- Diamond Interchange – Adds turn lanes, through lanes and/or extended storage bays under existing interchange layout.
- Diverging Diamond Interchange (DDI) – Eliminates the need for on-ramp left-turning vehicles to cross the paths of approaching through vehicles, reducing signal phases at each ramp terminal.
- Displaced Left Turn Lane Interchange – Removes left-turn movements from the main intersection to an upstream signalized location.
- Continuous Flow Intersection (CFI) – Displaces the on-ramp left-turn movements and removes the off-ramp left-turn movements to reduce signal phases at the ramp terminal intersections.

4.5 Safety Analysis

The safety impact of the proposed improvements at the northbound I-95 off-ramp and the eastbound approach of the intersection at Hollywood Boulevard and 28th Avenue was analyzed using the predictive methodology documented in the Highway Safety Manual (HSM). The following proposed improvements were evaluated:

- Addition of a second right-turn lane onto I-95 northbound off-ramp
- Signalize the right-turn movement at the I-95 northbound off-ramp terminal
- Extending the eastbound left-turn storage length at the Hollywood Boulevard and 28th Avenue intersection

The analysis followed the interchange access request safety procedure guidelines per the FDOT's Systems Implementation Office. Based on the guidelines and given that IOAR projects include minor modifications to the existing interchange, the safety analysis doesn't include the safety performance functions (SPFs) or the empirical-Bayes (E-B) method. Rather, the available crash modification factors (CMFs) for the proposed improvements are obtained which are then applied to the existing crashes in order to estimate future crashes. CMFs were only applied to the crashes that would be affected by the proposed improvement. It is important to note that CMFs for the proposed improvements were not available for an interchange setting. However, the CMFs utilized in the IOAR are the most applicable and are not expected to have a large deviation from an interchange setting.

The safety analysis summarized in Table 19 shows that an approximate 5% total crash reduction is estimated due to the proposed improvements at the study locations. Table 20 shows that there will be an approximately 15% reduction in fatal crashes, and 12% reduction in injury crashes. These numbers were calculated by comparing the crash frequencies before and after the implementation of the roadway improvements and taking into consideration the corresponding CMFs. A copy of the crash modifications factors used in the analysis is included in Appendix H.

Table 19: Predictive Crash Analysis Summary

Location	Improvement	CMF					Crash Frequency	
		K	A	B & C	O	Combined	Before	After
NB I-95 off-Ramp at Hollywood Blvd	Addition of a right-turn lane	0.96	0.96	0.96	0.96	0.91 (K, A, B, C, O)	12.6	11.6
	Signalize the right-turn movement	0.95	0.95	0.95	0.95			
Hollywood Blvd at 28th Avenue	Extending the left-turn storage	0.85	0.85	0.85	1.00	0.85 (K, A, B & C) 1.00 (O)	18.6	18.1

Source: CMF Clearance House
K: Fatal injury
A: Suspected serious injury
B: Suspected minor injury
C: Possible injury
O: No apparent injury

Table 20: Predictive Crash Reduction by Crash Type

Crash Type	Crash Frequency (per year) Before	Crash Frequency (per year) After	Reduction
Fatal	0.40	0.34	15%
Injury	5.60	4.91	12%

5 INTERCHANGE IMPROVEMENT SCHEDULE

Below is the latest schedule as per the FDOT consultant working on the design of the proposed improvements:

- Production date: 12/7/2020
- Plans to Tallahassee: 1/25/2021
- Letting Date: 3/31/2021

6 ENVIRONMENTAL CONSIDERATIONS

Environmental impacts have been evaluated in the PD&E study (FM# 436903-1). A Section 106 (historical) and Section 4F (noise study) will be undertaken to further examine the impacts of the proposed modifications. No additional environmental impacts are expected.