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TXDOT PROJECT NO. 0-7093

REFINED DESIGN METHODS FOR LEAN-ON BRACING

Project Overview

RESEARCH TEAM

UT Austin: David Fish, Aidan Bjelland, Chen Liang, Dr. Matt Reichenbach
Dr. Todd Helwig, Dr. Michael Engelhardt, Dr. Eric Williamson

Texas A&M: Claire Gasser, Dr. Matthew Yarnold, and Dr. Stefan Hurlebaus

MARCH 12, 2020

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Conventional Bracing

- Cross frames in steel bridges serve many purposes; however a major role is to improve the LTB capacity during construction.
- Conventional practice is to place cross frames in each bay between adjacent girders.

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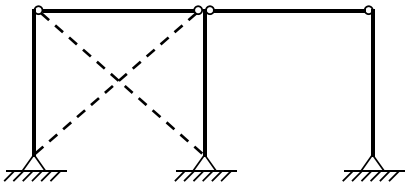
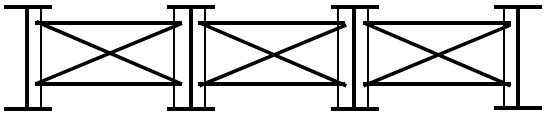
Lean-On Bracing Details



Lean-On Bracing in Frames



Lean-On Bracing in Bridges

Original Study: TxDOT Project 0-1772 (2003) and Implementation Study 5-1772

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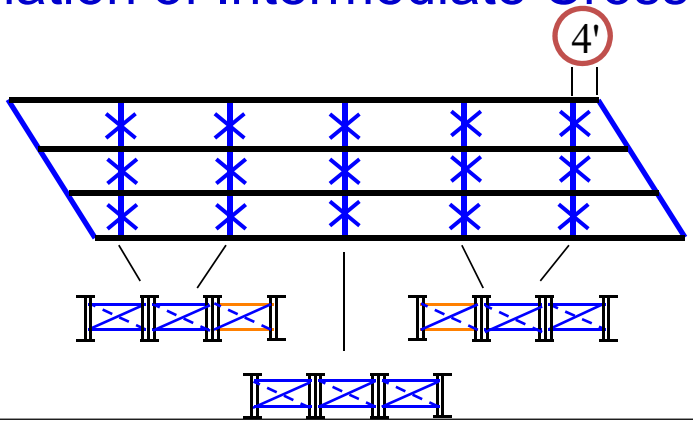
Elimination of Intermediate Cross-Frames



Conventional bracing: 5 X-frame lines x 3 X-frames per line = 15 intermediate X-frames

Lean-on bracing: 7 intermediate X-frames

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Implementation Bridges – Lubbock District ~ 2007

3 Different Bridges
60 Degree Support Skew

Bridge in Picture
Conventional Bracing
80 Intermediate X-frames

Lean-On Bracing
28 Intermediate X-frames

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Research Objectives

- Recommendations were made from Project 0-1772 regarding the design of lean-on bracing systems. The 0-1772 recommendations built off the state-of-the-art understanding as of the early 2000's. There have been a number of studies since that time.
- Based upon recent interactions with TxDOT designers regarding lean-on bracing, it was evident that the previous recommendations require additional clarity and refinement.
- The objective of the present study is to carry out field monitoring and parametric FEA studies on lean-on bracing systems so as to develop improved and refined guidance on the use of lean-on bracing systems. Guidance on the use of "significant" and "selected/limited" use of lean-on bracing will be used for both skewed and normal bridge systems.

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Any Bridges In Texas Using Lean-On?

- The RT is interested in any bridges in Texas that might be in design, letting, starting construction, or constructed with Lean-on.
- The RT has also recently completed a survey for designers, fabricators, or contractors/erectors to get feedback on perceptions or experiences with Lean-on.
- We will ask Greg Turco to circulate to steel quality council.

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Contact Information

- Dr. Todd Helwig
  - Phone No: (512) 924-5903
  - Email address: thelwig@mail.utexas.edu
- Dr. Michael Engelhardt
  - Phone No: (512) 497-7309
  - Email address: mde@mail.utexas.edu
- Dr. Eric Williamson
  - Phone No: (512) 496-4673
  - Email address: ewilliamson@mail.utexas.edu
- Dr. Matthew Yarnold
  - Phone No: (979) 862-5659
  - Email address: myarnold@tamu.edu
- Dr. Stefan Hurlebaus
  - Phone No: (979) 845-9570
  - Email address: shurlebaus@civil.tamu.edu

- David Fish
  - Email address: **david.fish@utexas.edu**
- Aidan Bjelland
  - Email address: **adbjelland@utexas.edu**
- Claire Gasser
  - Email address: **cgasser@tamu.edu**

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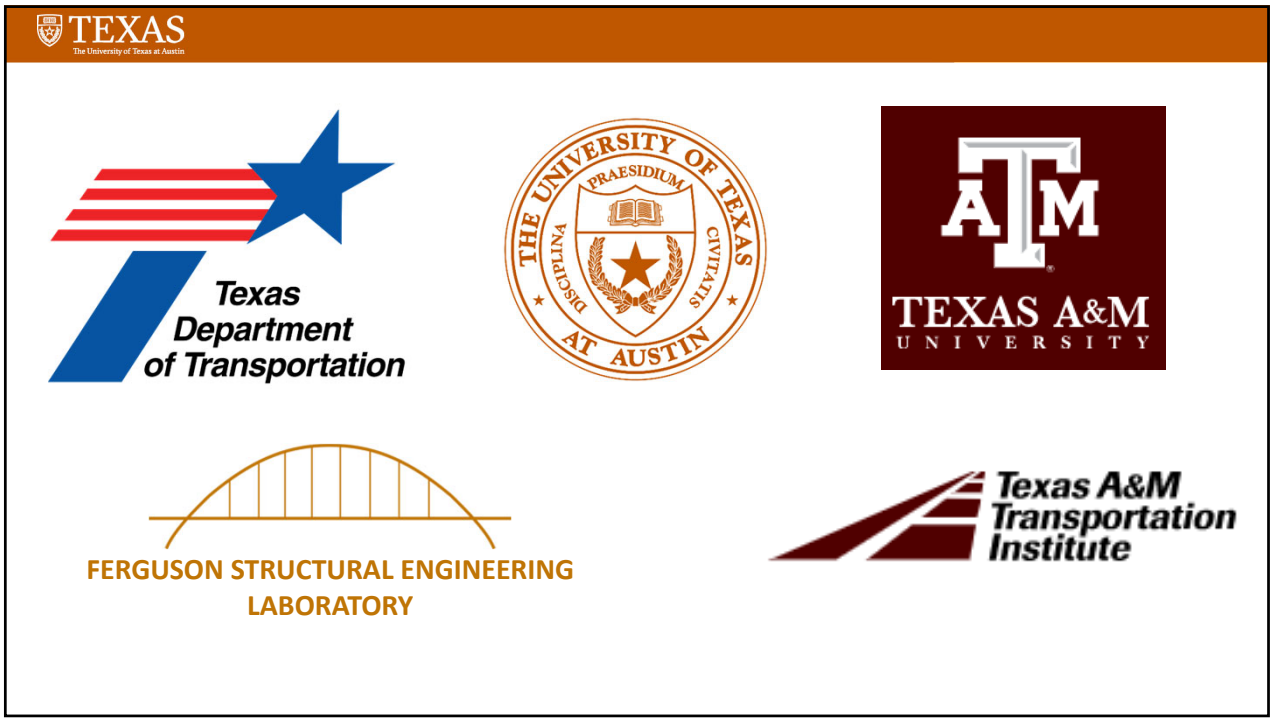
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