



U.S. Department  
of Transportation  
Federal Highway  
Administration

Research and Development

Turner-Fairbank Highway  
Research Center  
6300 Georgetown Pike  
McLean, Virginia 22101-2286

# ITS OPERATIONAL TEST SUMMARY

## GENESIS

### Introduction

Genesis was a Field Operational Test using alphanumeric personal communications devices (pagers) and personal digital assistants (PDAs) to distribute traffic information in the Twin Cities Metropolitan area of Minnesota. This test is the second of a group of three Minnesota Guidestar tests to complete that were sharing traffic information from the Minnesota Department of Transportation (MnDoT) Traffic Management Center (TMC) in downtown Minneapolis.

### Purpose

This test was a demonstration of the ability to distribute traffic information to very portable

personal devices, such as pagers. The test was focused on five evaluation areas:

1. System effectiveness
2. User perception
3. Institutional issues
4. Modeling
5. Human factors.

Due to technical problems, the use of PDAs was extremely limited, and the preponderance of available data comes from pager users.

### Methodology

The test coverage area is illustrated in Figure 1.

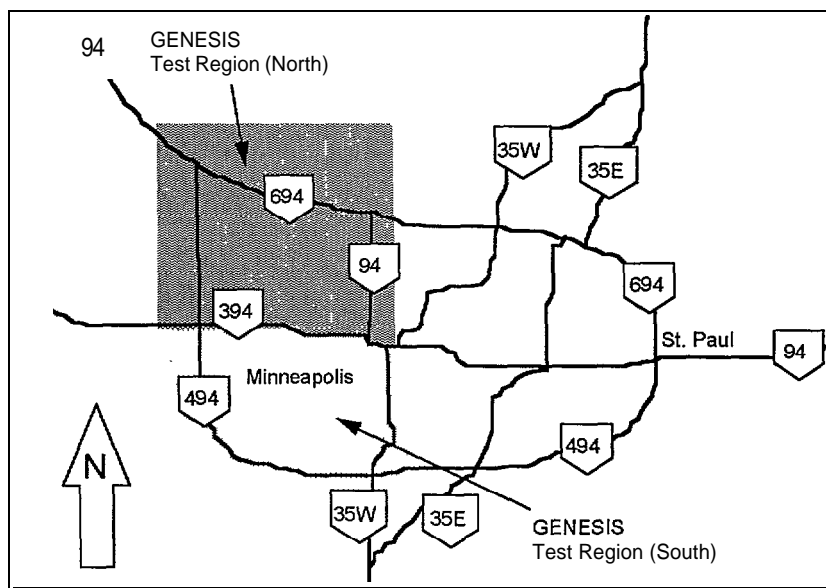


Figure 1. Genesis Test Coverage Area

492 individuals were recruited, including 210 existing pager users and 239 new users. Assessment of travel behavior changes and travel time benefits was done in three stages;

- First, users were surveyed to determine their existing travel patterns in the Genesis coverage area
- Second, when Genesis reported incidents, users whose profiles indicated high probability of traversing the affected route were queried about their response
- Third, based on the user's reported response to an incident, primary and alternate route origin-destination (O-Ds) were derived, and researchers drove the O-Ds under incident and non-incident conditions.

Focus groups were also used to gather information from participants.

## **Results**

The results from the surveys and focus groups were interesting and encouraging. 65 % of surveyed respondents reported that they used the Genesis capability every day, and for 52%, Genesis was the primary means of obtaining traffic information. The most frequent response to incident information was to take an alternate route, and it was determined that those who learned about incidents through the use of Genesis were much less likely drive through the incident (12%) than those who learned about incidents

through other means (radio, television, etc. - 42%) However, travel times were not reduced to a statistically significant level through the use of Genesis, and congestion and travel times increased on both primary and alternative routes when incidents were reported.

The data also suggest that there is a demand for traffic information that may be met by transmission to PCDs. Important lessons were learned regarding the nature of the information users desire, especially that approximate travel times are preferred to reports that traffic is slow or congested. Participants indicated that they would be willing to pay \$5 - \$10 a month for a Genesis-like service that distributes timely, accurate traffic information for relevant traffic routes.

## **Future Application**

Genesis operation was terminated at the end of the test. While technical feasibility was demonstrated, there was no commercial justification to keep it operational, as well as supported by MnDoT at the TMC. No inputs from the communications system providers were available.

## **References**

1. Minnesota Department of Transportation, Guidestar Program, Genesis Evaluation Final Report (Draft), Jan 1997.