



## EXECUTIVE SUMMARY

The primary purpose of the I-95 Interchange Modification Report (IMR) re-evaluation is to obtain safety, operations and engineering (SO&E) acceptability of the Diverging Diamond Interchange (DDI) alternative, proposed during the design-build process. The 2018 IMR was in itself an update of the 2007 Project Development and Environment (PD&E) study for I-95 from south of Glades Road to north of Yamato Road. This IMR re-evaluation is focused on identifying the long-term needs through the year 2040 and to develop a design concept to address traffic operational deficiencies along the Glades Road corridor between Butts Road and NW 10th Avenue/W University Drive, including traffic spillbacks onto I-95, improve interchange ramp terminal intersection operations, reduce congestion, and enhance safety at the study interchange at Glades Road (SR 808).

The preferred concept from the 2007 I-95 PD&E study, referred to as the approved modified partial cloverleaf interchange in the PD&E and as the Request for Proposal (RFP) concept in the body of this report, involved the implementation of four (4) lanes eastbound and westbound from Butts Road to W University Drive. However, the City of Boca Raton and the Palm Beach Transportation Authority (TPA) do not support converting Glades Road into an eight (8) lane corridor between Butts Road and W University Drive. Post the 2007 I-95 PD&E there have been several studies near the study area. As a result of the most recent studies, improvements to I-95 have changed, including the implementation of express lanes. Improvements along Glades Road have also changed due to the removal of the eight (8) lane concept west of the study area. Therefore, a primary need of this IMR re-evaluation was to develop a concept that improves traffic operations while maintaining the current six (6) through-lane configuration of the Glades Road corridor. This IMR re-evaluation details the traffic operations of the RFP concept and a DDI alternative.

Information and analysis from the 2018 IMR indicate that several of the merge, diverge and weaving areas have been designated as high crash locations at some point within the five years of analysis (2011-2015). Similarly, the No-Build alternative produces operational failures at multiple merge, diverge and weave locations along I-95 within the study interchanges. In order to address these deficiencies, this report recommends the following modifications to the interchange:

- Implementing the Proposed DDI concept to improve the Glades Road interchange by providing additional left-turn and right-turn lanes on both the SB I-95 and NB I-95 ramp terminal intersections. This will effectively provide both ramp terminals triple left and triple right turns. This will increase capacity and reduce long vehicular queues. A DDI interchange also has many advantages in comparison to other interchange configurations:
  - Fewer conflict points (14 for DDI, 15 for the RFP and 26 for a diamond interchange)
  - Improved intersection sight distances
  - Reduce construction time
  - Inherent traffic calming



- Shorter pedestrian crossings

FHWA's Policy Points state:

1. *An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, and ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis should, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (Title 23, Code of Federal Regulations (CFR), paragraphs 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, should be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access should include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request should also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).*

The IMR re-evaluation has shown that the DDI concept has a lower number of predicted crashes (147) when compared to the RFP concept (162), which amounts to a crash reduction of 9%. Through analyses of DDIs built throughout the US, it has been determined that there could be a potential 33% reduction in the total number of crashes. The DDI concept also results in equal or better LOS for freeway segments along I-95 and the signalized intersections along Glades Road. Both the weaving segment along northbound I-95 between Glades Road and the ingress point to the express lanes and the merge segment along southbound I-95 at the on-ramp from Glades Road operate at the same Level of Service (LOS) for the RFP and DDI concepts. The signalized intersections on Glades Road at the ramp terminals operate better under the DDI concept when compared to the RFP concept during both the AM and PM peak hours. The intersection at Glades Road and Airport Road have considerable improvements under the DDI concept during the AM peak hour and performs at similar LOS during the PM peak hour.

2. *The proposed access connects to a public road only and will provide for all traffic movements. Less than “full interchanges” may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc.*



*The report should describe whether future provision of a full interchange is precluded by the proposed design.*

This IMR re-evaluation and the consideration of the DDI concept does not propose any new interchanges along I-95. This existing interchange provides access to public roads only. The improvements proposed at the interchange will maintain full access to the existing cross streets and accommodate all movements. No additional right of way takes are required to accommodate the DDI.