Opportunities for Traffic Management Systems (TMSs) To Share Incident Information

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Overview

Topic	Slides
1. Issues, challenges, and benefits to consider with TMSs using different methods to share incident information	3–8
2. Agency practices and lessons learned	9–12
3. Resources	13–15

Methods of Sharing Incident Information

- Agencies have the potential to share information on incidents to improve response, coordinate actions, and mitigate the impacts of an incident.
- Some TMSs have limited ability to share timely information on incidents and often rely on email and phone calls.
- Several agencies are developing capabilities that enable TMSs to share information electronically to quickly disseminate notifications to the applicable individuals.
- Technologies, software, and other resources may be procured and integrated into TMSs to enable the electronic sharing of information.

Examples of Incident Information Sharing

- A TMS sends electronic messages to notify and update the appropriate agencies, stakeholders, and emergency service providers when an incident is reported or observed.

- A TMS notifies and provides specific information to the appropriate individuals within an agency based on the type, location, and impacts of an incident.

Challenges With Current Practice

- TMSs may not have the ability to share information electronically but rely on email and phone communications.
- Technologies, software, and other resources may need to be procured and integrated into existing systems.
- Most TMS information-sharing tools rely on user permissions:
  - Permissions are set by the administrator or self-selected by the user.
  - Mechanisms are needed to ensure the correct information is shared with the intended people or groups.
- Critical information may need attention from applicable individuals:
  - Certain notifications should stand out from routine emails and text messages.
  - TMSs may need to provide specific information to appropriate individuals within an agency based on the type, location, and impacts of an incident.
- TMSs need accurate information:
  - Information may need to be vetted and confirmed by TMS staff or field personnel.
  - Accuracy is essential before sharing information with the public.

Desired Outcomes of Improved Incident Information Sharing

- Reduced incident delays from access to information, situational updates, and enhanced response to and clearance of incidents.
- Minimized time, resources, and staff needed for TMSs to share information and coordinate in response to specific incidents.
- Improved information sharing and electronic coordination among operators within an agency and with emergency service providers, other agencies, and stakeholders from procuring, developing, and integrating technologies, tools, and resources.
- Customized access, notification frequency, and level of information and updates to allow various stakeholders to receive and manage information at the appropriate level for their engagement in traffic incident management.

Benefits of Improved Incident Information Sharing

- TMSs can quickly share incident-related information electronically:
  - Facilitate coordination to streamline the development, delivery, and access to incident notifications and situational updates.
  - Minimize the time and effort needed by TMS staff to prepare and share this information, such as sending emails or making phone calls.
- Interactive tools (e.g., mapping and uploading features) can be integrated into TMSs to facilitate the compilation and dissemination of incident-related information.
- Permission levels can be set or selected by TMS staff to ensure information is shared with the intended person or groups:
  - Share within or outside an agency.
  - Set based on the type, location, and implications of an incident.

Incident Information Sharing Questions to Consider

- What new technologies and software can be integrated with TMSs to enable the sharing of incident-related information and coordinating electronically with different groups?

  Considerations:

  - Software development, integration, testing, and management issues.
  - Procurement and cost considerations.
  - Software requirements to interface with other systems.
  - Other technologies or resources to support the sharing of incident information.

- What policies, procedures, and controls may be needed to support establishing and maintaining the sharing of incident-related information?

- What information may need to be shared with applicable individuals based on location and potential impacts of different types of incidents (e.g., within an agency, with emergency service providers, and other stakeholders)?

- What methods may be needed to share incident-related information and coordinate electronically with different groups within an agency?

- What may be needed to facilitate a TMS' ability to share information with different agencies, emergency service providers, or stakeholders?

Current Practices: Iowa Department of Transportation (DOT) Mobile Architecture for Communications Handling (MACH)[1]

Iowa DOT MACH is a communications tool to facilitate the sharing and dissemination of incident information.

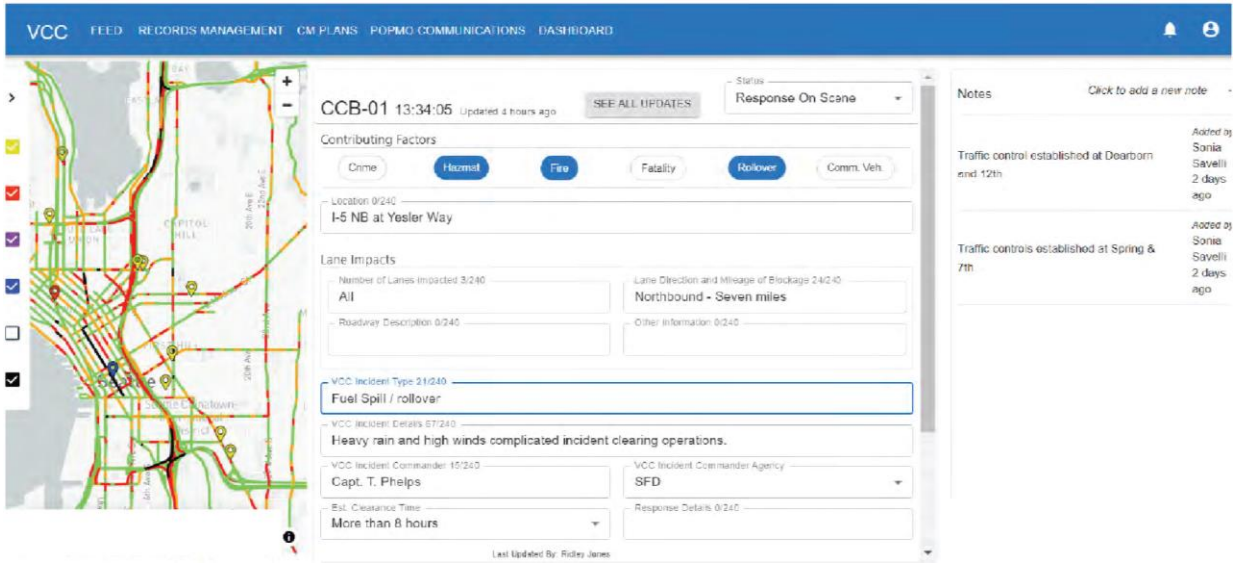
- Information sharing:
  - Notifications.
  - Vehicle locator and mapping tools.
  - User-to-user chat messaging.
- Dashboard notifications for active users: Separate email updates based on user settings.
- Successful application:
  - Effectively eliminated the need for separate phone calls.
  - Improved response and clearance times.
  - Resulted in MACH being licensed to other State DOTs.

Original map © Google® Maps™. [2] MACH software © Iowa DOT.[1]

MACH User Interface.[3]

Current Practices: Washington State DOT (WSDOT) Virtual Coordination Center (VCC)[4]

- Operational software model, not yet deployed.
- Cloud-based information sharing:
  - Law enforcement and other incident responders.
  - Traffic and transit management centers.
  - Public information staff.
- User access varies based on system role:
  - All users have read permission.
  - Some users have expanded role-based permissions:
    - Edit real-time information.
    - Post perimeters, detours, and closures.
    - Upload visual information.
  - All inputs and edits are vetted by TMC staff and time stamped in the system.



VCC User Interface.

Current Practices: Oregon DOT (ODOT) Inview[5]

- Developed to provide State highway situational awareness to ODOT staff.
- Allows ODOT users to select:
  - Type of desired alerts: Weather, incident, work zones.
  - Method for receiving alerts: Email, mobile text, phone call.
  - Relevant locations: ODOT districts, highways, mileposts.
- Integrated with ODOT Transportation Operations Center platforms: Inview messages can be pushed to outside agencies (e.g., State police, local police, 911 centers).

Lessons Learned on Incident Information Sharing

- Systems sharing incident information can benefit stakeholders by:
  - Disseminating situational updates broadly and rapidly.
  - Enhancing incident response.
  - Minimizing the time and effort needed to share this information through email notifications or phone calls.
- Interactive tools can be integrated to allow visual information to be uploaded and mapping applications to be used:
  - Enabling instant messaging to speed stakeholder communication.
  - Streamlining incident detection, response, and clearance times.
- Users can set or select permissions to ensure information is shared with the intended person or group(s).

Available Resources

- Iowa DOT MACH.[3]
- WSDOT VCC.[4]
- ODOT Inview.[5]
- TMS portal.[6]
- TMC Pooled-Fund Study website.[7]

References

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