



Advancing Communities®



**Kent County  
Road Commission**

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# History Repeats Itself

## Relocation and Restoration of Historic Truss Bridges

Bridge Week  
March 12, 2024





# Relocation and Restoration of M-86 Historic Truss

## Acknowledgements:



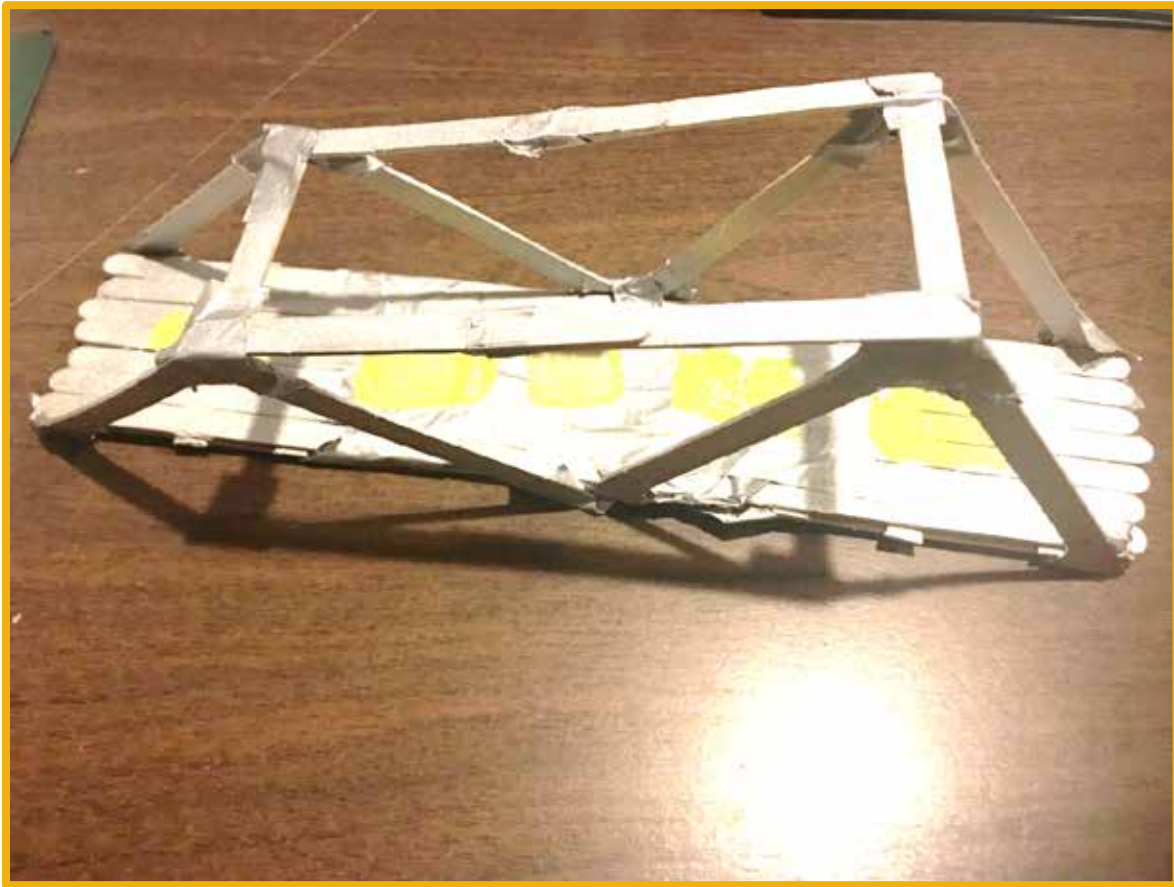
**Mike Halloran, MDOT Southwest Region**



**Joe Bellina  
Cass County Road Commission**







**M-86 Bridge moved for second time - 1937 Wayne Co to St. Joseph County and 2017 to Cass County**



**Two Historic Bridges restored and relocated (Bridge Swap, Belleville to Burroughs)**



City of Portland needed pedestrian bridge to connect Rails to Trail project over the Looking Glass River (multi span timber railroad bridge had been removed).

Kent County Road Commission needed a single span 2 lane bridge for Burroughs Road over the Flat River (Natural River) to satisfy MDNR and needed to satisfy SHPO in removal of the historic 2 span pony trusses.

Wayne County Road Commission needed to replace their 2 lane Belleville Road bridge over the Huron River with a four lane bridge. Previous attempts to offer the historic bridge for sale fell through.

The Bridge Swap saved two Historic bridges. SHPO approved but did not want to set precedent. EA was prepared and approved by FHWA.

# 1994-1995 Bridge Swap

- ▼ Burroughs Road (Kent County) 2 span pony truss moved to City of Portland for Rails to Trails project
- ▼ Belleville Road (Wayne County) single span 2 lane truss bridge moved to Burroughs Road
- ▼ New 4 lane bridge built at Belleville Road in Wayne County





## Burroughs Road Bridge

Two spans of 60 feet moved to City of Portland Rail Trail  
(MDNR and MDOT Enhancement funds)



# Belleville Road over Huron River in Wayne County

Dis-assembled, moved to Grand Rapids  
for painting and installation in Kent County





**Belleville Road Bridge**  
**One span of 120 feet moved to Burroughs Road**  
**(MDOT Critical Bridge funds)**



# Calhoun County Historic Bridge Park

Historic bridges salvaged from Calhoun, Allegan, Clinton, Ingham and Ionia and set in park





# Calhoun County Historic Bridge Park

Restoration focused on historic methods of installation, salvaging metal elements and riveting





**Portland Trail - 220 foot Parker Truss relocated from Kent Street (south of I96)  
to Trail (north of I96) over Grand River.  
Used some rivets for replacement of damaged vertical member with lacing bars.**

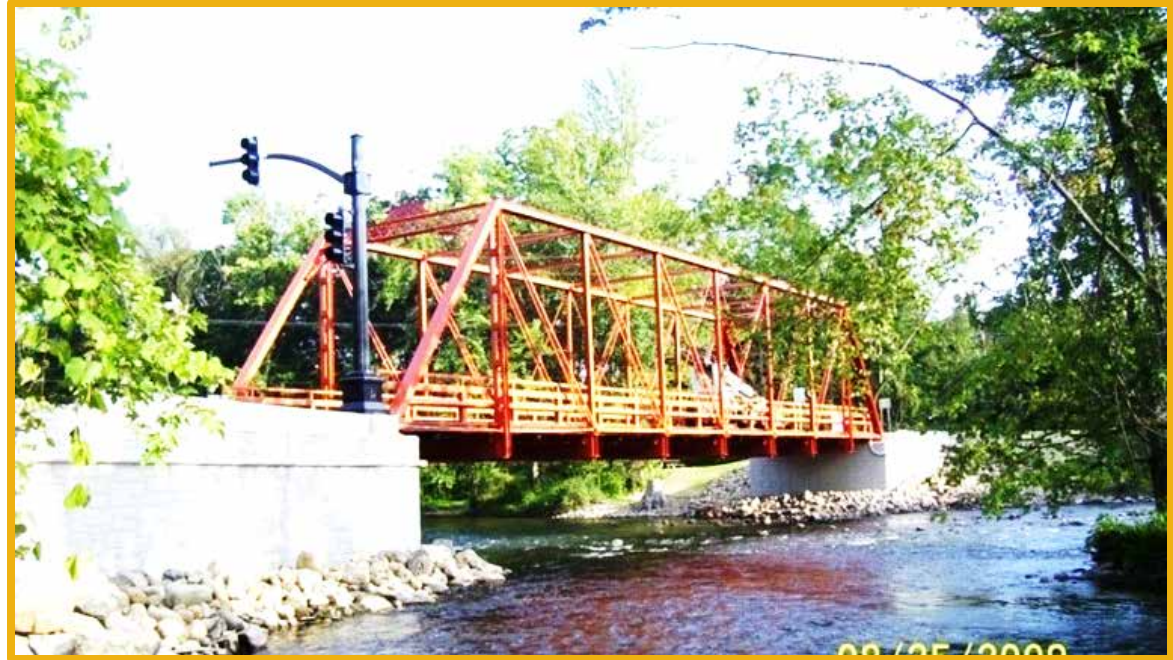


# Washtenaw County

East Delhi Road over  
Huron River

Restored on site and  
reinstalled on new  
foundations

Did not use rivets for  
replacement of floor  
beams  
(lost some CDBG  
funding)



# M-86 Bridge's Background

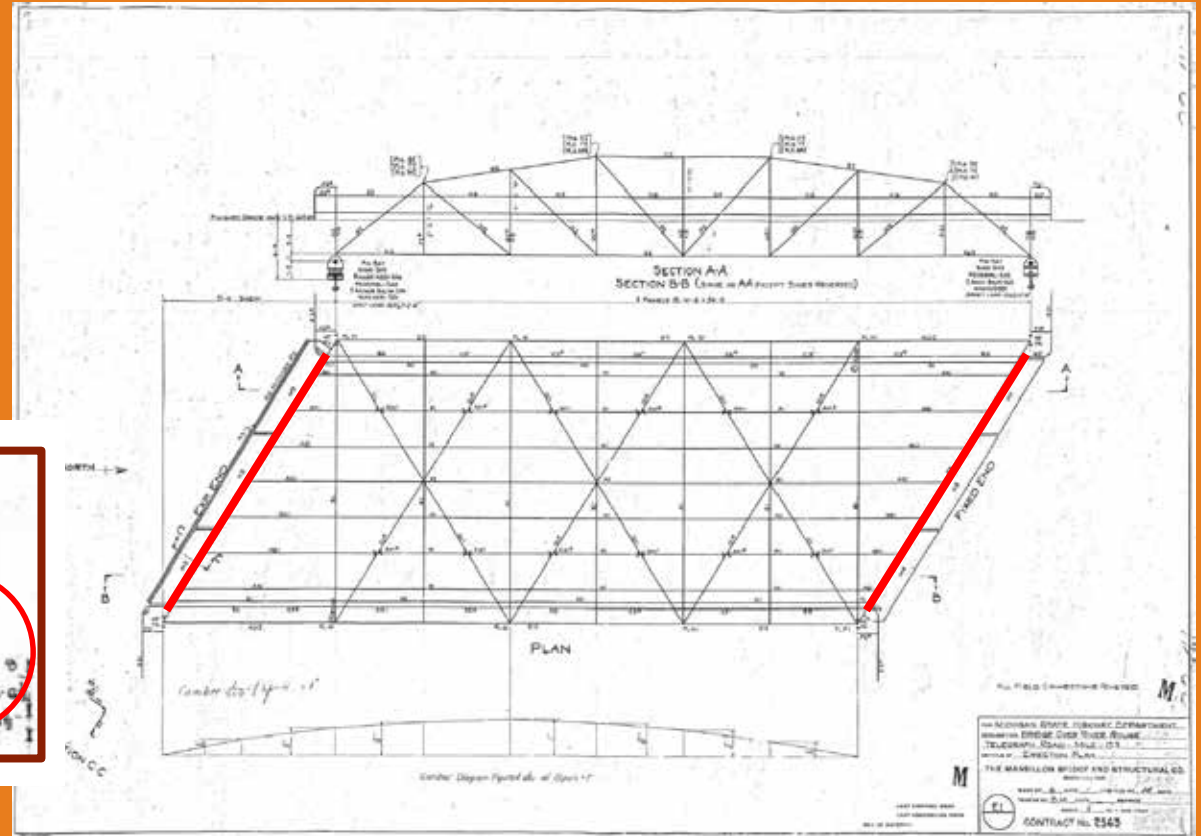
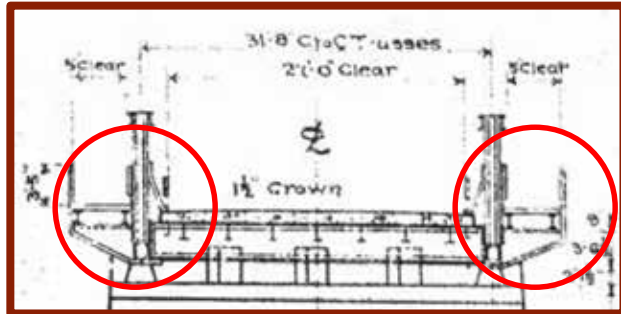
- ▶ Original construction in 1923
- ▶ Telegraph Road over Rouge River
- ▶ Wayne County



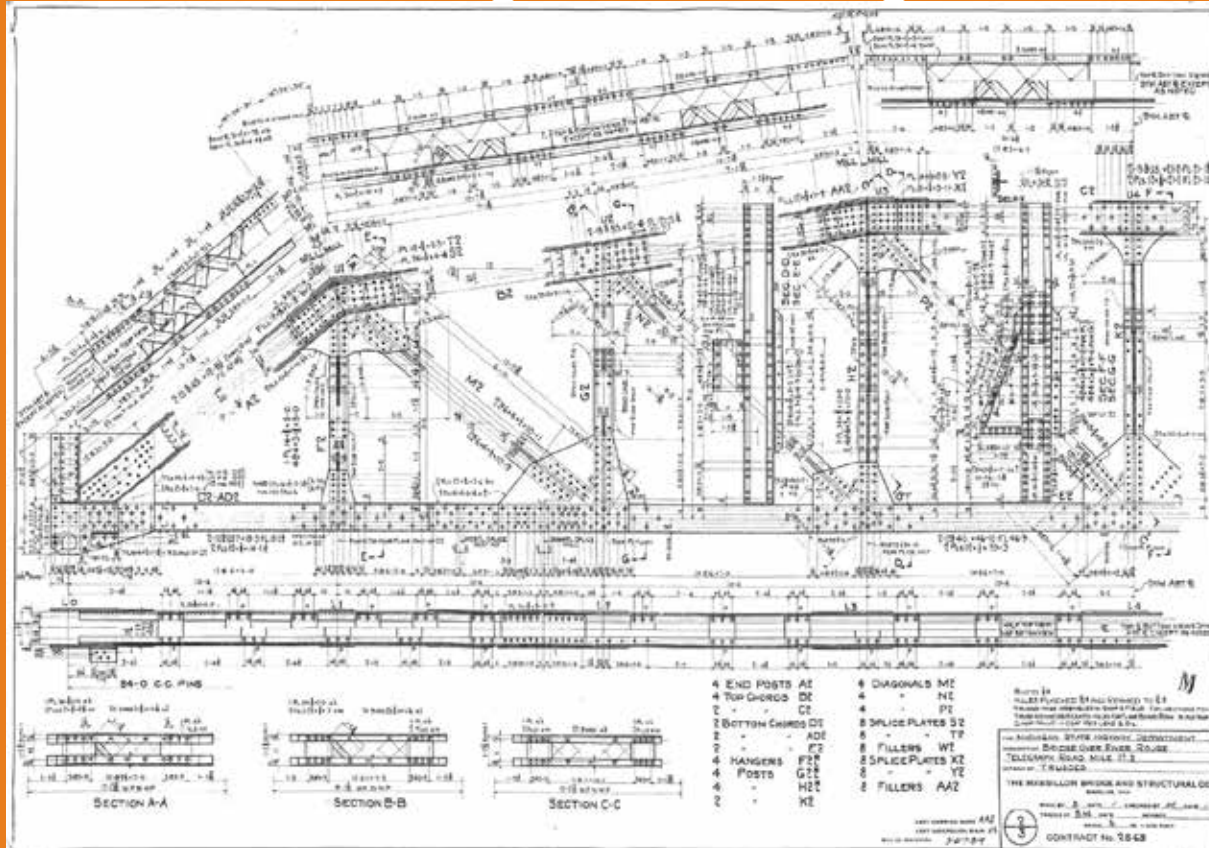


# M-86 Bridge's Background

- Truss at original location was skewed.



# M-86 Bridge's Background



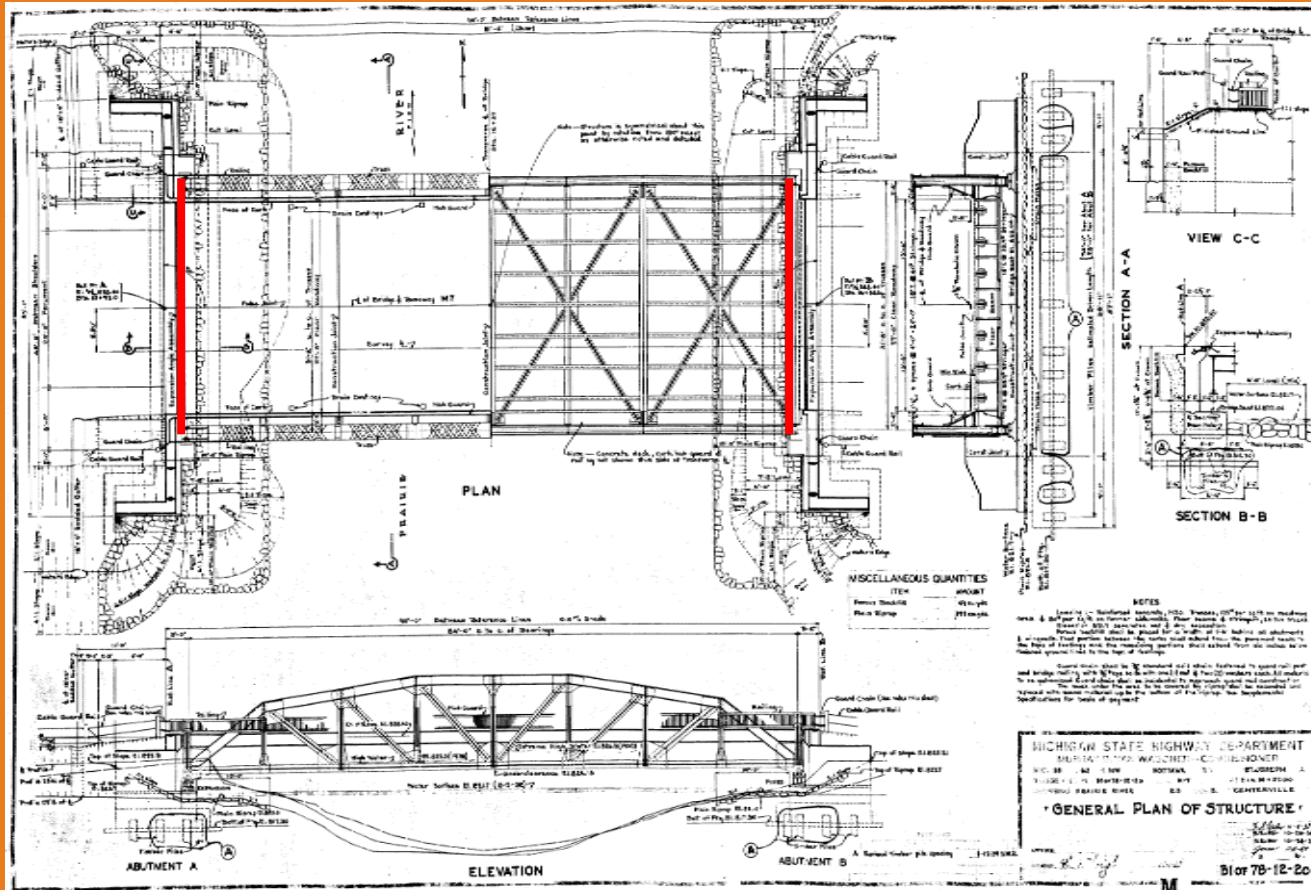
# M-86 Bridge's Background

- ▼ 1938 – Relocated to M-86 over the Prairie River in St. Joseph County
- ▼ Reconfigured (skew to normal)

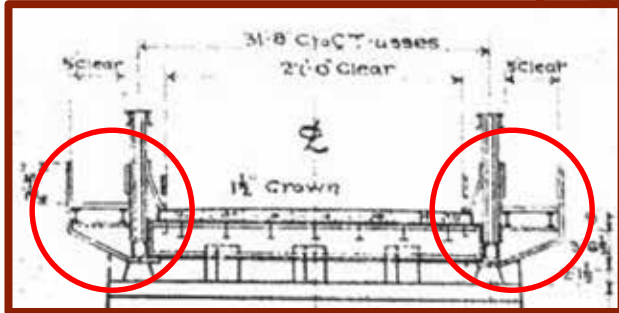




# M-86 Bridge's Background



# M-86 Bridge's Background



04.07.2014

# M-86 Bridge's Background





# M-86 Location



# M-86 Location

- ▼ Inspection from ice platform
- ▼ Evaluated deterioration
  - ▼ Main Truss Members
  - ▼ Truss Lacing Bars
  - ▼ Connection Plates
  - ▼ Bearings



# M-86 Location



# M-86 Location



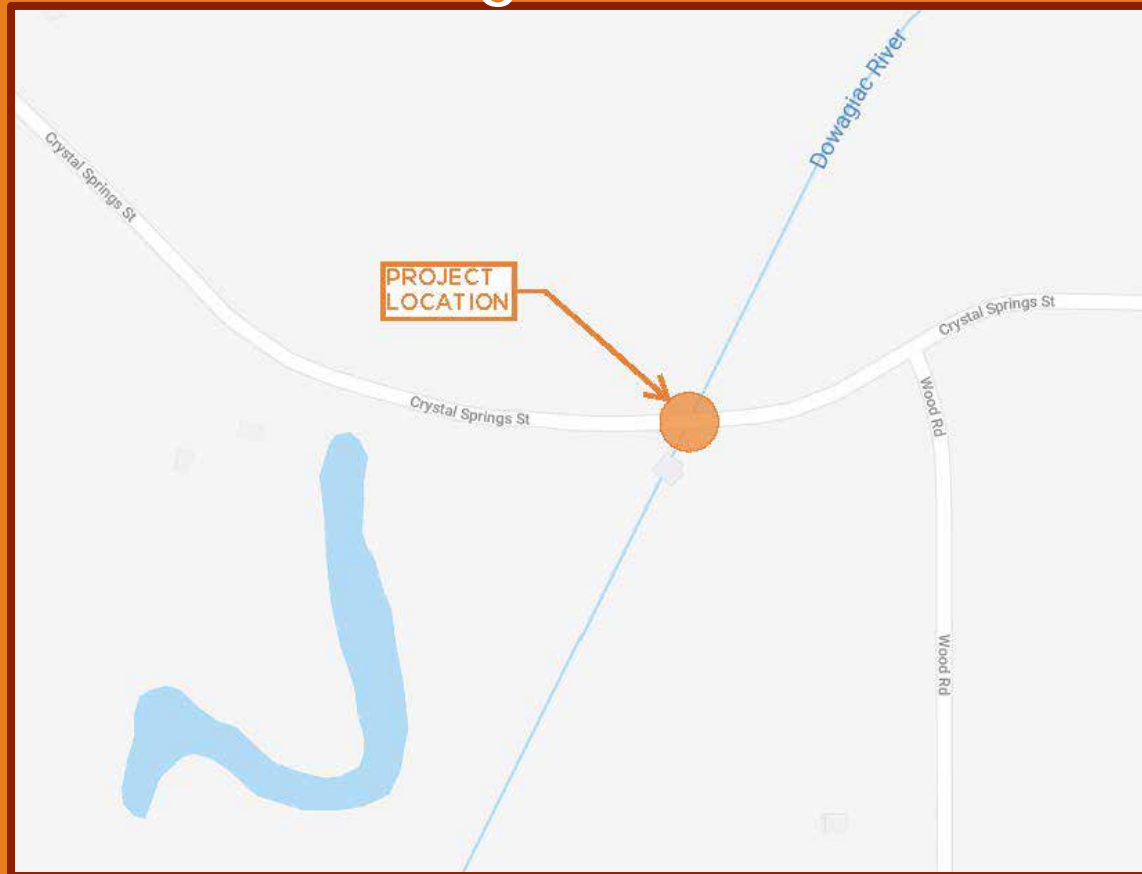


# Design Phase

- ▽ Design plans for:
  - ▽ Disassembly
  - ▽ Rehabilitation
  - ▽ Reinstallation
  - ▽ New pile supported abutments
  - ▽ New approaches

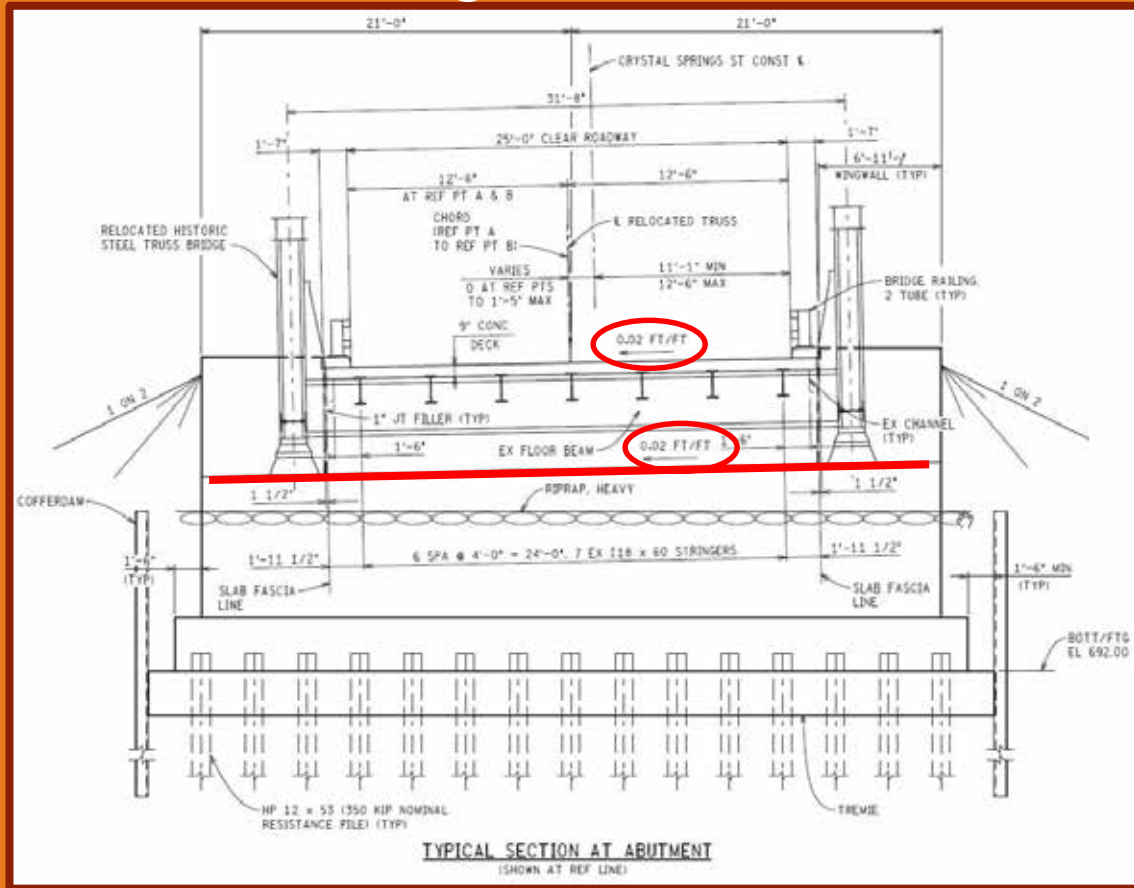


# Design Phase





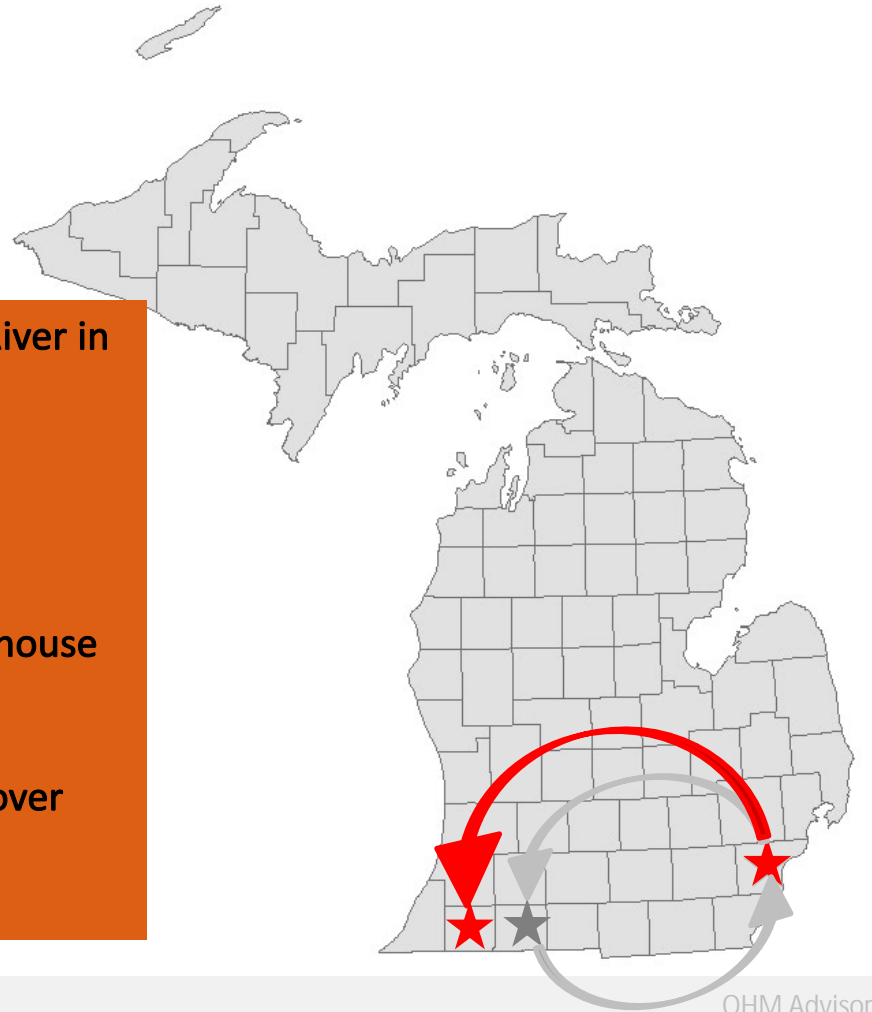
# Design Phase





# Construction Phase

- ▼ 1938 – Relocated to M-86 over the Prairie River in St. Joseph County
- ▼ 2016 – (78 years after its first relocation) Disassembled in preparation for transport
- ▼ Winter 2017 - Cleaning and coating at warehouse site in Ecorse
- ▼ 2018 - Installation at Crystal Springs Street over the Dowagiac River in Cass County



# Disassembly

Deck removal  
July 2016



# Disassembly

Fascia channels in worst condition. Load rating determined they were not needed. Some channels were replaced.





# Disassembly

Salvaged stringers.

Note the tags placed on each stringer to indicate location.

Elements to be replaced in original location.

Bolted beam end repairs used on exterior stringers at each corner.



# Disassembly

Temporary piles installed to facilitate disassembly of trusses.

Trusses had splice plates to separate into three sections.



# Disassembly

Transverse floor beams and lateral bracing after stringers removed.

Some lateral connection plates and bracing were replaced.





# Cleaning and coating in Ecorse

Trusses worked on outside, stringers and smaller elements inside



# Cleaning and coating in Ecorse

Many of the lacing bars on interior diagonals replaced and new rivets



# Installation Phase

- ▼ Approximately 1800 rivets removed/reinstalled

Trusses  
re-assembled  
on site





# Installation Phase

Trusses re-assembled on approaches and then set in place.

Temporary piles set to hold trusses while floor beams are installed





# Installation Phase

Installing floor beams and stringers.



# Installation Phase

Fixed bearing on sloped abutment.



# Installation Phase

Fixed bearings before and after.





# Installation Phase

Expansion bearings  
before and after.

SHPO allowed  
replacement of roller  
bearings with  
laminated elastomeric  
pads.





# Installation Phase

New bridge railing posts on concrete brush block. Old railings were attached to trusses.

SHPO allowed removal of plates for attachment of railings and other elements no longer used (cantilever sidewalk on original bridge).



# Completion



# Completion





# Completion





# Crystal Springs Street - Before construction



# Crystal Springs Street - After construction





# Relocation and Restoration of Historic Trusses

## Questions?

