Using Text Messaging to Locate and Verify Incidents Outside of Traffic Management System Coverage Areas

Transportation Management Center (TMC) Pooled-Fund Study
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Presentation Outline

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Issues Faced by Departments of Transportation (DOTs) in Locating Incidents Outside TMS Coverage Areas

- Public-safety access point (PSAP) and TMC operators cannot quickly and accurately locate incidents or stranded motorists outside of TMS coverage areas.

- Monitoring capabilities are unavailable (e.g., cameras and detection):
  - Intelligent transportation system (ITS) devices are costly to install and require ongoing operations and maintenance.
  - Incident locations and details are difficult to verify.

- Stranded motorists may not know their location:
  - Operators may need to train callers on how to determine their location.
  - Location uncertainty adds time to incident response.

- Cellular connectivity in rural areas is unreliable, resulting in dropped calls.

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State of the Practice for Locating Incidents

Existing methods used to locate incidents include:

- Field reports received through calls to a 911 center/PSAP.

- Mobile applications:
  - Citizen reporting.
  - Social media platforms.

- Caller references to mile markers.

- Unmanned aircraft systems.

- Automatic crash notification.

- Advanced automatic crash notification.

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Direct Text Messaging with Travelers

- Software platforms work concurrently with a TMS (or 911) computer-aided dispatch (CAD) or call-taking software:
  - Software must be purchased.
  - Software consists of a toolbar that "floats" on top of the CAD/call-taking interface.
  - Toolbar remains idle until clicked.
- PSAP/TMC operators use the toolbar to type in an inbound caller's telephone number to send a text requesting the caller's permission to access their smartphone.
- Inbound callers click on a link within the text to provide permission to access data from their smartphone, including:
  - GPS coordinates (plotted on the CAD map).
  - Speed.
  - Camera images and video (including live video).
  - Closest estimate building address.
- Smartphone information can be saved and shared with responders to improve incident response.

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Benefits: Direct Text Messaging with Travelers

- Reduces time to locate incidents.

- Provides images and video quickly with consent from the motorist:
    - Assists in location/direction of travel.
    - Improves the dispatch of required resources.

- Enables caller to click a link via text instead of downloading an app—depending on the specific solution.

- Reduces risks from dropped calls since operators can remain connected with the caller through text messaging.

- Requires minimal time for deployment-with only a 2-mo installation period.

- Leverages traveler-owned smartphone devices, reducing agency need to implement point-based technologies.

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Desired Outcomes

Direct text messaging with travelers enhances an agency's TMS capabilities:

- Identifies incidents more quickly.

- Provides medical treatment to injured motorists more quickly.

- Reduces the duration that incidents impact travel and restores normal operations more quickly.

- Reduces operator workload and effort.

- Reduces capital, operations, and maintenance costs associated with new ITS field devices.

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Key Issues: Direct Text Messaging with Travelers

- Requires that the caller provide the operator permission to remotely access their phone:
  - Request is generated by the user, so generally not an issue.
  - Images or video captured and saved on DOT servers will require changes to their polices.

- Requires that the TMC accept calls from travelers.
  - Delay in reporting the location information to the TMC can occur when 911 centers relay incident information to TMCs that do not take calls.

- Requires driver action to quickly locate an incident. Not ideal for:
  - Incidents where drivers lose consciousness or are otherwise not able to call or accept permissions.
  - Incidents where vehicles come to rest in areas that are not easily viewed by other motorists.

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Current Practices: Direct Text Messaging with Travelers (1 of 2)

Georgia DOT:

- o Carbyne software works in parallel with the existing call-handling platform to locate the caller. [1]

- o Dispatchers use the caller's phone number to text a link to their cellphone.

- o Caller accepts permissions in the text to allow access to phone location, camera images, and video.

- o Results of pilot program revealed a 17-min decrease in response times. Also observed reductions in incident clearance times and improved customer service.

- o Georgia DOT formally incorporated the solution into its incident management process based on the pilot results.
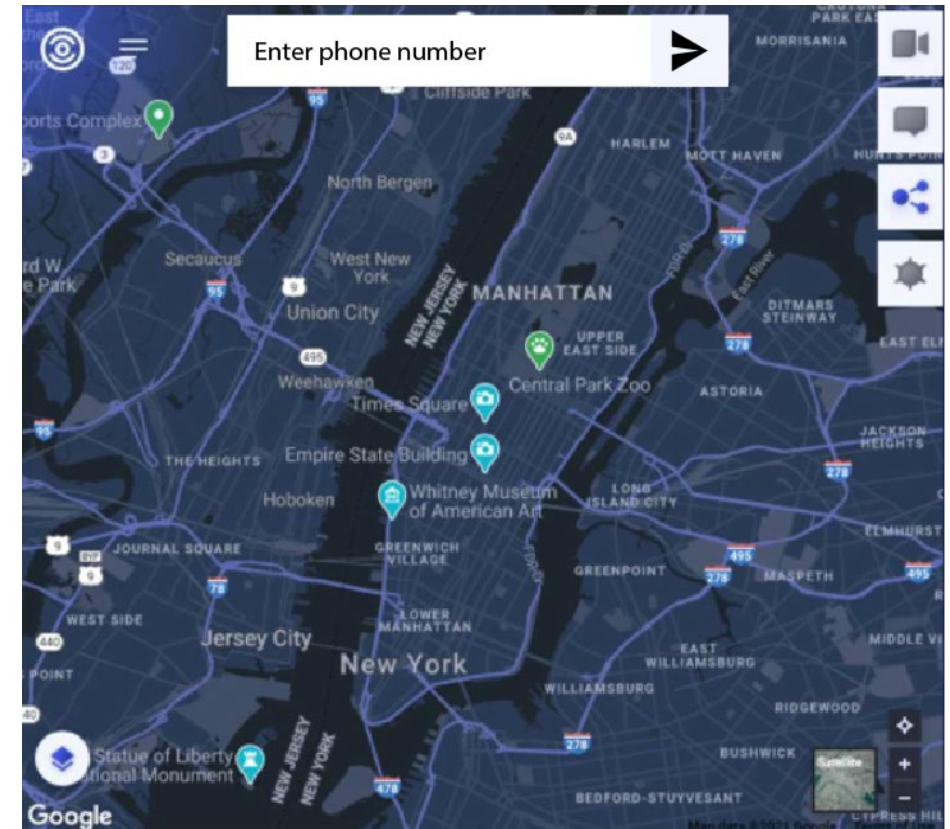
Original map © Google® Maps™.[2] Carbyne user interface screenshot. © Carbyne.

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Current Practices: Direct Text Messaging with Travelers (2 of 2)

- New Jersey Turnpike Authority:
  - o Direct text messaging with travelers implemented as part of SafeTripNJ.[3]
  - o Feature included within an app that a motorist downloads.
  - o User must open the app to enable the feature for the global positioning system coordinates to be shared.
  - o User clicks for assistance, and their location is pinpointed.
  - o Vendor offers additional add-on features similar to those GDOT uses.
- The Authority views the service favorably.

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Lessons Learned: Direct Text Messaging with Travelers

- Cost-effective solution compared to deploying additional field devices.

- Vendor solutions may exist to improve information/data exchange between 911/PSAP and TMC.

- Proper sensitive information storage will be required.

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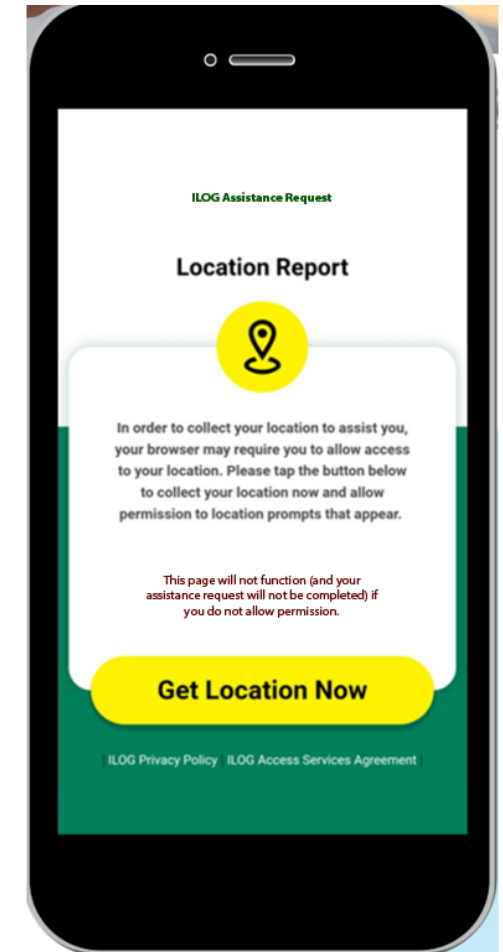
Available Resources

- <u>TET Coalition (The Eastern Transportation Coalition) Travel Information Web Roundtable (Georgia GDOT presentation, slide 18)</u>.[4]

- <u>GDOT AASHTO Project Nomination Form</u>.[5]

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Additional Information on Other TMS Practices

- TMS Portal.[6]

- TMC PFS website.[7]

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