South Carolina
Department of Transportation

CLEMSON UNIVERSITY

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SUMMARY REPORT

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South Carolina
Department of Transportation
955 Park Street
PO Box 191
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Statewide Sign Management Implementation

STATEMENT OF THE PROBLEM AND SCOPE OF REPORT

It is estimated that the South Carolina Department of Transportation (SCDOT) maintains an inventory of approximately 371,000 signs statewide. A computer-based system is needed to track information pertaining to sign location, type, condition, facing material, and other sign characteristics. Ideally such a system would be tied to a geographic information system (GIS) so signs with specific characteristics, location, and/or replacement status can be displayed on a highway road map.

Prior to the execution of this research project, it was not known whether or not a commercially available sign management computer system would be sufficiently comprehensive and versatile to meet the sign management needs of the SCDOT. Further, the resources required to implement such a system had not been determined.

This report describes the implementation of a pilot computer-based sign management system in Anderson County, SC. The implementation project was conducted for the purpose of determining the costs and resources that would be required for statewide system implementation. The report discusses the inventory, inspection and computer data entry forms and procedures that were developed as part of the research project. The report also discusses linking the commercial sign management system to GIS software and the use of bar code technology to facilitate computer data entry.

SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS

Sign inventory, inspection, and data entry activities were found to be somewhat labor intensive. It was estimated that labor costs for statewide implementation would be approximately $3.00 per sign, or approximately $1,100,000. The computer hardware, computer software, bar code labels, global positioning system (GPS) units and digital cameras required for statewide implementation would cost an additional $800,000.

It is recommended that SCDOT implement the sign management system in all counties and districts simultaneously. Crews at the county level should gather inventory and inspection data. Computer system data entry could be performed at the district level, using the document imaging (handwriting recognition) software that is described in the report. The research did not utilize a networked computer system. However, it is anticipated that all counties and districts could be networked so statewide data can be manipulated by the system as required.

The commercial sign management software was found to meet the needs of SCDOT management personnel. The sign library that is incorporated into the software was easily modified to incorporate sign conventions used in South Carolina.

The Anderson County pilot project was executed using part time (student) employees for the inventory, inspection, and data entry tasks. The labor costs cited above were computed using productivity rates attained in Anderson County and labor wage rates of a full time SCDOT employee.

The forms and procedures that were developed as part of this research should greatly facilitate statewide system implementation. Two data forms were developed, one for inventory and inspection, and another to record changes in sign status, such as field installation, removal, or replacement. The recommended procedures developed as part of the research pertain to sign rating, route designation, sign coding, data transfer from the sign shop, and computer synchronization.

This research was conducted at Clemson University by Brad Williams and Lansford C. Bell.
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