

**APPENDIX G: INTERSECTION NEEDS AT OKEECHOBEE
BOULEVARD**

INTERSECTION NEEDS AT SR 7 and OKEECHOBEE BOULEVARD

SR 7 Extension Project Development and Environment (PD&E) Study

From Okeechobee Boulevard (SR 704) to Northlake Boulevard

FM No. 229664-2-22-01

Palm Beach County, Florida

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District Four, is currently conducting a Project Development & Environment (PD&E) Study that proposes to extend SR 7 from Okeechobee Boulevard (SR 704) to Northlake Boulevard in Palm Beach County, Florida (Figure 1). The purpose of the PD&E Study is to evaluate engineering and environmental data and document information that will aid in determining the type, preliminary design, and location of the proposed extension. The study will meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations. The goal of the study is to develop a proposed “best-fit” roadway improvement and extension strategy that is technically sound, environmentally sensitive and publicly acceptable with minimal community impacts.

The purpose of this memo is to summarize the proposed alternatives and needs for the intersection at Okeechobee Boulevard and SR 7. Two options are proposed and include an at-grade intersection and a grade separated urban interchange.

2.0 PROJECT DESCRIPTION

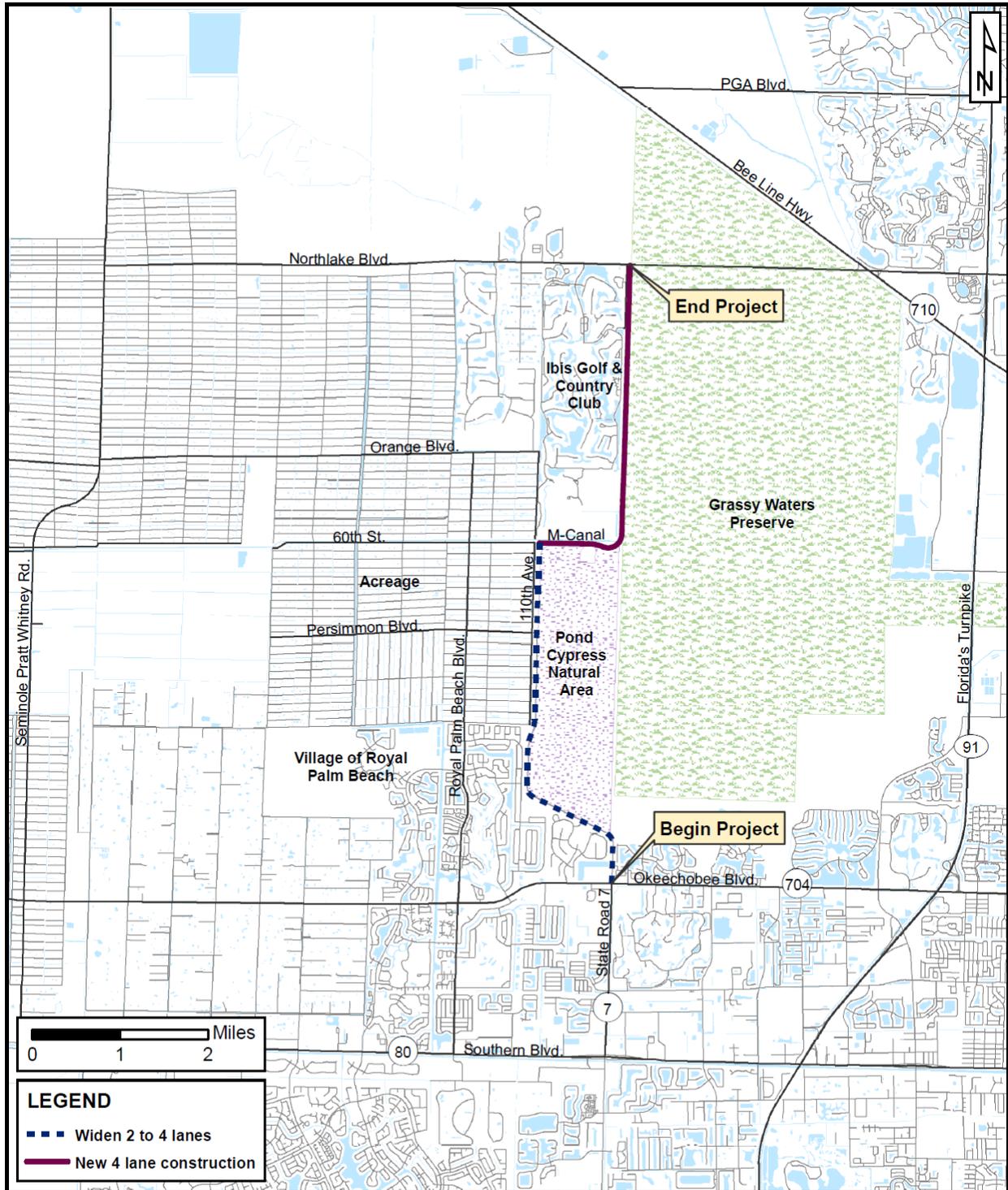
This project proposes to extend SR 7 from its current termination point at Okeechobee Boulevard to Northlake Boulevard in Palm Beach County, Florida for a distance of 8.5 miles. The project is located west of the Florida’s Turnpike between the Village of Royal Palm Beach and the City of West Palm Beach. A project location map is provided in Figure 1.

In 2009, the County completed a two-lane undivided extension of SR 7 from Okeechobee Boulevard to Persimmon Boulevard for a distance of 3.5 miles. Plans are now under way by the County for extending this two lane facility by one mile up to 60th Street. The SR 7 extension project would follow the County’s two lane alignment and continue beyond 60th Street to ultimately reach Northlake Boulevard. Proposed improvements under this project include the widening of the existing County facility from two to four lanes from Okeechobee Boulevard to 60th Street and construction of a new 4-lane facility from 60th Street to Northlake Blvd. The project would be constructed within FDOT or County-owned right-of-way. There is one proposed bridge structure for the crossing over the M Canal.

The limits established for this project, up to Northlake Boulevard, would allow for independent utility based on traffic modeling results and, therefore, the project is considered a reasonable expenditure without the need for future expansions or improvements. Northlake Boulevard is classified as an Urban Minor Arterial that transverses across the County in an east-west direction while providing connectivity to SR 710 (Beeline Highway) and Interstate 95 (I-95). In addition to the extension of SR 7, the Palm Beach Metropolitan Planning Organization (MPO) has identified the need to widen Northlake Boulevard, from four to six lanes, within the Cost Feasible Plan of the 2035 Long Range Transportation Plan (LRTP).

2.1 Need for Project

The need for the project is summarized as follows: (1) there is a clear necessity to improve system linkage between Okeechobee Boulevard and Northlake Boulevard; (2) travel demands within western Palm Beach County will continue to grow; and (3) the Palm Beach MPO has identified this project as a critical priority.



LEGEND

- ■ ■ Widen 2 to 4 lanes
- ■ ■ New 4 lane construction



Project Location Map
SR 7 Corridor Extension PD&E Study
Palm Beach County
FPID No. 229664-2-22-01

Figure 1

2.1.1 System Linkage

As one of four major arterial facilities connecting Miami-Dade, Broward, and Palm Beach Counties, SR 7 is a critical inter-regional component of south Florida's transportation network. Other facilities, listed in order from west to east, include the Florida's Turnpike, I-95, and US 1. Travel demands within the project area will continue to grow and extending the corridor beyond Okeechobee Boulevard to Northlake Boulevard is vital to satisfying capacity and mobility needs. The Palm Beach MPO has identified the need to extend SR 7 up to Northlake Boulevard in its 2035 Cost Feasible Plan. In addition, the MPO has identified other improvements in the area to help facilitate the flow of traffic through the Village of Royal Palm Beach and Acreage community.

2.1.2 Transportation Demand

The proposed extension of SR 7 is consistent with the following transportation plans:

- Palm Beach County Comprehensive Plan (Transportation Element, Policy 1.4-m)
- Palm Beach MPO Year 2035 Long Range Transportation Plan (LRTP), Cost Feasible Plan

2.1.3 Federal, State, or Local Government Authority

On June 17, 2004, the Palm Beach MPO filed a motion to direct FDOT to begin a PD&E study for extending SR 7 beyond Okeechobee Boulevard. The motion was carried unanimously. Traffic demand associated with future growth within the area indicated a need for extending SR 7 to relieve congestion within the western portions of the County. The limits of the project, from Okeechobee Boulevard to Northlake Boulevard, were established during the next meeting on July 15, 2004.

The project was added to the Tentative Fiscal Year (FY) 2006-10 Transportation System Priorities list and presented to the MPO Board on October 21, 2004 for approval. The project list was then transmitted to the FDOT, District Four, for inclusion in its Work Program.

2.1.4 Social Demands or Economic Developments

At one time, over 14,000 residential units were proposed within areas surrounding the project corridor. Those proposed developments have been canceled since the start of the study due to recent economic conditions. However, the traffic analysis prepared for this study maintains the need for a four lane divided facility even with lower growth and population estimates.

2.1.5 Modal Interrelationships

Existing bus services provided by Palm Tran near the project area is limited to Route 52, the Royal Palm Beach Crosstown route. This route loops between Okeechobee Boulevard, SR 7, Southern Boulevard, and Royal Palm Beach Boulevard. The Palm Beach County MPO has identified in the 2035 LRTP the need for bicycle and pedestrian facilities within the future extension of SR 7. These features will also be provided per FDOT policies.

2.1.6 Safety

The proposed extension of SR 7 will facilitate the hurricane evacuation process by providing additional capacity and connectivity in this area.

2.2 Existing Facility

In 2009, Palm Beach County completed a two lane extension of SR 7 from Okeechobee Boulevard to Persimmon Boulevard, a distance of 3.5 miles. Plans are underway by the County to extend this two

lane roadway by one mile up to 60th Street. This existing facility includes a 10-ft wide shoulder along the east side and a 5-ft wide shoulder along the west side. A 6-ft wide sidewalk is provided along the east side and a fence separates the road right-of-way and Pond Cypress Natural Area. The existing right-of-way varies between 185 to 360 feet and can accommodate a future four lane expansion. There is one signalized intersection at Okeechobee Blvd. The non-signalized intersections include the entrance to Porto Sol, Orange Grove Boulevard, and Persimmon Boulevard.

2.3 Project Alternatives

This PD&E Study for the proposed roadway evaluates and analyzes several feasible alternatives for consideration. This includes the No-Build alternative and four Build alternatives.

2.3.1 No-Build Alternative

Under the No-Build option, future traffic conditions for the surrounding roadway network, as identified in the 2035 Long Range Transportation Plan (LRTP), are analyzed with the assumption that the proposed improvement is not in place. These traffic projections provide a benchmark for comparative purposes with the other Build options. The proposed improvements identified in the 2035 Cost Feasible Plan include the widening of Northlake Boulevard from 4 lanes to 6 lanes

Advantages of the No-Build option include the following:

- No right-of-way impacts
- No impacts to wetlands
- No environmental degradation or disruption of natural resources
- No additional noise impacts

Disadvantages of the No-Build option include the following:

- No relief to the increasing traffic demands in the area
- No new access to Northlake Boulevard

2.3.2 Transportation Systems Management

The Transportation System Management (TSM) alternative includes those types of activities designed to maximize the use of the existing transportation system. It is a limited construction alternative that uses minor improvements to address the deficiencies identified by the project need. Because the primary purpose of the project is to provide system linkage between Okeechobee Boulevard and Northlake Boulevard, a TSM alternative was not evaluated for this project. Only the Build or No-Build options were considered.

2.3.3 Build Alternatives

The Build alternatives include the widening of the County's two lane extension of SR 7 from Okeechobee Boulevard to 60th Street. New construction will begin at 60th Street and end at Northlake Boulevard. The alignment only varies north of the M-Canal where west and east alignment options are considered.

Alternative 1 - West Alignment Alternative with Roundabout Option

Alternative 1 proposes to widen the County's extension of SR 7 from a two lane undivided roadway to a four lane divided roadway between Okeechobee Boulevard and 60th Street. The available right-of-way within the County's section varies from 185 to 360 feet and is located along the western boundary of the Pond Cypress Natural Area. At 60th Street, the alignment for Alternative 1 turns east and continues as a

new four lane divided facility along the south bank of the M-Canal. At the point where the alignment meets back up with FDOT's right of way, it turns north to cross over the M-Canal and continues along the west side of the existing right-of-way located between the Ibis Golf and Country Club and the Grassy Waters Preserve (also known as the Water Catchment Area). The available right-of-way north of the M-Canal includes a 120-ft wide strip owned by the County and a 200-ft wide strip owned by FDOT for a combined width of 320 feet. Proposed retention swales would be located within the right-of-way between the proposed roadway and the western limit of the Grassy Waters Preserve. Standard features incorporated into the proposed typical section include 12-ft wide lanes, a raised median, curb and gutter, 4-ft wide bike lanes, and 6-ft wide sidewalk on both sides. A roundabout is proposed at the intersection with 60th Street and at the entrance to the Ibis Golf and Country Club.

Alternative 2 - West Alignment Alternative with T-Intersection Option

Alternative 2 is identical to Alternative 1 except that a standard signalized intersection is proposed at 60th Street and at the entrance to the Ibis Golf and Country Club.

Alternative 3 - East Alignment Alternative with Roundabout Option

Alternative 3 proposes to widen the County's extension of SR 7 from a two lane undivided roadway to a four lane divided roadway between Okeechobee Boulevard and 60th Street. The available right-of-way within the County's section varies from 185 to 360 feet and is located along the western boundary of the Pond Cypress Natural Area. At 60th Street, the alignment for Alternative 1 turns east and continues as a new four lane divided facility along the south bank of the M-Canal. At the point where the alignment meets back up with FDOT's right of way, it turns north to cross over the M-Canal and continues along the east side of the existing right-of-way located between the Ibis Golf and Country Club and the Grassy Waters Preserve (also known as the Water Catchment Area). The available right-of-way north of the M-Canal includes a 120-ft wide strip owned by the County and a 200-ft wide strip owned by FDOT for a combined width of 320 feet. Proposed retention swales would be located within the right-of-way between the eastern limits of the Ibis Golf and Country Club and the proposed roadway. Standard features incorporated into the proposed typical section include 12-ft wide lanes, a raised median, curb and gutter, 4-ft wide bike lanes, and 6-ft wide sidewalk on both sides. A roundabout is proposed at the intersection with 60th Street and at the entrance to the Ibis Golf and Country Club.

Alternative 4 - East Alignment Alternative with T-Intersection Option

Alternative 4 is identical to Alternative 3 except that a standard signalized intersection is proposed at 60th Street and at the entrance to the Ibis Golf and Country Club.

3.0 Existing Intersection Conditions

The current configuration at the intersection of Okeechobee Boulevard and SR 7 is illustrated in Figure 2 and includes the following:

- South Leg (SR 7): Three left turn lanes, two through lanes, and two right turn lanes.
- North Leg (SR 7): Two left turn lanes, three through lanes, and one right turn lane.
- West Leg (Okeechobee Blvd): Two left turn lanes, four through lanes, and two right turn lanes.
- East Leg (Okeechobee Blvd): Three left turn lanes, four through lanes, and a single right turn lane.

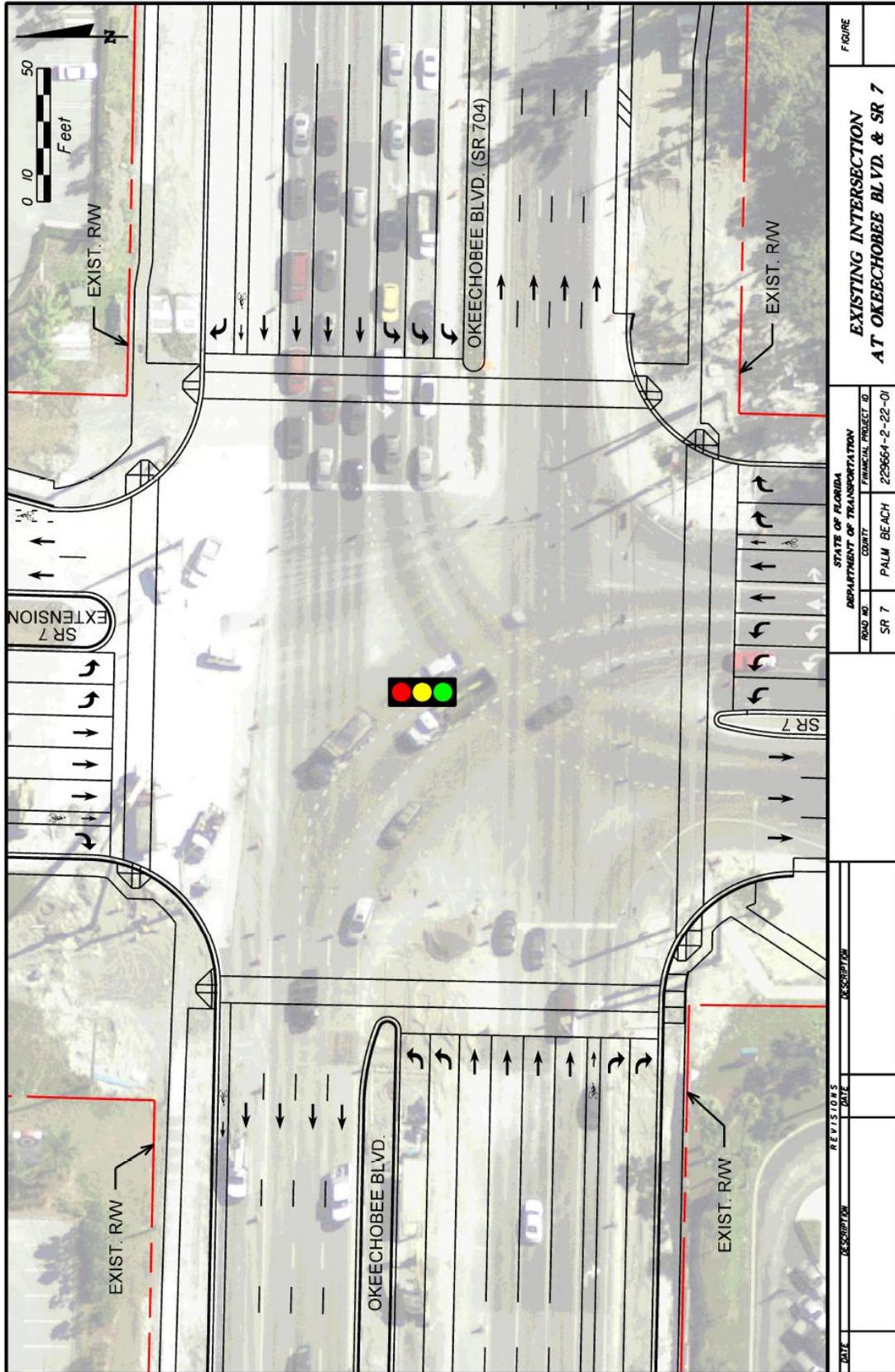


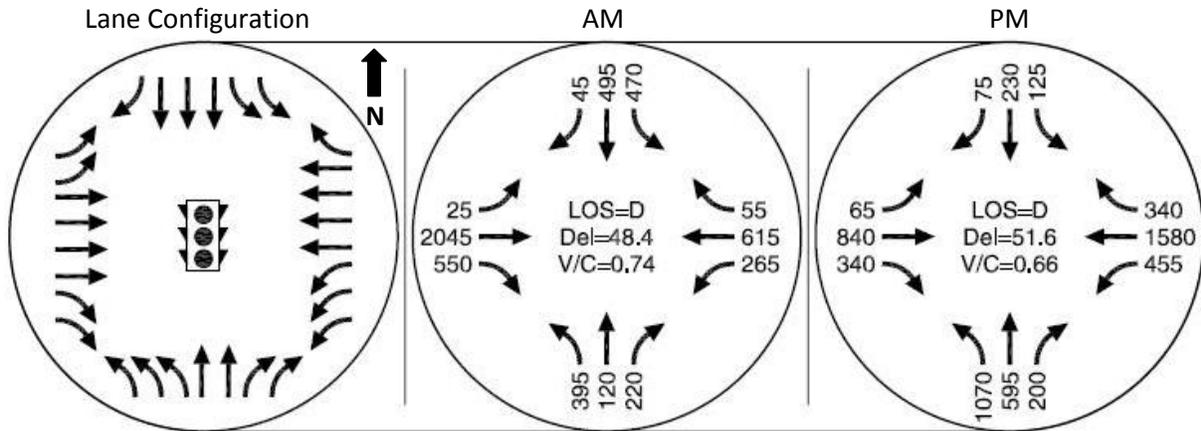
Figure 2: Existing Lane Configuration at SR 7 and Okeechobee Boulevard

3.1 Available Right-of-Way

The amount of right-of-way available at the intersection is illustrated in Figure 3. West of SR 7, there is 200 feet available along Okeechobee Boulevard, and 230 feet available east of SR 7. The right-of-way available along SR 7 includes 221 feet south of Okeechobee Boulevard and 264 feet north of Okeechobee Boulevard.

3.2 Traffic Level of Service

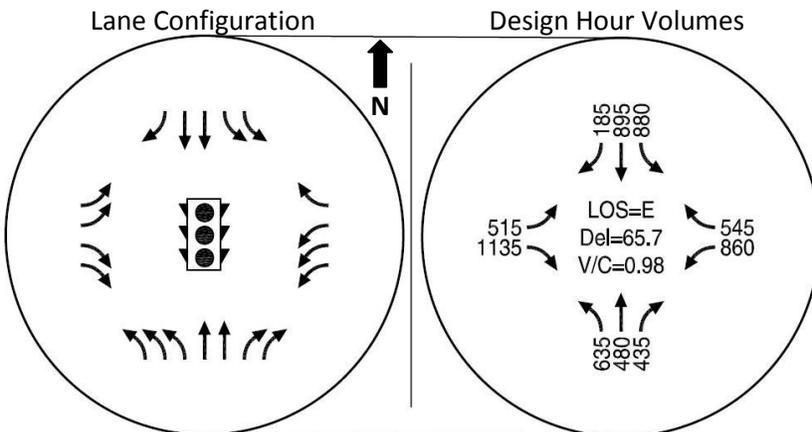
The current intersection operates at a Level of Service (LOS) D. Turning movement volumes for both AM and PM peak hour conditions are presented below:



4.0 Future Traffic Need

4.1 At-Grade and Grade Separation Analysis

Under the existing at-grade intersection configuration, the intersection of SR 7 and Okeechobee Boulevard is expected to perform at LOS E during the AM and PM peak hours by the opening year, 2020, and at LOS F by the mid year, 2030, even with triple left-turn and double right-turn lanes. An analysis was conducted to determine the benefit from providing a grade separated interchange at this location. This configuration would elevate the 8 lanes along Okeechobee Boulevard over SR 7. The lanes remaining under signal control is represented in diagram below. Under the grade separated scenario, the intersection would perform at a LOS E during the design year of 2040.



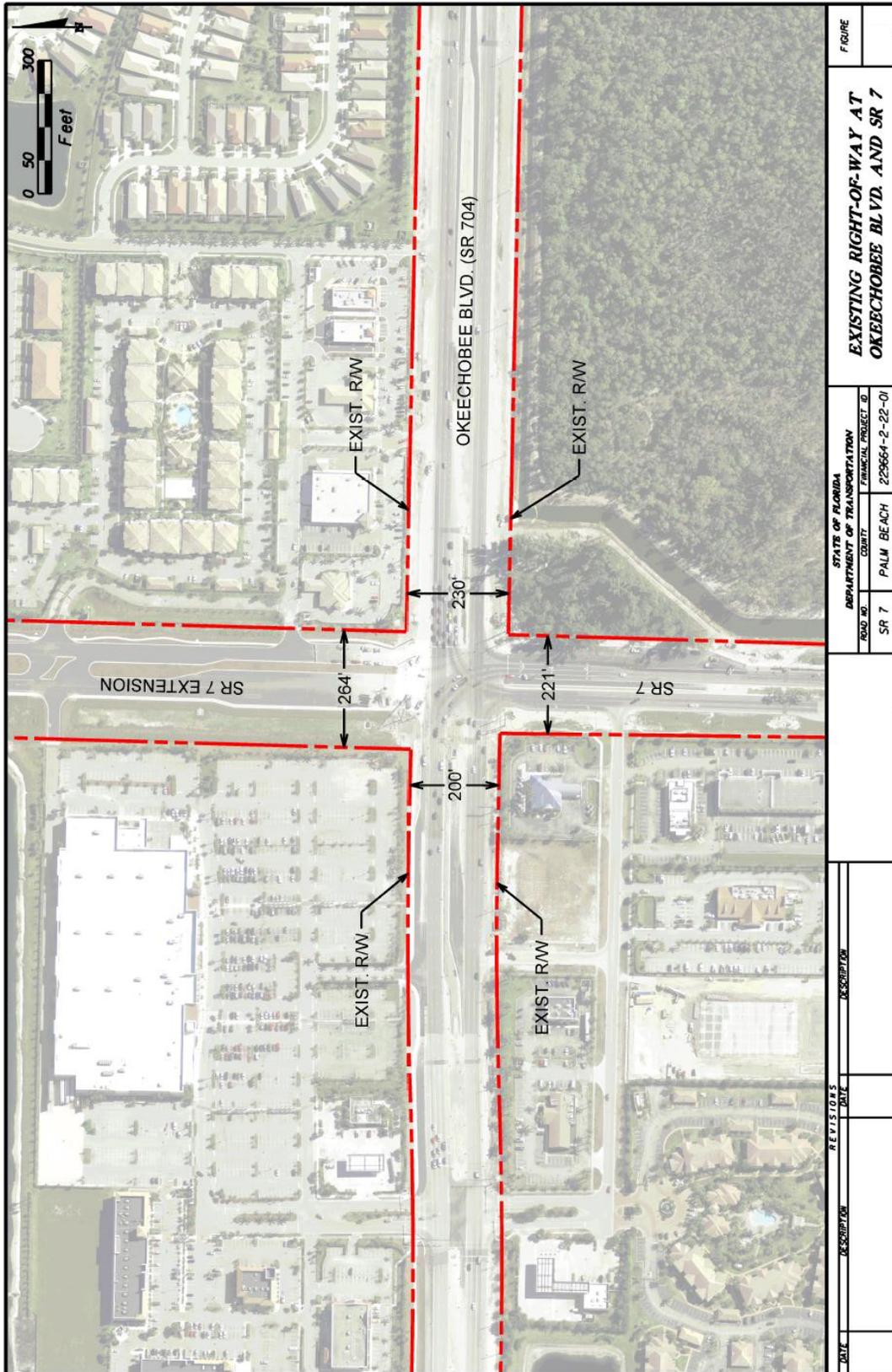


Figure 3: Existing Right of Way at SR 7 and Okeechobee Boulevard

4.2 Consistency with Palm Beach MPO LRTP

The Palm Beach Metropolitan Planning Organization's (MPO) adopted 2035 Long Range Transportation Plan (LRTP) has identified the need for a series of four grade-separated intersections along Okeechobee Blvd. The intersection of Okeechobee Boulevard and SR 7 is one of the intersections within the system of urban interchanges planned to serve east-west mobility along Okeechobee Blvd. The series of urban interchanges at SR 7, Jog Road, SR 809 (Military Trail), and Palm Beach Lakes Boulevard would likely have to be evaluated as a system in order to be fully analyzed. However, the analysis of these intersections has not been prioritized for further evaluation by FDOT at this time. The FDOT recognizes that the long term needs of the intersection at Okeechobee Boulevard and SR 7 are intended to be addressed as a component of the above referenced system.

5.0 Intersection Alternatives

There are two options for consideration to address the traffic needs at the intersection of Okeechobee Boulevard and SR 7. The first option is to utilize the existing expanded intersection as illustrated in Figure 1. Under this scenario, no improvements will be made to the intersection as part of the extension of SR 7, but future improvements may occur, under a separate effort, as part of the MPO's system plan for Okeechobee Boulevard. The second option is to construct an urban interchange at the intersection. Both options are discussed below.

5.1 At-Grade Intersection Option

Under this alternative, no improvements would be made to the existing intersection at Okeechobee Boulevard and SR 7. The number of turn lanes would remain as illustrated in Figure 2.

5.2 Urban Interchange Option

Under this alternative, the through movement along Okeechobee Boulevard would be elevated over SR 7 (Figure 4).

Configuration

The Okeechobee mainline bridge over SR 7 would include three 12 foot wide lanes in each direction with 10 foot wide shoulders on each side separated by a 22 foot wide traffic separator. The eastbound off-ramp would include one dedicated 12 foot wide left turn lane, a shared 12 foot wide left and through lane, a 5 foot wide bicycle lane, and three 12 foot wide right turn lanes. The east bound on-ramp would include three 12 foot wide lanes that ultimately merge into one lane. The westbound off-ramp would include one dedicated 12 foot wide left turn lane, a shared 12 foot wide left and through lane, a 5 foot wide bicycle lane, and three 12 foot wide right turn lanes. The westbound on-ramp would include three 12 foot wide lanes that ultimately merge into one lane. The lane configuration along SR 7 would remain as proposed under the at-grade alternative.

Potential Right-of-Way Needs

Additional right-of-way will be required along Okeechobee Boulevard to accommodate an urban interchange. As illustrated in Figure 5, approximately 2 acres would be needed for construction of a grade separated interchange.

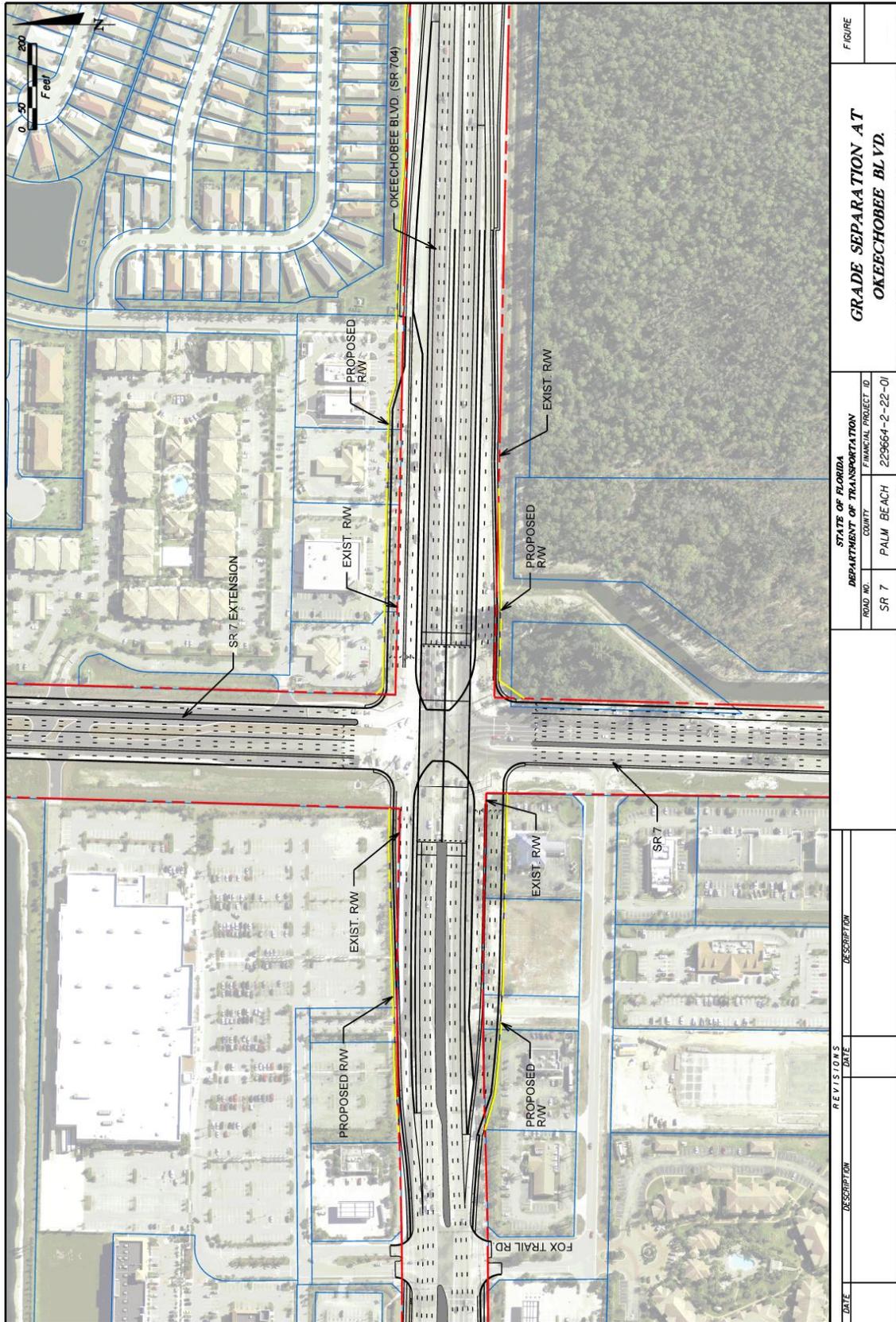


Figure 4a: Grade Separation Option at Okeechobee Boulevard (Sheet 1 of 2)

DATE	DESCRIPTION	REV	DATE	DESCRIPTION

STATES OF FLORIDA DEPARTMENT OF TRANSPORTATION		ROAD NO. SR 7		COUNTY PALM BEACH	FINANCIAL PROJECT ID 229664-2-22-01
GRADE SEPARATION AT OKEECHOBEE BLVD.					FIGURE

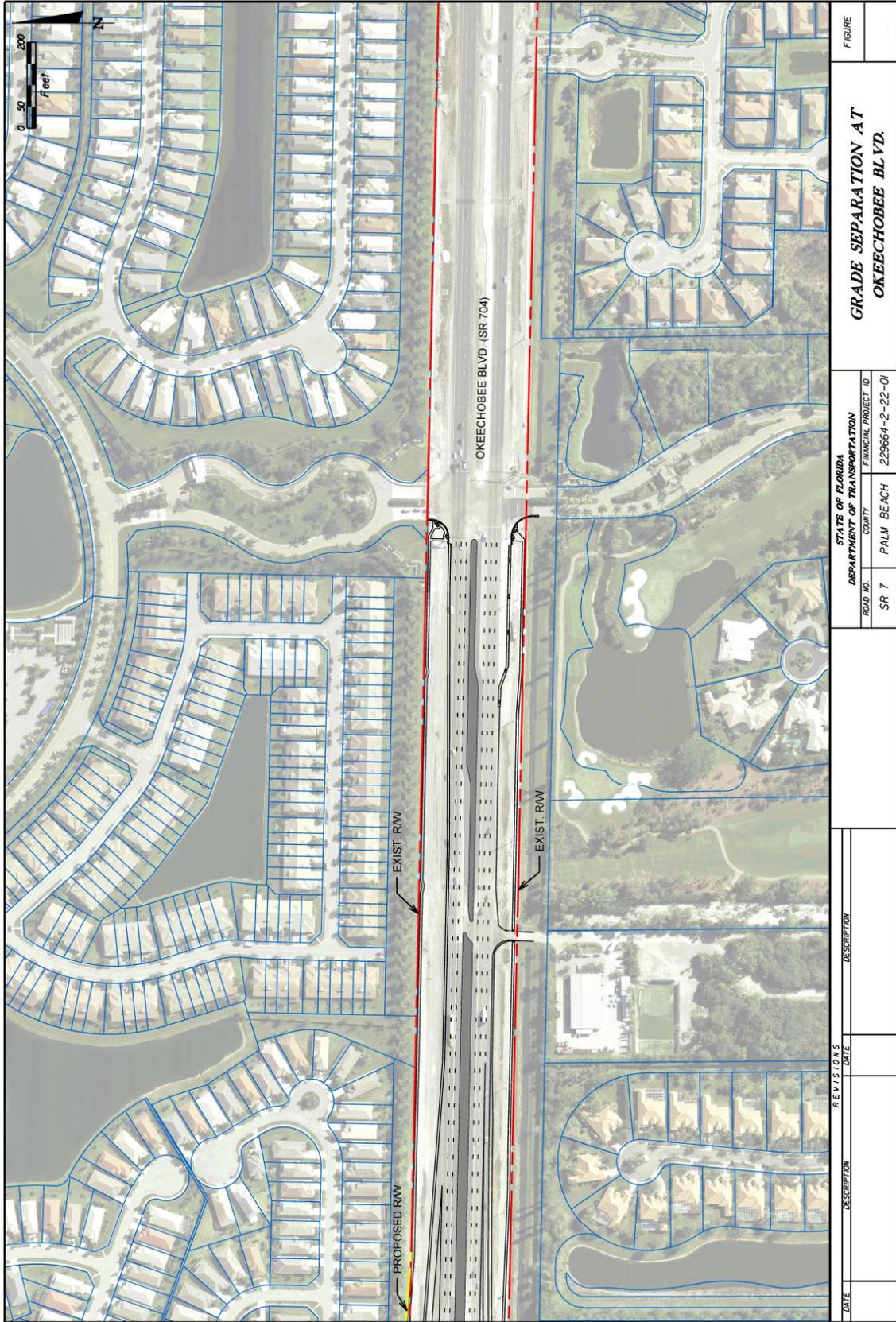


Figure 4b: Grade Separation Option at Okeechobee Boulevard (Sheet 2 of 2)

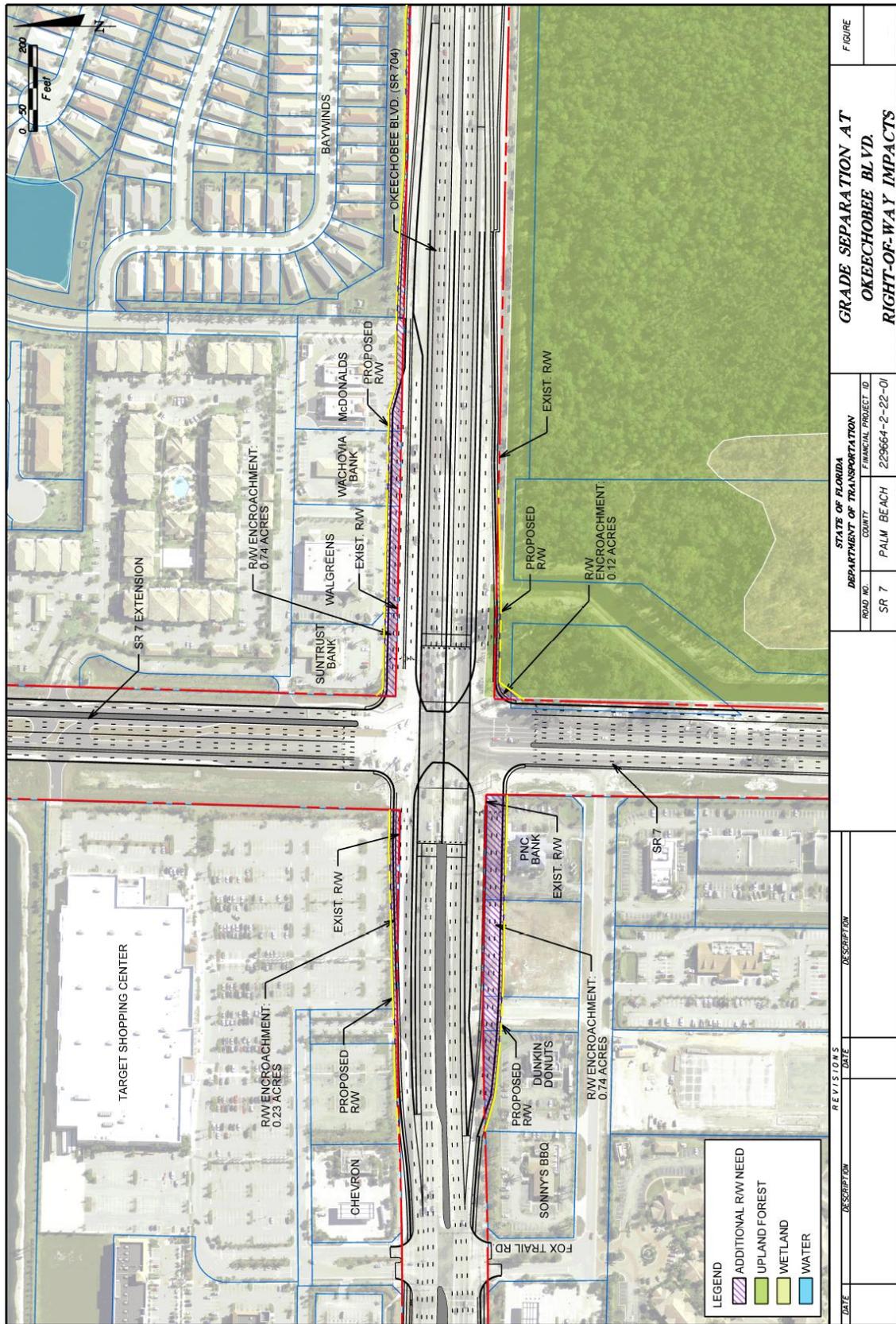


Figure 5a: Potential Grade Separation Impacts at Okeechobee Boulevard (Sheet 1 of 2)

STATE OF FLORIDA		DEPARTMENT OF TRANSPORTATION		FIGURE	
ROAD NO.		FINANCIAL PROJECT ID		COUNTY	
SR 7	PALM BEACH	229664-2-22-01			
REVISIONS		DESCRIPTION		DATE	
GRADE SEPARATION AT OKEECHOBEE BLVD. RIGHT-OF-WAY IMPACTS					

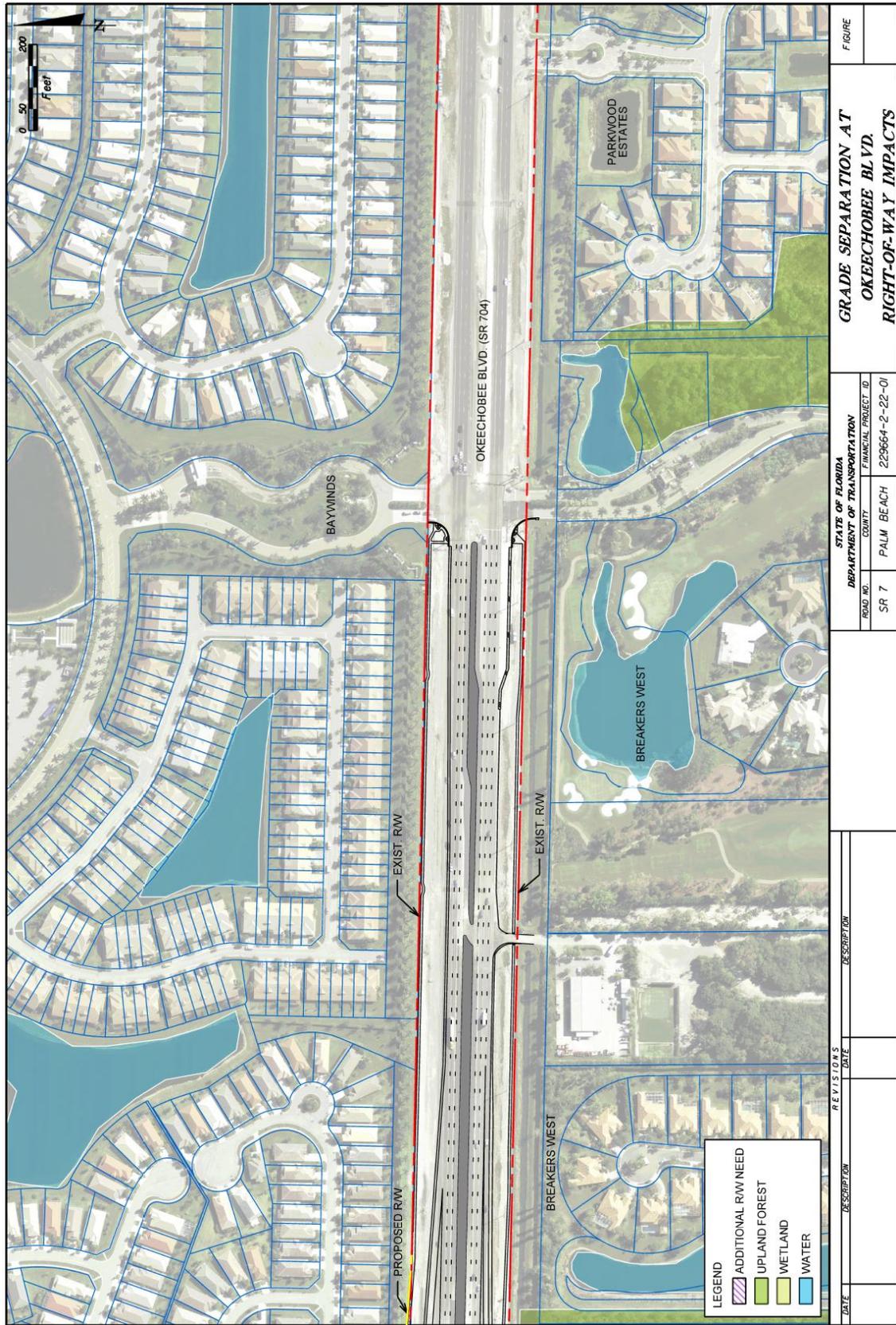


Figure 5b: Potential Grade Separation Impacts at Okeechobee Boulevard (Sheet 2 of 2)

Business Impacts

The proposed urban interchange concept would result in an impact to seven business parcels (Figure 5). The businesses located on these parcels include the following:

- Dunkin Donuts
- PNC Bank
- Target
- Suntrust Bank
- Walgreens
- Wachovia Bank
- McDonalds

This option would also impact one vacant parcel.

Access Management

The proposed urban interchange would not close any existing medians or driveways. Access to the existing businesses and driveways would be maintained from the proposed frontage roads. However, access to Target, from westbound Okeechobee Boulevard, would require drivers to utilize the frontage road system in order to make a right turn into Fox Trail Road.

Potential Environmental Resource Impacts

Although the area surrounding the intersection is generally urbanized and developed, the southeast quadrant remains undeveloped and primarily consists of upland forest with some wetland areas nearby (Figure 5). The amount of encroachment into these upland forest areas could amount to 0.12 acres.

Cost

The current estimated construction cost for an urban interchange is approximately \$30 million.

6.0 Conclusion

The extension of SR 7 will allow for independent utility with or without a grade separated interchange at Okeechobee Boulevard for the following reasons:

1. The findings of the SR 7 traffic study indicate that the at-grade intersection at Okeechobee Blvd is projected to reach capacity by the year 2030. The design year for the project is 2040 and the currently adopted LRTP is for 2035. This condition will occur even for the No-Build scenario and implies that the performance at the intersection is not directly related to the proposed extension of SR 7, but rather due to the heavy demand along Okeechobee Blvd. Projected 2040 volumes along Okeechobee Blvd ranges from 81,000 to 86,600 vehicles per day versus 39,300 vehicles along the extension of SR 7.
2. The segments of SR 7, north of Okeechobee Blvd, will not exceed a LOS D based on link volume projections and intersection delay. The extension of SR 7 is expected to operate acceptably as an independent project that satisfies the purpose and need of the PD&E study within the logical termini of the study.

3. The needs along Okeechobee Blvd are already identified in the MPO's LRTP with a series of grade separated facilities. This series would likely have to be evaluated as a system in order to be fully analyzed.