



MnDOT District 6
Temporary Overhead Sign Structure







10/05/2009







Options considered: (ideas w/o much action)

- Temporary wood pole and span wire system.
- Portable signal trailer, modified with small OH signs.
- Screw-in base light pole with uprights, cross beam, etc.

So, thanks Adam Wellner, Asst. Traffic Engr., for researching and making it happen.



- C.O. Bridge (Structural) Engineer, designed: 8" steel monotube structure, concrete barrier footings.
- 17' uprights, 12' & 6' horizontal sections, splice joints above lane joints. Can span 4 lanes with footings on shoulder.
- Max. span 74'.
- Allows for sign panels centered above lanes.
- Sign panels: two 48"x72" and one 90"x72", accommodates 24" route markers, direction, down arrows, 10" City/Street names, etc.



- Two concrete barriers per side for footings.
- Temporary barrier run with attenuation protecting the footing



- Steel base plates fastened to threaded bolts inserted in the concrete footings.
- 14 threaded bolts (7 on each barrier section) with washers and nuts.
- Length of barrier (not so much the mass) prevents wind from tipping the structure.
- Gravel base pad prepared.





- Installation issues - and lessons learned:
- 2 Men and a truck 😊...and a crane...and a skid steer for stage 2.
- Final sign design wasn't done when contract documents were submitted.
- Adam at pre-con meeting: "I'm not as far ahead of schedule as I had hoped."
- Special provisions: 15 minute traffic stoppages to erect the structure.



- Pre-assembled in MnDOT yard. Distance between base plates used to set footings in the field.
- Reassembled on highway in-slope/ditch and lifted into place with crane.



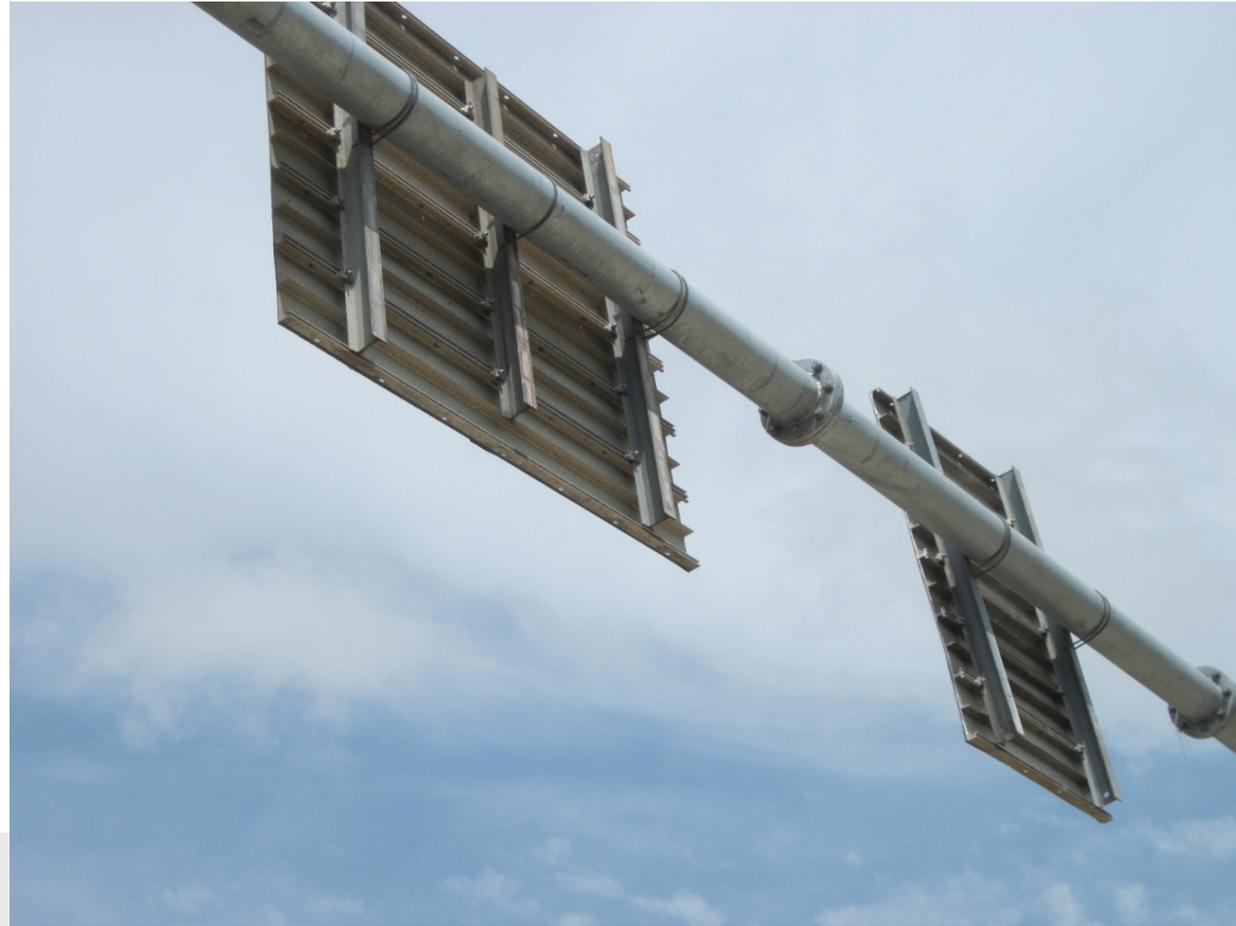
- Harness and lift points were about 1/3 distance in from the ends.
- Bases then bowed in and didn't align with preset anchor blocks.



- 2 guys with pry bars moving the barrier.



- Setting first side went okay, second side was more difficult.
- Power tools would have saved time.



- Standard mast arm sign mounting with banding steel to attach the signs.
- Signs were installed on the ground and adjusted after raising the structure.



- 6 different District Bridge crew employees spent about 2 weeks:
- Welding collar plates (incl. corner and base plates) to the 8" tube sections.
- reaming/re-drilling the "torch cut" bolt holes on the collar plates.
- All pieces shipped out for galvanizing.

The Good, The Bad, The Ugly 😊

- It took many years thinking about it...Thanks, Adam, for making it happen.
- We own the structure. Available for future use (Const. projects and Maint.?)...and others to use.
- Flexible design for various length spans and sign panel messages. Reasonable cost.
- Costs: \$12,000 materials (including the galvanizing), \$3150 footings, one time Br. Crew labor cost?
- \$2000 install (incl. pickup from D6 yard), \$3500 Salvage & Reinstall, \$3000 Salvage and & return to D6 yard)
- Improvements- Footings: One-piece, light enough for handling/positioning, or one-piece leveling plates.
- Now able to share (and document) assembly issues with prospective installers.
- With better communication, planning, manpower and equipment - Installing in 15 minutes?...It can be done!

Thank you

Questions?