State Road 580 Corridor Assessment

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Abstract

As part of the Community Sustainability Partnership Program between the University of South Florida and the City of Dunedin, this report provides an assessment of the mobility and access characteristics of a one-mile segment of SR 580 in order to understand potential current and future deficiencies in the roadway, pedestrian, bicycle, and transit networks, ultimately for which to provide a framework for future improvements. The final assessment is guided by a range of specific assessments outlined by various state and federal multi-modal planning resources which address the topics of access management, transit, alternative transportation modes, and land use in addition to, but not in lieu of, the standard roadway planning considerations (e.g. safety, level of service, etc.). Additionally, a walk audit and accessibility assessment was performed in order to gather any missing data firsthand and to supplement the project team's understanding of the corridor and local context. In sum, these assessments, data gathering efforts, and pertinent coursework helped our group establish the appropriate FDOT context classification and identify other related guidelines for the corridor's current state, and desired future state, as well as recommend additional guiding principles in order to enhance the livability and economic vitality of the corridor in the coming decades.

Introduction

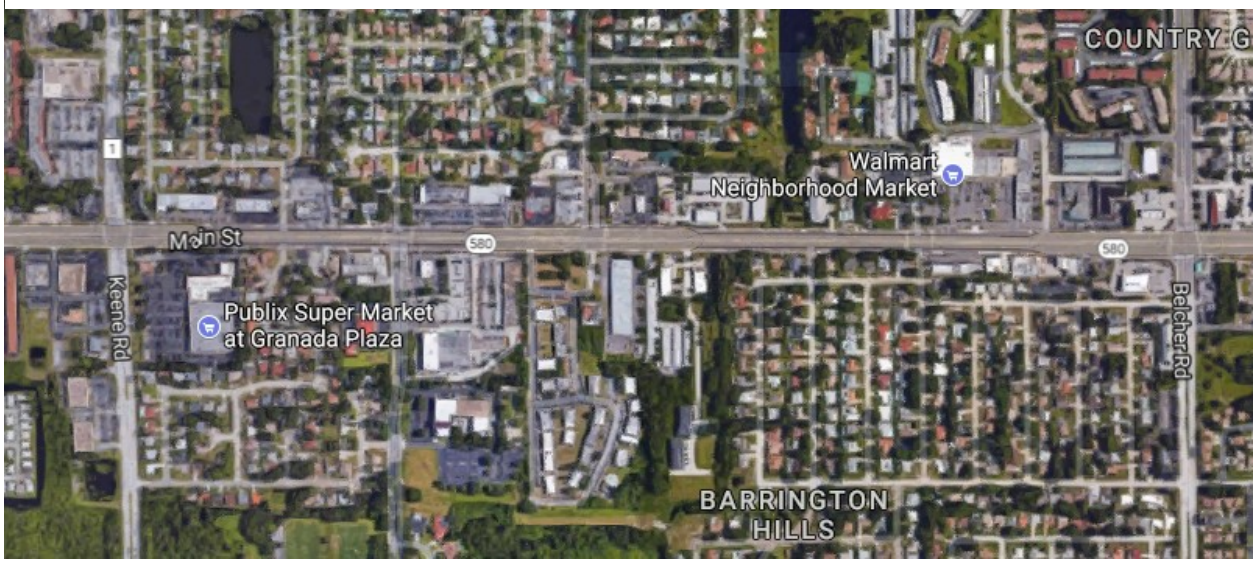
This report assesses the mobility and access characteristics of a one-mile segment of SR 580 to understand potential current and future deficiencies in the roadway, pedestrian, bicycle, and transit networks for which to provide a framework for future improvements. The report begins with an overview of the study area and a rubric of the goals and objectives produced as a product of the project's assessments which guide the forthcoming recommendations and implementation strategies. Relying primarily on research using a variety of public data sources, roadway design guides produced by the State of Florida or resident institutions such as CUTR, in-person audits, web-based GIS tools, and relevant course materials, the project strives to answer the key question "given the context of the corridor and the toolbox of improvement strategies available, how can safety, mobility, accessibility, livability and economic vitality all be pursued?".

As a first step towards answering this question, a discussion of the relevant FDOT Context Classification for the corridor is provided. Next, a brief summary of the context assessment is provided and then reviewed for each of the key components of the study area's transportation network, which together help to define the project's specific purpose and need statement. Additionally, an assessment of the corridor's access management characteristics and adherence to guidelines for the roadway's relevant FDOT Access Classification is reviewed. Building on the rubric or goals and objectives refined for the corridor a selection of recommendations and implementation strategies are reviewed, organized by each component of the study area, including references to goals and objectives where appropriate.

Study Area Overview

This project study area is centered on a one mile segment of SR 580, otherwise known as Main Street, located between Keene Road and Belcher Road in Dunedin, Florida. The study area also considers land use adjacent to the roadway as well as network connections to the surrounding areas of the neighborhood and greater County as shown in Map 1. SR 580 is the principal arterial roadway connecting Alt. US-19 to US-19 which are part of the state highway system. The primary land uses in the study area are commercial in nature, and some specific uses include restaurants, Publix Supermarket, Walmart Neighborhood Market, banks, and local businesses, as well as some vacant parcels that may be developed in the near future. Moreover, most of the buildings in the study area are single-story, low density, and detached in character, except for a few strip malls. There are many businesses with dedicated parking lots, a handful of bus stops, and sidewalks and bicycle lanes extending the entire length of the study area; therefore, the basic infrastructure exists for travelers of a variety of modes to reach these trip generators.

Map 1: Study Area



Goals and Objectives

This section reviews a set of goals that are supported by a set of related objectives and policies, the latter of which can ultimately be tracked through a defined set of performance measures. It is important to note that a concerted effort has been made to align the goals and strategies with existing aims set forth by the City of Dunedin and Pinellas County in the respective Comprehensive Plan and Long Range Transportation Plan, and key integrations are highlighted below. The following goals and their respective objectives, policies, and performance measures provide a starting point for improving the safety, mobility, accessibility, livability and economic vitality of the study area.

Goal 1: Implement roadway improvements that will increase safety and facilitate the highest level of service across the motorized transportation system. (Based on Goal 1 of Dunedin Comp. Plan)

a. Objective: Reduce vehicle crashes by 10% per year.
    i. Policy: Construct a non-traversable median in place of two way turn lane that provides directional openings only every 660 feet at minimum per FDOT Median Spacing Standards for a Class 5 roadway.
        (1) Measure: Number of crashes related to left hand turns.
    ii. Policy: Shared connections and driveways onto roads will be promoted. (Objective I-B-16 *ibid*)
        (1) Measures:
            a. Number of new inter-parcel access points.
            b. Number of closed driveways due to improved internal access.

b. Objective: Maintain quality and reliability of current motor facilities.
    i. Policy: Work with FDOT to achieve a speed reduction for this segment of SR 580 to 40 MPH (currently 45 MPH).

(1) Measure: Achievement of speed reduction.

ii. Policy: Continue the requirement that FDOT approve driveway permits for development adjacent to the State Highway System, however in a manner consistent with the 245-foot minimum spacing per FDOT Driveway Spacing Standards for a Class 5 roadway. (Based on Policy I-C-2 *ibid*)

(1) Measure: Number of new driveway connections meeting spacing standard.

iii. Policy: Prioritize congestion mitigation projects through the CMP and implement low-cost operational or small-scale physical improvements for mobility including TDM strategies. (Based on Policy 4.1.3 in Pinellas County LRTP)

(1) Measures:

(a) Reduction of VMT.

(b) Increases in average vehicle occupancy.

Goal 2: Encourage and promote transportation alternatives other than the private passenger vehicle. (Goal II in Transportation Element of Dunedin Comp. Plan)

a. Objective: Maintain and expand alternative transportation infrastructure to ensure a safe, convenient and efficient non-motorized transportation system. (Based on Objective II-A *ibid*)

i. Policy: Work with PSTA by 2019 to determine the feasibility of increasing local bus route headways. Route 61 to 30 minutes (currently 45-65 min.) and Route 78 to 20 minutes (currently 30-45 min.).

(1) Measure: Percent of revenue miles for Routes 61 and 78 along SR 580 that operate at the new headways.

ii. Policy: Conduct a study by 2020 to determine the cost and feasibility of installing bicycle signals as well as 'Dutch-style' intersections at SR580 and both Keene Road and Belcher Road.

(1) Measure: Completion of study.

iii. Policy: Ensure sidewalk connections between bus stops, sidewalks, proximate buildings, including buffered walkways traversing through parking areas. (Policy 2.1.2 in Pinellas County LRTP)

(1) Measure: Linear feet of sidewalk connections added per year, by type of connection.

iv. Policy: Expand the bicycle lane widths to 6 feet (currently 5 feet) by the end of 2018.

(1) Measure: Percent of bicycle lanes equaling 6 feet or more in width.

Goal 3: Establish and encourage innovative design and redevelopment in a newly created overlay district.

a. Objective: Use incentives to promote street-fronting businesses.

i. Policy: Create a Retailer Façade Grant Program and a Commercial Tenant Improvement Grant Program to encourage developers to create or improve their new or existing businesses by the end of 2019. (Based on City of St. Petersburg's programs)

(1) Measures:

c. The number of applicants to each program.

d. The number of renovated buildings.

ii. Policy: Create new design guidelines and standards for new developments along the corridor by the end of 2020.

(1) Measure: Number of new street-facing constructions.

iii. Policy: Provide an FAR bonus for renovated or new developments that include outdoor dining, parklets, or other activated open spaces.

(1) Measures:

e. The number of activated street-fronting activities.

f. Average FAR.

iv. Policy: Continue plans for implementation of Form-Based Code

b. Objective: Use incentives to support the sustainable development for new and existing businesses.

i. Policy: Provide a tax reduction or density bonus for the LEED-certified buildings.

(1) Measures:

a. The number of buildings that are LEED-certified.

b. The reduction of energy consumption

Goal 4: Ensure that developments and transportation systems are consistent with the maintenance of optimum air quality and promote a comfortable and aesthetically pleasing environment.

a. Objective: Install solar-powered streetlights and any other amenity going forward.

i. Policy: Work with FDOT to install solar-powered, human-scale light poles on both sides of the roadway.

(1) Measure: Percent of streetlights powered by solar energy.

b. Objective: Introduce design practices consistent with principles of green infrastructure.

i. Policy: Plant trees along the sidewalks and the new median.

(1) Measure: Number of trees planted.

Performance Monitoring Plan

It is recommended that progress towards the goals, objectives, policies and attendant performance measures will be reviewed on a semi-annual basis. The first review period of the calendar year should occur halfway into Dunedin's fiscal year, at the end of March, and the second, corresponding with the end of the City's fiscal year, at the end of September. Details of the proposed data sources are provided in Appendix A.

SR 580 Study Corridor Context

FDOT Context Classification

After reviewing the FDOT context classifications and the primary measures used to categorize roadways, we consider the majority of this road segment to fall under the C3C Suburban Commercial classification; however, portions of the corridor can be considered the C4 Urban General classification. The eastern portion of the segment, and south of the eastbound direction of SR 580 approaching Belcher Road, in particular has a greater number of residential uses suggesting this is a transition zone. The study area along SR 580 is largely comprised of

non-residential uses with medium-sized building footprints, small blocks, a well-connected road network, and front- and side-facing parking lots; moreover, the majority, but not all of the blocks meet the medium/large perimeter threshold. Additionally, most of the setbacks are under 75 feet. There are of course a few exceptions to the primary measures, but per FDOT guidance, as long as roughly 50 percent of uses meet the context classification criteria, then the label should be fitting (FDOT 1, p. 6). The C3C classification and transition to/from the C4 classification portend that the eventual recommendations will need to accommodate and prepare for commercial activity, arterial traffic for those who are simply looking to travel north-south on CR-1 or US-19, and collector traffic from adjacent local roadways.

Overview of Context

The following section provides an overview of the preliminary research and findings that were conducted prior to a walk audit of the study corridor. Subsequently, the purpose and needs statement are provided that emerged as a product of this preliminary data gathering and corridor assessment.

Roadway, ROW, and Land Use

The ROW of SR 580 from Keene Road to Belcher Road consists of six lanes of two-way traffic. Also within the average ROW of 130 feet is ample pedestrian walkways and 5-foot bike lanes on both sides of the road. It is important to note that there are not pedestrian crossings at every local roadway intersection. The maximum posted speed limit in the study area is 45 miles per hour. There are only commercial-zoned land uses and the current low density strip development within the area may not be the most conducive to the kind of multi-modal corridor that the goals and objectives lay out for the study area.

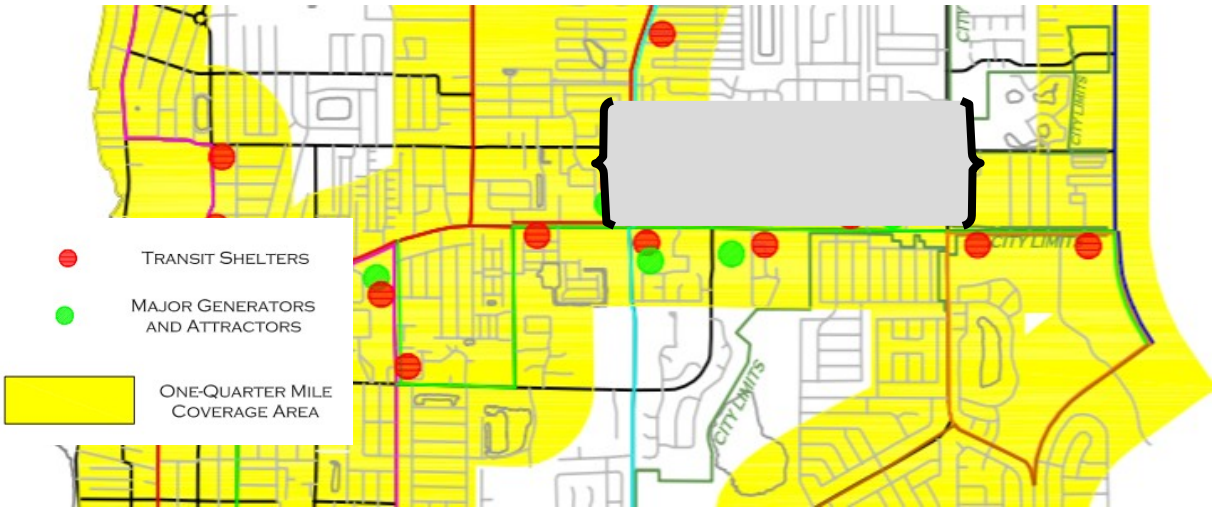
Transit

With regard to transit, the segment of SR 580 bounded by Keene Road and Belcher road is served by two fixed-route and two deviated-route transit services operated by PSTA. The fixed-route services operate from 5:30 AM to 8:30 PM on weekdays at 30-60 minute headways. Route 61 ridership (e.g. riders per revenue hour) and efficiency (e.g. farebox recovery) are ranked in the bottom quartile for the PSTA system. Transit headways for the Route 61 and Dunedin/Palm Harbor Connector are comparably longer than the Route 78. Additionally, weekend headways all exceed one hour. There are a total of 13 stops within the study area, seven on the north side of SR 580, all of which meet the minimum facility standards for signage and boarding & alighting areas, and do not include many amenities for riders, shown in Figure 1 (Forward Pinellas, 2014). While the Route 78 ranks better than the Route 61 in most route effectiveness and efficiency measures (i.e. riders per revenue hour), both routes are identified as part of the Community Bus Plan to be altered in the third phase of the planned PSTA system redesign.

Safety

Turning to crash data for the study

Figure 1: Transit Facilities



segment, there appears to be a high incidence of crashes (668 crashes from 2012 to 2016, and 119 involved injuries and 2 fatalities). The highest number of crashes (149) occurred in the most recent year, 2016.The majority of the crashes occurred at non-junctions followed by intersections and those related to intersections, driveways or access points. Many of these intersection and related crashes occurred along SR 580 at Keene Road, Belcher Road, and Virginia Street. The intersection of SR 580 and Keene Road was ranked 28th most dangerous for pedestrians in the county in 2013. The same intersection was ranked 30th in 2013 for number of crashes in the county (ranked 31st in 2012). The provision of a sidewalk and painted bicycle lane for the entire length of the segment have not maximized the safety of non-auto roadway users in recent years.

Vehicular Traffic

According to the US Census data, the population of the City of Dunedin was 35,321 persons in 2010 and estimated to increase to 36,381 persons in 2016. The average annual daily traffic on the corridor is nearly 44,500. Among the total, truck/freight volume constitutes approximately around 3 percent. Due to such a high AADT, the most recent LRTP estimates the segment will experience a LOS E by 2025. Meanwhile, in 2006 the segment was graded at a LOS C, but more recently in 2017 the newly projected volume of 2325 per hour and capacity of 2830 per hour in 2025, and thus a V/C ratio of 0.822, would result in LOS D. Currently, the corridor principally supports automobile transportation, and the roadway treatment involves a two-way turn lane, considered by many to be a conflict-ridden roadway design for the full gamut of roadway users.

Alternative Transportation

Dunedin is part of Sector 4 of the MPO's Bicycle Pedestrian Master Plan - Facilities Element. SR 580 from Pinehurst to US-19 has been identified as a street for which the medians and vehicle lanes need to be narrowed and the bicycle lanes need restriping. Furthermore, a future bicycle lane is also proposed along Belcher Road, which would connect to the eastern end of the study area along SR 580. While sidewalk coverage of the corridor is considered to be 100

percent, the specific characteristics of the sidewalk infrastructure and impediments will be reviewed as part of the walk audit findings. The current bike lanes are shared with the other vehicles traveling approximately 45 miles per hour, a decidedly dangerous setting for bicyclists. The bike lanes have poor signage and therefore do not clearly indicate an area of separation from the road's travel lanes. Finally, pedestrian shading and lighting are not adequately addressed in the MPO's Bicycle Pedestrian Master Plan - Facilities Element, the network is shown in Figure 2 (Forward Pinellas, 2014).

Figure 2: Pedestrian Facilities

Purpose and Need Statement

Purpose

To provide insight into pursuing safety for all travel modes and leveraging current facility and infrastructure investments in the pursuit of maximizing the mobility of viable alternatives to automobile travel, all while enhancing the overall livability and economic vitality of the corridor.

Need

Improving the safety for roadway users and mobility options is in the interest of the community and local businesses because protecting, preserving, and improving the ability to access local business is important for economic development.

Walk Audit Assessment

This section provides an assessment of the mobility and access characteristics of the study area collected during a walkability and accessibility assessment. The purpose of the assessment was to record observations that will assist in addressing the potential current and future deficiencies in the roadway, pedestrian, bicycle, and transit networks in the corridor. The following sections provide not only an overview of the observed land uses and principal business activities fronting the corridor, but recorded characteristics of driveway access, roadway markings, bicycle facilities, and transit facilities, as well as characteristics of the pedestrian infrastructure and environment are all reviewed.

Land Use and Physical Characteristics

Along the entire study area segment of SR 580, the typical profile of adjacent buildings is one- or two-story structures located with significant setback distances from the roadway and sidewalks. While there are few residential land uses, which are typically located next to each other, the primary land uses are commercial in nature. Therefore, it appears that the majority of the current land uses are consistent with the future land use designations for this segment—commercial. A majority of structures are detached buildings, and frequently have parking located on one or more sides in addition to the most common street fronting activity—parking, as shown in Figure 3. Some of the largest activity centers and trip generators appear to be the Publix, Walmart, CVS, and restaurants such as McDonald's and Starbucks.

Figure 3: Strip mall and fronting parking use

It is worth noting that these are activity types that typically attract pedestrian activity, yet the amount of pedestrian activity appeared to be minimal, and the typical site characteristics (e.g. setbacks and separation) may actually be discouraging of pedestrian activity. Interestingly, there appear to be a handful of lots where structures can still be built or may soon be developed, so it is expected that the level of density may soon increase.

Road Signals & Markings

During the audit, observations were also recorded about various roadway characteristics such as lane striping, medians, and traffic signals in order to determine their potential impact on other travel modes. The first observation recorded was the sunken and typically damaged nature of the lane marker reflectors between travel lanes which may contribute to more frequent lane departures by drivers and therefore introducing risky behaviors. Regarding roadway signals that help drivers navigate turning behaviors, specifically for left-hand turns, the existence of flashing yellow traffic signals, the lack of dashed turn lanes at intersections, and the inclusion of turn arrows in the median where there is not access, or blocked access due to median delineator posts, there are a handful of confusing instructions that may introduce excessive risk to drivers themselves but as well to pedestrians and cyclists.

Flashing yellow left-hand turn signals and improperly marked medians may produce fast, erratic behaviors from drivers, attempting to avoid conflict with other drivers, who may not pause to think about non-automobile travelers. Furthermore, the absence of dashed turn lanes where drivers are allowed to turn left may not alert pedestrians to potential driver actions.

Finally, where physical medians exist, the delineator or raised pavement areas were observed to be of poor quality. For instance, some of the raised medians were crumbling, lacked sufficient paint, and some delineator posts were broken.

Bicycle Facilities

Running the entire length of the study corridor in both directions are bicycle lanes that measure 5 feet in width. However, 1 foot of this facility consists of the roadway gutter/shoulder which really means that cyclists have 4 feet of traversable roadway. This effective width for a bicycle lane may leave cyclists feeling vulnerable and as a result use the sidewalk instead. A few installed bicycle racks existed only on private properties as shown in Figure 4.

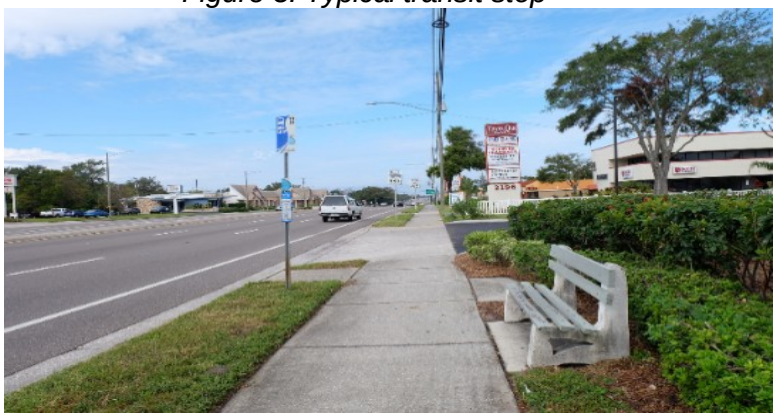
Figure 4: Bicycle storage

At intersections, there are no dedicated bicycle signals which force cyclists to obey automobile traffic signals, and often bicyclist behaviors can cause confusion among automobile drivers if they are unaccustomed to sharing the road with cyclists even when bicycle lanes are used. Furthermore, some of the paint delineating the bicycle lanes, particularly at intersections, and including the bicycle lane symbol itself are beginning to fade. The fading of the paint marking the bicycle facilities could introduce driving behaviors that inadvertently encroach on spaces reserved for bicyclists.

Transit Facilities

A general assessment of the PSTA bus stops located along the corridor does find any immediately pressing issues; however, there are a number of potential improvements that can be made to these facilities to improve their accessibility, comfort and safety. First, a description of the attributes of a typical bus stop along the corridor, as shown in Figure 5, notes that every stop has a clearly visible PSTA branded sign within two feet of the roadway curb at all 13 bus stops, the signs included the numbers for the three routes that serve them, and all of the stops included the minimum, level 5-foot by 8-foot cement boarding and alighting area. All stops can be categorized as near- or far-side stops, and they were all spaced less than a quarter-mile apart. Many of the stops provided a bench as an amenity, but only three stops provided a shelter

Figure 5: Typical transit stop



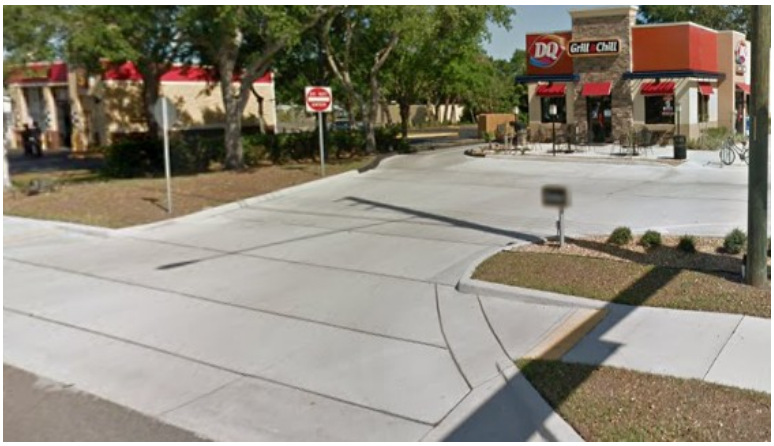
along with a bench and trash bin. The benches and shelters were located on the opposite side of the 6-foot sidewalk and variable-width planted strip (0 to 3 feet) which abutted the roadway curb, thus not creating an immediately dangerous or insecure environment, but not providing much margin for error on the part of drivers.

The bus stops were all located along travel lanes, specifically the bicycle lane, not reserved turn lanes, and were free from obstructions or signs along the roadway. The installed amenities were all in good condition and accessible to wheelchair users, though a follow-up, complete ADA audit is advisable, particularly for the use of Simme-Seats at some bus stops. Additional convenience amenities that were noticeably absent from all bus stops, which are by no means required but may include: lighting, PSTA route maps and schedules, bicycle racks, trash bins (except the shelters), and newspaper stands.

Pedestrian Facilities

Overall the sidewalks were in decent condition, and only in a few locations were there visible cracks and minor obstructions to pedestrians. Sidewalks were typically 6 feet in width and only less in a few locations, including where there were minor obstructions. The minor obstructions consisted of utility poles or manhole covers placed on the sidewalk instead of alongside it. Many intersecting access driveways were too steep and as a result the cross slopes of many sidewalks exceed what is comfortable for wheelchair users. A level area at least 36 inches wide is the minimum set forth by the FHWA because they ensure safe access for pedestrians when the street elevation is lower than the building elevation (FHA, 2001). There is currently only one instance of the sidewalk being perfectly level, which was at the Dairy Queen, a noticeably more recent reconstruction shown in Figure 6. Overall, the sidewalks were observed to be at an appropriate height for PSTA passengers while boarding and alighting, since the buses can lower their entryways.

Figure 6: New pedestrian facility



Pedestrian Access

During the walkability audit our mobility was unhindered on the sidewalk facilities along SR 580; however, there were few, if any, connections to adjacent businesses and local streets. The absence of pedestrian connections from SR 580 sidewalk to entrances of businesses meant that pedestrians often had to use driveway entrances/exits designed for automobiles. In none of these instances was there a striped pedestrian way as part of any driveway. However, some businesses

did have striped pedestrian walkways connecting to a pedestrian-only access point to the SR 580 sidewalk, an example is shown in Figure 7.

Surprisingly, none of the fast food enterprises along the corridor provided a reserved pedestrian walkway. Turning to local street connections, the audit revealed that about three-quarters of local streets, particularly the more significant connections, had sidewalk connections to the SR 580 sidewalks. The minor local roads that did not provide pedestrian connections, such as Lazy Lake Road and King Arthur Court, introduce safety concerns for pedestrians and deter potential pedestrian activity for local businesses.

Figure 7: Pedestrian-only connection

Pedestrian Crossings

Pedestrian crossings were visibly compliant and present at major intersections crossing SR 580, as well as east-west across most local roads. The crossing paint on all crosswalks was visible to roadway users, only in a few instances required minor repainting, and landing pads all had detectable warnings on the ground. Crosswalks crossing SR 580 and most of the local roads had signals for pedestrians which provided a visible countdown; but no crossing areas provided audible information for pedestrians. However, the location of some crossings was not ideal, for instance the crossing located at Keene Road and SR 580 provided partially obscured views for drivers using SR 580 since there is a downhill slope and planted embankment that is currently limiting the sightline of drives.

The crosswalks distances were quite long because pedestrians had to cross at least 6 travel lanes, 2 bike lanes, the variable-width median, and often dedicated turn lanes at major intersections. Most crossing provided 38 seconds for pedestrians and others to cross SR 580. The crosswalk distances for crossing the local streets were significantly shorter, yet still left crosswalk users exposed. Despite some crosswalks being shorter, neither the pedestrian signals at these intersections or at SR 580 provided enough time for wheelchair users to cross in time. There was only one observed

Figure 8: Pedestrian crossing and median refuge

pedestrian island for a crosswalk along a local road—Overcash Road.

Driveway Access

Considering the various access points along the corridor, our audit identified a range of potentially positive and negative impacts on non-automobile roadway users. First, it is important to note that there are a handful of driveways that exhibit good access management principles and are coordinated to provide access for multiple, standalone businesses. For example, three-fast food locations can be accessed through a single driveway. On the other hand, a number of businesses have multiple driveways along SR 580, as shown in Figure 9, and some of these even have driveways along the connecting local roads as well. Surprisingly, there were a number of driveways that did not lead to a specific business, but rather a general parking lot (such as across from Heather Ridge Road on the eastbound side of SR 580), which is not only evidence of poor access management and land use, but it can introduce confusion for all roadway users. There was even one driveway access point that was immediate truncated by a sidewalk and landscaping, now obsolete.

Figure 9: Duplicative driveway access

In addition, a number of driveways are located in close proximity to intersections which can introduce unnecessary conflict points along the roadway. The gas station driveways were among those located very close to intersections and these driveways were often very wide, adding further risk for confusion among all roadway users. Also, wide driveways were observed to lead to quicker turn-ins and turn-outs by vehicles which is dangerous for pedestrians and bicyclists. No driveways had crosswalks or a signals to vehicles of possible pedestrian activity. There were a handful of instances where businesses had driveway access located a sufficient distance away from an intersection and actually on the local road, not on SR 580, which were good examples of driveway access that did not introduce unneeded confusion to SR 580 and its users.

On the topic of driveway slopes, only the slopes of the few newly developed properties were measured to have a flat cross slope, ideal for wheelchair users, but most driveways had cross slopes between 5 and 7 degrees, rendering it difficult for wheelchair users.

Figure 10: Steep driveway and sidewalk cross slopes

There were at least 3 driveway ramps, not inclusive of the pedestrian sidewalk, that were extremely steep even for vehicle standards. In these few instances, the sidewalks had only moderate cross slopes; however, evidenced by the gashes in the pavement from the underside of vehicles, the driveway access to these businesses past the sidewalks was not only challenging for vehicles but likely pedestrians choosing to leave the sidewalk as shown in Figure 10.

FDOT Access Classification

According to the criteria provided as part of Rule 14-97.003, the segment of SR 580 within this study area can be considered in Class 5. The spacing standards in the rule provide recommended spacings for driveway or intersection connections, median spacings, and signal spacing. Considering the posted speed limit of 45 MPH, the recommended spacings are 245 feet for connections, 660 feet for directional medians, and 2640 feet for full medians or traffic signals. The primary objectives of these spacing standards are to provide a safe and clear operating environment for vehicles and travelers both in the roadway and when entering or exiting properties, to minimize speed differentials and conflict points, as well as to preserve adequate sight distances (FDOT 2, 2008).

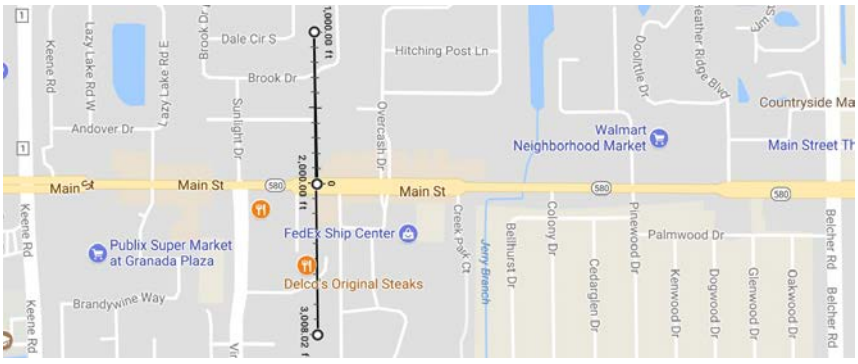
Access Assessment

This section provides an assessment of the access characteristics of the study corridor using information collected during field assessments and map-based analyses. The purpose of this assessment is to record the access and design characteristics of the corridor as they pertain to all existing travel modes so that this information can used to develop an understanding of the current and future deficiencies of the various access types. Key characteristics of the supporting network are summarized and subsequently, the conformance of the various access types is reviewed according to the FDOT Spacing Standards.

Supporting Street Network Characteristics

A broader view of the study area adjacent to the SR 580 segment reveals a low level of connectivity with these neighboring communities approximately 1000 feet in both the north and south directions, and is illustrated in Map 2. All of the connecting roadways are local roads, with perhaps the singular exception of Virginia Street, a minor collector that connects with the eastbound direction of SR 580. The remainder of the roadways almost exclusively provide access to residential communities of low-density residential uses. Furthermore, the majority of the predominantly commercial-zoned property uses along SR 580 are directly adjacent to the rear property lines of the residential communities; therefore, driveways are located on the opposite side of these parcels away from

Map 2: Connecting street area



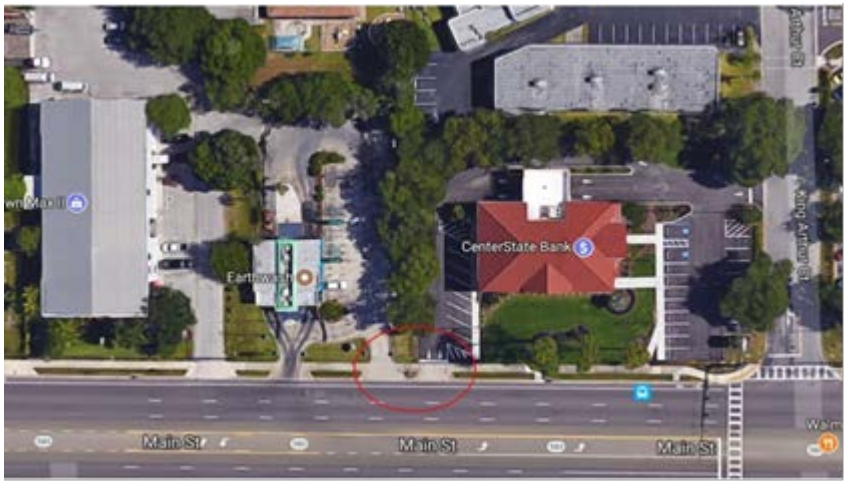
businesses.

Along Virginia Street, Overcash Drive on both sides of SR 580, and King Arthur Court there are a couple examples of commercial parcels that do not connect directly with SR 580 and can instead be accessed through their respective local connecting street or through inter-parcel access with properties on SR 580. The Pac N' Send and Gulf Coast Dialysis are an example of each, both can be accessed via Overcash Drive, and the latter can also be accessed from the Wendy's on SR 580. However, overall, there is limited access to commercial activity located along SR 580 without using SR 580. Inter-parcel access can be considered better than the connections from local roads, yet there are still limited connections when considering the potential trip-chaining that may occur for these businesses.

With regard to multi-modal connectivity in the same 1000 foot buffer area, there are no fixed-route transit stops at present serving any of these local roads. There are however, two Connector Services provided by PSTA that include portions of the segment of SR 580 as well as a ¾-mile pick-up or drop-off zone buffer: the Dunedin Palm Coast Connector serves the entire corridor and plus the buffered area, and the Countryside Oldsmar Tampa Connector serves the SR 580 and Belcher intersection plus a ¾-mile pick-up or drop-off zone buffer. Regarding pedestrian facility connectivity, there are pedestrian connections to about half of the connecting streets. Lazy Lake Road, King Arthur Court, and Heather Ridge Boulevard, and half of Sunlight Drive all do not have any pedestrian facilities connecting the adjacent neighborhoods. The remaining intersections provided sidewalk connections to facilities along SR 580. With regard to the businesses, the absence of pedestrian connections from SR 580 sidewalk to entrances of businesses means that pedestrians are forced to use driveway entrances/exits designed for automobiles. There are also no examples of striped pedestrian walkways as part of driveway opening. However, some businesses did have striped pedestrian walkways and dedicated sidewalks connecting their businesses to the SR 580 sidewalk, including: the pet resort, the pet supply store, a Chinese restaurant, and the Wal-Mart.

Driveway Conformance

Figure 11: Shortest driveway spacing

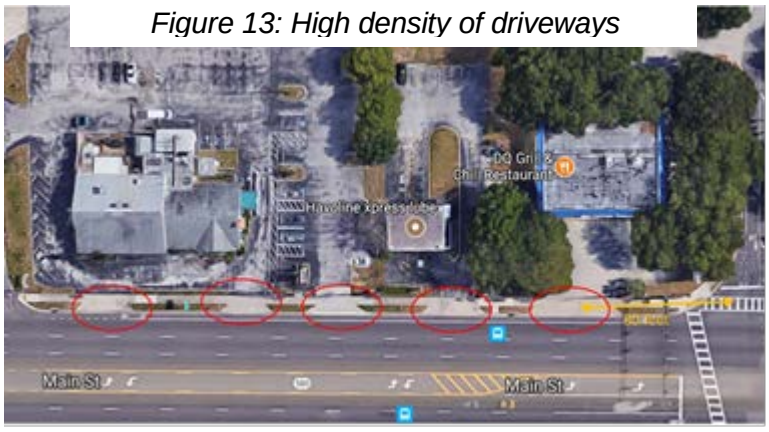


Including the three signalized intersections in the study segment, there is a total of 48 access points, including driveway and road connections, along SR 580 between Keene Road and Belcher Road (excluding the end nodes). Therefore the access point density is 48 per mile segment, and 24 for each east and westbound direction. Of the 24 driveway

Figure 12: Consolidated & inter-parcel access

connections along the westbound direction of SR 580, and only two are separated by at least the FDOT spacing standard of 245 feet. The spacing between driveways ranges from 38 feet to 366 feet. The shortest driveway spacing can be found between the entrance for Earthwash and the exit for Center State Bank, shown in Figure 11. The longest driveway spacing is located to the east of Overcash Drive between the three fast food enterprises that have provided a unified entrance and coordinated inter-parcel access for customers, and the next business to the east, shown in Figure 12. The coordinated entrance consists of right-in and right-out only lanes, which further serves to improve travel flows within the site. Figure 13 depicts the street block with the greatest number of driveways (5) which is located westbound on SR 580 between Sunlight Drive and Lazy Lake Road with driveway spacings ranging from 69 feet to 101 feet. Furthermore, the driveway for DQ Grill & Chill Restaurant is less than 80 feet from the corner of Sunlight Drive. Given the roadway's access classification guidelines, it would be safer to "restrict driveways in the vicinity of signalized intersections to reduce intersection conflicts and crashes" (TRB, 2014, p. 3).

Figure 13: High density of driveways



There are 18 driveway connections along the eastbound direction of the study segment, and only three are longer than the FDOT spacing standard of 245 feet. Therefore, the driveway density is less on the eastbound direction, but there are more local street connections on this side However, on the eastbound side of the road, the majority of the driveway spacings are greater than 100 feet in length and the longest is 302 feet. It is also worth noting that driveway connections between Pinewood Drive and Heather Ridge Boulevard are fairly steep and merit further investigation as to their exact cross slopes. The maximum grade of "commercial driveways should be 10%" (FDOT 2, 2008, p.

35).

Therefore, not only are there connections more frequent that spacing standards recommend despite having a lower density than the westbound direction, but some of the slope conditions are potentially hazardous to pedestrians and wheelchair users. A rapid slope change over a short distance can "cause wheelchair users to become extremely unstable" (FDOT 2, 2008, p. 88). While eastbound SR 580 has generally better inter- parcel coordination than the westbound direction, there are a few examples of driveways that introduce unique conflicts. For instance, there are a few driveway connections along the corridor do not provide a clear separation between the driveway and the sidewalk, as shown in Figure 14, a potential area for confusion among users since the entire parking lot/sidewalk is in essence an access point. According to TRB's Access Management Manual (2014), the limitation and separation of driveways and other access points to a major roadways, such as SR 580, has the ability to reduce the number of potential conflicts and provide drivers with the time necessary to handle conflicts that do occur.

Figure 14: Wide driveway connecting to street

Intersection & Signals Conformance

As discussed above, the spacing between two signalized intersections is recommended to be at least 2640 feet according to FDOT spacing standards. However, the two closest signalized intersections are only 983 feet apart (Virginia Street to Overcast Drive) which can inadvertently cause signal timing delays if not properly coordinated and build in conflict points to the roadway than if spaced appropriately. Also, the remaining lengths between signalized intersections are 1320 feet, 1460 feet, and 1640 feet. In addition, all of the signalized intersections have dedicated left turn lanes on SR 580 to connect drives to the perpendicular local roads. Heather Ridge Road, Colony Drive, and Lazy Lake Road are three local roads that intersect with SR 580 that do not have signals, and are all spaced at distances less than the quarter-mile signal spacing, which is fine; however, all are also spaced less than the 245 foot distance from nearby driveway connections, contributing to the total of 48 total access points mentioned previously. The close proximity of intersection to driveway access points limits the ability for travelers to maintain the same speed and safely avoid drastic speed differentials along the roadway (TRB, 2014).

Median Conformance

Throughout the study segment, the traffic flow is separated by a median of varying forms including: a two-way turn lane, directional turn medians, painted buffers, and in some instances, particularly near intersections, small raised medians with collapsible bollards. Presently none of the medians meet the FDOT spacing standards for directional or full medians, mostly because the two-way turn lanes are so ubiquitous. The most restrictive median segment can be observed between Sunlight Drive and Overcash Drive where two direction median turn lanes, a painted buffer, and a raised median can be found, all in the span of approximately 475 feet. Since the

majority of the corridor is separated by a two-way turn median, this means that the majority of the driveways along the corridor have the ability to turn not only right onto SR 580 but left into oncoming traffic. Medians open to both sides of the roadway have a notoriously high number of conflict points. According to TRB's Access Management Manual (2014), non-traversable medians and other means of minimizing left turn activity reduce the amount of attention drivers need to pay to potential conflict and improve the roadway safety; moreover, the improved safety for pedestrians and bicyclists crossing driveways or using a mid-block median as a refuge.

Proposals

The following section provides an overview of both the short- and long-term recommendations for the study area. First a description of the new physical street cross-sections is provided and then the major themes of the physical and policy recommendations are summarized. Within each major theme, key strategies are developed even further with supporting facts and research.

Roadway Design

The current roadway has an estimated ROW of 130 feet across for a typical cross section. While these length is variable depending on the exact point in the roadway, particularly at intersections where the total ROW approaches 150 feet across due to the addition of dedicated turn lanes, the 130 length was used as a basis for our recommendations. In Appendix B, four cross section diagrams are provided. The first diagram depicts the current conditions and lane widths. The second and third diagrams depict the short-term recommendations for the study corridor, for an estimated completion year of 2025. The two diagrams are included to demonstrate how the roadway design varies depending on the location of transit shelters. As discussed in a subsequent recommendation, the installation of more transit shelters to ensure transit rider comfort will provide a key facility to incorporate into the roadway design.

In summary, the new roadway design preserves the 6-lane roadway that currently exists; however modifies many of the widths. Working from the inside out, the two-way turning lane has been converted into a restricted, planted median that can provide directional openings where appropriate, such as at large shopping entrance areas, or even the replacement of small signalized intersections, also discussed in a subsequent recommendation. The median in the short range design measures 10 feet in width. Next, the two travel lanes on each side of the median, so the four interior lanes will measure 10 feet in width, a reduction from the current 12 feet. The lane narrowing will help improve roadway safety, naturally reduce speeds, and make room for non-vehicle travelers as explained in the following sections. Next, the right lanes in each of the roadway's respective directions measure 11 feet each in order to accommodate wider bus and freight traffic.

Between the short- and long-term roadway designs careful attention has been paid towards the curb movements, moreover to avoid needless road re-working. In fact, the curb on the right-hand side of the short- and long-term recommendations does not need to be moved. Only the curb on the left-hand side will need to be moved to accomplish the long-term recommendations, as well as one side of the planted median recommended in the short-term plan. Whether the right- or left-hand side of the cross section will correspond to the east- or west-bound direction of SR 580 is ultimately up to the City of Dunedin and the State of Florida.

On the right-hand side of the roadway the design provides alternating locations of the bicycle lanes depending on if there is a transit shelter. When present, the shared 12-foot, undivided, cycle track will be placed closer to the sidewalk and the transit shelter will be placed closer to the lane in which the bus will be traveling. When there is no shelter, the cycle track will be located closer to the travel lane, though separated by a 2-foot buffer of bollards, slightly narrowed to 10 feet, and instead, parklets will be placed intermittently directly adjacent to the sidewalk area. The sidewalk area will be comprised of lighting for the roadway, planted trees, a

widened sidewalk and bench space. The total pedestrian area on the right-hand side of the short-term design may amount to up to 20 feet in areas where there are no street lights, trees, or, benches, since they will not be located all immediately next to each other. This provides opportunities for this space to be activated with planters, way-finding signs, outdoor seating, and even expanding the footprint of the parklets towards street-fronting businesses. The latter is another element of the forthcoming recommendations, but it can be said here that street-fronting businesses are recommended to replace surface parking along the corridor.

On the left-hand side of the design, in the short-term, the design largely preserves the current planted buffer, streetlight, and sidewalk facilities to minimize overall project costs, but does have a few important recommendations. The design continues the encouragement that more transit shelters be installed along the study corridor, and in various locations that parklets be installed as well to improve the activation of the street for pedestrians. Due to the limited ROW, the new design guidelines on this side of the street will be encouraging slightly larger setbacks to provide for additional seating areas and pedestrian facilities, of approximately 5 to 10 feet.

The fourth diagram depicts the long-term recommendations for the study corridor with an estimated completion year of 2030. The key elements of difference in the long-term plan are improvements to the left-hand side of the road, conversion of the outermost lanes to exclusive transit lanes, and the further activation of the pedestrian areas. Additional ROW is made available to expand the left-hand side of the road through the narrowing of the planted median and the removal of directional median turning access. This additional ROW permits the expansion of the left-hand curb and allows 4 feet of more space for pedestrian use and general street activation. The fourth diagram shows how benches, planted trees, wider sidewalks, and even pedestrian scale lighting (also on the right-hand side design), can be installed in locations where there are not transit shelters. Wherever transit shelters are installed in the short-term plan, they can remain as such in the long-term plan, and on the left-hand side of the road, pedestrians will still have an additional 2 feet of space where there are shelters due to the narrowing of the median. This narrowing of the median and the adjustment of the left-hand side curb are the only curb movements that occur as part of accomplishing the long-term plan.

The inclusion of transit-only and lanes that also function as HOV lanes in the long-term reflects the acknowledgement of SR 580 as a principal corridor for commuters, tourists, and local travelers. While the present PSTA route headways on SR 580 may not the most convenient for riders and potential riders, in 15 years, it is estimated that the mostly stable yet slowing growing traffic volumes can be partially shifted to transit and other alternative modes through the provision of a more attractive service (e.g. higher bus frequencies), as well as travel demand strategies such as carpooling, and ultimately a way to avoid traffic (e.g. cost and time savings).

Speed Reduction and Lane Narrowing

A minor speed reduction can improve the safety of the corridor and the attractiveness for pedestrians, cyclists, and other street-activating uses such as outdoor seating for both street-

fronting businesses and those that are set back further. A proposed speed reduction of 5 MPH, 45 MPH to 40 MPH, is recommended. This reduction may be greater if enforced since many of the observed travel speeds currently exceed 45 MPH, though the actual average speed is not determined in this study. Accompanying a travel lane width reduction is a lane narrowing which can help to reallocate space to other users, further increasing the attractiveness of modes other than vehicular traffic. This way travelers are not forced to abandon their preferred mode, but instead are provided more options for getting from Point A to Point B.

A final note on the speed reduction and lane narrowing, is that the construction of a planted median in the short- and long-term plans allows for a pedestrian refuge, encouraging pedestrian traffic and improving the safety thereof. Improved pedestrian crossings have the potential to increase foot traffic for businesses, and further down the road, midblock crossings across SR 580 can improve transit accessibility, as well as access to local parks, plazas, and businesses (NACTO, 2017).

Encouraging Alternative Transportation Modes

Overall, widening of the sidewalks, installation of shelters at bus stops and otherwise amenities such as benches is recommended as it could help keep travelers and pedestrians a comfortable at a safe distance from the roadway. Additionally, human-scale streetlights, parklets and landscaping that provides shade would create a more welcoming experience for pedestrians, because in the hot Florida heat, shade is a necessity and there are presently few alternatives such as awnings from street-fronting buildings. In order to avoid deterring and to maximize the pedestrian activity, sidewalks connections should be provided along all local roads connecting to SR 580 as well as connecting key commercial buildings, once some of the driveway access points are consolidated (FDOT 2, 2008). These additional sidewalks will also improve the safety for pedestrians coming to the SR 580 sidewalks or seeking to access the adjacent businesses.

As possible recommendations to improve the accessibility of the bus stops, it is recommended that improved pedestrian connections to/from the adjacent land uses are provided. Since there are ample crosswalks traversing SR 580, it is not recommended to provide additional crosswalks at this time. In order to improve the comfort of the bus stops, the installation of some of a minimum set of amenities at the bus stops is recommended (TRB, 1999). It is not advisable to offer all these amenities at each stop; however, some rubric of alternating amenities (e.g. bike rack every third stop), or a minimum set of amenities (e.g. benches at all stops) are potential solutions. Finally, while related to comfort, the safety of the bus stops can be improved by moving amenities such as benches and shelters further from the roadway so that patrons are not sitting unprotected as close to a roadway with currently posted 45 MPH speed limits where the observed speed was often much higher (FDOT 3, 2013). Coupled with efforts working with PSTA, as recommended in the goals in objectives to increase the frequency of service for the two existing fixed-route services along SR 580, transit shelters and amenities should help to promote an increase in transit ridership along the corridor and a reduction in total VMT. Specifically it is

recommended to adjust the frequency of Route 61 to 30 minutes (currently 45-65 min.) and Route 78 to 20 minutes (currently 30-45 min.).

Dutch-Style Intersections

A Dutch-Style intersection is a design concept which protects cyclists from the travel lanes by providing a continuous bike facility at intersections, allowing both improved safety at left- and right-hand turns as well as dedicated spaces where many intersections previously did not provide space for cyclists. It is recommended to study the feasibility of installing a similarly designed intersection at SR 580 and Keene Road as well as SR 580 and Belcher Road since these are designated high-crash intersections and presently are unsafe for non-vehicle travelers.

Figure 15: Dutch-style intersection

As part of the design, shown in Figure 15, cyclists can stop at a signalized intersection which will be designed as highly visible for people of all ages that may be driving, walking or cycling and therefore can provide safe crossing areas for the cyclists. This design is not only safer for pedestrians and cyclists, but it is also safer for cars turning in either direction. (Junction design in the Netherlands, 2014). Using the Dutch-style intersection as a design guideline, safety can be improved for pedestrians and cyclists along the SR-580 as well as a reduction in the likelihood of accidents involving motor vehicles and non-drivers.

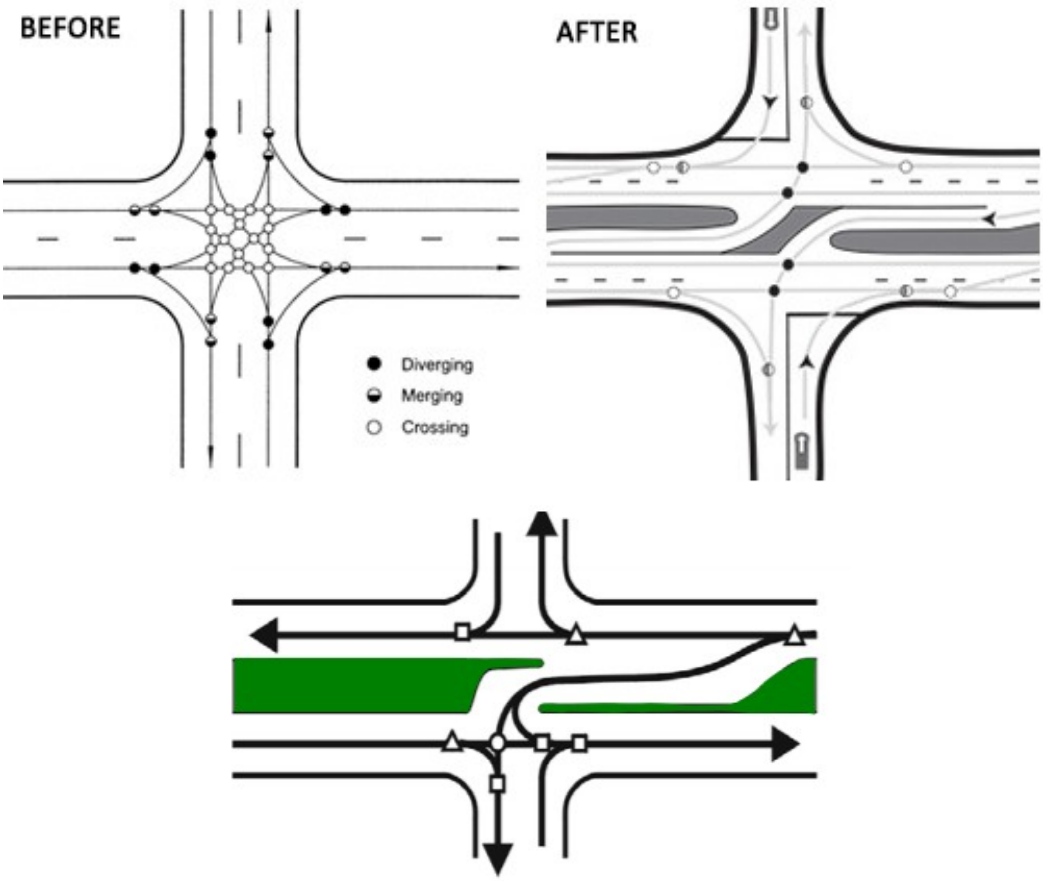
Access Management

Construct a Non-traversable Median

The current intersection design for the signalized intersections includes 32 points. When considering the reduction in conflict points alone in a redesign that includes the construction of a non-traversable median, the potential for crashes may be conceivably reduced by a factor of two, depending on the current proportion of crashes across each conflict point. The construction of a non-traversable median will help decrease the number of crashes and prevent prohibited, discouraged, or simply risky behaviors. In addition, the non-traversable median also helps to

protect pedestrians and cyclists by providing a crossing refuge. The reduction in conflict points for the one- and two-way median designs is shown in Figure 16 (NCHRP, 1999).

Figure 16: Conflict point reduction for new median designs



Delving further into median design, according to the Access Management Manual (2014), properly designed directional medians (those that incorporate physical separators) can eliminate potential crossing, divergence, and merging conflict points. If left hand

Figure 17: Directional median replacing signal

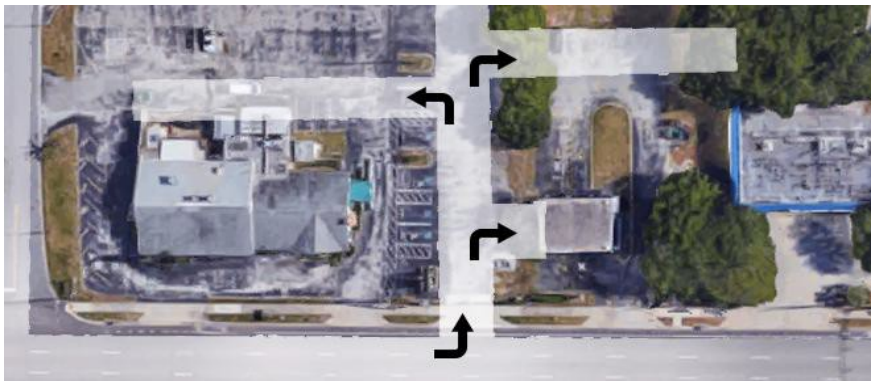
turns out of driveways alone can be eliminated, then the preservation of a current or installment of a future directional medians providing access to driveways will still be functional and safe on the roadways because it is the left turn out of driveways that has been found to be the cause of approximately 47 percent of crashes along driveways (TRB, 2014). Medians should only be used for major access points, and not simply to provide access because it is possible to do so.

Depending on the volume from the local roads connecting to SR 580, it is worth exploring whether one or two of the smaller signalized intersections can be converted to two directional medians instead which also has fewer conflict points such as shown in Figure 17. According to TRB's Access Management Manual (2014), it is ideal to locate signals to favor through movements, as opposed to intersecting north-south connections on this corridor. Medians can improve the safety for all roadway users when designed and located properly.

Encourage Inter-parcel Access

Beginning with understanding traffic volumes on the existing roadway network, medians should be placed where appropriate to provide access but not unsafely or without exploration of alternative access solutions. Based on the decided median locations, initial driveway access points can be identified and subsequently, the parcels should be targeted for future inter-parcel connections. When it comes to organizing parcels for greater connectivity, particularly when a commercial area is being redeveloped, according to TRB's Access Management Manual (2014), the outparcel requirement can be one methods to reduce the number of driveway access points. By encouraging greater parcel connectivity and shared parking areas, it will be safer, easier and more enjoyable for patrons to reach local businesses. Additionally, the total number of conflict points along the roadway will be reduced and therefore reduces the likelihood of accidents occurring along driveways which number fewer and provide access to more businesses at time.

Figure 18: Inter-parcel access

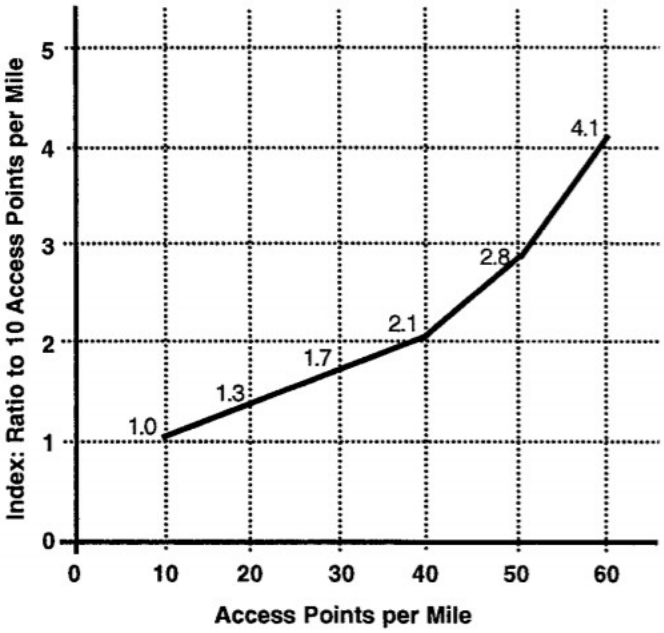


Finally, the fewer access points, then the fewer the potential conflicts there are with pedestrians, drastically improving safety along the study segment (Access Management Manual, TRB, 2014). A hypothetical shared access entry that leads to inter-connected parcels and reduced driveways along the road way can be seen in Figure 18. Additional approaches for encouraging shared inter-parcel connections include a limitation of future parcel splits, the implementation of a corridor overlay zone to prevent the addition of future access points and means to raise funds for closing duplicated access/improving inter-parcel access (Figure 18), as well as a long-term

plan for converting many of the isolated parcels into a more comprehensive PUD network.

Ideally the number of access points can be reduced in the pursuit of improved safety. The current number of access points per mile is 48, and 24 for each direction of the roadway but because much of the study corridor has a two-way turning lane median, 48 is probably the better figure to rely on. Looking at a relationship identified by the NCHRP (1999) in Figure 19, for 48 access points there are almost 2.8 crashes per each 10 access points in a given mile (so really ~2.8 x 4.8 = 13.44). For each reduction the in total number of access points, the study corridor's safety can vastly improve.

Figure 19: Crashes and access point density



Land Use & Character

The creation of an overlay district is recommended that can help simplify the application and administration of the following recommendations. The overlay district will demarcate the boundary that these designs and programs will be applicable for and available to. In sum, the façade program, design guidelines for street-facing construction in addition to the City's current plans for a form-based code, as well as sustainable development bonuses will help transform the street into a vital economic corridor and improve the livability and level of economic activity in the short- and long-term horizons.

Promote New Street-facing Construction

To encourage a more walkable neighborhood, the parking areas should be re-located away from SR 580 and either public spaces created or buildings and businesses should be relocated to front the roadway as they redevelop over time. By relocating parking to the rear of buildings and changing buildings to be more oriented towards a human-scale street, this will encourage a more pedestrian-friendly

Figure 20: Street-fronting businesses

environment along SR 580, as shown in Figure 20.

Additionally, buildings should be designed to provide not only shading but a welcoming environment that encourages people to use the sidewalks. Redesigned properties should consider moving parking to the side or rear of their business activating the front in a manner that will draw in customers (i.e. outdoor restaurant seating). A combination of greater density and a more welcoming environment is likely to improve foot traffic to local businesses, of which there is presently minimal if any incidental traffic (EPA, 2014).

Conclusions and Recommendations

In support of the previously recommended goals and objectives, a variety of policies or strategies is set forth in the following section that are designed to improve the success of meeting these guiding principles. To reiterate, the first goal is the implementation of roadway improvements that will increase the safety and level of service for the motorized transportation system in the corridor. This goal is supported by the objective to reduce vehicle crashes by 10 percent each year going forward. Furthermore, the construction of a non-traversable median that provides directional openings at spacings consistent with the FDOT Median Spacing Standards for a Class 5 roadway (660 feet). In addition, shared connections between parcels and shared driveways will be promoted consistent with the FDOT Driveway Spacing Standards for a Class 5 roadway (245 feet). The recommendation is to continue the current process of FDOT approving the driveway constructions; however, to do so going forward with the established spacing standards since the current driveway spacings do not conform to this standard. Finally, the pursuit of congestion mitigation projects as part of the MPO's Congestion Mitigation Plan is recommended so that TDM strategies and carpooling can help avoid excess VMT on the study corridor and begin to shift travelers to the alternative modes promoted herein.

The second goal is the encouragement and promotion of transportation alternatives other than the private passenger vehicle. This goal is supported by the objective to maintain and expand the alternative transportation infrastructure in order to provide an efficient, comfortable and safe alternative of travel. The first key strategy in support of this objective is to work with PSTA to study and determine the financial feasibility of increasing the bus headways to 30 and 20 minutes for the Route 61 and 78, respectively in order to provide a more convenient transit service. Additionally, by conducting a study to determine the benefits of bicycle signals and the construction of "Dutch-style" style intersections at SR 580 and Keene Road and SR 580 and Belcher Road can help improve the attractiveness of bicycle transportation. An expansion of bicycle lanes to 6 feet in width, and part of the two-way cycle track are a proposed alternative if the feasibility of the new intersections is not ensured. Finally, the extension of sidewalk facilities into adjacent neighborhoods as well as to the local businesses can help promote the pedestrian travel mode and encourage more economic activity in the corridor.

The third goal is the pursuit of innovative design and redevelopment within a newly established overlay district. The overlay district is recommended in order to simplify the administration and demarcation of the area for which incentives are applicable. The creation of incentives for street-fronting businesses, through a façade grant and tenant improvement grant, as well as sustainable development, through LEED-certification, are key policies in support of achieving innovative design and redevelopment. Each of these strategies are recommended in addition to the City's pursuit of establishing a form-based code. Finally, the fourth goal is to ensure that the forthcoming developments and redevelopments are non in conflict with the maintenance of good air quality and a comfortable, aesthetically pleasing environment. The installation of solar-powered street lights for the roadways as well as pedestrian walkways, will

help to reduce the carbon footprint of the corridor. Additionally, by adopting principles of green infrastructure such as reduced run-off through the planting of trees, the corridor can further avoid burdening the local infrastructure while providing a natural, shaded-environment for travelers.

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Appendix A

Data Collection Methods & Sources

Goal 1

All of the data require to track the progress towards Goal 1 in a given period consists of already collected data or can be gathered through a walk audit. Crash data can be acquired through the FDOT Crash Database. The number of new inter-parcel access points and closed driveways can be obtained from a walk audit. The number of spacing changes that met the code can be collected on a walk audit. The same can be said for counting any new driveways that meet FDOT spacing standards. Finally VMT data can be determined from the MPO's AADT annual counts, and if the MPO does not have average vehicle occupancy information as part of the AADT tracking effort, a field samples can be taken periodically and recorded as observations.

Goal 2

All of the data required to track the progress towards Goal 2 in a given period consists of already collected data, can be gathered through basic walk audits, and basic GIS analyses. Data for revenue miles can be provided by PSTA as part of their annual TDP updates, and when compared with bus schedules along with a measurement of the length of the SR 580 corridor that is served by the bus routes, the percent being served by the new headways can be determined. New sidewalk connections and their lengths can be assessed during a simple walk audit. Additionally, bicycle lane widths can be measured during the same walk audit

Goal 3

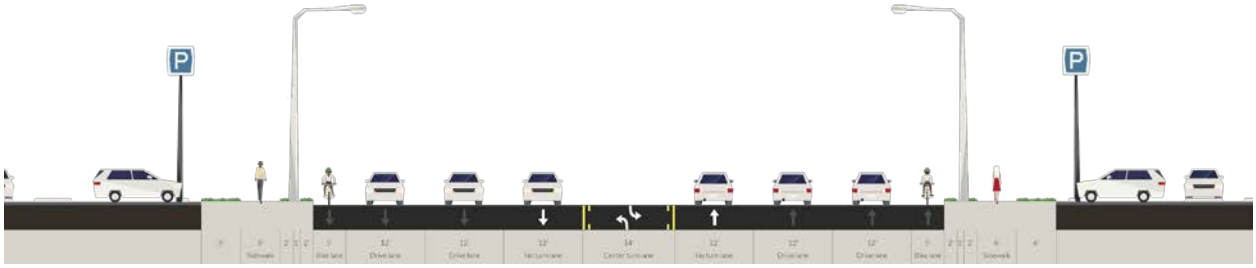
All of the data required to track the progress towards Goal 3 can be obtained from the new programs it recommends to establish (e.g. façade and improvement programs), from the city's building permit registry (e.g. new street facing constructions and average FAR), or a simple walk audit for the number of activated street uses whether for existing or new properties.

Goal 4

All of the data required to track the progress towards Goal 4 can be obtained from a walk audit, or simply tracking the light and tree planting projects as they occur.

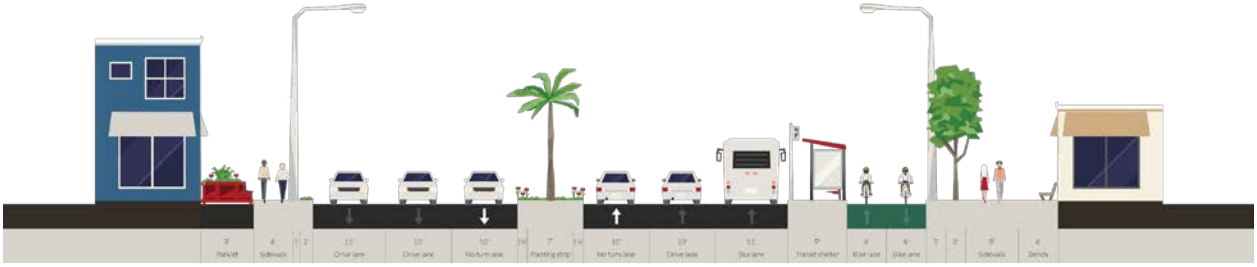
Appendix B

SR 580 – Current



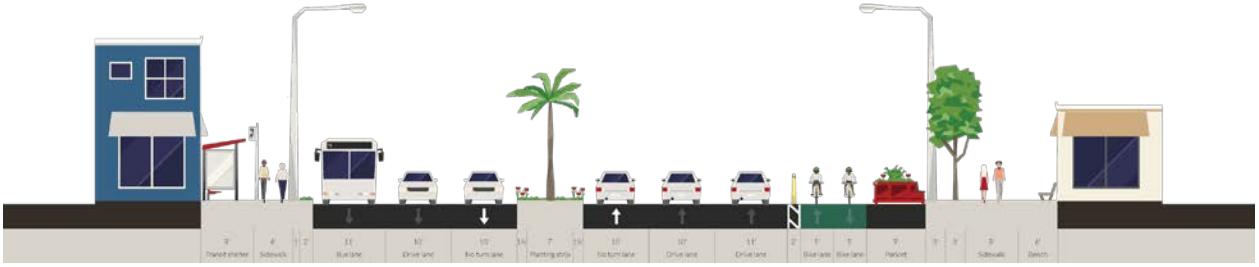
130 Feet

SR 580 – Short Term (A)



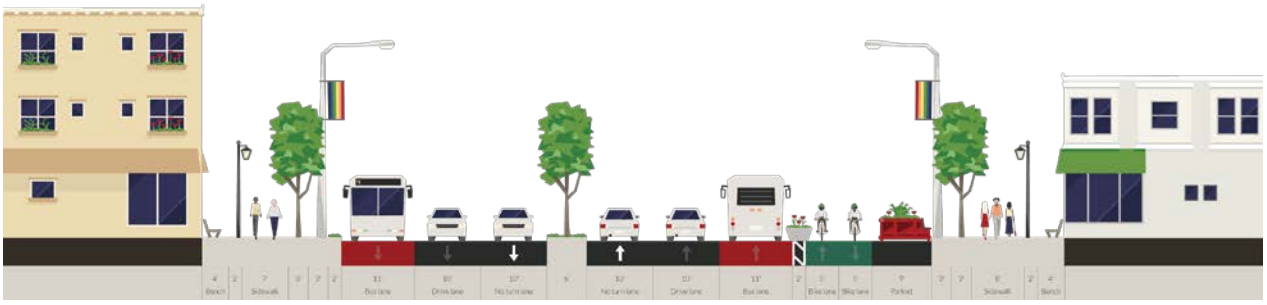
130 Feet

SR 580 – Short-Term (B)



130 Feet

SR 580 – Long-Term



130 Feet