



MDOT

Road and Bridge Program Budget

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Today's Topics



General Overview of MDOT's Road & Bridge Program



Key Components of FY 2020 Road & Bridge Budget



Maintenance Needs



Fixing Michigan's Roads



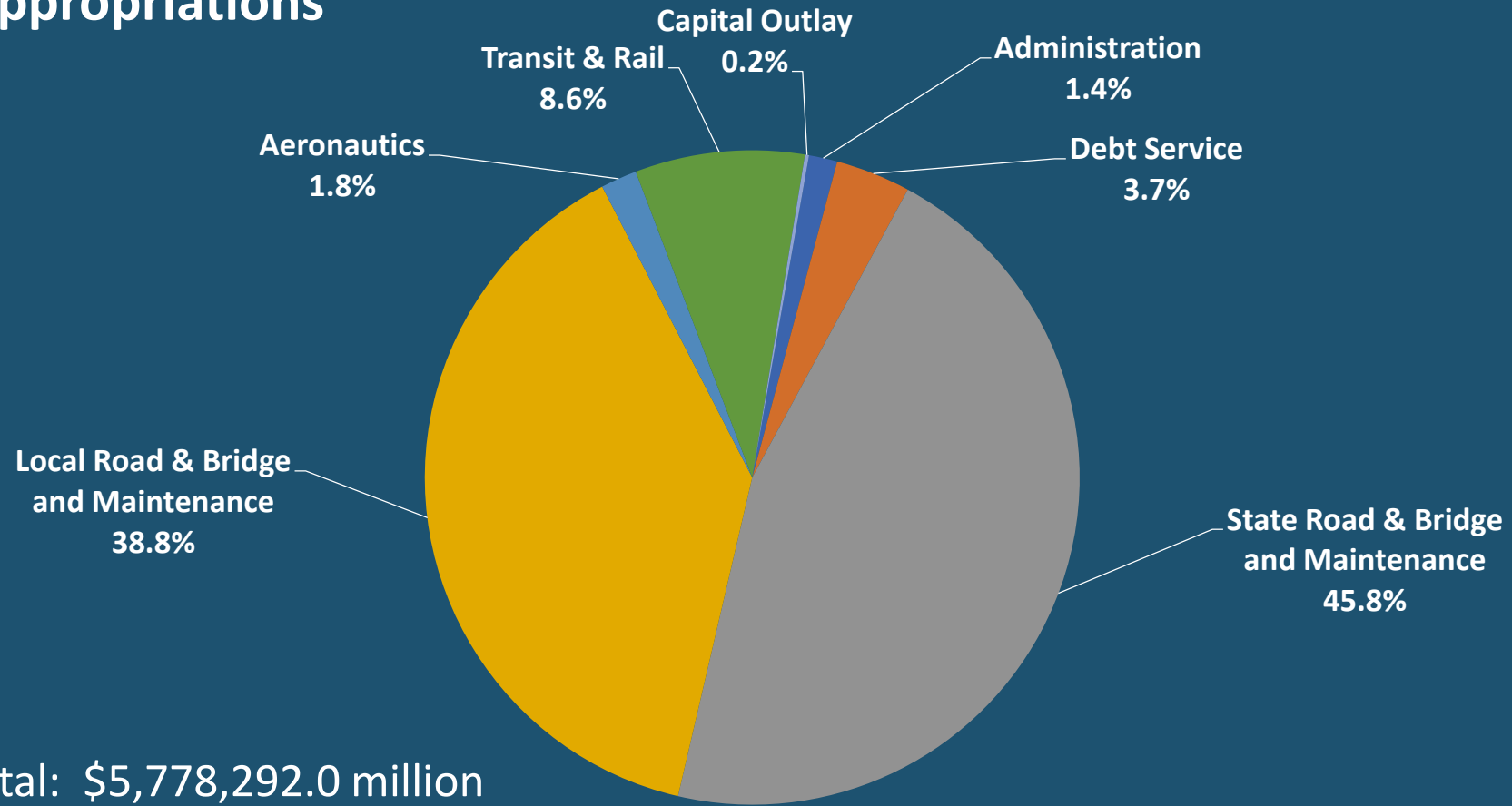
Common Misconceptions

General Overview

- Budget reflect revenues from State and Federal Sources
- Pass through to Local agencies, Act 51 and Federal
- Existing budget built around ORTA estimates of revenues, and known federal funding
- Budget provides matching funds for existing Federal grants
- Since 2000, Budget has increased \$2.7B while FTEs have decreased 358.

FY 2020 Executive Budget

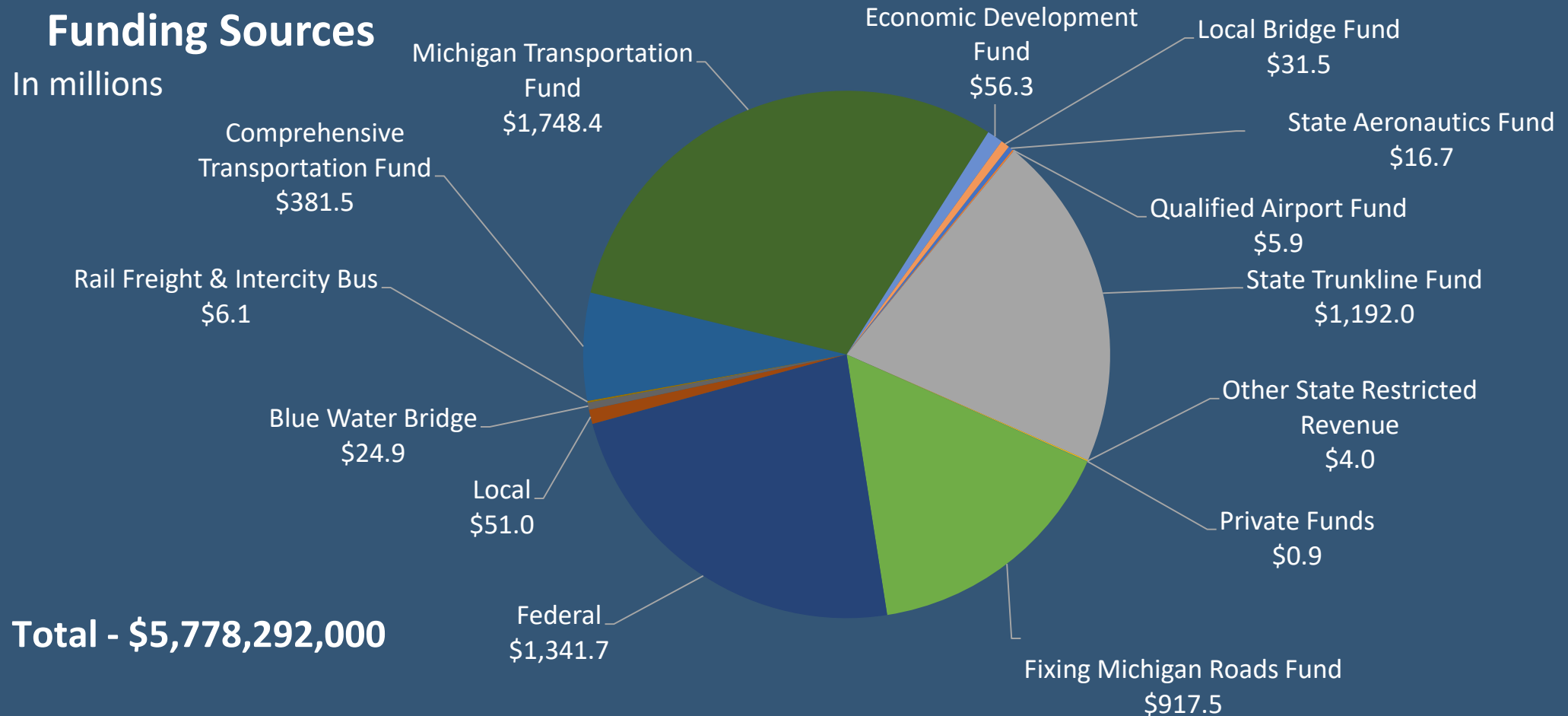
Appropriations



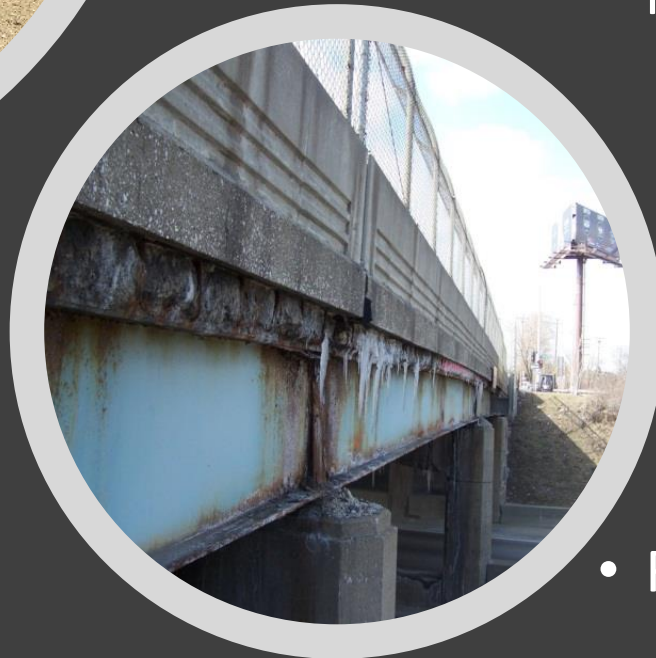
FY 2020 Executive Budget

Funding Sources

In millions



FY 2020 Key Components



- Shifting existing program from capital investment to maintenance
 - Managing a declining system condition
 - Addressing decreased buying power, increased labor costs
 - Specific changes:
 - Ancillary Structures
 - General Maintenance
- Fixing Michigan's Roads
 - Chronic underinvestment for decades
 - Declining system condition
 - Forecasting the need

Ancillary Structures



Structure Asset	Quantity	
Sign Cantilever	815	ea
Communication Tower	22	ea
Dynamic Message Sign Support Structure	264	ea
Environmental Sensor Station Tower	86	ea
Lighting Tower	79	ea
Noise Barrier Wall	347,533	ft
Retaining Wall	188,035	ft
Spun Concrete Pole	270	ea
Steel Strain Pole	377	ea
Sign Truss	511	ea
Wood Pole	286	ea
Culverts (< 10 feet in length)	51,000	ea

\$10 M Annually
Inspect & Manage
Assets

Protect Public
Safety & Welfare

Preserve \$5B
in Assets



General Maintenance



Potholes & Surface Maintenance

\$16,000,000

County Labor Costs

\$11,500,000

Salt Material Costs

\$13,250,000

Salt Storage Sheds

\$3,000,000

Cable Median Barrier

\$1,600,000

Drainage Maintenance & Repair

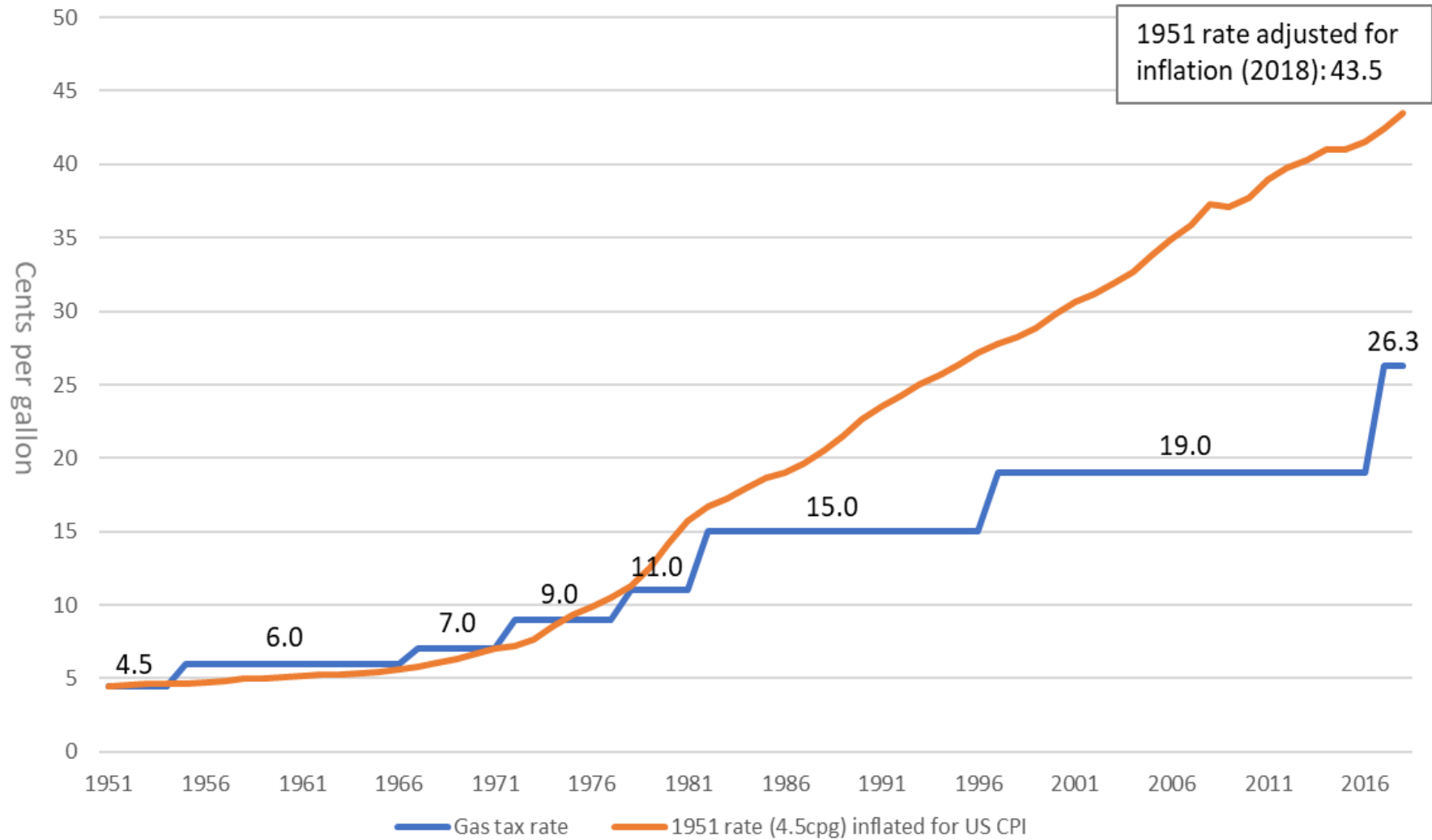
\$5,800,000

Total: \$51,150,000

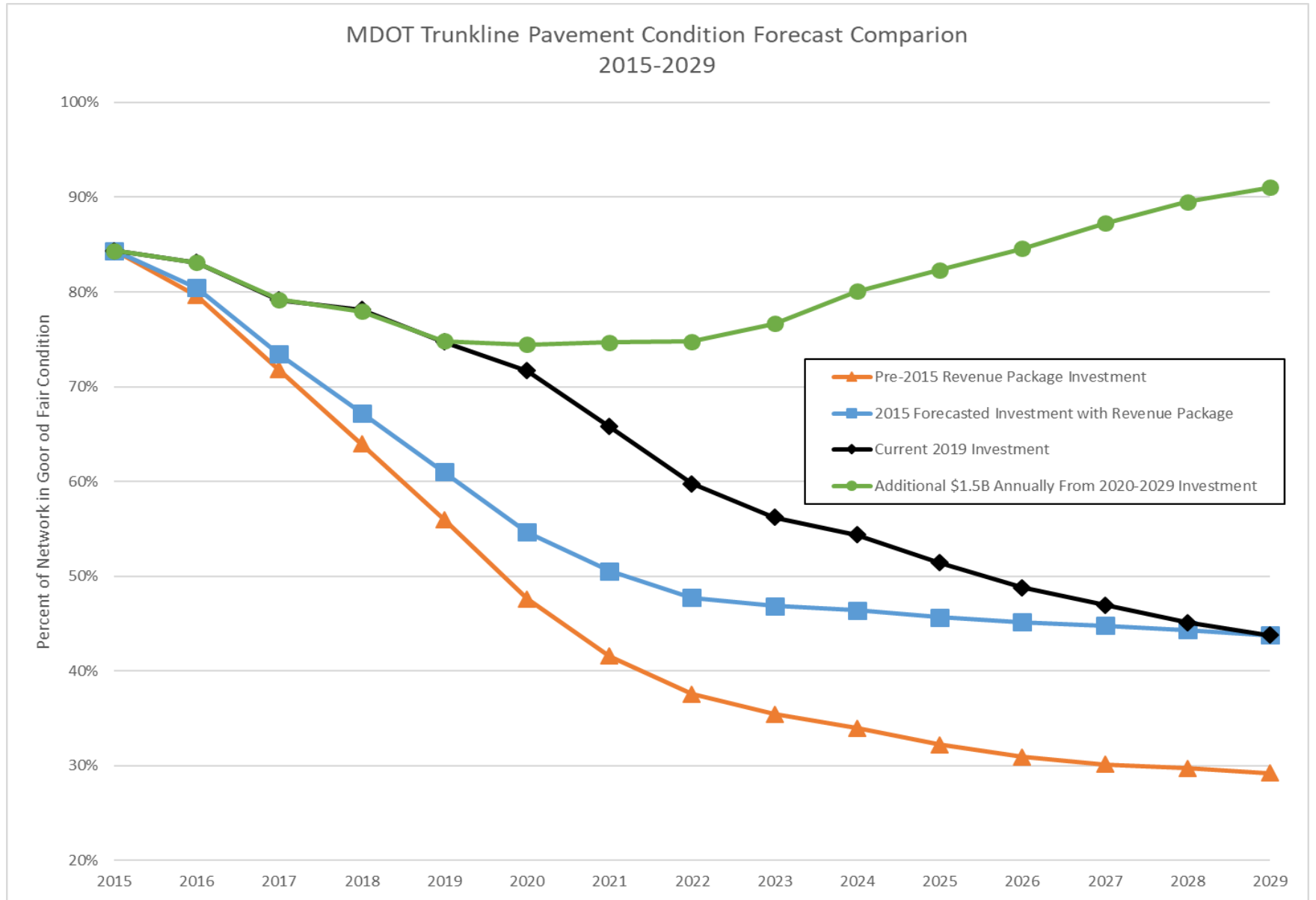


Fixing Michigan's Roads

Michigan Gas Tax Rate Nominal vs. Real Dollars, 1951-2018



Waiting for the 2015 Plan to take full effect



State and Local Distribution of FMRF

Fixing Michigan Roads Plan - State and Local Distribution* (In Millions)		
	FY 2020	FY 2021
State-Owned Roads (70%)		
State Road Projects	\$645.6	\$1,503.7
TOTAL State-Owned Roads	\$645.6	\$1,503.7
Local Road Agencies (27%)		
Local Road Projects	\$189.3	\$441.0
Local Bridges	\$36.7	\$85.5
Local Rural Economic Corridors	\$18.3	\$42.7
TOTAL Local Road Agencies	\$244.3	\$569.2
Multi-Modal Innovation Projects (3% - State and Local)		
Transit and Mobility	\$16.6	\$38.5
Rail and Port Investments	\$11.0	\$25.6
TOTAL Multi-Modal Innovation Projects	\$27.6	\$64.1
TOTAL Distribution of New Transportation Revenues	\$917.5	\$2,137.0

Common Misconceptions

We Can Cut
Our Way Out
of This



Poor Quality
Materials &
Workmanship



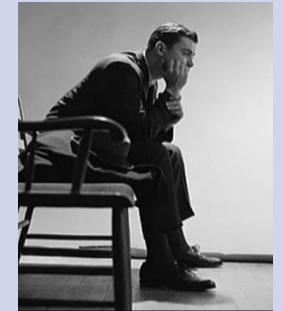
We're Not
Using
Innovations



Industry
Doesn't Have
Capacity

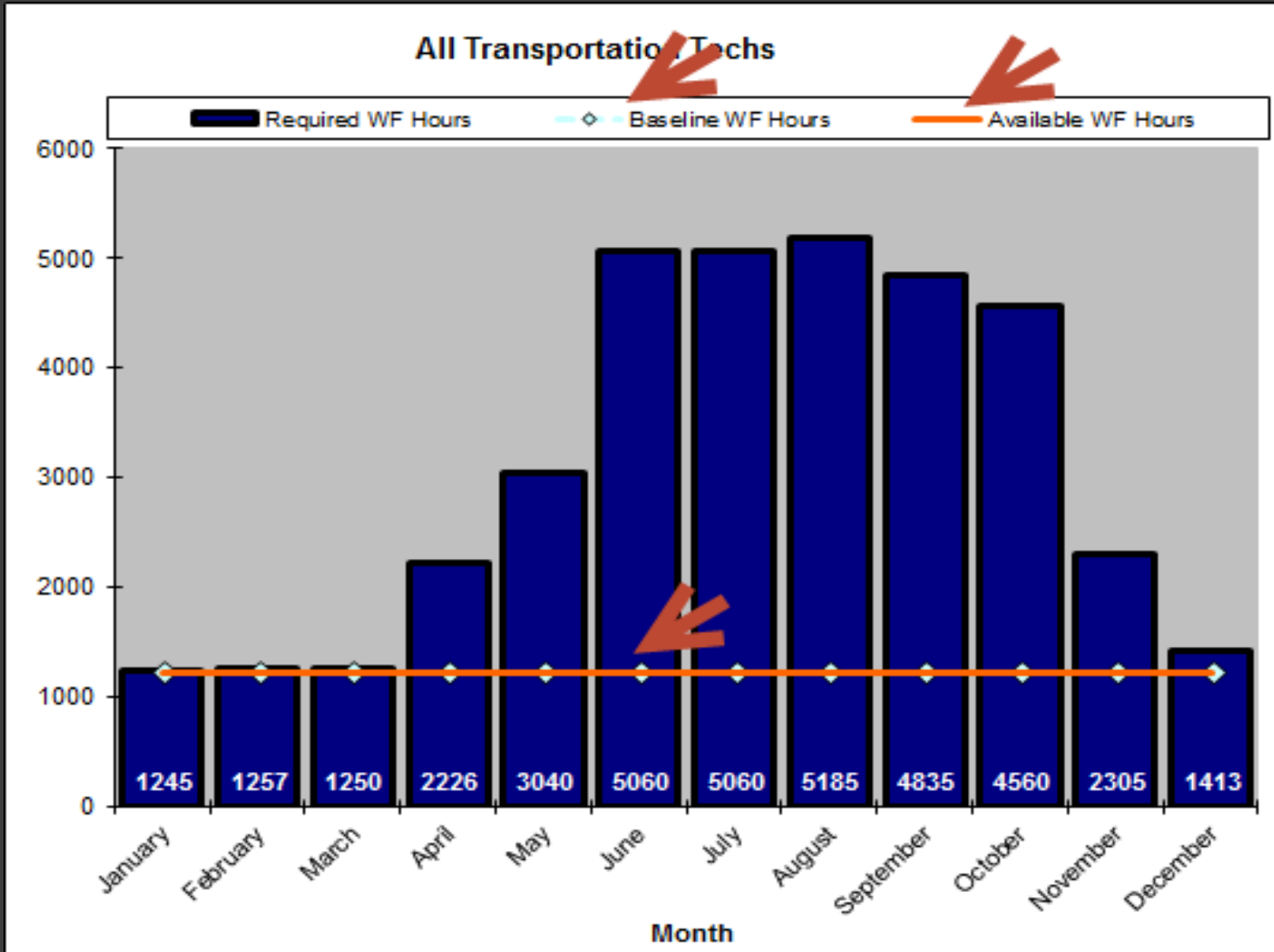


Let the 2015
Plan Fully
Take Effect



Construction Engineering and Inspection Oversight

MDOT validates project staffing needs through the use of an in-house work force planning tool which includes consultant staffing support.



CEI Resource	Portion of Program
MDOT Only	30%
Consultant Only	20%
MDOT & Consultant	50%

FY 2018 Program	Program Value	Variance
Engineer's Estimate	\$594,494,554.48	
As-Bid Cost	\$580,389,620.66	-2.4%
As-Built Final Cost	\$573,368,069.71	-1.2%

Section 613 Reporting	Design Projects	Design Costs
MDOT Performed	117 (64%)	\$20,670,437.34 (36%)
Consultant Performed	67 (36%)	\$36,490,717.47 (64%)
Total	184 (100%)	\$57,161,154.81 (100%)

Design Effectiveness

Construction Engineering and Inspection Performance

Five Year Summary of MDOT Projects

Calendar Year	Original Contract Cost	Final Contract Cost	Percent Difference
2014	\$645,898,553.12	\$649,413,716.71	0.54%
2015	\$709,329,893.84	\$712,559,685.99	0.46%
2016	\$690,303,760.44	\$704,409,643.58	2.04%
2017	\$865,144,563.78	\$862,462,531.03	-0.31%
2018	\$625,072,360.55	\$634,821,481.36	1.56%

Pavement and Material Standards

- MDOT's Standard Specifications are based on National Standards – AASHTO
- MDOT includes warranty requirements on most of its pavement projects.
- MDOT uses Quality Materials that are Locally and Regionally Supplied
- Specifications Require Materials to be Tested for Various Properties
- MDOT Innovations and Research



Pavement and Material Testing

- Aggregate Gradation & Quality
- Density of Compacted Materials
- Qualified Materials List
- Paving (HMA & Concrete)
 - Contractor QC, Owner QA
 - Percent Within Limits (PWL)
- Training & Certification of Testers
- Certification of Laboratories



Warranties

Distress thresholds for the specifications are based on Michigan pavement performance data

Contractor must carry a Warranty Bond for the life of the warranty

Contractor may add risk cost to their unit bid prices

4,235 Warranties since 1997

533 Active Warranties

13.4% have required corrective action





2 Year Warranties

Chip Seals
Micro-Surfacing
Ultra-Thin Overlays
Hot Mix Asphalt Crack
Treatment
Bridge Painting
Concrete Surface Coating



3 Year Warranties

Non-Structural Hot Mix
Asphalt Overlays

Cold Mill and Hot Mix
Asphalt Resurfacing

Paver Placed Surface
Seal



5 Year Warranties

New Pavement
Rubblize & Overlay
Crush & Shape & Overlay
Multiple Course Hot Mix
Asphalt Overlay
Cold Mill and Multiple Course
Hot Mix Asphalt Overlay
Bridge Deck Overlays



Warranty Acceptance

Warranty begins when the road is opened to traffic



Inspection

Interim and Final Inspections are conducted
Distresses are measured



Corrective actions may be required if
warranty thresholds are exceeded

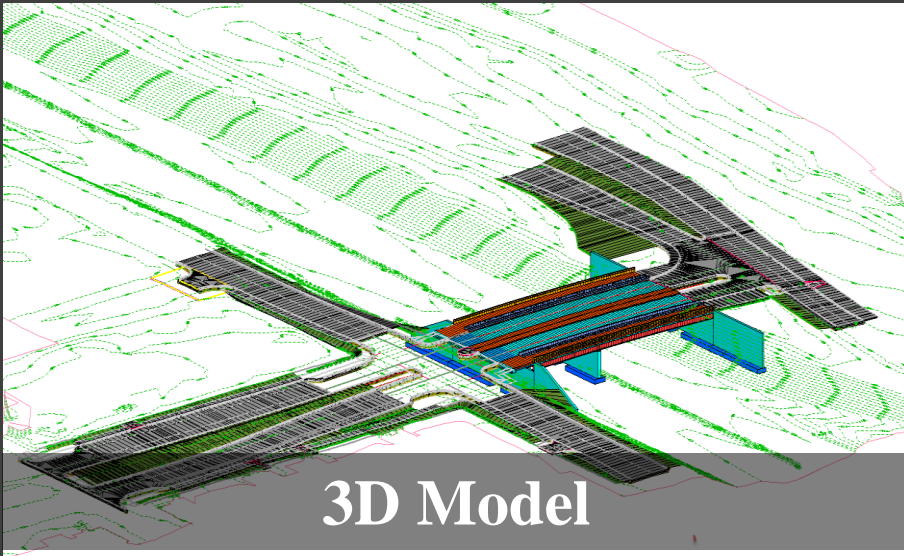
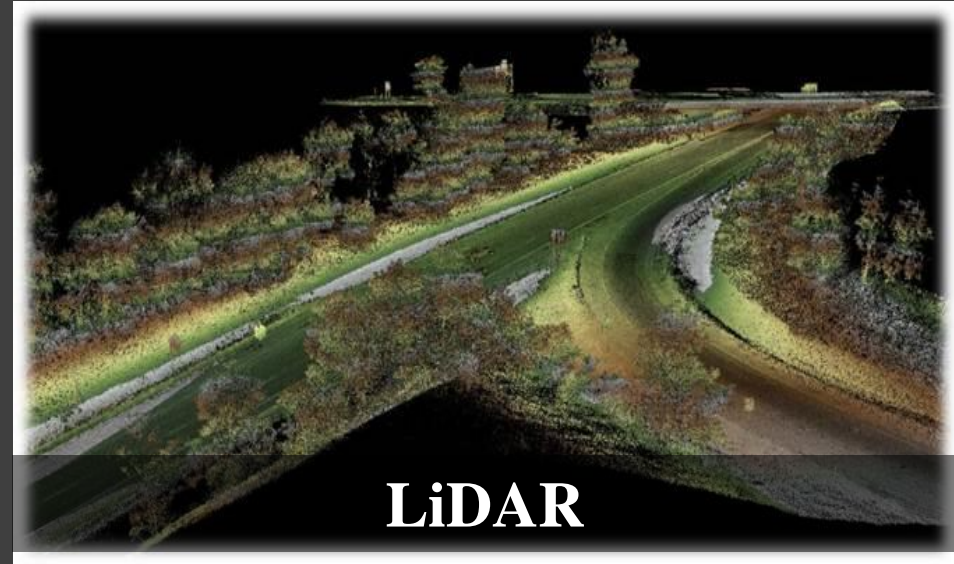
Typically at the end of the warranty period



Conflict Resolution Process to resolve disputes

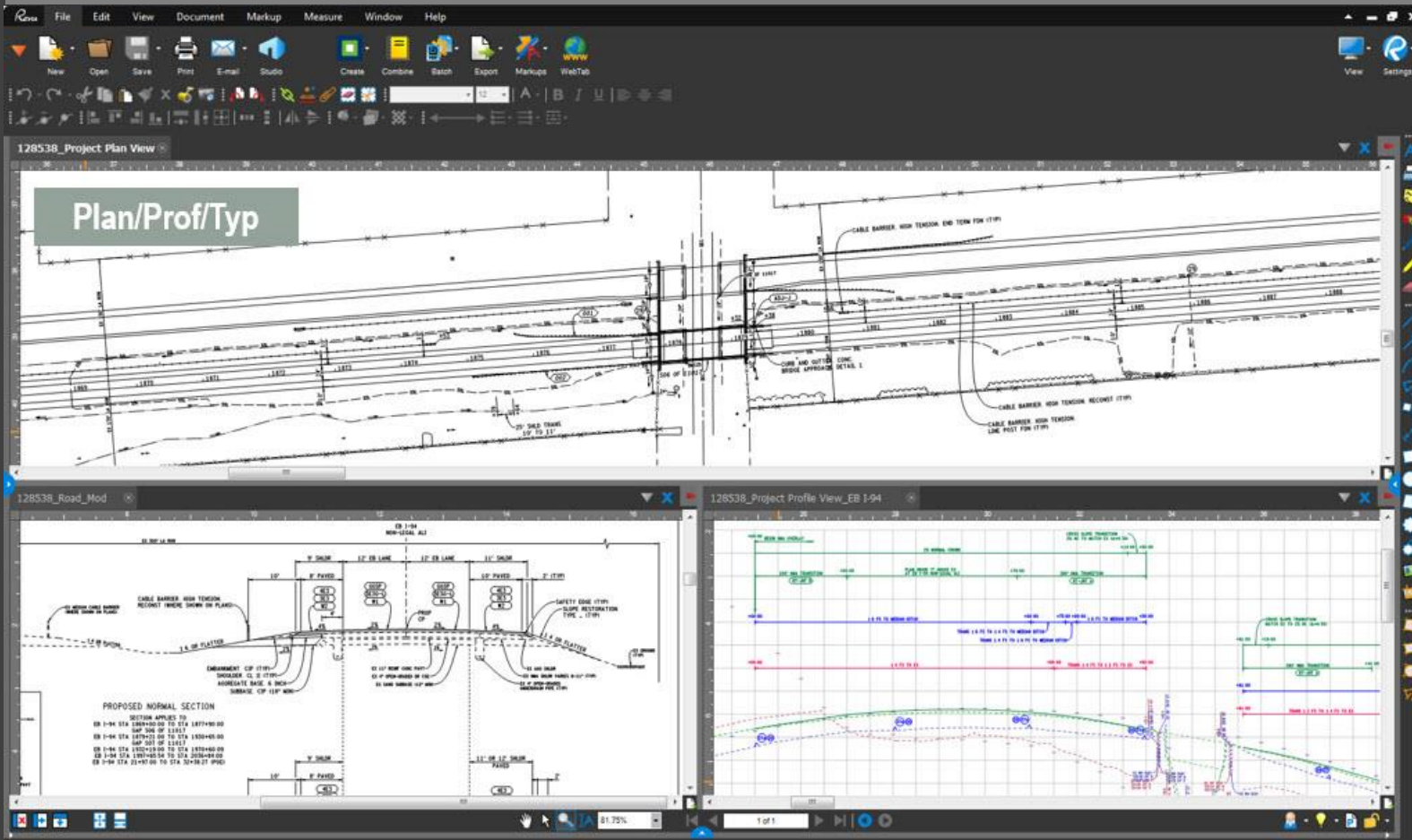
Warranty Process

Design Technology Innovations



Construction Process Innovations

- E-Construction
- Value Engineering Change Proposals
- Dispute Review Boards
- Collaborative Environment (Bluebeam Reviews)
- Incentives and Disincentives



Innovative Contracting

- Construction Manager/General Contractor (CMGC)
- Design-Build
- Job Order Contracting
- Fixed Price/Variable Scope (FPVS)
- Alternate Pavement Bidding
- Alternate Technical Concepts
- Public Private Partnerships



Industry Capacity

- Labor
 - Skilled Trades
 - Professional Services – Consulted vs. MDOT (data from 4/17 slides)
 - Consulting doesn't save money – just shifts expenditures from salaries and wages to contracted services
 - Need to know what you're buying
 - Need people to manage contracts, pay contractors and consultants
- Equipment
- Materials



Summary



Budget addresses declining road and bridge conditions



Maintenance impact



Need for addition investment



No silver bullet

Questions?

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