

FY 2020-2024 STIP Project Prioritization Glossary

1. Priority Projects

1.1. Located along a Priority Corridor of Regional Significance

Yes = 25 Points

No = 0 Points

OTO maintains a map showing the Priority Projects of Regional Significance. Projects along these corridors received the total point value.

2. Safety

2.1. Safety Scores for Project Segments and Intersections

The MoDOT Actual Accident Rate, Fatality Rate, and Injury Rate for State System (SS) Roadway Segments in the SW District were included in an additive combination to produce the priority safety scores for proposed projects. Accident data for the 3-year period from 2015 to 2017 were used in rate calculations for 2017 in a SS Segment file provided by the MoDOT Central Office. The actual accident rate for segments were calculated by MoDOT using a standard formula from the FHWA's *Roadway Departure Safety: A Manual for Local Rural Road Owners* as follows:

$$\frac{\text{Crashes} * 100,000,000}{3 [\text{yrs}] * 365 [\text{days}] * [\text{AADT}] * [\text{Length}]}$$

Fatality and injury rate calculations for segments use the same formula but only consider fatal crashes or injury crashes in the numerator. Actual Accident, Fatality, and Injury rates are calculated by MoDOT for State System Intersections according to the following formula:

$$\frac{\text{Crashes} * 1,000,000}{3 [\text{yrs}] * 365 [\text{days}] * [\text{ENTERING_VOLUME}]}$$

An average for all three rates by roadway type was calculated for state system segments within the MoDOT SW District area. Averages were calculated for intersections with the same number of approach legs. Individual rates for segments and intersections were then divided by the average for either roadway type or number of approach legs District-wide. This produced a value above or below one. Values above one indicated how many times greater the individual segment or intersection rate was above its type average. Conversely, values below one indicated that the segment or intersection rate was less than the average for its type in the SW District. Ultimately, this created a symmetrical value among all types suitable for reclassification. The rates by roadway or approach leg values were classed in to four categories based on percentile rank accordingly for all three rates:

<u>Actual Rate by Type</u>		<u>Fatality Rate by Type</u>		<u>Injury Rate by Type</u>
75th – 100th = 4	+	75th – 100th = 4	+	75th – 100th = 4
50th – 75th = 3	+	50th – 75th = 3	+	50th – 75th = 3
25th – 50th = 2	+	25th – 50th = 2	+	25th – 50th = 2
0th – 25th = 1	+	0th – 25th = 1	+	0th – 25th = 1

The reclassified rank values for Actual Accident, Fatality, and Injury rate were then added together creating a range of safety scores from 3 to 12. The safety scores were awarded a point value based on their percentile rank as with the rate to average values for accidents, fatalities, and injuries corresponding to the following table:

<i>Percentile Rank</i>	<i>Safety Score Range Segments</i>	<i>Safety Score Range Intersections</i>	<i>Safety Points Awarded</i>
<i>75th – 100th</i>	<i>9 -12</i>	<i>7 - 12</i>	<i>15</i>
<i>50th – 75th</i>	<i>7 - 8</i>	<i>6</i>	<i>10</i>
<i>25th – 50th</i>	<i>4 - 6</i>	<i>4 - 5</i>	<i>5</i>
<i>0th – 25th</i>	<i>3</i>	<i>3</i>	<i>0</i>

2.2. Improvement or Removal of At-Grade Railroad Crossing

Yes = 5

No = 0

If a project improves or removes an at-grade railroad crossing, it received five points.

3. Congestion Management

3.1. Volume-to-Capacity Ratio

Current volume-to-capacity greater than or equal to 0.86 = 7 Points

Future (2040) volume-to-capacity greater than or equal to 0.86 = 5 Points

A volume-to-capacity ratio for roadways in the OTO region was calculated using 2017 Average Annual Daily Traffic totals and percentage of commercial traffic obtained from the MoDOT Central Office. A passenger car equivalent volume was calculated by multiplying the roadway AADT by the percent of commercial traffic. This value was subtracted from the AADT value, multiplied by 1.5 and then added back to the AADT value. The passenger car equivalent value was compared to roadway capacities stored in the travel demand model to determine the current V/C scoring. Capacity for roadway segments along Hwy 14, Route MM, US Hwy 60 east of US Hwy 65 and through Republic were revised using 24-hour capacities determined via a roadway capacity analysis conducted for the OTO by CJW Consultants. The travel demand model no-build scenario for 2040 includes projects committed through 2018. The projected volume to capacity ratio for the 2040 no-build scenario is used for the future V/C scoring. The ratio of 0.86 is considered Level of Service E (or at capacity).

Volume-to-capacity ratios were calculated for opposing directions. A project was awarded points based on the highest directional value intersecting the project road segment or intersection. Projects with segments less than 0.86, current or future, received 0 points.

4. Environmental Justice

4.1. Environmental Justice Tracts

The Plan describes how environmental justice areas are determined. There are four categories specifically addressed – Minority population, Hispanic population, Elderly (ages 65 and over), Low-Income (below poverty level), and Disabled. Each of these categories has been mapped by Census Tract percentages from the 2012 – 2016 American Community Survey 5-Year Estimates.

If the value for one of these categories is greater than the average Tract percentage for the MPO area, it is considered an EJ (environmental justice) tract. If a project intersects with one or more EJ Tract categories, it receives points based on the following scale:

<i>Intersecting or adjacent to Tracts with all 5 EJ population groups</i>	<i>= 5 points</i>
<i>Intersecting or adjacent to Tracts with 4 EJ population groups</i>	<i>= 4 points</i>
<i>Intersecting or adjacent to Tracts with 3 EJ population groups</i>	<i>= 3 points</i>
<i>Intersecting or adjacent to Tracts with 2 EJ population groups</i>	<i>= 2 points</i>
<i>Intersecting or adjacent to Tracts with 1 EJ population group</i>	<i>= 1 points</i>
<i>Intersecting or adjacent to Tracts with 0 EJ population groups</i>	<i>= 0 points</i>

5. Multi-Modal

5.1. Intermodal Benefit (Bike/Ped/Transit and Truck/Rail)

No intermodal potential = 1 points

Facilitates transfer or intermodal potential between 1 to 2 modes = 1 point x number of modes

In this category, one point is awarded for each mode connected. A single-mode project receives one point in this category. One point is awarded for each additional mode connected.

6. Economic Development

6.1. Improves Access to Major Freight Centers or Corridors or is in the State Freight Plan

Yes = 5

No = 0

Access to Major Freight Centers is defined as along a U.S. Highway or routes that connect one U.S. route to another U.S. route or interstate. If a project met this requirement it received the total point value.

7. Travel Time

7.1. The OTO employs Acyclica wifi sensors to develop travel time analytics at locations along roadways in the OTO area. In addition, the OTO has access to HERE travel time data which utilizes mobile signals contained in the Regional Integrated Transportation Information System (RITIS). This data is used to calculate travel time and delay information during peak travel times. Travel times were collected for all weekdays during April and some of May 2018 from 7:00 AM – 9:00 AM and 5:00 PM – 7:00 PM. Travel times along the roadways were converted to miles per hour speed. Speeds were subtracted from the posted speed limit to calculate travel delay in miles per hour. Points are awarded for travel delay along roadway segments during either AM or PM peak periods according to the following scale:

<i>20.0 mph or more Below the Speed Limit</i>	<i>= 7</i>
<i>10.0 to 19.9 mph Below the Speed Limit</i>	<i>= 5</i>
<i>5.0 to 9.9 mph Below the Speed Limit</i>	<i>= 2</i>
<i>Above the Speed Limit to 4.9 mph Below</i>	<i>= 0</i>