, Mark;

Cc:

Subject: TTAC Meeting - July 6, 2011

Please note the time change:

The next meeting of the HRTPO Transportation Technical Advisory Committee (TTAC) will be held on **Wednesday, July 6, 2011 at 9:45 a.m. (after the ICG meeting) in the Regional Board Room, 723 Woodlake Drive, Chesapeake, VA.**

The agenda and related materials are now available on the HRTPO website **www.hrtpo.org** under **Get Informed** on the left side of the home page. The direct link to the agenda and related information is http://www.hrtpo.org/MTG_AGNDS/TPO_TTAC_NxtMtg.asp.

If you have problems with this email, please let me know.

HAMPTON ROADS TPO TRANSPORTATION PLANNING ORGANIZATION

Kathlene Grauberger
Administrative Assistant
The Regional Building | 723 Woodlake Drive | Chesapeake | Virginia 23320
Phone: 757.420.8300 | Fax: 757.523.4881
kgrauberger@hrpdcva.gov | http://www.hrtpo.org

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TTAC Next Meeting - Windows Internet Explorer provided by VA IT Infrastructure Partnership
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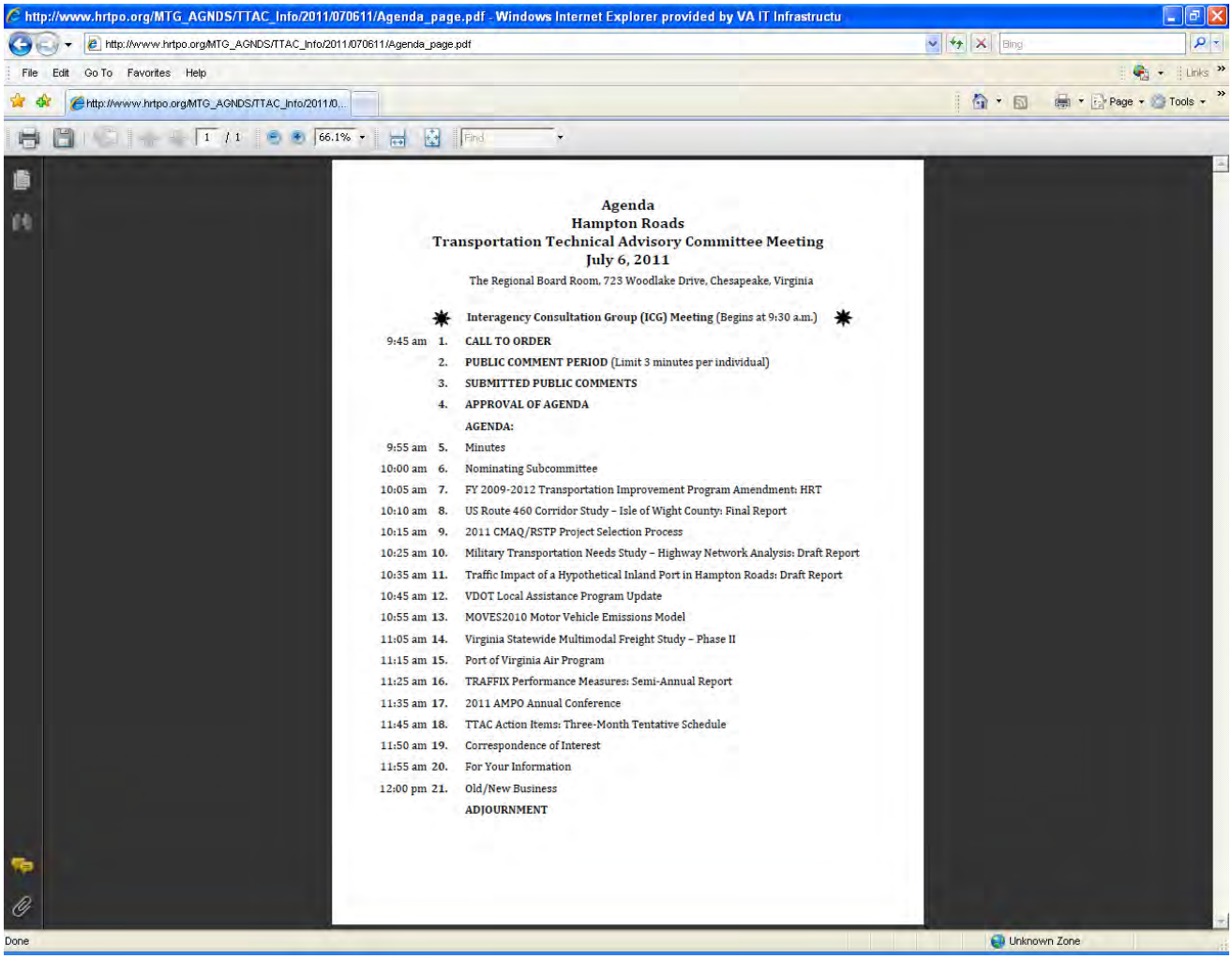
Watch HRTPO Board Meetings
Check out the Presentation to the Commonwealth
Transportation Technical Advisory Committee (TTAC) and Subcommittees
(Items posted when available.)
Transportation Technical Advisory Committee (TTAC)
Date: Wednesday July 6, 2011
Time: 9:30 am
The Regional Board Room
723 Woodlake Drive
Chesapeake, VA
AGENDA (to print full agenda packet, click here)
Interagency Consultation Group (ICG) Meeting (Begins at 9:30 a.m.)
1. CALL TO ORDER
2. PUBLIC COMMENT PERIOD (Limit 3 minutes per individual)
3. SUBMITTED PUBLIC COMMENTS
4. APPROVAL OF AGENDA
AGENDA:
5. Minutes
6. Nominating Subcommittee
7. FY 2009-2012 Transportation Improvement Program Amendment: HRT
Hot Topics
LRTP 2034
Public Meeting (Peninsula)
When: Thu, June 30, 5pm – 7pm
Where: Williamsburg Public Library
515 Scotland Street
Williamsburg, VA
Governor Bob McDonnell Announces a Nearly $3 Billion Increase in Construction Funding As Commonwealth Transportation Board Adopts Fiscal Years 2012-2017 Six-Year Improvement Program
The HRTPO Board approved a Hampton Roads Transportation Project Priorities for the 2034 Long-Range Transportation Plan. To see where these projects are located in the region, use our
Visualization tool.
The Department of Transportation posted a fact sheet highlighting the major Atlantic container ports of New York/New Jersey, Virginia, Charleston, and Savannah, but also discussing other US
Internet
100%

HRTPO TTAC Agenda (which included an ICG Meeting notice at the start of the agenda)



Agenda
Hampton Roads
Transportation Technical Advisory Committee Meeting
July 6, 2011

The Regional Board Room, 723 Woodlake Drive, Chesapeake, Virginia

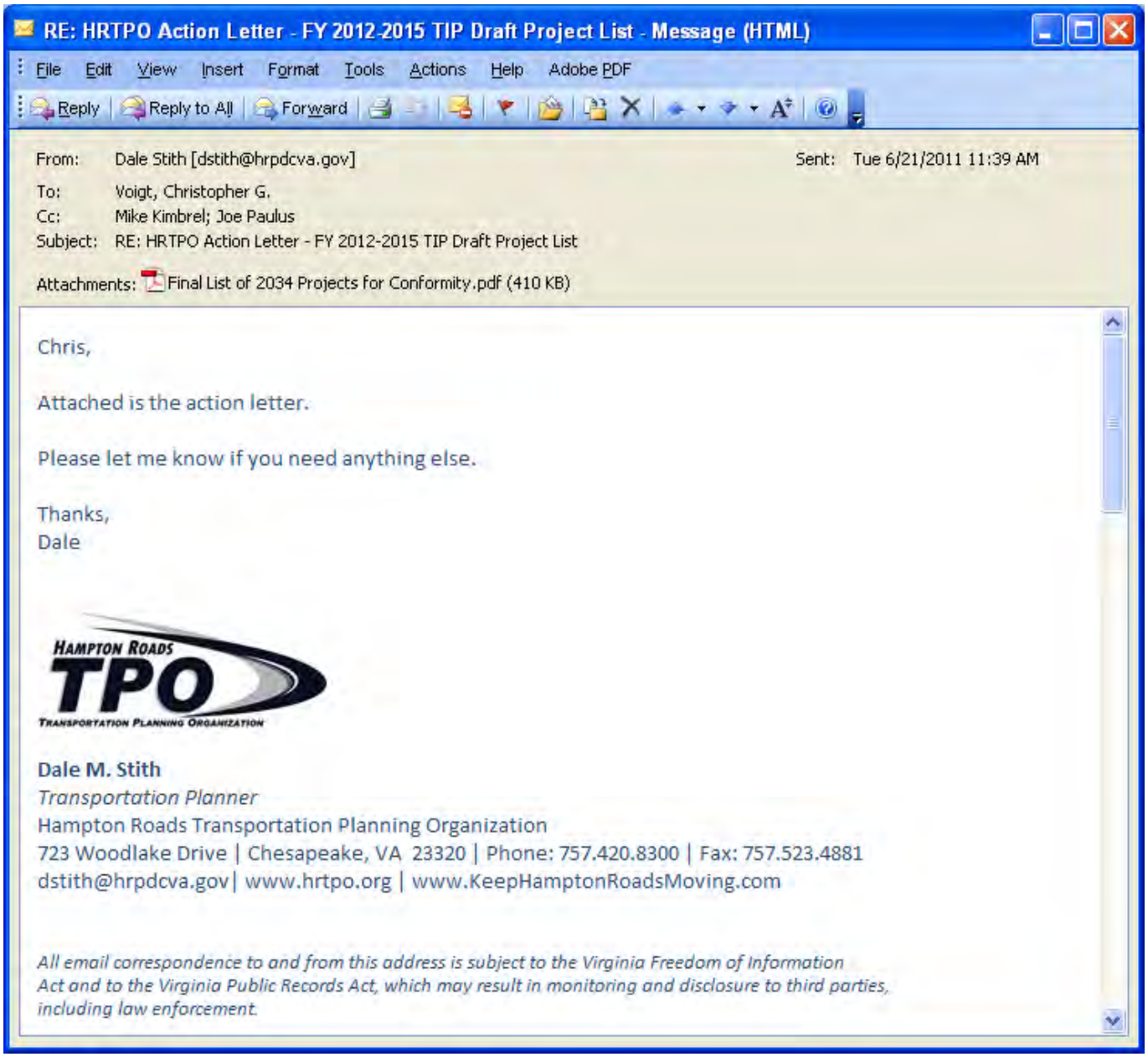
✸ **Interagency Consultation Group (ICG) Meeting** (Begins at 9:30 a.m.) ✸

9:45 am	1.	**CALL TO ORDER**
	2.	**PUBLIC COMMENT PERIOD** (Limit 3 minutes per individual)
	3.	**SUBMITTED PUBLIC COMMENTS**
	4.	**APPROVAL OF AGENDA**
		AGENDA:
9:55 am	5.	Minutes
10:00 am	6.	Nominating Subcommittee
10:05 am	7.	FY 2009-2012 Transportation Improvement Program Amendment: HRT
10:10 am	8.	US Route 460 Corridor Study – Isle of Wight County: Final Report
10:15 am	9.	2011 CMAQ/RSTP Project Selection Process
10:25 am	10.	Military Transportation Needs Study – Highway Network Analysis: Draft Report
10:35 am	11.	Traffic Impact of a Hypothetical Inland Port in Hampton Roads: Draft Report
10:45 am	12.	VDOT Local Assistance Program Update
10:55 am	13.	MOVES2010 Motor Vehicle Emissions Model
11:05 am	14.	Virginia Statewide Multimodal Freight Study – Phase II
11:15 am	15.	Port of Virginia Air Program
11:25 am	16.	TRAFFIX Performance Measures: Semi-Annual Report
11:35 am	17.	2011 AMPO Annual Conference
11:45 am	18.	TTAC Action Items: Three-Month Tentative Schedule
11:50 am	19.	Correspondence of Interest
11:55 am	20.	For Your Information
12:00 pm	21.	Old/New Business
		ADJOURNMENT

Appendix D – Consultation Record

HRTPO transmittal of certification letter for the project list

- Email transmittal dated June 21, 2011
- HRTPO letter dated June 16, 2011 (minus attached project list) certifying that the HRTPO Board "*approved the final list of projects for inclusion in the 2034 Long-Range Transportation Plan that must undergo air quality conformity analysis*".



RE: HRTPO Action Letter - FY 2012-2015 TIP Draft Project List - Message (HTML)

File Edit View Insert Format Tools Actions Help Adobe PDF

Reply | Reply to All | Forward

From: Dale Stith [dstith@hrpdcva.gov] Sent: Tue 6/21/2011 11:39 AM

To: Voigt, Christopher G.

Cc: Mike Kimbrel; Joe Paulus

Subject: RE: HRTPO Action Letter - FY 2012-2015 TIP Draft Project List

Attachments: Final List of 2034 Projects for Conformity.pdf (410 KB)

Chris,

Attached is the action letter.

Please let me know if you need anything else.

Thanks,
Dale

HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

Dale M. Stith
Transportation Planner
Hampton Roads Transportation Planning Organization
723 Woodlake Drive | Chesapeake, VA 23320 | Phone: 757.420.8300 | Fax: 757.523.4881
dstith@hrpdcva.gov| www.hrtpo.org | www.KeepHamptonRoadsMoving.com

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HAMPTON ROADS TPO
TRANSPORTATION PLANNING ORGANIZATION

WILLIAM D. SESSOMS, JR., CHAIRMAN · MOLLY J. WARD, VICE CHAIR
DWIGHT L. FARMER, EXECUTIVE DIRECTOR/SECRETARY

June 16, 2011

Mr. Dennis W. Heuer, P.E.
Hampton Roads District Administrator
Virginia Department of Transportation
1700 North Main Street
Suffolk, VA 23434

Re: HRTPO Action (Final List of 2034 LRTP Projects for Conformity)

Dear ~~Mr. Heuer~~ Dennis:

This is to certify that the Hampton Roads Transportation Planning Organization Board, at its meeting on June 16, 2011, approved the final list of projects for inclusion in the 2034 Long-Range Transportation Plan that must undergo air quality conformity analysis.

A copy of the approved list entitled **HRTPO 2034 LRTP: List of Projects for Air Quality Conformity Analysis** is attached for your use.

If you have any questions, please contact me at 757-420-8300.

Sincerely,

Dwight

Dwight L. Farmer
Executive Director/Secretary

JDP/kg

Attachment

TP

Appendix E: Final Project List

Attached is the final plan and program project list for modeling as applied for the conformity analysis.

2034 LRTP and Amended FY12-15 Project Conformity List

2034 LRTP and Amended FY12-15 Project Conformity List

UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
MULTI-JURISDICTIONAL													
95149/76642/ 77245	MULTI	Downtown Tunnel / Midtown Tunnel / MLK extension	Hampton Blvd	I-264	Widen/ New Alignment	2,0	4	2018	Y	Y	Y		N
56638/84272	MULTI	US Route 460 - Hampton Roads portion	Bowers Hill	Zuni	New Alignment	0	4	2018	Y	Y	Y		N
13497/92992/ 93243	MULTI	Fort Eustis Blvd	0.44 mi E. of Jefferson Ave (Cherry Creek Dr)	0.01 mi W. of George Washington Memorial Hwy (Rte 17)	Widening	2	4	2018	Y	Y	Y	Y	N
CHESAPEAKE													
56187/84354	CHESAPEAKE	Dominion Blvd	0.05 mi N. of Great Bridge Blvd	0.75 mi S.of Cedar Rd	Widening	2	4	2018	Y	Y	Y		N
1904	CHESAPEAKE	Gilmerton Bridge	0.36 mi E. of Bridge (Bainbridge Blvd)	0.42 mi W. of Bridge (Shell Rd)	Reconstruct bridge	4	4	2018	Y	Y	Y	Y	N
	CHESAPEAKE	South Norfolk Jordan Bridge	Truxton St	Veneer Rd	New Alignment	0	2	2018	N	Y	Y	Y	N
18591	CHESAPEAKE	Portsmouth Blvd	Jolliff Rd	Suffolk City Line	Widening	2	4	2018	Y	Y	Y	Y	N
HAMPTON													
93081	HAMPTON	Bridge Street Bridge	Rudd Ln	Marrow St	Reconstruct bridge	2	2	2018	Y	Y	Y	Y	N
60970/94440	HAMPTON	Commander Shepard Blvd (Phase II)	Big Bethel Rd	North Campus Pkwy	New Alignment	0	4	2018	Y	Y	Y	Y	N
76682	HAMPTON	I-64 Interchange at Lasalle Ave	n.a.	n.a.	Ramp Widening	n.a.	n.a.	2018	Y	Y	Y	Y	N
57047	HAMPTON	Saunders Road	Big Bethel Rd	Newport News City Line	Widening	2	4	2018	Y	Y	Y	Y	N
97715	HAMPTON	Wythe Creek Rd	Poquoson City Line	Commander Shepard Blvd	Widening	2	4	2018	Y	Y	Y	Y	N
ISLE OF WIGHT COUNTY													

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4	ISLE OF WIGHT COUNTY	RTE 258	0.20 MILE WEST OF ROUTE 620	SMITHFIELD MIDDLE SCHOOL	Reconstruction	2	3	2018	Y	N	N		Y
JAMES CITY COUNTY													
50057	JAMES CITY COUNTY	Ironbound Rd	0.07 mi S. of Longhill Connector Rd (Schmidt Rd)	0.01 mi S. of Strawberry Plains Rd	Widening	2	4	2018	Y	Y	Y	Y	N
NEWPORT NEWS													
4483	NEWPORT NEWS	Atkinson Blvd	Jefferson Ave	Warwick Blvd	New Alignment	0	4	2028	Y	Y	Y		N
93077	NEWPORT NEWS	Denbigh Blvd Bridge Replacement over I-64 & CSX Railroad	Rickneck Rd	Trailblazer Blvd	Reconstruct bridge	4	4	2018	Y	Y	Y	Y	N
91687	NEWPORT NEWS	Fort Eustis Blvd Bridge Replacement over CSX Railroad	I-64	Lee Hall Reservoir	Reconstruct bridge	4	4	2018	Y	Y	Y	Y	N
94832	NEWPORT NEWS	Huntington Ave Bridge Replacement over Northrup Grumman Railroad Spur	39th St	41st St	Reconstruct bridge	5	5	2018	Y	Y	Y	Y	N
57313/57580	NEWPORT NEWS	I-64 Widening	Jefferson Avenue (Exit 255)	Ft. Eustis Blvd (Exit 250)	Widening	4	6+2	2034	Y	Y	Y		N
11816	NEWPORT NEWS	Middle Ground Blvd	Jefferson Ave	Warwick Blvd	New Alignment	0	4	2018	Y	Y	Y	Y	N
85955	NEWPORT NEWS	Washington Ave Bridge Replacement	39th St	41st St	Reconstruct bridge	4	4	2018	Y	Y	Y	Y	N

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NORFOLK													
14672	NORFOLK	Hampton Blvd (RTE 337) Railroad Grade Separation	Rogers Ave	B Ave	Reconstruct underpass	n.a.	n.a.	2018	Y	Y	Y	Y	N
18968	NORFOLK	I-564 Intermodal Connector	I-564	Norfolk Naval Base/NIT/Chambers Field (Hampton Blvd)	New Alignment	0	4	2018	Y	Y	Y	Y	N
17824	NORFOLK	I-64 Interchange at Norview Ave	n.a.	n.a.	Add Movement	n.a.	n.a.	2018	Y	Y	Y	Y	N
9783	NORFOLK	Military Hwy (RTE 13)	Lowery Rd	0.3 mi S. of Northampton Blvd	Widening	4	6	2018	Y	Y	Y	Y	N
84243	NORFOLK	Military Hwy (RTE 13)	Robin Hood Rd	0.3 mi N of Northampton Blvd	Widening	4	6	2018	Y	Y	Y	Y	N
1765	NORFOLK	Military Hwy (RTE 165)@ Northampton Blvd Continuous Flow Interchange	n.a.	n.a.	New Alignment	n.a.	n.a.	2018	Y	Y	Y		N
52147	NORFOLK	Wesleyan Dr	Northampton Blvd	Virginia Beach City Line	Widening	2	4	2018	Y	Y	Y	Y	N
POQUOSON													
13427	POQUOSON	Wythe Creek Road (w/o bridge widening)	Alphus Street	Hampton City Line	Widening	2	4	2028	Y	Y	Y	Y	N

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PORTSMOUTH													
	PORTSMOUTH	Craney Island Connector	VA-164	Craney Island Marine Terminal (Future)	New Roadway	0	2	2018	N	Y	Y		N
	PORTSMOUTH	High Street (Churchland Bridge)	High Point Dr	Shenadoah St	Reconstruct bridge	4	4	2034	N	Y	Y		N
65655/3950	PORTSMOUTH	Turnpike Rd (RTE 337)	0.13 mi E. of Frederick Blvd	Constitution Ave	Widening	2	4	2018	Y	Y	Y	Y	N
SUFFOLK													
	SUFFOLK	Bridge Rd	Mills Godwin Bridge	Chesapeake City Line	Widening	4	6	2028	N	Y	Y		N
	SUFFOLK	Mills Godwin Bridge	Quail Hollow	Waterview Rd	Widening	2	4	2028	N	Y	Y		N
17568	SUFFOLK	Nansemond Pkwy	Helen St	Norfolk Southern Railroad	Widening	2	4	2018	Y	Y	Y	Y	N
61407	SUFFOLK	Nansemond Pkwy	Chesapeake City Line	Helen St	Widening	2	4	2018	Y	Y	Y	Y	N
99043	SUFFOLK	Route 58 (Holland Rd)	Suffolk Bypass	0.7 mi W. Manning Bridge Rd	Widening	4	6	2034	Y	Y	Y		N
VIRGINIA BEACH													
15828	VIRGINIA BEACH	Elbow Rd / Dam Neck Rd	Indian River Rd	Virginia Beach Amphitheater	Widening	2	4	2018	Y	Y	Y		N
15827	VIRGINIA BEACH	Holland Rd	Nimmo Pkwy	Dam Neck Rd	Widening	2	4	2028	Y	Y	Y		N
80157/94544/ 95554	VIRGINIA BEACH	I-264 Interchange at London Bridge Rd	n.a.	n.a.	Add Ramps/ Reconstruct	n.a.	n.a.	2018	Y	Y	Y	Y	N
15829	VIRGINIA BEACH	Indian River Rd	Lynnhaven Pkwy	Elbow Rd	Widening	2	4	2018	Y	Y	Y		N
51866	VIRGINIA BEACH	Kempsville Rd Intersection at Princess Anne Rd	n.a.	n.a.	New Alignment	n.a.	n.a.	2018	Y	Y	Y	Y	N

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12546	VIRGINIA BEACH	Laskin Rd (RTE 58)	Republic Road	Oriole Dr	Widening	4	6	2018	Y	Y	Y		N
14601	VIRGINIA BEACH	Laskin Rd (RTE 58)	0.32 MILES EAST OF BIRDNECK ROAD (Oriole Dr)	0.247 MILES WEST OF PACIFIC AVENUE (30th/31st St)	Widening	4	6	2018	Y	Y	Y		N
97737	VIRGINIA BEACH	Lesner Bridge	E. Stratford Rd (bridge approach)	Page Ave	Reconstruct bridge	4	4	2018	N	Y	Y		N
14603	VIRGINIA BEACH	Lynnhaven Pkwy	Indian River Rd	Centerville Tnpk	New Alignment	0	4	2018	Y	Y	Y		N
52058	VIRGINIA BEACH	Nimmo Pkwy	Holland Rd	General Booth Blvd	New Alignment	0	4	2018	Y	Y	Y	Y	N
13482/93522/ 95555/96137	VIRGINIA BEACH	Princess Anne Rd & Nimmo Pkwy	Dam Neck Rd	Holland Rd	Widening	2,0	4	2018	Y	Y	Y	Y	N
52148	VIRGINIA BEACH	Wesleyan Dr	Norfolk City Line	Baker Rd	Widening	2	4	2018	Y	Y	Y	Y	N
55202	VIRGINIA BEACH	Witchduck Rd	I-264	Virginia Beach Blvd	Widening	4	6	2018	Y	Y	Y		N
55200/93254	VIRGINIA BEACH	Witchduck Rd	BONNEY ROAD	GRAYSON ROAD	Widening	4	6	2011	Y	Y	Y	Y	N
VB 2-107	VIRGINIA BEACH	Seaboard Rd	Princess Anne Rd	Nimmo Pkwy	New Alignment	0	2	2011	N	Y	Y		N
VB 2-016	VIRGINIA BEACH	First Colonial Rd	Old Donation Pkwy	Virginia Beach Blvd	Widening	4	6	2018	N	Y	Y		N
VB 2-005	VIRGINIA BEACH	Centerville Tnpk	Indian River Rd	Kempsville Rd	Widening	2	6	2018	N	Y	Y		N
VB 2-403	VIRGINIA BEACH	Centerville Tnpk	Kempsville Rd	Chesapeake City Line	Widening	2	4	2018	N	Y	Y		N
VB 2-501	VIRGINIA BEACH	Nimmo Pkwy	Indian River Rd	West Neck Pkwy Extended	New Alignment	0	2	2018	N	Y	Y		N
VB 2-195	VIRGINIA BEACH	Princess Anne Rd	Upton Dr	General Booth Blvd	Widening	2	4	2018	N	Y	Y		N
VB 2-XXX	VIRGINIA BEACH	Cleveland St	Witchduck Road	Clearfield Ave	Widening	2	4	2018	N	Y	Y		N
84366	VIRGINIA BEACH	Kempsville Rd Intersection at Indian River Rd	n.a.	n.a.	New Alignment	n.a.	n.a.	2018	Y	Y	Y		N
VB 2-118	VIRGINIA BEACH	Shore Dr	Marlin Bay Drive/Sandy Oaks Drive	E. Stratford Rd (bridge approach)	Widening	4	6	2018	N	Y	Y		N
VB 2-117	VIRGINIA BEACH	Shore Dr	Page Ave	Great Neck Rd	Widening	4	6	2018	N	Y	Y		N
VB 2-072	VIRGINIA BEACH	First Colonial Rd Intersection at Virginia Beach Blvd	n.a.	n.a.	New Alignment	n.a.	n.a.	2018	N	Y	Y		N

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VB 2-404/VB 2-014	VIRGINIA BEACH	Holland Rd	Rosemont Rd	Independence Blvd	Widening	4	6	2028	N	Y	Y		N
VB 2-050	VIRGINIA BEACH	Dam Neck Rd	Holland Rd	Drakesmile Rd	Widening	4	6	2028	N	Y	Y		N
VB 2-017	VIRGINIA BEACH	Dam Neck Rd	Drakesmile Rd	London Bridge Rd	Widening	4	6	2028	N	Y	Y		N
VB 2-011	VIRGINIA BEACH	Indian River Rd	Centerville Tnpk	Ferrell Pkwy	Widening	6	8	2028	N	Y	Y		N
VB 2-024	VIRGINIA BEACH	Newtown Rd	Baker Rd	Virginia Beach Blvd	Widening	4	6	2028	N	Y	Y		N
VB 2-505	VIRGINIA BEACH	West Neck Pkwy Ext'd	Elbow Rd	North Landing Rd	New Alignment	0	4	2028	N	Y	Y		N
VB 2-041/VB 2-057	VIRGINIA BEACH	Rosemont Rd	Virginia Beach Blvd	Holland Rd	Widening	4	6	2028	N	Y	Y		N
VB 2-026	VIRGINIA BEACH	Providence Rd	Kempsville Rd	Princess Anne Rd	Widening	2	4	2028	N	Y	Y		N
VB 2-063	VIRGINIA BEACH	General Booth Blvd	Oceana Blvd	Dam Neck Rd	Widening	6	8	2028	N	Y	Y		N
VB 2-038	VIRGINIA BEACH	Lynnhaven Pkwy	Holland Rd	Princess Anne Rd	Widening	4	6	2028	N	Y	Y		N
VB 2-408	VIRGINIA BEACH	Ferrell Pkwy	Indian River Rd	Indian Lakes Blvd	Widening	4	6	2028	N	Y	Y		N
VB 2-034	VIRGINIA BEACH	Ferrell Pkwy	Indian Lakes Blvd	Pleasant Valley Rd	Widening	4	6	2028	N	Y	Y		N
VB 2-070	VIRGINIA BEACH	London Bridge Road	Dam Neck Rd	Shipps Corner Rd	Widening	2	4	2028	N	Y	Y		N
VB 2-062	VIRGINIA BEACH	Birdneck Road	I-264	Virginia Beach Blvd	Widening	4	6	2028	N	Y	Y		N
VB 2-116	VIRGINIA BEACH	Shore Drive	Pleasure House Rd	Treasure Island Drive	Widening	4	6	2028	N	Y	Y		N
YORK COUNTY													
60843	YORK COUNTY	Route 17 (GW Mem Hwy)	1.27 mi S. of Lakeside Dr (Hampton Hwy)	1.52 mi N. of Lakeside Dr (Dare Rd)	Widening	4	6	2018	Y	Y	Y		N
	YORK COUNTY	Route 17 (GW Mem Hwy)	1.52 mi N. of Lakeside Dr (Dare Rd)	Denbigh Blvd	Widening	4	6	2034	N	Y	Y		N

2034 LRTP and Amended FY12-15 Project Conformity List

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TRANSIT													
HRT0073	TRANSIT	Conventional Passenger Rail	Norfolk	Richmond/Northeast Corridor	Upgrade	n.a.	n.a.	2018	Y	Y	Y	Y	N
T9108	VIRGINIA BEACH	Virginia Beach Transit Extension (Preliminary Engineering)	Newtown Road	Oceanfront	Study	n.a.	n.a.	n.a.	Y	Y	Y	Y	Y
	TRANSIT	Harbor Park Multimodal HSIPR Station Development	n.a.	n.a.	Transit facility	n.a.	n.a.	n.a.	N	Y	Y		Y
	TRANSIT	High Speed & Intercity Passenger Rail (Preliminary Engineering)	Richmond	Hampton Roads	Study	n.a.	n.a.	n.a.	Y	Y	Y	Y	Y
T9097	TRANSIT	Multimodal HSIPR Passenger Rail Stations Development	n.a.	n.a.	Transit facility	n.a.	n.a.	n.a.	Y	Y	Y		Y
	TRANSIT	WATA Administrative Operations Center	n.a.	n.a.	Transit Facility	n.a.	n.a.	n.a.	N	Y	Y		Y
52378	HRT - DRPT	ATLANTIC AVENUE TROLLEY, ITS, SPECIAL EVENT SIGNALS			Environmentally Related	n/a	n/a	n/a	Y	N	N		
70279	HRT - DRPT	Hampton/Norfolk Service			Environmentally Related	n/a	n/a	n/a	Y	N	N		
70280	HRT - DRPT	Newport News/Williamsburg Commuter Service			Environmentally Related	n/a	n/a	n/a	Y	N	N		

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70281	HRT - DRPT	Newport News/Smithfield Commuter Service			Environmentally Related	n/a	n/a	n/a	Y	N	N		
70285	HRT - DRPT	Crossroads Commuter Service Capital and Operating			Environmentally Related	n/a	n/a	n/a	Y	N	N		
91969	HRT - DRPT	Jordan Bridge Traffic Mitigation - Express Bus Service			Safety/Traffic Operations/TSM	n/a	n/a	n/a	Y	N	N		
T132	HRT - DRPT	Regional TDM Program: Traffix				n/a	n/a	n/a	Y	N	N		
T142	HRT - DRPT	CSX LRT PE & Land Acquisition for Stations				n/a	n/a	n/a	Y	N	N		
T1822	HRT - DRPT	HRT Project - Norfolk LRT - 8 mile/11 stations - PE Phase				n/a	n/a	2011	Y	N	N		
T1823	HRT - DRPT	HRT Project - Regional TDM Program: TRAFFIX				n/a	n/a	n/a	Y	N	N		
T1824	HRT - DRPT	HRT Project - Replacement of HRT Southside Bus Facility				n/a	n/a	n/a	Y	N	N		
T4179	HRT - DRPT	Commuter Route 62, Phase 1				n/a	n/a	n/a	Y	N	N		
T4182	HRT - DRPT	Commuter Route 62, Phase 2				n/a	n/a	n/a	Y	N	N		

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UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
T4184	HRT - DRPT	Norfolk LRT - Operating Assistance				n/a	n/a	n/a	Y	N	N		
T4186	HRT - DRPT	Route 60 Rapid Express, Phase 1				n/a	n/a	n/a	Y	N	N		
T4188	HRT - DRPT	Route 60 Rapid Express, Phase 2				n/a	n/a	n/a	Y	N	N		
T7306	HRT - DRPT	Patrick Henry Mall Transfer Center	Bus Transfer Center at Patrick Henry Mall			n/a	n/a	n/a	Y	N	N		
T9090	HRT - DRPT	Ferry Fare Collection Equipment				n/a	n/a	n/a	Y	N	N		
T9091	HRT - DRPT	Systemwide Bus Stop Sign Program				n/a	n/a	n/a	Y	N	N		
T9092	HRT - DRPT	HRT Facility Upgrades				n/a	n/a	n/a	Y	N	N		
T9110	HRT - DRPT	Chesapeake Bus Shelters				n/a	n/a	n/a	Y	N	N		
T9111	HRT - DRPT	Liberty Street Transfer Station - Chesapeake	20th St	16th St		n/a	n/a	n/a	Y	N	N		
T9123	HRT - DRPT	Feeder Bus Service for the Tide LRT				n/a	n/a	n/a	Y	N	N		
T9124	HRT - DRPT	Retrofit 100 Transit Buses w/Diesel Particulate Filters				n/a	n/a	n/a	Y	N	N		
T9125	HRT - DRPT	Environmental Management System				n/a	n/a	n/a	Y	N	N		

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T9126	HRT - DRPT	Purchase 38 40-ft Diesel Transit Buses				n/a	n/a	n/a	Y	N	N		
T9131	HRT - DRPT	Citywide Bus Shelter Program: Newport News (Phases 2-4)				n/a	n/a	n/a	Y	N	N		
T9145	HRT - DRPT	Citywide Bus Shelter Program: Virginia Beach				n/a	n/a	n/a	Y	N	N		
T1829	WAT - DRPT	WAT Project - Mooretown Rd corridor new transit service				n/a	n/a	n/a	Y	N	N		
T4222	WAT - DRPT	Newport News/James City Co Employee Connection, Phase 1				n/a	n/a	n/a	Y	N	N		
T4223	WAT - DRPT	Newport News/James City Co Employee Connection, Phase 2	Newport News	James City County		n/a	n/a	n/a	Y	N	N		
T4225	WAT - DRPT	Increase Service Frequency and Add Sunday Service, Phase 2				n/a	n/a	n/a	Y	N	N		
T4226	WAT - DRPT	Mooretown Rd Corridor Service				n/a	n/a	n/a	Y	N	N		

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T9148	WAT - DRPT	Purchase 12 Replacement Buses				n/a	n/a	n/a	Y	N	N		
T9149	WAT - DRPT	Purchase 1 Replacement Trolley (Clean Diesel Medium Bus)				n/a	n/a	n/a	Y	N	N		
T9150	WAT - DRPT	New Service - Jamestown Route				n/a	n/a	n/a	Y	N	N		
-999911	District-wide	Transit : System Preservation				n/a	n/a	n/a	Y	N	N		
-999913	District-wide	Transit : Vehicles				n/a	n/a	n/a	Y	N	N		
-999914	District-wide	Transit : Amenities				n/a	n/a	n/a	Y	N	N		
-999916	District-wide	Transit : Access				n/a	n/a	n/a	Y	N	N		
-999917	District-wide	Transit : Engineering				n/a	n/a	n/a	Y	N	N		
T4241	Hampton	Coliseum Central Transit Shuttle				n/a	n/a	n/a	Y	N	N		
T9853	Norfolk	ARRA Norfolk Light Rail - Enhance facilities/stations	Virginia Medical Center	Newtown Road		n/a	n/a	2011	Y	N	N		
T4210	Portsmouth	Downtown Portsmouth Shuttle Service, Phase 1				n/a	n/a	n/a	Y	N	N		
T4211	Portsmouth	Downtown Portsmouth Shuttle Service, Phase 2				n/a	n/a	n/a	Y	N	N		

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T7820	Portsmouth	ARRA Route 164 Rail - Additional Rail Line	Rail Relocation Along Route 164 Corridor		New Construction	n/a	n/a	n/a	Y	N	N		
90101	Norfolk	Debt Reimbursement(33.1-23.3) for Norfolk Light Rail Transit				n/a	n/a	n/a	Y	N	N		
93527	Norfolk	ARRA Norfolk/Portsmouth/Chesapeake/Suffolk Rail from NIT	Norfolk International Terminal	Route 17 in Suffolk	New Construction	n/a	n/a	n/a	Y	N	N		
80478	Portsmouth	Rte 164 - Rail Relocation			New Construction	0	0	n/a	Y	N	N		
T1831	Newport News	Purchase Alternate Fuels Shuttle Vehicles				n/a	n/a	n/a	Y	N	N		
T9097	Newport News	Amtrak Station Relocation Project				n/a	n/a	n/a	Y	N	N		
T4316	York County	Yorktown 225th Transportation System				n/a	n/a	n/a	Y	N	N		

Conformity Exempt Projects

UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
98814/99037	MULTI	Hampton Roads Bridge-Tunnel (Preliminary Engineering)	I-664/I-64	I-564/I-64	Study	4	n.a.	n.a.	Y	Y	Y	Y	Y
92212/89231	MULTI	I-64 Peninsula Corridor Study (Preliminary Engineering)	I-664/I-64	VA-30 (exit 227)	Study	4	n.a.	n.a.	Y	Y	Y	Y	Y
99587	MULTI	Patriots Crossing (Preliminary Engineering)	Peninsula	Southside	Study	0	n.a.	n.a.	Y	Y	Y	Y	Y
13496/14598/87201	MULTI	Route 60 Relocation (Prelim. Engineering/Right of Way)	Fort Eustis Blvd	Blow Flats Rd	Study/ROW Acquisition	2	n.a.	n.a.	Y	Y	Y		Y
100200	JAMES CITY COUNTY	Skiffes Creek Connector (Preliminary Engineering/Right of Way)	Green Mount Pkwy	Merrimac Trail (Route 143)	Study/ROW Acquisition	0	n.a.	n.a.	Y	Y	Y		Y
	JAMES CITY COUNTY	Croaker Road (Preliminary Engineering/Right of Way)	Richmond Road	Rochambeau Road	Study/ROW Acquisition	2	n.a.	n.a.	N	Y	Y		Y
98811	JAMES CITY COUNTY	Longhill Road (Preliminary Engineering/Right of Way)	Olde Town Rd	Humelsine Pkwy (Route 199)	Study/ROW Acquisition	2	n.a.	n.a.	Y	Y	Y		Y
59175	NORFOLK	Air Terminal Interchange (Preliminary Engineering)	n.a.	n.a.	Study	n.a.	n.a.	n.a.	Y	Y	Y		Y
16556/64058	VIRGINIA BEACH	Southeastern Parkway (Preliminary Engineering)	I-264	I-64/I-464	Study	0	n.a.	n.a.	Y	Y	Y		Y

Conformity Exempt Projects

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82130	Multi-jurisdictional	Eastern Seaboard Intermodal Trans Applications Center				n/a	n/a	n/a	Y	N	N		Y
98808	Multi-jurisdictional	VPA Inter-Terminal Barge Service (Norfolk & Portsmouth)				n/a	n/a	n/a	Y	N	N		Y
97175	Multi-jurisdictional	I-264 DOWNTOWN TUNNEL PPTA PROJECT DEVELOPMENT & MANAGEMENT				n/a	n/a	n/a	Y	N	N		Y
16043	Chesapeake	I- 64 - TRAFFIC MANAGEMENT SYSTEM	ROUTE 264 (BOWERS HILL)	ROUTE 464	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
53107	Chesapeake	RTE 168 - TOLL PLAZA & APPROACHES, ADMIN BLD & ACCESS RD	0.253 MILE SOUTH INDIAN CREEK ROAD	0.329 MILE SOUTH INDIAN CREEK ROAD	NEW CONSTRUCTION	n/a	n/a	n/a	Y	N	N		Y
63564	Chesapeake	GREAT BRIDGE BATTLEFIELD & WATERWAY VISITOR CENTER & TRAIL			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
72799	Chesapeake	City of Chesapeake - Citywide			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
72800	Chesapeake	City of Chesapeake - Citywide			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y

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76725	Chesapeake	I- 64 - Harbour North Sound Wall	Ramp terminal at Rte 190	East side of high rise bridge @Rte 166	ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
77403	Chesapeake	Dismal Swamp Creek Trail			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
83246	Chesapeake	Perform Turning Movement Counts & Determ Signal Tim & Offset	BATTLEFIELD BLVD, PORTSMOUTH BLVD, TAYLOR RD	KEMPSVILLE RD, VOLVO PKWY/CROSSWAY BLVD	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
73089	Gloucester County	RTE 17 - Remove Existing Crossover at MP 79.98			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
73090	Gloucester County	RTE 17 - Remove Existing Crossover at MP 79.98			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98805	Gloucester County	Business Route 17 Corridor Planning Study	US 17 Bypass South	US 17 Bypass North	STUDIES ONLY	n/a	n/a	n/a	Y	N	N		Y
98806	Gloucester County	Signal Coordination along Route 17	Coleman Bridge	Gloucester Court House area	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98807	Gloucester County	Bridge Replacement Rte. 662 over Fox Creek (Fed ID 8552)			Bridge Replacement	n/a	n/a	n/a	Y	N	N		Y
16042	Hampton	I- 64 - TRAFFIC MANAGEMENT SYSTEM	MAGRUDER BOULEVARD	ROUTE 199(INCLUDES NEWPORT NEWS, HAMPTON & YORK COUNTY)	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y

Conformity Exempt Projects

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16102	Hampton	CITY OF HAMPTON - SIGNAL SYSTEM UPGRADE			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
83454	Hampton	Widen Todds LN - Add RTL, LTL on Big Bethel			RECONSTRUCTION	n/a	n/a	n/a	Y	N	N		Y
93081	Hampton	Bridge street over Salters Creek VA Str. 8009			Bridge Replacement	n/a	n/a	n/a	Y	N	N		Y
93535	Hampton	ARRA Mercury Boulevard Resurfacing	West City Limits to Big Bethel Road (Segment 2))	Coliseum Drive to King Street (Segment 1	RESURFACING	n/a	n/a	n/a	Y	N	N		Y
T8860	Hampton	ARRA-C Mercury Boulevard Resurfacing	West City Limits to Big Bethel Road (Segment 2)	Coliseum Drive to King Street (Segment 1)	RESURFACING	n/a	n/a	n/a	Y	N	N		Y
4139	Isle of Wight County	RTE 620 - Rural Rustic Surface Treat Non-Hardsurface Rd	Route 644 (Turner Drive)	0.2 Miles West of Route 10	RESURFACING	n/a	n/a	n/a	Y	N	N		Y
81435	Isle of Wight County	Rte 58 Business Bridge			Bridge Replacement	n/a	n/a	n/a	Y	N	N		Y
89754	Isle of Wight County	Traffic Signal Upgrade to signal heads and UPS	Newport News City Limit	Suffolk City Limit	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
91219	Isle of Wight County	Construction of a pedestrian/bicycle trail			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
93080	Isle of Wight County	Rte 637 Over Stalling Creek VA str. 6075			Bridge Replacement	n/a	n/a	n/a	Y	N	N		Y

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91220	James City County	Construction of sidewalks and landscaping along Richmond Rd.			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
98823	James City County	Bridge Replacement Rte 601 over Diascund Creek, Fed ID 10516			Bridge Replacement	n/a	n/a	n/a	Y	N	N		Y
13478	Newport News	J. Clyde Morris Blvd Corridor - Bike Trail	JEFFERSON AVENUE	MARINERS MUSEUM	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
52350	Newport News	SIGNAL SYSTEM UPGRADE			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
94431	Newport News	ARRA - Newport News Signal System Upgrade Integration			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98829	Newport News	Lower Jefferson Ave Corridor Improvements	25th St	36th St	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98830	Newport News	Citywide Signal System Retiming (2009)			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
52149	Norfolk	CITYWIDE URBAN TRANSPORTATION			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
79658	Norfolk	Sound Walls Project, Phase II	0.11 MI SOUTH OF FOURTH VIEW ST.	0.03 MI NORTH OF FIRST VIEW ST.	ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
97721	Norfolk	Citywide Signal Retiming (Norfolk) Phase 2			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y

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97722	Norfolk	Citywide Traffic Signal Cabinet Upgrade			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98828	Norfolk	Norfolk ATMS Phase IV			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
99107	Norfolk	Modify Exist. City of Norfolk ATMS (304 locations)	Various		SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
99108	Norfolk	Modify & expand exist City of Norfolk ATMS @ 28 locations	Various		SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
97725	Portsmouth	Drainage Pond @ I-264 & Frederick Blvd	Near I-264 Interchange		MAINTENANCE	n/a	n/a	n/a	Y	N	N		Y
98824	Portsmouth	Citywide Signal Timing - Phase 4			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98825	Portsmouth	Citywide Signal Timing - Phase 3			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98826	Portsmouth	Citywide Signal Timing - Phase 2			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98827	Portsmouth	Citywide Signal Timing - Phase 1			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
13326	Suffolk	RTE 675	ROUTE 32	ROUTE 642 SOUTH	RECONSTRUCTION	n/a	n/a	n/a	Y	N	N		Y
77566	Suffolk	Rte 125 - Demo of Existing Bridge	1.15 MILES WEST OF RTE 629	1.10 MILES SOUTH OF RTE 620	Demolition of Bldgs, Bridges, Etc.	n/a	n/a	n/a	Y	N	N		Y
97726	Suffolk	Citywide Traffic Management System Plan			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
98815	Suffolk	Godwin Blvd/Route 58 Park & Ride Lot			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y

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98817	Suffolk	Bridge Replacement Rte 616 Over Jones Swamp (Fed Id 22111)			Bridge Replacement	n/a	n/a	n/a	Y	N	N		Y
T136	Suffolk	Transportation Complex				n/a	n/a	n/a	Y	N	N		Y
77277	Virginia Beach	Citywide Signal System Upgrade Phase II			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
90149	Virginia Beach	Horizontal Alignment Improvement-Remove Island	0.03mi east of London Bridge Rd	0.03mi north of Shipps Corner Rd	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
91334	Virginia Beach	Design and Build the Nimmo Pkwy Wetland Mitigation Site			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
95983	Virginia Beach	Virginia Beach Dynamic Message Sign and System Detectors			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
T8722	Virginia Beach	ARRA-C Betterments VB Witchduck Rd	Bonney Road	Grayson Rd		n/a	n/a	n/a	Y	N	N		Y
13714	York County	RTE 620 - CONSTRUCT LTLS AND RTLS AT VARIOUS LOCATIONS	0.085 MILES EAST OF INTERSECTION ROUTE 17	0.315 MILES SOUTH OF INTERSECTION ROUTE 621	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
97537	York County	Route 64W Paving			RESURFACING	n/a	n/a	n/a	Y	N	N		Y
97545	York County	Route 134 E Paving			RESURFACING	n/a	n/a	n/a	Y	N	N		Y

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16045	Hampton Roads District-wide	I- 264 - TRAFFIC MANAGEMENT SYSTEM	BRAMBLETON AVENUE	ROUTE 64 (BOWERS HILL)	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
16046	Hampton Roads District-wide	I- 464 - TRAFFIC MANAGEMENT SYSTEM	ROUTE 64	ROUTE 264	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
16047	Hampton Roads District-wide	I- 664 - TRAFFIC MANAGEMENT SYSTEM	NORTH END MONITOR-MERRIMAC TUNNEL	ROUTE 264 (BOWERS HILL)	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
50651	Hampton Roads District-wide	HOV MARKETING & ANALYSIS - REGIONWIDE			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
52324	Hampton Roads District-wide	SMART TRAFFIC CENTER			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
56775	Hampton Roads District-wide	SMART TRAFFIC CENTER			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
80553	Hampton Roads District-wide	Virginia Scenic Byway			ENVIRONMENTALLY RELATED	n/a	n/a	n/a	Y	N	N		Y
70621	District-wide	Hampton Roads Primary Districtwide Signals			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
70666	District-wide	Hampton Roads Primary Districtwide Technology			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
71098	District-wide	PE Only -Design & Env work for new traffic signals			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
77400	District-wide	Mid-Chesapeake Bay Ferry			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y

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83526	District-wide	Regional Concept of Trans Ops (RCTO)			STUDIES ONLY	n/a	n/a	n/a	Y	N	N		Y
93861	District-wide	ARRA Chesapeake/Suffolk I664 Paving/Drains/Guardrail	0 .5 MI North of JCT with Rte 58	South Abutment of the MMBT	RESTORATION & REHAB	n/a	n/a	n/a	Y	N	N		Y
95050	District-wide	RTE. 58 - LANE REVERSAL			SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
97724	District-wide	HR Regional Fatal Crash Team Total Stations (3)	I-64WB	I-64EB	SAFETY/TRAFFIC OPERS/TSM	n/a	n/a	n/a	Y	N	N		Y
-999901	District-wide	Construction : Transportation Enhancement/Byway/Non-Traditional				n/a	n/a	n/a	Y	N	N		Y
-999902	District-wide	Construction : Rail				n/a	n/a	n/a	Y	N	N		Y
-999903	District-wide	Maintenance : Preventive Maintenance and System Preservation				n/a	n/a	n/a	Y	N	N		Y
-999904	District-wide	Maintenance : Preventive Maintenance for Bridges				n/a	n/a	n/a	Y	N	N		Y
-999905	District-wide	Maintenance : Traffic and Safety Operations				n/a	n/a	n/a	Y	N	N		Y

Conformity Exempt Projects

UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
-999906	District-wide	Construction : Safety/ITS/Operational Improvements				n/a	n/a	n/a	Y	N	N		Y
-999907	District-wide	Construction : Bridge Rehabilitation/Replacement/ Reconstruction				n/a	n/a	n/a	Y	N	N		Y
-999910	District-wide	Construction : Recreational Trails				n/a	n/a	n/a	Y	N	N		Y
81559	Portsmouth	Construct Sound Walls on Route 164 at and near Maersk Inter			NEW CONSTRUCTION	n/a	n/a	n/a	Y	N	N		Y
98810	James City County	Mooretown Rd Extension Study	Lightfoot Rd	Croaker Rd	STUDIES ONLY	n/a	n/a	n/a	Y	N	N		Y
98812	James City County	Route 60/143 Connector Study			STUDIES ONLY	n/a	n/a	n/a	Y	N	N		Y
57048	Norfolk	RTE 264 - INTERCHANGE IMPROVEMENTS - 64 WB RAMP TO 264 EB (Preliminary Engineering)	0.4 MILE SOUTH OF CURLEW DRIVE	0.426 MILE EAST OF WBL I-64	RECONSTRUCTION	1,0	2,2	2018	Y	N	Y		Y
17630	Virginia Beach	I- 264 - INTERCHANGE IMPROVEMENT (Preliminary Engineering)	0.426 MILE EAST OF WBL I-64	0.473 MILE EAST OF WITCHDUCK RD	MAJOR WIDENING	4+1	6+1	2018	Y	N	Y		Y

Conformity Exempt Projects

UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
19005	Virginia Beach	I-264/LYNNHAVEN INTERCHANGE IMPROVEMENTS (PHASE II) (Preliminary Engineering)	n.a.	n.a.	NEW CONSTRUCTION	n/a	n/a	2030	Y	N	Y		Y

Completed Projects (Listed for Administrative Purposes)

UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
4464	Chesapeake	I-64	Virginia Beach/Chesapeake City limits	Battlefield Blvd	MAJOR WIDENING	4	6+2	2011	Y	N	Y		
8815	Chesapeake	Rte 168	3.122 Miles North of Indian Creek Rd	0.253 Miles South of Indian Creek Rd	NEW CONSTRUCTION	0	4	2011	Y	N	Y		
10797	Newport News	Rte 60	South of Rte 312	North of Nettles Drive	MAJOR WIDENING	4	6	2011	Y	Y	Y		
11750	Portsmouth	Rte 164 - Pinners Point Interchange	West of East End of West Norfolk Bridge	East of West End of Midtown Tunnel	NEW CONSTRUCTION	n/a	n/a	2011	Y	N	Y		
11754	Virginia Beach	Birdneck Road	East of General Booth Blvd	North of Southern Blvd	MAJOR WIDENING	2	4	2011	Y	Y	Y		
11756	Virginia Beach	London Bridge Road	International Parkway	Virginia Beach Blvd	MAJOR WIDENING	2	4	2011	Y	N	Y		
12228	Virginia Beach	I- 64	EAST OF INDIAN RIVER ROAD	VIRGINIA BEACH/CHESAPEAKE City Limits	MAJOR WIDENING	4	6+2	2011	Y	N	Y		
12379	Chesapeake	I- 64	EAST BATTLEFIELD BLVD	WEST SOUTHBOUND I-464	MAJOR WIDENING	6	6+2	2011	Y	Y	Y		
12549	Virginia Beach	Lynnhaven Parkway	WEST OF HOLLAND ROAD	EAST OF LISHELLE PLACE	RECONSTRUCTION	4	6	2011	Y	Y	Y		
13428	Hampton	RTE 172- Wythe Creek Rd	EAST OF NASA'S MAIN GATE	INTERSECTION MAGRUDER BOULEVARD (ROUTE 134)	RECONSTRUCTION	2	4	2011	Y	N	Y		
13429	Newport News	RTE 143	NORTH OF BUCHANAN DRIVE	NORTH OF GREEN GROVE LANE	MAJOR WIDENING	4	6	2011	Y	Y	Y		
13485	Chesapeake	Volvo Pkwy	0.128 KILOMETER EAST OF KEMPSVILLE ROAD	EAST CORPORATE LIMITS CHESAPEAKE	MAJOR WIDENING	0	4	2011	Y	Y	Y		
13487	Virginia Beach	Lynnhaven Pkwy-Volvo Pkwy	Chesapeake CL	Centerville Turnpike	NEW CONSTRUCTION	0	4	2011	N	Y	Y		

Completed Projects (Listed for Administrative Purposes)

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14627	York County	Ft Eustis Blvd Ext	Rte 17	Old York-Hampton Hwy	NEW CONSTRUCTION	0	4	2011	N	Y	Y		
14750	Williamsburg	RTE 60 - WIDEN TO 4 LANES WITH CURB, GUTTER, SIDEWALK	0.097 KILOMETER SOUTH OF BROOKS STREET	0.070 KILOMETER NORTH OF NEW HOPE ROAD	RECONSTRUCTION	2	4	2011	Y	Y	Y		
16054	Williamsburg	WILLIAMSBURG - THREE LANES, BIKEWAY, SIDEWALKS, CURB & GUTTER	MONTICELLO AVENUE	IRONBOUND ROAD	NEW CONSTRUCTION	0	2	2011	Y	Y	Y		
16414	Virginia Beach	LONDON BRIDGE ROAD	INTERNATIONAL PARKWAY	VIRGINIA BEACH BOULEVARD (ROUTE 58)	MAJOR WIDENING	2	4	2011	Y	N	Y		
17142	Isle of Wight County	RTE 58 - BRIDGE & APPROACH OVER BLACKWATER RIVER	0.227 km W. CORP. LIMITS CITY OF FRANKLIN	0.253 km E. ISLE OF WIGHT COUNTY LINE	BRIDGE REPLACEMENT	2	2	2011	Y	Y	Y		
17546	Norfolk	RTE 58	0.023 KM West of JETT STREET	0.216 KM East of BRIAR HILL ROAD	MAJOR WIDENING	4	6	2011	Y	Y	Y		
65191	James City County	Rte 199 - Jamestown Corridor - Parallel Lane - PPTA Segment #1	3.2 KILOMETERS WEST ROUTE 60	0.5 KILOMETER WEST ROUTE 60	MAJOR WIDENING	0	4	2011	Y	N	Y		
65273	James City County	Rte 199 - Parallel Lane (PPTA Segment # II)	1.0 KM EAST ROUTE 31 (JAMESTOWN ROAD)	2.8 KM EAST ROUTE 31 (JAMESTOWN ROAD)	MAJOR WIDENING	0	4	2011	Y	N	Y		

Completed Projects (Listed for Administrative Purposes)

UPC	JURISDICTION	FACILITY	FROM	TO	IMPROVEMENT TYPE	EXISTING LANES	PROPOSED LANES	FIRST ANALYSIS YEAR	IN FY12-15 TIP	IN 2034 LRTP	REGIONALLY SIGNIFICANT	COMMITTED	CONFORMITY EXEMPT
67200	Hampton	Armistead Ave - Widening (PHASE 1B)	CROSSROADS PARKWAY	MERCURY BLVD	MINOR WIDENING	2	4	2011	Y	Y	Y		
68684	James City County	Rte 199 - PPTA Monitoring of Funds-Devp & Mgmt				0	4	2011	Y	N	Y		
66846	Hampton	Commander Shepard Blvd Extension- Phase I	Middle Rd- North Campus Rd	Magruder Blvd	NEW CONSTRUCTION	0	4	2011	N	Y	Y		
70552	Portsmouth	Rte 164 - (DESIGN/BUILD) at new marine terminal			NEW CONSTRUCTION	n/a	n/a	2011	Y	N	Y		
71697	Hampton	Armistead Ave Connector - Phase 1A	ARMISTEAD AVENUE	COLISEUM DRIVE	NEW CONSTRUCTION	0	4	2011	N	Y	Y		
71883	James City County	Chickahominy Bridge Replacement			BRIDGE REPLACEMENT	n/a	n/a	2011	Y	Y	Y		
72796	Chesapeake	Greenbrier Pkwy	Volvo Pkwy	Eden Way	MAJOR WIDENING	5	6	2011	N	Y	Y		
83509	Chesapeake	Long Bridge			MAJOR WIDENING	2	4	2011	N	Y	Y		
**	Virginia Beach	Constitution Dr Ext'd	Columbus St	Bonney Rd	NEW CONSTRUCTION	0	4	2011	N	Y	Y		
71690 / 71691	Newport News	Rte 60 - Warwick Blvd	0.304 KM SOUTH OF ROUTE 312	1.479 KM NORTH OF ROUTE 312	MAJOR WIDENING	4	6	2011	Y	Y	Y		
77428 / 77430 / 77432	Newport News	Warwick Blvd	0.312 KM SOUTH OF J. CLYDE MORRIS BOULEVARD (RTE.312)	INTERSECTION OF NETTLES DRIVE	MAJOR WIDENING	4	6	2011	Y	Y	Y		

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61322	Norfolk	RTE 337 - NAVY RECREATIONAL FACILITY			ENVIRONMENTALLY RELATED	n/a	n/a	2011	Y	N	Y		
8600	Norfolk	Rte 58 (PE only - PE complete)	East Route 13 (Military Highway)	Newtown Rd	MAJOR WIDENING	n/a	n/a	n/a	Y	N	N		
3811	Hampton	East-West Expressway (HRC Parkway)	WCL Hampton	Big Bethel Rd	NEW CONSTRUCTION	2	4	n/a	Y	N	N		N