

The Evolution of Structures Asset Management in Wisconsin



11th International Bridge and Structure Management Conference
Mesa, Arizona
Wednesday, April 26th, 2017



Introduction

- The bridge management process...





Overview

- MAP-21 definition for asset management:

Asset management is a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on both 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 life-cycle of the assets at minimum practicable cost.

- “Systematic process”
- “Quality information”
- Policy



Goals for today

- Share what WisDOT is doing in the field of structures asset management
 - Where we've had success
 - Where we...haven't had as much success





Overview

- WisDOT Bridge Inventory



Overview

- WisDOT Bridge Inventory
- WisDOT Organizational Structure



Overview

- WisDOT Bridge Inventory
- WisDOT Organizational Structure
- **Foundation for Asset Management**
 - Data Management Tools
 - Bridge Preservation Policy
 - Asset Management Tools

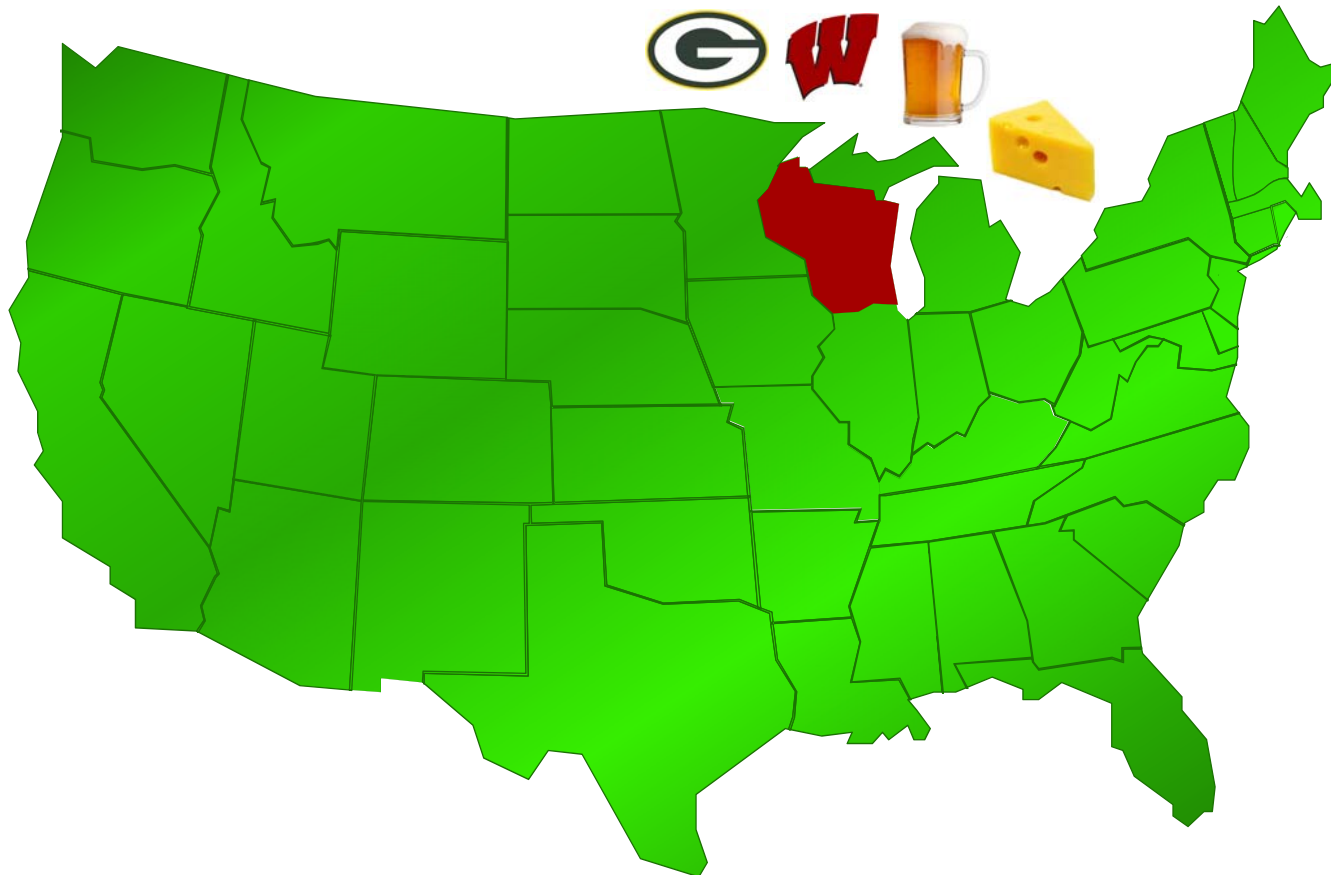


Overview

- WisDOT Bridge Inventory
- WisDOT Organizational Structure
- Foundation for Asset Management
 - Data Management Tools
 - Bridge Preservation Policy
 - Asset Management Tools
- **Asset Management at WisDOT**



Where is Wisconsin?





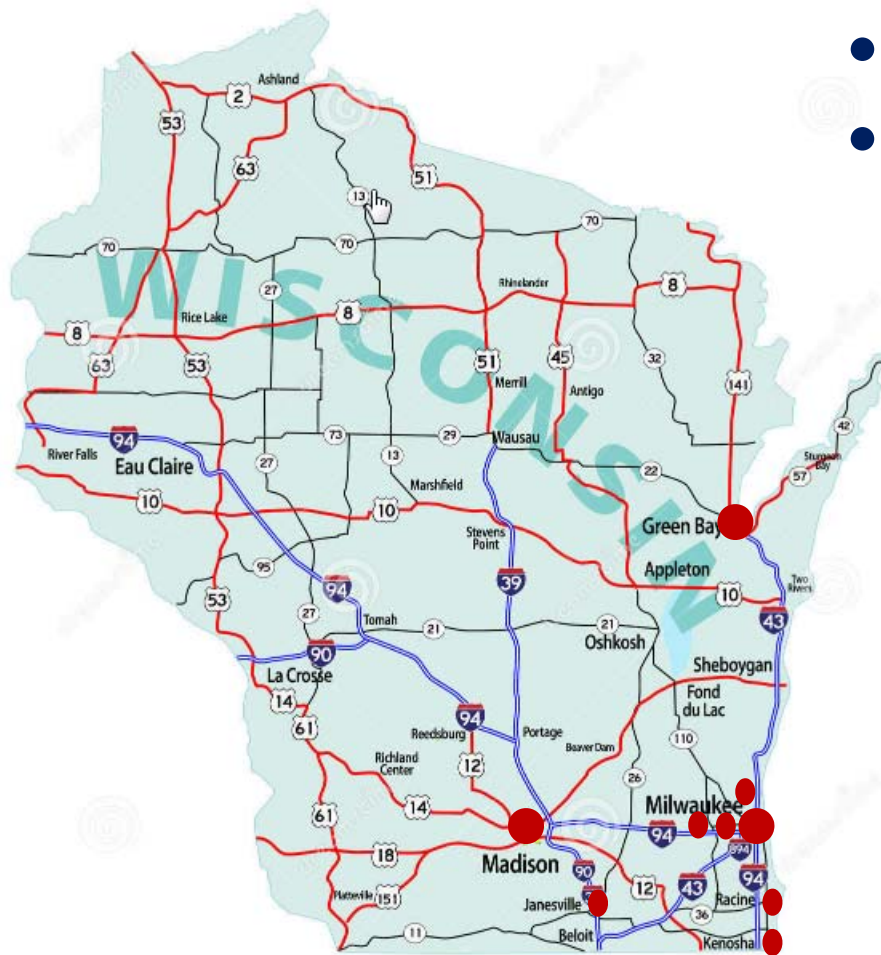
WisDOT Bridge Inventory









WisDOT Bridge Inventory

- Wisconsin at a glance



- Population: 5.7 million
- Top 3 Cities (population):

- Milwaukee – 595,000  
- Madison – 233,000 
- Green Bay – 104,000 

- Also in the top-15:

- Kenosha
- Racine
- Waukesha
- Janesville
- West Allis
- Wauwatosa

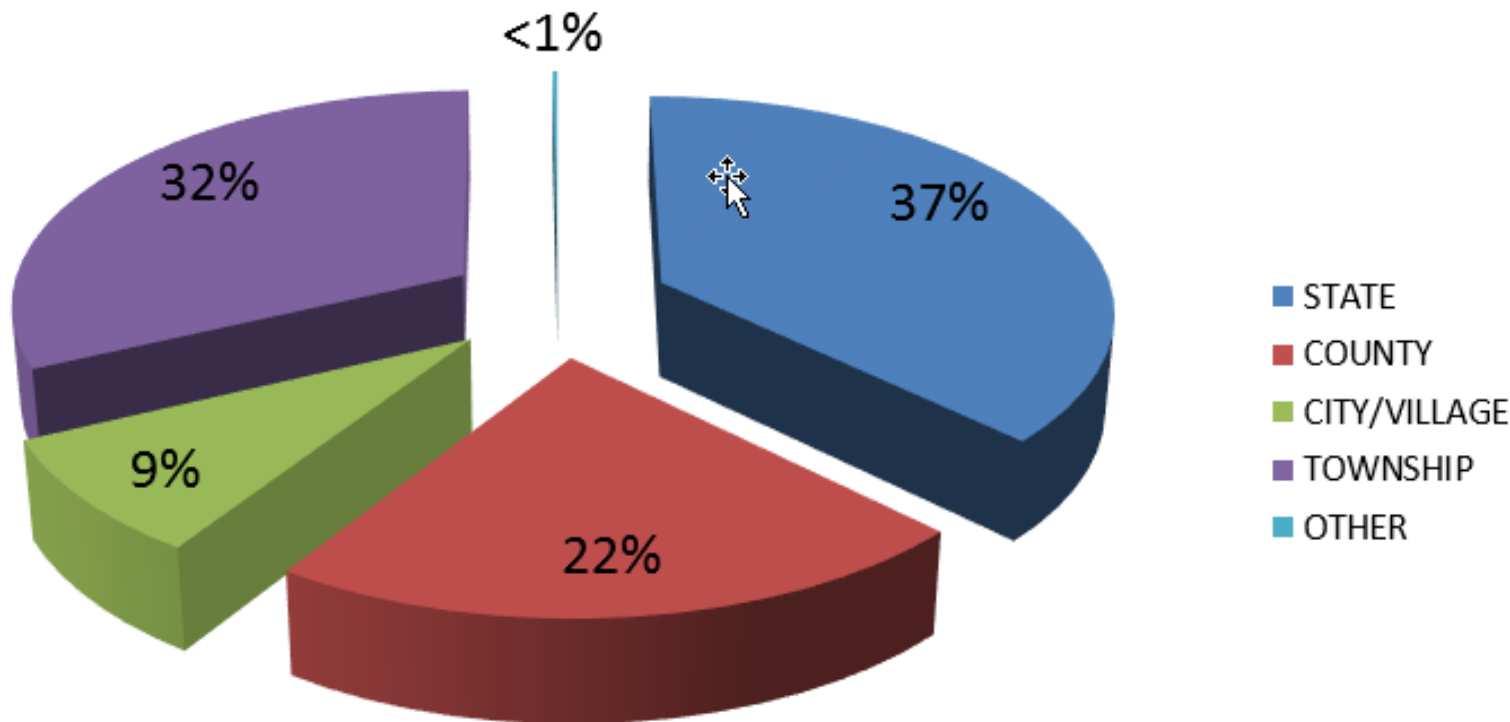




WisDOT Bridge Inventory

- 14,116 bridges
 - 5,259 state-owned
 - 8,857 local-owned

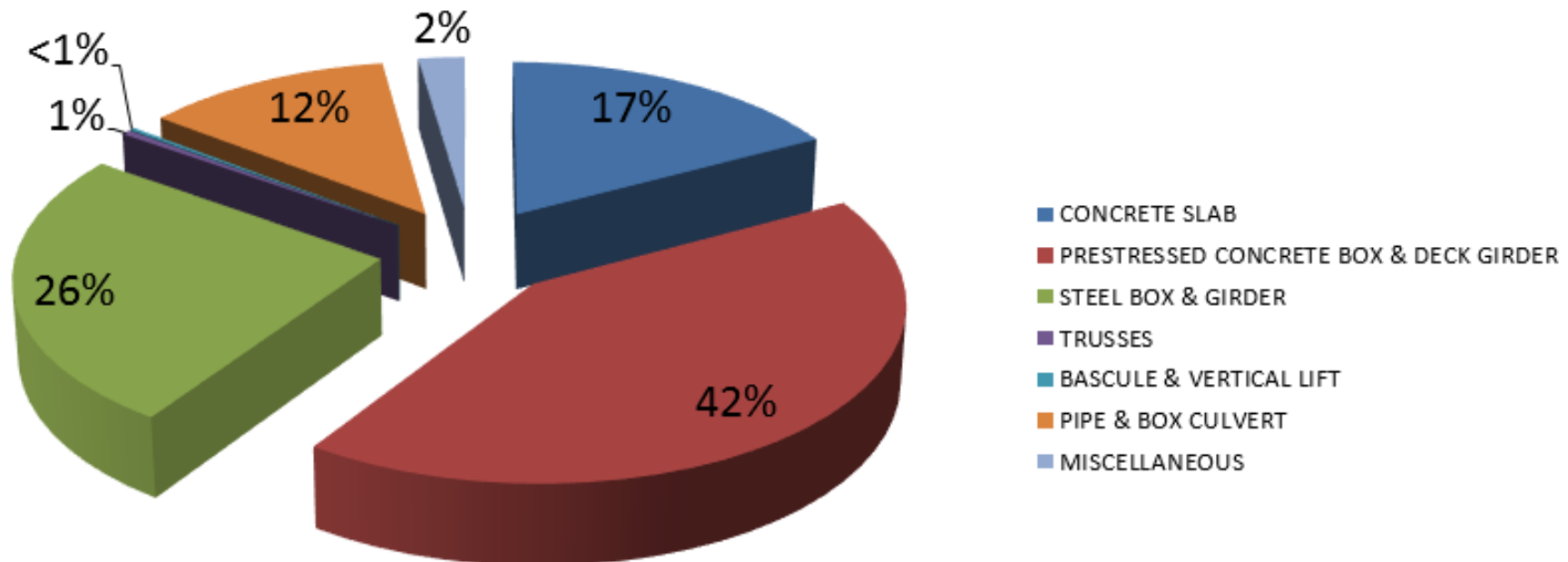
Bridges in Inventory - By Owner





WisDOT Bridge Inventory

State Owned Bridges - By Superstructure Type

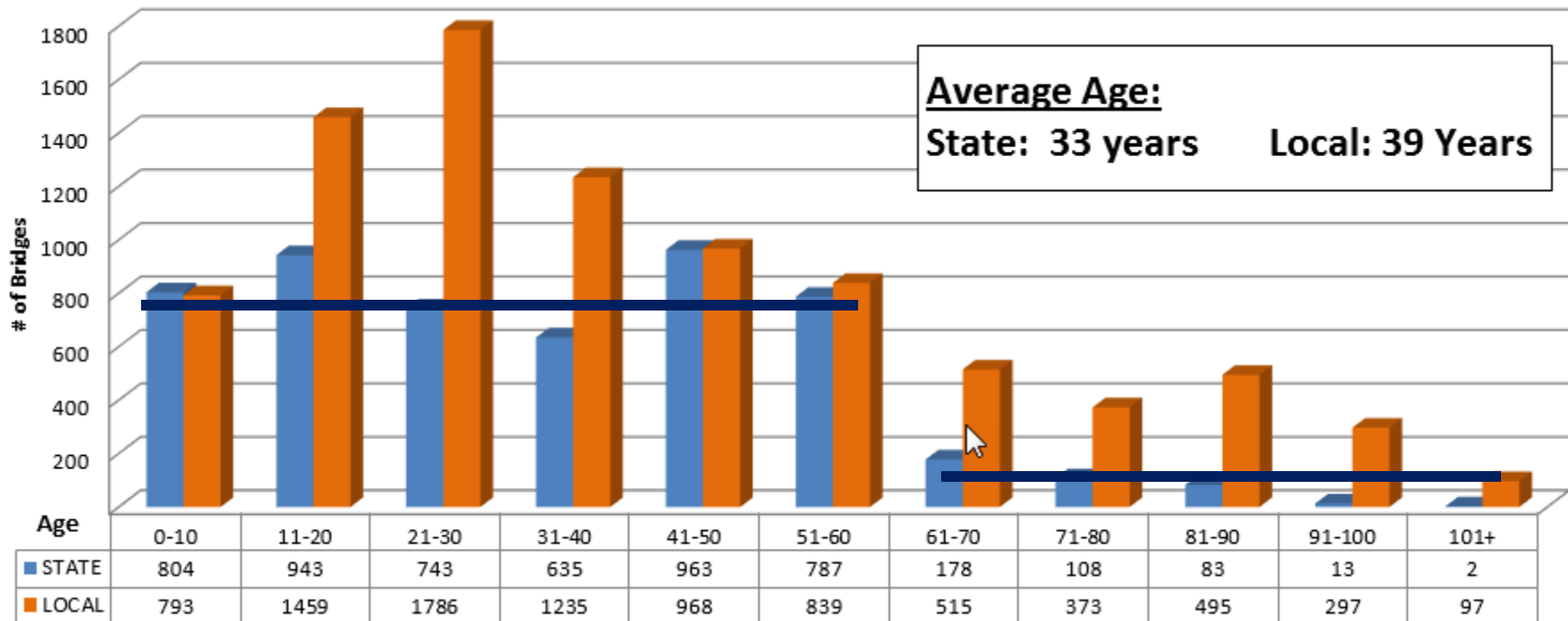


- Trend is toward PS girder and concrete slab
 - Not many new steel structures



WisDOT Bridge Inventory

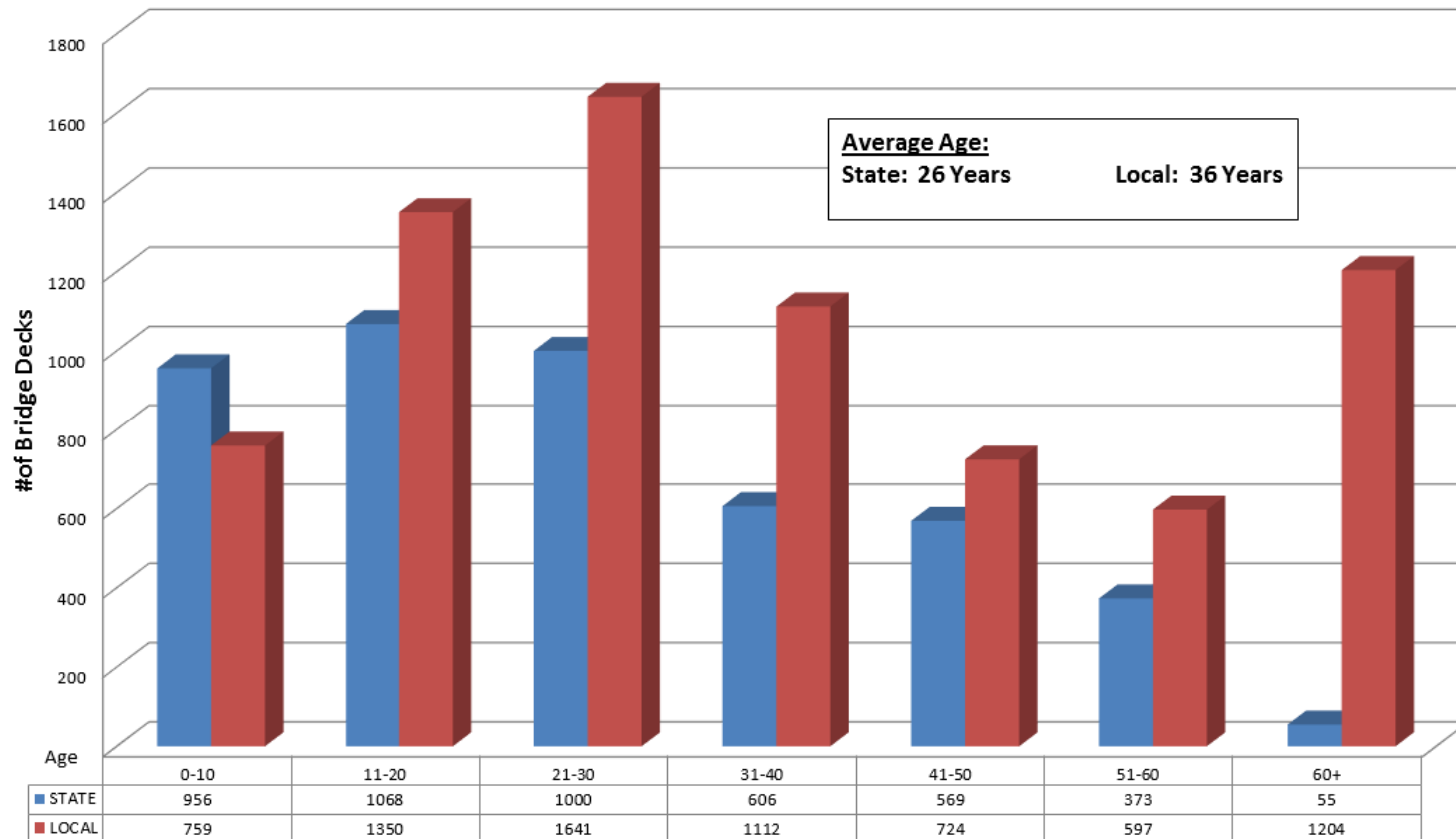
- Only 2.7% of state inventory > 60 years old
 - 20% for local inventory





WisDOT Bridge Inventory

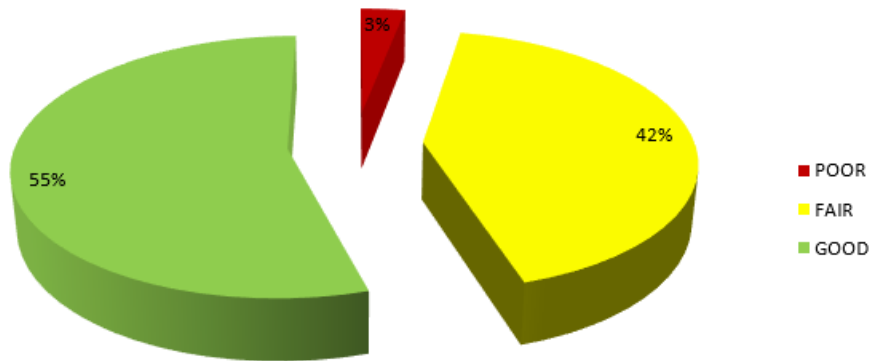
Age of Deck Inventory





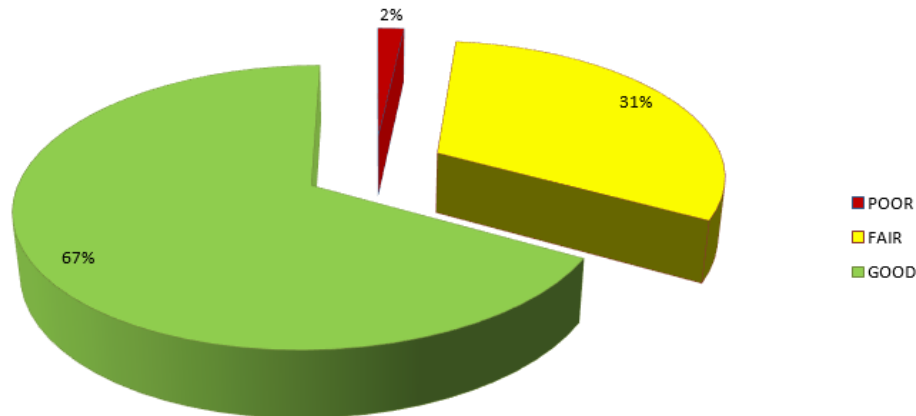
WisDOT Bridge Inventory

NBI Condition Rating by # of Bridges State Owned



- 10% for local

Deck Condition Rating by # of Bridges State Owned



- 6% for local



WisDOT Bridge Inventory

- Load posted bridges (excluding SHVs...coming soon)
 - 44 state-owned bridges
 - 0.8% of total state inventory
 - 838 local-owned bridges
 - 9.5% of total local inventory





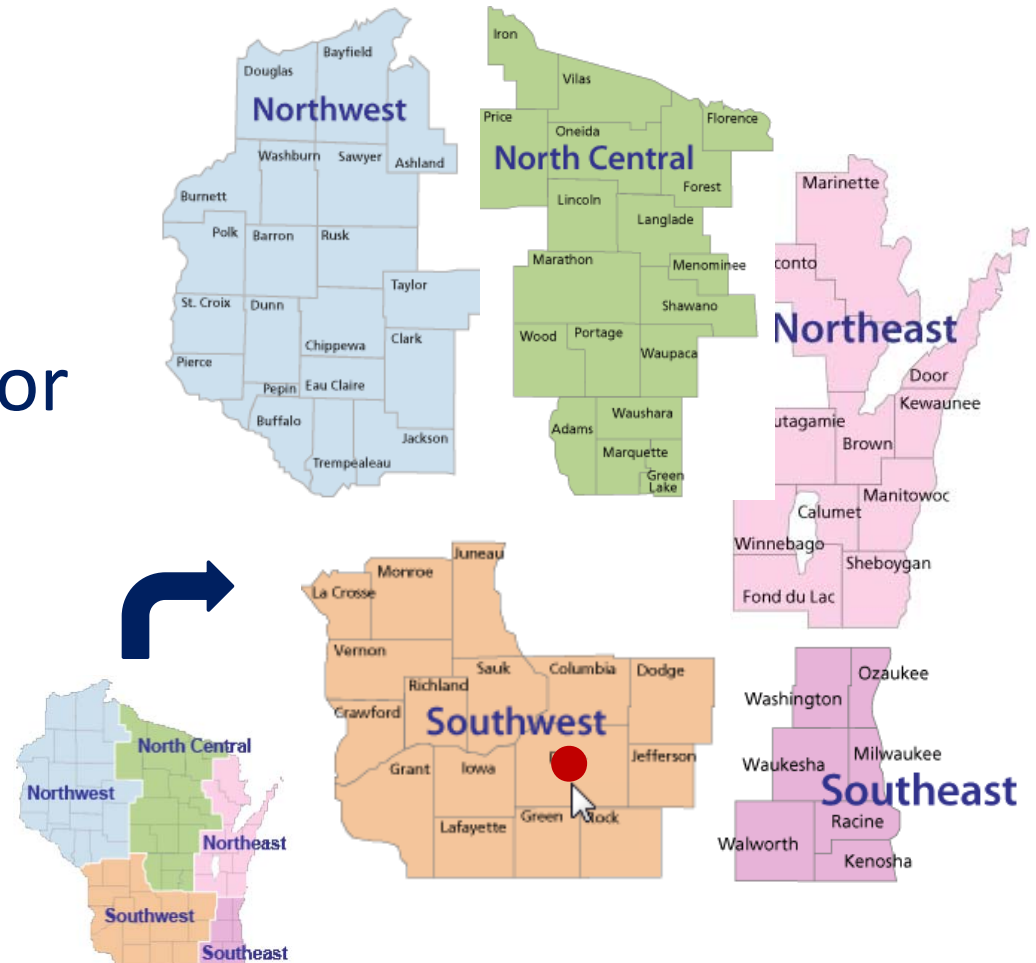
WisDOT Organizational Structure





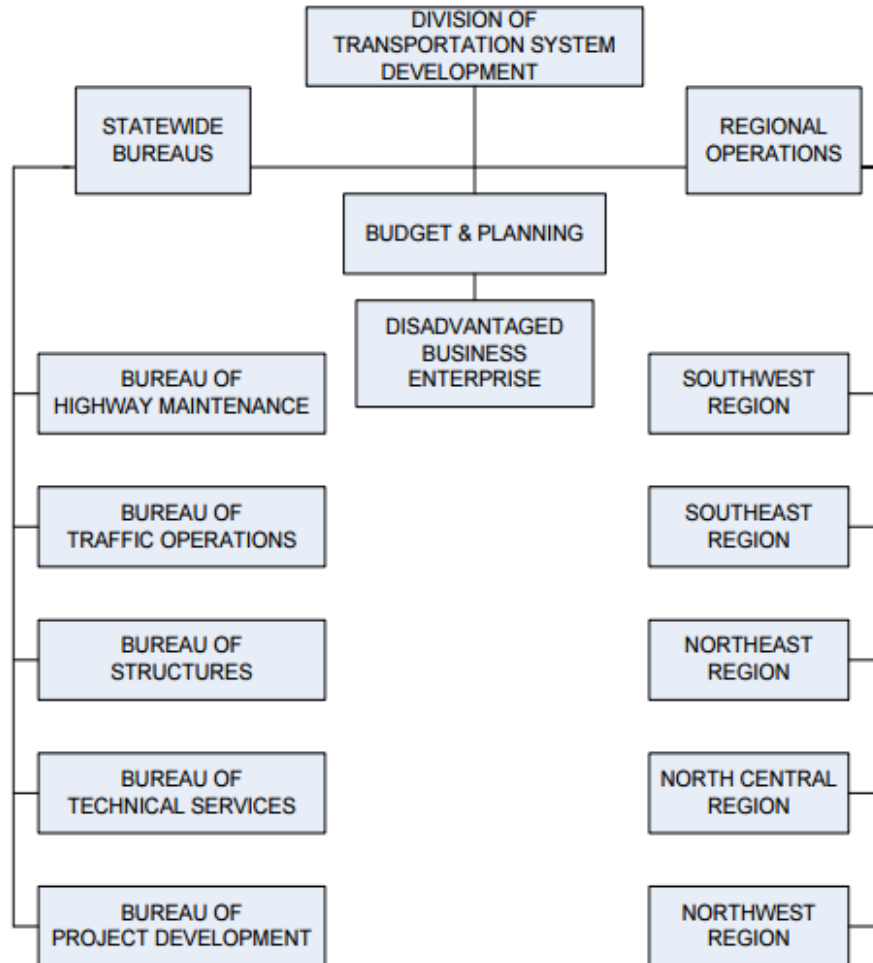
Organizational Structure

- 5 regions & central office
- Geography, not by number of bridges or deck area
- Each region:
 - Inspections
 - Project planning
 - Project scoping
 - Project delivery





Organizational Structure



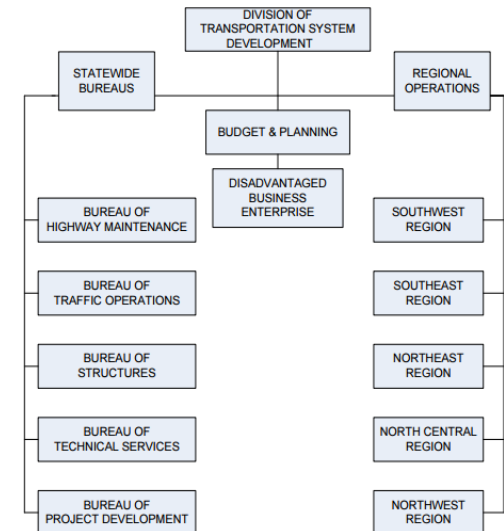
- Allocation of funds is another division



Organizational Structure

- Significance? →
- Implementation
 - Need consistent application
- “The most damaging phrase in the language is “We’ve always done it this way!”

- Grace Hopper





Foundations for Asset Management: WisDOT Data Management Tools





Data Management Tools

- Why do we need data management tools?
 - 54 structures (mostly sign bridges)





Data Management Tools

- State-wide
 - 5000+ bridges





Data Management Tools

- Early-2000s: WisDOT initiates an in-house solution for better data management
 - Highway Structures Information System (HSIS)
- Collaboration between WisDOT bridge management engineers and a consultant software programmer
 - Relationship remains intact



Data Management Tools

- HSI

The screenshot displays the HSI Home web application interface. At the top, there is a search bar with the text "B010034" and a "Go" button. Below the search bar, there are navigation controls including a menu icon, a "Collection" dropdown, and a "Map" button. The main content area shows a table of data with the following columns: "sid", "on", "under", and "built". The table contains several rows of data, including entries for "B-01-002", "B-01-003", "B-01-004", and a list of entries from "B-01-003" to "B-02-017". The "built" column contains years ranging from 1975 to 2012. The interface also includes a "Restart" button and a "Go" button with the search text "B010034".

sid	on	under	built
<input type="checkbox"/> B-01-002	CTH Z	BIG ROCHE A CRI CREEK	1975
<input type="checkbox"/> B-01-003	13TH LANE	BIG ROCHE A CRI CREEK	
<input type="checkbox"/> B-01-004	CZECH RD	ROCHE A CRI CREEK	
<input type="checkbox"/> B-01-005	13TH LANE	CARTER CREEK	
<input type="checkbox"/> B-01-003	STH 13	STATE HIGHWAY DEPT	2012
<input type="checkbox"/> B-01-034	STH 21	STATE HIGHWAY DEPT	2013
<input type="checkbox"/> B-01-036	STH 13	STATE HIGHWAY DEPT	1937
<input type="checkbox"/> B-01-325	STH 21	STATE HIGHWAY DEPT	1950
<input type="checkbox"/> B-01-537	STH 13	STATE HIGHWAY DEPT	1957
<input type="checkbox"/> B-02-004	STH 112	STATE HIGHWAY DEPT	1955
<input type="checkbox"/> B-02-005	IRR (USH 2)	STATE HIGHWAY DEPT	1960
<input type="checkbox"/> B-02-006	USH 2	STATE HIGHWAY DEPT	1961
<input type="checkbox"/> B-02-007	CTH GG	COUNTY	1948
<input type="checkbox"/> B-02-008	CTH GG	COUNTY	1949
<input type="checkbox"/> B-02-009	STH 77-LAKE DR	STATE HIGHWAY DEPT	1964
<input type="checkbox"/> B-02-010	CTH GG	COUNTY	1956
<input type="checkbox"/> B-02-011	USH 2-FRONT ST	CITY-CONNECTING ST	1969
<input type="checkbox"/> B-02-012	STH 13	STATE HIGHWAY DEPT	1971
<input type="checkbox"/> B-02-013	STH 13	STATE HIGHWAY DEPT	1971
<input type="checkbox"/> B-02-014	IRR (USH 2)	STATE HIGHWAY DEPT	1976
<input type="checkbox"/> B-02-015	STH 77-LAKE DR	STATE HIGHWAY DEPT	1975
<input type="checkbox"/> B-02-016	CTH C	COUNTY	1976
<input type="checkbox"/> B-02-017	E MAIN ST	VILLAGE	1976





Data Management Tools

- **HSIS**

Home Go » B010034

B-01-034 STH 21 over CARTER CREEK

General Inventory

Identification Location Map Files **Construction** Maintenance Improvement Clearance Route Special Component Media Evaluation Event Attributes/Relationships

Rights

Year: 2013 Work performed: NEW STRUCTURE

FOS id: 6160 03 73 Project letting date: 04/09/13

Cost: 390351 Survey reel num:

Contractor id: RADTKE CONTRACTORS Plan reel num:

Designer id: BRIDGE SECTION Shop drawing num:

Fabricator id: Drawing id:

Survey received date: 05/20/10 Plans completed: mm/dd/yy

delete

add



Data Management Tools

- HSIS

Bridge

Main Abutment Pier Span Geometry Approach Rate Score Sufficiency **Capacity** Hydraulic Expansion Joint Appraisal ADT

Design load rating HL93	Calculated load posting	Girder section loss	Deck protection
Inventory load rating RF1.18	Posting notification date mm/dd/yy	Overburden depth (in)	Deck membrane
Operating load rating RF1.59	Sign placement date mm/dd/yy	Overburden depth date mm/dd/yy	Deck surface CONCRETE
Load posting			Deck Composition
Max vehicle weight (kips) 250			Material CONCRETE(01) delete
Load rating basis LRFR			Add material add
Load governing member INTERIOR DECK GIRDER			
Rating change date 05/22/14			



Data Management Tools

- HSIS

Inspection

Create History Frequency

5 rows

Date	Inspection Type(s)	Agency	Inspector	Activity Type(s)	Reviewed
05/13/15	R	STATE HIGHWAY DEPARTMENT	Hardinger, Tom J (4001)	SIA	
10/23/13	R	STATE HIGHWAY DEPARTMENT	Petersen, Dale (4506)		
10/23/13	R	STATE HIGHWAY DEPARTMENT	Petersen, Dale (4506)	SIA	
10/23/13		STATE HIGHWAY DEPARTMENT	Petersen, Dale (4506)	UWVP	
10/23/13		STATE HIGHWAY DEPARTMENT	Petersen, Dale (4506)	UWP	

save cancel

dotfisd • 16 • 17-04-25-18



Data Management Tools

- Features:
 - **Compatibility**
 - Interface with other WisDOT systems; OSOW permitting, financial systems, etc.
 - **Access to information**
 - Updates are live, immediately available
 - Easy to query information, write reports



Data Management Tools

- Features:
 - Portal for bridge information
 - Plans, shop drawings, correspondence, etc.



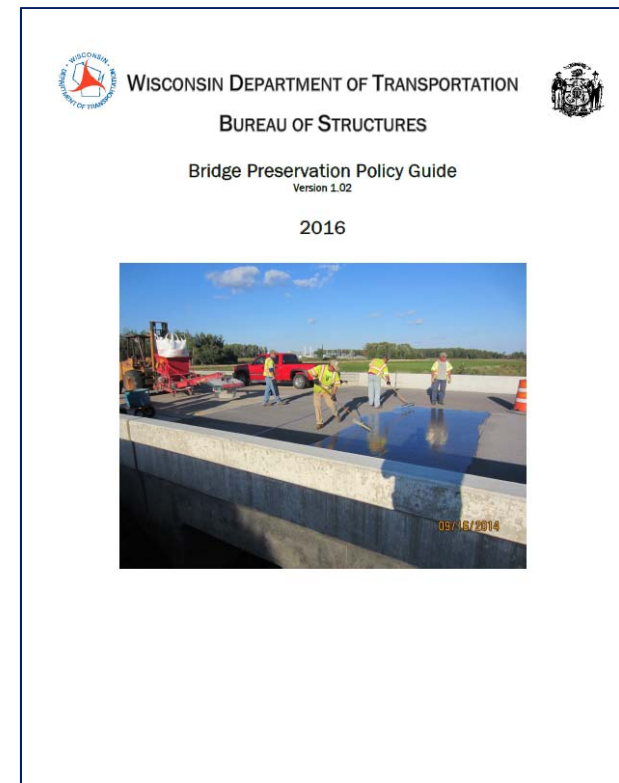
Foundations for Asset Management: WisDOT Bridge Preservation Policy





Bridge Preservation Policy

- WisDOT Bridge Preservation Policy Guide
- Joint effort by:
 - Bureau of Structures
 - Regional maintenance
 - Consultant engineers





Bridge Preservation Policy

- Why?
 - Looking for better coordination between Bureau of Structures-Regions and among Regions
 - Inconsistency in treatments used, timing, etc.
 - Create a baseline for the “correct” treatment/timing



Bridge Preservation Policy

- Goals for the document:
 - Create preservation-specific objectives and performance measures
 - Establish a toolbox of preservation activities to consider
 - Identify preservation activities and eligibility to meet objectives



Bridge Preservation Policy

- Objectives and performance measures

Objective	Target/Goals	Performance Measure
Maintain bridges in good or fair condition	95% of bridges	Percentage of bridge in good or fair condition (NBI rating 5 or higher)
Maintain bridge decks in good or fair condition	95% of bridge decks	Percentage of bridge decks in good or fair condition (NBI Rating 5 or higher)
Seal engine concrete decks (NBI rating 6 or higher) with sealant every 4 years	Seal 25% engine concrete decks	Number of decks sealed (sq. ft of deck area) each year during a 4 year period



Bridge Preservation Policy

- Preservation activities and expected frequency

Bridge Component	Bridge Preservation Type	Activity Description	Preventive Maintenance Type	Action Frequency (years)	Preventive Maintenance Type	Action Frequency (years)	
					Cyclical	1-2	
All	Preventive Maintenance	Sweeping, power washing, cleaning	Cyclical	1-2		1	
Deck	Preventive Maintenance	Deck washing	Cyclical	1	Cyclical	1	
		Deck Sweeping		1		4-5	
		Deck Sealing/Crack Sealing		4-5		10	
		Thin polymer (Epoxy) overlays		10		As needed	
		Drainage cleaning/repair		As needed	Condition Based	1-2	
		Joint cleaning				1-2	
		Deck Patching				12-15	
		Chloride extraction				6-12	
		Asphalt overlay with membrane				10	
		Polymer modified Asphalt overlay				1	
	Repair or Rehab Element	Condition Based	Rigid concrete overlays	As needed	Condition Based	As needed	As needed
			Structural Reinforced concrete overlay				
			Deck joint replacement				
			Eliminate joints				





Bridge Preservation Policy

- Activities and eligibility

	NBI Item 58	Deck Element Distress Area (%) ①	Preservation Activity	Benefit to Deck from action	Application Frequency (in years)
				Extend Service Life	1 to 2
Concrete Deck/Slab			Deck Sweeping/Washing	Extend Service Life	1 to 2
		<20%	Crack Sealing	Extend Service Life	3 to 5
		<20%	Deck Sealing	Service life extended	3 to 5
	=6	<5% ②	Deck Patching	Service life maintained	As needed
		<5%	Deck Patching, Cathodic Protection	Extend Service Life	As needed
		<10%	HMA w/ membrane	Improve NBI (58) ≥ 7	8 to 12
		<20%	Polymer Modified Asphalt Overlay	Improve NBI (58) ≥ 7	12 to 15
		<20%	Concrete Overlay	Improve NBI (58) ≥ 7	12 to 30

defect 1080.

④ Consult BOS - not for deck girder bridges.

⑤ Consider remaining bridge conditions to determine if activity is desirable and cost effective.





Bridge Preservation Policy

- Activities and eligibility

NBI Item	Element	NBI Criteria	Defect	Element Defect Condition State Criteria	Repair Action	Potential Benefits to NBI or CS	Anticipated Service Life Years
Deck	Joints	Item 58 ≥ 5	2350	CS2, CS3, or CS4	Joint Cleaning	CS1 or CS2	
			2310	CS2, CS3, or CS4	Joint Seal Replacement/Restoration ^⑦	CS1	5 to 8
			2310 or 2360	CS3 + CS4 ≥ 10%	Joint Replacement ^④	CS1	10 to 20
				All Condition State	Joint Elimination ^⑧	Elimination	15 to 25

Super	Steel Elements	Item 59 ≥ 5	3440	N/A	Superstructure Washing/Cleaning	NA	1 to 2
				CS2 + CS3 Area > 5% ^⑥	Painting - Spot	CS1	1 to 5
				CS3 Area ≤ 25% ^⑥	Painting - Zone	CS1 ^①	5 to 7
				CS3 Area ≥ 25% ^⑥	Painting - Complete	CS1 ^②	15 to 20
	Item 59 ≥ 4		CS2, CS3, or CS4	Superstructure Restoration ^③	NBI ≥ 7	5 to 20	
	Bearings	Item 59 ≥ 5		CS3 or CS4	Bearing Reset/Repair	CS1 or CS2	1 to 5
				CS2 or CS3	Bearing Cleaning/Painting	CS1 or CS2	5 to 7
				CS3 or CS4	Bearing Replacement	CS1 or CS2	10 to 15

- ⑦ Includes but is not limited to end block/paving block replacement.
- ⑧ Must bring railing to current standards or have an approved exception to standards.
- ⑨ Examples are pier protection dolphins and fender systems.
- ⑩ Provide scour countermeasures after repairing any other substructure defects.



Bridge Preservation Policy

- Objective:
 - Get everyone on the same page and get the most life out of our bridge inventory



Foundations for Asset Management: WisDOT Asset Management Tools





Asset Management Tools

- Objective:
 - Provide recommendations for structures work, near-term and long-term



Asset Management Tools

- Why?
 - Help WisDOT financial body set a baseline for required funding levels
 - Provide guidance for Regions in programming optimal bridge work
 - Provide long-term projections on system needs and condition at various funding levels



Asset Management Tools

- How?
 - Apply a logic to inventory and condition data to determine current work needs
 - Project future condition and repeat process for future needs



Asset Management Tools

- Wisconsin Structures Asset Management System – WiSAMS
- Software application developed in-house

The screenshot shows the WiSAMS application window. The title bar reads "WiSAMS (Wisconsin Structures Asset Management System)". The interface includes a menu bar with "Needs Analysis Reports", "Misc Reports", "Admin", and "CAFR-FIIPS". On the right, there are options for "Current Database" (set to "Prod") and "Pick WiSAM Logic Database" (with radio buttons for "Prod", "Test", and "Dev (JB Laptop)"). The main area is divided into several sections: "Pick Structures" with a radio button for "By IDs" and a text box containing "B030019,B110001,B110007", and another radio button for "By Region (1, 2, 3, 4 or 5)"; "Enter Other Criteria" with "Start Year" (2018) and "End Year" (2027) fields, a checked checkbox for "Deteriorate Overlay Defects", and checkboxes for "Additional Output" (PI Factors and Debug Info); "Pick Work Actions in Flexible Optimal" with a list of actions such as "21-OVERLAY DECK - BIT. HOT MIX ASPHALT (HMA)", "65-OVERLAY DECK - BIT. POLYMER MODIFIED ASPHALT", "03-OVERLAY DECK - CONCRETE", "58-OVERLAY DECK - CONCRETE / NEW JOINTS", "20-OVERLAY DECK - CONCRETE / NEW RAIL AND JOINT", "99-OVERLAY DECK - CONCRETE / PAINT", "92-OVERLAY DECK - POLYESTER POLYMER", and "77-OVERLAY DECK - THIN POLYMER"; and "Create Reports" with an "Excel Output File" field containing "c:\Temp\vrpt.xlsx" and buttons for "Optimal", "Str & Deck Repl", "Flexible Optimal", and "Local Prog- Current Year".



Asset Management Tools

- **WiSAMS:**
 - Pulls inventory and inspection data
 - Data management tool – HSIS
 - Process a set of “rules” – if/then statements for given work actions
 - Policy – WisDOT Bridge Preservation Policy Guide
 - Deterioration curves to project future condition
 - Based on historic WisDOT NBI data (mostly)



Asset Management Tools

- **WiSAMS logic**

WiSAMS Rule #1:

- If the all of the following criteria are met...
 - The current NBI rating for substructure is less than or equal to 3, and;
 - The structure is scour critical;
- ...then the recommended work action is “REPLACE STRUCTURE.”

WiSAMS Rule #10:

- If the all of the following criteria are met...
 - The current NBI rating for superstructure is less than or equal to 3, and;
 - The structure is > 50 years old, and;
 - The superstructure is fracture critical;
- ...then the recommended work action is “REPLACE STRUCTURE.”



Asset Management Tools

- **WiSAMS logic**

WiSAMS Rule #32:

- If the all of the following criteria are met...
 - The number of previous overlays (concrete or asphalt) is less than 4, and;
 - The current NBI rating for deck is greater than or equal to 6, and;
 - The total quantity of deck area in CS-2, CS-3, and CS-4 for defect 1080 (delaminations, spalls, and patches) is less than 5% of the total deck area, and;
 - The total quantity of deck area in CS-2, CS-3, and CS-4 for defect 3210 (debonding, spalls, patched area, pothole – wearing surface) is greater than 20% of the total deck area, or;
 - The total quantity of deck area in CS-2, CS-3, and CS-4 for defect 3220 (crack – wearing surface) is greater than 50% of the total deck area, or;
 - The total quantity of deck area in CS-3 and CS-4 for defect 8911 (abrasion, wear, rutting, or loss of friction – wearing surface) is greater than 20% of the total deck area;
- ...then the recommended work action is “CONCRETE OVERLAY.”



Asset Management Tools

- WiSAMS output

B400067	Corridor: Not 2030 Corridor	YEAR	AGE	NO ACTION TAKEN	OPTIMAL IMPROVEMENT SCENARIO	CAI	COST: PRIMARY WORK ACTION	EST. LIFE EXTENSION (YRS)	INCIDENTAL WORK ACTIONS	FIIPS PROGRAM	CAI	COST(W/O DEL)	FOS PROJ ID	PROJ CONCEPT	DOT PROGRAM
				CAI	PRIMARY WORK ACTION					PROGRAMMED WORK ACTION					
FEAT ON/UNDER:	RAMP HAMPTON AVE-IH 435B over MILWAUKEE RIVER	2018	56	34	(06)REPLACE DECK	60.7	\$ 797,983	40	(77)OVERLAY DECK - THIN POLYMER; (42)REPLACE BEARINGS; (72)REPLACE OR REPAIR WINGWALLS; (11)REPLACE RAILING OR PARAPET; (02)WIDEN BRIDGE;		34	\$ 0			
STRUCTURE TYPE:	DECK GIRDER	2019	57	33.8		58.5	\$ 0	0			33.8	\$ 0			
MATERIAL:	PREST CONCRETE	2020	58	33.6		56.7	\$ 0	0			33.6	\$ 0			
NUM SPANS:	6	2021	59	33.5		55.2	\$ 0	0			33.5	\$ 0			
TOT LENGTH (FT):	370	2022	60	33.3		54	\$ 0	0			33.3	\$ 0			
INVENTORY RATING:	HS17	2023	61	28.2		52.9	\$ 0	0			28.2	\$ 0			
OPERATING RATING:	HS26	2024	62	23.2		47.1	\$ 0	0		(91)REPLACE STRUCTURE	100	\$ 6,750,000	12282271	BRRHB	BACKBONE
LOAD POSTING:	None	2025	63	18.1		41.3	\$ 0	0			97.8	\$ 0			
LAST INSPECTION:	3/9/2017	2026	64	18		40.7	\$ 0	0			96	\$ 0			
CONSTR HIST:	(1962)NEW STRUCTURE (1983)OVERLAY - CONCRETE (2002)OVERLAY - BITUMINOUS	2027	65	18		39.2	\$ 0	0			94.5	\$ 0			





Asset Management Tools

NO ACTION TAKEN	SCHEDULED MAINTENANCE - SCHEDULED		EST. LIFE (YEARS)	SCHEDULED WORK ACTION	PROGRAMMED WORK ACTION	EST. COST (\$)	EST. YEAR	EST. MONTH	EST. DAY	EST. HOUR	EST. MINUTE	EST. SECOND	EST. MILLISECOND
	DATE	DESCRIPTION											
14	2017	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2017	01	01	01	01	01	01
15	2018	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2018	01	01	01	01	01	01
16	2019	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2019	01	01	01	01	01	01
17	2020	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2020	01	01	01	01	01	01
18	2021	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2021	01	01	01	01	01	01
19	2022	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2022	01	01	01	01	01	01
20	2023	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2023	01	01	01	01	01	01
21	2024	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2024	01	01	01	01	01	01
22	2025	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2025	01	01	01	01	01	01
23	2026	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2026	01	01	01	01	01	01
24	2027	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2027	01	01	01	01	01	01
25	2028	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2028	01	01	01	01	01	01
26	2029	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2029	01	01	01	01	01	01
27	2030	REPAIR/REPLACE	10	REPAIR/REPLACE	REPAIR/REPLACE	100000	2030	01	01	01	01	01	01



B400067	Corridor: Not 2030 Corridor	YEAR	AGE
FEAT ON/UNDER:	RAMP HAMPTON AVE-IH 43SB over MILWAUKEE RIVER	2018	56
STRUCTURE TYPE:	DECK GIRDER	2019	57
MATERIAL:	PREST CONCRETE	2020	58
NUM SPANS:	6	2021	59
TOT LENGTH (FT):	370	2022	60
INVENTORY RATING:	HS17	2023	61
OPERATING RATING:	HS26	2024	62
LOAD POSTING:	None	2025	63
LAST INSPECTION:	3/9/2017	2026	64
CONSTR HIST:	(1962)NEW STRUCTURE (1983)OVERLAY - CONCRETE (2002)OVERLAY - BITUMINOUS	2027	65





Asset Management Tools

ROADID	CONTRACT NO.	CONTRACT YEAR	CONTRACT TYPE	CONTRACT DESCRIPTION	CONTRACT VALUE	CONTRACT STATUS	CONTRACT START DATE	CONTRACT END DATE	CONTRACT COMPLETION DATE	CONTRACT CLOSURE DATE	CONTRACT CLOSURE REASON	CONTRACT CLOSURE STATUS	CONTRACT CLOSURE DATE	CONTRACT CLOSURE REASON	CONTRACT CLOSURE STATUS	CONTRACT CLOSURE DATE	CONTRACT CLOSURE REASON	CONTRACT CLOSURE STATUS	CONTRACT CLOSURE DATE	CONTRACT CLOSURE REASON	CONTRACT CLOSURE STATUS	
840047	WISCONSIN STATE ROAD 100	2018	CONSTRUCTION	RECONSTRUCTION OF ROAD 100 FROM STATE ROAD 100 TO STATE ROAD 100	10,000,000	COMPLETED	2018-01-01	2018-12-31	2018-12-31	2018-12-31												



- Condition Assessment Index
- Cost estimates

NO ACTION TAKEN	OPTIMAL IMPROVEMENT SCENARIO				
CAI	PRIMARY WORK ACTION	CAI	COST: PRIMARY WORK ACTION	EST. LIFE EXTENSION (YRS)	INCIDENTAL WORK ACTIONS
34	(06)REPLACE DECK	60.7	\$ 797,983	40	(77)OVERLAY DECK - THIN POLYMER; (42)REPLACE BEARINGS; (72)REPLACE OR REPAIR WINGWALLS; (11)REPLACE RAILING OR PARAPET; (02)WIDEN BRIDGE;
33.8		58.5	\$ 0	0	
33.6		56.7	\$ 0	0	
33.5		55.2	\$ 0	0	
33.3		54	\$ 0	0	
28.2		52.9	\$ 0	0	
23.2		47.1	\$ 0	0	
18.1		41.3	\$ 0	0	
18		40.7	\$ 0	0	
18		39.2	\$ 0	0	





Asset Management Tools

BUDGET	CONTRACT	YEAR	LINE	ACTION		COST	COST PER UNIT	COST PER SQUARE FOOT	COST PER LINEAL FOOT	COST PER SQUARE YARD	COST PER CUBIC YARD	COST PER TON	COST PER HOUR	COST PER DAY	COST PER MONTH	COST PER YEAR	COST PER MILE	COST PER MILE PER HOUR	COST PER MILE PER DAY	COST PER MILE PER MONTH	COST PER MILE PER YEAR	
				DESCRIPTION	UNIT																	
840007	CONTRACT	2017	10	10	CONCRETE	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100



- Information from WisDOT financial system

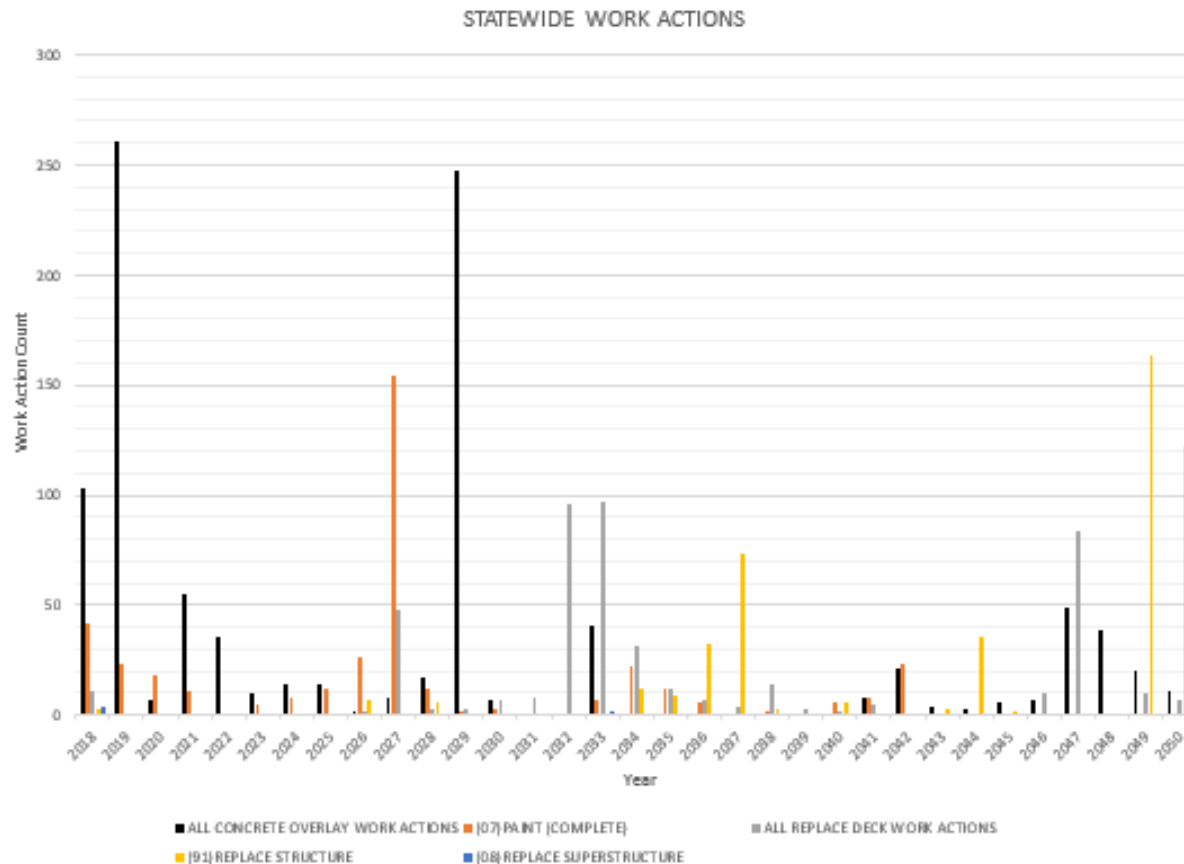
FIIPS PROGRAM					
PROGRAMMED WORK ACTION	CAI	COST(W/O DEL)	FOS PROJ ID	PROJ CONCEPT	DOT PROGRAM
	34	\$ 0			
	33.8	\$ 0			
	33.6	\$ 0			
	33.5	\$ 0			
	33.3	\$ 0			
	28.2	\$ 0			
(91)REPLACE STRUCTURE	100	\$ 6,750,000	12282271	BRRHB	BACKBONE
	97.8	\$ 0			
	96	\$ 0			
	94.5	\$ 0			





Asset Management Tools

- WiSAMS output





Asset Management Tools

- Advantages:
 - Wisconsin-specific
 - Flexibility to quickly change/modify to improve the application or correct errors
 - Can shape the output to serve WisDOT business needs
 - Compatibility with other WisDOT systems



Asset Management at WisDOT





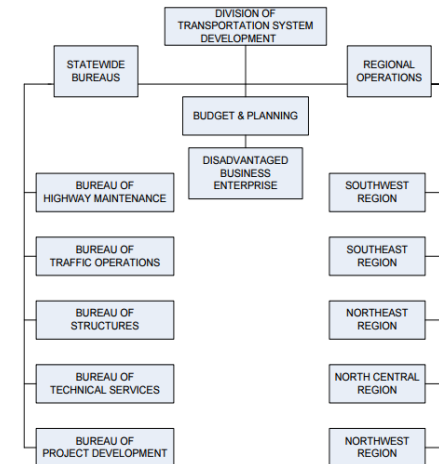
Asset Management at WisDOT

- Progression...
 - Needed tools to effectively collect/store/manage data – **HSIS**
 - Define state-wide policy for preserving bridges – **Bridge Preservation Policy Guide**
 - Develop tools to provide recommendations for future bridge rehab/replacement needs – **WiSAMS**



Asset Management at WisDOT

- WiSAMS is a tool...and just a tool
- Goal is not to provide a finalized work plan
- Provide recommendations and work with Regions to make good decisions





Asset Management Tools

- Next steps?
 - Fostering relationships, become a known resource
 - Attending planning/scoping meeting
 - De-coupling inspection from planning
 - Move toward element-based deterioration curves
 - Refine WiSAMS rules for better projections
 - Prioritization
 - Better quantify risk

Questions?



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