



**8th World Congress on Joints, Bearings, and Seismic Systems
Atlanta GA ~ September 2016**

Expansion Joint & Bearing Installation Issues: An Owner's Perspective

**Ralph J. Dornsife P.E., S.E.
Washington State Dept. of Transportation
Bridge & Structures Office
Olympia Washington USA**

Joint / Bearing Case Studies

- **I-5 SB Blakeslee Junction**
- **I-5 SB BNSF / Dike Road O/C**
- **I-5 Capitol Lake O/C**
- **I-5 / SR 18 Triangle Project W-S Ramp**
- **I-90 WB East Channel**
- **Nalley Valley SW-Line N-W Ramp**
- **SR 520 Floating Bridge Replacement**
- **SR 522 WB Snohomish River**

I-5 Blakeslee Junction Bridge Strip Seal Joint Failure



Installation Hardware



Installation Hardware - Closeup



Strip Seal Joint Failure



I-5 BNSF / Dike Road O/C



Installation Hardware



Detached Elastomeric Seal



I-5 Capitol Lake O/C Bridge



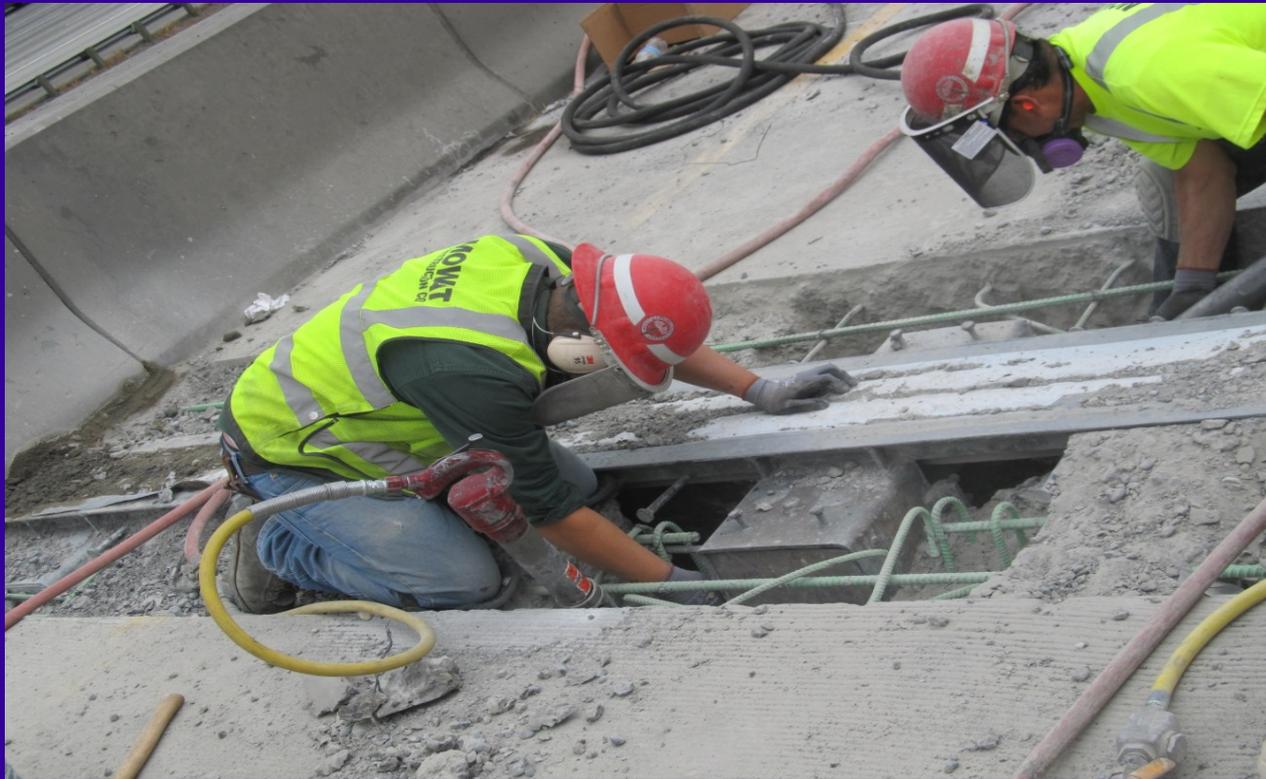
Poured Silicone Seal Replacement and Failure



I-5 / SR 18 Triangle Project Modular Expansion Joints



MEJ Repairs



MEJ Repairs



MEJ Blockout Reinforcement



Traffic Implications



I-90 East Channel Bridge Failed MEJ Centerbeam Splices



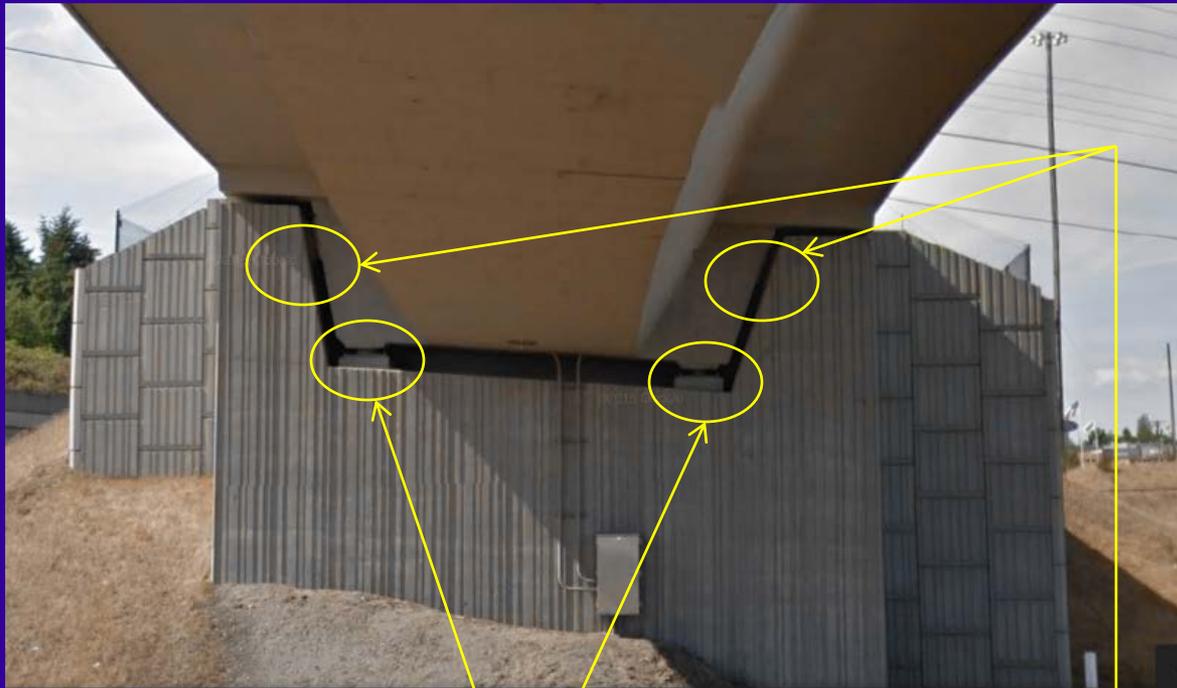
MEJ at Splice Location



Damaged SS Slide Plate



Nalley Valley SW-Line Bridge Misoriented Disk Bearings



**Sliding Disk
Bearing**

**Transverse
Stop Bearing**

Disk Bearing Installation



SR 520 Replacement Floating Bridge



Elastomeric Bearings Damaged during Installation



Gouged Elastomer Exposed Steel Shims



SR 522 Snohomish River Bridge



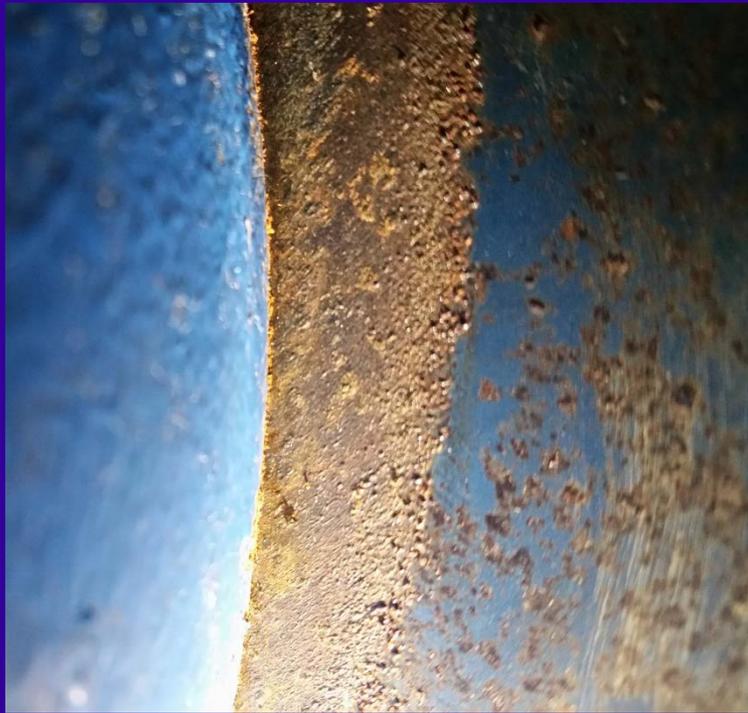
Isolation Bearing Quality Issues



Water Infiltration and Paint Issues



Apparent Corrosion





Use of Installation Technician

- **Acknowledgment of Role**
- **Qualifications**
- **Present at Critical Times**



Role of the Inspector

- **Experience**
- **Specialized Training (Just-in-Time)**
- **Staff Retention**



Communication

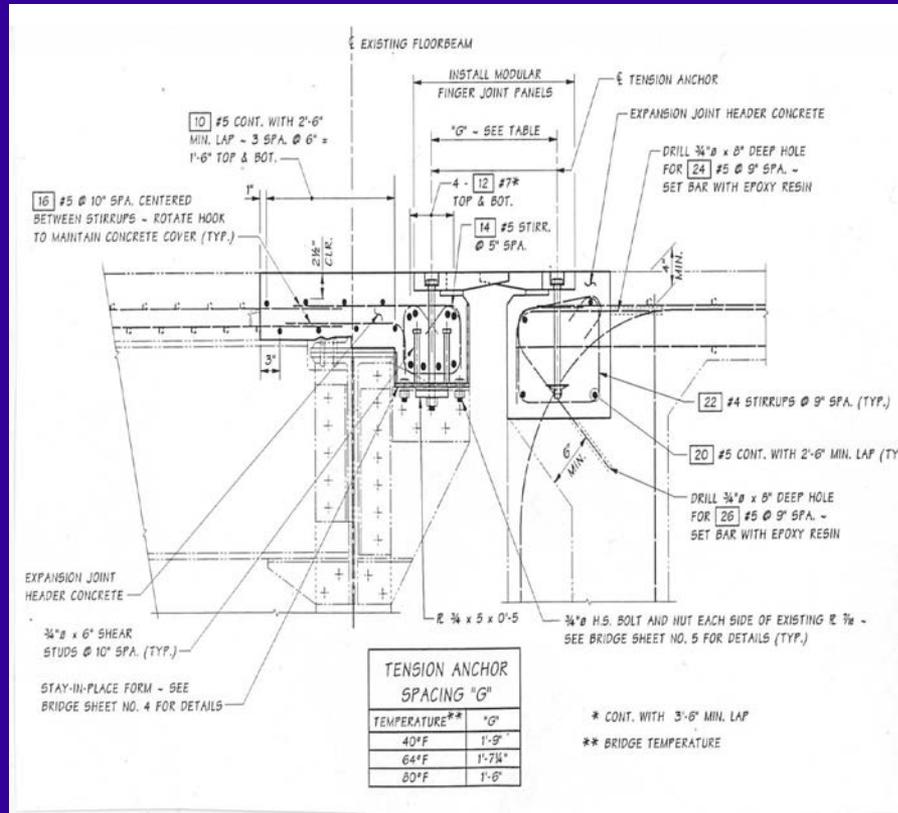
- **Backgrounds**
- **Roles**
- **Coordinating**



Installation Procedures

- **Documentation**
 - **Shop Drawings**
 - **Written Procedures**
- **Review & Approval**

Modular Finger Joint System



Installed Finger Joint System





Design Considerations

- **Inspection**
- **Maintenance**
- **Installation**



Contact Information

- **Ralph J. Dornsife**
 - WSDOT Bridge & Structures
P.O. Box 47340
Olympia WA 98504-7340
 - 360-705-7199
 - dornsir@wsdot.wa.gov