

## SAFETY (TRAFFIC ACCIDENT REDUCTIONS) BENEFITS

Certain mobility improvements can improve safety along the project corridor, through reducing the number of crashes. Benefits can be derived from the projected reduction in the number of crashes and the equivalent Value of Statistical Life (VSL).

The analysis uses the average number of crashes by severity from TxDOT’s CRIS database, for the years 2015-2017. The crash data used for the analysis are crashes along the project corridor.

The annual growth rate, calculated from the H-GAC Travel Demand Model’s daily volumes, is applied to determine how many crashes will occur in future years. In cases where the roadway is not in the H-GAC travel demand model, a small network surrounding the project is used to obtain the growth rate for the future years. For many of the projects, the conformity model is used; in cases where H-GAC’s Travel Demand Model was run for the improvement (eg. added capacity projects), the growth rate is used from build model runs for 2045 and 2040, and the no-build/existing conditions model is used for 2018 volumes.

The monetary values of the value of injuries is derived from the BUILD Guidance (2018), same the H-GAC’s 2018 Call for Projects methodology. The 2017-dollar values are inflated by 2.8% to 2018-dollar values. The CRIS data conversion to the AIS scales is derived from the TIGER BCA Resource Guide (2014) and are identical to those in the H-GAC 2018 Call for Projects spreadsheets.

To determine the types of crashes and crash types that will be reduced based on the proposed improvement, the 2018 HSIP Codes from TxDOT are used. These were published in June 2018 by TxDOT for the 2018 HSIP Program Call<sup>1</sup>. In cases of multiple improvements along a project corridor, there are “Work Code Combinations MicroStrategy” options available. An example is provided below:

Work Code	Description	Reduction Factor	Service Life
105, 305	Install Intersection Flashing Beacon, Safety Lighting at Intersection	0.42	10

In this case, all crash types for both codes 105 (Intersection Related = 1 or 2) and 305 (Light Condition = 3, 4, or 6 AND Intersection Related = 1 or 2) are eligible to be reduced by 42% over 10 years.

TxDOT also developed a specific MicroStrategy upon request, given the improvements for a given project. The specialized code is referred to as TxDOT “D”, which combines Work Codes 108, 517, 518 – this has a reduction factor of 52% and a service life of 10 years.

<sup>1</sup> Traffic Operations Division, TxDOT. 2018 HSIP Program Call. Accessed September 2018. <http://ftp.dot.state.tx.us/pub/txdot-info/trf/hsip/2018/program-call.pdf>