

PERFORMANCE MEASURES AND TARGETS

Background

Pursuant to Title 23, Section 450.326(d) of the Code of Federal Regulations, the Metropolitan Council is required to incorporate a performance-based planning approach when developing the TIP. This includes an analysis of the anticipated effect the TIP may have towards achieving the performance targets adopted for the metropolitan area. Specifically, the regulation states:

The TIP shall include, to the maximum extent practicable, a description of the anticipated effect of the TIP toward achieving the performance targets identified in the metropolitan transportation plan, linking investment priorities to those performance targets.

This approach was first established in 2012 with the federal Moving Ahead for Progress in the 21st Century Act (MAP-21), which established performance-based planning and identified the Federal performance measures for safety, pavement, bridge, reliability, freight, CMAQ, and transit asset management and safety. The requirements continue through the federal Fixing America's Surface Transportation (FAST) Act, signed into law in 2015. The following are the three broad performance measure categories and the dates by which they must be included in the TIP:

- Safety Performance Measure (PM1): May 27, 2018
- Pavement and Bridge Performance Measure (PM2): May 20, 2019
- System Performance Measures and CMAQ (PM3): May 20, 2019

NATS Activities and Progress

NATS officially adopted the State of Michigan Safety Performance measures and targets on January 23, 2018, and submitted them to Michigan Department of Transportation. The following 2018 safety targets were adopted for the NATS area:

- Number of traffic fatalities: 1003.2
- Fatality rate (fatal crashes per 100 million vehicle miles travelled): 1.02 per 100M VM
- Serious injury crashes: 5,136.4
- Serious injury rate (number of serious injury crashes per 100 million vehicle miles travelled): 5.23 per 100 million VMT
- Non-motorized fatalities and serious injuries: 743.6

The staff at SWMPC and NATS continues to work closely with MDOT to develop state targets for the PM2, PM3, and CMAQ measures, and will adopt the targets prior to the May 20, 2019 deadline. In the future, TIPs will include adopted regional targets for all three of the performance measure categories.

The upcoming NATS 2045 Long Range Transportation Plan (LRP) includes an overarching goal related to safety—the Guiding Principle of Safety, as well as strategies (actions) NATS will employ to ensure that

the desired safety outcomes are met. In addition, the five federally required safety performance measures and targets are included in the 2045 LRP along with the existing conditions and performance trends for all of the performance measures.

In addition to the LRP, there are several studies that have been completed that directly address safety issues a propose strategies to improve safety within the region. These studies include the Michigan Strategic Highway Safety Plan and the Southwest Region Local Safety Plan.

Anticipated Effect of the Safety Performance Measures

The 2017-2020 TIP is anticipated to have a positive effect towards meeting NATS established safety performance targets. The TIP reflects \$74,746 in FHWA Safety funds. These projects address both existing high-incident locations (reactive projects) and proactive projects that pre-emptively address safety. projects utilizing Surface Transportation Funding (STP) also address safety.

The member communities that make up NATS are committed to further improving transportation safety. This is reflected in the importance of safety-related scoring criteria included in the NATS solicitation of projects and in the projects that are ultimately programed into the TIP.

Each project that is programed into the TIP is reviewed to quantify their effects on safety. (See Table on following page) The SWMPC staff analyzes each of the projects utilizing FHWA’s Crash Reduction Factor Desktop Reference Guide to estimate the effectiveness of each project. Crash Reduction Factors (CRF), are estimates of how a certain safety countermeasures will reduce crashes. Below is a summary of the safety countermeasures included in the NATS 2017-2020 projects.

“A CRF should be regarded as a generic estimate of the effectiveness of a countermeasure. The estimate is a useful guide, but it remains necessary to apply engineering judgment and to consider site-specific environmental, traffic volume, traffic mix, geometric, and operational conditions, which will affect the safety impact of a countermeasure.”

FHWA CFR Desktop Reference Guide

NATS 2017-2020 Local Projects

Countermeasure	CRF
Crosswalks	25.0%
Bike lanes	36.0%
Resurface	33.0%
Shoulder	20.0%
Sidewalk	70.0%
Guard Rails	30%
Tree Removal	38%
Signal	20%
Left turn lane	74%

The tables on the following pages provide details for each local project within the 2017-2020 TIP. Each project in the TIP was given a value based on the number of crashes that are estimated be reduced based on all of countermeasures applied. This analysis uses a multiplier effect for projects that include multiple countermeasures. What this means is that if the CRF for resurface is a 33% reduction and the CRF for a 5 ft. paved shoulder is a 20% reduction, the project was estimated to reduce crashes by 46%. The CRF used apply to all crash types. It was assumed that a reduction in all crashes would translate to a proportional reduction in Fatalities and Serious Injuries.

The CRF is the percent reduction in crashes expected from the countermeasure

Fiscal Year	MDOT Job No.	Responsible Agency	Project Name	Limits	Safety Features	CMF Total	Accidents 10 yrs	K&A	Ped/Bike	Crash Reduction
2017	120683	Berrien County Road Commission	Dayton, Orange, Third, Fulkerson and Ontario	Dayton from US 12 to State Line; Orange from Bertrand to State Line; 3rd from Bell to Fulkerson; Fulkerson from 3rd to S 11th. Ontario: Third to Cass County	Resurface Only	0.33	149	1	1	49
2017	120684	Berrien County Road Commission	Red Bud Trail and Niles Buchanan Road	Red Bud Trail: City of Buchanan to US 12 AND Niles Buchanan Road Niles to Buchanan	Resurface Only	0.33	332	8	2	110
2017	130875	Berrien County Road Commission	Upgrading Guardrails on Various Primary Roads	North Main Street: City of Buchanan to Andrews Road	Guardrail	0.3	9	0	0	3
2017	120692	City of Niles	Sycamore St	13th to 17th	Crosswalks, Resurface	0.33	7	1	1	2
2017	120691	Cass County Road Commission	Redfield St	Brandywine Creek to Oak	Resurface Only	0.33	49	3	1	16
2018	131063	Berrien County Road Commission	Indiana Michigan River Valley Trail	Brandywine Creek Nature Preserve to Fort St	Non-motorized path					
2018	130766	City of Buchanan	River Road Signal Project	at Red Bud Trail	Signal, Crosswalk, Crosswalk signals, video camera	0.2	20	0	0	4
2018	130866	City of Niles	17th St	Broadway to Main	Crosswalks, Resurface	0.33	43	0	2	14

Fiscal Year	MDOT Job No.	Responsible Agency	Project Name	Limits	Safety Features	CMF Total	Acidents 10 yrs	K&A	Ped/Bike	Crash Reduction
2018	130776	Cass County Road Commission	Mason St	Cassopolis Road to Calvin Center Road	Resurface Only	0.33	9	1	0	3
2018	200409	Cass County Road Commission	Gumwood road Phase 3	North of Indiana State line to 0.1 miles south of Redfield	Non-motorized path					
2018		Cass County Road Commission	Yankee Street	On Yankee Street east of M 60 in Howard Township	Guardrail	0.2	44	1	0	9
2019	130684	Berrien County	N Main St	City limits to 400 feet South of Reed	Resurface, Guardrail	0.464	26	0	0	12
2019	130775	Berrien County	Bertrand Rd	Portage to Copp	Resurface Only	0.33	95	1	1	31
2019	130772	Cass County	Redfield St	Conrad Road to M-62	Resurface Ony	0.33	16	0	0	5
2020	130769	Berrien County	3rd St	US-12 to Fulkerson Road	Resurface Only	0.33	80	0	0	26
2020	130763	Cass County	Lake St	Airport Road to Huntly	Resurface Only	0.33	35	1	1	12
2020		Cass County Road Commission	Ontwa Township Complete Streets Phase 2	US-12 and Claire Street	Path					

NATS Priorities

NATS is incorporating a number strategies into the 2017-2020 TIP and the 2045 Long Range Transportation Plan intended to improve transportation safety and meet the 2018 safety targets.

Specific strategies include:

- Transportation partners will incorporate safety and security considerations for all modes and users throughout the processes of planning, funding, construction, and operation.
- Transportation partners should monitor and routinely analyze safety data by mode, severity, and location to identify priorities and progress.
- Transportation partners will use best practices to provide and improve facilities for safe walking and bicycling, since pedestrians and bicyclists are the most vulnerable users of the transportation system.
- Transportation partners will support the state's vision of moving toward zero traffic fatalities and serious injuries, which includes supporting education and enforcement programs to increase awareness of regional safety issues, shared responsibility, and safe behavior.

Conclusion

NATS supports the efforts to move towards a performance-based planning approach, and will continue to work closely with regional, state, and federal partners to proactively establish and monitor both the required federal and the adopted performance measures over time. Moving forward, NATS will continue to devote substantial resources to this effort and work closely with stakeholders to assess the federal targets and the performance measures and adjust to changes in the performance of the system by shifting investment priorities.