

State Highway Programs

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Overview of presentation

- ▶ Statewide/Region Statistics
- ▶ State Highway Programs
- ▶ Asset management
- ▶ Improvement Types
- ▶ State Legislation and Policy
- ▶ Advanceable Program
- ▶ Improvement Program
- ▶ Questions



Statistics

- ▶ There are 115,145 miles of public roads in Wisconsin.
- ▶ WisDOT maintains 11,766 miles of those roads.
- ▶ North Central Region maintains over 2,900 miles of highway
- ▶ **18 Counties** (Adams, Florence, Forest, Green Lake, Iron, Langlade, Lincoln, Marathon, Marquette, Menominee, Oneida, Portage, Price, Shawano, Vilas, Waupaca, Waushara, Wood)



State Highway Programs



- ▶ Major Highway Development
- ▶ State Highway Rehabilitation
- ▶ Safety

State highway rehabilitation (303)

The Total Amount for (303) is set by the Biennial Budget; but WisDOT is responsible for further dividing (303) into its component

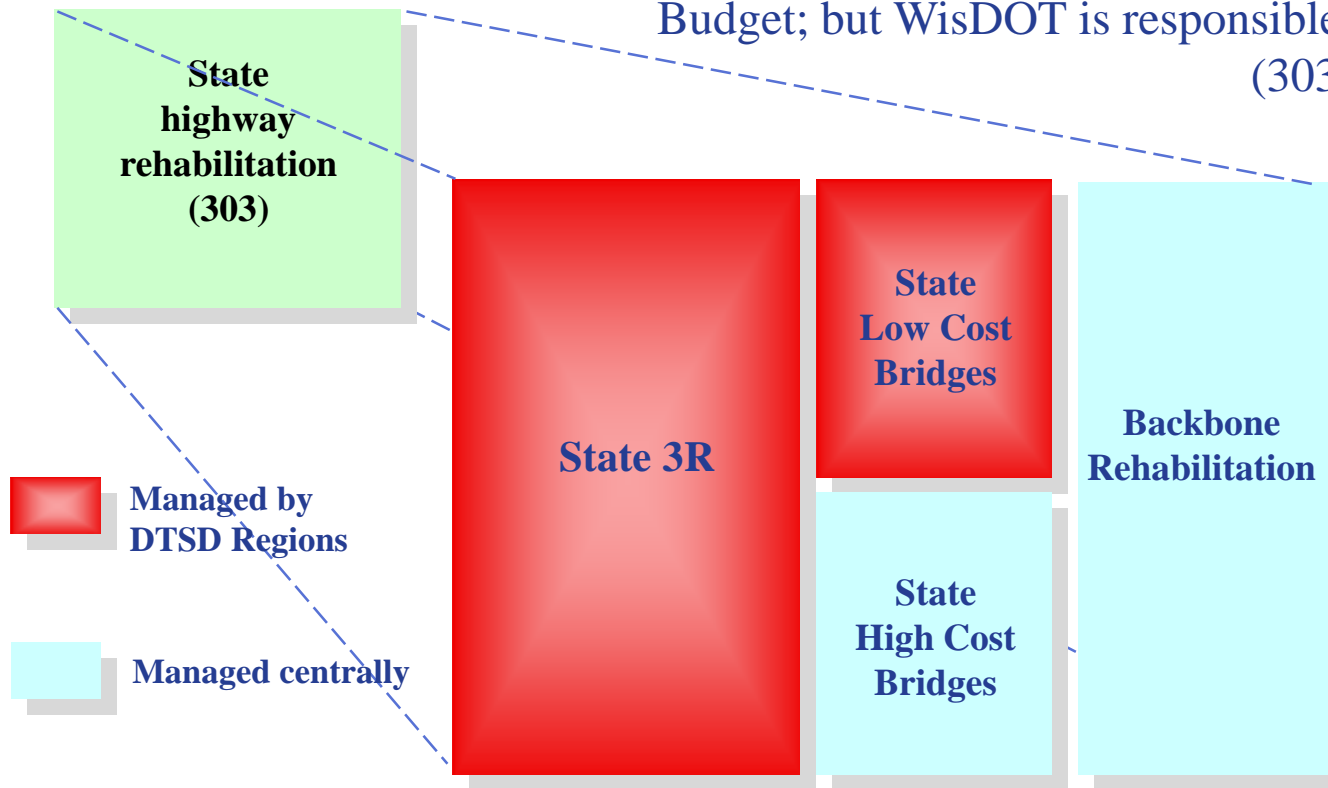
WisDOT Programs:

- State 3R

- Low Cost Bridges

- High Cost Bridges

- Backbone Rehab



The sum of State 3R And Low Cost Bridges is split five ways into the Regional Allocations



State Highway Rehabilitation (303)

- ▶ Backbone rehabilitation
- ▶ Existing highway (3R)
 - Non-corridor 2020 backbone routes
- ▶ State bridges
 - Non-corridor 2020 backbone bridges



State Highway Rehabilitation (303)

- ▶ Backbone rehabilitation
 - Corridors 2020 backbone routes and bridges
 - Connecting all major populations and economic regions of the state
 - NC region consists of 590 lane miles and 260 bridges
 - Program is managed centrally
 - IH 39
 - US 51 (South of US 8)
 - WIS 29
 - US 10 (East of I39)



State Highway Rehabilitation (303)

3R Program

- ▶ Non-corridor 2020 backbone routes
- ▶ 2360 lane miles; 1840 bridges and 300 large culverts
- ▶ NC Region 3R allocation \$39.5 Million (2017-19)
- ▶ Program is managed by the region
- ▶ Regions created a Level of effort (LOE) to help manage the 3R program
 - Structures \$4,000,000
 - Technical Support Services \$3,000,000
 - Real estate
 - Utilities
 - Railroad
 - Culvert replacement \$500,000



Asset Management

- ▶ Data driven decision making process that blends financial with technical analysis to prioritize infrastructure improvements
- ▶ MAP-21 (July 2012)
 - Federal transportation bill which requires state to generate strategies on managing assets and insuring the federal funds are being spent affectively
- ▶ The department focused on creating a Needs Analysis Process by using the Meta Management System
- ▶ The department has statewide measures to verify/validate regions are spending allocation effectively (Program Effectiveness)
- ▶ Develop a tool that was data driven and best meet the asset needs of the region based on available allocation
 - Pavement Asset Management (PAM)
 - Structures Asset Management (WiSAM)



Asset Management

▶ System Preservation Approach

- Performance-Based Practical Design
- Data informed decisions
- Standards vs Analysis
 - WisDOT is moving from a Standards based organization to an Analysis based organization
 - No longer using the approach that starts with desirable design values
 - Solutions to focus on meeting projects specific purpose and need
 - Problem areas are treated on prioritization of safety needs
- Uses right time/right improvement philosophy to optimize asset life



Asset Management (Example)

The Pavement Condition Index (PCI)

✓ Developed in the 1970s by US Army Corps of Engineers

- Supporting Agencies include: FHWA, US DOD, APWA, FAA, and many others
- ASTM D 6433-11

✓ PCI is calculated based on a detailed pavement distress survey

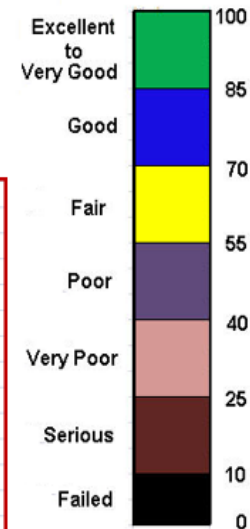
- PCI survey identifies type, severity, and quantity of distress

Asphalt & Composite Pavement Distress Types

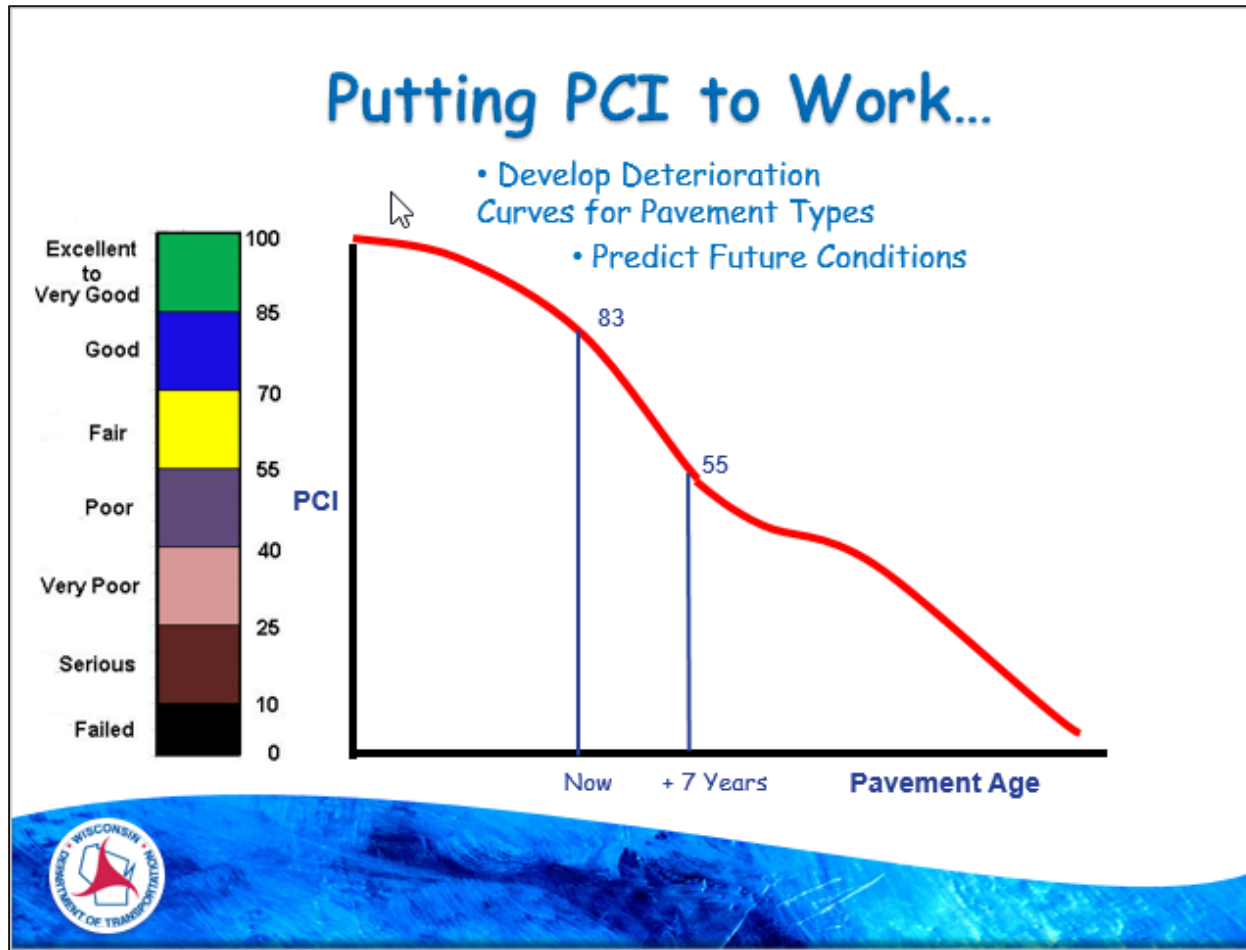
- 1 Alligator Cracking
- 2 Bleeding
- 3 Block Cracking
- 4 Bumps and Sags
- 5 Corrugation
- 6 Depression
- 7 Edge Cracking
- 8 Joint Reflection Cracking
- 9 Lane/Shoulder Drop Off
- 10 Longitudinal & Transverse Cracking
- 11 Patching
- 12 Potholes
- 13 Rutting
- 14 Shoving
- 15 Slippage Cracking
- 16 Swell
- 17 Weathering/Raveling

Concrete Pavement Distress Types

- 1 Blowup/Buckling
- 2 Corner Break
- 3 Divided/Shattered Slab
- 4 Durability Cracking
- 5 Faulting
- 6 Lane/shoulder Drop Off
- 7 Linear Cracking
- 8 Patching (large)
- 9 Patching (small)
- 10 Popouts
- 11 Pumping
- 12 Punchouts
- 13 Scaling
- 14 Shrinkage Crack
- 15 Corner Spalling
- 16 Joint Spalling



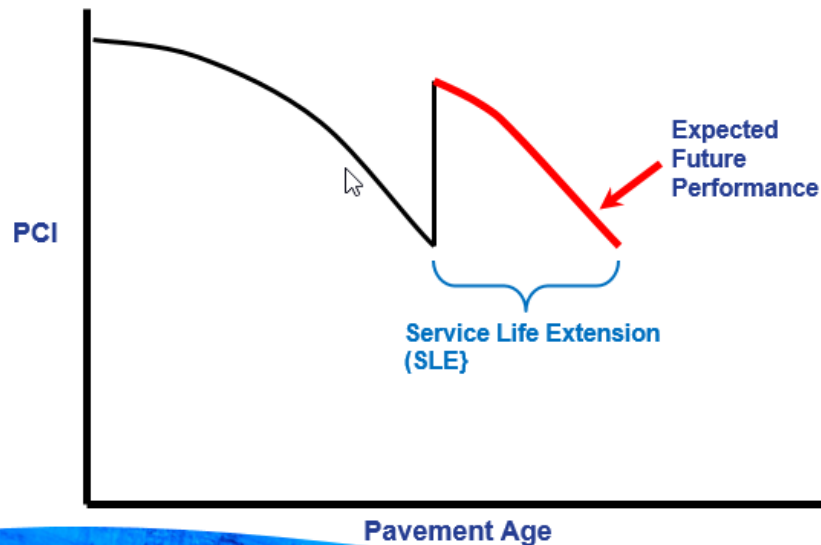
Asset Management (Example)



Asset Management (Example)

PMD55 Examples -- Putting PCI to Work...

Step 2 – Assessing Individual Treatment Effectiveness



Asset Management

► Theme X Prime

Mechanism to determine future region allocation based off current pavement conditions and known safety issues

Pavement Condition Index (PCI)

Metamanager Safety /Improvement flags



Improvement Types

NEW OR EXISTING "Roadway" CONCEPT CODE (PPROJ_CNCP_CD)	CONCEPT DESCRIPTION (PPROJ_CNCP_DESC)
PVRPLA	PAVEMENT REPLACEMENT
PVRP_O	PAVEMENT REPLACEMENT AND OPERATIONAL IMPROVEMENT
PSRS10	SEAL COAT/CRACK FILL/JOINT, CRACK OR SPOT REPAIR
PSRS20	PATCH/RUT FILL/REPAIR AND GRIND/SLAB REPLACE
PSRS30	SOME COMBO OF PATCH/RUT/REPAIR/SEAL/CRACK/GRIND
PSRS40	SHORT TERM OVERLAY (MILL AND OVERLAY)
RCND10	RECONDITION (INTERSECTION/WIDEN/SHOULDER)
RCND20	RECONDITION (IMPROVE CURVE/GRADE/SIGHT/INTERSECT)
RSRF10	RESURFACING (OVERLAY < 2.5 INCHES)
RSRF20	RESURFACING (OVERLAY >= 2.5 INCHES AND < 4 INCHES)
RSRF30	RESURFACING (OVERLAY >= 4 INCHES)

NEW OR EXISTING "Roadway" CONCEPT CODE (PPROJ_CNCP_CD)	CONCEPT DESCRIPTION (PPROJ_CNCP_DESC)
COLD10	PARTIAL DEPTH CIR WITH <= 2.5 INCH CAP (Similar to RSRF10)
COLD20	PARTIAL DEPTH CIR WITH >2.5 INCH CAP (Similar to RSRF20)
COLD30	FULL DEPTH CIR (Similar to PVRPLA)
RECST	RECONSTRUCTION
RECSTE	RECONSTRUCTION WITH EXPANSION



State Legislation and Policy

NC Region 3R allocation History

\$36.8 Million (Prior 2015)

\$33.3 Million (2015-2017)

\$36.0 Million (2017-2019)

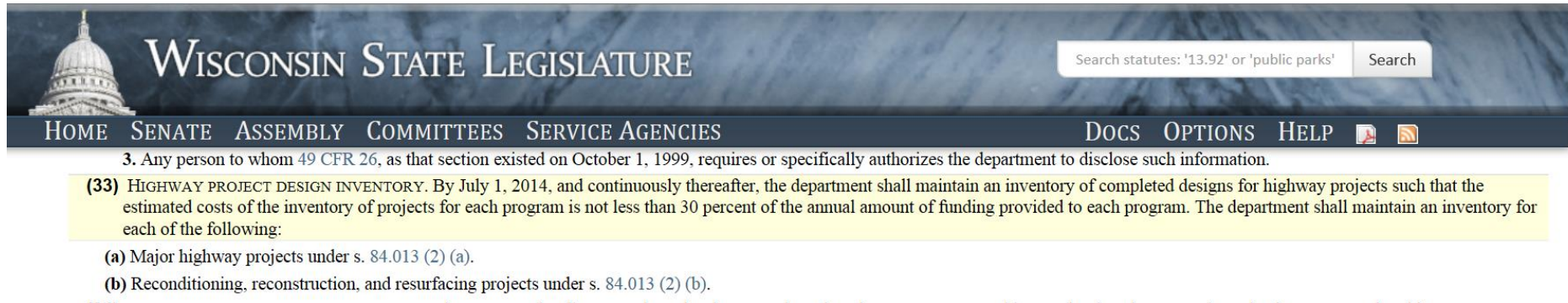
\$39.5 Million (2018 Theme alignment)

2019-2021 Budget is under development



Advanceable Program

Advanceable Project Statutory Requirement



The screenshot shows the Wisconsin State Legislature website. The header includes the Wisconsin State Capitol dome and the text "WISCONSIN STATE LEGISLATURE". A search bar is visible with the text "Search statutes: '13.92' or 'public parks'". The navigation menu includes "HOME", "SENATE", "ASSEMBLY", "COMMITTEES", "SERVICE AGENCIES", "DOCS", "OPTIONS", and "HELP". The main content area displays the following text:

3. Any person to whom 49 CFR 26, as that section existed on October 1, 1999, requires or specifically authorizes the department to disclose such information.

(33) HIGHWAY PROJECT DESIGN INVENTORY. By July 1, 2014, and continuously thereafter, the department shall maintain an inventory of completed designs for highway projects such that the estimated costs of the inventory of projects for each program is not less than 30 percent of the annual amount of funding provided to each program. The department shall maintain an inventory for each of the following:

- (a) Major highway projects under s. 84.013 (2) (a).
- (b) Reconditioning, reconstruction, and resurfacing projects under s. 84.013 (2) (b).

- This as defined is Chapter 20 funding (SHR +Majors+delivery+non allocated programs)
- The statute says the levels not less than 30% of Chapter 20
- To simplify, 30% of Chapter 20 funding levels is approximately equal to 50% of the region's 3R allocation +BB, so statewide that has been used to defined levels.

NC Region Goals:

FY 2019 = \$18,600

FY 2020 & Beyond = \$20,300



Advanceable Program

► Current 3R Program Levels

- Managing the advanceable program in the past was to deliver projects one to two years ahead of schedule
- Region has been having a difficult time achieving the statutory requirements
- Region has been advancing projects due to let savings at the region level and sometimes at the statewide level.
- Region had to generate a plan for both the short term and long term solutions



Solutions

Short-term solution

Meet our obligations
to deliver FY18 and
FY19

Add modeled projects
to our program that
wouldn't get done with
regular allocation—
Add to system health
w/ advanceable
projects

Long-term solution

Add Fast Track /
Expedited schedule
resurface projects that
are thematically
aligned to solve short
term holes

Use a mix of logically
advanced existing
programed projects
and new projects for
future advanceables

- Loaded 50 projects to be delivered on a expedited schedule
FY2019- 25 projects; FY2020 -16 projects and FY2021 – 9 projects
Projects are programmed outside the 6-year program
- Continue to identify projects which are thematically aligned to maintain advanceable program



Upcoming Significant Projects

▶ 2019	City of Montello	STH 23
▶ 2020	Shawano – Neopit	STH 47
▶ 2020	Village of Plover	B51/Post Road
▶ 2021	City of Mosinee	STH 153
▶ 2022	Coloma – Wautoma	STH 22
▶ 2022	STH 13 – Oxford	STH 82



<http://www.dot.wisconsin.gov/localgov/highways/stip.htm>



Questions?



Contacts and resources

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