

Transportation Asset Management

A Risk-based approach

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Asset Management

- Asset Management combines a focus on metrics and long-term system sustainability
 - By taking a *long term view* and anticipating *future conditions* (sustaining for long-term conditions)
 - By having *short term targets* to accomplish *the long term plan* and *maximize* future performance and condition of infrastructure

What is asset management?

- Asset management is 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.
(23 U.S.C. 101(a)(2), MAP-21 § 1103)

What are the scope and content of a risk-based asset management plan?

- Includes strategies that lead to a **program of projects** that would make progress toward achievement of the State targets for asset condition and performance of the NHS
- States must address pavements and bridges but are **encouraged to include all infrastructure assets** within the highway right-of-way in their risk-based asset management plan. (Also can include roads other than on the NHS.)

Highway Asset Management Plan

- Plan Contents
 - A **Strategic and Systematic** approach
 - Pavement and bridge inventory and conditions on the NHS,
 - **Objectives** and measures,
 - Performance gap identification,
 - Lifecycle cost and **risk** management analysis,
 - A financial plan, and
 - **Investment strategies**
- (**preservation**)

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- Assessing risk to the system (network)
- Largely limited to managing risk at the project level
 - Identify threats and opportunities to project cost, scope and schedule
- Need to recognize risk at program and organizational levels

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- Enterprise level approach to protect transportation investments
- The effect of uncertainty on objectives
- The chance of something happening that will have an impact on objectives
 - Likelihood and consequence

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- Major external threats create havoc with TAMPs
 - Predictable deterioration curves
 - Erratic and abrupt
- Katrina, Irene and Sandy
 - More damage in one day

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- Effects far greater than 50 years ago
 - More urbanized, more connected
 - Increasing frequency
 - More intense,
- Dual challenge –
 - Refine predictable performance
 - Prepare for unpredictable

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- Impact MUST be minimized
- Cannot be prevented
- Our focus must be on:
 - Redundancy
 - Robustness
 - resiliency

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- Asset Management is not a complete answer
- It serves as an important component
- Need to develop a plan that ably copes with a wide range of predictable and unpredictable events

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- Redundancy: duplicative or excess capacity
- Robustness: Well-maintained assets generally are better to withstand the stress
- Resiliency: ability to prepare and plan to successfully adapt to adverse events

A Risk-based Approach

- Series of Risk-based studies / white papers
 - FHWA website – asset management
- 1) Overview of Risk Management
- 2) Managing Asset Risks at Multiple Levels
- 3) Risk to Asset Management Policies
- 4) Managing Risks to Critical Assets
- 5) Managing External Threats

Asset Management – This is how we do business:

- Preserve our assets and minimize their whole life costs.
- We need to better understand – whole life costs – be better informed
- Operate in a financially sustainable manner.
- Provide a framework to improve performance on a long-term basis

Resources Are Available

- NHI Transportation Asset Management Training Course
- FHWA Asset Management Today website:
<http://www.fhwa.dot.gov/asset/index.cfm>
- AASHTO Asset Management Guide – A Focus on Implementation
- FHWA Office of Asset Management
- AASHTO Asset Management Subcommittee
- TRB Asset Management Committee
- Other -