2018
TRAFFIC MANAGEMENT CENTER
Annual Report
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<th>Page</th>
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<td>EXECUTIVE SUMMARY</td>
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<td>10</td>
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<td>HIGHWAY HELPER</td>
<td>12</td>
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<td>FREIGHT</td>
<td>18</td>
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<td>20</td>
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<td>24</td>
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</tbody>
</table>
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 2018 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 2018 Snapshot.

### 2018 SNAPSHOT

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCIDENTS</td>
<td>Number of incidents monitored by Iowa's Statewide TMC</td>
<td>36,896</td>
</tr>
<tr>
<td>CRASHES</td>
<td>Average crash clearance time</td>
<td>1 hr 1 m</td>
</tr>
<tr>
<td>HIGHWAY HELPER</td>
<td>Number of responses provided by Highway Helpers</td>
<td>16,365</td>
</tr>
<tr>
<td>FREIGHT</td>
<td>Average time to clear a lane blocking incident involving a tractor trailer</td>
<td>2 hr 12 m</td>
</tr>
<tr>
<td>WORK ZONES</td>
<td>Total work zone incidents</td>
<td>122</td>
</tr>
<tr>
<td>WEATHER</td>
<td>Total flooding events</td>
<td>223</td>
</tr>
<tr>
<td>COMMUNICATION</td>
<td>Total Emergency Incident Notification (EIN) email notifications sent</td>
<td>20,622</td>
</tr>
</tbody>
</table>
Incidents with Lane Blockage refers to the total number of incidents that resulted in at least one blocked lane of travel.

**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 monitored by TMC graph]

3,074 incidents per month on average

**Incidents with lane blockage**

![Incidents with lane blockage graph]
Incidents are detected by TMC operators through cameras, roadway detection, Waze alerts, or reported to the TMC through responders on the roadway.

**Incidents by type**

- Stalled Vehicle: 23,457
- Debris: 4,231
- 1 Vehicle Crash: 2,931
- Slow Traffic: 2,219
- 2 Vehicle Crash: 1,971
- Emergency Vehicles: 743
- 3+ Vehicle Crash: 647
- Flooding: 223
- Towing Operation: 210
- Vehicle Fire: 181
- Wrong Way Driver: 42
- Grass Fire: 37
- Winter Closure: 4

**Incidents by detection source**

- Highway Helper: 11,244
- Camera: 10,938
- Waze: 7,809
- Law Enforcement: 5,047
- Maintenance: 697
- Other: 520
- DOT Personnel: 319
- Intelligent Work Zone: 165
- Contractor/Construction: 157

**By the numbers**

- 36,896 TOTAL INCIDENTS
- 30% INCIDENTS DETECTED BY CAMERA
- 3,711 LANE BLOCKING INCIDENTS
- 127 SECONDARY INCIDENTS REPORTED TO THE TMC
Incidents more frequently occur on weekdays versus weekends due to the volume of traffic on the roadway.
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 incident and crash clearance time by district

<table>
<thead>
<tr>
<th>District</th>
<th>Clearance Time (Incidents)</th>
<th>Clearance Time (Crash Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>1 hr 40 m</td>
<td>50 min</td>
</tr>
<tr>
<td>District 2</td>
<td>3 hours</td>
<td>1 hr 7 m</td>
</tr>
<tr>
<td>District 3</td>
<td>7 hr 39 m</td>
<td>1 hr 19 m</td>
</tr>
<tr>
<td>District 4</td>
<td>3 hr 34 m</td>
<td>1 hr 12 m</td>
</tr>
<tr>
<td>District 5</td>
<td>1 hr 46 m</td>
<td>1 hr 49 m</td>
</tr>
<tr>
<td>District 6</td>
<td>2 hr 29 m</td>
<td>57 min</td>
</tr>
</tbody>
</table>

## Incident type by district

<table>
<thead>
<tr>
<th>Type</th>
<th>District 1</th>
<th>District 2</th>
<th>District 3</th>
<th>District 4</th>
<th>District 5</th>
<th>District 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Vehicle Crash</td>
<td>1,144</td>
<td>113</td>
<td>172</td>
<td>462</td>
<td>215</td>
<td>825</td>
</tr>
<tr>
<td>2 Vehicle Crash</td>
<td>979</td>
<td>80</td>
<td>128</td>
<td>198</td>
<td>107</td>
<td>479</td>
</tr>
<tr>
<td>3+ Vehicle Crash</td>
<td>363</td>
<td>16</td>
<td>23</td>
<td>45</td>
<td>16</td>
<td>184</td>
</tr>
<tr>
<td>Debris</td>
<td>1,896</td>
<td>98</td>
<td>116</td>
<td>936</td>
<td>96</td>
<td>1,089</td>
</tr>
<tr>
<td>Emergency Vehicles</td>
<td>284</td>
<td>42</td>
<td>58</td>
<td>115</td>
<td>50</td>
<td>194</td>
</tr>
<tr>
<td>Flooding</td>
<td>71</td>
<td>33</td>
<td>61</td>
<td>11</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Grass Fire</td>
<td>15</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Slow Traffic</td>
<td>1,442</td>
<td>122</td>
<td>76</td>
<td>162</td>
<td>15</td>
<td>402</td>
</tr>
<tr>
<td>Stalled Vehicle</td>
<td>11,499</td>
<td>397</td>
<td>318</td>
<td>3,367</td>
<td>685</td>
<td>7,191</td>
</tr>
<tr>
<td>Towing Operation</td>
<td>59</td>
<td>8</td>
<td>8</td>
<td>48</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>Vehicle Fire</td>
<td>63</td>
<td>6</td>
<td>12</td>
<td>31</td>
<td>16</td>
<td>53</td>
</tr>
<tr>
<td>Winter Closure</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wrong Way Driver</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17,822</strong></td>
<td><strong>915</strong></td>
<td><strong>977</strong></td>
<td><strong>5,384</strong></td>
<td><strong>1,240</strong></td>
<td><strong>10,558</strong></td>
</tr>
<tr>
<td><strong>% of all Incidents</strong></td>
<td><strong>48%</strong></td>
<td><strong>2%</strong></td>
<td><strong>3%</strong></td>
<td><strong>15%</strong></td>
<td><strong>3%</strong></td>
<td><strong>29%</strong></td>
</tr>
</tbody>
</table>
These performance measure thresholds were developed through the Joint Operations Policy Statement (JOPS), a collaboration between DOT & DPS.

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

### Types of incidents responses

- Stalled Vehicle: 12,057
- Debris: 2,616
- 2 Vehicle Crash: 692
- 1 Vehicle Crash: 518
- 3+ Vehicle Crash: 297
- Slow Traffic: 67
- Emergency Vehicles: 53
- Vehicle Fire: 46
- Towing Operation: 14
- Grass Fire: 3
- Flooding: 2

### Average duration of response

- January: 39 minutes
- February: 39 minutes
- March: 39 minutes
- April: 26 minutes
- May: 34 minutes
- June: 37 minutes
- July: 33 minutes
- August: 37 minutes
- September: 37 minutes
- October: 37 minutes
- November: 37 minutes
- December: 37 minutes

Average duration of response per month: 35 minutes
The most Highway Helper responses during 2018 occurred in January.

BY THE NUMBERS

16,365 HIGHWAY HELPER RESPONSES
2,616 DEBRIS REMOVAL RESPONSES
4,260 SERVICES PERFORMED FOR THE MOTORIST (FUEL, FLAT TIRE, JUMP START, DIRECTIONS, ETC)

38% RESPONSES OCCURRED DURING OFF PEAK HOURS

Responses by month

Responses by time of day

5,477 (33.5%)
6,294 (38.5%)
4,594 (28.1%)
Highway Helper trucks are dispatched in three operational areas from 6 a.m. to 7 p.m., Monday through Friday, including some holidays and special events.
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 time of day by operational area

- **Cedar Rapids**
  - AM Peak (6-9am): 1,739
  - Off Peak (9am-3pm, 6pm-6am): 1,343
  - PM Peak (3-6pm): 1,681

- **Council Bluffs**
  - AM Peak (6-9am): 968
  - Off Peak (9am-3pm, 6pm-6am): 832
  - PM Peak (3-6pm): 884

- **Des Moines**
  - AM Peak (6-9am): 3,571
  - Off Peak (9am-3pm, 6pm-6am): 2,414
  - PM Peak (3-6pm): 2,902

### All responses by month by operational area

The chart shows the number of responses for each month and operational area, with Cedar Rapids, Council Bluffs, and Des Moines. The average responses per month are as follows:

- **Cedar Rapids**: 740
- **Council Bluffs**: 396
- **Des Moines**: 223

The chart indicates a higher number of responses during certain months, particularly June, July, and August, for all operational areas.
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 it departed.
Highway Helpers assist with lane blockages to achieve faster clearance times and protect responders.

**By the Numbers**

- **1,507** responses to crashes
- **1,042** responses to lane blocking incidents
- **35 min** average response duration
- **74%** responses to stalled vehicles

### Responses to crashes only by operational area

- **Cedar Rapids**: 392 responses
- **Council Bluffs**: 152 responses
- **Des Moines**: 957 responses

### Responses to lane blockage incidents

- Graph showing responses by month for Cedar Rapids, Council Bluffs, and Des Moines.
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

- 5,844 Stalled Vehicle
- 473 1 Vehicle Crash
- 323 2 Vehicle Crash
- 125 Towing Operation
- 67 3+ Vehicle Crash
- 49 Vehicle Fire
- 32 Emergency Vehicles
- 6 Debris
- 1 Slow Traffic

Number of vehicles involved in semi related crashes

- 641 (47.3%) 3+ Vehicle Crash
- 482 (35.5%) 2 Vehicle Crash
- 233 (17.2%) 1 Vehicle Crash

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.
AVERAGE CLEARANCE TIME FOR LANE BLOCKING INCIDENTS INVOLVING A TRACTOR TRAILER

BY THE NUMBERS

212 RAIL INCIDENTS
138 SEMI ROLLOVERS
13 HAZMAT SPILLS

Freight incidents by time of day

3,605 (52.1%)
1,682 (24.3%)
1,633 (23.6%)

AM Peak (6-9am)  Off Peak (9am-3pm, 6pm-6am)  PM Peak (3-6pm)

Freight incidents by month

577 incidents per month on average
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.

The data is used by the TMC to provide messages on the DMS, manage work zone contact information, and situational awareness.
Construction slowdowns are tracked and measured by vehicle detection in intelligent work zones.

**BY THE NUMBERS**

- 122 WORK ZONE INCIDENTS
- 771 SLOWDOWNS DETECTED
- 37 INTELLIGENT WORK ZONES
- 29,632 TOTAL ROADWORK PROJECT DAYS

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**Work zone crashes by district**

*As reported to the TMC*

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**Construction slowdowns**

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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
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.

**BY THE NUMBERS**

<table>
<thead>
<tr>
<th>39</th>
<th>156</th>
</tr>
</thead>
<tbody>
<tr>
<td>WINTER EVENTS</td>
<td>FLOODING EVENTS</td>
</tr>
</tbody>
</table>

1 day 12 hr 44 m
AVERAGE DURATION OF FLOODING CLOSURES

231 INCIDENTS DURING WINTER EVENTS

**Winter events**

Duration (hours)

- Jan
- February
- March
- April
- November
- December

**Flooding events resulting in a lane closure**

Duration
- < 1 day
- > 1 day
- > 2 days
- > 4 days
- > 10 days
- > 15 days
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.

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.
The information tracked by the TMC is shared through multiple reports with internal and external stakeholders.
Dynamic Message Signs (DMS) are operated by the TMC and the message content, duration and types are tracked.

This chart provides an overview of the number of unique DMS messages posted for different incident types utilized by the TMC.
Emergency Incident Notifications (EINS) are e-mail alerts sent by the TMC for more impactful events on the transportation system.

**By the Numbers**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3,241</td>
<td>20,622</td>
<td>40%</td>
</tr>
<tr>
<td>Incidents利用</td>
<td>Email Notifications Sent</td>
<td>UNIQUE DMS MESSAGES RELATED TO INCIDENTS</td>
</tr>
<tr>
<td>DMS Messages</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

80% Email Notifications sent on weekdays

**Email notifications sent by district**

**Email notifications sent by weekday**