

MDOT Freeway Courtesy Patrol in Southeast Michigan: FY 2008 Evaluation Report

February 2009

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- facilitating intergovernmental relations among local governments and state and federal agencies.

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Abstract

This report summarizes operational changes and provides statistics on Freeway Courtesy Patrol (FCP) activities for the fiscal year 2008. The FCP is part of a comprehensive incident management initiative to improve operations of the freeway system by reducing delay caused by non-recurring congestion. The Michigan Department of Transportation (MDOT) manages the FCP program that provides vital services to Metro Detroit motorists from 5 a.m. to midnight, seven days a week.

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Executive Summary

Traffic congestion frustrates commuters, commercial drivers, and business travelers daily on Southeast Michigan's roads. More than half of the congestion we experience is caused by non-recurring incidents (e.g., crashes, debris, and disabled vehicles), which cost millions of vehicle hours of delay and millions of gallons of wasted fuel.

In response to these problems, the Alliance for a Safer Greater Detroit implemented a Freeway Courtesy Patrol (FCP) program on a pilot basis in September 1994. From the beginning, the program focused on enhancing motorist safety and security while reducing traffic congestion that is so often associated with vehicle breakdowns and crashes on Detroit area freeways. Thirteen years later, under the management of the Michigan Department of Transportation (MDOT), the program continues to thrive and offer assistance to thousands of motorists on freeways in Wayne, Oakland, and Macomb Counties. MDOT administers the program as part of its larger freeway incident management program out of the Michigan Intelligent Transportation Systems Center (MITSC) in Detroit.

In a continued effort to support incident management initiatives in Southeast Michigan as a means of reducing congestion, SEMCOG, the Southeast Michigan Council of Governments, analyzed the data compiled for fiscal year 2008. The three major objectives for the FCP operators are:

- to assist stranded motorists;
- detect, mark, and report unoccupied vehicles; and
- assist in moving debris off the roadways.

Since its inception in 1994, FCP operators:

- assisted 230,149 stranded motorists,
- made 108,440 unoccupied vehicle stops, and
- stopped to clear debris 12,460 times.

In FY 2008, the program employed 24 drivers who operate 24 well-equipped vans. Beginning October 2005, the patrol operates from 5 a.m. to midnight, seven days a week with reduced service during the weekend and midnight shifts. The patrol also operates on special-event days, e.g., major community public events and sporting events.

In addition to detecting and marking unoccupied vehicles and removing debris from the roadway, FCP operators offer the following services, free-of-charge, to stranded motorists:

- changing tires;
- providing gas and other fluids;
- providing other mechanical assistance;
- providing up to five miles of tow service at no charge; and
- securing and providing assistance to crash scenes.

Key Findings

In FY 2008, the FCP recorded 50,782 vehicle stops on Metro Detroit freeways. Of the total vehicle stops, just over 69 percent, or 35,143 stops, were to assist a stranded motorist. A total of 10,110 mechanical failures were addressed by FCP operators, accounting for 29 percent of FCP stops, followed by flat tires (9,164), no gas (7,278), traffic crashes (2,816), multiple problems (4,018), and other (1,757). In addition, 27.5 percent or 13,955 stops were made to attend to unoccupied vehicles, and just over three percent, or 1,684 of the stops were to remove debris from travel lanes.

Data in this report comes from the Freeway Courtesy Patrol Information System (FCPIS) software. MDOT maintain the FCPIS software program. The data in the FCPIS come from the information provided on the Freeway Courtesy Patrol (FCP) service call cards. The FCP operator fills out the service call card at each vehicle stop. MDOT enters call card records at the MITS Center dispatch. The reporting system is used by MDOT to make operational adjustments. The data are also used by MDOT to monitor the cost effectiveness of the service and identify operational issues.

In FY 2008, the FCP saved an estimated 11.5 million hours of delay on freeways in the coverage area. Based on the hours of delay, the FCP program realized the following reductions in emissions:

- 2,094 kilograms per day of volatile organic compounds (VOC),
- 999 kilograms per day of nitrogen oxides (NO_x), and
- 15,411 kilograms per day of carbon monoxide (CO) pollutants.

These are significant reductions that benefit not only those assisted, but everyone in Southeast Michigan.

This report concludes with a benefit/cost analysis. For FY 2008 operations, a conservative calculation found that for each dollar spent on the patrol, a benefit of \$15.20 was realized. Benefits are based on improving operations of the freeway that help reduce congestion caused by non-recurring incidents.

Introduction

Service Changes

The Freeway Courtesy Patrol has expanded significantly since it began in 1994. Table 1 shows the changes year-to-year. Because of mid-year changes in fleet and coverage area, the table shows the range (minimum/maximum) of vehicles and drivers for each year.

Table 1
Service Changes, 1994-FY 2008

Year	Vehicles				Drivers		Coverage Area
	Vans		Tow Trucks		Min	Max	
	Min	Max	Min	Max			
FY 2008*	22	22	0	0	22	22	See route coverage Figure 1, Page 4
2007	20	24	0	0	20	24	
2006	24	29	0	5	24	32	
2005	24	29	0	5	24	32	
2004	29	29	5	5	29	32	
2003	28	29	5	5	31	32	
2002	19	28	5	5	24	31	
2001	7	7	3	5	9	11	
2000	6	7	0	3	6	9	I-75, M-10, I-94, I-696, I-96, and I-375 in Wayne, Oakland, and Macomb Counties.
1999	6	6	0	0	6	6	I-75, M-10, I-94, I-696, and I-375 in Wayne, Oakland, and Macomb Counties.
1998	6	6	0	0	5	6	I-75, M-10, I-94, I-696, and I-375 in Wayne, Oakland, and Macomb Counties.
1997	4	6	0	0	4	5	I-75, M-10, I-94, I-696, and I-375 in Wayne, Oakland, and Macomb Counties.
1996	4	4	0	0	4	4	I-75, M-10, I-94, and I-375 in the City of Detroit.
1995	2	4	0	0	2	4	I-75, M-10, I-94, and I-375 in the City of Detroit.
1994	2	2	0	0	2	2	Along I-75 in the City of Detroit.

*Report changed to FY report for 2008. Previous years are calendar years.
Source: MDOT.

In 1994, the FCP began operating under the management of the Alliance for a Safer Greater Detroit, using two vans along I-75 in the City of Detroit under contract with the American Automobile Association of Michigan (AAA). The number of vans increased to seven in 2001. In 2002, the FCP expanded to operate as many as 28 vans. In 2003, 29 vans provided service. Tow trucks were added to the program in 2000, with five tow trucks currently providing service. Correspondingly, the number of drivers increased. The FCP service area also expanded over the last 13 years. Beginning with I-75 in Detroit, the service patrol area expanded to include 12 freeways in Wayne, Oakland, and Macomb Counties in 2003. From 2004-2007, service remained consistent with minor changes.

The Alliance for a Safer Greater Detroit managed the FCP until 1999 when the Michigan Department of Transportation (MDOT) assumed responsibility. The change in management was the next logical step for

the FCP because the patrol was within the scope of MDOT's congestion management efforts. Additionally, in 1999, AAA's contract to operate the patrol was up for renewal. MDOT issued a request for proposal (RFP) to determine if others were interested in operating the patrol. MDOT awarded contracts to both AAA, to continue operating the vans, and Emergency Road Response (ERR) to operate the tow trucks and vans. In 2005, AAA and ERR's contracts were up for renewal. MDOT re-bid the program and ERR was awarded a sole contract to operate the FCP beginning in October 2005. Also in 2005, the new contract changed from a cost reimbursement contract to a performance-based lump sum contract with defined minimum patrol requires (for example, one pass through each freeway mile per day and weekend service minimums are two drivers). In FY 2008, mileage restrictions were enforced from August 2008 to October 2008 to offset the increase in price of fuel. Also in February 2008 the 24-hour patrol was reduced to seven days per week from 5 a.m. to midnight.

Operational Changes

Over the years, several operational changes have enhanced the FCP program. In 2006, operator certification and responder training was completed. In 2005, installation of Automatic Vehicle Location (AVL) system was completed, a dedicated FCP dispatcher position was established, service contract type was changed from cost reimbursement to performance based, and call cards were revamped. In FY 2008 FCP operation guidelines were revised for the third time to reflect changes made to the guidelines from the last publication.

Through these operational changes, FCP operators and MITS center dispatchers are able to communicate better, which not only benefited the motorist being assisted, but also endorsed the incident management program as a whole by extending the reach of the system with real-time incident location and up-to-date information. The additional communication is measured by percent of dispatched assists, as shown in Table 2. The number of dispatched calls for FY 2008 is 22 percent of total responses.

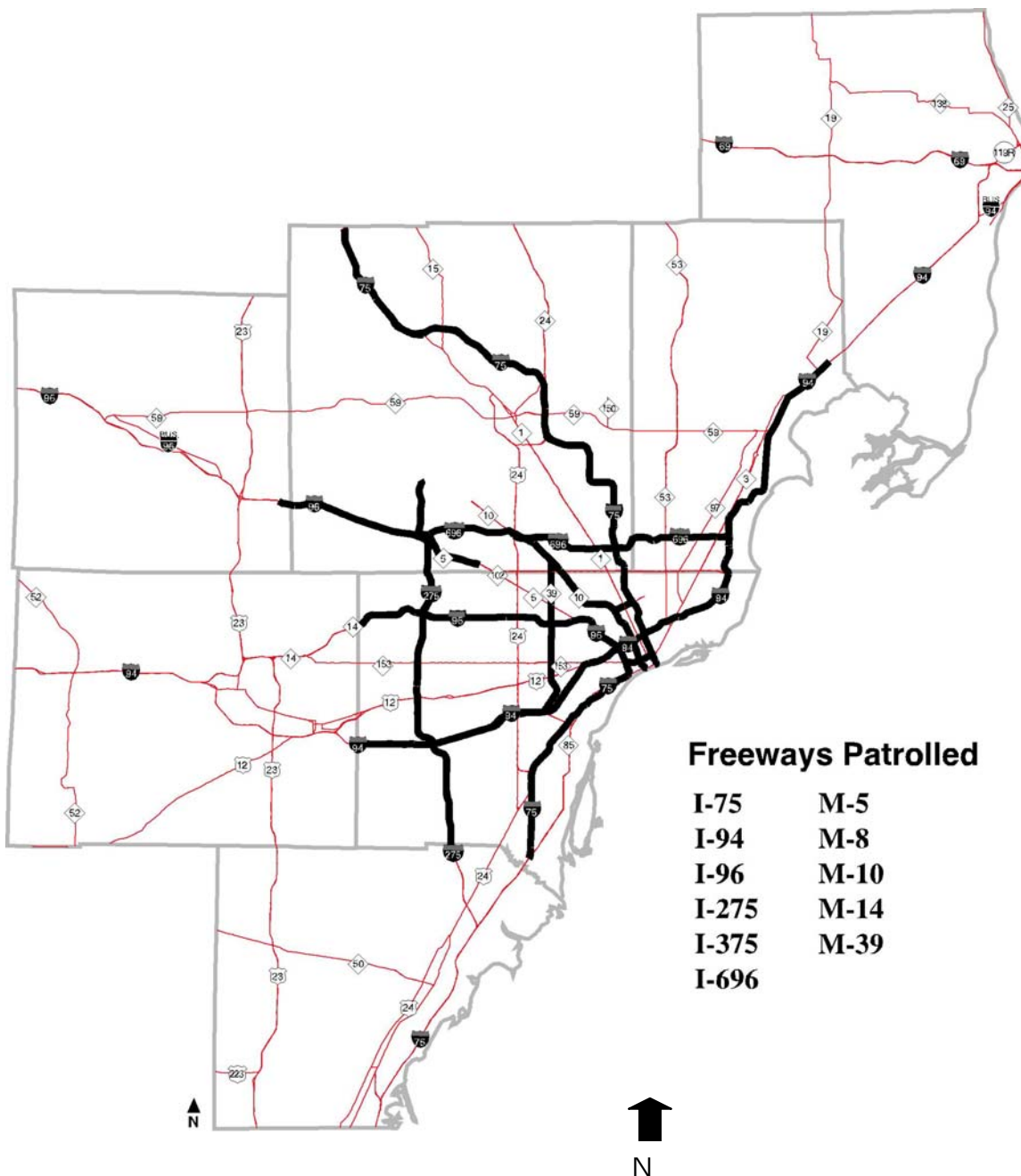
Table 2
Method of Detecting Freeway Courtesy Patrol Incidents, 1994-FY 2008

Fiscal Year	Courtesy Patrol Driver	Dispatched
FY 2008	78%	22%
2007	75%	25%
2006	76%	24%
2005	80%	20%
2004	87%	13%
2003	89%	11%
2002	93%	7%
2001	97%	3%
2000	96%	4%
1999	95%	5%
1998	97%	3%
1997	97%	3%
1996	95%	5%
1995	95%	5%
1994	99%	1%

*Report changed to FY report for 2008. Previous years are calendar years.
Source: MDOT.

In February 2002, an ad-hoc group began meeting regularly to review FCP operations issues. In February 2004 this group was formalized as the Freeway Courtesy Patrol Operations subcommittee under the Metro Detroit Incident Management Coordinating Committee. The committee is made up of representatives from MDOT, SEMCOG, Michigan State Police (MSP), the FCP contract operators, and the MITS Center control room operations contractor. The subcommittee reviews program operations, including potential improvements, coordinates activities across agencies and contractors, and reviews performance data.

Figure 1
Freeway Courtesy Patrol Coverage, FY 2008



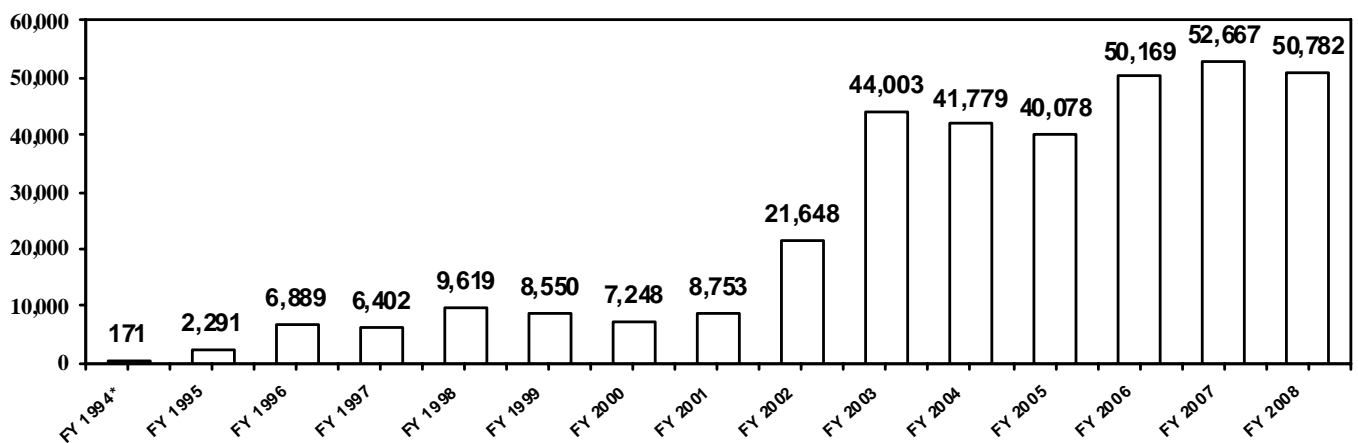
Statistics on Freeway Courtesy Patrol Operations

Vehicle Stops

The FCP recorded 50,782 vehicle stops on Metro Detroit freeways, in FY 2008. A vehicle stop occurs when a courtesy patrol driver stops to assist an occupied disabled vehicle, assists at a crash scene, attends to an unoccupied/abandoned vehicle, or clears debris from the roadway. Figure 2 shows the number of vehicle stops courtesy patrol drivers made by fiscal year, since its inception in 1994. Cumulatively, since September 1994, the patrol has made a total of 350,669 vehicle stops.

The overall trend shows that vehicle stops are increasing but fluctuates from year-to-year. The fluctuation is due to changes in service coverage and personnel as outlined in Table 1 and procedural changes concerning vehicle stops. The increase from 2001 to 2002 is attributed to an expanded service area, along with added drivers. In 2003, the implemented procedure required drivers to fill out a call card each time they encountered an unoccupied vehicle, even if it is a vehicle they had stopped for previously on their shift. The 5 percent decrease in 2004 is attributed to a change in procedure for collecting unoccupied vehicles data. The revised procedure called for FCP operators to stop once per shift for an unoccupied vehicle, thus lessening the number of stops. The increase in FY 2006 shows continued effort to improve operations and provide more help on the roadway. The decrease of 3.7 percent in FY 2008 can be attributed to fewer vehicles needing assist due to construction as well as increase in gas prices resulting in decrease in number of vehicle miles traveled.

Figure 2
Reported Vehicle Stops by Fiscal Year, September 1994 - September 2008

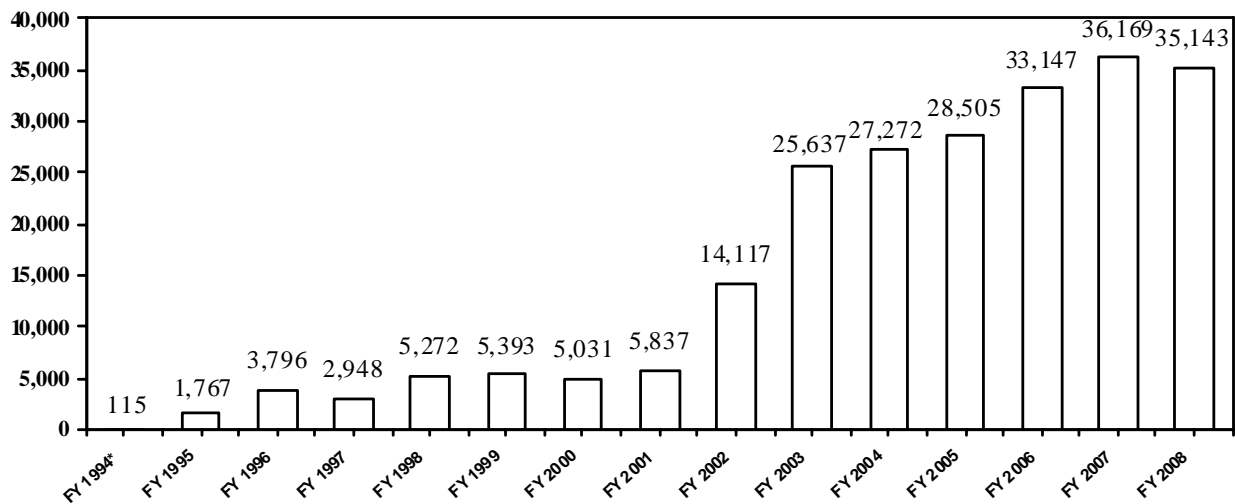


*1994 data includes month of September data only
Source: MDOT.

Occupied Vehicles Assisted

Figure 3 shows the number of stranded motorists assisted each fiscal year since 1994. In FY 2008, 35,143 of the 50,782 vehicle stops involved assisting stranded motorists. Thus, just over 69 percent of FCP vehicle stops in FY 2008 were to assist motorists stranded on the roadway. The remaining 31 percent involved unoccupied vehicle detection and debris removal. Since its inception in 1994, the FCP has assisted a total of 230,149 occupied vehicles or just over 65 percent of all vehicle stops.

Figure 3
Occupied Vehicles Assisted by Fiscal Year, September 1994 - September 2008



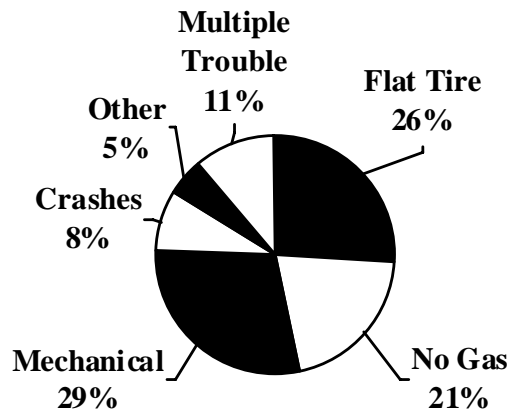
*1994 data includes month of September data only
Source: MDOT.

Problems assisted by Freeway Courtesy Patrol drivers

The FCP provides invaluable services to motorists stranded on freeways, including fixing flat tires, providing gas and other fluids, solving mechanical problems, and assisting with crashes and other incidents. Figure 4 breaks down the percentage of assists for each type of incident. The data show that the top three problems encountered by motorists and assisted by the FCP during FY 2008 were mechanical problems (29 percent), flat tires (26 percent), and no gas (21 percent).

Figure 4

Types of Problems Assisted by Freeway Courtesy Patrol Drivers, FY 2008



Source: MDOT.

Types of services rendered to occupied vehicles

One goal of the FCP is to assist motorists with mechanical problems within 15 minutes from the time the FCP driver arrives at the scene. Also, the FCP program allows for a free tow of up to five miles to a safe location. Table 3 summarizes whether or not the service rendered was directly related to the problem encountered. An example of a rendered service directly related to the problem is changing a flat tire if a tire was flat or providing gas if the motorist ran out of gas. An example of the other type of service rendered is when a flat tire is detected and the vehicle is towed because it could not be changed or repaired for various reasons, such as no spare tire or locked lug nuts. Table 3 also shows that just over 79 percent of the time, the FCP provided a service that was directly related to the problem. This indicates that FCP operators are not just towing cars away, but are mobilizing immobile vehicles. Mechanical training is required of all FCP operators.

Table 3
Service Rendered by Freeway Courtesy Patrol Drivers, FY 2008

	Service Rendered Directly Related to Problem		Other Type of Service Rendered	
	Number	Percentage	Number	Percentage
Flat Tire	6,972	76.1 %	2,192	23.9 %
No Gas	6,641	91.2 %	637	8.8 %
Other Mechanical	5,775	57.1 %	4,335	42.9 %
Crash	2,816	100 %	0	0 %
Multi –Trouble	4,018	100 %	0	0 %
Other	1,757	100 %	0	0 %
Total	27,979	79.6%	7,164	20.4%

Source: MDOT.

Another reason for quickly clearing an incident is that it can be a catalyst for congestion (e.g., gawkers, lane blocking) and lead to secondary incidents. Table 4 summarizes the average time it takes FCP operators to clear an incident (e.g., identify, assess, assist, and depart). On average, it takes a FCP operator 12.5 minutes to clear an incident. The longest clear times are associated with vehicle crashes, averaging 21.6 minutes. The shortest clear times are associated with no gas, multi-trouble, and other clearing — an average of under 7.9 minutes.

Table 4
Incident Clear Time, FY 2008

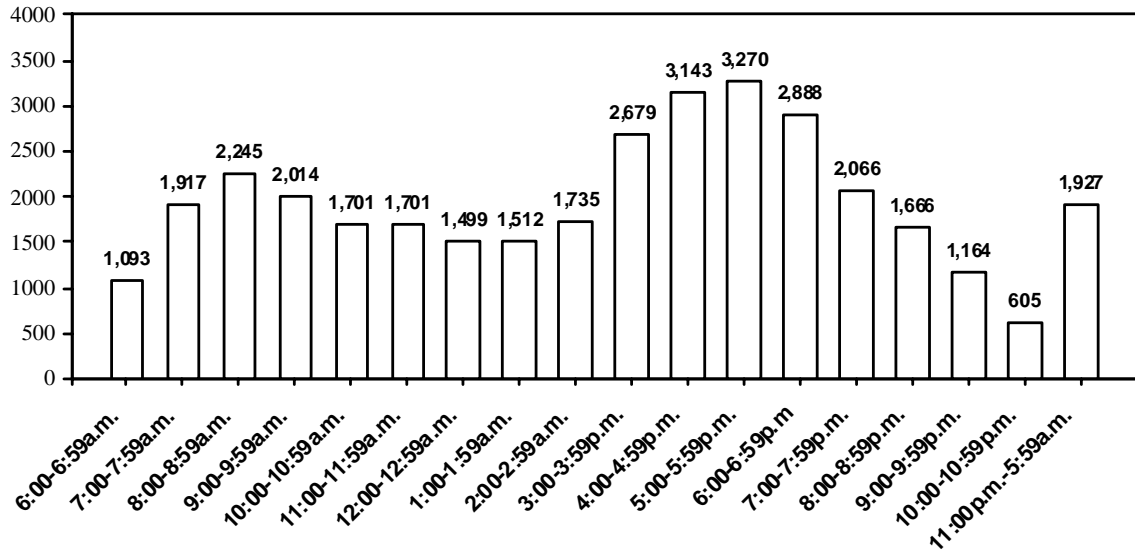
	Flat Tire	No Gas	Mechanical	Crash	Multi Trouble	Other	Average of All Incidents
Average Clear Time (minutes)	14.6	7.9	14.5	21.6	7.2	5.4	12.5

Source: MDOT.

Time of assists

The Freeway Courtesy Patrol hours of operation in FY 2008, beginning in February 2008, was 5 a.m. to midnight, seven days a week. Figure 5 shows the time periods during which stranded motorists were assisted. The data showed that the spike in assists occurred during the peak rush hours of 7-10 a.m. and 3-7 p.m. There are fewer assists between 10 p.m.-7 a.m. The fluctuation of number of assists from hour-to-hour can be attributed to the number of vehicles patrolling.

Figure 5
Assists by Time Periods, FY 2008



Source: MDOT.

Location of assisted stranded motorists

Table 5 shows the top five locations and total number of motorists assisted for each of the seven patrolled freeways in FY 2008, along with the type of trouble encountered I-94 had the greatest number of assists with 9,298 stranded motorists assisted, followed by I-75 (7,725), I-96 (5,187), I-696 (4,389), M-10 (3,065), M-39 (2,099) and I-375 (99). Westbound I-94 near Telegraph Road had the greatest number of incidents (299); Westbound I-94 at Southfield Freeway was second with 202. The high number of assists can be partially attributed to the number of vans, frequency of service, and higher traffic volumes. Thus, one must not assume that any one location is a trouble spot, but the location is further analyzed as to the type of trouble found and the frequency. For example, at Westbound I-94 near Telegraph Road, there were 77 reported flat tires and 60 vehicles with no gas.

Table 5

Top Five Locations and Total Stranded Motorist Assists by Freeway, FY 2008

Route	Dir	Near Exit	Total	Crash	Debris	Flat Tire	Mechanical	Multi Trouble	No Gas	Other
I-94	WB	Telegraph/US 24	299	7	12	77	110	22	60	11
	WB	M 39/Southfield	202	7	9	52	68	24	36	6
	EB	Middlebelt	201	14	4	57	58	21	43	4
	EB	Telegraph/US 24	195	10	4	51	64	19	37	10
	WB	Vining	194	8	14	46	56	21	39	10
	Total All Locations			9,298	525	435	2,327	2,811	1,050	1,692
I-75	NB	14 Mile	194	72	3	37	40	14	20	8
	NB	Davison	180	17	4	41	48	17	42	11
	NB	I 696	162	35	7	34	28	17	30	11
	SB	14 Mile	146	22	3	30	46	12	26	7
	NB	Crooks	138	15	6	38	41	9	27	2
	Total All Locations			7,725	876	373	1,982	2,091	729	1,287
I-96	EB	Greenfield	164	4	8	31	51	13	53	4
	WB	M 39/Southfield	164	2	10	26	36	22	61	7
	WB	Novi	144	12	2	31	44	17	31	7
	EB	Schaefer	138	1	1	25	37	15	55	4
	EB	M 39/Southfield	129	5	7	22	24	18	51	2
	Total All Locations			5,187	252	224	1,318	1,379	545	1,288
I-696	EB	Orchard Lake	156	3		45	47	19	31	11
	EB	Mound	134	11	6	29	28	18	31	11
	WB	Orchard Lake	134	3	4	38	36	22	22	9
	EB	Coolidge	99	17	1	29	18	14	16	4
	EB	Woodward/M 1	99	6	2	21	23	14	18	15
	Total All Locations			4,389	429	179	1,065	1,088	590	748
M-10	NB	Telegraph	147	31	1	31	33	15	32	4
	SB	Davison	90	8	5	17	19	20	18	3
	SB	I 94	77	4	3	13	29	10	14	4
	NB	7 Mile	76	1		15	19	13	24	4
	NB	Linwood	70	2	2	21	12	8	21	4
	Total All Locations			3,065	160	108	737	755	419	737
M-39	NB	Schoolcraft	122	9	3	30	34	5	36	5
	NB	8 Mile	112	12	3	32	29	7	25	4
	NB	Ford	102	11	2	25	30	11	19	4
	NB	7 Mile	97	10	7	25	24	6	23	2
	NB	Joy Rd	93	16	5	13	27	10	18	4
	Total All Locations			2,099	174	95	480	593	180	509
I-375	SB	Lafayette	23	3		11	2	1	4	2
	NB	Gratiot/M 3	16			4	4	1	6	1
	NB	I 75	15	2	1	3	5		3	1
	SB	I 75	10	1		3	1	1	3	1
	SB	Jefferson	7	1	1		3	1		1
	Total All Locations			99	11	6	26	21	8	21

Source: MDOT.

Unoccupied Vehicles

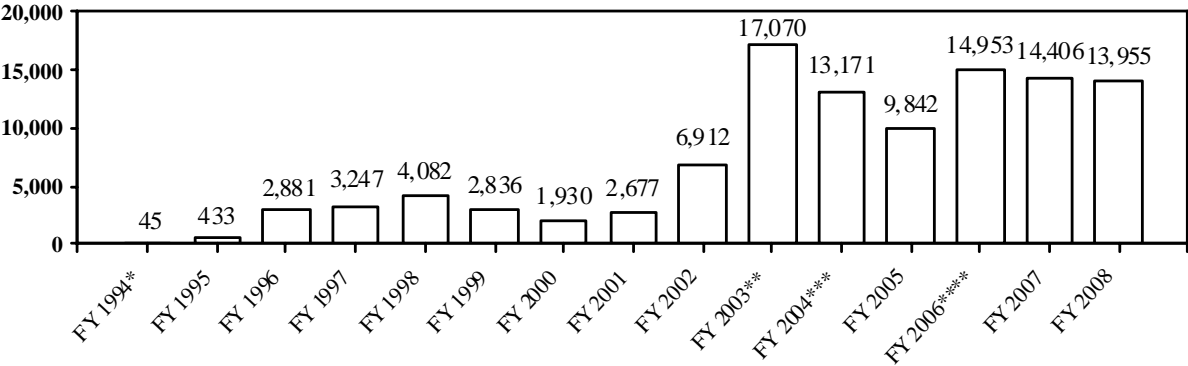
Another service offered by the FCP is detecting and marking unoccupied vehicles. Unoccupied vehicles parked on the side of the road pose a hazard in many ways, including blocking the shoulder, impeding emergency personnel, slowing down passing vehicles to avoid or look at the vehicle, and becoming a potential crime scene. FCP operators stop and mark unoccupied vehicles that are parked illegally. On average, it takes FCP operations less than five minutes to stop for an unoccupied vehicle.

Figure 6 shows the number of vehicle stops in which an unoccupied vehicle was recorded. Since 1994, the FCP has made 108,440 vehicle stops to attend to unoccupied vehicles. In FY 2008, 13,955 stops were made (down 3.1 percent from FY 2007). The significant increase from FY 2002 to FY 2003 and decrease from FY 2003 to FY 2004 is attributed to the revised procedures (implemented in 2003) that now require FCP operators to stop once per shift and fill out a call card, rather than stopping multiple times per shift to track abandoned vehicles.

In December 2002, new legislation (PA 649, Michigan Senate Bill Number 961) reduced the time from 24 to 18 hours that an unoccupied vehicle could remain on the freeway until it was deemed abandoned. The Michigan State Police (MSP) or their designated agent can now tow the vehicle after 18 hours.

In 2003, the FCP revised its unoccupied vehicle procedures. The revised procedure required FCP operators to write the date and time on the windshield of an unoccupied vehicle. In addition, the driver filled out a call card each time an unoccupied vehicle is encountered, even if it is a vehicle stopped for previously. The purpose for the procedural change was to determine how long a vehicle remained unattended on the freeway from the time it was initially marked by the FCP operator. In January 2004, the unoccupied vehicle procedures returned to one stop per vehicle.

Figure 6
Unoccupied Vehicle Stops by Freeway Courtesy Patrol Drivers by Fiscal Year, September 1994-September 2008



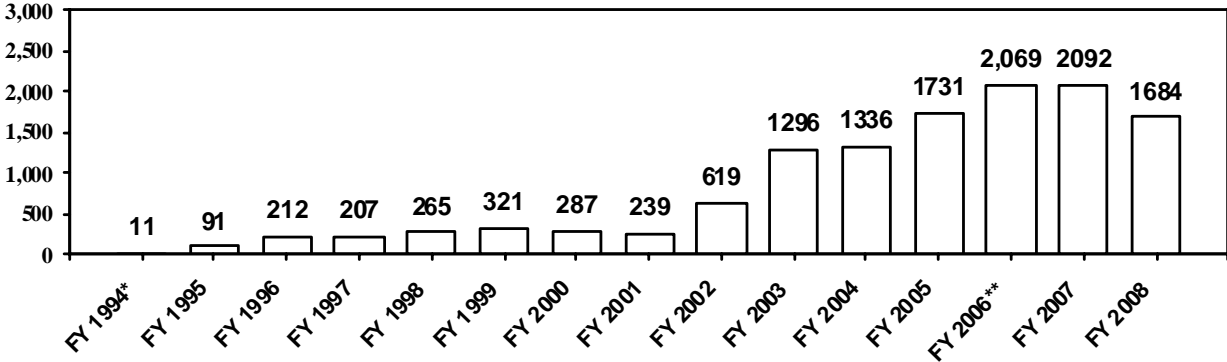
*1994 data includes the month of September only
 ** Increase is due to a revised unoccupied vehicle procedure as stated above.
 *** Decrease due to revising policy back to one vehicle stop per shift as explained above.
 Source: MDOT.

Debris

The FCP also stops to remove debris from travel lanes on the freeway. Debris on the roadway can cause a hazard to drivers approaching the area. Debris ranges in size and type and can include car parts, materials from trucks, objects illegally dumped on the roadway, road crew signs and cones that have fallen into travel lanes, debris from nearby locations, and pieces of furniture.

FCP operators attend to debris when it is detected. If the debris is small, FCP operators will remove it from the roadway and either haul the object away in the FCP vehicle or place it off the roadway. If the object is large, the driver will secure the area with the FCP vehicle, using cones and flares, and wait for assistance from the Michigan State Police or maintenance personnel. Since 1994, the FCP has made 12,460 vehicle stops to attend to debris on the roadways. In FY 2008, FCP operators made 1,684 vehicle stops to attend to debris on the roadway, down over 24 percent from FY 2007. Figure 7 shows a breakdown, by fiscal year, of debris stops since 1994.

Figure 7
Debris Stops by Fiscal Year, September 1994-September 2008



*1994 data includes the month of September only.
Source: MDOT.

Benefits of the Freeway Courtesy Patrol

The FCP program has been a great success. Motorists assisted by the FCP are very satisfied with the service they receive as documented by many correspondence submittals. One motorist wrote:

“I just wanted to take a moment and thank you for the assistance I received on I-94 Westbound between exits 217 and 218 when I had a flat tire. Changing a tire is no fun anytime, but when cars are whizzing by it can be very scary, particularly after working all night. I had just gotten started setting up the jack when your people pulled up. What a relief. Just having the van and someone there for support was great and I was on my way in no time. My thanks to him and your entire team.”

Not only did the program assist 35,143 motorists in FY 2008, but the motoring public and public-at-large also benefited from reduced congestion and improved air quality.

Air Quality Benefits

One of the benefits of the FCP is its positive impact on air quality. Congestion is a major contributing factor to air pollution. The FCP helps to improve traffic flow and thus reduce delay. Table 6 shows air-quality benefits for each year of FCP operation, using a conservative analysis. Over the years, the FCP program has saved millions of hours of delay on Southeast Michigan freeways. In FY 2008, based on the average hours of delay saved, the FCP saved 2,094 kilograms per day of volatile organic compounds (VOC), 999 kilograms per day of nitrogen oxides (NOx), and 15,411 kilograms per day of carbon monoxide (CO) pollutants. The year-to-year fluctuation is due to changes in idling emission factors and the number of FCP assists. The FCP program not only benefits motorists that are assisted, but the public as a whole benefits from the program. These numbers were calculated using a model developed specifically for FCP operations.

Table 6
Air Quality Benefits Attributed to the Freeway Courtesy Patrol

Fiscal Year	Average Hours of Delay Saved	Air Quality Benefits: Reduction in VOC, NO _x and CO		
		Kilograms per day		
		VOC	NO _x	CO
2008	11,527,514	2,094	999	15,411
2007	11,869,149	2,156	1,028	15,867
2006	11,388,363	2,069	987	15,224
2005	9,097,706	1,653	788	12,162
2004	9,483,833	1,723	822	12,679
2003	9,988,681	1,815	866	13,353
2002	4,914,096	893	426	6,569
2001	1,986,931	361	172	2,656
2000	1,645,296	299	143	2,200
1999	1,940,850	353	168	2,595
1998	2,183,513	397	189	2,919
1997	1,453,254	264	126	1,943
1996	1,563,803	284	136	2,091
1995	520,057	94	45	695
1994	38,817	7	3	52

Source: SEMCOG.

Benefit-Cost Analysis

In FY 2008, \$2,133,700 was programmed in SEMCOG's Transportation Improvement Program (TIP) for the FCP. This includes \$1,707,000 from Congestion Mitigation Air Quality (CMAQ) and \$426,700 from Michigan Transportation Fund (MTF). The actual annual operating cost for the FCP program for FY 2008 was just over \$2.3 million. A \$2.3 million budget translates into just over \$191,000 a month. The monthly amount can vary based on the performance based contract currently in place. Additional funds were used to cover actual costs.

A distinct advantage of roadside assistance programs is the benefit-cost analysis generated in terms of traffic flow and reduced congestion. Evaluation models developed by traffic engineering experts consider that the program's timesaving features for motorists also contribute to a decrease in congestion. Using these modeling tools, an analysis of the FCP indicates a benefit-cost savings ratio of 15.2:1. This means that for every dollar spent on the program in FY 2008 evaluation period, a benefit of at least \$15.20 was realized. This ratio is based on conservative benefit estimates.

A ratio greater than 1:1 means a positive return on investment. Travel-time savings for motorists was the only benefit considered for this analysis. The benefit-cost analyses from previous years are summarized in Table 7. The table shows that FCP operation has been beneficial each year of analysis. The increase from 2002 to 2003 can be attributed to cost savings of operating a larger fleet throughout the year even though operating costs increased slightly. The increase from 2003 to 2004 can be attributed to an increase in stranded motorist and debris assists, as well as an increase in the number of disabled vehicles found in travel lanes versus the shoulders. The slight decrease from 2004 to 2005 can be attributed to similar operations, but with slightly higher costs, including increased fuel costs. The increase from 2005 to 2006 is attributed to lower operating costs and an increase in number of assists. The decrease from 2006 to

2007 is attributed to same operating cost and slightly fewer assists. (For a detailed explanation of the calculation of the benefit-cost ratios and sensitivity analysis for differences in changing the parameters, refer to *Freeway Courtesy Patrol Phase III Evaluation Report*, August 1998.)

Table 7
Freeway Courtesy Patrol Benefit-Cost Ratios 1994-FY 2008

Year	Benefit-Cost Ratio
FY 2008*	15.2
2007	15.9
2006	16.1
2005	15.0
2004	15.2
2003	14.4
2002	9.2
2001	No analysis preformed
2000	No analysis preformed
1999	No analysis preformed
1998	17.1
1997	No analysis preformed
1996	14.1
1995	6.6 to 22.3
1994	No analysis preformed

*Report changed to FY report for 2008. Previous years are calendar years.
Source: SEMCOG.

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