Remarks by the Secretary and FHWA Update

M. Myint Lwin

Secretary, AASHTO SCOBS

Director, Office of Bridge Technology

Federal Highway Administration
Remarks by the Secretary

- Mid-Year Tech Committee Meetings
- Continue effort to successfully implement LRFD and LRFR
- Focus on improving bridge design, construction, inspection, evaluation, preservation and management
- Support FHWA’s LTBPP
AASHTO Publications

FHWA:
• HSM Website
• Training Guide
• Webinar Series
• Case Studies

Hardware Meeting
NCHRP 350 Criteria
With 2012 Errata
NTSB Recommendations

- Guidance on QC/QA in Bridge Design
- Will be included in update of “Guidance to Quality in Preconstruction Engineering”
FHWA Updates

- Working Together for Sound Solutions
- Reports from the FHWA Field Offices
- Recent FHWA and Other Publications
- Office of Infrastructure’s Performance Year 2013 Unit Plan
- The Impact of the New Bill on Bridge Programs
A Big “Thank You” to You All!
Working Together for Sound Solutions

- The FHWA/AASHTO National Bridge Inspection Joint Task Force.
Working Together for Sound Solutions

T-1 High strength Quenched and Tempered Steel
Working Together for Sound Solutions

17th. Street Bridge, Atlanta, GA

20 traffic lanes below the city street
Weight of frame

2\" - 6\"

Lower anchor bolts in tension
Canopy Failure
August 13, 2011
Working Together for Sound Solutions

Vibration in cables of pedestrian bridge
Working Together for Sound Solutions

Fatigue Cracking in diaphragm plate
Point of Anchorage Failure
Partially Fractured Plate
1 minor crack detected at Cable 7 Anchor
2 cracks detected at Cable 5 Anchor

Failed Cable Pair
Cable Pair removed

Back-Stays
No damage

Cable Points

Temporary Supports

Situation as of 2/26/2012

Note: Temp Support at 8 is not carrying load.

TH 55 – SB + Part NB Open

LRT Open

Pier 3

Partially Fractured Plate

TH 55 – SB + Part NB Open

LRT Open

Pier 3

Partially Fractured Plate

LRT Open

Pier 3
# Multi-Modal Approach to Safety

<table>
<thead>
<tr>
<th>Roles &amp; Responsibilities</th>
<th>FAA</th>
<th>FRA</th>
<th>FHWA</th>
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<tr>
<th>Applicability</th>
<th>FAA</th>
<th>FRA</th>
<th>FHWA</th>
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<tbody>
<tr>
<td>Aircrafts</td>
<td>Railroad Bridges</td>
<td>Highway Bridges</td>
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<table>
<thead>
<tr>
<th>Frequency Condition Inspection</th>
<th>FAA</th>
<th>FRA</th>
<th>FHWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established in “Limit of Validity (LOV)” approved by FRA.</td>
<td>Annually, focusing on present safety condition</td>
<td>24 months – any critical findings must be addressed by the owners</td>
<td></td>
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<table>
<thead>
<tr>
<th>Structural Evaluation</th>
<th>FAA</th>
<th>FRA</th>
<th>FHWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>By tests and analysis</td>
<td>By owners’ Bridge Safety Standards</td>
<td>By owners in accordance with NBIS</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Fracture Critical Members (FCM)</th>
<th>FAA</th>
<th>FRA</th>
<th>FHWA</th>
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<tbody>
<tr>
<td>Single load path structure – inspection based on crack-size, crack growth, analysis and/or tests</td>
<td>No distinction in FCM or Non-FCM.</td>
<td>Per owner’s FCM inspection plan – not to exceed 24 months per NBIS.</td>
<td></td>
</tr>
</tbody>
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<tr>
<th>Management System</th>
<th>FAA</th>
<th>FRA</th>
<th>FHWA</th>
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</thead>
<tbody>
<tr>
<td>Safety Management System (SMS)</td>
<td>Bridge Management Programs</td>
<td>Bridge Management Systems</td>
<td></td>
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</tbody>
</table>
Reports from the FHWA Field Offices

CT: Pearl Harbor Memorial Bridge

First Extradosed Bridge in the U.S.!
Reports from the FHWA Field Offices

TX: Queen Isabella Causeway

2.4 miles long causeway instrumented with motorist warning system.
Reports from the FHWA Field Offices

**DELMAR:**
- PBES project on West Nursery Rd over the BW Parkway – full superstructure move this Fall. Invitation will be coming.
- The Indian River inlet cable-stayed bridge has been completed and open to traffic.

**VA:**
- Tunnel Preventive Maintenance Agreement.
- Use of Corrosion Resistant Reinforcement.
- Inspection of Ancillary Structures practices.
FL:
- Changes to Florida Statutes, effective July 1, 2012:
- Department will post a bridge,
- if a governmental entity will not within 30 days of notice.
- Assess the cost of posting to the governmental entity.

OK:
- “Just Do It” – Governor passed legislation to rehab or replace 786 deficient bridges in 8 years.
Reports from the FHWA Field Offices

**TX:**
- Elevated chloride content in PT grout.

**HQ - PT Grouting Specifications and Practices:**
- More information in later presentations by FHWA, Industry and Consultants.
- FHWA PT Quality Training & Guidance Webinar
  August 2, 2012 from 2:00 to 4:00 p.m. (EST)
- For more detail, contact Reggie.Holt@dot.gov
HQ – Clarification of Fracture Critical Members
– Introduces System Redundant Member (SRM)
– Not load-path redundant
– Structural redundancy established by refined analysis
– Fabricated in accordance with Fracture Control Plan
– For more detail, contact Brian.Kozy@dot.gov
OH – Bridge Load Rating Success Story:

In March 2008, 11,200 County Bridges not rated!

In January 2009, FHWA, ODOT and CEAO had a discussion and agreed to rate 20% per year for 5 years:

Status as of June 2012:

- ODOT System = 98%
- County System = 85%
- Municipal System = 65%

Contact Person: Cindy Wang, Bridge Load Rating Manager
Recent FHWA and other Publications

- Framework for Improving Resilience in Bridge Designer
- Primer for Inspection and Strength Evaluation of Suspension Bridge Cables
- Accelerated Bridge Construction Manual
- HEC-18 Evaluating Scour at Bridges
- HEC-20 Stream Stability at Highway Structures
Recent FHWA and other Publications

- ASBI Construction Practice Handbook
- NSBA Steel Bridge Design Handbook
- PCI Bridge Design Manual
- PTI Specification for Grouting of Post-Tensioned Structures
Office of Infrastructure’s PY 2013 Unit Plan – Strategic Initiatives

- Use of high-performance materials in bridge design and ABC in construction
- Support EDC Initiatives
- Support SHRP 2 Initiatives
- Evaluate and improve NBIP oversight process using the 23 compliance metrics.
- Implement the National Tunnel Inspection Standards.
Two Metrics for the Dashboard

1. Bridge inspection organization
2. Qualifications of Program Manager
3. Qualifications of Team Leaders
4. Qualifications of Load Rating Engineer
5. Qualifications of UW Bridge Inspection Diver
6. Inspection frequency – Routine
7. Inspection frequency – Routine Extended Intervals
8. Inspection frequency – Underwater
9. Inspection frequency – Underwater Extended Intervals
10. Inspection frequency – Fracture Critical Members
11. Inspection frequency – Damage, In-Depth or Special
12. Inspection procedures – Team Leader

13. **Inspection procedures** – Load Rating
14. Inspection procedures – Post or Restrict
15. Inspection procedures – Bridge Files
16. Inspection procedures – Fracture Critical Members
17. Inspection procedures – Underwater

18. **Inspection procedures** – Scour Critical Bridges
19. Inspection procedures – Complex Bridges
20. Inspection procedures – QC/QA
21. Inspection procedures – Critical Findings
22. Inventory – Prepare and Maintain
23. Inventory – Update Data
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Satisfactory = 27%
Actively Improving = 73%
Unsatisfactory = 0

Lubin.Gao@dot.gov
Two Metrics for the Dashboard

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Qualifications of UW Bridge Inspection Diver
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Inspection procedures – Complex Bridges
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Inspection procedures – Critical Findings
Inventory – Prepare and Maintain
Inventory – Update Data

Satisfactory = 38%
Actively Improving = 60%
Unsatisfactory = 2%

David.Henderson@dot.gov
Office of Infrastructure’s PY 2013 Unit Plan – Strategic Initiatives

- Use of high-performance materials in bridge design and ABC in construction
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- Support SHRP 2 Initiatives
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Office of Infrastructure’s PY 2013 Unit Plan – Strategic Initiatives

- Provide training in the use of LRFR
- Improve quality of bridge inspection data.
- Advance practices in bridge preservation and management
- Develop Bridge Opportunity List
- Provide guidance on safe management of FCM
Moving Ahead for Progress in the 21st Century (MAP-21)

http://www.fhwa.dot.gov/Map21

1. Creates jobs and supports economic growth
2. Simplifies programs
3. Supports safety
4. Accelerates program delivery
5. Promotes innovation
6. Strengthens America’s Highway and Transportation System
7. Performance-based Federal programs
# The New Transportation Bill – MAP-21

<table>
<thead>
<tr>
<th></th>
<th>President’s Proposal</th>
<th>Senate Bill MAP-21</th>
<th>House Bill HR-7</th>
<th>Final Bill MAP-21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget</strong></td>
<td>$476 B/6 Years</td>
<td>$109 B/2 Years</td>
<td>$260 B/5 Years</td>
<td>$105 B/2 Years</td>
</tr>
<tr>
<td></td>
<td>$79.0 B/Year</td>
<td>$54.5 B/Year</td>
<td>$52.0 B/Year</td>
<td>52.5 B/Year</td>
</tr>
</tbody>
</table>
A new approach to formulas

Federal-aid Highway Programs: $39.7B in 2013
$40.3B in 2014

1. Authorize lump sum for all apportioned programs
2. Calculate total amount to apportion to each State
3. Divide State lump sum among programs
State’s Total Apportionment

- **FY13**
  - State receives same total apportionment as in FY12

- **FY14**
  - State receives same share of MAP-21’s formula funds as in FY12
  - State receives at least 95% of its contributions to the Highway Account of HTF
$37.7 billion/year in formula funding

- National Highway Performance Program ($21.8)
- Surface Transportation Program ($10.0)
- HSIP ($2.2)
- CMAQ ($2.2)
- Railway-Highway Crossing ($0.2)
- Transportation Alternatives ($0.8)
- Metro Planning ($0.3)

Note: Amounts in $Billion
State’s apportionment among programs

CMAQ
State’s lump sum multiplied by...

State’s FY09 CMAQ

State’s total FY09 apportionment

Metro Planning
State’s lump sum multiplied by...

State’s FY09 Metro Planning

State’s total FY09 apportionment

Remainder (net of CMAQ, Metro Planning) divided among...

• NHPP (63.7%)
• STP (29.3%)
• HSIP (7.0%)
National Highway Performance Program (NHPP)

- Funds an enhanced National Highway System, combining NHS, IM and Bridge Programs
- No limit on new capacity
- Requires an asset management plan
- States set targets for conditions and performance
- Law sets standard for NHS bridges -- no more than 10% of deck area may be structurally deficient
Surface Transportation Program (STP)

- Flexible funding for Federal-aid highways, plus safety and bridges on any public road
- Eligibility for transportation enhancements
- 50% of funds subject to suballocation based on population

Rural provisions enhanced

- Rural planning organizations must be consulted
- Up to 15% of rural suballocation may be spent on minor collectors
Transportation Infrastructure Finance and Innovation Act (TIFIA)

- Substantial increase in program size
  - $750M in FY13 and $1B in FY14

- First-come, first-served application process

- Increased TIFIA participation from 33% to 49%

- Increased eligibility & lower interest rates for rural projects

- Allow commitments in advance of availability of funds
Emergency Relief Program

- Authorized at $100 million per year
- Provide a complete list of project sites and costs within 2 years of event
- May not exceed cost to repair/reconstruct comparable facility
# Research, Technology Deployment, Training & Education

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<tr>
<th>Area</th>
<th>Annual $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway Research &amp; Development</td>
<td>$115 million</td>
</tr>
<tr>
<td>Technology &amp; Innovation Deployment</td>
<td>$62.5 million</td>
</tr>
<tr>
<td>Training &amp; Education</td>
<td>$24 million</td>
</tr>
<tr>
<td>University Transportation Centers</td>
<td>$100 million</td>
</tr>
<tr>
<td>Bureau of Transportation Statistics</td>
<td>$72.5 million</td>
</tr>
<tr>
<td>SHRP 2 implementation (funded as setaside of State Planning and Research funds)</td>
<td>TBD</td>
</tr>
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</table>
Performance Management Process

National goals (MAP-21)

National measures (USDOT)

State targets (set in individual program plans)

State & MPO plans address national goals

National Goal for Infrastructure Condition is: Maintain in a “State of Good Repair”
Most Discretionary Programs Eliminated

- Highways for LIFE Pilot
- Innovative Bridge Research & Deployment
- National Historic Covered Bridge Preservation
Bridge and Tunnel Inspection

• Requires inspection and inventory of highway bridges and tunnels on public roads

• **Element level data required for NHS bridges**

• **Secretary, with consultation, to establish**—
  • Inspection methods
  • Maximum time period between inspections
  • **Qualifications for inspectors and certification procedure**
  • Training program for inspectors
Other Provisions

- State may approve overweight permits for divisible loads during major disasters.
- **Truck size and weight** – no change, but requires a new study and inventory of current state laws.
- “Buy America” applies on a project level rather than contract level.
- **Value Engineering threshold** raised to $45M. VE not required for design-build projects.
- State may transfer up to 50% of any apportionment to another formula program.
Keeping the HTF solvent

- Extend highway taxes through 9/30/2016
- Extend authority to make expenditures through 9/30/2014
- Transfer
  - $2.4 billion from the Leaking Underground Storage Tank Trust Fund to the Highway Account
  - $16.6 billion from the General Fund to the Highway Account
Working Together

Keep Our Roads, Bridges & Tunnels in a “State of Good Repair”!

It’s now the law!