

## 7 SAFETY ANALYSIS

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Safety evaluation was performed along I-275 corridor as part of this project to identify safety deficiencies within the study limits. The segment between 2000 feet west of SR 60 and Armenia Avenue was considered as study limits for the safety analysis. Crash data was obtained from the University of Florida's Signal Four Analytics database for calendar years 2011 through 2015. Historical crash data (2011-2015) and details of crash analysis are provided in **Appendix F**.

The geographic coordinates reported on the database were used to map the location of every crash within the limits of the study area. The study corridor (I-275) was broken into segments between ramps (on-ramp or off-ramp) separated by direction of travel (eastbound and westbound).

### 7.1 HISTORICAL CRASH DATA

A total of 2,611 crashes were reported along I-275 within the 5-year period (2011-2015). Most of these crashes (1,674 crashes) occurred along the eastbound travel lanes. There were 1,116 injury crashes and 5 fatal crashes during the 5-year period, an average of 223 injuries and 1 fatality per year. **Figures 37** and **Figure 38** illustrate the historical crash summary by segment in each travel direction. Each segment shows the total number of crashes for the study period, estimated crash rates compared with statewide average crash rates, and percentage distribution by crash type and severity.

The estimated crash rate for the I-275 corridor is 194 crashes per 100 Million Vehicles Miles Travel (MVMT) that exceeds the statewide average crash rate of 79 crashes per 100 MVMT. Most of the eastbound segments (8 out of the total 9 segments) have higher crash rates that significantly exceed the statewide average rates.

The predominant crash type was found to be rear-end crashes in both directions of travel for the I-275 study segment. Rear-end crashes occurring within the peak periods of traffic flow are associated with heavy congestion and high vehicular densities. The high-frequency of rear end crashes can be attributed to the reduced spacing between vehicles and driver behavior (inattentiveness) during peak period congestion. Other crashes were the second most common crash type followed closely by same direction side-swipe crashes. Crashes that were categorized as 'other' were mostly collisions with concrete traffic barriers which indicate vehicles departing their travel lanes. Side-swipe crashes can be attributed partly to vehicles entering or exiting the mainline interstate lanes. However, most of the side-swipe crashes occurred as vehicles changed lanes. These cases can be attributed to congestion as drivers tend to switch lanes frequently attempting to avoid slower-moving lanes.

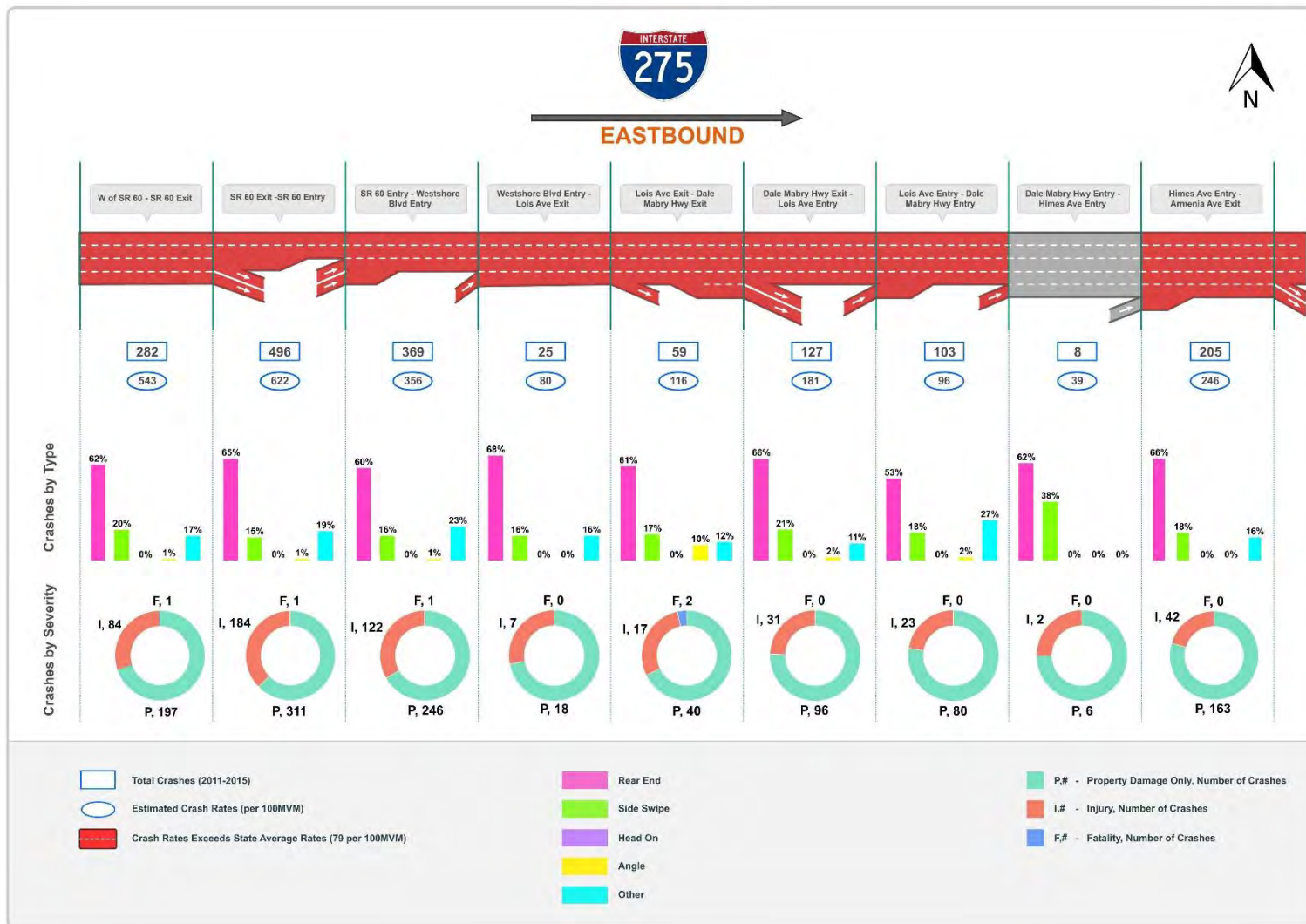


Figure 37: I-275 Eastbound Historical Crash Data, 2011-2015



Figure 38: I-275 Westbound Historical Crash Data, 2011-2015

## 7.2 BUILD ALTERNATIVE SAFETY EVALUATION

To determine the potential safety benefits of the proposed interim operational improvements, a crash modification factor (CMF) based safety evaluation was performed for this I-275 IOAR. The safety evaluation was conducted exclusively for the I-275 eastbound segments since the proposed interim operational improvements were mainly focused along I-275 eastbound between SR 60 and Lois Avenue.

For the eastbound segment of I-275, the proposed improvement consists in adding a lane of travel from West of SR 60 to the Lois Avenue exit. Therefore, a CMF for 'reducing lane and shoulder width to install additional lanes for urban freeway' was obtained from the CMF Clearinghouse. The CMF (ID: 8334) of 0.76 was used for the proposed improvements. This would represent a **24 percent** reduction in total crashes for the modified roadway segments. overall, the I-275 eastbound corridor would experience approximately **17 percent** reduction in total crashes for existing year. A brief summary of the safety evaluation is summarized in **Table 6**. The detailed calculations performed for this safety evaluation and the CMF report are provided in **Appendix F**.

**Table 6: Build Alternative I-275 Eastbound Safety Evaluations– All Crashes**

Eastbound I-275 Segments	Existing Condition	After Improvements	% diff.
4 <sup>th</sup> Street Entry - SR 60 Exit	56	43	-24%
SR 60 Exit - SR 60 Entry	99	75	-24%
SR 60 Entry - Westshore Blvd. Entry	74	56	-24%
Westshore Blvd. Entry - Lois Ave. Exit	5	4	-24%
Lois Ave. Exit - Dale Mabry Hwy. Exit	12	12	0%
Dale Mabry Hwy. Exit - Lois Ave. Entry	25	25	0%
Lois Ave. Entry - Dale Mabry Hwy. Entry	21	21	0%
Dale Mabry Hwy. Entry - Himes Ave. Entry	2	2	0%
Himes Ave. Entry - Armenia Ave. Exit	41	41	0%
<b>Summary</b>	<b>335</b>	<b>279</b>	<b>-16.8%</b>