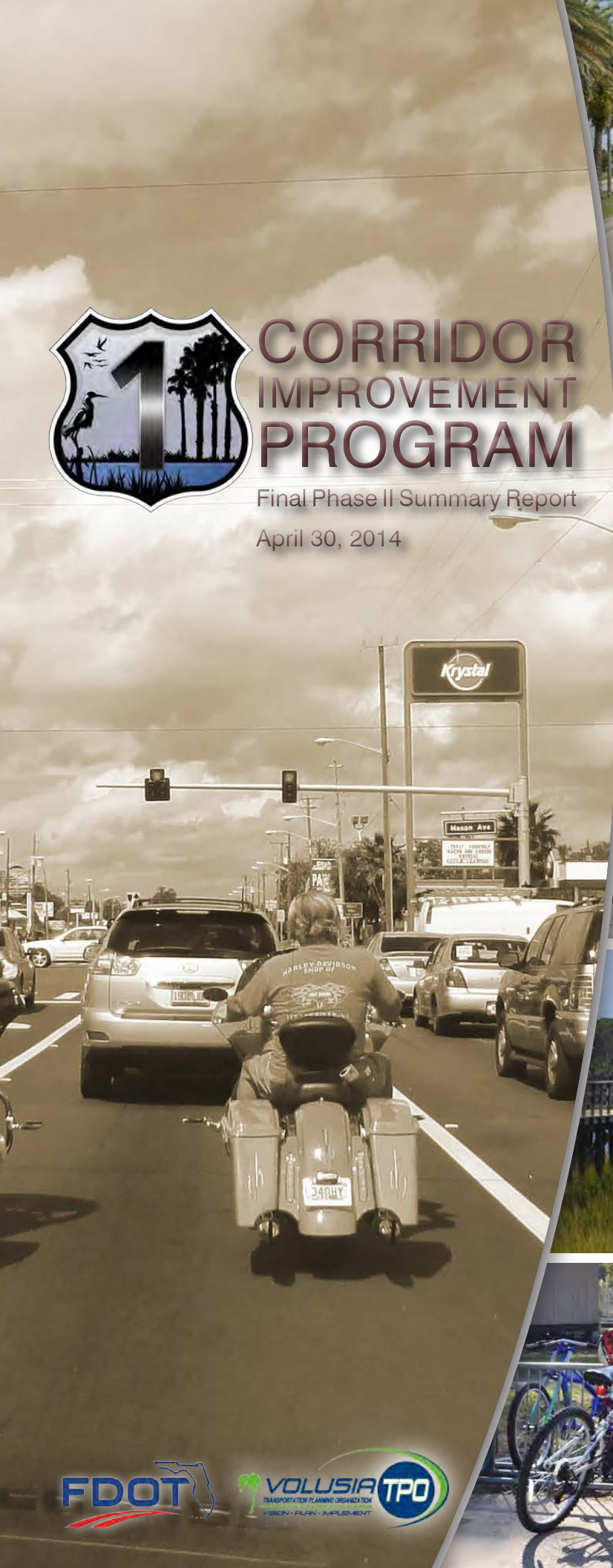
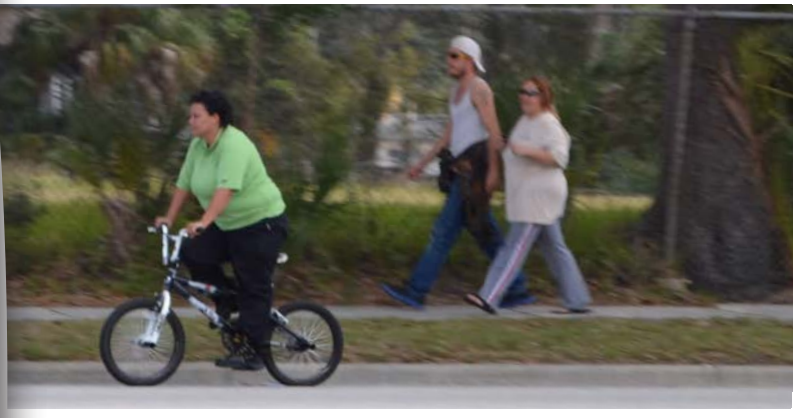
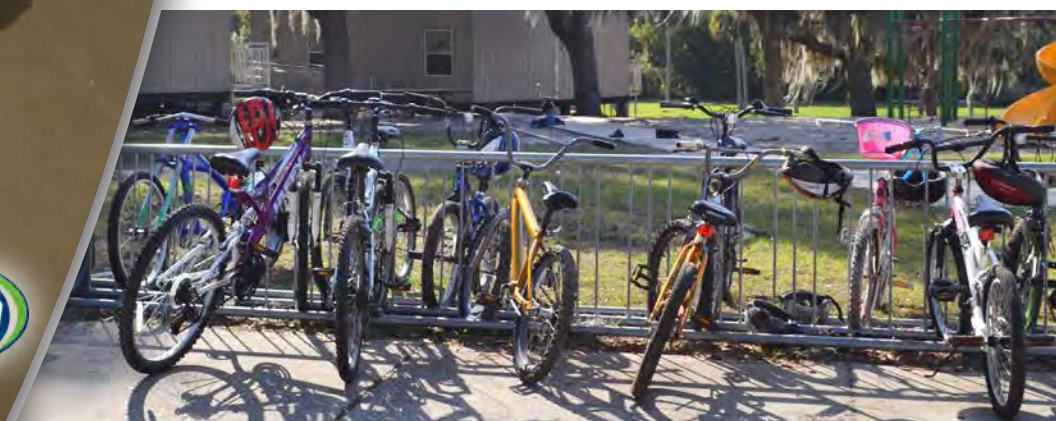
CORRIDOR IMPROVEMENT PROGRAM

Final Phase II Summary Report

April 30, 2014







FDOT

VOLUSIA TPO
TRANSPORTATION PLANNING ORGANIZATION
VISION - PLAN - IMPLEMENT

US 1 Corridor Improvement Program Final Phase II Summary Report

April 30, 2014

Prepared for:

Florida Department of Transportation

in conjunction with

The Volusia Transportation Planning Organization

Prepared by:

Kittelson & Associates, Inc.

225 East Robinson Street, Suite 400
Orlando, Florida 32801

ACKNOWLEDGMENTS

This work was performed with the assistance and guidance of the stakeholders and communities along US 1. Special thanks go out to the following team members:

Volusia Transportation Organization

Lois Bollenback
Jean Parlow

Working Group Members

Tracey Barlow - *City of Edgewater*
Montye Beamer - *City of Oak Hill*
Reed Berger - *City of Daytona Beach*
Samantha Bishop - *Southeast Volusia Chamber of Commerce*
Heather Blanck - *Votran*
J. Bonnevier - *Volusia County Sheriff's Department*
Jim Cameron - *Daytona Regional Chamber of Commerce*
Tony Capozi - *Ormond Beach Chamber of Commerce*
Dave Castagnacci - *Daytona Regional Chamber of Commerce/VCARD*
Jon Cheney - *Volusia County*
Wayne Clark - *City of Port Orange*
Debbie Connors - *City of Port Orange/South Daytona Chamber of Commerce*
Steve Cook - *Daytona Beach International Airport*
Penelope Cruz - *City of Port Orange*
Lynn Dehlinger - *City of Holly Hill*
John Dillard - *City of South Daytona*
Steven Eckman - *Daytona State College*
Ric Goss - *City of Ormond Beach*
Bill Riffin - *Halifax Medical Center*
Paul Haydt - *St. Johns River Water Management District*
Layne Hamilton - *Merritt Island National Wildlife Refuge*
Tom Harowski - *City of Holly Hill*
Gail Henrikson - *City of New Smyrna Beach*
Joe Isaacs - *Tomoka State Park*
Alan King - *Ghyabi and Associates/VCARD*
Mary LaForte - *Bethune-Cookman University*
Larry LaHue - *Volusia County Emergency Management*
R. Sans Lassiter - *Volusia County Association for Responsible Development*
Darren Lear - *City of Edgewater*
Pedro Leon - *Volusia County*
Steven Lichliter - *Ormond Beach Municipal Airport*
Bill McCord - *City of Port Orange*
Jim McCroskey - *City of Holly Hill*
Paul McKitrick - *City of Daytona Beach*
Robert Merrell - *Cobb Cole/VCARD*
Tony Otte - *City of New Smyrna beach*
Maria Perez - *Volusia Hispanic Chamber of Commerce*
Phillip Rand - *Tomoka State Park*
Khalid Resheidat - *City of New Smyrna Beach*
Patty Rippey - *City of South Daytona*
Rose Schuhmaher - *Holly Hill Chamber of Commerce*
Arlene Smith - *Volusia County*
Glenn Storch - *Storch Law Firm/VCARD*
Mark Tobin - *Volusia County*
Rich Walton - *City of Daytona Beach*
Melissa Winsett - *Volusia County*

Special thanks to Joe Isaacs of Tomoka State Park for allowing us to use these historic photographs.

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REPORT ORGANIZATION

This report is organized into seven sections as follows:

1 Introduction: Describes the study process and background and rationale for the US 1 Corridor Improvement Program.

2 How We Got Here: Describes the rich history of US 1 and the important Corridor characteristics to help focus future efforts.

3 Existing Conditions: A comprehensive overview of the existing conditions, including analysis of the land use, environment, socioeconomic, employment, multimodal transportation environment, and safety aspects of the Corridor.

4 Future Conditions: The future plans and policies along the corridor were assessed to gain an understanding of how the corridor is planned to develop and operate in the future. Topics include multimodal corridor improvements, future land use, and future development opportunities.

5 What we Heard: Describes the various public involvement activities throughout the Study, including stakeholder interviews, working group meetings, and public workshops.

6 Framework for the Future: Outlines the Guiding Principles and the Corridor's character districts as a planning framework for the future of the corridor. This section also includes a number of potential land use and transportation strategies to achieve these goals.

7 Action Plan: Outlines the potential actions and next steps that can be taken to implement the land use and transportation strategies.


35

1

INTRODUCTION

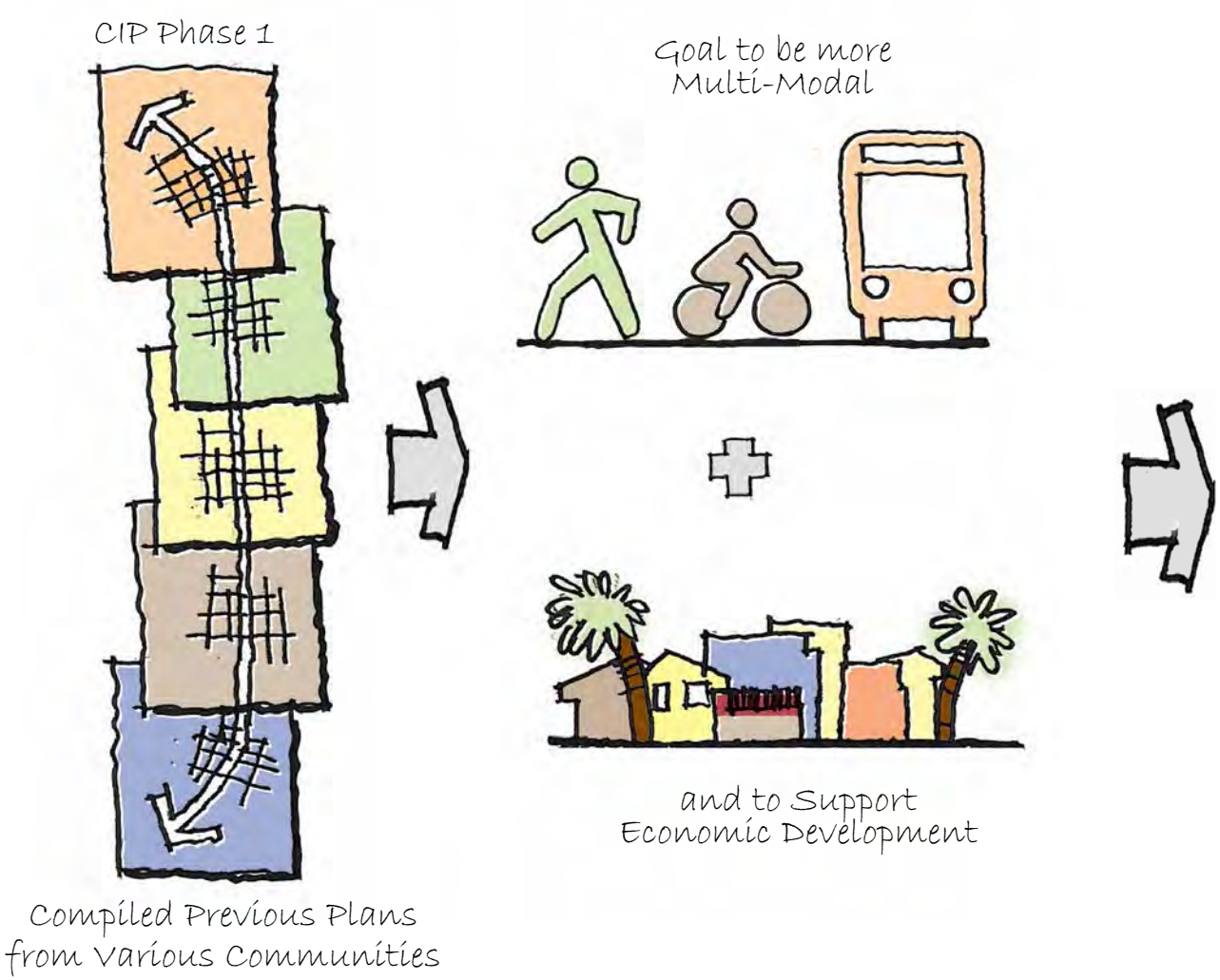
INTRODUCTION

Study Description and Process

US 1 has been the subject of more than 140 studies and plans in the past 15 years, ranging from contrasting proposals to widen the roadway to plans to redevelop it as a complete street and enhance bicycle, pedestrian and transit travel. In recognition of the continuing desire to transform the corridor, the Florida Department of Transportation (FDOT) has partnered with the Volusia Transportation Planning Organization (VTPO) to conduct the US 1 Corridor Improvement Program focusing on US 1 from the Brevard County line to Interstate 95. Phase I of the study compiled all previous studies and developed a database of current and proposed projects associated with US 1. Additionally, goals and objectives for US 1 were determined through close work with a corridor-wide working group. A conclusion of Phase I was the desire to improve multi-modal travel (including bicycle, pedestrian and transit travel) along and across US 1.

Phase II was undertaken to build upon these results and to determine the most effective way for US 1 to better serve bicyclists, pedestrians and transit, while still maintaining suitable automobile capacity. The study considers the local jurisdictions' plans, desires and future visions and the function of US 1 from both corridor-wide and regional perspectives.

The travel patterns, land use, and socio-economic patterns along the corridor were analyzed to determine the existing

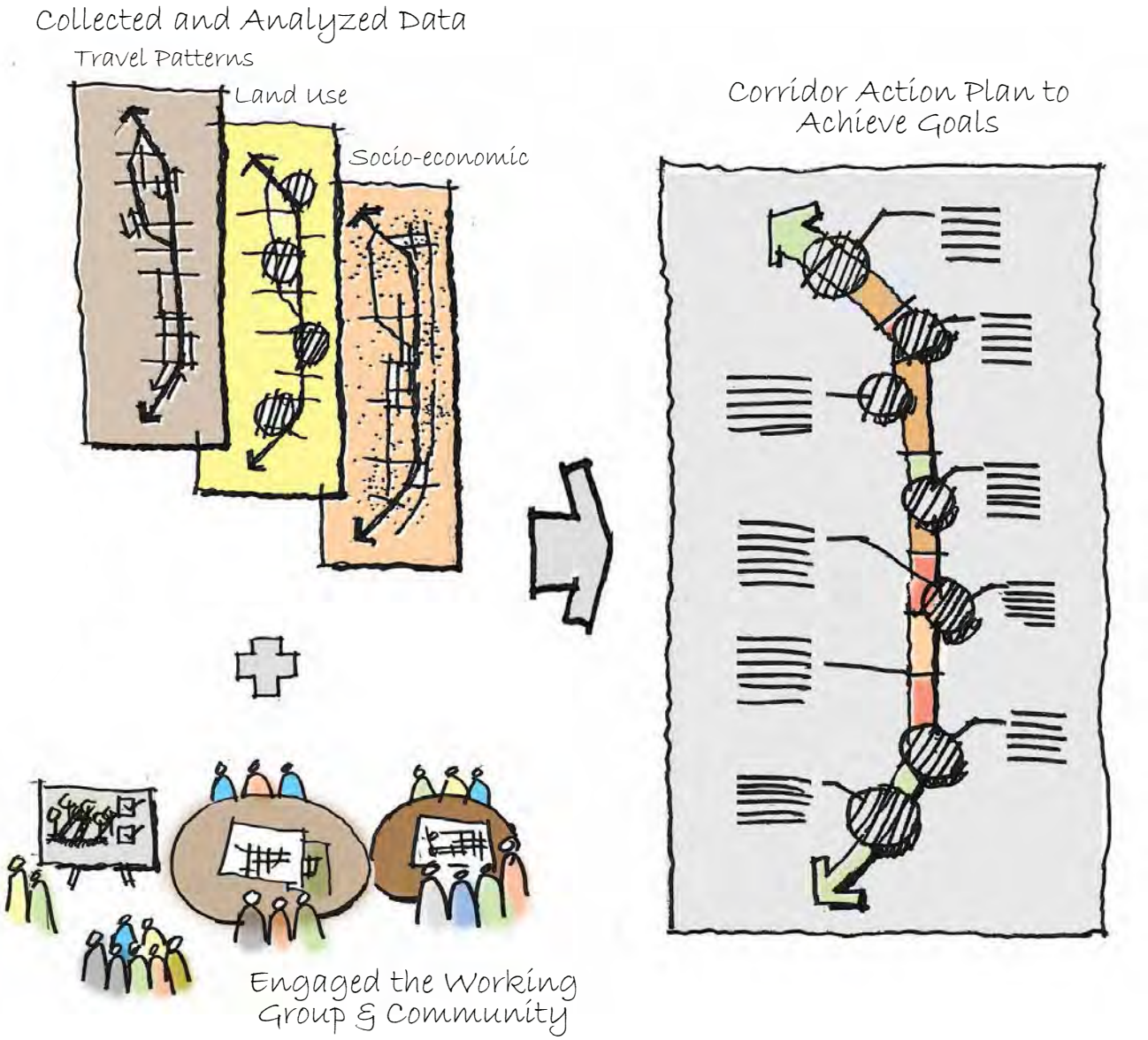


and future conditions as well as the needs. FDOT and the VTPO also worked with the stakeholders to achieve the following:

- Understand the current and future anticipated travel patterns along US 1;
- Identify the vision for the corridor and how it supports desired local and regional mobility, local community livability and economic development goals and needs;
- Outline a strategic approach to accomplish the vision and mobility goals; and
- Identify specific action items (program, policy, and/or infrastructure), their timing, and potential funding mechanisms to improve US 1.

FDOT and VTPO worked with a Working Group comprised of municipalities and key stakeholders from along the corridor to define unique "Community Character Districts," which became the basis for how bicycle, pedestrian, transit, and auto mobility should be considered. These districts represent the existing and future land use context, community character, and future desired role of the roadway right-of-way from the perspective of the communities and stakeholders.

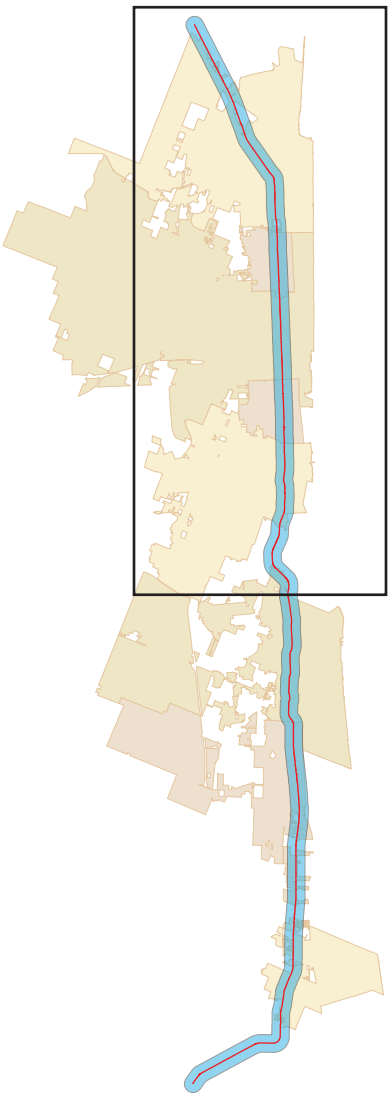
Possible typical sections of US 1 were created that are consistent with the Character Districts; these sections were reviewed and approved for application to US 1 by FDOT Planning, Traffic Operations, and Design Units.

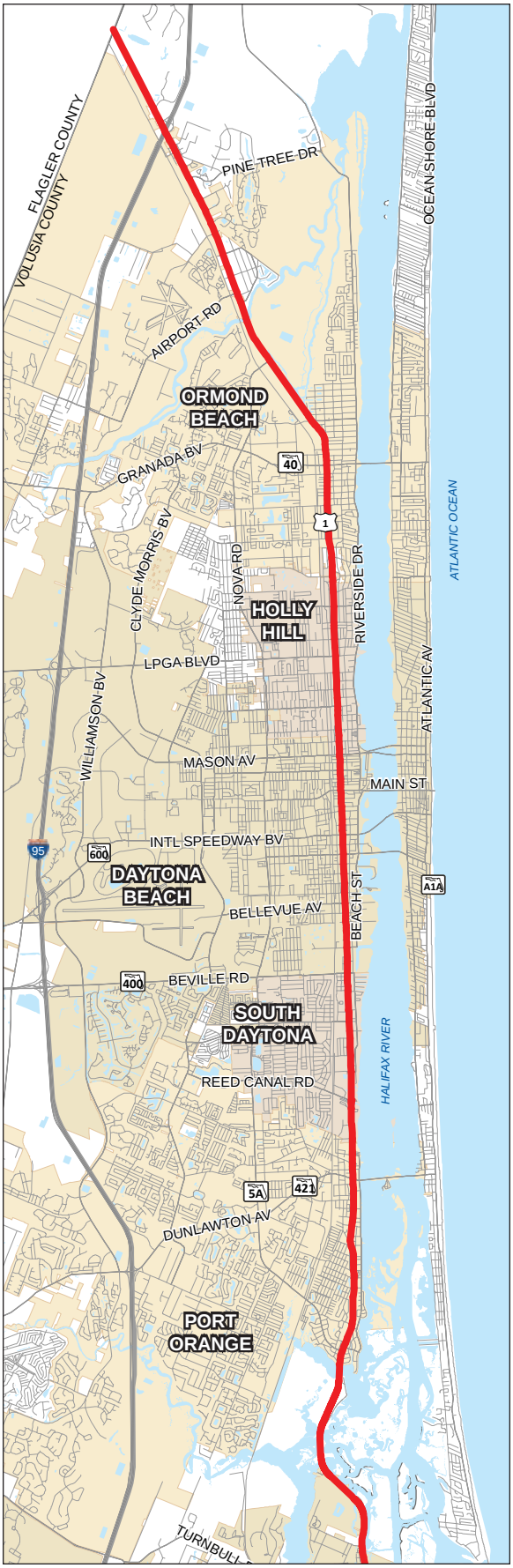


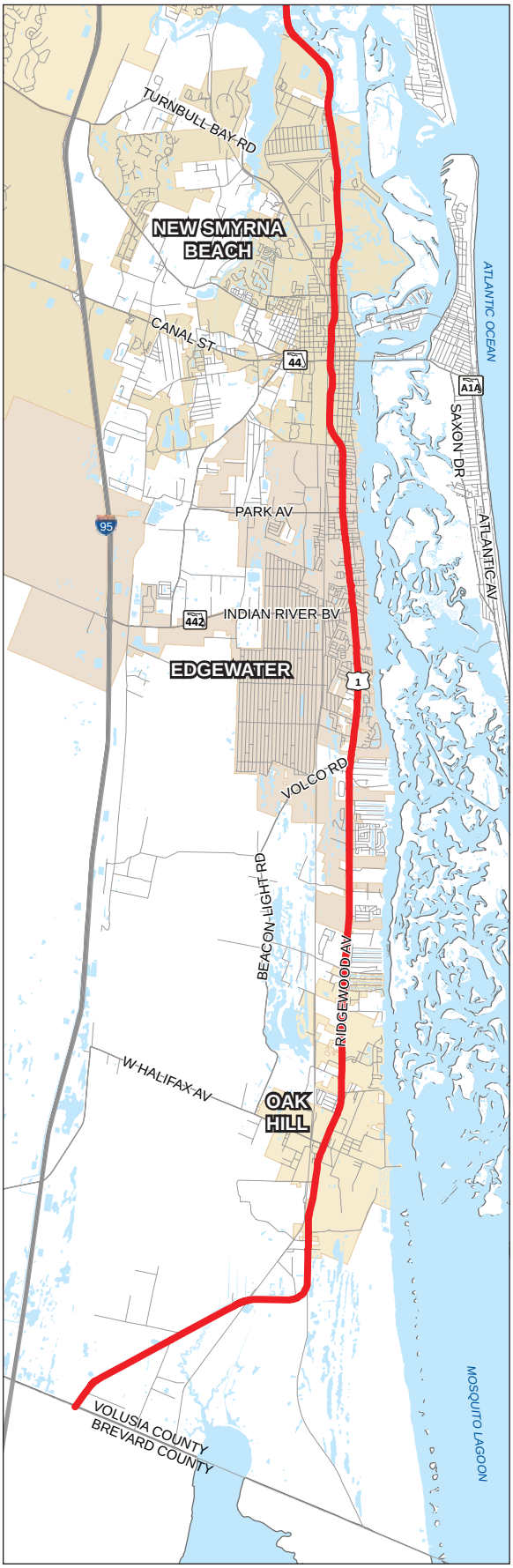
Corridor Presentation

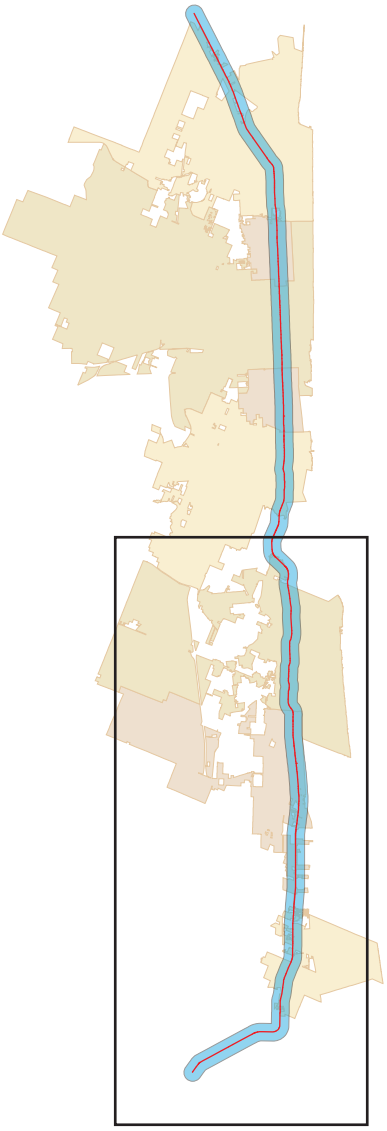
The US 1 Corridor Improvement Program study area is 22 miles long, running from the I-95 in the north to the Brevard County Border in the south. Because of the length of the corridor, it has been split into two sections for the purposes of illustrating the corridor, as seen below.

North Section









South Section

Figure 1: **Study Corridor**

N

0 1.25 2.5 5 Miles

2

HOW WE GOT HERE

US 1 has a rich history that was researched to help develop an understanding of why the corridor acts as it does today. Additionally, that history helps to expose important characteristics of the corridor such as historical resources that can be the focus of preservation activities.

HOW WE GOT HERE

History

US 1 has a long history as a regional connection along the east coast of the United States, beginning with its status as the main north/south connection from Maine to Florida. In Volusia County, US 1 is locally known as Ridgewood Avenue, Dixie Highway, and Yonge Street. It connects the Cities of Oak Hill, Edgewater, New Smyrna Beach, Port Orange, South Daytona, Daytona Beach, Holly Hill, and Ormond Beach, as well as unincorporated portions of Volusia County.

While the road is still widely used, its history is quickly being lost as the state develops and redevelops. Early on, US 1 functioned as the main street in the various hamlets and towns that formed at crossroads or central rail depots. These main streets were vital to the lifeblood of each town. Focusing the travel from town to town was critical in both shipping products and agriculture and for the local businesses and sustaining the livelihood of townspeople.

As the automobile became more prevalent, its effects were felt on Florida's tourism landscape. Places for visitors to sleep, eat, shop, and refuel began to sprawl beyond the traditional city limits, because the road was serving a new purpose. It was no longer a simple conduit between Town A and Town B, but the corridor itself became the focus of the travel and purpose of the destination. The main streets

1880

US 1 first begins to appear on maps of Florida, offering a primitive land connection between towns.

1892

Construction Begins on the Florida East Coast Railway (FEC).

1894

FEC Railway Reaches Daytona Beach.

1903

First car race occurs in Ormond Beach (March 26).

1904

Mary McLeoud Bethune found the Daytona Educational and Industrial Training School for Negro Girls (Later: Bethune-Cookman University).

1920

Sunset Park (Tomoka State Park's Predecessor) Opens.

1925

There are approximately eighty towns along the railway/roadway that are regarded as stops or depots. Of those towns from 1925, approximately thirty incorporated cities/towns and twenty unincorporated towns still remain today.

1925

Embry Riddle Aeronautical University Founded.

1926

US 1 designated in Florida.

1928

Volusia County was a tourist destination, with luxury resorts and hotels such as the Riviera sprouting up along the water.

1937

First Daytona Bike Week is held during the Daytona 200 bike race.

Hemmings Daily

were transformed to places for cars while the commercial buildings began to cater more towards attracting passing vehicles as opposed to pedestrians or local traffic.

At this time, the car hotels, or "motels," that can still be seen today began popping up along the corridor to cater to road trippers. As the usage of these motels became more commonplace, the built environment was largely affected by the scale of development of these sites. The more lucrative motels offered the luxury of being able to park directly adjacent to your room. This created a very specific design form related to the appropriate width and height (single story) of buildings, access sidewalks, parking spaces with front tire bumpers (to prevent the driver from driving into the room), and driveway aisles. The requirement of all this horizontal space tended to create a larger physical footprint as compared to the less automobile inclined hotels.

After 1949, Florida began to build its portion of the Interstate system and Interstate 95 (connecting the eastern seaboard of the whole country) was built parallel to US 1, drawing development away from the corridor and encouraging vehicular travel as opposed to rail for long distance trips. As development expanded west of US 1, the corridor became more of a conduit for local trips as opposed to the previous long distance, regional trips that I-95 was now serving.

1945

Tomoka State Park Opens.

1948

Bongoland, a roadside attraction/theme park featuring a replica Native American Village, a miniature train station, and iconic, life-sized cement dinosaur statues on site of the Dunlawnton Sugar Mill Ruins from 1948 to 1952.

State Archives of Florida

1949

Construction on Interstate 95 begins in Florida.

1950s

The automobile has become prevalent along the corridor and traffic is beginning to shift west.

1959

Daytona Speedway opens and the first Daytona 500 race is held.

Birmingham News

1960s

Motels peak in popularity, and can still be seen throughout the US 1 corridor

1963

Merritt Island National Wildlife Refuge Opens

1975

FEC stops passenger rail service

1991

Biketober fest begins (October)

Motorcycle USA

As may be expected, the transition of roads from main streets to auto-oriented regional corridors had a profound impact on the way that roads could be used from a multi-modal standpoint. The photos below compare and contrast the intersection of Seabreeze Boulevard and Halifax Avenue (just east of US 1 in Daytona Beach) before and after the popularization of the car. While this intersection is not on US 1, similar effects have been seen along the corridor.

While US 1 is swiftly losing is historical landmarks, remnants of the past still shine through, as seen in the following photographs taken at various points throughout the corridor.

Halifax Avenue at Seabreeze Boulevard, 1893

The road is the center of village life. Carriages share the road with pedestrians. Conversations, sales, deals, and other activity all takes place on the street, facilitating social interaction that is difficult to achieve today due to segmentation of most of these functions into separate, designated areas.

Halifax Avenue at Seabreeze Boulevard, Today

The road is reserved for vehicles, and business transactions have been moved into buildings that front the street. The most convenient mode of travel is by car, however, the social interaction that arose from chance encounters is much less likely as daily activities are segregated.

Bongoland, a 1950s era dinosaur themed roadside attraction along US 1

State Archives of Florida, http://floridamemory.com/items/show/76576

Roadside fruit stands like this one have been a staple along the US 1 corridor since the beginning of the automobile era.

Historic Plantation ruins can be found throughout the county just off the US 1 corridor (above and below)

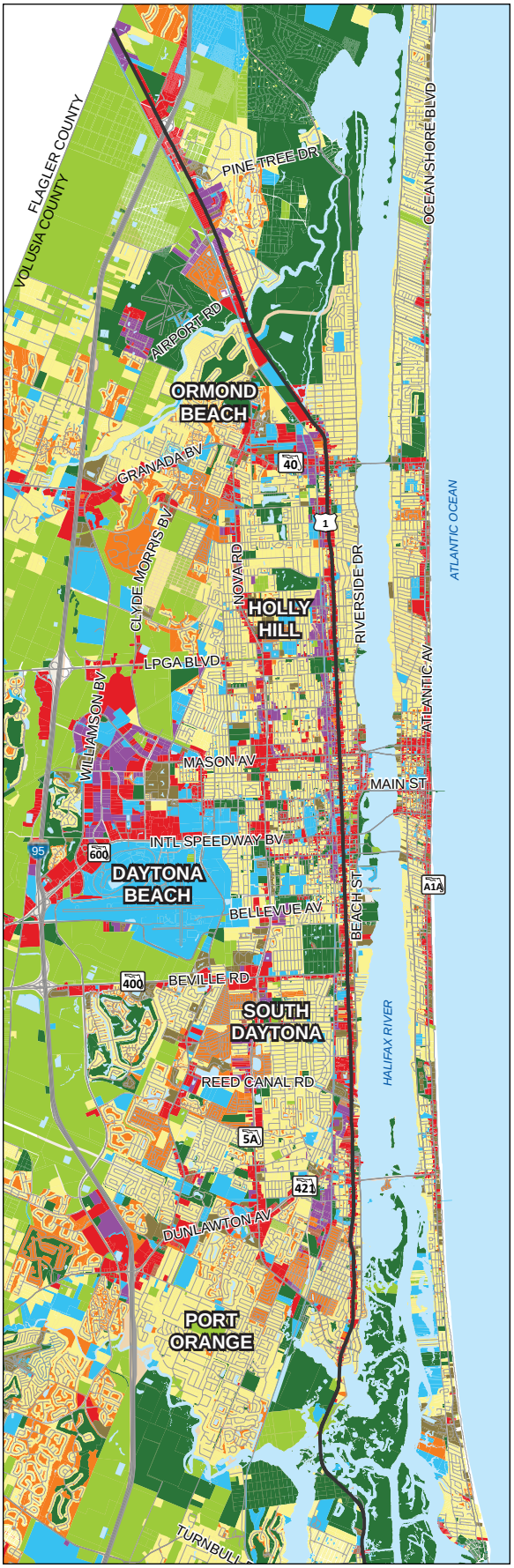
These arches once marked the entrance to Rio-Vista-on-the-Halifax. Envisioned as a new Mediterranean-style city in 1926, the arches are all that remain.

3

EXISTING CONDITIONS ALONG US 1

A comprehensive overview of the existing conditions was completed at the beginning of the study. The purpose of this analysis was to gain an understanding of how the corridor performs and to gain some insights into why it functions as it does to inform any future efforts. Topics addressed include the land use, environment, socioeconomic conditions, employment, multimodal transportation environment, and safety.

CORRIDOR LAND USES



Existing Land Use

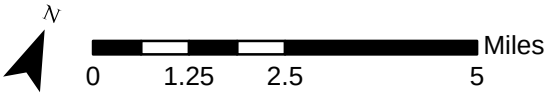
The existing land use pattern along US 1 is largely reminiscent of its history as a roadway built for long distance trips. Long before I-95 was built, individually owned motels, restaurants, gift shops, and other tourist focused, car-centric land uses popped up along US 1. These uses served people driving through on road trips leading north and south. Although the construction of I-95 shifted development to the west, remnants of these uses can still be found along US 1. These older types of development are found along side newer strip retail and auto-oriented office buildings that are typical of any corridor developed over the last few decades.

As shown in **Figure 2**, the uses directly on US 1 are largely auto-oriented commercial uses described previously with the largest densities focused on major intersections. On either side of the road, established residential uses are present behind that layer of commercial uses. In general, residential uses consist of single family homes along with a small number of multi-family buildings dispersed throughout the corridor. There is also a concentration of industrial uses west of US 1 in Holly Hill. Interestingly, the second largest land use is Open Land/Recreation, exemplified by the large parks along US 1, the most prominent of which anchor the corridor to the north, the center, and the south.

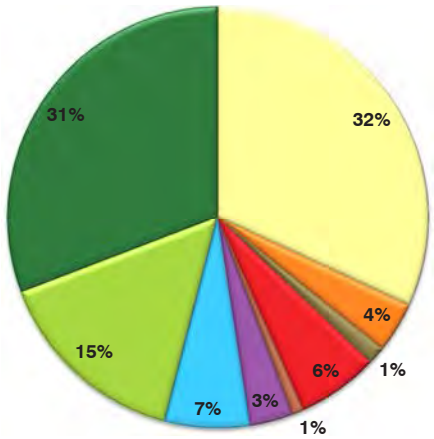
Figure 2: Existing Land Use

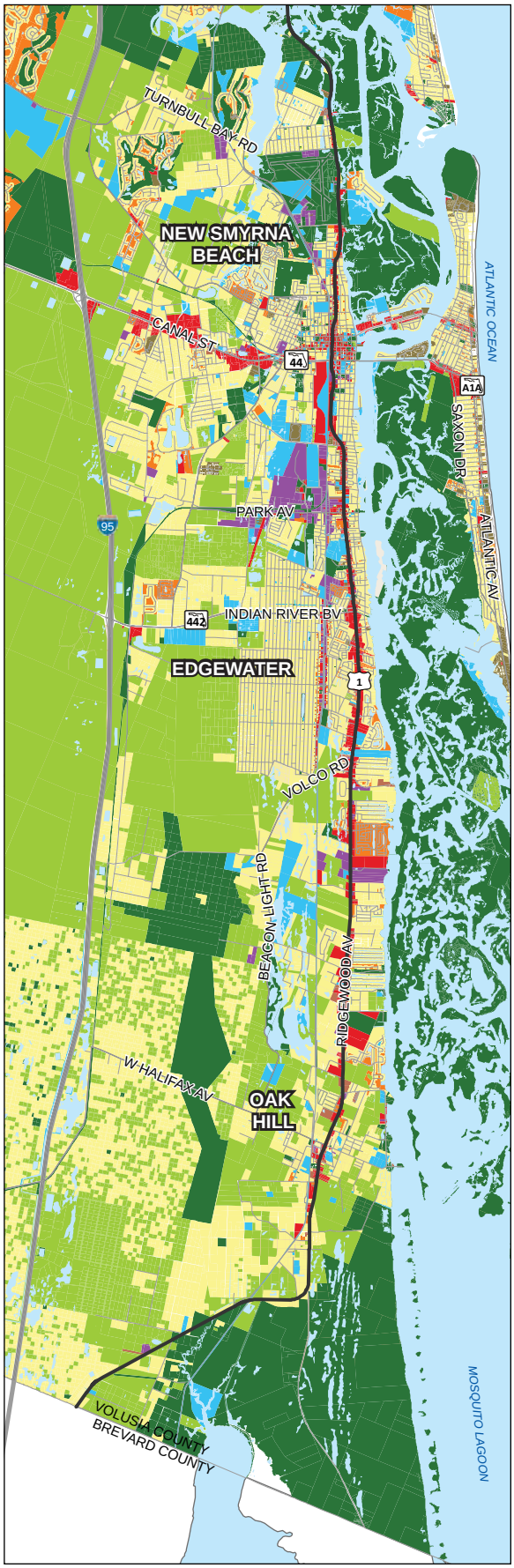
Land Use	Acres	% of Total
Low Density Residential	14,634	32%
Medium Density Residential	1,763	4%
High Density Residential	617	1%
Commercial	2,877	6%
Mixed Use	408	1%
Industrial	1,524	3%
Public/Institutional	3,000	7%
Agriculture	6,947	15%
Open Land / Recreation	14,147	31%
Total	45,918	

Source: Volusia County Property Appraiser's Parcel Database, 2012



Land Uses within One Mile of US 1





ENVIRONMENT

The US 1 corridor has a rich environmental history. Even in its fledgling years, Volusia County used its environmental assets as a way to attract tourists, as can be seen in the postcards below. From the Tomoka River to the major state parks and trails along the corridor, there are a tremendous amount of outdoor recreational activities. Those environmental lands are a community asset that has drawn many people to call Volusia County home. In some cases, the rivers and environmentally sensitive lands constrain the right of way on US 1, making it difficult to provide adequate bicycle and pedestrian infrastructure in addition to vehicular infrastructure.

Figure 3: Recreation

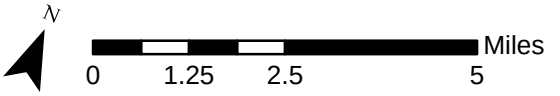
Shared Use Trail

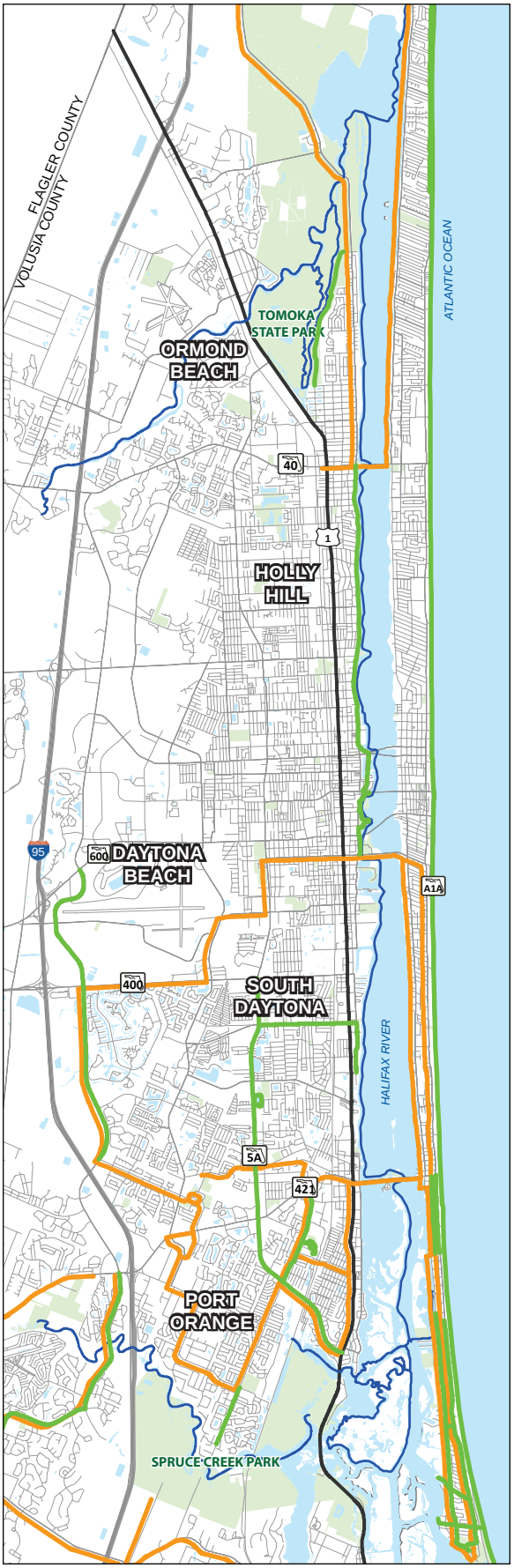
Bicycle Trail

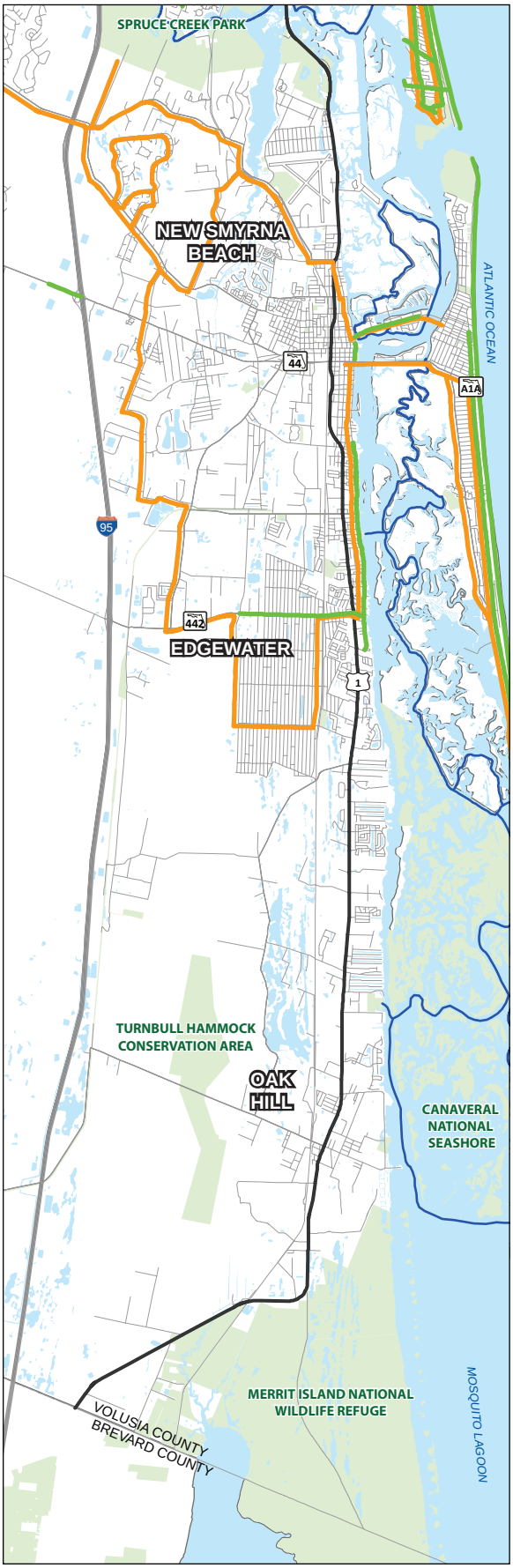
Water Trail

Park

Source: Volusia County GIS




FLAGLER COUNTY
VOLUSIA COUNTY
ATLANTIC OCEAN
TOMOKA STATE PARK
ORMOND BEACH
40
1
HOLLY HILL
95
600
DAYTONA BEACH
A1A
400
SOUTH DAYTONA
HALIFAX RIVER
5A
421
PORT ORANGE
SPRUCE CREEK PARK

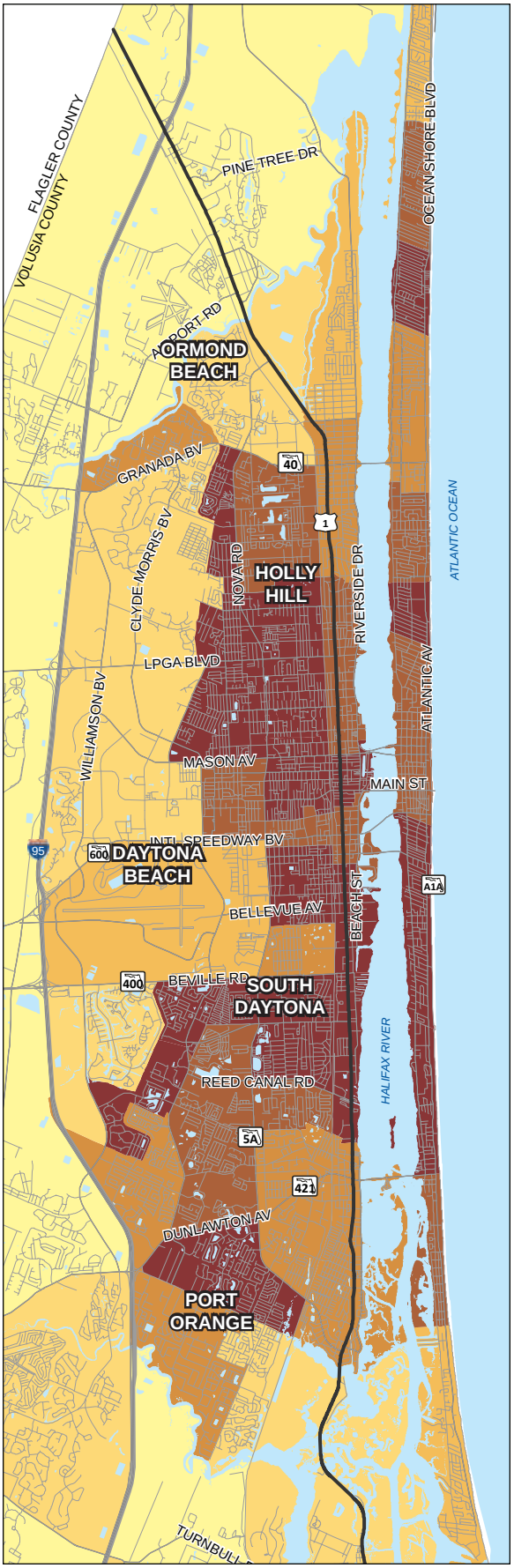

SPRUCE CREEK PARK
NEW SMYRNA BEACH
ATLANTIC OCEAN
44
A1A
95
442
EDGEWATER
1
TURNBULL HAMMOCK CONSERVATION AREA
OAK HILL
CANAVERAL NATIONAL SEASHORE
MERRIT ISLAND NATIONAL WILDLIFE REFUGE
VOLUSIA COUNTY
BREVARD COUNTY
MOSQUITO LAGOON

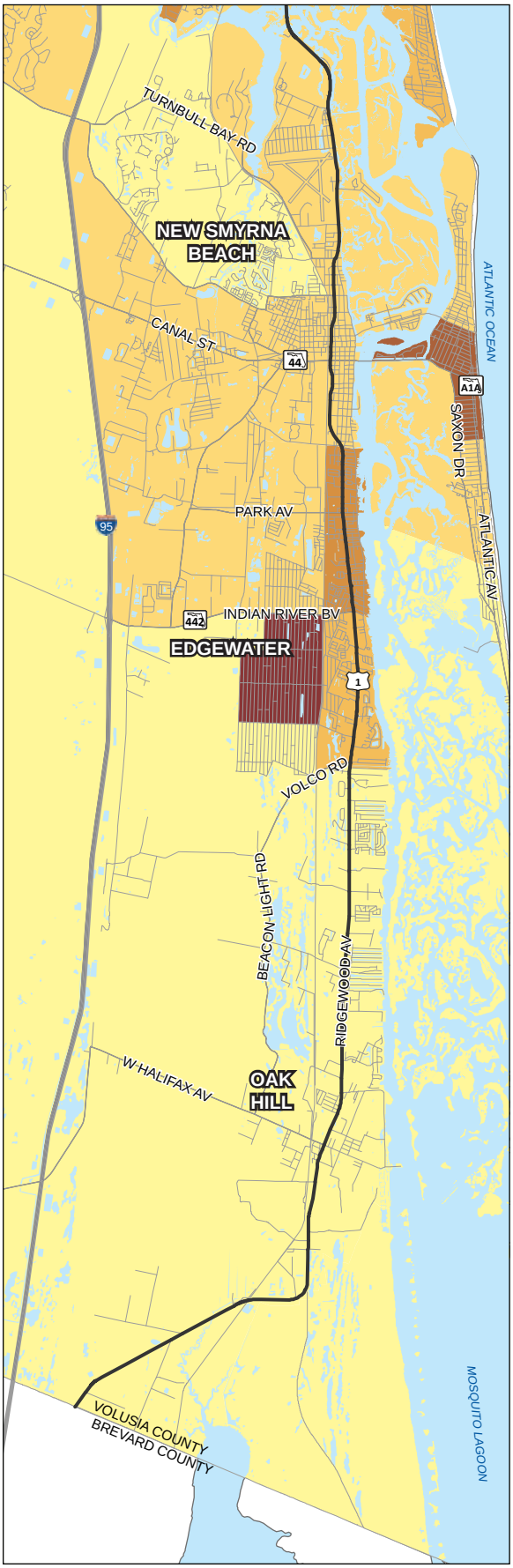
SOCIOECONOMIC CONDITIONS

Population Density

Volusia County's eastern population is heavily concentrated in the northern half of the county and is densest in the areas surrounding US 1 in Holly Hill, Daytona Beach, and South Daytona as well as along the beaches. As population density increases, so does the transportation demand. With proper planning, it will be possible to capitalize on this increase by installing improvements that promote active transportation uses, such as transit, bicycling, and walking as opposed to traditionally supported single occupancy vehicle. Even so, the population levels in Volusia County are not extremely dense, with the highest population levels coming in just over 5 persons per acre.

Figure 4: Population Density

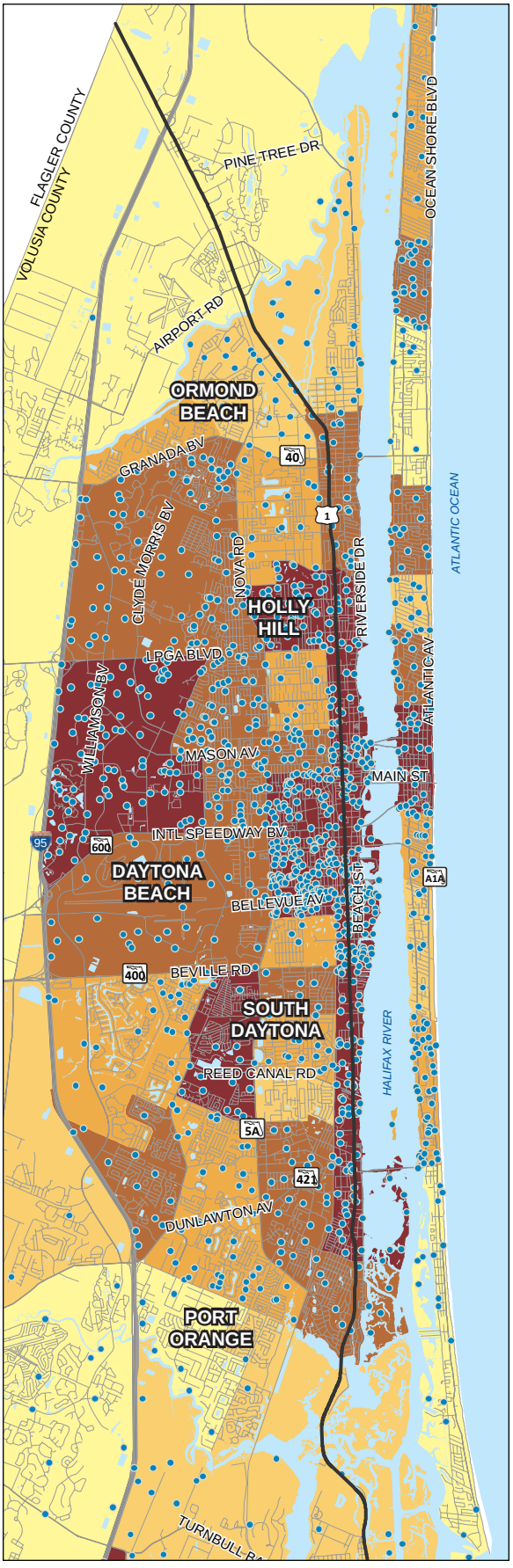

FLAGLER COUNTY
VOLUSIA COUNTY
PINE TREE DR
AIRPORT RD
ORMOND BEACH
GRANADA BV
CLYDE MORRIS BV
NOVA RD
HOLLY HILL
RIVERSIDE DR
OCEAN SHORE BLVD
ATLANTIC OCEAN
LPGA BLVD
WILLIAMSON BV
ATLANTIC AV
MASON AV
MAIN ST
INTL SPEEDWAY BV
DAYTONA BEACH
BEACH ST
BELLEVUE AV
BEVILLE RD
SOUTH DAYTONA
HALIFAX RIVER
REED CANAL RD
DUNLAWTON AV
PORT ORANGE
TURNBULL


TURNBULL BAY RD
NEW SMYRNA BEACH
CANAL ST
ATLANTIC OCEAN
SAXON DR
PARK AV
ATLANTIC AV
INDIAN RIVER BV
EDGEWATER
VOLCO RD
BEACON LIGHT RD
RIDGEWOOD AV
W HALIFAX AV
OAK HILL
VOLUSIA COUNTY
BREVARD COUNTY
MOSQUITO LAGOON

Income and Car Ownership

Income levels are somewhat steady along the corridor, especially when considering the northern and southern halves of the corridor separately. The higher income levels tend to fall to the west of I-95 where the densities are lowest, while the income levels along the corridor tend to be lower. One cause of this spatial division could be the tendency of development to sprawl. While development initially occurred on and around US 1 because of its role as a regional connector, newer, low density suburban developments began to occur to the west over time. The fact that the older areas along US 1 have experienced disinvestment lends the corridor to be ripe for new opportunities as the County steers development back to the east.

There are also large concentrations of households without vehicles in the northern section of the corridor. In those areas, there is an inverse correlation between income levels and homes without cars, with the greatest numbers of households without cars located in lower income areas. These areas lend themselves to active transportation uses due to the lack of vehicular access.



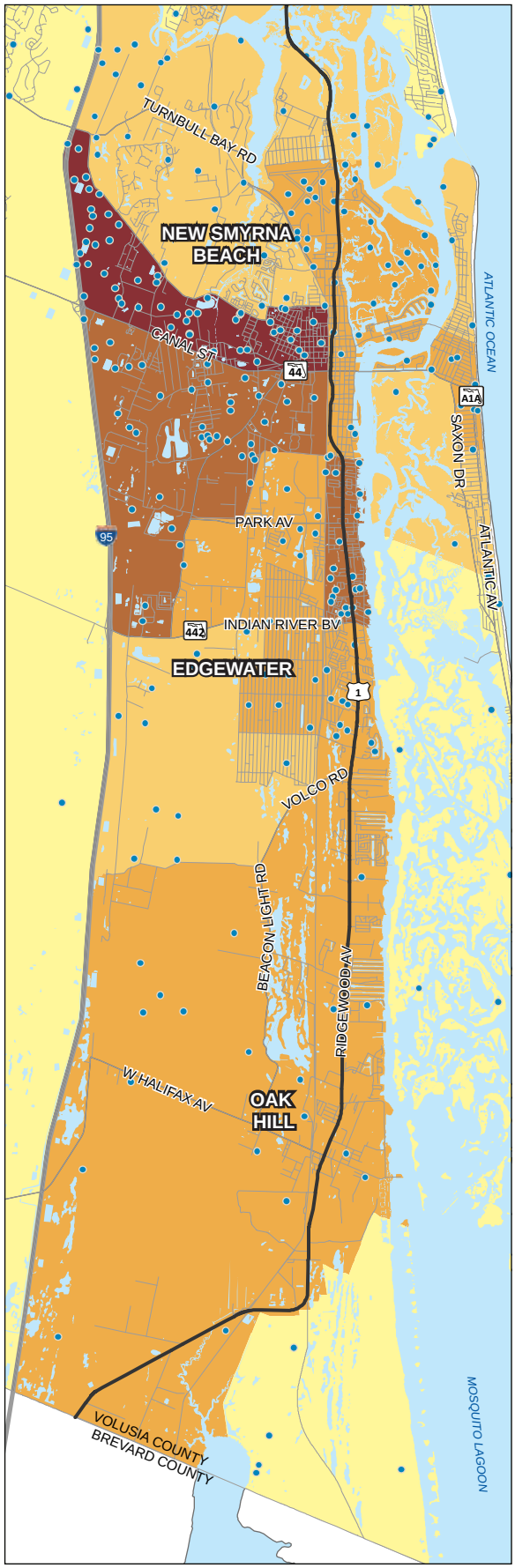


Figure 5: Income & Vehicles

5 Households without Cars

Median Household Income by Census Tract

- ≤ $30,000
- > 30,000 - $40,000
- > $40,000 - $50,000
- > $50,000 - $60,000
- > $60,000 - $70,000
- > $70,000

Source: 2005-2011 American Community Survey 5 Year Estimates

N

0 1.25 2.5 5 Miles

EMPLOYMENT

Corridor Employment Patterns

In order to better understand how people are using the corridor, it is important to understand where corridor residents work. To do this, the US Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) data were used to determine where residents living within one mile of the corridor work. **Figure 6** displays the concentrations of employment based on data aggregated into census blocks. Each pink or red dot represents a number of employees within a census block, while the background shading represents a heat map displaying concentrations of employment.

Many residents work along the corridor and most work east of I-95. The highest concentration of employment is in Daytona Beach, where 23.5% of residents living within one mile of the corridor are employed. There are also employment concentrations in Holly Hill and Ormond Beach, with a smaller concentration located in New Smyrna Beach.

There are almost 33,000 jobs within one mile of the US 1 corridor. Approximately 25,000 (76 percent) of these jobs are filled by workers living outside the corridor, coming from all over the county and beyond. About 7,900 (24 percent) are filled by people who live within the corridor. These workers are the ones who will benefit the most from multimodal improvements.

In addition to the 7,900 workers that live and work within the corridor, there are approximately 28,000 that live within the corridor but travel outside it to their workplaces both within and outside of Volusia County. Approximately 45 percent of the population living within one mile of the corridor travels less than 10 miles to work. However, more than 28 percent travel greater than 50 miles to work.

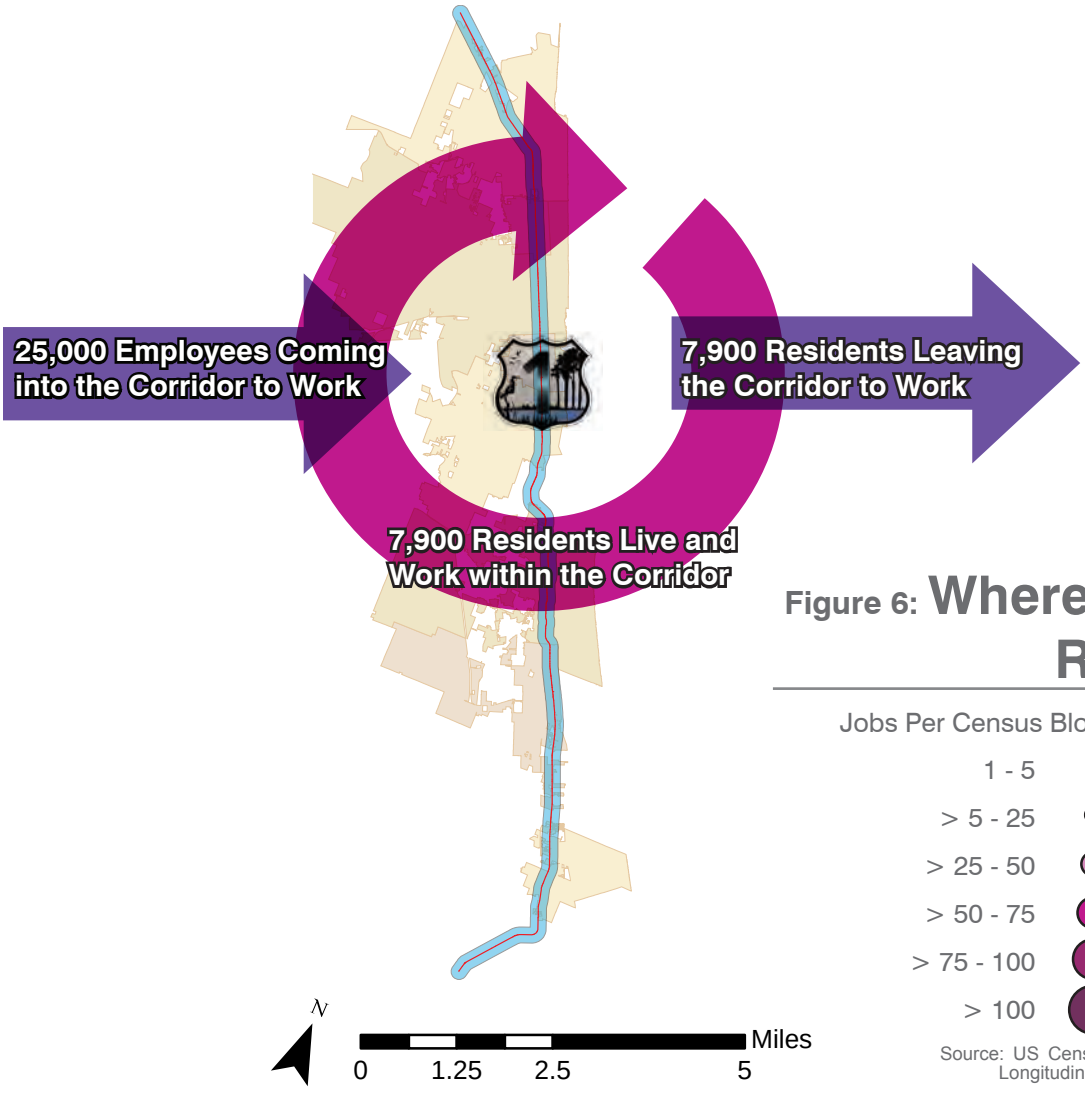
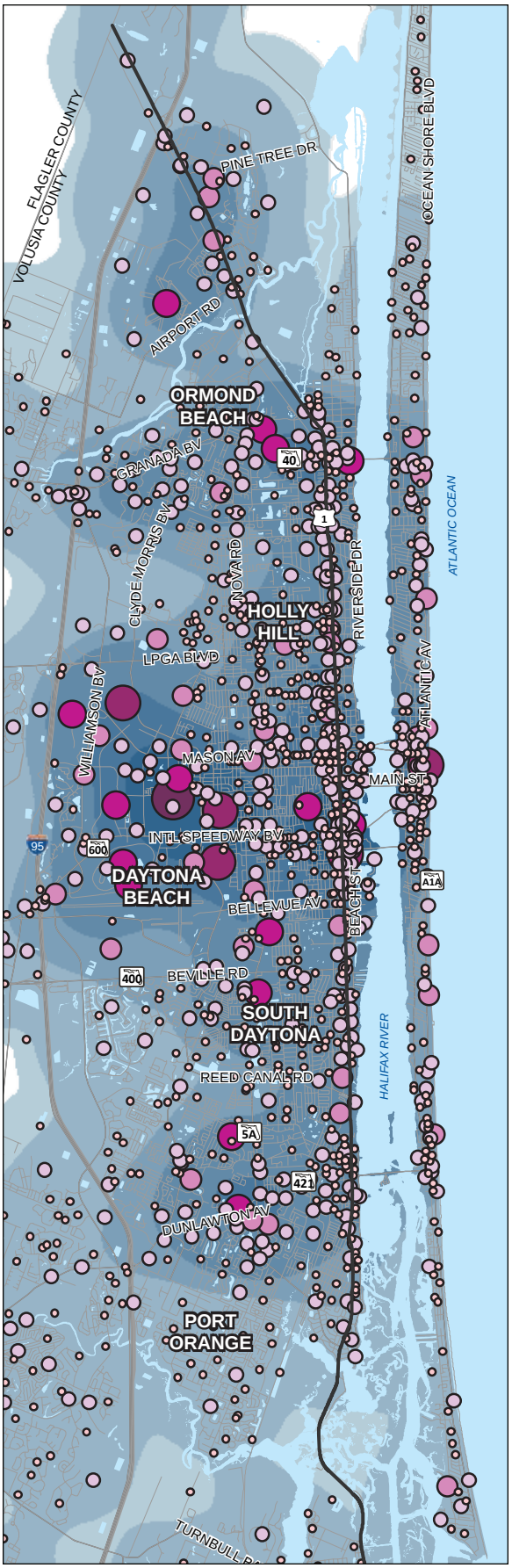


Figure 6: Where US 1 Corridor Residents Work

Jobs Per Census Block	Jobs Per Square Mile
1 - 5	1 - 5
> 5 - 25	> 5 - 50
> 25 - 50	> 50 - 100
> 50 - 75	> 100 - 250
> 75 - 100	> 250 - 500
> 100	> 500

Source: US Census Bureau, 2012. OnTheMap Application Longitudinal Employer-Household Dynamics Program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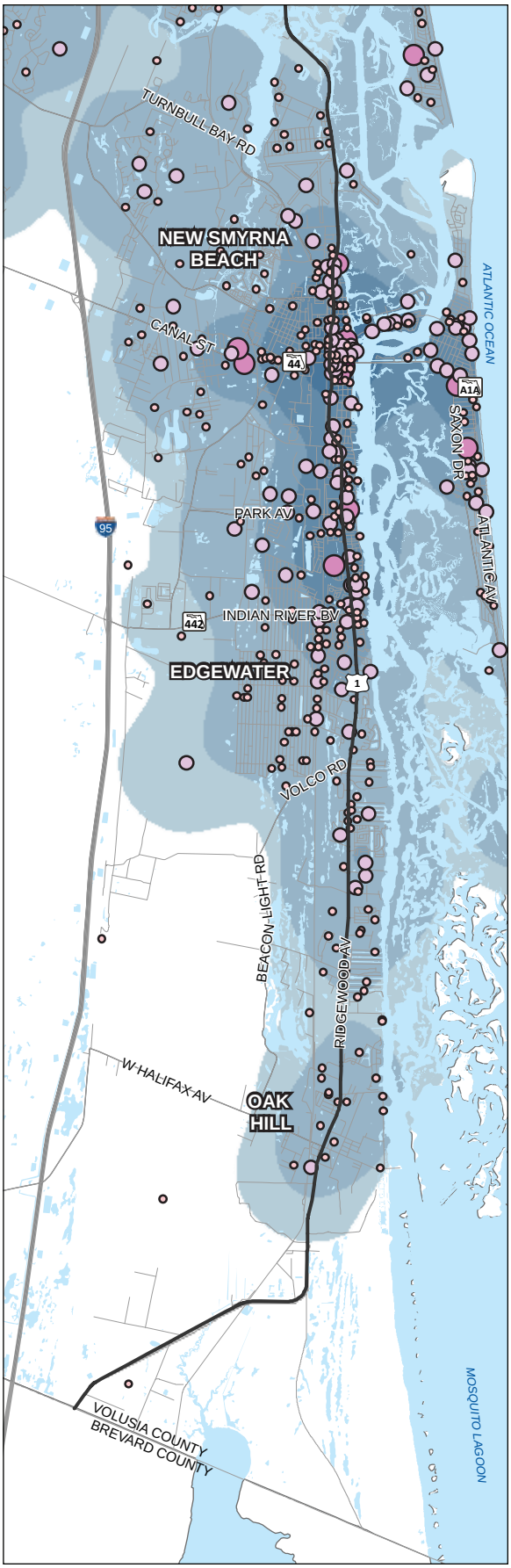
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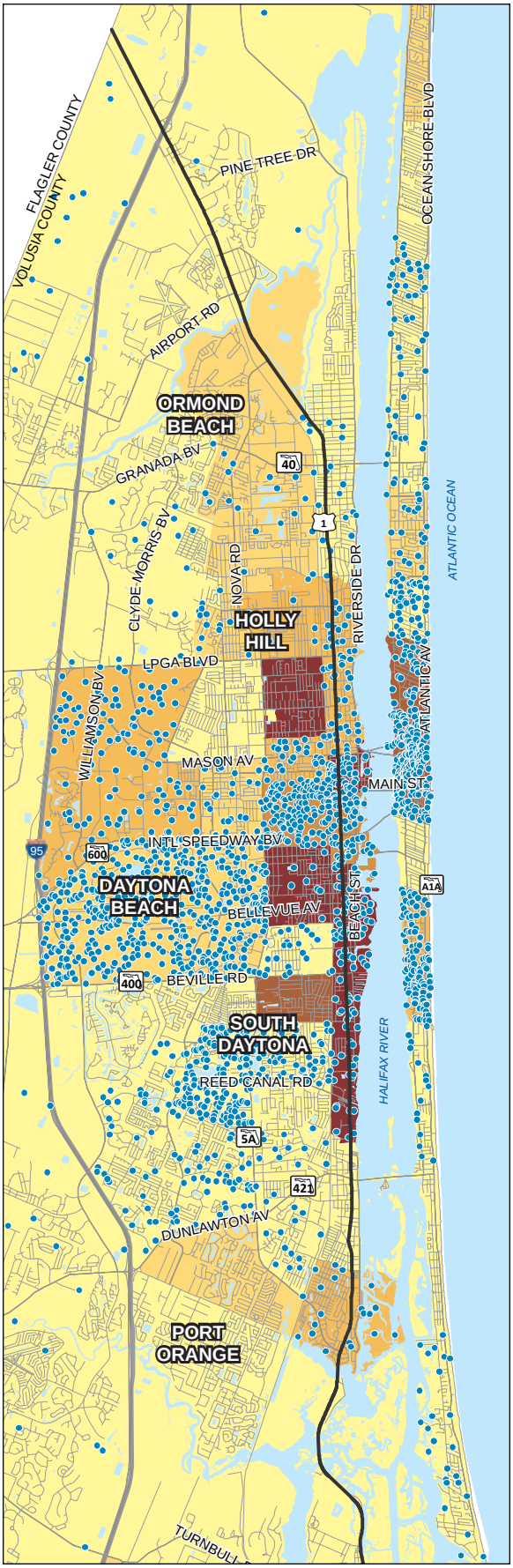
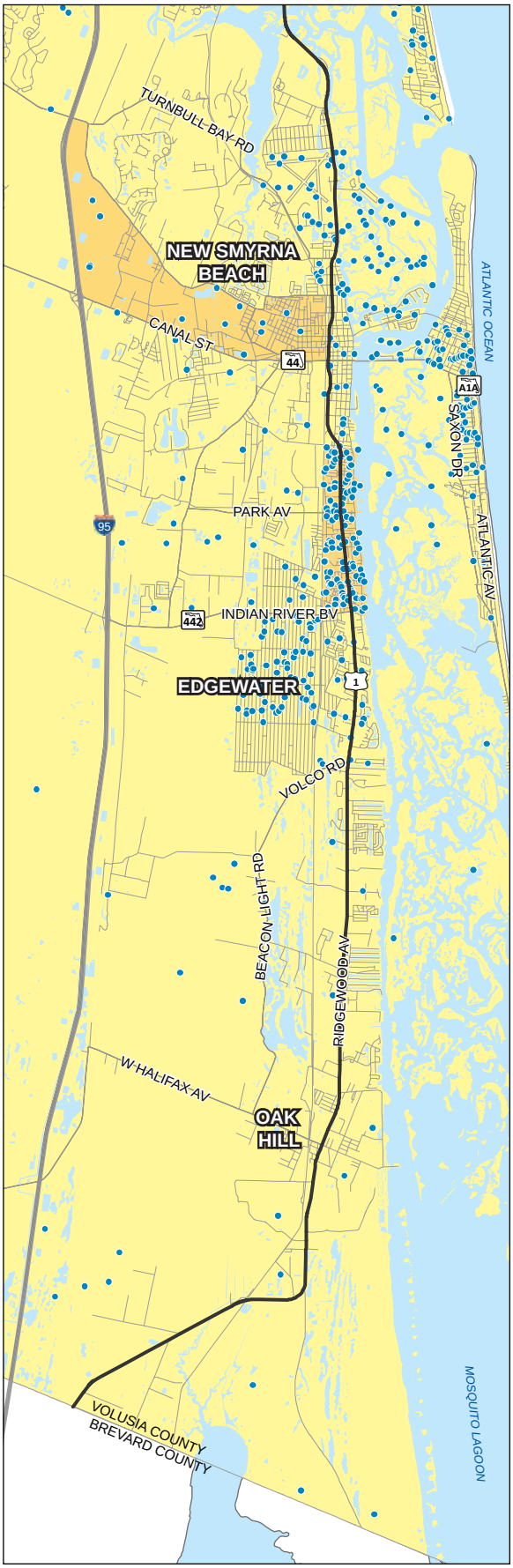
CORRIDOR TRAVEL PATTERNS





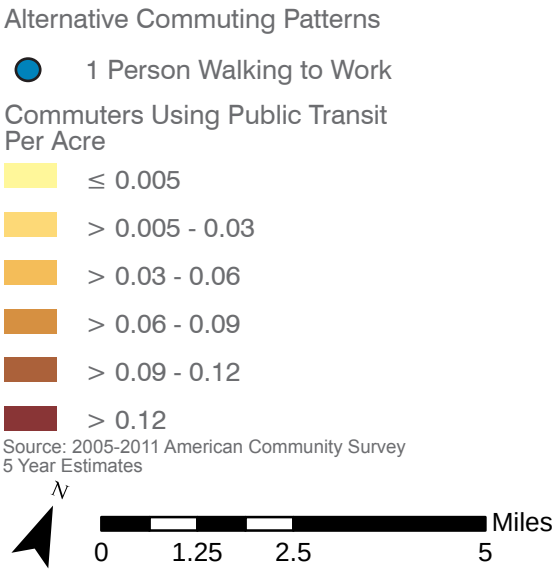
Pedestrian, Bicycle, and Transit Commuting Patterns

In general, people in the study area today travel by car. Even at the highest, the study area does not reach one person per acre using transit. The highest concentration of people taking transit to work is in the northern half, corresponding to the locations where incomes are the lowest and people are less likely to own cars.

The pattern of people walking to work follows a similar trend. Certain areas along US 1 in Daytona Beach and South Daytona have a significant number of people walking to work. This suggests that people are not traveling very far to work. This also reflects the previous finding that almost half of the population is traveling less than 10 miles to work.

These patterns suggest that many people are open to taking alternative modes of transportation if they are more efficient and effective than driving, and therefore public transportation has the opportunity to take hold here. It is important to note that those locations where people are taking transit to work largely are the areas where people are not walking to work. It is therefore possible that there are employment clusters in areas where people are walking to work.

Figure 7: Alternative Commuting



The full bicycle rack at Burns Science and Technology Charter School in Oak Hill shows that people of all ages are already commuting by bicycle on and around US 1.

Transit Headways and Ridership

Votran, Volusia County's public transit system, runs all fixed-route bus, van pool, and paratransit services in Volusia County. Votran boasts a daily system ridership of approximately 10,000 trips. There are several major transit connection points that are highly used, which are concentrated in northern half of the corridor. The existing headways can be seen in **Figure 8** to the left, and most routes run Monday through Friday from 6 AM to 7 PM. Additionally, the southern half has two flex routes that, when implemented, prompted an eight percent increase in ridership.

The northern half of the US 1 corridor in Volusia County is primarily served by Votran Routes 3 and 4, which travel north and south from the Votran transfer plaza in Daytona Beach, respectively. Beginning in June 2013, Routes 3 and 4 increased their service headways from one hour to 30 minutes due to heavy usage of the system. The increase in headways resulted in a 41 percent increase between October 2013 and January 2014 in comparison to the previous year. In addition to these routes, there are ten other routes that at least cross US 1, providing vital east/west connections in the northern half of the study area.

The southern half of the US 1 corridor is served by Routes 40 and 41, which run north and south, once per hour from Canal Street in New Smyrna Beach, respectively. In addition to fixed route service, the southern portion of the study area in New Smyrna Beach is also served by the two flex routes discussed previously. The flex routes offer at home pick up with advance notice and connect to Routes 40 and 41.

Figure 8: Transit Conditions

Existing High Activity Transit Stops

Existing Transit Headways

2 Daily Buses

3 Daily Buses

120 Minute Headways

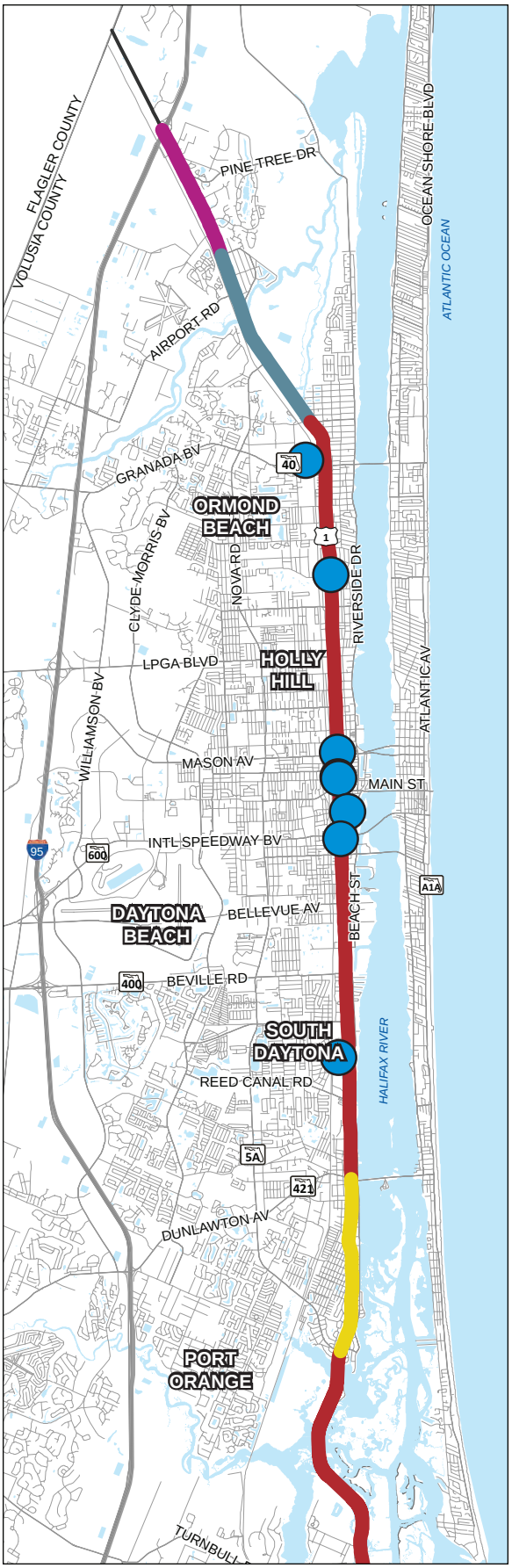
60 Minute Headways

30 Minute Headways

Source: Votran, 2013

N

0 1.25 2.5 5 Miles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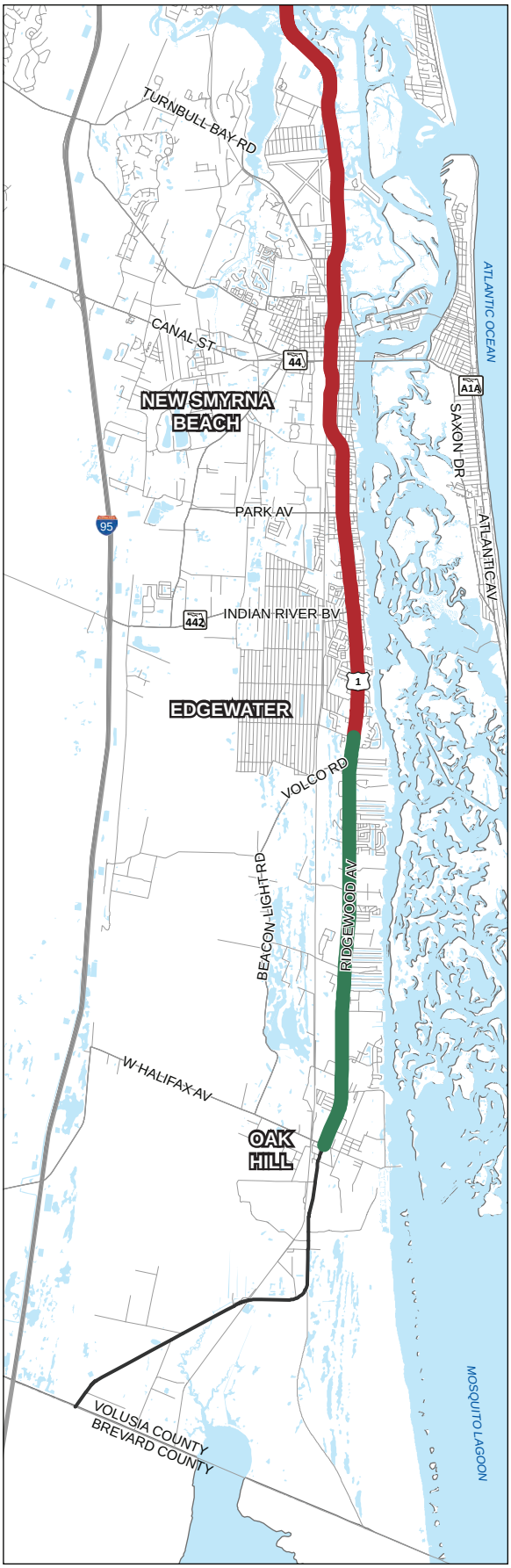
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RIDGEWOOD AV
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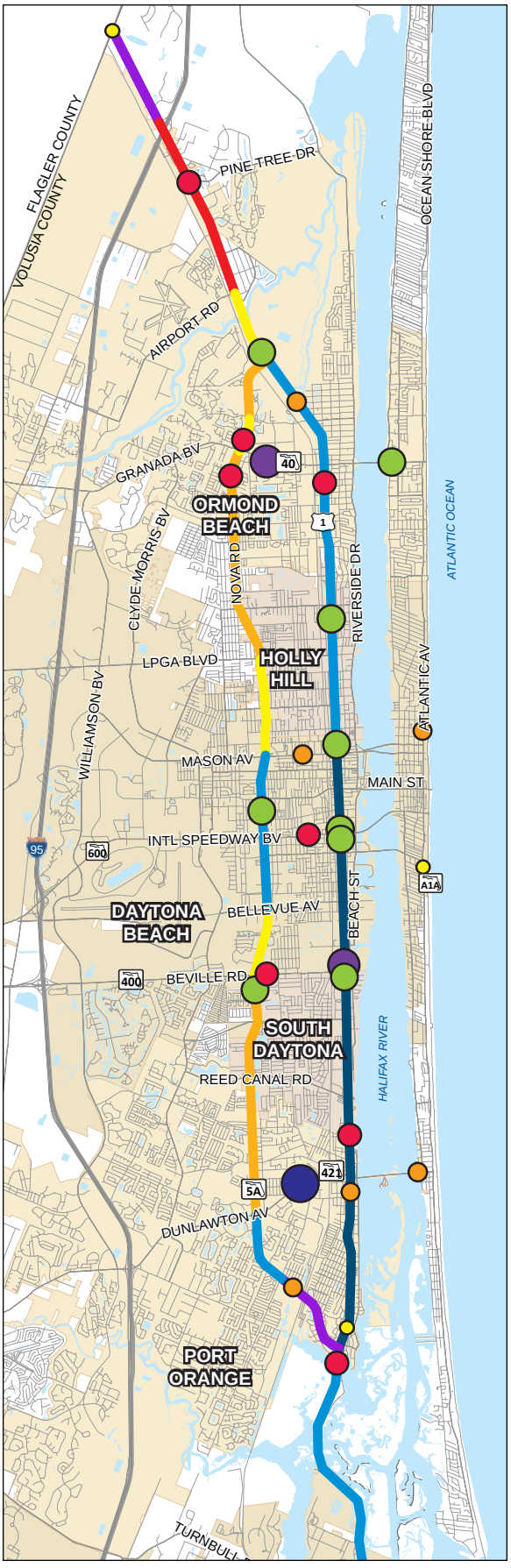
BREVARD COUNTY
MOSQUITO LAGOON

Vehicular Transportation

In order to more clearly define the traffic patterns along the corridor, traffic counts were gathered from FDOT and analyzed. In general, the US 1 corridor serves up to 31,000 vehicles per day on average on its most congested segment. These relatively low volumes result in generally free flow traffic conditions with congestion only being an issue in isolated locations, such as in the Daytona Beach area. Even so, this analysis shows that the roadway will indeed need at least 4-lanes to accommodate the future traffic and to maintain uncongested traffic conditions.

A daily traffic volume profile of US 1 and Nova Road in the northern section of the corridor was developed to determine the peak hour characteristics of the corridor (**Figure 9**) and compare how the two parallel roadways are being used. In general, the two roadways mirror each other, with peak hours in the morning between 7:45 AM and 8:45 AM and in the evening between 4:30 PM and 5:30 PM.

The historic growth patterns along US 1 and Nova Road were also analyzed. As seen in **Figure 9**, between 1996 and 2012 the traffic on US 1 has generally shown no growth, with some sections of the corridor showing a slight decline in traffic volumes (-1.5% to 3.0%). Conversely, Nova Road has shown the opposite historic growth pattern since construction, indicating various growth rates between -1.5% and 0.0% on a few segments, and 0.0% to over 4.5% growth in newer sections of the roadway. This growth pattern agrees with the notion that development has generally moved towards the Nova Road corridor and away from the US 1 corridor.



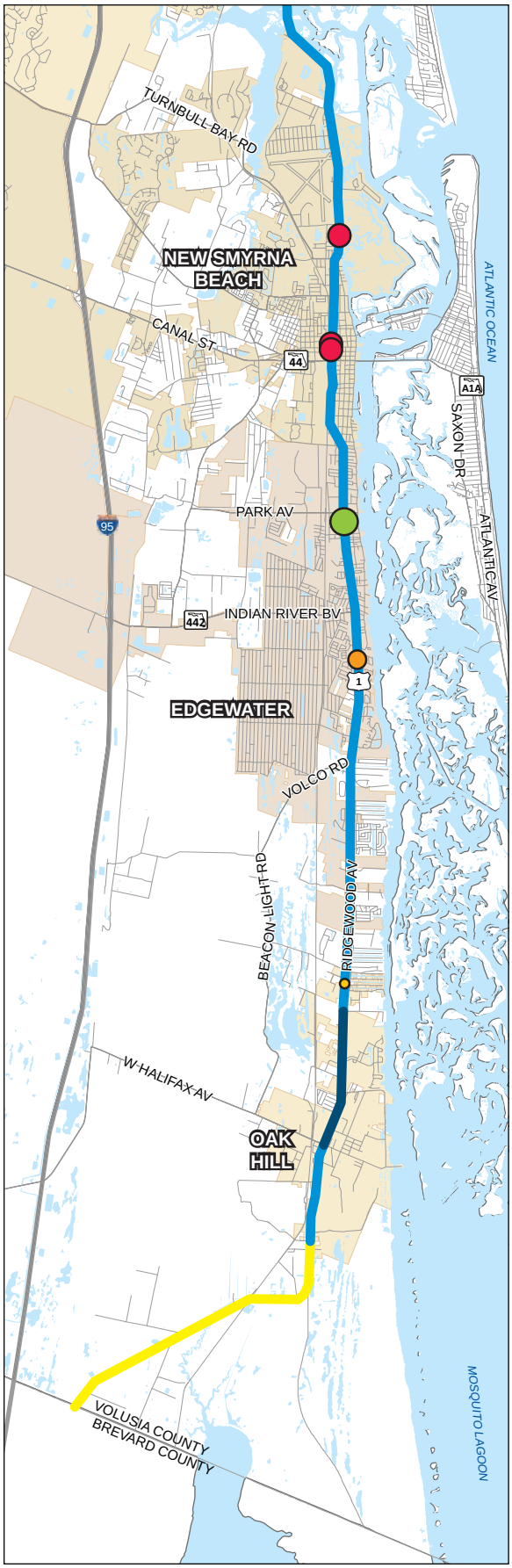


Figure 9: Vehicular Trends

Existing Daily Traffic Volumes

- ≤ 10,000
- >10,000 - 15,000
- >15,000 - 20,000
- >20,000 - 25,000
- >25,000 - 30,000
- >30,000 - 35,000
- >35,000

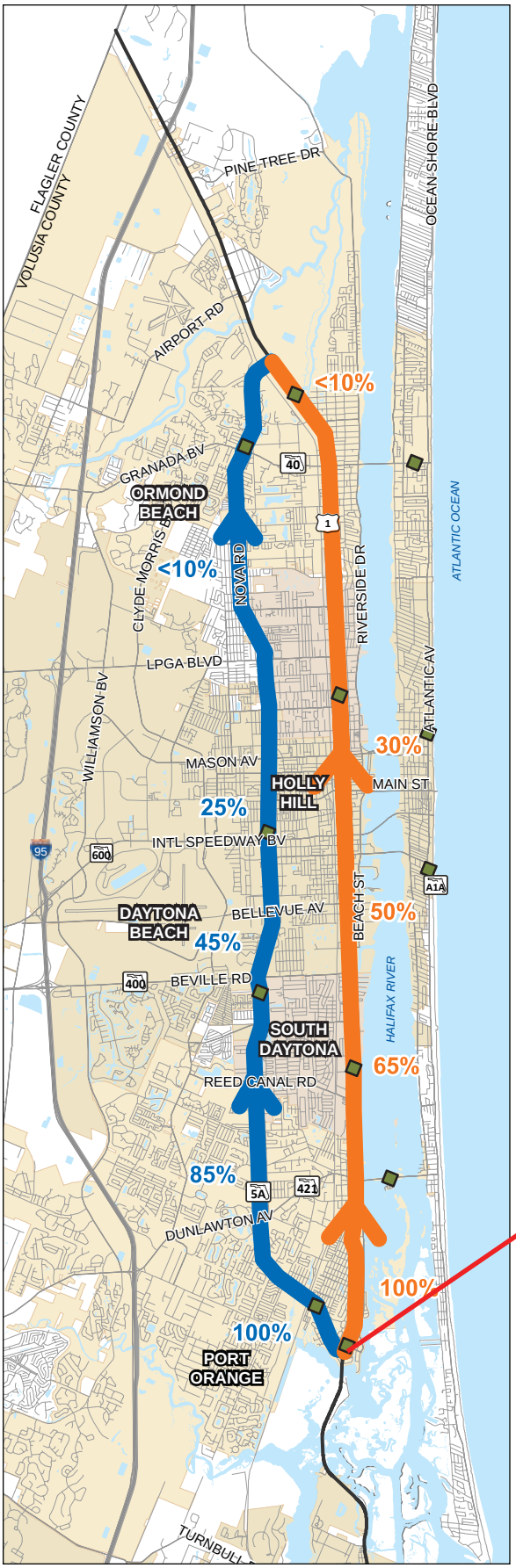
Historic Annual Growth Trends

- -3.00% to -1.50%
- -1.49% to 0.00%
- 0.01% to 1.50%
- 1.51% to 3.00%
- 3.00% to 4.50%
- > 4.50%

Sources: Growth Trends estimated from FDOT traffic counts collected between 1996 and 2012 | Existing Daily Volumes based on 72 Hour Tube Counts collected 9/25/2012 to 9/27/2012

N

0 1.25 2.5 5 Miles

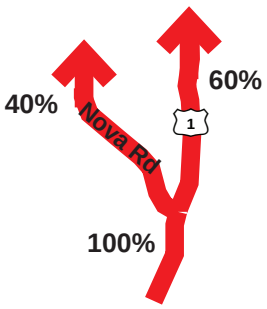


Traffic Distribution

Historically, US 1 was used for regional trip making. It was important to determine whether it is still being used in the same manner to understand the characteristics of the trips being made. It was also important to consider how US 1 is used in comparison to Nova Road, which runs parallel to US 1 to the west. In order to do this, the trip-making characteristics were analyzed in the northern half of the corridor on both US 1 and Nova Road.

The northbound and southbound traffic distributions are shown in **Figure 10**. As can be seen, most roadway users are making shorter distance, local trips (5-6 miles) rather than long distance trips on US 1. More than 90% of the southbound traffic beginning at the northern end of the corridor departs US 1 before reaching SR 421 (Dunlawton Avenue), and more than 90% of the northbound traffic beginning at the southern end of the corridor departs US 1 before reaching SR 40 (Granada Boulevard). Furthermore, about half of the trips on the US 1 corridor in either direction head into the Daytona Beach/Holly Hill area as opposed to traveling through it. This data speaks to the "local" nature of the US 1 corridor and encourages the consideration of multimodal improvements in this area.

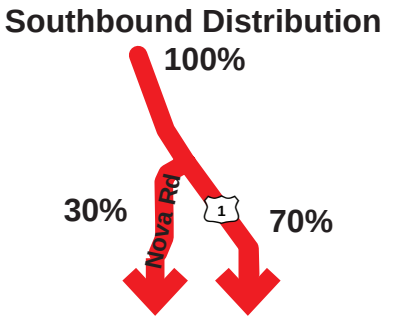
Northbound Distribution



Nova Road exhibits similar trip patterns to US 1. However, Nova Road may be used for even shorter trips than US 1, with trips dropping off of Nova Road faster than US 1. It is possible that this increased rate of traffic drop off is due to people using Nova Road to get to the International Speedway Boulevard area, which includes destinations such as the International Speedway, Daytona Beach Mall, and I-4.

In order to better understand the travel patterns in the northern section of the US 1 corridor, the general percentage split of traffic between US 1 and Nova Road at either end of this section was analyzed. In general, more people are electing to remain on US 1, with 70% of southbound traffic remaining at the northern end and 60% of northbound traffic remaining at the southern end. This data also confirms that, in general, people are not making regional trips around US 1 using Nova Road. Rather, they are using US 1 to make local trips and to arrive at destinations within the urbanized area and along the beach.

It should be noted that this analysis was not completed for the area south of Nova Road because there are no significant parallel roads to US 1 for comparison.



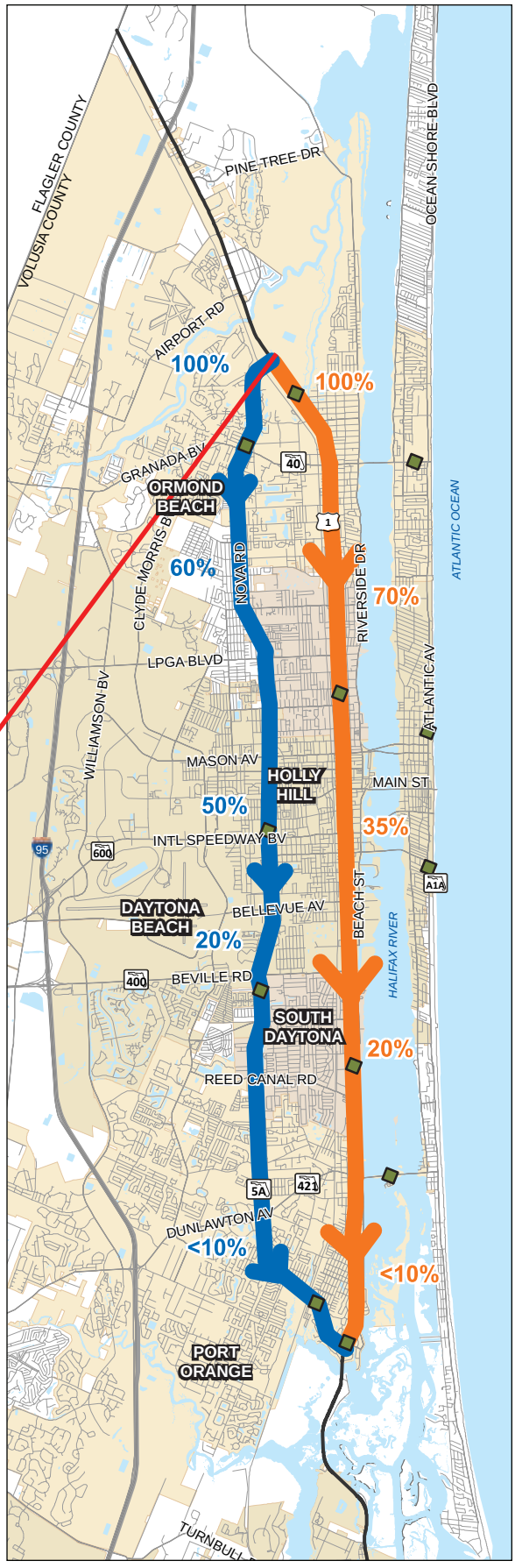


Figure 10: Traffic Distribution

- Bluetooth MAC Address Reader
- Nova Road Traffic Distribution
- US1 Traffic Distribution

Source: Bluetooth MAC Reader Data and 72 Hour Tube Counts Collected Between 9/25/2012 and 9/27/2012

N

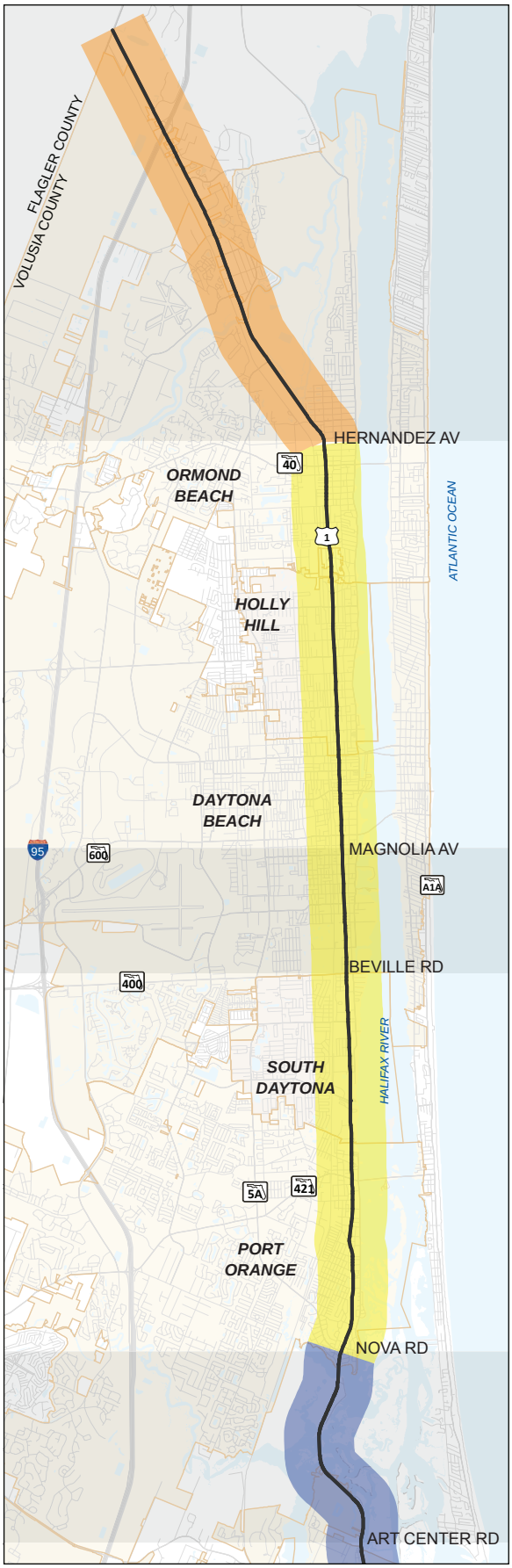
0 1.25 2.5 5 Miles

ROADWAY CONDITIONS

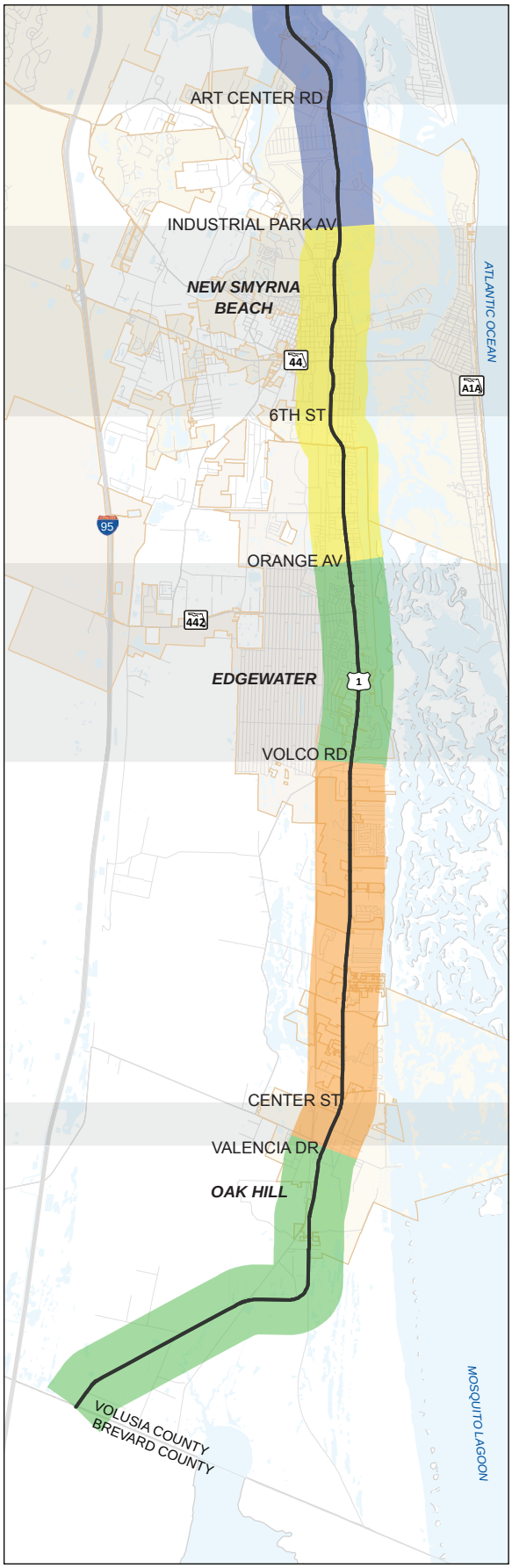
Right of Way

The right of way varies throughout the corridor, as can be seen in **Figure 11**. The more rural areas tend to have the most right of way, and the constrained right of way can generally be found in the more built out urban areas such as Daytona Beach and Holly Hill. This constraint has stopped the roadway from being widened any further, however it also presents challenges for implementing some amenities due to lack of space, such as dedicated bicycle lanes, on street parking, and wider sidewalks.

Figure 11: Right of Way



Source: FDOT District 5 Right of Way Maps



Roadway Character

As can be seen in **Figure 12**, US 1 is a four lane divided highway with a median throughout Volusia County. US 1 has travel lanes that range from 12 to 13.5 feet and inconsistent sidewalks and bicycle lanes along the length of the corridor. Speeds are higher (55 and 65 miles per hour) in the more rural areas. In more urban areas, speeds are generally between 40 and 45 miles per hour, with short segments of 35 mile per hour speeds in more urban areas. Where buildings front the road, they are typically set back behind parking lots. Tree coverage and vegetation is not consistent in the more urban areas.

Another important consideration regarding roadway character is the Access Class designation by FDOT. The Access Class generally determines the spacing of intersections, signals, and driveways. This, in turn, dictates the minimum block sizes and thus walk distances for pedestrians as well as the number of driveways that bicyclists must cross. Generally, the Access Classes along the corridor is either Class 3 or Class 5. In Class 3, the intersections can be spaced as close as 440 feet at speeds below 45 miles per hour and 660 feet at speeds above 45 miles per hour. At Access Class 5, the intersections can be spaced at 245 feet at speeds below 45 miles per hour or 440 feet at speeds above 45 miles per hour. In Class 3 areas, signals are spaced at least 2,640 feet apart, but they can be spaced as close as 1,320 feet apart in Class 5.

It is clear in **Figure 12** that US 1 typically falls under Access Class 5 in the more urban areas, which allows for the smaller blocks that can help to facilitate pedestrian movement.

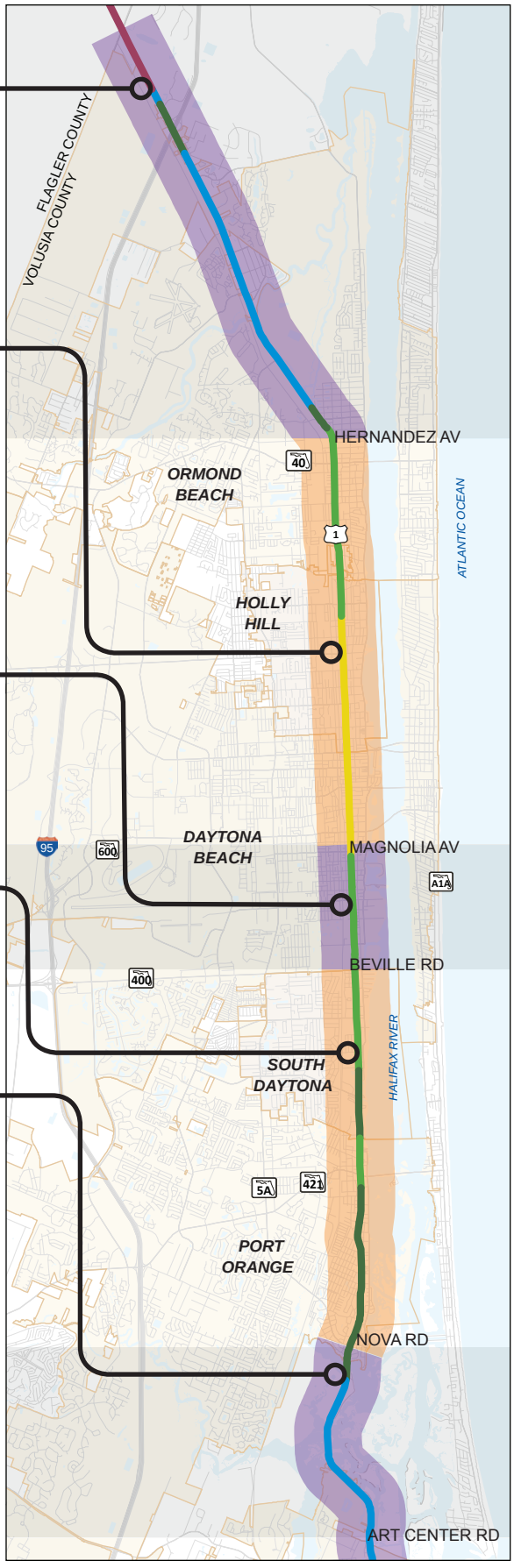


Figure 12: Roadway Character

FDOT Access Class Designation

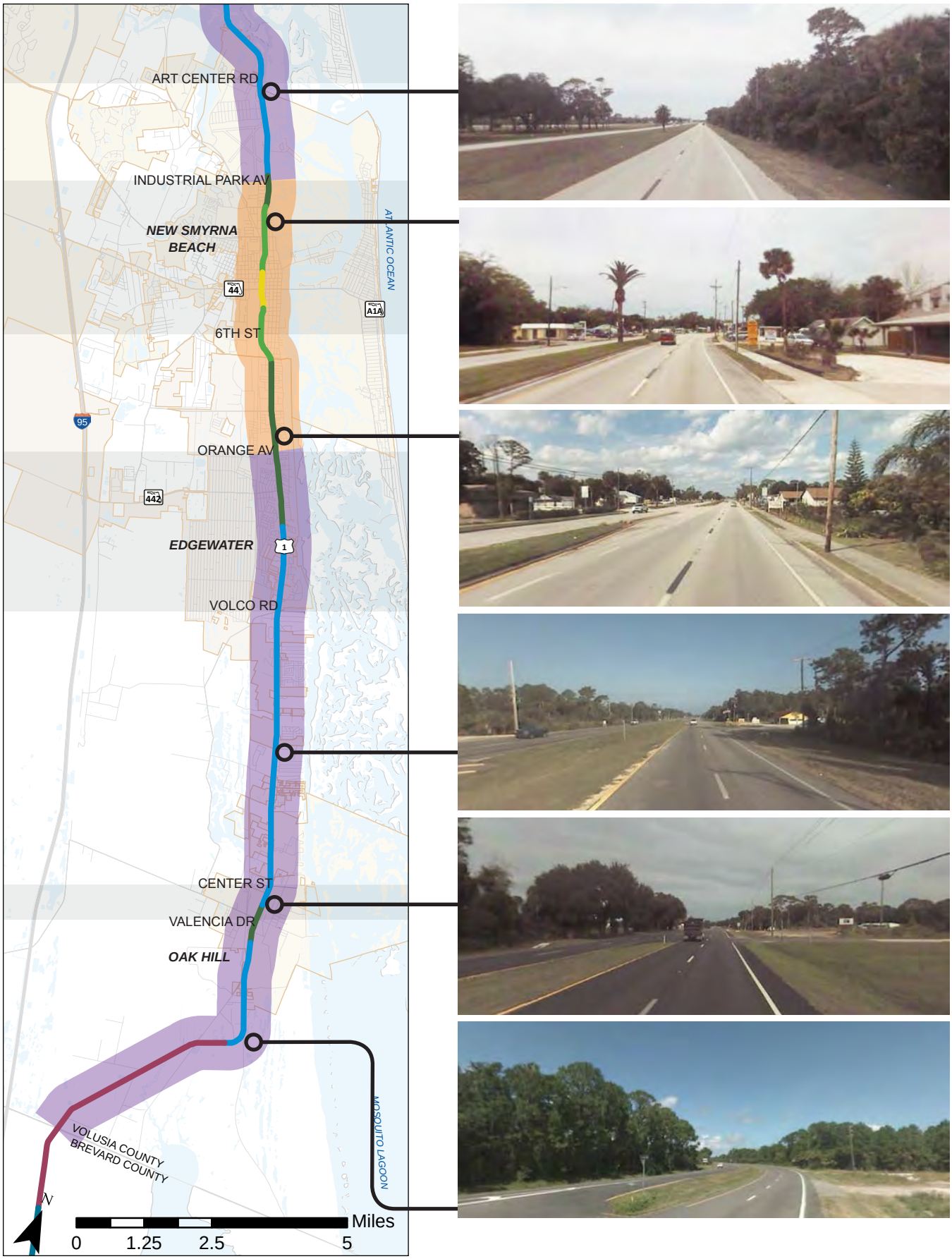
3 5

Speed Limit

35 MPH 45 MPH 65 MPH

40 MPH 55 MPH

Note: All Lane Widths are 12' except for the following segments: North of Hernandez Avenue: 13.5' | Beville Road to Nova Road: 12' inside, 18' outside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ATLANTIC OCEAN
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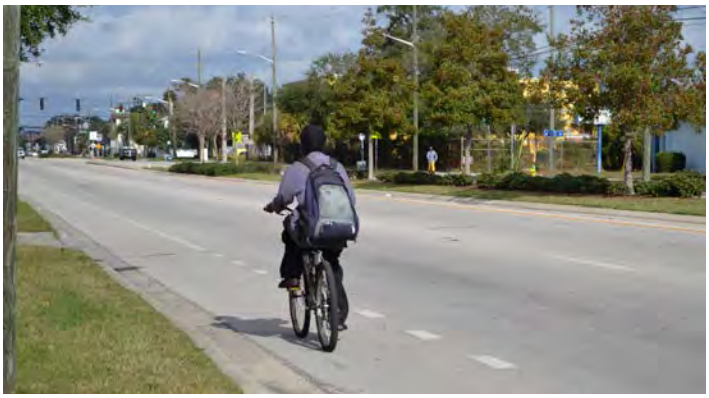
Bicycle and Pedestrian Facilities

Volusia County is home to a large number of existing and proposed trails and paths, including a portion of the East Coast Greenway that is planned to run along US 1. Additionally, there are three major parks that front US 1 and anchor the corridor. None of these parks have pedestrian or bicycle facilities currently connecting them to US1.

There are also several areas that have been identified where gaps in the bicycle lane and sidewalk networks exist, as can be seen in **Figure 13**. The existing bicycle lanes are generally narrow (4 feet wide or less) and not buffered from the auto travel lane. During field visits, it was observed that many people were riding their bicycles against traffic or avoiding the road all together and riding on the sidewalks, as seen in the images below.

The Volusia TPO supports a variety of planning and safety related activities to improve the bicycle and pedestrian environment in Volusia County, including on US 1. These activities include funding the construction of new bicycle and pedestrian projects as well as promoting safety for children and distributing bicycle helmets.



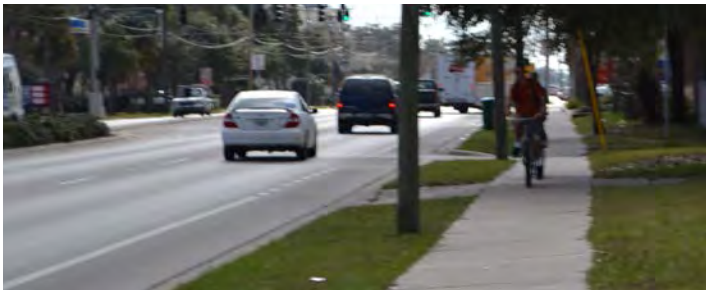
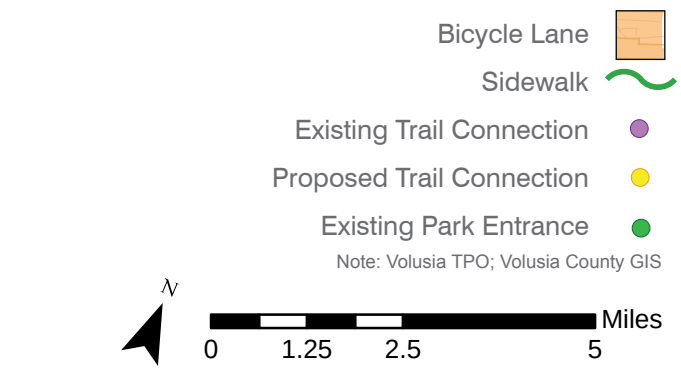
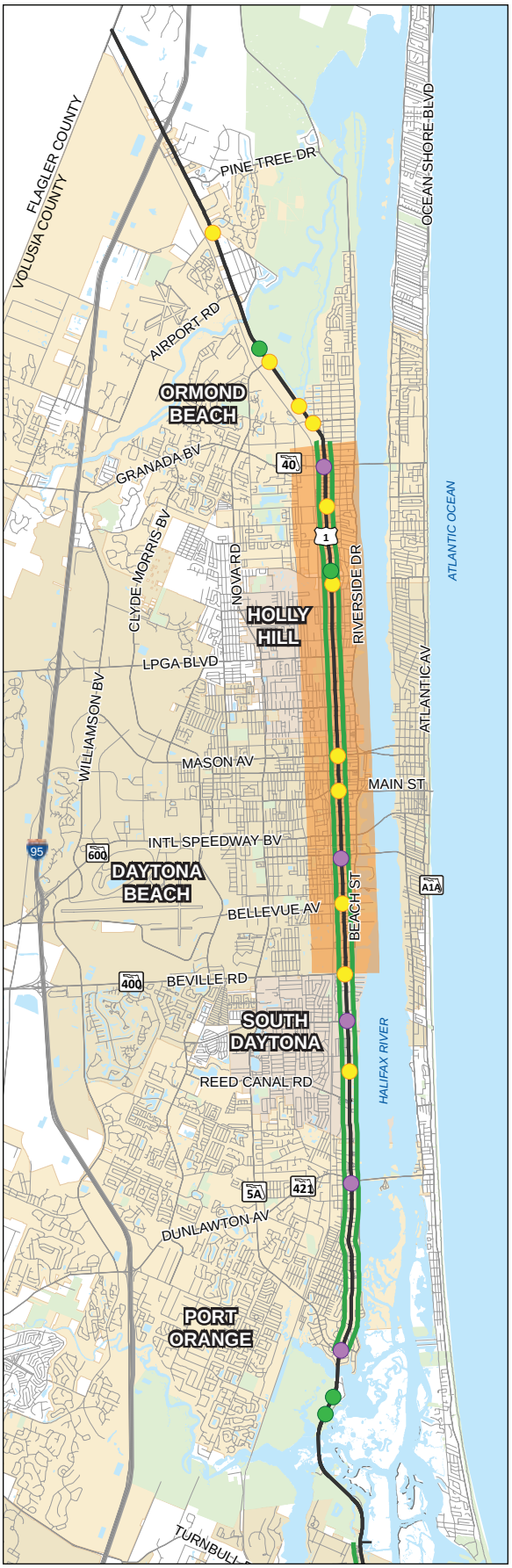


Figure 13: Bicycle and Pedestrian Conditions

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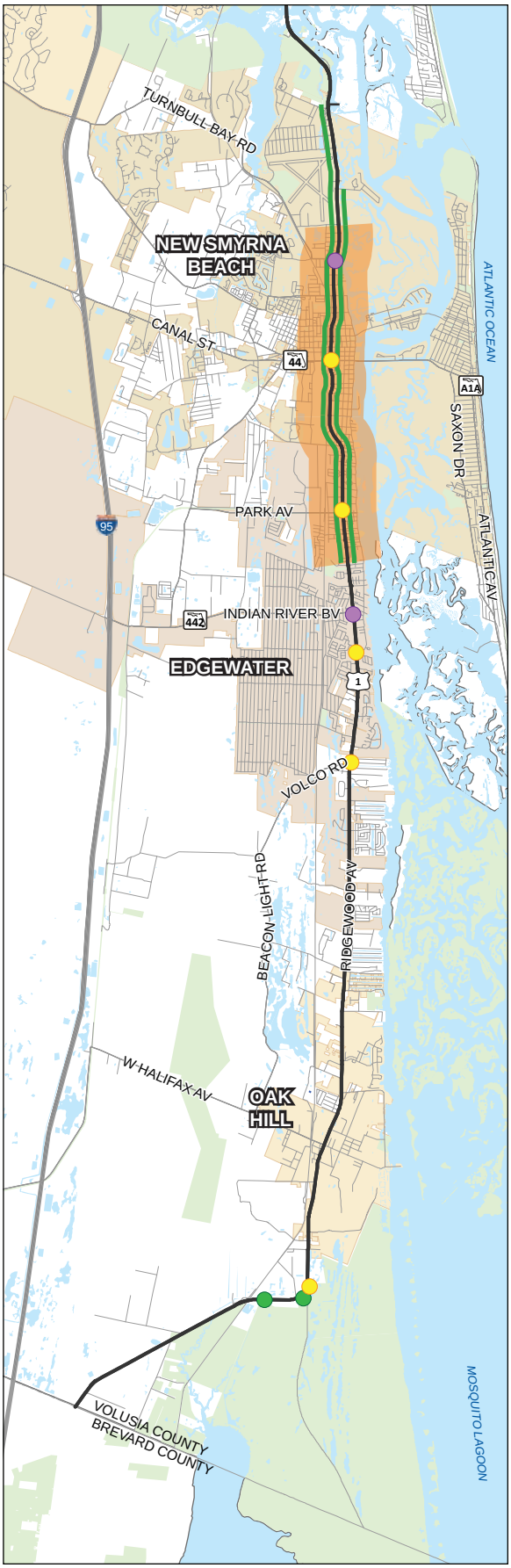
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BREVARD COUNTY
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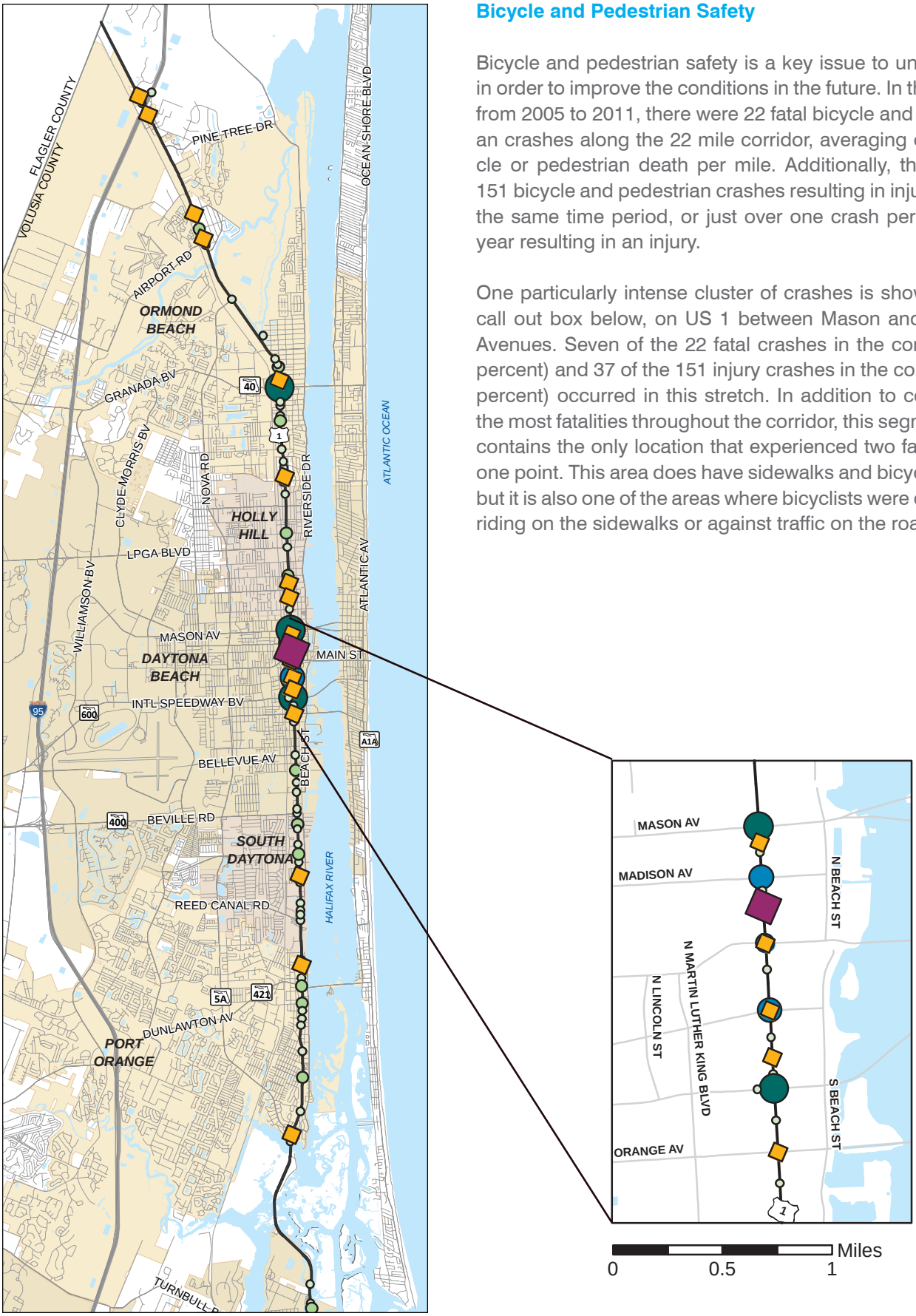
SAFETY



Bicycle and Pedestrian Safety

Bicycle and pedestrian safety is a key issue to understand in order to improve the conditions in the future. In the period from 2005 to 2011, there were 22 fatal bicycle and pedestrian crashes along the 22 mile corridor, averaging one bicycle or pedestrian death per mile. Additionally, there were 151 bicycle and pedestrian crashes resulting in injuries over the same time period, or just over one crash per mile per year resulting in an injury.

One particularly intense cluster of crashes is shown in the call out box below, on US 1 between Mason and Orange Avenues. Seven of the 22 fatal crashes in the corridor (32 percent) and 37 of the 151 injury crashes in the corridor (25 percent) occurred in this stretch. In addition to containing the most fatalities throughout the corridor, this segment also contains the only location that experienced two fatalities at one point. This area does have sidewalks and bicycle lanes, but it is also one of the areas where bicyclists were observed riding on the sidewalks or against traffic on the road.

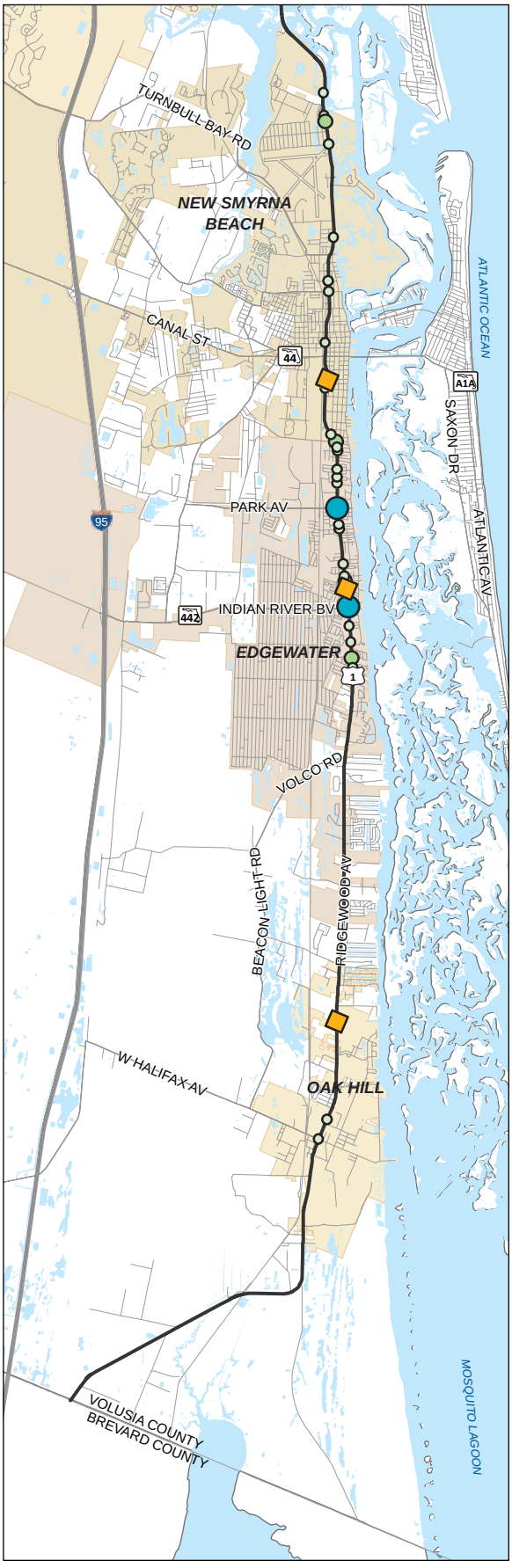


Figure 14: Bicycle and Pedestrian Safety

Injuries	Fatalities
1	1
2	2
3	
4	
5	

Source: 2005-2011 Volusia County Crash Data

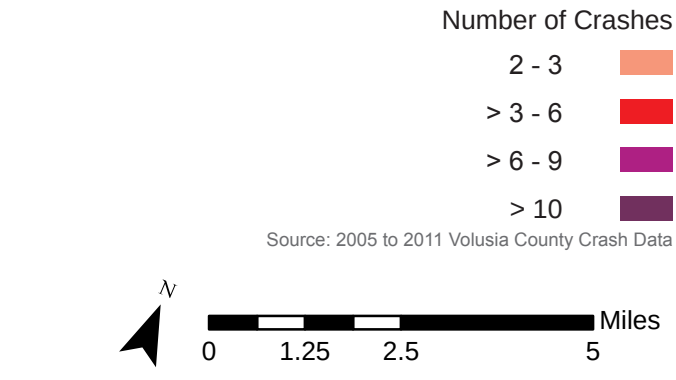
N

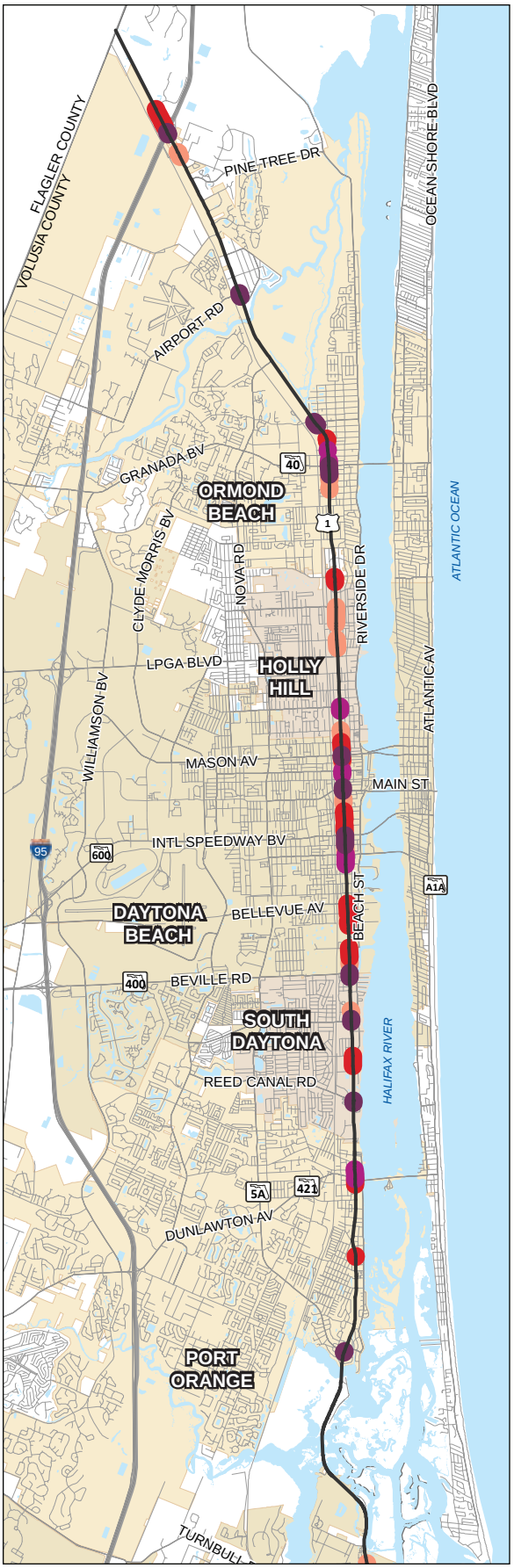
0 1.25 2.5 5 Miles

Vehicular Safety

As can be seen in **Figure 15**, the vehicular crash history follows a similar pattern to the bicycle and pedestrian crash history when considering the locations of crashes. The highest concentration of crashes occurs in the more urbanized areas, with Daytona Beach being the area experiencing the most crashes.

Figure 15: Vehicular Safety

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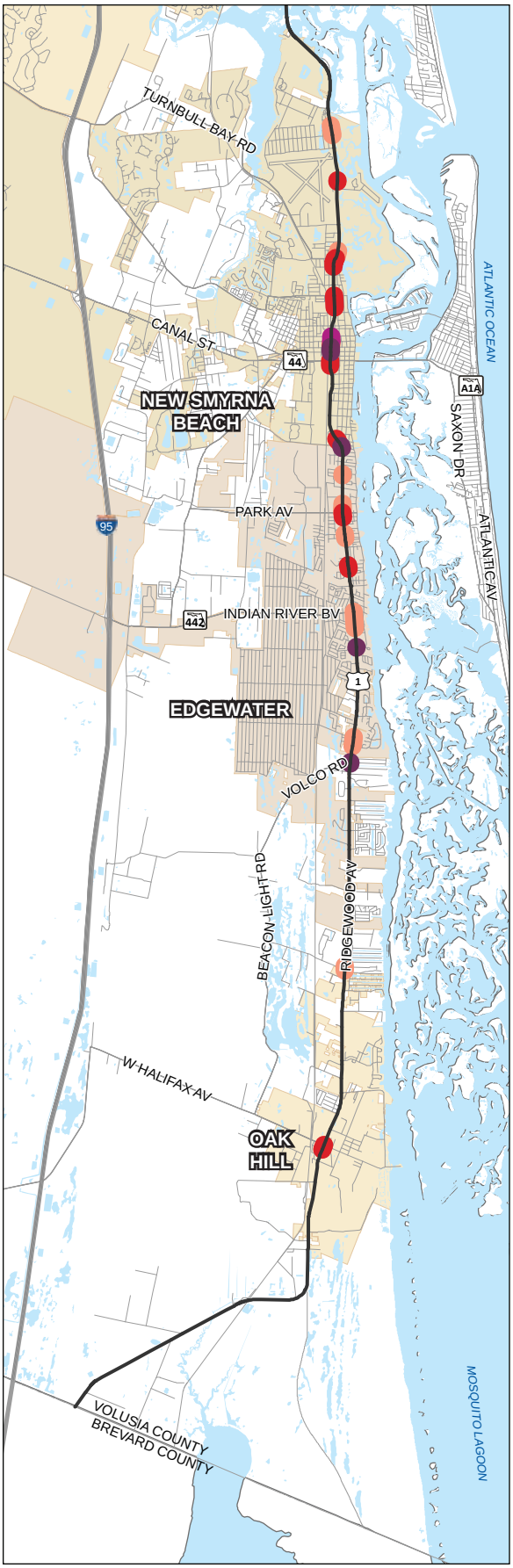
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OAK HILL
MOSQUITO LAGOON
VOLUSIA COUNTY
BREVARD COUNTY

4

FUTURE CONDITIONS ALONG US 1

The future plans and policies along the corridor were assessed to gain an understanding of how the corridor is planned to develop and operate in the future. Topics include multimodal corridor improvements, future land use, and future development opportunities.

FUTURE CORRIDOR IMPROVEMENTS

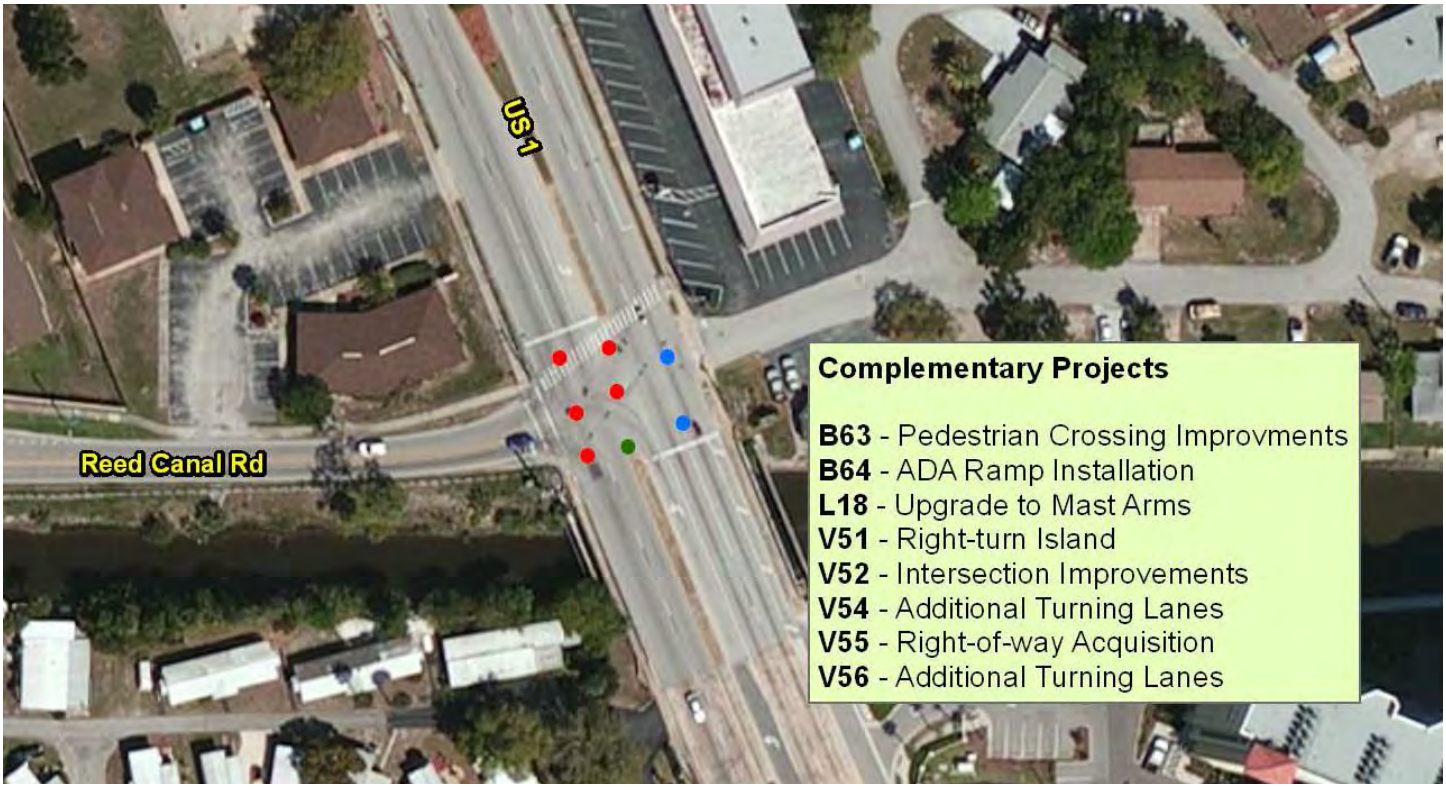
Phase I of the US I Corridor Improvement Program entailed developing a detailed assessment of the various plans and planned projects and their relevance to the context of today's community goals. As part of this, the plans were reviewed in relation to the following four categories:

- Vehicular
- Transit
- Bicycle / Pedestrian
- Landscape / Streetscape
- Land Use / Development

Based on the plans, a GIS database was created listing each of the 325 projects by category. The database was linked to Google Earth to create an interactive, user friendly database as shown in **Figures 16** and **17**.

Future Roadway Improvements

Many vehicular improvement projects were identified during Phase I. However, one of the main themes discovered was the commitment not to widen US 1 and to instead focus on Multi-Modal Mobility. Therefore, vehicular projects are generally oriented towards Travel Demand Management and corridor operational improvements at key intersections rather than corridor-wide capacity increases or widening. For more information on planned improvements, please consult the Corridor Improvement Program Phase I Final Report.



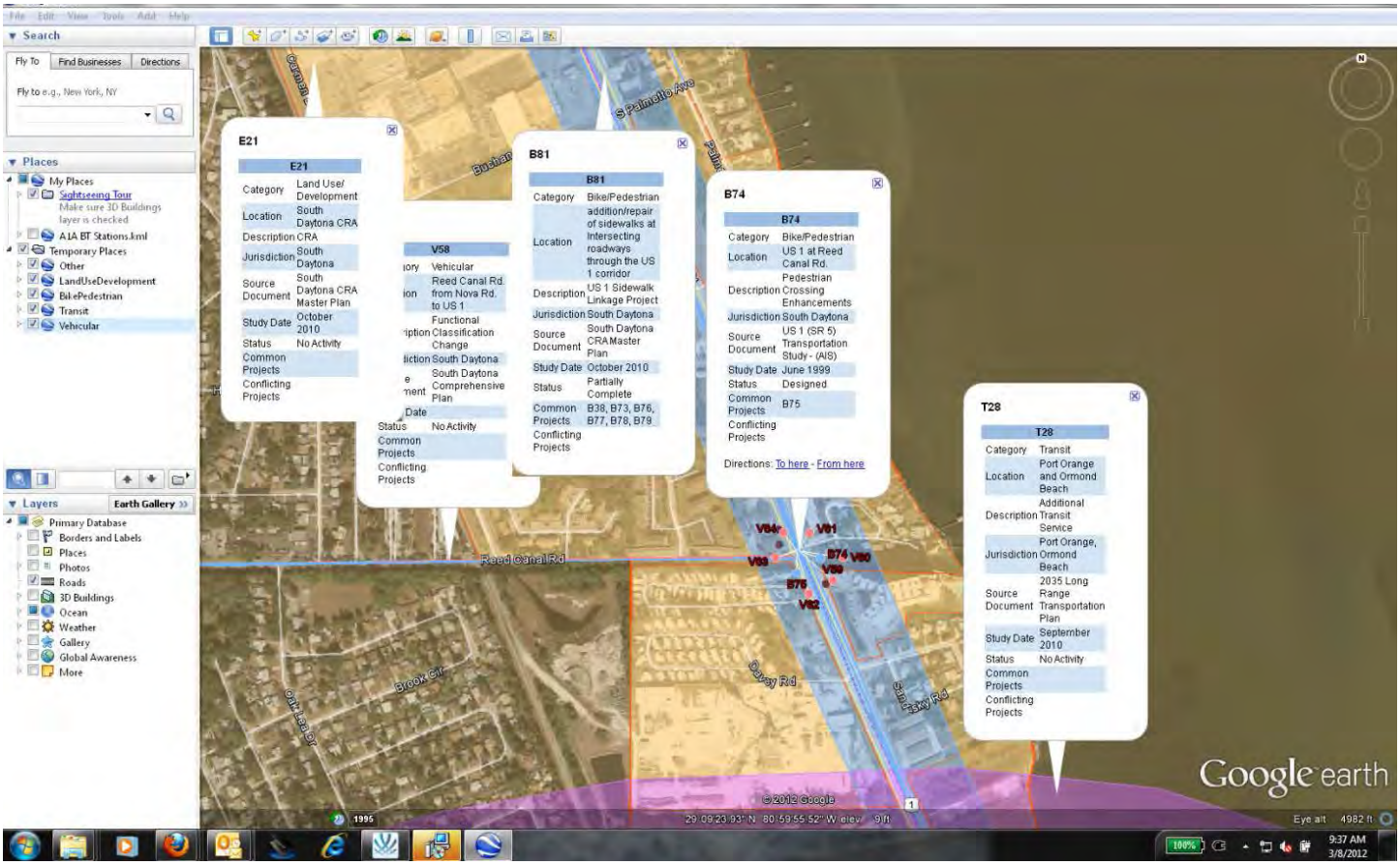


Figure 16 (above): **Screen shot of US 1 CIP Phase I Interactive Map**

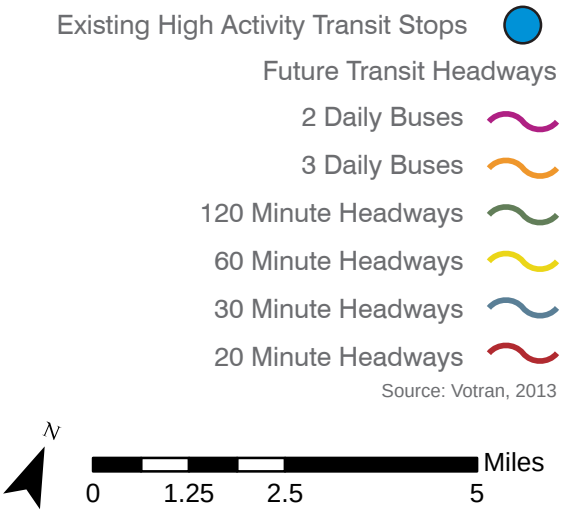
Figure 17 (left): **Example of Complementary Projects in GIS Database**

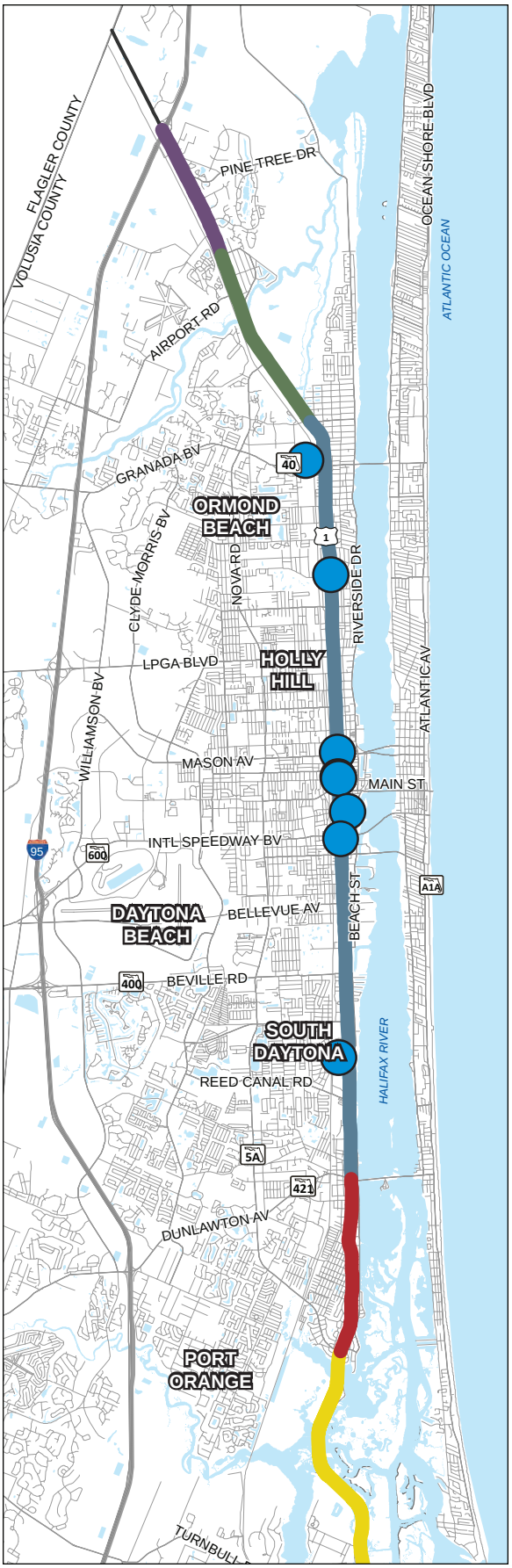
Future Transit Improvements

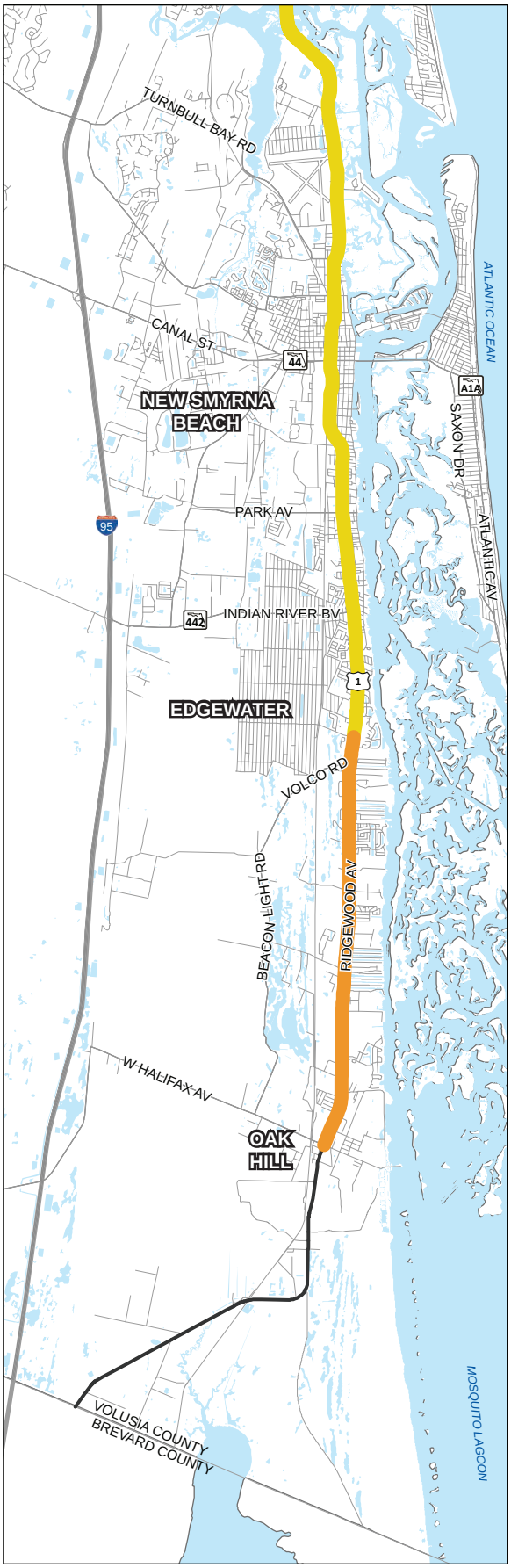
In June of 2013, the frequency of bus service on US 1 was doubled from once every hour to every 30 minutes between Wilmette Avenue and Dunlawton Avenue. This means that twice as many buses serve Ormond Beach, Holly Hill, Daytona Beach, and South Daytona than did previously. Additionally, frequencies on US 1 between Dunlawton and Nova Road were increased from every 30 minutes to every 20 minutes. These increases in service are expected to further increase demand for service and to help public transportation become an even more attractive option in Volusia County. For more information on planned improvements, please consult the Corridor Improvement Program Phase I Final Report.

The increase in service frequencies will likely benefit the areas identified as high activity transit stops. These stops are comprised of locations with notably high boardings and alightings. Using this information, it is possible to identify the areas that are utilizing transit to the highest extent in comparison to the rest of the corridor. Two of the highest frequency stops are Votran's two main stations, where many transfers are made available. These stations are the Transfer Plaza and the Intermodal Transfer Facility in Daytona Beach. While Figure 18 clearly shows that the majority of the high activity transit stops are in the Daytona Beach Area, there are also high activity stops in Ormond Beach, Holly Hill, and South Daytona.

Figure 18: Future Transit Conditions




FLAGLER COUNTY
VOLUSIA COUNTY
PINE TREE DR
AIRPORT RD
GRANADA BV
ORMOND BEACH
CLYDE MORRIS BV
NOVA RD
RIVERSIDE DR
OCEAN SHORE BLVD
ATLANTIC OCEAN
LPGA BLVD
HOLLY HILL
WILLIAMSON BV
ATLANTIC AV
MASON AV
MAIN ST
INTL SPEEDWAY BV
DAYTONA BEACH
BELLEVUE AV
BEACH ST
BEVILLE RD
SOUTH DAYTONA
REED CANAL RD
HALIFAX RIVER
DUNLAWTON AV
PORT ORANGE
TURNBULL
40
1
95
600
A1A
400
5A
421


TURNBULL BAY RD
ATLANTIC OCEAN
CANAL ST
44
A1A
NEW SMYRNA BEACH
SAXON DR
PARK AV
95
ATLANTIC AV
INDIAN RIVER BV
442
1
EDGEWATER
VOLCO RD
BEACON LIGHT RD
RIDGEWOOD AV
W HALIFAX AV
OAK HILL
MOSQUITO LAGOON
VOLUSIA COUNTY
BREVARD COUNTY

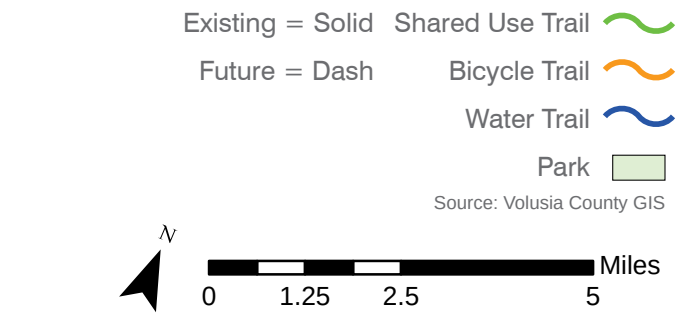
Future Bicycle and Pedestrian Improvements

There is an extensive network of trail types planned in Volusia County, including bicycle, paddle, and multimodal trails. The East Coast Greenway is one of these trails, and is planned to run the entire length of the County. The East Coast Greenway is a planned urban trail system that spans nearly 3,000 miles. Running from Canada to Key West, over 25 percent of the route is already in existence.[1]

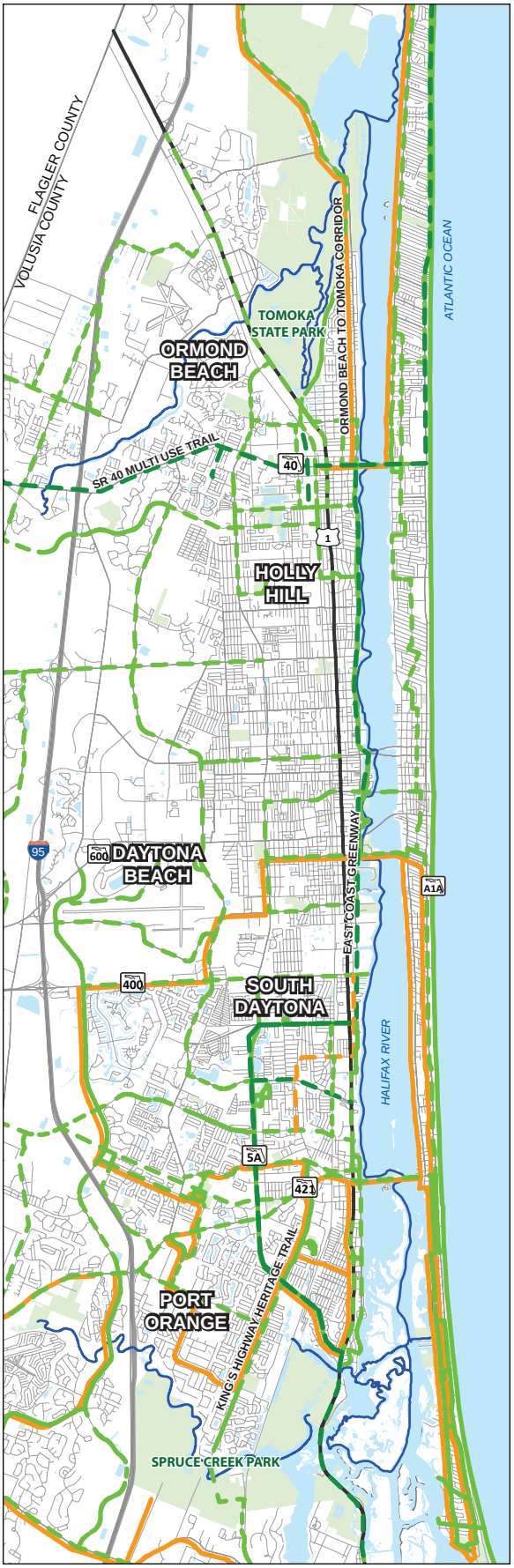
In Volusia County, the East Coast Greenway runs along a portion of the East Central Regional Rail Trail. The multi-use trail will run along more than 50 miles of abandoned rail lines spanning from Enterprise to Edgewater and on to Titusville. Upon completion, it will be the longest rail-to-trail conversion in Florida, and the first 5.7 miles of the trail were completed in 2011 between Providence Boulevard in Deltona and State Road 415 in Osteen.[2]

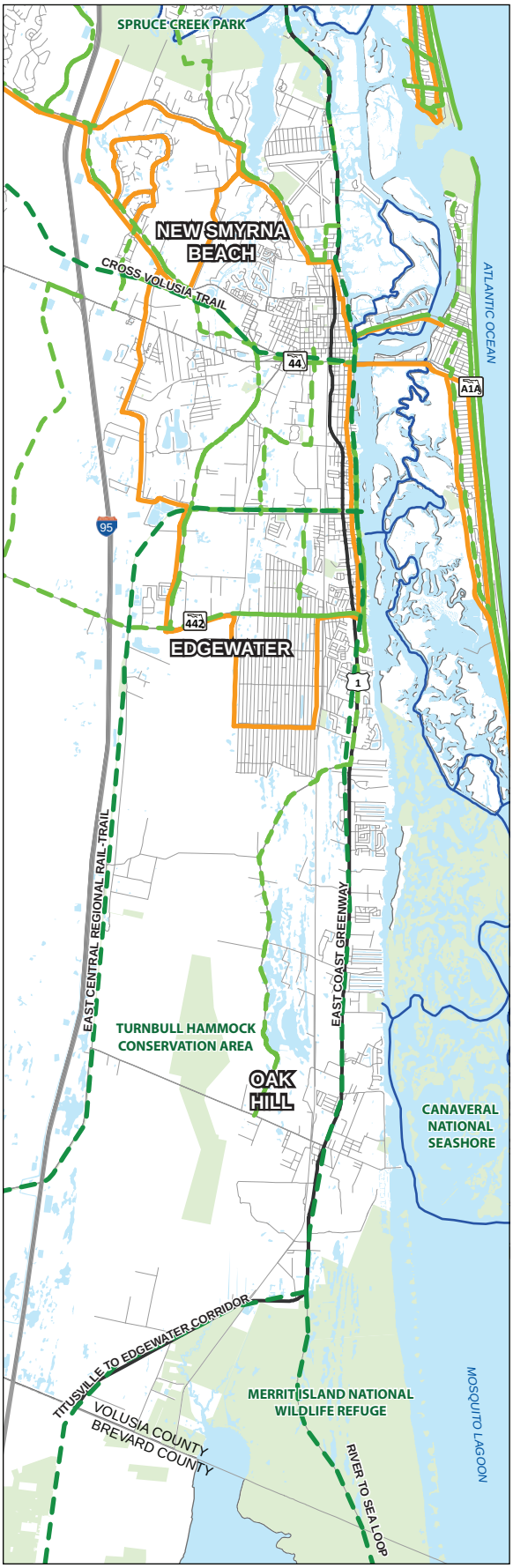
Other trails that are in the works include the east - west Cross Volusia Trail and the State Road 40 multi-use trail, the River to Sea Loop (connecting Volusia County to Brevard County), and the King's Highway Heritage Trail, among many other connections running along major roadways. For more information on planned improvements, please consult the Corridor Improvement Program Phase I Final Report.

Figure 19: Future Trails



[1] Source: East Coast Greenway. www.greenway.org
[2] Source: Volusia County. http://www.volusia.org/services/community-services/parks-recreation-and-culture/parks-and-trails/trails/east-central-regional-rail-trail.stml


FLAGLER COUNTY
VOLUSIA COUNTY
ATLANTIC OCEAN
TOMOKA STATE PARK
ORMOND BEACH
ORMOND BEACH TO TOMOKA CORRIDOR
SR 40 MULTI USE TRAIL
40
1
HOLLY HILL
95
600
DAYTONA BEACH
A1A
EAST COAST GREENWAY
400
SOUTH DAYTONA
HALIFAX RIVER
5A
421
KINGS HIGHWAY HERITAGE TRAIL
PORT ORANGE
SPRUCE CREEK PARK

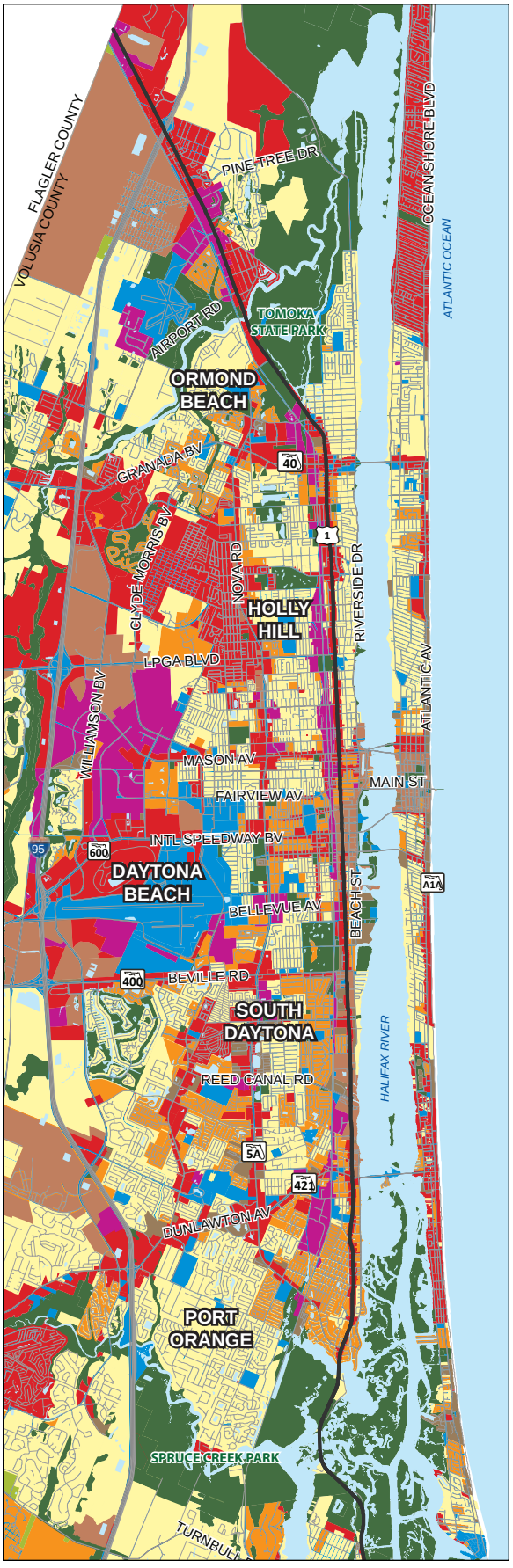

SPRUCE CREEK PARK
NEW SMYRNA BEACH
CROSS VOLUSIA TRAIL
44
A1A
ATLANTIC OCEAN
95
442
EDGEWATER
1
EAST CENTRAL REGIONAL RAIL-TRAIL
EAST COAST GREENWAY
TURNBULL HAMMOCK CONSERVATION AREA
OAK HILL
CANAVERAL NATIONAL SEASHORE
TITUSVILLE TO EDGEWATER CORRIDOR
VOLUSIA COUNTY
BREVARD COUNTY
MERRITT ISLAND NATIONAL WILDLIFE REFUGE
MOSQUITO LAGOON
RIVER TO SEA LOOP

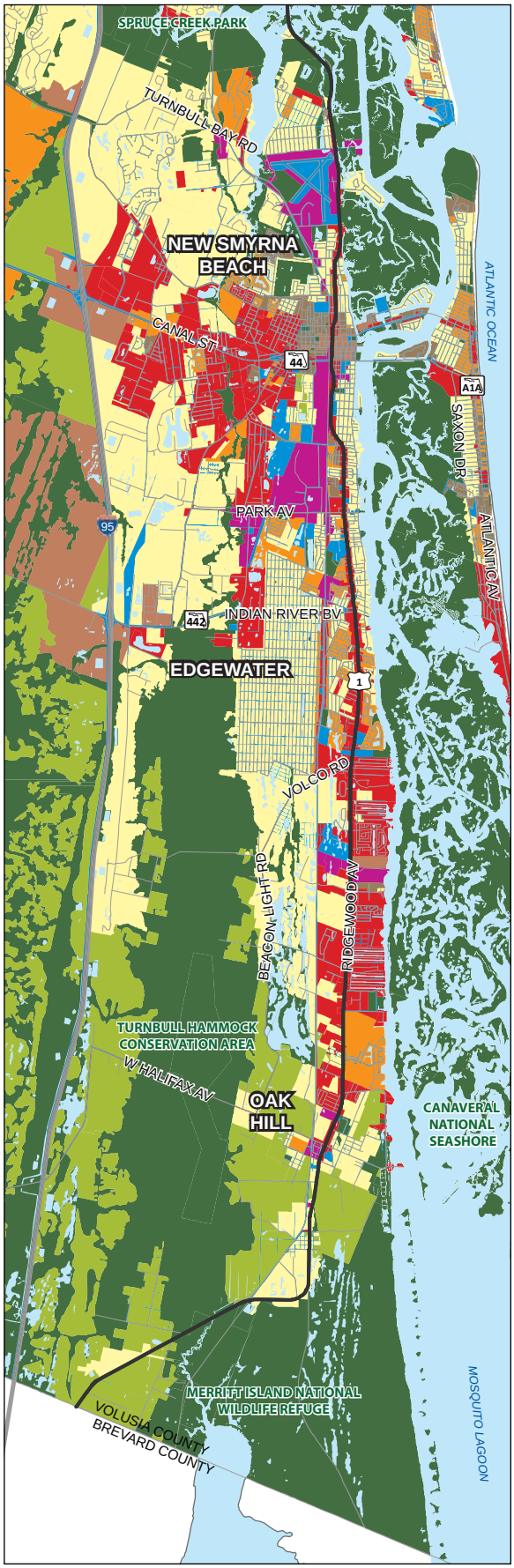
Future Land Use

The future land use along the corridor, as shown in **Figure 20**, does not vary drastically from the existing land use pattern. The land uses along the corridor are generally still commercial uses, however there is an increase in density as can be seen by the increase in medium- and high-density residential uses. It is clear that development is planned to continue its westward expansion, with many of the areas previously shown as agriculture or open land transitioning to developed areas. This is particularly true in the northern part of the corridor, where low density residential uses are planned to continue to expand west of I-95, further increasing the development footprint. Even so, there is potential to preserve the prime agricultural and open lands by focusing on infill development and encouraging a revitalization of the US 1 corridor. For more information on projects affecting land use, please consult the Corridor Improvement Program Phase I Final Report.

Current development pattern west of I-95 (Source: Bing, 2013)

Traditional development pattern along US 1 (Source: Google, 2013)





Current development pattern on South Beach Street
(Source: Google, 2013)

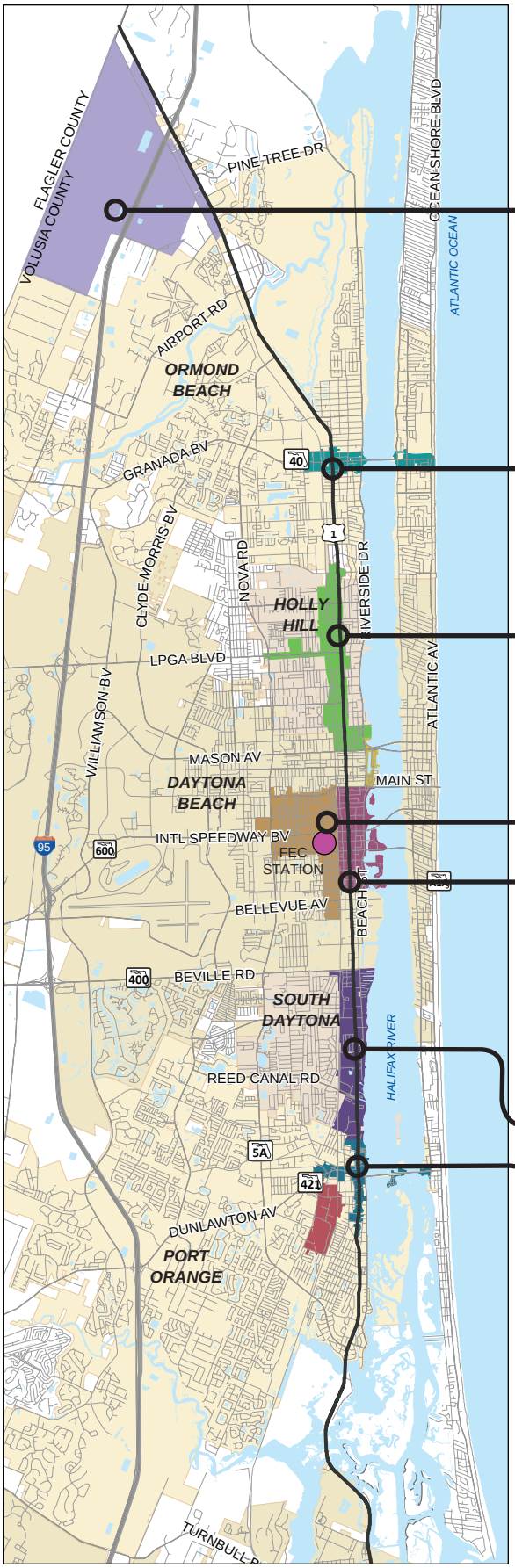
Figure 20: Future Land Use

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Mixed Use
- Industrial
- Public / Institutional
- Agriculture
- Open Land / Recreation

Source: Volusia County GIS

N

0 1.25 2.5 5 Miles



Ormond Crossing Master Plan

Ormond Beach Downtown Master Plan

Holly Hill Downtown Master Plan

Midtown Daytona Master Plan

Downtown Ballough Redevelopment Area Master Plan

South Daytona Master Plan

Port Orange Riverwalk Master Plan

New Smyrna Beach CRA Master Plan

Edgewater CRA Master Plan

Community Redevelopment Plans

As can be seen, there are several community redevelopment areas (CRAs) as well as several other potential redevelopment sites adjacent to or within close proximity to the US 1 Corridor. A CRA uses tax increment financing to invest and encourage redevelopment in areas considered blighted based on economic studies. Each of these agencies has its own plan for redevelopment, and while several are approaching their sunset time, there is the possibility for extensions for some. Other redevelopment sites, represented as pink circles in **Figure 21**, have been identified as areas of potential future development. The proposed uses for these areas range from mixed use centers to major business ventures to recreational centers. For more information on CRA plans and projects, please consult the Corridor Improvement Program Phase I Final Report.

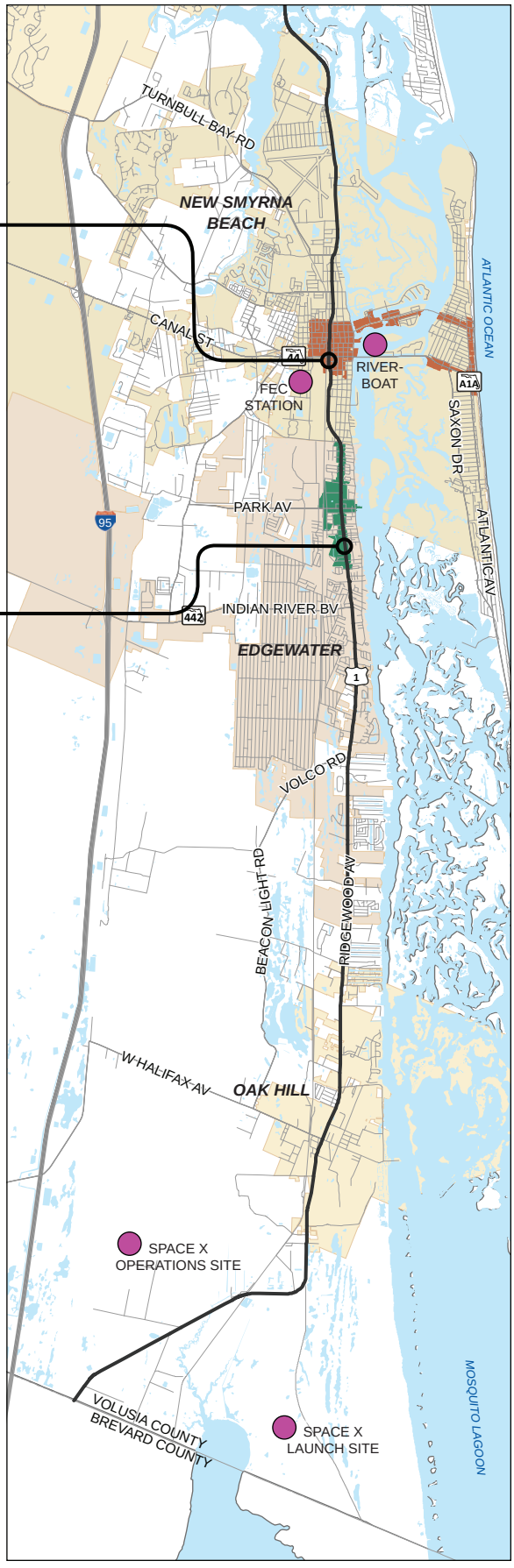


Figure 21: Community Redevelopment Plans

Source: Volusia County GIS; Stakeholder Interviews

N

0 1.25 2.5 5 Miles

5

WHAT WE HEARD

Throughout the study, public involvement was a critical piece of the information gathering and goal setting process. Stakeholder interviews were conducted in the beginning of the study with transportation agencies, business interests, land owners, and municipalities across the corridor. A working group of representatives municipalities and community organization leaders was consulted at several points during the study to confirm findings and goals. A series of public workshops were also held to solicit public input on the findings and proposed strategies identified in the study.

PROCESS

Stakeholder Interviews

Stakeholder interviews were conducted with key area stakeholders to understand the issues and opportunities that need to be considered throughout the study. The majority of these interviews were held on November 1 and 2, 2012 with a few being held in subsequent weeks. The following organizations were part of the interview process:

Transportation Agencies:

Volusia Transportation Planning Organization (VTPO)
Votran (Volusia County's Public Transit System)
Volusia County Emergency Management
Volusia County Sheriff's Office

Major Land Owners:

Daytona State College
Tomoka State Park
Merritt Island National Wildlife Refuge
Volusia County School Board

Business Interests:

Volusia County Association for Responsible Development (VCARD)
Daytona Beach Chamber of Commerce
Port Orange/South Daytona Chamber of Commerce
Southeast Volusia Chamber of Commerce
Volusia County Economic Development
Volusia County Aviation

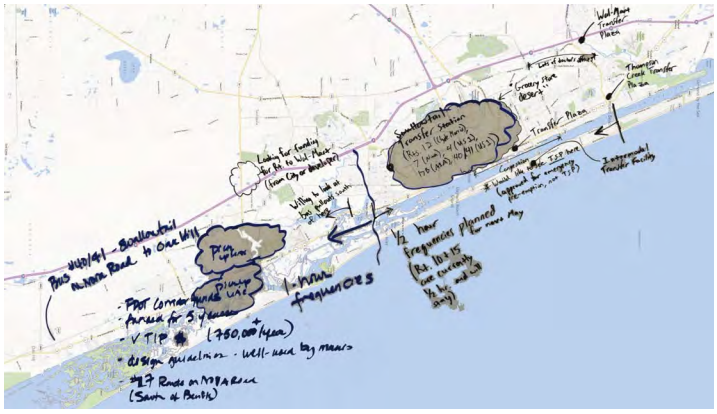
Municipalities:

City of Daytona Beach
City of Edgewater
City of Holly Hill
City of New Smyrna Beach
City of Oak Hill
City of Ormond Beach
City of Port Orange
City of South Daytona
Volusia County

The interviews were completed in an informal setting with individuals and small groups of representatives. While there were several key questions asked during each interview, conversations were mostly free-flowing. The goal of these interviews was to identify current land use, economic development and transportation issues and opportunities that could guide and inform the Corridor Planning Study. Some of the questioned asked during the interviews were:

- What is the stakeholder's interest in the Corridor?
- How are people using the Corridor and how has this changed over the last decade?
- Where do you see the most bike/ped/transit use and where do you see this use increasing in the future?
- What major bike/ped/transit/vehicular issues should we consider as part of the study?
- What future plans do you have for your property/city/business, and how can they improve from transit/bike/ped investment?

Sample Stakeholder Interview Notes



Sample Stakeholder Interview Notes

Corridor Working Group

A Working Group comprised of municipalities and community organization leaders was formed to gather input and ideas throughout the study.

The first working group meeting was held to discuss the results of the existing conditions mapping completed by the project team and to come up with a branding for the corridor. This provided a forum to discuss if all the appropriate issues and opportunities along the US 1 corridor had been accurately portrayed. Comments were collected and addressed as needed.

The second working group meeting met to establish appropriate guiding principals for the corridor, to define the character districts along US 1, and to review the range of alternatives for improving US 1. This gave the working group an opportunity to synthesize the stakeholder input and technical data presented and arrive at what the US 1 corridor could and should be in the future.

A third working group meeting will be held at a future date to gather input on action plans for the implementation of alternatives in the US 1 corridor. The action plan will be created using input from follow ups with the Working Group and municipalities along the corridor.

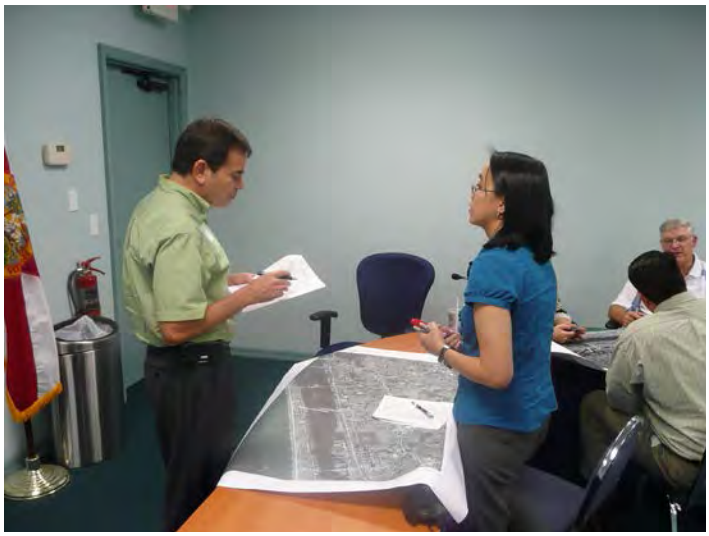
Public Workshops

A series of public workshops were conducted along the corridor to solicit public input on the proposed strategies that were identified in the study. In order to solicit feedback from residents along the entirety of the corridor, these workshops were held in the northern section of the corridor (Holly Hill) and the southern section of the corridor (New Smyrna Beach) in Volusia County.

Sample Stakeholder Interview Notes

Based on public input during these workshops it was found that the most important proposed strategies for implementation were:

- Implement strategic pedestrian and bicycling improvements.
- Implement policy and regulatory mechanisms to further encourage redevelopment.
- Implement a conceptual typical section that would include consideration of parallel network that would be more accommodating to bike travel.



6

FRAMEWORK FOR THE FUTURE

Based on the stakeholder involvement, working groups, and the existing and future conditions analyses, several different strategies and goals were developed to act as a basis of a planning framework for the future of the corridor. The first piece is a set of Guiding Principles that the rest of the analysis was based on. Then, the corridor was divided into character districts based on the land use and built environment. Strategies were identified regarding education, multimodal transportation, and land use. Finally, several catalyst redevelopments sites were considered and conceptual plans were drawn up.

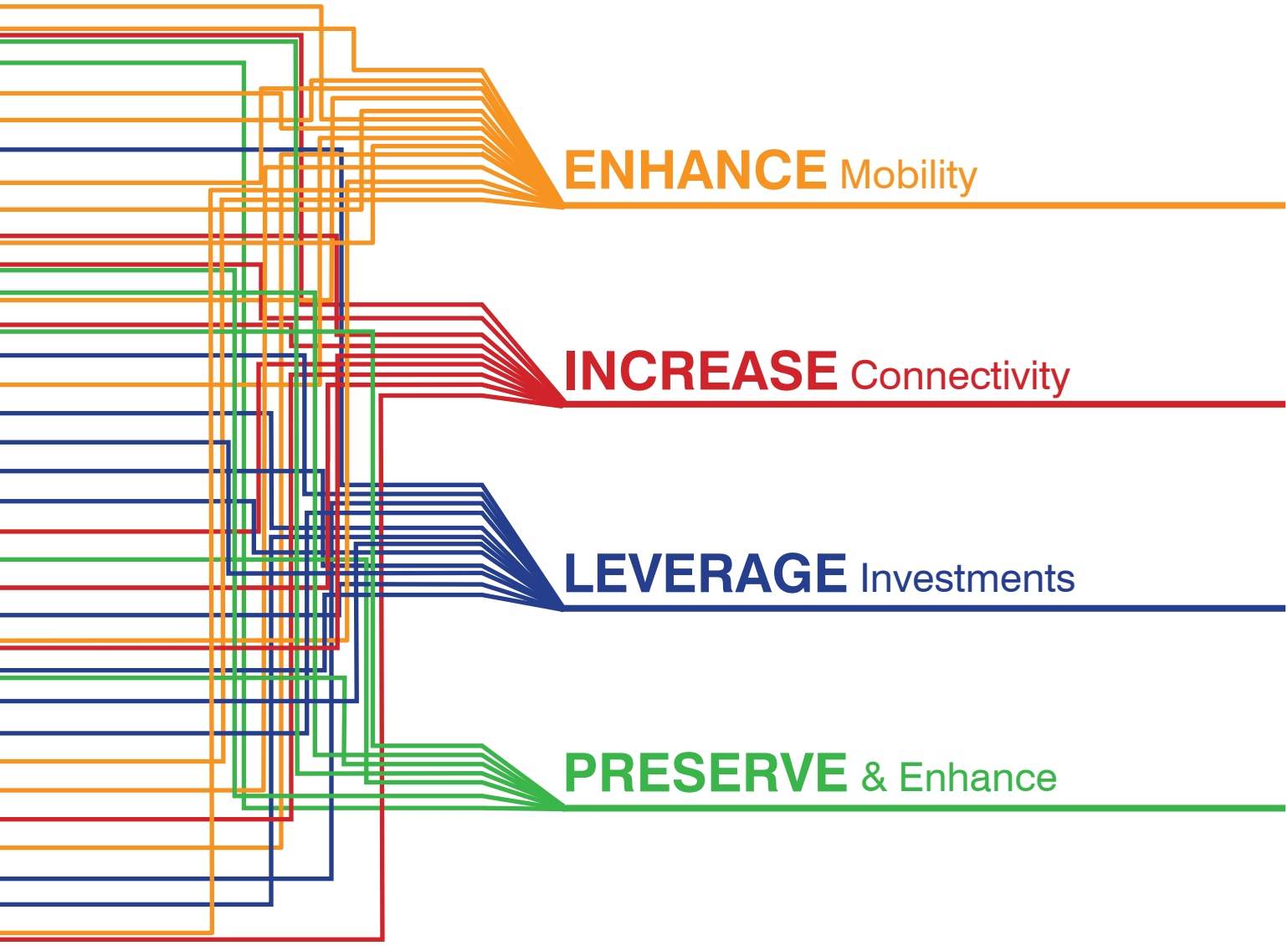
GOALS, OBJECTIVES, AND OPPORTUNITIES

Upon the completion of the existing and future conditions analysis, the comments from the stakeholder interviews were compiled to create a set of four fundamental principles. These principles are intended to guide the discussion of the future alternatives for the corridor. The principles are to Enhance Mobility, Increase Connectivity, Leverage Investments, and Preserve & Enhance the Natural Environment.

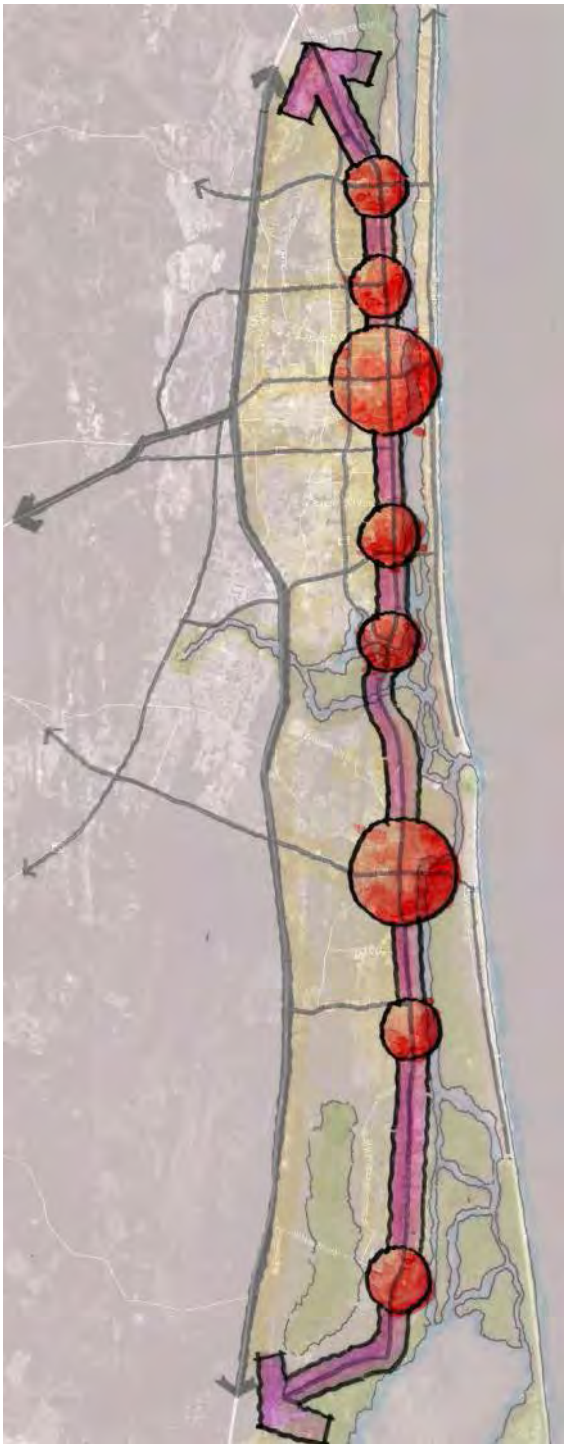
Figure 22 describes how the comments received from the public and the stakeholders fit into and correspond to each of the strategies. These principles were then expanded upon, as seen in the following pages.

Finally, they were presented to the working group, who modified and generally agreed upon the guiding principles.

Figure 22: Stakeholder Input & Guiding Principles

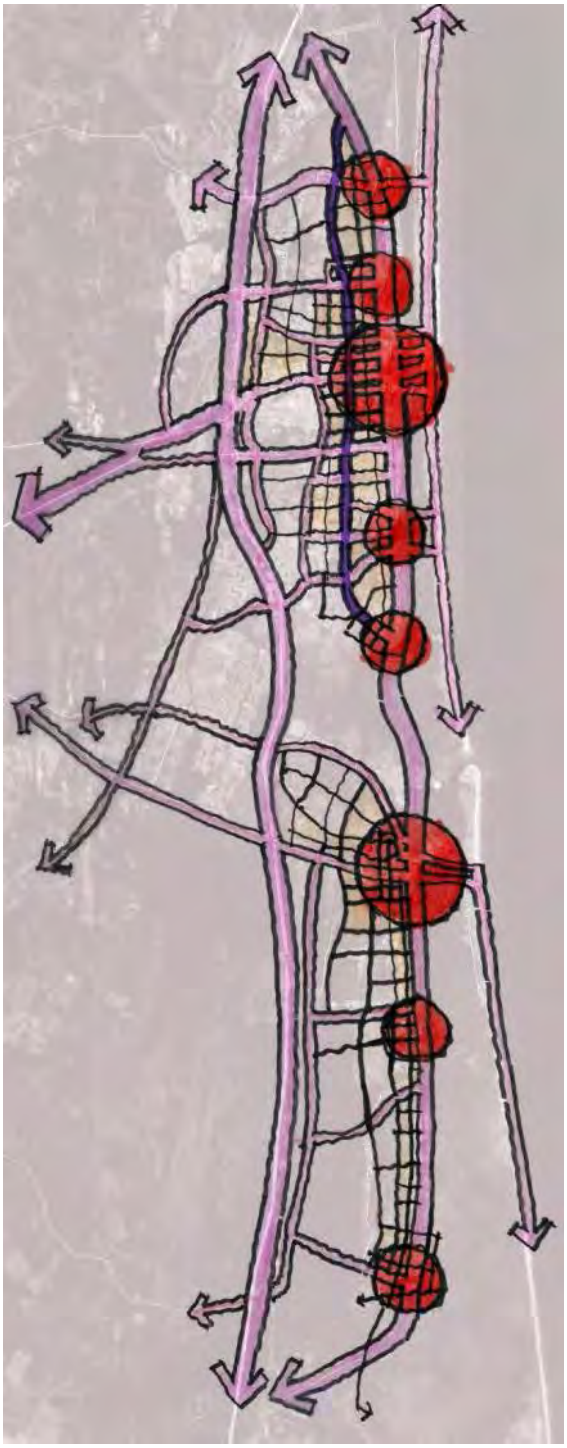


GUIDING PRINCIPLES



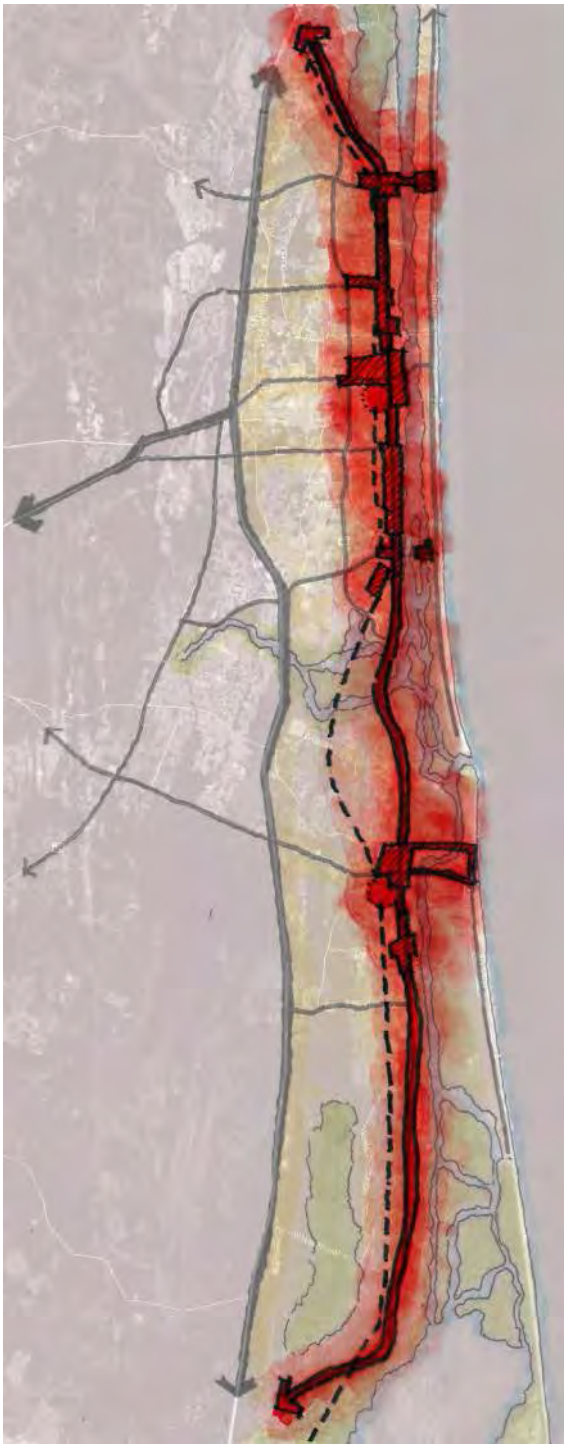
Principle 1: ENHANCE Mobility

Enhance local multi-modal mobility to connect activity areas along the corridor. Parks, entertainment areas, and other destinations should be identified and targeted as multimodal hubs.



Principle 2: INCREASE Connectivity

Improve multi-modal mobility & access to local destinations and recreational opportunities, while continuing to accommodate regional traffic. There are many existing and proposed trails that connect into the US 1 corridor that should be leveraged to connect destinations.



Principle 3: LEVERAGE Investments

Reverse the trend of private disinvestment along the corridor by leveraging local and state public investments to catalyze private economic development in designated nodes along the corridor. The efforts of the CRAs and local governments can provide the necessary infrastructure to act as a precursor to new private investment.

Principle 4: PRESERVE & Enhance

Preserve and enhance existing environmental and recreational assets within the Corridor. The parks, rivers, trails, and water bodies should be preserved and celebrated as community assets. Development can front these features, and efforts should enhance trails.

CORRIDOR CHARACTER DISTRICTS

In addition to the guiding principles, the project team, with the help of the stakeholders and Working Group, worked to understand the existing and desired future character of the US 1 corridor. Based on this analysis, four character districts were identified: Rural, Eco-byway, Traditional, and Village Center. The Rural district generally exists where there is little development, such as small hamlets. The Eco-byway district has no urban development and typically provides access to a major environmental destination. The Traditional district is substantially developed but in a low density, auto dependent pattern. Finally, the Village Center exists in the most urban areas, and there is a desire to transform these areas into mixed use, village centers in the future.

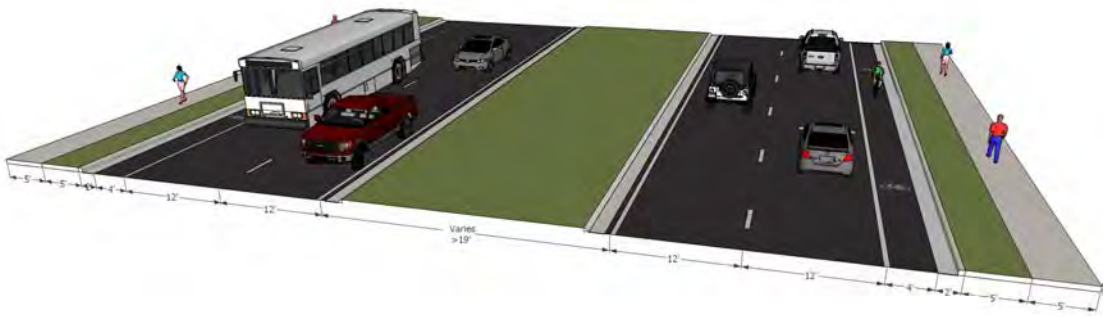
In order to help support the future character that the communities desire, sample typical sections were created to represent each character district. These typical sections are suggestive, and they can be applied if the community desires in order to better incorporate multimodal elements on and along US 1.

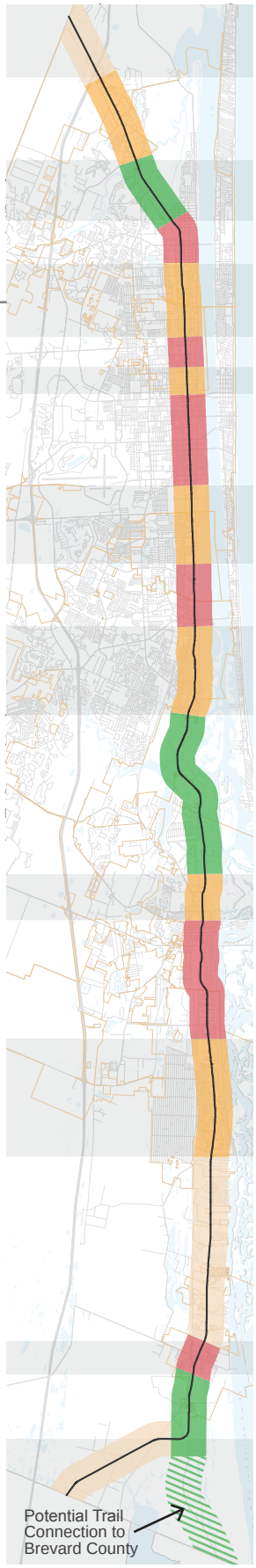
Figure 23: **EXISTING** CHARACTER

The existing roadway character varies throughout the corridor. While this does not describe the whole corridor, the roadway can generally be described as follows:

- Wide Median
- Curbed
- 12'+ Lanes
- Posted speed of 45 mph
- Bike lanes and sidewalks on both sides of the road
- ROW = 100' (+/- 5')

*Note: Rural section does not follow this and likely will not change





Lowndes Avenue at US1

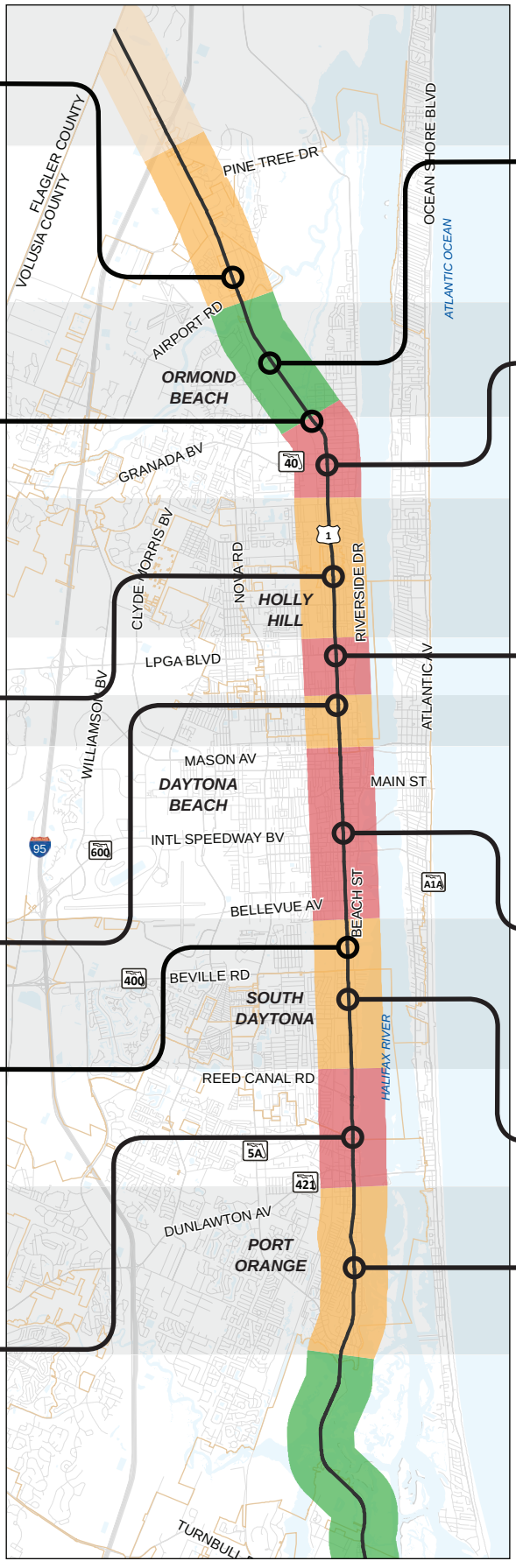
Wilmette Avenue at US1

Calle Grande Street at US1

6th Street at US1

Country Club Road at US1

Valley Street at US1



Nova Road at US1

Granada Boulevard at US1

LPGA Boulevard at US1

International Speedway Boulevard at US1

Sunshine Park Mall

Commonwealth Boulevard at US1

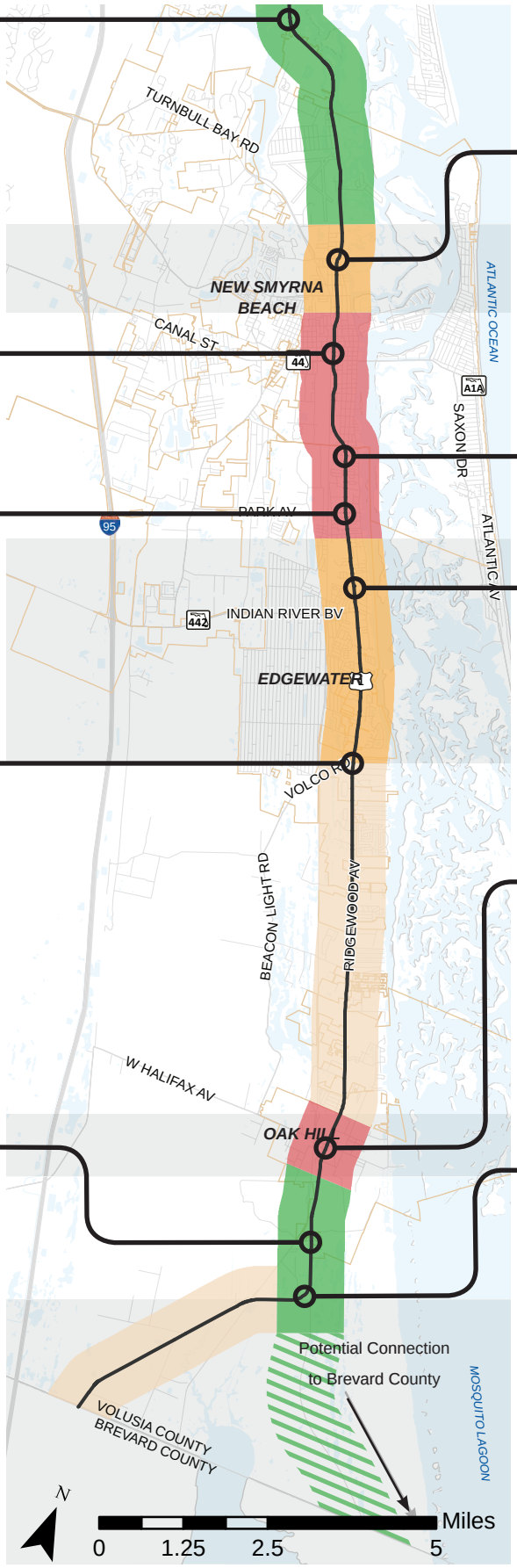
Spruce Creek Park

Canal Street at US1

Park Avenue at US1

Volco Road at US1

West Putnam Grove at RoadUS1



Turnbull Bay Road at US1

West Knapp Avenue at US1

Marion Avenue at US1

Halifax Avenue at US1

Merritt Island National Wildlife Refuge

Figure 24: Character Districts

- Rural
- Eco Byway
- Traditional
- Village Center

Note: These character districts intended to represent a snapshot in time and were developed and approved with local support.

RURAL CHARACTER

The rural character district is the least developed of all districts. The typical section is intended to maintain and support the existing character of the small hamlets and agricultural areas that currently exist along US 1.

Issues and Opportunities

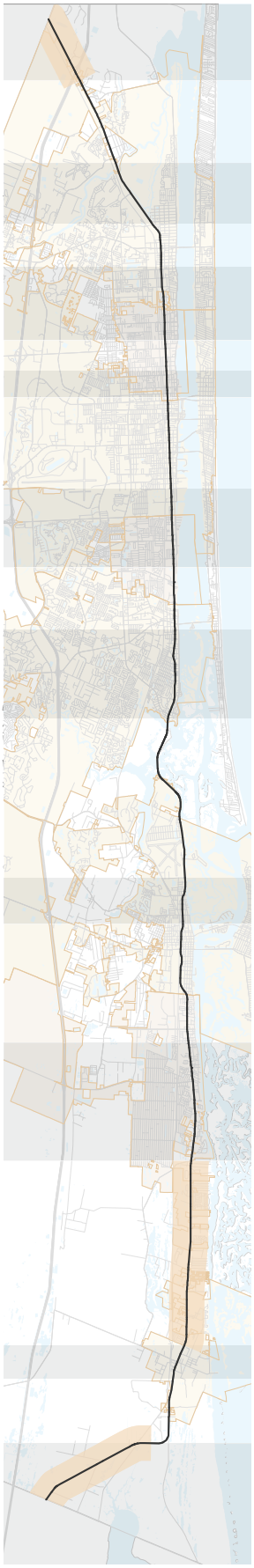
- Least developed of the developed areas
- Exist in small hamlets or agricultural areas
- Little bicycle and pedestrian activity
- Little transit usage
- Auto dependent
- Posted roadway speeds of 55 to 65 mph

Future Land Use Context

- Intended to remain very low density
- Uses range from agricultural to single family
- Limited commercial serving immediate population

Needs

- Little change in infrastructure
- On call public transportation, but no fixed route service
- No change in existing typical section necessary



ECO-BYWAY CHARACTER

The Eco-Byway character district is comprised of mostly recreational or conservation areas with no urban development. The typical section maintains this character while providing facilities for pedestrian and bicycle travel with the inclusion of a multi-use path.

Issues and Opportunities

- No urban development
- Adjacent to or good access to major recreational destinations
- Posted roadway speeds of 55 mph
- Naturally landscaped
- Low levels of bicycle and pedestrian accessibility
- Low demand for transit
- Lack of wayfinding to destinations

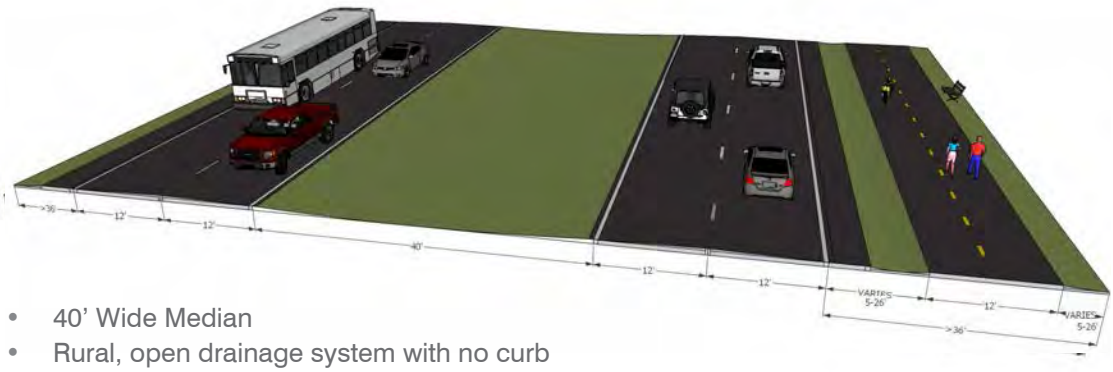
Future Land Use Context

- Will remain undeveloped
- Parks or recreational areas

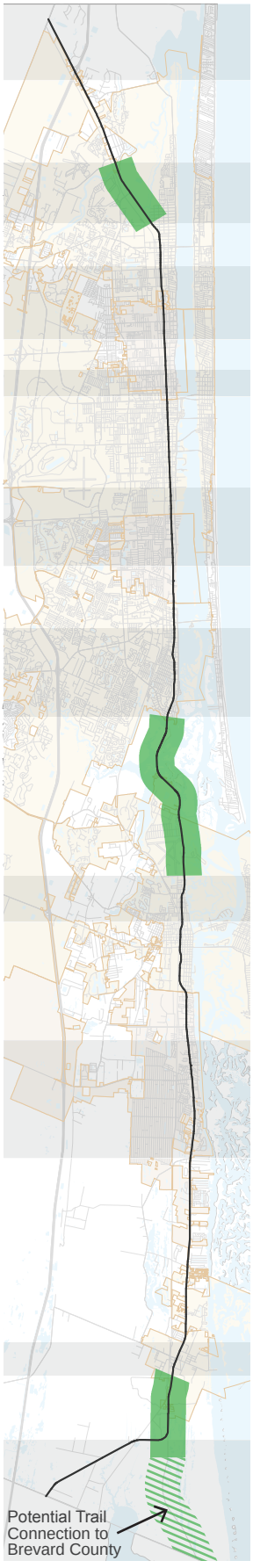
Needs

- Safer and better bicycle and pedestrian connectivity to destinations
- Infrastructure to support regional bicycle trips
- Wayfinding for recreational destinations

Figure 25: Eco-Byway



- 40’ Wide Median
- Rural, open drainage system with no curb
- 12’ Lanes
- Speed limit of 45 mph and greater
- Shared use path separated from the road for access to parks and trails
- ROW varies (>130’) to adjust to existing ROW



Traditional CHARACTER

The Traditional character district preserves the existing development patterns that are prevalent along US 1 that likely will not change. The typical section helps to add multimodal elements to these areas with bicycle lanes, landscaping, and continuous sidewalks.

Issues and Opportunities

- Substantial development
- Development is auto-oriented with segregated uses
- Land uses include single family homes, strip commercial, and motels
- Bicycle and pedestrians common, although not as common as in more urban areas
- Varying levels of bicycle and pedestrian connectivity
- 35 - 45 mph posted speed limits, although vehicles may be traveling faster
- Moderate to high demand for transit, fixed route service
- Many curb cuts for driveways

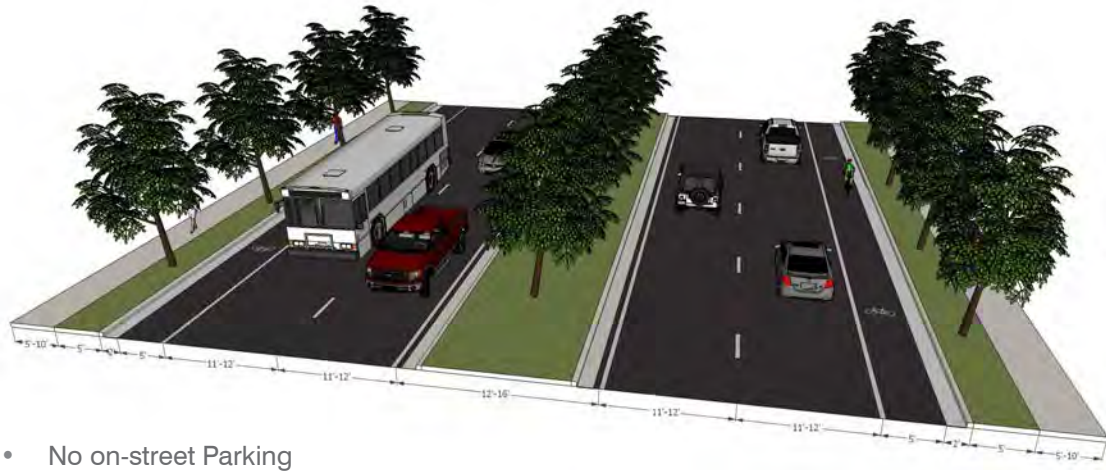
Future Land Use Context

- Generally remains traditional in nature
- Uses include lower density, single family homes, neighborhood serving strip commercial, and some mixed use

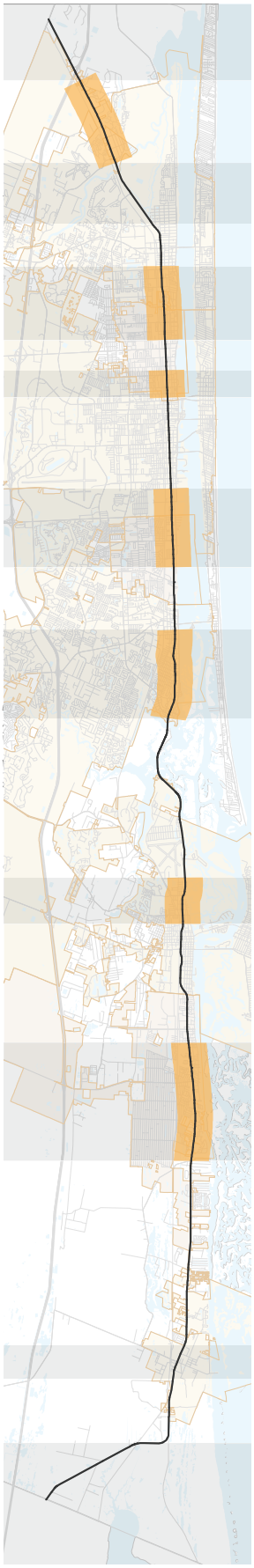
Needs

- Bicycle and pedestrian infrastructure for recreational trips
- Street trees and other landscaping
- Good transit infrastructure
- Wayfinding for regional destinations
- Fixed route public transportation at current levels or higher
- Driveway Consolidation

Figure 26: Traditional



- No on-street Parking
- Continuous bicycle Lanes
- Has wider medians that can allow for more substantial landscaping and regular turn movements at intersections
- Does not require curb lines to be reconstructed
- Sidewalks with landscape buffer allow for shade trees
- ROW varies (100’ - 160’ to adjust to existing ROW)



VILLAGE CENTER CHARACTER

The Village Center character district exists in the places where the highest densities are desired. These places are destinations and activity hubs. The typical sections support business and multimodal transportation with bicycle and pedestrian treatments, landscaping, and on street parking.

Issues and Opportunities

- Lack of parking for businesses
- Heavy bicycle and pedestrian usage
- Heavy transit usage
- Lacks shading and pedestrian lighting
- Bicycle and pedestrian infrastructure is incomplete and inconsistent
- Higher density urban development pattern with mixed uses
- Many curb cuts for driveways
- Posted speed limits vary from 35 to 45 mph

Future Land Use Context

- Typically within a CRA
- Dense, mixed use centers desired in the future

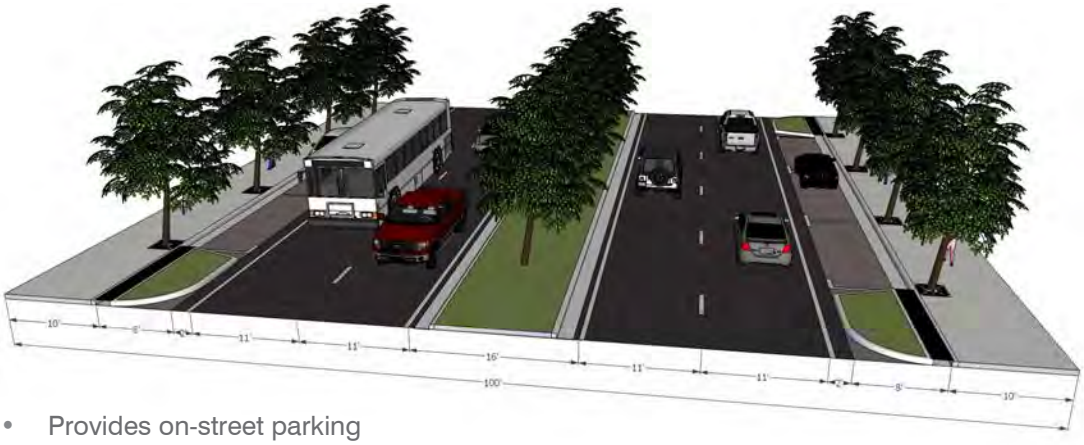
Needs

- Slower speeds
- On street parking
- Good bicycle and pedestrian infrastructure, including pedestrian scale lighting, shade trees, and wide sidewalks
- Excellent transit infrastructure with short headways
- Complete street treatment and a shift away from traditional auto orientation
- Economic development and revitalization
- Driveway consolidation

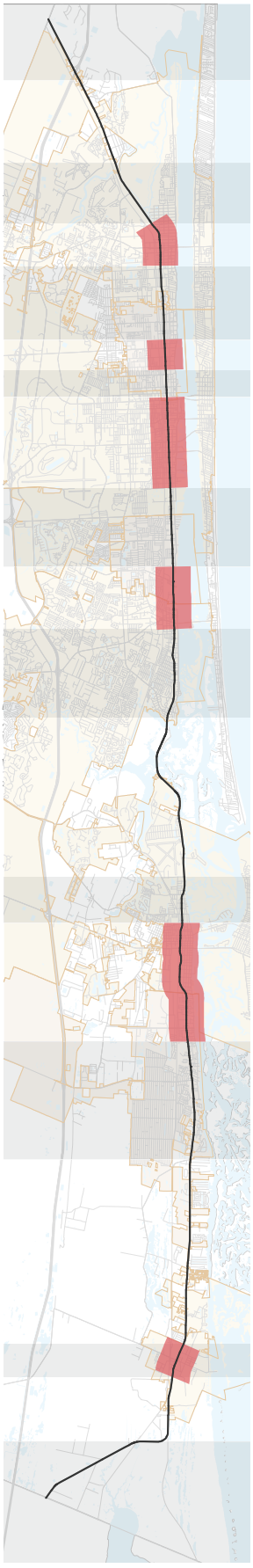
Figure 27: Village Center Option 1

- Provides on-street parking
- Provides continuous bicycle lanes
- Has narrower Medians (12'), might restrict ability to allow U-turns at some intersections
- Would require curb lines to be moved and entails reconstruction of curbs and drainage lines which can potentially be costly
- Narrower median limits the ability to have landscaping in medians
- 6' wide sidewalks allow for smaller trees planted in tree grates but limit the ability to have large shade trees along sidewalks
- Curb-extensions (bulb-outs) shorten crossing distance for pedestrians and potentially allow for more substantial bus stops/shelters
- ROW = 100' (with the exception of Oak Hill, where it = 160')

Figure 28: Village Center Option 2



- Provides on-street parking
- No bicycle Lanes- will be ideal along sections of US 1 that are parallel to local streets with bicycle lanes or trails, or streets that accommodate safe bicycling within travel lanes
- Has wider medians that can allow for more substantial landscaping and regular turn movements at intersections
- Does not require curb lines to be reconstructed
- Wider sidewalks allow for shade trees
- Curb-extensions (bulb-outs) shorten crossing distance for pedestrians and potentially allow for more substantial bus stops/shelters
- ROW = 100' (with the exception of Oak Hill, where it = 160')



Comparing the Typical Sections

As can be seen in Table 1, each of the typical sections serves every user group differently. For example, the more urban typical sections work to serve more development and create more walkable places through a combination of land use and multimodal improvements. On the other hand, the Eco Byway typical section preserves the rural character and provides connectivity to the environmental and recreational assets of the corridor. Even so, while Urban Village Center Option 1 ranks high for quality of service in every category, Urban Village Center Option 2 ranks low for bicyclists showing the potential for variation.

As can be seen, the Urban Village Center Option 1 has the most positive benefits, however it also has the highest costs. Even so, the majority of the stakeholders voted for some version of the Urban Village Center Option 2 or the Traditional Section, which both have some benefit and are less costly due to their ability to remain within the existing curb line.

Table 1: Typical Section Comparisons

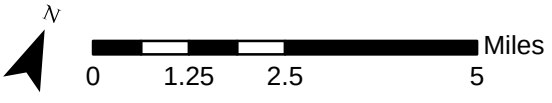
Cross Section Alternative	Quality of Service			Supports Future Economic Development	Within Existing Curbline?	Potential Implementation Challenge
	Pedestrian	Bicyclists	Transit Users			
Urban Village Center Option 1	High	High	High	High	No	High – high cost (move curbline), left-turn challenges
Urban Village Center Option 2	High	Low	High	High	Yes	Medium – mixed bike/auto traffic or identify parallel bicycle route
Traditional	Medium	High	Medium	Medium	Yes	Low – keep existing cross section, restripe in some sections
Eco Byway	Medium to High	High	Medium	Low	N/A	Low to medium - add shared-use path (some areas require bridge modifications)

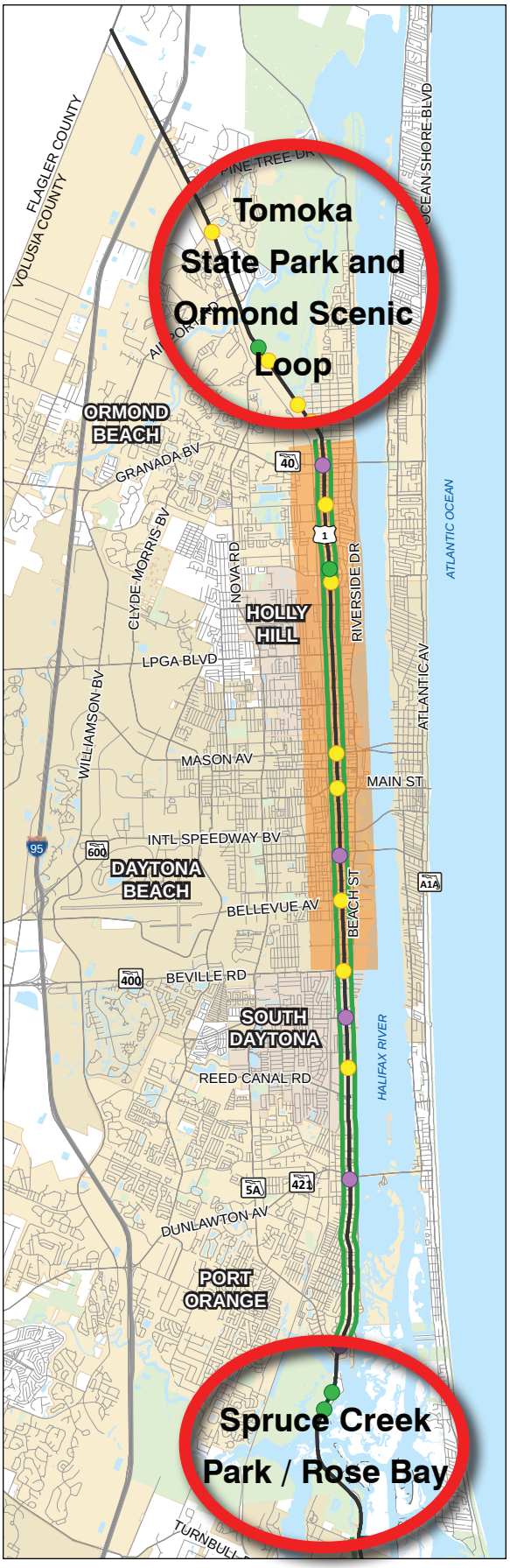

Segrave
DO NOT BLOCK

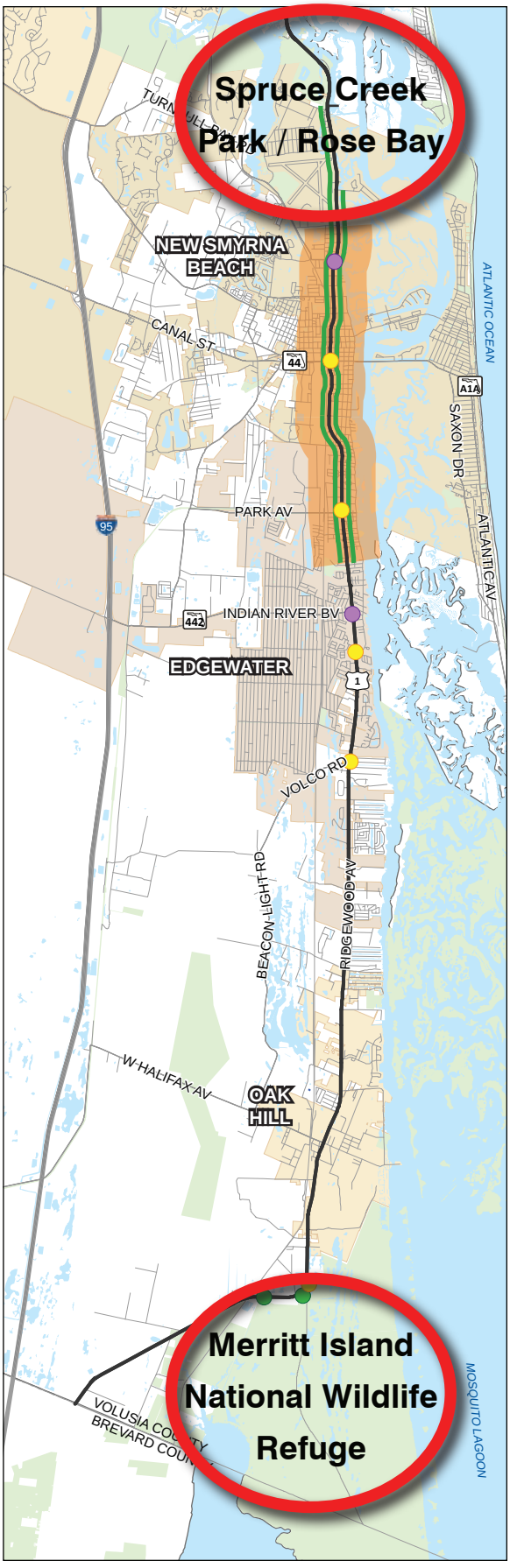
EDUCATION AND MARKETING

As stated before, there are significant environmental assets along the corridor. However, there is not sufficient signage or wayfinding available to alert potential explorers to the existence or location of these areas. By developing a system to implement a marketing campaign along the corridor to alert people to major cultural, historic, and environmental destinations, the US 1 Corridor can capitalize on these assets. This strategy can also help to create a greater focus on the east/west connections to the beaches to the east and the major trails to the west. The campaign can include signage as well as print and other forms of advertisement.

The marketing strategy can also include a branding strategy to attract people to some of the more unique yet obscure gems along the corridor. For example, there are fish markets, ruins, and other cultural resources that are relatively unknown outside of local circles. When creating the branding and wayfinding strategies, it will be important to carefully weigh the value of promoting certain sites against the potential commercialization of such areas so that they do not lose their special character.



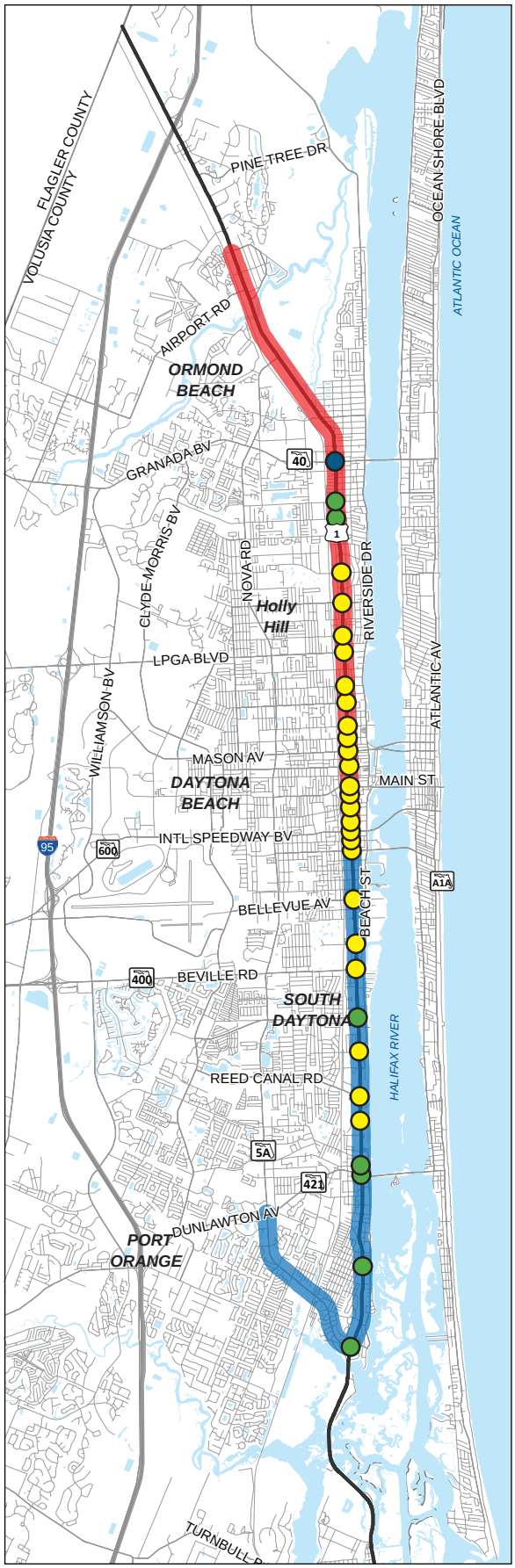

Tomoka State Park and Ormond Scenic Loop
Spruce Creek Park / Rose Bay
FLAGLER COUNTY
VOLUSIA COUNTY
FINE TREE DR
OCEAN SHORE BLVD
ORMOND BEACH
GRANADA BV
CLYDE MORRIS BV
NOVA RD
HOLLY HILL
RIVERSIDE DR
ATLANTIC OCEAN
LPGA BLVD
WILLIAMSON BV
ATLANTIC AV
MASON AV
MAIN ST
INTL SPEEDWAY BV
DAYTONA BEACH
BELLEVUE AV
BEACH ST
BEVILLE RD
SOUTH DAYTONA
REED CANAL RD
HALIFAX RIVER
DUNLAWTON AV
PORT ORANGE
TURNBULL


Spruce Creek Park / Rose Bay
NEW SMYRNA BEACH
CANAL ST
ATLANTIC OCEAN
SAXON DR
PARK AV
ATLANTIC AV
INDIAN RIVER BV
EDGEWATER
VOLCO RD
BEACON LIGHT RD
RIDGEWOOD AV
W HALIFAX AV
OAK HILL
Merritt Island National Wildlife Refuge
VOLUSIA COUNTY
BREVARD COUNTY
MOSQUITO LAGOON

TRANSIT SIGNAL PRIORITY READINESS

In the interest of increasing transit attractiveness, Transit Signal Priority (TSP) was considered for the US 1 corridor. In some contexts, TSP can provide transit service travel time improvement with minor impact to traffic movements and minor financial cost. TSP was therefore looked at as a viable solution to improve transit service in the northern section of the US 1 corridor. Based on the TSP hardware currently installed, some signals along this section of the corridor would require only minor modification to implement TSP. Being that about 25% (8 out of 31) of these signals are already wired for emergency pre-emption using GPS and infrared hardware, these signals are more ready for TSP and would only require GPS or infrared signal emitters to be installed on the buses in addition to minor installations at the signal and reprogramming the existing controller software.

In order to implement TSP along the whole northern section of the corridor, pre-emption hardware would need to be installed and controllers would need to be reprogrammed at the remaining 23 signals. This would require agency partnership between the FDOT, Daytona Beach, Volusia County, and emergency services in order to implement TSP along whole corridor.



Sources: Volusia County and City of Daytona Beach

Figure 29: Transit Signal Priority Readiness

Existing Pre-Emption Technology

- GPS Opticom
- Infrared Opticom
- None
- Votran Route 3
- Votran Route 4

N

0 1.25 2.5 5 Miles

BICYCLE AND PEDESTRIAN IMPROVEMENTS

It was discovered in the US 1 Corridor Improvement Program Phase I, and confirmed in Phase II that there is a desire for US 1 to be a more versatile corridor that not only efficiently serves vehicle trips, but allows safe and comfortable passage for pedestrians and cyclists. In an effort to advance this priority, the existing and planned facilities were mapped, and gaps identified in the network necessary to accommodate continuous bicycle and pedestrian movements along the entire corridor and to nearby key facilities. The illustrative project list does not include any feasibility analysis, nor is it intended to be taken as a bicycle and pedestrian plan. The objective of this compilation is to acknowledge existing and planned infrastructure, to highlight the gaps, and to show a potential network of facilities that would establish a fully contiguous system of facilities for cyclists and pedestrians throughout the US 1 Corridor.

In Phase I of the Corridor Improvement Program, several hundred projects that had already been identified as needs for US 1 were overlaid on top of each other. From that exercise, a network of bicycle and pedestrian projects emerged to form a contiguous system throughout the corridor. The following series of maps builds upon that by helping to create a corridor wide bicycle and pedestrian system. The projects are split into projects already funded and those that are unfunded. Once those were drawn, a new set of projects was developed to address the gaps that those projects leave in the form of linear improvements.

Additionally, a preliminary set of key connections were identified as important bicycle and pedestrian trip generators in the US 1 area. Recreation centers, schools, and civic facilities were selected as key locations. Many other facilities along the corridor warrant bicycle and pedestrian connectivity, but for the purposes of this illustrative project list, there were insufficient resources to include everything. Selected facilities were generally between either I-95 or Nova Road and the Halifax River where appropriate as this study is intended to focus on US 1, and US 1 access.

Similar to the process used for US 1, existing pedestrian and bicycling facilities were mapped, and additional projects were selected from those identified in Phase 1 of the study that would help connect US 1 to the selected facilities. Where there was no planned project and no existing facility, project opportunities were proposed to connect key destinations to the corridor.

A complete list of the projects, their types, their purposes and the sources can be found in the appendix. These projects focus on those that are immediately adjacent to US 1. Pedestrian and bicycle projects that link US 1 to the beaches and SR A1A are also important, but were not discussed in detail in this study. It is important to designate the difference between sidewalks and shared use paths. Sidewalks are only meant for pedestrians, and are generally 8 feet wide or narrower. A shared use path is 10 feet or wider, and can accommodate both pedestrians and cyclists.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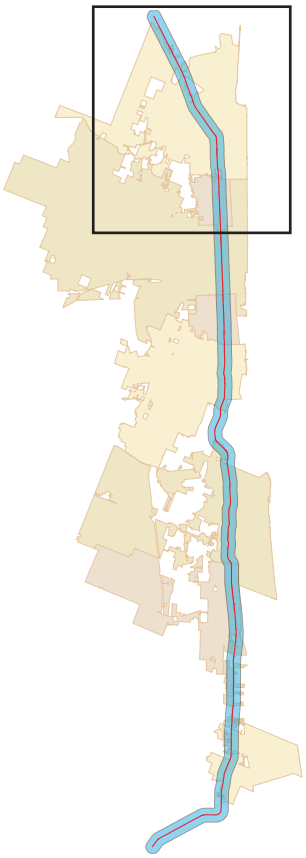


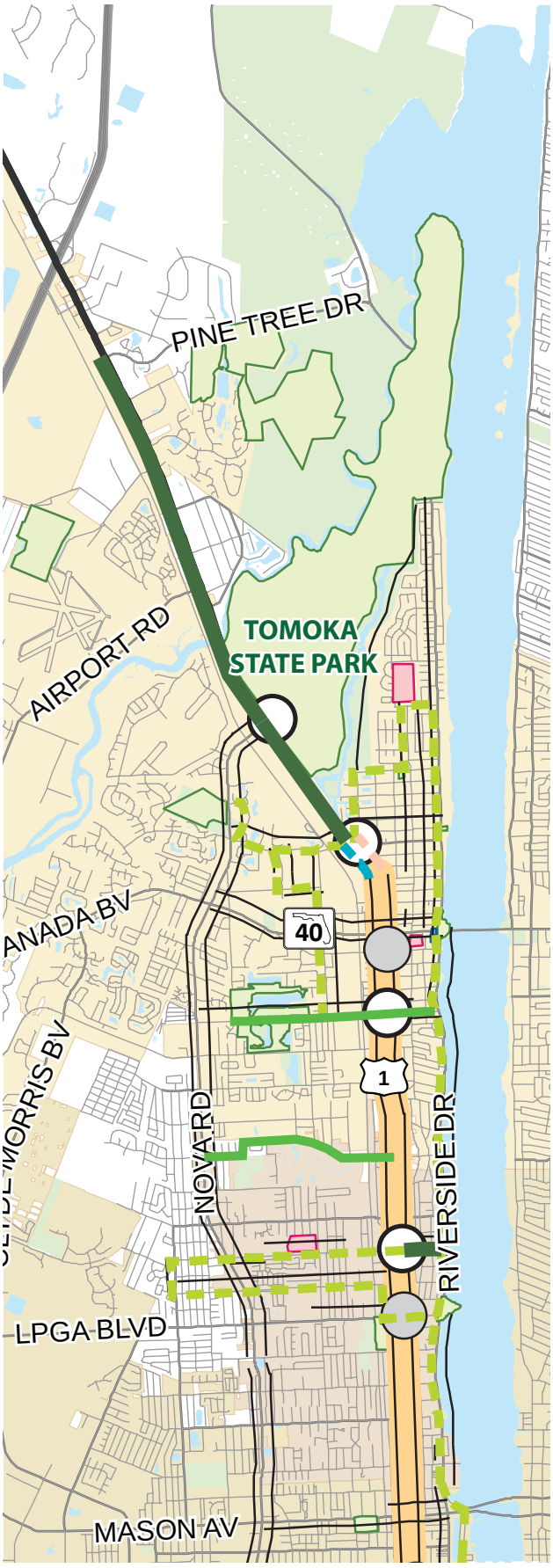


Figure 30: Pedestrian and Bicycle Gaps/Project Opportunities

Funded Projects
- Shared Use path
- Sidewalk
- Bicycle Lane

Planned Projects
- Shared Use path
- Sidewalk
- Bicycle Lane
- Intersection Crossing Improvement

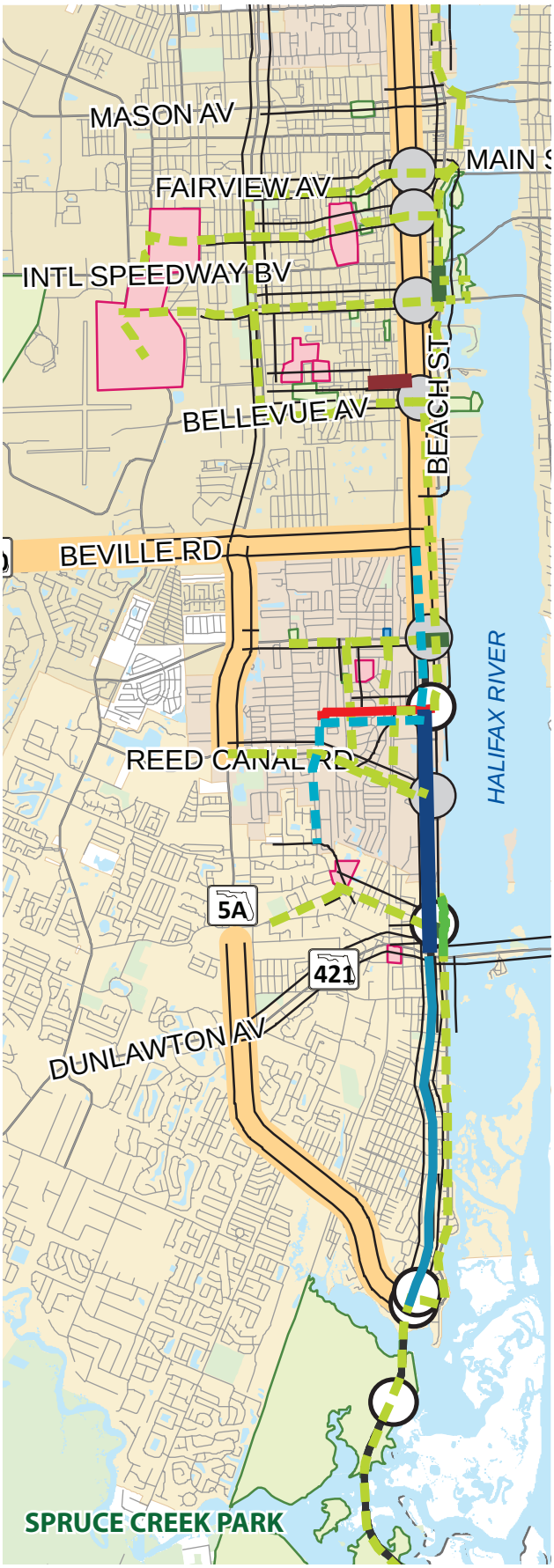
Project Opportunities
- Shared Use path
- Sidewalk
- Bicycle Lane
- Intersection Crossing Improvement

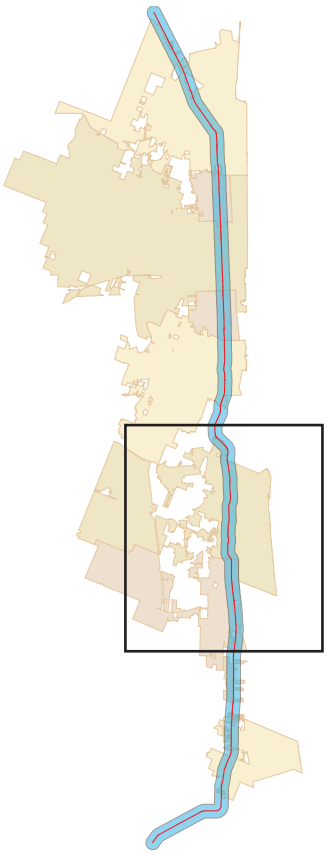
Activity Centers
- Civic
- Park
- School

Existing Facilities
- Sidewalk
- Bicycle Lane

N

0 .75 1.25 2.5 Miles


MASON AV
FAIRVIEW AV
INTL SPEEDWAY BV
BELLEVUE AV
BEACH ST
BEVILLE RD
REED CANAL RD
HALIFAX RIVER
5A
421
DUNLAWTON AV
SPRUCE CREEK PARK



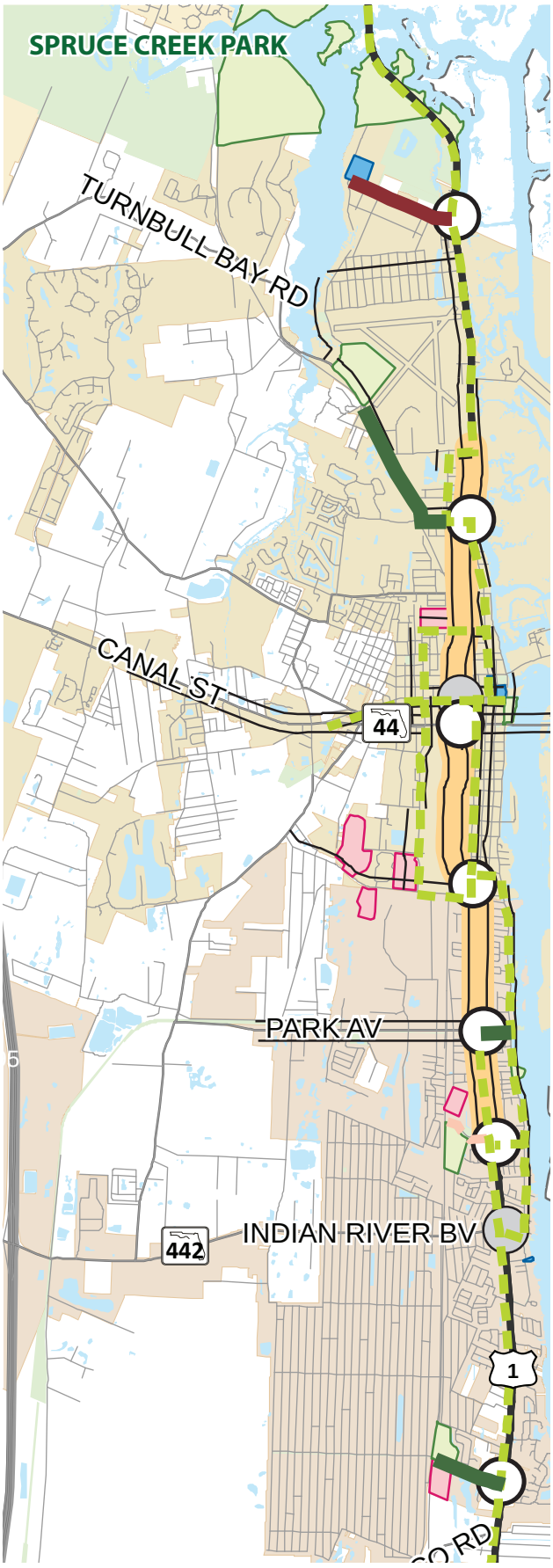


Figure 31: Pedestrian and Bicycle Gaps/Project Opportunities

Funded Projects
- Shared Use path
- Sidewalk
- Bicycle Lane

Planned Projects
- Shared Use path
- Sidewalk
- Bicycle Lane
- Intersection Crossing Improvement

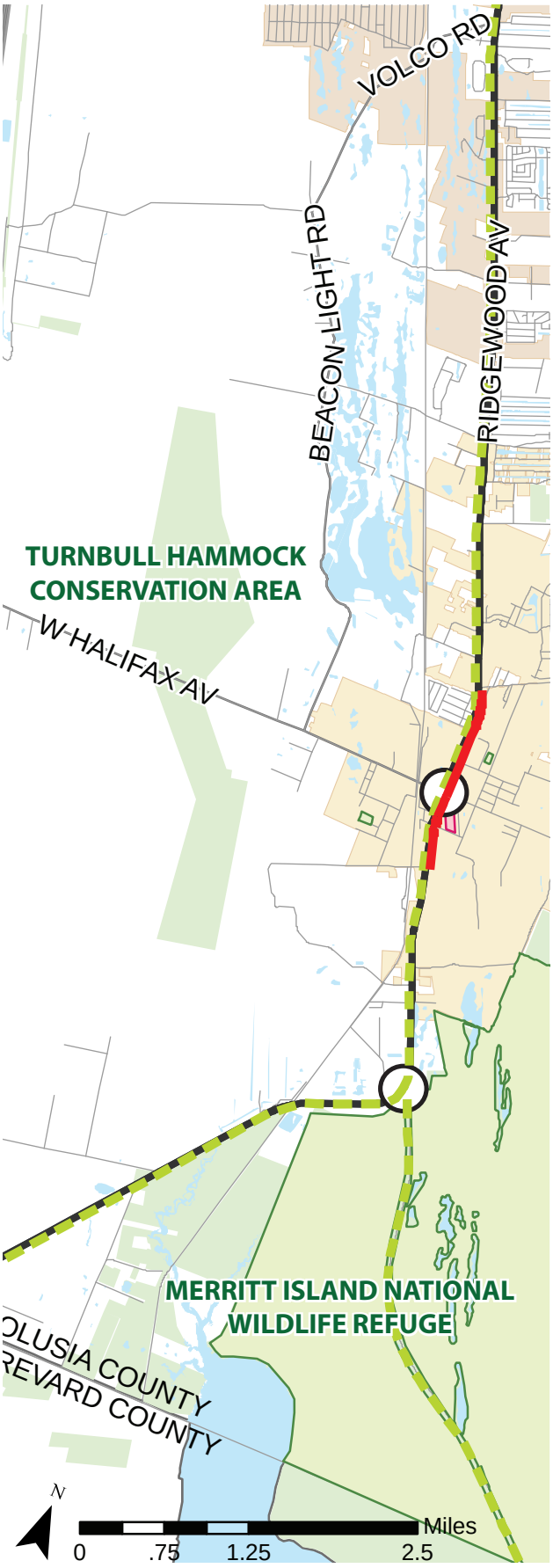
Project Opportunities
- Shared Use path
- Sidewalk
- Bicycle Lane
- Intersection Crossing Improvement

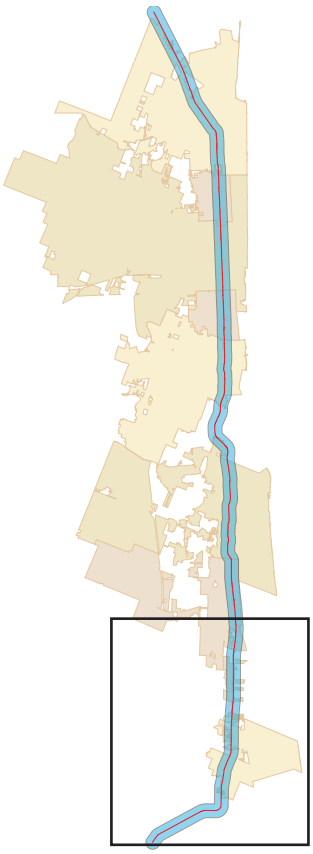
Activity Centers
- Civic
- Park
- School

Existing Facilities
- Sidewalk
- Bicycle Lane

N

0 .75 1.25 2.5 Miles


VOLCO RD
BEACON LIGHT RD
RIDGEWOOD AV
TURNBULL HAMMOCK
CONSERVATION AREA
W HALIFAX AV
MERRITT ISLAND NATIONAL
WILDLIFE REFUGE
OLUSIA COUNTY
REVARD COUNTY
N
Miles
0
.75
1.25
2.5



POTENTIAL GATEWAY TREATMENTS

The Village Center areas are expected to contain the vibrant, exciting, mixed-use destinations that will support the existing life and attract revitalization activities to the US 1 Corridor. One way to help designate these places, as well as to make them memorable and attractive, is to develop gateways that signify the entrance and departure from each Village Center district.

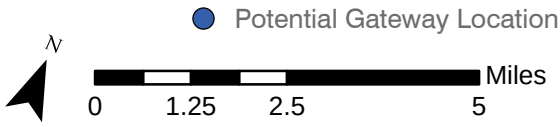
Since each city, and thus each Village Center district, has its own unique identity, there is not one set way to create a memorable gateway. Each gateway treatment should draw from the areas character, history, and natural and cultural resources.

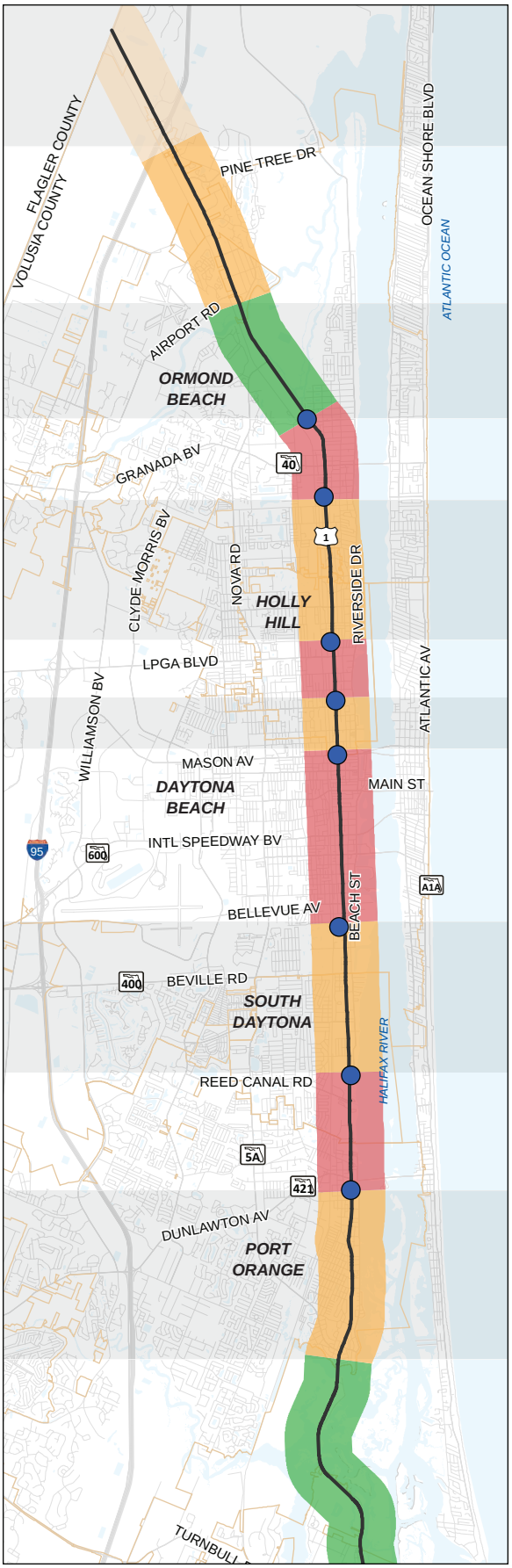
The image below shows a potential example of a gateway treatment in Oak Hill. Stemming from the public workshops, it was determined that the southern end of the Oak Hill City limits should be a gateway into the US 1 Corridor. The illustrative drawing shows not just the gateway location, but also a complete streetscape with added sidewalks and street trees from the gateway, through downtown Oak Hill, and ending near Lagoon Avenue to the north where there would be a gateway feature for Oak Hill.

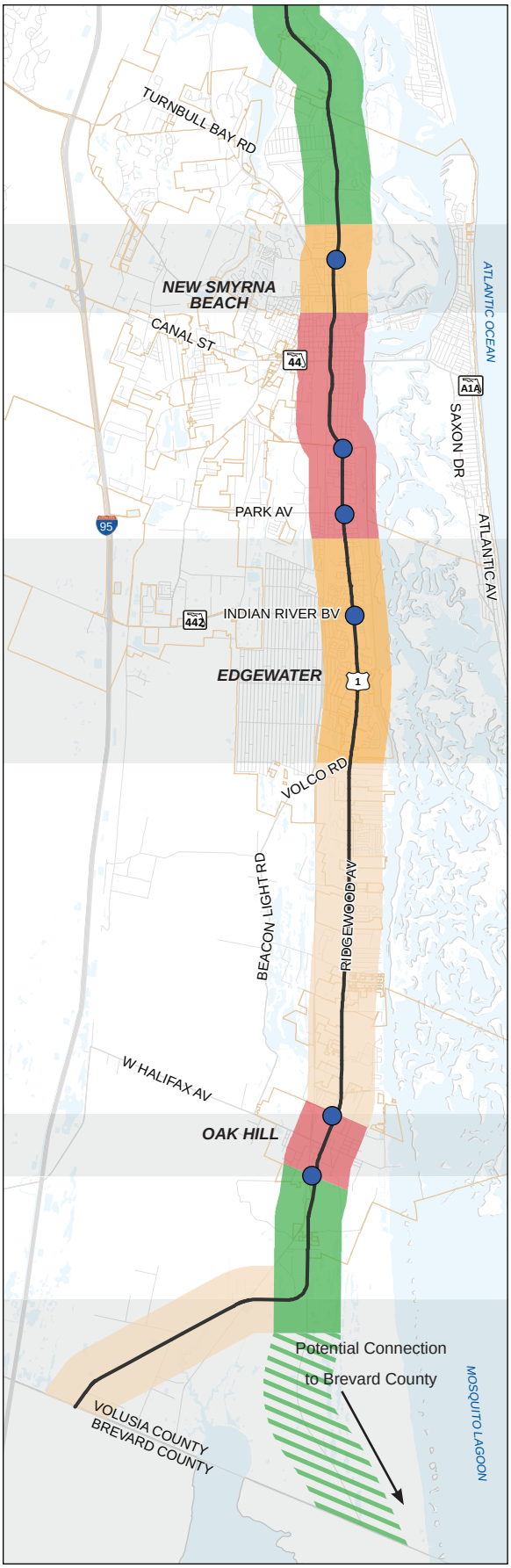
The illustrative sketch shows the gateway at the south which would include elements of the history of Oak Hill, like fishing and netting. It would include two vertical features on either side of the street and low wall and landscape in the median. The gateway would also serve as the transition area for the bike path from on-street on US 1 to a multi-use path leading to the Merritt Island National Wildlife Refuge.

Figure 32: Illustrative Gateway for Oak Hill

Figure 33: Potential Future Gateway Points




FLAGLER COUNTY
VOLUSIA COUNTY
PINE TREE DR
OCEAN SHORE BLVD
ATLANTIC OCEAN
AIRPORT RD
ORMOND BEACH
GRANADA BV
40
CLYDE MORRIS BV
NOVA RD
1
HOLLY HILL
RIVERSIDE DR
LPGA BLVD
WILLIAMSON BV
ATLANTIC AV
MASON AV
DAYTONA BEACH
MAIN ST
95
600
INTL SPEEDWAY BV
A1A
BELLEVUE AV
BEACH ST
400
BEVILLE RD
SOUTH DAYTONA
HALIFAX RIVER
REED CANAL RD
5A
421
DUNLAWTON AV
PORT ORANGE
TURNBULL


TURNBULL BAY RD
NEW SMYRNA BEACH
ATLANTIC OCEAN
CANAL ST
44
A1A
SAXON DR
95
PARK AV
ATLANTIC AV
442
INDIAN RIVER BV
EDGEWATER
1
VOLCO RD
BEACON LIGHT RD
RIDGEWOOD AV
W HALIFAX AV
OAK HILL
Potential Connection
to Brevard County
VOLUSIA COUNTY
BREVARD COUNTY
MOSQUITO LAGOON

DEMONSTRATION SITES

To help illustrate how the sections fit within the character districts, a number of demonstration sites were used. While demonstration sites were developed for several areas throughout the corridor, they were not intended to be developed for, or representative of, all areas.

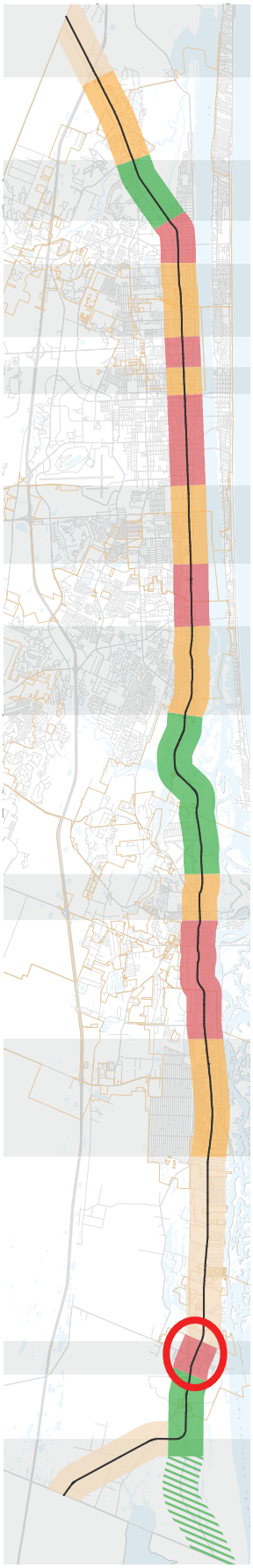
The corridor character districts reflect the redevelopment opportunities of the US 1 corridor. That redevelopment will likely occur in two ways: streetscape improvements and land use changes. In the Village Center districts, the desired development pattern is generally a somewhat dense, mixed use pattern that largely supports multi-modal activity. By guiding development in this manner, cities will be able to create the vibrant centers that can help to attract people to the US 1 corridor.

With that in mind, several conceptual renderings of potential development patterns were developed. While they are by no means meant to be considered final plans, they are intended to assist in the visualization of one version of the future of development along the US 1 corridor. In the pages that follow, several illustrative plans and streetscapes are presented with the hope of inspiring redevelopment ideas for the future of the corridor.

Figure 34: Downtown Oak Hill Illustrative Plan

Oak Hill

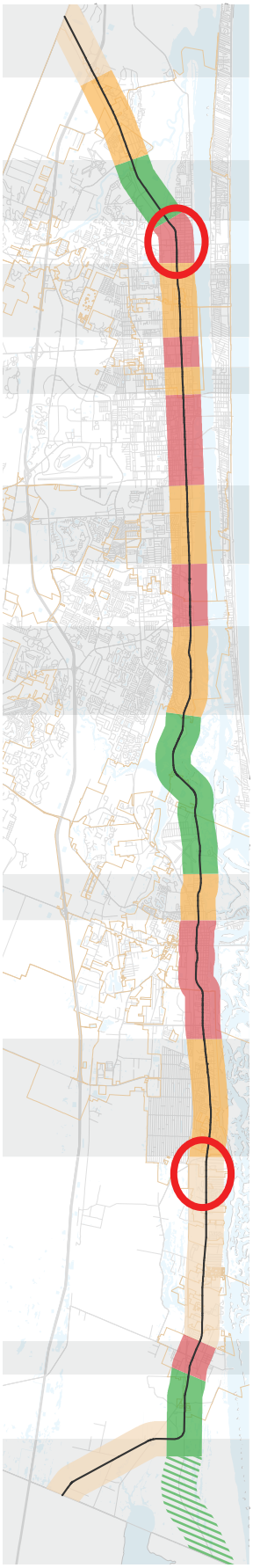
A conceptual streetscape and master plan for the Oak Hill Downtown were developed to give an idea of how the area could retain its rural character while also providing a lively center for daily life in Oak Hill. The streetscape improvements on US 1 is intended to help to revitalize the downtown ares of Oak Hill. Anticipating this revitalization, this master plan was drawn to help the downtown focus on the important elements like the City Hall and the Post Office. The plan suggests organizing the existing roads into formed streets with sidewalks, street trees, and on-street parking. Developing in this pattern would also help students get to the adjacent school with safer and more predictable sidewalks. Organizing the space to let City Hall and the Post Office sit on an open space quadrangle could create a sense of civic place and a venue for the people of Oak Hill to come together downtown and connect to the adjacent historic home and park to the north.



Ormond Beach

This plan continues the work previously conducted by the Ormond Beach CRA to show a development plan that builds on the streetscape work proposed for US 1. The type of redevelopment shown is typical for a traditional corridor, however, the design typology shown shows how traditional commercial properties can be designed to be more pedestrian-friendly and to help activate the more walkable and livable aspects of the corridor. Each commercial type, like fast-food, office, commercial strips, gas stations, and restaurants are shown built up to the street, with parking in the back, using a secondary street for access, which help access on US 1. This plan also shows potential residential development at a higher density which would also help encourage a more walkable and livable environment.

Figure 35: Ormond Beach Illustrative Master Plan



Edgewater

Edgewater has proposed a Community Redevelopment Agency along US 1 from 10th Street to Riverside Drive. The implementation of several changes to the typical section of US 1 can help support the CRA by making the area more friendly to all transportation modes. This potential streetscape through Edgewater shows on-street parking, bike lanes, and street trees. In order to accommodate the streetscape, some properties which are currently using the public right-of-way for parking or other uses, some properties would require a slight redesign of their parking configuration. In each case, equal or more parking has been created, as well as, some cross-easement access.

Figure 36: Edgewater Illustrative Streetscape

Port Orange

Several proposals for the redevelopment of the Port Orange Riverwalk area have been discussed over the past several years. Most currently, the City of Port Orange and the Community Redevelopment Agency for Port Orange Town Center are inviting proposals from private developers or any persons interested in redevelopment to lease, buy, sell, exchange, or otherwise transfer property owned by the City and the CRA to help assist in the redevelopment objectives of the City and the CRA.

The Riverwalk Redevelopment Project Area lies between US 1 and the Halifax River north of Dunlawton Avenue. The City has expressed the desire to make this area more multimodal friendly and to develop at higher densities than in the past. Because of the proximity of this area to the intersection of US 1 and Dunlawton Avenue, the project team considered the intersection developed an conceptual rendering of potential improvements that could be implemented in the intersection to support the community's vision.

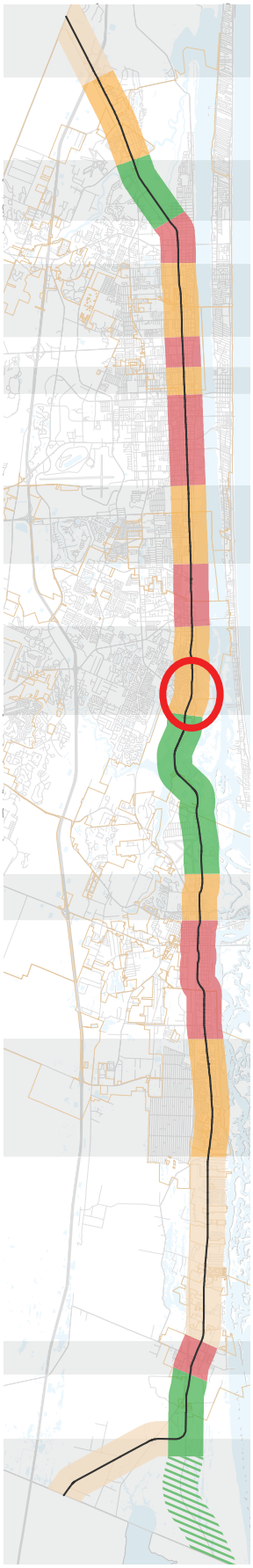
As can be seen in Figure 35, the conceptual rendering proposes a number of innovative bicycle and pedestrian treatments as well as some vehicular improvements for the intersection. Currently, the intersection poses long crossing distances, provides no bicycle facilities, and has little landscaping.

The conceptual rendering proposes to several changes to address these issues. First, bicycle lanes are added on the south side of the intersection. These lanes merge into a shared use path on the east side of the intersection to the north of Dunlawton Avenue. Bicycle lanes are painted green in areas that may pose potential conflicts between vehicles and bicycles to help keep both bicyclists and divers alert. On street parking is shown to the north of Dunlawton Avenue on the east side of US 1 that can be utilized by future visitors to the riverwalk site. A two foot buffer is shown between the shared use path and the parking lane to prevent dooring. Landscaping, including trees and shrubs, will help to make the area feel like a destination while providing shade and comfort for pedestrian and bicyclists.

The crosswalks are evened out to follow realistic walk paths on the north and south sides of the intersection, which in turn creates shorter crossing distances. On the west side, the crosswalk is split into two to create a shorter crossing with a pedestrian refuge island in the median to help break the crossing into two, because the crossing is currently longer than the pedestrian signal time allows for under ADA guidelines. On the east side, the crossing is realigned to follow the bicycle lane to help better orient pedestrians and bicycles towards the shared use path that begins to the north of the intersection.

The intersection geometry is tightened up somewhat to help slow cars down while still allowing for all types of vehicles to traverse the intersection safely and efficiently. Additionally, some driveways are moved to help improve safety and access.

Figure 37: Port Orange Illustrative Plan



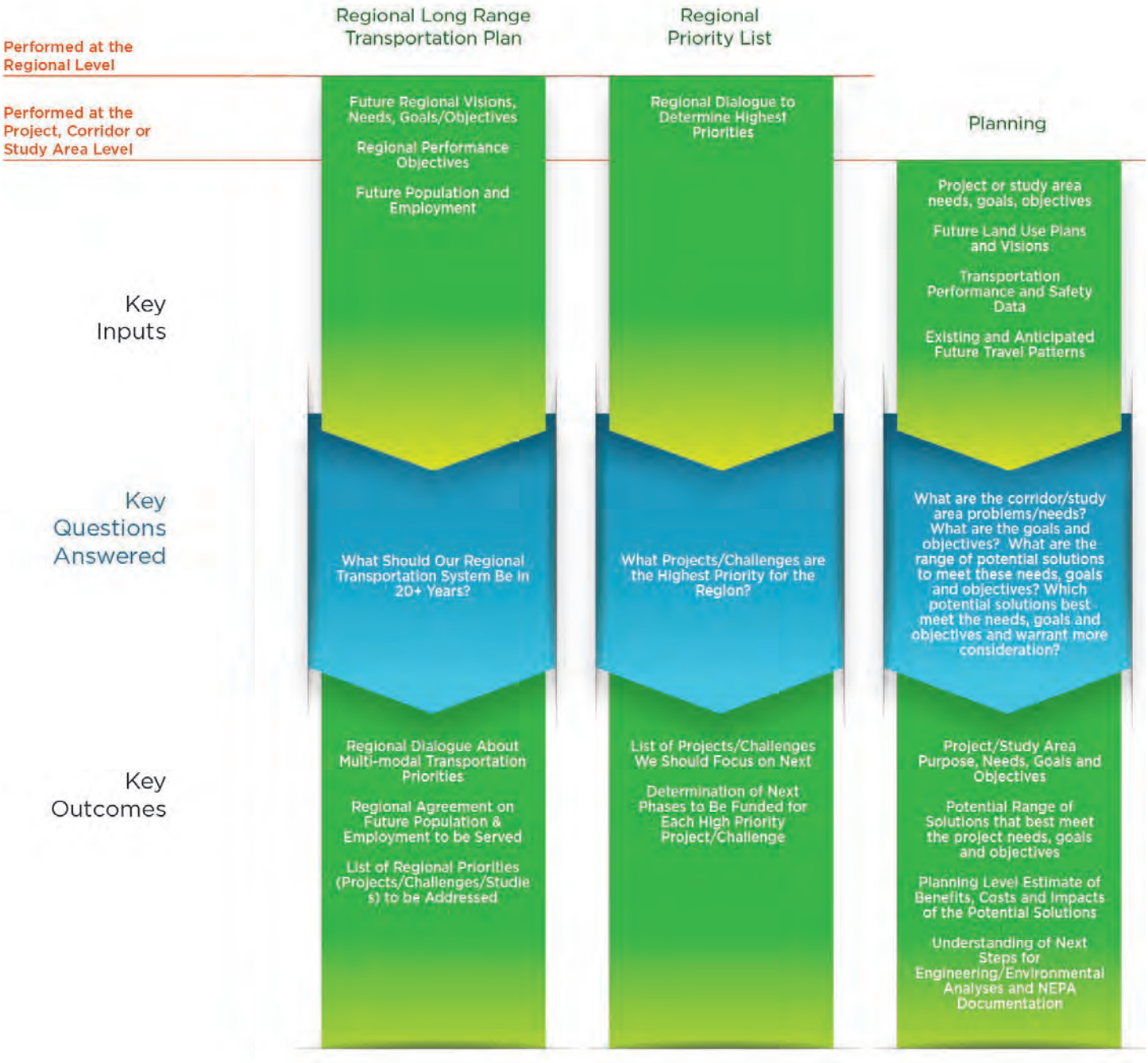
7 ACTION PLAN

The Action Plan has been developed in coordination with the US 1 Working Group members, and is intended to be a working document that communities and decision-makers consider as they make individual land use, economic, and transportation decisions along US 1. A graphic was also developed to illustrate a general transportation decision-making process. The graphic is intended to help the Working Group members better provide input prior to decisions being made about US 1.

Action Plan

As has been illustrated throughout this document, the communities and contexts along US 1 vary dramatically. Some communities strive to retain their rural feel and character while others plan and wish for increased development. One of the goals of this Study was to recognize and celebrate these differences, and to offer ideas for how US 1 can best support and fit the character of these different areas. Another goal of this Study was to identify the common themes or directions that communities and key stakeholders share about US 1 – this is most effectively illustrated through a common desire to improve travel for bicyclists and pedestrians along all of US 1. Based on this desire, this Study developed a set of roadway typical sections that provide safer and more consistent bicycle and pedestrian facilities for all character districts along US 1. It is not intended that these changes would happen immediately or all at once, but as communities plan for development along US 1 that these typical sections could be used as examples of how to better serve bicyclists and pedestrians.

Table 2 shows the Draft Working Action Plan, which has been developed in coordination with the US 1 Working Group members, and is intended to be a working document that communities and decision-makers consider as



they make land use, economic and transportation decisions along US 1. While US 1 is a state road under the jurisdiction of the FDOT, regional priorities are set by the Volusia TPO, and land use decisions are made by the cities and County, many of these actions require coordination and collaboration of all of these stakeholders. This need to and question of how to more effectively collaborate was raised by many of the Working Group members during the study. Working Group members requested a roadmap to how they can better provide input prior to decisions being made about US 1. The following graphic illustrates a general transportation decision-making process and identifies which decisions are made during different phases of project development, key information that local governments could provide to inform the decisions, and the key outcomes of each step. Although this process varies slightly depending upon the complexity of a project (for example, routine maintenance may not be identified in the Long Range Transportation Plan), the information that local governments provide related to the existing and future character of the roadway are important for all types of projects.

Table 2: Draft Working Action Plan

Strategies	Action Items that Support Strategies	Entities Involved in Action
Implement strategic pedestrian and bicycle improvements	Continue to coordinate bicycle and pedestrian projects/ opportunities with VTPO and FDOT. This could occur as part of routine maintenance/resurfacing projects or as individual intersection or roadway improvement projects.	Cities, County, VTPO, FDOT, Trail Entities
	Continue to coordinate implementation of local and regional trail projects and opportunities.	Cities, County, VTPO, FDOT, Trail Entities
	Identify potential funding/grants and develop grant/funding applications for pedestrian and bicycling improvements	Cities, County, VTPO, FDOT, Trail Entities
Advance the land use/economic development initiatives along US 1	Continue to coordinate the development of Community Redevelopment Areas (CRAs) along US 1 and explore ways to better share information, ideas and lessons learned on existing CRAs. Explore ways to share in infrastructure improvements across neighboring CRAs where appropriate.	Cities, County, VTPO
Implement typical section changes based on character districts	Incorporate typical section changes along US 1 as part of routine maintenance (filling sidewalk and bike lane gaps) and as part of landscaping grants obtained by the cities along US 1	Cities, County, VTPO, FDOT
	Port Orange: Apply elements of the Urban Village Center Option 2 to US 1 near the RiverWalk development and from Dunlawton Avenue to Meeker Place	City of Port Orange, VTPO, FDOT
	Edgewater: Coordinate sidewalk/shared use path projects on US 1 and Sea Loop Trail	City of Edgewater, VTPO, FDOT
Implement transit improvements including transit signal priority (TSP)	Coordinate strategy with Votran, Volusia County, local emergency service providers, VTPO and FDOT	Votran, Volusia County, VTPO, FDOT
Educational and marketing campaign for branding/ marketing US 1	Document historic and cultural aspects of the US 1 Corridor; identify opportunities to work with Volusia County on historic and cultural education and preservation. Coordinate with Scenic Highway Corridor Management Entities (CMEs) to identify areas of common interest.	Cities, County, VTPO, FDOT, Corridor Management Entities
	Develop educational/marketing materials that can be used to market the unique character and experiences that US 1 provides. This could be used to market ecotourism by the local chambers, business entities, parks, and other corridor stakeholders.	Cities, County, Economic Development Organizations, VTPO

8 APPENDIX

Contents: Strategic Pedestrian and Bicycle Improvements Memo

STRATEGIC PEDESTRIAN & BICYCLE IMPROVEMENTS

This section of the Action Plan focuses on bicycle and pedestrian mobility along US 1. It was discovered in the US 1 Corridor Improvement Program Phase I, and confirmed in Phase II that there is a desire for US 1 to be a more versatile corridor that not only efficiently serves vehicle trips, but allows safe and comfortable passage for pedestrians and cyclists. In an effort to advance this priority, the existing and planned facilities were mapped and gaps were identified in the network. Filling these gaps is necessary to accommodate bicycle and pedestrian movements along the entire corridor and to nearby key facilities. The project opportunity list does not include any feasibility analysis, nor is it intended to be taken as a bicycle and pedestrian plan. The objective of this compilation is to acknowledge existing and planned infrastructure, to highlight the gaps, and to show a potential network of facilities that would establish a fully contiguous system of facilities for cyclists and pedestrians throughout the US 1 Corridor.

GAPS/PROJECT OPPORTUNITY IDENTIFICATION

Phase I of the Corridor Improvement Program discovered several hundred projects that had already been identified as needs for US 1 through over 100 plans and documents. While some of those plans contained conflicting projects, many of them were complementary. When all of the projects were overlaid, a network of bicycle and pedestrian gaps, or potential projects, emerged to begin to form a contiguous system throughout the corridor.

US 1

The first task was to fill gaps in the system along US 1 itself. There are no existing bicycle or pedestrian amenities along US 1 south of Turgot Avenue in Edgewater, in the area of Spruce Creek Park, or more than a few blocks north of Granada Boulevard in Ormond Beach. Some of the improvements identified by planning studies reviewed in Phase I would fill a number of these gaps. Some of those projects are already underway such as sidewalk construction in Oak Hill and the recently completed bicycle lanes in South Daytona. Other projects include bicycle lanes and sidewalks as far north in Ormond Beach as Wilmette Avenue, a shared use facility paralleling US 1 along the Halifax River and an extension of the Sea Loop Trail between Cape Canaveral and Edgewater.

Remaining gaps in the system were identified and additional projects were proposed to close them. Several important bicycle and pedestrian crossings of US 1 were identified for study on how pedestrian and bicycling mobility can be improved, particularly where intersection geometries currently limit comfortable and safe crossing of US 1.

Bicycle lanes and sidewalks were proposed as far north as the future Ormond Crossings development that will also serve the access to Tomoka State Park. Bicycle connectivity along US 1 between the southern intersection with Nova Road and Dunlawton Avenue was also noted as a system gap. It is important to designate the difference between sidewalks and shared use paths. Sidewalks are only meant for pedestrians, and are generally 8 feet wide or narrower. A shared use path is 10 feet or wider, can accommodate both pedestrians and cyclists, and will include the appropriate markings and signage for a shared use path.

Key Destinations for Pedestrian and Bicycling Connectivity

A preliminary set of key destinations were identified as important bicycle and pedestrian trip generators in the US 1 area. Facilities such as parks, recreation centers, schools, and civic buildings were identified as key locations for that will likely need enhanced pedestrian and bicycling access. The facilities were generally located between either I-95 or Nova Road and the Halifax River where appropriate as this study is intended to focus on US 1 and US 1 access.

Similar to the process used for US 1, existing pedestrian and bicycling facilities were mapped, and additional projects were selected from those identified in Phase 1 of the study that would help connect US 1 to the selected facilities. Where there was no planned project and no existing facility, project opportunities were proposed to connect key destinations to the corridor.

GAPS/PROJECT OPPORTUNITIES

Table 1 lists the bicycle and pedestrian projects that have been previously identified as part of the Corridor Improvement Program Phase I. The sources of these projects include those compiled as part of the US 1 Corridor Improvement Program Phase I, the current Transportation Improvement Plan (TIP), the Arterial Improvement Study (AIS), the Volusia Transportation Planning Organization (VTPO), municipalities along US 1, and School Safety Reviews conducted by VTPO).

Table 2 outlines additional projects identified to complete the corridor's pedestrian and bicycling connectivity to major corridor destinations. Project opportunities were identified based on the approach discussed above. These Project opportunities are not currently programmed, funded, designed, or planned as part of any existing effort. Both sets of projects are also presented in map form at the end of this document.

Table 1: Previously Planned or Funded Pedestrian and Bicycle Projects

Location	Type	Purpose	Source
Brevard County Line to Park Avenue (Sea Loop Trail)	Shared Use Path	Recreational and Regional Bicycle Connectivity	TIP
Brevard County Line to Kennedy Parkway (Space Coast Loop Trail)	Shared Use Path	Recreational and Regional Bicycle Connectivity	TIP
US 1 – Putnam Grove Drive to Canal Avenue	Sidewalk	Local Pedestrian Connectivity	TIP
US 1 at Indian River Boulevard	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
US 1 Parallel - Indian River Bv to Bellevue Ave	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity	AIS
Turgot Avenue – FEC to US 1	Sidewalk	Access to School and Recreational Center	TPO
US 1 at Canal Street	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Canal Street – Lytle Avenue to Riverside Drive	Shared Use Path	Local Pedestrian Connectivity	AIS
Riverwalk Promenade	Shared Use Path	Recreational Trail	Port Orange
Charles St/ Old Sugar Mill Rd – Herbert Street to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
US 1 at Reed Canal Road	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Reed Canal Road – Nova Road to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
South Daytona Bicycle Path – Charles Street to Beville Road	Bicycle Path	Bicycle and Pedestrian Connectivity	South Daytona
Ridge Boulevard – Pope Avenue to Palmetto Avenue	Sidewalk	Local Pedestrian Connectivity	TIP
US 1 at Big Tree Road	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Big Tree Road – Magnolia Avenue to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
Anastasia Drive – Ridge Boulevard to Big Tree Road	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
US 1 at Bellevue Avenue	Crossing Improvement	Bicycle and Pedestrian Connectivity	AIS
Bellevue Avenue – Nova Road to Beach Street	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity	AIS
US 1 Parallel - Bellevue Avenue to Orange Avenue	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity	AIS
US 1 at Orange Avenue	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Orange Avenue – Clyde Morris Boulevard to Beach Street	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
US 1 at Bethune Boulevard	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Bethune Boulevard - International Speedway Boulevard to Beach Street	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
US 1 at Fairview Avenue	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Dunn Avenue / Fairview Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
US 1 Parallel - Riverside Drive - Mason Avenue to US 1 at Wilmette Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
US 1 at LPGA Boulevard	Crossing Improvement	Bicycle and Pedestrian Safety	AIS
Walker Street – Derbyshire Road to State Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
Flomich Street – Derbyshire Road to Ridge Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
Division Avenue – Old Kings Road to Beach Street	Shared Use Path	Bicycle and Pedestrian Connectivity	VTPO
US 1 Parallel – S Orchard Street – Division Avenue to Wilmette Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity	AIS
Calle Grande Street – Nova Road to US 1	Shared Use path	Bicycle and Pedestrian Connectivity	Holly Hill
US 1 at Tomoka Avenue	Crossing Improvement	US 1 Bicycle and Pedestrian Safety	School Safety Review
US 1- Hernandez Ave to Wilmette Ave	Sidewalk	Pedestrian Connectivity	Ormond Beach Multimodal Strategy
US 1- Hernandez Ave to Wilmette Ave	Bike Lanes	US 1 Bicycle Connectivity	AIS
Wilmette Avenue / Lakeside Drive – Nova Road to US 1	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity	AIS

Table 2: Gaps/Opportunities for Pedestrian and Bicycle Improvements

Location	Type	Purpose
Brevard County Line to Park Avenue (Sea Loop Trail)	Shared Use Path	Recreational and Regional Bicycle Connectivity
Brevard County Line to Kennedy Parkway (Space Coast Loop Trail)	Shared Use Path	Recreational and Regional Bicycle Connectivity
US 1 at Kennedy Parkway	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 – Putnam Grove Drive to Canal Avenue	Sidewalk	Local Pedestrian Connectivity
US 1 at Halifax Street	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 at Roberts Road	Crossing Improvement	Bicycle and Pedestrian Safety (School)
Roberts Road – Hibiscus Drive to US 1	Shared Use Path	Access to School and Park
US 1 at Indian River Boulevard	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 Parallel - Indian River Boulevard to Bellevue Avenue	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity
US 1 at Orange Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Turgot Avenue – FEC to US 1	Sidewalk	Access to School and Recreational Center
US 1 at Park Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Park Avenue – US 1 to Riverside Drive	Shared Use Path	Connect Sea Loop Trail to Riverside Trail
US 1 at Palmetto Street	Crossing Improvement	Bicycle and Pedestrian Safety – Oblique Angle
US 1 at Lytle Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 at Canal Street	Crossing Improvement	Bicycle and Pedestrian Safety
Canal Street – Lytle Avenue to Riverside Drive	Shared Use Path	Local Pedestrian Connectivity
US 1 at Turnbull Bay Road	Crossing Improvement	Bicycle and Pedestrian Safety
Turnbull Bay Road – Whispering Pines Drive to Turnbull Street	Shared Use Path	Local Pedestrian Connectivity
US 1 at Arts Center Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Arts Center Drive	Sidewalks	Access to Arts Center
US 1 at Spruce Creek Park	Crossing Improvement	Bicycle and Pedestrian Safety – Park Access
US 1 at Main Street	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 at Nova Road	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 – Nova Road to Dunlawton Avenue	Bicycle Lanes	Bicycle Connectivity
Riverwalk Promenade	Shared Use Path	Recreational Trail
Charles Street – US 1 to Halifax Drive	Shared Use Path	Bicycle and Pedestrian Connectivity
Charles Street / Old Sugar Mill Road – Herbert Street to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Reed Canal Road	Crossing Improvement	Bicycle and Pedestrian Safety
Reed Canal Road – Pope Avenue to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 – Dunlawton Avenue to Ridge Boulevard	Bicycle Lanes	Bicycle and Pedestrian Connectivity
Ridge Boulevard – Pope Avenue to Palmetto Avenue	Sidewalk	Local Pedestrian Connectivity
US 1 at Big Tree Road	Crossing Improvement	Bicycle and Pedestrian Safety
Big Tree Road – Magnolia Avenue to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity
Big Tree Road – US 1 to Palmetto Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Bellevue Avenue	Crossing Improvement	Bicycle and Pedestrian Connectivity
Bellevue Avenue – Nova Road to Beach Street	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity
US 1 Parallel - Bellevue Avenue to Orange Avenue	Shared Use Path	US 1 Bicycle and Pedestrian Connectivity
South Street – Division Street to US 1	Sidewalk / Pedestrian Path	Complete Sidewalk System
US 1 at Orange Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Orange Avenue – Clyde Morris Boulevard to Beach Street	Shared Use Path	Bicycle and Pedestrian Connectivity
Beach Street – Orange Avenue to International Speedway Boulevard	Shared Use Path	Bicycle and Pedestrian Connectivity

Location	Type	Purpose
US 1 Parallel – Beach Street / Riverside Drive – International Speedway Boulevard to Mason Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Bethune Boulevard	Crossing Improvement	Bicycle and Pedestrian Safety
Bethune Boulevard - International Speedway Boulevard to Beach Street	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Fairview Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Dunn Avenue / Fairview Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 Parallel - Riverside Drive - Mason Avenue to US 1 at Wilmette Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at LPGA Boulevard	Crossing Improvement	Bicycle and Pedestrian Safety
Walker Street – Derbyshire Road to State Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Flomich Street	Crossing Improvement	Bicycle and Pedestrian Safety
Flomich Street – Derbyshire Road to Ridge Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
Flomich Street – Ridge Avenue to Riverside Drive	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Division Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Division Avenue – Old Kings Road to Beach Street	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 Parallel – S Orchard Street – Division Avenue to Wilmette Avenue	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Tomoka Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
US 1- Hernandez Ave to Wilmette Ave	Sidewalk	Pedestrian Connectivity
US 1- Hernandez Ave to Wilmette Ave	Bike Lanes	Bicycle Connectivity
US 1 at Wilmette Avenue	Crossing Improvement	Bicycle and Pedestrian Safety
Wilmette Avenue / Lakeside Drive – Nova Road to US 1	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 - Wilmette Avenue to Nova Road	Shared Use Path	Bicycle and Pedestrian Connectivity
US 1 at Nova Road	Crossing Improvement	Bicycle and Pedestrian Safety
US 1 – Wilmette Avenue to Pine Tree Drive	Shared Use Path	Bicycle and Pedestrian Connectivity

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