ACTIVITY UPDATE
AASHTO/NSBA
TASK GROUP 16

Orthotropic Deck Bridges
Review of preliminary FHWA funded study for rib-to-deck welds

Important findings:
- Hot Spot shows good correlation with weld to cracking
- Equal weld toe legs preferred; minimum value of 0.7xRib t
- Weld area has significant effect on fatigue performance, bigger is better
- Gap of 0.020in produces root gap closure
- Can reduce current minimum penetration requirements to 70% (data suggest smaller may be possible)
- Control root cracking through weld geometry and fit up tolerances
ONGOING ACTIVITIES

- Priority 1) Proposed testing for root-cap tolerance
  - FHWA testing confined to fit up of 0.020in or smaller
  - Savings in:
    - Gap increase to a more standard tolerance of 1/16” (0.062in) or larger
    - More lenient weld penetration requirements

- Evaluate effects of weld size, root gap, based on increased fit up tolerance
Proposed test specimens
- Full Size, minimum of 3-panels
- 1/16” gap fit up
- Bevel: ½ rib thickness; none
- Weld Process: SAW; GMAW; FCAW
- Penetration: 50% target, 60% max
- Effective throat equal or greater than rib thickness

Funding
- Various: FHWA (primary proposed), Industry, NSBA
ONGOING ACTIVITIES

- Priority 2) Floorbeam to Rib to deck fit and weld type
- Priority 3) Floorbeam to Rib weld (cut-outs) and weld type

- Other:
  - Review ongoing research
  - Flat-Prep rib
  - Open rib fabrication