2020
TRAFFIC MANAGEMENT CENTER
Annual Report
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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

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

"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 with Lane Blockage refers to the total number of incidents that resulted in at least one blocked lane of travel.
Incidents are detected by TMC operators through cameras, roadway detection, Waze alerts, or reported to the TMC through responders on the roadway.

**32,887**
TOTAL INCIDENTS

**33%**
INCIDENTS DETECTED BY CAMERA

**2,982**
LANE BLOCKING INCIDENTS

**61**
SECONDARY INCIDENTS REPORTED TO THE TMC

---

**Incidents by type**

- Stalled Vehicle: 26,359
- 1 Vehicle Crash: 2,151
- Debris: 1,803
- 2 Vehicle Crash: 1,093
- Emergency Vehicles: 505
- 3+ Vehicle Crash: 285
- Slow Traffic: 244
- Towing Operation: 182
- Vehicle Fire: 150
- Wrong Way Driver: 43
- Grass Fire: 31
- Flooding: 28
- Standing Water: 12
- Rock Fall: 1

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**Incidents by detection source**

- Camera: 10,877
- Highway Helper: 8,454
- Waze: 7,045
- Law Enforcement: 4,994
- Other: 566
- Maintenance: 528
- DOT Personnel: 219
- Contractor/Construction: 194
- Intelligent Work Zone: 10
Incidents more frequently occur on weekdays versus weekends due to the volume of traffic on the roadway.
<table>
<thead>
<tr>
<th>Type</th>
<th># Events</th>
<th>Average Duration</th>
<th># Semi</th>
<th># Fatality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stalled Vehicle</td>
<td>33</td>
<td>42 min</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>Grass Fire</td>
<td>2</td>
<td>55 min</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3+ Vehicle Crash</td>
<td>25</td>
<td>1 hr 3 m</td>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>2 Vehicle Crash</td>
<td>66</td>
<td>1 hr 13 m</td>
<td>55</td>
<td>28</td>
</tr>
<tr>
<td>1 Vehicle Crash</td>
<td>77</td>
<td>1 hr 19 m</td>
<td>56</td>
<td>9</td>
</tr>
<tr>
<td>Vehicle Fire</td>
<td>13</td>
<td>1 hr 29 m</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Standing Water</td>
<td>2</td>
<td>3 hr 54 m</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Towing Operation</td>
<td>14</td>
<td>4 hr 21 m</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Debris</td>
<td>6</td>
<td>4 hr 48 m</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Emergency Vehicles</td>
<td>10</td>
<td>5 hr 56 m</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Flooding</td>
<td>2</td>
<td>22 hr 53 m</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
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

![Graph showing clearance times by district]

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

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.
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.

**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

**Average clearance time for crashes**

The graph shows the average clearance time for crashes over different months. The clearance time is measured from the first notification to the last responder leaving the scene. The data points are presented with bars for rural and urban areas.

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

The bar chart divides crashes into different time thresholds and breaks them down by rural and urban areas. The time thresholds are:
- > 2 hrs
- > 90 min
- > 45 min
- > 30 min
- < 30 min

The chart shows the number of incidents for each threshold and area.
This chart provides an overview of the number and types of Highway Helper responses.

Types of incidents responses

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stalled Vehicle</td>
<td>11,246</td>
</tr>
<tr>
<td>Debris</td>
<td>823</td>
</tr>
<tr>
<td>2 Vehicle Crash</td>
<td>446</td>
</tr>
<tr>
<td>1 Vehicle Crash</td>
<td>399</td>
</tr>
<tr>
<td>3+ Vehicle Crash</td>
<td>130</td>
</tr>
<tr>
<td>Vehicle Fire</td>
<td>57</td>
</tr>
<tr>
<td>Emergency Vehicles</td>
<td>40</td>
</tr>
<tr>
<td>Slow Traffic</td>
<td>16</td>
</tr>
<tr>
<td>Grass Fire</td>
<td>7</td>
</tr>
<tr>
<td>Towing Operation</td>
<td>4</td>
</tr>
<tr>
<td>Wrong Way Driver</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

Average duration of response

- Average duration of response per month
- 40 min
The most Highway Helper responses during 2020 occurred in December.

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

Responses by month

Responses by time of day

4,755 (30.7%)
AM Peak (6-9am)

6,902 (44.5%)
Off Peak (9am-3pm, 6pm-6am)

3,856 (24.9%)
PM Peak (3-6pm)
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.
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.
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.

**Responses to lane blockage incidents**

- Cedar Rapids: 68
- Council Bluffs: 5
- Davenport: 7
- Des Moines: 46

**average response duration**

- 39 min

**Responses to crashes**

- 975

**Responses to stalled vehicles**

- 908

**85% responses to stalls**
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**

- 9,692 Stalled Vehicle
- 500 1 Vehicle Crash
- 279 2 Vehicle Crash
- 151 Towing Operation
- 56 3+ Vehicle Crash
- 48 Vehicle Fire
- 23 Emergency Vehicles
- 5 Debris
- 1 Slow Traffic

**Number of vehicles involved in semi related crashes**

- 514 (40.9%) 3+ Vehicle Crash
- 552 (43.9%) 2 Vehicle Crash
- 192 (15.3%) 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.
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

- AM Peak (6-9am): 5,695 (53%)
- PM Peak (3-6pm): 3,036 (28.2%)
- Off Peak (9am-3pm, 6pm-6am): 2,024 (18.8%)

Freight incidents by month

- 896 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**

- 113 Work Zone Incidents
- 274 Slowdowns Detected
- 29,478 Total Roadwork Project Days

**Work zone crashes by district**

*As reported to the TMC*

- District 1: 60 crashes
- District 3: 10 crashes
- District 4: 5 crashes
- District 5: 1 crash
- District 6: 30 crashes

**Construction slowdowns**

Map showing the locations and number of construction slowdowns in various districts.
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.

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Snow plow hits per district

- District 1: Number of hits is significantly higher than other districts.
- District 2: Number of hits is moderate.
- District 3: Number of hits is moderate.
- District 4: Number of hits is lower compared to other districts.
- District 5: Number of hits similar to District 3.
- District 6: Number of hits is lower compared to District 4.

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Number of Hits
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>Winter Events</th>
<th>Flooding Events</th>
<th>Average Duration of Flooding Closures</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>26</td>
<td>22 hr 53 m</td>
</tr>
</tbody>
</table>

284 Incidents during Winter Events

**Winter events**

Duration (hours)

January  | February  | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec

**Flooding events resulting in a lane closure**

Duration
- < 1 day
- > 1 day
- > 2 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.

Visits to 511 website

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.

**BY THE NUMBERS**

- **84,594** visits to 511 Traveler Information Website (All Versions)
- **107,270** phone calls to 511
- **2,795** TMC data reports generated
- **3,873,594** 511 App downloads

**511 phone calls by month**

- **8,939** calls per month on average

**TMC data reports generated by type**

- Claims: 365
- APS Alerts: 365
- Work Zone Slowdowns: 312
- District Incidents: 312
- Construction: 312
- Highway Helper Export: 299
- COVID-19 Test Site PDMS Incidents: 234
- TMC Performance Measurements: 216
- Sensor Status: 63
- Work Zone Measurements: 52
- Roadwork Enforcement Request(s): 52
- Restriction: 52
- Radio Issues: 52
- Pink Sign Pilot: 52
- Panic Button Test Results: 18
- Quality Check Incidents: 14
- Dashboard Issues: 13
- Railroad: 12

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**

- **2,463** Incidents utilizing DMS Messages
- **14,886** Email Notifications sent
- **31%** Unique DMS Messages related to incidents
- **79%** Email notifications sent on weekdays

**Email notifications sent by district**

- District 1: 6,000
- District 2: 4,000
- District 3: 2,000
- District 4: 2,000
- District 5: 1,000
- District 6: 1,000

**Email notifications sent by weekday**

- Sunday: 1,500
- Monday: 2,500
- Tuesday: 2,000
- Wednesday: 3,000
- Thursday: 2,000
- Friday: 2,500
- Saturday: 1,500