

# **The Congestion Mitigation and Air Quality Improvement Program**

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## **A Summary of Fifth Year Activities (FY 1996: October 1995 - September 1996)**

**Prepared by:  
Federal Highway Administration  
Office of Environment and Planning  
HEP-40**

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**Introduction**

This report is the fifth annual national review of activities funded under the Congestion Mitigation and Air Quality Improvement (CMAQ) Program, covering fiscal year (FY) 1996. For copies of the first four CMAQ annual reports prepared by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for FY 1992 through 1995 (or for additional copies of this report) please contact the FHWA hotline at: (202) 366-2069.

This summary of fifth year obligations includes: the distribution of funding among project categories, an assessment of emissions reductions analyses as required under the program guidance, as well as comments on general data trends reported by States under the CMAQ program. The *Guidance Update on the CMAQ Program* was released by FHWA and FTA in March of 1996 in order to reflect key policy changes to the CMAQ Program as a result of the National Highway System (NHS) Designation Act of 1995.

This report represents the first full year of CMAQ program activities authorized by FHWA and FTA under the flexibilities allowed under the NHS, as well as the March 1996 *Guidance Update* and the earlier *Revised Guidance* of July 1995. The new CMAQ program flexibilities included the expanded use of CMAQ funds for experimental pilot projects, use of FHWA's or FTA's innovative financing provisions, fare/fee subsidy programs, funding of public outreach programs, as well as funding of certain traffic monitoring, management, and control facilities and programs.

The following findings were generated upon review of all fifty States (as well as the District of Columbia and Puerto Rico) reporting FY 1996 CMAQ-related expenditures shown within their annual reports.

**FY 1996 CMAQ Annual Report Findings**

- ! The obligation rate of CMAQ funds continued to increase to its highest levels yet (from 42% in FY 1992 to 111% in FY 1996).
  
- ! The distribution of funds among project categories in FY 1996 varied slightly from FY 1995 expenditures. For example, out of total obligations in FY 1996, the States funded nearly 39% for transit and 37% for traffic flow improvements (FY 1995 CMAQ annual reports showed higher percentages for transit and lower percentages for traffic flow improvements).

- ! This was the fifth year in a row that the transit category represented the largest share of total overall CMAQ obligations nationwide (nearly 39% in FY 1996).
- ! The remaining types of CMAQ activities (including shared ride, other, pedestrian/bicycle, and STP/CMAQ projects) increased slightly over funding levels shown in FY 1995 (23.1% in FY 1996 vs. 20.4% in FY 1995). In States without nonattainment areas, the use of STP/CMAQ funding levels also showed a nominal increase between FY 1995 and FY 1996. Only two experimental pilot projects were shown in FY 1996 CMAQ annual reports submitted by States.
- ! Similar to the previous findings of earlier FY 1992-95 CMAQ annual reports, additional efforts should be made in terms of providing clear project descriptions (especially in terms of identifying the project category/type, phase, and location).
- ! In addition, some of the CMAQ funding expenditures were not clearly described in terms of federal CMAQ expenditures within the submitted FY 1996 reports. Some of the States' funding levels reported were not consistent with the obligated levels reported as part of the Fiscal Management Information System (FMIS) used by FHWA for tracking funding obligations.
- ! The effort to quantify emissions effects of CMAQ project proposals continued to improve, as evidenced by the annual reports most recently submitted by the States. In FY 1996, the percentage of CMAQ proposals which had been quantitatively assessed for reducing emissions was shown to be 75 percent (in comparison, only 28 percent of CMAQ projects were assessed for emissions reductions in FY 1992).
- ! Further improvements could be made by States to prepare the CMAQ annual reports in a consistent manner. For example, some States did not properly report the emissions reduced in metric units of kilograms per day removed from the atmosphere.

## **Fifth Year Results**

### ***Obligation Rates***

In FY 1996, the States obligated approximately \$939 million for proposals funded under the CMAQ program. The nationwide apportionments in FY 1996 were \$840 million (based on Fiscal Management Information System-"FMIS" data), which results in an overall FY 1996 CMAQ obligation rate of 111 percent. This high obligation rate is primarily due to unobligated CMAQ balances being carried over from previous fiscal years that were obligated in FY 1996. The FY 1996 CMAQ obligation rate represents a significant 12 point increase over the previously reported FY 1995 obligation rate of 99 percent, and is the highest ever recorded since the inception of the program after passage of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA).

The FY 1996 obligation rate was affected, however, by the spending limitations imposed under Section 1003 of the ISTEA which required a 12.5 percent reduction in apportionments for the CMAQ Program as well as other federal-aid programs in FY 1996. In light of the 12.5 percent reduction, the FY 1996 obligation rate of 111 percent was higher than the FY 1995 obligation rate of 99 percent, even though the actual amount obligated was less in FY 1996 in comparison to FY 1995 levels (\$939 million vs. \$950 million). Nonetheless, the CMAQ spending rate was again robust in 1996 which shows continued growth in the program and preferential spending for CMAQ expenditures over other federal-aid programs.

**Figure 1- CMAQ Obligations for FY 1996**

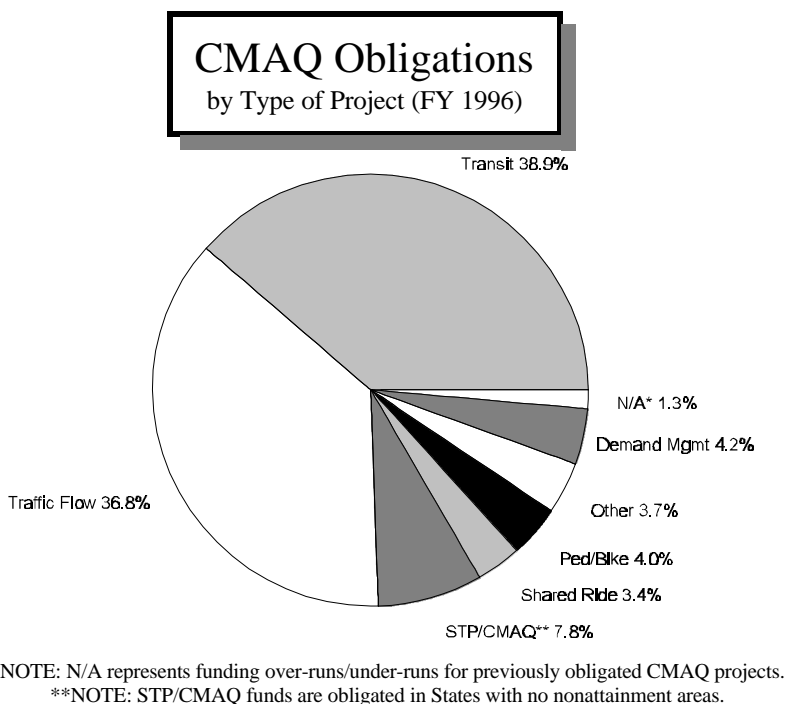
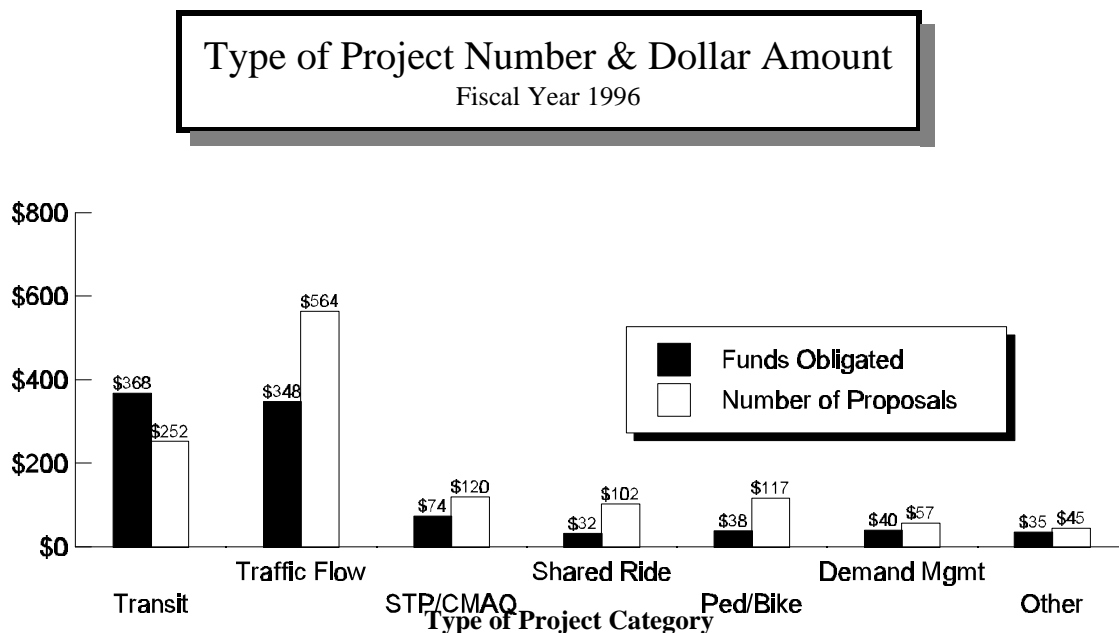


Figure 1 (above) shows the funding distribution among several CMAQ project categories during FY 1996. Upon review of the submitted FY 1996 CMAQ reports, it was noted that funding levels for traffic flow improvements and pedestrian/bicycle proposals increased to their highest funding levels since the inception of the CMAQ Program in FY 1992. In addition, funding levels for STP/CMAQ proposals essentially doubled from FY 1995 levels (from 3.8 percent in FY 1995 to 7.8 percent in FY 1996), and the other four categories of CMAQ proposals (e.g., shared ride, demand management, and other) stayed at relatively the same funding levels as previous fiscal years.

While the overall number of transit proposals funded increased this year (from 223 in FY 1995 to 252 in FY 1996), the total percent of funds for transit proposals (nearly 39%) dropped to the lowest levels recorded since the inception of the CMAQ Program. The smaller funding share of transit in FY 1996 (in comparison to the \$500 million recorded in FY 1995) is partially

accounted for by a larger number of smaller scale transit proposals (e.g., new buses, expanded services, etc.) being funded in FY 1996. Figure 2 provides a graph which shows the types of proposals (by project category) funded under the CMAQ Program based upon information provided by States within CMAQ annual reports submitted for FY 1996.

**Figure 2- Type of Proposals Funded by Category in FY 1996**



As shown in Table 1 (below), seven of the top thirteen States receiving the highest FY 1996 CMAQ apportionments have obligated more than 100% of their annual apportionment during FY 1996 (due in part to the reduced apportionments in 1996 and also due to unobligated CMAQ balances carried over from previous fiscal years).

**Table 1- Top Thirteen States Receiving the Largest CMAQ Apportionments FY 1996 (October 1995 - September 1996)\***

<u>State</u>	<u>Amount Apportioned</u>	<u>Amount Obligated**</u>	<u>Obligation Rate</u>
California	124.4	217.5	175%
New York	88.3	102.1	116%
Texas	83.4	69.4	83%
Pennsylvania	50.7	25.9	51%
New Jersey	48.4	66.6	137%

**Table 1- Top Thirteen States Receiving the Largest CMAQ Apportionments  
FY 1996 (October 1995 - September 1996)-CONT'D\***

<b>State</b>	<b><u>Amount</u> <u>Apportioned</u></b>	<b><u>Amount</u> <u>Obligated**</u></b>	<b><u>Obligation</u> <u>Rate</u></b>
Illinois	41.1	41.7	102%
Ohio	36.9	37.7	102%
Massachusetts	34.5	19.4	56%
Maryland	26.1	21.1	81%
Florida	25.1	16.9	68%
Michigan	24.4	10.6	43%
Connecticut	19.7	31.3	159%
Virginia	17.9	18.8	105%

\* in millions.

\*\* amounts obligated from annual State reports for FY 1996.

A summary of total nationwide obligation rates for the first five years of the CMAQ Program is shown in Table 2 (below) during the FY 1992 through FY 1996 time frame. As shown in Table 2, approximately 80% of the total CMAQ apportionments have been obligated during the first five years of the program. States that have reported very low obligation rates (less than 50%) during this five-year period include: Alabama, Delaware, Indiana, Louisiana, Maine, Montana, and Rhode Island.

<b>TABLE 2- Status of Obligation Rates by State During ISTEA (During Fiscal Years 1992 to 1996) <i>Dollars Shown Rounded to Nearest Million</i></b>			
<b>State</b>	<b>Total Available (FY 92-96)**</b>	<b>Total Obligated (FY 92-96)**</b>	<b>Percent Obligated (FY 92-96)</b>
<b>Alabama</b>	<b>23</b>	<b>11</b>	<b>49%</b>
<b>Alaska</b>	<b>23</b>	<b>13</b>	<b>59%</b>
<b>Arizona</b>	<b>61</b>	<b>61</b>	<b>100%</b>
<b>Arkansas</b>	<b>23</b>	<b>15</b>	<b>66%</b>
<b>California</b>	<b>674</b>	<b>621</b>	<b>92%</b>
<b>Colorado</b>	<b>23</b>	<b>20</b>	<b>89%</b>
<b>Connecticut</b>	<b>107</b>	<b>98</b>	<b>92%</b>
<b>Delaware</b>	<b>23</b>	<b>9</b>	<b>41%</b>

**TABLE 2- Status of Obligation Rates by State During ISTEA  
(During Fiscal Years 1992 to 1996)-CONT'D**  
*Dollars Shown Rounded to Nearest Million*

<b>State</b>	<b>Total Available (FY 92-96)**</b>	<b>Total Obligated (FY 92-96)**</b>	<b>Percent Obligated (FY 92-96)</b>
<b>District of Columbia</b>	<b>23</b>	<b>15</b>	<b>67%</b>
<b>Florida</b>	<b>136</b>	<b>103</b>	<b>76%</b>
<b>Georgia</b>	<b>70</b>	<b>58</b>	<b>83%</b>
<b>Hawaii</b>	<b>23</b>	<b>18</b>	<b>77%</b>
<b>Idaho</b>	<b>23</b>	<b>14</b>	<b>63%</b>
<b>Illinois</b>	<b>222</b>	<b>181</b>	<b>82%</b>
<b>Indiana</b>	<b>51</b>	<b>25</b>	<b>49%</b>
<b>Iowa</b>	<b>23</b>	<b>20</b>	<b>89%</b>
<b>Kansas</b>	<b>23</b>	<b>22</b>	<b>98%</b>
<b>Kentucky</b>	<b>33</b>	<b>31</b>	<b>92%</b>
<b>Louisiana</b>	<b>23</b>	<b>10</b>	<b>44%</b>
<b>Maine</b>	<b>23</b>	<b>11</b>	<b>46%</b>
<b>Maryland</b>	<b>142</b>	<b>109</b>	<b>77%</b>
<b>Massachusetts</b>	<b>187</b>	<b>164</b>	<b>88%</b>
<b>Michigan</b>	<b>133</b>	<b>110</b>	<b>83%</b>
<b>Minnesota</b>	<b>23</b>	<b>17</b>	<b>76%</b>
<b>Mississippi</b>	<b>23</b>	<b>20</b>	<b>87%</b>
<b>Missouri</b>	<b>45</b>	<b>28</b>	<b>62%</b>
<b>Montana</b>	<b>23</b>	<b>9</b>	<b>39%</b>
<b>Nebraska</b>	<b>23</b>	<b>16</b>	<b>72%</b>
<b>Nevada</b>	<b>23</b>	<b>20</b>	<b>89%</b>
<b>New Hampshire</b>	<b>23</b>	<b>12</b>	<b>52%</b>
<b>New Jersey</b>	<b>262</b>	<b>256</b>	<b>98%</b>
<b>New Mexico</b>	<b>23</b>	<b>18</b>	<b>77%</b>
<b>New York</b>	<b>479</b>	<b>393</b>	<b>82%</b>

<b>TABLE 2- Status of Obligation Rates by State During ISTEA (During Fiscal Years 1992 to 1996)-CONT'D Dollars Shown Rounded to Nearest Million</b>			
<b>State</b>	<b>Total Available (FY 92-96)**</b>	<b>Total Obligated (FY 92-96)**</b>	<b>Percent Obligated (FY 92-96)</b>
North Carolina	49	49	100%
North Dakota	23	18	79%
Ohio	196	131	67%
Oregon	26	18	68%
Pennsylvania	275	248	90%
Rhode Island	27	11	40%
South Carolina	23	23	100%
South Dakota	23	22	96%
Tennessee	48	29	60%
Texas	452	272	60%
Utah	23	18	81%
Vermont	22	12	55%
Virginia	97	80	82%
Washington State	73	72	99%
West Virginia	23	21	90%
Wisconsin	57	32	56%
Wyoming	23	20	89%
Puerto Rico	23	21	92%
<b>Total (Nationwide)</b>	<b>4,535</b>	<b>3,645</b>	<b>80%</b>
<b>**NOTE: State obligation totals provided from FHWA's FMIS tracking system.</b>			

*Program Activities*

During FY 1996, FHWA and FTA approved funding for 1,257 CMAQ proposals, 185 more proposals than obligated in FY 1995, and 283 more proposals than obligated in FY 1994. Appendix A of this report presents a summary of all CMAQ proposals reported by States that were obligated during FY 1996 (in the October 1, 1995 to September 30, 1996 time frame) listed by category type.



As in prior years, the CMAQ expenditures for projects have been categorized according to the following classifications based on CMAQ guidance:

- ! Transit (bus, rail, vehicles and equipment, etc.);
- ! Traffic Flow Improvements (HOV lanes, signalization, etc.);
- ! Shared Ride (carpool/vanpool programs, etc.);
- ! Demand Management (employee trip reduction programs, flexible work programs, etc.);
- ! Pedestrian/Bicycle; and
- ! Other TCMs (including inspection and maintenance programs, etc.).

Only two States (Maine and California) reported “Experimental Pilots” now eligible for funding under the March 7, 1996 *Guidance Update*. Since this category is new in terms of eligibility under the revised CMAQ Program, additional expenditures are expected in this category as States take advantage of the flexibilities afforded under the *Guidance Update*.

### **Analysis of Air Quality Benefits**

#### *Overall Analysis*

In the FY 1996 CMAQ reports, the States provided emissions analysis for 943 proposals funded under CMAQ (not including STP/CMAQ projects which are in States with no nonattainment or maintenance areas). This corresponds to 75 percent of all CMAQ proposals funded by States (similar to the 75 percent figure reported in last year’s FY 1995 CMAQ annual report), this high rate indicates a continuing commitment at the State and local levels to quantify project-level emissions benefits.

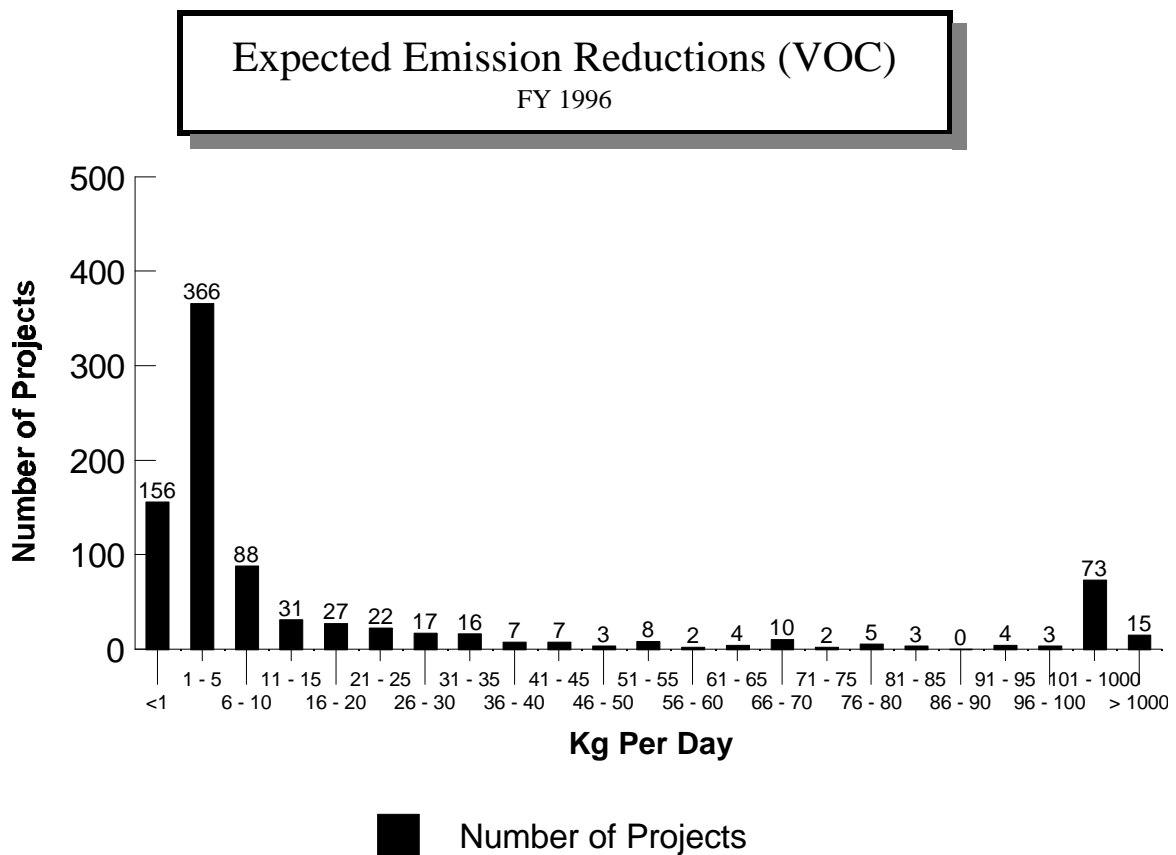
The most frequently reported analyses were for volatile organic compounds (VOC), which appeared on 889 occasions or in approximately 94 percent of all projects with emissions analysis reported for FY 1996. The number of projects with reported CO emissions reductions was shown at 44 percent of all emissions analysis reported in FY 1996 (slightly lower than the 57 percent level reported in FY 1995). The percentage of projects with emissions analyses showing nitrogen oxides (NOx) reductions was shown to be approximately 61 percent of all CMAQ projects with emissions analyses reported in FY 1996 (similar to the percentage recorded for in FY 1995 at 57 percent).

Particulate matter emission estimates prepared by States have risen from just 64 projects reported in FY 1994 to 135 CMAQ-funded proposals reported in FY 1996. However, the number of proposals submitted with particulate emissions analyses constituted only 14 percent of all CMAQ-funded proposals analyzed for emissions reduction potential in FY 1996. This could be due to the relatively low number of PM-10 mitigation projects funded during 1996 (similar levels of PM-10 emission analyses were reported in previous fiscal years), and may also be related to the need for better modeling tools. EPA announced in November 1993 and then again in August 1997 (as part of the *Federal Register* notices issuing the final rule on Transportation Conformity, 40 CFR part 93) that quantitative analysis for purposes of meeting

PM-10 "hotspot" conformity requirements within nonattainment and maintenance areas will not be required until EPA releases modeling guidance on this subject and announces in the *Federal Register* that these requirements are in effect. The lack of adequate PM-10 modeling tools and data for purposes of dispersion analysis at the project-level is one of the primary reasons why so few CMAQ projects have addressed particulate concentrations.

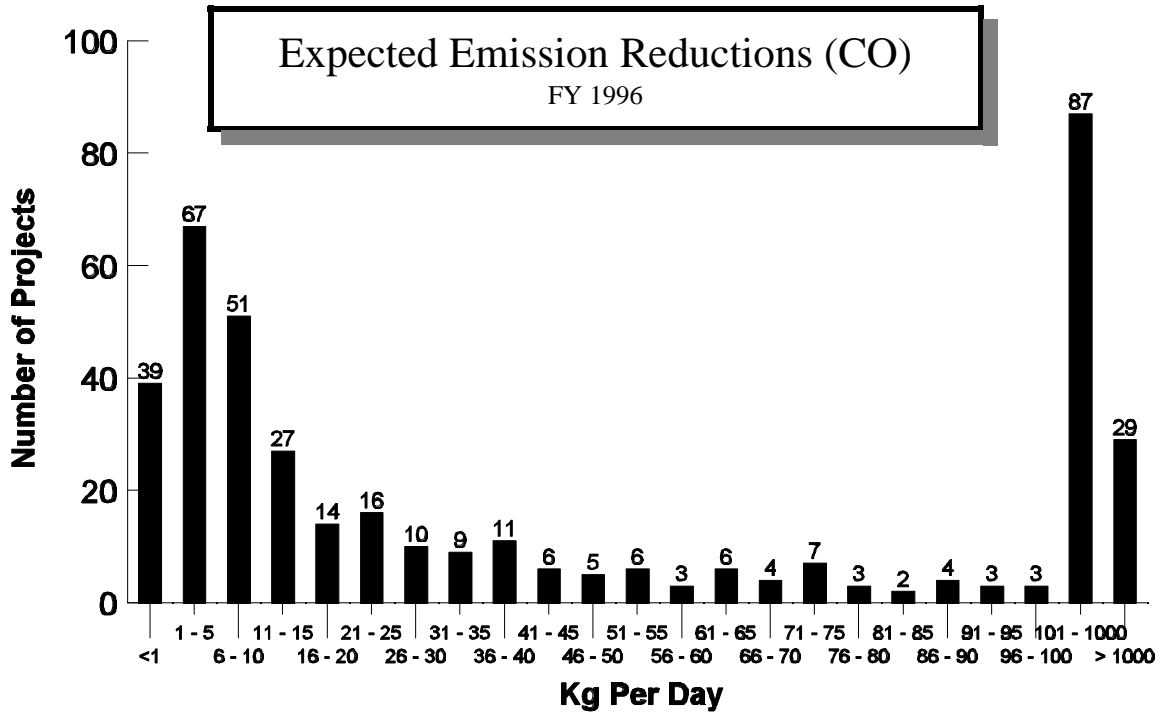
Figure 3 (below) indicates that a majority of CMAQ-funded projects yield less than 5 kg/day of VOC emissions reductions (as similarly reported in previous CMAQ annual reports). In fact, the number of projects (522) in the less than 5 kg/day range of VOC emissions reductions accounted for 60 percent of all projects (869) reported with submitted VOC emissions analyses in FY 1996. This percentage is comparable to the nearly 50 percent of all projects in the lowest category reported in FY 1995 and FY 1994, as well as the 46 percent of all projects (497) reported in FY 1993. This data again indicates that VOC emission reduction benefits associated with individual CMAQ-funded projects are relatively small.

**Figure 3- Expected VOC Emissions Reductions (FY 1996)**



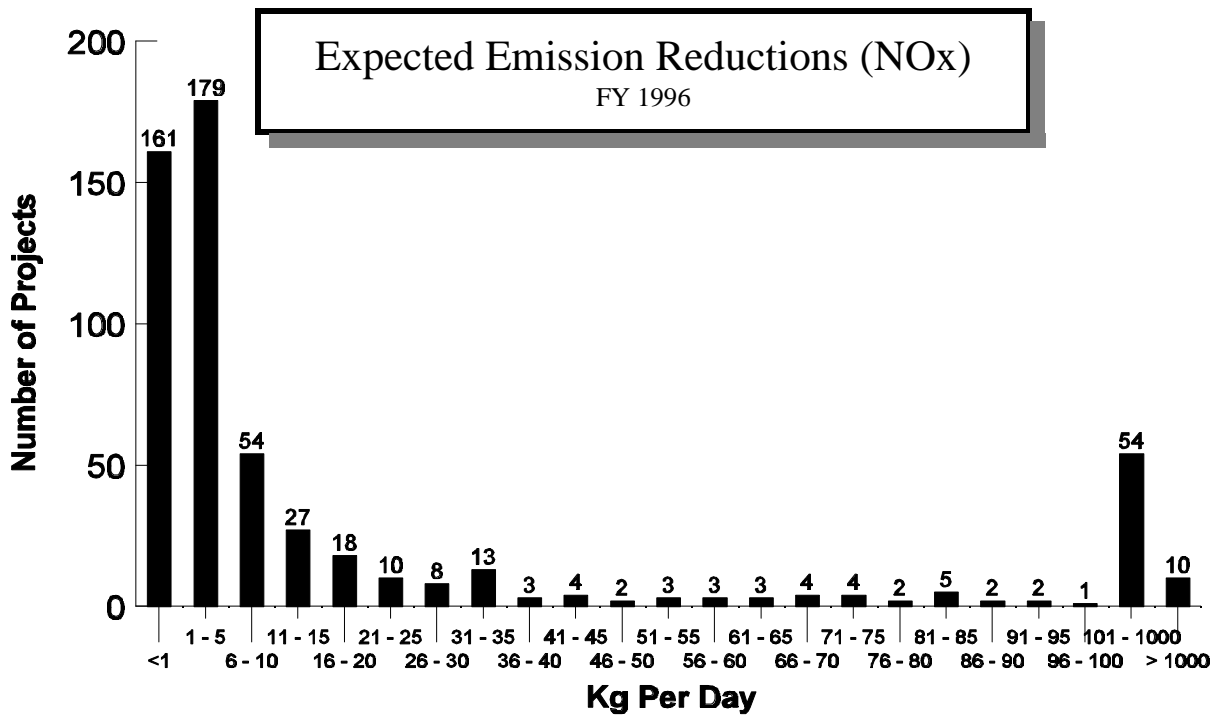
NOTE: Emissions reductions are provided without comment to their accuracy

Figure 4- Expected CO Emissions Reductions (FY 1996)



NOTE: Emissions reductions are provided without comment to their accuracy

Figure 5- Expected NOx Emissions Reductions (FY 1996)



NOTE: Emissions reductions are provided without comment to their accuracy

Figure 4 (previous page) provides a summary of expected emission reductions of CO from FY 1996 CMAQ-funded proposals submitted with project-level CO emissions analyses. This graph shows similar trends (as Figure 3) in that 54 percent of all projects (224) with reported CO emissions analyses in FY 1996 have less than 30 kg/day of potential CO emissions reductions. Figure 4 also shows that a large share of CMAQ-funded proposals (28 percent) seem to have a greater impact in reducing CO emissions at the greater than 100 kg/day threshold. The CO data indicate that CMAQ-funded proposals have a greater effect in reducing localized CO emissions, than for reducing regional pollutants such as VOC and/or NOx. This relates directly to the fact that there is more CO produced (and thus subject to mitigation) than VOC or NOx on a gram per mile basis. Figure 5 (last page) also shows expected emissions reduction for NOx, revealing a similar distribution of emissions reduction potential as shown in Figure 3 for the VOC distribution curve.

Table 3 (below) indicates the minimum, median, and maximum value of the expected emissions reductions for each emission type resulting from CMAQ projects obligated in FY 1996. As indicated within Table 3, the emissions reduction potential ranges from a median point of zero kg/day for PM-10 to 24 kg/day for CO. In addition, the maximum ranges of emissions reduction shown in Table 3 range from 6,091 kg/day for PM-10 to 68,392 kg/day for CO. These ranges of median and maximum values are consistent with the ranges shown within previous CMAQ annual reports. In the previous FY 1994 report, FHWA and FTA concluded that emissions reductions may vary due to the difficulties associated with predicting emissions from projects of various magnitudes and project phases, as well as phase-in periods for full implementation.

Table 3- CMAQ Air Quality Benefits for All Pollutants (kg/day)

<u>Emission Type</u>	<u>Number</u>	<u>Minimum<sup>1</sup></u>	<u>Median<sup>2</sup></u>	<u>Maximum</u>
VOC	889	0	3	38,186
CO	412	-1	24	68,392
NO <sub>x</sub>	572	-610	2	6,810
PM-10	135	0	0	6,091

NOTES: <sup>1</sup>Negative numbers indicate emission increases, however these are offset by decreases in other emissions, making the project eligible for CMAQ funding. Emissions reductions are provided without comment to their accuracy.  
<sup>2</sup>Low median value shown for PM-10 since 63% of the emissions estimates submitted had less than 1 kg/day impact on reducing particulate matter emissions.

Table 4 (next page) provides a more detailed examination of VOC emission reductions by six project category types. Of the six project category types, the individual proposal submitted with the highest VOC emission reduction potential was shown in the “Other TCMs” category (which includes enhanced I/M, remote sensing, and other strategies).

Table 4 also indicates that the second highest VOC emission reductions, based on median figures, are in the category of demand management (with an estimated median value of 21 kg/day of VOC emission reduction potential). Demand management projects funded under the CMAQ Program in FY 1996 included a wide range of activities including employer trip reduction programs, outreach activities for guaranteed ride home programs, commuter trip reduction programs, as well as startup funding for a few telecommuting programs located in Missouri and Tennessee.

The rest of the VOC median values shown in Table 4 involving transit, traffic flow improvements, and shared ride categories are of a similar order of magnitude to the pedestrian/bike ("Ped/Bike") category. Table 5 (next page) shows the minimum, median, and maximum values in terms of those FY 1996 CMAQ proposals submitted with CO emissions analyses. Table 5 indicates that the proposal shown with the maximum CO emissions reduction potential is under the "Traffic Flow" category, followed by the "Other TCMs" category of funding. Table 5 data also indicates that the "Other TCMs" funding category has a far greater median value (551 kg/day) in comparison to any other category types in terms of estimated CO emissions reduction potential. The second and third highest CO median categories are shown in Table 5 are shown under the "Demand Management" (79 kg/day) and "Transit" (34 kg/day) funding categories.

In terms of estimated NOx emissions reduction potential, Table 6 also shows a high median value for "Other TCMs" (192 kg/day) and much smaller median values for "Demand Management" as well as the remaining types of funding categories. The NOx emissions reduction potentials are very similar in magnitude to the VOC emissions reduction potential values presented in Table 4 where high maximum values for NOx were also noted in the "Other TCMs" (6,810 kg/day) funding category.

Table 4- Air Quality Analysis by Project Type (VOC, kg/day)

<u>Type of Project</u>	<u>Number<sup>1</sup></u>	<u>Minimum</u>	<u>Median<sup>2</sup></u>	<u>Maximum</u>
Transit	187	0	4	3,786
Traffic Flow	457	0	2	15,000
Shared Ride	85	0	3	372
Other TCMs	25	0	112	38,186
Ped/Bike	93	0	1	2,242
Demand Mgmt	42	0	21	362

NOTES: <sup>1</sup>The number of projects submitted with VOC, CO, and/or NOx emissions analysis.  
<sup>2</sup>The median, rather than the mean, is a better representation of average effectiveness because the mean is unduly influenced by relatively few projects with large emissions reductions. The median is the point above or below which 50 percent of all observations lie when ranked highest to lowest. Emission reductions are provided without comment to their accuracy.

**Table 5- Air Quality Analysis by Project Type (CO, kg/day)**

<u>Type of Project</u>	<u>Number<sup>1</sup></u>	<u>Minimum</u>	<u>Median<sup>2</sup></u>	<u>Maximum</u>
Transit	111	0	34	7,992
Traffic Flow	155	0	21	68,392
Shared Ride	53	-1	17	2,324
Other TCMs	12	0	551	48,982
Ped/Bike	63	0	9	3,418
Demand Mgmt	18	0	79	1,136

NOTES: <sup>1</sup>The number of projects submitted with VOC, CO, and/or NOx emissions analysis.  
<sup>2</sup>The median, rather than the mean, is a better representation of average effectiveness because the mean is unduly influenced by relatively few projects with large emissions reductions. The median is the point above or below which 50 percent of all observations lie when ranked highest to lowest. Emission reductions provided without comment to their accuracy.

**Table 6- Air Quality Analysis by Project Type (NOx, kg/day)**

<u>Type of Project</u>	<u>Number<sup>1</sup></u>	<u>Minimum</u>	<u>Median<sup>2</sup></u>	<u>Maximum</u>
Transit	160	-610	7	937
Traffic Flow	215	-163	1	2,020
Shared Ride	67	0	4	290
Other TCMs	20	0	192	6,810
Ped/Bike	79	0	1	527
Demand Mgmt	31	0	25	2,120

NOTES: <sup>1</sup>The number of projects submitted with VOC, CO, and/or NOx emissions analysis.  
<sup>2</sup>The median, rather than the mean, is a better representation of average effectiveness because the mean is unduly influenced by relatively few projects with large emissions reductions. The median is the point above or below which 50 percent of all observations lie when ranked highest to lowest. Emission reductions provided without comment to their accuracy.

Table 7 represents a listing of 22 CMAQ proposals that were funded in FY 1996 that have been estimated to have the potential to reduce 500 kg/day (or greater) in terms of VOC emissions. As in previous CMAQ annual reports, the proposals related to inspection and maintenance (I/M) programs are again shown to have the highest VOC emissions reduction potential. The actual number of projects in the 500 kg/day potential emission reduction range has steadily increased over the past few years, at a rate consistent with the increases in obligation rates and number of proposals funded. For example, in FY 1993 only 19 projects were shown in this category while in FY 1994 this number increased to 25 projects.

Upon review of the FY 1996 proposals, eight of the CMAQ proposals are associated with

the "Other TCMs" funding category (including I/M programs), eight are in the "Traffic Flow Improvement" category, four are "Transit" proposals, and two are "Pedestrian/Bicycle" proposals, as shown in Table 7.

**Table 7 - Projects With at Least 500 Kg/Day  
VOC Emission Reductions**  
(Emission reductions are provided without comment on their accuracy.)

<u>Project Description</u>	<u>Project Type</u>	<u>State</u>	<u>Emissions Reduced (kg/day)</u>
Enhanced I/M (Chicago)	Other	Illinois	38,186
Wisconsin I/M 240 Vehicle Inspection & Training Program	Other	Wisconsin	18,140
I/M Pilot Program	Other	Rhode Island	16,162
Signal System Interconnect Extension (Germantown, TN)	Traffic Flow	Tennessee	15,000
Inspection and Maintenance (Lake & Porter County, IN)	Other	Indiana	12,420
ITS Early Deployment Plan	Traffic Flow	New York	6,493
Enhanced I/M (St. Louis)	Other	Illinois	5,132
Old Colony Rail Service Restoration	Transit	Massachusetts	3,786
Sacramento AQMD "Spare the Air" Public Education Program	Other	California	3,103
Moshula-Pelham Greenway Extension	Ped/Bike	New York	2,242

**Table 7 - Projects With at Least 500 Kg/Day  
VOC Emission Reductions- CONT'D**  
(Emission reductions are provided without comment on their accuracy.)

<u>Project Description</u>	<u>Project Type</u>	<u>State</u>	<u>Emissions Reduced (kg/day)</u>
Intersection Signal Improvements (Memphis, TN)	Traffic Flow	Tennessee	2,174
Upgrade Traffic Signals (Dallas)	Traffic Flow	Texas	2,019
Traffic Signal Optimization (Gwinnett)	Traffic Flow	Georgia	1,116
Traffic Signalization Improvements (Var. Locations in Memphis, TN)	Traffic Flow	Tennessee	958
Non-Freeway Surveillance System (DeKalb County)	Traffic Flow	Georgia	735
Inspection and Maintenance (Floyd & Clark Counties, IN)	Other	Indiana	717
Intercity Transit (Ventura County)	Transit	California	606
Brooklyn Waterfront Trail	Ped/Bike	New York	586
Greenline Marketing Program	Transit	Illinois	562
Signal Timing Improvements (San Francisco Bay Area, CA)	Traffic Flow	California	535
GPCOG Public Education Project	Other	Maine	523
Electric Vehicle Municipal Demo Program	Transit	New York	520

***Areas Needing Improvement***

States have shown consistent improvements in the number of emission estimates provided for CMAQ-funded proposals over the past five years, partly due to an increased focus on transportation and air quality planning efforts to meet the NAAQS deadlines established under the 1990 Clean Air Act Amendments. However, additional efforts are needed to be made by States in order to ensure that the data submitted to FHWA and FTA within the States' CMAQ annual reports are in a consistent, well-arranged manner for final



incorporation into the national CMAQ annual report prepared by FHWA and FTA. In some cases, CMAQ annual reports were submitted based on State fiscal years (ending in June) rather than the federal fiscal year (ending on September 30th) as required under federal CMAQ guidance. This accounting error may have led, in some cases, to the inconsistencies between State-reported obligation data figures submitted within CMAQ annual reports and FMIS obligation figures used by FHWA.

### **Conclusions and Recommendations**

Based on the last five years of experience with the CMAQ Program, the FHWA and FTA have found continual improvement in the overall quality of CMAQ annual reports submitted by States. The effort to quantify emissions effects of CMAQ project proposals continued to improve, as evidenced by the annual reports most recently submitted by States. Emissions benefit estimates for nearly 75 percent of all CMAQ proposals have been submitted over the past few years. In addition, States have made significant progress toward improving their annual CMAQ reports in terms of providing better structure, content, and format. In order to improve CMAQ data collection efforts, the FHWA and FTA are considering the issuance of electronic templates to ensure consistency of CMAQ annual report data submitted by States. However, in order to make continued progress toward producing better CMAQ annual reports in the future, the FHWA and FTA have the following five recommendations to offer States:

- !** Provide clear, complete, and consistent project descriptions based upon the seven different project categories (particularly "*Experimental Pilot Projects*") shown within the CMAQ Program guidance;
- !** Specify criteria pollutants for each individual CMAQ proposal in terms of emission reduction potential and avoid double-counting of emissions credits for several phases of the same project;
- !** Ensure that individual project costs are clearly identified in terms of federal CMAQ dollars to ensure accurate funding obligations are shown;
- !** Provide some form of emission reductions benefits (whether qualitative or quantitative) since these estimates are required for project approval; and
- !** Use consistent metric units (in terms of kilograms/day) for emissions reductions.