

Bridge Maintenance Division

Bridge Deck Joints

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The Best Bridge Joint

Is

No Bridge Joint

Use

Integral abutments

Slab over the backwall

Continuous Bridges

Sealed Joints - High Value

- Protect
 - Beam Ends
 - Bearings
 - Substructures
- All are very costly to rehabilitate or replace.



10/20/2009





Joint Repair or Replacement

- Capital – Joints are only repaired or replaced through capital action if there is other work to be performed on the bridge
- Maintenance – Bridge Maintenance has always been expected to perform maintenance/light capital work on the joint systems. We're very good at major joint work, not as diligent with the more simple needs. This is changing.

Narrow Joint Openings <1 inch

- Pour-In-Place
 - Preferred Movements <1/2"
 - Preparation Critical
 - Quick Installation
 - 5 Year Functional Life
 - Problems – They just drop out!
 - Best Solution – Eliminate Joint



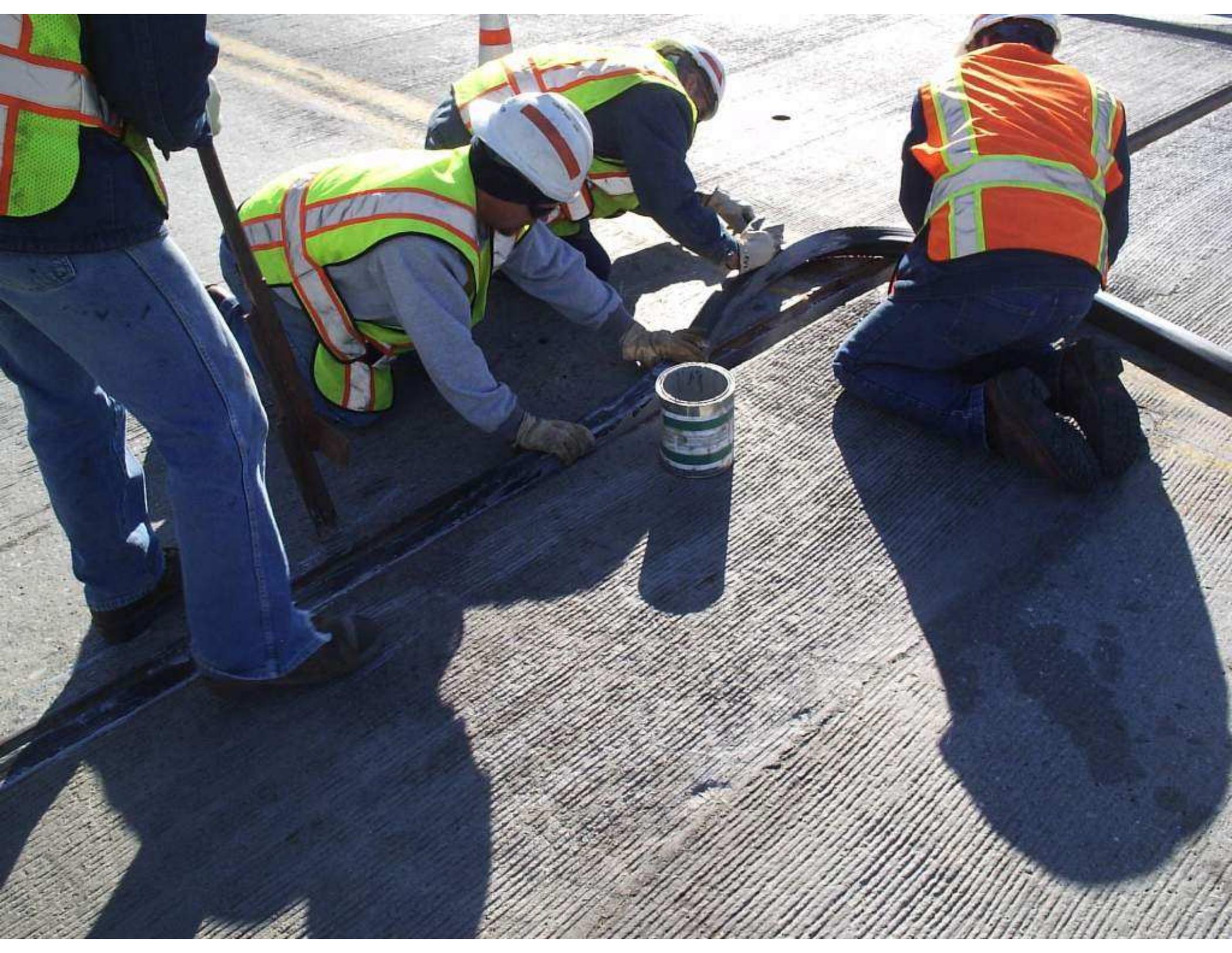


Deck joints 1" to 3"

- Compression Seals 1" to 2 1/2"
 - Solid concrete headers (nosing) are a must to protect joint armor from plow damage. Elastomeric Concrete for thin applications.
 - Keeper bars for compression seals are very effective
 - Seal is turned up at the curb
 - Cleaned/flushed annually
 - Best performing joint

Compression Seals

- Maintenance
 - Simply replace seal (Spring or Fall)
 - Heat and/or mechanically straighten joint armor plates and replace seal
 - Replace joint armor
 - Good opportunity to address any other backwall issues



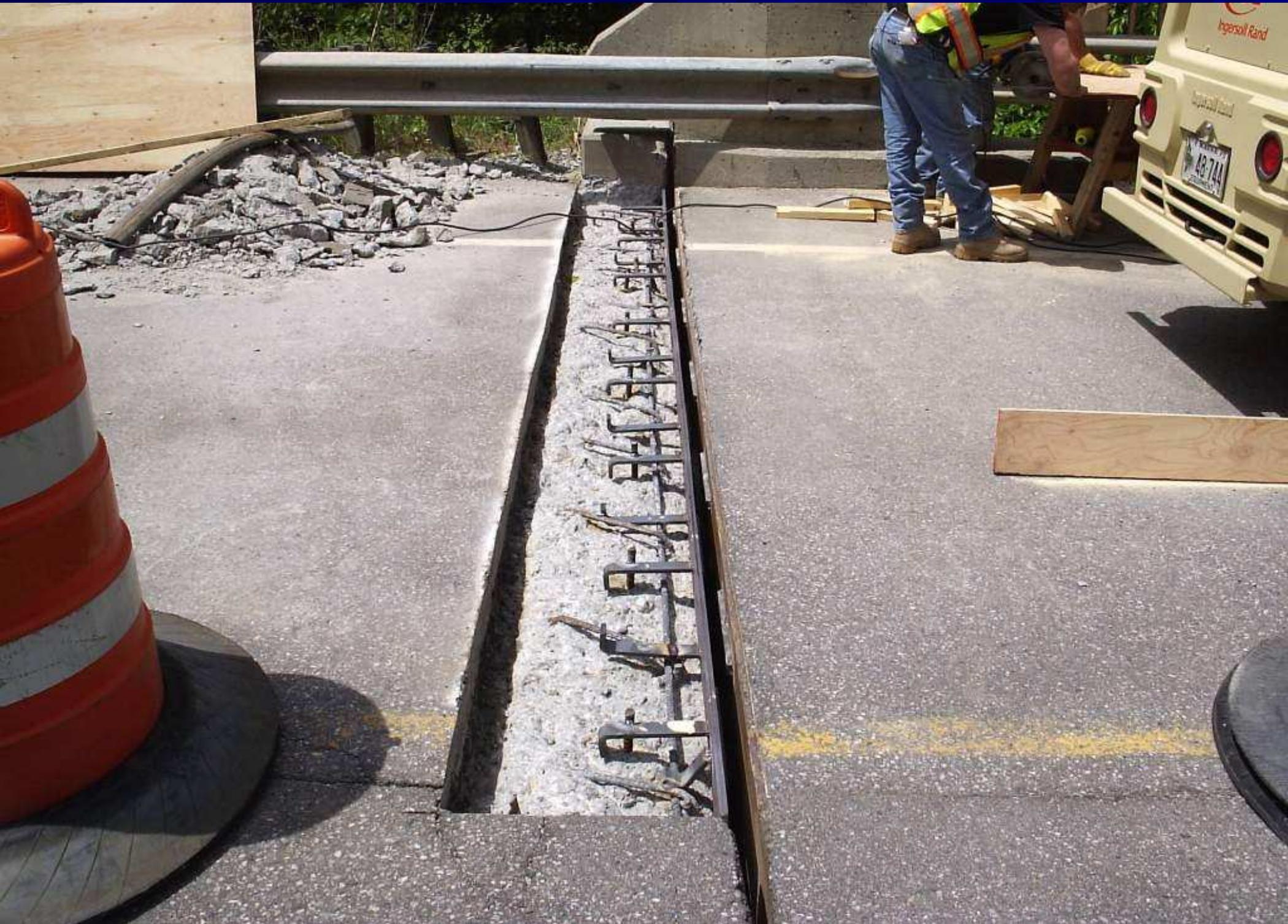














09/16/2009

Deck joints 1" to 3"

- Gland Seals 2 1/2"-3"
 - Solid concrete headers
 - Seal is turned up at the curb
 - Sensitive to sand and debris
 - Have a tendency to rip on skewed bridges
 - Performance and longevity have been good

Gland Seals

- Maintenance
 - Similar to compression seals
 - Dealing with the extrusions is more complex and time consuming but not unreasonable
 - Cleaned/flushed annually – Very Important

Bridge Joints 3"+

- Finger Joints
 - All new finger joints are designed with a curtain wall system or a trough
 - Existing open finger joints are being retrofitted with curtain wall systems

Finger Joints

- Maintenance
 - Diligence – Clean and flush beam ends, bearings and bridge seats annually
 - Vigilance – Inspect and monitor fingers, bearings and beam ends frequently

Finger Joints

- Maintenance
 - Fingers become misaligned laterally occasionally and need to be cut
 - Fingers become misaligned horizontally due to wear on the bearing pin. Retrofit or replace bearings.
 - Extremely large finger plates when wet pose a hazard to motorist. Welded studs work well but are damaged quickly





11/13/2008







Bridge Joints 3"+

- Modular Joints
 - My mother always said...."if you don't have anything good to say about something then don't say anything at all".....So I won't.

MaineDOT Level of Service Draft

- All open bridge joints that only require replacement of seals, which may include minor joint armor repair, shall be sealed within 12 months of discovery
- All other open bridge joints that require significant joint armor repair or replacement will be placed in the next immediate biennial work plan