

Maine's Transportation Infrastructure



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MaineDOT Mission

To responsibly provide our customers the safest and most reliable transportation system possible, given available resources.

MaineDOT Goals

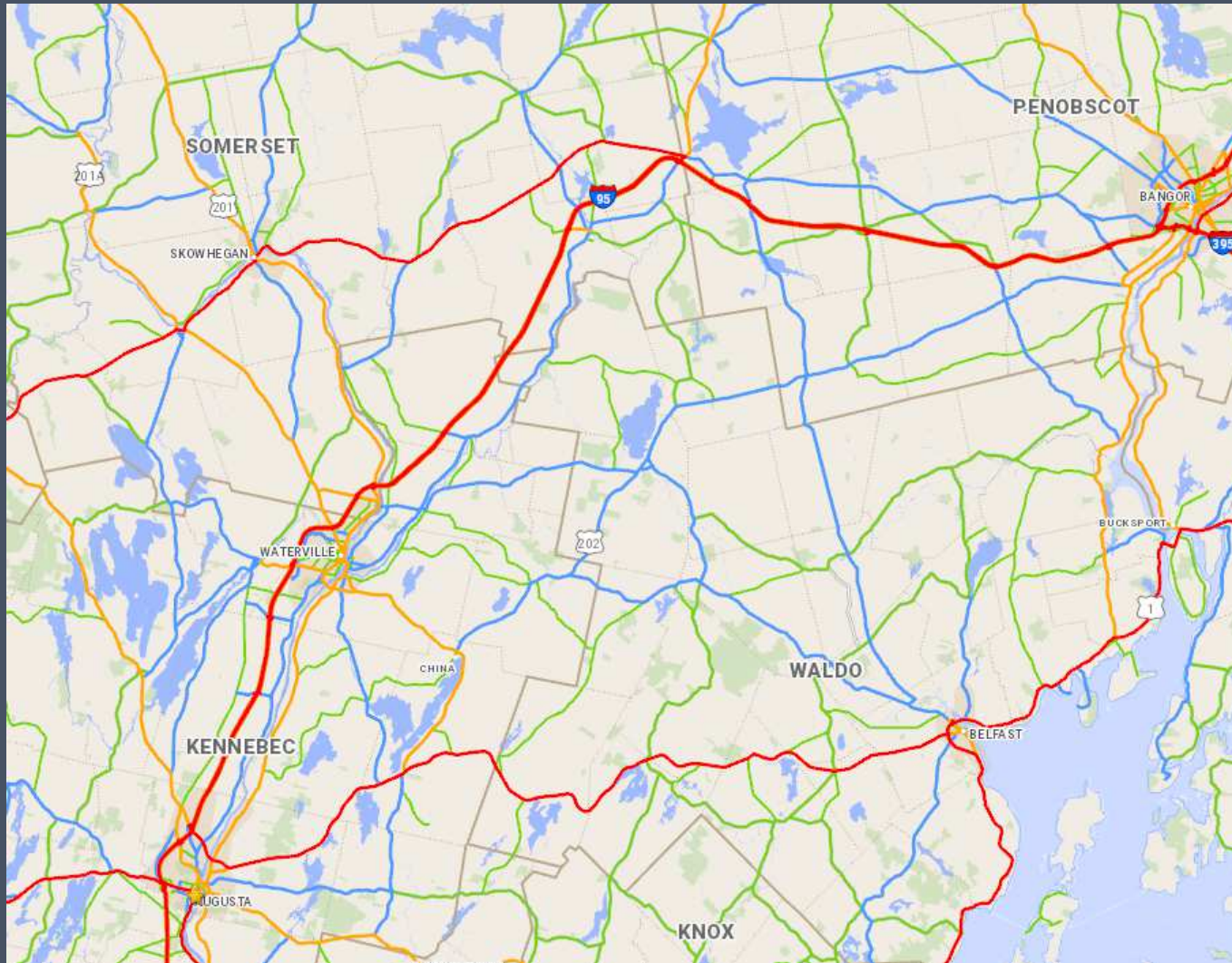
1. **Manage the Existing System** – Effectively manage Maine’s existing transportation system for safety and effectiveness with reliable funding levels.
2. **Support Economic Opportunity** – Wisely invest available resources to support economic opportunity for our customers.
3. **Build Trust** – Demonstrate our core values of integrity, competence, and service both individually and organizationally

Maine's Transportation System

- *8,812 centerline miles of highway*
- *2,967 Bridges and minor spans (includes 199 LURBs)*
- *3 major ports (Eastport, Searsport and Portland)*
- *35 publicly-owned and funded airports*
- *337 miles of state-owned & operating rail lines*
- *22 public transit providers*
- *425+ accessible buses and vans*
- *68 miles of ferry routes, serving 6 islands*
- *54 Park & Ride facilities*

Highway Corridor Priorities

Established 2011 and Revised 2016



Highway Corridor Priority

- Priority 1
- Priority 2
- Priority 3
- Priority 4

Highway Corridor Priority 1

These roads include the Maine Turnpike, the interstate system and key principal arterials like Route 1 in Aroostook County, the Airline (Route 9, Bangor to Calais), Route 2 west of Newport, and Route 302. Priority 1 roads represent only 8 percent of the miles, but carry fully 42 percent of all vehicle miles traveled in Maine.



Highway Corridor Priority 2

These roads include high-value arterials like Route 201 from Fairfield to Canada, Route 1 Downeast (Ellsworth to Calais), Route 11 Sherman to Fort Kent and Route 25 from Gorham to NH. All National Highway System (NHS) must be HCP 2 or better. HCP 2 roads represent about 6 percent of the total miles of road but carry 17 percent of overall traffic.



Highway Corridor Priority 3

These roads generally are the remaining arterials and significant major collector highways. They include Route 1A from Mars Hill to Van Buren, Route 27 north of Eustis, and Route 114 from Gorham around Sebago Lake to Naples. HCP 3 roadways represent 9 percent of miles, and carry 16 percent of the traffic. (Priority 1-3 roadways are 23% of public road miles and carry 75% of all VMT.)



Highway Corridor Priority 4

These roads generally are the remainder of the major collector highways, minor collector highways, and often also part of Maine's unique state aid system, in which road responsibilities are shared between the state and municipalities. HCP 4 roadways represent about 16 percent of total miles, and carry 12 percent of the traffic.



Highway Corridor Priority 5

These roads are local roads and streets, and are the year-round responsibility of our municipal partners. Though they carry just 13 percent of the statewide traffic but make up 61 percent of the total miles.



Customer Service Levels (CSL)

Customer Service Levels measure MaineDOT managed highway assets (Priority 1-4) in three areas. The CSL uses customer-focused engineering measures to track highway (1) Safety, (2) Condition and (3) Serviceability, and grades them similar to a report card (A – F)..

Safety –

- Crash History
- Pavement Rutting
- Paved Roadway Width
- Bridge Reliability

Condition –

- Pavement Condition
- Bridge Condition
- Ride Quality

Service –

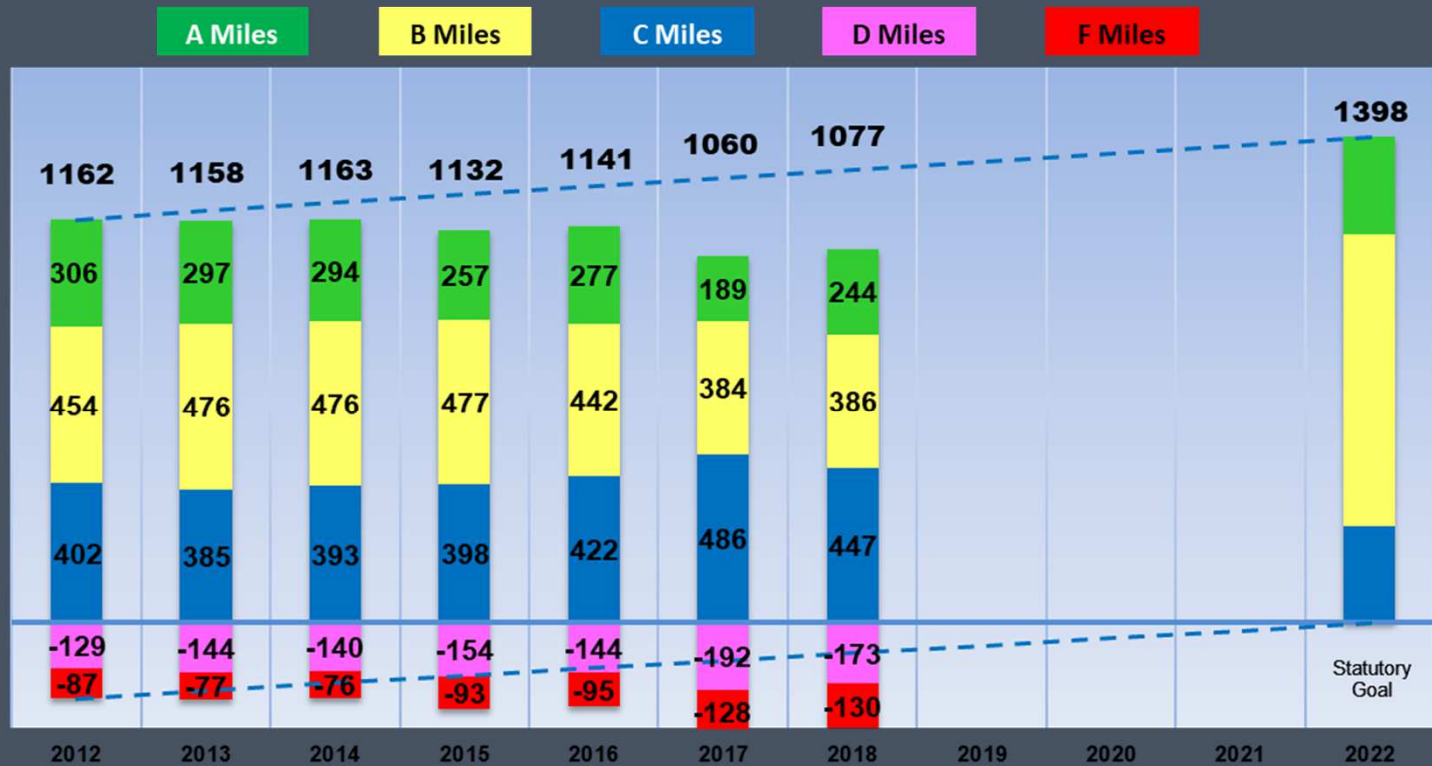
- Posted Roads
- Posted Bridges
- Congestion

CSL Condition Trend - HCP 1

Current Status of Highway Customer Service Levels Provided by MaineDOT

Condition

All Figures are in miles.



Collection Cycle was changed in 2017

CSL Condition - HCP 2,3,4

A Miles

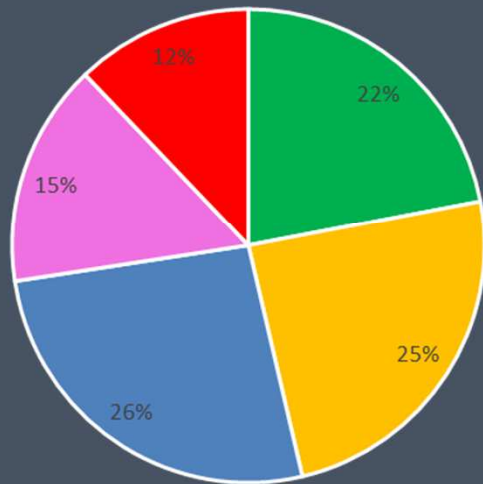
B Miles

C Miles

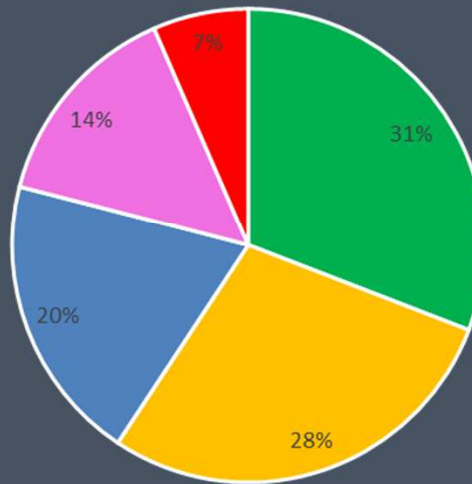
D Miles

F Miles

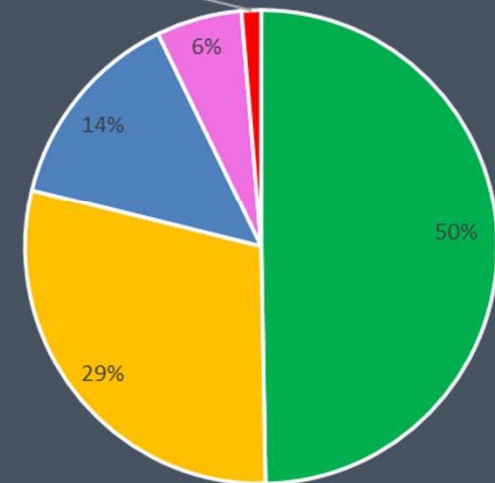
HCP 2



HCP 3



HCP 4

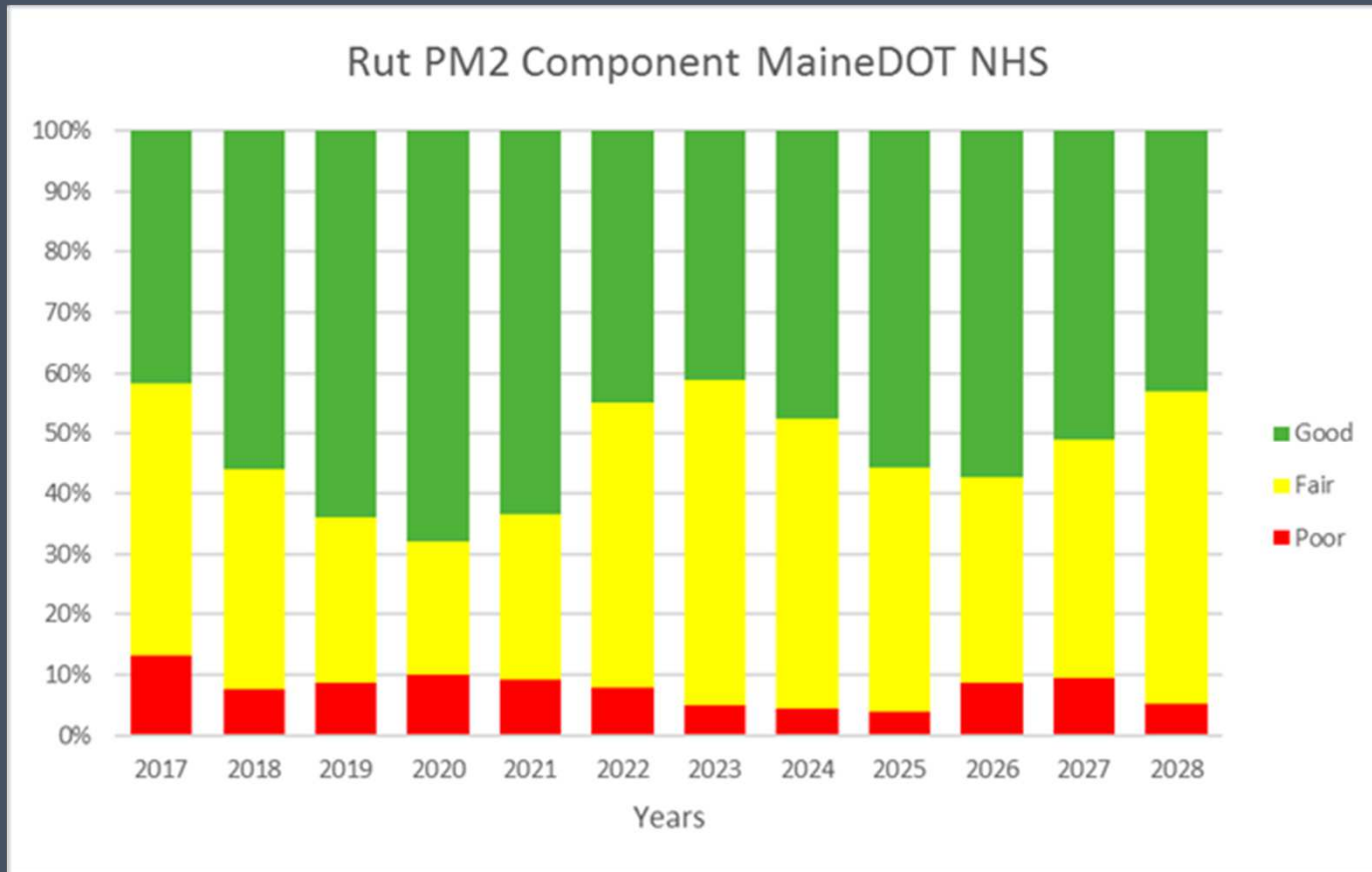


Maine's Infrastructure — A Trend of Decline

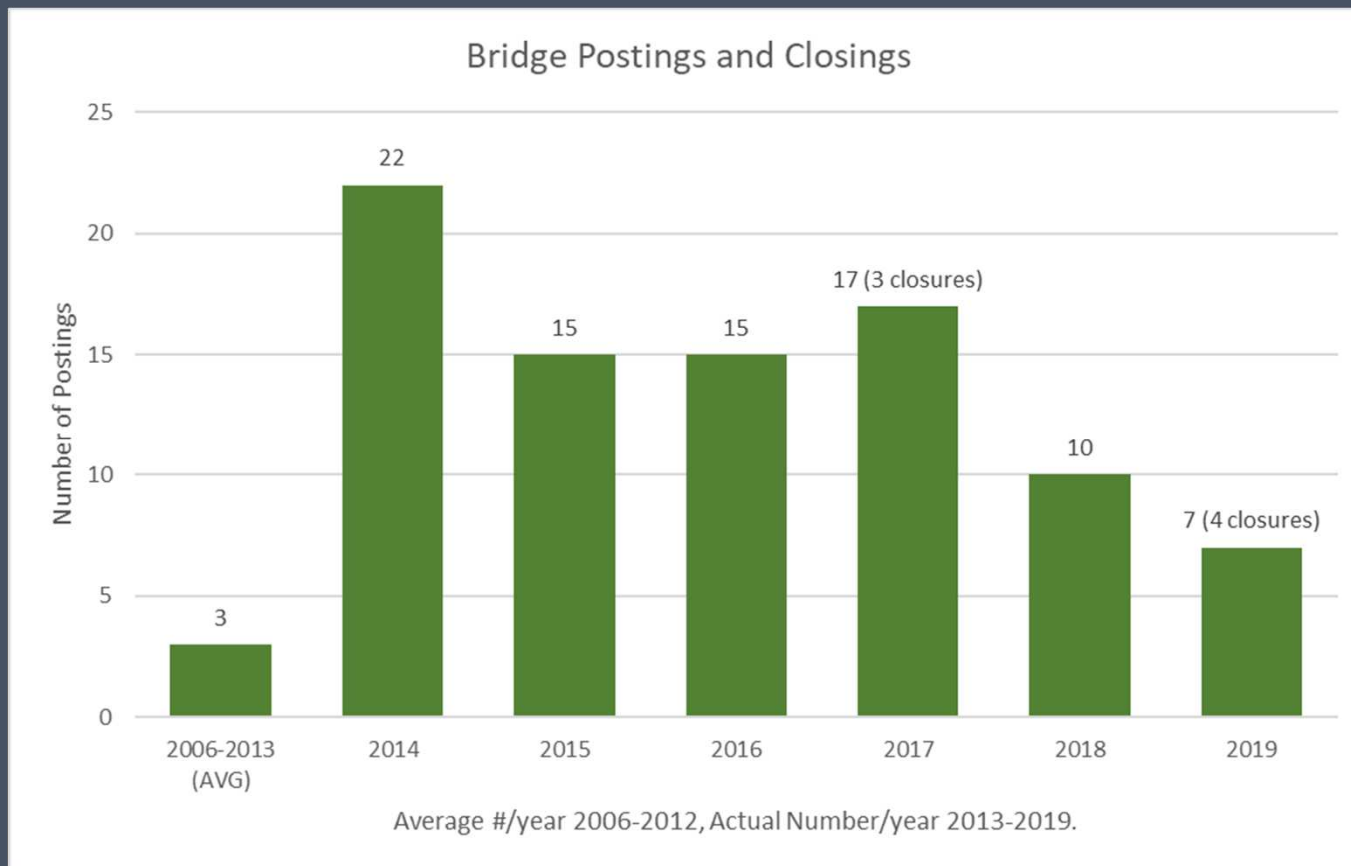
Chief Engineer's Areas of Concern

- Managing at the margins
 - Hydroplaning
 - Bridge Postings
- Slope Stability
- Climate Change
 - Storm Intensity
 - Infrastructure Resiliency
- HCP 3 Conditions
- Intersection & Pedestrian Safety
- Traffic Signals

Hydroplaning - Rutting Issues



Maine's Infrastructure — A Trend of Decline



MaineDOT's Bridge Inspection Program - \$4.5 M/Yr



Bridge Conditions – Yarmouth HCP 1



Bridge Conditions – Wilton HCP 6



Bridge Conditions – Peru HCP 2



Bridge Conditions — South Berwick HCP 4



Bridge Conditions – Millinocket HCP 4



Bridge Conditions – Wilton HCP 6



Slope Stability – Allagash/Saint Francis



2020 WIN 017236.00 - \$7.3M



Slope Stability – Carrabassett Valley



Climate Change – Storm Intensity



Piel Brook – Parlin Pond TWP, US 201

Climate Change – Infrastructure Resiliency



Carrabassett Valley, Route 27

Maine's Infrastructure – HCP 3



Maine's Infrastructure — Intersection Safety



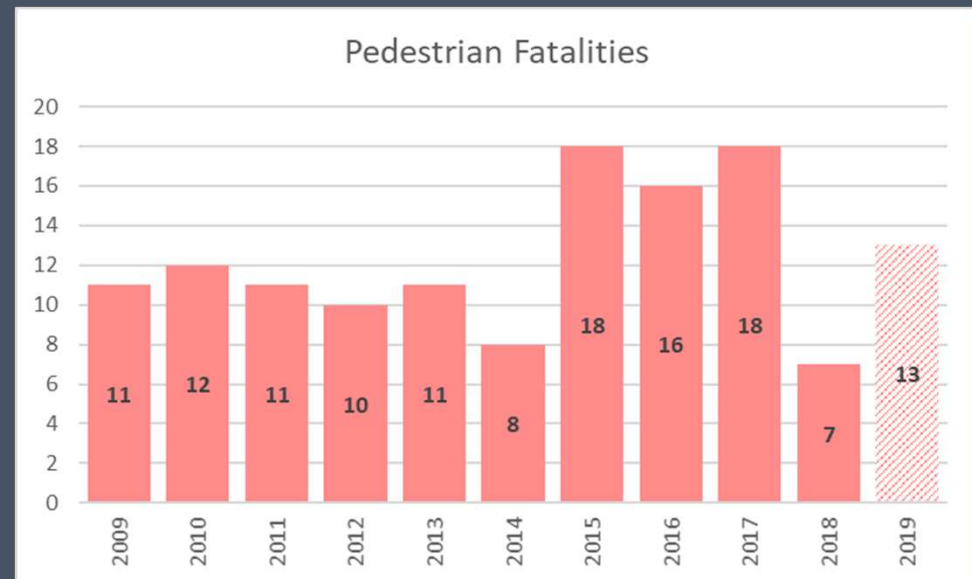
Buxton — Route 22 & Portland Road

Maine's Infrastructure — Intersection Safety



Auburn — Hotel Road & Kitty Hawk Avenue

Maine's Infrastructure — Pedestrian Safety



Maine's Infrastructure — Pedestrian Safety



Maine's Infrastructure — Pedestrian Safety



Maine's Infrastructure — Traffic Signals

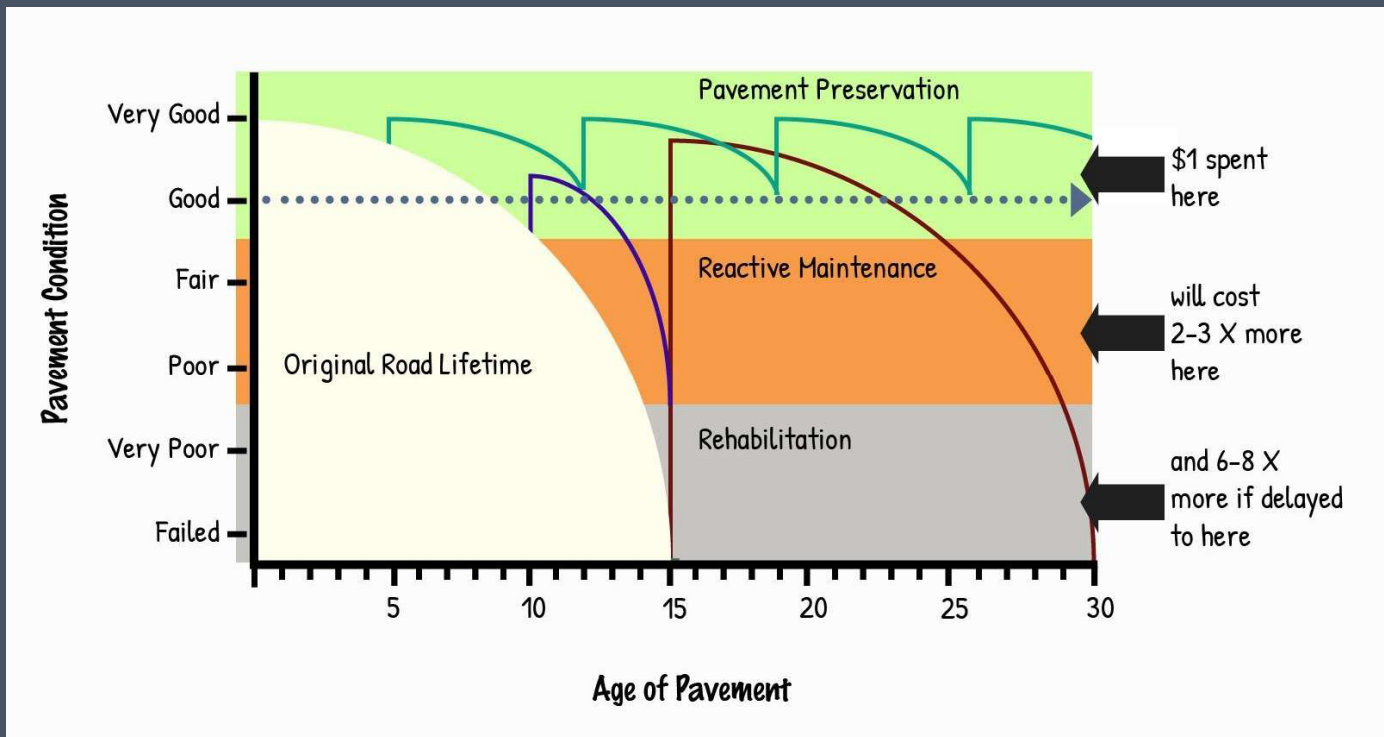


Questions?

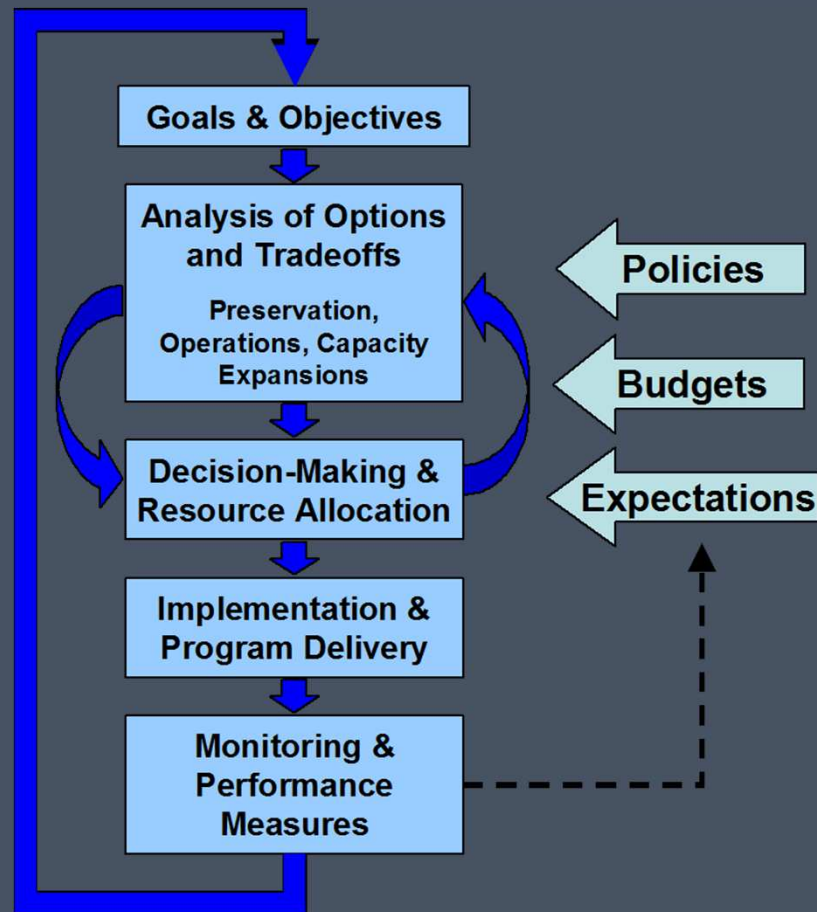
Transportation Asset Management

1. **Manage the Existing System** – Effectively manage Maine’s existing transportation system for safety and effectiveness with reliable funding levels.

Preservation – Cost Effective Management of an Asset



Asset Management Process



Inventory and Condition Assessment



Assets Currently Maintained

- Highway
- Bridge
- Airport
- Ports
- Railroad Lines & Crossings
- Large & Cross Culverts
- Traffic Signals & Beacons
- Ancillary Structures
- Catch Basins
- Park and Ride Lots
- Major Signs
- Guardrail
- Ferry Service Vessels and Buildings
- Intelligent Transportation Systems
- Pavement Markings
- **Etc. & More Underway**

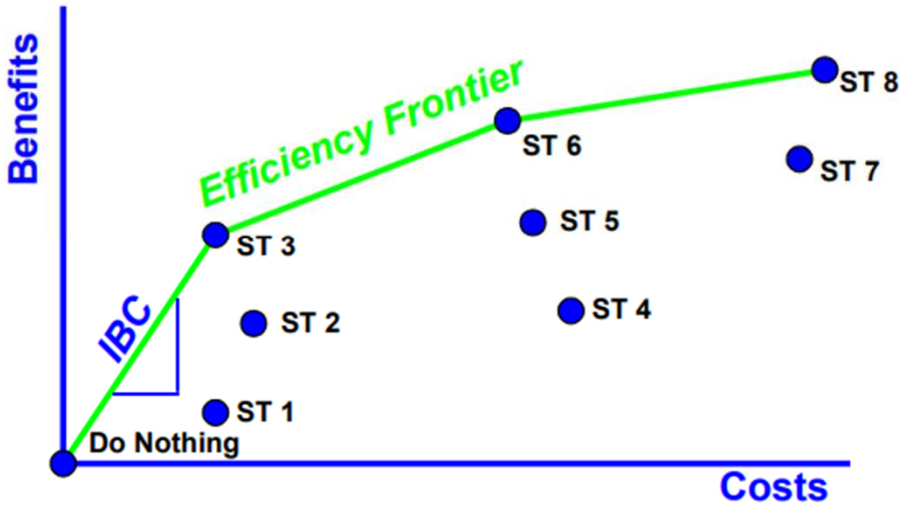
Data Driven Decisions

Scenario Analysis and Optimization

Section 1

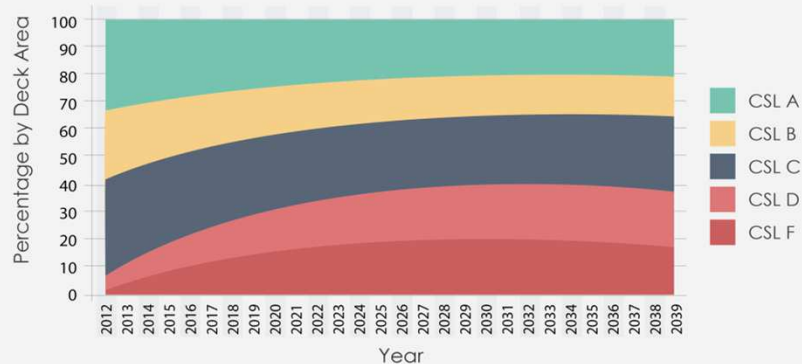
Section 2

Section 3 **Benefit / Cost Chart**

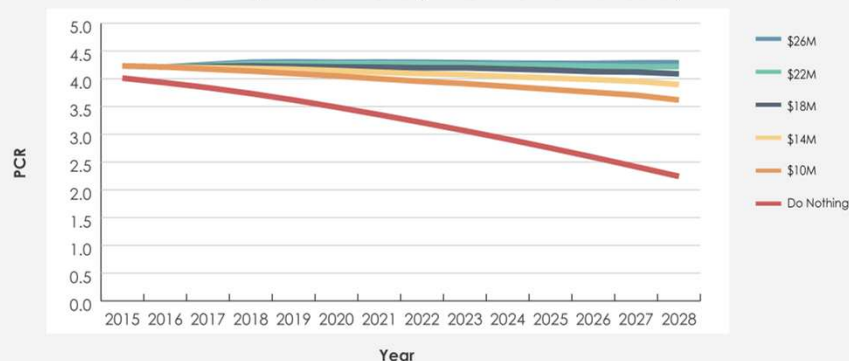


Evaluating Results & Developing Strategies

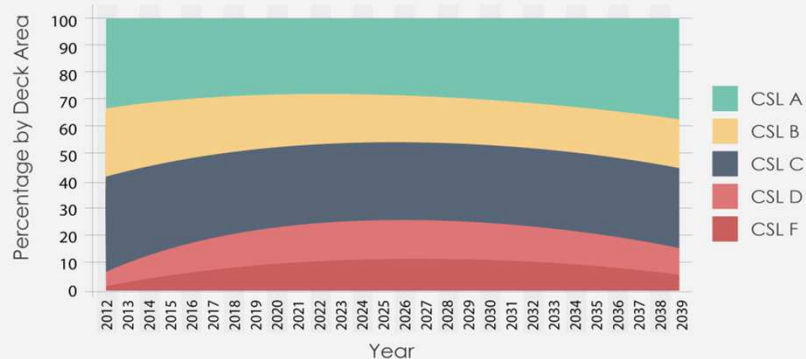
Condition CSL by Year - \$70M/Yr



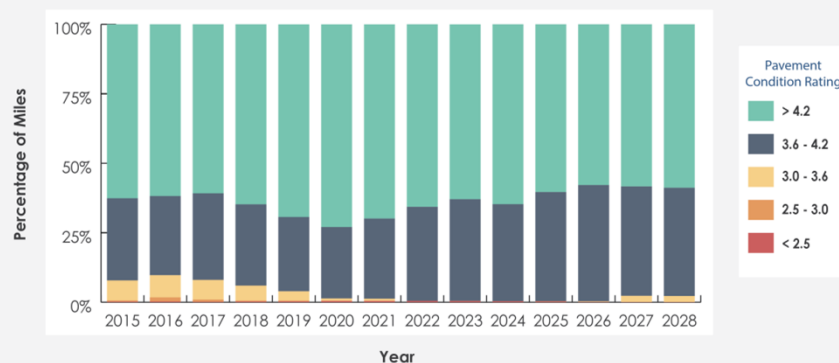
Remaining HCP 1 - Annual Funding Needed: \$22M
To Keep the Average Condition Steady



Condition CSL by Year - \$140M/Yr



Remaining HCP 1 - Annual Life Cycle Cost: \$22M



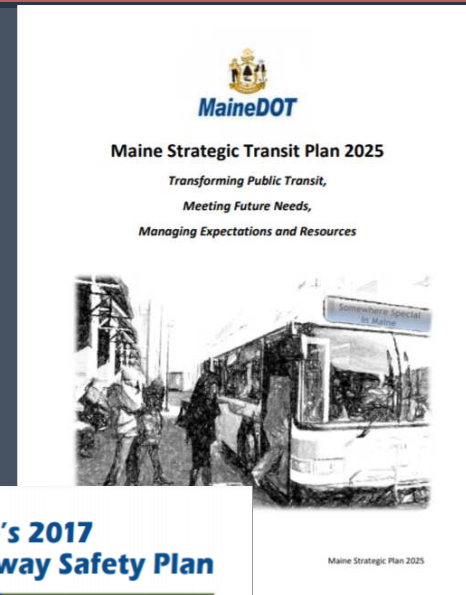
Asset Management Funding Strategies (AMFS)



Keeping Our Bridges Safe
2014 Report



MaineDOT Transportation
Asset Management Plan



MaineDOT
Maine Strategic Transit Plan 2025
*Transforming Public Transit,
Meeting Future Needs,
Managing Expectations and Resources*



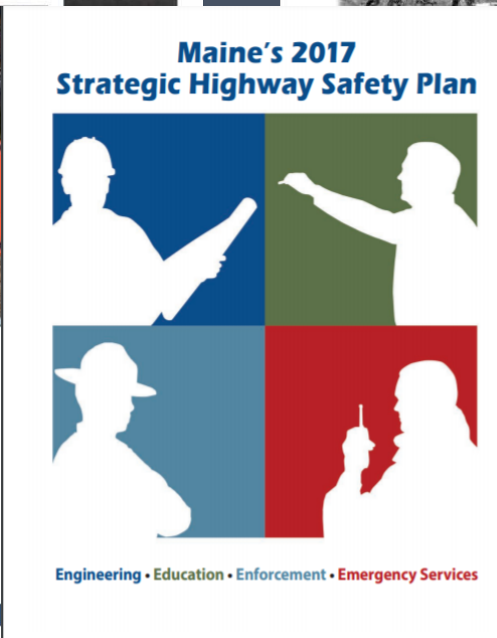
**Mobility
Report**

November, 2018



MaineDOT
Roads Report

December 2016



**Maine's 2017
Strategic Highway Safety Plan**

Engineering • Education • Enforcement • Emergency Services



Data Driven Project Candidates

- Develop Resource Allocation Levels based on anticipated funding levels considering AMFS
- Produce Project Candidates that maximize benefit and move us towards Goals
- Field Review and Verify - schedule, scope, and cost estimates

MaineDOT Capstone Measures

1. Customer Satisfaction
2. Safety
3. Customer Service Levels
4. Expenditures per Lane Mile
5. Work Delivered on Time
6. Work Delivered on Budget
7. Administrative Cost as Percent of Production
8. Quality and Compliance
9. Performance Management and Employee Dev.

MAP – 21 Performance Measures

- Highway & Bridge
- System Performance/Freight/CMAQ
- HSIP and Safety
- Planning
- Asset Management
- Transit Asset Management
- Public Transportation Safety Program

Calculation of Unmet Need



- Highway System Facts
- Policy Matters
- Highway Preservation Needs
- Bridge System Need
- 2019-2021 Capital Work Plan
- Legislative Goals 2011
- Adjusted Highway & Bridge
- Multimodal

Highway System Facts

Highway System Facts

HCP	Total	Rural	Urban	Unbuilt	Unbuilt Rural	Unit Cost (2018\$M)	Unbuilt Urban	Unit Cost (2018\$M)
Interstate	589	485	104	NA				
1	910	706	204	19	16	\$3.50	3	\$5.00
2	1,351	1,112	239	63	52	\$3.00	11	\$5.00
3	2,203	1,941	262	545	483	\$1.50	62	\$2.50
4	3,804	3,478	326	NA	NA		NA	\$0.50
Total	8,857	7,722	1,135	627	551		77	

Policy Matters

- ❑ 2011 Legislative Goals
- ❑ Climate Change and Infrastructure Resiliency
- ❑ Pedestrian Safety Goals
- ❑ Reliability Expectations
- ❑ System Expansion/New Capacity
- ❑ Technology Changes (Signals & Vehicles)

Highway Preservation Needs

Highway Pavement Preservation Need

HCP	Built	Treatment	Unbuilt*	Annual Preservation Need (\$M)
Interstate	589	Preservation Paving	NA	\$18
1	894	Preservation Paving	19	\$22
2	1,288	Preservation Paving	63	\$30
3	1,658	Cyclical Highway Resurfacing	545	\$28
4	3,804	Light Capital Paving	NA	\$27
* All Unbuilt Rural Mileage gets LCP				.
Total	8,233		627	\$125

Bridge System Needs

Bridge Needs (\$M)		
From 2014 Keeping Our Bridges Safe		
Bridge Treatment	Minimum Annual Funding Level	Significant Strategic Improvement
Bridge Construction/Rehab	\$112	\$172
20% Preservation Investment	\$18	\$28
Bridge Maintenance Preservation	\$10	\$15
	\$140	\$215

Unmet Need Work Plan 2019-2021

<i>Highway & Bridge</i>				
<i>Capital Needs vs Anticipated Funding</i>				
<i>(millions of \$)</i>				
Work Group	Annual Basic Need	Anticipated Annual Funding *	Annual \$ Shortfall	% Shortfall
Bridge Projects	\$160	\$120	-\$40	-25%
Pavement Preservation	\$97	\$95	-\$2	-2%
Light Capital Paving	\$27	\$25	-\$2	-7%
Highway Safety Program	\$21	\$17	-\$4	-19%
Large Culverts (5'-10')	\$12	\$8	-\$4	-34%
Regional Spot Improvements (RAMP)	\$8	\$4	-\$4	-51%
Traffic/Mobility/Capacity/ITS Improvements	\$33	\$13	-\$20	-61%
Highway Reconstruction/Rehab	\$91	\$63	-\$28	-31%
Partnership Programs	\$10	\$6	-\$4	-41%
Totals	\$459	\$351	-\$108	-23%

* Note Anticipated Funding includes assumptions for Less Predictable Funding:

\$80M GF G.O. Bonding for Highways and Bridges

\$25M in Federal Discretionary Grants (TIGER, BUILD, INFRA)

\$10M in Federal August Redistribution

\$3M in Highway Fund Year-End Receipts



Legislative Goals – 2011

To provide a capital transportation program that is geographically balanced and that addresses urban and rural needs, the department shall include the following goals as part of its capital improvement plans and program delivery. The goals are to:

A. By 2022, improve all Priority 1 and Priority 2 corridors so that their safety, condition and serviceability customer service level equals Fair or better; [2011, c. 610, Pt. B, §2 (NEW).]

B. By 2027, improve all Priority 3 corridors so that their safety, condition and serviceability customer service level equals Fair or better; [2011, c. 610, Pt. B, §2 (NEW).]

C. By 2017, implement a pavement program for all Priority 4 corridors that maintains their ride quality customer service level at Fair or better; [2011, c. 610, Pt. B, §2 (NEW).]

D. Continue the light capital paving program on a 7-year cycle for Priority 5 corridors outside compact areas as defined in section 754; and [2011, c. 610, Pt. B, §2 (NEW).]

E. By 2015, develop and implement a similar asset priority and customer service level system of measurement for all major freight and passenger transportation assets owned or supported by the department, including capital goals. [2011, c. 610, Pt. B, §2 (NEW).]

The department shall report to the joint standing committee of the Legislature having jurisdiction over transportation matters by March 1st of each odd-numbered year quantifying progress realized and time that has elapsed since the goals were established. The department shall recommend any remedial actions, including additional funding or revisions to the goals, that the department determines to be necessary or appropriate.

[2011, c. 610, Pt. B, §2 (NEW) .]

Legislative Goals – 2011

*Highway & Bridge
Capital Needs for Statutory Goals
(millions of \$)*

Work Group	Annual Need (2018)	Adjusted to 2020 Pricing	Anticipated Annual Funding *	Annual \$ Shortfall	% Shortfall
Bridge Projects	\$215	\$269	\$120	-\$149	-124%
Pavement Preservation	\$97	\$112	\$95	-\$16	-17%
Light Capital Paving	\$28	\$29	\$25	-\$4	-18%
Highway Safety Program	\$21	\$26	\$17	-\$9	-54%
Large Culverts (5'-10')	\$12	\$15	\$8	-\$7	-90%
Regional Spot Improvements (RAMP)	\$10	\$13	\$4	-\$9	-243%
Traffic/Mobility/Capacity/ITS Improvements	\$33	\$41	\$13	-\$28	-217%
Highway Reconstruction/Rehab	\$221	\$265	\$63	-\$202	-322%
Partnership Programs	\$10	\$10	\$6	-\$4	-69%
Totals	\$647	\$780	\$351	-\$429	-122%

* Note Anticipated Funding includes assumptions for Less Predictable Funding:

- \$80M GF G.O. Bonding for Highways and Bridges
- \$25M in Federal Discretionary Grants (TIGER, BUILD, INFRA)
- \$10M in Federal August Redistribution
- \$3M in Highway Fund Year-End Receipts

Unmet Need - Adjusted

Highway & Bridge
Capital Needs for Alternate Goals
(millions of \$)

Work Group	Annual Need (2018)	Adjusted to 2020 Pricing	Anticipated Annual Funding *	Annual \$ Shortfall	% Shortfall
Bridge Projects	\$150	\$188	\$120	-\$67	-56%
Pavement Preservation	\$97	\$112	\$95	-\$16	-17%
Light Capital Paving	\$28	\$29	\$25	-\$4	-18%
Highway Safety Program	\$21	\$26	\$17	-\$9	-54%
Large Culverts (5'-10')	\$12	\$15	\$8	-\$7	-90%
Regional Spot Improvements (RAMP)	\$8	\$10	\$4	-\$6	-174%
Traffic/Mobility/Capacity/ITS Improvements	\$33	\$41	\$13	-\$28	-217%
Highway Reconstruction/Rehab	\$98	\$118	\$63	-\$55	-87%
Partnership Programs	\$10	\$10	\$6	-\$4	-69%
Totals	\$457	\$549	\$351	-\$198	-56%

* Note Anticipated Funding includes assumptions for Less Predictable Funding:

\$80M GF G.O. Bonding for Highways and Bridges

\$25M in Federal Discretionary Grants (TIGER, BUILD, INFRA)

\$10M in Federal August Redistribution

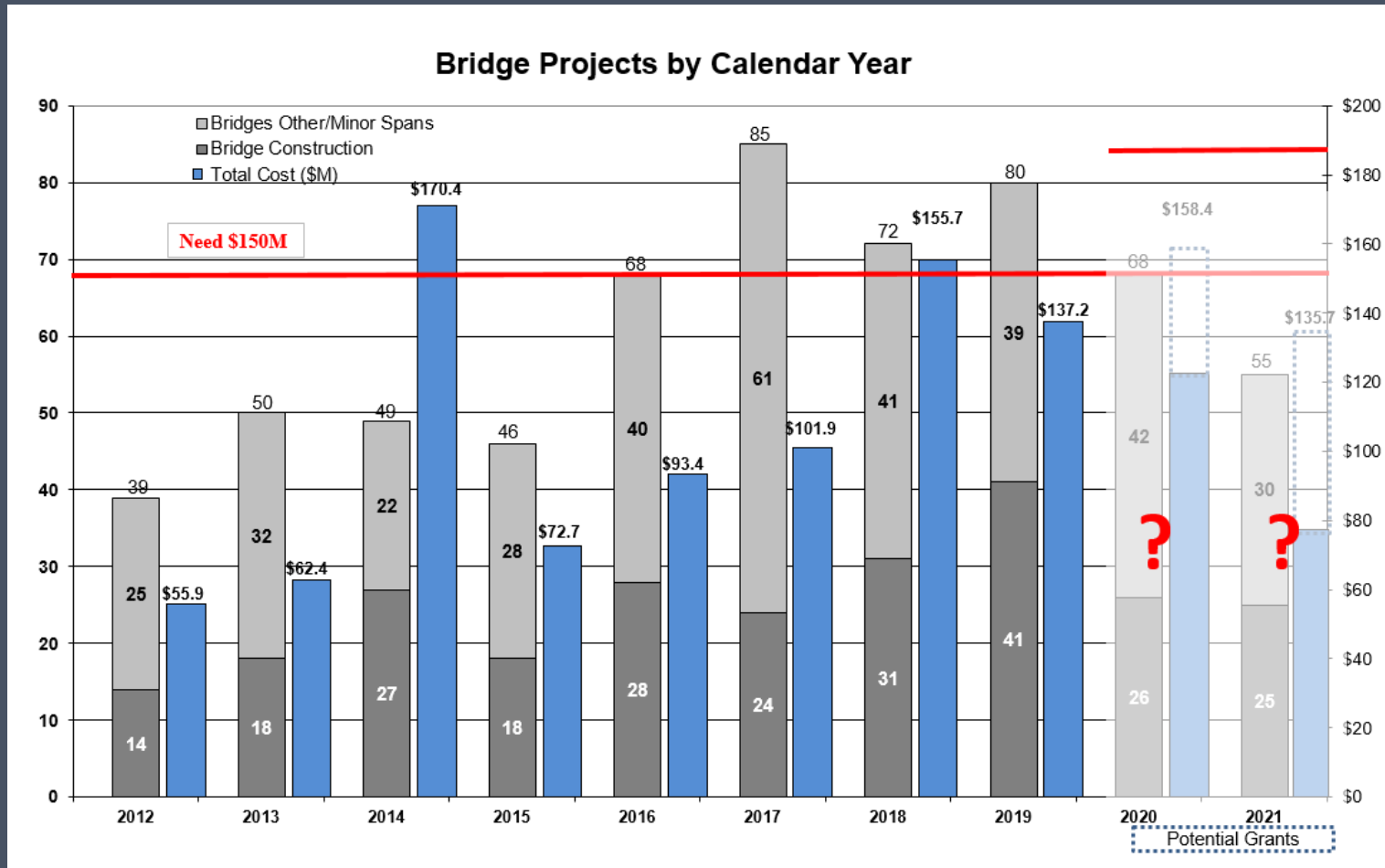
\$3M in Highway Fund Year-End Receipts



Multimodal

<i>Multimodal</i>		
<i>Capital Needs vs Anticipated Funding</i>		
<i>(millions of \$)</i>		
Multimodal	Annual Need	Comments
Transit Buses	\$6	Bus Replacement, Current Backlog - \$6M
Rail Lines - Bridges	\$19	Active State Owned Lines (10 Yr)
Rail Lines - Other	\$5	IRAP & Crossings Included
Ports & Harbors	\$7	Includes BIG & SHIP
Ferry Capital	\$7	Ferry Boat Replacement Plan (5-10 Yr)
Aviation	\$32	Aviation Program need analysis not available
Total Need	\$75	
Annual Multimodal Anticipated Funding	\$56	Includes FAA \$30M, GF G.O. Bond \$20M, Multimodal State Capital \$2.1, FTA \$3.6M, Ferry Boat Program \$0.5M
Annual Shortfall	-\$19	

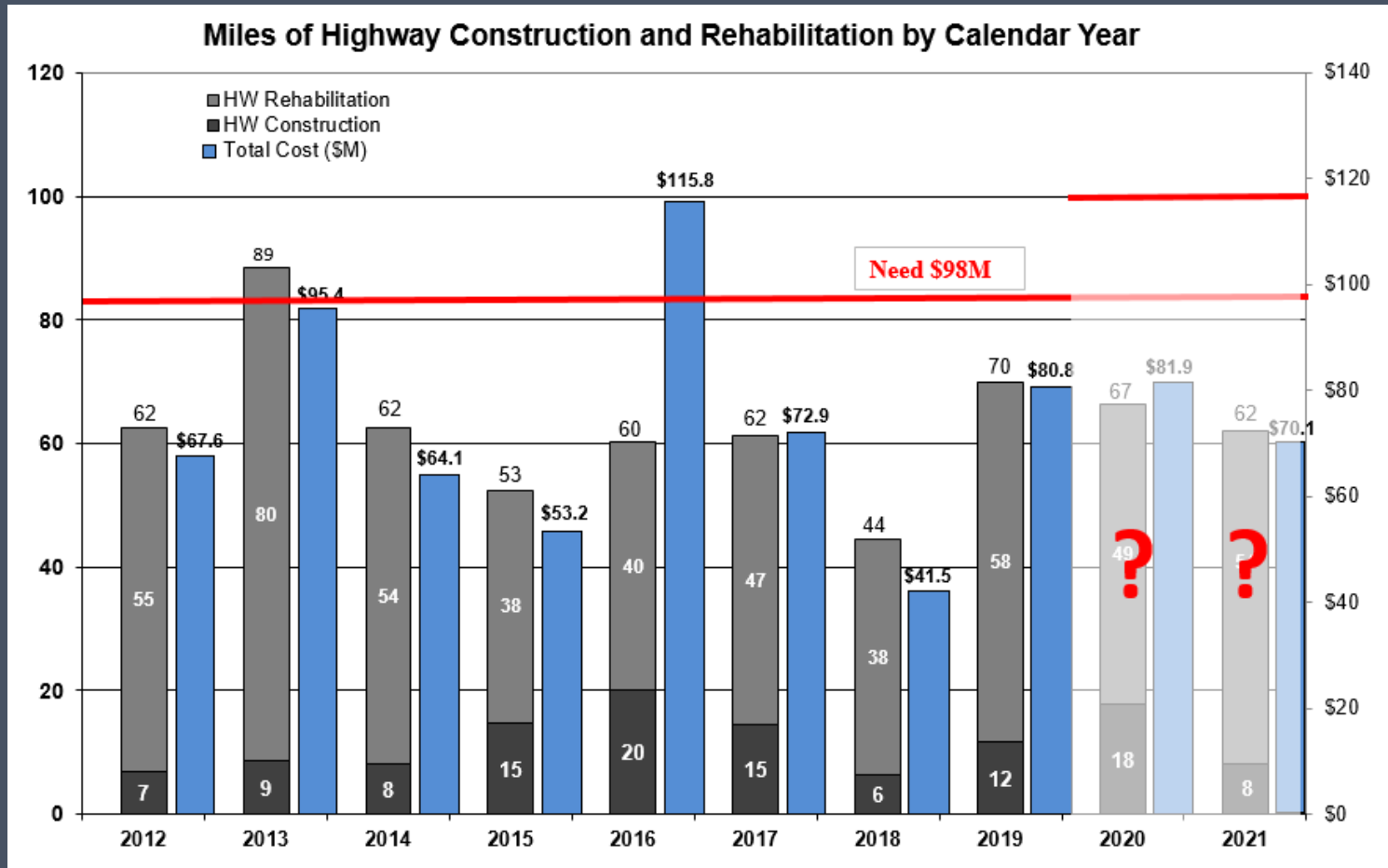
Historic Production vs Need



2019 CAP Cut or Delayed 8 Bridges



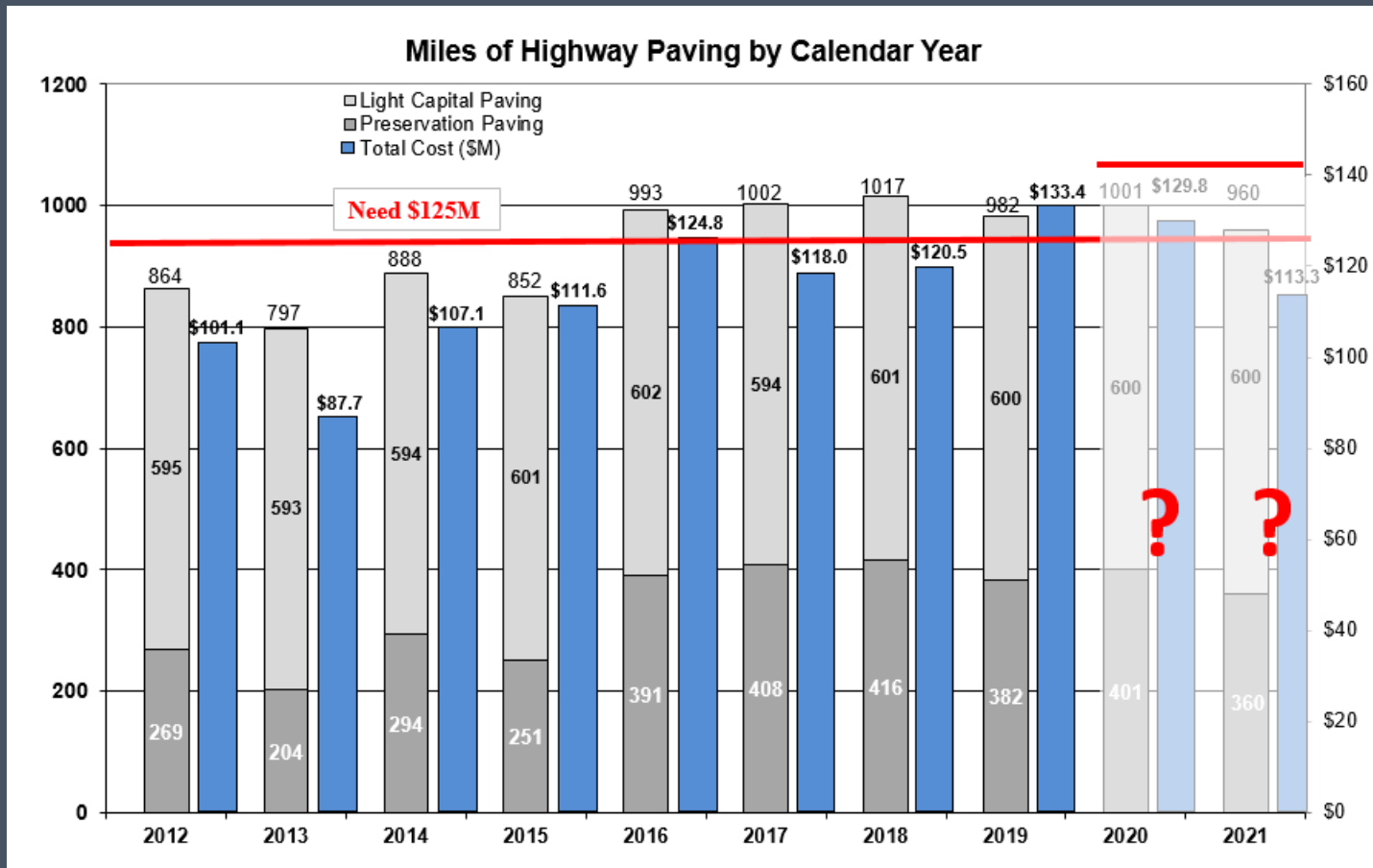
Historic Production vs Need



2019 CAP Cut or Delayed 13 miles of Highway Recon/Rehab



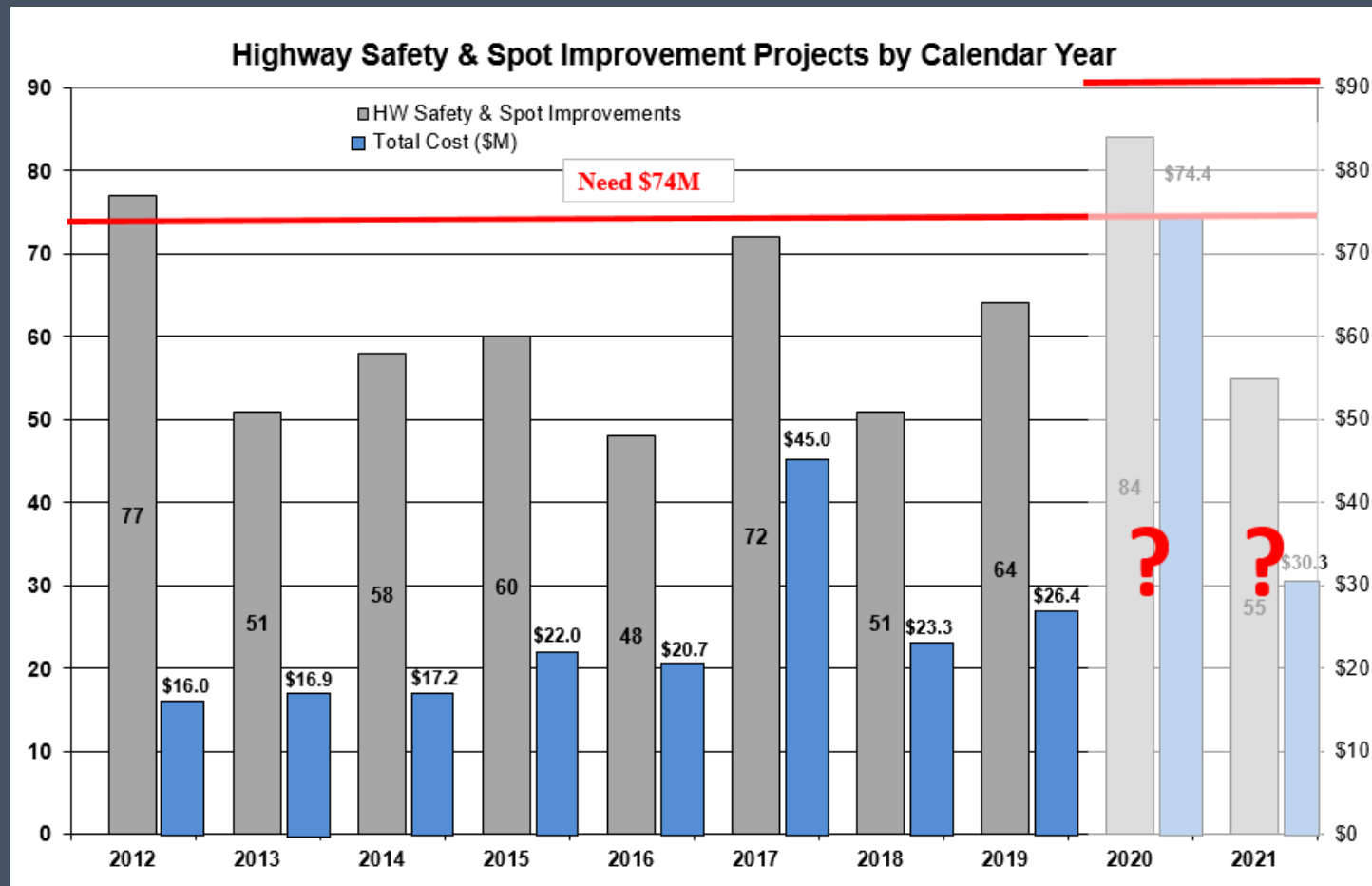
Historic Production vs Need



2019 CAP Cut or Delayed 15 miles of resurfacing

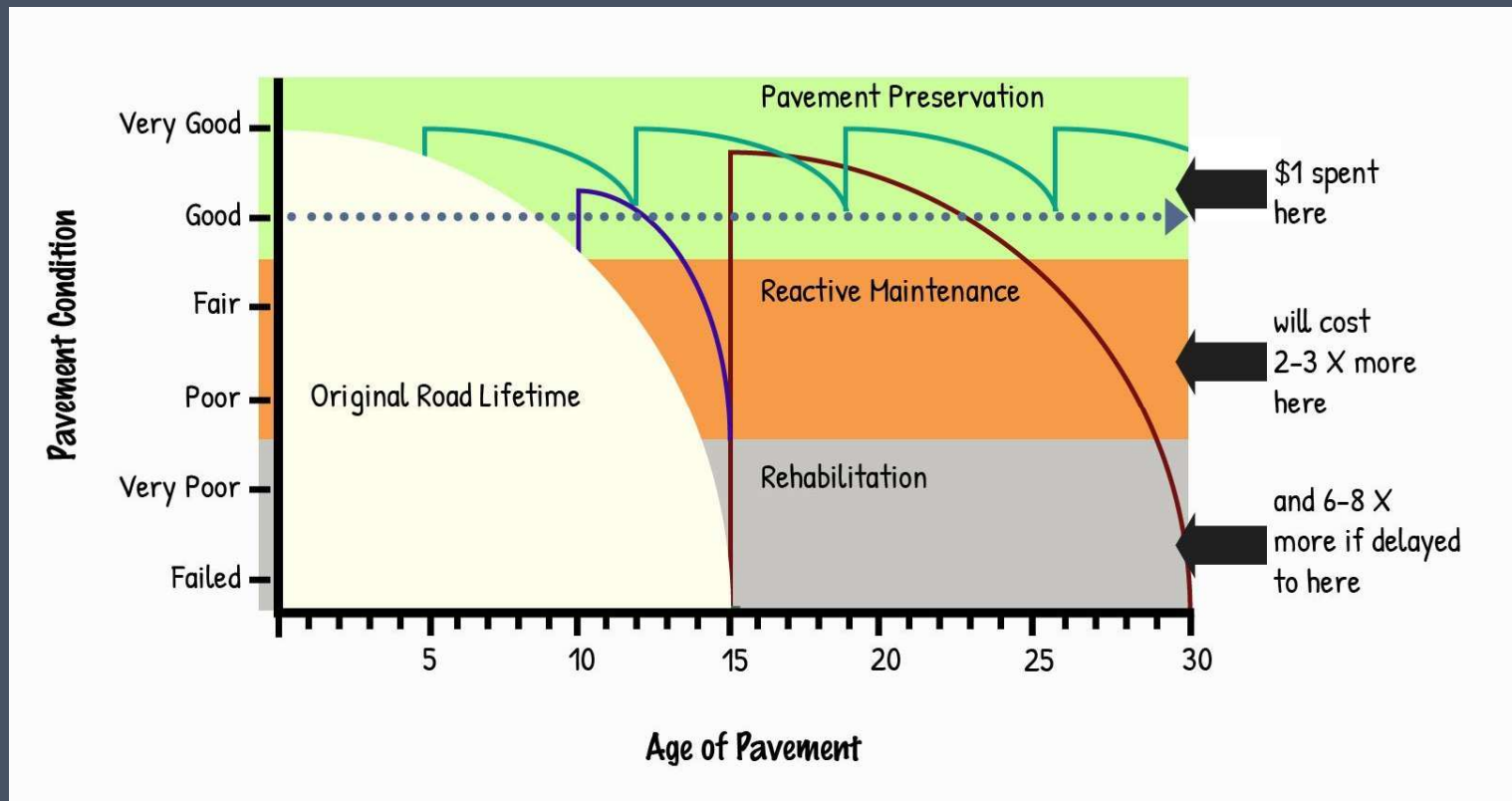


Historic Production vs Need



Cost of Deferred Preservation

Preservation – Cost Effective Management of an Asset



Questions?