

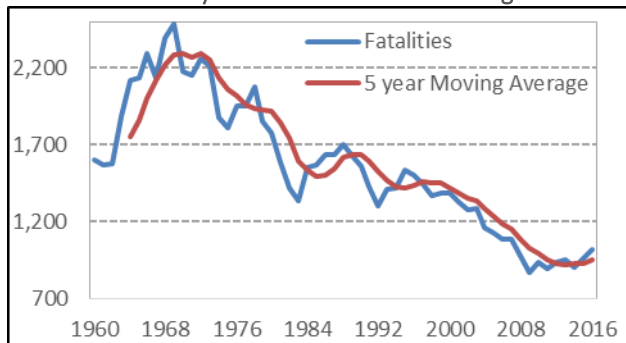
TRANSPORTATION PERFORMANCE MANAGEMENT

SAFETY PERFORMANCE MANAGEMENT

CURRENT TRENDS

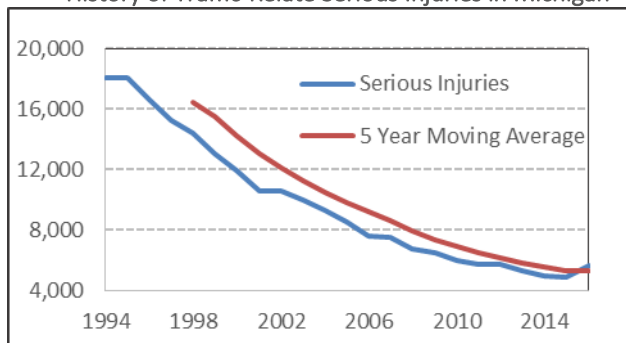
Going back to the 1960's the long-term trend in traffic fatalities in Michigan shows fatalities decreasing dramatically. There were more than 2,000 fatalities per year for the ten year period between 1964 and 1973. By 2011, the number of traffic fatalities in Michigan had dropped to a low of less than 900. There are many factors that have contributed to the long-term reduction in traffic fatalities including improvements in vehicle and occupant safety, stricter state safety laws, advances in life saving medical technology, and better and smarter deployment of engineering countermeasures. In more recent years, since 2008, the number of fatalities has fluctuated a bit, but remained around 900 per year. Calendar year 2016 marked the first year since 2007 in which the total number of traffic fatalities exceeded 1,000.

History of Traffic Fatalities in Michigan



The long-term trend in serious injuries show a similar pattern. The same factors noted above have contributed to a significant reduction in serious injuries that have resulted from vehicle crashes since the mid-1990s.

History of Traffic-Relate Serious Injuries in Michigan



FORECAST METHODS/MODELS

To forecast the total fatalities and serious injuries for target setting purposes, MDOT and the Office of Highway Safety Planning relied on two different models. The models differed in the economic drivers or factors that were identified and used to forecast the two variables. The fatality models developed by MDOT relied on the relationship between oil prices, the Dow Jones Industrial (DJI) futures and fatalities. Both the price of oil and the level and changes in the DJI futures are closely correlated to the travel demand and traffic crashes.

The other model used in the analysis was developed and maintained by the University of Michigan Transportation Research Institute (UMTRI). The UMTRI model relies on results of a recently completed research report titled Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States, which was completed as part of the National Cooperative Highway Research Program project 17-67. The model relies on the correlation between traffic crashes and vehicle miles traveled (VMT), Gross Domestic Product (GDP) per capita, median annual income, and the unemployment rate among 16 to 24-year old's.

Federal regulations require the use of five year rolling averages each of the performance measures shown below:

- Fatalities
- Fatality rate per 100 million VMT
- Serious injuries
- Serious injury rate per 100 million VMT
- Non-motorized fatalities and serious injuries

To determine a forecasted value for the five year rolling average for the first four measures listed above, a forecast for the total number of fatalities and serious injuries was obtained from both models described above for calendar year (CY) 2017 and 2018. The model created by MDOT produced an initial estimate for fatalities for CY 2017 of 968 and for CY 2018 of 912. These estimates were adjusted to account for recent data that show an increase in the number of fatalities thus far in CY 2017 that exceeds that the number experienced year-to-date in CY 2016. The adjusted values project fatalities of 1,057 in CY 2017 and 996 in 2018. The model created by UMTRI predicted 1,059 fatalities in CY 2017 and 1,063 in 2018. The final forecasted value for fatalities is the average of MDOT and UMTRI forecasted values, which predict **1,058 in 2017 and 1,030 in 2018.**

The UMTRI model was the sole model used in forecasting total serious injuries as it exhibited a strong linear relationship of the ratio of serious injuries and fatalities (A/K). The model predicts **5,243 serious injuries in 2017 and 5,031 in 2018**.

Results from the UMTRI model (the A/K relationship) was also used to generate forecasted values of **782 and 752 nonmotorized fatalities and serious injuries in 2017 and 2018, respectively**.

PROGRAMMING INFLUENCE

To meet the safety goal of reducing fatalities and serious injuries on the state Trunkline system the strategy of the Safety Program is to select cost-effective safety improvements, as identified in Michigan's Strategic Highway Safety Plan (SHSP), to address Trunkline locations with correctable fatality and serious injury crashes. All proposed safety funded improvements must be supported by the MDOT Region's Toward Zero Deaths (TZD) Implementation Plan to mitigate such crashes within the region. Priority is given to those projects, within each Region, with SHSP focus area improvements that have the lowest cost/benefit analysis or are a proven low-cost safety improvement to address the correctable crash pattern. On the local road system MDOT administers federal safety funds for safety improvements supported by a Local Road Safety Plan or addressed by means of a low-cost safety project. High Risk Rural Road is one program used to address rural roadways where fatalities and serious injuries exceed the statewide average for that class of roadway.

NEXT STEPS FOR MPOS

23 CFR 490.209 requires that for all five of the federally – required performance measures, each MPO shall establish a target by either:

- I. agreeing to plan and program projects so that they contribute toward the accomplishment of the State DOT safety target for that performance measure; or
- II. committing to a quantifiable target for that performance measure for their metropolitan planning area

MPOs are to establish targets not later than 180 days after the State DOT establishes and reports state safety targets in the State Highway Safety Improvement Program annual report. MDOT will submit Michigan's HSIP annual report by August 31, and **MPOs will therefore be required to decide on their MPO safety targets for calendar year 2018 no later than February 27, 2018**. MPOs may support all the state safety targets, establish their own specific numeric targets for all of the performance measures, or any combination. MPOs may support the state safety target for one or more individual performance measures and establish specific numeric targets for the other performance measures.

MPOs are to report their safety targets to MDOT in a manner that will soon be agreed upon by both MDOT and MPOs. While FHWA may review MPO performance as part of ongoing transportation planning process reviews, there is no formal requirements for MDOT or FHWA to directly assess MPO progress toward meeting MPO targets.

State Safety Target Data – Calendar Year 2018 Targets in Red

Year	Fatality	Serious Injuries	5yr Moving Average		VMT*	Fatality Rate	Serious Injury Rate	5yr Moving Average		Bike Ped Fatality/ Serious Injuries	Bike Ped Fatality/ Serious Injuries 5yr MA
			Fatality	Serious Injuries				Fatality Rate	Serious Injury Rate		
2008	980	6,725			1,009	0.97	6.67			786	
2009	872	6,511			959	0.91	6.79			789	
2010	942	5,980			976	0.97	6.13			743	
2011	889	5,706			948	0.94	6.02			742	
2012	940	5,676	924.6	6,119.6	942	1.00	6.03	0.96	6.33	682	748.4
2013	947	5,283	918.0	5,831.2	951	1.00	5.56	0.96	6.10	743	739.8
2014	901	4,909	923.8	5,510.8	974	0.93	5.04	0.96	5.75	687	719.4
2015	963	4,865	928.0	5,287.8	978	0.98	4.97	0.97	5.52	755	721.8
2016	1,064	5,634	963.0	5,273.4	982	1.08	5.74	1.00	5.47	742	721.8
2017	1,058	5,243	986.6	5,186.8	986	1.07	5.32	1.01	5.32	782	741.8
2018	1,030	5,031	1,003.2	5,136.4	990	1.04	5.08	1.02	5.23	752	743.6

*Vehicle Miles Traveled (VMT) are shown in 100 million miles traveled. Calendar year 2017 and 2018 estimates were made by determined the percent change in VMT for the prior two years of actual data and estimating future years by applying the percent change.