PROJECT NUMBER:
00219

PROJECT TITLE:
Local Roads Bridge Replacement Prioritization Database (BRPD)

PRINCIPAL INVESTIGATOR:
James S. Davidson, Ph.D.
Assistant Professor
Department of Civil and Environmental Engineering
The University of Alabama at Birmingham
1075 13th Street South (Hoehn Building)
Birmingham, AL 35294-4440
(205) 934-8435  fax: 934-9855
jsdavidso@eng.uab.edu

PROJECT OBJECTIVES:
To research, specify, and construct a bridge replacement prioritization database program for county or municipal governmental level. The application tools will supplement the bridge replacement prioritization process by providing a simplified means to prioritize all structures with an overall span length of less than 20 feet.

PROJECT ABSTRACT:
The local roads bridge replacement prioritization database (BRPD) project categorizes and defines a deficiency point algorithm, an application procedure, and an appropriate database platform for the extension of generally accepted bridge replacement prioritization procedures to bridge structures less than twenty feet in length. The research and development process will consist of literature research, questionnaires, data-gathering visits, and peer review. The project will yield a widely applicable set of inspection guidelines, grading sheets, and an adaptable database to allow input, prioritization, and reporting of bridge replacement needs and costs on the local government level.

PROJECT TASK DESCRIPTIONS:
1. Research literature for available tools and technology suitable to development of a Local Roads BRPD.
2. Develop, review, and test a protocol for the creation of a database engine, supporting software, and useful reports.
3. Produce, test, evaluate, and review a database engine and support literature for the Local Roads BRPD.
4. Distribute, field test, and analyze feedback on the effectiveness and utility of the Local Roads BRPD.
5. Prepare and seek publication of an exit report following the cumulative review of the project.
6. Explore the possibility of funding from ALDOT for a much more comprehensive effort.
MILESTONES AND DATES:
Feb 1, 2000 - Startup
Apr 15 - Literature Review
Apr 20 - Develop Recommendations
Apr 25 - Peer Review
May 1 - Committee Report
June 15 - Prioritization Database Development
Aug 1 - Prioritization Tools and Worksheets Development
Dec 31 - Final Database Development
Jan 10, 2001 - Year 1 Final Report Preparation
Jan 30 - Year 1 Final Report Review
Jan 31 - Year 1 Final Steering Committee Comments

TOTAL BUDGET:
One year project: other (HPP) $52,320; total budget $104,641.

STUDENT INVOLVEMENT:
Two graduate research assistants will participate in this project.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
Drs. Richardson and Triche of the University of Alabama are conducting “Bridge Replacement Guide for County Engineers” UTCA project 99101 (phase 1) and 00117 (phase 2) that may relate to the efforts of this project.

TECHNOLOGY TRANSFER ACTIVITIES:
The primary technology transfer effort for this project will occur in the second year, which will be entirely devoted to training seminars on bridge management technology, product distribution, and an internet website. The second year, however, will be proposed separately after successful completion of this project. Presentations will be made at ALDOT and local roads conferences.

POTENTIAL BENEFITS OF THE PROJECT:
Program participants will gain immediate experience in the use of available technologies for bridge management activities. Furthermore, the local roads system, administered through the Alabama Department of Transportation and each County Engineer’s Office, will gain a valuable tool for administering, planning, and prioritizing their respective resources toward the reduction of annual and lifetime costs of infrastructure replacement. Limited database education will be provided to highway and engineering professionals. Furthermore, long-term benefits to each county or municipal body which chooses to implement this database might include the inspecting and replacing of structures that are not currently under statutory inspection cycles, providing vital budget programming information, and increasing the professional expertise of its users. The project will also help facilitate the education of graduate and undergraduate civil engineering students in state and county management issues.

TRB KEYWORDS:
Algorithms, bridge management systems, budgeting, coding systems, databases, infrastructure, inspection, local government, planning.