
Conformity 101: Overview

Northern Transportation and
Air Quality Summit
Cambridge, MA
August 26, 2010

Conformity 101: Learning Objectives

- Define transportation conformity and describe how it relates to transportation planning and air quality planning
- Identify the frequency requirements for transportation conformity determinations
- Explain the consequences of an area's inability to achieve conformity
- Describe the roles and responsibilities of various agencies in planning and conformity
- Identify and explain the different components of transportation conformity:
 - » Regional emissions analysis
 - » Use of latest planning assumptions and emissions model
 - » Project level conformity
 - » Interagency consultation, and
 - » Timely implementation of transportation control measures
- Define a “conformity SIP” and describe its role in the conformity process

Clean Air Act and Transportation Conformity Rule

- Required by CAA Section 176(c)
- Requires evaluation of emissions from transportation plans, transportation improvement programs (TIPs), and projects before they are funded or approved
- Ensures that Federal (FHWA/FTA) funding and approval are given to transportation (transit/highway) activities that are consistent with air quality goals

Transportation Conformity

- The CAA requires federal actions to conform to the purpose of the SIP
- Purpose of the SIP:
 - » Eliminates/reduces violations of the NAAQS
 - » Expedient attainment of the NAAQS
 - » Maintaining the NAAQS
- According to CAA section 176(c) transportation activities must not:
 - » produce new air quality violations
 - » worsen existing violations
 - » delay timely attainment of NAAQS, or any interim reductions or milestones

Transportation Conformity: A Link Between Air Quality and Transportation Planning

**Transportation
Conformity**

```
graph TD; A[Transportation Conformity] --> B[Air Quality Planning]; A --> C[Transportation Planning]; B --- D[State Implementation Plan (SIP)]; C --- E[Metropolitan Transportation Plan and Transportation Improvement Program (TIP)];
```

Air Quality Planning

State Implementation Plan (SIP)

Transportation Planning

*Metropolitan Transportation
Plan and Transportation
Improvement Program (TIP)*

Transportation Conformity vs. General Conformity

- Transportation Conformity

- » Applies to federal highway (FHWA) and transit (FTA) transportation actions
- » Applies to transportation-related criteria pollutants:
 - Ozone
 - PM10 and PM2.5
 - CO
 - NO2

- General Conformity

- » Applies to all other federal actions, e.g., approval of airports (FAA), DOD facilities, freight rail (FRA)
- » Applies to all criteria pollutants:
 - Those covered by transportation conformity +
 - SO2
 - Lead (Pb)

Transportation Conformity

- In this presentation, “conformity” means “transportation conformity”
- Applies to FHWA/FTA transportation actions – highways (FHWA) and transit (FTA) – on road mobile sources
- Designated nonattainment and maintenance areas
- Maintenance areas (nonattainment areas redesignated to attainment)
- Regulations found at 40 CFR Parts 51 and 93

Benefits of Good Conformity Process

- Help SIP achieve its goal to protect public health
- Ensure latest planning assumptions and emissions models are used for emissions analysis
- Interagency consultation creates a forum for better long-term decisions
- Ensure transportation and air quality coordination

What is a SIP?

- Legally enforceable plan for how state will attain and maintain the NAAQS in nonattainment and maintenance areas
 - » State's plan to improve air quality in nonattainment areas to attain NAAQS by a statutory deadline
 - » States' plan to ensure that maintenance areas continue to meet the NAAQS
- Prepared by state or local air quality agency, submitted by Governor or his/her designee
 - » Approved by EPA
 - » EPA Regional Administrators are delegated the authority to receive, return, approve or disapprove SIPs
- Interagency consultation (including transportation agencies) and public participation required in preparation
- More on SIPs and SIP budgets later...

What is subject to transportation conformity?

- Metropolitan transportation plans: 20-year timeframe
- TIPs: 4-year timeframe
- Transportation plan/TIP amendments for non-exempt FHWA/FTA projects
- Non-exempt “federal” projects, i.e., those that
 - » Receive FHWA or FTA funding or
 - » Require FHWA or FTA approval
- Regionally significant non-federal projects
 - » Included in the regional emissions analysis
 - » No project-level conformity determination is required

Transportation Plans

- 20-year horizon on highway and transit investments in a region
 - » Some MPOs create longer plans
- MPO must demonstrate that plan conforms before the MPO adopts the plan
- Plan must be updated and determined to conform at least every 4 years in nonattainment and maintenance areas, or it will expire

TIPs

- TIP includes 4 years of projects that are consistent with the transportation plan
- MPO must demonstrate that TIP conforms before the MPO adopts the TIP
- TIP must be updated at least every 4 years, or it will expire
 - » Conformity determination on TIPs must be made every 4 years
- In nonattainment and maintenance areas:
 - » Projects in the first 2 years of the TIP are limited to those for which funds are available or committed
 - » For the remaining 2 years funds must be reasonably available

Transportation Plans and TIPs

- Must be fiscally constrained per 23 CFR 450
- Must be available for public review (23 CFR 450.316(a))
- Must meet all other transportation planning requirements pursuant to:
 - » 23 CFR part 450, and
 - » 49 CFR part 613

Transportation Plan and TIP Amendments

- A plan/TIP amendment and a conformity determination is needed when:
 - » Adding non-exempt projects to plan/TIP
 - » Significantly changing non-exempt project(s) in plan/TIP
 - » Shifting timing of projects, e.g., moving a non-exempt project from a later year to an earlier year
 - Exception: Non-exempt projects in the first 4 years of a TIP may be shifted within the first 4 years without a new conformity determination

Quiz Time!

- ❖ Transportation conformity determinations are required for the following except (circle all that apply):
 - A. Metropolitan Transportation Plans
 - B. Statewide Transportation Plans
 - C. TIPs
 - D. Non-federal projects

Quiz Time!

❖ Transportation conformity determinations are required for the following except:

A. Metropolitan Transportation Plans

B. Statewide Transportation Plans

C. Metropolitan Transportation Improvement Programs (TIPs)

D. Non-federal projects

When does transportation conformity apply?

- The CAA and conformity rule provide a one-year grace period before conformity applies for new areas
- Within one year of the effective date of the initial nonattainment designation, a conforming transportation plan and TIP must be in place in order to approve new federally funded/approved (FHWA/FTA) projects
- Frequency Requirements - After the one-year grace period, a new conformity determination is required:
 - » Before new transportation plans and TIPs (or amendments) are adopted, and at least every four years
 - » Within two years of an adequate or approved motor vehicle emissions budget (“SIP budget”)
 - » Before a new non-exempt federal project receives FHWA or FTA funding or approval for the first time

Consequences in the Conformity Process

- If an area cannot conform within the applicable 2 or 4-year deadline, a one-year conformity lapse grace period starts:
 - » During the lapse grace period, projects can be found to conform if they are already in a conforming plan and TIP (or regional emissions analysis), or the most recent conforming plan/TIP (or regional emissions analysis)
- Conformity lapse grace period does not apply to newly designated nonattainment areas that fail to make a conformity determination by the end of the one-year grace period for new nonattainment areas
- If a conformity determination is not made by the end of the one-year conformity lapse grace period, the plan/TIP enters a conformity lapse
 - » No conforming plan/TIP in place
- During a conformity lapse, only 3 types of projects can proceed
 - » Exempt projects
 - » TCMs that are in the approved SIP
 - » Any project or project phase that was approved prior to the conformity lapse (but not any subsequent phases)

Sample Roles and Responsibilities in the Transportation Conformity Process

US DOT (FHWA/FTA)	Determines conformity on transportation plans, TIPs, and Projects
MPOs	Prepares the conformity determination for transportation plans and TIPs
State DOT and Transit Agencies/Operators	Prepares project-level conformity determination
State and Local Air Agencies	Develop the SIP budget; Serve a consultation role on conformity determinations
US EPA	Serve a consultation role in the conformity process; conformity regulations and guidance

Transportation Plan/TIP Conformity Determination Criteria

- Perform regional emissions analysis and compare to adequate or approved SIP budgets or interim test(s)
- Use latest planning assumptions and emissions model
- Ensure timely implementation of any transportation control measures (TCMs) in an approved SIP
- Conduct interagency consultation and public participation, and
- Meet other requirements (e.g., DOT's fiscal constraint requirements).

Regional Emissions Analysis

- Key analytic component of conformity process
 - » Shows that regional emissions from on-road sources do not exceed levels that cause/contribute to violations of the NAAQS or delay timely attainment
 - » Ensures that transportation plans and TIPs are consistent with the SIP
- Emissions estimated over long term (20-year timeframe) and compared to the budget test or interim emissions test(s)
 - » Timeframe of conformity determination may be shortened
 - Need an “FYI” regional emissions analysis for last year of plan and any year shown to exceed budget(s) in prior regional emissions analyses (if year extends beyond timeframe of conformity determination)
- Examines emissions impacts for certain years (e.g., years with budgets)
 - not every year within the timeframe of the plan and conformity determination
- Must be based on latest planning assumptions and emissions model
- Implementation of control measures must be assured

Regional Emissions Analysis: Which test applies?

- If no adequate or approved SIP budgets:
 - » Interim emissions test(s) (93.119)
- If adequate or approved SIP budgets:
 - » Budget test (93.118): Emissions from planned transportation system \leq SIP budget
 - SIP Budget: Provides “ceiling” on emissions for a given pollutant or precursor for all on-road mobile sources

Adequacy Process

- SIP budgets must be found adequate or approved by EPA before they can be used in a conformity determination
- Approximately 90-day process (93.118(f))
- EPA announces receipt of SIP on OTAQ website to start a 30-day public comment period
- EPA Regional Office makes a finding based on adequacy criteria found in 93.118(e) of the rule
- EPA Regional Office must respond to any comments, sent a letter to the state, post the finding of adequacy/inadequacy on the web, and issue a Federal Register notice

Interim Emissions Tests (93.119)

- Used when no adequate or approved SIP budgets available
- Two types of tests:
 - » Build/no-build test: emissions from planned transportation system $<$ or \leq emissions without planned changes to the transportation system
 - » Baseline year test: emissions from planned transportation system $<$ or \leq emissions in the baseline year

Interim Emissions Tests (93.119)

- Moderate and above ozone, and moderate (12.7 ppm) & above CO areas must use “less-than” forms of:
 - » Build/no-build test AND
 - » Baseline year test
- PM₁₀, PM_{2.5}, NO₂, and other ozone and CO areas use “no-greater-than” form of either:
 - » Build/no-build test OR
 - » Baseline year test

Interim Emissions Test (93.119)

- Regional emissions analysis years:
 - » A near-term year no more than 5 years into the future
 - » The last year of the timeframe of the conformity determination (usually last year of the transportation plan)
 - » An intermediate year or years, so that analysis years are no more than 10 years apart

Example of Interim Emissions Test Analysis Years

- 2006 PM_{2.5} nonattainment area:
 - » Conformity demonstrated in year 2010
 - End of one-year grace period for new areas:
December 14, 2010
 - » Transportation plan years are 2010-2030
 - » Regional emissions analysis years:
 - 2012 (No more than 5 years into future)
 - 2030 (Last year of the plan)
 - 2020 (Intermediate year, no more than 10 years apart)

Budget Test (93.118)

- Demonstrates that total projected on-road emissions for plan/TIP are within emissions limits of SIP budget
- A regional emissions analysis must be done for:
 - » Attainment year for relevant NAAQS (if within the timeframe of the plan/TIP and conformity determination)
 - » Last year of the timeframe of the conformity determination (usually last year of the plan)
 - » An intermediate year or years, so that analysis years are no more than 10 years apart
- For other budget years, a regional emissions analysis is not necessarily needed:
 - » Can interpolate estimate for year between the two regional emissions analysis years

Example of Budget Test Analysis Years

- 2006 PM_{2.5} nonattainment area:
 - » Conformity demonstrated in year 2010
 - End of one-year grace period for new areas:
December 14, 2010
 - » Transportation plan years are 2010-2030
 - » Regional emissions analysis years:
 - 2012 (Attainment Year)
 - 2030 (Last year of the plan)
 - 2020 (Intermediate year, no more than 10 years apart)

Quiz Time!

- ❖ True or False: The motor vehicle emissions budget sets a cap on emissions from all mobile sources.

Quiz Time!

- ❖ True or False: The motor vehicle emissions budget sets a cap on emissions from all mobile sources.
- ❖ **Answer: False**; budget includes only on-road mobile sources (not off-road)

How are emissions and VMT estimated?

- To generate emissions estimates, areas use an emissions factor model (MOBILE6.2, MOVES) and need to know activity levels:
 - » Vehicle miles traveled (VMT) and speeds
- VMT is estimated using either:
 - » Network travel model
 - Some high classification ozone and CO areas are required to have a network travel model for conformity (93.122(b))
 - » Appropriate methods that account for VMT growth

Latest Planning Assumptions (93.110)

- Conformity rule allows MPOs to use the latest planning assumptions available at the time the conformity analysis begins
- Assumptions include:
 - » Population, employment, travel, congestion
 - » Transit fares, transit service levels, tolls
- Areas are encouraged to update latest planning assumptions at least every five years, especially for population, employment, and vehicle registration assumptions

Latest Emissions Model (93.111)

- Conformity rule requires that the latest available emissions model be used in the conformity determination
 - » Rule provides a grace period of 3 – 24 months before a new model must be used in conformity
- EPA released MOVES2010
 - » 2-year grace period for regional conformity analysis started on March 2, 2010 for all states except for CA
 - » Grace period ends March 2, 2012

Quiz Time!

- ❖ Areas are encouraged to update planning assumptions how often?
 - A. Every year
 - B. Every four years
 - C. Only when a new SIP is developed
 - D. At least every five years

Quiz Time!

- ❖ Areas are encouraged to update planning assumptions how often?
 - A. Every year
 - B. Every four years
 - C. Only when a new SIP is developed
 - D. At least every five years**

Quiz Time!

- ❖ In nonattainment and maintenance areas, transportation conformity must be determined on the metropolitan transportation plan at least every:
 - A. Three years
 - B. Two years
 - C. Four years
 - D. When new assumptions are adopted

Quiz Time!

- ❖ In nonattainment and maintenance areas, transportation conformity must be determined on the metropolitan transportation plan at least every:
 - A. Three years
 - B. Two years
 - C. Four years**
 - D. When new assumptions are adopted

When is conformity required for projects?

- Project-level conformity determinations only done for “FHWA/FTA projects,” i.e.,
 - » Highway and transit projects that require FHWA/FTA funding or approval
- Before project is funded or approved
 - » Typically part of NEPA process
- Redetermination required for non-exempt projects (40 CFR 93.104(d)) if:
 - » project has not advanced in three years
 - » project’s design concept and scope have changed significantly, or
 - » supplementary environmental document has been initiated for air quality purposes

Project-level Conformity Determination Requirements

- Project comes from a conforming transportation plan and TIP
- Design concept and scope have not changed significantly
- Uses latest planning assumptions and latest emissions model
- Includes a hot-spot analysis in:
 - » CO nonattainment and maintenance areas (40 CFR 93.123(a))
 - » PM_{2.5} and PM₁₀ nonattainment and maintenance areas, as required (for projects of local air quality concern) (40 CFR 93.123(b)(1))
- If PM SIP includes control measures, compliance with these measures must be assured

Interagency Consultation (93.105)

- A collaborative process between organizations on key elements of transportation and air quality planning
- Provides a forum for effective state and local planning
- Includes: DOT (FHWA and FTA), EPA, state DOT, state air agency, MPO(s), local transportation, transit and air agencies
- Goals of Interagency Consultation
 - » Ensures all agencies meet regularly and share information
 - » Identifies key issues early in the process
 - » Enables well-coordinated schedules for TIP/plan conformity determinations and SIP development
 - » Allows collaborative decisions on methodologies, assumptions, conformity test selection
- More on interagency consultation later...

Public Consultation (93.105(e))

- Conformity rule relies on public participation through DOT's planning regulations at 23 CFR 450.316(a)
- Conformity rule requires all information for a conformity determination to be available at the beginning of the comment period

Timely Implementation of SIP TCMs (93.113)

- TCMs that are subject to timely implementation are TCMs included in an approved SIP that are eligible for funding under Title 23 U.S.C. or Federal Transit Laws
- Conformity rule defines TCMs in approved SIPs as:
 - » One of the types listed in CAA section 108, or any measure focused on reducing on-road vehicle use or traffic/congestion
 - » TCMs are not vehicle or fuel technologies (e.g., I/M, RFG) for conformity purposes
- Important for SIP TCMs to be well defined

Timely Implementation of TCMs (93.113)

- Transportation plan/TIP must:
 - » Provide for timely implementation, and
 - » Not interfere with SIP TCMs
- If TCM has fallen off schedule, and the area still wants to implement, it must show:
 - » Past obstacles have been identified and overcome, and
 - » State and local agencies with funding authority are giving TCMs maximum priority
- If TCM falls off schedule, and the area no longer wants to implement it:
 - » May do a SIP revision to remove it, or
 - » May be able to substitute it without a SIP revision

Control Programs in Plan/TIP (93.122(a)(1), (3) and (4))

- Emissions reduction credit may be included in regional emissions analyses for:
 - » Non-regulatory on-road control measures that are in the plan/TIP but not in the SIP (93.122(a)(1))
 - » Regulatory on-road control programs (93.122(a)(3))
 - » Non-regulatory on-road measures in the plan/TIP or SIP (93.122(a)(4))

Delayed SIP Control Programs (93.122(a)(2))

- Reductions may not be included for a TCM or other measure in an approved SIP that has been delayed beyond its implementation date until implementation is assured
- If a measure is partially implemented, reductions can be included for partial implementation, as appropriate

Conformity SIPs

- Clean Air Act 176(c)(4)
 - » Requires states to submit SIP revisions to reflect specific federal conformity criteria and procedures
- Conformity SIPs required to include the following Conformity regulation provisions:
 - » Consultation procedures (93.105)
 - » Written commitments to any control measures not included in plan and TIP (to ensure they are funded) (93.122(a)(4)(ii))
 - » Written commitments to any mitigation measures necessary for project-level conformity determinations (to ensure they occur) (93.125(c))
- Conformity SIPs do not contain SIP budgets, inventories, air quality demonstrations, TCMs, or other control measures

For Further Information

- EPA website: www.epa.gov/otaq/stateresources/transconf/index.htm
 - » Transportation conformity rulemakings
 - » Transportation conformity guidance documents
 - » Guidance on quantifying reductions from control measures
 - » Complete, updated regulation and outreach materials
 - » Research and training
- DOT (FHWA) website: www.fhwa.dot.gov/environment/conform.htm
 - » Basic guide, reference guide, and frequently asked questions
 - » Research and training
 - » Examples of transportation conformity practice
- Nonattainment/maintenance areas:
 - » EPA's Greenbook: <http://www.epa.gov/oar/oaqps/greenbk/>
- MOVES webpage: <http://www.epa.gov/otaq/models/moves/index.htm>
 - » MOVES2010 technical and policy guidance
 - » Instructions for downloading and installing MOVES2010
 - » Information on training sessions

Quiz Time!

- ❖ A transportation plan/TIP conformity determination would include the following (TRUE/FALSE):
 - A. Use of latest planning assumptions (TRUE/FALSE)
 - B. Discussion of control measure reductions (TRUE/FALSE)
 - C. Use of latest, EPA-approved emissions model (TRUE/FALSE)
 - D. Documentation of “the time the conformity analysis begins” (TRUE/FALSE)
 - E. Discussion of changes in transit operating policies and services (TRUE/FALSE)
 - F. Use of emissions model consistent with the one used to develop the SIP (TRUE/FALSE)

Quiz Time!

- ❖ A transportation plan/TIP conformity determination would include the following (**TRUE/FALSE**):
 - A. Use of latest planning assumptions (**TRUE**/FALSE)
 - See 40 CFR 93.105(c)(1)(i)
 - B. Discussion of control measure reductions (**TRUE**/FALSE)
 - Has to use the latest information regarding the effectiveness of TCMs and other SIP measures already implemented - see 40 CFR 93.110(e)
 - C. Use of latest, EPA-approved emissions model (**TRUE**/FALSE)
 - See 40 CFR 93.111(a)
 - D. Documentation of “the time the conformity analysis begins” (**TRUE**/FALSE)
 - See 40 CFR 93.110(a) and 93.105(c)(1)(i)
 - E. Discussion of changes in transit operating policies and services (**TRUE**/FALSE)
 - See 40 CFR 93.110(c)
 - F. Use of emissions model consistent with the one used to develop the SIP (**TRUE/FALSE**)
 - See 40 CFR 93.111(a) – the latest emissions model is to be used for conformity even if 50 different than SIP over time

Conformity Rule Exercise #1

Conformity Crossword Puzzle
(Handout)

ACROSS

- 2. Transportation conformity applies to _____ mobile sources
- 4. A transportation plan must _____ before it is adopted
- 7. Two types of interim emissions tests: Build/no-build test and _____line year test
- 10. Before we can use a motor vehicle emissions budget in conformity, it must be deemed _____ or approved according to certain criteria.
- 11. Within _____ year of the nonattainment designation, a conforming transportation plan and TIP must be in place in order to approve new FHWA/FTA projects
- 13. MPOs use the latest planning assumptions available at the time the _____ analysis begins
- 14. A motor vehicle emissions _____ provides a ceiling on on-road emissions.

DOWN

- 1. Pollutants for which there are national ambient air quality standards are called _____ pollutants.
- 3. EPA designates an area as _____ when it does not meet one of the NAAQS.
- 5. This law established the regulatory framework for air quality standards.
- 6. The regional emissions analysis examines every year within the timeframe of the plan and conformity determination (TRUE/FALSE)
- 8. During a conformity lapse, only 3 types of projects can proceed: _____ projects, TCMs in an approved SIP, and project phases approved prior to the lapse
- 9. Acronym for the agency that writes the conformity regulation.
- 12. Transportation Conformity is the _____ between air quality planning and transportation planning

1			2	3																
		4																		
						5													12	
										13			6							
			7																	
										8		9								
						10														
		11																		
	14																			

ACROSS

- 2. Transportation conformity applies to **ONROAD** mobile sources
- 4. A transportation plan must **CONFORM** before it is adopted
- 7. Two types of interim emissions tests: Build/no-build test and **BASE**line year test
- 10. Before we can use a motor vehicle emissions budget in conformity, it must be deemed **ADEQUATE** or approved according to certain criteria.
- 11. Within **ONE** year of the nonattainment designation, a conforming transportation plan and TIP must be in place in order to approve new FHWA/FTA projects
- 13. MPOs use the latest planning assumptions available at the time the **CONFORMITY** analysis begins
- 14. A motor vehicle emissions **BUDGET** provides a ceiling on on-road emissions.

DOWN

- 1. Pollutants for which there are national ambient air quality standards are called **CRITERIA** pollutants.
- 3. EPA designates an area as **NONATTAINMENT** when it does not meet one of the NAAQS.
- 5. This law established the regulatory framework for air quality standards **CLEAN AIR ACT**
- 6. The regional emissions analysis examines every year within the timeframe of the plan and conformity determination (**TRUE/FALSE**)
- 8. During a conformity lapse, only 3 types of projects can proceed: **EXEMPT** projects, TCMs in an approved SIP, and project phases approved prior to the lapse
- 9. Acronym for the agency that writes the conformity regulation: **EPA**
- 12. Transportation Conformity is the **LINK** between air quality planning and transportation planning

C			O	N	R	O	A	D											
R				O															
I		C	O	N	F	O	R	M											
T				A															
E				T		C											L		
R				T		L			C	O	N	F	O	R	M	I	T	Y	
I			B	A	S	E					A					N			
A				I		A		E		E		L				K			
				N		N		X		P		S							
				M		A	D	E	Q	U	A	T	E						
		O	N	E		I		M											
				N		R		P											
				T		A		T											
						C													
	B	U	D	G	E	T													