

Drive at US 17/92/441 with the turbo northbound through operations. The surface streets performances are improved overall in levels of delay experienced as well as processing rates.

6.3 FUTURE SAFETY EVALUATION

A safety analysis was conducted to study the impacts of the proposed Build alternative on local street network within the AOI. The study area focused on the Florida's Turnpike and SR 528 freeway segments, ramp terminals and ramp segments, SR 482, US 17/92/441, Taft Vineland Road and Landstreet Road arterial segments and major intersections along the arterials. The analysis was conducted using the predictive methods in Chapters 12 and 19 of the Highway Safety Manual (HSM), where available, and the Enhanced Interchange Safety Analysis Tool (ISATe), which apply a combination of Safety Performance Functions (SPFs), crash modification factors (CMFs), and calibration factors to estimate frequency and cost of crashes for each segment and intersection.

It is important to note that the current edition of the HSM does not include a predictive method for arterial segments with six or more lanes. A research effort under the NCHRP Project 17-58 is underway to develop predictive methods for six-lane urban and suburban arterials and will be included in the next edition of the HSM (Chapter 12). The analysis was conducted assuming the predictive methods for four-lane divided arterials for both the No-Build and Build alternatives.

The No-Build and Build alternatives were evaluated and the predicted number of crashes and associated costs were compared for the 2025 to 2045 analysis period. The results of the safety analysis are summarized in **Table 6.36**. It is important to note that the safety analysis tools available to date are deterministic in nature and estimate future crashes mainly based on AADT and roadway characteristics. These tools do not account for vehicle interactions. No-Build is expected to have extensive congestion and queues that may potentially impact crashes. Predicted crashes for No-Build would be higher than shown in **Table 6.36** if congestion and queuing impacts were considered. Consequently, cost savings would be higher than reported. Nevertheless, the overall predicted crashes are lower for Build compared to No-Build due to added capacity along the Florida's Turnpike mainline and system-to-system connections that divert traffic from the arterials. Based on these results, the Build alternative is predicted to have a 20-year crash cost savings of approximately \$504 Million compared to the No-Build alternative, in 2019 present value. Detailed analysis tables are provided in **Appendix I**.

6.3.1 User Benefit Analysis

A user benefit over a 20-year project life span of the proposed Orlando South ultimate interchange modification was estimated using projected reductions in network travel time and improved safety. The 2015 Urban Mobility Report published by the Texas Transportation Institute was used as a reference for value of time. Based on 2017 dollars, the estimated user benefit is \$1.6 Billion based on travel time, from year 2025 to 2045. The table used to estimate the user benefit is presented in **Appendix I**.

Table 6.36
2025 to 2045 Predicted Number of Crashes and Cost Saving

Site	No-Build		Build	
	N _{predicted} *	2019 Present Value	N _{predicted} *	2019 Present Value
Florida's Turnpike				
Freeway segments	5,724.0	\$536,568,032	4,526.3	\$465,286,377
Ramp segments	4,344.4	\$298,960,316	3,403.7	\$211,677,271
Ramp Terminals	1,206.9	\$40,233,000	955.0	\$32,397,008
SR 528				
Freeway segments	2,370.9	\$204,813,051	2,384.7	\$208,941,353
Ramp segments	1,339.6	\$130,898,834	547.0	\$57,797,915
Ramp Terminals	1,815.7	\$62,563,397	1,793.2	\$54,645,595
Subtotal	16,801.5	\$1,274,036,630	13,609.8	\$1,030,745,519
SR 482 Intersections				
CR 423	1,500.2	\$158,391,427	1,488.3	\$157,339,180
Lowes Entrance	149.4	\$15,723,180	135.7	\$14,261,423
President Drive	389.7	\$41,118,924	345.3	\$36,308,812
Chancellor Drive	304.9	\$32,191,178	268.1	\$28,209,461
Lillwill Avenue	85.2	\$9,015,539	74.8	\$7,882,775
US 17/92/441	1,832.1	\$191,544,217	1,593.7	\$166,249,156
Skyview Drive	543.8	\$57,487,334	478.5	\$50,433,200
Golden Sky Lane	270.8	\$28,654,642	239.2	\$25,245,684
Voltaire Drive	374.5	\$39,676,544	305.7	\$32,285,271
Horizon Park Drive	412.0	\$43,650,144	323.0	\$34,220,474
SR 482 Segments				
CR 423 to Lowes Entrance	133.9	\$14,144,296	120.6	\$12,693,010
Lowes Entrance to President Drive	97.5	\$10,288,540	85.3	\$8,995,012
President Drive to Chancellor Drive	97.6	\$10,264,010	83.8	\$8,776,953
Chancellor Drive to Lillwill Avenue	461.3	\$48,507,099	395.0	\$41,389,449
Lillwill Avenue to US 17/92/441	381.5	\$37,153,403	326.1	\$31,640,249
US 17/92/441 to Skyview Drive	47.8	\$4,655,442	40.8	\$3,957,330
Skyview Drive to Golden Sky Lane	100.0	\$9,759,619	85.9	\$8,359,631
Golden Sky Lane to Voltaire Drive	79.6	\$7,777,023	68.8	\$6,707,182
Voltaire Drive to Horizon Park Drive	39.5	\$3,856,311	29.4	\$2,873,730

**Table 6.36 (continued)
2025 to 2045 Predicted Number of Crashes and Cost Saving**

Site	No-Build		Build	
	N _{predicted} *	2019 Present Value	N _{predicted} *	2019 Present Value
US 17/92/441 Intersections				
August Lane	591.2	\$62,925,808	546.9	\$57,889,563
Sun Life Path	511.9	\$54,450,312	474.8	\$50,220,144
La Quinta Drive	642.4	\$68,191,398	597.6	\$63,095,186
Landstreet Road	1,718.1	\$182,157,394	1,508.4	\$159,249,110
Consulate Drive	1,052.4	\$112,161,712	853.3	\$89,953,663
Taft Vineland Road	1,421.9	\$151,445,294	848.4	\$88,585,532
US 17/92/441 Segments				
Sand Lake Road to August Lane	79.2	\$8,414,611	71.9	\$7,592,923
August Lane to Sun Life Path	181.4	\$19,289,771	165.4	\$17,469,253
Sun Life Path to La Quinta Drive	109.6	\$11,657,539	100.8	\$10,652,198
La Quinta Drive to Landstreet Road	343.5	\$36,490,198	314.6	\$33,211,546
Landstreet Road to Consulate Drive	620.0	\$65,828,883	395.7	\$41,650,426
Consulate Drive to Taft Vineland Road	697.3	\$74,416,734	335.2	\$35,233,970
Taft Vineland Road Intersections				
Satellite Boulevard	213.8	\$22,742,543	246.9	\$25,760,414
Bachman Road	130.1	\$13,904,094	213.9	\$22,380,758
Taft Vineland Road Segments				
US 17/92/441 to Satellite Boulevard	66.5	\$7,090,342	82.6	\$8,547,385
Satellite Boulevard to Bachman Road	32.2	\$3,423,399	39.7	\$4,149,438
Landstreet Road Intersection				
Voltaire Road Extension/Road X	-	-	53.4	\$5,576,257
Landstreet Road Segments				
East of US 17/92/441	29.3	\$3,323,385	21.5	\$2,451,856
West of US 17/92/441	94.9	\$6,442,573	87.8	\$5,983,639
Subtotal	15,837.1	\$1,668,214,864	13,446.7	\$1,407,481,240
Total	32,638.6	\$2,942,251,494	27,056.5	\$2,438,226,759
Crash Cost Savings	\$504,024,734			

*Predicted Crash