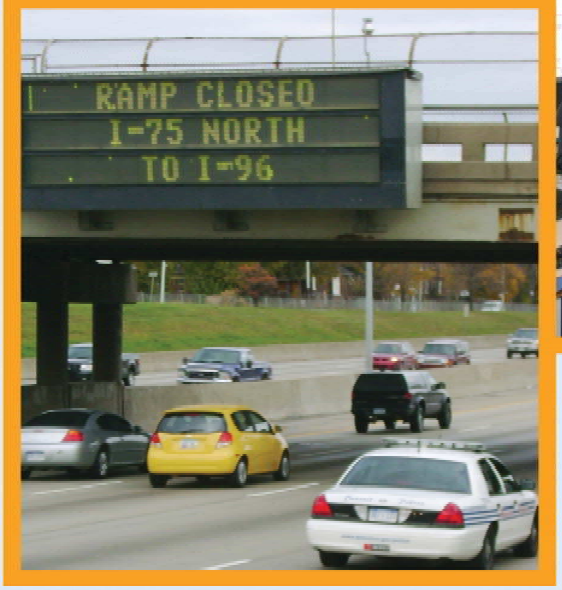
MITSC
Annual Report
Fiscal Year 2007



MDOT
Michigan Department of Transportation

URS

Introduction

In efforts to educate and inform the public about the facilities, services, and quality of performances associated with the Michigan Intelligent Transportation Systems Center (MITSC) located in downtown Detroit, I am pleased to share with you the 2007 Annual Report.

The Michigan Department of Transportation (MDOT) operates MITSC 24 hours a day, seven days a week by collecting and disseminating travel information across approximately 300 miles of freeway in the Detroit Metropolitan Area. Data collection resources include 163 closed circuit television cameras, over 2,250 traffic detectors, the Freeway Courtesy Patrol (FCP), the Michigan State Police (MSP), media partners, and other local and county agencies. MITSC disseminates real-time travel information via 63 permanent dynamic message signs (DMS) and a growing number of portable changeable message signs (PCMS) strategically placed along freeways during special events and major construction projects. In addition to the MITSC staff, MSP Second District Regional Dispatch is co-located at the facility. This close working environment provides a cohesive communication link between what MSP Officers encounter on the roads and what MITSC staff view on the cameras.

MITSC has been able to increase the public's availability to real-time traffic information with the ability to view images of the closed circuit television (CCTV) cameras on the MDOT website. Local media can also use live video feed from these cameras and broadcast the images during traffic reports under the discretion of the control room operators.

This report summarizes key MITSC performance measures and operations highlights of MDOT's fiscal year 2007. MDOT Freeway Operations, supported by URS Corporation as consultant for MITSC control room operations, increased MITSC operating efficiency, which in turn improved the performance and safety of the metro area freeway system. Interagency cooperation and collaboration was also strengthened in order to enhance regional transportation system operations. MDOT Freeway Operations has led numerous successful initiatives to better position MITSC and other stakeholder resources in proactively supporting the following three operations focus areas: (1) traffic incident management, (2) traffic information management (planned special events and roadway construction), and (3) Freeway Courtesy Patrol operations. Following an introductory section and preceding a summary section, these MITSC core-function sections contain important information summarizing program statistics, activities, and products.

I hope you thoroughly enjoy this report and are better able to comprehend the many ways that MITSC works around the clock to provide you, our customer, with the highest quality transportation services.

Regards,

Greg Johnson

MDOT – Metro Region Engineer

The information contained in this Annual Report covers MDOT's Fiscal Year 2007, October 1, 2006 to September 30, 2007.

History

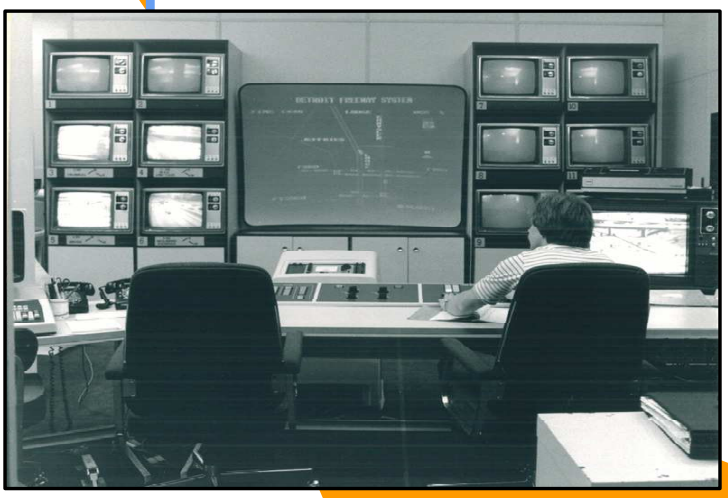
While Intelligent Transportation Systems (ITS) are widely accepted and valued today, the Michigan Department of Transportation's (MDOT) commitment to deploying ITS on Detroit Metropolitan Freeways began over 50 years ago.

The first experiments with television to study freeway traffic in Metro Detroit begins in 1957 and the John C. Lodge Proving Grounds project opens in 1961. This picture shows Detroit's first Traffic Management Center (TMC), housed in a small room at the Herman Keifer Hospital. The system is equipped with 14 cameras along M-10 from Glendale to Holden just north of I-94. This research project ends in 1971.

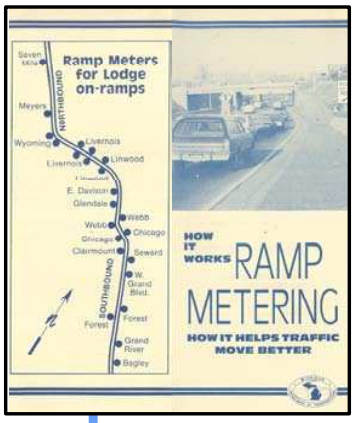
1957 - 1971

1976 - 1991

The Surveillance, Control and Driver Information (SCANDI) program with a control room in the Sentinel Building in Detroit starts. The SCANDI system consists of 1,300 traffic detectors, four cameras, and nine large advisory signs along 32.5 miles of freeway in Detroit. In addition, motorist-aid phones are installed every one-third of a mile along EB and WB I-94. The system grows to 12 closed circuit television (CCTV) cameras and 14 dynamic message signs (DMS) by 1991.



1983

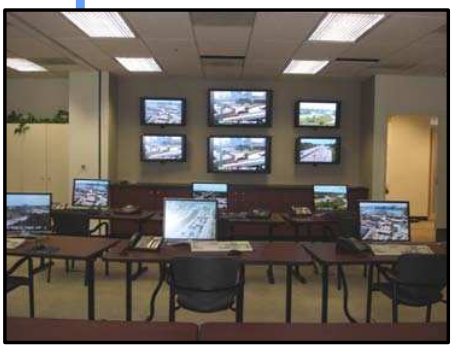


In 1983, the first six Ramp Meters are installed on I-94. By 1985, the number grows to 28 on I-94 and in 1987, the final installation of 21 Ramp Meters on M-10 occurs. Ramp Metering becomes a standard way of monitoring the amount of traffic entering the freeway in attempts to reduce congestion.

Operations relocate to the current building, 2nd floor of the Greyhound bus station and in 1995 coverage expands from 32.5 miles to 180 miles to become the largest ITS deployment in the world at this time.

Expansion of Detroit Metropolitan International Airport funds ITS expansion with six new DMS and 11 new cameras on I-275, I-75, and I-94 in Wayne and Monroe counties.

An Auxiliary Traffic Operations Center (AuxTOC), which is a transportation command center, is built in preparation for SuperBowl XL in the large conference room at MITSC.



1991 1994 1995 2003 2005 2006

Publicly funded, Freeway Courtesy Patrol (FCP) begins as a pilot program on I-75 in downtown Detroit with two vans. In 1999, MDOT assumes responsibility and adds an additional five vans to the fleet. Today, there are 24 vans and 22 drivers patrolling over 200 miles of freeway in Metro Detroit.

Michigan State Police (MSP) relocates to the Michigan Intelligent Transportation Systems Center (MITSC) to establish the first combined Freeway Operations and State Police Dispatch Center in Michigan.

MDOT celebrates 100 years of transportation services and along the way has continuously shown innovation on a state, national, and global level.

Michigan Department of Transportation Celebrates 100 Years 1905 - 2005 OF TRANSPORTATION

Mission

MDOT's mission is to provide the highest quality transportation services for economic benefit and improved quality of life.

As taken from the MDOT ITS Strategic Plan, MDOT has the mission to develop and sustain a program at MDOT to improve the transportation system safety and operational performance using existing and innovative ITS technologies.

One way MDOT achieves this mission is through activities involving MITSC.

Vision

MDOT's vision is threefold with strategic focus that permeates internally and extends outwardly:

1. MDOT is the preferred quality transportation leader, provider, and partner for Michigan, committed to customer satisfaction, continuous improvement, and cost-effective service and results.
2. MDOT solves customers' mobility and access needs through innovative, technologically sound, environmentally sensitive, and safe solutions that are also sensitive to benefits and costs.
3. MDOT is business process oriented and focused on teamwork, with a well trained, diversified work force that is committed to customer satisfaction, continuous improvement, and measurable results.

Internal

- Integrated fully into MDOT's business processes
- Supported by dedicated long-term funding and managed in a sustainable manner

External Strategic Focus

- Focused on customers, adding measurable value to their daily lives with an emphasis on commerce and economic growth
- Engaged in effective partnerships for the promotion and integration of ITS
- Recognized nationally for Vehicle Infrastructure Integration (VII) and Intelligent Vehicle Initiative (IVI) research and deployment
- Statewide, coordinated, integrated, and seamless

Table of Contents

Intelligent Transportation System 1-6

The MITSC is instrumented with 163 cameras, 63 DMSs, and over 2,250 traffic detectors in the metro Detroit area. Understand MITSC in and outside the control room.

Traffic Incident Management 7-12

Handling freeway incidents was no minor task this FY. MITSC was involved with close to 5,000 incidents by coordinating emergency management efforts before help arrived on the scene.

Traffic Information Management 13-18

Travel to the hockey game without getting stuck in a construction zone and know where to park. Involved every step of the way, MITSC gets you the information you need to know, not only once, but over 250 times a year.

Freeway Courtesy Patrol 19-24

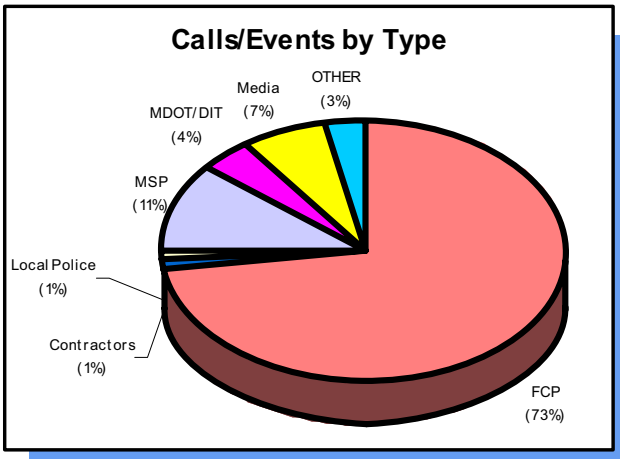
Performing 52,649 assists and providing help to a total of 48,455 people are the major accomplishments of MDOT's Freeway Courtesy Patrol (FCP) service. Check out the many ways FCP is available to assist you.

Year In Review 25-30

Now that you realize the impact of MDOT's MITSC, you can appreciate who we are. Look in this section to review where we've been, where we are, and where we're going.

After receiving a call from the Livonia Police Department regarding a car assist on westbound I-96 near Merriman Road, a control room operator enters the information into the newly redesigned Call Tracking database.

MITSC



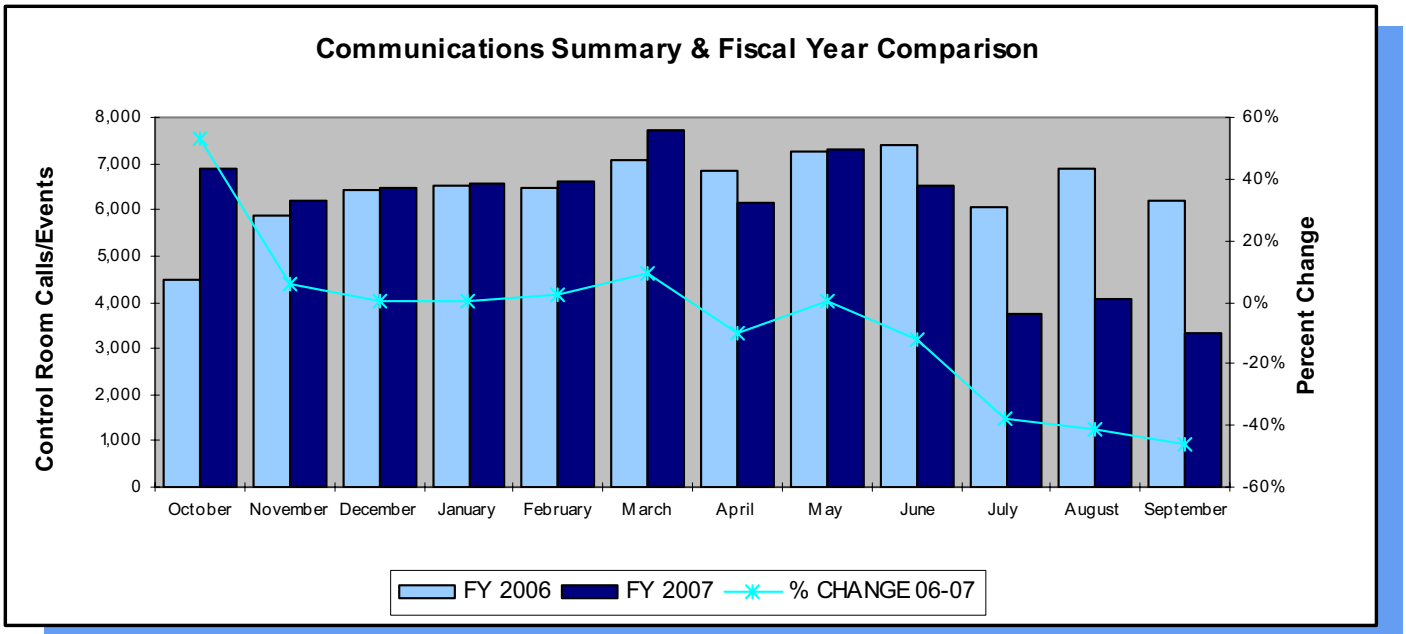
The Michigan Intelligent Transportation Systems Center (MITSC) is the core of ITS in Metro Detroit. The control room serves as the hub for surface transportation communications in Southeast Michigan and operates around the clock, 365 days a year. All operators are rigorously trained and tested throughout the year to ensure quality, up-to-date performance.

Communication is the key to a successful control room. In Fiscal Year (FY) 2007, operators handled 71,606 calls. This number of control room calls is an indication of control room activity, including incident frequency and dispatch volume, among other factors.

MITSC is the dispatch center for the Freeway Courtesy Patrol (FCP); therefore, 73% of communication occurs between MITSC control room and FCP as shown in the above chart. Michigan State Police (MSP) ranks second with 11%. If a 911 call is made from a cell phone in the Metro Detroit area, the caller is connected to the MSP Second District Regional Dispatch which is co-located at MITSC. Through a computer aided dispatch (CAD) computer screen, MSP notifies MITSC of applicable calls.

Every incoming and outgoing call is entered by control room operators into a database. On June 18, 2007, a new database, “Call Tracking”, was implemented which tracks all calls via events. Even though every communication with FCP is tracked, only one event is generated for a given incident hence the drop in reported calls/events beginning in June in the graph below as operators are now able to identify multiple calls regarding the same event.

This section presents a brief introduction to the functionality and capability of MITSC by providing an inventory of equipment both in the control room and across the region.



Inventory

Inside the control room there are four workstations positioned in front of a video wall with 36 twenty-four inch monitors and one large screen with a video projector. Each workstation is equipped with two monitors, two to three computers, up to two keyboards, a phone, and a camera control unit. Each computer houses powerful software that enables the control room operator to perform his or her tasks. The software used is as follows:

- **Advanced Traffic Management System (ATMS)** – ATMS software monitors and controls all traffic detectors, cameras, communication nodes, and signs. Operators use this software to send messages to each sign. This system captures DMS messages being displayed on each sign every 15 minutes which populate the messaging activity graphs in this report.

- **Call Log Database/Call Tracking Database** – All verbal communication data is manually entered by the operator. All incoming and outgoing control room operator calls, including 2-way communications and select MSP CAD entries, are stored in this database.

- **Freeway Courtesy Patrol Information System/FCP Call Card Database** – Data cards are filled out by the FCP driver at each incident and manually entered into a database by the control room operators. At the beginning of the FY, the data card and entire database were modified to provide a more strategic data entry process.

- **MSP Computer Aided Dispatch (CAD)** – The CAD is operated by the MSP call takers and dispatchers. MITSC operators can view this information in a timely manner and can edit information.

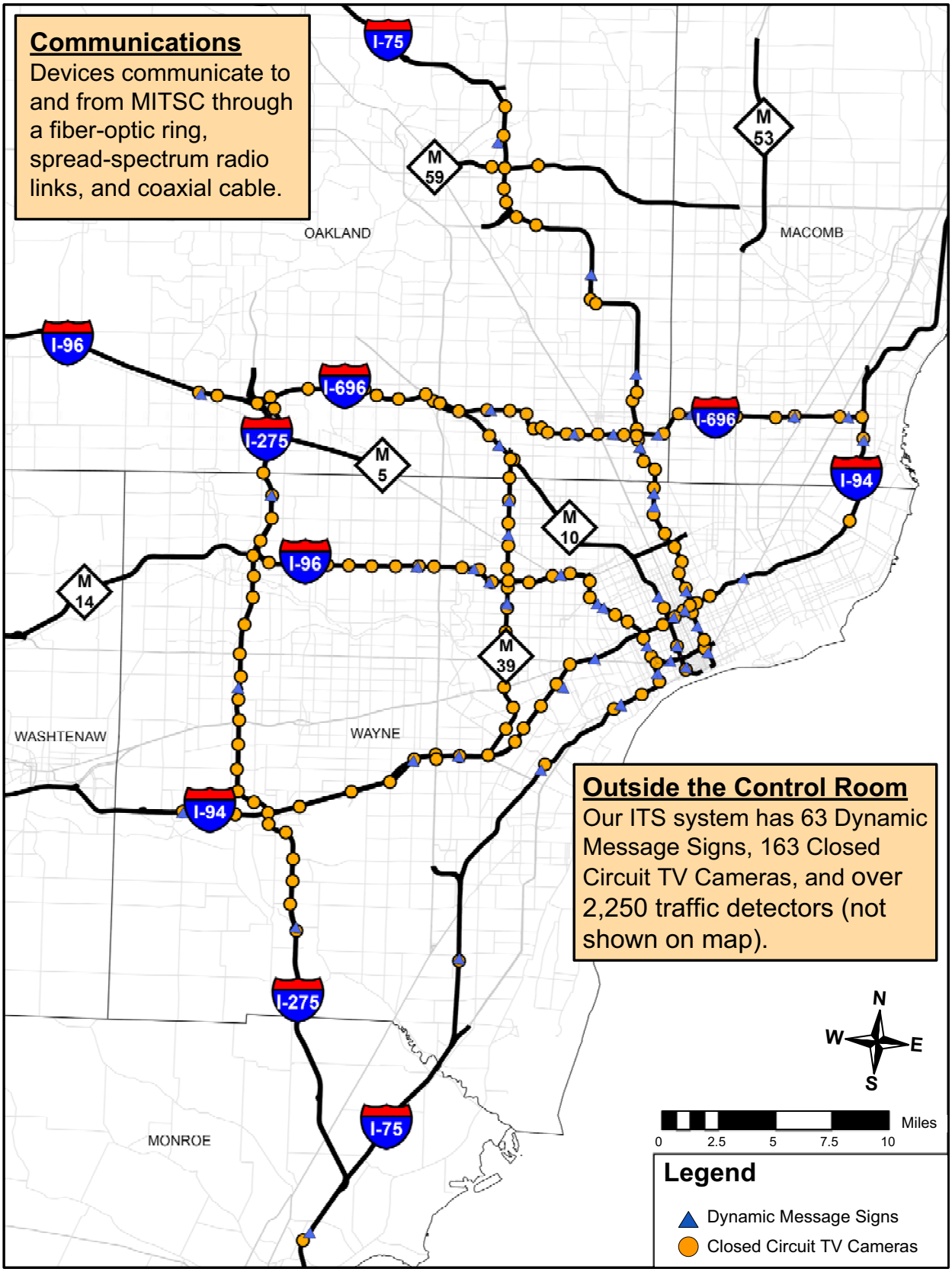
- **NavView** – This automatic vehicle location (AVL) system interactively maps FCP vans using Global Positioning Systems (GPS) allowing the operators to know where FCP vans are located in real time.

- **MaintStar** – The MaintStar database manages all maintenance issues for all ITS equipment. Control room operators electronically enter work orders daily, as needed; maintenance contractors close the work order after completion. This system also tracks ITS performance.

- **MDOT's Public Website** – With the most up-to-date and accurate information about lane closures and road construction, operators utilize this website (www.michigan.gov/drive) to inform media and the general public about current incident information.

The latest technology is used in the MITSC control room and ranges from monitoring traffic using advanced traffic management software to locating FCP drivers using GPS software. In June 2007, an 800 MHz radio system was installed to supplement cellular phones and to communicate more effectively with the entire FCP fleet at one time. To communicate information to the public, control room operators have the ability to receive streaming video from numerous cameras and to send messages to various signs.

System Coverage



Communications
Devices communicate to and from MITSC through a fiber-optic ring, spread-spectrum radio links, and coaxial cable.

Outside the Control Room
Our ITS system has 63 Dynamic Message Signs, 163 Closed Circuit TV Cameras, and over 2,250 traffic detectors (not shown on map).

QA/QC

The Quality Assurance/Quality Control (QA/QC) process is comprehensive. When incident information is received, the next step for control room operators is to verify the incident using a camera and to make sure that the information received is accurate. Only after that, does the control room operator disseminate the accurate incident information.

Beyond that, a QA/QC analyst performs an audit. One such audit is regarding high-impact incidents causing a freeway, major lane, or interchange closure (see pages 9 and 10 for more information). High impact incidents are defined as follows:

- Freeway Closures – All lanes are blocked on a freeway in one direction
- Interchange Closures – A freeway-to-freeway ramp is closed
- Lane Closures – Only one lane open in one direction

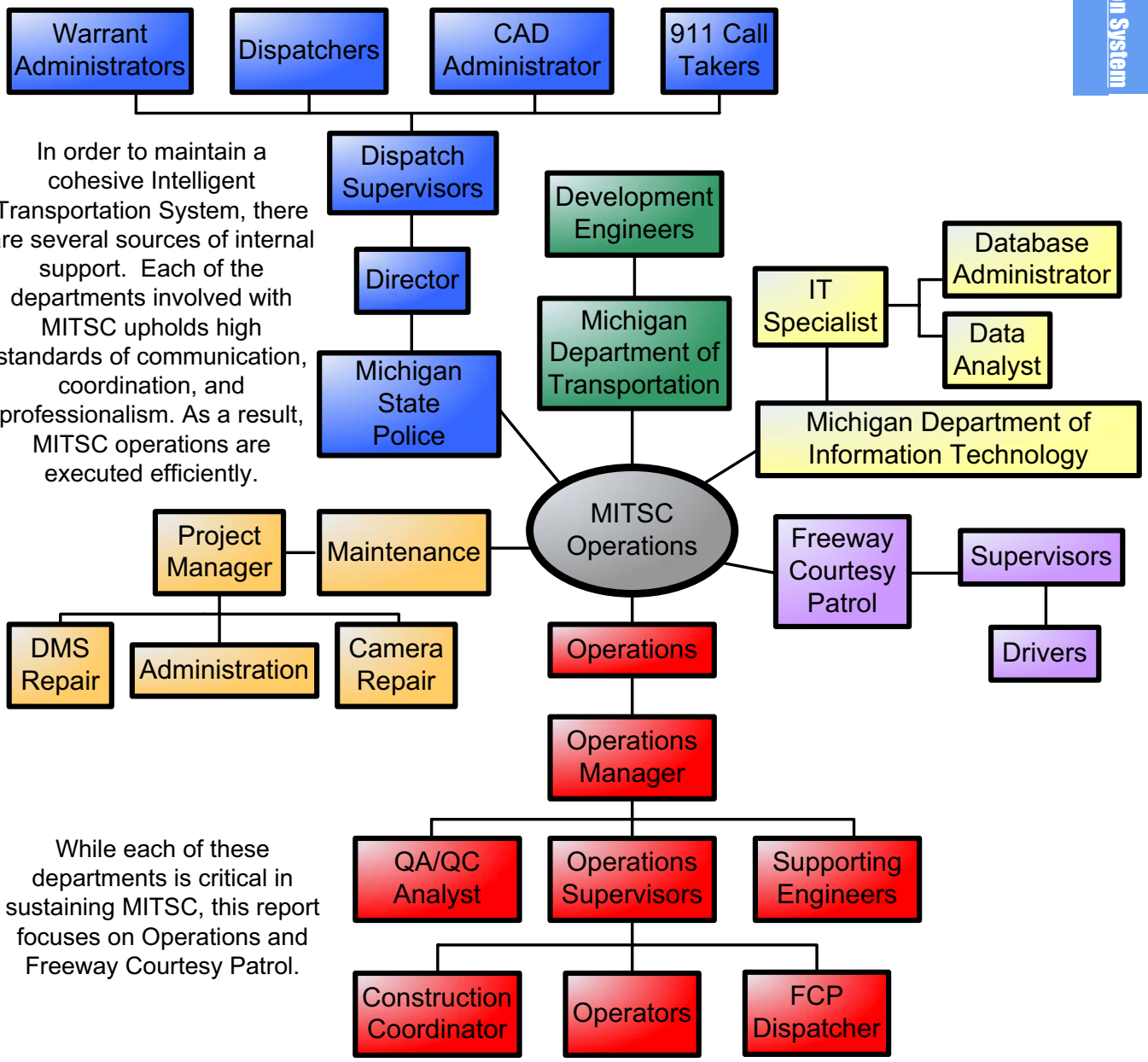
All incidents producing these results are disseminated via broadcast e-mail. E-mail notifications, or advisories, are sent out during management of major incidents to media subscribers, transportation operators, MDOT staff and others to inform them of these high impact incidents.

The table below illustrates the accuracy of the operator's actions for all high impact incident closures during the 2007 FY. The advisory e-mail is reviewed for content accuracy. The "Wording Correct" column in the chart below identifies if the wording on the DMSs was correct and consistent with the incident details. The quality control process also verifies that the message was displayed on the correct signs ("Signs Correct" column) and that the message did not expired while the incident was still ongoing ("Timing Correct" column). The column labeled "Incident Correct" indicates if the information sent to the website was consistent with the advisory.

FY 2007 MONTHLY QC CLOSURE SUMMARY						
MONTHLY ACCURACY PERCENTAGE						
MONTH	CLOSURE TOTALS	EMAIL CORRECT	WORDING CORRECT	SIGNS CORRECT	TIMING CORRECT	INCIDENT CORRECT
OCTOBER	39	90%	92%	92%	100%	95%
NOVEMBER	47	96%	98%	100%	100%	98%
DECEMBER	52	94%	96%	96%	100%	100%
JANUARY	58	95%	97%	97%	97%	95%
FEBRUARY	49	94%	96%	100%	98%	98%
MARCH	54	96%	94%	94%	100%	87%
APRIL	62	97%	92%	94%	100%	92%
MAY	51	92%	98%	100%	100%	98%
JUNE	46	91%	94%	91%	100%	96%
JULY	45	91%	96%	100%	100%	98%
AUGUST	58	95%	95%	98%	100%	97%
SEPTEMBER	42	100%	100%	100%	100%	100%

Support

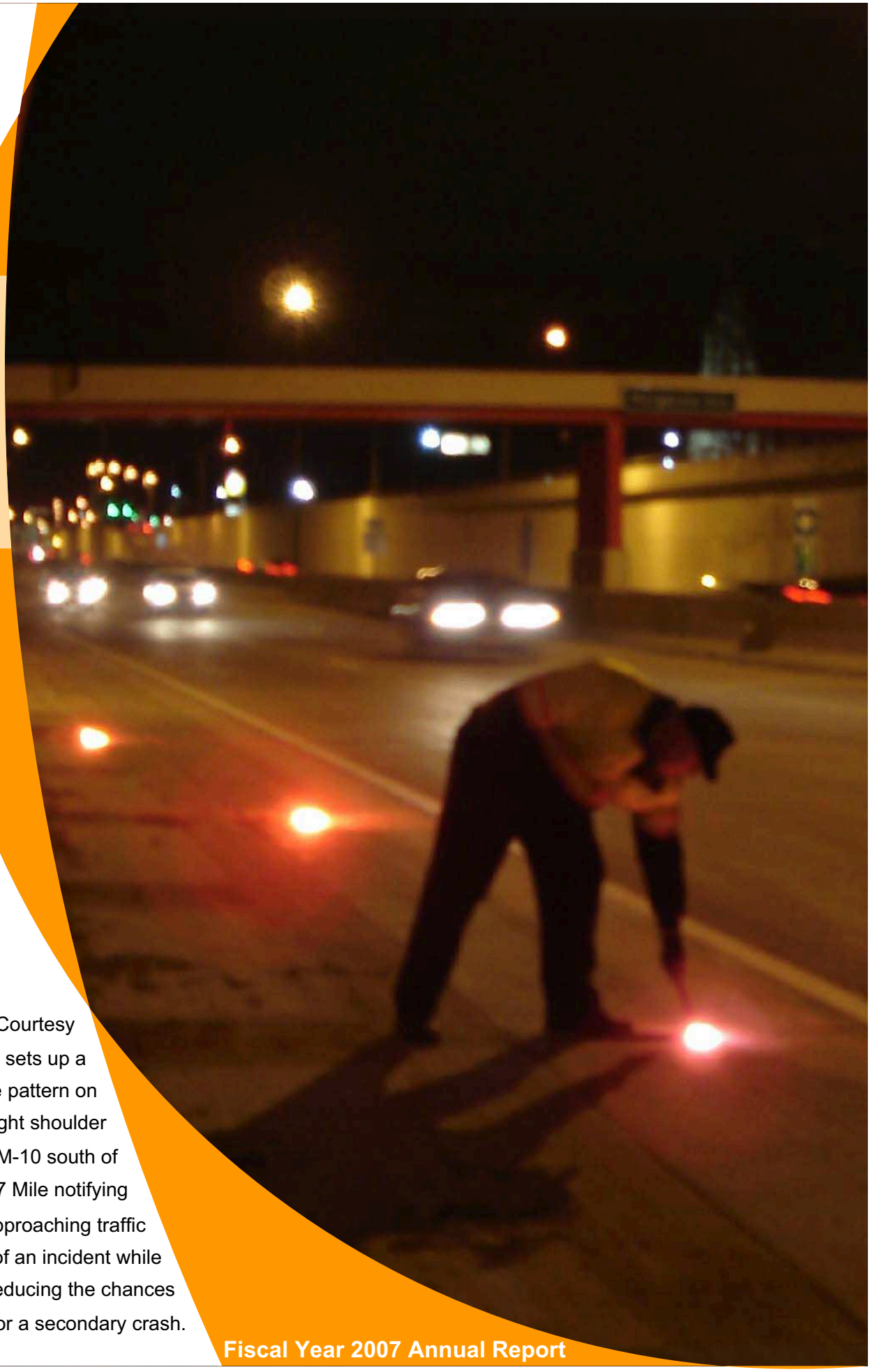
In order to maintain a cohesive Intelligent Transportation System, there are several sources of internal support. Each of the departments involved with MITSC upholds high standards of communication, coordination, and professionalism. As a result, MITSC operations are executed efficiently.



While each of these departments is critical in sustaining MITSC, this report focuses on Operations and Freeway Courtesy Patrol.

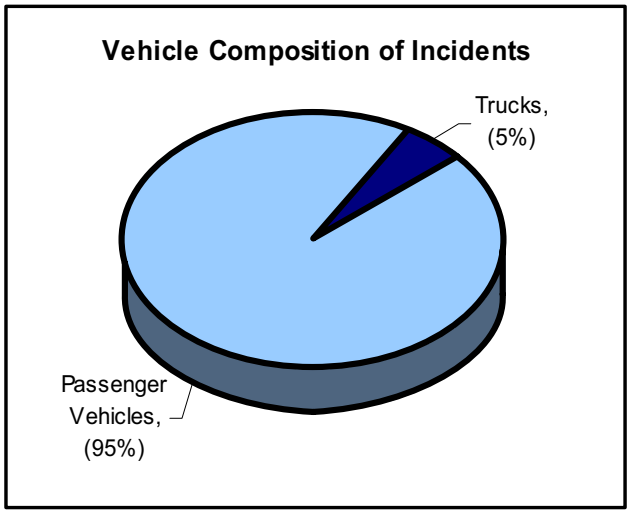
Did You Know or Ever Wonder?

WWJ 950 and Traffic.com/XM216 representatives also share the building with MITSC allowing the media to see, first hand, the same images that the control room operators see on monitors in an adjacent room to the Control Room. WJBK Channel 2 News, WDIV Channel 4, and WXYZ Channel 7 also receive live video feeds and display MDOT's traffic cameras during news broadcasts. MITSC operators also share traffic information in real time with AAA, Total Traffic Network, and Clear Channel via an internet chat group and frequent phone communications.



Freeway Courtesy Patrol sets up a flare pattern on the right shoulder of SB M-10 south of 7 Mile notifying approaching traffic of an incident while reducing the chances for a secondary crash.

Traffic Incidents

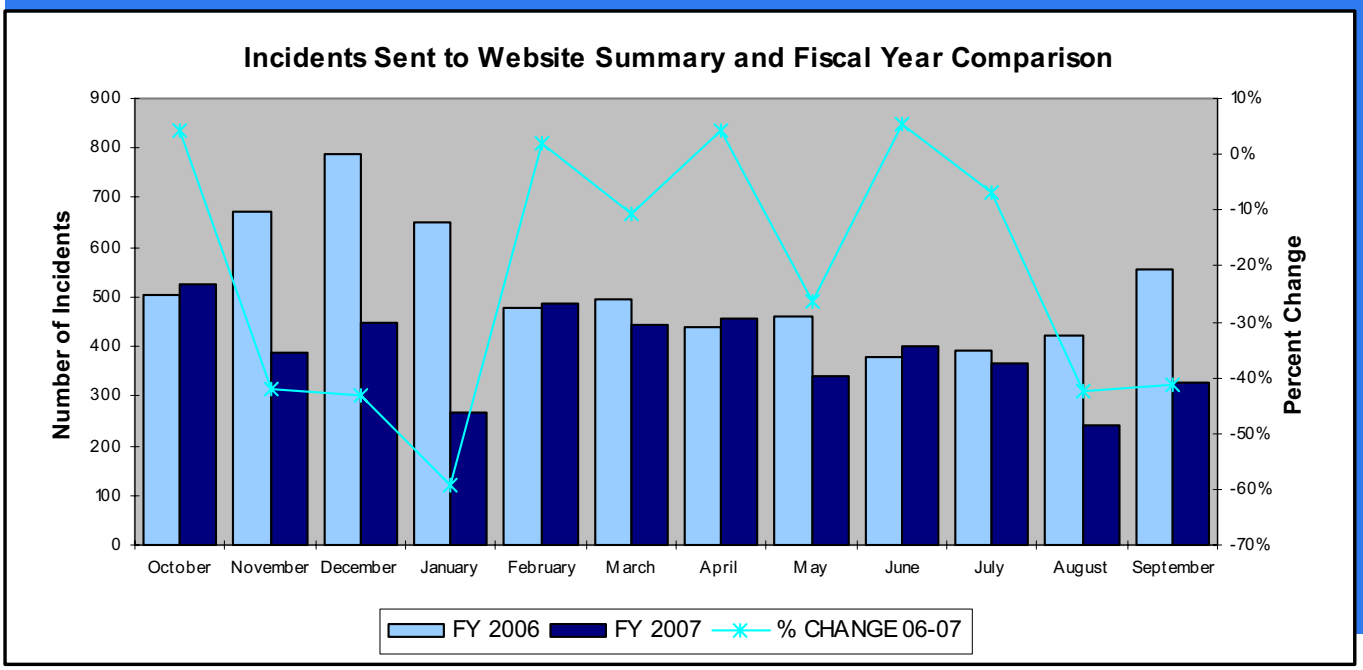


"...so you're on EB I-696 right before I-75, is that correct?" MSP call taker questions a 911 caller who just rear ended another vehicle in the center-right lane. Thankfully, no one is injured this time, property damage only. The control room operator overhears the MSP call taker and punches in camera number 108, the upper-dome camera atop ITS communication tower Hub 2, into the camera control and pans the camera to the left. There lies the incident with traffic already backing up since the time is approaching afternoon rush.

"For safety reasons, please stay in your vehicles; help is on the way." the MSP call taker finishes the call. While that is occurring, the control room operator is messaging appropriately. The message reads: RIGHT LANES BLOCKED, I-696 EAST, BEFORE I-75 and appears on two DMSs: one on EB I-696 at Manistee and the other on EB I-696 at Farmington. Another operator is entering the information into the Call Tracking program and is dispatching the nearest Freeway Courtesy Patrol van which is only minutes away.

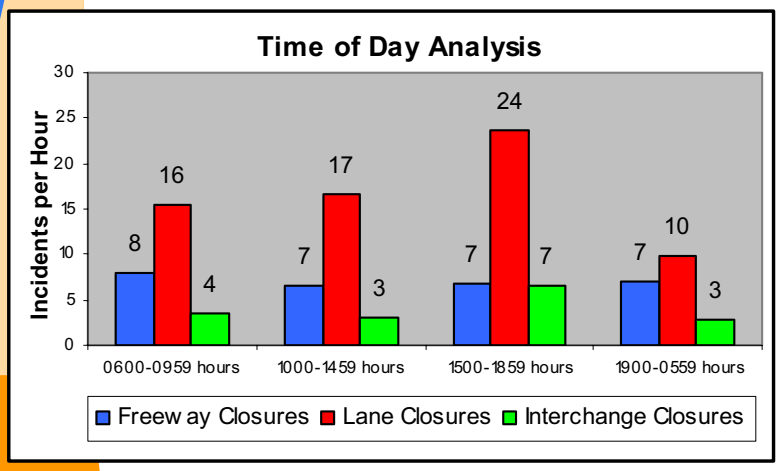
After messaging for the incident on DMSs, the first operator sends the incident report to the website by filling out an electronic form on the ATMS program. The media is then notified. Minutes later, FCP informs dispatch that he is on scene and will be setting up traffic control. During the process, an MSP officer arrives on scene. Nearly 28 minutes later, everyone clears the scene.

Overall, FY 2007 experienced a 25% reduction in incidents from FY 2006. The number of incidents dropped dramatically in November through January due to a mild winter, the installation of raised pavement markings alerting drivers to safely navigate tricky curves, and better traffic control to reduce secondary accidents. Ninety-five percent of all automobiles involved in these incidents were passenger vehicles.



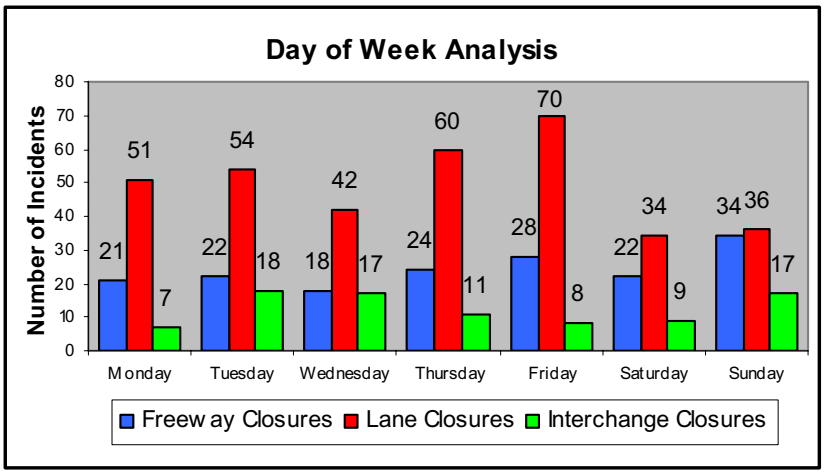
Incidents

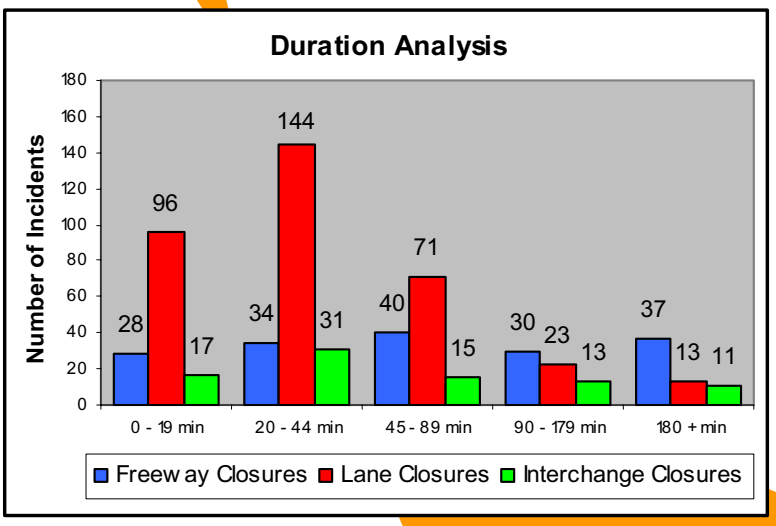
The data shown is representative of the incidents that generated closure reports during the entire FY, October 1, 2006 to September 30, 2007. Interchange closures, lane closures, and freeway closures were analyzed. There is no data regarding M-10 since all lanes on M-10 were closed from M-8 to Lahser due to construction.



The time periods shown were chosen so as to isolate the AM and PM peaks from off peak traffic conditions. While the most total closures (216) occurred between 1900 and 0559 hours, this time period has the lowest overall closure per hour ratio at only 20 closures per hour.

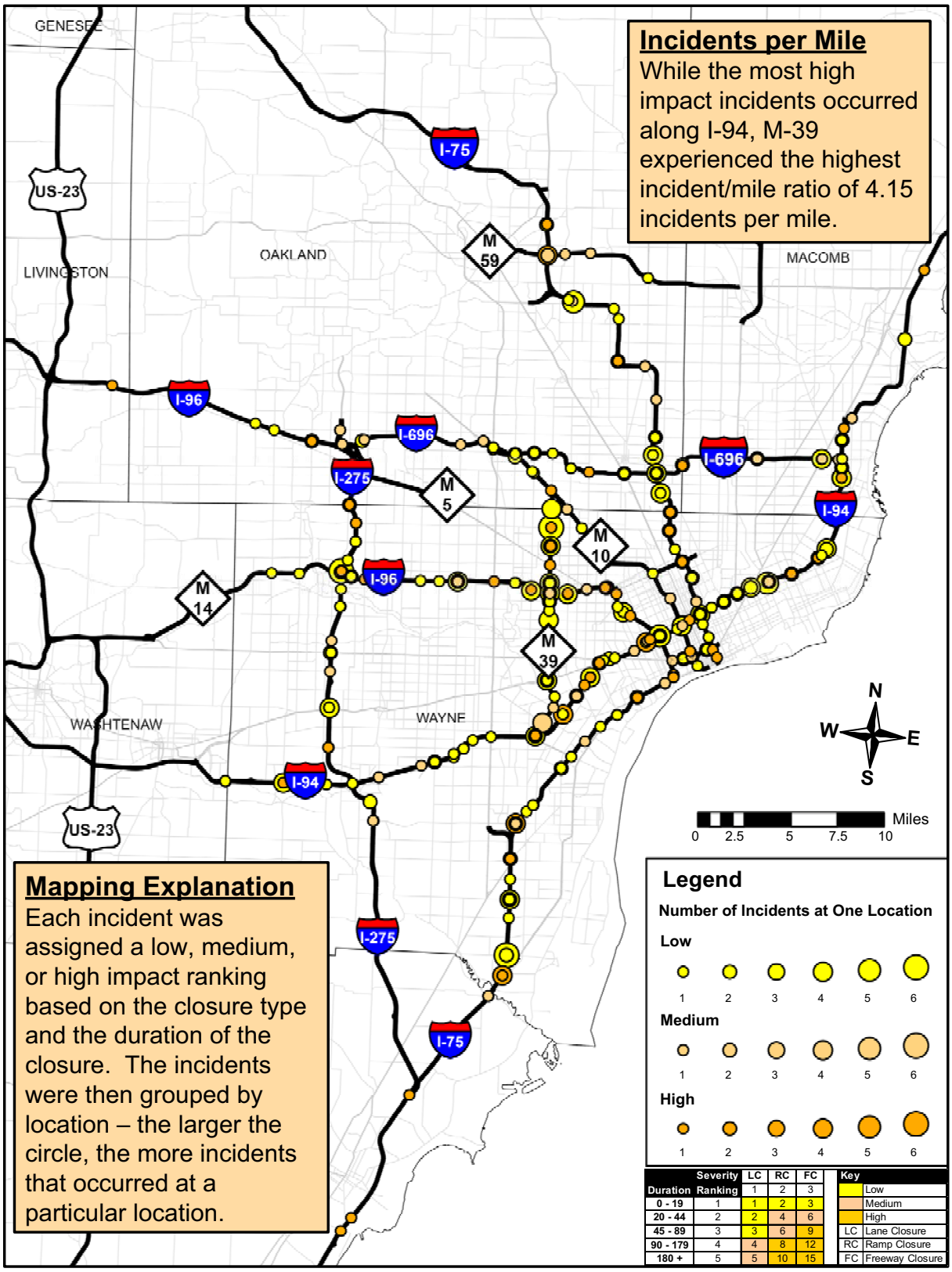
The highest number of total closures (106) occurred on Friday. The day of the week on which the fewest closures occurred is Saturday (65).





Most frequently lane and interchange closures were reopened between 20 and 44 minutes after closing with the average closure lasting 31 minutes. Freeway closures, which typically create greater impact on traffic, commerce, and delay, were most commonly reopened between 45 and 89 minutes after closing with an average closure time of 59 minutes.

Hot Spots



Incidents per Mile

While the most high impact incidents occurred along I-94, M-39 experienced the highest incident/mile ratio of 4.15 incidents per mile.

Mapping Explanation

Each incident was assigned a low, medium, or high impact ranking based on the closure type and the duration of the closure. The incidents were then grouped by location – the larger the circle, the more incidents that occurred at a particular location.

Duration	Severity Ranking	LC 1	RC 2	FC 3
0 - 19	1	1	2	3
20 - 44	2	2	4	6
45 - 89	3	3	6	9
90 - 179	4	4	8	12
180 +	5	5	10	15

Key	
	Low
	Medium
	High
LC	Lane Closure
RC	Ramp Closure
FC	Freeway Closure

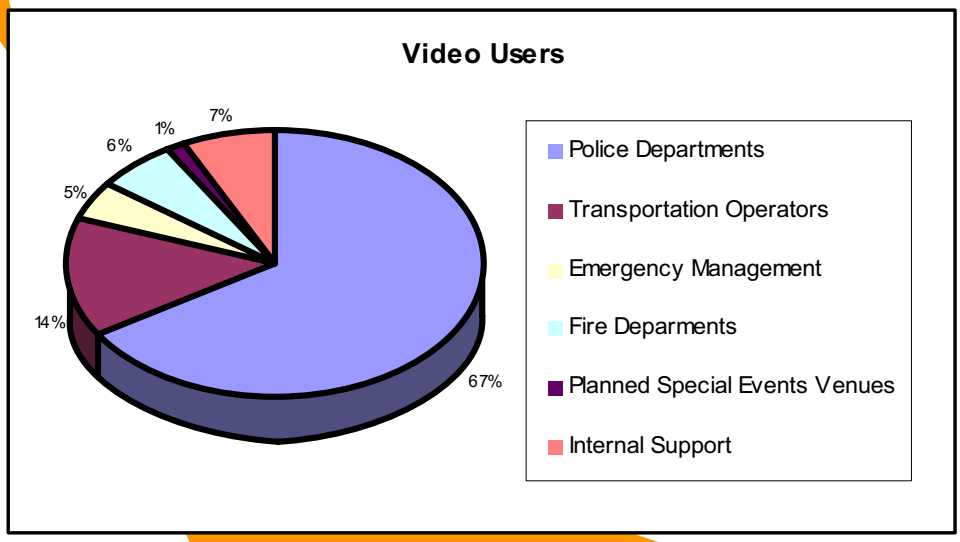
TIM Website

Traffic Incident Management

Traffic Incident Management (TIM) efforts reach farther than MDOT roads by extending into the World Wide Web, http://gis.midwesternconsulting.com/tim. On the Metro Detroit Traffic Incident Management website's main page, all public users can view a calendar and scrolling announcements concerning upcoming TIM events and meetings. Public users can also be connected to other TIM related information and real time traffic information on the "Links" page. A Geographic Information System (GIS) map displays all DMS, CCTV, and traffic detector locations across the region.

Registered users (stakeholders such as local police departments) are made privy to document sharing and streaming video of all CCTV in the MITSC system. Unequivocally, the website is fulfilling the goal of TIM by improving safety, mobility, and traffic operations related to non-recurring congestion due to incidents. The Metro Detroit TIM website received a makeover this FY improving the user-friendliness of this effective tool.

Agencies access the streaming video to monitor incidents under their jurisdiction or domain. The TIM website video monitoring usage over the entire FY by user is shown below. Similar agencies are grouped together. For example, the Detroit Department of Transportation (DDOT) and the Road Commission for Macomb County (RCMC) both fall into the "Transportation Operators" category. Internal support includes all MDOT staff using the site.



Outreach & Training

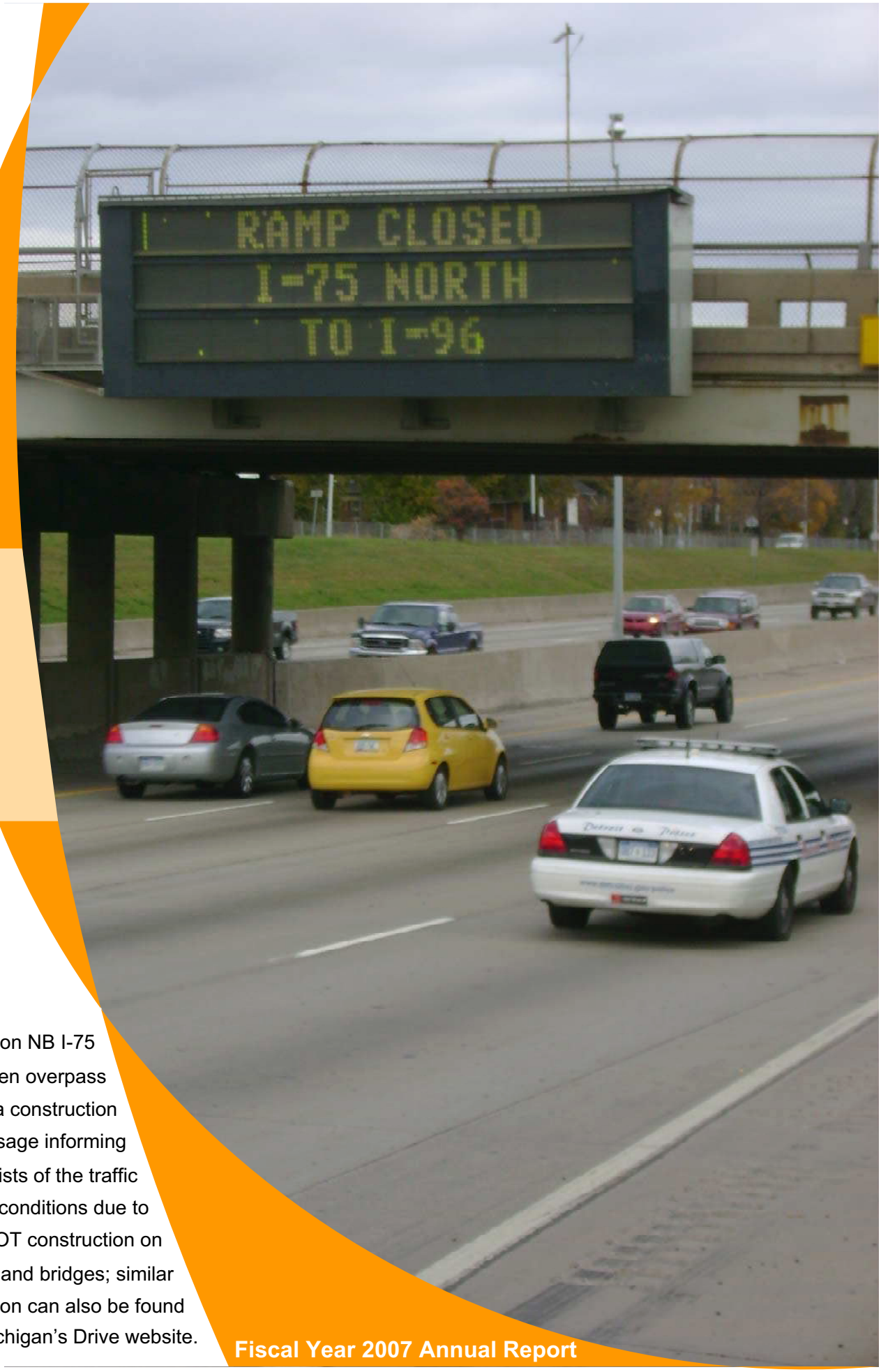
In FY 2007, staff from MITSC presented seven "Incident Responder Safety" workshops at five venues in and around Metro Detroit, which had a cumulative attendance of more than 210 individuals. The workshops presented information regarding the importance of quick clearance and high visibility as well as incident traffic control and lane closure taper techniques. To accompany the presentations were video clips, an in room demonstration about proper lane tapers, and a scale lane taper exercise, which was presented in the venue's parking lot. The purpose of these workshops was to share information and promote safety, efficiency, and excellent coordination between MITSC, MSP, and local agencies for all future incidents.

NATIONAL INCIDENT MANAGEMENT SYSTEM

The National Incident Management System (NIMS) training courses provide a consistent nationwide approach for agencies to work together in managing incidents by establishing standard processes, protocols, and procedures. The United States Office of Homeland Security mandates the completion of this training through the Federal Emergency Management Agency (FEMA). In 2007, all MITSC staff completed two NIMS courses; "An Introduction to National Incident Management System" and "National Response Plan", in order to ensure that the proper procedures would be followed in the event of a national incident in Metro Detroit.

Did You Know or Ever Wonder?

On most construction projects, enhanced mile markers are being permanently erected on the side or median of a freeway at two tenths of a mile increments. During the Dodge the Lodge construction project, which concluded this FY, these enhanced mile markers were installed along M-10. One main purpose for the enhanced mile markers is to aid first responders in TIM. If a motorist gets into an accident on the freeway, he or she will be able to tell MSP and other first responders exactly where he or she is located so that help can be sent to the correct location as soon as possible.



The DMS on NB I-75 at Green overpass displays a construction message informing motorists of the traffic conditions due to MDOT construction on roads and bridges; similar information can also be found on Michigan's Drive website.

Traffic Information

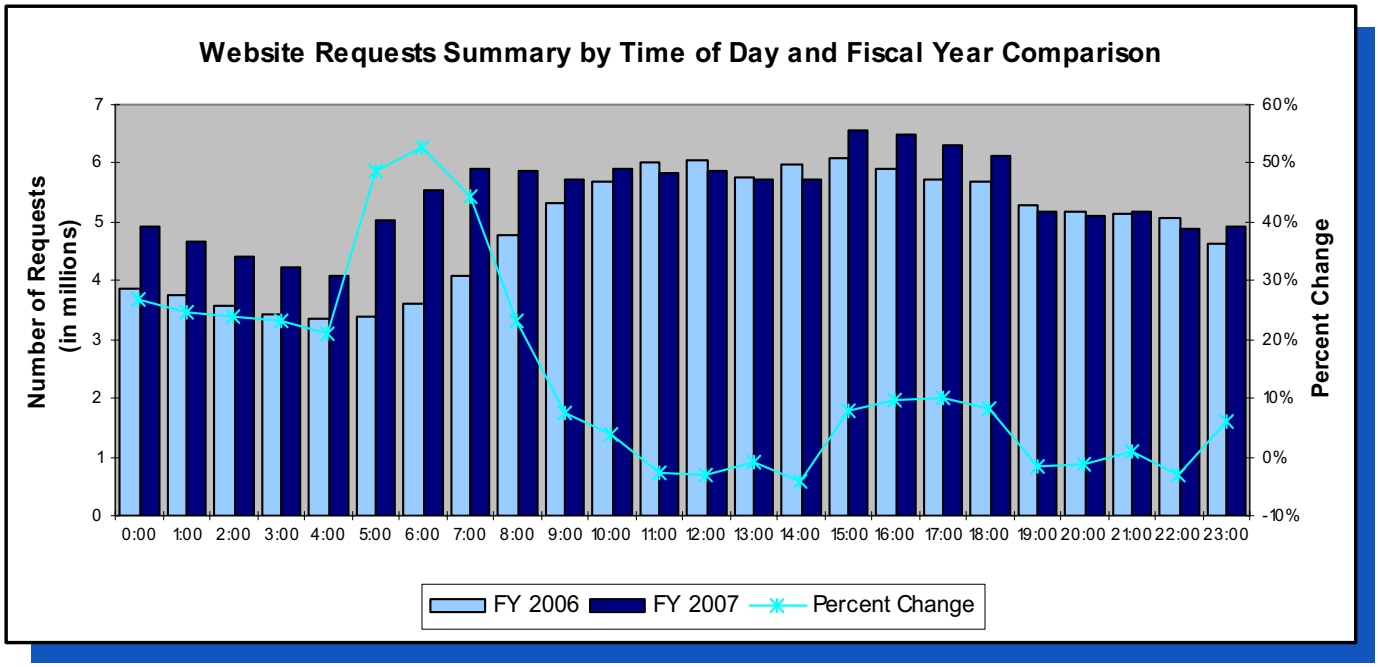
Incidents, described in the previous section, post to MDOT's public Drive website, www.michigan.gov/drive. This website was revamped in May of this FY to be more interactive, dynamic, and user-friendly. In addition to informing the general public of current incidents, the website describes on-going and future construction, presents real-time traffic flow, provides average speeds, and shares views of all camera images.

Every day, control room operators check the website to make sure information is posted correctly. Specifically, if construction information is not correct which can be determined by viewing the site with a camera, operators can update the information.

Traffic Information Management

This section describes the actions that MITSC staff performs regarding traffic information management. The key functions performed are preparing traffic management plans, programming messages, coordinating agencies, and monitoring conditions for both special events and construction. These events are not only scheduled and reoccurring, but also dynamic and ever evolving. Therefore, after-action discussion is included to prepare proactive measures so any past issues are resolved.

Overall, this FY experienced approximately an 11% increase in website requests from 117,366,715 total requests in FY 2006 to 130,243,364 total requests in FY 2007. As shown on the graph below, the requests follow traffic peak periods.



Special Events

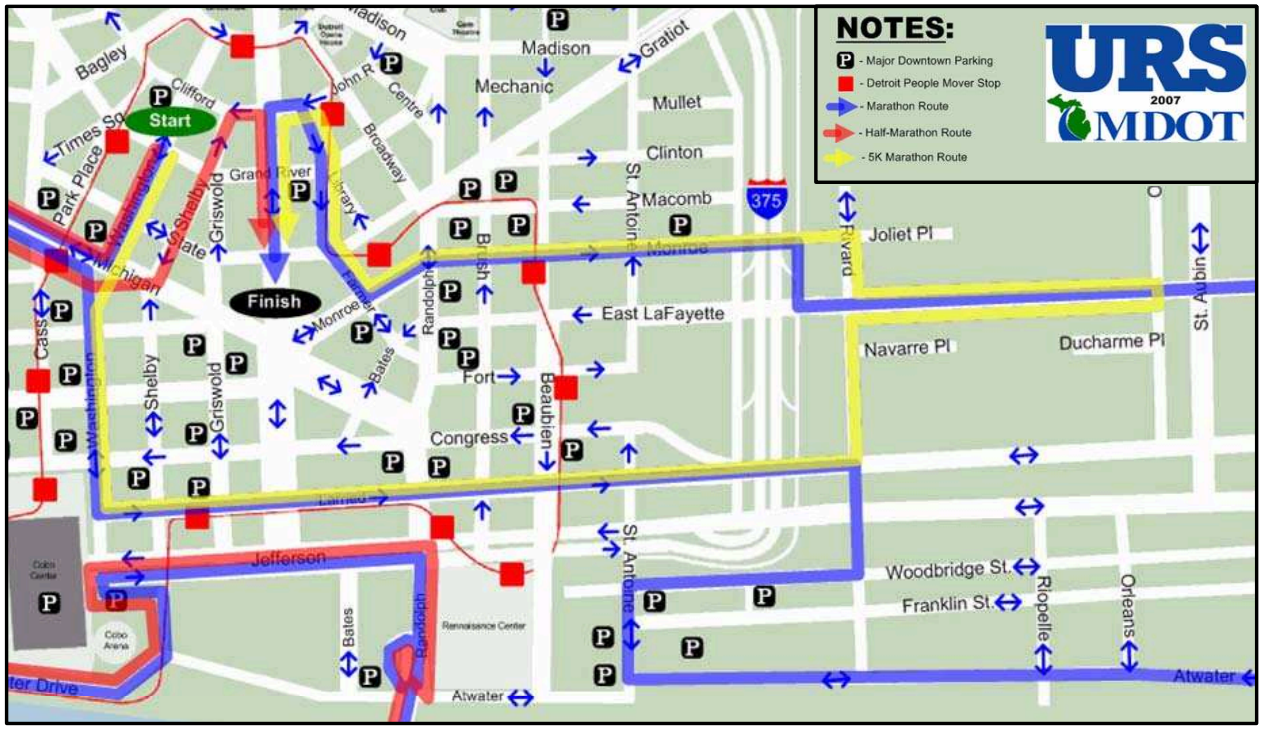
During FY 2007, MITSC helped manage over 250 special events in Metro Detroit. Operations at MITSC are affected due to the high attendance and increased traffic during events. Because of the functional capabilities available, MITSC plays a key role during special events. In a collaborative effort to ensure a successful event, MITSC's main tasks include the dissemination of traveler information through DMS messages, monitoring the performance of freeway traffic conditions through CCTV viewing and system traffic detector monitoring, as well as two-way communication with and coordination between FCP for enhanced incident management. MITSC is also involved in generating maps of the event location in order to create appropriate traffic detours when necessary, in developing traffic management plans to optimize stakeholder coordination, and in clarifying roles during an event.

Special events requiring MITSC involvement this FY:

- Thanksgiving Day Parade
- North American International Auto Show
- Motown Winterblast
- Detroit Tigers Baseball Games (89 Home Games)
- Detroit Pistons Basketball Games (54 Home Games)
- Detroit Lions Football Games (10 Home Games)
- Detroit Red Wings Hockey Games (55 Home Games)
- Concerts and stage shows at different venues in Metro Detroit
- Freedom Festival Fireworks
- Woodward Dream Cruise
- Michigan State Fair
- Belle Isle Grand Prix
- Marathons and Charitable Walks

The Auxiliary Traffic Operations Center (AuxTOC) is set up during special events, such as the Fireworks, for members of MDOT, MSP, and the Detroit Police Department to utilize the equipment at MITSC in order to communicate across agencies effectively and timely. It is equipped with 6 TV displays as well as 6 computer monitors that can view different CCTV images.

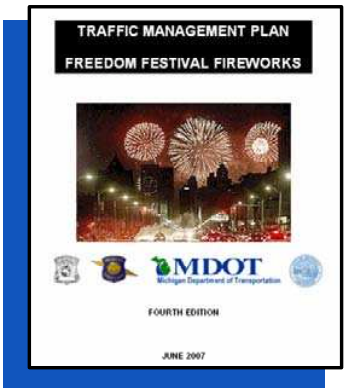
Out of the 7,575 unique messages that were displayed in FY 2007, 219 of them were relating to Special Events.



MITSC also supports map generation to enable all parties involved to be on the same page during meetings and planning. The above snapshot is a segment of a map created during this FY to support the 2007 Detroit Freepress Flagstar Bank 5k Run.

During this FY, a Traffic Management Plan (TMP) was developed for the North American International Auto Show. A TMP is an inter-agency plan and agreement for all traffic aspects related to this special event. The plans discuss the following topics and answer the following questions:

- Pre-trip Dissemination – How does the general public receive traffic updates for this event? What are the sources of congestion?
- Day(s) of Event Operation – How will traffic flow on the day of the event? Do certain days of the event have unique traffic patterns?
- Parking – Where will people park? How does this affect pedestrian routes?
- Transit Operations – Are buses running regularly or are modified routes and schedules implemented? Are Park-and-Rides planned?
- DMS Signing Plan – What is MITSC doing? How does this affect traffic on surface streets (non-freeway)?
- Traffic Control – Where is there a need for traffic control devices? At which intersections should Police Officers be stationed?
- Event Maps – Which freeway ramps will be closed? Where are the designated pedestrian routes from specific parking areas?

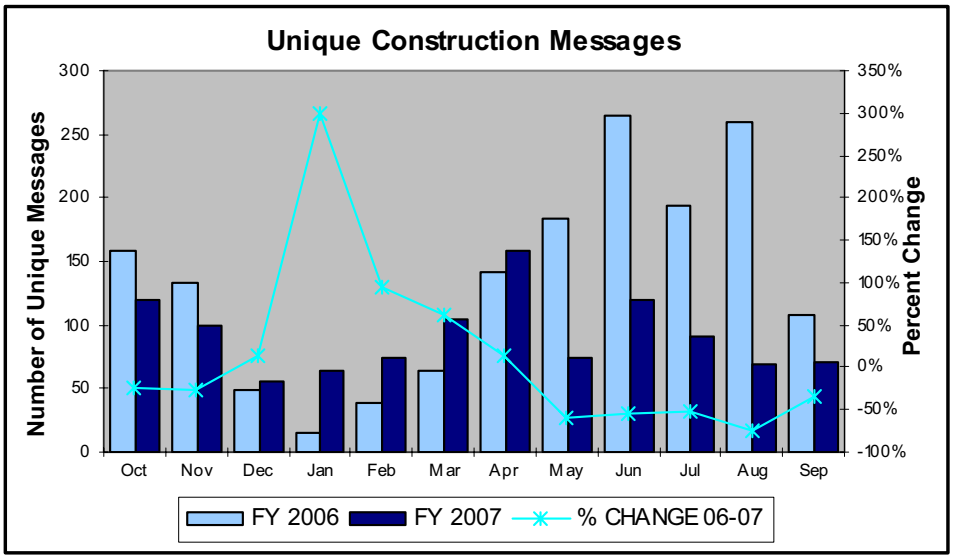


The 2007 Freedom Festival Fireworks TMP was modified for this year's international display.

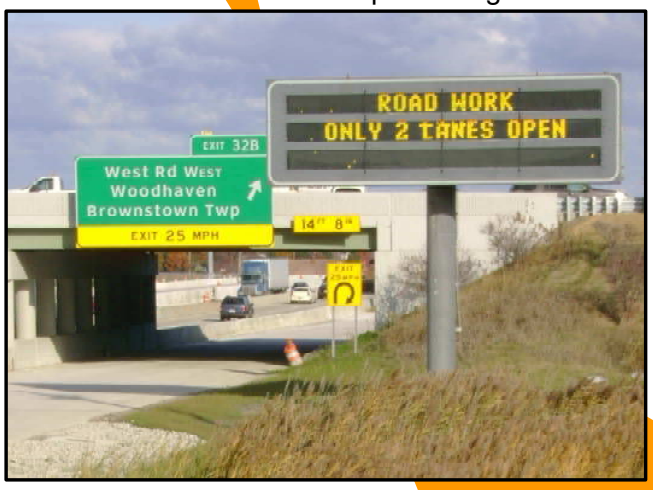
Construction

DODGE THE LODGE II

The “Dodge the Lodge” projects, which involved a total closure of M-10 throughout the year, was a major construction project in FY 2007. During such critical closures, where more than 150,000 drivers are affected daily, the appropriate information being sent in an effective manner was imperative. In order to reduce driver frustration and encourage well-maintained detour routes, MITSC operations focused on messaging, monitoring, and communications.

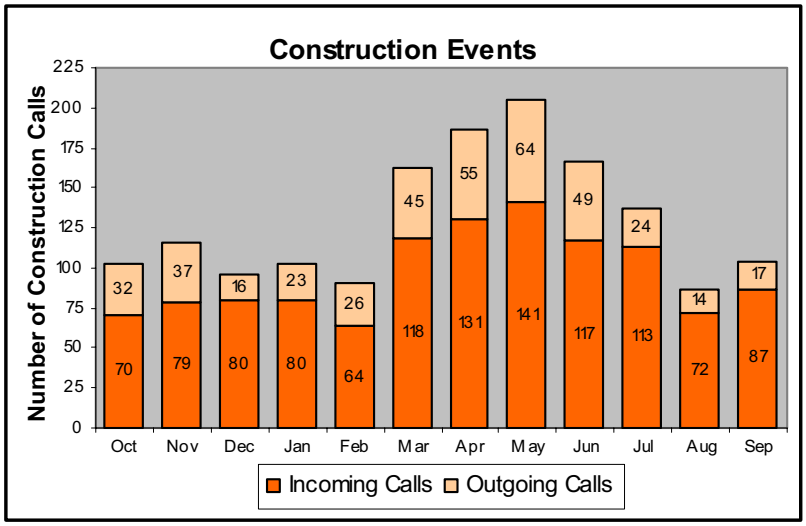


The task of messaging includes displaying unique messages on DMSs, as well as portable changeable message signs (PCMS), to provide drivers with advanced information and the advised detour routes. A DMS only rotates two messages; one message can be displayed on multiple signs. DMS construction messages involve careful prioritizing for scheduled work that is location specific. In a given weekend, over 30 unique messages, displayed on one or more signs, report road work activity relevant to traffic passing a particular DMS; a single closure can have six or more messages to provide motorists the best possible information throughout the network.



In addition to DMS messaging, MITSC operators also hold coordination meetings to prepare for future construction, report changes, early openings, and clarifications. They also use advisory notifications for early project openings (via broadcast e-mail).

Communication

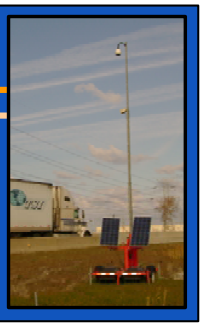


Outreach to contractors, consultants, and MDOT construction staff significantly benefited MDOT Freeway Operations by increasing the amount of communication concerning freeway construction projects. Incoming and outgoing construction-related calls peaked in the spring and summer months. Although there was less construction during the winter months, projects still occurred and discussion still happened. MITSC staff contacted field personnel with construction zone maintenance issues; field personnel were encouraged to call if a construction closure opened earlier than scheduled so that MITSC could relay the information to the public. Good communication between MITSC and individuals in the field kept traffic flowing smoothly through construction zones this FY.

The MITSC Construction Coordinator checks the MDOT website to plan the upcoming weekend construction message plan based on the latest information posted by MDOT's Resident Engineers who manage construction projects. This task was enhanced by implementing construction reports as part of the newly created Call Tracking database. This new feature allows any type of event to be linked to any construction project recorded in the database.

Did You Know or Ever Wonder?

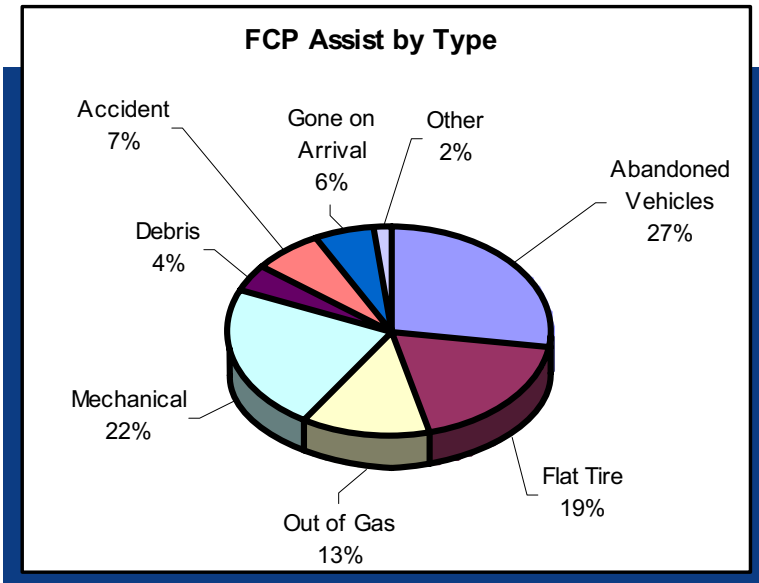
On major construction projects, such as I-75 from Northline to Gibraltar, portable cameras, detectors, and signs are placed along detour routes and throughout the construction zones to provide the staff at MITSC with more capabilities to receive and convey important information. The devices have web-based communication which allows the operators at MITSC to control the cameras to view different incidents, construction zones, and freeway directions or to send out a unique message to signs to notify drivers of varying traffic conditions.



Freeway Courtesy Patrol

In FY 2007, the Freeway Courtesy Patrol assisted 6,816 vehicles that were stranded due to running out of gas. To maintain clear roads throughout Metro Detroit, the FCP drivers provide stranded motorists with nearly one gallon of gas.

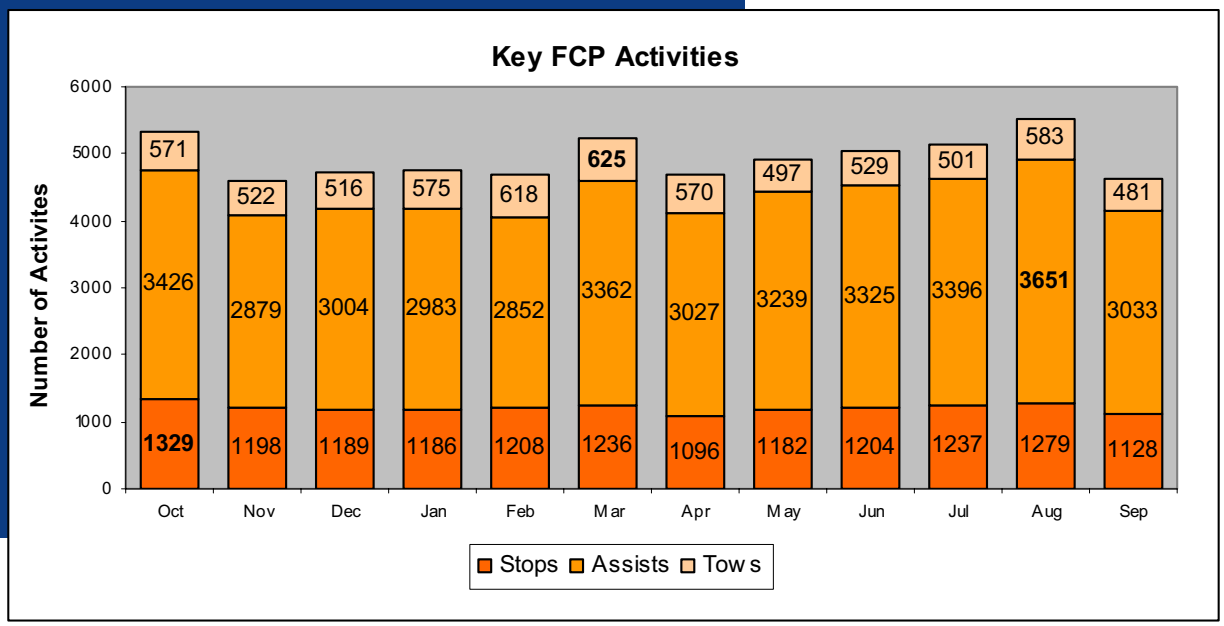
Freeway Courtesy Patrol



In FY 2007, FCP performed 52,649 assists. Each of the event types in the chart above is considered an assist with the exception of an abandoned vehicle. This event is classified as a stop, as shown in the graph below. A stop indicates that the FCP driver did investigate the scene; however, upon arrival the driver concluded that there was no one in the vehicle. A FCP driver can find an assist as he patrols his route, or he may be dispatched to an assist by a MITSC control room operator.

"MDOT Courtesy Patrol was my knight in shining armor. After many years of pushing the gas tank, I finally ran out! How silly I felt, but out of the blue, I was speaking to your kind courtesy patrol driver. Within a few minutes, I was on my way. I learned a valuable lesson that day!! I am very grateful to MDOT and your driver, thank you."

-Appreciative Motorist



The bold type numbers depict the highest month total for each category: October 2006 had the most stops, August 2007 had the most assists, and March 2007 had the most tows.

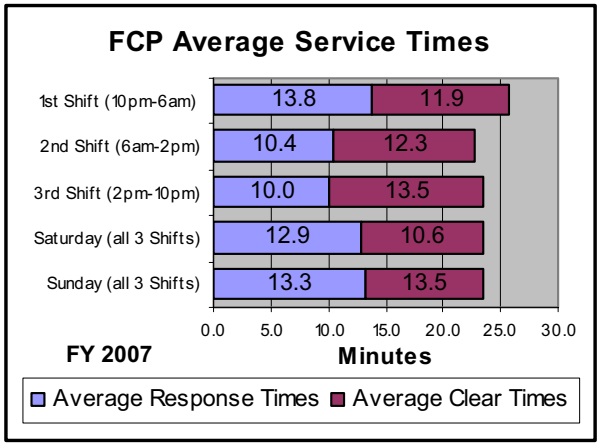
Service Area

With a team of up to nine drivers on the road at any given time, available 24 hours a day, seven days a week, the FCP maintains coverage on more than 300 miles of freeway, patrolling areas with and without ITS equipment. The routes that are included in the coverage area are shown on the map. A freeway with a higher Average Daily Traffic (ADT) will typically require more attention and produce more assists per mile; therefore, the drivers assigned to these regions cover fewer miles in order to compensate for the increased number of assists.

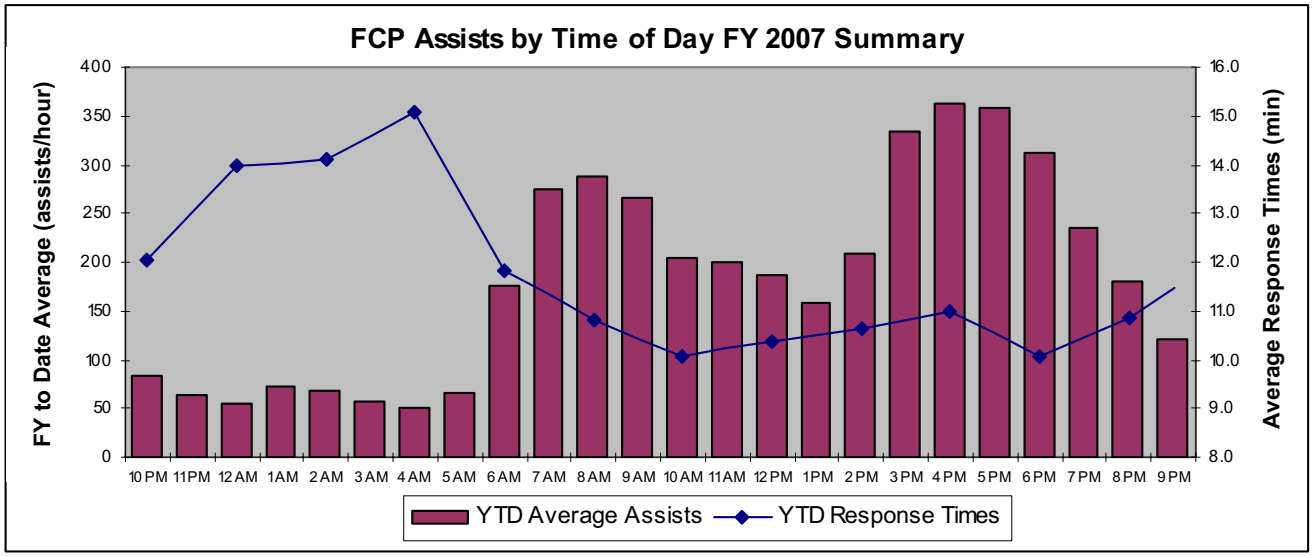
- 0 - 5.9 (assists/mile)
- 6 - 10.9 (assists/mile)
- 11 - 16.9 (assists/mile)
- 17 & greater (assists/mile)

FREEWAY	SEGMENT	COVERAGE (miles)	TOTAL ASSISTS	ASSIST DENSITY (per mile)
			FYD AVERAGES	
I-75		87.6	1198	13.7
	Oak. Co. Line to I-696	37.0	431	11.7
	I-696 to I-94	8.0	318	39.8
	I-94 to I-96	5.6	108	19.4
	I-96 to I-275	37.0	340	9.2
I-94		60.7	1039	17.1
	Wash. Co line to M-39	20.7	322	15.6
	M-39 to I-75	9.0	290	32.2
	I-75 to I-696	10.0	291	29.1
	I-696 to St. Clair Co. Line	21.0	136	6.5
I-96		34.0	687	20.2
	Liv. Co. Line to I-275/I-696	11.0	147	13.3
	I-275/M-14 to M-39	12.0	213	17.8
	M-39 to I-75	11.0	327	29.7
I-275		37.5	382	10.2
	I-96/696 to M-14/I-96	8.0	134	16.8
	M-14/I-96 to I-94	12.0	175	14.6
	I-94 to I-75	17.5	72	4.1
I-375		1.2	9	7.3
I-696 (Reuther)		28.7	520	18.1
	I-96/I-275 to M-10	9.3	134	14.4
	M-10 to I-75	9.0	186	20.6
	I-75 to I-94	10.4	200	19.2
M-5 (Grand River)		10.3	48	4.6
M-8 (Davison)		2.2	50	22.7
M-10 (Lodge)		17.9	187	10.4
M-14		6.4	44	6.9
M-39 (Southfield)		14.2	226	15.9
M-59 (Vetrans)		11.6	4	0.3
	Total	312.3	4,391	

Dispatch Activity

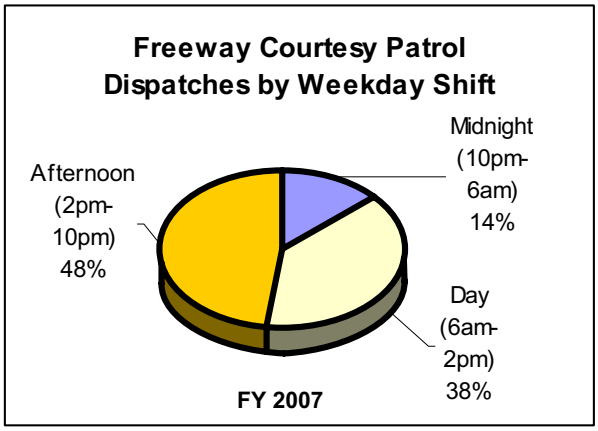


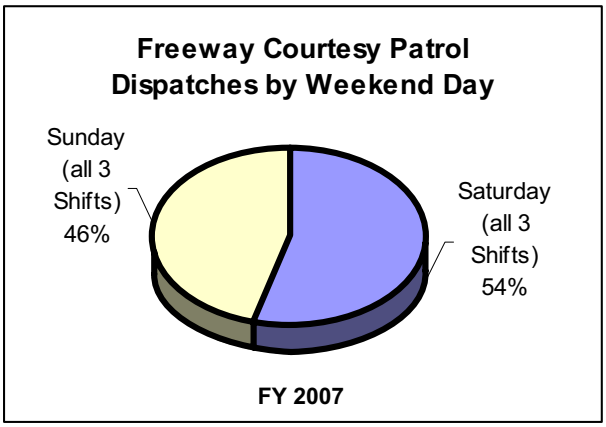
A response time is calculated from the time the control room operator dispatches the FCP driver to the time the driver arrives on scene. Clear time is the time difference between the arrival time and the departure time to and from the scene. Two drivers patrol the freeways during the midnight shift (first shift), whereas eight or nine drivers are on duty during the second and third shifts. Therefore, the first shift drivers are responsible to patrol more miles of freeway than the other shifts which results in an increased drive time and an increased response time for dispatched assists for the first shift.



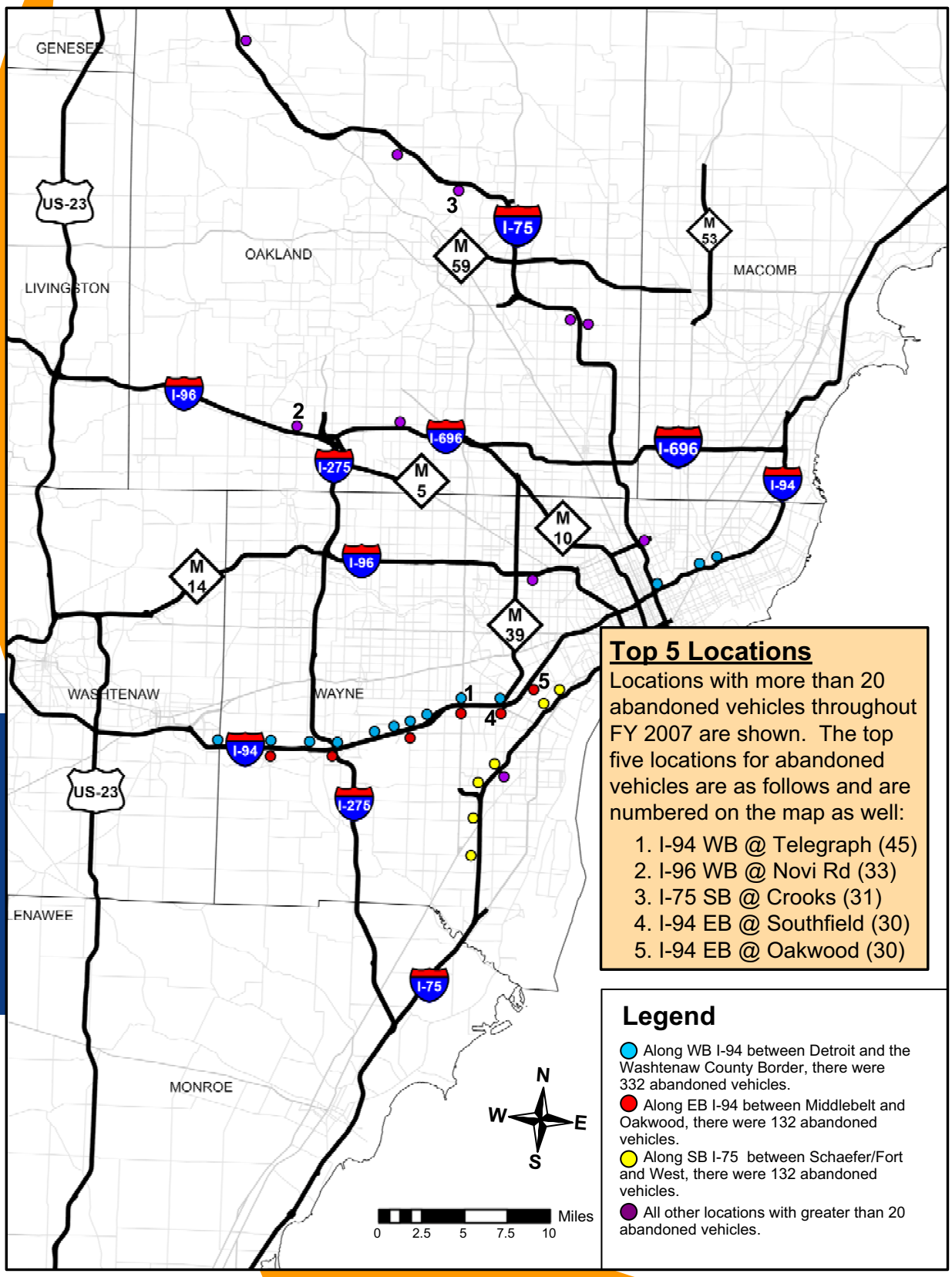
In the chart below, the weekday dispatch activity is shown and is segmented by operator shifts. The weekday afternoon shift experiences the most dispatch activity with 48% of the total dispatches.

The chart below shows the weekend dispatch activity and is segmented by days. Saturday has 8% higher dispatch activity than Sunday on average over the entire FY.





Abandoned Vehicles



Top 5 Locations

Locations with more than 20 abandoned vehicles throughout FY 2007 are shown. The top five locations for abandoned vehicles are as follows and are numbered on the map as well:

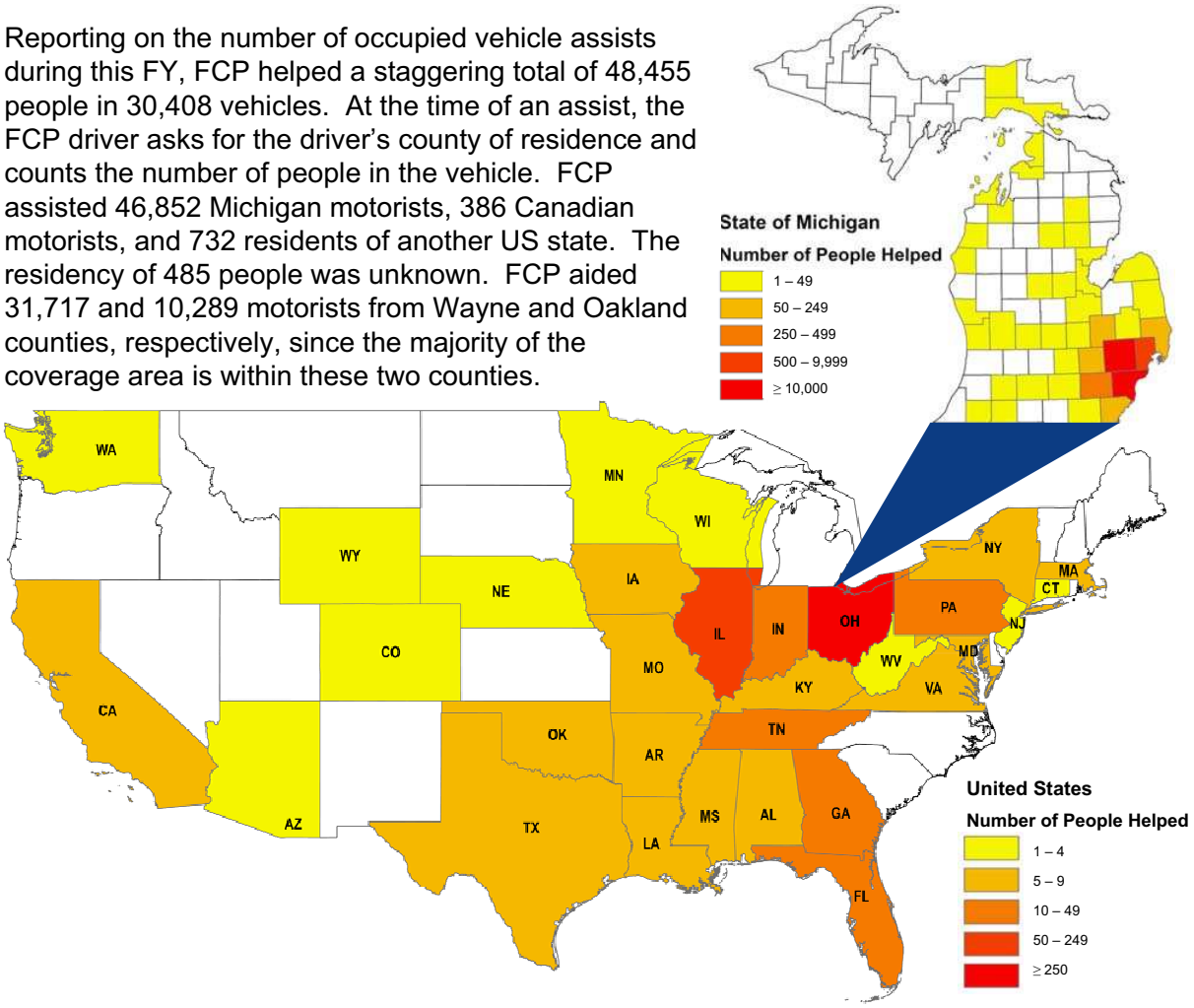
1. I-94 WB @ Telegraph (45)
2. I-96 WB @ Novi Rd (33)
3. I-75 SB @ Crooks (31)
4. I-94 EB @ Southfield (30)
5. I-94 EB @ Oakwood (30)

Legend

- Along WB I-94 between Detroit and the Washtenaw County Border, there were 332 abandoned vehicles.
- Along EB I-94 between Middlebelt and Oakwood, there were 132 abandoned vehicles.
- Along SB I-75 between Schaefer/Fort and West, there were 132 abandoned vehicles.
- All other locations with greater than 20 abandoned vehicles.

Helping People

Reporting on the number of occupied vehicle assists during this FY, FCP helped a staggering total of 48,455 people in 30,408 vehicles. At the time of an assist, the FCP driver asks for the driver's county of residence and counts the number of people in the vehicle. FCP assisted 46,852 Michigan motorists, 386 Canadian motorists, and 732 residents of another US state. The residency of 485 people was unknown. FCP aided 31,717 and 10,289 motorists from Wayne and Oakland counties, respectively, since the majority of the coverage area is within these two counties.



"Today while driving to work I encountered a flat tire. The courtesy patrol van was there in less than 2 minutes. The driver was very helpful and also very nice. The driver changed my tire in record time and imagine my surprise when he informed me there was no charge! What a great program to help motorists!!" -Thankful Driver

Did You Know or Ever Wonder?

Section 257.653a of the Michigan Vehicle Code, known as the "Move Over" law, enacted in 2001, requires motorists to move over or slow down for all emergency vehicles. In 2004, Governor Jennifer Granholm along with Michigan State Legislature amended the law to include first responder vehicles such as FCP vans and tow trucks, among others. MITSC sends out a safety message as a reminder on a DMS.

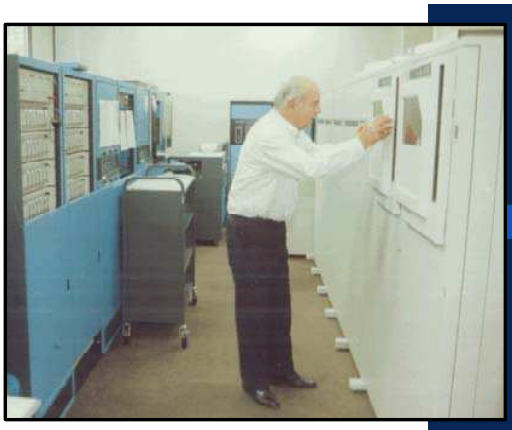
With the plans finalized during FY 2007, the I-96 ITS expansion project will move this camera located at I-96 and Greenfield to the communication tower which will improve sight visibility along this route.

Then & Now

Growth is exciting, not only in terms of physical resources but also in terms of operational improvements. ITS in southeastern Michigan experienced both of these aspects of growth this FY. Both then and now, MITSC has been at the cutting edge of intelligent transportation.

Then, DMSs allowed only two lines of text and were bridge mounted.

Now, DMSs are pole mounted and allow three lines of text.



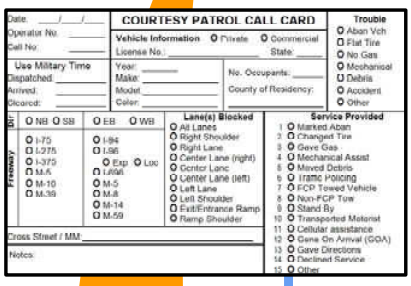
Then, a large mainframe collected and calculated data.

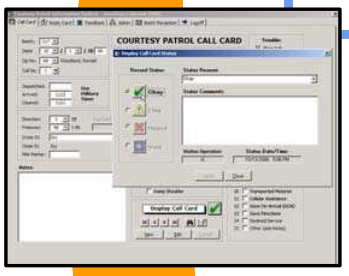
Now, data is stored online and five small racks hold computer processors.

Then, a graphic display of an interchange along M-10 or I-94 was shown.

Now, the graphic display shows all major freeways in SE Michigan on a screen.

Looking Back...





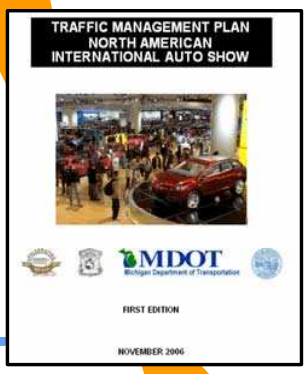
Issues with FCP Call Card and the Database encourage the development of a new call card and improved software, which allows data entry from the FCP drivers to be more efficient and less time consuming.

The Courtesy Patrol Database is retrofit with spatial information, which provides GIS coordinates of each cross street which enables mapping capabilities.

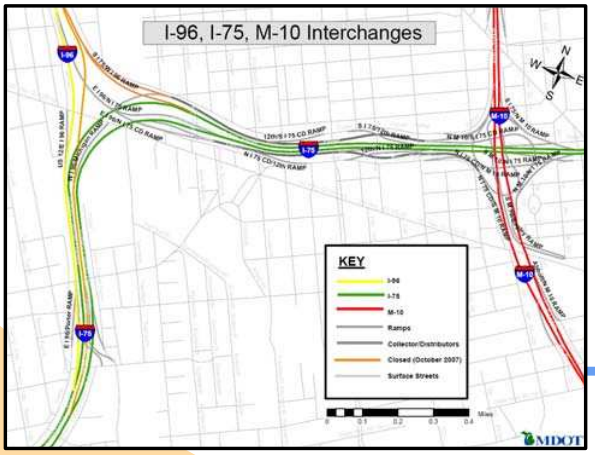
In order to improve communication between the Control Room Operators and the FCP Drivers, an 800 MHz Radio Communication System is implemented.

Oct '06 | Dec '06 | Apr '07 | Jun '07 | Jul '07

A Traffic Management Plan is developed for the annual North American International Auto Show.



Motorist Exchange Cards are developed, printed, and delivered to FCP. FCP is now able to distribute these to motorists who have been involved in "property damage only" accidents. This alleviates the need for local police or MSP to be on the scene of every accident.



Maps are created not only for special events, but also for construction coordination. This map was created for use with the Gateway Project.

Year In Review

Looking Ahead...

During the year, operators are trained in Microsoft Access and Excel, MITSC's Call Card, MITSC's Call Tracking, and NIMS, with the most recent training being in September 2007.

With the infrastructure already in place for the I-96 and I-94 ITS expansion projects, an expanded system with Ethernet communications is expected in mid-2008 .

Sep '07

MITSC prepares for the I-75 Ambassador Bridge Gateway Project by hosting and attending ongoing real time traffic meetings.

CONNECTING NEIGHBORS
MDOT I-75 Ambassador Bridge Gateway Project

A new DMS is planned to be installed atop this pole, and in order for additional communication capability, a new ATMS software, currently being developed, will be introduced in the Control Room.

A new Operations System is being designed, along with a new facility. In the new building, the Detroit Transportation Service Center, MITSC, and MSP will work side by side.

MDOT

Information is current as of January 1, 2008.

FAQ

- **What are the advantages of Dynamic Message Signs?**

DMSs allow for advance warning of roadway travel conditions providing motorists the opportunity to adjust their route to accommodate safety and minimize travel time.

- **How are FCP services funded?**

The majority of funding for the Freeway Courtesy Patrol comes from the United States Department of Transportation Surface Transportation Program with a smaller amount from the Michigan Transportation Fund.

- **Can I see the images of the MDOT cameras on the Internet?**

Yes, MDOT's Drive website, www.michigan.gov/drive, allows visitors to select "Detroit Traffic Map" under the "Spotlight" section. Through this link users can select, on an interactive map or from a drop-down list, the CCTV camera images of their choice. In addition to viewing camera images, the Drive website also provides real-time traffic information including actual traffic speeds on the freeway and current accident locations.

- **Will more signs and cameras be deployed?**

DMS and CCTV infrastructure is continually evaluated and deployed based on budgetary availability and need. ITS expansions along I-96, I-94, and I-69 will add 34 CCTVs and 13 DMSs to the current system.

- **How can I arrange a tour of MITSC?**

Tours are open to organizational groups for educational purposes and can be scheduled through the *Metro Region Traffic & Safety Engineer*; see page 31 for contact information. Tours are conducted Monday through Friday from 9 AM to 3 PM and require at least a two business day notice. Tour groups will be kept at a maximum of 12 people. (Large groups will be split into groups of 12 or less).

- **Are MDOT cameras used to view specific drivers?**

MDOT cameras are not utilized to view specific drivers but are used to constantly monitor and evaluate motorists' needs based on roadway construction, congestion, traffic incidents, and other related factors.

- **Am I always on an MDOT camera?**

CCTV cameras have been deployed in a manner to visually cover as much freeway area as possible. Each camera can view a ½ mile radius in either direction of its pole mounted location. Practically speaking, it is not possible to have viewing access of all freeway areas for many reasons including budgetary restraints, camera's viewing constraints, and low traffic impact areas. Page 4 of this report shows existing CCTV camera locations.

More Information

www.michigan.gov/its

This website provides general information regarding Intelligent Transportation Systems in Michigan. A direct link to the Metro Detroit System page is found here, as well as a link to the ITS System in Western Michigan.

www.michigan.gov/drive

MDOT's cameras can be viewed from this website. Current traffic conditions including speeds and accident locations along major freeways can also be found on this site.

http://gis.midwesternconsulting.com/tim

A calendar of upcoming incident management meetings can be viewed on this website. A map of the region's DMSs, CCTVs, and traffic detectors is also available.

Contact Us

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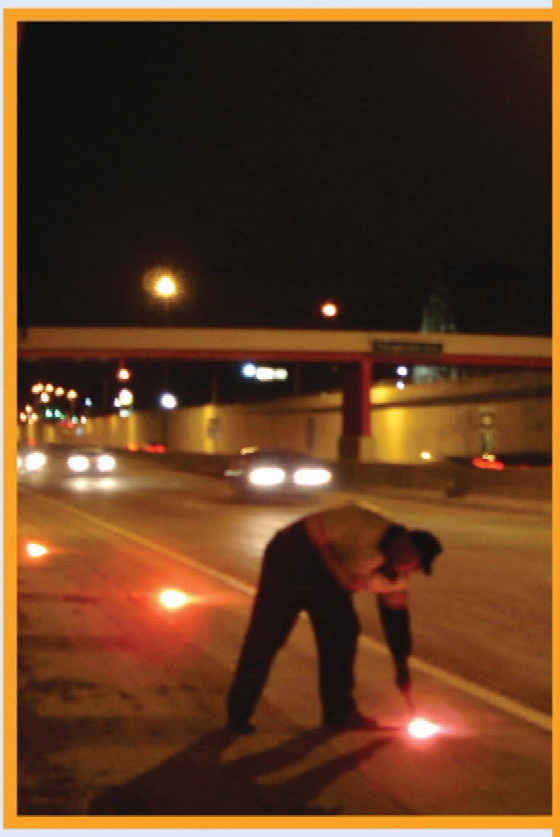

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