North Florida TPO
Transportation Planning Organization
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Ridgewood/Foxridge Area Traffic Study

RIDGEWOOD/FOXRIDGE AREA TRAFFIC STUDY

CLAY COUNTY

Prepared for:

North Florida TPO
Transportation Planning Organization
PLAN • FUND • MOBILIZE

980 North Jefferson Street

Jacksonville, Florida 32209

Prepared by:

ETM
England-Thims & Miller, Inc.
VISION • EXPERIENCE • RESULTS

14775 Old St. Augustine Road

Jacksonville, Florida, 32258

ETM Project # 17.096.14

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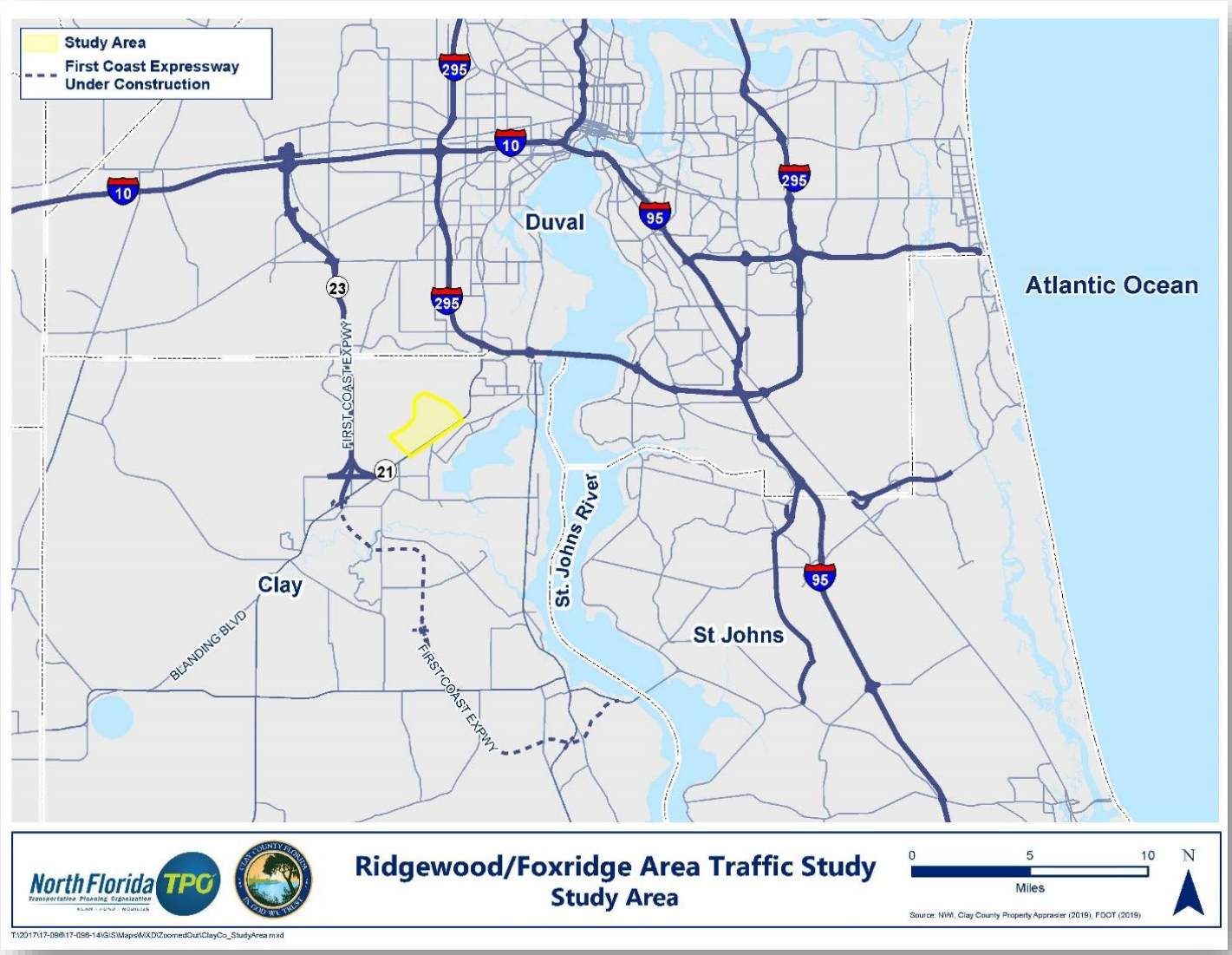
EXECUTIVE SUMMARY

I. INTRODUCTION

The North Florida TPO, in coordination with Clay County, prepared a traffic circulation study for Clay County's Ridgewood/Foxridge area. The limits of this study area are northwest of SR 21/Blanding Boulevard, between Madison Avenue (on the south) and Constitution Drive/Bolton Road (on the north).

Figure 1: Map of Study Area



A. Background

SR 21/Blanding Boulevard is a primary commercial and commuter corridor in Clay County. Traffic congestion continues to grow each year. The corridor serves both high-volume commuter and local commercial traffic. Residents living in the Ridgewood/Foxridge area neighborhoods experience long delays and poor accessibility at SR 21/Blanding Boulevard when traveling to and from home. Neighborhood travel demands for better levels of service and increased accessibility to side streets are balanced with the level of service demands of commercial and commuter traffic.

The County has previously studied this area and has considered improvements that would enhance the overall level of corridor service. This study builds on that body of research by evaluating proposed improvements to the corridor that consider local neighborhood traffic needs. It analyzes potential traffic improvements to the roadway network within the study area and identifies specific capacity and safety enhancements that should maintain acceptable level of service (LOS) results for short-term and future (2045) traffic conditions.

B. Study Purpose

Clay County and SR 21/Blanding Boulevard neighborhoods seek to improve and optimize the level and quality of service conditions for local neighborhood traffic that must use this corridor to get to and from home every day. This study investigates local and regional travel patterns along this corridor to provide insight on how to improve local level of service without sacrificing commercial or commuter traffic needs. Short-term and long-term neighborhood roadway network configurations are evaluated to identify improvement performance effectiveness.

II. METHODS AND DATA

A. Methodology

Traffic Analyses

Traffic operating conditions were analyzed during the morning and afternoon peak hours at the intersections located within the corridor. Synchro 10 was used to analyze signalized intersection operations. The Highway Capacity Manual 6th edition and Synchro 10 estimates were used to evaluate the intersections' level of service (LOS).

Planning Horizon

The study analyzed existing (2019/2020) traffic volumes as well as projected 2045 traffic conditions. Alternatives were evaluated for existing year and projected future volumes for 2045 planning year.

Traffic Forecasting Method

A 2045 network analysis of future roadway network conditions was extracted from Regional NERPM-AB 2v1 travel demand model, processed on CUBE 6.4.5. The traffic volumes and level of service conditions based on segment capacity were estimated based on 2045 model conditions and 2020 FDOT Quality and Level of Service Manual.

Performance Measurements

The Ridgewood/Foxridge Roadway network was assessed based on how well it meets the expectations and needs of the transportation-system users. Traffic network conditions measured congestion and mobility performance. From this data, problems and potential solutions were identified. Existing conditions were used to quantify the scope and scale of the facility deficiencies. Roadway network enhancement options were developed to improve safety and/or traffic flow.

Short-term and long-term network improvement alternatives are evaluated for performance using a planning and environmental approach. Review of improvements considers community and land use patterns, environmental, roadway safety, pedestrian/bicycle needs, transit, traffic congestion and operations.

B. Data

Aerial Photography

Aerial photography was a base for plotting various data needed to complete engineering analyses, roadway alternatives and design studies, and the preliminary plans of conceptual design.

Base Maps

GIS and MicroStation CADD databases are used for location/corridor maps and environmental features (refer to Appendix A for Additional Study Area Maps).

Roadway Safety Data

Crash data was collected from Signal Four Analytics within the study area for a three-year period from January 2017 to December 2019 (refer to Appendix B for Crash Diagrams).

Local, Regional and State Plans and Studies

These documents include adopted and applicable transportation/mobility plans and projects (refer to Appendix C and D for North Florida TPO 2045 LRTP Cost Feasible Projects and Needs Projects).

Public Input

Survey of neighborhood residents traffic concerns.

Multi-modal Infrastructure

JTA bus-route and bus-stop data were evaluated. Existing trails and infrastructure for bicyclists and pedestrians were also documented.

Traffic Data

Eight-hour and four-hour turning-movement counts were collected in September 2019 and January 2020 at the following signalized and unsignalized intersection locations (refer to Appendix E for Traffic Counts):

1. *SR 21/Blanding Boulevard at Madison Avenue/Tanglewood Boulevard (signalized)*
2. *SR 21/Blanding Boulevard at Jefferson Avenue (signalized)*
3. *Polk Avenue at SR 21/Blanding Boulevard (unsignalized)*
4. *Polk Avenue at the Village Shopping Center rear service driveway (unsignalized)*
5. *SR 21/Blanding Boulevard at CR 224/College Drive (signalized)*
6. *Cleveland Avenue at Locustwood Court (unsignalized)*
7. *Cleveland Avenue at the Village Shopping Center rear service driveway (unsignalized)*

8. *SR 21/Blanding Boulevard at Locustwood Court/Walmart Supercenter (signalized)*
9. *SR 21/Blanding Boulevard at Ridgecrest Avenue/Londonderry Dr (signalized)*
10. *SR 21/Blanding Boulevard at Camp Francis Johnson Road (signalized)*
11. *SR 21/Blanding Boulevard at Foxridge Road (signalized)*
12. *SR 21/Blanding Boulevard at Filmore Street (signalized)*
13. *SR 21/Blanding Boulevard at Constitution Drive/Bolton Road (signalized)*

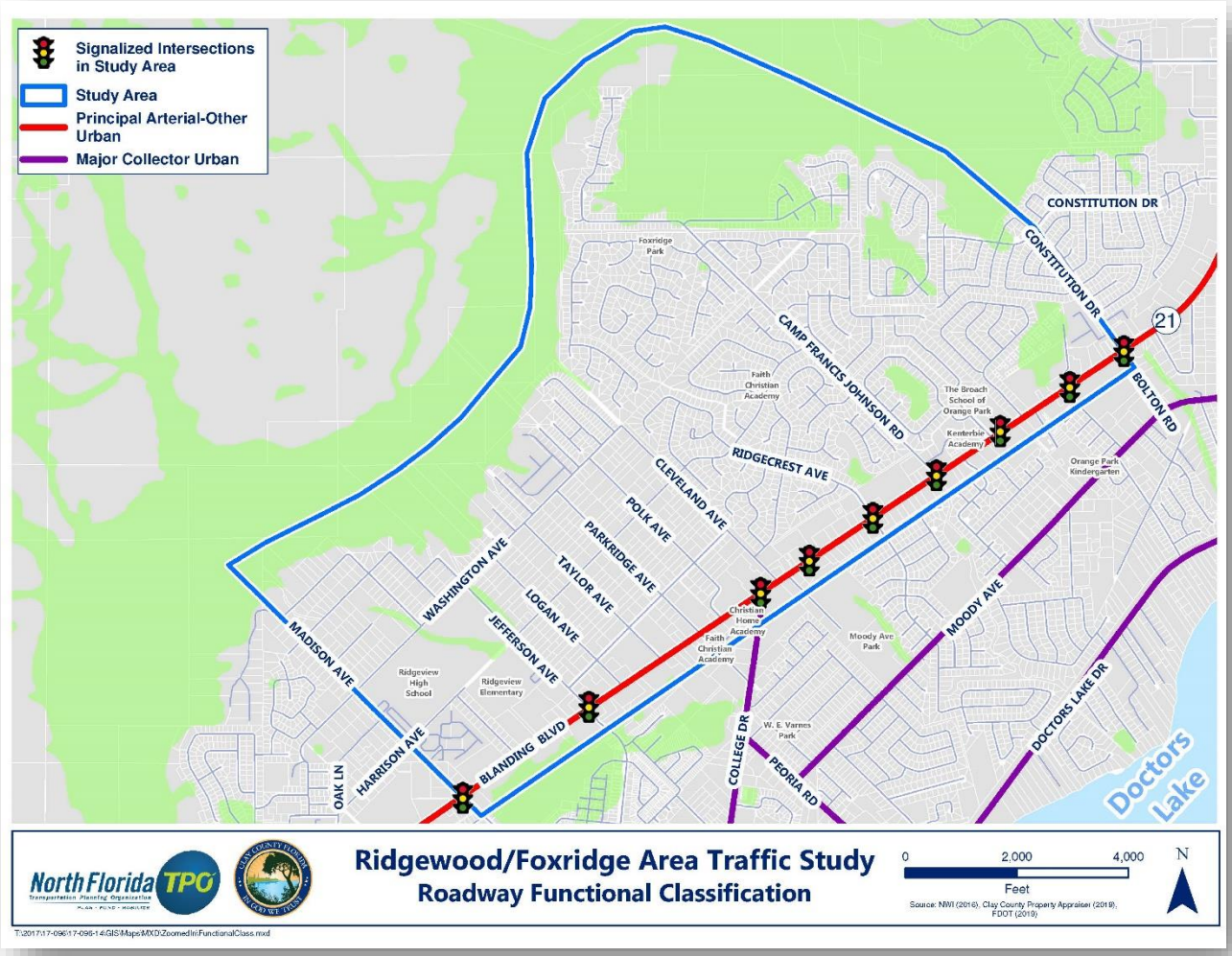
III. DESCRIPTION OF EXISTING CONDITIONS

A. Facility Characteristics

The Ridgewood/Foxridge neighborhood is a series of abutting subdivisions. The southern end of the residential district is served by a connecting grid of streets. The northern end of the neighborhood is served by independent cul-da-sac streets that do not interconnect with the neighborhood grid.

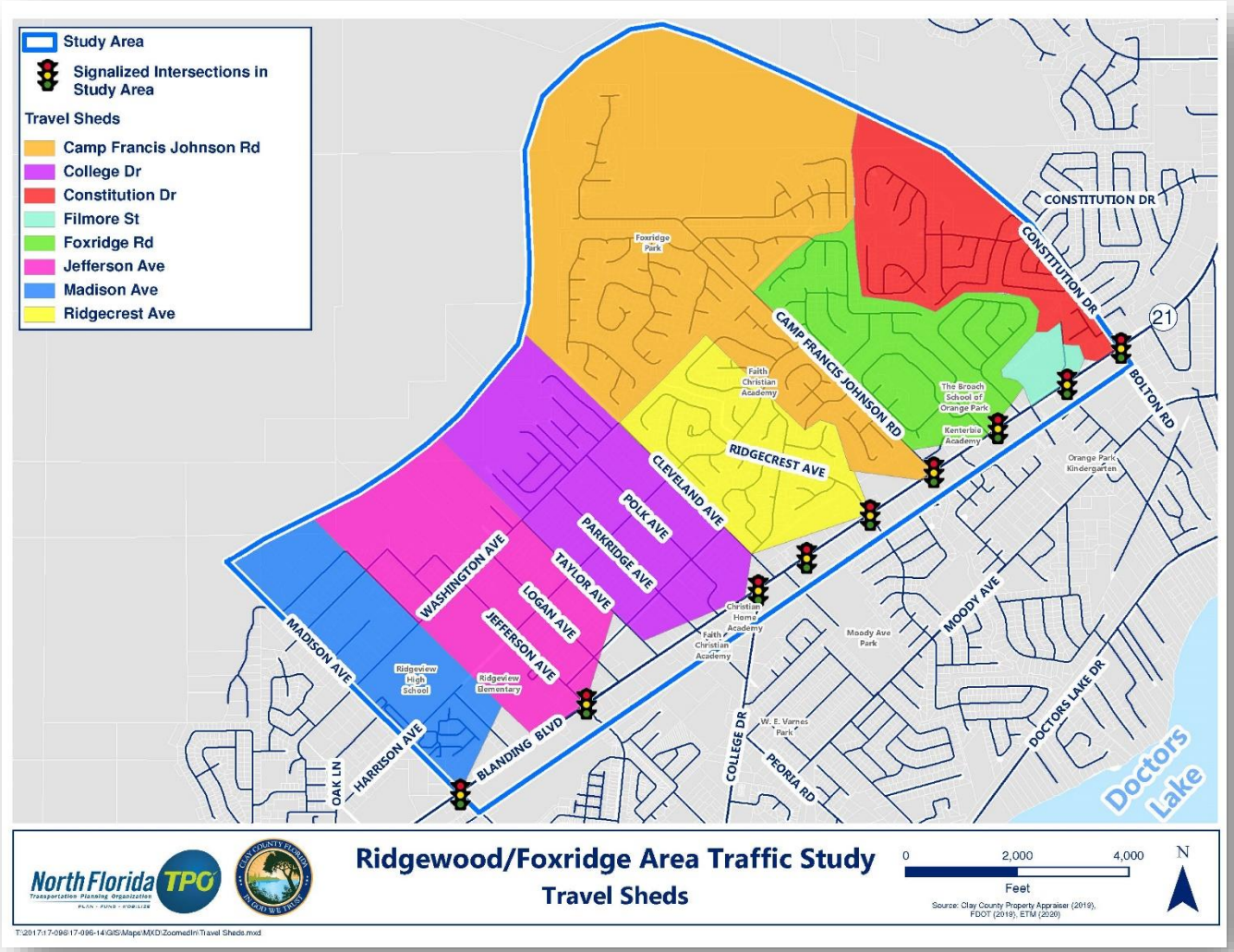
SR 21/Blanding Boulevard between Madison Avenue (on the south) and Constitution Drive/Bolton Road (on the north) is a six-lane urban principal-arterial other roadway with a center raised median. The roadway has a posted speed limit of 45 mph. Figures 2 and 3 show roadway functional classification and neighborhood travel sheds.

Figure 2: Roadway Functional Classification



The SR 21/Blanding Boulevard study corridor is 14,350 feet in length. The corridor access management class is type 5. Access Class 5 roadways are controlled access facilities where adjacent land has been extensively developed and where the probability of major land use change is low. These roadways are distinguished by existing or planned restrictive medians. Full median openings and signals should be spaced a minimum of 1,320 feet apart. Directional median openings should be spaced a minimum of 600 feet apart.

Figure 3: Neighborhood Street Travel Sheds



The study corridor includes nine signalized intersections and 16 directional or full unsignalized median openings. The following ultra-high-resolution aerials (Figures 4-11) detail the access and lane configurations of each segment in the study corridor.

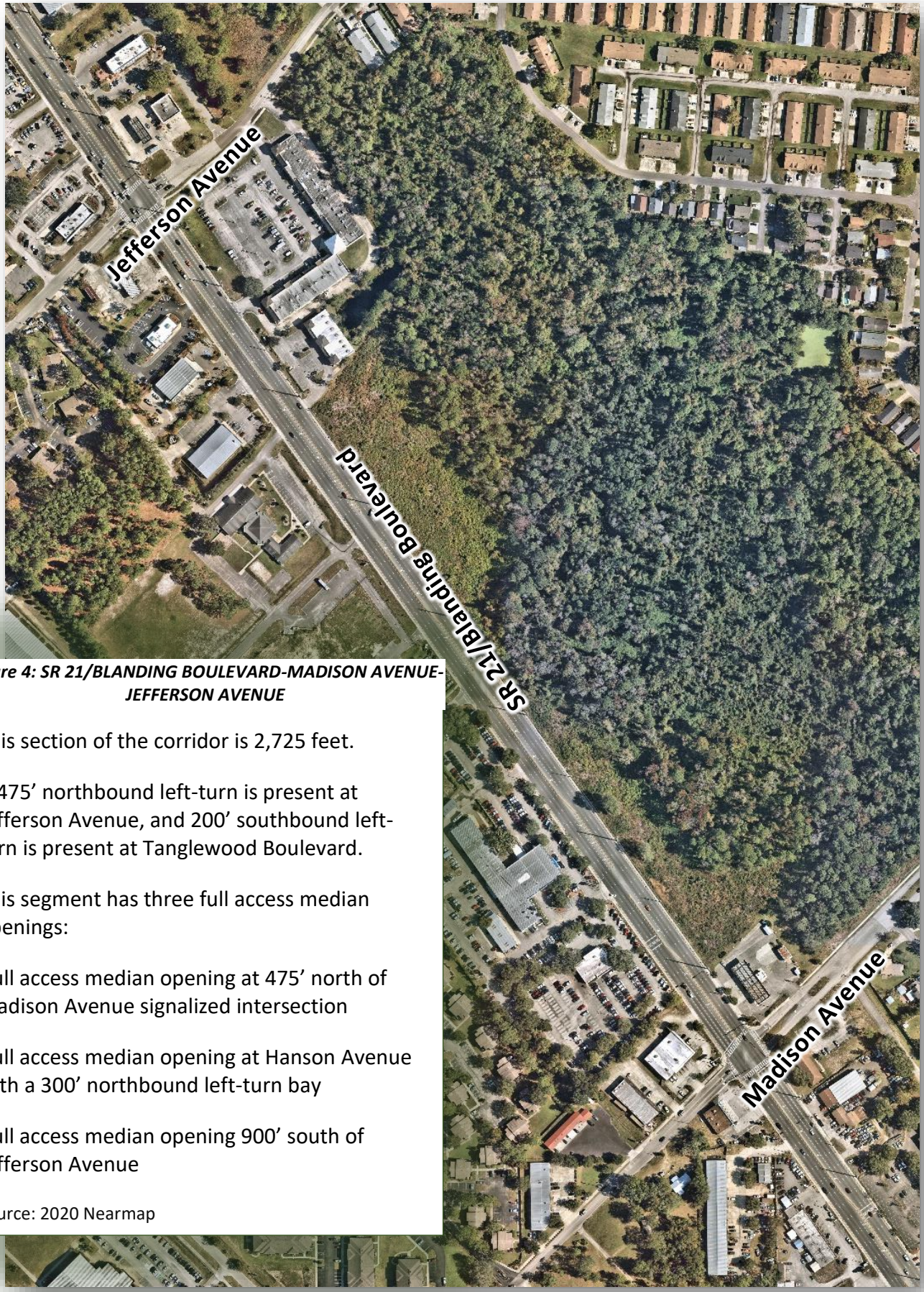


Figure 4: SR 21/BLANDING BOULEVARD-MADISON AVENUE-JEFFERSON AVENUE

This section of the corridor is 2,725 feet.

A 475’ northbound left-turn is present at Jefferson Avenue, and 200’ southbound left-turn is present at Tanglewood Boulevard.

This segment has three full access median openings:

-full access median opening at 475’ north of Madison Avenue signalized intersection

-full access median opening at Hanson Avenue with a 300’ northbound left-turn bay

-full access median opening 900’ south of Jefferson Avenue

Source: 2020 Nearmap

Figure 5: SR 21/BLANDING BOULEVARD-JEFFERSON AVENUE - CR 224/COLLEGE DRIVE

This section of the corridor is 3,657 feet.

A 425’ northbound left-turn is present at CR 224/College Drive to serve Publix. This segment has six median openings:

-southbound left-turn directional median opening 300’ north of Jefferson Avenue

-full access median opening at Logan Avenue

-full access median opening at Taylor Avenue with a 400’ northbound left-turn bay

- southbound directional median opening 400’ south of Parkridge Avenue

-directional median opening pair with 150’ turn bays to access the Parkridge Avenue

- full access median opening to Polk Avenue

Source: 2020 Nearmap

Figure 6: SR 21/BLANDING BOULEVARD-CR224/COLLEGE DRIVE - LOCUSTWOOD COURT

This section of the corridor is 1,000 feet.

A 125’ northbound left-turn and right-turn bay is present at Locustwood Court to serve Walmart and adjacent business. A 700’ southbound left-turn bay is present at CR 224/College Drive.

This segment includes no median openings.

Cleveland Avenue connects to the west of this segment with a directional right-of-way opening located 600’ south of Locustwood Court and 300’ feet north of CR 224/College Drive.

Source: 2020 Nearmap

Figure 7: SR 21/BLANDING BOULEVARD-LOCUSTWOOD COURT – RIDGEWOOD AVENUE/LONDONDERRY DRIVE

This section of the corridor is 1,450 feet.

A 350’ northbound left-turn bay is present at Londonderry Drive/Ridgecrest Avenue. A 500’ southbound left-turn bay is present at Locustwood Court to serve Walmart.

This segment includes a directional median opening pair with 150’ turn bays to access the shopping center driveways on the east and west side of SR 21/Blanding Boulevard.

Source: 2020 Nearmap

Figure 8: SR 21/BLANDING BOULEVARD-LONDONDERRY DRIVE - CAMP FRANCIS JOHNSON ROAD

This section of the corridor is 1,350 feet.

A northbound left -turn bay is present at Camp Francis Johnson Road. A southbound left-turn bay is present at Londonderry Drive.

This segment includes a directional median pair with 150’ turn bays to access the shopping center driveways on the east and west side of SR 21/Blanding Boulevard.

Source: 2020 Nearmap

Figure 9: SR 21/BLANDING BOULEVARD-CAMP FRANCIS JOHNSON ROAD - FOXRIDGE ROAD

This section of the corridor is 1,200 feet.

A northbound left -turn bay is present at Foxridge Road. A southbound left -turn bay is present at Camp Francis Johnson Road.

Directional median openings with 200' left-turn bays are located at the segment midpoint

Source: 2020 Nearmap

Figure 10: SR 21/BLANDING BOULEVARD-FOXRIDGE ROAD - FILMORE STREET

This section of the corridor is 1,700 feet.

A northbound left -turn bay is present at Filmore Street. A southbound left -turn bay is present at Foxridge Road.

This segment has three median openings:

-full access median opening at Stonebridge Drive with a 400’ northbound left-turn bay

- directional pair with 200’ turn bays

Source: 2020 Nearmap

Figure 11: SR 21/BLANDING BOULEVARD-FILMORE STREET-CONSTITUTION DRIVE/BOLTON ROAD

This section of SR 21/Blanding Boulevard corridor is 1,200 feet.

Directional median openings with 200' left-turn bays are located at the segment midpoint.

A northbound left-turn bay is present at Constitution Drive. A southbound left -turn bay is present at Filmore Street.

Constitution Drive has a dedicated east-bound left-turn lane onto SR 21/Blanding Boulevard.

Source: 2020 Nearmap

B. Community Context and Land Use Patterns

The Blanding Boulevard corridor is fronted by commercial properties with closely spaced driveways and neighborhood streets. The following figures (Figure 12, Figure 13, Figure 14 and Figure 15) show the existing land use, future land use, population density and socioeconomic characteristics of the neighborhoods and the Ridgewood/Foxridge area respectively.

Figure 12: Study Area Existing Land Use Map

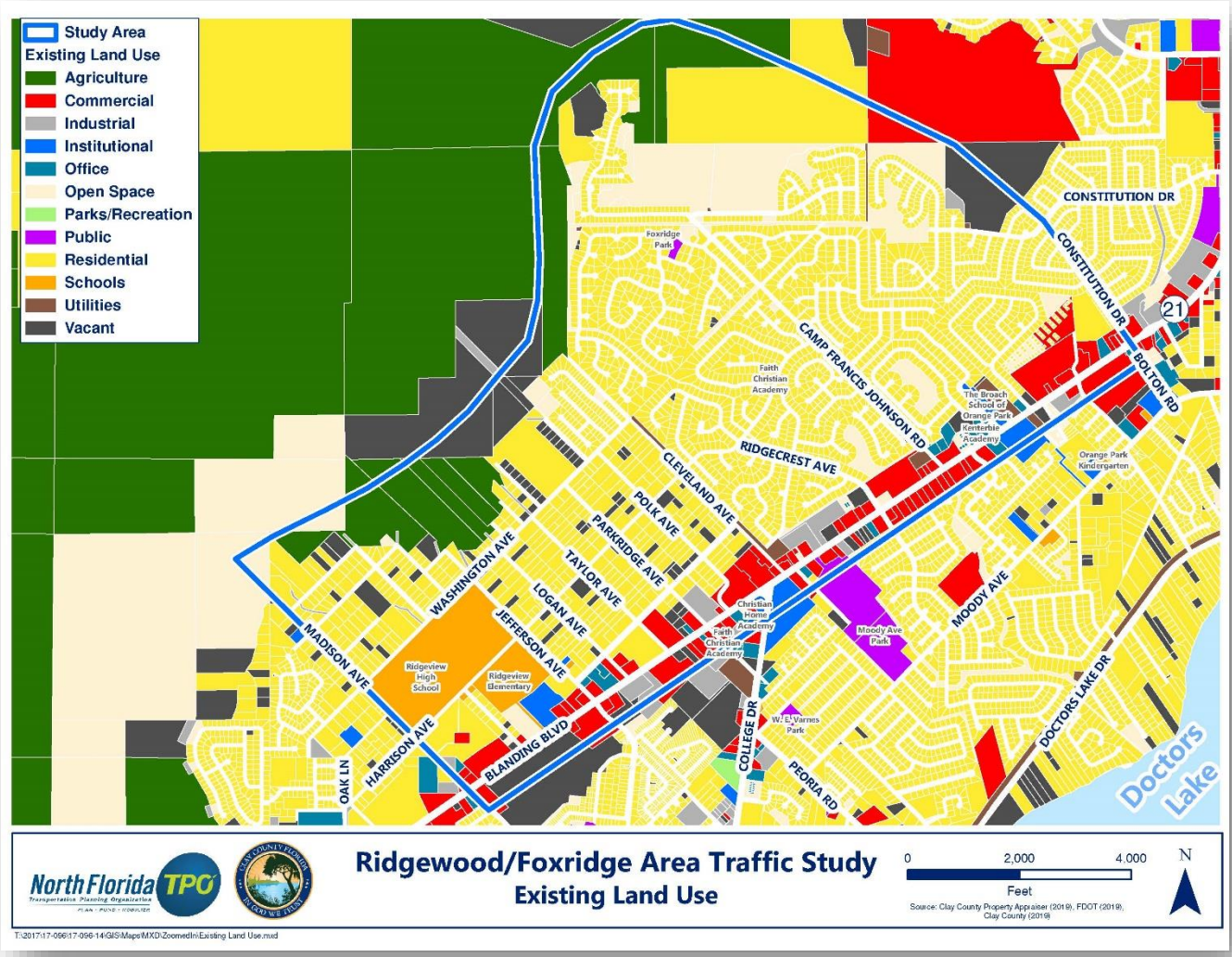


Figure 13: Study Area Future Land Use Map

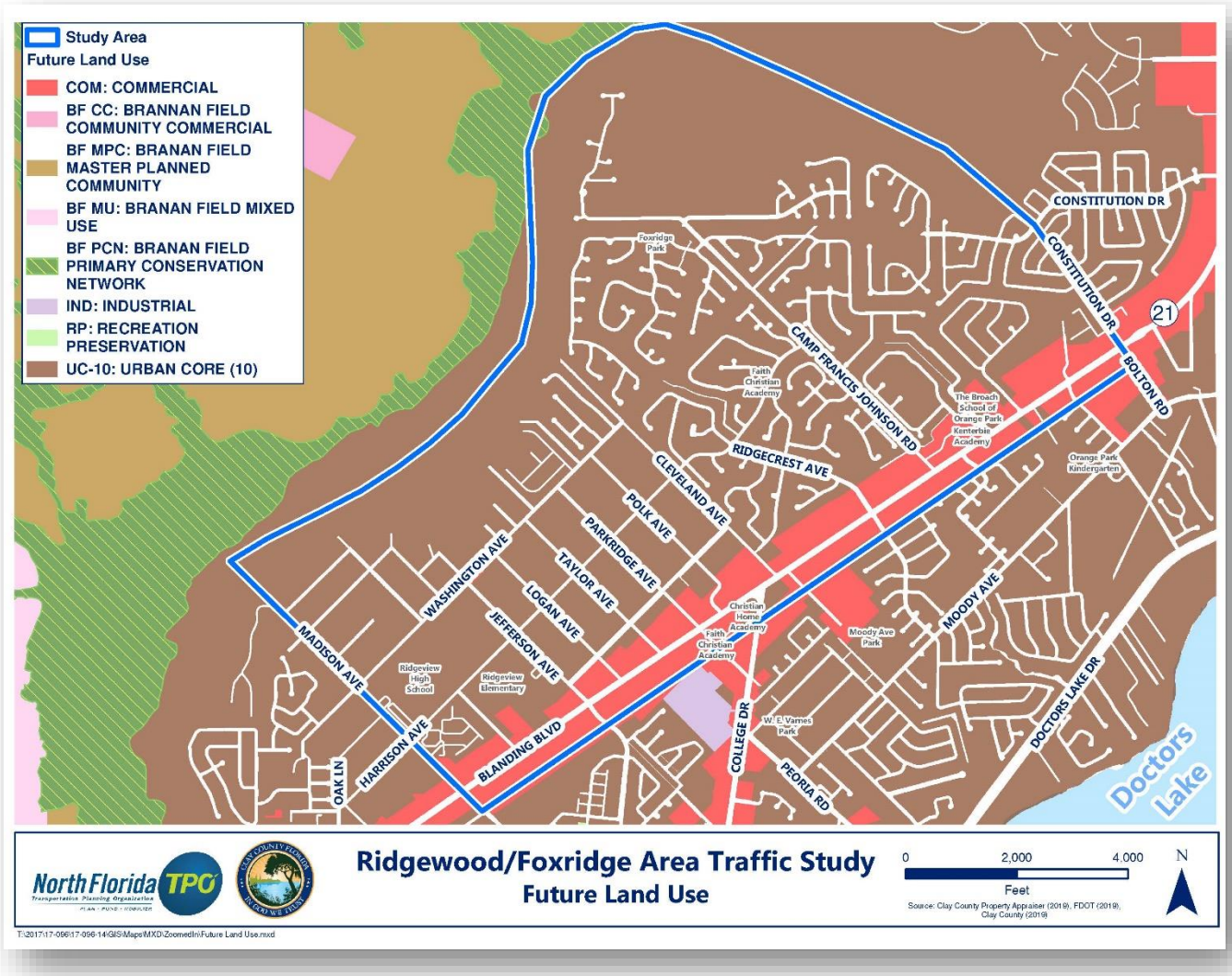


Figure 14: Study Area Population Density Map

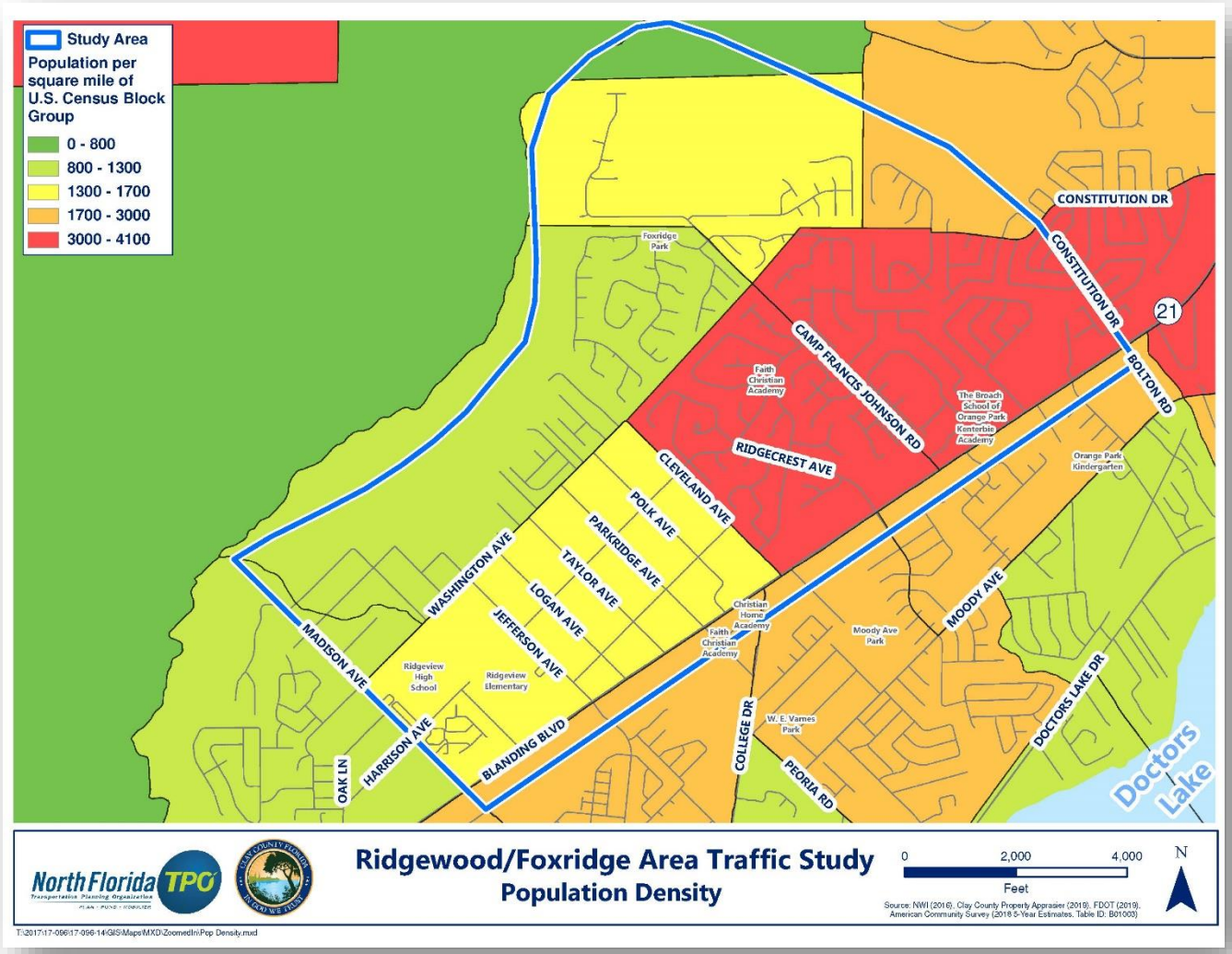
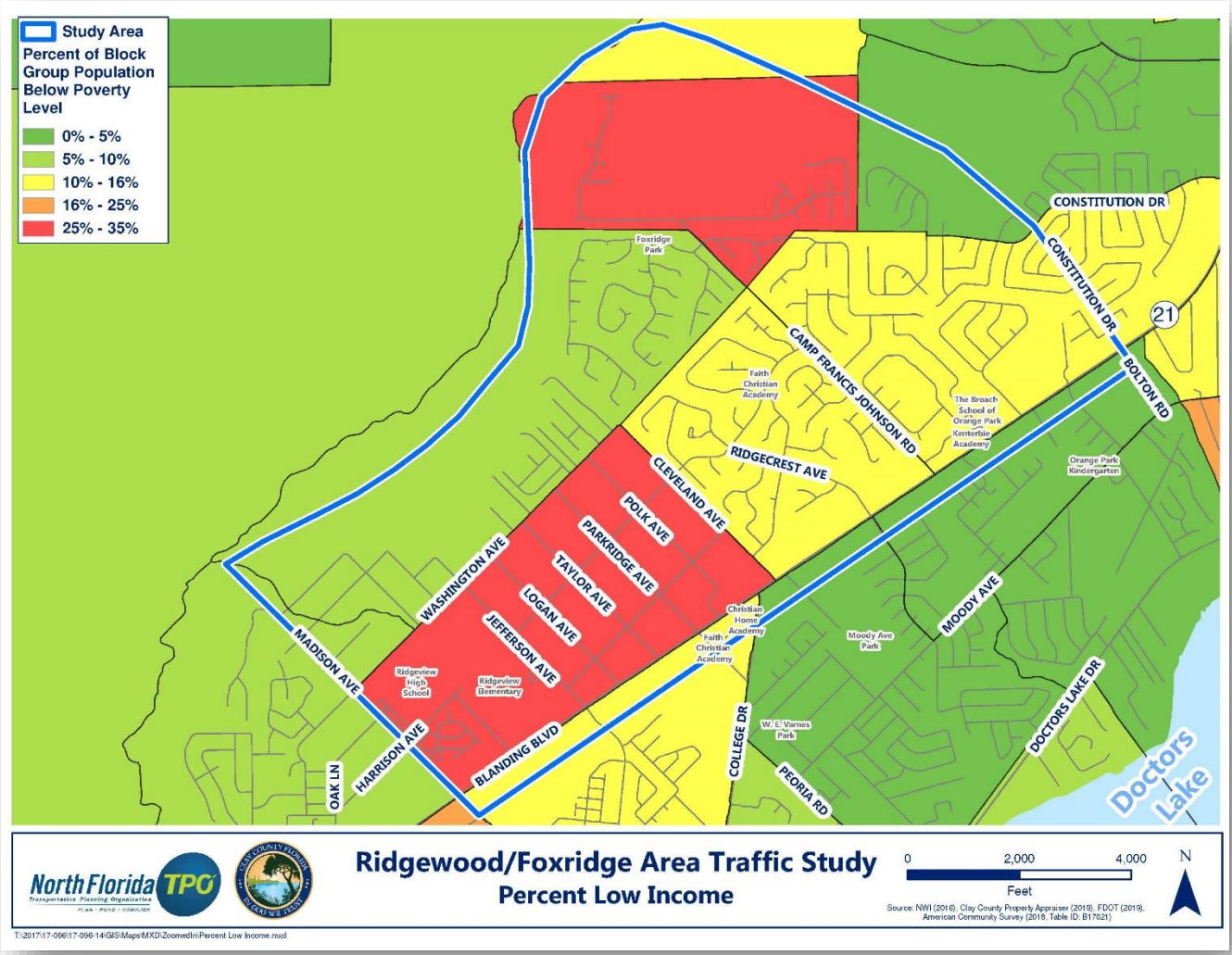


Figure 15: Study Area Socioeconomic Status of Population



C. *Natural Features*

Natural features surrounding this study corridor include FEMA flood hazard areas and floodways. The corridor is constrained to the east and west by protected wetlands and conservation areas. Figures 16 and 17 show environmental features in the study area.

Figure 16: Study FEMA Flood Hazards Areas Map

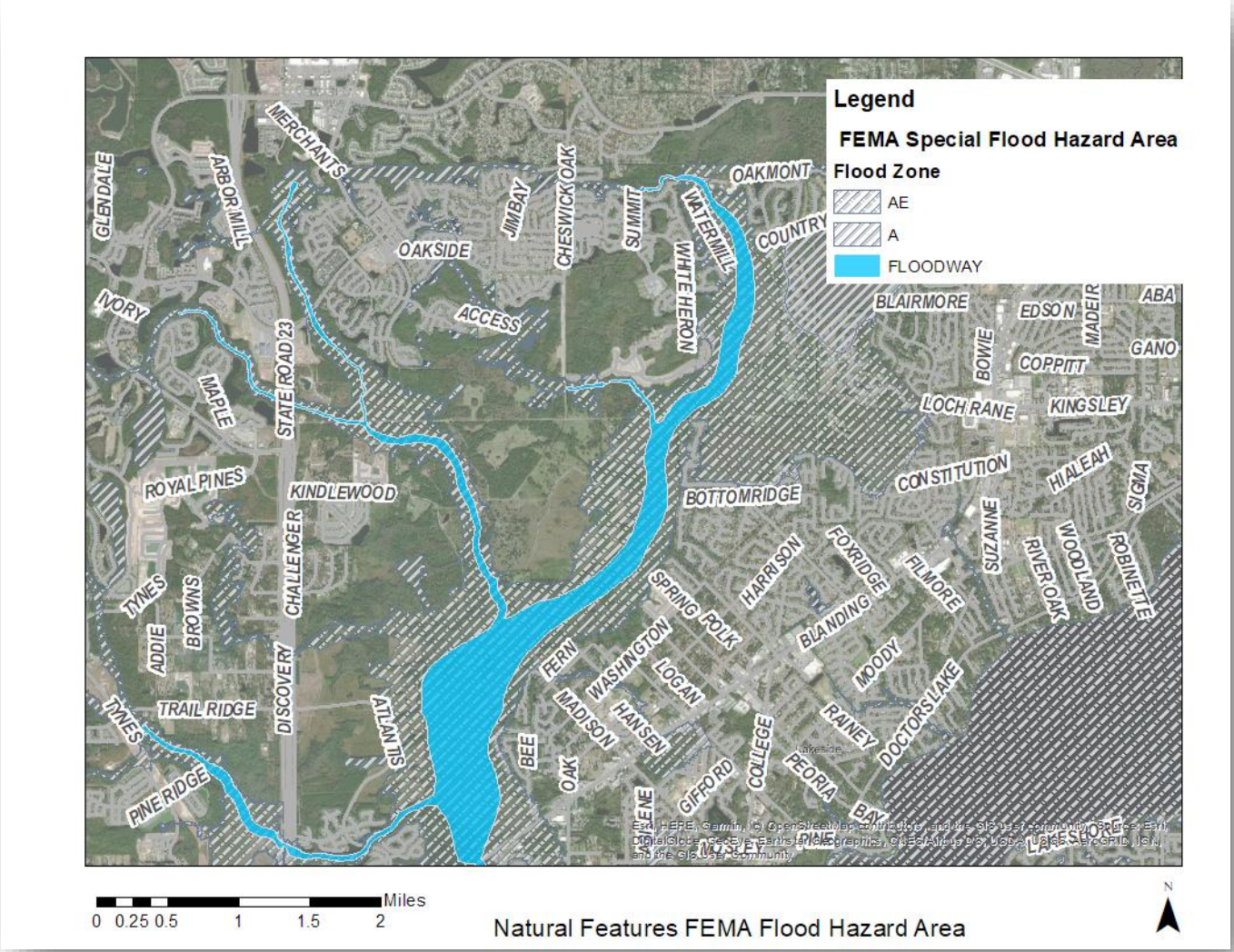
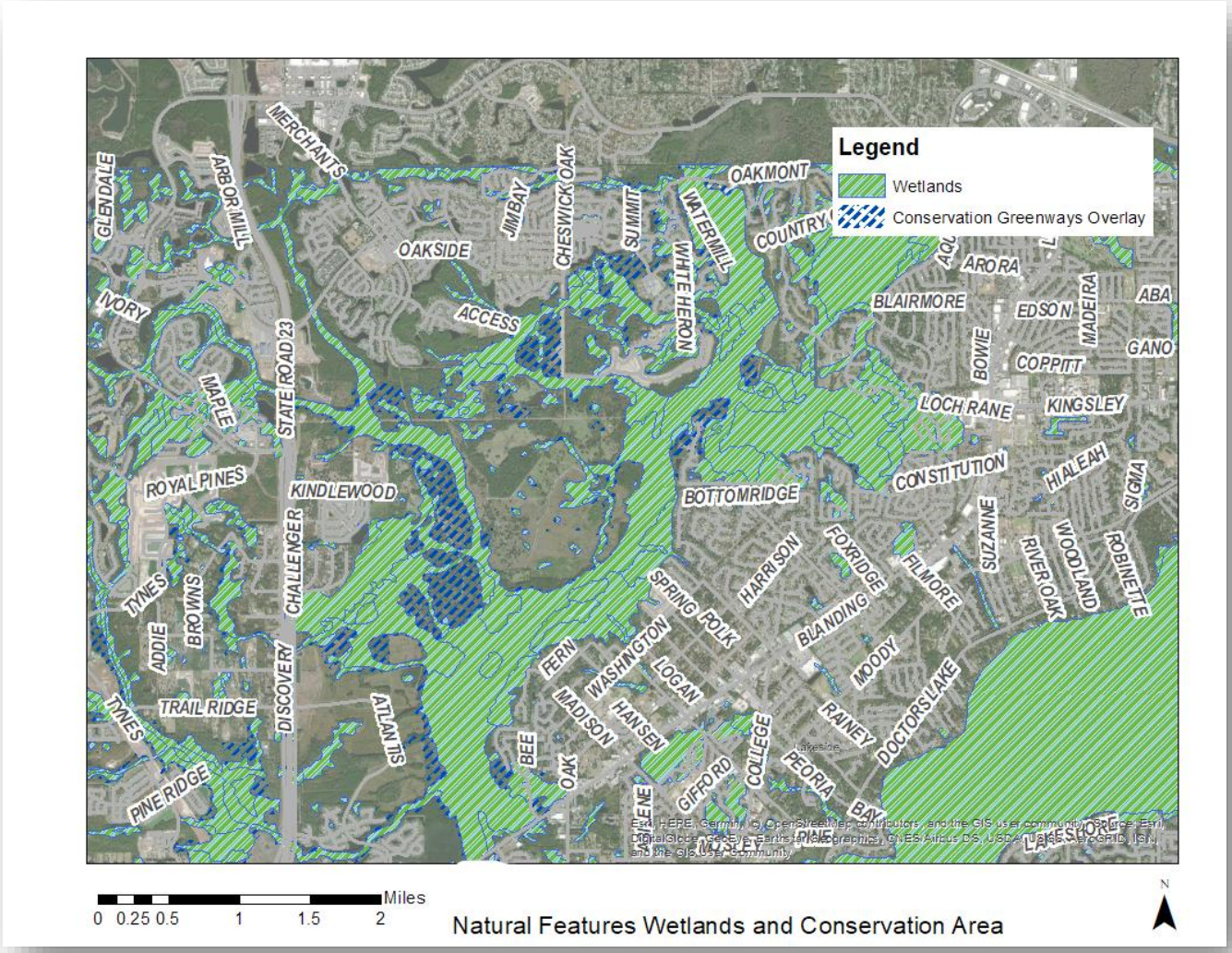


Figure 17: Study Wetland and Conservation Areas Map



D. Roadway Safety

Crash data was collected from *Signal Four Analytics* within the study area for a three-year period from January 2017 to December 2019. A total of 1,206 crashes were reported within the study area, as follows:

- 532 Rear-end
- 106 Left Turn
- 107 Sideswipe
- 57 Angle
- 21 Right Turn
- 50 Off-Road/Rollover
- 206 Other
- 39 Bicycle/Pedestrian
- 2 Animal
- 79 Unknown
- 7 Head-On

An annual summary of the crash types (Table 1) and crash severities (Table 2) are shown below. Figures 18 and 19 show crash locations in the corridor study area. (Refer to Appendix B for Crash Diagrams).

Figure 18: Pedestrian and Bicycle Crash Locations in Corridor Study Area

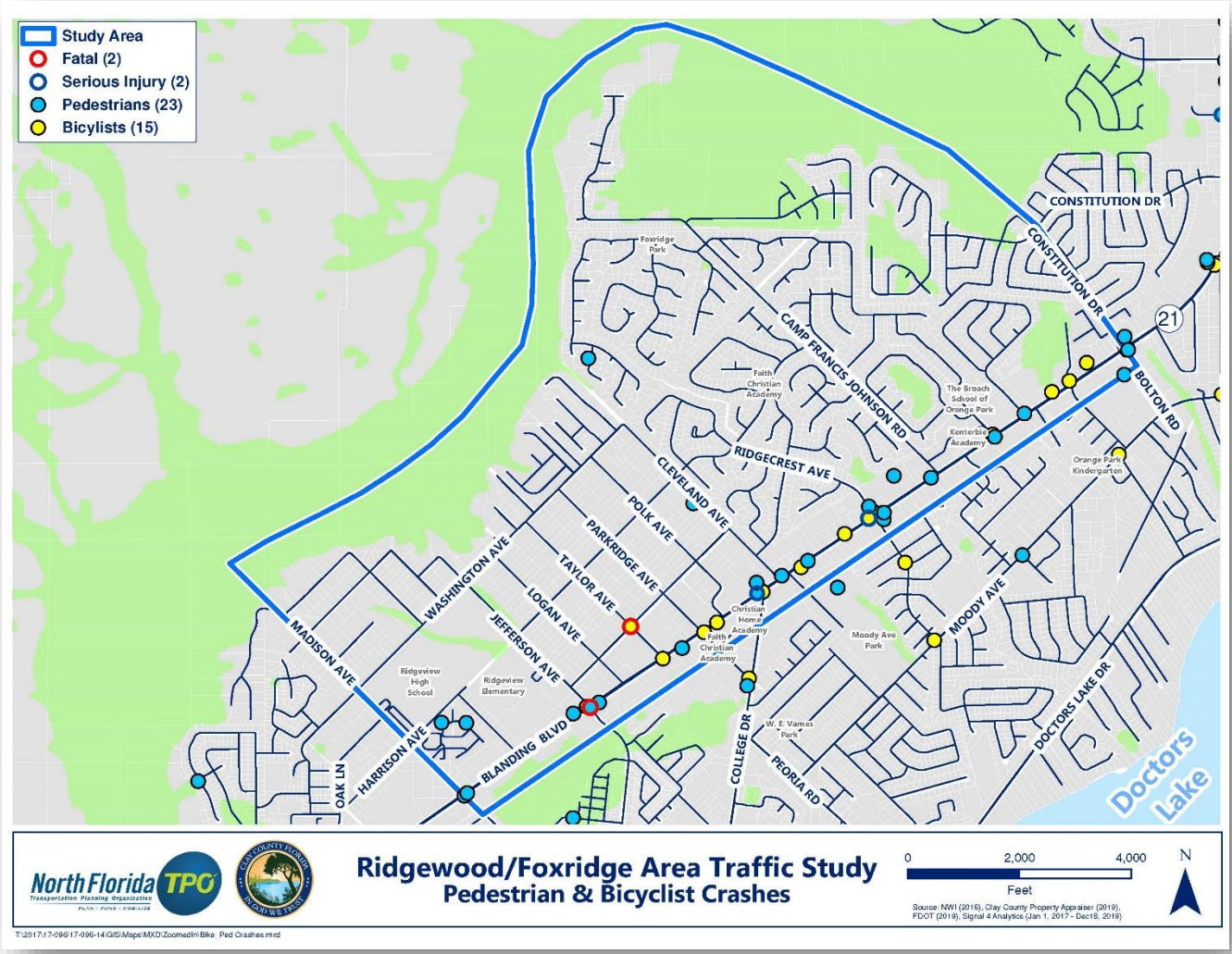
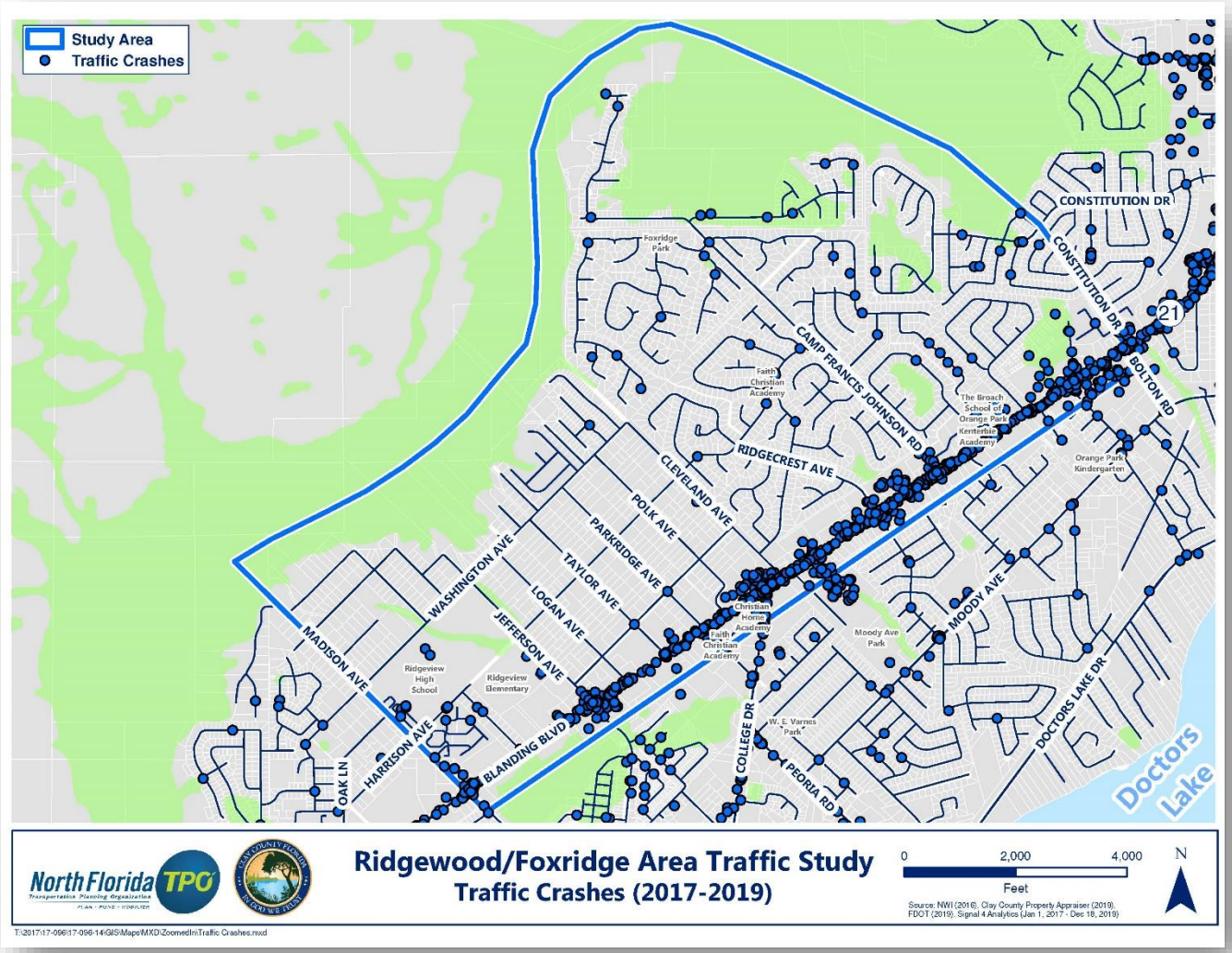


Figure 19: Corridor Study Area Total Crash Map



Crash data indicates that many accidents occur at neighborhood side street signalized intersections. Cleveland Avenue has the highest concentration of accidents in the study corridor. Southbound approach segment of SR 21/Blanding Boulevard between College Drive and Cleveland Avenue has more than twice the occurrence of crashes than any other segment.

The intersection of Cleveland Avenue and SR 21/Blanding Boulevard is unsignalized with restricted right in, right out access. Accidents occurring on SR 21/Blanding Boulevard between Cleveland Avenue and College Drive tend to be rear end or side impact. The pattern of incidents suggests that drivers exiting Cleveland Avenue do not have adequate decision or weaving distance to successfully enter the southbound left turn lane at College Drive.

Table 1: Crash Type by Year

CRASH TYPE	2017	2018	2019	TOTAL
Angle	14	23	20	57
Animal	0	1	1	2
Bicycle	6	5	4	15
Head On	5	1	1	7
Left turn	34	41	31	106
Off Road/Roll Over	7	21	22	50
Other	74	71	61	206
Pedestrian	4	9	11	24
Rear End	186	186	160	532
Right Turn	7	7	7	21
Sideswipe	48	17	42	107
Unknown	15	55	9	79
Total	400	437	369	1206

Source: Signal Four Analytics 2017, 2018, 2019

Table 2: Crash Severity by Year

CRASH SEVERITY	2017	2018	2019	TOTAL
Property Damage Only	292	323	286	901
Injury	108	109	83	300
Fatality	0	5	0	5
Total	400	437	369	1,206

Source: Signal Four Analytics 2017, 2018, 2019

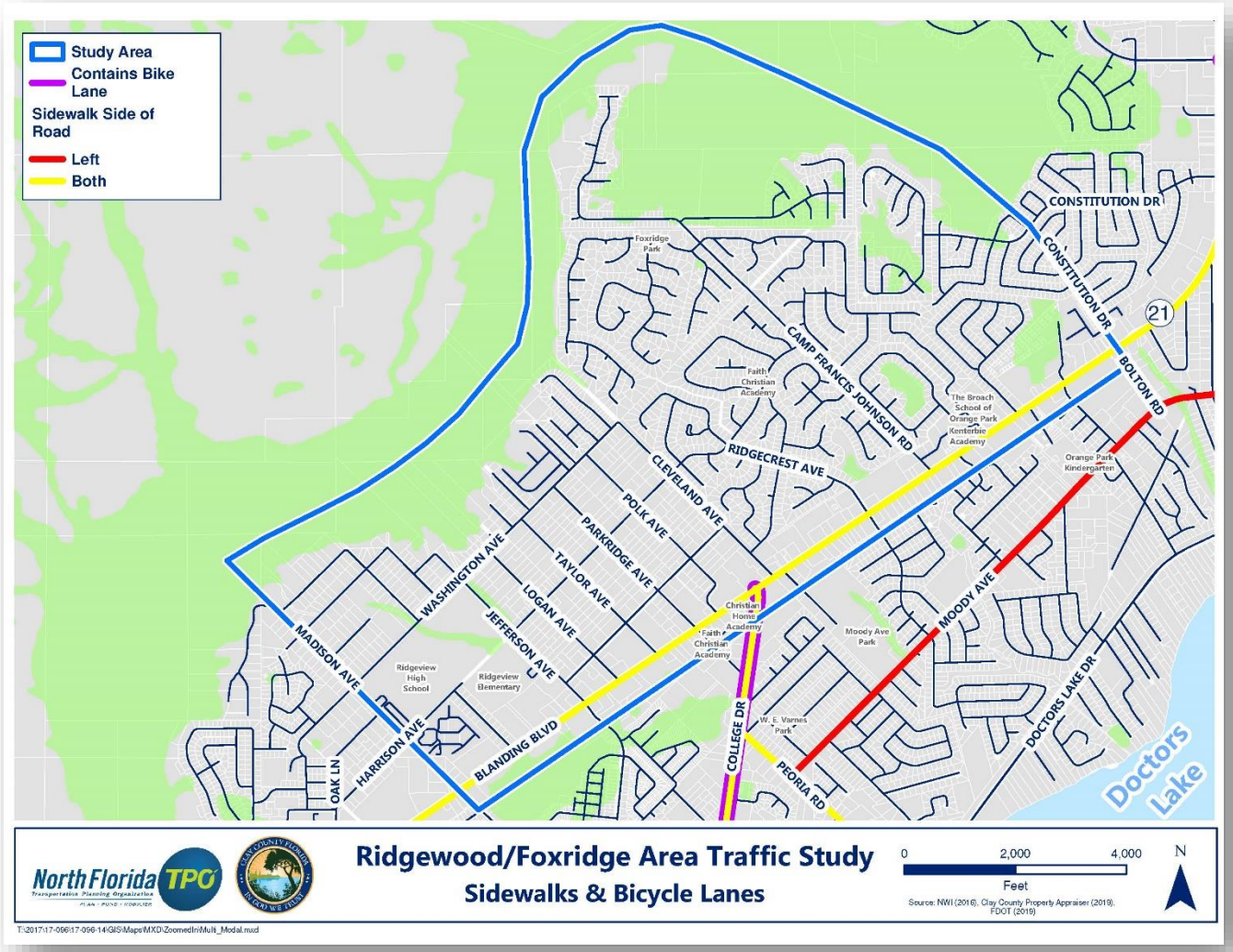
Additional crash-statistic information:

- There were 400 crashes in 2017, 437 crashes in 2018, and 369 crashes in 2019
- 300 crashes (24%) resulted in injuries
- There were 146 wet-pavement crashes (12%), 1,049 dry pavement crashes (87%)
- 927 occurred during daylight (76.9%) conditions

E. Sidewalks and Bike Lanes

Sidewalks are present along both sides of the SR 21/Blanding Boulevard study corridor. Most side streets with signalized intersections have sidewalks on neighborhood streets that connect to the SR 21/Blanding Boulevard sidewalk and intersection crosswalk.

Figure 20: Sidewalk and Bicycle Lanes in Corridor Study Area



The only exception is Foxridge Road, which has a sidewalk but does not have a crosswalk across SR 21/Blanding Boulevard. Most of the side streets without sidewalks at unsignalized full access median openings on SR 21/Blanding Boulevard do not have crosswalks at the intersections. Pedestrian crosswalks are separated by an average length of 3,750' along the segment between Jefferson Avenue to CR 224/College Drive. Furthermore, there are no sidewalks connecting neighborhood streets to SR 21/Blanding Boulevard from Jefferson Avenue to Camp Francis Johnson Road. This accounts for a 7,500-foot portion of the 14,350-foot study corridor. Table 3 details the physical characteristics and connectivity of the pedestrian network within the study area.

Table 3: Sidewalks and Bike Trail Features

ROADWAY SEGMENT	SIDEWALK PRESENT YES/NO (Side)	SIDEWALK WIDTH	SIDEWALK BARRIER	CONNECTION TO BLANDING SIDEWALK	CROSSWALK AT INTERSECTION
SR 21/Blanding Boulevard Study Corridor	YES (Both)	6' (adjacent to the curb)	NO	N/A	N/A
Constitution Drive/Bolton Road at SR 21/Blanding Boulevard	YES (West)	5'	Grass	YES	YES
Filmore Street at SR 21/Blanding Boulevard	YES (West)	5'	Grass	YES *(does not extend into neighborhood)*	YES
Stonebridge Drive	NO	N/A	N/A	N/A	NO
Foxridge Road at SR 21/Blanding Boulevard	NO	N/A	N/A	N/A	YES
Camp Francis Johnson Road at SR 21/Blanding Boulevard	Yes (South)	8'	Grass	YES	YES
Ridgecrest Avenue	NO	N/A	N/A	N/A	YES
Cleveland Avenue	NO	N/A	N/A	N/A	NO
Polk Avenue	NO	N/A	N/A	N/A	NO
Parkridge Avenue	NO	N/A	N/A	N/A	NO
Taylor Avenue	NO	N/A	N/A	N/A	NO
Logan Avenue	NO	N/A	N/A	N/A	NO
Jefferson Avenue	YES (South)	8'	NO	YES	YES
Hanson Avenue	YES (North)	5'	Grass	YES	NO
Madison Avenue/Tanglewood Boulevard	YES (North)	8'	Grass	YES	YES

Source: FDOT Online GIS Sidewalk Width & Separation (Transportation Data & Analytics office), FDOT Online GIS Sidewalk Barrier (Transportation Data & Analytics office), 2020 Nearmap

Although the sidewalks within the neighborhoods are missing or incomplete, the study area adjoins a regional bike and pedestrian trail network. Figure 21 Clay County Comprehensive Plan Transportation Element 2040 Bicycle and Pedestrian Map shows the existing sidewalk and bicycle network.

College Drive connecting at Blanding Boulevard is a regional bike route. Figures 22 and 23 from the North Florida TPO Orange Park Bicycle Pedestrian Sub-Area Plan show the regional existing bike and pedestrian facilities along College Drive to Peoria Road and the Doctor's Lake Trail.

Figure** 21**: Clay County Comprehensive Plan Transportation Element 2040 Bicycle and Pedestrian Map

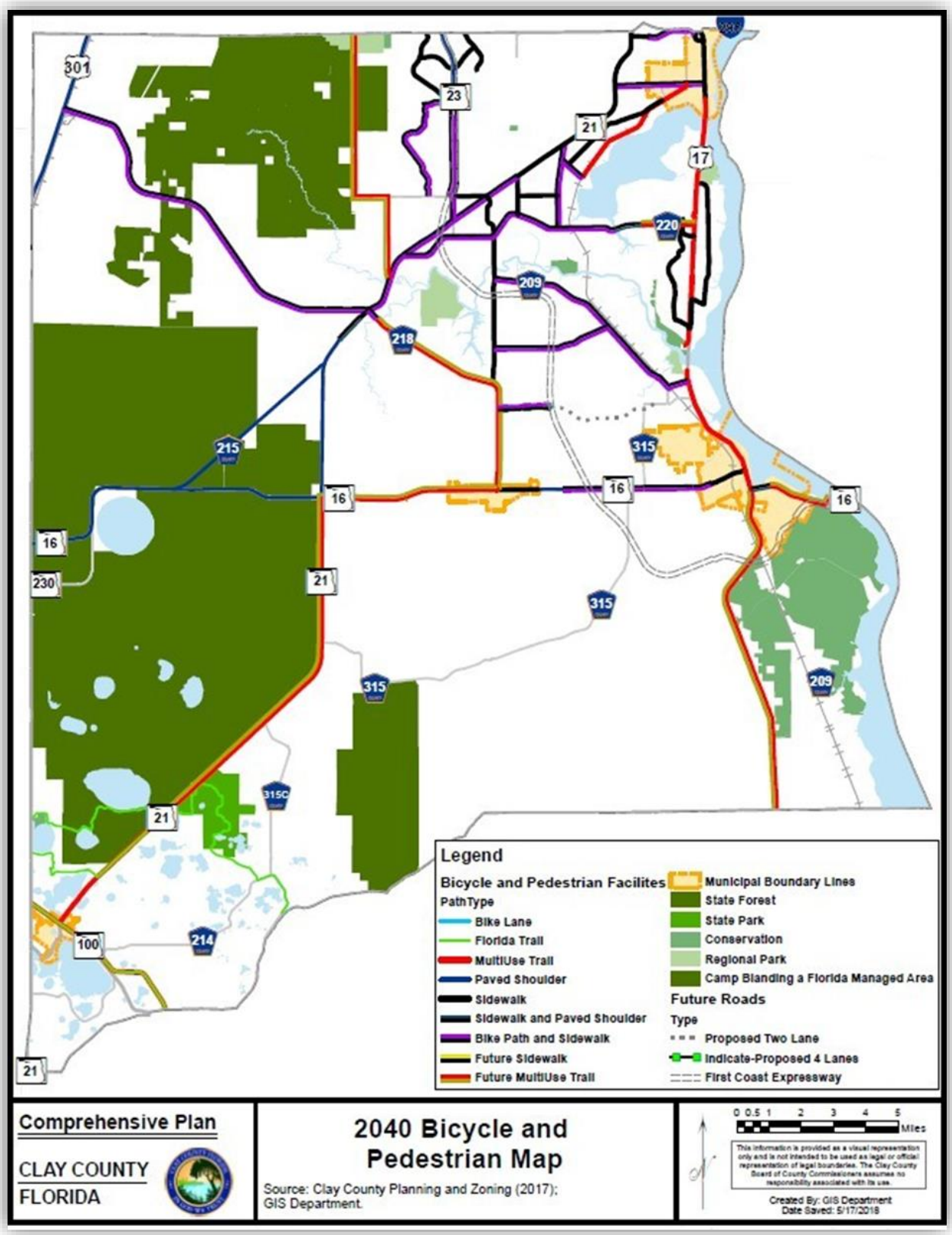


Figure 22: Existing Bike Facilities Orange Park Bicycle and Pedestrian Sub-Area Plan

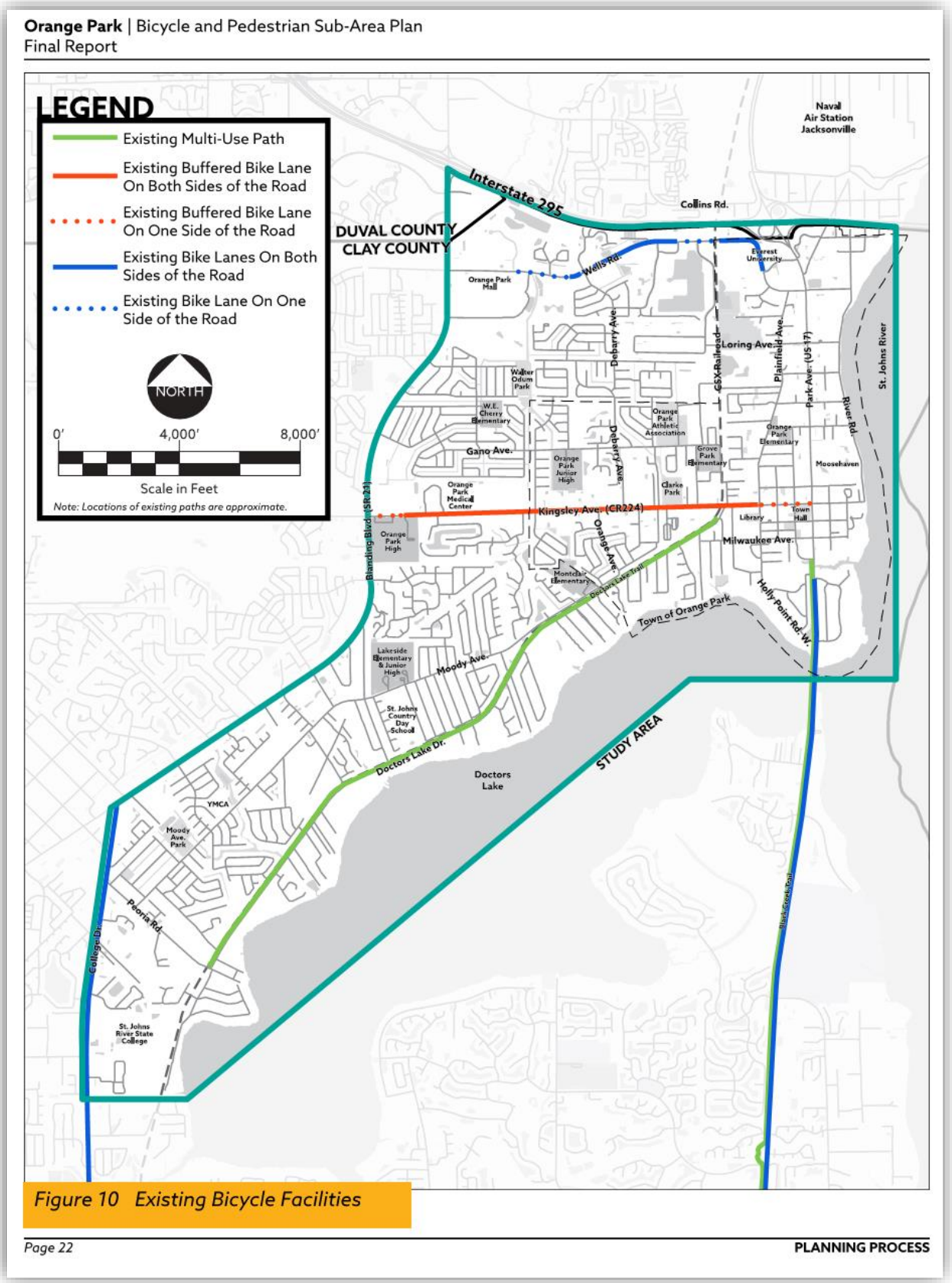


Figure 10 Existing Bicycle Facilities

Figure 23: Existing Pedestrian Facilities Orange Park Bicycle and Pedestrian Sub-Area Plan

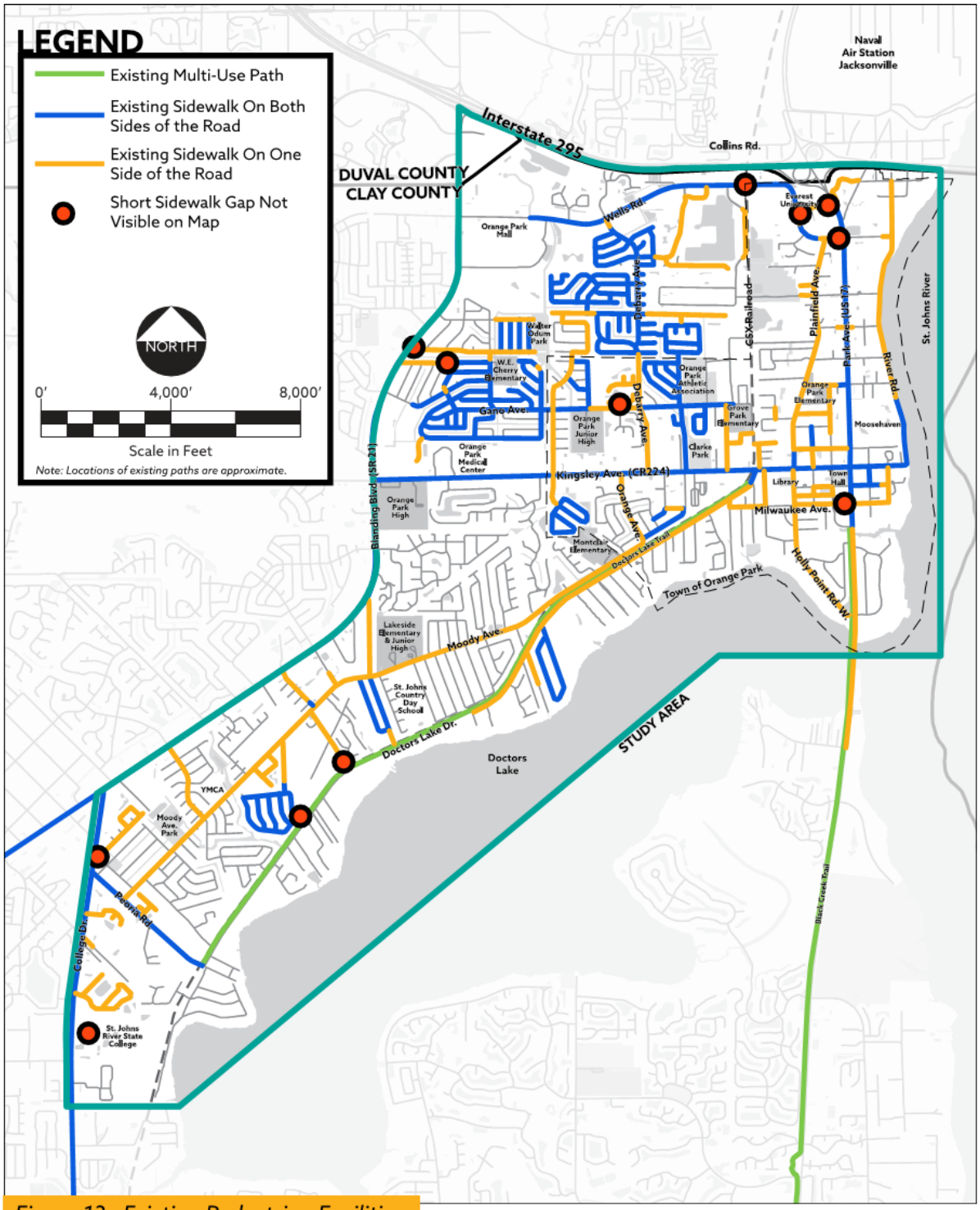


Figure 12 Existing Pedestrian Facilities

F. Public Transportation

Transit service in the study corridor provides a variety of route and stop options to riders. This segment of the SR 21/Blanding Boulevard corridor is central in the Clay County transit network and provides access to and from nearly every service line available in Clay County.

Figure 24: Bus Routes and Stops in Corridor Study Area

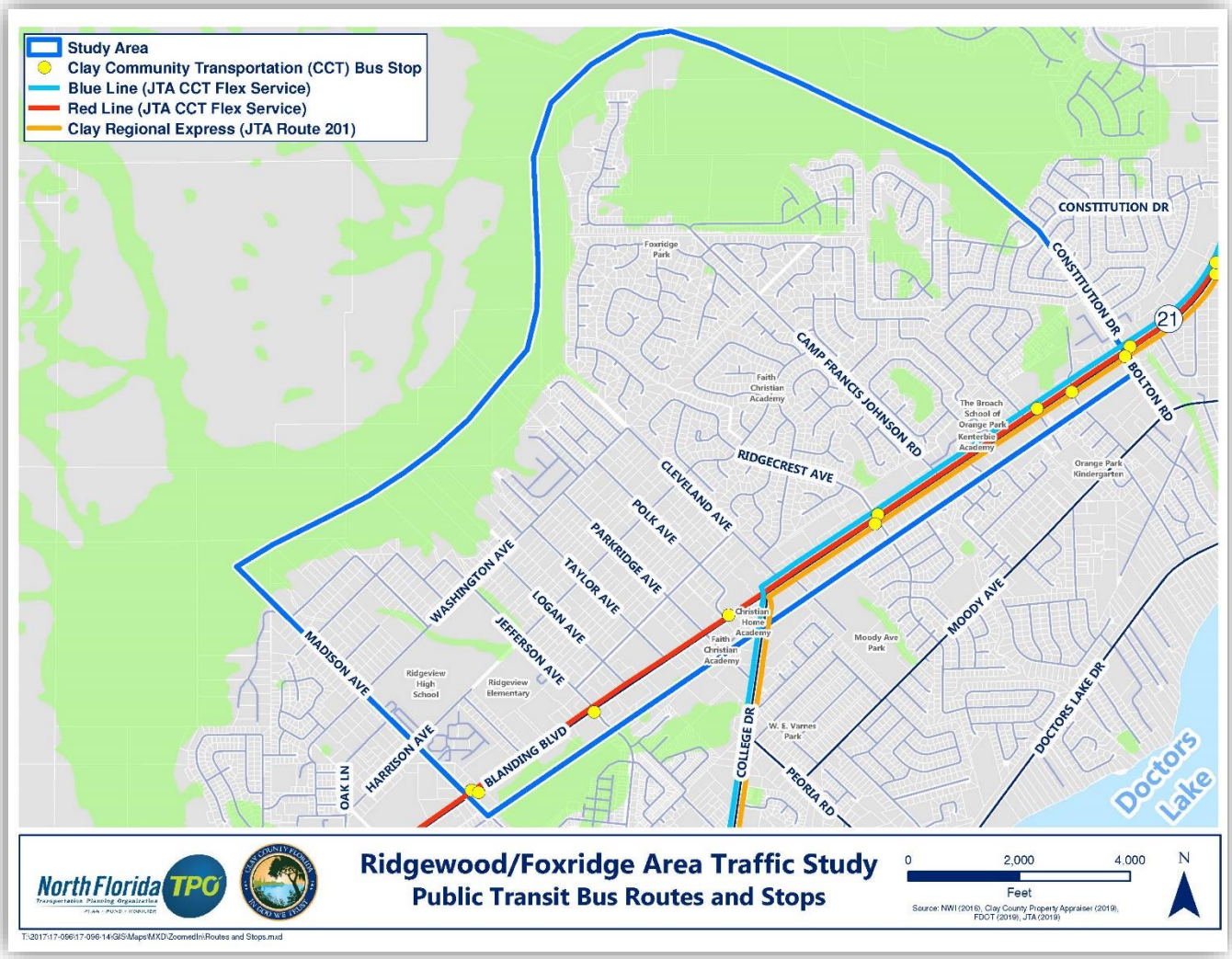
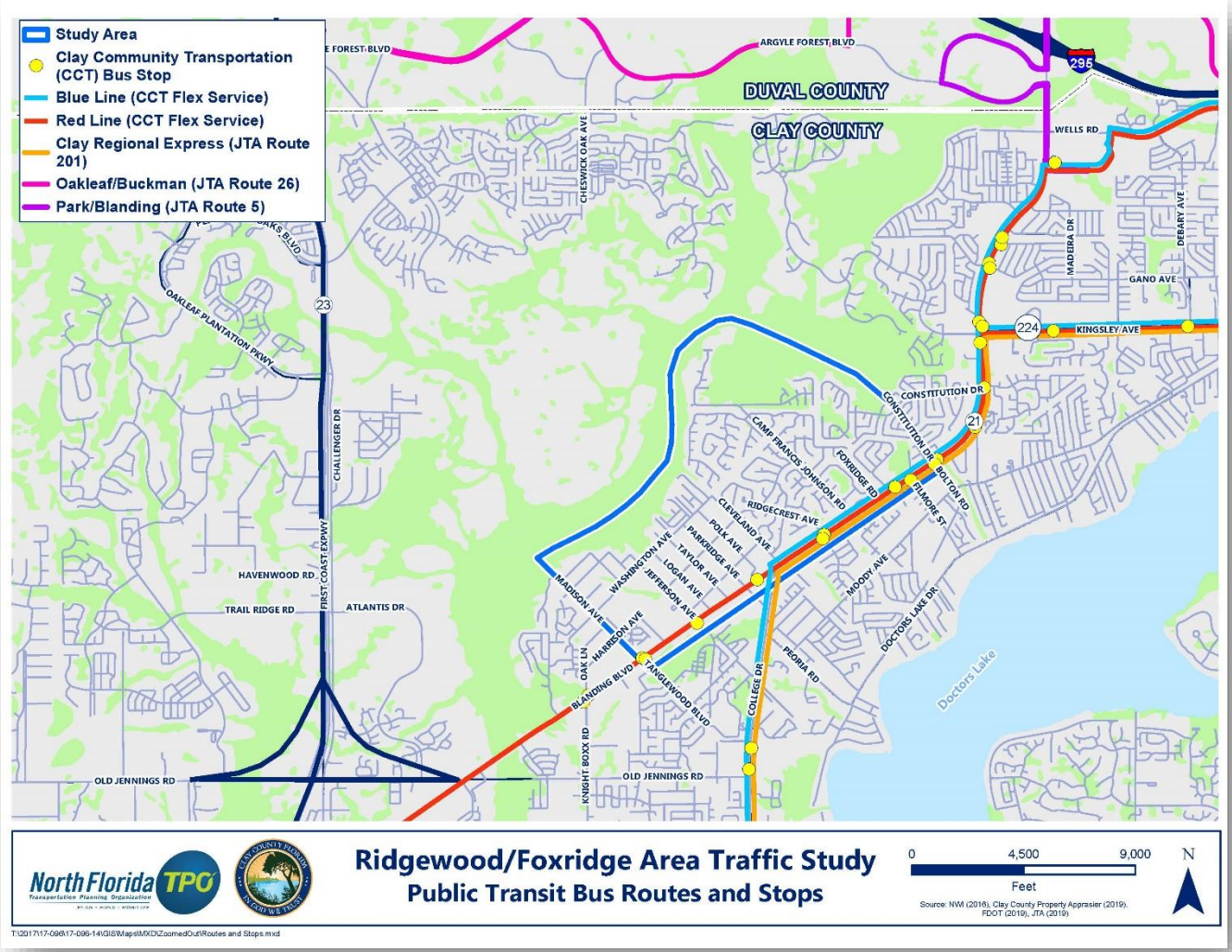


Figure 25 (Regional View of Bus Routes and Stops in Corridor Study Area) shows just how many bus routes can be accessed by this segment.

Figure 25: Regional View of Bus Routes and Stops in Corridor Study Area



This section of SR 21/Blanding Boulevard is served by three JTA bus lines. JTA began providing transit service in Clay County (called Clay Community Transportation) along two transit routes. This new service replaces part of the Clay County Council on Aging's previous transit routes that were recently discontinued. The Red Line serves the entire study corridor. The Blue Line and the Clay Regional Express serves the SR 21/Blanding Boulevard study corridor from Constitution Drive/Bolton Road south to CR 224/College Drive, where they depart SR 21/Blanding Boulevard and continue south along CR 224/College Drive.

Below are the locations the Clay Community Transportation serves:

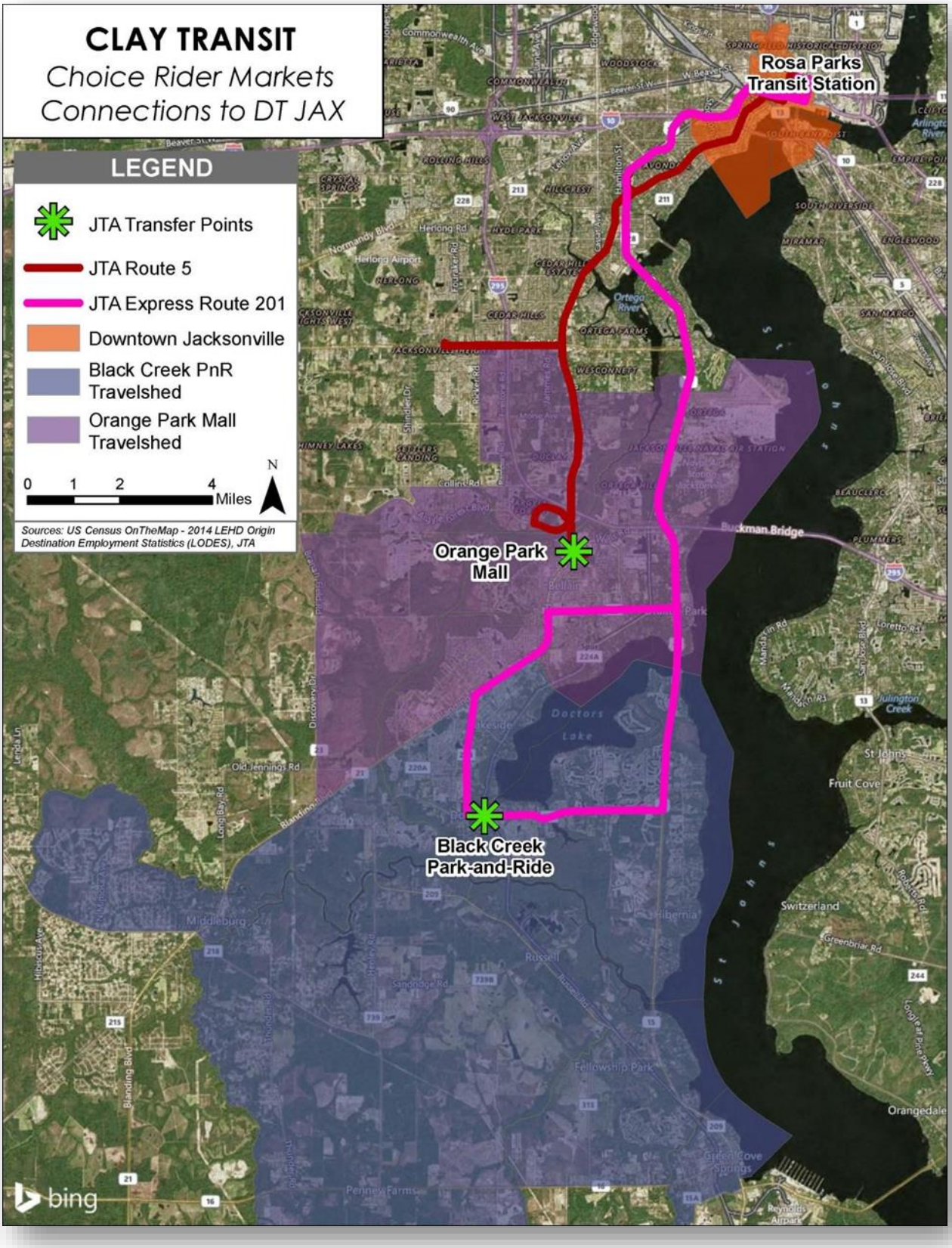
JTA RED LINE:	JTA BLUE LINE:
Clay County Library	Clay County Courthouse
Orange Park Library	Clay County Health Department
Orange Park Mall	Kindred Hospital North Florida
Orange Park Medical Center	Naval Air Station Jacksonville
Orange Park Senior Center	Orange Park Library
St. Vincent's Medical Center	Orange Park Mall
	Orange Park Medical Center
	Orange Park Senior Center
	St. Johns River State College

The Blue Line connects Penney Farms, Green Cove Springs and Orange Park traveling along SR 16, US 17, CR 220, CR 224/College Drive, SR 21/Blanding Boulevard, SR 224/ Kingsley Avenue and Wells Road. It also travels to NAS Jacksonville.

The Red Line connects the Middleburg and Orange Park areas traveling along SR 21/ Blanding Boulevard, SR 224/Kingsley Avenue, US 17/Park Avenue and Wells Road. JTA also operates an express/commuter route (JTA Route 201, Clay Regional Express) that serves Clay County and Jacksonville. It links the Black Creek Park 'N' Ride, located on CR 220, with downtown Jacksonville. Routes coming from Jacksonville terminate at the Orange Park Mall allowing riders to transfer from the Clay County Routes to the buses serving Jacksonville.

The section of SR 21/Blanding Boulevard has been identified by North Florida TPO as a potential choice riders' market. Choice riders are often attracted to public transportation services if it is convenient, cost-effective (cheaper than driving) and/or saves time (faster or comparable travel times to destination).

Figure 26: Clay County Transit Study Choice Rider Market Connections to Downtown Jacksonville



G. Public Input

As part of the traffic study, the study team developed an online survey to collect public input on traffic issues in the study area. The survey was available June 5 – June 30, 2020 and encouraged people familiar with the study area to complete the survey. Specifically, those who live, work, or frequently visit the Ridgewood/Foxridge neighborhoods along SR 21/Blanding Boulevard were encouraged to participate.

The survey was promoted via social media, e-newsletters were sent to over 1,200 North Florida TPO contacts, direct mail postcards were mailed to over 3,000 residents and emails sent to businesses and other stakeholders.

The survey received a significant response, with 328 people responding (answering at least one question). Seventy-one (71) percent of respondents are study area residents and twenty-six (26) percent live in Clay County outside of the study area. The remaining three (3) percent live outside of the County. Other characteristics of survey respondents are listed below.

- Twenty-five (25) percent work in Duval County; thirty-four (34) percent work in Clay County (fifteen (15) percent work in the study area and nineteen (19) percent work outside the study area) and thirty-nine (39) percent do not work outside the home
- Seventy-seven (77) percent travel within or through the study area almost every day
- Ninety-nine (99) percent drive or ride with a family member or friend as their primary method of travel through the study area
- Over half were either 55 to 64 years old (27%) or 65 to 74 years old (26%)
- Forty-nine (49) percent were female, and forty-six (46) percent were male
- Forty (40) percent of respondents had an annual household income of $70,000 or more

Key findings are summarized below.

Key Findings

- The survey asked respondents to select their top three traffic concerns within the study area. The top ranked options were:
    - Weekday traffic backups on SR 21/Blanding Boulevard (55 percent)
    - Speeding on neighborhood streets (39 percent)
    - Unsafe turning conditions (38 percent)
    - Distracted driving (38 percent)
    - Too much cut-through traffic on neighborhood streets (32 percent)

- Weekday traffic backups on neighborhood streets near SR 21/Blanding Boulevard (29 percent).

Additional ranked traffic concerns are identified in Figure 27.

- Respondents were asked to mark up to three locations on a map where they experienced their biggest traffic issues or concerns. The survey collected over 220 written comments. Sample concerns cited in the survey are listed below. Figure 28 illustrates the location of traffic concerns.

  - The intersection of SR 21/Blanding Boulevard and College Drive at the Publix is dangerous. The cut-through traffic at Publix is unsafe. Illegal U-turns on SR 21/Blanding Boulevard at College Drive. U-turns are prohibited at this intersection.

  - The intersection of Cleveland Avenue and SR 21/Blanding Boulevard is dangerous. Speeding on Cleveland Avenue is also dangerous. Traffic trying to turn right onto SR 21/Blanding Boulevard from eastbound Cleveland Avenue to make a U-turn at College Drive is dangerous. There have been many crashes.

  - SR 21/Blanding Boulevard intersection near the Walmart

  - SR 21/Blanding Boulevard intersection at Ridgecrest Avenue

  - Traffic and speeding on Washington Avenue

  - Speeding in general on both local streets and on SR 21/Blanding Boulevard

  - Delay concerns were noted all the signalized intersections along SR21/Blanding Boulevard

  - Distracted driving

Figure 27: Survey Findings Areas of Concern

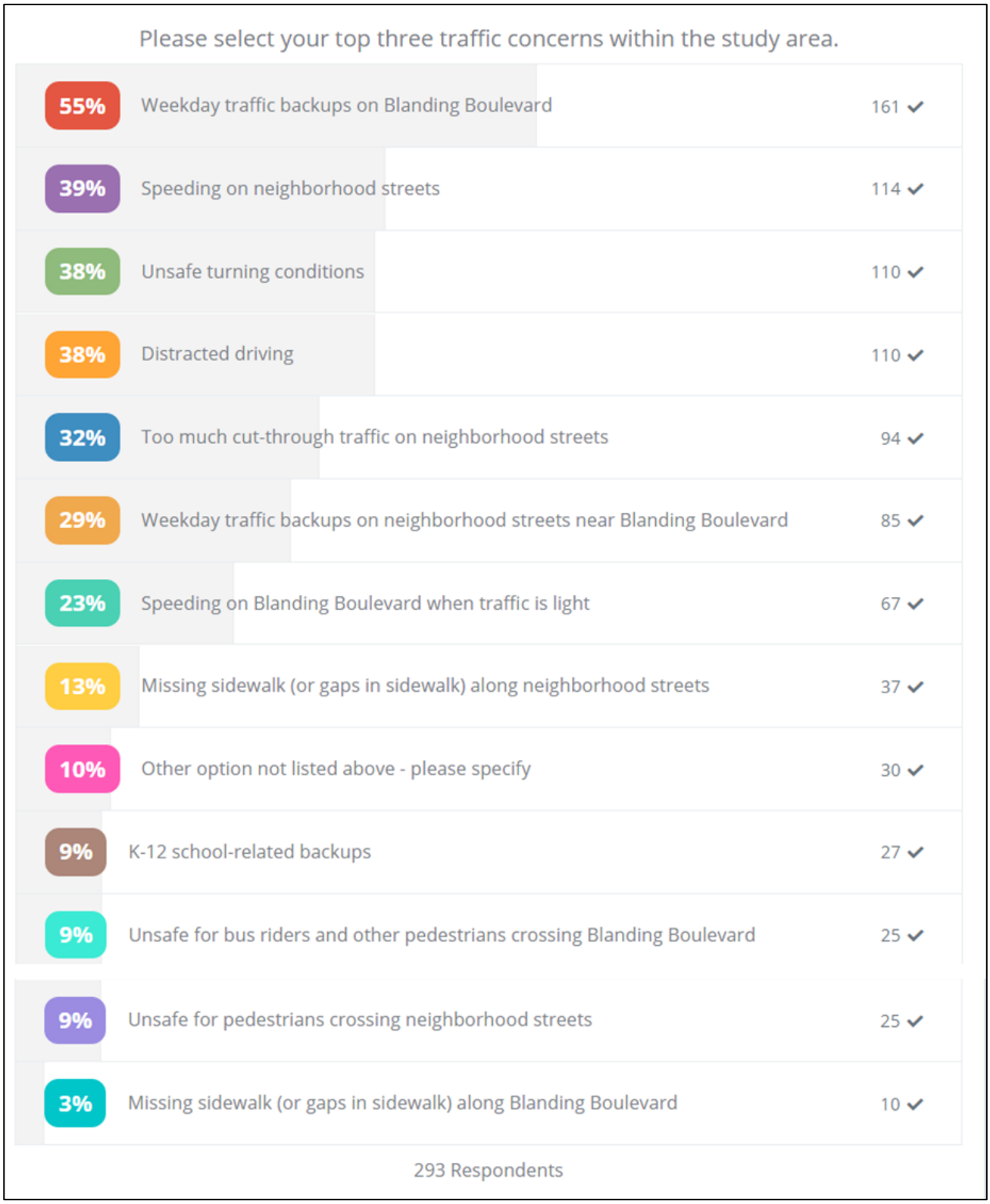
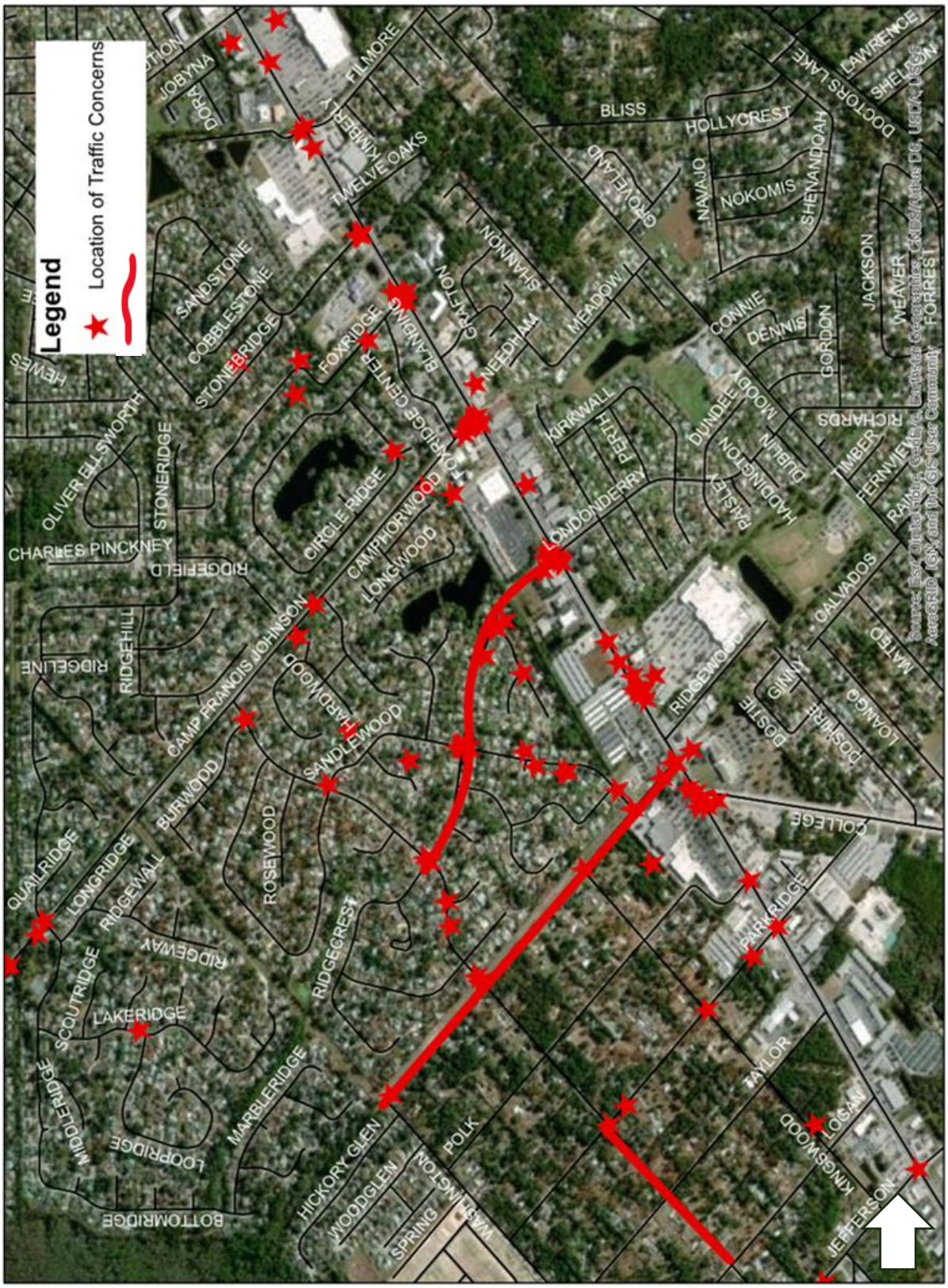


Figure 28: Location of Traffic Concerns



H. Traffic Congestion and Mobility

SR 21/Blanding Boulevard currently operates below the adopted level of service (LOS F), with volumes exceeding capacity north of College Drive. SR 21/Blanding Boulevard is a regional arterial as well as commercial shopping center corridor. Figure 29 shows the existing traffic volumes and level of service within the study area. Level of service for roadway segments is based on an existing traffic average annual traffic (AADT) volume to maximum service volume or capacity ratio (V/C).

Figure 29: Blanding Boulevard 2019 AADT and LOS

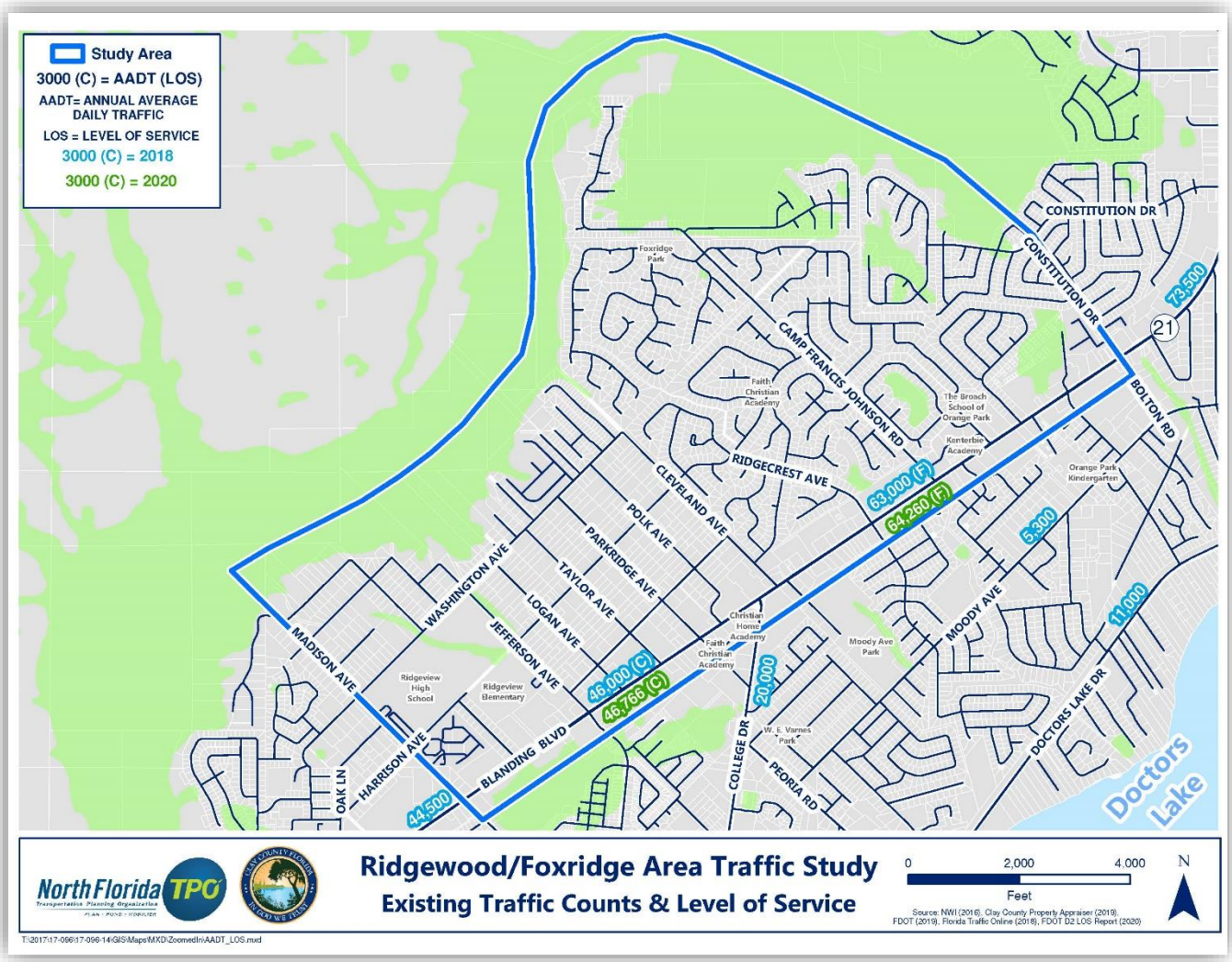
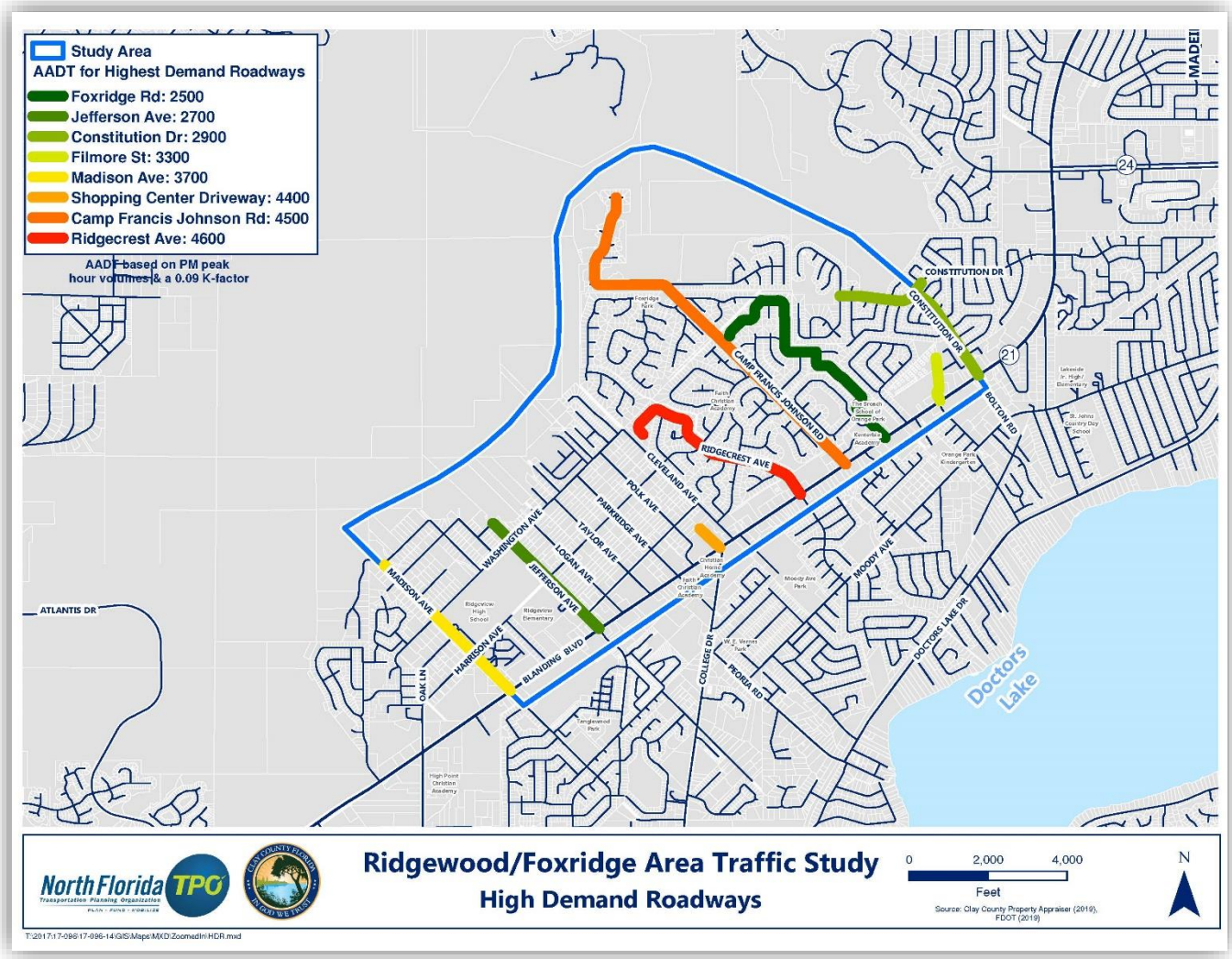


Figure 30 shows the current AADT neighborhood of roadways within the study corridor and highlights the highest traffic demand volume.

Figure 30: Study Segments AADT based on 2019 Turning Movement Counts



AADT volumes are based on existing traffic counts, such as FDOT 2019 count station daily volumes and turning movement counts collected at signalized intersections. Table 4 shows the 2019/2020 AADT, PM peak volume, and level of service (LOS) of study segments based on existing volume to maximum service volume (MSV).

Table 4: 2019 AADT and LOS of Study Segments based on Volume to Capacity Ratio

ROADWAY SEGMENT		2020 Existing Conditions			
		MSV[3 4 5]	2019 AADT	V/C	LOS
North-South Roadways	SR 21/Blanding Boulevard: Madison Avenue - College Drive[1 2]	58,400	46,766	0.80	D
	SR 21/Blanding Boulevard: College Drive - Constitution Drive [1 2]	58,400	64,260	1.10	F
	Harrison Avenue: Ridgecrest Avenue - Camp Francis Johnson Road [6]	10,224	973	0.10	C
East-West Roadways	Madison Avenue: Washington Avenue - SR 21/Blanding Boulevard [2]	10,224	3,656	0.36	C
	Jefferson Avenue:Washingtone Avenue- SR 21/Blanding Boulevard [2]	10,224	2,678	0.26	C
	Cleveland Avenue: Washington Avenue- SR 21/Blanding Boulevard [7]	10,224	889	0.09	C
	Ridgecrest Avenue: Harrison Avenue- SR 21/Blanding Boulevard [2]	10,224	4,589	0.45	C
	Camp Francis Johnson Road: Bottomridge Drive - SR 21/Blanding Boulevard [2]	10,224	4,544	0.44	C
	Foxridge Road: Foxridge Center - SR 21/Blanding Boulevard [2]	10,224	2,533	0.25	C
	Constitution Drive/Bolton Road: George Wythe Rd-SR 21/Blanding Boulevard [2]	10,224	2,922	0.29	C

1 Source: FDOT 2019 FDOT Annual Average Daily Traffic Transportation Data & Analytics office

2 Source: 2019 Peggy Malone & Associates, Inc. Blanding Boulevard 8 Hour Traffic Counts

3 Source 2020 FDOT Quality/Level of Service Handbook Tables Generalized Annual Average Daily Volumes for Florida's Urbanized Areas (Class I: 6 Lane Divided LOS D)

4 Source: 2020 FDOT Quality/Level of Service Handbook Tables Generalized Annual Average Daily Volumes for Florida's Transitioning Areas (Class II: 2 Undivided Non-state Signalized LOS E, -20 reduction median and turn adjustment)

5 Source: 2020 FDOT Quality/Level of Service Handbook Tables Generalized Annual Average Daily Volumes for Florida's Urbanized Areas (Class I: 4 Lane Divided LOS D)

6 Source: Volumes Estimated from Speed Counts Clay County

7 Source: 2020 Peggy Malone & Associates, Inc. Ridgewood/Foxridge Traffic Counts

Refer to Appendix E for 2019 and 2020 Traffic Counts

Cut-through

Traffic patterns in the Ridgewood/Foxridge neighborhood reveal drivers' preferred traffic routes. The most significant source of cut-through traffic is outbound from neighborhood streets to access SR 21/Blanding Boulevard. Peak travel directions on connecting neighborhood streets reveal driver short-cut patterns to avoid delay on SR 21/Blanding Boulevard. Inbound and outbound cut-through routes can be identified by the direction of peak volume traffic.

AM and PM peak volumes indicate two types of outbound cut-through traffic patterns.

AM peak cut-through patterns reflect the driving habits of residents from within the neighborhood. AM peak traffic directions shows residents exiting the neighborhood street to enter the northbound lanes of SR 21/Blanding Boulevard. This pattern reflects the outbound morning home-work trips from the neighborhood to Orange Park and the employment centers of Jacksonville. AM peak travel patterns show residential traffic originating at the southern end of the neighborhood tends to avoid SR 21/Blanding Boulevard by using Harrison Avenue. Traffic is funneled to Harrison Avenue from Cleveland Avenue and Polk Avenue to access SR 21/Blanding Boulevard via Ridgecrest Avenue.

Table 5: Study Segment AM and PM Peak Hour Entering and Exiting Trips

SR 21 Intersection	Peak Hour	Peak Hour Volumes	
		Entering	Exiting
Jefferson Avenue	AM	172	171
		50%	50%
	PM	117	124
		49%	51%
College Drive/Publix Driveway	AM	226	241
		48%	52%
	PM	200	193
		51%	49%
Ridgecrest Avenue	AM	69	114
		38%	62%
	PM	182	231
		44%	56%
Camp Francis Johnson Road	AM	133	292
		31%	69%
	PM	295	214
		58%	42%

Source: 2019 Peggy Malone & Associates, Inc. Blanding Boulevard 8 Hour Traffic Counts

PM peak volumes show a different type of cut-through. PM peak cut-through traffic does not originate from residents in the neighborhood.

Table 5 shows the AM and PM peak entering and exiting volumes at Jefferson Avenue, Ridgecrest Avenue and Camp Francis Johnson Road. Jefferson Avenue and Camp Francis Johnson Road have peak volume patterns consistent with residential streets. The AM and PM peak volumes are balanced and the entering and exiting split is reversed. AM peak volumes in residential areas are outbound, and PM volumes are largely inbound.

The PM peak entering and exiting volumes at Ridgecrest Avenue reveal traffic volumes inconsistent with typical residential PM peak traffic. The entering and exiting volumes at Ridgecrest Avenue are more consistent with commercial PM peak directional volumes. The AM and PM peak volumes at the Ridgecrest Avenue intersection are not balanced and the entering and exiting split is not inverse. The total AM peak volume entering and exiting at Ridgecrest Avenue is 183, with a 62% outbound peak direction. The total PM peak volume entering and exiting at Ridgecrest Avenue is 413, with a 56% outbound peak direction.

This pattern shows traffic traveling outbound from within the Ridgecrest neighborhood tends to avoid SR 21/Blanding Boulevard and the College Drive intersection. Traffic exiting the Publix parking lot at College Drive routinely bypasses the College Drive intersection by driving through the Publix parking lot to exit at Ridgecrest Avenue. Traffic is funneled to Harrison Avenue from Cleveland Avenue and Polk Avenue to access SR 21/Blanding Boulevard via Ridgecrest Avenue.

These cut-through patterns suggest that eastbound to northbound left-turn delays at College Drive and SR 21/Blanding Boulevard are longer than drivers are willing to wait. These high intersection delays result in some neighborhood street segments receiving excessive volumes of traffic due to the connectivity they offer.

I. Traffic Operational Analysis (Existing Year)

Capacity and level of service (LOS) are two important terms applied to traffic operation and are given suitable definitions by the highway capacity manual. Capacity represents the ability of the system to manage traffic whereas level of service looks at the system from the driver's perspective. Level of service ranges from level A to F, A representing the free flow conditions and F representing the worst traffic conditions like low speed and prolonged delays.

An operational analysis of existing conditions was conducted using Synchro/SimTraffic analysis software. Synchro software was used to model the roadway network and provide a detailed analysis of the signalized and non-signalized intersection operations. The software considers the effects of signal spacing and signal coordination, including actuated and semi-actuated signal operations, and incorporates traffic volumes, signal timing and vehicle detection. The model output includes intersection approach delays, volume-to-capacity ratios, estimated queue lengths, and level of service (LOS) results. SimTraffic uses the Synchro model to simulate system-wide traffic operations and produces a visual model of the operating roadway network. This software was used to form a complete and detailed analysis of the system operations.

Intersection turning-movement counts were collected by Peggy Malone & Associates, Inc 2019 and 2020. The existing roadway network (with 2019 and 2020 traffic volumes) was analyzed and the LOS for the various intersections were determined. The analyses at the signalized intersections were based on existing traffic signal timings obtained from Clay County.

See Table 6 for the LOS and delay results. Please refer to Appendix F for the supporting traffic-analysis results.

Table 6: 2019 Signalized Intersections Synchro Results

SR 21 Intersection	Approach	Approach Delay (Sec/Veh)		Approach LOS		Intersection Delay (Sec/Veh)		Intersection LOS	
		AM	PM	AM	PM	AM	PM	AM	PM
Madison Ave./Tanglewood Blvd.	Blanding Blvd. NB	13.6	24.3	B	C	24.8	25	C	C
	Blanding Blvd. SB	15.1	18.5	B	B				
	Madison Ave. EB	104.4	70.6	F	E				
	Tanglewood Blvd. WB	71.6	81.1	E	F				
Jefferson Avenue	Blanding Blvd. NB	5.2	11.7	A	B	14.3	21.1	B	C
	Blanding Blvd. SB	7.4	15.4	C	B				
	Jefferson Avenue EB	93.0	96.5	F	F				
	Jefferson Avenue WB	53.9	92.0	E	F				
College Drive	Blanding Blvd. NB	43.6	99.2	C	F	44.2	66	D	E
	Blanding Blvd. SB	25.7	43.4	D	D				
	Publix Driveway EB	67.4	127.9	E	F				
	College Drive WB	81.8	63.7	F	E				
Locustwood Court	Blanding Blvd. NB	4.4	21.3	A	C	8.9	18.8	A	B
	Blanding Blvd. SB	11.5	11.2	B	B				
	Locustwood Court EB	93.4	121.2	F	F				
	Walmart Driveway WB	49.8	50.5	D	D				
Ridgecrest Avenue	Blanding Blvd. NB	2.7	13.0	C	B	9.3	23.8	A	C
	Blanding Blvd. SB	11.9	22.9	B	C				
	Ridgecrest Avenue EB	60.2	60.3	E	E				
	Londonderry Drive WB	49.8	69.4	E	E				
Camp Francis Johnson Road	Blanding Blvd. NB	7.6	14.3	A	A	24.2	9.7	C	A
	Blanding Blvd. SB	23.0	8.5	C	A				
	Camp Francis Johnson Road EB	135.0	199.9	F	E				
	Driveway WB	0.3	85.8	A	D				
Foxridge Road	Blanding Blvd. NB	40.6	7.4	D	A	29.2	9.1	C	A
	Blanding Blvd. SB	8.5	7.6	A	A				
	Foxbridge Road EB	59.9	68.9	E	E				
	Driveway WB	52.0	41.0	D	D				
Filmore Street	Blanding Blvd. NB	1.9	21.2	A	C	13.4	18.8	B	B
	Blanding Blvd. SB	13.2	4.7	D	A				
	Filmore Street EB	80.3	72.0	F	E				
	Filmore Street WB	74.6	77.7	F	E				
Constitution Drive/Bolton Road	Blanding Blvd. NB	4.9	19.0	A	B	11.9	25.7	B	C
	Blanding Blvd. SB	10.8	20.5	E	C				
	Constitution Drive EB	79.8	96.9	E	F				
	Bolton Road WB	76.7	88.4	D	F				

Source: Synchro 10

IV. STUDY AREA NEEDS IDENTIFICATION AND IMPROVEMENT PERFORMANCE MEASURES

Traffic network deficiencies in the Ridgewood/Foxridge study area are identified to define improvement needs. Existing network deficiencies identify the adverse condition or activity that reduces users' network quality of service. Study area needs are defined as improvement outcomes that either enhance network level of service or mitigate adverse network conditions. Improvement alternatives are evaluated based on consistency with study area needs and planning objectives.

Project improvement alternative level of service and operational performance is evaluated using a build and no build alternative comparison. The no build conditions serve as the baseline for comparison against the various build alternatives.

Community Context and Land Use Patterns

Neighborhood streets function to serve residential drivers and pedestrian activity. Commercial destination traffic cut-through on neighborhood streets threatens the residential quality of service and safety.

Improvement objectives should maintain the commercial context of the SR 21/Blanding Boulevard corridor. Improvement objectives should also protect and maintain the residential context of surrounding land and control commercial traffic access through residential streets.

Natural Features

Improvement objectives should minimize impacts to protected environmental features.

Roadway Safety

Uncontrolled access points, in close proximity to intersections increase conflict points and potential crashes. Unsignalized intersections without crosswalks create conflict points between drivers and pedestrians by enabling unprotected pedestrian crossing.

Improvement objectives should reduce or eliminate conflicts points between residential and commercial traffic and improve conditions associated with crashes.

Sidewalks and Bike Lanes

The mobility network in and around the study area has significant connectivity gaps between pedestrian and bike facilities, as well as transit. Few neighborhood streets have sidewalks connecting to safe crosswalks. Neighborhood streets should have an interconnected multimodal system that provides safe and convenient movement for pedestrians and bicyclists.

Improvement objectives should connect sidewalks and bike paths. Improvements should provide protected crosswalks at intersections and discourage crossing at unsignalized intersections without crosswalks.

Public Transportation

The existing sidewalk gaps and missing bike lanes do not support the transit routes on SR 21/Blanding Boulevard. Unsignalized intersections without protected crosswalks create hazardous conditions for transit riders. Lack of sidewalk and bike connectivity limits transit access.

Improvement objectives should enhance transit with continuous sidewalk and safe crosswalks that provide access on both sides of SR 21/Blanding Boulevard.

Public Input

Improvement objectives should respond to neighborhood concerns.

Traffic Congestion and Mobility

SR 21/Blanding Boulevard currently operates below the adopted level of service (LOS F), with volumes exceeding capacity north of College Drive. Neighborhood streets operate below capacity. Congestion and poor quality of service in the Ridgewood/Foxridge residential area are due to two major factors: 1) regional traffic demands on SR 21/Blanding Boulevard and 2) uncontrolled access to and between neighborhood streets. Current cut-through traffic patterns result in underutilized signal capacity at some intersections and over capacity signals at other intersections.

Improvement objectives should maintain or improve service volumes for study roadways. Improvements should reduce congestion from cut-through traffic and enhance mobility for residential traffic.

Traffic Operations

Traffic volumes along the study corridor indicate significant congestion and delay entering and exiting neighborhoods from SR 21/Blanding Boulevard. SR 21/Blanding Boulevard and neighborhood streets have different operational requirements. SR 21/Blanding Boulevard operational performance objectives serve regional traffic and commercial corridor traffic. Residential streets level of service may suffer delays to serve the regional traffic on SR 21/Blanding Boulevard.

Improvement objectives should maintain or improve operational performance of signalized intersection. Improvements should reduce delay on side streets from residential traffic entering and exiting onto SR 21/Blanding Boulevard.

V. SHORT-TERM IMPROVEMENT ALTERNATIVES

A. Short-term Improvement Alternative Option One: 2020 Coordinated Signal Timing Plan

Description

A strategic traffic management signal timing plan that balances the needs of the commuter traffic with needs of area residents to improve vehicular service volume and reduce delays on primary neighborhood streets. The alternative presents a coordinated timing plan for the study segment of SR 21/Blanding Boulevard that optimizes signalized service volumes on neighborhood streets without increased delays on SR 21/Blanding Boulevard.

Project improvement alternative level of service and operational performance is evaluated using a build, no build alternative comparison. The 2020 existing conditions serve as the baseline for comparison.

Table 7 shows Short-term Improvement Alternative Option One Coordinated Signal Timing Plan anticipated traffic operational performance based on 2020 traffic volumes and proposed signal timing plan. Table 8 presents the improvement alternative performance and consistency with study area needs. Please refer to Appendix G for the supporting traffic-analysis results.

Table 7: Short-term Improvement Alternative Option One Coordinated Signal Timing Plan
2020 Traffic Network Operational Performance

SR 21 Intersection	Approach	Approach Delay (Sec/Veh)		Approach LOS		Intersection Delay (Sec/Veh)		Intersection LOS	
		AM	PM	AM	PM	AM	PM	AM	PM
Madison Ave./Tanglewood Blvd.	Blanding Blvd. NB	29.4	17.1	C	B	24.7	25	C	C
	Blanding Blvd. SB	10.3	5.1	B	A				
	Madison Ave. EB	38.6	47.9	D	D				
	Tanglewood Blvd. WB	28.4	40.9	C	D				
Jefferson Avenue	Blanding Blvd. NB	9.4	6.7	A	A	10.4	10.7	B	B
	Blanding Blvd. SB	3.5	6.0	A	A				
	Jefferson Avenue EB	42.3	52.5	D	D				
	Jefferson Avenue WB	19.7	57.9	B	E				
College Drive	Blanding Blvd. NB	34.5	66.3	C	E	44.2	54.9	D	D
	Blanding Blvd. SB	46.2	40.8	D	D				
	Publix Driveway EB	55.3	103.8	E	F				
	College Drive WB	69.8	66.1	E	E				
Locustwood Court	Blanding Blvd. NB	6.4	19.0	A	B	8.9	18.8	A	B
	Blanding Blvd. SB	11.2	16.9	B	B				
	Locustwood Court EB	74.2	71.2	E	E				
	Walmart Driveway WB	38.1	38.7	D	D				
Ridgecrest Avenue	Blanding Blvd. NB	2.1	9.1	A	A	9.3	23.8	A	C
	Blanding Blvd. SB	1.6	6.3	A	A				
	Ridgecrest Avenue EB	57.3	45.2	E	E				
	Londonderry Drive WB	44.9	55.0	D	D				
Camp Francis Johnson Road	Blanding Blvd. NB	10.1	20.1	B	C	20.2	9.7	C	A
	Blanding Blvd. SB	24.9	11.7	C	B				
	Camp Francis Johnson Road EB	65.3	67.2	E	E				
	Driveway WB	0.2	34.1	A	C				
Foxridge Road	Blanding Blvd. NB	2.7	7.1	A	A	6.9	9.1	A	A
	Blanding Blvd. SB	10.4	10.6	B	B				
	Foxbridge Road EB	48.4	42.6	D	D				
	Driveway WB	41.3	26.4	D	C				
Filmore Street	Blanding Blvd. NB	4.0	19.9	A	B	11.6	15.1	B	B
	Blanding Blvd. SB	13.2	3.3	B	A				
	Filmore Street EB	49.8	48.6	D	D				
	Filmore Street WB	46.5	57.8	D	E				
Constitution Drive/Bolton Road	Blanding Blvd. NB	4.8	15.7	A	B	11.2	12.9	B	B
	Blanding Blvd. SB	12.4	4.9	B	A				
	Constitution Drive EB	60.3	51.1	E	D				
	Bolton Road WB	58.4	57.2	E	E				

Source: Synchro 10

Table 8: Short-term Improvement Alternative Option One Performance Evaluation Consistency Determination

STUDY AREA NEED	PERFORMANCE EVALUATION	CONSISTENCY DETERMINATION
Community Context and Land Use Patterns	The proposed improvement supports the commercial context of the SR 21/Blanding Boulevard corridor. The proposed improvement supports the residential context of the study area neighborhood by reducing the delay on side streets that contributes to traffic commercial cut-through traffic.	***Consistent***
Natural Features	The proposed improvement has no impacts to protected environmental features.	***No Impact***
Roadway Safety	The proposed improvement may reduce conflict points between residential and commercial traffic and improve conditions associated with crashes by reducing the delay on side streets that contributes to commercial traffic cut-though.	***Consistent***
Sidewalks and Bike Lanes	The proposed improvement has no impact on sidewalks, bike lanes or protected crosswalks.	***No Impact***
Public Transportation	The proposed improvement has no impact on public transportation.	***No Impact***
Public Input	The proposed improvement responds to the most important community concern by reducing delay at side street intersections on SR 21/Blanding Boulevard, and reducing overall delay within the study area.	***Consistent***
Traffic Congestion and Mobility	The proposed improvement will reduce congestion and improve mobility by reducing delay at side street intersections on SR 21/Blanding Boulevard, and reducing overall delay within the study area.	***Consistent***
Traffic Operations	The proposed improvement will improve traffic operations within the study area by reducing delay at side street intersections on SR 21/Blanding Boulevard, and reducing overall delay within the study area.	***Consistent***

B. Short-term Improvement Alternative Option Two: 2020 Travel Demand Management and Mobility Plan

Description

A strategic travel demand management plan to improve overall network service volume by reducing intersection delay, limiting cut-through traffic and establishing an interconnected multimodal network. This alternative limits connections between specific neighborhood streets to prevent commercial cut-through and distribute traffic more efficiently at signalized intersections.

The alternative proposes two major improvements to Cleveland Avenue to reduce congestion and increase mobility.

1) *Limited access along Cleveland Avenue at Harrison Avenue and Kingswood Avenue.* This would be accomplished by installation of a full median barrier from College Drive at SR21/Blanding Boulevard to Washington Avenue. Diverted median openings would restrict access and prevent cut-through. Limiting access to Harrison Avenue from Cleveland Avenue reduces cut-through traffic volumes that contribute to additional congestion and longer delays at SR21/Blanding Boulevard signalized.

2) *Installation of a protected multi-use path on both sides of Cleveland Avenue connecting the College Drive bicycle and pedestrian network to Washington Avenue*. The improvement provides a safe, complete, and continuous bicycle and pedestrian corridor from the Ridgewood/Foxridge neighborhood to the regional mobility network. Linking this multi-use path to the College Drive bike/ped network provides a multimodal connection south to Peoria Road and to the Doctor's Lake Trail.

Project improvement alternative level of service and operational performance is evaluated using a build, no build alternative comparison. The 2020 existing conditions serve as the baseline for comparison.

Table 9 presents the improvement alternative performance and consistency with study area needs.

Table 9: Short-term Improvement Alternative Option Two Performance Evaluation Consistency Determination

STUDY AREA NEED	PERFORMANCE EVALUATION	CONSISTENCY DETERMINATION
Community Context and Land Use Patterns	The proposed improvement supports the commercial context of the SR 21/Blanding Boulevard corridor The proposed improvement supports the residential context of the study area neighborhood by reducing the delay on side streets that contributes to traffic commercial cut-though.	***Consistent***
Natural Features	The proposed improvement has no impacts to protected environmental features.	***No Impact***
Roadway Safety	The proposed improvement may reduce conflict points between residential and commercial traffic and improve conditions associated with crashes by reducing the delay on side streets that contributes to commercial traffic cut-though.	***Consistent***
Sidewalks and Bike Lanes	The improvement provides a safe, complete and continuous bicycle and pedestrian corridor from the Ridgecrest/Foxridge neighborhood to the regional mobility network.	***Consistent***
Public Transportation	The improvement provides a complete streets corridor that connects the Ridgewood/Foxridge neighborhood to the regional mobility and transit network.	***Consistent***
Public Input	The proposed improvement responds to community concerns by controlling cut-through traffic on Harrison Avenue, Sandalwood Drive, Cleveland Avenue and Ridgecrest Avenue.	***Consistent***

Traffic Congestion and Mobility	The improvement expands transportation capacity in Ridgewood/Foxridge corridor with a regional mobility network. The proposed improvement will reduce congestion and improve mobility by reducing delay at side street intersections on SR 21/Blanding Boulevard, and reducing overall delay within the study area. The proposed improvement responds to community concerns by controlling cut-through traffic on Harrison Avenue, Sandalwood Drive, Cleveland Avenue and Ridgecrest Avenue.	***Consistent***
Traffic Operations	The proposed improvement will improve traffic operations within the study area by reducing delay at side street intersections on SR 21/Blanding Boulevard and reducing overall delay within the study area.	***Consistent***

VI. LONG TERM IMPROVEMENTS

This study evaluates 2045 future traffic conditions to identify future improvement needs based on anticipated traffic demand. A 2045 network analysis of future roadway network conditions was extracted from Regional NERPM-AB 2v1 travel demand model, processed on CUBE 6.4.5. The traffic volumes and level of service conditions based on segment capacity were estimated based on 2045 model conditions.

Project improvement alternatives level of service and operational performance is evaluated using a build, no build alternative comparison. The 2045 no build conditions serves as the baseline for evaluating the alternatives.

A. 2045 Projected Conditions No Build Alternative

Description

The 2045 No-Build contains the approved North Florida TPO 2045 LRTP cost feasible projects, including Cheswick Oak Avenue Extension from Wilford Preserve Entrance to Challenger Drive and to the First Coast Expressway. The Cheswick Oak Avenue Extension is also included on the Branan Field Master Plan's 2040 Future Land Use Map, adopted as part of Clay County's Comprehensive Plan. Figure 31 shows the Long-Term Improvement 2045 No Build Alternative Map.

See Appendix C for North Florida TPO 2045 LRTP Cost Feasible Projects.

Table 10 shows the anticipated 2045 projected AADT traffic volumes, network volume to capacity ratios and Level of Service. Figure 32 shows the projected volume to capacity ratio of study segments based on 2045 future traffic conditions.

Figure 31: Long Term Improvement 2045 No Build Alternative Map

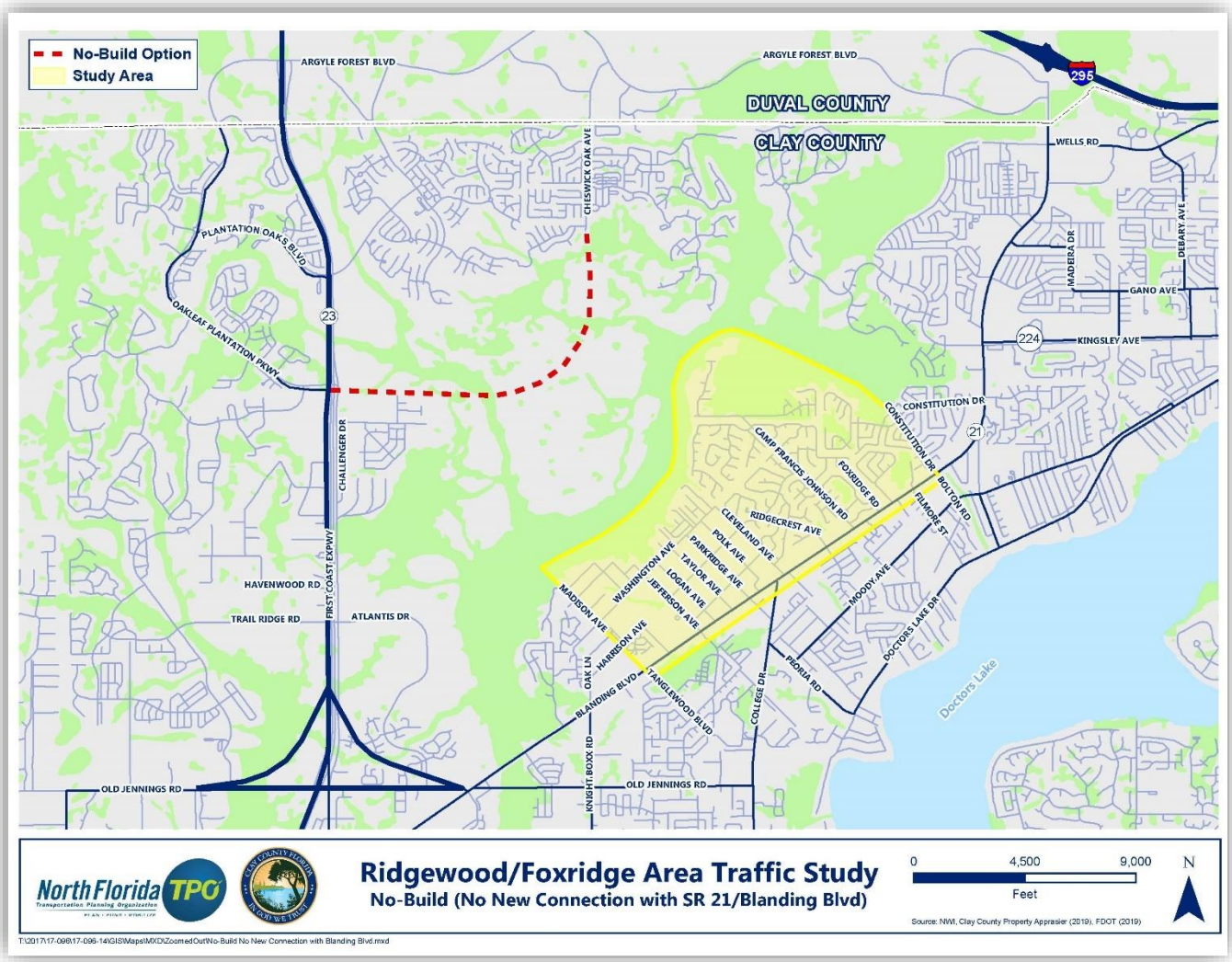
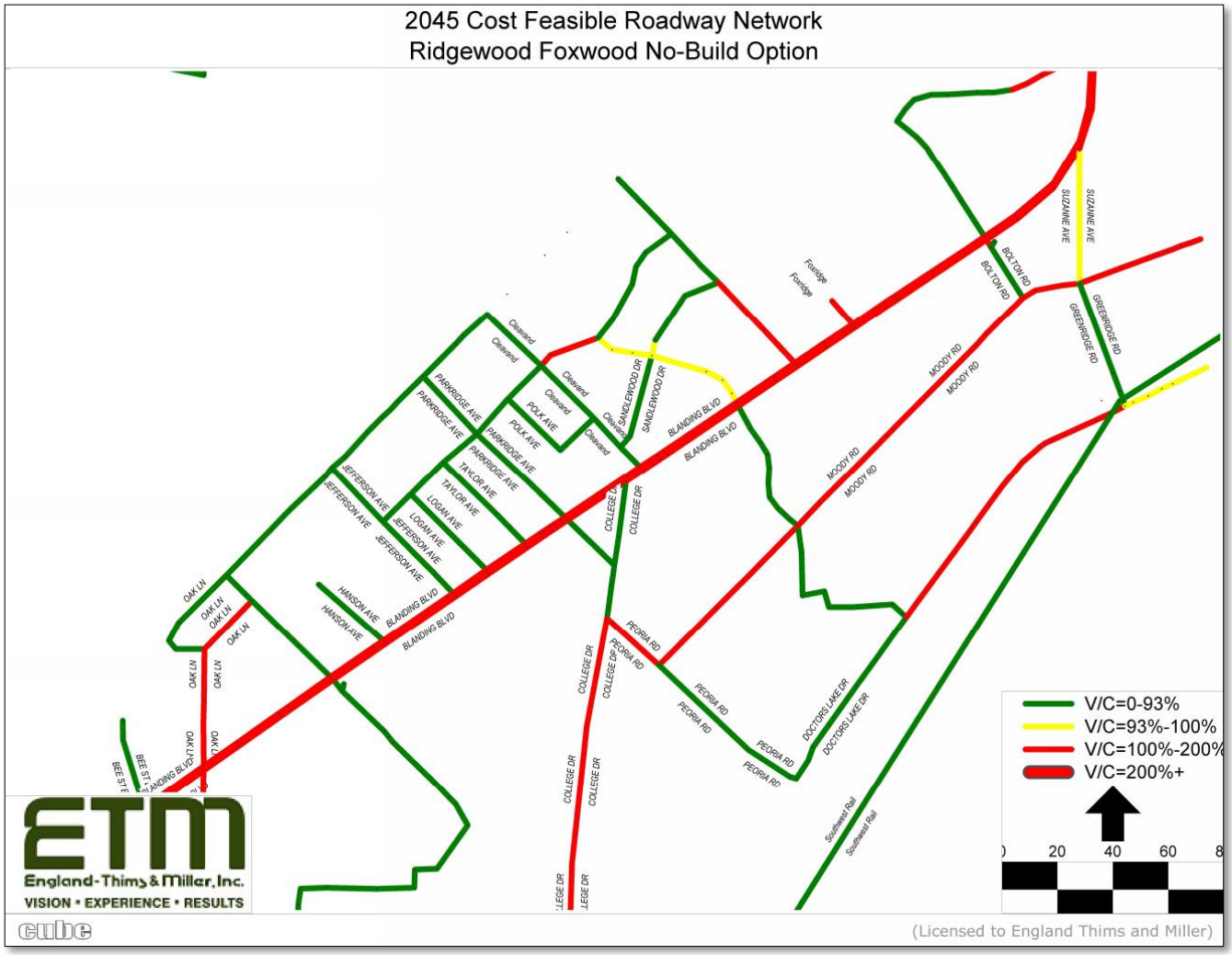


Table 10: 2045 No Build Alternative Projected AADT, Volume to Capacity and LOS

ROADWAY SEGMENT			2045 Future Conditions		
		MSV[3 4 5]	2045 AADT	V/C	LOS
North-South Roadways	SR 21/Blanding Boulevard: Madison Avenue - College Drive[1 2]	58,400	68,403	1.17	F
	SR 21/Blanding Boulevard: College Drive - Constitution Drive [1 2]	58,400	70,125	1.20	F
	Harrison Avenue: Ridgecrest Avenue - Camp Francis Johnson Road [6]	10,224	9,020	0.88	C
East-West Roadways	Madison Avenue: Washington Avenue - SR 21/Blanding Boulevard [2]	10,224	3,656	0.36	C
	Jefferson Avenue:Washingtone Avenue- SR 21/Blanding Boulevard [2]	10,224	4,313	0.42	C
	Cleveland Avenue: Washington Avenue- SR 21/Blanding Boulevard [7]	10,224	3,346	0.33	C
	Ridgecrest Avenue: Harrison Avenue- SR 21/Blanding Boulevard [2]	10,224	7,624	0.75	C
	Camp Francis Johnson Road: Bottomridge Drive - SR 21/Blanding Boulevard [2]	10,224	8,192	0.80	C
	Foxridge Road: Foxridge Center - SR 21/Blanding Boulevard [2]	10,224	8,267	0.81	C
	Constitution Drive/Bolton Road: George Wythe Rd-SR 21/Blanding Boulevard [2]	10,224	7,619	0.75	C

Source: NERPM-AB 2v1

Figure 32: 2045 No Build Future Alternative Conditions Anticipated Roadway Volume to Capacity



B. Long-Term Improvement Alternative Option One: 2045 Future Conditions Extension to Cheswick Oak Avenue

Description

Long-Term Improvement Alternative Option One includes a potential connection between SR 21/Blanding Boulevard and the Cheswick Oak Avenue Extension. The evaluation of Option One utilized the region's travel demand model to project future conditions in the study corridor based on connecting SR 21/Blanding Boulevard and the planned extension of Cheswick Oak Avenue.

A potential connection between SR 21/Blanding Boulevard and the Cheswick Oak Avenue Extension is included in the 2045 North Florida TPO LRTP Needs Projects.

See Appendix D for 2045 North Florida TPO LRTP Needs Projects.

Figure 33 shows the Long Term 2045 Improvement Alternative Option One (A, B, C) Map.

Option One has three potential connections to the Ridgewood/Foxridge neighborhood:

A - Cleveland Avenue (center of the study area),

B - Camp Francis Johnson Road (northern portion of the study area) and

C - Madison Avenue (southern portion of the study area), respectively.

Improvement alternative level of service is evaluated using a build, no build alternative comparison. The 2045 no build conditions serves as the baseline for comparison.

Table 11 shows the anticipated Long-Term Improvement Alternative Option One A, 2045 projected AADT traffic volumes, network volume to capacity ratios and level of service. Figure 34 shows the projected volume to capacity ratio of study segments based on Long-Term Improvement Alternative Option One A 2045 future traffic conditions.

Table 12 shows the anticipated Long-Term Improvement Alternative Option One B, 2045 projected AADT traffic volumes, network volume to capacity ratios and level of service. Figure 35 shows the projected volume to capacity ratio of study segments based on Long-Term Improvement Alternative Option One B 2045 future traffic conditions.

Table 13 shows the anticipated Long-Term Improvement Alternative Option One C, 2045 projected AADT traffic volumes, network volume to capacity ratios and level of service. Figure 36 shows the projected volume to capacity ratio of study segments based on Long-Term Improvement Alternative Option One C 2045 future traffic conditions.

Figure 33: Long Term 2045 Improvement Alternative Option One (A, B, C) Map

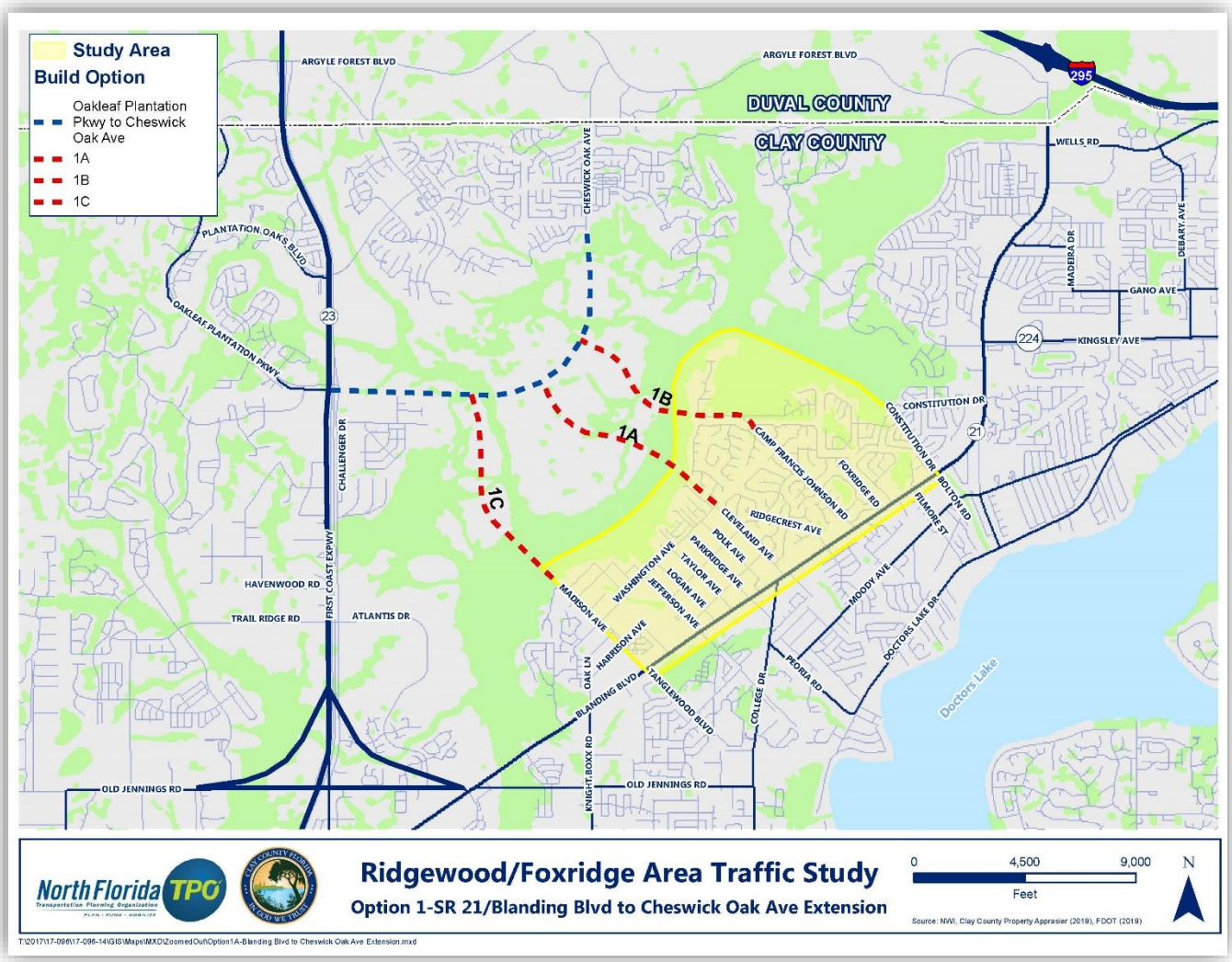


Table 11: Long Term 2045 Improvement Alternative Option One A Projected AADT, Volume to Capacity and LOS

ROADWAY SEGMENT			Long Term Option One A 2045 Future Conditions			
		MSV[3 4 5]	Projected 2045 AADT	Rate Change From No Build	V/C	LOS
North-South Roadways	SR 21/Blanding Boulevard: Madison Avenue - College Drive[1 2]	58,400	86,627	27%	1.48	F
	SR 21/Blanding Boulevard: College Drive - Constitution Drive [1 2]	58,400	115,363	65%	1.98	F
	Harrison Avenue: Ridgecrest Avenue - Camp Francis Johnson Road [6]	10,224	17,870	98%	1.75	F
East-West Roadways	Madison Avenue: Washington Avenue - SR 21/Blanding Boulevard [2]	10,224	8,234	125%	0.81	C
	Jefferson Avenue:Washingtone Avenue- SR 21/Blanding Boulevard [2]	10,224	6,433	49%	0.63	C
	Cleveland Avenue: Washington Avenue- SR 21/Blanding Boulevard [7]	10,224	15,594	366%	1.53	F
	Ridgecrest Avenue: Harrison Avenue- SR 21/Blanding Boulevard [2]	10,224	14,653	92%	1.43	F
	Camp Francis Johnson Road: Bottomridge Drive - SR 21/Blanding Boulevard [2]	10,224	17,532	114%	1.71	F
	Foxridge Road: Foxridge Center - SR 21/Blanding Boulevard [2]	10,224	17,532	112%	1.71	F
	Constitution Drive/Bolton Road: George Wythe Rd-SR 21/Blanding Boulevard [2]	10,224	12,778	68%	1.25	F

Source: NERPM-AB 2v1

Figure 34: Long Term 2045 Improvement Alternative Option One A 2045 Anticipated Roadway Volume to Capacity

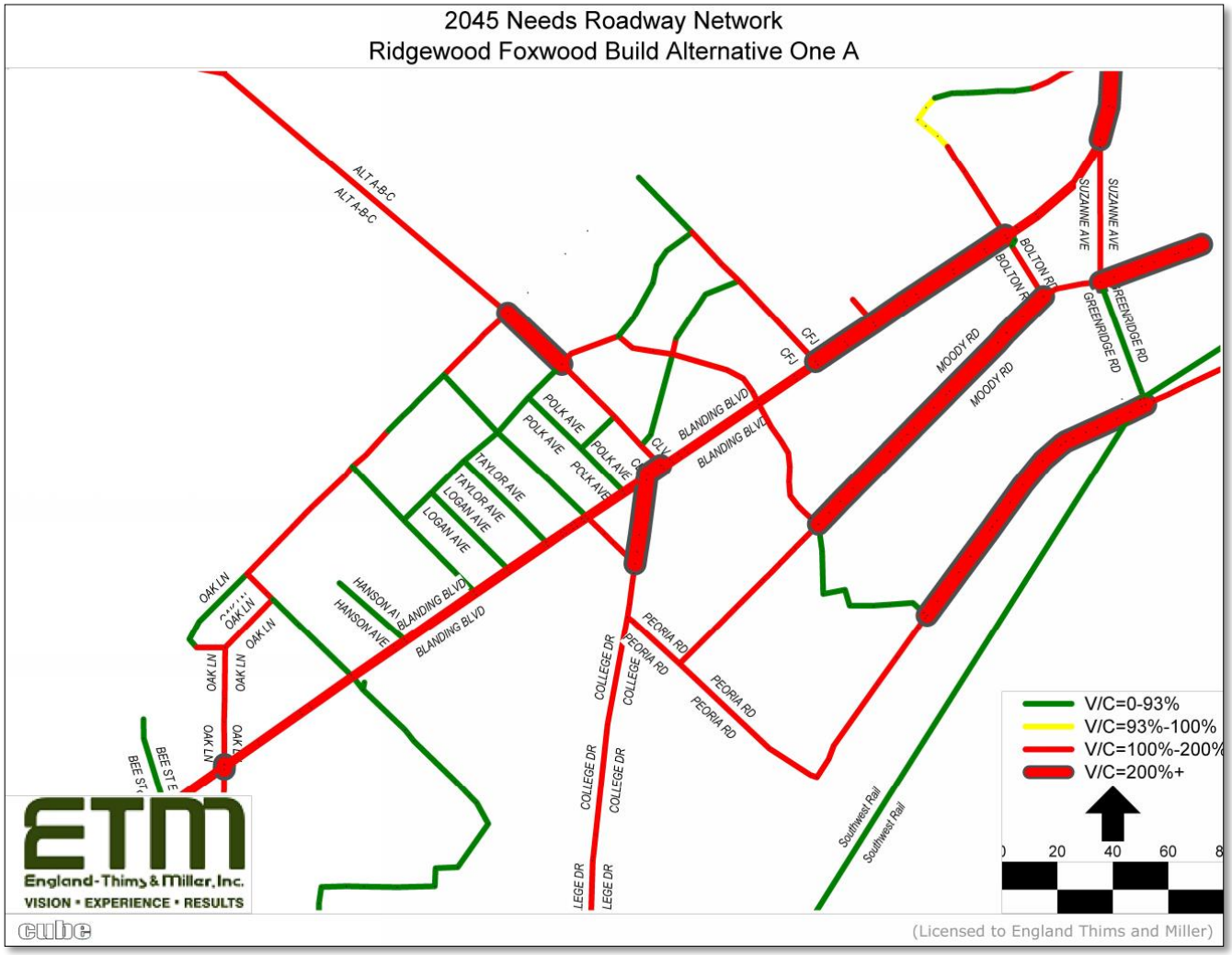


Table 12: Long Term 2045 Improvement Alternative Option One B Projected AADT, Volume to Capacity and LOS

ROADWAY SEGMENT			Long Term Option One B 2045 Future Conditions			
		MSV[3 4 5]	Projected 2045 AADT	Rate Change From No Build	V/C	LOS
North-South Roadways	SR 21/Blanding Boulevard: Madison Avenue - College Drive[1 2]	58,400	53,516	-22%	92%	C
	SR 21/Blanding Boulevard: College Drive - Constitution Drive [1 2]	58,400	70,188	0%	120%	F
	Harrison Avenue: Ridgecrest Avenue - Camp Francis Johnson Road [6]	10,224	6,560	-27%	64%	C
East-West Roadways	Madison Avenue: Washington Avenue - SR 21/Blanding Boulevard [2]	10,224	4,949	35%	48%	C
	Jefferson Avenue:Washingtone Avenue- SR 21/Blanding Boulevard [2]	10,224	2,837	-34%	28%	C
	Cleveland Avenue: Washington Avenue- SR 21/Blanding Boulevard [7]	10,224	6,303	88%	62%	C
	Ridgecrest Avenue: Harrison Avenue- SR 21/Blanding Boulevard [2]	10,224	7,680	1%	75%	C
	Camp Francis Johnson Road: Bottomridge Drive - SR 21/Blanding Boulevard [2]	10,224	15,591	90%	152%	F
	Foxridge Road: Foxridge Center - SR 21/Blanding Boulevard [2]	10,224	7,573	-8%	74%	C
	Constitution Drive/Bolton Road: George Wythe Rd-SR 21/Blanding Boulevard [2]	10,224	8,064	6%	79%	C

Source: NERPM-AB 2v1

Figure 35: Long Term 2045 Improvement Alternative Option One B 2045 Anticipated Roadway Volume to Capacity

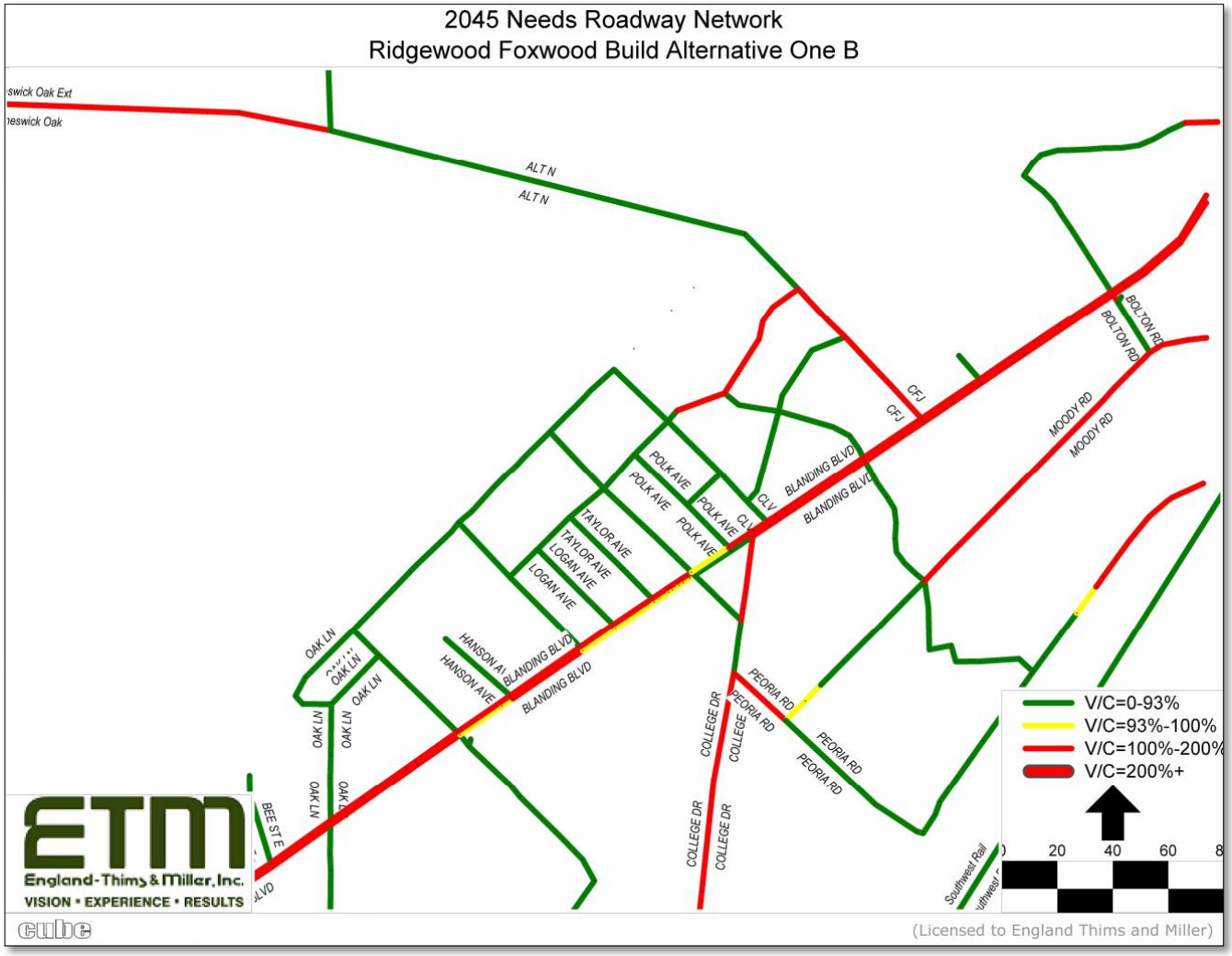


Table 13: Long Term 2045 Improvement Alternative Option One C Projected AADT, Volume to Capacity and LOS

ROADWAY SEGMENT			Long Term Option One C 2045 Future Conditions			
		MSV[3 4 5]	Projected 2045 AADT	Rate Change From No Build	V/C	LOS
North-South Roadways	SR 21/Blanding Boulevard: Madison Avenue - College Drive[1 2]	58,400	58,126	-15%	100%	F
	SR 21/Blanding Boulevard: College Drive - Constitution Drive [1 2]	58,400	69,700	-1%	119%	F
	Harrison Avenue: Ridgecrest Avenue - Camp Francis Johnson Road [6]	10,224	9,186	2%	90%	C
East-West Roadways	Madison Avenue: Washington Avenue - SR 21/Blanding Boulevard [2]	10,224	13,565	271%	133%	F
	Jefferson Avenue:Washingtone Avenue- SR 21/Blanding Boulevard [2]	10,224	4,484	4%	44%	C
	Cleveland Avenue: Washington Avenue- SR 21/Blanding Boulevard [7]	10,224	2,912	-13%	28%	C
	Ridgecrest Avenue: Harrison Avenue- SR 21/Blanding Boulevard [2]	10,224	8,119	6%	79%	C
	Camp Francis Johnson Road: Bottomridge Drive - SR 21/Blanding Boulevard [2]	10,224	7,842	-4%	77%	C
	Foxridge Road: Foxridge Center - SR 21/Blanding Boulevard [2]	10,224	7,927	-4%	78%	C
	Constitution Drive/Bolton Road: George Wythe Rd-SR 21/Blanding Boulevard [2]	10,224	7,869	3%	77%	C

Source: NERPM-AB 2v1

Figure 36: Long Term 2045 Improvement Alternative Option One C 2045 Anticipated Roadway Volume to Capacity

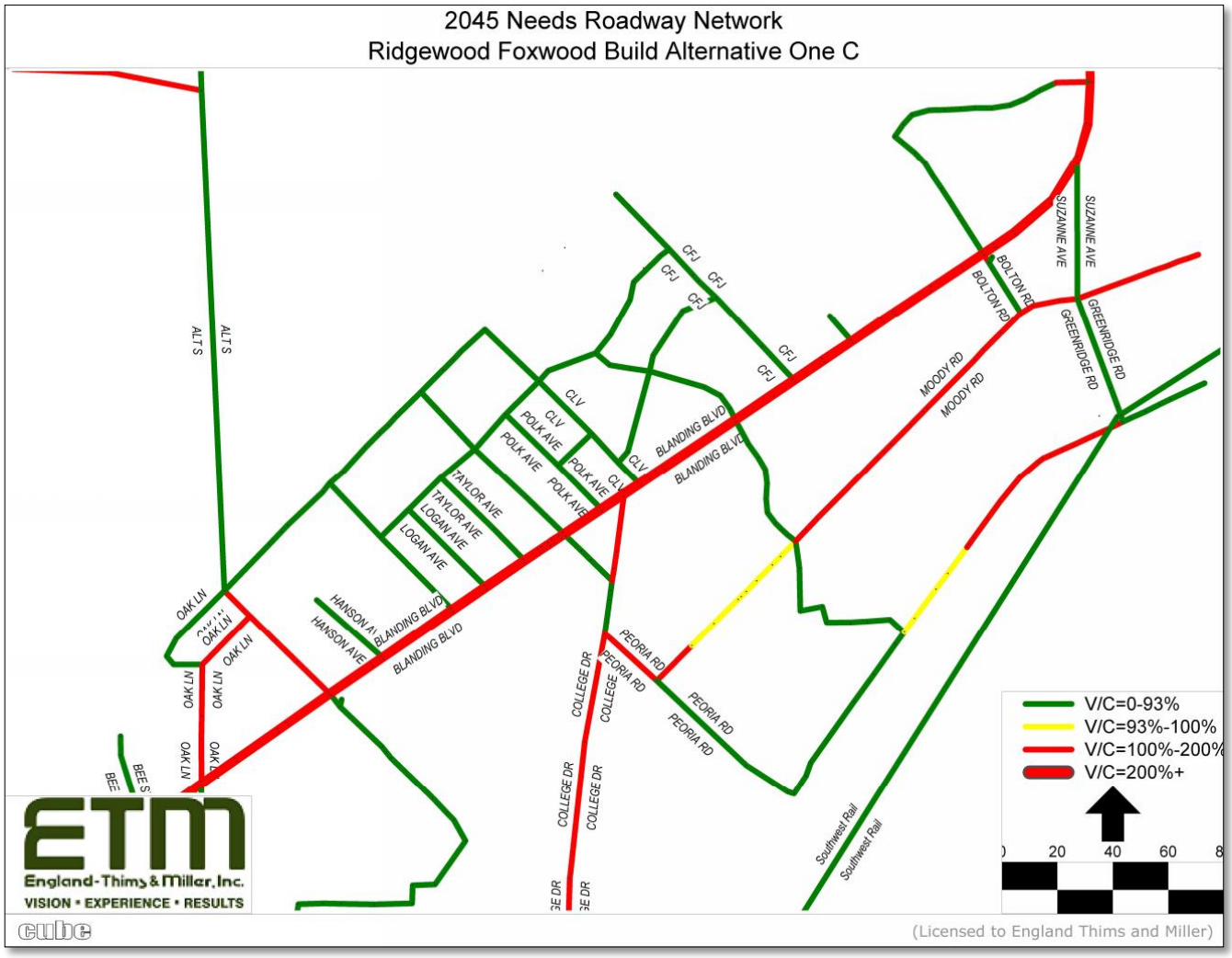


Table 14 presents Long Term 2045 Improvement Alternative Option One (A, B, C) performance evaluation and consistency with study area needs.

Table 14: Long Term 2045 Improvement Alternative Option One (A, B, C)
Performance Evaluation Consistency Determination

STUDY AREA NEED	*PERFORMANCE EVALUATION*	*CONSISTENCY DETERMINATION*
Community Context and Land Use Patterns	The proposed improvement does not support the residential context and land use of the Ridgewood Foxridge neighborhood.	***Not Consistent***
Natural Features	The proposed improvement impacts protected environmental features.	***Not Consistent***
Roadway Safety	The proposed improvement has no impact on roadway safety.	***No Impact***
Sidewalks and Bike Lanes	The proposed improvement has no impact on sidewalks, bike lanes or protected crosswalks.	***No Impact***
Public Transportation	The proposed improvement has no impact on public transportation.	***No Impact***
Public Input	The proposed improvement is not consistent with community concerns. The improvement will result in higher traffic volumes and reduced level of service for neighborhood streets.	***Not Consistent***
Traffic Congestion and Mobility	When compared with the 2045 No-Build Alternative, the proposed improvement will increase traffic congestion on neighborhood streets. The improvement will result in higher traffic volumes and reduced level of service for neighborhood streets.	***Not Consistent***
Traffic Operations	When compared with the 2045 No-Build Alternative, the proposed improvement will reduce traffic operational performance within the study area by increasing traffic volumes and reducing capacity on side streets in the Ridgewood/Foxridge neighborhood.	***Not Consistent***

C. Long-Term Improvement Alternative Option Two: 2045 Future Conditions Cheswick Oak Avenue Extension and College Avenue Realignment

Description

Long-Term Improvement Alternative Option Two includes a potential connection between SR 21/Blanding Boulevard and the Cheswick Oak Avenue Extension. Evaluating Option two utilized the region's travel demand model to project future conditions in the study corridor based on connecting SR 21/Blanding Boulevard and the planned extension of Cheswick Oak Avenue. Alternative Option Two includes realigning College Avenue to intersect with Cleveland Avenue.

Figure 37 shows the Long Term 2045 Improvement Alternative Option Two Map.

Table 15 shows the anticipated Long-Term Improvement Alternative Option Two, 2045 projected AADT traffic volumes, network volume to capacity ratios and Level of Service. Figure 38 shows the projected volume to capacity ratio of study segments based on Long-Term Improvement Alternative Option Two 2045 future traffic conditions.

Table 16 presents Long Term 2045 Improvement Alternative Option Two performance evaluation and consistency with study area needs.

Figure 37: Long Term 2045 Improvement Alternative Option Two Map

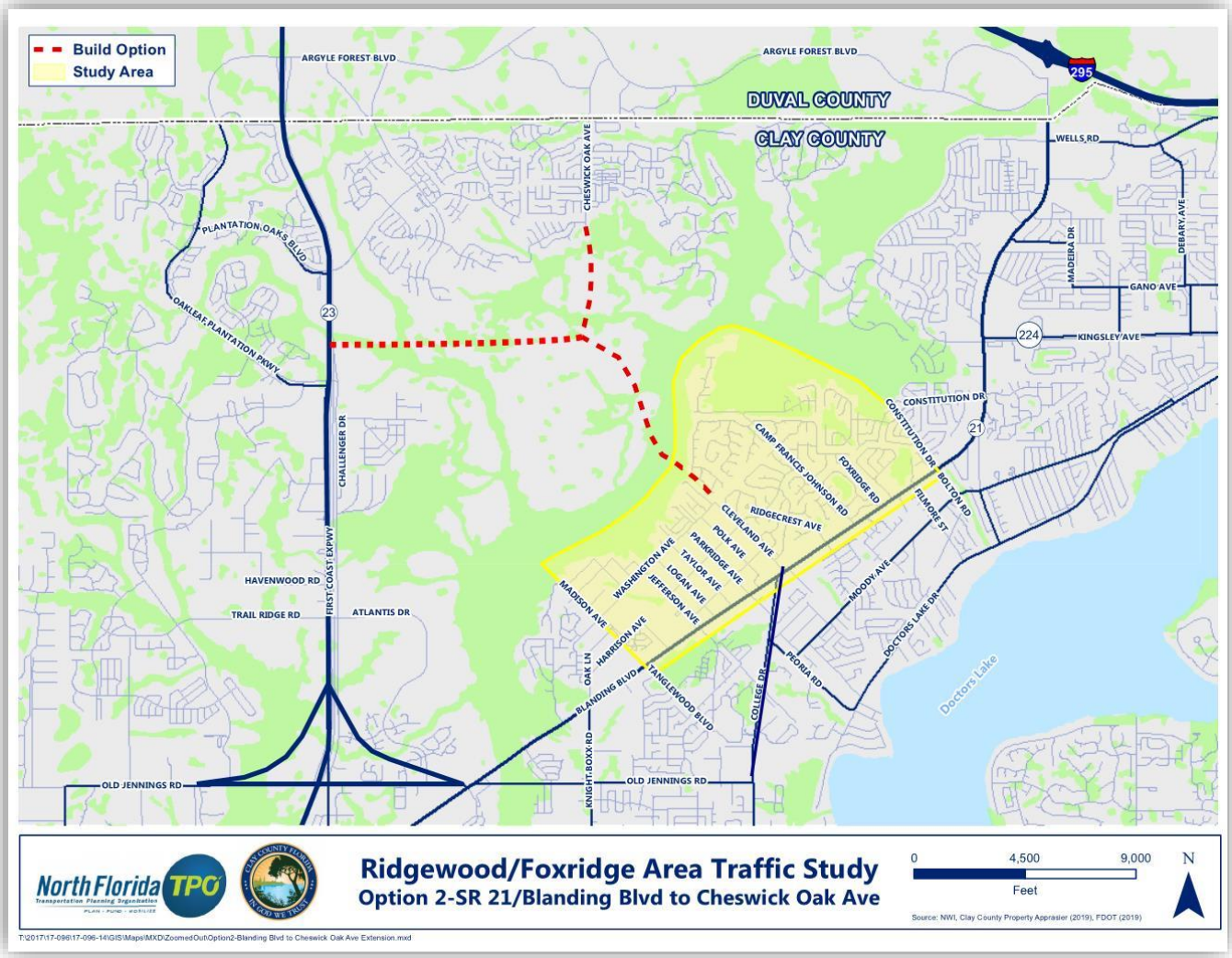


Table 15: Long Term 2045 Improvement Alternative Option Two Projected AADT, Volume to Capacity and LOS

ROADWAY SEGMENT			Long Term Option Two 2045 Future Conditions			
		MSV[3 4 5]	Projected 2045 AADT	Rate Change From No Build	V/C	LOS
North-South Roadways	SR 21/Blanding Boulevard: Madison Avenue - College Drive[1 2]	58,400	55,988	-18%	96%	E
	SR 21/Blanding Boulevard: College Drive - Constitution Drive [1 2]	58,400	71,180	2%	122%	F
	Harrison Avenue: Ridgecrest Avenue - Camp Francis Johnson Road [6]	10,224	15,907	76%	156%	F
East-West Roadways	Madison Avenue: Washington Avenue - SR 21/Blanding Boulevard [2]	10,224	4,659	27%	46%	C
	Jefferson Avenue:Washingtone Avenue- SR 21/Blanding Boulevard [2]	10,224	3,610	-16%	35%	C
	Cleveland Avenue: Washington Avenue- SR 21/Blanding Boulevard [7]	10,224	15,236	355%	149%	F
	Ridgecrest Avenue: Harrison Avenue- SR 21/Blanding Boulevard [2]	10,224	8,431	11%	82%	C
	Camp Francis Johnson Road: Bottomridge Drive - SR 21/Blanding Boulevard [2]	10,224	9,106	11%	89%	C
	Foxridge Road: Foxridge Center - SR 21/Blanding Boulevard [2]	10,224	6,814	-18%	67%	C
	Constitution Drive/Bolton Road: George Wythe Rd-SR 21/Blanding Boulevard [2]	10,224	8,314	9%	81%	C

Source: NERPM-AB 2v1

Figure 38: Long Term 2045 Improvement Alternative Option Two
Anticipated Roadway Volume to Capacity

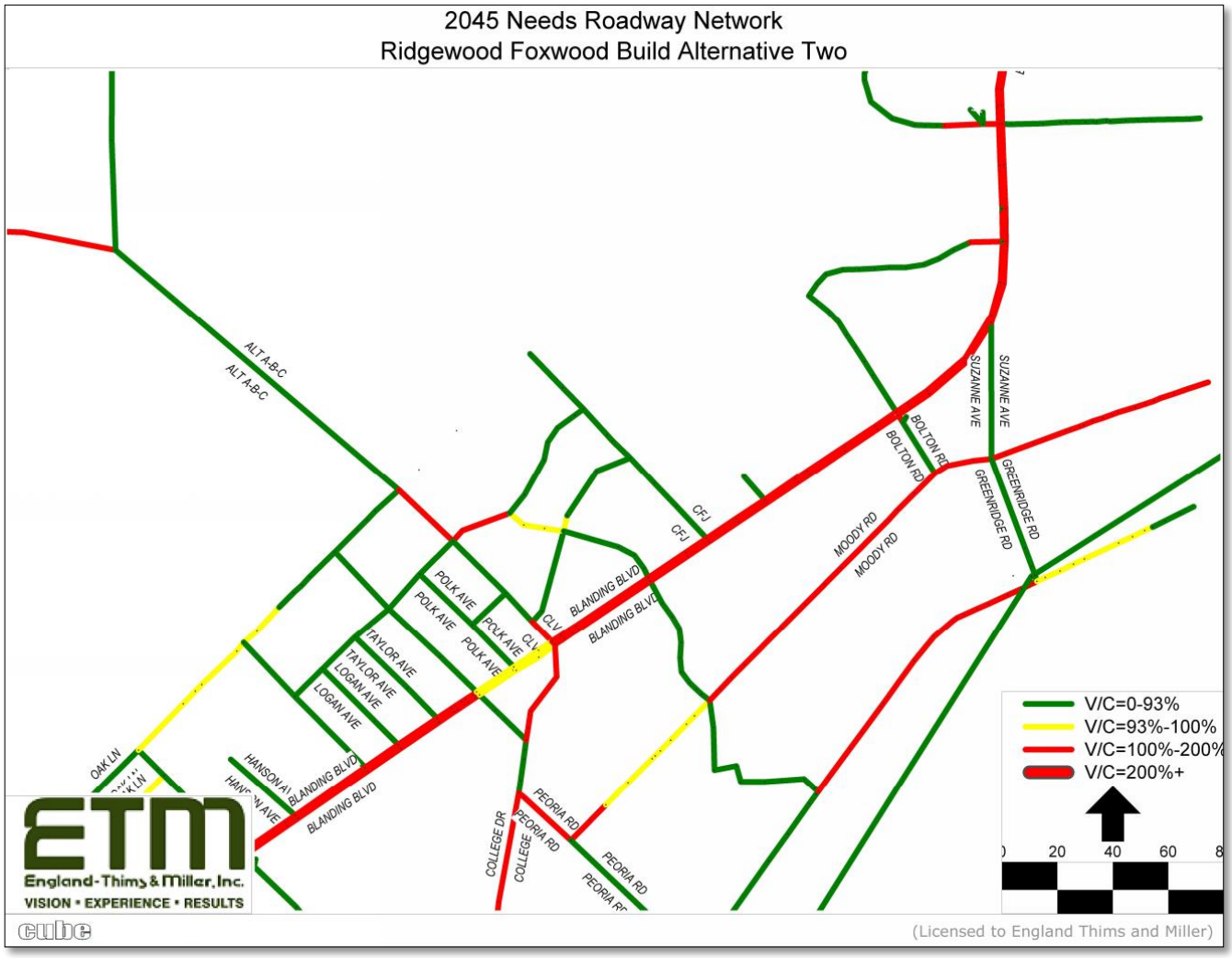


Table 16: Long Term 2045 Improvement Alternative Option Two
Performance Evaluation Consistency Determination

STUDY AREA NEED	*PERFORMANCE EVALUATION*	*CONSISTENCY DETERMINATION*
Community Context and Land Use Patterns	The proposed improvement does not support the residential context and land use of the Ridgewood Foxridge neighborhood.	***Not Consistent***
Natural Features	The proposed improvement impacts protected environmental features.	***Not Consistent***
Roadway Safety	The proposed improvement has no impact on roadway safety.	***No Impact***
Sidewalks and Bike Lanes	The proposed improvement has no impact on sidewalks, bike lanes or protected crosswalks.	***No Impact***
Public Transportation	The proposed improvement has no impact on public transportation.	***No Impact***
Public Input	The proposed improvement is not consistent with community concerns. The improvement will result in higher traffic volumes and reduced level of service for neighborhood streets.	***Not Consistent***
Traffic Congestion and Mobility	When compared with the 2045 No-Build Alternative, the proposed improvement will increase traffic congestion on neighborhood streets. The improvement will result in higher traffic volumes and reduced level of service for neighborhood streets.	***Not Consistent***
Traffic Operations	When compared with the 2045 No-Build Alternative, the proposed improvement will reduce traffic operational performance within the study area by increasing traffic volumes and reducing capacity on side streets in the Ridgewood/Foxridge neighborhood.	***Not Consistent***

VII. RECOMMENDATIONS

The study's purpose was to investigate traffic circulation in the Ridgewood/Foxridge area of Clay County and to improve connectivity to/from SR 21/Blanding Boulevard. The study examined local and regional travel patterns in the area to determine network improvement needs and evaluate short-term and long-term recommendations.

Short-term and long-term neighborhood roadway network configurations were evaluated to confirm their effectiveness. The study included an examination of a new roadway corridor connecting SR 21/Blanding Boulevard north to the future extension of Cheswick Oak Avenue. The objective was to identify a preferred alternative to accommodate current and future traffic demand of the area while maintaining mobility and accessibility in the neighborhood.

A. Improvement Alternative Conclusion

The preferred alternative should enhance existing and future level of service conditions on SR 21/Blanding Boulevard by mitigating travel demand without sacrificing community and environmental needs.

To address short-term needs, this study recommends Alternative Two. This recommended alternative improves level of service and operational performance, addresses public concerns, and is consistent with local and regional planning objectives.

To address long-term needs, the No-Build Alternative is recommended. Alternatives one and two do not mitigate anticipated 2045 traffic volumes on SR 21/Blanding Boulevard. In addition, the level of service and capacity of the surrounding transportation network are not improved.

B. Recommendations

A phased implementation of a complete-streets-based traffic calming and mobility improvement plan is recommended. The proposed improvements will reduce congestion by providing mobility and safety enhancements. Improvements on Cleveland Avenue are recommended to slow or eliminate neighborhood cut-through traffic and establish a pedestrian and bicycle-safe corridor to promote regional multimodal accessibility. Figure 39 illustrates a a new typical section for Cleveland Avenue that if implemented will eliminate cut-through traffic.

Figure 39:
Proposed Cleveland Avenue Right-of Way Typical Section
Complete Street Traffic Calming and Mobility Improvement

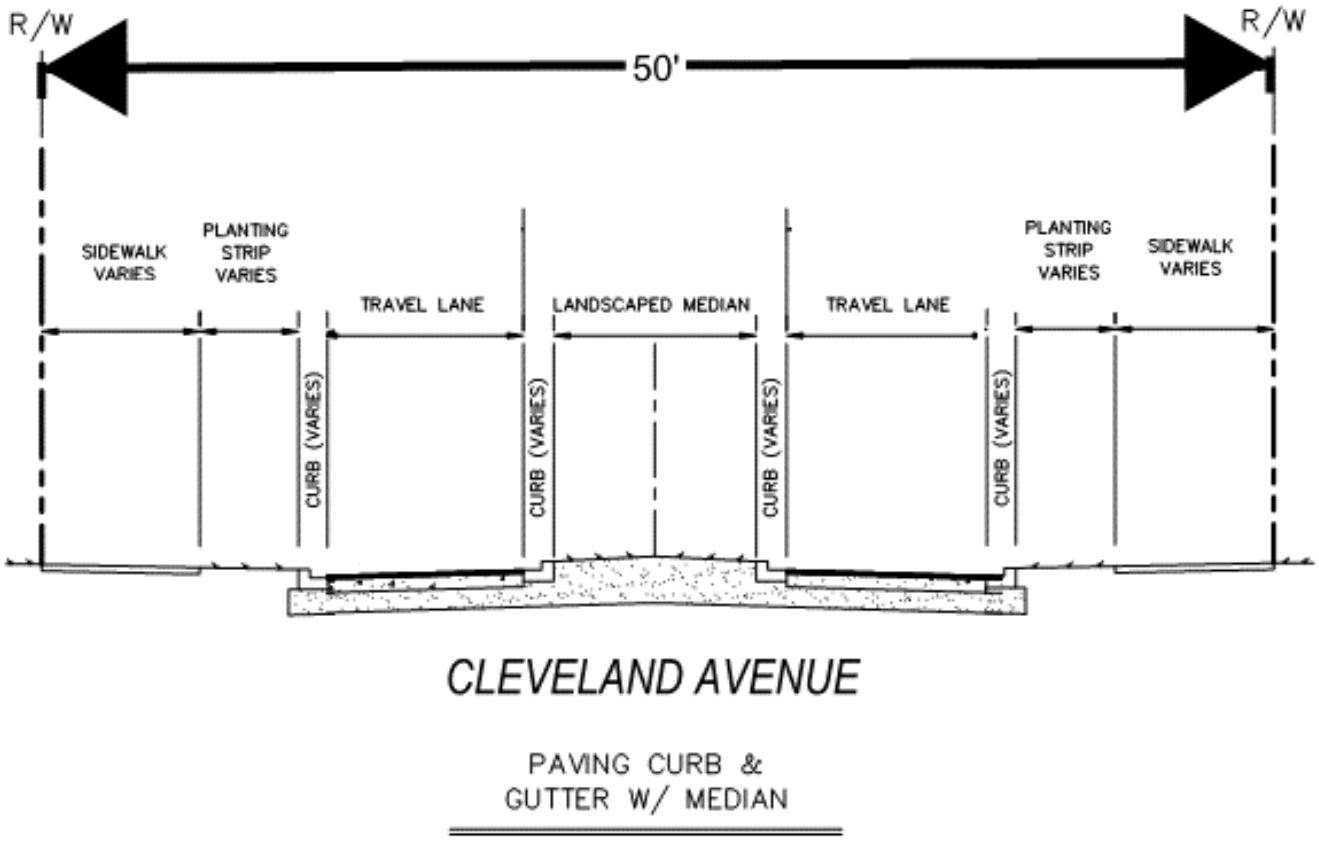


Figure 40:
Proposed Cleveland Avenue Median Location and
Access Management (Diverted Turn Lane and Bollards)

Access Management

Improved access management will reduce traffic that uses neighborhood streets to avoid SR21/Blanding Boulevard. Currently cut-through traffic at Harrison Avenue, Kingswood Avenue and Sandlewood Drive creates congestion and results in speeding.

The installation of a center median with diverted openings (Figure 40) on Cleveland Avenue from Sandlewood Drive west to Washington Avenue will limit access to Harrison Avenue at Cleveland Avenue and reduce neighborhood congestion and delays at SR21/Blanding Boulevard.

The intersection of Sandlewood Drive and Cleveland Avenue, for example, provides neighborhood cut-through opportunities for commercial traffic. The installation of traffic bollards (as shown in Figure 40) for traffic control at Sandlewood Drive and Cleveland Avenue will stop cut-through traffic and improve neighborhood safety.

Figure 41:
Proposed Cleveland Avenue Bicycle and Pedestrian Corridor

Bicycle and Pedestrian

The addition of sidewalks (see Figure 41) on both sides of Cleveland Avenue between Sandlewood Drive and Washington Avenue will connect the Ridgewood/Foxridge neighborhood to the wide bicycle and pedestrian network and bus routes along SR 21/Blanding Boulevard.

This improvement will provide a safe, complete and continuous bicycle and pedestrian corridor from the Ridgecrest/Foxridge neighborhood to SR 21/Blanding Boulevard, the College Drive bicycle/pedestrian network and south to Peoria Road and Doctor's Lake Trail. College Drive bicycle/pedestrian network provides a multimodal connection south to Peoria Road and to the Doctor's Lake Trail.

Figure 42:
Proposed Cleveland Avenue Public Transit

Public Transportation

The expansion of the existing multimodal network along SR 21/Blanding Boulevard to Cleveland Avenue will reduce congestion and improve safety. Adding bus stops to an enhanced pedestrian and bicycle network will reduce reliance on vehicles by providing convenient accessible regional transit options.

This section of SR 21/Blanding Boulevard is served by three JTA bus lines. The existing sidewalk gaps and missing bike lanes should be addressed. Unsignalized intersections without protected crosswalks create hazardous conditions for pedestrians. The lack of sidewalk and bike connectivity limits transit access.

Transit improvements to Cleveland Avenue would provide continuous and safe sidewalks with direct access to SR 21/Blanding Boulevard.

Roadway Safety

Uncontrolled access points in close proximity to intersections increases conflict points between motorists and pedestrians/cyclists.

The proposed Cleveland Avenue complete-street median and mobility plan will reduce conflicts between residential and commercial traffic and provide safer conditions for pedestrians and bicyclists.

To this end, pedestrian crosswalks and sidewalks should also have pedestrian scale lighting. Street lighting is recommended for all roadway users.

C. *Improvement Implementation*

Cost Estimates

This section provides additional guidance and cost information for implementing these recommendations. Table 17 summarizes the major recommendations contained in this study and provides estimated costs. The estimates represent "planning-level" construction cost. They are intended to provide an "order of magnitude" estimate for the individual projects so that they can be prioritized and next steps can be taken (including securing funding, preliminary and final design, etc.).

These estimates do not include all design/engineering, administration, or CEI costs. In addition, right-of-way acquisition costs are not included in these estimates. Costs are based on data obtained from Florida Department of Transportation, Market Area 05. Costs are provided in 2020 dollars.

Table 17: Project Cost Estimates

Proposed Improvement	Proposed Improvement Detail	QTY	Unit	Unit Cost	Estimated cost
Cleveland Avenue Median and Sidewalks (Harrison Avenue to Washington Avenue)[1]	Add Landscaped Median, Additional Lane, and add 5' sidewalk to northern ROW line [2]	1,000	LF	$600[2]	$600,000
	Provide Pedestrian Lighting	10	EA	$2,500	$25,000
	Install special emphasis mid-block crosswalks	1	EA	$140,000	$140,000
Cleveland Avenue Median and Sidewalks (Sandlewood Drive to Harrison Avenue)[3]	Add Landscaped Median, Additional Lane, and add 5' sidewalk to southern and northern ROW line [4]	2,000	LF	$1,200[4]	$2,400,000
	Provide Pedestrian Lighting	20	EA	$2,500	$50,000
	Install special emphasis mid-block crosswalks	2	EA	$140,000	$280,000
Cleveland Avenue Bus Stops (to be coordinated with JTA)	Stop/Shelter (Installation, Materials, including bench)	2	EA	$20,000	$40,000

[1] Cleveland Avenue (Harrison Avenue to Washington Avenue) existing road conditions are built to suburban standards with curb/gutter and a sidewalk on southern ROW line.

[2] Cleveland Avenue (Harrison Avenue to Washington Avenue) $600/LF improvement assumes maintaining suburban road standards.

[3] Cleveland Avenue (Sandlewood Drive to Harrison Avenue) existing road conditions are built to rural standards without curb/gutter and without sidewalks.

[4] Cleveland Avenue (Sandlewood Drive to Harrison Avenue) $1,200/LF improvement assumes upgrading road from rural to suburban standards, including curb/gutter. This improvement may require reconstruction of road.