

CONCEPTUAL STAGE RELOCATION PLAN

US 41 at Bonita Beach Road Project Development and Environment (PD&E) Study

Bonita Springs, Lee County, Florida

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PROJECT SUMMARY

Initiated in November 2019, this Project Development and Environment (PD&E) Study has been conducted to assess various intersection alternatives for US 41 at CR 865/Bonita Beach Road. This Preliminary Engineering Report (PER) documents the project's purpose and need, the alternatives developed, the process of selecting the preferred alternative, and presents the preliminary design analysis for the preferred alternative. CR 865 will be referred to as Bonita Beach Road throughout the remainder of this report.

1. Project Description

The US 41 at Bonita Beach Road Project Development and Environment (PD&E) Study evaluated capacity, safety, and multi-modal improvements at the US 41 and Bonita Beach Road intersection, in the City of Bonita Springs, Florida. The study area limits extend along US 41 from Foley Road to just south of the Imperial River bridge, a distance of approximately 0.9 miles. Additionally, the study area extends along Bonita Beach Road from Windsor Road to Spanish Wells Boulevard, a distance of approximately 0.8 miles.

US 41 is a north-south principal arterial roadway running parallel to Interstate 75 (I-75) and facilitates movement of regional and local traffic (including truck traffic) along Florida's west coast. Bonita Beach Road is an east-west minor arterial roadway providing a connection to I-75 and is one of two east-west connections between the Lee County mainland and coastal communities and barrier island tourist destinations and beaches to the west. US 41 is a state roadway maintained by the Florida Department of Transportation (FDOT) District 1, while Bonita Beach Road is maintained by the Lee County. Both US 41 and Bonita Beach Road are designated as emergency evacuation routes.

US 41 within the project limits is a six-lane divided roadway with 5' on-street bicycle lanes and 5' sidewalks on both sides of the roadway. Bonita Beach Road is a four-lane divided roadway with 5' sidewalks on both sides but no on-street bicycle facilities.

The US 41 at Bonita Beach Road intersection of is currently a signalized intersection with two exclusive left turn lanes and an exclusive right turn lane in each approach. Aside from the main intersection, there is currently one other signalized intersection along US 41 at the Center of Bonita Springs (Tuffy Auto/Advanced Auto Parts). There are three additional signalized intersections along Bonita Beach Road at the Center of Bonita Springs, Arroyal Road, and Spanish Wells Boulevard.

The existing US 41 and Bonita Beach Road intersection has two high volume left turn movements, those being eastbound to northbound and southbound to eastbound. To partially address these heavy movements, the City of Bonita Springs conducted the "Network Enhancement Alignment Study – Quadrant Plan" in May 2017. From this, the City will be designing and building a two-lane quadrant roadway connecting Bonita Beach Road at Windsor Road to US 41 at the Center of

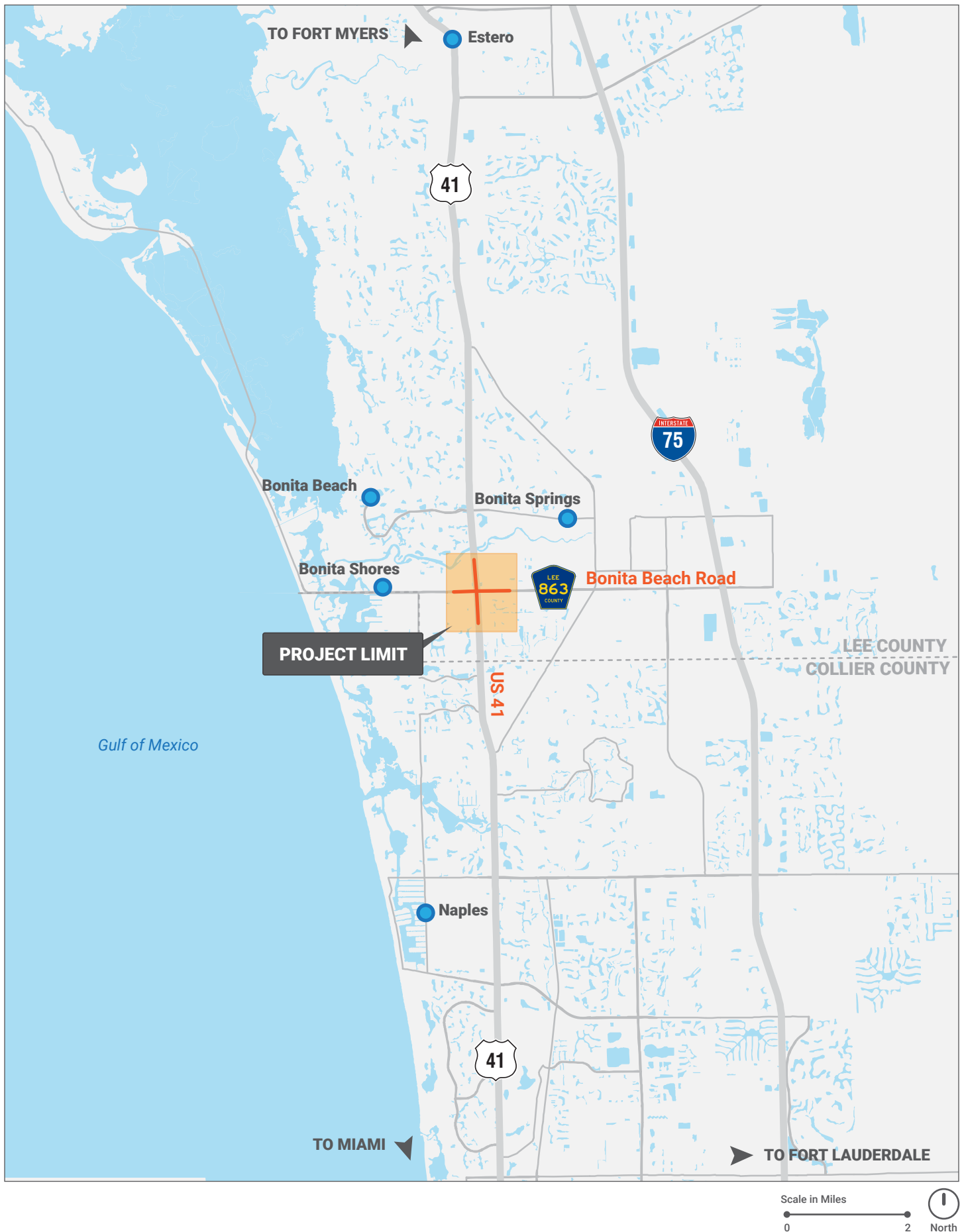
Bonita Springs. This Northwest Quadrant Roadway is currently in design by the City and anticipated to be built ahead of the US 41 and Bonita Beach Road intersection improvements.

The proposed improvements will modify the signalized configuration of the US 41 and Bonita Beach Road intersection to be a partial displaced left turn (PDLT), with the northbound and southbound left turn movements to crossover and be located outside of the opposing traffic flow. This configuration will allow the northbound and southbound left turning movements to operate in the same signal phase or simultaneously as the northbound and southbound through movements. To accommodate the partial displaced left turn configuration and facilitate the relocation of northbound and southbound turning vehicles, two new signalized “crossover” intersections will be added along US 41 approximately 675’ south and 460’ north of Bonita Beach Road. The southbound and eastbound left turn movements are proposed to have three lanes each, and the eastbound and westbound right turn movements are proposed to have two lanes each.

As noted above, a Northwest Quadrant Roadway is being constructed by the City of Bonita Springs. As part of the PD&E study’s proposed improvements, the US 41 and the Center of Bonita Springs intersection is proposed to be changed from a standard signalized intersection to a “thru-cut” intersection. A thru-cut intersection restricts through movements from the minor street typically due to operational and/or geometric conditions. In this case, the west leg is being widened from two lanes to five lanes (four eastbound approach lanes and one westbound receiving lane) and the east leg is being widened from two lanes to four lanes (two westbound approach lanes and two eastbound receiving lanes). This creates skew issues for any east/west through movements and creates operational constraints that are alleviated by the thru-cut intersection configuration. Tying into the new east leg is a Northeast Quadrant Roadway proposed between US 41 and Arroyal Road, northeast of the US 41 and Bonita Beach Road intersection. This will be a new three-lane roadway with two lanes eastbound and one lane westbound.

Along US 41 in the northbound direction, a 6’ sidewalk is proposed from Foley Road to Springs Plaza (Sta. 232+50) and a 12’ shared-use path is proposed from Springs Plaza to just north of the Imperial River Boat Ramp (Sta. 271+00). In the southbound direction, a 12’ shared-use path is proposed from just north of the Imperial River Boat Ramp (Sta. 271+00) to Bonita Funeral Home (Sta. 231+00) and a 6’ sidewalk is proposed from Bonita Funeral Home to Foley Road. Along both sides of Bonita Beach Road, the sidewalks will be widened to 12’ shared-use paths from the Center of Bonita Springs to Arroyal Road. Signalized marked crosswalks will be maintained on every leg of the PDLT, including the channelized right turn lanes. Signalized marked crosswalks will also be provided on every leg of each signalized intersection along US 41 and Bonita Beach Road within the study area.

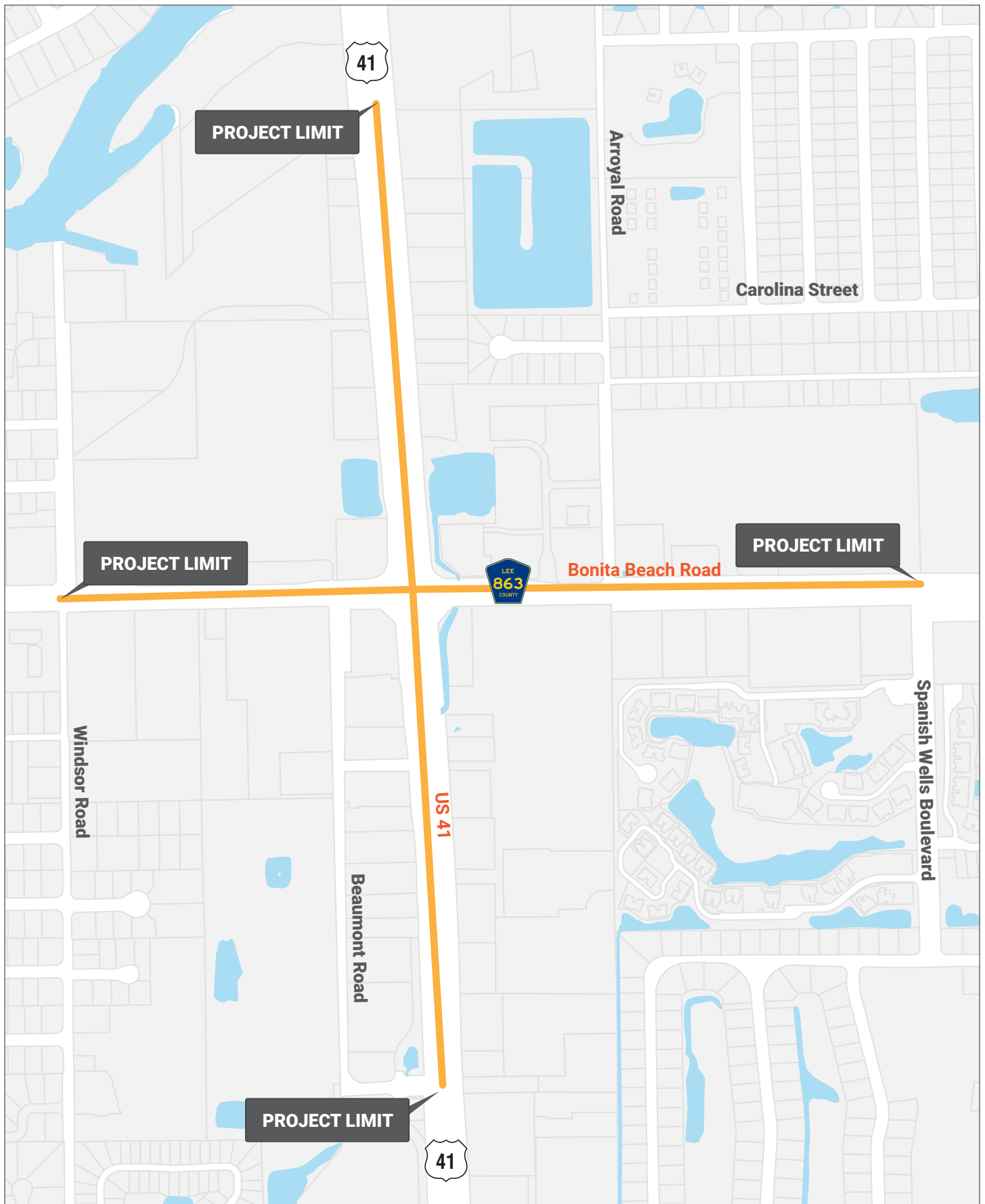
The project location is shown in **Figure 1** and the study area is shown in **Figure 2**.



US 41 at Bonita Beach Road PD&E Study

FPID 444321-1-22-01

Figure 1 | Project Location



US 41 at Bonita Beach Road PD&E Study

FPID 444321-1-22-01

Scale in Feet
0 700 North

Figure 2 | Study Area

2. Purpose & Need

The purpose of this project is to address the deficient operational capacity of the US 41 and Bonita Beach Road intersection to relieve existing congestion and accommodate projected future traffic demand. The project's secondary goals are to 1) Enhance regional and local mobility; 2) Enhance safety conditions; and 3) Improve multi-modal access. The need for these improvements is described in this section.

2.1 TRANSPORTATION DEMAND/CAPACITY

The US 41 at Bonita Beach Road intersection experiences chronic congestion. As population and employment growth are expected to continue within this area of Lee County, the intersection's congestion is anticipated to increase. Based on 2019 traffic counts taken, the existing Annual Average Daily Traffic (AADT) ranges from 39,000 to 53,000 along US 41 and was 30,000 along Bonita Beach Road. Based on future growth projections to a 2050 design year, the AADTs are forecast to range from 60,000 to 78,000 along US 41. The future 2050 AADT forecast along Bonita Beach Road is 39,000.

The existing (2019) mid-day traffic analysis for the US 41 at Bonita Beach Road intersection shows that six of the 12 movements operate at Level of Service (LOS) of F, with one of those being overcapacity (volume-to-capacity > 1.0). The existing (2019) PM traffic analysis for the intersection shows that seven of the 12 movements operate at Level of Service (LOS) of F, with two of those being overcapacity. In the future 2050 condition, the no-build intersection operates at LOS F with an overall average vehicle delay between 85 and 92 seconds. While there are a similar number of LOS F movements between the existing and future no-build, latent demand is expected to increase by nearly 30 percent. The future no-build intersection is serving approximately the same amount of traffic volume as the existing condition but with the increased volumes, there are more vehicles in the overall network not being served.

2.2 SAFETY

Crash records were obtained for both US 41 and Bonita Beach Road within the study area, as described below:

- US 41 from Foley Road (MP 0.540) to the Imperial River bridge (MP 1.482); and
- Bonita Beach Road from 400' west of Windsor Road to 450' east of Spanish Wells Boulevard.

Crash data was obtained for the most recent five-year period on record (2018 through 2022). The crash data was obtained from the University of Florida's Signal Four (S4) Analytics crash database for US 41 and Bonita Beach Road. The safety analysis was performed for the most recent five years of crash data (January 1, 2018 – December 31, 2022). Supplemental crash data from previous years (2014 to 2017) and January 1, 2023 to June 30, 2023 were also analyzed to verify crash trends and patterns.

Figure 3 displays a summary of crash frequency by year along with the respective severities from 2014 to 2022. There was an increase in crashes between 2014 and 2017, but there has been a decrease in crashes between 2017 and 2019 before an approximate 30 percent drop in crashes due to the COVID-19 pandemic in 2020. The number of crashes have stayed relatively constant in 2021 and 2022. There were 163 crashes per year on average between 2014 to 2017. However, there were 146 crashes per year on average in the study area between 2018 to 2022, not including 2020 (a 10 percent decrease). The fatal crash in 2019 involved a vehicle striking a pedestrian on US 41 just south of Bonita Beach Road, and the fatal crash in 2021 involved an angle crash at the intersection of US 41 at Foley Road/Shanna Lane.

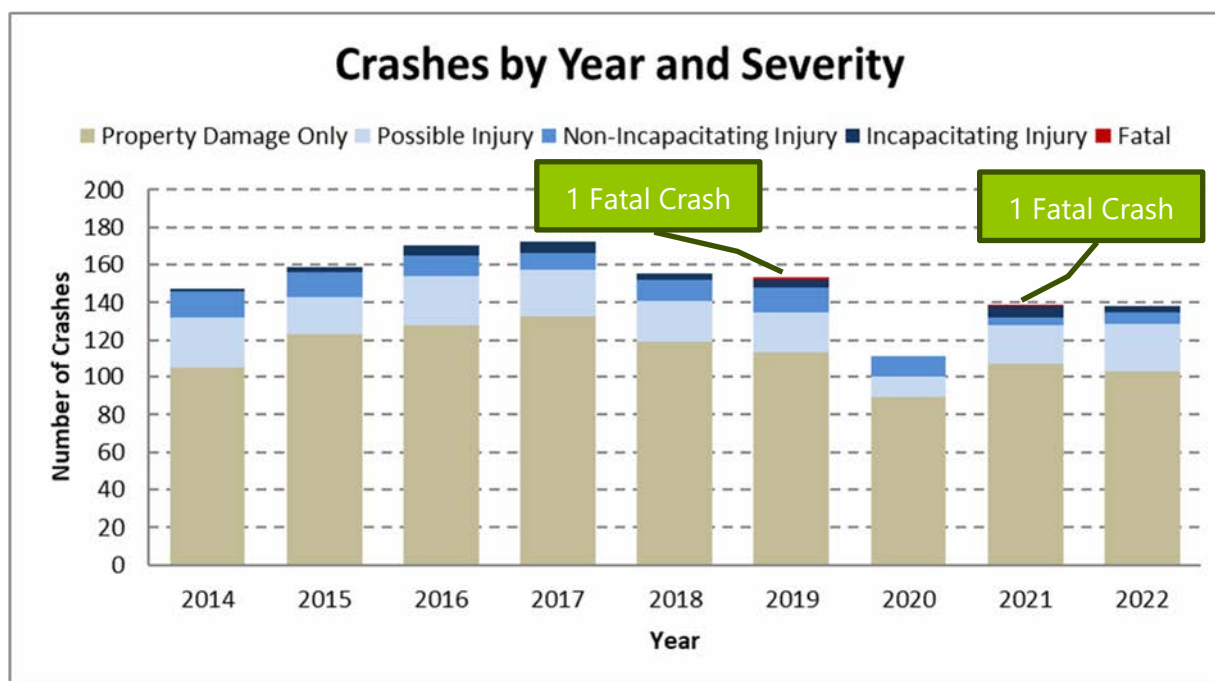


Figure 3: Crashes per Year (Entire Study Area)

Forty three percent of the total study area crashes were located within the intersection influence area of US 41 and Bonita Beach Road. **Figure 4** displays a summary of crash frequency by year along with the respective severities from 2018 to 2022. There was a total of 298 reported crashes during this period, 65 injury crashes (22 percent), and one fatal crash (in 2019). As displayed in **Figure 4**, there were an average of 60 crashes per year at the intersection.

Figure 5 displays the crashes at the intersection by type and severity for the five-year study period. The highest crash type observed was rear end, comprising 59 percent of the total crashes. Sideswipe crashes (13 percent) and left turn (8 percent) were the second and third highest crash types. These trends are consistent with the overall study area. The fatal crash in 2019 occurred when a vehicle struck a pedestrian crossing US 41.

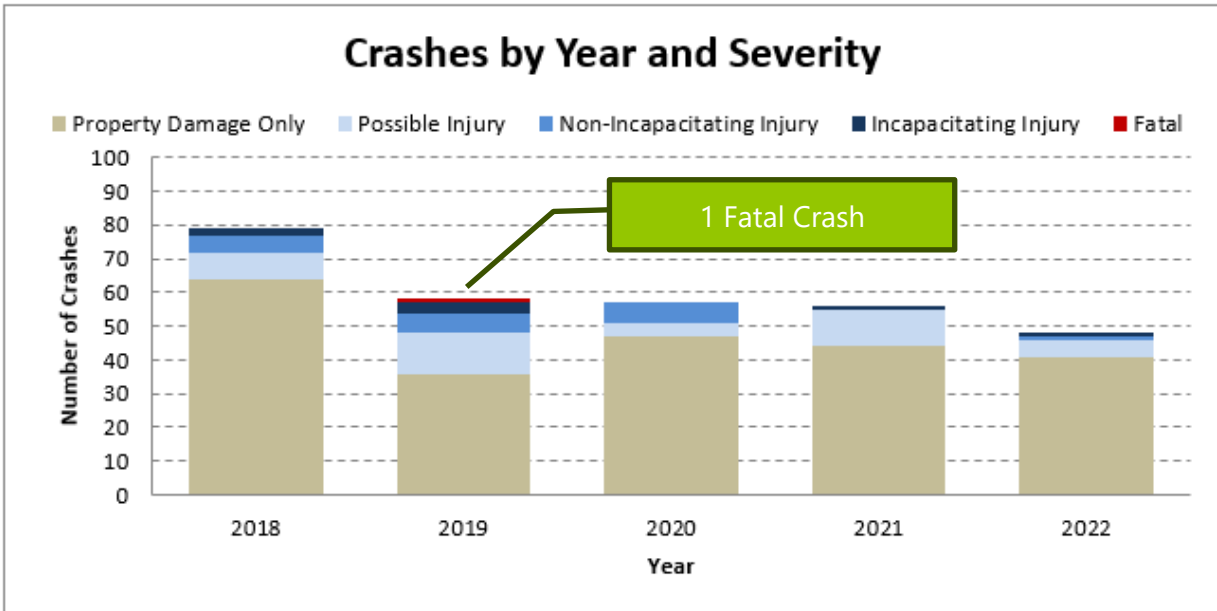


Figure 4: Crashes per Year (US 41 and Bonita Beach Road Intersection)

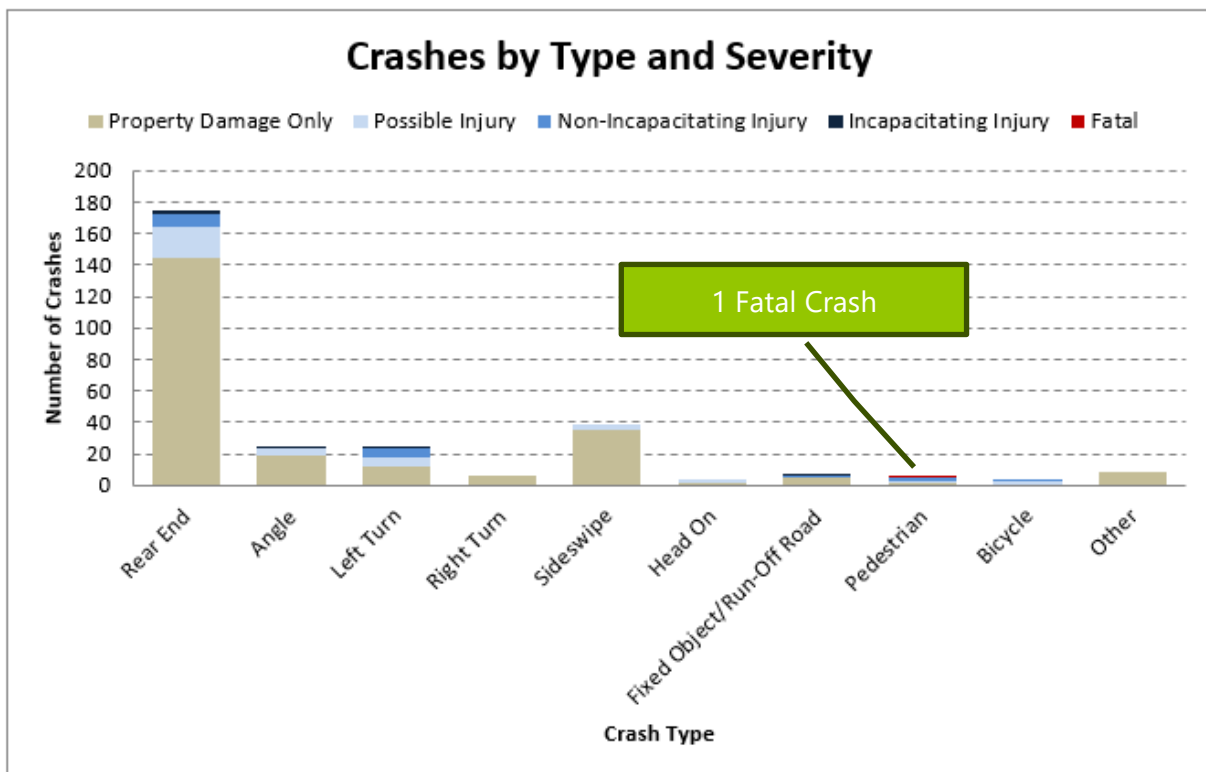


Figure 5: Crashes by Type and Severity (US 41 and Bonita Beach Road Intersection: 2018 to 2022)

A crash rate analysis was performed for the US 41 at Bonita Beach Road intersection. Note that as 2020-2022 average crash rates are not yet available, crash rate analyses were limited to 2018 and 2019 data. Based on the analysis, the study intersection experienced higher than average crash

rates in both 2018 and 2019 when compared to both Statewide and Districtwide average crash rates.

US 41 and Bonita Beach Road are designated emergency evacuation routes for both the Florida Division of Emergency Management and Lee County. Providing parallel service to I-75, US 41 plays an important role in facilitating north-south traffic during incidences and emergency evacuation periods (particularly within southwest Florida). Bonita Beach Road also serves a critical role during emergency evacuation periods as it connects US 41 and I-75 (facilities of the state evacuation route network) and provides one of two connections for residents and tourists between the barrier islands/tourist destinations to the west and mainland of Lee County.

2.3 MODAL INTERRELATIONSHIPS

While sidewalks are present on both sides of US 41 and Bonita Beach Road, the only bicycle facilities present in the study area are 5' marked bicycle lanes along both sides of US 41. Two LeeTran bus routes (Routes 150 and 600) operate along US 41 and Bonita Beach Road. In addition to the two bus routes, LeeTran has partnered with Uber to provide ULTRA On-Demand Transit service in the Bonita Springs area. With LeeTran's ULTRA On-Demand Transit service is a deluxe mini-bus available seven days a week from 7:00 AM to 6:00 PM. ULTRA On-Demand Transit allows riders to request a ride as needed, with curb to curb service.

Due to the presence of these facilities/services and the surrounding urban environment, heavy pedestrian and bicycle traffic exists in the area (as observed during field reviews conducted for the project).

The Office of Greenways and Trails (OGT) and the Lee County Metropolitan Planning Organization (MPO) have identified trail opportunities in the vicinity of the US 41 and Bonita Beach Road study intersection. The Coastal Loop Trail is a spur loop from the Southwest Coastal Regional Trail, which is part of the larger FDOT Shared-Use Nonmotorized (SUN) Trail Program. This is a planned loop trail that begins at the Southwest Coastal Regional Trail in Bonita Springs, travels along Bonita Beach Road to the barrier islands, then travels through Fort Myers Beach and southern Fort Myers before connecting back to the Southwest Coastal Regional Trail east of US 41 in Fort Myers. Through discussions with Lee County MPO, no future funding has been dedicated for Coastal Loop Trail improvements in the vicinity of the US 41 and Bonita Beach Road intersection as per the date of this report.

2.4 SYSTEM LINKAGE

US 41 serves as a critical arterial in facilitating the north-south movement of regional and local traffic (including truck traffic) as it runs parallel to I-75 along Florida's west coast. Similarly, Bonita Beach Road serves as a major east-west local roadway within Lee County, linking US 41 and I-75 and providing access (as one of two connections) between the mainland of Lee County and coastal communities/tourist destinations to the west (i.e., barrier islands and beaches).

The City of Bonita Springs performed the Network Enhancement Alignment Study, also known as the "Quadrant Plan", in May 2017. The purpose of the Quadrant Plan is to develop an expanded roadway network between Bonita Beach Road with US 41 that improves the area's mobility, maintains a high-quality environment for the community, and minimizes impacts to the natural environment. The City is moving forward with design and construction for a northwest quadrant roadway.

3. Alternatives Analysis Summary

3.1 PRIOR GRADE SEPARATED ALTERNATIVE

During the preliminary alternatives analysis efforts in 2020, a single point diamond interchange (SPDI) was one of two alternatives being considered (along with the PDLT). The SPDI alternative assumes the northbound and southbound through lanes on US 41 are elevated over Bonita Beach Road. Turning movements for US 41 and Bonita Beach Road occur at a single intersection underneath the US 41 overpass. To allow access to local businesses, through movements on the US 41 ramps were allowed. The US 41 overpass begins between the two access points for Springs Plaza on the south side of Bonita Beach Road and ends north of the Crown Lake Boulevard intersection to the north. Access to any minor streets along the US 41 ramps are maintained as intersections with the US 41 ramps only.

The SPDI alternative was reviewed as part of the Stage 1 Intersection Control Evaluation. During this evaluation, a new development was approved with their primary access to US 41 occurring at the Center of Bonita Springs signalized intersection via the northwest quadrant roadway. The overpass' ramps would tie-in to US 41 north of this location and convert the Center of Bonita Springs intersection into a right-in/right-out configuration. With this new development needing full access to US 41 at the Center of Bonita Springs, the SPDI alternative was removed from consideration and an enhanced at-grade traffic signal was reviewed (as discussed in the next section).

3.2 INTERSECTION ALTERNATIVES

Two intersection alternatives were developed to support the US 41 at Bonita Beach Road purpose and need:

- Alternative A – Enhanced Traffic Signal (**Figure 6**)
 - o Widens US 41 to eight lanes from Foley Road to the southern end of the Imperial River bridge.
 - o Provides additional turn lane improvements to the existing signalized intersection.
- Alternative B – Partial Displaced Left Turn (**Figure 7**)
 - o Northbound and southbound left turn movements are relocated to the outside of the opposing flow of traffic, allowing the northbound and southbound left turning movements to operate in the same signal phase as the northbound and southbound through movements.
 - o Two new signalized “crossover” intersections are proposed along US 41 approximately 675’ south and 460’ north of Bonita Beach Road to allow left turning vehicles to cross to the other side of the opposing flow.
 - o The southbound and eastbound left turn movements are proposed to have three lanes each.

- o The eastbound and westbound right turn movements are proposed to have two lanes each.

The intersection alternatives were developed using design provisions from the FDOT Design Manual (FDM). Each of the proposed intersection alternatives were applied along US 41 from Sta. 221+19 to Sta. 271+81 and along Bonita Beach Road from Sta. 254+57 to Sta. 300+33.

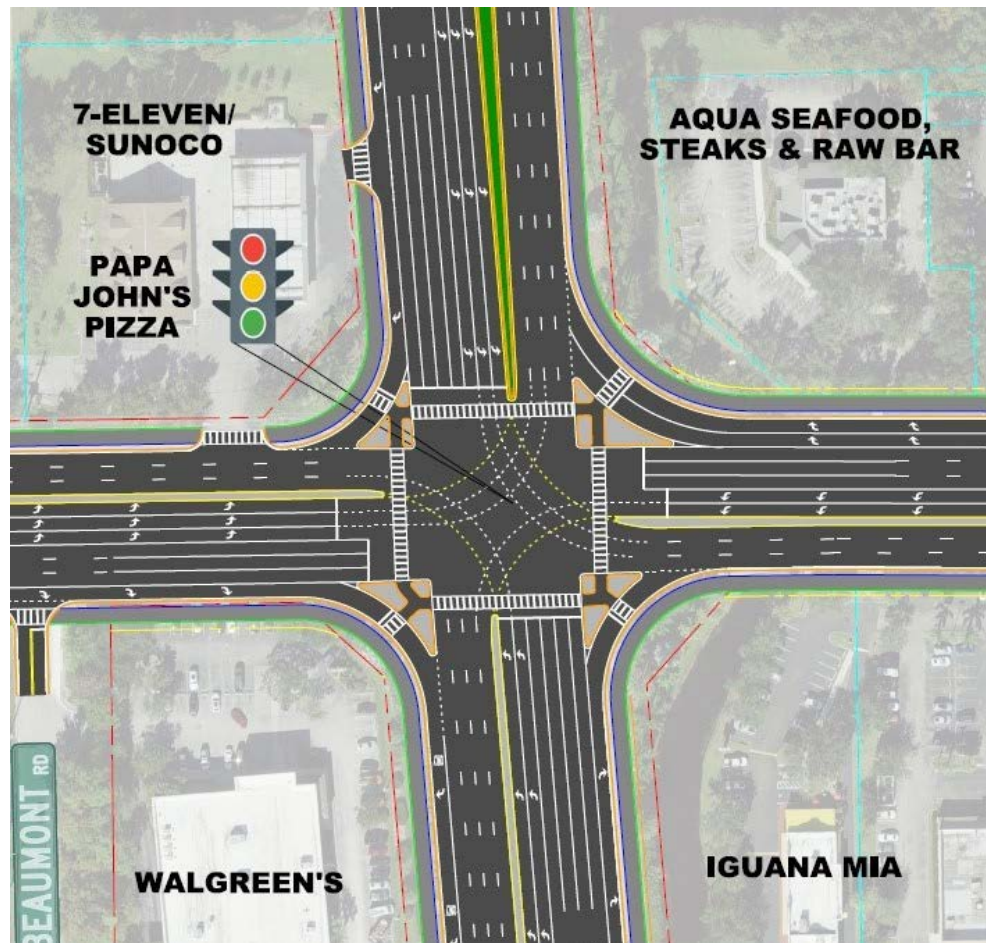


Figure 6: Alternative A – Enhanced Traffic Signal



Figure 7: Alternative B – Partial Displaced Left Turn

3.3 OTHER US 41 IMPROVEMENTS (OUTSIDE OF MAIN INTERSECTION)

Alternative A – Enhanced Traffic Signal

For Alternative A, US 41 is proposed to be modified based on the following:

- Adding a fourth travel lane in each direction and reducing the lane widths to 11':
 - o Additional northbound travel lane will start just north of Foley Road (Sta. 223+50) and end at the driveway for the Imperial River Boat Ramp (Sta. 270+00).
 - o The additional southbound travel lane will start at Sta. 265+00 (halfway between the Imperial River Boat Ramp driveway (Sta. 270+00) and the US 41/Center of Bonita Springs intersection (Sta. 260+00)) and end at the Foley Road intersection (Sta. 222+75).
- A 12' shared-use path is proposed on both sides of US 41 in lieu of the on-street bicycle facilities:
 - o In the northbound direction from Springs Plaza (Sta. 232+50) to just north of the Imperial River Boat Ramp (Sta. 271+00).
 - o In the southbound direction from just north of the Imperial River Boat Ramp (Sta. 271+00) to Bonita Funeral Home (Sta. 231+00).
- A 7' on-street buffered bicycle lane is proposed on the south end of the corridor:
 - o In the northbound direction from Foley Road (Sta. 222+75) to just north of Springs Plaza (Sta. 234+50).
 - o In the southbound direction from Bonita Funeral Home (Sta. 231+00) to Foley Road (Sta. 222+75).
- A 6' sidewalk is proposed on the south end of the corridor:
 - o In the northbound direction from Foley Road (Sta. 222+75) to Springs Plaza (Sta. 232+50).
 - o In the southbound direction from Bonita Funeral Home (Sta. 231+00) to Foley Road (Sta. 222+75).

A graphic depiction of the roadway features for Alternative A is shown in **Figure 8** below.

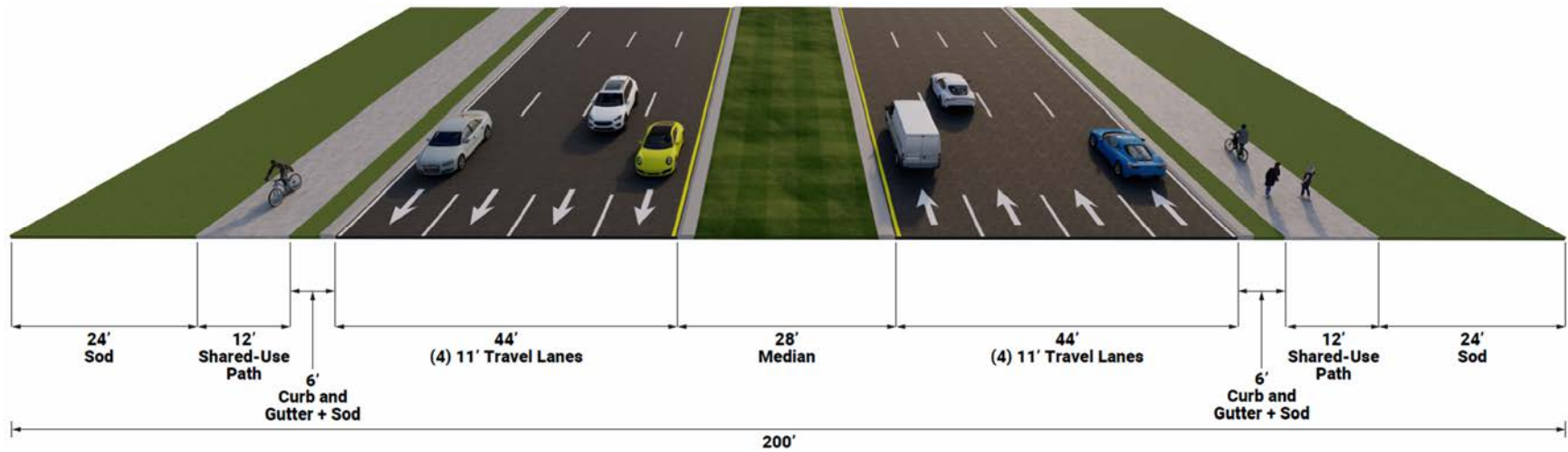


Figure 8: Alternative A US 41 Roadway Features

Alternative B – Partial Displaced Left Turn

For Alternative B, the northbound and southbound left turn movements will be relocated outside of the opposing flow of traffic. This configuration will allow the northbound and southbound left turning movements to operate in the same signal phase as the northbound and southbound through movements. To accommodate the Alternative B configuration and facilitate the relocation of northbound and southbound turning vehicles, two new signalized “crossover” intersections will be added along US 41 approximately 675’ south and 460’ north of Bonita Beach Road (as shown in **Figure 7**). The following features detail the improvements proposed as part of the new “crossover” intersections:

- Between Foley Road (Sta. 222+75) and southern “crossover” intersection (Sta. 239+00):
 - o Three 11’ northbound and southbound through lanes.
- Between southern “crossover” intersection (Sta. 239+00) and US 41 and Bonita Beach Road intersection (Sta. 246+00) (described from right side to left side across US 41 and shown in **Figure 9**):
 - o Exclusive 11’ northbound right turn lane.
 - o Three 11’ northbound and southbound through lanes.
 - o Dual 11’ northbound exclusive left turn lanes positioned outside of the southbound through lanes.
 - o Dual 11’ eastbound to southbound exclusive right turn lanes positioned outside of the northbound left turn lanes.
- Between US 41/Bonita Beach Road intersection (Sta. 246+00) and northern “crossover” intersection (Sta. 251+00) and (described from right side to left side across US 41):
 - o Dual 11’ westbound to northbound exclusive right turn lanes positioned outside of the southbound left turn lanes.
 - o Triple 11’ southbound exclusive left turn lanes positioned outside of the northbound through lanes.
 - o Three 11’ northbound and southbound through lanes.
 - o Exclusive 11’ southbound right turn lane.
- Between northern “crossover” intersection (Sta. 251+00) and US 41/Center of Bonita Springs intersection (Sta. 260+00):
 - o Four 11’ northbound through lanes.
 - o Three 11’ southbound through lanes.
- Between US 41 and Center of Bonita Springs intersection (Sta. 260+00) and the Imperial River Boat Ramp (Sta. 266+50):
 - o Four 11’ northbound through lanes (outside lane drops at the Imperial River Boat Ramp).
 - o Three 11’ southbound through lanes (a fourth “auxiliary” lane begins at Sta. 265+00 that drops into the triple southbound left turn lanes).

- A 12' shared-use path is proposed on both sides of US 41 in lieu of the on-street bicycle facilities:
 - o In the northbound direction from Springs Plaza (Sta. 232+50) to just north of the Imperial River Boat Ramp (Sta. 271+00).
 - o In the southbound direction from just north of the Imperial River Boat Ramp (Sta. 271+00) to just south of Access Road (Sta. 237+00).
- A 7' on-street buffered bicycle lane is proposed on the south end of the corridor:
 - o In the northbound direction from Foley Road (Sta. 222+75) to just north of Springs Plaza (Sta. 234+50).
 - o In the southbound direction from just south of Access Road (Sta. 237+00) to Foley Road (Sta. 222+75).
- A 6' sidewalk is proposed on the south end of the corridor:
 - o In the northbound direction from Foley Road (Sta. 222+75) to Springs Plaza (Sta. 232+50).
 - o In the southbound direction from just south of Access Road (Sta. 237+00) to Foley Road (Sta. 222+75).

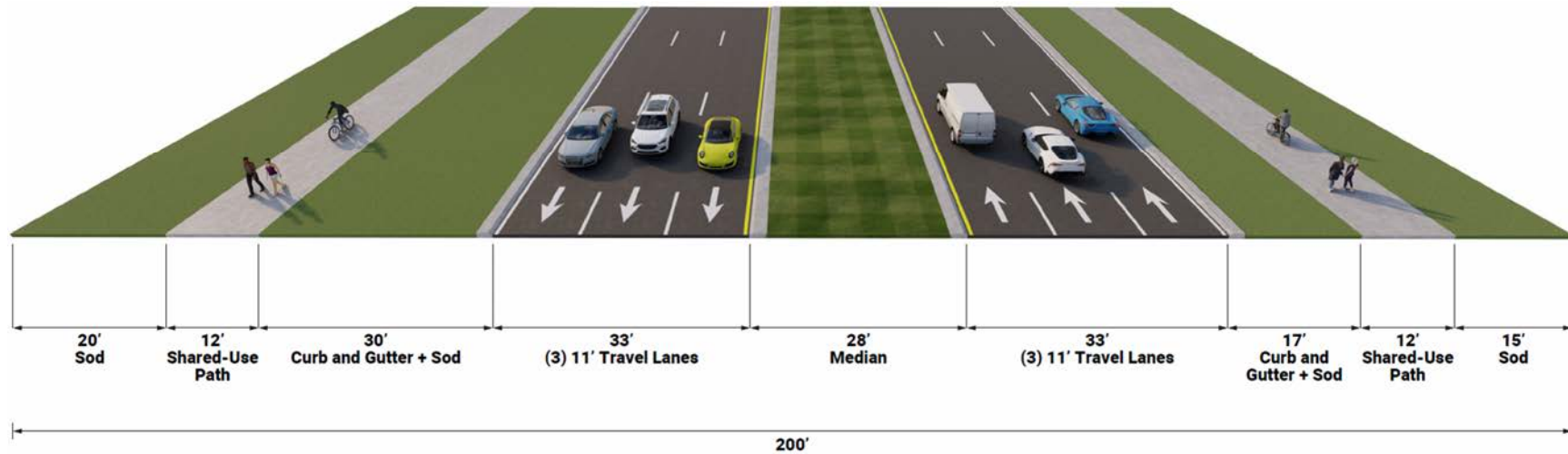


Figure 9: Alternative B US 41 Roadway Features

4. Description of Preferred Alternative

4.1 PREFERRED INTERSECTION CONTROL ALTERNATIVE

The purpose of this project is to address the deficient operational capacity of the US 41 and Bonita Beach Road intersection to relieve existing congestion and accommodate projected future traffic demand. The project's secondary goals are to 1) Enhance regional and local mobility; 2) Enhance safety conditions; and 3) Improve multi-modal access.

Alternatives A (Enhanced Traffic Signal) and B (PDLT) were presented at the Alternatives Public Workshop conducted virtually on Monday April 3 and in-person on Tuesday April 4, 2023. Following the workshop, feedback was gathered from members of the public for both alternatives. The majority of public comments received expressing support for Alternative B, PDLT. Alternative B was favored as it does not add through lanes along US 41, was viewed as being more operationally efficient, and provided better pedestrian and bicyclist safety. These alternatives were also presented to the Lee County MPO on June 16, 2023 and the public support for the PDLT alternative was documented with the MPO Board.

Discussions were held with FDOT District 1 after the Alternatives Public Workshop and it was determined Alternative B – PDLT best aligns with the purpose and need of the project and was selected as the preferred alternative. The following bullets summarize how the PDLT recommendation meets the primary and secondary purpose and need goals noted above:

- Transportation Demand/Capacity
 - o In the 2050 future build condition, the average network delay for vehicles traveling through the PDLT is approximately 50 percent less than the No-Build Alternative.
 - o The number of vehicles served by the PDLT in 2050 is approximately 20 percent higher than the No-Build Alternative.
 - o The PDLT is anticipated to improve average vehicle delay by over 45 seconds in both the 2050 mid-day and PM peak hours when compared to the No-Build Alternative.
- Safety
 - o Using the predictive safety analysis methods provided in the FDOT Safety Performance for Intersection Control Evaluation (SPICE) Tool, the PDLT intersection is predicted to decrease total and fatal/injury crashes by over 10 percent vs the No-Build Alternative over the 20 year life cycle from 2030 to 2050.
 - o Increase the volume of residents and tourists from coastal communities that can be evacuated during an emergency event by improving intersection operations of two major evacuation routes.
 - o Enhance access to facilities of the state evacuation route network.
 - o Improve response times (due to enhanced access) to emergency events and incidences.

- Modal Interrelationships
 - o Sidewalks in the study area are proposed to be widened to 12' shared-use paths along both sides of US 41 and Bonita Beach Road.
 - o These shared-use paths will improve pedestrian/bicycle access and circulation by modifying/limiting opportunities for conflicts between automobiles and pedestrians/bicyclists.
 - o The 12' shared-use path improvements proposed as part of the PDLT would help further enhance the future vision of the Coastal Loop Trail in the study area.
 - o Additional median and concrete traffic separators are included in the PDLT concept to provide pedestrian refuge areas and better facilitate non-motorist crossings.
 - o The PDLT will also enhance the performance and reliability of transit service operating along US 41 and Bonita Beach Road by reducing delays at the intersection.
- System Linkage
 - o Improve the viability of US 41 as a regional alternative facility to I-75 by reducing travel delay.
 - o Enhance east-west access between two primary north-south transportation corridors (US 41 and I-75) as well as between the mainland of Lee County and coastal communities/tourist destinations to the west.
 - o Enhance freight mobility and access within the area as US 41 is designated as regional freight mobility corridor (Tier 1 Regional Freight Corridor) in the Lee County 2045 Long Range Transportation Plan.
 - o The proposed PDLT improvements will support local system linkage planning efforts by providing a Northeast Quadrant Roadway connecting US 41 to Arroyal Road.

The preferred alternative concept plans can be found in **Appendix I** of the *US 41 at Bonita Beach Road PD&E Preliminary Engineering Report*.

4.2 PREFERRED ALTERNATIVE FEATURES

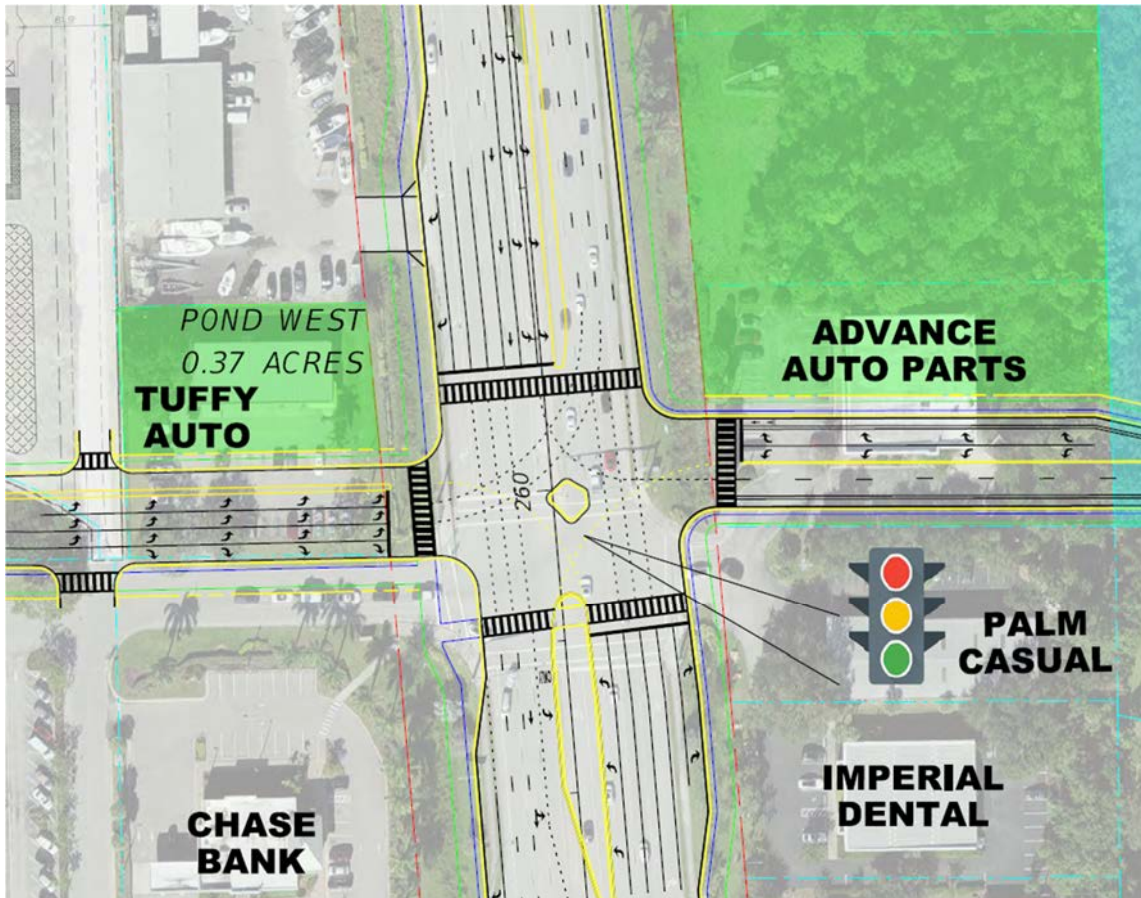
The following highlights the key improvement elements within the US 41 at Bonita Beach Road intersection area for Alternative B:

US 41

The proposed roadway/intersection improvements discussed in **Section 1** and **0** were brought forward as part of the preferred alternative design. Outside of the main US 41 and Bonita Beach Road intersection and "crossover" locations, additional intersection improvements are included as part of the preferred alternative:

- Signalization and turn lane improvements at the intersection of US 41 and Foley Road (Sta. 222+75).
- Modified "thru-cut" signalized intersection at US 41 and Center of Bonita Springs (Sta. 260+00) as shown in **Figure 10**:

- o A thru-cut intersection restricts through movements from the minor street typically due to operational and/or geometric conditions. In this case, the west leg is being widened from two lanes to five lanes (four eastbound approach lanes and one westbound receiving lane) and the east leg is being widened from two lanes to four lanes (two westbound approach lanes and two eastbound receiving lanes).
- o Dual southbound left turn lanes are also proposed in the new thru-cut configuration.



**Figure 10: US 41/Center of Bonita Springs “Thru-Cut” Intersection
Bonita Beach Road**

The following roadway improvements are proposed along Bonita Beach Road as part of the preferred alternative:

- Three 11' travel lanes in each direction from the Center of Bonita Springs (Sta. 266+50) to Arroyal Road (Sta. 286+25). The third eastbound through lane drops at the Spanish Wells Boulevard signal.
- Widening the sidewalk to be a 12' shared-use path on both sides from the Center of Bonita Springs (Sta. 266+50) to Arroyal Road (Sta. 286+25).

At intersections along Bonita Beach Road, the following features are included are part of the preferred alternative:

- Bonita Beach Road at Center of Bonita Springs (Sta. 266+50):
 - o Develop a third 11' eastbound travel lane departing intersection.
- Bonita Beach Road at Arroyal Road (Sta. 286+25):
 - o One additional 11' eastbound through lane (will be a shared through/right configuration).
 - o Develop a third 11' westbound travel lane departing intersection.
 - o The southbound approach will be modified to include two southbound left turn lanes and one southbound shared through/right turn lane.

Quadrant Roadway System

A new Northwest Quadrant Roadway from Bonita Beach Road at Windsor Road (Bonita Beach Road Sta. 260+00) to US 41 at the Center of Bonita Springs (US 41 Sta. 260+00) will be constructed by the City of Bonita Springs before the preferred alternative is planned to be constructed at the US 41 and Bonita Beach Road intersection. The following features describe the Northwest Quadrant Roadway improvements as shown in **Figure 11**:

- Intersection of Bonita Beach Road and Windsor Road (Bonita Beach Road Sta. 260+00):
 - o An eastbound displaced left turn to the Northwest Quadrant Roadway with a new crossover intersection just west of Windsor Road.
 - o The southbound approach from Windsor Road will be widened to two lanes.
 - o An exclusive westbound right turn lane will be added.
- Along Windsor Road:
 - o Two southbound lanes and one northbound lane.
 - o 6' sidewalk on the west side and 12' shared-use path on the east side of the roadway.
- Along New Roadway between Windsor Road and the Northwest Corner of the Center of Bonita Springs Shopping Plaza:
 - o One 11' travel lane in each direction.
 - o 4' paved shoulders in each direction.
 - o 6' sidewalk on the west side and 12' shared-use path on the east side of the roadway.

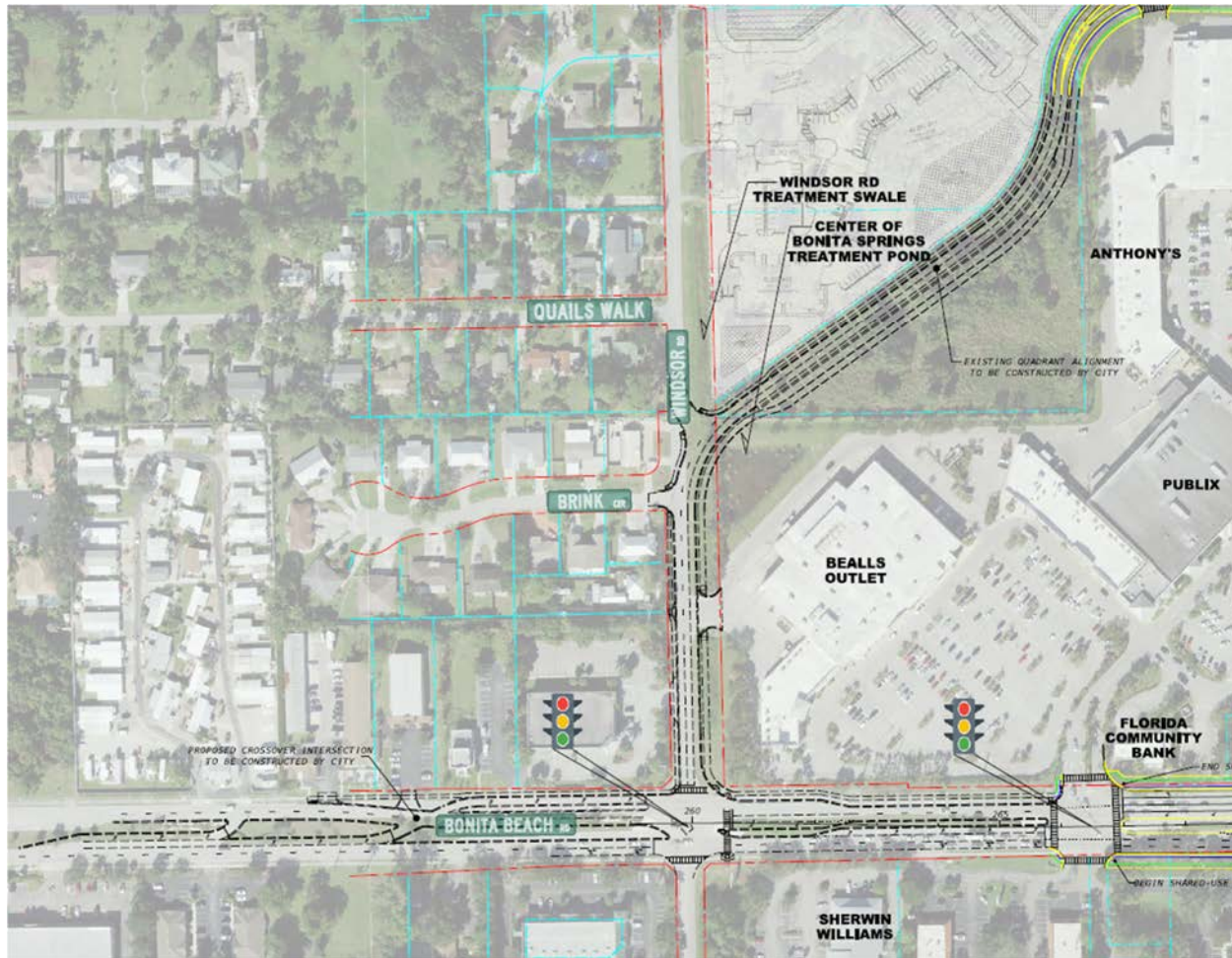


Figure 11: Northwest Quadrant Roadway – Proposed City Alignment

The design concept for the City's Northwest Quadrant Roadway ties in at the existing US 41/Center of Bonita Springs intersection and is not making any improvements to this intersection. In the future condition, this intersection will not have enough capacity to accommodate the forecasted traffic demand, necessitating additional turn lane improvements on the intersection's west leg. As part of the preferred alternative, the Northwest Quadrant Roadway is being modified from the northwest corner of the Center of Bonita Springs Shopping Plaza to US 41. These changes are described below and shown in **Figure 12**:

- Northwest Corner of the Center of Bonita Springs Shopping Plaza to US 41:
 - o Roadway is widened to develop a center median with varying width.
 - o One 11' travel lane in each direction.
 - o 6' sidewalk on the north side of the roadway.
 - o 12' shared-use path on the south side of the roadway.
 - o New 11' westbound left turn lane into Center of Bonita Springs behind the Old Time Pottery building.
- West Leg at US 41 Intersection:
 - o One 11' eastbound right turn lane.

- o Three 11' eastbound left turn lanes.
- o One 11' westbound receiving lane.

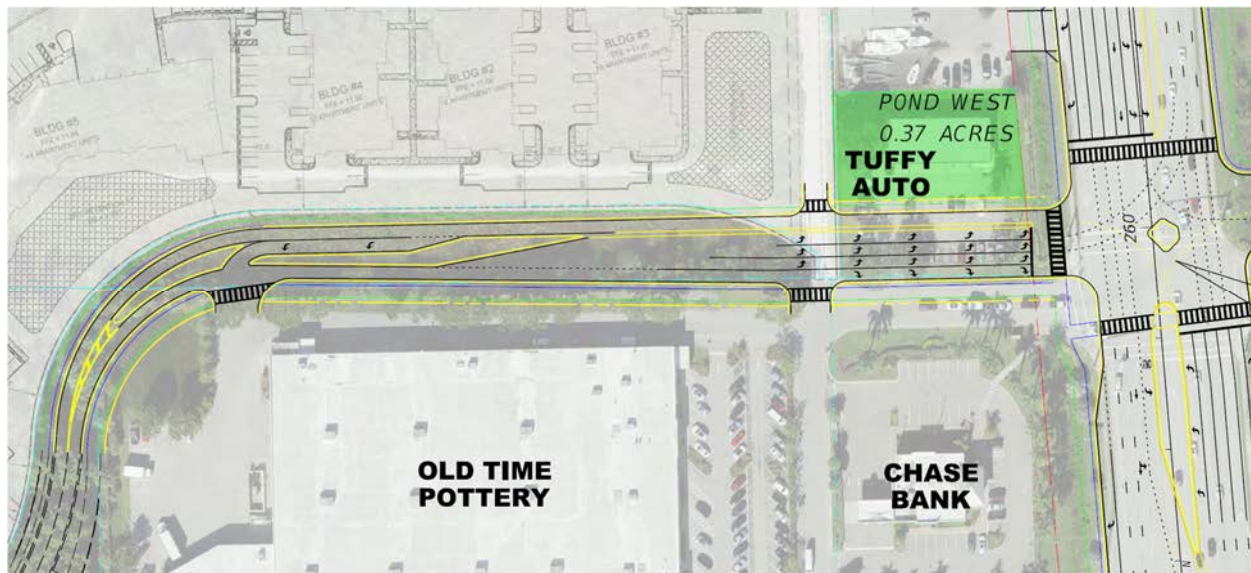


Figure 12: Northwest Quadrant Roadway – West Leg at US 41

Tying into the east leg of this intersection is a Northeast Quadrant Roadway proposed between US 41 and Arroyal Road, intersecting at Arroyal Road and Carolina Street. This will be a new three-lane roadway with two lanes eastbound and one lane westbound, as shown in **Figure 13**. The lane configuration at the US 41 intersection is discussed below:

- One 11' westbound left turn lane.
- One 11' westbound right turn lane.
- Two 11' eastbound receiving lanes.

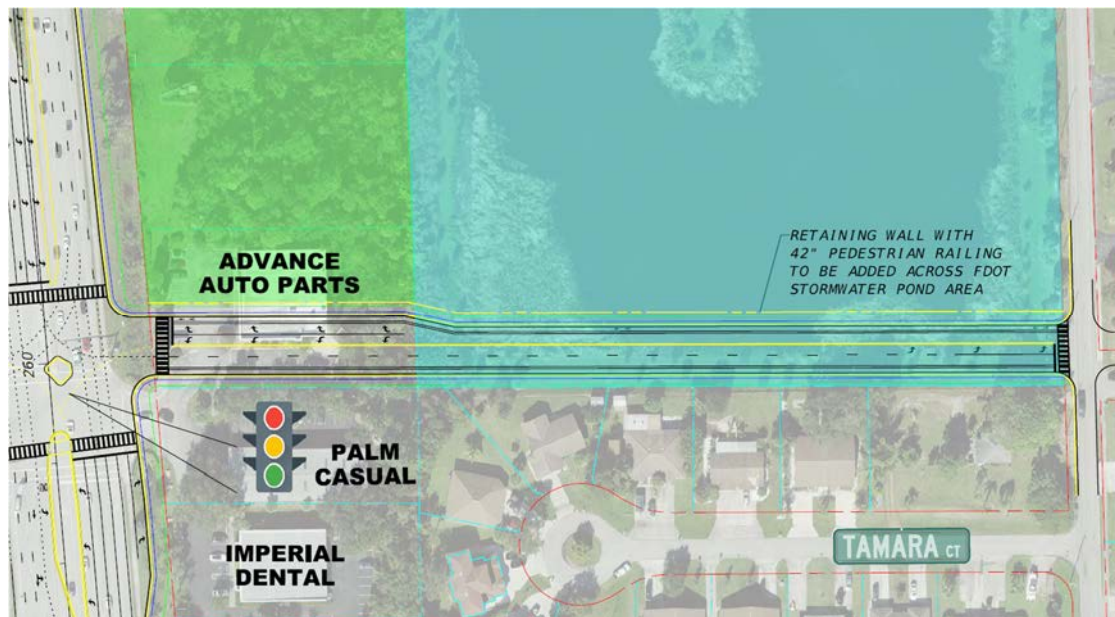


Figure 13: Northeast Quadrant Roadway – East Leg at US 41

SECTION 4 – Description of Preferred Alternative

Table 1 lists the existing and proposed right of way widths needed to accommodate the Preferred Alternative; Table 2 lists the right-of-way needed for the project.

Table 1: Existing and Proposed Right-of-Way Widths

From	To	Stationing	Length (Miles)	Existing ROW Width (Feet)	Proposed ROW Width (Feet)
US 41					
Foley Road	625' South of Bonita Beach Road	222+75 to 240+00	0.33	200	200
625' South of Bonita Beach Road	Bonita Beach Road	240+00 to 246+26	0.12	200	208
Bonita Beach Road	475' North of Bonita Beach Road	246+26 to 251+00	0.09	200	245
475' North of Bonita Beach Road	230' South of Imperial River bridge	251+00 to 270+00	0.36	Varies 210 to 220	Varies 210 to 220
Bonita Beach Road					
Windsor Road	560' West of US 41	260+53.4 to 271+25.4	0.20	Varies 112 to 125	Varies 112 to 152
560' West of US 41	50' West of Arroyal Road	271+25.4 to 285+85	0.28	Varies 104 to 145	Varies 140 to 175
50' West of Arroyal Road	Spanish Wells Boulevard	285+85 to 301+00	0.29	160	160

* Additional right-of-way details are provided in the *Preliminary Engineering Report*.

Table 2: ROW Needs

Limits	Parcels Impacted	ROW Acreage	Pond + FPCA Acreage	Total ROW Acreage	Total ROW Cost Estimate
Displaced Left Turn Lane (Roadway Only)	18	3.5	0.0	3.5	\$13,600,000
Pond West	1	0.0	0.4	0.4	\$1,900,000
Pond North Expansion	4	0.0	3.7	3.7	\$5,400,000
Pond East (Alt. 2)	1	0.0	0.8	0.8	\$1,200,000
Totals	24	3.5	4.9	8.4	\$22,100,000

* Additional right-of-way details are provided in the *Preliminary Engineering Report*.

5. Relocation Synopsis

The purpose of this Conceptual Stage Relocation Plan (CSRP) is to identify community characteristics, analyze the impact of the project on the community, and identify residences and businesses that would be impacted by the project and any special relocation needs.

The community characteristics are determined by analyzing and comparing the demographics of the County and project study area. The project study area for the CSRP is defined by the Census Block Groups adjoining the Preferred Alternative alignment. The American Community Survey (ACS) is the source for the baseline demographic data used in developing this CSRP. **Figure 14** shows a map of the Block Groups along the study corridor.

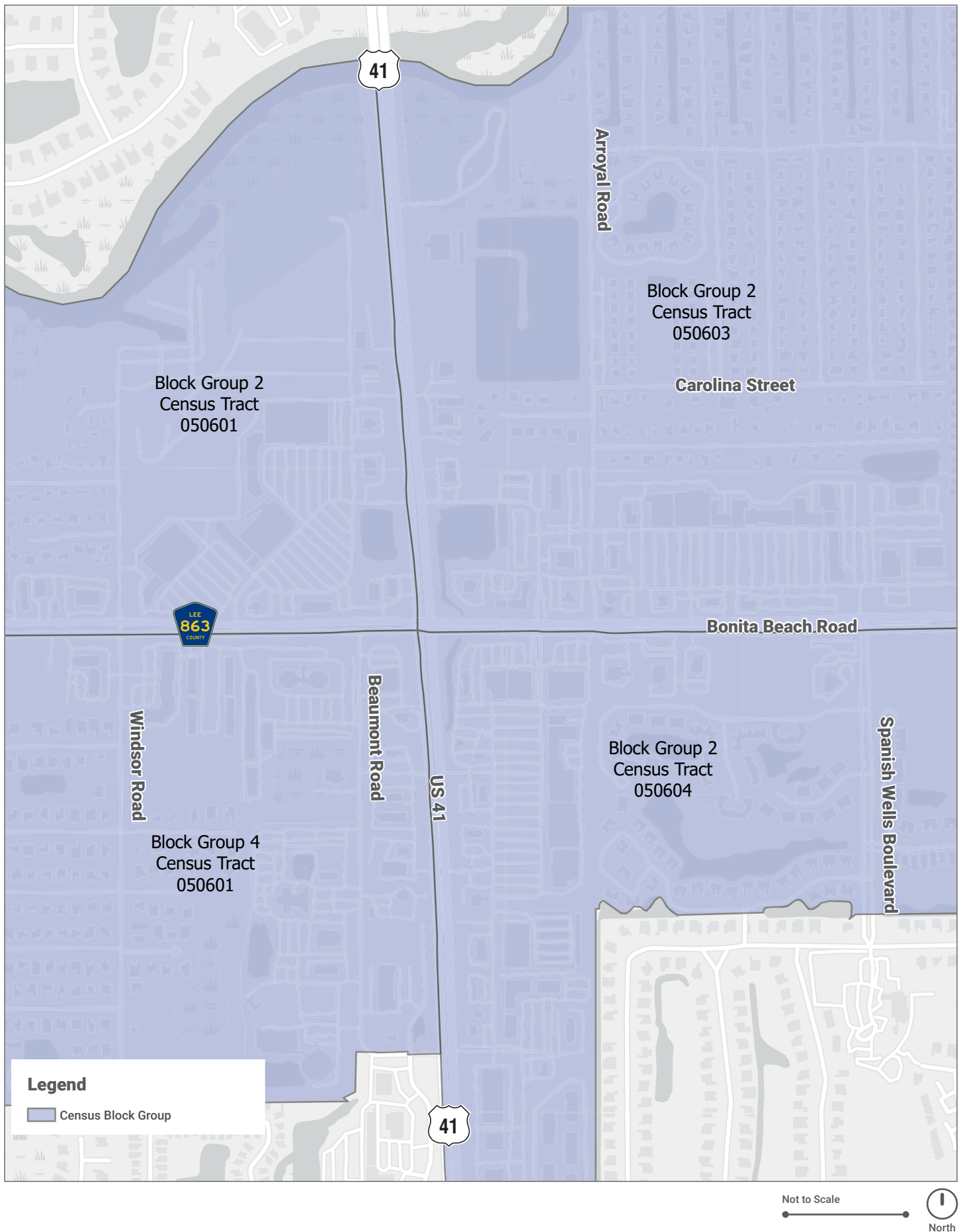
The demographic information that was analyzed includes: total population, racial and ethnic composition, elderly population, educational attainment, income, occupancy, and housing costs. This information allows for comparisons that provide reasonable representation of community impacts. Although efforts were made to minimize the impact of the proposed project on existing land uses, two (2) business displacements are anticipated to accommodate the proposed improvements and associated right-of-way acquisition. For those acquisitions that are unavoidable, relocation and financial assistance will be provided by FDOT to the displaced businesses and residents.

5.1 DEMOGRAPHICS

The study area is located in Bonita Springs, Lee County. Census Blocks are generally bounded by streets, legal boundaries and other features – a Block is the smallest geographic unit for which the Census Bureau tabulates data. Given the primarily commercial development throughout the study area, demographic data for this evaluation was collected at the Census Block Group level. Information at the Block Group level will provide representative information about the community most impacted by this project.

The CSRP study area intersects four (4) Census Block Groups, the general boundaries of each Block Group are shown in **Figure 14**.

- Census Tract 506.01, Block Group 2
- Census Tract 506.01, Block Group 4
- Census Tract 506.03, Block Group 2
- Census Tract 506.04, Block Group 2



US 41 at Bonita Beach Road PD&E Study

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Figure 14 | Census Block Groups Map

Table 3: Demographic Summary

Category	Bonita Springs	CT 506.01, BG 2	CT 506.01, BG 4	CT 506.03, BG 2	CT 506.04, BG 2
Total Population	53,945	610	504	2,537	1,140
Age, Race and Ethnicity					
% Age 65+	41.3%	47.4%	20.0%	10.0%	27.4%
% White	83.0%	92.6%	63.7%	96.6%	90.5%
% Black or African American	1.6%	0%	0%	0%	0%
% Other ¹	15.3%	7.4%	36.3%	3.4%	9.5%
% Hispanic/Latino (Any Race)	22.2%	8.2%	42.1%	35.6%	2.5%
Educational Attainment and Language					
% Earned HS Diploma/GED or Higher	90.1%	95.1%	100%	81.2%	100%
% Earned Bachelor Degree or Higher	41.6%	16.6%	38.5%	15.7%	51%
% Speak English Not Well or Not at All	6.4%	0%	0%	1.1%	0%
Household and Income					
Total Units	37,971	491	252	988	782
% Occupied Units	63.2%	65.2%	74.2%	93.5%	69.7%
% Owner Occupied	77.0%	85.6%	69.5%	75.3%	29.3%
% Renter Occupied	23.0%	14.4%	30.5%	24.7%	70.7%
Average Number of Persons/Occupied Household	2.29	1.91	2.68	2.73	2.09
Median Value of Owner Occupied Units	\$420,400	\$346,900	\$470,300	\$425,000	\$380,000
Median Household Income, past 12 mos.	\$84,668	\$69,000	\$76,806	\$71,029	\$71,958
% Households Below Poverty Level	8.1%	16.9%	0.0%	1.1%	9.2%

Source: U.S. Census Bureau, 2018-2022 American Community Survey, 5-Year Estimates. (Tables: B01001, B01003, B02001, B03003, B15003, B16004, B17017, B19013, B25001, B25002, B25008, B25010, B25077)

Notes:

1 - "Other" includes: Native Hawaiian and Other Pacific Islander, Asian, American Indian or Alaska Native, Some Other Race or two (2) or more races.

As of the 2022 American Community Survey, 5-Year Estimates, there were 4,791 residents in the Census Block Groups adjacent to the study corridor. The racial and ethnic makeup in the community surrounding the study corridor varies by block group, with the impacted block group in the southwest quadrant of US 41 and Bonita Springs Road (Block Group 4 in Census Tract 506.01) being the most racially and ethnically diverse – with approximately 36 percent of the population in this area identifying as non-white.

The Census Block in the northwest portion of the analysis area (Block Group 2 in Census Tract 506.03) is also estimated to have more than 22 percent of the population identifying as Hispanic or

Latino which is higher within this block groups than in the City. Given the limited size of the Census Block Groups within the study area relative to the population and number of units, it is difficult to draw discrete conclusions about the populations immediately adjacent to the study corridor; however, it is clear the populace has a high educational attainment.

Relocation assistance is available to all displaced households without regard to race, color, national origin, age, sex, religion, disability, or family status.

5.2 RESIDENTIAL SYNOPSIS

There are no residential relocations resulting from the implementation of the Preferred Alternative.

5.3 BUSINESS SYNOPSIS

There are two potential business relocations expected to be required in order to accommodate the Preferred Alternative. The first potential business displacement impacts a business identified as Tuffy's Tire and Auto Service Center. The second potential business relocation is to a parcel owned by Advanced Auto Parts. The proposed roadway improvements are anticipated to impact the entire parcels for both relocations.

Table 4: Business Displacements

Parcel ID	Businesses Name	Site Address	Type	No. of Employees	Acres	Year Built
33-47-25-B3-00260.0020	Casce Inc, (Tuffy Tire & Auto Service Center)	27790 S TAMIAMI TRL BONITA SPRINGS FL 34134	Automotive Repair	TBD	0.63	1997
33-47-25-B3-00260.002A	Advance Auto Parts	27791 S TAMIAMI TRL BONITA SPRINGS FL 34134	Automotive Part Sales	TBD	1.00	2007

A search for available commercial property encompassed an approximate radius of 5 miles around the project study area. The search indicated that there is currently a low supply of commercial property that is comparable to the two (2) commercial properties potentially being displaced (**Appendix A**) by the proposed project. The search for available properties was focused on properties most suitable for an automotive repair shop and an automotive parts store within the project area.

According to Loopnet.com, there is a 1.04-acre parcel for sale north of the study area located on the east side of Old 41 Road (near Old 41 Road and Bonita Drive). There are also two adjacent buildings just south of the existing Advance Auto Parts site approximately 0.5 total acres in size. An alternative commercial parcel for sale is 0.93 acres located east of US 41 and south of Commons

Way in Estero. Additionally, there is 2.12 acres of commercial land located in the southeast quadrant of US 41 and Coconut Road available for sale. Currently, Advance Auto Parts site is located on a parcel of land approximately one acre; the Tuffy's Tire & Auto Service Center is located on a parcel of land approximately 0.63 acres. Potential parcels are shown in **Appendix B**.

The available properties may require some form of modification as none were intended to be specific matches for the businesses that are anticipated to be displaced. Project planning would provide adequate time to identify suitable relocation sites, and to plan these potentially complex moves. With two business relocations associated with the project and only two suitable commercial spaces available in the surrounding zip codes at this time, finding comparable relocation sites may require increased assistance and coordination with business owners throughout the relocation process to ensure profitable business operations after the relocation.

5.4 ON-PREMISES SIGNS

The Springs Plaza sign, located at 8951 Bonita Beach Road, will be impacted by the Preferred Alternative. It is anticipated that the sign will need to be modified or reconstructed.

5.5 COMMUNITY IMPACT

Implementing the Preferred Alternative for the US 41 at Bonita Beach Road necessitates the relocation of two businesses; therefore, the impact to the community is anticipated to be minimal.

5.6 HAZARDOUS WASTE SITES

Information pertaining to hazardous/environmental impacts is included and can be referenced in the Contamination Screening Evaluation Report (CSER) for this PD&E Study. If it is determined that contamination will be encountered during construction, remediation measures will be developed accordingly. A Level 1 contamination evaluation was conducted and documented in a Contamination Screening Evaluation Report (CSER) for this project. Both of the potential business displacements that have been identified are associated with having "Low" risk rankings in the CSER. In accordance with FDOT guidelines, all sites that are ranked "Medium" and "High" determined to be impacted during the design phase will be subject to a Level 2 field screening as they have been determined to contain contaminants that could impact the proposed roadway improvements. Other technical studies may be required to determine the level of contamination on individual sites prior to project construction.

5.7 PUBLIC LANDS

There are no public lands impacted by the Preferred Alternative. Additional information regarding no use forms is available in the Section 4(f) section of the environmental document.

6. Acquisition and Relocation Assistance

One of the unavoidable consequences on a project such as this is the necessary relocation of families or businesses. To minimize these effects, all right-of-way acquisition is conducted in accordance with Florida Statute 339.09 and the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, known as the Uniform Act, and the established guidelines by which these programs are administered.

The FDOT acquisition program is responsible for acquiring property needed to construct or improve transportation facilities. Owners are identified, appraisals are prepared, and negotiations begin. Negotiations for the purchase of private property are conducted in strict compliance with both federal and state law. Property owners are notified of their rights prior to or at the time the FDOT delivers its offer to purchase. The offer amount will not be less than the FDOT's property value estimate of the property being acquired.

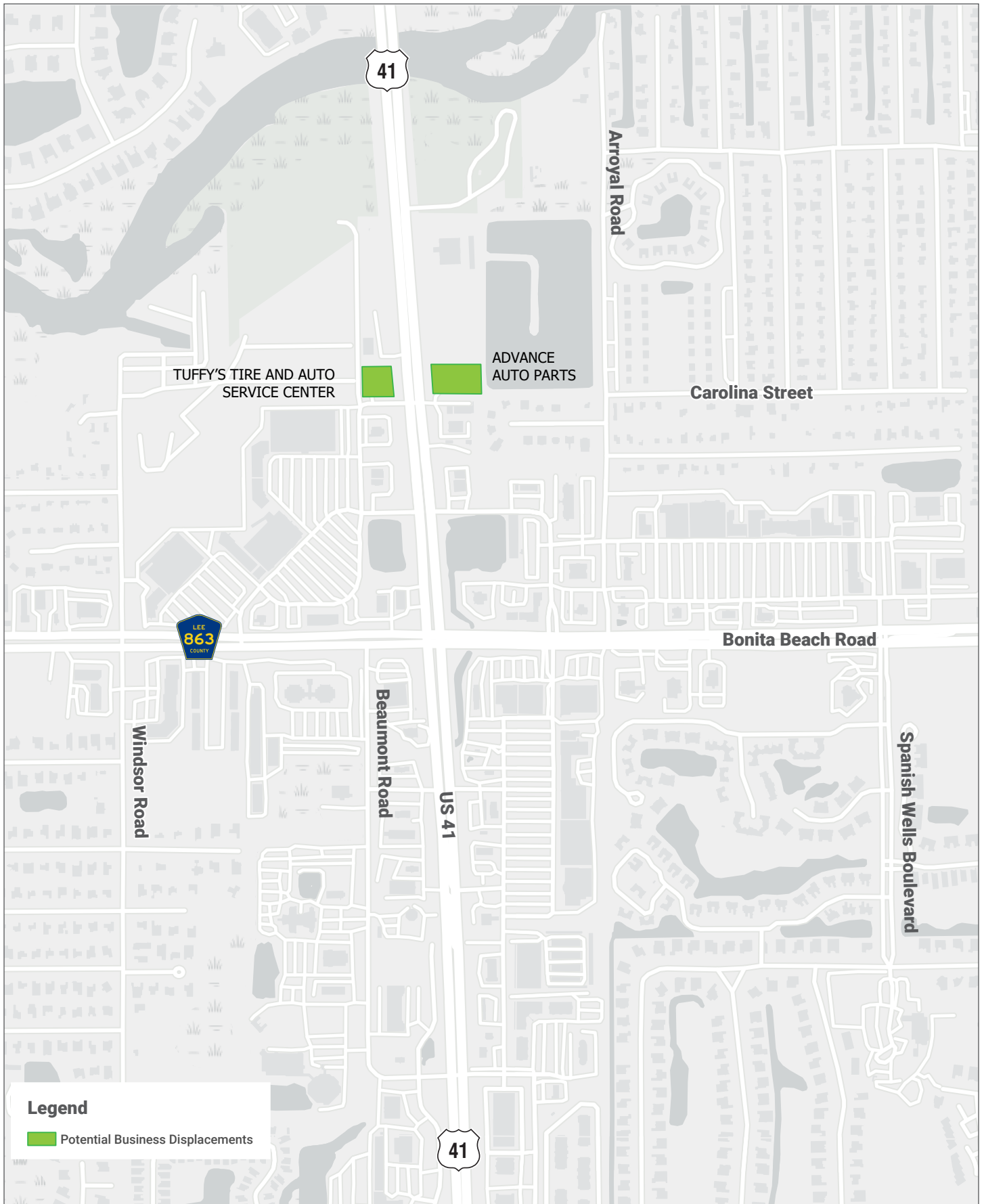
Owners are guaranteed at least 30 days from the time the offer is made to consider the offer before an eminent domain suit will be filed. The FDOT pays the owner's reasonable cost for an attorney to represent them during negotiations and for appraisal and other experts necessary to establish the value of their property. If an agreement is reached, FDOT acquisition staff coordinates or conducts the real estate closing. The FDOT pays all closing costs associated with the title transfer.

Relocation staff is responsible for gathering information from, and providing information to, all households and businesses occupying the property being acquired for a transportation project. This is accomplished through personal contact during what is termed the Needs Assessment Survey. The survey is normally conducted prior to or at the time properties are being appraised for acquisition.

Interviews are conducted with owners and tenants to provide information about the relocation program such as available payments and requirements for receiving assistance. Interviews are also used to gather specific information about each household or business so appropriate eligibility determinations can be made and proper replacement housing and/or move cost payments can be calculated. Persons required to relocate, due to a transportation project, may appeal any decision made by the FDOT concerning an eligibility determination or payment amount.

For detailed information regarding right of way acquisition and relocation assistance, see Section 9 of FDOT's Right of Way Manual.

Appendix A - Parcel Relocation Map



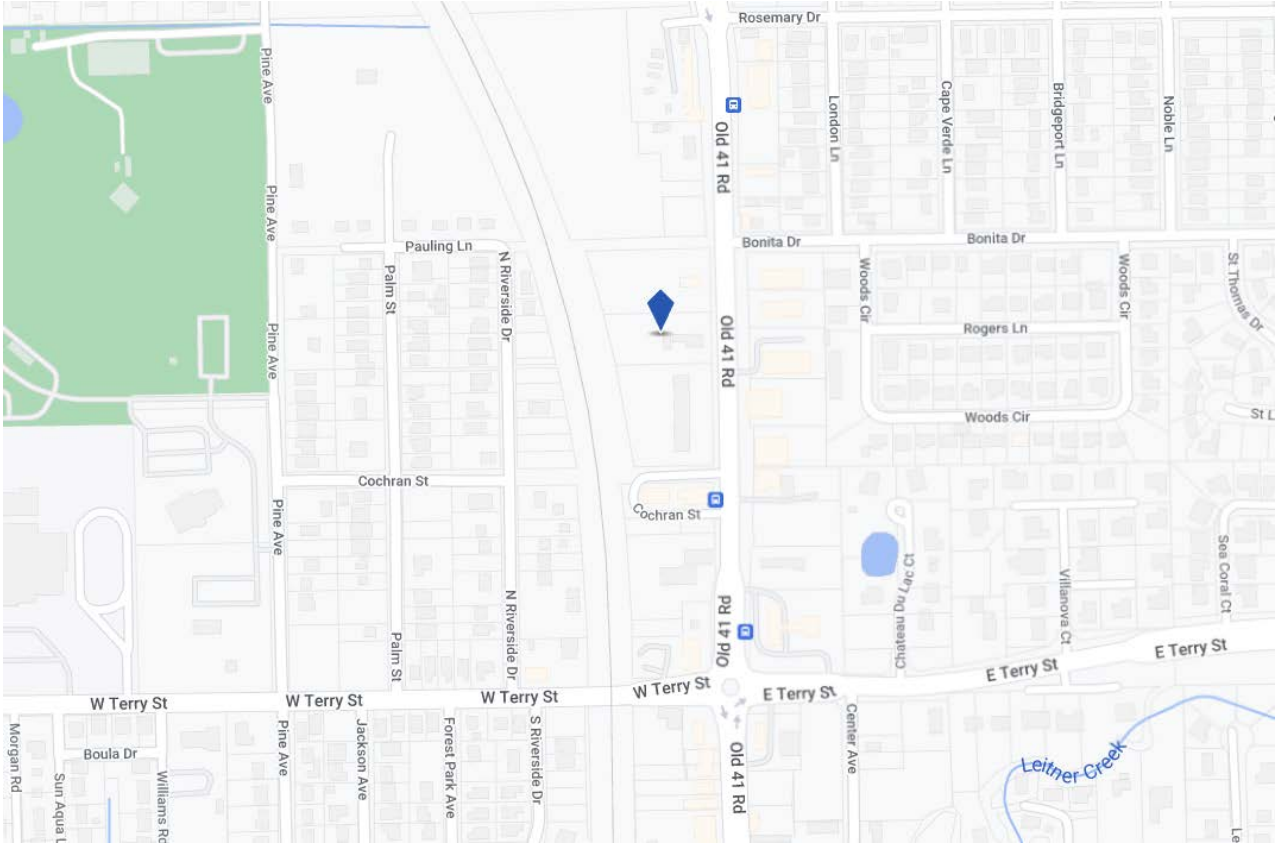
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Parcel Relocation Map

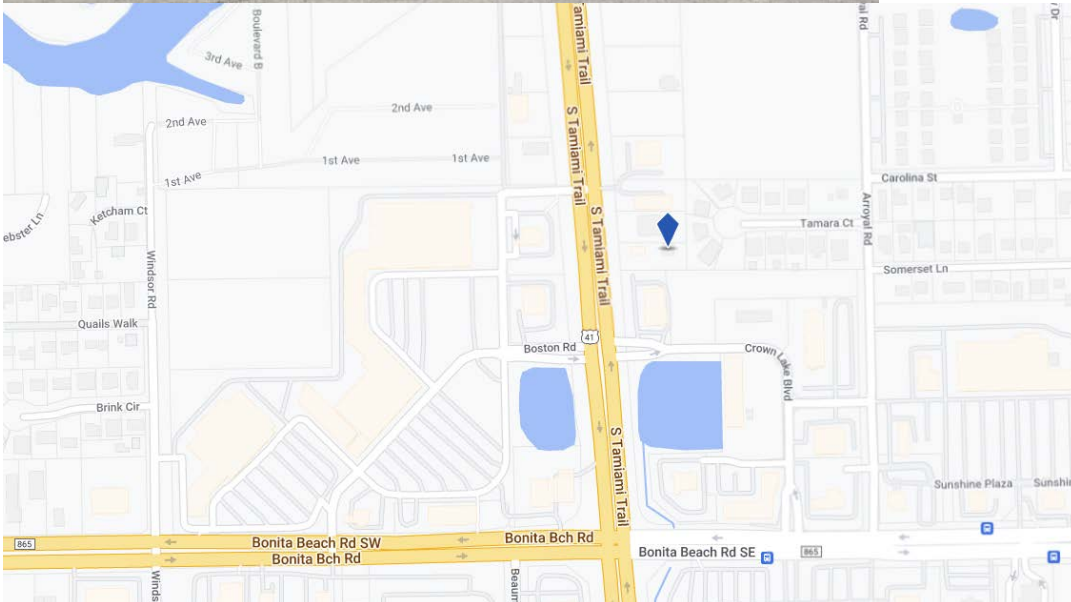
Appendix B - Commercial Listings

Address: 26790 Old 41 Road Bonita Springs, FL 34135
Parcel Number: 26-47-25-B4-0020A.0110



*Source: Loopnet.com search, January 1, 2024

Address: 28731 S. Tamiami Trail, Bonita Springs, FL 34134
27835 S. Tamiamia Trail, Bonita Springs, FL 34134
Parcel Number: 33-47-25-B3-00271.0000



*Source: Loopnet.com search, January 1, 2024

Address: 8810 Commons Way Estero, FL 33928
Parcel Number: 33-46-25-E2-01000.0050



*Source: Loopnet.com search, January 1, 2024

Address: 8000-8300 Health Center Blvd, Estero, FL 34135
Parcel Number: 09-47-25-E3-U1928.1988



*Source: Loopnet.com search, January 1, 2024