

# Transportation Asset Management Plans (TAMP)

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U.S. Department of Transportation  
**Federal Highway Administration**

# Requirements?

- Each State is required to develop a risk-based asset management plan for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system. (23 U.S.C. 119(e)(1), MAP-21 § 1106)



# Transportation Asset Management Plans (TAMP)

- FHWA

- Certify State DOT asset management processes at least every 4 years (Initial TAMPs were due in April 2018)
- Determine annually whether the State DOT has developed and implemented an asset management plan consistent with 23 U.S.C. 119 (Complete TAMPs were due June 30, 2019)
- Set forth the minimum standards for a State DOT to use in developing and operating highway bridge and pavement management systems under 23 U.S.C. (CFR 515.017)

# Deadlines:

- Not later than **June 30, 2019**, the State DOT shall submit:
  - a State-approved asset management plan meeting all the requirements of 23 U.S.C. 119 and 23 C.F.R. part 515; and
  - documentation demonstrating implementation of the asset management plan.
- FHWA is to review these documents to determine, by **August 31, 2019**, if they are consistent with 23 USC 119. The State DOT has **30 days** to address the deficiencies.
- Beginning on **October 1, 2019**, penalties take effect, the maximum Federal share for NHPP projects reduced to 65-percent



# Asset Management:

- Goal: Maintain the highway infrastructure asset system in a state of good repair.
  - Manage the network for the long term at the minimum practicable cost to:
    - improve or preserve asset condition and system performance.
    - manage risk.
  - Short-term performance measures and targets are key indicators.



# What Is Asset Management?

- From 23 USC 101(a)(2): “a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify **a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.**”



# Risk-based Asset Management Plan – Framework for Asset Management

- Plan Contents:
  - Pavement and bridge inventory and conditions on the NHS.
  - Objectives and measures.
  - Performance gap identification.
  - Lifecycle planning.
  - Risk management analysis.
  - Financial plan.
  - Investment strategies.



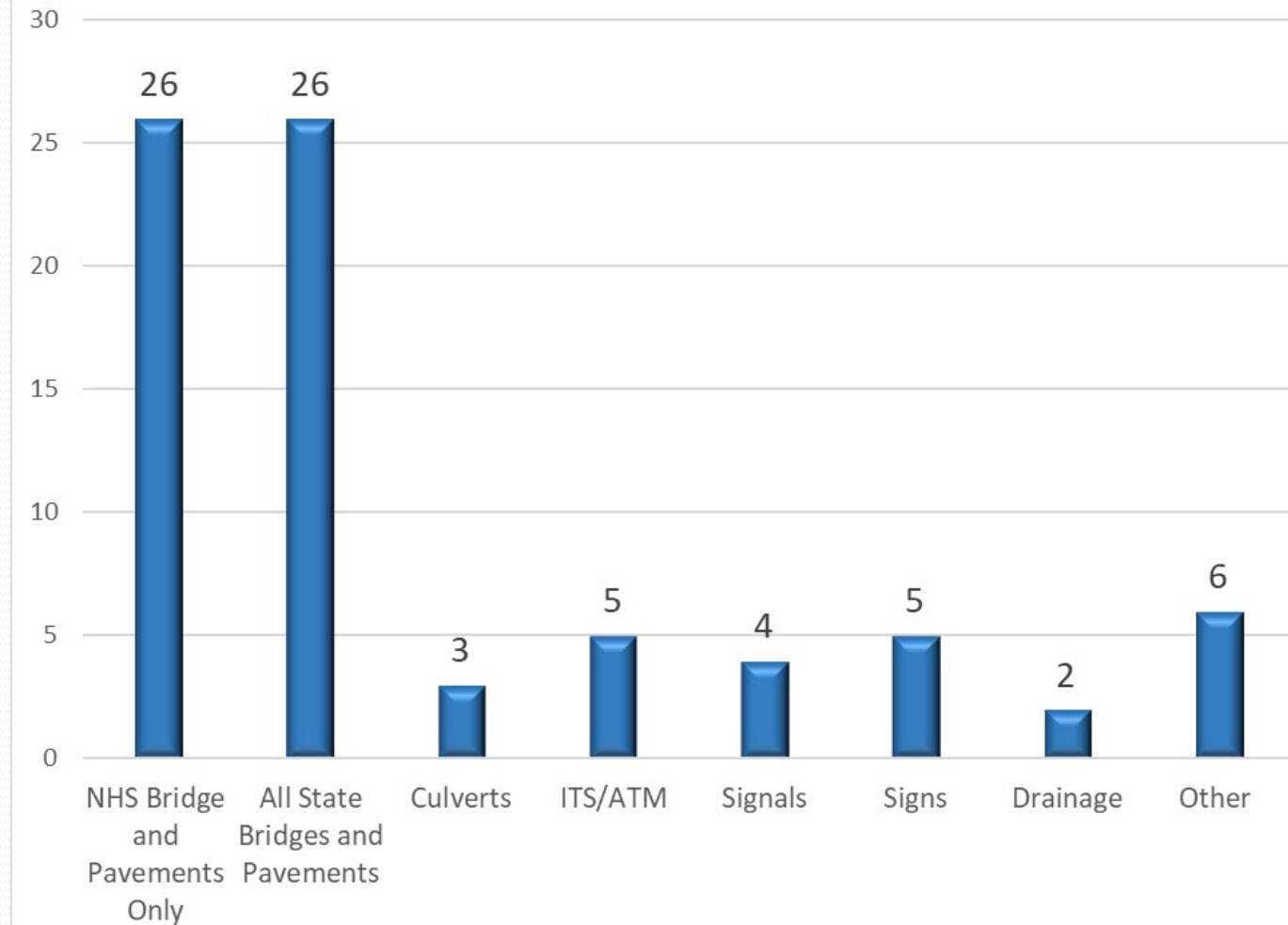


# What we found in the Initial TAMPs...





## Assets Addressed by Initial TAMPS



# Highlights

- Widespread understanding of asset management
- Ability to document a return on investment using asset management
- Life-cycle strategies apparent in many TAMPs
- State of good repair often identified
- Condition gaps and trends clearly illustrated
- Modeling demonstrates future outcomes of current or past actions
- Risks are acknowledged



# Lifecycle Planning: Treatments

Surface Type	Management Strategy <sup>1</sup>	Work Type <sup>2</sup>	Life Extension <sup>2</sup> (Years)	Agency Cost <sup>2,3</sup> (\$ Total/Lane Mile)	EUAC <sup>2,4</sup> (\$ Annual/Lane Mile)
Flexible Pavements (Chip Seal and Asphalt)	<b>Maintenance:</b> Most cost-effective option, and used to extend time between resurfacing activities.	<b>Minor Repair:</b> <ul style="list-style-type: none"> <li>Patching</li> <li>Crack sealing</li> </ul>	Chip Seal: 2 Asphalt: 3	Chip Seal: \$2,500 Asphalt: \$5,000	Chip Seal: \$1,325 Asphalt: \$1,802
	<b>Rehabilitation:</b> Properly timed resurfacing activities to preserve pavement structure.	<b>Resurface:</b> <ul style="list-style-type: none"> <li>Add surface layer or mill and inlay</li> <li>Hot-seal &amp; hot-mix asphalt</li> </ul>	Chip Seal: 7 Asphalt: 15	Chip Seal: \$45,000 Asphalt: \$225,000	Chip Seal: \$7,497 Asphalt: \$20,237
	<b>Reconstruction:</b> Most expensive option, generally avoided by properly timed resurfacing.	<b>Reconstruction + Resurfacing:</b> <ul style="list-style-type: none"> <li>Every 9 yrs. (Chip Seal)</li> <li>In yrs. 20 &amp; 35 (Asphalt)</li> </ul>	Chip Seal: 54 Asphalt: 50	Chip Seal: \$200,000 + \$45,000 each Asphalt: \$1,000,000 + \$225,000 each	Chip Seal: \$13,100 Asphalt: \$53,985
Rigid Pavements (Concrete)	<b>Rehabilitation:</b> Opportunities for further life-extending treatments are limited.	<b>Resurface/retrofit:</b> <ul style="list-style-type: none"> <li>Diamond grinding</li> <li>Dowel bar retrofit</li> <li>Selective slab replacement</li> </ul>	Concrete: 15	Concrete: \$400,000	Concrete: \$35,976
	<b>Reconstruction:</b> Most expensive option. Required at end of concrete pavement life.	<b>CSOL + Resurfacing:</b> <ul style="list-style-type: none"> <li>In yrs. 20 &amp; 35</li> </ul> <b>Resurfacing methods include:</b> <ul style="list-style-type: none"> <li>Asphalt Replacement</li> <li>Unbonded Concrete Overlay</li> </ul>	CSOL Concrete: 50	CSOL Concrete: \$900,000 + \$225,000 each	CSOL Concrete: \$49,330
		<b>Reconstruction</b>	Concrete: 50	Concrete: \$2,500,000	Concrete: \$116,376

# Highlights

- Some noted new organizational structures, policies
- TAM coordinating councils
- Enhanced data policies and/or structures
- Ties to performance management



# Future

- Advancing the application of management systems, particularly for bridges
- Connecting programming to TAM
- Life-cycle planning and work types
- Risk management (investment strategies)
- Extreme events evaluation
- Application of asset valuation analysis
- Local NHS coordination is a work in progress



# Link to Programming Not Clear

- Some TAMPs showed line-of-sight link to programming
- Others said districts pick projects on local priorities
- Several still rely on historical program splits
- Several just didn't say how programming decisions were made



# Work Types

- Many lack details on investments in initial construction
- Maintenance
- Preservation
- Rehabilitation
- Replacement
- Single line items for pavements, bridges didn't split out treatment amounts



# Integration of Risk in Investment Strategies

- For most, risk appears to be a stand-alone activity
- Held a workshop
- Identified and assessed risks
- Noncommittal on who and how risks are managed
- Extreme events not often mentioned as risk, factors in forecasting





# Asset Valuation

- Only a few States indicated it was a decision factor
- Others listed replacement value but didn't elaborate on it
- For some, it was only a paragraph or table
- Several addressed with regard to management of the network



# Coordination with Other Owners

- Varies by State
- Large, locally owned NHS amounts led to:
  - Coordination with locals
  - More extensive outreach
  - Data sharing
  - In one case, revenue sharing



# Local NHS Focus Area

- Perhaps an issue for future focus is how to engage the local NHS owners into the asset management process
- In 13 States, local NHS ownership varies between 700 CL miles and 5,455
- Achieving long-term NHS sustainability may not be possible in those states without local engagement
- Less of an issue for the other 75 percent of the States



# Investment Strategies

- **Investment strategies** result from evaluating various levels of funding to achieve State DOT targets for asset condition and system performance effectiveness at a minimum practicable cost while managing risks



# Asset Management Resources

- Guidance and Informational Materials
  - FHWA Office of Asset Management Website  
<http://www.fhwa.dot.gov/asset/index.cfm>
  - NHI Transportation Asset Management Training Courses
  - FHWA TAMP Implementation Workshop – Life-Cycle Planning, Risk, and Financial Planning Analysis
  - Technical Assistance
  - Peer Exchanges
  - On Demand, Tailored Technical Assistance from the Resource Center (e.g., support to Divisions on initial TAMP reviews)



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