

# **A Report on the State Vehicle Fleet: Emissions, Fuel Economy, and Vehicle Miles Traveled**

**As required by Executive Order 11,  
“Concerning Increasing the Efficiency of  
State Government’s Transportation Sector”**

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## Executive Order Background

On March 17, 2004 Governor Baldacci signed an Executive Order “*An Order Concerning Increasing the Efficiency Of State Government’s Transportation Sector*”. As part of that Executive Order, the Department of Environmental Protection (DEP) was directed to compile an annual vehicle replacement report that reflects the improvement to the fleet fuel economy for vehicles equal to or less than 8,500 GVW and the emissions profile for all new vehicles purchased by state agencies. For the fuel economy and emissions profile elements, this report reflects **only new vehicles** purchased and fuel efficiencies are based upon the U.S. EPA fuel economy guide. The Executive Order also requires state agencies to report the number of Vehicle Miles Traveled (VMT) of all state vehicles.

Essentially there are three primary vehicle fleets maintained by the State:

- 1) Department of Administrative and Financial Services, Central Fleet Management (CFM),
- 2) Department of Public Safety (DPS), and
- 3) Department of Transportation (DOT).

In addition to the primary fleets the following state agencies own and maintain their own smaller pool of vehicles:

- 4) Department of Agriculture, Food, and Rural Resources,
- 5) Department of Inland Fisheries and Wildlife,
- 6) Department of Marine Resources,
- 7) Department of Conservation,
- 8) Department of Corrections,
- 9) Maine State Library, and
- 10) Department of Health and Human Services.

For FY 2006 Central Fleet, Public Safety, and Department of Transportation (DOT) were the only agencies reporting the purchase of new vehicles. Inland Fisheries and Wildlife did not report any data for 2006.

### I. Summary of Emissions Profile

When vehicles are manufactured, not all vehicles are “certified” to the same tailpipe emissions. Simply said, some vehicles are cleaner than others -- much cleaner! Benefits of cleaner vehicles are not only hydrocarbon reductions but also reductions in nitrogen oxides and air toxics.

CFM, DPS and DOT reported to the DEP each **new** vehicle purchased and the vehicle which it replaced. The DEP then compared the emission certification of the new vehicle with the replacement vehicle. For FY 2006, 209 of the total number of 385 vehicles purchased by state agencies reported significantly improved emission standards. It should be noted that the vehicles are purchased with the best emissions profile that meet the agencies operational needs. In some instances, an emissions profile may decline in

order to obtain a vehicle that meets the agencies operational needs within financial resources. See Attachment A for detail of replacements.

<b>Year of Replacement</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Emissions Profile Improved	118	188	209
Emissions Profile Stayed the Same	85	115	170
Emissions Profile Declined	3	5	6
No original Emissions Profile Available	58	0	0
<b>Total</b>	<b>264</b>	<b>308</b>	<b>385</b>

**54 percent** of the 385 new replacement vehicles purchased in 2006 have improved (reduced) emissions. Only **2 percent** of the vehicles purchased had increased emissions increased.

Staff estimated the emissions profile for vehicles where none was available.

## **II. Fuel Economy.<sup>1</sup>**

The agencies reported the following fuel economy information on new vehicle purchases for FY 2006 compared to the vehicle it replaced:

Agency	Increased Fuel Economy	Decreased Fuel Economy	No Fuel Economy Change	Undetermined Fuel Economy
CFM	104	21	22	34
DPS	39	24	25	5
DOT	5	8	0	98
<b>Totals</b>	<b>148</b>	<b>53</b>	<b>47</b>	<b>137</b>

In addition to the 385 vehicles replaced in 2006, there were also 51 new vehicles purchased.

Vehicles are purchased with the best fuel economy while still meeting the agency's operational needs. In some instances, fuel economy may decline in order to obtain a vehicle that meets the agency's operational needs within financial resources. Additionally, in some cases, a vehicle may be replaced with an identical model, but with its EPA fuel economy modified by the manufacturer either positively or negatively for the newer model year. Medium and heavy-duty vehicles are not required to meet a fuel economy standard and those vehicles are reported with an undetermined fuel economy rating. See Attachment B for the detail of replacements.

<sup>1</sup> For comparative purposes fuel economy was reported using the EPA Fuel Economy Guide which reports fuel economy for new vehicles.

### III. Summary of Fuel Economy for FY 2004, FY 2005 and FY 2006

A. The average improved fuel economy based on the number of vehicles replaced is shown below for FY 2004, 2005 and 2006. Calculations of the average improved fuel economy are based upon the following formula:

$$\frac{\text{(total \# of gallons improved - total \# of gallons decreased)}}{\text{(total vehicle w/improved mileage - total vehicles w/decreasing mileage)}} = \text{Total Gallons improved} / \text{Total Vehicles with improved mileage}$$

Fiscal Year	Number of Vehicles Replaced	Average Improved Fuel Economy
2004	264	3 miles per gallon
2005	307	2 miles per gallon
2006	385	2 miles per gallon

B. Based on the improved fuel economy savings for each year, and assuming the original vehicle and its replacement travels/traveled an average of 15,000 miles per year, the following is the estimated savings in gasoline for FY 2004, 2005 and 2006. The estimated fuel savings was based upon the following calculation:

$$\text{(# of gallons improved x 15,000 miles)} - \text{(# gallons decreased x 15,000 miles)} = \text{Fuel savings}$$

Fiscal Year	Estimated Miles Traveled per year	Estimated Fuel Savings (gallons)
2004	15,000	13,971
2005	15,000	12,694
2006	15,000	9,202

C. Based on the estimated fuel savings for each year, the estimated cost savings for the state fleet for the average gasoline price paid by the state equates to a savings of:

Fiscal Year	Average price per gallon of gasoline	Estimated fleet cost savings
2004	\$1.46	\$20,398
2005	\$1.80	\$22,849
2006	\$2.13	\$19,600

The estimated fuel cost savings is calculated by multiplying the estimated fuel savings by the average price per gallon of gasoline paid by the state.

D. Based on an emission factor for a gallon of gasoline of 19 pounds of carbon dioxide (CO<sub>2</sub>) equates to:

<b>Fiscal year</b>	<b>Reduction in Carbon Dioxide emissions (tons)</b>
2004	133
2005	120
2006	87

The Carbon Dioxide (CO<sub>2</sub>) savings are calculated by multiplying the Estimated Fuel savings by 19 and dividing by 2000 to obtain the CO<sub>2</sub> reductions.

#### **IV. Reduction of Vehicle Miles Traveled (VMT)**

The Executive Order requires each state agency to report at the end of each fiscal year the vehicle miles traveled (VMT) by their respective state vehicles. In addition, the Department of Administrative and Financial Services (DAFS) is to provide a report of all paid mileage (VMT) reimbursed by them. Heavy duty trucks and equipment that record usage by hours rather than mileage are exempt from this reporting requirement.

2004 was the first year this data was collected and provides the base year with which to compare VMT for subsequent years. The following data was collected according to the Executive Order:

1. Paid mileage which is mileage paid to employees who use their own vehicles for travel purposes,
2. Leased mileage which is the mileage accumulated on vehicles leased and controlled from/by CFM (some agencies own the vehicles but they are controlled by CFM), and
3. Agency mileage which is mileage accumulated on vehicles owned by the agency.

See Attachment C for the detail of reported Agency VMT. For FY 2006 Inland Fisheries and Wildlife failed to provide any mileage data.

**V. SUMMARY of Vehicle Miles Traveled For FY 2004, FY2005 and FY 2006**

FISCAL YEAR	2004	2005	2006	Percent Difference from 2005 to 2006
Paid Mileage by Agency	23,341,816	22,130,200	21,216,479	-4.1
Leased Vehicle Mileage	20,559,107	20,622,407	21,411,475	+3.8
Agency Mileage	19,735,250	19,430,515	17,030,835	-12.4
<b>TOTAL</b>	<b>63,636,173</b>	<b>62,183,122</b>	<b>59,658,789</b>	<b>-4.1</b>

**ATTACHMENT A**

**Emissions Profile.**

The table below shows the various emission standards for non methane organic gases (NMOG), or hydrocarbons, for both the vehicles replaced and the vehicles they are replaced by.

Classification	Standard NMOG (grams per mile)
Federal Tier 0	0.8
Federal Tier 1	0.25
National Low Emission Vehicle	0.075
B-4	0.07
B-5	0.075
B-7	0.075
B-8	0.125
B-9	0.075
B-10	0.125
Transitional Low Emission Vehicle	0.125
Low Emission Vehicle	0.075
Ultra Low Emission Vehicle	0.04
Super Ultra Low Emission Vehicle	0.01
Partial Zero Emission Vehicle	0.0085
Zero Emission Vehicle	0.0

Benefits of cleaner vehicles are not only in hydrocarbon reductions but also in nitrogen oxides and air toxics.

### Emission Profile Data from Central Fleet Management

Profile Improved					Profile Remained the Same				
2004	2005	2006	Vehicle Replaced	Replaced By	2004	2005	2006	Vehicle Replaced	Replaced By
15	53	11	Tier 1	LEV/LEV2	17	34	27	LEV	LEV/LEVII
20	23	23	Tier 1	ULEV/ULEVII	0	15	1	ULEV	ULEV
26	3	41	Tier 1	SULEV	0	0	1	SULEV	SULEV
4	9	1	Tier 1	PZEV					
0	0	1	NLEV	ULEVII					
10	10	34	LEV	ULEV/ULEVII					
2	1	9	LEV	SULEV	Profile Declined				
7	12	12	LEV	PZEV				Vehicle Replaced	Replaced By
1	0	12	ULEV	SULEV	2004	2005	2006		
1	4	2	ULEV	PZEV	3	1	4	ULEV	LEV
0	0	1	SULEV	PZEV	0	0	1	SULEV	ULEV
No Original Emission Profile			Vehicle Replaced	Replaced By					
2004	2005	2006							
9	0	0	No Profile	LEV					
30	0	0	No Profile	ULEV					
17	0	0	No Profile	SULEV					
2	0	0	No Profile	Diesels					

#### New Vehicles (no replacement)

2004	2005	2005	
6	8	29	LEV/LEVII
18	0	3	ULEV
0	0	3	SULEV
0	15	16	PZEV

**Emission Profile Data from Department of Public Safety**

Profile Improved			Vehicle Replaced	Replaced by	Profile Remained the Same			Vehicle Replaced	Replaced By
2004	2005	2006			2004	2005	2006		
26	4	0	Tier 1	LEV/LEVII					
6	2	1	Tier 1	ULEV	9	61	0	LEV	LEV
0	2	0	Tier 1	PZEV	8	0	0	ULEV	ULEV
0	0	1	Tier 1	B4	0	0	7	B7	B5
0	1	5	Tier 1	B5	0	0	15	LEV	B5
0	0	5	Tier 1	B7	0	0	14	B7	B7
0	1	0	Tier 1	B9	0	0	27	LEV	B7
0	0	1	B10	B5	0	4	0	B7	LEVII
0	0	1	B10	B7					
0	0	1	LEV	B4	Profile Declined			Vehicle Replaced	Replaced By
51	4	8	LEV	ULEV/ULEVII	2004	2005	2006		
0	2	0	LEV	PZEV	0	0	1	ULEV	B4
0	0	6	B7	ULEV/ULEVII					
0	1	0	B8	LEV/LEVII					

**Emission Profile Data from Department of Transportation (DOT)**

Profile Improved			Vehicle Replaced	Replaced By	Profile Remained the Same			Vehicle Replaced	Replaced By
2004	2005	2006			2004	2005	2006		
0	45	0	Tier 0, Tier1, TLEV	51 LEVII, ULEVI< SULEV< PZEV	0	0	78	LEV	LEV/LEVII
0	0	6	LEV	ULEV					
0	0	26	LEV	SULEV					
0	0	1	LEV	PZEV					

New Vehicles (no replacement)			
2004	2005	2006	
0	2	0	PZEV

## ATTACHMENT B

### Fuel Economy Data

#### A. Central Fleet Management

##### (1) Improved Vehicle Fuel Economy Compared to Vehicle Replaced

MPG	+1	+2	+3	+4	+5	+6	+7	+8	+11	+12	+14
# Vehicles 2004	8	40	18	9	1	3	2	0		0	0
# vehicles 2005	27	16	27	6	3	5	0	0		1	1
# Vehicles 2006	31	33	10	5	8	3	1	1	1	0	1

MPG	+16	+17	+18	+19	+20	+21	+22	+24	+35	Total
# Vehicles 2004	0	3	3	3	1	1	0	1	0	93
# Vehicles 2005	0	2	0	1	2	0	4	0	1	96
# Vehicles 2006	1	0	0	3	0	2	4	0	0	104

##### (2) Decreased Fuel Economy Compared to Vehicle Replaced

MPG	-1	-2	-3	-4	-5	-6	-7	-8	-11	-14	Total
# Vehicles 2004	5	12	0	1	0	2	1	0	0	0	21
# Vehicles 2005	11	3	2	0	0	0	0	0	0	0	16
# Vehicles 2006	2	12	3	0	0	0	1	1	1	1	21

##### (3) No Improved Fuel Economy

MPG	Totals
# Vehicles 2004	17
# Vehicles 2005	21
# Vehicles 2006	22

##### (4) Undetermined Fuel Economy

MPG	Totals
# Vehicles 2004	33
# Vehicles 2005	36
# Vehicles 2006	34

##### (5) New Vehicles Purchased (not as replacements)

MPG	Totals
# Vehicles 2004	24
# Vehicles 2005	22
# Vehicles 2006	51

## B. Department of Public Safety

### (1) Improved Vehicle Fuel Economy

MPG	+1	+2	+3	+4	+5	+6	+7	+8	+21	Total
# Vehicles 2004	15	0	62	0	0	0	0	6	0	83
# Vehicles 2005	1	2	37	4	1	0	23	0	1	69
# Vehicles 2006	0	1	21	0	6	2	6	3	0	39

### (2) Decreased Fuel Economy

MPG	-1	-2	-4	-5	Total
# Vehicles 2004	3	0	0	0	3
# Vehicles 2005	3	0	0	0	3
# Vehicles 2006	0	4	4	16	24

### (3) No improved Fuel Economy

MPG	Totals
# Vehicles 2004	0
# Vehicles 2005	6
# Vehicles 2006	25

### (4) Undetermined Fuel Economy

MPG	Totals
# Vehicles 2004	14
# Vehicles 2005	9
# Vehicles 2006	5

### (5) New Vehicles Purchased (not as replacements)

MPG	Totals
# Vehicles 2004	0
# Vehicles 2005	0
# Vehicles 2006	0

## C. Department of Transportation

### (1) Improved Vehicle Fuel Economy

MPG	+2	+3	+4	38	Totals
# Vehicles 2004	0	0	0	0	0
# Vehicles 2005	0	3	3	0	6
# Vehicles 2006	1	0	3	1	5

**(2) Decreased Fuel Economy**

MPG	-1	-2	-3	-4	-7	-8	-13	Totals
# Vehicles 2004	0	0		0		0	0	0
# Vehicles 2005	4	4		2		3	9	22
# Vehicles 2006	0	3	3	0	2	0	0	8

**(3) No improved Fuel Economy**

MPG	Total
# Vehicles 2004	0
# Vehicles 2005	0
# Vehicles 2006	0

**(4) Undetermined Fuel Economy**

MPG	Total
# Vehicles 2004	0
# Vehicles 2005	23
# Vehicles 2006	98

**(5) New Vehicles Purchased (not as replacements)**

MPG	Total
# Vehicles 2004	0
# Vehicles 2005	2
# Vehicles 2006	0

## ATTACHMENT C

### A. Paid Mileage by Agency

<i>Agency</i>	<i>Paid Mileage</i>		
	2004	2005	2006
Administrative & Financial Services	541,224	561,879	586,855
Agriculture	313,693	311,119	259,220
Arts Commission			
Attorney General	253,090	254,664	257,252
Audit	5,354	8,864	11,867
Behavioral & Developmental Services			2,281,590
Board of Licensure in Medicine			
Conservation	175,815	148,652	134,264
Corrections	1,196,197	1,310,760	1,104,470
Courts	1,309,775		1,323,317
Dairy Council			
Defense			
Eastern Maine Community College			
Economic & Community Development	99,235	86,619	85,193
Education	416,010	401,997	316,254
Environmental Protection	136,849	131,378	112,126
Executive	73,108	88,556	73,663
Finance Authority of Maine			
Historic Preservation			
Health & Human Services	9,637,190	8,903,199	5,950,974
Inland Fisheries & Wildlife	129,109	138,414	135,067
Judicial	1,309,775	1,272,428	
Kennebec Valley Community College			
Labor	1,525,517	1,508,761	1,422,732
Law Library		514	785
Legislature	261,827	177,449	254,039
Library	710		
Lobster Promotion			
Maine Health Data Organization			
Maine School of Science & Math			
Maine State Housing Authority			
Marine Resources	60,701	25,665	25,834
Military	95,194	64,428	73,877
Museum			
Muskie School			
Northern Maine Community College			
Professional & Financial Regulation	428,801	399,679	455,710

<i>Agency</i>	<i>Paid Mileage</i>		
Public Safety	32,279	52,440	34,650
Public Utilities	74,493	61,548	62,432
Quasi State Agencies, Boards, Misc.	328,068	344,659	372,754
Salmon Commission			
Secretary of State	100,504	87,213	52,114
Southern Maine Community College			
Transportation	6,146,221	5,788,282	5,826,111
Treasury	852	1,033	3,326
University of Maine, Augusta			
University of Southern Maine			
Washington Count Community College			
Workers Compensation			
<b>Totals</b>	<b>23,341,816</b>	<b>22,130,200</b>	<b>21,216,479</b>

#### B. Leased/ Controlled Vehicle Mileage

<i>Agency</i>	<i>Leased Mileage</i>		
	2004	2005	2006
Administrative & Financial Services	834,434	812,844	803,573
Agriculture	1,238,039	1,314,336	1,210,670
Arts Commission	96	2,200	1,408
Attorney General	336,010	302,648	339,173
Audit	11,956	8,946	2,286
Behavioral & Developmental Services	488,821	524,670	550,691
Board of Licensure in Medicine	12,811	913	3,107
Conservation	3,870,859	3,887,873	3,812,987
Corrections	1,006,577	978,600	1,136,212
Dairy Council	558	10,656	13,692
Defense	346,165	389,361	452,017
Eastern Maine Community College	46,307	39,258	40,569
Economic & Community Development	61,137	52,535	53,197
Education	197,658	201,768	222,109
Environmental Protection	1,810,710	1,769,677	1,832,414
Executive	92,472	87,837	93,324
Finance Authority of Maine	29,283	22,309	28,853
Health & Human Services	945,242	1,101,225	874,506
Historic Preservation	3,958	1,102	2,053
Inland Fisheries & Wildlife	4,464,179	4,114,116	4,018,320
Judicial	168	6,312	1,1251
Kennebec Valley Community College	440	471	454
Labor	186,677	181,946	346,683
Law Library			
Legislature	6,762	7,321	6,210
Library	6,606	1,636	935

<i>Agency</i>	<i>Leased Mileage</i>		
Lobster Promotion	1,287	328	
Military	346,165	393,099	
Maine Health Data Organization	270	503	888
Maine School of Science & Math	25,310	68,878	69,135
Maine State Housing Authority	229,079	227,595	240,146
Marine Resources	1,748,187	1,708,011	1,782,376
Museum	7,054	8,645	1,110
Muskier School	19,260	8,569	6,146
Northern Maine Community College	26,171	19,472	24,011
Professional & Financial Regulation	597,414	552,261	505,377
Public Safety	964,941	1,171,726	1,378,308
Public Utilities	51,217	50,387	48,362
Quasi State Agencies, Boards, Misc.			
Salmon Commission	174,079	191,709	175,312
Secretary of State	1,059,606	1,107,694	1,130,170
Southern Maine Community College	51,450	70,368	8,5749
Transportation	47,281	80,624	55,315
Treasury		13	
University of Maine, Augusta	4,073	1,157	14,231
University of Southern Maine	14,283	17,577	8,716
Washington Count Community College	28,920	35,926	27,081
Workers Compensation	121	1,336	2,348
<b>Totals</b>	<b>20,559,107</b>	<b>20,622,407</b>	<b>21,411,475</b>

### C. Agency Owned Vehicle Mileage

<i>Agency</i>	<i>Agency Owned Vehicle Mileage</i>		
	2004	2005	2006
Administrative & Financial Services	11,136	14,933	14,672
Agriculture	27,177	20,577	29,467
Arts Commission			
Attorney General			
Audit			
Board of Licensure in Medicine			
Conservation			15,290
Corrections	44,780	19,832	18,912
Dairy Council			
Defense, Veterans & Emergency Mgmt			14,700
Eastern Maine Community College			
Economic & Community Development			
Education			
Environmental Protection			
Executive			
Finance Authority of Maine			

<i>Agency</i>	<i>Agency Owned Vehicle Mileage</i>		
Historic Preservation			
Human Services			25,625
Inland Fisheries & Wildlife	179,953	190,125	
Judicial			
Kennebec Valley Community College			
Labor			
Law Library			
Legislature			
Library	3,448	3,627	3,751
Lobster Promotion			
Military Authority			
Maine Health Data Organization			
Maine School of Science & Math			
Maine State Housing Authority			
Marine Resources	10,582	8,744	6,891
Military			
Museum			
Muskie School			
Northern Maine Community College			
Professional & Financial Regulation			
Public Safety	11,496,167	10,942,911	10,159,787
Public Utilities			
Quasi State Agencies, Boards, Misc.			
Salmon Commission			
Secretary of State			
Southern Maine Community College			
Transportation	7,962,007	8,229,766	6,741,740
Treasury			
University of Maine, Augusta			
University of Southern Maine			
Washington Count Community College			
Workers Compensation			
<b>Totals</b>	<b>19,735,250</b>	<b>19,430,515</b>	<b>17,030,835</b>