

# **APPENDIX A**

## **Air Quality Conformity Scope of Work**

**AIR QUALITY CONFORMITY ASSESSMENT:  
2006 CONSTRAINED LONG RANGE PLAN AMENDMENTS AND  
FY2007-2012 TRANSPORTATION IMPROVEMENT PROGRAM**

**SCOPE OF WORK**

**I. INTRODUCTION**

Projects solicited for the 2006 Constrained Long Range Plan (CLRP) and the FY2007-2012 Transportation Improvement Program (TIP) are scheduled to be finalized at the April 19, 2006 TPB meeting. This scope of work reflects the tasks and schedule designed for the air quality conformity assessment leading to adoption of the plan and program on October 18, 2006. This work effort addresses requirements associated with attainment of the 8-hour ozone standard (volatile organic compounds (VOC) and nitrogen oxides (NO<sub>x</sub>) as ozone precursor pollutants), and fine particles (PM<sub>2.5</sub>) standards (direct particles and precursor NO<sub>x</sub>), as well as maintenance of the wintertime carbon monoxide (CO) standard.

The plan and program must meet air quality conformity regulations: (1) as originally published by the Environmental Protection Agency (EPA) in the November 24, 1993 Federal Register, and (2) as subsequently amended, most recently on June 1, 2005, and (3) as detailed in periodic FHWA / FTA and EPA guidance. These regulations specify both technical criteria and consultation procedures to follow in performing the assessment.

This scope of work provides a context in which to perform the conformity analyses and presents an outline of the work tasks required to address all regulations currently applicable.

**II. REQUIREMENTS AND APPROACH**

**A. Criteria** (See Exhibit 1)

As described in the 1990 Clean Air Act Amendments, conformity is demonstrated if transportation plans and programs:

1. Are consistent with most recent estimates of mobile source emissions,
2. Provide expeditious implementation of TCMs, and
3. Contribute to annual emissions reductions.

Assessment criteria for ozone, CO, and PM<sub>2.5</sub> are discussed below.

Consistent with 'interim procedures' (temporary until 8-hour ozone emissions budgets are determined) under EPA regulations, and with concurrence from the Metropolitan Washington Air Quality Committee (MWAQC), the 1-hour ozone standard emissions budgets will provide the basis for the ozone season emissions budget comparison element of the conformity

assessment. These budgets were set by MWAQC and approved by EPA as adequate for conformity under severe area State Implementation Plan (SIP) planning requirements. This

approach was established in the conformity assessment approved by the TPB on January 19, 2005, and will be utilized in this current assessment.

The region is in maintenance for mobile source wintertime CO and, as in prior conformity assessments, is required to show that pollutant levels do not exceed the approved budget.

Criteria and procedures for demonstrating conformity with respect to PM<sub>2.5</sub> in the interim period before SIPs are filed differ from ozone or wintertime carbon monoxide assessments in that there are no existing budgets which can be applied. In this case EPA allows for an assessment that shows emissions in “action” scenarios are no greater than those in a 2002 base. This criterion was established and applied, with the concurrence of MWAQC, in the initial PM<sub>2.5</sub> conformity assessment approved by the TPB on December 21, 2005. Emissions will be inventoried for yearly totals instead of on a daily basis.

**B. Approach** (See Table 1 – Summary of Technical Approach)

The analytical approach is similar to that applied and documented in the October 19, 2005 air quality conformity assessment of the 2005 CLRP and the FY2006-2011 TIP for the ozone precursors and wintertime CO pollutants, and in the December 21, 2005 PM<sub>2.5</sub> standards air quality conformity assessment for the PM<sub>2.5</sub> pollutants. One potential change to the work tasks, still under discussion at this point, is the removal of the ‘transit constraint’ from the modeling process. This procedure was instituted in Summer 2000 to reflect WMATA’s notification that future transit demand on Metrorail in the core part of the system could not be accommodated under funding levels programmed / planned at that time. The transit constraint modeling element ‘caps’ transit ridership at the maximum capacity level for the core part of the Metrorail system (now specified as 2010 ridership levels). Transit demand above this level is reassigned to become vehicle trips on the highway system. Should funding for such capacity expansion be committed, this scope of work would be revised to remove the transit constraint procedures from the analysis.

In addition to the highlighted elements below, explicit inputs include: a summary list of major policy and technical input assumptions, shown as Attachment A; and all transportation network elements which will be finalized at the April 19, 2006 TPB meeting.

**TABLE 1 – Summary of Technical Approach**

	<b>Ozone</b>	<b>Wintertime CO</b>	<b>PM2.5</b>
<b>Pollutant:</b>	VOC, NOx	CO	Direct particles, Precursor NOx
<b>Budget:</b>	8-hour ozone 'interim' mobile source emissions budgets, i.e., 1-hour budgets	Approved wintertime CO emissions budget	Budget not yet set - Use Reductions from base 2002 inventory
<b>Emissions Analysis Time-frame:</b>	Daily	Daily	Annual
<b>Geography:</b>	MSA	DC, Arl., Alex., Mont., Pr. Geo.	MSA less Stafford and Calvert counties
<b>Network Inputs:</b>	Regionally significant projects		
<b>Land Activity:</b>	Round 7a		
<b>Modeled Area:</b>	Expanded Cordon (2191 zone)		
<b>Model Set:</b>	Version 2.1 D #50		
<b>Mobile Model:</b>	MOBILE6.2 emissions factors, consistent with the procedures utilized to establish the VOC and NOx mobile source emissions budgets	MOBILE6.2 Consistent with procedures used to establish the budget	MOBILE6.2  'Seasonal' approach
<b>Emissions Factor Refinements:</b>	Refinements developed as part of the 2005 CLRP PM2.5 conformity assessment and subsequent research include: use of 2005 vehicle registration data for all jurisdictions; use of hourly temperatures, relative humidity, barometric pressure and NOx rebuild effects.		

### III. CONSULTATION

1. Execute TPB consultation procedures as outlined in the consultation procedures report adopted by the TPB on May 20, 1998.
2. Participate in meetings of MWAQC, its Technical Advisory Committee and its Conformity Subcommittee to discuss the scope of work activities, TERM development process, and other elements as needed; discuss at TPB meetings or forums, as needed, the following milestones:
  - CLRP / TIP Call for Projects
  - Scope of work
  - TERM proposals
  - Project submissions: documentation and comments
  - Analysis of TERMS, list of mitigation measures
  - Conformity assessment: documentation and comments
  - Process: comments and responses

### IV. WORK TASKS

1. Receive project inputs from programming agencies and organize into conformity documentation listings (endorsement of financially constrained project submissions scheduled for April 19, 2006)
  - Project type, limits, NEPA approval, etc.
  - Phasing with respect to forecast years
  - Transit operating parameters, e.g. schedules, service, fares
  - Action scenarios
2. Utilize Round 7a Cooperative Forecasts
  - Households by auto ownership, population and employment
  - Zonal data files
3. Prepare forecast year highway, HOV, and transit networks
  - Update GIS highway database
  - Filter database to create 2010, 2020, and 2030 highway networks
  - Rebuild networks for modeling
  - Update / edit transit files
  - Update fares, as necessary
4. Prepare 2002 emissions factors and emissions estimates
  - Develop and apply Mobile6.2 emission factors (ozone, PM2.5, winter CO)
  - Calculate emissions (daily for ozone season VOC and NOx; daily for winter CO; yearly for PM2.5 direct particles and precursor NOx)
5. Prepare 2010 travel and emissions estimates
  - Execute travel demand modeling
  - Develop and apply Mobile6.2 emission factors (ozone, PM2.5, winter CO)
  - Calculate emissions (daily for ozone season VOC and NOx; daily for winter CO; yearly for PM2.5 direct particles and precursor NOx)
6. Prepare 2020 travel and emissions estimates
  - Tasks as in year 2010 analysis
  - Apply “transit constraint” using 2010 levels (unless additional funding is identified to enable removal of peak period capacity constraints in the core part of the Metrorail system)
7. Prepare 2030 travel and emissions estimates
  - Tasks as in year 2020 analysis
8. Identify extent to which TIP and plan provide for expeditious implementation of TCMs contained in ozone state implementation plans and emissions mitigation requirements of

previous TIP and CLRP commitments (TERMs)

- In the CLRP / TIP Call for Projects document staff identified previous TCM and TERM commitments and requested a status report from the implementing agencies
  - Staff will review these reports as they are received and update the TERM tracking sheet that was included in the October 19, 2005 air quality conformity report
  - The status reports and the updated TERM tracking sheet will be included in the air quality conformity report.
9. Coordinate / analyze emissions reductions associated with CMAQ and similar projects
- Obtain project-specific emissions reductions from programming agencies
  - Summarize daily ozone season VOC and NO<sub>x</sub> reductions for each milestone year
  - Analyze current TERMs for yearly direct PM<sub>2.5</sub> and precursor NO<sub>x</sub> PM<sub>2.5</sub> pollutant reductions; explore additional TERMS
  - With oversight from the Travel Management Subcommittee, as needed, propose and analyze additional measures for their emissions benefits, costs, cost effectiveness, and other evaluation criteria
10. Analyze results of above technical analysis
- Reductions from 1990 (ozone season VOC and NO<sub>x</sub> and winter CO) and 2002 base (ozone season VOC and NO<sub>x</sub>, winter CO, and PM<sub>2.5</sub>)
  - Ozone season VOC and NO<sub>x</sub> and winter CO emissions budgets
  - With oversight from the Travel Management Subcommittee, the Technical Committee and the TPB, identify and recommend additional measures should the plan or program fail any test and incorporate measures into the plan
11. Assess conformity and document results in a report
- Document methods
  - Draft conformity report
  - Forward to technical committees, policy committees
  - Make available for public and interagency consultation
  - Receive comments
  - Address comments and present to TPB for action
  - Finalize report and forward to FHWA, FTA and EPA

## **V. SCHEDULE**

The schedule for the execution of these work activities is contained within the air quality conformity schedule in Exhibit 2. The time line shows completion of the analytical tasks, preparation of a draft report, public and interagency review, response to comments and action by the TPB on October 18, 2006.

# Exhibit 1

## Conformity Criteria

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### All Actions at all times:

Sec. 93.110	Latest planning assumptions.
Sec. 93.111	Latest emissions model.
Sec. 93.112	Consultation.

### Transportation Plan:

Sec. 93.113(b)	TCMs.
Sec. 93.118	Emissions budget.
Sec. 93.119	Interim emissions in areas without emissions budgets

### TIP:

Sec. 93.113(c)	TCMs.
Sec. 93.118	Emissions budget.
Sec. 93.119	Interim emissions in areas without emissions budgets

### Project (From a Conforming Plan and TIP):

Sec. 93.114	Currently conforming plan and TIP.
Sec. 93.115	Project from a conforming plan and TIP.
Sec. 93.116	CO and PM10 hot spots.
Sec. 93.117	PM10 control measures.
Sec. 93.118	Emissions budget.
Sec. 93.119	Interim emissions in areas without emissions budgets

### Project (Not From a Conforming Plan and TIP):

Sec. 93.113(d)	TCMs.
Sec. 93.114	Currently conforming plan and TIP.
Sec. 93.116	CO and PM10 hot spots.
Sec. 93.117	PM10 control measures.
Sec. 93.118	Emissions budget.
Sec. 93.119	Interim emissions in areas without emissions budgets

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### **Sec. 93.110 Criteria and procedures: Latest planning assumptions.**

The conformity determination must be based upon the most recent planning assumptions in force at the time of the conformity determination.

### **Sec. 93.111 Criteria and procedures: Latest emissions model.**

The conformity determination must be based on the latest emission estimation model available.

**Sec. 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.

**Sec. 93.113 Criteria and procedures: Timely implementation of TCMs.**

The transportation plan, TIP, or any FHWA/FTA project which is not from a conforming plan and TIP must provide for the timely implementation of TCMs from the applicable implementation plan.

**Sec. 93.114 Criteria and procedures: Currently conforming transportation plan and TIP.**

There must be a currently conforming transportation plan and currently conforming TIP at the time of project approval.

**Sec. 93.115 Criteria and procedures: Projects from a plan and TIP.**

The project must come from a conforming plan and program.

**Sec. 93.116 Criteria and procedures: Localized CO and PM10 violations (hot spots).**

The FHWA/FTA project must not cause or contribute to any new localized CO or PM10 violations or increase the frequency or severity of any existing CO or PM10 violations in CO and PM10 nonattainment and maintenance areas.

**Sec. 93.117 Criteria and procedures: Compliance with PM10 control measures.**

The FHWA/FTA project must comply with PM10 control measures in the applicable implementation plan.

**Sec. 93.118 Criteria and procedures: Motor vehicle emissions budget**

The transportation plan, TIP, and projects must be consistent with the motor vehicle emissions budget(s).

**Sec. 93.119 Criteria and procedures: Interim emissions in areas without motor vehicle budgets**

The FHWA/FTA project must satisfy the interim emissions test(s).

**NOTE:** See EPA's conformity regulations for the full text associated with each section's requirements.

**Exhibit 2  
Schedule  
For the 2006 Constrained Long-Range Transportation Plan (CLRP) and  
FY 2007 – 2012 Transportation Improvement Program (TIP)**

*November 16, 2005	TPB Reviews Draft Call For Projects (formerly called the "Solicitation Document")
*December 21, 2005	TPB Releases Final Call For Projects
December 21, 2005	Transportation Agencies Begin Submitting Project Information through Database Application
February 3, 2006	<u>DEADLINE</u> : Transportation Agencies Complete On-Line Project Submissions
February 9, 2006	Plan and TIP Project Submissions and Draft Scope of Work for Conformity Assessment Released for Public Comment
*February 15, 2006	TPB Briefed on Project Submissions and Scope of Work
March 9, 2006	Updated Project Submission Information and Draft Scope of Work Released for Public Comment
*March 15, 2006	TPB Briefed on Project Submissions and Scope of Work
April 10, 2006	Public Comment Period Ends
*April 19, 2006	TPB Reviews Public Comments and is asked to Approve Scope of Work and Project Submissions for Inclusion in the Air Quality Conformity Analysis
*July 19, 2006	TPB Receives Status Report on the Conformity Assessment, Draft Plan and TIP
September 14, 2006	Draft Conformity Assessment and Draft Plan and TIP Released for Public Comment (Public-friendly materials are provided to facilitate public comment)
*September 20, 2006	TPB Briefed on the Conformity Assessment and the Plan and TIP
October 14, 2006	Public Comment Period Ends
*October 18, 2006	TPB Reviews Public Comments and Responses to Comments, and is Presented the Draft Conformity Assessment and the Draft Plan and TIP for Adoption
*TPB Meeting	

**POLICY AND TECHNICAL INPUT ASSUMPTIONS**  
**AIR QUALITY CONFORMITY ANALYSIS OF 2006 CLRP AND FY2007-2012 TIP**

1. Land Activity

- Round 7a Cooperative Forecasts

2. Policy and Project Inputs

- Highway, HOV and transit projects and operating parameters
- Financially constrained project submissions to be advanced by the TPB on 4/19/2006

3. Travel Demand Modeling Methods

- Version 2.1 D #50 Travel Model
- All HOV facilities at HOV-3 in 2010
- Transit “capacity constraint” procedures (2010 constrains later years), unless funding is identified for Metrorail core area capacity expansion

4. Emissions Factors

- Update emissions factors methods originally developed and applied in the 2005 CLRP conformity process: MOBILE6.2, 2005 registration data, VMT mix specific to each analysis year
- Refinements based upon new methods developed for PM2.5 and for SIP analysis
- Seasonal PM2.5 factors for total directly emitted particles and precursor NOx
- No oxygenated fuels assumed for wintertime carbon monoxide conditions

5. Emissions Modeling Methods / Credits

- Updated postprocessor methods to reflect EPA guidance associated with Mobile6.2 model release updates for local road speed profiles in rural areas
- Yearly PM2.5 emissions (total PM2.5 and precursor NOx) using latest seasonal traffic adjustments and above emissions factors
- Offline emissions analyses

6. Conformity Assessment Criteria

- EPA conformity regulations stating the transportation conformity rule amendments for: (1) the 8-hour ozone standards including use of interim mobile source emissions budgets and (2) PM2.5 requirements to demonstrate emissions are no greater than a 2002 base case.
- Analysis years: 2010, 2020, and 2030