MICHIGAN'S ROADS & BRIDGES 2013 ANNUAL REPORT

"Michigan's deteriorating infrastructure is in need of revitalization if we are to successfully reinvent our economy." - Governor Rick Snyder

MICHIGAN TRANSPORTATION ASSET MANAGEMENT COUNCIL

COVER PHOTO INFORMATION

Title: Deteriorating Bridge I-96 over M-99 south Lansing. **Filename**: DI-03792-028.jpg; **Date Taken**: 3/28/2013 0:00:00; **Creator**: James D. LeMay; **Region**: MDOT-University

Title: Deteriorating infrastructure M-53 Van Dyke Macomb County. **Filename**: DI-03778-076.jpg; **Date Taken**: 3/1/2013 0:00:00; **Creator**: James D. LeMay; **Region**: MDOT-Metro

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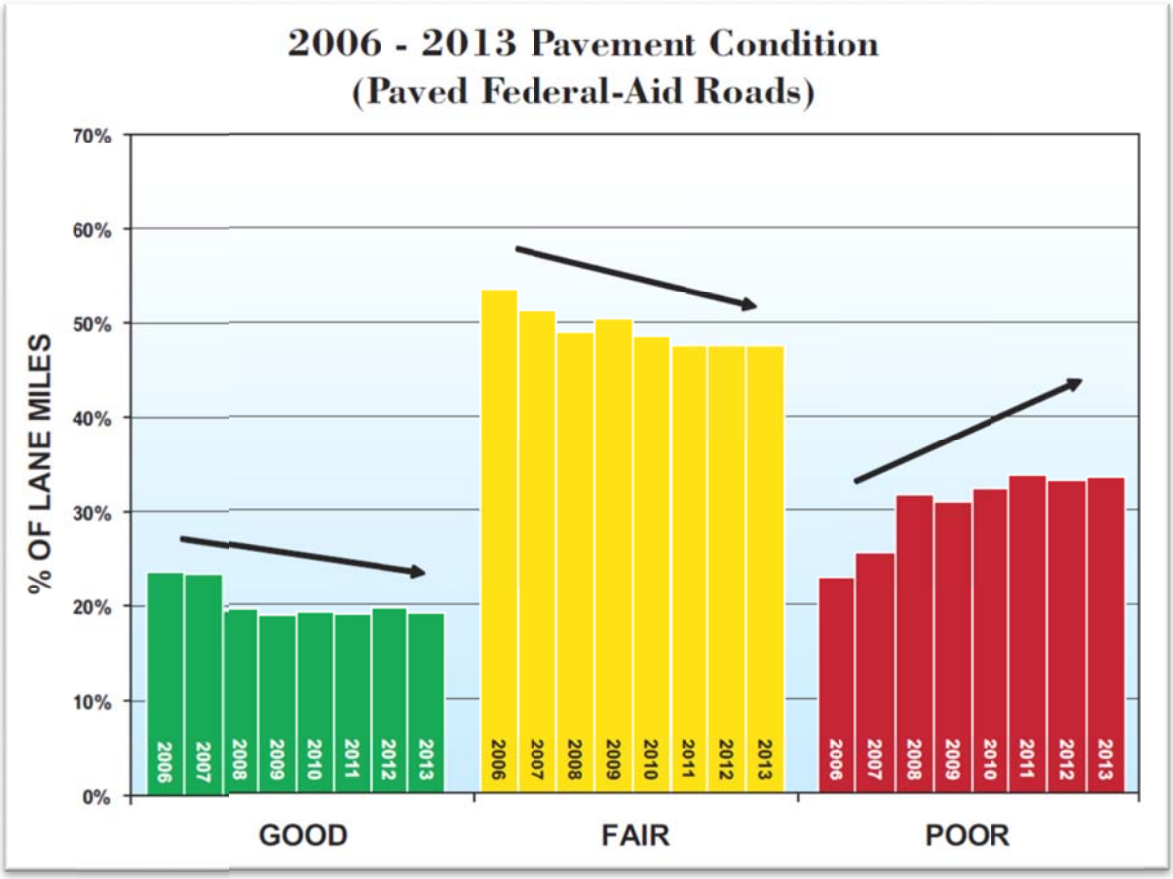
EXECUTIVE SUMMARY

The 2013 condition assessment of Michigan's federal-aid eligible roads continues to show that one out of every three miles of road remain rated in "poor" condition. While the good/fair/poor pavement condition trends have plateaued in recent years, there is sufficient evidence to suggest the system is in no way improving. In fact, condition forecasts continue to show that the system will continue to deteriorate in the future.

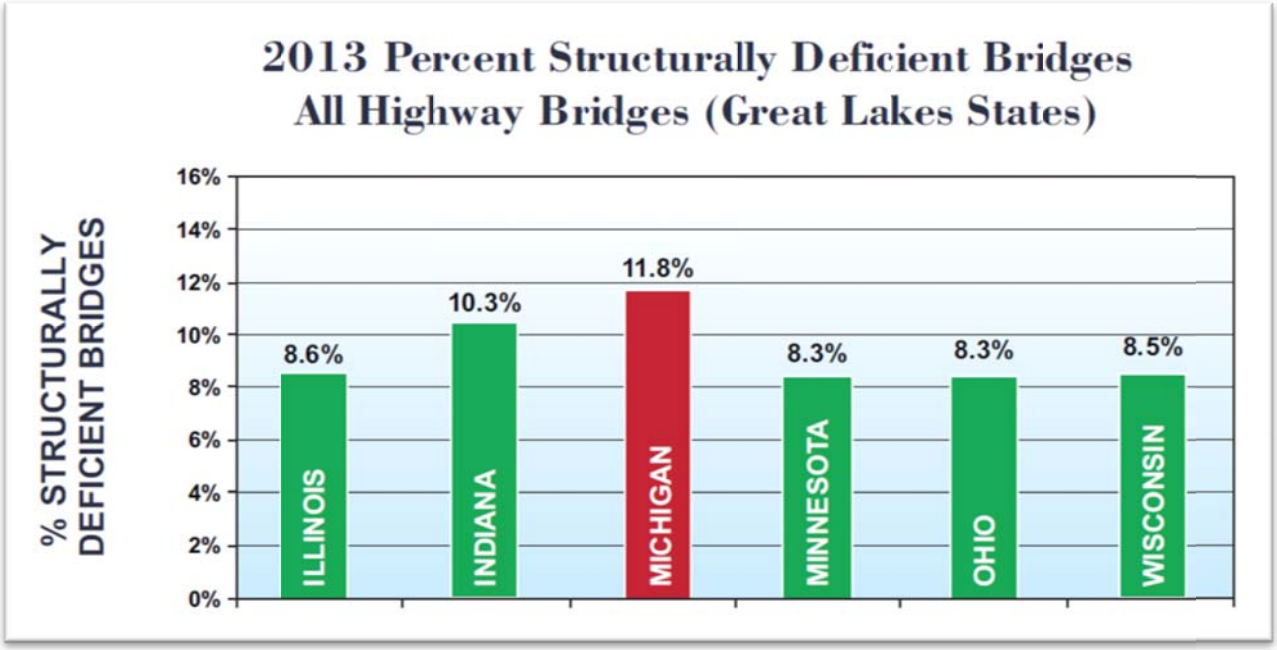


Source: 2006 – 2013 PASER Data Collection
Figure 1

Allowing this trend to continue will have significant financial and economic consequences. For example, the cost of returning a poor road to good condition is four to five times greater than the cost of maintaining a road in fair condition. Allowing more roads to reach poor condition will dramatically increase the future costs of repairing Michigan's road network.

With respect to Michigan's bridges, progress has also plateaued in reducing the number of structurally deficient bridges under state jurisdiction. However more local agencies are implementing preventive maintenance "mix of fixes" on local bridges. Through the efforts of the Council, MDOT's Local Agency Program received an allowance from the Federal Highway Administration in December 2011 to use Federal Highway Bridge Program funding to do systematic preventative maintenance of locally owned roadway bridges. Michigan is one of the first states in the nation to be granted this option. In 2013, the Local Agency Bridge Program selected fifty-four preventative maintenance projects, which comprised just over half of all project selections. Additionally, due to the asset management approach promoted by the Council, MDOT and the Local Agency Bridge Program were granted a waiver on the use of off-system STP funds in MAP-21. This waiver will allow greater flexibility in selecting projects based upon greatest need and risk based asset management.

An analysis of bridge conditions in Michigan shows that state and local bridge owners and decision makers are "holding their own" despite rising costs and revenue challenges. Bridge conditions continue to be a strategic focus with the development of the MiDashboard, Governor Snyder's set of high level performance measures indicating how the state compares with the rest of the nation in key result areas, along with recent trends. The percentage of Michigan's bridges which are rated structurally deficient is one of the 5 measures of the overall strength of Michigan's economy, and this measure can be accessed online at: **www.michigan.gov/midashboard** .



Source: MDOT April 2014
Figure 2

However, there remains reason for continued concern regarding Michigan's ability to preserve its strategic bridge assets. Figure 2 indicates that Michigan has a significantly higher percentage of structurally deficient bridges than other Great-Lakes states. An analysis of the 2013 NBI submittal shows that 5.4 percent of state-owned bridges and 15.1 percent of county and local bridges were structurally deficient, resulting in Michigan having 11.8 percent of all highway bridges structurally deficient.

At current funding levels, the condition of Michigan's transportation infrastructure will continue to deteriorate. This decline in the condition of Michigan's infrastructure affects everyone – from businesses that rely on the transportation network to transport goods and services; from tourists visiting or traveling through our great state to our citizens who expect safe and convenient access to work and school. Reinvesting in our transportation system and maintaining these vital public assets are essential to securing a better future for all of Michigan's citizens.

2013 Key Points:

- ✓ The condition of Michigan's roads continues to decline.
- ✓ The condition of Michigan's bridges continues to improve, but has begun to plateau.
- ✓ The analysis indicates that at current investment levels, the condition of both roads and bridges will continue to deteriorate.
- ✓ Without increased levels of investment, the cost of improving our roads and bridges will continue to increase each year.
- ✓ The longer we postpone increased levels of investment, the longer it will take for the public to begin to see any appreciable improvement in the condition of Michigan's roads and bridges.

PAVEMENT CONDITION

Federal-Aid Roads

From 2004-2008, the Council required 100 percent of all paved federal-aid roads be rated each year. Beginning in 2009, in response to budgetary and staffing concerns expressed by local road agencies, the Council began to require that only 50 percent (by county) of the paved federal-aid eligible roads be rated each year, to equal 100 percent coverage of the statewide system every other year.

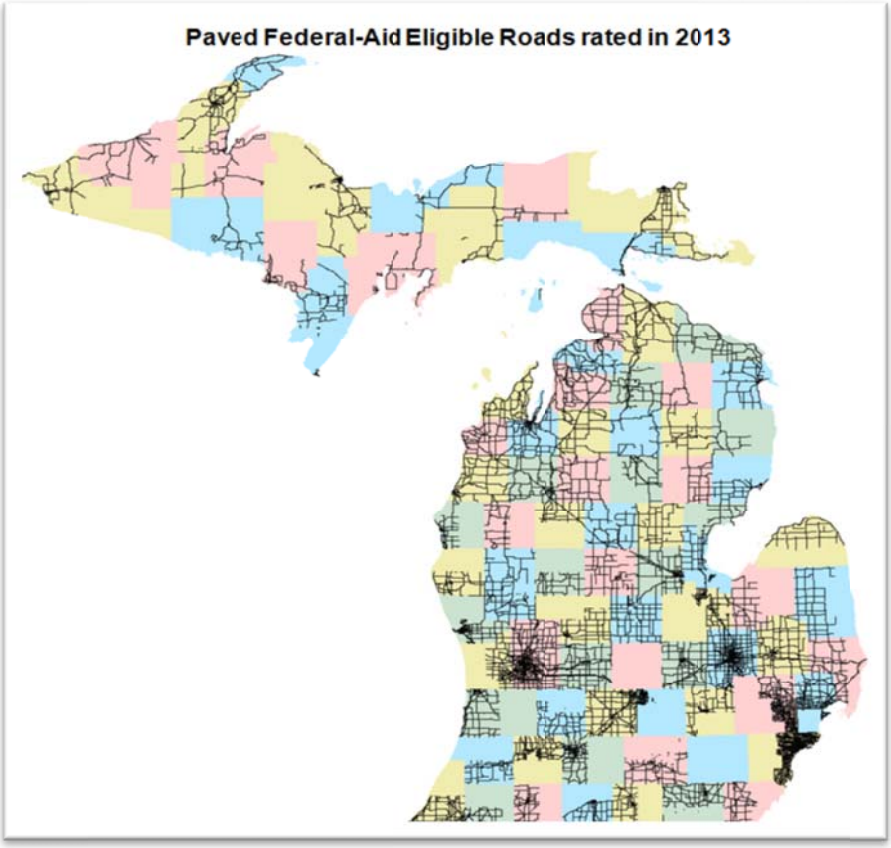
With regards to reporting, this process has proven to be representative of the statewide system; however, when summarized for analysis by smaller geographic areas (by county, city/village), the Council found that ratings could vary from year-to-year, depending on which portion of the system was rated in any given year. In order to compensate for this variability, in 2013 the Council decided to use the previous year's (2012) PASER rating when a current rating was absent. In 2013, just over 60 percent of the paved federal-aid eligible roads were rated. The analysis and summaries of pavement condition in this Report are based on a combination of these ratings and where roads were not rated in 2013, ratings from 2012 were utilized.

Map Source:

-TAMC 2013 PASER Data Collection

Definitions:

Federal-aid Eligible Roads – *Roads that are fully eligible or have limited eligibility for federal Surface Transportation Program (STP) road funds. This eligibility is determined by a combination of the roads National Functional Classification (NFC), urban/rural designation and current federal legislation. Currently, only "NFC local" roads are not eligible.*



Even though agencies were required to rate only 50 percent, approximately 61 percent of roads were rated and reported in 2013; 67 percent reported in 2012. Analysis of the data collected indicated that while 61 percent of the system condition was collected, it was statistically representative of the entire system.

Picture Source:

- TAMC 2014-16 Work Program

Definitions:

Lane Miles *– a lane mile is determined by multiplying the number of lanes by the length of the road. For example, if you were surveying five miles of two-lane road, you would be rating ten lane miles. If it were a four-lane road, then you would have twenty lane miles.*

Good/Fair/Poor Pavement Condition Categories *– The Pavement Surface Evaluation and Rating System (PASER) uses a 1-10 ratings scale when evaluating roads. The TAMC groups these 10 ratings into three categories based upon the type of work that is required for each. These categories are as follows:* ***Good Condition*** *(PASER 10-8) Roads that Require Routine Maintenance;* ***Fair Condition*** *(PASER 7-5) Roads that Require Capitol Preventive Maintenance; and* ***Poor Condition*** *(PASER 4-1) Roads that Require Structural Improvement.*

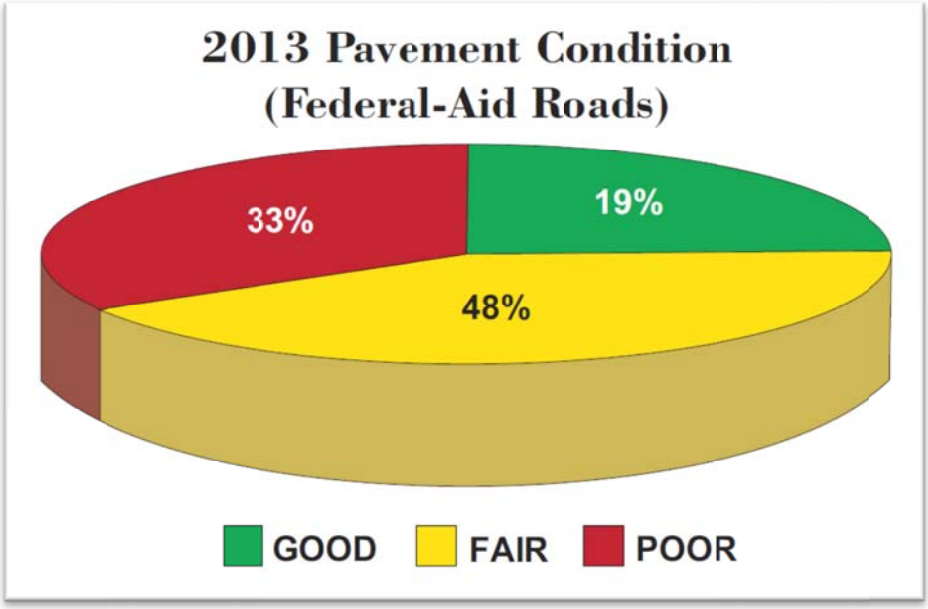
References:

Link to PASER Guides:
http://michiganltap.org/workshops/2014-paser-training

Michigan's Annual PASER Condition Assessment – A Team Effort: Every year since 2004 the Council contracts with each of Michigan's twenty-one Regional and Metropolitan Planning Organizations (RPO/MPO) to coordinate the annual PASER condition assessment of the paved federal-aid road system. A team of three raters composed of a representative from MDOT, RPO/MPO, and local agency (County, City/Village) embark on an effort to rate at least 50 percent of the paved federal-aid road system each year. Over 100 teams of trained raters assess the condition of 84,000 lane miles of paved federal-aid eligible roads once every two years. Individuals must attend PASER training each year before being allowed to rate the roads.

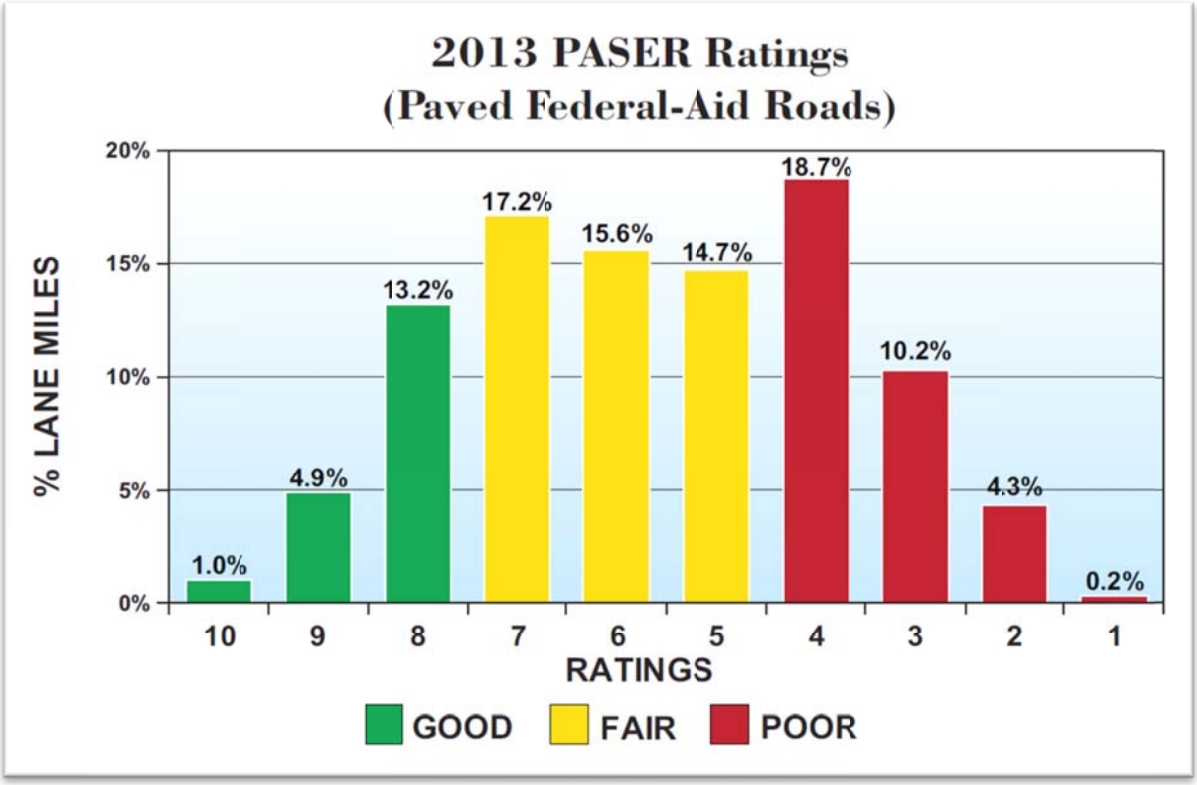
Quality Assurance and Quality Control (QA/QC)

With over 100 teams of trained raters assessing the condition of roads statewide annually, data quality is of utmost importance to the Council. Accurate PASER ratings depend on the judgment of the raters. Every year raters are required to attend PASER training and review the rating criteria and shown how various types of pavement distress define rating. The goal is uniformity: all rating teams should assign the same rating when observing a given segment of road. In order to ensure this uniformity, a qualified transportation technician observes and independently rates over 2,000 road segments scattered throughout the state. These ratings—known as the QC ratings--are later compared to the ratings reported by the teams. The analysis shows that over 90 percent of the ratings are either identical or within one rating point of each other.

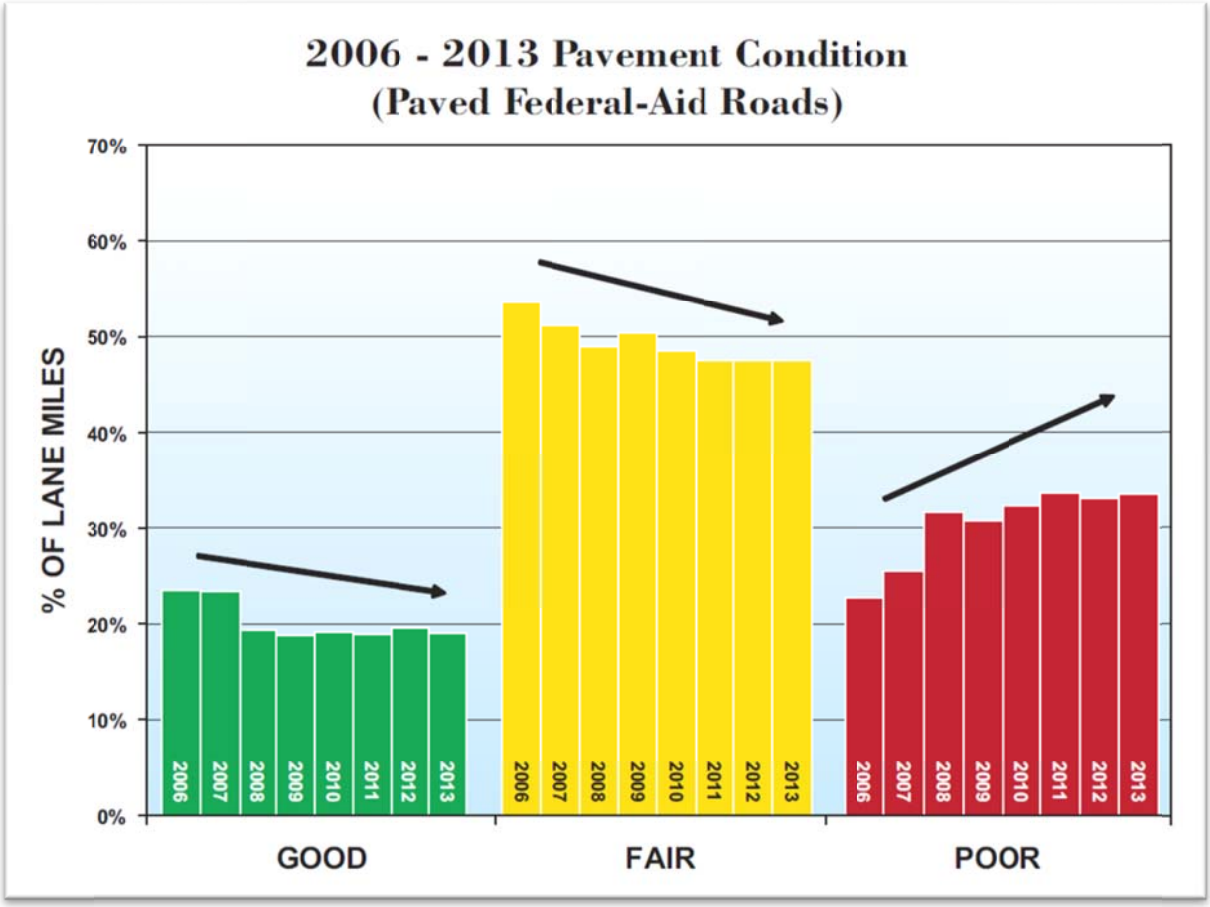


Source: 2013 PASER Data Collection
Figure 3

Figure 3 above summarizes the results of the 2013 PASER rating, 33 percent were rated in "poor" condition, 48 percent were rated in "fair" condition, and 19 percent were rated in "good" condition. Figure 4 below shows the breakdown of the 2013 pavement condition by lane miles and individual PASER 1-10 ratings.



Source: 2013 PASER Data Collection
Figure 4



Source: 2006 – 2013 PASER Data Collection
Figure 1

Figure 1 above shows that in 2006, 23 percent of lane miles were identified as being in "poor" condition. By 2013, that number has increased to 33 percent. In 2006, nearly 77 percent of the federal-aid system could be considered in "good" or "fair" condition. By 2013, that figure fell to 67 percent. Clearly, the overall condition of the federal-aid system is getting significantly worse with more miles in poor condition than in good condition. The cost of returning a road that requires structural improvement i.e. poor condition to good condition is four to five times greater than the cost of returning a road requiring Capitol Preventive Maintenance i.e. fair condition to good condition. Allowing more roads to reach poor condition will dramatically increase the costs of repairing Michigan's road network.

PAVEMENT CONDITION FORECASTS

Road Condition

Figure 5 below shows that at current funding levels the condition of paved federal-aid roads will continue on a downward trend over the next 12 years.

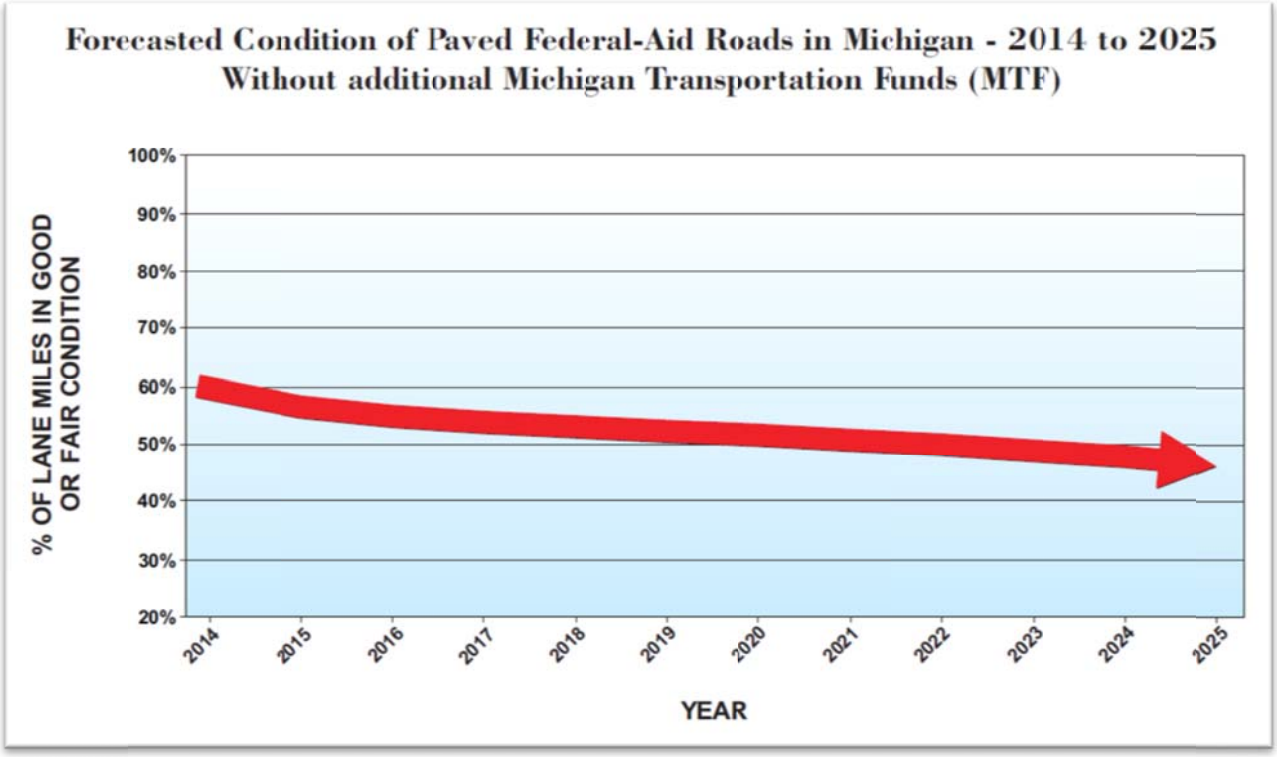


Figure 5

Figures 6-8 on the next two pages show the probable condition of paved federal-aid roads given increased funding levels of $500 million, $1 billion, and $1.5 billion. [Source: TAMC April 2014]

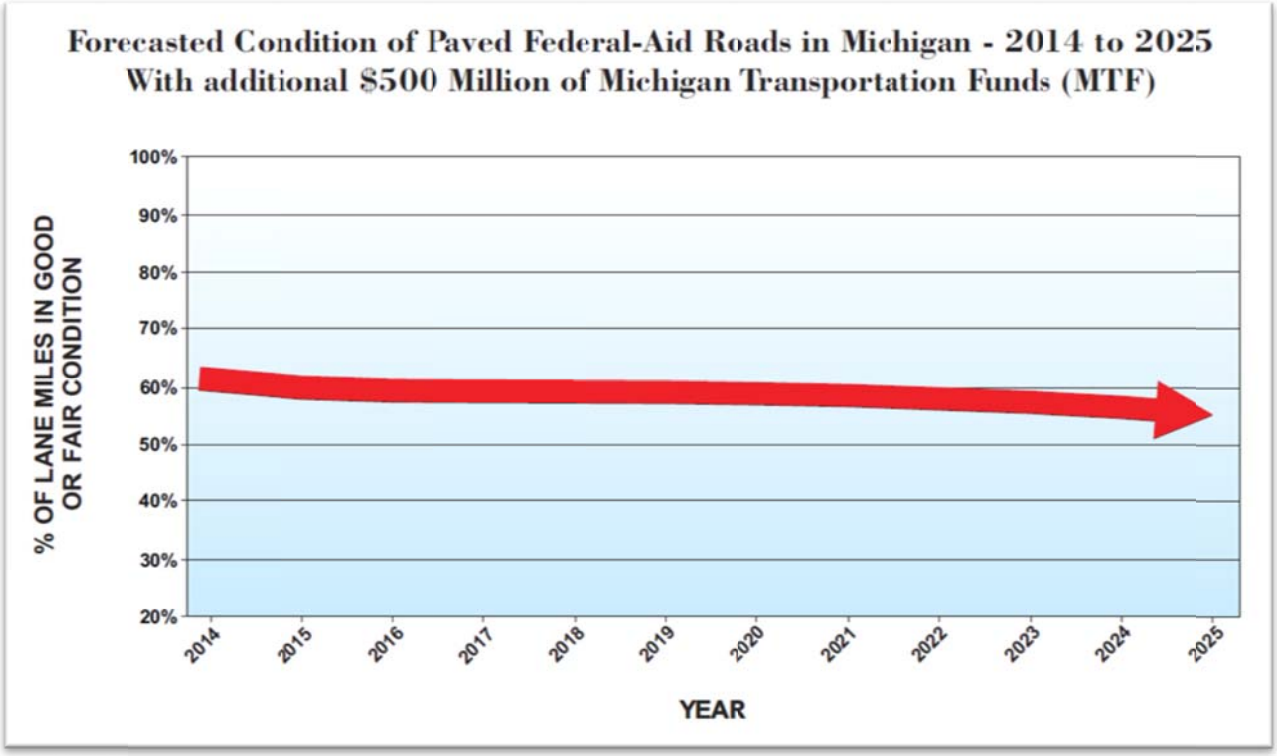


Figure 6

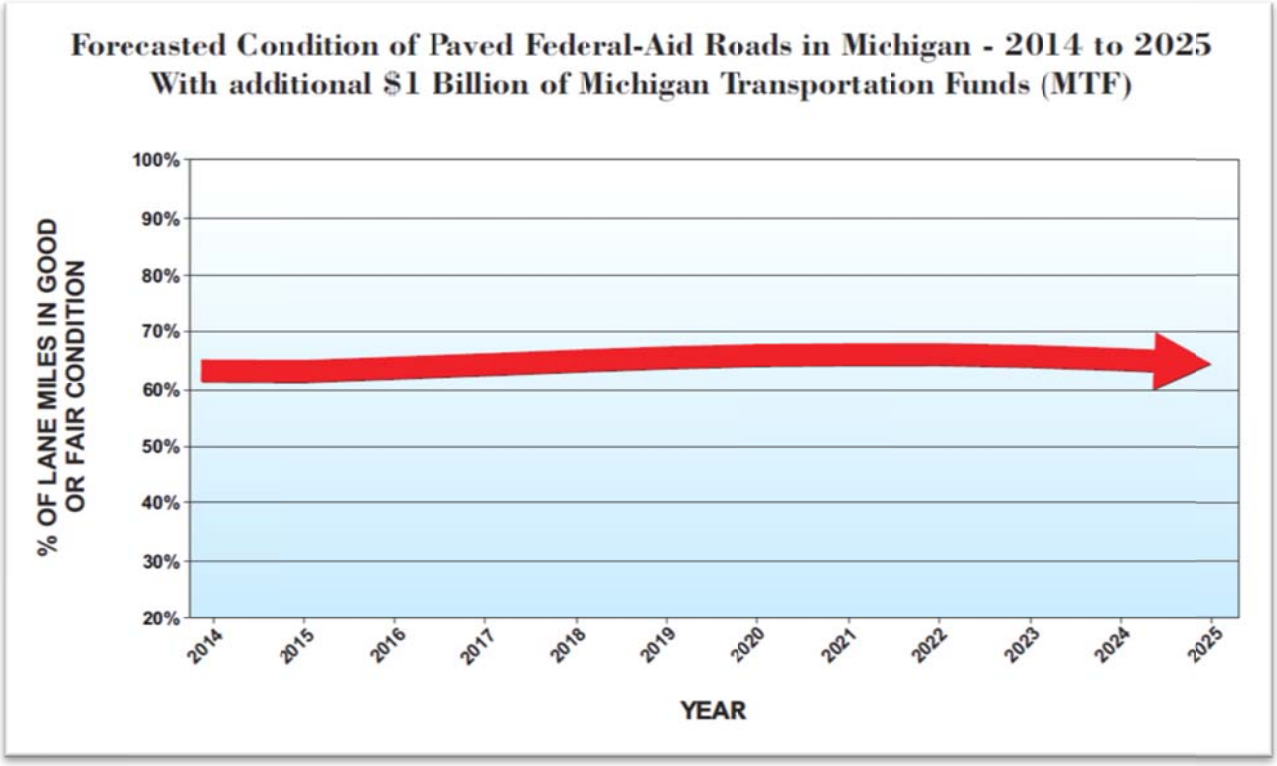


Figure 7

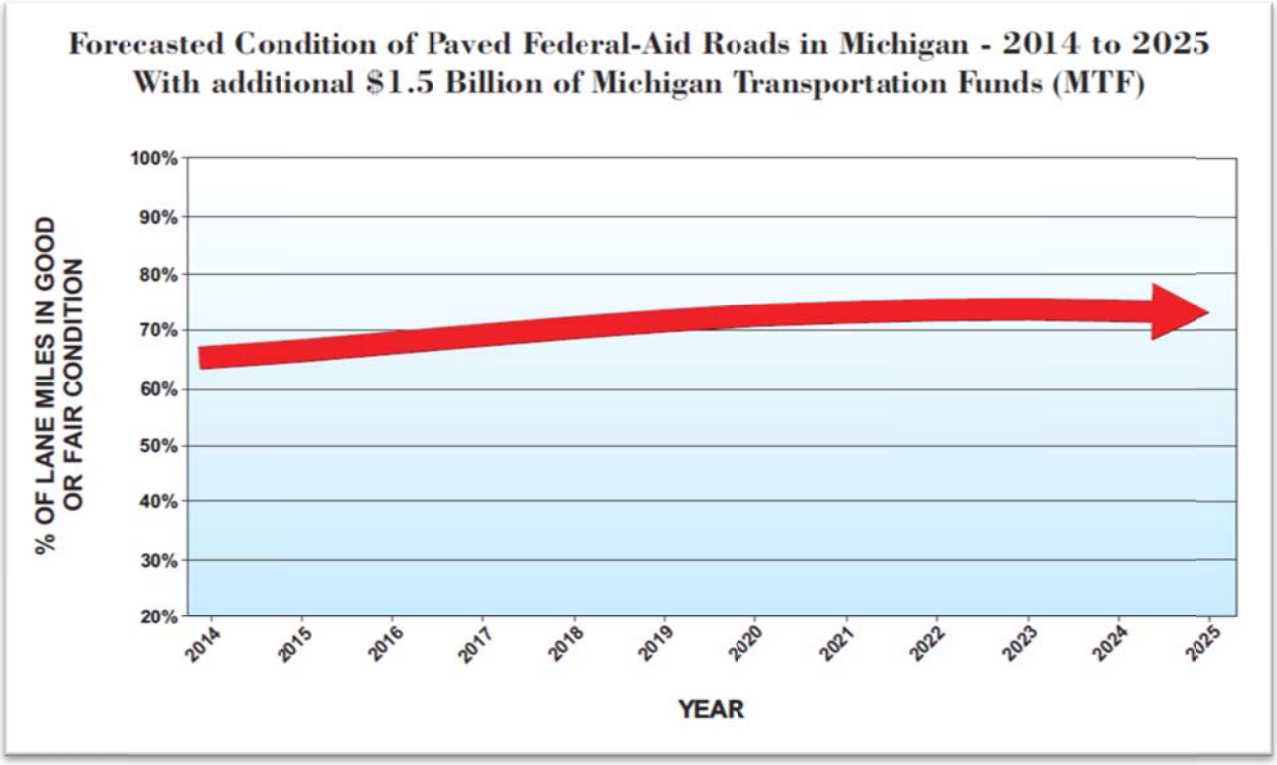
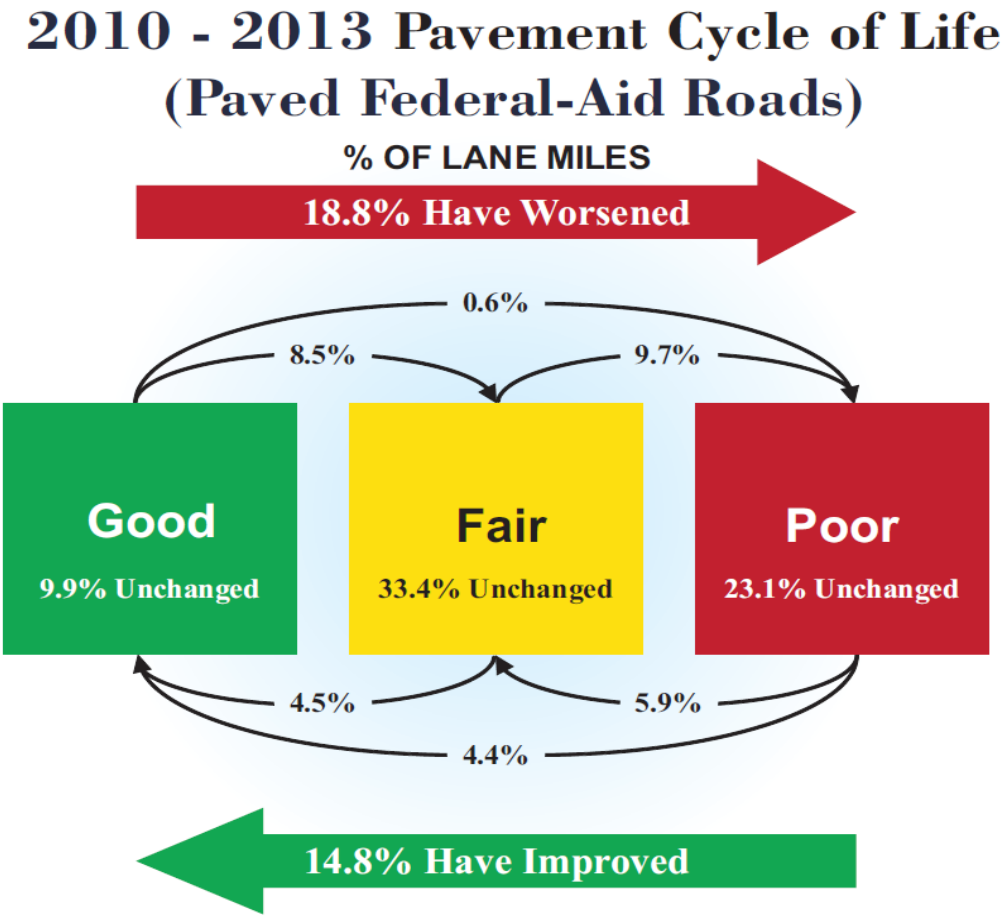


Figure 8

These forecasts do not take into account the exceptionally long, cold winter of 2013-14. As this report is being published, we are just beginning to see the extent of the damage done to pavements as the ground thaws. Therefore, while the current forecasts (which are based on 2013 pavement conditions) show a gradual decline in the percent of pavements in good and fair condition, we anticipate the decline to be steeper. Pavement ratings done during the summer of 2014 will allow us to measure the extent of that decline.

PAVEMENT CYCLE OF LIFE

Pavements go through a cycle starting from good condition, to fair condition and ultimately to poor condition. This doesn't happen overnight, but age along a recognizable cycle. There are many places along the cycle where performing some preventative maintenance at a relatively minimal cost can prolong the life of the pavement in a good or fair condition. If an investment can be made at or before the pavement has reached the threshold of poor condition, it will be less expensive and extend the useful life of the asset in good or fair condition. Unfortunately, Figure 9 below indicates we are not making that investment as often as we would like. The Pavement Cycle of Life charts the life of pavement on federal-aid system in the State of Michigan over the last four-years and shows that 33.6 percent of Michigan's roads have improved/deteriorated over that time. During that period, 8.5 percent of the roads went from good to fair, 9.7 percent went from fair to poor, and less than 1 percent slid all the way from good to poor. In that same three year period, only 14.8 percent of the roads were improved; 4.5 percent went from fair to good, 5.9 percent went from poor to fair and 4.4 percent went from poor to good. ***Overall, almost 19 percent of the lane miles have deteriorated and only 14 percent have improved. We continue to lose ground each year!***



Source: 2010 – 2013 PASER Data Collection
Figure 9

Moving Ahead for Progress in the 21st Century (MAP-21)

Map Source:

-MDOT 2013

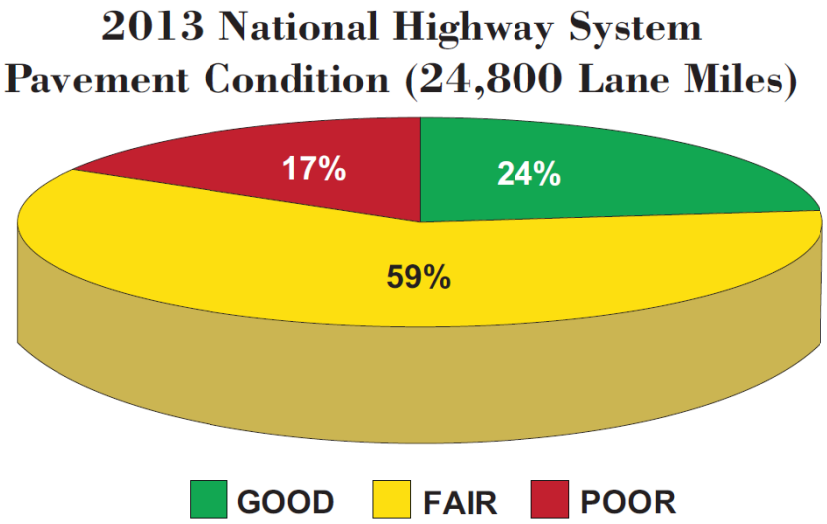
Graphic Source:

Figure 10 - 2013 PASER Data Collection

Definitions:

National Highway System (NHS) *– The National Highway System consists of roadways important to the nation's economy, defense, and mobility. They consist of the following sub-systems: Interstate, other principal arterials, Strategic Highway Network, major Strategic Highway Network connectors and intermodal connectors.*

MAP-21 is the first long-term highway authorization enacted since 2005 and was signed into law by President Obama on July 6, 2012. Funding surface transportation programs at over $105 billion for Fiscal Years 2013 and 2014. Each State is required to develop a risk-based asset management plan for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system



Similar to the pavement ratings for federal-aid roads, the ratings for National Highway System (NHS) roads are reported in lane miles. Figure 7 above reveals that the 2013 ratings 17 percent are in poor condition, 59 percent are in fair condition, and 24 percent are in good condition.

National Functional Classification (NFC)

Graphic Source:

Figure 11 (NFC Summary) - 2013 PASER Data Collection

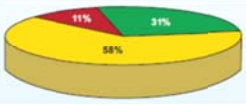
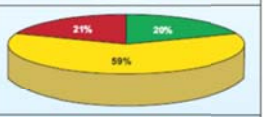
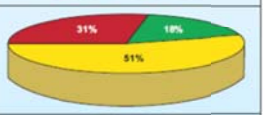
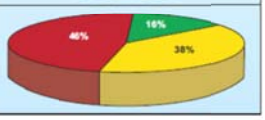
Definition:

National Functional Classification (NFC) *– The Federal Highway Administration (FHWA) developed this method of classifying all public roads and highways according to their function. The higher functions emphasize mobility, the lower functions emphasize property access. The NFC values include: Interstate, Other Freeways, Other*

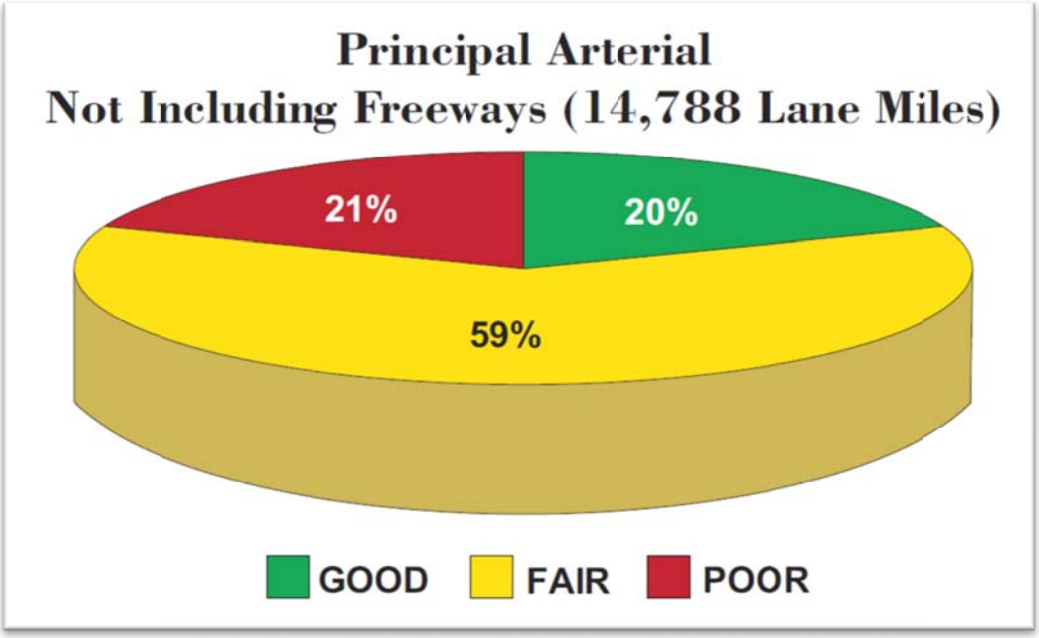
Since its inception, the Council's primary focus has been on how the transportation system functions. The federal-aid system is subdivided into four major National Functional Classification (NFC) groups, Principal Arterials, Freeways (a subset of Principal Arterials), Minor Arterials and Collectors. These groups are determined by the extent to which each provides two essential functions; mobility and accessibility. The analysis below compares the 2013 paved federal-aid PASER ratings broken down by each of these classification groups.

The analyses of the 2013 paved federal-aid PASER condition data by National Functional Classification (NFC) reveals that the highest level system of Principal Arterials is in the best condition of the three NFC systems. This Principal Arterial system is critical to all multi-state, multi-regional, and much intra-regional travel throughout Michigan and typically carries the highest traffic volumes and the longest trips. The PASER condition data shows a larger percentage of poor pavements in the "middle" NFC system of Minor Arterials. The Minor Arterial system is especially important to support inter- and intra- regional travel, and serves relatively high traffic volumes. Finally, this analysis reveals that the lowest level of federal-aid roads (Collectors) are also in the poorest condition of the three federal aid systems. Collector roads tend to have lower traffic volumes and serve shorter distance trips and/or the beginning or ending legs for longer distance trips, since they provide more accessibility to homes, businesses, and other attractions. This analysis is evidence that Michigan's road agencies are strategically investing their limited transportation funds in the portion of the system that provides the greatest long-distance mobility and highest traffic volumes. However, most trips utilize some of each of the three systems, so in order to have the safest, most efficient federal-aid system possible, funding must be strategically allocated to all three of these NFC systems.

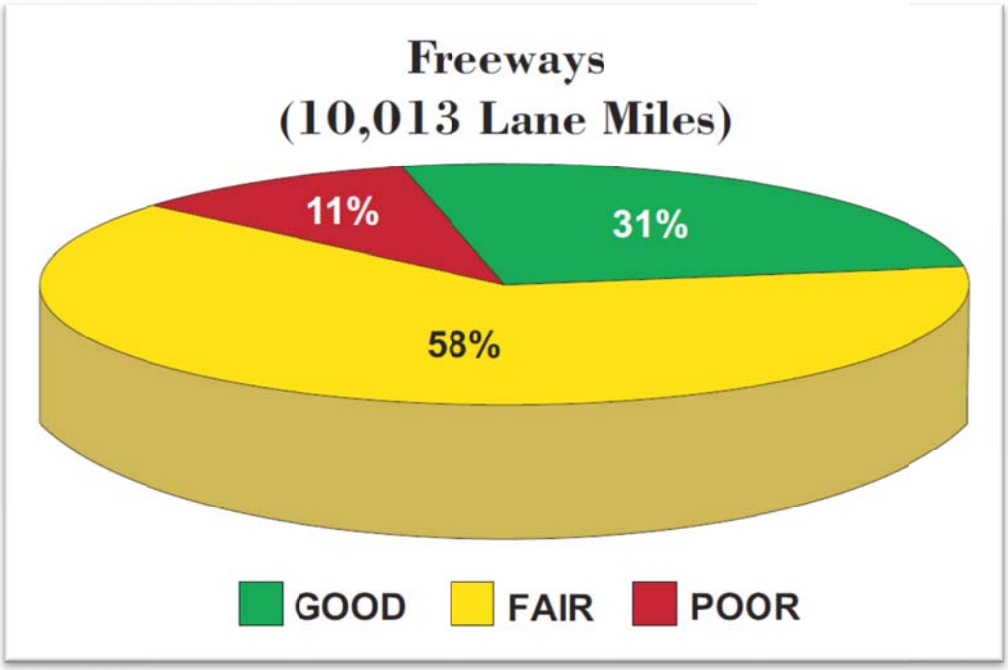
National Functional Classification (NFC)
2013 Condition Summary

NFC	Lane Miles	Good	Fair	Poor	Chart
Freeways	10,013	31%	58%	11%	
Principal Arterials	14,788	20%	59%	21%	
Minor Arterials	22,930	18%	51%	31%	
Collectors	37,940	16%	38%	46%	

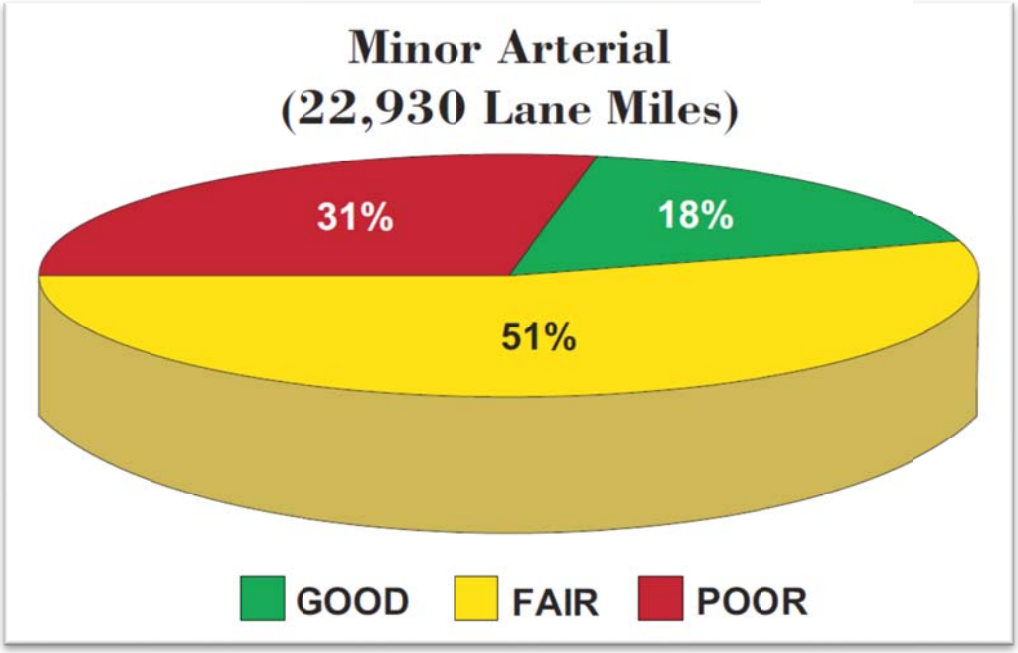
Principal Arterials are at the top of the NFC hierarchical system. Principal arterials generally carry long distance, through-travel movements. They also provide access to important traffic generators, such as major airports or regional shopping centers. The 2013 rating of the *Principal Arterial* system reveals that 21 percent were in poor condition, 59 percent were in fair condition, and 20 percent were in good condition. [Figure 12 - Source: 2013 PASER Data Collection]



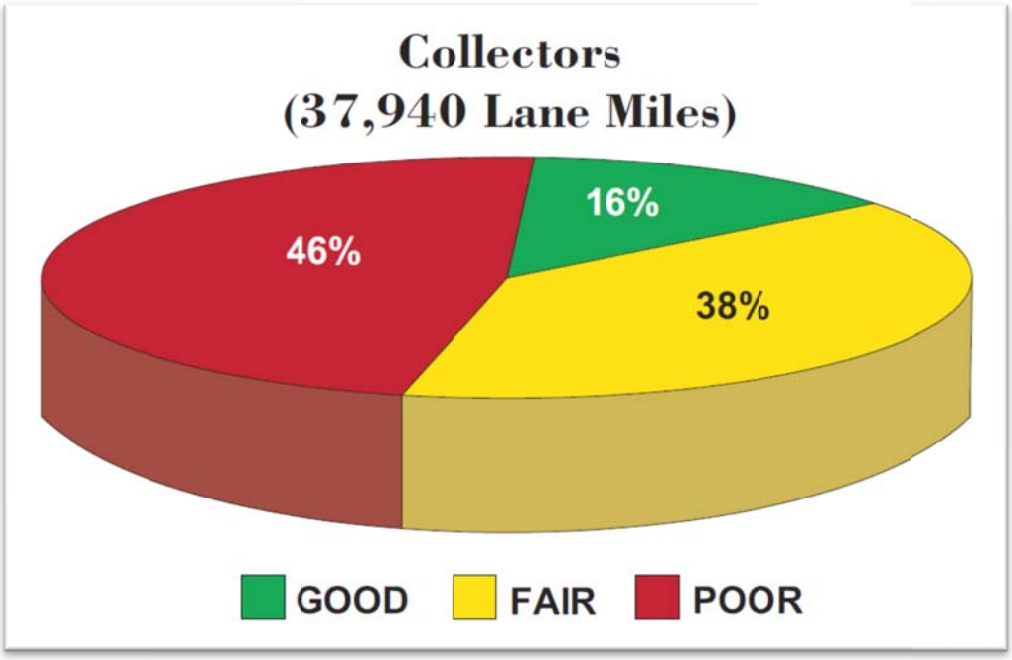
Freeways are a subset of the *Principal Arterial* system that has limited access: no at-grade intersections with other roads, railroads, or trails. Freeways generally carry the highest volume of traffic. The 2013 rating of the *Freeway* system reveals that 11 percent were in poor condition, 58 percent were in fair condition, and 31 percent were in good condition. [Figure 13 - Source: 2013 PASER Data Collection]



Minor Arterials are similar in function to principal arterials, except they carry trips of shorter distance and to lesser traffic generators. The 2013 rating of the *Minor Arterial* system reveals that 31 percent were in poor condition, 51 percent were in fair condition, and 18 percent were in good condition. [Figure 14 - Source: 2013 PASER Data Collection]

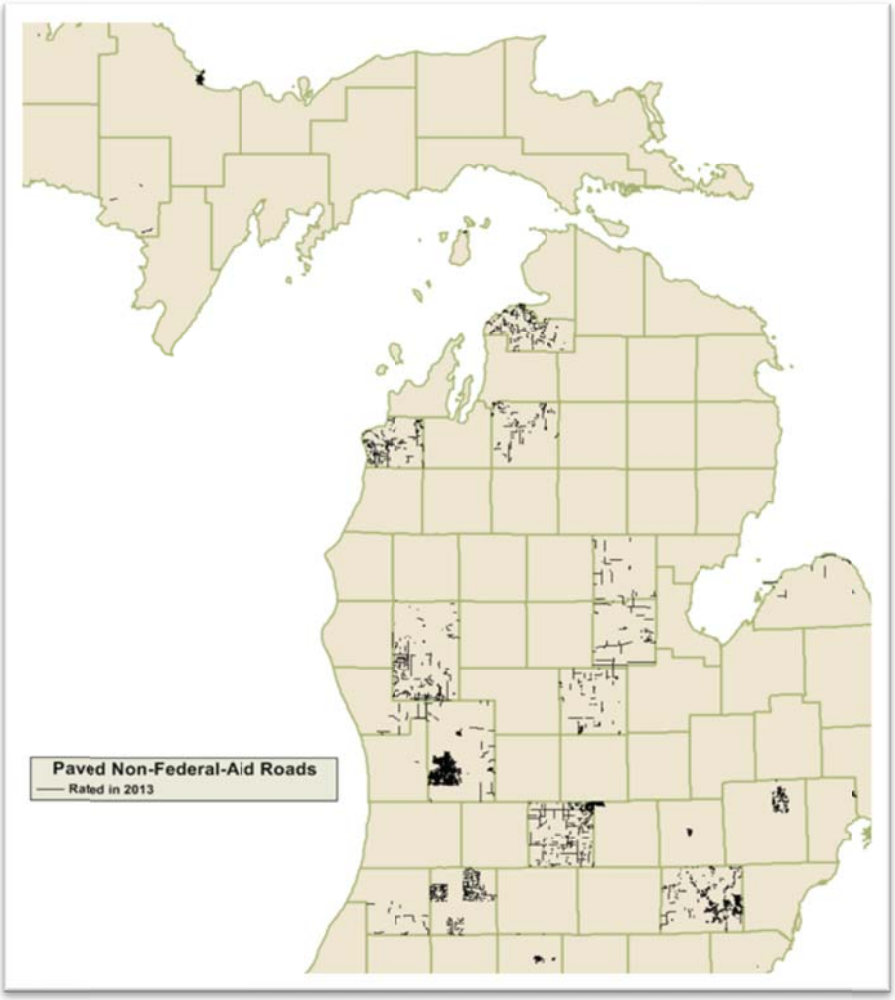


Collectors tend to provide more access to property than do arterials. Collectors also funnel traffic from residential to rural areas to arterials. The 2013 rating of the *Collector* system reveals that 46 percent were in poor condition, 38 percent were in fair condition, and 16 percent were in good condition. [Figure 15 - Source: 2013 PASER Data Collection]



Paved Non-Federal-Aid Roads & Streets

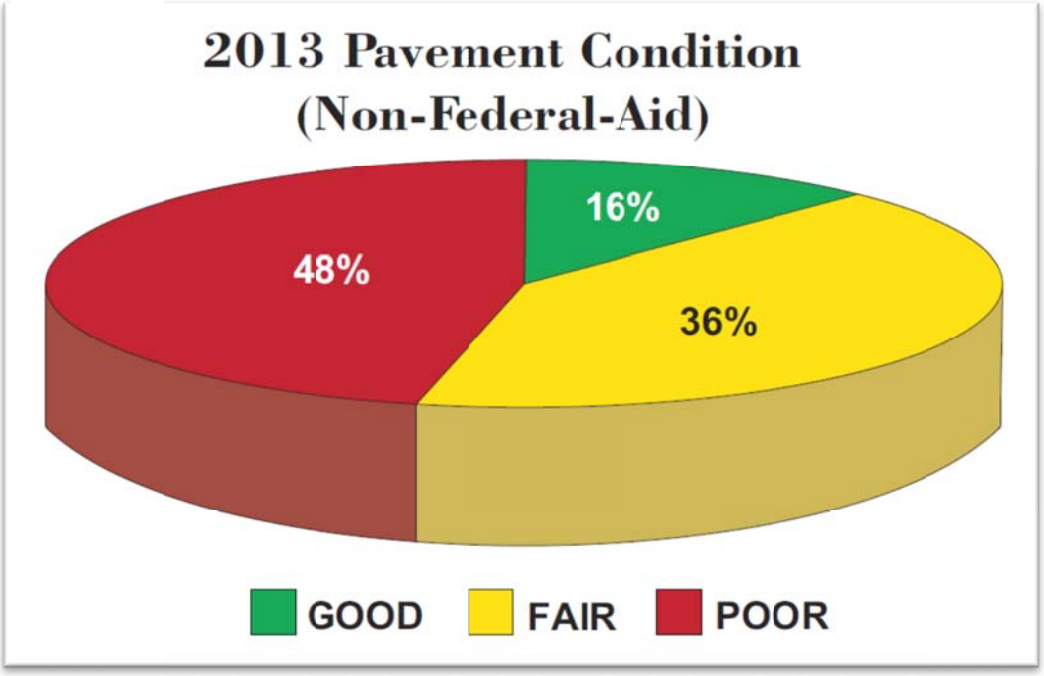
Not all roads in Michigan are eligible for federal-aid. Whether a road is eligible for aid or not depends upon its national functional classification. In general, non-federal-aid eligible roads are residential streets and lightly traveled county roads. Roughly half of these roads are unpaved.



Map Source: 2013 PASER (Paved Non-Federal-Aid) Data Collection

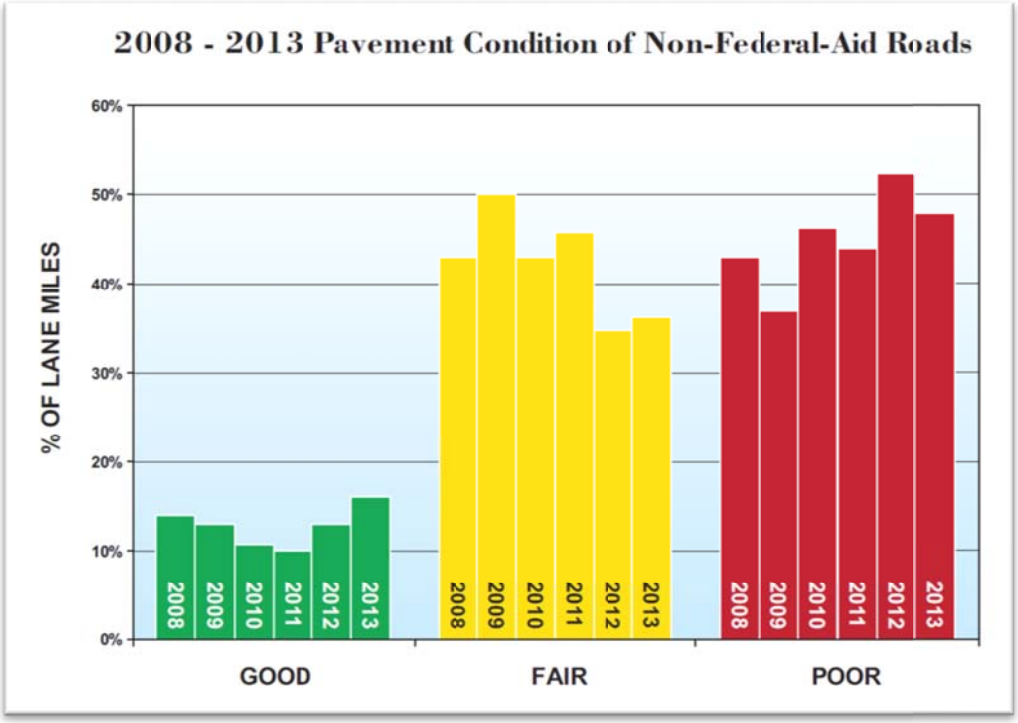
Since its inception, the Council has focused its attention on the condition of the 39,700 miles of federal aid eligible roads in the state as required by Act 51. In 2008, the Council expanded its focus to include a major portion of the paved non-federal-aid eligible roads.

There are 80,000 miles of non-federal aid eligible roads in the state. Approximately one-half of this mileage (about 40,000 miles) is paved. Just over 6,540 lane miles of these roads were observed and assigned PASER ratings in 2013; 8,623 lane miles in 2012; 9,766 lane miles in 2011; 4,296 lane miles in 2010; 5,647 lane miles in 2009; and 11,557 lane miles in 2008.



Source: 2013 PASER (Paved Non-Federal-Aid) Data Collection
Figure 16

Similar to the pavement ratings for federal-aid roads, the ratings for paved non-federal-aid roads are reported in lane miles. Figure 16 above indicates that 48 percent of lane miles are in poor condition, 36 percent are in fair condition, and 16 percent are in good condition. Figure 17 below summarizes pavement ratings reported in 2008-2013.



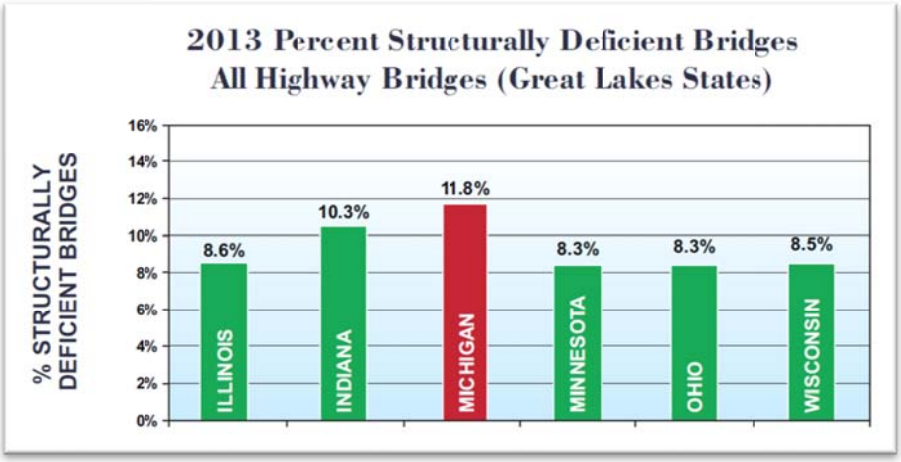
Source: 2008-13 PASER (Paved Non-Federal-Aid) Data Collection
Figure 17

BRIDGE CONDITION

An analysis of bridge conditions in Michigan shows that state and local bridge owners and decision makers are continuing to "hold their own" despite rising costs and revenue challenges. From 2004 to 2013, the overall network of bridges in the state saw a slight but steady improvement in overall condition. This can be attributed to:

1. Progress being made in reducing the number of structurally deficient bridges under state jurisdiction.
2. More local agencies are implementing preventive maintenance "mix of fixes" strategies on local bridge systems.

Bridge conditions in Michigan have been given even more of a strategic focus with the development of the MiDashboard, Governor Snyder's set of high level performance measures indicating how the state compares with the rest of the nation in key result areas, along with recent trends. The percentage of Michigan's bridges which are rated structurally deficient is one of the 5 measures of the overall strength of Michigan's economy, and this measure can be accessed here: **www.michigan.gov/midashboard**



However, there remains reason for continued concern regarding Michigan's ability to preserve its strategic bridge assets. Figure 2 above indicates that Michigan has a significantly higher percentage of structurally deficient bridges than other Great-Lakes states. An analysis of the 2013 NBI submittal shows that 5.4 percent of state-owned bridges and 15.1 percent of county and local bridges were structurally deficient, resulting in Michigan having 11.8 percent of all highway bridges structurally deficient.

Graphic Source:

Figure 2 – MDOT April 2014

Definitions:

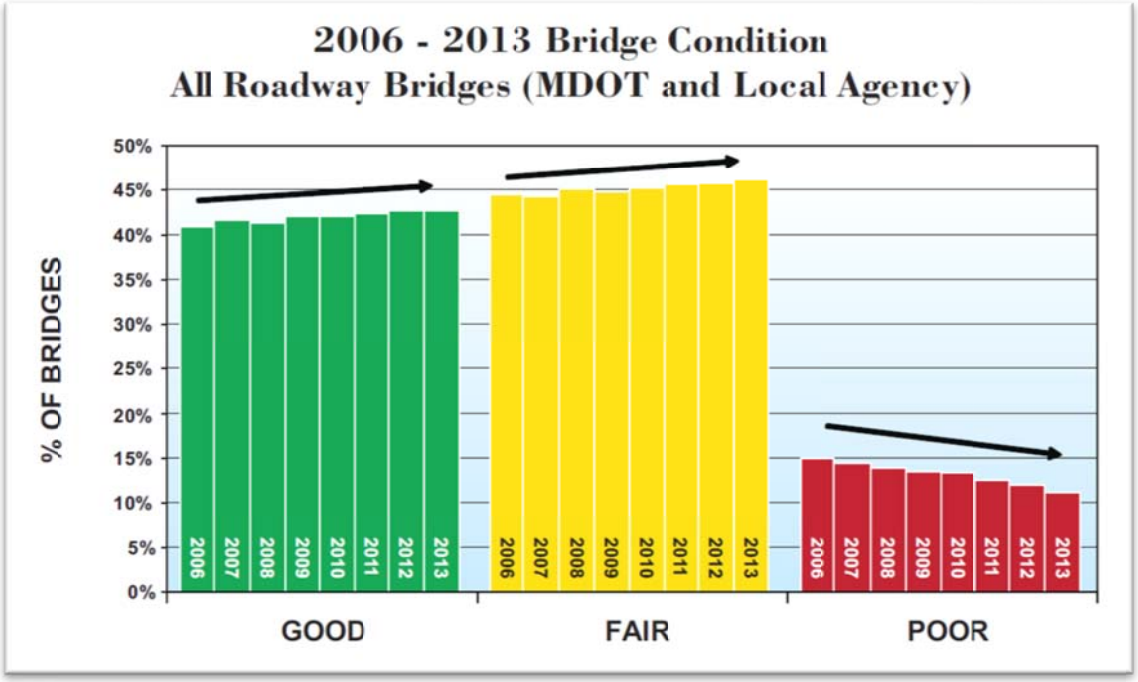
National Bridge Inventory (NBI) *– bridges have their own federal rating system. Federal law requires bridges be inspected at least once every two years. Condition ratings are based on a 0-9 scale and assigned for each culvert, superstructure, substructure, and the deck of each bridge.*

Good/Fair/Poor Bridge Condition Categories *– For the purposes of this report, the 2013 NBI ratings are classified into* ***Good Condition*** *(NBI 9-7);* ***Fair Condition*** *(NBI 6-5); and* ***Poor Condition*** *(NBI 4-0).*

Structurally Deficient Bridges *– a bridge is structurally deficient if any major component is in* ***Poor Condition*** *or if any one or more of the following is true:* ***Deck Rating is <5; Superstructure Rating is <5; Substructure Rating is <5; Culvert Rating is <5; and Structural Evaluation is <3.***

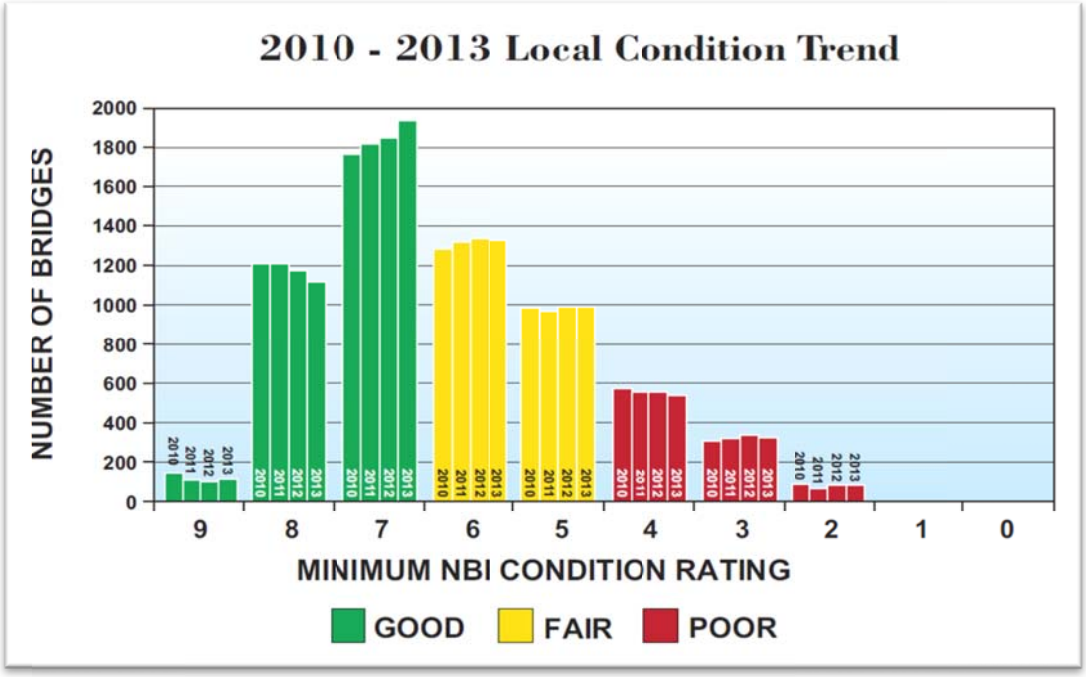
Reference:

To View Bridge Condition by Jurisdiction please visit the TAMC Website: ***www.michigan.gov/tamc*** *OR; Link to the* ***TAMC Dashboards****:* ***http://tamc.mcgi.state.mi.us/MITRP/Data/PaserDashboard.aspx*** *OR; Link to the* ***Interactive Map****:* ***http://tamc.mcgi.state.mi.us/MITRP/Data/paserMap.aspx***



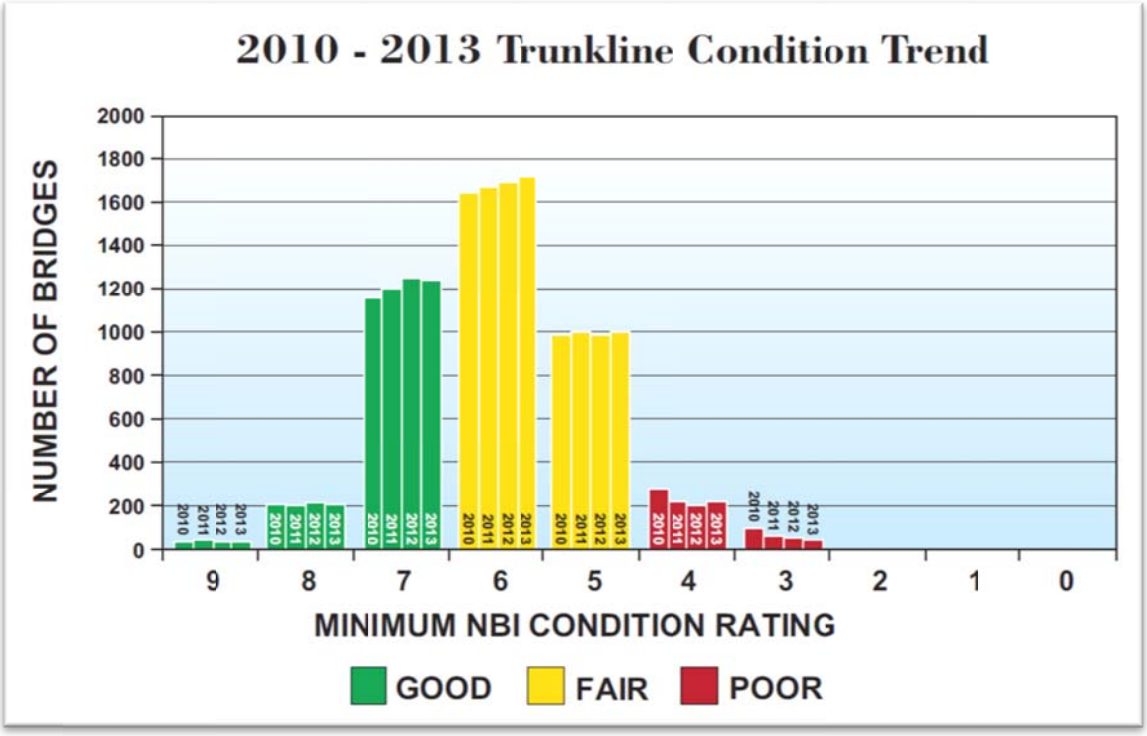
Source: MDOT 2006-13 NBI Data Collection
Figure 18

Figure 18 above summarizes the percentage of Michigan bridges in good, fair, and poor condition for the years 2006-2013. Michigan state and local bridge owners and decision makers have reduced the percentage of bridges in poor condition while increasing the number of bridges in good and fair condition. Although the trend-line for the poor category is decreasing, the good category is plateauing and the fair category is increasing. Without implementing an effective preventative maintenance strategy those bridges located on the fair to poor border-line are in danger of dropping into the poor category.



Source: 2010-13 NBI Data Collection
Figure 19

Figure 19 on the previous page shows that local bridge owners have maintained the number of poor bridges over the last four-years. It is important to apply strategic preventative maintenance strategies to maintain or reduce the number of fair bridges approaching the poor category (NBI Rating <5).



Source: 2010-13 NBI Data Collection
Figure 20

Figure 20 above shows that the trunkline system has made significant progress in reducing the number of poor bridges, accounting for most of the progress statewide, however this progress slowed in 2013. The trunkline system has maintained the number of fair bridges before they reach the poor category, while increasing the number of good and fair bridges. Maintaining or improving the bridges rated in good or fair condition is imperative to prevent the number of poor bridges (NBI Rating <5) from increasing.

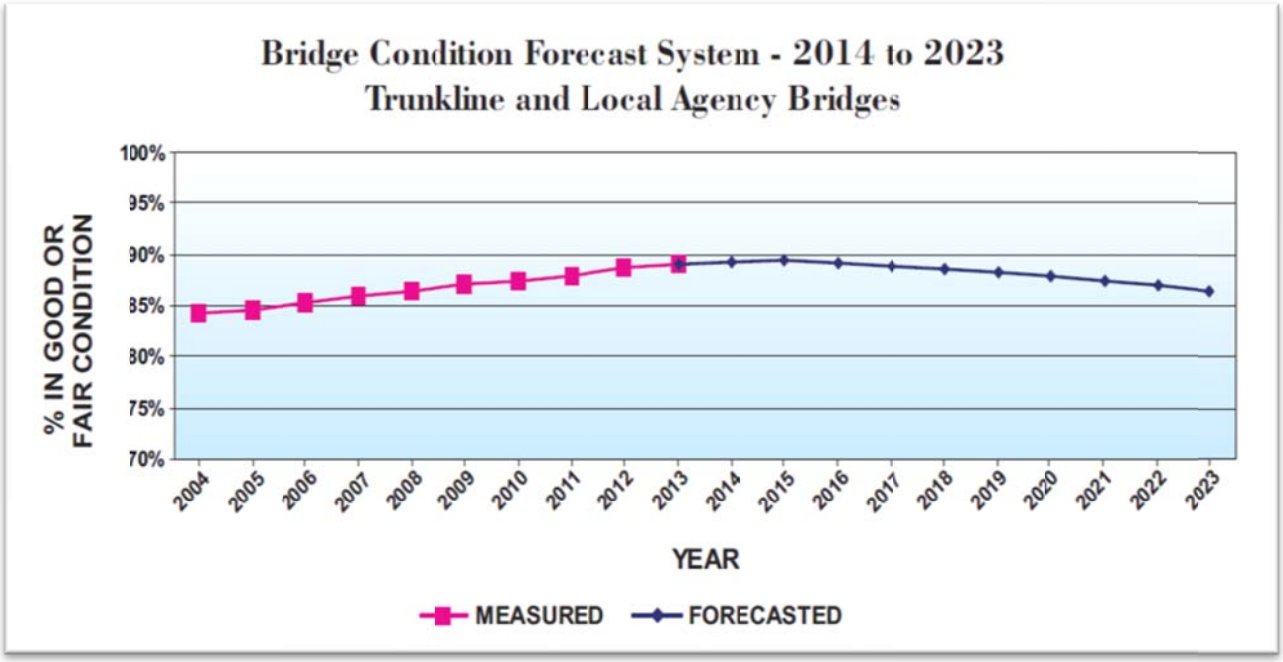
BRIDGE CONDITION FORECASTS

Definition:

Bridge Condition Forecasting System (BCFS) *– BCFS is a bridge management tool used to develop and evaluate bridge preservation policies. The tool begins with current bridge conditions. After analyzing measured bridge deterioration rates and project costs with expected inflation, fix strategies and funding levels, BCFS estimates the future condition of the bridge network.*

Working from current bridge condition information (NBI Data), bridge deterioration rate, project costs, expected inflation, and fix strategies, the Bridge Condition Forecasting System (BCFS) estimates future condition of MDOT and local bridges.

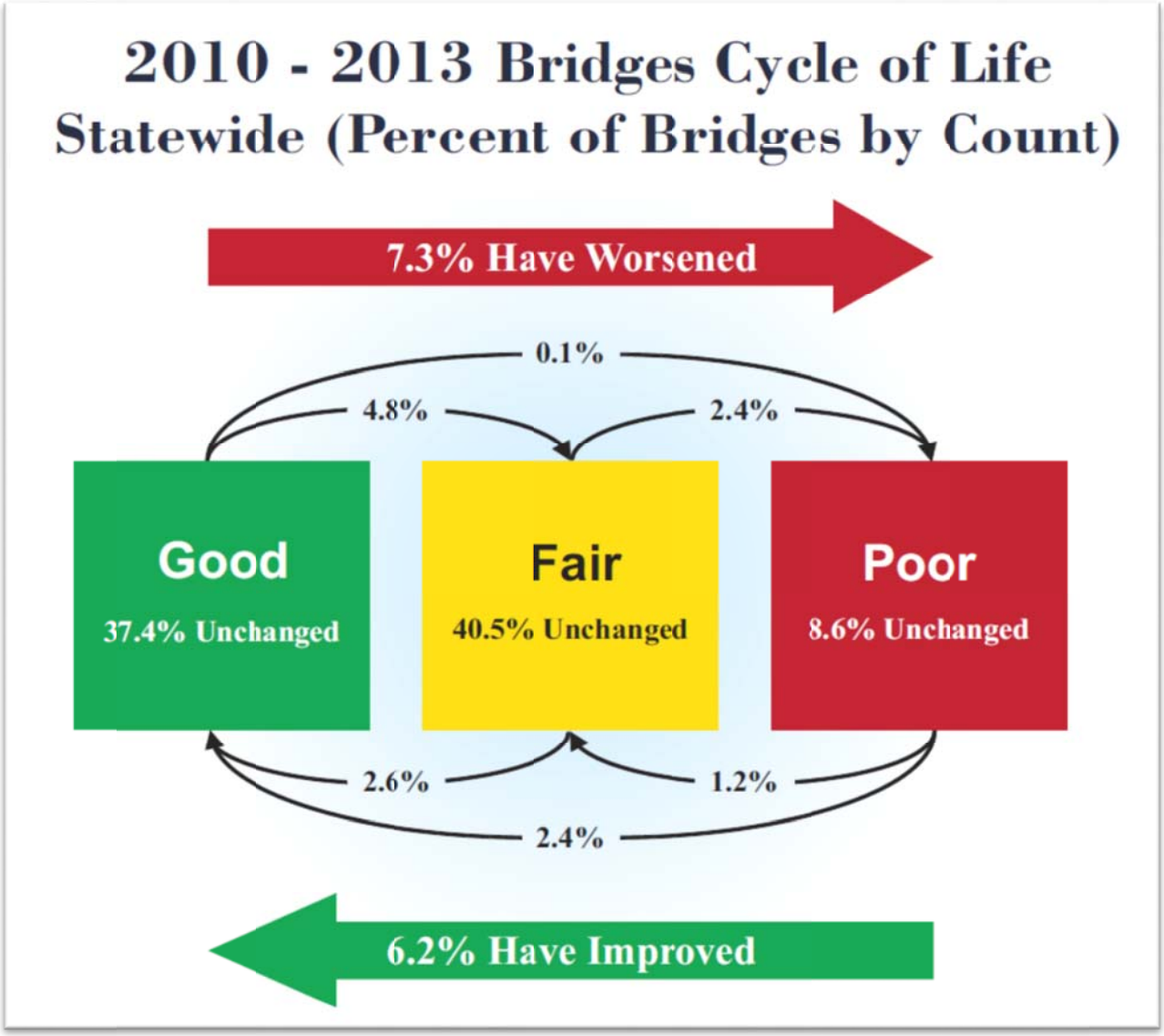
Figure 21 below indicates the combined overall bridge condition of all the state's bridges (trunkline and local agency) is expected to decline after 2013 unless additional funding is identified for both state and local bridge programs. In addition, the condition and forecast data shows the local bridge program could materially benefit from applying capital preventative maintenance strategies.



Source: MDOT April 2014
Figure 21

BRIDGE CYCLE OF LIFE

Figure 22 below shows the percentage of bridges that have improved/deteriorated into each of the major condition categories over the last four years (2010 – 2013). Michigan's overall goal is to reduce the number of poor bridges. Over this time span, 7.3 percent of Michigan's bridges have worsened; 4.8 percent of the bridges went from good to fair, 2.4 percent went from fair to poor, and less than one percent slid all the way from good to poor. In that same three year period, 6.2 percent of the bridges were improved; 2.6 percent went from fair to good, 1.2 percent went from poor to fair and 2.4 percent went from poor to good.



Source: MDOT April 2014
Figure 22

INVESTMENT IN THE SYSTEM

Updated Michigan Roads Crisis Report On March 19, 2014 former Representatives Rick Olson published an update to the September 2011 report of the Work Group on Transportation Funding, of the House of Representatives Transportation Committee titled "Michigan's Roads Crisis: What Will It Cost to Maintain Our Roads and Bridges?" [See link to view the full report: http://media.mlive.com/lansing-news/other/2014-olsen-road-report.pdf]. This report/update relied on the PASER condition data supplied by the Transportation Asset Management Council and analysis completed by MDOT staff. Per updated report, in order to reach the stated goal of 95 percent of the state's trunkline and 85 percent of the remaining paved roads in PASER Good or Fair condition the amount of additional investment needed to reach these goals has risen from $1.75 billion in 2013 to $2.81 billion in 2014.

Cost of Returning Paved, Federal-Aid Roads to Their 2004 Condition

Condition		2004 County, City, State NonFreeway	2004 Freeway	2013 County, City, State NonFreeway	2013 Freeway
Fair	Percent	**65.0%**	**61.0%**	**45.0%**	**58.0%**
	Lane Miles	53,844	6,122	34,046	5,808
	CPM %	100%	100%	100%	100%
	CPM cost/ln.mi.	$28,000	$42,000	$35,711	$68,988
	Total Need in Fair Cond.	$1,507,632,000	$257,124,000	$1,215,821,453	$400,650,570
Poor	Percent	**10.8%**	**6.4%**	**37.0%**	**11.0%**
	Lane Miles	8,915	646	27,993	1,101
	Reabilitation %	70%	70%	70%	70%
	Rehab. cost/ ln.mi.	$100,000	$335,000	$231,646	$666,059
	Rehab. Sub Total	$624,050,000	$151,487,000	$4,539,200,316	$513,532,155
	Reconstruction %	30%	30%	30%	30%
	Reconst. cost/ln.mi	$360,000	$930,000	$815,470	$1,785,163
	Reconst. Sub Total	$962,820,000	$180,234,000	$6,848,348,309	$589,869,625
	Total Need in Poor Cond.	$1,586,870,000	$331,721,000	$11,387,548,626	$1,103,401,780
	Total Fair and Poor Cond.	$3,094,502,000	$588,845,000	$12,603,370,078	$1,504,052,350
	Grand Total	$3,683,347,000		$14,107,422,428	
	Reduction in Asset Value 2004 to 2013			**$10,424,075,428**	

Source: MDOT April 2014
Figure 23

Cost of Deterioration The costs of this continued deterioration are significant. Figure x above shows that in 2004 the Council projected it would have cost approximately $3.7 billion to bring all federal-aid roads rated poor and fair up to a good rating. In 2013, the Council projects it would have cost $14.1 billion, more than triple what it would have cost in 2004. This represents $10.4 billion in lost value of our road assets. The adoption of good pavement and asset management practices by all road agencies can help check this deterioration and the resulting loss of value, but without adequate funding these practices by themselves will be insufficient to fix this situation.

MICHIGAN'S TRANSPORTATION ASSET MANAGEMENT COUNCIL – FORMATION AND CHARGE

The Transportation Asset Management Council (Council) was formed under Public Act 499 of 2002 (amended by P.A. 199 of 2007) to develop a coordinated, unified effort by the various roadway agencies within the state to advise the State Transportation Commission on a statewide asset management strategy.

Mission Statement: To support excellence in managing Michigan's transportation assets by:

1. Advising the Legislature and State Transportation Commission
2. Promoting Asset Management Principles
3. Providing Tools and Practices for Road Agencies

TAMC Training and Education:

The Council continues to focus on training and educating local agency staff and elected and appointed officials on the benefits of asset management. Please visit the TAMC's website to download the *2013 TAMC Training Program Results Report*. In 2013 the Council sponsored:

- Two (2) Asset Management Conferences were held in the spring in East Lansing and in the fall in Escanaba and had a total attendance of 135 participants.
- Ten (10) Introduction to Asset Management for Elected & Appointed Officials Workshops were held statewide and had attendance of 149 participants.
- Six (6) Asset Management Workshops were held statewide and had attendance of 98 participants.
- Ten (10) on-site PASER Trainings were held statewide and had 375 participants.
- Ten (10) Investment Reporting Tool Webinar Trainings were held online and had attendance of approximately 150 participants.
- One (1) Bridge Asset Management Pilot Training Course in which ten (10) specially selected individuals attended training and provided feedback to help TAMC further develop the training material for three additional workshops to be held on 11/13/13, Lansing, 2/20/13, Grand Rapids, and 4/24/14, Marquette. The guidance and training is a first of its kind nationally.

Definitions:

State Transportation Commission *– is the policy-making body for all state transportation programs comprised of six members appointed by the Governor with the advice and consent of the State Senate. For more information, visit MDOT's Website: www.michigan.gov/mdot*

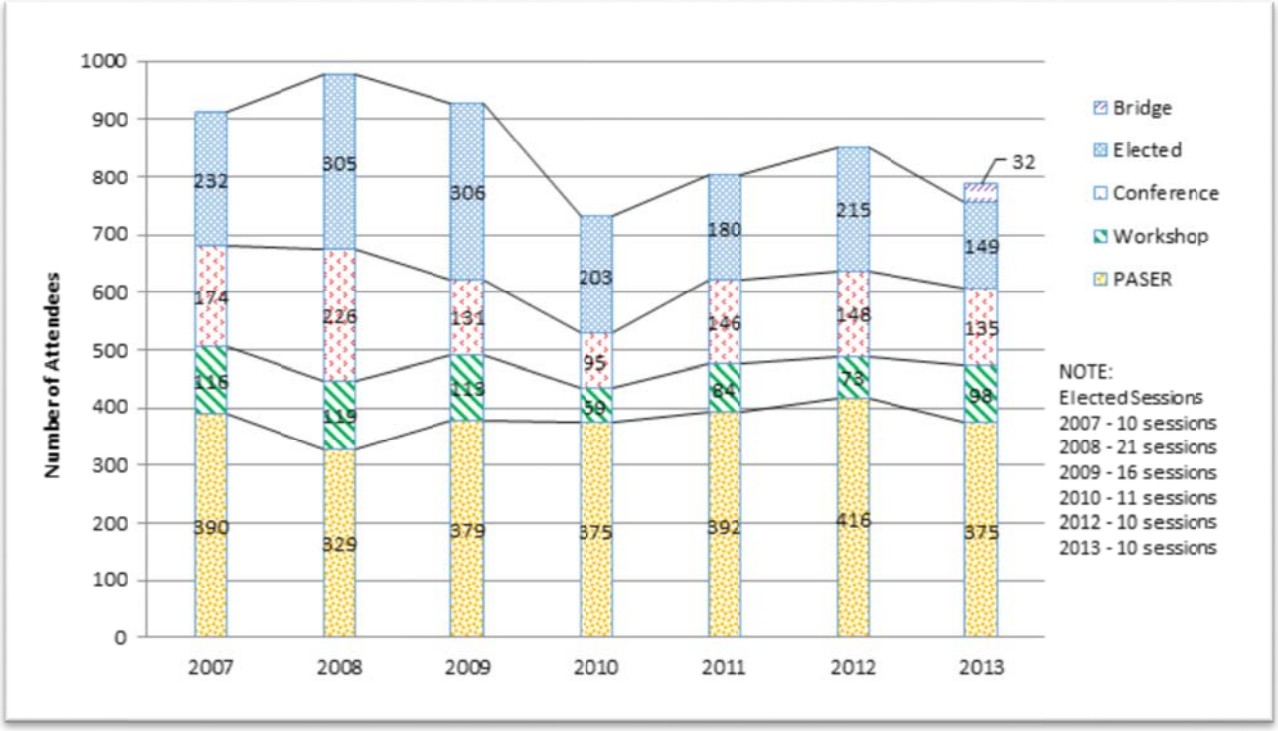
TAMC Membership *– The Council is comprised of ten (10) voting members; two (2) from MDOT; two (2) from the Michigan Municipal League; two (2) for the County Road Association of Michigan; one (1) from the Michigan Association of Counties; one (1) from the Michigan Township Association; one (1) from the Michigan Association of Regions; one (1) from the Michigan Transportation Planning Association; and one (1) non-voting member from the Michigan Center for Shared Solutions. For more information, visit TAMC's Website: www.michigan.gov/tamc*

Asset Management *– P.A. 199 of 2007 defines Asset Management as "an ongoing process of maintaining, upgrading, and operating physical assets cost-effectively, based on a continuous physical inventory and condition assessment."*

Reference:

Link to P.A. 199 of 2007: http://tamc.mcgi.state.mi.us/MITRP/document.aspx?id=377

The 2013 TAMC training program had a total of 789 participants in 2013 compared to 852 participants trained in 2012. Figure 24 below illustrates total participation in TAMC training programs 2007-2013. While recent attendance numbers have been slightly below the highs experienced in 2008-2009, demand for these trainings is still strong.

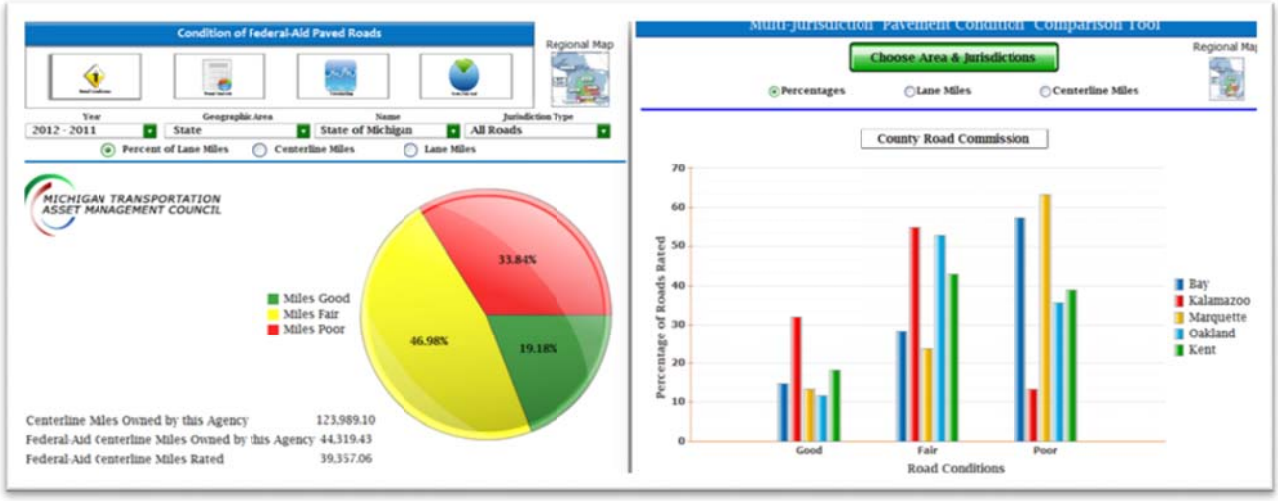


TAMC Interactive Map and Dashboards

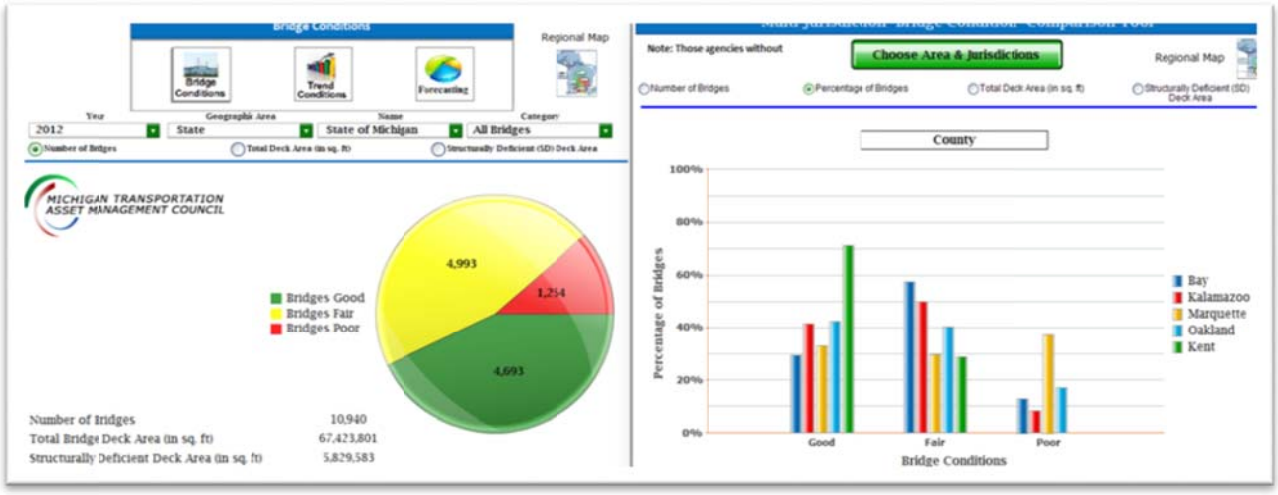
Interactive Map: In 2013, the Council maintained features to the public interactive map that includes historical and most current PASER condition ratings, updated PASER data collection status information, and most current National Bridge Inventory (NBI) condition information. *Click* graphic below for hyperlink to the Interactive Map.

Performance Measure Dashboards: In addition, the Council developed and improved upon several Performance Measure Dashboards that show the condition, operation, and investment in Michigan's public road and bridge system. *Click* on each graphic below for hyperlink to the Performance Measure Dashboards.

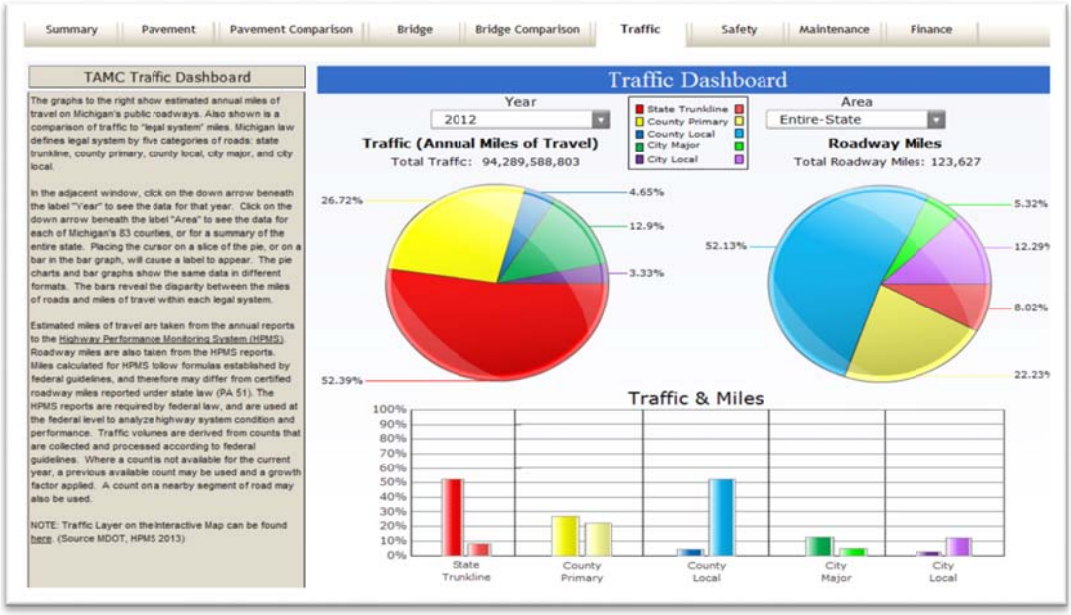
Pavement Condition & Pavement Comparison Dashboards – is based on paved surface ratings for state highways as well as roads under the jurisdiction of Michigan's counties, cities & villages. These dashboards illustrate pavement condition trends and provide the user with the ability to compare system performance with up to eight agencies.



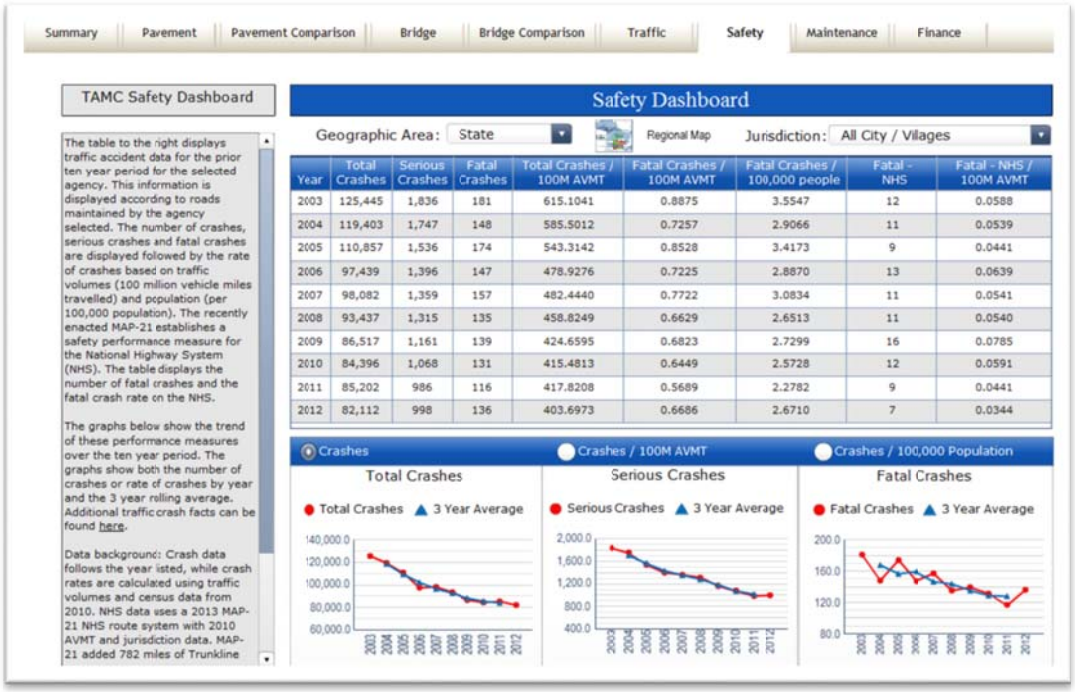
Bridge Condition & Bridge Comparison Dashboards – bridge conditions are based on bi-annual inspections of over 10,000 state, county, city & village owned bridges. These dashboards illustrate bridge condition trends and provide the user with the ability to compare system performance.



Traffic Dashboard **–**traffic volumes is a measure of both road use and how effectively the road system is performing. The Traffic dashboard shows estimated annual miles of travel on Michigan's public roadways as well as a comparison of traffic to legal system miles.

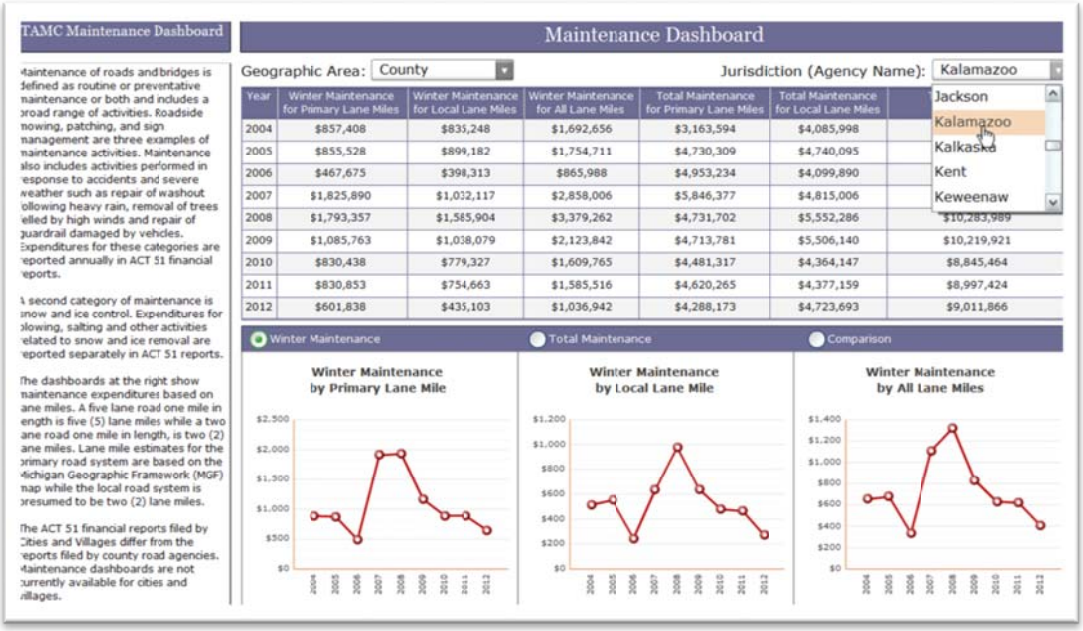


NEW Safety Dashboard **–** the rate of crashes (fatalities, serious injuries) is a measure of how effectively the road system is performing.



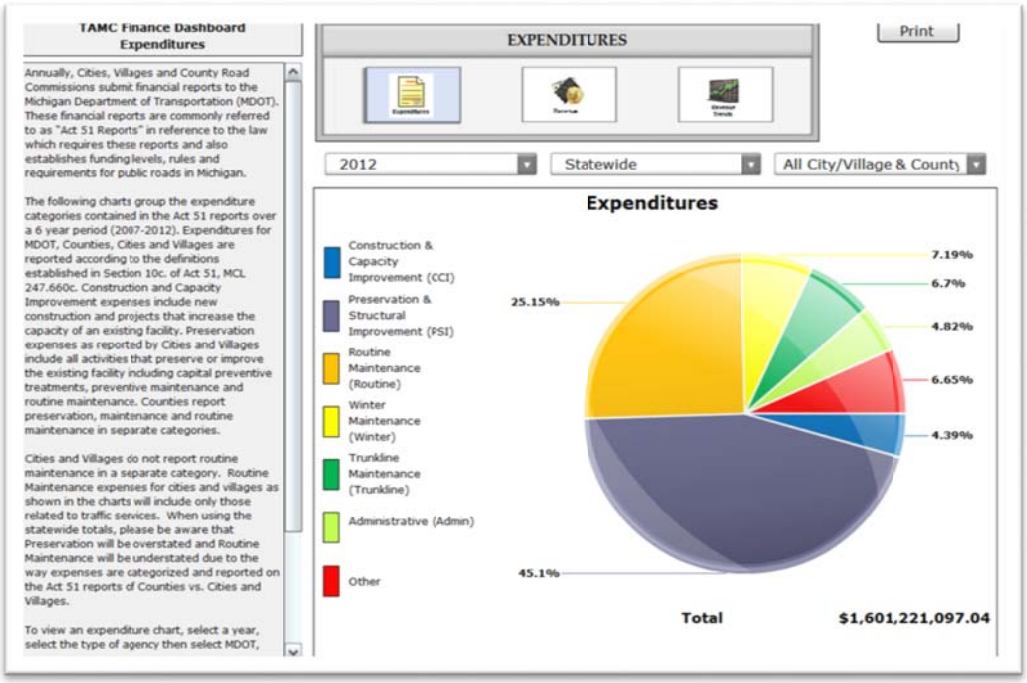
Year	Total Crashes	Serious Crashes	Fatal Crashes	Total Crashes / 100M AVMT	Fatal Crashes / 100M AVMT	Fatal Crashes / 100,000 people	Fatal - NHS	Fatal - NHS / 100M AVMT
2003	125,445	1,836	181	615.1041	0.8875	3.5547	12	0.0588
2004	119,403	1,747	148	585.5012	0.7257	2.9066	11	0.0539
2005	110,857	1,536	174	543.3142	0.8528	3.4173	9	0.0441
2006	97,439	1,396	147	478.9276	0.7225	2.8870	13	0.0639
2007	98,082	1,359	157	482.4440	0.7722	3.0834	11	0.0541
2008	93,437	1,315	135	458.8249	0.6629	2.6513	11	0.0540
2009	86,517	1,161	139	424.6595	0.6823	2.7299	16	0.0785
2010	84,396	1,068	131	415.4813	0.6449	2.5728	12	0.0591
2011	85,202	986	116	417.8208	0.5689	2.2782	9	0.0441
2012	82,112	998	136	403.6973	0.6686	2.6710	7	0.0344

Routine Maintenance Dashboard **–** is required to keep roads and bridges performing as intended. Anticipated release date: Early 2014.



Year	Winter Maintenance for Primary Lane Miles	Winter Maintenance for Local Lane Miles	Winter Maintenance for All Lane Miles	Total Maintenance for Primary Lane Miles	Total Maintenance for Local Lane Miles	
2004	$857,408	$835,248	$1,692,656	$3,163,594	$4,085,998	
2005	$855,528	$899,182	$1,754,711	$4,730,309	$4,740,095	
2006	$467,675	$398,313	$865,988	$4,953,234	$4,099,890	
2007	$1,825,890	$1,032,117	$2,858,006	$5,846,377	$4,815,006	
2008	$1,793,357	$1,585,904	$3,379,262	$4,731,702	$5,552,286	$10,283,989
2009	$1,085,763	$1,038,079	$2,123,842	$4,713,781	$5,506,140	$10,219,921
2010	$830,438	$779,327	$1,609,765	$4,481,317	$4,364,147	$8,845,464
2011	$830,853	$754,663	$1,585,516	$4,620,265	$4,377,159	$8,997,424
2012	$601,838	$435,103	$1,036,942	$4,288,173	$4,723,693	$9,011,866

Finance Dashboard **–** capital investments are necessary to extend the useful life of any asset including roads and bridges. This dashboard illustrates how MDOT and local agencies are investing Act51 funding into the road and bridge system and the revenues received annually.



TAMC Publications:

Annual Report: By May 2nd of each year (since 2003), the Council submits an Annual Report to the State Transportation Commission and Michigan Legislature describing the asset management related efforts and condition of the road & bridge system from the year prior.

***Asset Management Guide / Sample Asset Management Plan*:** Working in conjunction with MDOT, in the spring of 2011 the Council adopted an updated Local Agency Guide for Developing an Asset Management Process/Plan and developed a new Sample Asset Management Plan. This Guide was designed to lead an agency through the steps of an asset management process with the idea that when applied to 600+ local agencies, one size does NOT fit all. This idea ultimately lead to the creation of a tiered (Basic, Moderate, Advanced Levels) sample asset management plan.

Asset Management Guide for Local Agency Bridges in Michigan/Sample Bridge Asset Management Plan: The Council has developed an Asset Management Guide for Local Agency Bridges in Michigan. The guide is intended to provide assistance to local agency bridge owners and decision makers in understanding bridge management and preservation. In this regard, the guide provides guidance to decision makers and county bridge or highway engineers in the planning, developing, programming, and implementing of effective and efficient capital programs and maintenance actions to preserve the bridges under their jurisdiction; and information to assist local agencies (1) in understanding their bridge network, (2) in the preparation and implementation of a bridge preservation plan, and (3) to support applications for funding under MDOT's Local Bridge Program.

TAMC Investment Reporting:

Investment Reporting Tool (IRT) & Act 51 Distribution and Reporting System (ADARS): In 2011/12, the Council partnered with MDOT's Financial Operations Division to add the annual project reporting requirements within the IRT to the newly developed online ADARS. In effect, this effort combines two separate annual reporting requirements of road owning agencies (Counties, Cities & Villages) into one to provide the State Legislature with a much clearer understanding of how Michigan Transportation Funds (MTF) are applied at the project level.

TAMC Recognition:

Awards Program: The Council adopted an awards program to annually recognize those individuals and organizations that support and promote asset management practices. The following individuals and organizations received awards in 2009 – 2013:

Individual Award Winners:

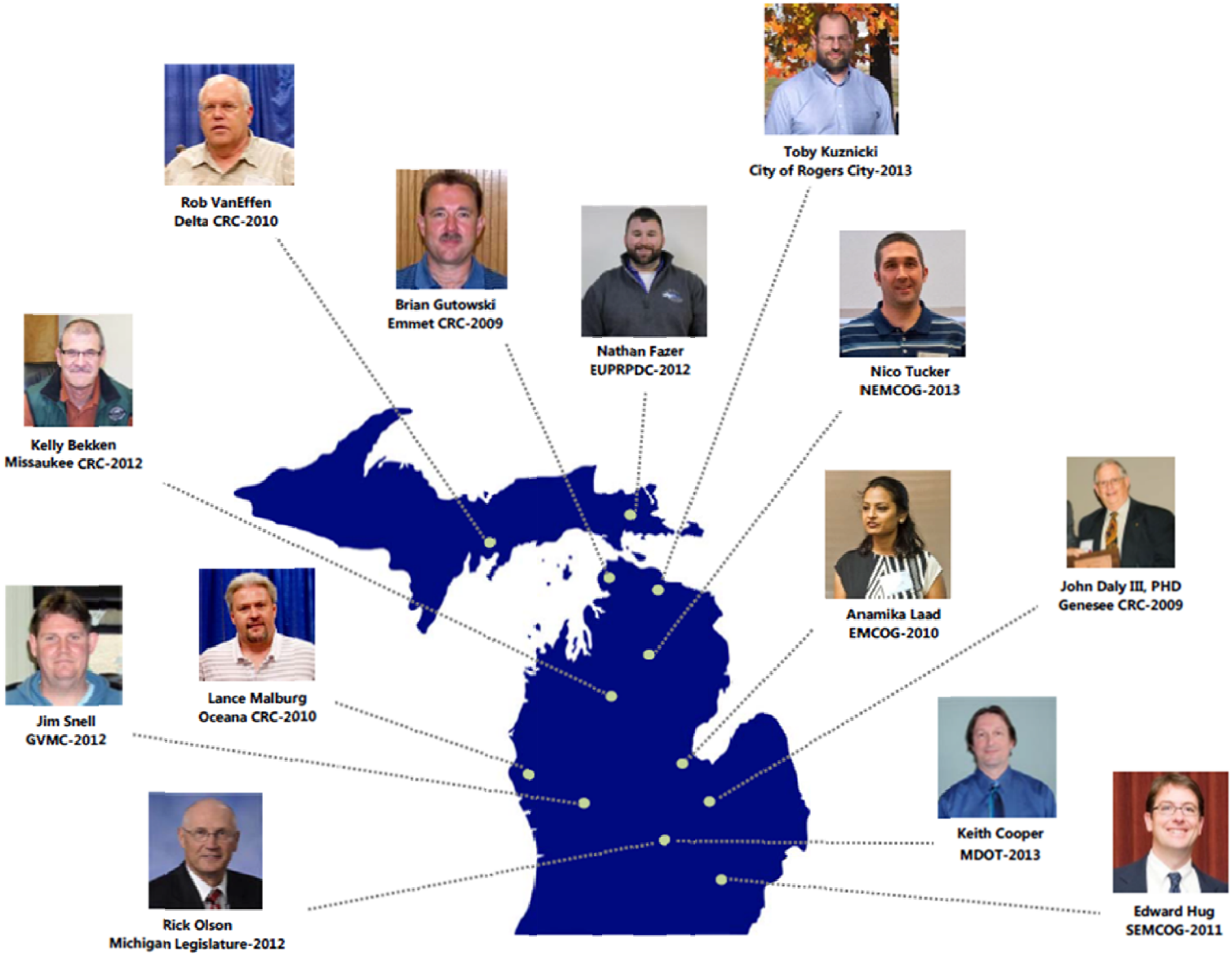
2009 – John Daly III, PHD, Genesee County Road Commission
2009 – Brian Gutowski, Emmet County Road Commission
2010 – Lance Malburg, Oceana County Road Commission
2010 – Rob VanEffen, Delta County Road Commission
2010 – Anamika Laad, East Michigan Council of Governments
2011 – Edward G. Hug, Southeast Michigan Council of Governments
2012 – Jim Snell, Grand Valley Metro Council
2012 – Nathan Fazer, Eastern U.P. Regional Planning & Development Commission
2012 – Rep. Rick Olson, Michigan Legislature
2012 – Kelly Bekken, Missaukee County Road Commission
2013 – Keith Cooper, Michigan Department of Transportation
2013 – Nico Tucker, Northeast Michigan Council of Governments
2013 – Toby Kuznicki, City of Rogers City

Organization Award Winners:

2009 – Michigan Department of Transportation
2009 – Genesee County Metropolitan Planning
2009 – City of Manistee
2009 – City of Marquette
2009 – Alcona County Road Commission
2009 – Kent County Road Commission
2010 – Kalamazoo County Road Commission
2010 – Roscommon County Road Commission
2010 – Genesee County Road Commission
2011 – Ottawa County Road Commission
2012 – Texas Township

(Note: See Pages. 32-33 for award winner maps.)

TAMC INDIVIDUAL AWARD WINNERS 2009-2013



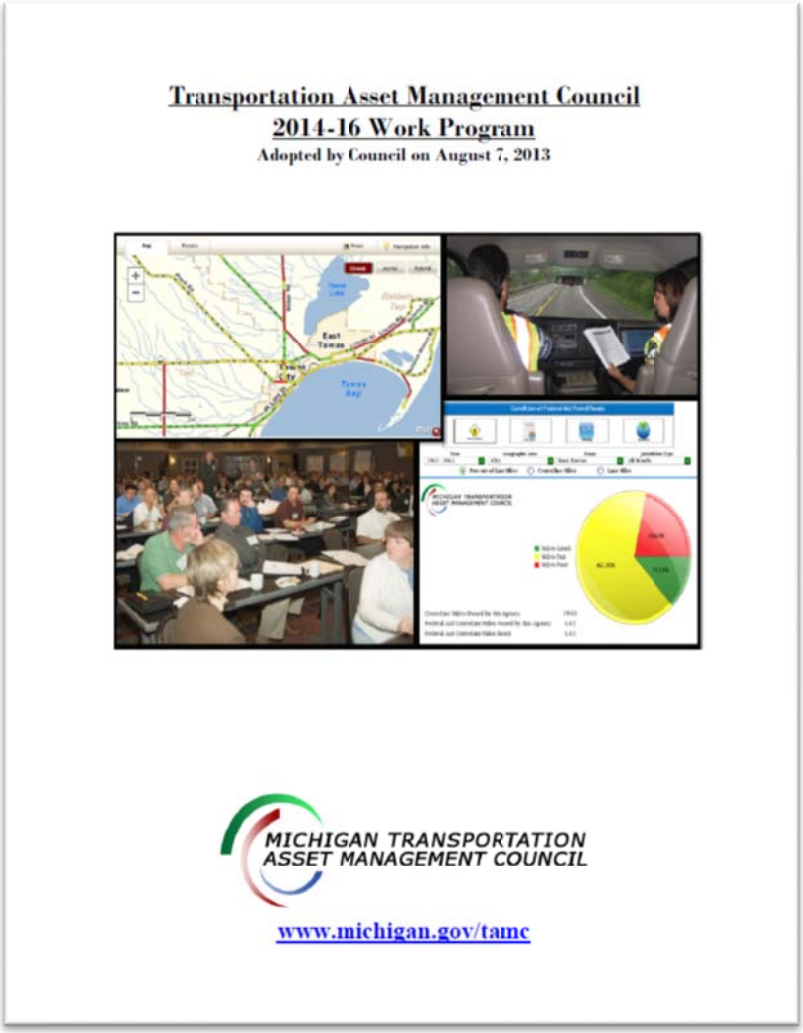
TAMC ORGANIZATION AWARD WINNERS
2009-2013

FUTURE WORK OF TAMC

2014-2016 Work Program - On August 7, 2013 the Council adopted a new work program that outlines and prioritizes the training & education, data collection, project & investment reporting, publications, recognition, public outreach, advancement of asset management in Michigan, performance measures, and research opportunities for the next three-years. Highlights include:

- ✓ Exploring the possibility of offering a building your own asset management plan pilot training course.
- ✓ Research and develop a web-based "fill-in-the-blank" asset management plan with possible integration with bridge asset management guidance.
- ✓ Develop a strategy for greater use of technology and social media.
- ✓ Develop techniques and tools to inventory and rate unpaved roads.

Click on graphic below for hyperlink to the 2014-2016 Work Program.



APPENDIX – A

STATE TRUNKLINE HIGHWAY SYSTEM (EXCERPT)
Act 51 of 1951

As Amended by Act No. 199 Public Acts of 2007

247.659a Definitions; transportation asset management council; creation; charge; membership; appointments; staff and technical assistance; requirements and procedures; technical advisory panel; multiyear program; funding; records on road and bridge work performed and funds expended; report.

Sec. 9a. (1) As used in this section:

(a) "Asset management" means an ongoing process of maintaining, upgrading, and operating physical assets cost-effectively, based on a continuous physical inventory and condition assessment.

(b) "Bridge" means a structure including supports erected over a depression or an obstruction, such as water, a highway, or a railway, for the purposes of carrying traffic or other moving loads, and having an opening measuring along the center of the roadway of more than 20 feet between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes where the clear distance between openings is less than 1/2 of the smaller contiguous opening.

(c) "Central storage data agency" means that agency or office chosen by the council where the data collected is stored and maintained.

(d) "Council" means the transportation asset management council created by this section.

(e) "County road commission" means the board of county road commissioners elected or appointed pursuant to section 6 of chapter IV of 1909 PA 283, MCL 224.6, or, in the case of a charter county with a population of 2,000,000 or more with an elected county executive that does not have a board of county road commissioners, the county executive for ministerial functions and the county commission provided for in section 14(1)(d) of 1966 PA 293, MCL 45.514, for legislative functions.

(f) "Department" means the state transportation department.

(g) "Federal-aid eligible" means any public road or bridge that is eligible for federal aid to be spent for the construction, repair, or maintenance of that road or bridge.

(h) "Local road agency" means a county road commission or designated county road agency or city or village that is responsible for the construction or maintenance of public roads within the state under this act.

(i) "Multiyear program" means a compilation of road and bridge projects anticipated to be contracted for by the department or a local road agency during a 3-year period.

The multiyear program shall include a listing of each project to be funded in whole or in part with

state or federal funds.

(j) "State planning and development regions" means those agencies required by section 134(b) of title 23 of the United States Code, 23 USC 134, and those agencies established by Executive Directive 1968-1.

(2) In order to provide a coordinated, unified effort by the various roadway agencies within the state, the transportation asset management council is hereby created within the state transportation commission and is charged with advising the commission on a statewide asset management strategy and the processes and necessary tools needed to implement such a strategy beginning with the federal-aid eligible highway system, and once completed, continuing on with the county road and municipal systems, in a cost-effective, efficient manner. Nothing in this section shall prohibit a local road agency from using an asset management process on its non-federal-aid eligible system. The council shall consist of 10 voting members appointed by the state transportation commission. The council shall include 2 members from the county road association of Michigan, 2 members from the Michigan municipal league, 2 members from the state planning and development regions, 1 member from the Michigan townships association, 1 member from the Michigan association of counties, and 2 members from the department. Nonvoting members shall include 1 person from the agency or office selected as the location for central data storage. Each agency with voting rights shall submit a list of 2 nominees to the state transportation commission from which the appointments shall be made. The Michigan townships association shall submit 1 name, and the Michigan association of counties shall submit 1 name. Names shall be submitted within 30 days after the effective date of the 2002 amendatory act that amended this section. The state transportation commission shall make the appointments within 30 days after receipt of the lists.

(3) The positions for the department shall be permanent. The position of the central data storage agency shall be nonvoting and shall be for as long as the agency continues to serve as the data storage repository. The member from the Michigan association of counties shall be initially appointed for 2 years. The member from the Michigan townships association shall be initially appointed for 3 years. Of the members first appointed from the county road association of Michigan, the Michigan municipal league, and the state planning and development regions, 1 member of each group shall be appointed for 2 years and 1 member of each group shall be appointed for 3 years. At the end of the initial appointment, all terms shall be for 3 years. The chairperson shall be selected from among the voting members of the council.

(4) The department shall provide qualified administrative staff and the state planning and development regions shall provide qualified technical assistance to the council.

(5) The council shall develop and present to the state transportation commission for approval within 90 days after the date of the first meeting such procedures and requirements as are necessary for the administration of the asset management process. This shall, at a minimum, include the areas of training, data storage and collection, reporting, development of a multiyear program, budgeting and funding, and other issues related to asset management that may arise from time to time. All quality

control standards and protocols shall, at a minimum, be consistent with any existing federal requirements and regulations and existing government accounting standards.

(6) The council may appoint a technical advisory panel whose members shall be representatives from the transportation construction associations and related transportation road interests. The asset management council shall select members to the technical advisory panel from names submitted by the transportation construction associations and related transportation road interests. The technical advisory panel members shall be appointed for 3 years. The asset management council shall determine the research issues and assign projects to the technical advisory panel to assist in the development of statewide policies. The technical advisory panel's recommendations shall be advisory only and not binding on the asset management council.

(7) The department, each county road commission, and each city and village of this state shall annually submit a report to the transportation asset management council. This report shall include a multiyear program developed through the asset management process described in this section. Projects contained in the department's annual multiyear program shall be consistent with the department's asset management process and shall be reported consistent with categories established by the transportation asset management council. Projects contained in the annual multiyear program of each local road agency shall be consistent with the asset management process of each local road agency and shall be reported consistent with categories established by the transportation asset management council.

(8) Funding necessary to support the activities described in this section shall be provided by an annual appropriation from the Michigan transportation fund to the state transportation commission.

(9) The department and each local road agency shall keep accurate and uniform records on all road and bridge work performed and funds expended for the purposes of this section, according to the procedures developed by the council. Each local road agency and the department shall annually report to the council the mileage and condition of the road and bridge system under their jurisdiction and the receipts and disbursements of road and street funds in the manner prescribed by the council, which shall be consistent with any current accounting procedures. An annual report shall be prepared by the staff assigned to the council regarding the results of activities conducted during the preceding year and the expenditure of funds related to the processes and activities identified by the council. The report shall also include an overview of the activities identified for the succeeding year. The council shall submit this report to the state transportation commission, the legislature, and the transportation committees of the house and senate by May 2 of each year.

APPENDIX – B

TRANSPORTATION ASSET MANAGEMENT COUNCIL MEMBERS

Carmine Palombo, Chair – Michigan Transportation Planning Association: Carmine is the Deputy Director of the Southeast Michigan Council of Governments. He has served as the Chair since the Council's first meeting in October 2002.

Bob D. Slattery, Jr., Vice-Chair – Michigan Municipal League: Bob is the former Mayor of the City of Mt. Morris and Past President and lifetime member of MML. He is currently the Planning and Development Coordinator at the Genesee County Road Commission. Bob is in his fourth term on the Council.

Dale Kerbyson – Michigan Municipal League: Dale is the City Manager for the City of Lapeer. He has been in that position since December 2004. Dale is in his first term on the Council.

William McEntee – County Road Association of Michigan: Bill retired as Director of the Permits and Environmental Concerns Department of the Road Commission for Oakland County. He served in that position since 1992. Bill is in his third term on the Council.

Joanna Johnson – County Road Association of Michigan: Joanna is the Managing Director of the Kalamazoo County Road Commission. She has been in that position since November 2007. Joanna is in her first term on the Council.

Roger Safford - Michigan Department of Transportation: Roger is the Engineer for the MDOT Grand Region and was appointed to Council in 2010.

Dave Wresinski – Michigan Department of Transportation: Dave is Director of MDOT's Bureau of Transportation Planning and was appointed to Council in 2011.

Don Disselkoen – Michigan Association of Counties: Don currently serves on the Ottawa County Board of Commissioners and represents the 3rd district of Ottawa County. Don is in his third term on the Council.

John Egelhaaf – Michigan Association of Regions: John has served as the Executive Director of the Southwest Michigan Planning Commission (SWMPC) since 2003. John is in his second term on the Council.

Jennifer Tubbs – Michigan Townships Association: Jennifer is the Manager of the Charter Township of Watertown. Jennifer is in her first term on the Council.

Rob Surber – Michigan Center for Shared Solutions: Rob is the Deputy Director of the Center for Shared Solutions (CSS), which serves as the Council's data storage agency. Rob has been a non-voting member of the Council since 2004.

For full bio and contact information, please visit Council's website: www.michigan.gov/tamc