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Goals and Performance Measures

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The Infrastructure Investment and Jobs Act (IIJA) continues the Moving Ahead for Progress in the 21st Century Act's (MAP-21) focus on performance based transportation planning, and outlines goals for which State DOT's, MPOs, and local road agencies should be held accountable for during the development and maintenance of the federally funded transportation system. Performance Based Planning and Programming (PBPP) attempts to ensure that both long-term and short-term transportation investment decisions are made based on their ability to meet established goals for improving the overall transportation system. Furthermore, it involves measuring progress toward meeting goals and using information on past and anticipated future performance trends to inform investment and policy decisions.

National Goals

The current transportation legislation outlines seven (7) national goals for which state DOTs and transit agencies, in cooperation with MPO's, should establish targets for performance measures.

- **Safety** - to achieve a significant reduction in traffic fatalities and serious injuries on all public roads
- **Infrastructure Condition** - to maintain the highway infrastructure asset system in a state of good repair
- **Congestion Reduction** - to achieve a significant reduction in congestion on the National Highway System
- **System Reliability** - to improve the efficiency of the surface transportation system
- **Freight Movement and Economic Vitality** - to improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- **Environmental Sustainability** - to enhance the performance of the transportation system while protecting and enhancing the natural environment
- **Reduced Project Delivery Delays** - to reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

National Planning Factors

Additional factors MPO's should consider in the regional transportation planning process include federal Planning Factor included in federal regulations (23 CFR 450.306(b)):

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.
2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users.
3. Increase accessibility and mobility of people and freight.
4. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.

5. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
6. Promote efficient system management and operation.
7. Emphasize preservation of the existing transportation system.
8. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
9. Enhance travel and tourism.

Move 2050 Goals and Objectives

MACOG recognizes that there are additional goals that are not fully addressed by Federal performance measures, including but not limited to those related to economic vitality, active transportation, equity and quality of life. As part of MOVE 2050, MACOG has developed three core goals and established several regional benchmarks to better reflect the values, needs, and conditions of the transportation network in the MACOG region.

- Enhance High Quality Hometowns - through a connected and safe transportation system that offers transportation choices and enhances quality of life, health, and mobility for people of all abilities and backgrounds. (Sustainability, Equity, Public Transit, Active Transportation)
 - Objectives:
 - Increase transportation choice through investment in transit and active transportation facilities
 - Pursue solutions that promote social equity and reduce the burden of transportation and housing on limited income households and other disadvantaged groups
 - Increase measures to improve air quality in the region through reduction in transportation related greenhouse gas emissions

- Increase climate resiliency
- Support communities within the region to adopt Complete Streets Policy
- Ensure Safe Movement of People and Goods - by maintaining a safe, efficient, reliable, and resilient transportation system for all users (safety and security, maintaining infrastructure)
 - Objectives
 - Support projects and policies that contribute to the reduction in the number of serious injuries and fatalities
 - Support projects and policies that contribute to the preservation and maintenance of pavement and bridge conditions
 - Support state of good repair for transit fleets and facilities
- Support a Thriving Economy - through transportation investments that improve access to areas of employment, educational opportunities, and other core services. (Mobility options, employment areas, and freight movement efficiency)
 - Objectives:
 - Improve the connectivity between workforce and jobs by offering a range of options to manage commuting distances and travel times
 - Improve mobility within and between communities across the region by providing a diversified transportation system, rather than relying solely on roadway capacity
 - Improve Truck Travel Time Reliability on the Freight Network
 - Pursue infrastructure investments to support regional and local economic growth

Federal Performance Measures and State Targets

Over the last decade a series of federal rulemakings have been made to implement the federal PBPP requirements. MPO's are required to establish targets for the below referenced performance measures by either agreeing to plan and program projects so that they contribute toward the accomplishment of the relevant State DOT target for the performance measure, or commit to a

quantifiable target for that performance measure for their metropolitan planning area. MACOG continues to elect supporting INDOT's established targets. MACOG's Policy Board most recently approved supporting INDOT's established targets on October 12, 2022.

Reflecting the national goals and planning factors, the US Department of Transportation (USDOT) has established measures in performance areas listed below to track progress.

Performance Area	Performance Measures	Related MOVE2050 Goal
Safety	<ul style="list-style-type: none"> Number of fatalities and serious injuries Rate of fatalities and serious injuries Number of non-motorized fatalities and serious injuries 	Ensure Safe Movement of People and Goods, Enhance High Quality HomeTowns
Pavement and Bridge Condition	<ul style="list-style-type: none"> Percent Interstate pavement in good and poor condition Percent Non-Interstate NHS pavement in good and poor condition Percent National Highway System (NHS) bridges in good and poor condition 	Ensure Safe Movement of People and Goods
System Performance	<ul style="list-style-type: none"> Interstate and Non-Interstate travel time reliability Truck travel time reliability 	Support a Thriving Economy
Congestion Mitigation and Air Quality	<ul style="list-style-type: none"> Peak Hour Excessive Delay Non-Single Occupancy Vehicle (SOV) Travel On-Road Mobile Source Emissions 	Support a Thriving Economy, Enhance High Quality HomeTowns
Transit Asset Management	<ul style="list-style-type: none"> Transit Asset Management (TAM) Plans State of Good Repair Measures Percent of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB) Public Transportation Agency Safety Plans 	Ensure Safe Movement of People and Goods, Enhance High Quality HomeTowns

The below sections includes areas in which MACOG is supporting the statewide targets developed by INDOT and agrees to plan and program projects so that they contribute to the achievement of those targets. Tables 5.1 through 5.6 provides a summary of the established targets and progress made towards those goals as reflected on the FHWA website State Performance Dashboard.

Safety

INDOT, the MPOs, FHWA, and the Indiana Criminal Justice Institute (ICJI) collaborated on the Safety Performance Measures and Safety Performance

Targets, which were set in 2018 and have been updated annually. MACOG’s Policy Board most recently adopted the established 2023 Safety targets in October 2022, and will consider the proposed 2024 targets this fall. The Highway Safety Improvement Program (HSIP) is a primary source of federal funds for qualifying safety improvement projects. HSIP along with other funding sources are used to implement safety improvements with the purpose to reduce roadway crashes, and a corresponding reduction in fatalities and serious injuries on all public roads and directly supports the Indiana Strategic Highway Safety Plan.

Table 5.1 - Safety Targets and Performance

	5-Year Average Target		5-Year Average Actual			
	2015-2019	2017-2021	2014-2018	2015-2019	2016-2020	2017-2021
Number of Fatalities	889.6	817.3	833.4	846.4	862.4	883
Rate of Fatalities (per 100M VMT)	1.087	1.006	1.03	1.038	1.064	1.102
Number of Serious Injuries	3501.9	3311.4	3375.3	3319.8	3293.4	3295.4
Rate of Serious Injuries (per 100M VMT)	4.234	4.088	4.173	4.07	4.06	4.112
Number of Non-Motorized Fatalities and Serious Injuries	393.6	393.6	383.8	385.6	389.2	404

	Future 5-year Average Targets		
	2018-2022	2019-2023	Proposed 2020-2024
Number of Fatalities	876	894.2	876.3
Rate of Fatalities (per 100M VMT)	1.076	1.088	1.072
Number of Serious Injuries	2998.2	3348.1	3281.1
Rate of Serious Injuries (per 100M VMT)	3.675	4.068	3.987
Number of Non-Motorized Fatalities and Serious Injuries	344.5	399.5	391.6

MACOG will contribute to the achievement of these targets by:

- Working with local road and transit agencies to identify problematic areas in the region for which to improve safety
- Completion of a Regional Safety Action Plan
- Reviewing crash reports submitted to the Indiana State Police for accuracy and analysis
- Maintain a Regional Crash dashboard for Serious Injuries and Fatalities and Vulnerable Road Users
- Support training for Traffic Incident Management and first responders
- Promote driver education through DriveSafeMichigan.com
- Advance the number of League of American Bicyclist Certified Instructors and assist in Bicycle Education Programs
- Support communities in the completion of ADA Transition Plans

Pavement and Bridge Condition

The pavement and bridge condition performance measures are applicable to the Interstate and non-Interstate Highways that comprise the National Highway System (NHS). The NHS includes the Interstate Highway System as well as other roads important to the nation’s economy, defense, and mobility. The measures are focused on the condition of pavement and bridges, including ramps utilized to access the system and directly support the Indiana Transportation Asset Management Plan (TAMP). There are four measures to assess pavement condition and two measures

for assessing bridge condition. Condition of pavement is based on their International Roughness Index (IRI) value and other distress metrics, and bridge condition is based on the National Bridge Inventory (NBI) condition ratings for deck, superstructure, substructure, and culvert. INDOT, the MPO’s, and FHWA collectively developed 2 and 4-year targets for the pavement and bridge performance measures. The National Highway Performance Program is a core Federal-aid highway program that provides financial support to improve the condition and performance of the NHS, and the construction of new NHS facilities. INDOT utilizes these funds for maintenance activities on the NHS.

Table 5.2 - Infrastructure Condition Targets and Performance

	2018-2022 Targets		Actual					
	2-yr (2019)	4-yr (2021)	2016	2017	2018	2019	2020	2021
% of Interstate in Good Condition	N/A	50	69.62	73.6	67.3	56.5	70.1	73.2
% of Interstate in Poor Condition	N/A	0.8	0.26	0.4	0.2	0.5	0.3	0.4
% of Pavement on Non-Interstate NHS in Good Condition	78.7	40	40.81	44.3	43.9	44.8	54.2	61
% of Pavement on Non-Interstate NHS in Poor Condition	3.1	3.1	4.22	2.30%	1.9	0.9	0.7	0.4
% of NHS Bridges in Good Condition	48.3	47.2		50	49.7	48	49.9	50.5
% of NHS Bridges in Poor Condition	2.6	3.1		2.3	2	2.6	1.9	2.3

Future Targets		
	2-yr (2024)	4-yr (2026)
% of Interstate in Good Condition	60%	62%
% of Interstate in Poor Condition	1%	1%
% of Pavement on Non-Interstate NHS in Good Condition	50%	48%
% of Pavement on Non-Interstate NHS in Poor Condition	1.50%	1.50%
% of NHS Bridges in Good Condition	49%	47.50%
% of NHS Bridges in Poor Condition	3%	3%

MACOG will contribute to the achievement of these targets by:

- Sharing resources related to design and engineering best practice
- Support local jurisdictions through the collection of PASER ratings and development of local asset management plans
- Maintenance of a Regional Bridge and Pavement Condition Dashboard

System Performance - Level of Travel Time Reliability (LOTTR)

The system performance measures are also applicable to the Interstate and non-Interstate NHS. These performance measures assess system reliability and freight movement. This is measured using data from FHWA's National Performance Management Research Data Set (NPMRDS), and is the ratio of longer travel times (80th percentile) to normal travel times (50th percentile). This data is collected during four time periods including

weekdays from 6 am to 10 am, 10 am to 4 pm, 4 pm to 8 pm, and weekend days from 6 am to 8 pm. FHWA has determined that any road segment with a reliability ratio of 1.5 or greater is considered to be unreliable. Truck Travel Time Reliability is calculated in a similar fashion, however longer travel times are found using the 95th percentile travel time, and an additional time period was included, overnight for all days from 8 pm to 6 am.

Table 5.3 - Reliability Targets and Performance

	Targets		Actual				
	2 -yr (2019)	4-yr (2021)	2017	2018	2019	2020	2021
Interstate Highway Reliable Person-Miles Traveled on Interstate Highways	90.50	92.80	93.80	95.70	93.70	99.40	94.30
Reliable Person-Miles Traveled on Non-Interstate Highways	N/A	89.80			97.00	97.90	96.70
Truck Travel Time Reliability on Interstates	1.27	1.30	1.23	1.21	1.25	1.18	1.26

Future Targets		
	2-yr (2024)	4-yr (2026)
Interstate Highway Reliable Person-Miles Traveled on Interstate Highways	93	93.5
Reliable Person-Miles Traveled on Non-Interstate Highways	93	93.5
Truck Travel Time Reliability on Interstates	1.32	1.3

MACOG will contribute to the achievement of these targets by:

- Conducting travel time studies of major corridors to evaluate congestion and traffic flow
- Utilize the Travel Demand Model to forecast future congestion and assist communities in evaluating project effectiveness
- Assist in sharing resources between local jurisdictions and first responders

Congestion Mitigation and Air Quality

Several measures related to congestion mitigation and air quality have been identified including non-Single Occupancy Vehicle (SOV) travel and annual hours of peak hour excessive delay per capita (PHED), as well as on-Road Mobile emissions. Currently this rule only applies to urbanized areas of more than 1 million in population that are in nonattainment or maintenance areas for ozone, carbon monoxide or particulate matter. Starting in 2022, areas of population of more than 200,000 are required. States and MPOS for which this applies will coordinate on a single, unified target. While MACOG is not required to set targets for

these performance measures, it is encouraged to coordinate in the target selection process. MACOG participated in coordination efforts in establishing PHED targets with INDOT, MDOT, and SWMPC in 2022.

On-Road Mobile Source emissions is another performance measure established for the CMAQ program, and applies to State DOT's with areas designated as nonattainment or maintenance for ozone, carbon monoxide, or particulate matter. Total emissions reduced is calculated by summing 2 and 4 years totals of emission reduction, in kilograms per day, for all CMAQ funded projects.

Table 5.4 - Air Quality Targets and Performance

	Targets		Actual		
	2 -yr	4-yr	Baseline: 2017 (4-yr Cumulative)	2-yr Cumulative (2019)	4 yr Cumulative (2021)
Cumulative Reductions - Particulate Matter (PM 2.5)	20	30	179.17		
Cumulative Reductions - Particulate Matter (PM 10)	0.3	0.5	4.07	168.04	168.06
Cumulative Reductions - Nitrogen Dioxide (Nox)	1600	2200	4,576.37	2,737.32	3,373.77
Cumulative Reductions - Carbon Monoxide (CO)	200	400	13,939.45	2,245.09	2,668.04
Cumulative Reductions - Volatile Organic Compound (VOC)	1600	2600	2,641.02	277.01	863.37

Future Targets		
	2-yr (2024)	4-yr (2026)
PM 2.5	3	4
PM 10	0.02	0.03
Nitrogen Dioxide		725
Carbon Monoxide	330	520
Volatile Organize Compound	590	600

MACOG will contribute to the achievement of these targets by:

- Continuing the Clean Air Program to education citizens and business about air quality.
- Working with local jurisdictions to identify CMAQ eligible projects.
- Assist local jurisdictions with implementation of EV infrastructure

Transit Asset Management (TAM) and Public Transportation Safety Program

Under the TAM Final Rule, FTA established four performance measures to approximate the State of Good Repair (SGR) for categories of capital assets including rolling stock, equipment and facilities. These targets are included in Transit Asset Management Plans which provides an overview of the strategic and systematic practices that transit providers put forth to ensure proper management of public transportation capital assets. TAM plans must be updated in its entirety at least once every

four years, however transportation providers must report annually on asset inventory data, conditions assessments and performance results. MACOG administers the Interurban Trolley in Elkhart and Goshen, and coordinates with other transit providers including the South Bend Public Transportation Corporation (Transpo) to ensure targets are set for applicable assets. Transpo most recently completed the updated TAM Plan in 2021 and the Interurban Trolley completed an updated plan in September of 2022.

Table 5.5 - TAM Targets and Performance

Transit (TAM Targets)		TARGET (TAM 2018)				Actual		
Interurban Trolley		2019	2020	2021	2022	2019	2020	2021
Rolling Stock - % of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Bus	0	0	0	0	0	0	0
	Cutaway Bus							
	Mini-Van	20	20	20	20	20	20	20

Future Targets - TAM 2022					
	2023	2024	2025	2026	2027
Bus	0	0	0	0	0
Cut-away Bus	0	0	0	0	0
Mini-Van	20	20	20	20	20

In 2016, a final rule was published for the Public Transportation Safety Program, establishing substantive and procedural rules for enforcement of FTA’s safety programs. The Public Transportation Agency Safety Plan (PTASP) Final Rule requires public transportation agencies to develop safety plans based on Safety Management Systems (SMS) principals. SMS is an organizational approach to managing safety and includes four components including a safety management policy, safety risk management, safety assurance, and safety promotion.

Both agencies completed their initial PTASP in 2020, with an update completed in 2022. Latest targets were made based upon review of the last five (5) years of safety performance data including vehicle revenue miles (VRM) and major mechanical system failures.

Table 5.5 - TAM Targets and Performance

TRANSPO		TARGET (TAM 2018)				Actual		
		2019	2020	2021	2022	2019	2020	2021
Rolling Stock - % of revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Bus	20	20	25	20	45	20	20
	Cutaway Bus	20	20	0	0	40	0	0
Equipment Age - % of non-revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Trucks and Rubber Tire Vehicles	0	50	0	0	25	25	25
Facilities - % of facilities with a condition rating below 3.0 of FTA's Transit Economic Requirement Model (TERM) Scale	Admin.	0	0	0	0	0	0	0
	Maintenance	0	0	0	0	0	0	0
	Parking Structures	0	0	0	0	0	0	0
	Passenger Facilities	0	0	0	0	0	0	0

Future Targets - TAM 2022					
	2023	2024	2025	2026	2027
Bus	45	0	0	14	14
Cutaway Bus	0	0	6	0	2
Trucks and Rubber Tire Vehicles	50	0	0	28	28
Admin.	0	0	0	0	0
Maintenance	0	0	0	0	0
Parking Structures	0	0	0	0	0
Passenger Facilities	0	0	0	0	0

Table 5.6 - PTASP Targets and Performance

Interurban Trolley		Target		Actual		
		2021 Target	2022 Target	2019	2020	2021
Fatalities (total)	Fixed Route Bus	0	0	0	0	0
	Paratransit	0	0	0	0	0
Fatalities (per 100k VRM)	Fixed Route Bus	0	0	0	0	0
	Paratransit	0	0	0	0	0
Injuries (total)	Fixed Route Bus	1.6	2	3	2	2
	Paratransit	1	3.2	4	0	7
Injuries (per 100k VRM)	Fixed Route Bus	0.27	0.3	0.16	0.16	0
	Paratransit	0.52	1.1	1.03	0	2.8
Safety Events (total)	Fixed Route Bus	1.2	1	1	1	0
	Paratransit	1.2	1	2	0	1
Safety Events (per 100k VRM)	Fixed Route Bus	0.2	0.2	0.16	0.16	0
	Paratransit	1.44	0.3	0.52	0	0.4
System Reliability (Failures)	Fixed Route Bus	18.8	37.6	42	57	52
	Paratransit	1.2	0.8	1	0	1

Table 5.6 - PTASP Targets and Performance

TRANSPO		Target		Actual		
		2021 Target	2022 Target	2019	2020	2021
Fatalities (total)	Fixed Route Bus	0	0	0	0	0
	Paratransit	0	0	0	0	0
Fatalities (per 100k VRM)	Fixed Route Bus	0	0	0	0	0
	Paratransit	0	0	0	0	0
Injuries (total)	Fixed Route Bus	2	2	0	4	0
	Paratransit	0	0	1	1	1
Injuries (per 100k VRM)	Fixed Route Bus	0.11	0.11	0	0.04%	0
	Paratransit	0	0	0.03%	0.04%	0.04%
Safety Events (total)	Fixed Route Bus	3	3	0	3	0
	Paratransit	1	1	0	0	0
Safety Events (per 100k VRM)	Fixed Route Bus	0.16	0.16	0	0.03%	0
	Paratransit	0.09	0.09	0	0	0
System Reliability (distance b/w failures)	Fixed Route Bus	125,000	125,000	8,913	6,428	12,969
	Paratransit	40,000	40,000	38,104	26,508	14,140

Locally Established Benchmarks

As reflected in the Move 2050 Goals, MACOG will track several benchmarks annually to depict overall trends in three core areas: Enhance High Quality Hometowns, Ensure Safe Movement of People and Goods, and Support a Thriving Economy. Further benchmark may be tracked in other resources such as online dashboards and storymaps at [Maps.macog.com](https://maps.macog.com).

- Enhance High Quality Hometowns - Benchmarks
 - # of Complete Streets Policies
 - Miles of Active Transportation Facilities
 - # Miles of Bicycle Lanes
 - # Miles of Shared Use Paths
 - # of people within 1/4 mi of transit
 - Transportation Costs as a percent of median income (Housing and Transportation Affordability Index)
 - Vehicle Miles Traveled per Capita

- Ensure Safe Movement of People and Goods - Benchmarks (Resilient Infrastructure, efficiency, safety)
 - # of Fatalities Regionally
 - # of Serious Injuries Regionally
 - # of Vulnerable Road User Crashes Regionally

- Support a Thriving Economy - Benchmarks
 - # of jobs within ½ mile of a transit route

