

Dunedin Golf Cart Program

Final Report

July 2024

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Introduction

The City of Dunedin has a long-standing history of allowing golf carts as an alternative mode of transportation, beginning with the 1983 Golf Cart Ordinance which allowed residents to travel between their homes and the Dunedin Golf Course. In 2008, the City Commission expressed interest in expanding the area where golf carts could be operated as a more generalized form of alternative transportation. By 2011, the Golf Cart Task Force was established and ultimately recommended the 2011 Golf Cart Ordinance, which allowed for the use of golf carts on certain streets. This system was expanded to a zone-based system in 2012, with subsequent expansions in permissible FDOT and Pinellas County roadway crossings 2014, 2017, and 2018.

Since the inception and evolution of this program, carts have proven to be an economical and fun way for residents and visitors to get around. Aside from the transportation benefits, carters have a positive impact of generating additional revenue at downtown businesses.












This master plan was established with the following goals:

- Understand the regulatory and other limits placed on the program.
Expand the boundaries of the golf cart program, eliminating neighborhood-only "islands."
- Solicit feedback from residents and other interested parties regarding the golf cart program.
- Identify opportunities to enhance compliance with the golf cart regulations through education, enforcement, or other measures.
- Recommend Land Development Code changes related to parking, charging, and a sales and repair use.
- Review best practices from other communities.

Regulations

Several layers of regulation pertain to the use of golf carts on public streets. This section includes a summary of these regulations, including those established by the State Legislature, Florida Department of Transportation (FDOT), Pinellas County, and the City of Dunedin.

There are slight differences between a golf cart as defined by Florida Statutes (F.S.), a golf cart as defined by the City’s program, and a Low-Speed Vehicle (LSV) as defined by the Code of Federal Regulations. Although these differences may not be immediately clear, they are important as it pertains to the operation of golf carts and developing an understanding of details pertinent to the program. These can be summarized as follows:

|  Required Y / N | Golf Cart Dunedin | Golf Cart F.S. | Low-Speed Vehicle |
|---|-------------------|----------------|-------------------|
|  Headlights | Y | Y | Y |
|  Taillights | Y | N | Y |
|  Brake Lights | Y | N | Y |
|  Turn Signals | Y | N | Y |
|  Horn | Y | N | Y |
|  Reflectors | Y | Y | Y |
|  Windshield | Y | N | Y |
|  Mirror (1) | Y | Y | N |
|  Mirrors (2+) | N | N | Y |
|  Seatbelts | Y | N | Y |
|  License Plate | N | N | Y |
|  Insurance | Y | N | Y |
|  Operator Age | 16 | 15 | 16 |
|  License | Y | N | Y |

**Additional equipment requirements apply for lawful nighttime operation*

Florida Statutes

Definitions

The terms golf cart and low-speed vehicle, though often conflated, are identified by F.S. §320.001 as distinct vehicle types

"Golf cart" means a motor vehicle that is designed and manufactured for operation on a golf course for sporting or recreational purposes and that is not capable of exceeding speeds of 20 miles per hour.

"Low-speed vehicle" (LSV) means any four-wheeled vehicle whose top speed is greater than 20 miles per hour but not greater than 25 miles per hour, including, but not limited to, neighborhood electric vehicles. Low-speed vehicles must comply with the safety standards in 49 C.F.R. s. 571.500 and s. 316.2122 (Operation of a low-speed vehicle... on certain roadways).

In addition to requirements related to how the vehicle is to withstand certain operating situations, 49 CFR §571.500 provides the following specific requirements for LSVs:

- Limits top operational speed to 25 MPH
- Requires elements of a motor vehicle to be installed, including headlamps, tail lamps, stop lamps, turn signals, reflectors, parking brakes, two mirrors, a windshield, seat belts, a horn, and a Vehicle Identification Number (VIN).

Golf Carts on Public Streets

The use of golf carts on public streets is permitted through F.S. §316.212, which allows for their use on county or municipally owned streets designated for such a use by ordinance. It also allows for the use of golf carts on the State Highway System when the System intersects with a local road for the purpose of crossing under certain conditions, the most relevant of which are described below.

- The intersecting street is approved by the local agency for use by golf carts and FDOT has approved the design of the crossing and any traffic control devices.
- The state road has been designated for transfer to the local government for the purposes of operation and maintenance (F.S. §335.0415), only when a viable alternative route is not available and the speed and volume of such a road is appropriate for the use of slower vehicles.

All golf carts authorized under this section must also include, among other things, headlights, a rearview mirror, and front and rear red reflectors. If the vehicle is to be operated during night hours, it must also be equipped with headlights, brake lights, turn signals and a windshield. Operators of golf carts must be at least 15 years of age and hold a valid learner permit, 16 or 17 years of age with a valid driver's license, or 18 years of age or older with any form of government-issued photographic identification.

When a local agency permits the use of golf carts, they must do so by ordinance and post appropriate signage or otherwise inform residents that golf carts are lawfully permitted to use city streets. If the agency chooses to allow the operation of golf carts on sidewalks, including those adjacent to state highways, top speeds must be limited to 15 MPH and the sidewalk must be at least 8' in width.

Because golf carts are not issued a Vehicle Identification Number (VIN) and can be operated by those without a driver's license as long as they 18 years of age or older and possess a valid form of government-issued photographic identification, golf carts are not required by statute to be titled, registered, or insured. However, the Florida Department of Highway Safety and Motor Vehicles (FLHSMV) allows for the conversion of golf carts to a LSV through a process that confirms such vehicle complies with 49 CFR §571.500.

Low-Speed Vehicles on Public Streets

The use of LSVs on public streets is permitted through F.S. §316.2122. This section generally allows for their operation on any roadway with a posted speed of 35 MPH or less and allows for the crossing of any roadway with any posted speed limit. Counties and municipalities are permitted by F.S. to prohibit the use of LSVs on any street within their jurisdiction. Because an LSV is issued a VIN, it must be titled, registered, and insured.

FDOT

Unless otherwise approved, golf carts are not permitted to cross the state highway system. FDOT has an established process for the approval of these designated golf cart crossings through the Traffic Engineering Manual, Chapter 5, Specialized Operational Topics, Section 5.1.

Generally, the process requires that a local government submit a request in writing to the FDOT West Central Florida District for an additional golf cart crossing. If the information supports the addition of a crossing, an engineering study, described below, must be completed. If the Study is in support of an additional crossing, a Traffic Regulation Letter will be issued. A crossing can be denied at any point in this process. In such case of a denial, a letter explaining why will be issued.

Approval Criteria

Approval of a crossing is based on several roadway features, including the volume measured in Average Annual Daily Traffic (AADT) or Vehicles Per Hour (VPH), speed limit, number of travel lanes, crosswalk and driveway separation, median width, and roadway curvature. The following is a summary of the criteria required for mid-block, stop controlled, and signal controlled crossings.

Table 1 - Mid-Block Crossing Criteria

| Criteria | Required |
|---|-----------------|
| Volume (Max) | 15,000 AADT |
| Speed Limit (Max) | 40 MPH |
| Travel Lanes (Max) | 3 |
| Median (Max) | 15' |
| Crosswalk Separation (Min) | 350' |
| Driveway Separation (Min) | 350' |
| Roadway Curvature Separation (Min) | 350' |

Notes:

- 1. A clear, unobstructed view from the roadway must be provided.*
- 2. Pavement markings must be provided.*
- 3. LSVs and other vehicles are prohibited from utilizing the crossing.*

Table 2 - Side Street, Stop Controlled Criteria

| Criteria | Required |
|--|-----------------------------|
| Side Street Volume (Max) | 1,200 AADT |
| Side Street AM/PM Peak (Max) | 110 VPH, SD |
| Crossing Distance, Divided (Max)* | 3 lanes |
| Crossing Distance, Divided (Max) | 4 lanes, Min. 22' median |

**Excludes right turn lanes*

Notes:

- 1. Side street approaches should have an exclusive left turn lane.*
- 2. Side street approaches should have a shared through/right turn lane.*
- 3. Side street intersection alignment shall be 90 degrees.*
- 4. Pavement markings and signs per MUTCD.*

Table 3 - Traffic Signal Controlled Criteria

| Criteria | Required |
|-------------------------------------|-----------------|
| Side Street Volume (Max) | 1,500 AADT |
| Side Street AM/PM Peak (Max) | 200 VPH, SD |
| Crossing Distance (Max)* | 5 Lanes |

**Excludes right turn lanes*

- Notes:*
- 1. Side street approaches should have an exclusive left turn lane.*
 - 2. Side street approaches should have a shared through/right turn lane.*
 - 3. Side street intersection alignment shall be 90 degrees.*
 - 4. Pavement markings and signs per MUTCD.*
 - 5. Crossings prohibited at "T" Intersections.*
 - 6. A fourth leg approach and receiving lane for exclusive golf cart use is not permitted.*
 - 7. Golf carts shall not use pedestrian ramps.*

Required Engineering Study

To support the addition of a golf cart crossing, an engineering study must be completed and submitted by the City to the FDOT West Central Florida District Traffic Operations Engineer. In addition to compliance with the crossing criteria described in the subsections above, the Engineering Study should include the following minimum requirements:

- Sight distances;
- Proximity to intersection or driveway conflict areas;
- Number and configuration of approach lanes;
- Roadway speed and volume thresholds (Section 5.1.5);
- Schematic layout on an aerial documenting:
 - Location and Roadway ID/Milepost,
 - Proposed Signing, Marking, and Signal Treatments,
 - Existing Signs, Markings, and other Traffic Control Devices; and
- 3-year crash history.

Approval of a golf cart crossing request is at the discretion of the FDOT West Central Florida District Traffic Operations Engineer, and meeting minimum criteria outlined in Section 5.1 does not guarantee the approval of a new crossing. Should a crossing be approved, additional coordination may also be required between Traffic Operations and the Maintenance Office, and the City.

Golf Carts on Sidewalks

Section 5.1 recommends basic guidelines for when golf carts may be operated on sidewalks, including those adjacent to state-maintained roadways, when such use of sidewalks is authorized by local ordinance.

1. Access to state-maintained sidewalks should be via locally-maintained sidewalks; access via an ADA curb ramp is prohibited.
2. Sidewalks should be at least 8' in width with a buffer of at least 5'.
3. A stabilized, flat area of at least 4' should be provided as a breakdown lane.
4. Operation should terminate at a locally-maintained sidewalk.
5. Signage indicating use of golf carts on sidewalks should be provided.

Pinellas County

Pinellas County regulates the operation of golf carts through Pinellas County Code, Chapter 122 Traffic and Vehicles, Article IV – Golf Carts. Article IV provides for regulation of golf carts both by time of day and, on certain county roads, at any time.

General Regulations

This section allows that any person with a valid driver's license is permitted to travel upon to operate a golf cart that meets the statutory requirements for such a vehicle described above. The section does not include the regulation of Low-Speed Vehicles. The section also generally prohibits the use of golf carts on sidewalks.

Permitted Roadways

County-owned roadways by default prohibit the operation of golf carts. Appendix F and Appendix G of Chapter 122, respectively, regulate the use of golf carts at any hour and during daylight hours only. Highland Lakes, east of US-19 in Palm Harbor, is the only identified neighborhood where the operation of golf carts is limited to daylight hours only. Six areas within the county are identified in Appendix F to allow for the use of golf carts at all hours:

- Baywood Village and Freshwater/Lake Shore Estates, both located just south of Tarpon Springs;
- Highland Lakes, located in Palm Harbor just east of US-19; and,
- Crystal Beach, located near Palm Harbor along Palm Harbor Boulevard; and
- Ozona, a neighborhood along Saint Joseph Sound and contiguous with the City's northernmost limit.

Since Crystal Beach and Ozona are contiguous to one another and to the City of Dunedin, there is potential for golf cart users to attempt to cross into the City of Dunedin. However, the County's program does not provide for opportunities to cross U.S. Alt-19, which acts as the eastern boundary for both referenced operating areas. The area where Ozona and the City of Dunedin are contiguous is approximately 400' in length located approximately at the intersection of Orange Street and U.S. Alt-19, which prohibits the use of golf carts. Short of permitting golf carts on this roadway, there is no viable north/south connection from Ozona into the City of Dunedin.

A connection further east into the City via the neighborhoods north of Curlew Road are similarly unviable due to Curlew Creek, which runs east to west and is crossable only at U.S. Alt-19, CR-1, and Belcher Road which each prohibit the operation of golf carts. However, there is potential under F.S. to allow for the use of sidewalks adjacent to state-owned roads if said sidewalks were upgraded to be at least 8' in width.

City of Dunedin Golf Cart Program Overview

The City's Golf Cart Program was initially established in 1983, officially modernized in 2011, with updates in subsequent years. This section serves as a history of the different iterations of the program, and how it stands today.

Program History

1983 Ordinance

Ordinance 81-61 was adopted on November 17, 1983 in response to the Florida Legislature enacting HB 122, which established the regulation of golf carts under F.S. §316.212 described earlier in this document. The initial ordinance adopted the F.S. definition of golf carts and enabled golf carts to operate anywhere within approximately one mile of the Dunedin Golf Course. This area was approximately bounded to the north by SR-586 (Curlew Road), CR-1 to the east, Coachlight Way and McFarland Street to the south, and U.S. Alt-19 to the west.

The explicit purpose of the ordinance was to enable residents of these areas who held a valid driver's license to travel between their homes and the Dunedin Golf Course. This use was limited between sunrise and sunset, and general travel was not permitted. No designated crossings of SR-586/Curlew Road, CR-1, or U.S. Alt-19 were provided and operating on these streets was prohibited.

2008 Memorandum

Based upon suggestions from citizens and interest by the CRA, initial City Commission discussion was held regarding the topic of golf carts in 2006. Eventually, these culminated in a memorandum issued by the City Attorney on August 27, 2008 regarding the use of golf carts on city streets outside of the area prescribed by the 1983 Ordinance.

The memorandum included recommendations that served as the groundwork for the forthcoming 2011 ordinance. These recommendations included that the City complete additional peer review, and, at the suggestion of the Pinellas County Sheriff's Office, that any program established should comply with State and County regulations and restrict use to City-owned streets and those already authorized by the County. The suggestions did not address low-speed vehicles, which are authorized by F.S. Further, the memorandum recommended that the City's ordinance be modeled off of the County's adopted ordinances for Highland Lakes, Ozona, and Crystal Beach.

2011 Ordinance

The discussions initiated in 2006, and again in 2008, eventually resulted in the adoption of Ordinance 11-04 on April 7, 2011. This ordinance served as the first major expansion of the Golf Cart Program, dividing the City at Main Street, and introducing expansive Northside and Southside Golf Cart Zones. The Ordinance was broken into the following generalized sections:

- Use of certain local streets, prohibition of use of state or county right-of-way. In the case of city streets, this was inclusive of all streets *except* Patricia Avenue and Virginia Street which were limited to crossing only.
- Regulation of parking.
- Driver license (16+ Operation) and Cart Registration required.
- Adoption of F.S. golf cart equipment.
- Prohibition of use on sidewalks or the Pinellas Trail.
- Introduction of enforcement by police or parking, as allowed in F.S. §316.

In the Southside Golf Cart Zone, the following local streets were permissible for crossing by golf cart:

- Virginia Street and New York Ave
- Manor Drive S / Knollwood Drive and Patricia Ave
- Palm Boulevard and U.S. Alt-19 / Bayshore Boulevard (pre-existing)

2012 Ordinance

Ordinance 12-26 was adopted on June 21, 2012, and established the first lawful crossing of an FDOT-maintained roadway at Monroe Street and U.S. Alt-19 / Broadway. The ordinance was also intended to introduce a crossing of Main Street at Bass Boulevard / Skinner Road, but FDOT determined at that time that the street did not meet the required engineering criteria, chiefly related to traffic volumes, total lanes, and the angle of the intersection.

2014 Ordinance

Ordinance 14-33 was introduced for first reading on December 18, 2014. The purpose of the ordinance was to introduce a designated crossing of SR-580 at Jackson Street. Although the ordinance was ultimately adopted on January 8, 2015, the designated crossing was not installed.

2019 Ordinance

Ordinance 19-14, adopted on July 25, 2019, was a substantial modification of the existing program. Seven legal crossing points were added or reaffirmed:

- | | |
|--|---|
| • San Christopher Drive and CR-1 | • Bass Boulevard/Main Street and S.R. 580 |
| • Falcon Drive / Amberlea Drive N and CR-1 | • Monroe Street and U.S. Alt-19 |
| • Michigan Boulevard and CR-1 | • Palm Boulevard and U.S. Alt-19 |

The Ordinance also amended required vehicle equipment, with the addition that golf carts used to transport children under the age of 16 be equipped with lap belts. It also expanded the service area, eliminating certain land-locked areas in the Southside and Eastside Golf Cart Zones. The registration of golf carts was modified, enabling the booting of illegally parked or unregistered golf carts.

Current Program Overview

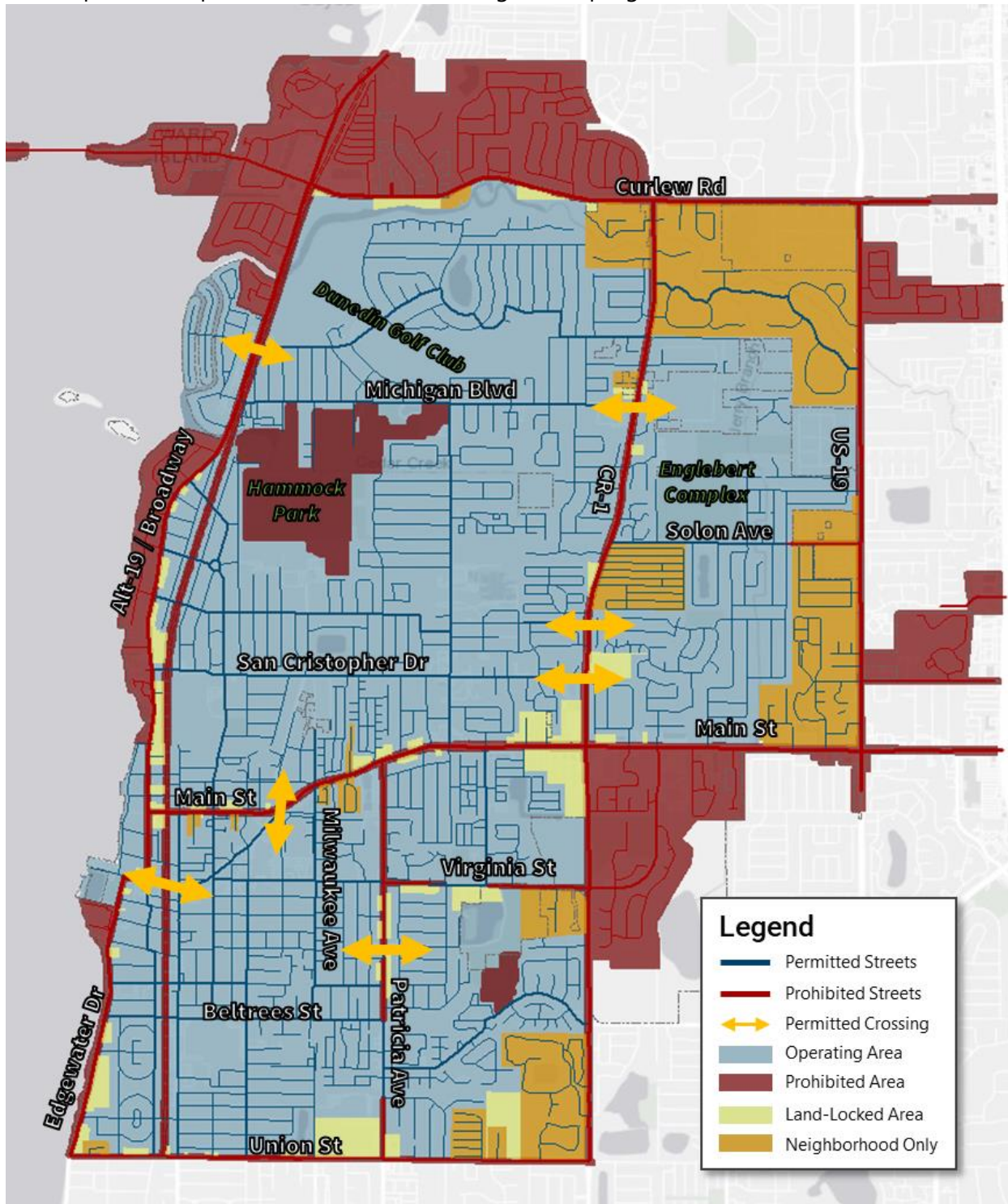
The current program, as it stands in 2023, is authorized through the Code of Ordinances Chapter 74 – Traffic and Vehicles, Article VI – Golf Carts, Subsections 200 through 211. These are generally summarized as follows:

Designated Streets & Areas of Operation

Subsections 200 and 209 first enable the operation of golf carts on designated city streets, and then specifically outlines which areas are permitted. These are generally broken into the Northside, Eastside, and Southside Golf Cart Zones. The Northside Golf Cart Zone allows for operation on all city-owned streets, while the Eastside and Southside Golf Cart Zones exclude local streets with a traffic volume above 5,000 AADT or a speed limit greater than 35 MPH.

Program Boundary

The map below depicts that boundaries of the golf cart program.



Crossing State and County Roads

Subsection 201 defines the following streets which are designated for the lawful crossing of golf carts:

- San Christopher Drive and CR-1
- Falcon Drive / Amberlea Drive N and CR-1
- Michigan Boulevard and CR-1
- Bass Boulevard / Main Street and S.R. 580
- Monroe Street and U.S. Alt-19
- Palm Boulevard and U.S. Alt-19
- San Jose Drive and U.S. Alt-19

Equipment & General Rules

Subsections 202, 203, 205, 207, and 210 define the equipment required on a lawfully operable golf cart, and general rules for their use. Subsections 202 and 203 provide for the revocable licensed use of golf carts and the waiver of claim by operators.

Subsections 210 pertains abides by F.S. §316.212 in limiting top speeds of golf carts to 20 MPH, prohibiting operators from impeding traffic flow, prohibiting the use of golf carts on sidewalks.

Portions of Subsections 205, 207, and 210 also exceed the requirements of F.S. §316.212 in the following ways:

- A valid driver’s license is required limiting operators to those over the age of 16;
- Occupants are limited to the total number of seats provided by the manufacturer;
- Liability insurance for personal injury and property damage is required;
- Inclusion of a horn; and
- Lap belts are required for occupants 16 years of age or younger.

Registration

Subsection 206 requires that all golf carts operating on city streets must annually register their cart with the City. Registration is limited to current City residents only; residents of nearby municipalities or Unincorporated Pinellas County do not qualify to register their golf cart for use in the City. The fee for registration is \$10 per cart, and includes a registration decal, which must be prominently displayed on the rear driver’s side of the cart. The subsection also enables the city to inspect golf carts for proper equipment, though no inspection program is currently in place. Registration was halted in 2023.

Parking

The City’s program addresses the lawful parking of a golf cart or low-speed vehicle in a designated parking space through Subsection 204. The section allows for carts to double park in city spaces, but only in a fashion that allows each golf cart driver to leave the space when desired. Carts are also permitted in handicap spaces with the appropriate permit.

Enforcement

Enforcement of the rules of Section 74 are established by Subsection 211. Violations of this ordinance or of F.S. § 316.212(9) can be pursued by a law enforcement officer or the city’s code enforcement officer, depending on the nature of the violation. Illegally parked golf carts are subject to booting or towing.

Golf Cart Task Forces

The Golf Cart Task Force was first convened in 2010, and again in 2018, to help guide the development of a formal golf cart program. The first iteration, in 2010, was formed by formal recommendation of the CRA Advisory Board, while the second iteration was formed on an ad hoc basis by City staff.

Golf Cart Task Force, 2010

The first golf cart task force was convened to provide new ideas for how to move around the City sustainably while promoting economic development within the Downtown CRA. The group was tasked with modernizing the original 1983 Ordinance, which limited golf cart use on city streets to trips between homes and the Dunedin Golf Course, to a program that generates economic development and allows for trips of any type. The following topics were addressed:

- Gas-Powered vs. Electric Golf Carts
- Safety
- Regulations
- Operating Hours
- Signage
- Program Boundaries

Ultimately, the Task Force’s recommended north and south zones were approved, along with a map that depicted which city-owned streets were prohibited from operation. The group also recommended 17 total crossings, with ten crossings in the Northside Zone and seven crossings in the Southside Zone. Only seven of these crossings currently exist today.

Golf Course Task Force, 2018

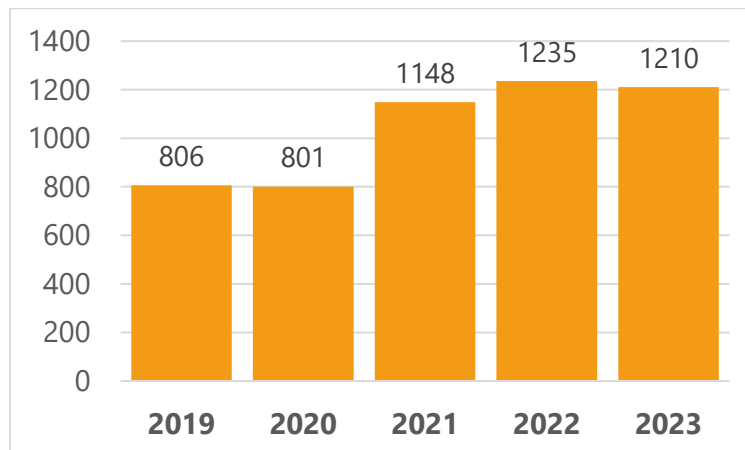
As the golf cart program continued to grow, the Task Force was reconvened in 2018 to recommend improvements to the program. The group focused on the four following issues:

1. **Increased Access to Downtown** This initiative included seven new proposed crossings:
 - a. Dunedin Middle School
 - b. Patricia Ave and Scottsdale St
 - c. Patricia Ave and James St
 - d. Virginia St and Pinewood St
 - e. CR-1 and Virginia St
 - f. CR-1 and Falcon Dr
 - g. CR1 and San Cristopher Christopher Dr

2. **Highlander Park** As improvements to the park were made, access management for golf carts became necessary. Support was placed behind the proposal to close the Idlewild Drive bridge to all cart traffic and designate it as a pedestrian/bicycle only facility. Cart traffic would be redirected to the Patricia Avenue Bridge, maintaining safe access to the park for all users.
3. **Safety Education** Because of the program’s growing popularity, improving safety became a major goal. This initiative resulted in materials, including brochures and a video, that address the registration process and rules of the road.
4. **User Outreach** To enhance knowledge of the program, it was suggested that materials be made available for businesses and social media users to access.

Golf Cart Registration

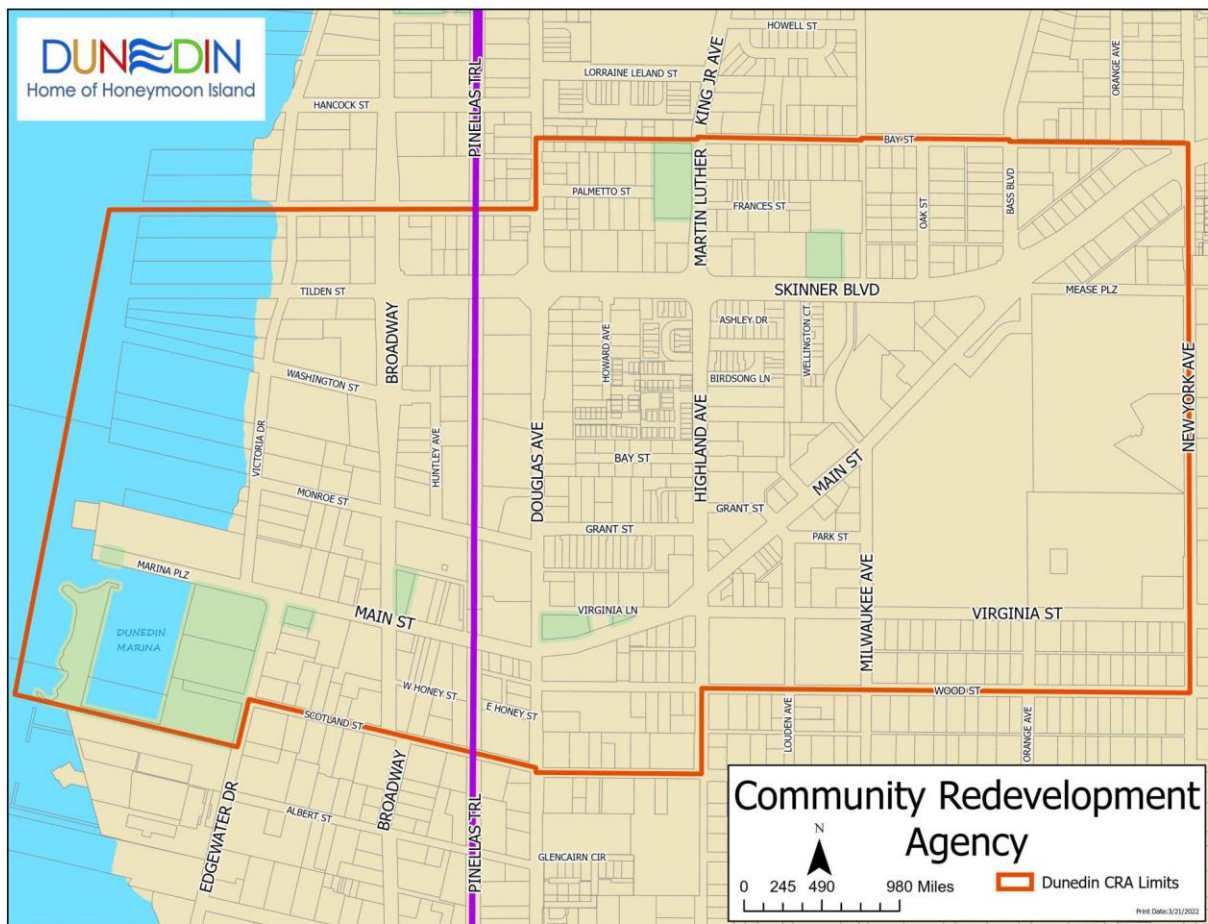
Until 2024, the City required that golf carts were required to be registered with the City. This practice was halted based on a new interpretation of state statutes. However, a review of registration trends prior to this point shows significant and steady growth in the program. As of April of 2023, 1,210 carts were approved



Document Review

CRA Plan

The City of Dunedin's CRA comprises 217 acres in and around downtown, shown in the map below. The CRA is responsible for developing, maintaining, and implementing its Community Redevelopment Plan. The plan identifies overall goals for the area, as well as identifies specific projects that may be funded using tax increment financing (TIF) revenue. Projects not identified within the Plan are not permitted to be funded without an amendment to the Plan.



The Plan does not directly reference golf carts; however, Goal 6: “Continue to improve transportation, parking, and infrastructure needed to support future development” is potentially applicable to the provision of golf cart infrastructure, as described in more detail below.

Goal 6: Transportation

Several objectives align with the use and improvement of golf carts within downtown, and open the potential for the use of CRA funding:

- Improve parking accessibility and availability through implementation of the parking study recommendations.
- Review current parking standards for Downtown.
- Explore establishment of a Transportation Concurrency Exception Area (TCEA) within the CRA/Downtown.

Taken at face value, these goals could support funding for the establishment of formal golf cart parking design standards, a formal development “trade-off” program to enable golf cart parking to replace required vehicle parking or introduce methods for new developments to encourage golf cart use as a way to reduce or offset transportation concurrency requirements such as a shared parking bank.

Multimodal Plan

The Dunedin Citywide Multimodal Transportation Master Plan is intended to improve and strengthen the city’s transportation network for all modes of transportation. The plan identifies general goals as well as specific projects to help achieve this vision. Golf carts are specifically referenced throughout the plan as a form of micromobility, and these references are summarized in this section.

Commission Goals

The plan identifies political support for the expansion of golf carts. In fact, City Commission Goal #6 reads: *Addressing the unique forms of transportation in the City to include golf carts, micromobility, waterborne, autonomous vehicles, etc., and plan for establishing policies, improvements and/or potential future expansions.*



Public Engagement

Extensive public outreach was held as part of the plan making process. Some of these outcomes included:

- **Limited Operating Areas and Crossings** Concern was expressed related to limited golf cart crossings and boundaries of the operating area.
- **Expanded Access** Many expressed interest in expanding the program to the south, allowing residents to access many businesses outside of Downtown.
- **Modal Preference** 15% of respondents indicated that they currently use golf carts to travel around Dunedin, but 38% expressed that they would like to travel by golf cart as their primary mode in the future. For personal vehicles, this figure was 53% and 13% respectively.
- **Micromobility** When asked what type of micromobility respondents would be interested in using, 70% chose golf cart. The next highest choice, bike share, was selected by just 36% of respondents.

Strategies

The plan identifies strategies, based on focus area. For golf carts:

Strategy 5 Expand Golf Cart Education and Function

Action 4.16: Provide education materials for the City's golf cart rules and registration.

Action 4.17: Implement additional golf cart crossings and expand golf cart zones to provide greater access and connectivity.

Action 4.18: Develop a plan to identify additional areas for golf cart parking and additional amenities / improvements to accommodate golf cart usage.

Other miscellaneous recommendations include enabling shared golf cart use along Michigan Boulevard and undertaking additional education and outreach related to the golf cart program to enhance awareness of both the program itself, and how to safely participate.

DREAM Sustainability Master Plan

The City's DREAM, which stands for Dunedin's Resilient Environmental Action Master Plan, was adopted in 2022 to provide the City and community with goals and direction to further advance sustainability. Electric golf carts are a mode of sustainable transportation identified by the plan.

A new strategy identified by the plan is the introduction of charging infrastructure for electric vehicles (EVs) and golf carts. Particularly, this strategy calls for 20% of parking spaces being rated as EV Capable (electric panel with a dedicated branch circuit is available), 10% of parking spaces being EV Ready (electric panel capacity and raceway/conduit are available), and 5% of spaces being EV Installed (Level 2 or better charger is installed). Although golf carts do not need, and likely could not utilize, Level 2 chargers meant to quickly charge very large batteries, golf carts could be a vehicle to help achieve this goal.

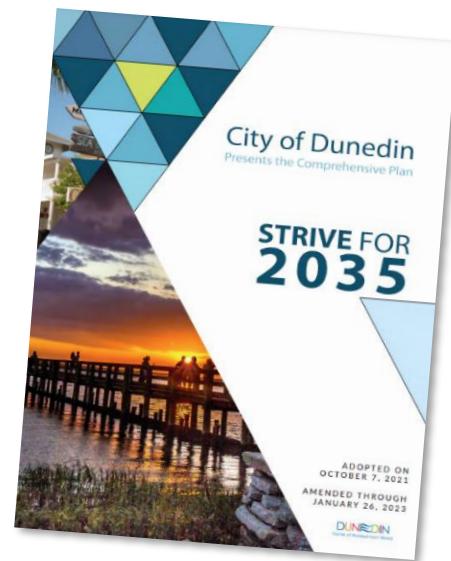


Another strategy identified involves encouraging the community to utilize clean energy for transportation purposes, including golf carts. Finally, the Citizen Call to Action encourages pledges to utilize electric golf carts as a mode of transportation.

Dunedin 'Strive for 2035' Comprehensive Plan

The Dunedin Comprehensive Plan, which is required by F.S. Chapter 163, serves as a blueprint for development of the City. The Comprehensive Plan is made up of nine elements:

- Future Land Use;
- Transportation;
- Housing;
- Conservation;
- Coastal Management;
- Recreation and Open Space;
- Support Services;
- Capital Improvements; and
- Property Rights.



The Comprehensive Plan directly addresses golf carts through the Transportation Element. These Objectives and Policies are identified below.

OBJECTIVE 1.1: Maintain and improve the existing multimodal transportation system and implement programs that will facilitate a safe, convenient, sustainable, and efficient network.

1.1.11. The City shall authorize the Pinellas County Sheriff's Office to continue to enforce all Federal, State, and local traffic laws including the golf cart ordinance and truck route ordinance.

OBJECTIVE 1.2: Promote alternative transportation strategies through local regulations and land uses.

1.2.10. The City will continue to explore and enhance other modes of transportation including golf carts, autonomous vehicles (AV), water-borne transportation, electric vehicles, and other sustainable innovative vehicles to provide more options for the citizens to travel throughout the City.

1.2.11. The City will plan and prioritize infrastructure improvements for other modes of transportation listed in Policy 1.2.9. by providing the following:

1.2.11.1. Charging stations at City facilities;

1.2.14. The City will continue to improve golf cart accessibility throughout the City by working with Pinellas County and FDOT to ensure proper crossings on County and State roads.

Crash History

Data for crashes during the 5-year period between 2018 and 2022 were sourced from Signal4 Data Analytics. Results were limited to the City of Dunedin’s boundaries and instances where a low-speed vehicle was involved. Vehicle type is derived using the Florida Uniform Crash Manual’s Vehicle Body Type section, which does not include a separate vehicle type for golf carts. Instead, officers typically categorize golf carts as 15 – Low Speed Vehicle.

In the last five years, seven such crashes were reported. Three crashes were the result of the driver hitting a fixed object, two were categorized as Rear End, one was the result of a falling utility pole, and one involved a passenger falling out of a moving golf cart. These crashes are detailed in the table below:

| Year | Location | Crash Type | Explanation | Crash Severity | Location | Intersection |
|------|-------------------------------|--------------|--|----------------------|-------------|------------------|
| 2022 | Victoria Dr and Monroe St | Fixed Object | Driver medical episode | Injury | Roadway | Intersection |
| 2021 | Main St and Highland Ave | Fixed Object | Car driver struck parked cart (DUI) | Property Damage Only | Roadway | Non-Intersection |
| 2020 | Broadway and Florida Ave | Fixed Object | Cart driver struck parked car (distracted) | Property Damage Only | Roadway | Non-Intersection |
| 2020 | Causeway Blvd and Gary Cir | Rear End | Cart driver rear-ended car | Property Damage Only | Roadway | Non-Intersection |
| 2020 | Milwaukee Ave and Beltrees St | Rear End | Vehicle rear-ended cart (distracted / DUI) | Property Damage Only | Roadway | Intersection |
| 2019 | 722 Broadway | Other | Utility pole fell on parked cart | Property Damage Only | Parking Lot | Non-Intersection |
| 2019 | Douglas Ave and Mira Vista Dr | Other | Cart passenger fell off vehicle (driver DUI) | Serious Injury | Roadway | Non-Intersection |

Most crashes (five) were reported as occurring outside of an intersection. Four of the seven crashes occurred during dark hours, with three reported between 8:00 p.m. and 10:00 p.m. and one at about 4:00 a.m.

There is no apparent trend related to the seasonality, location, or time of day of crashes within the 5-year review period. Similarly, no trend was present related to the reported location of crashes.

Parking Evaluation

Parking Utilization

A windshield-style parking survey was completed to gain insight into how golf carts are used in the downtown area. Counts were collected on Friday, June 2nd from 4 p.m. to 7 p.m. and Sunday, June 4th, from 11 a.m. to 2 p.m. An estimated total number of vehicles in each location was also collected. Locations, total counts by day, and the share of golf carts of the total estimated occupied vehicles are shown in the table below.

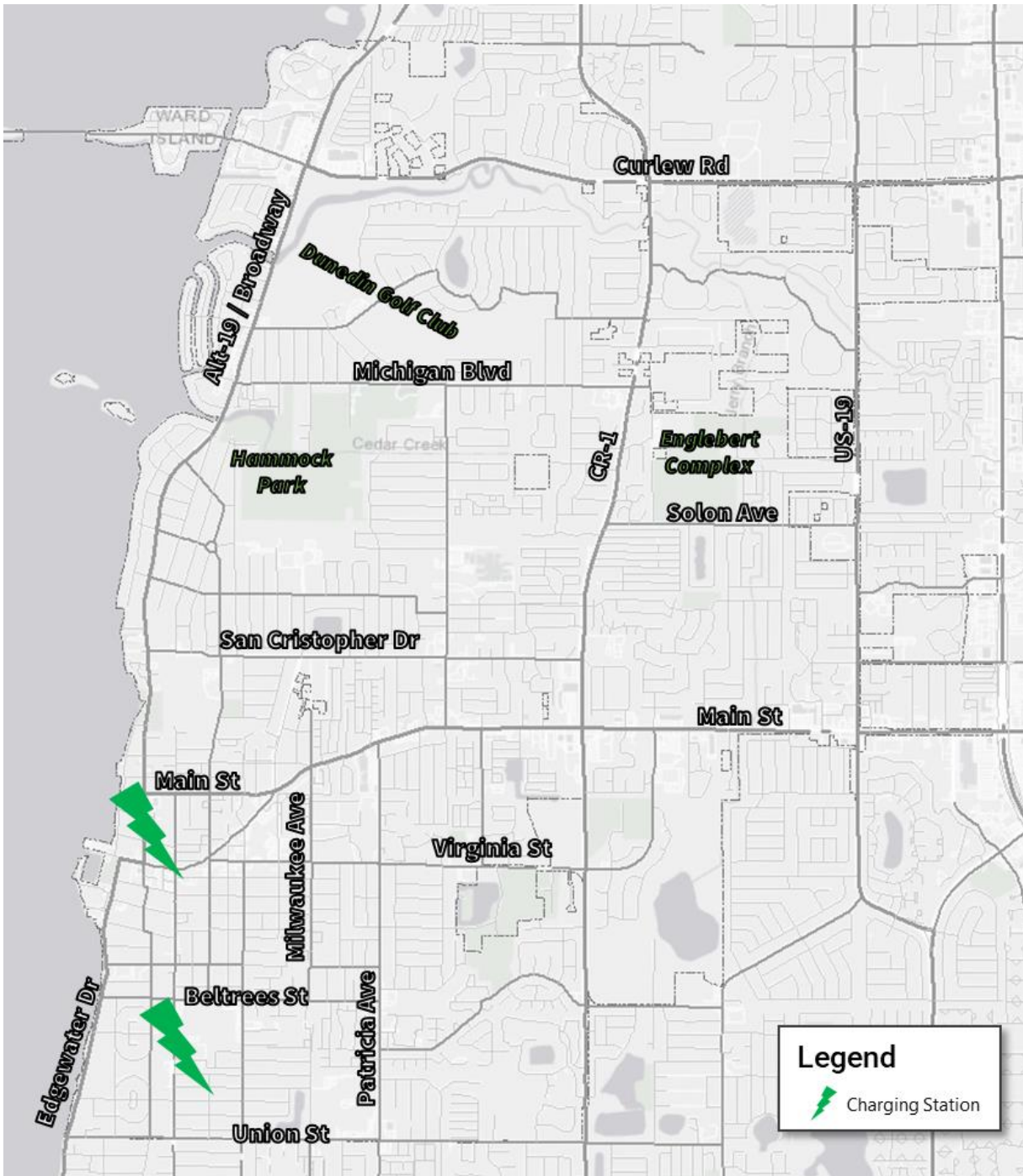
| Location | Friday | % | Sunday | % |
|--|-----------|------------|-----------|-----------|
| Main St between Bass Blvd and Grant St | 6 | 24% | 6 | 8% |
| Wood St between Milwaukee Ave and Highland Ave | 0 | 0% | 0 | 0% |
| Highland Ave between Virginia St and Wood St | 5 | 5% | 1 | 1% |
| Main St between Grant St and Highland Ave | 4 | 10% | 0 | 0% |
| Main St between Highland Ave and Douglas Ave | 6 | 20% | 1 | 2% |
| Grant St between Main St and Highland Ave | 0 | 0% | 0 | 0% |
| Grant St between Highland Ave and Douglas Ave | 1 | 13% | 2 | 13% |
| Monroe St between Douglas Ave and Pinellas Trail | 4 | 0.04 | 1 | 0.006 |
| Main St between Douglas Ave and Broadway | 10 | 9% | 9 | 6% |
| Railroad Ave between Main St and Scotland St | 2 | 8% | 0 | 0% |
| W Honey Ln between Railroad Ave and Broadway | 6 | 10% | 5 | 8% |
| Broadway between Main St and Scotland St | 16 | 18% | 3 | 3% |
| Total | 60 | 10% | 28 | 3% |

Charging Evaluation

To understand the need for public charging infrastructure, the perception of public desire for charging stations was weighed against battery and charging technology and trip length.

Charging Stations

The City has installed golf cart charging stations at the Dunedin Public Library and the parking garage on Monroe Street. These charging stations provide only an outlet capable of a slow charge and charging cables are not supplied. A map of charging stations is shown below.

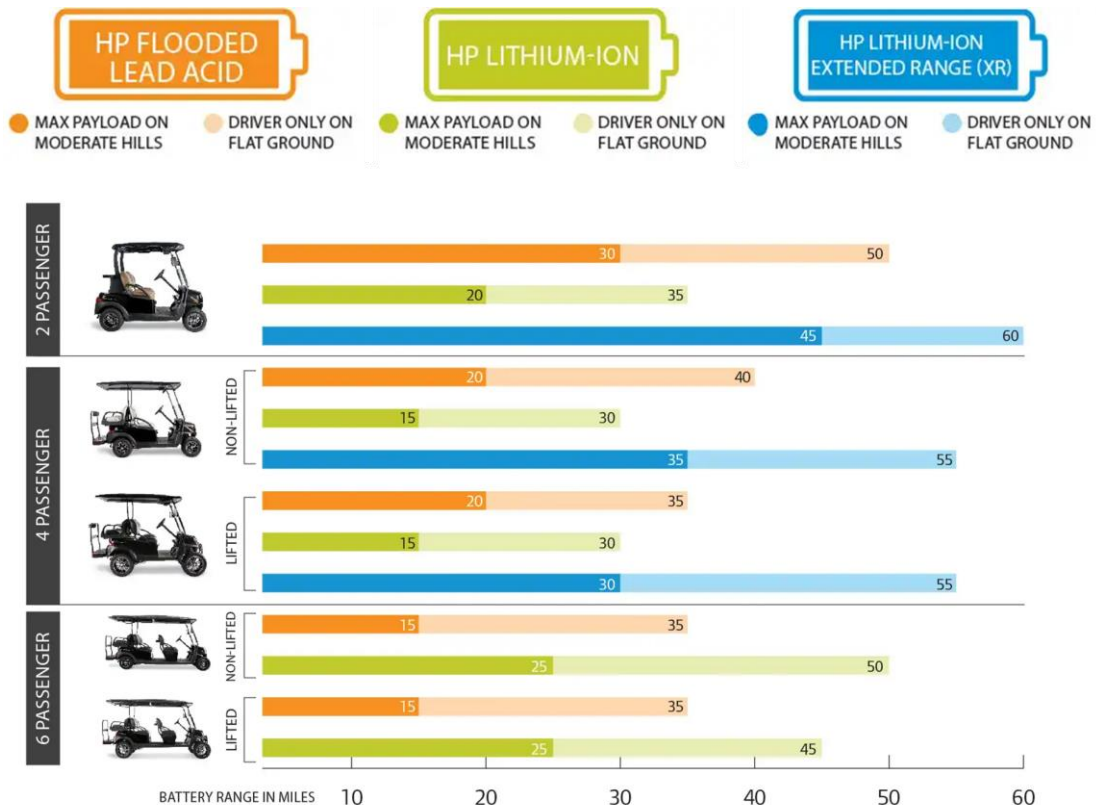


Reported Desire for Charging Infrastructure

During the survey process, which is described in more detail elsewhere in this document, respondents were asked to describe their preference for how their cart is powered. Of those responses, just under half reported that they would prefer the opportunity to charge their carts in public. Respondents were also asked to rank their top 3 program improvements. Public Charging was ranked as the 5th most popular choice, with about a quarter of respondents selecting this choice. When offered the opportunity to share additional information with the project team, 11 comments in favor of and 7 comments opposed to electric charging stations were received.

Battery and Charger Technology

Electric carts are generally powered by one of two battery technologies, flooded lead acid and lithium-ion. Based on a review of available data, the expected range of a new electric cart operating on flat ground is somewhere between 30 and 60 miles. The diagram below depicts the expected range of Club Car brand golf carts based upon the configuration of the vehicle, battery technology, and capacity.



One consideration for the need of public chargers is the degradation of range based on the age and type of battery. For example, older style lead-acid batteries can expect significant degradation with use when compared to modern lithium-ion batteries. Lead-acid batteries also require more time to charge compared to lithium-ion batteries. Depleted range could certainly impact some golf cart user's ability to access destinations on one charge. However, it is difficult to understand the extent of this issue with available data.

Another consideration for public charging infrastructure the question of charger connector type. Electric car manufacturers tend to equip their vehicles with ports designed to accept Combined Charging System (CCS), Type 1 (J1772), or North American Charging Standard (NACS/J3400) connector types with the industry as a whole moving towards the latter. Adapters to allow for charging between connector types are common among EV owners. One or both connector types, whether standardized or as an onsite adapter, can be found at most popular public charging station providers, such as ChargePoint or Tesla Supercharger.

Although virtually all available golf carts use a standard 120v receptacle to charge, several different plug types are frequently found on carts. This makes providing public charging stations difficult. However, simply allowing golf cart drivers to use publicly available outlets, such as those commonly found on light poles, could be an option to provide this amenity.

Trip Length

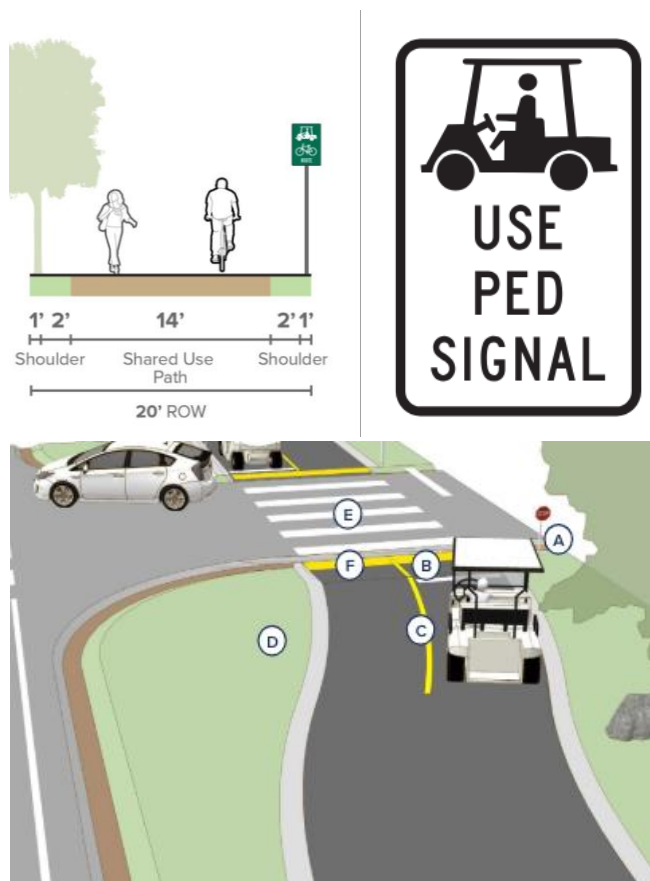
With the desire for public charging infrastructure and information related to the average golf cart trip length in Dunedin completed, an additional evaluation of travel distance was undertaken.

The city limits of Dunedin are compact, measuring about 5 miles at its longest from north to south and about 3 miles at its widest from east to west, excluding Honeymoon Island. Even with a relatively circuitous route required to comply with numerous golf cart operating restrictions, completing a trip that exceeds the range of a typical battery-powered cart would prove difficult. For example, a trip from Fairway Estates, the northernmost boundary of the golf cart operating area, to Dunedin Marina, would be approximately 10 miles round trip. If that same resident were to visit friends near Scotsdale Park, for example, their round trip would only increase by about two miles. This general review tracks with reported trip length from the public survey, where 92% of respondents reported their average trip as being 5 or less miles.

Best Practices

Peachtree, Georgia

Peachtree, Georgia is recognized as one of the most prominent golf cart-friendly communities in the US. Peachtree provides residents with over 100 miles of multi-use paths, allowing residents to forgo the use of personal vehicles altogether. Fayette County, where Peachtree City is located, created a Path System Design Guidelines document to help understand how to construct a system of paths that can safely be shared by all users, including golf carts. The standards are context-sensitive, setting standards based upon the minimum operating width of golf carts, cyclists, and people using wheelchairs. The preferred width is shown below.



Images courtesy of Fayette County

The guidelines also consider other design elements, including a preferred side path setback from major roadways of 20', how to incorporate cart paths at various intersection types, how to design overpasses and underpasses, customized signage, and path amenities.

The Villages

The Villages in Central Florida is another prominent golf cart-friendly community, offering many miles of shared golf cart paths, complete with over- and underpasses. Beyond the right-of-way intensive and costly infrastructure, the Villages generally follows Florida Statute regulations for golf carts. However, the Villages also provides designated spaces for golf carts on many streets. These paths are designated with a diamond, and, when present, cart drivers are required to use these lanes.



Parking and Trail Standards

A review of parking and trail standards across Florida and outside of the US was conducted to determine best practices. These standards are summarized below and inform the final recommendations of this report regarding these topic areas.

| Jurisdiction | Dimensions | Reduction | Remarks |
|----------------------------|------------|-----------|---|
| Palm Beach County, Florida | 6' by 12' | 30% | Provides reduced drive aisles for cart-only lots. Designed for golf course communities. |
| Key Biscayne, Florida | 6' by 11' | None | |
| St Pete Beach, Florida | 6' by 10' | 10% | Combined with motorcycle/scooter parking |
| Estero, Florida | 5' by 8' | None | |
| Lee County, Florida | 5' by 8' | 10% | 1 vehicle per 2 cart spaces. Administrative process. |
| Maricopa County, Arizona | 6' by 12' | 10% | 1 of 2 residential required spaces may be a cart space. Designed for golf course communities. |
| Cape Charles, Virginia | 6' by 11' | None | Signage required |
| Lauderdale-by-the-Sea | 8' by 11' | 10% | |
| Peachtree City, Georgia | 6' by 10' | 10% (min) | No official standard, applied to Planned Developments. Range was 10% to 21% |
| Bluffton, South Carolina | None | 25% | Combined with compact parking |

| Jurisdiction | Width (Min) | Material | Remarks |
|--------------------------|-------------|---------------------|--|
| Ave Maria, Florida | 12' | Concrete | - |
| Lee County, Florida | 8' | Concrete or Asphalt | Intended for low-volume are adjacent to 35 MPH posted roadway. |
| Peach Tree City, Georgia | 10' | Asphalt | - |
| Fayette County, Georgia | 12' | Concrete or Asphalt | 14' preferred. In areas of high pedestrian volume, a 5' side path can be provided. |
| The Villages, Florida | 12' | Asphalt | Most paths are between 15' and 18'. |

Sales & Repair Use

A review of a sales and repair use Downtown was an individual goal of this report. As such, a review of national policy revealed two applicable peer cities in Bluffton, South Carolina, and Galveston, Texas.

Bluffton, South Carolina



A golf cart sales use in Bluffton, SC

Bluffton, South Carolina is a historic small town of approximately 25,000 residents located outside of Hilton Head, SC. Bluffton allows for the sale of golf carts in its historic downtown subject to the following regulations:

F. Low Speed Recreational Vehicle Sales (Conditional Use, Neighborhood Core Historic District)

- 1. All operations, including the display of low speed recreation vehicles, shall be conducted within a fully enclosed building.*
- 2. There shall be no repair or servicing of low speed recreational vehicles permitted.*
- 3. No low speed recreational vehicle that is for rent, lease, or is gas powered shall be made available on-site.*
- 4. There shall be a minimum distance of 500 feet between properties, measured from the nearest property lines that have the same low speed recreational sales use.*
- 5. Notice of applicable traffic laws and a map of legal streets of operation pertaining to low speed recreational vehicles must be provided to the customer during the transaction and copy of said laws and map provided with the low speed*

recreational vehicle. The customer shall sign an acknowledgement of receipt of the applicable traffic laws and map of legal streets of operation.

6. Outdoor display of the vehicles is limited to a maximum of three (3) vehicles provided the vehicles are located not more than ten (10) feet from the principal building façade and the vehicles are not in a common or public area and not within a parking space or lot.

Galveston, Texas

Galveston, Texas is a Gulf Coast beach town of approximately 50,000 residents. Given its tourist-focus, Galveston allows for the sales and rental of golf carts within its general commercial district, subject to the following standards:

Golf Cart Sales or Rental, Limited Use Standards, Commercial General District

- 1. Use Limitation in CB Districts. The use shall be conducted in existing structures only. No outside repair or display/sales of golf carts permitted.*
- 2. Seawall Frontage. No new or expanded surface parking permitted for this use on properties with frontage on Seawall Boulevard.*
- 3. Minimum Setback. Except in the CB district:*
 - a. Outdoor Golf Cart Display/Sales and Other Outdoor Storage: 25 feet from any residential property line or zoning district boundary.*
 - b. B .Golf Cart Wash Facilities. Accessory vehicle was facilities and their incidental functions, including vacuums and air compressors, shall be set back at least 50 feet from the side or rear property line of any adjacent residential use or residential zoning district boundary.*
- 4. Outdoor Display. Outdoor golf cart display shall occur only on paved areas of the site; the displayed golf carts shall not occupy or obstruct required parking spaces. All golf car display or storage shall take place on private property. No display in the right-of-way is permitted without a License to Use.*
- 5. Elevated Display. No more than one outdoor elevated display shall be permitted; the elevated display shall raise the golf cart no more than 3 feet off the ground.*
- 6. Screening. Except in the CB district, when the site is located adjacent to a residential use or residential zoning district boundary, visual screening shall be provided along all common sides and rear property lines. The screening shall consist of a solid landscaping strip of at least 4 feet in width that provides a year-round visual barrier, and positioned directly adjacent to the adjoining property. A solid masonry or concrete wall or a wood fence having a minimum height of five feet shall be installed immediately behind the landscaping strip.*

7. *Surface treatment. All surfaces for vehicle travel or storage are to be treated with a dustless surface and an adequate system of storm drainage as approved by the City Engineer.*
8. *Space Parameters. Every space for a golf cart for sale or rental shall measure 5 feet by 10 feet.*
9. *Sidewalks. Sidewalks, curbs, and curb cuts shall be provided on all street frontages. All on-site sidewalks shall be a minimum width of five feet.*
10. *Property Maintenance. The property upon which any golf carts, sales and rental use is located must be maintained in a neat and orderly manner with no accumulation of inoperable golf carts, tires, golf cart parts, garbage, refuse, or debris on the property.*

Public Engagement

An online survey was distributed to gauge residents' perception of the city's existing golf cart program. The primary purpose of the survey was to identify and inform opportunities to improve the program, with each question being geared toward this purpose. The survey was advertised primarily on the City's social media channels and website. Although the survey was targeted at residents, visitors to Dunedin were also welcome to participate and a total of 2,210 responses were received.

The survey reviewed the following trends:

Four clear categories of users emerged:

1. **Power Users**, those who ride at least 3 times per week;
2. **Weekend Warriors**, those who ride once or twice per week;
3. **Casual Riders**, those who ride a few times a month or several times a year; and
4. **Non-Participants**, those who do not ride a golf cart.

Power Users and Non-Participants made up about equal shares, at 46% and 39% of respondents respectively. Weekend Warriors and Casual Riders rounded out the rest of the total, at 10% and 6% respectively.

The biggest strengths of the program are qualitative, with about half of respondents indicating that carting is a fun (55%) and convenient (46%) way to get around that builds a sense of community (44%). More practically, an equal number indicated that carts are cheaper than driving (38%) and environmentally friendly (36%).

The top issues identified were a lack of legal crossings (56%), aggressive behavior of car and truck drivers (45%), and a lack of separated paths for carts (39%). The behavior of cart drivers themselves was also identified as a top issue, including cart drivers operating on sidewalks or trails (32%) or crossing streets illegally (23%).

When asked about which improvements would most benefit the program, additional legal crossings emerged as the top choice (68%) by a wide margin, followed by separated paths for golf carts (47%), and additional dedicated parking downtown (34%). Additional signage (30%) and public charging stations (26%) were also top choices.

Respondents were asked where they would like to see expansion of the program, including where they would like to see additional crossings and which destinations they would like to reach by cart in the future, but cannot today. When considering crossing locations and excluding responses that listed a specific destination, about a quarter (26%) of respondents expressed interest in a crossing along Alt-19, Bayshore, Broadway, or Edgewater Drive. Another quarter (22%) of responses requested a crossing along Main Street or SR-580.

Regarding new destinations, quarter of the 1,355 comments expressed interest in accessing the Causeway or Honeymoon Island, while other responses included grocery stores such as Publix or Winn Dixie (17%), a specific roadway (14%), or another city or unincorporated area such as Ozona or Palm Harbor (10%). Of 223 specific destinations that were requested using the "Other" section, most (60%) expressed interest in improved access to the marina, which is currently accessible indirectly via Monroe Street.

A complete survey summary can be found as **Attachment 1** of this document.

Recommendations

This section reviews program enhancements from the perspective of operating areas, new permitted crossings, new roads, and major dedicated cart paths. Each recommendation is based on a review of existing conditions, input from the public survey and open house, and feedback from the stakeholder working group, the following operational and policy improvements are offered.

Although each was reviewed for general feasibility, recommendations for new crossings and other improvements are high level in nature and may require additional review, such as an traffic study to understand speed, volume, and turning movements, to ensure ease of implementation and safety. Additionally, those that affect individual neighborhoods should be completed in coordination with each neighborhood. To help clarify recommendations, each operational improvement has been grouped by the primary affected roadway.

The following is a summary of recommendations and immediate next steps:

| Priority | Horizon | Project | Type | Next Step | Remarks |
|----------|---------|-------------------------------|-----------------|--|---|
| Low | Long | Curlew Road Expansion | Designated Path | Long term, ongoing | Required crossing at Curlew Road |
| Low | Long | Curlew Road | Designated Path | Long term, ongoing | North Side |
| Low | Long | Alt-19 | Full Access | Long term, ongoing | North of Wilson Street |
| Low | Long | Causeway / Honeymoon Island | Full Access | Long term, ongoing | Required crossing at Tradewinds Drive |
| High | Medium | Main Street at Dunedin Marina | Full Access | Draft Commission letter of support | - |
| High | Short | Patricia Avenue | Full Access | Speed and Volume Study | - |
| High | Short | Virginia Street / Achieva Way | Full Access | Speed and Volume Study; Initiate coordination with Pinellas County | Required crossing at CR-1; Optional crossing at Main Street |
| Low | Long | Broadway | Full Access | Long term, ongoing | Main Street to Wilson Street |
| Medium | Long | Edgewater Drive | Full Access | Long term, ongoing | South of Main Street |

| Priority | Horizon | Project | Type | Next Step | Remarks |
|----------|---------|--------------------------------------|---------------------|--|---------|
| Medium | Medium | Union Street | Full Access | Speed and Volume Study; Initiate coordination with City of Clearwater | - |
| Medium | Medium | Gladys Douglas Preserve Access | Limited Access | Review opportunities to provide access | - |
| High | Short | Dunedin Isles | Neighborhood Access | Neighborhood outreach; Coordinate with Bayshore Medians (ID 451073-1-52-1) | - |
| Low | Medium | Dunedin Village | Neighborhood Access | Neighborhood outreach | - |
| Low | Medium | Palm Lake Village | Neighborhood Access | Neighborhood outreach | - |
| Low | Medium | Spanish Trails | Neighborhood Access | Neighborhood outreach | - |
| Medium | Short | General Education Materials Update | Policy / Education | Initiate design process | - |
| Medium | Ongoing | Targeted Education Materials | Policy / Education | Identify targeted groups | - |
| Medium | Ongoing | Golf Cart / LSV Incident Tracking | Policy / Education | Initiate contact with PSCO | - |
| Medium | Medium | High-Visibility Enforcement Campaign | Policy / Education | Initiate coordination with Forward Pinellas and PSCO | - |
| Medium | Medium | Golf Cart Sales & Rentals | Policy / LDC | Initiate coordination with LDC consultant team | - |
| High | Medium | Golf Cart Parking Reductions | Policy / LDC | Initiate coordination with LDC consultant team | - |

| Priority | Horizon | Project | Type | Next Step | Remarks |
|----------|---------|-------------------------------------|------------------------|---|---------|
| High | Short | LSV Pop-Up Conversion Pilot Program | Policy / Program | Initiate outreach to FLHSMV | - |
| High | Short | Split Parking Pilot Program | Policy / Program | Identify selected parking spaces | - |
| Medium | Medium | Charging | Policy / Program | Identify City facilities with existing electric | - |
| Medium | Short | CR-1 & Hickory Gate Drive | Standalone Crossing(s) | Neighborhood outreach; Signal Warrant Study | - |
| High | Short | Skinner Boulevard | Standalone Crossing(s) | Continued FDOT coordination | - |

Operational Improvements

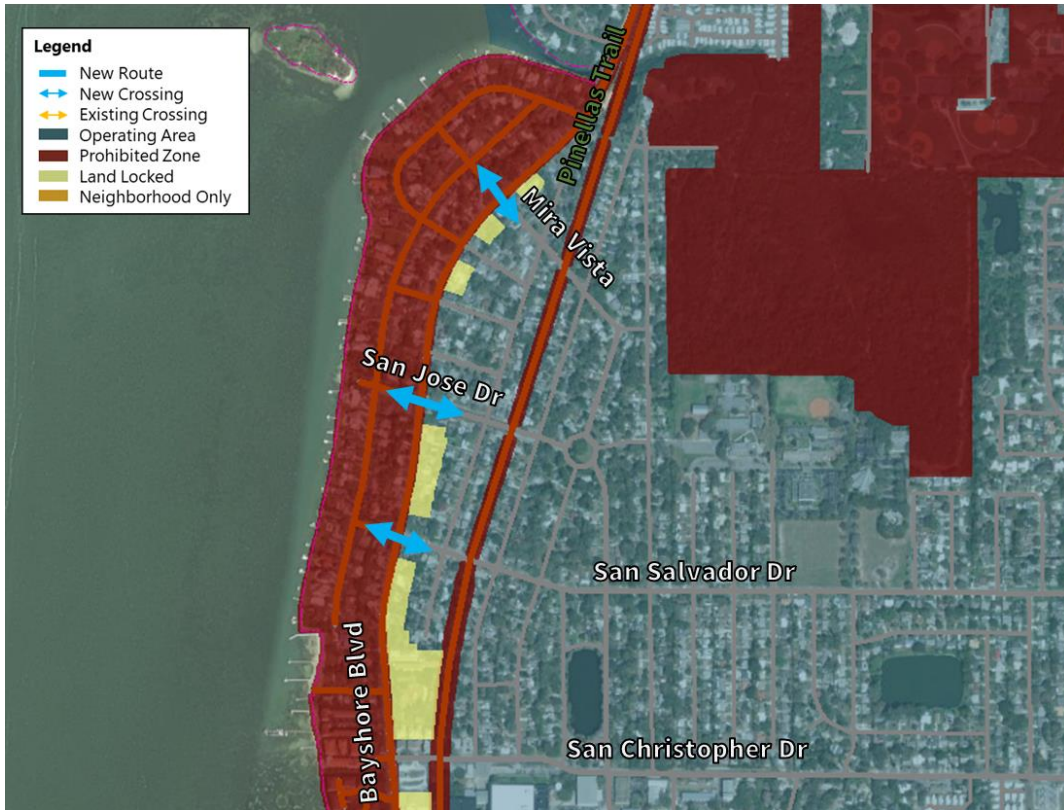
Broadway / Alt-19

Installing a new cart crossing along Broadway / Alt-19 would allow access to the Dunedin Isles between Buena Vista Drive and San Salvador Drive. Three opportunities for crossing exist at Mira Vista Drive, San Jose Drive, and San Salvador Drive. Although each intersection is suitable at a high level, Mira Vista Drive offers the least offset intersection, while San Salvador Drive offers the most direct connectivity to other neighborhoods. Additional engineering study should be pursued to determine the best fit. These improvements are shown in the diagram on the following page.

| Broadway / Alt-19 | |
|-------------------|-----------------------------------|
| Volume | 17,800 AADT |
| Speed Limit | 40 MPH |
| Jurisdiction | FDOT |
| Lanes | 2, Undivided; Center Turn Lane |

Project Quick Facts

- Introduces three alternatives for a potential new crossing.
- Increases the number of residents who can participate in the program by eliminating a prohibited zone.
- Implementability: Medium



Causeway Boulevard

Access to Honeymoon Island was another extremely popular request of residents throughout the public engagement process. Although this would be a major success for the program, there are significant hurdles to accomplish this. Chief among these is assessing the impact that access by lower speed vehicles would have on the performance of this congested, constrained roadway, especially across bridges. Beyond simple use of the roadway itself, connecting this area with the city at large is extremely complicated due to the lack of suitable public ways on the southwest corner of Causeway Boulevard and Bayshore Boulevard suitable to be shared by carts.

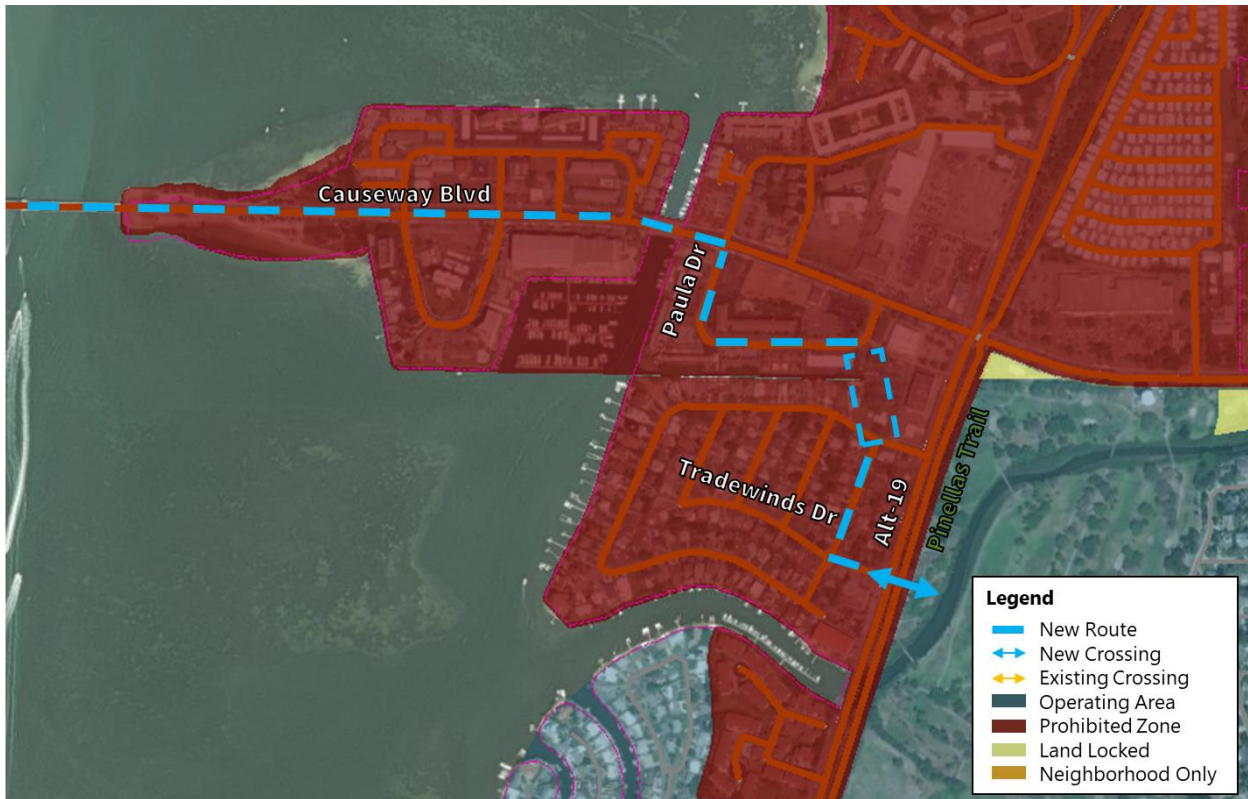
Further, coordination with the Florida Park Service would be required to allow publicly owned and operated golf carts to operate within Honeymoon Island State Park. A study would be required to determine the feasibility of reducing the posted speed limit to 30 MPH or less.

Based on available traffic data, these segments exceed the City's general 5,000 AADT volume limit. These improvements are shown in the diagram on the next page.

| Causeway Boulevard | |
|--------------------|-----------------------------|
| Volume | 14,900 AADT |
| Speed Limit | 35 MPH |
| Jurisdiction | County |
| Lanes | 2, Undivided; 4, Divided |

Project Quick Facts

- Introduces one potential new crossing.
- Increases the number of residents who can participate in the program.
- Provides access to Honeymoon Island.
- Implementability: Low



CR-1

Two new crossings could be installed to expand access for carts to two neighborhoods in Dunedin. The first consists of a new signalized intersection at the intersection of CR-1 and Hickory Gate Drive. By installing this new crossing, residents of Spanish Trails could participate in the program.

The second consists of a new crossing at Coachlight Way to provide access to Palm Lake Village. Installation of this intersection is complicated due to its spacing from Solon Avenue, reducing the likelihood of success from an engineering standards perspective.

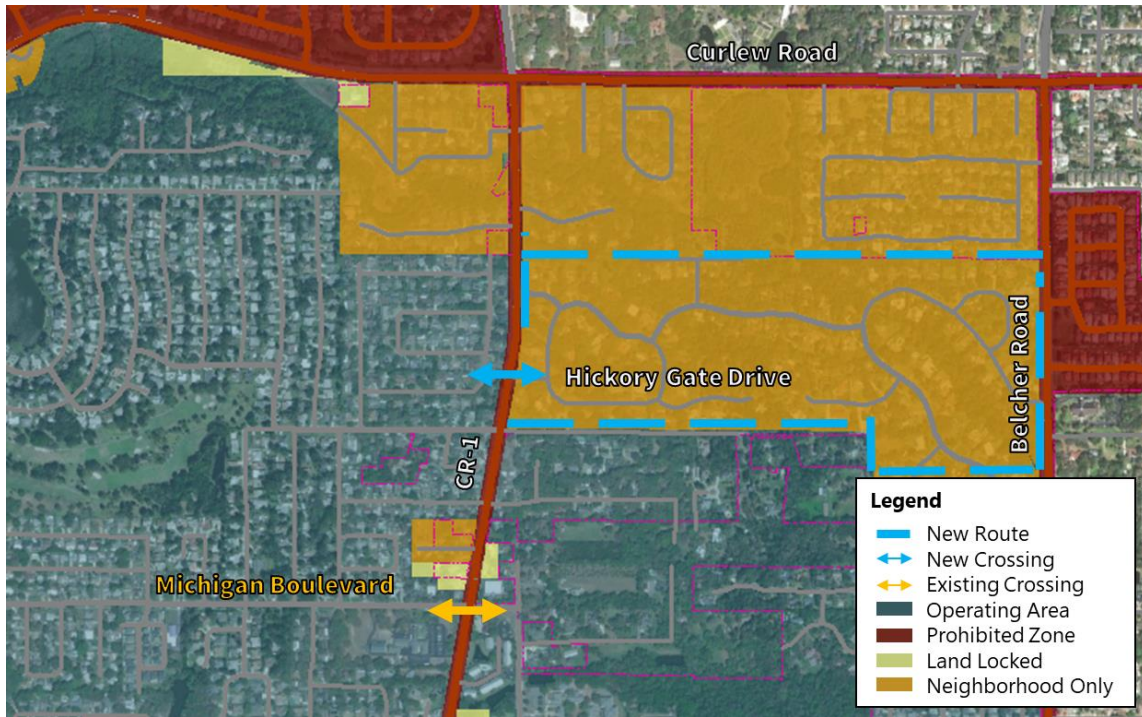
Project Quick Facts

- Expands the operating area to two neighborhoods.
- Introduces two potential new crossings.
- Increases the number of residents who can participate in the program.
- Implementability (Hickory Gate): High
- Implementability: (Coachlight Way): Low

| CR-1 at Hickory Gate Dr | |
|-------------------------|-------------|
| Volume | 22,500 AADT |
| Speed Limit | 35 MPH |
| Jurisdiction | County |
| Lanes | 4 Divided |

| CR-1 at Solon Road | |
|--------------------|-------------|
| Volume | 22,500 AADT |
| Speed Limit | 35 MPH |
| Jurisdiction | County |
| Lanes | 4 Divided |

Both improvements are shown diagrams on the following page.



Curlew Road

Access to the Caladesi Shopping Center, which includes a Publix grocery store and pharmacy, was a significant request among the public. However, access is complicated by two roads that are prohibited from use by golf carts. Access can be reviewed by introducing a series of cart-only paths. The first section of this approach would include a path that follows the edge of Dunedin Golf Club, crossing Curlew Creek at an existing cart bridge. Next, a fully separated path alongside the Pinellas Trail could be constructed along with a new crossing and added at Tradewinds Drive. This trail would continue to the intersection of Curlew Road and Alt-19, where the intersection would be redesigned to accommodate a shared crossing for carts. Finally, a shared path can be installed on the north side of Curlew Road to access neighborhoods to the east.

| Curlew Road | |
|--------------|-------------|
| Volume | 15,800 AADT |
| Speed Limit | 35 MPH |
| Jurisdiction | County |
| Lanes | 4 Divided |

Project Quick Facts

- Expands the operating area with new cart-only paths.
- Introduces two potential new crossings.
- Increases the number of residents who can participate in the program and provides access to a grocery store.
- Implementability: Low

This crossing would require significant coordination with FDOT to be implemented due to the complexity of open drainage, mast arms, and crosswalk alignment. Despite being allowed by the Transportation Engineering Manual, shared cart paths are rarely installed along FDOT's right-of-way. Finally, significant care would need to be applied towards the treatment along the Pinellas Trail to satisfactorily keeping carts off the trail. These proposed improvements are illustrated in diagram on the following page.



Main Street and Skinner Boulevard

One of the most popular requests received during public involvement was easier access to Dunedin Marina. To do so, access by carts on the 500' segment of Main Street between Victoria Drive and Broadway should be considered. Based on available traffic data, the segment of Main Street proposed for access exceeds the City's general 5,000 AADT volume limit. In addition, the segment is under the jurisdiction of FDOT, requiring significant coordination and variances to accomplish.

However, the benefits of this improvement would significantly enhance access to Dunedin Marina and Edgewater Park. Should the improvement be infeasible in the short-term, opportunities to enhance vehicle compliance at the existing Monroe Street crossing should be pursued.

At the time of this study, a construction plan is underway to reduce Skinner Boulevard to two lanes in each direction with a center median, a shared use path, bike lanes, and new cart crossings. When completed, Skinner Boulevard will include crossings at Douglas Avenue and Highland Avenue in addition to the existing crossing at Main Street.

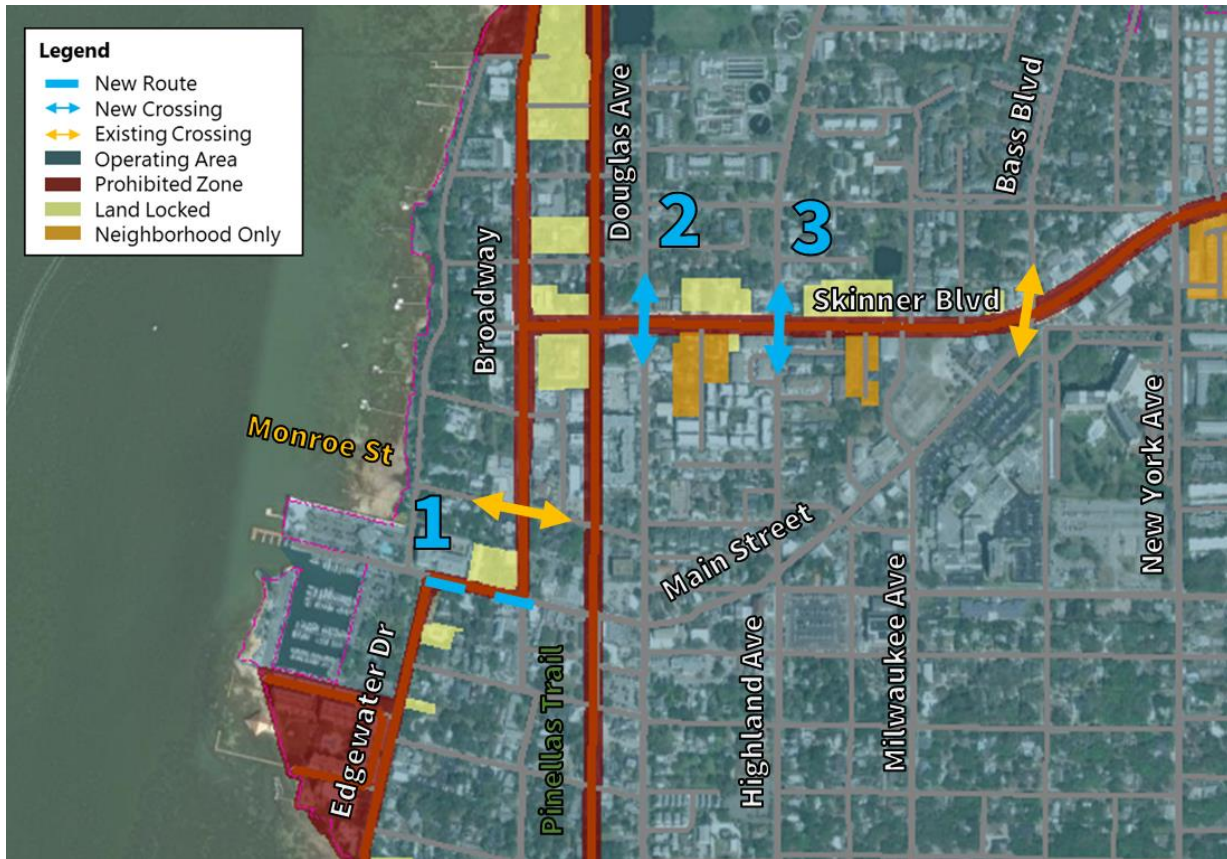
These improvements are shown in the diagram on the following page.

Project Quick Facts

- Simplifies access to Dunedin Marina with one new segment.
- Introduces three potential new crossings.
- Enhances access to Downtown Dunedin.
- Implementability: Low

| Skinner Boulevard | |
|-------------------|-------------|
| Volume | 11,400 AADT |
| Speed Limit | 25 MPH |
| Jurisdiction | FDOT |
| Lanes | 2, Divided |

| Main Street | |
|--------------|--------------|
| Volume | 13,700 AADT |
| Speed Limit | 25 MPH |
| Jurisdiction | FDOT |
| Lanes | 2, Undivided |



Patricia Avenue

Patricia Avenue has the potential to serve as a core north/south corridor for the program, but currently has several breaks in the service area. Allowing carts on the northern section, running just south of Main Street to Virginia Street, would allow for access to a grocery store and other retail choices. However, the posted speed limit is 35 MPH, representing a potential hurdle for allowing cart access. An engineering study would be required to understand the feasibility of reducing the speed limit to 30 MPH.

Project Quick Facts

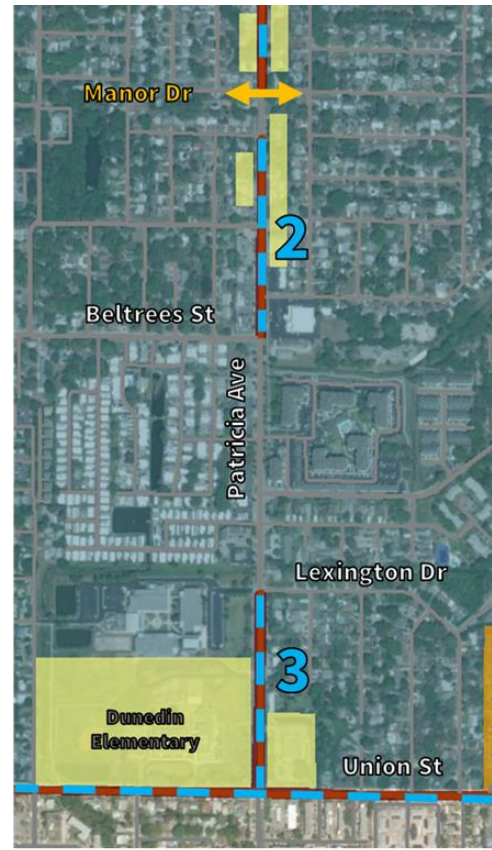
- Expands the operating area with three new segments.
- Provides access to a grocery store and elementary school.
- Increases the number of residents who can participate in the program.
- Implementability: High

| Patricia Avenue (N/O Virginia) | |
|--------------------------------|-----------------------------------|
| Volume | 9,700 AADT |
| Speed Limit | 35 MPH |
| Jurisdiction | City |
| Lanes | 2, Undivided; Center Turn Lane |

| Patricia Avenue (S/O Virginia) | |
|--------------------------------|-----------------------------------|
| Volume | 9,700 AADT |
| Speed Limit | 30 MPH |
| Jurisdiction | City |
| Lanes | 2, Undivided; Center Turn Lane |

Expanding the golf cart zone on all of Patricia Avenue south of Virginia Street would allow residents to access Dunedin Elementary School and a Walgreens pharmacy, among other businesses and residences. It also eliminates the breaks in the golf cart zone between Manor Drive and James Street, lending predictability to the golf cart zone and increasing compliance with the regulations. Pending the outcome of the potential expansion of the zone to Union Street, this zone could be expanded to the entrance of Dunedin Elementary School or to Union Street.

Patricia Avenue currently allows golf carts on certain designated sections. Based on available traffic data, these segments exceed the City's general 5,000 AADT volume limit. However, actual volumes may be lower due to the generalized nature of the available data. These improvements are shown in the diagrams on the following page.



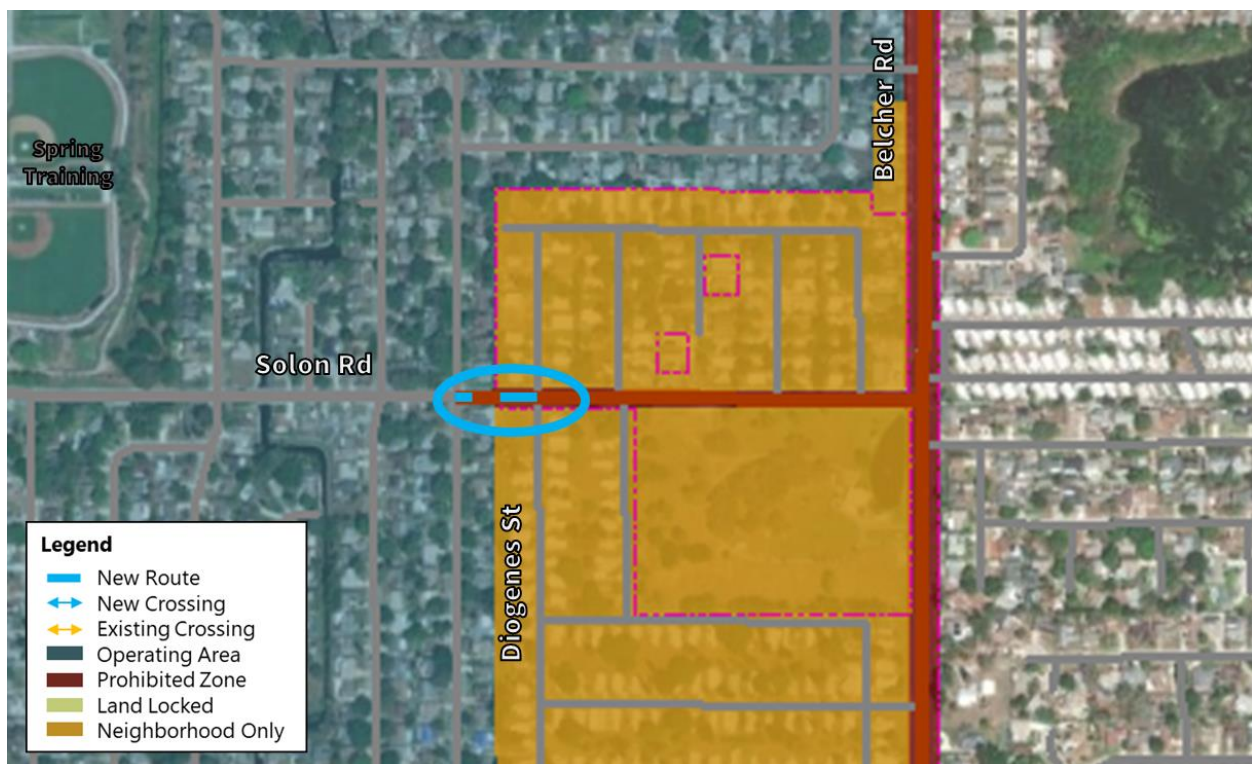
Solon Avenue

The golf cart zone along Solon Avenue currently ends at Dinnerbell Lane, with unincorporated Pinellas County lying to the east. Working with the County to expand the zone approximately 250' east would allow for the construction of a private, cart-only entrance to Pinellas Groves. Any expansion for this purpose should be completed only with the approval of residents within Pinellas Groves, which would need to construct an access point at Solon Road. This improvement is shown in the diagram below.

| Solon Avenue | |
|--------------|--------------|
| Volume | 3,600 AADT |
| Speed Limit | 30 MPH |
| Jurisdiction | County |
| Lanes | 2, Undivided |

Project Quick Facts

- Provides access to the eastern city limits.
- Increases the number of residents who can participate in the program.
- Implementability: Medium



Union Street

Union Street serves as the southern border of Dunedin, with the City of Clearwater lying just south. Working with the City of Clearwater to establish an interlocal agreement (ILA) to allow for the use of Union Street by golf carts could potentially eliminate all landlocked areas in the southern portion of Dunedin. This request would align with a potential cart program established by the City of Clearwater.

If expanded between Douglas Avenue and Promenade Drive, several individual residential properties could be brought into the operating zone in addition to the dozens of homes within Jennifer Estates, Highland Estates, Union Park Villas, Union Square, and Lake Tiffany. The major destinations of Dunedin Highland Middle School, Dunedin Elementary School, and a Walgreens pharmacy would also be included.

Based on available traffic data, the eastern portion of Union Street exceeds the City's general 5,000 AADT volume limit.

| Union Street | |
|--------------|---------------------|
| Volume | 1,650 to 8,700 AADT |
| Speed Limit | 30 MPH |
| Jurisdiction | City / Clearwater |
| Lanes | 2, Undivided |

Project Quick Facts

- Expands the operating area.
- Introduces potential access to Clearwater.
- Implementability: Medium

Virginia Street and Achieva Way

Four potential expansions are recommended for Virginia Street and Achieva Way. Together, these improvements would clarify operating areas for golf carts while increasing the number of residents who can participate in the program.

To help address the clarity of this golf cart zone, the first recommendation is to study allowing golf carts to utilize the 1,200' segment of Virginia Street east of Patricia Avenue. This segment of Virginia Street crosses

Unincorporated Pinellas County and is thus under the jurisdiction of Pinellas County, requiring coordination with the county on access by golf carts. The intersection of Virginia Street and Patricia Avenue may require a crossing agreement with Pinellas County, and an engineering study would be required to determine the feasibility of reducing the posted speed limit to 30 MPH or less. This is shown as number one in the diagram below.

Project Quick Facts

- Expands the operating area with three new segments.
- Introduces two potential new crossings.
- Increases the number of residents who can participate in the program.
- Implementability: Medium

| Virginia Street | |
|-----------------|-----------------|
| Volume | 5,000 AADT |
| Speed Limit | 35 MPH |
| Jurisdiction | City and County |
| Lanes | 2, Undivided |

| Achieva Way Street | |
|--------------------|--------------|
| Volume | 3,000 AADT |
| Speed Limit | 30 MPH |
| Jurisdiction | City |
| Lanes | 2, Undivided |

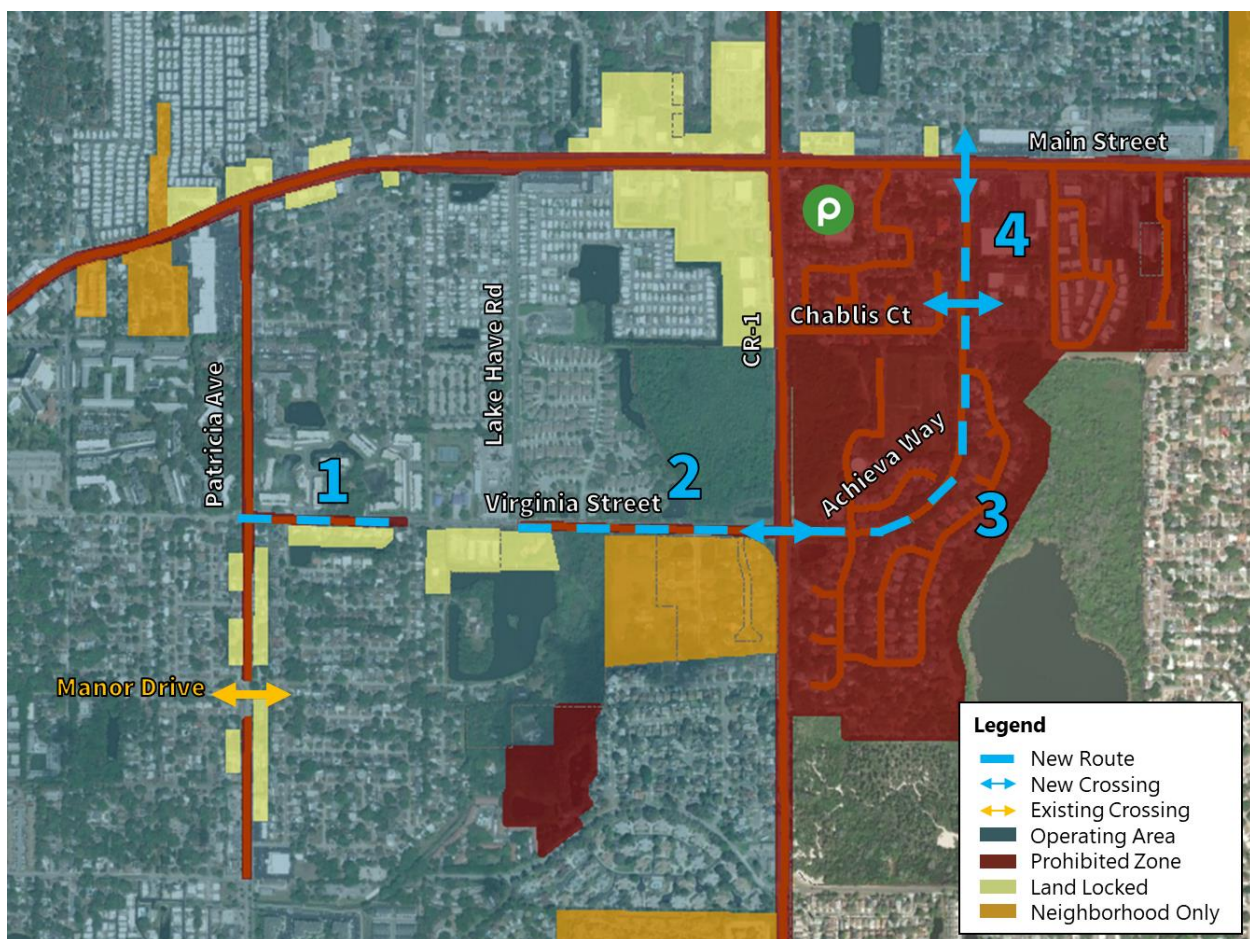
To the east, this segment of Virginia Street is cut off where it crosses Unincorporated Pinellas County and is thus under the jurisdiction of Pinellas County, requiring coordination with the county as with the preceding improvement. This is shown as number two in the diagram below.

If completed, this expansion should be completed in conjunction with the expansion of Achieva Way, requires a new crossing agreement with Pinellas County to cross CR-1 / Keene Road, and would require coordination with affected homeowners. A study would be required to determine the feasibility of reducing the posted speed limit to 30 MPH or less.

The third and fourth extensions involve Achieva Way. Connecting Achieva Way to the south golf cart zone via Virginia Street would allow residents of Weathersfield and Concord Grove to access

Downtown Dunedin and would allow residents elsewhere in Dunedin to access the Jerry Lake Sports Complex and various retail destinations off Achieva Way. At a minimum, a legal golf cart crossing would need to be established at CR-1 and Virginia Street/Achieva Way. In the future, an additional crossing of Main Street and Achieva Way could be pursued, but is unlikely to be successful due to the high volume and high number of lanes along Main Street. Access to the Publix shopping center on the southeast corner of CR-1 and Main Street is prohibited due to the speed, volume, and total lanes of each road along with a lack of connectivity within the adjoining neighborhoods.

These improvements are shown in the diagram below.



Other Improvements

Charging

Given a review of reported trip length and the range of golf carts, there is likely not a significant need to provide charging stations.

Instead of providing formal charging stations, the City could provide access to existing 120v outlets present on some light poles and other existing infrastructure. Special consideration should be made to avoid cables creating hazards for people walking. The city should also encourage, but not require, the private sector to provide charging stations for their patrons through to be determined incentive programs.

LSV Conversion

Converting a golf cart to a low-speed vehicle is permissible within Florida. Although insurance for an LSV tends to be more costly than a golf cart, conversion offers the significant benefit of legal operation on streets with posted limits of 35 MPH or less. Conversion requires inspection by the Florida Motorist Services Regional Office. However, vehicles must be present for the inspection and the office nearest to Dunedin is located in Tampa. This increased burden discourages many interested parties from pursuing conversion.

To help reduce this burden, the City should engage Florida Highway Safety and Motor Vehicles with the goal of organizing a pop-up inspection day in Dunedin. This would allow interested parties to reach the inspection in their golf cart, significantly reducing the transportation complexity of LSV conversion. The pop-up event should be held at a publicly-accessible venue, such as City Hall.

Education

Aside from general operational concerns, the primary issue raised across the board was related to education and compliance.

When reviewing survey data, the following major themes arose, with each serving as an opportunity to produce specific informational materials.

- Bad vehicle driver behavior towards cart drivers
- Underage Use
- Intoxication
- Reckless Driving
- Illegal crossing by carts
- Sidewalk and Trail Use

Educational Materials & Campaigns

Educational materials, whether in print or digital format, are an opportunity for the city to remind all road users of the rules of the road. The city currently maintains a golf cart webpage,

which includes resources related to regulations, required equipment, parking, and use of carts in city parks. The site also includes a link to the interactive carting map.

In addition to continuing to maintain these resources, the city should review opportunities to produce and distribute physical media. These could include a physical roadmap of golf cart zones and crossings, a handbook of rules of the road for operating a golf cart, and information related to the differences between a golf cart and an LSV.

Outreach Events

Tabling at existing events with high attendance, such as parades or green markets, is an effective way to engage a variety of audiences. Being present at these events to provide interested parties with educational materials and the opportunity to ask questions can raise awareness of safety best practices related to golf carts.

Driver’s Academy

A Driver’s Academy is a creative way to encourage safe behaviors both behind the wheel of and sharing the road with a cart. This program could be in the form of a formal class or a pop-up at public events (e.g. parades) and include written or behind the wheel instruction.

Teaming

One strategy to maximize resources is to team up with existing organizations that currently promote the safe use of golf carts, such as the Chamber of Commerce. Organizations such as these could aid in encouraging participation in voluntary training efforts. For example, an outside organization could help sponsor a voluntary golf cart driver’s school, where successful participants could be entered to win prizes donated by local businesses.

Local Schools

Since underage carting is a major concern of the public, special consideration should be paid to this audience. Educational materials should be distributed to local schools, particularly high schools and middle schools zoned for Dunedin residents, to remind students of the rules related to carting and the potential repercussions of not following those rules.

Enforcement

Coordination with PSCO

The Pinellas County Sheriff’s Office (PSCO) already tracks interactions related to golf cart drivers on a regular basis. Through the Strategic Planning Division, PSCO currently collects the following data based on Patrol District:

- Total Interactions
- Total Arrests
- Total Citations Issued
- Total Warnings Issued
- Age (Under 18, Over 18)
- Violation type

Although Dunedin lies within the North Patrol District, which generally includes Dunedin, Oldsmar, Safety Harbor, and Palm Harbor, being apprised of this data can help inform city staff of any major issues. The City should consider working with PSCO to receive this information limited to Dunedin's corporate limits.

High Visibility Enforcement Campaign

High visibility enforcement campaigns make residents and visitors aware of rules related to safety topics. These campaigns have proven successful in raising awareness regarding safe behavior for people walking and biking and could be easily applied to golf carts instead. As part of a high visibility enforcement campaign, enforcement activities target certain behaviors, occur during designated times, and are coordinated with an awareness campaign. In most cases, drivers are provided with warnings and educational materials rather than citations.

The City should coordinate with PSCO to identify the viability of a High Visibility Enforcement Campaign, as well as any funding for deputy overtime that may be needed. Also consider coordinating with other agency partners, such as Forward Pinellas, to identify potential grant funding through a pilot project process.

Land Development Code Amendments

Parking Dimensional Standards

Section 105-32.6.6 sets standards for parking area layouts. An additional standard should be set requiring that a 90° parking space designed for a golf cart shall be 6' wide by 12' deep. Alternatives, such as a parking lot designed only for golf carts, shall be approved by way of a waiver or administrative adjustment.

Parking Offsets & Tradeoffs

Section 105.24.4 of the Code of Ordinances establishes various alternatives to address parking requirement shortfalls in the downtown area. An additional parking offset related to golf carts should be introduced. Using the above dimensional standards, a property owner should qualify to set aside up to 50% of the required provided parking as golf cart parking by way of a waiver or administrative adjustment.

Shared Parking Pilot Program

Some interest has been expressed towards sharing existing parking spaces, allowing two carts to be parked in a single standard parking space. The City should consider a temporary six-month pilot program allowing such use of existing parking spaces within designated lots Downtown. At the conclusion of the six-month period, data collected during this period should be analyzed and reported to the City Commission. Based upon the outcome of the pilot program, this approach could be implemented formally for both existing and new projects downtown.

Sales and Repair Downtown

A new use should be introduced to the DC zoning district to accommodate the sales and rental of golf carts and similar vehicles, reading as follows:

Retail Sales, Rentals, Golf Carts and Low-Speed Vehicles. Downtown Core.

Definition: Commercial establishments that sell or provide short-term rentals of golf carts and low-speed vehicles. This use shall be conducted within an existing enclosed structure. No outdoor display or storage is permitted. Repair shall not be permitted.

Repair was determined to be an inappropriate permitted use in the Downtown Core due to its highly dense, built-out, and pedestrian-friendly nature.

Path Design Standards

In cases where a shared or single-use cart path may be constructed, standards should be set for each. A recommended standard of a concrete or asphalt path constructed at a preferred 14' in width should be adopted. In cases where right-of-way is limited or obstructions exist, that path should be a minimum of 12' in width. Cart paths should be designed in such a way to clarify their shared nature. Offsets at intersections, as appropriate, should be provided to encourage safe access.