



Peninsula Drive Sidewalk and Wayfinding Signage Feasibility Study

Final Report

City of Port Orange, Florida

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Prepared For:



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Executive Summary

The City of Port Orange identified the need for pedestrian improvements along Peninsula Drive and at the Down Under development area, adjacent to and underneath Dunlawton Avenue (SR A1A). Proposed improvements include new sidewalks, intersection improvements, and wayfinding signage that will provide enhanced pedestrian connectivity to safely access businesses, destinations, and existing bus stops and routes in the project study area. Furthermore, these improvements will make walking both a safer and a more attractive alternative to all potential users. The study finds that sidewalk improvements are feasible in three specific areas:

- On the west side of Peninsula Drive from Dunlawton Avenue north to Coral Way, including improvements at the Dunlawton Avenue intersection.
- On the west side of Peninsula Drive from Dunlawton Avenue south to Demotte Avenue, including improvements at the Demotte Avenue intersection.
- In the Down Under development area, including on the north side of the Dunlawton Avenue south service road and on the west side of the north-south road connecting underneath the Dunlawton Memorial Bridge.

Sidewalk is not recommended on Peninsula Drive south of Demotte Avenue primarily due to complications involved with updating and adding drainage structures. Potential locations for wayfinding signage are proposed that can be incorporated as part of an overall citywide wayfinding program.

Data Collection and Field Assessment

A field assessment was conducted on Thursday, September 16, 2021 to evaluate existing conditions and characteristics for roadways and roadside facilities, utilities, drainage, signalization, and lighting within the study area and determine potential right-of-way (ROW) and environmental impacts. Existing roadway conditions, intersection operations, and traffic behavior were observed and documented during the assessment. Existing lighting conditions at proposed new pedestrian crossing locations were observed during dark conditions on a separate field visit on Friday, October 22, 2021.

Geometric Analysis

The conceptual layout shows that proposed new sidewalk fits into the existing ROW. A minor reconfiguration of Peninsula Drive on the north side of Dunlawton Avenue is required to avoid ROW impacts in the northeast corner of the intersection where the apparent ROW line is very close to the existing back of curb. This reconfiguration requires the travel lanes to be narrowed to 10 feet, which is the minimum allowable width for a state roadway with C4 urban general context classification at 35 mph.

The apparent ROW lines in both the northeast and southeast corners of the Peninsula Drive / Dunlawton Avenue intersection show that the existing sidewalks are partially on private property. Proposed accessibility improvements to address Americans with Disabilities Act (ADA) deficiencies on those two corners are not expected to negatively impact the properties on the corners. However, coordination will be needed with the City of Daytona Beach Shores and the property owners to make the recommended ADA improvements on those corners.

Conclusion

At the conclusion of the data collection, field observation, and geometric analysis and concept development, it was determined that new sidewalks and associated improvements are feasible on Peninsula Drive between Coral Way and Demotte Avenue, as well as in the Down Under development area. The total project is anticipated to cost \$821,000 in current year dollars based on the Florida Department of Transportation (FDOT) historical 2021 market area 6 item annual averages cost report, supplemented with historical 2021 statewide annual averages cost report.

1 Introduction

The River to Sea Transportation Planning Organization (R2CTPO) is evaluating the feasibility of several pedestrian improvements in the City of Port Orange along Peninsula Drive and at the Down Under development area, adjacent to and underneath Dunlawton Avenue (SR A1A). These improvements include new sidewalks, intersection improvements, and wayfinding signage.

First, the feasibility of new sidewalk will be evaluated on the west side of Peninsula Drive spanning approximately 0.34 miles from Coral Way to the southern terminus of Peninsula Drive located south of Demotte Avenue. Proposed sidewalks will also be evaluated along the service road on the south side of Dunlawton Avenue, providing access to the Down Under development, connecting underneath the Dunlawton Avenue bridge to the service road on the north side of Dunlawton Avenue, a total distance of approximately 0.16 miles. Next, potential intersection improvements will be studied on Peninsula Drive at both Dunlawton Avenue and Demotte Avenue to improve pedestrian accommodations and safety, including signage, lighting, and Americans with Disabilities Act (ADA) improvements. Lastly, potential pedestrian wayfinding signage will be evaluated for the intersection of Peninsula Drive and Dunlawton Avenue, providing direction to nearby businesses and points of interest. This evaluation will identify potential signage sizes, locations, and other general parameters.



The two images above show the proposed locations of new sidewalks near the Down Under development area (left) and Peninsula Drive (right).

2 Project Purpose and Scope

The purpose of this project is to determine the feasibility of pedestrian improvements to Peninsula Drive from Coral Way south to the terminus of Peninsula Drive, which is south of Demotte Avenue. This will include improvements to the Peninsula Drive intersections at Dunlawton Avenue (SR A1A) and Demotte Avenue with new safety enhancements and wayfinding signage. These new pedestrian improvements will have two key benefits: increased connectivity and enhanced safety. The addition of sidewalks along the west side of Peninsula Drive and through the Down Under development will provide more connections for pedestrians to safely access surrounding businesses and destinations. Furthermore, these improvements will make walking a safer and more attractive alternative to all potential users. Those who live or work in the study area or the adjacent areas in Daytona Beach Shores and unincorporated Volusia County will be aided by these improvements by giving them more transportation choices. Also, people who are visiting the beach will have additional options for places that they may want visit with improvements to the sidewalk network.

A field review was conducted to collect data, evaluate corridor characteristics, help develop concept plans, and produce an opinion of probable cost. In addition, ADA requirements were used as guidance for the development of all concept plans.

The project team would like to extend appreciation to all agency representatives and stakeholders whose assistance in this project proved invaluable.

- Mr. Stephan Harris – *River to Sea Transportation Planning Organization*
- Mr. Tim Burman – *City of Port Orange*
- Ms. Lisa Epstein – *City of Port Orange*
- Ms. Margaret Tomlinson – *City of Port Orange*
- Ms. Penelope Cruz – *City of Port Orange*
- Ms. Valerie Duhl – *City of Port Orange*
- Mr. Johnnie Yongue – *City of Port Orange*
- Mr. Alex Popovic – *City of Port Orange*
- Mr. Amir Asgarinik – *Florida Department of Transportation*
- Mr. Mike Sanders – *Florida Department of Transportation*

A project location map is supplied in **Figure 2-1**. The project is shown as being divided into four areas:

1. Peninsula Drive from Dunlawton Avenue north to Coral Way, including the Dunlawton Avenue intersection.
2. Peninsula Drive from Dunlawton Avenue south to Demotte Avenue, including the Demotte Avenue intersection.
3. Peninsula Drive from Demotte Avenue to its southern terminus.
4. Down Under development area including the Dunlawton Avenue north and south service roads and north-south connecting road underneath the Dunlawton Avenue Memorial Bridge.

Figure 2-1. Project Location



3 Existing Conditions

The following section details the characteristics observed within the project study limits regarding facilities, physical conditions, environmental concerns, drainage, utilities, and right of way (ROW).

3.1 General Description

Streets and Intersections

The project study area along Peninsula Drive is located within the City of Point Orange, Florida and stretches approximately 0.34 miles from Coral Way to the southern terminus of Peninsula Drive, south of Demotte Avenue. The study area at the Down Under development area is also located within the City of Port Orange and includes north and south service roads parallel to the Dunlawton Avenue Memorial Bridge that connect underneath the bridge and a car parking area. Land immediately to the east of Peninsula Drive is within the City of Daytona Beach Shores and unincorporated Volusia County.

An initial field review was conducted by the project team on Thursday, September 16, 2021 during which the team inspected existing facilities and conditions, land use, and potential obstacles related to proposed new sidewalks including utilities, drainage structures, and roadside swales. A subsequent field review was conducted on Friday, October 22, 2021 to view potential pedestrian crossing locations and existing lighting during dark conditions. Existing conditions and observations, including photographs, were documented using a mobile Geographic Information System (GIS) data collection application. An inventory of the observations and photos is included in **Appendix A**.

Within the study corridor, Peninsula Drive is a two-lane urban minor arterial that runs north-south with a signalized intersection at Dunlawton Avenue. North of Dunlawton Avenue (SR A1A), Peninsula Drive (SR 441) is a Florida Department of Transportation (FDOT) maintained roadway with a posted speed of 35 mph, existing access management classification of 7, and existing context classification of C4, urban general. There is an existing sidewalk on the east side of the street, but no existing bicycle facilities. South of Dunlawton Avenue, Peninsula Drive is a City of Port Orange road. This section does not have an explicitly posted speed limit. There is existing sidewalk on the east side of the street only for the first parcel south of Dunlawton Avenue (Starbucks), but no other sidewalk or dedicated bicycle facilities exist on this section of Peninsula Drive. South of Demotte Avenue, the street does not have a centerline and serves approximately 12 single family residential lots as well as three multi-family residential developments, including Jade Winds Condos, Halifax East Apartments, and Admiralty Club.

The intersection of Peninsula Drive and Demotte Avenue is a three-leg, all-way stop controlled intersection. Demotte Avenue is a two-lane street and all three approaches to the intersection have a single lane. There are currently no crosswalk markings on any leg of the intersection, although there is a sidewalk on the north side of Demotte Avenue that connects to the intersection from S. Atlantic Avenue, providing a connection to the beach and residential area to the east. There is an existing streetlight in the southeast corner of the Peninsula Drive / Demotte Avenue intersection.

Dunlawton Avenue is a four-lane divided urban principal arterial with a posted speed of 35 mph in the vicinity of the Peninsula Drive intersection and a context classification of C4, urban general. The intersection at Peninsula Drive is a four-leg signalized intersection. Both the northbound and southbound approaches on Peninsula Drive include a dedicated left-turn lane and shared through/right-turn lane. The eastbound approach on Dunlawton Avenue includes an exclusive left turn lane, two through lanes, and an exclusive right turn lane. The westbound approach includes an exclusive left turn lane and two through lanes, with the outside lane shared with right turns. There are currently only two marked crosswalks, on the north and east legs of the intersection, which are also the only legs with pedestrian signal features.

Immediately west of the Dunlawton Avenue / Peninsula Drive intersection and prior to the Dunlawton Avenue Memorial Bridge, there is a one-lane, one-way westbound service road that exits from Dunlawton Avenue and serves as an access to the Down Under development area. That facility, which is owned by FDOT and leased and maintained by the City of Port Orange, is one-way westbound until reaching the north-south connector road underneath the bridge, at which point it becomes a two-lane, two-way facility to the parking area at edge of the Halifax River. There is an existing sidewalk at back of curb along the north service road. There is also a signed and marked crosswalk along the one-way section of this service road that provides access to a ramp and staircase for access to a sidewalk that provides access onto and over the north side of the Dunlawton Avenue Memorial Bridge.



Existing sidewalk along the Dunlawton Avenue north service road and existing crossing to stairs and ramp providing access to sidewalk on the Dunlawton Bridge.

The service road on the south side of Dunlawton Avenue also provides access to the Down Under development. This road is a two-lane, two-way facility that connects to Peninsula Drive about 60 feet south of the Dunlawton Avenue intersection at a T-intersection with stop control on the service road. There are no existing pedestrian or bicycle facilities on the south service road. Like the north service road, it is owned by FDOT but leased and managed by the City of Port Orange.

The road providing a north-south connection underneath the bridge between the service roads on the north and south sides of Dunlawton Avenue is a two-lane, two-way road with stop control at both ends, and no existing pedestrian or bicycle facilities. This road is also FDOT-owned and leased and maintained by the City of Port Orange.

Signalization

The only traffic signal within the study area is at the Dunlawton Avenue and Peninsula Drive intersection. Signal poles with mast arms are located in the northwest and southeast corners of the intersection. Both the eastbound and westbound left turn movements on Dunlawton Avenue operate with protected plus permissive left turn phasing and have five-section signal heads. The northbound left turn movement on Peninsula Drive also operates with protected plus permissive left turn phasing, and also has a five-section signal head. However, the southbound left turn movement on Peninsula Drive operates with permissive only left turn phasing and has a three-section signal head.

Pedestrian signals and push buttons are provided for the marked crosswalks on the north and east legs of the intersection. Existing pedestrian signal heads and push buttons in the northeast and southeast quadrants of the intersection are mounted on a pedestal pole. The pedestrian signal head in the northwest corner of the intersection is mounted on the signal pole, but the pedestrian push button is mounted on a separate pedestal pole.

There is an existing No Turn on Red blank out sign mounted on the signal mast arm facing southbound traffic.

Existing Transit

Route 17 (South Atlantic) for the Volusia County Public Transit System (VOTRAN) utilizes a short section of Peninsula Drive between Raymond Street and Dunlawton Avenue during its night (17N) and Sunday (17S) time periods, although there are no bus stops along Peninsula Drive. There are, however, two bus stops on Dunlawton Avenue just east of the Peninsula Drive intersection, servicing routes 17B, 17N, and 17S. Stop 253 is a westbound / outbound connection point that transports riders across the Dunlawton Avenue Memorial Bridge towards US 1. Stop 256 is a northbound / inbound connection point that transports riders to various beachside destinations along SR A1A to the north. During the design and permitting phase, coordination with VOTRAN for Routes 17B, 17N, 17S, and any other planned routes that may interact with the study area is recommended.



Existing VOTRAN routes 17B, 17N, and 17S (shown in light blue) with two stops at Dunlawton Avenue and Peninsula Drive.

Land Use

Land uses within the study area to the north and south of Dunlawton Avenue are residential, although there is a concentration of commercial properties along Dunlawton Avenue and within the Down Under development area. These commercial developments include:

- Dairy Bar (restaurant)
- Dunes Brewing (restaurant)
- Jimmy Hula's Port Orange (restaurant)
- Two Jerks Seafood (market)
- Our Deck Down Under (restaurant)
- Millie's Landing (restaurant)
- Dimucci Realty Company (commercial)
- Starbucks (restaurant)
- Atlantic Shores Management (commercial)
- CVS (pharmacy)
- Genovese's Pizza (restaurant)
- Ocean's Edge Veterinary Clinic (medical)
- casualbird (restaurant)

The Down Under revitalization project is supported by the City of Port Orange as it was included in the city's FY 2020 Capital Improvements Plan (CIP) to initiate improvements to transform the area into a unique destination in the River District. The City Council supports the development of this area as a walkable commercial node with significant placemaking opportunities. Proposed improvements to the Down Under include reestablishing a master sign program for this area, adding site furnishings (railings, benches, bike racks, trash cans, tables, etc.), establishing drought and salt tolerant, native or Florida friendly landscaping to the area, adding additional parking, installing colored up lighting and painting murals on the concrete bridge pilings and walls under the bridge, water-based educational features, restoring a living shoreline, and repaving and striping of the shared parking. A conceptual drawing for the Down Under area is included in **Appendix B**.

3.2 Right-of-Way

Parcel boundaries were obtained from Volusia County's GIS website and used for apparent ROW width, which varies along the study corridor. The City of Port Orange provided additional information and exhibits to help confirm the existing ROW limits in the vicinity of the Dunlawton Avenue / Peninsula Drive intersection. Dunlawton Avenue generally has a 150-foot ROW width west of Peninsula Drive and a 100-foot ROW width east of Peninsula Drive, while Peninsula Drive has an approximate 50-foot ROW width immediately north of Dunlawton Avenue and an approximate 60-foot ROW width immediately south of Dunlawton Avenue. ROW widths further south on Peninsula Drive approaching and to the south of Demotte Avenue vary from approximately 60 to 70 feet. The City of Port Orange leases land from FDOT in the Down Under development area that includes both sides of the Dunlawton Avenue south service road.

Analyzing the apparent ROW lines, the primary constraint in adding new sidewalks is at the northwest corner of the Dunlawton Avenue / Peninsula Drive intersection. The apparent ROW line is very close (less than three feet) from the back of curb along Peninsula Drive. This area

will likely require a slight reconfiguration of Peninsula Drive including lane narrowing in order to accommodate a new sidewalk on the west side of the street.

At the southwest corner of the Dunlawton Avenue / Peninsula Drive intersection there are several tall wooden posts with a utility box that previously included a lighted sign. These posts could potentially be in the path of the potential new sidewalk, although a sidewalk alignment that stays at the back of existing curb can avoid impacts to these posts. The posts may be used in the future for new signage for the Down Under development area.



Wooden posts at the southwest corner of the Dunlawton Avenue intersection.

3.3 Utilities

The project team completed a utilities assessment on the study corridor. There are overhead distribution power lines that run along the east side of Peninsula Drive and along the south side of the Dunlawton Avenue south service road. The relocation of existing utilities, such as poles, is not anticipated.

A Sunshine One Call Ticket identified the following utilities along the corridor:

- City of Daytona Beach Shores – Sewer
- City of Daytona Beach Shores – Electric
- Florida Power and Light - Electric
- City of Port Orange – Reclaimed Water, Sewer, Water
- AT&T / Distribution – Telephone
- TECO Peoples Gas – Gas
- Charter Communications – CATV

The Sunshine One Call Ticket is supplied in **Appendix C**. In addition to these utilities, Volusia County has signalization infrastructure located in the study area, as well as FDOT ITS infrastructure.

3.4 Drainage and Permitting

Drainage along the roadways in the study area is primarily accommodated by roadside swales that vary in depth relative to the roadway. However, Peninsula Drive from the Dunlawton Avenue intersection to the north has curb and gutter with closed drainage.

The Peninsula Drive intersections at both Dunlawton Avenue and Demotte Avenue have existing drainage structures that need to be modified to accommodate sidewalk additions. The inlets are on the northwest corner of the Dunlawton Avenue intersection and the northeast corner of the Demotte Avenue intersection.



The images above show drainage structures on Peninsula Drive at the intersections of Dunlawton Avenue, northwest corner (left) and Demotte Avenue, northeast corner (right).

The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRMs) for the study area in Volusia County were reviewed, showing potential impact by identified floodplains on the corridor. The impact to the floodplains from work performed are expected to be negligible. Any fill in the floodplain is anticipated to be compensated with excavating. The volume of fill must equal the volume of excavation so that overall volume available in the floodplain remains unchanged. The FIRM for the study area is provided in **Appendix D**.

There is no anticipated impact to wetlands. However, the exact wetland edge should be determined through surveying during final design to better understand the impacts presented. Based on the findings during final design related to wetlands, it is recommended to avoid impacts where possible, and mitigate impacts where necessary.

The new sidewalks are anticipated to be exempt from permitting under 62-330.051(10)(b) F.A.C. for having a width of ten (10) feet or less for pedestrian paths, depending on the level of wetland impacts. Determination of qualification for an activity exemption can be obtained through the St. Johns River Water Management District (SJRWMD). Once potential impacts are known during the design and permitting phase, a pre-application meeting should be held with the SJRWMD to verify whether the project qualifies for an exemption (62-330.051, Florida Administrative Code & Florida Administrative Register).

3.5 Soils

The Peninsula Drive study area subsurface consists of Palm Beach-Urban land-Paola complex soil, an excessively drained sandy soil and part of Hydrologic Soil Group A. The Down Under development area consists of Turnbull variant sand, a somewhat poorly drained soil and part of Hydrologic Soil Group A/D. A soil map is provided in **Appendix E**. The map was prepared using GIS data from the USDA Natural Resources Conservation Services (NCRS).

3.6 Environmental

The portion of the study area along Peninsula Drive and the Down Under development area is located primarily in commercial and residential land use.

Impacts to any endangered or protected species is expected to be negligible. The Florida Fish and Wildlife Conservation Commission (FWC) identifies the project area as being part of a scrub-jay consultation area. However, a query of the Florida Natural Areas Inventory (FNAI) Biodiversity Matrix did not show the presence or potential presence of scrub jay in the vicinity of the project. Based on a review of the Florida Fish and Wildlife Conservation Commission (FWC) Historical Bald Eagle Nesting Map, there are no bald eagle nests known to occur within 660 feet of the project corridor. USFWS has de-listed the bald eagle; however, protection will continue under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. During the field reviews on September 16, 2021, no eagles were observed in the study area. FWC Gopher Tortoise Permitting Guidelines were also obtained to examine the gopher tortoise overlay observed in *Volusia County's Growth and Resource Management (GRM) Interactive Map*. Gopher tortoises are threatened wildlife species protected by state law (Chapter 68A-27, Florida Administrative Code), and must be relocated before any development / land clearing takes place. No gopher tortoise burrows were observed during the field review on September 16, 2021, however per FWC's Guidelines a preconstruction survey should be conducted to guarantee there is no potential for disturbance by construction of the new proposed sidewalk segments, or if a permit is required. The Florida Natural Areas Inventory (FNAI) Element Occurrence data does not identify any documented listed species within the project area.

The FNAI does not identify any part of the corridor as being conservation land. The Florida Department of Environmental Protection (FDEP) identifies no area within the study limits as Outstanding Florida Water. Volusia County is within a Central (Ocala) Bear Management Unit (BMU). The limited scope of this project make it unlikely that protected species or any wildlife will be affected by this project. During the design and permitting phase, potential impacts to any species should be re-evaluated.

3.7 Lighting

A qualitative lighting evaluation was conducted by the project team on October 22, 2021, during dark conditions at proposed crossing points within the study area. No quantitative lighting measurements were taken.

There are light poles and fixtures in each quadrant of the Dunlawton Avenue / Peninsula Drive intersection. In the northeast quadrant, there is a cobra head light pole that appears to have a high-pressure sodium light fixture located approximately 60 feet beyond the edge of the crosswalk on the north leg of the intersection. The southeast quadrant has a similar cobra



Existing lighting at the Dunlawton Avenue / Peninsula Drive intersection looking south.

head light pole approaching the intersection; however, this light fixture was not working during our field visit. It is recommended that it be fixed to provide more lighting at this intersection. There are decorative light fixtures along Dunlawton Avenue on the north and south sides of the road approximately 45 and 65 feet east of the Peninsula Drive intersection, respectively. However, the existing and potential new crosswalks at the intersection are not adequately lit.

As noted previously, there is a light pole in the southeast corner of the Peninsula Drive / Demotte Avenue intersection, although it does not appear to provide sufficient lighting of the proposed new crosswalk location on the north leg of the intersection. There is no street lighting provided along the streets evaluated in the Down Under development area, although some areas receive ambient lighting from light fixtures located on the Dunlawton Avenue Memorial Bridge. Proposed crosswalk locations in this area will need lighting upgrades.

3.8 Bridges

A new sidewalk is proposed to pass underneath the Dunlawton Avenue Memorial Bridge connecting between the services roads on the north and south sides of the bridge. There will be no impact to existing bridge structures.

4 Wayfinding Signage

The City of Port Orange desires to provide new signage near the Down Under development area to provide wayfinding for pedestrians, bicyclists, and drivers. This section includes a review of guidelines for the installation of wayfinding signs, including what is permissible by the federal Manual on Uniform Traffic Control Devices (MUTCD) and FDOT's Highway Guide Sign Program. General parameters such as sign sizes and potential locations are considered, but specific sign messaging and sign styles are beyond the scope of work for this project. Examples of wayfinding signage from communities in the region were also reviewed.

The MUTCD provides the following support information and standards for community wayfinding signage in Section 2D.50:

- Community wayfinding guide signs are part of a coordinated and continuous system of signs that direct tourists and other road users to key civic, cultural, visitor, and recreational attractions and other destinations within a city or a local urbanized area or downtown area.
- Community wayfinding guide signs are a type of destination guide sign for conventional roads with a common color and/or identification enhancement marker for destinations within an overall wayfinding guide sign plan for an area.
- Community wayfinding guide signs shall not be used to provide direction to primary destinations or highway routes or streets. Destination or other guide signs shall be used for this purpose as described elsewhere in this Chapter and shall have priority over any community wayfinding sign in placement, prominence, and conspicuity.
- Because regulatory, warning, and other guide signs have a higher priority, community wayfinding guide signs shall not be installed where adequate spacing cannot be provided between the community wayfinding guide sign and other higher priority signs. Community wayfinding guide signs shall not be installed in a position where they would obscure the road users' view of other traffic control devices.
- Community wayfinding guide signs shall not be mounted overhead.

Section 2D.04 of the MUTCD provides information on the size of guide signs on conventional roads. While many types of guide signs are standardized and have standard sign sizes specified in Table 2D-1, community wayfinding guide signs are not a standard sign type, and no specific sizing is specified. The MUTCD specifically notes that "For other guide signs, the legends are so variable that a standardized design or size is not appropriate. The sign size is determined primarily by the length of the message, and the size of lettering and spacing necessary for proper legibility."

The Florida Administrative Code (FAC) Chapter 14-51 includes rules and criteria for Florida's Highway Guide Sign Program. Part V addresses Community Wayfinding Guide Signs, including Chapters 14-51.051 Standards, 14-51.052 Design, 14-51.053 Pedestrian Wayfinding Signs, and 14-51.054 Informational Guide Signs. Key criteria include the following:

- Design (14-51.052, FAC)
 - Red, yellow, orange, purple, or the fluorescent versions thereof, fluorescent yellow-green, or fluorescent pink shall not be used as background colors for community wayfinding signs in order to minimize confusion with critical, higher-priority regulatory, warning, construction, or incident management sign color meanings readily understood by road users.
 - Enhancement markers may be used, at the option of the applicant, as a means of visually identifying the sign as a part of an overall system of community wayfinding guide signs. The size and shapes of identification enhancement markers shall be smaller than the community wayfinding guide signs themselves. Identification enhancement markers shall not be designed to have an appearance that could be mistaken by road users as being a traffic control device.
 - There shall be a maximum of four destinations shown on each community wayfinding guide sign.
- Pedestrian Wayfinding Signs (1-51.053, FAC)
 - Pedestrian wayfinding signs that are designed as a part of a community wayfinding guide sign system plan are intended to provide direction to pedestrians or other users of a sidewalk or other roadside area and should be located to minimize their conspicuity to vehicular traffic. If used, such signs should be located as far as practical from the street, such as at the far edge of the sidewalk. Where locating such signs farther from the roadway is not practical, the pedestrian wayfinding signs shall have their conspicuity to vehicular traffic minimized by employing one or a combination of the following methods:
 - Locating signs away from intersections where high-priority traffic control devices are present.
 - Facing the pedestrian message toward the sidewalk and away from the street.
 - Cantilevering the sign over the sidewalk if the pedestrian wayfinding sign is mounted at a height consistent with vehicular traffic signs, removing the pedestrian wayfinding signs from the line of sight in a sequence of vehicular signs.
 - To minimize their conspicuity to vehicular traffic during nighttime conditions, pedestrian wayfinding signs shall not be retro-reflective.
 - The intent of pedestrian wayfinding signs is to provide guidance and navigation information to local cultural, historical, recreational, and tourist activities. No destination shall be displayed for the purpose of advertising.

4.1 Wayfinding Signage Examples

On September 16, 2021, various examples community and pedestrian wayfinding signs were reviewed in the City of Daytona Beach along SR A1A and cross streets in the Beachside area, as well as in downtown New Smyrna Beach.

The City of Daytona Beach has a robust wayfinding signage program, and examples of both community and pedestrian wayfinding signs were reviewed to provide general guidance for this effort. While the destination portion of the community wayfinding signs look the same citywide, a colored and specifically shaped enhancement marker is used to accentuate different wayfinding areas within the city, including Beachside (light blue), Downtown (purple), Midtown (yellow), Speedway (light red), and LPGA (light green). The destination portion of the signs are rectangular. Including the enhancement marker, the signs are approximately four feet in height, with widths ranging from six to seven feet. Pedestrian wayfinding signs are also rectangular and include use the same area color scheme and a similarly shaped enhancement marker. The pedestrian wayfinding signs, including enhancement marker, are typically 22 inches high by 32 inches wide.

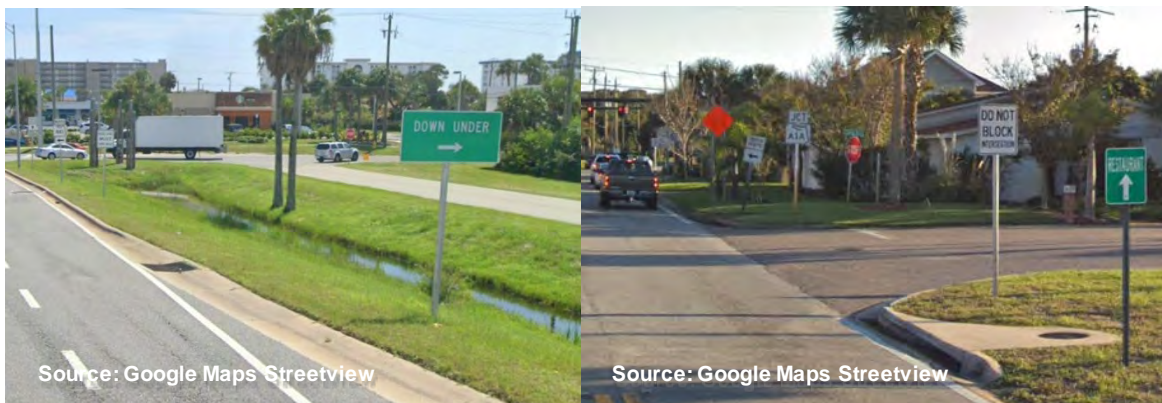


Examples of community wayfinding signs in Daytona Beach (left) and New Smyrna Beach (right).



Example of pedestrian wayfinding sign in Daytona

In most cases, the pedestrian wayfinding signs were placed along the sidewalk in the direction facing oncoming traffic, and therefore not visible to adjacent vehicle traffic. Pedestrians walking in the same direction of traffic can read community wayfinding signs intended for vehicle traffic.



Existing “Down Under” (left image) and “Restaurant” (right image) guide signs on eastbound Dunlawton Avenue and southbound Peninsula Drive, respectively.

The City of Port Orange should consider a community wayfinding signage program that would identify specific areas or districts, key destinations, specific sign styles, sizes, and specific messaging and locations. Once a framework is developed, specific signs to serve the Down Under development area and other nearby destinations can be developed. It is noted that there is an existing green guide sign on eastbound Dunlawton Avenue on the approach to the Peninsula Drive intersection that directs drivers to turn right to the Down Under area. In addition, there is also an existing green “Restaurant” sign north of Dunlawton Avenue on the west (southbound) side of Peninsula Drive just north of Coral Way that directs drivers to the south. These existing signs could be replaced as part of a community wayfinding signage program or could be supplemented to enhance wayfinding specific to the Down Under area. In the latter case, the existing “Restaurant” sign should be replaced to provide consistent messaging.

5 Sidewalk Concept Plan

The following section outlines the concept plans for the project which are attached in **Appendix F**. Typical Sections are in **Appendix G**.

5.1 Sidewalks, Driveways, and Cross Streets

The concept plan includes proposed new sidewalk along Peninsula Drive, the south service road adjacent to Dunlawton Avenue, and the north-south road connecting underneath the Dunlawton Avenue Memorial Bridge. Criteria from the FDOT Design Manual (FDM) were followed for minimum standards and design criteria for sidewalks along section of state roadway, and the FDOT Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (commonly known as the Florida Greenbook) was used for non-state-roadway sections.

The following items were considered during the development of the concepts:

- Connection to the existing sidewalk at Demotte Avenue.
- Future parking on the south side of the service road on the south side of Dunlawton Avenue.
- Providing access to the Down Under area.
- Improving lighting at the proposed pedestrian crossings.
- ADA enhancements at the Dunlawton Avenue / Peninsula Drive intersection.

As discussed previously in Section 3.2, the sidewalk in the proposed concept was developed to avoid having to acquire any ROW. Because the apparent ROW line is very close (less than three feet) from the back of curb along Peninsula Drive at the northwest corner of Dunlawton Avenue, the concept proposes moving the curb out six feet to allow room for the sidewalk. This reduces the lane widths to 10 feet, which is the minimum acceptable per the FDM 210.2 and Table 210.2.1 which specifies a minimum 10-foot travel lane and auxiliary lane width in C4 context classification at 35 mph design speed. The curb radius will be maintained to match existing and will not affect any traffic movements. Two separate parallel-style curb ramps are proposed on the northwest corner with separate pedestal poles for the pedestrian push buttons.

The southeast corner of the Dunlawton Avenue / Peninsula Drive intersection is proposed to be reconfigured to allow two curb ramps and a four-foot minimum level landing area at the back of the ramps, along with two separate pedestal poles for pedestrian push buttons. The apparent ROW on this corner shows that the existing sidewalk is partially on private property. There is also an adjacent City of Daytona Beach Shores monument sign, although it is not anticipated to be impacted by the concept. Coordination will be needed with the City of Daytona Beach Shores and the property owner to make the improvements on the southeast corner of the intersection.

No changes are proposed to the single curb ramp in the northeast corner of the Dunlawton Avenue / Peninsula Drive intersection. However, the sidewalk is proposed to be expanded at

the corner to provide a four-foot level landing area at the back of the ramp. Additionally, the single pedestal pole with pedestrian push buttons and signals is proposed to be replaced with two separate pedestal poles. Similar to the southeast corner, the apparent ROW on the northeast corner shows that the existing sidewalk is partially on private property, although the proposed improvements would not impact the existing parking lot for the veterinary clinic located on that corner. Coordination will be needed with the City of Daytona Beach Shores and the property owner to make the proposed improvements on this corner.

North of the Dunlawton Avenue intersection (Area 1), the proposed sidewalk is six feet wide at the back of type F curb until it approaches the property in the southwest corner of Peninsula Drive and Coral Way. It is desirable for the concept to avoid impacts to landscaping on private property, therefore, the sidewalk was reduced to a five-foot width at the back of curb adjacent to this residential parcel connecting to Coral Way to avoid existing landscaping and trees.

The proposed concept adds sidewalk to the southwest corner of the Dunlawton Avenue intersection and adds two new pedestrian crosswalks. The plans show new crosswalk markings, curb ramps, and pedestrian signal infrastructure to support these improvements.

The concept on Peninsula Drive south of the south service road (Area 2) proposes a five-foot sidewalk on the west side of the road with a five-foot offset from the road, which meets criteria from Florida Greenbook Chapter 8, Section C.2.a. The current signage along the west side of the road will have to be relocated to accommodate the sidewalk. As part of a separate project, the City is evaluating the construction of an eastbound right turn lane on the south service road at Peninsula Drive. This potential turn lane is shown in the concept plan, but the proposed new sidewalk is currently shown to tie in at the existing southern edge of pavement. If the eastbound right turn lane is constructed prior to the proposed sidewalk, the tie-point and detectable warning placement would need to be adjusted, and the crosswalk markings extended. The sidewalk is proposed to end at Demotte Avenue, with a new crosswalk to the existing sidewalk on the north side of Demotte Avenue. In the northeast corner of the Demotte Avenue intersection, it is proposed to realign the sidewalk around the north side of an existing drainage grate that is currently located within and at the terminus of the sidewalk. Since Demotte Avenue is a Volusia County road, coordination will be needed with the County regarding this modification on the northeast corner of the Peninsula Drive / Demotte Avenue intersection.

Extending the new sidewalk south of Demotte Avenue (Area 3) was considered, but was not recommended for the following reasons:

- Immediately south of Demotte Avenue at the Jade Winds Condos, there is an existing curbed island that includes electrical and water utilities in the preferred location for sidewalk. Although there appears to be space within the existing right-of-way to the west side (condo side) of the island, that area is currently striped for parking. It was considered to stripe a five-foot wide area to the east side of the island as an advisory shoulder or pedestrian lane (per guidance in the Federal Highway Administration's Small Town and Rural Multimodal Networks). However, this would have been an unusual and unexpected condition that narrows the effective width of the street.
- Further south on Peninsula Drive, the west side of the road has a very small swale to accommodate stormwater. While a new sidewalk could potentially be placed behind

the swale for portions of the length to the roadway's southern terminus, such as adjacent to the Admiralty Club, portions of sidewalk would need to be located at the edge of roadway behind curb and gutter, with the drainage piped below the sidewalk. Existing driveways such as at the Halifax East Apartments currently use an undersized pipe, so these areas would have to be excavated to upsize the drainage pipe and ensure adequate flow to the outflow point. This upgrade of drainage infrastructure was determined to be too extensive compared to the benefit the sidewalk on this one-block section of road would provide.

- The potential for an advisory shoulder or pedestrian lane could potentially be extended from the curbed island at the Jade Winds Condos to the southern end of Peninsula Drive, but as noted above, would be an unusual and unexpected condition that narrows the effective width of the street.

In Area 4, a six-foot sidewalk and curb and gutter are proposed along the north side of the Dunlawton Avenue south service road to allow pedestrians to access the Down Under area. The sidewalk will include decorative handrail as a safety measure due to the slope of the existing drainage ditch. A new crosswalk is proposed to connect this new sidewalk to the existing sidewalk along the north side of the north service road.

It is also recommended to refresh the existing crosswalk markings on the north service road where a connection is provided to sidewalk that continues over the Dunlawton Avenue Memorial Bridge.

Although not specifically included as part of the sidewalk improvements, the City of Port Orange is considering two other improvements along the south service road – 90-degree head-in parking spaces on the south side of the road, and an eastbound right turn lane at the Peninsula Drive intersection. The parking would provide additional formalized parking capacity for the Down Under area, and although no specific concepts have been developed to date, may remain more natural, e.g., unpaved, grass parking with railroad ties or other features to delineate the area or specific spaces. The right turn lane is desired because some drivers bypass queued vehicles waiting to turn left on Peninsula Drive by driving off the edge of the road to turn right. Queuing on the south service road occurs frequently due to the very short distance between its intersection on Peninsula Drive and Dunlawton Avenue, which results in vehicles not being able to turn left out from the service road. The concept plans show both potential parking and right turn lane improvements, to be completed by others.

Sidewalk was considered along the south side of the south service road (and on the south side of the proposed parking area) but was determined to be less desirable than placing it on the north side of the road due to its location within the limits of existing floodplain and the potential need for either more extensive grading or potential use of boardwalk.

New sidewalk is proposed along the west side of the north-south road underneath the Dunlawton Avenue Memorial Bridge. This sidewalk will cross the ditch along both the north and south service roads using an 18-inch pipe and mitered end sections. It was determined that this concept would impact drainage less than providing sidewalk on the east side of this road, while still providing pedestrians access to the north service road. At the intersection with the north service road, a new crossing is proposed on the west leg of the intersection to the existing sidewalk on the north side of the road, and a new crossing is proposed on the south leg of the intersection, with a short section of sidewalk tying to the existing base of the stairs up

to the Dunlawton Avenue Memorial Bridge sidewalk. Minor modifications to the existing handrail would be required in this area.

The concept also shows a potential location for a concrete pad to locate new bike racks adjacent to the sidewalk on the west side of the north-south road underneath the bridge.

5.2 Drainage

The following design considerations will minimize drainage impacts to the project:

- Construct two new curb inlets on either side of the northwest corner of the Peninsula Drive and Dunlawton Avenue intersection to allow for curb ramps on the corner. The curb inlets will be connected to the existing drainage system. The corner will also need to be overbuilt to prevent ponding at the bottom of the curb ramps.
- Construct two flume inlets along the proposed sidewalk along the Dunlawton Avenue south service road to facilitate drainage to the existing drainage ditch.
- Construct sidewalk over the existing west-side swale on the north and south ends of the north-south road underneath the Dunlawton Avenue Memorial Bridge using 18" pipe and mitered end sections to allow for the normal flow of drainage.

Where the sidewalk is proposed along the existing drainage ditch, fill may be required to tie down to the existing slope but will have minimal impact on the overall pond capacity.

5.3 Lighting and Traffic Control

Adequate lighting should be provided at all new marked pedestrian crosswalks. Insufficient illumination of the crosswalk during nighttime conditions could jeopardize the safety of pedestrians if no intersection improvements are considered. The FHWA Informational Report on Lighting Design for Midblock Crosswalks recommends that lighting of crosswalks be placed just in front of the crosswalk on the approach side to create optimal visibility of pedestrians. The corridor was visited to evaluate the lighting throughout the project, and it was determined that additional lighting would be needed at all proposed pedestrian crossings.

As discussed previously in Section 3.9, the intersection at Dunlawton Avenue and Peninsula Drive will need improved lighting due to the new pedestrian crossing locations. The intersection will also need additional pedestrian signal head and pedestal poles for push buttons to accommodate the new pedestrian movements.

5.4 Utilities

The concept plans identify utilities visible during the field visit. These include existing utility poles and water manholes. In addition, buried gas line was noted along the area of the proposed parking to be constructed by others along the Dunlawton Avenue south service road.

5.5 Wayfinding Signage

The concept plan includes several potential locations near the Dunlawton Avenue / Peninsula Drive intersection for community wayfinding guide signs or pedestrian wayfinding signs, which could be considered as part of an overall citywide wayfinding signage plan. Proposed locations include the following:

- Potential new community wayfinding guide signs:
 - Along eastbound Dunlawton Avenue approaching the Peninsula Drive intersection, as a replacement of the existing green guide sign for the Down Under development.
 - Along westbound Dunlawton Avenue immediately beyond the Peninsula Drive intersection at the entrance of the slip ramp to the north service road.
 - Along southbound Peninsula Drive approaching the Dunlawton Avenue intersection, as a replacement to the existing “Restaurant” sign although the sign should be relocated to south of Coral Way.
 - In the southwest corner of the Dunlawton Avenue / Peninsula Drive intersection, either using or in place of the existing wood poles that previously were used for signage. This location could use dual-facing signs, oriented facing northbound and southbound traffic.
- A new pedestrian wayfinding sign along the Dunlawton Avenue north service road at the connecting point to the sidewalk that continues over the Dunlawton Avenue Memorial Bridge. Any pedestrians coming east over the bridge will either walk down the stairs or ramp to this point, and any pedestrians coming from the east towards the bridge and Down Under area will also come to this point.
- A new pedestrian wayfinding sign could also be placed in the southwest corner of the Dunlawton Avenue / Peninsula Drive intersection to help direct pedestrians, but would be dependent on what is done with the potential larger community wayfinding guide sign at this location. The pedestrian wayfinding sign would only be needed if a community wayfinding sign in the same orientation facing south was not provided.

Another potential option would be to continue to use simple green guide signs, similar to the two existing signs. These should use consistent messaging. In any case, coordination with FDOT for the proposed signage plan will be required. FDOT Traffic Operations staff can review conceptual sign plans before submittal for permitting to verify that the signage will be acceptable in terms of elements such as the sign sizes and colors, messaging, and proposed placement. FDOT Traffic Operations has also offered to share example signage packages, if desired.

6 Financial Feasibility

This section outlines the preliminary opinion of probable cost for the design and construction of all proposed sidewalk improvements along the Peninsula Drive corridor. For estimating the probable cost, a five- to six-foot wide sidewalk on Peninsula Drive was assumed, which is also reflected in the concept plans. For the purposes of this feasibility study, the material of the proposed new sidewalk will be concrete that meets the updated City of Port Orange standards (i.e., four-inch, 2,500 psi with #4 deformed metal rebar). City requirements for M-6 construction are included in **Appendix H**. It is noted that although the City standard calls for a six-inch thickness of sidewalk at driveways, there are no driveways that will need new concrete (proposed sidewalk will tie into two existing driveways on the west side of Peninsula Drive north of Dunlawton Avenue).

The opinion of probable cost pay item numbers, and units of measurement are based on the FDOT historical 2021 market area 6 item annual averages cost report, supplemented with historical 2021 statewide annual averages cost report. This opinion of probable cost is completed for the feasibility study to allow the R2CTPO and City of Port Orange to determine the priority of any planned improvements. It should be noted that utility relocation costs are typically borne by the utility company, so no specific costs were included for utility relocations. Utility relocations of the buried fiber optic cables within the study corridor that may be impacted with the proposed trail are anticipated, however the total estimated opinion of probable cost of the project does not include utility relocation costs. Unit prices for pay items are determined from historical average costs provided through FDOT. To accommodate future increases in the opinion of probable cost, an inflation factor was applied based on FDOT guidelines for roadway construction costs. A list of FDOT approved inflation factors through 2059 is provided in **Appendix I**.

Table 5-1 summarizes the estimates for the corridor and **Table 5-2** summarizes inflation for the corridor through 2025. The total estimated opinion of probable cost of the project in current year dollars is \$821,000.



Table 5-1. Peninsula Drive Quantities and Opinion of Probable Cost

| PRELIMINARY OPINION OF PROBABLE COST FOR CONSTRUCTION * | | | | | |
|---|---|------|-------------|----------|--------------|
| PENINSULA DRIVE SIDEWALK PROJECT | | | | | |
| FDOT Pay Item No. | Description | Unit | Unit Cost | Quantity | Cost |
| 0101 1 | MOBILIZATION | LS | 15% | 1 | \$60,075.39 |
| 0102 1 | MAINTENANCE OF TRAFFIC | LS | 10% | 1 | \$40,050.26 |
| 0104 10 3 | SEDIMENT BARRIER | LF | \$1.62 | 1,262 | \$2,044.44 |
| 0104 18 | INLET PROTECTION SYSTEM | EA | \$114.46 | 5 | \$572.30 |
| 0110 1 1 | CLEARING & GRUBBING | AC | \$18,119.32 | 0.4 | \$7,247.73 |
| 0110 4 10 | REMOVAL OF EXIST CONC | SY | \$27.48 | 16 | \$431.44 |
| 0120 6 | EMBANKMENT | CY | \$14.70 | 313 | \$4,601.10 |
| 0425 2 91 | MANHOLES, J-8, <10' | EA | \$8,355.49 | 1 | \$8,355.49 |
| 0425 1351 | INLETS, CURB, TYPE P-5, <10' | EA | \$5,531.13 | 2 | \$11,062.26 |
| 0425 1910 | INLETS, CLOSED FLUME | EA | \$5,278.00 | 2 | \$10,556.00 |
| 0430984625 | MITERED END SECT, OPT / OTHER, 18" SD | EA | \$1,789.00 | 6 | \$10,734.00 |
| 0430175118 | PIPE CULV, OPT MATL, ROUND, 18"S/CD | LF | \$103.59 | 32 | \$3,314.88 |
| 0430175218 | PIPE CULV, OPT MATL, OTHER, 18"S/CD | LF | \$89.28 | 18 | \$1,607.04 |
| 0520 1 10 | CONCRETE CURB & GUTTER, TYPE F | LF | \$27.15 | 933 | \$25,330.95 |
| 0515 2211 | PED/BICYCLE RAILING, STL, 42" TYPE 1 | LF | \$160.00 | 684 | \$109,440.00 |
| 0522 1 - ALTERNATE | CONCRETE SIDEWALK AND DRIVEWAYS, 4" | SY | \$52.00 | 1,099 | \$57,133.38 |
| 0522 2 | CONCRETE SIDEWALK AND DRIVEWAYS, 6" | SY | \$59.15 | 160 | \$9,484.24 |
| 0527 2 | DETECTABLE WARNINGS | SF | \$29.31 | 231 | \$6,784.97 |
| 0570 1 2 | PERFORMANCE TURF, SOD | SY | \$3.18 | 489 | \$1,555.02 |
| 0630 2 11 | CONDUIT, F&I, OPEN TRENCH | LF | \$8.84 | 100 | \$884.00 |
| 0630 2 12 | CONDUIT, F&I, DIRECTIONAL BORE | LF | \$19.87 | 135 | \$2,682.45 |
| 0632 7 2 | SIGNAL CABLE, REPAIR/REPL-FUR & INSTALL | LF | \$11.00 | 400 | \$4,400.00 |
| 0635 2 11 | PULL & SPLICE BOX, F&I, 13" x 24" | EA | \$886.76 | 1 | \$886.76 |
| 0646 1 11 | ALUMINUM SIGNALS POLE, PEDESTAL | EA | \$2,253.14 | 8 | \$18,025.12 |
| 0653 1 11 | PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY | AS | \$717.05 | 8 | \$5,736.40 |
| 0665 1 12 | PEDESTRIAN DETECTOR, F&I, ACCESSIBLE | EA | \$1,235.00 | 8 | \$9,880.00 |
| 0678 1104 | CNTRL ACCESS, F&I, LOAD SWITCH | EA | \$300.00 | 2 | \$600.00 |
| 0700 1 50 | SINGLE POST SIGN, RELOCATE | AS | \$408.52 | 20 | \$8,170.40 |
| 0700 3101 | SIGN PANEL, F&I GM, UP TO 12 SF | EA | \$243.88 | 1 | \$243.88 |
| 0700 3103 | SIGN PANEL, F&I GM, 21-30 SF | EA | \$832.07 | 5 | \$4,160.35 |
| 0710 11101 | PAINTED PAVT MARK, STD, WHITE, SOLID, 6" | GM | \$1,027.90 | 0.04 | \$41.12 |
| 0711 11125** | PAINTED PAVT MARK, STD, YELLOW, SOLID, 6" | GM | \$1,033.05 | 0.05 | \$51.65 |
| 0711 11170 | THERMOPLASTIC, STD, WHITE, ARROW | EA | \$66.11 | 2 | \$132.22 |
| 0711 11123 | THERMOPLASTIC, STD, WHITE, SOLID, 12" | LF | \$2.76 | 735 | \$2,028.60 |
| 0711 11125 | THERMOPLASTIC, STD, WHITE, SOLID, 24" | LF | \$5.19 | 742 | \$3,850.98 |
| 0715 1 12 | LIGHTING CONDUCTORS, F&I, INSUL, NO.8-6 | LF | \$1.90 | 7 | \$13.30 |
| 0715 4 23 | LIGHT POLE COMPLETE, F&I-STD P, SP, 40' | EA | \$8,230.04 | 7 | \$57,610.28 |
| 0715 4 60 | LIGHT POLE COMPLETE, RELOCATE | EA | \$3,449.84 | 1 | \$3,449.84 |
| 0751 36 12 | BICYCLE RACK, FURNISH & INSTALL, 2-6 BI | EA | \$3,700.00 | 2 | \$7,400.00 |
| SUBTOTAL | | | | | \$500,628.24 |
| CEI (15%) | | | | | \$75,094.24 |
| ENGINEERING AND DESIGN (30%) | | | | | \$150,188.47 |
| SURVEY AND ROW MAPPING (\$0.35 per sq. ft) | | | | | \$94,832.85 |
| TOTAL | | | | | \$820,743.79 |
| ROUNDED TOTAL* | | | | | \$821,000 |

* Construction cost estimate does not include utility relocation costs or right-of-way costs.

** Assumed decorative hand railing so doubled the unit cost of FDOT steel handrail.

*** Includes cost of removal of existing striping.

Unit costs based on the FDOT historical 2021 market area 6 item annual averages cost report, supplemented with historical 2021 statewide annual averages cost report.

Table 5-2. Peninsula Drive FDOT Inflated-Adjusted Estimate

| FDOT Inflation-Adjusted Estimate | Inflation Factor | PDC Multiplier | Adjusted Cost Estimate |
|--|-------------------------|-----------------------|-------------------------------|
| Year 1 Inflation-Adjusted Estimate (FY 2023) | 2.70% | 1.027 | \$843,170.00 |
| Year 2 Inflation-Adjusted Estimate (FY 2024) | 2.80% | 1.056 | \$866,980.00 |
| Year 3 Inflation-Adjusted Estimate (FY 2025) | 2.90% | 1.086 | \$891,610.00 |

Inflation factors based on the FDOT Transportation Costs Reports, dated July 1, 2021.

7 Conclusions

The proposed sidewalk and wayfinding signage concept plans are presented within this study to help the R2CTPO and the City of Port Orange plan for the design and construction phases and prioritize funding for the planned improvements. Additional improvements including new crosswalks and lighting additions at crossing locations, and curb ramp and pedestrian signal modifications are recommended to meet ADA and FDOT guidelines.

Based on the results of this study, it has been determined that proposed new sidewalk is feasible on the west side of Peninsula Drive from Coral Way to Demotte Avenue (Areas 1 and 2), as well as along the north side of the Dunlawton Avenue south service road and north-south road connecting underneath the Dunlawton Avenue Memorial Bridge (Area 4). A sidewalk is not recommended in Area 3 on Peninsula Drive south of Demotte Avenue due to complications involved with updating and adding drainage structures.

Coordination with the City of Daytona Beach Shores and the property owners on the northeast and southeast corners of the Peninsula Drive / Dunlawton Avenue intersection will be needed to make the recommended ADA improvements on those corners as the existing sidewalks appear to be outside of the apparent ROW.

Guidance has been provided regarding aspects of potential community and pedestrian wayfinding signage in the vicinity of the Dunlawton Avenue / Peninsula Drive intersection, including references to state and federal criteria and standards, and potential locations for sign placement.

8 References

FDOT 2021 Basis of Estimates Manual

<http://www.fdot.gov/programmanagement/Estimates/BasisofEstimates/>

FEMA Maps Service Center (FIRM Maps) <https://msc.fema.gov/portal/search>

Florida Department of Transportation Design Manual (FDM)

<https://www.fdot.gov/roadway/fdm/default.shtm>

Florida Fish and Wildlife Conservation Commission. Bald Eagle Nest Locator

<https://myfwc.maps.arcgis.com/apps/webappviewer/index.html?id=fca6f17a0ef64b7b8dbc51c9de43fb4>

Florida Department of Environmental Protection Outstanding Florida Waters <https://maps-fdep.opendata.arcgis.com/datasets/outstanding-florida-waters/explore?location=29.171045%2C-81.066792%2C12.68>

Florida Natural Areas Inventory (FNAI) Florida Biodiversity Matrix

<https://www.fnai.org/BiodiversityMatrix/index.html>

National Resources Conservation Service. Web Soil Survey

<https://websoilsurvey.nrcs.usda.gov/app/>

River to Sea Transportation Planning Organization <https://www.r2ctpo.org/>

City of Port Orange <https://www.port-orange.org/>

Volusia County Property Appraiser's Land Mapping System

<https://vcpa.vcgov.org/search/map#gsc.tab=0>

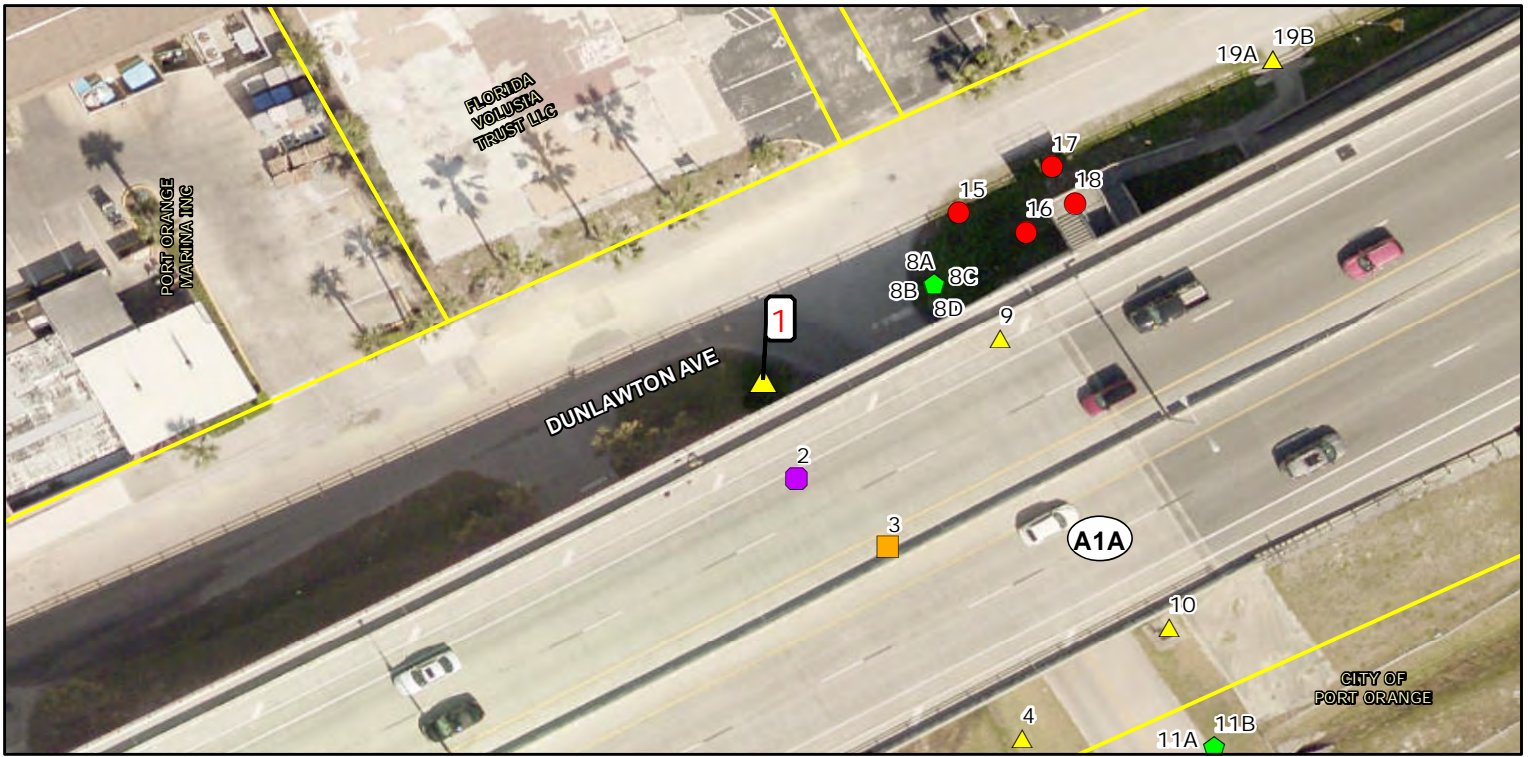
Volusia County Growth and Resource Management (GRM) Interactive Map

https://imapt.vcgov.org/Html5Viewer/Index.html?configBase=http://vimpgeo.covdnssrv.co.volusia.fl.us/Geocortex/Essentials/Public/REST/sites/Volusia_County_Kiosk_Map/viewers/Kiosk/virtualdirectory/Resources/Config/Default



Appendix A

Field Observations Inventory



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Feature Type: Drainage

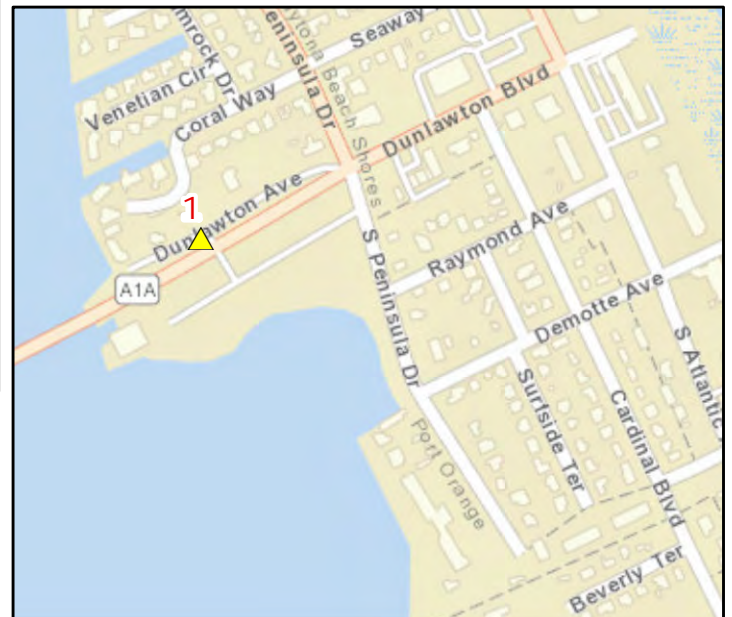
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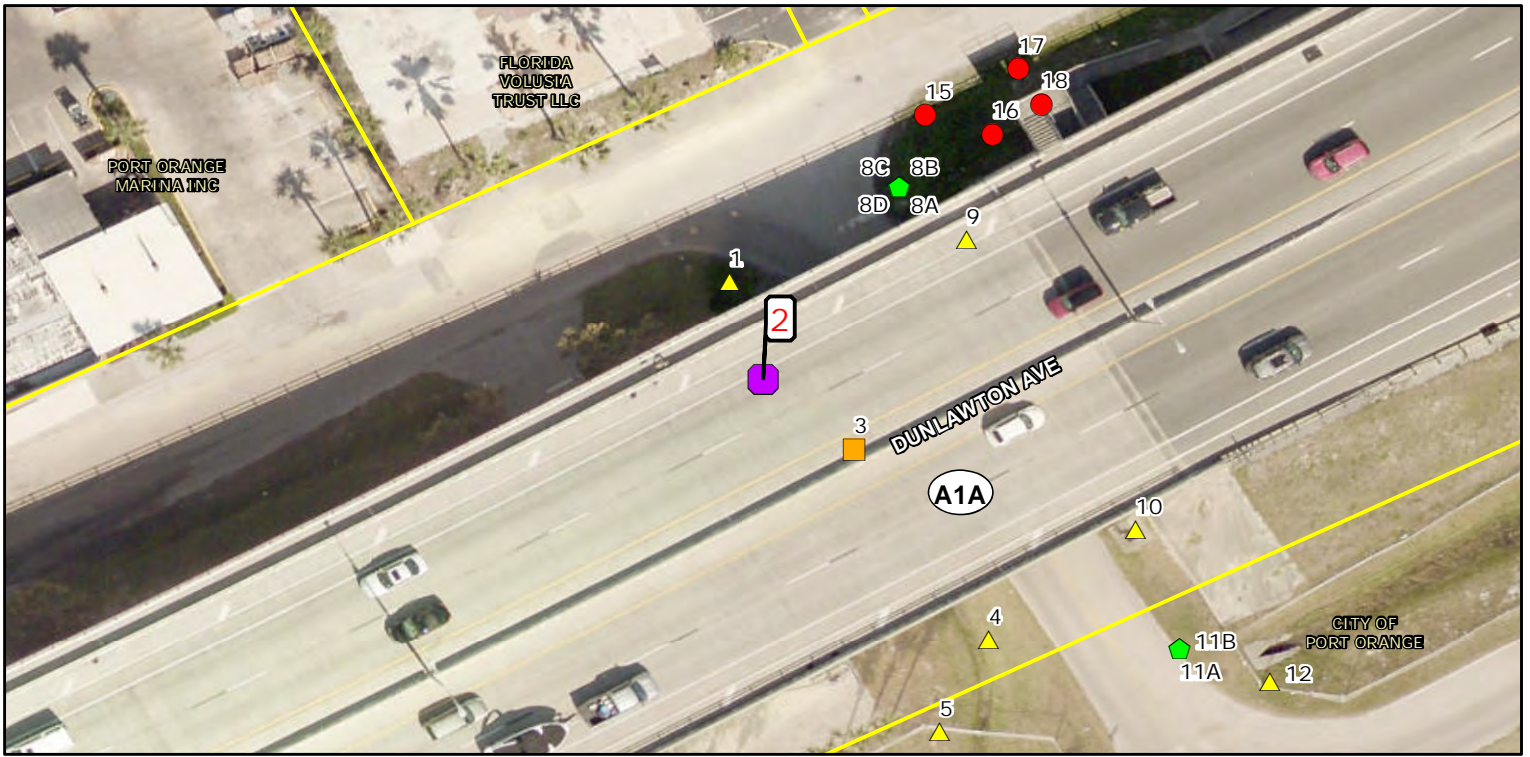
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| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 2

Feature Type: User

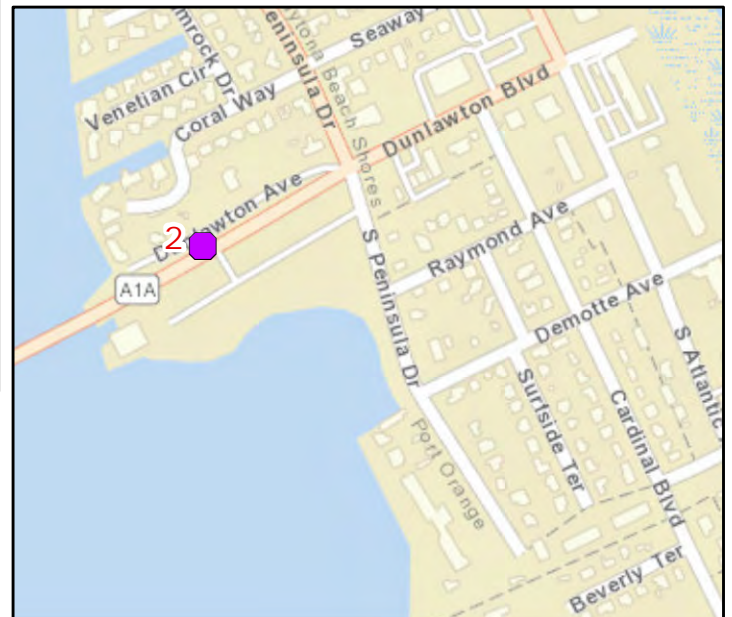
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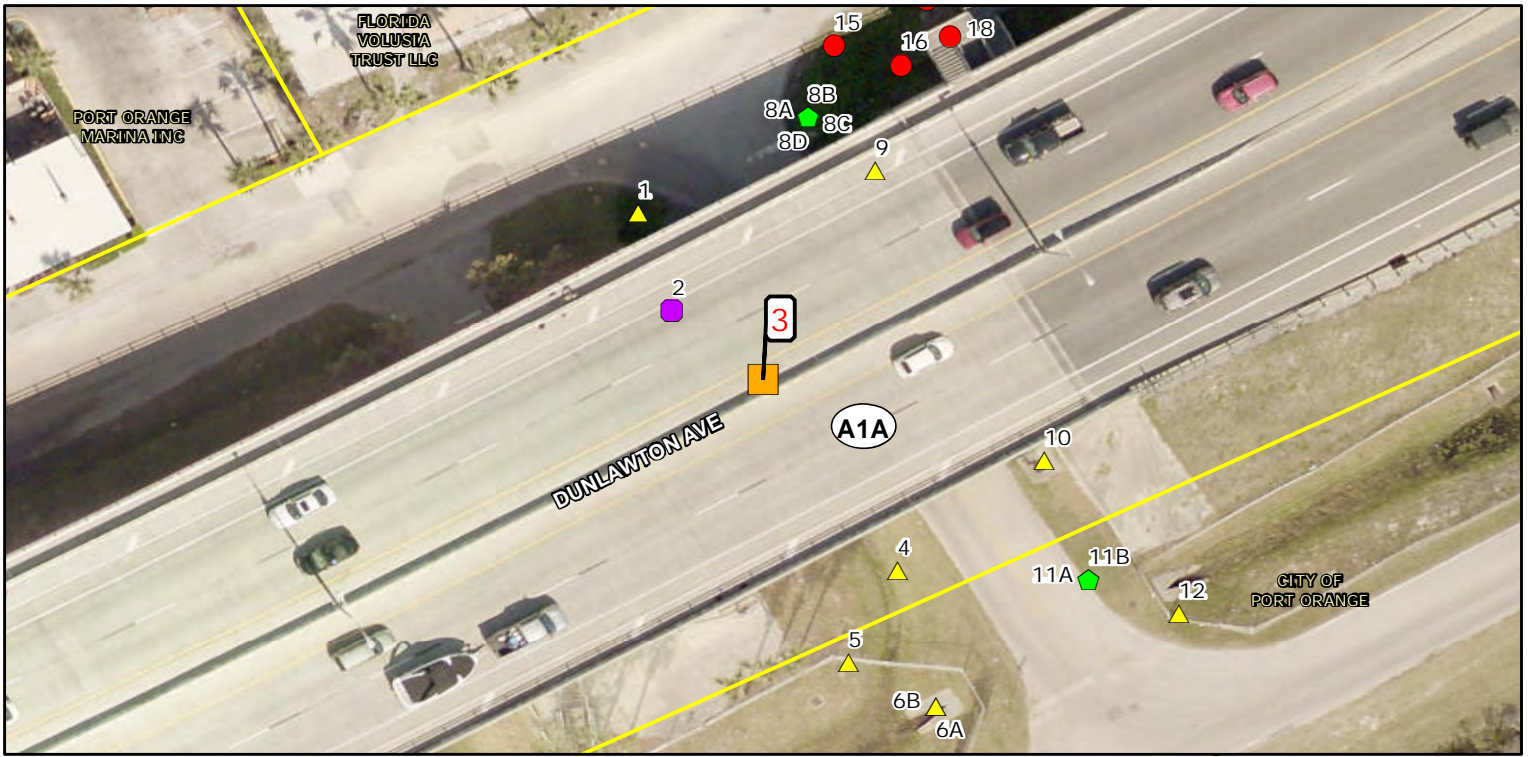
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Feature Type: Damaged Infrastructure

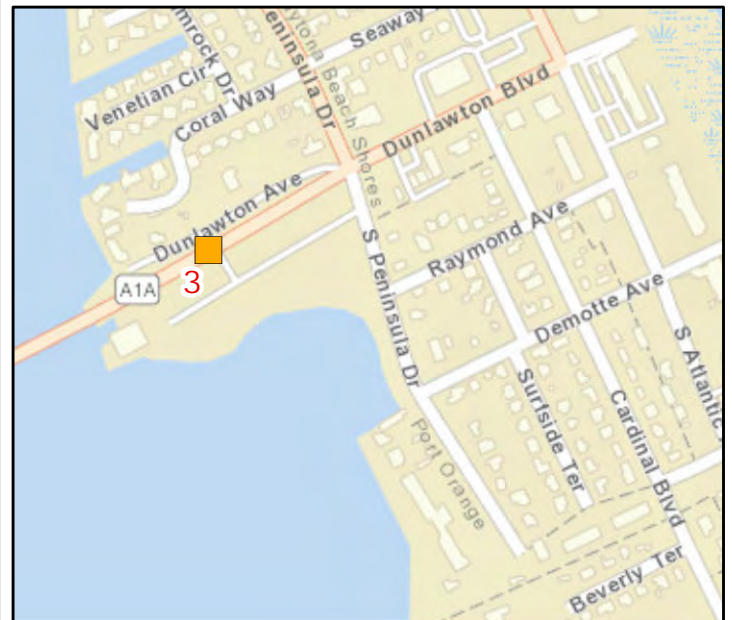
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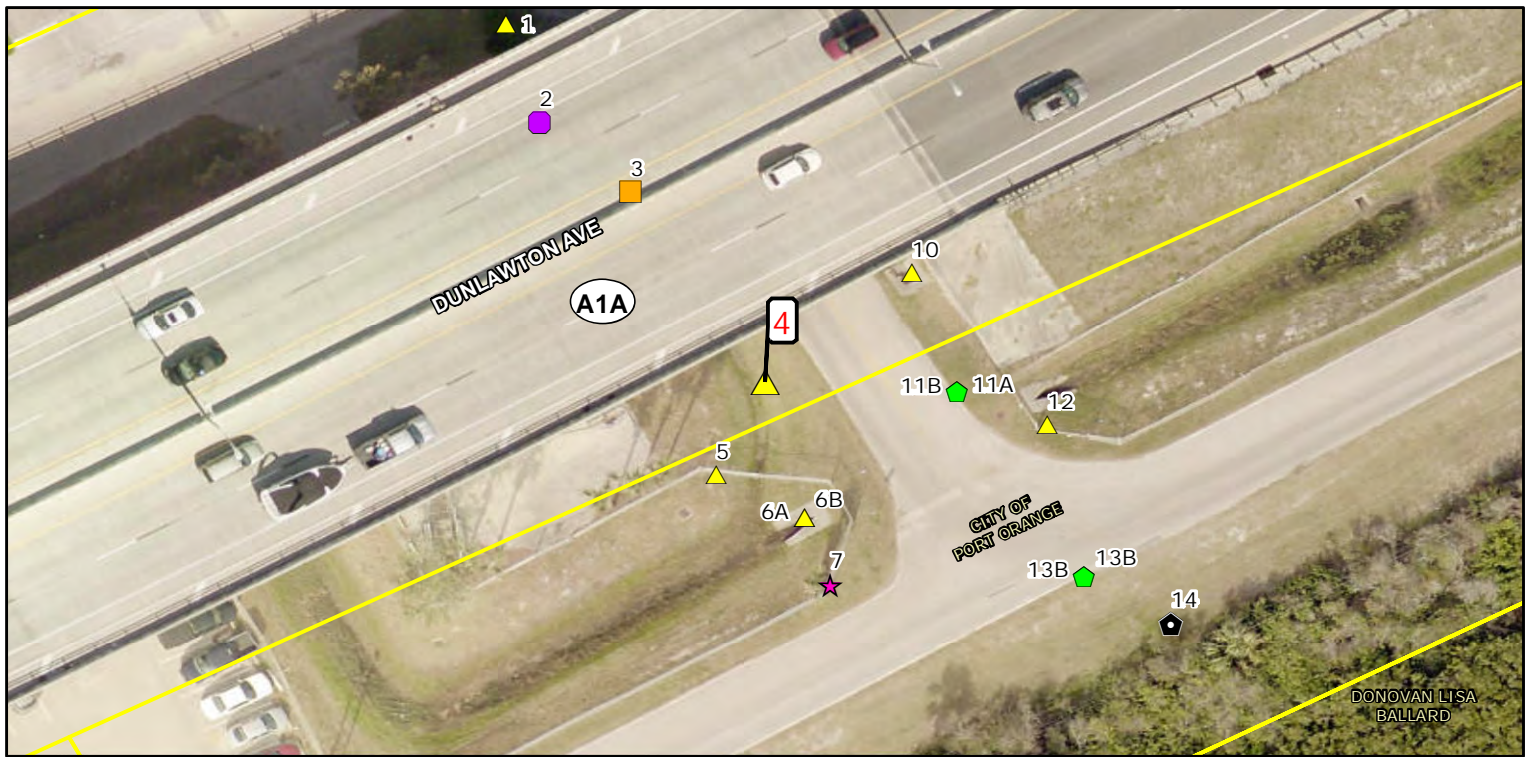
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| ▲ Drainage | ● Utilities |
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| ◆ Traffic Control | |





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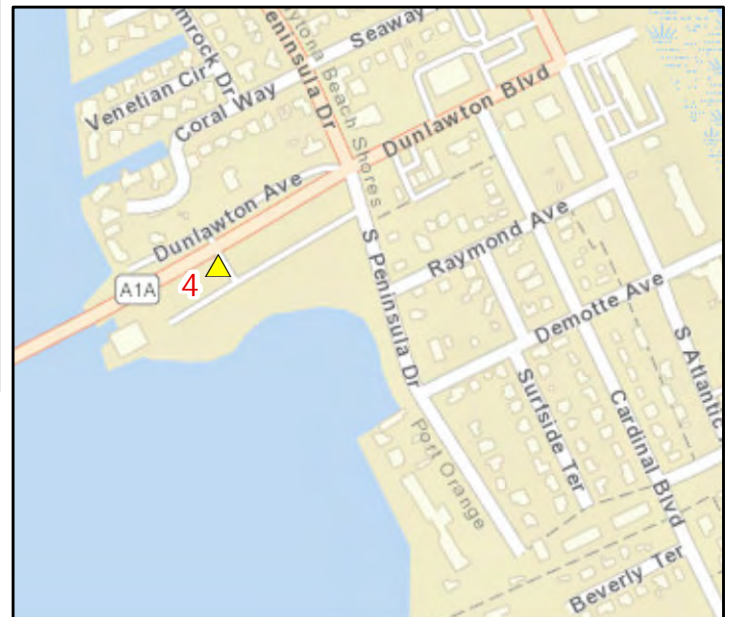
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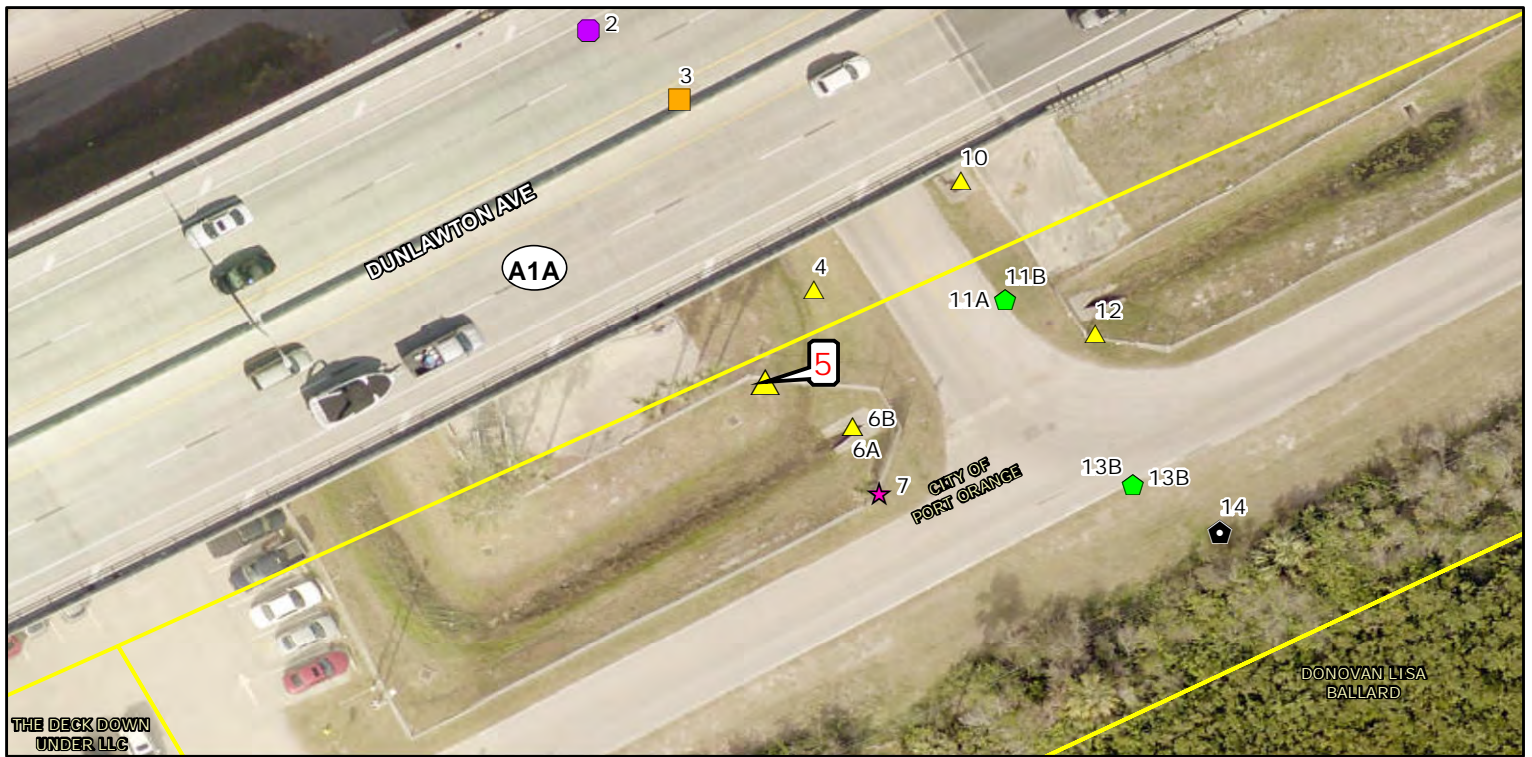
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| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ■ Lighting | ★ Other - Misc |
| ■ Traffic Control | |





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Feature Type: Drainage

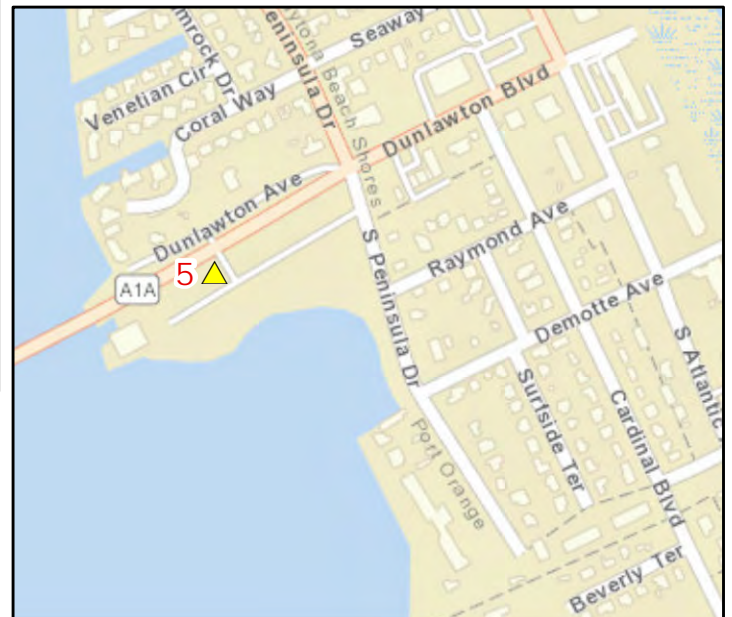
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| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





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Feature Type: Drainage

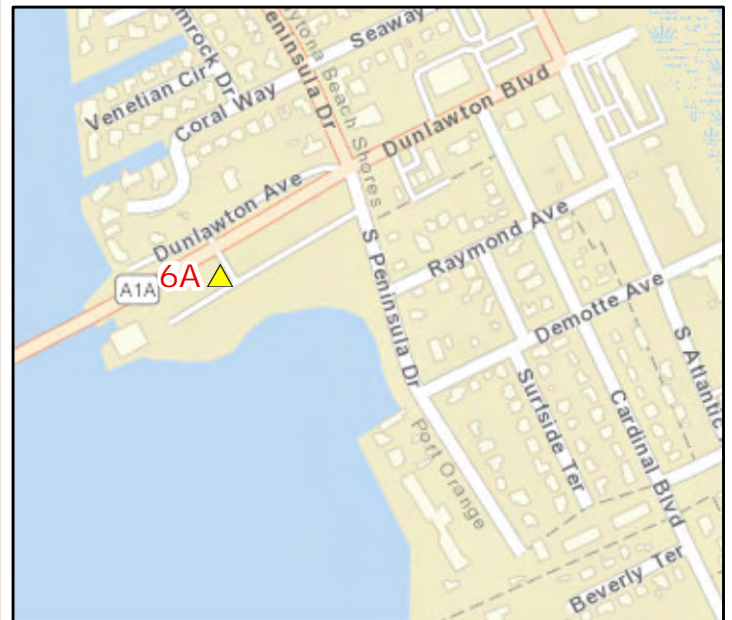
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|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ■ Lighting | ★ Other - Misc |
| ■ Traffic Control | |





Feature ID: 6B

Feature Type: Drainage

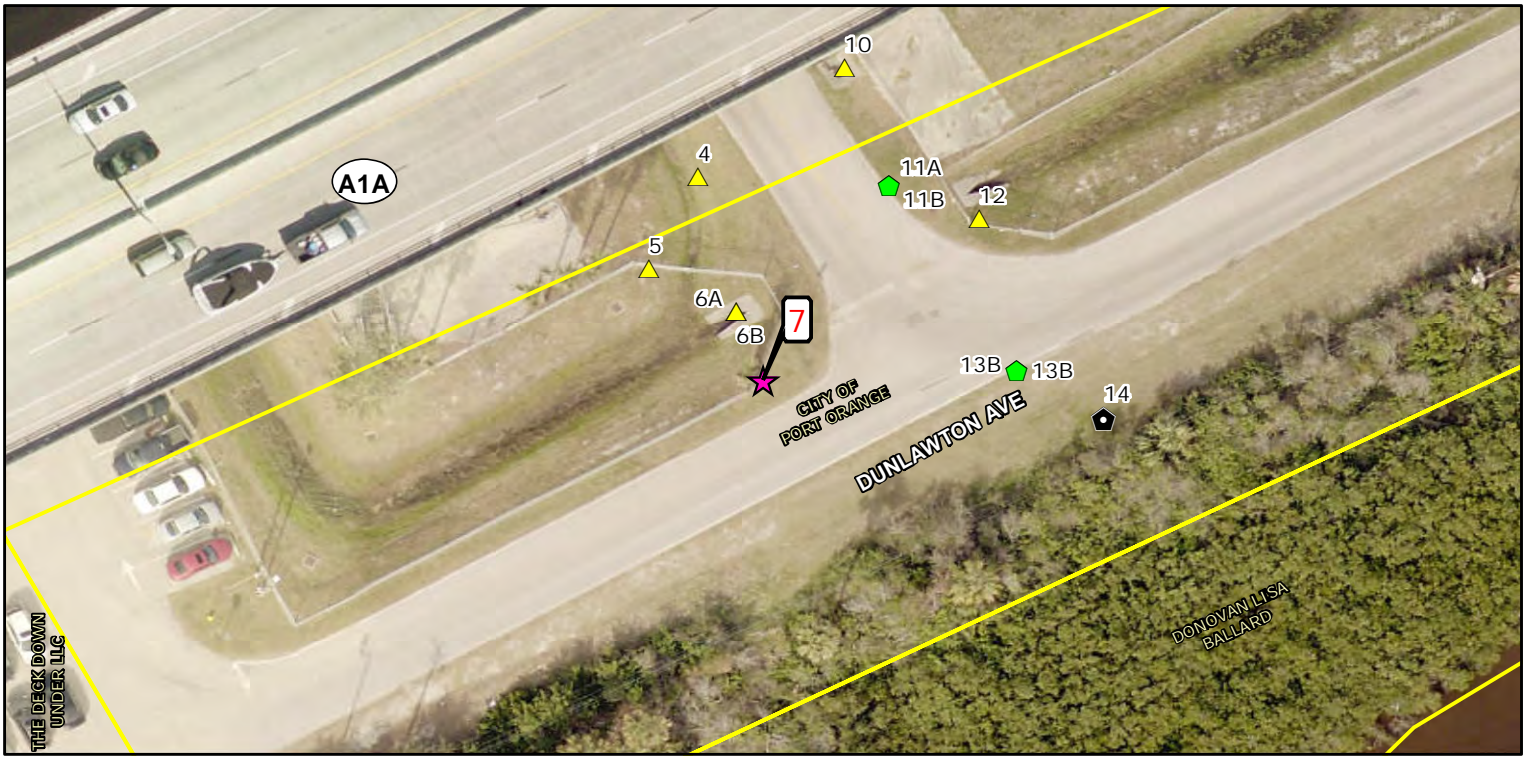
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- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 7

Feature Type: Other - Misc

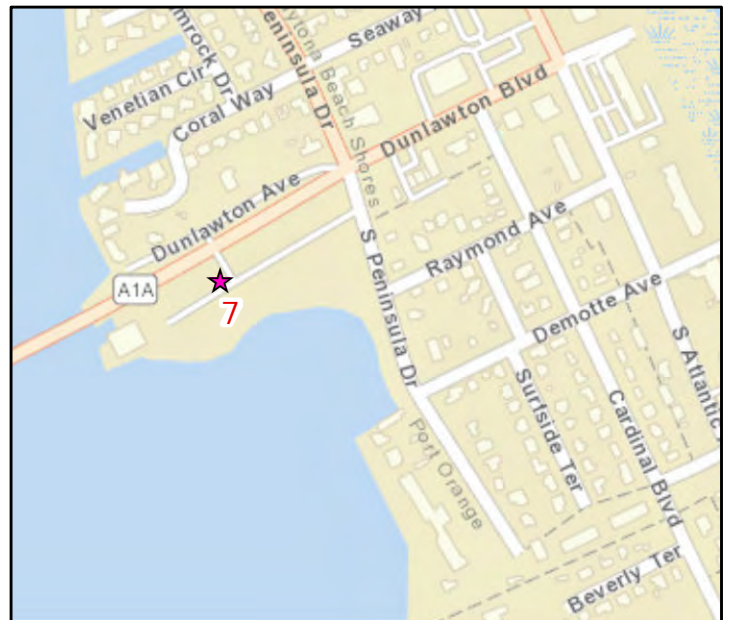
Comment: Tree obstructing sidewalk location

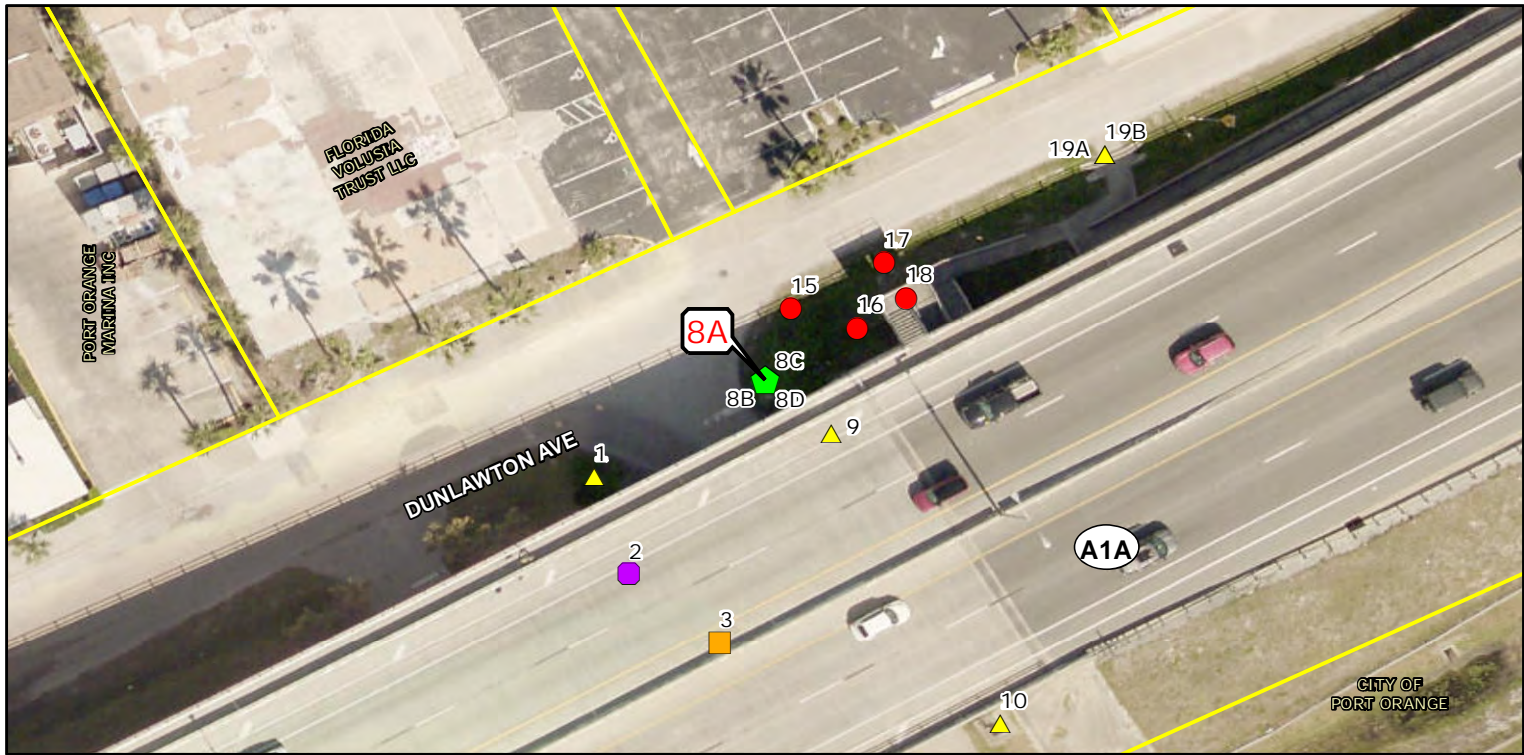
Lat: 29.149167

Long: -80.972771

<http://maps.google.com/maps?q=29.1491674810001,-80.972771251>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 8A

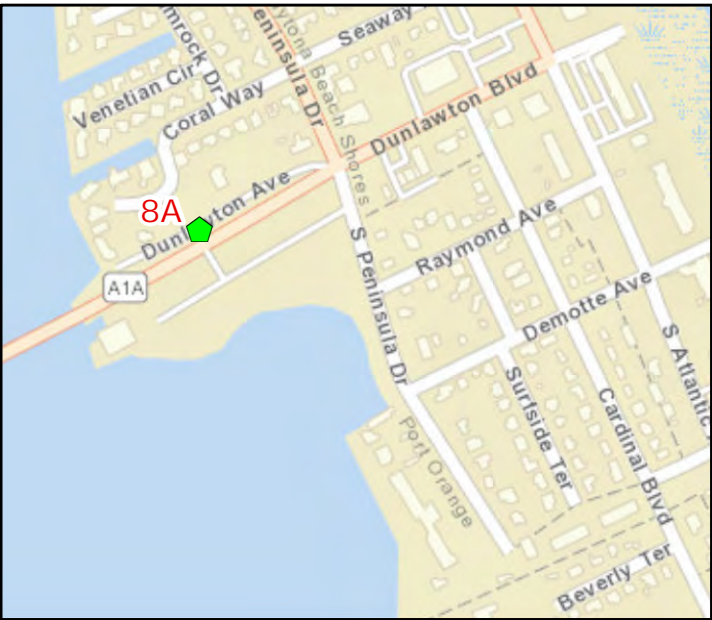
Feature Type: Lighting

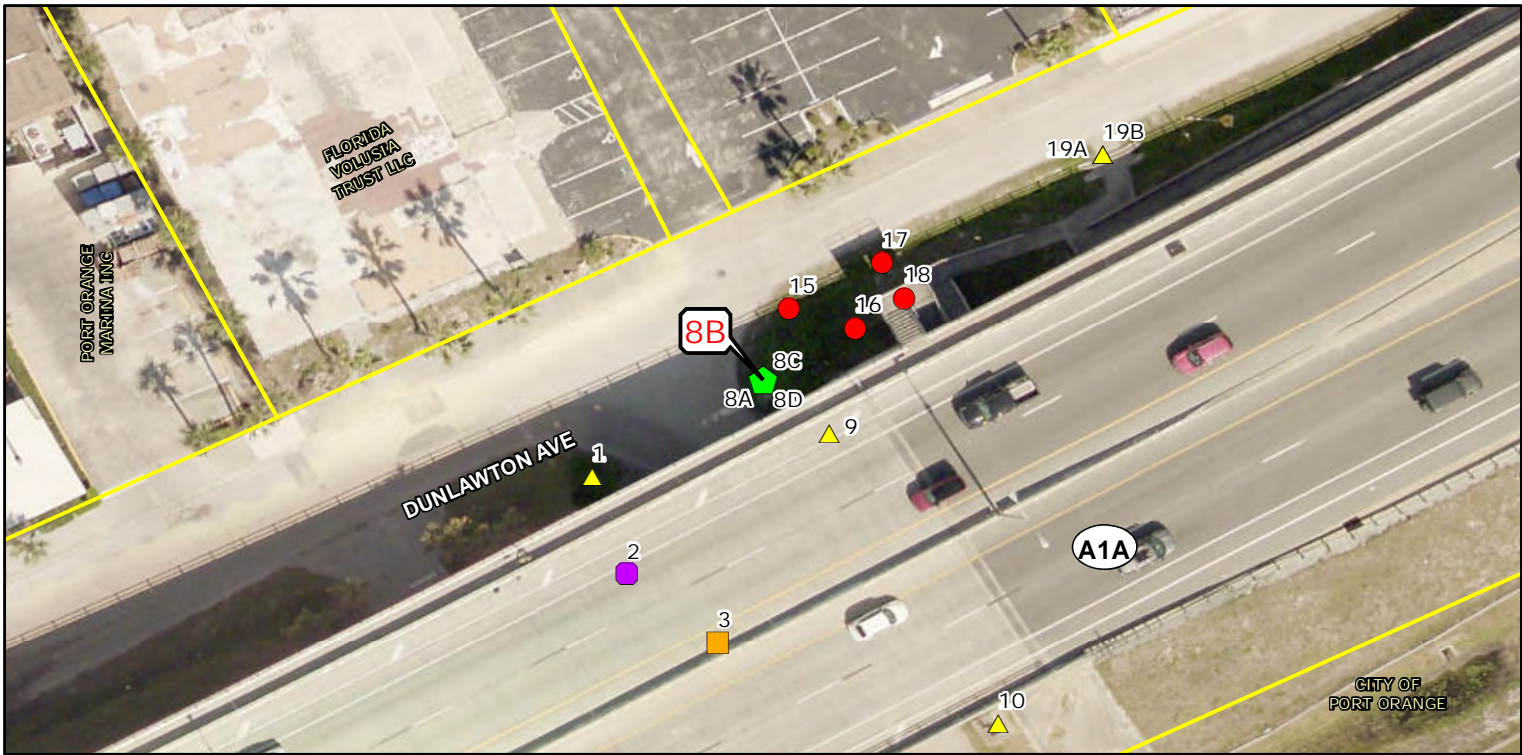
Comment:

Lat: 29.149636 **Long:** -80.972881

<http://maps.google.com/maps?q=29.149636421,-80.972881335>

| | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 8B

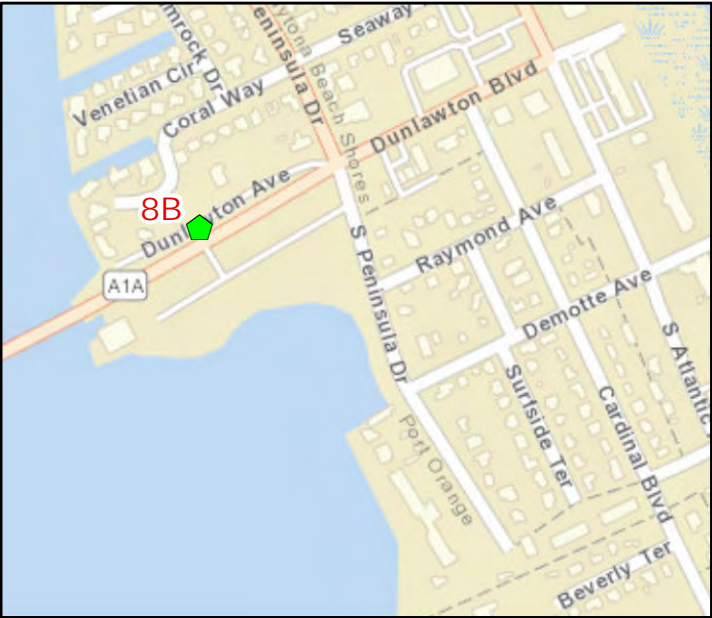
Feature Type: Lighting

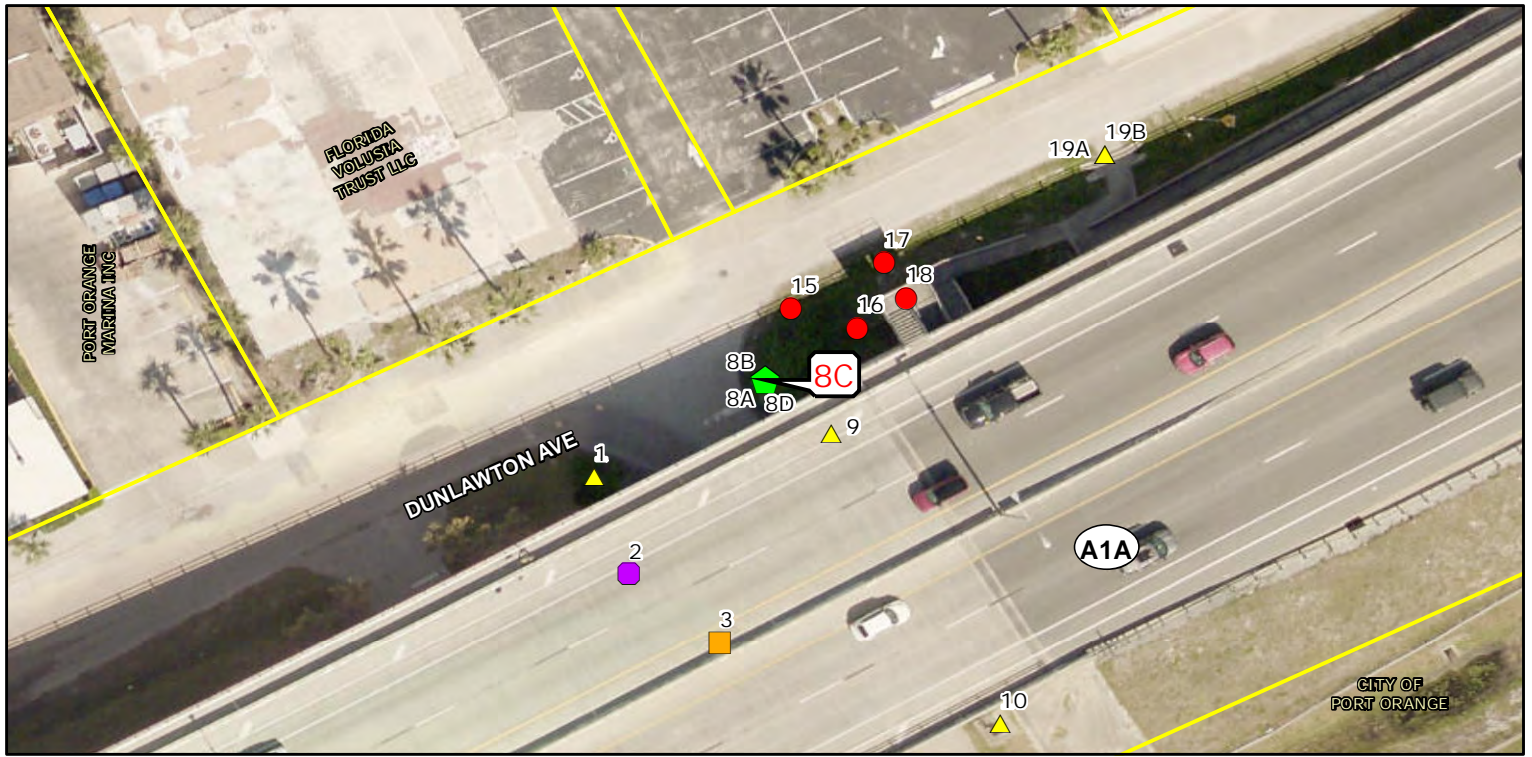
Comment:

Lat: 29.149636 **Long:** -80.972881

<http://maps.google.com/maps?q=29.149636421,-80.972881335>

| | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 8C

Feature Type: Lighting

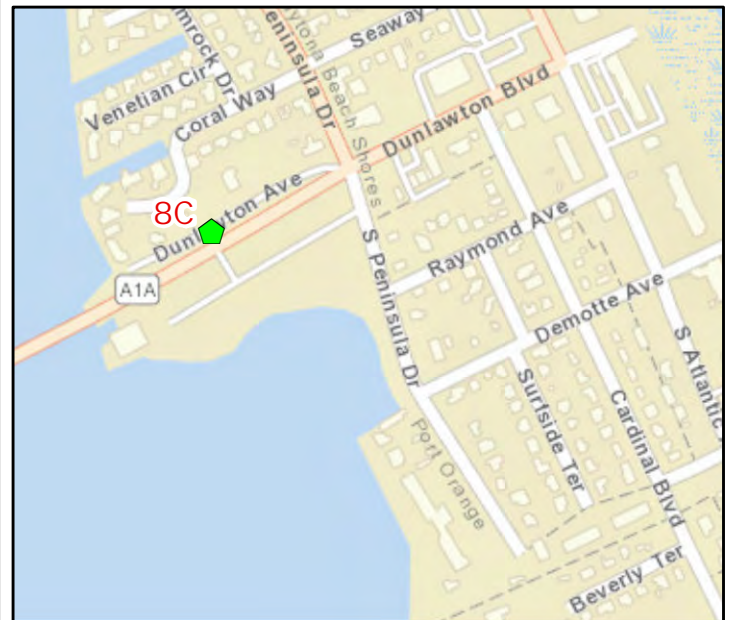
Comment:

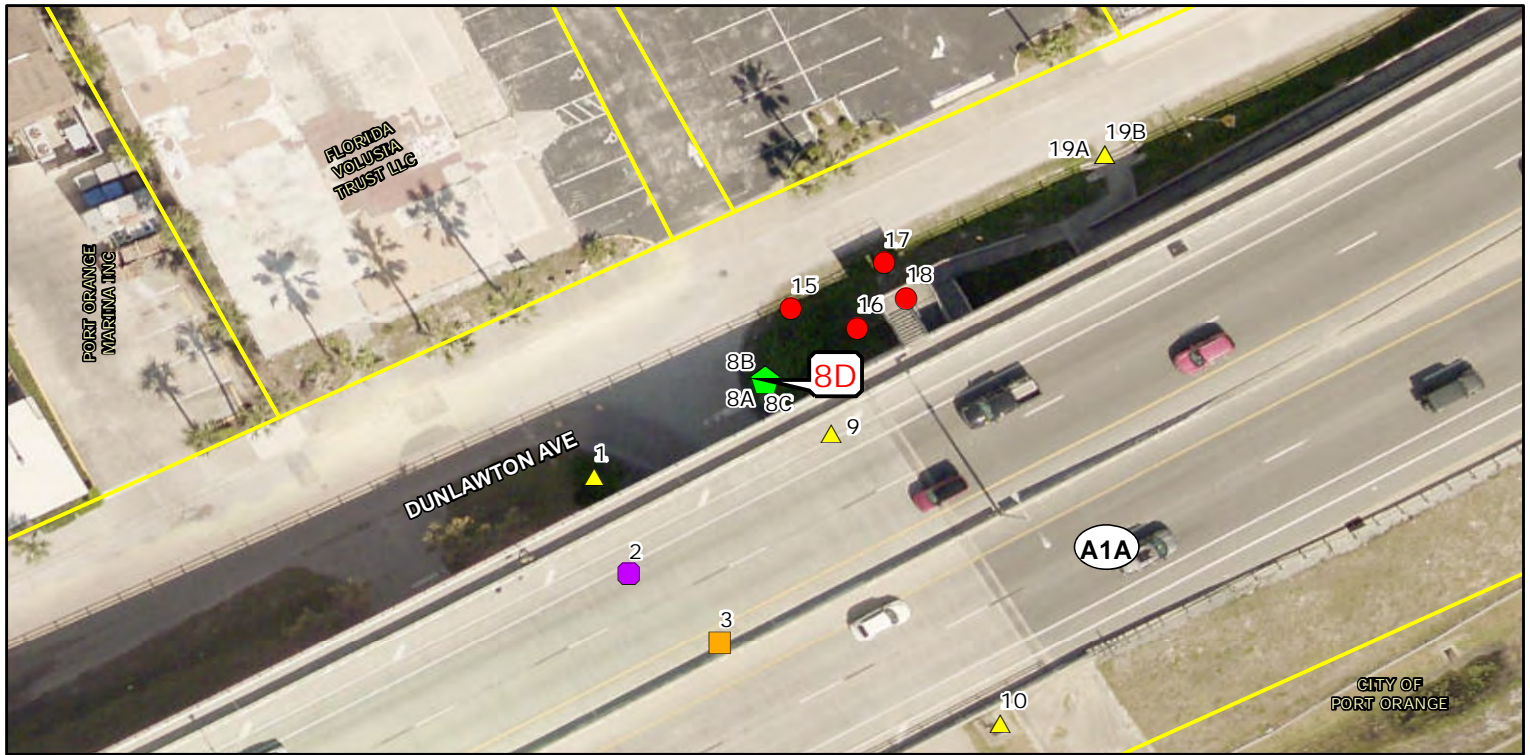
Lat: 29.149636

Long: -80.972881

<http://maps.google.com/maps?q=29.149636421,-80.972881335>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 8D

Feature Type: Lighting

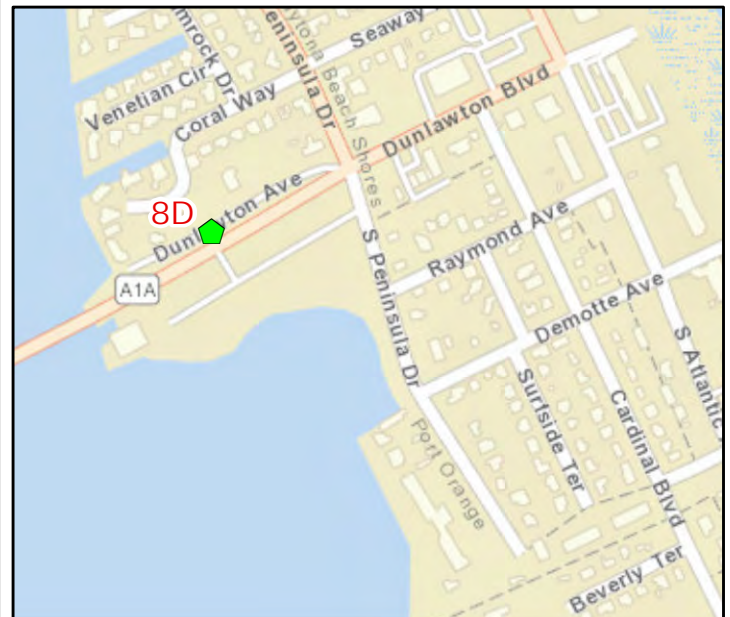
Comment:

Lat: 29.149636

Long: -80.972881

<http://maps.google.com/maps?q=29.149636421,-80.972881335>

- | | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 9

Feature Type: Drainage

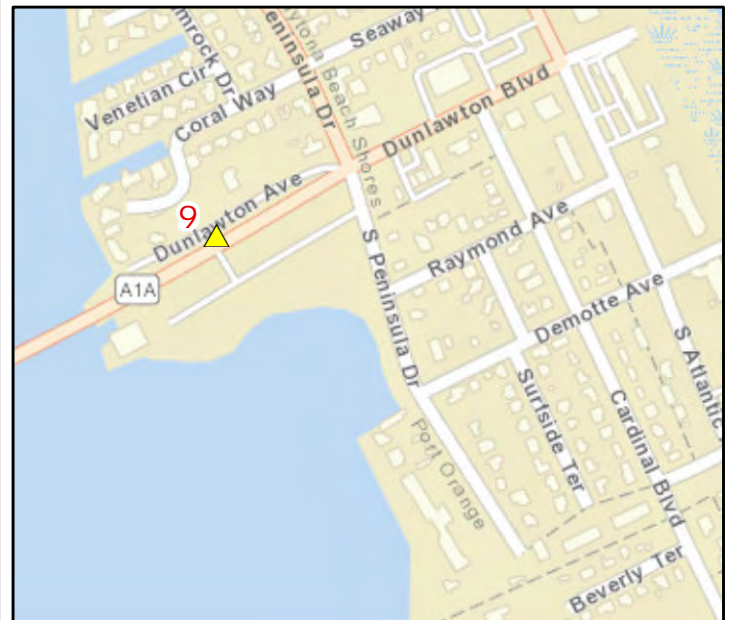
Comment:

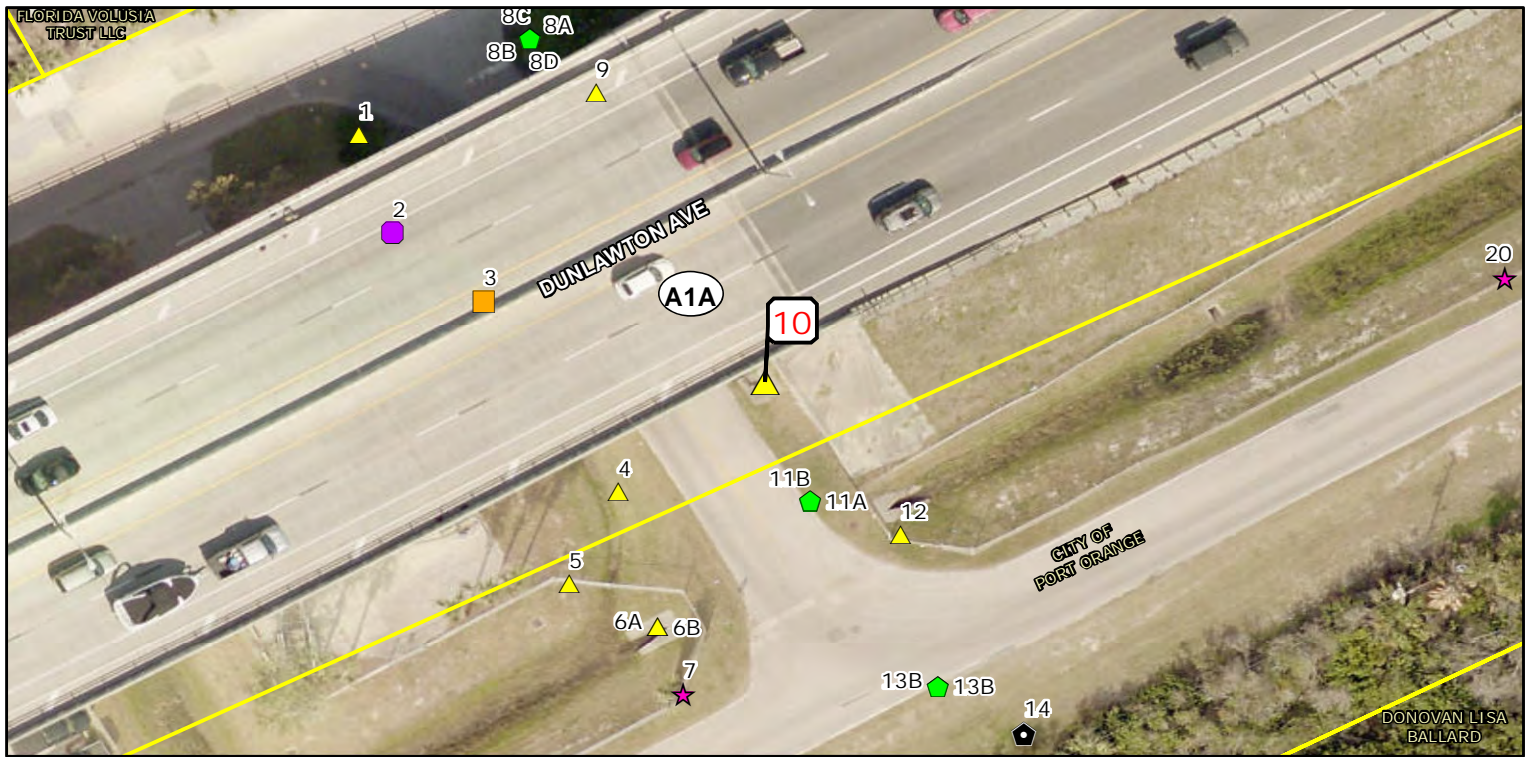
Lat: 29.149598

Long: -80.972834

<http://maps.google.com/maps?q=29.149598015,-80.9728385>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 10

Feature Type: Drainage

Comment:

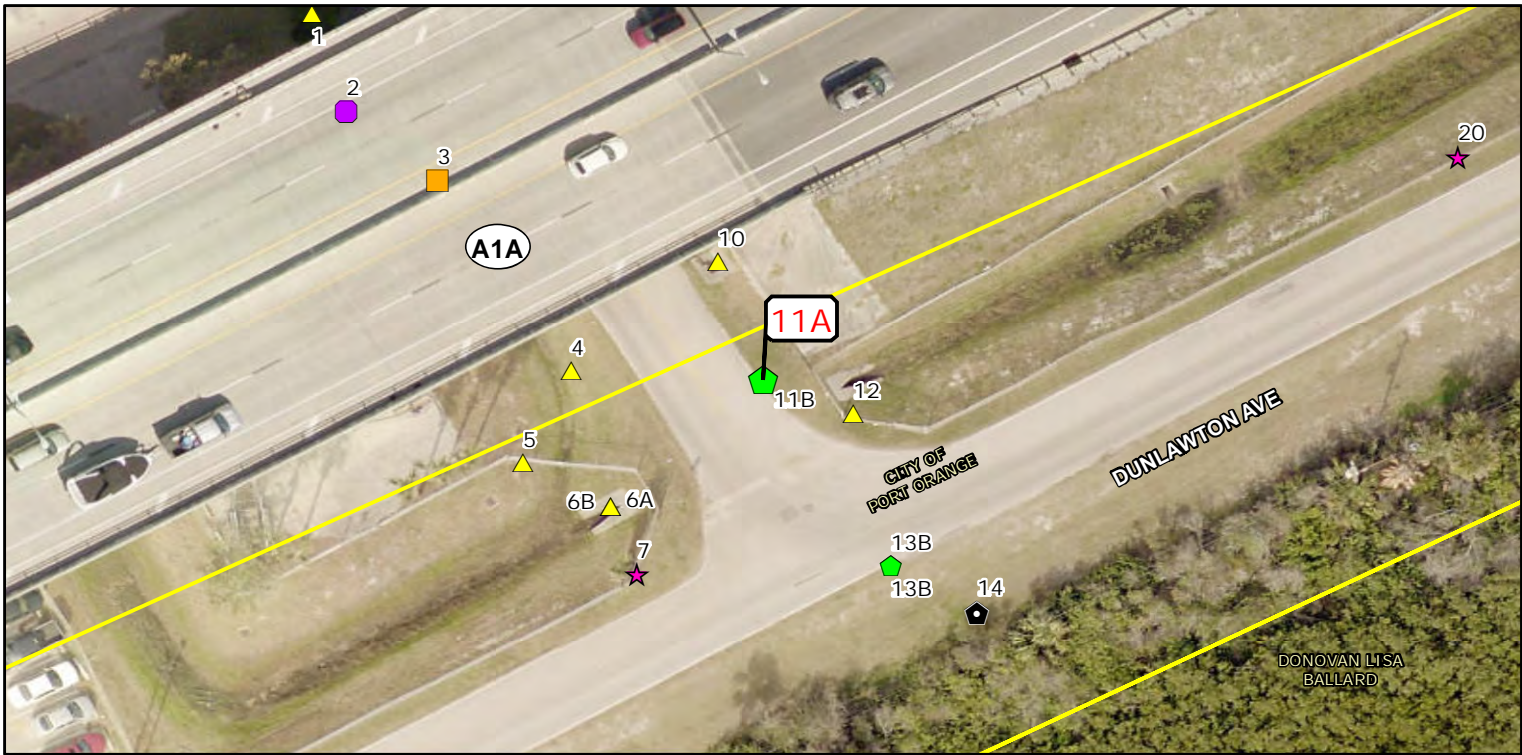
Lat: 29.149391

Long: -80.972713

<http://maps.google.com/maps?q=29.1493911740001,-80.972713259>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 11A

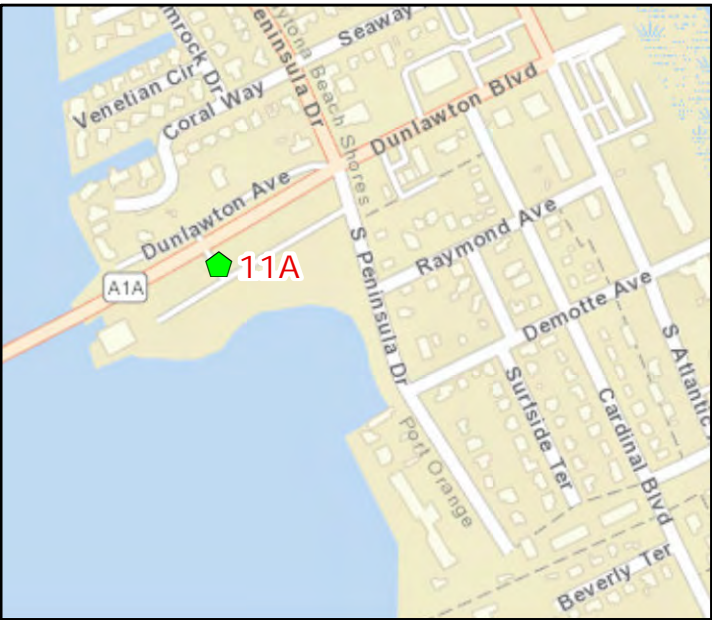
Feature Type: Lighting

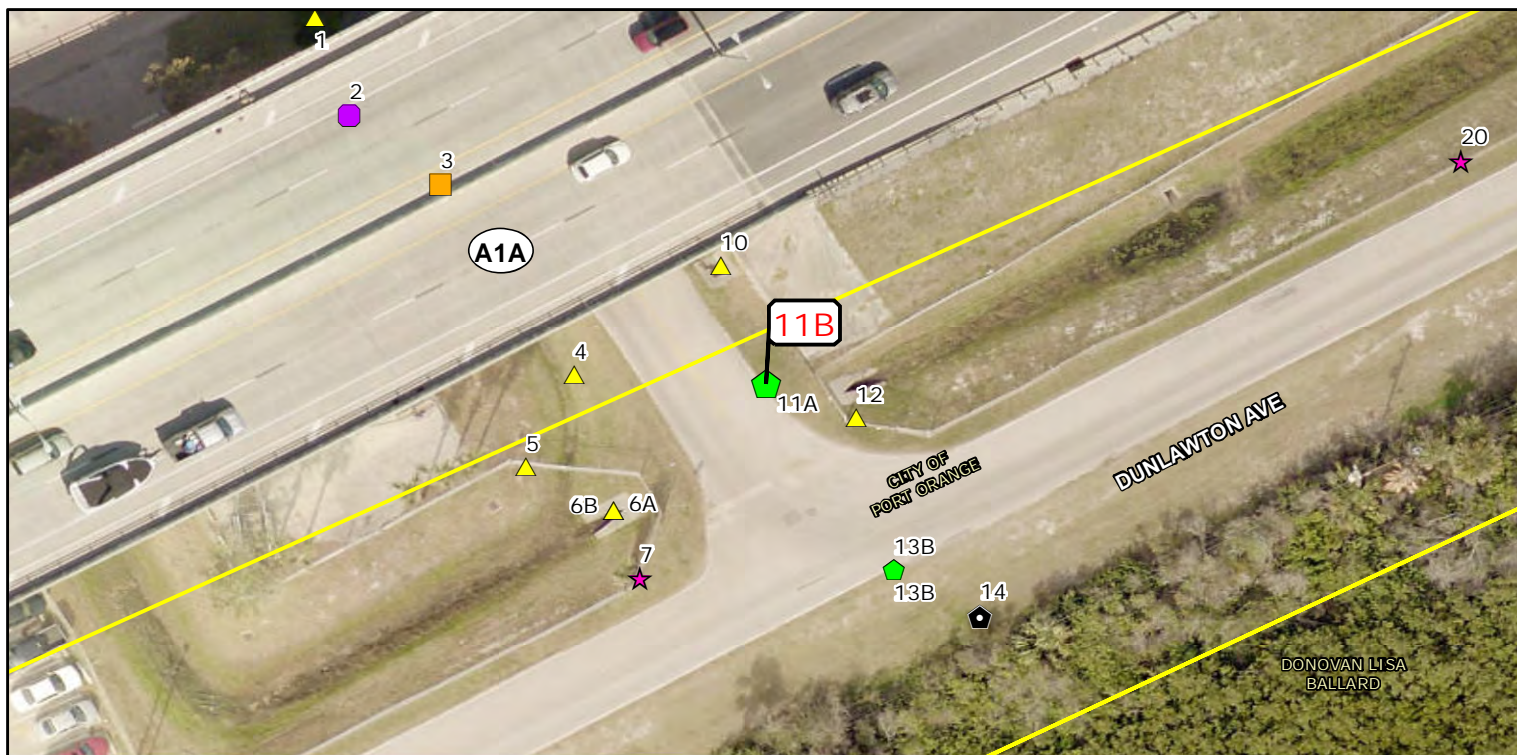
Comment:

Lat: 29.149306 **Long:** -80.972681

<http://maps.google.com/maps?q=29.149306263,-80.9726811959999>

| | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 11B










Feature Type: Lighting

Comment:

Lat: 29.149306

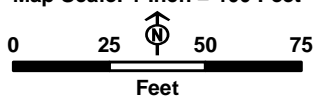
Long: -80.972681

<http://maps.google.com/maps?q=29.149306263,-80.9726811959999>

- | | | | |
|---|------------------------|---|--------------|
|  | ADA - Safety |  | Transit |
|  | Damaged Infrastructure |  | User |
|  | Drainage |  | Utilities |
|  | Lighting |  | Other - Misc |
|  | Traffic Control | | |



Map Scale: 1 Inch = 100 Feet



Field Observations

**River to Sea TPO
Peninsula Drive Sidewalk Feasibility Study**



Feature ID: 12

Feature Type: Drainage

Comment:

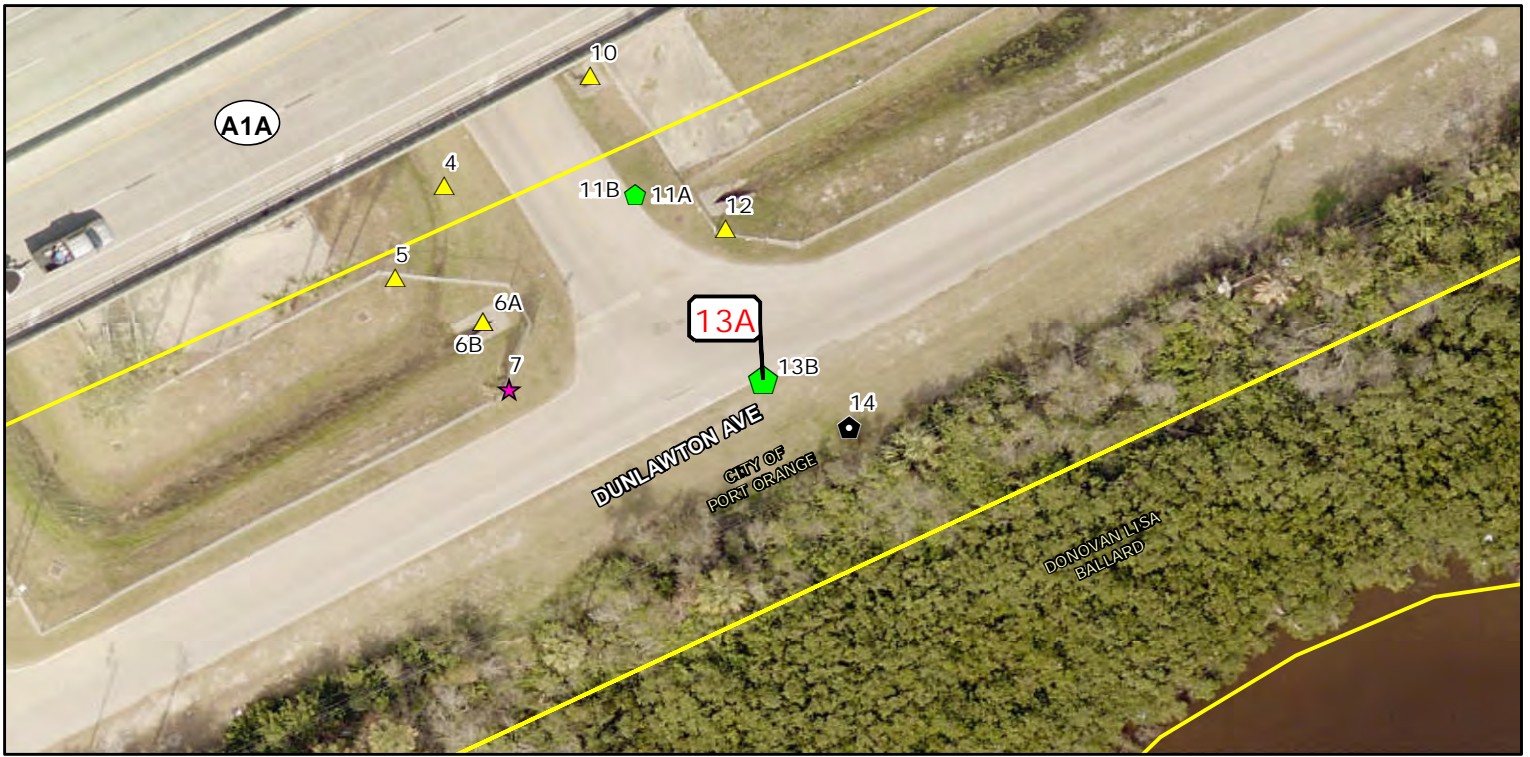
Lat: 29.149282

Long: -80.972617

<http://maps.google.com/maps?q=29.149282446,-80.972616817>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 13A

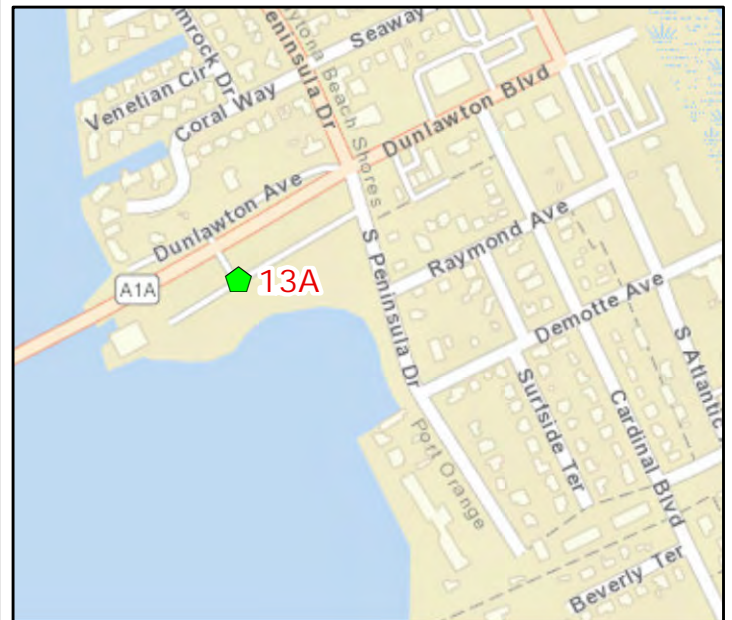
Feature Type: Lighting

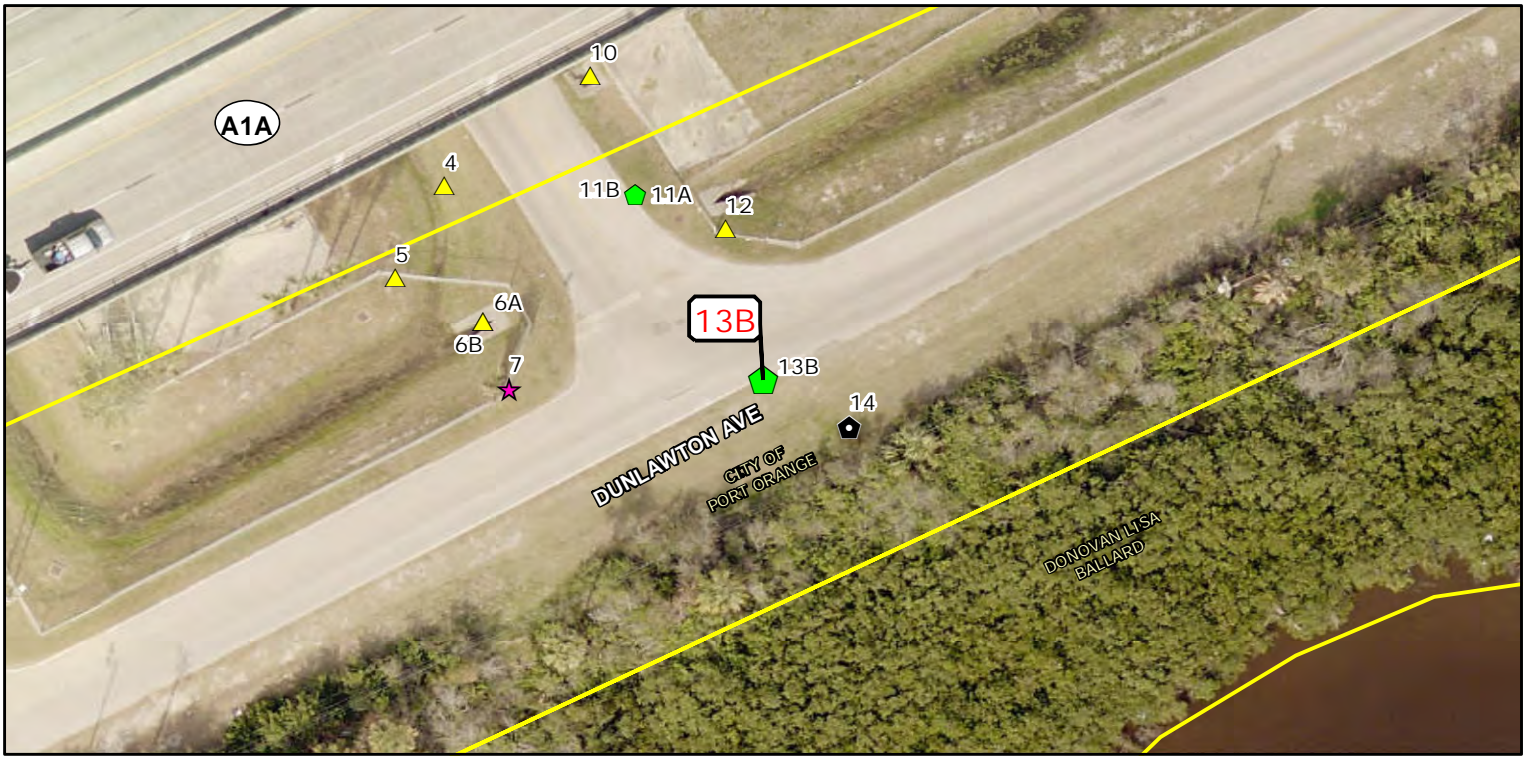
Comment:

Lat: 29.149174 **Long:** -80.97259

<http://maps.google.com/maps?q=29.149174069,-80.972590192>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 13B

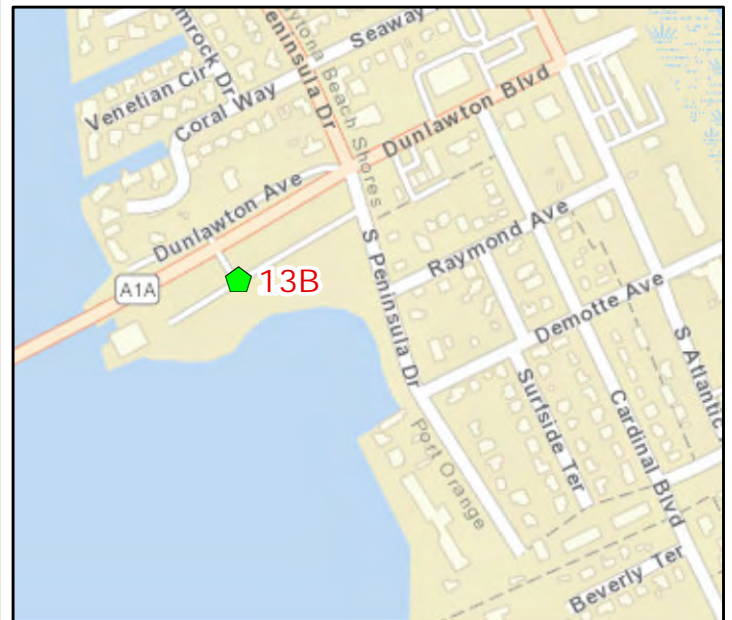
Feature Type: Lighting

Comment:

Lat: 29.149174 **Long:** -80.97259

<http://maps.google.com/maps?q=29.149174069,-80.972590192>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 14

Feature Type: Utilities

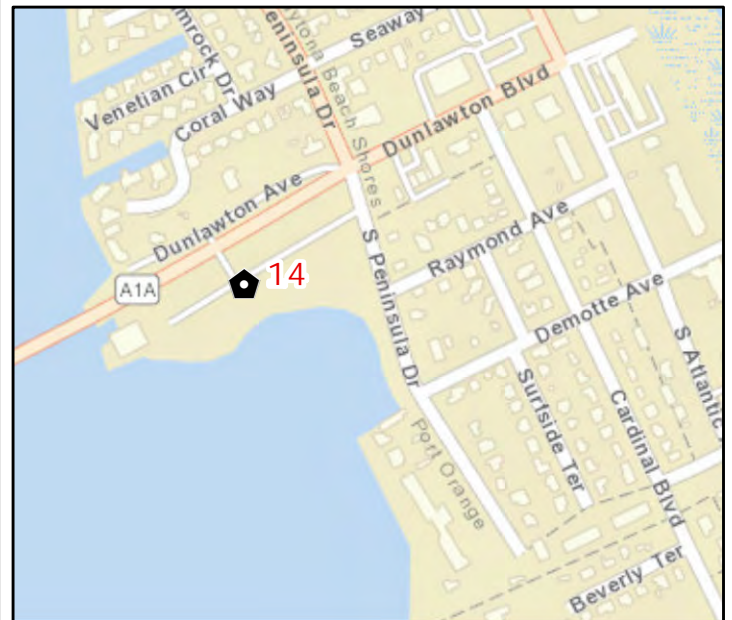
Comment:

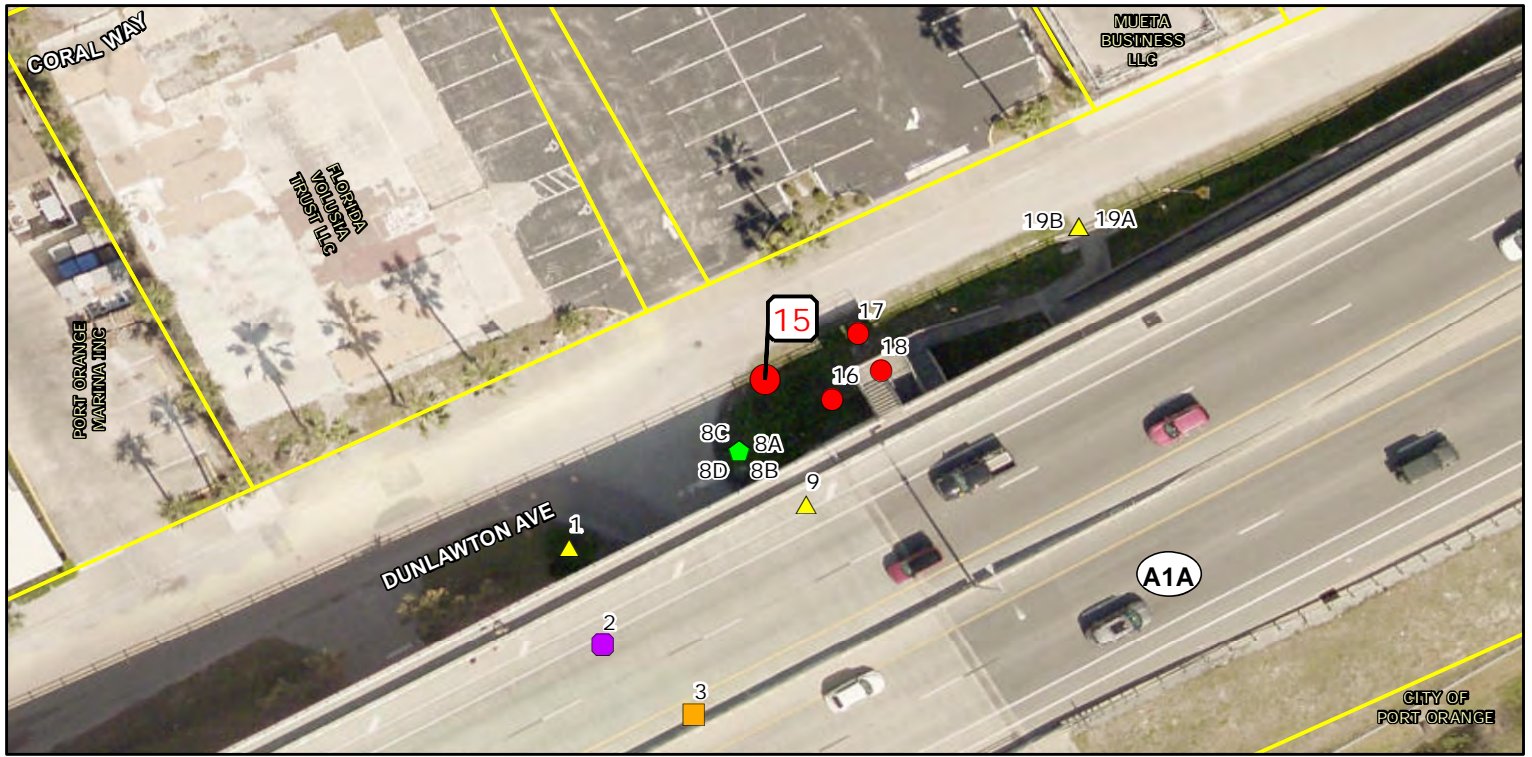
Lat: 29.14914

Long: -80.972528

<http://maps.google.com/maps?q=29.1491401750001,-80.972528304>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 15

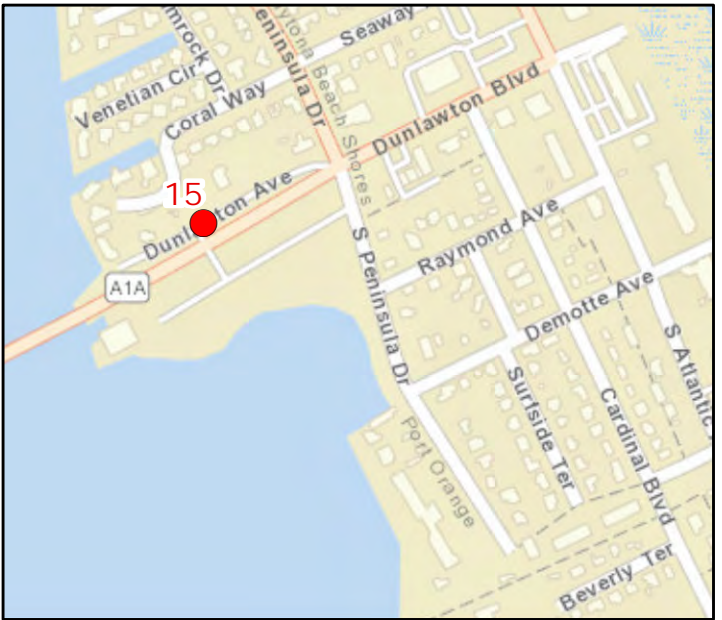
Feature Type: ADA - Safety

Comment:

Lat: 29.149687 **Long:** -80.972863

<http://maps.google.com/maps?q=29.1496873830001,-80.972863168999>

| | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 16

Feature Type: ADA - Safety

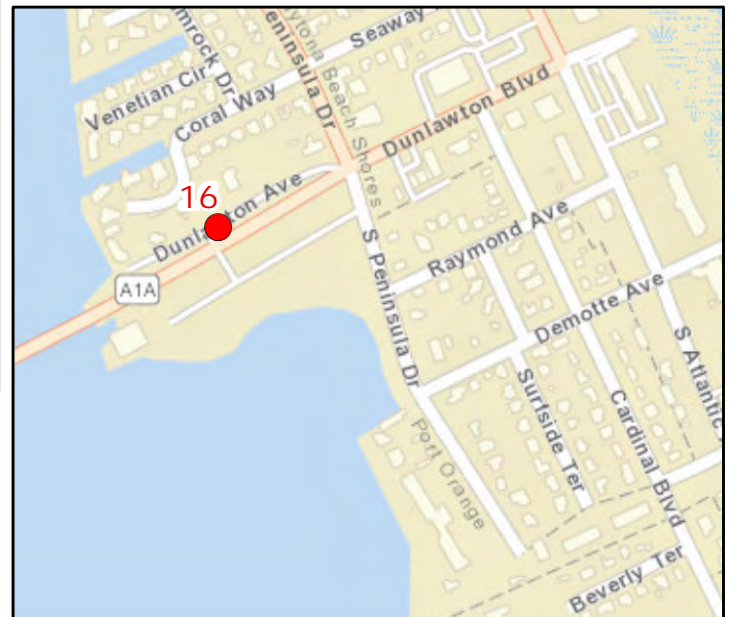
Comment:

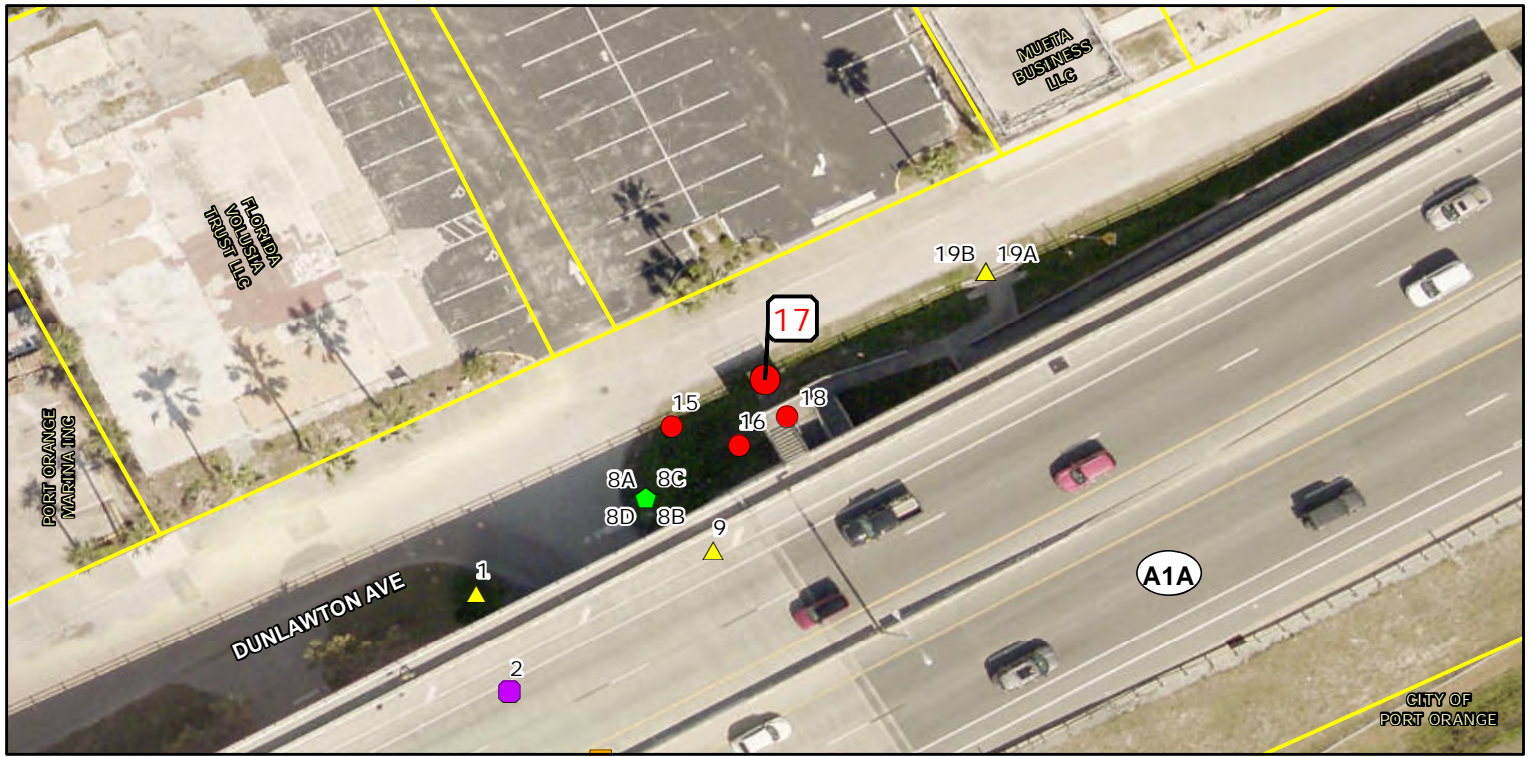
Lat: 29.149674

Long: -80.972815

<http://maps.google.com/maps?q=29.1496736460001,-80.9728153>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬠ Utilities |
| ⬡ Lighting | ★ Other - Misc |
| ⬡ Traffic Control | |





Feature ID: 17

Feature Type: ADA - Safety

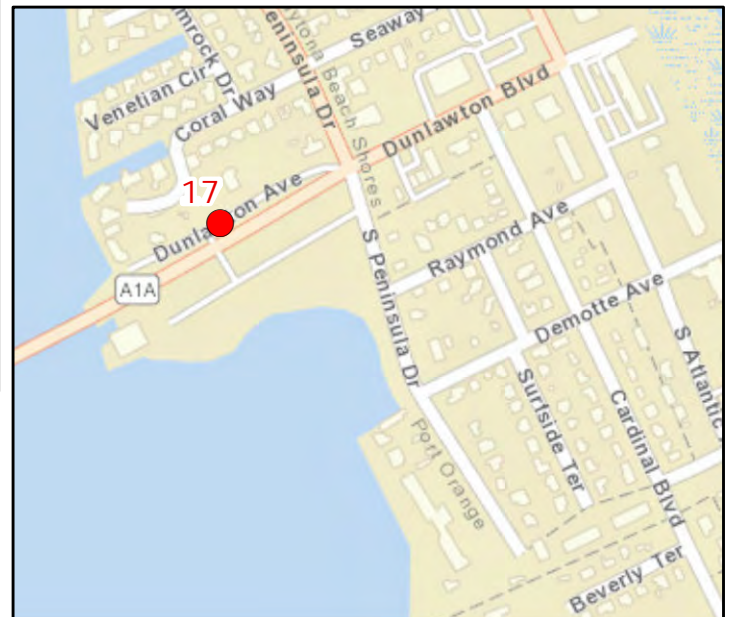
Comment:

Lat: 29.14972

Long: -80.972797

<http://maps.google.com/maps?q=29.1497201350001,-80.972796525>

- | | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 18

Feature Type: ADA - Safety

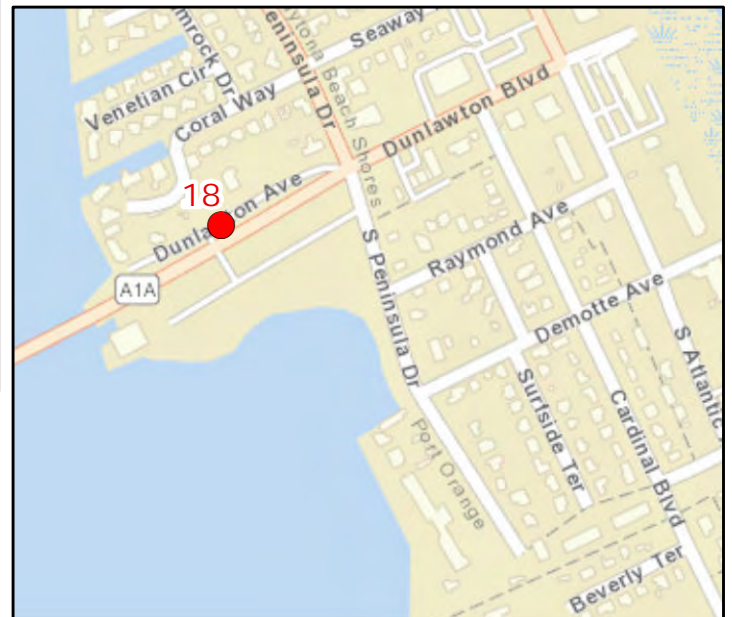
Comment:

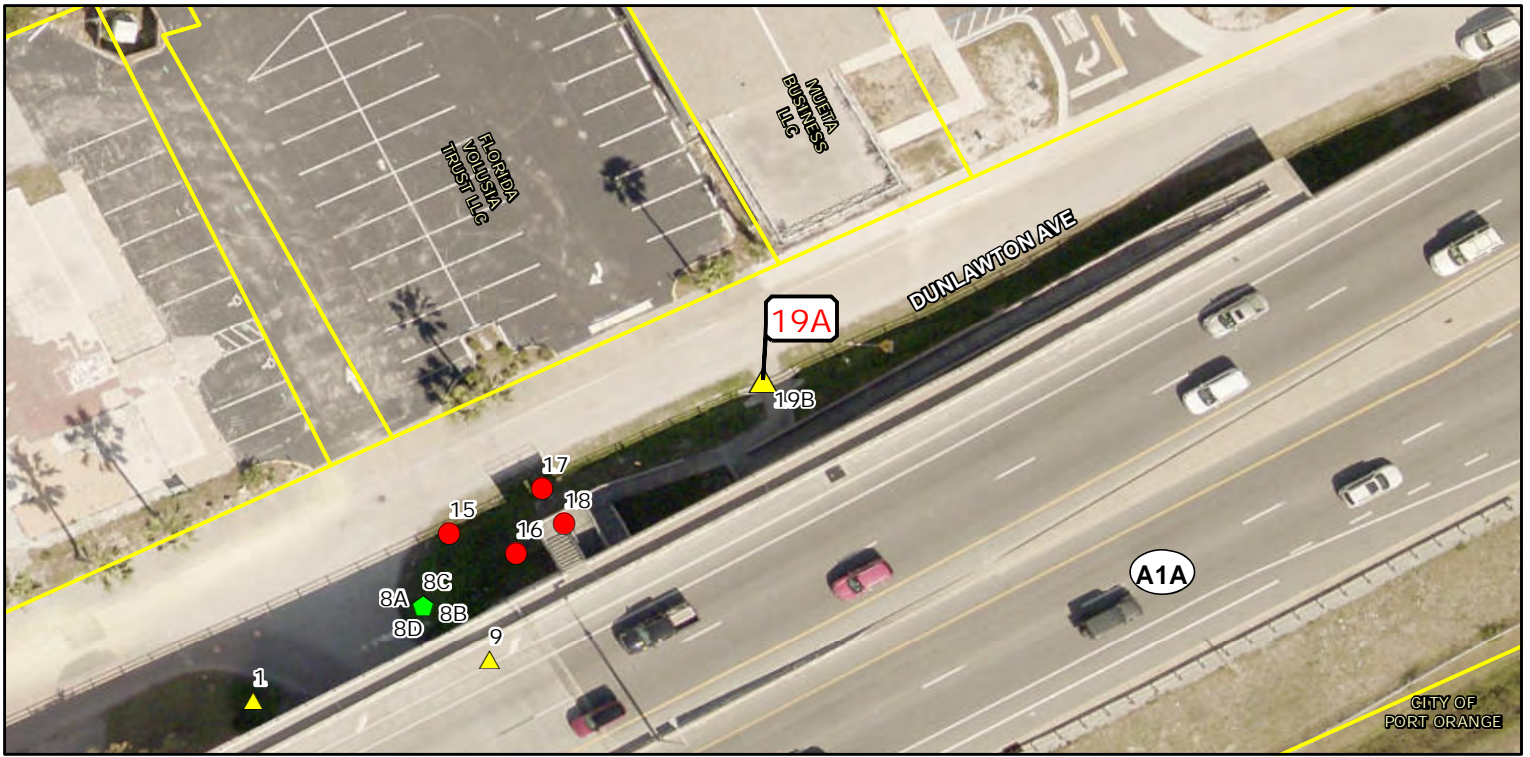
Lat: 29.149694

Long: -80.97278

<http://maps.google.com/maps?q=29.1496943670001,-80.972780432>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 19A

Feature Type: Drainage

Comment:

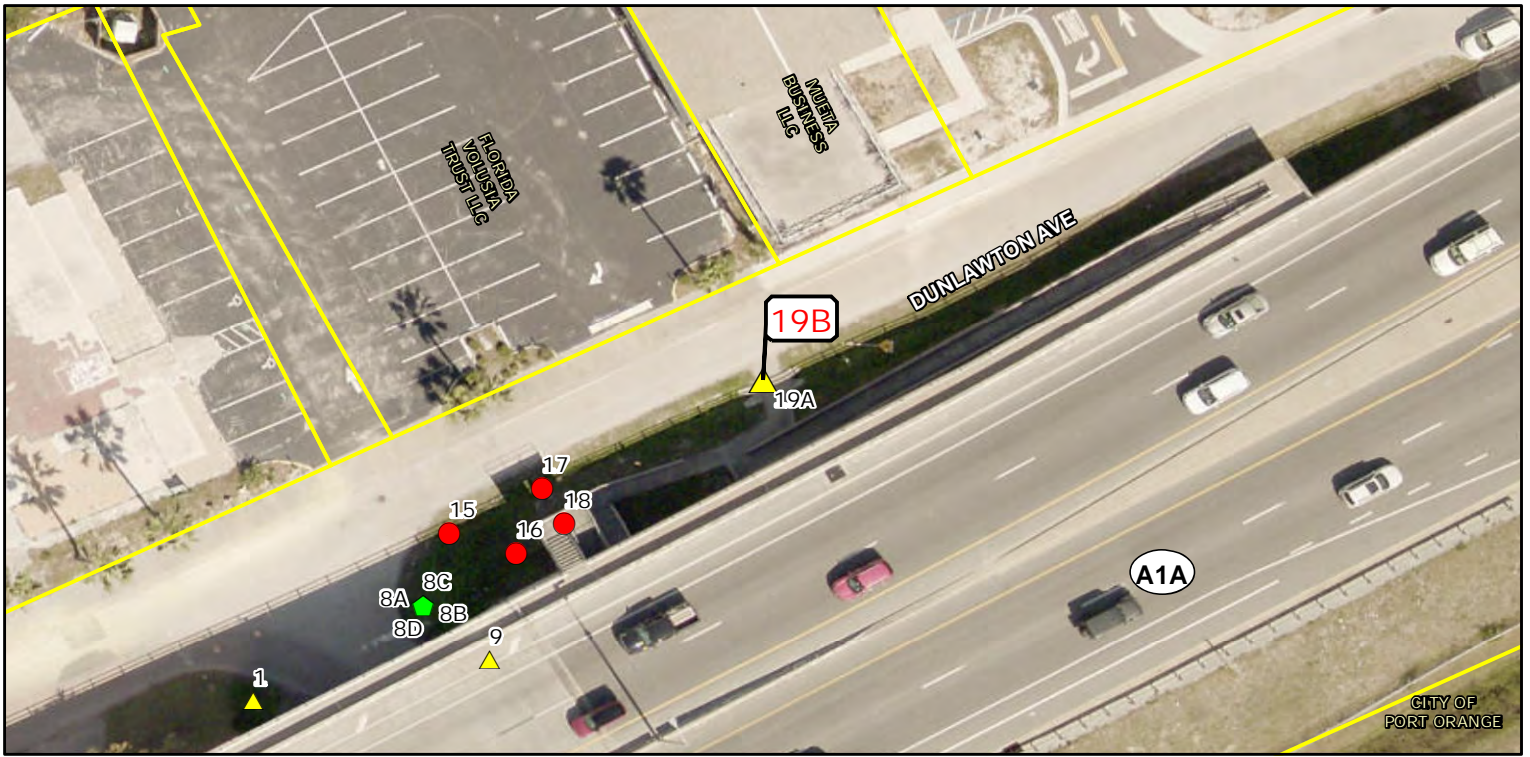
Lat: 29.149797

Long: -80.972639

<http://maps.google.com/maps?q=29.149797355,-80.972638847>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 19B

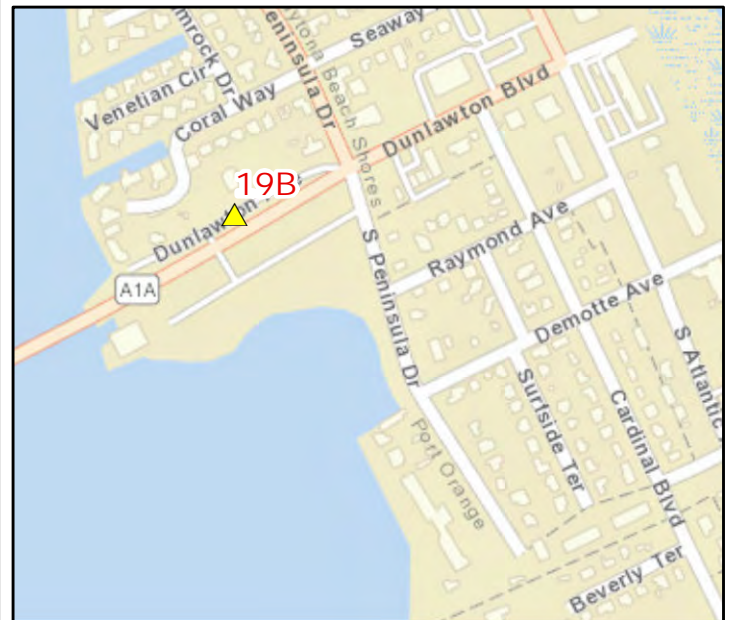
Feature Type: Drainage

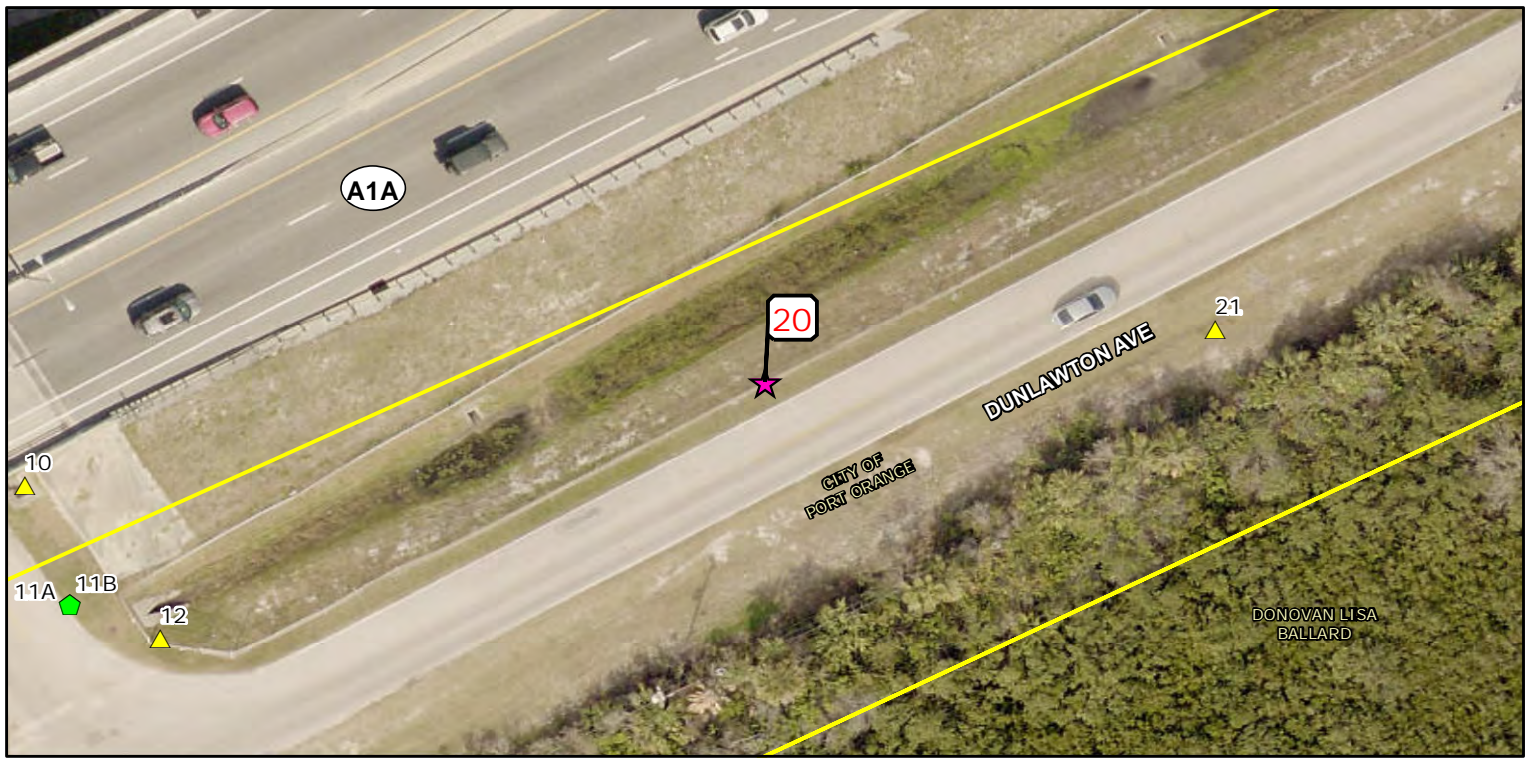
Comment:

Lat: 29.149797 **Long:** -80.972639

<http://maps.google.com/maps?q=29.149797355,-80.972638847>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 20

Feature Type: Other - Misc

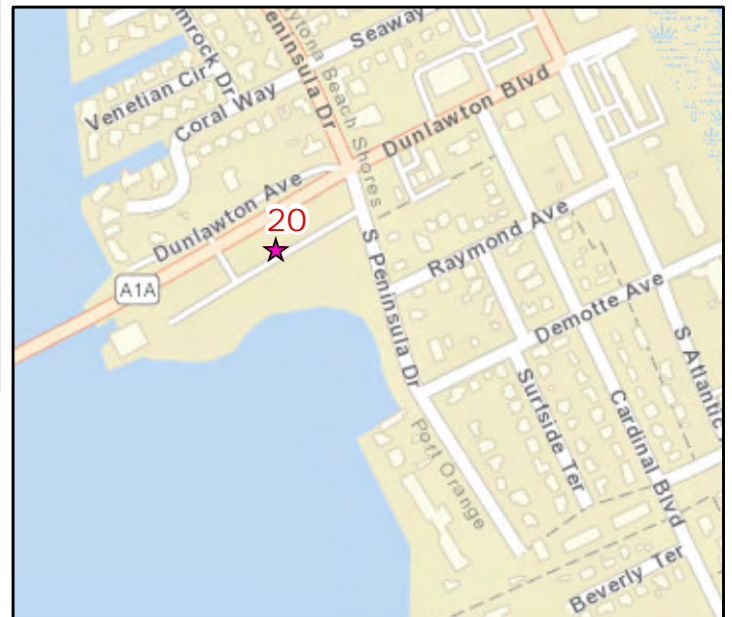
Comment:

Lat: 29.149466

Long: -80.972185

<http://maps.google.com/maps?q=29.1494655230001,-80.9721849809999>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 21

Feature Type: Drainage

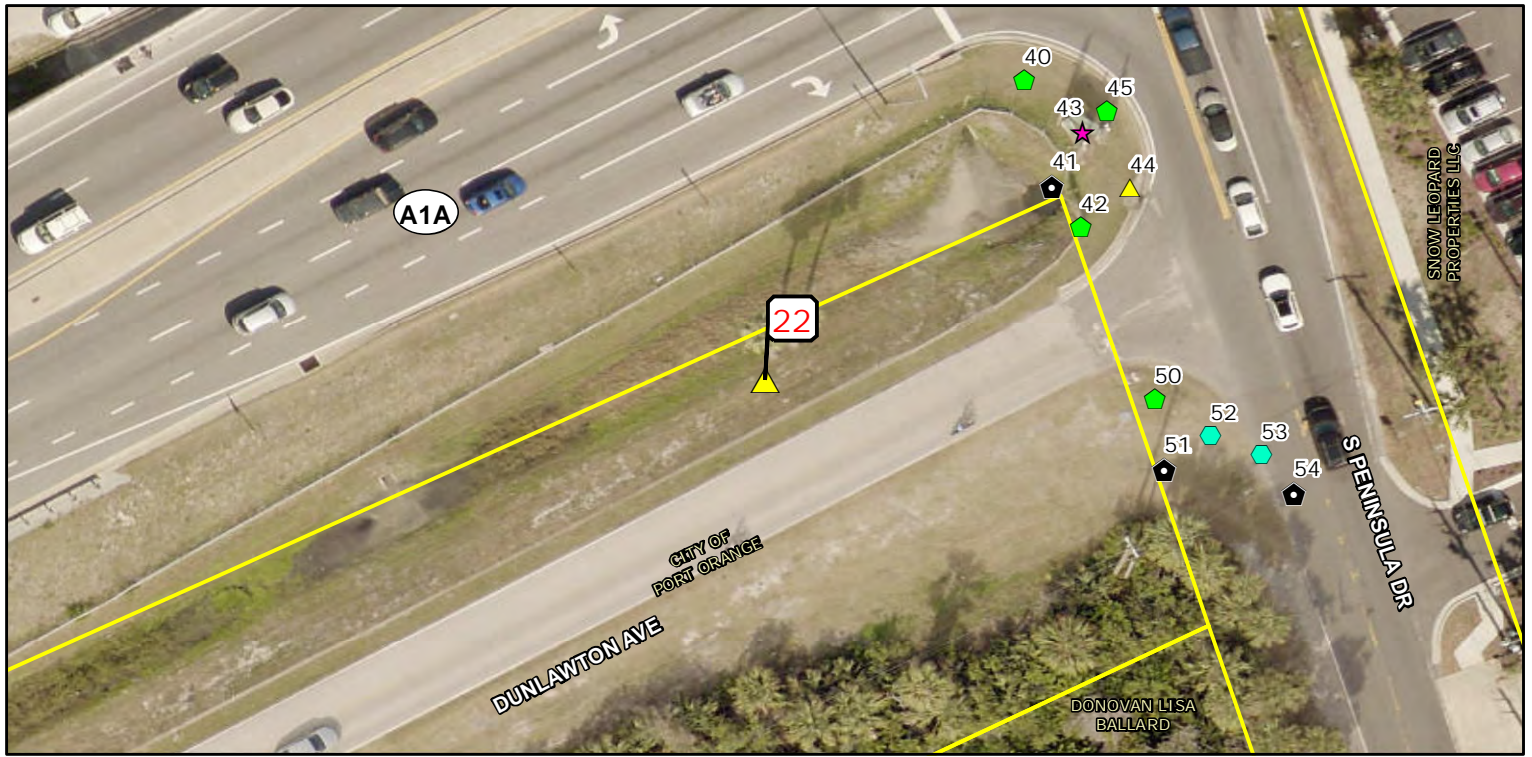
Comment:

Lat: 29.149503 **Long:** -80.971863

<http://maps.google.com/maps?q=29.149502969,-80.9718633369999>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 22

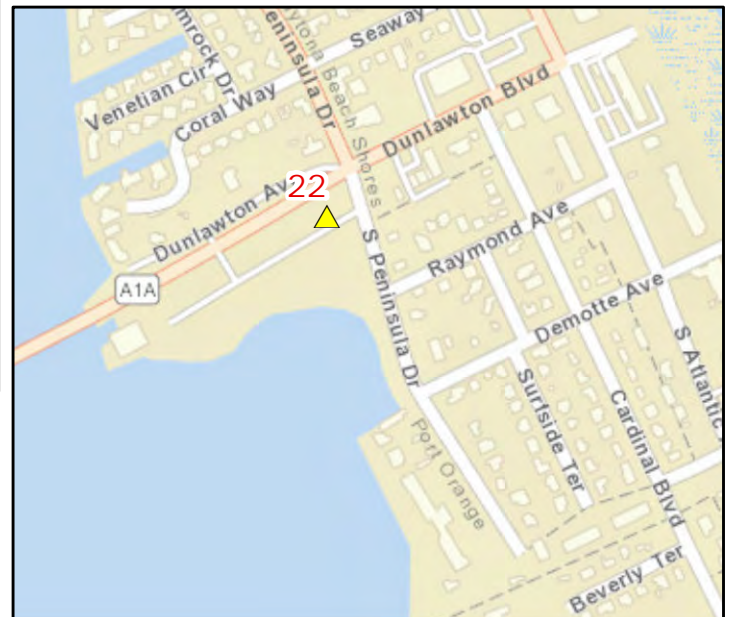
Feature Type: Drainage

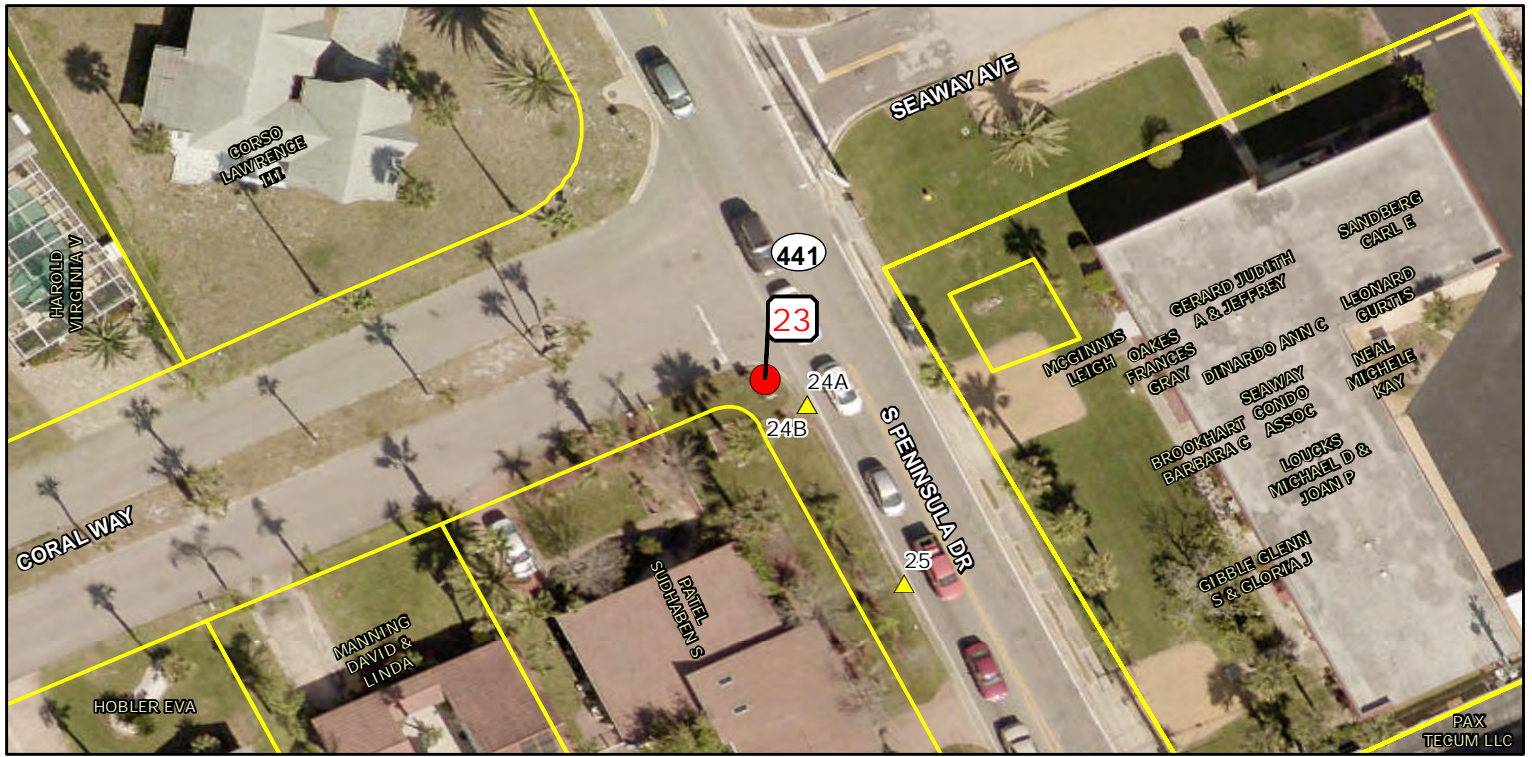
Comment:

Lat: 29.149782 **Long:** -80.97163

<http://maps.google.com/maps?q=29.149781762,-80.9716297639999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **23**

Feature Type: ADA - Safety

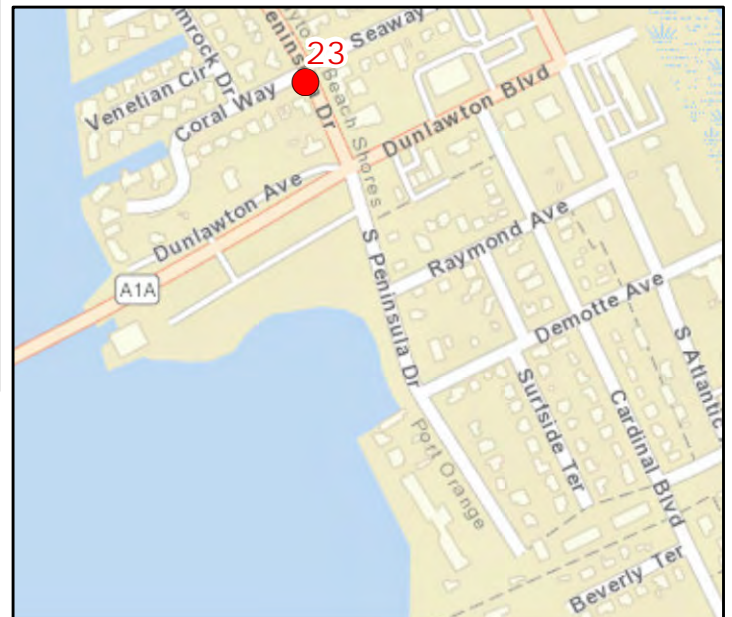
Comment:

Lat: 29.151053

Long: -80.971867

<http://maps.google.com/maps?q=29.151052844,-80.971866936>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **24A**

Feature Type: Drainage

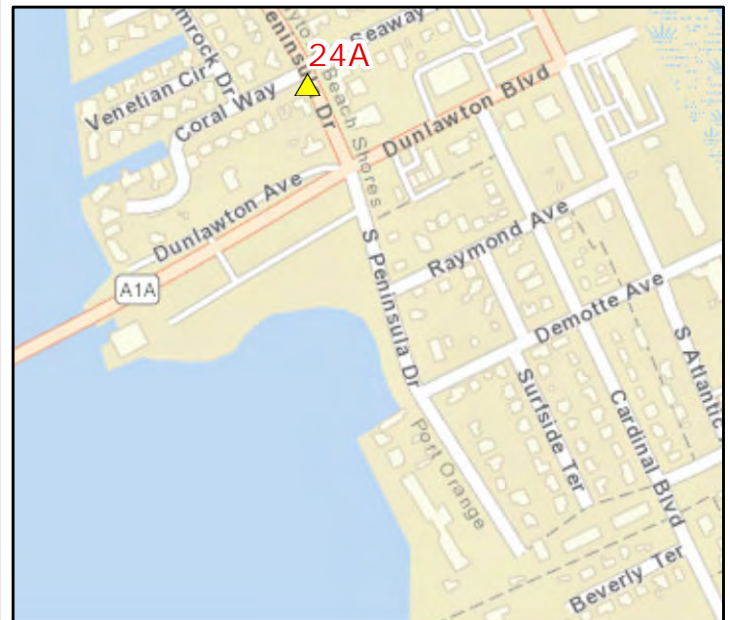
Comment:

Lat: 29.151035

Long: -80.971837

<http://maps.google.com/maps?q=29.1510354540001,-80.9718370209999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: **24B**

Feature Type: Drainage

Comment:

Lat: 29.151035

Long: -80.971837

<http://maps.google.com/maps?q=29.1510354540001,-80.9718370209999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: **25**

Feature Type: Drainage

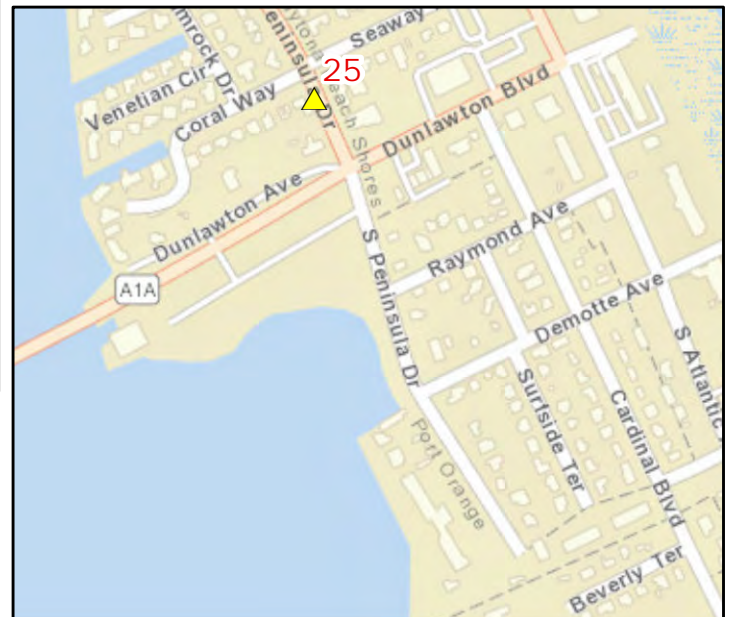
Comment:

Lat: 29.150908

Long: -80.971768

<http://maps.google.com/maps?q=29.15090761,-80.9717676939999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 26

Feature Type: User

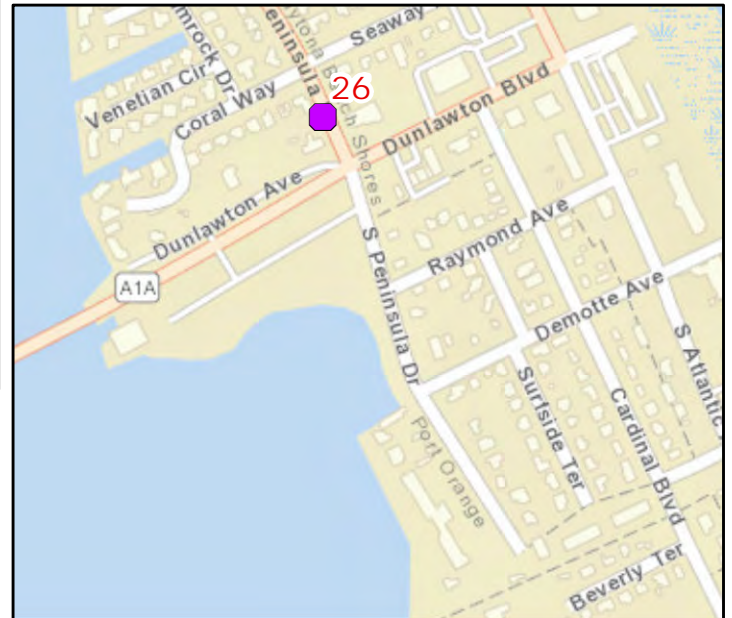
Comment:

Lat: 29.150708

Long: -80.971673

<http://maps.google.com/maps?q=29.1507082960001,-80.971672966>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **27**

Feature Type: Lighting

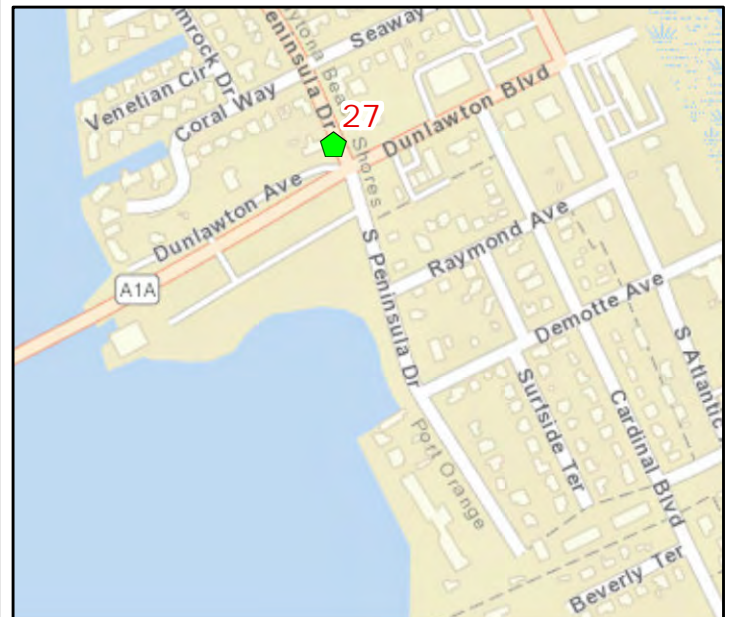
Comment:

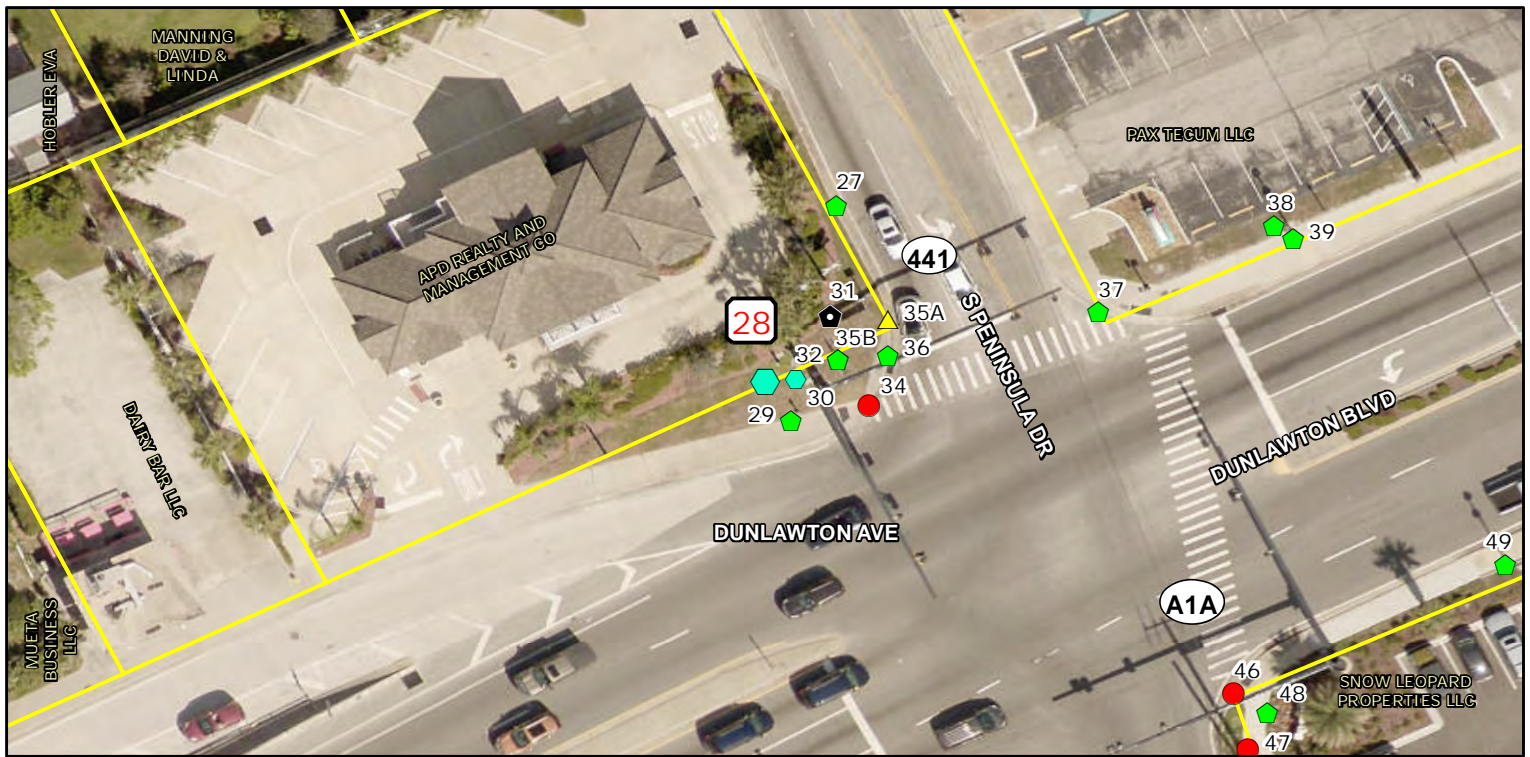
Lat: 29.150468

Long: -80.971557

<http://maps.google.com/maps?q=29.1504681860001,-80.971556587>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 28

Feature Type: Traffic Control

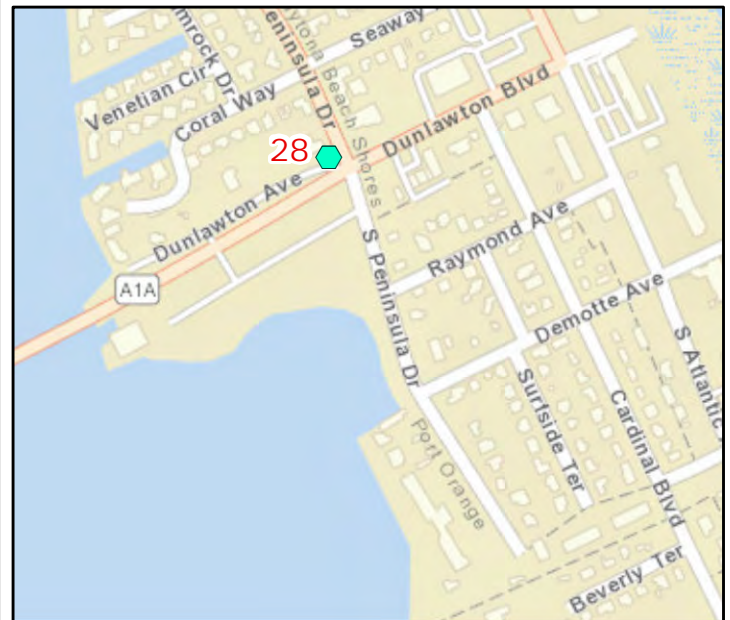
Comment:

Lat: 29.150342

Long: -80.971607

<http://maps.google.com/maps?q=29.1503417800001,-80.9716071409999>

- | | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ■ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 29

Feature Type: Lighting

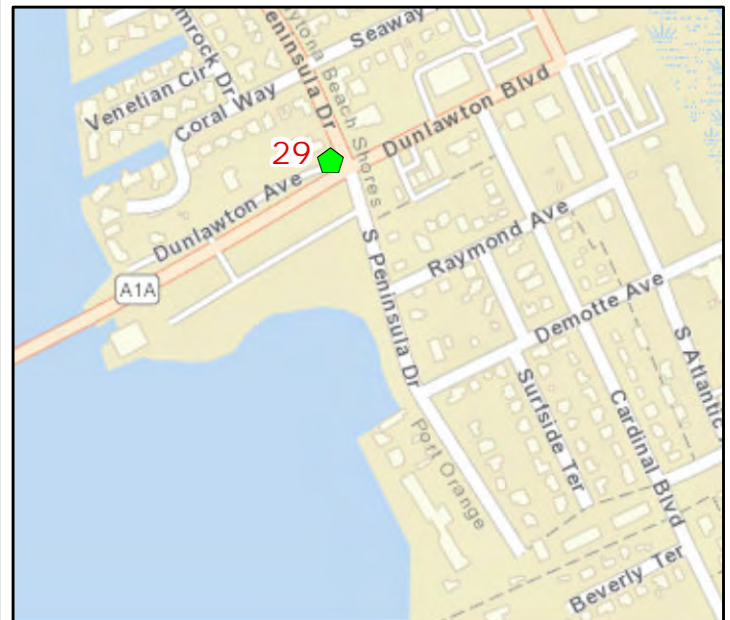
Comment:

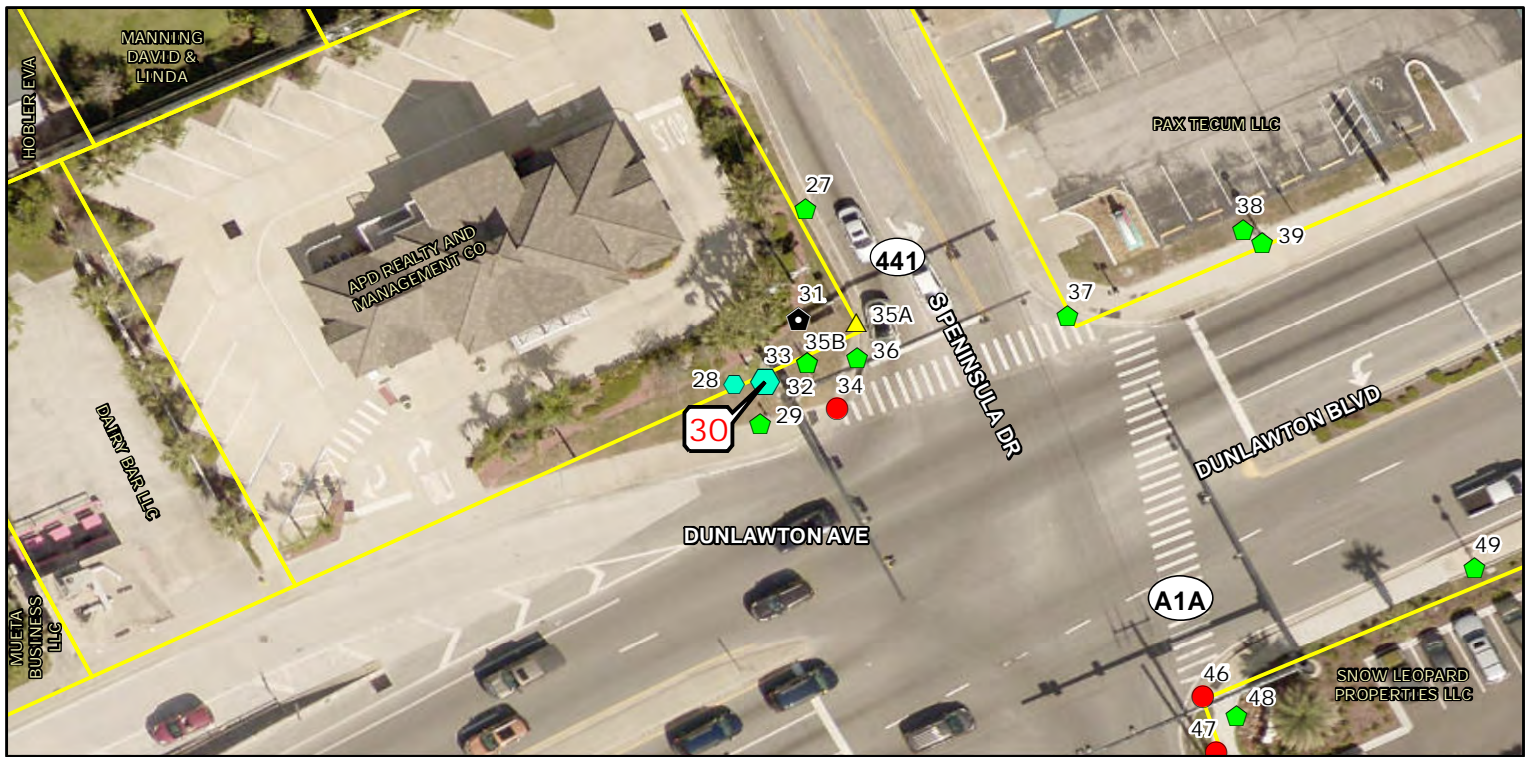
Lat: 29.150314

Long: -80.971589

<http://maps.google.com/maps?q=29.1503143190001,-80.971588786>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 30

Feature Type: Traffic Control

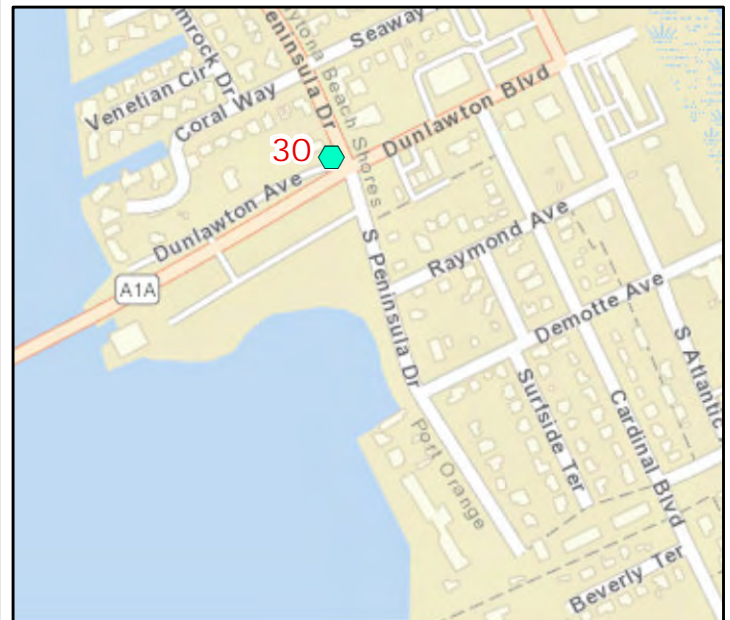
Comment:

Lat: 29.150344

Long: -80.971585

<http://maps.google.com/maps?q=29.1503440770001,-80.9715850269999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 31

Feature Type: Utilities

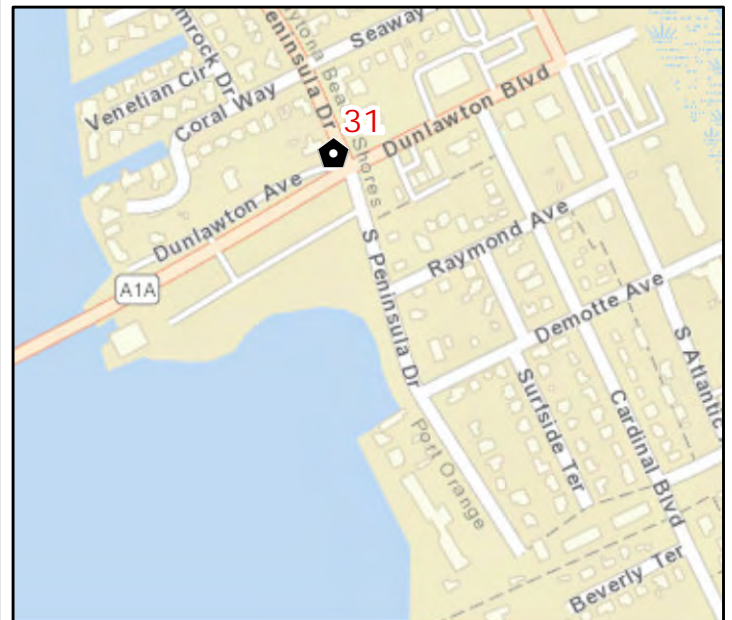
Comment:

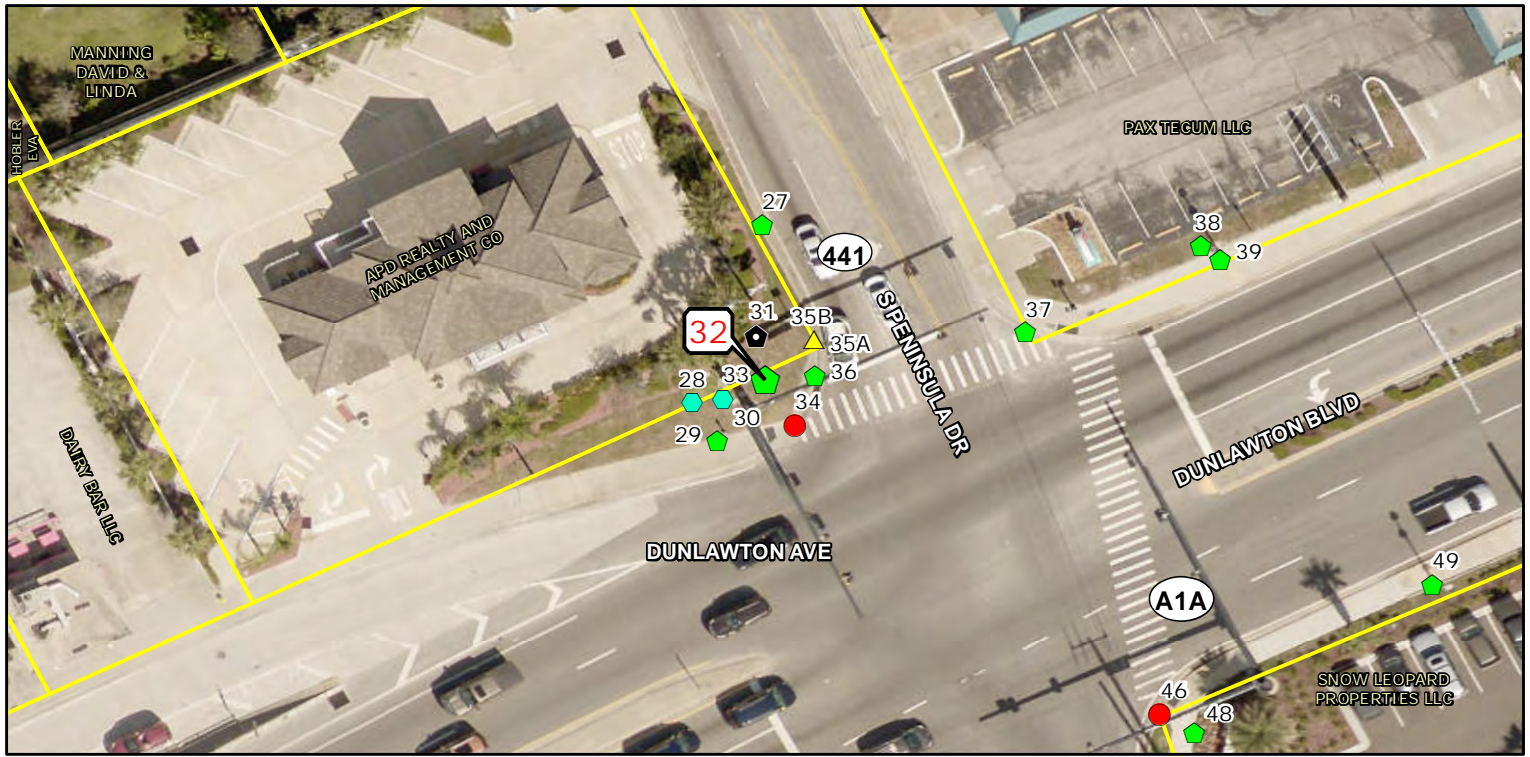
Lat: 29.150389

Long: -80.971561

<http://maps.google.com/maps?q=29.1503890910001,-80.971560798>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬠ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 32

Feature Type: Lighting

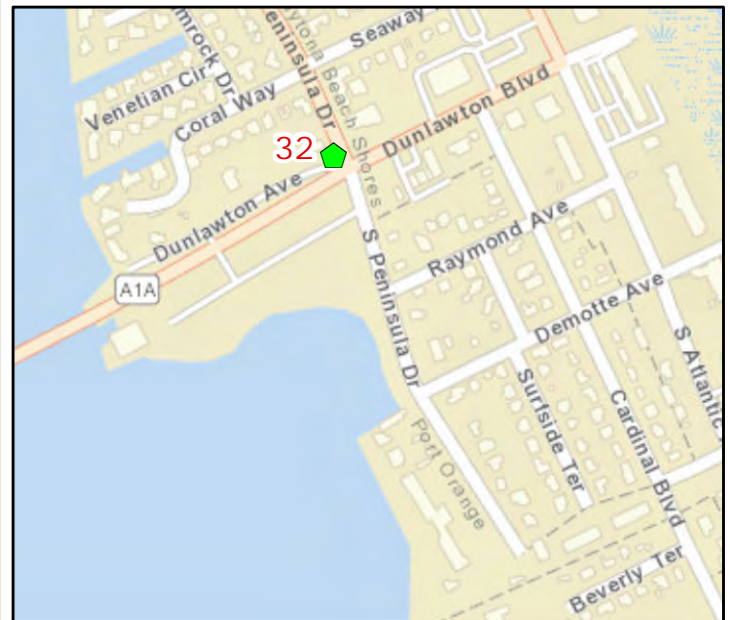
Comment:

Lat: 29.150357

Long: -80.971555

<http://maps.google.com/maps?q=29.1503574990001,-80.971554813>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 33

Feature Type: Lighting

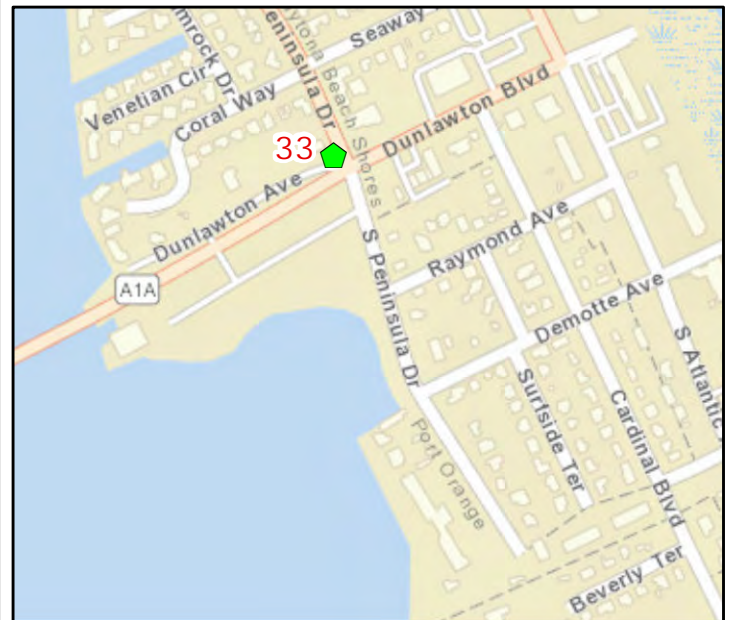
Comment:

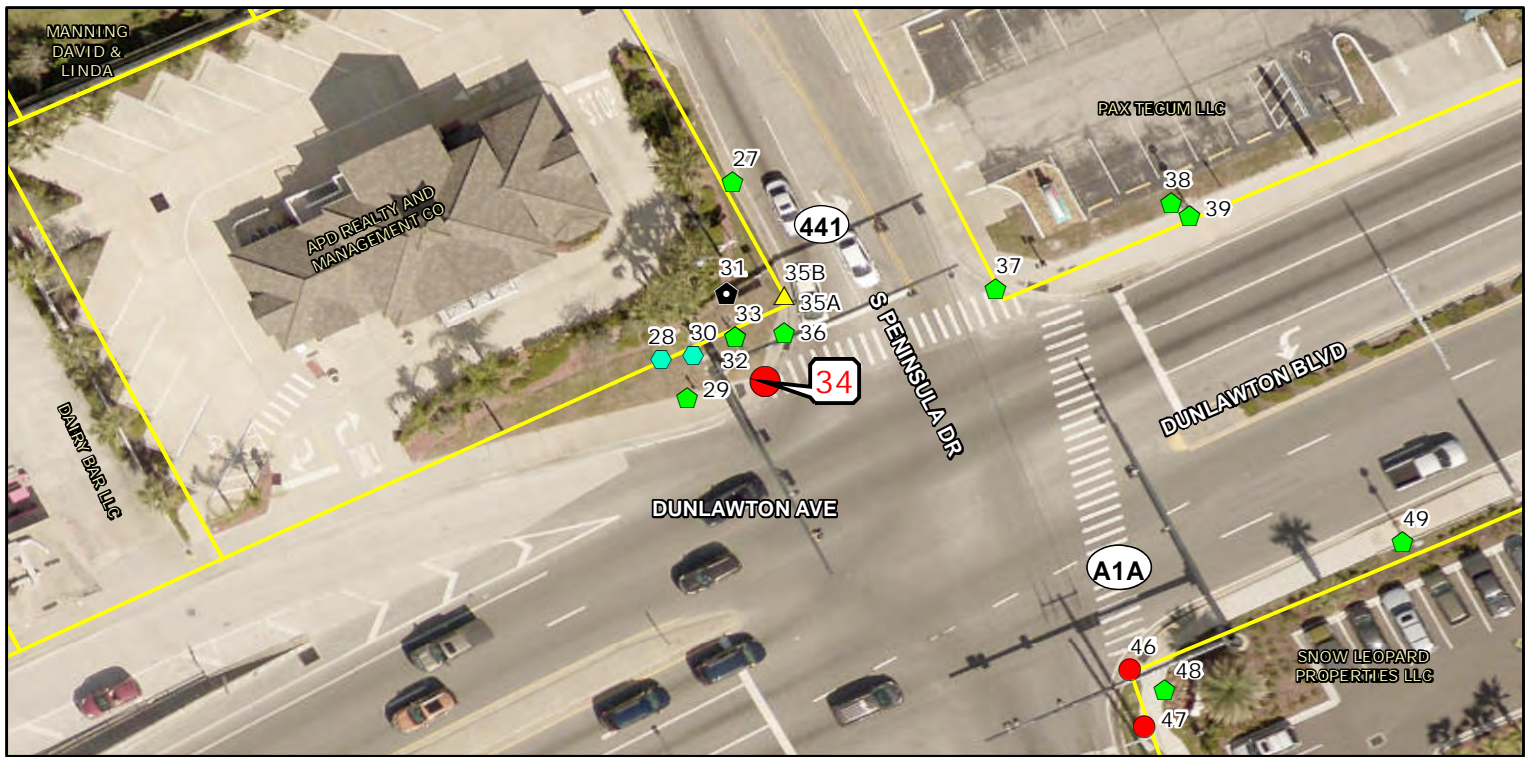
Lat: 29.150357

Long: -80.971555

<http://maps.google.com/maps?q=29.1503574990001,-80.971554813>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 34

Feature Type: ADA - Safety

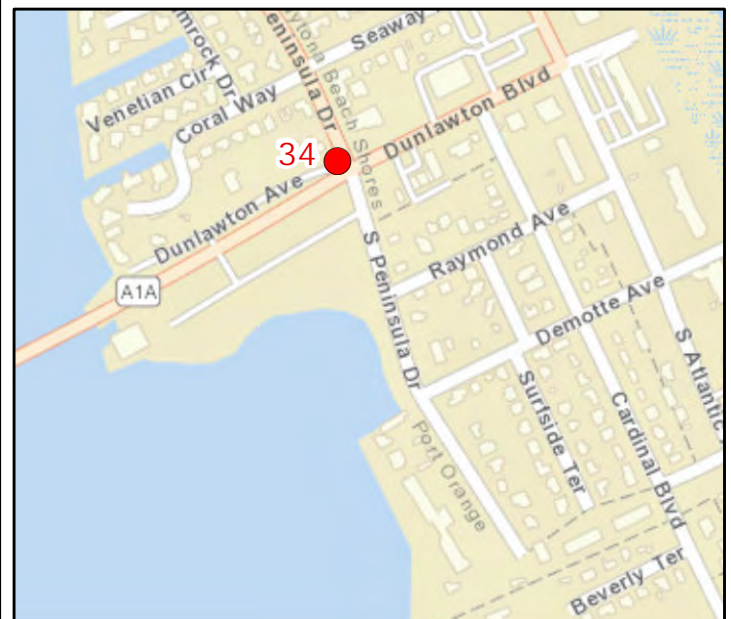
Comment:

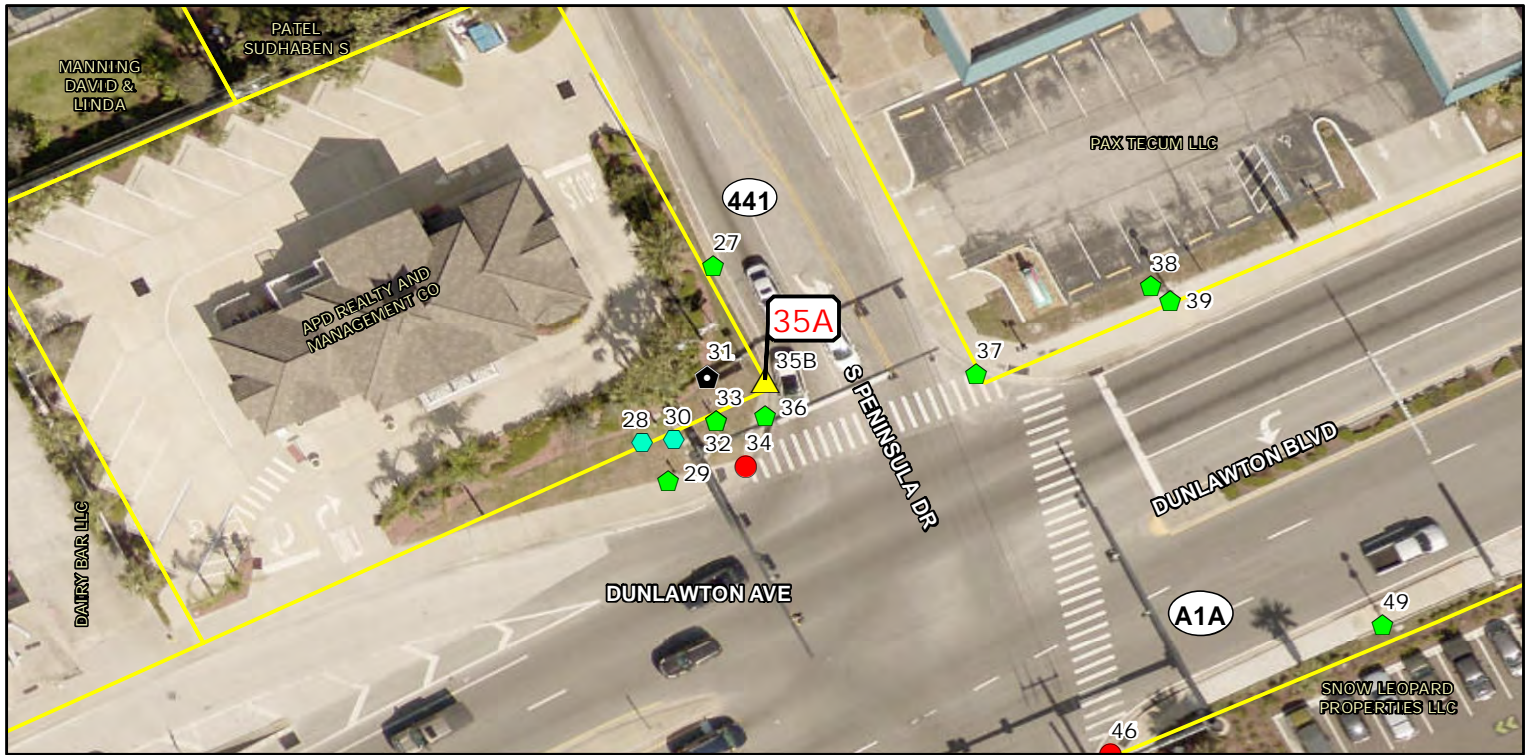
Lat: 29.150325

Long: -80.971533

<http://maps.google.com/maps?q=29.150325036,-80.971533424>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬠ Lighting | ★ Other - Misc |
| ⬡ Traffic Control | |





Feature ID: 35A

Feature Type: Drainage

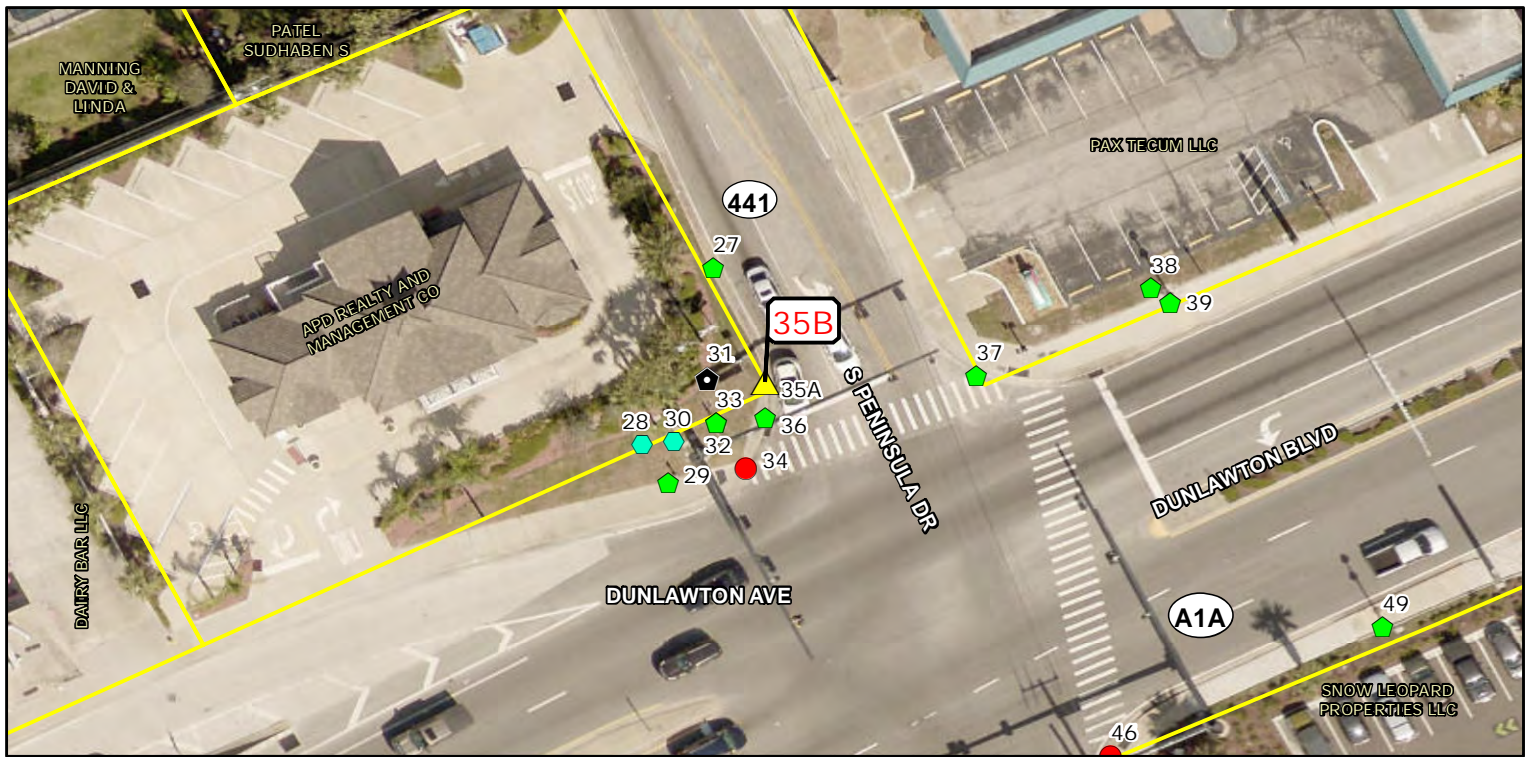
Comment:

Lat: 29.150386 **Long:** -80.97152

<http://maps.google.com/maps?q=29.150386396,-80.971519609>

| | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **35B**

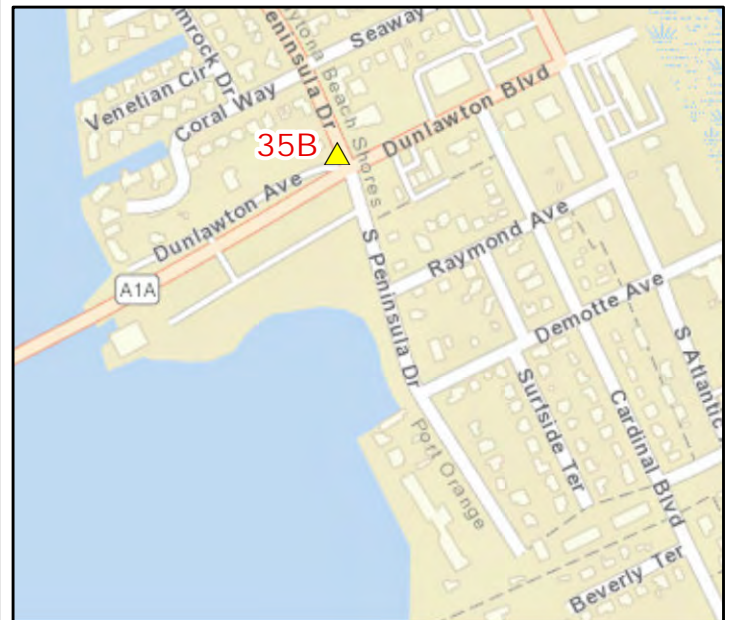
Feature Type: Drainage

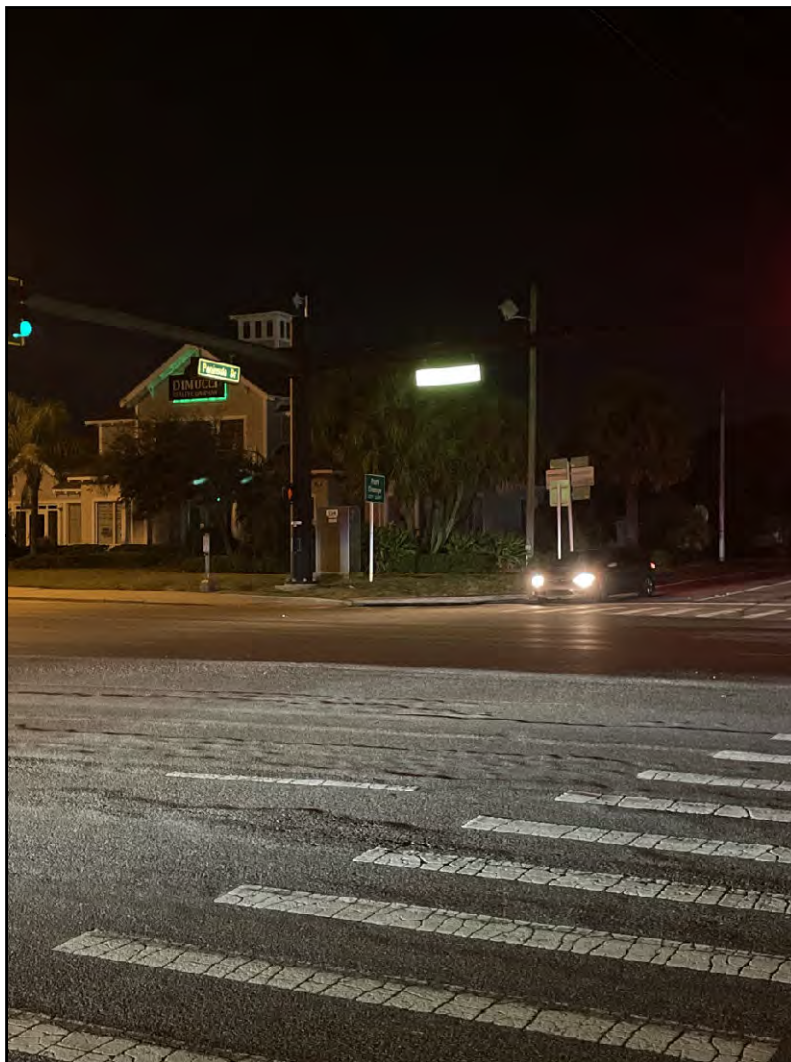
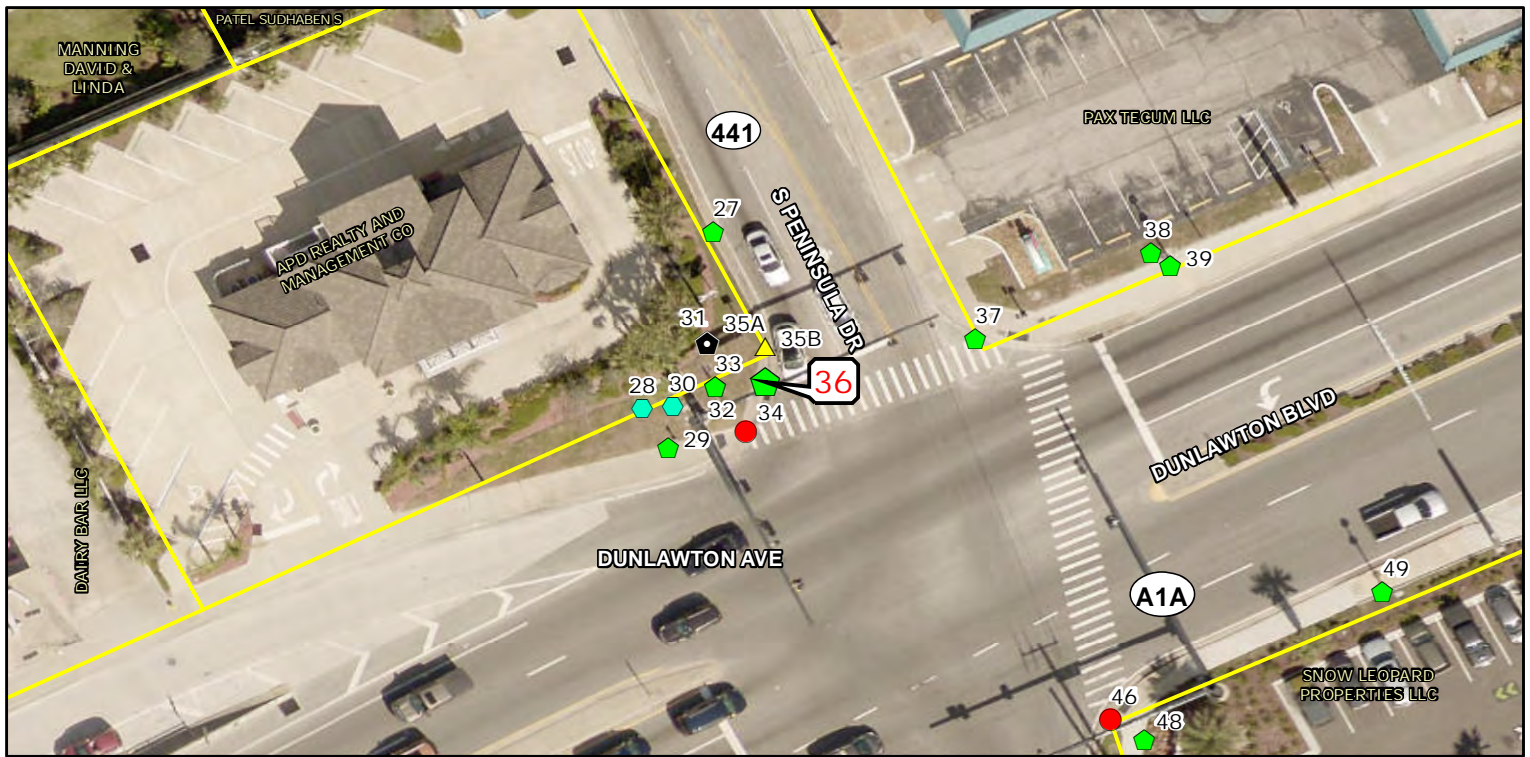
Comment:

Lat: 29.150386 Long: -80.97152

<http://maps.google.com/maps?q=29.150386396,-80.971519609>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 36

Feature Type: Lighting

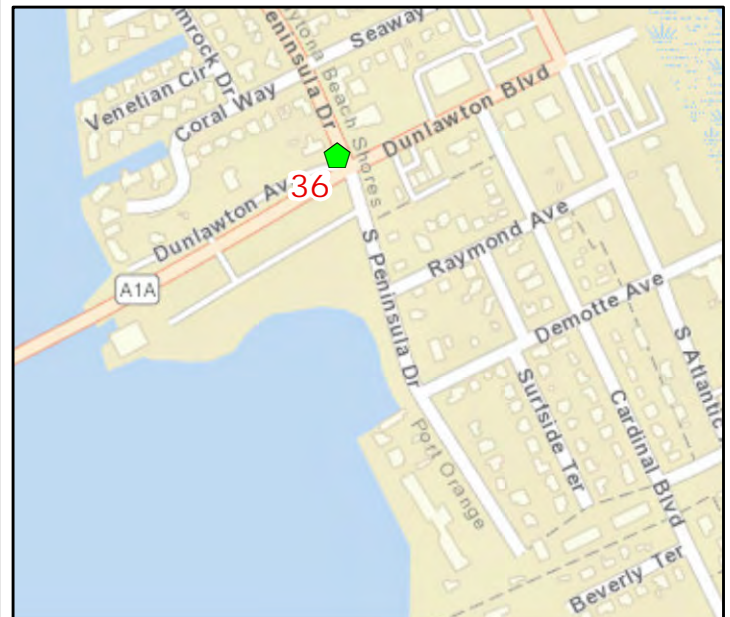
Comment:

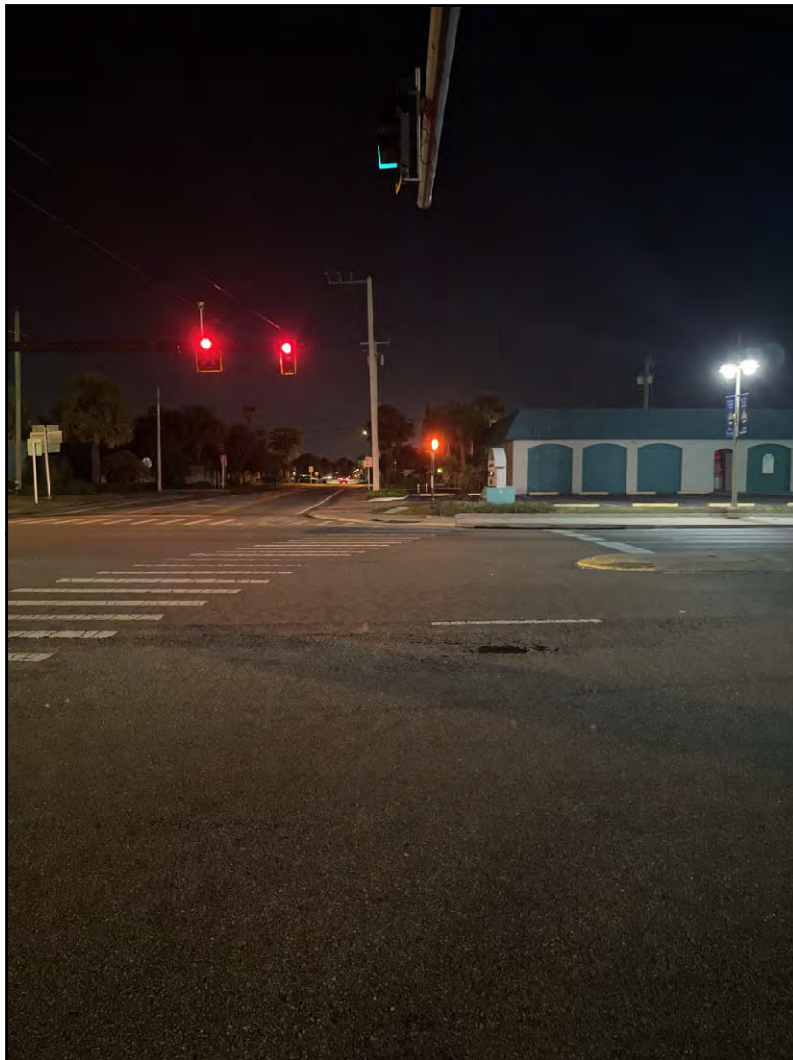
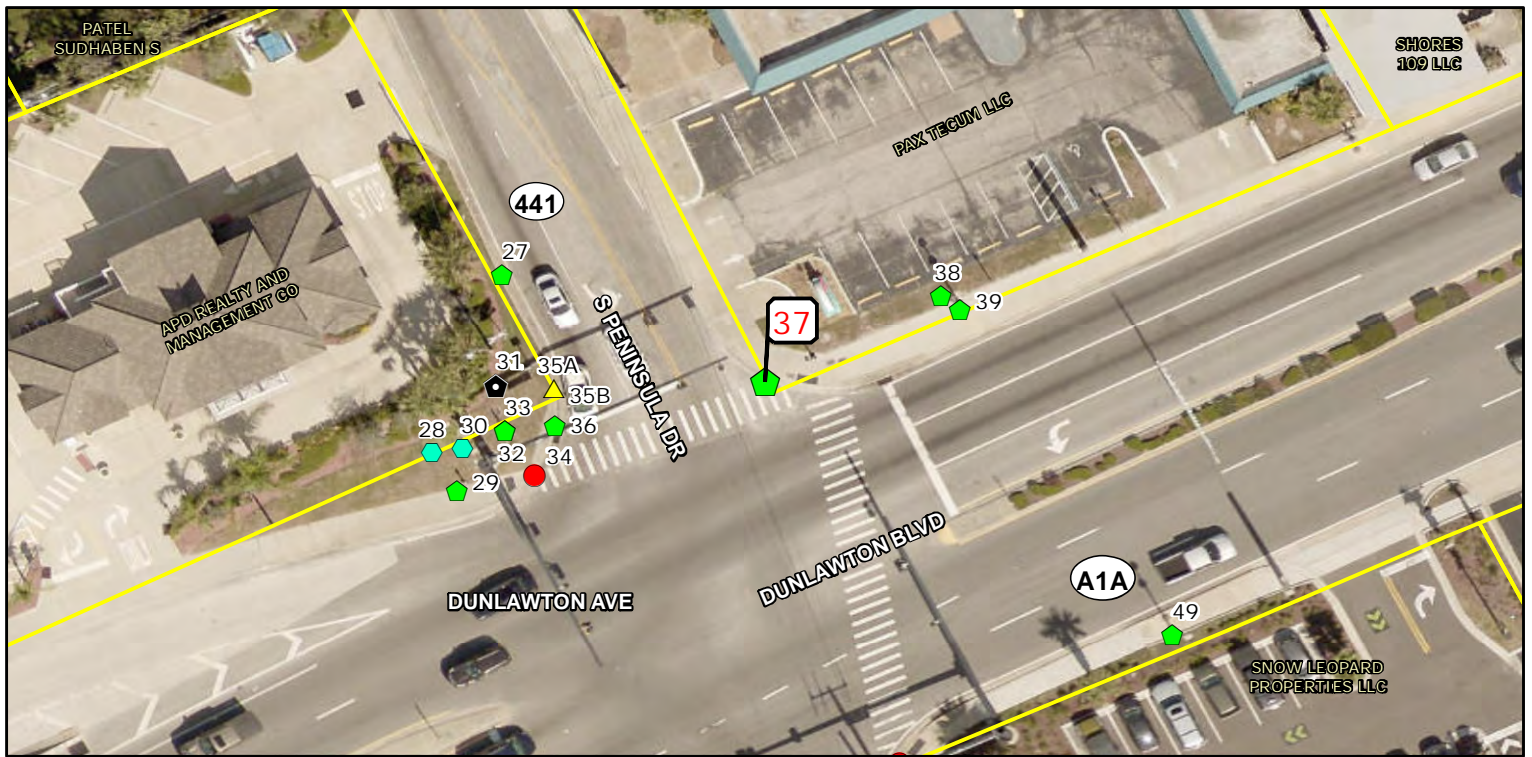
Lat: 29.150361

Long: -80.971519

<http://maps.google.com/maps?q=29.150360908,-80.971519459>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **37**

Feature Type: Lighting

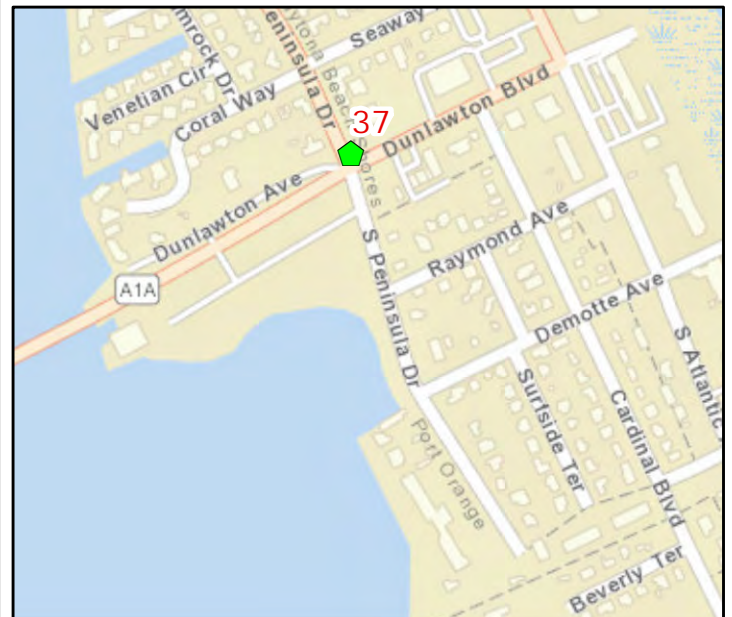
Comment:

Lat: 29.150392

Long: -80.971369

<http://maps.google.com/maps?q=29.150391509,-80.971369092>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **38**

Feature Type: Lighting

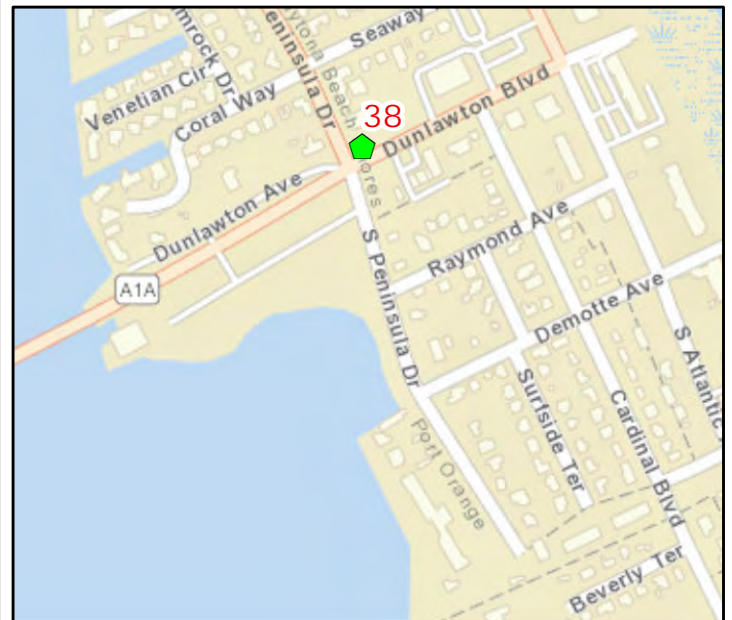
Comment:

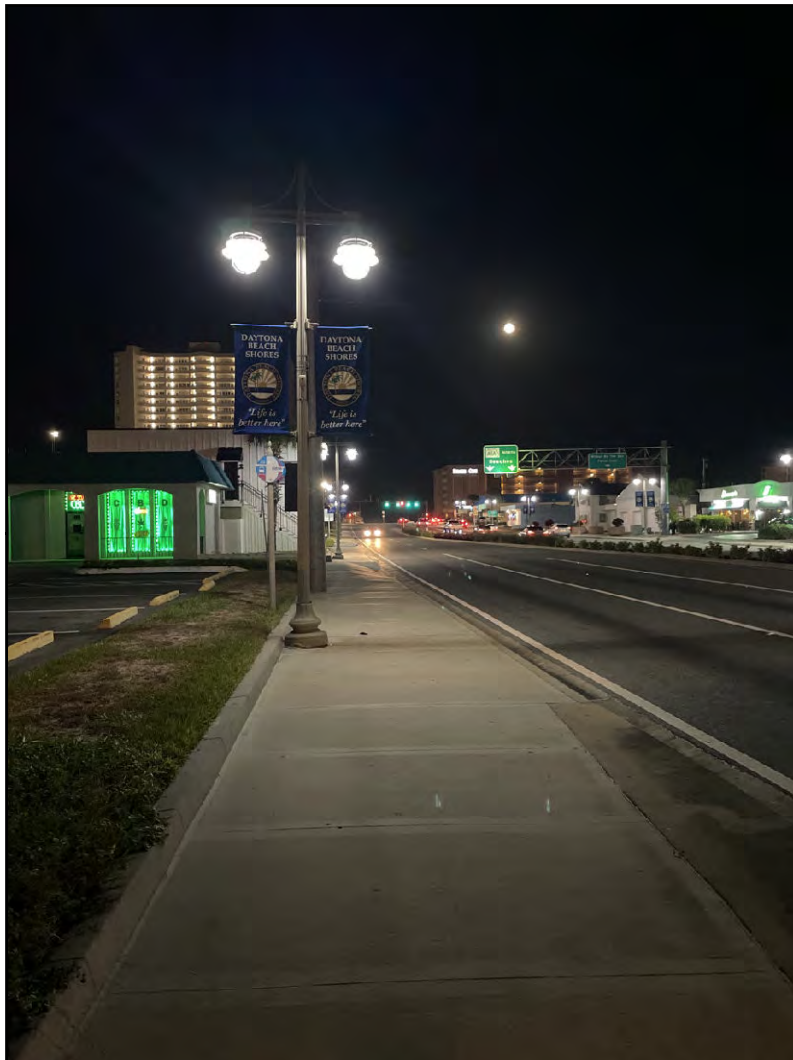
Lat: 29.150453

Long: -80.971244

<http://maps.google.com/maps?q=29.15045337,-80.971243837>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 39

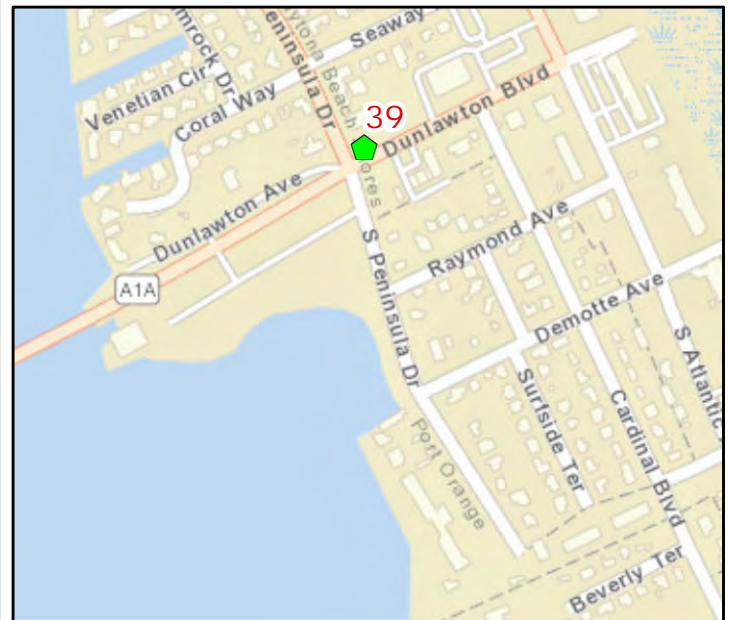
Feature Type: Lighting

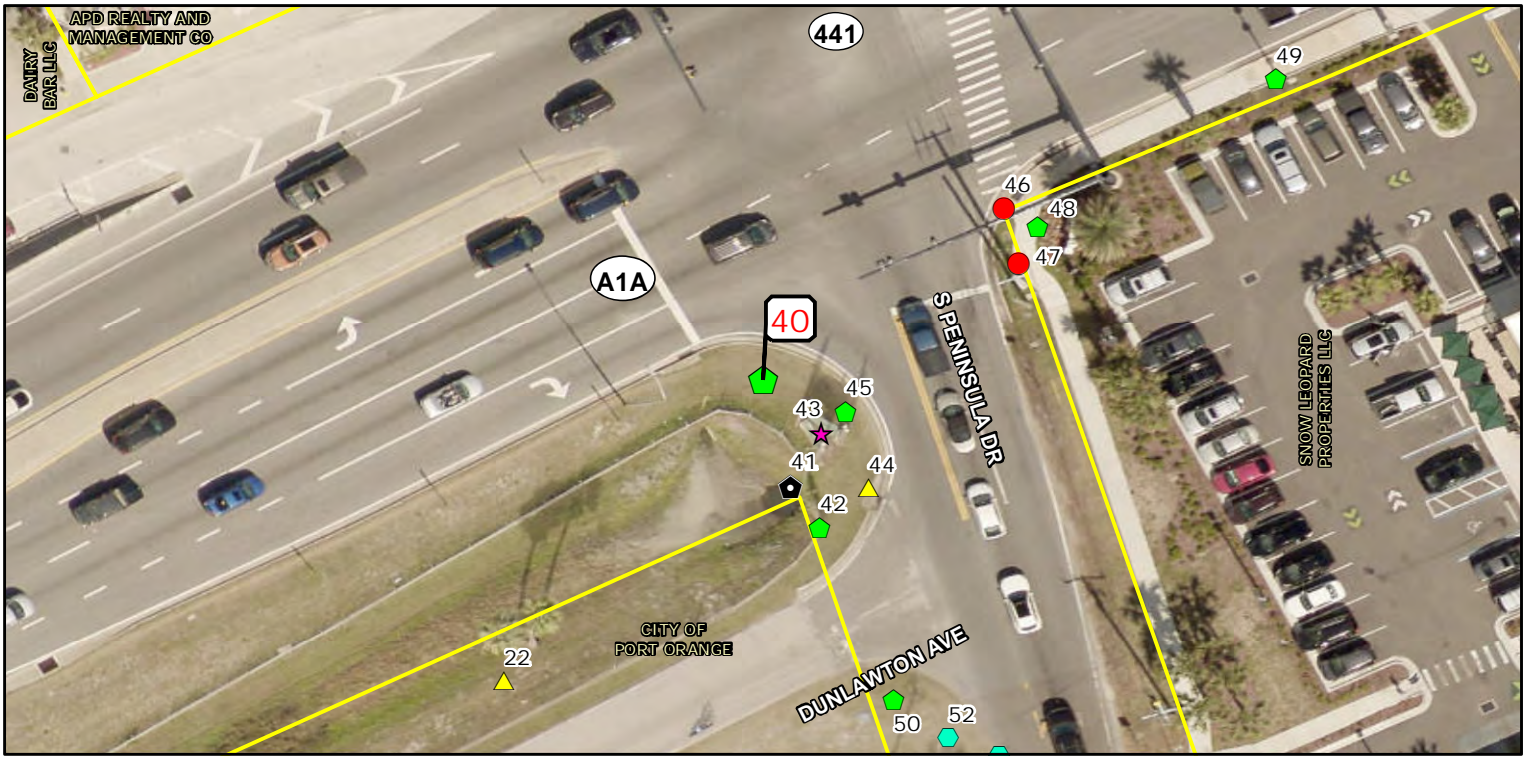
Comment:

Lat: 29.150444 **Long:** -80.97123

<http://maps.google.com/maps?q=29.150443577,-80.971230269>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ■ Utilities |
| ■ Lighting | ★ Other - Misc |
| ■ Traffic Control | |





Feature ID: 40

Feature Type: Lighting

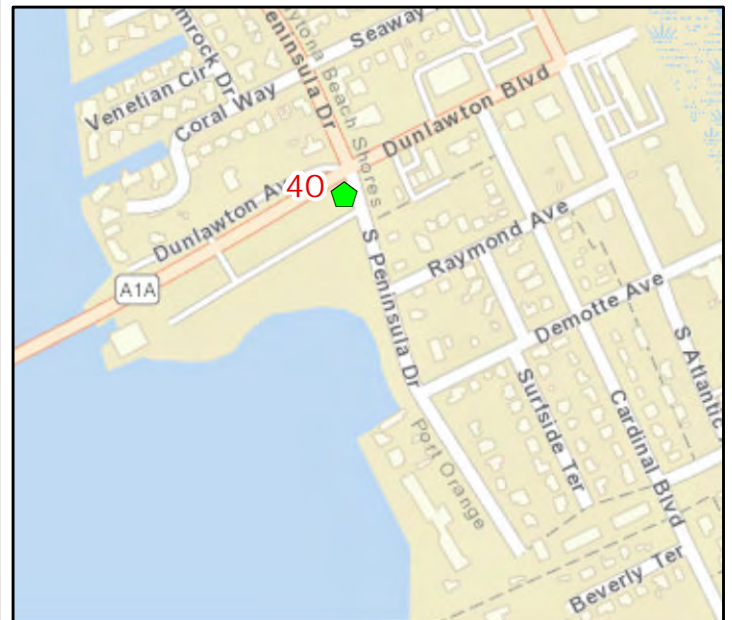
Comment:

Lat: 29.149997

Long: -80.971445

<http://maps.google.com/maps?q=29.1499965960001,-80.971444616>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 41

Feature Type: Utilities

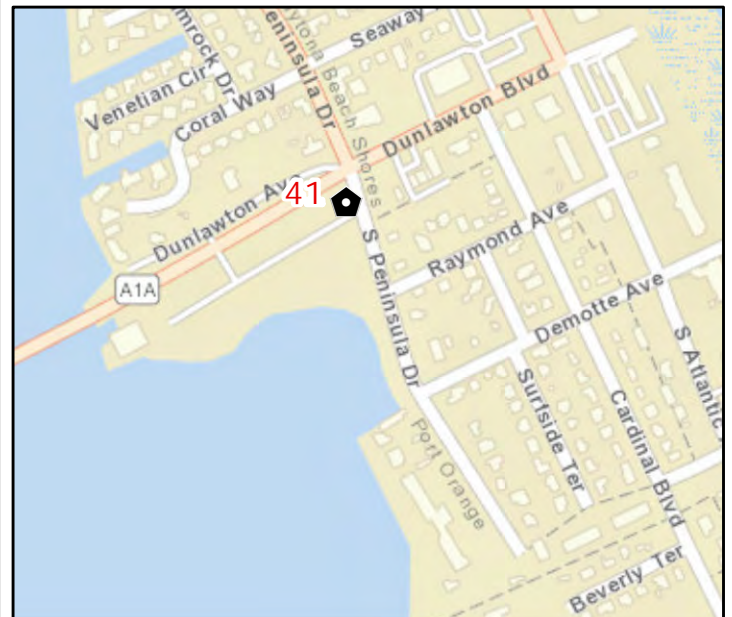
Comment:

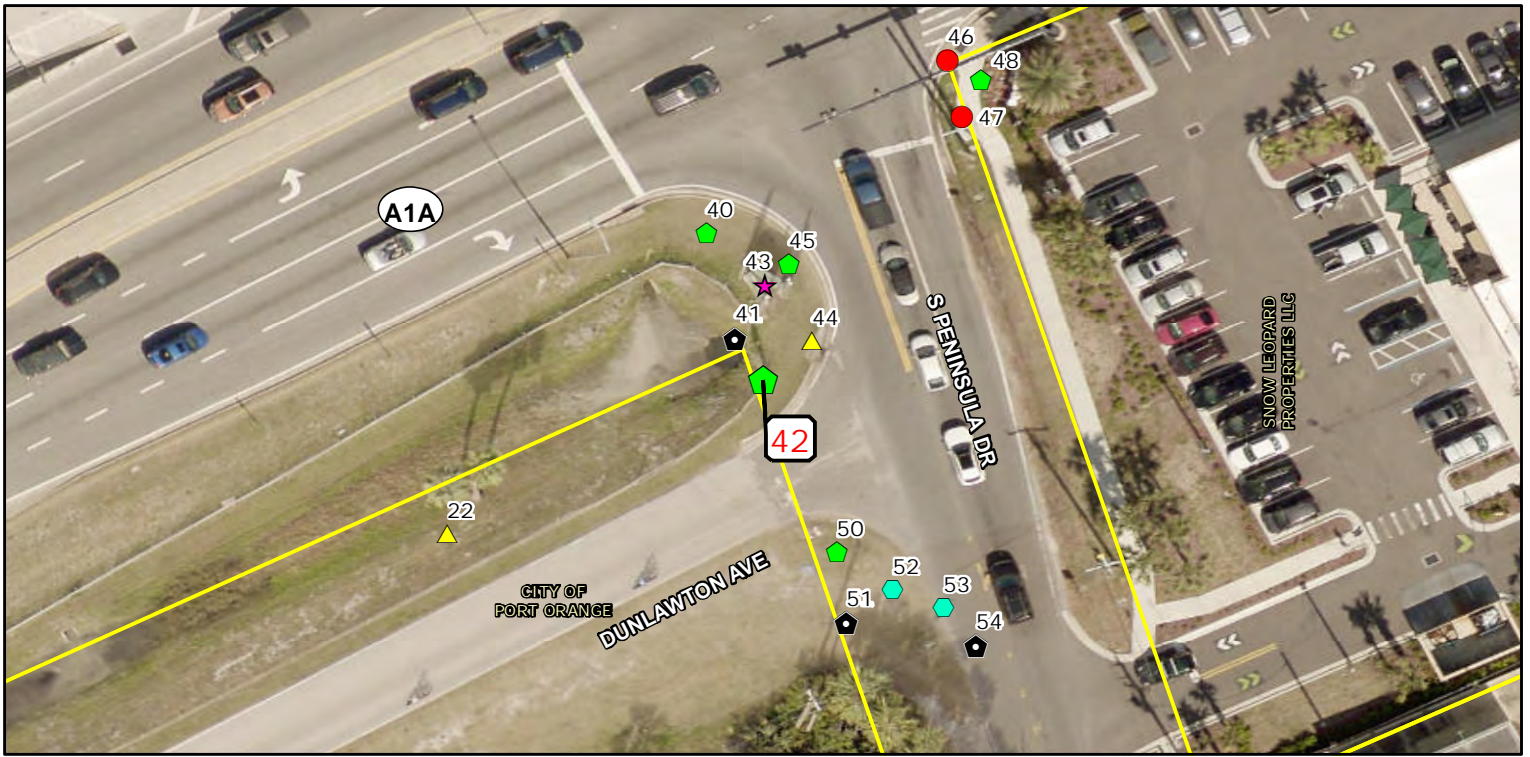
Lat: 29.14992

Long: -80.971425

<http://maps.google.com/maps?q=29.149920439,-80.971424626>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ★ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 42

Feature Type: Lighting

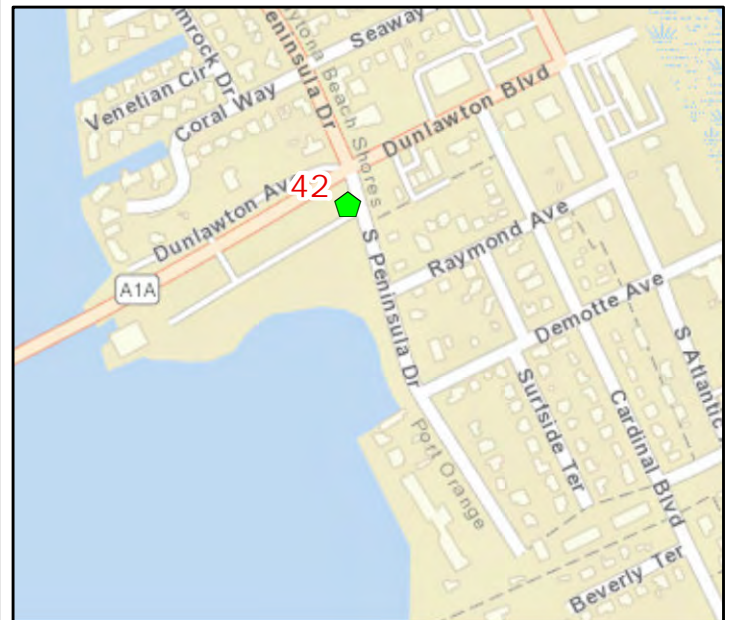
Comment:

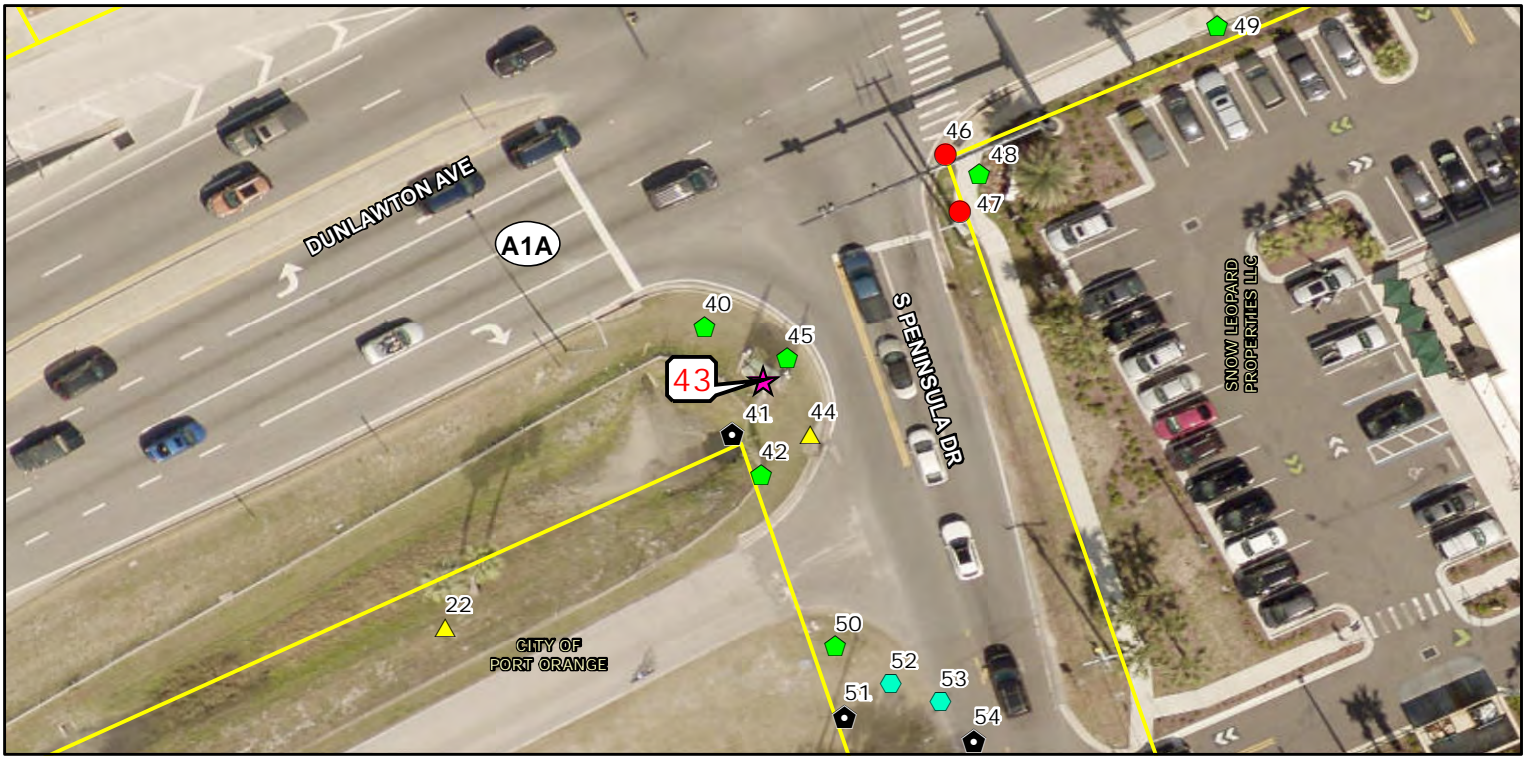
Lat: 29.149891

Long: -80.971404

<http://maps.google.com/maps?q=29.149891213,-80.9714044359999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 43

Feature Type: Other - Misc

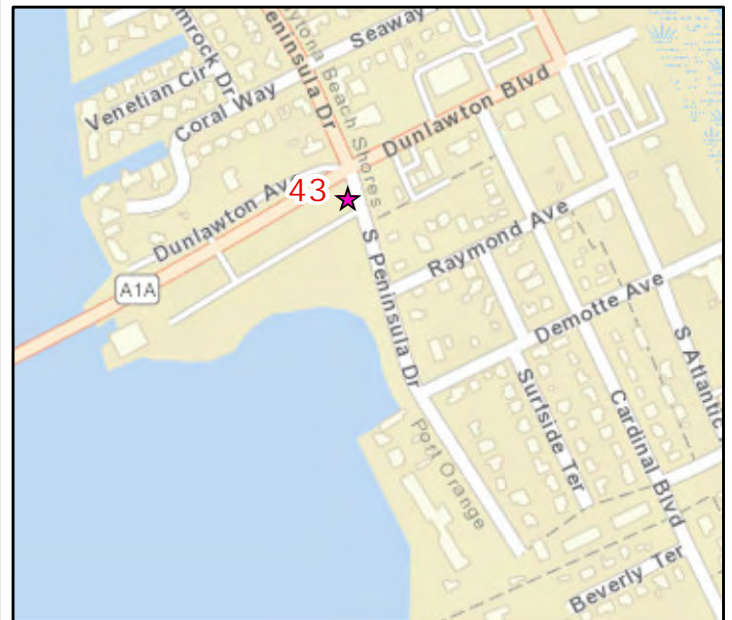
Comment:

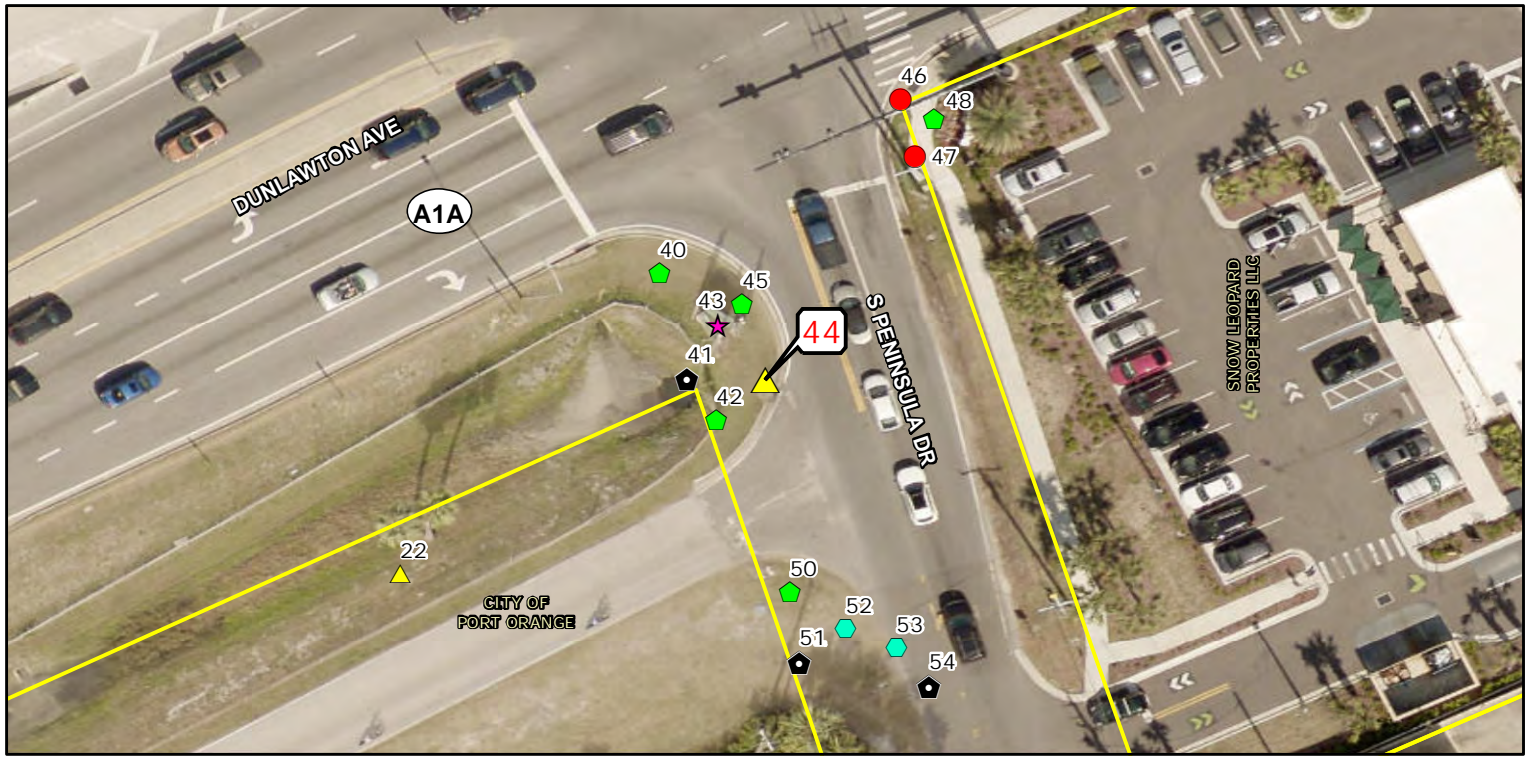
Lat: 29.149959

Long: -80.971403

<http://maps.google.com/maps?q=29.149958505,-80.971402847>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬠ Lighting | ★ Other - Misc |
| ⬡ Traffic Control | |





Feature ID: 44

Feature Type: Drainage

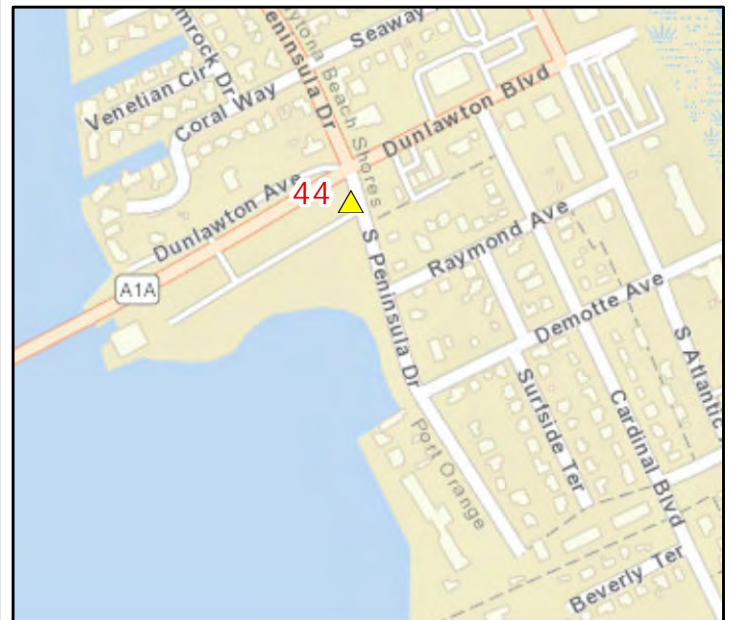
Comment:

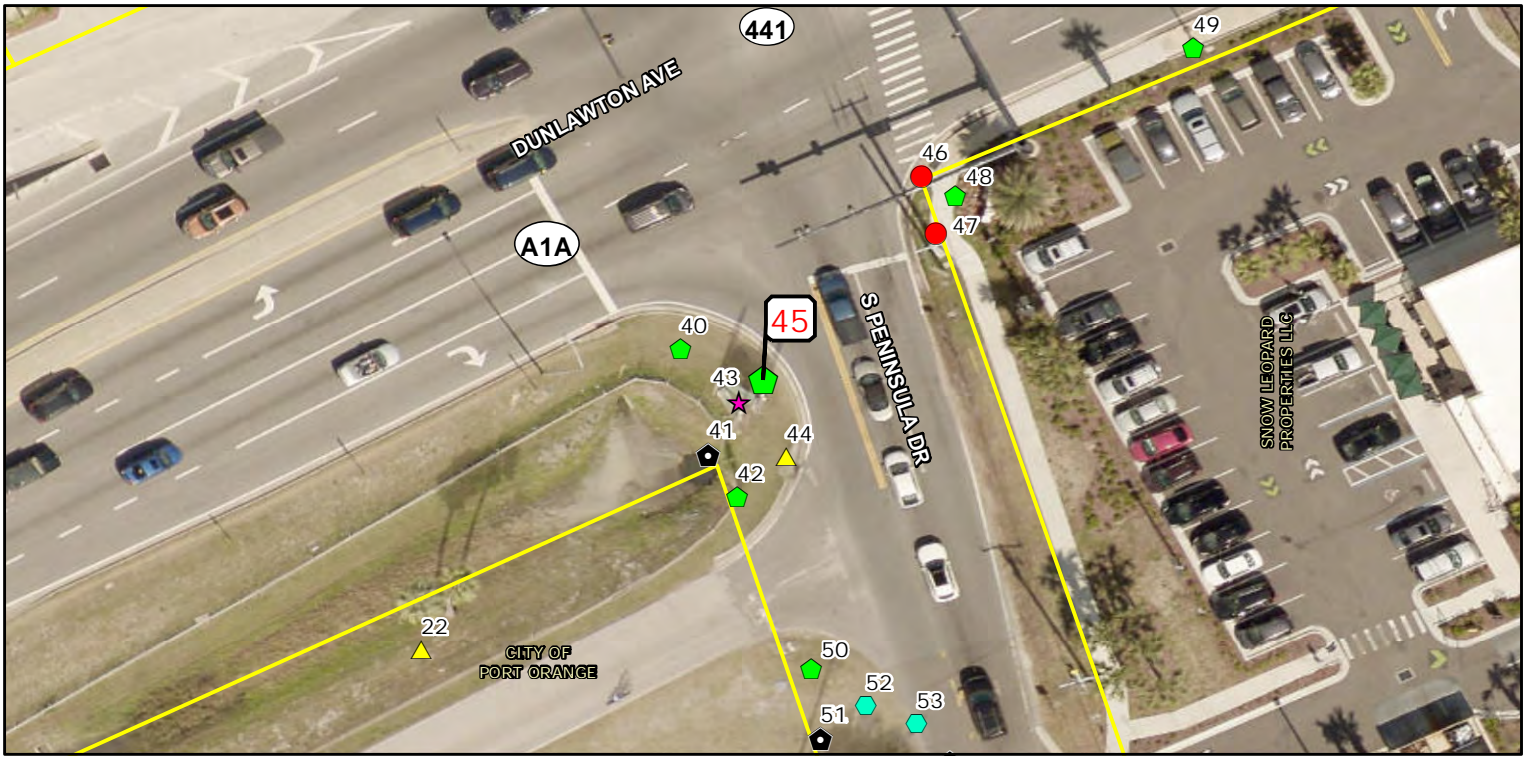
Lat: 29.14992

Long: -80.971369

<http://maps.google.com/maps?q=29.149919572,-80.971369303>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ★ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 45

Feature Type: Lighting

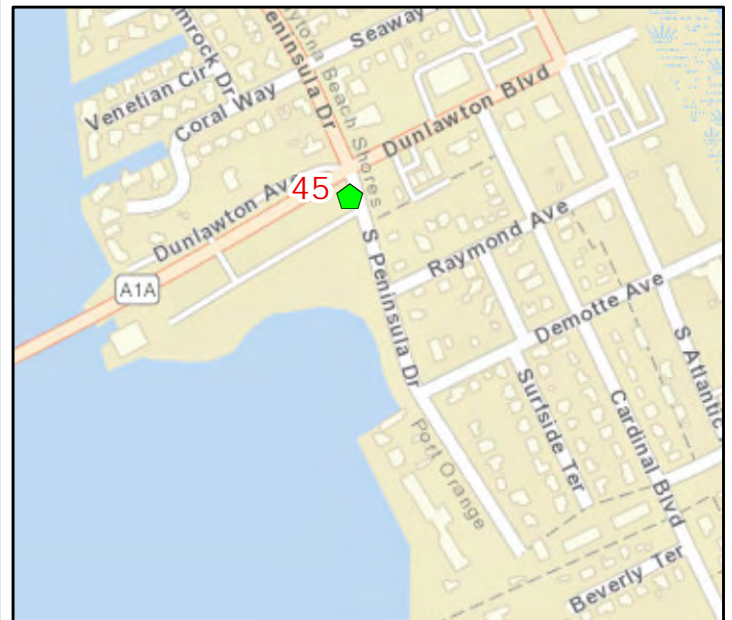
Comment:

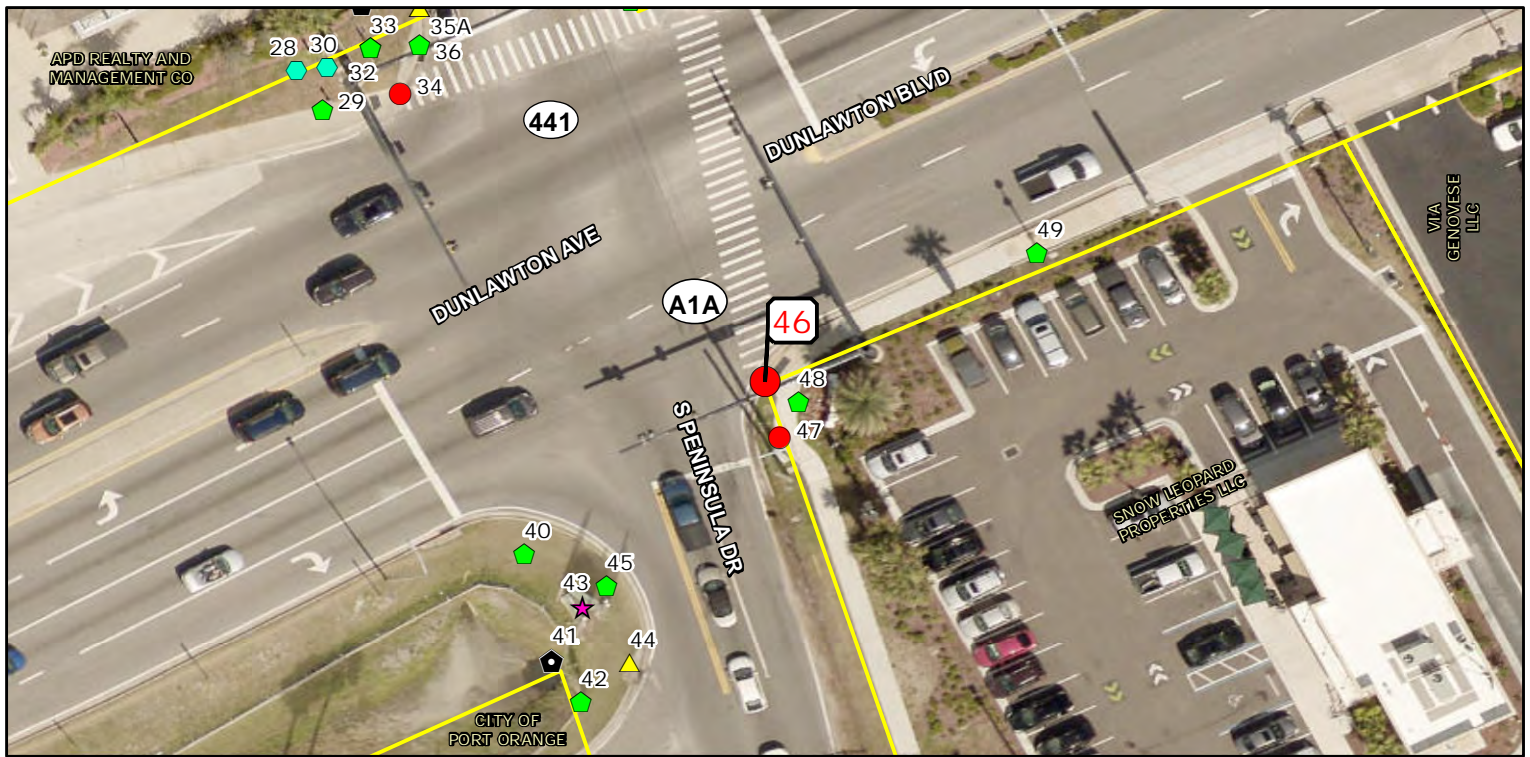
Lat: 29.149974

Long: -80.971386

<http://maps.google.com/maps?q=29.1499741710001,-80.971385657>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 46

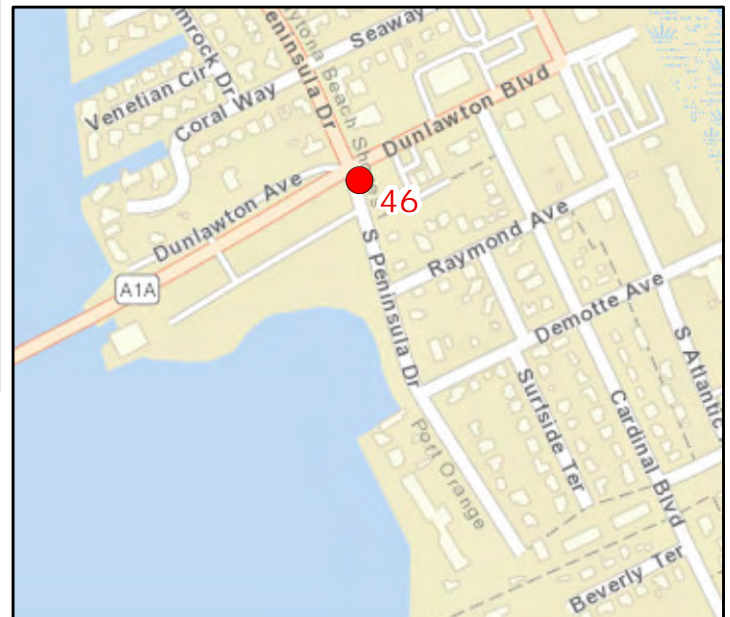
Feature Type: ADA - Safety

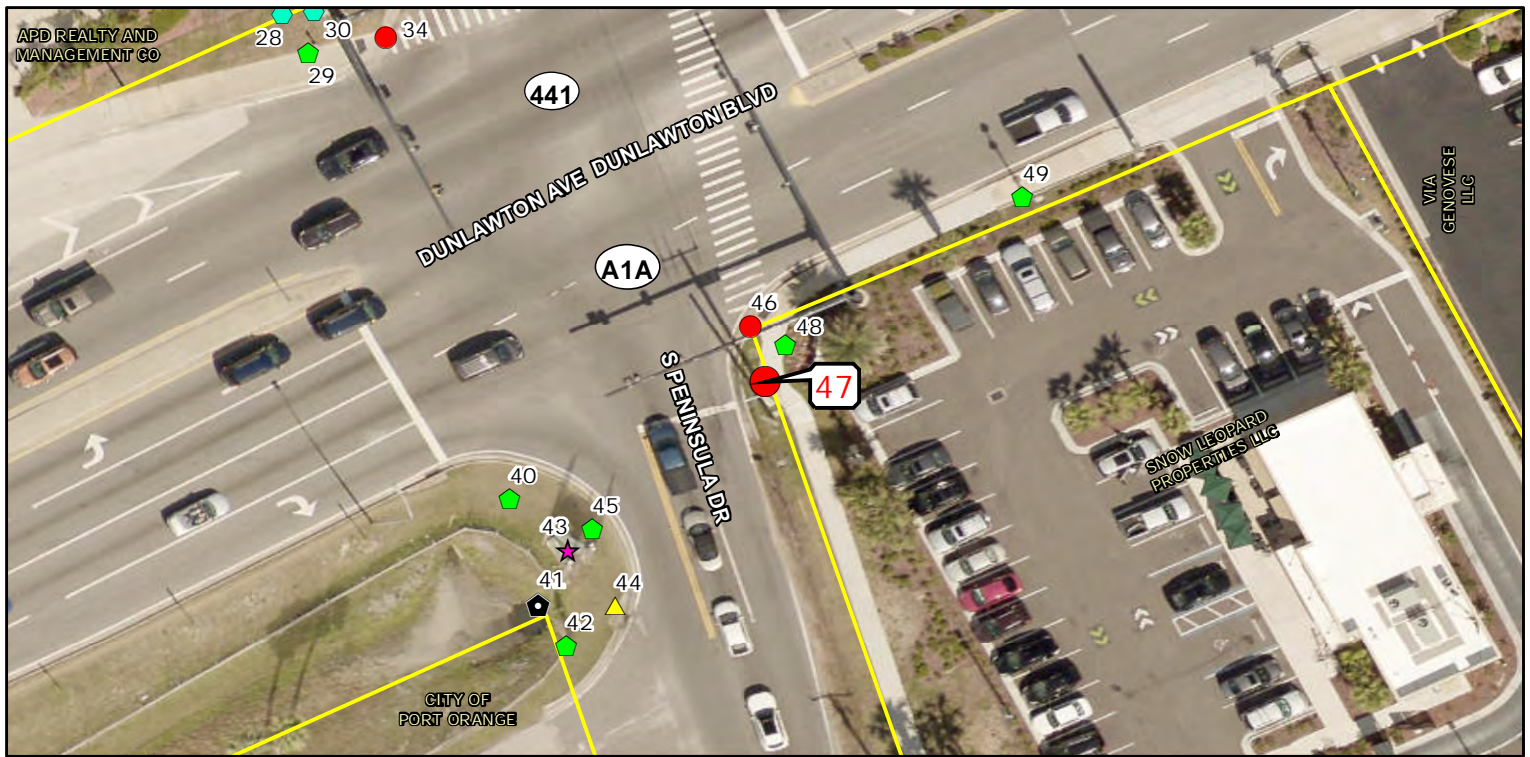
Comment:

Lat: 29.150119 **Long:** -80.971273

<http://maps.google.com/maps?q=29.1501193620001,-80.971272826>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 47

Feature Type: ADA - Safety

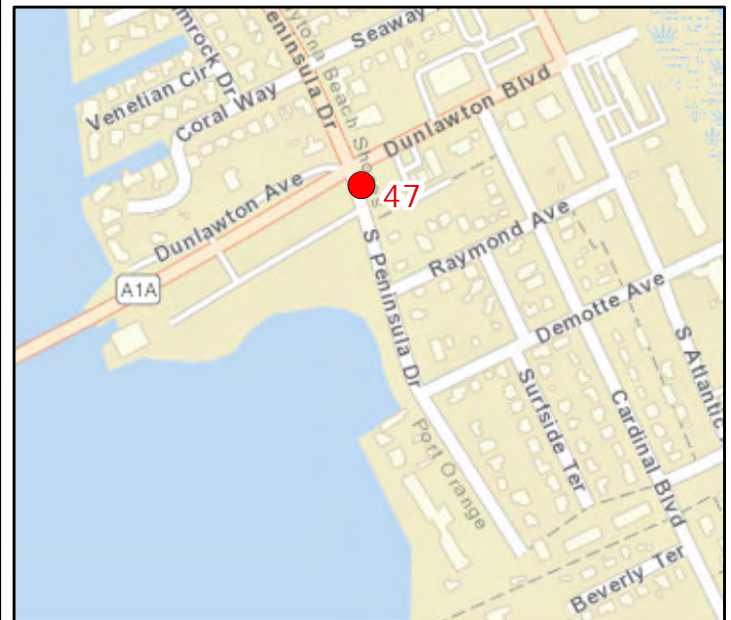
Comment:

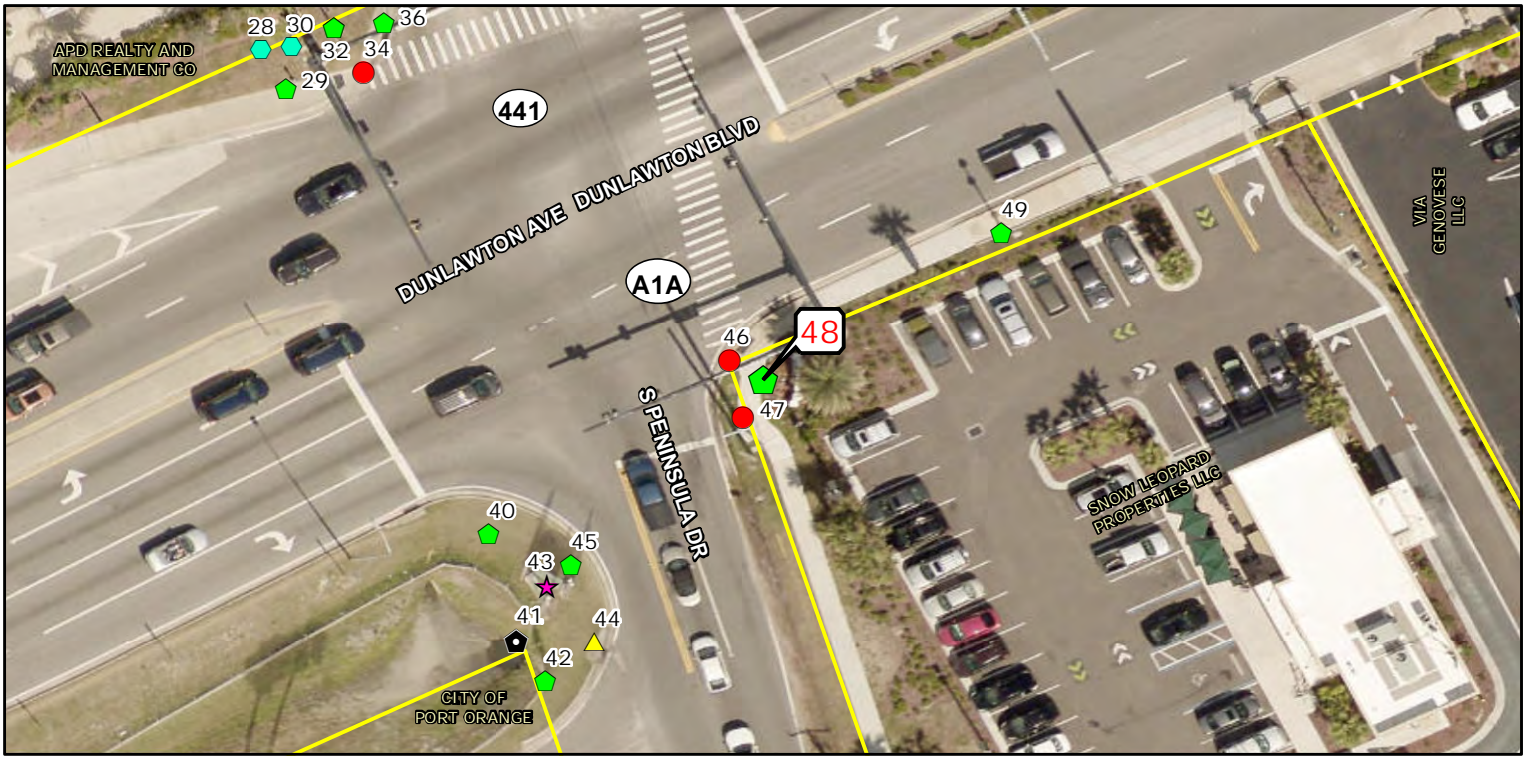
Lat: 29.150079

Long: -80.971263

<http://maps.google.com/maps?q=29.150079292,-80.9712626049999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 48

Feature Type: Lighting

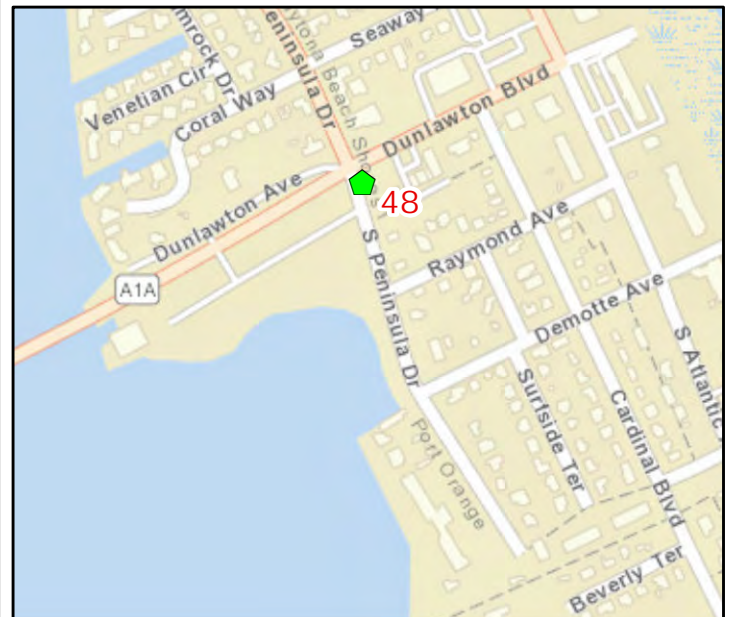
Comment:

Lat: 29.150106

Long: -80.971249

<http://maps.google.com/maps?q=29.1501059820001,-80.971248536>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 49

Feature Type: Lighting

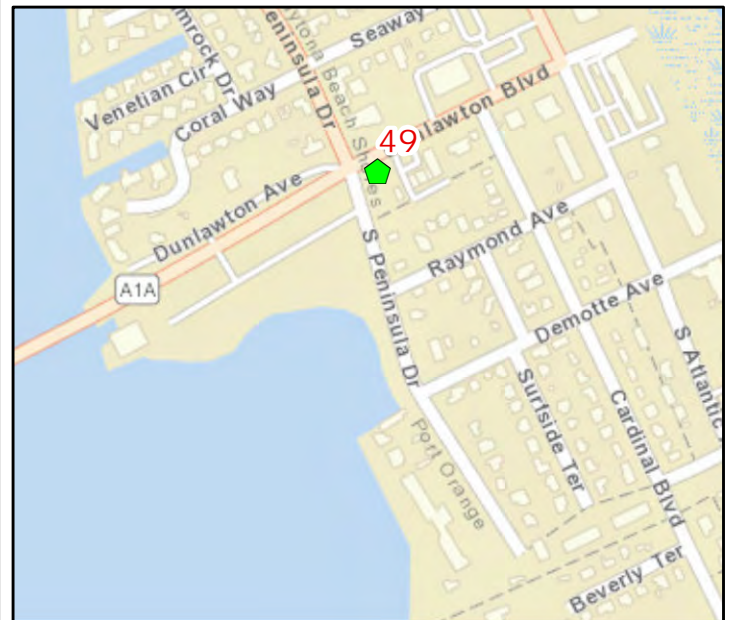
Comment:

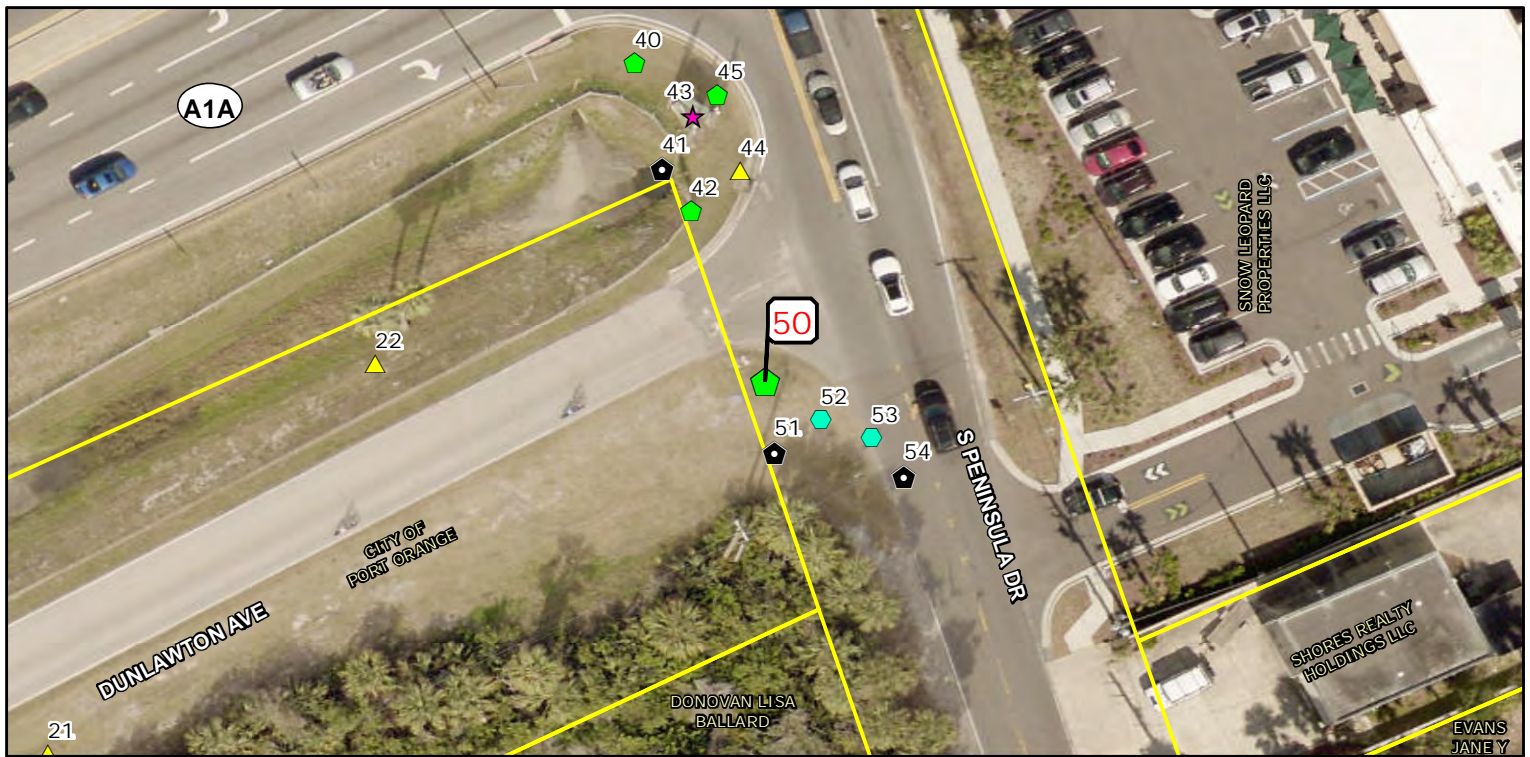
Lat: 29.150212

Long: -80.971079

<http://maps.google.com/maps?q=29.1502115490001,-80.971078689>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 50

Feature Type: Lighting

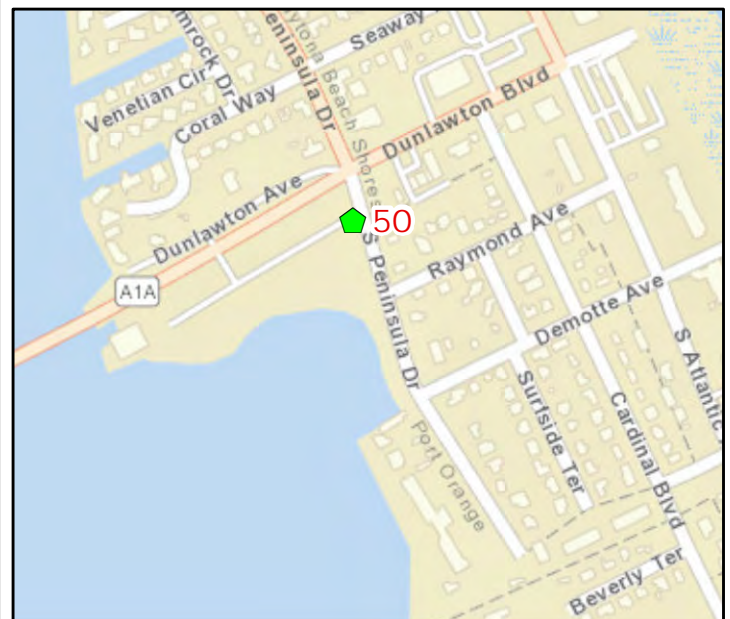
Comment:

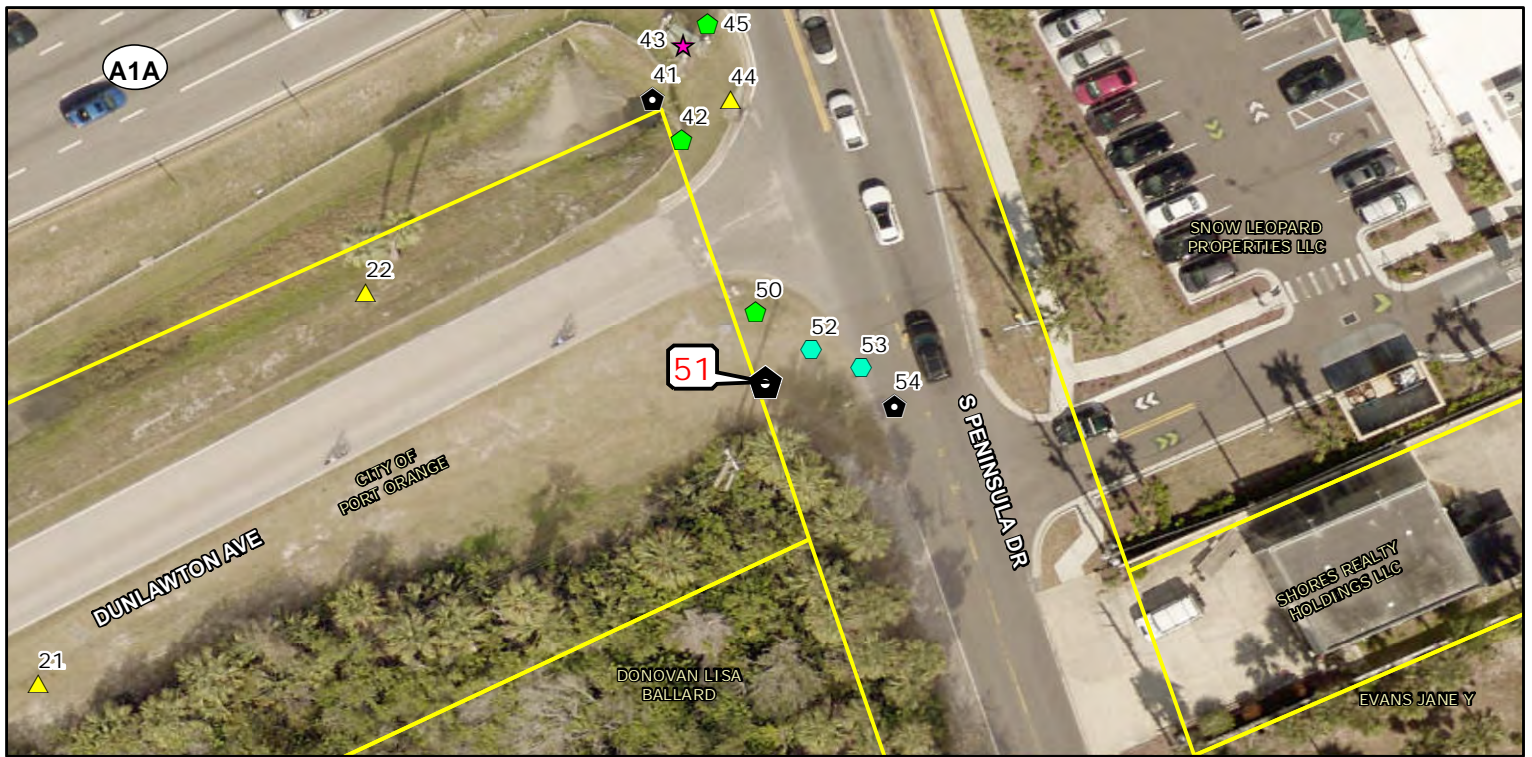
Lat: 29.149768

Long: -80.971352

<http://maps.google.com/maps?q=29.14976848,-80.971351541>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 51

Feature Type: Utilities

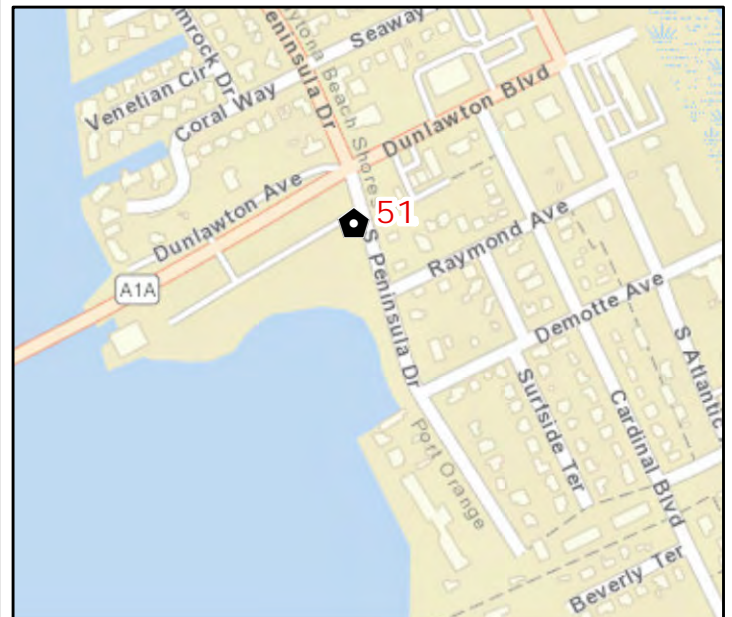
Comment: Gas line

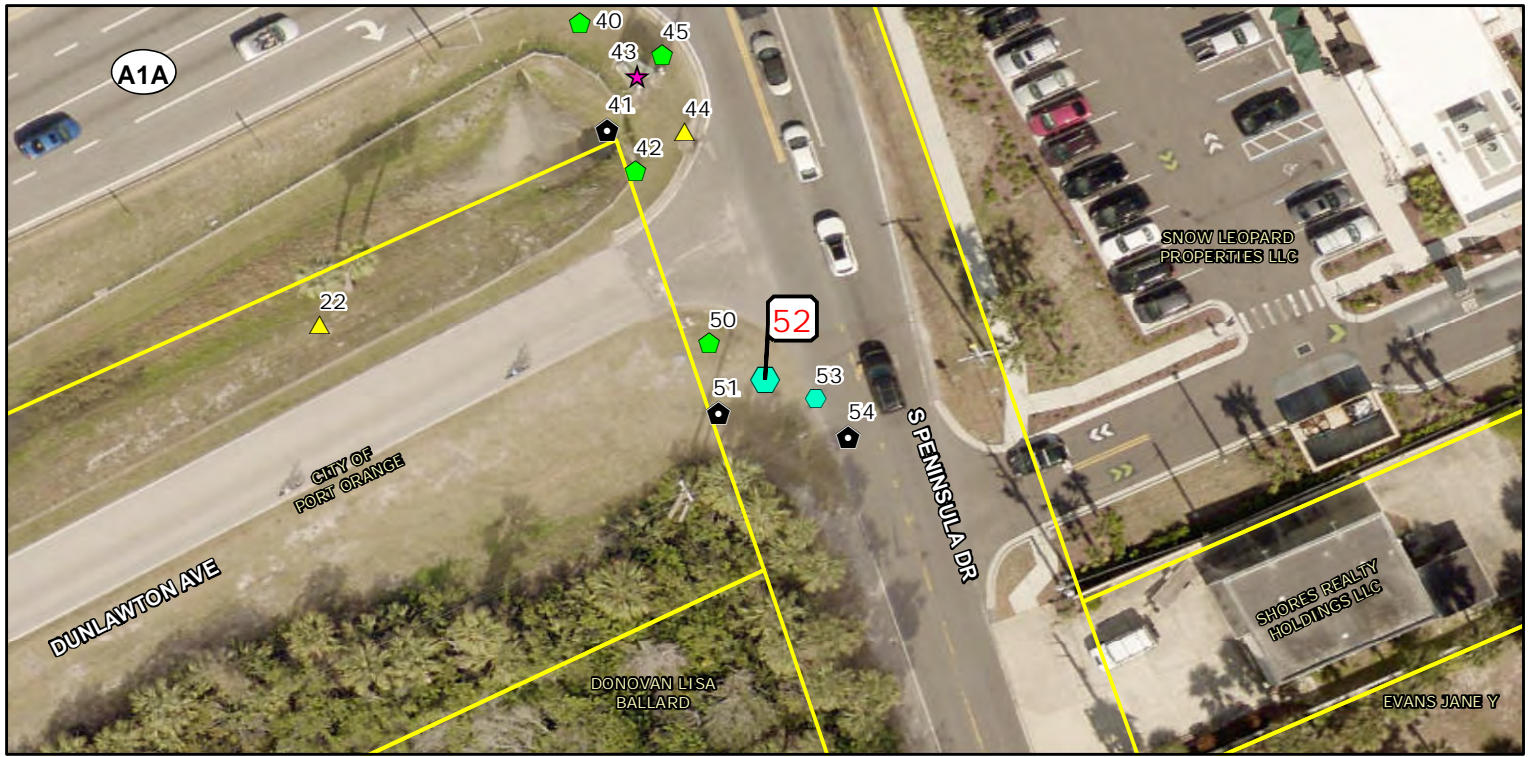
Lat: 29.149718

Long: -80.971345

<http://maps.google.com/maps?q=29.1497181600001,-80.9713445849999>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ▲ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 52

Feature Type: Traffic Control

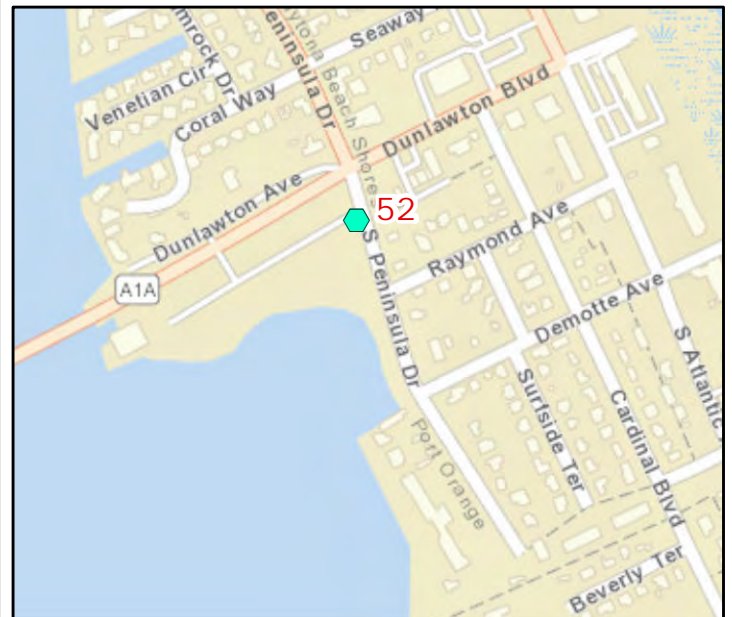
Comment:

Lat: 29.149742

Long: -80.971312

<http://maps.google.com/maps?q=29.1497417890001,-80.971312031>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬡ Traffic Control | |





Feature ID: 53

Feature Type: Traffic Control

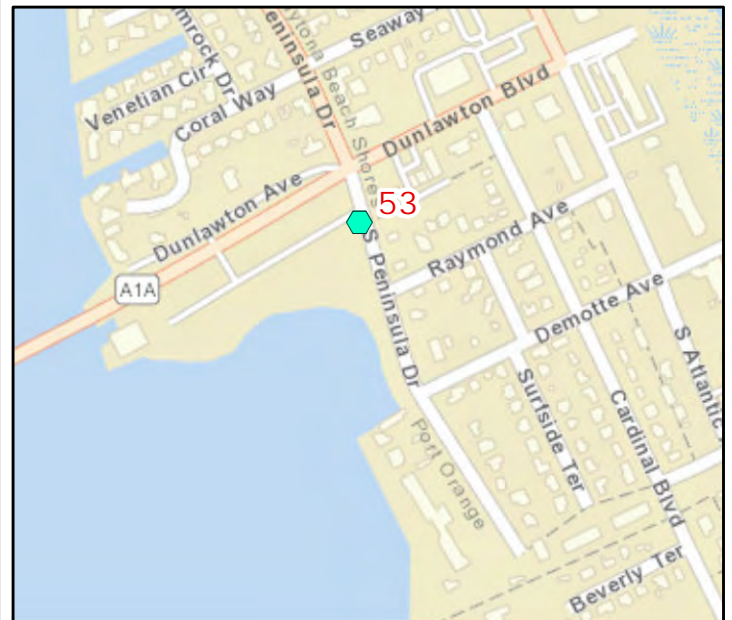
Comment:

Lat: 29.149729

Long: -80.971276

<http://maps.google.com/maps?q=29.1497286370001,-80.9712757519999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 54

Feature Type: Utilities

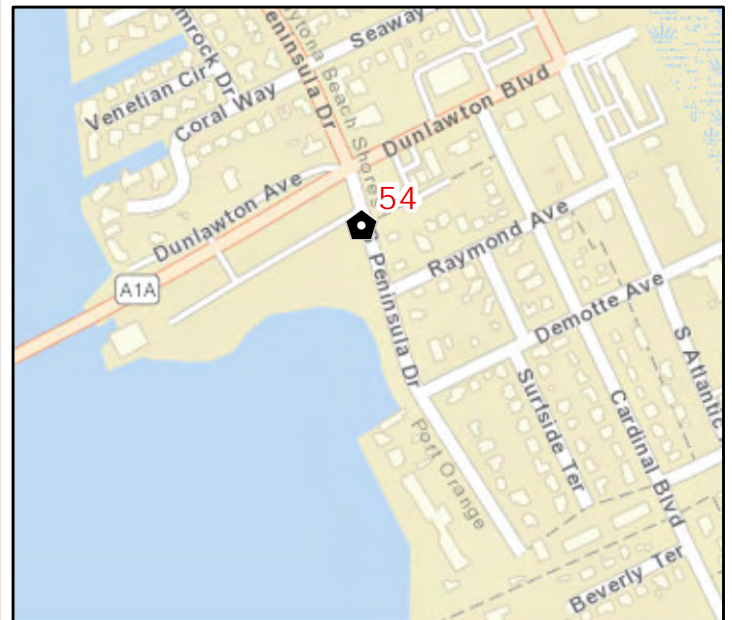
Comment: Sewer

Lat: 29.149701

Long: -80.971252

<http://maps.google.com/maps?q=29.1497011650001,-80.971252254>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ▲ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 55

Feature Type: Traffic Control

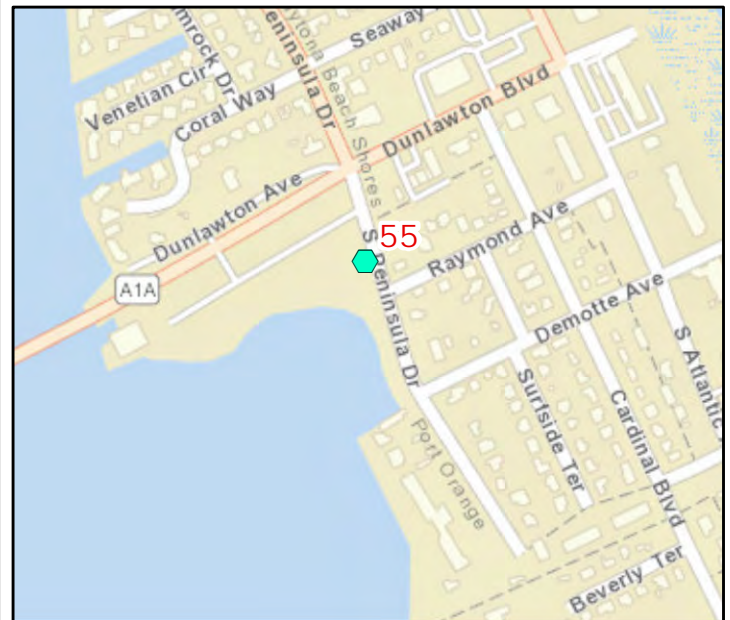
Comment:

Lat: 29.149354

Long: -80.971218

<http://maps.google.com/maps?q=29.1493542310001,-80.971218338>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: **56**

Feature Type: Drainage

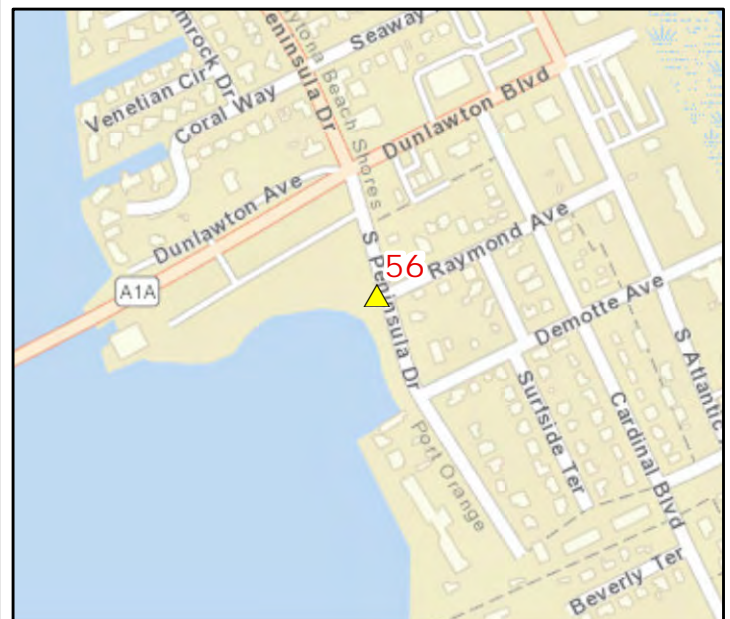
Comment:

Lat: 29.149052

Long: -80.971089

<http://maps.google.com/maps?q=29.1490515830001,-80.9710887209999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 57

Feature Type: Drainage

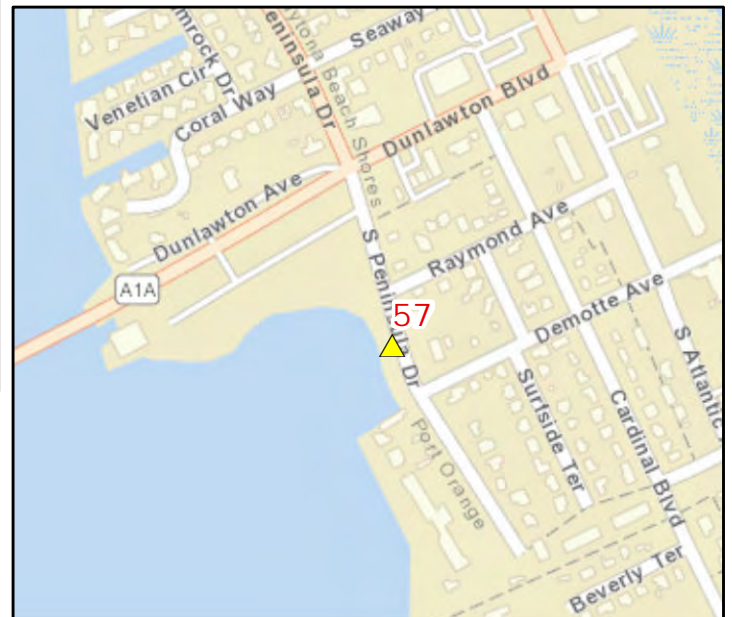
Comment:

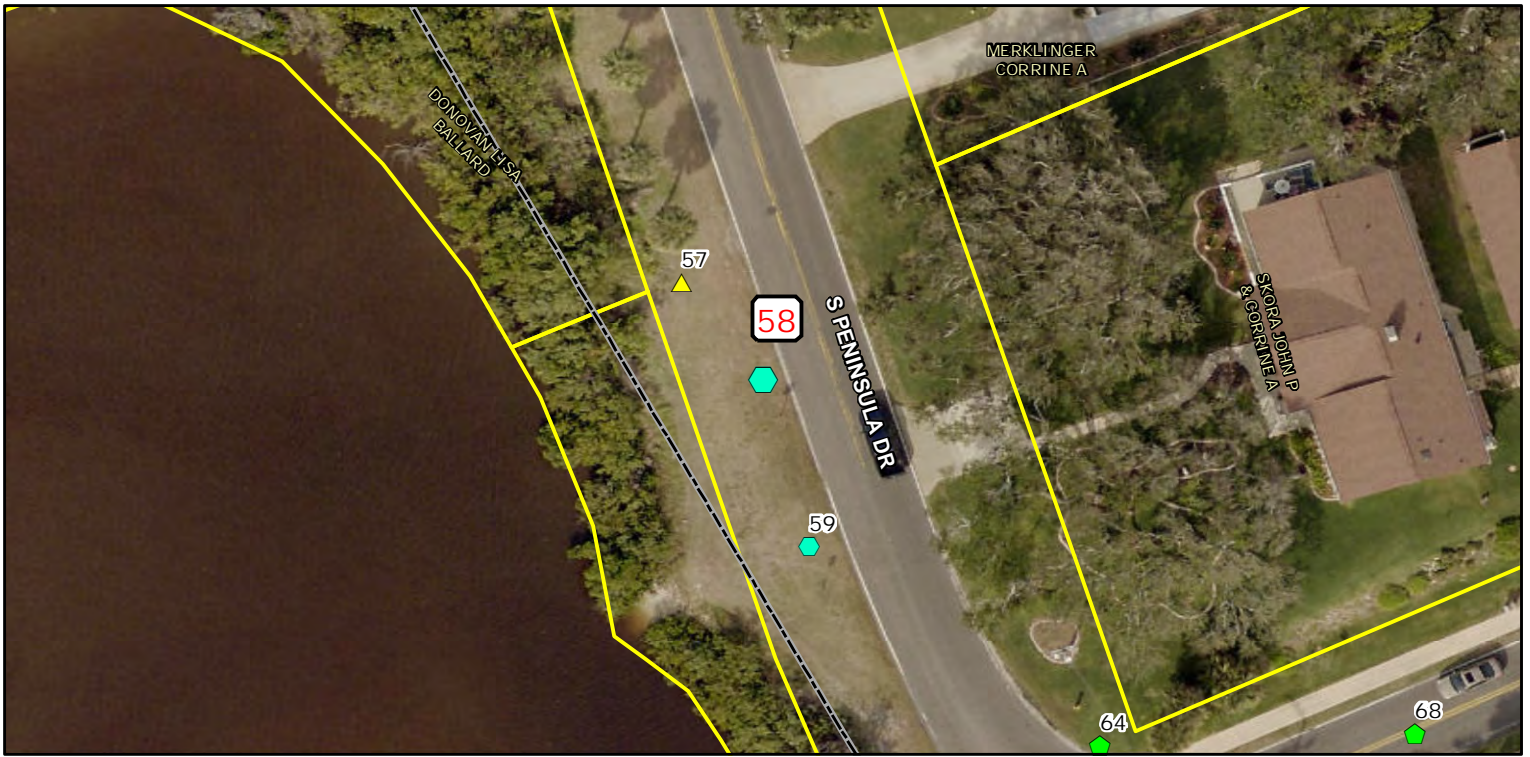
Lat: 29.148551

Long: -80.970923

<http://maps.google.com/maps?q=29.148550712,-80.9709227499999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 58

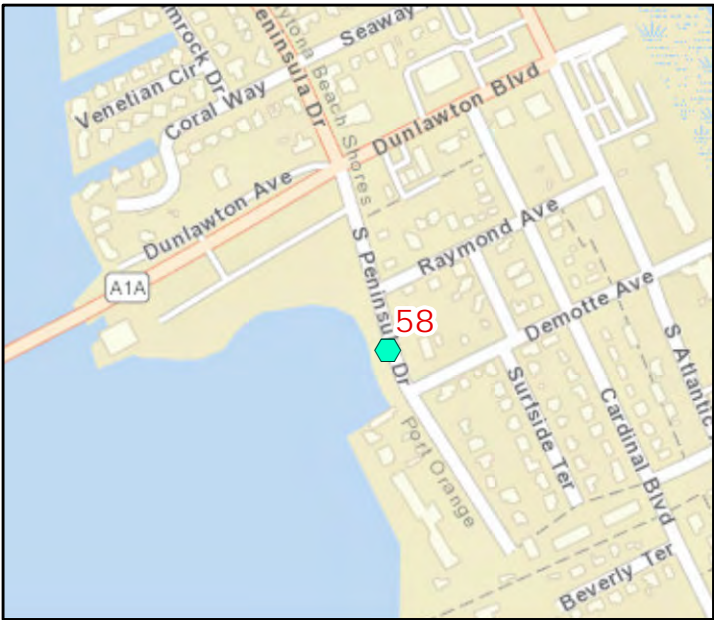
Feature Type: Traffic Control

Comment:

Lat: 29.148481 **Long:** -80.970864

<http://maps.google.com/maps?q=29.1484809020001,-80.970864482>

| | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬡ Traffic Control | |





Feature ID: 59

Feature Type: Traffic Control

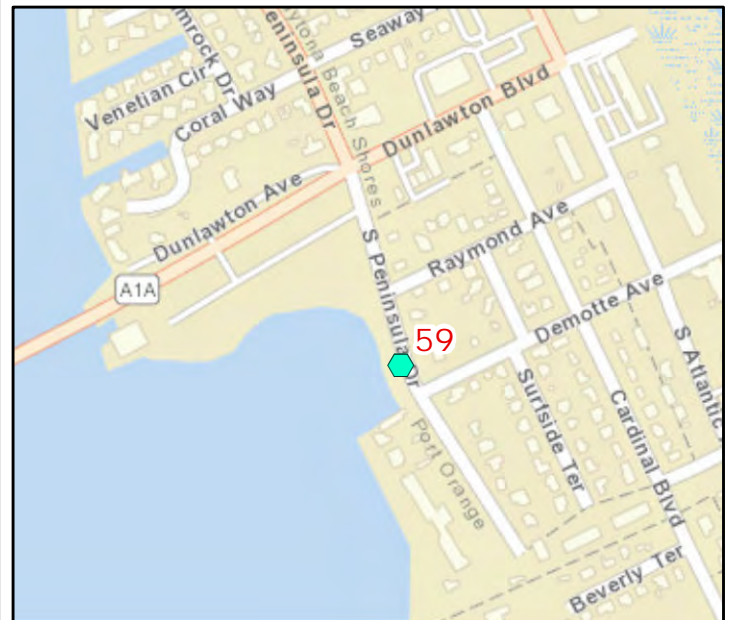
Comment:

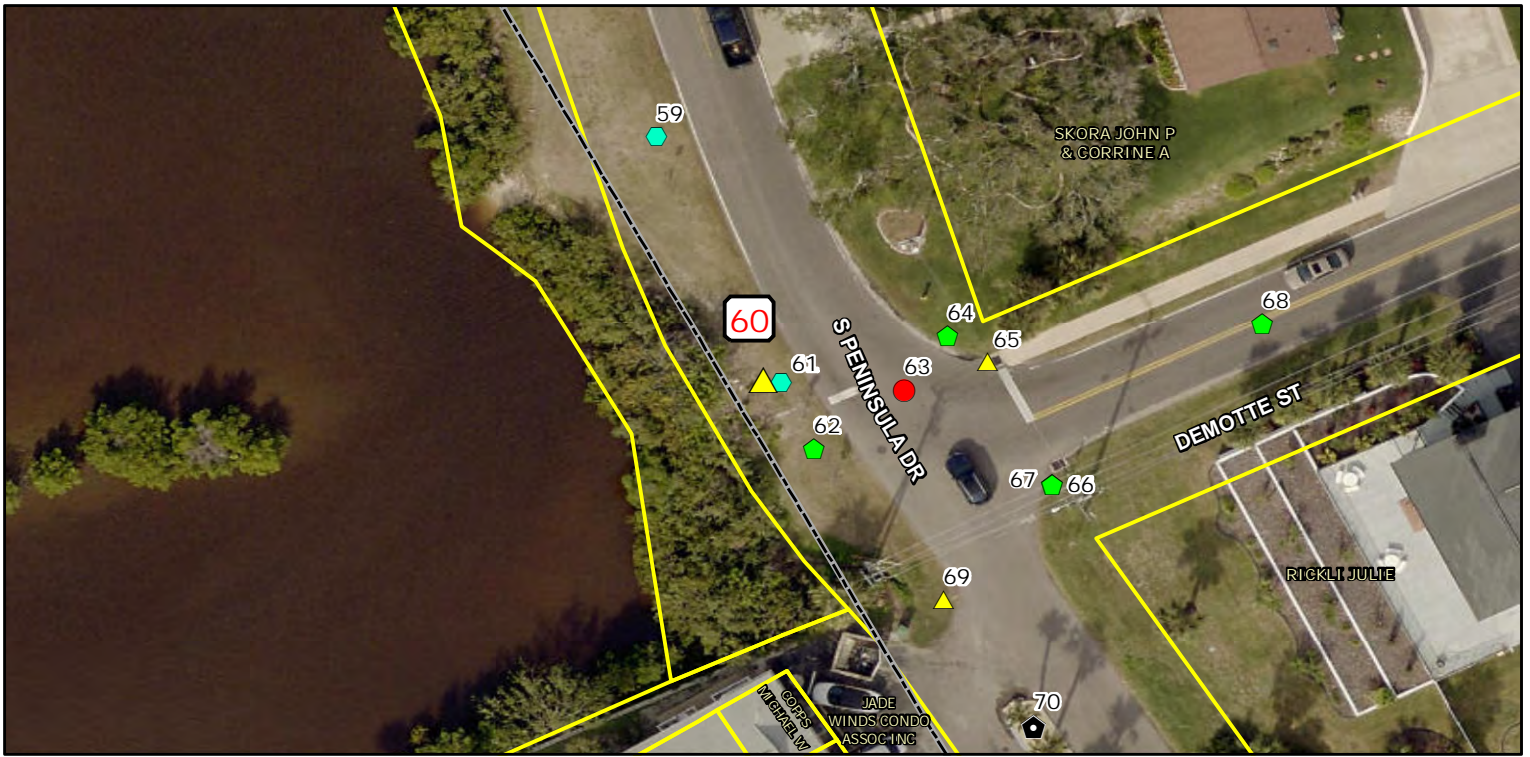
Lat: 29.148363

Long: -80.970832

<http://maps.google.com/maps?q=29.148362514,-80.9708315779999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 60

Feature Type: Drainage

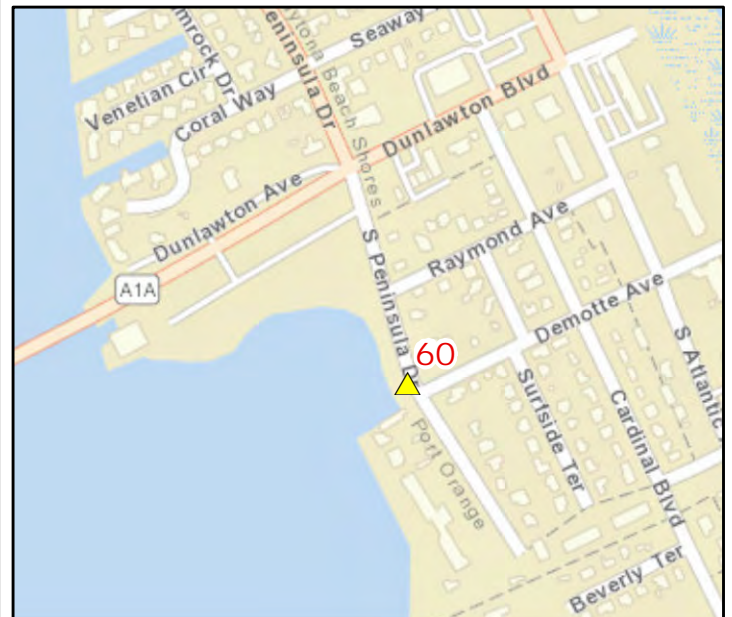
Comment:

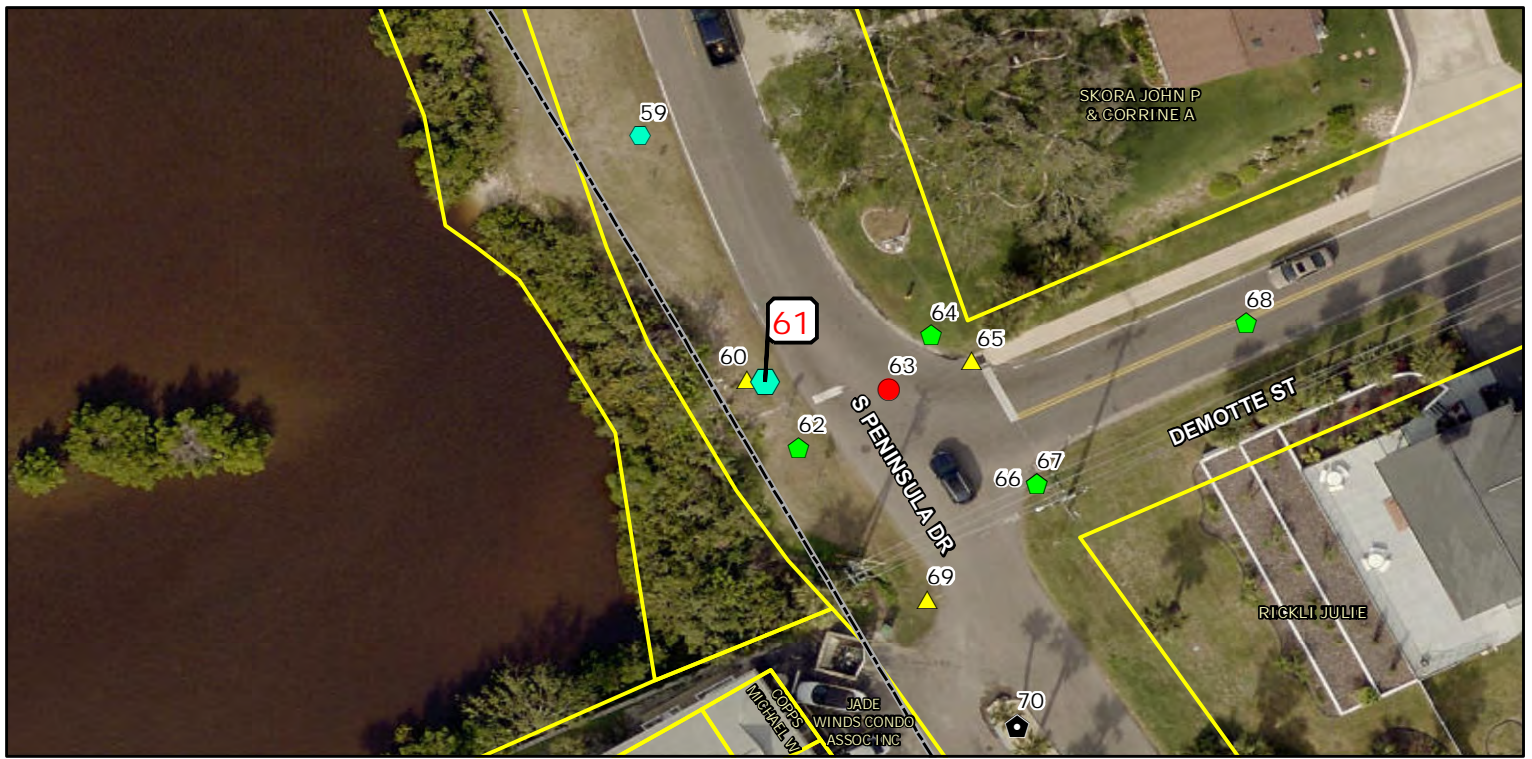
Lat: 29.148188

Long: -80.970755

<http://maps.google.com/maps?q=29.148188459,-80.970755417>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬢ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: 61

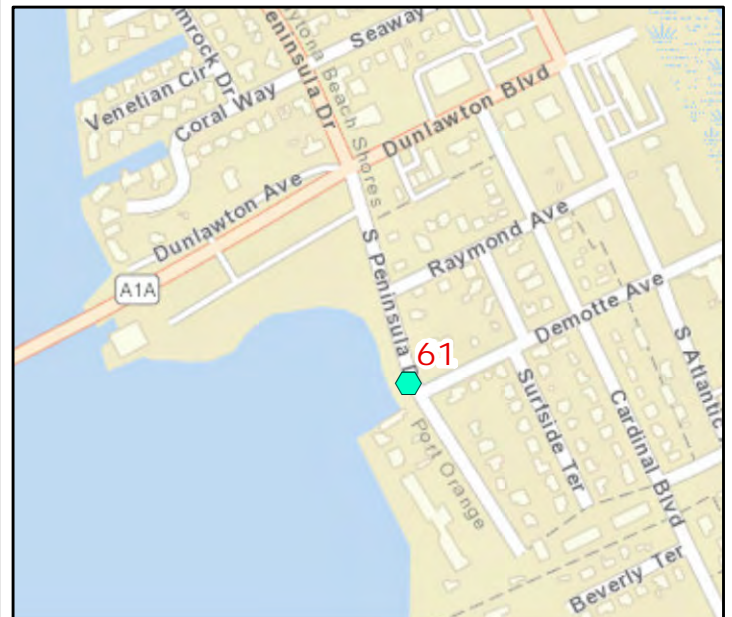
Feature Type: Traffic Control

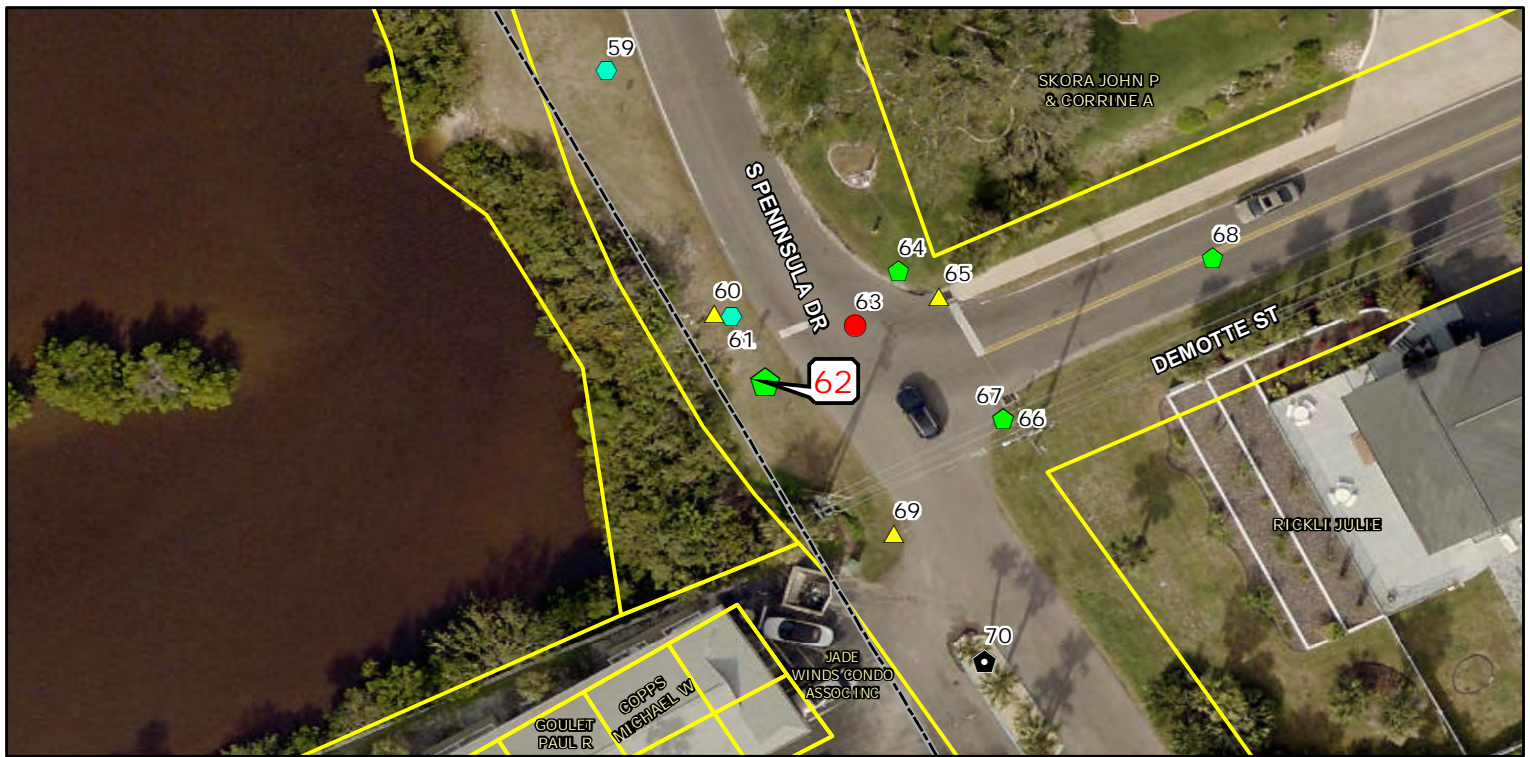
Comment:

Lat: 29.148186 **Long:** -80.970743

<http://maps.google.com/maps?q=29.1481864510001,-80.970742638>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 62

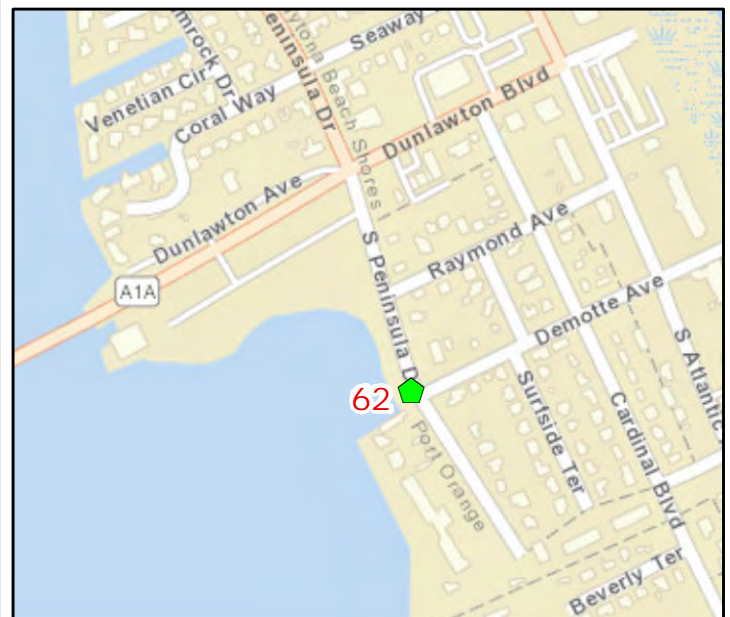
Feature Type: Lighting

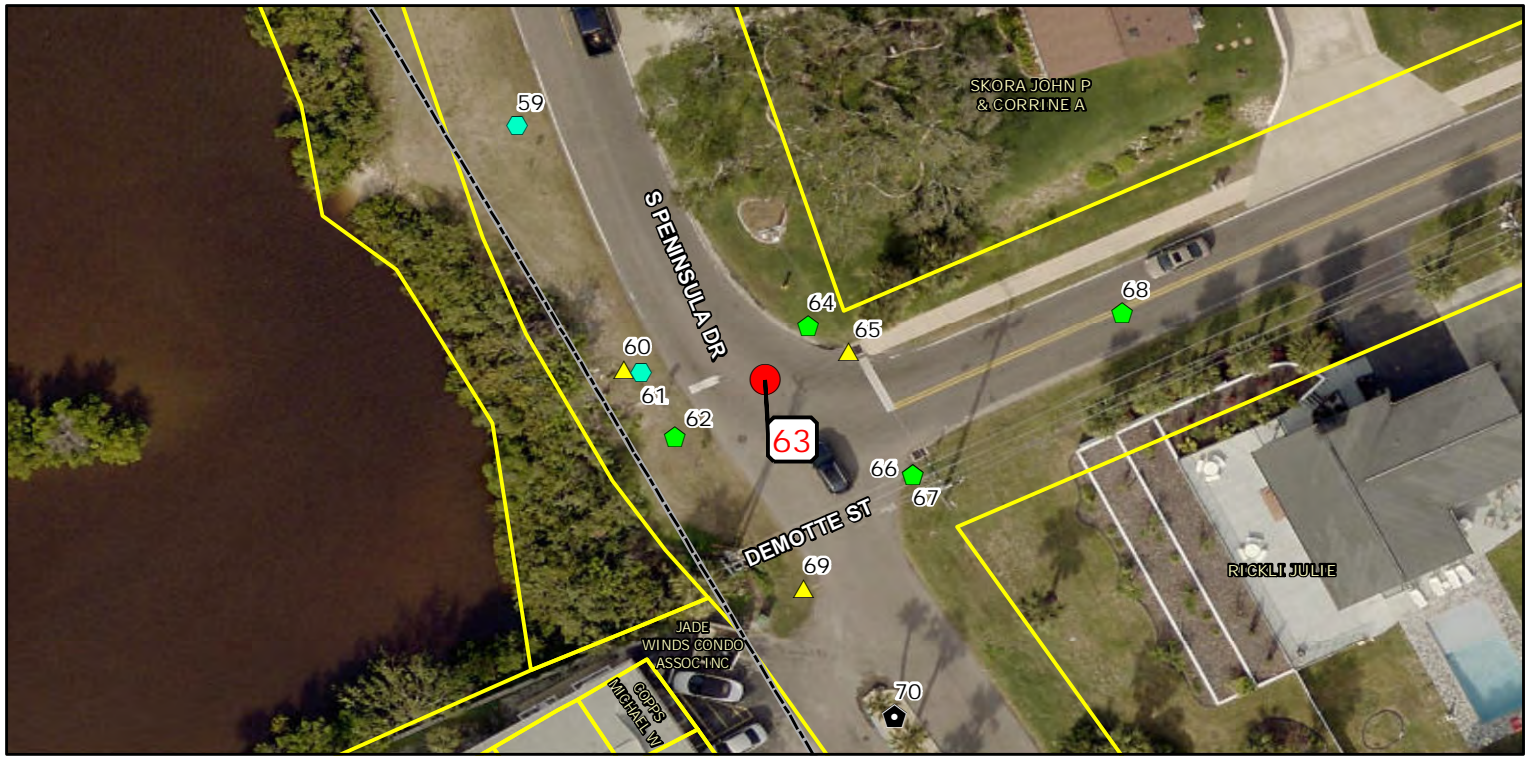
Comment:

Lat: 29.14814 **Long:** -80.970719

<http://maps.google.com/maps?q=29.148139965,-80.9707188469999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 63

Feature Type: ADA - Safety

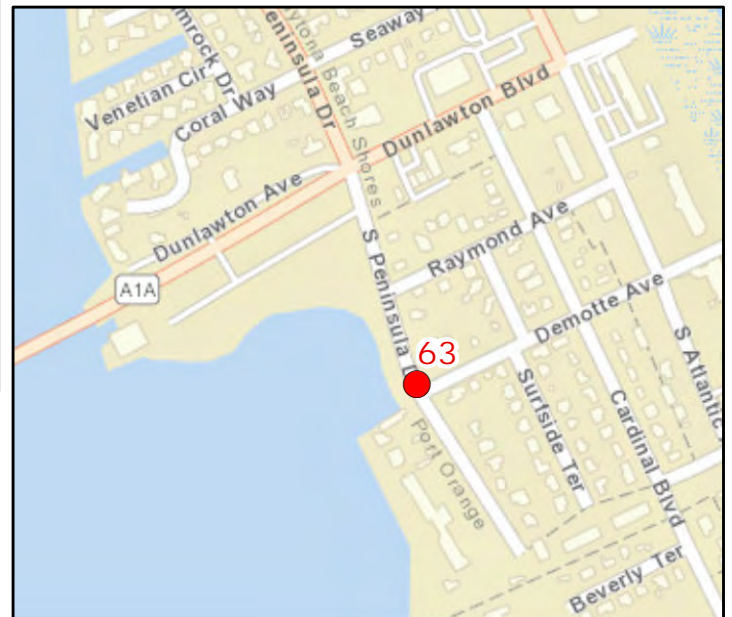
Comment:

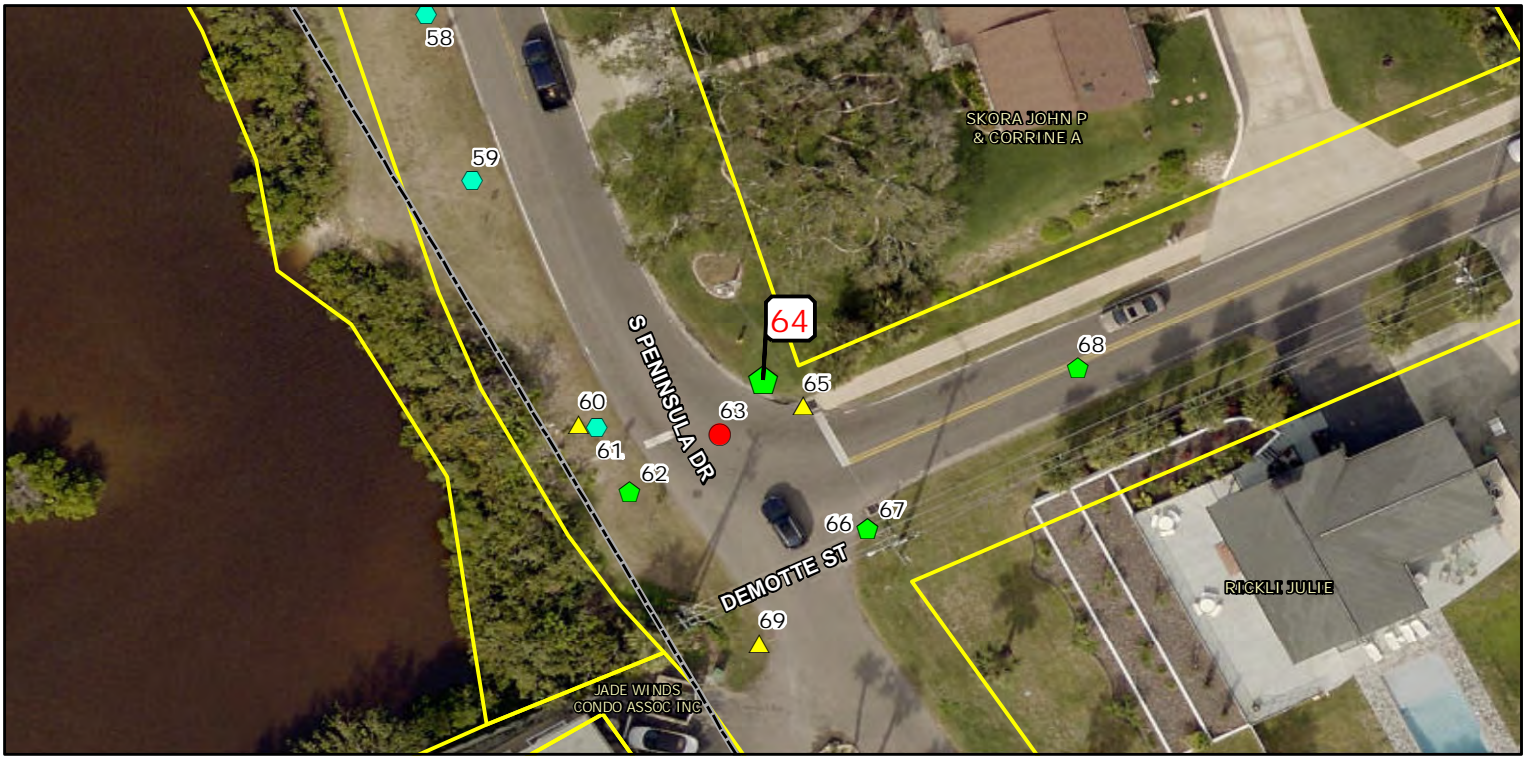
Lat: 29.148181

Long: -80.970655

<http://maps.google.com/maps?q=29.1481806960001,-80.9706545289999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 64

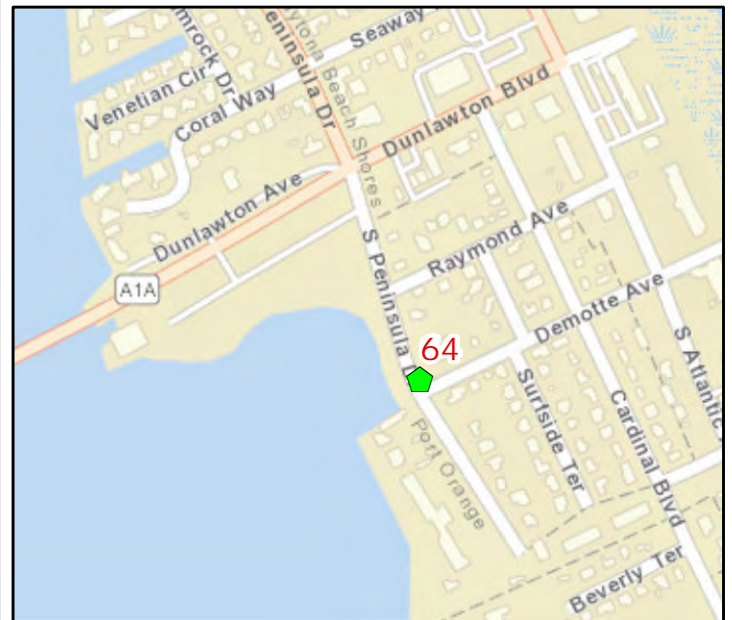
Feature Type: Lighting

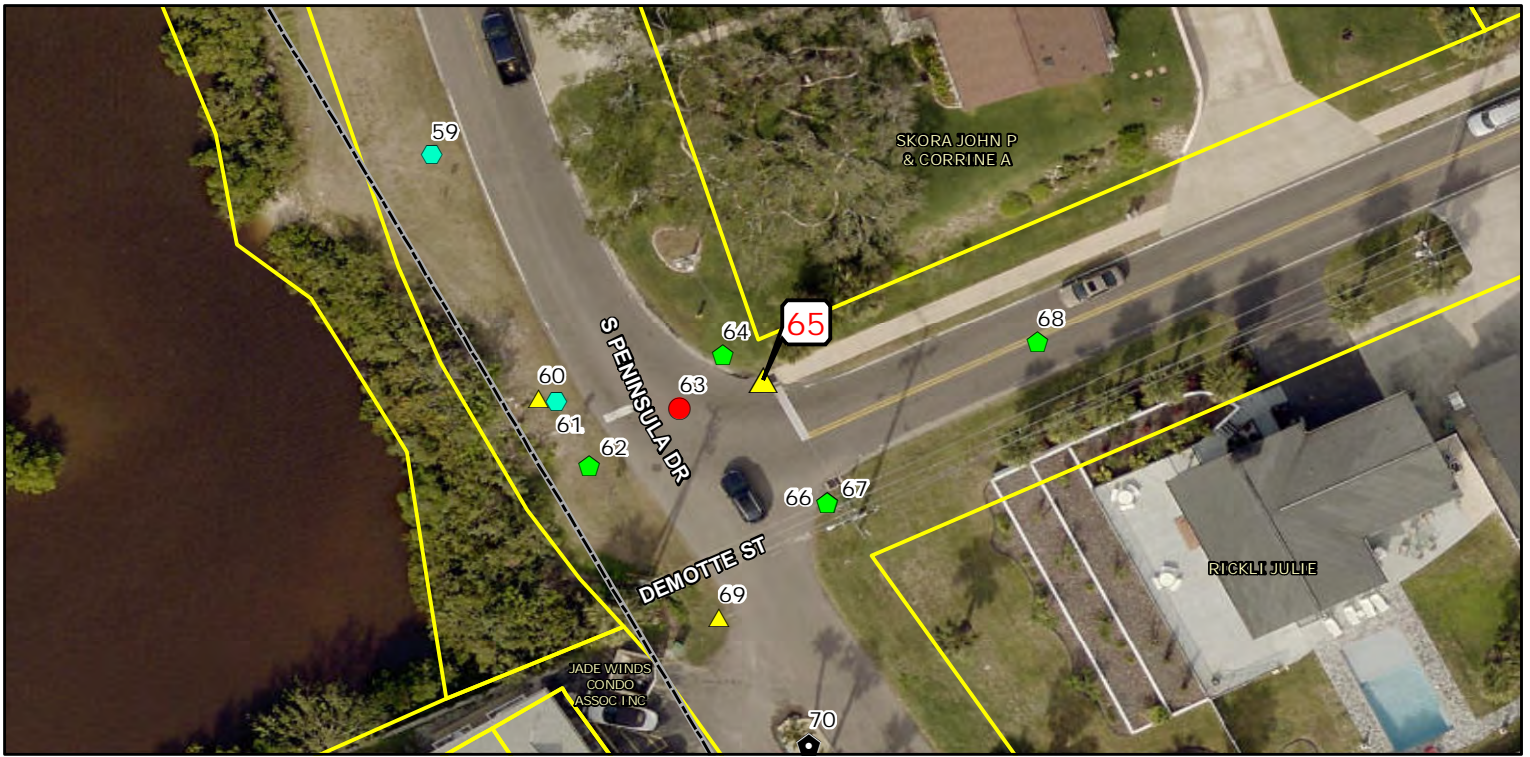
Comment:

Lat: 29.14822 Long: -80.970624

<http://maps.google.com/maps?q=29.1482197060001,-80.9706239>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬠ Lighting | ★ Other - Misc |
| ⬠ Traffic Control | |





Feature ID: 65

Feature Type: Drainage

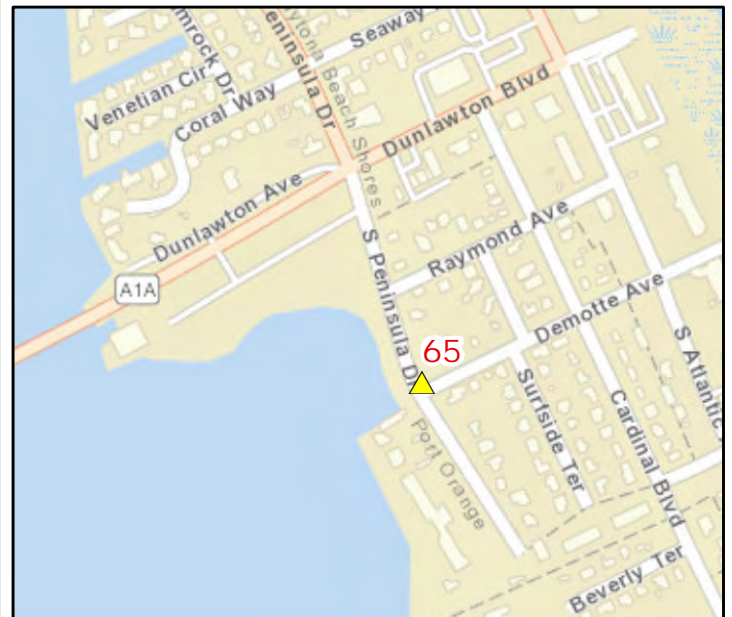
Comment:

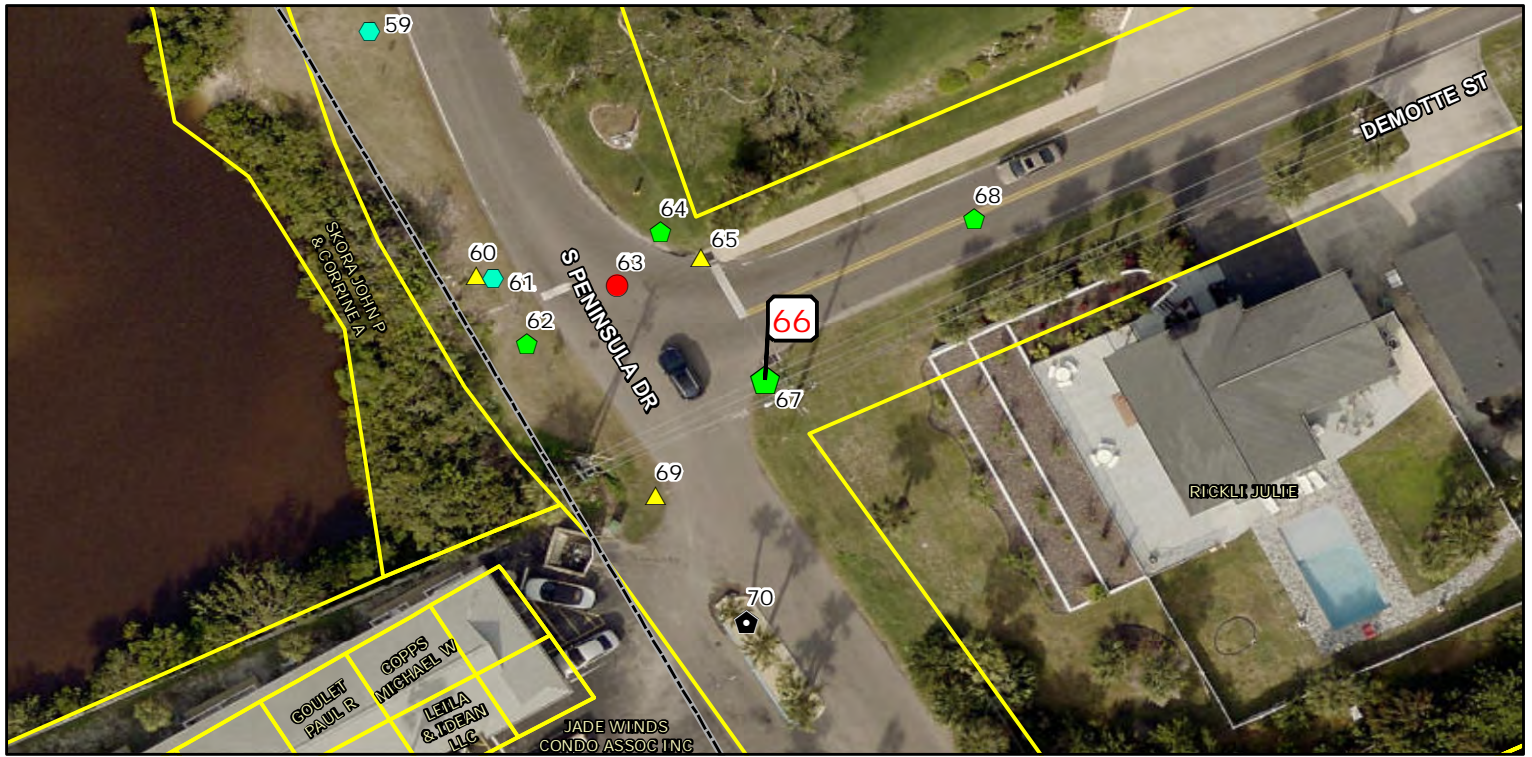
Lat: 29.148201

Long: -80.970595

<http://maps.google.com/maps?q=29.1482012770001,-80.970595057>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 66

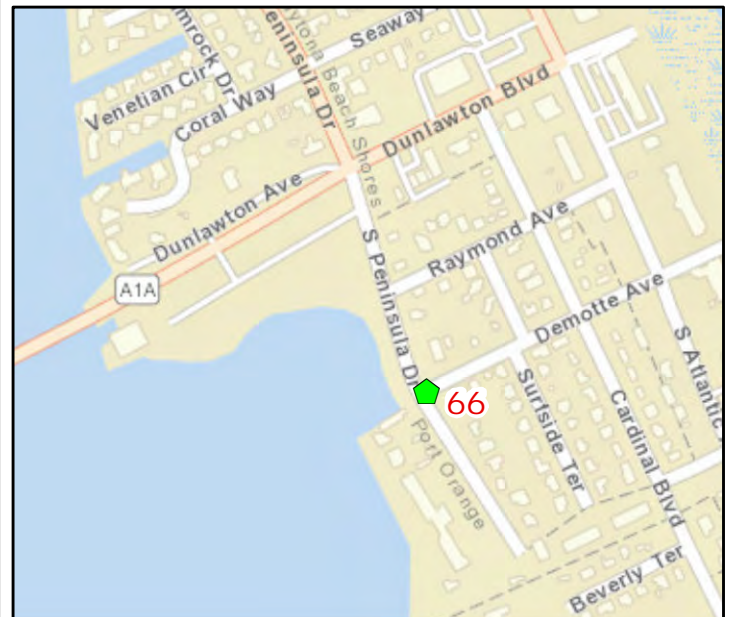
Feature Type: Lighting

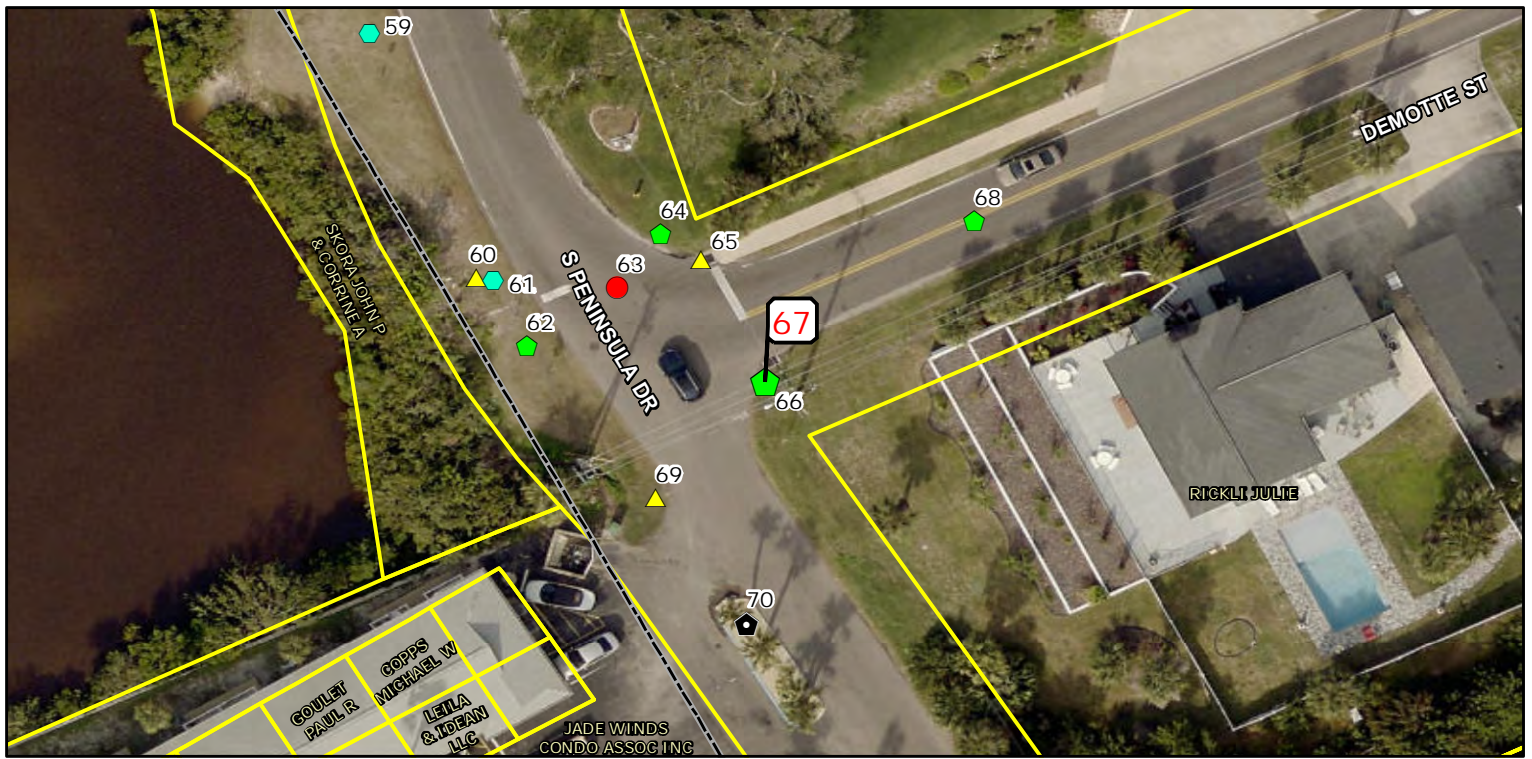
Comment:

Lat: 29.148114 Long: -80.970549

<http://maps.google.com/maps?q=29.1481137540001,-80.9705489999999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 67

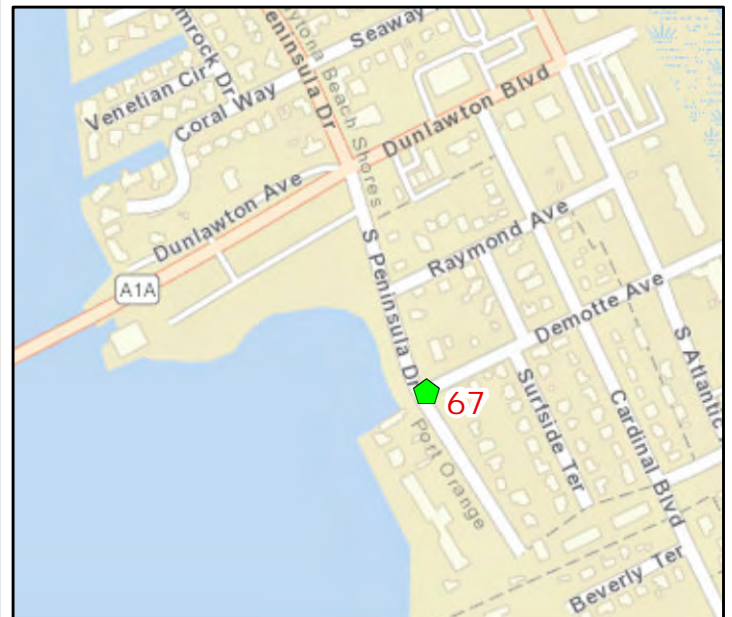
Feature Type: Lighting

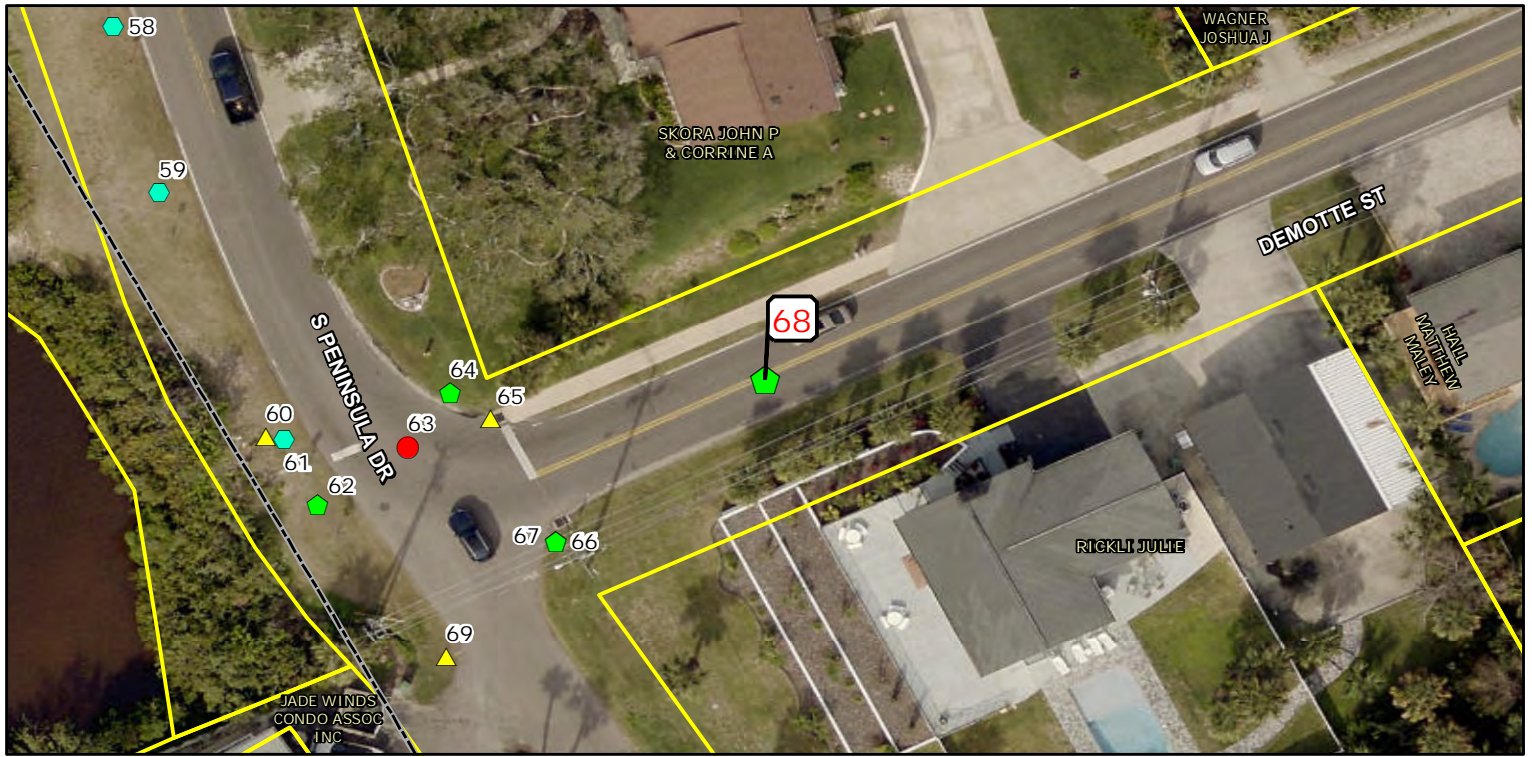
Comment:

Lat: 29.148114 **Long:** -80.970549

<http://maps.google.com/maps?q=29.1481137540001,-80.9705489999999>

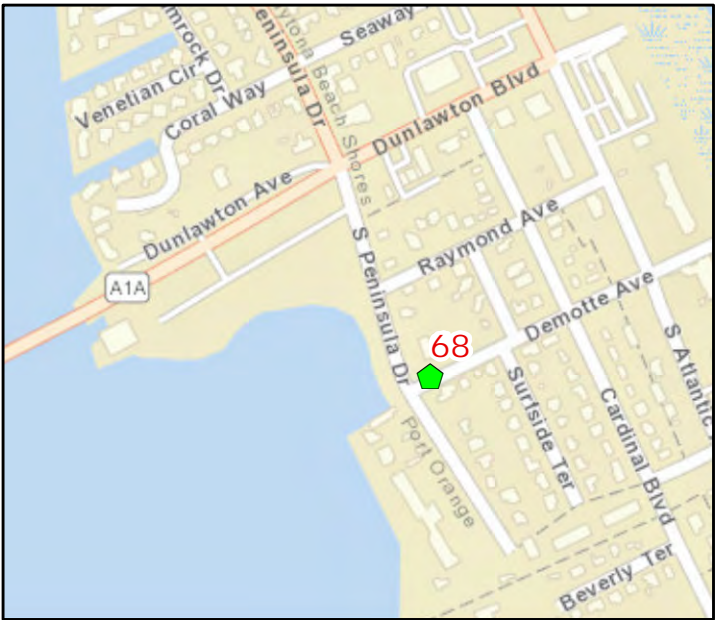
- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ⬠ Lighting | ★ Other - Misc |
| ⬡ Traffic Control | |

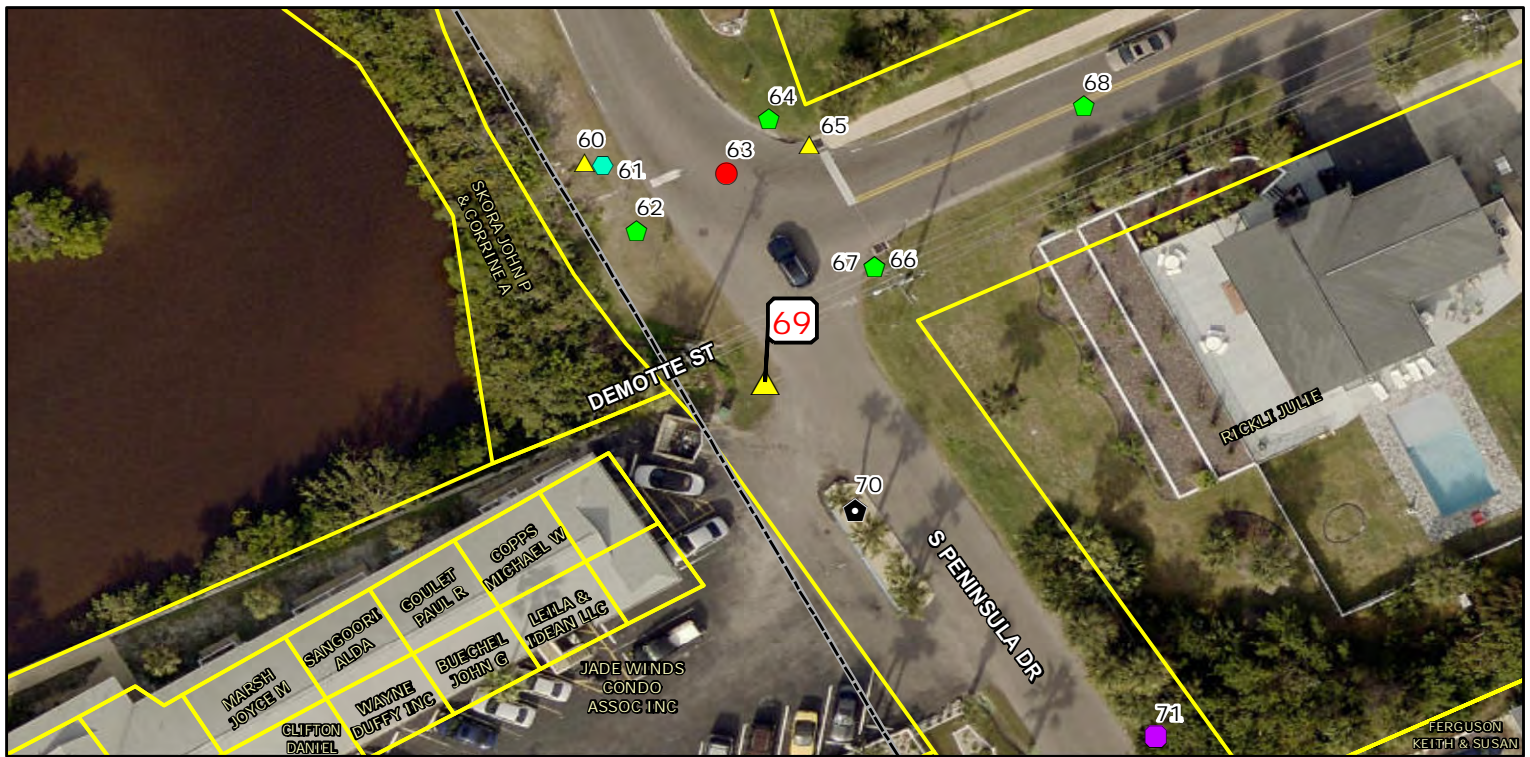




Feature ID: 68
Feature Type: Lighting
Comment:
Lat: 29.148229 **Long:** -80.970399
<http://maps.google.com/maps?q=29.148228922,-80.970399398>

| | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 69

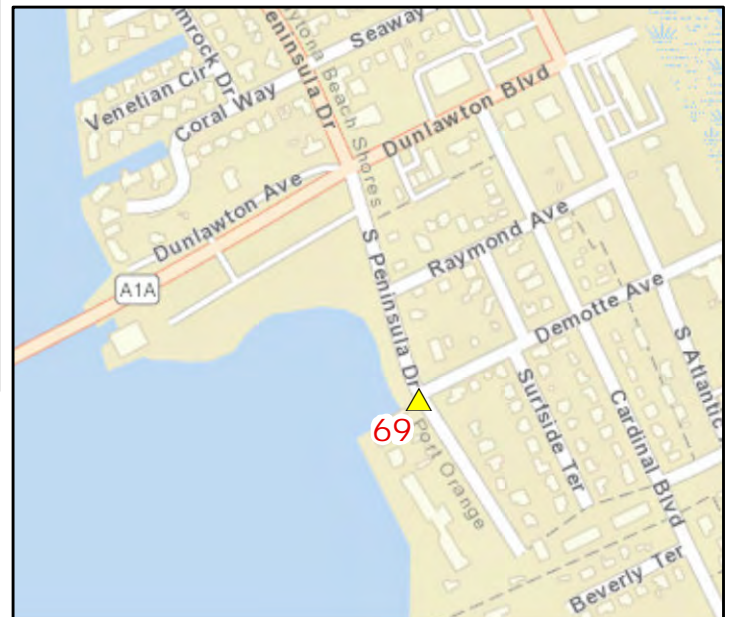
Feature Type: Drainage

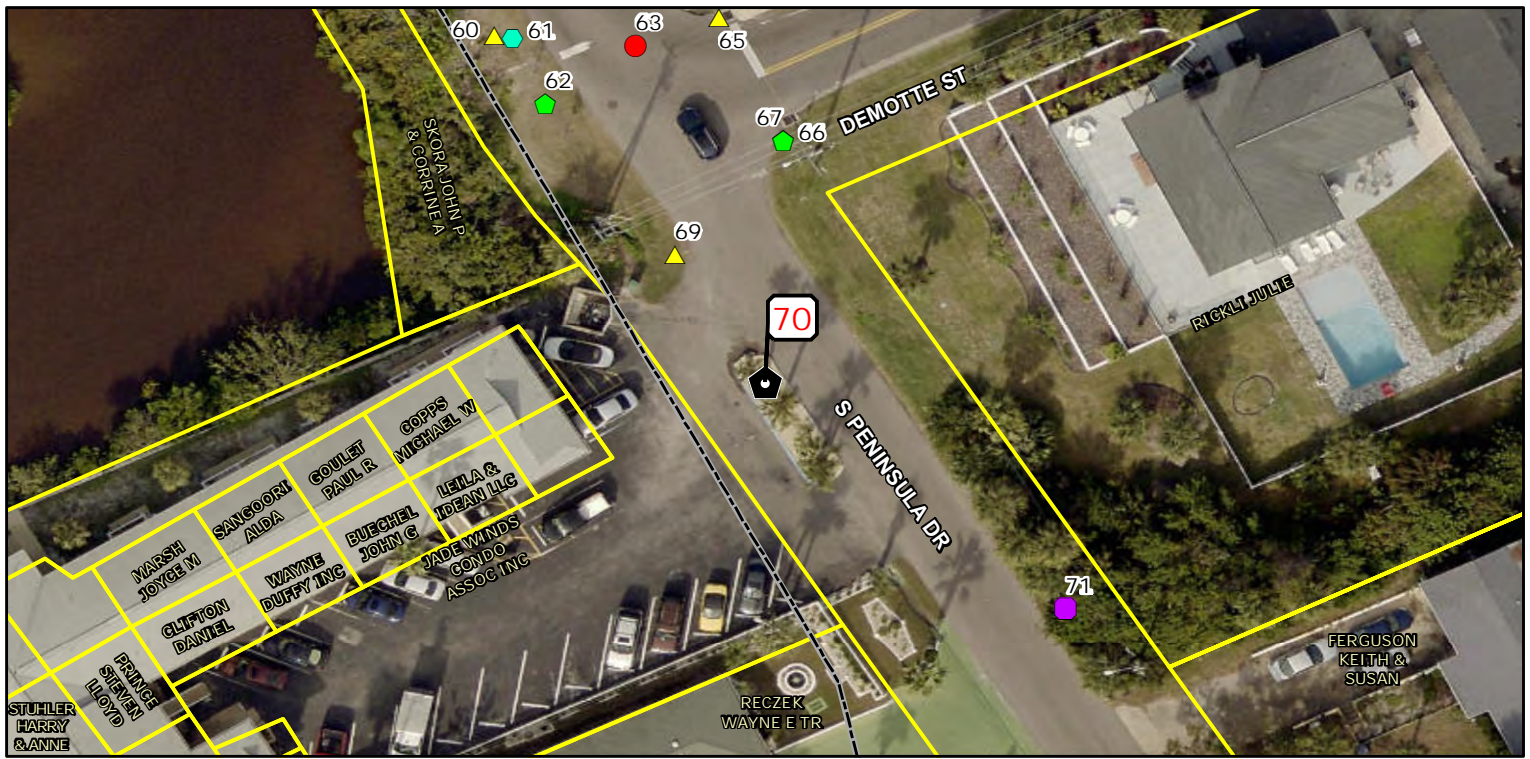
Comment:

Lat: 29.148032 **Long:** -80.970627

<http://maps.google.com/maps?q=29.1480318610001,-80.970626838>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 70

Feature Type: Utilities

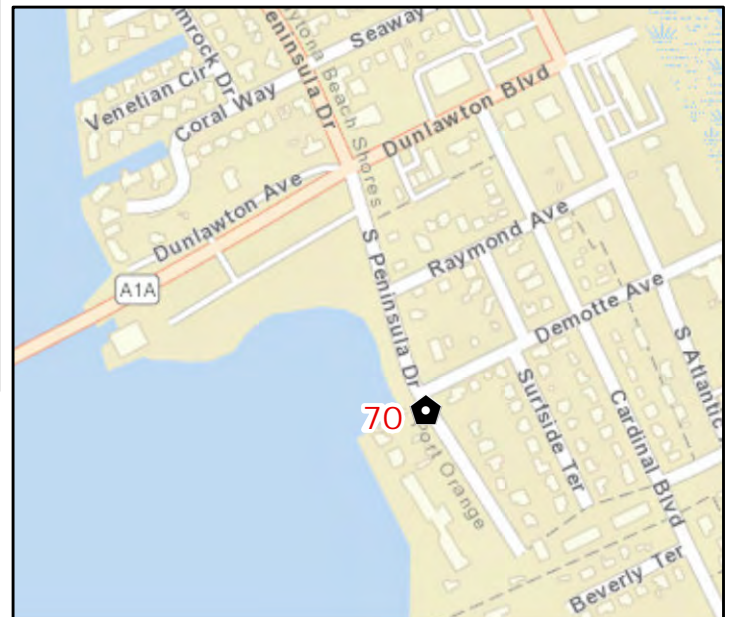
Comment:

Lat: 29.147941

Long: -80.970562

<http://maps.google.com/maps?q=29.147940896,-80.9705622449999>

- | | |
|--------------------------|----------------|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: 71

Feature Type: User

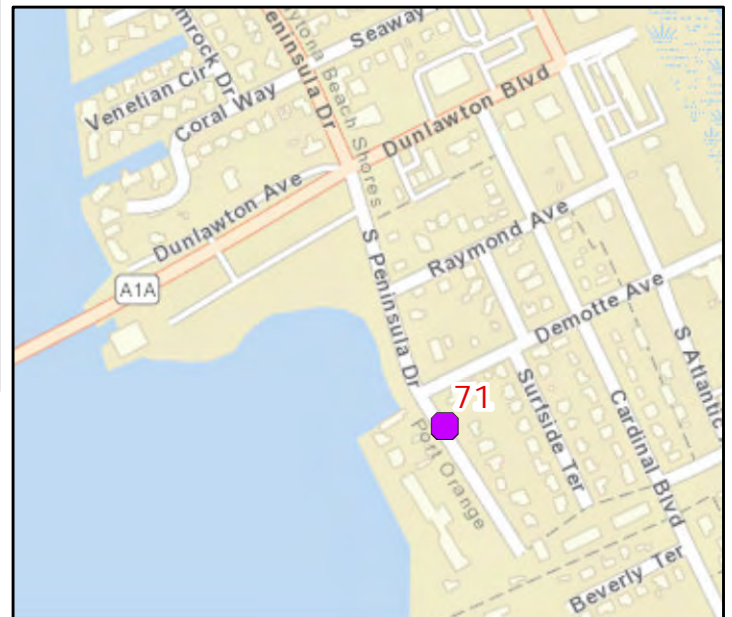
Comment:

Lat: 29.147779

Long: -80.970348

<http://maps.google.com/maps?q=29.1477789,-80.970347668>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: **72**

Feature Type: Drainage

Comment:

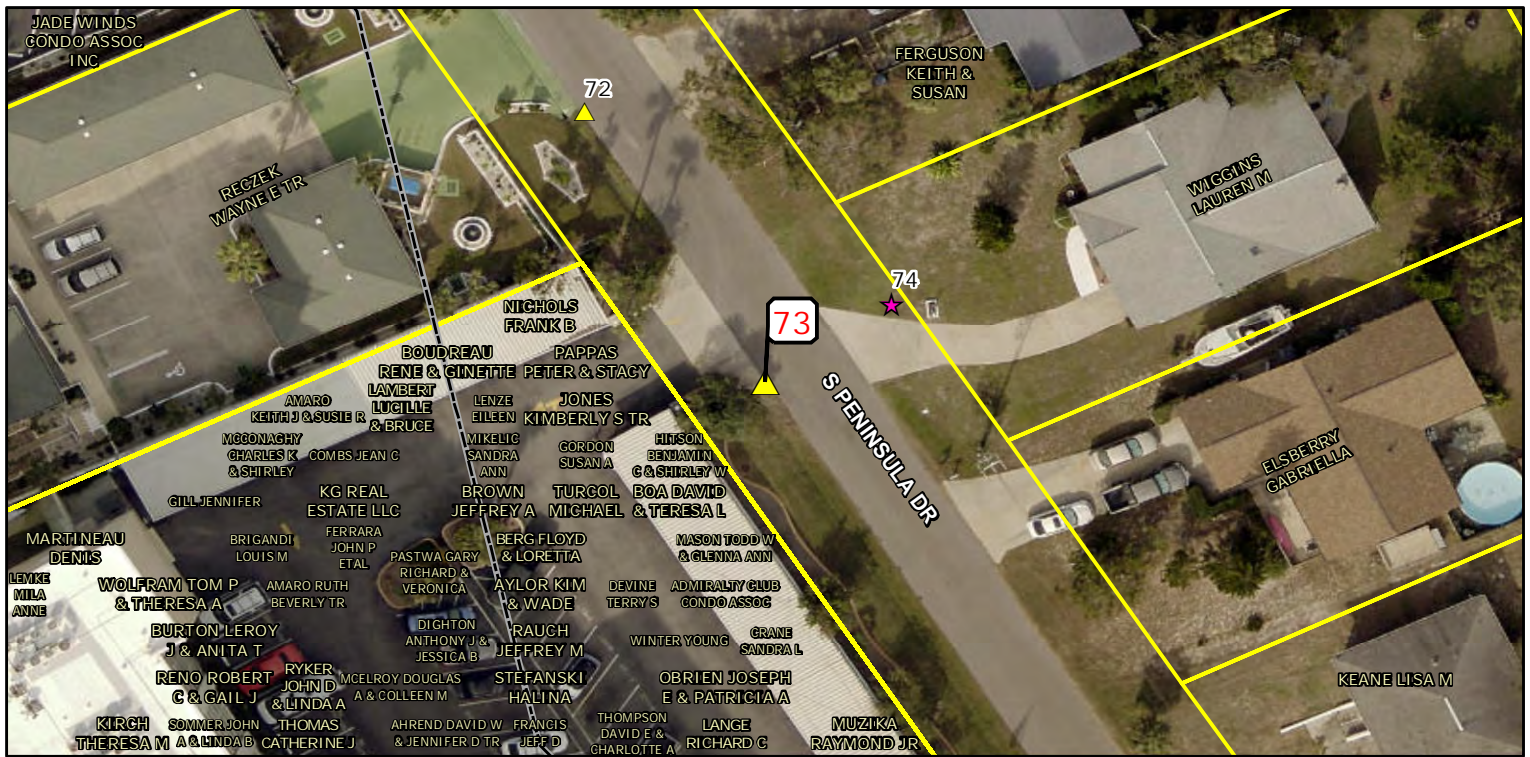
Lat: 29.147657

Long: -80.970347

<http://maps.google.com/maps?q=29.147656566,-80.970347367>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **73**

Feature Type: Drainage

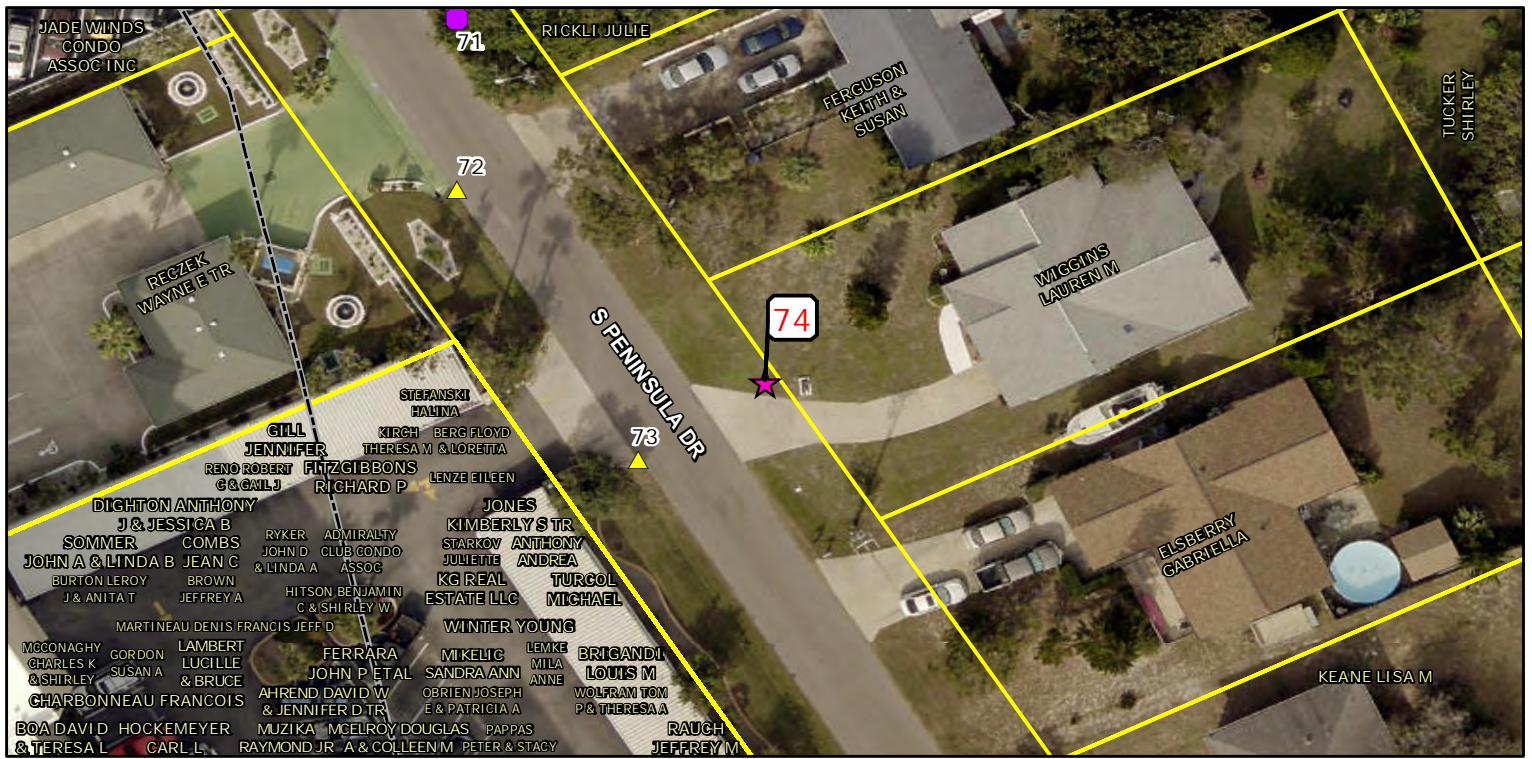
Comment:

Lat: 29.147463 Long: -80.970218

<http://maps.google.com/maps?q=29.1474631620001,-80.9702183219999>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **74**

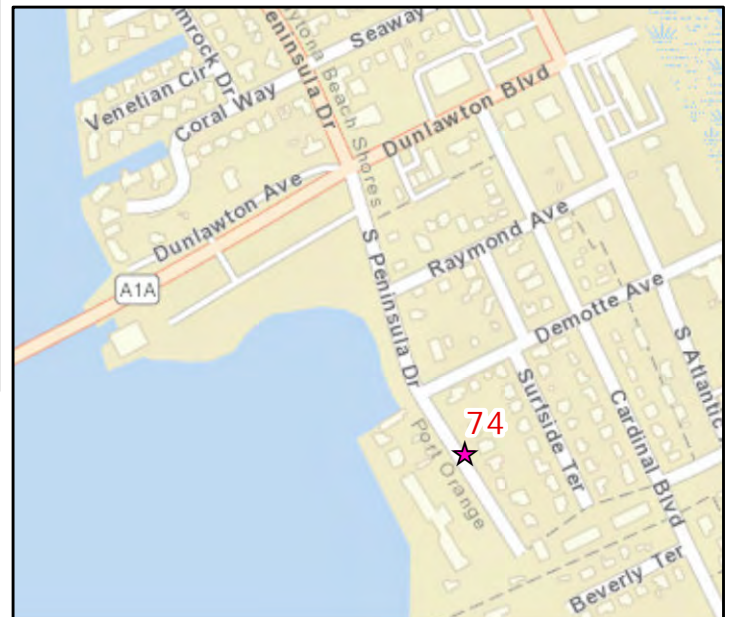
Feature Type: Other - Misc

Comment:

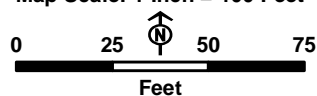
Lat: 29.147519 Long: -80.970128

<http://maps.google.com/maps?q=29.147518877,-80.970127727>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ● User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |



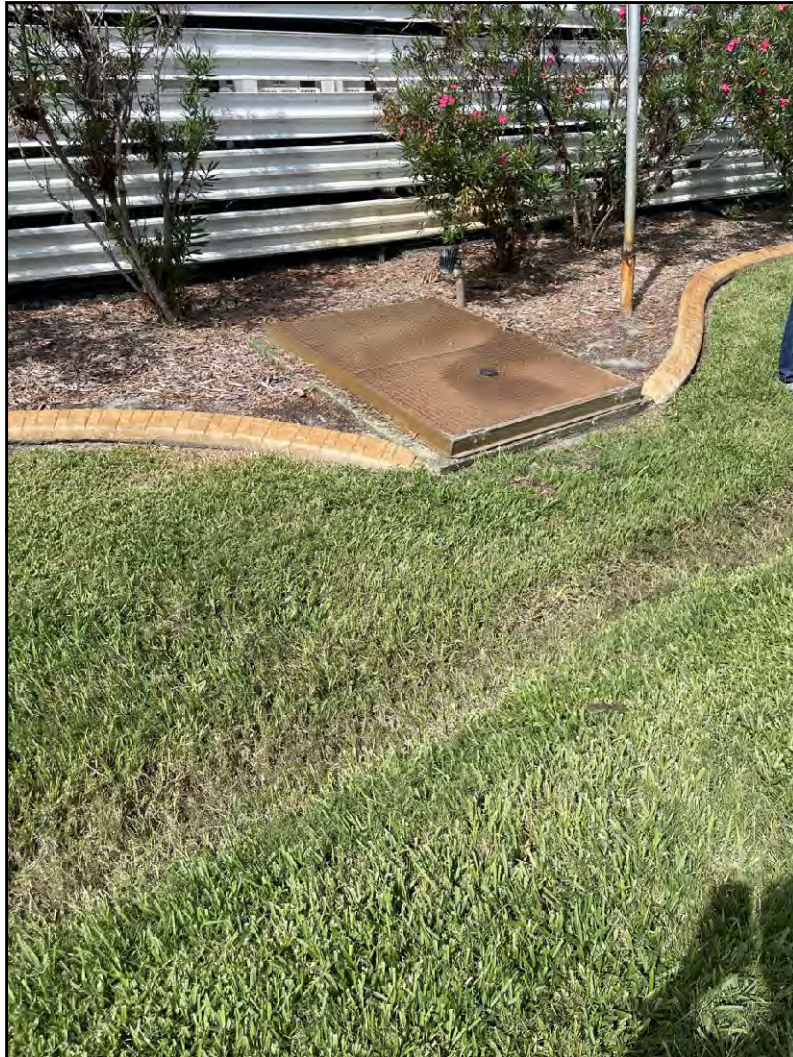
Map Scale: 1 Inch = 100 Feet



Field Observations

River to Sea TPO

Peninsula Drive Sidewalk Feasibility Study



Feature ID: **75**

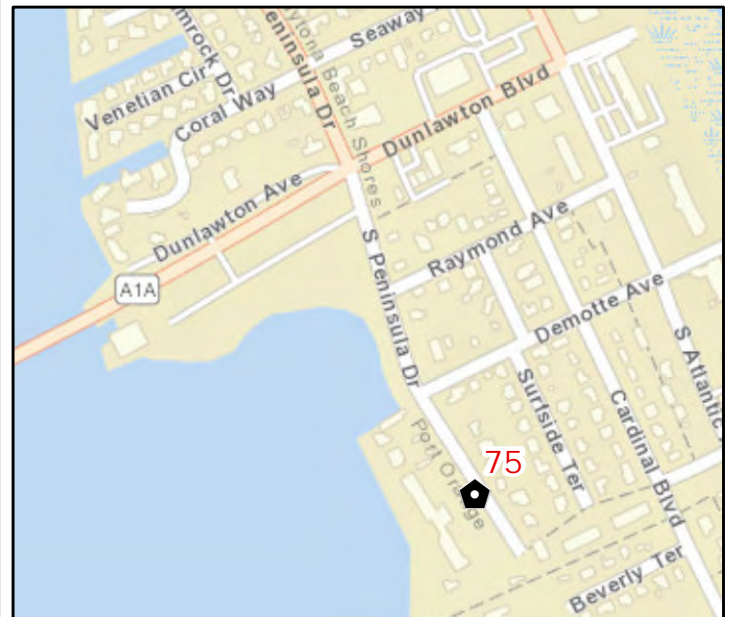
Feature Type: Utilities

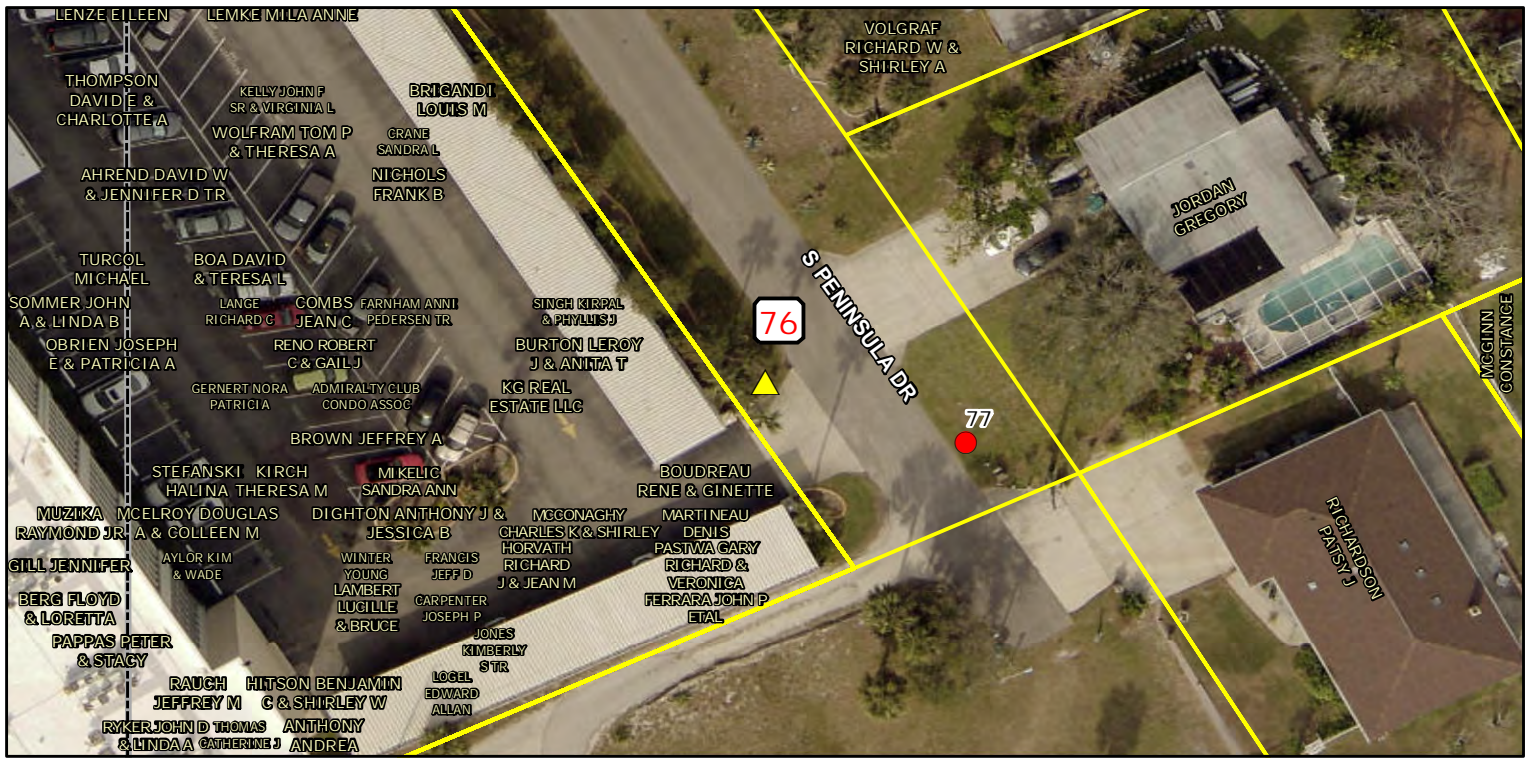
Comment:

Lat: 29.147135 Long: -80.970028

<http://maps.google.com/maps?q=29.147134701,-80.970027715>

- | | |
|--|--|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Feature ID: **76**

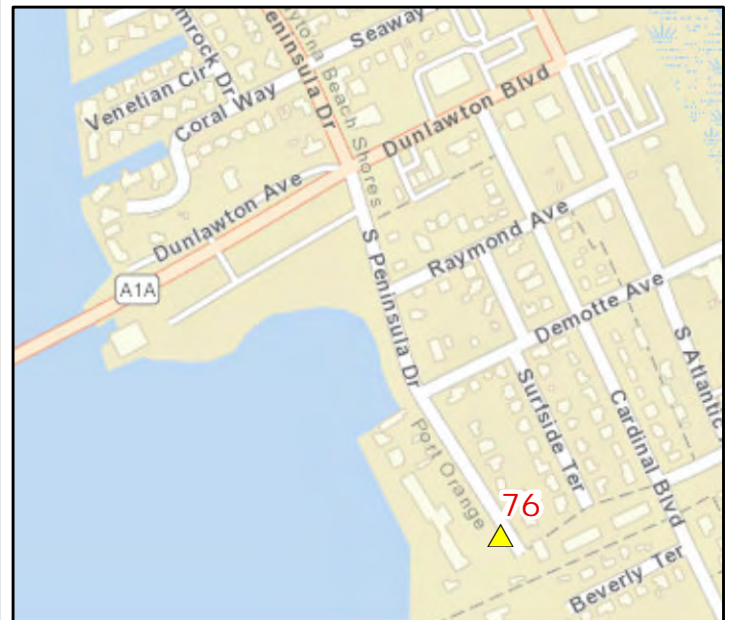
Feature Type: Drainage

Comment:

Lat: 29.146741 Long: -80.969741

<http://maps.google.com/maps?q=29.1467412980001,-80.9697406929999>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ◆ Traffic Control | |





Feature ID: **77**

Feature Type: ADA - Safety

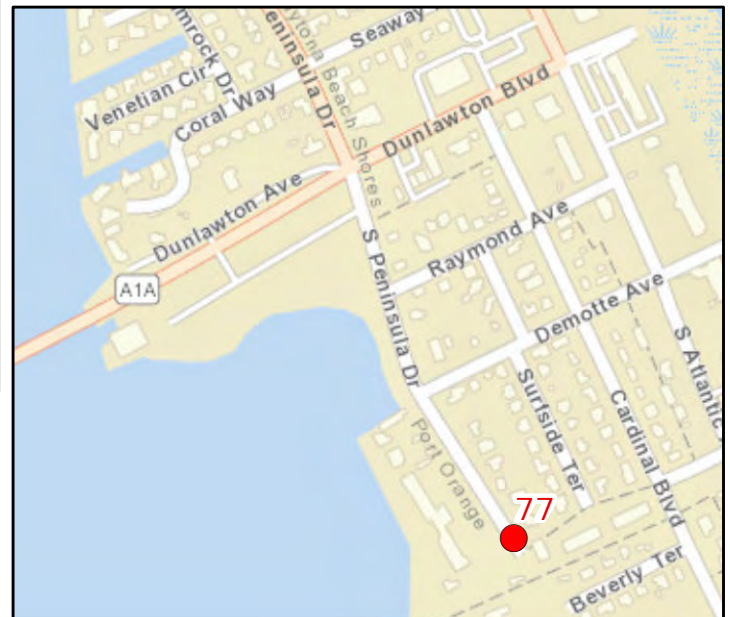
Comment:

Lat: 29.146698

Long: -80.969597

<http://maps.google.com/maps?q=29.146698137,-80.969597252>

- | | |
|--|---|
| ● ADA - Safety | ● Transit |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ◆ Lighting | ★ Other - Misc |
| ⬢ Traffic Control | |





Appendix B

Port Orange Down Under Conceptual Drawing

THE DOWN UNDER
PORT ORANGE

MURALS ON BRIDGE WALL AND PILINGS
(HISTORIC, COASTAL AND/OR SEAFOOD THEMED, NO LETTERING)

GROUND-MOUNTED UP LIGHTING

RECREATION AND/OR SITE FURNISHINGS AREAS
(SUCH AS TRASH RECEPTACLES, BIKE RACKS, BENCHES, BOLLARDS, TABLES, EDUCATIONAL SIGN BOARDS, OR SIMILAR FURNISHINGS)

BOARD & CABLE RAILING
(SEE ATTACHED DETAIL)

LIVING/NATURAL SHORELINE RESTORATION (NON-STRUCTURAL)

CROSSWALK
(TYPICAL FDOT INDEX NO. 17346, SCHEME 1)

FDOT AREA

EXISTING SIDEWALK

EXISTING DRAINAGE

EXISTING CUL-DE-SAC

EXISTING DRIVEWAY

EXISTING PARKING SPACES

SOD/LANDSCAPING AREAS
(FLORIDA FRIENDLY OR NATIVE/ DROUGHT & SALT TOLERANT PLANTS, ALL AREAS SHOWN IN GREEN)

RE-PAVEMENT/ RE-STRIPING
(AS NEEDED TO ENSURE SAFE AND EFFECTIVE TRAFFIC FLOW, ON-GOING MAINTENANCE AS NEEDED)

OVERFLOW PARKING
(DELINEATED GRASS, SHELL, OR OTHER PERVIOUS MATERIAL, ON-GOING MAINTENANCE AS NEEDED)

THEMED RAILING
(NEED NAME)

REPLACE SIGN IN EXISTING LOCATION IN CITY R/W

DIMUCCI BUILDING

DAIRY BAR

HUNTER BUILDING

JIMMY HULAS

KING'S SEAFOOD

DJ'S DECK

COMMERCIAL MARINA

OUR DECK DOWN UNDER

CITY R/W AREA



Appendix C

Sunshine One Call Ticket

DESIGN TICKET - NO LOCATE NEEDED

Ticket : 291102934 Rev:000 Taken: 10/18/21 10:35ET

State: FL Cnty: VOLUSIA GeoPlace: PORT ORANGE

CallerPlace: PORT ORANGE

Subdivision:

Address : 3454 to 3699

Street : S PENINSULA DR

Cross 1 : CORAL WAY

Within 1/4 mile: Y

Locat: DESIGN TICKET - NO LOCATE NEEDED

:

Remarks : DESIGN TICKET FOR A BIKE STUDY PROJECT

IN RESPONSE TO RECEIPT OF A DESIGN TICKET, SSOCOF PROVIDES THE ORIGINATOR OF THE DESIGN TICKET WITH A LIST OF SSOCOF MEMBERS IN THE VICINITY OF THE DESIGN PROJECT. SSOCOF DOES NOT NOTIFY SSOCOF MEMBERS OF THE RECEIPT BY SSOCOF OF A DESIGN TICKET. IT IS THE SOLE RESPONSIBILITY OF THE DESIGN ENGINEER TO CONTACT SSOCOF MEMBERS TO REQUEST INFORMATION ABOUT THE LOCATION OF SSOCOF MEMBERS' UNDERGROUND FACILITIES. SUBMISSION OF A DESIGN TICKET WILL NOT SATISFY THE REQUIREMENT OF CHAPTER 556, FLORIDA STATUTES, TO NOTIFY SSOCOF OF AN INTENT TO EXCAVATE OR DEMOLISH. THAT INTENT MUST BE MADE KNOWN SPECIFICALLY TO SSOCOF IN THE MANNER REQUIRED BY LAW. IN AN EFFORT TO SAVE TIME ON FUTURE CALLS, SAVE YOUR DESIGN TICKET NUMBER IF YOU INTEND TO BEGIN EXCAVATION WITHIN 90 DAYS OF YOUR DESIGN REQUEST. THE DESIGN TICKET CAN BE REFERENCED, AND THE INFORMATION ON IT CAN BE USED TO SAVE TIME WHEN YOU CALL IN THE EXCAVATION REQUEST.

*** LOOKUP BY ADDRESS ***

:

Grids : 2908A8058C 2908A8058D 2909D8058C 2909D8058D

Work date: 10/18/21 Time: 10:31ET Hrs notc: 000 Category: 6 Duration: UNKNOWN

Due Date : 10/20/21 Time: 23:59ET Exp Date : 11/17/21 Time: 23:59ET

Work type: DESIGN Boring: N White-lined: N

Ug/Oh/Both: U Machinery: N Depth: UNK Permits: N N/A

Done for : DESIGN

Company : HDR ENGINEERING Type: CONT

Co addr : 4830 W KENNEDY BLVD

Co addr2: SUITE 400

City : TAMPA State: FL Zip: 33609-2548

Caller : JASON STARR Phone: 813-282-2300

Contact : JASON STARR Email: JASON.STARR@HDRINC.COM

BestTime: 8-5

Mobile : 941-342-2711

Fax : 941-342-6589

Email : JASON.STARR@HDRINC.COM

Design

Submitted: 10/18/21 10:35ET Oper: JAS Chan: WEB

Mbrs : CP0562 DB1180 DB1769 FPLSUB FPLVOL PGSVOL SBF02 TCI377

* Responses are current as of 10/18/2021 10:38 AM

| <u>Ex. Circum</u> | <u>Service Area</u> | <u>Utility Type(s)</u> | <u>Contact</u> | <u>Alt. Contact</u> | <u>Emergency Contact</u> | <u>Positive Response</u> |
|-------------------|--|----------------------------------|----------------------------------|---|--|--------------------------|
| No | CITY OF PORT ORANGE FLORIDA CPO562 | RECLAIMED WATER, SEWER, WATER | JUNOS REED (386) 506-5754 | JOHN HAMPTON (386) 506-5757 | CITY OF PORT ORANGE WATER PRODUCTION FACILITY (386) 756-5380 | |
| No | CITY OF DAYTONA BEACH SHORES DB1180 | SEWER | FRED HIATT (386) 763-5365 | CITY OF DAYTONA BEACH SHORES (386) 763-5351 | BRIAN EDWARDS (386) 763-5351 | |
| No | CITY OF DAYTONA BEACH SHORES DB1769 | ELECTRIC | FRED HIATT (386) 763-5365 | CITY OF DAYTONA BEACH SHORES (386) 763-5351 | BRIAN EDWARDS (386) 763-5351 | |
| No | FLORIDA POWER & LIGHT - SUBAQUEOUS FPLSUB | ELECTRIC | JOEL BRAY (386) 586-6403 | | JOSEPH W. HEATHERLY (772) 201-6400 | |
| No | FLORIDA POWER & LIGHT--VOLUSIA FPLVOL | ELECTRIC | JOEL BRAY (386) 586-6403 | | USIC DISPATCH CENTER (800) 778-9140 | |
| No | TECO PEOPLES GAS- DAYTONA PGSVOL | GAS | JOAN DOMNING (813) 275-3783 | SARAH MCVAY (904) 349-6252 | TECO PEOLPES GAS CUSTOMER SERVICE*** | |
| No | A T & T/ DISTRIBUTION SBF02 | TELEPHONE | DINO FARRUGGIO (561) 683-2729 | DINO FARRUGGIO (561) 683-2729 | | |
| No | CHARTER COMMUNICATIONS TCI377 | CATV | JERROLD KAISER (321) 338-1928 | USIC DISPATCH OFFICE (CLS) (800) 778-9140 | USIC DISPATCH OFFICE (CLS) (800) 778-9140 | |

Design

DESIGN TICKET - NO LOCATE NEEDED

Ticket : 291102985 Rev:000 Taken: 10/18/21 10:37ET

State: FL Cnty: VOLUSIA GeoPlace: DAYTONA BEACH

CallerPlace: DAYTONA BEACH

Subdivision:

Address : 1 to 79

Street : DUNLAWTON AVE

Locat: DESIGN TICKET - NO LOCATE NEEDED

:

Remarks : DESIGN TICKET FOR A BIKE STUDY PROJECT

IN RESPONSE TO RECEIPT OF A DESIGN TICKET, SSOCOF PROVIDES THE ORIGINATOR OF THE DESIGN TICKET WITH A LIST OF SSOCOF MEMBERS IN THE VICINITY OF THE DESIGN PROJECT. SSOCOF DOES NOT NOTIFY SSOCOF MEMBERS OF THE RECEIPT BY SSOCOF OF A DESIGN TICKET. IT IS THE SOLE RESPONSIBILITY OF THE DESIGN ENGINEER TO CONTACT SSOCOF MEMBERS TO REQUEST INFORMATION ABOUT THE LOCATION OF SSOCOF MEMBERS' UNDERGROUND FACILITIES. SUBMISSION OF A DESIGN TICKET WILL NOT SATISFY THE REQUIREMENT OF CHAPTER 556, FLORIDA STATUTES, TO NOTIFY SSOCOF OF AN INTENT TO EXCAVATE OR DEMOLISH. THAT INTENT MUST BE MADE KNOWN SPECIFICALLY TO SSOCOF IN THE MANNER REQUIRED BY LAW. IN AN EFFORT TO SAVE TIME ON FUTURE CALLS, SAVE YOUR DESIGN TICKET NUMBER IF YOU INTEND TO BEGIN EXCAVATION WITHIN 90 DAYS OF YOUR DESIGN REQUEST. THE DESIGN TICKET CAN BE REFERENCED, AND THE INFORMATION ON IT CAN BE USED TO SAVE TIME WHEN YOU CALL IN THE EXCAVATION REQUEST.

*** LOOKUP BY ADDRESS ***

:

Grids : 2908A8058C 2908A8058D 2909D8058C 2909D8058D

Work date: 10/18/21 Time: 10:35ET Hrs notc: 000 Category: 6 Duration: UNKNOWN

Due Date : 10/20/21 Time: 23:59ET Exp Date : 11/17/21 Time: 23:59ET

Work type: DESIGN Boring: N White-lined: N

Ug/Oh/Both: U Machinery: N Depth: UNK Permits: N N/A

Done for : DESIGN

Company : HDR ENGINEERING Type: CONT

Co addr : 4830 W KENNEDY BLVD

Co addr2: SUITE 400

City : TAMPA State: FL Zip: 33609-2548

Caller : JASON STARR Phone: 813-282-2300

Contact : JASON STARR Email: JASON.STARR@HDRINC.COM

BestTime: 8-5

Mobile : 941-342-2711

Fax : 941-342-6589

Email : JASON.STARR@HDRINC.COM

Submitted: 10/18/21 10:37ET Oper: JAS Chan: WEB

Mbrs : CP0562 DB1180 DB1769 FPLSUB FPLVOL PGSVOL SBF02 TCI377

* Responses are current as of 10/18/2021 10:38 AM

| <u>Ex. Circum</u> | <u>Service Area</u> | <u>Utility Type(s)</u> | <u>Contact</u> | <u>Alt. Contact</u> | <u>Emergency Contact</u> | <u>Positive Response</u> |
|-------------------|--|----------------------------------|----------------------------------|---|--|--------------------------|
| No | CITY OF PORT ORANGE FLORIDA CPO562 | RECLAIMED WATER, SEWER, WATER | JUNOS REED (386) 506-5754 | JOHN HAMPTON (386) 506-5757 | CITY OF PORT ORANGE WATER PRODUCTION FACILITY (386) 756-5380 | |
| No | CITY OF DAYTONA BEACH SHORES DB1180 | SEWER | FRED HIATT (386) 763-5365 | CITY OF DAYTONA BEACH SHORES (386) 763-5351 | BRIAN EDWARDS (386) 763-5351 | |
| No | CITY OF DAYTONA BEACH SHORES DB1769 | ELECTRIC | FRED HIATT (386) 763-5365 | CITY OF DAYTONA BEACH SHORES (386) 763-5351 | BRIAN EDWARDS (386) 763-5351 | |
| No | FLORIDA POWER & LIGHT - SUBAQUEOUS FPLSUB | ELECTRIC | JOEL BRAY (386) 586-6403 | | JOSEPH W. HEATHERLY (772) 201-6400 | |
| No | FLORIDA POWER & LIGHT--VOLUSIA FPLVOL | ELECTRIC | JOEL BRAY (386) 586-6403 | | USIC DISPATCH CENTER (800) 778-9140 | |
| No | TECO PEOPLES GAS- DAYTONA PGSVOL | GAS | JOAN DOMNING (813) 275-3783 | SARAH MCVAY (904) 349-6252 | TECO PEOLPES GAS CUSTOMER SERVICE*** | |
| No | A T & T/ DISTRIBUTION SBF02 | TELEPHONE | DINO FARRUGGIO (561) 683-2729 | DINO FARRUGGIO (561) 683-2729 | | |
| No | CHARTER COMMUNICATIONS TCI377 | CATV | JERROLD KAISER (321) 338-1928 | USIC DISPATCH OFFICE (CLS) (800) 778-9140 | USIC DISPATCH OFFICE (CLS) (800) 778-9140 | |



Appendix D

FEMA FIRM Map

National Flood Hazard Layer FIRMette



80°58'35"W 29°9'15"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

| | | |
|-----------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE) Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard Zone D |
| | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| MAP PANELS | | Coastal Transect Baseline |
| | | Profile Baseline |
| | | Hydrographic Feature |
| | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/21/2021 at 10:50 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Appendix E

NRCS Soil Survey Map

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry


 Miscellaneous Water

 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Volusia County, Florida
Survey Area Data: Version 20, Aug 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 6, 2019—Feb 25, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|------------------------------------|--|--------------|----------------|
| 40 | Palm Beach-Urban land-Paola complex, 0 to 8 percent slopes | 18.0 | 49.9% |
| 68 | Turnbull variant sand | 15.6 | 43.1% |
| 99 | Water | 2.5 | 7.0% |
| Totals for Area of Interest | | 36.1 | 100.0% |

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

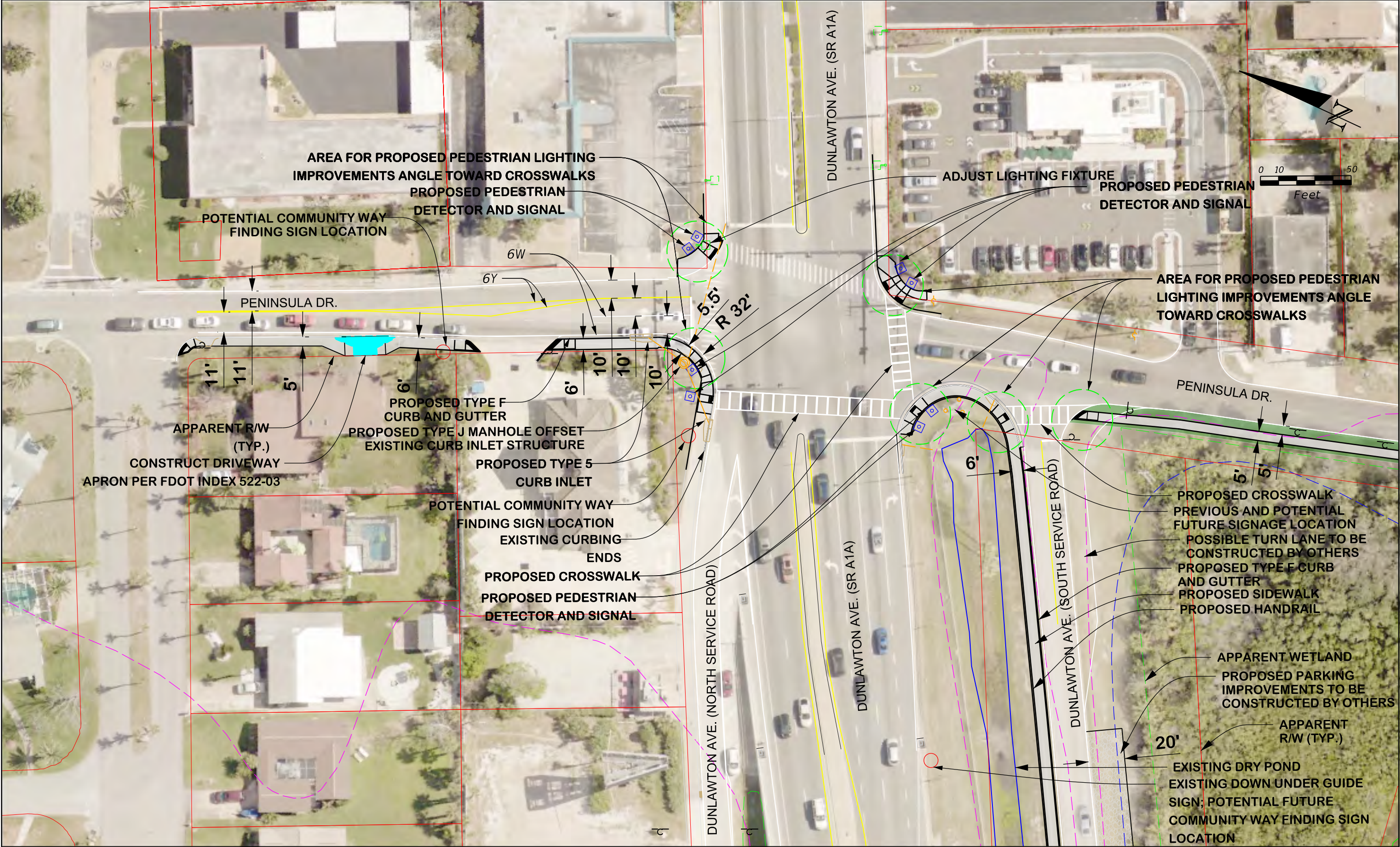
An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



Appendix F

Concept Plan



NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



**CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS**

- | | | |
|-----------------------|-----------------------------|------------------------------|
| EXISTING DRAIN | EXISTING PARCELS | FLOODPLAINS ZONE AE BOUNDARY |
| EXISTING UTILITY POLE | FLOODPLAINS ZONE X BOUNDARY | EXISTING LIMIT OF WETLANDS |
| EXISTING SIGN | EXISTING LIGHT POLE | EXISTING DRAINAGE PIPE |





NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND

- EXISTING DRAIN
- EXISTING UTILITY POLE
- EXISTING SIGN

- EXISTING PARCELS
- FLOODPLAINS ZONE X BOUNDARY
- EXISTING LIGHT POLE

- FLOODPLAINS ZONE AE BOUNDARY
- EXISTING LIMIT OF WETLANDS
- EXISTING DRAINAGE PIPE



CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS





NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS

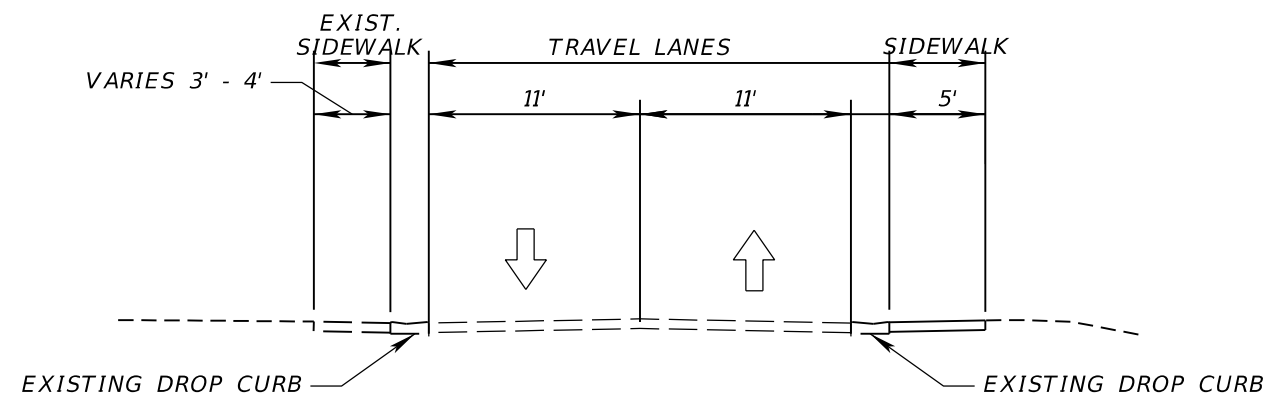
- | | | |
|-----------------------|-----------------------------|------------------------------|
| EXISTING DRAIN | EXISTING PARCELS | FLOODPLAINS ZONE AE BOUNDARY |
| EXISTING UTILITY POLE | FLOODPLAINS ZONE X BOUNDARY | EXISTING LIMIT OF WETLANDS |
| EXISTING SIGN | EXISTING LIGHT POLE | EXISTING DRAINAGE PIPE |





Appendix G

Typical Sections



TYPICAL SECTION
 PENINSULA DRIVE
 PENINSULA DRIVE N
 PROPOSED SIDEWALK

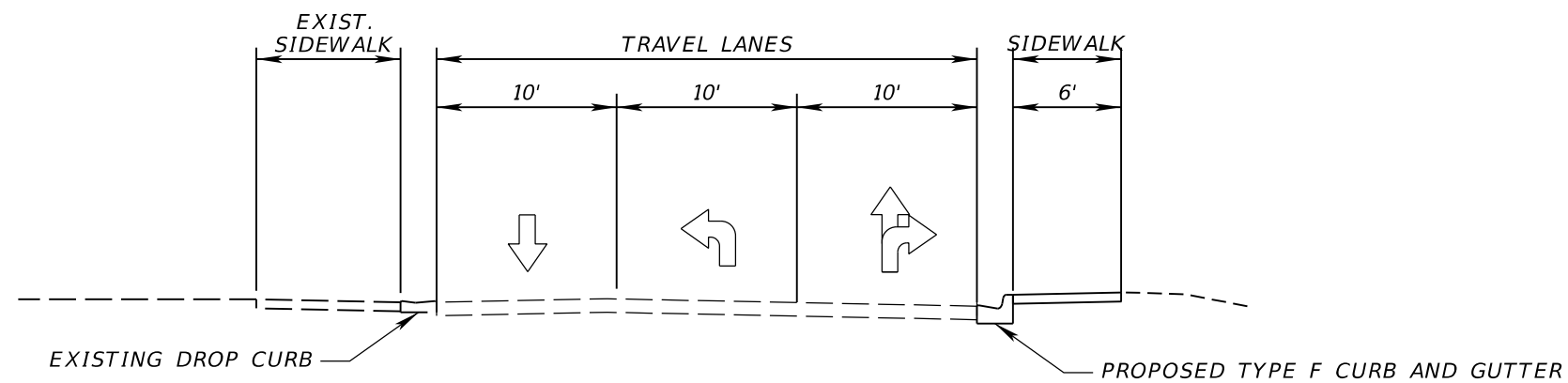
NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



**CITY OF PORT ORANGE
 PENINSULA DRIVE
 SIDEWALK CONCEPT PLANS**





TYPICAL SECTION
 PENINSULA DRIVE
 PENINSULA DRIVE N
 PROPOSED SIDEWALK

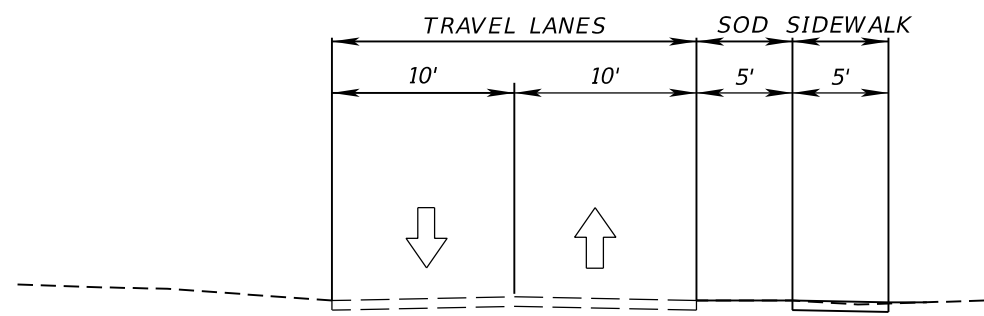
NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS

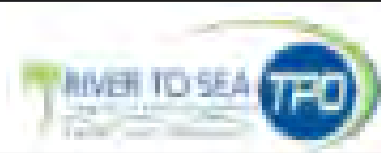




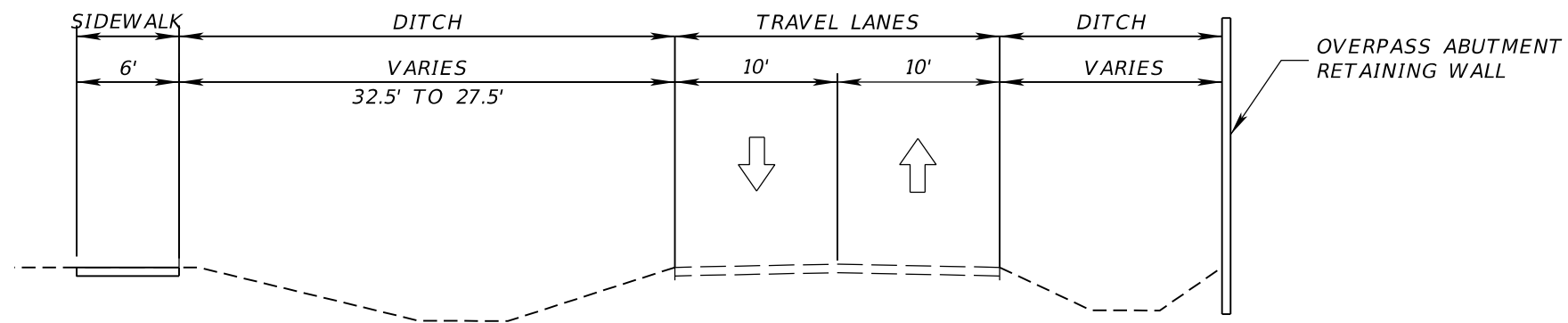
TYPICAL SECTION
PENINSULA DRIVE
DUNLAWTON AVE SOUTH FRONTAGE RD TO
DEMOTTE AVE
PROPOSED SIDEWALK

NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



**CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS**



TYPICAL SECTION
DUNLAWTON AVE
DUNLAWTON AVE FRONTAGE RD
UNDER OVERPASS
PROPOSED SIDEWALK

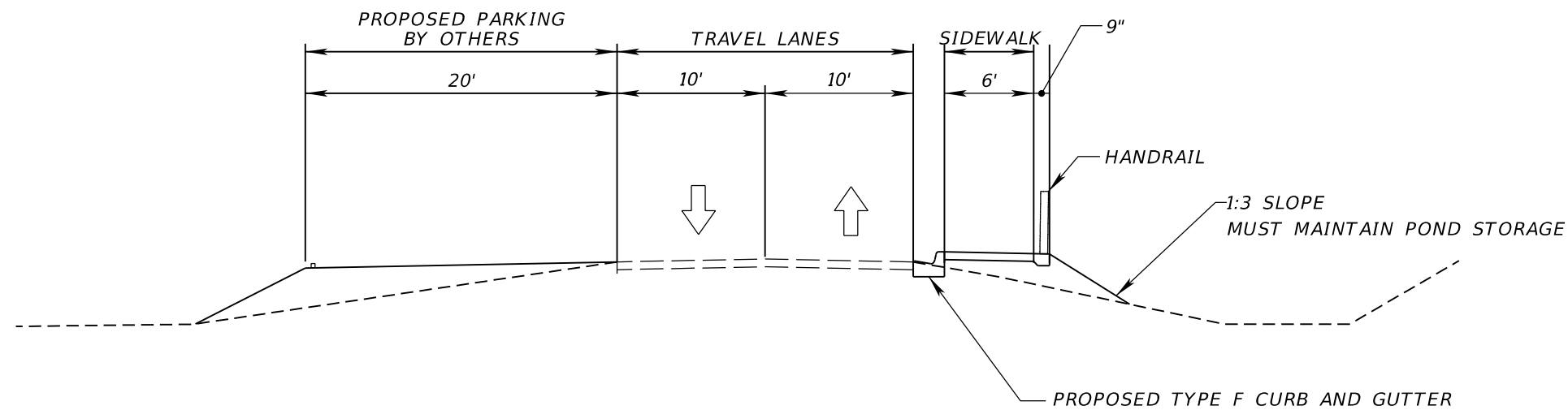
NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



**CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS**





TYPICAL SECTION
DUNLAWTON AVE
DUNLAWTON AVE SOUTH FRONTAGE RD
PROPOSED SIDEWALK

NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED.

LEGEND



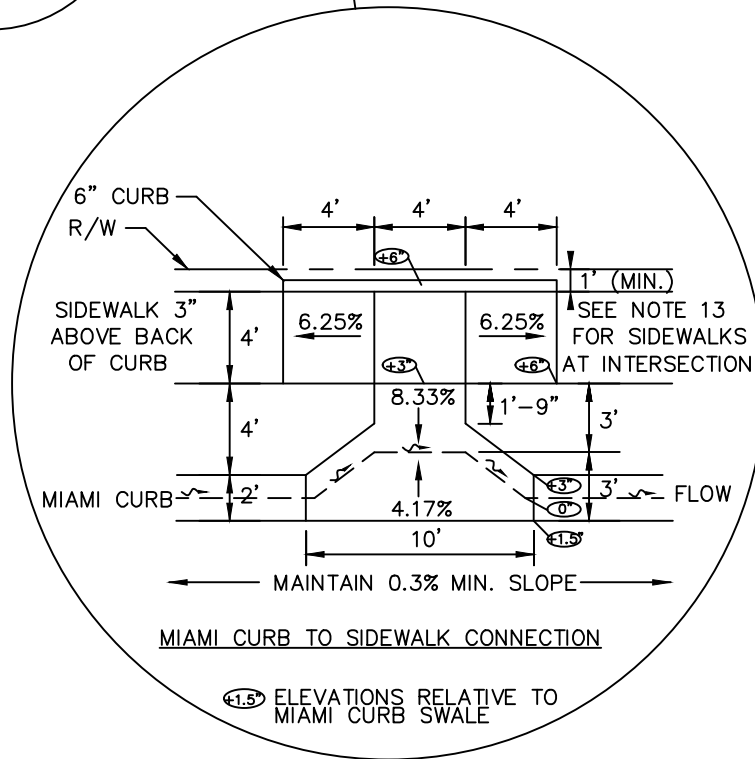
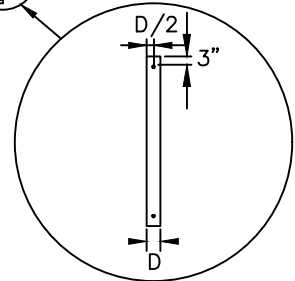
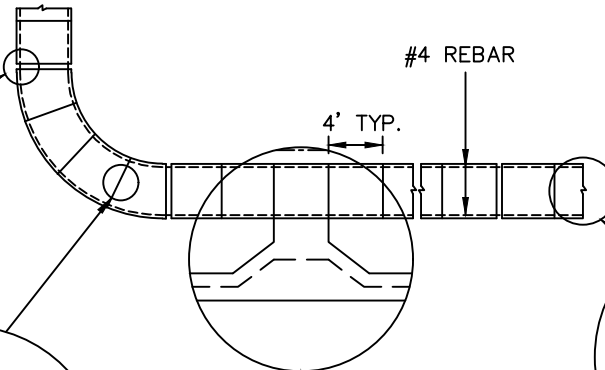
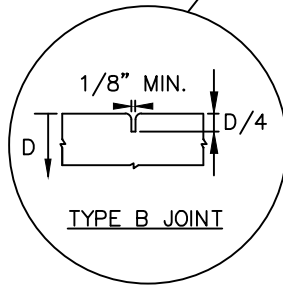
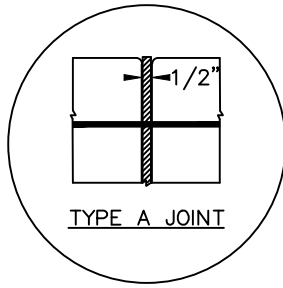
**CITY OF PORT ORANGE
PENINSULA DRIVE
SIDEWALK CONCEPT PLANS**





Appendix H

M-6 Construction Requirements



STANDARD CONSTRUCTION DETAIL SIDEWALK CONSTRUCTION REQUIREMENTS

REV. 12/18

FILE NAME:

M6.DWG

DETAIL REF:

M-6

NOTES:

1. ALL CONCRETE SIDEWALKS AND BIKE PATHS IN PUBLIC RIGHT-OF-WAYS, PRIVATE RIGHT-OF-WAYS, COMMON AREAS IN RESIDENTIAL SITES, COMMERCIAL, INDUSTRIAL, INSTITUTIONAL, MULTI-FAMILY OR MIXED-USE SITES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS LISTED BELOW.
2. EXCEPTION TO THE SPECIFICATIONS BELOW WILL BE FOR PRIVATE RESIDENTIAL SIDEWALKS NOT LOCATED IN A COMMON AREA.
3. SIDEWALKS, BIKE PATHS, RAMPS, AND DRIVEWAY APRONS SHALL BE CONSTRUCTED OF PLAIN PORTLAND CEMENT CONCRETE HAVING A MAXIMUM SLUMP OF 3", A MINIMUM DEVELOPED COMPRESSIVE STRENGTH OF 2,500 PSI IN 28 DAYS, AND A MINIMUM UNIFORM THICKNESS OF 4" WHERE INTENDED SOLELY FOR PEDESTRIAN TRAFFIC, AND 6" WHERE MOTOR VEHICLES ARE LIKELY TO CROSS.
4. 2-#4 METAL REINFORCEMENT BARS WITH MINIMUM 6" OVERLAPS SHALL BE INSTALLED LONGITUDINALLY 3" FROM THE EDGE. THE BARS SHALL BE LOCATED AT MID DEPTH OF THE CONCRETE. THE BARS SHALL BE PLACED ON NON FERROUS SPACERS TO ENSURE REQUIRED SEPARATION FROM SUBGRADE.
5. THE EXISTING SUBGRADE SHALL HAVE ALL ORGANIC, LOOSE, AND DELETERIOUS MATTER REMOVED, AND THE REMAINING CLEAN SOIL AND FILL SHALL BE SMOOTH, SOUND, AND SOLID. THE SUBGRADE SHALL BE COMPACTED TO A MINIMUM 95% DENSITY BASED ON MODIFIED PROCTOR DRY TEST PER AASHTO T-180.
6. ALL CONCRETE WORK IN THE RIGHT-OF-WAY SHALL BE INSPECTED BY THE CITY AFTER THE SUBGRADE IS PREPARED AND THE FORMS ARE SET, BUT BEFORE THE CONCRETE PLACEMENT BEGINS.
7. SIDEWALKS SHALL BE PLACED PARALLEL TO AND 12" WITHIN THE RIGHT-OF-WAY LINE, EXCEPT THAT THE CITY MAY APPROVE DEVIATIONS TO SAVE SPECIMEN TREES PROVIDED THAT THE SIDEWALK REMAINS WITHIN THE RIGHT-OF-WAY OR AN APPROVED SIDEWALK EASEMENT ABUTTING THE RIGHT-OF-WAY IS RECORDED.
8. THE TOP OF THE SIDEWALK PARALLEL WITH CURB AND GUTTER SHALL BE AT AN ELEVATION NO LOWER THAN THE CROWN OF THE ADJACENT ROADWAY AND NO HIGHER THAN 6" ABOVE THE CROWN, UNLESS APPROVED BY THE CITY, TO MAKE A MORE NATURAL TRANSITION WITH THE ADJACENT LAND.
9. THE CONCRETE SURFACE SHALL BE BROOM FINISHED TO BE SLIP RESISTANT AND SHALL MATCH AS CLOSELY AS POSSIBLE THE FINISH OF EXISTING ADJACENT SLABS AND ALL EDGES SHALL BE TOOLED TO ELIMINATE SHARP CORNERS.
10. ISOLATION JOINTS (TYPE A JOINTS) SHALL BE PROVIDED BETWEEN EXISTING CONCRETE OR STRUCTURES AND FRESH CONCRETE, TO SEPARATE PEDESTRIAN SECTIONS FROM SECTIONS WHICH WILL ENCOUNTER VEHICLE TRAFFIC, TO SEPARATE FRESH PLACEMENT FROM CONCRETE WHICH HAS SET FOR MORE THAN 60 MINUTES, AND NO FARTHER APART THAN 100'. JOINT MATERIAL SHALL BE PREFORMED JOINT FILLER MEETING FDOT SPECIFICATIONS.
11. CONTROL JOINTS (TYPE B JOINTS) SHALL BE TOOLED INTO THE FRESH CONCRETE TO A DEPTH EQUAL TO 1/4 THE SLAB THICKNESS, 1/8" WIDTH, AND SPACED APART A DISTANCE EQUAL TO THE WIDTH OF THE SLAB OR 48", WHICHEVER IS GREATEST.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE FINISHED SIDEWALK FROM ALL DAMAGE AND VANDALISM UNTIL THE CITY ACCEPTS OR APPROVES THE SIDEWALK, AFTER WHICH TIME THE OWNER OF THE ABUTTING LAND SHALL BE RESPONSIBLE FOR THE SIDEWALK IN ACCORDANCE WITH THE CITY CODE. ANY SIDEWALK SECTION DAMAGED OR VANDALIZED PRIOR TO ACCEPTANCE OR APPROVAL SHALL BE CUT OUT BETWEEN JOINTS AND REPLACED. REPAIRS ARE NOT ACCEPTABLE.
13. SIDEWALKS LOCATED WITHIN THE RIGHT-OF-WAY SHALL NOT BE TINTED, STAINED, COLORED, OR COATED.
14. ALL FORMS SHALL BE REMOVED PRIOR TO ACCEPTANCE OR APPROVAL AND THE DISTURBED GROUND SHALL BE BACKFILLED, RE-GRADED, AND SODDED SO THAT THE WEAR SURFACE OF THE CONCRETE IS REASONABLY FLUSH WITH THE ADJACENT SOIL GRADE.
15. AT INTERSECTIONS WITH SIDEWALK TO MIAMI CURB CONNECTIONS AT EACH CORNER, THE 3" RISE TO SIDEWALK FINAL GRADE WILL BE OMITTED BETWEEN CONNECTIONS.



STANDARD CONSTRUCTION DETAIL
SIDEWALK CONSTRUCTION REQUIREMENTS

REV. 12/18

FILE NAME:

M6.DWG

DETAIL REF:

M-6.1



Appendix I

FDOT Inflation Factors



Inflation Factors

This “*Transportation Costs*” report is issued by the Office of Policy Planning. It provides information on inflation factors and other indices that may be used to convert Present Day Costs (PDC) to future Year Of Expenditure costs (YOE) or vice versa. This report is updated regularly based on the FDOT Work Program Instructions.

Please note that the methodology for inflationary adjustments relating to specific transportation projects should be addressed with the district office where the project will be located. For general use or non-specific areas, the guidelines provided herein may be used for inflationary adjustments.

Construction Cost Inflation Factors

The table on the next page includes the inflation factors and Present Day Cost (PDC) multipliers that are applied to the Department’s Work Program for highway construction costs expressed in Fiscal Year 2022 dollars (FY 2022 runs from July 1, 2021 to June 30, 2022).

Other Transportation Cost Inflation Factors

Other indices may be used to adjust project costs for other transportation modes or non-construction components of costs. Examples are as follows:

The Consumer Price Index (CPI, also retail price index) is a weighted average of prices of a specified set of products and services purchased by wage earners in urban areas. As such, it provides one measure of inflation. The CPI is a fixed quantity price index and a reasonable cost-of-living index.

The Employment Cost Index (ECI) is based on the National Compensation Survey, administered by the Bureau of Labor Statistics (BLS). It measures quarterly changes in compensation costs, which include wages, salaries, and other employer costs for civilian workers (nonfarm private industry and state and local government).

The monthly series, Producer Price Index for Highway and Street Construction, is also available from BLS. It provides national-level estimates of past and recent highway construction inflation. The Producer Price Index (PPI) web site is <http://www.bls.gov/ppi/home.htm>.



FLORIDA DEPARTMENT OF TRANSPORTATION

TRANSPORTATION COSTS REPORTS

Work Program Highway Construction Cost Inflation Factors

| Fiscal Year | Inflation Factor | PDC Multiplier |
|-------------|------------------|----------------|
| 2022 | Base | 1.000 |
| 2023 | 2.7% | 1.027 |
| 2024 | 2.8% | 1.056 |
| 2025 | 2.9% | 1.086 |
| 2026 | 3.0% | 1.119 |
| 2027 | 3.1% | 1.154 |
| 2028 | 3.2% | 1.191 |
| 2029 | 3.3% | 1.230 |
| 2030 | 3.3% | 1.270 |
| 2031 | 3.3% | 1.312 |
| 2032 | 3.3% | 1.356 |
| 2033 | 3.3% | 1.400 |
| 2034 | 3.3% | 1.447 |
| 2035 | 3.3% | 1.494 |
| 2036 | 3.3% | 1.544 |
| 2037 | 3.3% | 1.595 |
| 2038 | 3.3% | 1.647 |
| 2039 | 3.3% | 1.702 |
| 2040 | 3.3% | 1.758 |
| 2041 | 3.3% | 1.816 |
| 2042 | 3.3% | 1.876 |
| 2043 | 3.3% | 1.938 |
| 2044 | 3.3% | 2.002 |
| 2045 | 3.3% | 2.068 |
| 2046 | 3.3% | 2.136 |
| 2047 | 3.3% | 2.206 |
| 2048 | 3.3% | 2.279 |
| 2049 | 3.3% | 2.354 |
| 2050 | 3.3% | 2.432 |
| 2051 | 3.3% | 2.512 |
| 2052 | 3.3% | 2.595 |
| 2053 | 3.3% | 2.681 |
| 2054 | 3.3% | 2.769 |
| 2055 | 3.3% | 2.861 |
| 2056 | 3.3% | 2.955 |
| 2057 | 3.3% | 3.053 |
| 2058 | 3.3% | 3.153 |
| 2059 | 3.3% | 3.257 |



Appendix J

Draft Report Comments and Responses

| FEASIBILITY STUDY/PENINSULA DR. SIDEWALK & WAYFINDING | | | |
|---|---|---|---------------------|
| Comments By: | Stephan Harris, Transportation Planner – Project Manager | | |
| Agency: | | | |
| Date Received: | | | |
| | R2CTPO | | |
| | December 21, 2021 | | |
| Comment # | Comment | Response | Location |
| 1 | Dunlawton Avenue is incorrectly labeled SR A1A in this study. Replace all SR A1A labels with SR 421 for Dunlawton Avenue. | The state road number designation (SR A1A) on Dunlawton Avenue is correct. Based on the FDOT Straight Line Diagrams (SLDs), the designation of Dunlawton Avenue as SR 421 ends at US 1 / Ridgewood Avenue. Dunlawton Avenue becomes SR A1A at that point as the SR A1A route coming from the south and co-located on US 1 turns to the east at that point. | General |
| 2 | Repair of the this light fixture should be recommended. | The text has been edited accordingly to reflect this comment. | Section 3.7, Pg. 11 |
| 3 | The two highlighted bullets are redundant. One of them should be removed. | The bullets are not redundant because community wayfinding signs and pedestrian wayfinding signs are sized and oriented differently. Community wayfinding signs can certainly help direct pedestrians to destinations, but pedestrian wayfinding signs, as noted in the Daytona Beach examples, are much smaller and therefore not typically readable by drivers. Also, pedestrian wayfinding signs may be oriented where drivers would not see them , e.g., along a sidewalk in the opposite direction of traffic. A pedestrian wayfinding sign could be added in the southwest corner of the Dunlawton Avenue / Peninsula Drive if a community wayfinding sign is not provided at that location with the same orientation (facing south). Additional text has been added to the second bullet concerning the pedestrian wayfinding sign to provide clarity. | Section 5.5, Pg. 19 |
| 4 | Include the following proposed amenities in Table 5-1: Bike Rack in Concept Sheet #3 Community Wayfinding Guide Signs | Added Bike Rack and Signs to Estimate | Section 6, Pg. 21 |
| 5 | Dunlawton Avenue (South Side Service Road) | Added label. | Appendix F, Pg. 1 |
| 6 | Dunlawton Avenue (North Side Service Road) | Added label. | Appendix F, Pg. 1 |

| FEASIBILITY STUDY/PENINSULA DR. SIDEWALK & WAYFINDING | | | |
|---|--|--|-------------------|
| Comments By: | Penelope Cruz, Planning Manager | | |
| Agency: | City of Port Orange, Planning Division | | |
| Date Received: | December 21, 2021 | | |
| Comment # | Comment | Response | Location |
| 1 | Wayfinding Signage, left out one existing sign with an arrow and "Restaurants" pointing south, north of Dunlawton, on the west side of Peninsula. | This image and text has been added to the report. | Sec. 4, pg. 15 |
| 2 | The scope of this feasibility study included the actual wayfinding signage for this area. The study provided for review only identifies suggested locations and defers the actual signage as part of a future City-wide signage program. The city is not planning for a City-wide signage program and requests the study provide more detail on actual signage that should be included to provide the safest environment for vehicular and pedestrian traffic. | Related to wayfinding, the scope specifically reads: " <i>potential pedestrian wayfinding signage will be evaluated to key destinations in the vicinity of the Peninsula Drive intersection at Dunlawton Avenue. The focus for the wayfinding signage will be to identify sign sizes, locations, and general parameters, but not the specific messaging or sign styles. Typical signs from the Manual on Uniform Traffic Control Devices (MUTCD) will be considered, along with what would be permissible by FDOT to be posted along the state highway system. Additionally, specific municipal examples of pedestrian wayfinding will also be provided (e.g., City of Daytona Beach). The steps needed to pursue placing wayfinding signs in FDOT right-of-way will be outlined.</i> " Additional guidance is provided in the report including an option to provide simple guide signs similar to the existing signs, but the City will need to coordinate further with FDOT to review and get approval for proposed signs. | General |
| 3 | The sidewalk improvements on the east side of Peninsula adjacent to Starbucks appear to encroach onto private property, located in Daytona Beach Shores. Include statement for coordination with Daytona Beach Shores. | A statement about the potential ROW impact and coordinating with the City of Daytona Beach Shores and property owner has been added to Section 5 of the report. | Appendix F, Pg. 1 |
| 4 | Include statement for coordination with Volusia County since Demotte is located in County right-of-way. | A statement about coordinating with the Volusia County has been added to Section 5 of the report. | Appendix F, Pg. 2 |
| 5 | Can push-button flashing pedestrian crossing signs be added at the access drive crossing for the southern access drive? There is a lot of vehicular activity turn right off the bridge into the Down Under and left and right out of the Down Under area onto Peninsula. | Interim Approval for Optional Use of Pedestrian-Actuated Rectangular Rapid-Flashing Beacons at Uncontrolled Marked Crosswalks (IA-21) issued by FHWA on 3/21/18 explicitly notes that "Except for crosswalks across the approach to or egress from a roundabout, an RRFB shall not be used for crosswalks across approaches controlled by YIELD signs, STOP signs, traffic control signals, or pedestrian hybrid beacons." As such, use of RRFBs would not be permissible on the west approach of the Peninsula Drive / South Service Road intersection as it is stop-controlled on the side street. Other types of pedestrian-actuated flashing beacons (non-RRFBs) would not be very visible for drivers making a southbound right or northbound left from Peninsula Drive onto the south service road due to the orientation of the signs on the side street, and are not recommended. | Appendix F, Pg. 3 |
| 6 | As part of a separate project, the City is evaluating construction of a right turn lane onto Peninsula for the southern access drive. If this improvement is completed prior to design/construction of this sidewalks project, adjustments to the crossing of the southern access drive will be needed. | Will clarify future turn lane in the plans and will note this potential turn lane and potential need for adjustment in Section 5 of the report. | General |

FEASIBILITY STUDY/PENINSULA DR. SIDEWALK & WAYFINDING

Comments By: **Valerie Duhl, Community Development Engineer**
Johnnie Yongue, Civil Engineer
Lisa Epstein, Project Manager
Greg Holden, Engineering Specialist

Agency: City of Port Orange, Engineering Division

Date Received: December 21, 2021

| Comment # | Comment | Response | Location |
|-----------|--|--|---|
| 1 | Suggest adding contact information to the cover of the report. | Included "prepared by HDR" on cover with office address. | Cover Page |
| 2 | Reference of the existing bus routes and bus stops would enhance the statement concerning connectivity. | The text has been edited accordingly to reflect this comment. | Executive Summary, Pg. iii |
| 3 | Suggest adding directional information to clarify two of the three specific areas. i. On the west side of Peninsula Drive from Dunlawton Avenue north to Coral Way... ii. On the west side of Peninsula Drive from Dunlawton Avenue south to Demotte Avenue... | The text has been edited accordingly to reflect this comment. | Executive Summary, Pg. iii |
| 4 | Suggest adding more information about the actual users from the surrounding area east of Peninsula which includes residents of Volusia County and Daytona Beach Shores as well as business employees and visitors to the beachside establishments. | The text has been edited accordingly to reflect this comment. | Section 2, Pg. 2 |
| 5 | Suggest adding directional information to clarify two of the three specific areas. See comment 2.b. | The text has been edited accordingly to reflect this comment. | Section 2, Pg. 2 |
| 6 | End of Paragraph 1, add "and Volusia County" as some of the property east of Peninsula Dr. is unincorporated. | The text has been edited accordingly to reflect this comment. | Section 3.1, Page 4: end of Paragraph 1 |
| 7 | Paragraph 3, the narrative should also mention that the existing sidewalk along Demotte Avenue extends to S. Atlantic Avenue and provides connection to the beach approach and residential area to the east. | The text has been edited accordingly to reflect this comment. | Section 3.1, Page 4: Paragraph 3 |
| 8 | Paragraph 3, at the end of sentence 2 add to "Port Orange maintained and Volusia County owned road." Determine whether County or Port Orange. | Confirmed with Volusia County that it is a City of Port Orange street. | Section 3.1, Page 4: Paragraph 3 |
| 9 | For the 3 paragraphs about the service roads and north-south road under the bridge, add ownership and maintenance detail such as FDOT owned, Port Orange leased and maintained. | The text has been edited accordingly to reflect this comment. | Section 3.1, Page 5 |
| 10 | Add the commercial development Millie's Landing (restaurant) which is under staff review, Dimucci Realty Company and the commercial developments east of Peninsula such as Starbucks, Atlantic Shores Management, CVS, Genovese's Pizza, etc. | The text has been edited accordingly to reflect this comment. | Section 3.1 General Description, Land Use |
| 11 | Please note the presence of other utilities such as Volusia County signalization and FDOT ITS. | The text has been edited accordingly to reflect this comment. | Section 3.3 Utilities |
| 12 | Check leaders to ensure they are pointing to correct elements (i.e., Proposed Ped Detector & Signal is pointing to grass area of median). | Leader lines updated. | Concept Plan, Appendix F |
| 13 | Should the entire intersection of Dunlawton Avenue and Peninsula Drive be included in the proposed work? It appears that the pedestrian pushbutton poles, crosswalks, and curb ramps may not be in compliance. | Concept has been updated to reflect ADA improvements on the northeast and southeast corners. Northeast corner shown with two separate pedestal poles for pedestrian push buttons. A single curb ramp is maintained but a 4' level landing has been added at the back of the ramp. The southeast corner is shown reconfigured with two ramps, a 4' level landing behind the back of the ramps, and two separate pedestal poles for pedestrian push buttons. | Concept Plan, Appendix F |
| 14 | For clarity, show pedestrian pushbutton poles separate from light poles if proposed. | Push button poles shown separately. | Concept Plan, Appendix F |

| | | | |
|----|--|---|--------------------------|
| 15 | Was there any consideration for wayfinding signage along the access road south of the bridge? Most people traveling to the area from the west side of the bridge use this access road to get to the businesses in the Down Under area. | A potential community wayfinding sign is contemplated in the SW corner of the Dunlawton/Peninsula intersection, which could include a sign oriented to face south on Peninsula. Once drivers are on the south-side service road, it was assumed they wouldn't need additional wayfinding since they would be at the Down Under area, so no additional signage was included for westbound traffic on the south-side service road. Note that specific destinations (e.g., restaurant names) cannot be included on community wayfinding signs. | Concept Plan, Appendix F |
| 16 | Label new driveway apron on north side of Peninsula Dr. Suggestion: Include Standard Construction Detail for driveway apron. | Noted in concept plan to construct driveway apron per FDOT Index 522-003. | Concept Plan, Appendix F |
| 17 | Label and dimension striping that is proposed as all striping looks the same in the plan. | Additional labels added for proposed striping. | Concept Plan, Appendix F |
| 18 | Clarify blue floodplain lines and which side is X, Shaded X, AE, etc. as the flood zone is not clear. | Added notes to the floodplain lines for the appropriate flood risk category. | Concept Plan, Appendix F |
| 19 | Show dry pond on north side of Dunlawton Ave southern service road so it's clearer that it's a dry pond not a ditch. | Will clarify dry pond in concept plans | Concept Plan, Appendix F |
| 20 | Suggestion: Show north-south sidewalk under the bridge differently so it is clear the sidewalk and bike rack are under the bridge. Suggestions include hatching the linework or circling the area with a detail call out. | Will clarify bike rack and sidewalk under bridge | Concept Plan, Appendix F |
| 21 | Propose more pedestrian safety signage and/or crosswalk pushbuttons for pedestrians on Dunlawton Ave northern service road. | A new stop sign is being added to concept for the westbound one-lane section, so the T-intersection will be an all-way stop intersection. No new signage is needed for the new crosswalk on the west leg of this intersection based on the conversion to all-way stop control. The existing crosswalk just east of this T-intersection already has pedestrian warning signs on both sides of the street and additional traffic control is not needed - however, it is recommended to refresh the crosswalk markings there. | Concept Plan, Appendix F |
| 22 | Confirm there are wetlands on west side of Down Under Restaurant as labeled. | GIS shapes showing wetlands and flood plain through this area | Concept Plan, Appendix F |
| 23 | Suggestion: Add directional curb ramps at Dunlawton Ave. and Peninsula Dr. intersection instead of shared. | Southeast corner has been modified to show two ramps. The geometry, curb radii, and angle of the crosswalks suggest a shared ramp is best in the southwest corner. No changes were proposed to the northeast corner ramp, although a 4' level landing is recommended to be added behind the ramp as well as separate push button pedestals poles. A second curb ramp is not practical in the northeast corner due to the directly adjacent curb inlet. | Concept Plan, Appendix F |

| FEASIBILITY STUDY/PENINSULA DR. SIDEWALK & WAYFINDING | | | |
|---|--|----------|----------|
| Comments By: | Junos Reed, Engineering & Construction Manager Gregg Marino, Engineering Intern | | |
| Agency: | City of Port Orange, Public Utilities Department | | |
| Date Received: | December 21, 2021 | | |
| Comment # | Comment | Response | Location |
| 1 | NONE | N/A | N/A |

| FEASIBILITY STUDY/PENINSULA DR. SIDEWALK & WAYFINDING | | | |
|---|---|----------|----------|
| Comments By: | Mick Neals, Solid Waste Manager Alex Popovic, Engineering Intern | | |
| Agency: | City of Port Orange, Public Works Department | | |
| Date Received: | December 21, 2021 | | |
| Comment # | Comment | Response | Location |
| 1 | NONE | N/A | N/A |

| FEASIBILITY STUDY/PENINSULA DR. SIDEWALK & WAYFINDING | | | |
|---|---|----------|----------|
| Comments By: | Linda Johnson, Right-of-Way Agent | | |
| Agency: | City of Port Orange, Public Utilities/Right-of-Way Department | | |
| Date Received: | December 21, 2021 | | |
| Comment # | Comment | Response | Location |
| 1 | NONE | N/A | N/A |