

AASHTO Technology Implementation Group

FRP Repair of Aluminum Overhead Sign Structures

TIG Co-Chairs:

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AASHTO Technology Implementation Group (TIG)

- 'Ready To Go' Technologies
- Low Cost/High Return
- National Survey
- Scheduled In-State
Demonstrations

What is the Problem?

- NYSDOT organized a sign inspection program in 1998
- Long Island Regional personnel conducted hands-on inspections of all Overhead Sign Structures (OSS)
- 10% of all signs had some form of structural damage

What is the Problem?

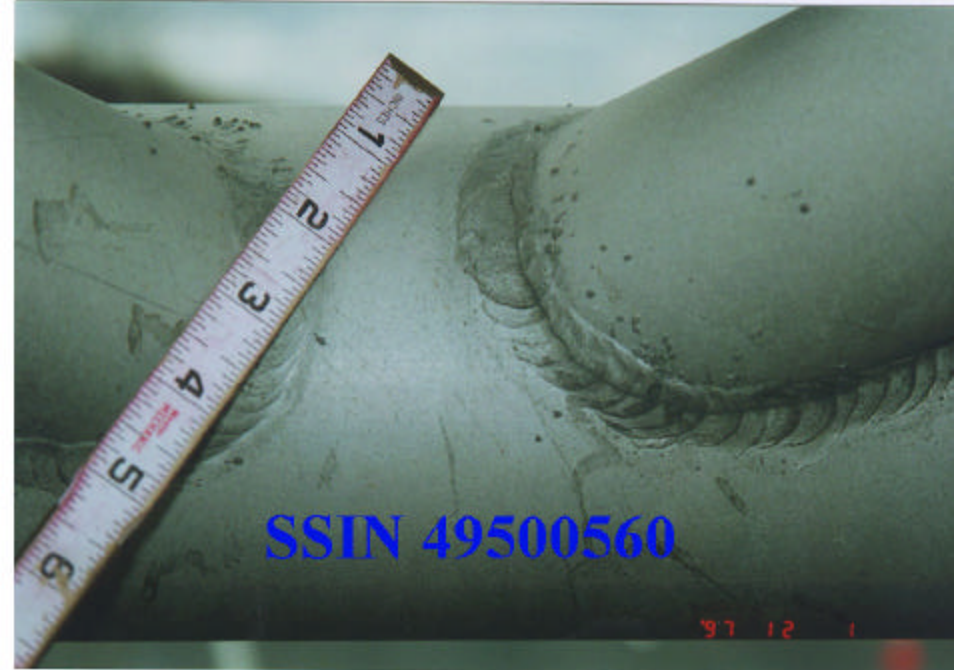
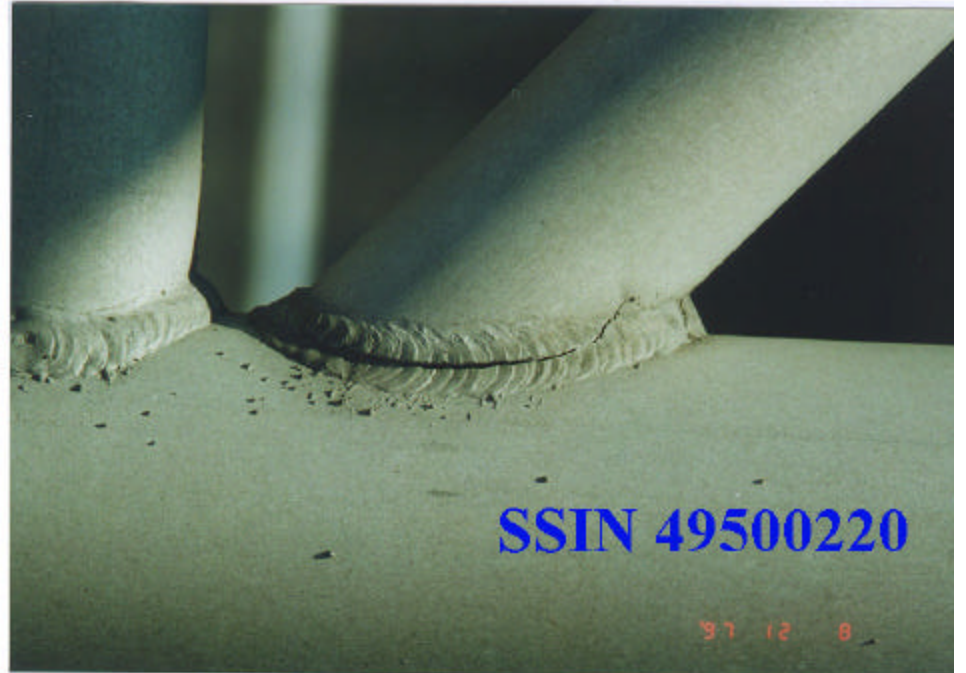
- Welds were of poor quality
- Damage found included fatigue cracking of internal truss chords
- Fatigue was not considered in the original truss designs (1960's)
- Some chords were totally severed



WELD
CRACK



APR 13 2001



Possible Solutions?



Possible Solutions?



Benefits of FRP

- Air Logistics, Corporation approached NYSDOT with a possible solution
- Testing program was set up to determine feasibility
- Tests conducted at the University of Utah, Salt Lake City, UT

Benefits of FRP

- FYFE Corporation approached NYSDOT
- Study to determine feasibility of TYFO wrap
- Fyfe Corporation develops competing system
 - ◆ Tests conducted at NC State Univ.

Expected Performance

- Full strength of undamaged member restored
- Eliminates the requirement of an emergency contract to replace damaged signs
- Freeze/thaw and fatigue testing conducted on Air Logistics system to validate longer lifespan

Fiber Reinforced Polymer Repair of Aluminum Overhead Sign Structures



Go from Broken...



To Repaired...

**In Three Hours,
with Three People,
for Less Than \$3,000!**

A TIG Innovative Solution

TIG Implementation

- Conference Presentations
- Video / DVD
- www.aashtotig.org/focus_technologies/frp
- Live Demonstration
 - ◆ by TIG panel staff—trained installers
 - ◆ FRP Wrap kits provided
 - ◆ Host agency provides structure, logistics











What Can't We Fix?





Conclusions

- May be used to temporarily repair an OSS (may prove to be a long term repair)
- Time efficient (<3 hours/joint)
- Personnel efficient (3 workers)
- Cost effective (<\$3,000/joint)
- Allows replacements to be scheduled, rather than on emergency basis

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QUESTIONS?