

SECTION SIX

Future Operational Analysis

- The queuing observed at northbound and southbound ramp terminal intersections is comparable to the Build without enhanced connections.

In summary, the maximum queue length analysis of the IJR Build with enhanced connection to NW 107th Avenue shows similar queues at ramp terminal intersections and reduced queues at NW 102nd Avenue compared to the IJR Build.

6.4 SAFETY

A Crash Modification Factor (CMF) is an estimate of the change in crashes expected after implementation of a countermeasure. A CMF ratio of 0.8 means that future crashes could be expected at 80 percent of the crashes before the countermeasure. A CMF above 1.0 indicates an increase in crashes would be expected. Crash Reduction Factors (CRF) are the percent reduction in crashes. The CMFs for the proposed improvements have been summarized in **Table 6.13** as identified in the approved IJR.

Table 6.13
Crash Modification Factors

Improvement	CMF	CRF	Crash Type	Crash Severity	Area Type
Install an additional lane	0.76	24	All	K, A, B, C*	Urban
Flatten crest vertical curve	0.8	20	All	All	All
Convert diamond interchange to DDI	0.67	33	All	All	Suburban
Install lighting at interchanges	0.5	50	All	All	All

Source: <http://www.cmfclearinghouse.org/>.

*K = fatalities, A = Incapacitating Injury, B = Non-incapacitating Injury, and C = Possible Injury

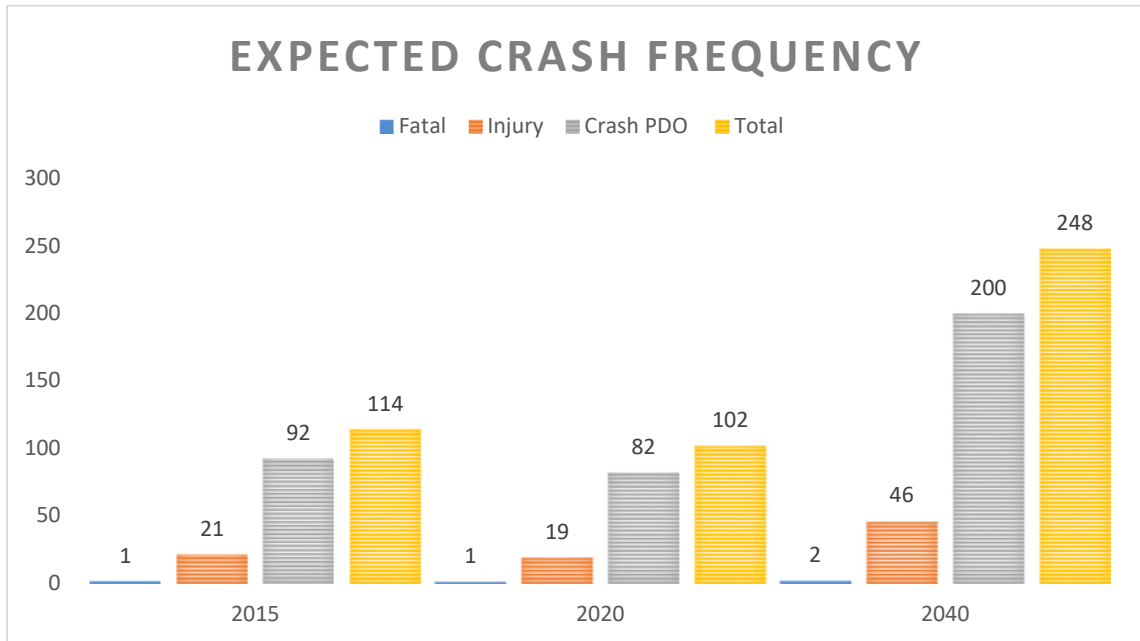
Applying the CMFs for the Turnpike Extension widening additional lane and flattening of a crest vertical curve improvements to the existing crash trends yields the expected crash frequency shown on **Figure 6.5**. Crashes are expected to decrease following the improvement, then return to the upward trend as traffic increases. CMFs for the associated enhanced access ramp types are not available, therefore, based solely on Highway Safety Manual procedures, quantifiable crash reduction is not possible.

The approved NW 170th Street interchange will enhance access to serve the area. Without additional access, adjacent interchanges, even with recent (I-75) or planned improvements (US 27), will once again experience future congestion and potential for crashes. Enhanced Turnpike mainline capacity and auxiliary lanes will result in improved future operation, reduced congestion, and improved safety.

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Figure 6.5
Expected Crash Frequency



The planned DDI at Florida's Turnpike and NW 170th Street, also known as a double crossover diamond, is safer than conventional interchange designs since it reduces conflict points and has been demonstrated to reduce crashes. The configuration crosses traffic to the opposite side between the ramp terminals, allowing left turns to flow unopposed. This innovative design is more efficient when an interchange has heavy left turns, and significantly reduces the number of vehicle conflict points compared to a conventional diamond interchange. Adequate intersection turn lanes are being planned at NW 170th Street and NW 102nd Avenue to reduce the potential for the queues along NW 170th Street into the interchange footprint.

From a qualitative perspective, the proposed enhanced access provides more direct travel to the adjacent Industrial parcel, reducing intersection volumes (including high truck volumes) and associated conflicts and queuing at the NW 170th Street/NW 102nd Avenue intersection (please refer to section 6.3). No adverse safety implications are anticipated on Turnpike Extension with the new enhanced access, new access does not impact mainline traffic.

Each of the CMFs available that are associated with planned improvements support the Build alternative enhancing future safety (please note that there are no CMFs associated with enhanced access). The operational analysis supports the interchange operating safely with enhanced local access.