



Bicycle/Pedestrian Feasibility Study

Willow Run Boulevard Sidewalk
Final Report

City of Port Orange, Florida
January 9, 2019

Prepared For:



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1 Introduction

The River to Sea Transportation Planning Organization (R2CTPO) is evaluating the feasibility of extending the existing sidewalk along Willow Run Boulevard from Harms Way to Clyde Morris Boulevard, a distance of approximately 1,300 feet along the south side. The study also addresses improvements at the Clyde Morris Boulevard and Harms Way intersections, such as crosswalks, signage, lighting, and Americans with Disabilities Act (ADA) improvements. The work was determined by the City of Port Orange application to R2CTPO.

The main purpose of this sidewalk is to provide a safe route for people in the Winter Woods and Willow Run subdivisions (approximately 450 single-family homes) located on the south side of Willow Run Boulevard to access the nearby City Center Complex, which includes City Hall, YMCA, Lakeside Community Center, Palmer College, baseball/soccer fields, gymnasium, library, and park. The sidewalk would also provide a safer route for Silver Sands Middle School students who live in the subdivisions on the south side of Willow Run Boulevard that must walk along the unpaved shoulder on the south side of the street, or cross the street to access the existing 8-foot wide sidewalk on the north side of the street. Finally, the sidewalk would also provide enhanced connectivity to the existing sidewalks on Clyde Morris Boulevard and access to VOTRAN route #12 and stop at City Center.

While there is an existing 8-foot wide sidewalk on the north side of the street between Chardonnay Drive and Clyde Morris Boulevard, there is only a single one-block segment of sidewalk on the south side of the street. That segment is five (5) feet and is located close to the roadway, running from Tracy Drive to Harms Way over a canal.



In this photo looking west at Harms Way, the termination of the existing southern sidewalk and beginning of project limits are shown.

2 Project Purpose and Scope

Under the existing conditions, the limited length of sidewalk on the southern side of Willow Run Boulevard West of Harms Way is five (5) feet of width. The existing south side sidewalk begins at Tracy Drive and extends one block to Harms Way.

The purpose of this study is to determine the feasibility of providing a continuous five to eight foot wide sidewalk within the study limits from Harms Way to Clyde Morris Boulevard along the south side of Willow Run Boulevard that provides a safer route and enhanced connectivity for the residents on the south side of Willow Run Boulevard to access nearby destinations including the City Center and Silver Sands Middle School.

A field review was conducted during the study to collect data, evaluate corridor characteristics, help develop concept plans, and produce an opinion of probable costs. 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*

Mr. Larry Roberts - *City of Port Orange*

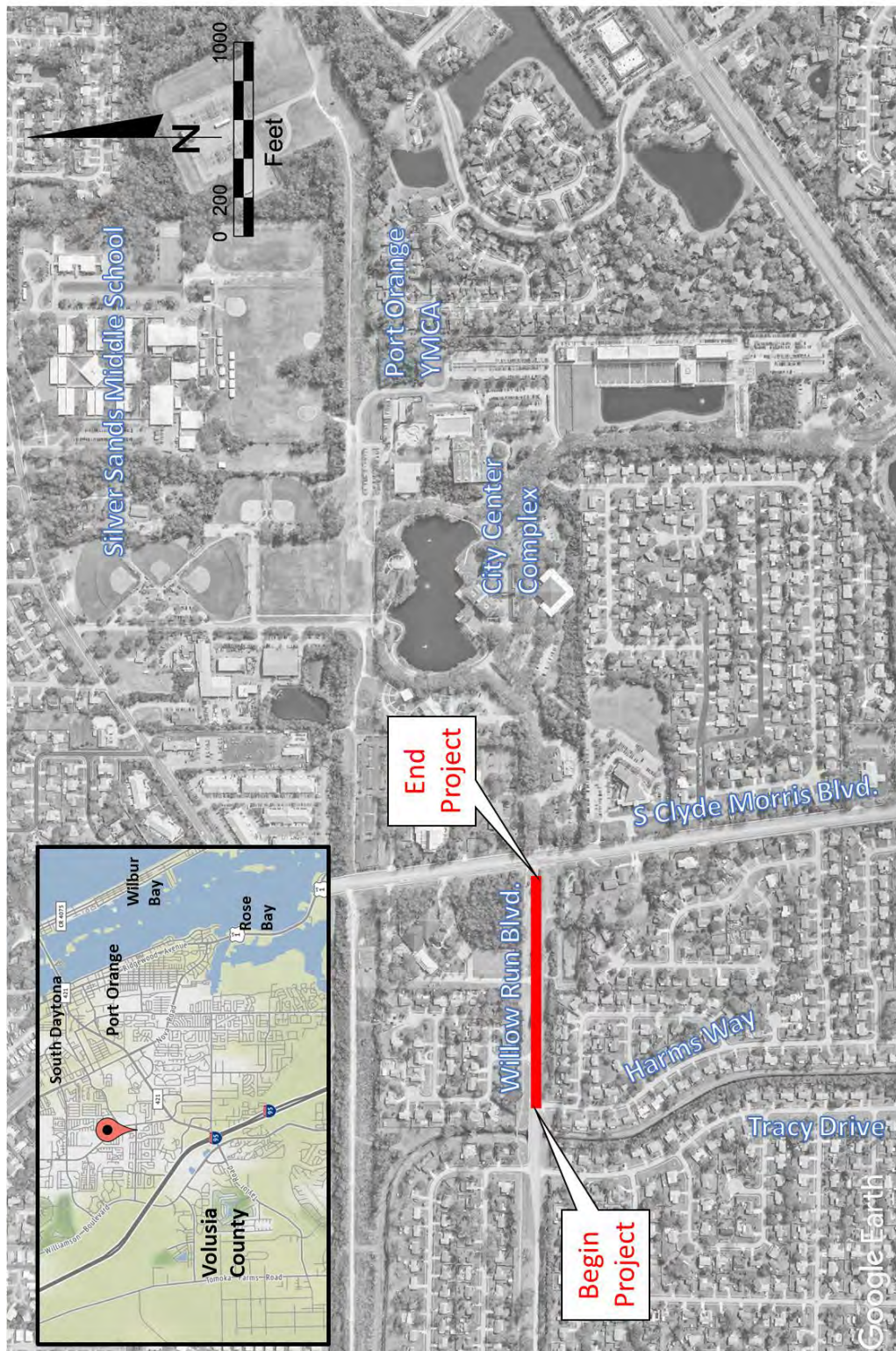
Mr. Alex Popovic - *City of Port Orange*

Mr. Amir Asgarinik – *Florida Department of Transportation (FDOT)*

Mr. Eric Brule – *Florida Department of Transportation (FDOT) / HNTB*

A project location map is supplied in Figure 2-1.

Figure 2-1. Project Location.



3 Existing Conditions

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

3.1 General Description

Willow Run Boulevard is located within the City of Port Orange, Florida. Existing sidewalk spans the length of the study segment on the northern side at a width of eight (8) feet. The only segment of existing sidewalk on the south side is five (5) feet in width from Tracy Drive to Harms Way.

No bus stops exist on the study corridor for VOTRAN, the Volusia County Public Transit System. During the design and permitting phase, coordination with VOTRAN for any planned routes that may interact with the study area is recommended.

A field review was conducted by the project team on September 28, 2018. During the field review, the team inspected existing sidewalk conditions, land use, and potential obstacles related to a proposed sidewalk including utilities, drainage structures, and roadside ditches. Existing conditions and observations, including photographs, were documented using a mobile geographic information services (GIS) data collection app. A link to the data collected via a publicly available GIS interface is provided in the References section of the report. Additionally, an inventory of the observations and photos is included in Appendix G.

Most of Willow Run Boulevard within the study segment is a four-lane divided roadway, although in the area near Harms Way the road transitions to a two-lane undivided roadway to the west. There is one signalized intersection along the corridor at Clyde Morris Boulevard. In the recent past, the City installed an exclusive eastbound right turn lane at this intersection. The posted speed limit on the study corridor is 35 MPH.

Land uses along the corridor are mostly residential with professional and public land use adjacent to Clyde Morris Boulevard. Establishments along the corridor include:

- Port Orange Presbyterian Church
- Makary Medical Center

A total of two (2) driveways exist along the corridor on the south side adjacent to the proposed sidewalk. One driveway is paved, leading into the Makary Medical Center. The second is an unpaved maintenance driveway and is for county access to a storm water pond. The paved driveway appears to meet ADA requirements in terms of the existing cross slope. The proposed sidewalk will be required to have a cross slope of 2% or less. Existing landscape and trees within the ROW will be considered for removal as required to accommodate the five to eight-foot wide sidewalk. This would include the removal of small trees and bushes.

3.2 Right-of-Way

Parcel boundaries were obtained from Volusia County's GIS website and used for apparent ROW width along the study corridor. Willow Run Boulevard is a municipal road maintained by the City of Port Orange, Florida running through the central portion of the community.

3.3 Utilities

The project team completed a utilities assessment on the study corridor. Overhead power lines exist along the south side of Willow Run Boulevard behind trees along the corridor's extent. The distance of utility poles from the pavement edge varies from approximately 50 feet to 75 feet. 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 Port Orange Florida: Water/Sewer
- Florida Power & Light – Volusia: Electric
- AT-&-T Distribution: Telephone
- Charter Communications: CATV

The Sunshine One Call Ticket is supplied in Appendix F.

3.4 Drainage and Permitting

The field assessment of the study area found the following related to existing drainage:

- From Harms Way to 220 feet east of Harms Way, an existing treatment swale is located approximately 30 feet behind curb and gutter.
- The remainder of the corridor's drainage is defined by roadside swales that vary in depth relative to the roadway. The roadside swales to the east of the medical center driveway are well defined.

Curb and gutter exists along the beginning and ending portions of the corridor. The western side has Type F curb and gutter from Harms Way until reaching a drainage inlet that drains to the treatment swale, approximately 220 feet east of Harms Way. From there, valley gutter exists for a short



Trench to the east of Harms Way (facing east)

distance. The roadway then continues without curb and gutter until reaching the medical center driveway where a concrete ribbon is introduced, lining both sides of the entrance and continuing east to Clyde Morris Boulevard. The eastern end of the corridor at Clyde Morris Boulevard has Type F curb and gutter.

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 area of interest is from Harms Way to the storm water maintenance driveway which is within a 500 year flood area. 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 C.

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. There is no anticipated impact to wetlands.

This sidewalk project is anticipated to be exempt from permitting under 62-330.051(10) (b), F.A.C. for having a width of eight (8) 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

3.5 Soils

The sidewalk subsurface consists of the soil types Daytona Sand, Immokalee Sand, Myakka Sand, and Satellite Sand. The Daytona Sand is a moderately well drained sand and is part of the Hydrologic Soil Group A. The Immokalee Sand is a poorly drained sand and is part of the Hydrologic Soil Group B/D. The Myakka Sand is a poorly drained fine sand and is part of the Hydrologic Soil Group A/D. The Satellite Sand is a somewhat poorly drained sand and is part of the Hydrologic Soil Group A/D. A soil map is provided in Appendix D. The map was prepared using GIS data from the USDA Natural Resources Conservation Services (NRCS).

3.6 Environmental

The Willow Run Boulevard sidewalk project is located in a mix of residential, professional, and government/public land use. The first half of the corridor from Harms Way to approximately 600 feet east is residential land use on the south side of Willow Run Boulevard. The remaining land use is public and professional.

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. There are no known bald eagle nests within 600 feet of the project corridor. 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 reevaluated.

3.7 Lighting

A qualitative lighting evaluation was conducted by the project team on September 28, 2018 at approximately 8 pm during dark conditions at the Clyde Morris Boulevard intersection. No lighting measurements were taken.

The northwest corner's lighting is mounted on a utility pole, offset from the roadway. This provides lighting on the corner for pedestrians. The northeast corner has no existing lighting and makes it difficult to see pedestrians. Lighting is provided on a light post on the eastern leg median. The southeast corner has lighting from a standalone post by the crosswalks. The southwest corner has a light affixed to a utility pole which was observed to flicker on and off. Lighting at this corner is also provided by the light post on the western leg median. Out of the four existing crosswalks, the western leg and southern leg have the best relative lighting for pedestrians.

It is recommended that in the short term, all lights that are currently not functioning properly, should be repaired by the maintaining agency.

4 Sidewalk Concept Plan

The following section outlines the concept plans for the corridor which are attached in Appendix A. Typical Sections are located in Appendix B.

4.1 Sidewalk, Driveways, and Cross Streets

This section reviews the concept plans for the sidewalks, cross streets, and driveways. Criteria from the Florida Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Florida Greenbook) were followed for minimum standards and design criteria.

The Florida Greenbook (Chapter 8, Section C.2.a) states that new sidewalks should be placed as far from the roadway as practical in the following sequence of desirability:

- 1) As near to the ROW line as possible. (ideally, three (3) feet of width should be provided behind the sidewalk for above ground utilities)
- 2) Outside of clear zone. (Florida Greenbook Chapter 3, Section 7.f.1, Table 3-15)
Based on the majority of the study corridor having a flush shoulder and the roadway being classified as an Urban Collector, the minimum clear zone width is 10 feet, based on Table 3-15.
- 3) Sufficiently off-set from the curb to allow for the placement of street trees, signs, utilities, parking meters, benches or other furniture outside of the sidewalk in urban locations (e.g. town center, business, or entertainment district).
- 4) Five (5) feet from the shoulder point on flush shoulder roadways.
- 5) At the grass shoulder point of flush shoulder roadways.

The concept plans in Appendix A meet the Florida Greenbook recommendations. In addition to the proposed sidewalks, the following improvements are proposed for Harms Way to Clyde Morris Boulevard:

- Overbuild Harms Way at crosswalk to meet ADA cross slope requirements
- Improve sight lines and stop sign location at medical business driveway



A portion of the corridor without curb.
Willow Run Blvd, facing east

Consideration was given for placement of the proposed sidewalk on the backside of the existing drainage ditch. This was not recommended due to Crime Prevention Through Environmental Design (CPTED) concerns with a sidewalk facility that was more isolated with poorer visibility from the adjacent roadway.

4.2 Drainage

The following drainage improvement is proposed for Willow Run Boulevard:

- Regrade existing roadside swales from 330 feet east of Harms Way to Clyde Morris Boulevard to accommodate proposed sidewalk, maintain drainage conveyance, and compensate for negligible floodplain impacts.

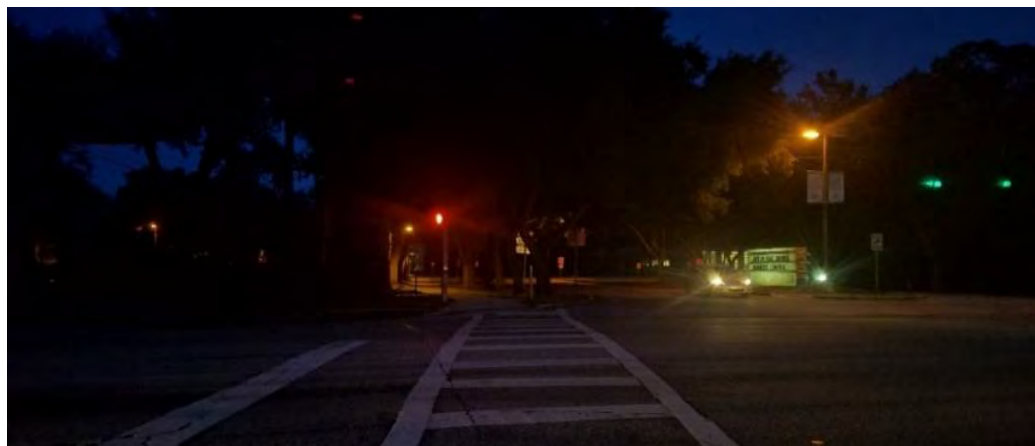
4.3 Lighting and Signalization

The following lighting and signalization improvements are proposed for the Willow Run Boulevard at Clyde Morris Boulevard intersection:

- Replace existing pedestrian push buttons with individual push button posts adjacent to each crosswalk approach on all four corners and remove all existing pedestrian push buttons. The City of Port Orange confirmed that installation can be done entirely on public property.
- Further evaluate existing light conditions to determine if lighting levels adequately meet current standards. Recent FDOT changes related to intersection lighting are not reflected in the latest edition of the Florida Greenbook, and as such, it is recommended that consideration be given to retrofitting the Willow Run Boulevard / Clyde Morris Boulevard intersection to meet the intersection lighting requirements of the FDOT Design Manual (FDM) in order to provide optimal nighttime visibility and safety. The specific lighting changes necessary to meet the current FDOT lighting standards has not been determined as part of the qualitative visual assessment performed, however, an assumption of a complete upgrade of intersection lighting to reflect FDM standards are included in the opinion of probable cost. Part of the southeast and northeast corners of the intersection are on a parcel owned by The City of Port Orange.



Existing Ped Push Buttons - SW corner, facing southeast



Existing light conditions at night are poor (northeast corner at Clyde Morris Blvd facing east)

4.4 Utilities

The concept plans in Appendix A identify utilities visible during the field visit along the south side of Willow Run Boulevard.

5 Financial Feasibility

This section outlines the preliminary opinion of probable cost for the design and construction of all proposed sidewalk improvements along the Willow Run corridor. For estimating the probable cost, an eight foot wide sidewalk was assumed which is also reflected in the concept plans in Appendix A, however, the constructed sidewalk can be anywhere from five to eight feet in width. The opinion of probable cost, item numbers, and units of measurement are based on FDOT's Basis of Estimates Manual. 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. However, no utility relocations are anticipated.

Unit prices for pay items are determined from historical average costs provided through FDOT. Note that item number 0522-1 (4-inch depth sidewalks reinforced with fiberglass rebar) was replaced with an alternate cost, different from FDOT historical averages, to reflect City of Port Orange historical bid amounts. The smaller size of this project is reflected by some inflation given to costs that would differ for larger projects. 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 2037 is provided in Appendix E.

Table 5-1 summarizes the estimates for the corridor and Table 5-2 summarizes inflation for the corridor through 2022. The total estimated opinion of probable cost of the project is \$600,000.

Table 5-1. Willow Run Boulevard Quantities and Opinion of Probable Cost.

PRELIMINARY OPINION OF PROBABLE COST FOR CONSTRUCTION					
WILLOW RUN BOULEVARD SIDEWALK PROJECT					
FDOT Pay Item No.	Description	Unlt	Unlt Cost	Quantity	Cost
0101 1	MOBILIZATION	LS	15%	1	\$ 47,421.77
0102 1	MAINTENANCE OF TRAFFIC	LS	10%	1	\$ 31,614.52
0104 10 3	SEDIMENT BARRIER	LF	\$ 2.00	1,300	\$ 2,600.00
0104 18	INLET PROTECTION SYSTEM	EA	\$ 136.00	6	\$ 816.00
0110 1 1	CLEARING & GRUBBING	AC	\$ 12,000.00	1.2	\$ 14,400.00
0120 1	REGULAR EXCAVATION	CY	\$ 5.00	1,500	\$ 7,500.00
0120 2 2	BORROW EXCAVATION, TRUCK MEASURE	CY	\$ 7.00	1,500	\$ 10,500.00
0327 70 1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	SY	\$ 10.00	210	\$ 2,100.00
0337 7 80	ASPH CONC FC, TRAFFIC B, FC-9.5, PG 76-22	TN	\$ 225.00	35	\$ 7,796.25
0425 5	MANHOLE, ADJUST	EA	\$ 599.00	1	\$ 599.00
0436 1 1	TRENCH DRAIN, STANDARD	LF	\$ 234.00	30	\$ 7,020.00
0520 3	VALLEY GUTTER- CONCRETE	LF	\$ 30.00	160	\$ 4,800.00
0522 1 - ALTERNATE	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	SY	\$ 52.00	1,200	\$ 62,400.00
0522 2	CONCRETE SIDEWALK AND DRIVEWAYS, 6"	SY	\$ 50.00	13	\$ 666.67
0527 2	DETECTABLE WARNINGS	SF	\$ 30.00	192	\$ 5,760.00
0570 1 2	PERFORMANCE TURF, SOD	SY	\$ 3.00	4,600	\$ 13,800.00
0630 2 1 1	CONDUIT, F&I, OPENTRENCH	LF	\$ 11.99	575	\$ 6,894.25
0630 2 1 2	CONDUIT, F&I, DIRECTIONAL BORE	LF	\$ 26.60	280	\$ 7,448.00
0630 2 1 4	CONDUIT, F&I, ABOVEGROUND	LF	\$ 27.00	120	\$ 3,240.00
0632 7 1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	PI	\$ 6,902.00	1	\$ 6,902.00
0635 2 1 1	PULL & SPLICE BOX, F&I, 13" x 24"	EA	\$ 793.92	18	\$ 14,290.56
0639 1 1 2 2	ELECTRICAL POWER SRV, F&I, UG, PUR CONT	AS	\$ 1,611.20	1	\$ 1,611.20
0639 2 1	ELECTRICAL SERVICE WIRE, F&I	LF	\$ 4.97	150	\$ 745.50
0639 3 1 1	ELEC SERV DISCON, F&I, POLE MNT	EA	\$ 1,298.12	1	\$ 1,298.12
0639 6 1	ELECTRICAL POWER SERVICE- TRANSF, F&I	EA	\$ 1,460.10	1	\$ 1,460.10
0641 2 1 1	PREST CNC POLE, F&I, TYP P-II, PEDESTAL	EA	\$ 1,310.81	1	\$ 1,310.81
0641 2 1 2	PREST CNC POLE, F&I, TYP P-II SRV POLE	EA	\$ 462.92	1	\$ 462.92
0641 2 60	PREST CNC POLE, REMOVE	EA	\$ 490.00	3	\$ 1,470.00
0646 1 1 1	ALUMINUM SIGNALS POLE, PEDESTAL	EA	\$ 1,324.00	8	\$ 10,592.00
0646 1 60	ALUMINUM SIGNALS POLE, REMOVE	EA	\$ 220.00	1	\$ 220.00
0653 1 1 1	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	AS	\$ 681.00	8	\$ 5,448.00
0653 1 60	PEDESTRIAN SIGNAL, REMOVE	AS	\$ 72.00	2	\$ 144.00
0665 1 1 2	PEDESTRIAN DETECTOR, F&I, ACCESSIBLE	EA	\$ 1,496.00	8	\$ 11,968.00
0665 1 60	PEDESTRIAN DETECTOR, REMOVE	EA	\$ 48.00	2	\$ 96.00
0700 1 50	SINGLE POST SIGN, RELOCATE	AS	\$ 300.00	2	\$ 600.00
0711 1 1 1 2 3	THERMOPLASTIC, STD, WHITE, SOLID, 12"	LF	\$ 4.00	200	\$ 800.00
0711 1 1 1 2 5**	THERMOPLASTIC, STD, WHITE, SOLID, 24"	LF	\$ 7.50	250	\$ 1,875.00
0715 1 1 2	LIGHTING CONDUCTORS, F&I, INSUL, NO.8-6	LF	\$ 4.52	2,925	\$ 13,221.00
0715 4 1 3	LIGHT POLE COMPLETE, F&I- STD, 40'	EA	\$ 5,667.97	12	\$ 68,015.64
0715 7 1 1	LOAD CENTER, F&I, SECONDARY VOLTAGE	EA	\$ 8,576.10	1	\$ 8,576.10
0715500 1	POLE CABLE DIST SYS, CONVENTIONAL	EA	\$ 558.17	12	\$ 6,698.04
				SUBTOTAL	\$ 395,181.45
				CEI (15%)	\$ 59,277.22
				ENGINEERING AND DESIGN (30%)	\$ 118,554.43
				SURVEY AND ROW MAPPING (\$0.35 per sq. ft)	\$ 26,250.00
				TOTAL	\$ 599,263.10
ROUNDED TOTAL *					\$ 600,000

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

Table 5-2. Willow Run Boulevard FDOT Inflated-Adjusted Estimate.

FDOT Inflation-Adjusted Estimate	Inflation Factor	PDC Multiplier	Adjusted Cost Estimate
Year 1 Inflation-Adjusted Estimate (2020)	2.60%	1.026	\$ 615,600.00
Year 2 Inflation-Adjusted Estimate (2021)	2.50%	1.052	\$ 630,990.00
Year 3 Inflation-Adjusted Estimate (2022)	2.70%	1.080	\$ 648,026.73

6 Conclusions

The purpose of this study was to evaluate the feasibility of extending the sidewalk along the south side of Willow Run Boulevard from Harms Way to Clyde Morris Boulevard.

The proposed sidewalk 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 driveway turnouts, lighting, and ADA improvements at the Clyde Morris Boulevard intersection are recommended along the study corridor to meet ADA and Florida bicycle and pedestrian guidelines.

Based on the results of this study, it has been determined that a proposed five to eight-foot wide sidewalk from Harms Way to Clyde Morris Boulevard is feasible.

7 References

ArcGIS ESRI Base maps public interface

2018 <http://hdr.maps.arcgis.com>

FDOT 2017/2018 Basis of Estimates Manual

2018 <http://www.fdot.gov/programmanagement/Estimates/BasisofEstimates/>

FEMA Maps Service Center (FIRM Maps)

2018 <https://msc.fema.gov/portal/search>

Florida Department of Transportation Design Manual (FDM)

2018 <http://www.fdot.gov/roadway/fdm/current/2018FDM215RoadsideSafety.pdf>

Florida Fish and Wildlife Conservation Commission. Bald Eagle Nest Locator.

2018 <https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx>

Florida Fish and Wildlife Conservation Commission. Bear Management Units.

2018 <http://myfwc.com/wildlifehabitats/managed/bear/bmu/>

Florida Natural Areas Inventory (FNAI) Florida Biodiversity Matrix

2018 <http://www.fnai.org/biodiversitymatrix/index.html>

Florida Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways. (Florida Greenbook)

2018 <http://www.fdot.gov/roadway/floridagreenbook/2016FloridaGreenbookFINAL.pdf>

National Resources Conservation Service. Web Soil Survey.

2018 <https://websoilsurvey.nrcs.usda.gov/app/>

River to Sea Transportation Planning Organization

2018 <https://www.r2ctpo.org/>

City of Port Orange

2018 <https://www.port-orange.org/>

Volusia County Code of Ordinances

2018 https://library.municode.com/fl/volusia_county/

Volusia County Property Appraiser's Land Mapping System

2018 <https://vcpa.vcgov.org/searches>

Port Orange Zoning

2018 <https://www.port-orange.org/Zoning-PDF>

Appendix A

Concept Plan



MATCHLINE SHEET 2

NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED. PROPOSED SIDEWALK MAY BE FIVE TO EIGHT FEET WIDE, SHOWN AS EIGHT FEET.

LEGEND

- | | | |
|-----------------------|-------------------------|-------------------------------|
| EXISTING DRAIN | EXISTING LIMIT OF DITCH | EXISTING LIMIT OF FLOODPLAINS |
| EXISTING UTILITY POLE | EXISTING TREE LINE | EXISTING LIMIT OF WETLANDS |
| EXISTING SIGN | EXISTING LIGHT POLE | EXISTING DRAINAGE PIPE |



**CITY OF PORT ORANGE
WILLOW RUN BOULEVARD
SIDEWALK CONCEPT PLANS**





NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED. PROPOSED SIDEWALK MAY BE FIVE TO EIGHT FEET WIDE, SHOWN AS EIGHT FEET.

LEGEND

- | | | |
|--------------------------|-------------------------|------------------------------|
| EXISTING MANHOLE | EXISTING LIMIT OF DITCH | EXISTING LIGHT POLE |
| EXISTING VALVE | EXISTING TREE LINE | EXISTING LIMIT OF WETLANDS |
| EXISTING SIGN | EXISTING UTILITY POLE | EXISTING INLET |
| EXISTING PED PUSH BUTTON | EXISTING DRAINAGE PIPE | PROPOSED PEDESTRIAN PEDESTAL |

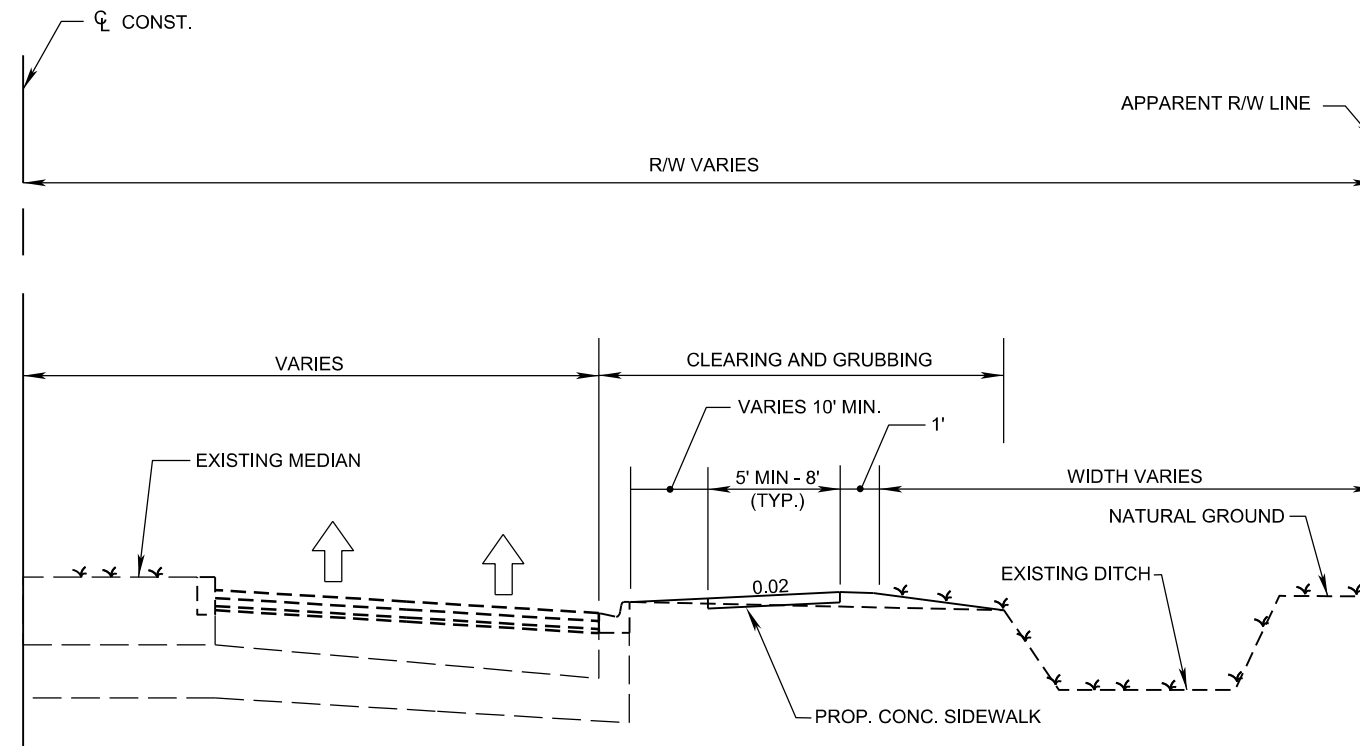


**CITY OF PORT ORANGE
WILLOW RUN BOULEVARD
SIDEWALK CONCEPT PLANS**



Appendix B

Typical Section



**TYPICAL SECTION
WILLOW RUN BOULEVARD
HARMS WAY TO WILLOW RUN DRIVE
PROPOSED SIDEWALK**

NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED. PROPOSED SIDEWALK MAY BE FIVE TO EIGHT FEET WIDE, SHOWN AS EIGHT FEET.

LEGEND



**CITY OF PORT ORANGE
WILLOW RUN BOULEVARD
SIDEWALK CONCEPT PLANS**



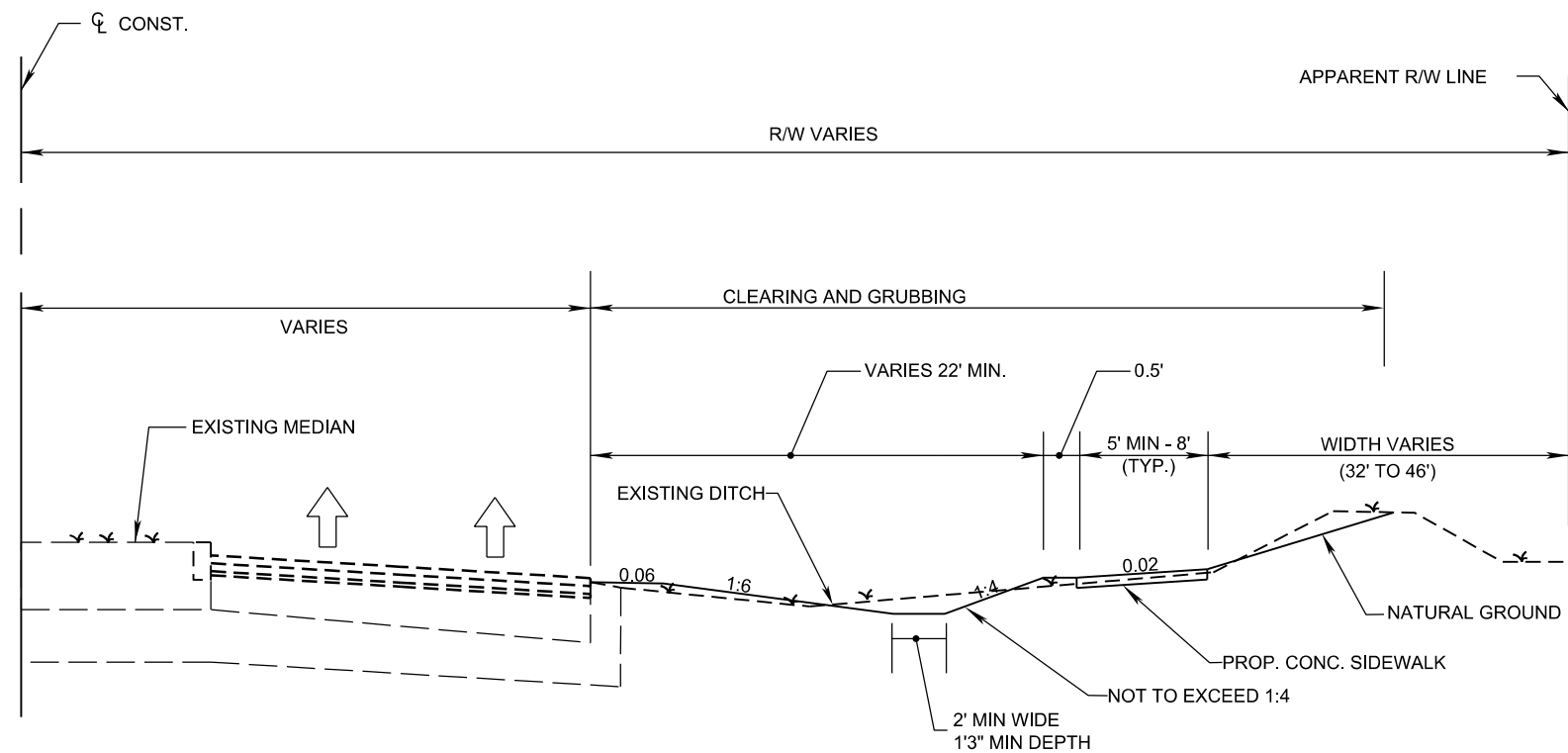
SHEET
B-1

\$USERS

\$DATES

\$TIMES

\$FILES



TYPICAL SECTION
WILLOW RUN BOULEVARD
WILLOW RUN DRIVE TO CLYDE MORRIS BOULEVARD
PROPOSED SIDEWALK

NOTE: PARCEL LINES REPRESENT "APPARENT" RIGHT-OF-WAY. ACTUAL RIGHT-OF-WAY HAS NOT BEEN VERIFIED. PROPOSED SIDEWALK MAY BE FIVE TO EIGHT FEET WIDE, SHOWN AS EIGHT FEET.

LEGEND



CITY OF PORT ORANGE
WILLOW RUN BOULEVARD
SIDEWALK CONCEPT PLANS



SHEET
B-2

\$USERS

\$DATES

\$TIMES

\$FILES

Appendix C

FEMA FIRM Map

National Flood Hazard Layer FIRMette



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 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		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.

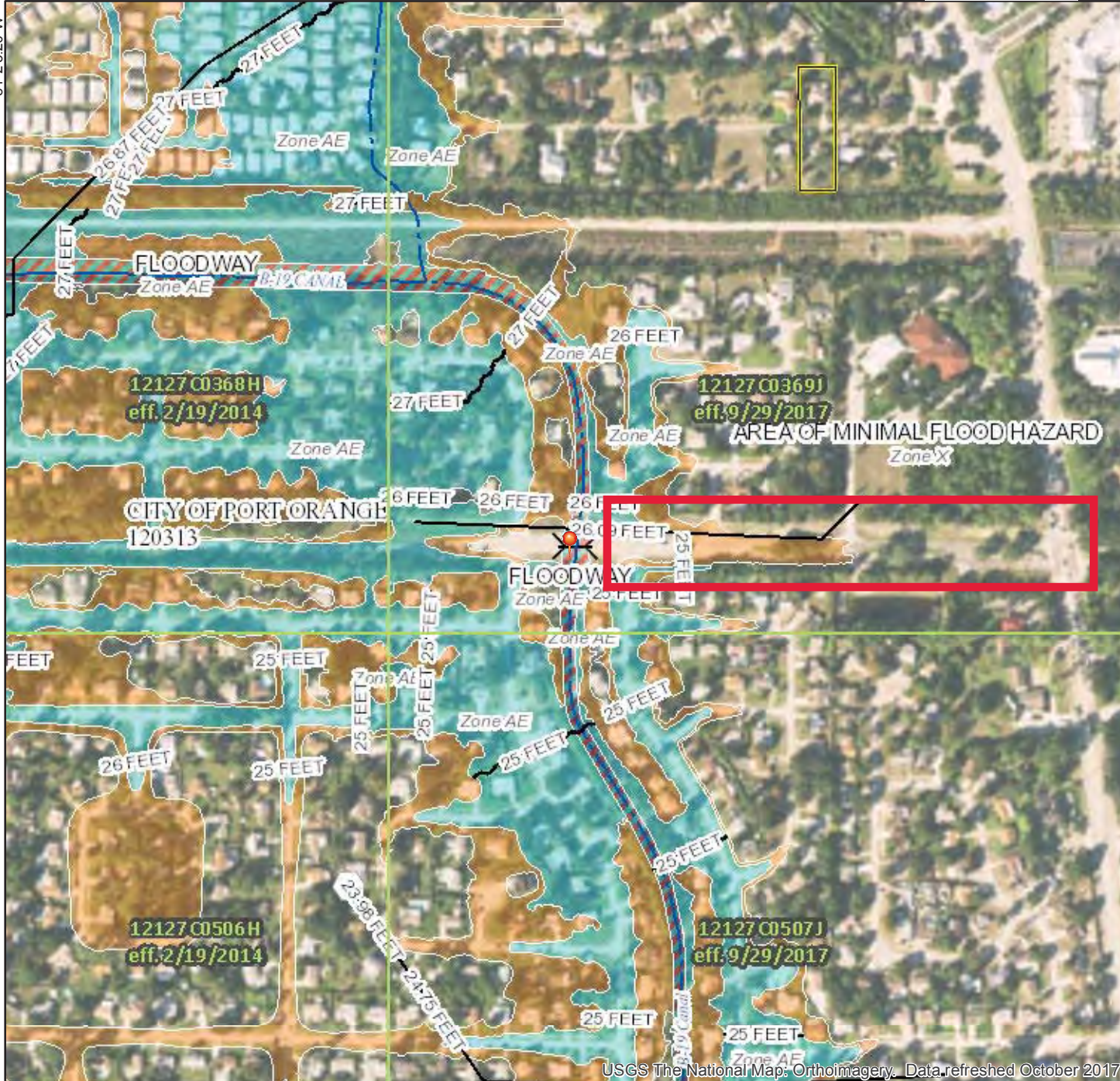
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **9/28/2018 at 3:26:40 PM** 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.

29°7'48.33"N

81°2'5.20"W



USGS The National Map: Orthoimagery. Data refreshed October 2017.

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

29°7'16.91"N

81°12'7.74"W

Appendix D

NRCS Soil Survey Map

Soil Map—Volusia County, Florida




Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/28/2018
Page 1 of 3


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 17, Sep 13, 2018

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

Date(s) aerial images were photographed: Dec 12, 2013—Dec 18, 2013

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
17	Daytona sand, 0 to 5 percent slopes	2.0	38.7%
29	Immokalee sand	0.5	9.6%
32	Myakka-Myakka, wet, fine sands, 0 to 2 percent slopes	1.4	27.1%
57	Satellite sand, 0 to 2 percent slopes	1.2	24.7%
Totals for Area of Interest		5.0	100.0%

Appendix E

FDOT Inflation Factors



Inflation Factors

This “*Transportation Costs*” report is one of a series of reports 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 Year Of Expenditure costs (YOE) or vice versa. This report is updated annually when the factors are posted within 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 2017 dollars.

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. 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 Other Non-residential Construction, is available from the Bureau of Labor Statistics (BLS). It is not exclusively a highway construction index, but it is the best available national estimate of changes in highway costs from month to month.



FLORIDA DEPARTMENT OF TRANSPORTATION

TRANSPORTATION COSTS REPORTS

Work Program Highway Construction Cost Inflation Factors

Fiscal Year	Inflation Factor	PDC Multiplier
2017	Base	1.000
2018	2.7%	1.027
2019	2.8%	1.056
2020	2.6%	1.083
2021	2.5%	1.110
2022	2.7%	1.140
2023	2.8%	1.172
2024	2.9%	1.206
2025	3.0%	1.242
2026	3.1%	1.281
2027	3.2%	1.322
2028	3.3%	1.365
2029	3.3%	1.410
2030	3.3%	1.457
2031	3.3%	1.505
2032	3.3%	1.555
2033	3.3%	1.606
2034	3.3%	1.659
2035	3.3%	1.714
2036	3.3%	1.770
2037	3.3%	1.829
Source: Office of Work Program and Budget, (Fiscal Year 2017 is July 1, 2016 to June 30, 2017)		

Advisory Inflation Factors For Previous Years

Another “*Transportation Costs*” report covers highway construction cost inflation for previous years. “*Advisory Inflation Factors For Previous Years (1987-2015)*” provides Present Day Cost (PDC) multipliers that enable project cost estimates from previous years to be updated to FY 2015. This report is updated about once a year. For the table and text providing this information, please go to <http://www.dot.state.fl.us/planning/policy/costs/RetroCostInflation.pdf>.

Appendix F

Sunshine One Call Ticket

DESIGN TICKET ONLY - NO LOCATE NEEDED
Ticket : 262806603 Rev:000 Taken: 09/19/18 11:43ET

State: FL Cnty: VOLUSIA GeoPlace: PORT ORANGE
CallerPlace: PORT ORANGE
Subdivision:

Address : 1100 to 1199
Street : WILLOW RUN BLVD

Locat: DESIGN TICKET ONLY, NO LOCATE NEEDED
:

Remarks : DESIGN TICKET ONLY - NO LOCATE NEEDED
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 : 2907B8101A 2907B8101B 2907B8101C

Work date: 09/19/18 Time: 11:47ET Hrs notc: 000 Category: 6 Duration: 00 HRS
Due Date : 09/21/18 Time: 23:59ET Exp Date : 10/19/18 Time: 23:59ET
Work type: UNDERGROUND CONSTRUCTION Boring: N White-lined: N
Ug/Oh/Both: U Machinery: N Depth: 3 Permits: N N/A
Done for : VOLUSIA COUNTY

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
BestTime: 8-5
Mobile : 941-342-2711
Fax : 941-342-6589
Email : JASON.STARR@HDRINC.COM

Submitted: 09/19/18 11:43ET Oper: JAS Chan: WEB
Mbrs : CP0562 FPLVOL SB2186 SBF02 TCI377

Service Area Code	Service Area Name	Contact	Phone Numbers	Utility Type
CPO562	CITY OF PORT ORANGE FLORIDA	KENNY HO	Day: (386) 506 - 5754	RECLAIMED WATER, WATER, SEWER
FPLVOL	FLORIDA POWER & LIGHT--VOLUSIA	JOEL BRAY	Day: (386) 586 - 6403	ELECTRIC
SBF02	A T & T/ DISTRIBUTION	DINO FARRUGGIO	Day: (561) 997 - 0240	TELEPHONE
TCI377	CHARTER COMMUNICATIONS	KEVIN GALBREATH	Day: (813) 684 - 6100	CATV

Appendix G

Field Observations Inventory



Feature ID: 1

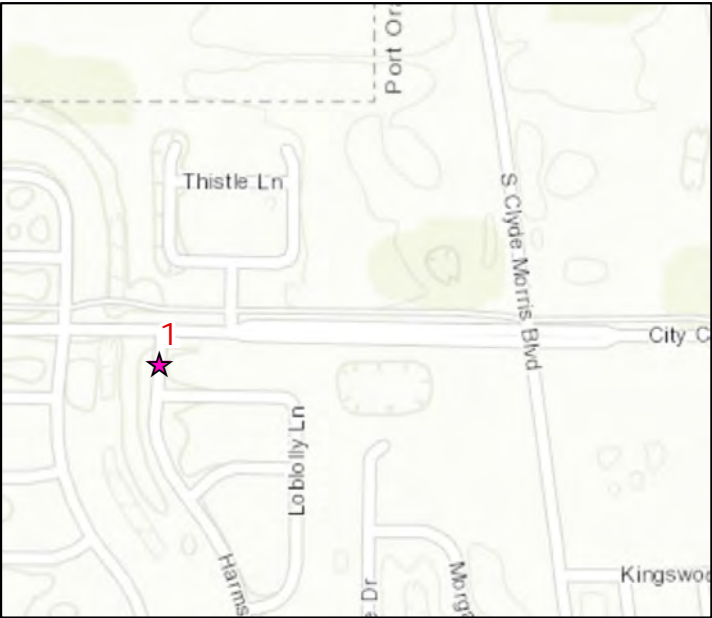
Feature Type: Other - Misc

Comment:

Lat: 29.125383 **Long:** -81.029037

<http://maps.google.com/maps?q=29.1253826299873,-81.0290369232879>

● ADA - Safety	◆ Lighting
★ Cultural	◇ Traffic Control
■ Damaged Infrastructure	■ User
▲ Drainage	⬛ Utilities
● Environmental	★ Other - Misc





Feature ID: 2

Feature Type: ADA - Safety

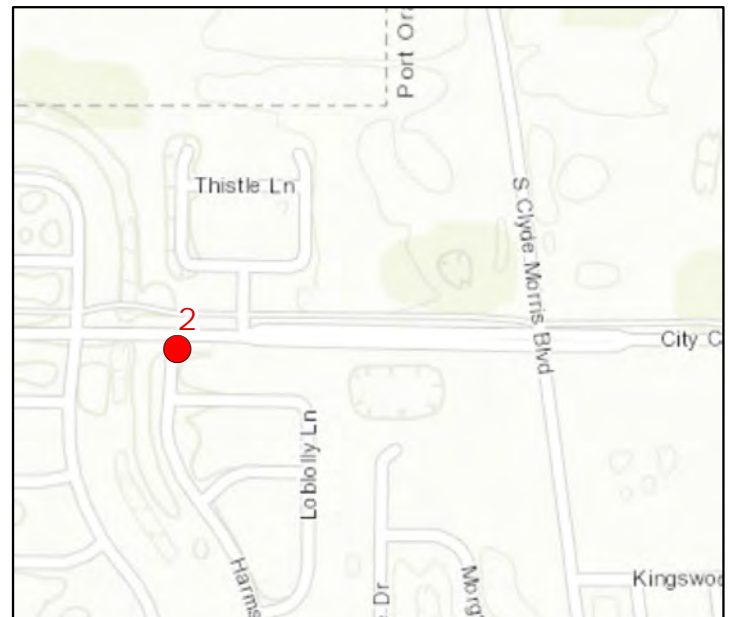
Comment: Non compliant ADA cross slope, detectable warnings

Lat: 29.125565

Long: -81.028974

<http://maps.google.com/maps?q=29.1255653706765,-81.0289735417094>

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





Feature ID: 3

Feature Type: Utilities

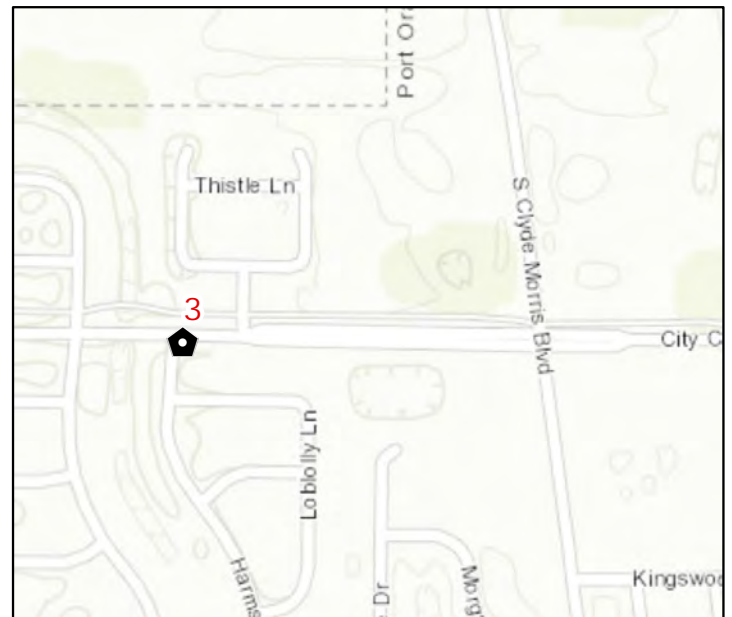
Comment:

Lat: 29.125639

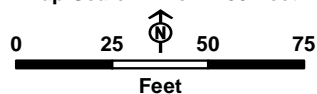
Long: -81.028908

<http://maps.google.com/maps?q=29.1256393186612,-81.028907983481>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 4

Feature Type: Drainage

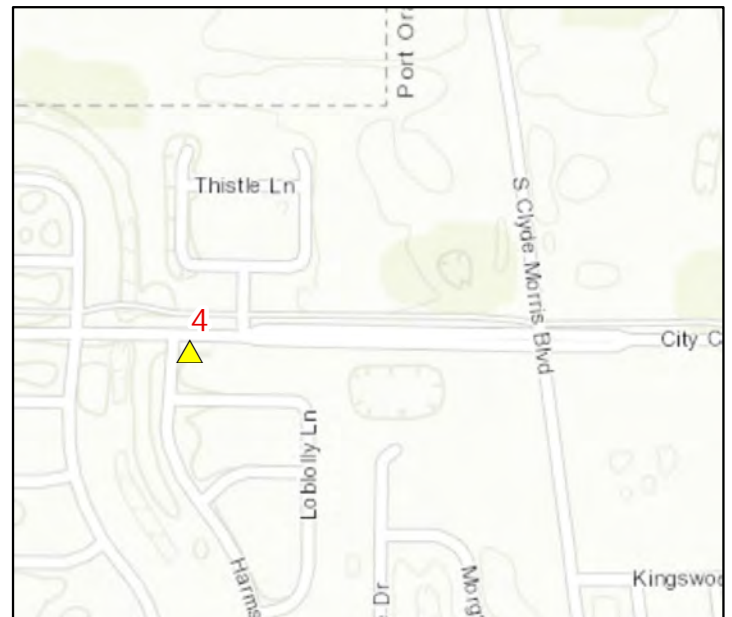
Comment:

Lat: 29.125549

Long: -81.028839

<http://maps.google.com/maps?q=29.1255489088464,-81.0288392051696>

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





Feature ID: 5

Feature Type: Drainage

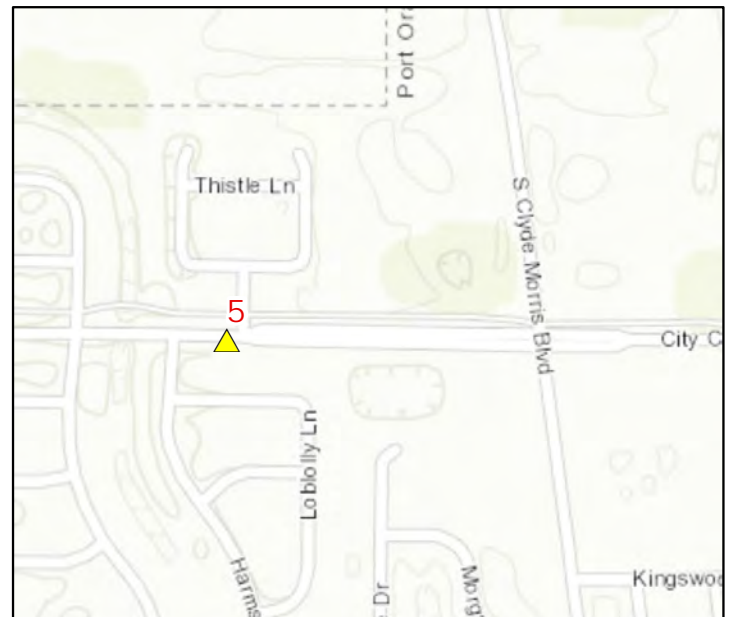
Comment:

Lat: 29.125646

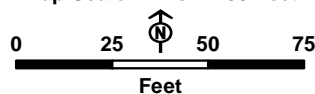
Long: -81.028438

<http://maps.google.com/maps?q=29.1256463227858,-81.0284382966371>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 6

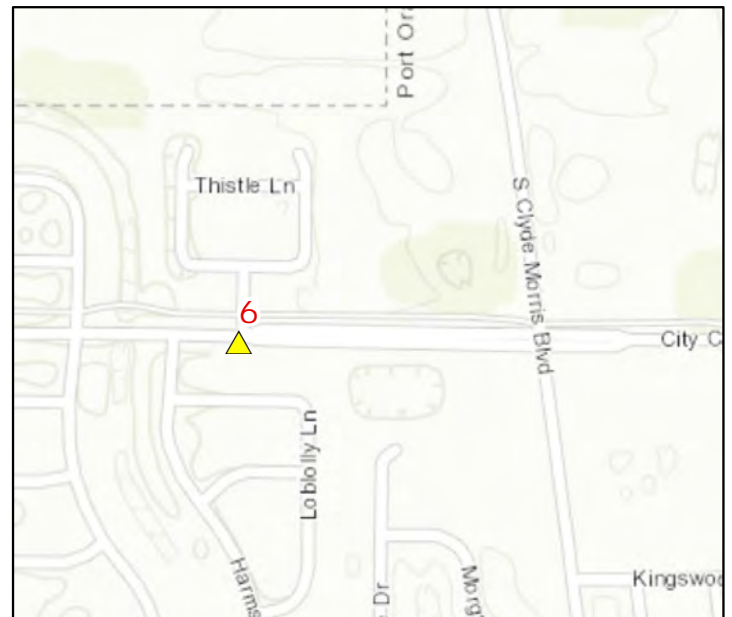
Feature Type: Drainage

Comment:

Lat: 29.125635 **Long:** -81.028299

<http://maps.google.com/maps?q=29.1256347408937,-81.028298830287>

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



Map Scale: 1 Inch = 50 Feet

0 25 50 75

Feet

Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 7

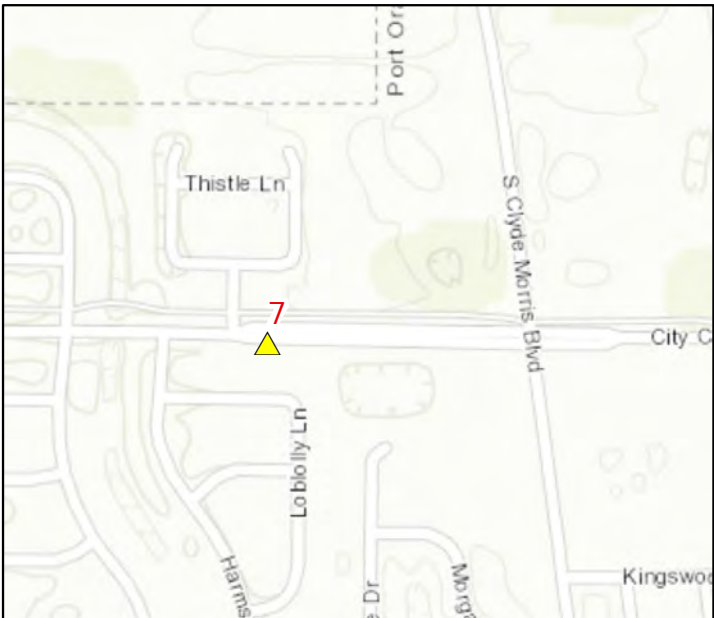
Feature Type: Drainage

Comment: End valley gutter

Lat: 29.125603 **Long:** -81.027887

<http://maps.google.com/maps?q=29.1256032401905,-81.0278865935804>

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





Feature ID: 8

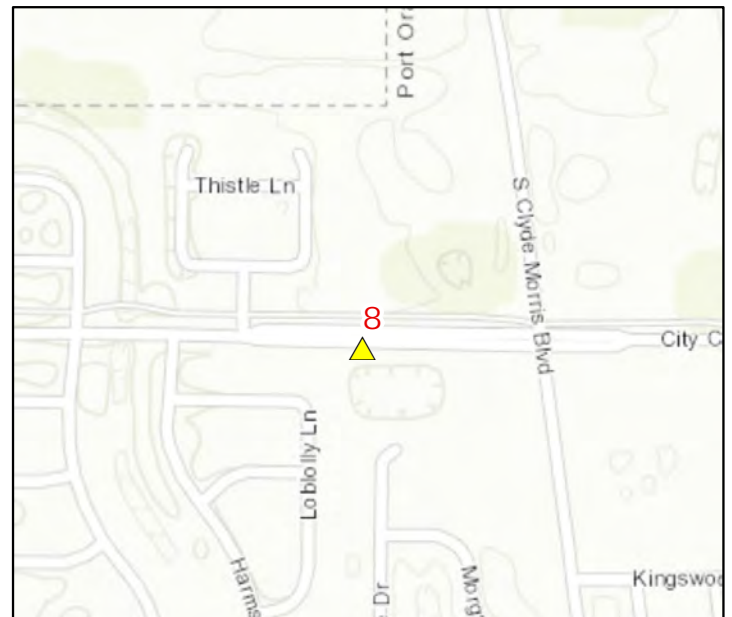
Feature Type: Drainage

Comment:

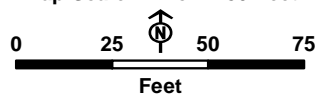
Lat: 29.125578 **Long:** -81.026956

<http://maps.google.com/maps?q=29.1255779716174,-81.026955929853>

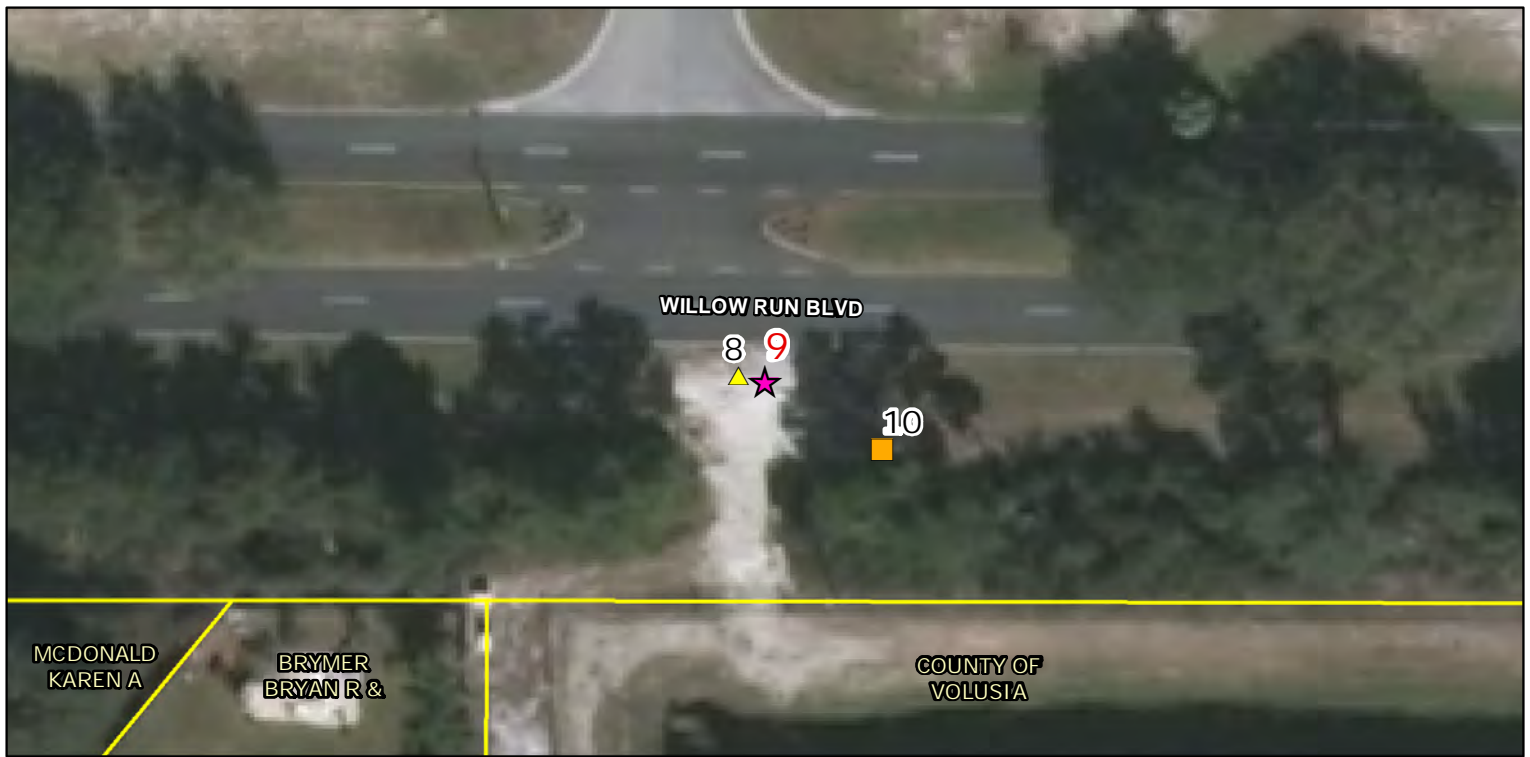
- | | |
|--------------------------|-------------------|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 9

Feature Type: Other - Misc

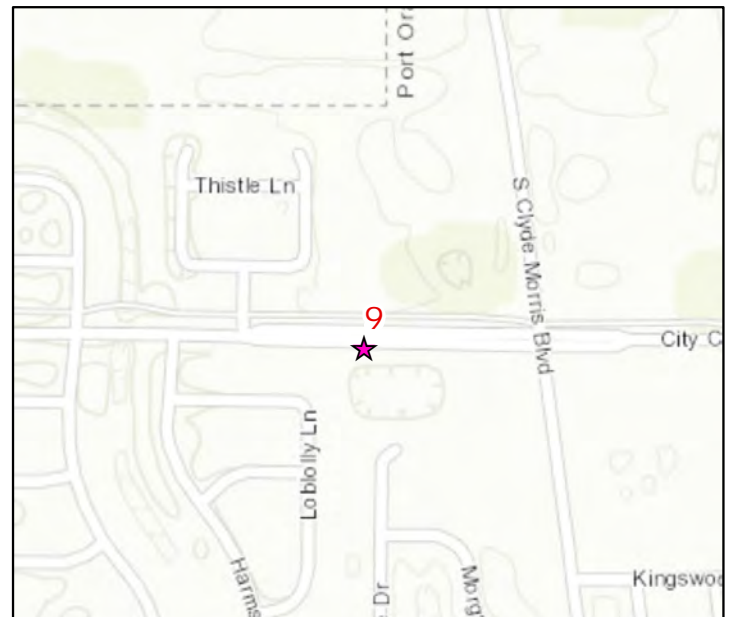
Comment: Gravel driveway

Lat: 29.125574

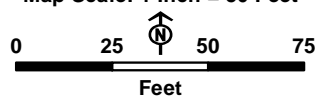
Long: -81.026937

<http://maps.google.com/maps?q=29.1255739515395,-81.0269371488849>

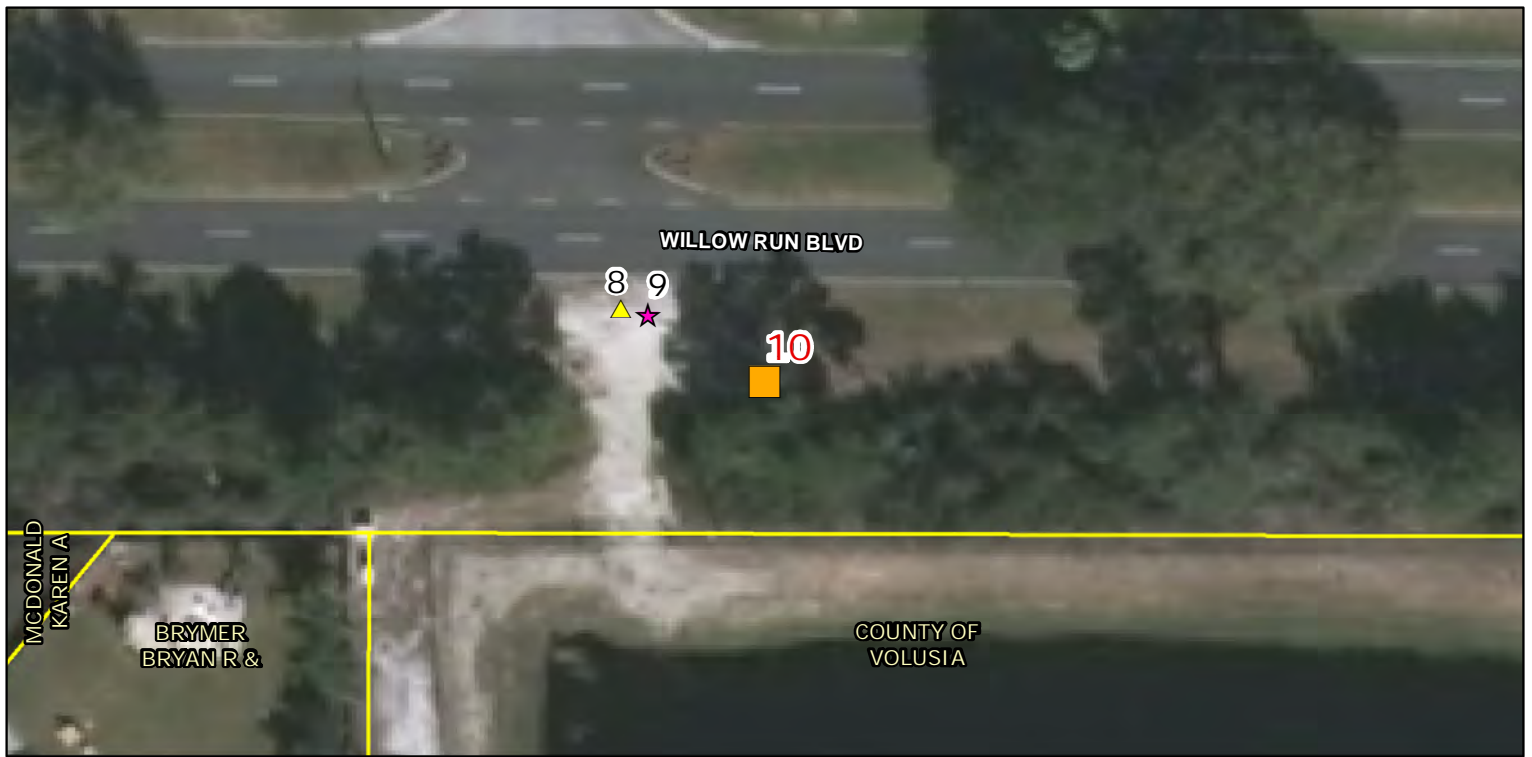
- | | |
|--|---|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 10

Feature Type: Damaged Infrastructure

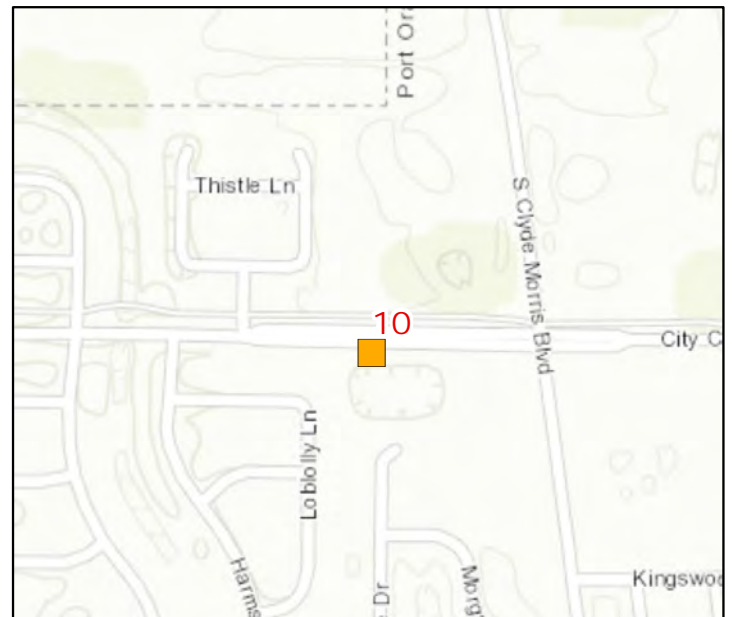
Comment: Erosion

Lat: 29.125526

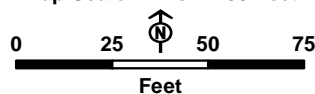
Long: -81.026853

<http://maps.google.com/maps?q=29.1255257593559,-81.0268533016656>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
 River to Sea TPO
 City of Port Orange Mobility Project



Feature ID: 11

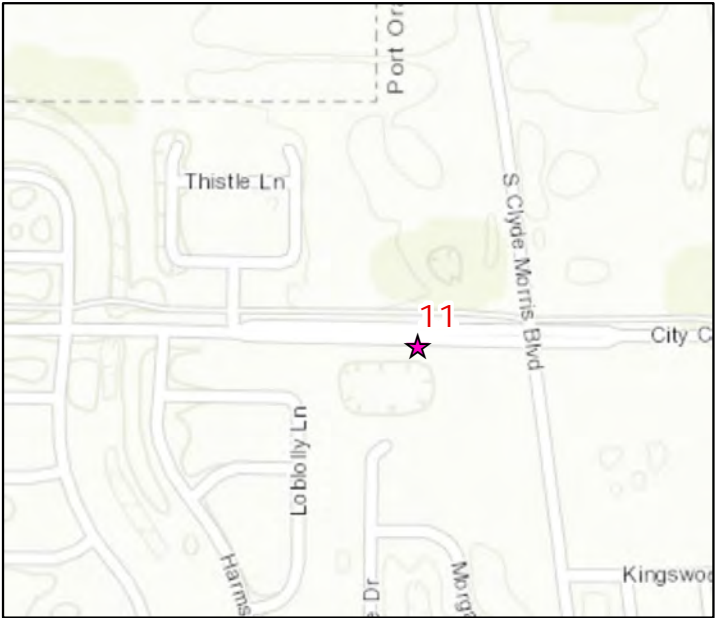
Feature Type: Other - Misc

Comment:

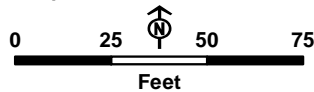
Lat: 29.125558 **Long:** -81.026247

<http://maps.google.com/maps?q=29.1255580908517,-81.0262471328715>

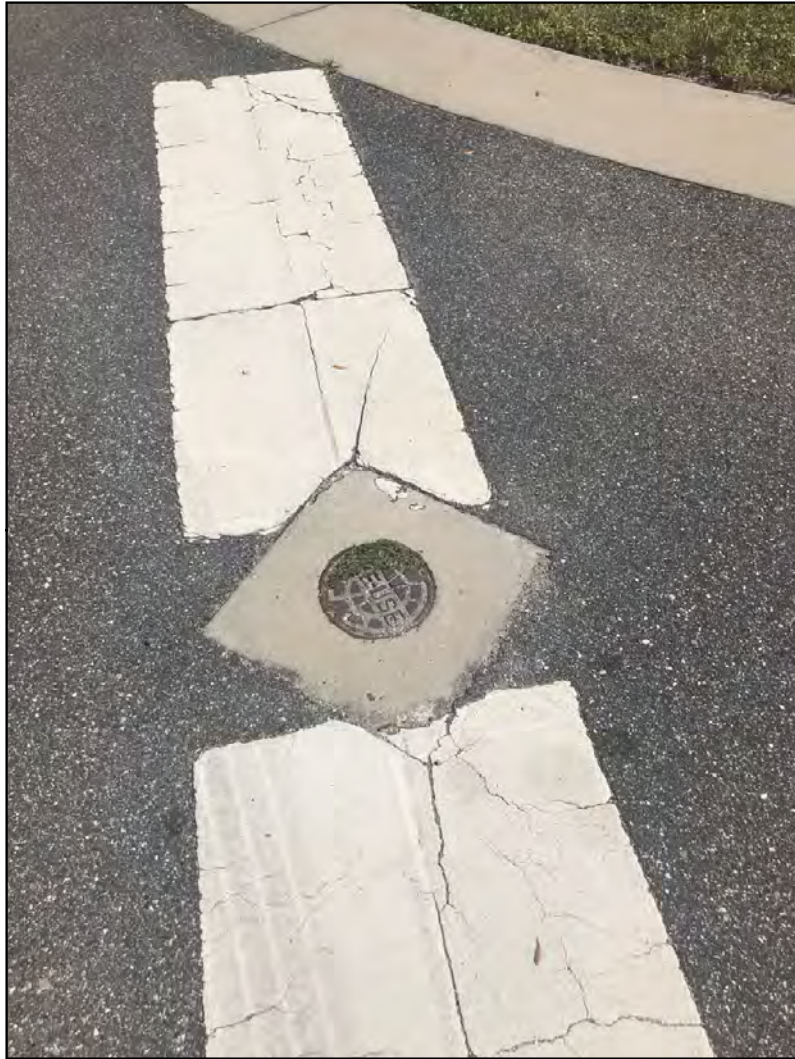
● ADA - Safety	◆ Lighting
★ Cultural	◆ Traffic Control
■ Damaged Infrastructure	■ User
▲ Drainage	⬠ Utilities
● Environmental	★ Other - Misc



Map Scale: 1 Inch = 50 Feet



Field Observations
 River to Sea TPO
 City of Port Orange Mobility Project



Feature ID: 12

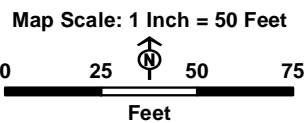
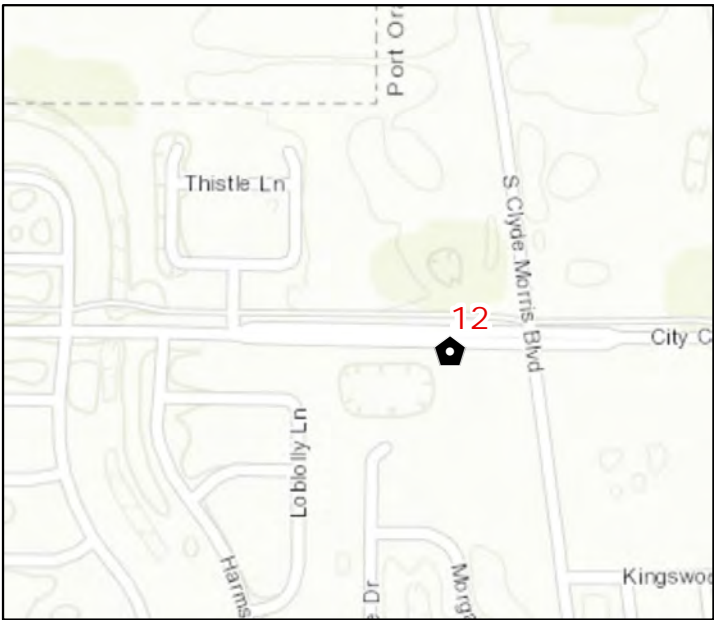
Feature Type: Utilities

Comment: Reuse

Lat: 29.125534 **Long:** -81.025893

<http://maps.google.com/maps?q=29.1255342686452,-81.0258928145011>

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



Field Observations
 River to Sea TPO
 City of Port Orange Mobility Project



Feature ID: 13

Feature Type: Other - Misc

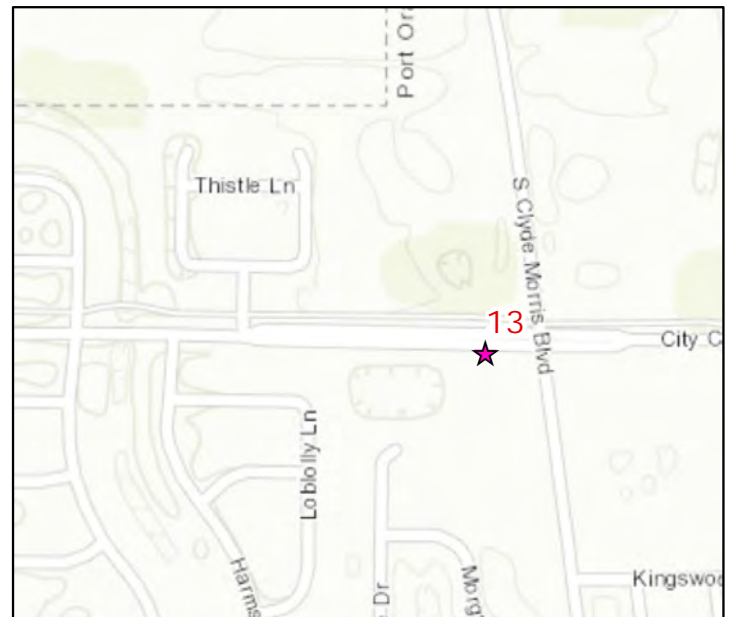
Comment:

Lat: 29.125533

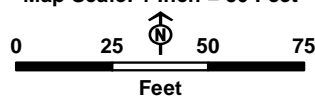
Long: -81.025623

<http://maps.google.com/maps?q=29.1255333744581,-81.0256227121925>

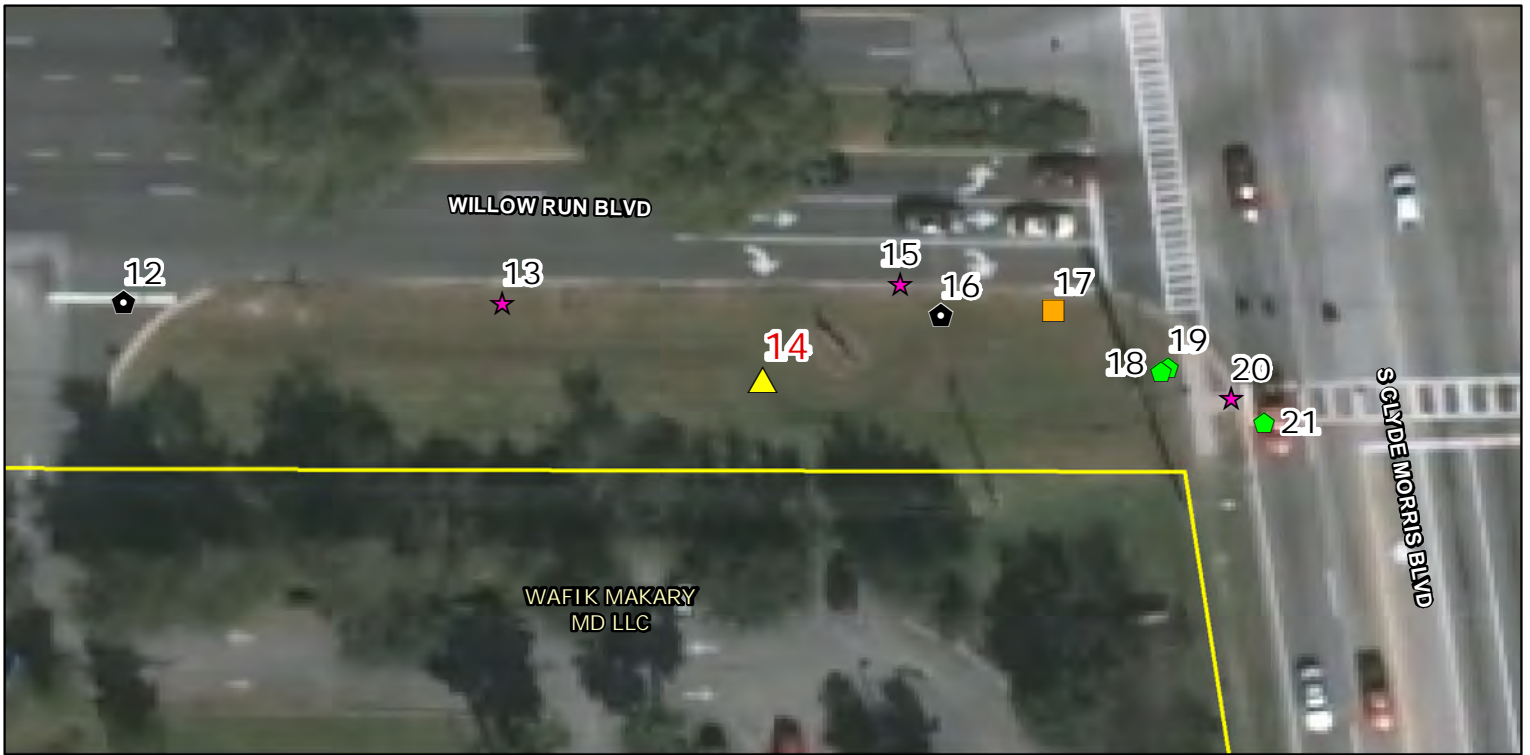
- | | |
|--------------------------|-------------------|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 14

Feature Type: Drainage

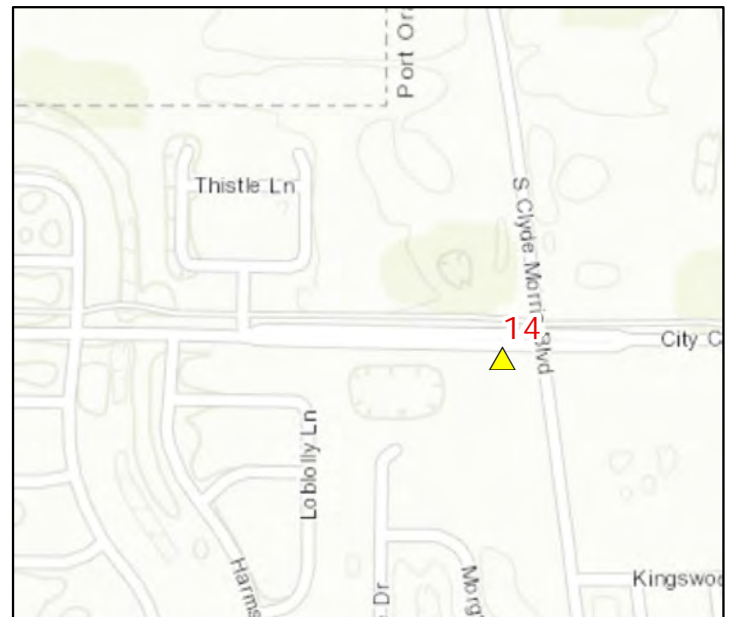
Comment: Ditch

Lat: 29.125602

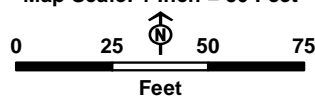
Long: -81.025436

<http://maps.google.com/maps?q=29.1256021665503,-81.025436447508>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
 River to Sea TPO
 City of Port Orange Mobility Project



Feature ID: 15

Feature Type: Other - Misc

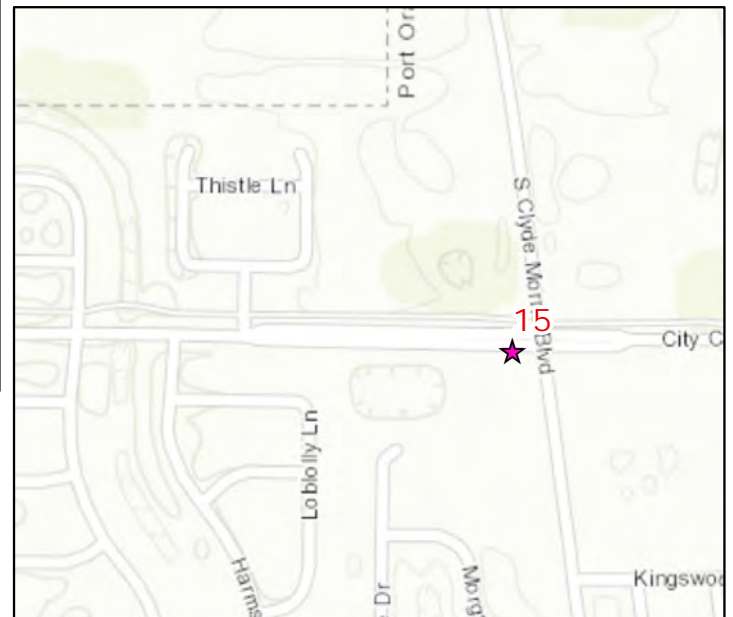
Comment:

Lat: 29.125547

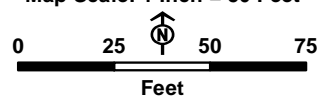
Long: -81.025338

<http://maps.google.com/maps?q=29.1255471200913,-81.0253383827331>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 16

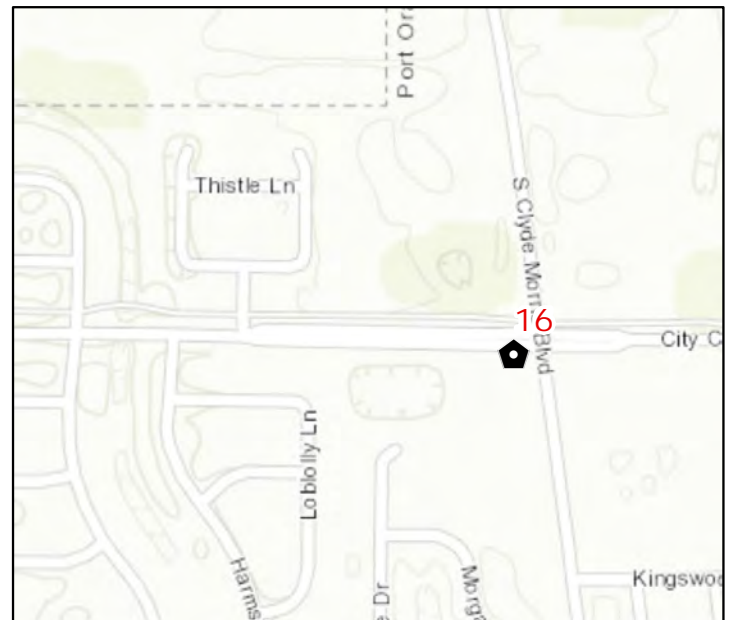
Feature Type: Utilities

Comment:

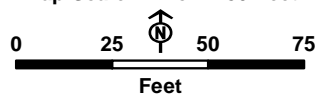
Lat: 29.125524 **Long:** -81.02531

<http://maps.google.com/maps?q=29.1255242692035,-81.0253095559743>

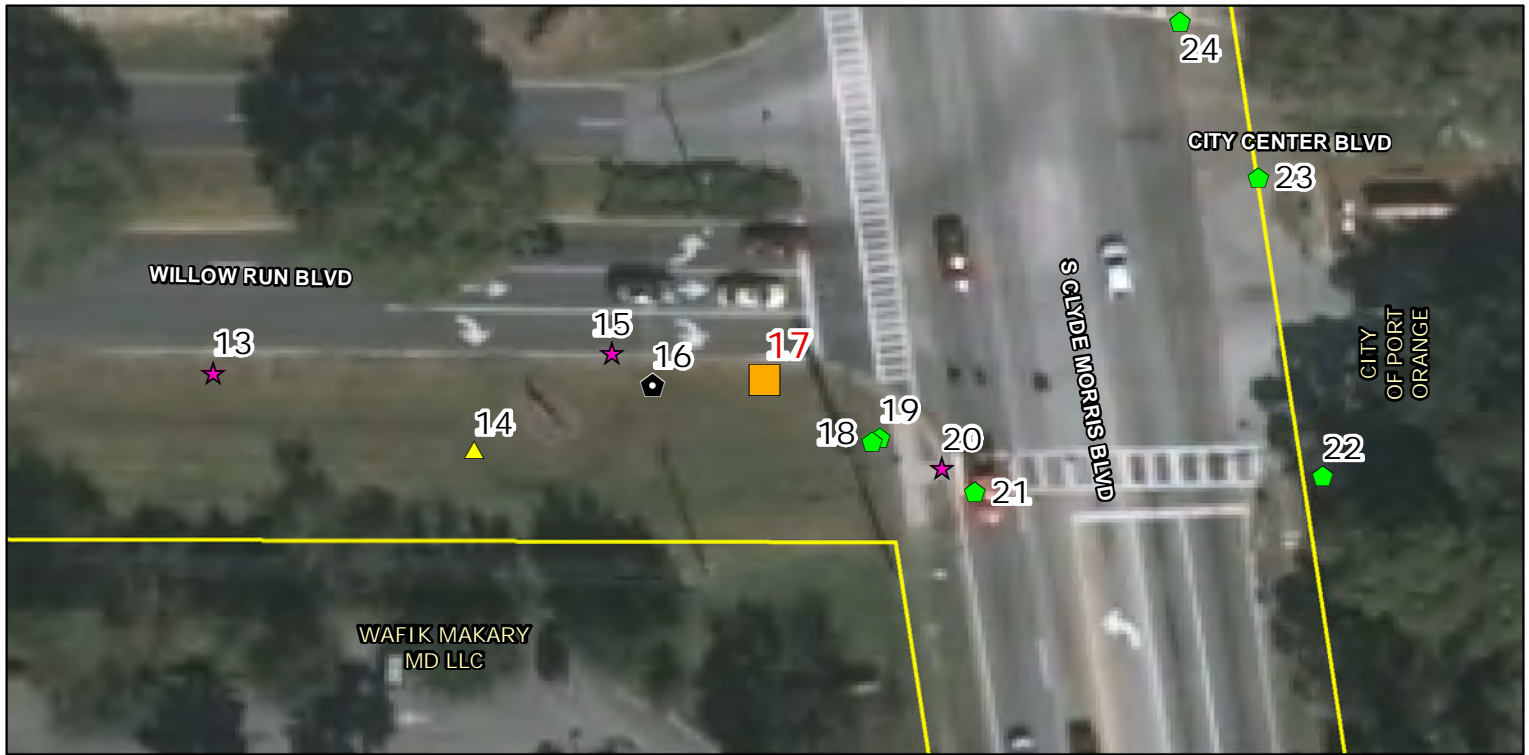
- | | |
|--|---|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
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Feature ID: 17

Feature Type: Damaged Infrastructure

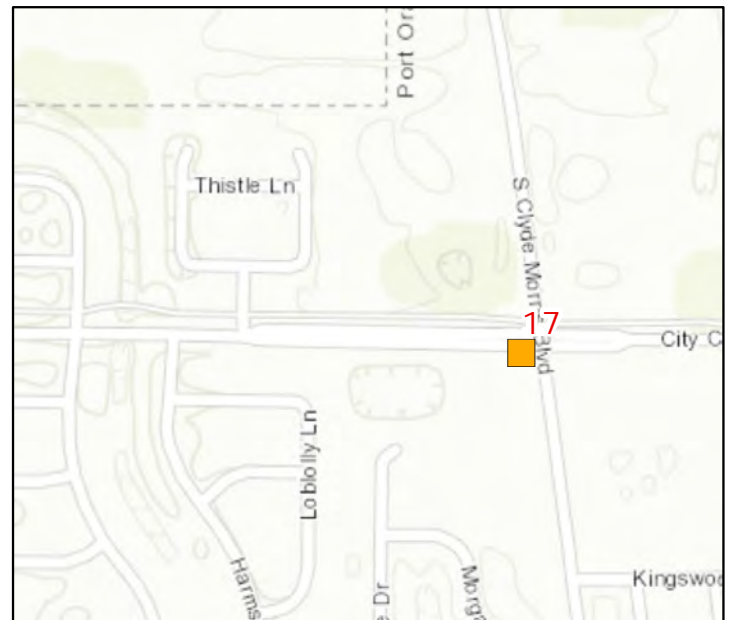
Comment: Remove old push buttons

Lat: 29.125528

Long: -81.025229

<http://maps.google.com/maps?q=29.1255279242799,-81.0252290039226>

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





Feature ID: 18

Feature Type: Lighting

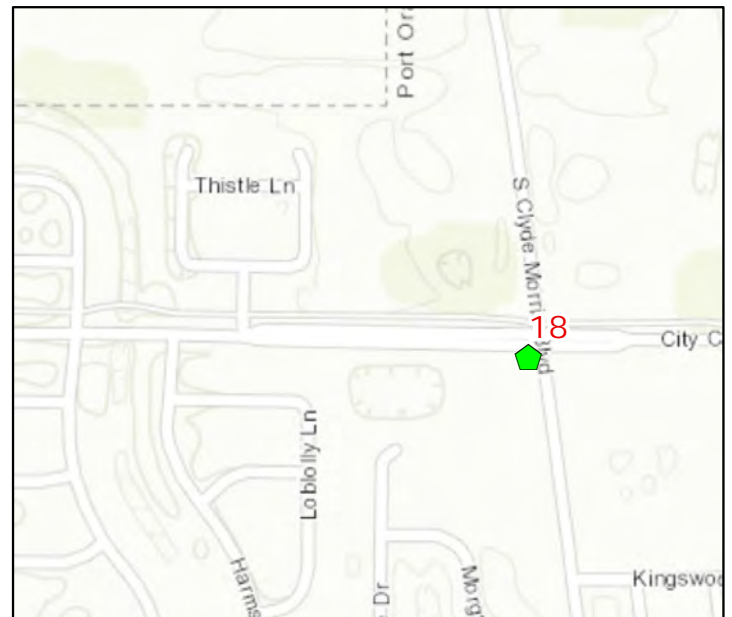
Comment:

Lat: 29.125484

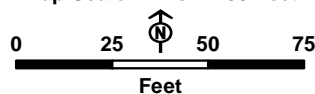
Long: -81.025152

<http://maps.google.com/maps?q=29.1254844840451,-81.0251523870482>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
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Feature ID: 19

Feature Type: Lighting

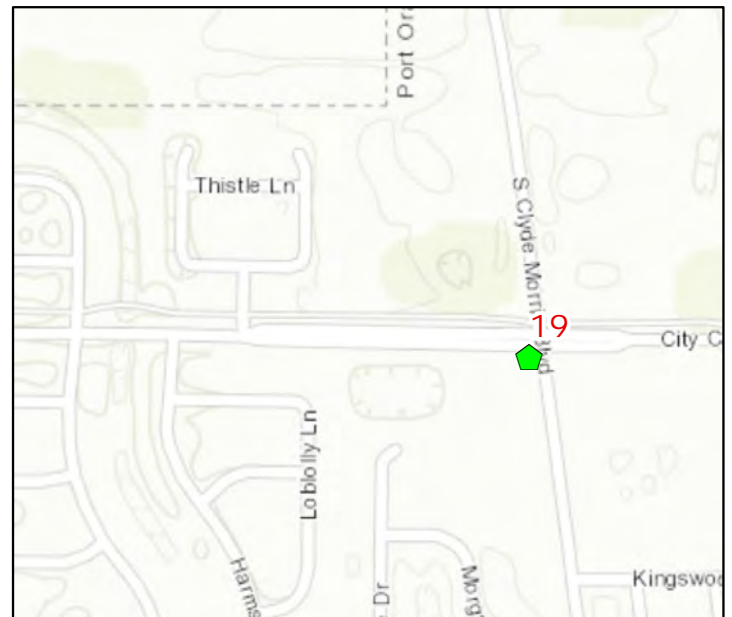
Comment: One light out

Lat: 29.125487

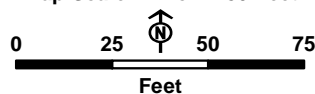
Long: -81.025147

<http://maps.google.com/maps?q=29.1254870619787,-81.0251472588433>

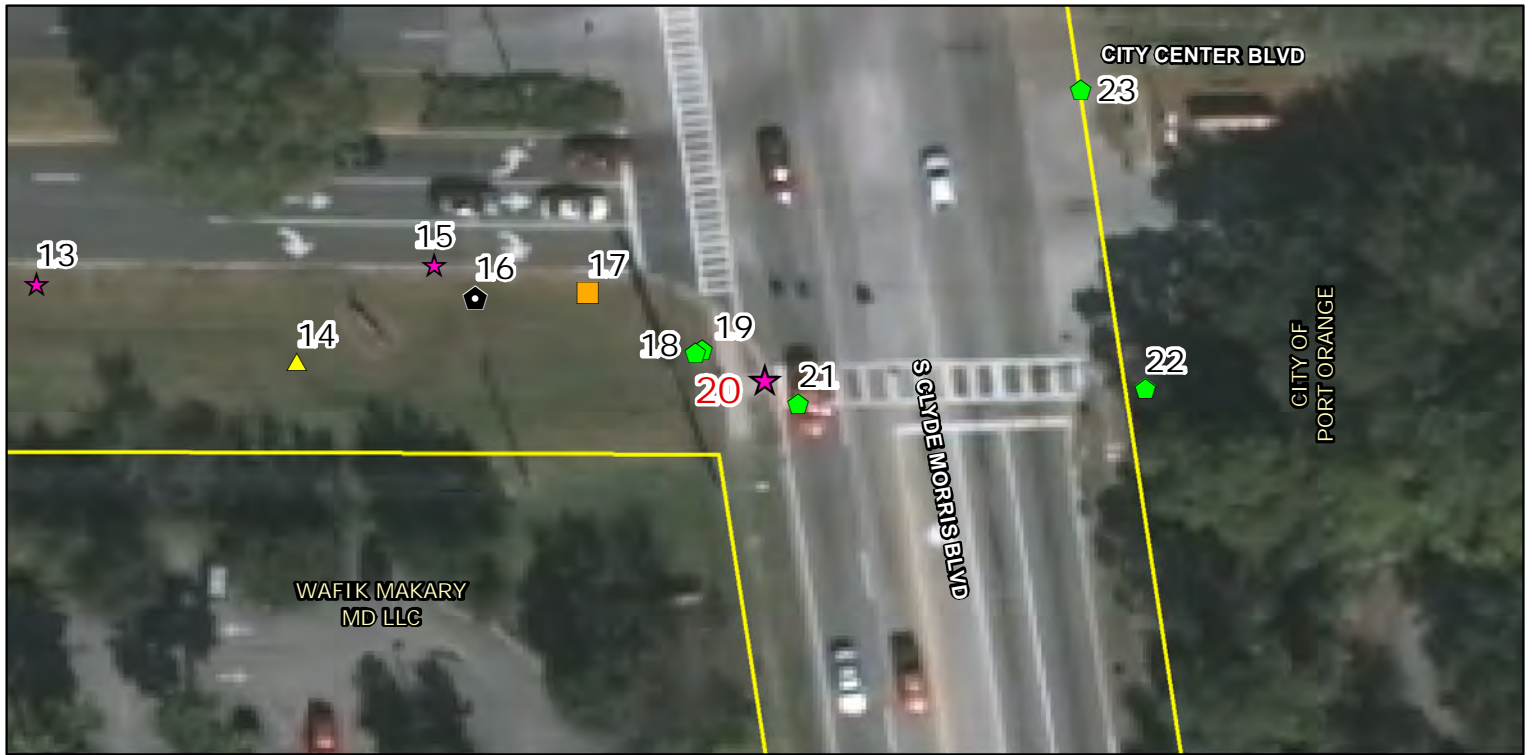
- | | |
|--|---|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬠ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
 River to Sea TPO
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Feature ID: 20

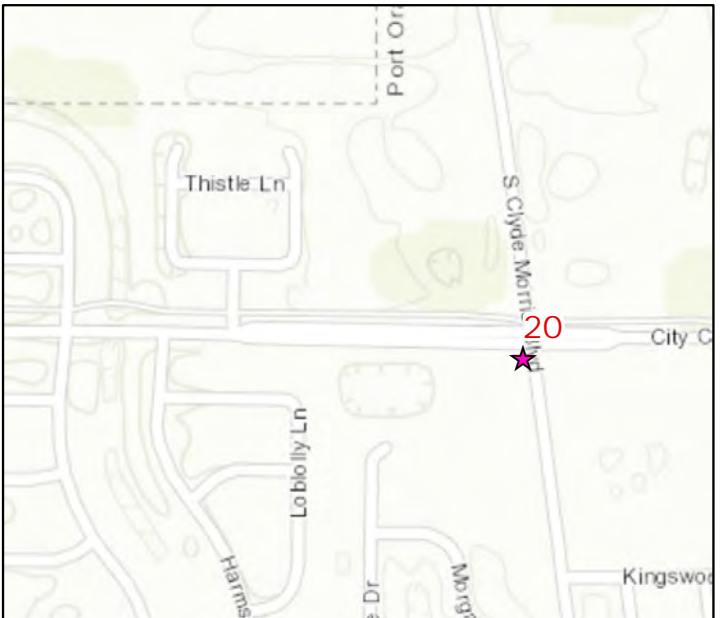
Feature Type: Other - Misc

Comment: Push button height

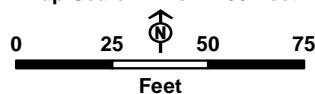
Lat: 29.125465 **Long:** -81.025103

<http://maps.google.com/maps?q=29.1254652854144,-81.0251025000939>

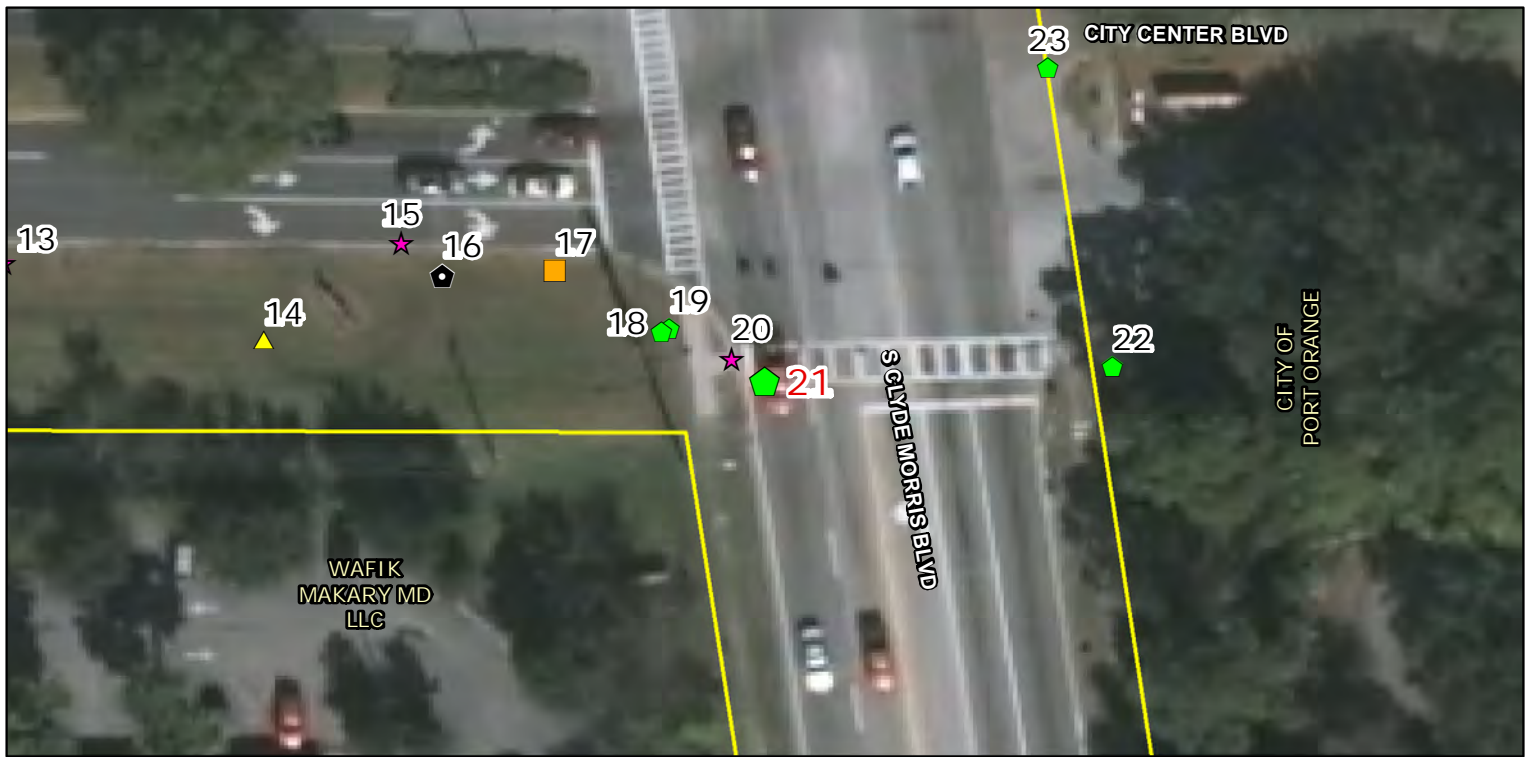
● ADA - Safety	◆ Lighting
★ Cultural	◆ Traffic Control
■ Damaged Infrastructure	■ User
▲ Drainage	⬢ Utilities
● Environmental	★ Other - Misc



Map Scale: 1 Inch = 50 Feet



Field Observations
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Feature ID: 21

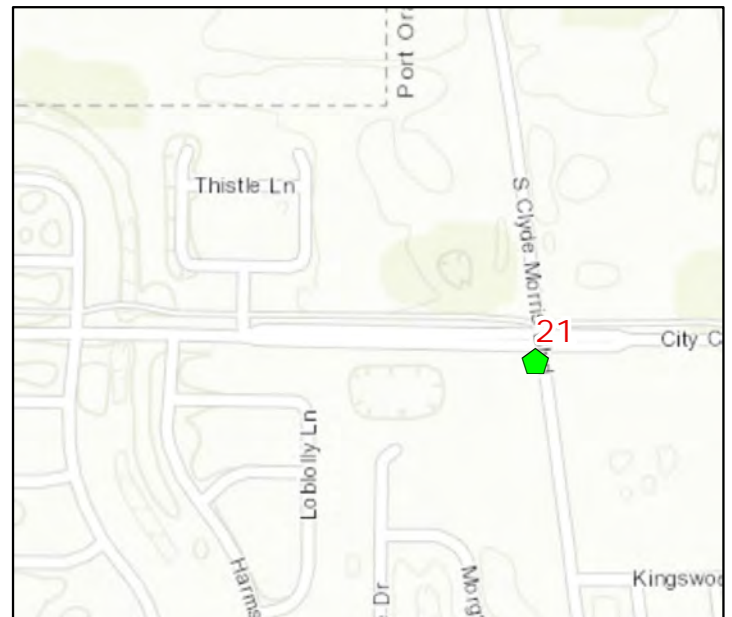
Feature Type: Lighting

Comment: Intermittent lighting

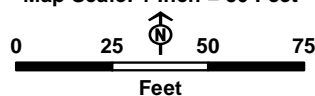
Lat: 29.125448 **Long:** -81.025079

<http://maps.google.com/maps?q=29.1254483659337,-81.0250789087688>

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



Map Scale: 1 Inch = 50 Feet



Field Observations
 River to Sea TPO
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Feature ID: 22

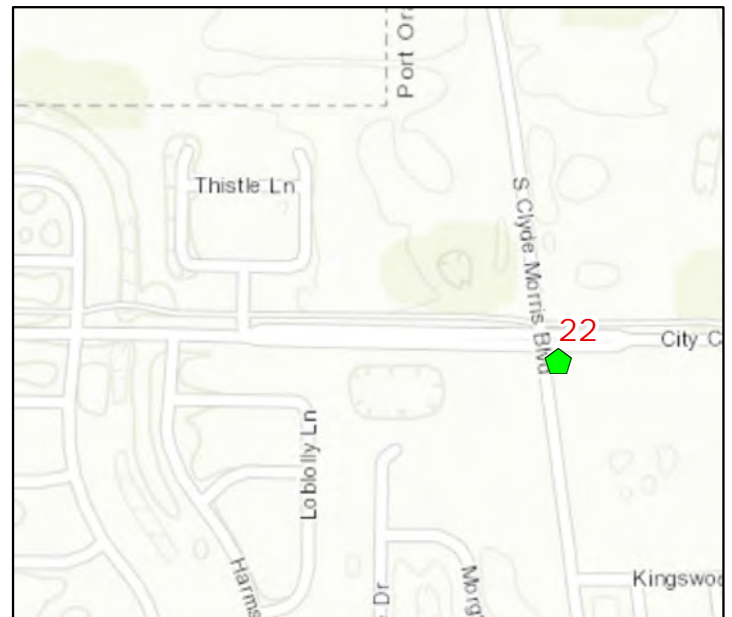
Feature Type: Lighting

Comment:

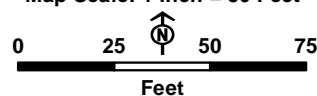
Lat: 29.12546 **Long:** -81.024831

<http://maps.google.com/maps?q=29.1254596386455,-81.0248309771951>

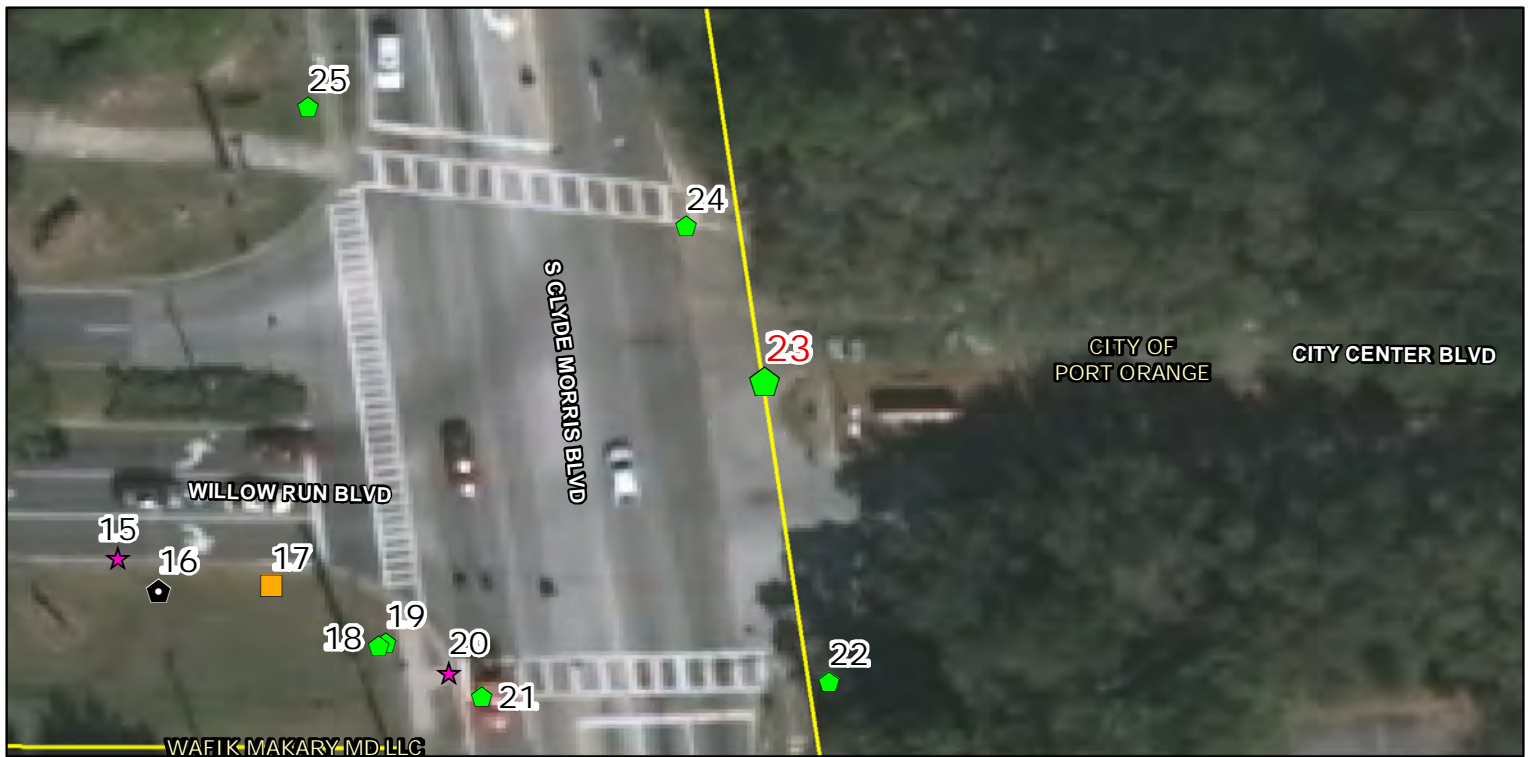
- | | |
|--|---|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ⬢ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
River to Sea TPO
City of Port Orange Mobility Project



Feature ID: 23

Feature Type: Lighting

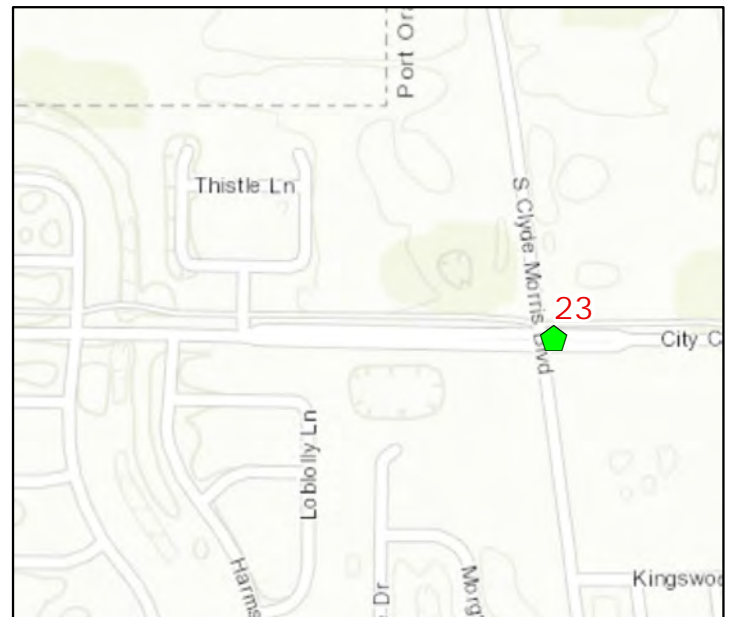
Comment:

Lat: 29.125673

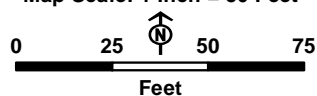
Long: -81.024877

<http://maps.google.com/maps?q=29.1256729379868,-81.0248767073461>

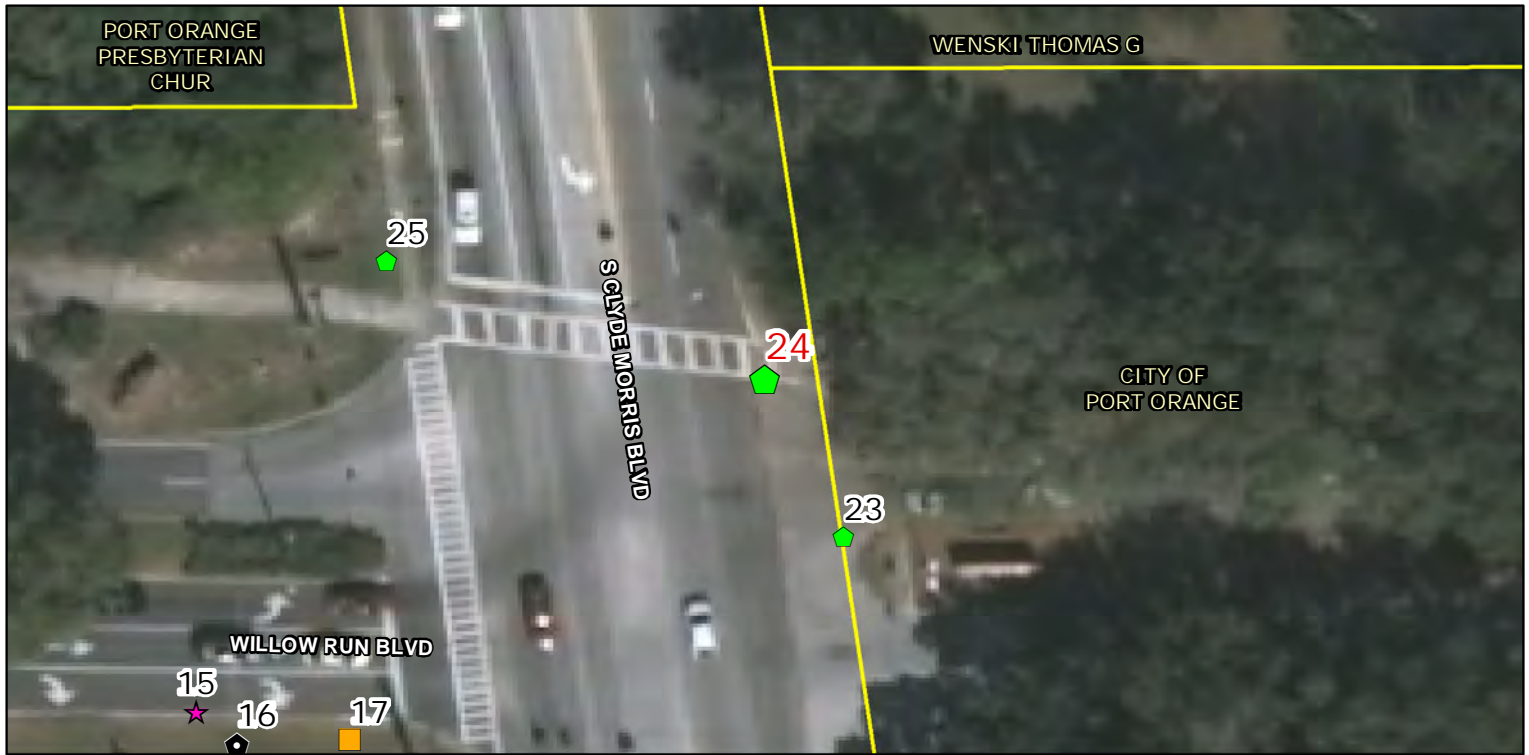
- | | |
|--|---|
| ● ADA - Safety | ◆ Lighting |
| ★ Cultural | ◆ Traffic Control |
| ■ Damaged Infrastructure | ■ User |
| ▲ Drainage | ◆ Utilities |
| ● Environmental | ★ Other - Misc |



Map Scale: 1 Inch = 50 Feet



Field Observations
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City of Port Orange Mobility Project



Feature ID: 24

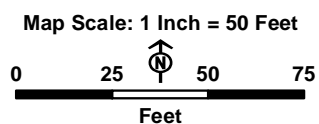
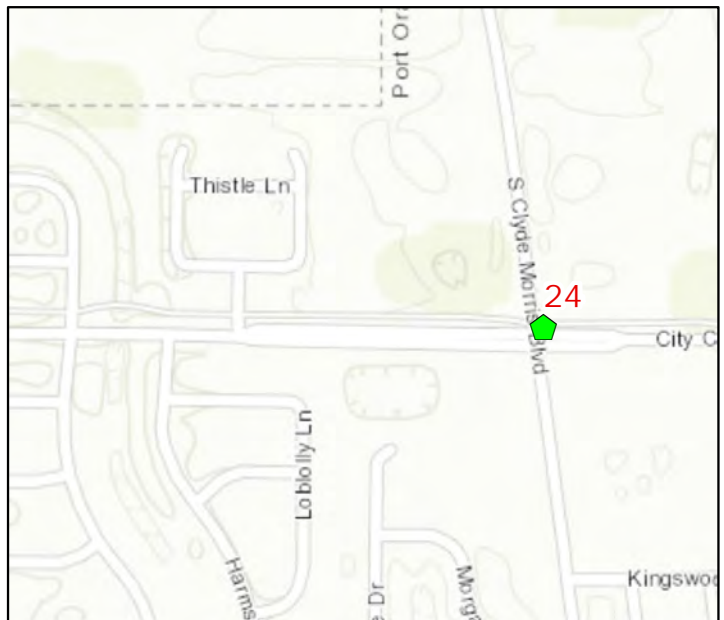
Feature Type: Lighting

Comment: No lighting

Lat: 29.125784 **Long:** -81.024933

<http://maps.google.com/maps?q=29.1257842389289,-81.0249326665572>

● ADA - Safety	⬠ Lighting
★ Cultural	⬠ Traffic Control
■ Damaged Infrastructure	⬠ User
▲ Drainage	⬠ Utilities
● Environmental	★ Other - Misc



Field Observations
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Feature ID: 25

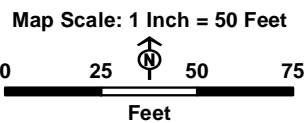
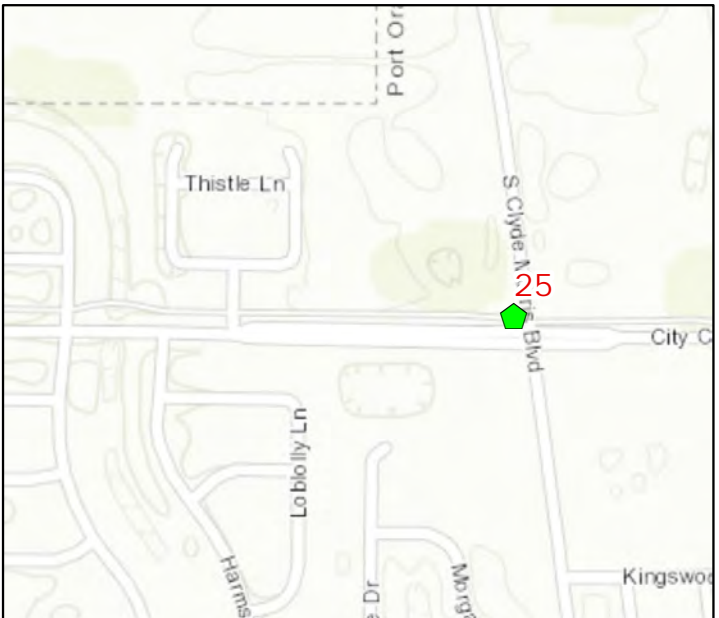
Feature Type: Lighting

Comment:

Lat: 29.12587 **Long:** -81.025203

<http://maps.google.com/maps?q=29.1258697064813,-81.0252026764912>

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



Field Observations
River to Sea TPO
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