

**INVESTIGATION OF CMAQ FUNDING
OBLIGATION IMPROVEMENTS**

by

William E. Knowles

Professional Mentor

Thomas C. Werner, P.E.

New York State Department of Transportation

Prepared for

CVEN 689

Advanced Surface Transportation Systems

Course Instructor

Conrad L. Dudek, Ph.D., P.E.

Department of Civil Engineering

Texas A&M University

College Station, Texas

August 1994

SUMMARY

The transportation community is confronted with increasingly greater challenges as the 21st century approaches. The nation's mobility which is essential to the economic and social well-being of the country is threatened by gridlock and aging infrastructure. Furthermore, legitimate environmental concerns on the impact of transportation system improvements have complicated an already difficult task. The Congestion Mitigation and Air Quality (CMAQ) Program of the Clean Air Act Amendments of 1990 is a primary tool in solving the complicated transportation and environmental issues facing the transportation professional today. CMAQ funds may only be used for transportation projects and programs that are likely to contribute to the achievement of national ambient air quality standards (NAAQS).

A preliminary investigation of the CMAQ Program revealed a poor obligation rate of CMAQ funding across the United States. These funds are critical for States to achieve NAAQS. It is paramount to identify how CMAQ funding obligation can be maximized by State and local agencies.

A follow up investigation involving a comprehensive literature review and a telephone pilot survey was conducted to determine the present level of CMAQ funding obligation, to discover what projects are being funded, to examine State Department of Transportation and Metropolitan Planning Organization (MPO) relationship concerning CMAQ funding, and to suggest guidelines for improved achievement of CMAQ obligations. The pilot survey was conducted on six States and one MPO within each State.

The investigation revealed that the low obligation rates of 1992 were primarily due to the newness of the program. ISTEA was so different with so many new requirements, it just took time for States to adjust to the new requirements. All the States have improved their obligation rates, some significantly. States are now on the right track but they must continue to aggressively pursue deliverable CMAQ projects.

TABLE OF CONTENTS

INTRODUCTION	D-1
Background	D-1
Problem Statement	D-1
Objectives	D-1
Scope	D-1
Investigation Procedure	D-2
CMAQ OVERVIEW	D-3
Eligible CMAQ Projects	D-3
General CMAQ Project Type Descriptions	D-5
Transit Improvements	D-5
Shared-Ride Services	D-5
Traffic Flow Improvements	D-6
Demand Management Strategies	D-6
Pedestrian and Bicycle Programs	D-6
Inspection and Maintenance Programs	D-6
Other Programs and Projects	D-6
Project Sponsorship	D-7
Funding Availability	D-7
Funding Requirements	D-7
Appropriation and Obligation	D-8
CMAQ FUNDING PROCESS	D-9
Effective Utilization of CMAQ Funding	D-9
CMAQ Funding Obligation History of Subject States	D-10
<i>California</i>	D-10
<i>Missouri</i>	D-13
<i>New Jersey</i>	D-13
<i>New York</i>	D-14
<i>Texas</i>	D-16
<i>Washington</i>	D-16
Interview Comments	D-18
<i>California</i>	D-18
<i>Missouri</i>	D-18
<i>New Jersey</i>	D-18
<i>New York</i>	D-19
<i>Texas</i>	D-19
<i>Washington</i>	D-19
DISCUSSION AND RESULTS	D-22
CONCLUSIONS	D-25

RECOMMENDATIONS D-26
ACKNOWLEDGEMENTS D-28
REFERENCES D-29

INTRODUCTION

Background

As the 21st century approaches, the transportation community is confronted by increasingly greater challenges. The nation's mobility which is essential to the economic and social well-being of the country is threatened by gridlock and aging infrastructure. Furthermore, legitimate environmental concerns on the impact of transportation system improvements have complicated and already difficult task. This challenge is best defined by the 1990 Clean Air Act Amendments (CAAA) and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The CAAA are an essential effort to improve the nations air quality problems. However, the CAAA lacked effective enforcement through inadequate funding which is required to carry out necessary projects. The problem is solved by ISTEA which provided funding and flexibility to use in ways that will improve air quality through the development of an environmentally balanced intermodal transportation system. ISTEA's primary tool in this arena is the Congestion Mitigation and Air Quality (CMAQ) Program. CMAQ funds may only be used for transportation projects and programs that are likely to contribute to attaining national ambient air quality standards (NAAQS). CMAQ funding is \$6 billion over 6 years with an 80% federal share (1).

Problem Statement

A preliminary investigation of the CMAQ Program has revealed a serious under obligation of available funding by State and local agencies. These funds are vital to States in order to achieve NAAQS through support of transportation projects and programs; furthermore, CMAQ funds are important to a State's economical well-being in general. It is paramount to identify how CMAQ funding obligation can be maximized by State and local agencies. If CMAQ funding obligation does not increase there exists a risk of reduction of CMAQ funding by the Federal government.

Objectives

The objectives are:

1. determine the current level of CMAQ funding obligation in the subject States;
2. determine what projects are being funded by CMAQ;
3. Examine the State Department of Transportation (DOT) and Metropolitan Planning Organization (MPO) relationship concerning CMAQ funding; and
4. Prepare guidelines for improved achievement of obligation of CMAQ funding.

Scope

The objective will be accomplished by research involving a comprehensive literature review on CMAQ funding obligation and by conducting a pilot survey on six subject states: California, Missouri, New Jersey, New York, Texas, and Washington. These states represent a range of successful and unsuccessful CMAQ funding obligation achievers. The pilot survey will

be conducted by phone to the subject State's DOTs and a selected nonattainment area MPO. The nonattainment area MPOs (by city or region) surveyed are San Francisco, St. Louis, Northern New Jersey, New York City, Dallas-Fort Worth, and Seattle. The MPO names respectively are Metropolitan Transportation Commission, East-West Gateway Coordinating Council, North Jersey Transportation Planning Authority, New York Metropolitan Transportation Council, North Central Texas Council of Governments, and Puget Sound Regional Council.

Investigation Procedure

The following questions were asked of the subject States DOTs/MPOs to further enhance the understanding of the CMAQ funding process after completion of the literature review:

1. Are the States using CMAQ funds?
2. What projects are being funded?
3. What is the breakdown of successfully funded projects?
4. What is the basis for the decision to fund CMAQ projects?
5. When the money comes to the States, how is it allocated by the DOT/MPO?
6. Is there competition between traffic management projects and transit projects for CMAQ funds?
7. What is a successful DOT/MPO relationship that produces successfully funded CMAQ projects?
8. Who is responsible for managing CMAQ funding and reporting requirements for DOT/MPO?
9. Will CMAQ projects have a successful impact towards CAAA timeline requirements?
10. Is the timeliness of federal reporting requirements a politically sensitive issue?

CMAQ OVERVIEW

Eligible CMAQ Projects

CMAQ project decisions are made at the state and local level, subject to Federal guidelines on eligibility. The State level is the State Department of Transportation and the local level is the Metropolitan Planning Organization. CMAQ projects can cover a wide range of transportation improvements; however, all CMAQ projects target an emissions reduction by transportation improvement in a nonattainment area. The projects result from the strong planning process enacted by ISTEA and must contribute to tangible emission reductions within the designated time frames ordered by the 1990 CAAA. A typical CMAQ project is one that must be approved by the Environmental Protection Agency (EPA) as Transportation Control Measures (TCMs) and receive credit for emission reductions. A list of eligible TCMs are listed in Section 108(f) of the CAAA and are shown in Table 1 (2).

All CMAQ funded projects must be coordinated through an area's MPO which is the key transportation planning agency in urbanized areas with a population of 50,000 or greater. MPOs are regional councils or associations of governments that plan and coordinate transportation programs and projects which affect the region. Under ISTEA and the CAAA, the MPOs have broad responsibilities in the formulation, maintenance, and vision of a regions' Transportation Improvement Program (TIP). This includes federally funded highway and transit projects, TCMs, and the State Implementation Plan (SIP). The SIP is the statewide plan to reduce point, area, and mobile source emissions in order to conform to the NAAQS as required by the 1990 CAAA. All CMAQ projects must be included in the TIP, and in nonattainment areas the TIP must be in conformity with the SIP. TCMs in the SIP receive the highest funding priority under CMAQ.

CMAQ projects can be generally classified into one of the following categories (2):

- Transit Improvements
- Shared-Ride Service
- Traffic Flow Improvements
- Demand Management Strategies
- Pedestrian and Bicycle Programs
- Inspection and Maintenance Programs

Figure 1 shows a break-down of CMAQ obligated funds by these categories in Fiscal Year (FY) 1992. The categories are not exclusive, for other projects such as the conversion of public fleets to alternative fuels may be eligible under certain conditions (3).

Table 1. EPA approved TCMs: Section 108(f)(1)(A) of CAAA of 1990.

Eligible TCM's
(i) programs for improved public transit
(ii) restriction of certain roads or lanes to, or construction of such roads or lanes for use by, passenger buses or high-occupancy vehicles (HOV)
(iii) employer-based transportation management plans, including incentives
(iv) trip-reduction ordinances
(v) traffic flow improvement programs that achieve emissions reductions
(vi) fringe and transportation corridor parking facilities serving multiple-occupancy vehicle programs or transit service
(vii) programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration particularly during periods of peak use
(viii) programs for the provision of all forms of high-occupancy, shared ride services
(ix) programs to limit portions of road surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place
(x) programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas
(xi) programs to control extended idling of vehicles
(xii) reducing emissions from extreme cold-start conditions*
(xiii) employer-sponsored programs to permit flexible work schedules
(xiv) programs and ordinances to facilitate non-automobile travel, provision and utilization of mass transit, and to generally reduce the need for single-occupant vehicle travel, as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to new shopping centers, special events, and other centers of vehicle activity
(xv) programs for new construction and major reconstruction of paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest. For purposes of this clause, the Administrator shall also consult with the Secretary of the Interior
(xvi) programs to encourage removal of pre-1980 vehicles*

* EXCLUDED BY ISTEA

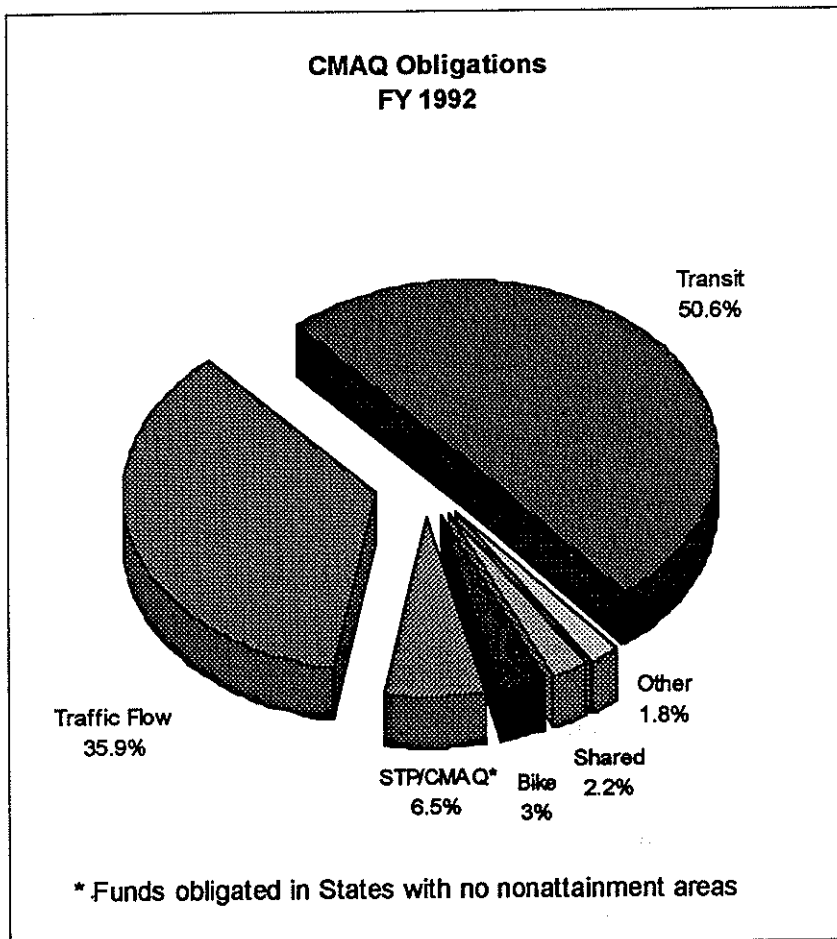


Figure 1. CMAQ Obligations FY 1992 (3).

General CMAQ Project Type Descriptions

Transit Improvements

Transit improvements focus on making more or better transit services available to the public in order to improve air quality. Projects in this category relate to system and/or service expansion for bus or rail services. It also includes operational improvements or demand/market strategies to make transit a more attractive alternative to single-occupancy vehicle (SOV) system users. In limited cases, not only the initial purchasing cost of the system and/or improvements is funded by CMAQ but the operating costs for up to two years are eligible. This is restricted to the implementation of projects which support new travel demand management measures.

Shared-Ride Services

Shared-ride services can potentially improve air quality by getting people to mode shift from SOVs to HOVs. This is accomplished by locating and coordinating people who live and work in close proximity to each other to ride to work together. Typical shared-ride projects include the establishment of vanpool or carpool programs, parking areas for people using these services, and programs to match drivers and riders. Operating costs for new shared-ride programs are eligible for CMAQ funding for a maximum of two years.

Traffic Flow Improvements

Highway and road projects that are eligible are those which improve air quality by reducing congestion without adding additional capacity. Traffic flow improvement projects have demonstrated to be particularly effective at reducing Carbon Monoxide (CO) "hot spot" which are typically caused by idling vehicles during congestion periods at bottlenecks (2). Eligible projects include traffic signalization improvements which enhance traffic flow, traffic management/control such as incident management and ramp metering, and intersection improvements like the addition of turn lanes. HOV lane construction is also eligible for CMAQ funds under traffic flow improvements.

Demand Management Strategies

Demand management strategies are programs or techniques that are targeted at reducing SOV travel. Demand management strategies can improve air quality by reducing the number of vehicle trips and the total regional vehicle miles travelled (VMT) by implementing alternate transportation strategies. Projects that fit into demand management strategies are the establishment of "auto-free zones", employee trip reduction programs, and the development of transportation management plans.

Pedestrian and Bicycle Programs

Pedestrian and bicycle programs offer the unique air quality improvement of zero emission travel modes. These projects make pedestrian and bicycle trips a realistic option for the commuter. ISTEA specifically identifies and encourages bicycle programs and makes them eligible for CMAQ funding. Eligible bicycle projects are the creation of bike trails and storage facilities and the creation of promotional activities which encourage bicycle travel. Pedestrian projects will primarily target improved walkways which encourage more pedestrian trips and enhances access to transit.

Inspection and Maintenance Programs

Inspection and maintenance (I/M) programs can reduce vehicle emissions by reducing exhaust from the nation's fleet of cars. Previous studies have shown that as little as ten percent of the cars on the road today put out as much as 60 percent of the fleet emissions (2). The inspection and maintenance programs can reduce mobile source emissions by detecting vehicles in violation of emission standards and instituting their correction. CMAQ funds can be used for startup activities such as developing inspection and maintenance technician training curriculum or enhancing/updating quality assurance software. Another eligible project is the construction of high-tech diagnostic facilities or miscellaneous equipment purchases that meet EPA requirements.

Other Programs and Projects

Other projects and programs not previously discussed will also be judged on their emission reduction potential and considered for funding. The conversion of public transit fleets to alternative fuel sources such as electric battery is an eligible project under certain conditions. Feasibility studies necessary to provide adequate environmental background documentation for

CMAQ funding can be an eligible project. However, projects such as traffic data collection activities are not considered feasibility studies.

Project Sponsorship

The CMAQ program allows air quality improvement endeavors to be established as public private partnerships. However, the projects must be under the primary control of the public agency or a contractual relationship must exist between public and private agencies. CMAQ funding may be authorized for projects that are privately owned or operated if the project meets all of the proceeding requirements. The requirements are: the project is normally a public sector responsibility, the project has been shown to be cost effective under private ownership or operation, and the state maintains responsibility for protecting the public interest and public investment inherent in the use of Federal Funds. In summary, without public sponsorship or a contractual agreement between public and private sectors no CMAQ funds will be directed towards a private agency.

An activity mandated by the CAAA for the private sector is ineligible for CMAQ funds. Furthermore, projects excluded from CMAQ funds by legislation are any programs that: reduce emissions from extreme cold-start conditions, encourage the removal of pre-1980 vehicles, and increase road capacity for SOVs by the construction of new general purpose lanes or highways. The CMAQ program does not provide maintenance funds for existing systems, and will only fund operating expenses of new systems in limited duration for certain circumstances. However, it may be possible to extend operating costs on certain traffic flow improvement projects beyond the two year CMAQ eligibility through use of Surface Transportation Program funds with MPO approval. The focus of CMAQ funding is on capitol improvements of the transportation system which can provide a tangible reduction in mobile source emissions. Since maintenance projects preserve existing levels of service they do not provide improvement in the transportation system which can provide progress towards attainment of NAAQS.

Funding Availability

The CMAQ Program provides \$1 billion dollars annually for six years. It covers FY 1992 through FY 1997. The Federal government, in an attempt to provide equity in federal transportation funding, guaranteed each State at least 0.5 percent of the annual CMAQ fund apportionment. This measure allowed States without nonattainment areas to receive some benefits of the CMAQ program. The rest of the funds are apportioned to States with ozone (O₃) and CO nonattainment areas based on a legislative formula specified in ISTEA. The formula weighs the severity of the air pollution problem along with the regional population within the nonattainment area of that State to determine distribution of CMAQ funding availability.

Funding Requirements

CMAQ funds have two applicable requirements. The CMAQ funds must be spent in a nonattainment area if one exists in the State. Secondly, the funds are required to be spent on projects or programs that reduce O₃, CO, or in some cases particulate matter (PM₁₀) precursors from mobile sources (transportation sources). If the requirements are satisfied and a qualified project meets eligibility requirements, then CMAQ funding will be obligated. The State is

responsible for the distribution of CMAQ funds when there are multiple nonattainment areas in the State. If a state has no nonattainment areas then the 0.5 percent of the guaranteed CMAQ funding may be spent on any project eligible under the CMAQ Program or the Surface Transportation Program.

In a State with no ozone or carbon monoxide nonattainment areas, CMAQ funds are encouraged for use in PM₁₀ nonattainment areas if such areas exist within the State and they are transportation related. Even though CMAQ funds are primarily for ozone and carbon monoxide nonattainment areas, sometimes they may be used for PM₁₀ nonattainment areas if the State and EPA agree that the funding will not distract from the primary goal. This ensures that CMAQ funds are prioritized for use in O₃ and CO nonattainment areas which conforms to the CMAQ Program purpose.

The Federal share for most eligible CMAQ projects is 80 percent. If funds are used on the interstate system the Federal share is 90 percent. In certain States with a very high proportion of federally controlled land, the federal share can be as much as 95 percent. Title 23, United States Code, specifies that activities such as traffic control signalization and commuter carpooling and vanpooling may be funded at 100 percent (2). Bicycle and Pedestrian programs are funded by law at an 80 percent share.

The CMAQ Program works on a reimbursement basis. CMAQ funds are not provided until work is completed by the State. CMAQ funds obligated for a project become a credit limit (or credit line) that the state can draw upon for reimbursement when the project is completed. Unobligated CMAQ funds are good for up to 4 years from the time of apportionment. After 4 years from the time of apportionment, the unused funds lapse and are no longer available for the program. Funds are protected from lapsing by obligation to a specific project. Obligated funds are reimbursed to the state when the project is completed.

Appropriation and Obligation

It is important to understand the difference between appropriation and obligation. Appropriation is the designation of Federal funds for CMAQ projects. Basically, the Federal government put aside a certain amount of funds that may be utilized for CMAQ projects. In some ways, it could be called a guaranteed loan. States have up to four years, including the year of appropriation, to obligate CMAQ funds. Obligation occurs when a State receives written authorization for an eligible CMAQ project and then collects the appropriated money equal to the cost of the project upon completion.

CMAQ FUNDING PROCESS

The CMAQ funding process starts with an idea for improving air quality in a nonattainment area. The originator of the idea is the "Project Sponsor." The project sponsor develops and submits a formal proposal for the idea to the State and the appropriate nonattainment area MPO. The project sponsor is typically any organization with an idea for a transportation project that would reduce mobile source emissions. The State and MPO evaluate all such proposals in consultation with State and local air quality agencies to determine its validity. A valid project meets the air quality needs of the region and is added to the transportation plan. The State, MPO, and Transit operator develops a priority list of CMAQ projects from the transportation plan to include in the next TIP or TIP amendment based on CMAQ funding availability. Eligibility questions of proposed CMAQ projects will be resolved by the Federal Highway Administration (FHWA) and/or the Federal Transit Administration (FTA) during the TIP development process. If the eligibility questions are not answered during the development of the TIP, a State runs the risk of including a non funded CMAQ project in it's TIP. The TIP must be approved by the MPO and the Governor. Once approved, the CMAQ projects in the TIP are submitted to the FHWA and/or the FTA for approval and authorization to proceed. This becomes a formality when CMAQ project eligibility questions have been previously resolved (2).

Effective Utilization of CMAQ Funding

It is important that State and local officials get the most out of their CMAQ funding. CMAQ funding should target programs that result in the greatest reduction in mobile source emissions. A comprehensive transportation management strategy is paramount to accomplish this goal. Transportation officials often primarily target work-related trips in air quality improvement programs. Figure 2 shows the decline of work related trips as a percentage of all trips (2). Work related trips have declined from 32 percent in 1969 to 26 percent today as a proportion of all trips. Thus, work-related trips make up only one quarter of all current vehicle trips. In conclusion, TCMs aimed at reducing work trips seriously reduce the effectiveness of CMAQ funds. CMAQ funding should concentrate on all vehicle trips not just work trips (26 percent of all trips) to fully realize their potential. To best utilize CMAQ funding, the CMAQ project focus must be broad enough to affect all vehicle trips. Furthermore, CMAQ funded projects are most effective as part of a comprehensive plan. It is not enough to solve one piece of the problem, an understanding of the entire solution is necessary to accomplish a region's air quality goals. A lesson learned by naturalists is that they must understand the entire food cycle for a species to truly understand the species and how to protect it. There are many social and political obstacles that must be overcome to develop an effective comprehensive transportation plan. Some strategies may be politically volatile and socially unacceptable such as congestion pricing strategies. However, in order to solve the air quality problems in the nation all transportation users will eventually have to make sacrifices.

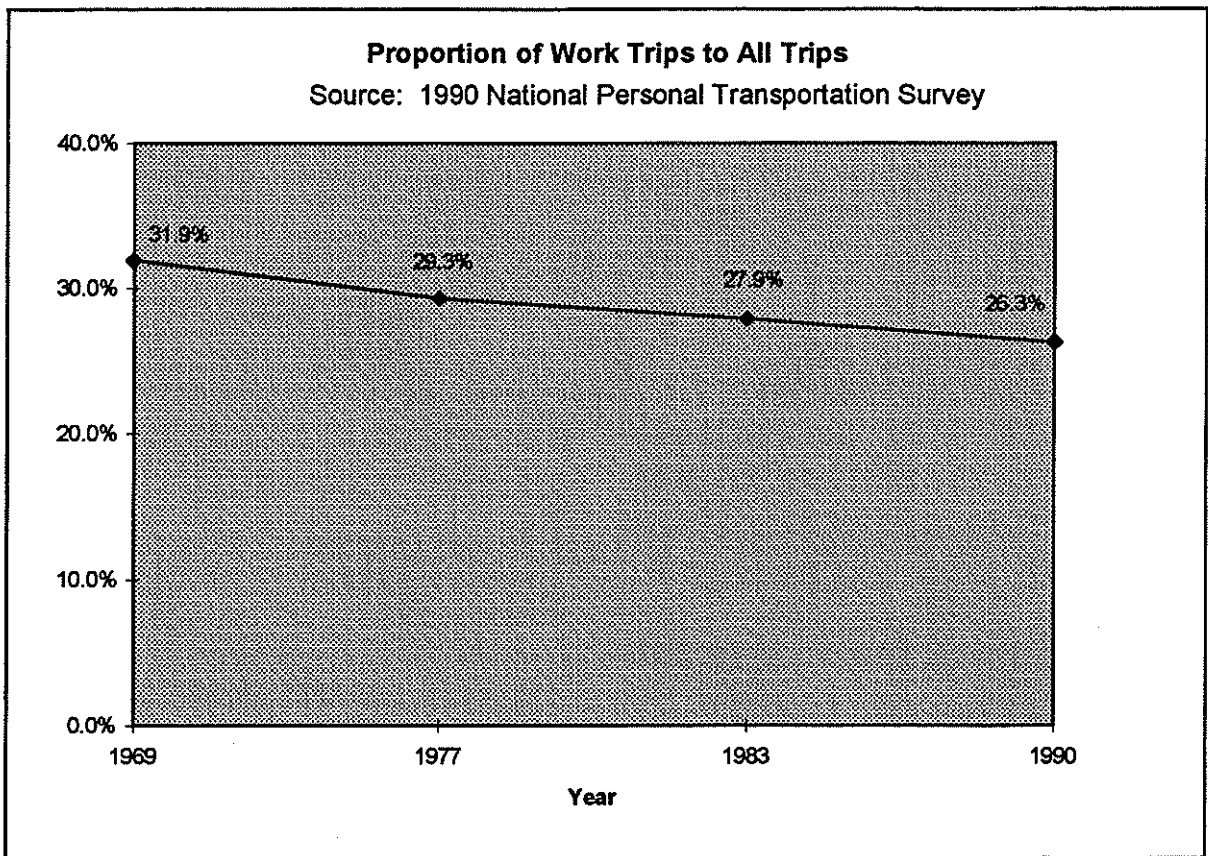


Figure 2. Proportion of Work Trips to All Trips (2).

CMAQ Funding Obligation History of Subject States

California

California was apportioned \$119,881,000 and obligated \$94,155,688 yielding a 78.5 percent obligation for FY 1992. A breakdown of the obligated funding is 18.6 percent transit and 81.4 percent traffic flow improvements. Seventy nine percent of all the 1992 obligated CMAQ funding went towards HOV lane construction. Table 2 below shows the obligated project types and descriptions. Figure 3 shows the combined FY 92 & 93 CMAQ obligation for California (4).

Table 2. California FY 1992 Obligated CMAQ Projects and Description (3).

Project Type	Project Amount	Project Description
Transit	\$2,205,000	Purchase 20 buses with diesel trap engines
Transit	\$88,000	Purchase 2 reduced emission buses
Transit	\$9,000,000	Purchase 45 transit buses
Transit	\$269,000	Construction of 2 bus stops
Transit	\$1,232,000	Purchase of 7 reduced emission buses
Transit	\$534,800	Construction of transit center
Transit	\$4,200,000	Relocation and expansion of multimodal terminal
Traffic Flow Imprvmt	\$300,000	Signal installation and modification
Traffic Flow Imprvmt	\$40,000	Signal installation and modification
Traffic Flow Imprvmt	\$132,795	Signal installation
Traffic Flow Imprvmt	\$9,738	Signal installation
Traffic Flow Imprvmt	\$400,000	Synchronization of traffic signals
Traffic Flow Imprvmt	\$650,000	Installation of traffic management systems
Traffic Flow Imprvmt	\$74,348,355	Construction of HOV lanes
Traffic Flow Imprvmt	\$746,000	Signal modernization
Total	\$94,155,688	

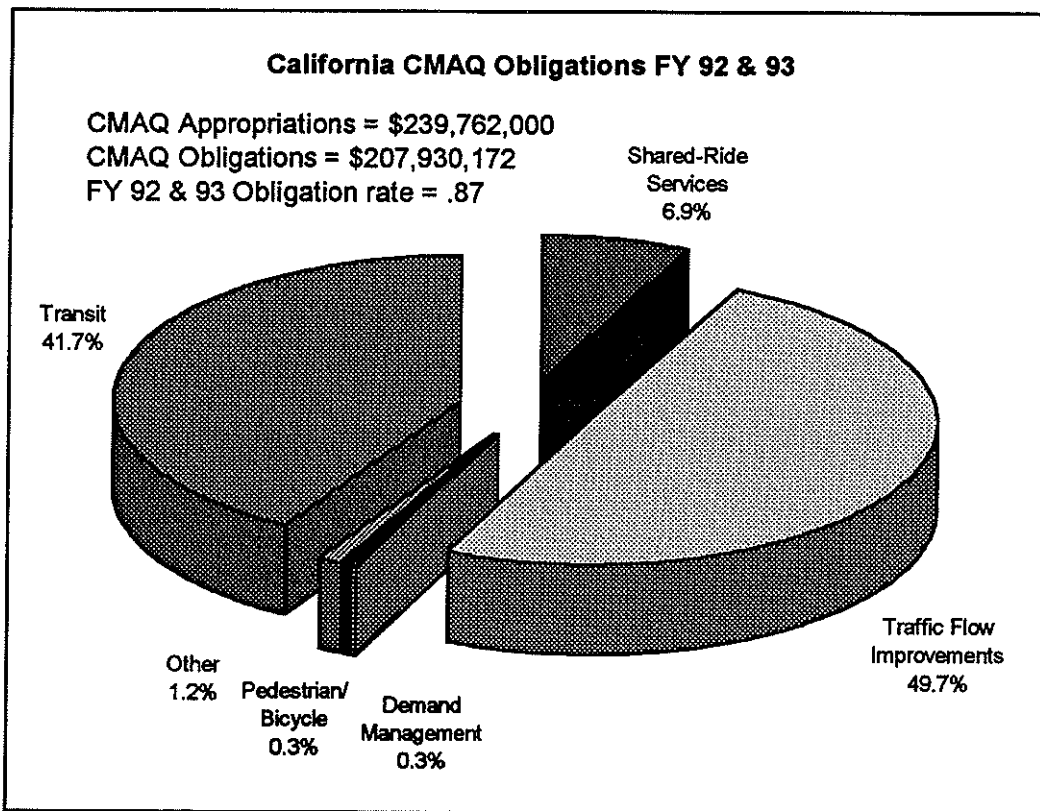


Figure 3. California CMAQ Obligations FY 92 & 93 (4).

Missouri

Missouri was apportioned \$8,015,000 and obligated \$0 yielding a 0 percent obligation for FY 1992. Missouri was apportioned a like amount in FY 1993 and obligated \$0 yielding a 0 percent obligation for FY 1993. Missouri's plan is to pool their apportioned CMAQ funds for the purchase of a huge I/M project that would cover the entire St. Louis area (5).

New Jersey

New Jersey was apportioned \$46,600,000 and obligated \$45,959,401 yielding a 98.6 percent obligation for FY 1992. Table 3 below shows obligated project types and descriptions.

Table 3. New Jersey FY 1992 Obligated Projects and Description (3)

Project Type	Project Amount	Project Description
Transit	\$13,000,000	Diesel locomotive purchase
Transit	\$17,000,000	NJ transit RR signal systems update
Shared-Ride	\$1,500,000	State HOV marketing study
Traffic Flow Imprvmt	\$970,288	Grade separation over RR/roadway intersection
Traffic Flow Imprvmt	\$7,539,050	ROW for grade separation over RR/roadway intersection
Traffic Flow Imprvmt	\$2,343,263	Intersection traffic signal improvements
Demand Management	\$3,606,800	TDM and TMA support
Total	\$45,959,401	

New Jersey was apportioned \$55,676,181 for FY 93 and carried over \$640,599 from FY 92. New Jersey obligated 100 percent of FY 93 apportionment and FY 92 carry over to yield an overall obligation of 100 percent. A detailed breakdown of the FY 93 CMAQ obligation was unavailable at the time of report but spending trends were available. It was known that the majority of New Jersey's CMAQ funds were spent on transit followed by traffic flow improvements (6).

New York

New York was apportioned \$85,151,000 and obligated \$37,516,000 yielding a 44.1 percent obligation in FY 1992. Table 4 below shows obligated project types and descriptions. Figure 4 shows the combined FY 92 & 93 CMAQ obligation by New York (7).

Table 4. New York FY 1992 Obligated Projects and Description (3)

Project Type	Project Amount	Project Description
Transit	\$36,650,000	MTA projects
Shared-Ride	\$120,000	Rideshare grant
Traffic Flow Imprvmt	\$52,400	Intersection Improvement
Traffic Flow Imprvmt	\$145,000	Intersection Improvement
Traffic Flow Imprvmt	\$4,000	Signals
Traffic Flow Imprvmt	\$25,000	Signals
Traffic Flow Imprvmt	\$8,000	Signals
Traffic Flow Imprvmt	\$213,800	Traffic control
Demand Management	\$146,000	Travel Demand Management Unit
Demand Management	\$52,000	Farmingdale rideshare program and marketing
Demand Management	\$50,000	Oyster Bay rideshare program and marketing
Pedestrian/Bicycle	\$9,000	Bicycle and pedestrian coordination
Pedestrian/Bicycle	\$32,000	North County Bike Trailway
Total	\$37,516,000	

New York CMAQ Obligations FY 92 & 93

CMAQ Appropriations = \$182,400,000

CMAQ Obligations = \$133,500,000

FY 92 & 93 Obligation rate = 0.73

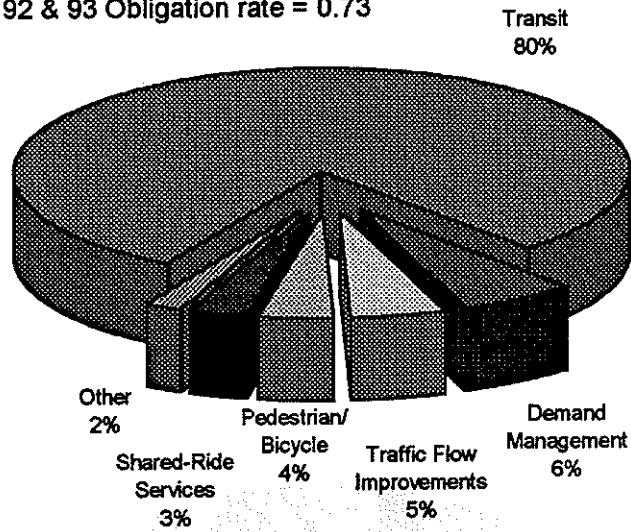


Figure 4. New York CMAQ Obligations FY 92 & FY 93 (7).

Texas

Texas was apportioned \$90,032,000 and obligated \$0 yielding a 0 percent obligation for FY 1992. Texas was apportioned approximately the same amount for FY 1993 bringing their total apportionment to approximately \$179,880,019. Texas obligated approximately \$32,632,257 in FY 1993 yielding an overall obligation for FY 92 and FY 93 of 18.1 percent. These figures are estimates taken from a draft report being prepared for submission to FHWA. Figure 5 shows a breakdown of obligated CMAQ funds for Texas (8).

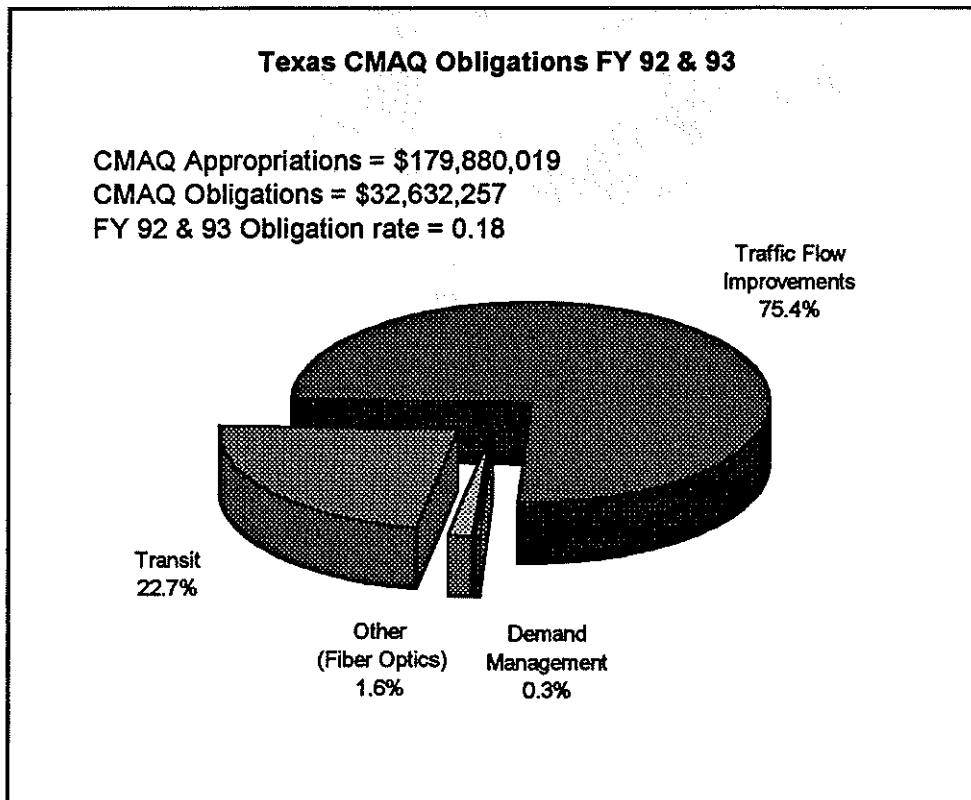


Figure 5. Texas CMAQ Obligations FY 92 & 93 (8).

Washington

Washington was apportioned \$12,946,000 and obligated \$1,266,706 yielding a 9.8 percent obligation for FY 1992. Table 5 shows obligated projects and descriptions. Figure 6 shows the combined FY 92 & 93 CMAQ obligation rate for Washington (9).

Table 5. Washington FY 1992 Obligated Projects and Description (3).

Project Type	Project Amount	Project Description
Traffic Flow Imprvmt	\$121,965	Paving of dirt roads and curb/sidewalk construction
Traffic Flow Imprvmt	\$150,078	Paving of dirt roads and curb/sidewalk construction
Traffic Flow Imprvmt	\$703,591	Paving of dirt roads and curb/sidewalk construction
Traffic Flow Imprvmt	\$128,885	Paving of dirt roads and curb/sidewalk construction
Demand Management	\$162,187	Development of 3 management system programs
Total	\$1,266,706	

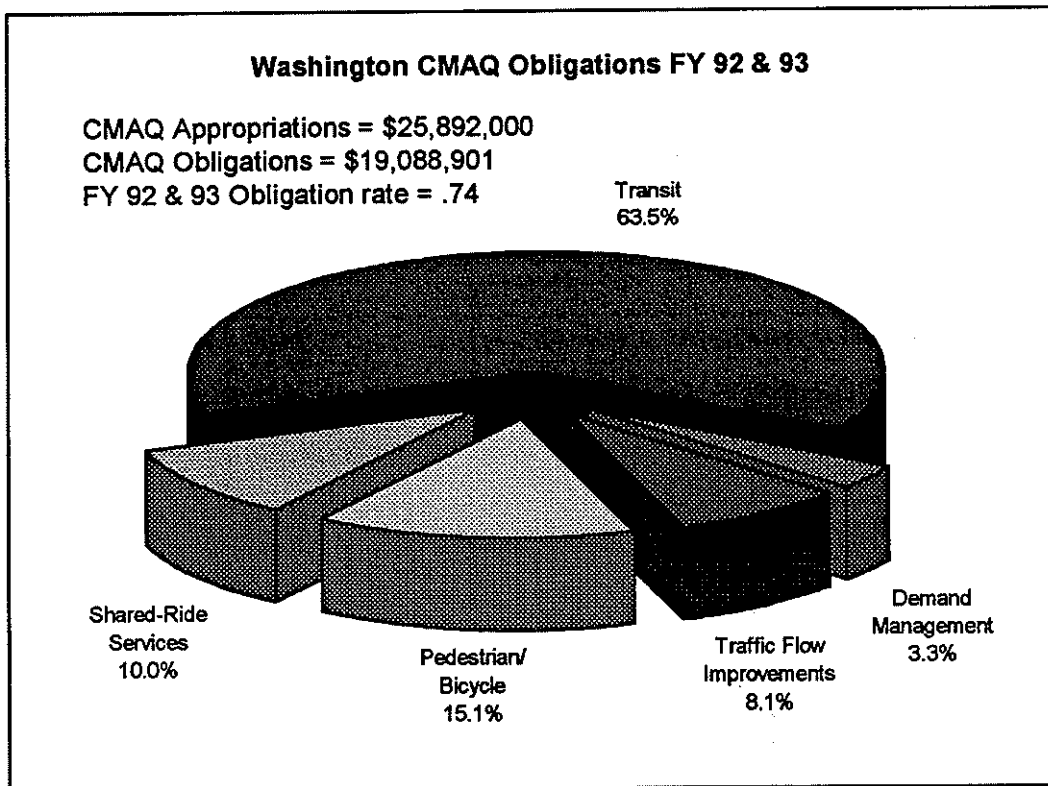


Figure 6. Washington CMAQ Obligations FY 92 & 93 (9).

Interview Comments

California

California DOT (CALTRANS) controls CMAQ funding distribution using the federal formula which determines the appropriation amount by population of the nonattainment area and the severity of nonattainment. CALTRANS does not sponsor CMAQ projects, the MPOs are typically the sponsoring agency. The Metropolitan Transportation Commission (MTC) was a great contributor to the writing of CMAQ legislation. MTC plans its expenditures by allocating one-third of its CMAQ funding to each of the following: traffic flow improvements, transit, and all others. The DOT, as with all the other States, is responsible for managing CMAQ funding reporting requirements (4).

A statewide meeting was held in August of 1993 to discuss issues affecting the CMAQ program. The meeting resulted in improved dissemination procedures for program information and a better understanding of the California program. A standardized process of determining emission benefits from CMAQ projects was obtained. The standardization has improved cooperation and understanding between the MPOs, CALTRANS, and the California Air Resources Board.

Missouri

Missouri has only one nonattainment area, St. Louis. The State did not obligate any CMAQ funds through FY 1993. Missouri expects to obligate less than one million dollars in FY 94 for transit and traffic flow improvement projects. The State expects to obligate most of its FY 92 to 95 appropriations in FY 95 for an enormous I/M project in the St. Louis area. The East-West Gateway Coordinating Council is not a project sponsor nor does have any desire to be a project sponsor. The Council even transferred a ride-sharing program to another agency. The MPO makes the project choice decision but does not act as the sponsor (operator). Missouri has found that Federal reporting of CMAQ funding obligation can be politically sensitive but town meetings have been used to clear up any misunderstandings (10).

New Jersey

New Jersey is one the most densely populated and travelled States. Nineteen of twenty one New Jersey counties are nonattainment. The state has three major MPOs which all border each other. The close proximity is a constant source of potential conflict, primarily over jurisdiction and funding responsibility. In order to resolve potential conflicts a permanent interface between the MPOs and the DOT was established. New Jersey DOT created a position titled, Manager, Local Transportation Planning. The position is designed to create and maintain a partnership relationship with all the MPOs. The Manager, Local Transportation Planning is a critical position because the MPOs have shared needs and goals. New Jersey rarely has conflicts between the DOT and the transit authority because the director of both is one individual. There may be conflicts at lower levels but all DOT and transit personnel have the same boss. DOT/MPO priorities for CMAQ projects target deliverability. Since, almost the entire State is in nonattainment status it is paramount to efficiently obligate funds to immediately combat air quality concerns. CMAQ project sponsors vary in New Jersey. Transit has been very

successfully funded. The State of New Jersey owns 85% of the buses and 100% of the rail transit. The 15% privatized bus transit is heavily funded by the State. Some buses are leased at one dollar per year to private transit firms. This extends the CMAQ dollar. Since CMAQ funds can be used for purchases of transit, there is an obvious benefit to leasing the buses to private firms. The State gains the benefits of more transit without hiring more state employees or incurring operating costs. MPOs are not CMAQ project sponsors. Like many other states the MPO prioritizes desired CMAQ projects and then the State funds by priority. Both MPO and State agree that technology is superior to TCMs (6).

New York

New York DOT distributes CMAQ funds in a unique manner. CMAQ funds are split in the beginning between transit and all other CMAQ projects. This guarantees transit a large share of the CMAQ funds. The CMAQ funds are distributed without prioritization of projects based on air quality benefits. The primary reason for the pre-prioritization distribution is political; however, the potential air quality benefits of increased transit ridership are rarely disputed. New York City has a Transportation Coordinating Committee (TCC) that covers New York City, Long Island, and the Hudson Valley. Both the New York DOT and MTC are members of the TCC which creates a partnership atmosphere concerning CMAQ. New York has found the timeliness of Federal reporting procedures to be slow and a potential politically sensitive issue (11).

Texas

Texas CMAQ funds are distributed by TxDOT to the MPOs using the same formula that the federal government distributes funds to the States, by population in nonattainment areas and severity of nonattainment. In Texas, the MPO selects all CMAQ projects. Basically, the MPOs have the ball. NCTCOG selects CMAQ projects based on five criteria (12). The five criteria in order of greatest importance are:

1. Benefit to cost ratio for congestion;
2. air quality/energy conservation based on \$ savings (varies by project type)/lb. of VOC;
3. local cost participation above and beyond the required 20%;
4. Intermodal/multimodal/social modal(elderly) concerns; and
5. TCM category in SIP.

Washington

Washington is an interesting State when it comes to CMAQ funding. The MPOs do not typically sponsor the CMAQ projects; however, they do choose the projects by a points system based on cost-effectiveness and air quality benefits. Of considerable interest is the involvement of Indian Tribes as project sponsors. Indian tribes have sponsored roadway paving and pedestrian projects. The State of Washington has created the Office of Urban Mobility, a coordinating office between Washington DOT and the MPOs concerning CMAQ funding and other issues. The Puget Sound Regional Council (MPO) feel that projects which reduce the number of cold starts and reduce VMT are the easiest to pass Federal CMAQ funding criteria. The interviews revealed that many CMAQ projects are held up by FHWA/FTA slowness in determination if the project is CMAQ funding eligible. An interesting lesson was learned by Washington concerning

CMAQ funding. The State wanted to change transit buses and State vehicles to compressed natural gas and construct compressed natural gas fueling stations. The State ran into some roadblocks. One, compressed natural gas was not explicitly stated in their SIP and therefore an ineligible project. Thus, the conversion of State vehicles and the construction of the fueling stations was prohibited; however, the conversion of transit buses was acceptable because that would fall under a transit category but without fueling stations the bus conversion would be futile. Since the controversy about the eligibility of the project lasted so long, Washington saw a very small obligation rate for FY 92. Two important lessons are clear. Proposed CMAQ projects should be contained in the SIP and always have an alternate plan. Washington is projected to meet its attainment goals by the CAAA deadlines (9).

The State is concerned about life after attainment. The CAAA do not provide continued CMAQ funding for projects in maintenance areas (i.e., in nonattainment areas that attain NAAQS). However, the State's obligation to maintain clean air standards is just as strong as the obligation to attain. In fast growing States, such as Washington, it will be difficult to maintain the NAAQS. In fact, attainment gained primarily by technology (I/M programs, cleaner fuels) as was accomplished in Washington will be difficult to maintain with the same strategies. The emphasis will switch to reducing the number of trips and VMT. The new strategies will require a great amount of funding to implement and maintain attainment (13).

Puget Sound Regional Council developed a project evaluation criteria based on a point system (14). Table 6 shows the CMAQ funding project evaluation system.

Table 6. Puget Sound Regional Council CMAQ Project Evaluation Criteria (14).

CMAQ Project Evaluation Criteria	Points Available
Support Transportation Enhancement	5
Support Regional and Countywide Growth and Transportation Policies	25
Improve Air Quality	35
Optimize Beneficial Environmental, Social, and Energy Impacts	20
Support Regional Economic Strategies	5
Assess Cost Effectiveness	10
Total Maximum Points	100

Puget Sound Regional Council determined that projects under three broad categories fare best under their evaluation system. The three categories are:

1. Preserve the Existing System:
 - Replacement of buses and other capital facilities for transit.
 - Rehabilitation of roadways of regional significance based on approved plans such as the Pavement Management System.

2. Improve the Existing System:
 - Transit projects that which increase passenger safety, security, and convenience and increase service reliability and reduce travel time.
 - Roadway projects enabling improved HOV enforcement, HOV information systems, improved roadway designs that eliminate safety hazards, and traffic signal systems involving more than five signals.
 - Enhancement/non-motorized projects that increase safety and reduce conflicts between people and vehicles.

3. System Expansion to Improve Mobility of People & Goods:
 - Development of HOV lanes and supporting amenities such as ramp metering.
 - Transit service and facility improvements.
 - Bike paths, bike lanes on roadways, or pedestrian sidewalk improvements which offer travel alternatives in major travel corridors.
 - Right-of-Way acquisition to preserve important corridors for future transportation facility development that is identified adopted planning documents.
 - Expansion/development of major regional/countywide intermodal transfer facilities to increase passenger travel volumes.
 - Projects improving access to major freight distribution facilities or major airports.

DISCUSSION AND RESULTS

The best way to compile the results is to repeat the survey questions and follow with a commentary gained from the conduction of the pilot survey.

1. Are the States using CMAQ funds?

Yes, all States commented that obligation of CMAQ funds are one of their highest priorities. States are aggressively pursuing CMAQ project funding in order to combat poor air quality and bring in money and jobs to their State.

2. What projects are being funded?

This question is answered in the "CMAQ Funding Obligation History" section of this report. It can be seen that a wide variety of projects are being funded with the emphasis on transit and traffic flow improvements.

3. What is the breakdown of successfully funded projects?

This question is also answered in the "CMAQ Funding Obligation History" section of this report.

4. What is the basis for the decision to fund CMAQ projects?

The decision to fund a CMAQ project is made by the U.S. Department of Transportation and the EPA based primarily on cost effectiveness and air quality benefits. The desired projects are those that affect the greatest number of vehicle trips, reduce VMT, and increase vehicle occupancy. Figure 7 shows the CMAQ funding process (2).

5. When CMAQ money comes to the States, how is it allocated by DOT/MPO?

The State DOT receives CMAQ funds from the Federal Government. The DOT distributes funds to the MPO like the federal government distributes CMAQ funds to the States. An MPO receives CMAQ funds from the DOT using a formula based on the population of the nonattainment area and the severity of nonattainment. In general, MPOs select what projects to fund by prioritizing CMAQ projects using formulas that consider cost/benefit ratios, air quality improvement potential, intermodal/multimodal factors, TCM applicability, funding assistance, and local concerns. The State then funds CMAQ projects by MPO priority limited to the MPO share of the allocated CMAQ funds for the State.

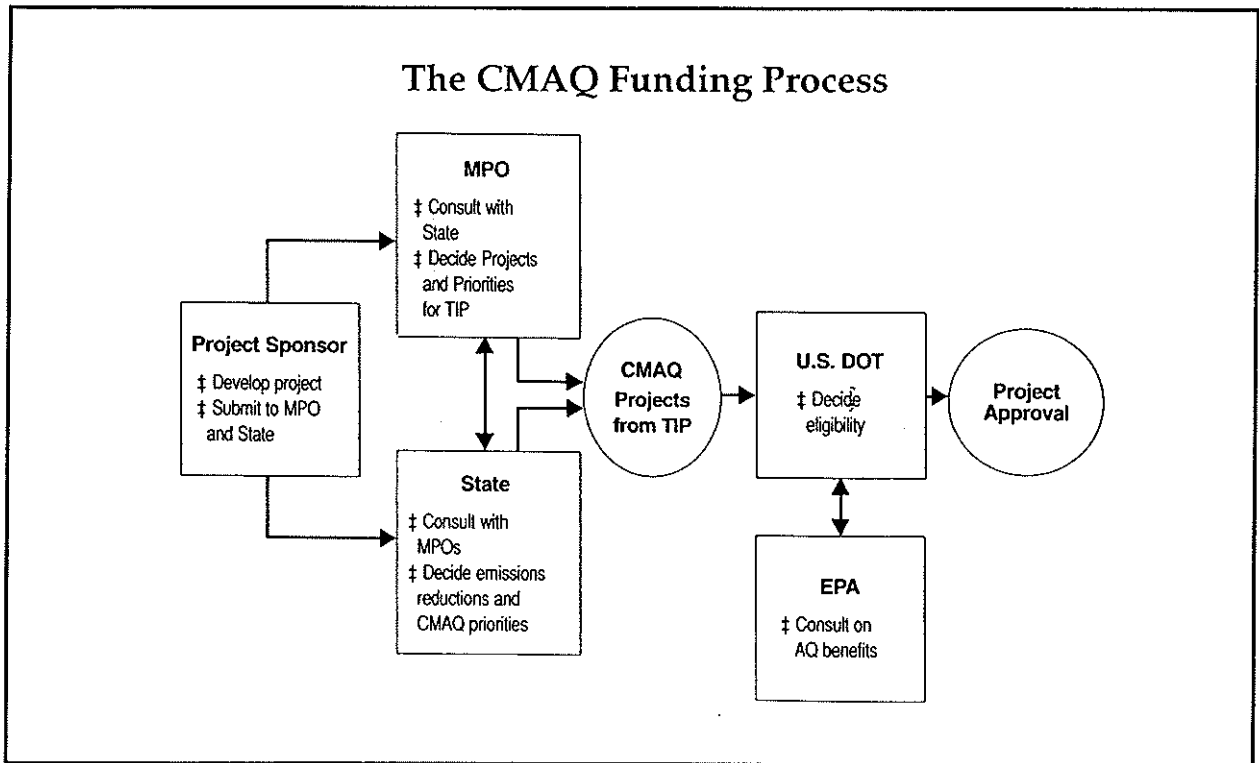


Figure 7. The CMAQ Funding Process (2).

6. Is there competition between traffic management projects and transit projects for CMAQ funds?

The competition lies in prioritization of projects at the MPO level. Some MPOs distribute their funds by percentage to transit and the rest is distributed by a prioritization strategy. Thus, competition for project selection, either transit or traffic management, is removed; however, the percentage allocated to transit becomes a contention point. An example of giving transit a certain percentage up front is the New York Metropolitan Transportation Council.

7. What is a successful DOT/MPO relationship that produces successfully funded CMAQ projects?

Primarily the MPOs are in charge of project selection. The DOTs have little to nothing to do with CMAQ project selection. The DOTs typically only get involved if conflicts over jurisdiction arise and mitigation is needed. Furthermore, it is beneficial for the State DOT to be represented during project selection and prioritization to better understand the rationale of the MPO. Also, a DOT representative should ensure that proposed MPO projects are part of the SIP to maximize the chance the project is funding eligible.

8. Who is responsible for managing CMAQ funding and for reporting requirements for DOT/MPO?

The DOT handles and distributes the funds and is responsible for all CMAQ funding reporting requirements to the Federal Government.

9. Will CMAQ projects have a successful impact towards CAAA timeline requirements?

Most States feel that it is premature to discuss CMAQ project impacts but all agree that CMAQ funds are very beneficial to the effort of enhancing the nation's air quality. Washington is concerned about life after attainment when CMAQ funds no longer apply. The surveyed States remarked that technology not TCMs obtain the greatest air quality benefits; however, the CMAQ program strongly emphasizes TCMs. Many respondents thought the CMAQ funding eligibility process takes too long and should be streamlined so States could effectively plan and implement air quality improvement strategies.

10. Is the timeliness of federal reporting procedures on CMAQ a politically sensitive issue?

Most States did not feel federal reporting of the low obligation rates by the States was particularly politically sensitive since the State has up to four years to obligate appropriated CMAQ funds. Thus, CMAQ funds appropriated in FY 92 do not have to be obligated until FY 95. Some States have held public meetings to resolve any concern over CMAQ funding obligations.

CONCLUSIONS

The CMAQ Program is just exiting its infancy. The low obligation rates experienced by States early in the program is not of great significance. ISTEA was so different with so many new requirements, it is understandable that it would take time for States to adjust to the CMAQ Program. The obligation rate of each State surveyed increased dramatically from FY 92 to FY 93 with the exception of Missouri. However, there is an explanation. Missouri is pooling its CMAQ funding appropriations for a huge I/M project in St. Louis. When the project is implemented Missouri will obligate the bulk of its CMAQ appropriations.

In summary, States must continue to aggressively pursue CMAQ obligated projects to ensure maximum use of available funds. The States are on the right track but they must further their advances on CMAQ funding obligation rates by pursuing deliverable CMAQ projects.

RECOMMENDATIONS

CMAQ funding is needed after achieving attainment. The CAAA does not provide for continued CMAQ funding after achieving attainment. Areas that achieve attainment are redesignated maintenance areas. Maintenance areas are obligated to maintain NAAQS with the same vigor as a nonattainment area must conform to NAAQS. The law is written such that you are innocent but not forgiven. In fast growing areas achieving attainment may be simpler than maintaining attainment. It is critical that CMAQ funding specifically designated to assist nonattainment regions to reach clean air goals not be taken away at achievement. Maintenance of NAAQS is equally important and funds must be available so States do not revert to nonattainment. CMAQ funding eligibility should remain at the same level as before attainment is achieved (13).

Some difficulties have arisen from FHWA's interpretations and determinations of CMAQ project funding eligibility. The result is a significant slowing of the CMAQ funding obligation of projects. Some States recommended that the FHWA prepare a new consolidated guidance document on CMAQ project eligibility to enhance a States decision making for project selection.

The investigation revealed that CMAQ funding obligation has improved greatly over previous years. The primary reason is new found familiarity with the CMAQ Program requirements. Many States are just getting their act together. The following basic guidelines are provided to improve achievement of CMAQ funding obligation:

1. Ensure all proposed CMAQ projects are included on the SIP.
2. The State DOT should have a liaison assigned to each of the States MPOs to improve cooperation and mutual goal setting.
3. Aggressively pursue CMAQ funding obligation goals. A primary criteria for proposed CMAQ projects should be deliverability of the project in terms of obligation.
4. Purchase transit vehicles and lease to a private agency at a nominal fee.. This eliminates the States maintenance requirements for the transit vehicles; furthermore, it promotes privatization and economic growth. The transit vehicles end up costing the State next to nothing while enhancing the State's transit service.
5. CMAQ projects should target all trips not just work trips to realize the greatest potential of achieving obligated funding. I/M programs are extremely promising because they have the capability to affect all vehicle trips. Furthermore, clean fuels and alternative fuel sources have a high air quality improvement potential.
6. States should coordinate with their MPOs specific criteria for CMAQ project proposal selection. An example would include:
 - A. Congestion cost-benefit ratio
 - B. Air quality/energy conservation gains
 - C. Local cost participation beyond the required 20%
 - D. Intermodal/Multimodal/Socialmodal aspects
 - E. Documented in the SIP
 - F. Approved EPA TCM
 - G. Obligation rate history of project type

H. socioeconomic impacts

I. Technology over behavior change required of traveller

CMAQ funding obligation rates for the States should be reviewed after FY 95 because that is when FY 92 CMAQ appropriations twilight their obligation time frame. It would be interesting to review the program at this time to determine what States, if any, failed to obligate CMAQ funding and thus lost available funds. Furthermore, 1996 is the year when most States must achieve their attainment goals. A question in the pilot survey which respondents found difficult to answer at this time would be appropriate to ask in 1996. The question is: Do CMAQ projects have a successful impact towards meeting CAAA timeline requirements?

ACKNOWLEDGMENTS

This paper was prepared for *Advanced Surface Transportation Systems*, a graduate course in Transportation Engineering at Texas A&M University. The instructor for this course was Dr. Conrad L. Dudek. Professional mentors were Walter Dunn, Les Jacobson, Dr. Walter Kraft, David Roper, Gary Trietsch, and Thomas Werner. The author gratefully acknowledges these professionals for their helpful discussion and suggestions. A special thanks is extended to Thomas Werner of the New York State Department of Transportation for his advice and direction for this paper. Appreciation is also extended to Dr. Conrad Dudek for his organization of this course as well as his review and comments.

REFERENCES

1. *A Summary: Air Quality Programs and Provisions of the Intermodal Surface Transportation Efficiency Act of 1991*. U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., August 1992.
2. *A Guide to the Congestion Mitigation and Air Quality Improvement Program*. U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., January 1994.
3. *The Congestion Mitigation and Air Quality Program, A Summary of First Year Activities (FY 1992: December 1991-September 1992)*. U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., November 29, 1993.
4. *Second Annual Report Congestion Mitigation and Air Quality Improvement Program*. California Department of Transportation, Sacramento, CA, January 31, 1994.
5. Van Landuyt, K. June 30, 1994. Telephone interview with William Knowles regarding Missouri CMAQ funding obligation.
6. Ausschneider, K. July 05, 1994. Telephone interview with William Knowles regarding New Jersey CMAQ funding obligation.
7. *Congestion Mitigation Air Quality Improvement Program Accomplishments Report FY 1993*. New York State Department of Transportation, Albany, NY, February, 01, 1994.
8. Olson, L and S. Miller. June 29, 1994. Telephone interview with William Knowles regarding Texas CMAQ funding obligation.
9. Partridge, M and K. Davis. June 29, 1994. Telephone interview with William Knowles regarding Washington State CMAQ funding obligation.
10. Day, D. July 01, 1994. Telephone interview with William Knowles regarding Missouri CMAQ funding obligation.
11. Ruggierri, R. July 01, 1994. Telephone interview with William Knowles regarding New York CMAQ funding obligation.
12. Bacon, E. July 01, 1994. Telephone interview with William Knowles regarding Texas CMAQ funding obligation.
13. *Pugent Sound Regional Council Memorandum: Comments on CMAQ Program*. Pugent Sound Regional Council, Seattle, WA, June 20, 1994.
14. *Policy Framework for 1993 ISTEA/TIP Process and Criteria*. Pugent Sound Regional Council, Seattle, WA, April 22, 1993.

William E. Knowles received his B.S. in Ocean Engineering from Texas A&M University in May 1986. After obtaining his degree he attended Navy Officer Candidate School in Newport, Rhode Island and was awarded a commission in the United States Navy. He spent over five years on active duty where he served as the Antisubmarine Warfare Officer on an Aegis cruiser in Norfolk, Virginia and as a weapons system instructor at Naval Surface Warfare Center in Dahlgren, Virginia. Lieutenant Knowles is presently assigned to Navy Reserve SEAL Delivery Vehicle Team Two in Austin, Texas as the Electronics Officer. He is currently pursuing an M.S. in Transportation Engineering from Texas A&M University. He works as a Graduate Research Assistant for the Texas Transportation Institute in the Transportation Planning Program. His activities include Institute of Transportation Engineers and U.S. Naval Institute. His areas of interest include transportation planning (air quality), traffic operations, and IVHS applications.

