



WVDOH Transportation Asset Management Plan

April 27, 2022

West Virginia Division of Highways



Introduction and Objectives



WVDOH TAMP

- Objectives
 - TAMP Requirements
 - Currently directed to only NHS bridges and pavement
 - Minimum performance standards
 - Bridge
 - Pavement
 - Annual Consistency Review (Due July 1 each year to FHWA)
 - 2019 Bridge and Pavement Performance Graphs
 - Updates since 2019
 - Analytic Systems updates
 - Standard Operating Procedure Creation (SOPs)
 - Further attention to Part 667 repeated events
 - Further expansion of risk and resiliency considerations
 - Next Steps

Minimum Performance Standards

- NHS Bridges and Pavement Only
 - Bridge
 - The percentage of the deck area of bridges classified as Structurally Deficient does not exceed 10%.
 - Any 1 of 3 components can be rated “poor” to trigger the structure as “poor”
 - Deck, superstructure, substructure
 - Pavement
 - The percentage of lane-miles of Interstate System in “poor” condition shall not exceed 5%.
 - It takes 2 of the 3 components rated as “poor” to trigger the asset as “poor”
 - IRI, Cracking, Rutting

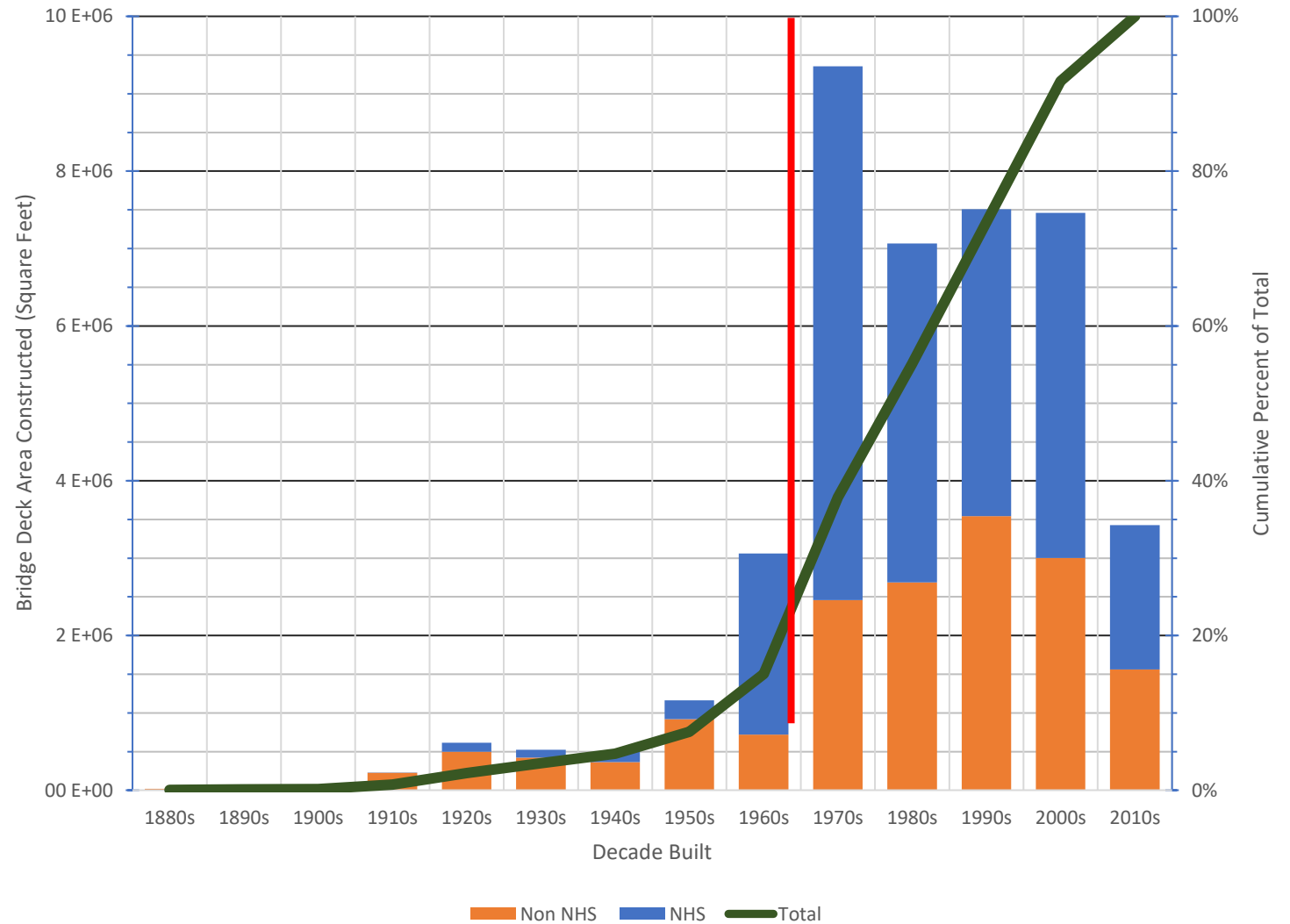
Annual Consistency Review

- FHWA annual review against the TAMP to ensure certified plan investment strategy is being followed.
- Consistency Determination Checklist published by the FHWA will be followed to certify the TAMP.
- Due July 1 each year.
- Compares TAMP planned investments to actual investments by work type
 - Bridge
 - Pavement
- Letter to FHWA includes a summary of plan vs actual spend as well as any supporting information to any variances.
- 2022 – FHWA has updated their guidance on certification and consistency of the TAMPs based on what is required in the IIJA/BIL.
 - *“TAMP requirements were amended by the Bipartisan Infrastructure Law (BIL) (§ 11105) to require that States take into consideration extreme weather and resilience within their lifecycle cost and risk management analysis. These BIL amendments took effect on October 1, 2021 (§ 10003). As a result, State DOTs are required to consider extreme weather and resilience as part of the lifecycle cost and risk management analyses within a State TAMP (23 U.S.C. 119(e)(4)(D)). State DOTs should be aware of this new requirement and working to update their processes and TAMPs accordingly.”*

Bridge Inventory

Decade	Individual Decade %/Total Deck Area			Cumulative %/Total Deck Area		
	Total	NHS	Non NHS	Total	NHS	Non NHS
1880s	0%	0%	0%	0%	0%	0%
1890s	0%	0%	0%	0%	0%	0%
1900s	0%	0%	0%	0%	0%	0%
1910s	1%	0%	1%	1%	0%	2%
1920s	1%	0%	3%	2%	0%	5%
1930s	1%	0%	3%	4%	1%	7%
1940s	1%	1%	2%	5%	1%	10%
1950s	3%	1%	6%	8%	2%	15%
1960s	7%	10%	4%	15%	12%	20%
1970s	23%	28%	15%	38%	40%	34%
1980s	17%	18%	16%	55%	58%	51%
1990s	18%	16%	22%	73%	74%	72%
2000s	18%	18%	18%	92%	92%	91%
2010s	8%	8%	9%	100%	100%	100%

Bridge Deck Area Construction Histogram

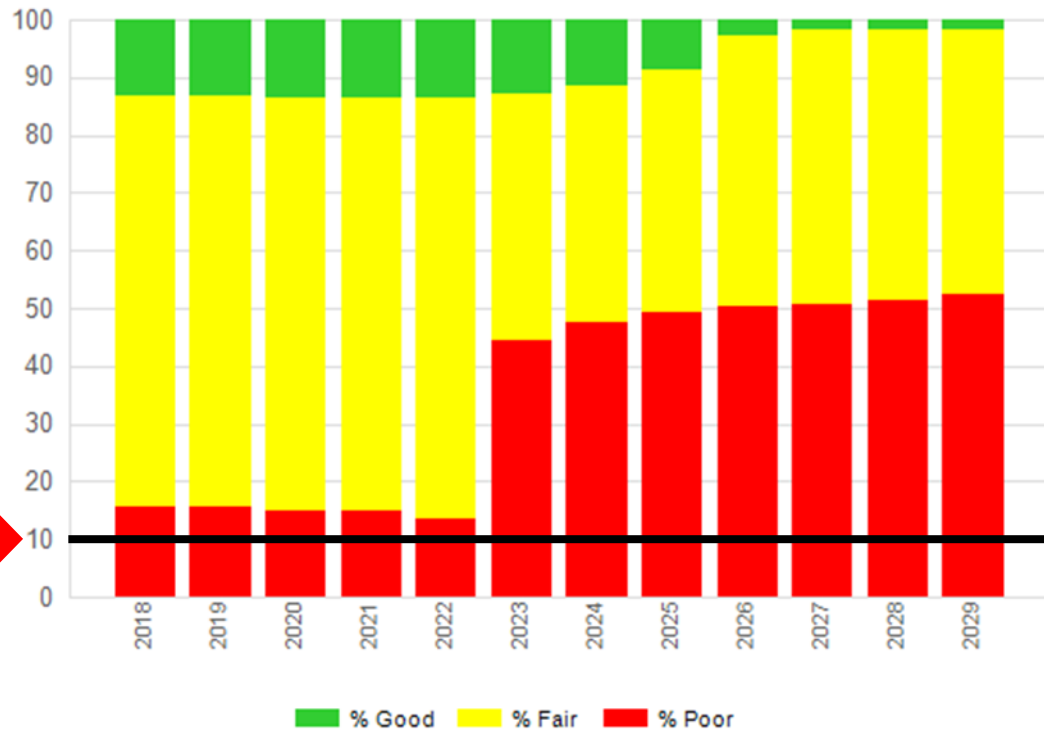


Bridge

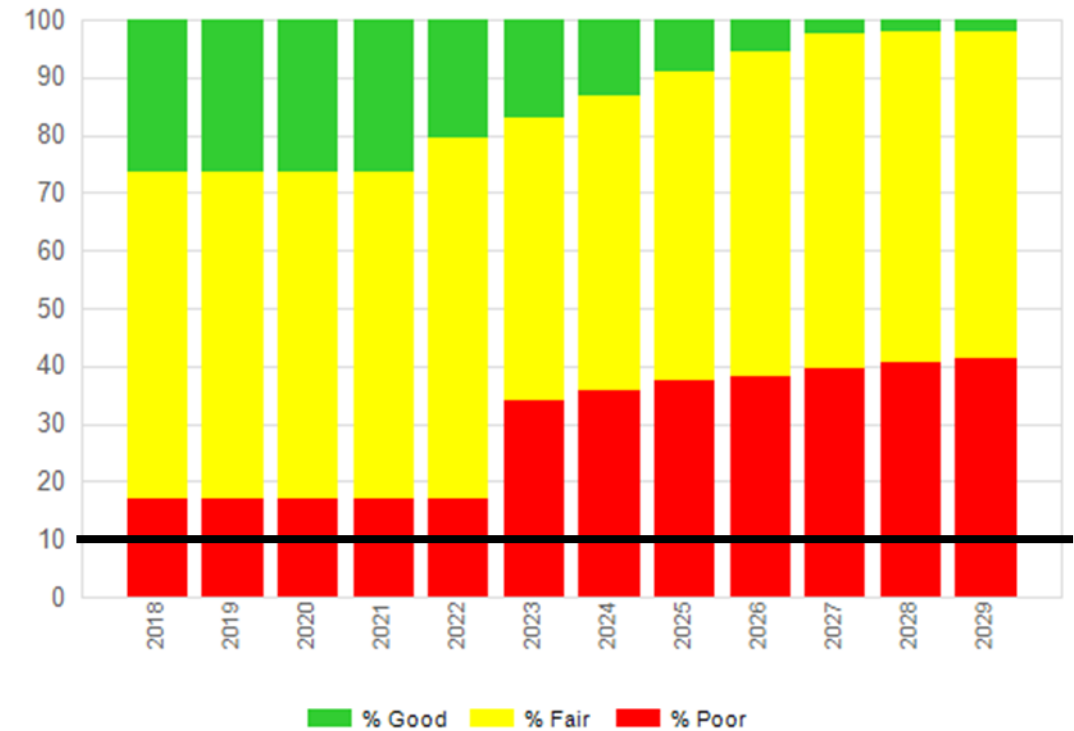
Baseline Scenario – Full Network

“The required risk-based TAMP is to improve or preserve the condition of assets and improve the performance of the NHS.” – FHWA

NHS Bridges

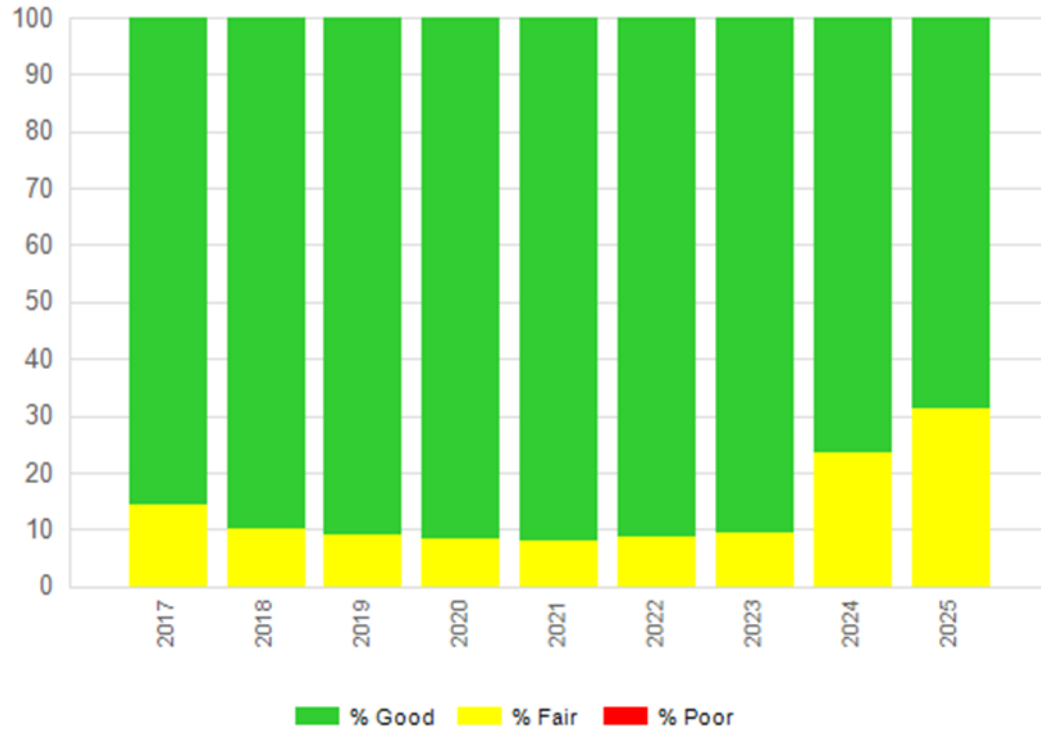


Non-NHS Bridges

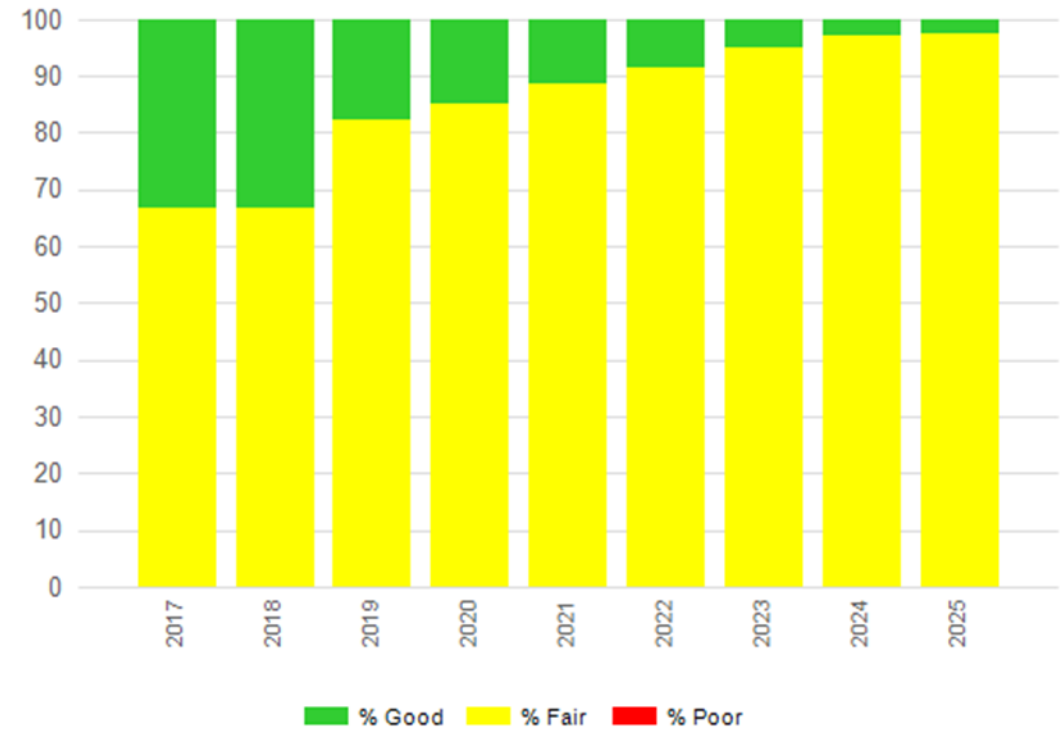


2019 Pavement Baseline Scenario

NHS: Interstate Routes



NHS: Non Interstate Routes



Updates since 2019

Standard Operating Procedures (SOPs)

Documentation of workflow

- Supports the ability to repeat a task and results in a consistent manner

- Supports the ability to bring in new staff/resources to support a process with a guide or training for the workflow

Help identify roles and responsibilities. Swimlane format supporting roles and touch points along the process.

Defines a timeline for each task, including the start date for resource and workload planning.

Support overall task and program workflow as each SOP ties to each other to support beyond a task level but at a program level.

Updates since 2019

Analytic Systems updates

West Virginia historical bridge condition data was used to develop bridge component (deck, superstructure, substructure, culvert) deterioration models using the two most common methods of analysis (Markov transition probability and time-in-condition-rating).

An initial condition rating index using expected remaining service life in condition rating was calculated to determine how long a component will remain in its initial condition rating.

Decision trees and treatment triggers were set based upon interrelationship between the major components (deck, superstructure, substructure, culvert) and improvement models were created that better represent the actual bridge management business process of WVDOH.

Certain elements and defects were utilized to trigger preservation actions for the most common preservation treatments done by WVDOH.

Treatment costs for recent projects were reviewed and utilized to develop treatment costs that were placed in the models.

Testing and validation was done using multiple scenarios to check results and adjustments were made to the models as needed.

Risk

Part 667, Risk and Resiliency

Part 667 repeated event tracking begins with identification of the classifying criteria, and subsequent source data with the agency that can support such queries.

WVDOH is undertaking an internal review of the available data and looking to expand attribute tracking within existing systems to support a more easily reportable method for assets that may fall in a repeated event category and should have an evaluation performed.

WVDOH has taken steps to enhance their Risk focus by appointing a Risk Coordinator who leads the TAMP risk register review/update workshops as well as coordinates with other agency staff on risk and resiliency initiatives.

Resiliency is becoming a focal point for FHWA as well, and WVDOH will be expanding upon resiliency in the TAMP 2022 update to reflect the agency's vision.

Next Steps

- Complete SOP creation for other TAMP processes
- Complete PMS calibration and validation similar to BMS process recently completed
- Generate updated BMS and PMS outputs for use in TAMP update
- Begin compilation of 2022 consistency review actual costs for reporting
- Conduct on-site Risk workshops for risk matrix update, mitigation strategy update and Part 667 tracking
- Enhance Risk chapter and discuss agency Resiliency vision and goals