



Maryland State Highway Administration

# Statewide Transportation Asset Management Plan

Technical Meeting with BRTB

May 3, 2016

# Agenda

- TAM Overview
- Project Work Plan and Schedule
- Next Steps

# The Importance of Transportation Assets

- Assets underpin our economy and support lifestyles
- They're often taken for granted by the DOT customers until they fail
- They represent a major investment by the state - progressively built up over a long period
- They provide a platform for economic growth and social development



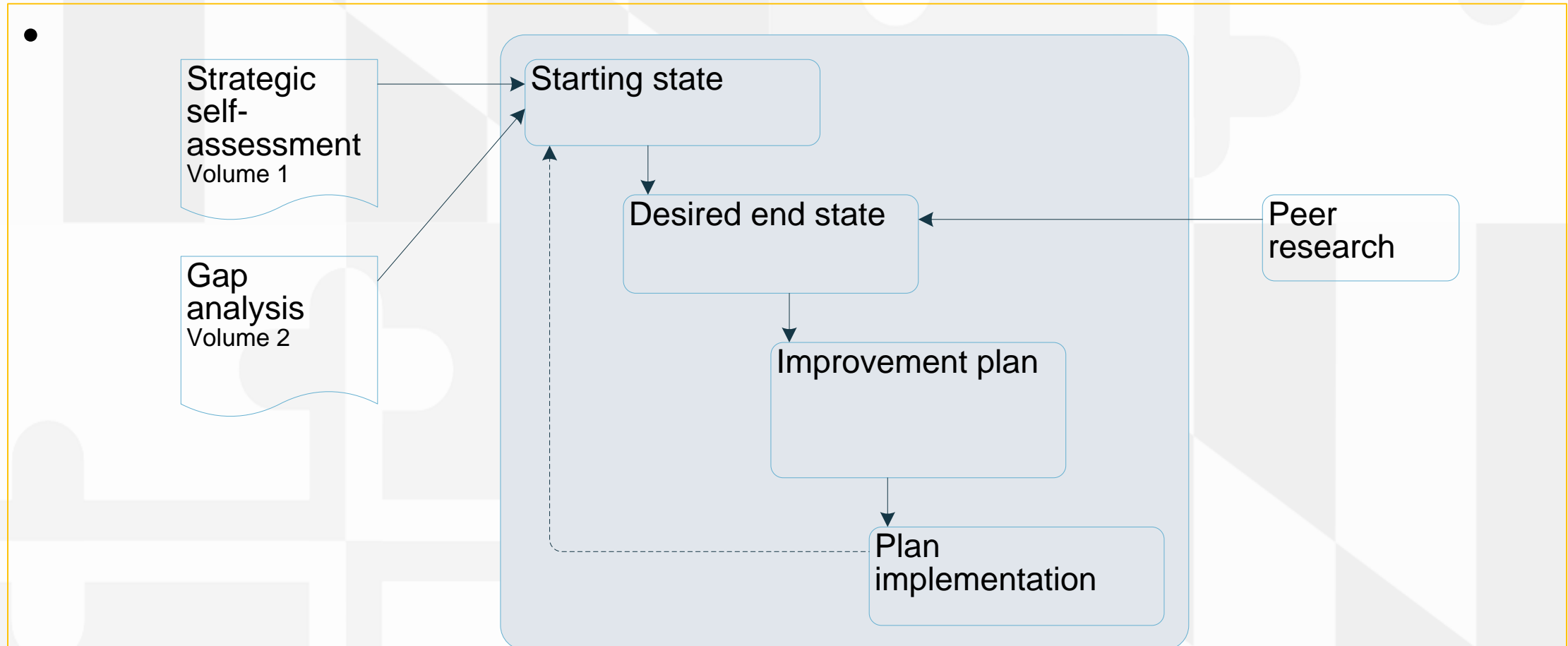
# Why Asset Management?

- Maximize Future Funding
  - Congress passed MAP-21 requiring performance-based budgeting and monitoring for access to federal funds
  - Legislative bodies throughout the country are seeking evidence of progress made with funding provided
  - Demonstrating asset need with quantitative information is compelling to decision-makers
- Maximize Your Current Funds
  - Life-Cycle Costing
  - Having the information available to make SMART decisions
  - Better coordinating efforts across business units
  - Accountability throughout the organization, partners, and stakeholders

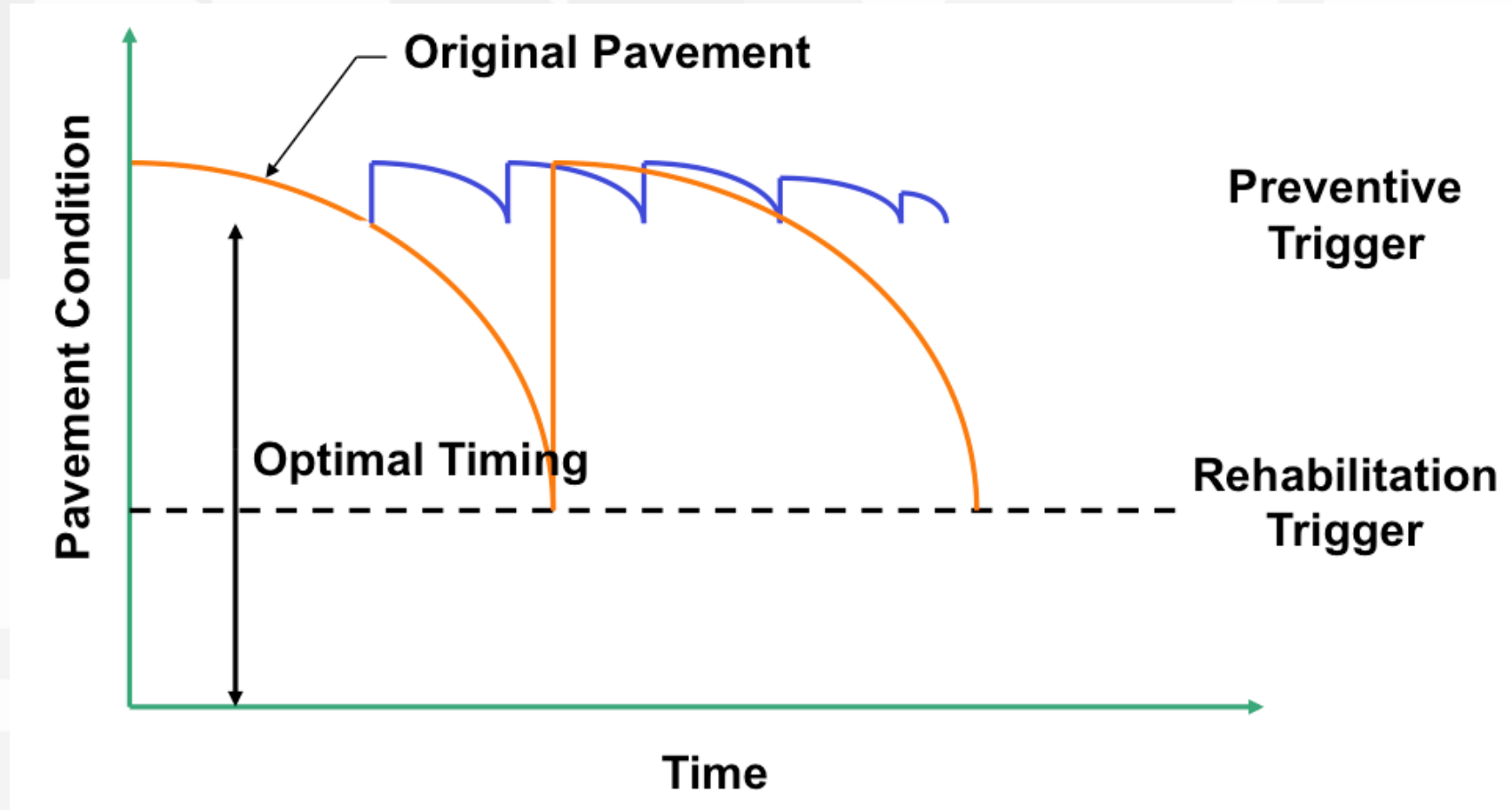
# Asset Management as Defined by FHWA

- Transportation 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.

# TAM Improvement Path



# Preservation



# Proactive Role in Policy Formulation

- Asset Management provides an opportunity to connect POLICY to ACTION
- Agencies should engage policy makers during their decision-making process
  - Have an impact on external bodies that shape policies
  - Frame and inform policy options
- Communicate implications of funding decisions
- Reinforce accountability
- Same principles can be applied to long-range planning

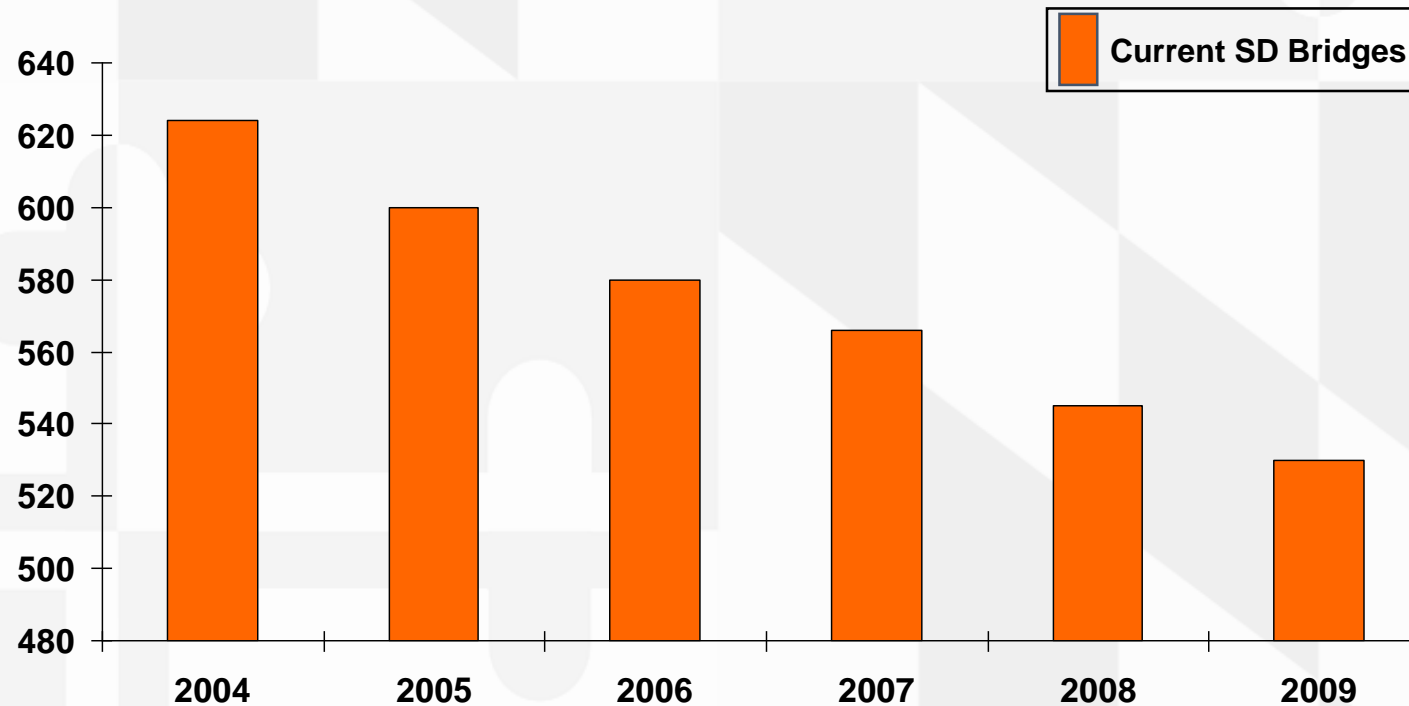


# Proactive Role in Policy Formulation

## Example – MassHighway

- Governor initiated a “Fix It First” program focused on reducing structurally deficient (SD) bridges. Initially, resources would be allocated to fix current SD bridges

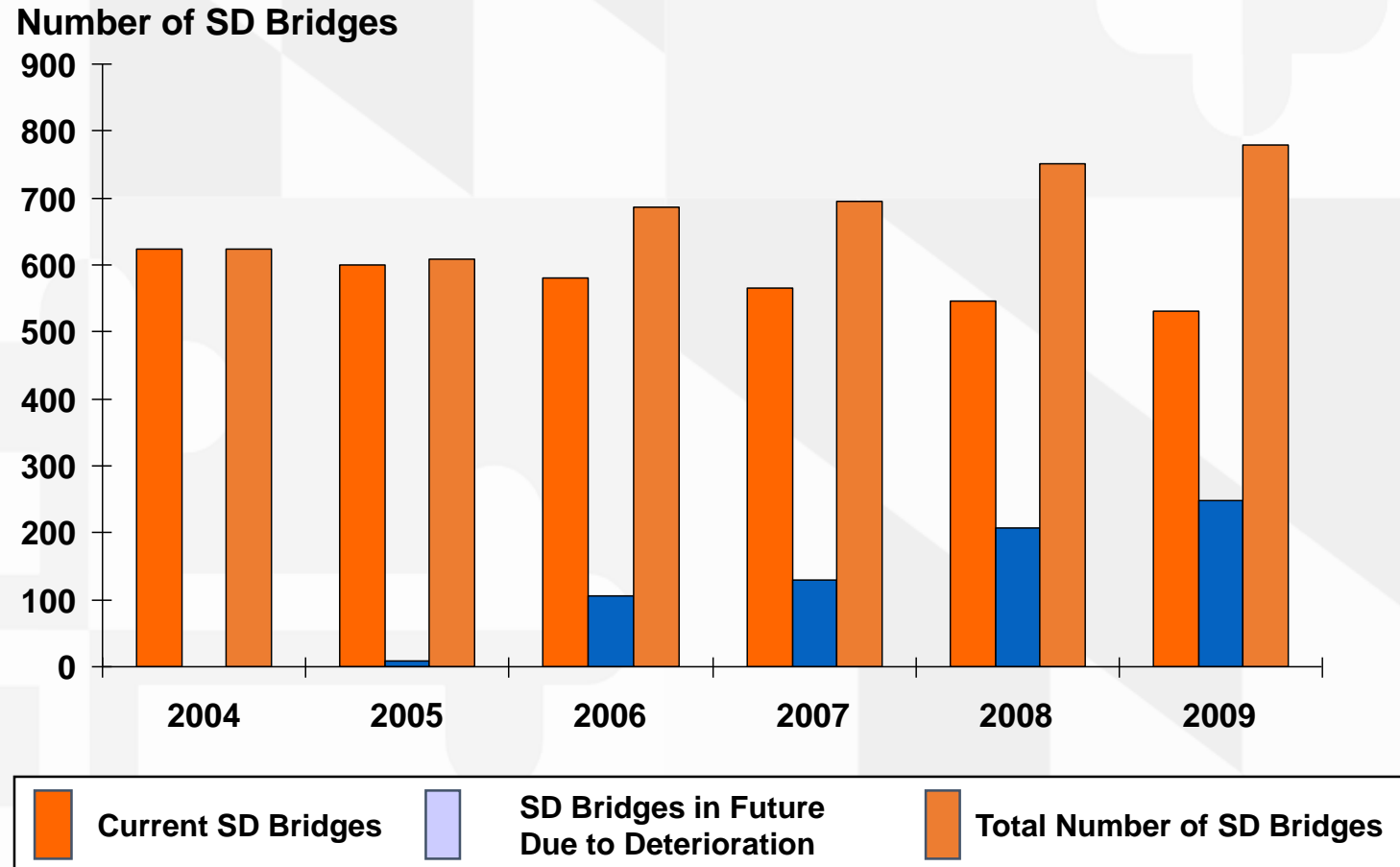
Number of SD Bridges



# Proactive Role in Policy Formulation

## Example – MassHighway (continued)

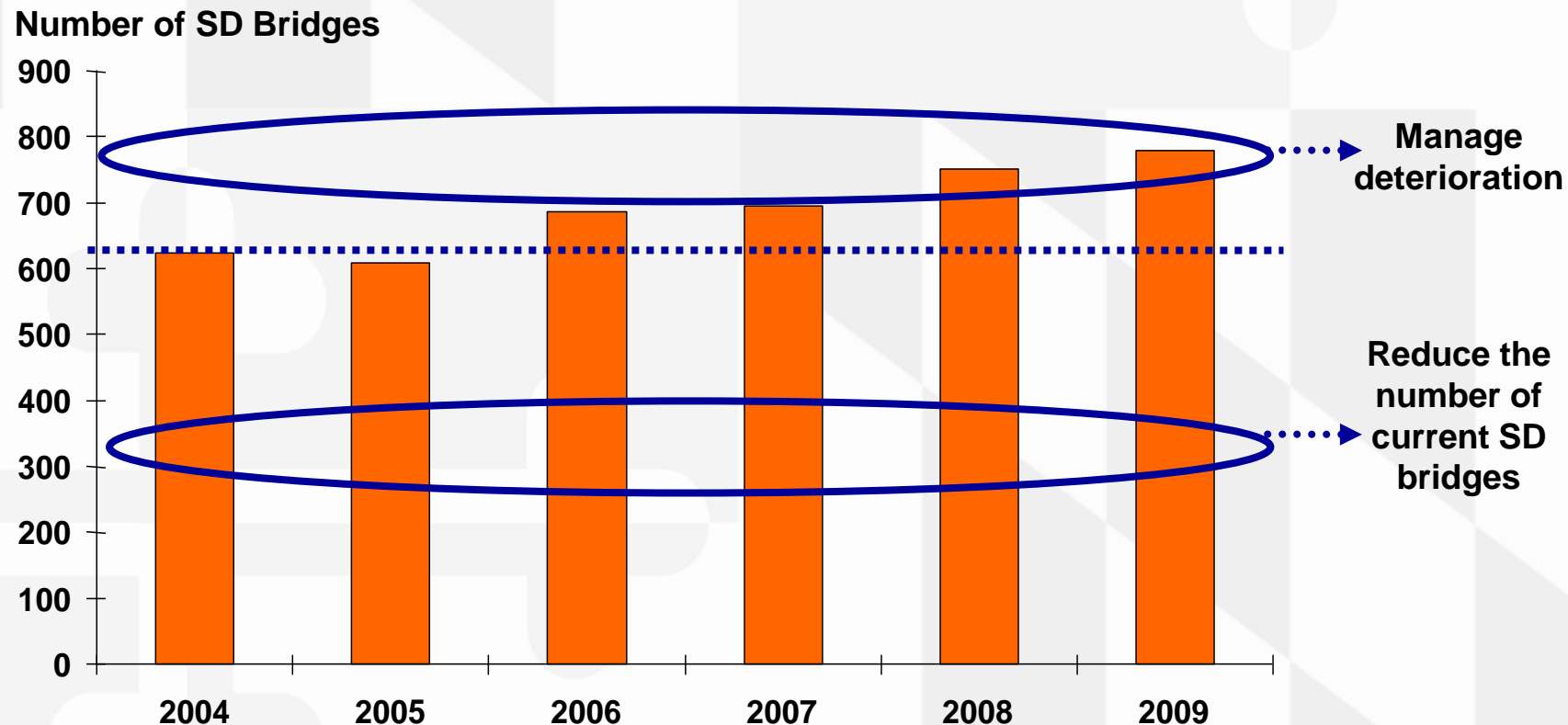
- Further analysis indicated that the number of SD bridges would increase over time with focus only on fixing current SD bridges



# Proactive Role in Policy Formulation

## Example – MassHighway (continued)

- New policy balances preservation and replacement needs. New budget includes increased bridge funding to address current SD bridges and manage deterioration



# MAP-21 Pavement Performance Management

- Good/fair/poor measure determined based on 4 metrics
  - If all are good the combined measure is good
  - If  $\geq 2$  metrics are poor the combined measure is poor
- Need to report conditions and targets for % good and poor for Interstate and non-Interstate NHS
- Rule sets an additional goal of  $\leq 5\%$  poor for Interstates
- VDOT currently  $< 2\%$  poor on Interstates

	Good	Fair	Poor
IRI <i>(inches/mile)</i>	<95	95-170 95-220*	>170 >220*
Cracking <i>(%)</i>	<5	5-10	>10
Rutting <i>(inches)</i>	<0.20	0.20-0.40	>0.40
Faulting <i>(inches)</i>	<0.05	0.05-0.15	>0.15

\*Urbanized Population >1M

# MAP-21 Bridge Performance Management

- Good/fair/poor measure based on NBI ratings
  - Use minimum of deck, superstructure, and substructure ratings to evaluate (single rating for culverts)
- Need to report conditions and targets for % good and poor for NHS bridges
- Additional goal of  $\leq 10\%$  of the NHS bridge deck area structurally deficient
- VDOT currently  $< 5$  structurally deficient

NBI Rating Scale <i>(from 0-9)</i>		9	8	7	6	5	4	3	2	1	0
		Good			Fair		Poor				
Bridge	Deck <i>(Item 58)</i>	$\geq 7$			5 or 6		$\leq 4$				
	Superstructure <i>(Item 59)</i>	$\geq 7$			5 or 6		$\leq 4$				
	Substructure <i>(Item 60)</i>	$\geq 7$			5 or 6		$\leq 4$				
	Culvert <i>(Item 62)</i>	$\geq 7$			5 or 6		$\leq 4$				

# MAP-21

## Transportation Asset Management Plan

- Plan for pavement and bridge assets for the NHS using performance measures for a ten year period
  - Suggest using bridge and pavement measures for national reporting
- Include:
  - Performance Gap Analysis
  - Life Cycle Cost Analysis
  - Risk Management Plan
  - Financial Plan
  - Investment Strategies
- First TAMP due 1 year after final rules
  - Final ruling anticipated to be finalized in October, 2016

# What Makes a TAMP Risk-Based?

1. An approach to managing risk across various levels:
  - Agency
  - Programmatic
  - Project/Asset Levels
2. The development of a **risk register** to prioritize risks across the department
3. A comprehensive decision-making process that includes **risk assessment** as a part of budget setting for each asset

# What Makes a TAMP Risk-Based?

Figure 7.1 Risk Rating Scale

Likelihood		Consequence (Level/Descriptor)				
		1	2	3	4	5
Level	Descriptor	Negligible	Minor	Major	Critical	Catastrophic
1	Low	1	2	3	4	5
2	Medium Low	2	4	6	8	10
3	Medium	3	6	9	12	15
4	Medium High	4	8	12	16	20
5	High*	5	10	15	20	25

Source: CDOT



# Project Purpose

Meet MAP-21 TAMP Requirements

(23 U.S.C. 119(e)(1), MAP-21 § 1106)

Maximize investments by managing the life-cycle of transportation assets strategically to minimize costs.

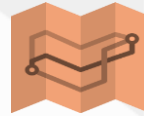
# Our TAMP Approach

01



Project  
set-up and  
administration

02



Document  
the existing situation in  
Maryland

03



Conduct interactive  
stakeholder workshops

04



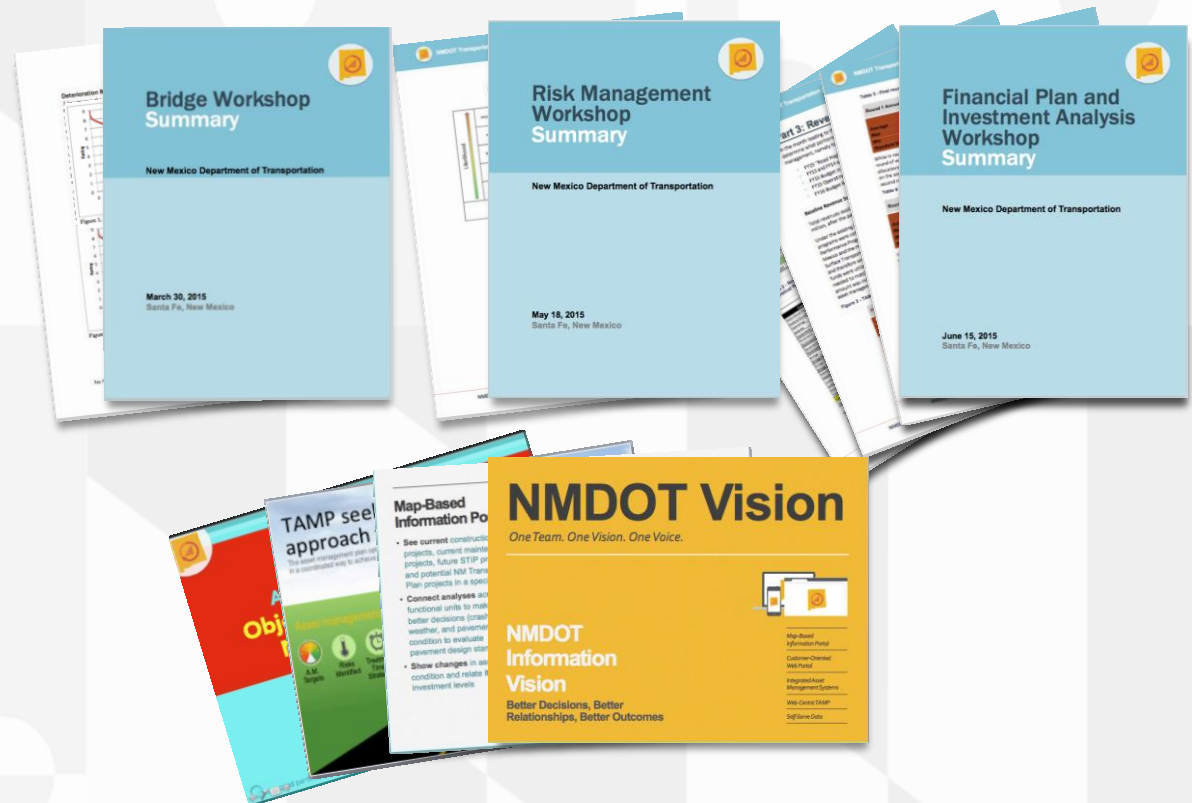
Build the TAMP





# Stakeholder Workshops

- Bridge
- Pavement
- Objectives and measures
- Risk
- Financial planning and investment analysis



# TAMP Outline

Where are we now?

Where are we going?

How do we get there?

- Asset inventory & condition
- Performance assessment, including challenges
- Life cycle management (current)
- Funding and finance (current)
- Organization framework



# TAMP Outline

Where are we now?

Where are we going?

How do we get there?

- Objectives and measures
- Life cycle management (future)
- Risk management
- Targets
- Investment Strategies
- Funding and finance (future)
- Organizational vision





# TAMP Outline

Where are we now?

Where are we going?

How do we get there?

- Improvement plan
  - Process improvements
- Financial plan
- Risk management plan
- Communication and reporting plan



# Task A – Project Start-Up & Kickoff Meeting

- Conduct project kickoff meeting with TAM Steering Committee
- Conduct interviews with TAM stakeholders
  - Pavement Management, Bridge Management, Planning and Programming, Budget and Finance, Districts, Others?
- Document current TAM organizational framework
- Steering Committee Role
  - Regular meetings to provide guidance on project activities
  - Make staff available for interviews and technical assistance
  - Ambassadors to the rest of the department on value of TAM and TAMP



# Task B – Literature and Data Review

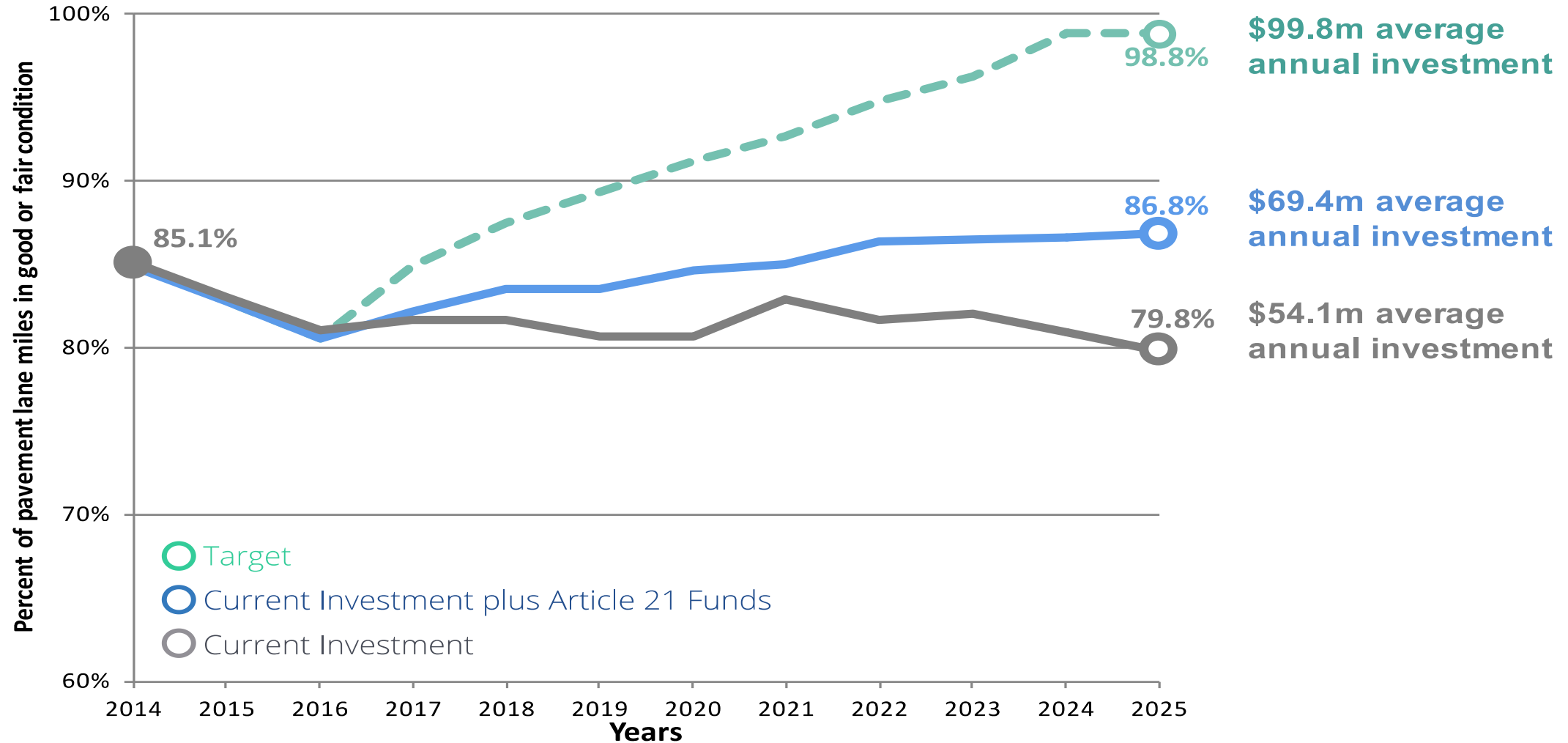
- Conduct a review of SHA's TAM resources and processes
  - Coordination with current initiatives
  - Existing process documentation
  - Funding landscape
- Use AASHTO TAM Builder to identify relevant peer agency TAMPs
- Use AASHTO TAM Portal to identify research documents, guidance and tools to support the development of SHA's TAMP
- Conduct additional research as needed to identify relevant resources for the development of SHA's TAMP



# Task D – Plan Preparation and Editing

- Development of the final TAMP outline
- Completion of the draft TAMP
- Completion of the final TAMP
- Final workshop – presentation of the TAMP

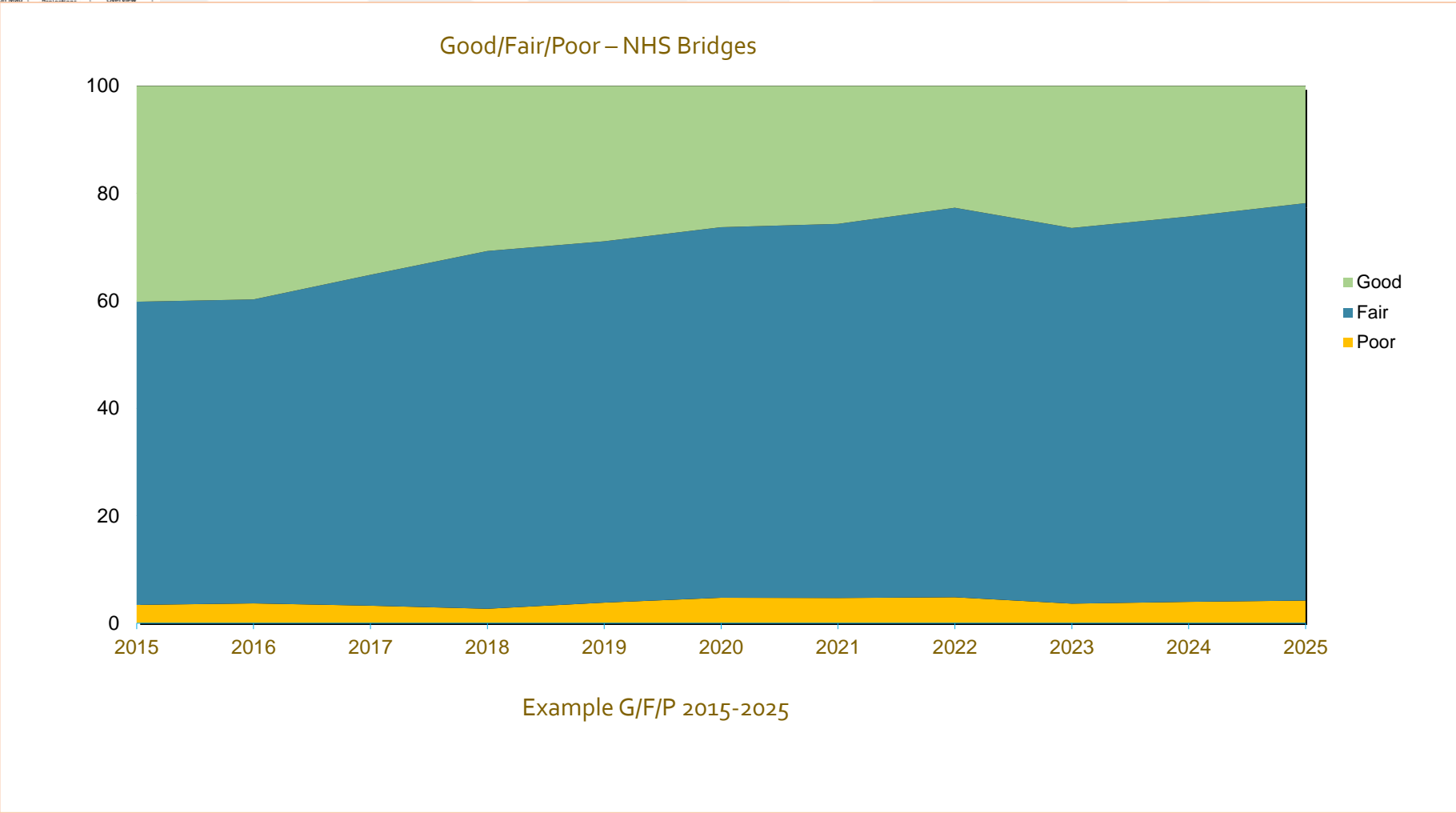
# Possible Product: Asset Performance x Investment



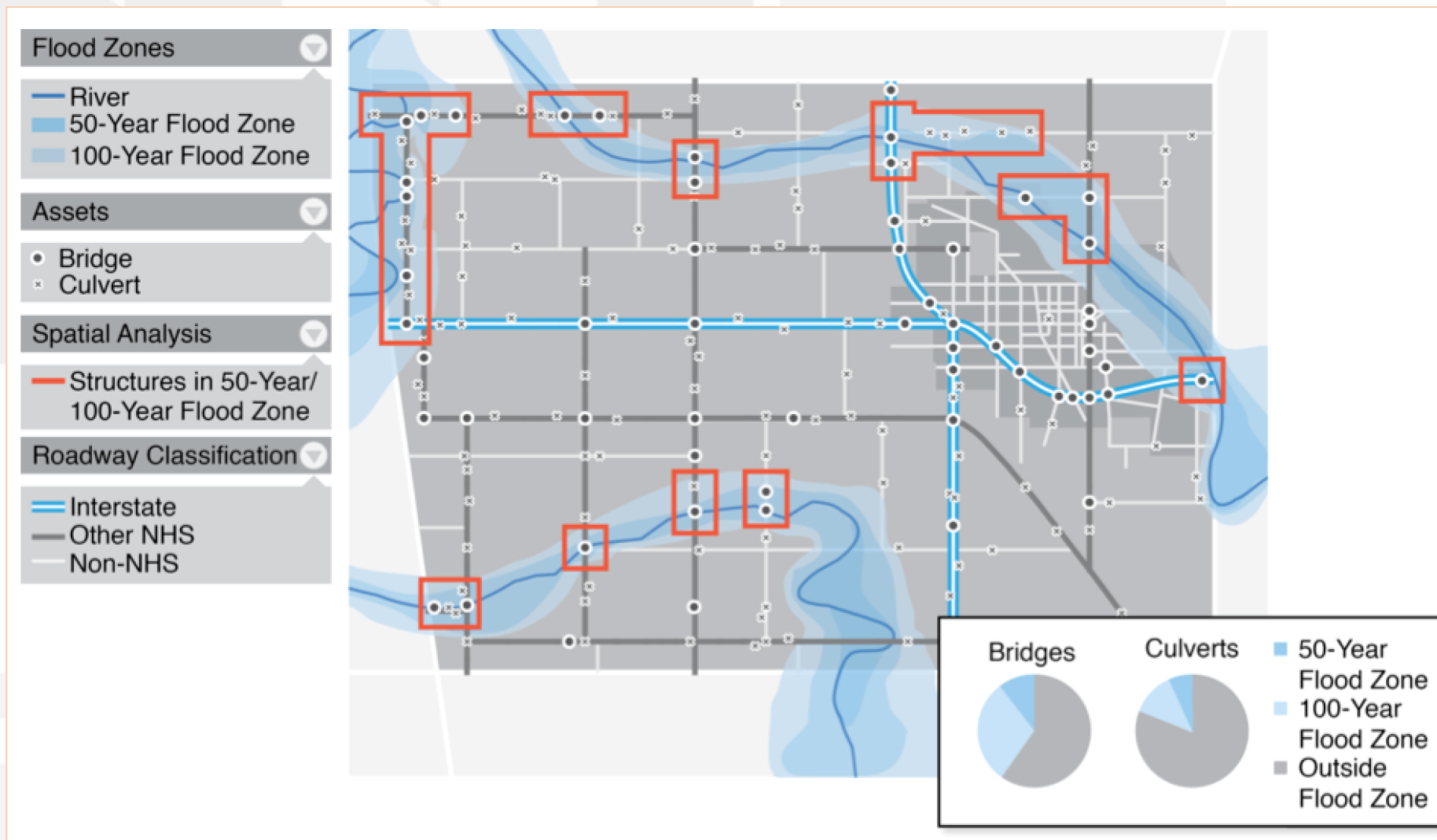
# Possible Product: Inventory and Condition Trends



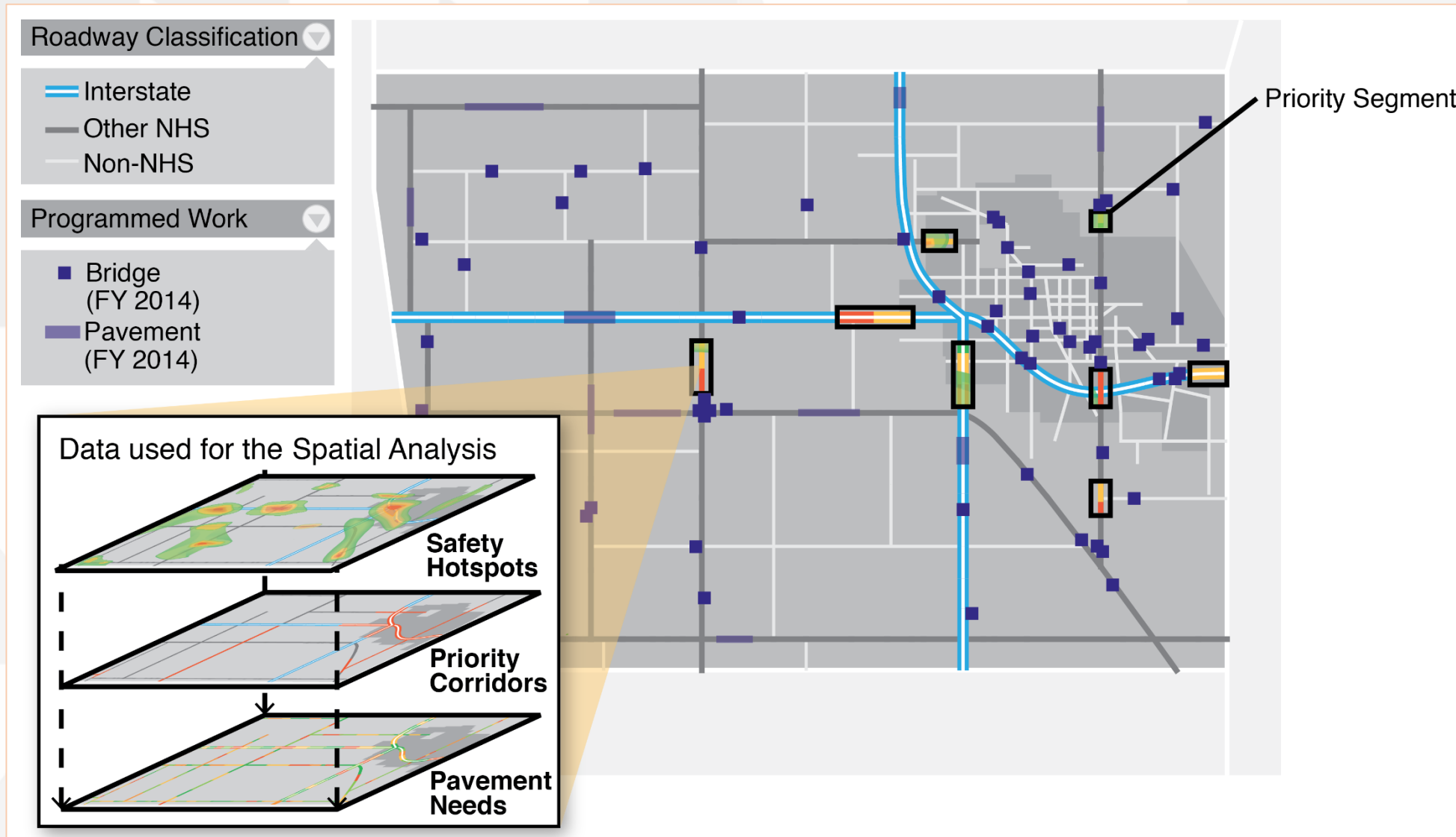
Chapters	Sections	Graphs & Charts	Maps	Interactive Tools	Videos
Asset Inventory and Condition	Where are we now?	Asset Performance & Investment Graph			
Objectives and Measures		Asset Inventory & Condition Trends	Bridge Condition Man	PAVEMENT Pavement Perf	FWHA TAM Overview
Life Cycle Management	Where are we going?	Revenue Projection Scenarios			
Risk Management		Revenue Historical Trends	Pave Conditio		
Financial Plan	How do we get there?	District Comparisons			
Investment Strategies		Funding Needs Projections			
Process Improve.	Appendices	Other.			
Data Management		Other			
Communications					



# Possible Product: Vulnerabilities



# Possible Product: Scoping



# Possible Product: Funding Scenarios

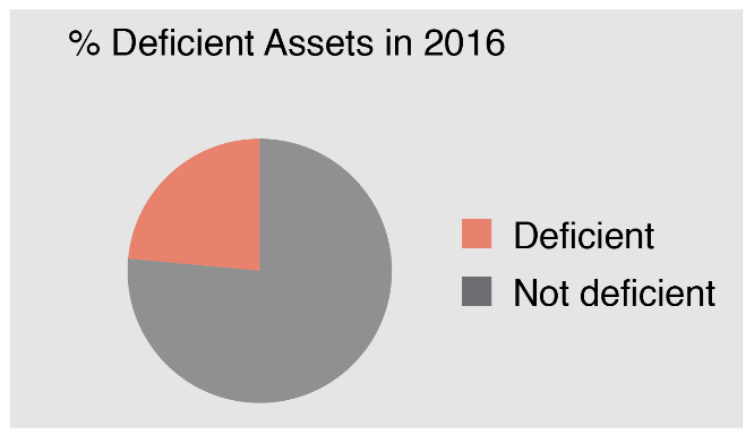
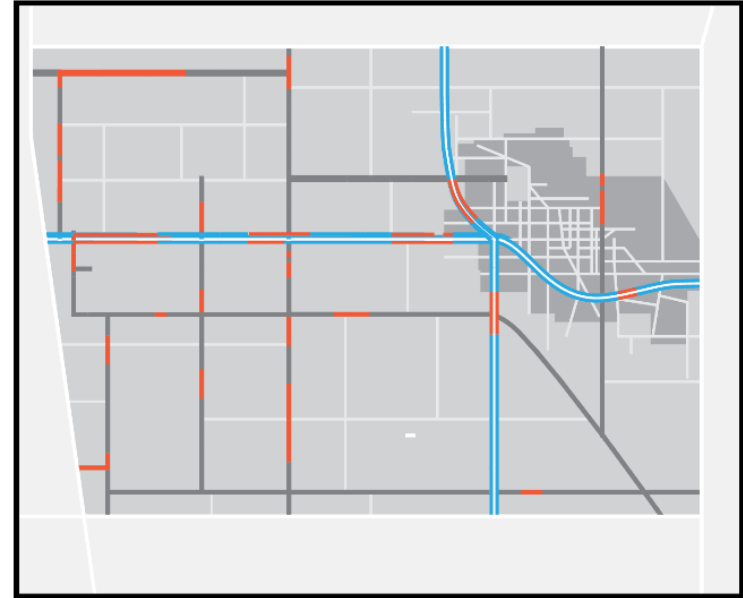
**Asset Condition**

- Deficient

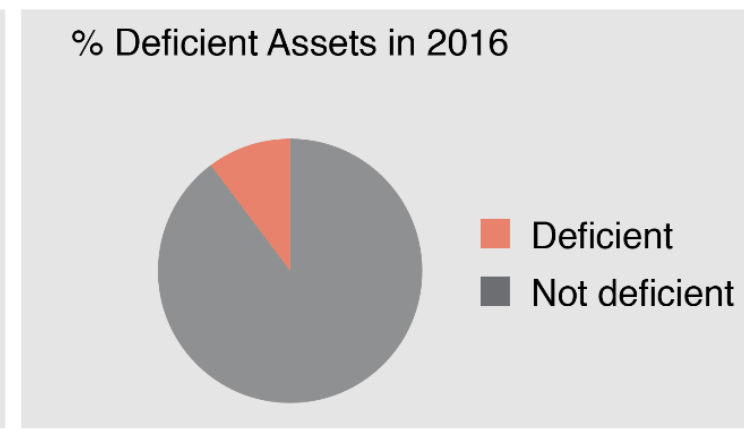
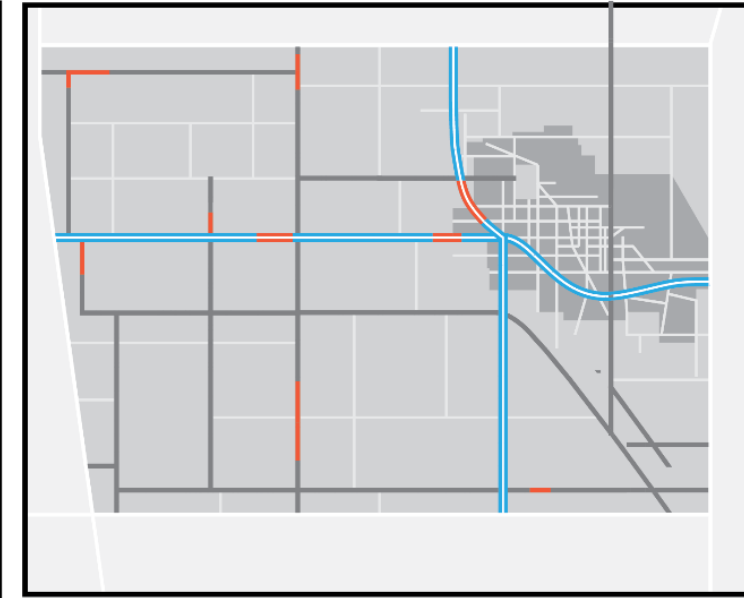
**Roadway Classification**

- Interstate
- Other NHS
- Non-NHS

**Scenario 1: Current Funding**



**Scenario 2: With Revenue Package**

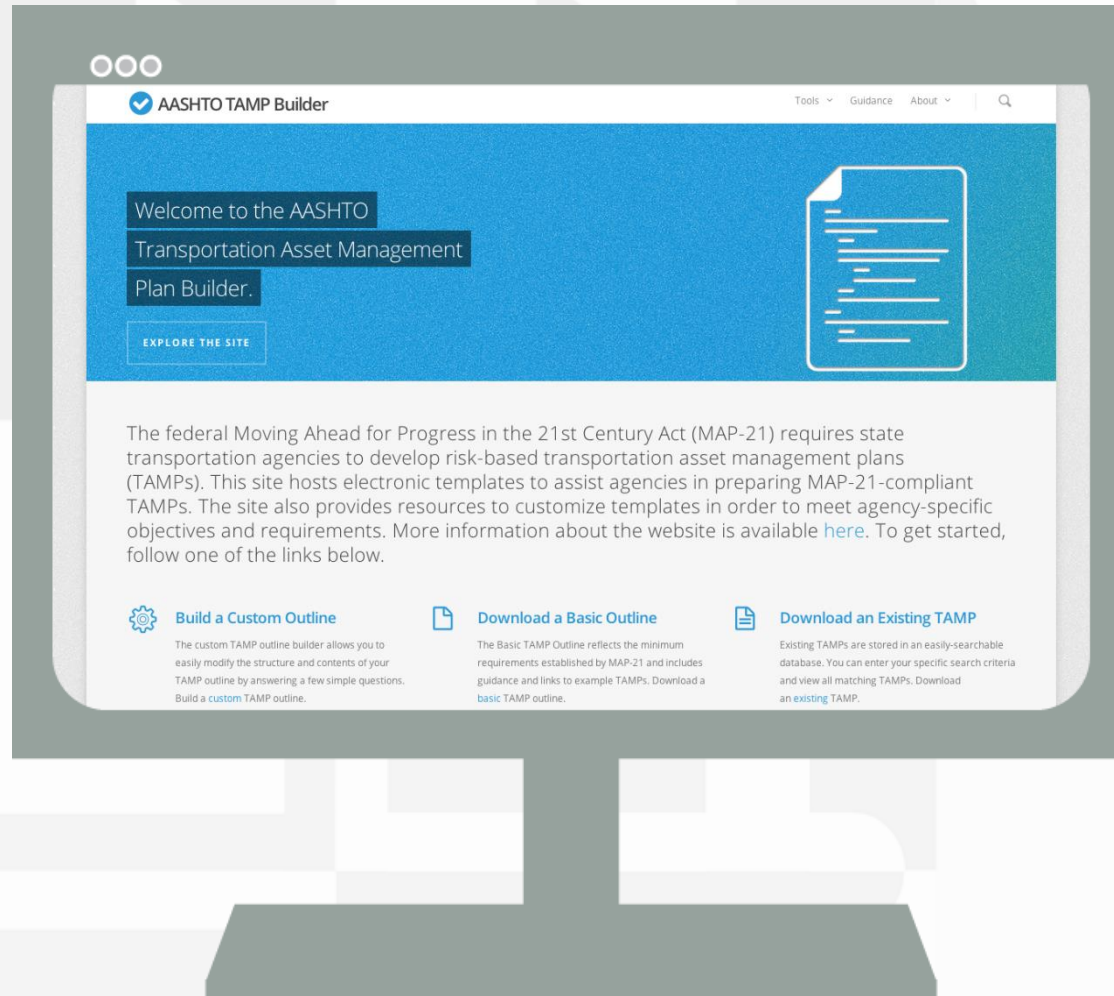




# Next Steps

- Conduct interviews with stakeholders
- Document current organizational framework for TAM and for the development of the TAMP
- Develop TAMP communications plan

# AASHTO TAMP Builder



A web tool that makes it easier to develop your TAMP – using available TAMPs

[www.tamptemplate.org](http://www.tamptemplate.org)

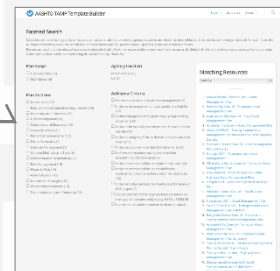
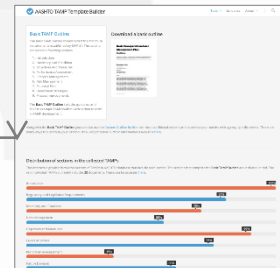
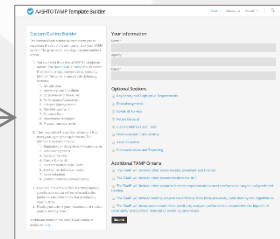
# TAMP Builder Concept



## TAMP Builder Home Page



## Sub-pages



## Site functions

Build a custom TAMP outline

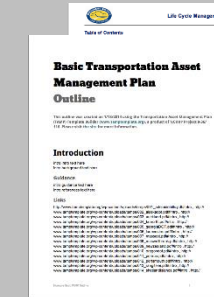
Download a basic TAMP outline

Access an existing TAMP

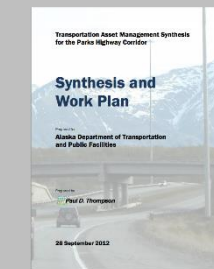
## Products



Custom TAMP outline with guidance linked to existing TAMPs

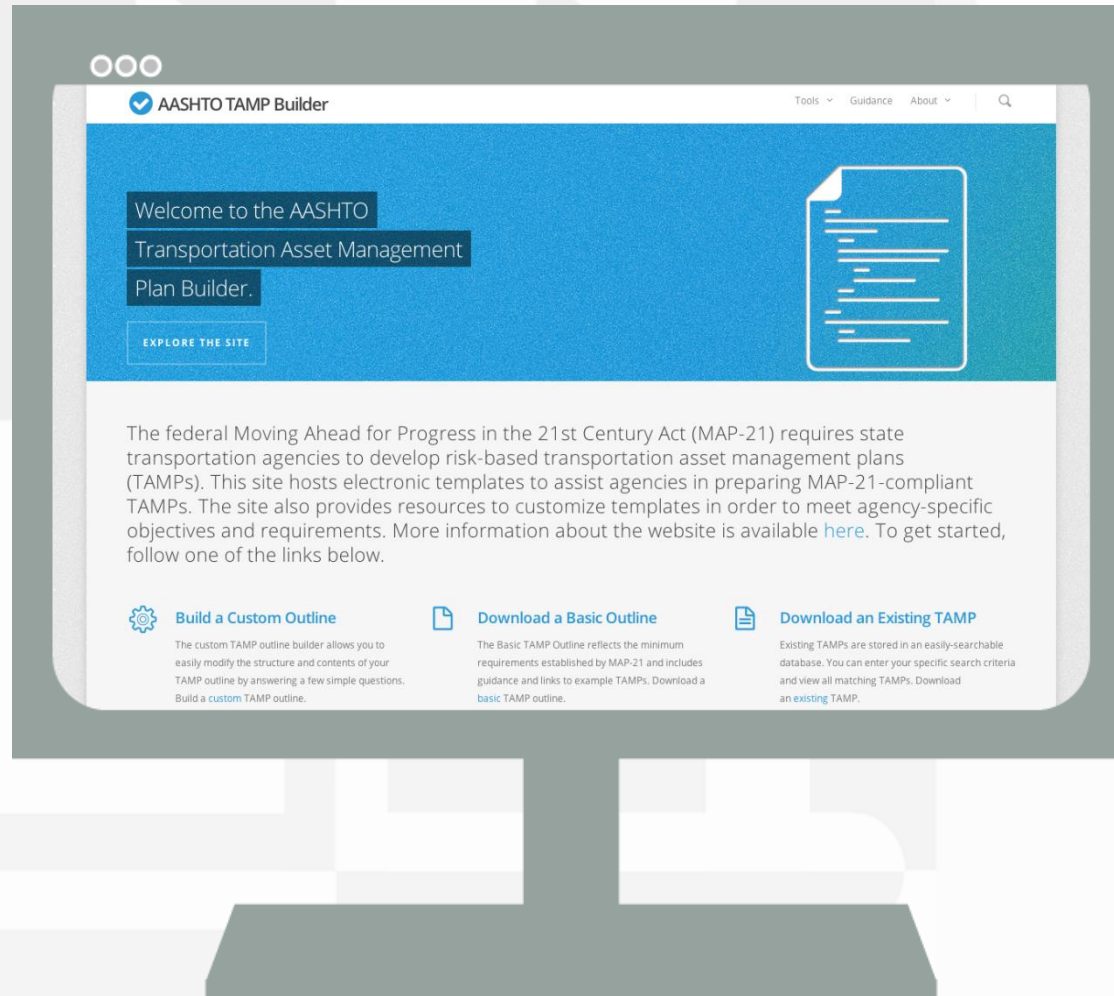


Basic TAMP outline with guidance linked to existing TAMPs



Existing TAMP that meets your specific search criteria

# AASHTO TAMP Builder



The TAMP Builder helps you develop your own TAMP by answering questions like...

# Using the TAMP Builder

- How can I find examples of specific TAMP chapters that meet my agency's needs?
- How can I identify existing TAMPs created by peer agencies?
- Where can I find a basic outline in order to get started developing my agency's TAMP?

**Questions?**

# Contact me at....

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