Transportation Performance Management: A New Era of Accountability and Reporting

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Indiana Department of Transportation
Indiana’s Opportunity

The messaging began in 2012. Presentations to the Budget, House Ways & Means, and Road and Transportation Committee’s followed each year thereafter. The Indiana General Assembly created the Funding Indiana’s Roads for a Stronger, Safer Tomorrow (FIRSST) task force to:

- Study the state’s road and bridge needs.
- Develop a plan for funding infrastructure investment in the long-term.

FIRSST task force afforded INDOT an opportunity to shape Indiana’s long-term road funding discussion.

INDOT Commissioner Joe McGuinness and Chief of Staff Chris Kiefer participation in FIRSST meetings
In April 2017, the Indiana General Assembly voted in favor of HB 1002, a 20-year funding plan for state and local highway investment based on user increases.

**The Result – House Bill 1002**

Gov. Eric Holcomb signed the bill into law on April 27.

- Provides an average of $1.2 billion annually for state and local transportation projects by 2024
- Streamlines the federal funds exchange program
- Indiana is one of the only states in the country with a fully funded plan for maintaining existing roads.
Beginning with 2016 and beyond, a major shift toward Preservation has begun.
The Scope of Asset Management

Think
- Level of Service/Value definition
- Asset Mgt. Strategies
- Asset Valuation Approach
- Continual Improvement
- Root cause analysis
- Life cycle planning and cost analysis
- Asset Risk approaches
- Asset Mgt. System
- Mgt. Review
- Assumptions/Scenarios
- Business Process design
- Asset Inventory
- CMMS, MMS, EAM
- Operational Risk approaches
- SOP’s
- Condition assessments

Plan
- Strategic
  - O&M, Strategic
  - Demand Planning
  - MRO/Cash Forecasting
  - T2MP
  - Contingency Planning
  - ABC/MAPE
  - Risk analysis
  - Technical Specifications
  - Performance Reporting
  - O&M Advisory
  - Data Standards

Tactical
- Operational
  - Performance Management/Strategy
  - Accounting Practices/linked to
  - Resourcing Strategy
  - Business Process design
  - P&L
  - Financial / Executive
  - Technical Standards
  - Performance Delivery
  - Asset Commissioning
  - Training
  - Knowledge closeout
  - SOP’s

Program
- Program
  - Asset Mgt. Objectives & Performance Targets
  - Asset Mgt. Policy
  - Asset Mgt. Strategy
  - Asset Mgt. Plans
  - Public Engagement
  - Asset Mgt Improvement
  - Asset Mgt. Review
  - Mgt. Audit & Assurance
  - Business Process design
  - Asset Inventory
  - CMMS, MMS, EAM
  - Operational Risk approaches

Deliver
- Deliver
  - Level of Service/Value definition
  - Asset Mgt. Strategies
  - Asset Valuation Approach
  - Continual Improvement
  - Root cause analysis
  - Life cycle planning and cost analysis
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  - Asset Mgt. System
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Asset Management Principles

- Alignment with organizational goals
- Clear Policy and achievable Strategy / Roadmap
- Investment Planning
  - Clear performance, risk & cost trade-offs, in a long-term planning environment
- Integrated and coordinated investment delivery activity
- Leadership commitment & governance
- Continual Improvement
Asset Management Principles (continued)

• Whole life cost approach
• Optimized risk-based maintenance & renewal plans
• Clearly laid out business processes
  o Providing transparency and traceability in decision making
• Clear responsibilities, authorities & accountabilities
• Quality asset information
• Accessible and integrated information systems
  o Supporting all stages of the asset lifecycle
What is Asset Information?

“Asset information is a combination of data about physical assets used to inform decisions about how they are managed.

Good asset information enables better decisions to be made, such as determining the optimal asset maintenance or renewal frequency for an asset.”

The IAM Subject Specific Guideline ‘Asset Information, Strategy, Standards and Data Management’
Questions for the Asset Owner

• What do we own and operate?
• How much is it worth?
• How long has it been in operation?
• What condition is it in?
• How reliable is it?
• What has gone wrong with it?
• What work have we done to it and why?
• How much are we spending (O&M) on this asset?
Roads and Highways integration
Project Prioritization

Project Selection is Data Driven, Judgment Informed, and Financially Constrained.

Data Capture
- Assess System Performance
- ID Potential Candidates
- Determine Treatment Possibilities
- Select Project Candidates
- Call for Projects
- Prioritize
- Fund / Program

- Biennial bridge inspection data
- Annual highway smoothness & cracking testing Data
- Annual crash data & system safety analysis
Asset Management Flow

1. Program, letting, construct, re-inventory assets
2. Mini scope development = source for SPMS call/selection process
3. *Roads and Highways / GIS data source
4. dTims modeling and recommendations
5. Evaluate & add value to recommendations in the field or in the office
Example of Model to Determine Future Pavement Preservation Needs

Percent Fair or Better Miles of Road at Four Funding Levels
The cost of reconstruction is over 10 times more expensive than a strategy of early and often preservation treatments.
Take Care of What We Have – Bridge

Percent Fair or Better Bridges at Four Funding Levels

- Bridge Preservation $400M/yr
- Unlimited
- Current Plan-Status Quo
- Do Nothing Baseline
Preserving the bridge deck has more benefit and lower cost than letting the bridge deteriorate and replacing it.

Example of Life Cycle Asset Management

A 25 Year Plan for Every Asset – A Real Bridge Example

INDOT does this for all 5,600 bridges and 11,500 miles of pavements to determine needs.
Overall performance can be influenced by both the Assets and People / Process.

The Customer LOS can be achieved by influencing key Technical LOS.

It is often helpful to breakout performance issues by cause.

These should be meaningful to stakeholders and measurable.

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Technical LOS

Structural distress index by pavement type

Preservation projects programmed and delivered

Average time to fill potholes after identification

Preservation & rehabilitation projects delivered on-time

Speed restrictions & road closures due to poor condition

PCI by Interstate, NHS, and non-NHS

At least 95% of roadways in “good” condition or better
What is a TAMP?

• The TAMP will...
  • Describe INDOT’s asset management practices
  • Identify planned enhancements
  • Present a 10-year plan for managing the State highway system
  • Meet Federal requirements
## TAMP Requirements

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<th>TAMP Element</th>
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<td>Life-cycle cost analysis</td>
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<td>Investment strategies</td>
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Content

• Which assets will be included?
  • All INDOT bridges and pavements
  • NHS bridges and pavements owned by others

• What will the TAMP look like?
  • Clear, concise document that tells the story of asset management at INDOT
Processes are therefore required for data management throughout this lifecycle which typically includes:

- Definition of data owners and consumers and access rights
- Creation and update processes
- Expected life of data
- Protocols for storage, archiving and deletion

Also includes governance and validation processes to provide organization with assurance that:

- Data and information is fit-for-purpose
- Data and Information is consistent with the asset information standards quality and accuracy requirements
Processes for New Assets

• Need to consider how new / modified assets are assimilated into the system
• Contractors need education on asset hierarchy and data requirements
• Clearly state data requirements for handover at completion of projects
• Review / Approval by asset “owners” who then update system
• Also need manufacturers’ recommendations for maintenance of new assets where appropriate
Example – Iowa DOT TAMP
Goal

• Goals for Investment Planning
  • Introduce consistency, transparency and defensibility into all aspects of the Investment Planning process
  • Provide the Department with the tools needed to identify priorities and make smart recommendations
  • Provide Senior Management with confidence that the “best” program is being put forward
Questions?