Florida Department of Transportation

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# MEMORANDUM

**DATE:** April 18, 2025

**TO:** Joshua Jester, FDOT Central Office Systems Management Administrator

**FROM:** Chon Wong, FDOT District Four Lane Repurposing Coordinator

**SUBJECT:** Previously Approved SR 5/US-1/Federal Highway Lane Repurposing Application in North Palm Beach - Updated Requirements

## Background

In 2019, the Village of North Palm Beach submitted a Lane Repurposing (LR) application for SR-5/US-1/Federal Highway ("US-1") from Northlake Boulevard to Parker Bridge in Palm Beach County. The purpose is to provide continuous bike lanes, wider sidewalks or shared use paths, landscaping, and decorative street lighting. The proposed Complete Streets improvements are consistent with the Village of North Palm Beach Master Plan (2016) and Palm Beach Transportation Planning Agency (TPA)'s US-1 Multimodal Corridor Study (2018). The total length of the project is approximately 1.67 miles.


Existing US-1 between Northlake Boulevard and Parker Bridge is 6-lane divided, except in the southern end near the bridge over Earman River where the roadway was restriped from 6 to 4 lanes due to a partial bridge collapse in 2017. The proposed LR concept divides the project limits into 3 segments: (1) the "northern segment" - repurpose one southbound lane between Parker Bridge and Anchorage Drive North, (2) the "central segment" - repurpose one lane in each direction between Anchorage Drive North and Anchorage Drive South, and (3) the "southern segment" - maintain the lane configuration resulting from

the FDOT project 442891-1 (Earman Bridge replacement) between Anchorage Drive South and Northlake Boulevard. See **Attachment 1** for the proposed concept and typical sections. **It should be noted that US-1 to the north and south of the LR project limits already has a 4-lane cross section and hence the proposed LR typical section is consistent with the adjacent segments.** The posted speed limits (35 mph between Northlake Boulevard and Yacht Club Drive, and 40 mph between Yacht Club Drive and Parker Bridge) are to remain unchanged per the application. The preliminary context class of US-1 is C4 (Urban General) and the functional class is Urban Minor Arterial. The LR segment is not a designated Strategic Intermodal System (SIS) facility.

**The LR application was approved by FDOT Central Office on November 7, 2022.** The subject project is included in the Palm Beach Transportation Planning Agency's (TPA's) List of Priority Projects for fiscal year (FY) 2026-2030, which was adopted on July 18, 2024 (Project Number 4383867). The design phase of the LR project is programmed in the FDOT Work Program for FY 2029.

**New Lane Repurposing Guidelines**

FDOT Central Office requested additional traffic analysis for compliance verification per the requirements in F.S. Section 334.61, Traffic Lane Repurposing. FDOT's current Lane Repurposing Guidebook (dated February 2025) incorporates the new requirements. Section 2.4 of the Lane Repurposing Guidebook recommends the following tiered approach for traffic analysis:

- Type 1 analysis – a corridor level analysis to examine the benefits and impacts of the LR proposal.
- Type 2 analysis – a network level analysis to examine potential impacts of the LR proposal on the surrounding roadways and intersections. A Type 2 analysis is required when Type 1 analysis indicates degradation of corridor traffic operating conditions or traffic diversion to other roadways.
- Type 3 analysis – a transit analysis to understand ridership and potential network impacts on a LR proposal. This analysis is not applicable to the US-1 LR application.

FDOT District Four staff discussed the new requirements with FDOT Central Office on July 9, 2024. The following compliance verification summary was developed based on the revised Lane Repurposing Guidebook and FDOT Central Office input.

## 1. Type 1 Traffic Analysis

The goal of Type 1 traffic analysis is to determine if the project corridor has excess capacity such that LR would not cause any adverse operational or safety impacts. The traffic analysis performed in the LR application is consistent with the process outlined in the current Lane Repurposing Guidebook (next page).


Data:

- Existing conditions data: 2019
- Design year: 2040
- Traffic forecasting:
  - SERPM 7 (2010 base year, 2040 horizon year)
  - Historical traffic counts
  - Annual growth rate used: 1.25%

Segment Analysis

The LR application included peak hour roadway segment analysis for existing (2019), 2040 No-Build, and 2040 Build with LR (without diversion) using the arterial travel speed from the Arterial Level of Service Module in Synchro 10 software compared to the arterial average speed LOS thresholds contained in HCM 6th Manual Exhibit 16-3.

| Link Analysis | 2019 Existing | | 2040 No-Build | | 2040 with LR | |
|---|---|---|---|---|---|---|
| | AM | PM | AM | PM | AM | PM |
| US-1: NB | B | B | B | B | C | B |
| US-1: SB | C | C | C | C | C | D |

FDOT District Four performed daily roadway segment analysis based on the existing and future daily volumes from the report. Results show that US-1 is expected to operate at level of service (LOS) D or better during both 2040 No-Build and 2040 Build with LR conditions.

| Link Analysis | 2019 Existing | | 2040 No-Build | | 2040 with LR | |
|---|---|---|---|---|---|---|
| | Daily traffic | Daily LOS* | Daily traffic | Daily LOS* | Daily traffic | Daily LOS* |
| US-1 from Northlake Blvd to Parker Bridge | 27,500 | C | 34,500 | C | 34,500 | D |

* Daily AADT is 2-way volume. LOS is based on Multimodal Q/LOS Handbook (2023) for context classification Urban General (C4).

Intersection Analysis

Peak period intersection analyses show that the signalized intersections are expected to operate at LOS D or better during the AM and PM peak hours under both 2040 No-Build and 2040 with LR conditions. The proposed LR concept is not impacting the lane configuration at the intersection of US-1 and Northlake Boulevard, which is a major intersection. Based on queue length analysis, northbound travel lanes between Anchorage Drive North and Parker Bridge are proposed to be maintained in current configuration to accommodate peak period queues associated with drawbridge openings. The analysis included in the LR application also indicates that US-1 queues at signalized intersections are not expected to block adjacent median openings or unsignalized intersections.

See **Attachment 2** for detailed operational analysis results, including volume-to-capacity (V/C) ratio, delay, LOS, and 95$^{th}$ percentile queues for turning movements.

| Intersection Analysis | 2019 Existing | | 2040 No-Build | | 2040 with LR | |
|---|---|---|---|---|---|---|
| | AM | PM | AM | PM | AM | PM |
| US-1 at Northlake Blvd | C | C | D | D | D | D |
| US-1 at Anchorage Dr S | B | B | B | C | B | B |
| US-1 at Lighthouse Dr | A | B | A | B | B | B |
| US-1 at Anchorage Dr N | A | B | A | C | B | B |
| US-1 at Yacht Club Dr | A | A | A | A | A | A |

Travel Time Comparison

The travel time impacts of LR was assessed for the 1.67-mile segment from Northlake Boulevard to Parker Bridge. According to the LR report, results between the 2040 No-Build conditions and the 2040 with LR conditions indicate that northbound travel times are expected to experience an increase of 12.4 and 5.3 seconds during the AM and PM peak hours; and the southbound travel times are expected to experience an increase of 8.8 and 35.8 seconds during the AM and PM peak hours, respectively. Therefore, with LR, estimated 2040 peak period travel time increase in the 1.67-mile segment after LR is no more than 36 seconds.

| Travel Time (seconds) | Northbound US-1 | | Southbound US-1 | |
|---|---|---|---|---|
| | **AM** | **PM** | **AM** | **PM** |
| **2023 Existing** | 186.4 | 178.7 | 217.1 | 220.2 |
| **2040 No-Build** | 189.8 | 182.9 | 237.2 | 265.8 |
| **2040 with LR** | 202.2 | 188.2 | 246.0 | 291.0 |
| *Travel Time Increase (2040 No-Build to 2040 with LR)* | *12.4* | *5.3* | *8.8* | *35.8* |

Mitigate Impacts

The LR project is not expected to significantly impact the traffic operations in the study corridor. The LR application documents the following intersection level mitigations:

- Northern Segment: LR is not proposed in the northbound direction of US-1 between Anchorage Drive North and Parker Bridge to accommodate peak period queues associated with drawbridge openings.
- Southern Segment: LR is not proposed between Northlake Boulevard and Anchorage Drive South to avoid any adverse impacts to the intersection of US-1 and Northlake Boulevard, which is a major intersection.
- Southern Segment: The Earman Bridge replacement project (FM 442891-2) is adding a second southbound right turn lane to US-1 at Northlake Boulevard. The construction of subject project started on February 10, 2025.

Traffic Diversion

The surrounding roadway network was reviewed to identify potential traffic diversion routes. The area does not have a well-connected grid road network. As shown in Figure 1, potential alternative routes to avoid the LR segment (e.g., via Prosperity Farms Road or via SR A1A) would notably increase the north-south travel distance. Further, LR on US-1 does not result in an inconsistent typical section since the US-1 segments to the north and south are already at 4 lanes.

To further verify, FDOT District Four conducted a diversion analysis using SERPM (8.541) for year 2045. Figure 2 shows the net change in daily link volumes with the addition of proposed LR project to the model network. See **Attachment 3** for detailed SERPM volume projections. The estimated trip diversion from US-1 to other corridors due to LR is less than 2% of the base (No Build) volume. This percentage is less than the 10% threshold noted in the updated Lane Repurposing Guidebook. Traffic analysis summarized in the previous sections (assuming no traffic diversion) estimates the LR corridor segments and intersections to be operating satisfactorily at LOS targets after LR. **Based on these, neither the project corridor nor adjacent roadway network is expected to experience significant impacts. Therefore, the need for a Type 2 network traffic analysis is not evident.**

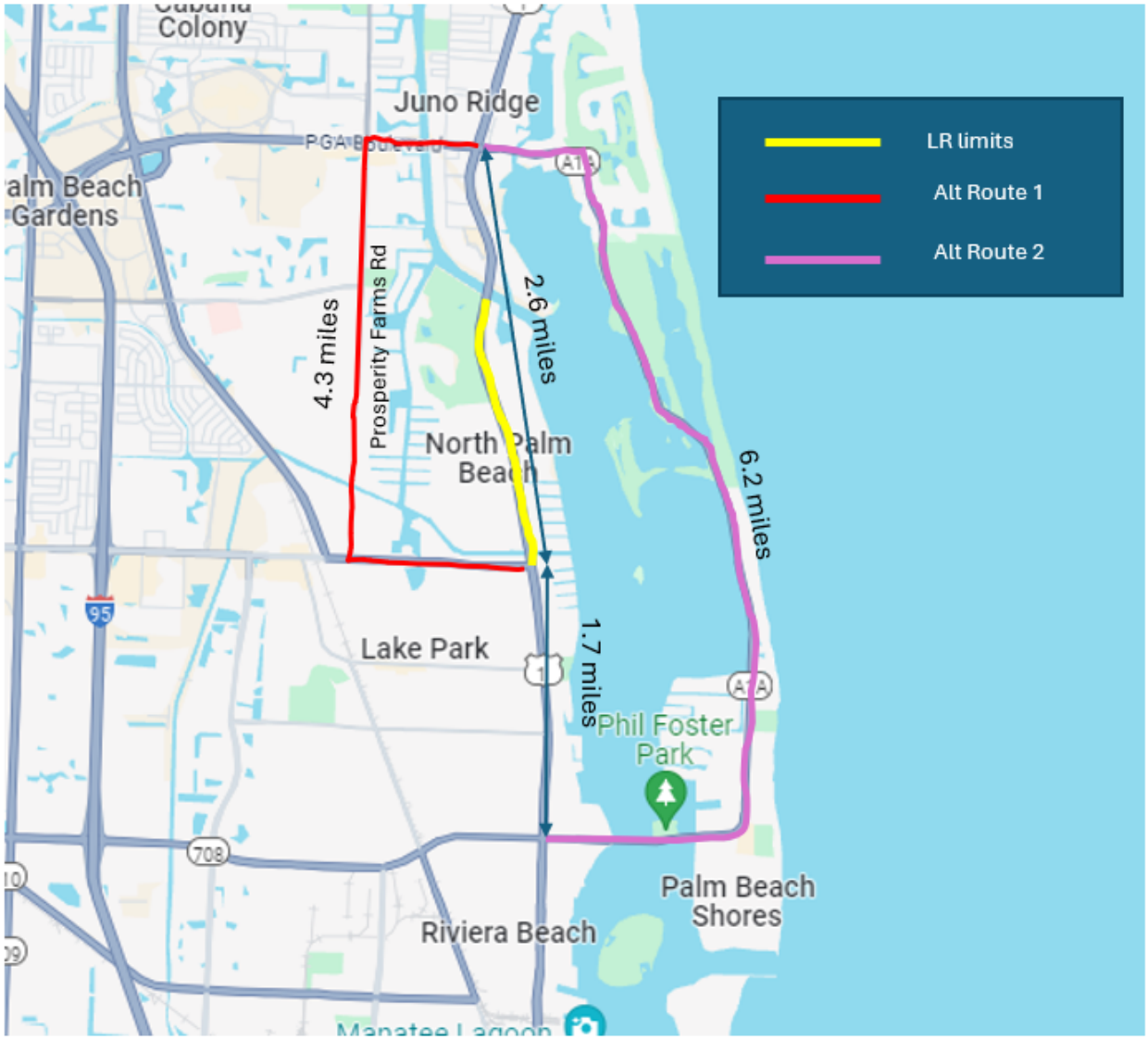


Figure 1: Lane Repurposing Project Limits and Surrounding Roadway Network

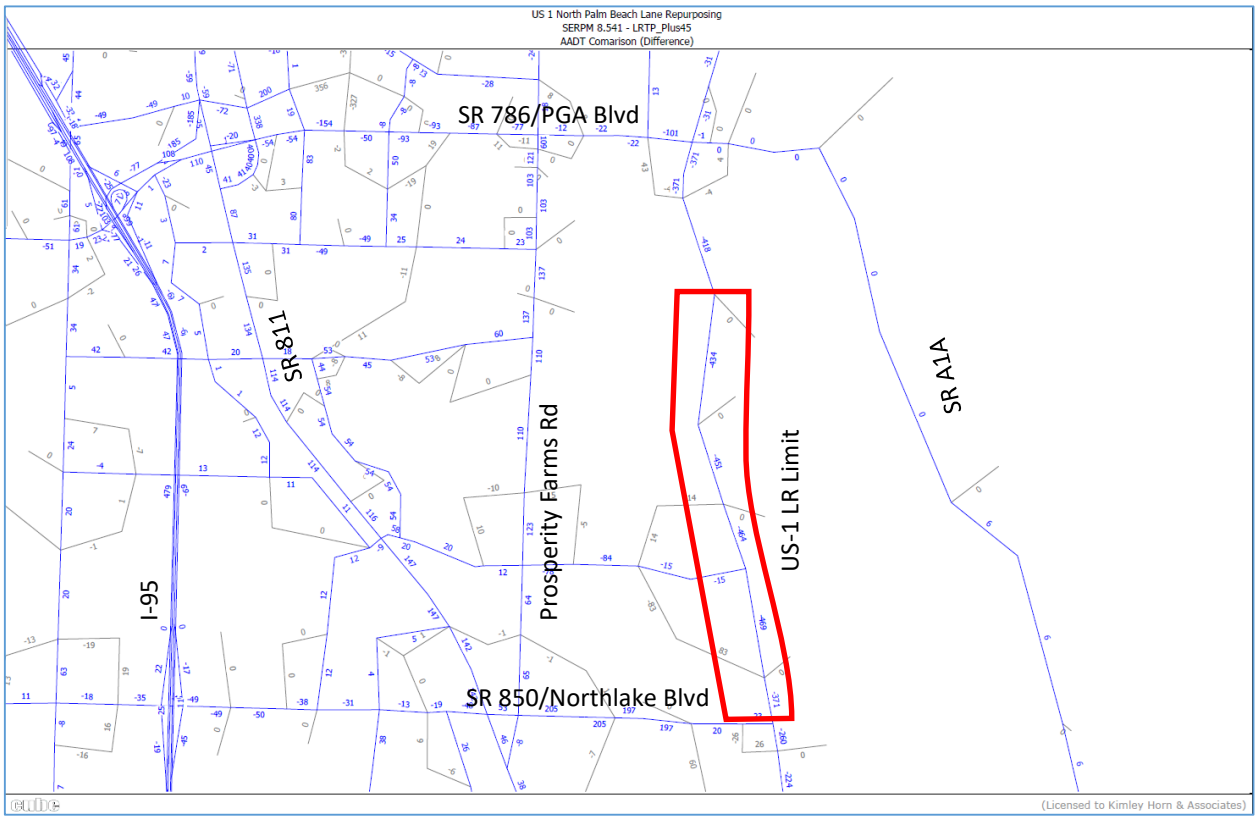


Figure 2: Lane Repurposing Project Limits and Surrounding Roadway Network

## 2. Safety Analysis

Historical Crash Analysis

A multimodal safety analysis was performed for the corridor using crash data between January 1, 2016, and December 31, 2020. It should be noted that the original application included three years of data (2016-2018), and it was updated by including 2019 and 2020 to meet the new guidelines. A total of 209 crashes was recorded, which included one fatal crash, 55 injury crashes, and 153 property damage only (PDO) crashes. These include both "long form" and "short form" crashes available from the Signal Four Analytics database. The leading crash type was rear end (35%). The fatal crash involved a vehicle colliding with curb and then a concrete utility pole. There was one crash involving a pedestrian and one crash involving a cyclist during the 5-year period. The project limits were not identified as a high crash segment or a high crash spot in the latest available (2018-2022) high crash lists.

Predictive Safety Analysis

FDOT District Four reviewed the FHWA's Crash Modification Factors (CMF) Clearinghouse database for applicable CMFs. A CMF for converting a 6-lane roadway to a 4-lane roadway is currently not available. Instead, CMFs are available for LR projects that covert a 4-lane roadway to a 3-lane roadway. Such projects are commonly referred to as road diets and FHWA has listed road diets as a proven safety countermeasure.

The CMF Clearinghouse lists a CMF of 0.53 (CMF ID 2841) for typical road diet projects, indicating a 47% reduction in crashes. Further, CMF 7840 gives a 58% reduction of vehicle bicycle crashes associated with installing bike lanes on roadways without bike lanes.

The anticipated safety benefits due to the proposed LR include reducing the number of conflicting lanes encountered by left turn and cross traffic movements, limiting pedestrians' exposure with shorter crossing distance, context sensitive traffic speeds due to the "complete streets" environment, and improvement of nighttime visibility with lighting enhancements.

## 3. Statutory Community Engagement Requirements

Notify all affected property owners, impacted municipalities, and the counties at least 180 days before the design phase is completed.

The design phase of LR project is programmed for FY 2029. The District will coordinate with the applicant to notify and engage the public and stakeholders during the design phase as stipulated.

During the LR application/planning phase, the Village of North Palm Beach conducted public open houses, workshops, and hearings to obtain input for the LR concept development, which led to the Village Council Resolution #2020-77 in November 2020 to submit the draft LR application for FDOT's review. The Village established a US-1 LR Stakeholder Committee, comprised of residents, businesses, property owners, and Village staff, which met three times in 2019 and 2020 to review the concepts and recommendations. In 2020, the Village hosted two public open houses with nearly 150 participants where concept options were discussed. Further, the applicant coordinated with stakeholder agencies, including the Palm Beach TPA, Palm Beach County, Palm Tran, Town of Lake Park, Palm Beach Gardens, and emergency response. The Village Council passed Resolution #2022-54 on July 14, 2022, supporting the final LR concept, requesting FDOT of its approval, and directing staff to seek funding through the Palm Beach TPA and other agencies. The LR application includes details of public engagement.

Hold at least one public meeting specifically for the project, with at least 30 days prior notice, before completing the design phase.

The design phase of LR project is programmed for FY 2029. The District will coordinate with the applicant to hold a public meeting as stipulated before completing the design phase.

Review and consider all comments from the public meeting in the final design of the project.

The design phase of LR project is programmed for FY 2029. The District will address any public comments received during the final design.

## Summary

The technical analysis performed during the LR application process is consistent with the new tiered analysis process established per F.S. Section 334.61. Further, the analysis in the LR application satisfies the Type 1 traffic analysis requirements and the results do not indicate the need for a Type 2 network traffic analysis.

The design phase of the LR project is programmed in the FDOT Work Program for FY 2029. The District will have to coordinate with the applicant to perform the statutory community engagement activities during project design.

| FDOT Central Office **Requirements – Technical Analysis** | | **Status** | **Note** |
|---|---|---|---|
| **Type 1 (Project Corridor) Traffic Analysis** | Segment Analysis | Completed | Peak Hour: in LR application report<br>Daily: Added by District Four |
| | Intersection Analysis | Completed | In LR application report |
| | Travel Time Comparison | Completed | In LR application report |
| | Mitigate Impacts | Completed | In LR application report |
| | Diversions | Completed | Added by District Four. |
| **Type 2 (Network) Traffic Analysis** | Not required | | |
| **Type 3 (Transit) Analysis** | Not applicable | | |
| **Safety Analysis** | Historical Crash Analysis | Completed | Updated by District Four to include 5 years of data |
| | Predictive Safety Analysis | Completed | By District Four included in this memo |

| FDOT Central Office **Requirements – Community Engagement** | | **Note** |
|---|---|---|
| **Statutory community engagement** | Notify stakeholders 180 days before design phase is completed | Design phase not programmed |
| | Hold one public meeting with at least 30 days prior notice before design phase is completed | Design phase not programmed |
| | Review and consider all comments | Design phase not programmed |