ABSTRACT

Engineers, planners and freeway management system operators in many urban areas are finding themselves working in an increasingly data rich environment. The availability of this data allows analyses of multiple aspects of freeway operations and can help to inform decisions about traffic control systems, incident response programs, and other management strategies. This paper describes effectiveness of an incident response program in Portland, Oregon. Data used in this study were extracted from an archived computer-aided dispatch, automated vehicle location systems (AVL), indutive loop detectors and weather archives. The data are used to show various ways of presenting transportation information being used as indicators of the effectiveness of an incident response program. This type of evaluation is necessary on an on-going basis in order to clearly articulate the benefits and costs of this critical component of the regions traffic management system.

INCIDENT MANAGEMENT

Incident management is a critical public safety and traffic management technique designed to:

- Decrease emergency vehicle response times
- Reduce incident duration, severity, and associated delay
- Reduce fuel consumption and emissions
- Prevent secondary accidents
- Improve emergency and highway maintenance personnel
- Ensure that roadway facilities are kept in a safe operating condition for the driving public.

INCIDENCE RESPONSE IN PORTLAND

The COMET program began service in March 1997, and now covers the Portland metropolitan area nearly 24 hours a day with 11 specially equipped IR vehicles. Each vehicle travels an average of 3,000 miles a week, which allows officers to maintain frequent patrolling of the freeway. IR vehicles have state-of-the-art communications equipment, including a relatively fast, low-latency data link, and are equipped with the most modern tools for incident response and investigation. IR vehicles are equipped with push bumpers and tow cables to push, pull or drag disabled vehicles off the roadway.

CONCLUSION

The IR vehicle is often the first on the scene after a crash and is able to provide first aid that may save a person’s life or reduce the total health care costs that will be necessary. The IR staff provide good will and public relations value, providing a sense of security and safety for drivers that is difficult to measure. IR responders assist with hazardous material spills, which prevent harm to wildlife, soil and water quality. Responders can relay maintenance issues to traffic management for handling, possibly preventing future incidents. With respect to construction areas, the IR staff can monitor the status of cones, barricades and signage to help maintain safety during periods when construction is not occurring.

While the data were not available to conclude that the benefits of COMET outweigh the cost it is reasonable to conclude that it does. The responders only need to reduce the duration of each incident by just a few minutes to have a measurable impact on the flow of traffic. It is impossible to measure and assign a dollar value to the numerous other environmental and public relations benefits of the program.

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Using the archived vehicle location data and the incident database we can determine the location of an incident and the location of the available IR Vehicles. This map shows an 11 car crash on I-5 near Multnomah Blvd on a Tuesday afternoon. Two IR vehicles responded and the incident was cleared in 1 hour and 27 minutes. Studying past incident locations, IR vehicle locations and response times, we can evaluate and make recommendations for improvements to the current program.