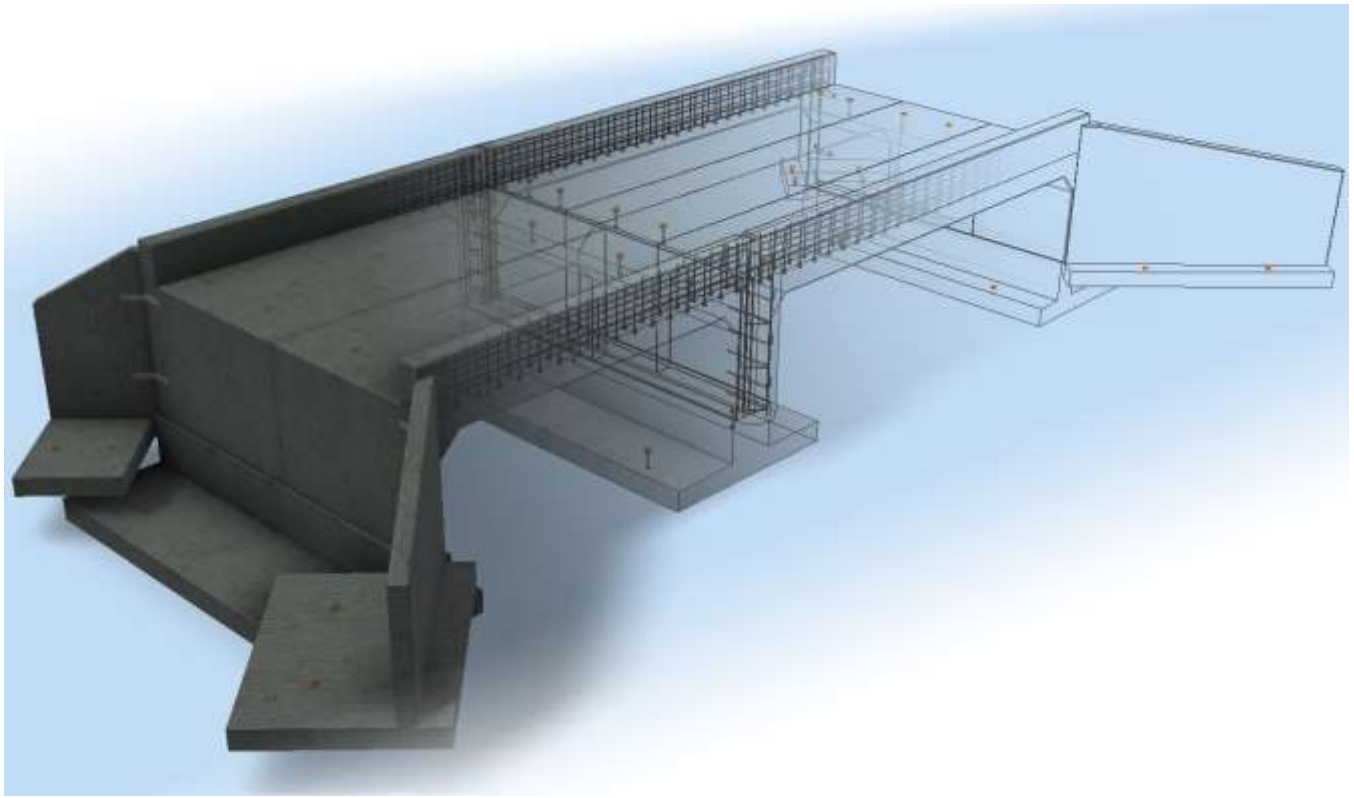
Three Sided Bridges

Presentation to KCHA – May 6, 2014



Presented by Bill Keithley – Oldcastle Precast

Who is Oldcastle Precast?

- A Division of Oldcastle, Inc.
- Oldcastle has over 80 Precast Plants around the United States
- The local Oldcastle Precast plant is located in Topeka, Kansas – Also Littleton, Colorado
- The Topeka plant has approximately 82,000 square feet of production area under roof with over 60,000 square feet under crane way
- Our facility includes state-of-the-art Batch Plants, producing the highest quality concrete with computer monitored quality control

Oldcastle Precast®

Applications of Three Sided Bridges

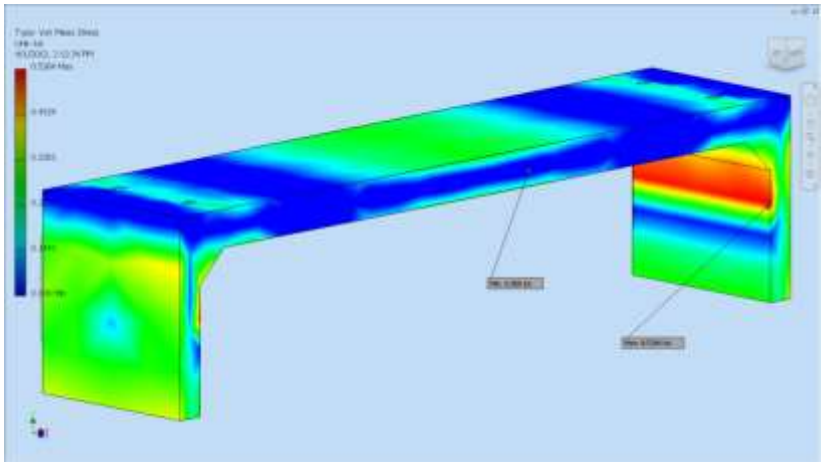
- New Bridge
- Bridge Replacement
- Drainage Structures
- Tunnels/Underpasses
- Underground Structures
- Water Storage Structures

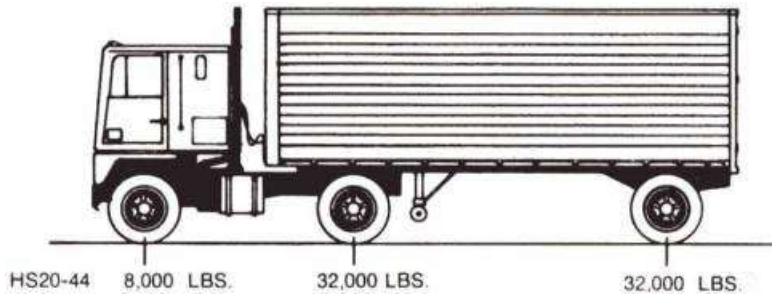
Services & Benefits of Oldcastle Precast

- Engineering Support
  - Structural Analysis
  - Full Engineering Documentation
  - Drawings and Specifications
- On-site Representation During Construction
- Cost Estimating
- Experience
- Proven Track Record
- Quality

Engineering Design & Support

- Designed per to latest AASHTO Code
  - Load Factor Design
  - Load & Resistance Factor Design
- Can be designed according to AREMA Code for railway
  - Cooper E80
  - Light Rail
- Standard truck loading is typical
  - HL-93 (HS-20 + Uniform Load)
  - Design Tandem Load
- Custom truck analysis capable
  - Multiple axles with custom spacing
  - High axle loads
  - Alternate impact factor





Getting Started – Order of Operations

- Bridge Sizing & Budgetary Pricing
- Civil Analysis & Design
- Construction Site Soils Evaluation
- Footing, Wing Wall, & Bridge Design by Oldcastle Precast
- Final Pricing
- Finalized Drawings and Approval
- Production
- Site Preparation
- Delivery and Installation

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Concrete Pad

Increases Soil Bearing Capacity, Provides Level Surface for Footings

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Placing Precast Slab Footing

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Spacing and Alignment of Second Footing

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Off-Loading Bridge Sections

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Rotating into Position

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Setting Bridge End Section with Hub Guard

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Bridge Section in Keyway

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Placement of Final Section

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Installation of Precast Wing Walls

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Welding Connection Plates

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Wing Walls & Filter Fabric In Place

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Ready to Backfill in 6 Hours

Oldcastle Precast®

Backfill Completed

Oldcastle Precast®

Streambed Restored

Oldcastle Precast®

Project Completed

Oldcastle Precast®

Project Completed

Oldcastle Precast®

Benefits of Three Sided Bridges

- Reduced Construction Time
- Product Delivered at Design Strength
- Keeps Traffic Flowing
  - Enhances Public Image
- Reduces On-Site Liability
- Ideal for Remote Locations
- Customized Appearance
- Lessens Environmental Impact

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Footing Styles

- Precast Slab
- Precast Stem Wall
- Poured In Place

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Summary

- Engineering Support
- Planning and Design Stage
  - On-Site Technical Support
- Reduced Construction Time
  - Better Public Image
  - Minimize On-Site Risk and Liability
  - Peace of Mind
  - Reduced Environmental Impact
- Customized Applications
- Aesthetically Pleasing Facing Options
- Teamwork Approach to Finding Solutions