# AMATS Glenn Highway Integrated Corridor Management (ICM) Study, Phase II

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# Emergency Traffic Control Guidelines

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# Abbreviations

| | |
|---|---|
| AMATS | Anchorage Metropolitan Transportation Solutions |
| APD | Anchorage Police Department |
| ASD | Anchorage School District |
| CMS | Changeable Message Sign |
| DOT&PF | Alaska Department of Transportation and Public Facilities |
| ICS | Incident Command System |
| JBER | Joint Base Elmendorf Richardson |
| KE | Kinney Engineering |
| MOA | Municipality of Anchorage |
| MSB | Matanuska-Susitna Borough |
| NIMS | National Incident Management System |
| PGDHS | *A Policy on Geometric Design of Highways and Streets* |

# 1 Introduction

The Alaska Department of Transportation and Public Facilities (DOT&PF) has retained Kinney Engineering, LLC (KE) to prepare Emergency Traffic Control Guidelines as part of the Glenn Highway Integrated Corridor Management Study (ICM).

The study area is the portion of the Glenn Highway contained within the Anchorage Metropolitan Transportation Solutions (AMATS) boundary. As depicted in Figure 1, the study corridor is located in the Municipality of Anchorage (MOA) and extends from MPT 0, at Airport Heights/Mountain View Drive to MPT 29.1, which marks the end of the MOA and the beginning of the Matanuska-Susitna Borough (MSB).

The study corridor experiences non-recurring congestion due to unplanned events (such as crashes) and planned events (such as road construction), that require lane closures and have a significant negative impact on the movement of people and goods. These Emergency Traffic Control Guidelines are intended to provide ready-made plans and information necessary for the Department to rapidly respond to a specific set of events: incidents resulting in complete closure of at least one direction of traffic on the Glenn Highway that will extend through either the morning or the afternoon commute on a weekday, or will last more than 12 hours.

| Closure Direction | Commute Impacted | Time Period of Heaviest Traffic |
|---|---|---|
| Southbound (Inbound) | Morning | 6 AM to 8 AM |
| Northbound (Outbound) | Afternoon | 3 PM to 7 PM (heaviest from 4 PM to 6 PM) |

These Emergency Traffic Control Guidelines consist of three sections that can be effectively used as part of the Incident Command System (ICS) using National Incident Management System (NIMS) principles.

| | Purpose of Section | Supported ICS Functional Areas | Supported NIMS Principles |
|---|---|---|---|
| Traffic Control Plans | Describes proposed detour routes and equipment needed to implement them | • Operations<br>• Planning | • Management by Objectives<br>• Incident Action Planning |
| Equipment Staging Plan | Provides information on how needed traffic control equipment can be obtained and brought to the site | • Logistics | • Comprehensive Resource Management |
| Communication Plan | Identifies information that needs to be communicated, how often, to whom, and by what method | • Public Information Officer<br>• Liaison Officer | • Integrated Communications |

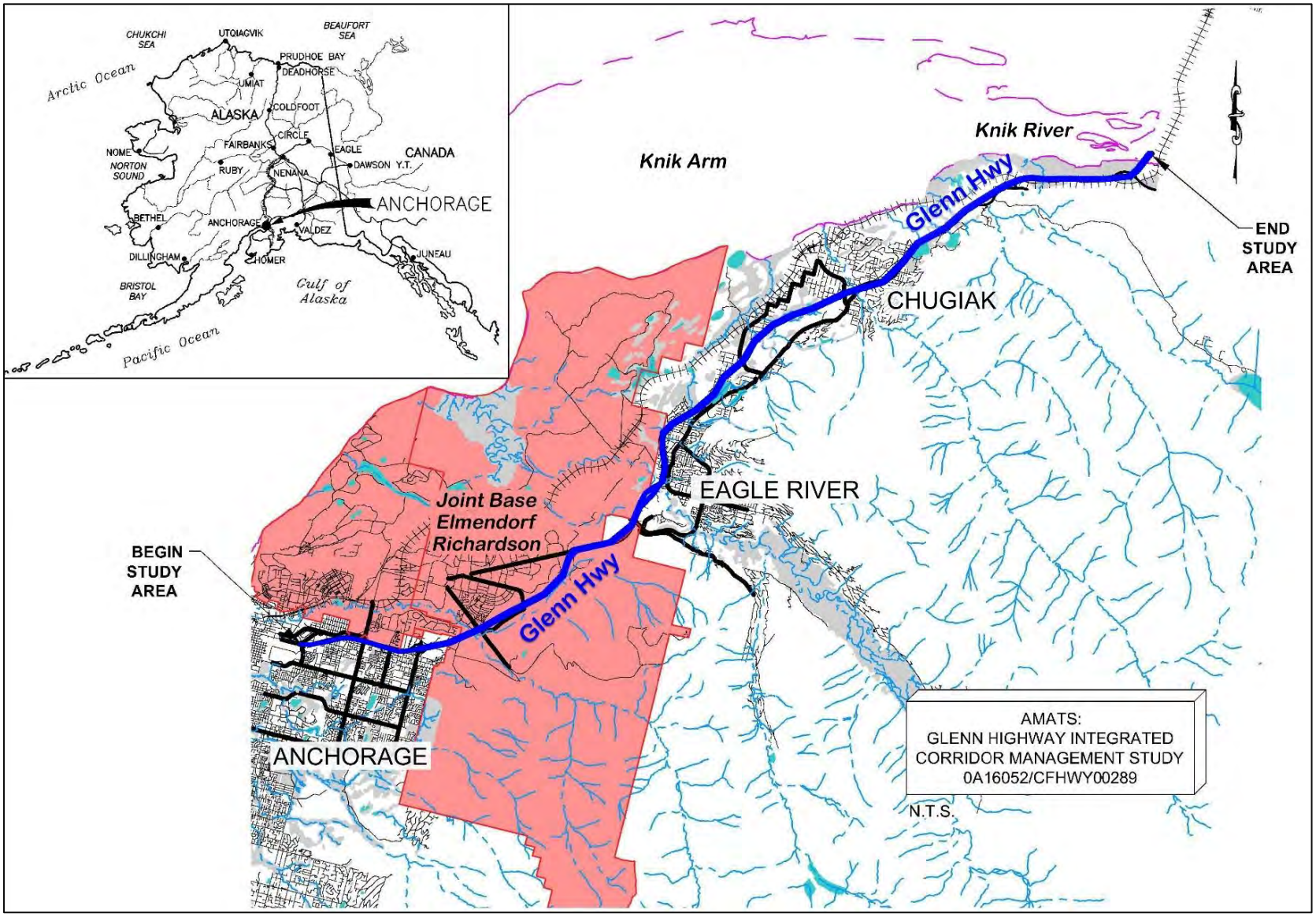


**Figure 1: Vicinity Map**

# 2 Traffic Control Plans

When an incident occurs on the Glenn Highway, traffic comes to a standstill until it can be rerouted. For short term incidents or incidents where minimal traffic disruption is anticipated, traffic control is usually handled by the Anchorage Police Department (APD) and a contractor through the Municipality of Anchorage. These traffic control plans are intended to be used by DOT&PF during incidents where significant traffic disruption is anticipated to aid the incident management team in setting up effective traffic control, including identifying the number and type of equipment that will be needed. The plans also identify the expected effect of the detour on traffic flow, and suggest long-term strategies that could improve the capacity of the detour.

The traffic control plans address a range of specific circumstances where at least one direction of the Glenn Highway is anticipated to be closed during a commute period, or for 12 hours or more on a weekend. Where available, the plans provide detour routes, capacity information, and traffic control guidelines using existing infrastructure. The plans also provide plans for detour routes that would require additional infrastructure (such as median crossovers) that could be built to provide additional capacity.

| Sheets | Description | Intended User |
|---|---|---|
| D: General Details | Generally applicable detour route traffic control details | • DOT&PF Maintenance and Operations or their contractor |
| I: Interchange Closures | TCPs for closures of each interchange structure in the corridor. | • DOT&PF Maintenance and Operations or their contractor |
| J: Segment Closures | TCPs for closures that occur in each segment of the corridor (between interchanges). Includes detail sheets showing traffic control at intersections along the detour route. | • DOT&PF Maintenance and Operations or their contractor |
| TJ: Segment Traffic Route Analysis | Information regarding the capacity of proposed segment detour routes. Intended to help develop messaging to the public, other agencies, and elected officials. | • DOT&PF Traffic<br>• Public Information Officer<br>• Liaison Officer |

In some cases, additional capacity could be achieved in the commute direction by running commute traffic on the main highway and detouring traffic in the opposite direction on parallel routes. If the closure lasts through more than one commute, the detour routes could be changed

by time of day. The following example shows how the J and TJ sheets can be used to determine optimal routing by time of day.

**Example**

An incident affecting the southbound lanes of the Glenn Highway between the N Eagle River Interchange and the S Birchwood Interchange occurs at 1 PM on a Wednesday evening. Police set up a detour route for the southbound traffic using the existing infrastructure.

1 PM (Wednesday) to 6 AM (Thursday):

| | Detour Route to Use | Traffic Demand Reduction Needed (sheet TJ 10.0) |
|---|---|---|
| Northbound | Glenn Highway northbound lanes | 0% |
| Southbound | Existing Road Network (solid blue detour, sheet J10.2) | 0% |

Assuming a temporary crossover cannot be built in less than 24 hours, southbound traffic must continue to use the existing road network during the morning commute (7 AM Thursday to 9 AM Thursday), resulting in the need to reduce the number of commuters on Thursday morning:

| | Detour Route to Use | Traffic Demand Reduction Needed (sheet TJ 10.0) |
|---|---|---|
| Northbound | Glenn Highway northbound lanes | 0% |
| Southbound | Existing Road Network (solid blue detour, sheet J10.2) | 65% |

Traffic continues using this detour plan until temporary crossovers can be built.

**Example (continued)**

After crossover infrastructure is built, the following schedule is used until southbound lanes can be reopened:

Off peak:

| | Detour Route to Use | Traffic Demand Reduction Needed (sheet TJ 10.0) |
|---|---|---|
| Northbound | Glenn Highway, 1 northbound lane | 0% |
| Southbound | Temporary Infrastructure, 1 southbound lane | 0% |

Morning commute (7 AM to 9 AM):

| | Detour Route to Use | Traffic Demand Reduction Needed (sheet TJ 10.0) |
|---|---|---|
| Northbound | Existing Road Network (solid green detour, sheet J10.1) | 0% |
| Southbound | Temporary Infrastructure (dotted blue detour, sheet J10.2) | 0% (using two lanes) |

Evening commute (4 PM to 7 PM):

| | Detour Route to Use | Traffic Demand Reduction Needed (sheet TJ 10.0) |
|---|---|---|
| Northbound | Glenn Highway, 2 northbound lanes | 0% |
| Southbound | Existing Road Network (solid blue detour, sheet J10.2) | 0% |

# 3 Equipment Staging Plan

When an incident occurs on the Glenn Highway, traffic control equipment is needed to establish an effective detour route, heavy equipment may be needed for clean up or construction, and material may be needed to construct emergency infrastructure (such as cross-over points). During large-scale events, additional personnel may be needed.

**Table 1. Equipment Staging Plan**

| |
|---|
| **Temporary traffic control equipment**<br>Signs, changeable message boards, warning devices, channelizing devices, lights, etc. are used to warn traffic of hazardous conditions and to help drivers navigate a detour route. |
| These devices can be obtained from:<br>• Anchorage maintenance station (DOT&PF)<br>• Palmer maintenance station at 289 Inner Springer Road (DOT&PF)<br>• MOA traffic control contract<br>• Traffic Control contractors (would require contract) |
| **Heavy machinery**<br>Heavy machinery may be needed to clean up a damaged site or to construct temporary infrastructure or to perform repairs. |
| Heavy machinery may be available from:<br>• Anchorage maintenance station (DOT&PF)<br>• Palmer maintenance station at 289 Inner Springer Road (DOT&PF)<br>• Birchwood Airport (most available heavy equipment is dedicated to the airport due to the funding source, but DOT&PF could request permission to use this equipment in an emergency)<br>• Construction contractors (would require contract) |

**Table 1. Equipment Staging Plan (continued)**

| |
|---|
| **Fill, Borrow, and Surface Course Material**<br>Emergency construction may require fill, borrow, and surface course material |
| These materials may be obtained from:<br>• Construction contractors (would require contract)<br>• Local stockpiles (Anchorage Sand & Gravel or Granite Construction, for example)<br>• DOT&PF stockpiles |
| Note that the availability of material may depend significantly on the time of year as in the winter, stockpiles may be frozen and therefore inaccessible. On the other hand, in the winter it might be possible to freeze water in place to strengthen weaker materials.<br>For surface course material, consideration could be given to obtaining materials such as perforated steel planking (Marston matting) or other heavy-duty matting material to provide a surface course that would be readily available at all times of the year to use as a temporary surface course. Geogrid may also be useful. |
| **Personnel Beyond Local Resources**<br>Additional personnel may be needed during an emergency to supplement local DOT&PF personnel. For example, during an emergency in the winter, personnel may be needed to plow and treat the roadways at the same time as personnel are needed for clean up and construction activities related to the incident. |
| Sources of additional personnel:<br>• Construction contractors<br>• DOT&PF personnel from other regions |

**Table 2. Other Equipment or Data**

| |
|---|
| **Bailey bridges** |
| DOT&PF owns three Bailey bridges that are used in construction projects from time to time. Consideration should be given to strategically locating one of them in Palmer when they are not in use elsewhere, to allow it to be deployed if needed in an emergency in the Anchorage area. |
| **Survey data** |
| Updated Lidar data could be useful for identifying changed conditions<br>• USGS may be available to fly planes to collect updated data<br>• Drones |
| **Communication equipment** |
| • All maintenance trucks have Alaska Land Mobile Radio devices<br>• DOT&PF Maintenance additionally has 6 hand-held LMR devices |

# 4 Communication Plan

When an incident occurs on the Glenn Highway, certain information needs to be communicated to a variety of people. The purpose of this Communication Plan is to identify:

- Who is responsible for communicating the information regarding the delays on the highway?
- What is the message that needs to be conveyed?
- How will the message be disseminated?
- When, or how frequently, will the message be issued?

The above steps will vary depending on the expected length of the delay and to who the message is being sent.

## 4.1 Incident Management Team

When an event occurs on the Glenn Highway that involves DOT&PF infrastructure, APD notifies DOT&PF of the incident and DOT&PF convenes an Incident Management Team in accordance with the Incident Command System (ICS) structure. DOT&PF's Incident Field Operations Guide is kept in all DOT&PF vehicles and many offices. Appendix A describes the ICS structure in detail. Most frequently, the Incident Management team will be made up of staff members who will be performing duties that are directly related to their duties under normal operations.

When DOT&PF does not have the resources to handle the response on their own, a Unified Command is established, including as many jurisdictions or agencies as are required. This organizational structure allows all the involved agencies/jurisdictions to work together effectively, without affecting the authority, responsibility, or accountability of their organization.

The ICS structure provides for personnel who are tasked with communicating with the stakeholders. In the Incident Field Operations Guide, Section 7 and Appendix C give office, fax, and cell numbers for many of the agencies/ jurisdictions/ non-governmental organizations who will need to be coordinated with.

## 4.2 Communication Stakeholders

In addition to the Incident Management Team, there are numerous groups that need to be informed when a delay may be encountered on the Glenn Highway. The largest group is the **public**, particularly members of the public that travel on the Glenn Highway. But the public also includes anyone impacted by an incident on the Glenn Highway, such as employers, child care centers, area businesses, and schools.

Another broad group of stakeholders are the **agencies** whose operations will be impacted by a delay on the highway. These include the Anchorage School District (ASD), Joint Base Elmendorf Richardson (JBER), Municipality of Anchorage (MOA), and the State of Alaska Department of Administration.

**Elected officials** at both the State and local levels want to be kept informed as they often get calls from constituents regarding delays on the Glenn Highway. Table 3 identifies the elected officials to be notified.

**Table 3: Elected officials to be notified for Glenn Highway events**

| Local | House District | Senate District |
|---|---|---|
| Mayor of Anchorage | 7 (Greater Wasilla)<br>8 (Big Lake/Point Mackenzie) | D |
| Anchorage Assembly | 11 (Greater Palmer)<br>12 (Chugiak/Gateway) | F |
| | 13 (Fort Richardson/N. Eagle River)<br>14 (Eagle River/Chugach State Park) | G |
| | 15 (Elmendorf)<br>16 (College Gate) | H |
| | 19 (Mountain View)<br>20 (Downtown Anchorage) | J |

## 4.3 Communication Leaders

The two parties responsible for communicating delays on the Glenn Highway to the public are Anchorage Police Department (APD) Dispatch and the DOT&PF Media Liaison. For more complex incidents, APD's Communications Director may get involved.

## 4.4 Methods of Communication

A variety of communication methods need to be used to reach the greatest number of people. As part of Phase I of the Integrated Corridor Management Study, the public was asked to participate in an online survey between February and April 2018. One of the questions asked was where people get information about traffic conditions on the Glenn Highway. The choices available were: Glenn Highway Traffic Report Facebook page, Radio, 511, Nixle, Twitter, and Other. There were 7,074 responses to this questions, as respondents were able to select all that apply. Figure 2 illustrates the answers received to this question.

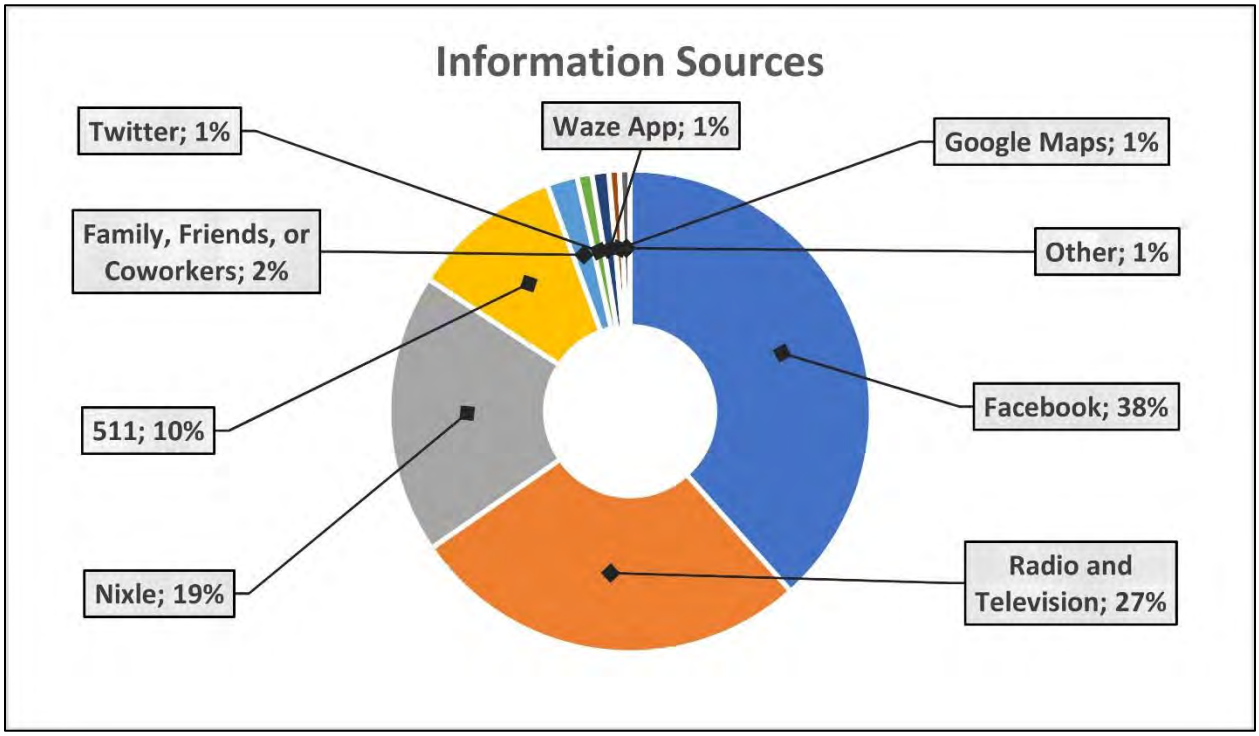


**Figure 2: Sources of Information reported by the Public (February to April 2018)**

The top four radio stations given for traffic information were AM 750, AM 650, FM 106.5, and FM 104, as shown in Table 4.

**Table 4: Radio Stations listed as Information Sources by the Public**

| Radio Station | Responses | Radio Station | Responses |
|---|---|---|---|
| AM 750 | 113 | FM 100.9 | 48 |
| AM 650 | 99 | FM 100.5 | 42 |
| FM 106.5 | 95 | FM 99.7 | 40 |
| FM 104.1 | 94 | FM 98.9 | 37 |
| FM 107.5 | 72 | FM 92.1 | 24 |
| FM 101.3 | 71 | FM 97.3 | 24 |
| FM 91.1 | 66 | AM 700 | 20 |
| FM 103.1 | 65 | Other Stations | 144 |
| | | **Total** | **1054** |

#### 4.4.1 Nixle

Nixle is the communication tool used by APD to send messages to the public. Individuals sign up to receive Nixle alerts via email and/or text message. APD Dispatch can quickly send out notices when there is an incident on the Glenn Highway. In situations where a lane or road is closed, APD also sends a notice when the incident is cleared and all lanes or roads are open. Nixle alerts are also posted on APD's social media feeds. DOT&PF does not have access to Nixle and relies on APD Dispatch to send out alerts.

#### 4.4.2 511

In 2000, the FCC designated the phone number 511 as a nation-wide three-digit telephone number for traveler information. The system is implemented locally by states and local agencies. In Alaska, the 511 system has been expanded to include a website and text or email alerts, in addition to the phone system. DOT&PF manages the 511 system statewide and is responsible for maintaining the information on it. To ensure traffic information is posted quickly, DOT&PF has partnered with APD Dispatch. When APD sends a Nixle alert with specific key words related to traffic closures and DOT&PF roadways, the alert is automatically relayed through 511. Travelers can also access road construction and weather related information using 511.

#### 4.4.3 Social Media

Currently, DOT&PF and APD use Facebook, Twitter, and Instagram to communicate to the public. Nixle alerts are posted on APD's feeds. DOT&PF uses social media to post information about Department events and safety tips, as well as traffic alerts. Members of the public sign up to follow APD and DOT&PF on these various outlets and can also access them through their websites.

The Glenn Highway Traffic Report Facebook page is a closed group with over 38,000 members. Individuals must request to join the group and only members of the group can post to the page or see other's posts. It is administered and moderated by private citizens. Members of the group post information about traffic conditions and travel times and DOT&PF's Facebook posts about delays on the highway are re-posted by the administrators. Posts on the page are deleted on a regular basis. According to the survey results, it is the most popular method people use to find out about traffic conditions on the Glenn Highway.

#### 4.4.4 Media Outlets

Traditional media outlets include radio, television, and newspaper. Each outlet has a procedure for receiving news and information. APD and DOT&PF have designated public relations people that are responsible for communicating with the media.

#### 4.4.5 Email

Email is an efficient way to get information quickly distributed to a large number of people. Nixle messages are sent via email to subscribers. DOT&PF also sends email messages to people who have signed up to receive news and updates through GovDelivery. (Subscribers can also elect to receive GovDelivery messages via text).

#### 4.4.6 Changeable Message Sign

There is a large changeable message sign (CMS) northbound on the Glenn Highway at approximately MP 7. APD has the primary responsibility of posting messages on the sign, but DOT&PF's Media Liaison can also post. APD and DOT&PF coordinate on the messaging and follow specific guidelines. Currently, one of the rows of bulbs on the sign is not working which limits all messages to only two lines of text.

#### 4.4.7 Incident Website

When an incident is going to impact travel conditions for longer than 12 hours, DOT&PF develops a website. The website allows up to date information to be shared, as well as serving as a repository for all information shared with the public. Background material and detailed information (for example, detour maps) can also be posted. The URL should be provided with the messages sent through other means of communication.

## 4.5 Communication Action Plan

Table 5 summarizes the who, what, how, and when for communications regarding delays on the Glenn Highway under various scenarios.

**Table 5: Communication Action Plan**

| **Anticipated Length of Closure: Less than 4 hours**<br>Potential causes for a closure of this length are crashes, rollovers, wildlife collisions. | | | |
|---|---|---|---|
| **Communication Lead** | **Message** | **Method** | **Timing** |
| APD Dispatch | Warning of the incident.<br>Alert drivers to use caution. | Nixle | At the beginning and end of event. |
| **Anticipated Length of Closure: 4 - 8 hours**<br>Potential causes for a closure of this length are multi-vehicle crashes, potentially with major injuries. | | | |
| **Communication Lead** | **Message** | **Method** | **Timing** |
| APD Dispatch<br><br>(Notify DOT&PF Media Liaison if the closure will be during peak hours) | Warning of the incident.<br>Alert drivers to use caution.<br>Estimate time of closure, if possible. | Nixle<br>511<br>Email* | At the beginning and end of event.<br>Update every 3-4 hours. |
| * DOT&PF Media Liaison to email elected officials if incident occurs during peak hours. | | | |
| **Anticipated Length of Closure: 8-12 hours**<br>Potential causes for a closure of this length are multi-vehicle crashes, potentially with major injuries or fatality; hazardous material spill. | | | |
| **Communication Lead** | **Message** | **Method** | **Timing** |
| DOT&PF Media Liason<br>(Notify Incident Management Team Leader) | Warning of the incident.<br>Alert drivers to use caution.<br>Estimate time of closure, if possible.<br>Suggest staying off the road. | Nixle<br>511<br>Media<br>Email<br>Social Media | At the beginning and end of event.<br>Update every 3-4 hours. |
| DOT&PF Media Liaison to email elected officials. | | | |
| **Anticipated Length of Closure: 12-24 hours**<br>Potential causes for a closure of this length are fatal crashes, hazardous material spill, damaged infrastructure, police activity. | | | |
| **Communication Lead** | **Message** | **Method** | **Timing** |
| DOT&PF Media Liaison<br>(Notify Incident Management Team Leader) | Warning of the incident.<br>Alert drivers to use caution.<br>Estimate time of closure, if possible.<br>Detours in place.<br>Stay off the road if at all possible. | Nixle<br>511<br>Media<br>Social Media<br>Email<br>Incident Website | At the beginning and end of event.<br>Update every 3-4 hours. |
| DOT&PF Media Liaison to email elected officials. | | | |
| For incidents of this length, the Incident Management Team will be convened. Representatives of the IMT will be responsible for communicating to their organization. | | | |

**Table 5: Communication Action Plan (continued)**

| **Anticipate Length of Closure: More than 1 day**<br>Potential cause for a closure of this length is damaged infrastructure that must be repaired prior to opening the roadway. Temporary infrastructure may need to be constructed. | | | |
|---|---|---|---|
| **Communication Lead** | **Message** | **Method** | **Timing** |
| DOT&PF Media Liaison (Notify Incident Mmgt Team Leader) | Warning of the incident.<br>Alert drivers to use caution.<br>Estimate time of closure, if possible.<br>Detours in place.<br>Stay off the road if at all possible.<br>Encourage employers to allow employees to stay home.<br>Close schools as necessary. | Nixle<br>511<br>Media<br>DOT&PF Social Media<br>Email<br>Incident Website | At the beginning and end of event.<br>Update every 4 hours. |
| DOT&PF Media Liaison to email elected officials and provide regular updates. | | | |
| For incidents of this length, the Incident Management Team will be convened. Representatives of the IMT will be responsible for communicating to their organization. | | | |