BRIDGE SESSIONS

Innovative Bridge Applications
AND
Physical Testing for Bridge Load Rating

ICEA Midyear Meeting
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Session Speakers

- Justin Doornink, Ph.D. Student
- Travis Konda, Ph.D. Student
- Van Robbins, M.S. Student
- J. S. Ingersoll, WHKS & Co.
- Terry Wipf, ISU
- F. Wayne Klaiber, ISU
- Brent Phares, CTRE
- Scott Neubauer, Iowa DOT
Investigation of Two Bridge Alternatives for Low Volume Roads: Phase II

Concept 1: Steel Beam Precast Units

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Goals

- Develop a cost effective low-volume road bridge alternative
- Develop an easy to understand and use design methodology
The Bridge Concept

- Fabricate PC units:
  - Two steel beams
  - Precast concrete deck with limited thickness
- Transport PC units to bridge site.
- Connect PC units
- Place a cast-in-place concrete deck over entire bridge
PC Unit Details

- Height: 7' (4"
- Width: 3'-6" (W21x62)
- Depth: 1'-9"
PC Connector

- PC Unit 1
  - #4 Reinforcing steel
  - C 4 x 7.25

- PC Unit 2
  - PL 3" x 3/8" x 10" T&B
  - 2.5"

- 4"
  - 2.5"
Testing Program

- Small scale connector tests
- “Handling strength” tests of PC unit
- Model bridge tests:
  - PC units only
  - CIP portion of deck in place
Field Work

- Installation and connecting of PCDT units
- Forming of end diaphragm and deck
- Casting and finishing of deck
Service Load Testing

- with only connected PCDT units
- with deck in place
- finished bridge