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OFFICE OF TRANSPORTATION SYSTEM MANAGEMENT

TECHNICAL SUMMARY

Technical Liaison:

John Griffith, MnDOT
John.Griffith@state.mn.us

Project Coordinator:

Alan Rindels, MnDOT
Alan.Rindels@state.mn.us

Principal Investigators:

Andrew Mielke and Adrian Potter,
SRF Consulting Group, Inc.

PROJECT COST:

\$95,060



Permanent alternate route signs use the Interstate shield to keep diverted drivers on track.

Alternate Route Signing Aimed at Helping First Responders, Reducing Secondary Crashes

What Was the Need?

Each year dozens of vehicle crashes, spilled loads and other incidents clog Minnesota freeways, causing major backups along key transportation corridors. Traffic randomly detours, choking off local roadways as drivers use intuition, maps or GPS to find alternate routes. These impromptu detours often stress and sometimes impede first responders and lead to secondary crashes, which further slow traffic and frustrate road users.

Effective alternate routing, on the other hand, diverts traffic onto efficient, well-signed routes that avoid areas susceptible to traffic snarls and secondary traffic from events, school zones and scheduled gatherings. First responders are free to respond to the incident, and secondary crashes on local roads are reduced. Response times and incident duration are shortened with an overall improvement in road user experience.

What Was Our Goal?

The purpose of this project was to develop a guide for alternate, signed route options in response to emergency incidents for freeway corridors on Interstate 94 in MnDOT District 3 and I-35 in District 6. Such signed routes would allow Minnesota State Patrol or other authorities to direct traffic off the congested freeway onto routes on which previously erected, permanent signs guide traffic through a viable, regulated route back onto the freeway. An alternate route operations guide would establish procedures for when and how to implement such routes and enhance interagency communication during these events.

What Did We Do?

Researchers developed an alternate route system for I-35 through MnDOT District 6 in 2014. The system includes 21 alternate routes along the Interstate from Exit 214 to Exit 76, a corridor that passes through Freeborn, Steele and Rice counties. In 2015, the research team developed an alternate route system for I-94 through District 3, a system of 25 alternate routes along the Interstate from Exit 207 to Exit 114, passing through Wright, Sherburne, Stearns and Todd counties.

Investigators followed a repeatable process. They worked with MnDOT district and central office staff, district staff, state patrol, sheriff's department staff and county engineers to develop recommendations that were then shared with large groups of city administrators, public works supervisors, police and fire departments, towing professionals and others from the communities and townships in which the surrounding road network runs. Researchers then developed multiple, preliminary routes for each alternate route segment.

A full vetting followed. Field reviews identified positive and negative characteristics of proposed routes, evaluating speed limits, existing traffic control devices, pavement con-

MnDOT district staff and researchers worked with local stakeholders to develop an easily implemented guide and signage plan for first responders to use to reroute Interstate traffic during traffic incidents. The process and plan help ensure interagency cooperation and buy-in.

“The Alternate Route Operations Guide offers a detour plan that would deploy where first responders need to have certain people. Signing would be in place, and they would have some portable signs on the freeway that would direct traffic.”

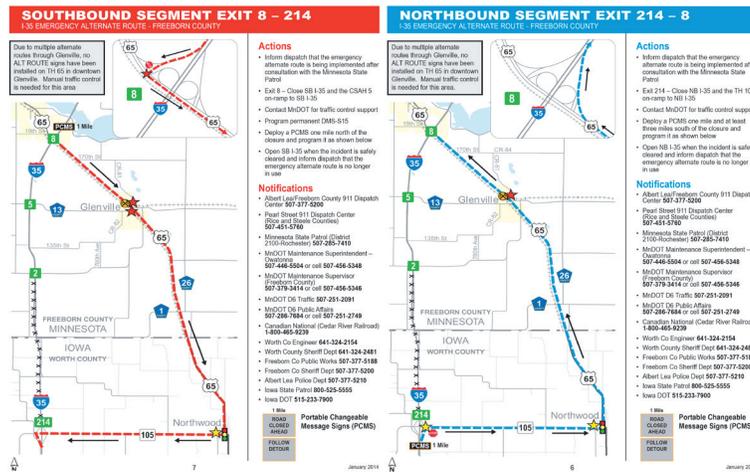
—John Griffith,
West Area Manager,
MnDOT Metro District

“The guide is a field manual. It identifies the alternate routes, the key features like where cameras are located and where to place portable dynamic signs, and lists the notifications and actions to take.”

—Andrew Mielke,
Principal, SRF Consulting
Group, Inc.

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Research Services & Library
MS 330, First Floor
395 John Ireland Blvd.
St. Paul, MN 55155-1899
651-366-3780
www.mndot.gov/research



The Alternate Route Operations Guide gives first responders a field manual to use in redirecting traffic off Interstates during traffic incident responses.

ditions, capacity constraints and more. Based on responses from stakeholder reviews, investigators then developed final, single alternate routes for each segment.

Researchers delivered an alternate route operations guide with pages for each segment in each traffic direction that include a map, temporary traffic control suggestions and steps appropriate officials must take. Each page also features phone numbers for local agencies that will need to coordinate efforts, such as 911 dispatch centers, state patrol, railroad offices and local public works offices. Researchers also produced a signing plan with precise locations and mounting specifications for signing to be installed permanently along the alternate route.

What Did We Learn?

MnDOT’s experience developing these alternate routes yielded several best practice recommendations:

- Actively engage local stakeholders. This builds momentum for the project and ensures buy-in.
- Sign alternate routes permanently. Permanent signs showing Interstate shields keep field personnel out of temporary signing situations and provide visual cues to drivers that reassure them in their route correction.
- Keep alternate routes as short as possible.
- Implement alternate routes only when the incident is expected to require more than 30 minutes to clear, and only after exhausting other options, like reducing traffic to a single lane.
- Provide incident management training to the emergency response community.
- Produce alternate route operations guides that are both practical and easily used by minimally experienced responders.
- Ensure that incident management equipment is readily available.
- Hold biannual, face-to-face meetings to update the guide, anticipate construction activities and evaluate recent use of the guide.
- Debrief with stakeholders following major incidents.

What’s Next?

The process developed in this project can be applied to other Interstate corridor sections in Minnesota. An interest in a guide and signing plan for District 4 on the I-94 corridor to the North Dakota border has been identified.

This Technical Summary pertains to Report 2015-43, “I-94 and I-35 Alternate Route Signing,” published August 2015. The full report can be accessed at mndot.gov/research/TS/2015/201543.pdf.