

Improved Incident Response through Coordinated, Interoperable Communications

Introduction

Traffic incidents have significant economic, social, and environmental impacts. These incidents require a coordinated and efficient response to reduce the risk to travelers' and responders' lives and mitigate other negative impacts. Congestion resulting from incidents can lead to secondary crashes, further increasing safety risks and economic costs. Traffic Incident Management (TIM) is an effective way to detect, respond to, and remove traffic incidents from roadways in a safe and timely manner.

Objective

This project's objective was to improve incident response through coordinated, interoperable communications in Louisiana. The specific project objectives were to:

1. Perform an operational needs assessment and a performance evaluation of the TIM system in Louisiana.
2. Identify areas for TIM improvement and interoperability as a solution to communication gaps.
3. Provide recommendations for TIM improvement and strategies to advance interoperable communications for incident response.

Scope

This study focused on improving incident response through interoperable communications. Only the TIM system on Louisiana's interstate highways was considered in this study. An extensive assessment was performed on Louisiana's TIM with a focus on interoperable communications. Gaps were identified, and based on these findings, recommendations were made to improve the state's TIM through interoperable communications and other major measures.

Methodology

The objectives of this study were fulfilled by adopting several approaches. These included performing an extensive literature review, an evaluation of the TIM system in Louisiana, and a performance evaluation.

Other tasks completed included a needs analysis and engagement with other US agencies that have successfully implemented interoperable communications into their TIM. Surveys, interviews, phone calls, and an observation of responder operations were used to complete these research tasks. Finally, recommendations were made to improve the TIM in Louisiana, including the integration of interoperable communications.

Principal Investigators

Milhan Moomen, Ph.D.
M. Ashifur Rahman, Ph.D.
225-767-9161

LTRC Contact

Julius A. Codjoe, Ph.D., P.E.
225-767-9761

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Conclusions

The following conclusions were made from the study:

- Louisiana has a reliable interoperable communication system that is used primarily in large scale events. Louisiana's TIM could be enhanced by integrating critical interoperability features that have recently become available, such as the ability to share information resources from responders, improve information sharing multimedia data, and form chat groups by vetted personnel.
- The lack of direct communication between the TMCs and response agencies may predispose TIM to delays and loss of information, especially in areas where MAP does not operate. This communication arrangement was found to be deliberate to reduce the risk of leaking sensitive information.
- TMCs are not fully integrated with law enforcement computer-aided dispatch (CAD), leaving the TMCs to rely on the public web pages of CAD shared by different parishes. Information from these sources is often unconfirmed and does not allow seamless integration with TMC software, requiring operators to enter information into the TMC system manually. TMC-CAD integration will improve incident response and clearance times.
- Louisiana's TIM is in need of strengthening and reorganization. For instance, there are no TIM standard operating procedures, incident response plans, interagency agreements, regular TIM meetings, or joint training exercises. These TIM elements could be activated by reorganizing the state's TIM program.
- Considerations for integrating interoperable platforms include gaining leadership buy-in, engaging with stakeholders (including actual users in defining functional requirements), engaging with the legal department, creating long-term budgets, selecting an intuitive, simple platform, and addressing compatibility issues across agencies.
- While there have been recent efforts to identify and collect TIM performance measures, these metrics are not being shared with TIM partner agencies.
- It has been suggested that the benefits of integrating the respective interoperable communications platforms outweighed the costs in terms of improving incident response and enhancing inter-agency coordination. Also, the previous experience of one or more agencies with the platform made it easier to convince other agencies to be part of the integration, and that interoperable platforms should be treated only as secondary support systems.
- There is an ongoing shortfall in Louisiana's TIM funding. Discussions with TIM managers indicated the DOTD budget for TIM has not increased significantly in the past two decades despite the steep rise in the prices of goods and services.

Recommendations

The following recommendations were made based on the findings of the study:

- Louisiana's TIM could be enhanced through the integration of a web-based interoperable communications platform that permits the sharing of voice, text, data, and multimedia information, especially for large events involving multiple response agencies.
- Efforts should be made to fully integrate law enforcement CAD into TMC systems. This integration would automate several aspects of incident response for the TMCs. This would be challenging because it requires new protocols and legislation, but it has been achieved in other states.
- Louisiana's TIM should be reorganized and strengthened. This reorganization should focus on forming TIM committees at the local and regional levels. The statewide TIM steering committee should then coordinate the development of standardized TIM program elements such as SOPs, communication protocols, interagency agreements, and joint training exercises.
- The common hallmark of many successful TIM programs is the presence of a champion. In light of this, several champions should be selected to promote and bolster TIM in Louisiana.
- TMC and MAP coverage should not only be preserved but also extended to more urbanized areas in Louisiana. Most TIM stakeholders in the state acknowledge that the TMCs and MAP are valuable resources for the TIM; in light of this, these programs should be expanded.
- TIM performance measures should be used across the Louisiana. Additionally, these performance measures should be shared with TIM partner agencies.
- Louisiana should take advantage of new technology being promoted by the federal government by incorporating them into the state's TIM as they become available. These include advance warning systems, NG911, UAVs, and emergency vehicle lighting, among others.
- A well-functioning and successful TIM program relies heavily on sustained funding. Given that the DOTD funding for TIM in Louisiana has not substantially increased in recent years, it is crucial to explore creative solutions to this issue. Dedicated sources of funding, including federal resources, should be considered.