



Meeting Agenda

Wednesday, April 10, 2019 @ 1:00 PM
Aeronautics Building – 2nd Floor Commission Room
2700 Port Lansing Rd., Lansing, MI

TAMC GROUP PICTURES – 12:45 PM – 2nd Floor Small Conference Room

1. **Welcome - Call to Order – Introductions**
2. **Changes or Additions to the Agenda (*Action Item as needed*)** Any items under the Consent Agenda may be moved to the regular agenda upon request of any Council member, member of the public or staff member.
3. **Public Comments on Non-Agenda Item**
4. **Consent Agenda (Action Item)**
 - 4.1. Approval of the March 6, 2018 Meeting Minutes (*Attachment 1*)
 - 4.2. TAMC Financial Report (*Attachment 2*)
5. **Presentations**
 - 5.1. 2018 PASER Data Analysis and Annual Report – *Chesbro (Attachment 3)*
6. **Correspondence & Announcements**
 - 6.1. Update on TAMC Spring Conference, May 22, 2018 – *Strong/Mekjian (Attachment 4)*
7. **Michigan Infrastructure Council Update – *Moy/Johnson***
 - 7.1. MIC 180 Day Report (*Attachment 5*)
 - 7.2. X-Council Meeting Update
8. **Old Business**
 - 8.1. 2018 TAMC Annual Report– *Jennett (Attachment 6) (Action Item)*
 - 8.2. TAMC Work Program Update – *Kent (Attachment 7)*
 - 8.3. TAMC 2019 Strategic Session, June 5 – *Belknap (Attachment 8)*
The ASK; Key 2020 - 2022 Work Program goals & estimated costs/prioritized by each committee by end of April.
9. **Committee Review & Discussion Items**
 - 9.1. **Bridge Committee – *Curtis***
 - 9.1.1 Continuing Culvert Efforts into the Future
 - 9.2. **ACE Committee – *Start***
 - 9.2.1. TAMC Policy for Submittal and Review of Asset Management Plans
 - 9.2.2. PASER Certification Program – Policy Update
 - 9.3. **Data Committee – *McEntee***
 - 9.3.1. Investment Reporting Compliance Summary Report (*Attachment 9*)
 - 9.3.2. Update on Paving Warrantee and the TAMC IRT
 - 9.3.3. Traffic Signal Survey/Inventory Pilot & Subject Matter Experts Update
 - 9.4. **Michigan Center for Shared Solutions – *Surber/Holmes***
 - 9.5. **Michigan Technological University/Technical Assistance – *Colling***
 - 9.5.1. Monthly Activities Report (Feb 2019) (*Attachment 10*)
 - 9.5.2. Monthly Training Report (Feb 2019) (*Attachment 11*)

10. Public Comments

11. Member Comments

12. Adjournment: *Next meeting June 5, 2019 at 9:00 AM Strategic Planning Session – Aeronautics 2nd Floor Commission Room, 2700 Port Lansing Rd., Lansing, MI*

Meeting Telephone Conference Line: 1-877-336-1828 Access Code: 8553654#

TRANSPORTATION ASSET MANAGEMENT COUNCIL

March 6, 2019 at 1:00 p.m.

MDOT Aeronautics Building, 2nd Floor Commission Room

2700 Port Lansing Road

Lansing, Michigan

MINUTES

**** Frequently Used Acronyms List attached**

Members Present:

Christopher Bolt, MAC/Jackson DOT

Bill McEntee, CRA – Vice-Chair

Jonathan Start, MTPA/KATS

Jennifer Tubbs, MTA

Brad Wieferich, MDOT

Derek Bradshaw, MAR/GLS Region V, via Telephone

Robert Slattery, MML

Rob Surber, DTMB/CSS

Todd White, MDOT

Support Staff Present:

Roger Belknap, MDOT

Tim Colling, MTU/LTAP, via Telephone

Polly Kent, MDOT

Gloria Strong, MDOT

Gil Chesbro, MDOT

Dave Jennett, MDOT

Tim Lauxmann, CSS

Mike Toth, MDOT

Public Present:

Larry Doyle, MDOT

Aaron Verhelle, RCOC

Jessica Moy, MIC Executive Director

Members Absent:

Joanna Johnson, CRA/RCKC – Chair

Gary Mekjian, MML

1. Welcome – Call-To-Order:

The meeting was called-to-order at 1:06 p.m.

2. Changes or Additions to the Agenda (Action Item):

J. Start requested the addition of an action item for authorization for CSS to do additional work on the IRT and dashboards. This item will be added as item 9.2.3. on the agenda. G. Chesbro has changed the topic of his presentation from “2018 PASER Data Analysis and Annual Report” to “Forecasting and Modeling Data for the Annual Report.”

3. Public Comments on Non-Agenda Items:

None

4. Consent Agenda (Action Item):

4.1. – Approval of the February 6, 2019 Meeting Minutes (Attachment 1)

Motion: J. Tubbs made a motion to approve the February 6, 2019 meeting minutes with an amendment to remove the last sentence regarding the STIP under 9.3.2.; J. Start seconded the motion. The motion was approved by all members present.

4.2. – TAMC Financial Report (Attachment 2)

R. Belknap gave a brief review of the March 1, 2019 TAMC Budget Expenditure Report. Invoices are coming in for the 2019 first quarter from the regions.

5. Presentations – G. Chesbro:

G. Chesbro provided a copy of forecasting and modeling data from FY 2016 and FY 2017 for the annual report. He did a brief review of the document. He has requested that the Council members review the document and if they have any questions (based on the numbers) to let him know. A lot of this data is a function of economic activity. In FY 2017, there was an increase of funds invested in pavements so the trunkline expenditures will go way up from former year data. G. Chesbro plans to bring in the staff who provides the revenue forecasting and trunkline/non-trunkline modeling data to him to better explain the data provided for the annual report. He will be proving the 2018 data analysis at the March 20, 2019 Data Committee meeting.

Action Item: G. Chesbro will request that the revenue forecasting and trunkline/non-trunkline modeling staff attend the next TAMC meeting to explain the data provided for the annual report.

6. – Correspondence and Announcements:

6.1. – Update on TAMC Spring Conference, May 21-23, 2019 – G. Strong

The TAMC and the American Public Works Association (APWA) Conference will be held on May 22 and 23, 2018, at the Treetop Resort in Gaylord, Michigan. APWA will hold their annual golf outing on May 21, 2018 as well as a welcoming reception where everyone attending the conference can participate. On Wednesday, May 22, 2019, TAMC and APWA will hold joint sessions. On Thursday, May 23, 2019, APWA will hold APWA only sessions. G. Strong is working with APWA conference planners on the logistics. TAMC conference attendees will lodge at the Otsego Resort approximately 5 minutes away from the Treetops Resort. The presenters have all confirmed their participation in the conference, including David Juntunen, P.E., Bridge Management Consultant, the Kercher Group, Inc. G. Strong sent out an email to presenters, Council members, and support staff to begin making their travel arrangements for the conference.

7. – Michigan Infrastructure Council Update – B. McEntee

7.1. - Michigan Association of Regions – Regional Prosperity Grants for Asset Management

All 12 regions received \$70,000 for asset management coordination work. They are still planning to do the two summit sessions – one in the early part of the year and one later in the year (fall). The summits are for asset managers to come together and brainstorm how they can collaborate in these efforts. D. Bradshaw stated that during the Governor’s budget announcement, she did not give funding to the regional prosperity initiatives for next year. As soon as details are finalized, D. Bradshaw will send the information to support staff and the Council so that everyone can be on the same page.

7.2. – X-Council Meeting Update – J. Johnson

There was no meeting last month. The next meeting will be held March 28, 2019.

8. – Old Business:

8.1. - TAMC Work Program Update – P. Kent (Attachment 3)

P. Kent provided a draft work program for discussion with additional notes showing specific to each of the tasks, budgeted costs (if any to TAMC), frequency, who is responsible to handle the task, and year(s) of completion. R. Surber requested that a column be added to the work program of reference numbers that relate to the past work program. It was requested that each committee review the program and determine where they are on accomplishing their assigned tasks. If anyone has any questions, they can contact P. Kent. The committees must look at the current work program as provided by P. Kent and determine whether TAMC should move the listed tasks forward or not.

8.2. – TAMC 2019 Strategic Planning Session, June 5, 2019, Aeronautics Bldg, - P. Kent

The June 5, 2019, Strategic Planning Session will review key 2020-2022 work program goals, estimated costs, and priorities for each committee. The Council will need to discuss how the structure of the work program ties in with the budget.

9. Committee Reviews and Discussion Items:

9.1. – Bridge Committee – B. Wieferrich/R. Belknap

9.1.1. – TAMC Culvert Pilot Project/APWA Project of Year Award (Attachment 4)

The Bridge Committee reviewed the FY 2018 data for the annual report. Rebecca Curtis, TAMC Bridge Committee Chair, is working on the narratives for the report. One of the problems the committee is finding are the signature projects. They are usually large projects and it is hard to account for them in the forecasting. Bid investments on individual bridges do not happen every year therefore, it is hard to make any predictions. There was much discussion on culverts and manageable categories by size. There was also discussion on how TAMC will display the culvert ratings on the dashboards. They decided on breaking down the culverts by size to display on the dashboards. MTU and CSS will need to work on how to import the culvert data.

The Culvert Pilot Project was selected as the Michigan Division APWA Project of the Year and TAMC will be presented with an award at the May 23, 2019 APWA Awards Banquet in Gaylord, Michigan. This project will then go on to be eligible at the national level of APWA.

9.2. – ACE Committee – J. Start

9.2.1. – TAMC Policy for Submittal and Review of Asset Management Plans

The initial draft of the policy for agencies to submit their asset management plans to comply with the requirements of Public Act 325 was briefly reviewed and provided to the committee at the ACE Committee meeting this morning. The ACE Committee will review the policy and provide any comments to R. Belknap.

9.2.2. – PASER Certification Program – Policy Update (Attachment 5) (Action Item)

There are two recommended changes that were made to the policy. The first is, the Metropolitan Planning Organizations and Regional Planning Organizations are required to send at least one member of the planning agency to attend the PASER/IBR training. The second recommended change is, certified raters are required to attend on-site training every fourth year and recertify by taking the certification exam. The ACE Committee would like to make a recommendation to the full Council to approve these changes.

Motion: J. Start made a motion to approve the recommended policy amendments; J. Tubbs seconded the motion. The motion was approved by all members present.

The CSS tasks and related budgets to each task was reviewed and discussed at today's ACE Committee meeting. There were three items that were discussed at TAMC Data Committee meeting and CSS was asked to provide how long it would take to accomplish these tasks and how it would affect the budget. CSS provided an estimated budget report stating it would cost \$10,200 to add warranty projects in the IRT; it would cost \$7,200 to show on the interactive map three-year projects, and lastly, it would cost \$3,200 to add MPO layers on the IRT dashboards. The ACE Committee likes the budget planning from CSS as this shows them any remaining unspent funds that can be used for other assignments for CSS.

The Ace Committee is recommending to the full Council that CSS proceed with the recommended work tasks. TAMC will need to periodically review with CSS about any tasks that CSS can do within their current budget and in coordination with the MIC and WAMC. This will help them with not only their budget but also with staffing so that they can meet both TAMC and MIC needs. The MIC is currently working on their asset management template that is due by October 1, 2019.

Motion: J. Start made a motion for the Council to approve CSS to proceed with doing three items as stated above – IRT Warranty Projects (\$10,200), Three-year Projects on the interactive map (\$7,200), and MPO layers added onto the IRT dashboards (\$3,200); J. Tubbs seconded the motion. The motion was approved by all members present.

Second Motion: B. McEntee made the motion for CSS to do an early coordination on the following tasks and made an amendment to the motion to have CSS give some effort to add 1) traffic signal inventory, and 2) Asset Management Plan submittals and how are we going to import and store the plans. CSS will be handling these as well in the IRT. Lastly, 3) ongoing coordination with the MIC and WAMC on any work with CSS. There will be some overlap between the Councils. B. Wieferich seconded this motion. The motion was approved by all members present.

9.2.3. – 2018 TAMC Annual Report Update – D. Jennett/B. McEntee

The annual report is on schedule. Next week they will be working on the Year in Review section. Still working on the new 2017IRT data submittal graphs. We still need to make sure that those graphs are ADA compliant. B. McEntee suggested that a new TAMC group photo be taken.

Action Item: G. Strong will set up for a photographer to take a new TAMC group photo and TAMC support staff photo at the April 10, 2019 meeting.

9.3. – Data Committee – B. McEntee

9.3.1. – Investment Reporting Compliance Summary Report (Attachment 6)

Many submittals have come in and everything is going well. We are still waiting on approximately 7 or 8 small agencies from 2016/2017 that still need to be approved but they also have other issues such as with Act 51. A guidance document is going to be sent out to the agencies in order to clear up some of the minor issues that are keeping agencies from being compliant.

9.3.2. - Update on Paving Warranties and the TAMC IRT – B. McEntee

TAMC needs to add warranties to their data system. The Council will be adding the Warranty Program information to the TAMC interactive map. There is an agreement between MDOT, the County Road Association (CRA), and Michigan Municipal League on the Warranty Program. MTU will provide the training on the warranty program. They are going to try to develop and deploy the training by early fall. This subject will be discussed at the County Road Association conference next week.

9.3.3. – Investment Reporting: Process of Future Projects and 3-Year Plan Requirements

Agencies are required to report in the IRT three years of planned projects. TAMC and CSS must figure out how to enter the three-year planned projects, how to make the information available to everyone (publicly and by other agencies) in the IRT, and what it will take to make a layer of planned projects in the interactive map based on geography regardless of funding source and who owns the project.

9.3.4. – Establishing a Traffic Signal Survey/Inventory Pilot and Subject Matter Experts

B. McEntee had invited subject matter experts from MDOT and Oakland County to attend the February 20, 2019, Data Committee meeting. B. McEntee came up with a list of 14 elements that he feels should be collected for traffic signals based upon the discussions that were had with the subject matter experts in February. He shared those with T. Collings at MTU, and 13 out of 14 on his list are already in the Roadsoft system. In a couple of weeks

they will revisit this and see if there should be any deletions from the list of elements. They will check to see if the Roadsoft database can export those 13 or 14 elements. Later, agencies will report these elements in their asset management plans. B. McEntee will share the list of elements that he provided to MTU with the Council. If anyone is interested in participating in the discussions regarding traffic signals, they should let R. Belknap know and he will include them in the appointments. TAMC will need to find out what the current value of the traffic signal inventory is statewide and how much it will take to maintain it.

Action Item: B. McEntee will send the list of traffic signal elements to the Council for their review and comment.

9.4. - Michigan Center for Shared Solutions – R. Surber

R. Surber felt that the majority of CSS tasks were already addressed in previous agenda items. CSS is working with MTU with updating their framework and they are moving forward well. He wanted to remind everyone that as things progress, TAMC must remember to coordinate with the MIC and WAMC.

9.5. – Michigan Technological University/Technical Assistance Reports

9.5.1. – Monthly Activities Report (January 1-31, 2019) (Attachment 7)

A copy of the Activities Report for the reporting period of January 1-31, 2019, was provided to the Council.

9.5.2. – Monthly Training Report (January 1-31, 2019) (Attachment 8)

A copy of the Training Report for the reporting period of January 1-31, 2019, was provided to the Council. MTU is doing lots of trainings right now. They have a new record high of approximately 450 participants for PASER trainings.

T. Collings wanted clarification of when the Data Collection Policy will go into effect. Since MTU already had the first session and certification exam he recommends that the effective date be effective next year in time for MTUs next training cycle. The Committee agreed that for those that just got their certification last month, they should automatically be allowed to extend their certification for two years.

10. Public Comments:

J. Moy wants everyone to stress the importance of doing the trainings and for TAMC/MIC/WAMC to keep up with who and how many people are taking the trainings.

Tim Lauxmann, the new CSS Data Manager, introduced himself to the Council.

P. Kent, MDOT, announced that she is retiring at the end of April 2019.

11. Member Comments:

None

12. Adjournment:

R. Slattery made a motion to adjourn the meeting; J. Start seconded the motion. The motion was approved by all members present. The meeting adjourned at 2:58 p.m. The next full Council meeting will be held April 10, 2019 at 1:00 p.m., MDOT Aeronautics Building, 2700 Port Lansing Road, 2nd Floor Conference Room, Lansing, Michigan.

TAMC FREQUENTLY USED ACRONYMS:

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACE	ADMINISTRATION, COMMUNICATION, AND EDUCATION (TAMC COMMITTEE)
ACT-51	PUBLIC ACT 51 OF 1951-DEFINITION: A CLASSIFICATION SYTEM DESIGNED TO DISTRIBUTE MICHIGAN'S ACT 51 FUNDS. A ROADWAY MUST BE CLASSIFIED ON THE ACT 51 LIST TO RECEIVE STATE MONEY.
ADA	ADULTS WITH DISABILITIES ACT
ADARS	ACT 51 DISTRIBUTION AND REPORTING SYSTEM
BTP	BUREAU OF TRANSPORTATION PLANNING (MDOT)
CFM	COUNCIL ON FUTURE MOBILITY
CPM	CAPITAL PREVENTATIVE MAINTENANCE
CRA	COUNTY ROAD ASSOCIATION (OF MICHIGAN)
CSD	CONTRACT SERVICES DIVISION (MDOT)
CSS	CENTER FOR SHARED SOLUTIONS
DI	DISTRESS INDEX
ESC	EXTENDED SERVICE LIFE
FAST	FIXING AMERICA'S SURFACE TRANSPORTATION ACT
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FOD	FINANCIAL OPERATIONS DIVISION (MDOT)
FY	FISCAL YEAR
GLS REGION V	GENESEE-LAPEER-SHIAWASSEE REGION V PLANNING AND DEVELOPMENT COMMISSION
GVMC	GRAND VALLEY METRO COUNCIL
HPMS	HIGHWAY PERFORMANCE MONITORING SYSTEM
IBR	INVENTORY BASED RATING
IRI	INTERNATIONAL ROUGHNESS INDEX
IRT	INVESTMENT REPORTING TOOL
KATS	KALAMAZOO AREA TRANSPORTATION STUDY
KCRC	KENT COUNTY ROAD COMMISSION
LDC	LAPTOP DATA COLLECTORS
LTAP	LOCAL TECHNICAL ASSISTANCE PROGRAM
MAC	MICHIGAN ASSOCIATION OF COUNTIES
MAP-21	MOVING AHEAD FOR PROGRESS IN THE 21 ST CENTURY (ACT)
MAR	MICHIGAN ASSOCIATION OF REGIONS
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
MDTMB	MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
MIC	MICHIGAN INFRASTRUCTURE COMMISSION
MITA	MICHIGAN INFRASTRUCTURE AND TRANSPORTATION ASSOCIATION
MML	MICHIGAN MUNICIPAL LEAGUE
MPO	METROPOLITAN PLANNING ORGANIZATION
MTA	MICHIGAN TOWNSHIPS ASSOCIATION
MTF	MICHIGAN TRANSPORTATION FUNDS
MTPA	MICHIGAN TRANSPORTATION PLANNING ASSOCIATION
MTU	MICHIGAN TECHNOLOGICAL UNIVERSITY
NBI	NATIONAL BRIDGE INVENTORY
NBIS	NATIONAL BRIDGE INSPECTION STANDARDS
NFA	NON-FEDERAL AID
NFC	NATIONAL FUNCTIONAL CLASSIFICATION
NHS	NATIONAL HIGHWAY SYSTEM
PASER	PAVEMENT SURFACE EVALUATION AND RATING
PNFA	PAVED NON-FEDERAL AID
PWA	PUBLIC WORKS ASSOCIATION
QA/QC	QUALITY ASSURANCE/QUALITY CONTROL

RBI	ROAD BASED INVENTORY
RCKC	ROAD COMMISSION OF KALAMAZOO COUNTY
ROW	RIGHT-OF-WAY
RPA	REGIONAL PLANNING AGENCY
RPO	REGIONAL PLANNING ORGANIZATION
SEMCOG	SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
STC	STATE TRANSPORTATION COMMISSION
STP	STATE TRANSPORTATION PROGRAM
TAMC	TRANSPORTATION ASSET MANAGEMENT COUNCIL
TAMCSD	TRANSPORTATION ASSET MANAGEMENT COUNCIL SUPPORT DIVISION
TAMP	TRANSPORTATION ASSET MANAGEMENT PLAN
TPM	TRANSPORTATION PERFORMANCE MEASURES
UWP	UNIFIED WORK PROGRAM

S:/GLORIASTRONG/TAMC FREQUENTLY USED ACRONYMS.11.27.2018.GMS

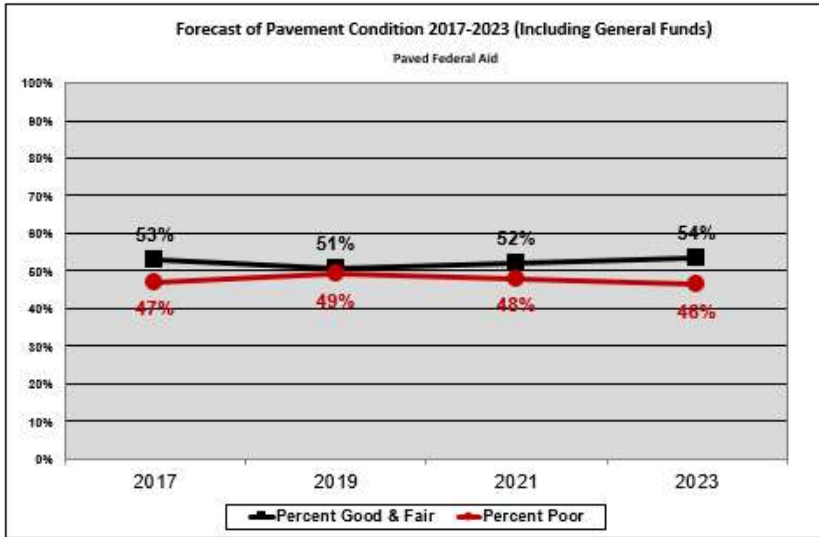
DRAFT

TAMC Budget Expenditure Report

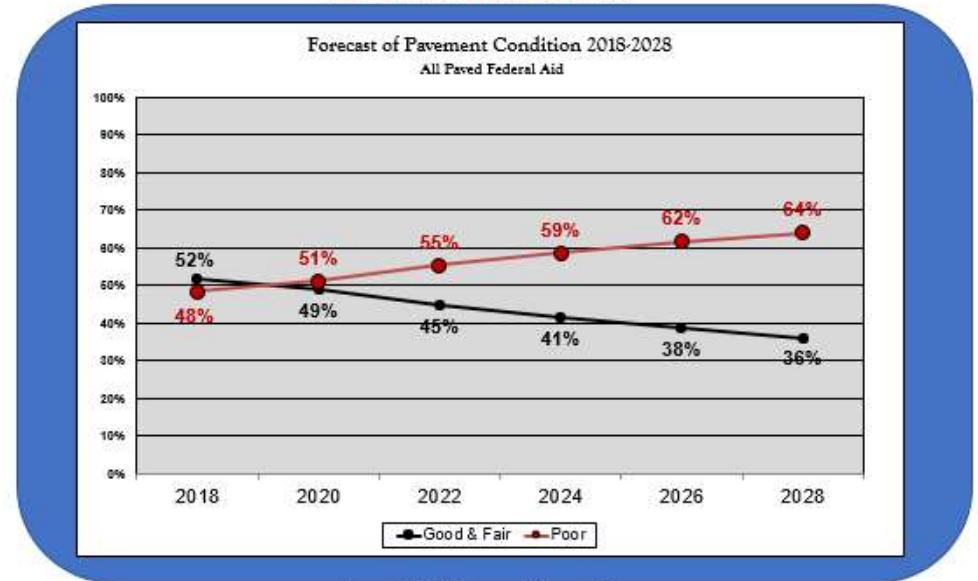
		FY17 Budget			FY17 Actual			FY18 Budget			FY18 Actual			FY19 Budget			FY19 Year to Date			FY20 Budget
		(most recent invoice date)																		
		\$	Spent	Balance	\$	Spent	Balance	\$	Spent	Balance	\$	Spent	Balance	\$	Spent	Balance	\$	Spent	Balance	\$
I. Data Collection & Regional-Metro Planning Asset Management Program																				
Battle Creek Area Transportation Study	1 QTR 19	\$ 20,000.00	\$ 15,444.03	\$ 4,555.97	\$ 20,500.00	\$ 20,213.36	\$ 286.64	\$ 20,500.00	\$ 2,143.27	\$ 18,356.73	\$ 20,500.00	\$ 20,500.00	\$ 2,143.27	\$ 18,356.73	\$ 20,500.00	\$ 20,500.00	\$ 2,143.27	\$ 18,356.73	\$ 20,500.00	
Bay County Area Transportation Study	1 QTR 19	\$ 20,000.00	\$ 10,794.42	\$ 9,205.58	\$ 21,100.00	\$ 8,028.84	\$ 13,071.16	\$ 21,100.00	\$ 5,210.01	\$ 15,889.99	\$ 19,900.00	\$ 21,100.00	\$ 5,210.01	\$ 15,889.99	\$ 19,900.00	\$ 21,100.00	\$ 5,210.01	\$ 15,889.99	\$ 19,900.00	
Central Upper Peninsula Planning and Development	1 QTR 19	\$ 40,471.00	\$ 40,471.00	\$ -	\$ 47,000.00	\$ 47,000.00	\$ -	\$ 47,000.00	\$ 5,487.67	\$ 41,512.33	\$ 50,000.00	\$ 47,000.00	\$ 5,487.67	\$ 41,512.33	\$ 50,000.00	\$ 47,000.00	\$ 5,487.67	\$ 41,512.33	\$ 50,000.00	
East Michigan Council of Governments	FEB	\$ 95,995.00	\$ 80,092.75	\$ 15,902.25	\$ 111,000.00	\$ 81,559.65	\$ 29,440.35	\$ 111,000.00	\$ 26,901.46	\$ 84,098.54	\$ 108,000.00	\$ 111,000.00	\$ 26,901.46	\$ 84,098.54	\$ 108,000.00	\$ 111,000.00	\$ 26,901.46	\$ 84,098.54	\$ 108,000.00	
Eastern Upper Peninsula Regional Planning & Devel.	1 QTR 19	\$ 20,000.00	\$ 20,000.00	\$ -	\$ 23,100.00	\$ 23,100.00	\$ -	\$ 23,100.00	\$ 5,943.70	\$ 17,156.30	\$ 25,000.00	\$ 23,100.00	\$ 5,943.70	\$ 17,156.30	\$ 25,000.00	\$ 23,100.00	\$ 5,943.70	\$ 17,156.30	\$ 25,000.00	
Genesee Lapeer Shiawassee Region V Planning Com.	JAN	\$ 39,423.00	\$ 37,172.06	\$ 2,250.94	\$ 46,000.00	\$ 45,954.99	\$ 45.01	\$ 46,000.00	\$ 192.91	\$ 45,807.09	\$ 46,000.00	\$ 46,000.00	\$ 192.91	\$ 45,807.09	\$ 46,000.00	\$ 46,000.00	\$ 192.91	\$ 45,807.09	\$ 46,000.00	
Grand Valley Metropolitan Council	1 QTR 19	\$ 20,000.00	\$ 18,974.64	\$ 1,025.36	\$ 25,000.00	\$ 12,060.69	\$ 12,939.31	\$ 25,000.00	\$ 1,112.35	\$ 23,887.65	\$ 24,000.00	\$ 25,000.00	\$ 1,112.35	\$ 23,887.65	\$ 24,000.00	\$ 25,000.00	\$ 1,112.35	\$ 23,887.65	\$ 24,000.00	
Kalamazoo Area Transportation Study	1 QTR 19	\$ 20,000.00	\$ 19,128.11	\$ 871.89	\$ 22,000.00	\$ 21,588.77	\$ 411.23	\$ 22,000.00	\$ 1,102.95	\$ 20,897.05	\$ 22,000.00	\$ 22,000.00	\$ 1,102.95	\$ 20,897.05	\$ 22,000.00	\$ 22,000.00	\$ 1,102.95	\$ 20,897.05	\$ 22,000.00	
Macatawa Area Coordinating Council	1 QTR 19	\$ 20,000.00	\$ 7,405.66	\$ 12,594.34	\$ 20,200.00	\$ 9,575.57	\$ 10,624.43	\$ 20,200.00	\$ 190.00	\$ 20,010.00	\$ 19,000.00	\$ 20,200.00	\$ 190.00	\$ 20,010.00	\$ 19,000.00	\$ 20,200.00	\$ 190.00	\$ 20,010.00	\$ 19,000.00	
Midland Area Transportation Study	1 QTR 19	\$ 20,000.00	\$ 17,660.54	\$ 2,339.46	\$ 21,000.00	\$ 20,857.81	\$ 142.19	\$ 21,000.00	\$ 1,680.88	\$ 19,319.12	\$ 21,000.00	\$ 21,000.00	\$ 1,680.88	\$ 19,319.12	\$ 21,000.00	\$ 21,000.00	\$ 1,680.88	\$ 19,319.12	\$ 21,000.00	
Northeast Michigan Council of Governments	FEB	\$ 43,426.45	\$ 43,426.45	\$ -	\$ 52,200.00	\$ 52,200.00	\$ -	\$ 52,200.00	\$ 13,906.70	\$ 38,293.30	\$ 51,000.00	\$ 52,200.00	\$ 13,906.70	\$ 38,293.30	\$ 51,000.00	\$ 52,200.00	\$ 13,906.70	\$ 38,293.30	\$ 51,000.00	
Networks Northwest	1 QTR 19	\$ 61,316.00	\$ 61,316.00	\$ -	\$ 72,000.00	\$ 71,915.46	\$ 84.54	\$ 72,000.00	\$ 10,034.74	\$ 61,965.26	\$ 75,000.00	\$ 72,000.00	\$ 10,034.74	\$ 61,965.26	\$ 75,000.00	\$ 72,000.00	\$ 10,034.74	\$ 61,965.26	\$ 75,000.00	
Region 2 Planning Commission	1 QTR 19	\$ 37,940.00	\$ 24,743.56	\$ 13,196.44	\$ 42,000.00	\$ 29,362.33	\$ 12,637.67	\$ 42,000.00	\$ 8,452.00	\$ 33,548.00	\$ 40,000.00	\$ 42,000.00	\$ 8,452.00	\$ 33,548.00	\$ 40,000.00	\$ 42,000.00	\$ 8,452.00	\$ 33,548.00	\$ 40,000.00	
Saginaw County Metropolitan Planning Commission	1 QTR 19	\$ 20,000.00	\$ 11,585.29	\$ 8,414.71	\$ 22,200.00	\$ 22,000.00	\$ 200.00	\$ 22,200.00	\$ 681.86	\$ 21,518.14	\$ 21,000.00	\$ 22,200.00	\$ 681.86	\$ 21,518.14	\$ 21,000.00	\$ 22,200.00	\$ 681.86	\$ 21,518.14	\$ 21,000.00	
Southcentral Michigan Planning Commission	1 QTR 19	\$ 53,162.00	\$ 36,915.67	\$ 16,246.33	\$ 57,300.00	\$ 37,137.28	\$ 20,162.72	\$ 57,300.00	\$ 1,913.04	\$ 55,386.96	\$ 55,000.00	\$ 57,300.00	\$ 1,913.04	\$ 55,386.96	\$ 55,000.00	\$ 57,300.00	\$ 1,913.04	\$ 55,386.96	\$ 55,000.00	
Southeast Michigan Council of Governments	FEB	\$ 135,680.00	\$ 135,679.60	\$ 0.40	\$ 174,000.00	\$ 174,000.00	\$ -	\$ 174,000.00	\$ 38,381.33	\$ 135,618.67	\$ 174,000.00	\$ 174,000.00	\$ 38,381.33	\$ 135,618.67	\$ 174,000.00	\$ 174,000.00	\$ 38,381.33	\$ 135,618.67	\$ 174,000.00	
Southwest Michigan Planning Commission	1 QTR 19	\$ 37,030.00	\$ 37,030.00	\$ -	\$ 41,000.00	\$ 41,000.00	\$ -	\$ 41,000.00	\$ 2,584.95	\$ 38,415.05	\$ 41,000.00	\$ 41,000.00	\$ 2,584.95	\$ 38,415.05	\$ 41,000.00	\$ 41,000.00	\$ 2,584.95	\$ 38,415.05	\$ 41,000.00	
Tri-County Regional Planning Commission	1 QTR 19	\$ 33,786.00	\$ 33,786.00	\$ -	\$ 40,000.00	\$ 21,680.54	\$ 18,319.46	\$ 40,000.00	\$ 3,780.24	\$ 36,219.76	\$ 40,000.00	\$ 40,000.00	\$ 3,780.24	\$ 36,219.76	\$ 40,000.00	\$ 40,000.00	\$ 3,780.24	\$ 36,219.76	\$ 40,000.00	
West Michigan Regional Planning Commission	FEB	\$ 82,467.00	\$ 82,467.00	\$ -	\$ 91,000.00	\$ 74,351.07	\$ 16,648.93	\$ 91,000.00	\$ 6,803.96	\$ 84,196.04	\$ 88,000.00	\$ 91,000.00	\$ 6,803.96	\$ 84,196.04	\$ 88,000.00	\$ 91,000.00	\$ 6,803.96	\$ 84,196.04	\$ 88,000.00	
West Michigan Shoreline Regional Development Com.	FEB	\$ 46,781.56	\$ 46,145.01	\$ 636.55	\$ 54,000.00	\$ 51,333.45	\$ 2,666.55	\$ 54,000.00	\$ 3,821.41	\$ 50,178.59	\$ 54,000.00	\$ 54,000.00	\$ 3,821.41	\$ 50,178.59	\$ 54,000.00	\$ 54,000.00	\$ 3,821.41	\$ 50,178.59	\$ 54,000.00	
Western Upper Peninsula Regional Planning & Devel.	1 QTR 19	\$ 34,867.00	\$ 34,847.53	\$ 19.47	\$ 40,000.00	\$ 40,000.00	\$ -	\$ 40,000.00	\$ 6,848.30	\$ 33,151.70	\$ 42,000.00	\$ 40,000.00	\$ 6,848.30	\$ 33,151.70	\$ 42,000.00	\$ 40,000.00	\$ 6,848.30	\$ 33,151.70	\$ 42,000.00	
MDOT Region Participation & PASER Quality Control	2/5/19	\$ 62,750.00	\$ 85,337.50	\$ (22,587.50)	\$ 80,000.00	\$ 52,914.97	\$ 27,085.03	\$ 80,000.00	\$ 9,144.00	\$ 70,856.00	\$ 80,000.00	\$ 91,440.00	\$ 6,667.64	\$ 84,772.36	\$ 80,000.00	\$ 91,440.00	\$ 6,667.64	\$ 84,772.36	\$ 80,000.00	
Fed. Aid Data Collection & RPO/MPO Program Total		\$ 965,095.01	\$ 900,422.82	\$ 64,672.19	\$ 1,116,400.00	\$ 957,834.78	\$ 158,565.22	\$ 1,116,400.00	\$ 153,841.37	\$ 962,558.63	\$ 1,116,400.00	\$ 1,116,400.00	\$ 153,841.37	\$ 962,558.63	\$ 1,116,400.00	\$ 1,116,400.00	\$ 153,841.37	\$ 962,558.63	\$ 1,116,400.00	
II. PASER Data Collection (Paved, Non-Federal-Aid System)																				
PASER PNFA Data Collection Total																				
		\$ 40,760.39	\$ 40,760.39	\$ -	<i>(FY18 PNFA Moved Into Data Collection Program Above)</i>			<i>(FY19 PNFA Moved Into Data Collection Program Above)</i>			<i>(FY20 PNFA Moved Into Data Collection Program Above)</i>									
III. TAMC Central Data Agency (MCSS)																				
Project Management	4/2/19	\$ 37,800.00	\$ 40,064.00	\$ (2,264.00)	\$ 42,000.00	\$ 46,585.00	\$ (4,585.00)	\$ 42,000.00	\$ 26,911.00	\$ 15,089.00	\$ 380,000.00	\$ 42,000.00	\$ 26,911.00	\$ 15,089.00	\$ 380,000.00	\$ 42,000.00	\$ 26,911.00	\$ 15,089.00	\$ 380,000.00	
Data Support /Hardware / Software	4/2/19	\$ 60,200.00	\$ 58,833.00	\$ 1,367.00	\$ 68,800.00	\$ 67,800.00	\$ 1,000.00	\$ 68,800.00	\$ 10,050.00	\$ 58,750.00	\$ -	\$ 68,800.00	\$ 10,050.00	\$ 58,750.00	\$ -	\$ 68,800.00	\$ 10,050.00	\$ 58,750.00	\$ -	
Application Development / Maintenance / Testing	4/2/19	\$ 83,280.00	\$ 78,238.00	\$ 5,042.00	\$ 114,475.00	\$ 115,250.00	\$ (775.00)	\$ 114,475.00	\$ 31,575.00	\$ 82,900.00	\$ -	\$ 114,475.00	\$ 31,575.00	\$ 82,900.00	\$ -	\$ 114,475.00	\$ 31,575.00	\$ 82,900.00	\$ -	
Help Desk / Misc Support / Coordination	4/2/19	\$ 66,600.00	\$ 65,652.00	\$ 948.00	\$ 70,200.00	\$ 68,200.00	\$ 2,000.00	\$ 70,200.00	\$ 19,100.00	\$ 51,100.00	\$ -	\$ 70,200.00	\$ 19,100.00	\$ 51,100.00	\$ -	\$ 70,200.00	\$ 19,100.00	\$ 51,100.00	\$ -	
Training	4/2/19	\$ 27,600.00	\$ 29,133.00	\$ (1,533.00)	\$ 34,950.00	\$ 24,850.00	\$ 10,100.00	\$ 34,950.00	\$ 4,450.00	\$ 30,500.00	\$ -	\$ 34,950.00	\$ 4,450.00	\$ 30,500.00	\$ -	\$ 34,950.00	\$ 4,450.00	\$ 30,500.00	\$ -	
Data Access / Reporting	4/2/19	\$ 47,155.00	\$ 45,696.00	\$ 1,459.00	\$ 49,575.00	\$ 52,175.00	\$ (2,600.00)	\$ 49,575.00	\$ 21,675.00	\$ 27,900.00	\$ -	\$ 49,575.00	\$ 21,675.00	\$ 27,900.00	\$ -	\$ 49,575.00	\$ 21,675.00	\$ 27,900.00	\$ -	
<i>FY17 Off Budget: IRT Re-write - \$241,000</i>																				
	9/30/17	\$ 241,040.00	\$ 260,023.00	\$ (18,983.00)																
TAMC Central Data Agency (MCSS) Total		\$ 322,635.00	\$ 317,616.00	\$ 5,019.00	\$ 380,000.00	\$ 374,860.00	\$ 5,140.00	\$ 380,000.00	\$ 113,761.00	\$ 266,239.00	\$ 380,000.00	\$ 380,000.00	\$ 113,761.00	\$ 266,239.00	\$ 380,000.00	\$ 380,000.00	\$ 113,761.00	\$ 266,239.00	\$ 380,000.00	
IV. TAMC Training & Education (MTU) Calendar Year Z1	3/21/19	\$ 210,000.00	\$ 208,658.90	\$ 1,341.10	\$ 235,000.00	\$ 219,780.57	\$ 15,219.43	\$ 220,000.00	\$ 21,500.07	\$ 198,499.93	\$ 220,000.00	\$ 220,000.00	\$ 21,500.07	\$ 198,499.93	\$ 220,000.00	\$ 220,000.00	\$ 21,500.07	\$ 198,499.93	\$ 220,000.00	
V. TAMC Activities (MTU) Z15/R1	3/21/19	\$ 70,000.00	\$ 60,253.50	\$ 9,746.50	\$ 115,000.00	\$ 114,089.32	\$ 910.68	\$ 120,000.00	\$ 19,034.45	\$ 100,965.55	\$ 120,000.00	\$ 120,000.00	\$ 19,034.45	\$ 100,965.55	\$ 120,000.00	\$ 120,000.00	\$ 19,034.45	\$ 100,965.55	\$ 120,000.00	
VI. TAMC Expenses																				
Fall Conference Expenses	12/11/18	\$ 6,000.00	\$ 8,312.40	\$ -	\$ 10,000.00	\$ 7,269.00	\$ -	\$ 10,000.00	\$ 7,507.40	\$ 2,492.60	\$ 10,000.00	\$ 10,000.00	\$ 7,507.40	\$ 2,492.60	\$ 10,000.00	\$ 10,000.00	\$ 7,507.40	\$ 2,492.60	\$ 10,000.00	
Fall Conf. Attendance Fees + sponsorship Fees	12/11/18	\$ -	\$ 2,625.00	\$ -	\$ -	\$ 4,405.00	\$ -	\$ -	\$ 6,555.00	\$ -	\$ -	\$ -	\$ 6,555.00	\$ -	\$ -	\$ -	\$ 6,555.00	\$ -	\$ -	
Net Fall Conference	12/11/18	\$ 8,625.00	\$ 8,312.40	\$ 312.60	\$ 14,405.00	\$ 7,269.00	\$ 7,136.00	\$ 14,405.00	\$ 7,507.40	\$ 6,897.60	\$ 10,000.00	\$ 14,405.00	\$ 7,507.40	\$ 6,897.60	\$ 10,000.00	\$ 14,405.00	\$ 7,507.40	\$ 6,897.60	\$ 10,000.00	
Spring Conference Expenses	11/5/18	\$ 8,000.00	\$ 6,721.80	\$ 1,278.20	\$ 3,800.00	\$ 7,439.36	\$ -	\$ 3,800.00	\$ 10,000.00	\$ -	\$ -	\$ 3,800.00	\$ 10,000.00	\$ -	\$ -	\$ 3,800.00	\$ 10,000.00	\$ -	\$ -	
Spring Conf. Attendance Fees + sponsorship Fees	8/17/18	\$ -	\$ 6,140.00	\$ -	\$ -	\$ 8,350.00	\$ -	\$ -	\$ 1,000.00	\$ -	\$ -	\$ -	\$ 1,000.00	\$ -	\$ -	\$ -	\$ 1,000.00	\$ -	\$ -	
Net Spring Conference	11/5/18	\$ 14,140.00	\$ 6,721.80	\$ 7,418.20	\$ 12,150.00	\$ 7,439.36	\$ 4,710.64	\$ 11,000.00	\$ -	\$ 11,000.00	\$ 10,000.00	\$ 11,000.00	\$ -	\$ 11,000.00	\$ 10,000.00	\$ 11,000.00	\$ -	\$		

Understanding the 2016 Forecast

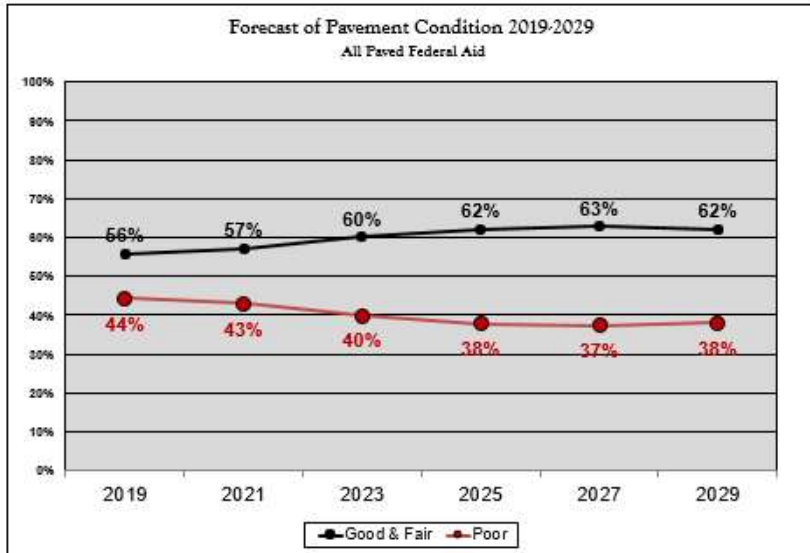
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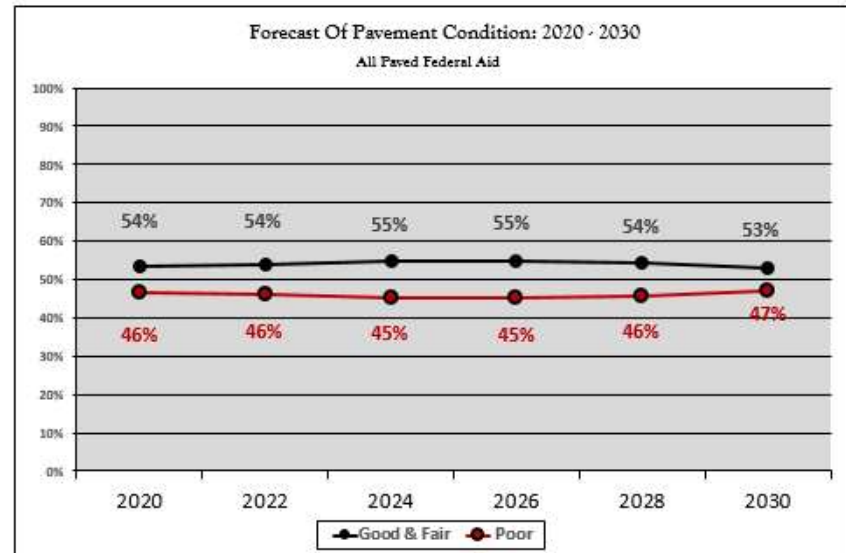
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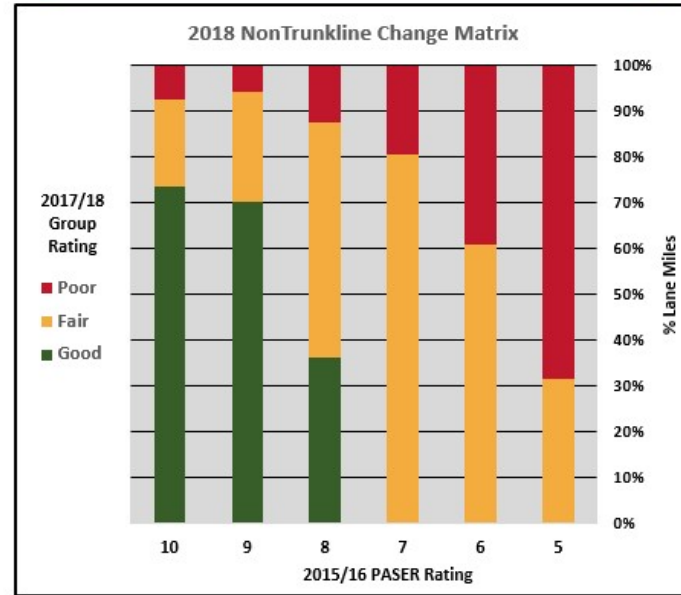
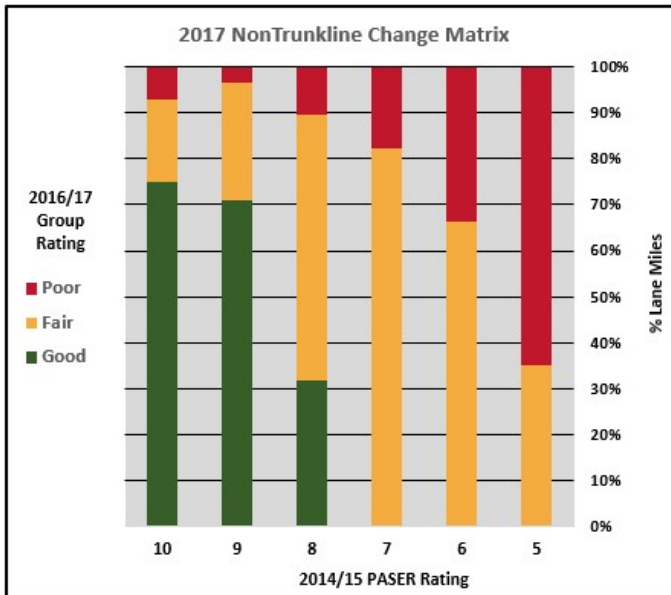
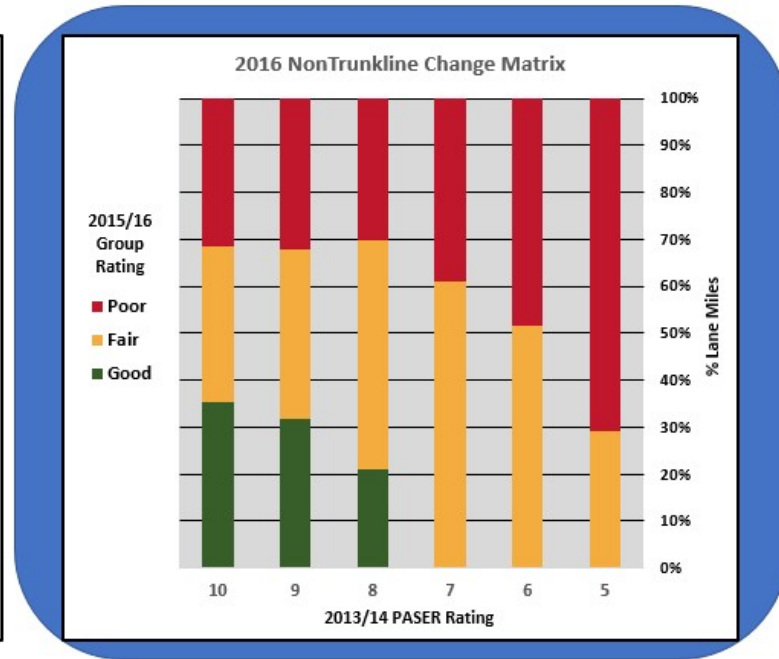
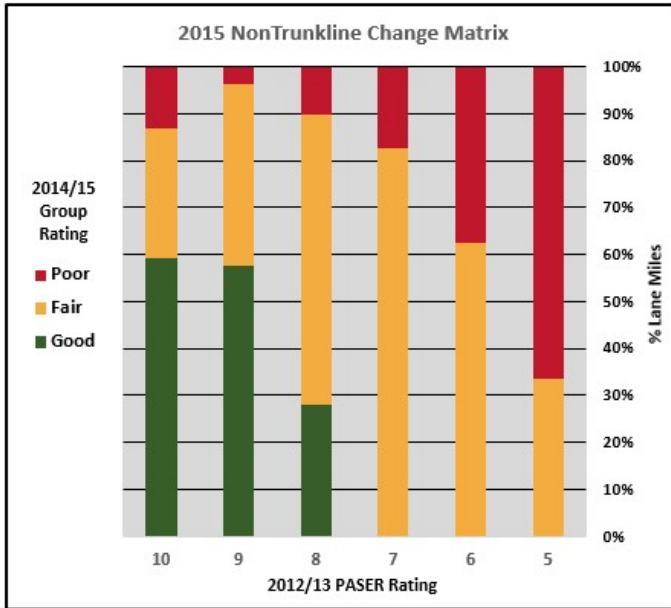
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from 2018 Annual Report



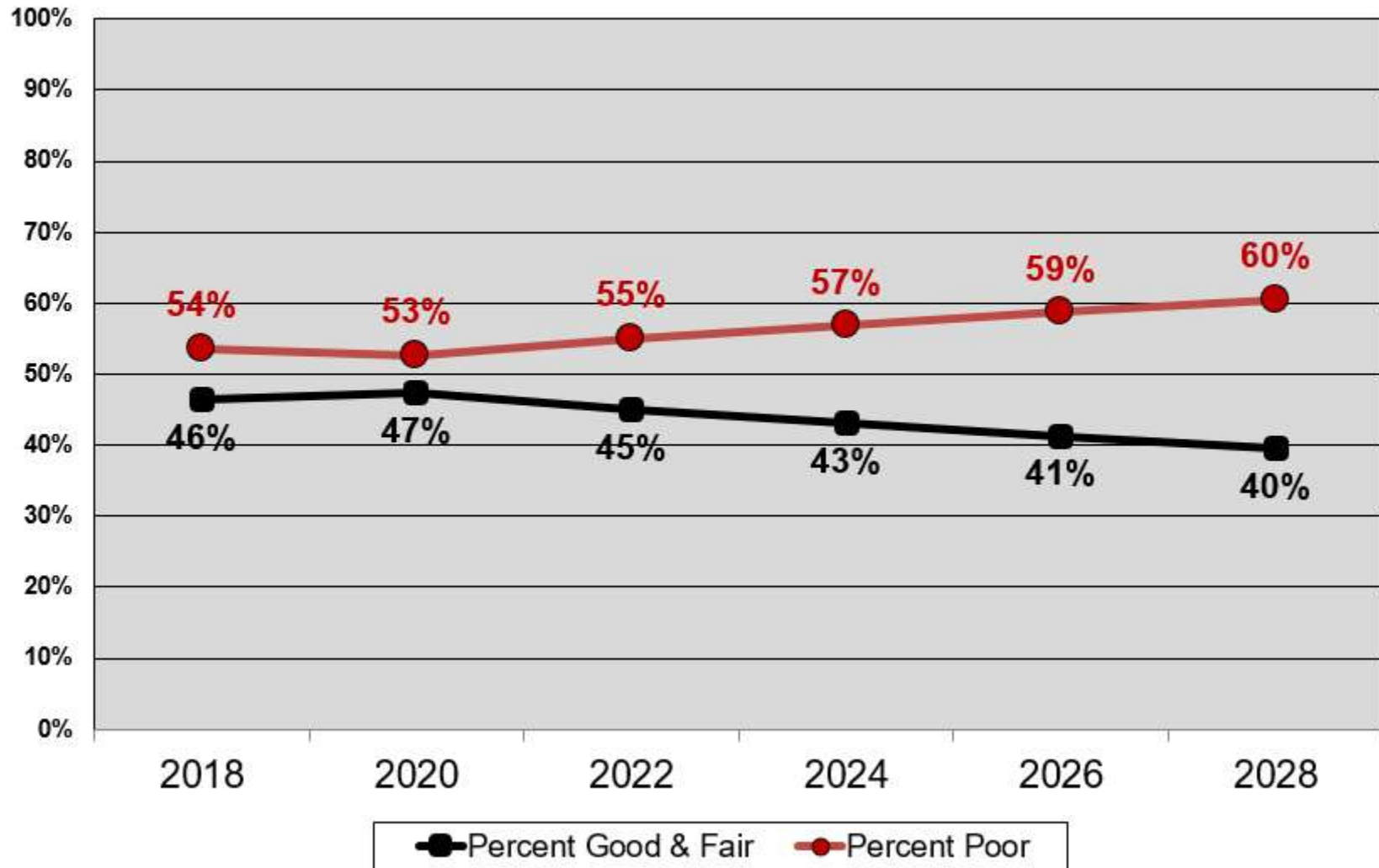
Comparison of Change Matrices



Forecast of Pavement Condition 2018-2028

30 Mar 2017

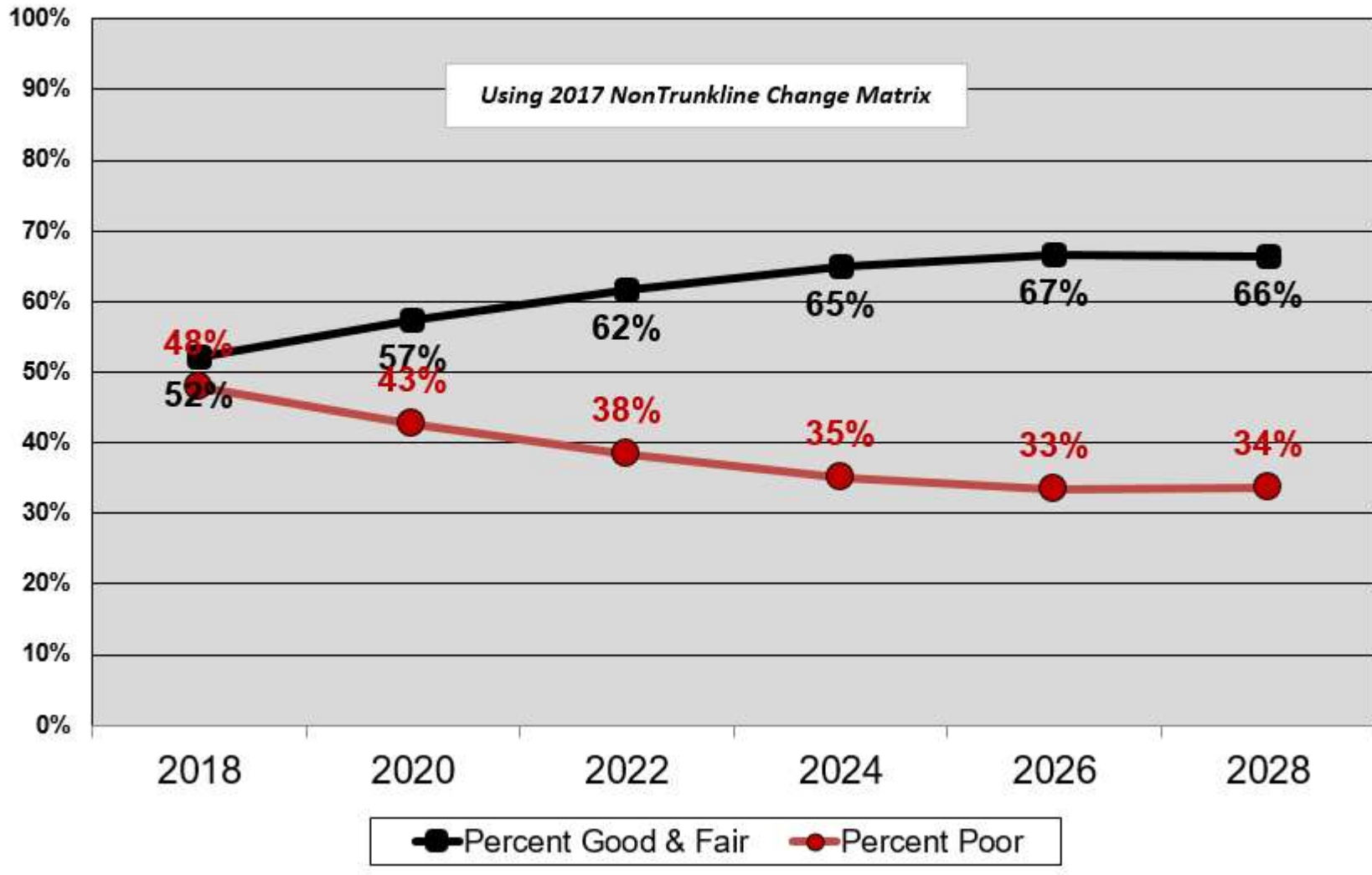
Non-Trunkline Paved Federal Aid



Forecast of Pavement Condition 2018-2028

4 April 2019

Non-Trunkline Paved Federal Aid



2016 Annual Report

The 2016 report was based on the 2015/2016 pavement ratings. 2015 ratings were used only on those road segments for which 2016 ratings were not available.

The condition forecast model was based on the 2013/2014—2015/2016 change matrix.

Forecast years were 2018, 2020, 2022, 2024, 2026, and 2028.

The non-trunkline model estimated a total expenditure of \$11,205,000,000 for the forecast period.

The trunkline model estimated a total expenditure of \$7,781,000,000 for the forecast period.

The combines estimated expenditure for paved federal-aid roads was \$18,986,000,000

2016 Report Model Summary

Deductions

NonTrunkline Pavd Fed-Aid 2017 - 2028 Forecast												
MTF Revenue in Millions \$	Fiscal Year	Counties Cities & Villages										
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Subtotal	1,380	1,379	1,451	1,404	1,381	1,408	1,419	1,419	1,418	1,384	1,384	1,393
subtract for nonA	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Subtotal	768	827	894	862	1069	1085	1104	1131	1140	1157	1178	1187
subtract for bridge & safety	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total MTF to NonTrunkline Fed Aid for CPM, Rehab, Recon	538	579	626	628	748	750	772	785	798	810	825	836

Hwy Revenue in Millions \$												
Fiscal Year	Counties, Cities, & Villages											
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Subtotal	365	380	371	377	382	384	384	380	368	312	322	327
subtract for non-convt	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Highway Trust Fund to NonTrunkline Fed Aid for CPM, Rehab, Recon	183	186	190	194	198	202	206	210	214	218	224	229

Hwy Revenue in Millions \$												
Fiscal Year	Counties, Cities, & Villages											
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Subtotal	183	186	190	194	198	202	206	210	214	218	224	229
subtract for non-convt	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Highway Trust Fund to NonTrunkline Fed Aid for CPM, Rehab, Recon	183	186	190	194	198	202	206	210	214	218	224	229

Total Revenue to NonTrunkline Fed Aid for CPM, Rehab, Recon												
Fiscal Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
MTF to NonTrunkline Fed Aid	538	579	626	628	748	750	772	785	798	810	825	836
Highway Trust Fund to NonTrunkline Fed Aid	183	186	190	194	198	202	206	210	214	218	224	229
Total	720	765	816	822	946	952	978	994	1012	1028	1049	1065

Revenue: 2017-2028	
MTF Estimated Revenue Distribution to Counties and Cities "D" (including General Fund) (in millions)	
Fiscal Year	Total
2017	\$ 1,380.18
2018	\$ 1,379.76
2019	\$ 1,450.63
2020	\$ 1,403.50
2021	\$ 1,380.43
2022	\$ 1,407.94
2023	\$ 1,418.22
2024	\$ 1,418.55
2025	\$ 1,399.84
2026	\$ 1,428.05
2027	\$ 1,452.56
2028	\$ 1,465.11
	\$20,857.30

Local Federal Revenue Estimate	
Fiscal Year	(Millions of Dollars)
2017	280.88
2018	286.82
2019	273.14
2020	276.76
2021	281.82
2022	287.94
2023	293.28
2024	299.59
2025	305.51
2026	312.00
2027	318.41
2028	327.83
	\$ 3,504.46

Total Revenue	
Fiscal Year	Total
2017	\$ 1,661.06
2018	\$ 1,666.58
2019	\$ 1,723.77
2020	\$ 1,680.26
2021	\$ 1,662.25
2022	\$ 1,695.88
2023	\$ 1,713.50
2024	\$ 1,713.54
2025	\$ 1,705.35
2026	\$ 1,740.05
2027	\$ 1,770.97
2028	\$ 1,792.94
	\$ 21,361.76

Revenue Forecast

Non-Trunkline

Trunkline

Model Input

Pavement Condition Forecast System: NonTrunkline Federal Aid	
Scenario Model Name: Mar 2017 Rev Est: PASER 2013/14 to 2015/16 change metric	
Project Costs per Lane Mile (Mar 2016)	
Capital Preventive Maintenance (CPM)	\$ 36,000
Rehabilitation	\$ 176,318
Reconstruct	\$ 419,967
First Year of Simulation	2017
Year Discount Rate Begins	2019
Discount Rate (inflation)	4%

Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2017	\$1,485,474,241	\$1,485,474,241	33%	37%	29%	100%
2019	\$1,683,379,704	\$1,683,379,704	32%	40%	28%	100%
2021	\$1,906,819,819	\$1,782,883,009	18%	37%	30%	100%
2023	\$1,972,519,382	\$1,688,132,527	16%	42%	42%	100%
2025	\$2,040,387,788	\$1,612,548,107	16%	42%	42%	100%
2027	\$2,116,561,155	\$1,548,156,133	16%	42%	42%	100%
Total	\$11,205,256,120	\$9,777,156,209.4				
Annual AVG	\$933,771,448	\$804,362,518				

Budgeted Expenditure by Work Type	
Work Type	%
Capital Preventive Maintenance (CPM)	21%
Rehabilitation	40%
Reconstruct	40%

Pavement Condition Forecast System: Trunkline Federal Aid	
Scenario Model Name: Mar 2017 Rev Est: PASER 2013/14 to 2015/16 change metric	
Project Costs per Lane Mile	
Capital Preventive Maintenance (CPM)	\$ 96,000
Rehabilitation	\$ 710,000
Reconstruct	\$ 1,800,000
First Year of Simulation	2021
Year Discount Rate Begins	2019
Discount Rate (inflation)	4%

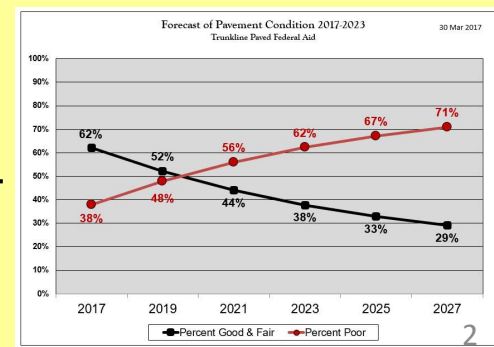
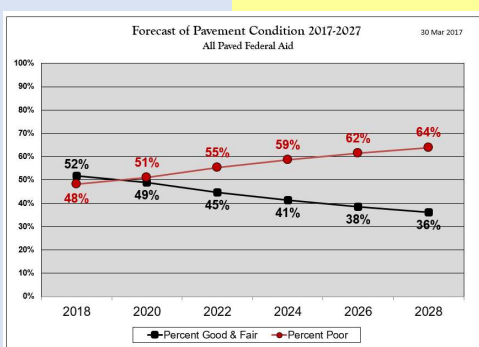
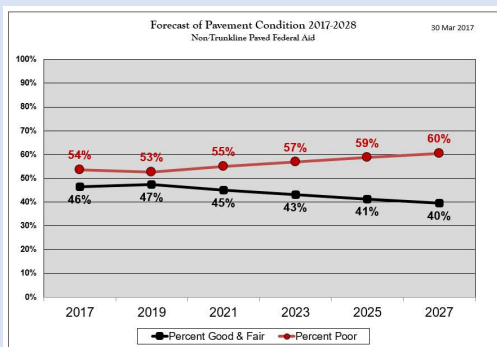
Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2017	\$1,027,203,987	\$1,027,203,987	33%	37%	29%	100%
2019	\$1,212,880,000	\$1,141,380,000	32%	40%	28%	100%
2021	\$1,402,970,000	\$1,291,124,600	16%	36%	30%	100%
2023	\$1,403,000,000	\$1,198,290,280	16%	42%	42%	100%
2025	\$1,403,000,000	\$1,108,812,280	16%	42%	42%	100%
2027	\$1,403,000,000	\$1,025,158,362	16%	42%	42%	100%
Total	\$7,781,833,993	\$6,798,448,538.79				
Annual AVG	\$648,418,499	\$566,620,712				

Budgeted Expenditure by Work Type	
Work Type	%
Capital Preventive Maintenance (CPM)	20%
Rehabilitation	40%
Reconstruct	40%

Model Input

Combined Forecast

Condition Forecast



Condition Forecast

Revenue: 2017 - 2028

MTF Estimated Revenue Distribution to Counties and Cities FY '17-'28 including General Fund (in millions)	
Fiscal Year	Total
2017	\$ 1,280.38
2018	\$ 1,378.91
2019	\$ 1,490.63
2020	\$ 1,603.91
2021	\$ 1,781.41
2022	\$ 1,807.94
2023	\$ 1,839.22
2024	\$ 1,868.55
2025	\$ 1,899.24
2026	\$ 1,928.05
2027	\$ 1,963.95
2028	\$ 1,995.12

\$20,837.30

MTF distribution to cities and counties includes entire allocation for routine maintenance, local administration, capital programs etc.

Local Federal Revenue Estimate 2017-2028	
(millions of dollars)	
2017	\$ 260.80
2018	\$ 266.02
2019	\$ 271.34
2020	\$ 276.76
2021	\$ 282.30
2022	\$ 287.94
2023	\$ 293.70
2024	\$ 299.58
2025	\$ 305.57
2026	\$ 312.90
2027	\$ 320.41
2028	\$ 327.14

\$ 3,504.46

Total local \$24,341.77

Includes all federal revenue for locals **except** for Metropolitan Planning It **does** include Bridge, Safety, CMAQ, Transportation Alternatives etc. which may or may not be spent on improving pavement conditions.

Trunkline Pavement Investment for 2017 to 2028	
Fiscal Year	Total
2017	\$ 520.51
2018	\$ 506.70
2019	\$ 522.20
2020	\$ 619.66
2021	\$ 698.91
2022	\$ 704.06
2023	\$ 701.50
2024	\$ 701.50
2025	\$ 701.50
2026	\$ 701.50
2027	\$ 701.50
2028	\$ 701.50

\$ 7,781.03

Investment includes federal, state revenues (including General fund) for the pavement preservation program (Reconstruction & Resurfacing, Capital Preventive Maintenance and Non-Freeway Resurfacing), does not include Trunkline Modernization investment.

Total rev \$ 32,122.80

Pavement Condition Forecast System: Trunkline Federal Aid

Scenario Model Name: Mar 2017 Rev Est; PASER 2013/14 to 2015/16 change matrix

Project Costs per Lane Mile		
Capital Preventive Maintenance (CPM)	\$	86,000
Rehabilitation	\$	710,000
Reconstruct	\$	1,800,000

First Year of Simulation	2017
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Year Discount Rate Begins	2020
Discount Rate (inflation)	4%

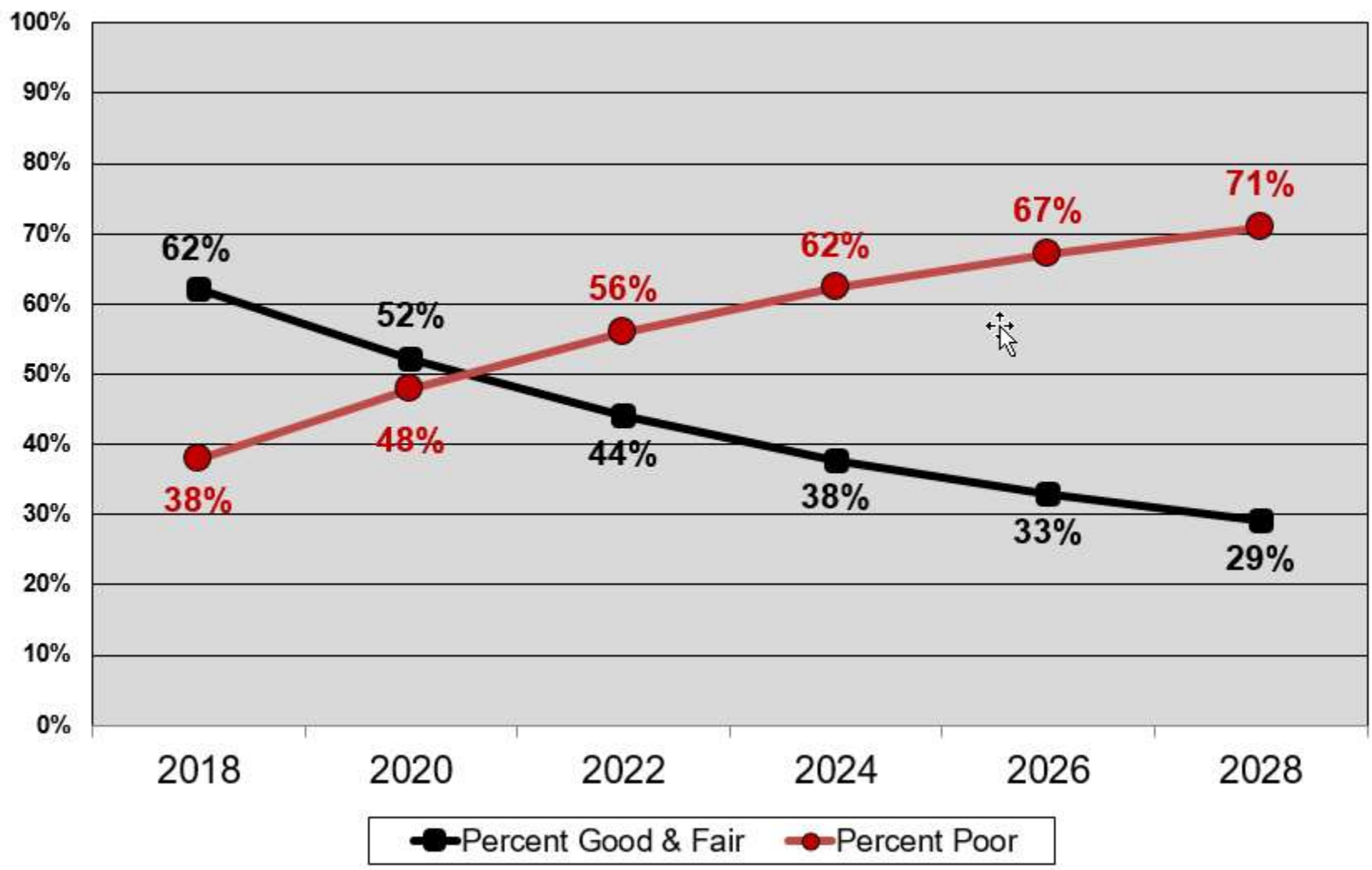
Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2018	\$1,027,203,987	\$1,027,203,987	33%	37%	29%	100%
2020	\$1,141,860,000	\$1,141,860,000	32%	40%	28%	100%
2022	\$1,402,970,000	\$1,297,124,630	16%	35%	50%	100%
2024	\$1,403,000,000	\$1,199,290,280	16%	42%	42%	100%
2026	\$1,403,000,000	\$1,108,811,280	16%	42%	42%	100%
2028	\$1,403,000,006	\$1,025,158,362	16%	42%	42%	100%
Total	\$7,781,033,993	\$6,799,448,538.79				
Annual AVG	\$648,419,499	\$566,620,712				

Budgeted Expenditure by Work Type		
Capital Preventive Maintenance (CPM)	\$1,590,000,002	20%
Rehabilitation	\$3,096,374,678	40%
Reconstruct	\$3,094,659,313	40%
	\$7,781,033,993	100%

Forecast of Pavement Condition 2018-2028

30 Mar 2017

Trunkline Paved Federal Aid



**NonTrunkline Paved Fed-Aid
2017 - 2028 Forecast**

MTF Revenue in Million \$		Counties Cities & Villages											
Fiscal Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
SubTotal	1,280	1,379	1,491	1,604	1,781	1,808	1,839	1,869	1,899	1,928	1,964	1,995	
subtract for nonFA	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	
SubTotal	768	827	894	962	1069	1085	1104	1121	1140	1157	1178	1197	
subtract for bridge & safety	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total MTF to NonTrunkline Fed Aid for CPM, Rehab, Recon	538	579	626	674	748	759	772	785	798	810	825	838	

Est Highway Trust Fund to Counties, Cities, & Villages in Million \$													
Fiscal Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
Counties, Cities, & Villages	261	266	271	277	282	288	294	300	306	313	320	327	
subtract for non-const	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	
Total Highway Trust Fund to NonTrunkline Fed Aid for CPM, Rehab, Recon	183	186	190	194	198	202	206	210	214	219	224	229	

Est Revenue in Million \$													
Fiscal Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
MTF to NonTrunkline Fed Aid	538	579	626	674	748	759	772	785	798	810	825	838	
Highway Trust Fund to NonTrunkline Fed Aid	183	186	190	194	198	202	206	210	214	219	224	229	
Total Revenue to NonTrunkline Fed Aid for CPM, Rehab, Recon	720	765	816	867	946	961	978	994	1012	1029	1049	1067	

1486 1683 1907 1973 2040 2116 11,205₆



Pavement Condition Forecast System: NonTrunkline Federal Aid

Scenario Model Name: Mar 2017 Rev Est; PASER 2013/14 to 2015/16 change matrix

Project Costs per Lane Mile (Mar 2014)	
Capital Preventive Maintenance (CPM)	\$ 38,000
Rehabilitation	\$ 176,318
Reconstruct	\$ 619,967

First Year of Simulation	2017
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Year Discount Rate Begins	2020
Discount Rate (inflation)	4%

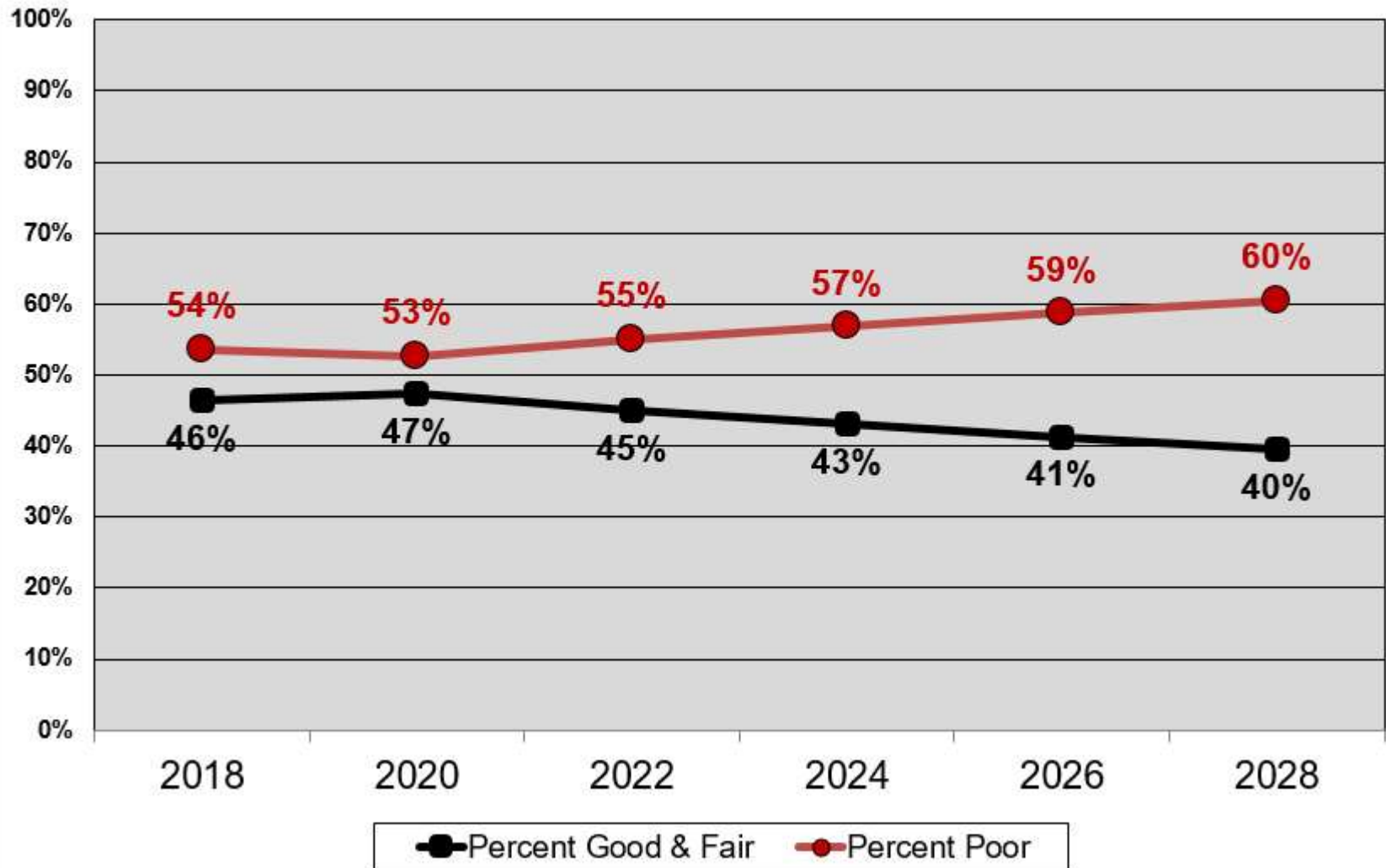
Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2018	\$1,485,674,241	\$1,485,674,241	33%	37%	29%	100%
2020	\$1,683,379,704	\$1,683,379,704	32%	40%	28%	100%
2022	\$1,906,693,810	\$1,762,845,609	16%	35%	50%	100%
2024	\$1,972,559,382	\$1,686,152,027	16%	42%	42%	100%
2026	\$2,040,387,788	\$1,612,548,107	16%	42%	42%	100%
2028	\$2,116,561,195	\$1,546,550,533	16%	42%	42%	100%
Total	\$11,205,256,120	\$9,777,150,220.94				
Annual AVG	\$933,771,343	\$814,762,518				

Budgeted Expenditure by Work Type		
Capital Preventive Maintenance (CPM)	\$2,297,359,622	21%
Rehabilitation	\$4,466,376,162	40%
Reconstruct	\$4,441,520,336	40%
	\$11,205,256,120	100%

Forecast of Pavement Condition 2018-2028

30 Mar 2017

Non-Trunkline Paved Federal Aid

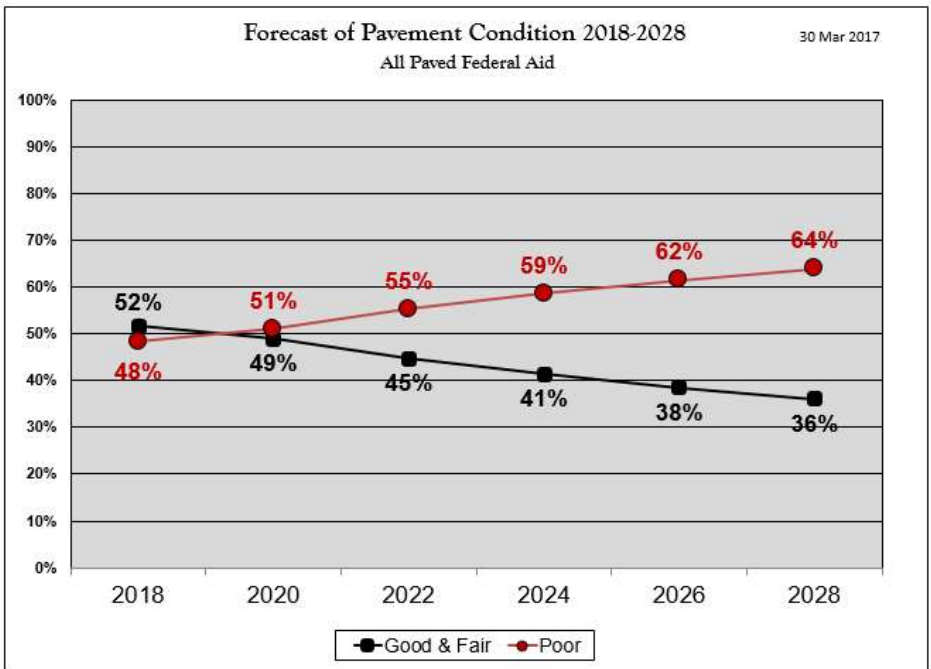


LaneMiles		Percent			Lane Miles			
		Poor	Good & Fair	Check Sum	Poor	Good & Fair	Check Sum	
NonT	wth T dist	2018	54%	46%	100.00%	31,464	27,262	58,726
		2020	53%	47%	100.00%	30,888	27,838	58,726
		2022	55%	45%	100.00%	32,314	26,412	58,726
		2024	57%	43%	100.00%	33,366	25,360	58,726
		2026	59%	41%	100.00%	34,459	24,267	58,726
		2028	60%	40%	100.00%	35,484	23,242	58,726

LaneMiles		Percent			Lane Miles			
		Poor	Good & Fair	Check Sum	Poor	Good & Fair	Check Sum	
Trunkline		2018	38%	62%	100.00%	11,243	18,460	29,702
		2020	48%	52%	100.00%	14,251	15,452	29,702
		2022	56%	44%	100.00%	16,621	13,082	29,702
		2024	62%	38%	100.00%	18,491	11,212	29,702
		2026	67%	33%	100.00%	19,951	9,752	29,702
		2028	71%	29%	100.00%	21,080	8,623	29,702

		Data for Chart			Lane Miles			
		Poor	Good & Fair	Check Sum	Poor	Good & Fair	Check Sum	
Combined		2018	48%	52%	100%	42,706	45,722	88,428
		2020	51%	49%	100%	45,138	43,290	88,428
		2022	55%	45%	100%	48,934	39,494	88,428
		2024	59%	41%	100%	51,856	36,572	88,428
		2026	62%	38%	100%	54,409	34,019	88,428
		2028	64%	36%	100%	56,563	31,865	88,428

from 2016 Annual Report





2018-2028 Pavement Condition Forecast
Paved Federal-Aid Roads Only – Including General Funds

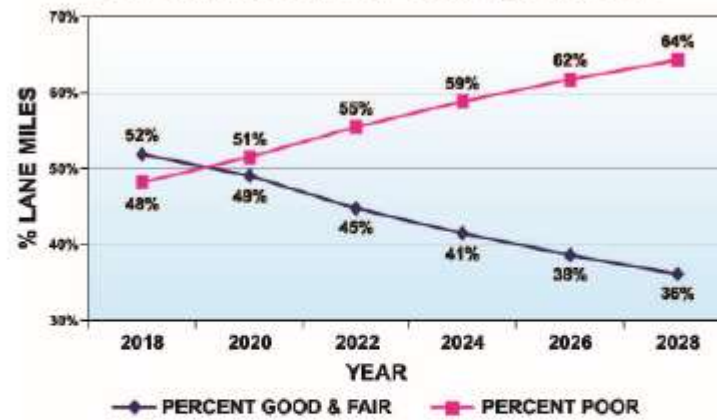


Figure 5

2017 Annual Report

The 2017 report was based on the 2016/2017 pavement ratings. 2016 ratings were used only on those road segments for which 2017 ratings were not available.

The condition forecast model was based on the 2014/2015—2016/2017 change matrix.

Forecast years were 2019, 2021, 2023, 2025, 2027, and 2029.

The non-trunkline model estimated a total expenditure of \$11,764,000,000 for the forecast period.

The trunkline model estimated a total expenditure of \$9,139,000,000 for the forecast period.

The combines estimated expenditure for paved federal-aid roads was \$20,903,000,000.

This represents a \$1,917,000,000 increase in expenditures over the previous year's model.

2017 Report Model Summary

Deductions

NonTrunkline Pavd Fed Aid 2018 - 2029 Forecast

Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
MFF Revenue in Millions \$	1,084	1,494	1,617	1,835	1,881	1,881	1,915	1,934	1,984	2,000	2,049	2,089
Subtotal												
subtract for non-PA	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Subtotal	800	896	909	1,104	1,131	1,130	1,149	1,184	1,179	1,208	1,229	1,250
subtract for bridge & safety	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total MFF to NonTrunkline Fed Aid for CMA, Rehab, Recon	561	627	639	773	791	804	813	825	840	860	880	900

Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
County, City, & Village	267	273	276	284	294	300	301	307	314	322	328	334
subtract for non-const	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Highway Fund to NonTrunkline Fed Aid for CMA, Rehab, Recon	187	191	195	199	201	207	211	215	220	225	230	232

Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
MFF to NonTrunkline Fed Aid	561	627	639	773	791	804	813	825	840	860	880	900
Highway Fund to NonTrunkline Fed Aid	187	191	195	199	201	207	211	215	220	225	230	232
Total Revenue to NonTrunkline Fed Aid for CMA, Rehab, Recon	748	818	834	972	992	1011	1024	1040	1060	1085	1110	1132

Revenue Forecast 2018 - 2029

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
MFF Revenue	1,084	1,494	1,617	1,835	1,881	1,881	1,915	1,934	1,984	2,000	2,049	2,089
Subtotal	800	896	909	1,104	1,131	1,130	1,149	1,184	1,179	1,208	1,229	1,250
subtract for non-const	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Highway Fund to NonTrunkline Fed Aid for CMA, Rehab, Recon	187	191	195	199	201	207	211	215	220	225	230	232

Revenue Forecast

Non-Trunkline

Trunkline

Model Input

Pavement Condition Forecast System: NonTrunkline Federal Aid

Scenario Model Name: Mar 2018 Rev Ed: PASER 2014/15 to 2016/17 change matrix

Project Costs per Lane Mile	Value
Capital Preventive Maintenance (CPM)	\$ 30,000
Rehabilitation	\$ 70,318
Reconstruct	\$ 65,907

First Year of Simulation: 2018

Year Discount Rate Begins: 2019

Discount Rate (Inflation): 4%

Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2019	\$1,368,454,520	\$1,556,454,520	14%	42%	44%	100%
2021	\$1,841,219,814	\$1,704,087,276	14%	42%	44%	100%
2023	\$1,977,828,829	\$1,496,657,217	14%	42%	44%	100%
2025	\$2,043,207,978	\$1,454,955,375	14%	42%	44%	100%
2027	\$2,110,575,422	\$1,342,176,788	14%	42%	44%	100%
2029	\$2,202,420,448	\$1,407,876,139	14%	42%	44%	100%
Total	\$11,763,708,011	\$9,636,088,734.96				
Annual Avg	\$980,305,685	\$802,174,900				

Budgeted Expenditure by Work Type	Value	%
Capital Preventive Maintenance (CPM)	\$1,646,938,122	14%
Rehabilitation	\$4,940,757,365	42%
Reconstruct	\$5,176,093,125	44%
Total	\$11,763,708,011	100%

Pavement Condition Forecast System: Trunkline Federal Aid

Scenario Model Name: PASER 2014/15 to 2016/17 change matrix

Project Costs per Lane Mile	Value
Capital Preventive Maintenance (CPM)	\$ 66,000
Rehabilitation	\$ 70,000
Reconstruct	\$ 1,000,000

First Year of Simulation: 2017

Year Discount Rate Begins: 2023

Discount Rate (Inflation): 4%

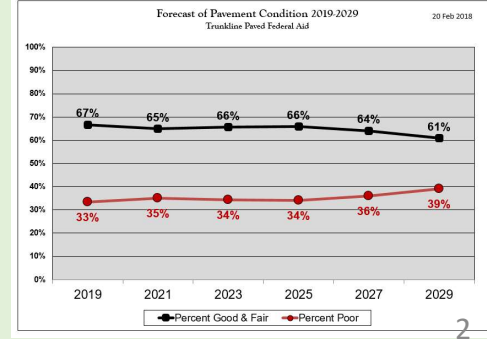
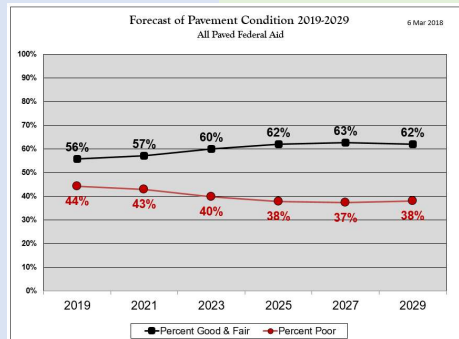
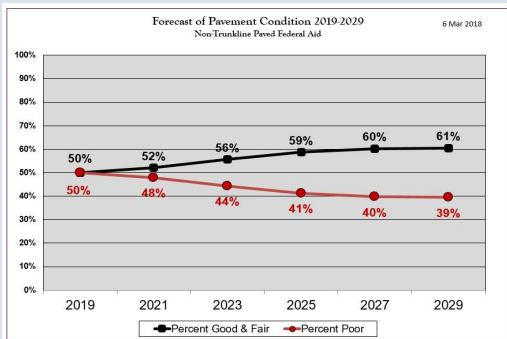
Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2019	\$1,208,750,000	\$1,208,750,000	35%	37%	28%	100%
2021	\$1,510,470,000	\$1,510,470,000	33%	31%	45%	100%
2023	\$1,604,940,000	\$1,604,940,000	17%	43%	40%	100%
2025	\$1,604,940,000	\$1,483,887,249	17%	42%	41%	100%
2027	\$1,604,940,000	\$1,371,909,438	17%	42%	41%	100%
2029	\$1,604,940,000	\$1,261,407,395	17%	42%	41%	100%
Total	\$9,138,990,000	\$8,448,534,081.80				
Annual Avg	\$761,541,667	\$704,807,840				

Budgeted Expenditure by Work Type	Value	%
Capital Preventive Maintenance (CPM)	\$1,864,220,247.53	20%
Rehabilitation	\$5,650,224,993.66	40%
Reconstruct	\$5,624,544,758.81	40%
Total	\$9,138,990,000	100%

Model Input

Combined Forecast

Condition Forecast



Condition Forecast

Revenue: 2018 - 2029

MTF Estimated Revenue Distribution to Counties and Cities FY 2018-2018 including Income tax (in millions)			
Fiscal Year	Total		
2018	\$1,383.87		
2019	\$1,493.56	\$2,877.43	
2020	\$1,617.38		
2021	\$1,834.80	\$3,452.18	
2022	\$1,852.20		
2023	\$1,882.90	\$3,735.10	
2024	\$1,915.30		
2025	\$1,936.35	\$3,851.65	
2026	\$1,964.34		
2027	\$2,000.30	\$3,964.64	
2028	\$2,048.62		
2029	\$2,088.70	\$4,137.32	\$22,018.32

MTF distribution to cities and counties includes entire allocation for routine maintenance, local administration, capital programs etc.

Trunkline Pavement Investment for 2018 to 2028			
Fiscal Year	Total		
2018	\$572.89		
2019	\$635.86	\$1,208.75	
2020	\$708.00		
2021	\$802.47	\$1,510.47	
2022	\$802.47		
2023	\$802.47	\$1,604.94	
2024	\$802.47		
2025	\$802.47	\$1,604.94	
2026	\$802.47		
2027	\$802.47	\$1,604.94	
2028	\$802.47		
2029	\$802.47	\$1,604.94	\$9,138.98

Investment includes federal, state revenues (including income tax redirection) for the pavement preservation program (Reconstruction & Resurfacing, Capital Preventive Maintenance and Non-Freeway Resurfacing), does not include Trunkline Modernization investment.

Supplemental Income Tax Redirection Local Share		
Fiscal Year	Total	
2018	\$106.58	\$106.58

Local Federal Revenue Estimate 2018-2028 (millions of dollars)					
Fiscal Year	Total				
2018	\$267.28				
2019	\$272.63	\$539.91			
2020	\$278.08				
2021	\$283.64	\$561.72			
2022	\$289.31				
2023	\$295.10	\$584.41			
2024	\$301.00				
2025	\$307.02	\$608.02			
2026	\$314.39				
2027	\$321.93	\$636.32			
2028	\$328.37				
2029	\$335.55	\$663.92	\$3,594.30		
		Total local	\$25,719.20	Total	\$34,751.61

Includes all federal revenue for locals except for Metropolitan Planning. It does include Bridge, Safety, CMAQ, Transportation Alternatives etc. which may or may not be spent on improving pavement conditions.

Pavement Condition Forecast System: Trunkline Federal Aid

Scenario Model Name: PASER 2014/15 to 2016/17 change matrix

Project Costs per Lane Mile		
Capital Preventive Maintenance (CPM)	\$	86,000
Rehabilitation	\$	710,000
Reconstruct	\$	1,800,000



First Year of Simulation	2017
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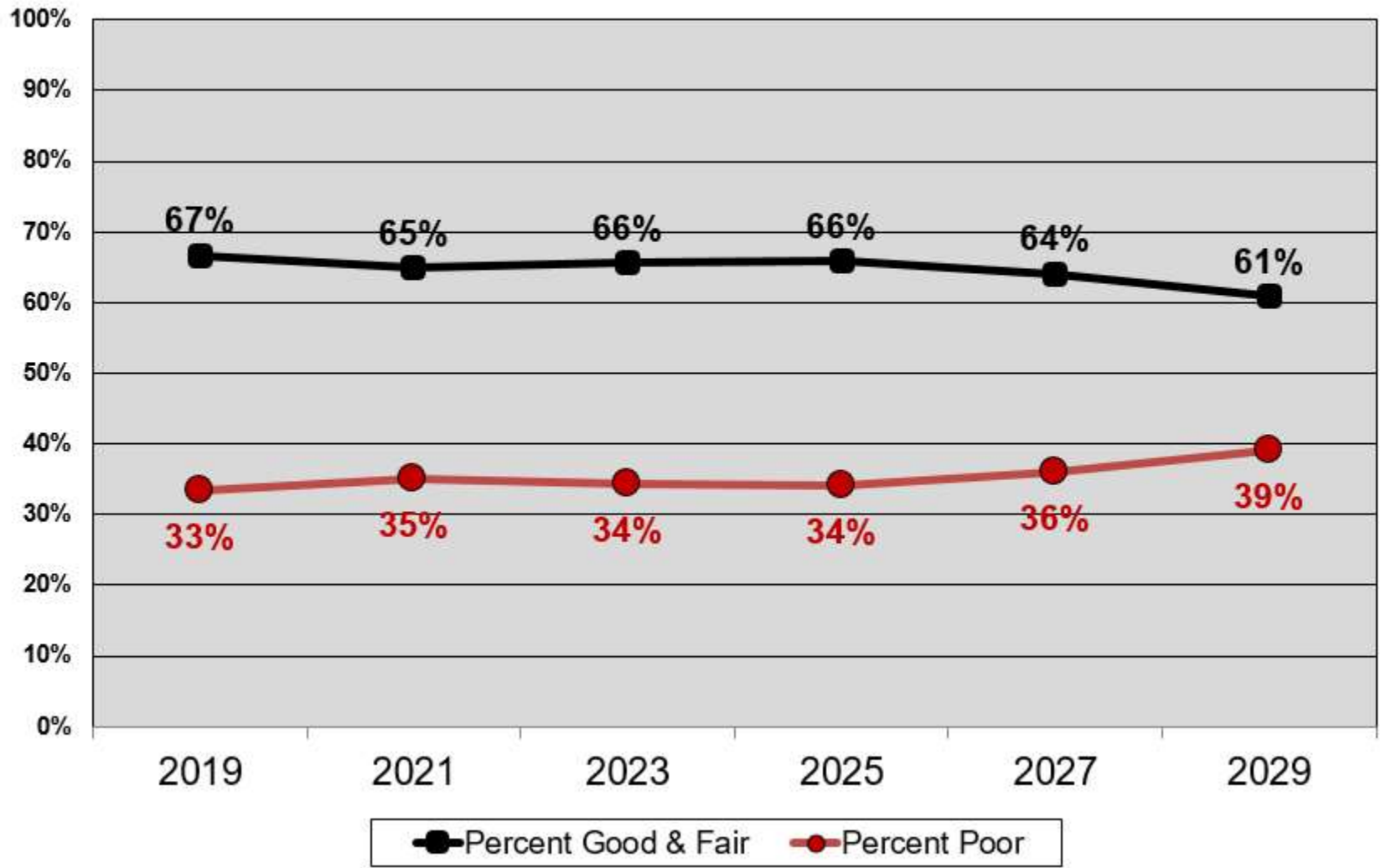
Year Discount Rate Begins	2023
Discount Rate (inflation)	4%

Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2019	\$1,208,750,000	\$1,208,750,000	35%	37%	28%	100%
2021	\$1,510,470,000	\$1,510,470,000	23%	32%	45%	100%
2023	\$1,604,940,000	\$1,604,940,000	17%	43%	40%	100%
2025	\$1,604,940,000	\$1,483,857,249	17%	42%	41%	100%
2027	\$1,604,940,000	\$1,371,909,438	17%	42%	41%	100%
2029	\$1,604,940,000	\$1,268,407,395	17%	42%	41%	100%
Total	\$9,138,980,000	\$8,448,334,081.80				
Annual AVG	\$761,581,667	\$704,027,840				

Budgeted Expenditure by Work Type		
Capital Preventive Maintenance (CPM)	\$1,864,220,247.53	20%
Rehabilitation	\$3,650,224,993.66	40%
Reconstruct	\$3,624,534,758.81	40%
	\$9,138,980,000	100%

Forecast of Pavement Condition 2019-2029
Trunkline Paved Federal Aid

20 Feb 2018



**NonTrunkline Paved Fed-Aid
2018 - 2029 Forecast**

MTF Revenue in Million \$												
Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
SubTotal	1,384	1,494	1,617	1,835	1,852	1,883	1,915	1,936	1,964	2,000	2,049	2,089
subtract for nonFA	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
SubTotal	830	896	970	1101	1111	1130	1149	1162	1179	1200	1229	1253
subtract for bridge & safety	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total MTF to NonTrunkline Fed Aid for CPM, Rehab, Recon	581	627	679	771	778	791	804	813	825	840	860	877

Est Highway Trust Fund to Counties, Cities, & Villages in Million \$												
Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Counties, Cities, & Villages	267	273	278	284	289	295	301	307	314	322	328	336
subtract for non-const	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Highway Trust Fund to NonTrunkline Fed Aid for CPM, Rehab, Recon	187	191	195	199	203	207	211	215	220	225	230	235

Est Revenue in Million \$												
Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
MTF to NonTrunkline Fed Aid	581	627	679	771	778	791	804	813	825	840	860	877
Highway Trust Fund to NonTrunkline Fed Aid	187	191	195	199	203	207	211	215	220	225	230	235
Total Revenue to NonTrunkline Fed Aid for CPM, Rehab, Recon	768	818	874	969	980	997	1015	1028	1045	1065	1090	1112

11,764

1586 1843 1978 2043 2111 2202 11,764

Pavement Condition Forecast System: NonTrunkline Federal Aid

Scenario Model Name: Mar 2018 Rev Est; PASER 2014/15 to 2016/17 change matrix

Project Costs per Lane Mile		
Capital Preventive Maintenance (CPM)	\$	38,000
Rehabilitation	\$	176,318
Reconstruct	\$	619,967

First Year of Simulation	2018
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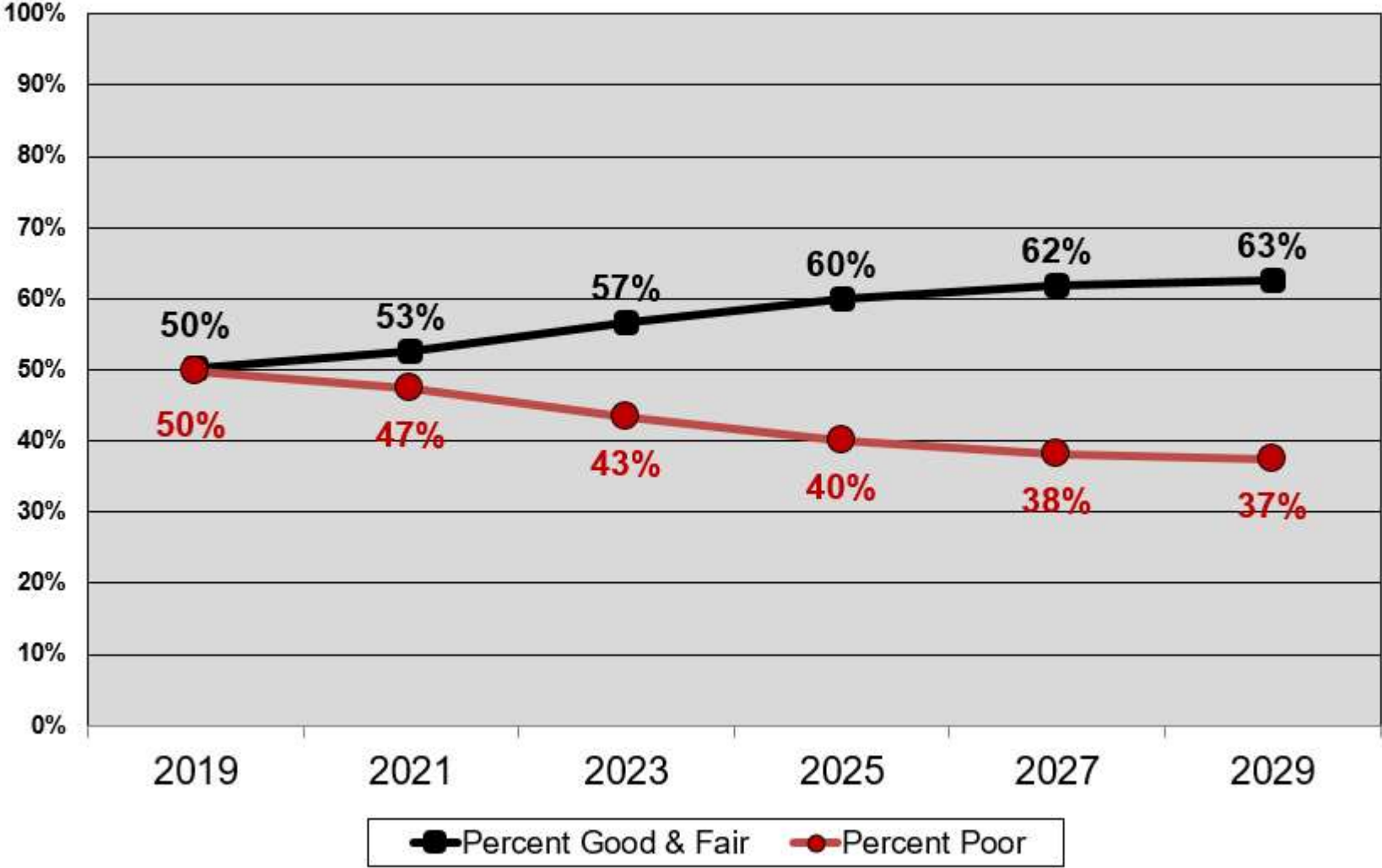
Year Discount Rate Begins	2019
Discount Rate (inflation)	4%

Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2019	\$1,586,454,520	\$1,586,454,520	15%	42%	43%	100%
2021	\$1,843,119,814	\$1,704,067,876	15%	42%	43%	100%
2023	\$1,977,829,829	\$1,690,657,227	15%	42%	43%	100%
2025	\$2,043,307,978	\$1,614,855,975	15%	42%	43%	100%
2027	\$2,110,575,422	\$1,542,176,788	16%	42%	42%	100%
2029	\$2,202,420,448	\$1,487,876,339	16%	42%	42%	100%
Total	\$11,763,708,011	\$9,626,088,724.96				
<i>Annual AVG</i>	<i>\$980,309,001</i>	<i>\$802,174,060</i>				

Budgeted Expenditure by Work Type		
Capital Preventive Maintenance (CPM)	\$1,807,686,160	15%
Rehabilitation	\$4,940,757,365	42%
Reconstruct	\$5,015,264,486	43%
	\$11,763,708,011	100%

Forecast of Pavement Condition 2019-2029
Non-Trunkline Paved Federal Aid

6 Mar 2018

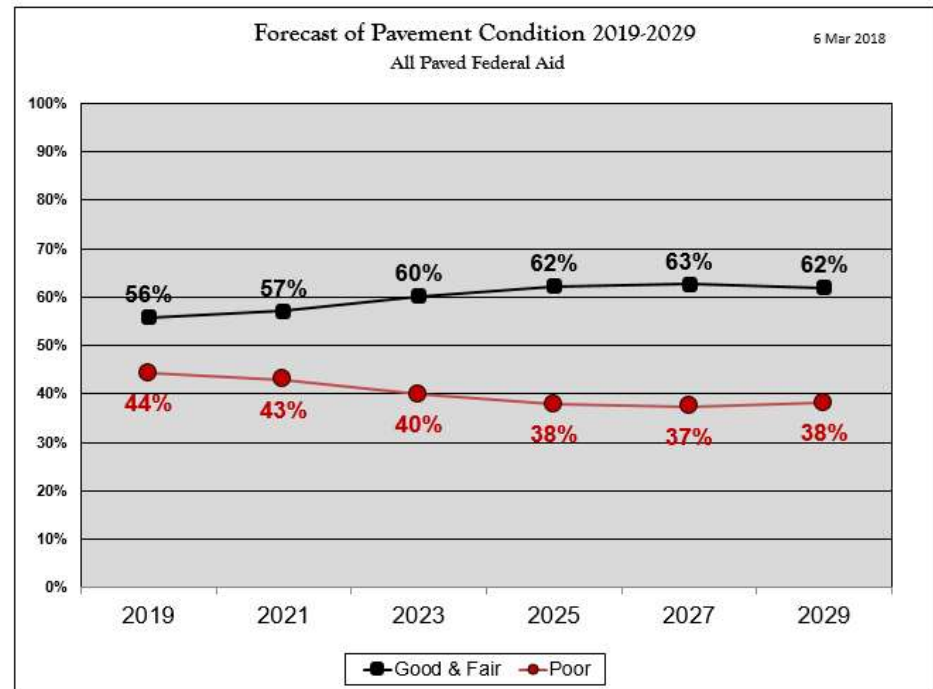


	LaneMil	Percent Good & Check			Lane Miles Good & Check Sum		
		Poor	Fair	Sum	Poor	Fair	Check Sum
	58,726						
NonTrunkline							
	2019	50%	50%	100.00%	29,230	29,496	58,726
	2021	47%	53%	100.00%	27,493	31,233	58,726
	2023	43%	57%	100.00%	25,081	33,645	58,726
	2025	40%	60%	100.00%	23,317	35,409	58,726
	2027	38%	62%	100.00%	22,317	36,409	58,726
	2029	37%	63%	100.00%	22,014	36,712	58,726

	LaneMil	Percent Good & Check			Lane Miles Good & Check Sum		
		Poor	Fair	Sum	Poor	Fair	Check Sum
	29,748						
Trunkline							
	2019	33%	67%	100.00%	9,917	19,831	29,748
	2021	35%	65%	100.00%	10,450	19,298	29,748
	2023	34%	66%	100.00%	10,225	19,523	29,748
	2025	34%	66%	100.00%	10,168	19,580	29,748
	2027	36%	64%	100.00%	10,692	19,056	29,748
	2029	39%	61%	100.00%	11,646	18,102	29,748

	LaneMil	Data for Chart			Lane Miles		
		Percent			Good &		
		Poor	Fair	Check Sum	Poor	Fair	Check Sum
	88,474						
Combined							
	2019	44%	56%	100%	39,147	49,327	88,474
	2021	43%	57%	100%	37,943	50,531	88,474
	2023	40%	60%	100%	35,306	53,168	88,474
	2025	38%	62%	100%	33,485	54,989	88,474
	2027	37%	63%	100%	33,009	55,465	88,474
	2029	38%	62%	100%	33,660	54,814	88,474

from the 2017 Annual Report



MICHIGAN'S 2017 Roads & Bridges ANNUAL REPORT

2019-2029 Forecast of Pavement Condition

All Paved Federal-Aid Roads

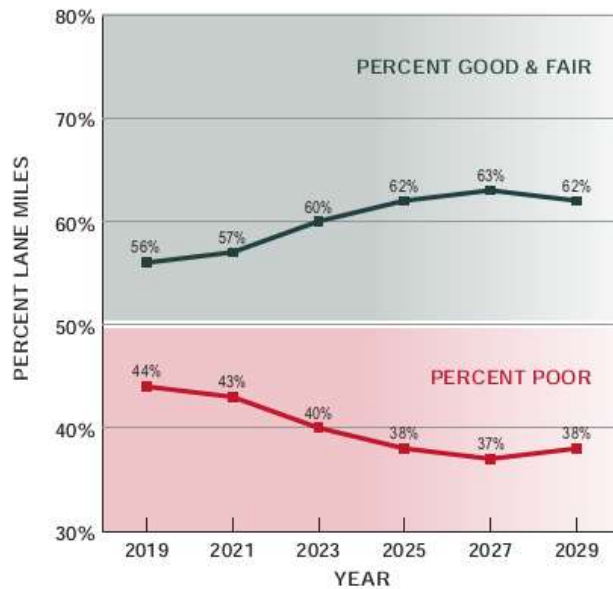
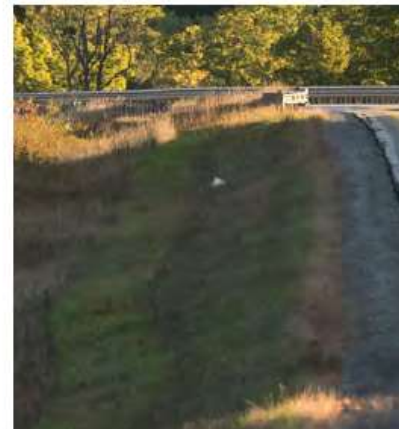


Figure 9
Source: TAMC March 2018

Condition Forecast

Marginal improvement in the condition of paved federal-aid roads can be expected over the next 11 years as seen in Figure 9. In November of 2015, the Michigan legislature passed a transportation funding package that will incrementally increase road funding. The additional funding began in 2017. The increases will continue until 2021 and then increase with inflation. A portion of that funding will come from Michigan income taxes. The small improvements shown in Figure 9 are due to the expected increase in funding. Any future changes in funding will affect the forecast.



2018 Annual Report

The 2018 report is based on the 2017/2018 pavement ratings. 2017 ratings are used only on those road segments for which 2018 ratings are not available.

The condition forecast model is based on the 2014/2015—2016/2017 change matrix.

Forecast years are 2020, 2022, 2024, 2026, 2028, and 2030.

The non-trunkline model estimates a total expenditure of \$12,358,000,000 for the forecast period.

The trunkline model estimates a total expenditure of \$9,369,100,000 for the forecast period.

The combined estimated expenditure for paved federal-aid roads is \$21,727,000,000.

This represents a \$824,000,000 increase in expenditures over the previous year's model.

2018 Report Model Summary

Deductions

NonTrunkline Paved Fed Aid 2019 - 2030 Forecast												
Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MTF Revenue in Millions \$	1,732.82	1,800.00	1,868.23	1,872.91	1,897.19	1,912.06	1,943.59	1,965.49	1,989.02	2,014.62	2,042.28	2,068.00
Subtotal												
subtract for nonFA	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
Subtotal	1,040	1,104	1,139	1,124	1,138	1,153	1,178	1,194	1,209	1,224	1,239	1,254
subtract for bridge & safety	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total MTF to NonTrunkline Fed Aid for CPM, Rehab, Recon	728	794	829	797	797	806	816	825	835	846	860	868

Est Highway Trust Fund to Counties, Cities, & Villages in Millions \$												
Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Counties, Cities, & Villages	272.45	277.9	283.49	289.13	294.81	300.81	308.82	312.96	319.22	325.8	333.09	340.75
subtract for non-const	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%
Total Highway Trust Fund to NonTrunkline Fed Aid for CPM, Rehab, Recon	191	195	198	200	206	211	215	219	223	228	238	239

Est Revenue in Millions \$												
Fiscal Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MTF to NonTrunkline Fed Aid	728	794	829	797	797	806	816	825	835	846	860	868
Highway Trust Fund to NonTrunkline Fed Aid	191	195	198	200	206	211	215	219	223	228	238	239
Total Revenue to NonTrunkline Fed Aid for CPM, Rehab, Recon	919	989	1028	997	1003	1017	1031	1044	1059	1074	1098	1106

8.6% of Total Revenue (for NHS) 79.0 85.0 89.2 85.1 86.3 87.4 88.7 89.8 91.1 92.4 93.8 95.1

MTF Estimated Revenue (By Highway Trust Fund Allocation FY 2019 to 2030 including revenue to be received)		Trunkline Revenue (Estimated to 2019 to 2030 (in millions)	
Fiscal Year	Total	Fiscal Year	Total
2019	\$1,732.82	2019	\$1,104.00
2020	\$1,800.00	2020	\$1,104.00
2021	\$1,868.23	2021	\$1,104.00
2022	\$1,872.91	2022	\$1,104.00
2023	\$1,897.19	2023	\$1,104.00
2024	\$1,912.06	2024	\$1,104.00
2025	\$1,943.59	2025	\$1,104.00
2026	\$1,965.49	2026	\$1,104.00
2027	\$1,989.02	2027	\$1,104.00
2028	\$2,014.62	2028	\$1,104.00
2029	\$2,042.28	2029	\$1,104.00
2030	\$2,068.00	2030	\$1,104.00
Total	\$20,528.31	Total	\$9,936.00

Est Revenue to Counties, Cities, & Villages (2019 to 2030 in millions)	
Fiscal Year	Total
2019	\$272.45
2020	\$277.90
2021	\$283.49
2022	\$289.13
2023	\$294.81
2024	\$300.81
2025	\$308.82
2026	\$312.96
2027	\$319.22
2028	\$325.80
2029	\$333.09
2030	\$340.75
Total	\$3,694.91

Revenue Forecast

Non-Trunkline Trunkline

Model Input

Scenario Model Name: Mar 2018 Rev Est, PASER 2015/16 to 2017/18 change matrix

Project Costs per Lane Mile		Previous Costs
Capital Preventive Maintenance (CPM)	\$ 41,037	\$ 38,000
Rehabilitation	\$ 8,222,105	\$ 274,518
Reconstruct	\$ 655,744	\$ 615,987

First Year of Simulation: 2019
Year Discount Rate Begins: 2022
Discount Rate (inflation): 4%

Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2020	\$1,907,397,112	\$1,807,287,112	15%	42%	43%	100%
2022	\$2,019,891,842	\$2,028,898,842	15%	42%	43%	100%
2024	\$2,019,837,400	\$1,987,453,217	15%	42%	43%	100%
2026	\$2,078,797,760	\$1,775,548,811	15%	42%	43%	100%
2028	\$1,132,267,000	\$1,488,687,284	16%	42%	42%	100%
2030	\$1,196,347,664	\$1,604,999,863	16%	42%	42%	100%
Total	\$12,358,078,778	\$10,885,651,239.08				
Average	\$1,029,839,898	\$905,476,937				

Budgeted Expenditure by Work Type	
Capital Preventive Maintenance (CPM)	\$1,807,287,112 15%
Rehabilitation	\$5,390,380,987 42%
Reconstruct	\$5,278,479,228 43%
Total	\$12,358,078,778 100%

Non-Trunkline Cost Calculations For 2018 Forecasts

NECP MTC	Cost per Lane Mile	Weight Cost * Weight	Weighted Average
Light CPM	3 Principle Arterials	\$46,353	\$ 565,815
	4 Minor Arterials	\$43,777	\$18,455
	5 Major Collectors	\$19,277	\$28,756
Total		\$ 613,026	\$78,086
Heavy CPM	3 Principle Arterials	\$145,130	\$145,130
	4 Minor Arterials	\$79,488	\$132,245
	5 Major Collectors	\$57,861	\$70,863
Total		\$373,479	\$64,207
Rehabilitation	3 Principle Arterials	\$480,206	\$ 840,206
	4 Minor Arterials	\$279,963	\$423,574
	5 Major Collectors	\$124,559	\$164,604
Total		\$1,484,734	\$273,385
Reconstruct	3 Principle Arterials	\$1,384,666	\$ 1,384,666
	4 Minor Arterials	\$879,085	\$1,802,261
	5 Major Collectors	\$243,348	\$217,478
Total		\$2,507,099	\$699,298

Weight based on number of Lane miles per National Functional Classification

Pavement Condition Forecast System Trunkline Federal Aid

Scenario Model Name: Mar 2018 Rev Est, PASER 2015/16 to 2017/18 change matrix

Project Costs per Lane Mile		Previous Costs
Capital Preventive Maintenance (CPM)	\$ 88,000	\$ 96,000
Rehabilitation	\$ 8,074,000	\$ 770,000
Reconstruct	\$ 2,700,000	\$ 1,800,000

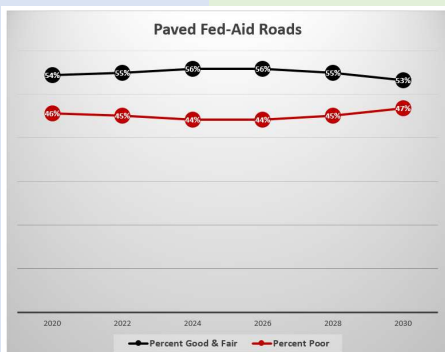
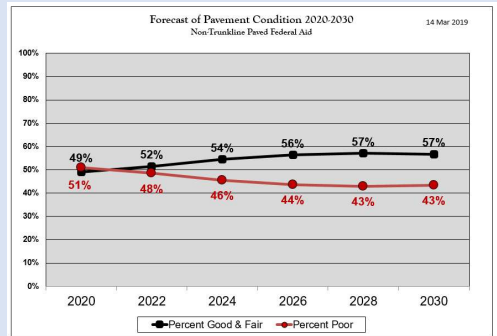
First Year of Simulation: 2019
Year Discount Rate Begins: 2022
Discount Rate (inflation): 4%

Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2020	\$1,344,000,000	\$1,344,000,000	30.0%	36.0%	34.0%	100%
2022	\$1,609,020,000	\$1,465,020,000	14.0%	29.0%	57.0%	100%
2024	\$1,609,020,000	\$1,483,911,213	15.0%	25.5%	48.0%	100%
2026	\$1,609,020,000	\$1,371,977,823	15.0%	37.0%	48.0%	100%
2028	\$1,609,020,000	\$1,268,470,620	15.0%	26.0%	49.0%	100%
2030	\$1,609,020,000	\$1,172,772,393	15.0%	36.0%	49.0%	100%
Total	\$9,398,100,000	\$8,246,111,048.62				
Average	\$780,750,833	\$687,181,044				

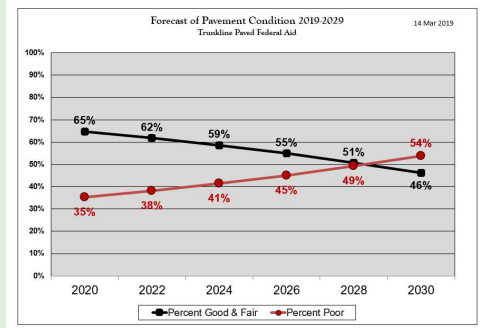
Budgeted Expenditure by Work Type	
Capital Preventive Maintenance (CPM)	\$1,590,816,800.00 17%
Rehabilitation	\$5,268,549,700.00 35%
Reconstruct	\$4,509,835,500.00 48%
Total	\$9,369,100,000.00 100%

Combined Forecast

Condition Forecast



Condition Forecast



Pavement Condition Forecast System: Trunkline Federal Aid

Scenario Model Name: **Mar 2019 Rev Est; PASER 2015/16 to 2017/18 change matrix**

Project Costs per Lane Mile	
Capital Preventive Maintenance (CPM)	\$ 98,000
Rehabilitation	\$ 674,000 ?
Reconstruct	\$ 2,700,000

Previous Costs	
	\$ 96,000
	\$ 710,000
	\$ 1,800,000

First Year of Simulation	2019
--------------------------	------

Year Discount Rate Begins	2022
Discount Rate (inflation)	4%

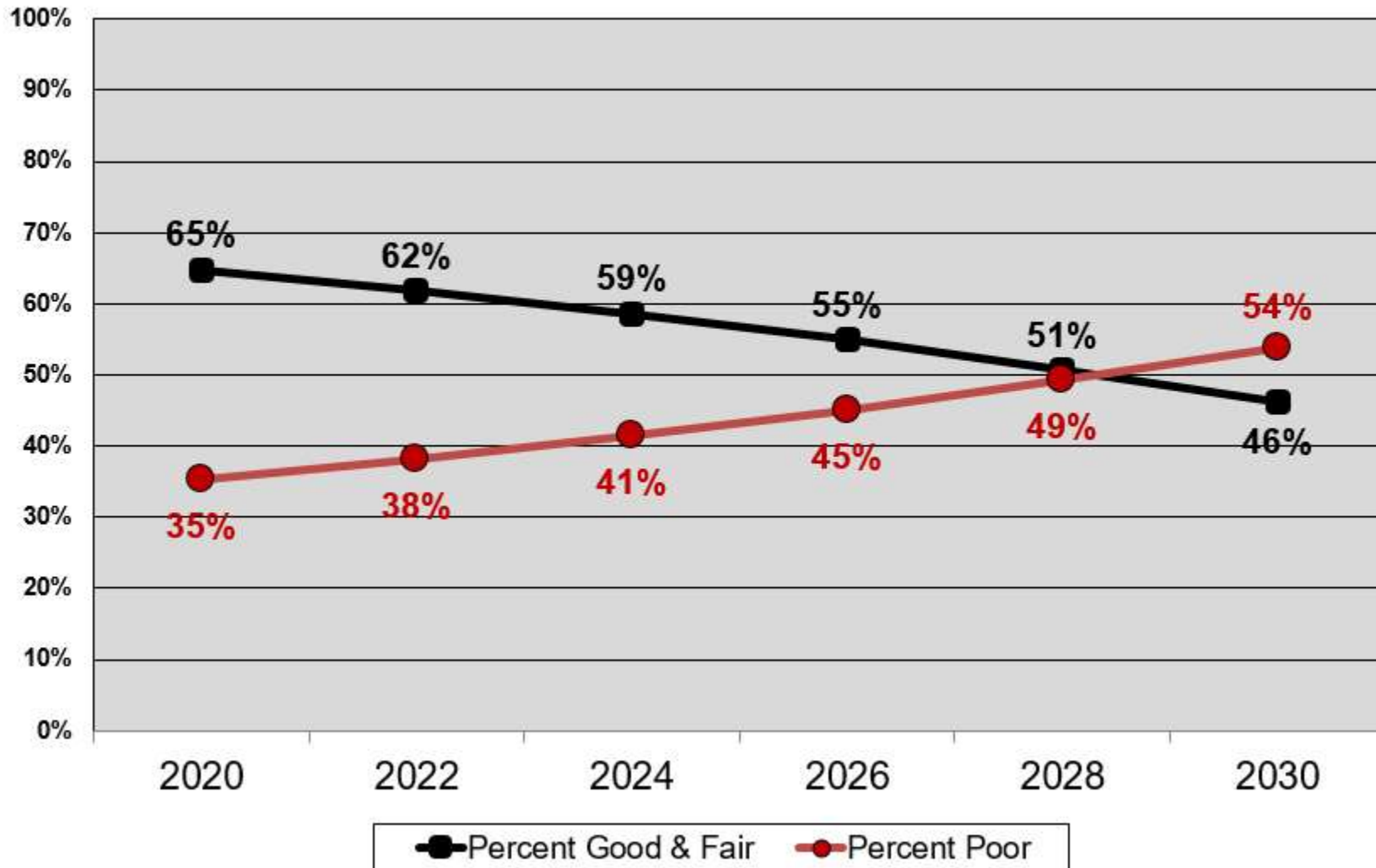
Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2020	\$1,344,000,000	\$1,344,000,000	30.0%	36.0%	34.0%	100%
2022	\$1,605,020,000	\$1,605,020,000	14.0%	29.0%	57.0%	100%
2024	\$1,605,020,000	\$1,483,931,213	15.0%	35.5%	49.5%	100%
2026	\$1,605,020,000	\$1,371,977,823	15.0%	37.0%	48.0%	100%
2028	\$1,605,020,000	\$1,268,470,620	15.0%	36.0%	49.0%	100%
2030	\$1,605,020,000	\$1,172,772,393	15.0%	36.0%	49.0%	100%
Total	\$9,369,100,000	\$8,246,172,048.62				
Annual AVG	\$780,758,333	\$687,181,004				

Budgeted Expenditure by Work Type		
Capital Preventive Maintenance (CPM)	\$1,590,914,800.00	17%
Rehabilitation	\$3,268,549,700.00	35%
Reconstruct	\$4,509,635,500.00	48%
	\$9,369,100,000	100%

Forecast of Pavement Condition 2019-2029

14 Mar 2019

Trunkline Paved Federal Aid



Non-Trunkline Cost Calculations For 2018 Forecasts

	NFC#	NFC	Cost per Lane Mile	Weight	Cost * Weight	Weighted Average
Light CPM						
	3	Principle Arterials	\$45,915	1	\$45,915	
	4	Minor Arterials	\$23,777	1.55	\$36,855	
	5	Major Collectors	\$11,277	2.55	\$28,756	
		Total		5.1	\$111,525	\$21,868
Heavy CPM						
	3	Principle Arterials	\$145,130	1	\$145,130	
	4	Minor Arterials	\$72,416	1.55	\$112,245	
	5	Major Collectors	\$27,483	2.55	\$70,082	
		Total		5.1	\$327,457	\$64,207
Rehabilitation						
	3	Principle Arterials	\$402,206	1	\$402,206	
	4	Minor Arterials	\$271,983	1.55	\$421,574	
	5	Major Collectors	\$123,159	2.55	\$314,054	
		Total		5.1	\$1,137,834	\$223,105
Reconstruction						
	3	Principle Arterials	\$1,384,666	1	\$1,384,666	
	4	Minor Arterials	\$879,065	1.55	\$1,362,551	
	5	Major Collectors	\$242,148	2.55	\$617,478	
		Total		5.1	\$3,364,695	\$659,744

Weight based on number of lane miles per National Functional Classification

Pavement Condition Forecast System: NonTrunkline Federal Aid

Scenario Model Name: **Mar 2018 Rev Est; PASER 2015/16 to 2017/18 change matrix**

Project Costs per Lane Mile		
Capital Preventive Maintenance (CPM)	\$	43,037
Rehabilitation	\$	223,105
Reconstruct	\$	659,744

Previous Costs	
\$	38,000
\$	176,318
\$	619,967

First Year of Simulation	2019
--------------------------	------

Year Discount Rate Begins	2022
Discount Rate (inflation)	4%

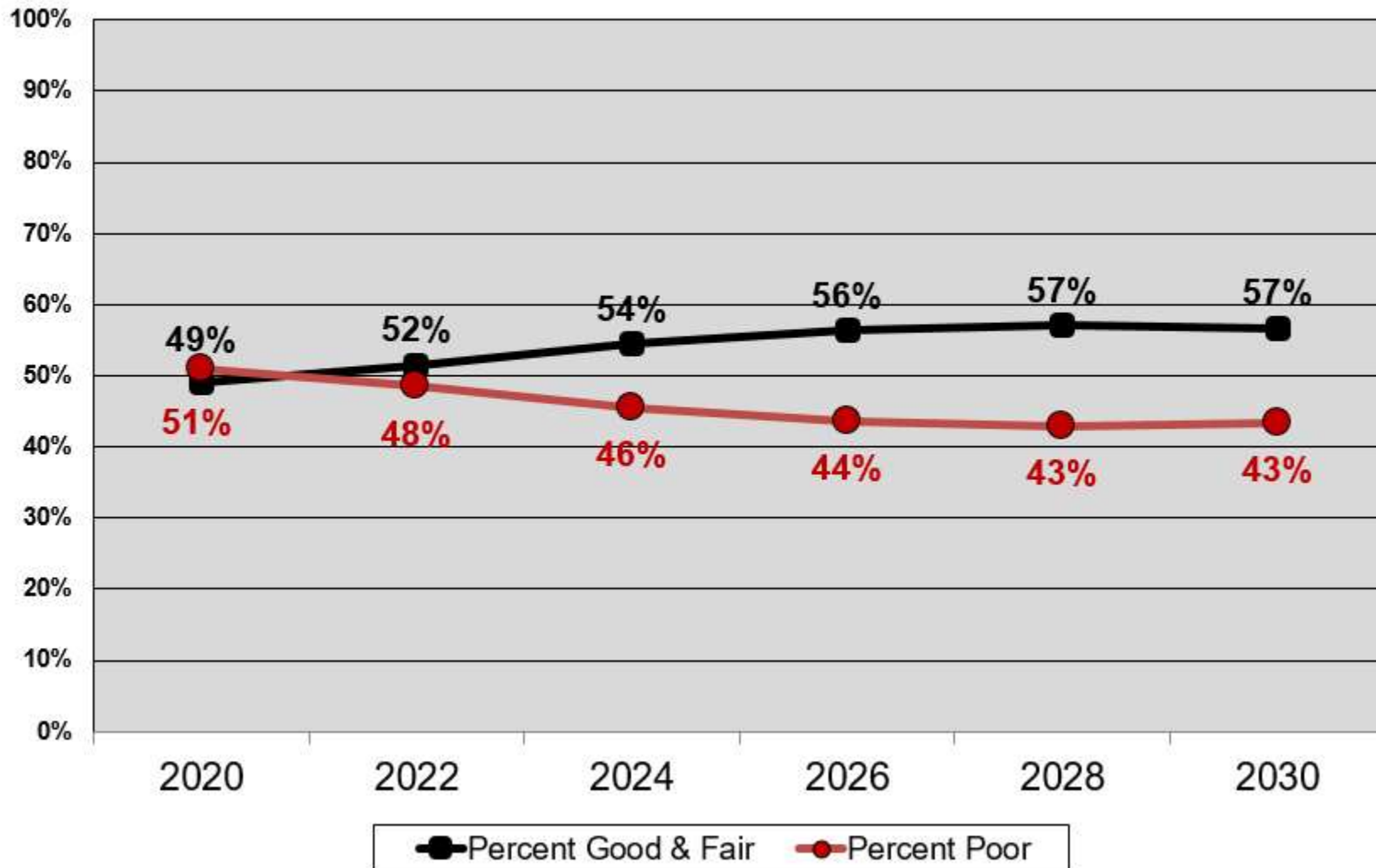
Year	Budget	Discounted Budget	% PM	% Rehab	% Repl	Total
2020	\$1,907,297,112	\$1,907,297,112	15%	42%	43%	100%
2022	\$2,026,691,842	\$2,026,691,842	15%	42%	43%	100%
2024	\$2,019,837,400	\$1,867,453,217	15%	42%	43%	100%
2026	\$2,074,797,760	\$1,773,545,821	15%	42%	43%	100%
2028	\$2,132,907,000	\$1,685,667,384	16%	42%	42%	100%
2030	\$2,196,547,664	\$1,604,995,863	16%	42%	42%	100%
Total	\$12,358,078,778	\$10,865,651,239.08				
Annual AVG	\$1,029,839,898	\$905,470,937				

Budgeted Expenditure by Work Type		
Capital Preventive Maintenance (CPM)	\$1,897,006,363	15%
Rehabilitation	\$5,190,393,087	42%
Reconstruct	\$5,270,679,328	43%
	\$12,358,078,778	100%

Forecast of Pavement Condition 2020-2030

14 Mar 2019

Non-Trunkline Paved Federal Aid

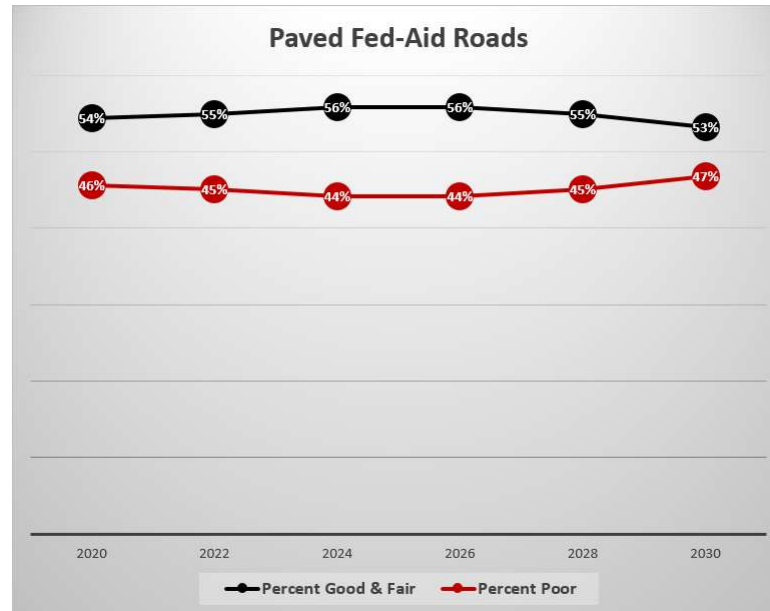


Combined Trunkline & Non-Trunkline Models

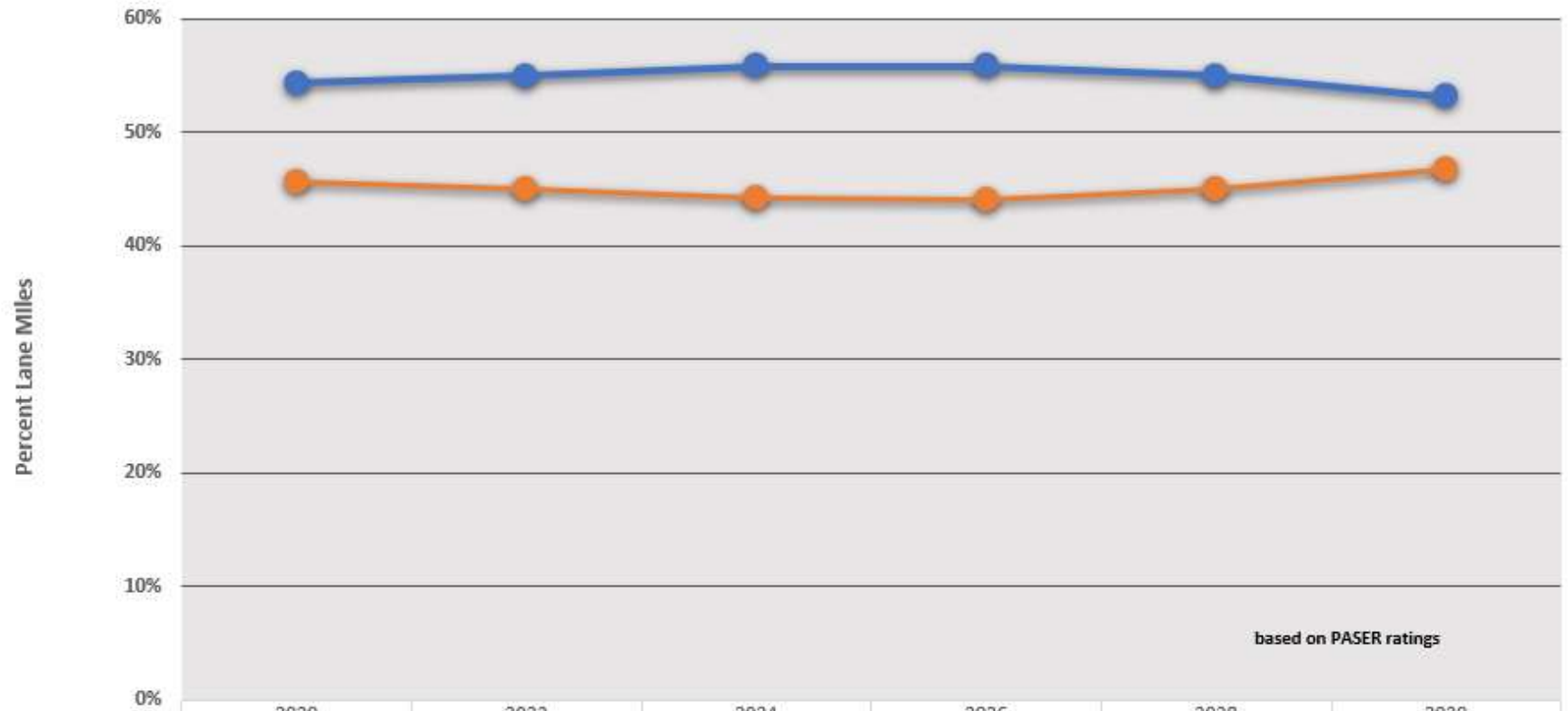
Trunkline					Total Lane Miles	Trunkline				
Percent Good	Percent Fair	Percent Poor	Check Sum	Lane Miles Good		Lane Miles Fair	Lane Miles Poor	Check Sum		
2020	30%	35%	35%	100.00%	29,748	2020	9,004.7	10,265.1	10,478.3	29,748.0
2022	34%	27%	38%	100.00%		2022	10,205.7	8,167.1	11,375.3	29,748.0
2024	26%	32%	41%	100.00%		2024	7,788.7	9,643.1	12,316.3	29,748.0
2026	23%	32%	45%	100.00%		2026	6,757.7	9,589.1	13,401.3	29,748.0
2028	21%	30%	49%	100.00%		2028	6,099.7	8,971.1	14,677.3	29,748.0
2030	19%	27%	54%	100.00%		2030	5,570.7	8,170.1	16,007.3	29,748.0

NonTrunkline					Total Lane Miles	NonTrunkline				
Percent Good	Percent Fair	Percent Poor	Check Sum	Lane Miles Good		Lane Miles Fair	Lane Miles Poor	Check Sum		
2020	29%	21%	51%	100.00%	59,480	2020	17,000.6	12,218.4	30,261.0	59,480.0
2022	34%	17%	48%	100.00%		2022	20,402.7	10,252.4	28,825.0	59,480.0
2024	35%	19%	46%	100.00%		2024	20,968.7	11,441.4	27,069.9	59,480.0
2026	35%	22%	44%	100.00%		2026	20,542.7	12,962.4	25,974.9	59,480.0
2028	34%	23%	43%	100.00%		2028	20,121.7	13,831.4	25,526.9	59,480.0
2030	33%	24%	43%	100.00%		2030	19,350.7	14,377.4	25,751.9	59,480.0

All Paved Fed-Aid Roads					Total Lane Miles	All Paved Fed-Aid Roads				
Percent Good	Percent Fair	Percent Poor	Check Sum	Lane Miles Good		Lane Miles Fair	Lane Miles Poor	Check Sum		
2020	29%	25%	46%	100.00%	89,228	2020	26,005.3	22,483.5	40,739.2	89,228.0
2022	34%	21%	45%	100.00%		2022	30,608.3	18,419.5	40,200.2	89,228.0
2024	32%	24%	44%	100.00%		2024	28,757.3	21,084.5	39,386.2	89,228.0
2026	31%	25%	44%	100.00%		2026	27,300.3	22,551.5	39,376.2	89,228.0
2028	29%	26%	45%	100.00%		2028	26,221.3	22,802.5	40,204.2	89,228.0
2030	28%	25%	47%	100.00%		2030	24,921.3	22,547.5	41,759.2	89,228.0



Condition Forecast: Paved Fed-Aid Roads



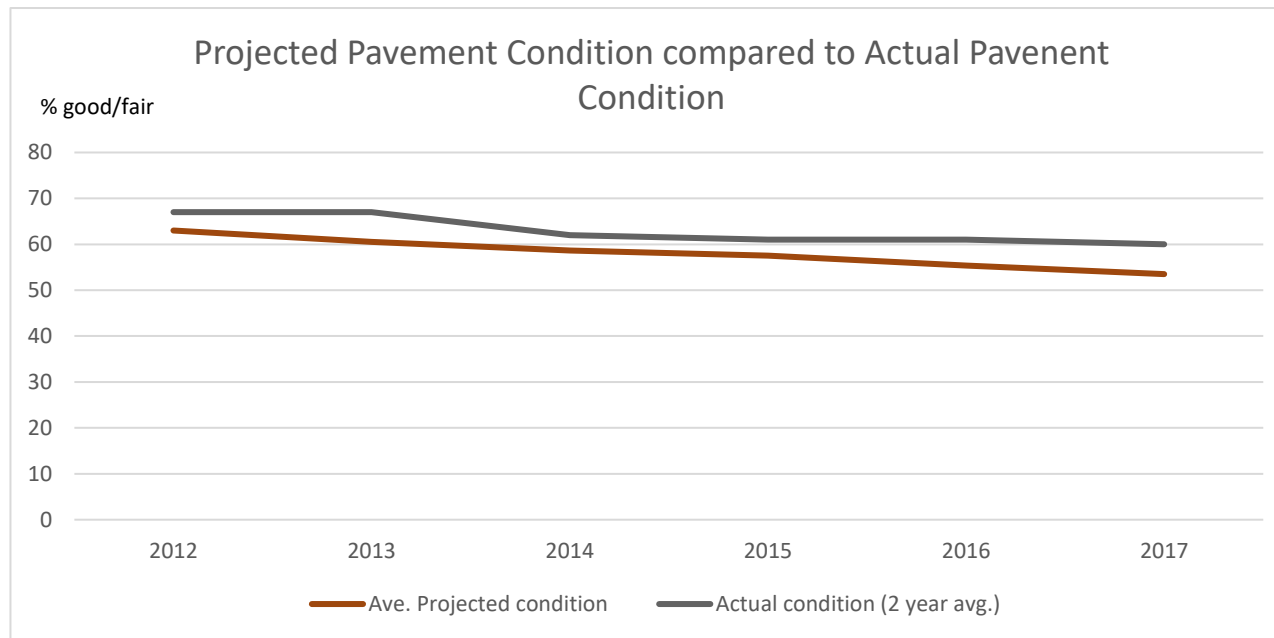
	2020	2022	2024	2026	2028	2030
Percent Good & Fair	54%	55%	56%	56%	55%	53%
Percent Poor	46%	45%	44%	44%	45%	47%

TAMC Annual Report Forecasts compared to Actual

FORECAST CONDITION (Good/Fair)

	Data Years											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Ave. Projected condition	63	61	59	58	55	54	51	51	50	49	49	49
Actual condition (2 year avg.)	67	67	62	61	61	60						
projected compared to actual	-4	-7	-3	-4	-6	-7						

* In early years, a range of projected condition was used; the top of the range figure was included for this analysis



2023	2024	2025	2026	2027
2024	2025	2026	2027	2028



Michigan
Transportation Asset
Management Council

2019 SPRING ASSET MANAGEMENT CONFERENCE PROGRAM

WEDNESDAY, MAY 22, 2019 – GAYLORD, MICHIGAN

The Transportation Asset Management Council and the Michigan Chapter of the American Public Works Association are holding a joint Spring 2019 Conference at the Treetops Resort, 3962 Wilkinson Road, Gaylord, MI. Additional lodging for TAMC conference attendees will be at the Otsego Resort, 696 M-32 East, Gaylord, MI; Telephone (989) 732-5181. On Tuesday, May 21, 2019, there will be a welcome reception and golf outing (registration is required for this event). On May 22, 2019, TAMC and APWA will have joint sessions of interest for all attendees. On May 23, 2019, APWA will hold APWA specific sessions only. Additional details for extra-curricular activities, how to register to attend the Thursday, May 23, 2019 APWA only sessions, and exhibit opportunities can be found on the 2019 APWA Great Lakes Expo website at <https://www.eventbrite.com/e/mi-apwa-2019-great-lakes-expo-tickets-34987588820>

7:30 – 8:00 AM: Registration & Breakfast

Morning Sessions 8:00 AM – 12:00 PM

Welcome and Opening Comments & Introductions – TAMC Emcee

TAMC Update – TAMC Council

Reporting of 2018 Michigan Road Conditions and Forecast – TAMC Support Staff

Networking Break

Reporting of 2018 Michigan Bridge Conditions and Forecast – TAMC Bridge Committee

Berrien County Department of Roads – Asset Management Plan for Berrien Bridges – Jason Latham, Berrien County and David Juntunen PE, The Kercher Group, Inc.

TAMC Award Presentations

12:00 PM – 1:00 PM: Lunch with APWA

Afternoon Sessions 1:00 PM – 4:00 PM

How Culvert Inventorying and Assessment Can Make Michigan Better – Christopher Gilbertson PhD, PE and Scott Bershing PE, Michigan Technological University's Center for Technology and Training,

Michigan Infrastructure Council & Water Asset Management Council – Jessica Moy, Michigan Infrastructure Council

Networking Break

Panel Conversation: Strategies for Preserving Your Roads – Monica Ackerson, Michigan Road Preservation Association and Paving Industry Professionals

Best First? A Strategy for Extending the Service Life of Roadways – Brad Lamberg PE, Barry County Road Commission



To Register:

Contact the Michigan Local Technical Assistance Program at the Center for Technology and Training at 906-487-2102, ctt@mtu.edu, or online at:

<http://ctt.nonprofitsoapbox.com/component/events/event/839>



Silver Sponsors:



Bronze Sponsors:



TAMC 2017 - 2019 Work Program

Progress as of April 2019

New items in bold & italics

NOTE: Now printable on 8 1/2" x 11" paper

Work Product	Tasks	2019	Status	Notes
PA 325				
Training	Revise Training Programs			
	Revise budget for new training needs			
Modeling	Develop an understanding of asset deterioration			
	Make deterioration rates available to the public			
AM Plans	Update/Create Asset Management Plan Template		<i>Underway (MTU)</i>	
	Develop a 3-year schedule for plan submission by top 123 (agencies with >100 miles)	v	3-year schedule identified and agencies notified	
	Develop a process for submittal and approval of AM plans		<i>Underway (ACE)</i>	
Coordinate with WAMC/MIC	Coordinate asset condition approach with WAMC/MIC			
	Define age of construction across assets			
	Coordinate on transparency and what needs to be shared			
	Attend/monitor MIC meetings	<i>ongoing</i>		
	Attend/monitor WAMC meetings	<i>ongoing</i>		
Data Collection	Data Governance and standards for culverts			
	Data Governance and standards for signals			
	Leverage technology for data collection			
Staff	Identify staff and budget needed to comply		<i>Underway (MDOT)</i>	

Work Product		Tasks	2019	Status	Notes
Communications					
1	Press Releases	Continue publishing press releases as appropriate	Ongoing		Past Press Releases are on the website
2	Monthly Summary of TAMC Activities & Initiatives	Seek feedback on larger issues	Ongoing		As necessary on appropriate agenda items
3	Outreach with Stakeholders	Regional Coordinator Call	Ongoing	<i>Need to schedule these for 2019 summer</i>	
		Query how is info shared with partner agencies			
4	Support TAMC Partner Agencies at Conferences	Develop schedule of conferences/topics	✓	2019 Schedule provided for discussion	
		Coordinate TAMC attendees	✓		
Publications					
1	ANNUAL REPORT *	Compile and submit to Legislature by May		<i>TAMC to review plan at April meeting</i>	
		Develop detailed schedule with milestones	✓		
		Get feedback from conference attendees		Customer Satisfaction Survey gave value of Annual Report adequate marks (3.7/5)	
		Marketing assessment			ACE gave this medium priority
2	Website Update	Maintain website	ongoing		Dave J is trained to update the website
		Define Support Role	✓		
3	"Bridge" Newsletter	Develop schedule w/ milestones & who is writing	ongoing	<i>Need to confirm at next TAMC meeting. Proposed next article be on MIC and WAMC. 3rd Q would be on TAMC 2018 Roads and Bridges Report.</i>	Who is writing these articles?
4	Other Publications	Investigate other opportunities to highlight TAMC	ongoing		When TAMC has something newsworthy to share, staff will develop material to include in members' constituent newsletters
Public Outreach					
1	Promote Roadsoft as AM Platform	Continue to assist MTU-CTT in deployment of Roadsoft	ongoing		
2	Website Interactive Maps	Overall coordination/updates	ongoing		
		Update cycle related to TAMC activity	ongoing		

Work Product	Tasks	2019	Status	Notes
	Continual improvement	ongoing		
3	Overall coordination/updates	ongoing		
	Continual review of new/revised dashboards			Upgrades made in 2018
	Timely updates scheduled, define & implement		<i>CSS to update dashboards after release of report in May 2019</i>	
4	Maintain mobile apps	ongoing		interactive map is now tablet and phone friendly
	Update as needed	ongoing	dashboard mobile app still to come	
	Lessons learned			Who would best evaluate this?
5	Continue program			ACE gave this high priority
	Evaluate & update selection process			ACE gave this lower priority to be addressed later in 2018
6	Social Media			ACE gave this medium priority

Work Product	Tasks	2019	Status	Notes	
Data Collection					
1	COLLECT PASER DATA *	Collect data on no less than 1/2 FA paved	ongoing	2019 data collection begins in April	
		Perform QC on PASER ratings	ongoing	Consultant hired by MDOT to do this	
		Continue use of IRT to upload data sets	ongoing	Updates provided monthly	
2	Review Collection Methods & Reimbursement Policy for FA and Non-FA Networks (Paved & Unpaved)	Research cost-effectiveness of data collection effort	ongoing	On hold until better data available based on new data collection policy, per Data Committee	Data Committee assigned this high priority, but would like better costs per mile first
		Focus efforts to collect data on top 123 (agencies with > 100 miles)		PA 325 increases focus on this	Data Committee assigned this lower priority
	Bridges	Anticipate changes - new nat'l requirements			
4	Ensure Framework Base Map is Current	Update data sets within Framework	ongoing		framework base map & Act 51 maps not the same; to be corrected as identified
		Develop business needs for RFPs		ACE to discuss as part of budget discussion	"Best Value" bid process would run thru MDOT, RFP prepared by council or subcommittee
		Subject matter expert input & feedback	ongoing		Raters provide feedback on corrections as they find them
5	Data Collection Models	Continue Roadsoft promotion to Act 51 agencies	ongoing		
		Maintain Markov model in working order	ongoing	Data Committee has begun to discuss data analysis options	
7	Asset Management Plans	Prep & training for development of agency AM plans		ongoing	
		Focus efforts to collect plans from top 123 (agencies with > 100 miles)		PA 325 requirements address this	

Work Product	Tasks	2019	Status	Notes
Training & Education				
1	PASER & IRT TRAINING *	Continue training		2019 Schedule Available on website
		Identify attendees & report results		
		Identify success/failure & report results	ongoing	
2	Local Officials Training & Workshops	Training gap analysis		
		Informational tools		
		Update as necessary	ongoing	
3	New AM Training	Operational aspects of AM		
		Update as necessary	ongoing	
4	Inventory-based Rating Training	Develop and deliver training program	ongoing	
	Informational Tools	Pilot two 90-second videos		ACE assigned this low priority
6	Continued Education w/ Legislature	Customized pamphlet/brochure by lege district		MPOS and regions do an annual report of paser condition
		Set up event w/ legislators		Referred to ACE; would need to seek assistance/support from MITA

Work Product	Tasks	2019	Status	Notes
7 Bi-Annual Conference	Continue coordinating conference(s)	ongoing	Next conference May 2019, partnering with APWA MI	
	Identify attendees & report results	ongoing		
	Identify success/failure & report results	ongoing		
Data Analysis & Resarch Opportunities				
1 IRT DATA *	Integration between PASER & IRT	ongoing		
	Data quality	ongoing		
	Analyze Best & Worst practices			Data committee discussed in September; more conversation likely needed
2 Data Storage & Design Reports - Recommendations for Optimal Use	Assessment		2018 rewrite of IRT with enhanced reporting should address this	
	Update requirements working w/ stakeholders			
	Report		CSS working on an update	Data Committee assigned this high priority
3 Forecasting	Review new IRT data for forecasting tools			Data Committee assigned this medium priority

Work Product	Tasks	2019	Status	Notes
Project & Investment Reporting				
Fields Inquiring about AM Process	Compare & analyze AM plans & data from IRT with PASER and Bridge data		Data committee discussed potential research problem statement in Summer 2018	Data Committee assigned this high priority
	Analyze plan elements & components; present agencies that are high performers		after data committee completes analysis	
	Communication plan		included in MPOs and RPO's 2018 UWP	
3 Continuing Compliance Monitoring	Analysis & reporting	ongoing	support staff working with MDOT Act 51 team; monthly status updates reported at Data Committee	
	Continue monitoring on how compliance is being done	ongoing		
4 Quality Control (IRT)	Assess & report on quality of information			ad hoc approach
	Update 2009 Cost Investment Report			still to come
Performance Measures				
1 Develop Measures for TAMC	Implementation of Work Program	ongoing	summary provided monthly	
	IRT-ADARS		summary provided monthly	
	Miles collected		summary provided monthly	
	Number of Asset Management Plans rec'd		Data committee to consider monthly	
	Council budget spent/reporting		summary provided monthly	
	Develop more as needed	Culvert Project measures of success?		
2	Determine where there's duplication of effort	ongoing		
* denotes items required by law				

DRAFT FOR DISCUSSION WORK PROGRAM

ITEMS NOT CHARGED TO TAMC - sorted by frequency and work product

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes
PA 325 New Item	AM Plans	AM Plans	No Charge	TAMC Support Staff	Evaluate AM Plan submissions and make recommendations regarding compliance for agencies with >100 miles	Annually	X	X	X	Because of PA 325
Publications 1.a.i	Annual Report	Annual Report	No Charge	TAMC Support Staff	Compile and submit Annual Report to Legislature by May	Annually	X	X	X	
PA 325 addendum 6.a	Budget	Budget	No Charge	TAMC Support Staff	Develop annual budget; including changes to address PA 325 requirements	Annually	X	X	X	
Proposed New Item	Data Collection	Bridge data	No Charge	MDOT	Provide data on bridge condition	Annually	X	X	X	Broke out bridge separately because it's a different process
Public Outreach 3.a.i	Outreach	AM Plans	No Charge	TAMC Support Staff	Promote agencies with AM plans that are high performers	Annually	X	X	X	Recognized with awards; is that sufficient?
Publications 1.b.ii & iii	Outreach	Annual Report	No Charge	TAMC Support Staff	Get feedback from conference attendees regarding use of annual report	Annually	X	X	X	
Improved Communication 3.a.i - 3.a.iii	Outreach	Support TAMC Partner Agencies at Conferences	No Charge	TAMC Support Staff	Develop schedule of conferences and coordinate TAMC attendees	Annually	X	X	X	
Public Outreach 3.a.i.	Outreach	TAMC Awards	No Charge	TAMC Support Staff	Recognize outstanding agency performance with awards at spring conference	Annually	X	X	X	
Training & Education 3.a.ii	Training/ Education	Legislative Education	No Charge	TAMC	TAMC members to find sponsors and coordinate announcement event with legislators for annual report	Annually	X	X	X	reworded; this is not a function that can be performed by state employees
Proposed New Item	Training/ Education	Training	No Charge	TAMC Support Staff	Coordinate TAMC attendees at IRT and PASER training	Annually	X	X	X	Routinely need volunteers for UP training events
PA 325 New Item	Coordination	PA 325	No Charge	TAMC Support Staff	Attend/monitor WAMC meetings	Ongoing				
PA 325 New Item	Coordination	PA 325	No Charge	TAMC Support Staff	Attend/monitor MIC meetings	Ongoing				
PA 325 addendum 4.a	Coordination	PA 325	No Charge	?	Work with WAMC/MIC to develop coordinated approach to condition assessment	Ongoing				
PA 325 addendum 4.c	Coordination	PA 325	No Charge	?	Coordinate with WAMC/MIC on transparency and what needs to be shared	Ongoing				

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes
Data Analysis/Resarch 1..a.ii; Project and Investment Reporting 4.a.i	Data Collection	Investment data	No Charge	TAMC Support Staff	Perform QC on IRT data & report on quality of information	Ongoing				
Project and Investment Reportingg 2.a.i - ii	Data Research or Analysis	Performance Measures	No Charge	TAMC Support Staff	Monitor IRT compliance; analyze and report monthly	Ongoing				
Publications 3.a.1. - b.ii.	Outreach	Newsletter "Bridge"	No Charge	MTU	Provide 4 articles per year; develop schedule w/ milestones & who is writing each article	Ongoing				consolidated from previous work program
Public Outreach 1.a.1.	Outreach	Press Releases	No Charge	TAMC Support Staff	Publish press releases as appropriate; at a minimum for conferences, annual report, and award winners	Ongoing				
Publications 2.a.i.	Outreach	Website	No Charge	TAMC Support Staff	Provide simple website updates as needed	Ongoing				Split out to allow TAMC support staff to do the simple updates
Performance Measures 1.a.iv.	Performance Measures	AM Plans	No Charge	TAMC Support Staff	Report monthly on number of AM Plans received per PA 325	Ongoing				
Performance Measures 1.a.v.	Performance Measures	Budget	No Charge	TAMC Support Staff	Report on TAMC budget status monthly	Ongoing				
Performance Measures 1.a.ii.	Performance Measures	Data Collection	No Charge	TAMC Support Staff	Report on IRT compliance monthly	Ongoing				Removed ADARS from task
Proposed New Item	Performance Measures	Meetings	No Charge	TAMC Support Staff	Meeting Preparation for TAMC and committee meetings each month	Ongoing				Added for balance
Performance Measures 1.a.i.	Performance Measures	Performance Measures	No Charge	TAMC Support Staff	Implement Annual Work Program; report progress monthly	Ongoing				
Performance Measures 2.a.i	Performance Measures	Performance Measures	No Charge	TAMC Support Staff	Identify and eliminate duplication of effort	Ongoing				Reworded slightly
Performance Measures 1.a.iii.	Performance Measures	Road data	No Charge	TAMC Support Staff	Report on Road Data Collection progress Monthly	Ongoing				
Public Outreach 3.a.ii	Outreach	TAMC Awards	No Charge	TAMC Support Staff	Evaluate and update awards selection process	TBD One and Done				
PA 325 addendum 6.a	Budget	PA 325	No Charge	MDOT	Identify staff needed to comply with PA 325	TBD One and Done	X			Draft policy for submittal/review of AM plans being discussed by ACE

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes	
BUDGETED ITEMS - sorted by budget assignment and frequency											
FY 2020											
I. Data Collection & Regional-Metro Planning AM Program						\$	1,116,400				
III. TAMC Central Data Agency (MCSS)						\$	380,000				
IV. TAMC Training & Education (MTU) Calendar Year Z1						\$	220,000				
V. TAMC Activities (MTU) Z15/R1						\$	120,000				
VI. TAMC Expenses and Conferences						\$	20,000				
Total						\$	1,876,400				
Project & Investment Reporting 1.a.iii	Training/ Education	Investment data	Budgeted	CSS	<i>Provide IRT training</i>	Annually	X	X	X	Not explicit in the original work program	
Project & Investment Reporting 3.I	Data Collection	Investment data	Budgeted	CSS	<i>Update IRT Technology as needed</i>	Annually				Not explicit in the original work program	
Proposed New Item	Training/ Education	Performance Measures	Budgeted	CSS	<i>Identify IRT attendees success/failure & report results</i>	Annually	X	X	X	Modeled after PASER training recommendation	
Public Outreach 2.1.i. - 2.b.i.	Outreach	Dashboards	Budgeted	CSS	Update dashboards as needed to reflect updated data	Ongoing					
Public Outreach 2.1.ii	Outreach	Dashboards	Budgeted	CSS	Determine the need for additional dashboards due to PA 325	Ongoing					
Data Collection 5.a.i.	Data Collection	Framework	Budgeted	CSS	Ensure Framework Base Map is as current as possible by updating data sets and seeking input from raters and users	Ongoing				Big lift by CSS this year to overhaul Framework and data maintenance of layers - does this address this item?	
Publications 2.a.i (implied)	Outreach	Interactive Maps	Budgeted	CSS	Coordinate map updates with data updates	Ongoing					
Publications 2.a.i (implied)	Outreach	Interactive Maps	Budgeted	CSS	Continue to upgrade interactive maps	Ongoing					
Data Analysis/Resarch 2	Data Collection	Investment data	Budgeted	CSS	<i>Collect and store IRT data</i>	Ongoing				Not explicit in the work program, but a budgeted item	
Public Outreach 5.a.i	Outreach	Mobile Apps	Budgeted	CSS	Maintain mobile apps	Ongoing					
Data Analysis/Resarch 2	Data Collection	Road data	Budgeted	CSS	<i>Store road and bridge data</i>	Ongoing				Not explicit in the work program, but a budgeted item	

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes
Publications 2.a.i.; Public Outreach 4.a.i.iii	Outreach	Website	Budgeted	CSS	<i>Provide the more complicated website updates as needed and maintain website</i>	Ongoing				Split out to allow TAMC support staff to do the simpler updates
Proposed New Item	Performance Measures		Budgeted	CSS	<i>Report quarterly on dashboard analytics</i>	ongoing				New item TAMC has requested
Publications 2.b.iv.	Performance Measures	Knowledge Transfer	Budgeted	CSS	Knowledge transfer for self-service maintenance	ongoing				
Data Analysis/Research 2.a.i - iii	Data Research or Analysis	Data Storage & Reports	Budgeted	CSS	Update requirements for data storage and reports working w/ stakeholders	TBD One and Done				
Data Storage/Research 2.a.iii	Data Research or Analysis	Data Storage & Reports	Budgeted	CSS	Make recommendations for optimal data storage and reporting	TBD One and Done				Data Committee assigned this high priority
Data Analysis/Research 1.a.i.	Data Research or Analysis	Data Storage & Reports	Budgeted	CSS	Integrate PASER & IRT	TBD One and Done				May need consultant for study on methodology
Data Collection 1.a.i (implied)	Data Collection	Road data	Budgeted	MDOT	Perform QC on PASER ratings and report results	Ongoing				
Training & Education 4.a.iii	Training/ Education	Training	Budgeted	MTU	<i>Provide training for development of agency AM plans, focusing on agencies with > 100 miles</i>	Annually	X	X	X	Reworded in response to PA 325
Training & Education 2.a.i - iii	Training/ Education	Bi-Annual Conference	Budgeted	MTU	Identify conference attendees, success/failure & report results	Annually	X	X	X	
Training & Education 1.a.i - iii	Training/ Education	Performance Measures	Budgeted	MTU	Identify PASER/IBR training attendees, success/failure & report results	Annually	X	X	X	
Project & Investment Reporting 4.ii (implied)	Data Research or Analysis	Road data	Budgeted	MTU	<i>Update Average Project Cost data annually</i>	Annually	X	X	X	Not explicit regarding annual updates in work program
Training & Education 1.a.i - iii	Training/ Education	Road data	Budgeted	MTU	Provide PASER and IBR training	Annually	X	X	X	
Training & Education 5.a.i - iii	Training/ Education	Training	Budgeted	MTU	Identify any training gaps or informational tools needed	Annually	X	X	X	
Training & Education 4.a.ii	Training/ Education	Training	Budgeted	MTU	Update training as necessary	Ongoing				
Data Collection 6.a.ii	Data Research or Analysis	Road data	Budgeted	MTU	Maintain Markov model in working order	Ongoing				
Data Collection 6.a.i	Outreach	Road data	Budgeted	MTU	Promote use of Roadsoft by Act 51 agencies	Ongoing				

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes
Training & Education 6.a.i	Training/ Education	Training	Budgeted	MTU	<i>Develop training on Coordination with Utilities</i>	TBD One and Done				This was a TBD in the previous work program, awaiting outcome of 21st CIC recommendations
PA 325 Proposed New Item	Data Collection	PA 325	Budgeted	MTU	<i>Data Governance and standards for signals</i>	TBD One and Done		X		per PA 325
PA 325 addendum 5.a	Data Collection	PA 325	Budgeted	MTU	Data Governance and standards for culverts	TBD One and Done	X			
PA 325 Proposed New Item	Performance Measures	PA 325	Budgeted	MTU	<i>Develop Culvert Measures of Success</i>	TBD One and Done	X			
PA 325 addendum 1.a	Training/ Education	PA 325	Budgeted	MTU	Revise Training Programs as needed to comply with PA 325	TBD One and Done				
PA 325 addendum 2.b	Outreach	Road data	Budgeted	MTU	Make asset deterioration rates available to the public	TBD One and Done				MTU reported on their study of pavement lifecycles - full report on TAMC website - does this meet the intent of making rates available to public?
Training & Education 4.a.i.	Training/ Education	Training	Budgeted	MTU	Develop training on the operational aspects of AM	TBD One and Done		X		
Data Collection 4.a.i. (TBD)	AM Plans	AM Plans	Budgeted	REGIONS	<i>Work with agencies with greater than 100 miles to develop AM plans</i>	Annually	X	X	X	per PA 325
Training & Education 3.a.i	Outreach	Legislative Education	Budgeted	REGIONS	Provide report on road and bridge conditions by legislative district	Annually	X	X	X	Most RPO/MPOs do an annual PASER report that includes this info; these reports are in UWP already but we don't call out legislative districts
Data Collection 1.a.i.	Data Collection	Road data	Budgeted	REGIONS	Collect PASER data on no less than 1/2 FA paved	Annually	X	X	X	
Data Collection 4.a.i. (TBD)	Data Collection	Road data	Budgeted	REGIONS	<i>Focus efforts to collect data from agencies with > 100 miles in keeping with schedule for AM plan submissions</i>	Ongoing				Data Committee assigned this lower priority. But PA 325 requires it
Training & Education 2.a.i	Training/ Education	Bi-Annual Conference	Budgeted	TAMC Support Staff	Coordinate 2 educational conferences per year	Annually	X	X	X	
Improved Communication 2.a.i.	Data Collection	Road data	Budgeted	TAMC Support Staff	Provide monthly Regional Coordinator conference calls from April through December each year	Ongoing				

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes
PROPOSED ITEMS NOT YET BUDGETED OR ASSIGNED - sorted by work product										
Improved Communication 2.a.iv	Annual Report	Annual Report			<i>Develop a plan to improve familiarity with TAMC annual report</i>	TBD One and Done				ACE gave this medium priority; Previous work program referred to "marketing plan" Still a necessity with the overhaul of the report format last year?
Project and Investment Reporting 1.suggested.ii	Data Research or Analysis	Bridge data			<i>Compare & analyze Bridge condition and IRT planned bridge project data</i>	TBD One and Done				Data Committee assigned this high priority; Broke Bridge and pavement into separate work items
PA 325 Addendum 4.b	Coordination	Coordinate with WAMC/MIC			Define age of construction across assets	TBD One and Done				
Data Analysis/Research 3.a.i	Data Research or Analysis	Forecasting			<i>Develop condition forecasting tool that uses IRT planned project data</i>	TBD One and Done				Data Committee assigned this medium priority
Data Collection 5.a.ii	Data Collection	FRAMEWORK			Develop RFP to assess whether Framework base map is accurate	TBD One and Done				Recommend letting new data maintenance strategies of the updated Framework go into effect before putting resources towards this item
Data Collection 2.a.i.	Data Collection	Road data			Research cost-effectiveness of data collection effort	TBD One and Done				Data Committee assigned this high priority, but would like better costs per mile first; On hold until better data available based on new data collection policy
Data Collection 2.a.i.	Data Collection	Road data			<i>Develop data for costs-per-mile of data collection</i>	TBD One and Done				Added in order to determine cost effectiveness as identified just above
PA 325 addendum 2.a	Data Research or Analysis	Road data			Develop an understanding of asset deterioration	TBD One and Done				MTU reported on their study of pavement lifecycles - full report on TAMC website; is this one completed?
Project and Investment Reporting 1.suggested.ii	Data Research or Analysis	Road data			<i>Compare PASER data and IRT planned road project data</i>	TBD One and Done				Data Committee assigned this high priority; Broke bridge and pavement into separate work items

reference to 2017-2019 Work Program on website	Category	Work Product	Budgeted item?	Budget Assigned (or to be assigned)	Tasks	Frequency	2020	2021	2022	Notes
<i>Proposed New Item</i>	Data Research or Analysis	Road data			<i>Develop means to upload 3 year capital project data to IRT from electronic STIP/TIPs</i>	TBD One and Done				This was proposed at a recent meeting
Public Outreach 6.a.i.	Outreach	Social Media			Explore social media platforms	TBD One and Done				ACE gave this medium priority
Training & Education 7.a.ii	Outreach	Website			Pilot two 90 second videos	TBD One and Done				There will be a video on MIC website; does that address this?
PA 325 addendum 5.c	Data Research or Analysis	Technology			Identify technology that may expedite data collection for PA 325 requirements	TBD One and Done				

Summary Statistics – TAMC Investment Reporting Compliance

As of April 5, 2019

Fiscal Year 2016

Counties	
Agencies Approved for Investment Reporting	83
Cities/Villages	
Agencies Approved for Investment Reporting	526
Not Approved: #1 – No Data or IRT User	1
Not Approved: #2 – IRT & ADARS Not Matching	4
Not Approved: #3 – IRT Status Not Updated	1
Agency Not Yet Reported (Not Yet Due or Extension)	1
MDOT – Approved for Investment Reporting	1

Fiscal Year 2017

Counties	
Agencies Approved for Investment Reporting	83
Cities/Villages	
Agencies Approved for Investment Reporting	524
Not Approved: #1 – No Data or IRT User	2
Not Approved: #2 – IRT & ADARS Not Matching	2
Not Approved: #3 – IRT Status Not Updated	4
Agency Not Yet Reported (Not Yet Due or Extension)	1
MDOT – Approved for Investment Reporting (3-5-18)	1

Fiscal Year 2018

Counties	
Agencies Approved for Investment Reporting	9
Not Approved: #3 – IRT Status Not Updated	3
Not Approved: #4 – Needs to complete survey	2
Agencies Not Yet Due for Reporting	69

Cities/Villages

Agencies Approved for Investment Reporting	372
Not Approved: #1 – No IRT User or Data	2
Not Approved: #2 – IRT & ADARS Not Matching	1
Not Approved: #3 – IRT Status Not Updated	93
Not Approved: #4 – Needs to complete survey	9
Agency Not Yet Reported (Not Yet Due)	56

MDOT – Not Yet Due for Reporting 1

RAB 4-5-19

Reporting Period: Feb. 1 - 28, 2019

Monthly Project Progress Report

TAMC Activities 2019

March 7, 2019

Project Manager: Roger Belknap

MDOT Contract 2018-0057 Authorization Z3

Contract Dates: 10/01/2018 – 9/30/2019

Contract Amount: \$118,203



**Michigan
Technological
University**



Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Reporting Period: Feb. 1 - 28, 2019

Task	% of Budgeted Dollars Spent	Notes
Attend Council Meetings	9%	
Attend Committee Meetings	54%	
Review Data Collection & QC Collection Results	0%	
Maintain Roadsoft-IRT Data Submission Protocols	7%	
Maintenance of PASER Training Cert. Testing Instruments & Records	2%	
Revision of the TAMC AM Plan Templates for Roads and Bridges	31%	
Undefined Staff Support	16%	
Project Management & Monthly Reporting	38%	

Current Tasks Completed

Participated in full council meeting and data committee meeting; tested upload on the new files for the IRT training; internal meeting to discuss the asset management revision needs and standardizing the processes for the pavement and bridge AM plans; completed the January reporting and general project management.

Project's Financial Summary

February Expense Reimbursement Submitted	\$2,935
Total Project Expenses to Date	\$19,034
Contract Balance Available	\$99,169

Reporting Period: Feb. 1 - 28, 2019

Monthly Project Progress Report

TAMC Training 2019

March 7, 2019

Project Manager: Roger Belknap

MDOT Contract 2018-0057 Authorization Z4

Contract Dates: 01/01/2019 – 12/31/2019

Contract Amount: \$219,311



Michigan Technological University
1400 Townsend Drive
Houghton, MI 49931

Reporting Period: Feb. 1 - 28, 2019

Task	% of Budgeted Dollars Spent	Notes
Assist Coordinating the MI Transportation Asset Management Conferences	0%	
Conduct MI Transportation Asset Management Workshops	0%	
Conduct Introduction to Transportation Asset Management for Local Officials Training	17%	Completed two training sessions.
Conduct TAMC PASER Training	28%	Completed two PASER webinars and three on-site PASER Trainings.
Conduct Inventory Based Rating Training	8%	Completed one IBR Training webinar.
Conduct Michigan Bridge Asset Management Workshop	0%	
Creating Asset Management Plan Workshops	6%	
Project Management and Reporting	7%	

Tasks Completed

Order additional quantities of "At the Crossroads" books for Intro to AM trainings and made some revisions to the slides; prepared for and presented two PASER webinars and completed final preparations and presented the first round of three PASER trainings; prepared for, presented and closed out first IBR webinar; worked on the design of the AM plan template and created spreadsheet for the inputs; completed January reporting and general project management.

Project's Financial Summary

February Expense Reimbursement Submitted	\$17,296
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Reporting Period: Feb. 1 - 28, 2019

Total Project Expenses to Date	\$21,500
Contract Balance Available	\$197,811