



2019 TRAFFIC MANAGEMENT CENTER

Annual Report

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the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion (United Nations 1998).

There are a number of reasons why the number of children in the world is increasing. One of the main reasons is that the number of children who are surviving to adulthood is increasing. This is due to a number of factors, including improved medical care, better nutrition, and a decrease in child mortality.

Another reason why the number of children in the world is increasing is that the number of children who are being born is increasing. This is due to a number of factors, including a decrease in the age at which women are having children, and an increase in the number of children who are being born to women who are already mothers.

The number of children in the world is increasing, and this is a cause for concern. There are a number of reasons why this is a cause for concern, including the fact that the number of children who are living in poverty is increasing, and the number of children who are being abused is increasing.

There are a number of things that can be done to help reduce the number of children in the world. One of the most important things is to improve the health care system, so that more children are surviving to adulthood. Another important thing is to improve the nutrition of children, so that they are better able to resist disease.

It is also important to reduce the number of children who are being born. This can be done by providing women with access to family planning services, and by educating women about the benefits of smaller families.

The number of children in the world is increasing, and this is a cause for concern. There are a number of things that can be done to help reduce the number of children in the world, and it is important that we take action now to help these children.

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EXECUTIVE SUMMARY

Iowa's Statewide Traffic Management Center (TMC) is a 24/7 center located in the Motor Vehicle Division building in Ankeny, Iowa. Iowa DOT uses the TMC to proactively monitor the transportation system in real-time, focusing mainly on the primary roadway system throughout Iowa. The highly-trained professional staff within the TMC coordinates with internal and external partners to detect disturbances to traffic flow and assist with implementing strategies that provide safe, quick clearance on the roadway. TMC staff monitors cameras and assists with state and local agencies and transportation industry stakeholders to keep travelers informed and on-scene responders protected. Tools such as 511, social media, and dynamic message signs allow broad and direct notification of incidents to those affected, aiming to reduce both traffic delay and secondary crashes.

The TMC is focused on :

IMPROVING travel time reliability.

ELIMINATING secondary crash conditions.

OPTIMIZING the function of the existing transportation system.

DISSEMINATING accurate, real-time traveler information to customers.

TRACKING winter weather and special events for situational awareness.

MONITORING traffic crashes, assisting partners with facilitating safe and quick clearance.

COLLECTING critical data for Traffic Incident Management and overall system improvement.

The TMC collects traffic data to support real-time decisions during traffic incidents and archives the information for future use. A monthly report is generated that describes the TMC trends, with the intent of making modifications to policies, practices, and procedures to counter undesirable trends. The 2019 Annual Report presents this collected data from the past year in areas including incidents, crashes, Highway Helper, freight, work zones, weather, and communication. Key performance indicators are presented in the 2019 Snapshot.

2019 SNAPSHOT

INCIDENTS	Number of incidents monitored by Iowa's Statewide TMC	41,012
CRASHES	Average crash clearance time	1 hr 5 m
HIGHWAY HELPER	Number of responses provided by Highway Helpers	16,938
FREIGHT	Average time to clear a lane blocking incident involving a tractor trailer	2 hr 9 m
WORK ZONES	Total work zone incidents	239
WEATHER	Total flooding events	285
COMMUNICATION	Total Emergency Incident Notification (EIN) email notifications sent	23,959

"Iowa's Statewide TMC is on the front line ensuring that our State's tools, infrastructure, and resources are optimized and used efficiently in addressing transportation safety and mobility. All who use our vast system, either commuting, traveling through, or transporting goods and services across the state, benefit from the real-time information streaming from the TMC. This 2019 Annual Report gives us the opportunity to take a look at performance and evaluate how we can keep improving this valuable service."

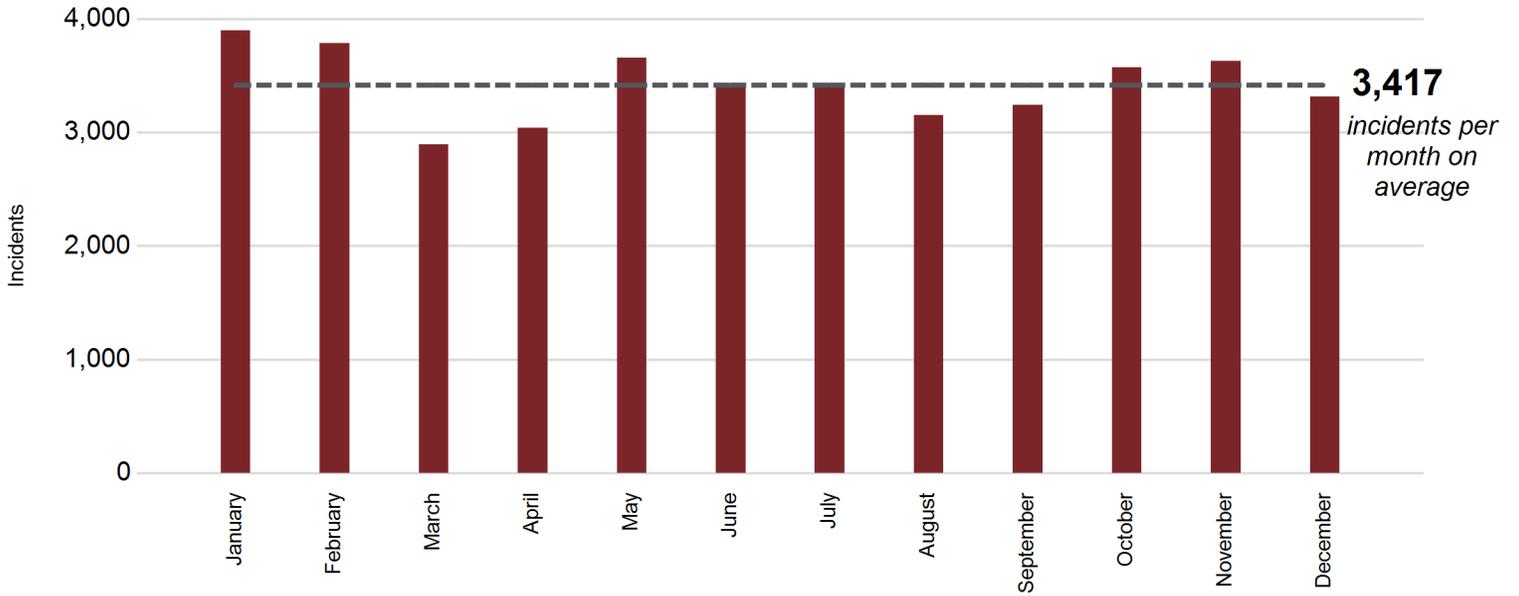
*Andrew Lewis, Director
Office of Traffic Operations*



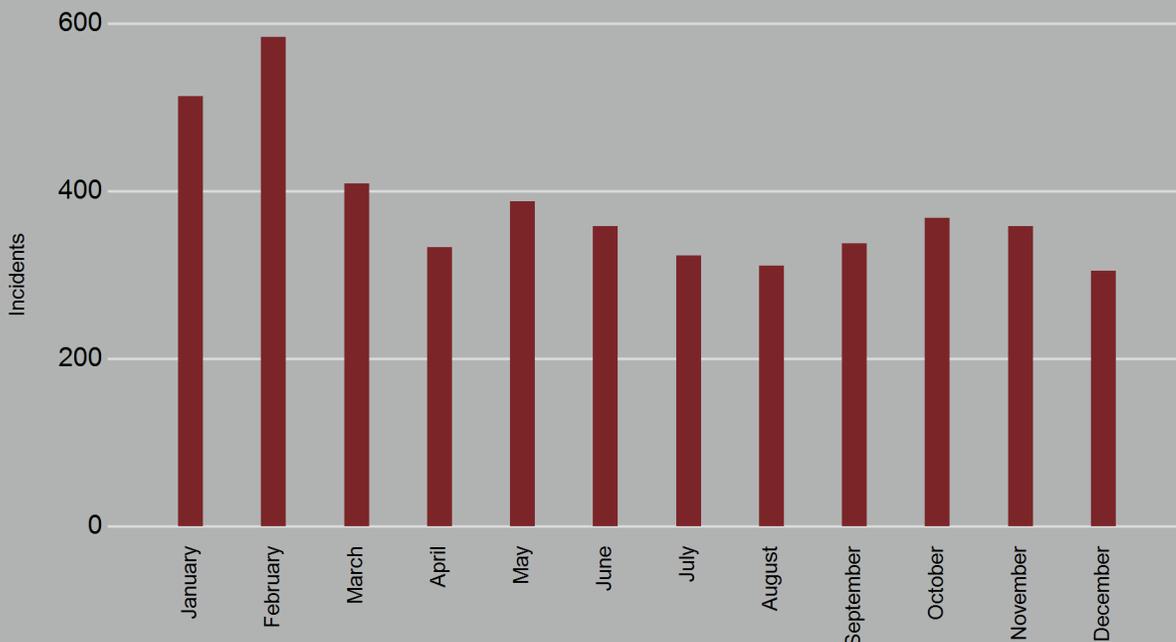
INCIDENTS

Incidents are defined as any event on the roadway that affects or can affect normal traffic flow. The TMC is informed of incidents on the roadway through technology, data sources, and various personnel. These incidents are tracked, reported, and monitored by the TMC.

Incidents monitored by TMC



Incidents with lane blockage



"Incidents with Lane Blockage" refers to the total number of incidents that resulted in at least one blocked lane of travel.

41,012

TOTAL INCIDENTS

28%

INCIDENTS DETECTED BY CAMERA

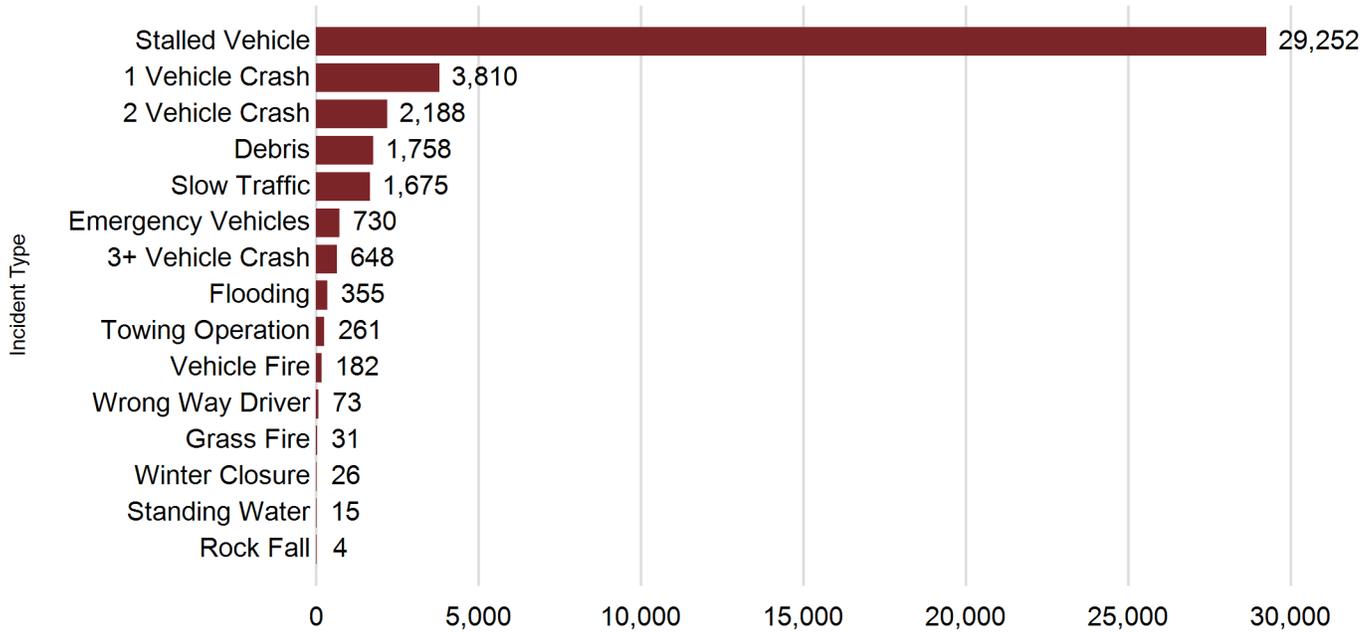
4,588

LANE BLOCKING INCIDENTS

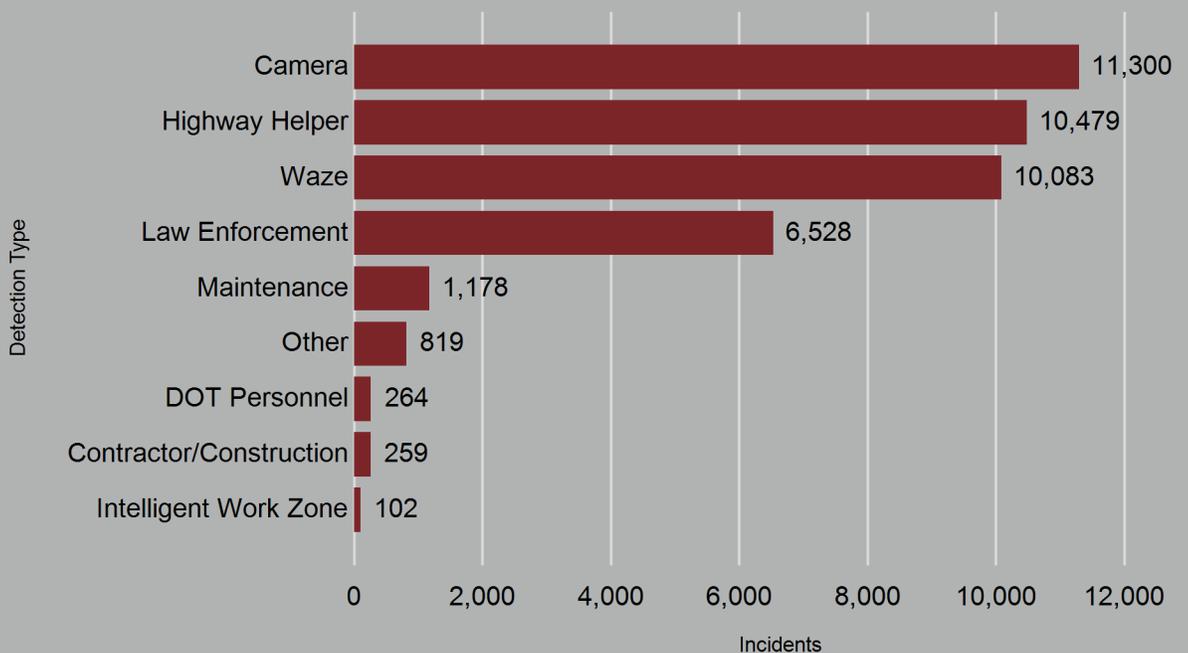
174

SECONDARY INCIDENTS REPORTED TO THE TMC

Incidents by type



Incidents by detection source

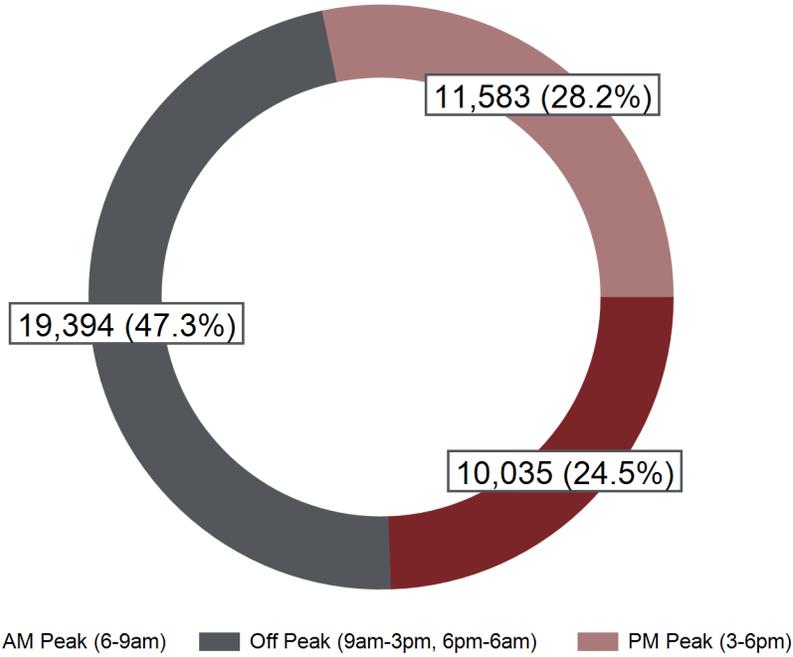


Incidents are detected by TMC operators through cameras, roadway detection, Waze alerts, or reported to the TMC through responders on the roadway.

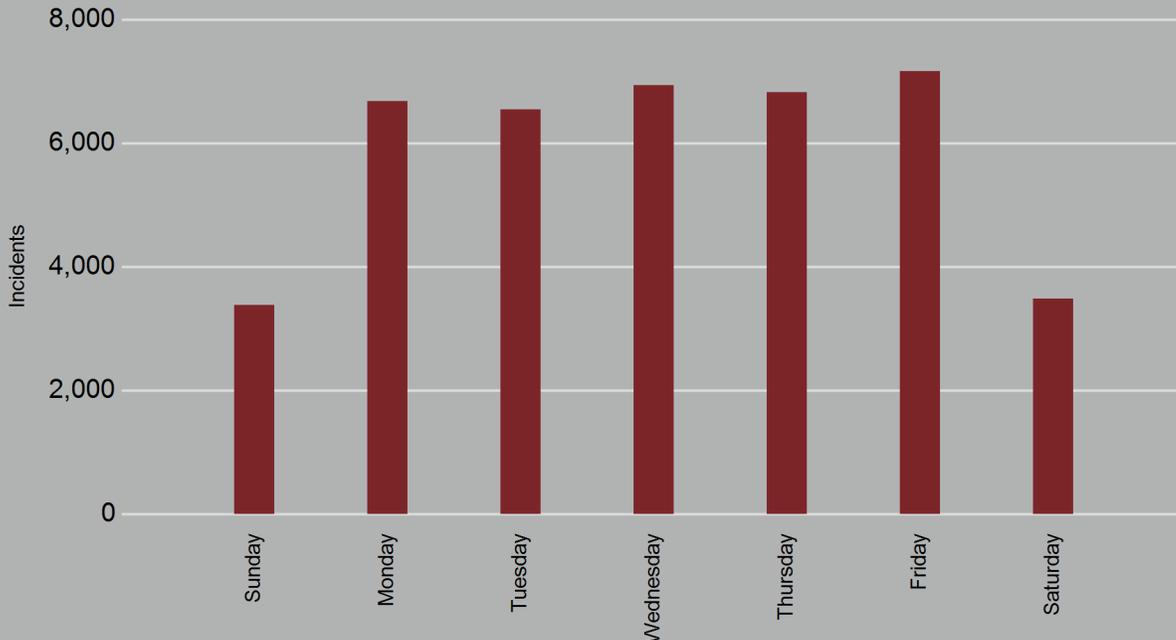


INCIDENTS

Incidents monitored during peak hours



Incidents by day of the week



Incidents more frequently occur on weekdays versus weekends due to the volume of traffic on the roadway.

6,862

INCIDENTS OCCURRED ON WEEKENDS

1 day 6 hr 20 m

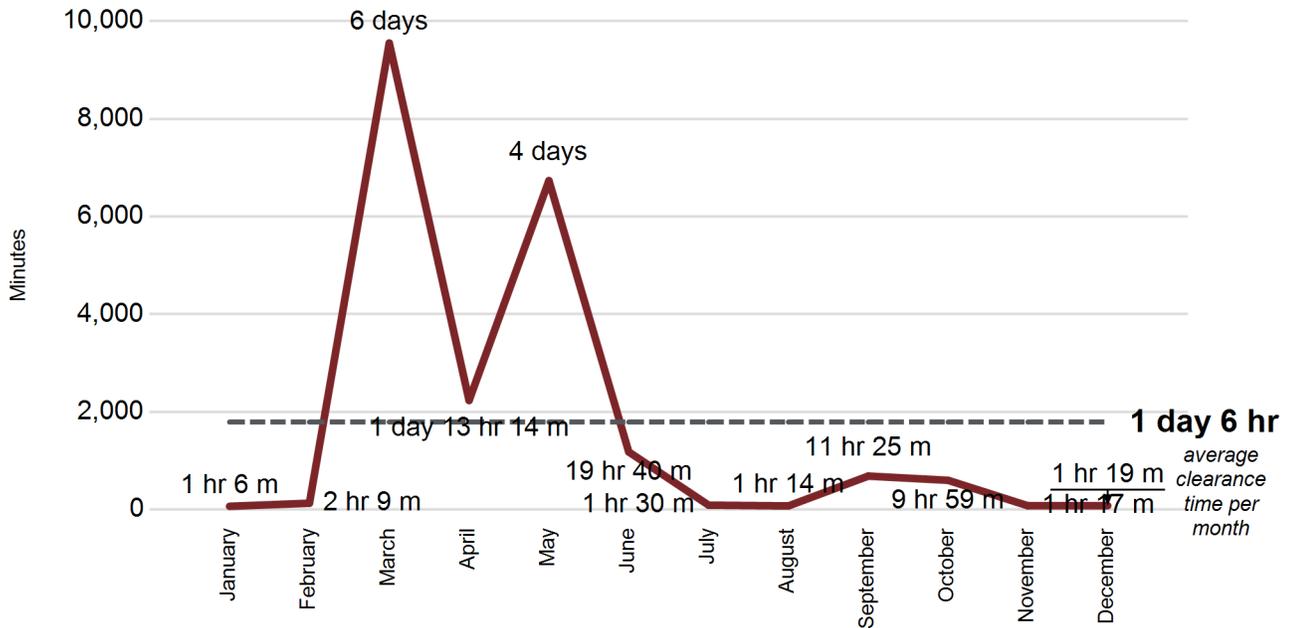
AVERAGE INCIDENT CLEARANCE TIME

317

INCIDENTS EXCEEDING THE CLEARANCE TIME STANDARD DEVIATION

19,394 OFF PEAK INCIDENTS

Average clearance times for incidents



The incident clearance time begins at the first notification of the incident and ends when the last responder has left the scene. This includes all incident types such as stalled vehicles, crashes, flooding, etc...

The 2019 average clearance time for incidents was markedly higher than 2018, which was 2 hr 57 m. This is due in large part to March and May flooding events.

Incidents with excessive clearance times

Type	# Events	Average Duration	# Semi	# Fatality
Grass Fire	3	27 min	0	0
Stalled Vehicle	37	42 min	32	0
2 Vehicle Crash	78	1 hr 1 m	56	29
Slow Traffic	4	1 hr 2 m	0	0
3+ Vehicle Crash	41	1 hr 3 m	43	9
1 Vehicle Crash	88	1 hr 10 m	55	10
Vehicle Fire	11	1 hr 10 m	10	0
Debris	9	1 hr 14 m	0	0
Towing Operation	8	4 hr 59 m	6	0
Winter Closure	3	16 hr 36 m	0	0
Emergency Vehicles	8	17 hr 29 m	0	0
Flooding	27	18 days	0	0

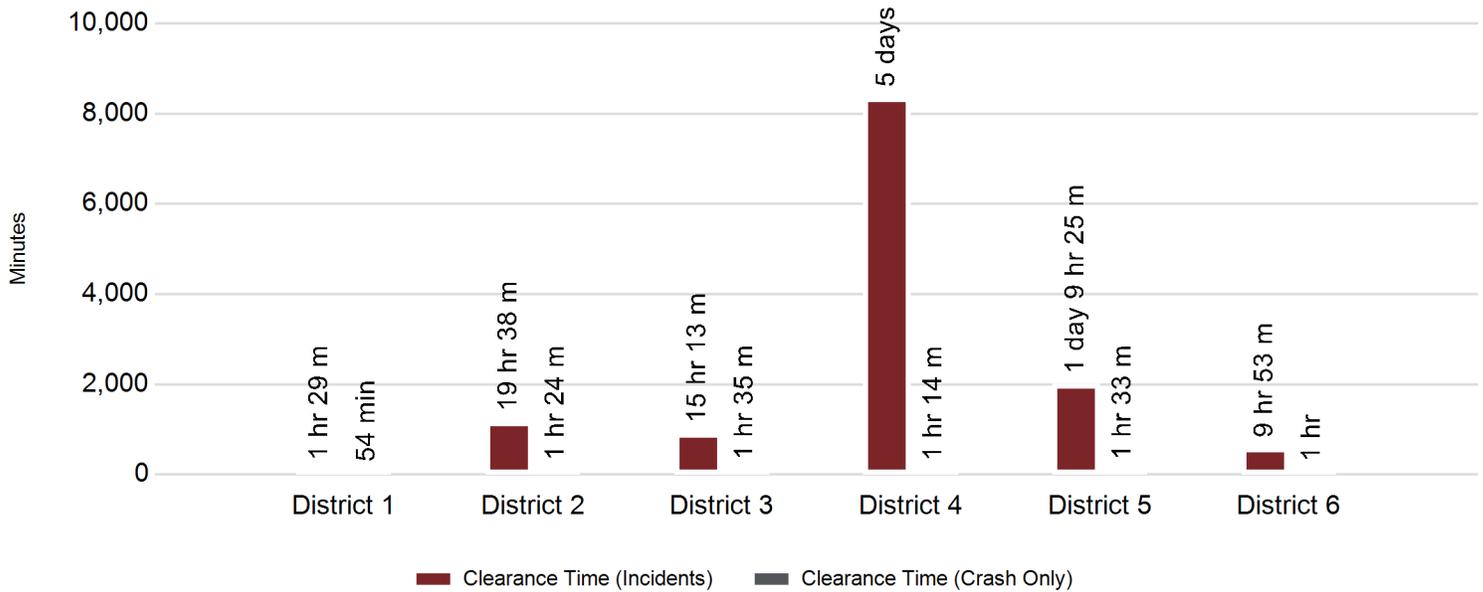
Average incident clearance times are calculated by type each month. This table shows the number of incidents which exceed the average clearance time for that type by one standard deviation.



CRASHES

Crashes are one specific type of incident reported in the "Incident" section. Clearance times are tracked and reported for all incidents as well as crashes separately. Some incident types may have long clearance time durations and therefore crash clearance time is a more appropriate indicator of the impacts of quick clearance initiatives.

Average incident and crash clearance time by district



Incident type by district

Type	District 1	District 2	District 3	District 4	District 5	District 6
1 Vehicle Crash	1,522	178	155	567	245	1,143
2 Vehicle Crash	1,079	87	107	229	83	603
3+ Vehicle Crash	339	30	31	69	11	168
Debris	674	138	170	166	115	495
Emergency Vehicles	210	60	91	104	88	177
Flooding	35	25	82	125	51	37
Grass Fire	14	0	1	7	1	8
Rock Fall	0	1	2	0	0	1
Slow Traffic	1,037	147	35	183	24	249
Stalled Vehicle	13,454	644	407	4,508	865	9,374
Standing Water	6	0	0	4	4	1
Towing Operation	66	5	9	52	27	102
Vehicle Fire	73	6	4	28	10	61
Winter Closure	11	6	4	2	0	3
Wrong Way Driver	14	0	0	6	2	51
Total	18,534	1,327	1,098	6,050	1,526	12,473
% of all Incidents	45%	3%	3%	15%	4%	30%

The total number of incidents reported in Districts 1, 4, and 6 are greater than the other Districts due to additional incident tracking by the Highway Helper program and also additional traffic volumes in those Districts.

232

RURAL CRASHES
OVER 120 MINUTES

1 hr 5 m

AVERAGE CRASH
CLEARANCE TIME

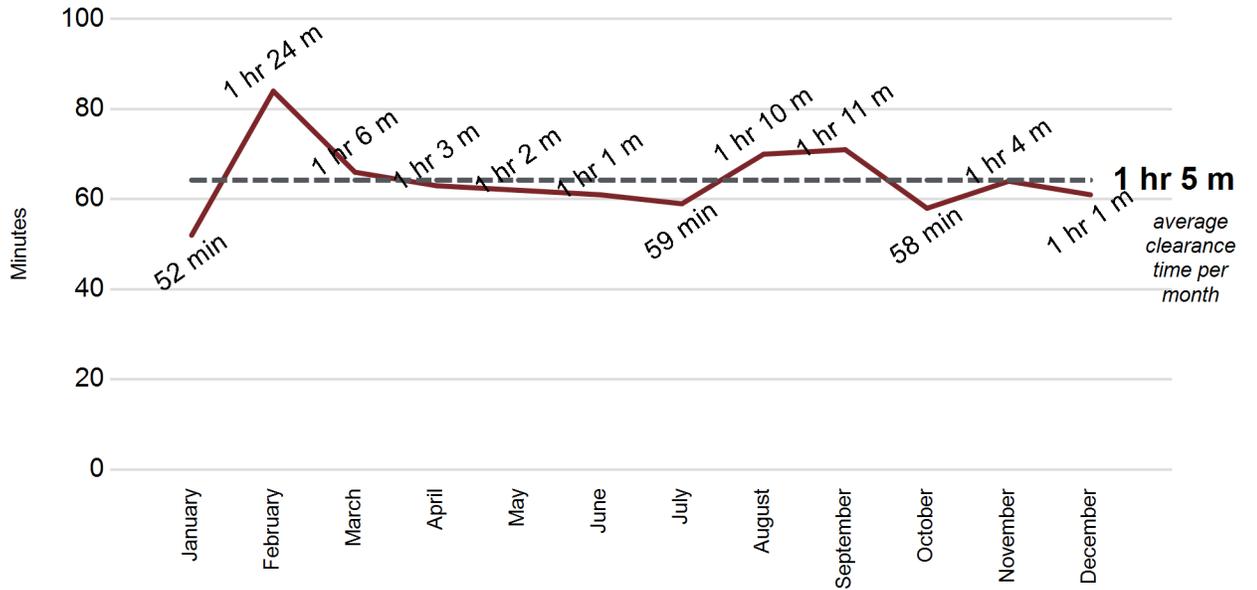
6,646

CRASHES
MONITORED

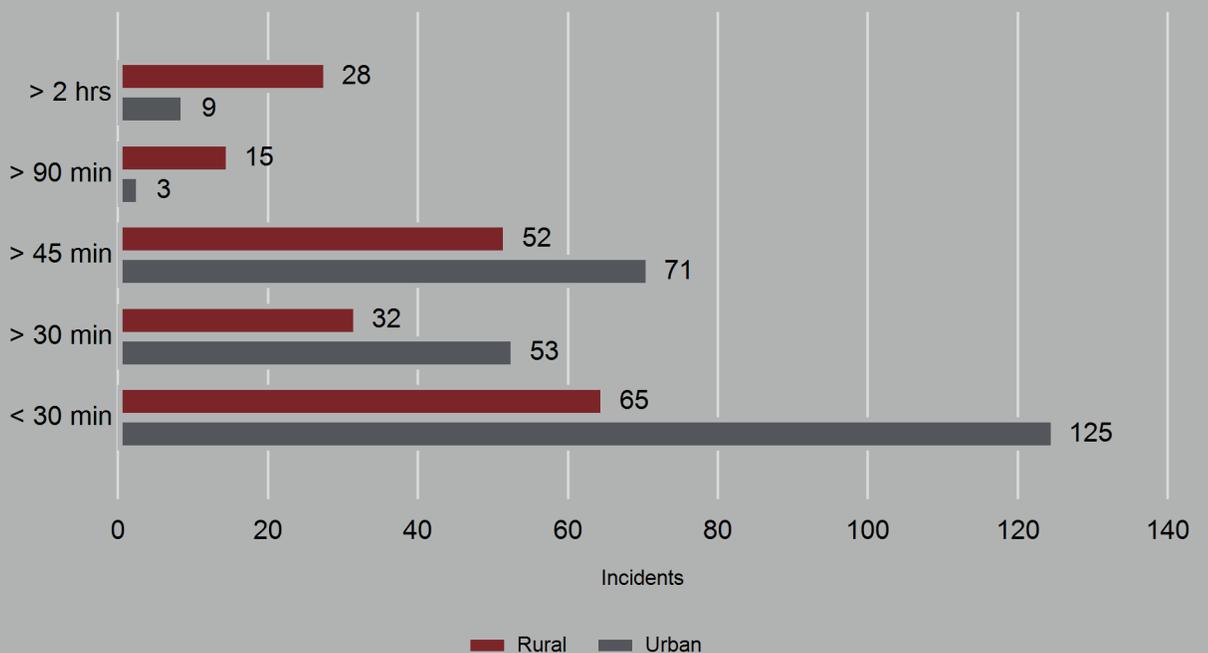
73 WRONG WAY DRIVER INCIDENTS

The crash clearance time begins at the first notification of the crash and ends when the last responder has left the scene. This includes only crashes and not other incident types.

Average clearance time for crashes



Crashes at 30, 45, 90, and 120 minute thresholds



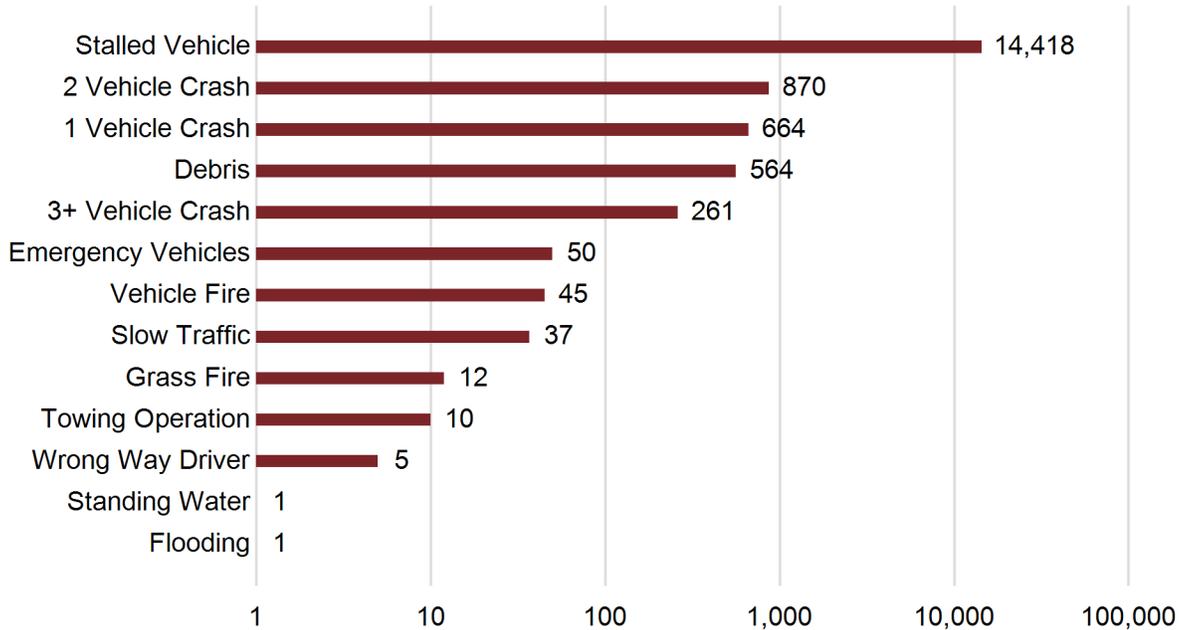
These performance measure thresholds were developed through the Joint Operations Policy Statement (JOPS), a collaboration between DOT & DPS.



HIGHWAY HELPER

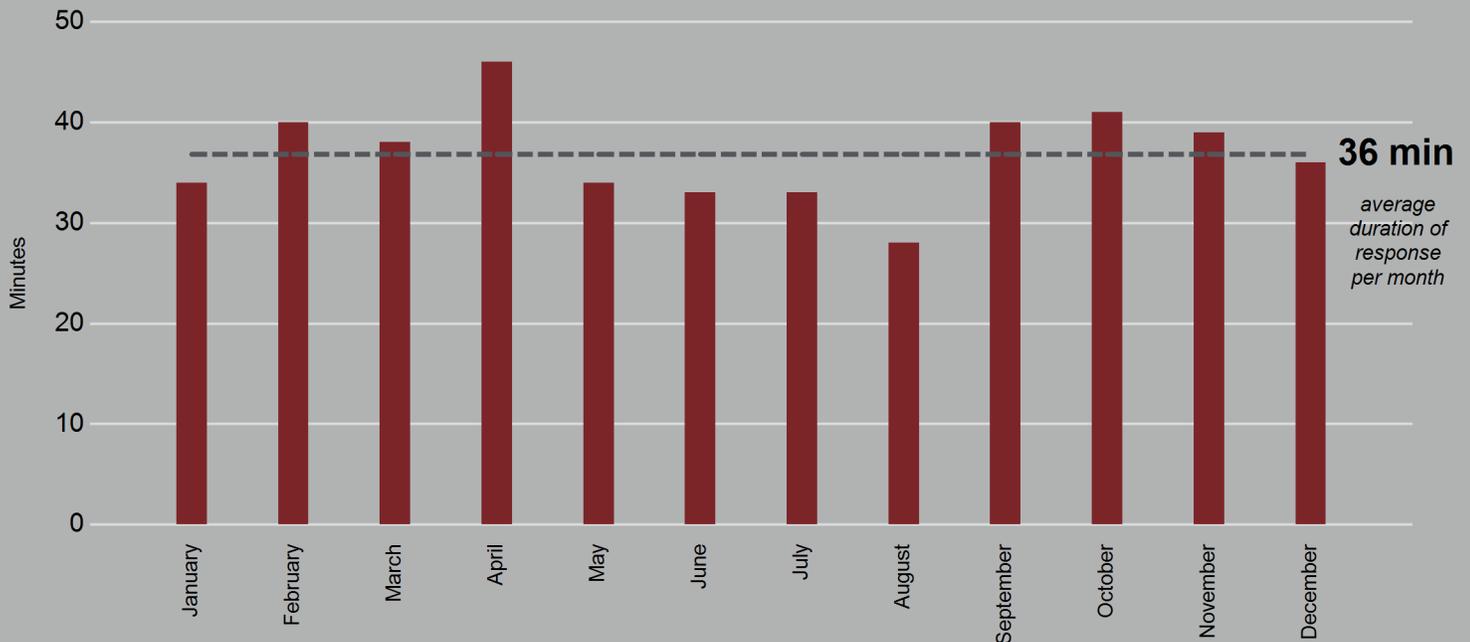
The TMC dispatches and tracks all Highway Helper activity. This section contains statistical and operational data of Highway Helper activities. A new route in Davenport was added in 2019. The data herein represents the new service that began in September 2019.

Types of incidents responses



This chart provides an overview of the number and types of Highway Helper responses.

Average duration of reponse



BY THE NUMBERS

16,938

HIGHWAY HELPER
RESPONSES

564

DEBRIS REMOVAL
RESPONSES

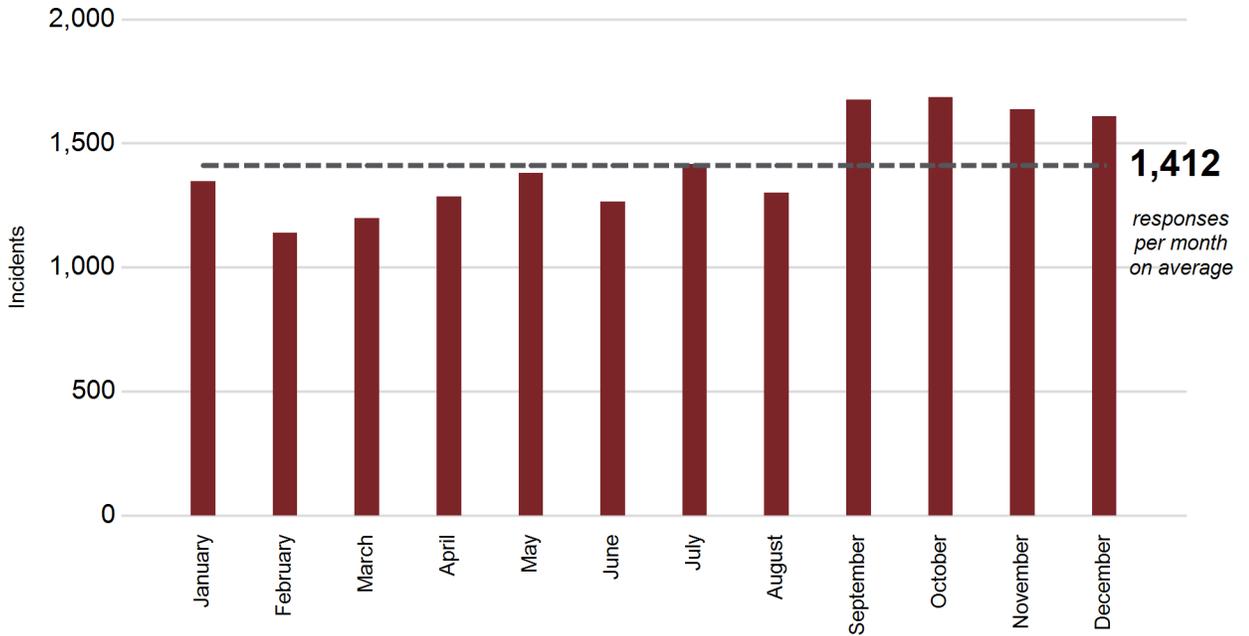
5,707

SERVICES PERFORMED
FOR THE MOTORIST
(FUEL, FLAT TIRE, JUMP START,
DIRECTIONS, ETC)

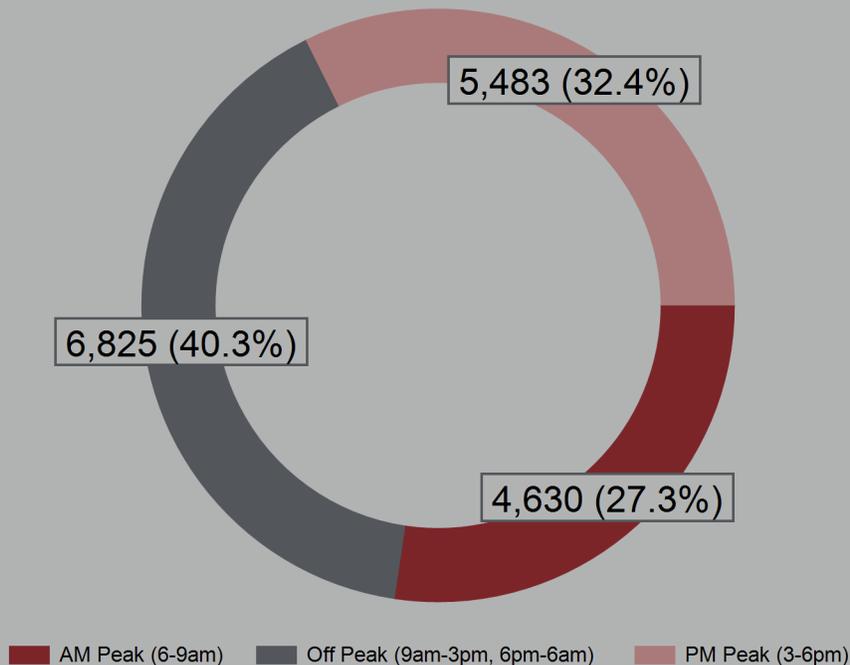
40% RESPONSES OCCURRED DURING OFF
PEAK HOURS

The most Highway Helper responses during 2019 occurred in October.

Responses by month

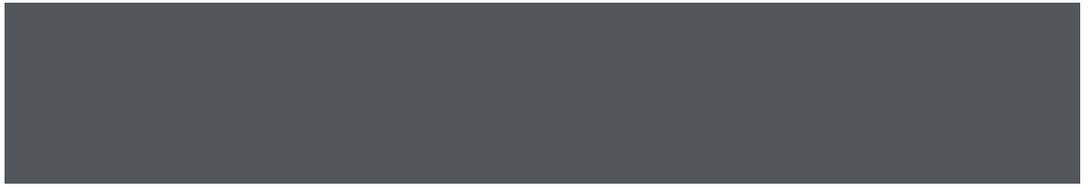


Responses by time of day

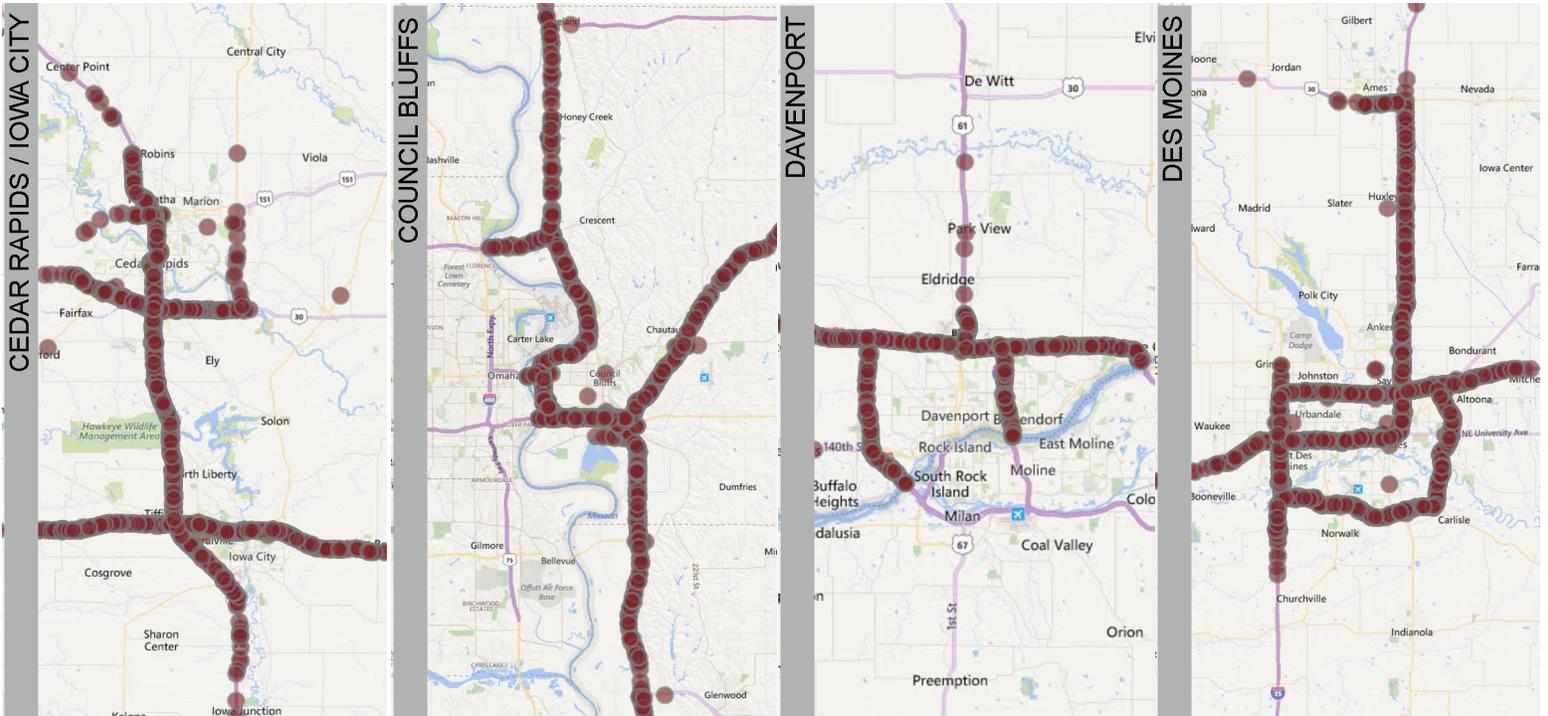




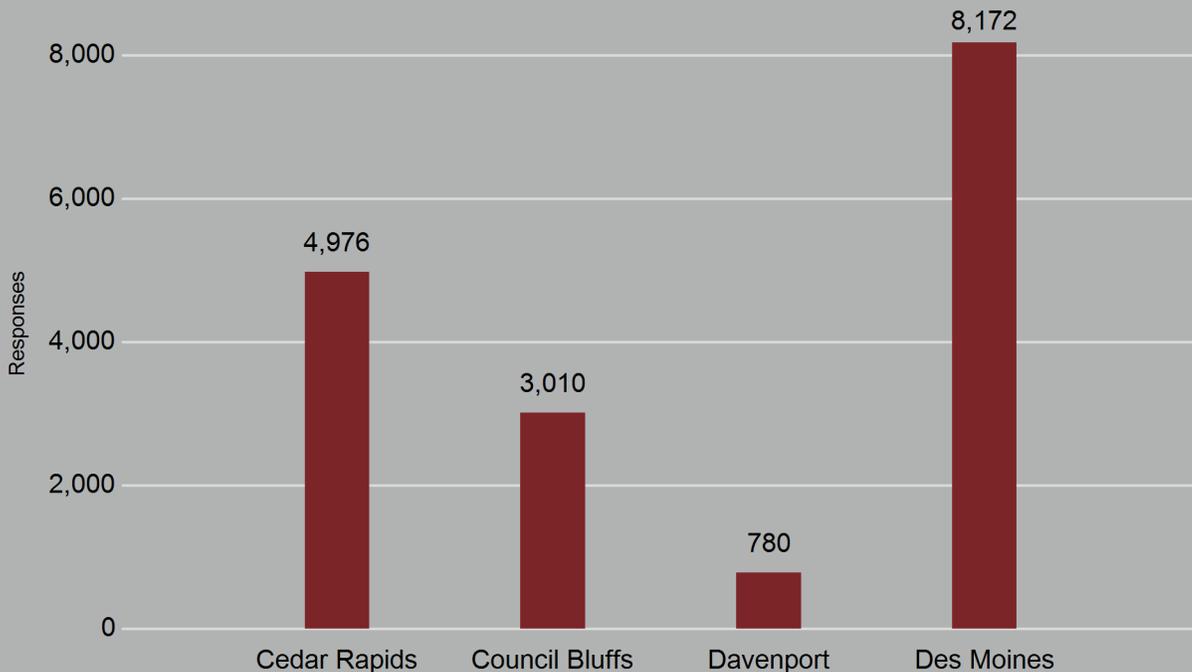
HIGHWAY HELPER



All responses by operational area



All responses by operational area



Highway Helper trucks are dispatched in four operational areas from 6 a.m. to 7 p.m., Monday through Friday, including some holidays and special events.

27%

RESPONSE DURING
AM PEAK HOURS

32%

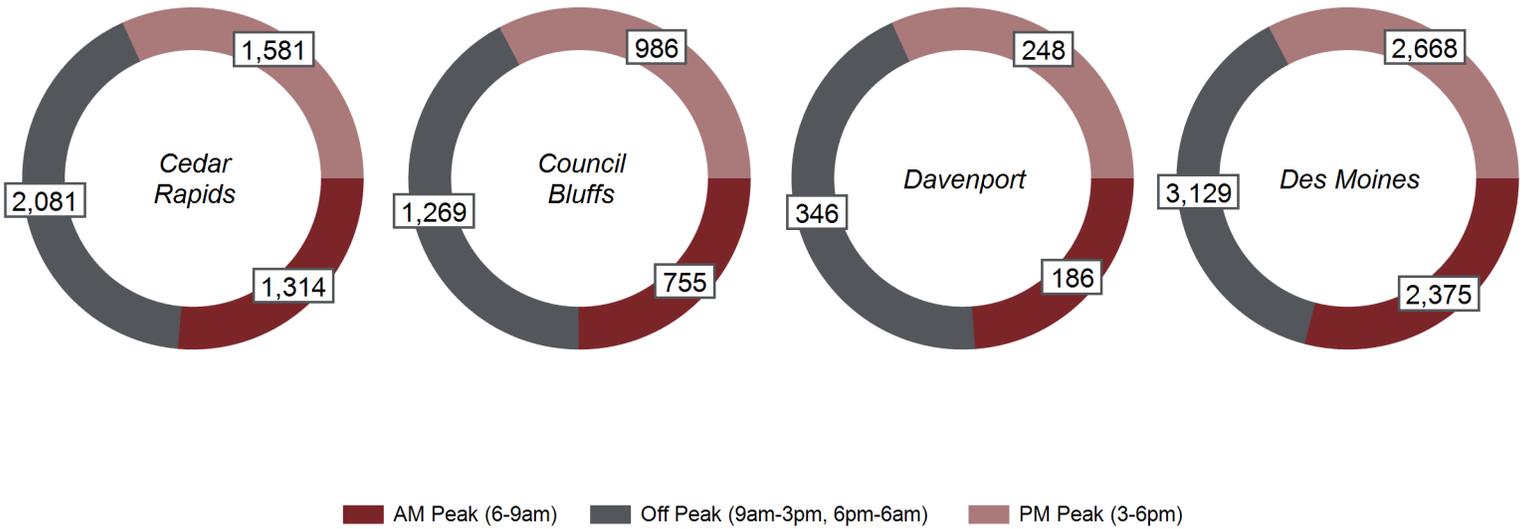
RESPONSE DURING
PM PEAK HOURS

8,172

HIGHWAY HELPER
RESPONSES IN DES MOINES

1,346 RESPONSES IN JANUARY

All responses by time of day by operational area



The Highway Helper service operates twelve months a year with higher responses during winter months. Additional service is provided for special events, such as the Iowa State Fair.

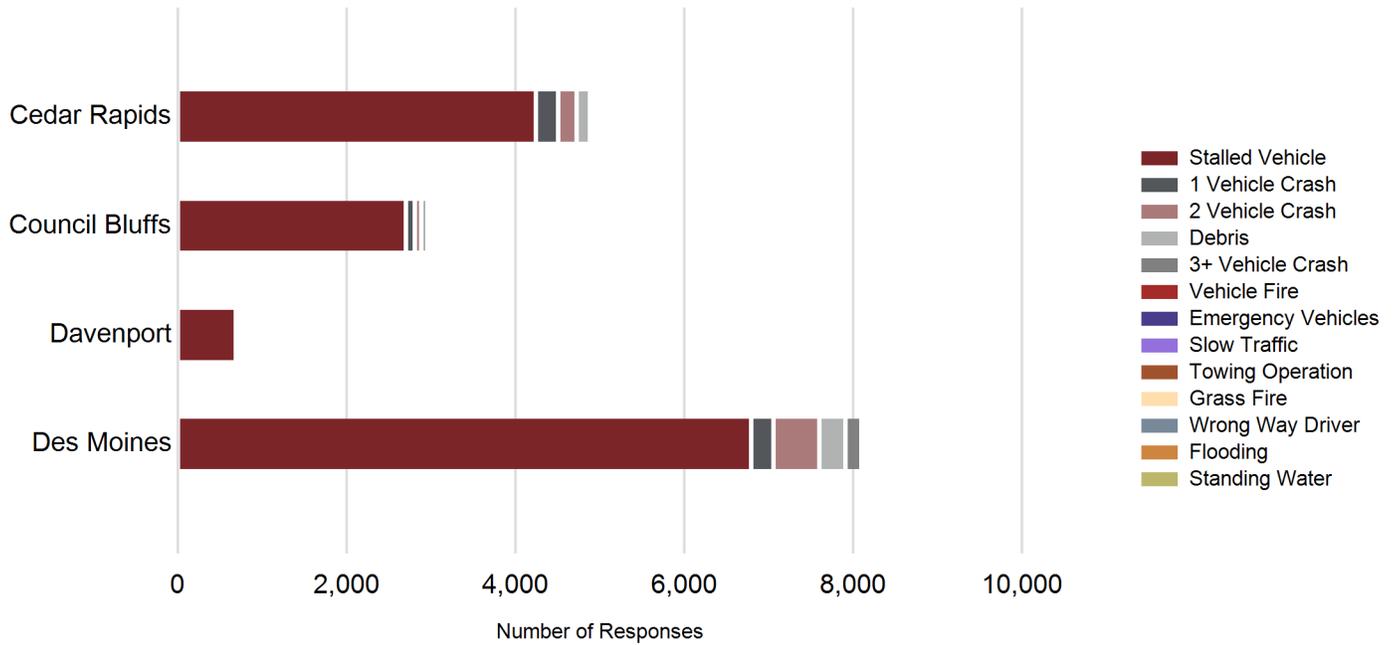
All responses by month by operational area



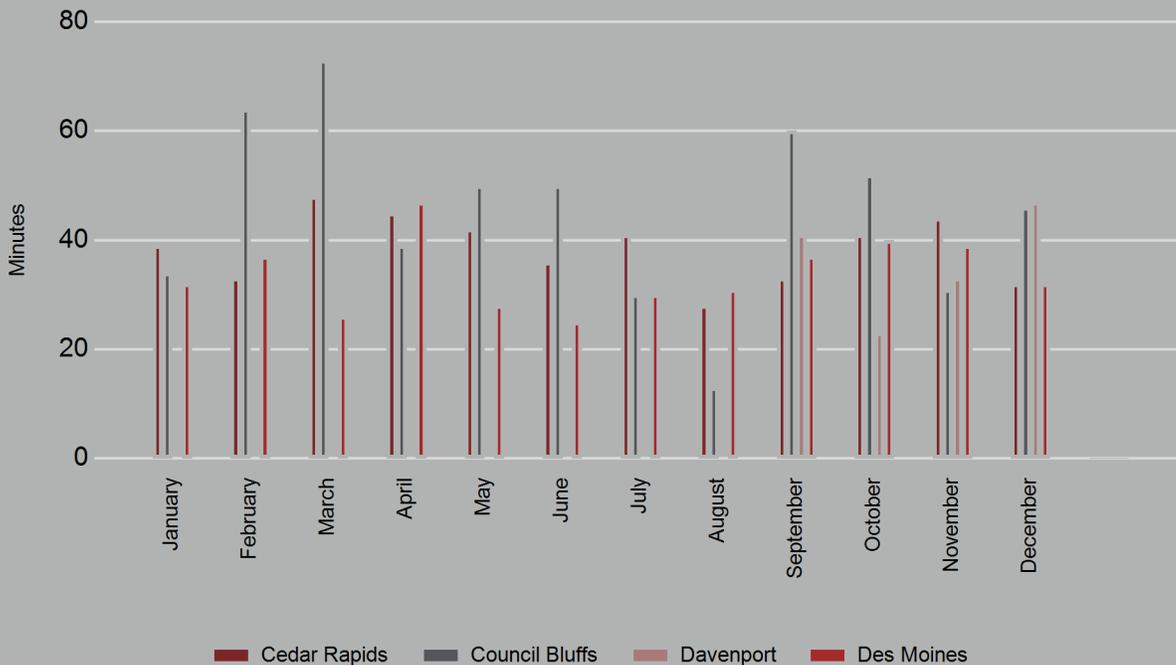


HIGHWAY HELPER

Types of incident response by operational area



Average duration of response by operational area



The duration of the Highway Helper response is determined by tracking the time between when the Highway Helper truck arrived on scene to the time departed.

1,206

RESPONSES TO
LANE BLOCKING
INCIDENTS

37 min

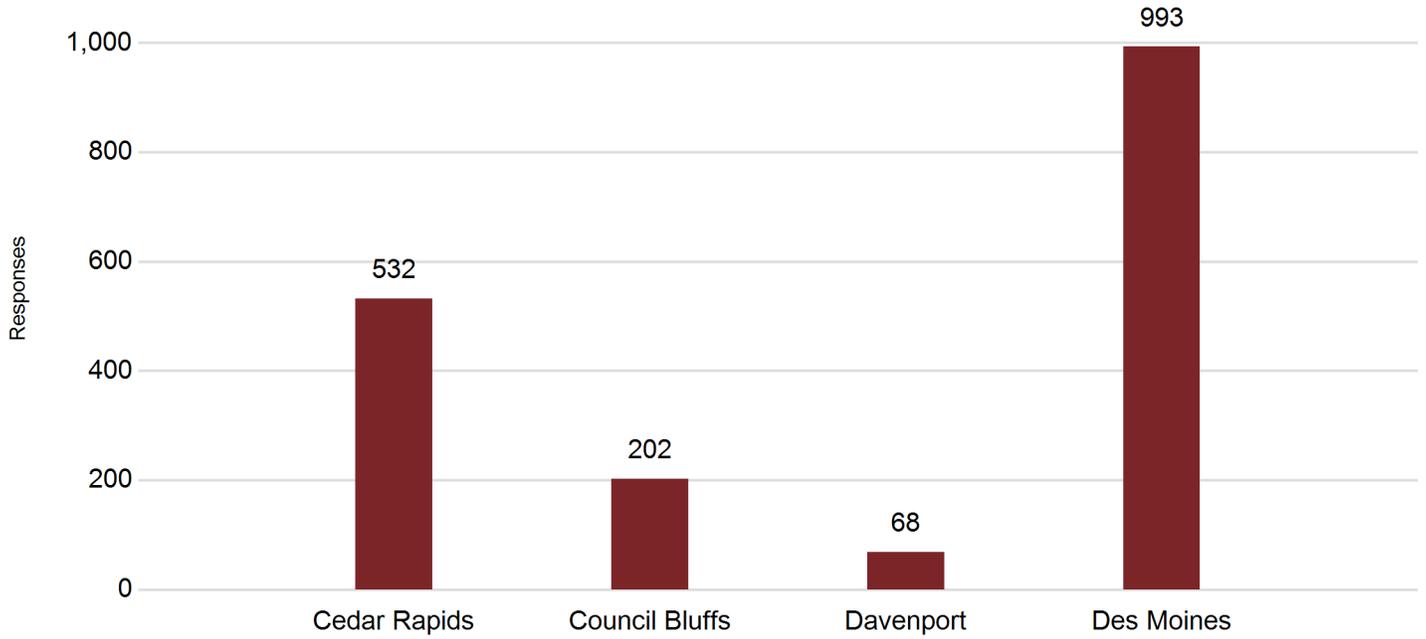
AVERAGE RESPONSE
DURATION

85%

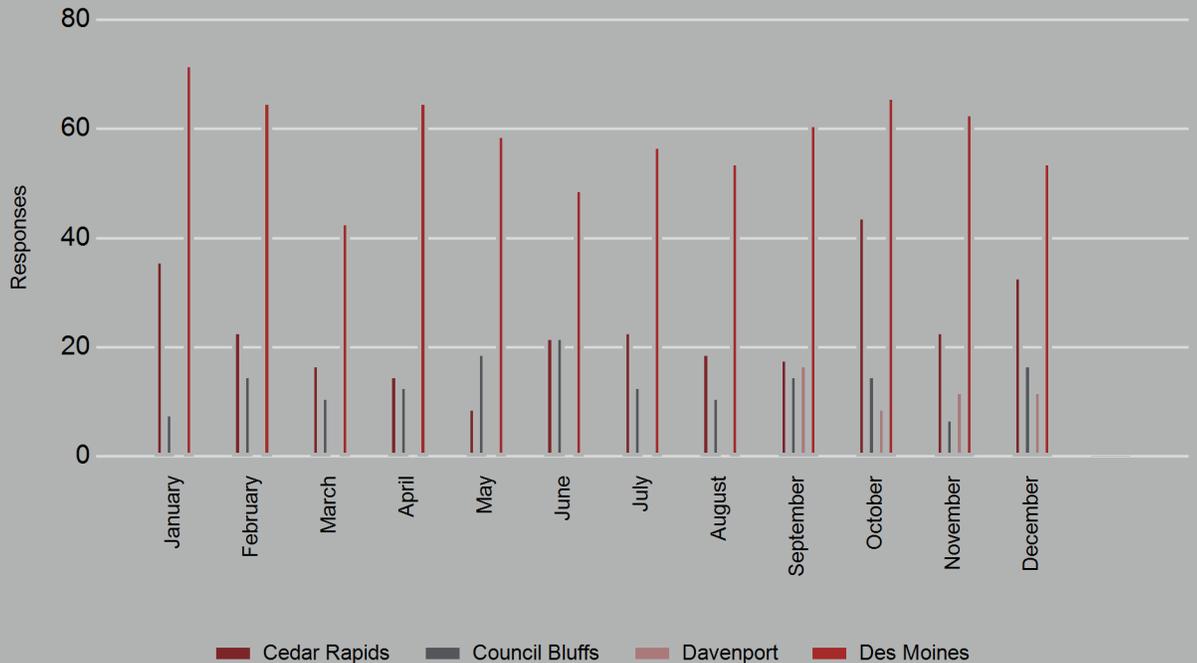
RESPONSES
TO STALLED VEHICLES

1,795 RESPONSES TO CRASHES

Responses to crashes only by operational area



Responses to lane blockage incidents



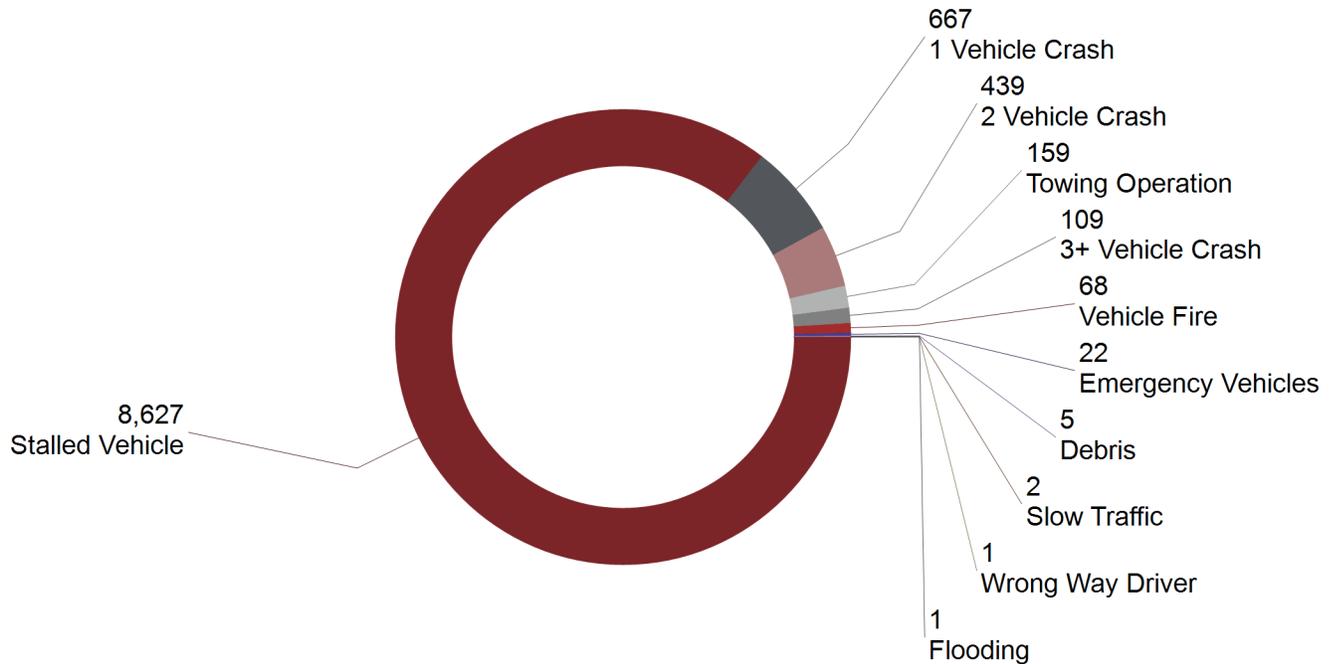
Highway Helpers assist with lane blockages to achieve faster clearance times and protect responders.



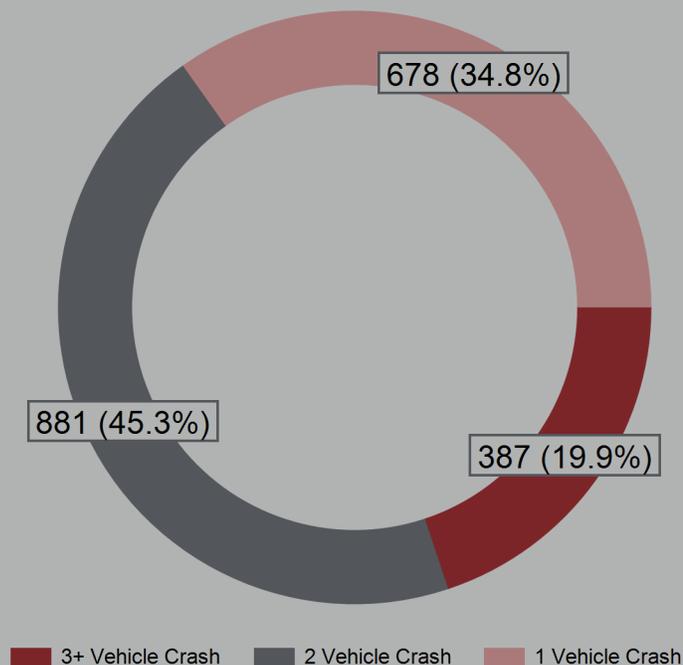
FREIGHT

Incidents involving freight transportation are specifically tracked as they are reported to the TMC. This section contains statistical and operational data regarding freight.

Types of incidents involving a semi



Number of vehicles involved in semi related crashes



Incidents involving a semi have the potential to be more impactful on traffic since they are a larger vehicle which may take additional time to clear. The TMC specifically tracks when an incident or crash involves a semi to better understand these traffic impacts.

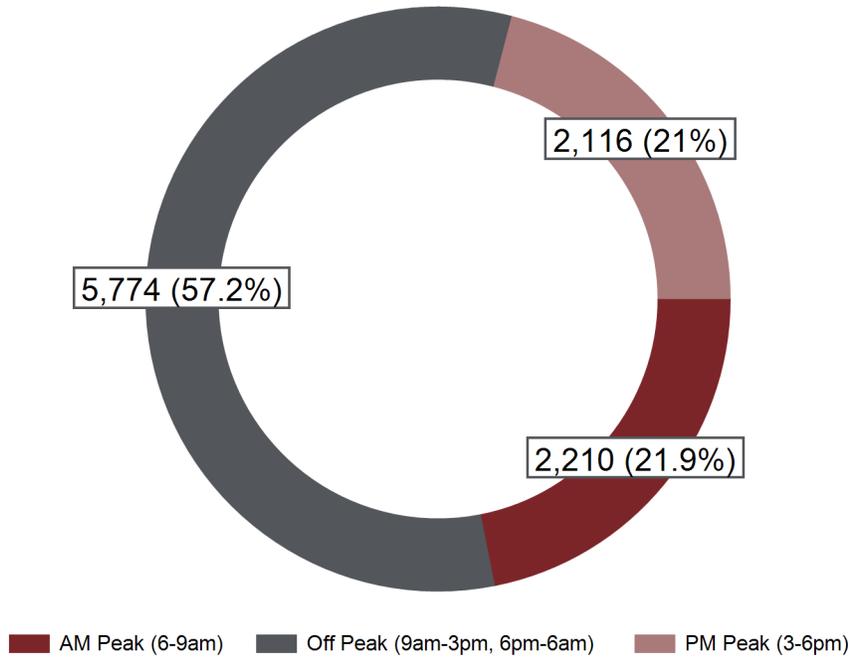
210
RAIL INCIDENTS

129
SEMI ROLLOVERS

23 HAZMAT SPILLS

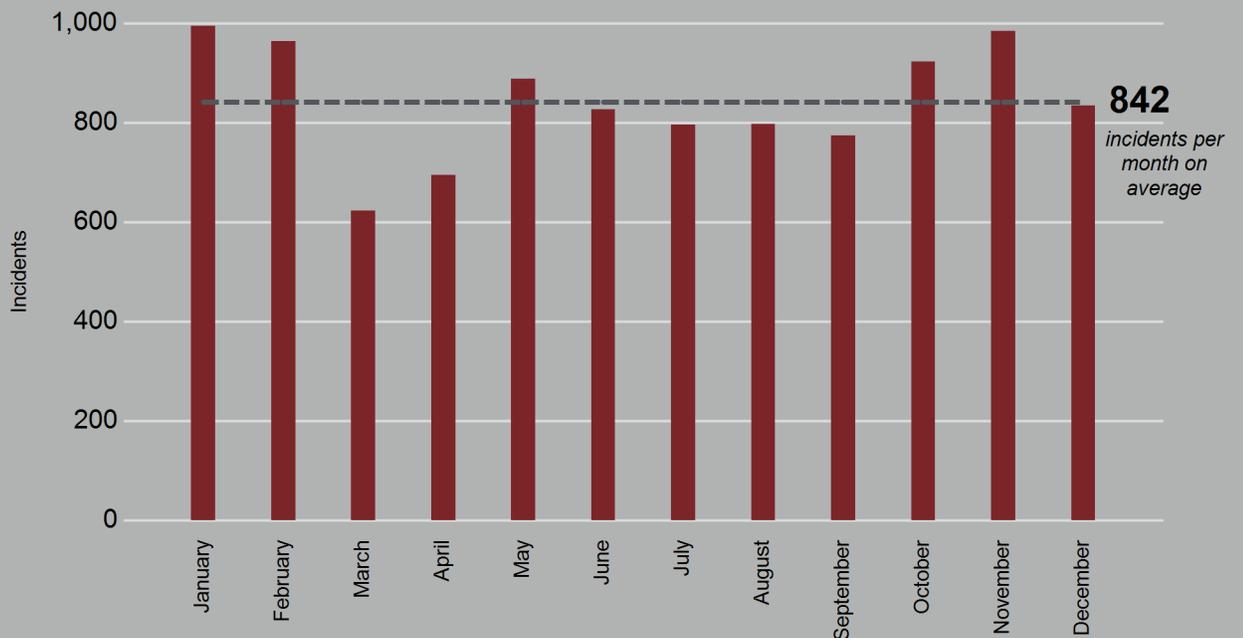
2 hr 9 m
AVERAGE CLEARANCE TIME
FOR LANE BLOCKING INCIDENTS
INVOLVING A TRACTOR TRAILER

Freight incidents by time of day



Freight incidents are incidents involving semis or railroads.

Freight incidents by month

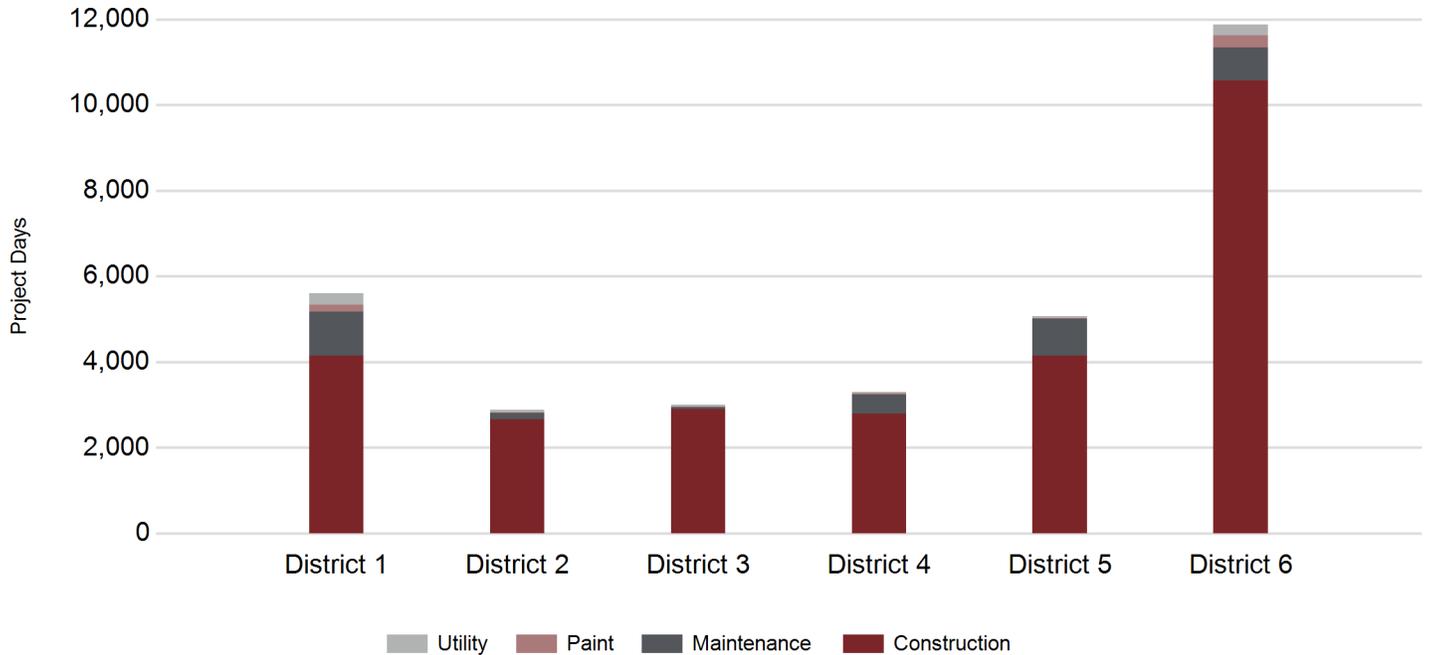




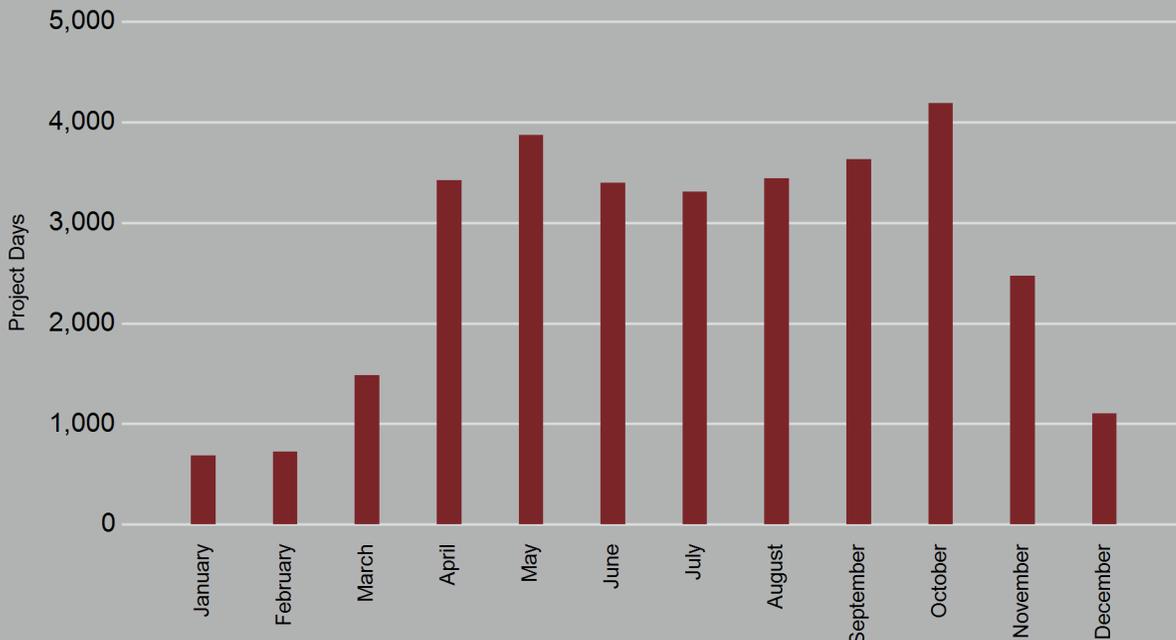
WORK ZONES

Work zone activity is tracked by the TMC for each change in a work zone, not a project as a whole. An event is logged into the system for each work zone configuration change or lane closure on a project.

Work zone project days by district



Number of work zone project days by month



The data is used by the TMC to provide messages on the DMS, manage work zone contact information, and situational awareness.

BY THE NUMBERS

239
WORK ZONE
INCIDENTS

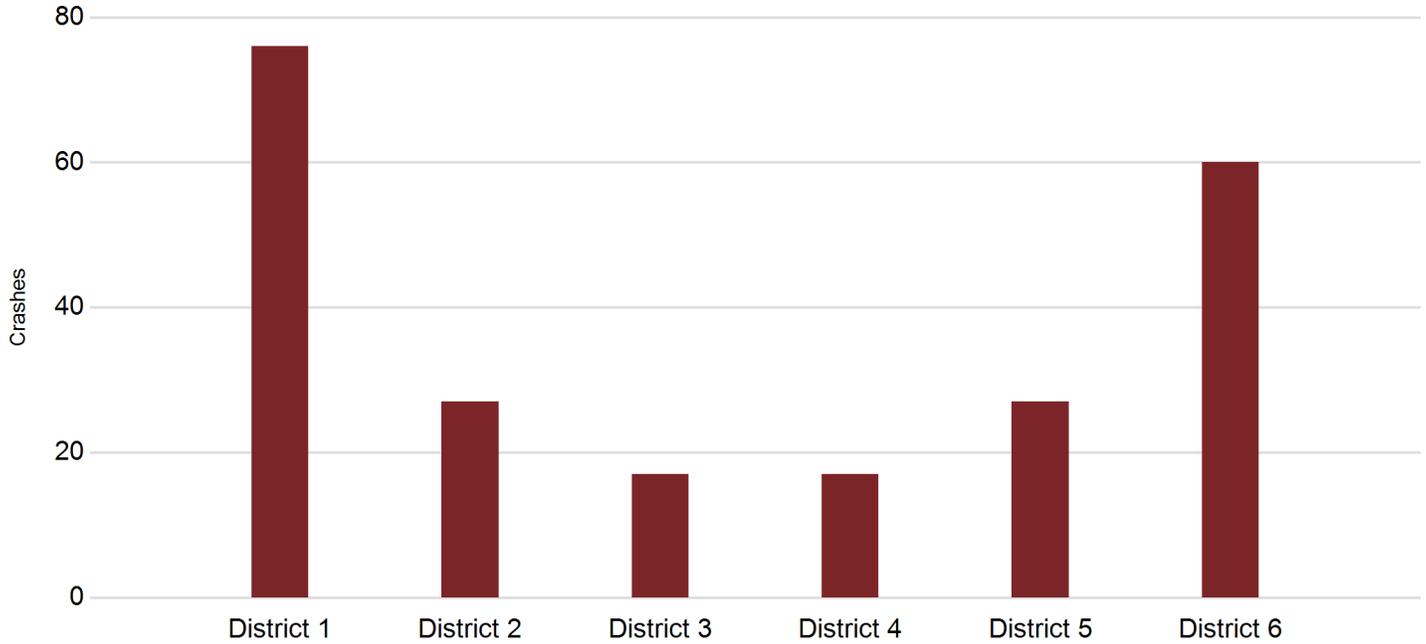
858
SLOWDOWNS
DETECTED

31,744
TOTAL
ROADWORK PROJECT DAYS

32 INTELLIGENT WORK ZONES

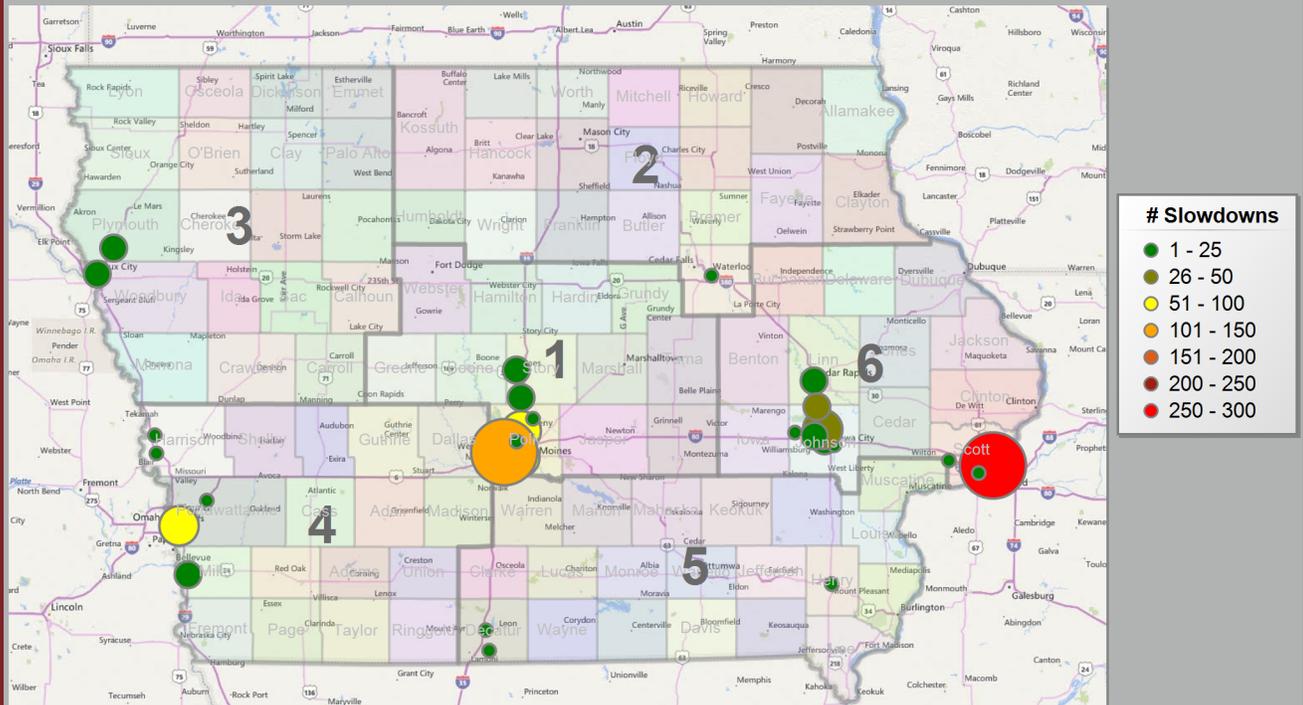
Work zone crashes by district

** As reported to the TMC*



Construction slowdowns

Construction slowdowns are tracked and measured by vehicle detection in intelligent work zones.

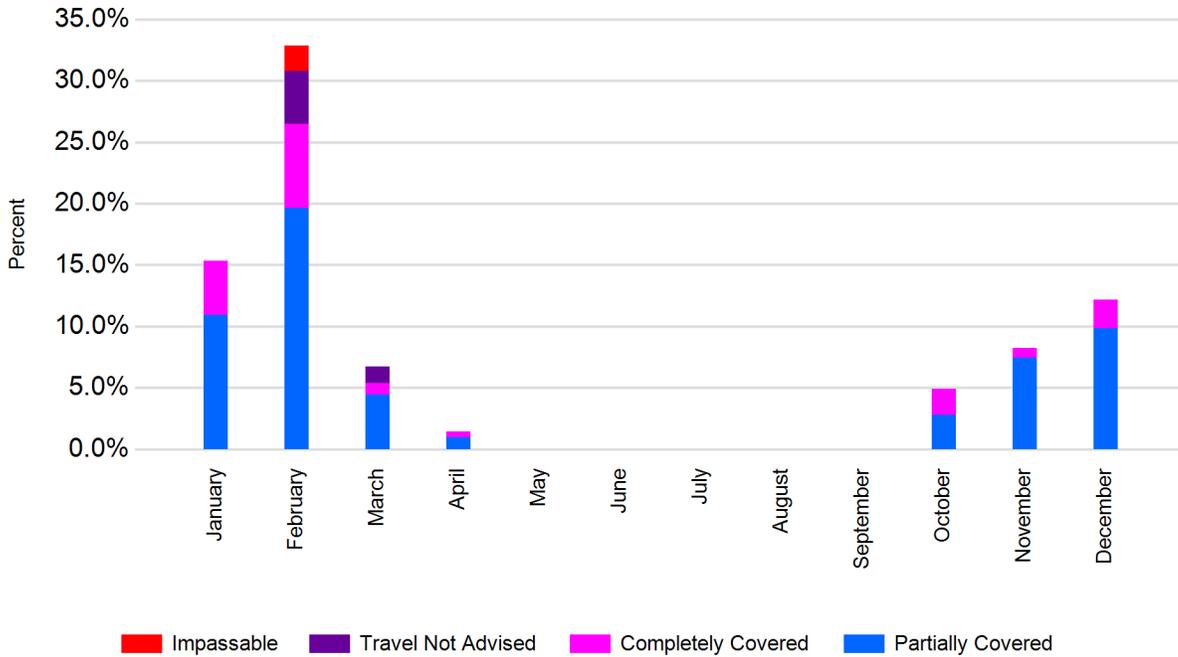




WEATHER

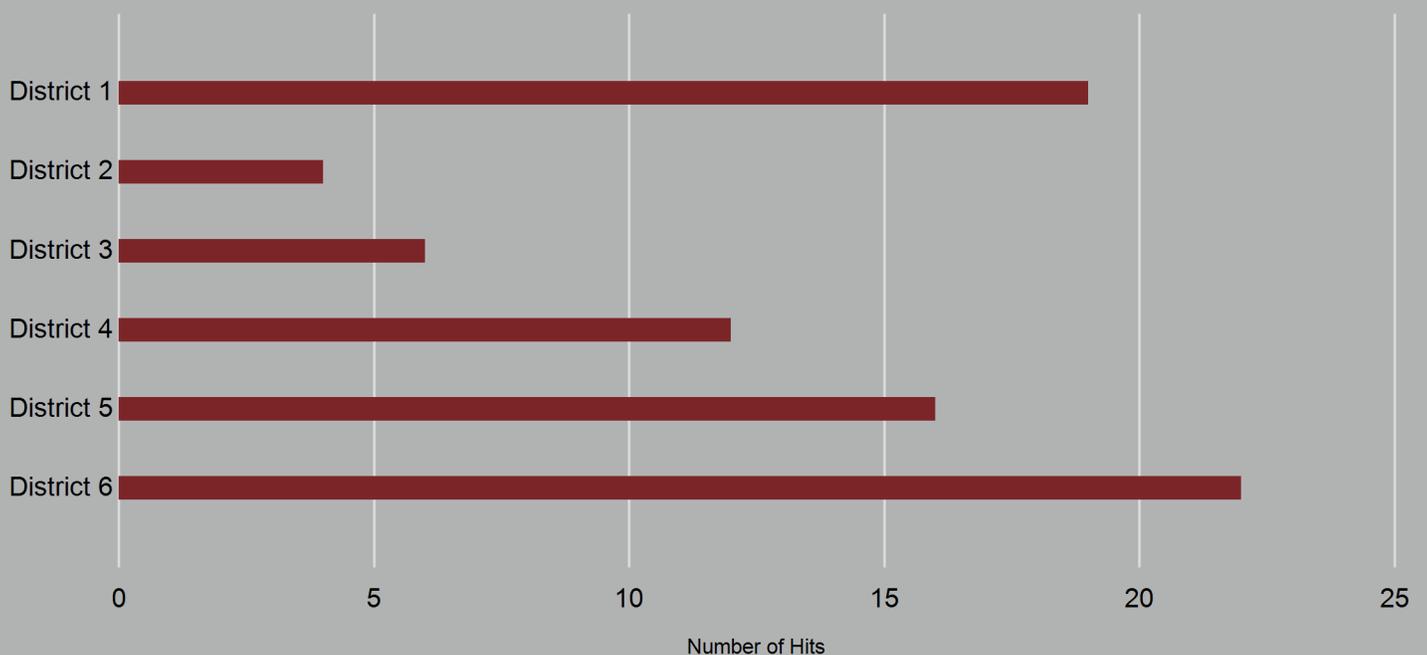
Weather can have a serious impact on the safety and mobility of roadway users. The TMC responds to dynamic conditions by using technology and communication tools to assist partners in restoring the transportation system to normal conditions.

Road conditions by type



This chart displays the percentage of time during the month over all segments where adverse winter weather conditions were reported.

Snow plow hits per district



51
WINTER
EVENTS

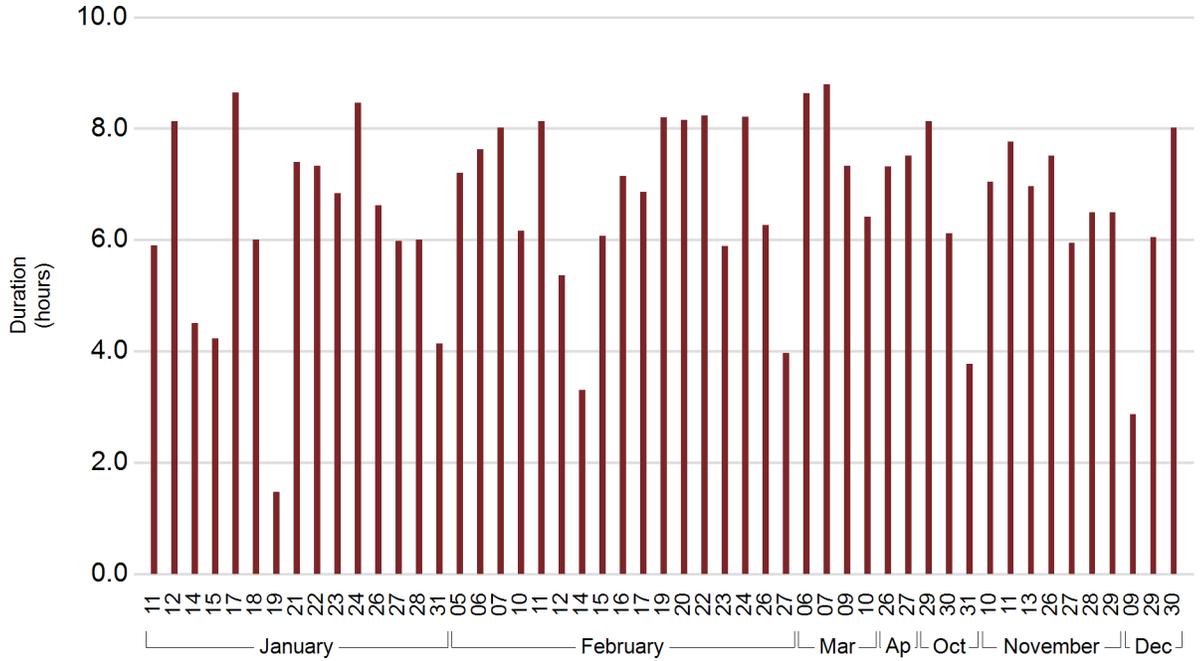
285
FLOODING
EVENTS

18 days
AVERAGE DURATION
OF FLOODING CLOSURES

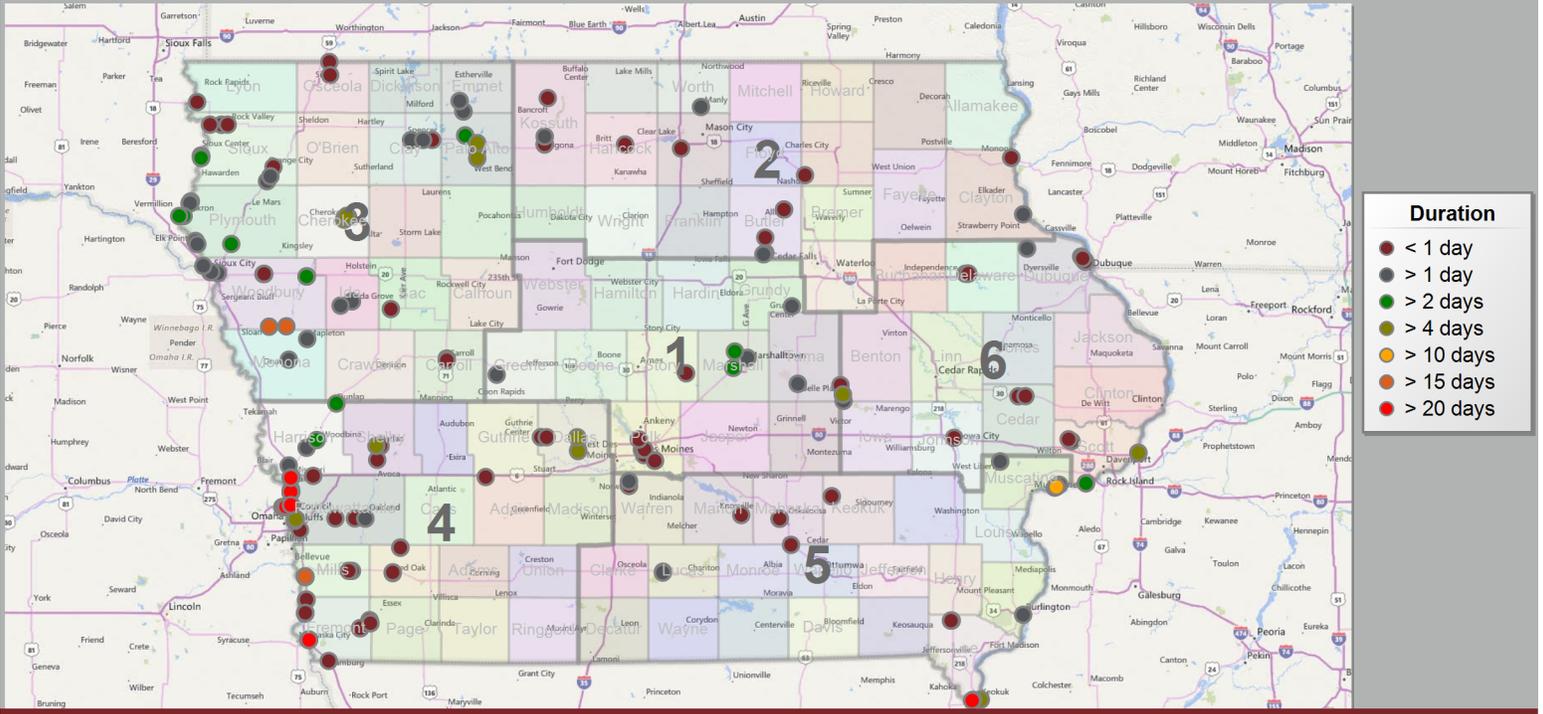
601 INCIDENTS DURING WINTER EVENTS

These winter events were determined based on a Winter Warning or Advisory where at least one crash has been reported to the TMC within the affected counties.

Winter events



Flooding events resulting in a lane closure

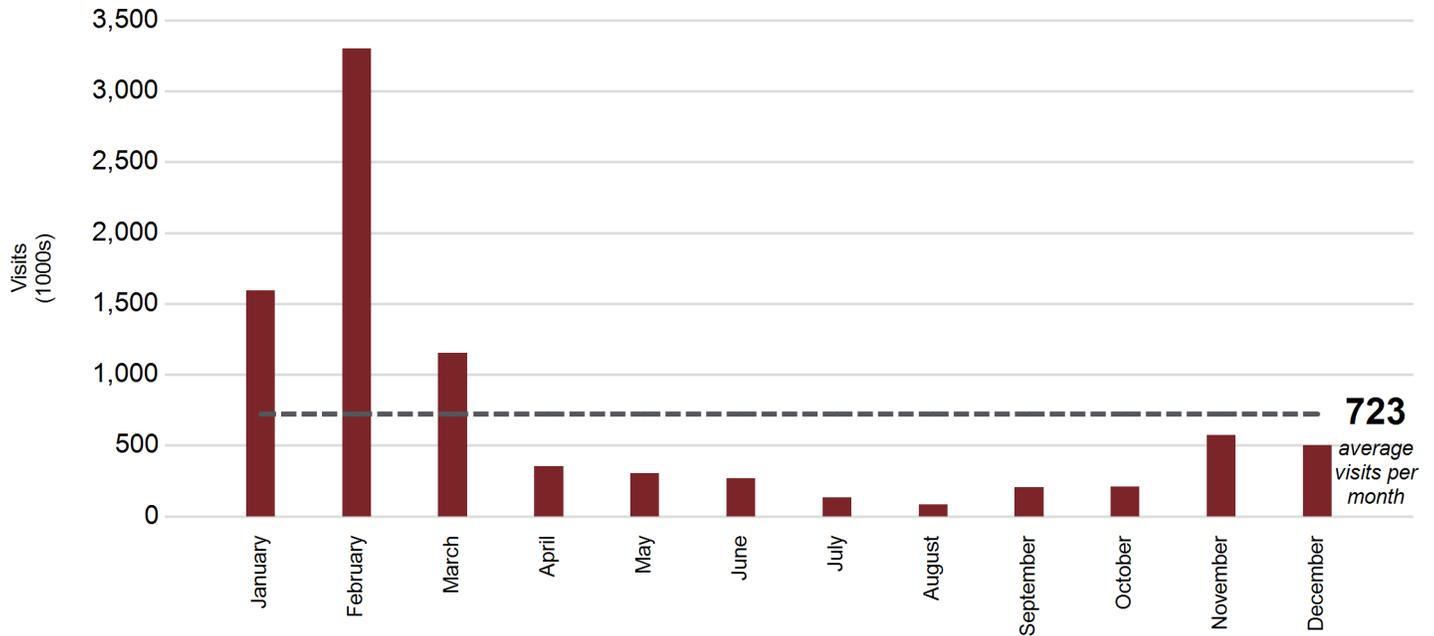




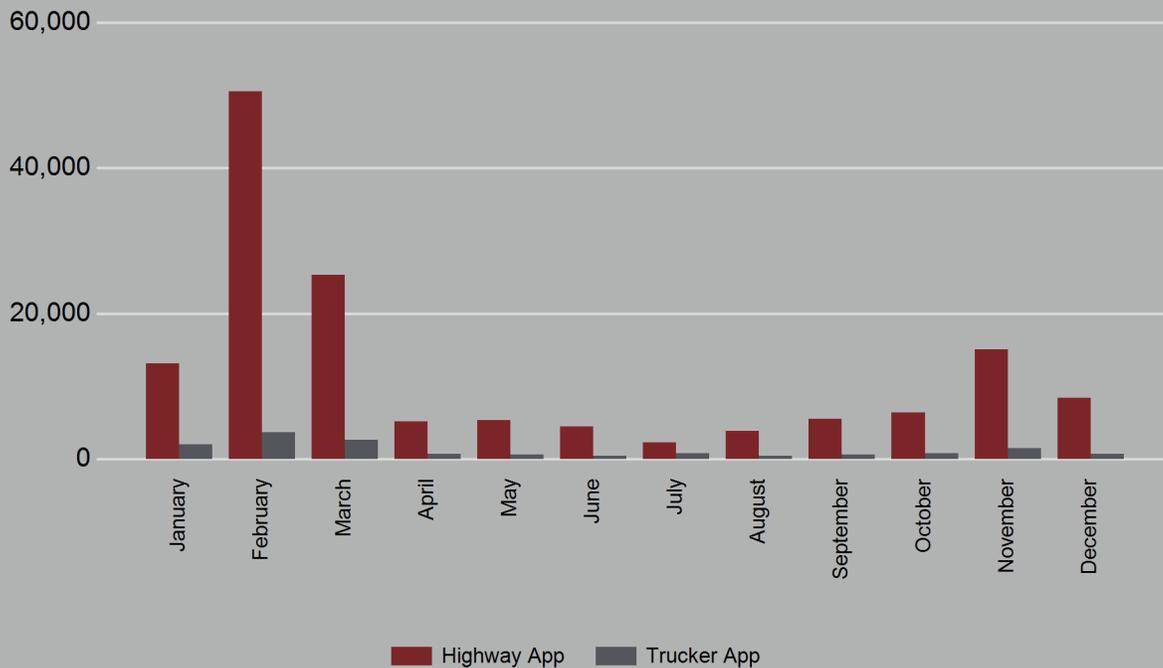
COMMUNICATION

Communication technologies play a crucial role in traffic operations. Effective traffic management, largely stemming from the TMC, relies on efficient communications and information systems to provide accessible guidance to the traveling public.

Visits to 511 website



511 mobile application downloads



Two separate 511 mobile applications are available for download. The Highway app includes traffic events, speeds, cameras, and winter road conditions while the Trucker app focuses on data pertinent to truck travel, such as weigh station locations and restrictions.

BY THE NUMBERS

160,624

511 APP
DOWNLOADS

236,910

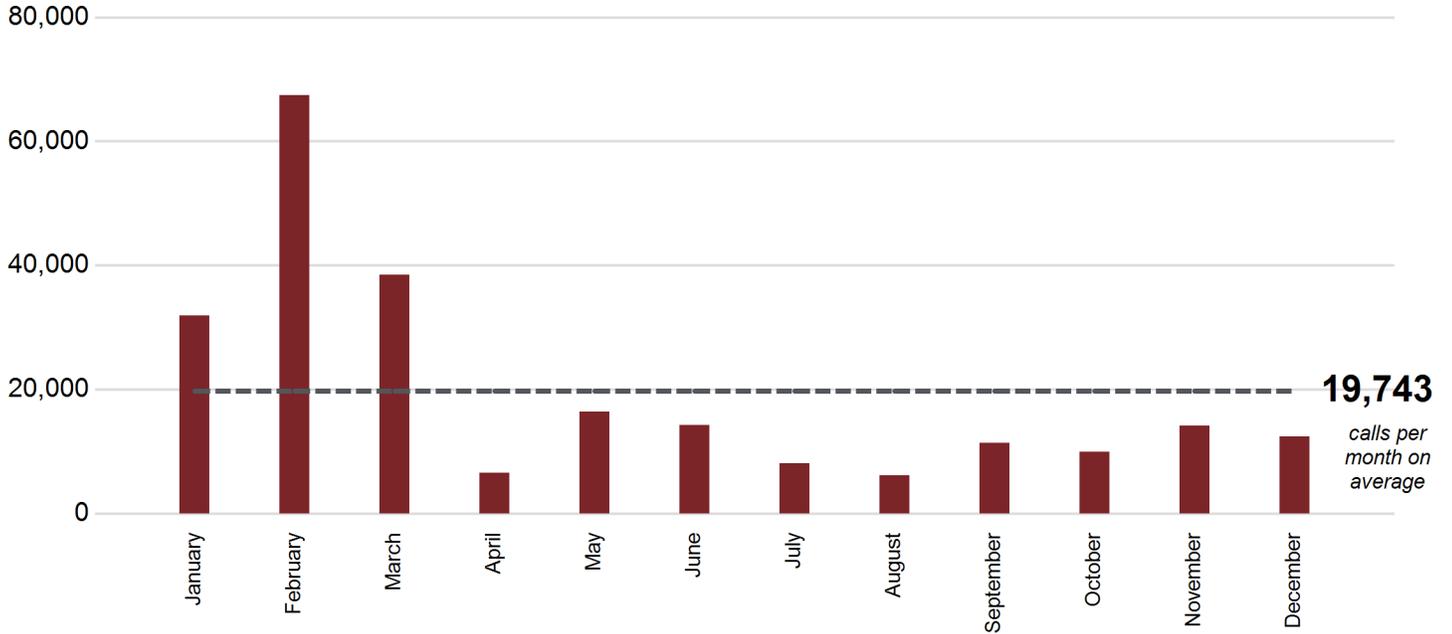
PHONE CALLS
TO 511

8,675,489

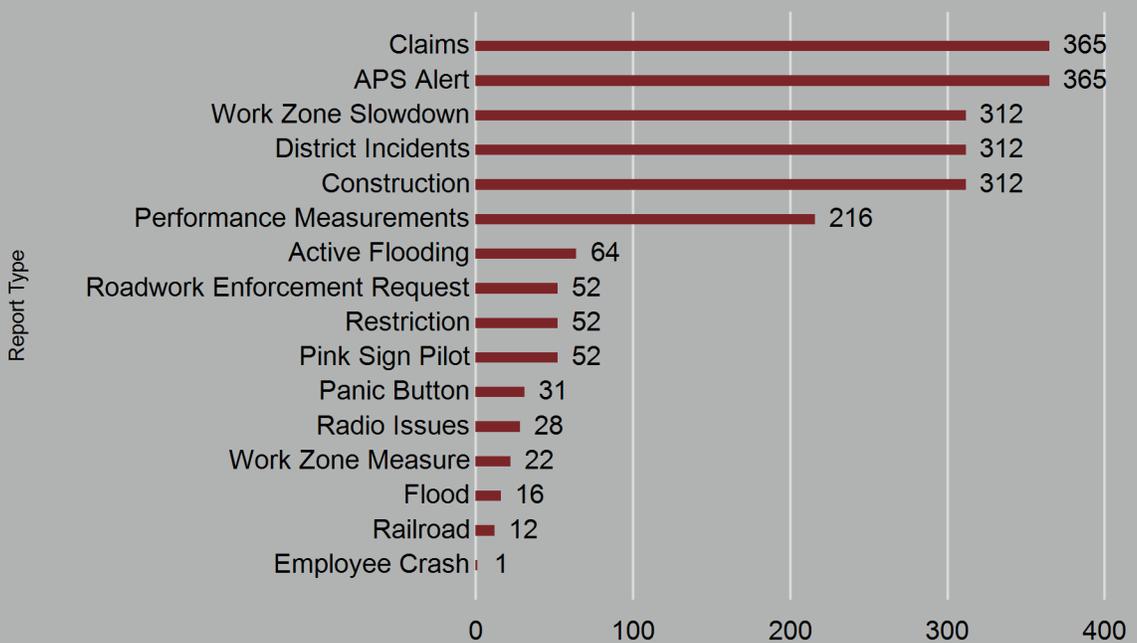
VISITS TO 511 TRAVELER
INFORMATION WEBSITE
(ALL VERSIONS)

2,212 TMC DATA REPORTS GENERATED

511 phone calls by month



TMC data reports generated by type

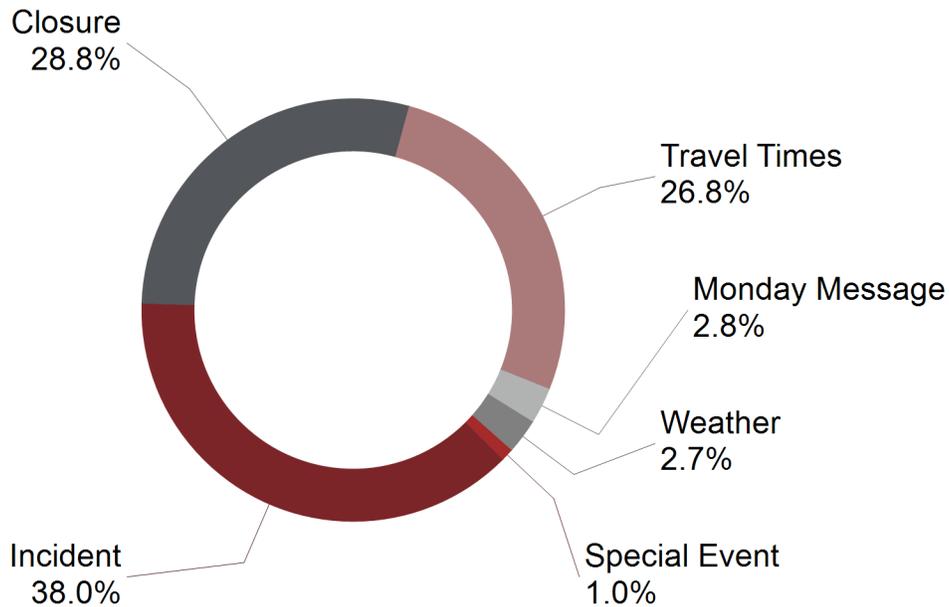


The information tracked by the TMC is shared through multiple reports with internal and external stakeholders.



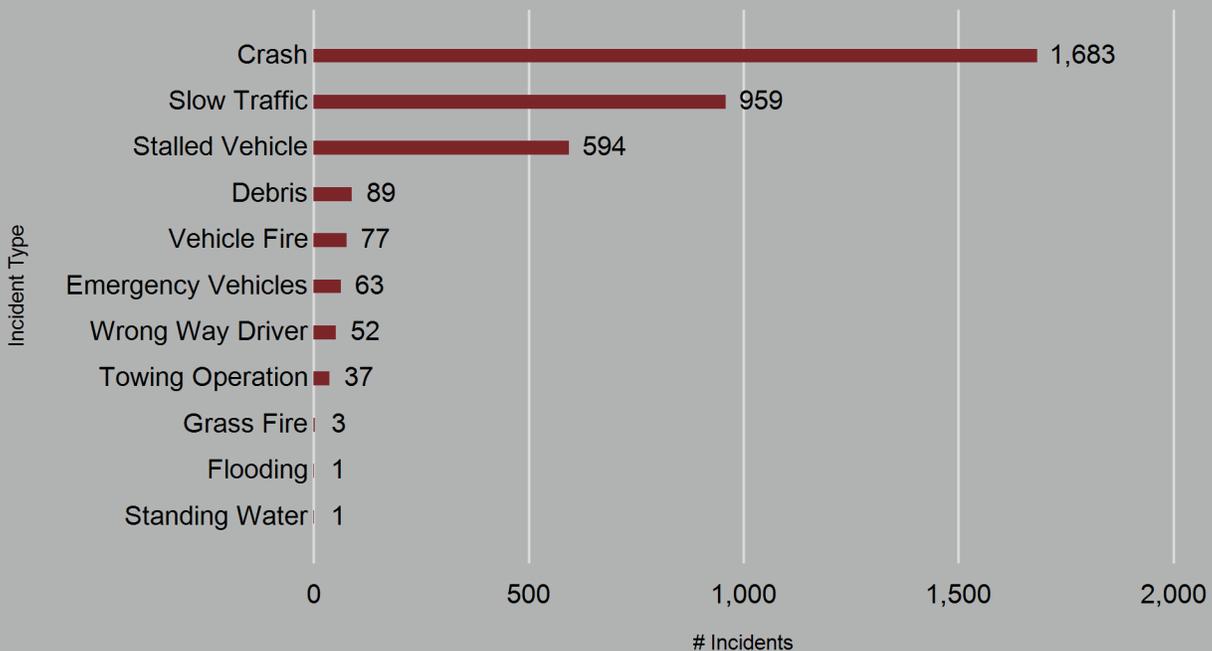
COMMUNICATION

DMS messages by type



Dynamic Message Signs (DMS) are operated by the TMC and the message content, duration and types are tracked.

DMS messages by incident type



This chart provides an overview of the number of unique DMS messages posted for different incident types utilized by the TMC.

BY THE NUMBERS

3,559

INCIDENTS
UTILIZING
DMS MESSAGES

23,959

EMAIL
NOTIFICATIONS
SENT

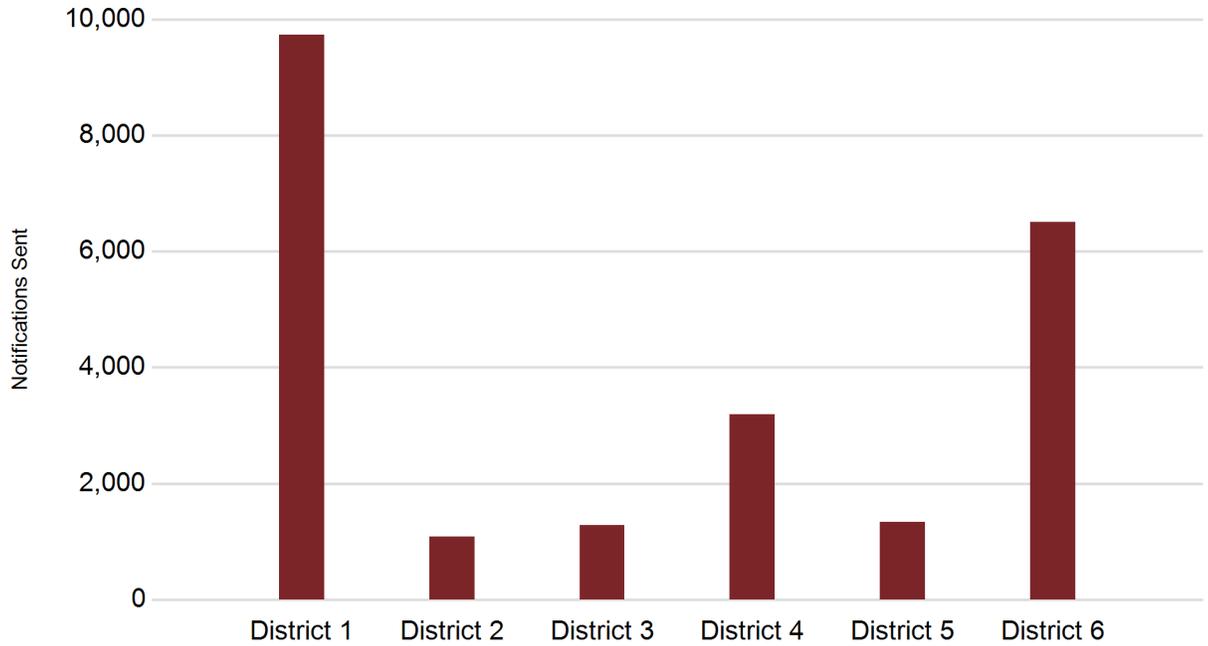
38%

UNIQUE DMS MESSAGES
RELATED TO INCIDENTS

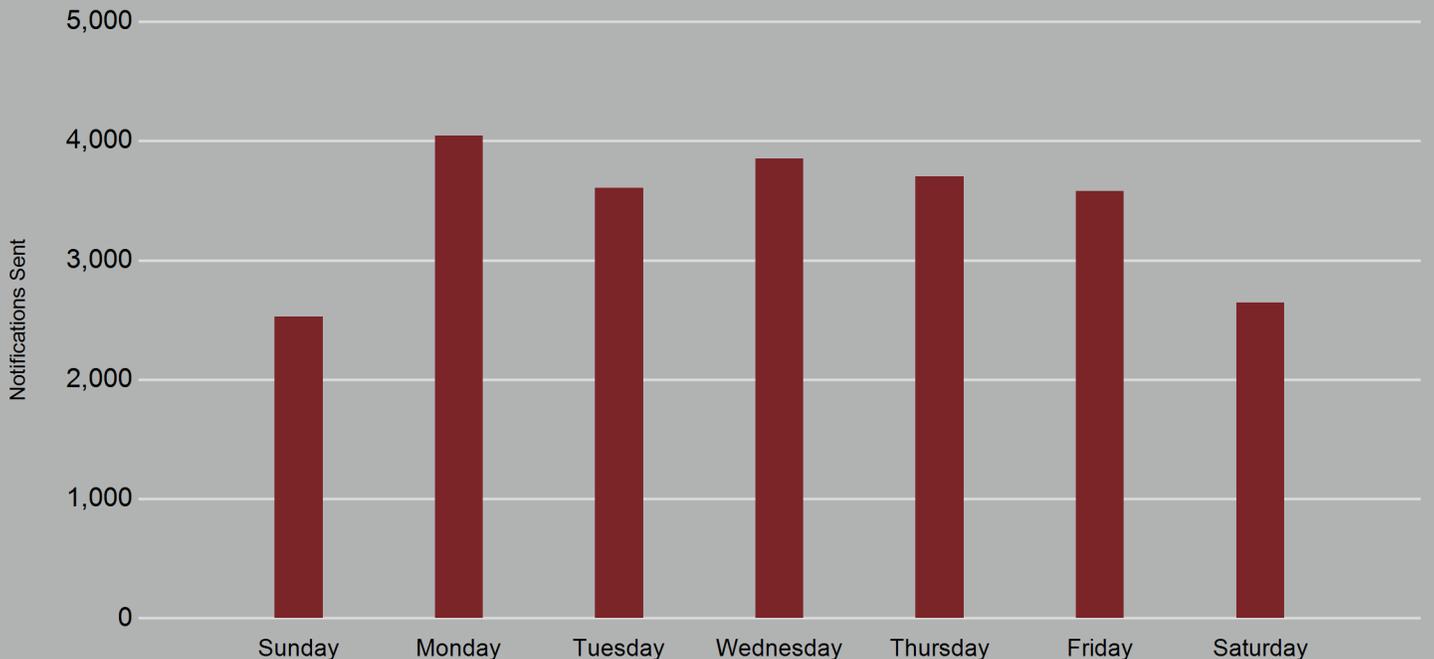
79% EMAIL NOTIFICATIONS SENT ON
WEEKDAYS

Emergency Incident Notifications (EINS) are e-mail alerts sent by the TMC for more impactful events on the transportation system.

Email notifications sent by district



Email notifications sent by weekday



Developed for the:



800 Lincoln Way
Ames, IA 50010
(515) 239-1101
www.iowadot.gov

By:

