

## **The 1990 Clean Air Act Transportation Related Requirements and Implications**

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### **INTRODUCTION**

The 1990 Clean Air Act Amendments (CAAA) was signed into law by President Bush on November 15, 1990. At that time, Congressman Mineta of California predicted that the CAAA was "going to determine more about transportation policy than the next surface transportation bill." A review of the provisions of the Intermodal Surface Transportation Efficiency Act (ISTEA), which was signed on 12/18/91, reveal how such prediction is becoming a reality because the ISTEA contains major requirements and program provisions designed to help satisfy the CAAA requirements.

The CAAA contains 8 Titles; Title I and parts of Title II concern the conformity of transportation with air quality. This paper addresses only the most important transportation conformity requirements.

### **TRANSPORTATION CONFORMITY DEFINED**

Federally assisted highways and mass transportation plans, programs, and projects will conform with the CAAA requirements if these activities can be found to contribute to meet the purpose of the State Implementation Plan (SIP), which is to eliminate or reduce the severity and number of violations of the National Ambient Air Quality Standards (NAAQS). This will translate into having an "emissions budget" for transportation ac-

tivities. In other words, out of the total reduction in emissions necessary for the area to achieve attainment, the transportation activities will be responsible for reducing a specified amount during a given period.

Transportation plans, programs, and projects conform if:

- 1) The emissions attributable to these activities are consistent with the emissions reduction budget outlined in the SIP; and
- 2) The transportation programs provide for the timely implementation of the Transportation Control Measures (TCM's) outlined in the SIP.

The FHWA will not be able to approve plans, programs, or projects in non-attainment areas until a conformity finding can be made.

These are much more stringent requirements than the previous transportation conformity requirements of the 1977 CAA, which required conformity findings for only those areas having TCM's listed in the SIP, and under which conformity was not based on specific assignment of responsibility to transportation activities for emissions reductions.

### **CLASSIFICATION OF NON-ATTAINMENT AREAS**

There are three major pollutants that result partly from transportation activities:

Ozone, Carbon Monoxide (CO), and Particulate Matter (PM-10). In the interest of brevity, this paper only addresses the CAAA provisions related to Ozone and CO non-attainment.

The CAAA has classified the Ozone non-attainment areas into five categories. This classification is based on the severity of the problem, as measured by a range in the "design value", which is a specific concentration of the pollutant in the air, expressed in parts per million (ppm).

The categories for ozone non-attainment areas, and the corresponding design values are:

Marginal	=	0.121-0.138 ppm
Moderate	=	0.138-0.160 ppm
Serious	=	0.160-1.180 ppm
Severe	=	1.180-0.180 ppm
Extreme	=	0.180-above

The CO non-attainment areas have been classified into two categories, also on the basis of severity and the corresponding "design value". These are:

Moderate	=	9.1-16.4 ppm
Serious	=	16.4-above

### CAAA REQUIREMENTS REGARDING MOBILE SOURCES

The CAAA prescribes specific set of requirements for each category of non-attainment area. Each area must comply with these requirements by specific dates in order to achieve attainment with the NAAQS. If the area does not reach attainment by the specified date, the areas will be reclassified into the next higher category of non-attainment and the more stringent requirements applicable to that category will have to be complied with. The requirements are as follows:

#### For Ozone Non-Attainment Areas:

Category	Requirement
Marginal	<ul style="list-style-type: none"> <li>• 3 years to attain standard</li> <li>• Complete an inventory of all sources of VOC's</li> <li>• Revise existing I/M Program</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>• 6 years to attain standard</li> <li>• All the above, plus</li> </ul>

Serious	<ul style="list-style-type: none"> <li>• Within 3 years, need SIP revision for VOC reductions of 15% within 6 years.</li> <li>• Vapor recovery systems at larger gas stations</li> <li>• "Basic" I/M program</li> <li>• 9 years to attain standard</li> <li>• All of the above, plus</li> <li>• Enhanced monitoring for VOCs, NOx</li> <li>• Demonstration in SIP of 3% annual Reductions in VOCs until attainment</li> <li>• Enhanced I/M program in areas with population of 200,000 or larger</li> <li>• Clean-fuel vehicle program (or substitute measures to reduce VOCs, NOx)</li> <li>• Periodic demonstration to EPA that mobile source projections in SIP remain accurate (if not, implement additional TCMs)</li> </ul>
Severe	<ul style="list-style-type: none"> <li>• 15 years to attain standard (New York, Chicago, Baltimore, Houston, and San Diego have 17 yrs)</li> <li>• All of the above, plus</li> <li>• SIPs must contain enforceable TCMs to offset growth of VMT/mobile source emissions to achieve 3% annual reductions until attainment</li> <li>• Employers must reduce work-related trips by 1996 (increase average vehicle occupancy)</li> </ul>
Extreme	<ul style="list-style-type: none"> <li>• 20 years to attain standard (Los Angeles only)</li> <li>• All of the above, plus</li> <li>• Reasonable further progress demonstrated in SIP revision</li> <li>• Provide for TCMs limiting use of high-polluting/heavy duty vehicles during peak traffic</li> </ul>

#### For CO Non-Attainment Areas:

Class	Requirement
Moderate	<ul style="list-style-type: none"> <li>• 5 years to attain standard</li> <li>• Inventory of all CO Sources</li> <li>• Revise existing I/M program to meet minimum standards</li> <li>• For areas with CO design value 12.7 ppm: a) annual emission reductions to attain standard by prescribed data; b) forecasts of VMT and annual updates for each year until attainment; c) enhanced I/M program; d) implementation of contingency measures in SIP to assure actual VMT is within forecast limits.</li> <li>• Oxygenated fuels for areas with Des. Val. <math>\geq 9.5</math> during winter months.</li> <li>• Clean-fuel program for fleets <math>\geq 10</math> vehs. in areas <math>\geq 250k</math> pop. and Des. Val. <math>\geq 16</math> ppm.</li> </ul>

- Serious
- 10 years to attain standard
  - Adopt measures for areas above 12.7 ppm
  - Additional TCMs to offset VMT growth
  - Oxygenated fuel program for high CO season
  - Achieve CO reduction milestone in 5 years – if not met, need more stringent TCM program

### INTERIM CONFORMITY PROCEDURES

The conformity requirements were effective 11/15/90. However, since full conformity cannot be determined until the approval by EPA of SIP's outlining the air quality control strategy to be followed in each area, the CAAA contains provisions for making conformity findings during the interim period between the date of enactment (11/15/90) and the date when EPA will approve the required revised SIP's.

On June 7, 1991, the DOT and EPA jointly issued guidance for determining conformity during the interim period. All of the Metropolitan Planning Organizations (MPO's) from the non-attainment areas are pretty familiar with these guidelines since they have been very busy trying to obtain conformity findings on their FY 1991 and FY 1992 TIP's.

The interim conformity guidelines basically call for a quantitative analysis intended to compare the emissions estimated to result in a future year from a "no-build scenario" with those for the "build scenario".

The analyses completed to date by the various MPO's indicate that it is not difficult to demonstrate conformity by showing that the aggregate emissions estimated for the build scenario are lower than those for the base scenario. This is primarily due to the following factors: (a) in the analysis, the travel picture (i.e. number of trips and VMT in the highway network) is basically the same for both scenarios; (b) the build scenario is likely to improve the average speeds for various network segments, while the no-build scenario will not; and (c) higher speeds generally result in lower emissions, so that the aggregate emissions for the entire network will be less.

### SANCTIONS ON THE FEDERAL-AID HIGHWAY PROGRAM

The approval of FHWA administered funding will be stopped for the following reasons:

- 1) Failure to submit a SIP;
- 2) EPA disapproval of the SIP;
- 3) Failure to **implement** any provision of the SIP; and
- 4) Failure to **submit** any of the provisions necessary for the implementation of each of the applicable requirements outlined in the CAAA.

EPA can impose sanctions anytime within 18 months after they have made a finding of failure to comply. The sanctions could be applied statewide (not limited to the non-attainment area) but not earlier than 24 months if non-compliance is due to problems in more than one non-attainment area within the state.

The submission to EPA of revised SIP's showing how the state and its non-attainment areas intend to implement the given requirements, and thus meet the NAAQS, is due at different dates depending on the severity classification for the area. The earliest deadline is 11/15/92. It may take EPA 6 months to a year to review and approve the SIP's. So highway program sanctions and other impacts of the CAAA on the highway programs will start to be felt after FY 1992.

### SHORT TERM ISSUES AND IMPLICATIONS

- **Conformity** – The analyses required to prove conformity involves a significant amount of additional work for the MPO's and the states. All non-attainment MPO's will have to have travel demand modeling capabilities that will yield reliable data for use with the air quality emissions model. All will have to learn and use the emission factor model MOBILE 4.1, as well as the future versions of this model.
- **Planning Requirements** – The CAAA requires the EPA to issue guidelines on how to carry out coordinated and conforming planning for transportation and air quality.

This will necessitate that technical capabilities be established or refined in order to be able to make emissions estimates and projections based on reliable estimates of population, employment, VMT, and congestion. This could result in significant additional work for MPO's and the demand for additional financial and manpower resources.

- **Planning boundaries (MSA/CMSA)** – EPA has expanded the boundaries of serious and severe non-attainment areas to include the MSA or CMSA boundaries. The ISTEA also requires that the transportation planning area boundary for all non-attainment areas be equal to the air quality non-attainment area boundary, unless the Governor and the MPO agree otherwise. This will result in the involvement of rural or other suburban jurisdictions that were not previously involved in transportation and air quality planning activities.
- **Funding** – If conformity findings on the Transportation Plans and the TIP's for the non-attainment areas cannot be made by the FHWA and FTA (previously UMTA), federally funded projects cannot be authorized thus delaying the use of obligational authority. Funding obligations may also be affected later on when SIP's are revised if they adopt TCM's which may restrict the types of highway projects that could be approved and their implementation schedules. Regarding funding for air quality related planning work, \$50 million were authorized in the CAAA for this purpose, but EPA is not seeking budget authority for these funds. However, highway and transit planning funding levels have been significantly increased under the ISTEA and these funds can be used for transportation related air quality planning.
- **Transfer of Authority from DOT to EPA** – Instead of DOT, EPA now has the lead in developing and issuing regulations and guidelines for determining conformity, and for air quality related transportation plan-

ning. However, the DOT agencies are the ones making the final conformity findings after consultation with the EPA. A new program in the ISTEA, which provides funding for congestion management and air quality improvements projects, will require consultation and concurrence by EPA on the emissions reduction merits of proposed projects.

#### LONG TERM ISSUES AND IMPLICATIONS

- **Impacts to the HTF** – The CAAA will require the use of oxygenated fuels in certain non-attainment areas. IF gasohol is used to meet this requirement, 6 cents per gallon in taxes will be lost to the Highway Trust Fund. The popularity of gasohol is increasing rapidly in and out of non-attainment areas. The reduction in revenues for the HTF may become very significant in a shorter period than anticipated.
- **Highway Sanctions** – There are increased reasons for applying sanctions; the geographic area of the sanctions can include the entire state; and there are increased restrictions on the types of projects that can be exempted from funding sanctions.
- **Scope of Major Highway Projects** – Depending on the severity of the area's air quality problem, transportation control measures adopted for the area may require the incorporation of HOV lanes as part of major freeway reconstruction projects. Also, it may be more difficult to justify capacity enhancement projects like new highways or the addition of lanes to existing highways. The ISTEA requires that projects which significantly increase capacity for single occupant vehicles, and which are located in non-attainment areas of over 200,000 population, not be funded unless they are part of a congestion management plan for the area.

### CONCLUSION

- A real tough challenge lies ahead for all of us involved in the highway transportation business; particularly during the “control strategy period” of the CAAA requirements. These are some of the questions to ponder:
  - 1) Will the type of transportation programs and projects that we have today require drastic changes during the next two years or beyond?
  - 2) Will growth in VMT have to be significantly curtailed? If so, how do we do that without calling for major changes in driving behavior?
  - 3) Will the CAAA cause major urban development restrictions in non-attainment areas and thus contribute to a shift in socio-economic development into the smaller urbanized areas which have clean air?
- Although we may not be able to answer these questions at this time, one thing is very clear to us today. And it is that without effective communications, interdisciplinary cooperation, and serious dedication we will not be able to meet the challenge that lies ahead.