



IMPROVING COMMUNICATIONS TO MANAGE INCIDENTS

A Solution for Rhode Island

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The Rhode Island Transportation Management Center documented a dramatic improvement in incident response after a state police trooper was assigned to support traffic monitoring. The study results proved that communication between the highway agency and incident responders is critical to effective freeway traffic management.

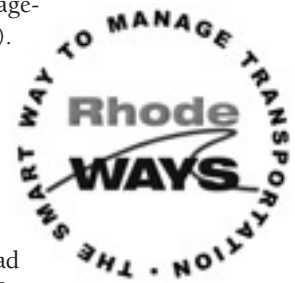
Congestion on Rhode Island highways, especially in the Providence area, has become an everyday event—the demand for roadways far exceeds capacity. In Rhode Island, traffic incidents resulting in lane closures account for as much as 60 percent of all vehicle hours lost to congestion. To reduce the amount of time wasted by motorists in traffic, the Rhode Island Department of Transportation (DOT) improved communications between the two state agencies responding to incidents and evaluated the effectiveness of the improvements.

Problem

Communication between Rhode Island DOT and the Rhode Island State Police—the major responders to incidents on state roads—was inefficient. Incidents were not being reported to the newly constructed

Transportation Management Center (TMC).

As a result, TMC operators were compelled to rely on media reports, police scanners, and surveillance cameras for information on road conditions. The lack of incident information delayed notification of motorists through highway advisory radio and variable message signs, reducing motorists' ability to make alternate driving decisions.



Solution

The solution to improving communications was to assign a Rhode Island state police trooper to the TMC to assist operators in obtaining information from the police responding to incidents. The trooper monitors the state police radio and the traffic surveillance cameras and, most importantly, handles all communications between the TMC and state police in the field. Effective communication with police at the time of an incident has proved to be critical to the TMC's ability to respond.

The TMC commissioned a study of the effectiveness of this collaboration to justify the funding for state police personnel. The research analyzed the number of incidents reported by the state police to the TMC and the benefits and costs of the change in reported incidents. The research periods compared were September through November 1999 and 2000—the only change in practices between 1999 and 2000 during those months was the introduction of the trooper at the TMC. Only incidents resulting in a lane closure were considered for the evaluation.



From left: William D. Ankner, Director, Rhode Island Department of Transportation; Robert Cahill, TMC operator, Corporal Scott Hemingway, Rhode Island State Police; and Cynthia Levesque, TMC Manager, review data incident logs on the TMC bridge.

Corporal Rohan (*right*), Trooper, Rhode Island State Police, and Lou Fiore, Lead Operator, Transportation Management Center (TMC), communicate incident information to support personnel. Surveillance cameras and state police radio system located on the TMC bridge provide timely information.



The study found that the presence of the trooper had a large effect on the number of incidents reported to the TMC. There was a 77 percent increase in police-reported incidents—from 92 in the 1999 period to 163 in the 2000 period. The number of incidents reported from other sources grew by 25 percent, from 51 to 64. Most significantly, the number of incidents for which the TMC could provide driver information, through highway advisory radio and variable message signs, increased by more than 200 percent, from 24 to 76. TMC staff confirm that this increase in responses is largely attributable to the timeliness and specificity of the police reports.

Data from the incident logs maintained at the TMC disclosed that the average delay per vehicle during peak hour incidents was 48 minutes. According to the *Traffic Management Handbook*, published by the Federal Highway Administration, 10 to 20 percent of drivers will change their routes after receiving information via highway advisory radio and variable message signs.

Average traffic volume on the roads monitored at the times of incidents was estimated to be 5,400 vehicles per hour. It was therefore estimated that 540 cars would use alternate routes during incidents for which the TMC issued notification.

The time saved per vehicle taking an alternate route was estimated to be 38 minutes. The time savings from the additional 52 incidents for which TMC was able to provide driver information during September–November 2000 is estimated to have a value of \$200,000 to travelers.

The cost of the police presence in the TMC was the troopers' salaries for the time spent in the center. Comparing this cost to the travel time savings showed a benefit–cost ratio of 16 to 1.

Application

The initial commitment was to have police in the TMC for a one-year period. The contract between Rhode Island DOT and the Rhode Island State Police has been extended as a result of the documented benefits. The research findings are being disseminated to policy makers to validate the incident management program and are heightening awareness of the benefits of intelligent transportation systems to motorists.

Qualitative Benefits

The research has shown that the state police presence has reduced travel time. Other benefits cannot be calculated in terms of dollars. The state police report that access to the TMC's traffic surveillance cameras helps to reduce response time and permits a more accurate assessment of incidents to ensure that appropriate response teams are dispatched.

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Suggestions for "Research Pays Off" topics are welcome. Contact G. P. Jayaprakash, Transportation Research Board, 2101 Constitution Avenue, NW, Washington, DC 20418 (telephone 202-334-2952, e-mail gjayapra@nas.edu).