



INTELLIGENT TRANSPORTATION SYSTEMS - ITS

## Statewide Transportation Operations Center – STOC

By: Lee Nederveld, Operations Engineer

The Statewide Transportation Operations Center (STOC) has been operating 24 hours per day, 7 days per week, since operations began in May 2011. Located in downtown Lansing, STOC monitors traffic conditions and manages traffic incidents in the Bay, North, Southwest, Superior, and University regions. STOC also works closely with MDOT's other TOCs, and acts as a backup for the West Michigan TOC (WMTOC) during overnight hours.

STOC is dedicated to utilizing the ITS infrastructure constructed and deployed by MDOT to improve traffic flow and increase safety on roadways throughout Michigan. In order to accomplish this goal, STOC operators are continually monitoring traffic cameras, real-time speed maps, and email alerts from within the STOC Control Room. Oper-

ators are also in frequent contact with partner agencies and other MDOT personnel, who alert the control room of traffic incidents, special events, and construction projects that are impacting traffic on MDOT roadways.

Once an incident or other traffic issue has been identified, STOC then sends multiple notifications to alert first responders, partner agencies, and the motoring public. These alerts include email notifications, as well as updates posted to the MDOT Mi Drive website. Motorists are able to visit this website prior to starting their trip to obtain the latest traffic information along their route. STOC also displays traffic information on Dynamic Message Signs (DMS) where applicable.

# The Intelligent Traveler

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### MDOT WEBSITE

[www.michigan.gov/mdot](http://www.michigan.gov/mdot)

### ITS PROGRAM OFFICE

[www.michigan.gov/its](http://www.michigan.gov/its)

### CONNECTED VEHICLES

[www.michigan.gov/cv](http://www.michigan.gov/cv)

### MI DRIVE WEBSITE

[www.michigan.gov/drive](http://www.michigan.gov/drive)

### MDOT ITS PLANNING

[www.mdotitsplanning.com](http://www.mdotitsplanning.com)

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### MDOT'S ITS MISSION:

*“Develop and sustain a program at MDOT to improve safety, operational performance and integration of the transportation system utilizing Intelligent Transportation System technologies for economic benefit and improved quality of life.”*

Through increased communication with partner agencies, STOC helps to reduce the duration of traffic incidents, which not only reduces the length of delay experienced by drivers but also increases safety for responders by getting them off the road more quickly. Furthermore, by providing information to motorists in advance of an incident scene, drivers can anticipate a backup and be prepared to stop, or potentially take an alternate route. This helps to further reduce delays and the risk of a secondary crash.

In February 2013, MDOT expanded its Freeway Courtesy Patrol (FCP) program into Livingston and Washtenaw counties. FCP drivers patrol the freeways in these counties and assist disabled vehicles, remove debris from the roadway, and help with traffic control at crash scenes. FCP is in constant contact with STOC, and is a key tool that MDOT has to further improve mobility and safety on Michigan roadways in these areas.



## iCone—Stopped Traffic Advisory System

By: Chris Brookes, Work Zone Delivery Engineer

"The iCone is a device that beams real-time traffic information over the Internet to a central web site for use by government officials, emergency response personnel, trucking fleets, the public and information resellers, including media outlets and GPS services like Garmin.

The product is comprised of a highway construction barrel with a computer chip, circuit board, GPS device, radar sensor and networking capability inside. The device is the only one of its kind, has been crash test approved by the Federal Highway Administration ("FHWA"), and currently is under evaluation by seven state Departments of Transportation ("DOTs"). The iCone completed its third generation

of field testing with the New York State DOT in the fall of 2008.

The iCone traffic beacon features:

- Simple operation – drop it on the roadside and flip a switch to activate
- Autonomous – power budgeting and board design result in weeks of operation without recharging
- Universal coverage – special satellite modems provide network communications on every road in North America
- High accuracy positioning – GPS identifies the exact lane that is closed
- Traffic speed detection – average speeds are transmitted to measure congestion



- Durable construction – water-proof, shock resistant, one moving part (the switch)
- Full support lease arrangement – simple lease model covers all costs of communications, servers and web-based information delivery
- Data processing – traffic reporting and monitoring"

For more information go to:  
<http://iconeproducts.com/>

# DUAP Status Update

By: Collin Castle, P.E. Connected Vehicle Technical Manager

As new collection methods arise, the system will be expandable to incorporate the methods into the data pool. Consequently, 'big data management' becomes a major challenge with the DUAP system. This will be addressed by including advanced data processing techniques to automatically analyze, process, transmit, and store the data in real time, as it is collected. Special data processing algorithms will be built to process data based on its data source, the format that it is collected, the format that it will be stored, and the data elements that are included. Special applications that serve the agency's needs will be built to use this data as it is stored, providing a way to access data in near time to be used for the benefit of the agency. The DUAP Project is an MDOT ITS Program Office initiative aimed at increasing the awareness of and access to connected vehicle and mobile data across the agency. The system is being designed to perform advanced data processing techniques to automatically analyze, process, transmit, and store data in real time, as it is collected. Applications that serve the agency's needs will be built to use this connected vehicle data as it is stored, providing a way to access data in near time to be used for MDOT's benefit.

Currently, the DUAP system is in the development and refinement phases. A myriad of near time data sources have been identified and are currently transmitting data to the system. Other data sources are constantly being identified. The data is being processed as it is detected and it is being stored in a usable format by the end user applications.

The DUAP team has is and continues to interacting with MDOT data users to identify new potentially beneficial applications, and to refine applications that have previously been identified. The intent of these applications is to provide a tool that will

enable the MDOT users from many functional areas to utilize the collected data in new and meaningful ways. Currently, several applications for potential development have been identified in the following categories: pavement, construction, traffic, and weather. Each of these applications is envisioned to provide benefit to many functional areas across the agency. The pavement application, for example, can be used across many of MDOT's functional areas. For planning purposes, pavement data can be delivered in the near time to provide trended information. This will enable planning personnel to better understand and manage the overall state of the asset. For design purposes, the pavement application will provide agency personnel with trended conditions pertaining to weather and traffic. This will provide pavement designers with a source near time information about what is happening to the asset at any given time. For maintenance purposes, the pavement application will detect specific types of defects when thresholds, pre-established by the agency, have been met. This could potentially create will create automated work orders aimed at getting the highest value from the pavement.

Currently, the DUAP system is in its development and refinement phases. A number of connected vehicle or mobile data sources have been identified and are currently transmitting data to the system and new data sources are constantly being identified. The data is being processed as it is detected and it is being stored in a usable format for future applications use. Currently, the applications are in a state of conceptual research and development, and much of the back office support development is completed; and however, unique application components are currently being refined. The applications will begin being distributed to MDOT subject matter ex-

## Upcoming Events

THU-FRI  
10-12

### ASCE 143rd Annual Civil Engineering Conference

Charlotte Convention Center  
501 S College St  
Charlotte, NC 28202

OCT

MON-FRI  
14-18

### 2013 ITS World Congress

Tokyo International Exhibition Center  
Tokyo, Japan

OCT

WED-THU  
16-17

### 2013 Michigan Winter Operations Conference

Treetops Resort & Conference Center  
3962 Wilkinson Rd  
Gaylord, MI 49735

OCT

TUE-WED  
22-23

### INFLO Speed Harmonization with Queue Warning Workshop

Detroit Metro Airport Marriott  
30559 Flynn Dr  
Romulus, MI 48174

OCT

SUN-THU  
12-16

### Transportation Research Board 93rd Annual Meeting

Connecticut Avenue Collection  
Washington D.C.

JAN

WED-FRI  
22-24

### 2014 MTA Annual Conference

Soaring Eagle Casino and Resort,  
Mt. Pleasant, MI

JAN

\*If you have an event or an article that you would like included in future editions of The Intelligent Traveler, please contact the editorial staff.

perts for use in May of 2014. This will provide them with the opportunity to critique and refine the applications to better meet the agency's needs. For more information about this project and the MDOT Connected Vehicle Program, contact MDOT Connected Vehicle Technical Manager - Collin Castle, P.E., at [CastleC@michigan.gov](mailto:CastleC@michigan.gov)



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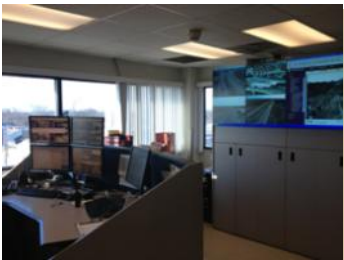
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