



**West Michigan
Transportation Operations Center**



Fiscal Year 2012
ANNUAL REPORT
Oct. 1, 2011—Sept. 30, 2012

West Michigan Transportation Operations Center

FISCAL YEAR 2012 ANNUAL REPORT

The West Michigan Transportation Operations center (WMTOC) covers eight counties in west Michigan, which include the cities of Grand Haven, Grand Rapids, Holland, Muskegon, and Big Rapids.

This year, we spent a lot of time and effort focused on improving the tools and infrastructure that WMTOC uses to provide services for the motorists of west Michigan. While this background work does not appear immediately obvious to the end user, we are excited to roll out strengthened services in 2013.

These efforts improve asset management (making MDOT's investment in Intelligent Transportation Systems (ITS) for the TOC more efficient), communications options, and the TOC's ability to share vital information with our partners.

In 2012, the Statewide Transportation Operations Center (STOC) in Lansing began providing after-hours service for the WMTOC. This allows us to provide our partners with one phone number to call for TOC service 24/7 and improves service for monitoring nighttime and weekend construction projects and traffic crashes.

We also specifically focused on improving traveler information to our customers. This resulted in more detailed information on the

Mi Drive Web site, including expanded weather information and travel times.

MDOT's Mi Drive team made some great improvements to the site in 2012. If you haven't been to the site lately, check it out at: www.michigan.gov/drive. There is also a mobile version of Mi Drive that you can create for on your smartphone (same Web address).

Safety * Mobility * Economy

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This annual report provides information regarding the services provided by the WMTOC and a snapshot of some of our data from 2012. If you are interested in other information or more detailed performance reports, please contact me.



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Traveler Information

ESSENTIAL TRAVELER INFORMATION FOR WEST MICHIGAN MOTORISTS

Key 2012 Accomplishments

- Incident notification e-mail subscribers increased by more than 10 percent
- Travel times were displayed on nine new DMS, providing valuable information for Grand Rapids metro area motorists

Mi Drive

The Mi Drive Web site (www.michigan.gov/drive) provides motorists with an interactive map with traffic camera views, average vehicle speeds, construction activity and the location of major incidents.

TOC operators post high-impact incident information to the Mi Drive Web site, allowing motorists to plan their routes before they head out to area roadways.

In addition to the Mi Drive Web site, WMTOC operators use a Listserv system for notifying stakeholders of incidents on area roadways. The number of Listserv subscribers grew to

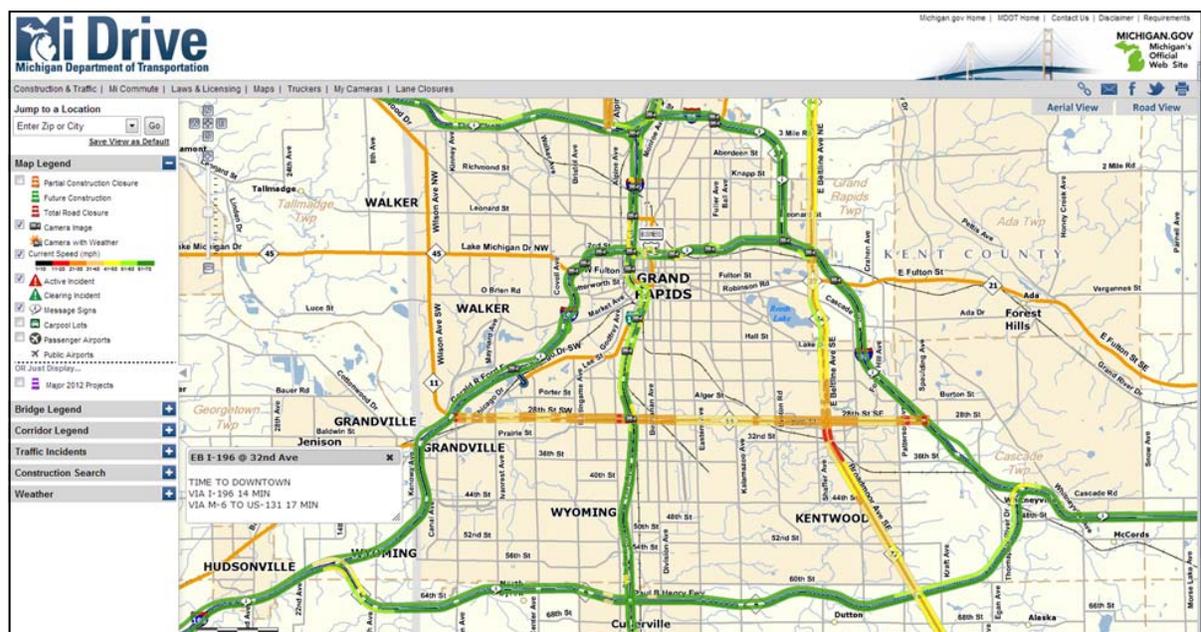
approximately 1,900 during FY 2012, an increase of more than 10 percent. To sign up for the Listserv, visit www.1.usa.gov/qZzuHo.

The Mi Drive Web site was upgraded in 2012 to show Dynamic Message Sign (DMS) locations. Web site users can click a DMS icon on the map to see the messages currently posted on the sign. A mobile version of the Mi Drive Web site was also added in 2012, improving accessibility to the site for those viewing on mobile devices.

Traffic Cameras

TOC operators monitor 57 traffic cameras throughout the Grand Rapids and Grand Haven areas, which provide visual coverage of approximately 42 miles of area freeways and 16 miles of state trunklines.

The cameras are used to detect and provide operational support for incidents that may adversely impact travel on the freeways. With visual coverage of the freeways, TOC operators can quickly inform first responders and motorists, decreasing incident clearance times and the likelihood of secondary crashes.



TRAVELER INFORMATION

Social Media

WMTOC operators assist the Michigan Department of Transportation (MDOT) Grand Region communications representative in providing up-to-date traveler information to the general public through social media, such as Facebook, YouTube and Twitter.

Among other state DOTs, the MDOT Facebook page (www.facebook.com/MichiganDOT) ranks #15 with 4,244 “likes;” the MDOT YouTube account (www.youtube.com/MichiganDOT) ranks #6 with 512,877 video views; and the statewide MDOT Twitter account (www.twitter.com/MichiganDOT) ranks #9 with 13,078 followers.

DMS

DMS are the most visible ITS devices to motorists. WMTOC operators utilize 27 DMS in Allegan, Kent, Muskegon and Ottawa counties to inform motorists about special events, crashes, construction, congestion and weather-related impacts, in addition to the travel-time information that is typically displayed.



Travel Times

Since 2010, the WMTOC has displayed travel times on six DMS on routes leading into the Grand Rapids area, increasing the travel-time messages to run 24 hours a day in 2011 (instead of only during peak-traffic periods).

In 2012, nine additional DMS began displaying travel times on I-196, I-96 and M-6, most within the metro area. The new DMS display metro-area travel-time information, as well as travel information for motorists leaving Grand Rapids for surrounding locales.

The travel times are based on

real-time traffic data and are automatically updated by the software every five minutes in order to give the most up-to-date travel information to motorists.

National Weather Service (NWS)

The NWS and WMTOC have partnered in order to provide the best weather and road condition information possible to motorists, both before and during their commutes. WMTOC operators regularly participate in NWS Webinars prior to significant weather events to ensure the most appropriate control room response to the potential storm event. WMTOC management participated in a winter weather table-top exercise with participants from each of the other MDOT TOCs in order to promote a more consistent statewide approach to TOC weather management.



Incident Management

PROVIDING VITAL INFORMATION AND COORDINATION FOR INCIDENT RESPONSE

Key 2012 Accomplishments

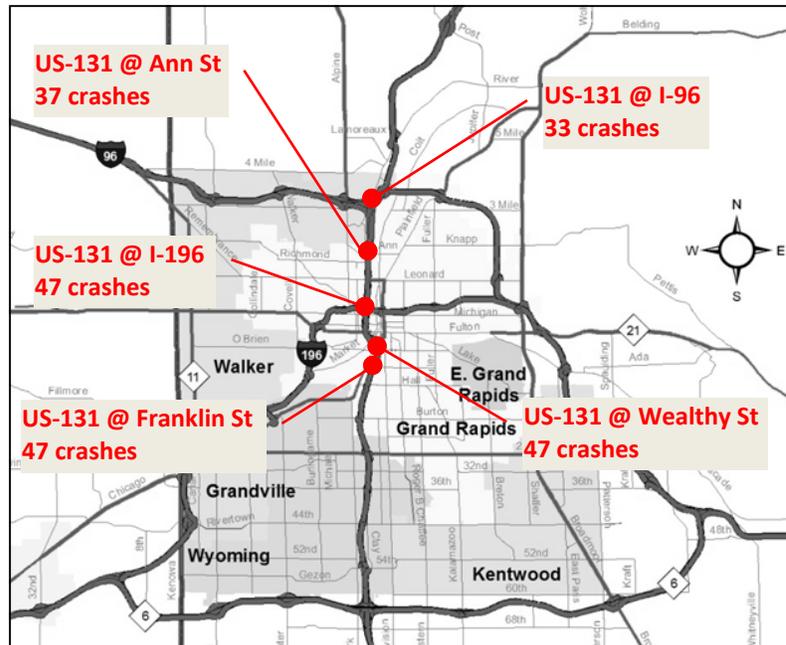
- Peak-period staffing was increased in response to the expansion of the WMTOC ITS network
- Average roadway clearance time decreased by more than 10 percent from FY 2011
- Over 1,200 unplanned incidents were supported by WMTOC operations

WMTOC Incident Response

In order to manage incidents and reduce congestion, WMTOC operators monitor 58 miles of Grand Rapids and Grand Haven-area freeway and state trunkline 14 hours a day on weekdays, and eight hours a day on weekends.

A secondary operator shift was added during the weekday morning and afternoon peak periods to support the primary operator with incident management and traffic camera monitoring.

In February, the STOC began providing after-hours coverage for the WMTOC. STOC operators currently have limited control of ITS devices in the Grand Rapids area and will have complete control of all WMTOC devices after a major software installation in 2013.



Most Active Hot Spots

The freeway areas with the highest frequency of crashes are commonly called “hot spots.” Hot spot locations (shown on the map above) receive added attention from TOC operators, and hot spot data is used in studies of these areas.

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. By communicating with first responders, operators have the most up-to-date incident information to give to motorists and the general public.

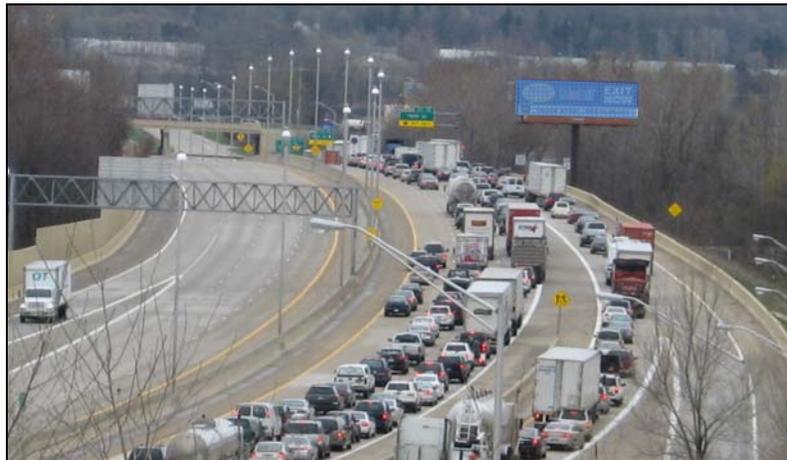
The WMTOC and its partners exchanged more than 6,000 telephone calls and e-mails in FY 2012, a 25 percent increase from FY 2011.



INCIDENT MANAGEMENT

Arterial ITS

The WMTOC camera coverage area has expanded to include portions of M-11 (28th Street) and M-37 (Alpine and Broadmoor avenues), which incorporates 16 cameras and 19 miles of MDOT arterial trunklines. Camera coverage of local trunklines allows operators to monitor these crucial links within the roadway network, while also providing coverage of emergency management routes when trunklines are needed to support traffic diverted off the freeway because of a crash or an emergency.



Traffic Incident Management (TIM)

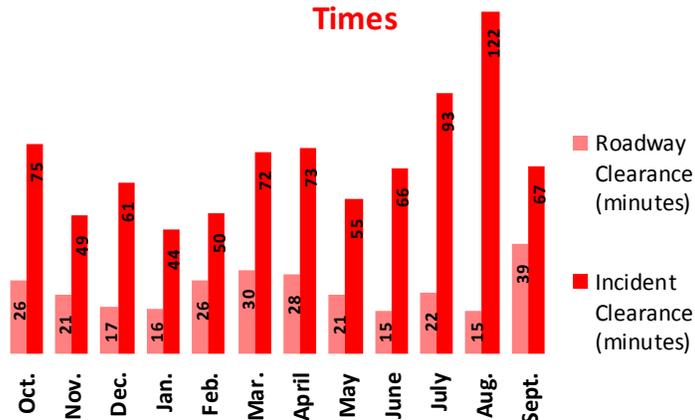
TIM is part of the planned process operators use to detect, respond to and help clear incidents in order to restore normal traffic flow safely and quickly. Effective TIM improves the safety of motorists and first responders, and reduces driver delays and secondary incidents.

Much of the data collected by the WMTOC relates to unplanned events (incidents). In FY 2012, WMTOC operators documented more than 140 incidents in two separate months, the highest number of monthly incidents in the last five years of data. By being aware of a greater number of incidents, the WMTOC can provide more information to motorists and reduce congestion and driver delay.

Planned and Unplanned Events

Event Type	Description	Number of Events
Crash	Vehicle Collision	712
Disabled	Disabled vehicle	334
Road Maintenance/Construction	Work zone, emergency or scheduled maintenance, mobile lane closure, etc.	259
Congestion	WMTOC alerted motorists via DMS	206
Abandoned	Abandoned vehicle	139
Weather	WMTOC alerted motorists via DMS	121
Debris	Car bumper, tire retread, etc. in the roadway	23
Vehicle Fire	Vehicle fire that required fire personnel	20
Other	Police or medical incident	18
Special Event	Concert, cultural event, etc.	13
AMBER Alert	WMTOC alerted motorists via DMS	5

Average Incident/Roadway Clearance Times



Planned Event Management

INFORMING MOTORISTS OF WORK ZONE ACTIVITIES AND SPECIAL EVENTS

Key 2012 Accomplishments

- Traffic signal timings were developed to support ramp closures associated with special events in downtown Grand Rapids
- Multiple law enforcement agencies were coordinated with to support special events

US-131 Bridges

Several different construction projects affected US-131 between Hall Street and 6th Street in the downtown Grand Rapids area during the 2012 construction season. The construction in the vicinity of the US-131/Franklin Street interchange had a particularly significant impact on traffic, as there were construction stages on both directions of the freeway that required traffic to use a single lane. The construction stages with the most significant mobility impacts were generally scheduled for nights and weekends in order to minimize driver delay. WMTOC operators supported the construction projects with DMS messages for motorists, and worked with construction engineers to reduce mobility impacts.



Traffic Signal Timing

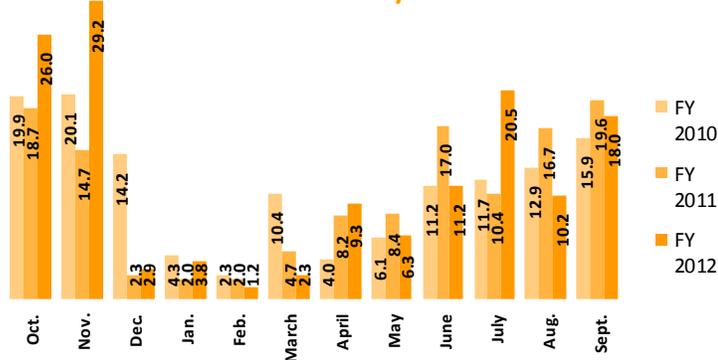
To support downtown Grand Rapids special-event traffic-management plans, optimized traffic signal timing plans were developed for routes to and from US-131 and I-196 in the downtown area. The traffic signal timing plans are designed to allow higher-than-normal

traffic volumes to quickly and efficiently enter or exit the freeway, minimizing the impact on freeway traffic during special events. WMTOC operators coordinate with the city of Grand Rapids Traffic Management Center to implement the timing plans.

Short-Term Maintenance

Late in the construction season, short-term maintenance work resulted in lane closures on the ramp from northbound US-131 to I-96. WMTOC operators again worked with construction engineers to provide accurate and timely information to motorists and minimize driver delay in this high-volume area.

Average Weekly Construction DMS Message Activity



PLANNED EVENT MANAGEMENT

Special Events

In addition to supporting special event traffic volumes with modified traffic signal timing, WMTOC operators monitored traffic and provided DMS messaging during the special events noted in the table shown on this page. WMTOC operators also coordinated with law enforcement personnel and event organizers, when necessary, to provide the most up-to-date special event information to motorists.

Tribute to Freedom

In July, a planned motorcycle caravan escorted a replica of the Vietnam Veterans Memorial Wall along northbound US-131 between Wayland and Wyoming. Though the possibility of rain

limited the number of participants, the event provided WMTOC and MDOT staff with an opportunity for significant inter-agency planning and coordination.

As part of the planning, pre-event meetings were held with MDOT, WMTOC, law enforcement and event-planning personnel to coordinate traffic control measures and communications procedures. Law enforcement personnel and a mobile communications post were stationed in the WMTOC control room during the event in order to monitor cameras along the route and communicate with field personnel.

The event provided an opportunity to demonstrate

WMTOC capabilities with regards to special event management to law enforcement personnel.

FY 2012 Special Event Support

Gilda's Laughfest

West Michigan Whitecaps

5/3 Riverbank Run

Festival of the Arts

July 4th Fireworks Celebration

Coast Guard Festival

28th Street Metro Cruise

Rock the Rapids

Celebration of the Grand Fireworks Display

ArtPrize

Grand Rapids Griffins

Grand Rapids Marathon

Black Friday Shopping

New Year's Eve



Photo credit: C. Nyenhuis

ITS System Maintenance

SUSTAINING A RELIABLE ITS NETWORK

Key 2012 Accomplishments

- The microwave vehicle detector system (MVDS) calibration program included several detectors along I-196 and US-131
- An average availability of 85 percent was provided for the 200+ devices in the WMTOC network

MVDS Calibration Program

During initial installation, detectors are calibrated by the contractor. Over time, the calibration can be affected by various factors, such as support pole movement. Recalibration is performed when necessary to maintain accuracy.

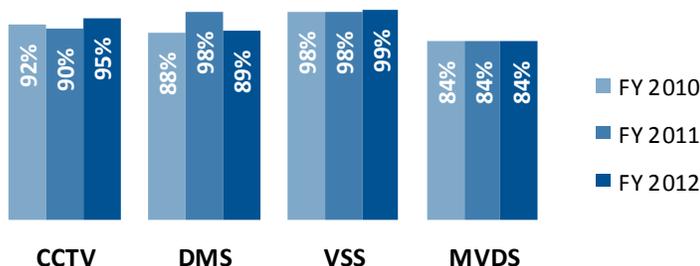
MDOT engineers coordinate and track the recalibration program, utilizing student co-ops to measure, calibrate, and verify calibration settings. Calibration settings are maintained for each detector to measure historic performance. The calibration program includes one-quarter to one-third of the detectors in the system per year, focusing first on those that seem the most out of calibration, so that the entire system is recalibrated approximately every four years. The system



calibration schedule and frequency may be adjusted based on historic performance.



ITS Device Availability



ITS Deployment

ADVANCING THE EXISTING ITS NETWORK

Key 2012 Accomplishments

- A double-sided DMS structure was installed on M-6, the first such installation in Michigan
- Device communication was improved by upgrading to Internet Protocol communications
- The multi-agency ITS expansion project devices were integrated into the WMTOC ITS network

Multi-Agency ITS Expansion

Construction on a multi-agency ITS expansion project, begun in 2009, was completed in 2012. The project included 31 traffic surveillance cameras, six DMS and 71 vehicle detectors, which more than doubled the number of devices in the WMTOC ITS network.

Fiber Network

Recent fiber-optic cable installations throughout the Grand Rapids area provided a communications upgrade to Ethernet communications for the ITS devices. The upgrade will increase the efficiency of maintenance and operations, while also increasing the utilization of the fiber infrastructure.



Double-Sided DMS Structure

Two DMS were installed on M-6 near Hanna Lake Drive in 2012. The signs are unique in that they were mounted back-to-back on the same support structure. These DMS provide

traveler information to approximately 46,000 motorists who drive past the site every day on eastbound and westbound M-6, allowing motorists to make informed routing decisions as they travel this segment of freeway.



Number of WMTOC ITS Field Devices

