



The Motor Speedway in action- Photo from The Motor Speedway

Performance Based Planning Measures

Federal statutes 23 CFR 490 and 23 CFR 450 detail regulations that State DOT's and MPO's must follow regarding the inclusion of performance measures into the planning process, and implementation and details of the performance management process (targets, measures, etc.). Since the Federal regulations were issued in three separate rulemakings, the performance measures can broadly be grouped into 3 categories:

1. Safety
2. Pavement/Bridge, and
3. CMAQ, Reliability, and Freight.

There are 5 targets for safety-related performance measures that were recently submitted as part of NCDOT's yearly Highway Safety Improvement Program (HSIP) annual report. This report was

submitted to FHWA on August 31, 2017, and included the 5 safety-related measures:

1. Number of fatalities
2. Fatality Rate (per 100 million VMT)
3. Number of Serious Injuries
4. Serious Injury Rate (per 100 million VMT)
5. Number of Non-motorized (Pedestrians and Bicyclists) Fatalities and Serious Injuries.

MPO staff participated in the collaborative effort to establish NCDOT's 2018 safety targets for these measures during the Safety Target Setting Coordination Training Workshop held in March, 2017. During this workshop the State discussed a coordination and collaboration process between NCDOT and the MPO's. Per section 490.209 (c), MPO's will have 180 days from August 31, 2017 to establish a target by either:

- Agreeing to plan and program projects so that they contribute toward the accomplishment of NCDOT’s safety target for that performance measure; or
- Committing to a quantifiable target for that performance measure for your metropolitan planning area.

The NCDOT’s 2018 Safety Targets were as follows:

Highway Safety Improvement Program (HSIP)

- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce total fatalities by 5.10 percent each year from 1,340.6 (2012-2016 average) to 1,207.3 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce the fatality rate by 4.75 percent each year from 1.228 (2012-2016 average) to 1.114 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce total serious injuries by 5.10 percent each year from 2,399.8 (2012-2016 average) to 2,161.2 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce the serious injury rate by 4.75 percent each year from 2.191 (2012-2016 average) to 1.988 (2014-2018 average) by December 31, 2018.
- For the 2018 Highway Safety Improvement Program (HSIP), the goal is to reduce the total non-motorized fatalities and serious injuries by 5.30 percent each year from 438.8 (2012-2016 average) to 393.5 (2014-2018 average) by December 31, 2018.

Since 2018, there have been several iterations of the highway safety performance measures. The most recent version was adopted on January 26, 2022.

- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce total fatalities by 12.17 percent each year from 1,428.8 (2016-2020 average) to 1,254.9 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce the fatality rate by 13.78 percent each year from 1.226 (2016-2020 average) to 1.057 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce total serious injuries by 19.79 percent each year from 4,410.2 (2016-2020 average) to 3,537.6 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce the serious injury rate by 21.68 percent each year from 3.782 (2016-2020 average) to 2.962 (2018-2022 average) by December 31, 2022.
- For the 2022 Highway Safety Improvement Plan (HSIP), the goal is to reduce the total nonmotorized fatalities and serious injuries by 17.93 percent each year from 592.2 (2016-2020 average) to 486.0 (2018-2022 average) by December 31, 2022.

Due to the inclusion of a small portion of the Charlotte UZA in Cabarrus County, the MPO is required to adopt a regional CMAQ Performance Plan, which was originally drafted by NCDOT. State DOTs are required to submit the CMAQ Performance Plan to FHWA when submitting their biennial performance reports. NCDOT’s first biennial report was due on October 1, 2018. The Federal 23 CFR Part 490 also required State DOTs to set targets for interstate and non-interstate National Highway system (NHS) pavement condition, NHS bridge condition, travel time reliability, freight reliability, as well as the emissions reduction. These performance measures inclusive of CMAQ, are below:

Future Highway Performance Measures

The remaining categories of highway performance measures will also require the establishment of targets by both the NCDOT and CR MPO in the months that follow the adoption of the 2045 MTP.

Table 7-1 displays the timeline for when State DOTs and MPOs are required to establish targets for the remaining performance measure categories.

Table 7.1 Highway Performance Measures

| Performance Measure | 2 Year Target 1/1/2018 – 12/31/2019 | 4 Year Target 1/1/2018 – 12/31/2021 |
|--|---|---|
| Interstate Pavement Condition (Good) | | 37.0% |
| Interstate Pavement Condition (Poor) | | 2.2% |
| Non-Interstate NHS Pavement Condition (Good) | 27.0% | 21.0% |
| Non-Interstate NHS Pavement Condition (Poor) | 4.2% | 4.7% |
| NHS Bridge Condition (Good) | 33.0% | 30.0% |
| NHS Bridge Condition (Poor) | 8.0% | 9.0% |
| Interstate Level of Travel Time Reliability | 80.0% | 75.0% |
| Non-Interstate NHS Level of Travel Time Reliability | | 70.0% |
| Interstate Truck Travel Time Reliability | 1.65 | 1.70 |
| CMAQ – Percent of Non-Single Occupant Vehicle (SOV) travel | 21.0% | 21.0% |
| CMAQ – Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita | | 34.0 |
| CMAQ - On-Road Emission Reduction from CMAQ Projects | VOC: 0.252 kg/day NOx: 2.360 kg/day | VOC: 0.504 kg/day NOx: 4.720 kg/day |

Transit

In addition, the MPO is required to approve safety plans from the Concord Kannapolis (CK) Rider Area Transit System and the Salisbury Transit System. The Public Transportation Agency Safety Plan (PTASP) final rule (49 C.F.R. Part 673) requires certain operators of public transportation systems that are recipients, or subrecipients of FTA grant funds to develop safety plans that include the processes and procedures

necessary for implementing Safety Management Systems (SMS). CK Rider and Salisbury Transit opted in to the NCDOT Safety Plan, choosing to draft and certify their PTASP under NCDOT’s framework and requirements as they are allowed by FTA to do as a small (less than 100 bus) public transportation provider. Approval of the System Safety Plans by the MPO was required in order for NCDOT to certify them. The Transit System Safety Performance Targets are below:

Table 7.2 Transit Safety Performance Targets

| Mode of Transit Service | Fatalities (Total) | Fatalities (Per 100K VRM) | Serious Injuries (Total) | Serious Injuries (Per 100K VRM) | Safety Events (Total) | Safety Events (Per 100K VRM) | System Reliability |
|---|--------------------|---------------------------|--------------------------|---------------------------------|-----------------------|------------------------------|--------------------|
| Concord-Kannapolis Area Transit System | | | | | | | |
| Fixed Route Bus | 0 | 0 | 0 | 0 | 11 | 1.54 | 100,000 |
| Demand Response | 0 | 0 | 2 | 1.91 | 3 | 2.87 | 100,000 |
| Salisbury Transit System | | | | | | | |
| Fixed Route Bus | 0 | 0 | 1 | 0.1 | 1 | 0.1 | 34,524.25 |
| Demand Response | 0 | 0 | 1 | 0.1 | 1 | 0.1 | 0.0 |

Moreover, beginning in 2016 FTA grantees were required by the Final Rule for Transit Asset Management (CFR Part 625) to develop a transit asset management (TAM) plan for their public transportation assets (including vehicles, facilities, equipment, and other infrastructure). Rider Transit, Rowan Transit, and Cabarrus County Transportation were eligible, and opted to join NCDOT's Public

Transportation Division's Group TAM Plan. Within NCDOT's Group Plan, performance targets were set which were used by the systems' as a planning tool for predicting when assets should be replaced to maintain safety and reliability through a state of Good Repair. The adopted TAM Plan targets are listed below:

Table 7.3 Transit Asset Category Performance Measures

| Asset Class - Revenue Vehicles | Useful Life Benchmark | 2019 Target |
|---|------------------------------|--------------------|
| Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB) | | |
| AO - Automobile | 8 | 20% |
| BU - Bus | 14 | 20% |
| CU - Cutaway Bus | 10 | 20% |
| MB - Mini-bus | 10 | 20% |
| MV - Mini-van | 8 | 20% |
| SV - Sport Utility Vehicle | 8 | 20% |
| VN - Van | 8 | 20% |
| Other | 8 | 20% |

| Asset Class - Equipment | Useful Life Benchmark | 2019 Target |
|---|------------------------------|--------------------|
| Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB) | | |
| Non Revenue/Service Automobile | 8 | 20% |
| Steel Wheel Vehicles | 8 | 20% |
| Trucks and other Rubber Tire Vehicles | 8 | 20% |
| Maintenance Equipment | Agency Determined | 20% |
| Computer Software | Agency Determined | 20% |
| Custom 1 | Agency Determined | 20% |

| Asset Class - Facilities | Useful Life Benchmark | 2019 Target |
|---|------------------------------|--------------------|
| Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale | | |
| Administration | N/A | 20% |
| Maintenance | N/A | 20% |
| Parking Structures | N/A | 20% |
| Passenger Facilities | N/A | 20% |
| Shelter | N/A | 20% |
| Storage | N/A | 20% |
| Custom 1 | N/A | 20% |