

**AIR QUALITY CONFORMITY ASSESSMENT:  
2009 CONSTRAINED LONG RANGE PLAN AMENDMENTS AND  
FY2010-2015 TRANSPORTATION IMPROVEMENT PROGRAM**

**DRAFT SCOPE OF WORK**

**I. INTRODUCTION**

Projects solicited for the 2009 Constrained Long Range Plan (CLRP) and the FY2010-2015 Transportation Improvement Program (TIP) are scheduled to be finalized at the February 18, 2009 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 July 15, 2009. 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 January 24, 2008, 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.

Ozone season pollutants will be assessed by comparing the “action” scenarios to both the existing 1-hour VOC and NO<sub>x</sub> emissions budgets, as well as “new” 8-hour budgets contained in the State Implementation Plan (SIP) submitted by the Metropolitan Washington Air Quality Committee (MWAQC) to EPA in June 2007.

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.

PM<sub>2.5</sub> pollutants will be assessed both by comparing the “action” scenarios to a 2002 base and by comparing the pollutant levels to the budgets submitted by the MWAQC to EPA in April, 2008. PM<sub>2.5</sub> emissions will be inventoried for yearly totals (instead of on a daily basis as performed for Ozone and CO).

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

The analytical approach is similar to that applied and documented in the air quality conformity assessment of the 2008 CLRP and the FY2009-2014 TIP. 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 February 18, 2009 TPB meeting.

**TABLE 1 – Summary of Technical Approach**

|                                       | <b>Ozone</b>                                                                                                                                              | <b>Wintertime CO</b>                                                          | <b>PM<sub>2.5</sub></b>                                                                            |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Pollutant:</b>                     | VOC, NO <sub>x</sub>                                                                                                                                      | CO                                                                            | Direct particles,<br>Precursor NO <sub>x</sub>                                                     |
| <b>Emissions Assessment Criteria:</b> | Existing 1-hour ozone budgets<br>& 8-hour ozone budgets                                                                                                   | Approved<br>wintertime CO<br>emissions budget                                 | Reductions from<br>base 2002 inventory<br>& comparison to<br>budgets                               |
| <b>Emissions Analysis Time-frame:</b> | Daily                                                                                                                                                     | Daily                                                                         | Annual                                                                                             |
| <b>Geography:</b>                     | 1-hour ozone non-attainment<br>area<br>8-hour ozone non-attainment<br>area (1-hr. area less Stafford)                                                     | DC, Arl., Alex.,<br>Mont., Pr. Geo.                                           | 1-hr. area less<br>Stafford and Calvert<br>counties                                                |
| <b>Network Inputs:</b>                | Regionally significant projects                                                                                                                           |                                                                               |                                                                                                    |
| <b>Land Activity:</b>                 | Round 7.2                                                                                                                                                 |                                                                               |                                                                                                    |
| <b>Modeled Area:</b>                  | Expanded Cordon (2191 zone)                                                                                                                               |                                                                               |                                                                                                    |
| <b>Travel Demand Model:</b>           | Version 2.2                                                                                                                                               |                                                                               |                                                                                                    |
| <b>Mobile Model:</b>                  | MOBILE6.2 emissions factors,<br>consistent with the procedures<br>utilized to establish the VOC and<br>NO <sub>x</sub> mobile source emissions<br>budgets | MOBILE6.2<br>Consistent with<br>procedures used<br>to establish the<br>budget | MOBILE6.2<br>'Seasonal' approach,<br>consistent with<br>procedures used to<br>establish the budget |
| <b>Emissions Factor Refinements:</b>  | Use of 2008 vehicle registration data for all jurisdictions                                                                                               |                                                                               |                                                                                                    |

**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 February 18, 2009)
  - 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 7.2 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 travel, emissions factors and emissions estimates, if necessary (i.e., if land-use inputs change)
  - Execute travel demand modeling
  - Develop Mobile6.2 emission factors
  - Calculate emissions (daily for ozone season VOC and NO<sub>x</sub>; yearly for PM<sub>2.5</sub> direct particles and precursor NO<sub>x</sub>)
5. Prepare 2010 travel and emissions estimates
  - Execute travel demand modeling
  - Develop Mobile6.2 emission factors
  - Calculate emissions (daily for ozone season VOC and NO<sub>x</sub> for ozone standard requirements; daily for winter CO; yearly for PM<sub>2.5</sub> direct particles and precursor NO<sub>x</sub>)
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 November 19, 2008 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
  - Summarize annual 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>)
  - 1-hour and 8-hour ozone season VOC and NO<sub>x</sub> budgets, direct PM<sub>2.5</sub> and precursor NO<sub>x</sub> budgets, 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 shown 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 July 15, 2009.

# 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 and/or<br>Sec. 93.119 | Emissions budget and /or Interim<br>emissions. |

### TIP:

|                                   |                                                |
|-----------------------------------|------------------------------------------------|
| Sec. 93.113(c)                    | TCMs.                                          |
| Sec. 93.118 and/or<br>Sec. 93.119 | Emissions budget and /or Interim<br>emissions. |

### 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, PM <sub>10</sub> , and PM <sub>2.5</sub> hot spots.  |
| Sec. 93.117 | PM <sub>10</sub> and PM <sub>2.5</sub> control measures. |

### 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, PM <sub>10</sub> , and PM <sub>2.5</sub> hot spots.  |
| Sec. 93.117                       | PM <sub>10</sub> and PM <sub>2.5</sub> control measures. |
| Sec. 93.118 and/or<br>Sec. 93.119 | Emissions budget and/or Interim<br>emissions             |

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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, PM<sub>10</sub>, and PM<sub>2.5</sub> violations (hot spots).**

The FHWA/FTA project must not cause or contribute to any new localized CO, PM<sub>10</sub>, and/or PM<sub>2.5</sub> violations or increase the frequency or severity of any existing CO, PM<sub>10</sub>, and /or PM<sub>2.5</sub> violations in CO, PM<sub>10</sub>, and PM<sub>2.5</sub> nonattainment and maintenance areas.

**Sec. 93.117 Criteria and procedures: Compliance with PM<sub>10</sub> and PM<sub>2.5</sub> control measures.**

The FHWA/FTA project must comply with PM<sub>10</sub> and PM<sub>2.5</sub> 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 2009 Financially Constrained Long-Range Transportation Plan (CLRP) and FY 2010 – 2015 Transportation Improvement Program (TIP)

|                     |                                                                                                                                                                                                                                                                                                          |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| September 11, 2008  | TPB Citizen Advisory Committee Hosts a Public Meeting on the TIP and CLRP Development Process                                                                                                                                                                                                            |
| *September 17, 2008 | TPB is Briefed on Draft Call for Projects                                                                                                                                                                                                                                                                |
| *October 15, 2008   | TPB Releases Final Call for Projects-- Transportation Agencies Begin Submitting Project Information through On-Line Database                                                                                                                                                                             |
| December 5, 2008    | <b><u>DEADLINE:</u></b> Transportation Agencies Complete Submission of Draft On-Line Project Inputs. Technical Committee Reviews Draft Plan and TIP Project Submissions and Draft Scope of Work for the Air Quality Conformity Assessment                                                                |
| January 9, 2009     | Tech Committee Reviews Plan and TIP Project Submissions and Draft Scope of Work                                                                                                                                                                                                                          |
| January 15, 2009    | Plan and TIP Project Submissions and Draft Scope of Work Released for Public Comment                                                                                                                                                                                                                     |
| *January 28, 2009   | TPB is Briefed on Project Submissions and Draft Scope of Work                                                                                                                                                                                                                                            |
| February 14, 2009   | Public Comment Period Ends                                                                                                                                                                                                                                                                               |
| *February 18, 2009  | TPB Reviews Public Comments and is asked to Approve Project Submissions and Draft Scope of Work                                                                                                                                                                                                          |
| April 24, 2009      | <b><u>DEADLINE:</u></b> Transportation Agencies Complete TIP Project Submissions and Finalize Congestion Management Documentation Forms (where needed) and CLRP Forms <sup>1</sup> . (Submissions must not impact conformity inputs; note that the deadline for conformity inputs was December 5, 2008). |
| *May 20, 2009       | TPB Receives Status Report on the Draft Plan, TIP and Conformity Assessment                                                                                                                                                                                                                              |
| June 11, 2009       | Draft Plan, TIP and Conformity Assessment Released for Public Comment at Citizens Advisory Committee (CAC) and the TPB Citizen Advisory Committee Hosts a Public Meeting on the Draft TIP.                                                                                                               |
| *June 17, 2009      | TPB Briefed on the Draft Plan, TIP and Conformity Assessment                                                                                                                                                                                                                                             |
| July 11, 2009       | Public Comment Period Ends                                                                                                                                                                                                                                                                               |
| *July 15, 2009      | TPB Reviews Public Comments and Responses to Comments, and is Presented the Draft Plan, TIP and Conformity Assessment for Adoption                                                                                                                                                                       |
| *TPB Meeting        |                                                                                                                                                                                                                                                                                                          |

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<sup>1</sup> By this date, the CLRP forms must include information on the Planning Factors, Environmental Mitigation, Congestion Management Information, and Intelligent Transportation Systems; separate Congestion Management Documentation Forms (where needed) must also be finalized.

## **WORK SCOPE ATTACHMENT A**

### **POLICY AND TECHNICAL INPUT ASSUMPTIONS AIR QUALITY CONFORMITY ANALYSIS OF 2009 CLRP AND FY2010-2015 TIP**

#### **1. Land Activity**

- Round 7.2 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 2/18/2009

#### **3. Travel Demand Modeling Methods**

- Version 2.2 Travel Model (as refined in preparation of 2008 CLRP / FY2009 TIP)
- All HOV facilities at HOV-3 in 2010
- Transit “capacity constraint” procedures (2010 constrains later years)

#### **4. Emissions Factors**

- Develop MOBILE6.2 emissions factors using 2008 vehicle registration data
- Seasonal PM<sub>2.5</sub> factors for total directly emitted particles and precursor NO<sub>x</sub>
- No oxygenated fuels assumed for wintertime carbon monoxide conditions

#### **5. Emissions Modeling Methods / Credits**

- Yearly PM<sub>2.5</sub> emissions (total PM<sub>2.5</sub> and precursor NO<sub>x</sub>) using seasonal traffic adjustments and above emissions factors
- Offline emissions analyses

#### **6. Conformity Assessment Criteria**

- Emissions budgets for ozone precursors, PM<sub>2.5</sub> pollutants, and wintertime CO
- Analysis years: 2010, 2020, and 2030