

# Kansas City Scout Traffic Management Center Monthly Report

April 2009



Prepared For:  
**KC Scout Board of Directors**

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**Cover photo:** Mark Sommerhauser shows three children how to operate the Scout cameras. There were different objects placed through out the parking lot and once the children were taught how to turn the camera and zoom in/zoom out, they were ask to locate the objects just like an operator in the Scout center.

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## Introduction

Kansas City Scout (KC Scout) is a comprehensive traffic and incident management system designed to address the traffic impacts on over 100 miles of contiguous freeways in the bi-state Kansas City metropolitan area. The Missouri Department of Transportation (MoDOT) and the Kansas Department of Transportation (KDOT) jointly operate the system. Scout integrates 128 closed circuit television (CCTV) cameras, 38 dynamic message signs (DMS), 277 vehicle detector stations (VDS), a highway advisory radio (HAR) system, and a dynamic web site, [www.kcscout.net](http://www.kcscout.net).

This report describes the operation and specific activities of Scout's Traffic Management Center (TMC), located in Lee's Summit, Missouri, during April 2009.

## Operations Summary

A summary of the operational results and activities of the TMC staff during the reporting period is presented below. The numbers in parentheses shown with some of the items refer to the explanatory notes on those items included in the "Notes on Operations Summary" section following this section.

### Incidents

- The TMC actively responded to **362 incidents**, representing a 8% increase compared to last month.
- 3 were Level 3 incidents with an average duration of 136 minutes (1)
- 142 were Level 2 incidents with an average duration of 51 minutes (1)
- 128 were Level 1 incidents with an average duration of 15 minutes (1)
- 61 were scheduled roadwork (2)
- 13 were within a work zone (2)
- 0 were Ozone Alerts
- 0 were AMBER Alerts
- 22 involved big rigs
- 62 involved injuries (42% decrease compared to last month)
- 2 involved fatalities
- 9 involved DOT property damage
- 2 could be classified as secondary incident
- 39 cited bad weather as a possible contributing factor
- TMC responded to 1,039 false incident alarms.
- The TMC managed 28 I-70 corridor incidents and 1 I-29 corridor incident

### Dynamic Message Signs (DMS)

- DMS were activated 624 times (4)
- 1,360 DMS messages were displayed (4)

### ATIS (Web Site) Messages

- 765 total messages were placed for incidents, including 93 for roadwork (5)

### Highway Advisory Radio (HAR)

- Activated 0 times this month (6)

### Equipment Operability

- On average, 91% of the CCTV cameras were completely operational.

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- On average, 96% of the DMS were completely operational.
- On average, 81% of the Detector Stations were completely operational, with 12% reporting some bad detectors, 7% reporting all bad detectors, and 1% not responding. (7)

**Tours / Media/Events****Tours**

- 4/9** Tour of Scout by Grain Valley Public Works Department, 8 people attended this tour.
- 4/15** Approximately 100 people toured the Scout TMC as a part of Big Truck Night.
- 4/21** The Independence City Sewer Crew Chief toured Scout TMC.
- 4/23** There 135 children and parents who toured the Scout TMC as a part of bring your child to work day.
- 4/27** Two visitors from the Pioneer Trails Advisory Board toured Scout TMC.

**Public Appearances**

- 4/1** Jason Sims, Mark Sommerhauser, Rusty James and Jeremy Ball attended the ITS Heartland Conference.
- 4/4** Rusty James made a public appearance at celebration of Community event at Gail's Harley Davidson
- 4/6** Rusty James made a public appearance at Kansas Transportation Safety conference in Topeka, KS
- 4/7** Rusty James made a public appearance at Kansas Transportation Safety conference in Topeka, KS
- 4/8** Rusty James made a public appearance at Kansas Transportation Safety conference in Topeka, KS

**Media appearances**

There were no media appearances in April

**Additional Information**

- TMC operators logged 1,779 telephone calls with partner agencies. (8)
- Customer Service Representatives logged 3,574 contacts from external and internal sources, including phone calls, E-mails, and walk-ins. (9)

**Notes on Operations Summary**

1. Duration levels used by the TMC are the levels defined in the Manual on Uniform Traffic Control Devices (MUTCD) as follows:
  - Level 1 (Minor) – under 30 minutes
  - Level 2 (Intermediate) – 30 minutes to 2 hours
  - Level 3 (Major) – more than 2 hours
2. The number of scheduled roadwork incidents represents the number of short-term work zones, usually lasting 8 hours or less, that involve lane, road, or ramp closures for which the TMC staff has placed DMS messages. The number of incidents within work zones represents the number of accidents, stalled vehicles, debris, etc. that involve lane or ramp closures within existing work zones, either long-term or short-term.
3. The ATMS (Advanced Transportation Management System) software utilized by the TMC has an automatic incident detection (AID) feature that uses VDS data to automatically sense that an incident has occurred and places an icon on the ATMS map to inform the operator of

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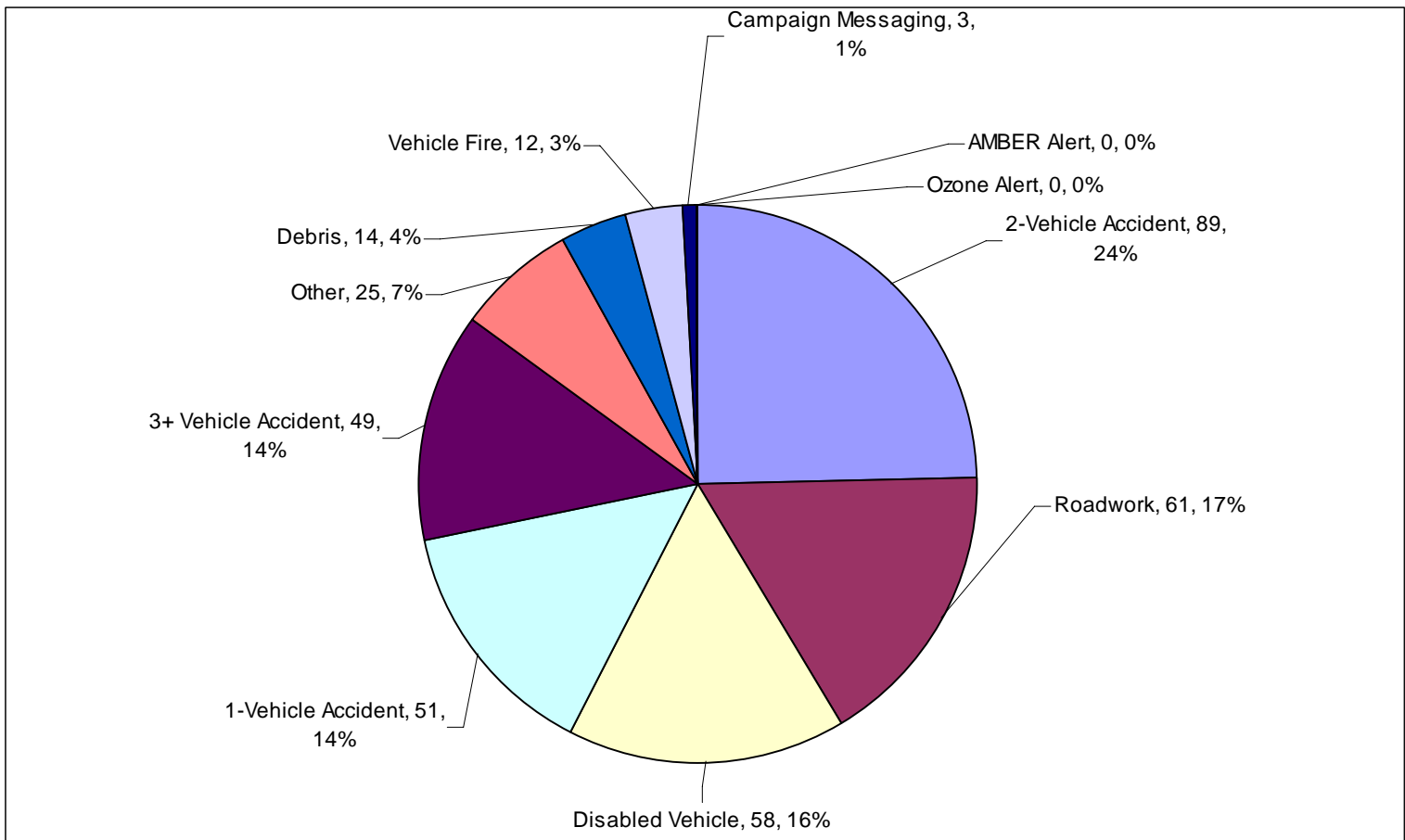
the incident. If the VDS have not been fully calibrated / tuned, the ATMS falsely senses that an incident has occurred. When an incident icon appears on the map, the operator confirms or denies an incident has occurred by viewing CCTV cameras in the immediate area. The operator then responds accordingly. The numbers of actual and false incidents can be determined through daily review of the incident reports.

4. Each incident report provides the number of DMSs activated for that incident and the number of messages displayed on each DMS during the incident. The total numbers of DMS activations and messages displayed in the DMS Operations Summary reflect the numbers from each incident report totaled for all incidents occurring during the reporting period.
5. The ATIS (Advanced Traveler Information System) is the KC Scout Web Site. The number of ATIS messages reported in the Operations Summary is the total number of messages sent by the operators to the web site. Each message sent creates an icon on the web site map that corresponds to the type of incident being reported; e.g., accident, scheduled event, and emergency work. This number does not reflect the number of messages posted in the scroll on the web site home page. Those scroll messages are posted as necessary and may include AMBER Alert notices, web site updates, emergency closures, etc.
6. The HAR is deployed on the Missouri side only and is not integrated with the ATMS software. Operators interface with the system through a dial-up modem.
7. A vehicle detector station (VDS) consists of detectors (induction loops or radar units) capable of detecting vehicle speeds and volumes in each traffic lane. The VDS status in the Operations Summary provides the number of stations that were completely operational (i.e., all detection capability in that station is operational), partially operational (i.e., some but not all of the detection capability in the station is operational), not operational (i.e., none of the detection capability in the station is operational), and not responding (i.e., there is no apparent communication between the station and the TMC).
8. Partner agencies consist of MoDOT Motorist Assist, Kansas Highway Patrol (KHP), local law enforcement and incident management agencies, and MoDOT/KDOT maintenance/construction personnel.
9. External and internal sources consist of the general public, the media, public and private agencies, and other MoDOT offices. Contacts comprise phone calls, E-mails, and walk-ins.

**Incident Statistics by Incident Type**

In April, the TMC responded to 362 incidents in the Kansas City area. This number represents an increase of 8% compared to last month. The rise in disabled vehicles was due to three snow events in the month. All incidents are shown by incident type in Figure 1. 2-Vehicle Accident was the most frequent incident with 89, representing 25% of the total incidents managed. Roadwork was the second most frequent with 61 (17%). Disabled Vehicle (58, 16%) and 1-Vehicle Accident (51, 14%) were the next highest incidents. These 4 incident types accounted for 72% of the total incidents managed by the TMC. The three accident categories accounted for (179, 49%) of the total incidents managed. For the purposes of this report, *Disabled Vehicle* incidents are generally counted only if they involve lane closures.

**Figure 1 – Incidents by Type**



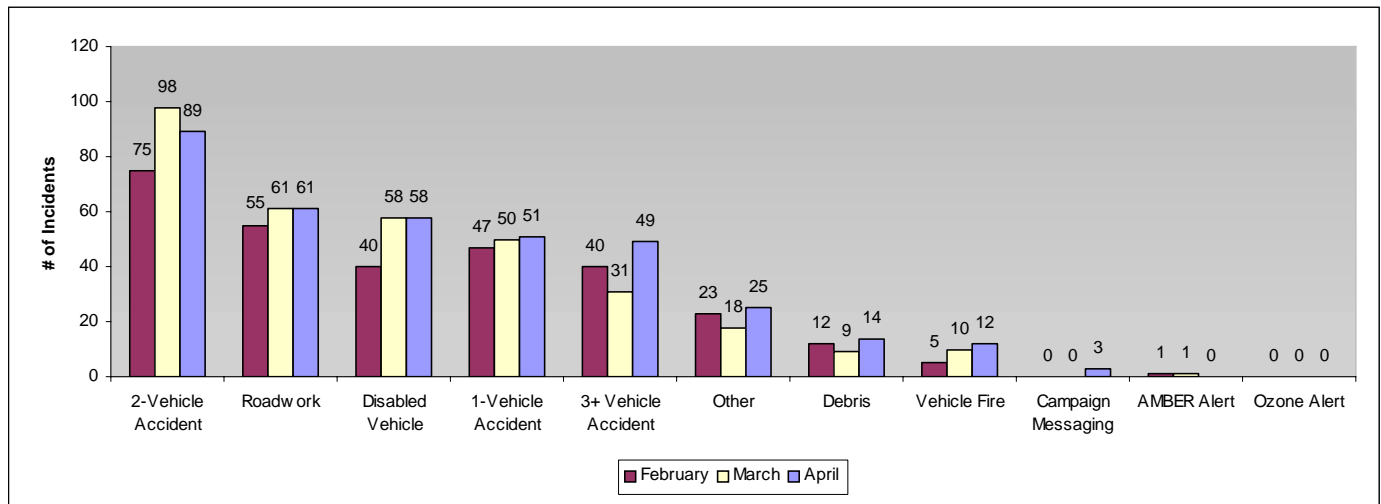
Incident Statistics by Incident Type

Additional Incident Details:

- 13 were within a work zone
- 22 involved big rigs
- 62 involved injuries
- 2 involved fatalities
- 9 involved DOT property damage
- 2 could be classified as secondary incidents

Figure 2 shows the number of incidents that the TMC managed during each of the last three months. It is intended to show short-term trends in the types of incidents that are occurring on the area's freeways.

Figure 2 – Incidents by Type / 3-Month Summary

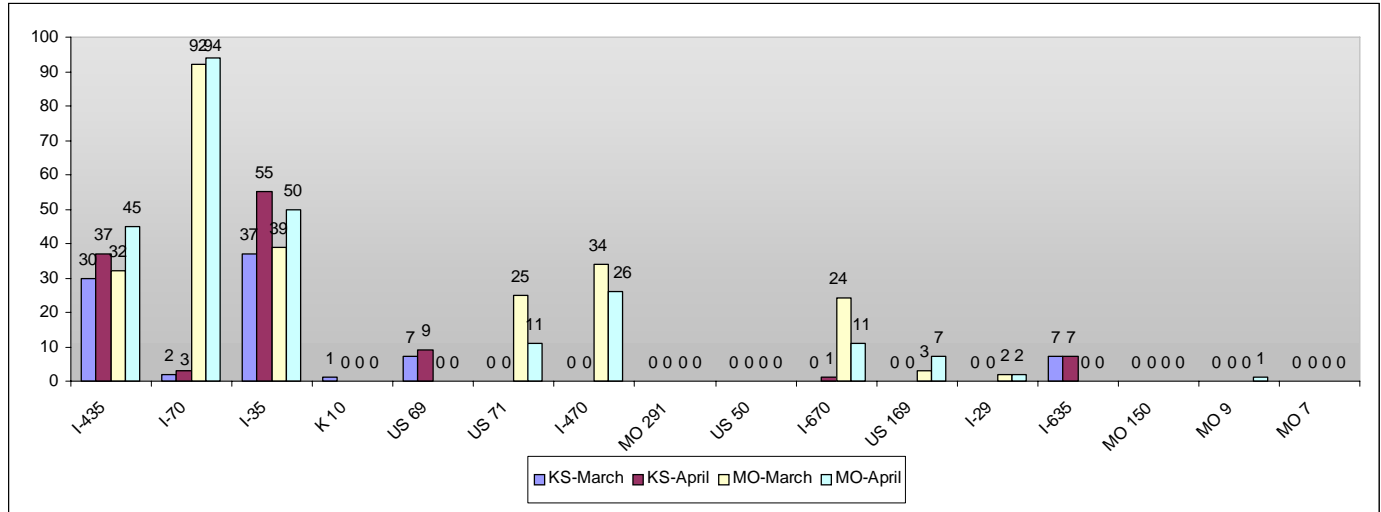


**Additional Statistics**

**Incidents by Facility**

The first 3 facilities listed are those interstates that have vehicle detection installed. All others are facilities monitored by Scout via CCTV or interaction with public and private entities. Incidents on each Scout facility are shown in Figure 3.

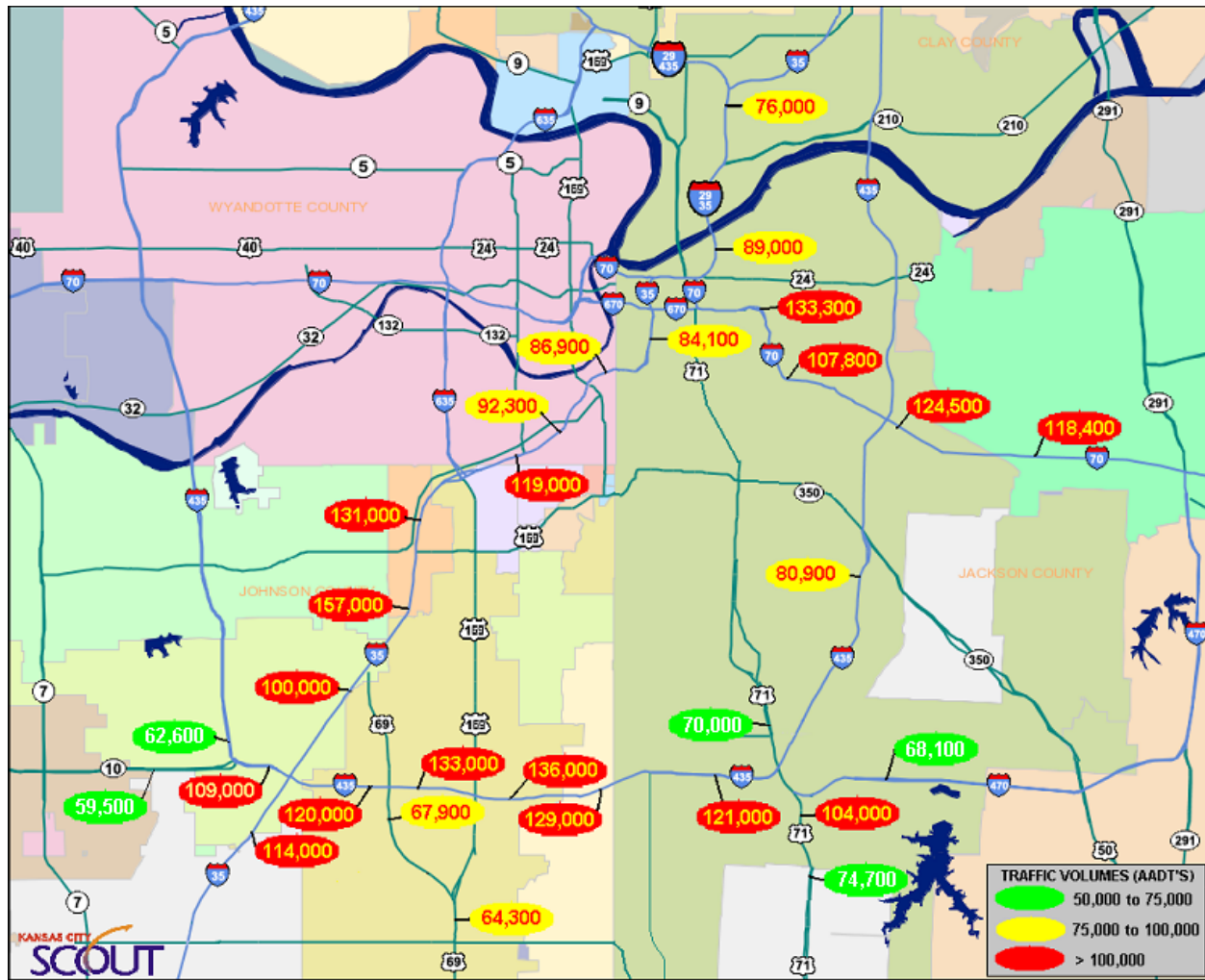
**Figure 3 – Incidents by Facility**



### Annual Average Daily Traffic Volumes (AADTs)

Figure 4 shows AADTs for the freeway facilities on the Scout system. It is noted that the number of incidents on each facility generally correlates with the AADTs for that facility.

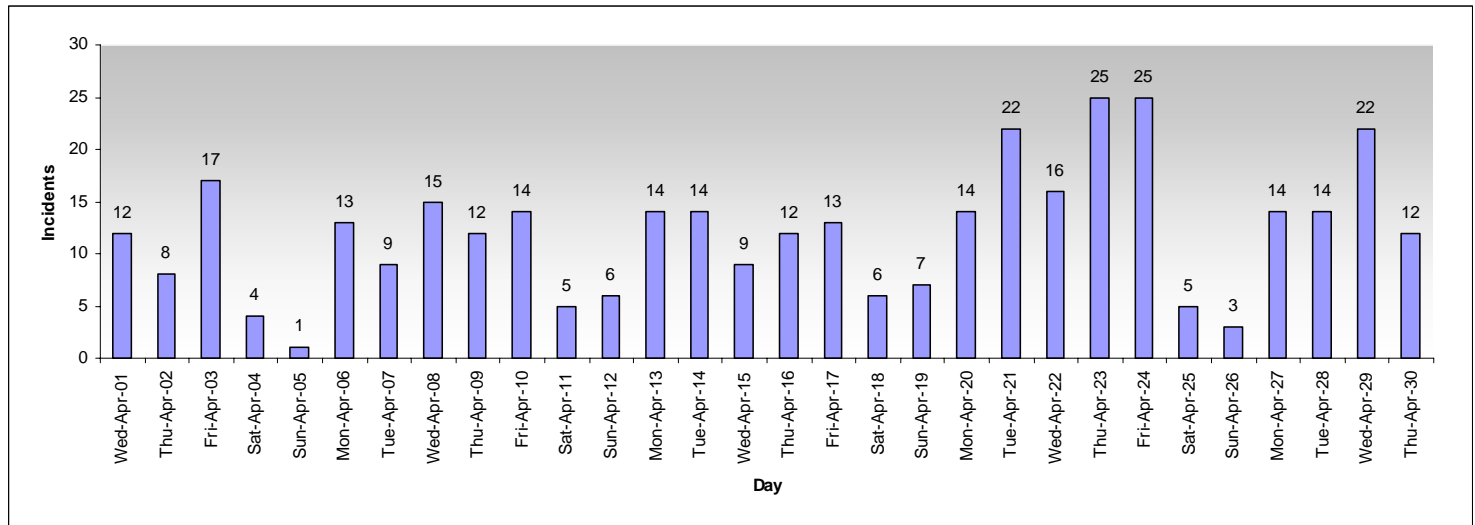
Figure 4 – AADT Map



**Incidents by Day**

Figure 5 shows the number of incidents occurring on each day of April. The number of incidents per day varies widely, with the average being approximately 12 incidents per day. Weekdays generally incur more frequent incidents, averaging 16.3 incidents/day, compared to 4.6 on weekends. If only non-roadwork incidents are considered, the rates for weekdays and weekends are 13.4 and 4.1 incidents/day, respectively. The increase on the 28<sup>th</sup> was due to inclement weather.

**Figure 5 – Incidents by Day**

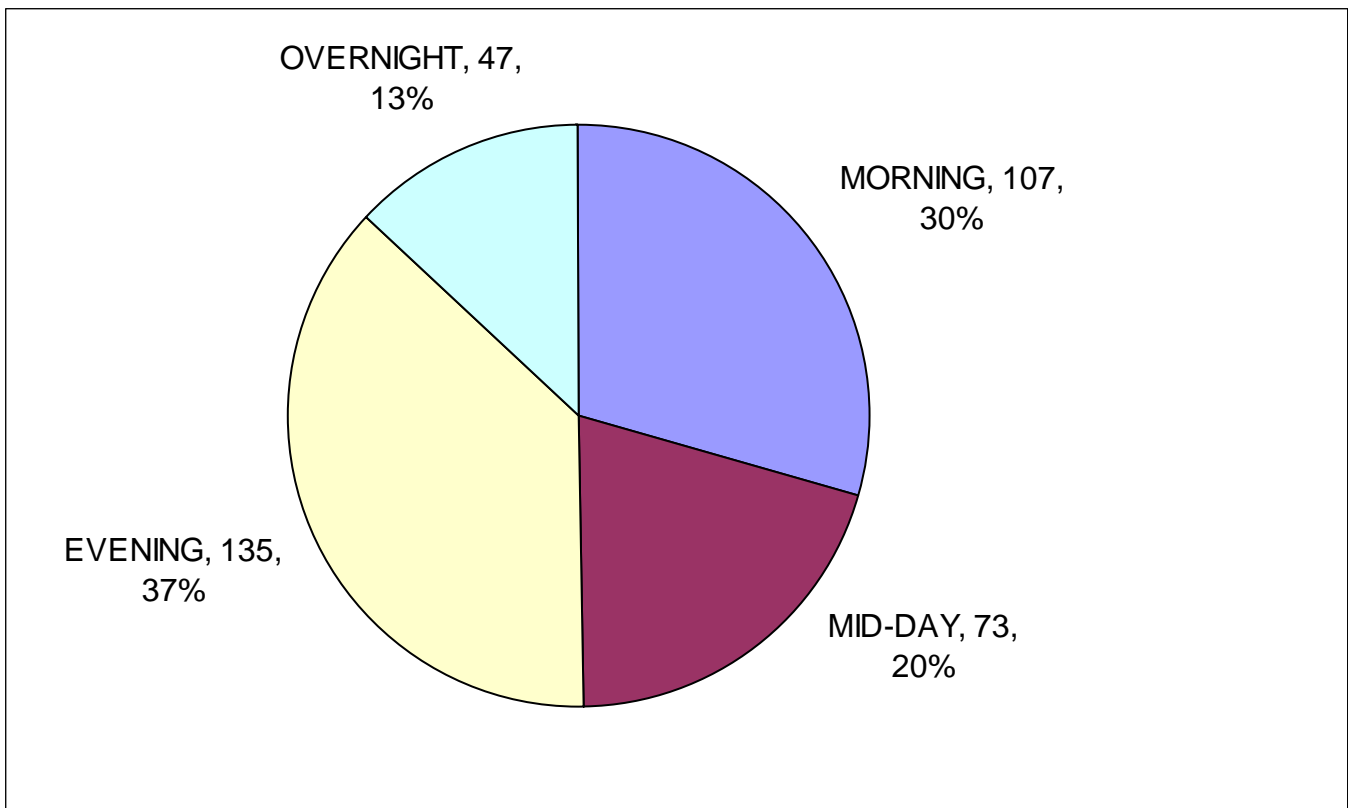


**Incidents by Time of Day**

Figure 6 shows the breakdown of incidents by time of day. The time periods in the graph are defined as follows.

- *Morning* begins at 5 a.m. and ends at 10 a.m.
- *Mid-day* begins at 10 a.m. and ends at 3 p.m.
- *Evening* begins at 3 p.m. and ends at 9 p.m.
- *Overnight* begins at 9 p.m. and ends at 5 a.m.

**Figure 6 – Incidents by Time of Day**

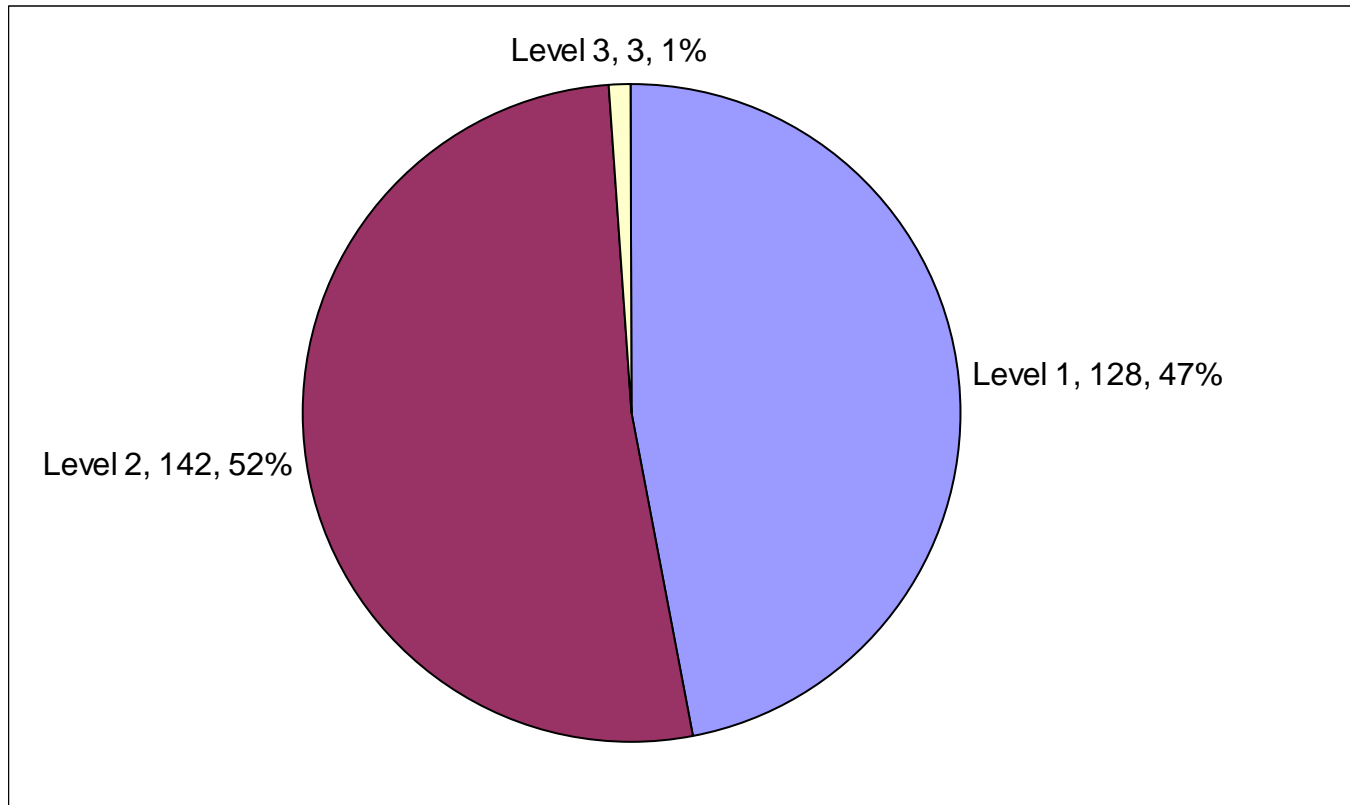


**Incidents by Duration Level**

Figure 7 shows the number and percentage of incidents that fall within each of the defined duration levels. (See definitions under “Notes on Operations Summary” on page 2.) Not included in this graph are incidents solely related to the support of roadwork, since these tend to have longer durations that would skew the data. Also not included are incidents related to the posting of Ozone Alert or AMBER Alert and Safety messages, which also tend to have longer durations.

This month’s graph shows that there were 3 Level 3 incidents. Level 1 and Level 2 incidents remained relatively unchanged from December. Details of the Level 3 incidents and other unusual incidents/events are provided in the section, “Summary of Major Incidents/Events” on page 15.

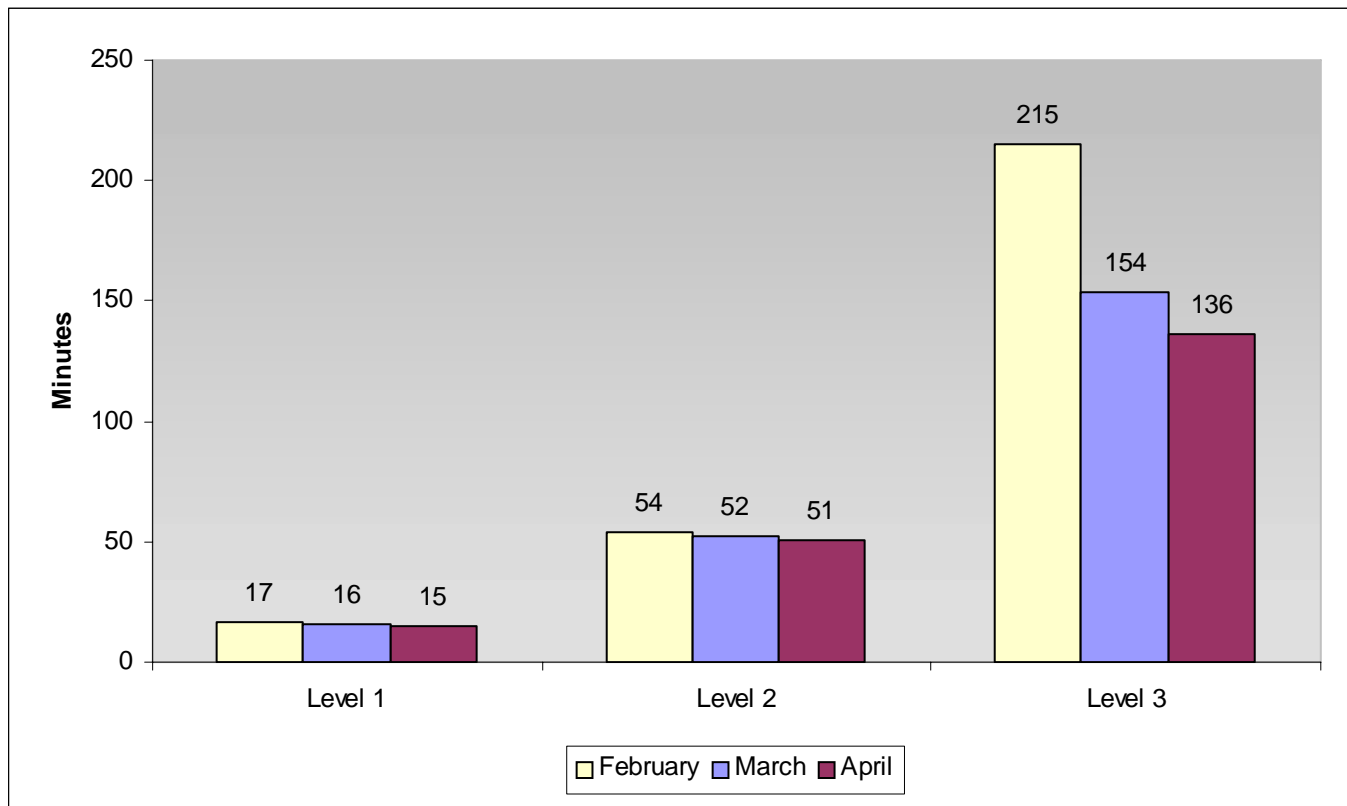
**Figure 7 – Incidents by Duration Level**



### Incident Duration by Level

Figure 8 shows the average duration of incidents by duration level for the past three months. As stated earlier, these levels are defined by the MUTCD and do not include incidents solely related to the support of roadwork, posting of AMBER Alert, Ozone Alert or Safety messages. Because Levels 1 and 2 are defined in a set range, it is expected that these averages will remain consistent somewhere near the middle of their respective ranges. The data in Figure 8 bears this out. Average Level 3 incident durations are typically based on only a few incidents per month. Consequently, the duration can vary widely from month to month, despite the best incident management efforts.

Figure 8 – Incident Duration by Level / 3-Month Summary



**Incident Duration by Incident Type**

Figure 9 breaks down the average duration of incidents by incident type. It is clear that roadwork incidents have significantly longer durations than other types of incidents worked, which is why *Roadwork* incidents were omitted from Figure 7 and Figure 8. Not included in the Roadwork average is the ongoing long-term closure of the exit from I-70 EB to I-35 NB in the kcICON work zone.

**Figure 9 – Incident Duration by Incident Type**

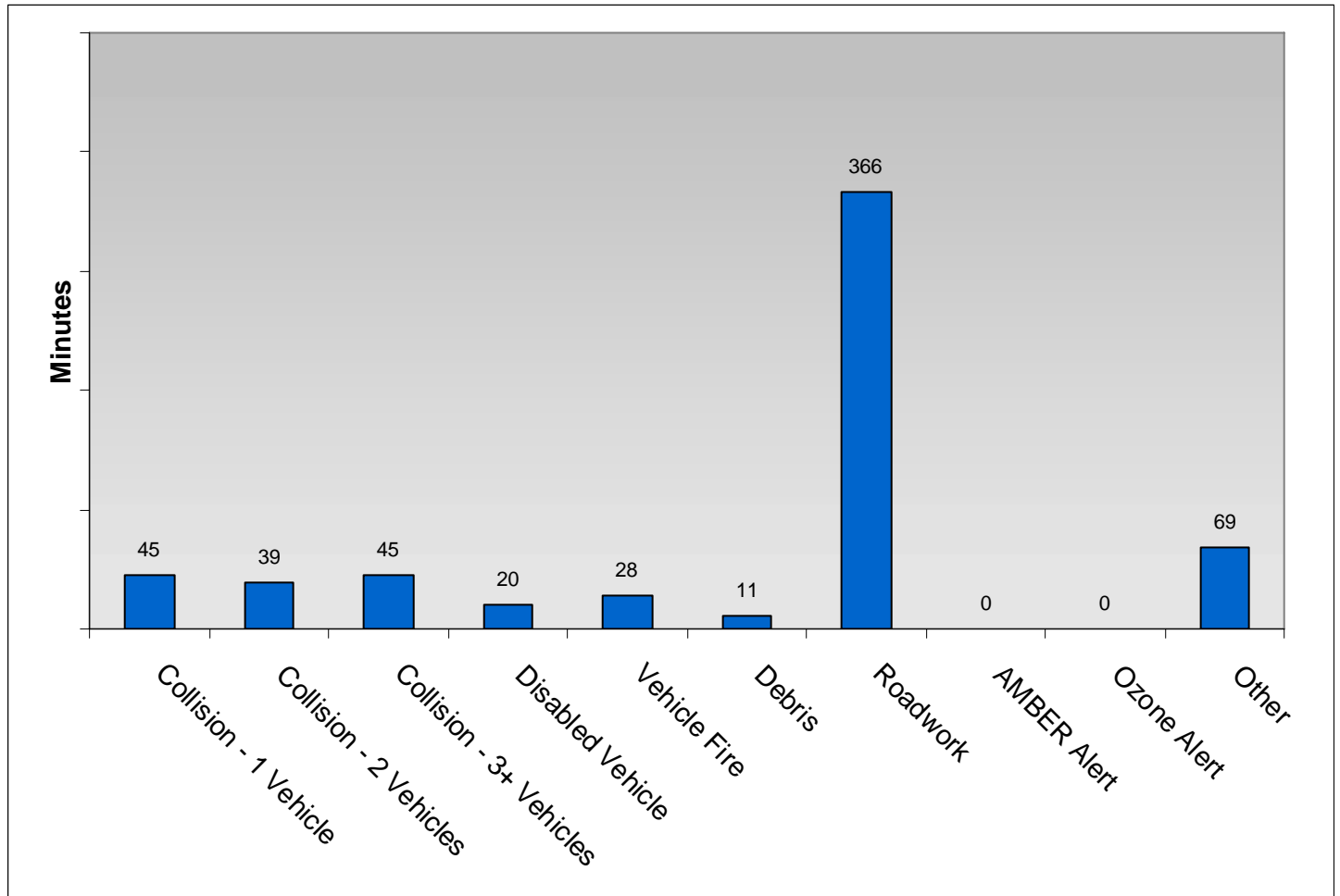
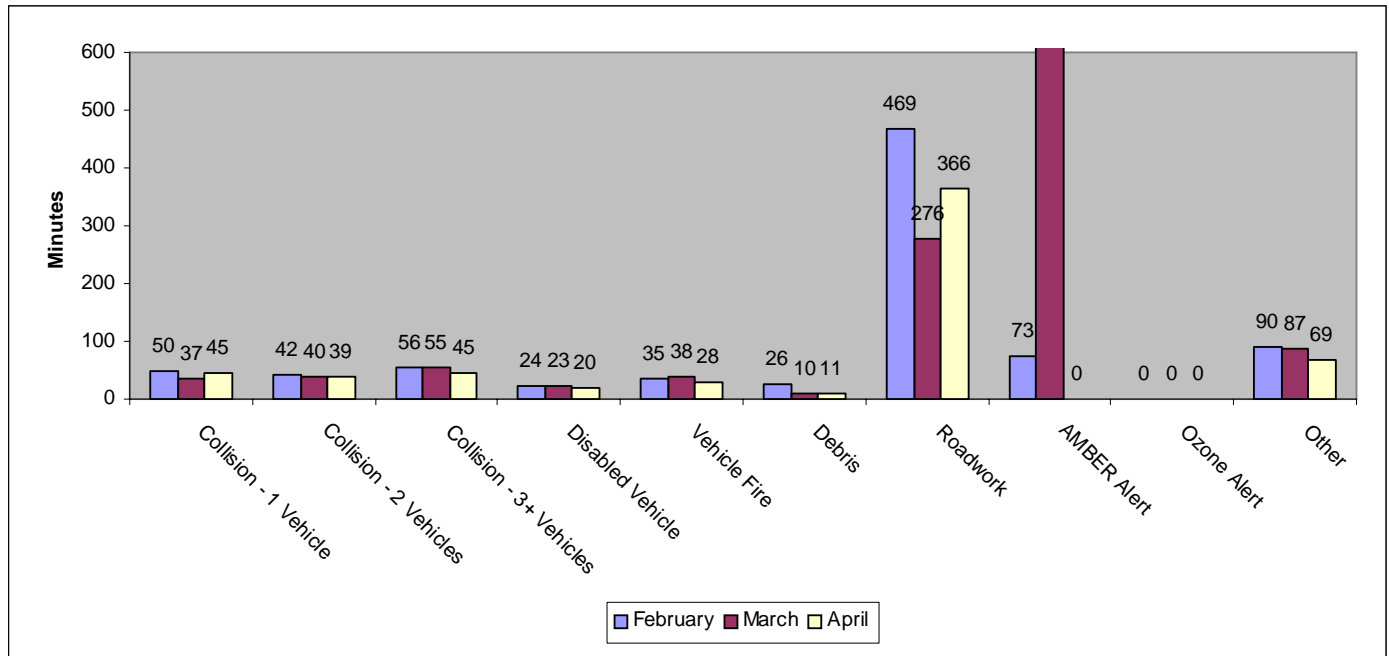


Figure 10 shows trends over the last 3 months. Campaign Messaging has been excluded due to the length of time. As noted previously, the one Amber Alert shown in March lasted 1260 minutes.

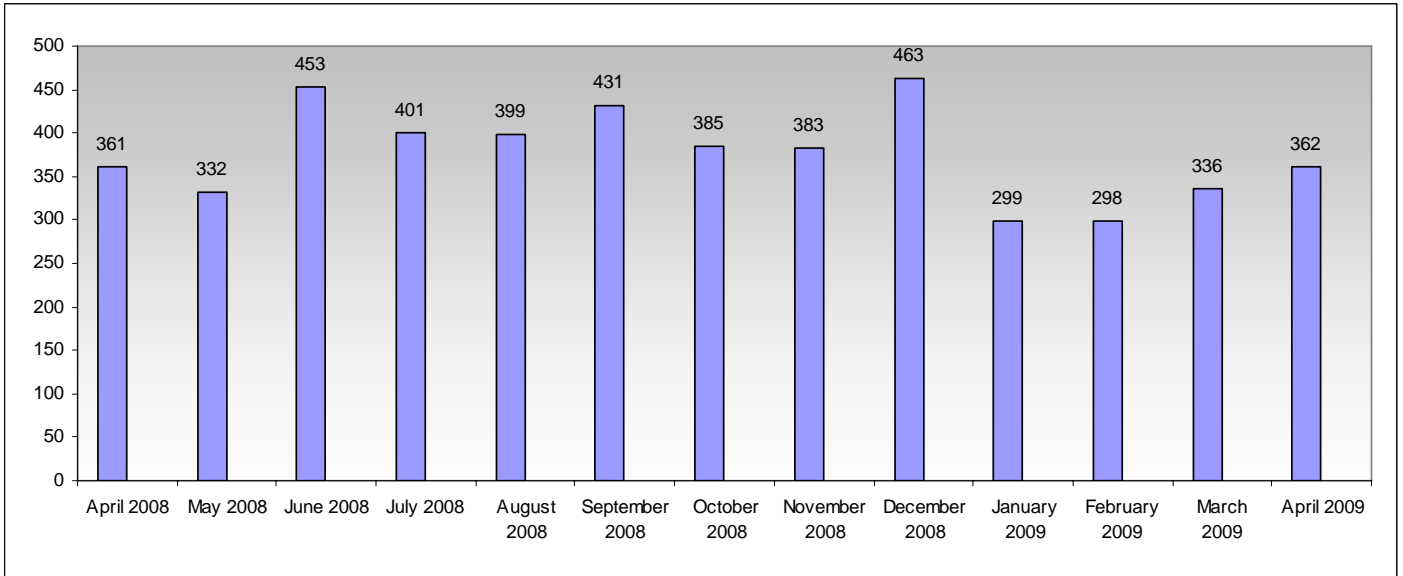
**Figure 10 – Incident Duration by Incident Type / 3-Month Summary**



**13-Month Incident History**

Figure 11 shows the number of incidents that TMC operators have managed during the past 13 months.

**Figure 11 – Incidents by Month**



**Summary of Major Incidents/Events**

The TMC responded to the following major and other unusual incidents/events during April:

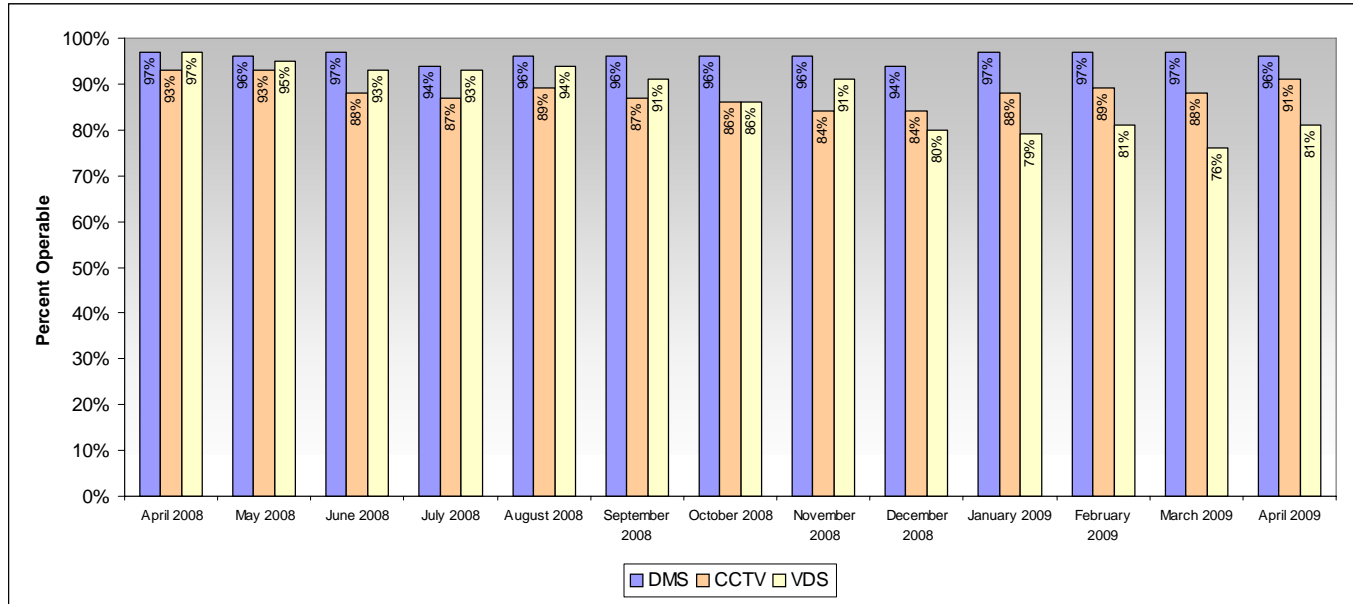
1. April 3, Friday, 11:24 a.m. (Lane Closure) A two vehicle collision on US 71 NB to I-435 NB closed two of the three exit lanes. There was one reported injury. The event lasted from 11:24 a.m. to 1:33 p.m.
2. April 6, Friday, 2:21 p.m. (Lane Closure) A single vehicle rollover on I-70 EB at Adams Dairy Parkway resulted in one fatality and one injury. One lane was closed till 4:05 p.m. The event lasted from 2:21 p.m. to 4:45 p.m.
3. April 14, Saturday, 2:25 a.m. (Lane Closure) A single vehicle accident closed one lane of I-435 SB just before the 79<sup>th</sup> Street overpass. Police needed a K-9 unit to locate the driver of the vehicle. The event lasted from 2:25 a.m. to 4:39 a.m.

Summary of Major Incidents/Events  
**Status of Equipment**

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Tracking the operational status of equipment is important both for system maintenance and for system operation. This tracking assists the maintenance staff in determining repair priorities and allows operators to be aware of the resources at their disposal. Figure 12 shows the monthly operational status of the DMS, the CCTV cameras, and the loop detectors.

**Figure 12 – Operational Status by Month**



**Interagency Coordination**

During April, the Scout team participated in the following interagency activities:

April 6-8 Jason Sims and Rusty James attended the Kansas Safety Conference

April 13 Rusty James attended the Jackson County Traffic Safety Task Force

April 14 Rusty James attended training at the Harrisonville Fire Department

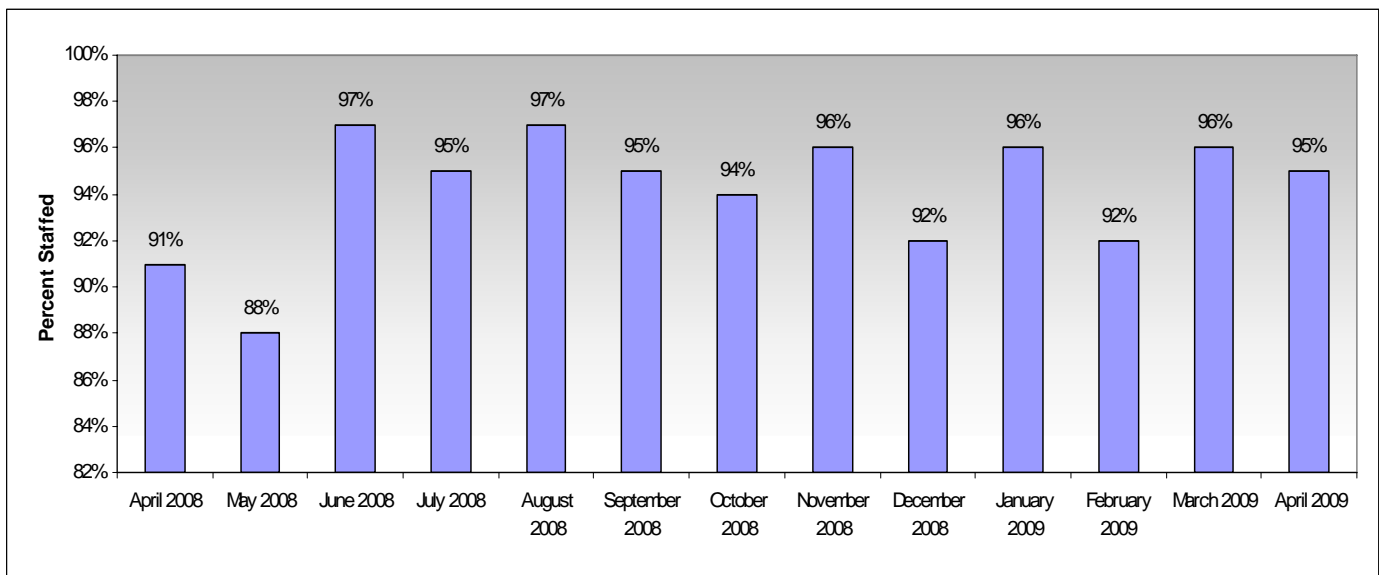
April 22 Scout members and KDOT members met in Bonner Springs to discuss Kansas Incident Management

**Staff Management Report**

During April, Scout operators logged a total of 1779 calls with agency partners assisting in operating the TMC. The total number of calls included 1403 with MoDOT Motorist Assist (MA) staff, 55 with the Kansas City Police Department (KCPD) staff, 51 with the Kansas Highway Patrol (KHP) staff, and 270 with staff from other agencies. The increase in calls with MoDOT Motorist Assist was due to the TMC dispatching the Motorist Assist units.

Figure 13 indicates the staff utilization for the past 13 months. The graph represents the percentage of actual hours worked versus hours scheduled for the TMC staff. Utilization of less than 100% reflects vacation, sick, and training/meeting time used by operators.

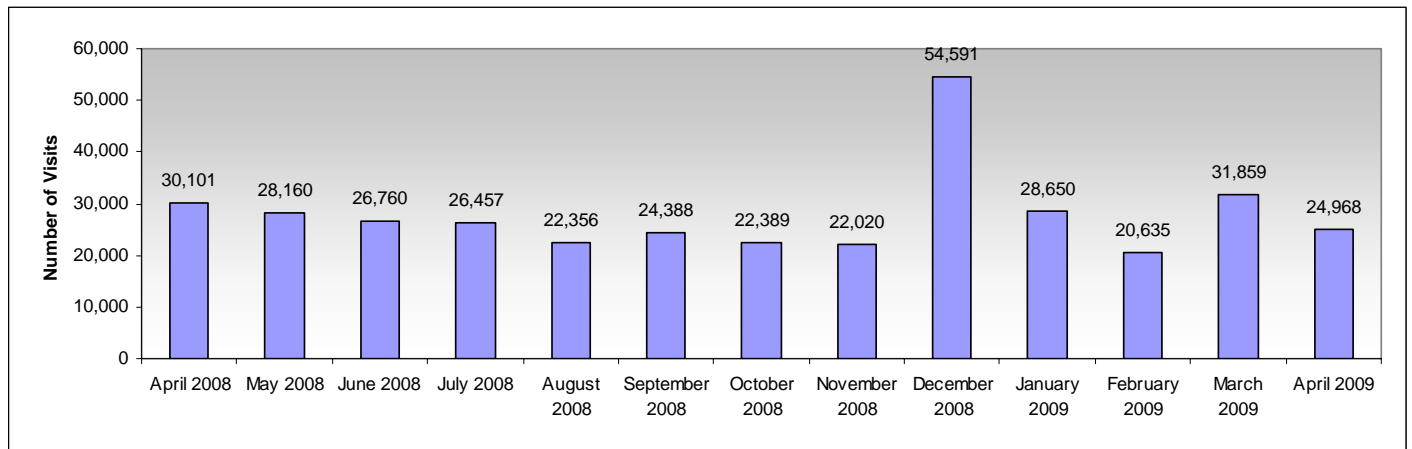
**Figure 13 – Staff Utilization by Month**



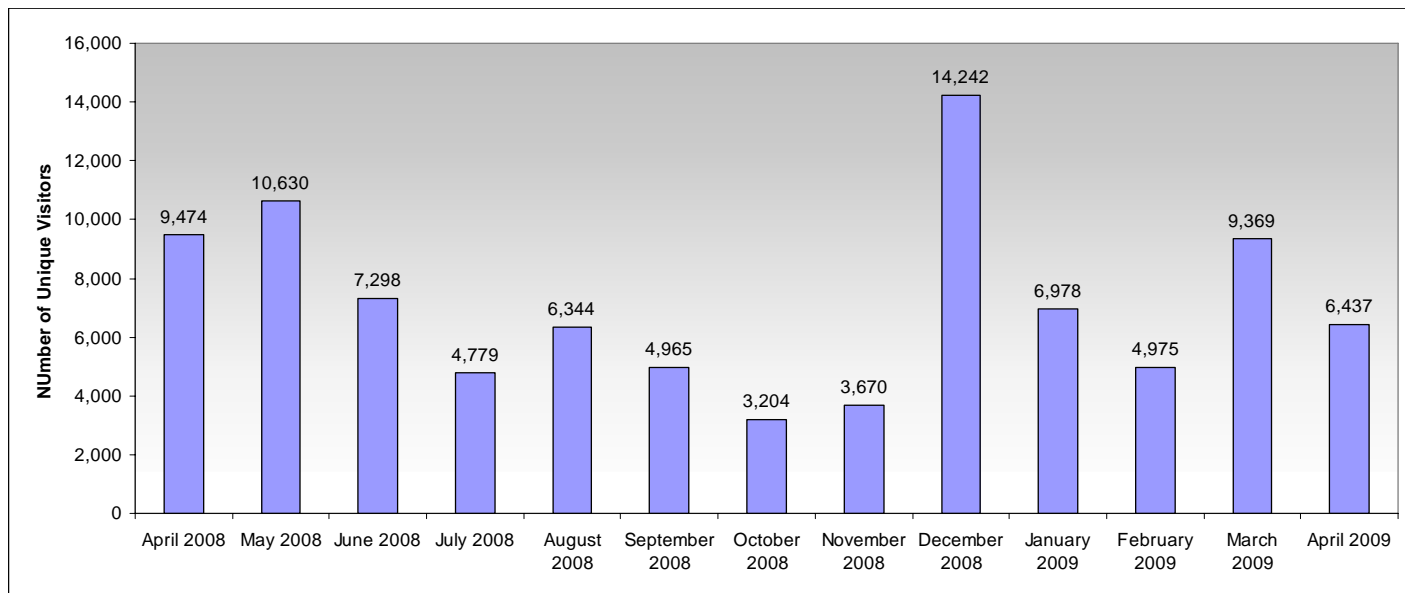
**Web Site Utilization Data**

The Scout Web Site ([www.kcscout.net](http://www.kcscout.net)) received a total of 24,968 visits in April, a 21.63% decrease compared to last month. Since its inception in June 2004, the web site has received a total of 1,498,863 visits through April. The average visit duration was about 13 minutes. 6,437 unique visitors utilized the web site, a 31% decrease compared to last month. The average number of visits per visitor was 3.87, a 14% increase. The larger the average number of visits per unique visitor, the more times individual users are coming back to use the site, thus indicating how helpful the site is to these individual users. Web site visits and unique visitors by month are shown in Figure 14 and Figure 15, respectively.

**Figure 14 – Web Site Visits by Month**



**Figure 15 – Web Site Unique Visitors by Month**



### **System Hardware/Software and Maintenance Activities/Issues**

The following activities/issues regarding Scout system hardware/software and maintenance occurred during April:

1. Gary Covey has added all of the Missouri I-435 expansion devices in the Production Database and they are enabled for operator use. Everything is working except the two radar units and the one CCTV that require a wireless link.
2. Mike DeBrot has ordered a cover for Kenny's pickup truck. It should be installed by mid May.
3. Gary Covey, Mike DeBrot and Cathy Jones received Canoga detector card training from Capital Electric.
4. Mike DeBrot and Gary Covey reviewed the final fiber splice diagrams to get the last cabinets connected.
5. Gary Covey developed the first draft of a new MoDOT and KDOT Bi-State Agreement for KC Scout.
6. Gary Covey completed and submitted the ITS America paper Improved Dissemination of Traveler Information and reviewed/submitted Cambridge's Benefit/cost Analysis for Kansas City Scout Intelligent Transportation System.
7. Gary Covey completed the first draft of the Ramp Metering Software Development Contract.
8. Mike DeBrot completed a week of Cisco training.
9. Mike DeBrot installed two Ethernet converters to get the Wavetronix Radar units connected at Ridgeview and K-10 working.
10. Don Gentry has received the new workstations for the KC Scout Conference Room and Motorist Assist. He is waiting on a new Cisco switch to install the new Motorist Assist workstations and printers.
11. Don Gentry completed a Vista Training class in April and will be taking three weeks of training in May.
12. Jim Musil will be taking two SQL training classes in June.