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Implementation Report

MICROCOMPUTER IMPLEMENTATION OF SANTA:  
A PERSONNEL MANAGEMENT MODEL

by

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Purdue University  
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The result of this research has been the development of a multiobjective personnel model for use in the reassignment of summer construction workers to alternate site locations during the winter months where they will engage in snow and ice control activities. The model (called SANTA for Systematic Analysis of Noninferior Transfer Assignments) has been designed and implemented for use on existing Indiana Department of Highways (IDoH) microcomputers located at each of six District Offices. Presently, the model has been delivered to two Districts (LaPorte and Greenfield) in the form of a microcomputer diskette containing the object code for the model and a sample data file, and a complete description of how to use the computer program.

#### Benefits to IDoH

During the development of SANTA over a 2-year period, several sample data sets provided by IDoH were used to calibrate and test the model. These data sets were real in the sense that they reflected actual reassignment configurations. In all cases, the solutions generated by SANTA were implemented by District personnel with little or no modification.

To evaluate the performance of the model, a reassignment solution from a previous time period (1983-84) snow season was compared to the solution generated by SANTA for the same district for the 1984-85 snow season. While the reassignment requirement has shifted slightly between those two seasons, it was estimated that the overall savings to IDoH was approximately 92,000 person-miles during the season. Considering the

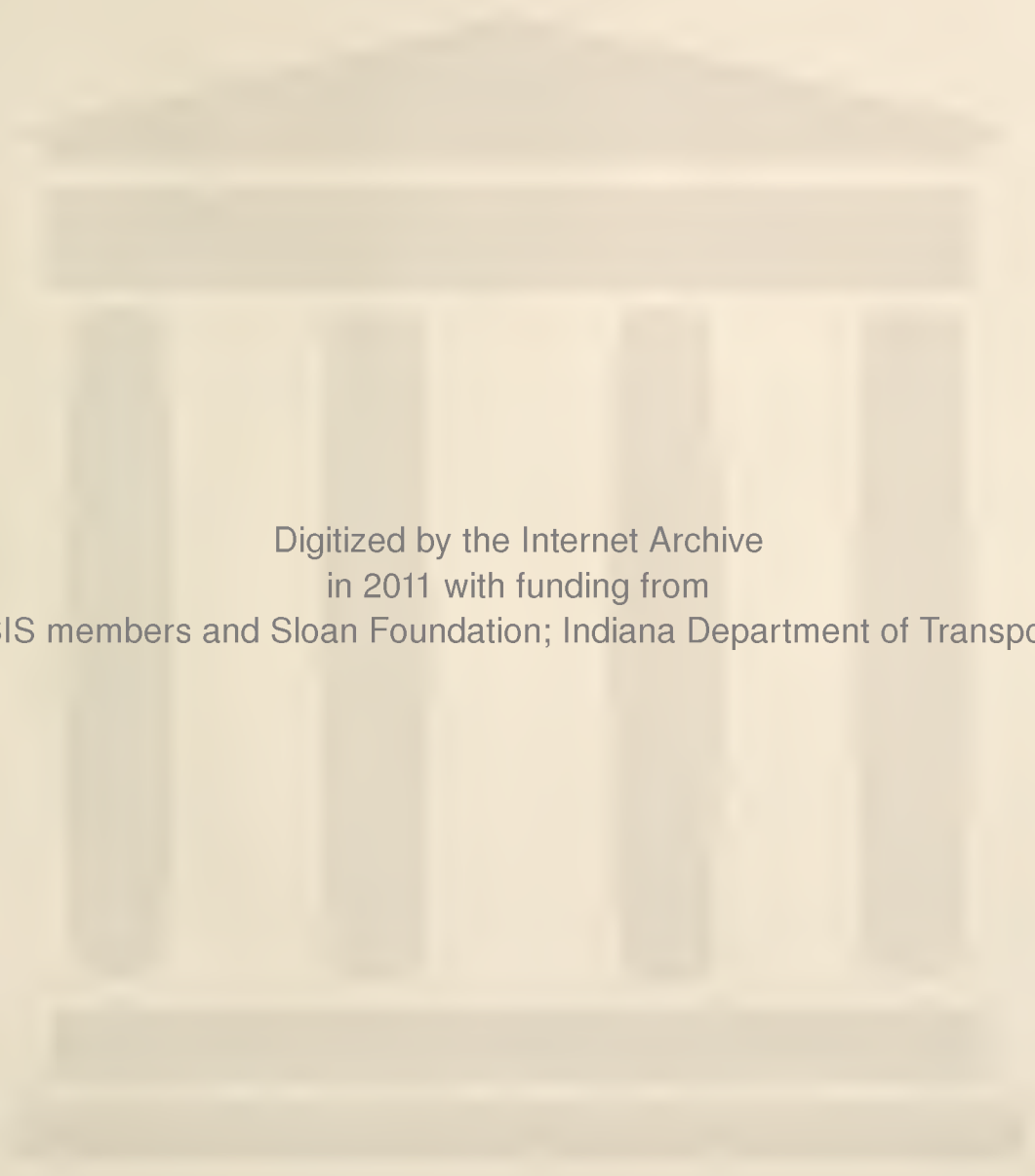
cost of providing transportation, vehicles maintenance and problems with personnel grievances, the estimated overall savings to IDoH was estimated to be in the vicinity of \$100,000 for that district alone during the 1984-85 snow season. Furthermore, the average travel distance from home station to job site dropped from 36+ miles/person to about 15, and the maximum travel distance was reduced from 56 miles to 30 miles. It may reasonably be argued that there was a corresponding positive impact on the quality and efficiency of overall service to the citizens of the state.

### Suggestions for Further Implementation

The SANTA model has shown to be an effective means of developing strategies for the reassignment of seasonal personnel within IDoH. Two specific suggestions are offered for further model implementation.

First, it is suggested that a small group of IDoH engineers and managers be formed to identify additional applications for the SANTA model such as the reassignment of construction personnel to job sites. This group should include Mr. Dennis Berg from the LaPort office, Mr. Brad Davis from the Greenfield office, and Mr. Clay Whitmire from the Central IDoH office.

Second, the Data Services Division within IDoH should be designated as the technical support group for the model and should be provided the necessary training to be able to use, and maintain the program. Toward this end, it is recommended that Mr. Tom Stuper from that office be placed in charge of model support. Mr. Stuper has been given a copy of the program and is thoroughly familiar with its use.



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