

## Executive Summary

---

The Florida Turnpike Enterprise (FTE) is in the process of preparing a Project Development and Environment (PD&E) study [FPID 423374-1] for the widening of Florida's Turnpike (SR 821) at the southern end between US 1 Milepost 0 (MP 0) and Campbell Drive (MP 3), extending on US 1 south of Palm Drive and north of Davis Parkway, in Miami-Dade County. This document supports the PD&E effort and interchange access request process.

The southern portion of Florida's Turnpike is the only limited-access facility and one of two main roadways serving mobility in the southernmost portion of Miami-Dade County. This area, which includes the cities of Homestead and Florida City, has been experiencing explosive growth due to the lack of available developable land to the north of the project area.

Initially, this area primarily consisted of agricultural land uses and the Homestead Air Force Base (now Reserve Air Base). However, over the last few decades, significant growth and development have occurred, including building the Homestead Motor Speedway and a regional hospital. The development in this area is also reflected in the growth of Turnpike daily volumes, which average 3 percent per year from 2010 to 2020. Growth is anticipated to continue, as much of the planned development in Homestead and Florida City is constructed.

The corridor also connects the Florida mainland and the Florida Keys – a popular tourist destination with over 2 million annual visitors, and over 82,000 permanent and seasonal residents. The Turnpike serves as a critical evacuation route for these residents and tourists in preparation for significant hurricane events. The US 1/Palm Drive intersection, located just south of the Turnpike southbound off-ramp, currently experiences heavy congestion during commuter peak hours and has been noted as a constraining point during evacuation.

Given future traffic conditions will nearly double the anticipated traffic volumes to an intersection that cannot handle the current traffic levels, even with the maximum feasible at grade improvements to the intersection, the Turnpike is proposing one elevated tolled thru lane in each direction extending from the system to just south of the intersection. The proposed project will address existing operational deficiencies, correct identified safety issues, accommodate future demand, and facilitate local mobility for all modes. Elevating traffic not traveling to the US 1/Palm Drive area will improve local operation on these facilities and enhance area pedestrians/bicyclists and transit operations. A Miami-Dade transit route currently uses the southern segment of the Turnpike for connectivity to the Miami-Dade Park and Ride lot on Palm Drive, located west of the Turnpike, two additional Bus Rapid Transit routes are planned to be added which will travel this segment as part of the County's Strategic Miami Area Rapid Transit (SMART) Plan. This project will enhance the transit routes' efficiency and preserve the reliability of travel times.

The purpose of this Systems Interchange Justification Report (SIJR) is to satisfy the requirements of Florida Department of Transportation (FDOT) Procedure 525-030-160-I regarding new or modified interchanges, to document the operational acceptability and safety, and gain approval of access improvements identified in the US 1 to Campbell Drive PD&E. The proposed Lucy Street interchange and the modifications to the US 1 interchange will enhance capacity to accommodate both current and planned future traffic projections without deteriorating the safety and operation of the mainline Turnpike or the local street network in the study area.

## Executive Summary

---

Although Florida's Turnpike is not part of the interstate system, the FDOT Interchange Access Request (IAR) approval process outlines addressing the Federal Highway Administration's (FHWA) two policy points in documentation related to requests for new or revised access points to the state's limited access facilities. The FHWA's two policy points are addressed below:

- 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 traffic analysis includes the evaluation of the proposed additional mainline capacity, safety, and operational and engineering (SO&E) acceptability for the proposed Lucy Street interchange and the modifications to the US 1 interchange.

Since the study area is classified as urban, the analysis area of influence (AOI) includes the Campbell Drive interchange on the north side of the two study interchanges at US 1 and Lucy Street. The local street network around the study area is extended to include several intersections for safety and operational analysis. The AOI along cross streets includes the US 1 intersections at Davis Parkway, Palm Drive, and Krome Avenue; Krome Avenue intersections at Davis Parkway and Palm Drive; and intersections along Lucy Street at US 1, SE 6<sup>th</sup> Avenue, SW 167<sup>th</sup> Avenue and SW 162<sup>nd</sup> Avenue. Along Campbell Drive, intersections at the southbound and northbound ramp terminals, SW 157<sup>th</sup> Avenue, Kingman Road, and SW 152<sup>nd</sup> Avenue are included.

The operational analysis conducted for the SIJR confirmed that the proposed interchange modifications and the addition of new interchange are not expected to have adverse impacts on safety and operations on Florida's Turnpike.

The proposed Build alternative includes modifications at US 1 interchange, a new interchange at Lucy Street, providing access to/from north. The modifications at US 1 provide a new southbound off and northbound on ramps over US 1 and Palm Drive intersection, with an additional diversion for the US 1 southbound right-turn traffic to the westbound Palm Drive. A single-lane westbound diversion is provided just south of US 1/West Davis Parkway intersection, looping around west of the existing southbound off-ramp. The provided diversion becomes a two-lane segment after the loop, to provide

## Executive Summary

---

a connection for the southbound off-ramp traffic to westbound Palm Drive. This modification not only removes the concentration of ramp traffic at one intersection, but also eliminates the weaving movements from the US 1 and the off-ramp traffic. Consequently, it improves the safety and flow of traffic at the US 1 interchange, the benefits of which cannot be quantified by the available safety evaluation tools such as the Highway Safety Manual (HSM).

Ultimate improvement needs at the Campbell Drive Interchange were evaluated and determined during a PD&E study [FPN 423372-1] for the Turnpike Extension corridor from Campbell Drive (MP 2) north to the Government Center area (MP 12) which was completed in 2013. An Interchange Modification Report (IMR) to support the access modification proposed at the Turnpike Extension and Campbell Drive interchange was completed in 2014, followed by a Design Traffic Report (DTR), which was completed in 2015.

The Build alternative is projected to reduce the average vehicle delay at the US 1/Palm Drive intersection by more than 80 seconds/vehicle (approximately 70 percent reduction) during the 2045 AM design hour, and by more than 200 seconds/vehicle (approximately 83 percent reduction) during the 2045 PM design hour compared to the 2045 No-Build intersection delays. At US 1/Davis Parkway intersection, there are no changes in level of service despite a 36 percent increase in vehicle delays during the 2045 AM design hour compared to the No-Build 2045 AM design hour. For the 2045 PM design hour, the Build alternative is projected to reduce the average vehicle delay by 80 percent at US 1/Davis Parkway intersection.

At the Campbell Drive interchange, the Build alternative is projected to reduce the average vehicle delay at the southbound ramp terminal intersection by more than 135 seconds/vehicle (approximately 77 percent reduction) during the 2045 AM design hour, and by more than 215 seconds/vehicle (approximately 84 percent reduction) during the 2045 PM design hour compared with the 2045 No-Build intersection delays. At the new Lucy Street interchange, the ramp intersections are projected to operate at LOS D or better. Overall, under Build alternative, all mainline freeway segments and interchange ramp terminals are projected to operate at LOS D or better, with significant operational improvements to the local network compared to No-Build conditions.

Under the Build alternative, there are no anticipated adverse impacts to the traffic operations at other intersections along Campbell Drive, Lucy Street and around US 1 study area.

The projected failing conditions under the No-Build alternative are expected to increase future crash risk within the project corridor. This potential for increased crash risk is alleviated by the capacity improvements proposed in the Build alternatives. Due to the introduction of new Lucy Street interchange in the Build condition, the HSM safety analysis predicts an increased number of crashes for some intersections under the Build conditions. However, it is important to note that the HSM evaluation tool is limited in its ability to quantify the benefits of many operational improvements proposed under the Build conditions. Overall, the Build condition will not only divert traffic from the congested Campbell Drive and US 1 interchanges but will also enhance safety, add capacity, increase mobility, accommodate future traffic demands, and reduce evacuation travel times within the study region.

## Executive Summary

---

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.*

The new Lucy Street interchange, connecting to a public road was requested and is supported by the local stakeholders. The proposed Lucy Street access is provided as an ancillary interchange to both Campbell Drive and US 1 interchanges to serve the heaviest area movements to/from the north for typical commuter and emergency scenarios. Since this project is at the end section of the facility, lack of demand and design constraints did not warrant provision for the traffic movements to/from the south. The proximity of the access to the existing adjacent interchanges at US 1 and Campbell Drive is not anticipated to create operational or safety concerns and planned advancement will include enhanced way finding signage and turn restrictions to avoid wrong-way movements on ramps. A new Lucy Street access would not divert a sufficient level of traffic to negate the need for the proposed improvements at the US 1 terminal interchange. There are a few changes to business accesses along US 1 associated with the proposed interchange modifications. These access changes were assessed, and U-turns are being provided in both directions to accommodate the impacted traffic on the local street network.

The modifications of the US 1 interchange, and the new proposed access at Lucy Street will be designed to conform to the American Association of State Highway and Transportation Officials (AASHTO) design standards, Florida's Design Manual (FDM) and Turnpike Design Handbook (TDH). The mainline widening, modifications of the US 1 interchange and the new proposed Lucy Street interchange require design variations and exceptions due to the constrained right-of-way. Auxiliary lanes are needed along the Turnpike Mainline for acceleration and deceleration. The exceptions/variations identified are listed below:

- **Interchange Spacing** – the proposed Lucy Street interchange is a mile from both US 1 and Campbell Drive, which is shorter than a 2-mile interchange spacing standard.
- **Curve Length** – some of the proposed interchange ramp curve lengths are less than the FDOT standard minimum required length of 15 times the design speed (15V).

If other design exceptions or variations arise, they will be processed per FHWA and FDOT standards.

The Public Hearing for the project was held on July 20, 2021. The preferred Build Alternative included and presented at the Public Hearing was designed to: alleviate traffic congestion by giving motorists more options for travel; enhance safety; improve accessibility; and enhance emergency evacuation and response time in the study region. The analysis results show that the Build Alternative meets the

## Executive Summary

---

future area needs. Due to local stakeholders concerns regarding the proposed Turnpike ramp over the US 1 and Palm Drive intersection, the Department has suspended advancing the inclusion of the grade separated Turnpike ramp over the US 1 and Palm Drive intersection to work further with the community to develop refinements that address these concerns. The locals were concerned that the ramp would reduce visibility and have a negative economic impact to the businesses along US 1. Several measures were taken within the project development to increase signage and more visual elements will be addressed in later design phases, if advanced. Surveys revealed that, 9 out of 10 travelers to the Keys are repeat visitors and familiar with the area. Patrons to the local businesses are provided with the same local interchange movements to access the businesses.

This SIJR is seeking an approval of all elements of the project. Only those project elements endorsed by local stakeholders will advance to Design.