

# PROJECT OVERVIEW

## NW Carlson Road over Kansas River Bridge (Willard Bridge)

Joint Economic Development Organization

November 18, 2015

## Willard Bridge Overview

- Structurally Deficient
  - Cannot support legal load limits long-term
- Functionally Obsolete
  - Physical dimensions not sufficient for current vehicle sizes
- Similar to Minneapolis I-35 Bridge
  - Fracture Critical Bridge
  - No adjacent member support
  - One critical member fails = bridge fails

## Bridge Component Overview

- Substructure

- Piers

- Superstructure

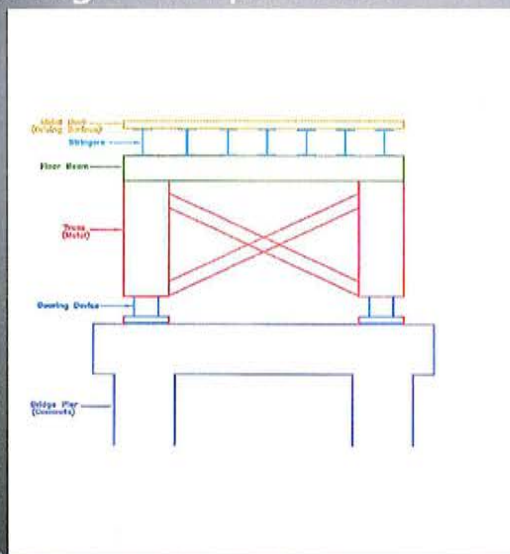
- Trusses

- Floor Beams

- Stringers

- Deck

## Willard Bridge Components





View of Pin & Hanger Connection



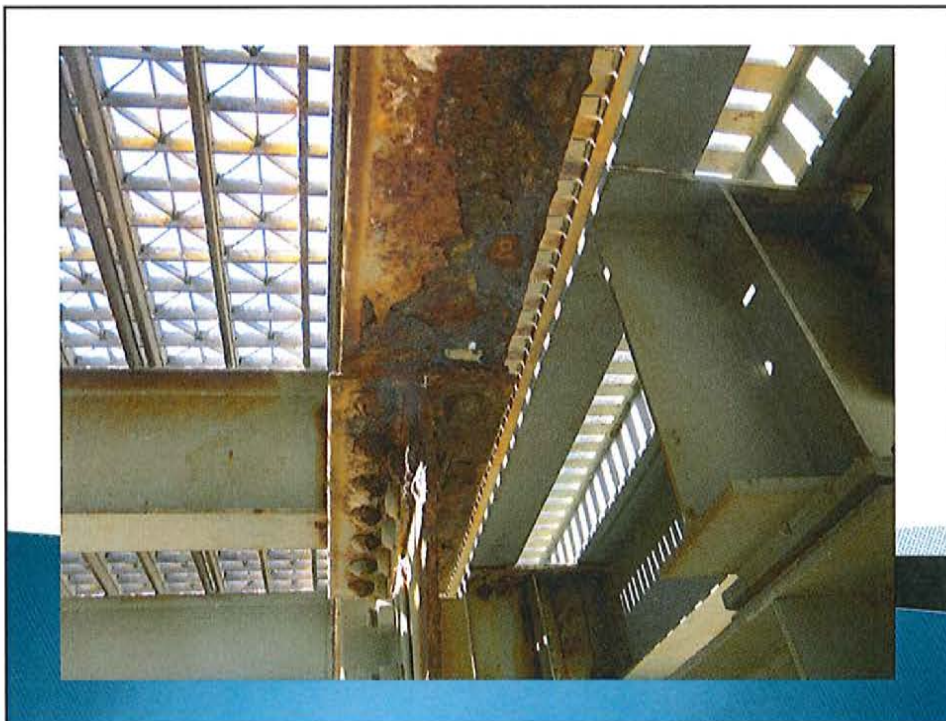
View of Truss Bridge

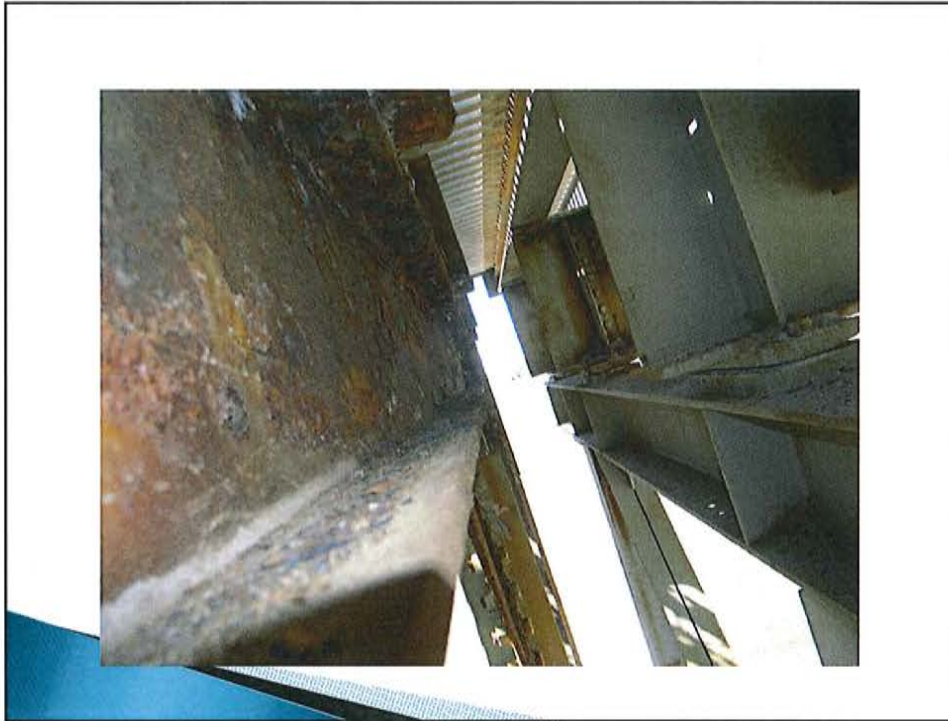
## Sufficiency Rating

- ❖ Evaluation of several bridge components
  - Structural Adequacy & Safety ( 55%)
    - Bridge Superstructure
    - Bridge Substructure
  - Serviceability & Functional Obsolescence (30%)
    - Deck Condition
    - Drainage
    - Bridge Width
  - Essentiality for Public Use (15%)
    - Average Daily Traffic
    - Total Length of Detour, if closed

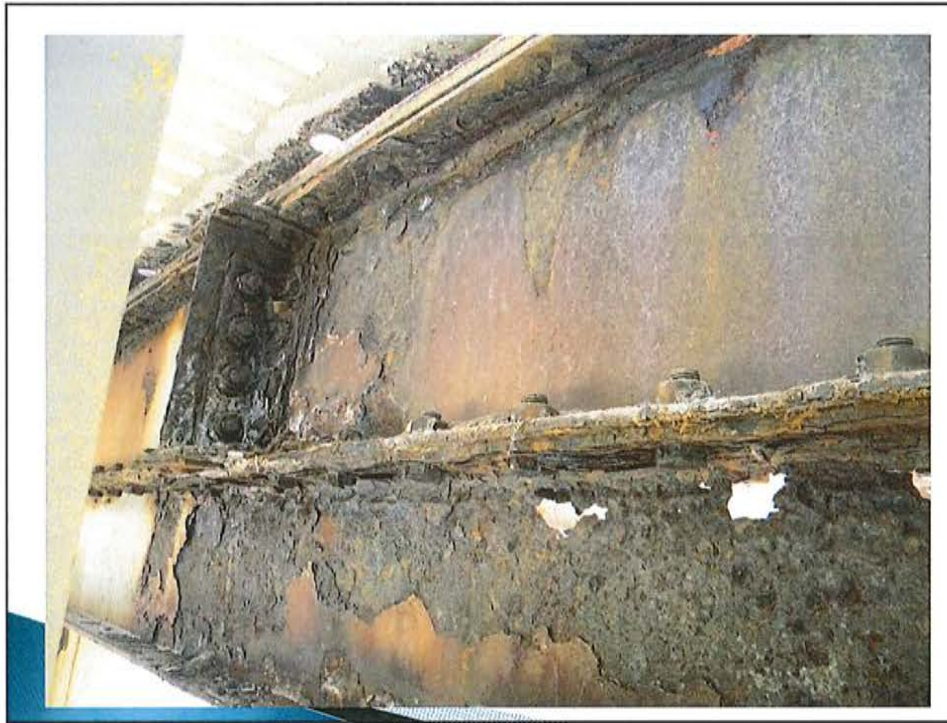
## Sufficiency Rating (SR) Recent History

- SR (2006): 61.5
- SR (2008): 61.2
- SR (2010): 61.2
- SR (2012): 61.2
- SR (2013): 50.7
- **SR (Current): 23.7**













## What Is Happening?

- **Continued disregard of weight limits**
  - Semi-tractor trailers
  - Other overweight trucks
- **Hastened corrosion of Floor Beams**
  - Floor beams exposed due to grate deck
  - Paint system is failing or has failed
- **Corrosion of Bottom Chord of Truss**
  - Exposed due to grate deck
  - Paint system is failing or has failed
- **Structural rating reduced to 3 (out of 10 max)**
  - A structural rating of 2 = Closure until repaired/replaced

## SHORT-TERM OPTIONS?

- **Reduce Weight Limits – DONE (9 Tons)**
  - Passenger Cars and Trucks
- **Replace Three Corroded Floor Beams**
  - May bolster SR back to near 50
  - Estimated Cost: \$1,000,000
  - Bridge Closure: 1–2 months
- **Repaint Bridge**
  - No structural improvement; SR remains at 23.7
  - Estimated Cost: \$3,500,000–\$5,000,000
  - Reduces rate of corrosion
- **Neither are recommended**
  - Minimal Cost/Benefit

• Bridge is still fracture critical and at the end of its useful service life

## Bridge Replacement Cost Estimate

➤ Construction:	\$20,035,000
➤ Design:	\$841,822
➤ Construction Engineering:	\$1,803,150
➤ Right-of-Way:	\$114,900
➤ Permits:	\$35,000
➤ Utility Relocation:	\$75,000
➤ Contingencies:	\$1,350,000
➤ Temp Financing:	\$450,000
➤ <b>TOTAL:</b>	<b>\$24,704,872</b>

## CASHFLOW NEEDS PROJECTION

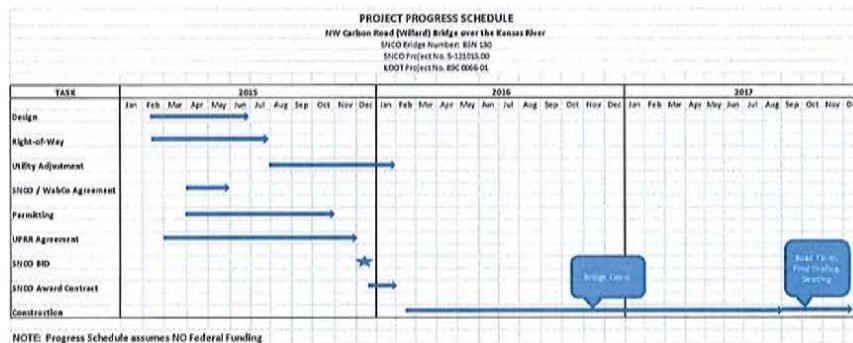
ESTIMATED TOTAL PROJECT COSTS	2009-15	2016	2017	Total
Design	\$841,822*			\$841,822*
R-O-W	\$114,900*			\$114,900*
UPRR Permit	\$35,000*			\$35,000*
Utility Relocation			\$75,000*	\$75,000*
Construction		\$8,014,000	\$12,021,000	\$20,035,000
Const. Engineering		\$721,260	\$1,081,890	\$1,803,150
Contingencies		\$540,000	\$810,000	\$1,350,000
Temp Financing		\$180,000	\$270,000	\$450,000
<b>TOTAL</b>	<b>\$991,722*</b>	<b>\$9,455,260</b>	<b>\$14,257,890</b>	<b>\$24,704,872</b>
<i>*Funding Expended and/or Currently Available</i>				

## POTENTIAL FUNDING STRATEGY

YEAR	AMOUNT (est)	FUNDING SOURCE	REPAYMENT SOURCE
2016	\$0.5M	Project Acct. Bal.	N/A
2016	\$10M	KDOT Advance	STE* (2017-2026)
2016	\$1-\$2M	PW391/Fed Exch. Funds/STE	N/A
2017	\$6-\$7M	CST** Excess	N/A
2017	\$1M	Wabaunsee Co.	N/A
2017	\$2-\$3M	PW391/Fed Exch. Funds/STE	N/A
2018 (if nec.)	\$2-\$3M	PW391/Fed Exch. Funds/STE	N/A

\*Sales Tax Extension  
 \*\*Current Sales Tax

## Project Schedule



QUESTIONS?