FHWA Workshop


September 12, 2017
Asset Management Workshop

• Welcome

• Workshop focuses on the 3 interim guidance documents:
  – Life-cycle planning
  – Risk management
  – Financial plans

• Goal: better understanding of how to address these issues in your Asset Management Plan
Asset Management
Infrastructure Condition

• Goal: Maintain the highway infrastructure asset system in a state of good repair
  - Manage your network for the long term at the minimum practicable cost to:
    ➢ Improve or preserve asset condition and system performance
    ➢ Manage risk
  - Short-term performance targets are key indicators
Risk-based Asset Management Plan

Plan Contents

- Pavement and bridge inventory and conditions on the NHS
- Objectives, measures, and targets
- Performance gap identification
- Lifecycle planning
- Risk management analysis.
- Financial plan
- Investment strategies
Management Systems

- Minimum standards for States to use in developing and operating bridge management systems and pavement management systems

- State DOTs to use bridge and pavement management systems to analyze asset conditions to develop and implement Risk-based Asset Management Plans
When are Asset Management Plans due?

- Not later than **April 30, 2018**, the State DOT must submit to FHWA a State-approved initial TAMP

- Not later than **June 30, 2019**, the State DOT must submit to FHWA a current State-approved (a “fully compliant”) TAMP that meets all the requirements of 23 U.S.C. 119 and 23 CFR Part 515
TAMP investment strategies should collectively make or support progress toward:

- Achieving and sustaining a desired state of good repair over the life cycle of the assets
- Improving or preserving the condition of the assets and the performance of the system relating to physical assets
- Achieving the State DOT targets for asset condition and performance of the NHS in accordance with 23 USC 150(d)
- Achieving the national goals identified in 23 USC 150(b)
FHWA Resources

• FHWA Office of Asset Management
  http://www.fhwa.dot.gov/asset/index.cfm

• NHI Transportation Asset Management Training Courses

• Certification and Consistency Review Guidance out for comment in the Federal Register, June 5, 2017

• Asset Management Q&As

• Interim Guidance for Life-cycle Planning, Risk Management, and Financial Plans
Questions?

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Our Goal

• Explain
  – Life cycle planning (LCP)
  – Risk management
  – Financial planning

... and how they contribute to the selection and communication of a TAMP investment strategy
Introductions

- Facilitators
- Participants
  - Your name
  - Your agency
  - Your involvement with TAMP’s development
TAMP Best-Practices Documents

• How can the best-practices documents help you develop your agency’s TAMP?
  – LCP
  – Risk management
  – Financial planning
What Will You Get Out of Today?

Lesson 1  
LCP

Use asset management systems to develop asset LCP scenarios

Lesson 2  
Risk Management

Use agency information to identify risks relevant to meeting the TAMP objectives, along with potential mitigation strategies

Lesson 3  
Financial Planning

Use finance, LCP, risk, and condition data to set and justify investment strategies and targets
Today's Agenda

LESSON 1
Life Cycle Planning
8:30–10:15 AM

LESSON 2
Risk Management
10:30–12:15 AM

LESSON 3
Financial Plans
1:15–3:00 PM

DEBRIEF
on TAMPs
3:15–4:15 PM

INTRODUCTION
8:00–8:30 AM

BREAK
10:15–10:30 AM

LUNCH
12:15–1:15 PM

BREAK
3:00–3:15 PM

WRAP-UP
4:15–4:30 PM
What We Expect from You

• Be on time
• Put cell phones on mute
• Step out of the class to answer urgent phone calls
• Refrain from texting or answering emails
• Ask questions of the instructor and peers
• Listen to answers before providing feedback
• Be an active group member
• Take notes
Lesson Topics

• Network-level LCP v. project-level life cycle cost analysis (LCCA)

• How LCP supports a TAMP

• Process for conducting LCP

• Requirements for conducting LCP

• Using LCP results
What Is LCP?

- LCP considers the:
  - Availability of different treatment options
  - Opportunity cost
  - Funding and other constraints
  - Analysis period
  - Time value of money
LCP v. LCCA

NETWORK LEVEL

PROJECT LEVEL

How Does LCP Support a TAMP?

LIFE CYCLE PLANNING PER ASSET CLASS

RISK

FUNDING

ASSET CLASS

LCP STRATEGY 1 → OUTCOME 1
LCP STRATEGY 2 → OUTCOME 2

TAMP

FINANCIAL PLAN

LCP Process

1. Select Asset Classes and Networks
2. Define LCP Strategies
3. Set LCP Scenario Inputs
4. Develop LCP Scenarios
5. Provide Input to Financial Planning
Step 1: Select Asset Classes and Networks

- What asset classes are required to be included in the TAMP?
- What other networks might be included for pavements and bridges?
- What other asset classes can be included?
Step 2: Define LCP Strategies

All NHS Pavements

Percent Good and Fair

Year


Current
Moderate Preservation
Aggressive Preservation
Prioritize Interstates
Step 3: Set LCP Scenario Inputs

- Current conditions
- Performance curves
- Annual funding / budgets
- Analysis timeframe

- Treatments
- Treatment costs
- Strategy details and rules
Step 4: Develop LCP Scenarios

- Has the agency met or exceeded minimum requirements?

- What level of funding is needed to achieve targeted conditions?

- Is there a more cost-effective strategy to preserve system conditions at a lower cost?

- If funding is insufficient to achieve targeted conditions, what condition level can be achieved for the available funding?
LCP Requirements

- What information do you need to do LCP?
Using LCP Results

- What LCP scenario leads to the lowest practical life-cycle cost?
- Does the scenario address risks and constraints?
- What conditions can be achieved at different funding levels for each LCP scenario?
- What LCP scenarios should be advanced to the financial planning process?
LESSON 2 RISK MANAGEMENT
Lesson Topics

- Key concepts of risk management
- How risk management supports performance and asset management
- Risk management process
- Incorporating mitigation strategies into an investment strategy
Risk Management: Key Concepts

- Addresses uncertainty, variability, opportunities, and threats
- Identifies, analyzes, prioritizes, and manages threats and opportunities to asset management performance objectives and condition targets
- Supports applying opportunities
- Summarizes changes in environmental conditions and their impact
Role of Risk Management

• How does risk management support performance and asset management?

  – Provides a framework for analyzing, prioritizing, and addressing uncertainties specific to achieving TAMP performance objectives and condition targets, including the financial and LCP strategies.
Risk Management Process

- Establish the Context
  - Identify goals, objectives, targets, environmental, political, economic context

- Risk Identification
  - Identify risks to condition, performance of assets
  - Part 667 assets repeatedly damaged

- Risk Analysis
  - Assess likelihood, impact and consequence

- Risk Evaluation
  - Prioritize identified risks

- Manage Risks
  - Mitigation plan for top priority risks
  - Approach for monitoring top risks
  - Summary of Part 667 evaluations

Communicate and Consult

Monitor and Review
Step 1: Establish the Context

- Identify risks to:
  - Asset management goals, objectives and targets
  - Short- and long-term priorities
  - Asset management tools and procedures
Step 2: Identify Risks

Commonly identified risks fall into the following categories:

- Environmental Conditions
- High-Risk, High-Value Assets
- Legal or Compliance
- Information or Decision
- Hostile Acts, Malfeasance, Accidents
- Financial
- Demand
- Operational
Step 3: Analyze Risks

- What is the likelihood and consequence associated with each risk?

<table>
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<th>Risk Matrix with Impact and Likelihood Definitions</th>
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<tr>
<td></td>
<td>Rare</td>
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<td>Less than once every 10 years</td>
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<tr>
<td>Impact</td>
<td>Catastrophic</td>
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<tr>
<td></td>
<td>Potential for multiple deaths &amp; injuries, substantial public &amp; private cost.</td>
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<tr>
<td></td>
<td>Potential for multiple injuries, substantial public or private cost and/or foils agency objectives.</td>
</tr>
<tr>
<td></td>
<td>Potential for injury, property damage, increased agency cost and/or impedes agency objectives.</td>
</tr>
<tr>
<td></td>
<td>Potential for moderate agency cost and impact to agency objectives.</td>
</tr>
<tr>
<td></td>
<td>Potential impact low and manageable with normal agency practices.</td>
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</table>
Step 4: Evaluate Risk

• What is the agency’s risk tolerance?
Step 5: Manage Risk

- Mitigation strategies include:
  - Treat
  - Transfer
  - Tolerate
  - Terminate
  - Take advantage
Using Mitigation Strategies

- Mitigation strategies can be incorporated into TAMP investment strategies
LESSON 3 FINANCIAL PLANNING
Lesson Topics

• Purpose of TAMP financial plan
• Information used to develop a TAMP financial plan
• Financial plan development process
Purpose of a Financial Plan

- Communicates the financial environment
- Provides 10-year revenue forecast
- Identifies funding needed to achieve desired state of good repair
- Demonstrates level of conditions achievable with available funds
- Basis for comparison of investment strategies
Information Used to Develop a Plan

- Financial information
- LCP
- Condition predictions
- Initial targets
- Risk analysis results
- Recommendations from other plans
- Performance gap analysis
Developing a Financial Plan

1. Identify Available Revenue
2. Estimate Funding Needs
3. Quantify Funding Gaps
4. Develop Investment Strategies
Step 1: Identify Available Revenue

- **Preserve Existing Assets**: $587M (56%)
- **Debt Service**: $171.2M (16%)
- **System Expansion**: $93.5M (9%)
- **Program Delivery / Administration**: $65.3M (6%)
- **Improve Mobility**: $65.9M (6%)
- **Emergencies**: $42.7M (4%)
- **Multi-Modal Grant**: $10M (1%)
- **Bridge Replacement Initiative**: $11.8M (1%)

U.S. Department of Transportation
Federal Highway Administration
Step 2: Estimate Funding Needs

- Funding is needed to:
  - Meet condition targets
  - Achieve and sustain the desired SOGR
  - Address system performance through improvements to physical assets
Step 3: Quantify Funding Gaps

- Available Funding
- Funding Needed
Step 4: Develop Investment Strategy

- Review risk mitigation strategies, LCP scenarios, and funding distribution
- If there are funding gaps, conduct some level of cross-asset analysis
- Document ways to close funding gaps and consequences of failure
## Multi-Criteria Analysis Matrix

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Collaborating and Communicating

• Work with leadership and external stakeholders to determine what funding scenario and investment strategy will be recommended in the TAMP

• Provide an assessment of the agency’s ability to implement the investment strategy and any risks to that implementation
DEBRIEF AND WRAP-UP
Summarize the Investment Strategy

- What were your major findings?
Contact Information

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Questions?