US-19 FRONTAGE ROADS

SAFETY ACTION PLAN

EXISTING CONDITIONS REPORT

JUNE 2020

FDOT

REPORT ORGANIZATION

This document summarizes the findings of the first two phases of this planning study. Because the role of the frontage roads is to provide access to corridor destinations, travel needs focus on local demand with the assumption that U.S. 19 will continue to serve regional trips.

The project's background, overview and relevance are provided in the front end, followed by a summary of key findings from the existing conditions assessment, focused primarily on the analysis of community characteristics and the transportation and travel mode characteristics within the study area. The report is structured into the following sections:

- Introduction: Introduces the study, provides background, intent, and defines the study area.
- Community Characteristics: Provides a snapshot of the demographic and land use context.
- Transportation and Travel Mode Characteristics: Summarizes traffic patterns and multimodal transportation infrastructure and a safety assessment of existing conditions.
- Purpose and Need: Identifies key challenges and critical needs as they relate to common themes captured through public input, on-site observations, and technical analysis.
- Guiding Principles and Evaluation Criteria: Provide high-level direction in relation to the most relevant elements to be addressed by the alternatives and establishes criteria to evaluate alternatives.

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01
INTRODUCTION

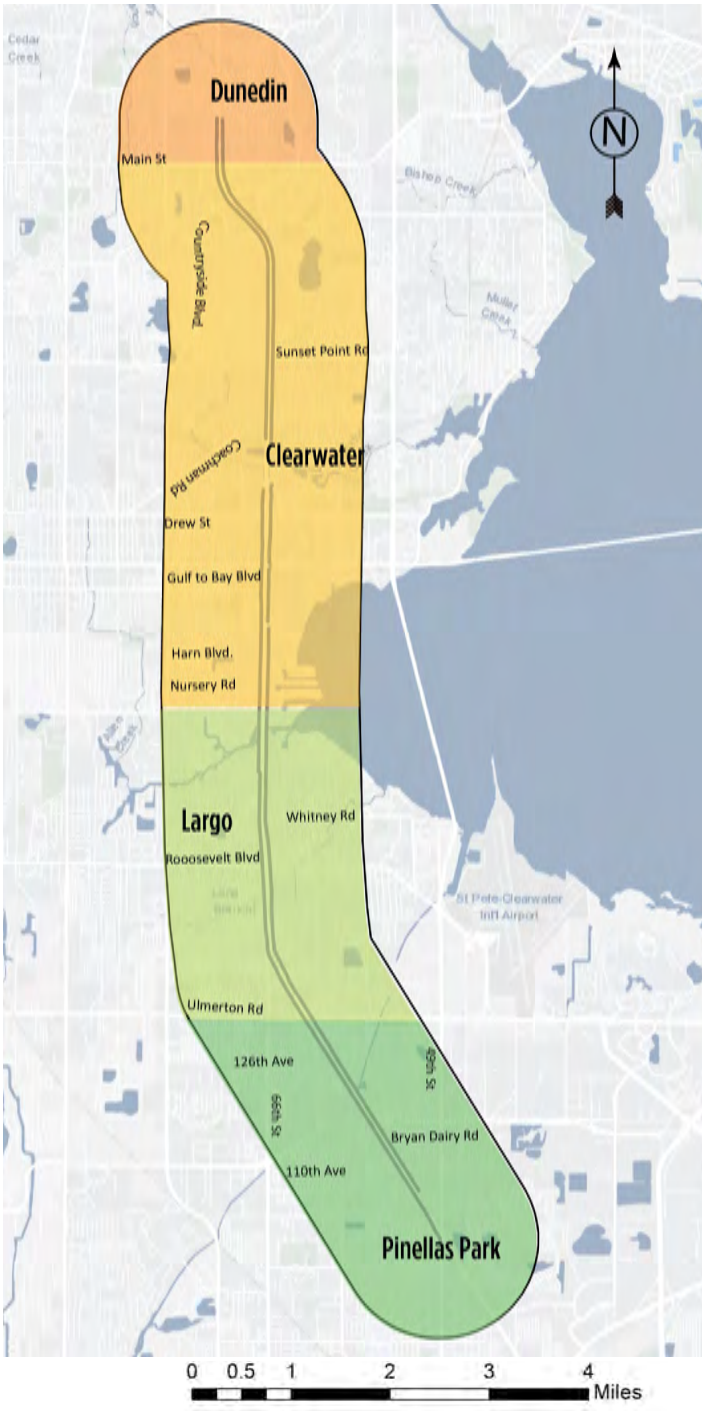
INTRODUCTION

Overview & Study Area

The Florida Department of Transportation (FDOT), District Seven is conducting a Safety Action Plan along the U.S. 19 frontage roads. U.S. 19 is a primary north-south, limited access facility in the center of the Pinellas County. This project focuses on the frontage roads along U.S. 19, which begin north of 49th Street and end north of State Road (S.R.) 580 (Main Street). The 11.5 mile stretch of frontage roads passes through Pinellas Park, Largo, Clearwater, and unincorporated Pinellas County.

The area along U.S. 19 is characterized by commercial, industrial, and multifamily residential land uses including multiple mobile home parks. The frontage roads vary between one and two lanes in each direction as lanes are added and dropped to merge and diverge from U.S. 19 with additional turn lanes at the intersections. There is typically a five -foot sidewalk on the right-hand side of each frontage road through much of the corridor and a paved shoulder that widens to a four to five-foot marked bike lane in spot locations. The posted speed limit varies between 35 and 45 mph.

Figure 1. U.S. 19 Frontage Roads and Study Area



Study Objectives

The study team worked with stakeholders and agency partners to evaluate multimodal needs and develop potential roadway modifications to improve safety, operations, and connectivity for all users. This study team will also provide the local municipalities recommendations for land use changes that may facilitate the recommended multimodal improvements.

In this report, the study team documents existing multimodal corridor needs, existing travel needs, and community visions and desires along U.S. 19. Because the role of the frontage roads is to provide access to corridor destinations, travel needs focus on local demand, with the assumption that U.S. 19 will continue to serve regional trips.

Based upon an understanding of the corridor needs, the project team will evaluate a range of possible improvement scenarios, from location-specific multimodal improvements to corridor-wide typical section changes to recommendations to city and County land use codes.

The U.S. 19 Frontage Roads Safety Action Plan is part of the *Planning Phase* of the project development process. Some of the recommended improvements can be prioritized at the local level or through the FDOT's Five-Year Work Program. These improvements may include turn lane improvements, pedestrian and bicycle accommodations, signal retiming, transit stop amenities, etc. On the other hand, larger scale / more cost-intensive improvements may need to be evaluated through subsequent phases of the formal Project Development process. The U.S. 19 Frontage Roads Safety Action Plan will identify the degree of impact associated with each of the proposed short- and long-term multimodal transportation improvements.

Planning Context

This effort builds upon recently completed and ongoing planning efforts including the 2016 U.S. 19 Pedestrian and Bicycle Safe Access to Transit Corridor Study and Pinellas Gateway/Mid-County Area Master Plan, the City of Clearwater's land development code update, and FDOT's U.S. 19 Project Development and Environment (PD&E) Study. This study will coordinate with and review recommendations north of Curlew Road from ongoing design projects.

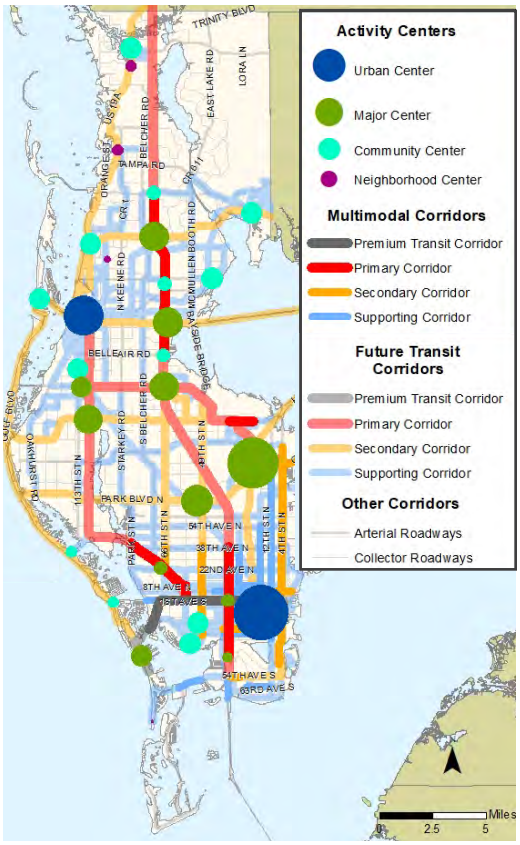
Below is a list of the transportation-related plans and studies and adopted municipal and Local Agency plans that provide guidance on multimodal transportation improvements in the area:

- Pinellas County Pedestrian Safety Action Plan (2009)
- City of Largo Community Streets Multimodal Plan (Moving Largo) (2012)
- Pinellas Suncoast Transit Authority Community Bus Plan (2014)
- U.S. 19 Pedestrian and Bicycle Safe Access to Transit Corridor Study (2016)
- Comprehensive Plan - Forwarding Our Future (2017)
- U.S. 19 Express Bus Service Concepts Study (2018)
- Countywide Plan Update (2019)
- Advantage Pinellas (Including Investment Priority Corridors) (2019)
- Pinellas Gateway Master Plan (2019)
- Pinellas County Connecting Our Community (2019)
- County Trail Plan (2019)

Alignment with Policies

This effort builds upon recently completed and ongoing planning efforts that have already established a vision for years to come. The recently completed Forward Pinellas Countywide Plan guides land use planning among the 25 local governments of Pinellas County. Closely coordinated with the Long-Range Transportation Plan (LRTP), the Countywide Plan directs higher-density redevelopment into activity centers and multimodal corridors that can support a variety of transportation modes and are connected by transit while preserving and enhancing the character of established neighborhoods. The Countywide Plan also outlines a land use framework to support a growing population by creating nodes with housing and jobs near transit. Given the emphasis on convenient access to transit, the U.S. 19 Pedestrian and Bicycle Safe Access to Transit Study took a first step at exploring corridor-wide strategies to improve safety and accessibility for pedestrians, bicyclists, and transit users along U.S. 19 in central and northern Pinellas County. The Countywide Rules indicate Activity Center Future Land Use designations throughout the County. These designations are areas within the County that are appropriate for concentrations of employment, housing, cultural, or business development and each Activity Center requires a Special Area Plan. The Countywide Rules describes an Activity Center as consisting of a mix of business, residential, and civic uses. A compact development pattern and a walkable environment make it convenient to travel around an Activity Center by transit, bicycle, foot, or car. The City of Largo's more recent planning effort, the Tri-City District Special Area Plan intends to incorporate these elements into the recommendations and implementation mechanisms.

The opportunity for regional connectivity is further outlined in the Advantage Pinellas Priority Investment Corridors. East Bay Drive/ Roosevelt Boulevard and U.S. 19 are identified as a Priority Investment Corridor which aligns transportation, housing, jobs, and redevelopment throughout the corridor. The goal is to connect people to jobs, workforce and affordable housing, training, and education opportunities to support the County's economic development.



Source: Forward Pinellas, Advantage Pinellas 2045 Long Range Transportation Plan

The goal of the Advantage Pinellas Priority Investment Corridors is to connect people to jobs, workforce and affordable housing, training, and education opportunities to support the County's economic development.

The U.S. 19 Pedestrian & Bicycle Safe Access to Transit Corridor Study (completed on October 2016) was a partnership between Forward Pinellas and FDOT to explore opportunities to improve safety and accessibility for pedestrians, bicyclists, and transit users along portions of U.S. 19 in Pinellas County. The following recommendations resulted from the study:

- Continue coordination and discussion of opportunities to provide increased access across U.S. 19 as FDOT designs the segments for reconstruction.
- Coordinate further evaluation of the existing reconstructed segments of U.S. 19 for opportunities to implement enhanced cross-corridor access.
- Continue exploring opportunities to improve pedestrian and bicycle connections to parallel facilities and trails.
- Coordinate with partner agencies to develop a transit vision for the corridor that includes a discussion on access to transit strategies specific to U.S. 19. Depending on the established transit vision, details regarding stop/station locations, access to/from the stops and surrounding land uses, and access across the corridor should be established during the initial planning phases.
- Coordinate with partner agencies and jurisdictions to identify land use strategies that complement the planned roadway design and support the envisioned transit access goals for the corridor.

The Pinellas Gateway Master Plan establishes five main multimodal transportation improvement themes for the area: improved transit, improved trail network, connected multimodal street network, and greenspace and placemaking/public art. Lastly, the Street Type Recommendations illustrate proposed improvements for specific streets and corridors like Roosevelt Boulevard, Whitney Road, and Dodge Street. The plan establishes the following goals:

- Implement premium bus service in the area (U.S. 19 and East Bay Drive/ Roosevelt Boulevard primary investment corridors) and secondary corridors
- U.S. 19 corridor (including frontage roads) safety improvements and strategies
- More frequent and expanded bus services including express bus service
- Future intermodal center and circulator
- Bicycle and pedestrian facilities improvements
- Transit-oriented development
- Placemaking
- Sustainability and resiliency

The Largo Tri-City District Special Area Plan (SAP) intends to continue the momentum by implementing several initiatives and projects over the next several years and identifying a full list of recommendations that can be implemented and constructed as funds become available.

The vision for the Largo Tri-City District SAP is to create a place that is a destination and a complete community that includes a mix of uses. The Largo Tri-City District SAP identifies specific strategies, opportunities, and standards to encourage mixed-use infill and redevelopment, increase densities and intensities, and provide accessibility to multiple modes of transportation, including making the area more walkable and pedestrian friendly. The SAP will serve to coordinate land use and development, and as a tool to implement the Pinellas Gateway Master Plan. The recommendations in the SAP target five objectives to achieve this goal:

- Land Use and Housing
- Multimodal Transportation
- Economic Development
- Public Spaces and Greenspace
- Sustainability and Resiliency

The multiple planning efforts over the last several years have aimed to coordinate land uses and address the multimodal needs along the corridor and study area with the understanding that land use and development patterns have a direct impact on the transportation network.

PROJECT APPROACH

The project approach integrates Context-Sensitive Solutions (CSS) into the planning process by considering land use, transportation, and infrastructure needs in an integrated manner.

The process began with engaging local agencies and corridor stakeholders. The collaboration between the department and key stakeholders included establishing a Project Advisory Group (PAG) comprising department staff; Forward Pinellas; the Cities of Pinellas Park, Largo, Dunedin, and Clearwater; Pinellas County; Florida Highway Patrol; and the Pinellas Suncoast Transit Authority (PSTA). The business and landowners along the corridor will be engaged at key milestones through a series of facilitated discussions.

The study has three phases, each with its own technical and public involvement focus:

Phase 1: Define the Problem

The intent of the first phase is to establish a consensus of the problem as understood by stakeholders. The challenges and needs are identified through a thorough investigation of the study area supported by targeted data collection, including:

- Effective Stakeholder Engagement
- Review of Previous and Ongoing Planning Studies
- Socioeconomic Data Analysis
- Traffic and Land Use Data Analysis
- Safety Analysis
- Multimodal Needs

Phase 2: Define Purpose & Need

During this phase, the purpose and need for the project will be established based on identified transportation deficiencies. This phase will result in Guiding Principles and Evaluation Criteria/Metrics by which the project team will identify and evaluate alternatives in Phase 3.

Phase 3: Identify and Evaluate Multimodal Alternatives

In Phase 3, the study team will develop alternative strategies, evaluate these strategies, and define an implementation plan with short- and long-term actions that address the problems defined in Task 1 and best support the guiding principles established in Task 2.

02
COMMUNITY CHARACTERISTICS

COMMUNITY CHARACTERISTICS

Demographics Snapshot

POPULATION

There are approximately 95,115 people living within 1 mile of the study area at densities ranging from 2 persons per acre to over 45 persons per acre, as shown in Figure 2. The area population has grown roughly 10% since 2010 and is expected to continue to grow as the County is projected to add nearly 93,000 new residents by 2045[1]. Highest densities in the study area are located between Gulf-to-Bay Boulevard and Ulmerton Road. Most households are made up of single-family homes while duplexes, apartments, mobile home parks, and condominiums house 26% of all residents.

AGE/RACE

Residents throughout the corridor are mainly in the age ranges of 25–44, 45–64, and 65 and up. These categories represent 24%, 28%, and 24% of the population, respectively. This distribution mimics that of Pinellas County for 2017. In terms of race and ethnicity, the study area predominantly comprises individuals identifying as white. Notably, there is a significant proportion of individuals of Hispanic descent (12% of people in the study area), with three census block groups adjacent to Drew Street having a Hispanic population of 35% or greater. The full distribution for age and race/ethnicity is illustrated in Figure 3.

The area population has grown roughly 10% since 2010 and is expected to continue to grow

[1] Forward Pinellas, Advantage Pinellas 2045 Long Range Transportation Plan

Figure 2. Population Density, Persons per Acre

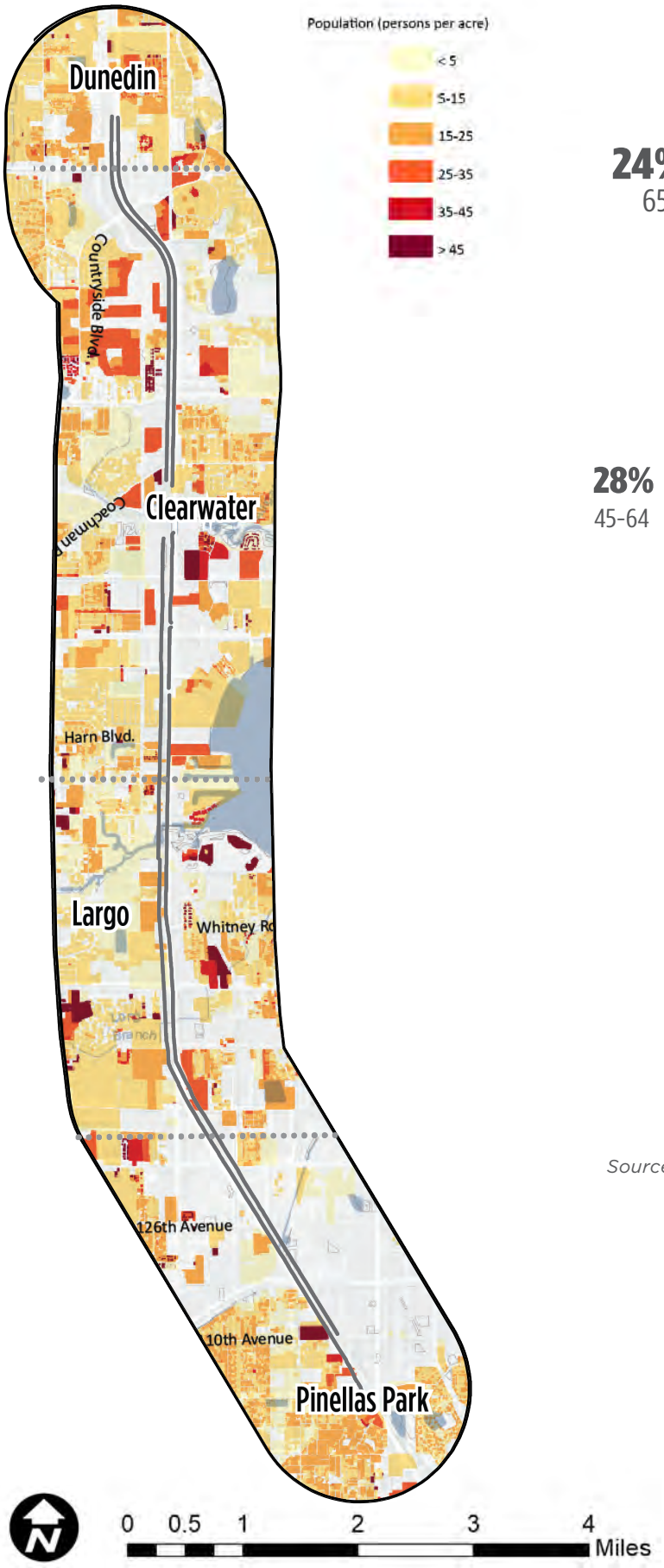
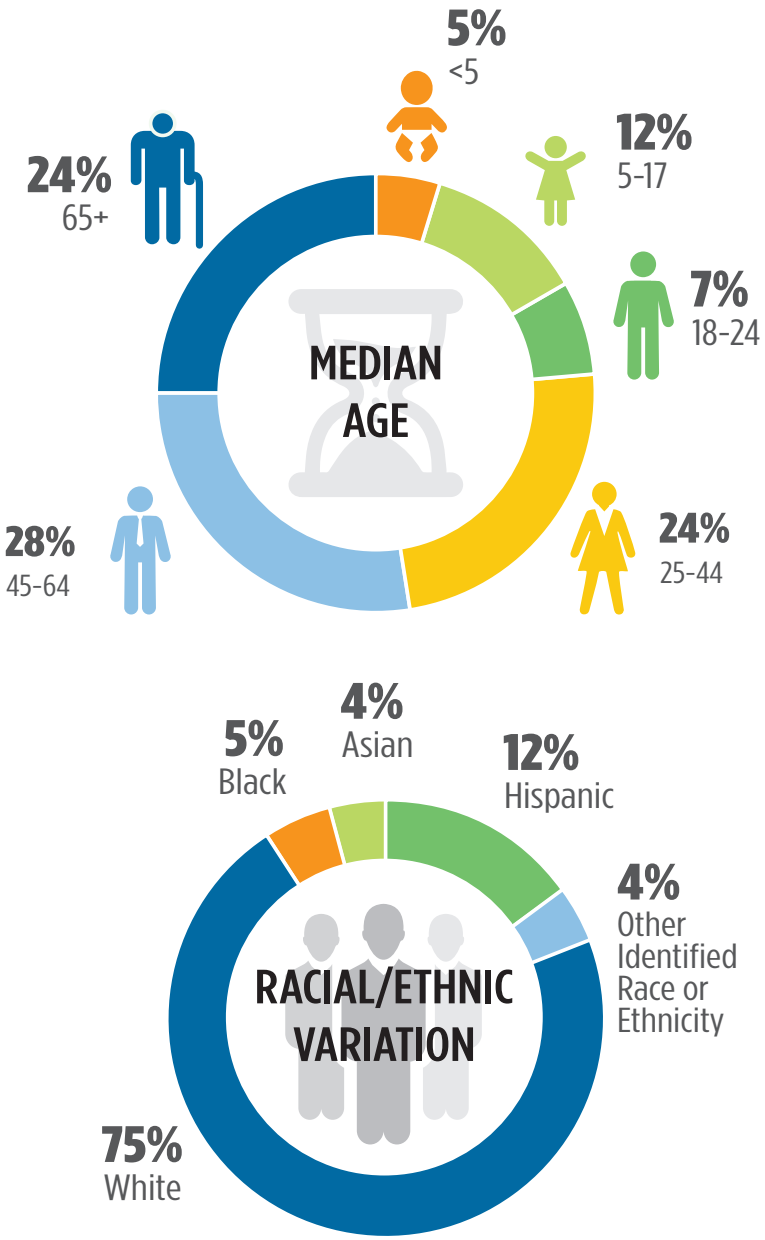


Figure 3. Distribution of age and race/ethnicity in the study area



Source: 2017 ACS 5-Year Estimates

HOUSEHOLD TYPE/ OWNERSHIP

Consistent with the County, a majority of the households in the area are homeowners. However, rental housing units make up 37% of the housing stock in the form of multifamily developments (2 units or more), apartments and condominium complexes, and mobile home parks (as seen in Figure 4). Areas with a higher concentration of renters than the county average (35%) are located in Clearwater near Gulf-to-Bay Boulevard and in Largo near Ulmerton Road (as seen in Figure 5).

Figure 4. Household Ownership in the Study Area

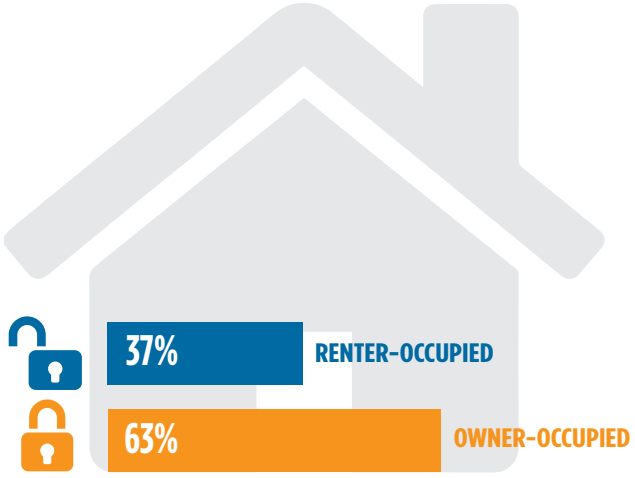
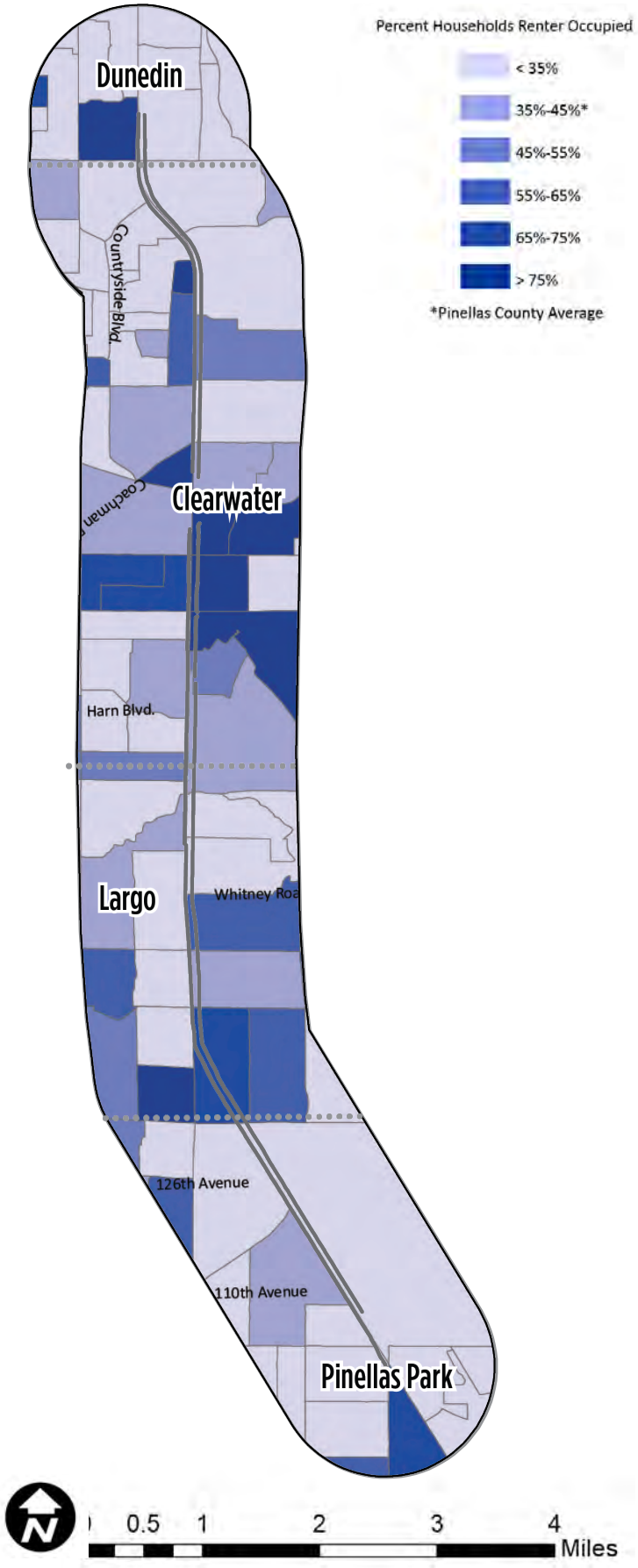


Figure 5. Percent Households Renter Occupied, by Block Group



HOUSEHOLD INCOME

A review of median household income, shown in Figure 6, shows the relative distribution of wealth among the three municipalities and unincorporated Pinellas County. Areas with higher income brackets are located in northern Clearwater and Dunedin, while middle and lower income brackets are dispersed throughout the southern portions of Clearwater, Largo, and Pinellas Park. Pinellas Park and Largo also contain a considerable percentage of individuals who live below the poverty line at a rate of 21% and 16% respectively, compared to the County average of 9%.

The median family income (MFI) in the study area is:

live below poverty level

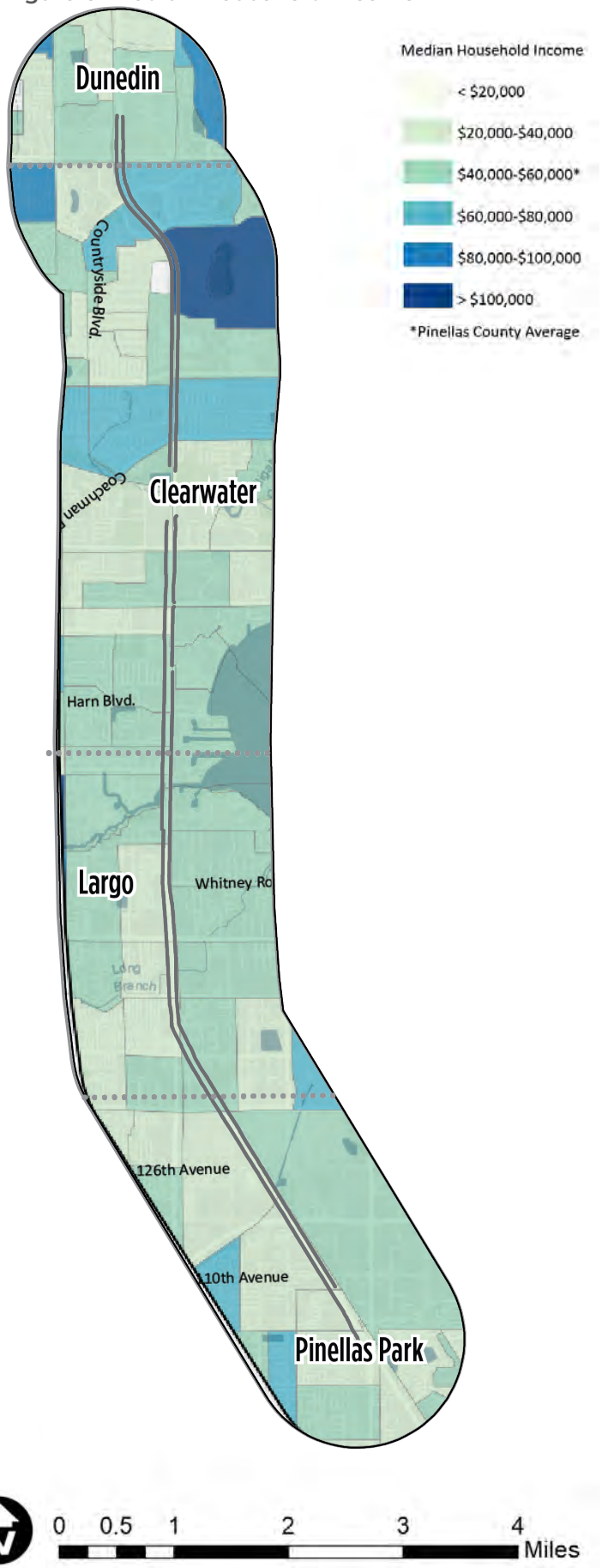
21% Pinellas Park

16% Largo

vs

9% County wide

Figure 6. Median Household Income



EDUCATION

Illustrated in Figure 7, nearly 40% of school-aged residents are enrolled in elementary and middle school, while 21% are in high school. Based on stakeholder input, the number of children who ride the bus to school creates a significant need for adequate infrastructure and coordination among the area's 11 high schools, 9 middle schools, and 12 elementary schools, as seen in Figure 8. College students are also heavily represented. St. Petersburg College and Pinellas Technical College both have campuses in the study area. Figure 9 shows that most of the population has received a high school diploma or equivalent, while roughly 10% completed an Associate's degree and 17% completed a Bachelor's degree.

Figure 7. Enrollment

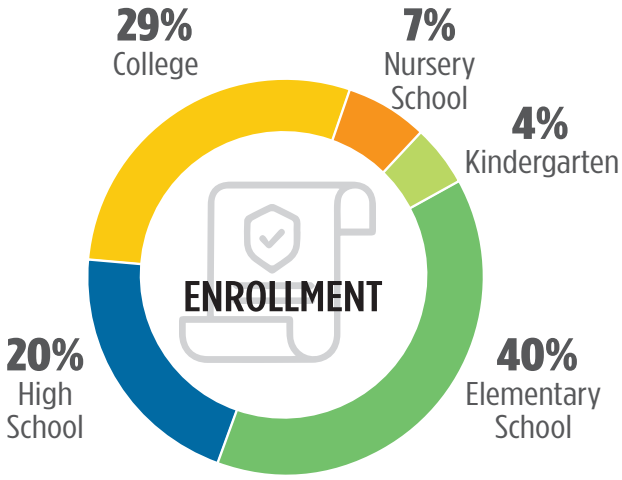


Figure 8. Schools in the Study Area

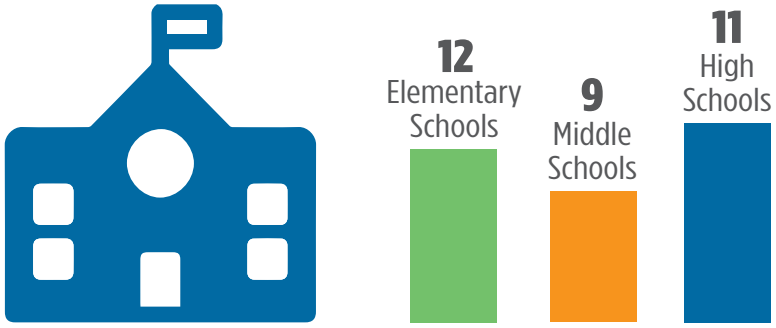
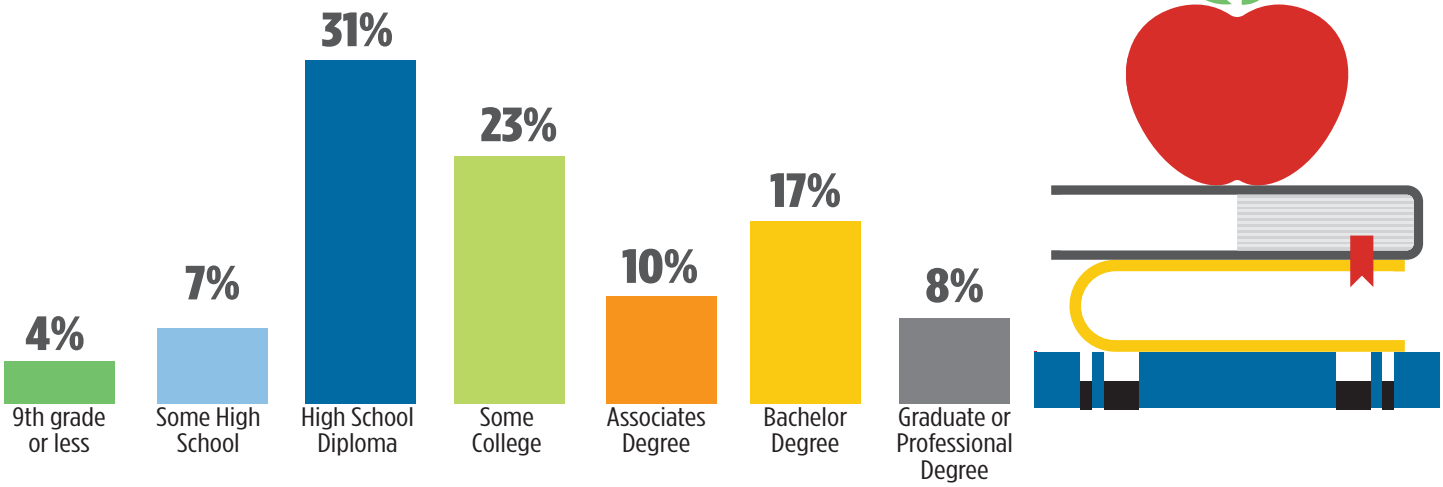


Figure 9. Educational Attainment in the Study Area



Source: 2017 ACS 5-Year Estimates

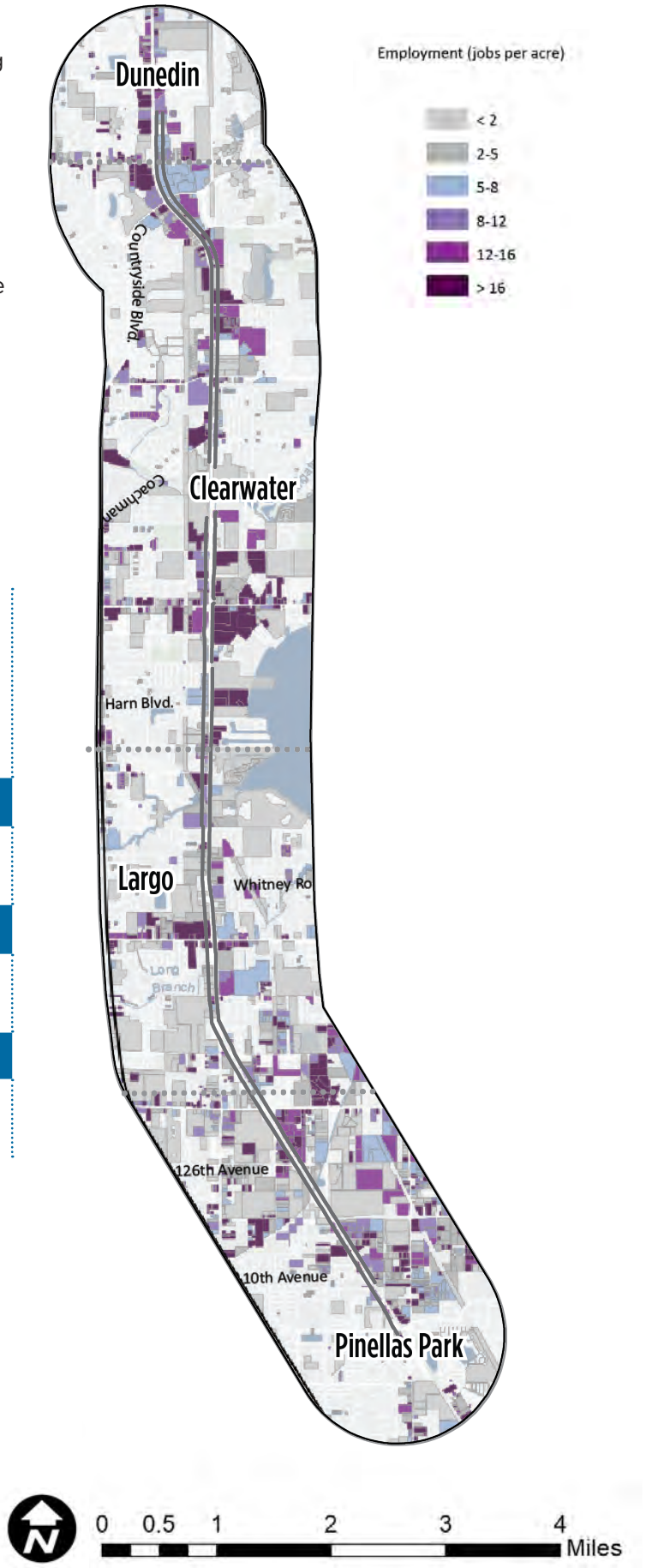
EMPLOYMENT

The corridor is home to commercial uses that serve as employment hubs, especially at major intersecting roads and access points. In general terms, jobs along the corridor are diverse and tend to range between office-based and service industries like retail and health care, which include many low- and middle-wage occupations. North of Gulf-to-Bay Boulevard, 38% of jobs are in retail, 51% are office/administrative, and 11% are in the medical/health care services industry. In the mid–study area (between Gulf-to-Bay Boulevard and Ulmerton Road), jobs are split into 27% retail, 44% office/administrative, and 28% industrial sector. South of Ulmerton Road, 47% of the jobs are within the industrial sector, followed by a 53% mix of retail and office/administrative services. This is illustrated corridor-wide in Figure 10.

	Retail	Office/ Administrative	Medical/ Health Care Services	Industrial
North of Gulf-to-Bay Boulevard	38%	51%	11%	
Gulf-to-Bay Boulevard and Ulmerton Road	27%	45%		28%
South of Ulmerton Road		53%		47%

63,727
JOBS in the Study Area

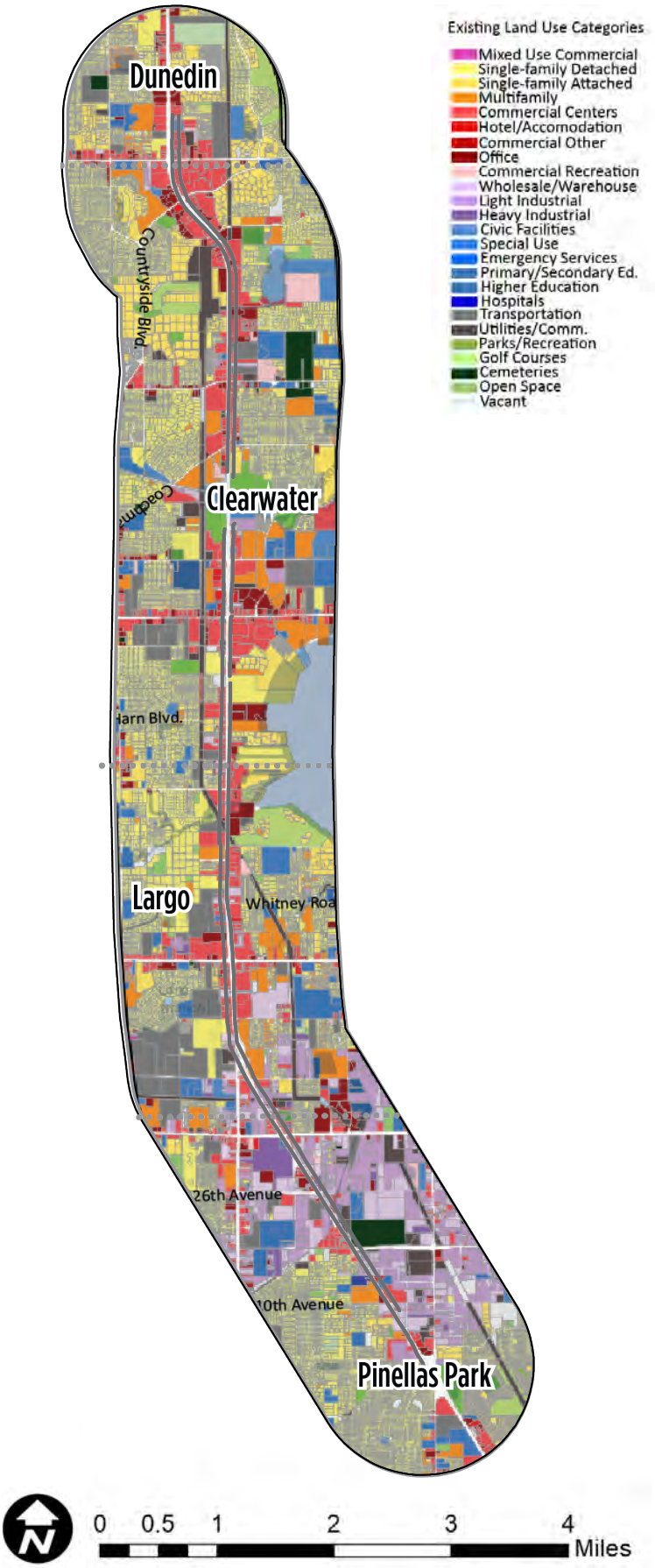
Figure 10. Employment, Jobs per Acre



EXISTING LAND USE

Land use patterns show that commercial activity is the primary use along U.S. 19 and about both northbound and southbound frontage roads. Seen in Figure 11, Single-family residential areas are located behind the commercial areas, while multifamily developments are found adjacent to and behind the frontage roads. There is a large cluster of industrial uses in Pinellas Park and Largo, while Clearwater and Dunedin house many of the area's retail uses. There is currently a limited number of mixed/multi-use areas even within the major activity centers. However, this type of development is being encouraged by special area-wide plans located in Largo and Pinellas Park, as seen in Figure 12.

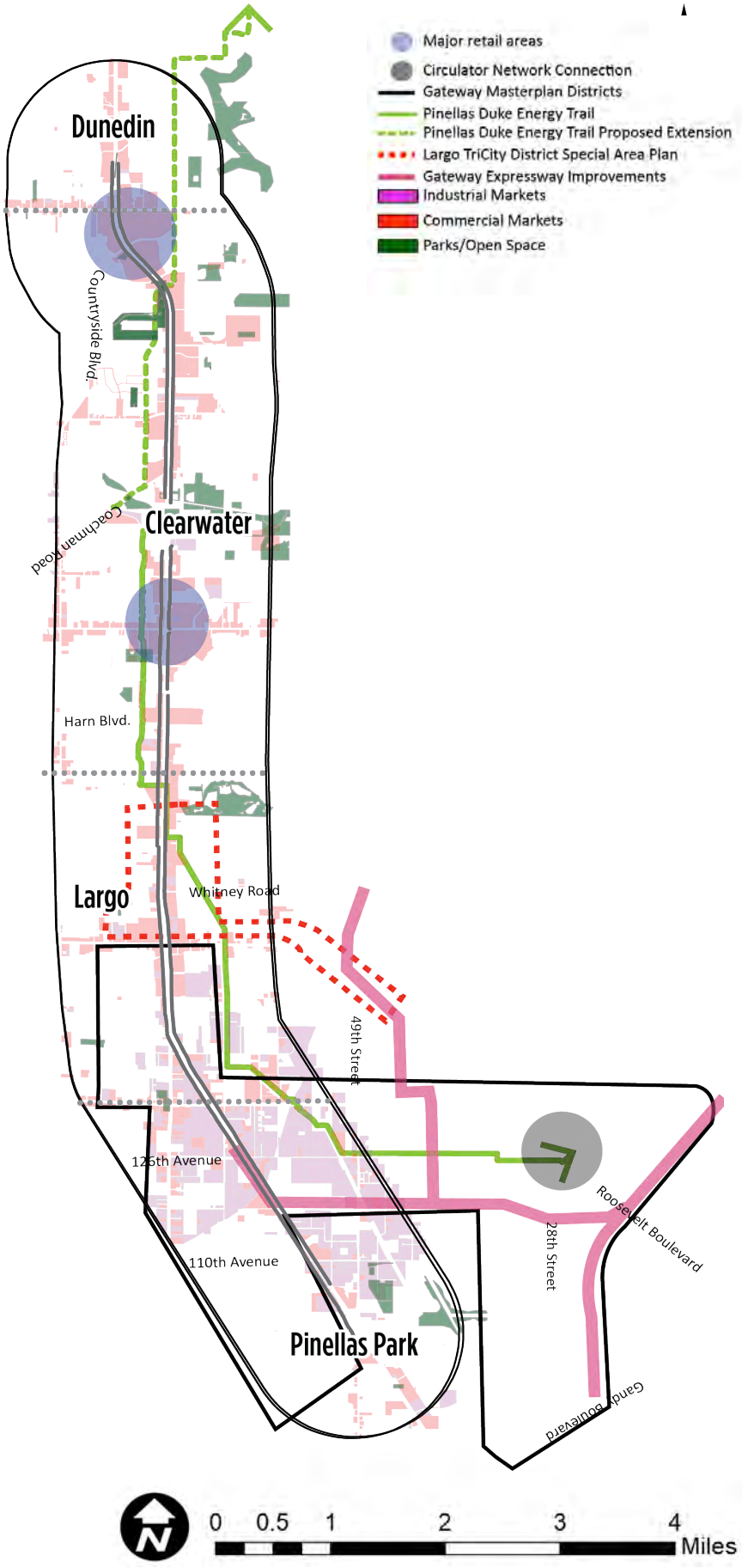
Figure 11. Existing Land Use, by Parcel



COMMUNITY AMENITIES

The Community Assets map in Figure 12 illustrates major plans, industries, multimodal thoroughfares, connections, and parks/recreation spaces within the study area. There are numerous municipal, state, MPO, and County driven plans, including the Gateway Expressway Improvements and the Largo Tri-City District Special Area Plan. The Largo area also shows a limited amount of parks/recreation space, which is addressed in some of these plans. The Gateway Master Plan intends to connect the Pinellas Duke Energy Trail at Roosevelt Boulevard and introduce mixed-use and live/work districts. The Forward Pinellas Express bus service assessment indicates this area will house transit-supportive land uses that will stretch the length of the frontage roads. The areas north of the Gateway section house major retail stakeholders in both the Westfield and Clearwater malls. This encompasses most of the Duke Energy Trail and commercial districts as well as parks/recreation areas.

Figure 12. Community Amenities Map



DEVELOPMENT POTENTIAL

Development potential was determined using data from the Pinellas County property appraiser, utilizing a building-to-land value ratio. Values of 50% or less indicate that the building value is 50% or less than the parcel land value and has higher potential to be razed and redeveloped. These parcels are shown in Figure 13. Throughout the corridor, sites with the most potential for redevelopment are shopping centers and light industrial parcels.

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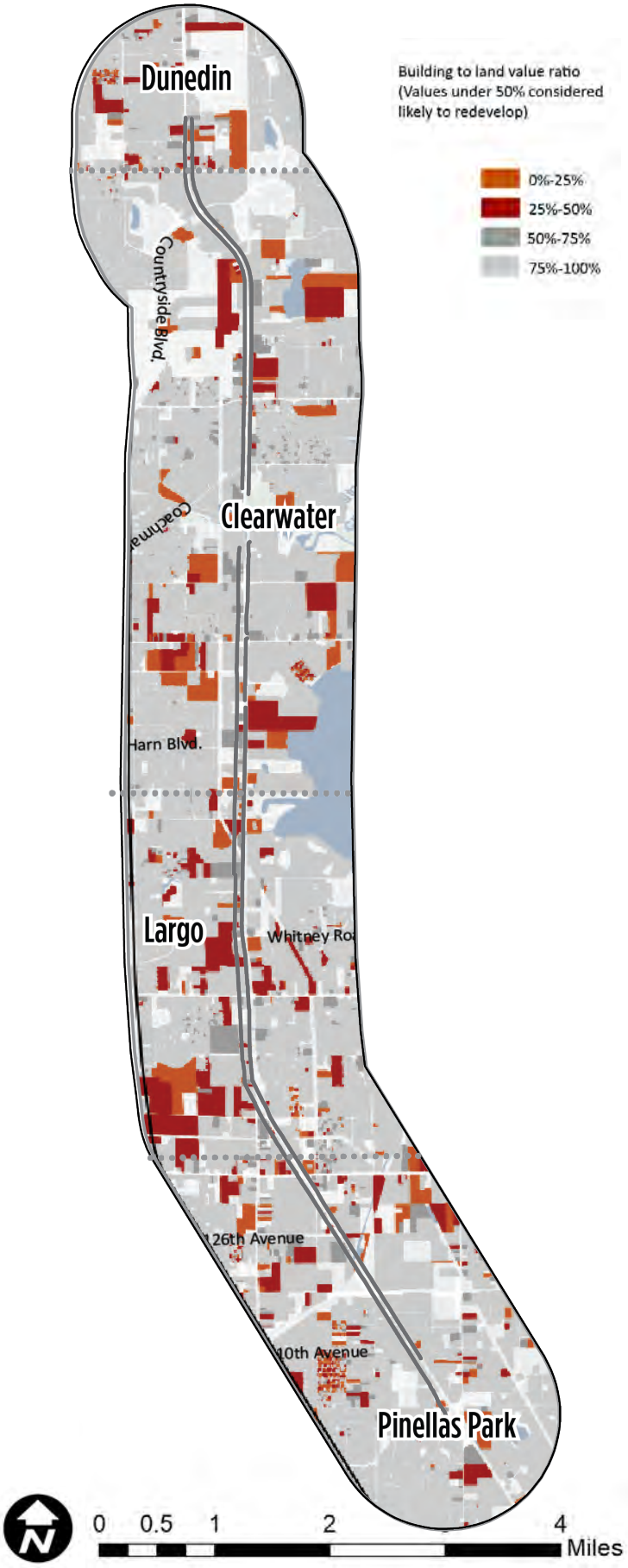
Figure 13. Redevelopment Potential



FUTURE LAND USE

The map below combines the future land use designations of each municipality in the study area as well as Pinellas County. Notable land use changes include the addition of mixed-use development in Dunedin north of S.R. 580 and along Sunset Point Road. The City of Clearwater has also designated portions of land near Gulf-to-Bay Boulevard as U.S. 19 mixed-use development areas. The U.S. 19 Regional Center district provides a mix of commercial, office, industrial, and residential spaces at a Floor Area Ratio (FAR) maximum of 2.5. The U.S. 19 Neighborhood Center and U.S. 19 Corridor districts can serve similar uses at a maximum FAR of 1.5. A map of consolidated future land use areas among all jurisdictions is seen in Figure 14.

Figure 14. Consolidated Future Land Use

Source: Local Municipalities, Pinellas County

03
TRANSPORTATION AND TRAVEL MODE CHARACTERISTICS

TRANSPORTATION AND TRAVEL MODE CHARACTERISTICS

Area-Wide Conditions

STREET HIERARCHY

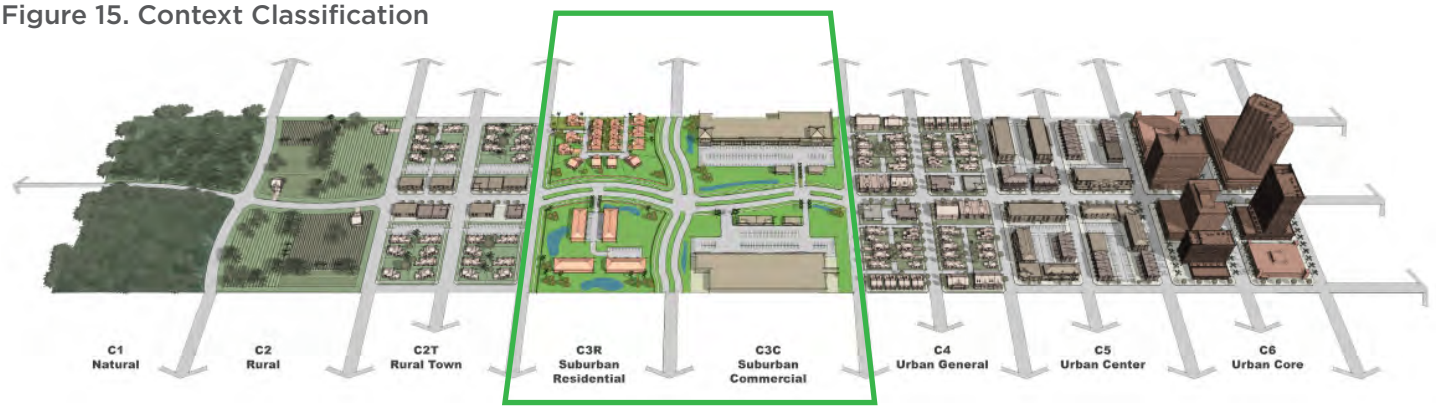
U.S. 19 is one of three north-south principal arterials in Pinellas County and the only one that stretches across the entire county. As such, it plays a major role in regional travel through the area. There is not a parallel facility that covers the entire study area; however, Old Coachman Road and 58th Street provide minor arterial/collector alternatives in certain locations. Belcher Road is the nearest alternative route west of U.S. 19, and McMullen Booth Road/49th Street is the nearest alternative to the east. It is equally important to note that the limited access nature of US 19 is meant to move higher volumes of traffic at higher speeds on a regional basis, achieved through grade separation. The frontage roads form the interface between the local network and the mainline.

While the frontage roads do not have a distinct functional classification, by nature, their role is to serve the local businesses along the corridor, providing access to driveways and minor streets. As such, they function more like a collector or local street.

CONTEXT CLASSIFICATION

Nearly the entire length of the corridors is designated as C3C (Suburban Commercial) while two segments on the northbound and southbound sides are designated as C3R (Suburban Residential). he C3C distinction is supported by large block lengths and limited intersection density as well as commercial uses that flank the east and west sides of the roads, as illustrated in Figure 15. Figure 16 shows the available network of roadways and their hierarchical designation that supports this Context Classification. The C3R segments are designated as such due to large multifamily developments and condominiums. These segments are highlighted in Figure 17.

Figure 15. Context Classification



All segments of the corridor are designated as C3C Suburban Commercial and C3R Suburban Residential

Figure 16. Street Hierarchy

Figure 17. U.S. 19 Frontage Roads Context Classification

COMMUTE PATTERNS

Commute patterns for the study were reviewed using the Longitudinal Employer-Household Dynamics provided by the U.S. Census. The Figure 18 below illustrates the inflow and outflow of workers, indicating that 61,121 people live outside the area and commute in for work, 6,608 people live and work in the study area, and 39,160 individuals live in the area and leave for work. The majority of these individuals (88%) commute in a single occupancy vehicle (SOV).

Despite the high reliance on SOV, there is demonstrated need among no-car households in the area for other mobility options. There are 15 census tracts that have twice the county average of no-car households. This is illustrated in Figure 20. These areas also mirror high volumes of individuals who take public transit to work, as seen in the map below.

Figure 18. Inflow/Outflow of Commuters

Figure 19. Mode of Commute

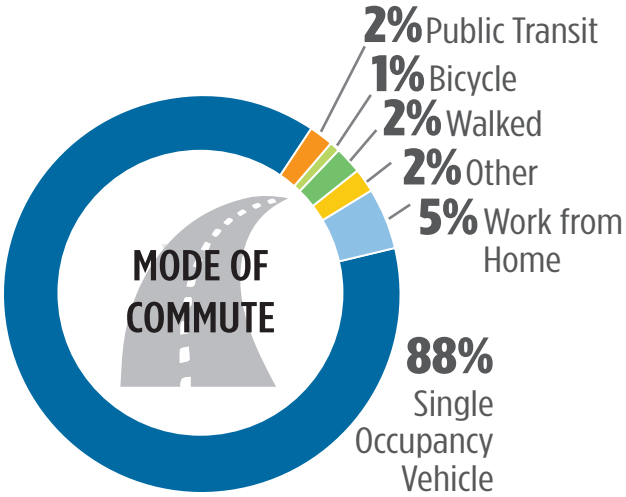
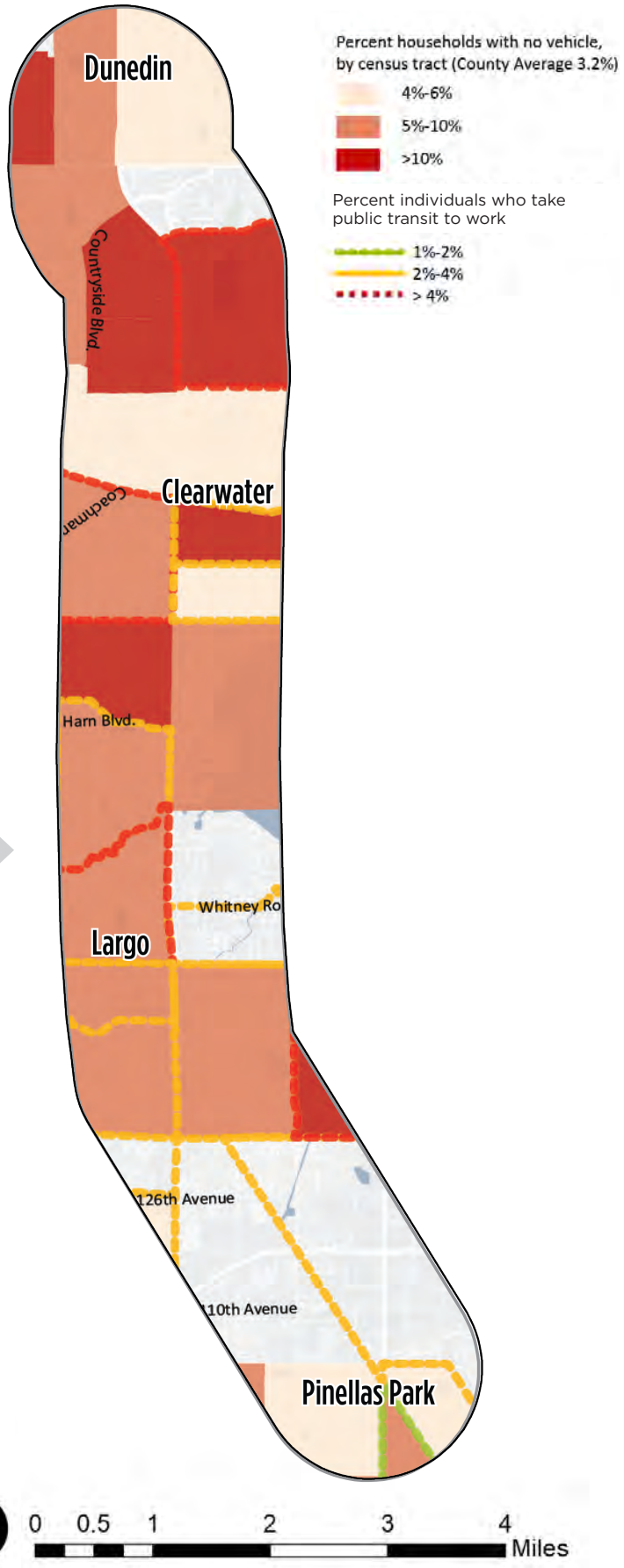


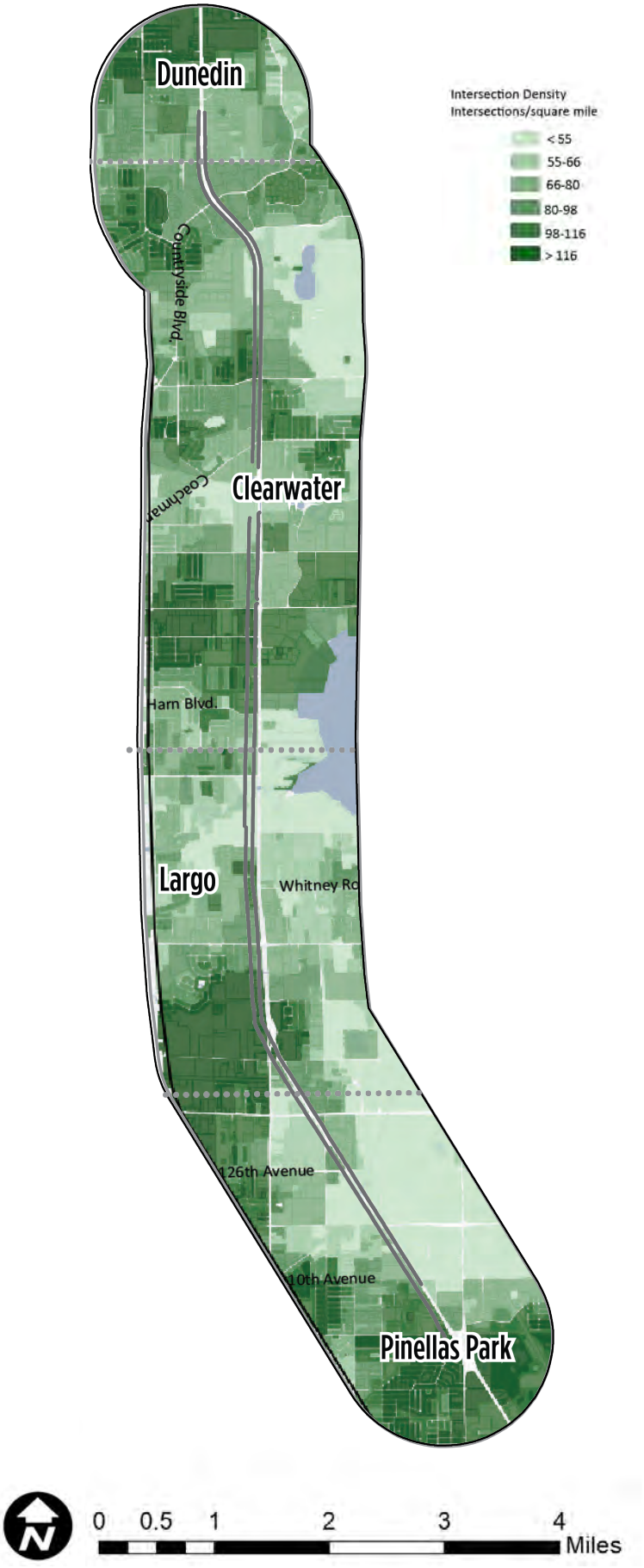
Figure 20. Percent Households without a Car, Transit to Work



STREET NETWORK CONNECTIVITY

Intersection density is a metric that helps to understand where a given transportation system may be lacking and where potential issues, such as congestion, are occurring. Street density is measured by using the total amount of street intersections per square mile throughout the study area. The higher frequency of intersecting streets indicates a denser street network, and therefore more options to route roadway users, including bicyclists. As seen in Figure 21, the greatest street densities in the study are the southern end in Pinellas Park, west of U.S. 19 near E Bay Road/Roosevelt Boulevard, and north of S.R. 580. The segment between 49th Street and Ulmerton Road, east of U.S. 19, has the lowest street density.

Figure 21. Intersection Density



ACCESS POINTS

A common concern heard from area stakeholders is the weaving that occurs between on/off ramps and signalized intersections. Figure 22 shows the spatial relationship between ramps to and from mainline U.S. 19 and the signalized intersections. The effects of weaving will be further reviewed in the Traffic Conditions sections.

Figure 22. Access Points and Intersections

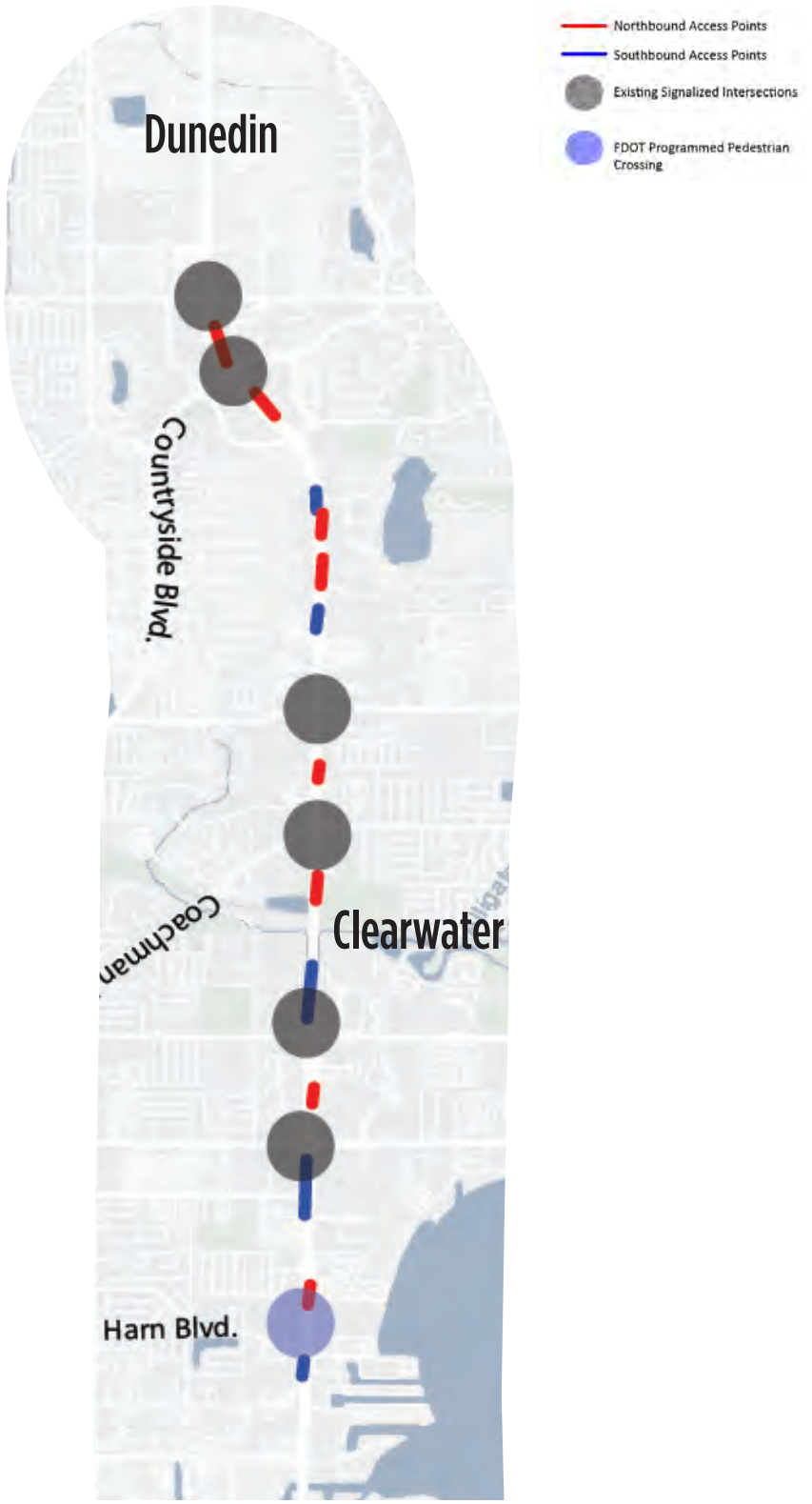


Figure 22. Access Points and Intersections continued

04
TRAFFIC CONDITIONS

TRAFFIC CONDITIONS

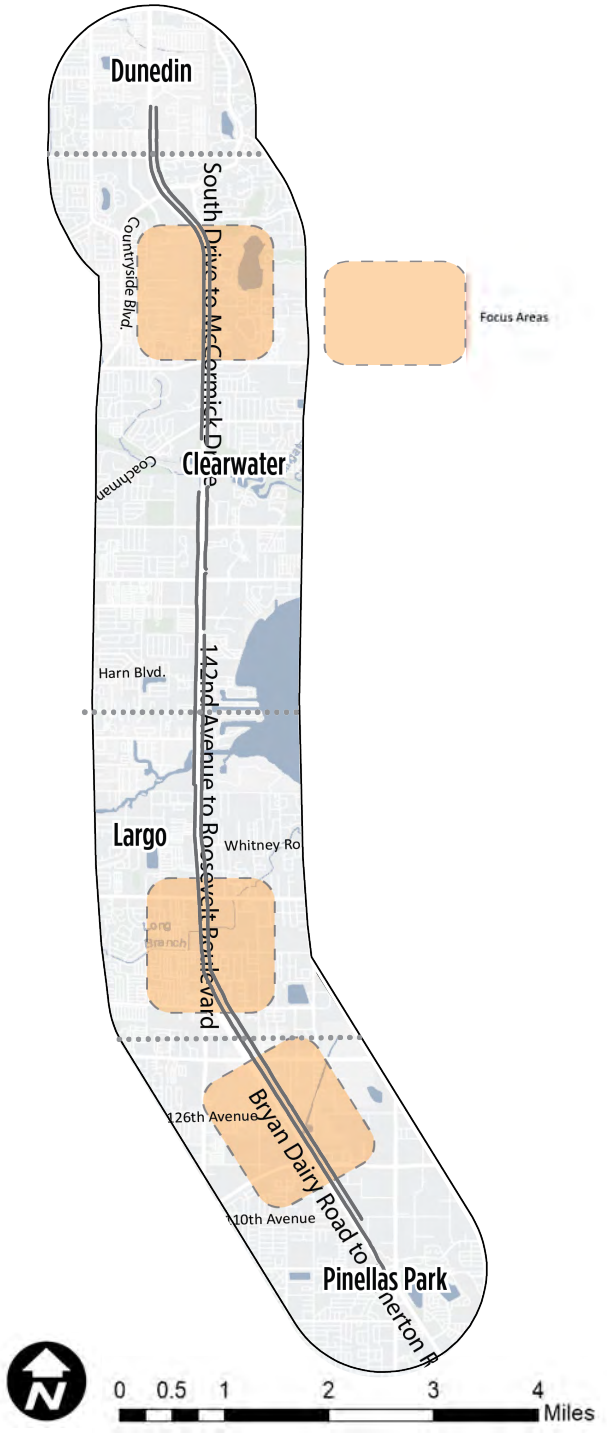
Focus Areas

The following factors were used to identify focus areas in coordination with discussions with FDOT and each city: Major intersections, crash data, adjacent developable properties. Figure 23 shows the location of focus areas where more detailed analysis was conducted:

- The Clearwater focus area limits are from South Drive to McCormick Drive. This area was a hot spot for bicycle and pedestrian crashes. A mobile home park recently closed in the area and could be a catalyst site for redevelopment.
- The Largo focus area is between 142nd Avenue and Roosevelt Boulevard, which encompasses the Largo Tri-City District Special Area Plan.
- The Pinellas Park focus area is between Bryan Dairy Road and Ulmerton Road. This focus area, especially the Ulmerton Road intersection, is a safety concern with respect to bicycle and pedestrian crashes.

Additionally, multiple stakeholders expressed concern regarding access to the frontage road from driveways between Belleair Road and Gulf-to-Bay Boulevard. While not a focus area, this area will be reviewed for possible intersection and driveway modifications.

Figure 23. Focus Areas

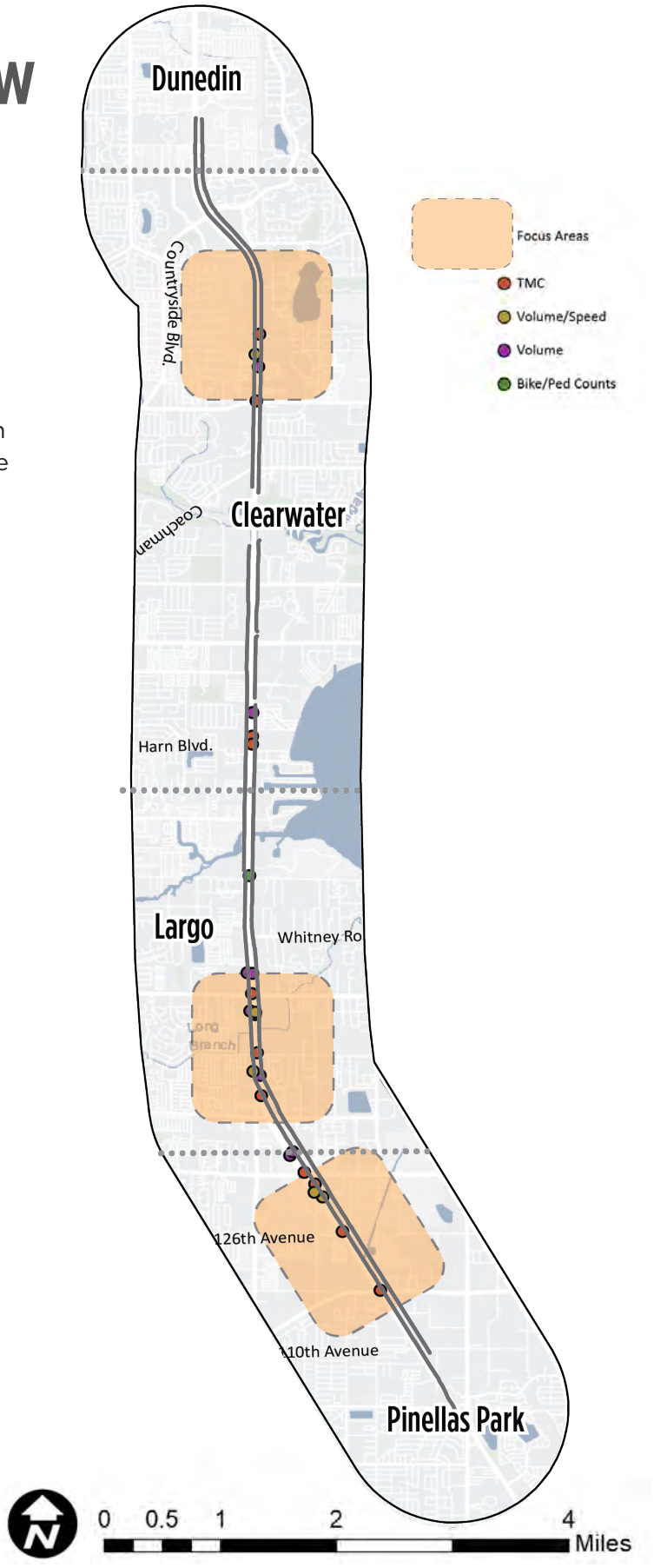


Traffic Data Collection Methodology & Overview

Traffic data was collected in the focus areas described above. Traffic data collected includes turning movement counts, volume counts, and speeds. Some speed counts were collected using pneumatic tubes; other speed counts were collected manually. The manually collected speeds excluded congested vehicles, where pneumatic tube speed collection includes all vehicles.

The traffic conditions were analyzed for intersection operations and speeds. Intersection operations were evaluated using HCM 6th Edition methodologies in Synchro. The speeds were evaluated qualitatively.

Figure 24. Data Collection and Focus Area Locations



Source: FDOT GIS Database

NUMBER OF LANES AND AADT

The frontage roads vary between one and two lanes in each direction, as ramps merge on and off from U.S. 19. At major intersections, the frontage roads widen out to three and four lanes.

Figure 25. Number of Lanes

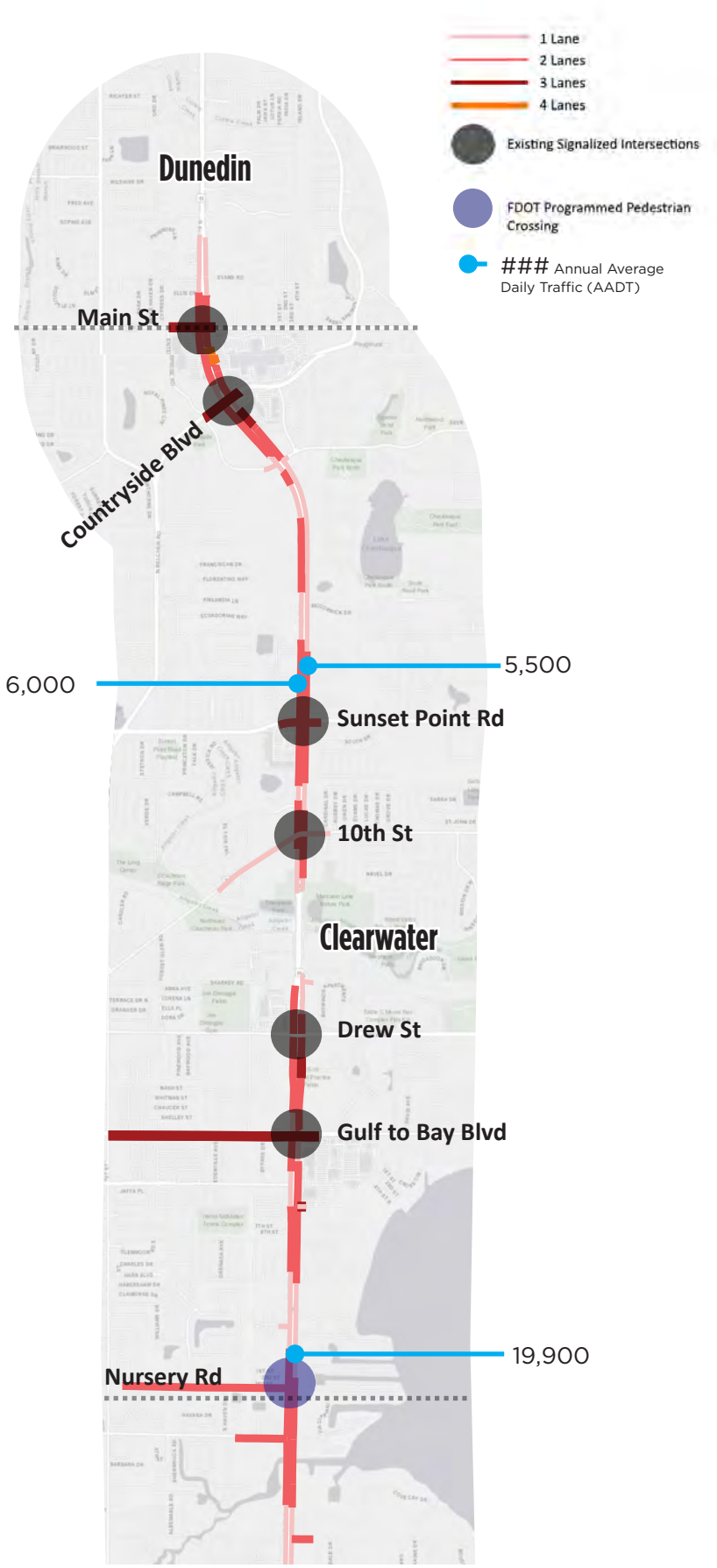
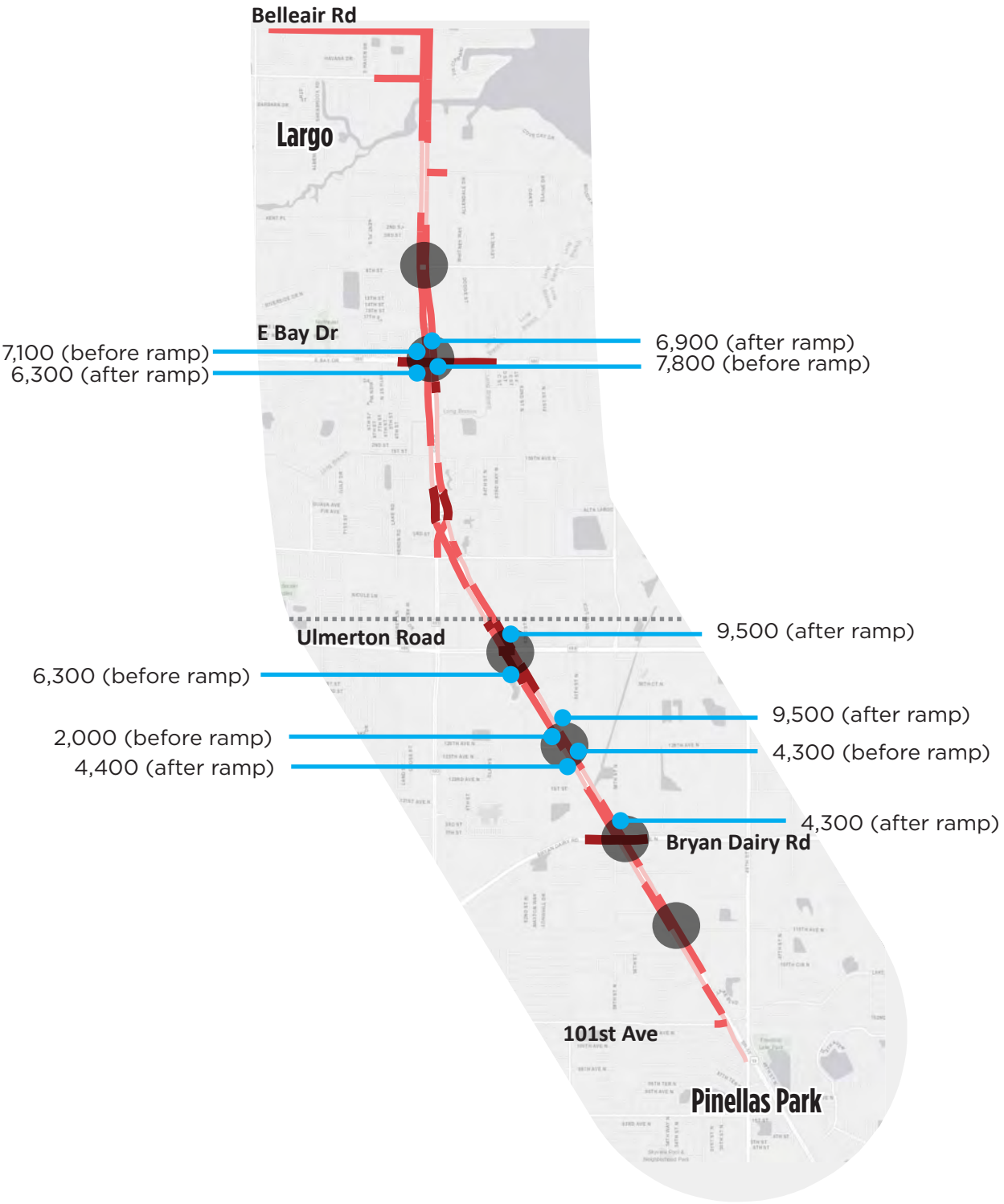
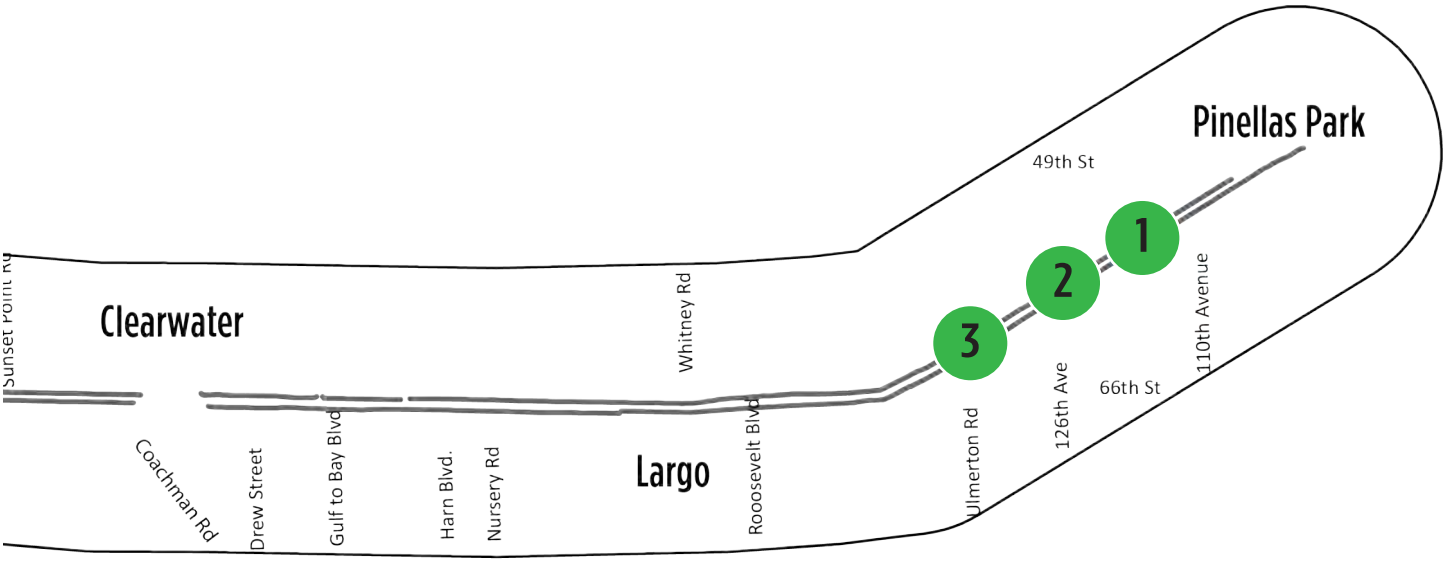


Figure 25. Number of Lanes Continued





INTERSECTION ANALYSIS

1. Bryan Dairy Road - Single-point urban interchange

	AM	PM
Motorist Delay	254.5	225.7
Ped Delay	210.0	200.0
Intersection Motorist LOS	F	F

- Southbound right turn queue is > 2,000 feet

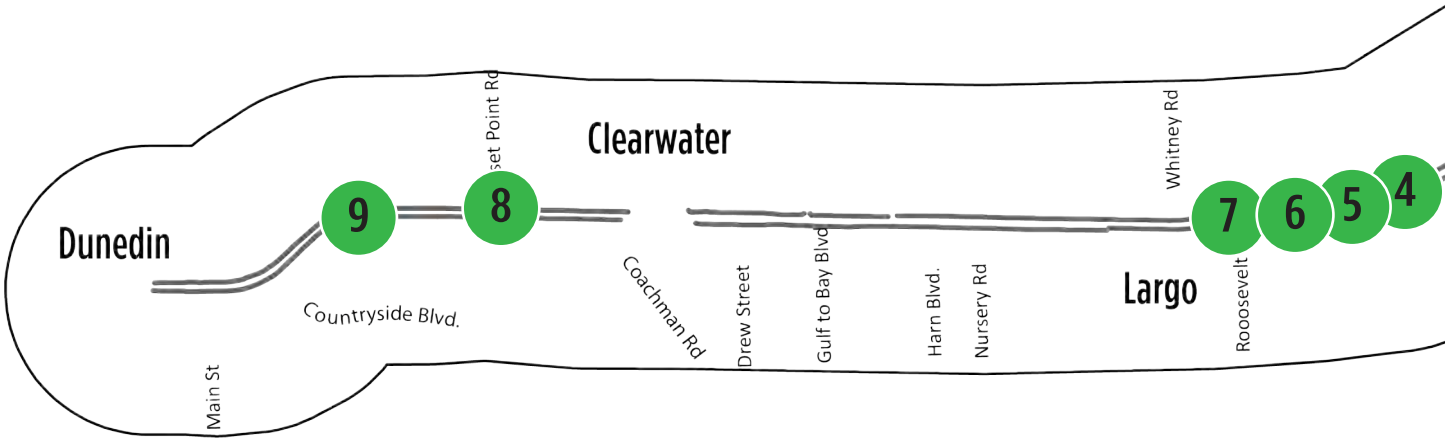
2. 126th Avenue N - Tight Diamond

	AM	PM
Motorist Delay	10.7	13.2
Ped Delay	59.3	59.3
Intersection Motorist LOS	B	B

3. Ulmerton Road- Single-point urban interchange

	AM	PM
Motorist Delay	91.9	157.6
Ped Delay	293.9	266.4
Intersection Motorist LOS	F	F

- The westbound approach has the highest delay with (>300 second (5 minutes) delay in PM.
- Vehicles weaving between the ramps and intersection have insufficient distance to weave before reaching the back of queue.



4. 66th Street N – Signalized through movements and southbound left

	AM	PM
Motorist Delay	6.8	10.2
Ped Delay	54.8	49.8
Intersection Motorist LOS	A	B

5. 150th Ave N (NB Frontage Road) – Right-in/right-out

	AM	PM
WBR Motorist Delay	13.6	14.7
WBR Motorist LOS	B	B

6. Walmart Driveway (NB Frontage Road) – Right-in/right-out

	AM	PM
WBR Motorist Delay	11.5	10.5
WBR Motorist LOS	B	B

7. E Bay Drive/Roosevelt Boulevard – Single-point urban interchange

	AM	PM
Motorist Delay	77.4	73.1
Ped Delay	306.1	312.3
Intersection Motorist LOS	E	E

- The left turn movements are the only ones with delays over 100 seconds

8. Sunset Point Road – Single-point urban interchange

	AM	PM
Motorist Delay	53.6	58.4
Ped Delay	140.1	140.1
Intersection Motorist LOS	D	E

- Pedestrian delay is worse than any individual vehicle movement delays

9. McCormick Drive (NB Frontage Road) – Right-in/right-out

	AM	PM
WBR Motorist Delay	9.4	32.4
WBR Motorist LOS	A	D

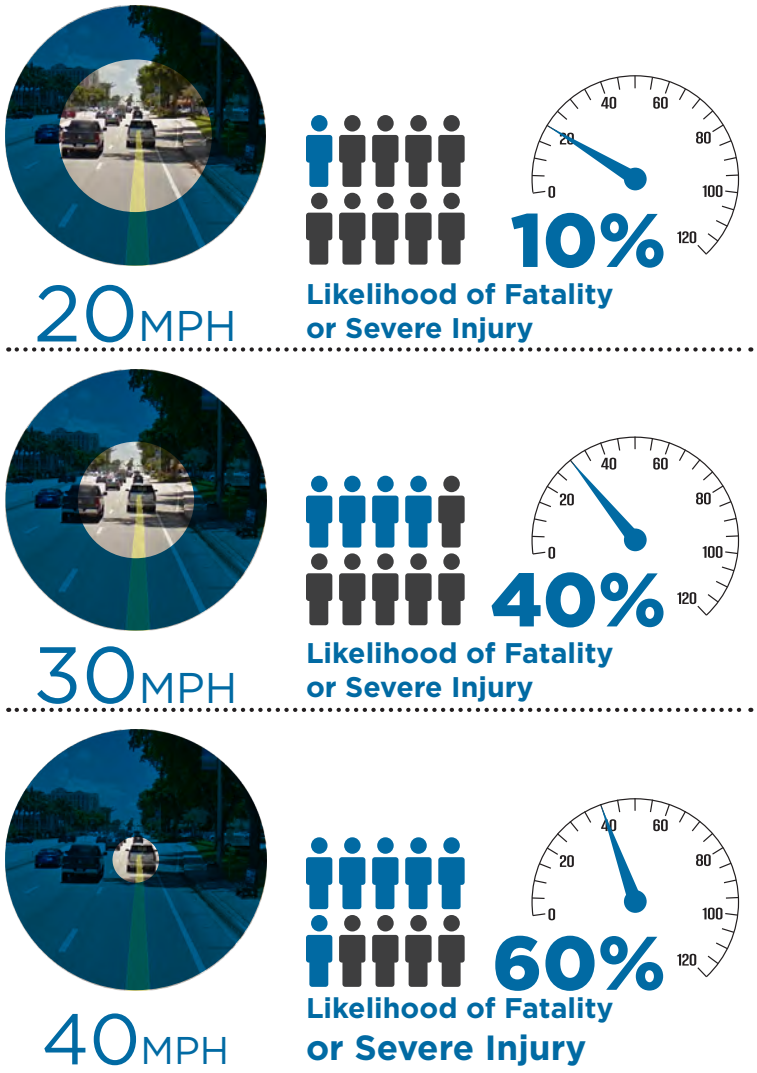
Speed Evaluation

Vehicle travel speed is a key factor contributing to pedestrian safety. Research suggests that 60% of pedestrians will survive an accident with a vehicle traveling at 30 mph, while 90% of pedestrians will survive an accident at 20 mph.[1]

The speed evaluation was conducted to assess speeds along the frontage roads as well as speed differences between the frontage road and ramps.

Table 1 shows the speeds at ramps within the focus areas comparing both the 85th percentile and average speed on the frontage road and ramp. In general, off ramp speeds are about 10 mph faster than the frontage road. This is likely to cause speed interactions between exiting vehicles and frontage road vehicles. The on-ramp speed is also higher than frontage road speed, but only by about 5 mph and the on-ramp vehicles have less interaction with the other frontage road vehicles.

Figure 26. Vehicle Speed comparison to chance of Pedestrian Injury and Fatality



Source: FDOT GIS Database

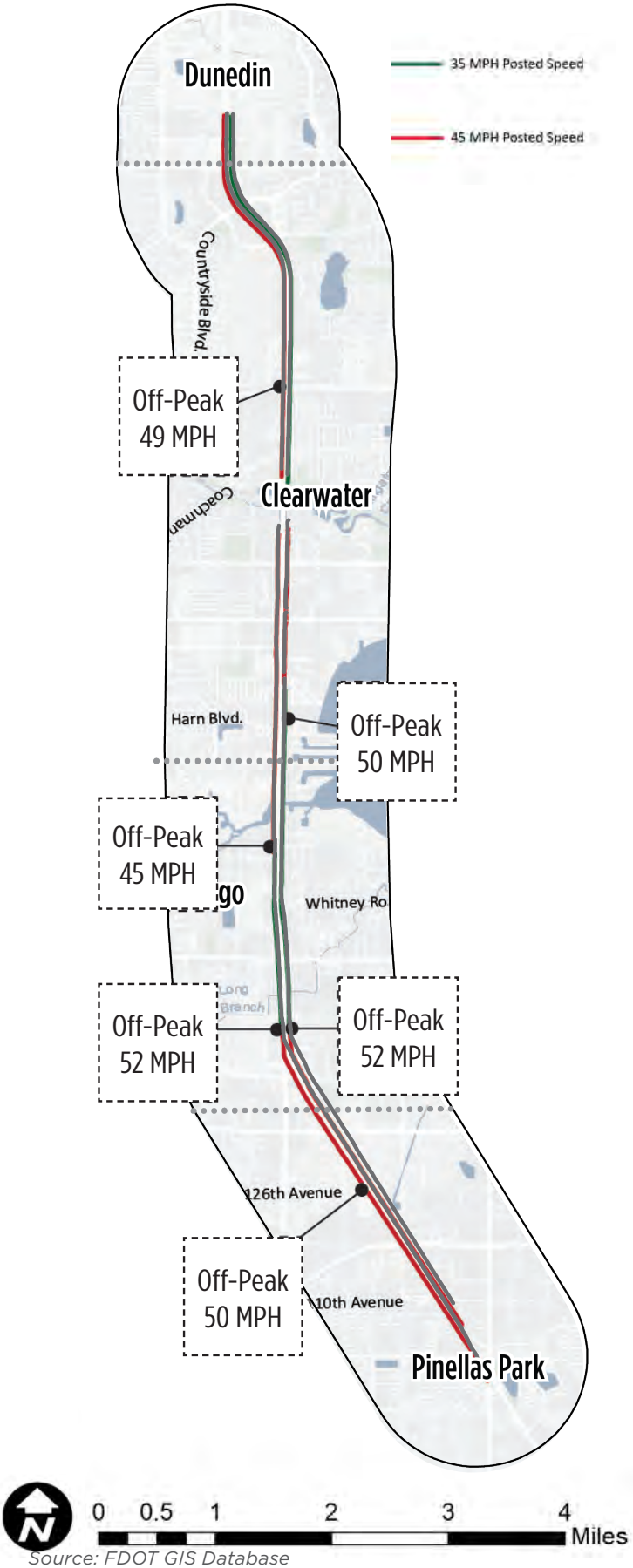
Table 1. Off-Peak 85th Percentile Speed

Ramp		Frontage Road Speed	Ramp Speed	Ramp to Frontage Road Speed Differential
SB on Ramp South of Ulmerton Road	85th Percentile:	45 MPH	48 MPH	3 MPH
	Average Speed:	37 MPH	43 MPH	6 MPH
NB Off Ramp South of Roosevelt Boulevard	85th Percentile:	44 MPH	55 MPH	11 MPH
	Average Speed:	37 MPH	48 MPH	11 MPH
SB Off Ramp North of 66th Street N	85th Percentile:	47 MPH	57 MPH	10 MPH
	Average Speed:	41 MPH	51 MPH	10 MPH
SB Off Ramp North of Sunset Point Road	85th Percentile:	44 MPH	54 MPH	10 MPH
	Average Speed:	38 MPH	49 MPH	11 MPH

[1] https://www.ite.org/technical-resources/topics/speed-management-for-safety/speed-as-a-safety-problem/

Figure 27 shows speeds along the frontage roads during off peak measurements collected using the manual method. The off-peak 85th percentile speed is near 50 mph for the entire corridor and does not seem to be influenced by the posted speed. The speed data shows that speeding is an issue in the sections where the posted is 35 mph. Even where the posted speed is 45 mph and speeding is not a concern, the high vehicle speeds and lack of buffer between the sidewalk and travel lanes contribute to pedestrian discomfort. With these high operating speeds, there are few cyclists that would feel comfortable using the on-street bike lane.[2]

Figure 27. Off-Peak 85th Percentile Frontage Road Speed



Source: FDOT GIS Database

[2] Furth, Peter G., Maaza C. Mekuria, and Hilary Nixon. "Network Connectivity for Low-Stress Bicycling." Transportation Research Record: Journal of the Transportation Research Board 2587, no. 1 (2016): 41–49. https://doi.org/10.3141/2587-06.

Transit Conditions

ROUTES AND TYPES

The Pinellas Suncoast Transit Authority (PSTA) operates 15 fixed transit routes in the study area. Route 19 and Route 34 are the primary north–south routes. Route 19 begins at the Largo Transit Center near Roosevelt Boulevard and continues north to Tarpon Springs, operating every 45 minutes. Route 34 travels south from Largo Transit Center into St. Petersburg, operating every 20 minutes. The Largo Transit and the Clearwater Mall are the main transfer locations in the study area.

In addition to fixed route transit, there are three Direct Connect locations in the study areas. Direct Connect is a partnership between PSTA and Uber, United Taxi, and Wheelchair Transport to improve first-mile/last-mile connectivity to transit. Anyone who begins or ends a trip with in the Direct Connect zone receives $5 off their taxi fare.

Figure 28. Transit Routes

Source: PSTA

RIDERSHIP

Figure 30 displays total boarding and alighting data for bus stops along the frontage roads. The highest ridership areas are concentrated near Roosevelt Boulevard and the Countryside Mall—the two major transfer areas in the study area. The map also highlights stops that do not currently have shelters.

Stops with high ridership without a bus shelter include:

- Countryside Boulevard & U.S. 19
- Belleair Road & U.S. 19
- East Bay Drive & Sawmill Avenue
- Roosevelt Boulevard & Dodge Street
- 49th Street and 94th Avenue

The map also highlights stops that do not currently have shelters, an example of which is seen in Figure 29.

Figure 29. Daily Boarding, Alighting, and Non-Sheltered Bus Stops

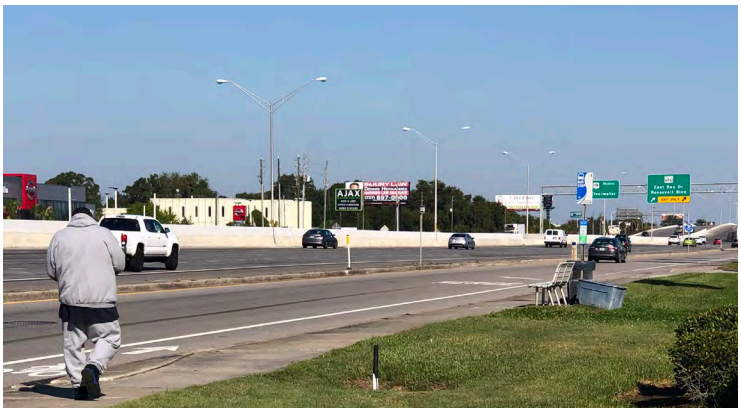
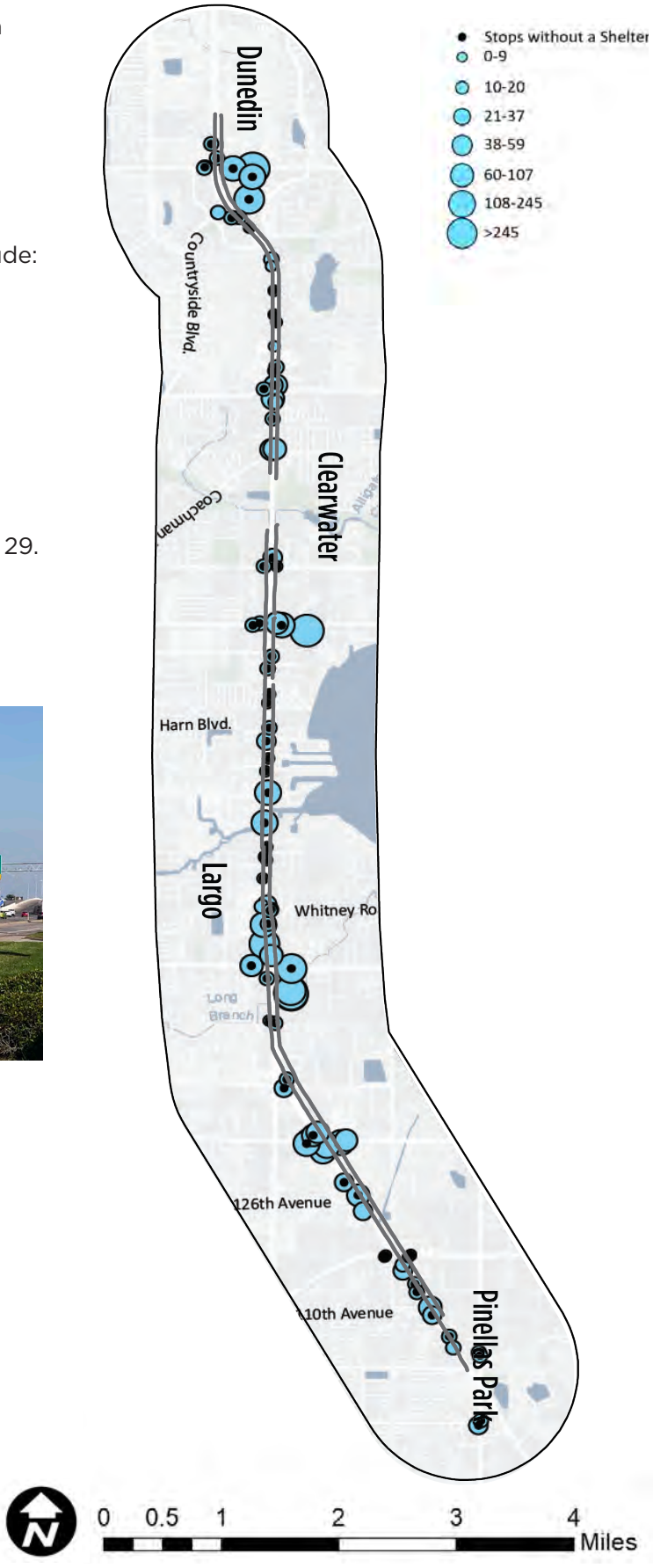


Figure 30. Daily Boarding and Alighting



Source: PSTA

TRAVEL PATTERNS

As part of the data collection effort for PSTA's 2015 Transit Development Plan (TDP), an onboard survey of bus passengers using Route 19 was conducted in June 2015. This onboard survey was designed to collect information on the travel behavior of bus riders (i.e., trip origin and destination) on this route and solicit rider opinions on possible bus stop and route improvements. A total of 65 surveys were completed.

According to the survey, home-based work trips were the most common, followed by shopping/errands and social/personal/church (Figure 31). More than 80% of survey respondents walked to the bus stop (see Figure 32) and the majority of respondents walked six blocks or less. For those that rode their bike to the bus stop, the trip lengths varied between one and four miles.

Respondents were asked to provide their trip origin and destination location in terms of a location/business name, specific address, or the nearest major intersection. The most frequently referenced origins and destinations included major commercial developments, universities/colleges, schools, and medical facilities, among others. The responses received for both trip origins and trip destinations were geocoded and are illustrated in Figure 33.

Figure 31. Route 19 On-board Survey Origins and Destinations

Figure 32. Bus Stop Access Mode Summary (2015)

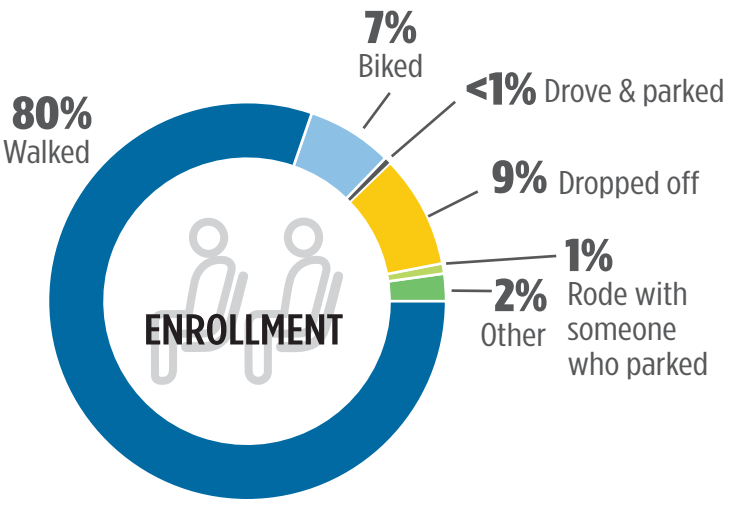
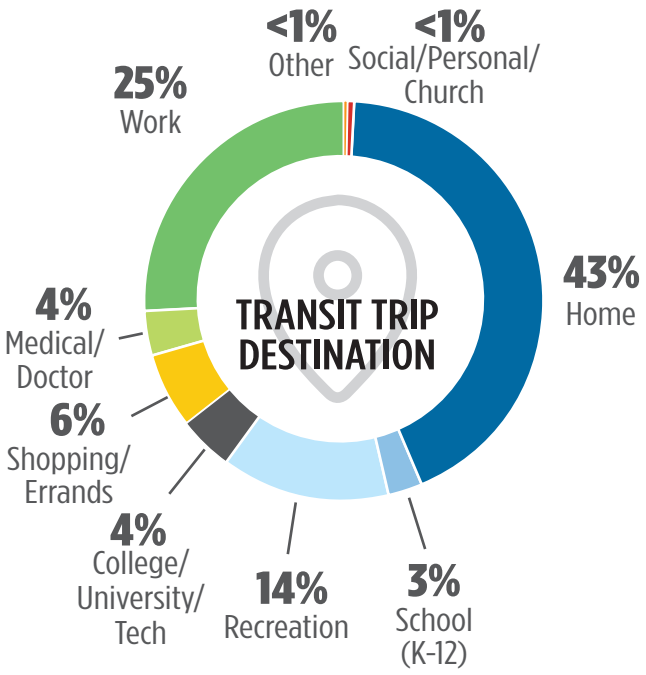


Figure 33. Transit Trip Destination Summary (2015)



FUTURE TRANSIT PLANS

In the 2018 U.S. 19 Express Bus Service Concept Plan Study, Forward Pinellas recommended an express service along U.S. 19 connecting the Gateway Area with New Port Richey in Pasco County. The proposed service would supplement existing local bus service by offering an additional peak-hour commuting option with a 30-minute frequency. The express service would have fewer stops than the existing Route 19. The proposed stops include Countryside Westfield Mall in the study area, as shown in Figure 34. Figure 35 shows how the express service on U.S. 19 ties into Forward Pinellas's overall transit invest framework from the 2045 Advantage Pinellas Plan.

The proposed service would supplement existing local bus service by offering an additional peak-hour commuting option with a 30-minute frequency.

Figure 34. U.S. 19 Express Bus Service Concept Plan Study North County Preferred Concept

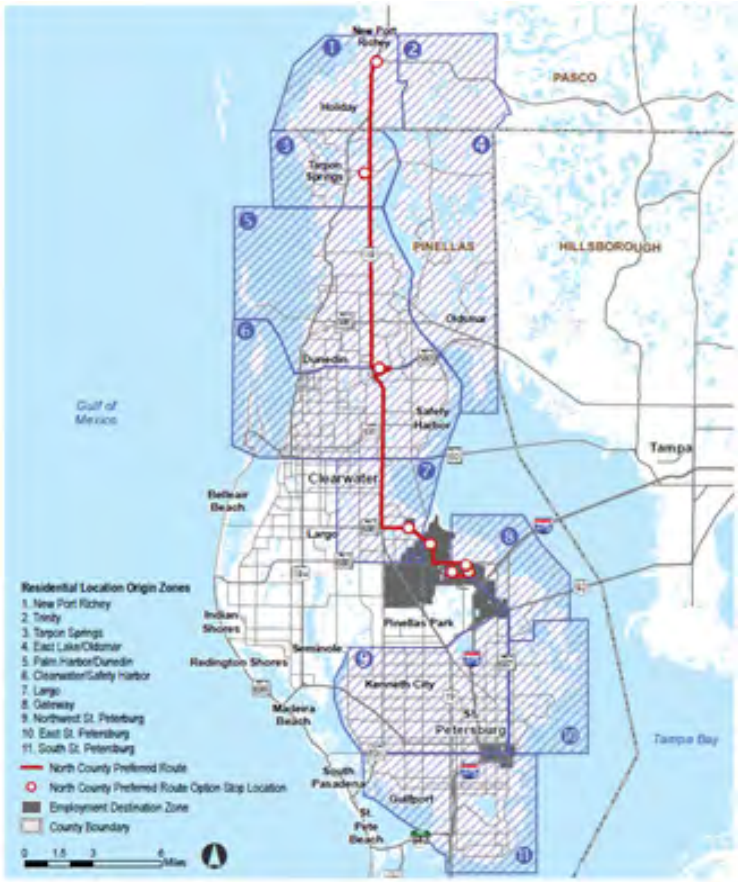


Figure 35. Forward Pinellas Transit Investment Framework

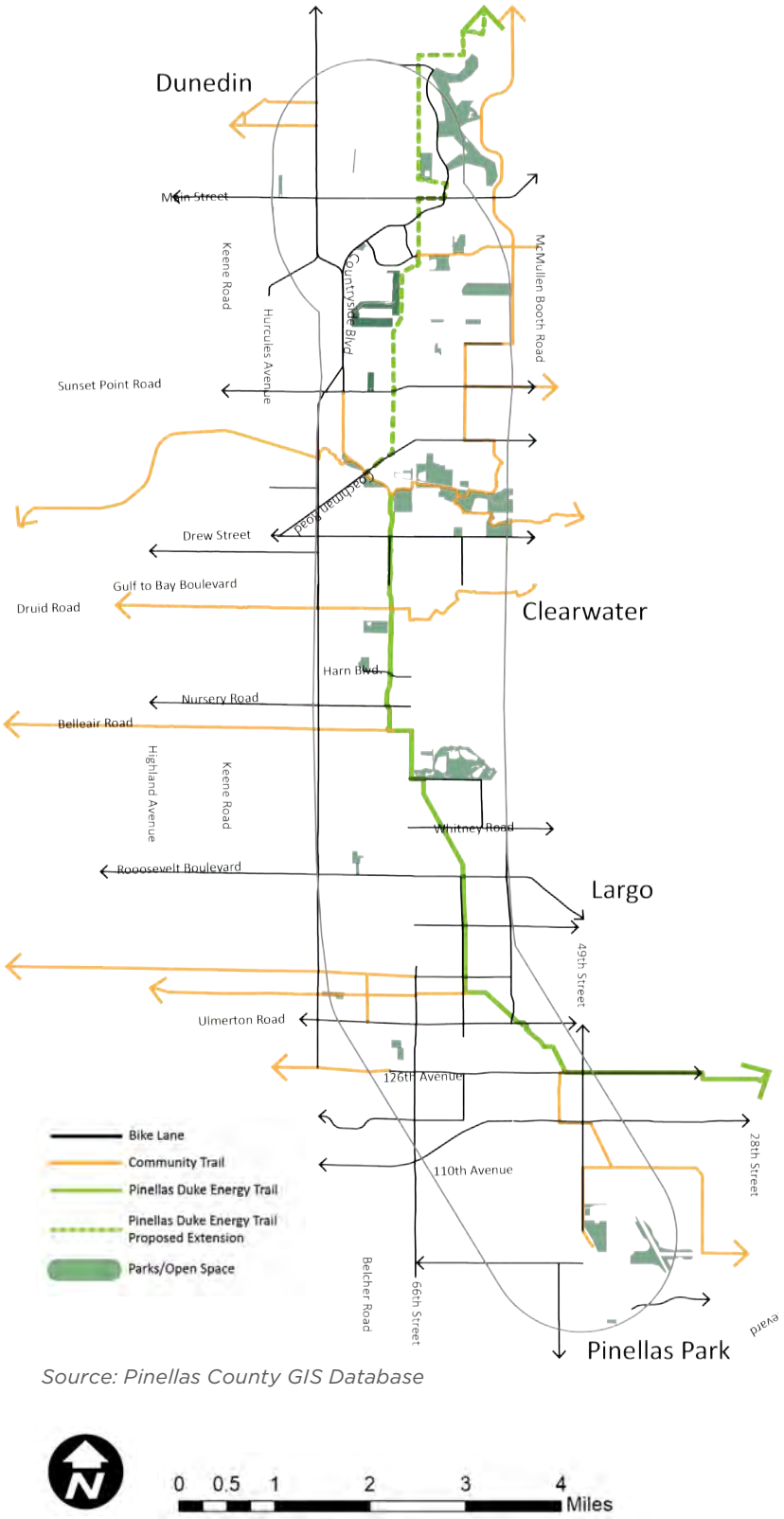
Bicycle and Pedestrian Infrastructure Conditions

There is a clear desire and need to improve bicycle and pedestrian safety, accessibility, and comfort along the corridor.

EXISTING BICYCLE AND PEDESTRIAN FACILITIES

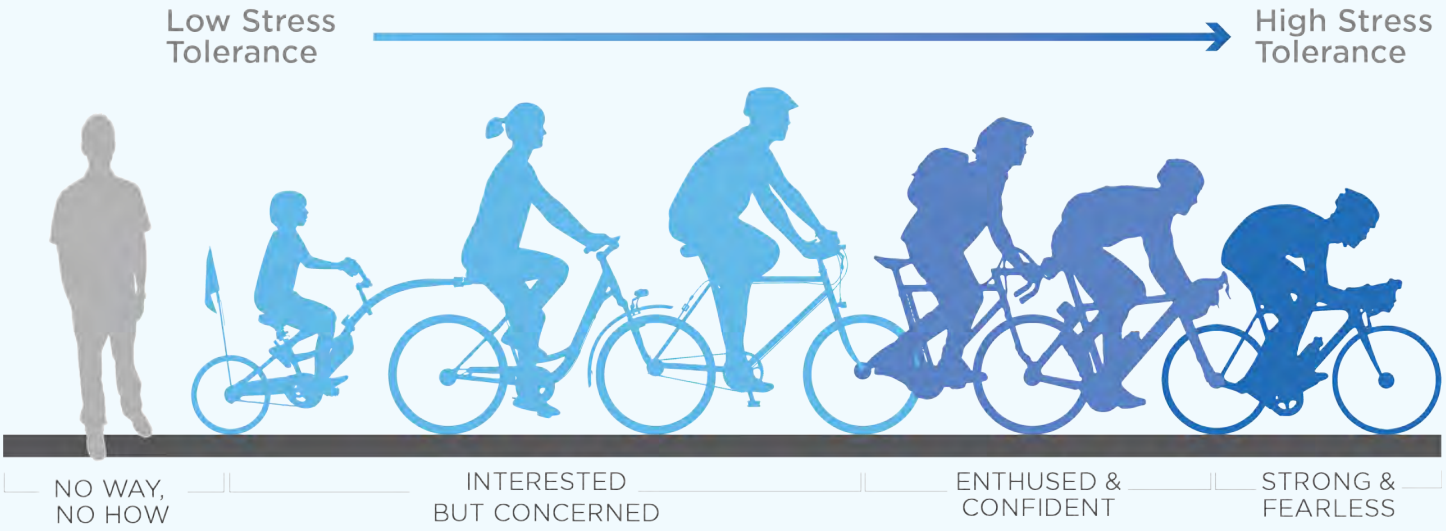
Existing bicycle and pedestrian facilities can be seen in Figure 36. There are continuous sidewalks northbound and southbound on the frontage roads. Sidewalks are typically 5 feet and immediately adjacent to the curb. The narrow sidewalk width and proximity to fast moving traffic creates an uncomfortable environment for pedestrians.

Figure 36. Existing Bicycle and Pedestrian Facilities



Source: Pinellas County GIS Database

Research has identified that there are 4 types of bicyclist.



LTS 1: This is the most comfortable level of traffic stress for the general population and is suitable for an 8-year old child. Except in low speed (<30MPH)/low volume (<3,00 AADT) traffic situations, a separated bike facility that has physical separation from traffic is usually present.

LTS 2: This is a level most adults can tolerate, particularly those sometimes classified as "interested but concerned." Except in low speed/ low volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic except at formal crossings. Where there is a bike lane, there are low levels of parking turn-over and driveway activity, such as in residential neighborhoods.

LTS 3: Involves interaction with moderate speed (30 MPH) or multilane traffic, or close proximity to higher speed traffic (>35 MPH). Streets with moderate speeds (30 MPH) and lower traffic volumes (<3,000 AADT) can be an LTS 3 if there is a higher level of parking turnover. These streets tend to be comfortable for "enthused and confident" riders.

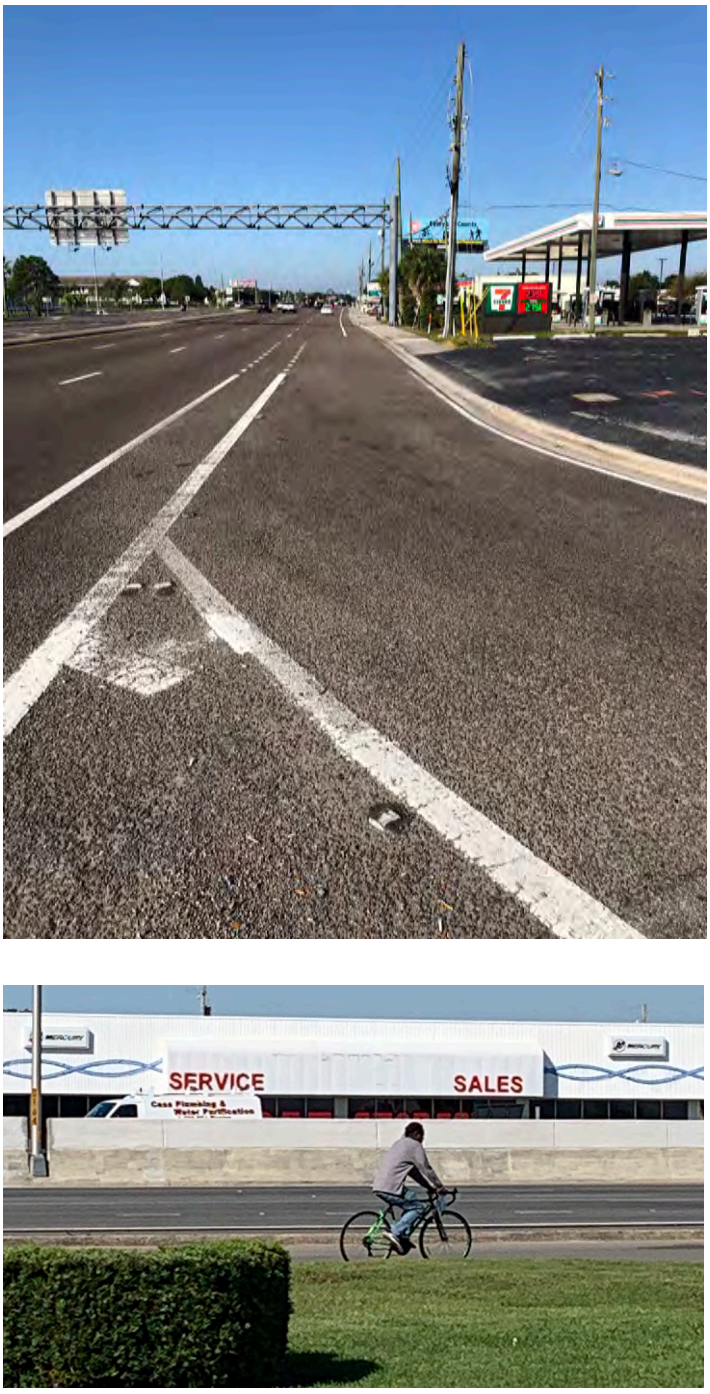
LTS 4: This is the most challenging or difficult level of traffic stress and usually involves interaction with higher speed traffic. These streets are typically greater than 35 MPH, are multi-lane roads, and have AADTs that exceed 8,000 AADT. Uncomfortable for most bicycle riders, acceptable only to "strong and fearless" riders.

43

The majority of the corridor has a 4–5-foot on-street bike lane. At signalized intersections where right-turn lanes are common, bicyclists are forced to weave with vehicles merging on and off the frontage road to access keyhole bike lanes, as seen in Figure 37.

Because the frontage roads are one way in each direction, the bicycle facilities are also one-way. In order to access destinations along the frontage roads, however, bicyclists must travel in both directions. In order to access destinations along the frontage roads bicyclists must travel in both directions, often going against the flow of directional traffic.

Figure 37. Sidewalk and Pavement Conditions Along the Frontage Roads



PEDESTRIAN CROSSINGS

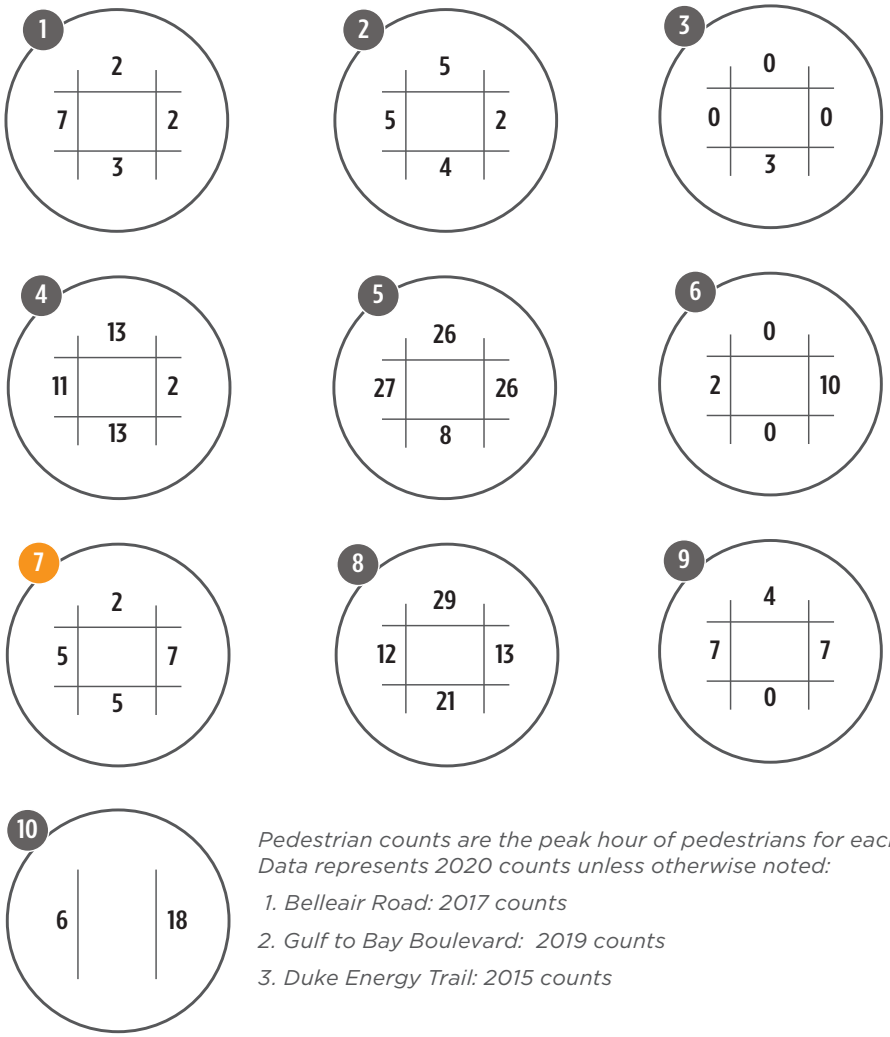
There are currently opportunities to cross U.S. 19 every half-mile on average; however, there are segments up to 1.5 miles without a protected pedestrian crossing. This is especially apparent in the City of Clearwater.

The majority of crossing opportunities occur at single point urban interchanges. Pedestrians must cross as many as ten travel lanes. Three- and four-stage pedestrian crossings are common, as pedestrians first cross a right-turn lane, then through lanes, sometimes waiting in a median before crossing the opposing through lanes, and then cross the final right-turn lane. Figure 8 illustrates the number of pedestrian crossing opportunities and relevant pedestrian counts.

Intersection count data can be found in Appendix A.

Figure 38. Pedestrian Crossing at Frontage Roads

Figure 39. Pedestrian Crossing Opportunities and Counts



Pedestrian counts are the peak hour of pedestrians for each leg. Data represents 2020 counts unless otherwise noted:

1. *Belleair Road: 2017 counts*
2. *Gulf to Bay Boulevard: 2019 counts*
3. *Duke Energy Trail: 2015 counts*

Source: PSTA

TRAIL CONNECTIONS

As shown in Figure 36, the Duke Energy Trail runs parallel to the corridor between Ulmerton Road and Coachman Road. The trail is adjacent to the northbound frontage road for approximately ½ mile, from Haines Bayshore Road to Belleair Road. There is a formal trail crossing at Belleair Road where the trail transitions to the Duke Energy corridor.

The trail currently ends near the railroad tracks south of Coachman Road, where it connects to the Ream Wilson Trail heading east. There are plans to extend the trail north to Tarpon Springs. When complete, the Duke Energy Trail will be part of the 75-mile Pinellas Trail Loop.

Figure 40. Intersection at Frontage Roads

BICYCLE NETWORK COMFORT ASSESSMENT

The Bicycle Level of Traffic Stress (LTS) methodology uses roadway characteristics to evaluate the perceived comfort of people riding a bicycle on a particular street or facility. The LTS methodology provides an understanding of the level of stress a bicyclist experiences when using a roadway or a bicycle facility. LTS scores range from an LTS 1, which is comfortable for most of the general population, to an LTS 4, which is uncomfortable even for experienced bicyclists. Parameters that typically impact this evaluation include traffic speeds, volumes, the presence of parking, the presence of a bicycle facility, and the context of the road, such as whether there is commercial activity or if the facility is in a residential neighborhood.

When we design streets for cars, we honor basic travel needs by having a connected street network and by following engineering and design standards that ensure that the streets both are safe and feel safe to drivers. The way we traditionally plan bike facilities, however, often fails to meet one or both of these basic travel needs. Somewhere between the potential bike rider's home and the school, office, park, or grocery store, one of two things occur:

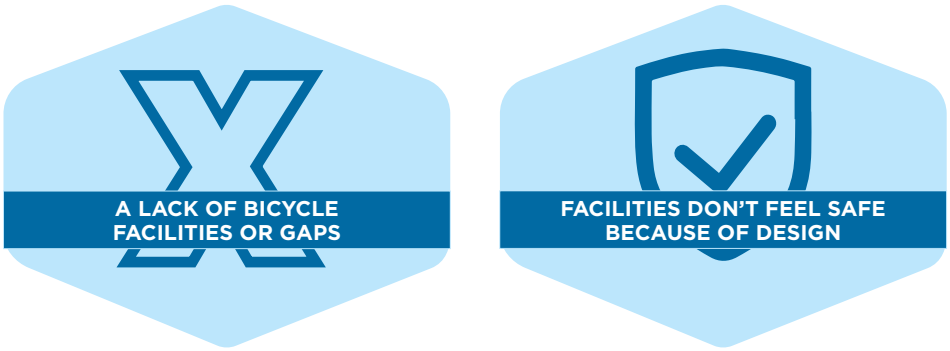
1. A lack of bicycle facilities or gaps between bicycle facilities requires people on bikes to ride in mixed traffic on streets that feel dangerous

2. The bicycle facilities that do exist are designed in such a way that they don't feel safe, either because they're too close to fast-moving traffic, they're frequently obstructed, or the doors of parked cars open into them.

Fundamentally, people will only travel along the corridor in a way that gets them where they need to go and feels safe to them.

The Bicycle LTS methodology uses roadway characteristics to evaluate the perceived comfort of people riding a bicycle on a particular street or facility. LTS is generally evaluated using the following comfort level thresholds:

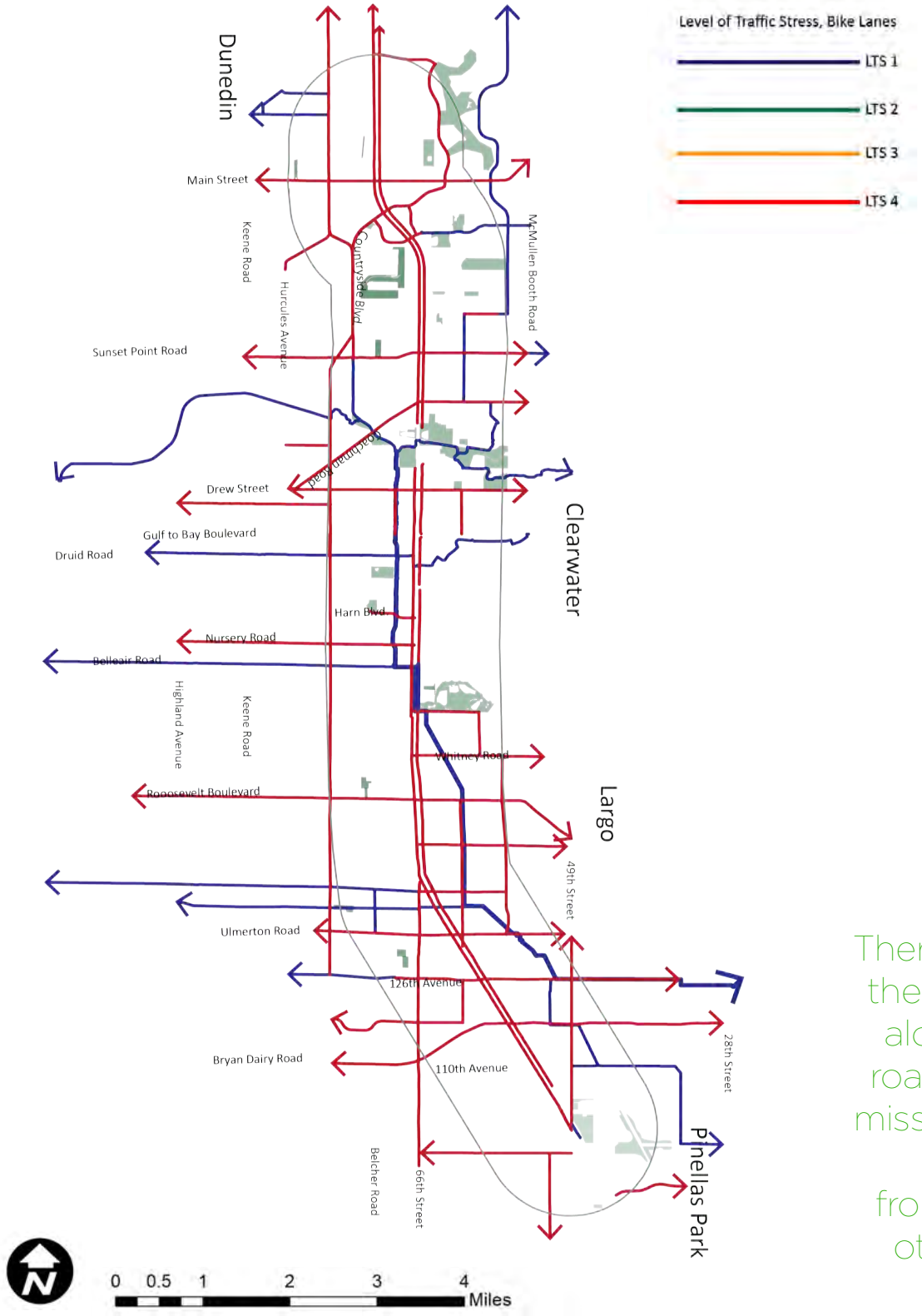
BIKE FACILITIES PLANNING CHALLENGES



People will only travel by bike if it feels safe to them.

Figure 40 shows the LTS scores for the frontage roads. While there is a bicycle facility along most of the corridor, it is a narrow on-street bike lane next to 35+ mph traffic and is therefore a high stress facility. The segment of U.S. 19 that contains the Pinellas Trail is an example of a low stress facility. There are no gaps in the bicycle network along the frontage roads, but there are missing connections between the frontage roads and other arterials and collector roads.

Figure 41. Level of Traffic Stress, Bicycle Facilities



There are no gaps in the bicycle network along the frontage roads, but there are missing connections between the frontage roads and other arterials and collector roads.

SAFETY ASSESSMENT

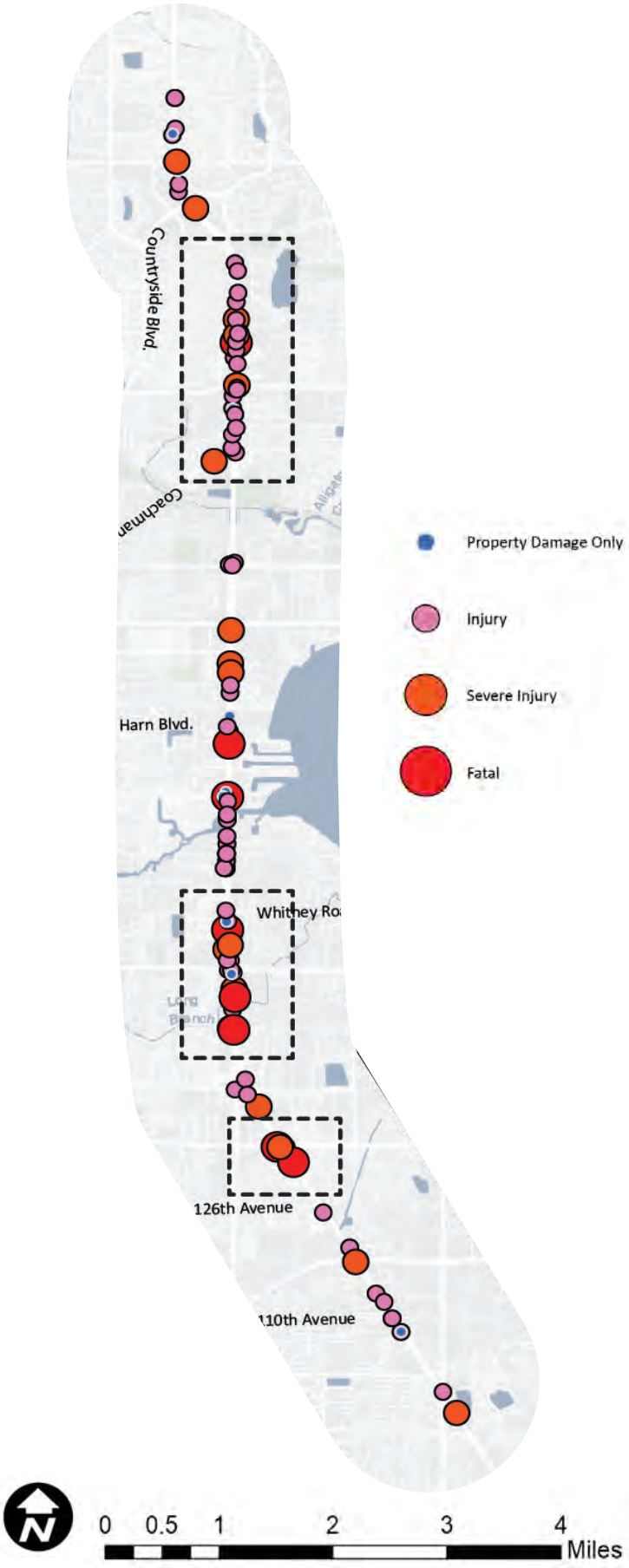
For the historical safety assessment, crashes resulting in fatalities and crashes involving pedestrians or bicyclists were identified for analysis. Historical crash data was collected on the U.S. 19 frontage roads study corridor from 2013–2017. There were a total of 154 pedestrian or bicyclist crashes and 13 fatal vehicle crashes during this time period. Among the bicyclist and pedestrian crashes, 92 crashes (60%) were bicyclist crashes and 62 crashes (40%) were pedestrian crashes. There were 7 fatal pedestrian crashes and 2 fatal bicyclist crashes.

These crashes were concentrated in the following areas:

- Ulmerton Road Intersection
- 150th Avenue to Whitney Road
- S.R. 590 to McCormick Road

Figure 41 shows all collected crashes mapped on the study corridor, and complete collision diagrams for these crashes are included in Appendix B. Figures 42-44 show these crashes in each focus area.

Figure 42. Bicycle and Pedestrian Crashes



Source: FDOT CARS Database

Figure 43. High Crash Location: S.R. 590 to McCormick Drive

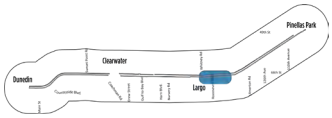


Figure 44. High Crash Location: 150th Avenue to Whitney Road

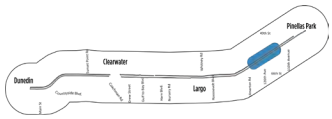
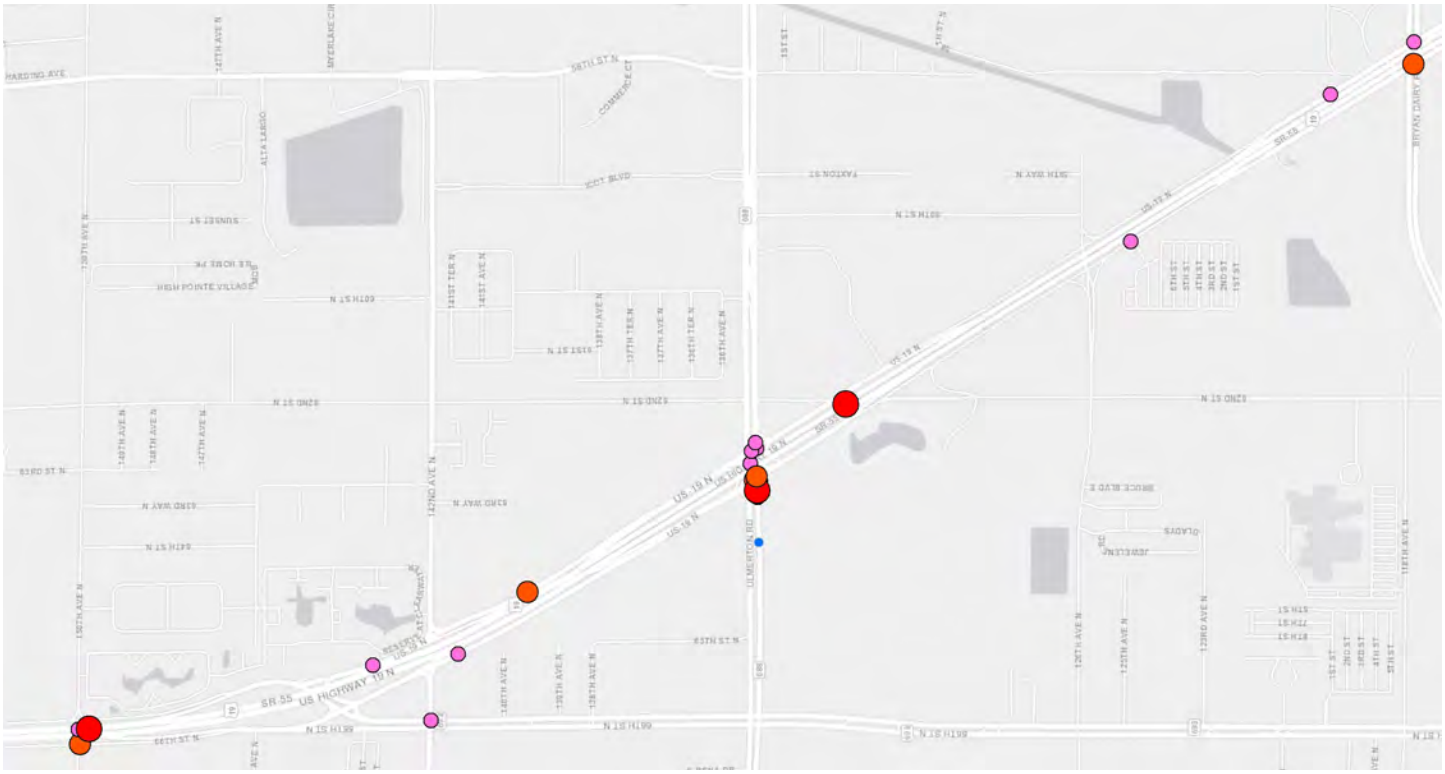
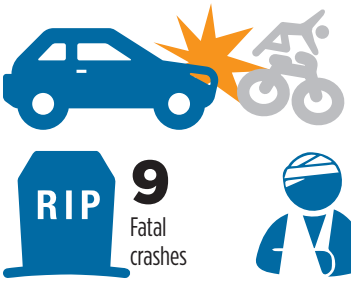


Figure 45. High Crash location: Ulmerton Road Intersection



Source (All): FDOT CARS Database

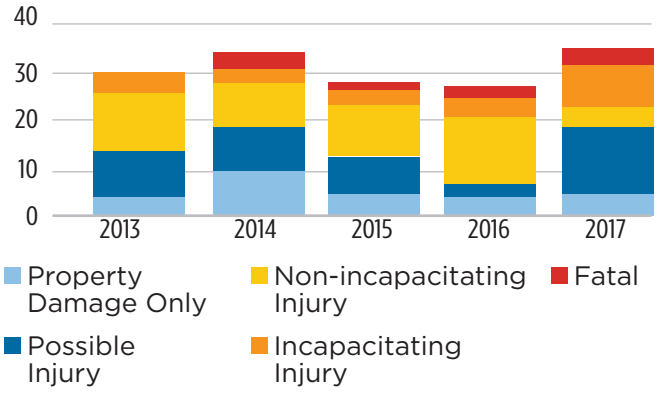


The yearly severity distribution of bicyclist and pedestrian crashes is provided in Figure 45. In total, there were nine fatal crashes, 23 severe injury crashes, 97 injury crashes, and 25 property damage only crashes.

The total number of bicyclist and pedestrian crashes each year ranged from 27 in 2016 to 35 in 2017, with no clear overall annual trend between 2013 and 2017. While bicyclist and pedestrian crashes decreased each year from 2014 to 2016, crashes in 2017 resulted in the highest total during the five-year study period. In examining only the severe bicyclist and pedestrian crashes (crashes resulting in fatalities and incapacitating injuries), these severe crashes appear to show an increasing trend across the study period. As shown in Figure 46, severe bicyclist and pedestrian crashes increased from 4 crashes in 2013 to 12 crashes in 2017.

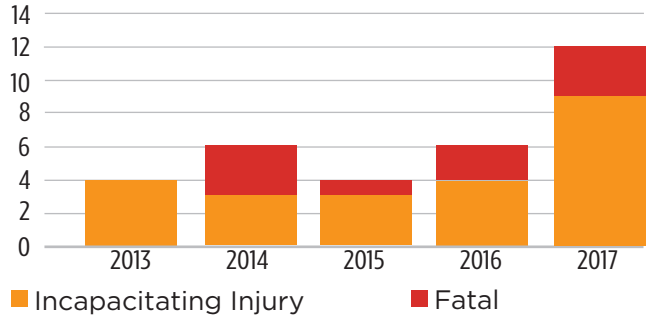
Overall, bicyclist and pedestrian crashes were more prevalent at stop-controlled intersections or driveways (60 crashes) than signalized intersections (38 crashes) or mid-block locations (26 crashes). Among the crashes at stop-controlled intersections or driveways, 53 crashes involved bicyclists, 45 of whom were struck by vehicles making a right-turn movement from the stop-controlled approach. At signalized intersections, non-motorist users struck by a vehicle proceeding straight through the intersection was the most common crash type (21 crashes). At mid-block locations, more crashes involved pedestrians (17 crashes) than bicyclists (9 crashes).

Figure 46. Bicyclist and Pedestrian Crash Severity by Year



Source: FDOT CARS Database

Figure 47. Severe Crash Distribution by Year



Source: FDOT CARS Database

Among the 13 fatal vehicle crashes, the most prevalent crash types were collision with a fixed object (four crashes) and rear-end (three crashes). In addition to the four crashes identified as a collision with a fixed object, there were several other crashes also associated with lane departure events, including one run-off-the-road crash, two single-vehicle crashes, one sideswipe crash, and one head-on crash. Figure 47 displays the recorded crash types for fatal vehicle crashes.

The majority of the pedestrian and bicyclist crashes occurred during daylight conditions (118 crashes, 77 percent). The majority of the non-daylight pedestrian and bicyclist crashes took place under dark - and lighted conditions (25 crashes, 16 percent of all ped/bike crashes). The distribution of pedestrian and bicyclist crashes by lighting conditions is provided in Figure 48.

Among the fatal vehicle crashes with known lighting conditions, 50% (6 crashes) occurred in daylight conditions, with 5 of the 6 dark crashes occurring in lit conditions and one in unlit conditions.

Along the study corridor, several locations were identified as potential pedestrian and bicyclist safety emphasis areas, with clusters of observed crashes. These locations include the following intersections and their surrounding areas: Ulmerton Road, 150th Avenue, Roosevelt Boulevard, Coachman Road, Sunset Point Road, and Main Street (seen in Figure 28). With the exception of 150th Avenue, each of these locations are signalized intersections with high vehicle volumes and high-volume turning movements. The geometry of the intersections often results in required multi-stage crossings, including and the crossing of channelized right-turn movements, for pedestrians and bicyclists to cross a single intersection leg. In addition to crashes occurring at these signalized intersections, the identified high-crash locations also included nearby crashes occurring at stop-controlled intersections and driveway access points on the frontage road.

Figure 49. Lighting Conditions

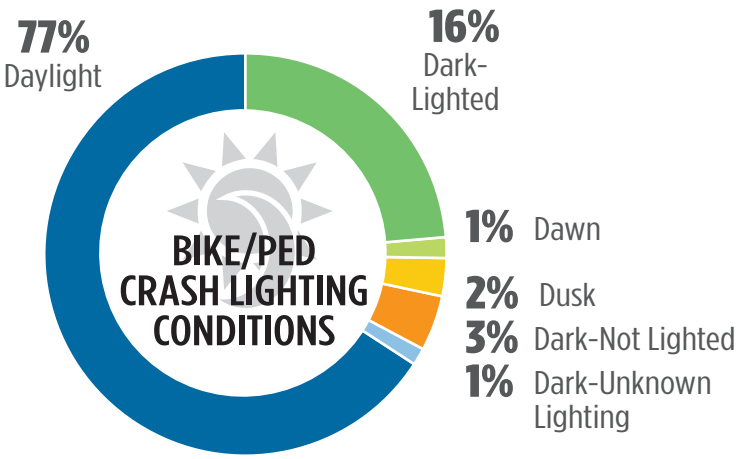
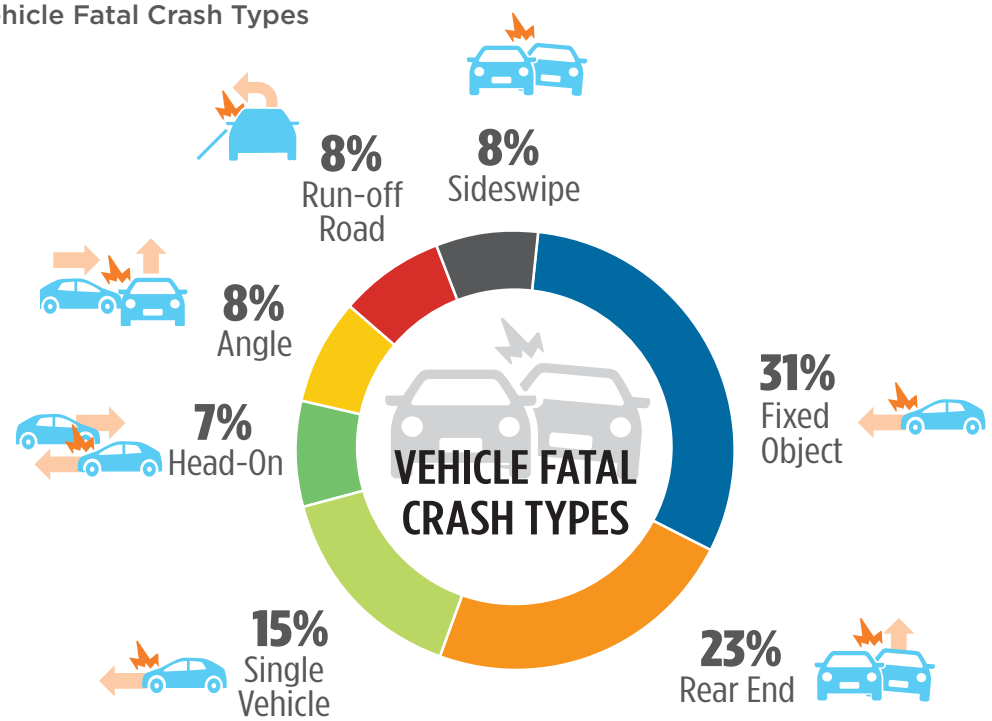


Figure 48. Vehicle Fatal Crash Types



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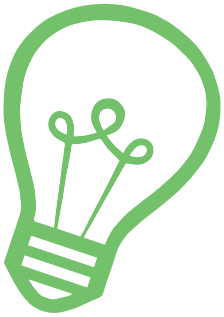
05
CASE STUDIES

CASE STUDIES



Three case studies were reviewed for lessons learned in frontage road applications. These examples were used to see how other places in the U.S. facing similar challenges as the project area are tackling access, speed management, and multimodal facilities on frontage roads and learn about the advantages and disadvantages of different treatments.

Reimagining the space under the highway.

Project DTO, I-4

ORLANDO, FL

Interstate 4 (I-4) runs through the center of Downtown Orlando, with Hughey Avenue and Garland Avenue acting as a one-way frontage road system. The I-4 Ultimate Improvement Project is currently underway to reconstruct 21 miles of I-4, including the segment through Downtown Orlando. Given the additional height provided by the proposed viaduct, this project presented an opportunity to activate an area underneath the interstate to create an enjoyable public space and bridge the gap between the eastern and western areas of Downtown.

In 2014, the City of Orlando Community Redevelopment Agency (CRA) launched a comprehensive visioning process to chart a path for the evolution of Downtown Orlando. Part of the vision included establishing the Bridge District—an active open space under I-4. The roadway deck will be elevated and will feature improved lighting, streetscaping, and other amenities.

The following are included in the conceptual design:

- Three interchangeable mural walls and an interactive sculpture garden
- Indoor-size soccer field, two football fields, four basketball/multi-purpose courts, shuffleboard, bocce ball court/ open play area, and a cross-fit facility
- Table sports, such as checkers, dominos, ping pong, and life-sized chess
- Pop-up event spaces for musicians, performers, and artists
- Outdoor classroom spaces for education and exercise classes
- A stage space for concerts and special events
- Staging area for food trucks and picnic tables
- An accessible playground and a splash pad
- LYNX LYMMO stops for two downtown bus lines

Construction is tentatively scheduled to start after the completion of the I-4 Ultimate construction project. The Project DTO vision provides insight into what could be possible at key underpass locations under U.S. 19.

Providing two-way bicycle facilities
on a one-way frontage road system.

Route 390

CHICAGO, ILLINOIS

Illinois Route 390 in Chicago, just west of O'Hare International Airport, has a frontage road on both sides named Thorndale Avenue. Similar to U.S. 19, the frontage roads vary between one and two lanes in each direction. The land use around this area is generally industrial with some pockets of residential. In the area shown in the image below, the mainline AADT is about 20,000, and both ramps are about 5,000 AADT.

The frontage road on the north side has a two-way cycle track in some portions. At major intersections, the cycle track transitions to an off-street multiuse path where cyclists proceed through the intersections with pedestrians. This intersection treatment could improve bicyclist comfort at major intersections on U.S. 19.

Providing two-way vehicle travel on the frontage roads.

I-35

SAN ANTONIO, TEXAS

II-35 north of New Braunfels near San Antonio, Texas, is surrounded by rural land uses with low density. The interstate AADT is about 100,000. Each frontage road has an AADT around 2,000–3,000.

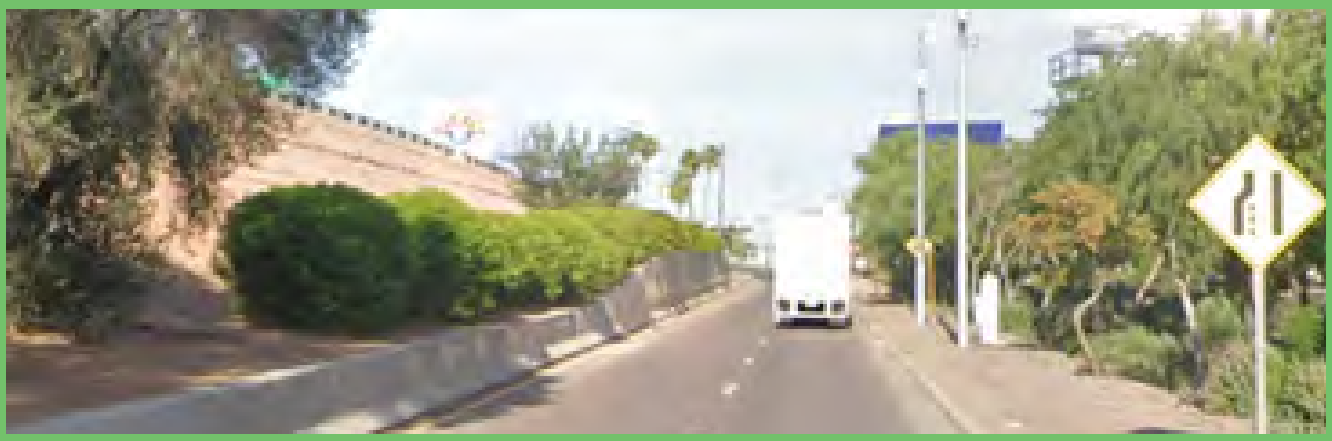
Until recently, I-35 had two-way frontage roads on both sides of the interstate. As part of a major reconstruction of I-35, Texas DOT is converting the two-way frontage roads to one-way. The images below show the frontage roads before the construction project. The frontage roads had yield control at the ramps. According to stakeholders, this type of control was confusing and not intuitive, especially for visitors. The reconstruction will also include partial displaced left-turns at intersections to reduce vehicular conflicts and congestion.

Similar ramp density to U.S. 19.

I-17

PHOENIX, ARIZONA

I-17 in Phoenix, Arizona has a 26-mile, one-way frontage road system. This system has a similar ramp density to U.S. 19. Below is a sample of the land use and cross section of these frontage roads. This frontage road system has intermittent sidewalk and bike lane access. There are opportunities for users to cross the mainline every one to two miles, and these intersections are a mix of tight diamond and SPUI configurations. Looking at a street map of the area, there is a consistent tight grid network surrounding the interstate for the majority of the corridor, with some large industrial parcels that block side street connections.



COMPARISON OF CASE STUDIES

Table 1 shows statistics from U.S. 19 as well as the four other frontage roads (I-4 in Orlando, Route 390 in Chicago, I-35 in New Braunfels, and I-17 in Phoenix). The curb cut density includes both cross-streets and driveways along the frontage road. U.S. 19 has a higher curb-cut density than the other case studies except for I-17 in Arizona. However, in that case, the street density is much higher than on U.S. 19, suggesting a higher portion of the access points in Arizona are streets rather than driveways. This is the result of a more defined street grid. The two-way frontage road case study in New Braunfels shows a much lower density of connections than the other cases. The two-way frontage road system seemed to work in a rural, low-volume setting, but as development and volume increase, congestion and conflicts increase as well, making a two-way system less desirable for more developed and urban settings. Finally, U.S. 19 has fewer opportunities to cross the mainline (cross connections per mile) when compared to the other one-way frontage roads. This suggests there is opportunity to add cross connections for better bicycle, pedestrian, and motorist connectivity.

Table 2. Case Study Comparison Table

Road	Location	Posted Speed		Pedestrian Facilities	Pedestrian Facilities	Intersection Configuration	Frontage Road Direction	Cross Connections per Mile	Ramp Density (ramp/mi)				Curb Cut Density (driveways/mi)		Street Density (streets/mi)	
		Frontage Road	Mainline						NB/EB On Ramps	NB/EB Off Ramps	SB/WB On Ramps	SB/WB Off Ramps	NB/EB	SB/WB	NB/EB	SB/WB
U.S. 19	Pinellas County, FL	35-45	55	Bike lanes	Sidewalks on outside edge of frontage road	Primarily SPUI[1]	1-way	1.4	1.1	1.1	1.0	1.2	13.3	12.5	2.2	2.7
I-42	Orlando, Florida	30	50	TBD	TBD	Tight Diamond	1-way	9.9	0.1	0.3	0.3	0.1	TBD	TBD	0.9	1.0
Route 390	Chicago, IL	40	55	Two-way cycle track/ shared-use path	Spot sidewalks	Primarily diamond	Primarily 1-way	2.3	0.3	0.5	0.4	0.5	0.0	1.9	1.0	0.8
I-35	New Braunfels, TX	55	70	Spot bike lanes	None	Various	2-way 3,4	0.7	0.3	0.3	0.3	0.3	2.9	3.3	0.5	0.7
I-17	Phoenix, AZ	40	55	Spot bike lanes	Spot sidewalks	SPUI/ Diamond	1-way	1.4	2.0	2.2	1.9	2.0	14.0	11.5	10.3	10.1

[1] Single Point Urban Interchange (SPUI)

[2] Construction currently in process, some data not provided due to construction changes.

[3] Two-way currently being converted to one-way

[4] Limited to two-way section

06
PURPOSE AND NEED

PURPOSE AND NEED

A Purpose and Need statement is a requirement of any project that will be reviewed under the National Environment Policy Act (NEPA), which requires all federal agencies to consider the impacts of their actions on the environment. A NEPA review and a defined purpose and need statement are not requirements of the U.S. 19 Frontage Roads Safety Action Plan, but the process was followed to begin to establish a purpose and a list of defined needs for the corridor that could aid in the development of potential alternatives and strategies aimed at improving safety, operations, and connectivity along the corridor. It is envisioned that the efforts of this study and the associated purpose and need statement could be used in some capacity by public entities in their future evaluation of various mobility or multimodal improvements within the study area.

The purpose and need statement is a result of a collaborative effort between the study's stakeholders.

The purpose and need should define what is to be accomplished and why it is necessary, without predetermining a particular alternative. The purpose and need statement provides context and criteria for developing a range of possible project alternatives, and eventually assist in the selection of a preferred alternative. The "purpose" should be clear, concise, and supported by the identified needs. The identification of the challenges and needs provide a more detailed explanation, with supporting data, of the specific problems, deficiencies or opportunities that exist, or are expected to exist in the future. The needs are demonstrated through quantitative analysis and enable decision makers to evaluate alternatives by providing measurable objectives or specifications.

Purpose

Enhance the safety and comfort of multimodal travel along the US 19 frontage roads while balancing local travel demand and access to corridor destinations.

Challenges & Needs

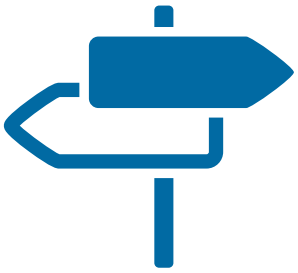
The list below captures the needs identified as part of the planning process. The list was developed based on stakeholder input, on-site observations, and technical analysis. Detailed notes from the stakeholder interviews are provided in Appendix C.

Five overarching themes frame the challenges and barriers faced within the study area:

- Land Use
- Access
- Safety
- Connectivity & Efficiency
- Multimodal

Increased safe pedestrian crossing opportunities

Challenge: There are general concerns and common interests in improving overall safety for all users. The average pedestrian crossing opportunities are a half-mile apart, with some stretches as along as 1.5 miles. There is evidence of fatal crashes when pedestrians attempt to cross the mainline at uncontrolled locations.



Improved signage/wayfinding for increased legibility and ease of access

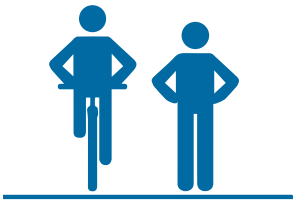
Challenge: There's a lack of directional signage, that when added to the high speeds and vehicle transitions as vehicles weave in and out of the main line, add stress and cause conflicts to an already congested corridor. Better signage along the frontage roads will improve connectivity and aid drivers as they negotiate movements. Wayfinding around activity nodes at a pedestrian scale also improve legibility and branding opportunities in these areas, providing improved access to non-motorized users and placemaking benefits.

Increased safety for all modes, especially at major intersections

Challenge: Crash data documents that safety conditions along the corridor are worse for all modes at major intersections.

Management of traffic speeds

Challenge: There is a real and perceived issue related to high traffic speeds along the frontage roads, with 85th percentile speeds in excess of 50 mph.



Increased safe and continuous multimodal facilities for people (of all ages and abilities) walking and bicycling

Challenge: Most people who travel on this corridor are mainly driving a vehicle alone, however, there are residents in the area (which a significant portion can be categorized as active adults) that walk to access daily needs at nearby businesses, for recreational purposes or to take transit. These areas are within Clearwater and Pinellas Park, where some census tracts include twice the County average for those without a car or take transit to work. Addressing gaps in the multimodal network would improve conditions and encourage people to make short trips and get around by more efficient means such as walking, biking, or taking transit.

Design multimodal infrastructure that leverages transit access

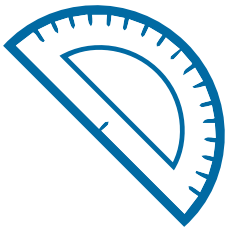
Challenge: There's transit service (PSTA) and bus transfer locations along the corridor. There's also a desire for better transit service to support community needs (businesses and transit users). Dependable access to transit is very important to people with reduced physical abilities (kids, elders, and disabled people) and lower income families who rely on transit service to get around. The continuous growth in this community added to the number of people who are already walking, biking or taking transit to get around support the need for sustainable and active streetscapes that provide a more comfortable environment, especially if these connections are providing convenience of access to transit.

Increased beautification & placemaking

Challenge: Landscaping and streetscape elements are limited or inconsistent along sidewalks adjacent to pedestrian generators. There is overall interest to partner with local agencies to implement a range of strategies that address placemaking through the inclusion of public art, improved landscaping, lighting and other pedestrian-scaled streetscape elements, especially at locations where land uses act as pedestrian generators or activity nodes along the corridor.

Accommodation for land use transitions as properties redevelop over time

Challenge: The corridor is experiencing land use transitions at various locations. Whether some areas are experiencing increased residential densities (multifamily developments), commercial/retail uses intensifying, and/or light industrial uses expanding, redevelopment potential will continue to be a trend along this corridor. Balancing evolving land uses (which will generate more pedestrian activity at key locations) and overall mobility needs will be key to the long-term success of the corridor.

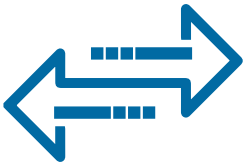


Improved intersecting driveway geometries, particularly for bicycle and pedestrian crossings

Challenge: There are overlapping concerns among stakeholders regarding the high number of access points (driveways) to businesses that cause conflicts between local traffic along the frontage roads accessing businesses and vehicles entering/exiting U.S. 19. There are also safety issues related to the geometric design of intersecting driveway approaches. Exploring driveway consolidation on sites that can afford reduced access points is important to reduce conflict points along the corridor.

Improved traffic operations (signal timing) and management of transitions (merging movements) especially at key intersections

Challenge: Signalized intersections often function as bottlenecks on roadway networks. Signal timing optimization can provide relief to intersections with manageable volumes. These operational improvements in addition to improved geometries & signing and markings may improve queuing, transitions, and merging movements between frontage road and mainline.



Improved bike/ped connections to regional recreational facilities

Challenge: Improving the pedestrian/bicycle infrastructure will lead to increased bike/pedestrian safety and comfort as well as increased access to public facilities such as parks and schools (for example Pinellas Technical College campus, Brighthouse Field, or the Duke Energy Trail). Creating these connections also encourages the community to engage in physical activity which have positive outcomes in public health.

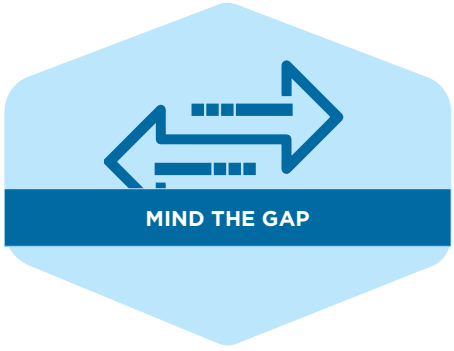
07
GUIDING PRINCIPLES AND EVALUATION CRITERIA

GUIDING PRINCIPLES AND EVALUATION CRITERIA

Guiding Principles

The project team developed guiding principles to provide high-level direction and reflect an understanding of the most relevant elements to be addressed along the U.S. 19 Frontage Roads.

Design public infrastructure that provides a safe and comfortable environment for all users.



Increase multimodal connectivity and access along and across the corridor by addressing the missing infrastructure links.

Prioritize bike/ped/ transit connections to key community destinations and recreational facilities.

Manage vehicular traffic speeds to suit community/ business needs & desires.

Design public infrastructure that enhances the quality of the walk and provides a comfortable environment for all users through pedestrian-scaled streetscape elements.

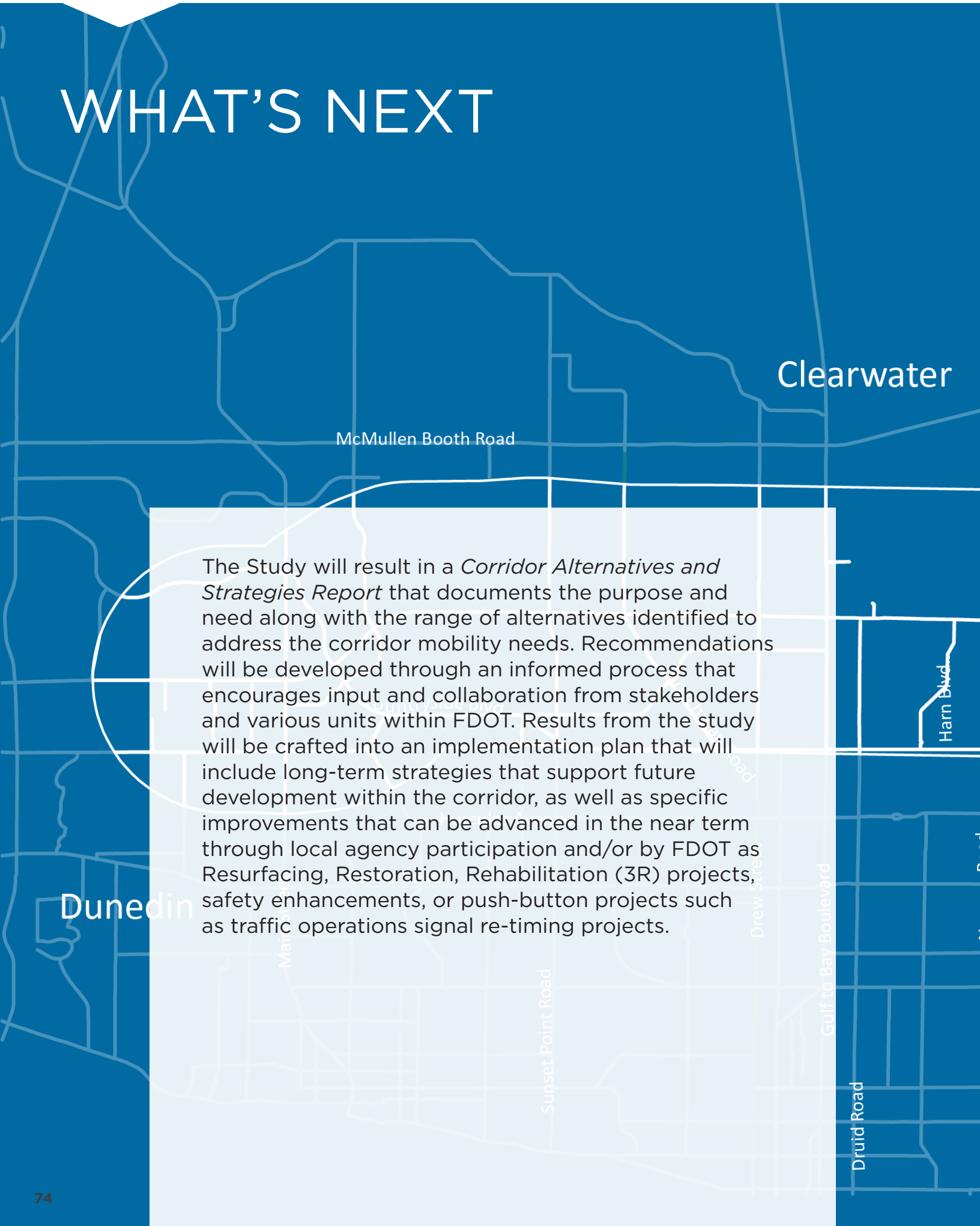
EVALUATION CRITERIA

The measurement and evaluation of the elements in the transportation system is an essential part of prioritizing safety for all modes. It is essential, therefore, that the quality of the transportation system, and the users' experiences of that system, are measured and evaluated. The project team has selected various indicators to evaluate alternatives against the guiding principles. These indicators are related to (1) safety, (2) access, (3) multi-modal system performance (4) Integrated land-use and transportation, and (5) placemaking characteristics.

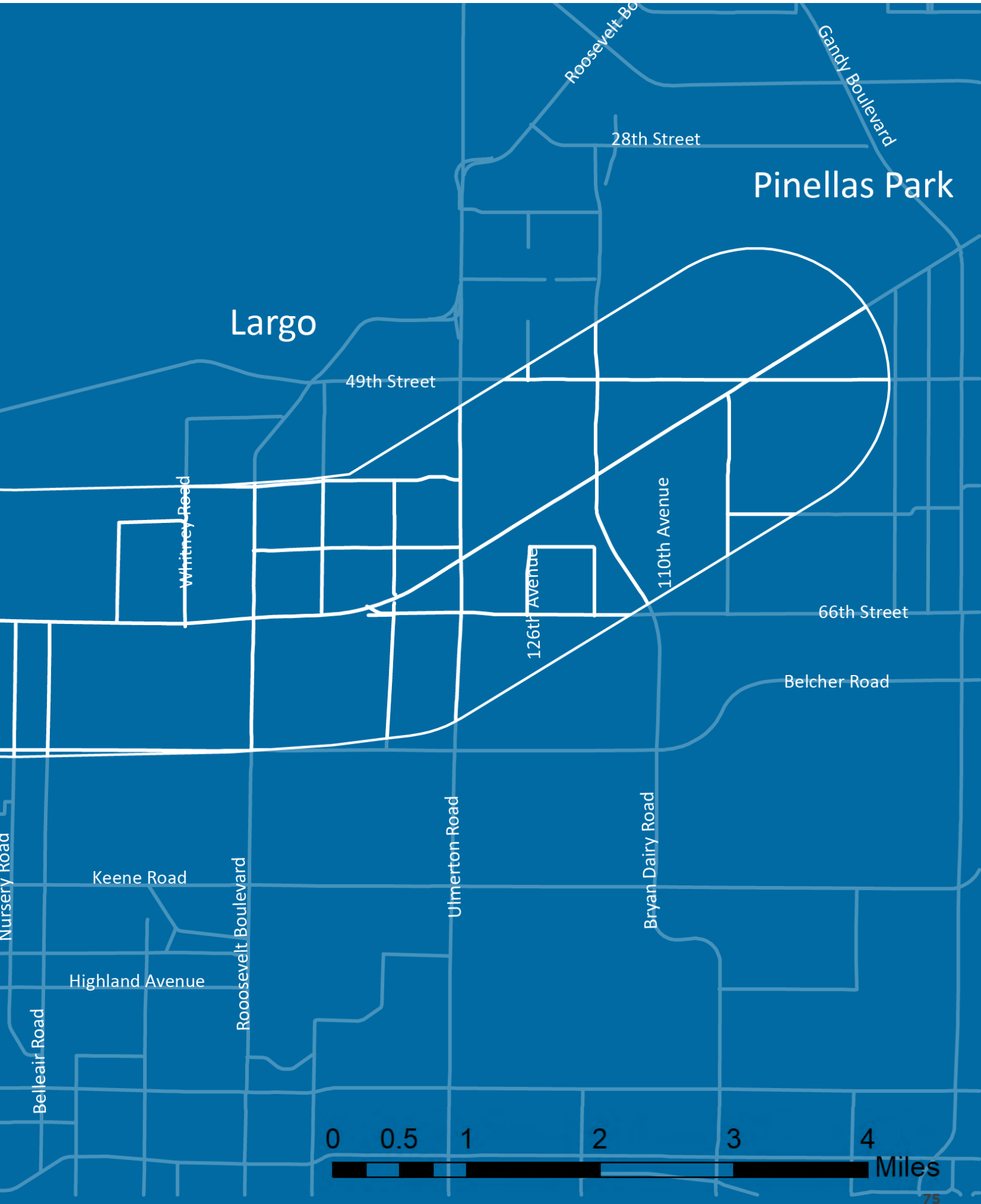
Prioritize Safety	▪ Average spacing of protected pedestrian crossings ▪ Continuity of multimodal facilities at intersections ▪ Potential reduction of crashes
Mind the Gap	▪ Average pedestrian delay at signalized intersections ▪ Percent of corridor with low stress bicycle facilities ▪ Average separation of bicycle/pedestrian facilities from moving traffic
Foster Multimodal Connections	▪ Percentage of transit stops with sidewalk connections that meet ADA requirements ▪ Percentage of transit stops within 250 ft of protected pedestrian crossings ▪ Percentage of multifamily or commercial frontage with sidewalk meeting FDM minimums ▪ Access/connections to local schools and regional trail facilities
Balance Mobility and Land Use Viability	▪ Number of speed management strategies used ▪ Pavement width to manage travel speeds ▪ Average distance traveled from off-ramps to any parcel
Improve Livability	▪ Amount of landscaped areas ▪ Width of the pedestrian zone ▪ Amount of pedestrian-scaled lighting

08
WHAT'S NEXT

WHAT'S NEXT



The Study will result in a *Corridor Alternatives and Strategies Report* that documents the purpose and need along with the range of alternatives identified to address the corridor mobility needs. Recommendations will be developed through an informed process that encourages input and collaboration from stakeholders and various units within FDOT. Results from the study will be crafted into an implementation plan that will include long-term strategies that support future development within the corridor, as well as specific improvements that can be advanced in the near term through local agency participation and/or by FDOT as Resurfacing, Restoration, Rehabilitation (3R) projects, safety enhancements, or push-button projects such as traffic operations signal re-timing projects.


Roosevelt Bo
Gandy Boulevard
28th Street
Pinellas Park
Largo
49th Street
Whitney Road
126th Avenue
110th Avenue
66th Street
Belcher Road
Nursery Road
Keene Road
Ulmerton Road
Bryan Dairy Road
Roosevelt Boulevard
Highland Avenue
Belleair Road
0 0.5 1 2 3 4
Miles