IOWA DOT
GETTING YOU THERE

2020

TRAFFIC MANAGEMENT CENTER

Annual Report

TABLE OF CONTENTS

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 2020 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 2020 Snapshot.

2020 SNAPSHOT

INCIDENTS	Number of incidents monitored by Iowa's Statewide TMC	**32,887**
CRASHES	Average crash clearance time	**1 hr 15 m**
HIGHWAY HELPER	Number of responses provided by Highway Helpers	**13,169**
FREIGHT	Average time to clear a lane blocking incident involving a tractor trailer	**2 hr 5 m**
WORK ZONES	Total work zone incidents	**113**
WEATHER	Total flooding events	**26**
COMMUNICATION	Total Emergency Incident Notification (EIN) email notifications sent	**14,886**

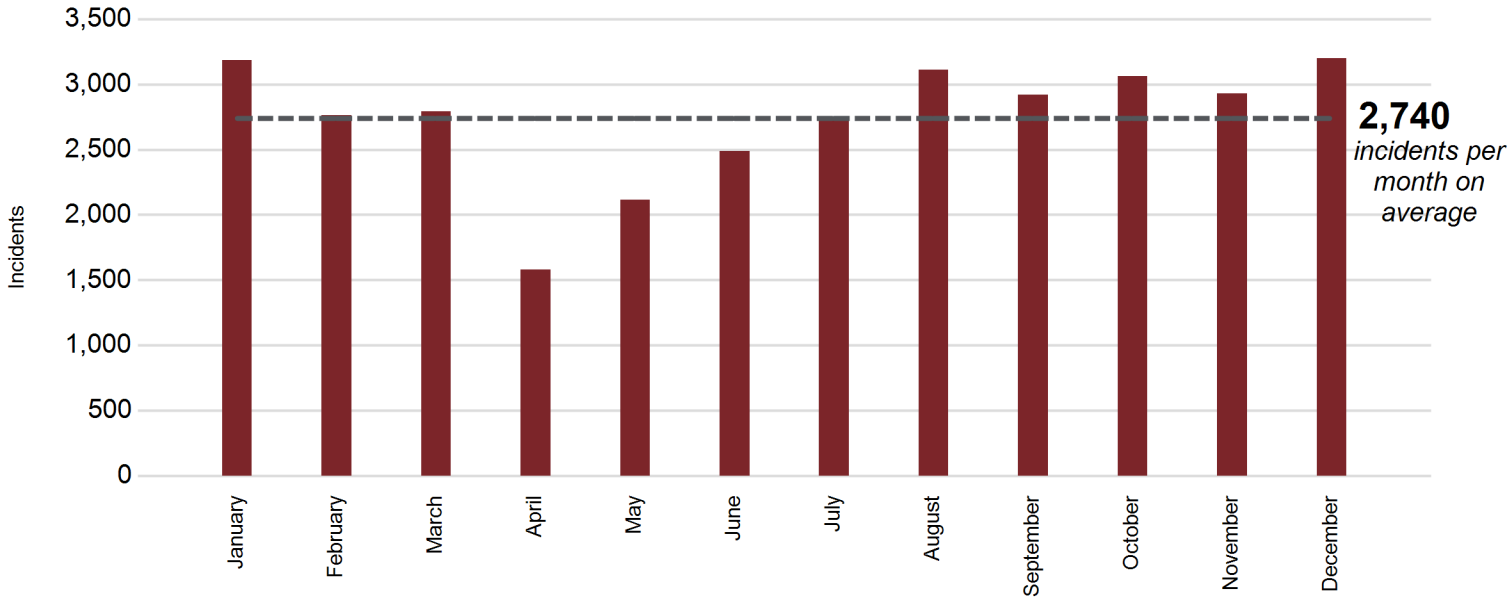
"Iowa's Statewide TMC has been on the front line of our state's transportation safety and mobility efforts. A global pandemic and the radical changes in travel demand during 2020 presented new and unexpected challenges to our role. Operating in a new Covid-19 environment required the most efficient use of our transportation resources. This 2020 Annual Report reflects this unprecedented year and offers valuable operational performance data that will serve useful in preparing for future crises."

Andrew Lewis, Director
Traffic Operations Bureau

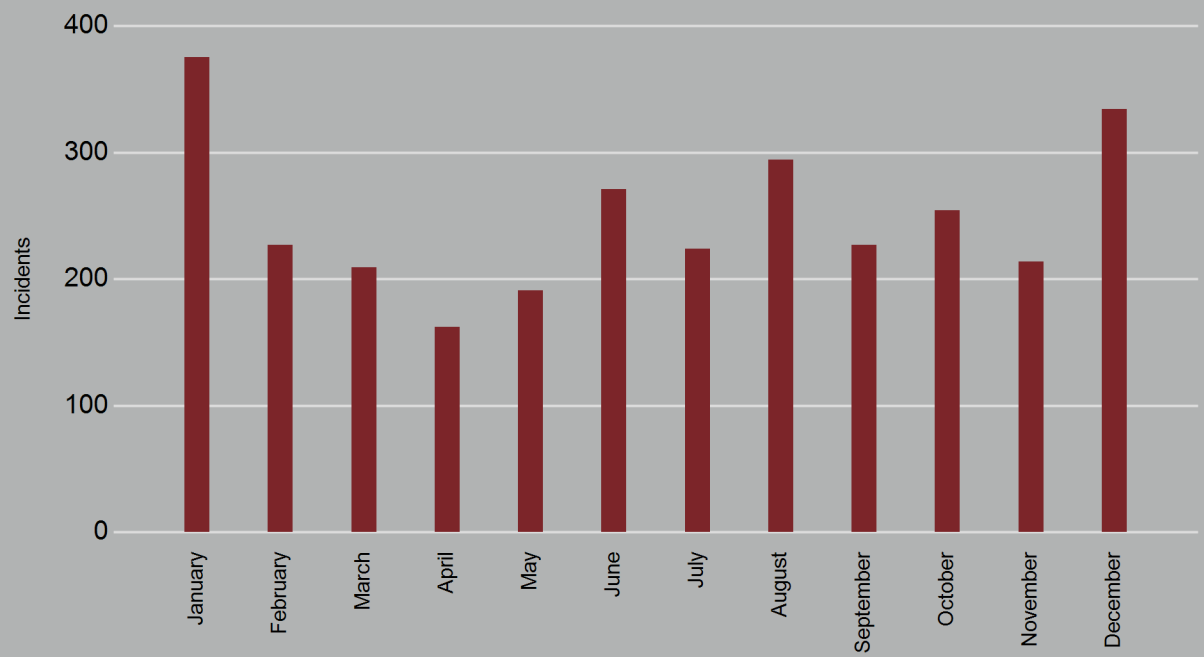
INCIDENTS

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.

BY THE NUMBERS

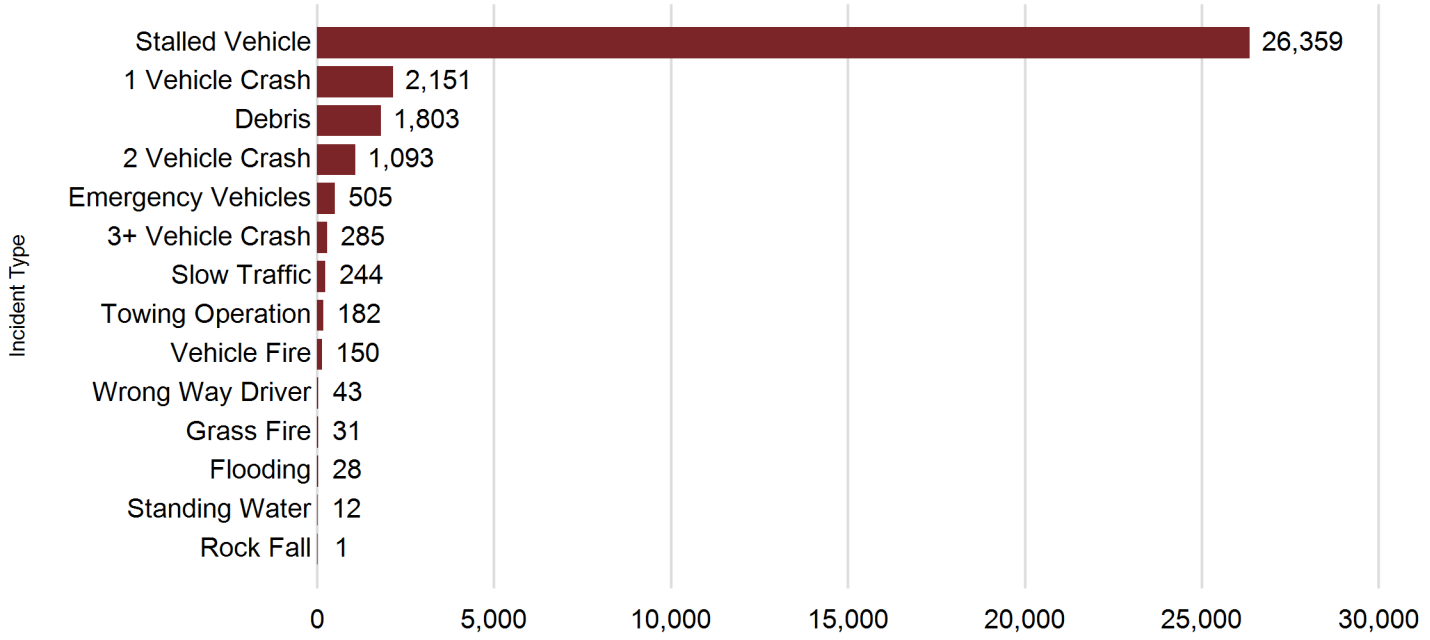
32,887
TOTAL INCIDENTS

33%
INCIDENTS DETECTED BY CAMERA

2,982
LANE BLOCKING INCIDENTS

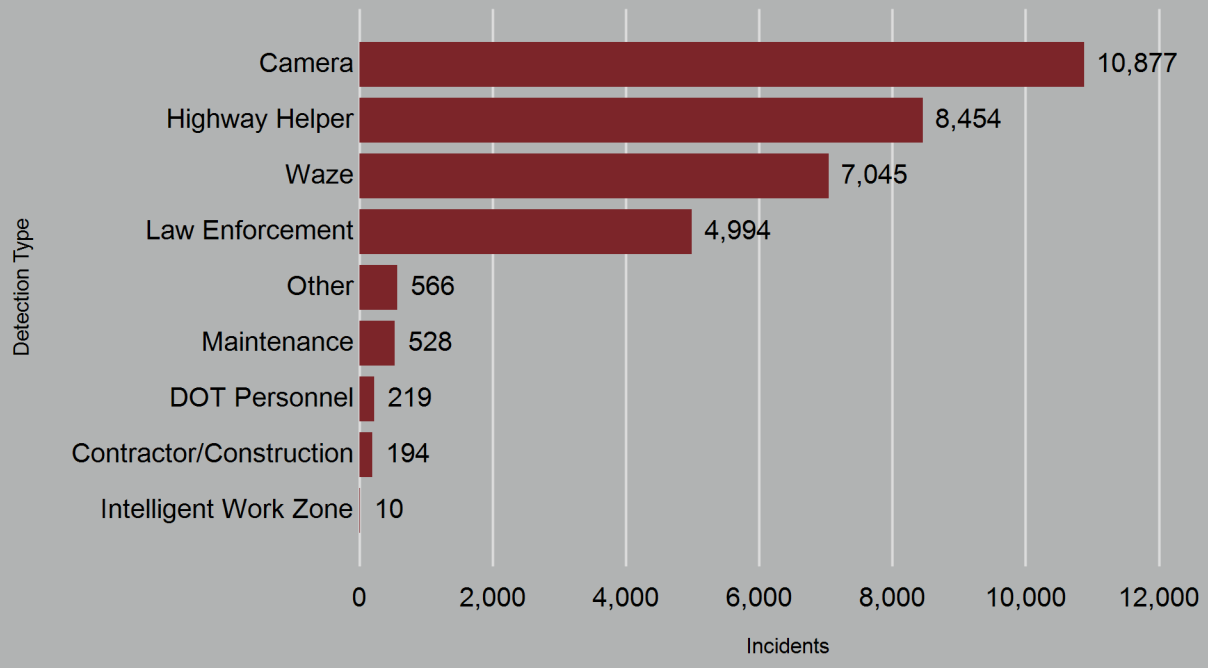
61 SECONDARY INCIDENTS REPORTED TO THE TMC

Incidents by type



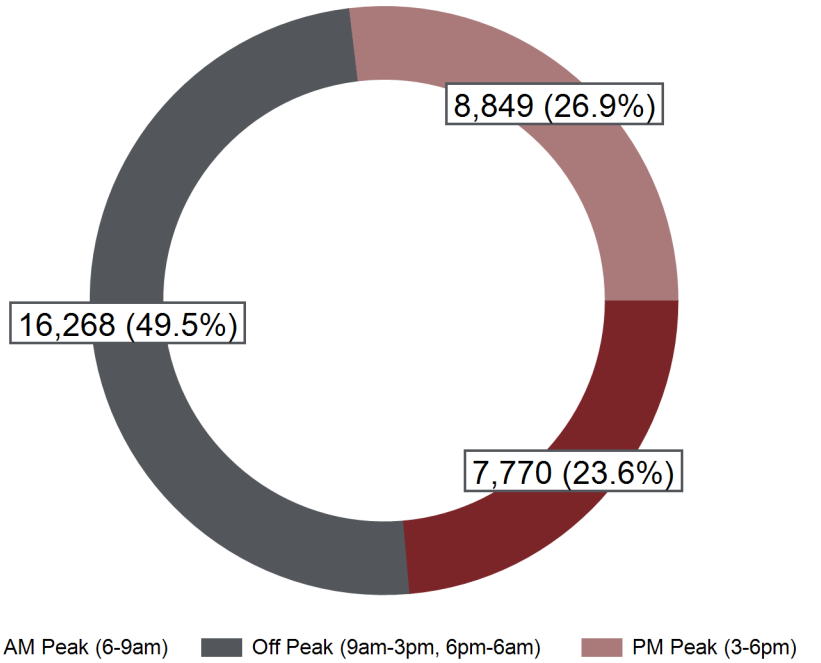
Incidents are detected by TMC operators through cameras, roadway detection, Waze alerts, or reported to the TMC through responders on the roadway.

Incidents by detection source

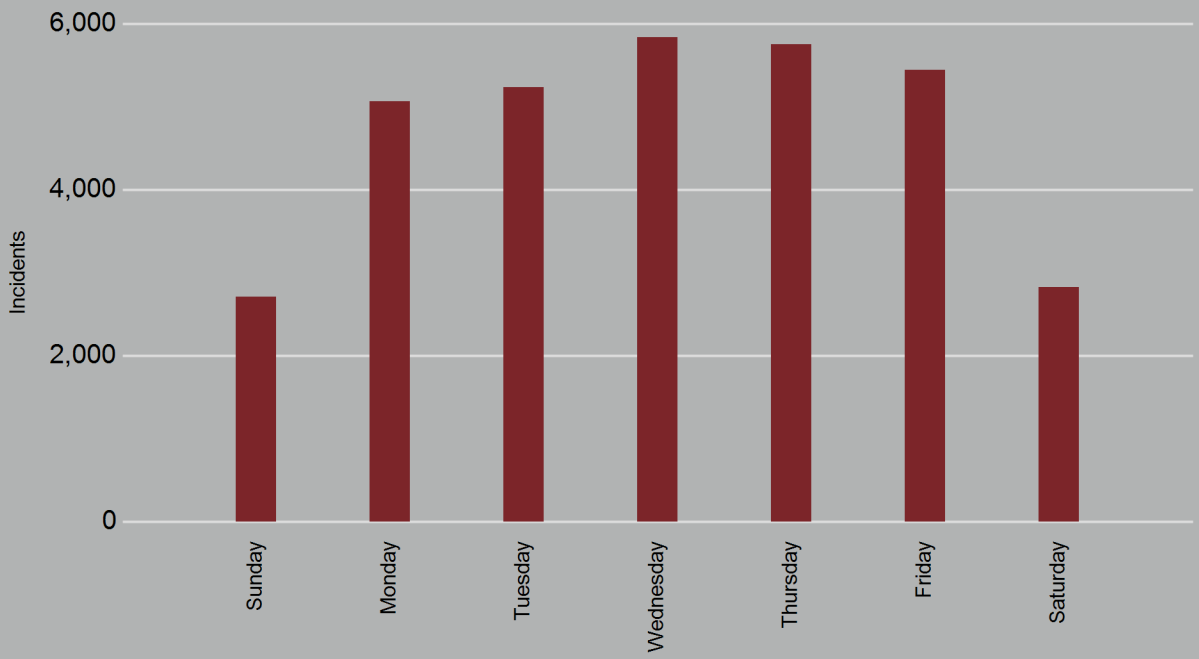


INCIDENTS

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.

BY THE NUMBERS

5,538
INCIDENTS OCCURRED ON WEEKENDS

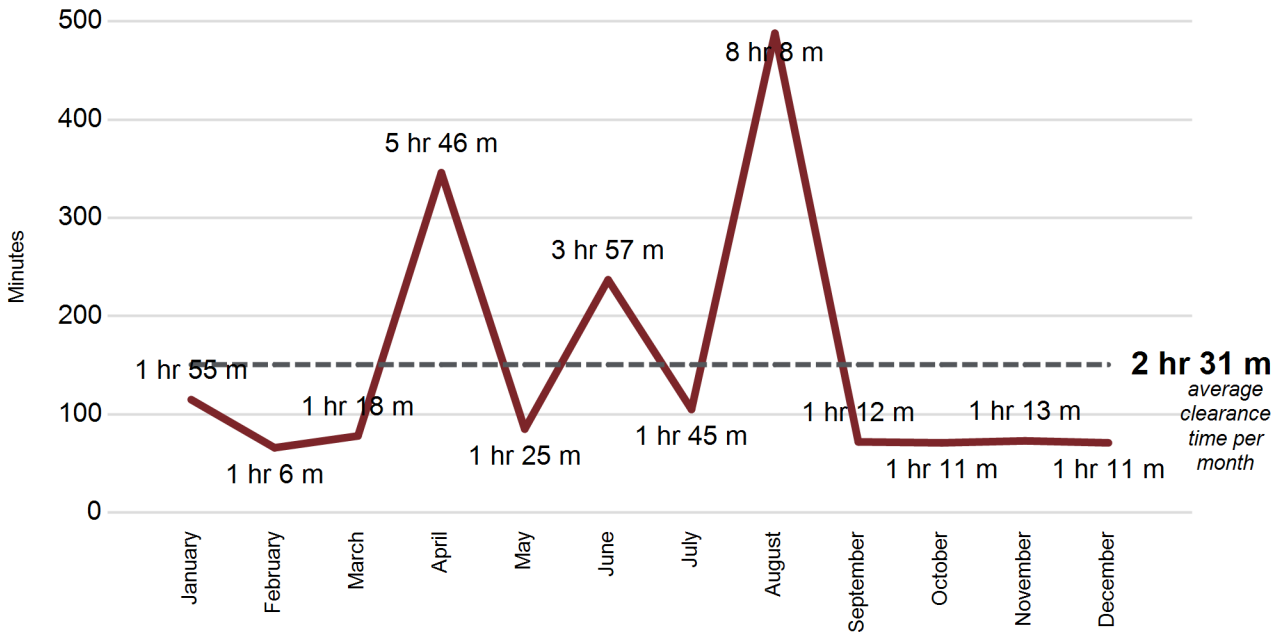
2 hr 31 m
AVERAGE INCIDENT CLEARANCE TIME

250
INCIDENTS EXCEEDING THE CLEARANCE TIME STANDARD DEVIATION

16,268 OFF PEAK 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...

Average clearance times for incidents



Incidents with excessive clearance times

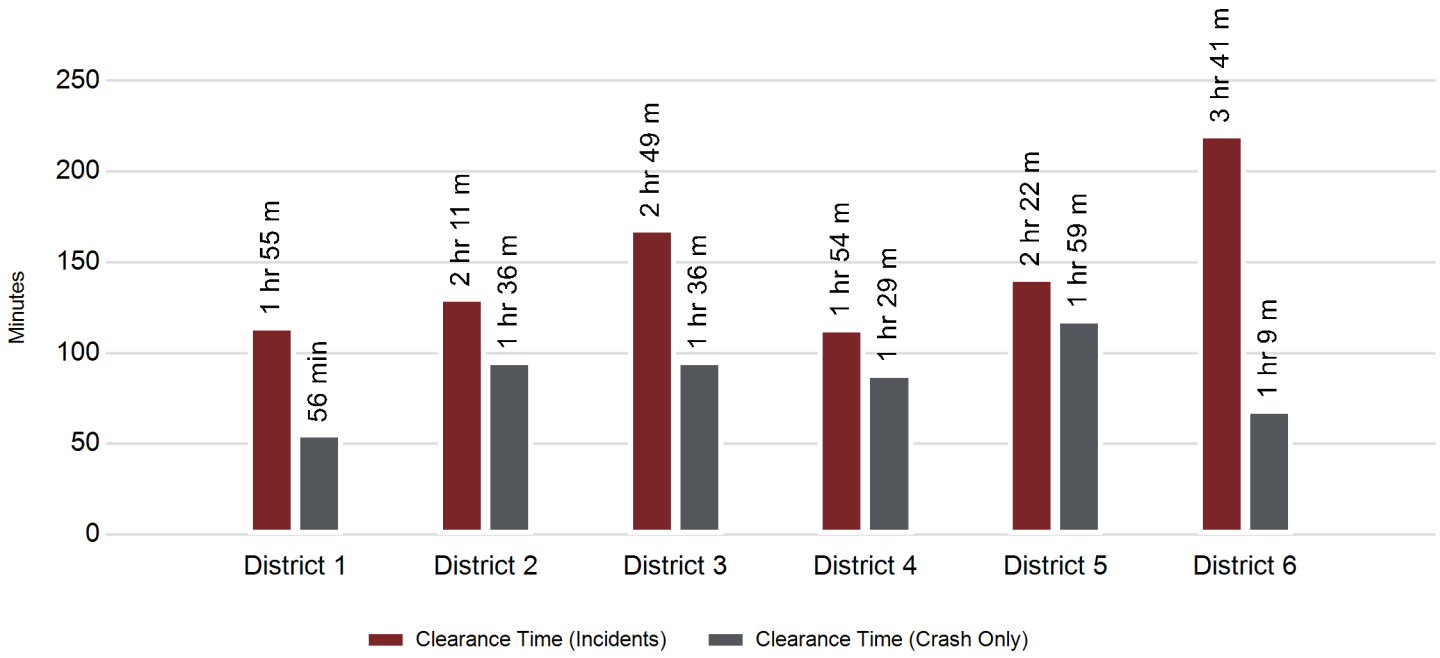
Average incident clearance times are calculated by type each month. This table shows the number of incidents which exceed the average clearance time for that type by one standard deviation.

Type	# Events	Average Duration	# Semi	# Fatality
Stalled Vehicle	33	42 min	23	0
Grass Fire	2	55 min	0	0
3+ Vehicle Crash	25	1 hr 3 m	25	4
2 Vehicle Crash	66	1 hr 13 m	55	28
1 Vehicle Crash	77	1 hr 19 m	56	9
Vehicle Fire	13	1 hr 29 m	10	1
Standing Water	2	3 hr 54 m	0	0
Towing Operation	14	4 hr 21 m	11	0
Debris	6	4 hr 48 m	0	0
Emergency Vehicles	10	5 hr 56 m	0	0
Flooding	2	22 hr 53 m	0	0

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	823	96	128	374	156	574
2 Vehicle Crash	487	34	76	116	76	304
3+ Vehicle Crash	150	6	17	25	5	82
Debris	683	84	127	284	92	533
Emergency Vehicles	137	23	58	82	47	158
Flooding	5	6	1	1	5	10
Grass Fire	10	0	1	2	6	12
Rock Fall	0	1	0	0	0	0
Slow Traffic	127	4	16	26	6	65
Stalled Vehicle	11,908	555	386	3,449	695	9,366
Standing Water	4	3	0	0	1	4
Towing Operation	53	3	2	47	7	70
Vehicle Fire	52	5	4	25	14	50
Wrong Way Driver	11	0	1	0	2	29
Total	**14,450**	**820**	**817**	**4,431**	**1,112**	**11,257**
% of all Incidents	**44%**	**2%**	**2%**	**13%**	**3%**	**34%**

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.

BY THE NUMBERS

154
RURAL CRASHES OVER 120 MINUTES

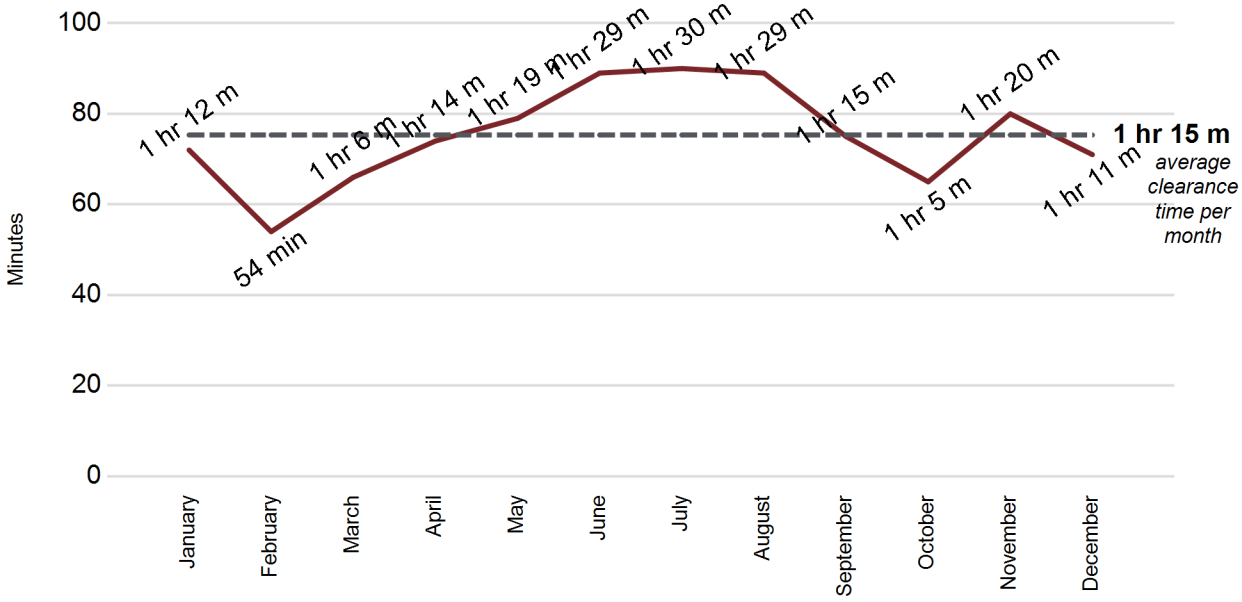
1 hr 15 m
AVERAGE CRASH CLEARANCE TIME

3,529
CRASHES MONITORED

43 WRONG WAY DRIVER INCIDENTS

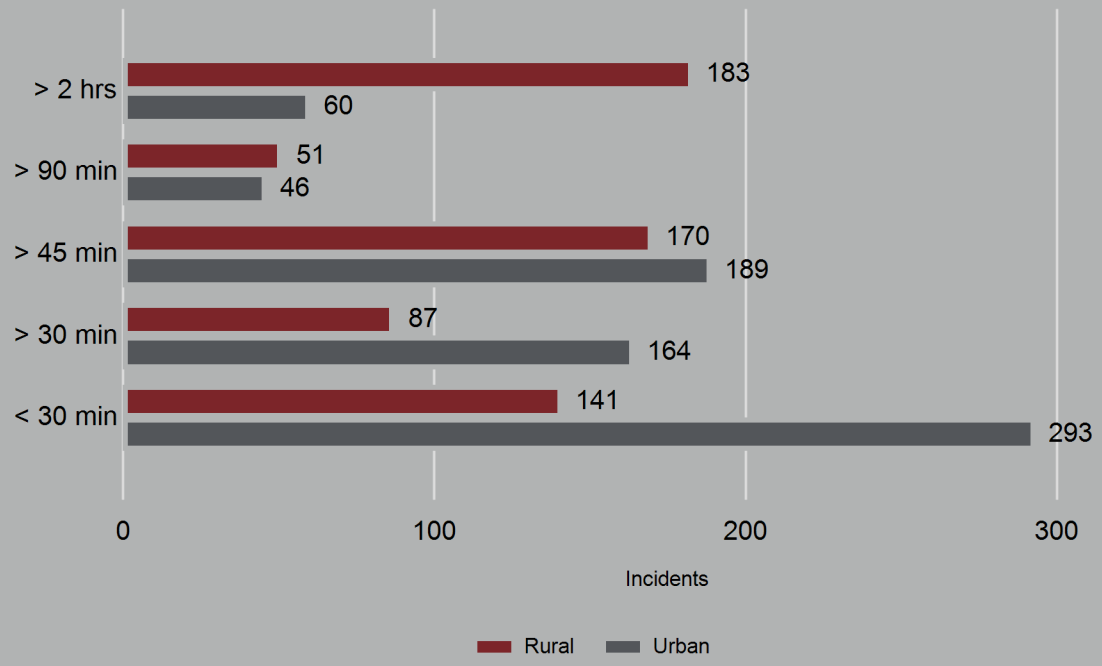
The crash clearance time begins at the first notification of the crash and ends when the last responder has left the scene. This includes only crashes and not other incident types.

Average clearance time for crashes



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

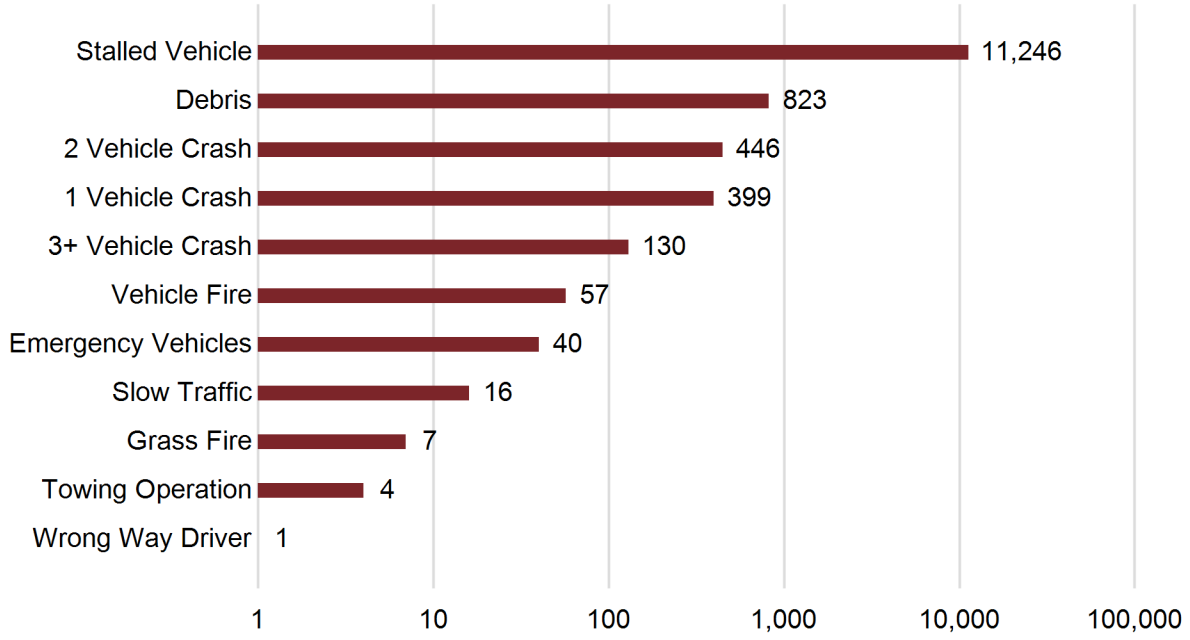
Crashes at 30, 45, 90, and 120 minute thresholds



HIGHWAY HELPER

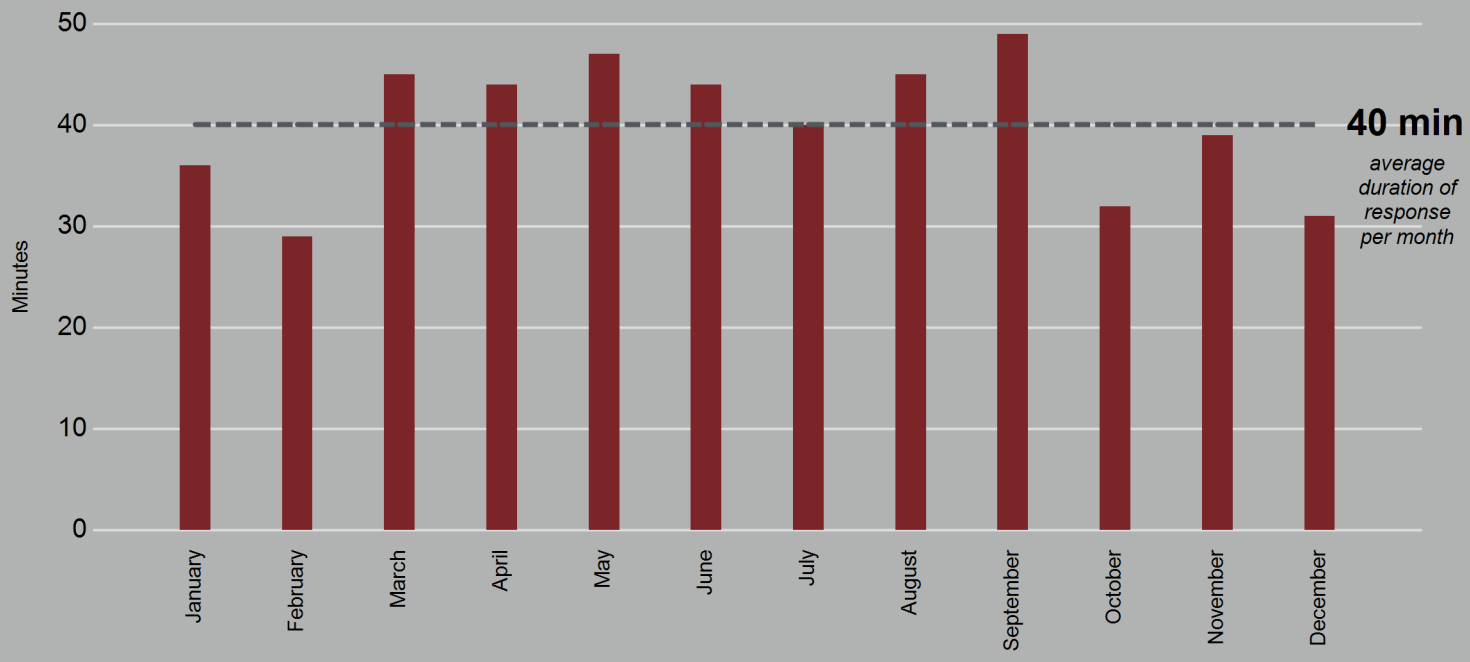
The TMC dispatches and tracks all Highway Helper activity. This section contains statistical and operational data of Highway Helper activities. A new route in Davenport was added in 2019. The data herein represents the new service that began in September 2019.

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

13,169
HIGHWAY HELPER RESPONSES

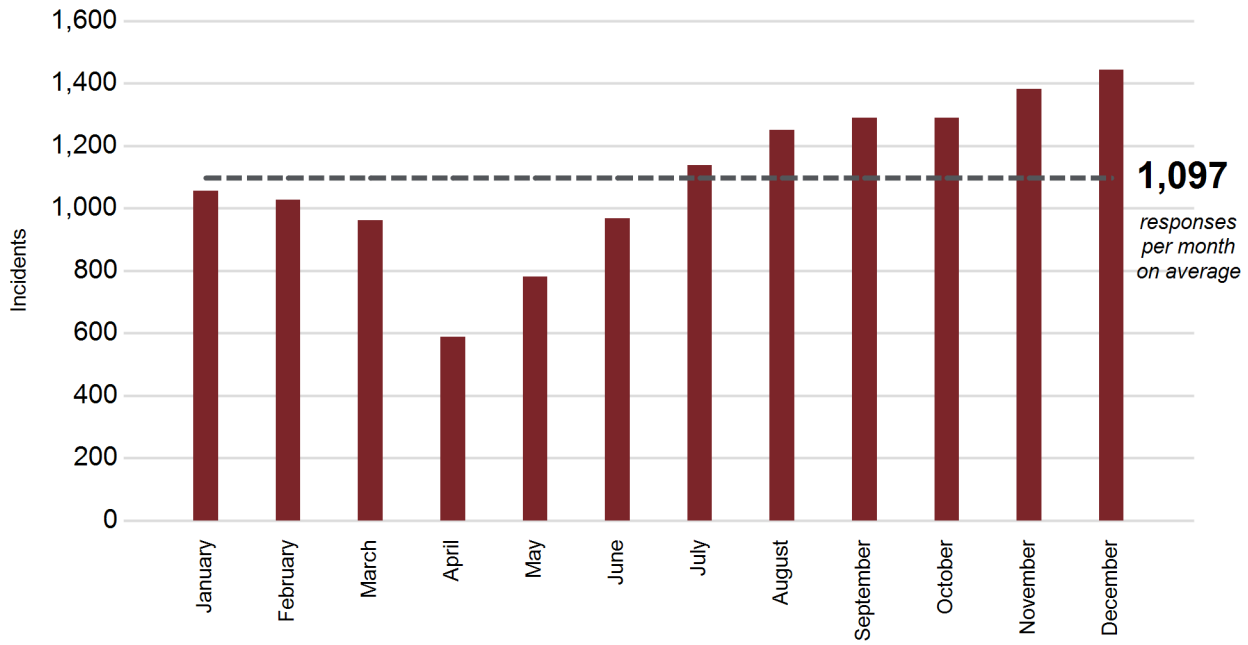
823
DEBRIS REMOVAL RESPONSES

4,277
SERVICES PERFORMED FOR THE MOTORIST (FUEL, FLAT TIRE, JUMP START, DIRECTIONS, ETC)

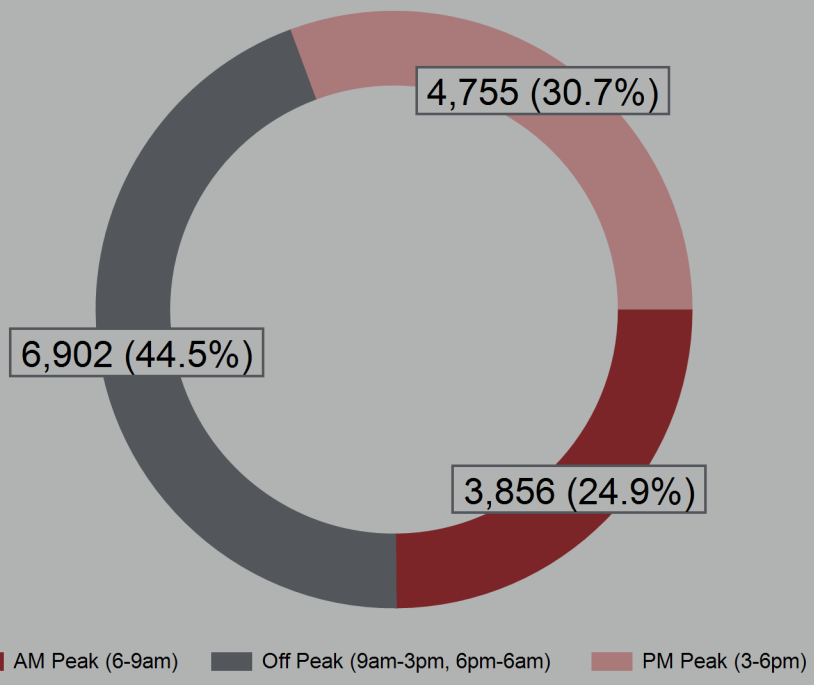
44% RESPONSES OCCURRED DURING OFF PEAK HOURS

The most Highway Helper responses during 2020 occurred in December.

Responses by month

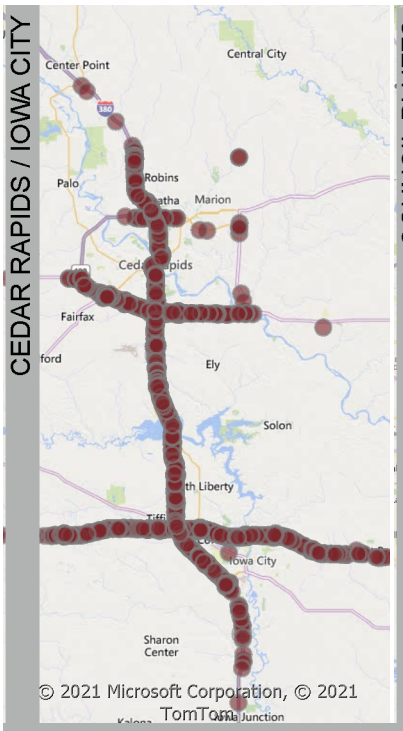


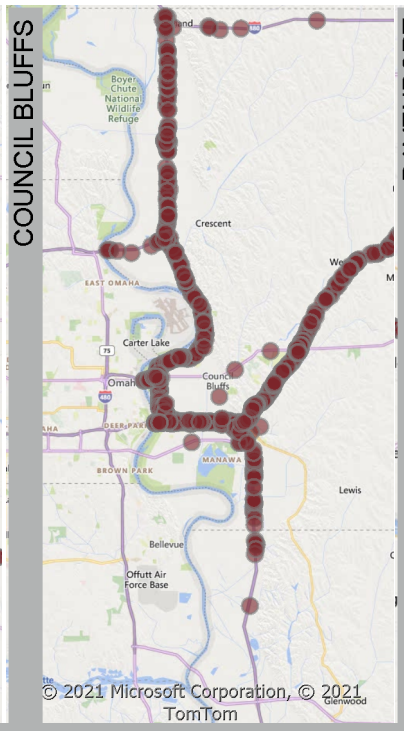
Responses by time of day

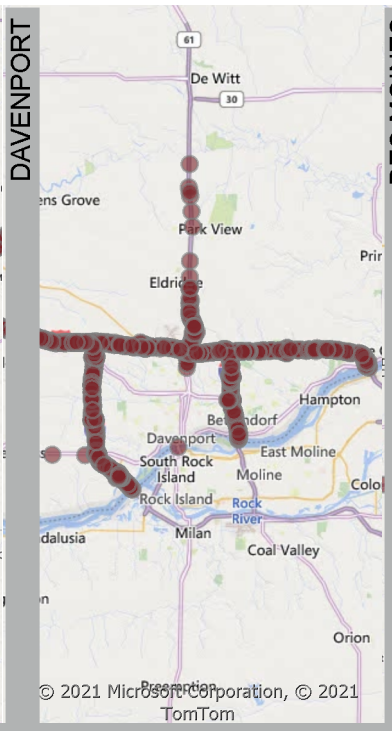


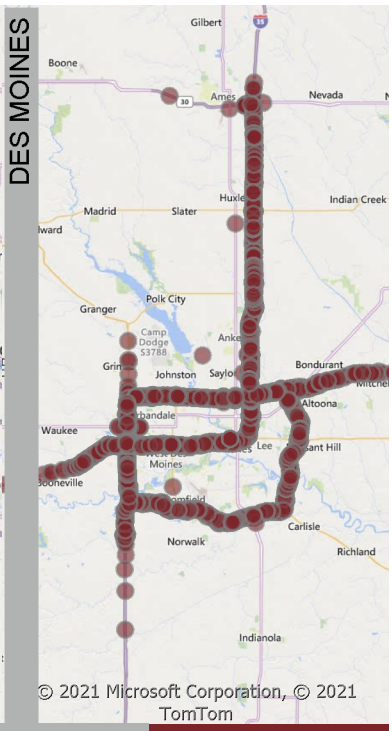
HIGHWAY HELPER

All responses by operational area

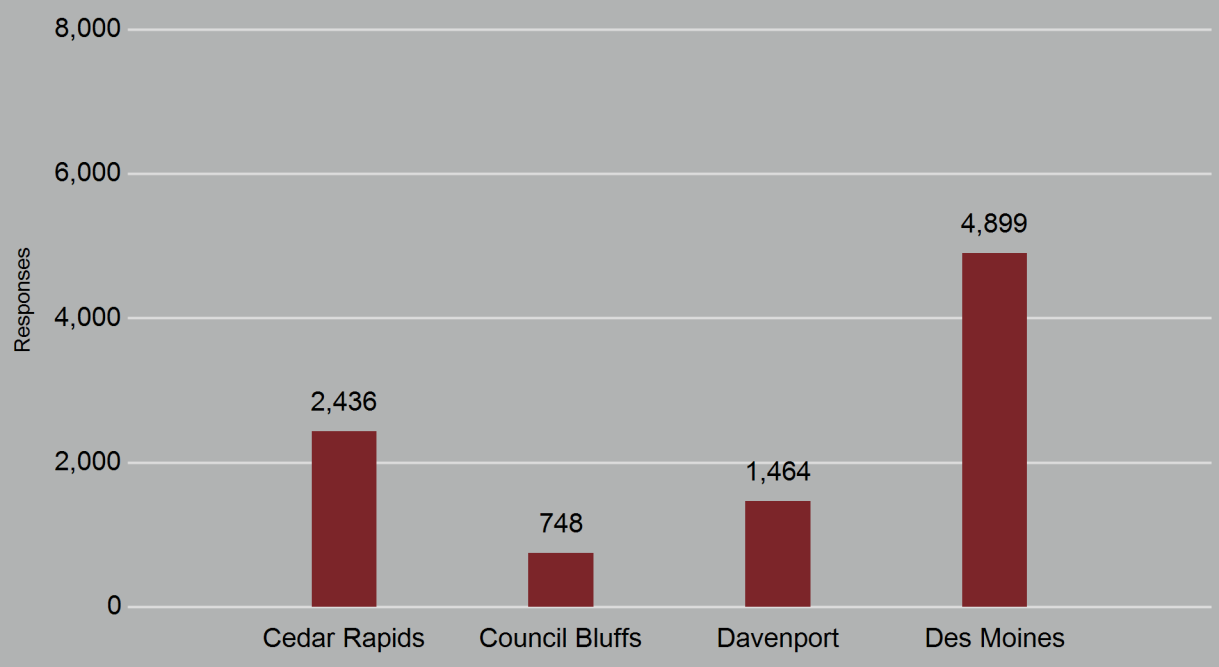








All responses by operational area



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.

BY THE NUMBERS

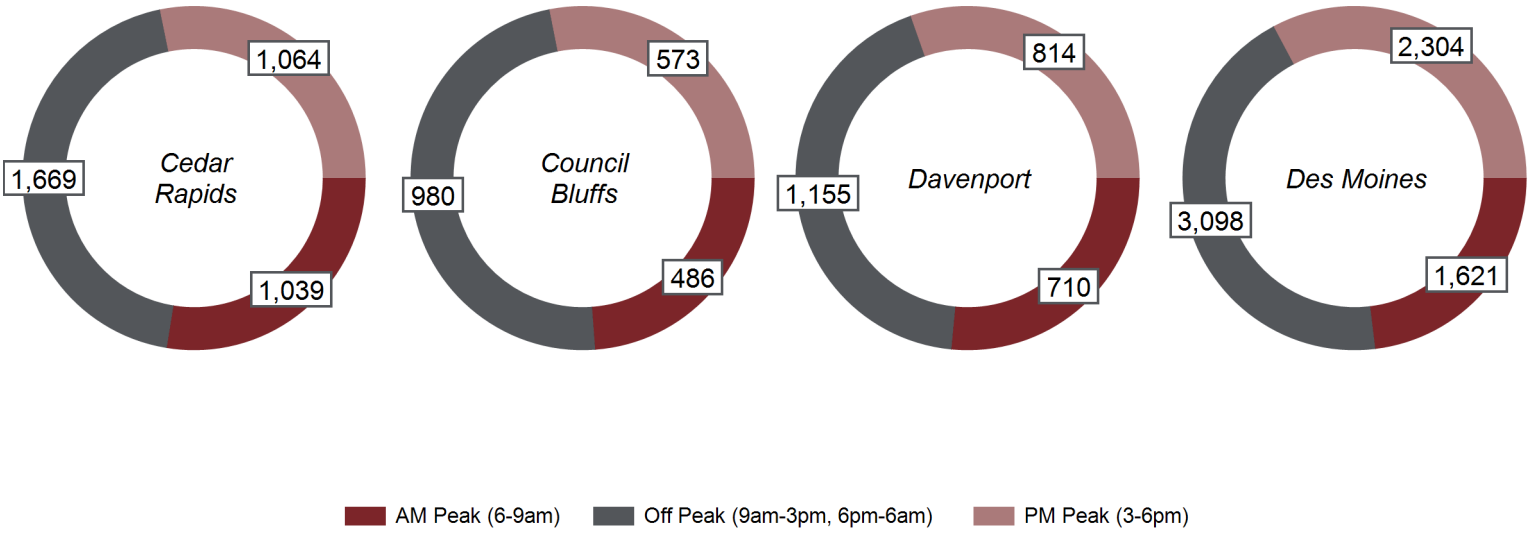
25%
RESPONSE DURING AM PEAK HOURS

30%
RESPONSE DURING PM PEAK HOURS

1,056 RESPONSES IN JANUARY

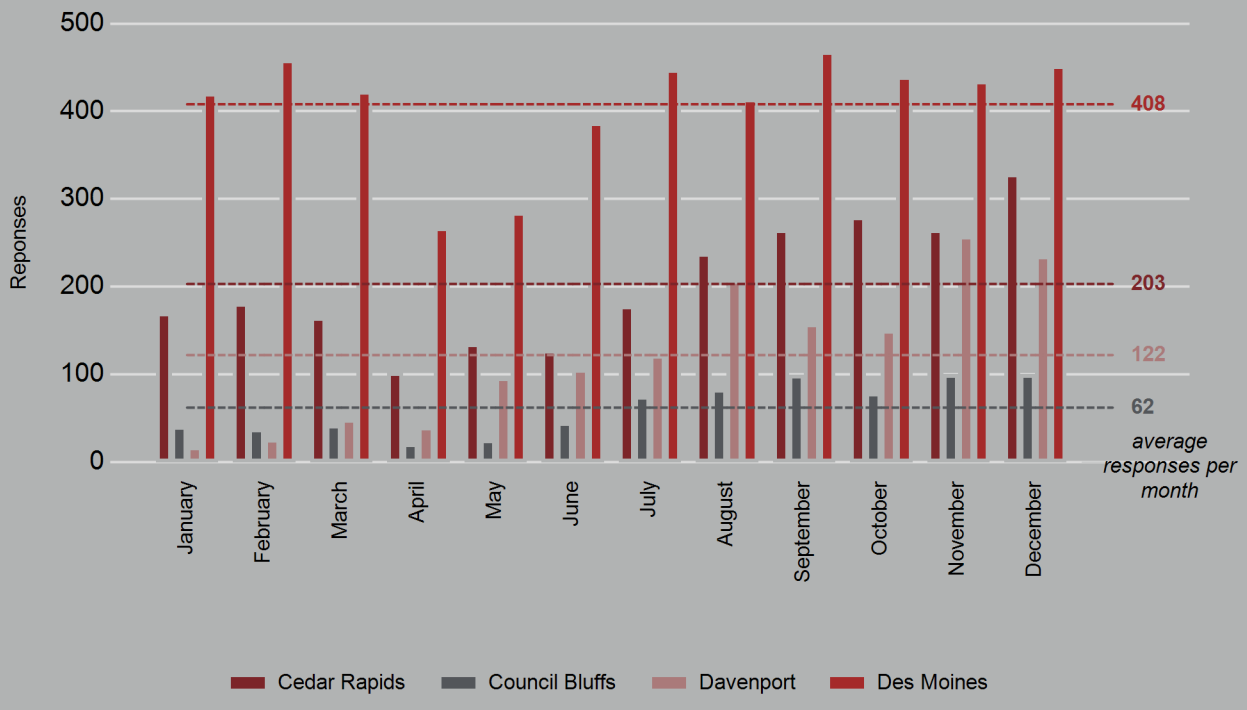
4,899
HIGHWAY HELPER RESPONSES IN DES MOINES

All responses by time of day by operational area



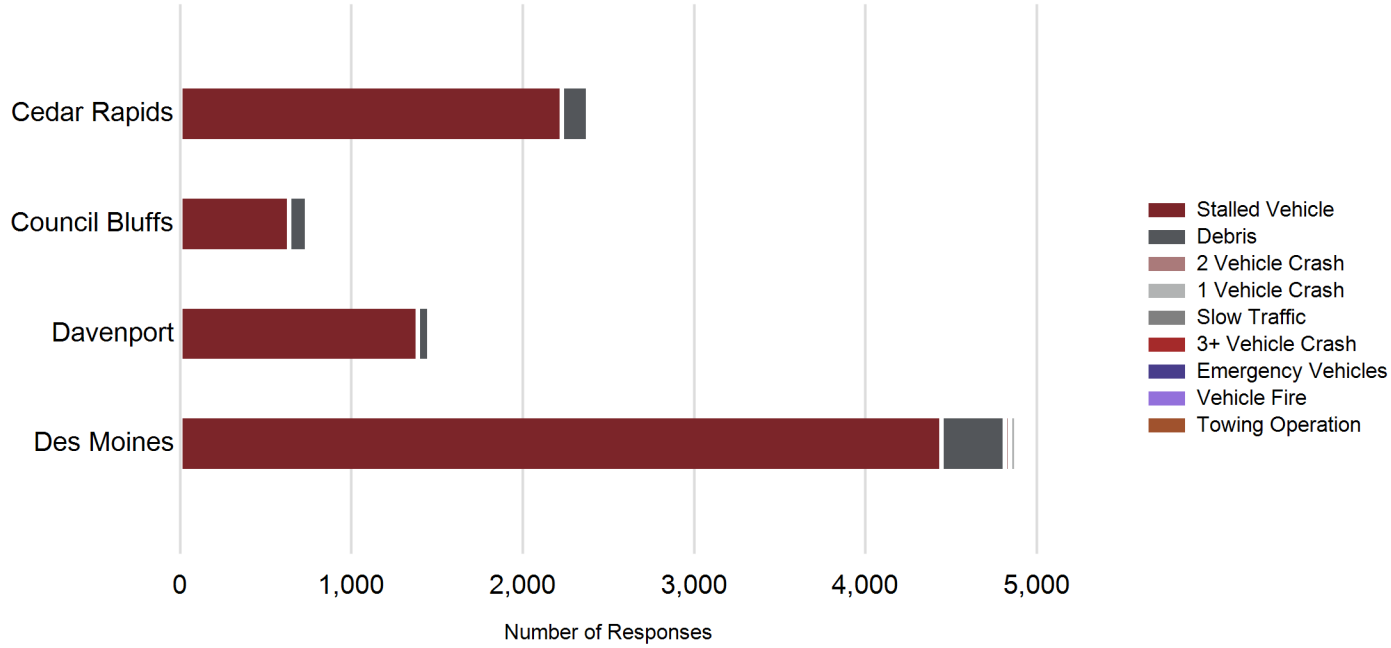
The Highway Helper service operates twelve months a year with higher responses during winter months. Additional service is provided for special events, such as the Iowa State Fair.

All responses by month by operational area

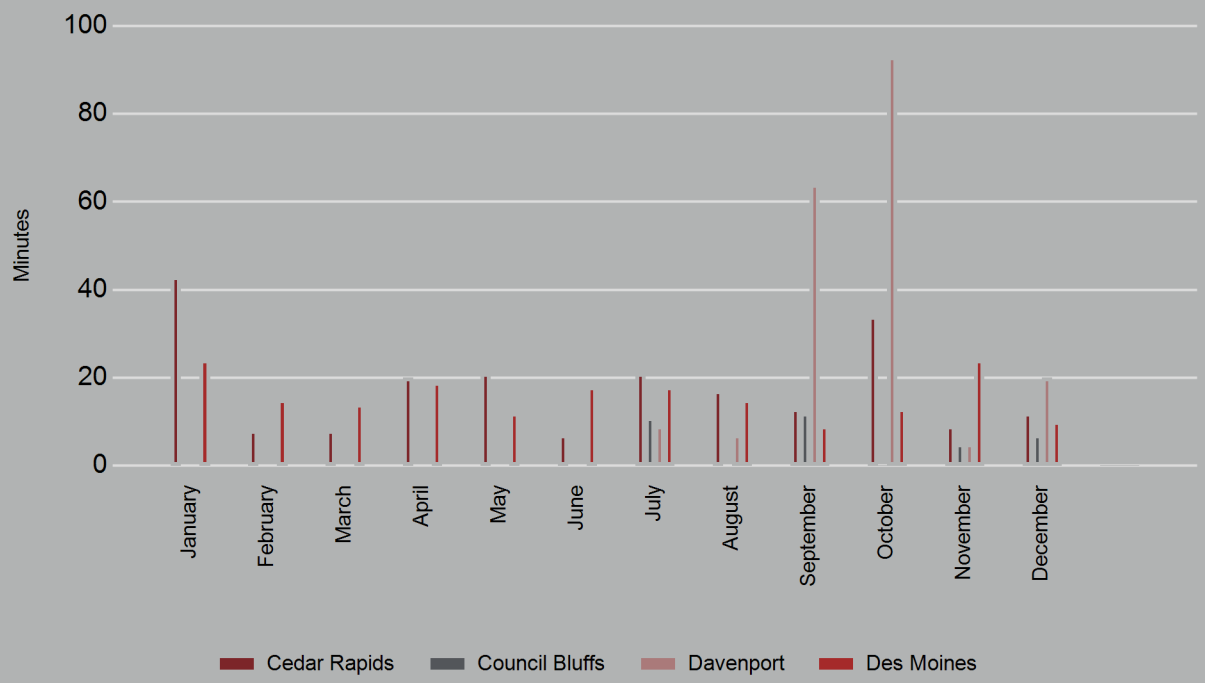


HIGHWAY HELPER

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.

BY THE NUMBERS

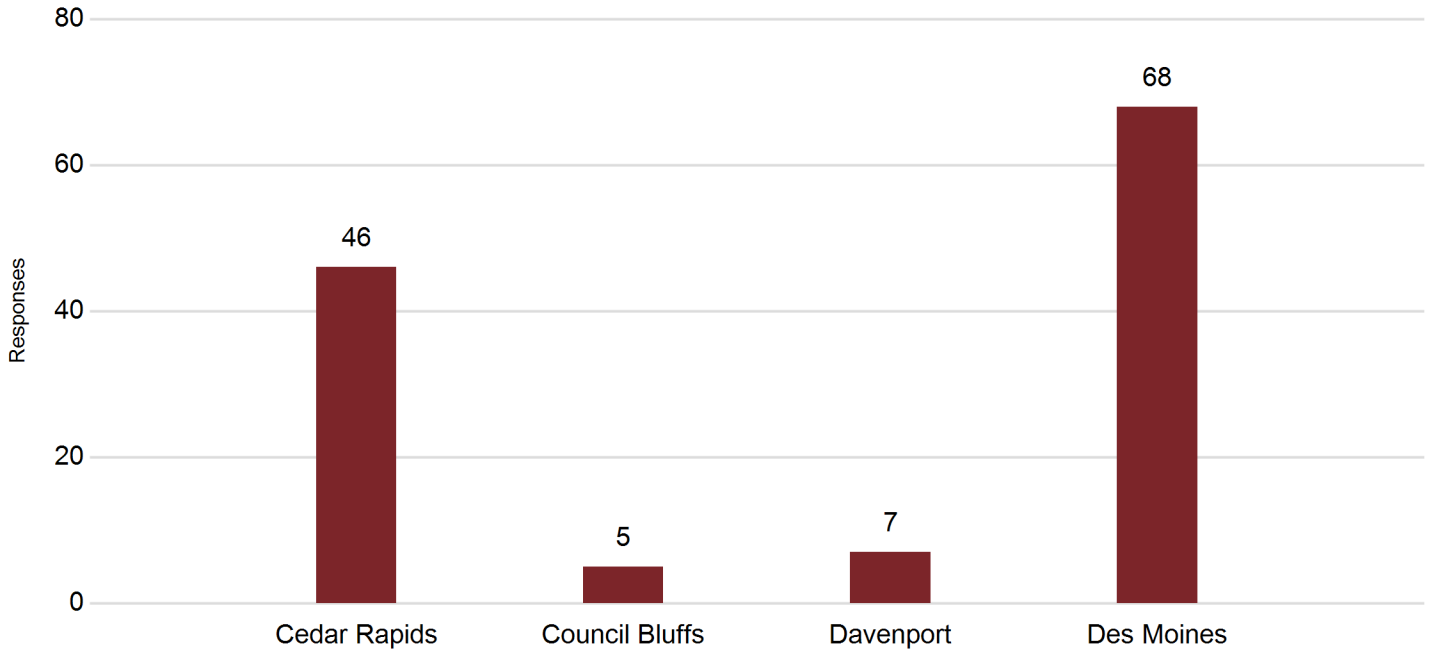
908
RESPONSES TO LANE BLOCKING INCIDENTS

39 min
AVERAGE RESPONSE DURATION

85%
RESPONSES TO STALLED VEHICLES

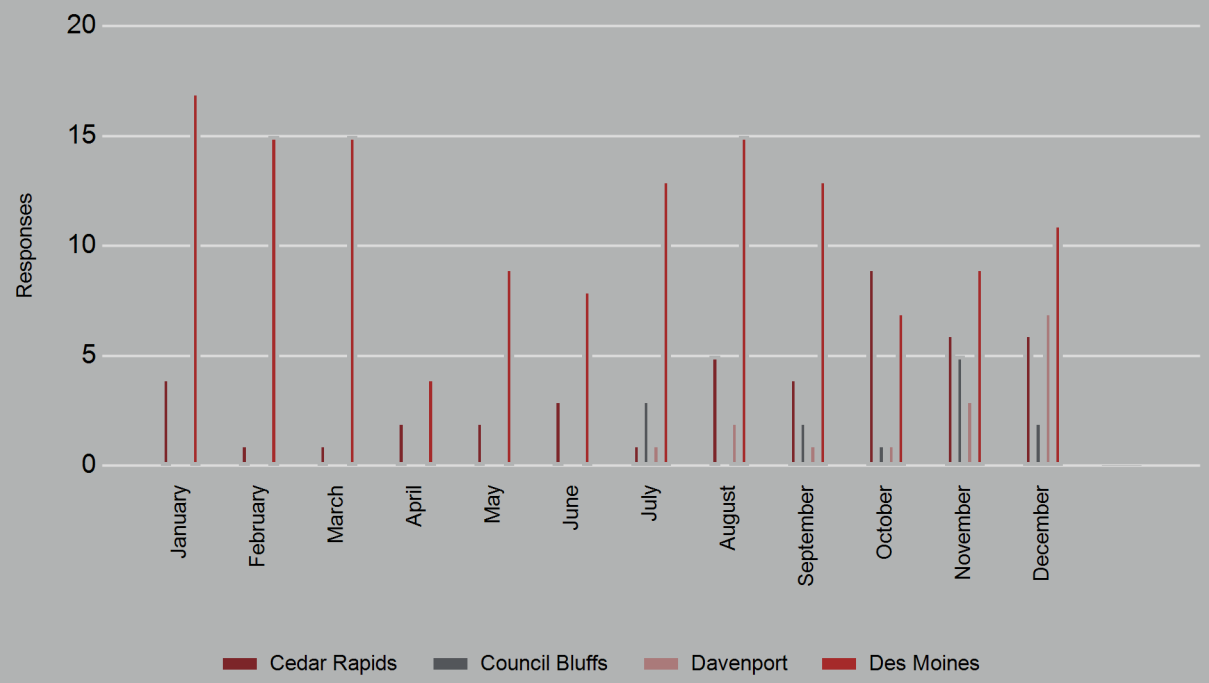
975 RESPONSES TO CRASHES

Responses to crashes only by operational area



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

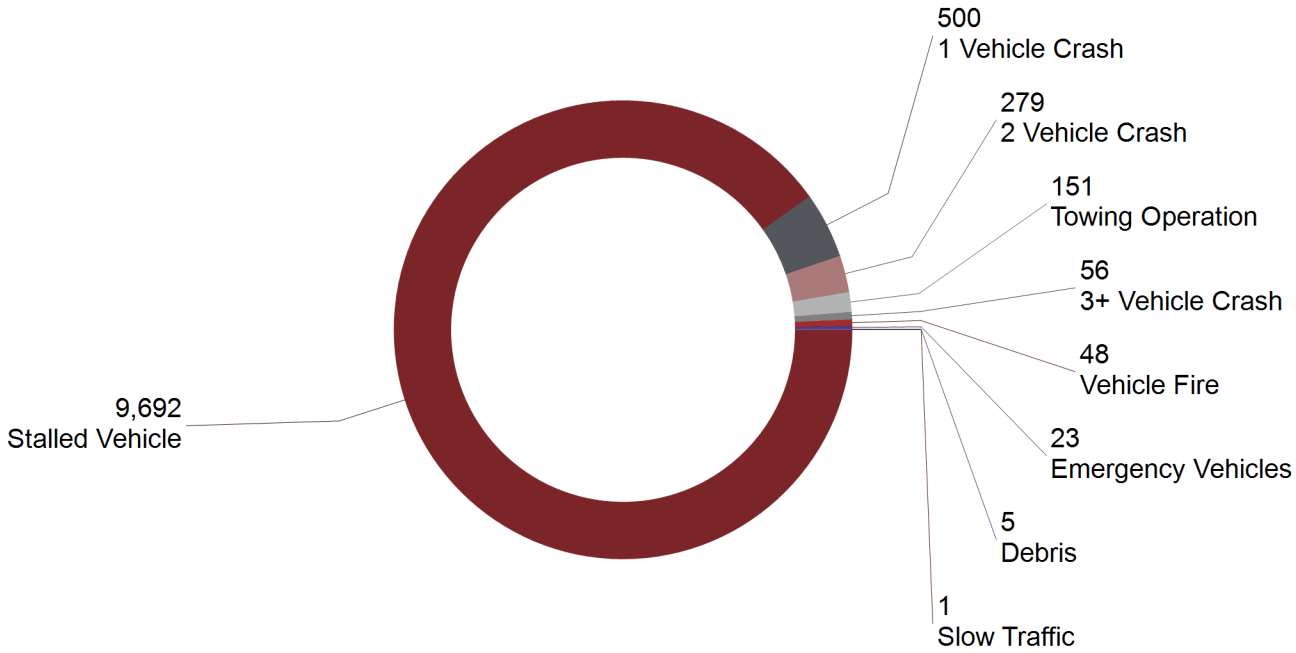
Responses to lane blockage incidents



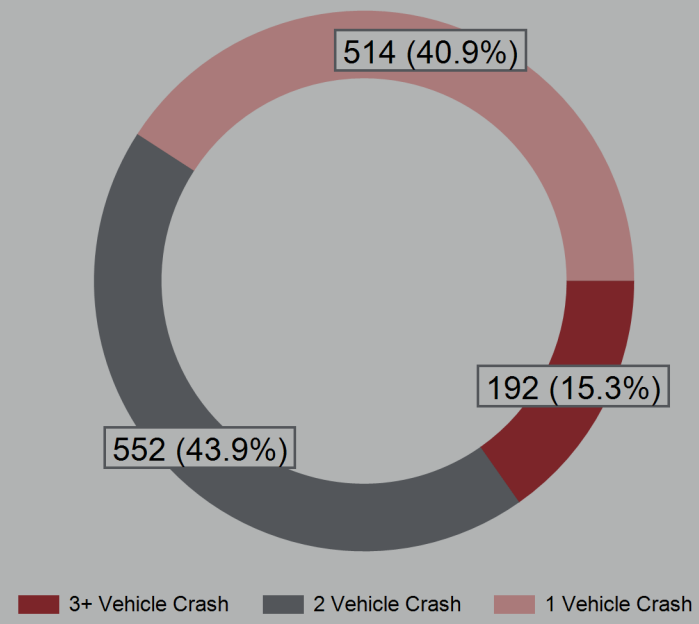
FREIGHT

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.

BY THE NUMBERS

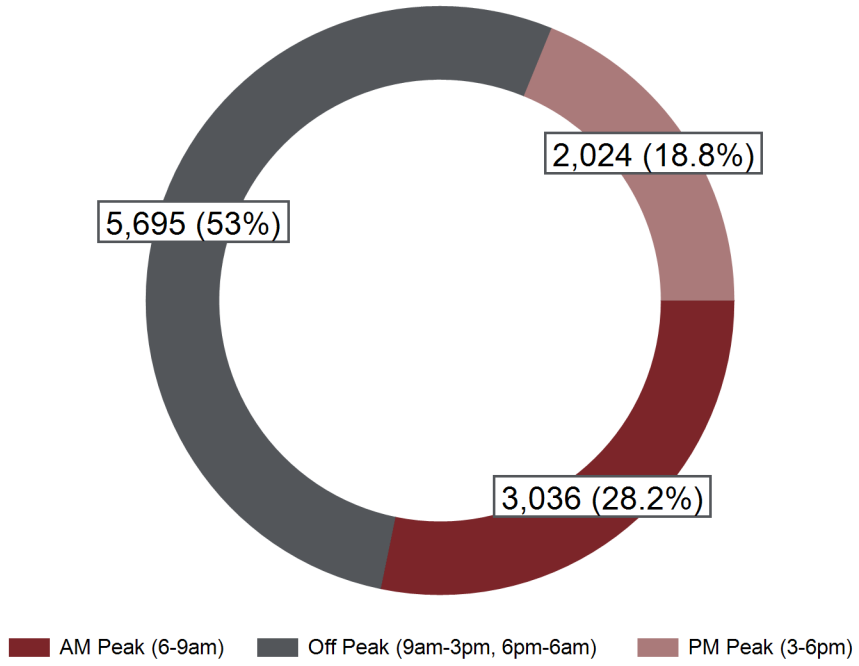
136
RAIL INCIDENTS

100
SEMI ROLLOVERS

11 HAZMAT SPILLS

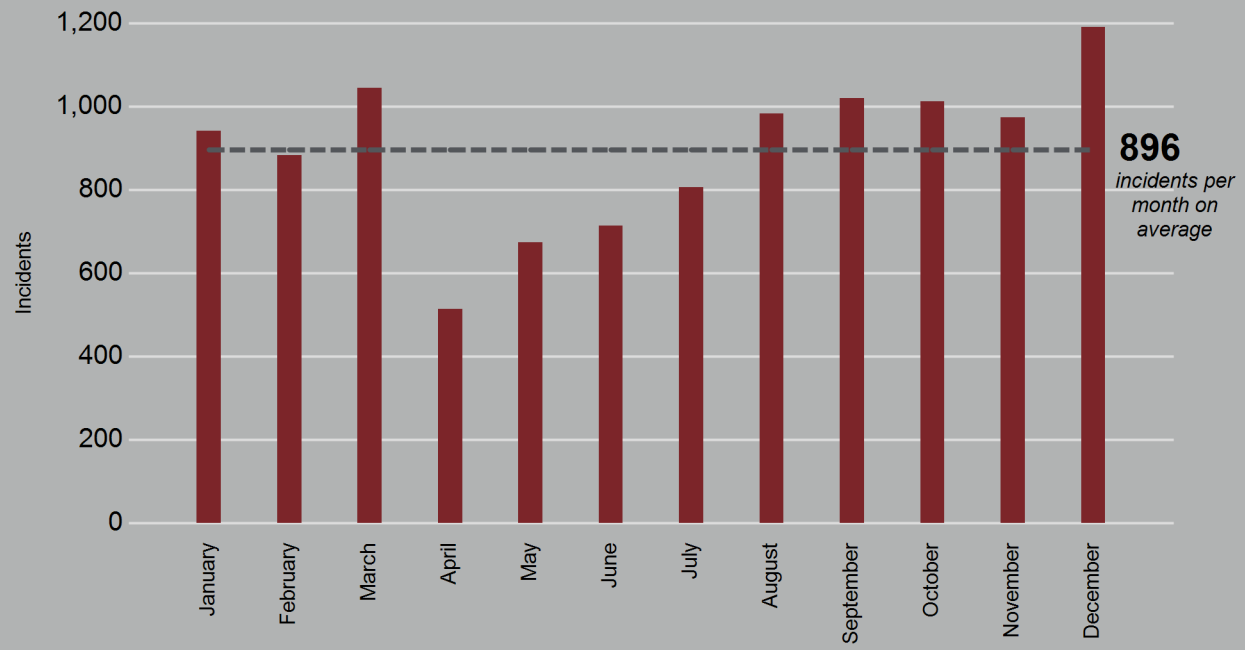
2 hr 5 m
AVERAGE CLEARANCE TIME FOR LANE BLOCKING INCIDENTS INVOLVING A TRACTOR TRAILER

Freight incidents by time of day



Freight incidents are incidents involving semis or railroads.

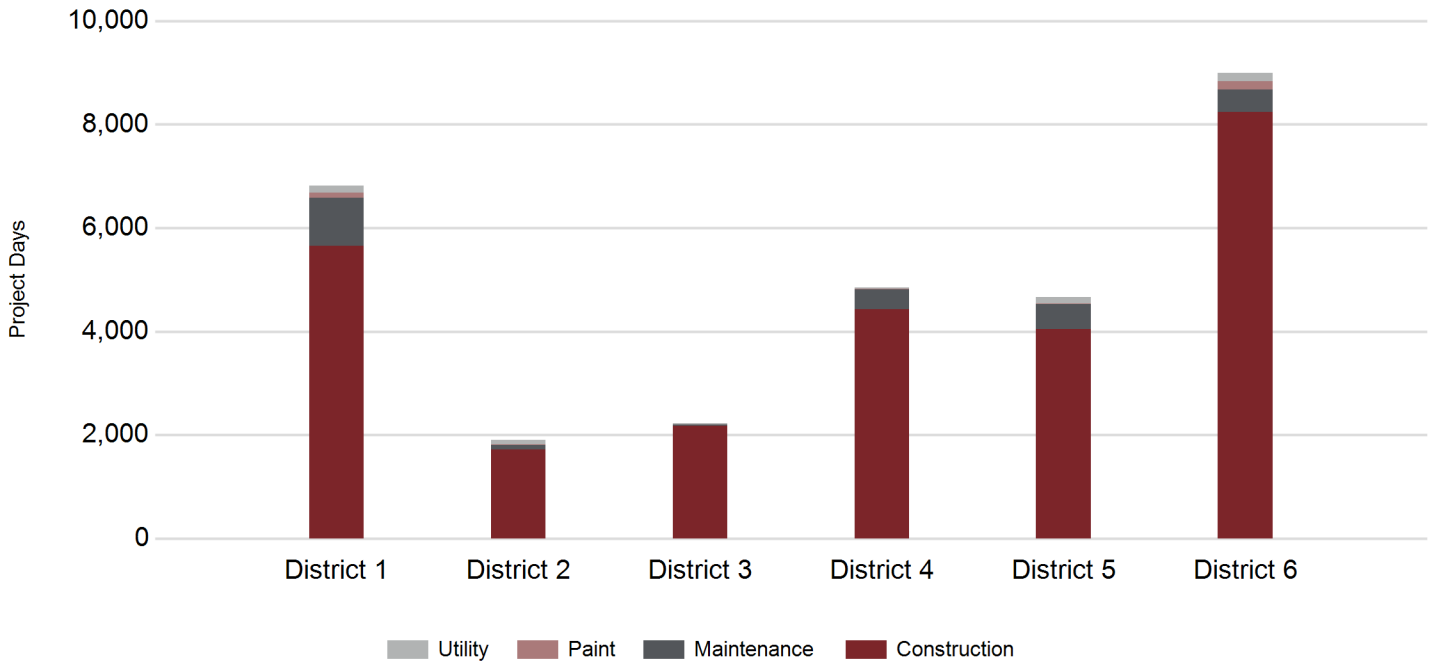
Freight incidents by month



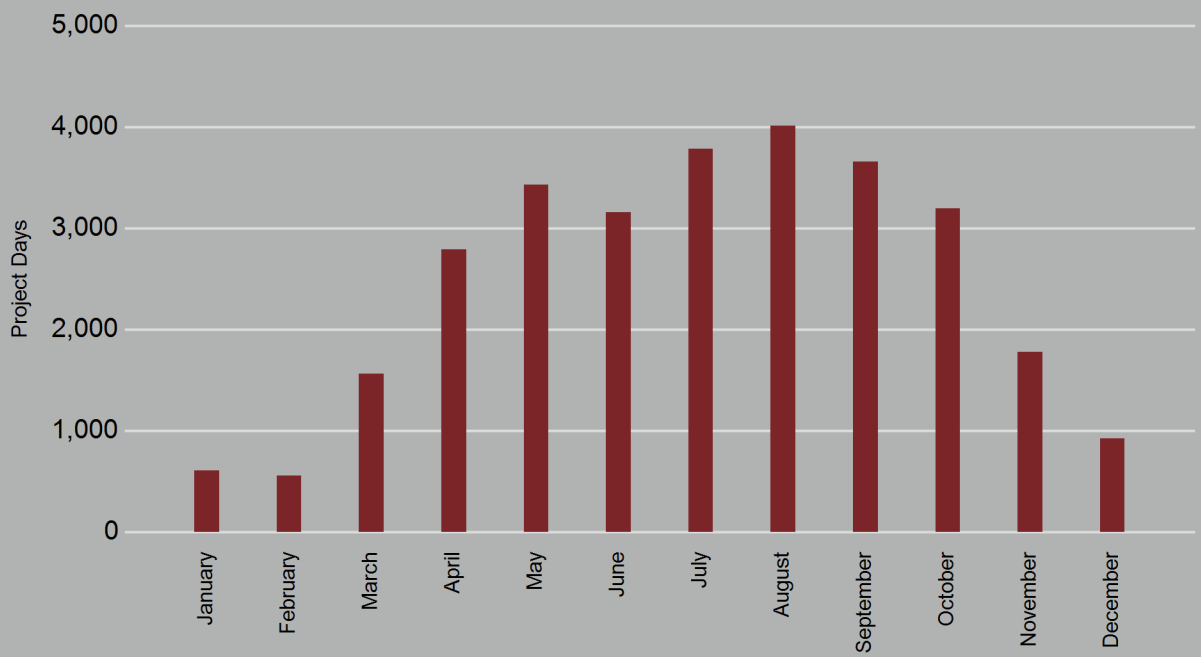
WORK ZONES

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.

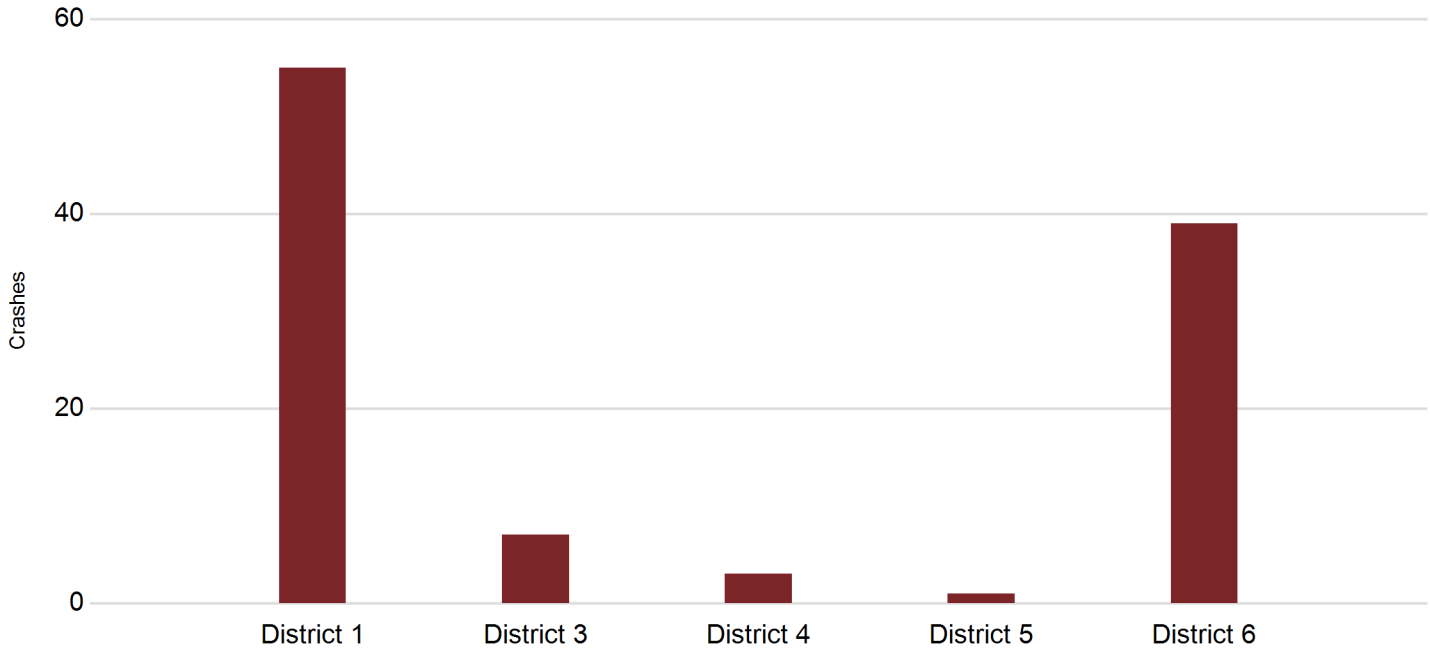
BY THE NUMBERS

113	274	29,478
WORK ZONE INCIDENTS	SLOWDOWNS DETECTED	TOTAL ROADWORK PROJECT DAYS

46 INTELLIGENT WORK ZONES

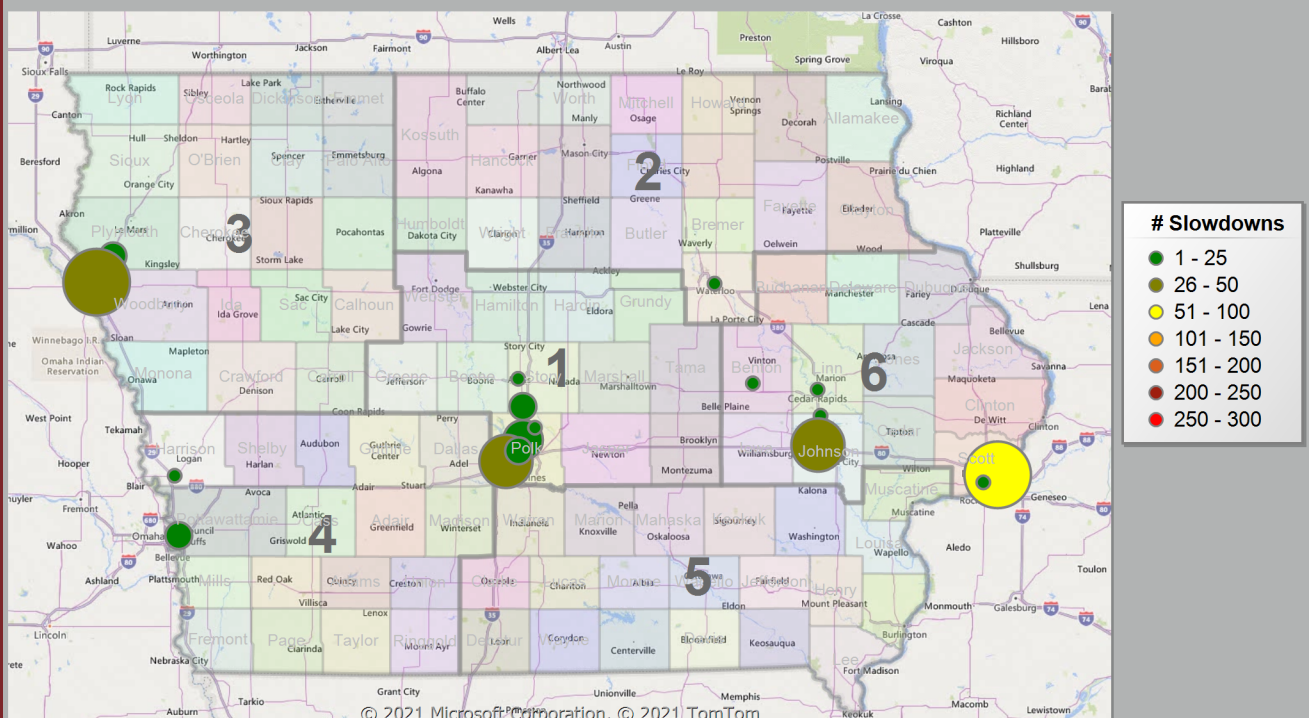
Work zone crashes by district

** As reported to the TMC*



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

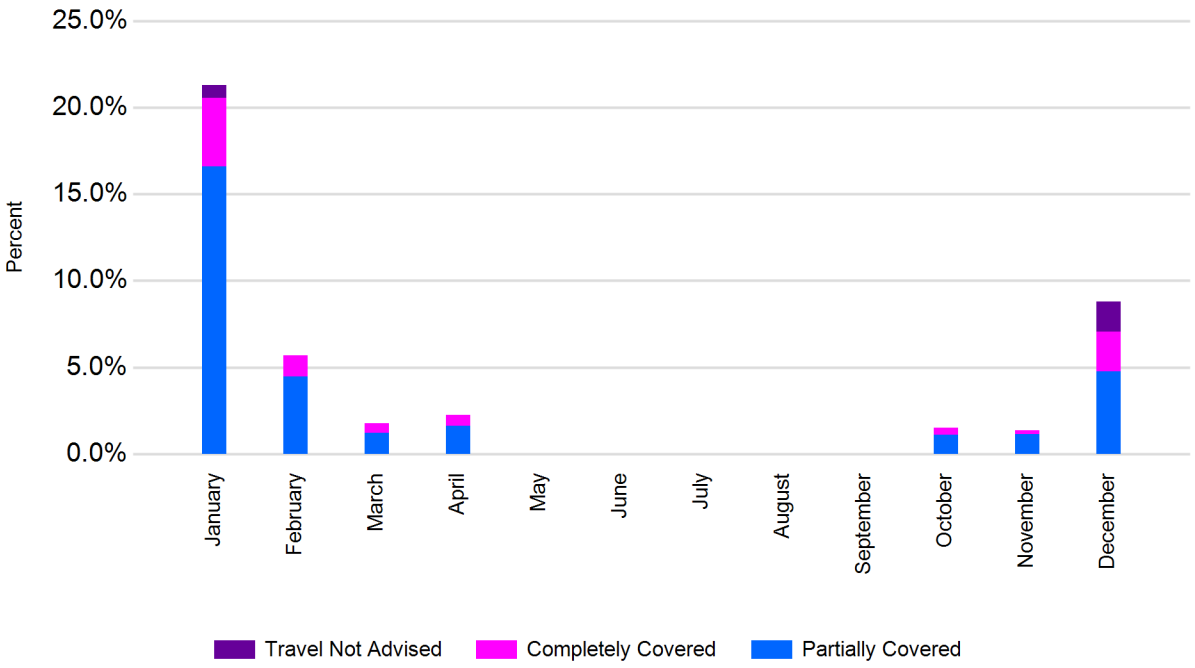
Construction slowdowns



WEATHER

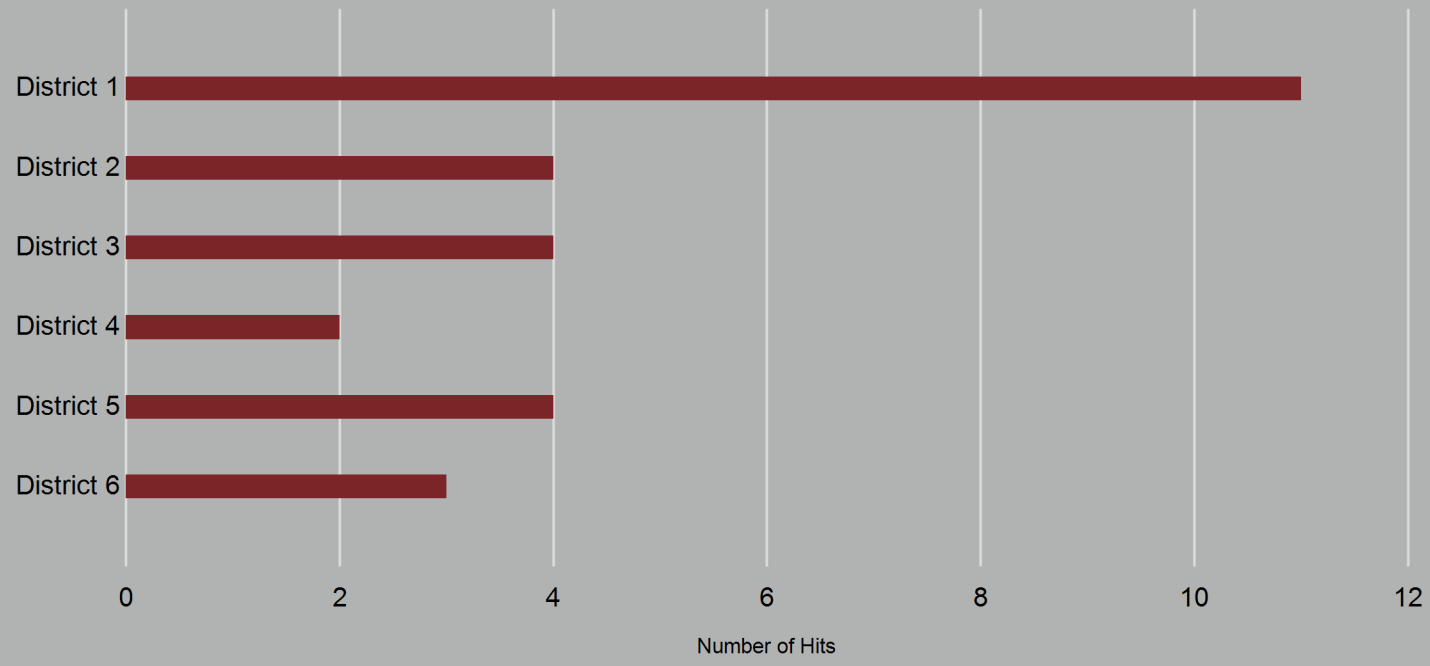
Weather can have a serious impact on the safety and mobility of roadway users. The TMC responds to dynamic conditions by using technology and communication tools to assist partners in restoring the transportation system to normal conditions.

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



BY THE NUMBERS

30
WINTER EVENTS

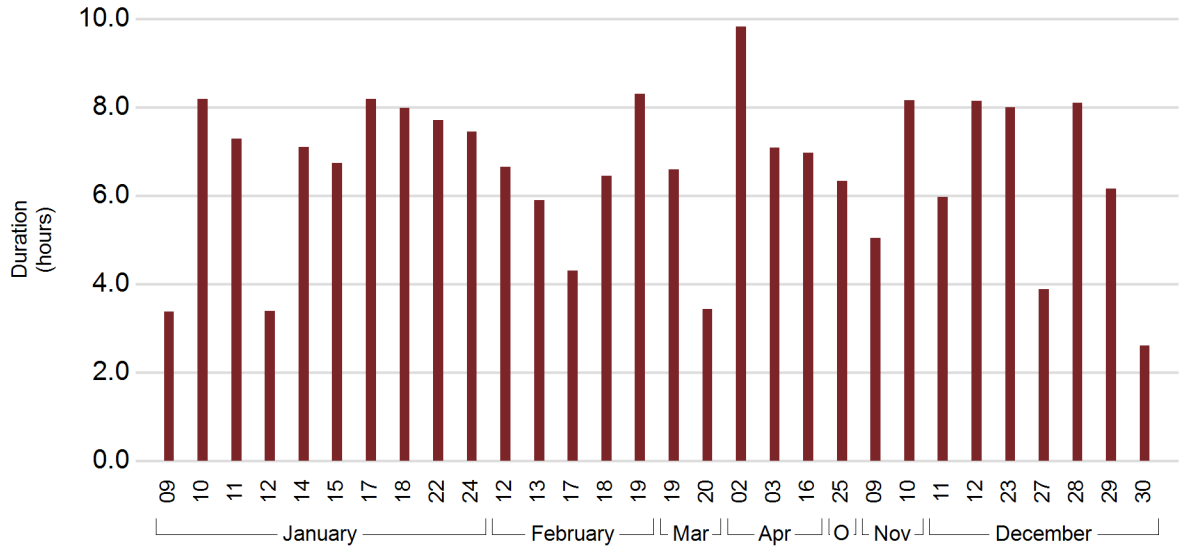
26
FLOODING EVENTS

22 hr 53 m
AVERAGE DURATION OF FLOODING CLOSURES

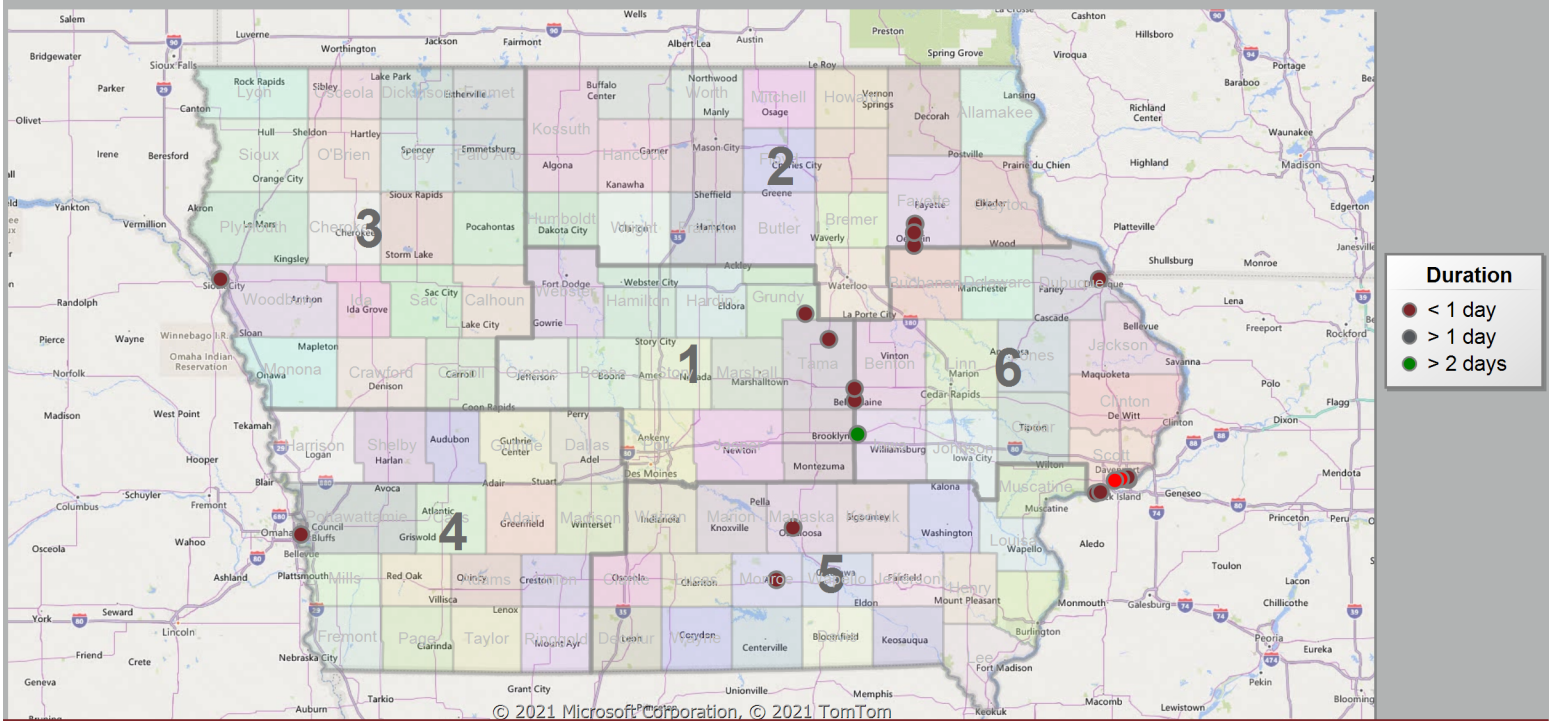
284 INCIDENTS DURING WINTER EVENTS

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



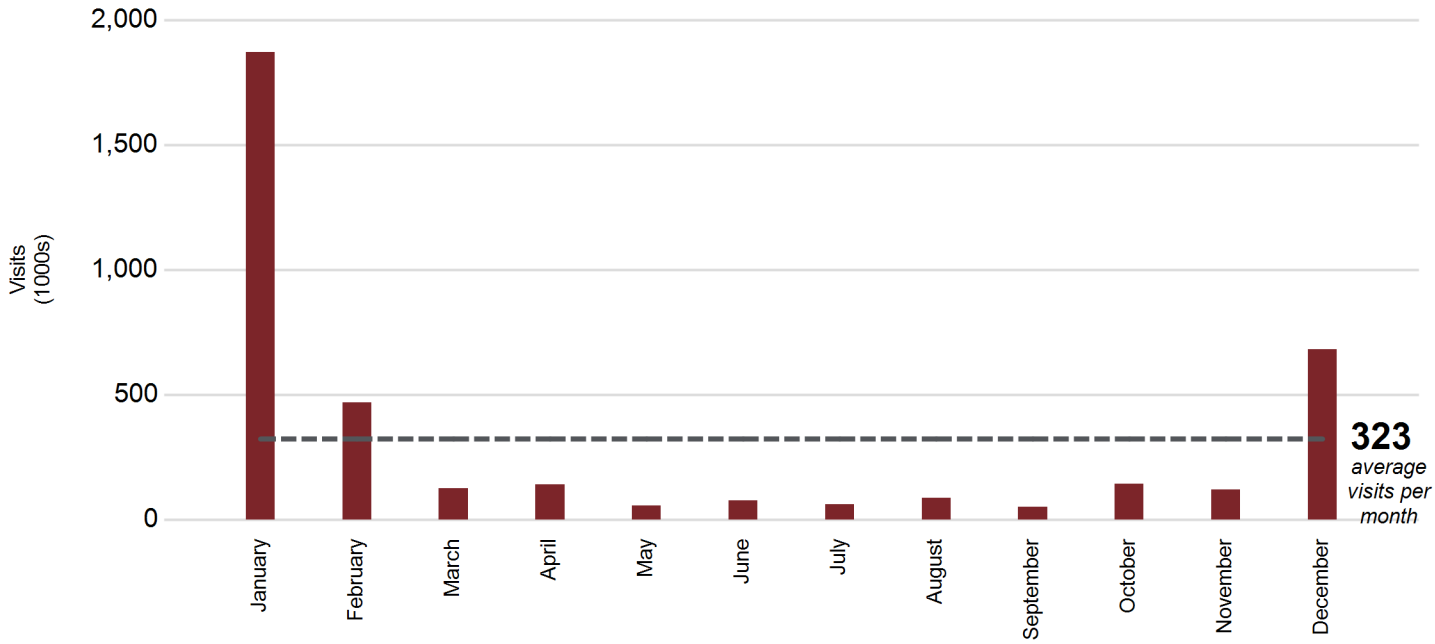
Flooding events resulting in a lane closure



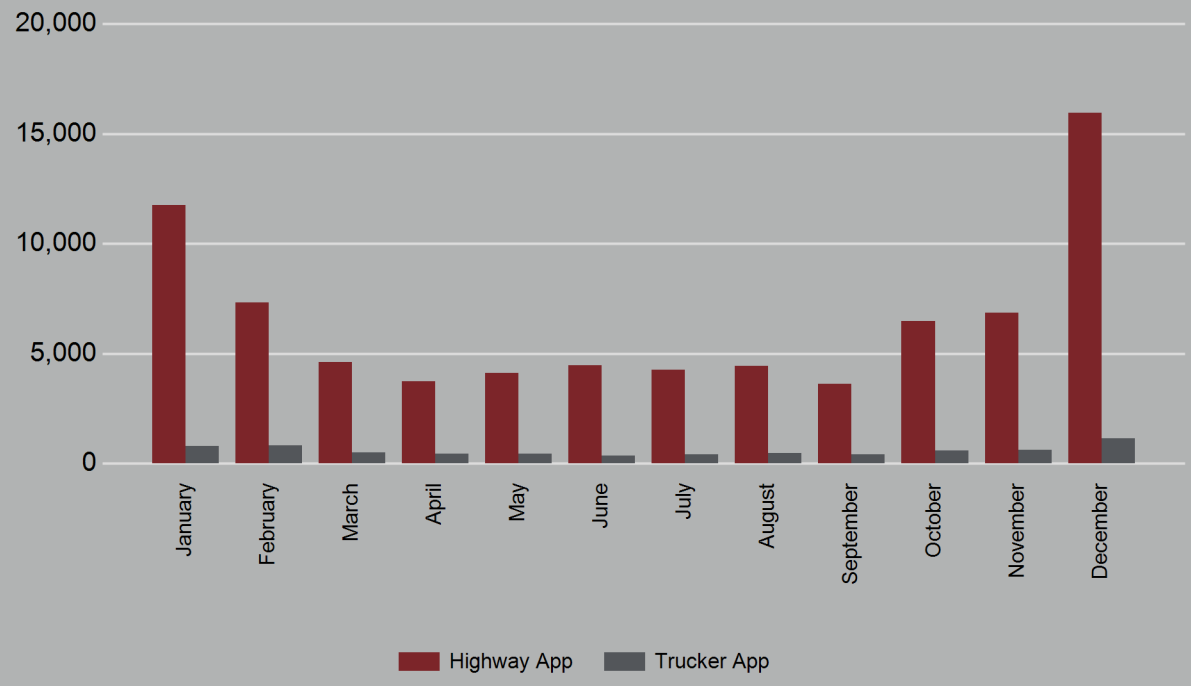
COMMUNICATION

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

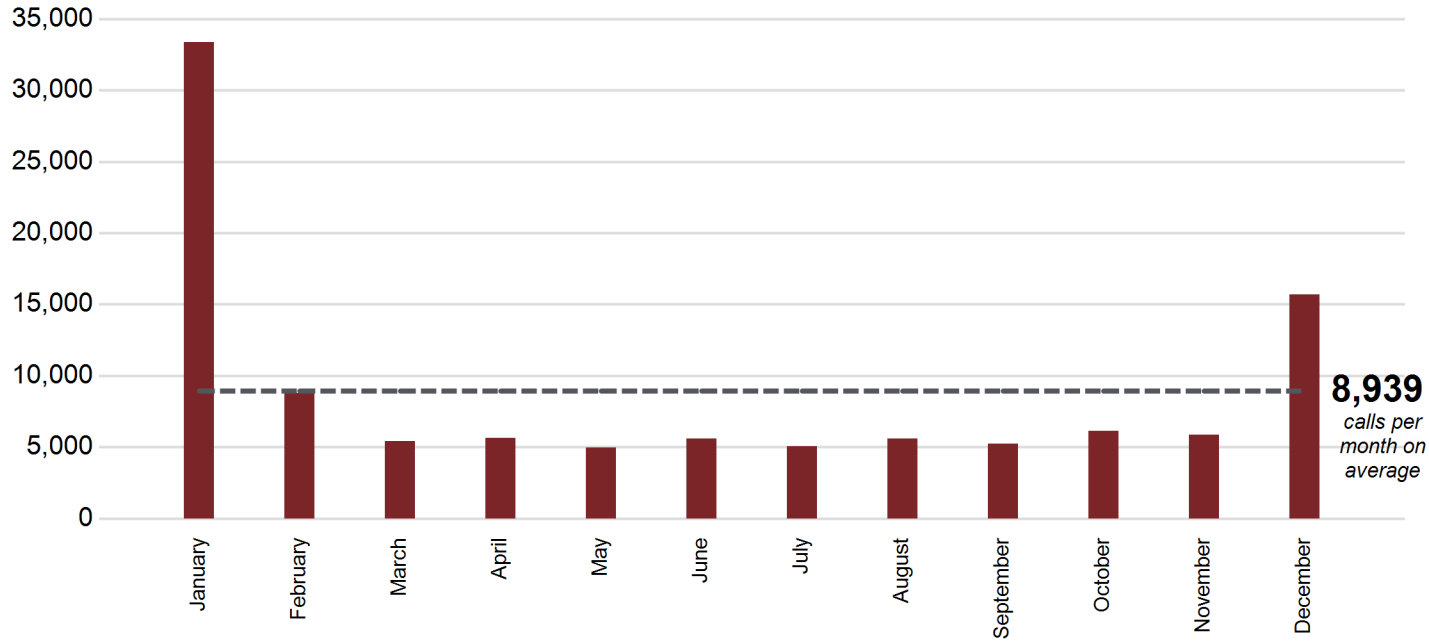
84,594
511 APP DOWNLOADS

107,270
PHONE CALLS TO 511

2,795 TMC DATA REPORTS GENERATED

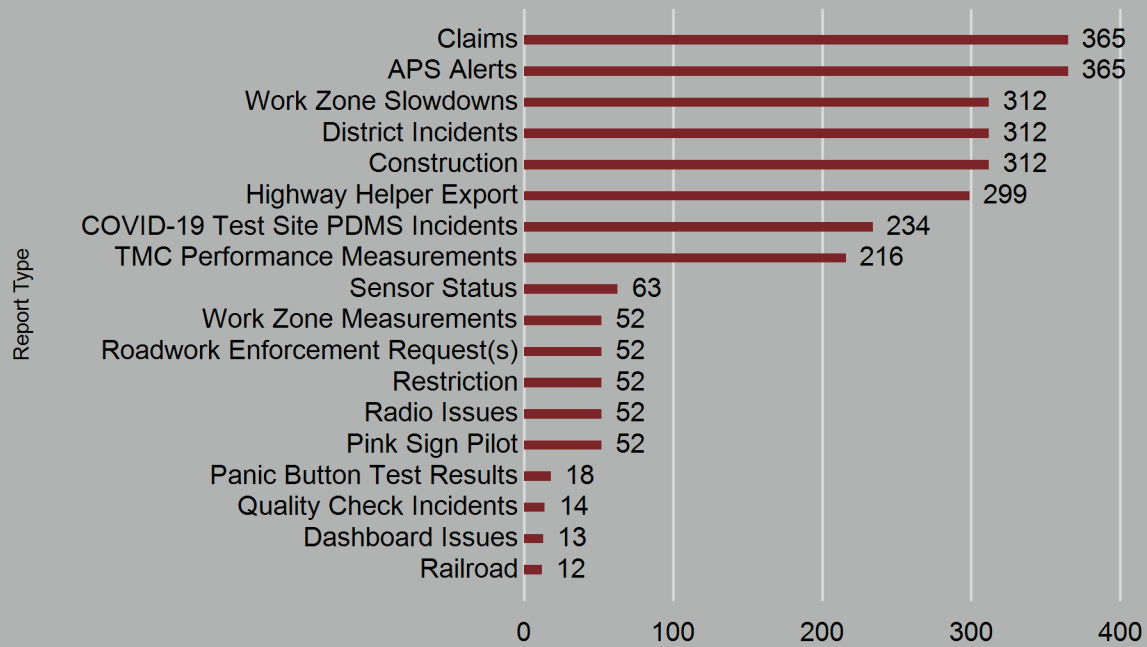
3,873,594
VISITS TO 511 TRAVELER INFORMATION WEBSITE (ALL VERSIONS)

511 phone calls by month



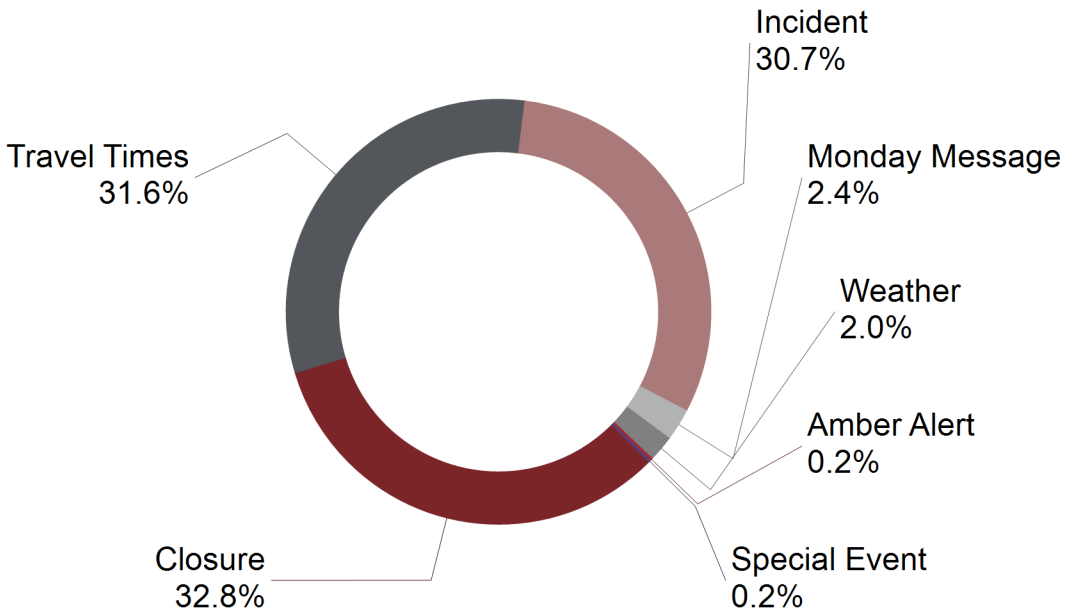
The information tracked by the TMC is shared through multiple reports with internal and external stakeholders.

TMC data reports generated by type



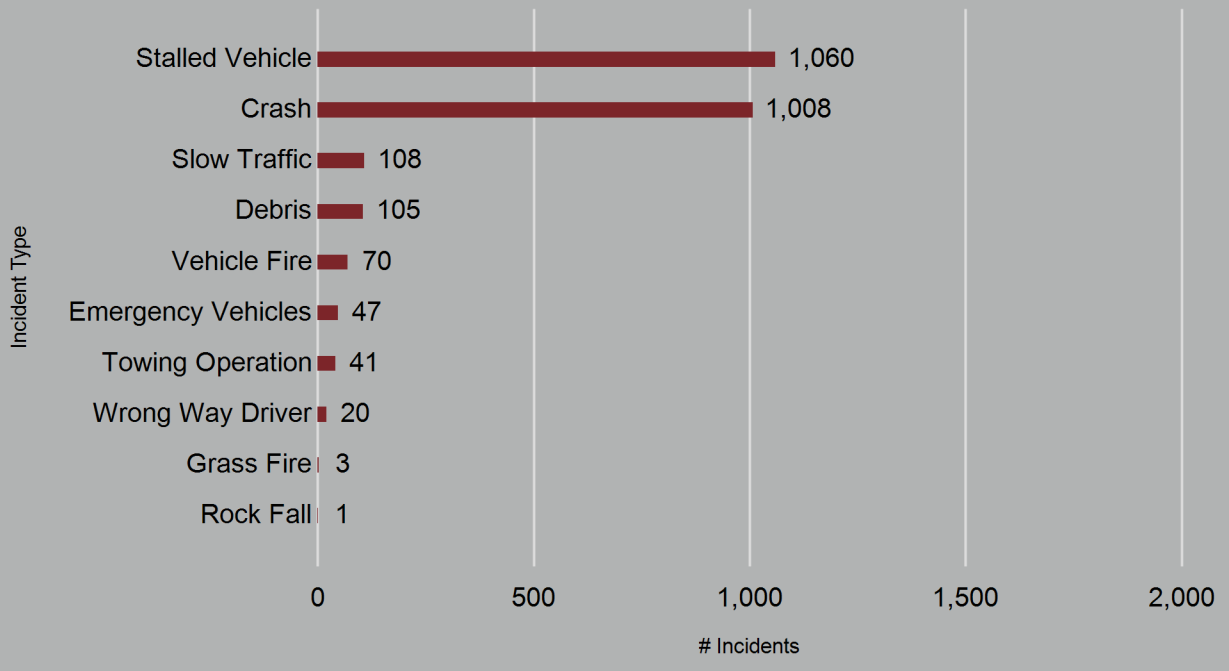
COMMUNICATION

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

2,463
INCIDENTS UTILIZING DMS MESSAGES

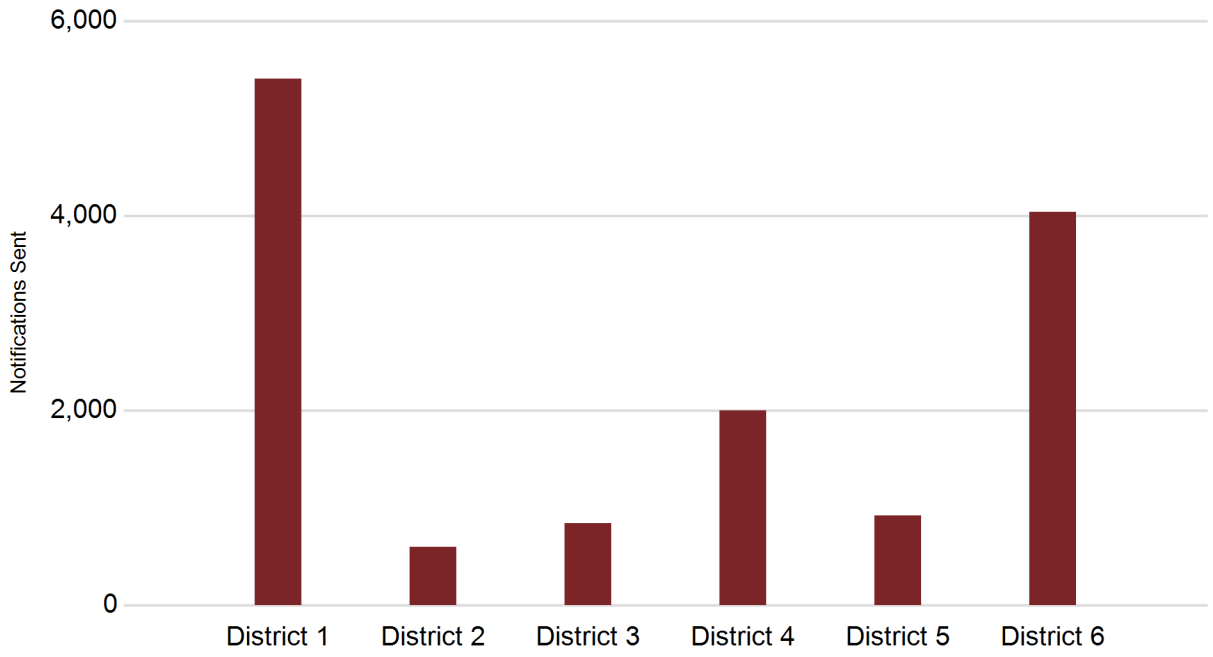
14,886
EMAIL NOTIFICATIONS SENT

31%
UNIQUE DMS MESSAGES RELATED TO INCIDENTS

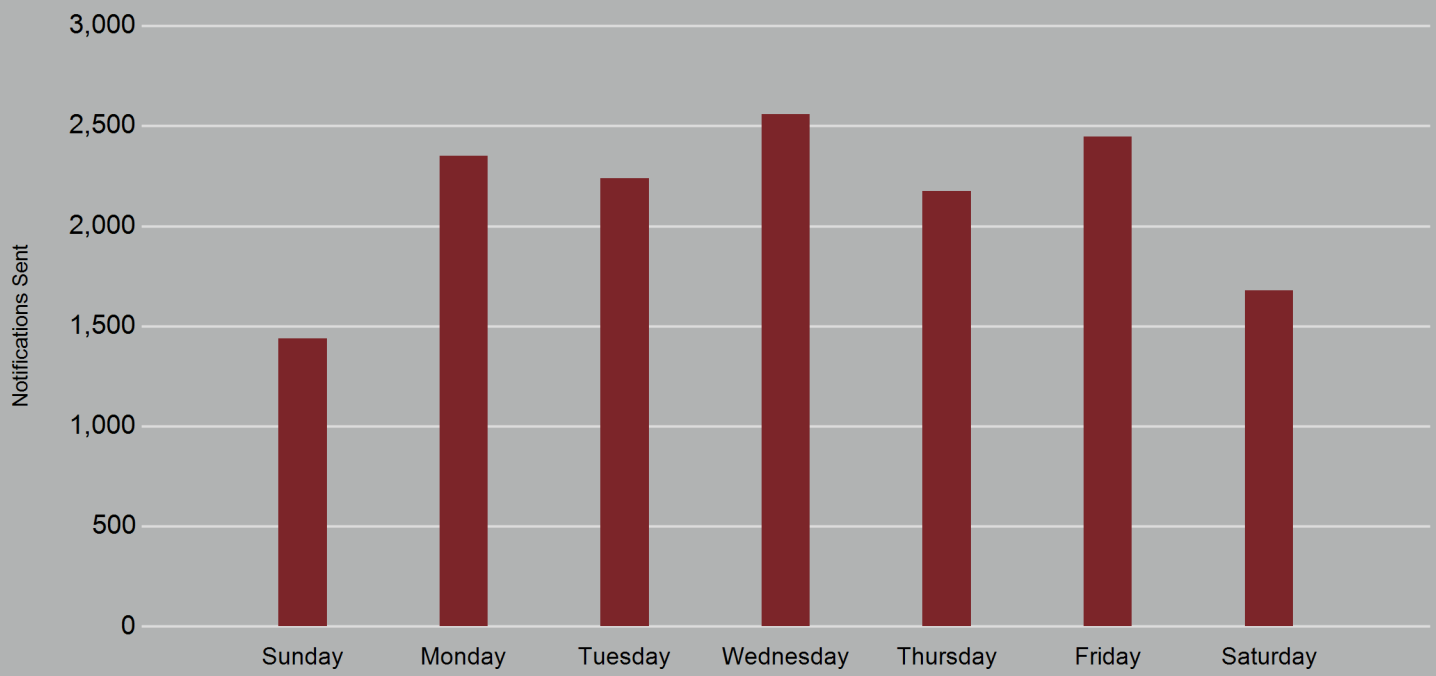
79% EMAIL NOTIFICATIONS SENT ON WEEKDAYS

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



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