

TECHNICAL REPORT TITLE PAGE

1. REPORT NO.

TR-486 - 3 Volumes
+ Excel Foundation Design Templates

2. REPORT DATE

August 2004

3. TITLE AND SUBTITLE

Development of Abutment Design Standards for
Local Bridge Designs
Volume 1 - Development of Design Methodology
Volume 2 - Design Manual
Volume 3 - Verification of Design Methodology (available electronically only)
Microsoft Excel Foundation Design Templates (available electronically only)

4. TYPE OF REPORT & PERIOD COVERED

Final Report, December 2002 to August 2004

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7. ACKNOWLEDGMENT OF COOPERATING ORGANIZATIONS/INDIVIDUALS

8. ABSTRACT

Several superstructure design methodologies have been developed for low volume road bridges by the Iowa State University Bridge Engineering Center. However, to date no standard abutment designs have been developed. Thus, there was a need to establish an easy to use design methodology in addition to generating generic abutment standards and other design aids for the more common substructure systems used in Iowa.

The final report for this project consists of three volumes.

- The first volume summarizes the research completed in this project. A survey of the Iowa County Engineers was conducted from which it was determined that while most counties use similar types of abutments, only 17 percent use some type of standard abutment designs or plans. A literature review revealed several possible alternative abutment systems for future use on low volume road bridges in addition to two separate substructure lateral load analysis methods.
- The second volume introduces and outlines the use of the various design aids developed for this project. Generic standard abutment plans were developed for which the engineer can provide necessary bridge site information in the spaces provided. These tools enable engineers to design and detail county bridge substructures more efficiently.
- The third volume provides two sets of calculations that demonstrate the application of the substructure design methodology developed in this project. These calculations also verify the accuracy of the foundation design template.

9. KEY WORDS

Bridges, abutment design, local, secondary road

10. NO. OF PAGES

Volume 1 - 88
Volume 2 - 154