

# Statewide Transportation Operations Center

Serving Motorists on Michigan Freeways

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

November 2012



## In the Spotlight



Winter weather produces sleet, snow, ice, and potentially hazardous road conditions which can lead to slower traffic. Operators monitor the weather forecast on the television and the Internet to determine the current and approaching weather patterns throughout the State of Michigan in order to post messages on Dynamic Message Signs (DMS) and manage incidents as reported to the Statewide Transportation Operations Center (STOC).

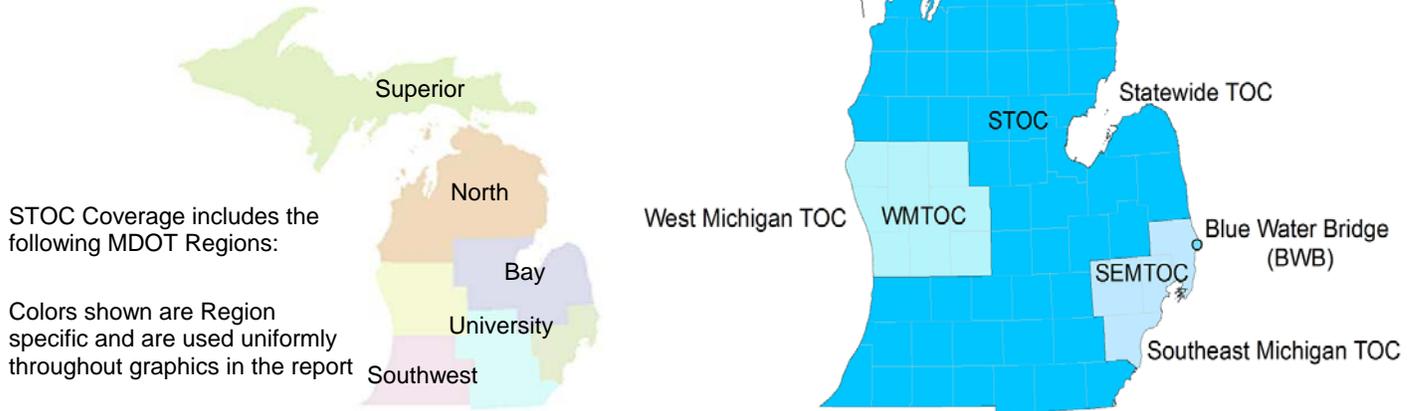
Rain can quickly turn into freezing rain, making roadways extremely slick; fresh snow on the roadways can conceal icy conditions especially on bridge overpasses and in shaded areas of the roadway. Operators utilize protocol along with their best judgment to determine exactly when to use a DMS to warn drivers of possible roadway conditions.

Early in November, all Transportation Operations Center management personnel in Michigan met together at the first annual Severe Weather Tabletop Exercise. At this meeting, the management teams discussed a major snow event and the ensuing action items for each TOC. The outcome of the meeting resulted in the development of a preparedness checklist for the handling of a severe weather event.

## Transportation Operations Center (TOC) Coverage Areas

The Statewide TOC (STOC) is responsible for traffic operations along more than 1,300 miles of freeway in the state of Michigan along with the operations on a number of MDOT arterials, the STOC has ITS equipment along 218 miles of roadway.

## Transportation Operations Centers (TOC)



STOC Coverage includes the following MDOT Regions:

Colors shown are Region specific and are used uniformly throughout graphics in the report

## ITS Equipment List

	<u>Totals</u>		
	<u>Nov.</u>	<u>Oct.</u>	<u>% Change</u>
<b>Closed-circuit Television (CCTV) cameras</b>	(In Coverage Area)		
CCTV cameras allow for pinpointing and monitoring of traffic events so that information may be disseminated quickly and accurately	34	34	0.0
<b>Dynamic Message Signs (DMS)</b>			
DMS allow for sending messages to motorists to inform of traffic events that may be impacting their route ahead	37	37	0.0
<b>Vehicle Detector Stations (VDS)</b>			
VDS allow for traffic-impacting events to be spotted, travel times to be calculated and speed maps to be generated	41	41	0.0
<b>Environmental Sensor Stations (ESS)</b>			
ESS, working together as part of a larger Road Weather Information System allow for road maintenance personnel to better manage approaching weather	25	25	0.0



# Summary

## Data Key

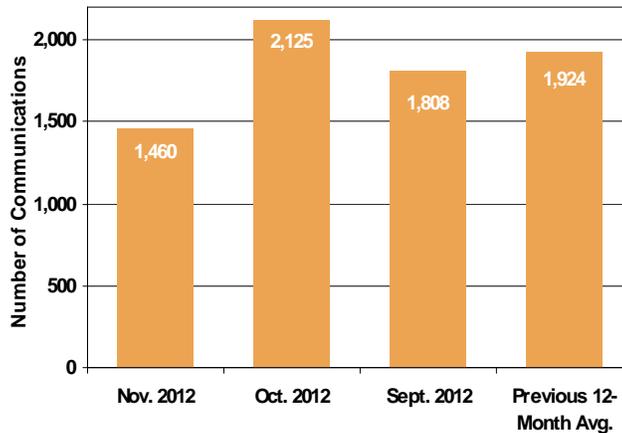
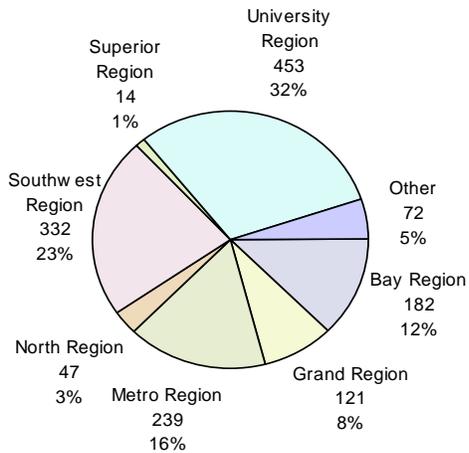
## November 2012

	Current Month	Previous 12-Month Average
<b>STOC Communications Activity</b> 	<b>Total Communication</b>	
Operators log all incoming and outgoing control room communications, engaging various incident responders and stakeholders.	<b>Calls: 383</b>	<b>324</b>
	<b>E-mails: 1,082</b>	<b>1,633</b>
<b>Unplanned Incidents*</b> 	<b>Total Incidents ^</b>	
Operators log information about each unplanned incident including date/time, location, traffic impact, duration, and associated traveler information.	<b>98</b>	<b>219</b>
<b>Construction Activity</b> 	<b>Incidents Occurring in Work Zones</b>	
Operators maintain a list of ongoing construction projects and contacts for these projects. This activity also includes maintenance operations.	<b>0</b>	<b>1</b>
<b>Daily Shift Report</b> 	<b>System Availability</b>	
Operators track maintenance issues for all ITS equipment, including CCTV cameras, VDS, and DMS.	<b>CCTV: 97%</b>	<b>93%</b>
	<b>VDS: 100%</b>	<b>86%</b>
	<b>DMS: 100%</b>	<b>99%</b>

\* An **incident** is an unplanned event that impacts the shoulder, lane(s), or a ramp of a State of Michigan trunkline (a route signified with an I-, US-, or M- name). An incident will also occur in the STOC coverage area and under any of the following types: crash, debris, vehicle fire, abandoned vehicle (unless otherwise noted), or police situation.

An **event** incorporates all incidents along with other types such as planned construction projects, weather and special events such as concerts or sporting events.

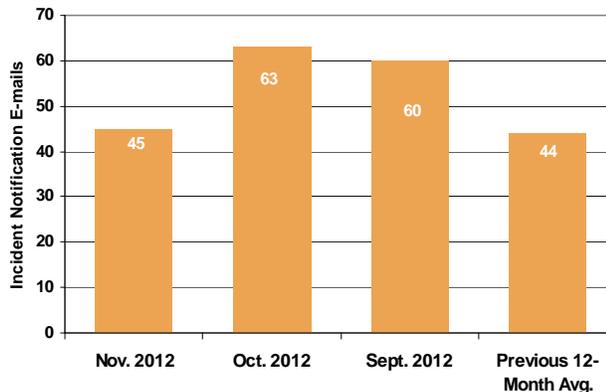
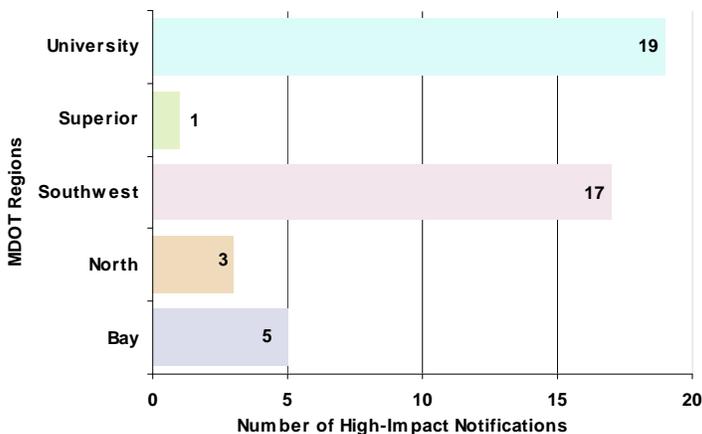
^ STOC will no longer monitor unverified incidents in Genesee County per protocol change effective July 1, 2012.



## November 2012

These charts segment all incoming and outgoing calls and e-mails that Control Room Operators field per MDOT region. STOC is connected to various first responder data (Nixle.com, emergency dispatch centers, Michigan State Police) especially in the Bay Region. STOC looks to use these charts to identify outreach to other regions throughout the state.

## High-Impact Incident Notifications and History

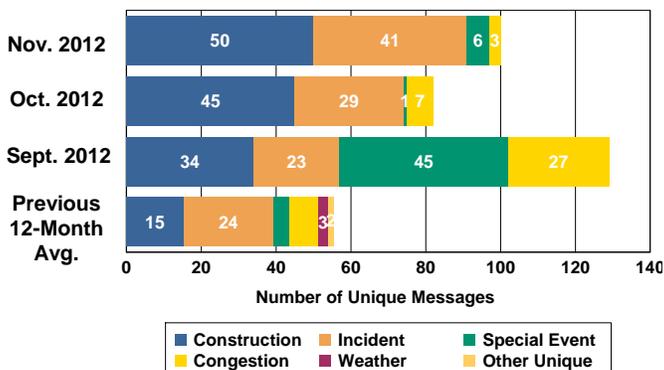


These graphs enumerate high-impact incident e-mail notifications defined as:

- > Complete closure of a freeway in one or both directions
- > Only one lane of traffic in one direction open
- > Freeway to freeway ramp closure

STOC Control Room Operators send e-mails to a prescribed group of stakeholders. High-impact incidents cause the highest impact to traffic congestion.

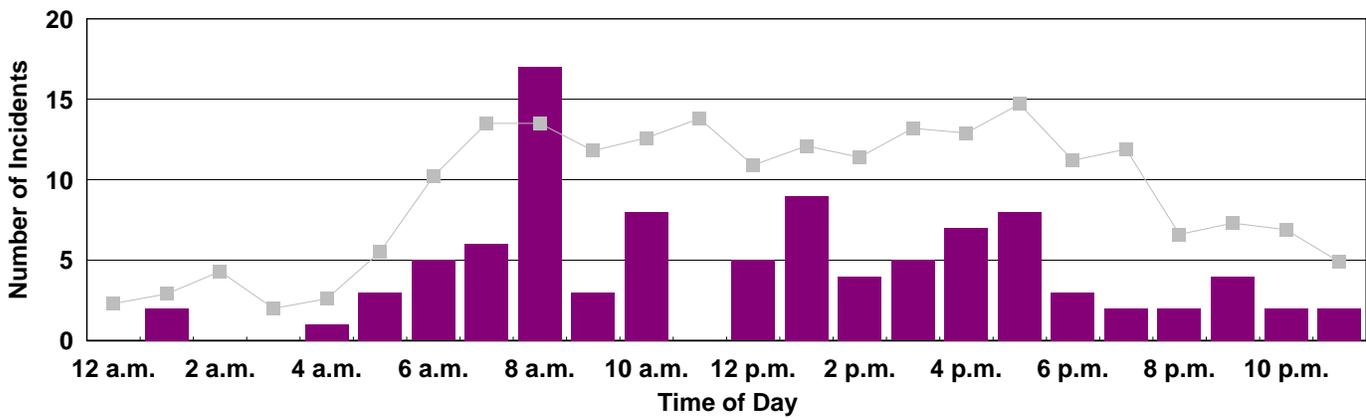
## DMS Messages by Type ^



This graph shows unique DMS messages by type. Once a Control Room Operator receives notification from stakeholders regarding a specific event, the STOC Control Room Operator utilizes DMS to send a message specific to the event type.

^ STOC will no longer monitor unverified incidents in Genesee County per protocol change effective July 1, 2012.

## Total of Unplanned Incidents per Hour ^

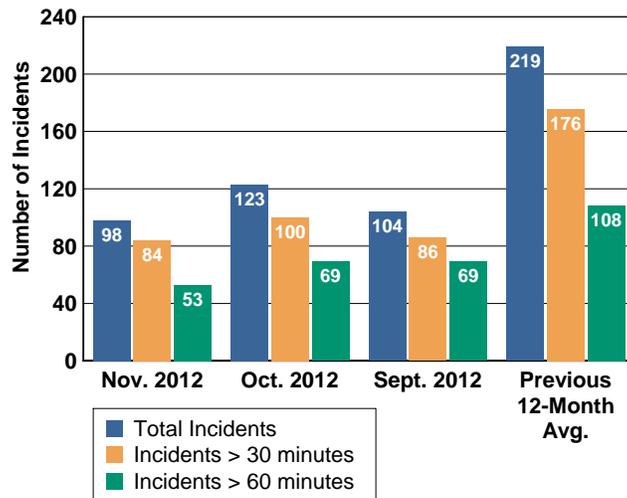


This chart segments incidents per hour. STOC management staff uses these charts to identify peak hours to properly staff Control Room Operators. The line shows the hourly incident average for the previous 12 months.

## Incident Duration History ^



This graph shows the duration history of incidents (excluding events noted by operators as abandoned vehicles). Incident duration is the time between awareness of an incident and removal of all evidence of the incident, including debris or remaining assets



## Most Utilized DMS



This list demonstrates the most utilized DMS during the month. The DMS listed are utilized most frequently with unique messages. A unique message is any message other than a travel time or Public Service Announcement

1. SB I-69 at N Drive MM0435 (8 messages deployed)
2. SB US-23 at 6 Mile (8 messages deployed)
3. NB US-23 at Lee Rd (8 messages deployed)

## Traffic Impact Types by Region



This table breaks down all incidents by type and by Region. This data informs the STOC on what type of incidents are handled and where the highest percentage of incidents occur.

	Crashes	Debris	Police Situation	Other	Fire	Total
Bay	18 21.4%	1 50.0%	0 0.0%	0 0.0%	2 20.0%	21
North	3 3.6%	1 50.0%	0 0.0%	0 0.0%	0 0.0%	4
Southwest	25 29.8%	0 0.0%	1 100.0%	0 0.0%	4 40.0%	30
Superior	2 2.4%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2
University	36 42.9%	0 0.0%	0 0.0%	1 100.0%	4 40.0%	41
<b>Total</b>	<b>84</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>98</b>

^ STOC will no longer monitor unverified incidents in Genesee County per protocol change effective July 1, 2012.



# Incidents by Freeway

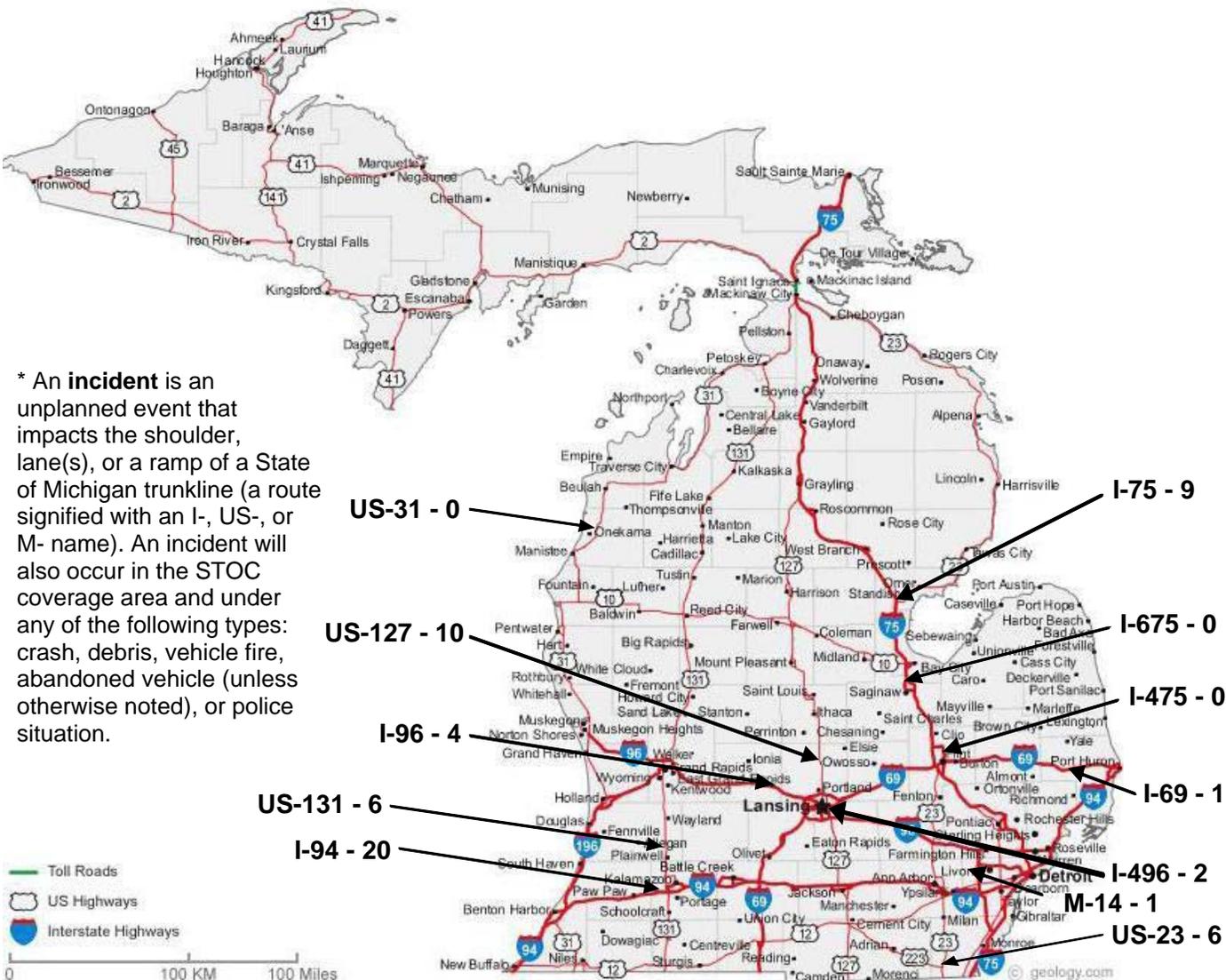


This table enumerates the number of incidents located on major freeways and the number of incidents per mile throughout the STOC's coverage area. (Only reflects incidents where STOC has received notification and in the STOC coverage area)

Below is a map of the freeways that are monitored by the STOC and lists the total number of incidents that were detected during the month.

Freeway	Nov. 2012		Oct. 2012		Sept. 2012		Previous 12-Month Avg.	
	Total	per mi.	Total	per mi.	Total	per mi.	Total	per mi.
M-14 (22.54 mi.)*	1	-	3	0.1	2	0.1	-	-
I-475 (17 mi.)*	-	-	-	-	1	0.1	10.5	0.6
I-496 (12 mi.)*	2	0.2	3	0.2	9	0.8	1.7	0.1
I-675 (7 mi.)*	-	-	-	-	-	-	0.5	0.1
I-69 (178 mi.)*	1	-	2	-	-	-	23.3	0.1
I-75 (288 mi.)*	9	-	6	-	14	-	57.7	0.2
I-94 (187 mi.)*	22	0.1	34	0.2	16	0.1	12.3	0.1
I-96 (76 mi.)*	4	0.1	6	0.1	5	0.1	3.9	0.1
US-127 (165 mi.)*	10	0.1	11	0.1	5	-	3.7	-
US-131 (91 mi.)*	6	0.1	8	0.1	3	-	2.9	-
US-23 (93 mi.)*	6	0.1	7	0.1	5	0.1	16.1	0.2
US-31 (85 mi.)*	-	-	1	-	1	-	0.5	-
<b>Month Total</b>	<b>61</b>	<b>-</b>	<b>81</b>	<b>0.1</b>	<b>61</b>	<b>-</b>	<b>133.1</b>	<b>0.1</b>

\* Reflects freeway mileage within the current STOC coverage area.



\* An **incident** is an unplanned event that impacts the shoulder, lane(s), or a ramp of a State of Michigan trunkline (a route signified with an I-, US-, or M- name). An incident will also occur in the STOC coverage area and under any of the following types: crash, debris, vehicle fire, abandoned vehicle (unless otherwise noted), or police situation.

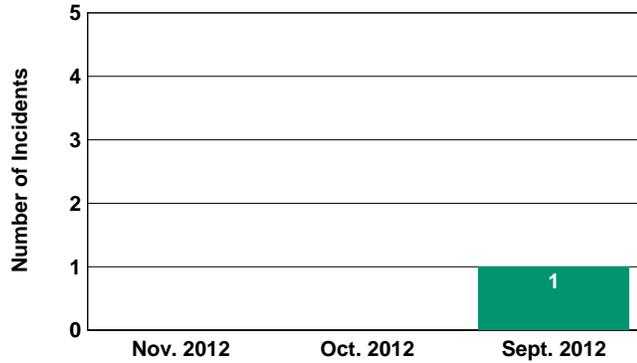
Incident Management



## Incidents Occurring in Work Zones



This graph indicates how many incidents took place within a work zone. With construction postings using DMS and the Mi Drive Web site, STOC strives to keep a low number of incidents in the work zones.



## Construction Events per Region



This graph segments all new construction events for the month received by the STOC by Region.

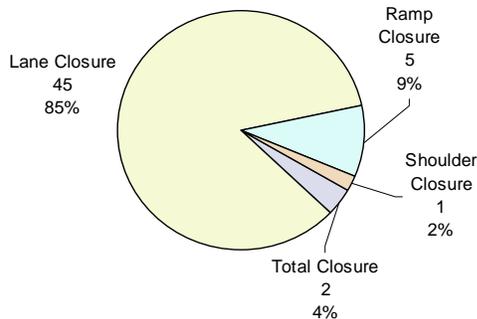


November 2012

## Construction Events per Closure Type



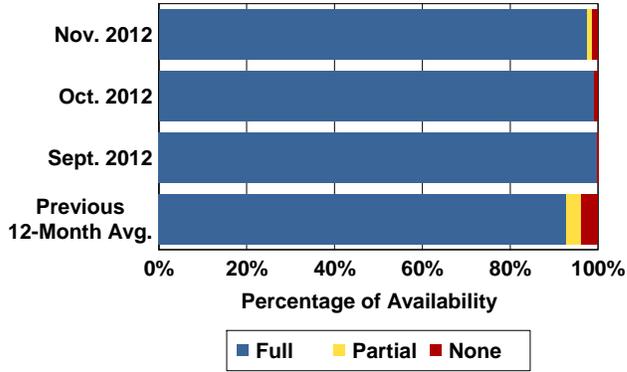
This chart breaks down the closure type for each project that the STOC receives via phone call or E-mail. A lane closure is used more than a roadway closure whenever possible to minimize motorist delays and detours.



Construction Activity



## Overall CCTV Camera Availability



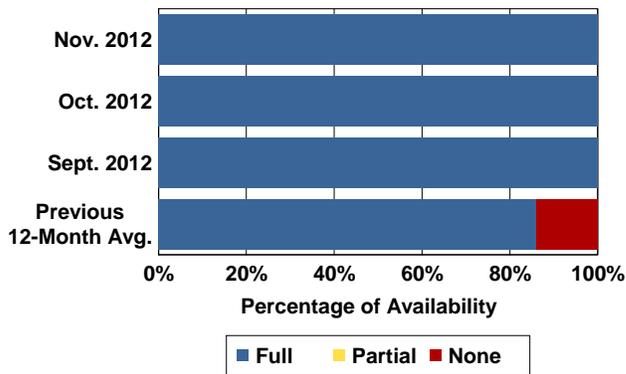
## CCTV Cameras Below 95% Availability



Location	Full	Partial	None
1. C-US23S-MM0614-Bund	74%	-	26%
2. C-I-96E-MM1478-I-96 US 23	77%	23%	-

Percentages of availability are reported for the current month based on data reported daily.

## Overall Detector Availability



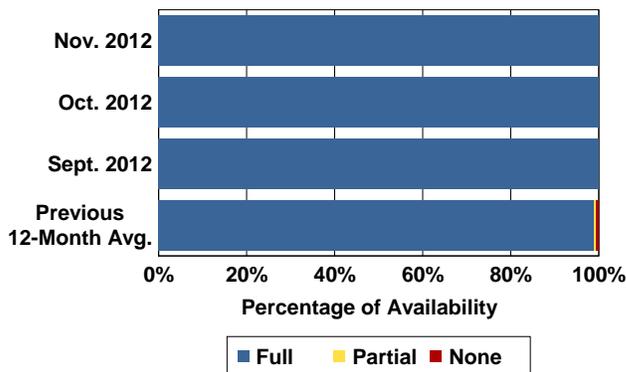
## Vehicle Detectors Below 95% Availability



Location	Full	Partial	None
None.			

Percentages of availability are reported for the current month based on data reported daily.

## Overall DMS Availability



## DMS Below 95% Availability



Location	Full	Partial	None
None.			

Percentages of availability are reported for the current month based on data reported daily.

The graphs on the left show the percentage of availability of all the ITS devices (CCTV, Detector, DMS) located in the STOC coverage area. If a device is under 95 percent available for a given month, the device is listed in the tables shown on the right. STOC uses this information to be aware of the operational devices so when incidents occur, operators know which ITS devices can help alert motorists quickly and accurately.