

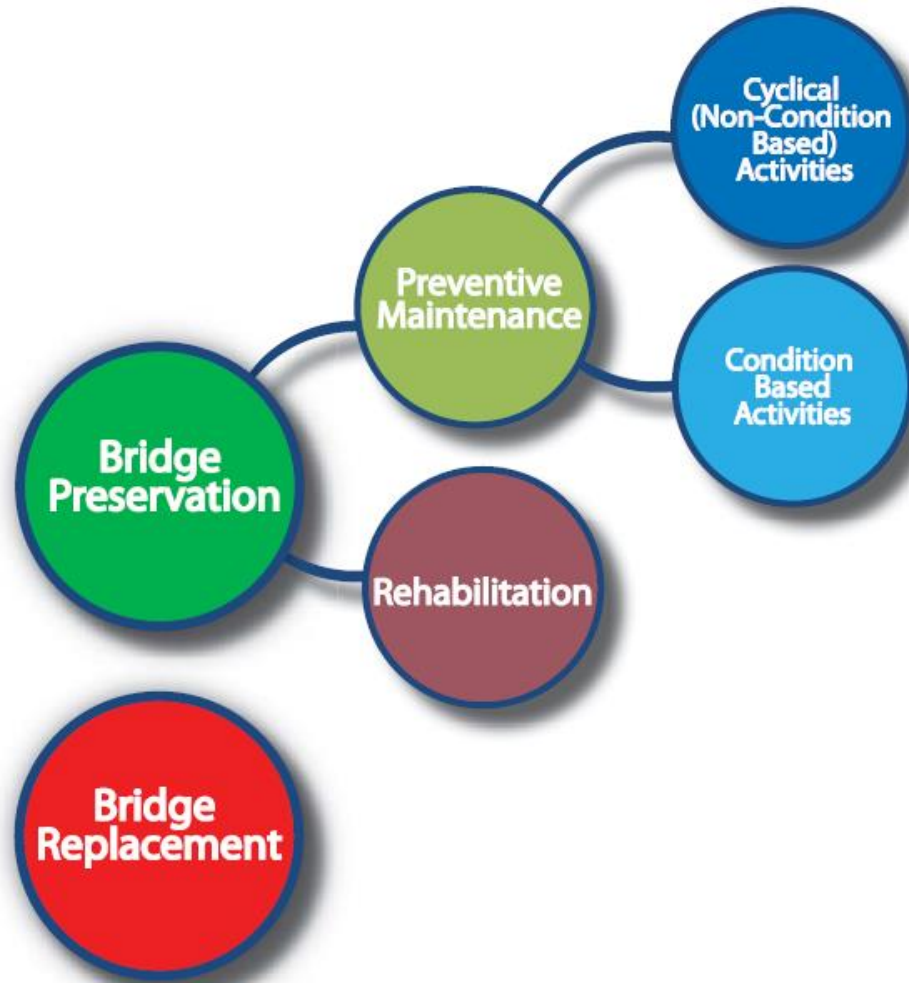
New Bridge Design and Construction: The Missing Element of Bridge Preservation

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National Bridge Preservation Partnership Conference

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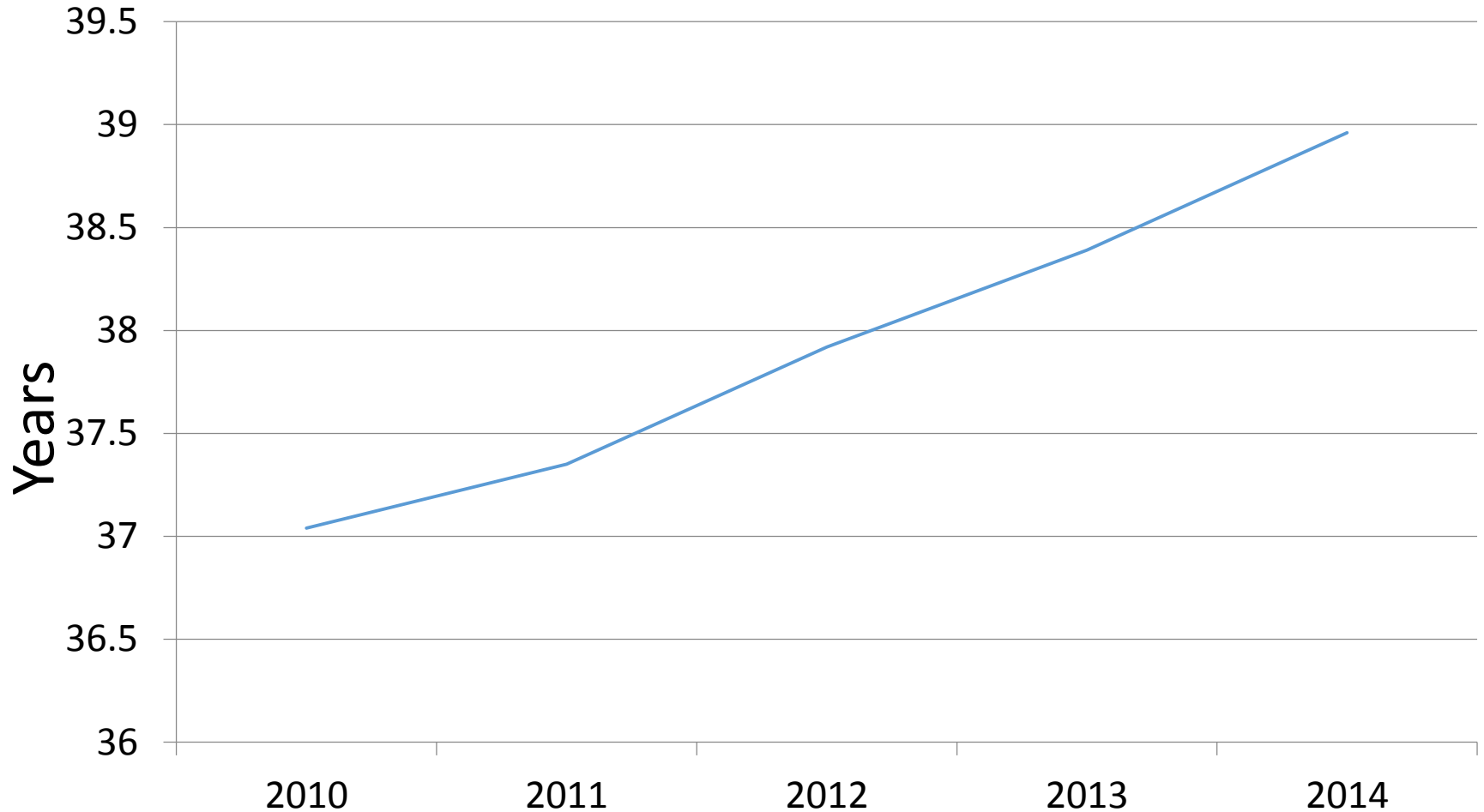
Bridge Action Categories (FHWA)



Better Design to Assist Bridge Preservation

- Why do we need better bridge design
- Material options
- Practices
- Proposed actions steps for TSP2/SCOM to promote better performing bridges

Average Age of KYTC Bridges



Why Do We Need Better Performing New Bridges?

- Bridge inventories will increase and age
- Resources will be further strained
- New (Replacement) bridges must not add to the maintenance burden

Better Performing New Bridges

- Not “Zero Maintenance” bridges
- Goals
 - Eliminate the need condition-based maintenance for 75 years
 - Minimize the cyclical maintenance requirements

Affordability of Alternative Materials



Material Options



Material Options



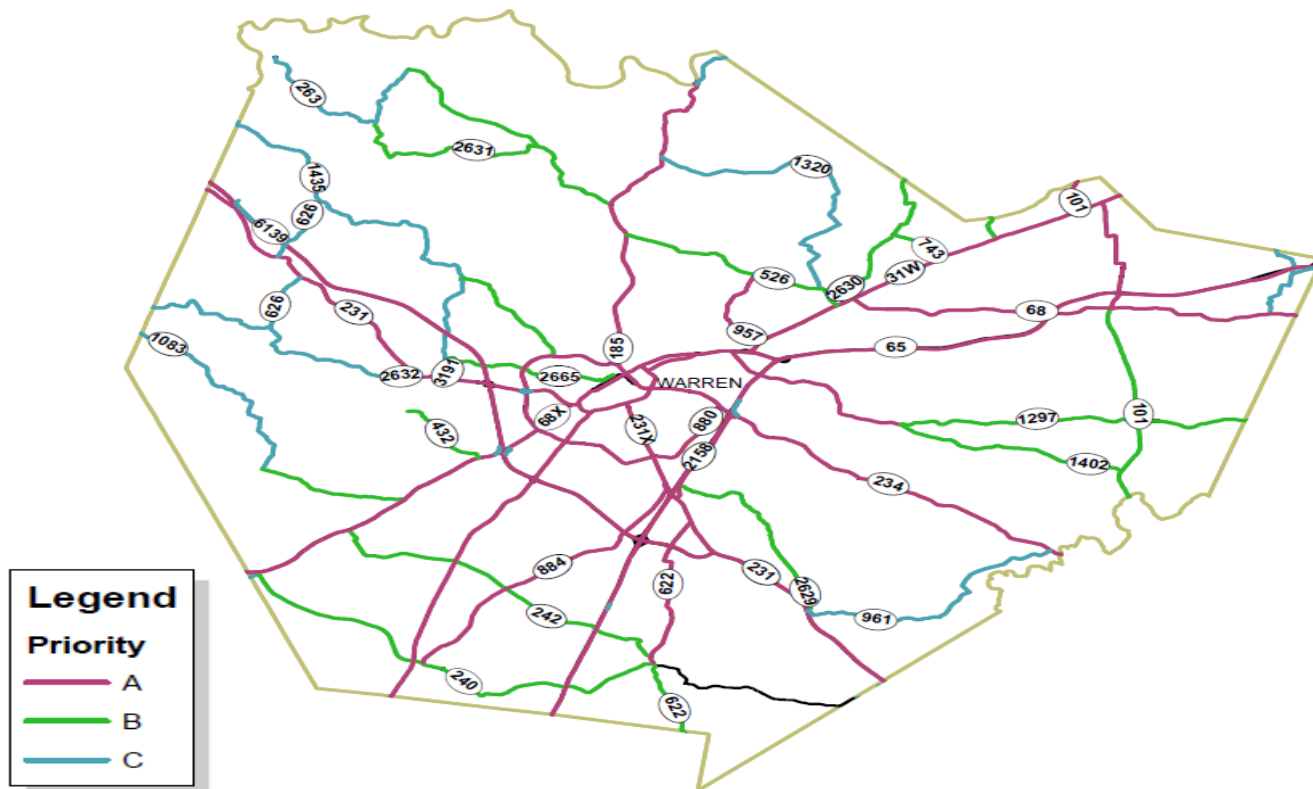
Material Options



Material Options

WARREN

Snow and Ice Priority Maps



Material Options



Material Options



Metallic Zinc Coatings



Courtesy: Joseph T. Butler
Inc

Metallic Zinc Coatings



Metallic Zinc Coatings



Duplex Coatings



Protecting Concrete on New Bridges



Protecting Concrete on New Bridges



Concern - Concrete Materials



Concern - Weathering Steel



Concern - Weathering Steel



Concern - Weathering Steel



Concern - Cold Joints



Concern - Cold Joints



Concern - Cable Stayed Bridges



Concern - Cable Stayed Bridges



Concern - Cable Stayed Bridges



Concern – Joint Performance



Concern – Deck Cracks



Concern – Deck Cracks



Contracting/Construction Issues

- Public/private partnerships
- Design/build/maintain
- Rapid renewal
- Performance specifications vs. methods & materials
- Audits vs. inspections
 - Lack of qualified inspectors
- Best value vs. lowest bid
- Certifications for contractor employees
 - Foreign workers-language issues
- Incentives/disincentives
- Warranties

Where Should We Go from Here?

- Work within our respective agencies to promote better bridges
- Develop an unified approach toward achieving better bridges (TSP2)
- Partner with AASHTO SCOM
 - Seek cooperation from AASHTO SCOBs
- Work with the FHWA to make 100+ year bridges a reality
- Track this effort and continue efforts to seek success

The End

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