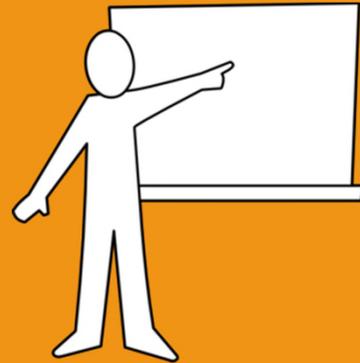


Outline

- BOBS Organization Structure
- Bridge Type and Composition/Terminology
- **Asset Management**
- Bridge Maintenance
- Bridge Design Process
- Bridge Plans
- Road and Bridge Coordination
- Request for Action (RFA) Projects
- Design in Construction
- Accelerated Bridge Construction (ABC)
- Wrap up

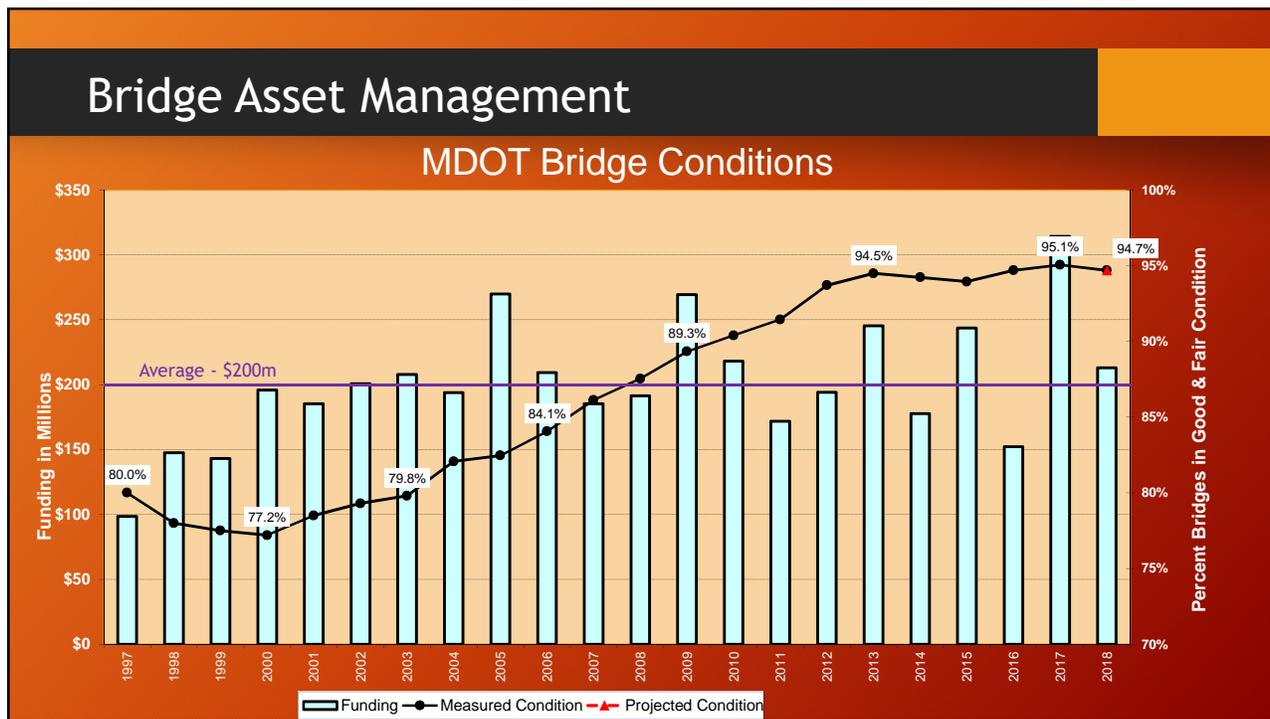


1

Bridge Asset Management



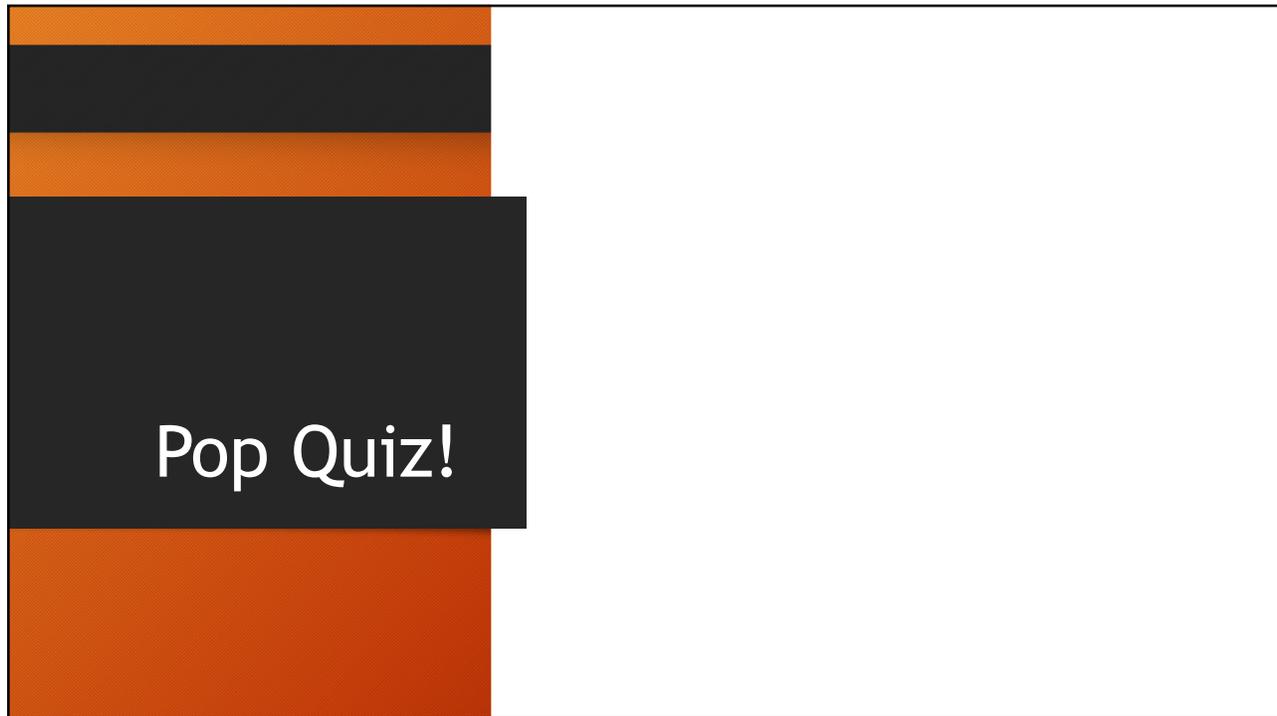
2



3

Pop Quiz!

4



5



6

Federal Aid Highway Act of 1970

National Bridge Inspection Standards (NBIS)

Special Bridge Replacement Program (SBRP)



The diagram features a magnifying glass on the left. Two blue arrows point from the handle of the magnifying glass to a stack of four books at the top right and the Superman logo at the middle right. Below these elements is a large black circle containing a white dollar sign.

7



2007 - I-35W Bridge Collapse

The block contains three photographs. The left photo shows a large section of a bridge collapsed into a river. The middle photo shows a bridge section collapsed onto a highway, with several cars and a truck involved. The right photo is a close-up of a bridge pier structure.

8

MiBRIDGE Bridge Management and Inspection System

Michigan.gov Home | MiBRIDGE Home | Contact MiBRIDGE | Feedback | Help

Welcome Brad Wagner

Administration - Assignments - Dashboards - Reports

Item 41 - Operat

Jurisdiction: MDOT Statewide

Operational Status: Use CTRL + click to select multiple statuses

Network Summary: Good/Fair/Poor/Critical, Deficient Structures (SD/FO), Item 41 - Operational Status, Scour Critical Structures, Network Elements

Structure #	Bridge ID	Facility Carried	Features Intersected	Year Built	Year Rebuilt	Work Recommendations	Deck Bottom Rtg	Deck Rtg	Super Str Rtg	Substr Rtg
1226	13113073000S040	P DRIVE S	-69	1968	21					
1260	13113083000S060	E2 1/2 MILE ROAD	-94	1960						
1283	13113093000S090	M-199 (26 MILE RD)	-94	1960						
1321	13113101600B010	M-311 (11 MILE RD)	NOTTAWA CREEK	1964						
1512	16116091000S060	TOPINABEE RD	-75	1960		06/03/2019	P	5	5	5
2050	20120016000S020	FLETCHER RD	US-127 SB	1967		03/06/2018	P	6	6	7
2051	20120016000S030	FLETCHER RD	US-127 NB	1967		03/07/2018	P	5	6	7
2055	20120052000S010	7 MILE RD (CHENE)	-75 SB	1970		03/12/2018	P	7	7	5
2056	20120052000S020	7 MILE RD (CHENE)	-75 NB	1970		03/20/2018	P	6	6	6
2484	25125031000S080	MAPLE RD	-75	1957		04/12/2018	P	5	5	4
7154	58158091000R010	7-75 CORN	NS & GTW RR	1938		03/28/2019	P	4	4	3
7183	58158151000S100	LAPLAISANCE RD	-75	1955	2011	06/04/2019	P	5	5	2
7577	61161073000B010	LJS-318R	WHITE RIVER	1986		07/19/2017	P		6	5
7961	631631020002030	PLAZA & CHURCH	-696	1984		06/27/2019	P	N	5	5
9163	73173111000S070	WADSWORTH RD	-75	1961	1971	11/14/2018	P	4	4	6
12454	82162701000B040	CENTRAL AVE	CANOE STREAM	1913		08/29/2018	P	5	5	5
12481	82162709000B060	DAKWAY TRAIL	CANOE STREAM							

Showing 1 to 19 of 19 entries

Export Data to EXCEL

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9

Michigan Bridge Conditions

MDOT Michigan Department of Transportation

All Bridges | Poor Bridges | Posted and Closed Bridges | Dashboard

Select by: Poor 0 | 1 | 2 | 3 | 4 | Fair 5 | 6 | Good 7 | 8 | 9 | Closed | Posted | Owner: MDOT | Local Agency | None | Region: None | County: None

MDOT Total Bridges 4,467	Local Total Bridges 6,643	MDOT Good Bridges: 1,247 Deck Area: 14,980,760 sqft	Local Good Bridges: 3,004 Deck Area: 8,068,047 sqft
MDOT Total Deck Area 50.8M sqft	Local Total Deck Area 18.2 M sqft	Fair Bridges 2,975 Deck Area: 32,833,208 sqft	Local Fair Bridges: 2,681 Deck Area: 7,825,992 sqft
		MDOT Poor Bridges: 245 Deck Area: 3,006,221 sqft	Local Poor Bridges: 958 Deck Area: 2,312,293 sqft

* Totals and Percentages are changed by the filter selections above and the bridges in view on the map. Be sure that all the bridges you want to do analysis on are visible on the map.

Google "MDOT Bridge Condition Dashboard"

MDOT Local Agency	MDOT Local Agency
MDOT Percent Good 27.9%	MDOT Percent Good 27.9%
MDOT Percent Fair 66.6%	MDOT Percent Fair 66.5%
MDOT Percent Poor 5.5%	MDOT Percent Poor 5.5%

10

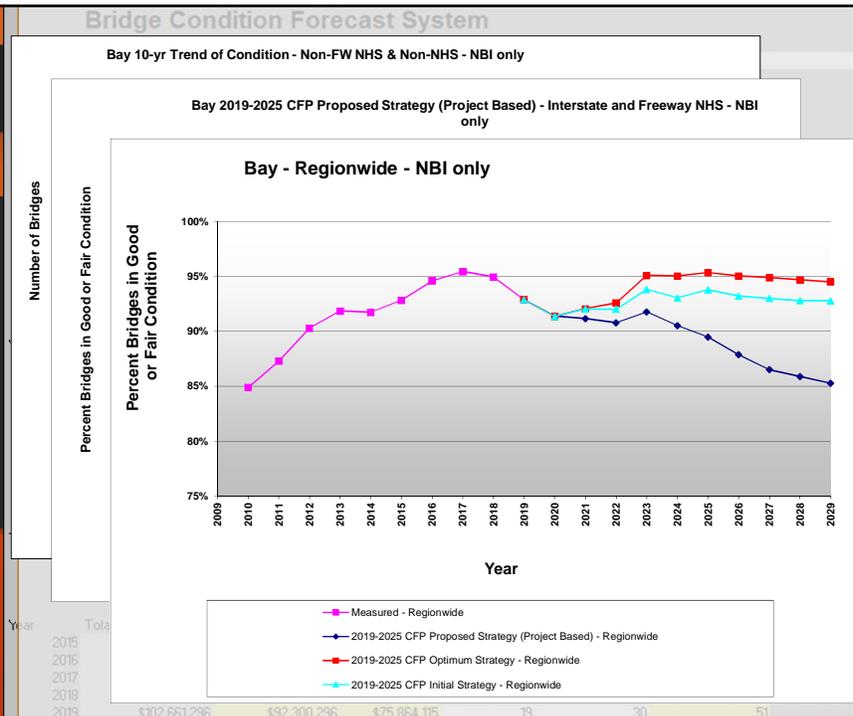
M/R [2]11.4
M/R [2]11.5
WB [2]18

Bridge Asset Management



11

Bridge Condition Forecasting System



12

Bridge Asset Management

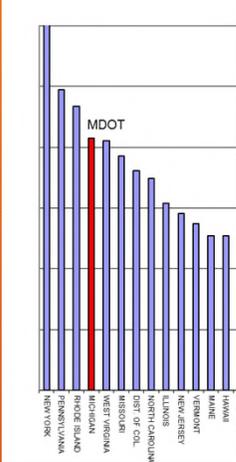
MDOT Bridge Conditions



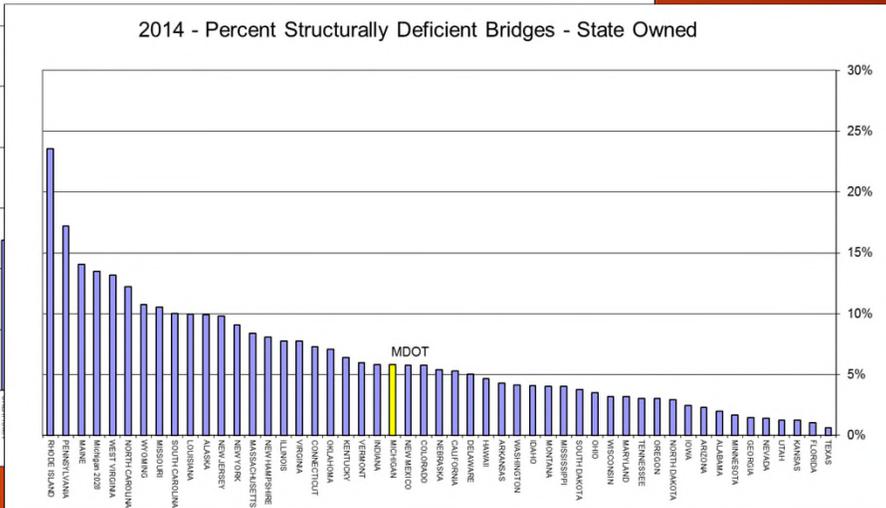
13

Where are we now?

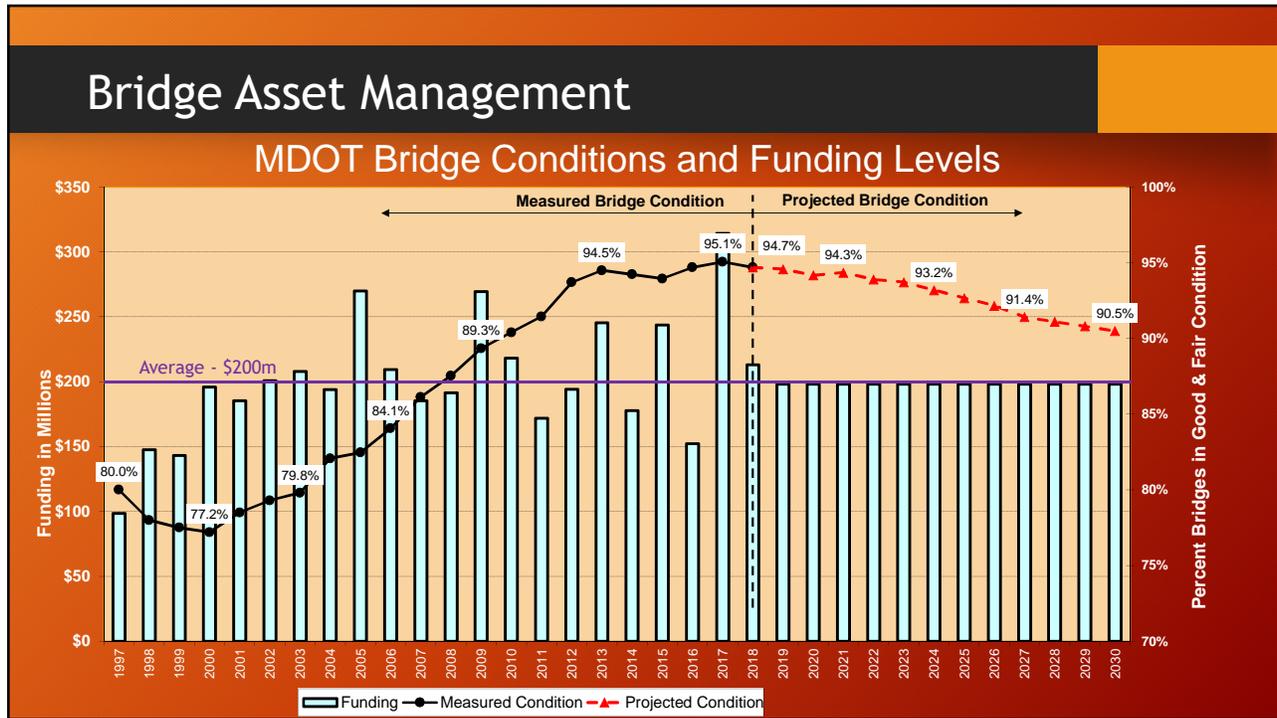
1998 - Percent Structurally Deficient Bridges - State Owned



2014 - Percent Structurally Deficient Bridges - State Owned



14



15

Project Programming Process



Regions inspect every 2 years

All information stored in MiBRIDGE





Regions scope bridges for potential work based on condition

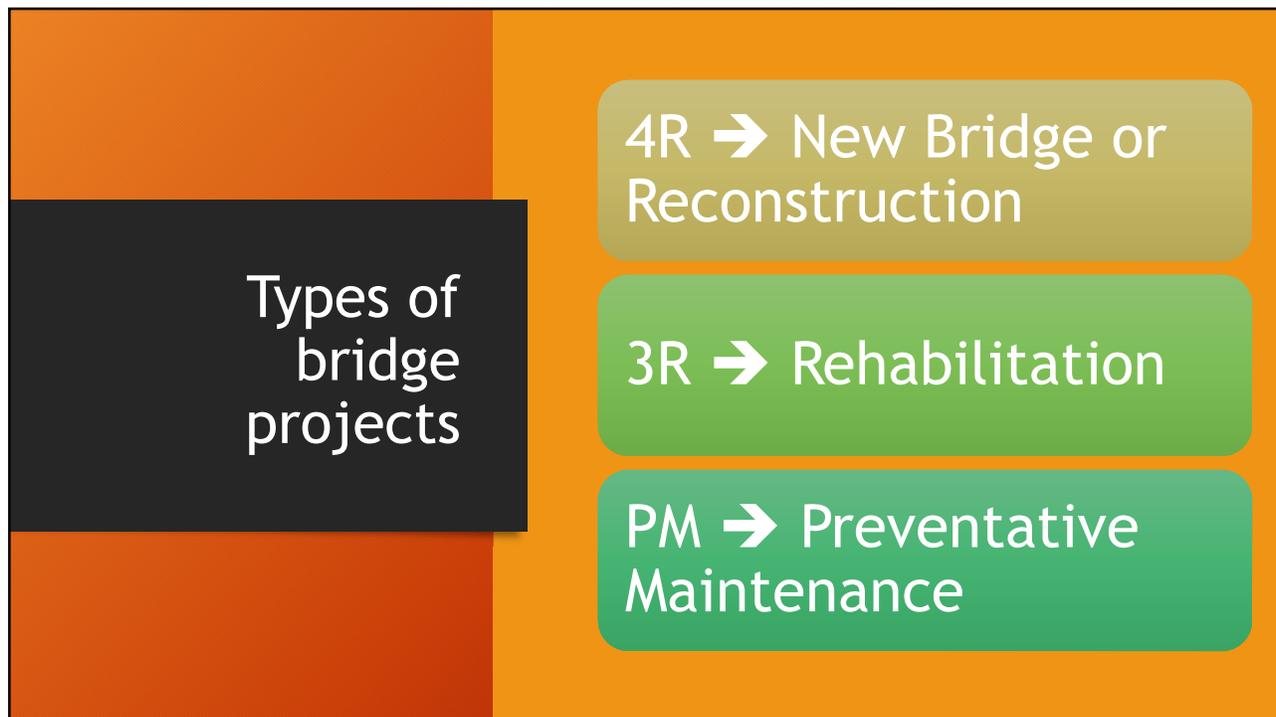
BOBS establishes Region funding targets each year





Regions program projects

16



17



18

4R → New Bridge or Reconstruction

New Bridge on New Route



- No existing structure constraints
- Vertical and horizontal alignment only constrained by site
- Design life = 75-100 years

19

4R → New Bridge or Reconstruction

Bridge Replacement



- Replaces entire structure
- Often involves widening, lengthening
- Vertical and horizontal alignment most flexible
- Design life = 75-100 years

20

4R → New Bridge or Reconstruction

Superstructure Replacement



- Replaces deck and beams
- Vertical alignment can be flexible
- Horizontal alignment changes limited
- Design life - variable up to 75 years

21

4R → New Bridge or Reconstruction

Deck Replacement



- Replaces deck only
- May involve widening of deck
- No vertical or horizontal realignment
- Design life = 60 years

22

3R → Rehabilitation

Types of bridge projects

Projects that:

- extend service life
- enhance highway safety
- Restore structural or functional adequacy.

23

3R → Rehabilitation

Rigid Concrete Overlay - Deep

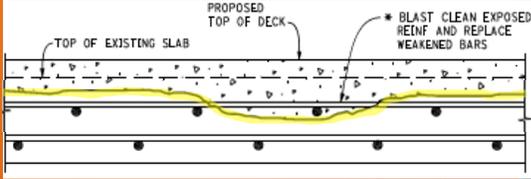


- Replaces deteriorated deck concrete
- Silica Fume Modified Concrete
- Grade changes 1 inch or less
- Design life = up to 30 years

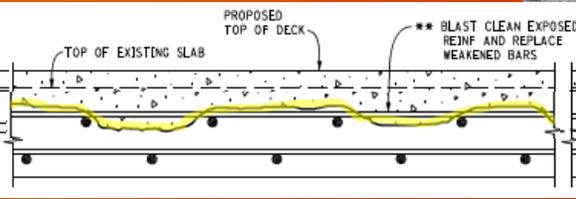
24

3R → Rehabilitation Rigid Concrete Overlay - Shallow





Shallow Overlay



Deep Overlay

- Replaces deteriorated deck concrete
- Latex Modified Concrete
- Grade changes 1 inch or less
- Design life = up to 25 years

25

3R → Rehabilitation Miscellaneous Repairs



Railing Replacement



Substructure Replacement



Beam Repair

- Repair/Replace Deteriorated Elements
- Original Design standards typically apply
- Restores or adds strength
- Design Life = variable

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Key Points

- MDOT is a national leader in bridge asset management
- Comprehensive database is foundational to asset management
- Projects selected based on condition, analytics and experience
- MDOT employs a mix of 4R/3R/PM projects to maintain inventory
- Each project type has inherent constraints

