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# Technical Advisory Committee

Thursday, February 9, 2023

Regular Session

## Item H3

### Approval Recommendation of MPO Targets for Safety Performance Measures

Staff Contact: Allan Zafft, MPO Program Manager

**TAC Agenda Report**  
February 9, 2023

**Agenda Item No. H3**

**ISSUE**

VOTE: MPO Targets for Safety Performance Measures

**BACKGROUND**

The Federal Highway Administration requires State Department of Transportations (DOTs) and Metropolitan Planning Organizations (MPOs) to adopt targets for five performance measures for traffic safety (see attached fact sheet). State DOTs are required to establish statewide targets in their Highway Safety Improvement Program (HSIP) Annual Report for all five performance measures by August 31 of each year. MPOs have the option of supporting the statewide targets, or establishing their own regional targets within 180 days of the establishment of state targets.

The Grand Island Area Metropolitan Planning Organization (GIAMPO) approved to support the state's annual safety performance targets for 2018 through 2022.

GIAMPO staff recommends to support the NDOT 2023 targets for the safety performance measures (see attached NDOT HSIP Performance Measures) as the most prudent and feasible alternative. The core reasons to not establishing regional targets include the following:

- NDOT met all safety targets for 2020 except the serious injury rate; however, the serious injury rate was better than the 5-year rolling average baseline. As a result, NDOT met or made significant progress toward meeting its 2020 safety performance targets. NDOT met the targets for 2021 for number and rate of fatalities. Serious injury data for 2021 is not yet available as of the release of this TAC agenda report.
- Need to determine the methodology to estimate annual vehicle miles traveled (VMT) for all public roads within the GIAMPO metropolitan planning area from 2013 to 2021, if GIAMPO would establish rate targets.
- Need to process the accident data within the GIAMPO metropolitan planning area from 2013 to 2021 to determine the 5-year rolling averages on the five performance measures for comparative purposes and to determine a baseline, if GIAMPO would establish targets. Note: Accident data for 2021 should be available to Nebraska MPOs in the summer of 2023.

**POLICY CONSIDERATIONS/DISCUSSION**

Federal regulations require State DOTs and MPOs to adopt targets for traffic safety.

With supporting the statewide 2023 targets, GIAMPO is agreeing to plan and program projects in a manner that contributes towards the accomplishment of the NDOT safety targets.

**BUDGET CONSIDERATIONS**

None.

**COMMITTEE ACTION**

None.

**RECOMMENDATION**

Approve to support the NDOT 2023 targets for safety performance measures.

**STAFF CONTACT**

Allan Zafft

# Safety Performance Measures Fact Sheet

## Safety Performance Measures

**Number of Fatalities:** The total number of persons suffering fatal injuries in a motor vehicle crash during a calendar year.

**Rate of Fatalities:** The ratio of total number of fatalities to the number of vehicle miles traveled (VMT, in 100 Million VMT) in a calendar year.

**Number of Serious Injuries:** The total number of persons suffering at least one serious injury in a motor vehicle crash during a calendar year.

**Rate of Serious Injuries:** The ratio of total number of serious injuries to the number of VMT (in 100 Million VMT) in a calendar year.

**Number of Non-motorized Fatalities and Non-motorized Serious Injuries:** The combined total number of non-motorized fatalities and non-motorized serious injuries involving a motor vehicle during a calendar year.

| Five Performance Measures |   |
|---------------------------|---|
| ✓                         | Number of Fatalities  |
| ✓                         | Rate of Fatalities per 100 Million VMT                                |
| ✓                         | Number of Serious Injuries  |
| ✓                         | Rate of Serious Injuries per 100 Million VMT                          |
| ✓                         | Number of Non-motorized Fatalities and Non-motorized Serious Injuries |

## Data Sources

**Fatality Data:** Fatality Analysis Reporting System (FARS). Final FARS data is to be used if it is available, otherwise FARS Annual Report File (ARF) data may be used, which is generally available one year before Final FARS data.

**Volume Data:** State VMT data is derived from the Highway Performance Monitoring System (HPMS). Metropolitan Planning Organization (MPO) VMT, if applicable, is estimated by the MPO.

**Serious Injury Data:** State motor vehicle crash database. Agencies must use the definition for "Suspected Serious Injury (A)" from the MMUCC, 4<sup>th</sup> edition by April 15, 2019. Prior to April 15, 2019 agencies may use injuries classified as "A" on the KABCO scale through use of serious injury conversion tables. However, agencies are encouraged to begin using the MMUCC, 4<sup>th</sup> edition definition and attributes at the beginning of 2019 for a complete and consistent data file for the calendar year.

**Number of Non-motorized Fatalities and Non-motorized Serious Injuries:** FARS and State motor vehicle crash database. The number of non-motorized fatalities is the total number of fatalities with the FARS person attribute codes: (5) Pedestrian, (6) Bicyclist, (7) Other Cyclist, and (8) Person on Personal Conveyance. The number of non-motorized serious injuries is the total number of serious injuries where the injured person is, or is equivalent to, a pedestrian (2.2.36) or a pedalcyclist (2.2.39) as defined in ANSI D16.1-2007.

## What You Need to Know About Establishing Targets

### States:

- States will first establish statewide targets in their August 31, 2017 HSIP Annual Report for calendar year 2018, and annually thereafter.
- Targets are applicable to all public roads regardless of functional classification or ownership.
- For common performance measures (number of fatalities, rate of fatalities and number of serious injuries), targets must be identical to the targets established for the NHTSA Highway Safety Grants program in the Highway Safety Plan.
- States also have the option to establish any number of urbanized area targets and one non-urbanized area target for any or all of the measures. If a State chooses to do so, it is required to report the urbanized area boundaries used and evaluate and report progress for each target. Urbanized and non-urbanized area targets are not included in the significant progress determination.

### Coordination and Collaboration:

- Performance management connects the Highway Safety Improvement Program (HSIP) and Highway Safety Plan (HSP) to the Strategic Highway Safety Plan (SHSP) to promote a coordinated relationship for common performance measures, resulting in comprehensive transportation and safety planning.
- The State DOT and MPOs in the State must coordinate when establishing targets, to the maximum extent practicable.
- A wide range of stakeholders should work together to establish targets. This includes, the State DOT, State Highway Safety Office, MPOs, FHWA Division Office, NHTSA Regional Office, Law Enforcement Agencies and EMS (include all 4 E's of Highway Safety)
- Set targets that are data-driven and realistic, maintain momentum and remain focused.



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FHWA-SA-16-044



<http://safety.fhwa.dot.gov>

## What You Need to Know About Establishing Targets (continued)

### MPOs:

- MPOs must establish targets specific to the MPO planning area for the same five safety performance measures for all public roads in the MPO planning area within 180 days after the State establishes each target. MPOs may select one of the following options for each individual safety performance measure:
  - agreeing to support the State target; **OR**
  - establishing specific numeric targets for a safety performance measure (number or rate).
- MPOs that choose to establish a rate target must report the VMT estimate used to establish that target and the methodology to develop the VMT estimate. MPOs should make maximum use of data prepared for HPMS when preparing the rate-based target denominator. If an MPO develops data specifically for the denominator, it should use methods to compute VMT that are consistent with those used for other Federal reporting purposes.
- MPO targets are reported to the State DOT, and made available to FHWA, upon request. MPO targets are not included in the assessment of whether a State has met or made significant progress toward meeting its targets.

| Performance Measure  | State Target                                      |   | MPO Target<br>For Each Performance Measure,<br>Support State Target <b>or</b> Establish<br>MPO-Specific Target |
|--|---|---|--|
|  | Target Reported in HSIP<br>Annual Report for FHWA | Target Reported in Highway<br>Safety Plan for NHTSA |  |
| Number of Fatalities   | ✓   | = ✓   | ✓  |
| Rate of Fatalities per 100 Million VMT                                   | ✓   | = ✓   | ✓  |
| Number of Serious Injuries   | ✓   | = ✓   | ✓  |
| Rate of Serious Injuries per 100 Million VMT                             | ✓   | Not required  | ✓  |
| Number of Non-motorized Fatalities and<br>Non-motorized Serious Injuries | ✓   | Not required  | ✓  |

## Example Target Calculations

**5-Year Rolling Average:** Each target is based on a 5-year rolling average, which is the average of 5 individual, consecutive points of data. The 5-year rolling average provides a better understanding of the overall data over time without eliminating years with significant increases or decreases; and provides a mechanism for accounting for regression to the mean. If a particularly high or low number of fatalities and/or serious injuries occur in one year, a return to a level consistent with the average in the previous year may occur.

The **number targets** are calculated by adding the number for the measure for each of the most recent 5 consecutive years ending in the year for which the targets are established, dividing by 5, and rounding to the **tenth** decimal place. The **rate targets** are calculated similarly yet rounded to the **thousandth** decimal place. This more accurately reveals the change from one 5-year average to another that might otherwise be obscured if the number was truncated.

### Example: Number of Fatalities

| Year                 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------------|------|------|------|------|------|
| Number of Fatalities | 471  | 468  | 493  | 468  | 462* |

\*From FARS Annual Report File, if Final FARS is not available

To determine the target for number of fatalities:

- Add the number of fatalities for the most recent 5 consecutive calendar years ending in the year for which the targets are established:  $471 + 468 + 493 + 468 + 462 = 2,362$
- Divide by five and round to the nearest tenth decimal place:  $2,362 / 5 = 472.4$

### Example: Rate of Fatalities per 100 Million VMT

| Year                 | 2011   | 2012   | 2013   | 2014   | 2015   |
|----------------------|--------|--------|--------|--------|--------|
| Number of Fatalities | 471    | 468    | 493    | 468    | 462*   |
| Per 100 Million VMT  | 454.21 | 487.50 | 466.48 | 492.27 | 495.97 |
| Rate of Fatalities   | 1.04   | 0.96   | 1.06   | 0.95   | 0.93   |

\*From FARS Annual Report File, if Final FARS is not available

To determine the target for rate of fatalities:

- Add the rate of fatalities for the most recent 5 consecutive calendar years ending in the year for which the targets are established:  $1.04 + 0.96 + 1.06 + 0.95 + 0.93 = 4.94$
- Divide by five and round to the nearest thousandth decimal place:  $4.94 / 5 = 0.988$



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Below are the number of fatalities, number of serious injuries, and number of non-motorized fatalities and serious injuries within the GIAMPO metropolitan planning area (MPA) for 2012-2020 in comparison with the state and Hall County:

#### Number of Fatalities

| Year | State | Hall County | Hall County - MPA | Merrick County - MPA | Total MPA |
|------|-------|-------------|-------------------|----------------------|-----------|
| 2012 | 212   | 6           | 3                 | 0                    | 3         |
| 2013 | 211   | 6           | 4                 | 0                    | 4         |
| 2014 | 225   | 6           | 1                 | 1                    | 2         |
| 2015 | 246   | 5           | 3                 | 0                    | 3         |
| 2016 | 218   | 5           | 2                 | 0                    | 2         |
| 2017 | 228   | 11          | 8                 | 0                    | 8         |
| 2018 | 230   | 5           | 3                 | 0                    | 3         |
| 2019 | 248   | 8           | 2                 | 0                    | 2         |
| 2020 | 233   | 7           | 1                 | 0                    | 1         |

#### Number of Serious Injuries

| Year | State | Hall County | Hall County - MPA | Merrick County - MPA | Total MPA |
|------|-------|-------------|-------------------|----------------------|-----------|
| 2012 | 1661  | 61          | 49                | 0                    | 49        |
| 2013 | 1536  | 39          | 31                | 0                    | 31        |
| 2014 | 1620  | 50          | 38                | 4                    | 42        |
| 2015 | 1520  | 43          | 33                | 0                    | 33        |
| 2016 | 1588  | 64          | 50                | 1                    | 51        |
| 2017 | 1478  | 54          | 40                | 1                    | 41        |
| 2018 | 1394  | 58          | 47                | 0                    | 47        |
| 2019 | 1400  | 51          | 36                | 0                    | 36        |
| 2020 | 1285  | 31          | 22                | 0                    | 22        |

#### Number of Non-motorized Fatalities and Serious Injuries

| Year | State | Hall County | Hall County - MPA | Merrick County - MPA | Total MPA |
|------|-------|-------------|-------------------|----------------------|-----------|
| 2012 | 152   | 4           | 4                 | 0                    | 4         |
| 2013 | 141   | 2           | 2                 | 0                    | 2         |
| 2014 | 137   | 5           | 5                 | 0                    | 5         |
| 2015 | 147   | 3           | 3                 | 0                    | 3         |
| 2016 | 125   | 3           | 2                 | 0                    | 2         |
| 2017 | 143   | 5           | 5                 | 0                    | 5         |
| 2018 | 127   | 3           | 3                 | 0                    | 3         |
| 2019 | 129   | 3           | 3                 | 0                    | 3         |
| 2020 | 108   | 0           | 0                 | 0                    | 0         |

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| NEBRASKA HSIP PERFORMANCE MEASURES - Baseline 2021 Target Year 2023 |                                |                                  |                            |                            |                           |                      |                        |                       |                       |                                   |
|---|--------------------------------|----------------------------------|----------------------------|----------------------------|---------------------------|----------------------|------------------------|-----------------------|-----------------------|-----------------------------------|
| HSIP PERFORMANCE MEASURE  | Projected 2019-2023 Actual Avg | Projected 2019-2023 Rolling Avg. | 2020 Yearend Actual Values | 2023 Yearend Actual Values | 5-Year Rolling Average    |                      |                        | 2023 Target Achieved? | Better Than Baseline? | Met or Made Significant Progress? |
|   |                                |                                  |                            |                            | NDOT Target 2019-2023 (A) | Actual 2019-2023 (B) | Baseline 2017-2021 (C) |                       |                       |                                   |
| Number of Fatalities  | 256.4                          | 241.8                            | 233.0                      |                            | 254.0 *                   |                      | 232.0                  |                       |                       |                                   |
| Fatality Rate   | 1.311                          | 1.125                            | 1.202                      |                            | 1.300 *                   |                      | 1.118                  |                       |                       |                                   |
| Number of Serious Injuries  | 1,087.0                        | 1,319.5                          | 1,285.0                    |                            | 1,319.0                   |                      | Unavailable            |                       |                       |                                   |
| Serious Injury Rate   | 5.651                          | 6.039                            | 6.631                      |                            | 6.044                     |                      | Unavailable            |                       |                       |                                   |
| Number of Non-motorized Fatalities and Serious Injuries             | 103.2                          | 117.8                            | 109.0                      |                            | 117.8                     |                      | Unavailable            |                       |                       |                                   |

\*Selected targets based on a 1% reduction of projected outcome of the current increasing trend.

(A) Calendar Year (CY) 2023 Targets are established and reported in the August 31, 2022 HSIP Annual Report.

0.005 added to targets for fatality rate and serious injury rate to offset rounding issues in FHWA calculations.

Nebraska HSO shares 3 targets with HSIP. Nebraska HSO submits number targets rounded to the nearest integer and rate targets rounded to the nearest hundredth. The 3 shared targets have been rounded to match the Nebraska HSO method.

Baseline Year 2021

(B) Actual performance is the 5-year rolling average ending in the year for which the targets were established.

Calendar Years: 2019 Through 2023

(C) Baseline performance is the 5-year rolling average that ends prior to the year in which the targets were established. Baseline performance is calculated in order to compare whether the actual outcome was better than the baseline performance

Calendar Years: 2017 Through 2021

If a State has not met or made significant progress toward meeting its targets, the State must comply with the provisions set forth in 23 USC 148(i) for the subsequent fiscal year. The State shall:

1. Use obligation authority equal to the HSIP apportionment for the year prior to the target year, only for HSIP projects.

2. Submit an HSIP Implementation Plan that describes actions the State will take to meet or make significant progress toward meeting its targets. The HSIP Implementation Plan should guide the State's project decisions so that the combined 148(i) provisions lead to the State meeting or making significant progress toward meeting its safety performance targets in subsequent years.

If the State is determined to have not met or made significant progress toward meeting its CY targets, the State will have to use obligation authority equal to the defined HSIP apportionment year only for HSIP projects in the defined implementation year and submit an HSIP Implementation Plan for the same year.

| HSIP Apport. | Target        | Implementation |
|--------------|---------------|----------------|
| Year         | Calendar Year | Year           |
| 2022         | 2023          | 2026           |

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