Appendix B: Performance Measures

Introduction
The Fixing America’s Surface Transportation (FAST) Act (Pub. L. No. 114-94) and the Moving Ahead for Progress in the 21st Century (MAP-21) Act (P.L. 112-141) established new requirements for transportation planning performance management. The following National performance goals meet established in seven (7) key areas in accordance with 23 USC 150: National Performance Measure Goals. States and MPO must establish performance targets in support of the national goals. The national performance goals for Federal Highway Administration (FHWA) programs are:

- **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 (NHS).

- **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 the elimination of delays in the project development and delivery process, including reducing regulatory burdens and improving agencies’ work practices.

Each of these key areas are noted in the following discussion.

Performance Measures
The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) issued new transportation planning rules on the statewide and metropolitan transportation planning processes to reflect the use of a performance based approach to decision-making in support of the national goals. These processes must document in writing how the Metropolitan Planning Organizations (MPOs), the Indiana Department of Transportation (INDOT) and providers of
public transportation shall jointly agree to cooperatively develop and share information related to transportation performance data, the selection of performance targets, the reporting of performance to be used in tracking progress toward attainment of critical outcomes for the region of the MPO (see 23 CFR 450.306(d)), and the collection of data for the INDOT asset management plan for the National Highway System as specified in 23 CFR 450.314(h).

The FTA’s performance measures for Transit Asset Management are published and currently in effect. FHWA currently has performance measures and final regulations published for Safety, Bridge and Pavement Conditions, Congestion Reduction and System Reliability; however, only the Safety Performance Measure regulation is in effect at the present time.

INDOT along with the MPOs and FHWA will continue collaborating to identify Performance Targets for each Performance Measure. Once Performance Targets are established, the Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP) shall require modification reflecting this information.

For FHWA and FTA to approve any TIP amendments after May 27, 2018, INDOT, MPOs and Public Transit Operators must reflect this information and describe how projects in the TIP/STIP, shall (to the maximum extent practicable) achieve the Federally required performance targets identified in the Statewide and Metropolitan Transportation Plans, linking investment priorities to these performance targets.

**Safety**

INDOT, the MPOs, FHWA, and the Indiana Criminal Justice Institute (ICJI) actively discuss and collaborate on the Indiana’s Safety Performance Measures and Safety Performance Targets. INDOT initially submitted Safety Performance Target Measures in 2018 followed by an updated 2020 target submission.

Indiana’s MPOs collectively support INDOT’s Safety Targets. The Highway Safety Improvement Program (HSIP) is a primary source of federal funds for qualifying safety improvement projects. INDOT and the Indiana’s MPOs use HSIP along with other funding sources for the implementation of safety improvements with the purpose to reduce roadway crashes, and a corresponding reduction in fatalities and serious injuries on all public roads. The five specific safety performance measures are:

- Number of fatalities;
- Rate of fatalities;
- Number of serious injuries;
- Rate of serious injuries; and
- Number of non-motorized fatalities and non-motorized serious injuries

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) agreed in January 2020 to support the 2020 safety targets established by the Indiana Department of
Transportation as reported to the National Highway Traffic Safety Administration and Federal Highway Administration.

The Indiana Department of Transportation’s 2020 safety maximum targets based on five-year rolling averages are:

- Number of Fatalities = 965
- Number of Serious Injuries = 3,628
- Fatality Rate (fatalities per 100 million miles traveled) = 1.154
- Serious Injury Rate (serious injuries per 100 million miles traveled) = 4.342
- Total Number of Non-Motorist Fatalities and Serious Injuries = 420

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) will support INDOT’s maximum safety targets by incorporating planning activities, programs, and projects in the 2045 Metropolitan Transportation Plan and the FY 2020 - 2024 Transportation Improvement Program. The BMCMPO Policy Committee approved this action at their regularly scheduled meeting on January 10, 2020.

**Pavement Condition Target Performance Measures**

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) agreed in October 2018 to support the 2019 and 2021 Pavement Condition targets established by the Indiana Department of Transportation (INDOT) as reported to the Federal Highway Administration (FHWA). The 2019 and 2021 pavement targets based on a certified Transportation Asset Management Plan are:

- Percent of Interstate pavements in Good condition
- Percent of Interstate pavements in Poor condition
- Percent of non-Interstate NHS pavements in Good condition
- Percent of non-Interstate NHS pavements in Poor condition

The BMCMPO agreed to support the Indiana Department of Transportation’s 2019 and 2021 Pavement Condition targets established by the Indiana Department of Transportation for reporting to the Federal Highway Administration. The 2019 and 2021 pavement targets based on a certified Transportation Asset Management Plan are:

- 2019 Percent of Interstate pavements in Good condition - 84.24%
- 2019 Percent of Interstate pavements in Poor condition - 0.80%
- 2019 Percent of non-Interstate NHS pavements in Good condition - 78.71%
- 2019 Percent of non-Interstate NHS pavements in Poor condition - 3.10%
- 2021 Percent of Interstate pavements in Good condition - 84.24%
- 2021 Percent of Interstate pavements in Poor condition - 0.80%
- 2021 Percent of non-Interstate NHS pavements in Good condition - 78.71%
- 2021 Percent of non-Interstate NHS pavements in Poor condition - 3.10%
The BMCMPO will support the Pavement Condition targets by incorporating planning activities, programs, and projects in the Adopted Metropolitan Transportation Plan and the current Transportation Improvement Program. The BMCMPO Policy Committee approved this action at their regularly scheduled meeting on October 12, 2018.

**Bridge Performance Measures**

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) agreed in October 2018 to support the Indiana Department of Transportation’s 2019 and 2021 statewide National Highway System (NHS) Bridge Condition targets for the following performance measures:

- Percent of NHS bridges by deck area classified as in Good condition
- Percent of NHS bridges by deck area classified as in Poor condition

The BMCMPO agrees to support the 2019 and 2021 NHS Bridge Condition targets established by the Indiana Department of Transportation that will be reported to the Federal Highway Administration. The 2019 and 2021 NHS Bridge Condition targets based on a certified Transportation Asset Management Plan are:

- 2019 Percent of NHS bridges by deck area classified in Good condition - 48.32%
- 2019 Percent of NHS bridges by deck area classified in Poor condition - 2.63%
- 2021 Percent of NHS bridges by deck area classified in Good condition - 48.32%
- 2021 Percent of NHS bridges by deck area classified in Poor condition - 2.63%

The BMCMPO will support the NHS Bridge Condition targets by incorporating planning activities, programs, and projects in the Adopted Metropolitan Transportation Plan and the current Transportation Improvement Program. The BMCMPO Policy Committee approved this action at their regularly scheduled meeting on October 12, 2018.

**System Performance**

The system performance measures are also applicable to the Interstate and non-Interstate NHS. These performance measures assess National Highway System (NHS) truck travel time reliability and interstate freight reliability targets, and performance measures for on-road mobile source emissions consistent with the national Congestion Mitigation and Air Quality (CMAQ) Program.

**NHS Truck Travel Time Reliability Targets**

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) has elected to plan and program projects so that they contribute towards the accomplishment of the Indiana Department of Transportation’s 2019 and 2021 NHS Truck Travel Time Reliability targets for the performance measures are as follows:

- Level of Travel Time Reliability on Interstate
- Level of Travel Time Reliability on non-Interstate NHS
The BMCMPO agrees to support the 2019 and 2021 NHS Truck Travel Time Reliability targets established by the Indiana Department of Transportation that will be reported to the Federal Highway Administration. The 2019 and 2021 statewide travel time reliability targets based on percent of person miles that are certified as reliable:

- 2019 Percent of person miles reliable on Interstate - 90.5%
- 2021 Percent of person miles reliable on Interstate - 92.8%
- 2021 Percent of person miles reliable on non-Interstate - 89.8%

The BMCMPO will support the NHS Truck Travel Time Reliability targets by incorporating planning activities, programs, and projects in the Adopted Metropolitan Transportation Plan and the current Transportation Improvement Program. The BMCMPO Policy Committee approved this action at their regularly scheduled meeting on October 12, 2018.

**Interstate Freight Reliability Targets**

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) has elected to plan and program projects so that they contribute towards the accomplishment of the Indiana Department of Transportation’s 2019 and 2021 Interstate Freight Reliability targets for the following performance measure:

- Interstate Freight Reliability

The BMCMPO agrees to support the 2019 and 2021 Interstate Freight Reliability targets established by the Indiana Department of Transportation that will be reported to the Federal Highway Administration. The 2019 and 2021 Interstate Freight Reliability targets based on the truck travel time reliability index are:

- 2019 Interstate freight reliability index -1.27
- 2021 Interstate freight reliability index -1.24

The BMCMPO will support the Interstate Freight Reliability targets by incorporating planning activities, programs, and projects in the Metropolitan Transportation Plan and the current Transportation Improvement Program. The BMCMPO Policy Committee approved this action at their regularly scheduled meeting on October 12, 2018.

**On-Road Mobile Source Emission Target Performance Measures**

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) has elected to plan and program projects so that they contribute towards the accomplishment of the Indiana Department of Transportation’s 2019 and 2021 On-Road Mobile Source Emission targets for the performance measures listed below.

- CMAQ project reduction volatile organic compounds (VOC)
- CMAQ project reduction carbon monoxide (CO)
- CMAQ project reduction oxides of nitrogen (NOx)
- CMAQ project reduction particulate matter less than 10 microns (PM10)
- CMAQ project reduction particulate matter less than 2.5 microns (PM2.5)
The BMCMPO agrees to support the 2019 and 2021 On-Road Mobile Source Emission reduction targets established by the Indiana Department of Transportation that will be reported to the Federal Highway Administration. The 2019 and 2021 On-Road Mobile Source Emission reduction targets based on kilograms per day are:

- 2019 Volatile Organic Compounds (VOCs) reduction of 1,600 kilograms per day
- 2019 Carbon Monoxide (CO) reduction of 200 kilograms per day
- 2019 Oxides of Nitrogen (NOx) reduction of 1,600 kilograms per day
- 2019 Particulate Matter (PM10) less than 10 microns reduction of 0.30 kilograms per day
- 2019 Particulate Matter (PM2.5) less than 2.5 microns reduction of 20 kilograms per day
- 2021 Volatile Organic Compounds (VOCs) reduction of 2,600 kilograms per day
- 2021 Carbon Monoxide (CO) reduction of 400 kilograms per day
- 2021 Oxides of Nitrogen (NOx) reduction of 2,200 kilograms per day
- 2021 Particulate Matter (PM10) less than 10 microns reduction of 0.50 kilograms per day
- 2021 Particulate Matter (PM2.5) less than 2.5 microns reduction of 30 kilograms per day.

The BMCMPO will support the On-Road Mobile Source Emission reduction targets by incorporating planning activities, programs, and projects in the Metropolitan Transportation Plan and the current Transportation Improvement Program. The BMCMPO Policy Committee approved this action at their regularly scheduled meeting on October 12, 2018.

**Transit Performance Measures**

The Transit Asset Management Final Rule requires transit providers to set performance targets for state of good repair by January 1, 2017. The Federal Transit Administration extended that deadline to January 1, 2018. The Planning Rule requires each MPO to establish targets not later than 180 days after the date on which the relevant provider of public transportation establishes its performance targets. The BMCMPO will adopt the targets established by Bloomington Transit. Targets will be established in the following categories:

- Rolling Stock - Percent of revenue vehicles that have met or exceeded their useful life benchmark.
- Equipment - Percent of service vehicles that have met or exceeded their useful life benchmark.
- Facility - Percent of facilities rated below 3 on the condition scale
BMCMPO Performance Measures

The BMCMPO independently developed urban area Performance Measures for alignment with Transform 2045 vision and goals. These Performance Measures additionally reflect the community’s character and goals for the transportation network. The Performance Measures grouped into five (5) larger categories include Travel Demand, Travel Efficiency, Economic, Safety, and Environmental issues. Each of these Performance Measures were analyzed as through the BBMCMPO Travel Demand Model. A second tier of Performance Measures used a 5D score shown in the table above.

### BMCMPO Performance Measures

#### Travel Demand
- Person trips per day
- Daily vehicle trips
- Daily vehicle miles
- Daily vehicle hours
- Daily transit boarding’s
- Mode shares

#### Travel Efficiency
- Vehicle hours of delay
- Accessibility by mode
  - Number of jobs within X minutes
  - Shopping within X minutes
- Transit person hours
- Weighted average transit walk distance
- Weighted average transit headway
- 5D Variables

#### Economic
- Infrastructure costs
- Monetized System User benefits (time, cost, etc.)
- Potential jobs impacts
- Prosperity index

#### Safety
- Predicted number of accidents
  - Fatal, Injury, Property Damage

#### Environmental
- Greenhouse gas emission tonnage
- GHG per trip
- GHG per capita

### Aggregate Statistics

#### Urban Design Variables

<table>
<thead>
<tr>
<th>Elements</th>
<th>Variables</th>
<th>Data Source</th>
<th>Units</th>
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<tbody>
<tr>
<td>Density</td>
<td>DENS1 Households Density</td>
<td>No. Households from TAZ data</td>
<td>Households per sq. mi.</td>
</tr>
<tr>
<td></td>
<td>DENS2 Employment Density</td>
<td>No. of Jobs from TAZ data</td>
<td>Jobs per sq. mi.</td>
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<td></td>
<td>TAZ land area in sq. mi</td>
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<tr>
<td>Diversity</td>
<td>DIVERS Jobs/Housing Ratio</td>
<td>No. of Jobs within 1 mile radius</td>
<td>No. Household ratio</td>
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<tr>
<td></td>
<td></td>
<td>No. of Household within 1 mile radius</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>DESGN1 Walkability</td>
<td>Pot. Of TAZ streets that are walkable</td>
<td>Miles walkable per total centerline miles</td>
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<tr>
<td></td>
<td>DESGN2 Average Blockface (miles)</td>
<td>Centerline miles of road (non-freeway)</td>
<td>Miles per link</td>
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<tr>
<td></td>
<td>DESGN3 Street Density</td>
<td>Centerline miles of road (non-freeway)</td>
<td>Land area of TAZ</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Road miles/square mile</td>
</tr>
<tr>
<td>Destinations</td>
<td>DEST1 Commercial establishments within 10 min walk</td>
<td>Selection set of commercial parcels</td>
<td>Count parcels within 0.1667 mi</td>
</tr>
<tr>
<td></td>
<td>DEST2 Retail jobs within 10 min walk</td>
<td>No. of Retail jobs from TAZ data</td>
<td>Count jobs within 0.1677 mi</td>
</tr>
<tr>
<td>Distance to Transit</td>
<td>DTT1 Street Coverage within 10min. Walk to Transit Stop</td>
<td>Street miles within a 10 min walk of transit stops</td>
<td>Pot. Of Centerline Miles</td>
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<tr>
<td></td>
<td>DTT2 Access to destinations via transit</td>
<td>Number of stops within 5 miles via transit</td>
<td>Number of stops</td>
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