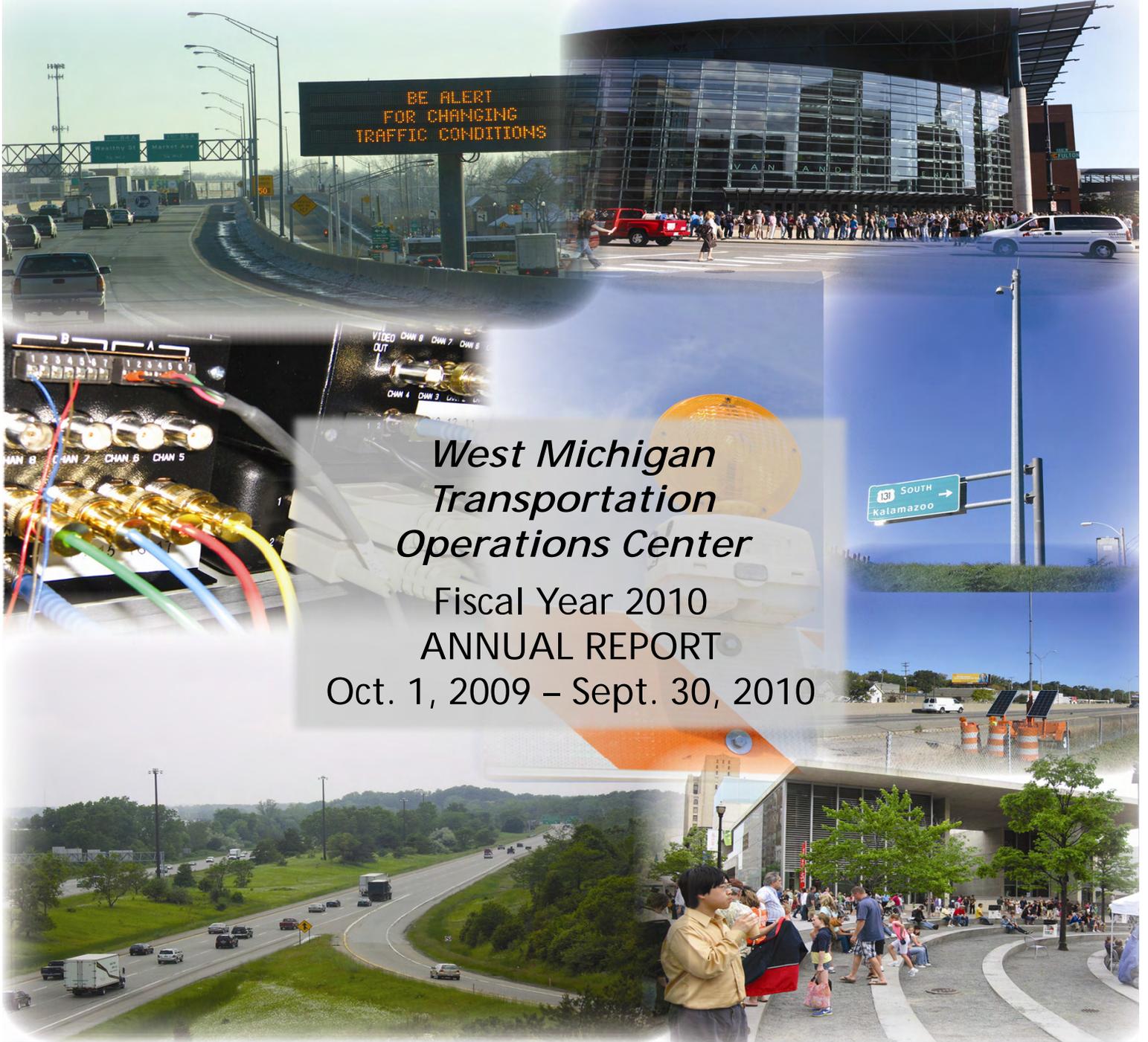




West Michigan

Transportation Operations Center



*West Michigan  
Transportation  
Operations Center*

Fiscal Year 2010  
ANNUAL REPORT  
Oct. 1, 2009 – Sept. 30, 2010

# West Michigan Transportation Operations Center

## FISCAL YEAR 2010 ANNUAL REPORT

This was an eventful year for the West Michigan Transportation Operations Center (WMTOC). In 2010, our vehicle detection system kicked into full operation in the Grand Rapids area, allowing real-time detection information and improved vehicle speed and count data archives. We expanded our coverage area outside of Kent County, as several devices came online in Muskegon and Ottawa counties. In the fall, we began posting real-time travel times to six of our Dynamic Message Signs (DMS).

The TOC control room made a smooth transition from our previous 10-by-12-foot space to our expanded 2,200-square-foot control room area. The expanded TOC also includes a small conference room, two offices, and a much-needed dedicated equipment room. The new climate-controlled equipment room provides an organized, secure environment to help protect and extend the life of the electronics vital to providing our TOC functions. All of the new TOC space is serviced by a backup generator in case of power loss.

The fall marked a name change from West Michigan Traffic Management Center (TMC) to WMTOC. The new name better covers our various functions and focus on operations, and aligns with the naming of other TOCs across the state.

We look forward to wrapping up several 2010 projects in 2011. A major infrastructure expansion in Kent County, a joint-project with our local partners, will greatly extend our coverage area and improve the tools available to provide advanced traffic incident routing and information. Three ongoing American Recovery and Reinvestment Act projects will be complete in 2011 as well, providing communications upgrades and expanded infrastructure.

In addition to these projects, our operations team has focused on increasing the availability of real-time information for our customers, working with our incident management partners on proficient emergency response, and providing data to others for increasing the efficiency and effectiveness of their operations.

Looking ahead, I am confident that our TOC team, working with our many partners, will continue to implement innovative ideas, projects, and programs that advance our mission of improving safety, mobility, and economy for residents, businesses, and visitors to West Michigan. Drive safely!

*Suzette Peplinski*

TOC Operations Engineer  
[peplinskis@michigan.gov](mailto:peplinskis@michigan.gov)

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# Traveler Information

## PROVIDING ESSENTIAL TRAVELER INFORMATION TO GRAND RAPIDS MOTORISTS

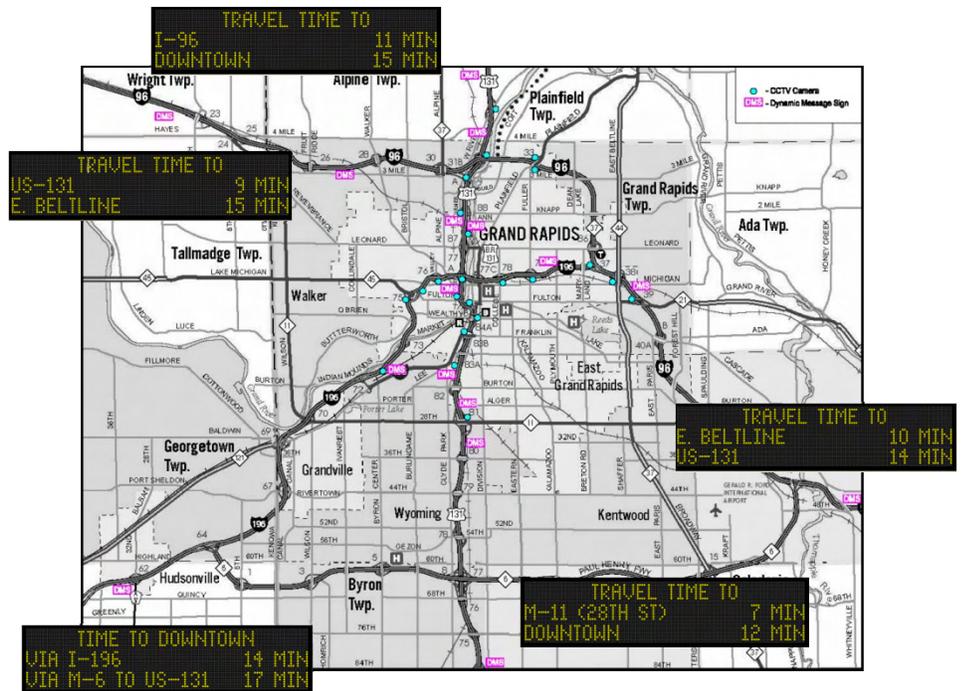
### Key 2010 Accomplishments:

- Began displaying travel times on DMS leading into the Grand Rapids area using the new TOC software
- Displayed public safety messages, AMBER Alerts, and Clean Air Action Day messages on DMS to promote public health and support law enforcement
- Increased use of weather information for DMS messages

### Travel Times

The West Michigan Transportation Operations Center (WMTOC) displays travel times on six DMS on routes leading into the Grand Rapids area. The DMS are located ahead of major interchanges, such as US-131 and M-6, allowing motorists to make routing decisions based on the posted travel times.

The travel times are automatically updated by the software every five minutes between 5 a.m. and 11 p.m. and are based on real-time data.



### Congestion and Weather

The WMTOC utilizes DMS throughout the Grand Rapids area to advise motorists about congestion and weather conditions. The TOC obtains weather data and information from the National Weather Service (NWS), Michigan State Police (MSP), traffic cameras, and local media.

The local NWS region holds Webinars in advance of major weather events to provide targeted weather information to road agencies. In FY 2010, 696 congestion and 624 weather messages were posted to the DMS.



## TRAVELER INFORMATION

### MiDrive

The MiDrive Web site ([www.michigan.gov/drive](http://www.michigan.gov/drive)) provides the general public with access to the traffic camera views and also provides information on average vehicle speeds, construction activity, and major incident locations. TOC operators use the vehicle speed information on the MiDrive Web site to monitor roadway segments outside the WMTOC camera coverage area and also can add information about current incidents to MiDrive. A map showing travel speeds and camera locations in Grand Rapids is shown below.

### Traffic Cameras

TOC operators monitor 26 traffic cameras throughout the Grand Rapids and Grand Haven areas in order to detect and provide operational support for incidents that may adversely impact travel on the freeways. The cameras provide visual coverage of approximately 25 miles of area freeways.

### Media

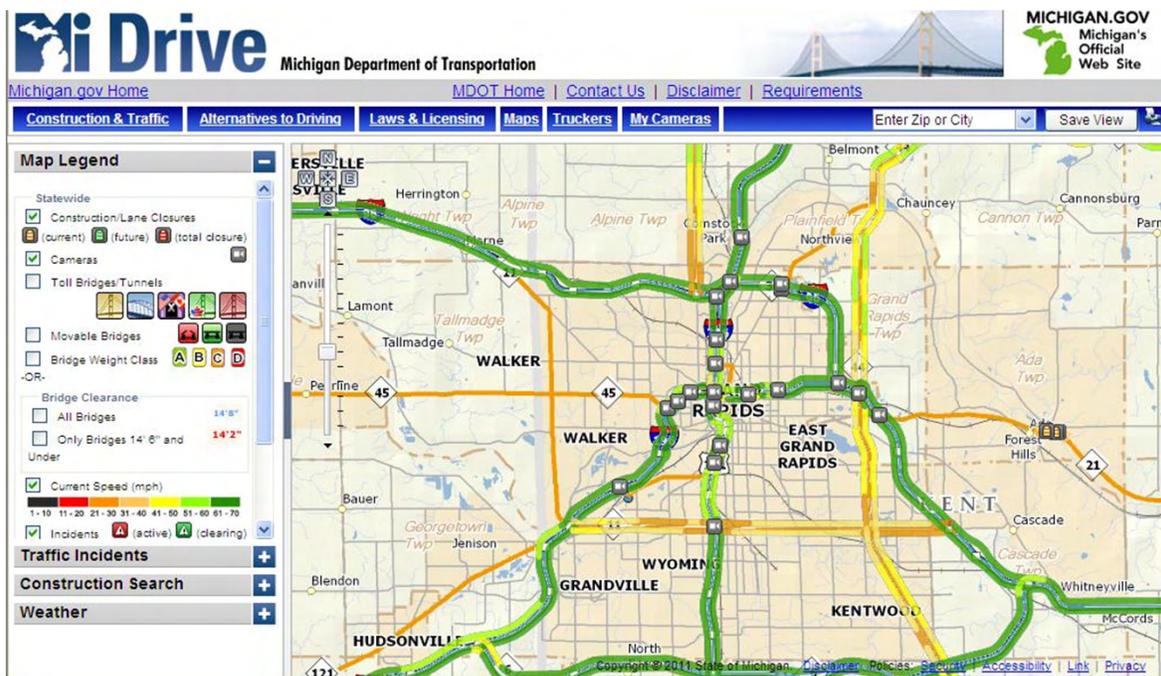
Camera images are shared directly with local television media for use during broadcasts. The media has their choice of camera views and TOC operators will provide certain camera views on request, if possible.

### DMS

Dynamic Message Signs (DMS) are the most visible ITS devices. TOC operators utilize the DMS to inform motorists about special events, construction, congestion, crashes, and weather-related impacts.

### VSS

Four variable speed signs (VSS) are in place throughout the US-131 S-curve and display the advisory speeds. TOC operators change the speeds based on requests from law enforcement personnel or due to weather conditions.



# Incident Management

PROVIDING VITAL INFORMATION AND COORDINATION FOR INCIDENT RESPONSE

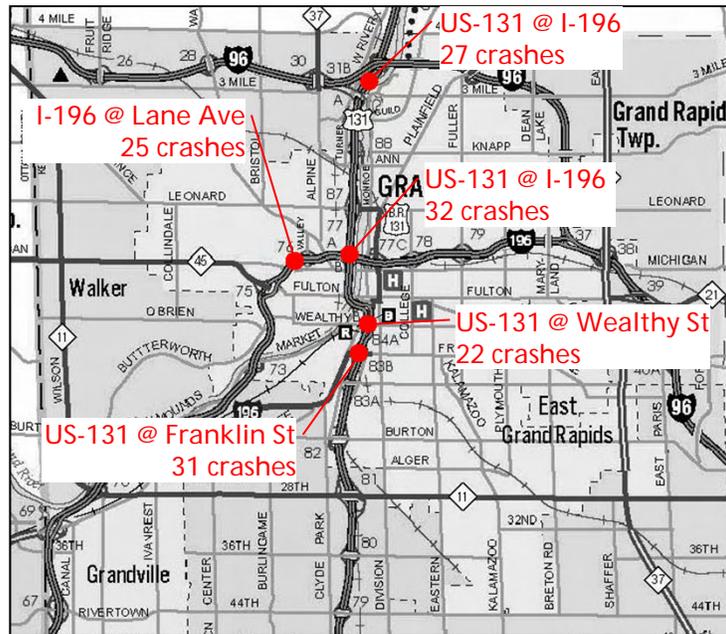
## Key 2010 Accomplishments:

- Provided operational support for nearly 1,100 unplanned incidents
- Participated in a local traffic incident management committee to discuss incident management coordination and organization

## WMTOC Incident Response

WMTOC operations focus on MDOT's goals of incident management, crash reduction, customer information, and congestion reduction. To meet these goals, TOC operators monitor 25 miles of Grand Rapids and Grand Haven-area freeway with traffic surveillance cameras and post messages on DMS for 14 hours a day on weekdays, and eight hours a day on weekends.

TOC operators track incident duration for incidents that last for more than 30 minutes and more than 60 minutes, as shown in the chart below. By working toward reducing event duration through the use of the ITS network of devices, the WMTOC also can reduce the occurrences of secondary incidents.



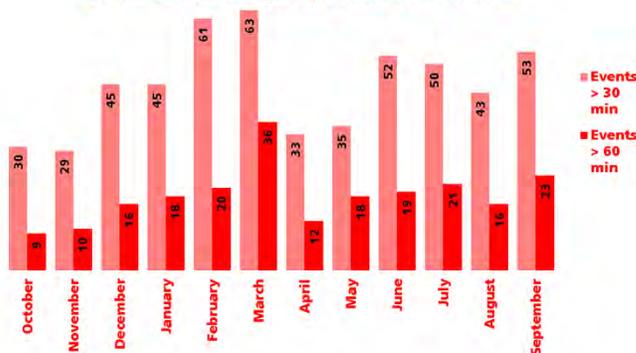
## Most Active Hot Spots

The segments of the Grand Rapids-area freeway with the highest frequency of incidents are commonly called "hot spots." Hot spot locations receive added attention from TOC operators, and

hot spot data is used in studies of these areas.

The incident categories used to determine hot spots include crashes, abandoned vehicles, debris, and disabled vehicles. Hot spot locations in Grand Rapids for FY 2010 are shown on the map above.

FY 2010 Events Lasting Longer than 30 & 60 Minutes



# INCIDENT MANAGEMENT

## Multi-Agency Coordination

When incidents occur on the freeway, several different agencies may be called upon, depending on the location and severity of the incident. Law enforcement personnel provide security at the scene and perform any necessary follow-up investigation. Fire personnel assist with traffic control, fire, and any hazardous chemical spill. Towing companies remove vehicles and Kent County Road Commission personnel provide traffic control and incident clean-up.

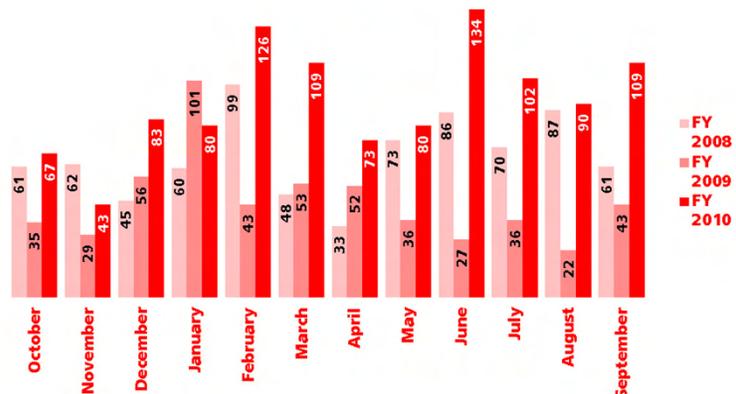
TOC operators assist the various agencies through telephone and e-mail communications with media and other stakeholders, DMS messaging, and traffic camera coverage. The TOC communicated with its partners through 2,500 telephone calls and 1,600 e-mails in FY 2010.

Once incidents are identified, TOC operators are responsible for recording event-related activity. Operators track the type and location of the event, the duration of the incident, which agencies were dispatched to the incident location, and what DMS were utilized to inform motorists of the incident. In FY 2010, the WMTOC provided support for nearly 1,100 incidents.



<i>Event Type</i>	<i>Description</i>	<i>Number of Events</i>
AMBER Alert	The WMTOC alerted motorists via DMS	5
Vehicle Fire	Vehicle fire that required fire personnel	1
Special Event	Concert, cultural event, etc.	10
Road Maintenance/Construction	Work zone, emergency or scheduled maintenance, mobile lane closure, etc.	244
Other	Police or medical incident	12
Congestion	The WMTOC alerted motorists via DMS	492
Disabled	Disabled vehicle	470
Debris	Car bumper, tire retread, etc., in the roadway	29
Crash	Vehicle collision	406
Abandoned	Abandoned vehicle	177
Weather	The WMTOC alerted motorists via DMS	73

Unplanned Incidents Per Month



# Planned Event Management

## INFORMING MOTORISTS OF WORK ZONE ACTIVITIES AND SPECIAL EVENTS

### Key 2010 Accomplishments:

- Provided DMS messaging for "The Fix on I-196"
- Provided operations coverage for the July 4 and Celebration on the Grand events

### Freeway Construction Projects

I-196 between US-131 and Fuller Avenue is a primary access route to downtown Grand Rapids and was closed to through-traffic from April to August for complete reconstruction, a project referred to as "The Fix on I-196." WMTOC operators monitored traffic flow and provided DMS messaging and mobility data for congestion on the detour routes.

In addition to the existing devices on the ITS network, several temporary traffic cameras and vehicle detector stations were installed along the detour route as part of the Intelligent Work Zone (IWZ). Traffic speed data from the temporary detectors was used to calculate travel times along the detour routes, which were then displayed on routes leading into the work zone. The temporary traffic cameras provided images along the detour route, which allowed TOC operators to monitor traffic flow through the work zone.

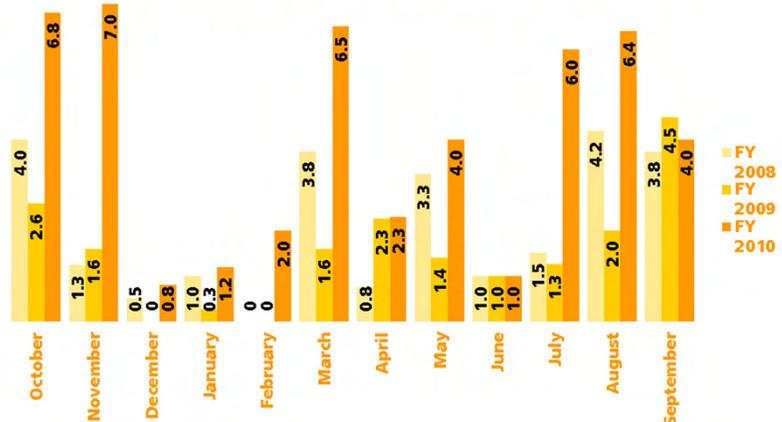
Several portable message signs were utilized as part of the IWZ for "The Fix on I-196," including two that TOC operators could change from the TOC. The portable message signs were used to alert motorists to closures or congestion associated with "The Fix on I-196."

Based on data from vehicle detectors, traffic volumes on northbound US-131 and I-96 increased by 30 percent during the complete closure. The traffic volume increase on US-131 and I-96 contributed to peak-hour traffic congestion. The times and locations of the congestion were reported to the Grand Rapids TSC on a weekly basis throughout the project.



To avoid impacts on the detour routes associated with "The Fix on I-196," other construction projects in the Grand Region were scheduled to have limited impacts on area freeways. Most other freeway construction activity was limited to nights and weekends after I-196 was opened to through-traffic at the end of July.

Average Weekend Construction DMS Message Activity



## PLANNED EVENT MANAGEMENT

### Special Events

Grand Rapids has several large downtown venues, including Van Andel Arena and the DeVos Performance Hall. The Festival of the Arts, Celebration on the Grand, and ArtPrize also draw large numbers of people to downtown Grand Rapids.

TOC operators provided additional coverage in 2010 in order to monitor traffic and also provided DMS messaging for traffic impacts during the special events noted in the table below. TOC operators also coordinated with law enforcement personnel and event organizers to determine appropriate DMS messages for ramp closures or traffic conditions.

Although congestion was observed on surface streets, traffic back-ups rarely impacted the flow of traffic on the freeway. Even though large-scale events are routinely held for sold-out crowds in the downtown Grand Rapids area, the central business district is accessible from multiple freeway exits on I-196 and US-131. The number of access points between the freeway and the downtown area reduces the impact of the high volume of vehicles entering and exiting downtown.



#### FY 2010 Special Event Support

5/3 Riverbank Run
July 4th Fireworks Display
Coast Guard Festival
28th Street Metro Cruise
Celebration on the Grand
Fireworks Display



# ITS System Maintenance

## SUSTAINING A RELIABLE ITS NETWORK

### Key 2010 Accomplishments:

- Integrated over 40 vehicle detector stations into the ITS network
- Provided 84 percent or greater average availability for each device in the ITS network

### Field Equipment Maintenance

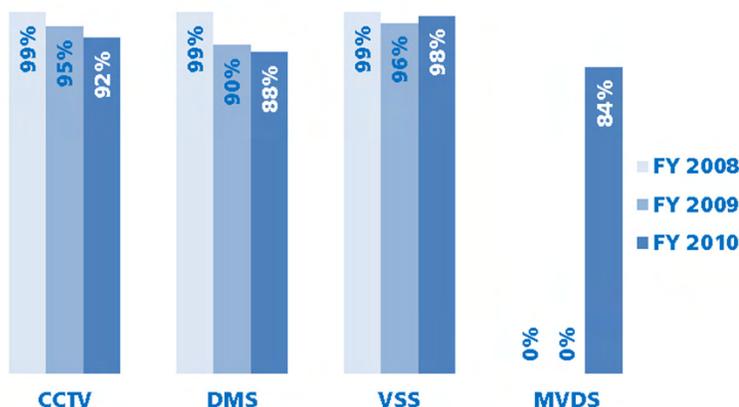
The WMTOC relies on ITS field devices deployed on more than 25 miles of roadway in Kent and Ottawa counties. The ITS devices allow TOC operators to quickly respond to incidents and provide information to motorists.

Under contract with MDOT, the city of Grand Rapids is responsible for the repair and maintenance of all ITS devices in the greater Grand Rapids metro area (including portions of Hudsonville.) The ITS devices in Grand Haven are maintained under MDOT's statewide maintenance contract with Motor City Electric Co.



Since a large portion of the current ITS field devices are under warranty, the maintenance personnel also coordinate extensively with warranty contractors for troubleshooting and repair issues.

Device Availability for 2009 and 2010



# ITS Deployment

## ADVANCING THE EXISTING ITS NETWORK

### Key 2010 Accomplishments:

- Integrated three traffic cameras and one DMS in the Grand Haven area
- Constructed five DMS around the perimeter of the Grand Rapids metro area in order to provide travel information to motorists approaching the area

### Grand Haven Devices

In July, three traffic cameras on US-31 in Grand Haven and a DMS on southbound US-31 between Grand Haven and Muskegon came online. The primary benefit of the Grand Haven-area devices is the ability to alert southbound US-31 motorists of travel delays that may be near the bascule bridge in Grand Haven. In addition the Grand Haven-area devices are used to inform motorists regarding construction or incident related delays on I-96 south and east of Muskegon, US-31 between Muskegon and Holland, as well as M-104 and M-45 east of US-31.

### Grand Rapids Area DMS

In April, TOC operators began to use five DMS located on the perimeter of the Grand Rapids metro area, primarily to display travel-time information. The DMS are visible to motorists traveling toward Grand Rapids from other locations and are placed in advance from major interchanges.

### Projects Under Construction

Construction on a multi-agency ITS expansion project continued during FY 2010, with completion anticipated in 2011.

The project, which includes more than 100 new ITS devices, will significantly increase the WMTOC coverage area, adding ITS devices to both freeway and non-freeway routes.



Number of WMTOC ITS Field Devices

