56th/50th STREET

CORRIDOR STUDY

CORRIDOR DEVELOPMENT PLAN

COMPLETE STREETS // FDOT District Seven

January 2023

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INTRODUCTION

Study Area & Overview

The Florida Department of Transportation District Seven (FDOT D7) is conducting a Corridor Study along 56th Street (State Road [SR] 583), and 50th Street (SR 583/US 41). 56th Street/50th Street is a major north-south facility located in the center of Hillsborough County.

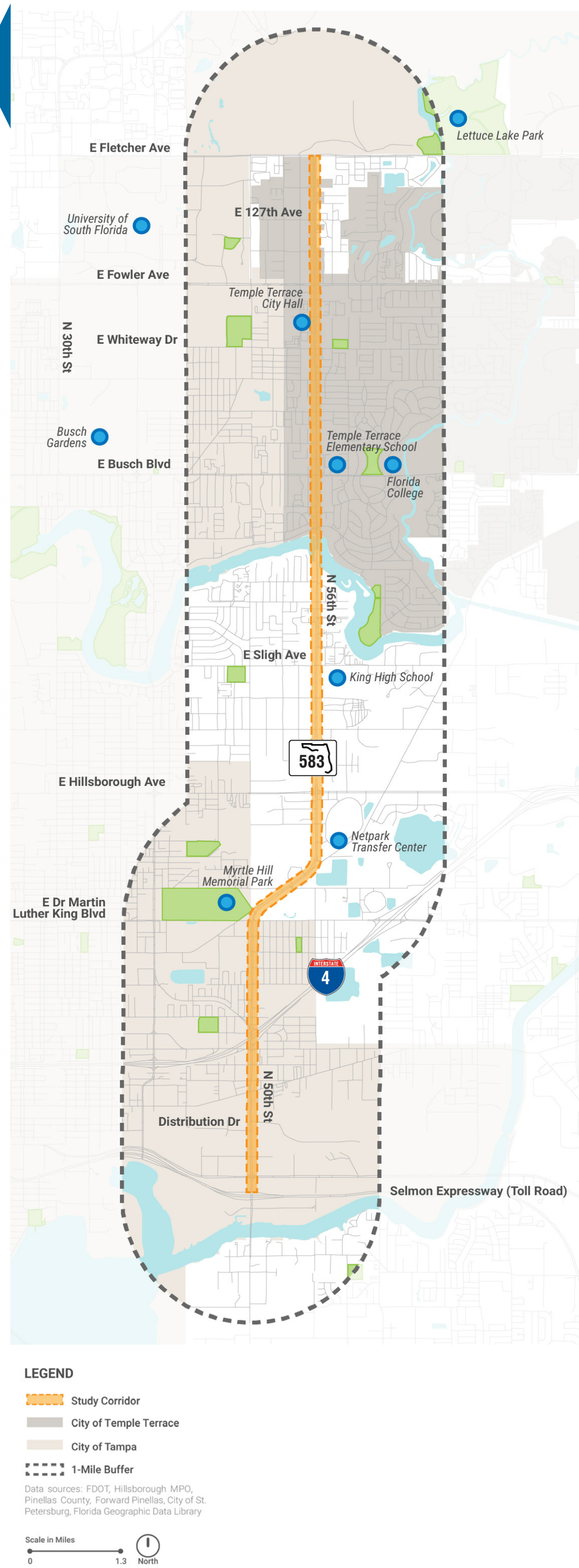
This study examines the 56th Street corridor from Selmon Expressway to Fletcher Avenue (see Figure 1). At Chelsea Street, 56th Street becomes 50th Street. Along this 8.5-mile corridor, jurisdiction belongs to the City of Tampa from the Selmon Expressway to Dr. Martin Luther King Jr. Boulevard; jurisdiction belongs to Hillsborough County from Dr. Martin Luther King Jr. Boulevard to Riverhills Drive and again from Fowler Avenue to Fletcher Avenue; jurisdiction belongs to the City of Temple Terrace from Riverhills Drive to Fowler Avenue.

Safety is a key component of this study. In 2019, the Hillsborough Transportation Planning Organization (TPO) *Vision Zero Action Plan* found that 50th Street from Dr. Martin Luther King Jr. Boulevard to Hillsborough Avenue was ranked as the ninth highest crash corridor in Hillsborough County. This means that this corridor has a high number of crashes that cause fatalities and incapacitating injuries. 56th Street from Sligh Avenue (Hillsborough County) to Busch Boulevard/Bullard Parkway (Temple Terrace) was ranked as fifteenth.

> VISION ZERO
>
> **"THIS REPORT ALIGNS WITH VISION ZERO, A NATIONAL AND INTERNATIONAL "STRATEGY TO ELIMINATE ALL TRAFFIC FATALITIES AND SERIOUS INJURIES, WHILE INCREASING SAFE, HEALTHY, EQUITABLE MOBILITY FOR ALL.""**
>
> *Source: Hillsborough TPO Vision Zero Action Plan*

From 2016 to 2020, there were **11 FATAL CRASHES & 78 SERIOUS INJURY CRASHES** along the study corridor.

FIGURE 1. STUDY CORRIDOR



Project Purpose

- Objectively evaluate possible changes to improve multimodal safety, operations, and connectivity.
- Identify safety solutions and countermeasures to improve safety and comfort for all users of this corridor.
- Develop a vision for continuous multimodal facilities that connect the communities and destinations along the corridor, creating complete streets.

Project Approach

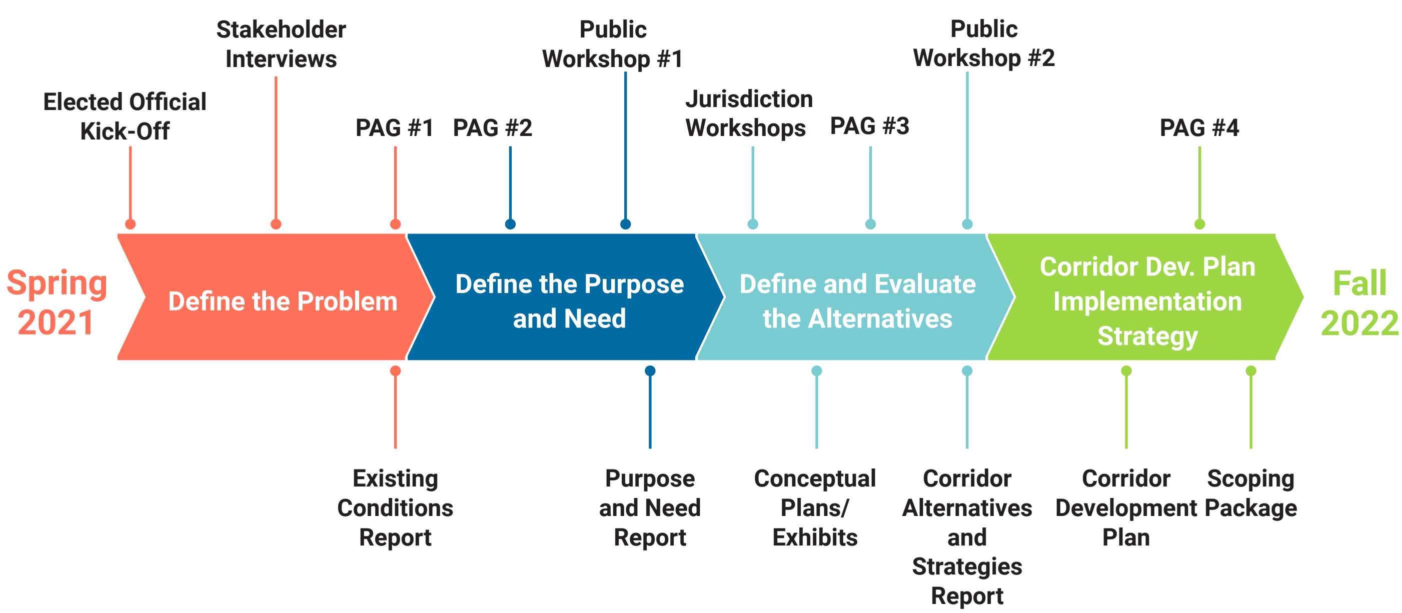
The study assessed the corridor's existing multimodal needs, its existing and future travel needs, and the community's visions and desires along the corridor. To better plan and design for its unique areas, the study team segmented the corridor based on existing land patterns and community characteristics. The team then evaluated potential improvements—including both multimodal improvements applied to specific locations and corridor-wide improvement alternatives—based upon what each segment and the larger corridor needs.

After collecting corridor data, analyzing that data, and working with stakeholders, the public, and FDOT staff, the study team developed both short-term and long-term solutions that align with the study's goals and address the corridor's multimodal needs.

The study team then developed an implementation plan that includes both long-term strategies for future development and near-term improvements, which local agencies or FDOT can advance as part of resurfacing, restoration, rehabilitation (RRR) projects; safety enhancements; or push-button projects, such as signal re-timing projects.

Throughout the study process, the project advisory group (PAG) reviewed developments and key decisions (see Figure 2).

FIGURE 2. STUDY PHASES AND ENGAGEMENT



Report Organization

This report is organized into six main sections:

1. PLANNING CONTEXT	Aligns the corridor study with the region's existing plans, studies, and projects.
2. STAKEHOLDER & PUBLIC ENGAGEMENT	Summarizes the study's approach to conversations with stakeholders and community members.
3. CORRIDOR CONTEXT	Records the study area's existing conditions, including land use; demographics; walking, biking, and transit facilities; and existing travel patterns.
4. STUDY PURPOSE & CORRIDOR NEEDS	Sets the overarching goals and needs of the project, describes the corridor's unique challenges, and outlines how alternatives will be evaluated.
5. CORRIDOR ALTERNATIVES	Details and evaluates intersection and segment alternatives.
6. IMPLEMENTATION, FUNDING, & NEXT STEPS	Outlines project prioritization, potential funding partners, and what's next for the corridor.

PLANNING CONTEXT

To understand the study area's existing issues, opportunities, and proposed multimodal improvements, the project team reviewed local transportation plans, studies and planned projects. Many of these documents provided important context for this study, including those in the following list. The most relevant resources are summarized below.

City of Tampa Vision Zero Plan

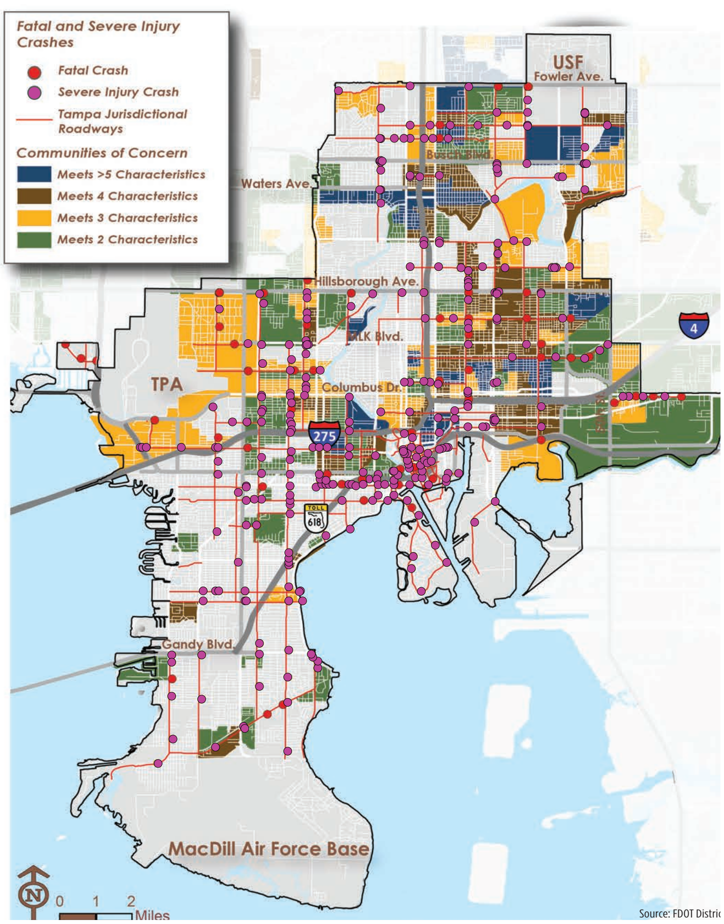
The City of Tampa adopted a Vision Zero strategy in 2019. A national and international movement, Vision Zero aims to eliminate all traffic fatalities and serious injuries while increasing safe, healthy, equitable mobility for all. The philosophy acknowledges that human error is a primary cause of traffic crashes and that streets should be designed to minimize risk of injury or death, even when a person makes a mistake.

Tampa's *Vision Zero Action Plan* formalizes the City's goals and objectives for achieving zero traffic deaths and severe injuries. The plan identifies key focus areas, including vulnerable road users (those who lack the physical protection of a vehicle, such as pedestrians, bicyclists, or motorcyclists), schools, speeding issues, and speed management techniques. Walking and biking in Tampa only make up 4 percent of the city's total travel, but people walking and biking make up 25 percent of the city's fatal and severe injury crashes.

Tampa's Vision Zero project studied the city's crash trends for all travel modes between 2014 and 2018 (see Figure 3). Several streets in the 50th/56th Street study area have a high number of fatal and severe injury crashes. Lake Avenue and Columbus Drive see an especially high number of these crash types.

FIGURE 3. FATAL AND SEVERE INJURY CRASHES IN TAMPA

Crashes within Communities of Concern (2014–2018)



CITY OF TAMPA VISION ZERO

> "PEOPLE WALKING AND BIKING MAKE UP 25 PERCENT OF TAMPA'S FATAL AND SEVERE INJURY CRASHES."

Hillsborough TPO Vision Zero Action Plan

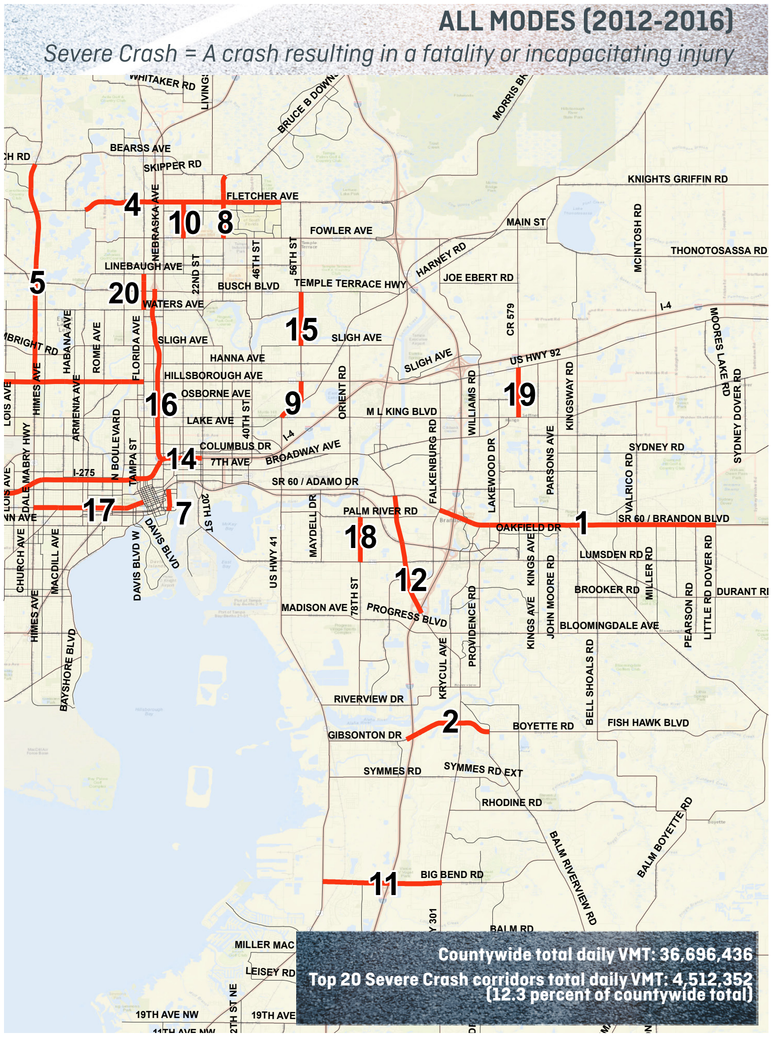
Members of the TPO Policy Committee—including staff from the Tampa City Council, the Hillsborough County Commission, and Hillsborough Area Regional Transit Board—developed a Vision Zero action plan in 2017. These agencies have also committed to incorporating the plan into their operations.

The plan has four action tracks:

- **Paint Saves Lives**, which uses low-cost retrofits and pop-up treatments to improve safety.
- **One Message, Many Voices,** which identifies key audiences and strategies for public education
- **Consistent and Fair,** which recognizes that everyone plays a role in enforcing safe behaviors.
- **The Future Will Not be Like the Past,** which focuses on changing safety culture for future development.

The plan also used 2012–2016 crash data to identify the region's top 20 fatal and severe injury crash corridors (see Figure 4). Two sections of the 50th/56th Street study area appear on this list. 50th Street from Dr. Martin Luther King Boulevard to Hillsborough Avenue was ranked the 9th for most crashes in the county and 56th Street from Sligh Avenue to Busch Boulevard was ranked the 15th.

FIGURE 4. TOP 20 SEVERE CRASH CORRIDORS IN HILLSBOROUGH COUNTY



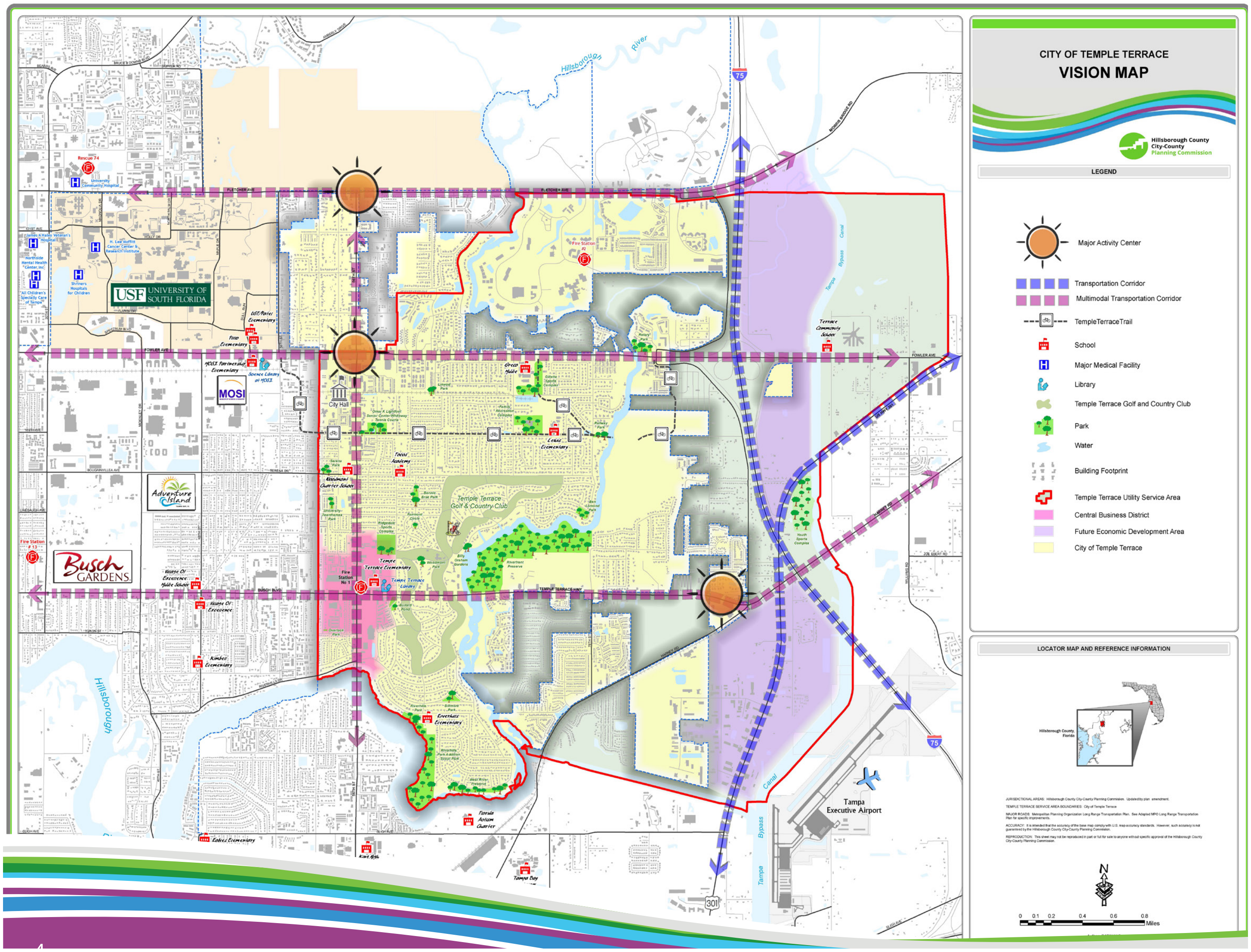
Source: Crash Data Management System

Temple Terrace Vision Map

The Temple Terrace Vision Map identified the activity centers and major roadways providing access to the activity centers as part of the City's vision to guide growth and development. The Vision Map is part of the City of Temple Terrace's Comprehensive Plan. The map identifies 56th Street in Temple Terrace as a multimodal transportation corridor (see Figure 5).

The map also identifies the area around the 56th Street and Bullard Parkway intersection as the city's planned central business district and the intersections of 56th and Fowler Avenue and 56th and Fletcher Avenue as major activity centers. This study developed alternatives to align with the Vision Map goals.

FIGURE 5. CITY OF TEMPLE TERRACE VISION MAP



FDOT University Area Multimodal Feasibility Study

FDOT's University Area Multimodal Feasibility Study reviewed Fowler Avenue from I-275 to I-75 and identified three major needs for the corridor: safety, transit flexibility, and intersection efficiency. FDOT proposes to address these needs by making intersection improvements in the long-term, using leading pedestrian intervals for crossings in the short-term, and adding pedestrian crossings in the short-term. FDOT plans to implement these changes from 2021 to 2025.

Several intersection improvements are planned for the 50th/56th Street study area (see Figure 6). At 56th Street, FDOT recommends updating the channelized right turns to urban smart channels to improve visibility and reduce speeds of turning vehicles, installing landscaping, and adding leading pedestrian intervals.

FIGURE 6. FOWLER AVENUE PROPOSED TREATMENTS AND SCHEDULE

Location/Project	Project Description	Total Estimated Budget	FY 21	FY 22	FY 23	FY 24	FY 25
Nebraska Avenue & Fowler Avenue	Tighten curb radii, landscaping	$ 477,000					
12th Street & Fowler Avenue	Signalized pedestrian crossing, landscaping	$ 1,065,000					
19th Street & Fowler Avenue	Signalized intersection, landscaping	$ 1,170,500					
22nd Street & Fowler Avenue	New signal heads, extend median nose, tighten curb radii, landscaping	$ 182,500					
56th Street & Fowler Avenue	Urban smart channel, landscaping	$ 494,000					
Fowler Avenue Leading Pedestrian Interval Implementation	Implement LPI at signalized intersections	*TBD*	Ongoing				
Fowler Avenue Crosswalk Completion	Complete crosswalks at signalized intersections	*TBD*					
Fowler Avenue Multimodal Improvements (Nebraska to Bruce B Downs)	Implement transit, bike, and pedestrian improvements	*TBD*					
Fowler Avenue Multimodal Improvements (Bruce B Downs to I-75)	Implement transit, bike, and pedestrian improvements	*TBD*					
HART Arterial BRT	Transit guideway	*TBD*					

Legend: PD&E Design Const.

STAKEHOLDER ENGAGEMENT AND OUTREACH

Community engagement was an important component of this corridor study to understand the issues people living, working, and traveling along the corridor face. Input from the public was critical to the development of alternatives that matched the surrounding corridor context and preferences of roadway users. Detailed notes from engagement activities are provided in Appendix A.

Elected Officials Meeting

In May 2021, local and state representatives and members of the public attended a hybrid in-person and virtual meeting that provided an overview of the project. At this meeting, the project team gathered information about the corridor today and what officials envisioned for the corridor's future through interactive polling, shown in Figure 7. Meeting attendees also discussed how to engage different groups throughout the study. Both officials and community members had opportunity to comment on the project.

FIGURE 7. INPUT RECEIVED THROUGH ELECTED OFFICIALS MEETING

Stakeholder Interviews

During the data collection process in June 2021, the study team held virtual interviews with key corridor stakeholders. These interviews helped the team better understand the corridor's unique issues and opportunities. These conversations also helped foster strong relationships between the study team and community members whose neighborhoods, business interests, and resources are along the study corridor. Interviews covered multimodal improvements (including shared use paths, sidewalk gaps, transit lanes, and shelters), safety issues around schools, lighting, high vehicular speeds, shoulder and bike lane conditions, transit-dependent communities, and university students' travel patterns.

The study team interviewed the following groups:

- City of Tampa
- Hillsborough County
- Hillsborough County School Board
- Hillsborough TPO
- City of Temple Terrace Police Department
- Hillsborough Area Regional Transit Authority
- Tampa Hillsborough Expressway Authority
- University of South Florida
- Paideia Classical Christian School
- Corpus Christi Catholic School
- King High School
- Uptown Chamber
- Tampa Bay Chamber
- Hispanic Chamber of Commerce Tampa Bay

(For the full list of groups invited to interview, see the Appendix A.)

Project Advisory Group Meeting

Members of the project advisory group (or PAG) included representatives from the following organizations:

- FDOT
- City of Tampa
- City of Tampa Community Redevelopment Agency (CRA)
- East Tampa CRA
- Hillsborough County
- Hillsborough County School Board
- Hillsborough Transportation Planning Organization
- Hillsborough Planning Commission
- City of Temple Terrace
- City of Temple Terrace CRA
- Hillsborough Area Regional Transit Authority
- Tampa Hillsborough Expressway Authority
- Florida Highway Patrol
- Hillsborough County Emergency Services
- USF

To ensure the corridor analysis and alternatives were aligned with local planning efforts and community goals, the PAG met at key points throughout the study:

June 2021

- Reviewed project scope, schedule, and overall approach
- Discussed the corridor's existing conditions and stakeholder interviews
- Held a virtual walking review
- Planned next steps

September 2021

- Discussed corridor's issues and opportunities
- Reviewed project team's draft of project purpose and needs

April 2022

- Reviewed the alternatives evaluation
- Reviewed public meeting concepts

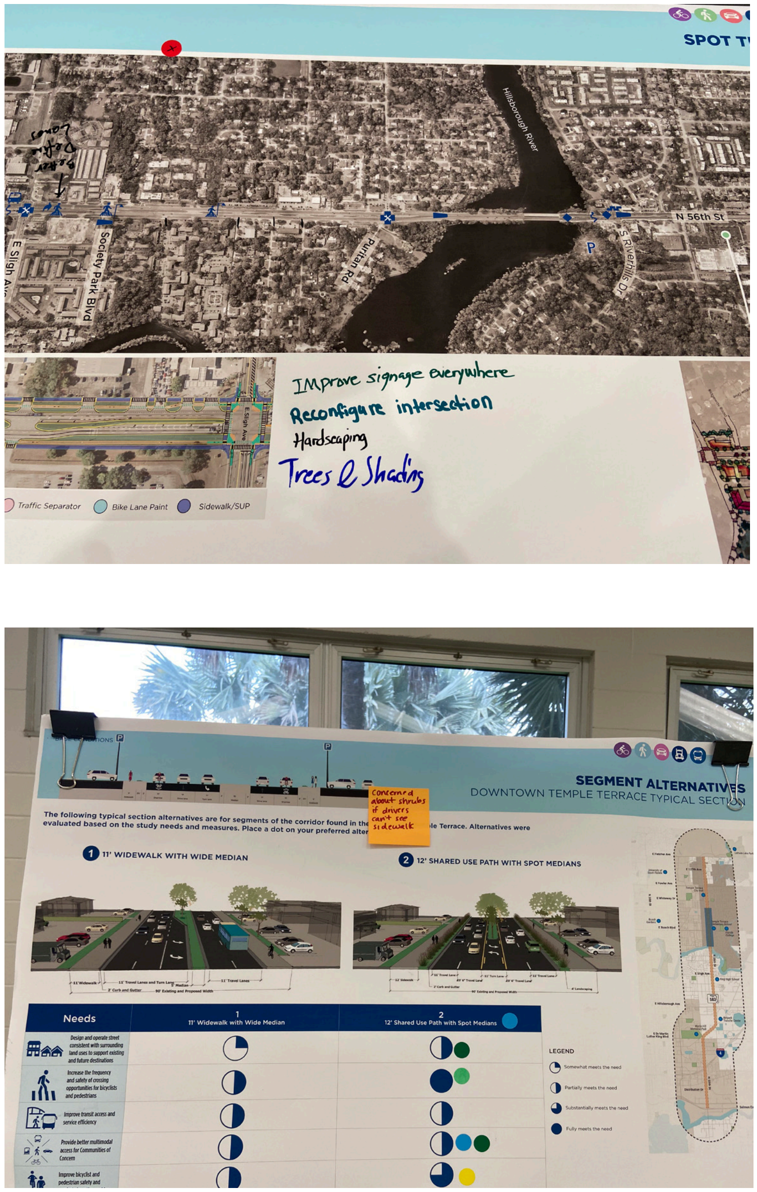
October 2022

- Heard project team's preferred alternative presentation
- Reviewed the corridor implementation plan
- Discussed next steps

Public Workshops

The study team held two public meetings with virtual and in-person options for each. The first, in November 2021, focused on corridor existing conditions and collected input on the study's guiding principles and corridor needs. The second, in August 2022, presented alternatives to the public and sought their feedback, shown in Figure 8.

FIGURE 8. SAMPLE INPUT RECEIVED THROUGH PUBLIC WORKSHOPS



Project Website

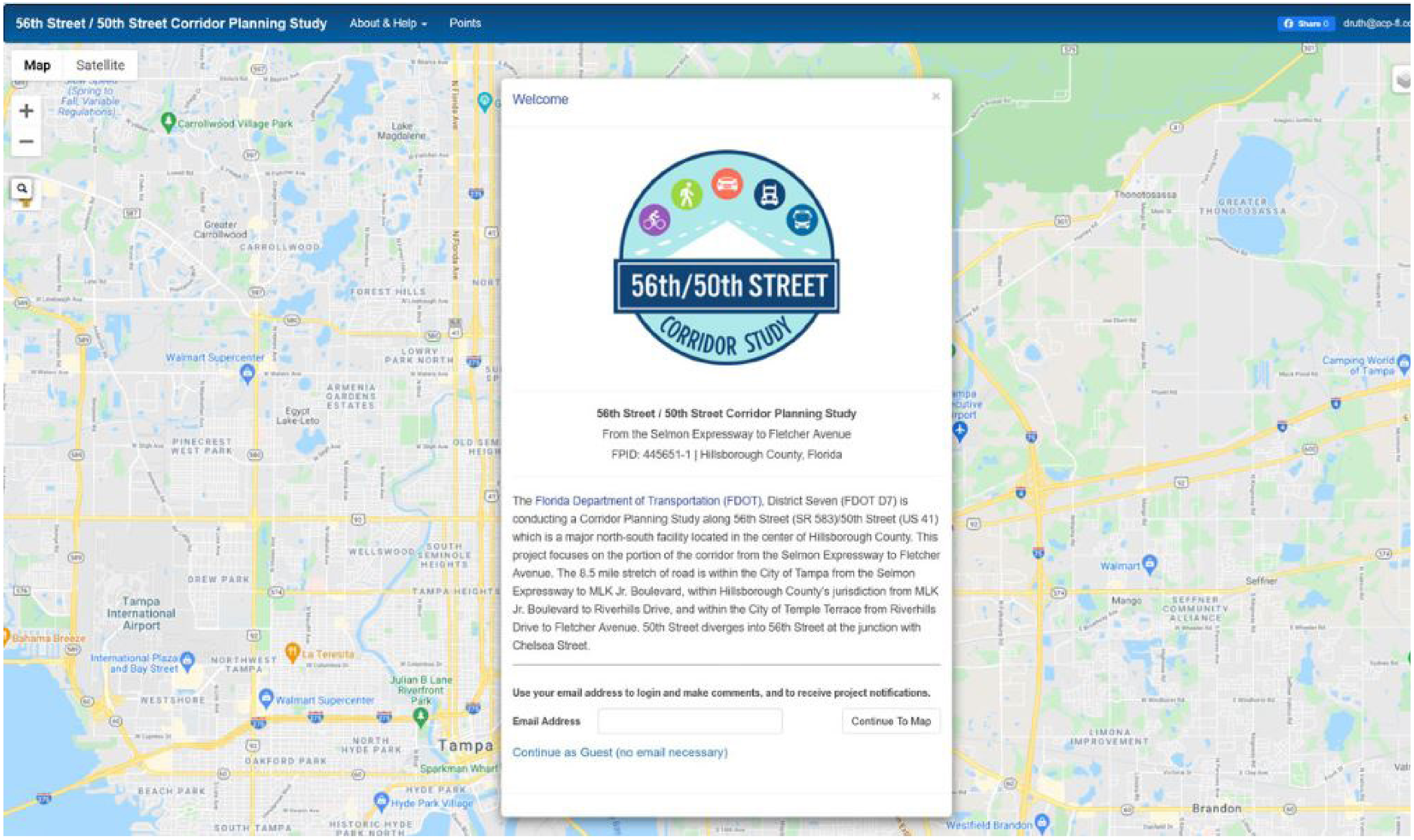
The 56th Street/50th Street Corridor Planning Study website was updated regularly with the latest information about stakeholder outreach, including meeting notes and meeting recordings. To access the website, visit https://www.fdotd7studies.com/projects/56thstreetcorridor/. Stakeholders and the public used the site's virtual comment mapper to express concerns, issues, feedback, and ideas at specific locations along the corridor.

Comments were organized into the following categories:

- Bicycle
- Pedestrian
- Bus/transit
- Freight
- Land Use
- Other

The study team used these comments to understand the corridor's unique issues and opportunities and to identify what multimodal improvements they should analyze more closely.

FIGURE 9. PROJECT WEBSITE PUBLIC INVOLVEMENT PAGE



CORRIDOR CONTEXT

The study corridor transitions through a variety of land uses and has segments in different jurisdictions. These changes in right-of-way and existing bicycle and pedestrian facilities mean that the corridor will need tailored solutions.

Existing Typical Sections

The corridor is in the City of Tampa from the Selmon Expressway to Melburne Boulevard/21st Avenue. This is the only corridor section with six lanes.

FIGURE 10. SELMON EXPRESSWAY TO 10TH AVENUE

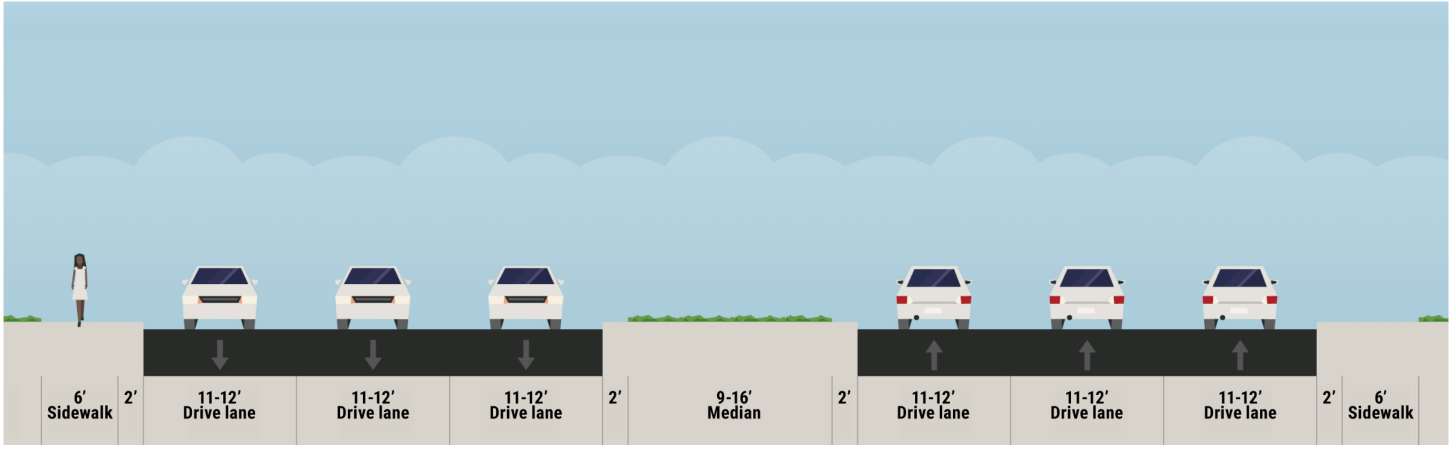
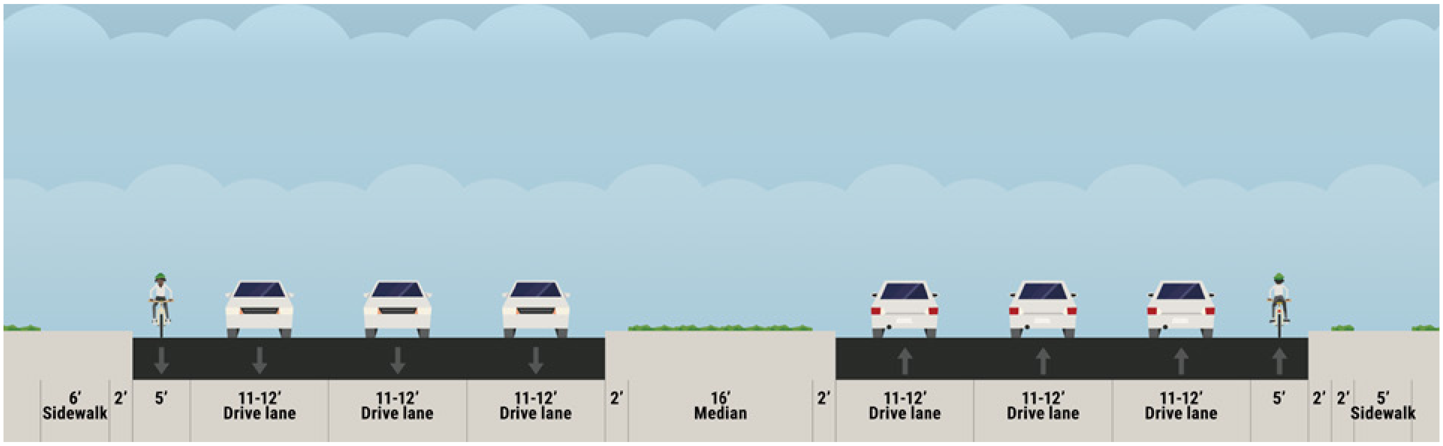


FIGURE 11. 10TH AVENUE TO MELBURNE BOULEVARD/ 21ST AVENUE



At Melburne Boulevard/21st Avenue, the typical street section changes to four lanes with a median separating two lanes in each direction. The on-street bike lanes continue through Tampa and into Hillsborough County, and they range from four-feet wide up to six-feet at Puritan Road.

FIGURE 12. MELBURNE BOULEVARD/21ST AVENUE TO 23RD AVENUE

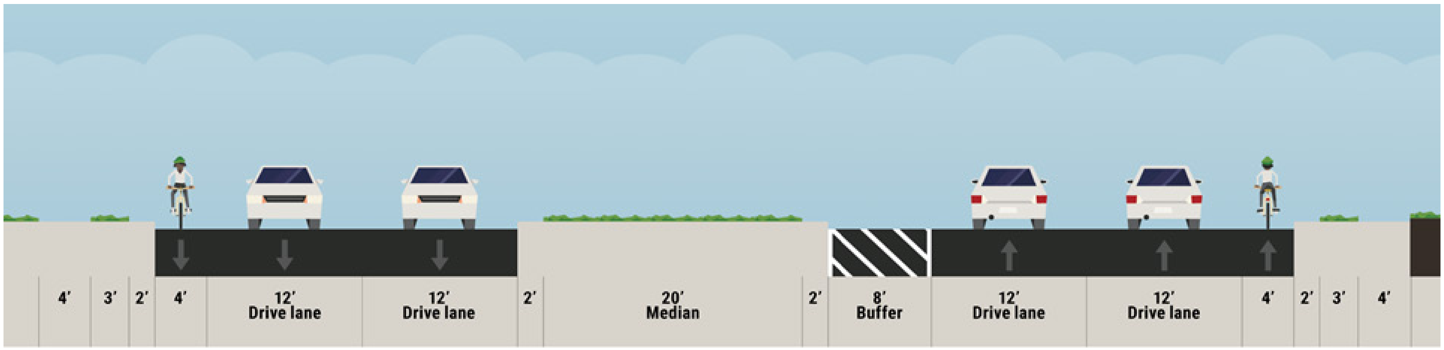
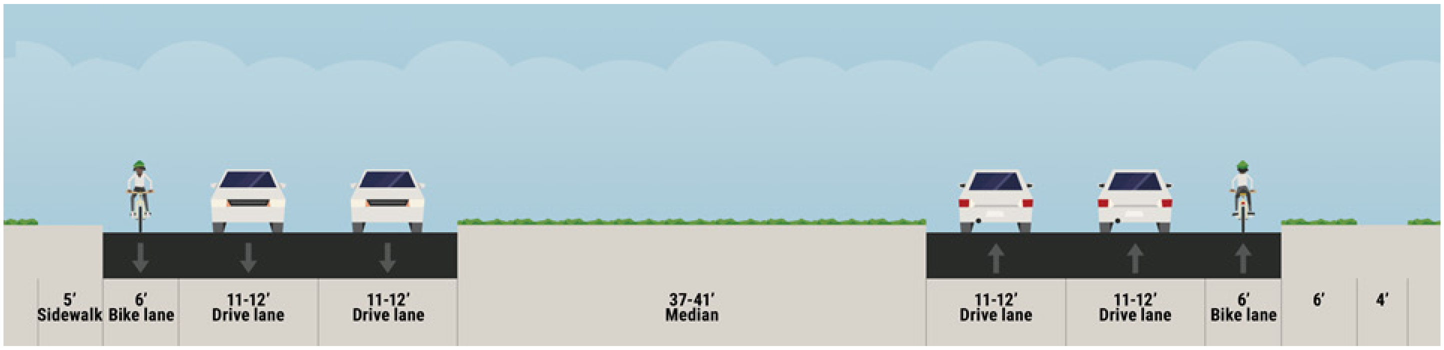


FIGURE 13. 23RD AVENUE TO PURITAN ROAD



Approaching the bridge over the Hillsborough River, the on-street bike lane transitions to a sharrow on the outside lane in each direction that continues into the City of Temple Terrace.

FIGURE 14. PURITAN ROAD TO 56TH STREET BRIDGE

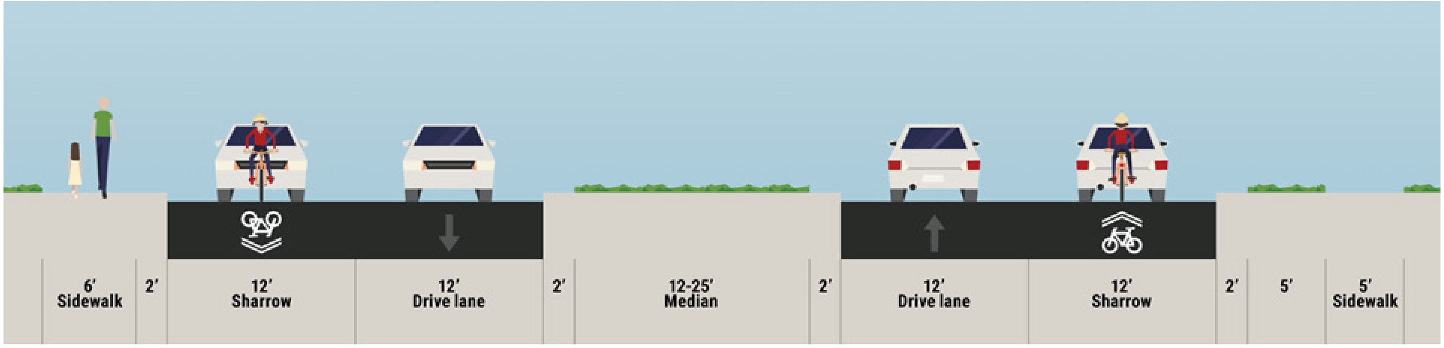
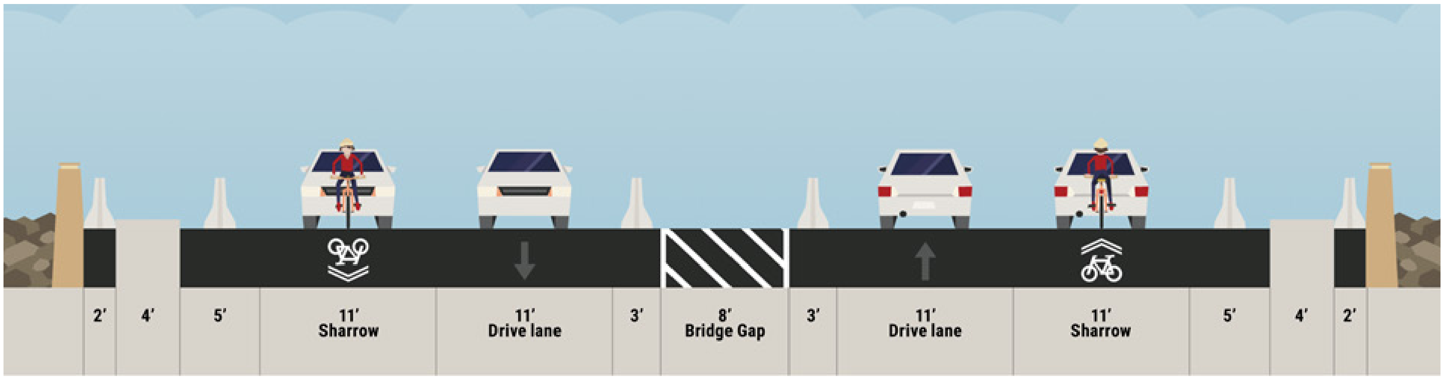
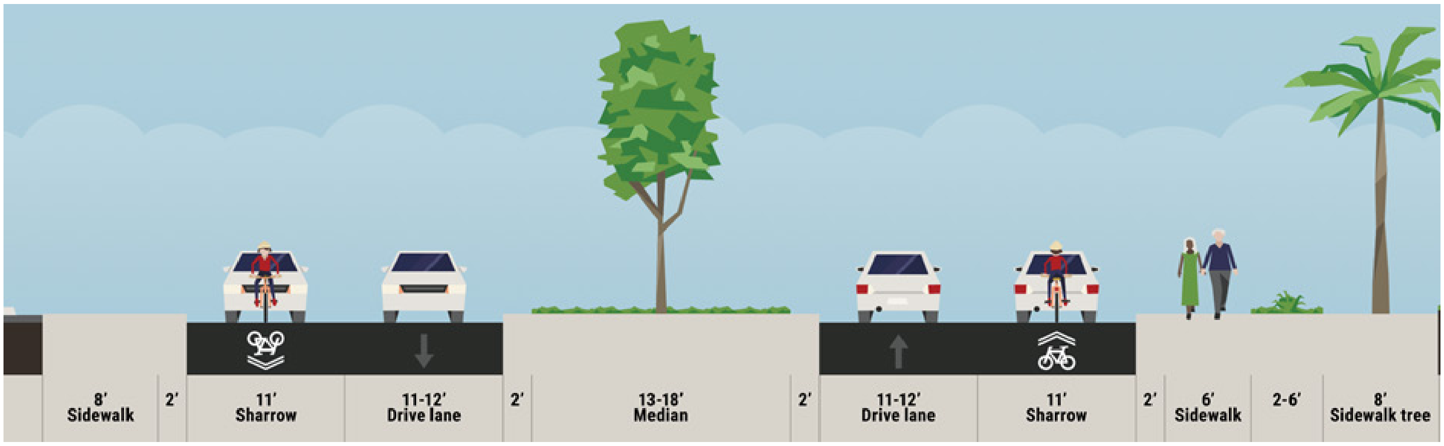


FIGURE 15. 56TH STREET BRIDGE



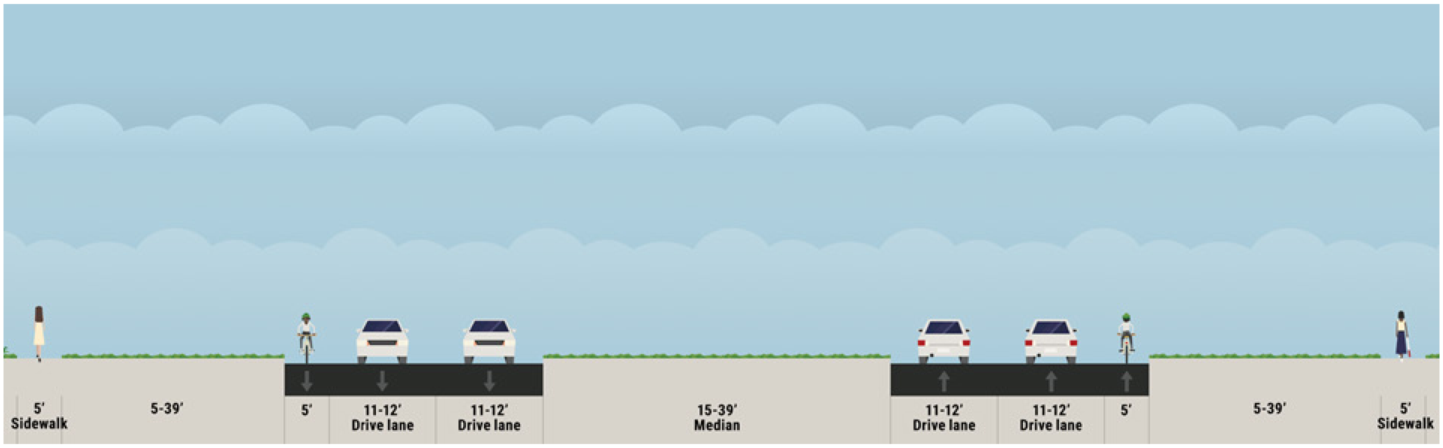
From the bridge to Maroldy Drive within the City of Temple Terrace, the sharrows remain on the outside lanes, but the sidewalks on both sides of the road are wider.

FIGURE 16. 56TH STREET BRIDGE TO MAROLDY DRIVE



From Maroldy Drive to Fletcher Avenue, the sharrows transition back into five-foot on-street bicycle lanes.

FIGURE 17. MAROLDY DRIVE TO FLETCHER AVENUE



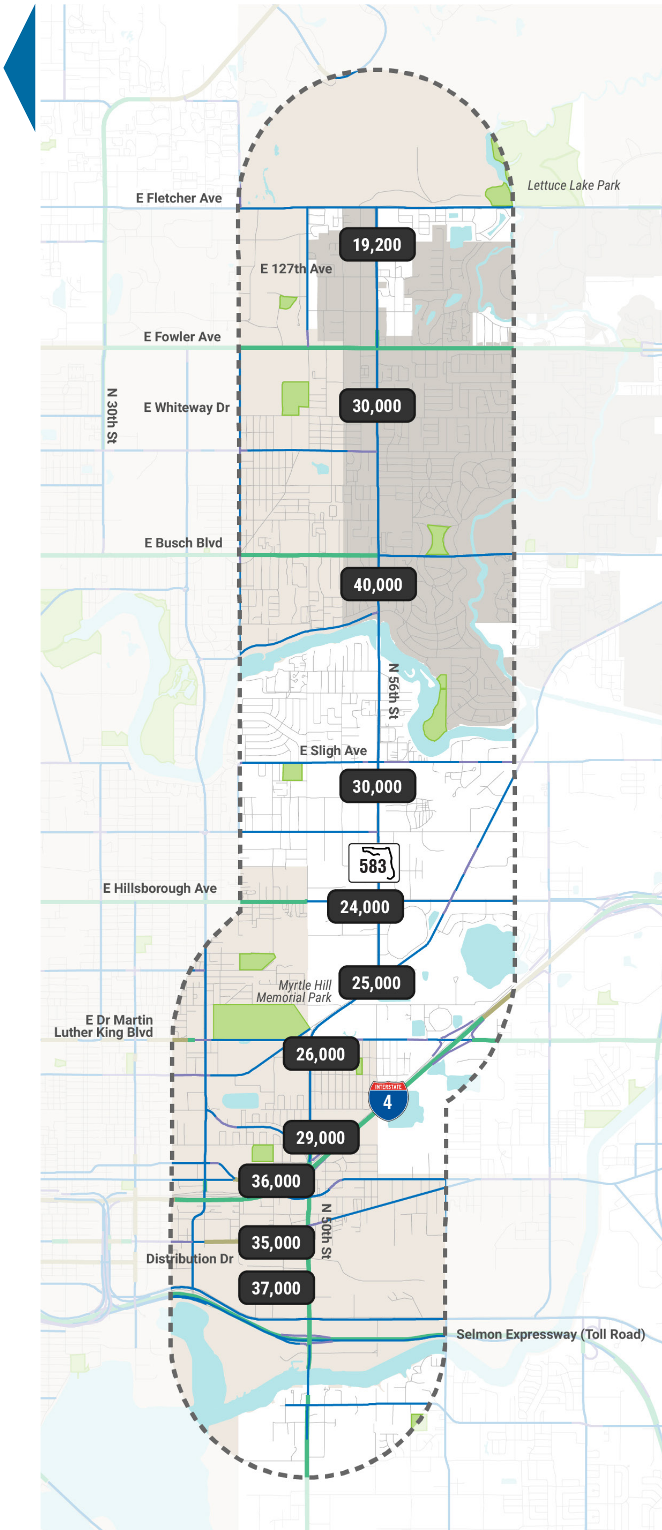
Annual Average Daily Traffic

Annual average daily traffic (AADT) estimates how many vehicles pass a given point in a day. Specifically, AADT is calculated with the total volume of vehicles that pass a particular part of road in both directions for a year divided by the number of days in the year. Engineers and planners use AADT to know whether a roadway has enough capacity today and to ensure any changes will still accommodate traffic volumes in the future.

Key Findings:

- Along the study corridor, AADT ranges from 19,200 to 40,000 vehicles per day.
- The highest volumes occur near the Selmon Expressway and I-4 ramps, and north of Hillsborough Avenue. The lowest volumes occur north of Fowler Avenue.
- AADT changes along the corridor are heavily influenced by travel happening on east/west cross-streets, as travelers use 56th Street/50th Street to access other parts of the county. Major east/west connections include the Selmon Expressway, I-4, Hillsborough Avenue, Busch Boulevard, and Fowler Avenue.

FIGURE 18. AVERAGE ANNUAL DAILY TRAFFIC



LEGEND

Number of Bidirectional Lanes

- 1
- 2
- 3
- 4

X,XXX Annual Average Daily Traffic

City of Temple Terrace

City of Tampa

1-Mile Buffer

Data sources: FDOT, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles

0 1.3 North

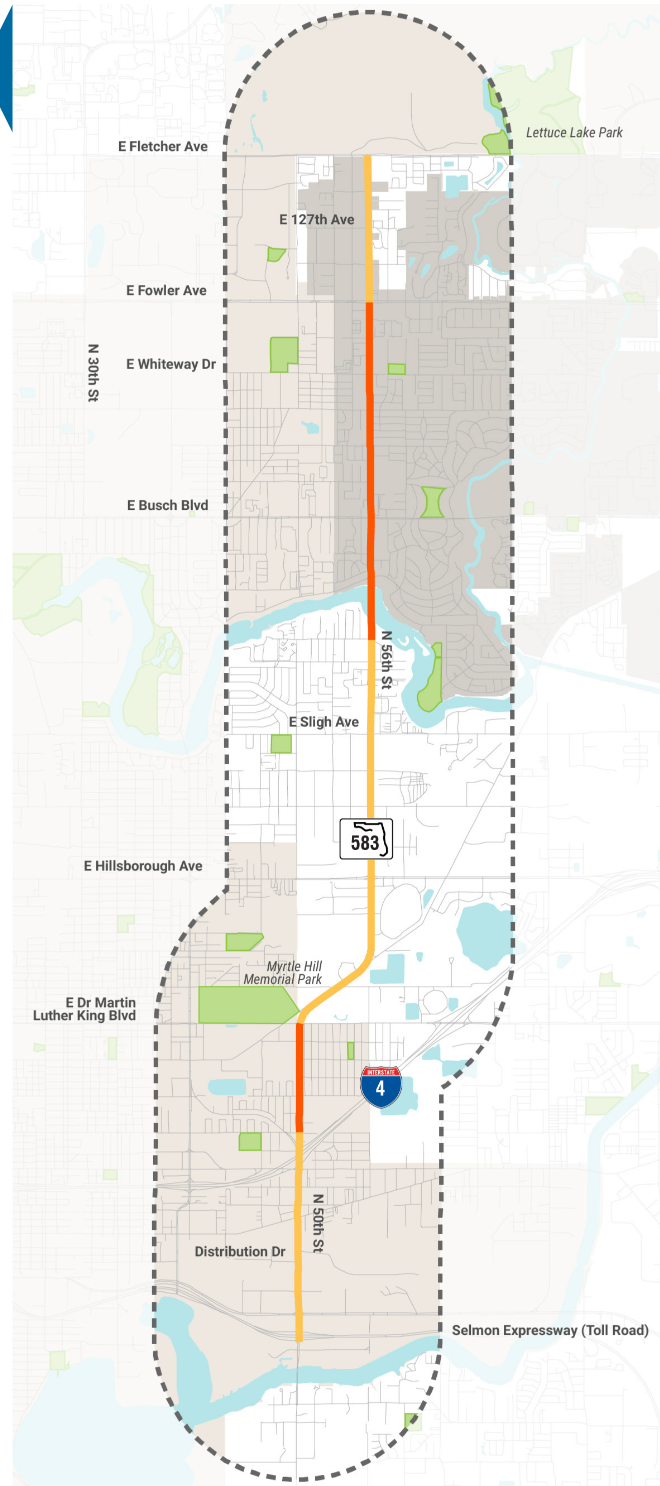
Context Classification

Context classification denotes a particular area's land use, roadway connectivity, and surrounding densities (population and employment). Transportation engineers and planners use context classifications to help ensure they are matching the right improvement with the right place.

The context classification of the study corridor transitions back and forth from C3C—Suburban Commercial and C4—Urban General. The C4 segments includes Melburne Boulevard/21st Avenue to Dr. Martin Luther King Jr. Boulevard in the City of Tampa, and portions of Temple Terrace north of the Hillsborough River that are in the process of being redeveloped with a more urban character. (For more detail on the corridor's context classification see Appendix B).

In compliance with the *Florida Design Manual (FDM)*, these context classification designations were used to determine the appropriate, context-sensitive road design criteria and standards that will address all road users' needs.

FIGURE 19. CONTEXT CLASSIFICATION



LEGEND

Context Classification

- C1 Natural
- C2 Rural
- C2T Rural Town
- C3R Suburban Residential
- C3C Suburban Commercial
- C4 Urban General
- C5 Urban Center
- C6 Urban Core
- City of Temple Terrace
- City of Tampa
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles

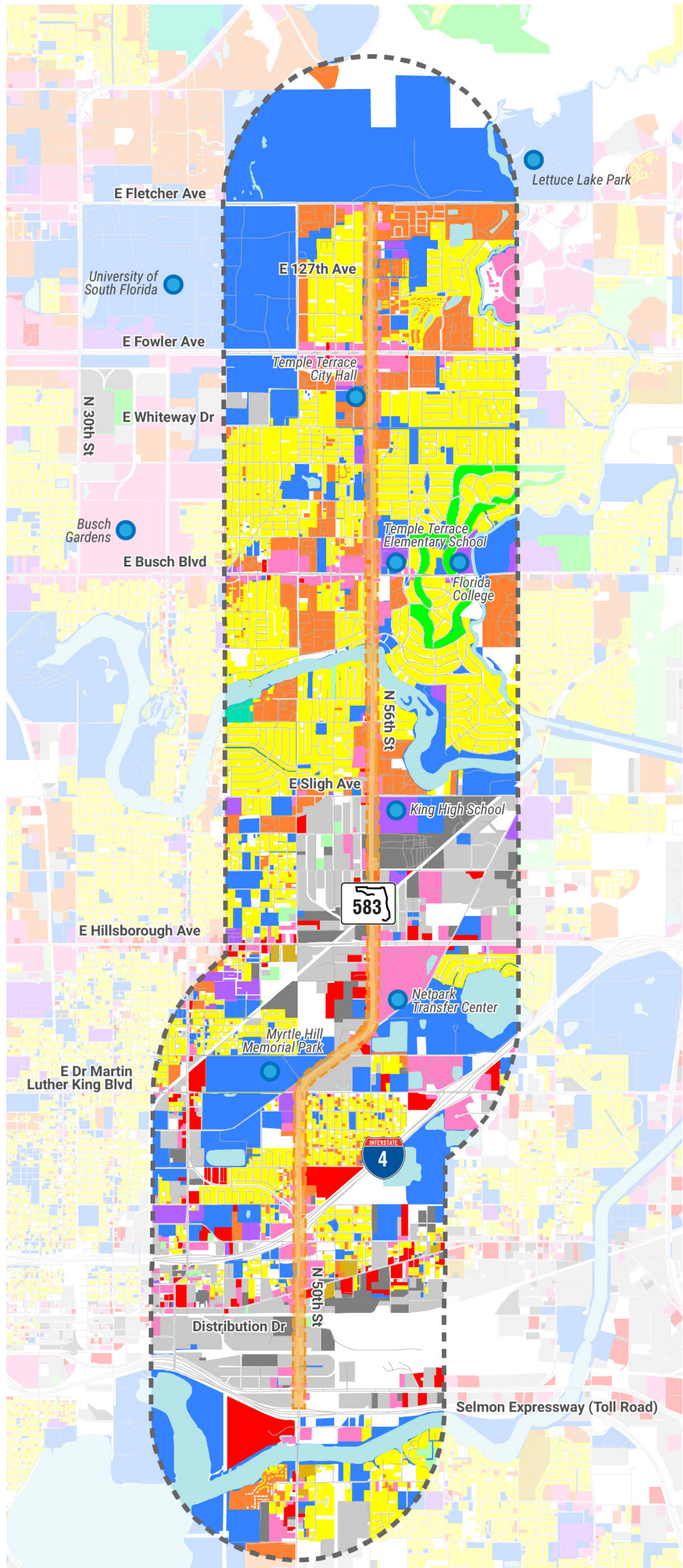
0 1.3 North

Existing Land Use and Major Destinations

Many land uses front the corridor: industrial, commercial, single family, multifamily, and educational. Land uses are mostly industrial and commercial, with some residential interspersed and behind fronting uses, from Selmon Expressway to Sligh Avenue. North of Sligh Avenue, land uses transition to primarily residential with light commercial uses fronting the corridor.

The study area has numerous destinations. It has parks and green spaces, including Myrtle Hill Memorial Park north of Dr. Martin Luther King Jr. Boulevard.
The study area also has 27 schools, among them King High School on Sligh Avenue, Temple Terrace Elementary School and Florida College on Busch Boulevard, and USF west of study area. The Netpark Transfer Center on Harney Road functions as a major multimodal trip generator and attractor.

FIGURE 20. EXISTING LAND USE



LEGEND

Existing Land Use

- Single Family/Mobile Home
- Two- Family/Multi-Family
- Mobile Home Park
- Public/Quasipublic/Institutions
- Eductional
- Heavy Commercial
- Light Commercial
- Heavy Industrial
- Light Industrial
- Recreation/Open Space
- Agricultural
- Natural
- Water
- Study Corridor
- 1-Mile Buffer

Data sources: FDOT, Hillsborough TPO, Hillsborough County, Florida Geographic Data Library

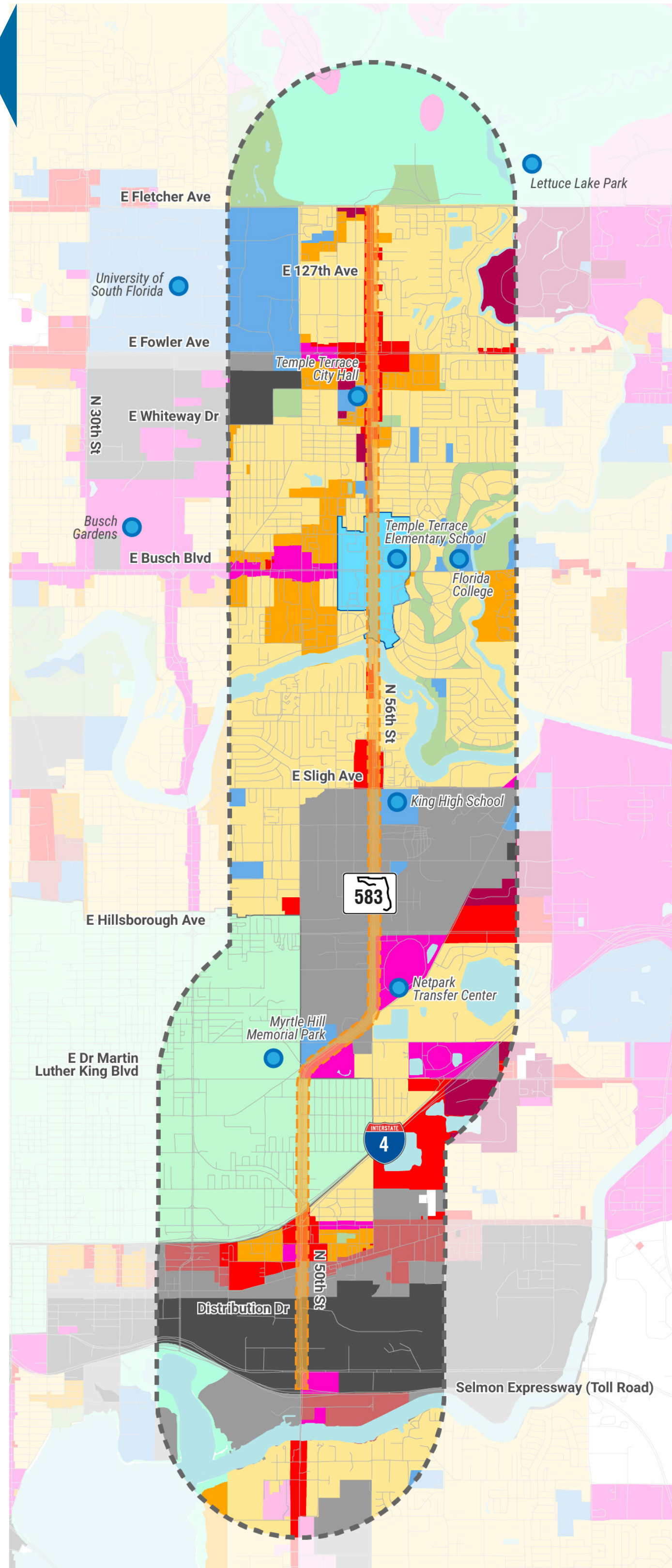
Scale in Miles
0 1.3 North

Future Land Uses and CRAs

In the future, the industrial, commercial, and residential land uses between Selmon Expressway and I-4 will likely remain and increase in allowable density. North of Dr. Martin Luther King Jr. Boulevard, some industrial land uses will likely transition to general mixed-use developments. Parts likely to transition include unincorporated Hillsborough County and in Temple Terrace where commercial developments exist today. With more people seeking to access goods and services nearby, greater density and mixed land uses will increase multimodal trips to the corridor.

Many municipalities designate sites with the potential to revitalize community well-being as community redevelopment areas, or CRAs. The corridor contains CRAs for Tampa and Temple Terrace. The Tampa CRA includes the Eastern Heights neighborhood, which experiences a high poverty rate. In the Temple Terrace CRA, planned developments will generate more visitors and align with the long-term vision to create a vibrant downtown that will be valued by its citizens for generations to come.

FIGURE 21. FUTURE LAND USE



LEGEND

Future Land Use

- Low Density Residential
- High Density Residential
- Suburban Mixed Use
- Neighborhood Mixed Use
- General Mixed Use
- Office/Institutional
- Commercial
- Light Industrial
- Heavy Industrial
- Public/Semi-Publlic
- Park/Recreation/Open Space
- Water
- Natural Preservation
- Transitional Use
- Temple Terrace Community Redevelopment Agency
- Tampa Community Redevelopment Agency
- Study Corridor
- 1-Mile Buffer

Data sources: FDOT, Hillsborough TPO, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles
0 1.3
North

Demographics

The study team analyzed socio-demographic data to better understand the corridor's travel patterns and characteristics.

Communities of Concern

To understand the communities that need the most support, the Hillsborough TPO identifies communities of concern. These communities are block groups that have a greater than one standard deviation above the countywide average of two or more of the following demographic characteristics:

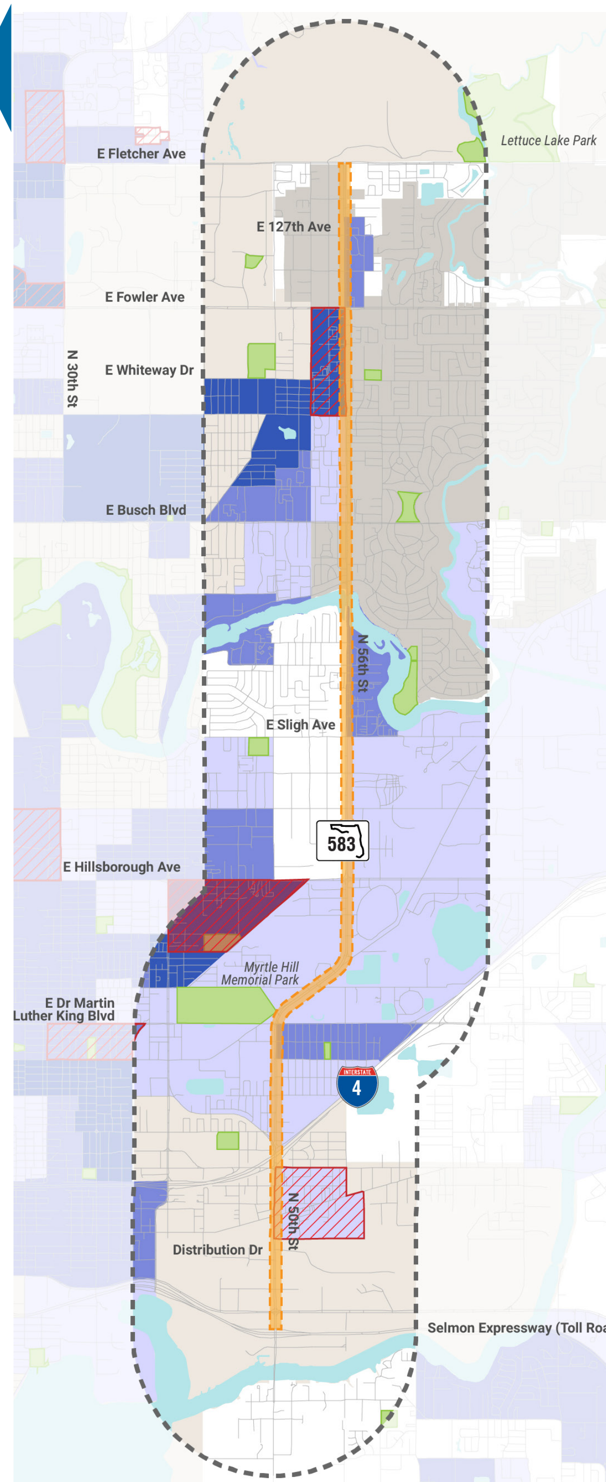
- Minoritized population
- Low-Income
- Older Adults (65 and over)
- Limited English Proficiency
- Disabilities
- Zero Car Households
- Young People (18 and under)

Residents in a community of concern face unique and sometimes overwhelming obstacles related to transportation and engagement in the planning process. There are several communities of concern along the western side of the corridor around Busch Boulevard to Fowler Avenue. Communities of concern on the east side of the corridor include just south of Hillsborough River and south of Dr. Martin Luther King Jr. Boulevard. The area just north of Myrtle Hill Memorial Park in the Eastern Heights and Northview Hills neighborhoods also rank highly as a community of concern.

Three block groups in the corridor have numerous residents experiencing extreme poverty: west of 56th Street, south of Fowler Avenue; east of 50th Street, south of I-4; and west of 56th Street, south of Hillsborough Avenue. In these areas, many households live on $2.00 or less a day.

IN THREE BLOCK GROUPS IN THE STUDY CORRIDOR, MANY HOUSEHOLDS LIVE ON $2.00 OR LESS A DAY.

FIGURE 22. COMMUNITIES OF CONCERN



LEGEND

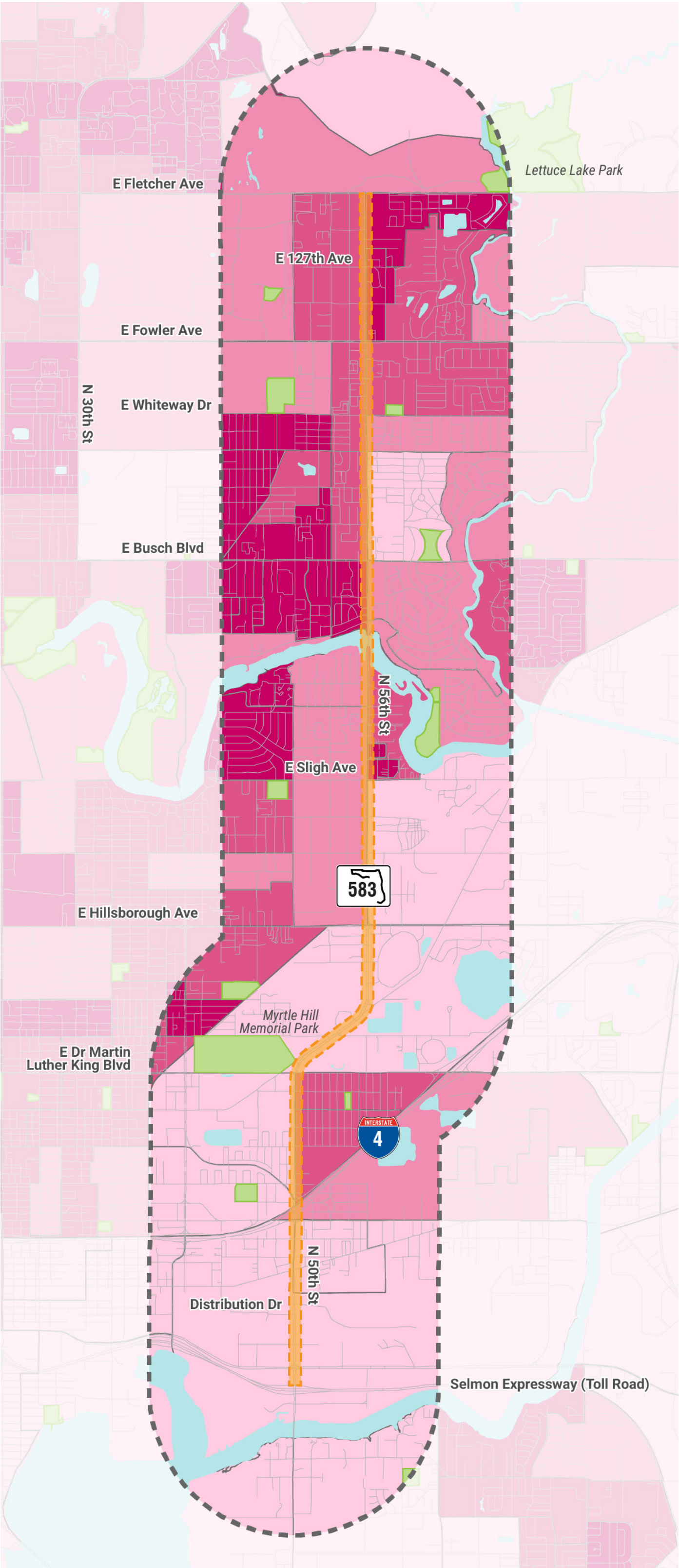
Communities of Concern

- Extreme Poverty (Block groups that have a significant percentage of households living with $2.00 or less per day)
- 5 Characteristics (Most Disadvantaged)
- 4 Characteristics
- 3 Characteristics
- 2 Characteristics (Least Disadvantaged)
- Study Corridor
- City of Temple Terrace
- City of Tampa
- 1-Mile Buffer

Data sources: FDOT, Hillsborough TPO, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles 0 1.3 North

FIGURE 23. POPULATION DENSITY



Population Density

Areas with greater population densities can support greater demand for multimodal transportation options with better bicycling and pedestrian infrastructure and more frequent transit service.

In the study corridor, the densest areas (more than 10 people per acre) are located in the far northeast; in Temple Terrace north of Hillsborough River to Whiteway Drive; south of the river on the westside; and in the block group northwest of the Myrtle Hill Memorial Park. The block group northwest of Myrtle Hill Memorial Park also has high population density.

Areas with the least density (fewer than 3 people per acre) are south of Hillsborough Avenue. The Grant Park neighborhood has a medium density of 6–10 people per acre.

LEGEND

Population Density - Persons per Acre

- <3
- 3-5
- 6-10 (county median)
- >10
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

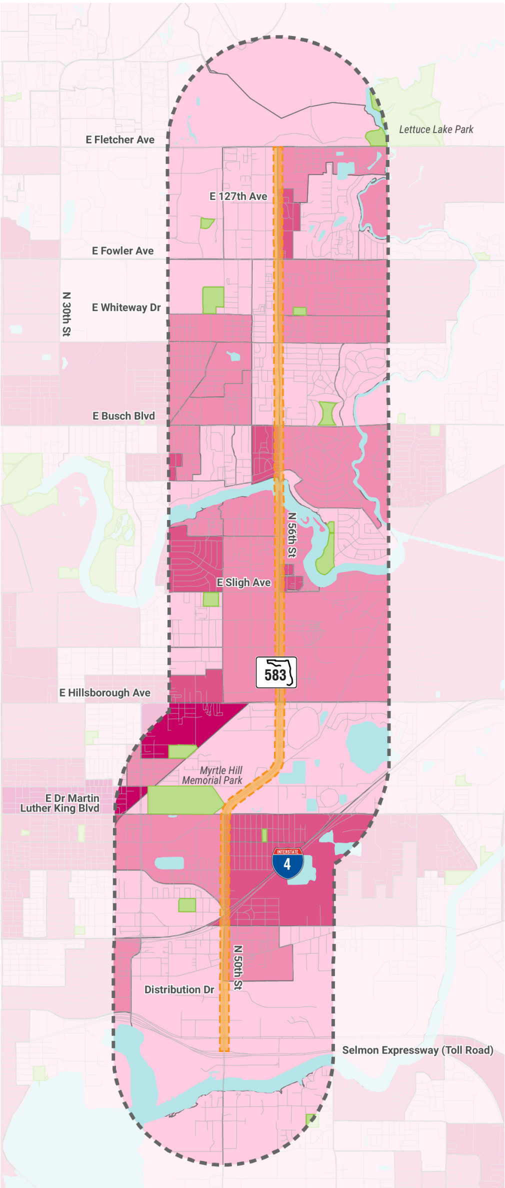
Scale in Miles
0 1.3
North

Older Adults and Young People

Both the young and elderly often rely on public transportation, walking, and biking to get around. The highest concentrations of young residents (aged 18 and under) can be found in the Northview Hills neighborhood and the Florence Villa, Beasley, and Oak Park neighborhoods.

Areas of the corridor with the highest concentration of older adults (aged 65 and older) are the Terrace Park neighborhood north of Hillsborough River. Much of the study area has an older-adult population above the county median.

FIGURE 24. POPULATION AGED UNDER 18 YEARS



LEGEND

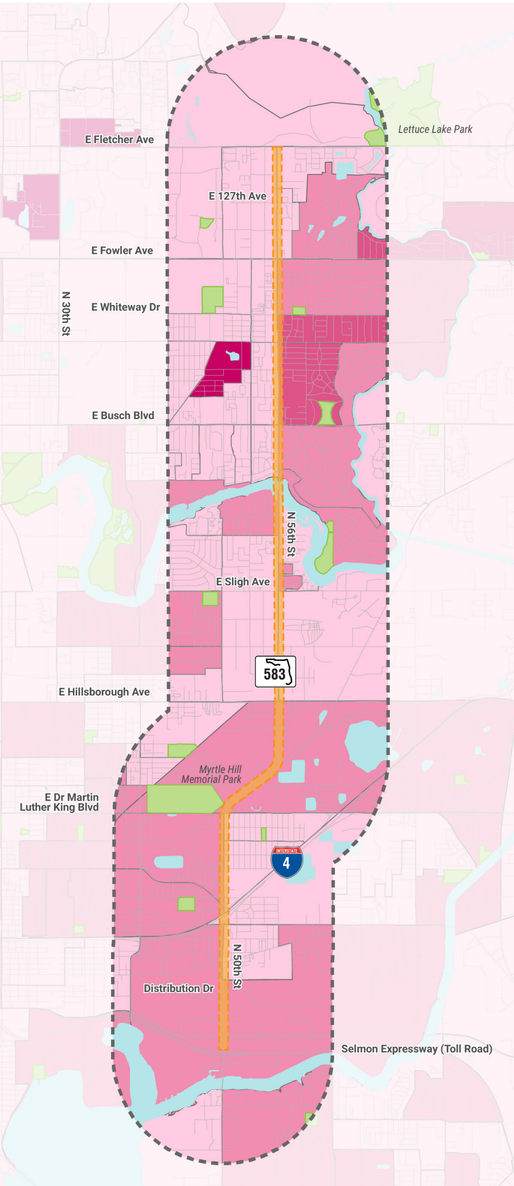
Percentage of Youth Population - Persons Under 18

- <21% (county median)
- 21%-31%
- 32%-41%
- >41%
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

Scale in Miles
0 1.3
North

FIGURE 25. POPULATION AGED OVER 65 YEARS



LEGEND

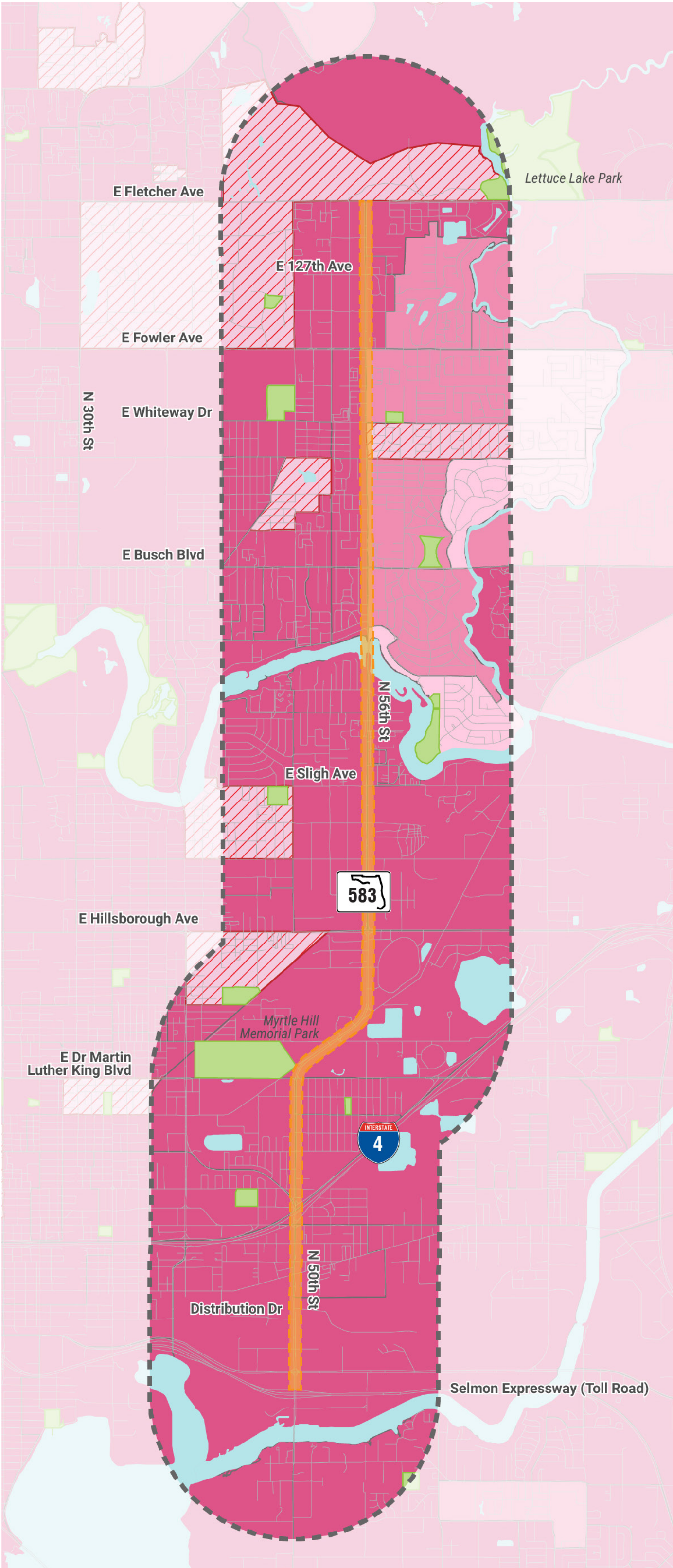
Percentage of Senior Population - Persons Over 65

- <13% (county median)
- 13%-26%
- 27%-39%
- >39%
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

Scale in Miles
0 1.3
North

FIGURE 26. MEDIAN HOUSEHOLD INCOME



Median Household Income

Areas with low median household incomes, many zero-car households, and high unemployment rates often have more residents who depend on transit.

Most block groups within the study area have a median household income at the county median, between $17,000 and $53,000. Some block groups, however, have a high poverty rate, with median household incomes below $17,000. These areas include the northern part of the corridor; the area south of Whiteway Drive on both side of 56th Street; the area south of Sligh Avenue; and the area along Hillsborough Avenue west of 56th Street.

LEGEND

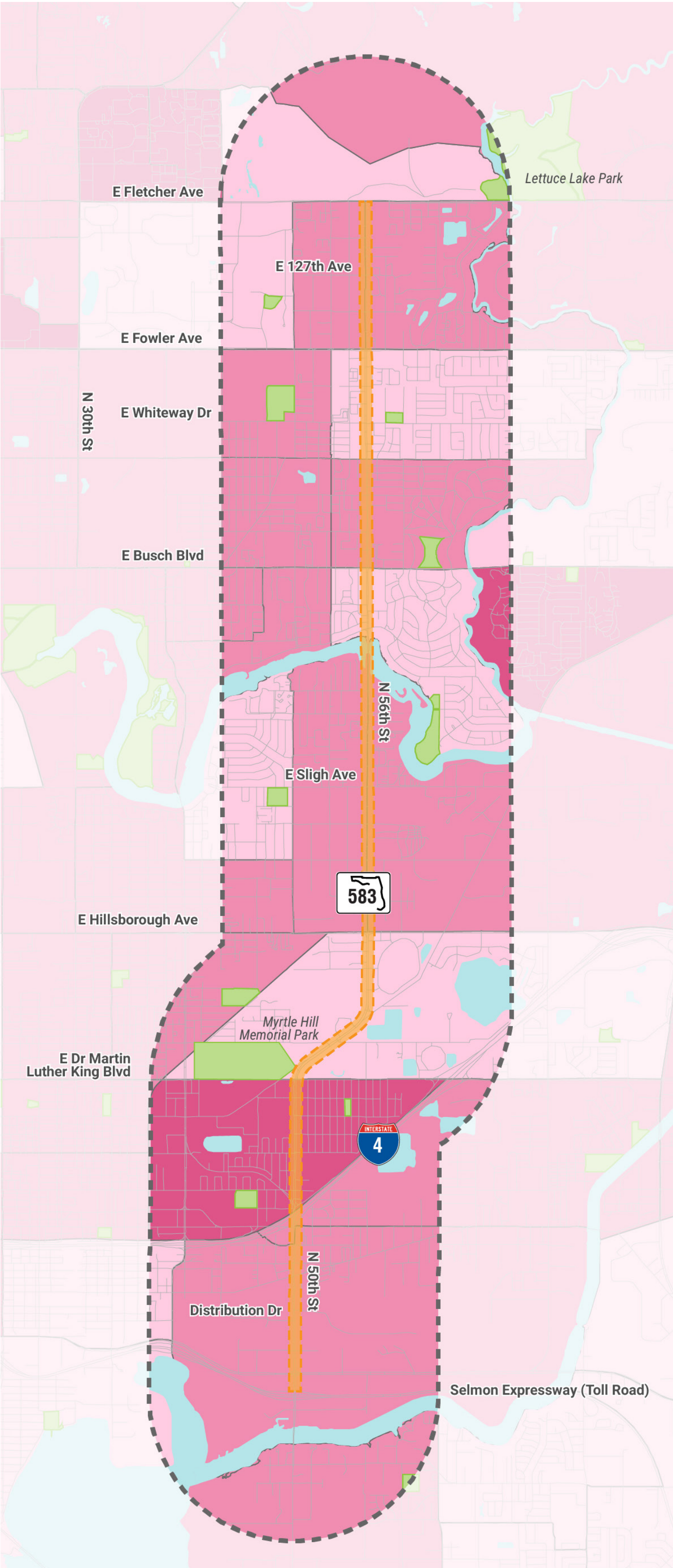
Income - Median Household Income

- <$17,000
- $17,000-$53,000 (county median)
- $53,000-$89,000
- >$89,000
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

Scale in Miles
0 1.3
North

FIGURE 27. ZERO- AND ONE-VEHICLE HOUSEHOLDS



Zero- and One-Vehicle Households

Significant portions of the study area exceed the county median in households with zero or one vehicle. Nearly 70 percent of the people living in Highland Pines and the Florence Villa, Beasley, and Oak Park neighborhoods have one or no vehicles. Without vehicle access, these residents must rely on walking, biking, transit, or carpooling to get around.

LEGEND

Percentage of Households with Zero or One Vehicle

- <43% (county median)
- 43%-56%
- 57%-69%
- >69%
- 1-Mile Buffer

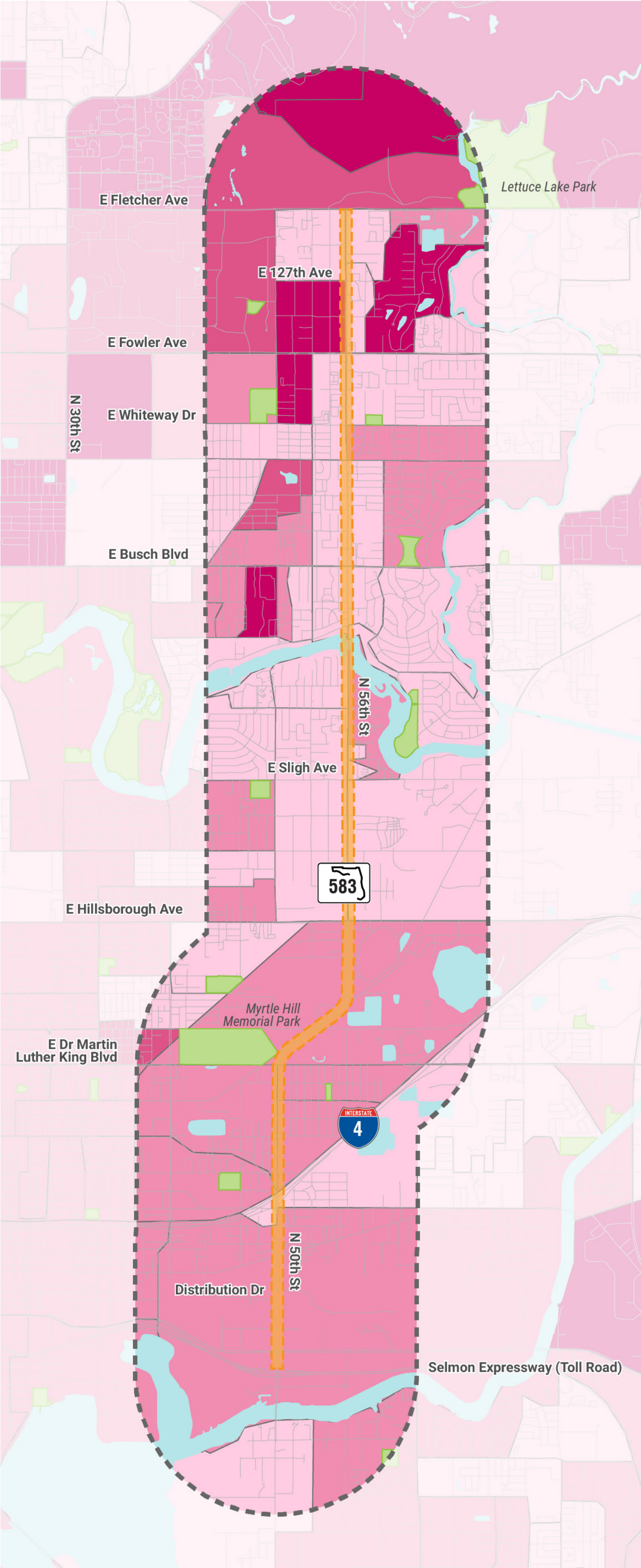
Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

Scale in Miles

0 — 1.3

North

FIGURE 28. POPULATION UNEMPLOYED



Employment Rate

Several areas in the corridor have a large share of residents who are not employed. People who are not currently working but have recently and would like to work are considered in the labor force, but unemployed.

In the northern part of the corridor near USF, 97 percent of residents are not working. The area just north of Hillsborough River in Temple Crest also has a high percentage of people who are unemployed. The Buck Hammock and Lettuce Lake Regional Park areas north of the corridor have few residents and therefore show a high percentage of unemployed residents based on a small sample size..

LEGEND

Percentage of Population Unemployed

- >97%
- 60%-97%
- 43%-59% (county median)
- <43%
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

Scale in Miles

0 1.3 North

Corridor Travel Patterns

Commuting

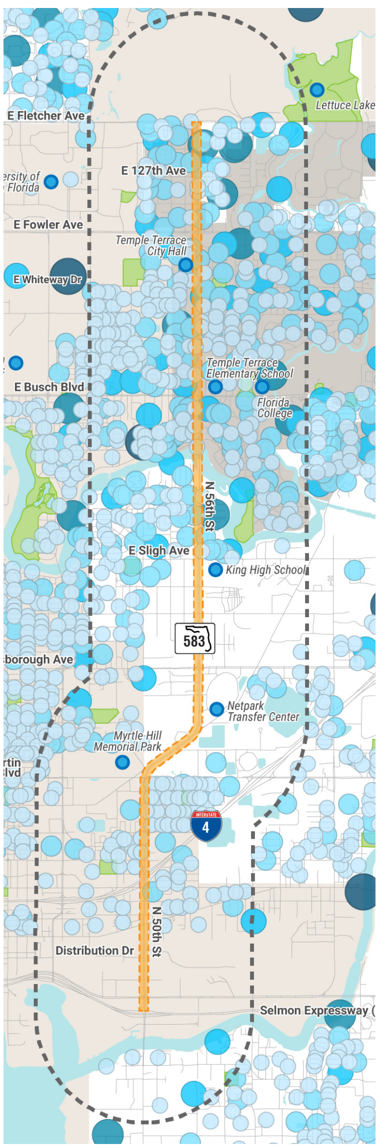
The study team used Longitudinal Employer-Household Dynamics data from the U.S. Census Bureau and Department of Labor to review home-based work commute patterns in and out of the study area.

Most jobs (39,000) in the study area are held by workers who live outside and commute into the study area. Most jobs in the study area are located in the City of Temple Terrace and just south of the Hillsborough River. Many people who commute in for work live east of the study area, north of Sligh Avenue, and in the Greater Palm River Point Community Development Corporation neighborhood. Only about 2,000 jobs are filled by people who live in the study area.

About 22,000 people live in the study area and are employed elsewhere. The areas northwest of the study area around Busch Gardens and USF are top employment locations for corridor residents. Temple Terrace has the most jobs for study area residents. Most of the study area residents live in Temple Terrace.

With such a large exchange of residents and outside workers, the corridor sees significant commuter traffic.

FIGURE 29. HOME LOCATIONS FOR STUDY AREA WORKERS



LEGEND

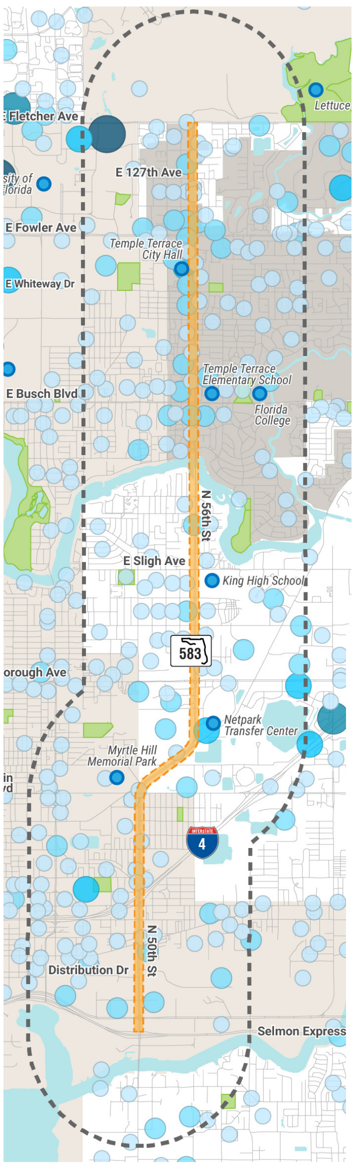
Work Locations of Residents in the Study Area
Number of Jobs

- 1 - 10
- 11 - 50
- 51 - 150
- 151 - 250
- >250
- City of Temple Terrace
- City of Tampa
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, Longitudinal Employer-Household Dynamic Program

Scale in Miles 0 1.3 North

FIGURE 30. WORK LOCATIONS FOR STUDY AREA RESIDENTS



LEGEND

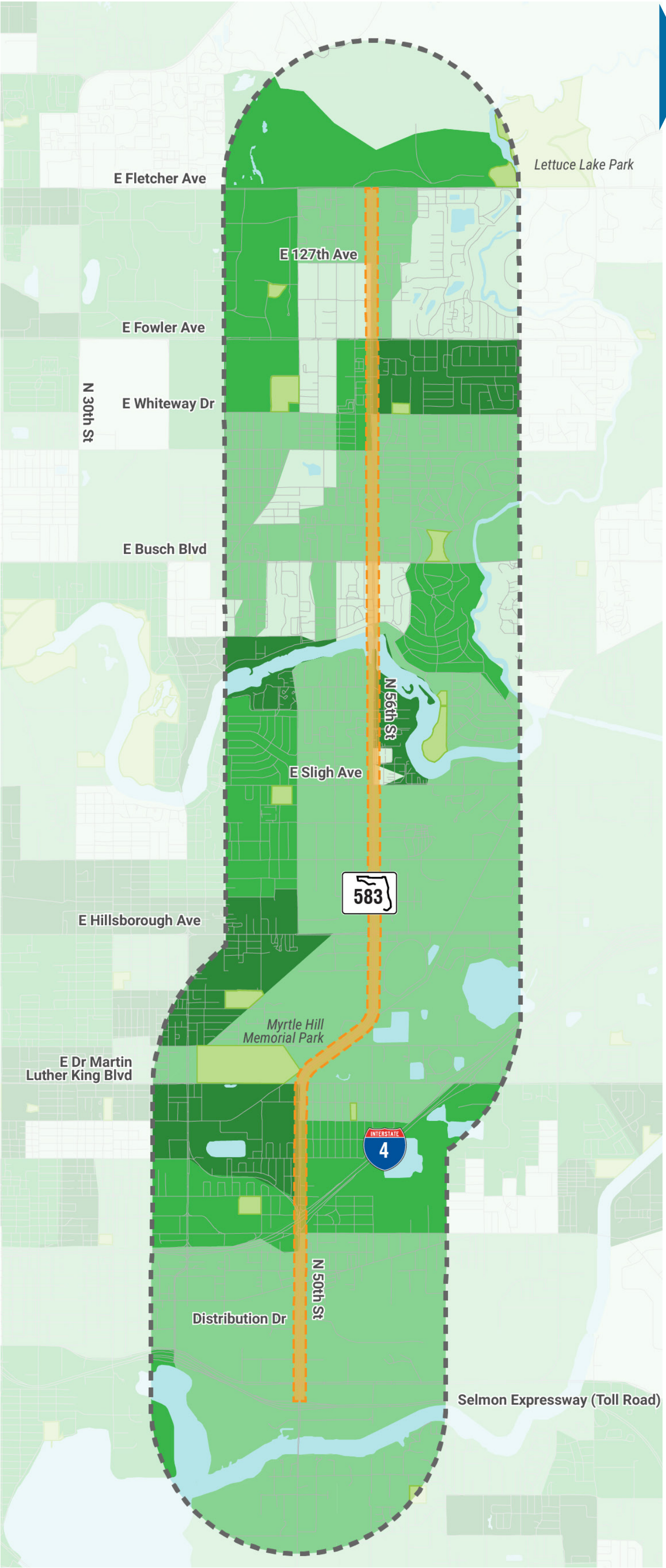
Home Locations of Workers in the Study Area
Number of Residents

- 1 - 3
- 4 - 9
- 10 - 20
- 21 - 40
- >40
- City of Temple Terrace
- City of Tampa
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, Longitudinal Employer-Household Dynamic Program

Scale in Miles 0 1.3 North

FIGURE 31. WORKERS USING ALTERNATIVE MODES TO DRIVING



LEGEND

Employment Commute | Percentage of Workers Using Alternative Modes to Driving

- <10% (County Median)
- 10%-22%
- 23%-34%
- >34%
- Study Corridor
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, 2019 American Community Survey 5-Year Estimates

Scale in Miles 0 — 1.3 North

Alternative Commute Modes

For roads with high volumes and speeds, how many people commute on foot, by bike, or via transit reveals which communities are most vulnerable to conflicts with vehicles. It is critical to provide these communities with safe and comfortable facilities.

In the study area, the percentage of workers who commute by modes other than a personal vehicle is generally higher than the county median of 10 percent. In some areas—such as in Highland Pines, Northview Hills, the multi-family homes north and south of the Hillsborough River, and in the communities northwest of Whiteway Drive south of Fowler Avenue—the percentage jumps to more than 34 percent.

Freight

The corridor sees significant freight traffic. The highest freight volumes occurring in the southern end of the corridor, near the Selmon Expressway and I-4 ramps. In addition to having 12 percent truck traffic, this segment has pedestrian and bicycle activity in the top 20 percent for all State-owned streets in District 7. Freight access is high in other parts of the corridor, as many cross streets provide direct access to I-275 and I-75. As the corridor redevelops into higher density mixed land uses, interactions between freight and non-motorized users are expected to increase.

Biking and Walking

Study corridor locations with more bicycle and pedestrian trips tend to have more community destinations.

Where People Bike

People ride their bicycles throughout the corridor. Many trips occur north of Busch Boulevard and south of Dr. Martin Luther King Jr. Boulevard. Many bicycle trips in the north part of the corridor start or end west of 56th Street in the USF area. Temple Terrace Elementary School and Florida College also see many bicycle trips. In the southern part of the corridor, Netpark Transfer Center is a major draw for bicyclists, and there is high activity crossing 50th Street in the southernmost segment (see Figure 32).

Figure 33 compares the corridor bicycle trips to all State-owned streets in District 7. A higher percentile indicates more biking activity and potentially a greater need for safe and comfortable biking facilities. The corridor generally has a high bicycle activity level, with most segments in the 80th percentile. Activity levels are consistently high north of Dr. Martin Luther King Jr. Boulevard. Even where activity is lower, in the southern part of the corridor, biking levels are still above the 60th percentile.

FIGURE 32. BICYCLE ORIGIN-DESTINATION

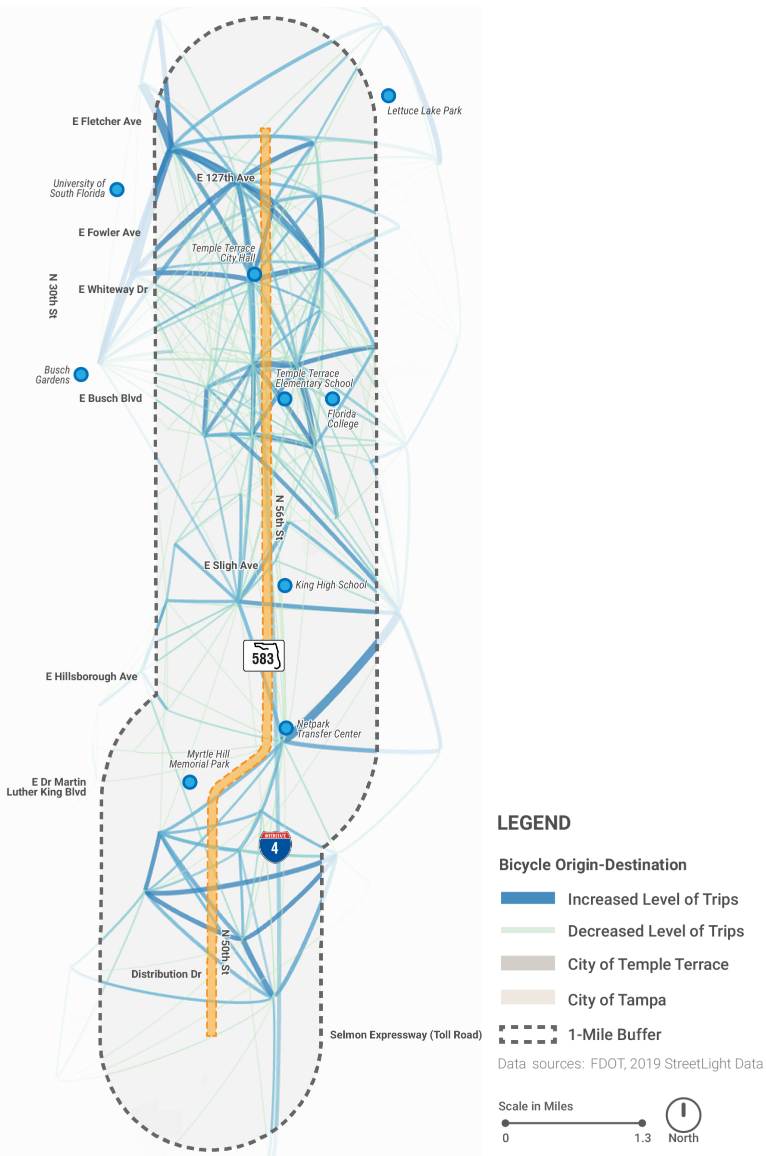
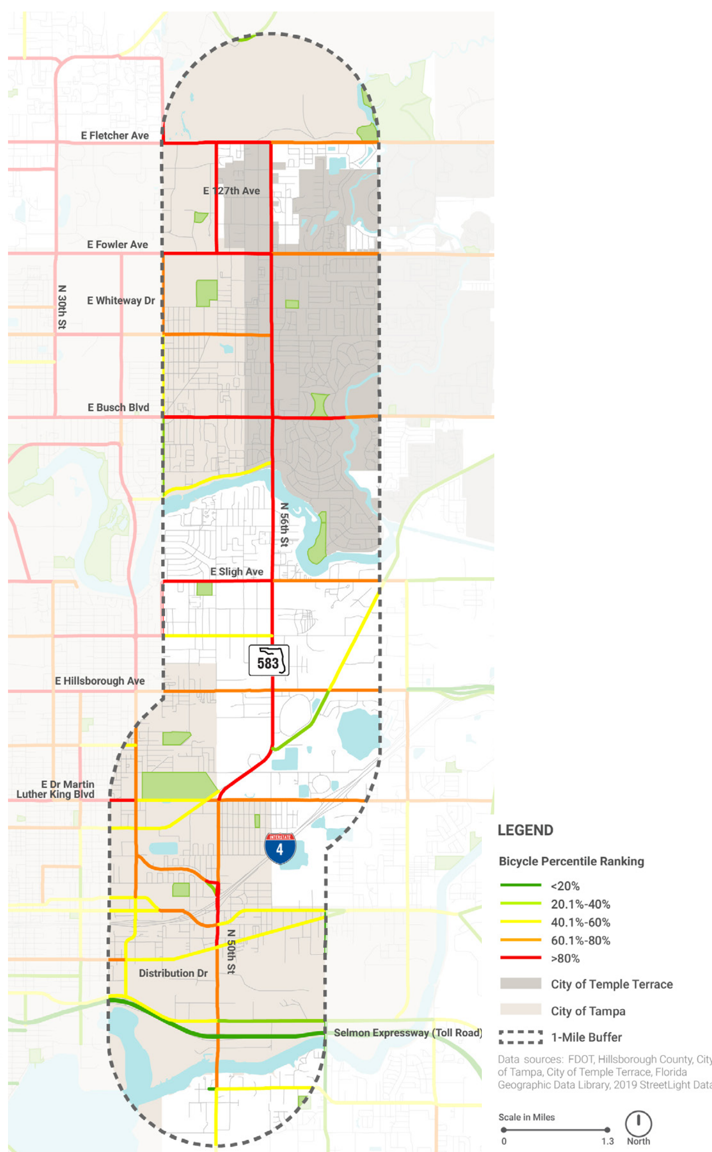


FIGURE 33. BICYCLE ACTIVITY PERCENTILE



Where People Walk

There is significant walking activity in the corridor. In Temple Terrace, most walking trips begin and end west of 56th St, near City Hall, or around Temple Terrace Elementary School. The area around King High School and the Netpark Transfer Center are major draws for people traveling by foot (see Figure 34).

Figure 35 compares the corridor pedestrian trips to all State-owned streets in District 7. A higher percentile indicates more pedestrian activity and potentially a greater need for safe and comfortable pedestrian facilities. Throughout most of the corridor, pedestrian activity is higher than 60 percent of other State roads in the District.

The highest pedestrian activity level (80th percentile) occurs along 56th Street from Sligh Avenue to Bullard Parkway, and along 50th Street from Adamo Drive to Melburne Boulevard/21st Avenue. The segment from Dr. Martin Luther King Jr. Boulevard to Hillsborough Avenue has lower pedestrian activity, in the 20th–60th percentile.

FIGURE 34. PEDESTRIAN ORIGIN-DESTINATION

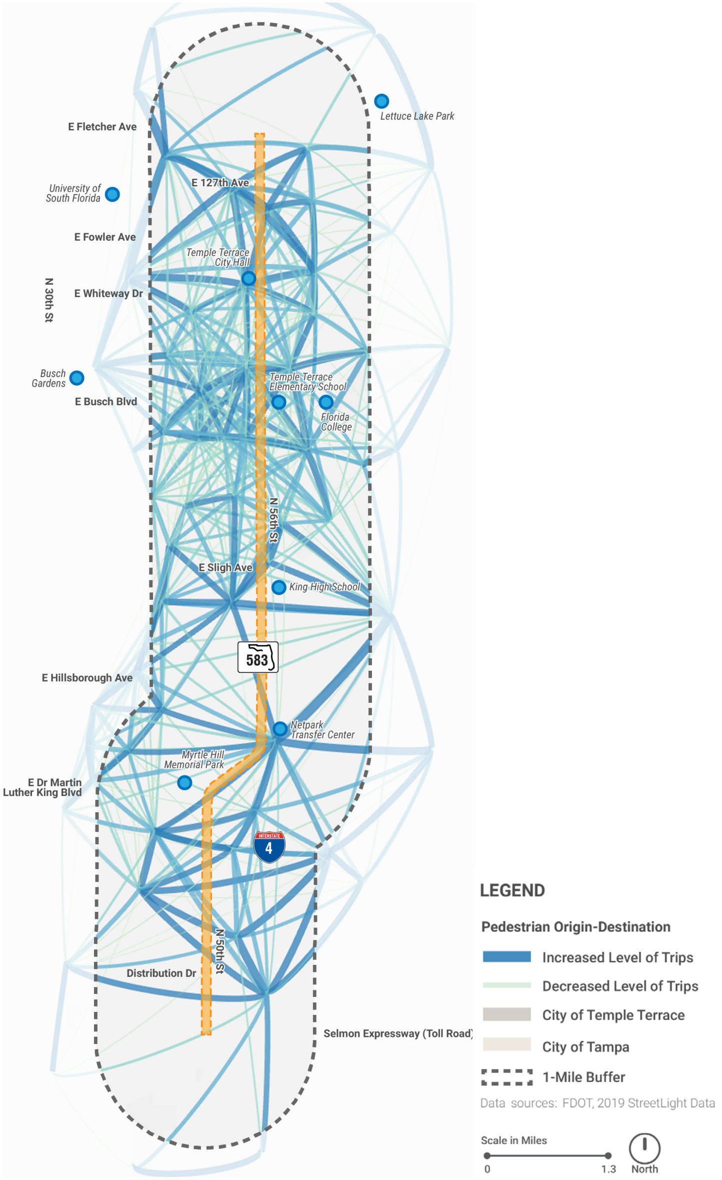
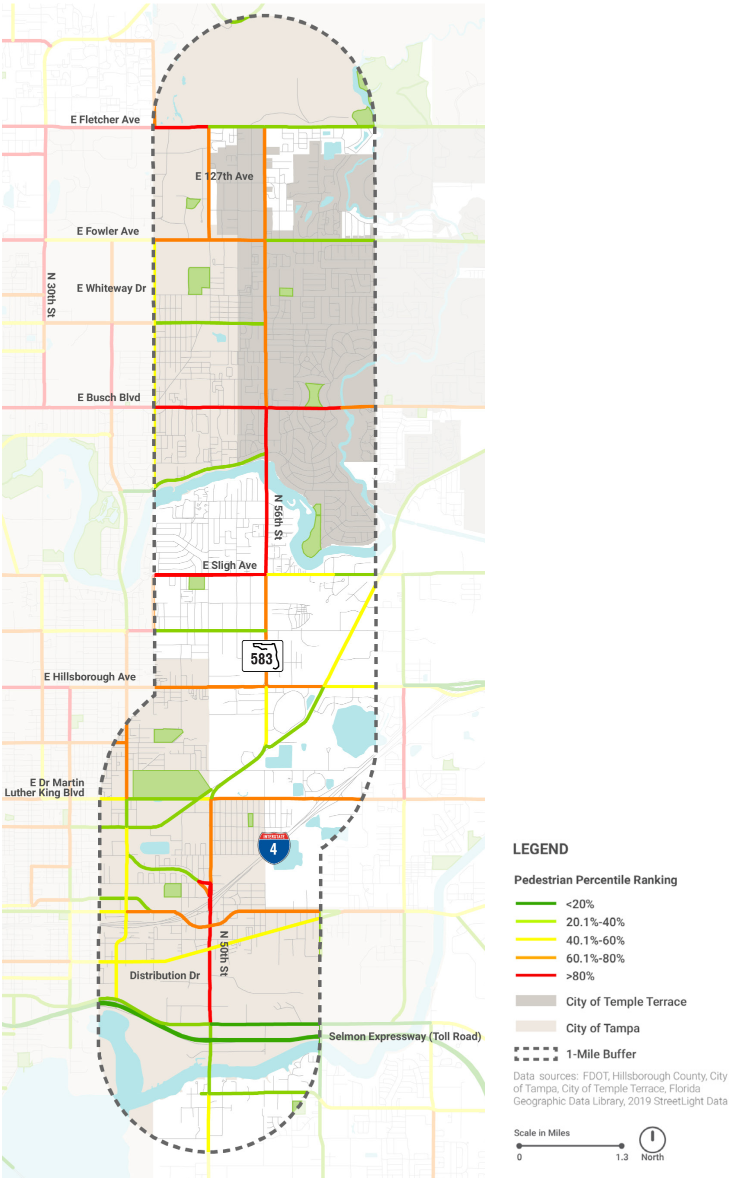


FIGURE 35. PEDESTRIAN ACTIVITY PERCENTILE



Walking & Biking Conditions

The study team examined the corridor's existing bicycle and pedestrian facilities to understand how well those facilities serve residents and visitors. This analysis also helped the team understand how comfortable people in the corridor feel when walking and biking. This information revealed which communities use active modes for their everyday needs, what locations in the corridor have a history of crashes, and what areas have mode conflicts. Understanding current conditions helped the study team understand how to improve the corridor's multimodal connectivity, access, and safety in both the short and long term.

Bicycle and Pedestrian Facilities

Bicycle Facilities

Although there are some bike facilities along the corridor, many of them lack separation from traffic. There are also significant gaps. When facilities are not safe, connected, and comfortable, people may choose to bike less frequently or not at all.

Key Findings:

- There are no bicycle facilities from Selmon Expressway to 10th Avenue. This segment has six lanes, the most along the corridor. Here, bicyclists likely use the 6-foot sidewalks on both sides of the road.
- North of 10th Avenue to the Hillsborough River bridge, there are 5- to 6-foot on-street bicycle lanes on both sides of the road. These bicycle lanes are not buffered and are on segments of the corridor with posted speeds of 40–50 mph, which is too high for most bicyclists to comfortably ride along.
- From the Hillsborough River bridge to Maroldy Drive, the on-street bike lanes transitions to sharrows in each direction.
- From Maroldy Drive to Fletcher Avenue, sharrows transition back to a 5-foot, on-street bike lane. Between the sidewalk and the on-street bicycle lane there is a 5- to 39-foot grassed drainage swale.

Sidewalks

Although there are sidewalks along the entirety of the corridor, issues such as flooding, overgrown vegetation, missing truncated domes, steep slopes, and driveways create challenges for people walking along the corridor.

Key Findings:

- Sidewalks widths range from 4 to 6 feet, with the narrowest sections between Melburne Boulevard/21st Avenue and 23rd Avenue and on the Hillsborough River bridge.
- There are 6-foot sidewalks on both sides of the road from Selmon Expressway to 10th Avenue. Here, the east side sidewalk sometimes floods when it rains.
- Where 5- to 6-foot sidewalks exist, there are grassed areas on one or both sides.

SHARROWS

SHARED LANE MARKINGS, OR SHARROWS, ARE PAINTED SYMBOLS THAT TELL BICYCLISTS AND DRIVERS THEY MUST SHARE THE LANE AND TELL BICYCLISTS THEY MAY COMMAND THE LANE.

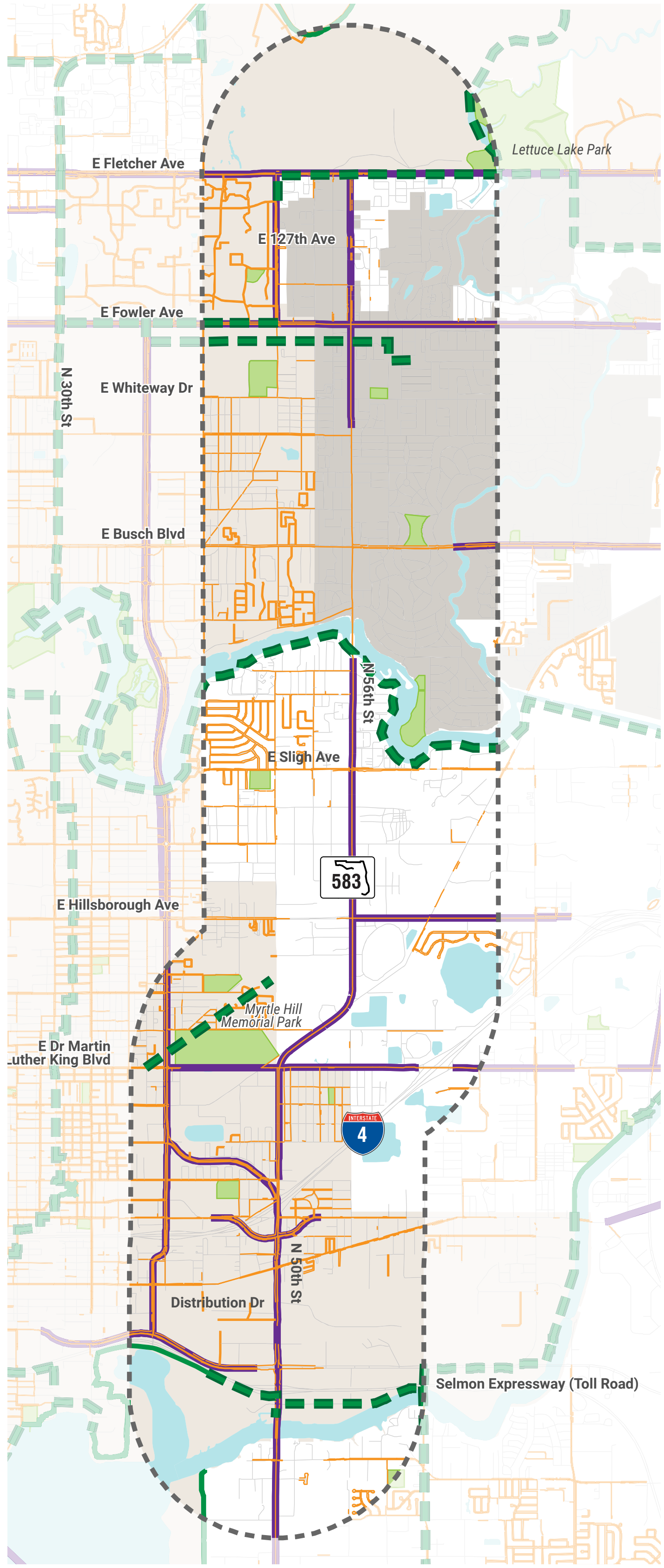
Trails

There are no designated trails on the corridor, but several planned trails will cross it. These trails will help link the corridor to regional destinations, and they can provide separated walking and biking facilities for community recreation.

Planned Trails:

- The Selmon Greenway Trail along Washington Street south of Selmon Expressway
- A trail across the Myrtle Hill Memorial Park following the path of Eastern Avenue
- The Hillsborough River Trail following the Hillsborough River Shoreline
- Trails covering part of Fowler Avenue and Fletcher Avenue

FIGURE 36. TRAILS



LEGEND

- Sidewalk
- Planned and Conceptual Trail
- Existing Trail
- Existing Bicycle Lane
- City of Temple Terrace
- City of Tampa
- 1-Mile Buffer

Data sources: FDOT, Hillsborough TPO, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles
0 1.3
North

Bicycle Level of Traffic Stress

The Hillsborough TPO uses bicycle level of traffic stress (LTS) to evaluate how comfortable a facility or street is for someone biking. Scores range from LTS 1, which is comfortable for most people, to LTS 4, which can be uncomfortable even for experienced bicyclists. Scoring considers traffic speed, volume, on-street parking, the type of bicycle facility, and road's context (such as whether it's in a commercial district or a residential neighborhood).

Bicyclists typically fall into four categories. Most people are interested but concerned and prefer riding on dedicated bicycle lanes that are separated from vehicles (see Figure 34). For these bicyclists, roads with low LTS scores are the most comfortable.

Bicycle LTS is high (LTS 3 or 4) for the entire corridor. All segments are LTS 4, except between Puritan Road and Serena Drive where it's LTS 3. Currently, the corridor's bicycle facilities serve the small number of bicyclists who are confident riding their bikes on streets with multiple lanes of traffic and speeds greater than 35 mph. The corridor's high LTS scores underscore the need for multimodal improvements that will increase users' real and perceived safety and comfort.

FIGURE 37. TYPES OF BICYCLISTS BY LTS

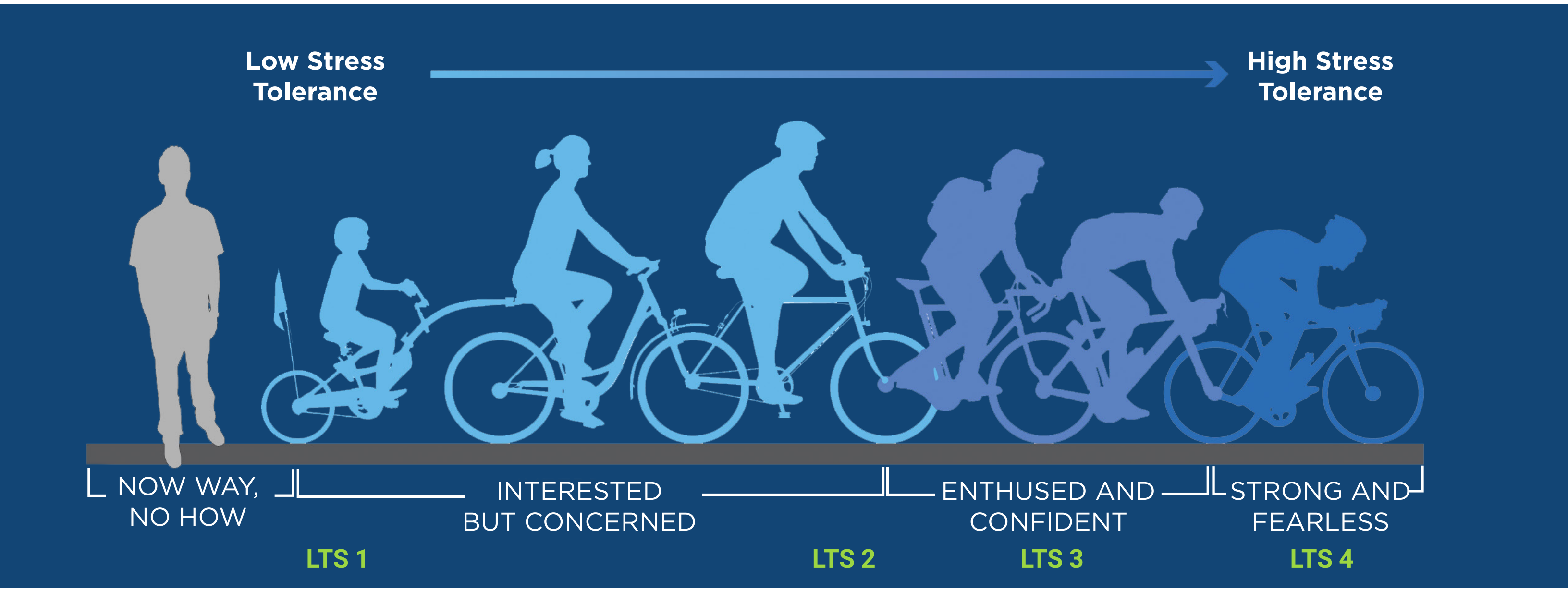
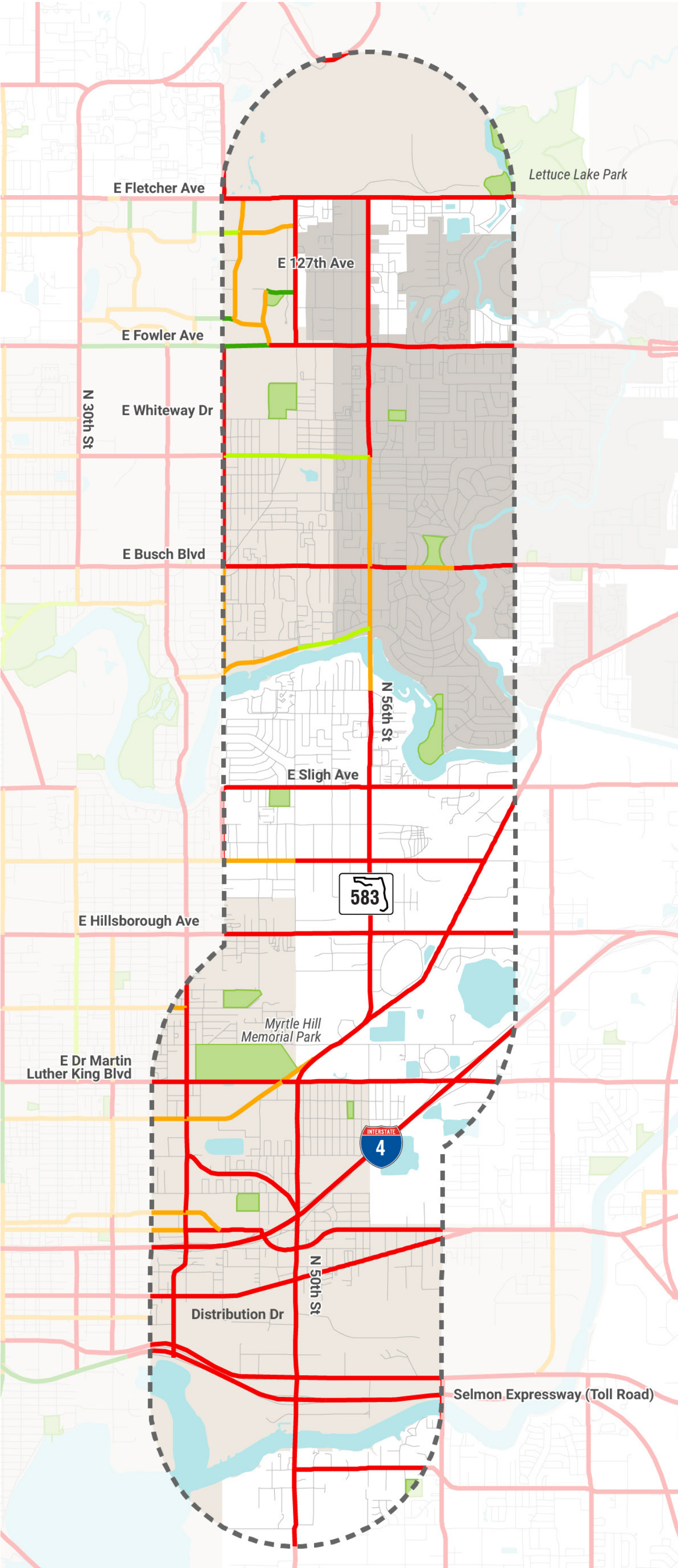


Image source: https://www.portlandoregon.gov/transportation/article/158497

FIGURE 38. BICYCLE LEVEL OF TRAFFIC STRESS



LEGEND

Bicycle Level of Traffic Stress

- 1
- 2
- 3
- 4

City of Temple Terrace

City of Tampa

1-Mile Buffer

Data sources: FDOT, Hillsborough TPO, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles

0 1.3 North

Pedestrian Level of Traffic Stress

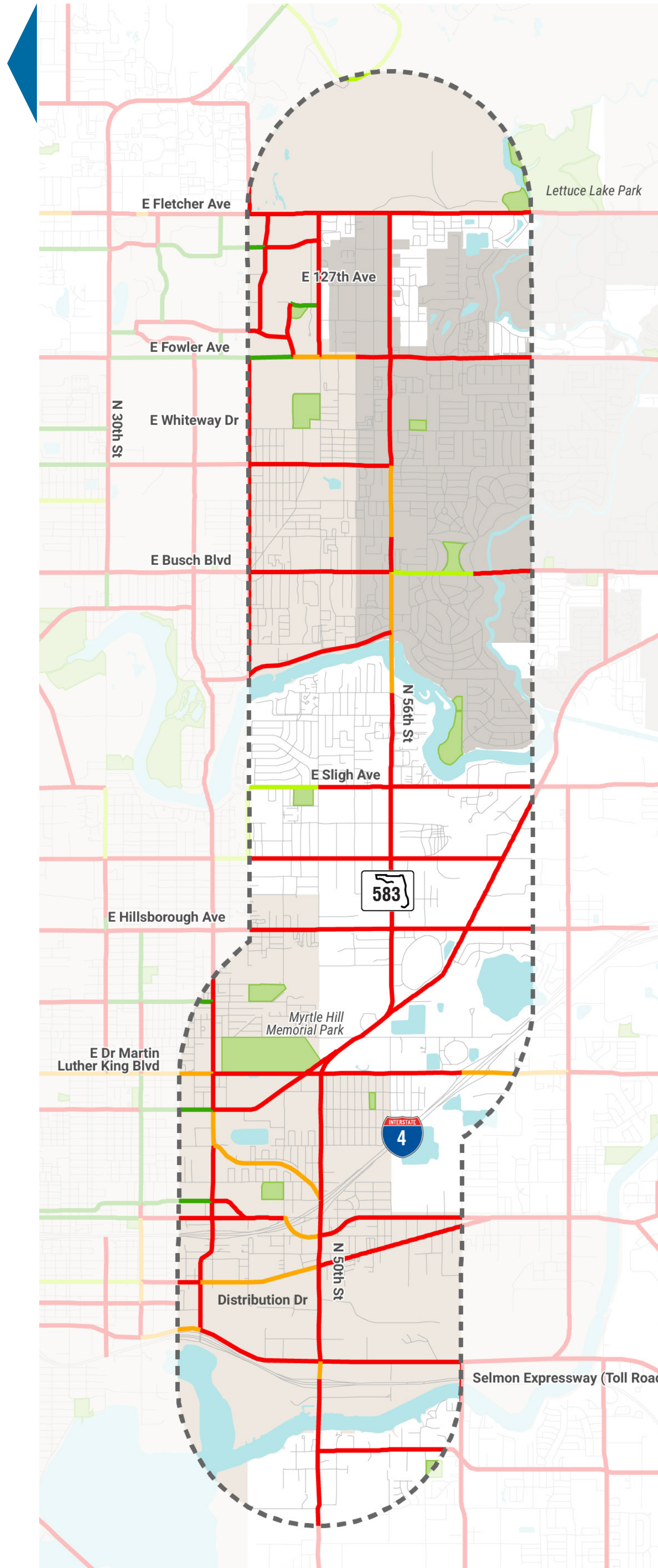
Like bicycle LTS, Hillsborough TPO's pedestrian LTS scale ranges from LTS 1, the most comfortable facility, to LTS 4, a facility on which only very confident walkers feels safe. Pedestrian LTS is high throughout the study corridor. The entire corridor is LTS 4, except for three segments that are LTS 3:

- Between the Selmon Expressway and Adamo Drive
- Between Puritan Road and Busch Boulevard
- Between Temple Heights Road and Serena Drive

Although these three segments are LTS 3, their cross streets are LTS 4.

With ongoing and potential redevelopment along the corridor, there will be important opportunities to incorporate elements to lower both bicycle and pedestrian LTS and create a safe and comfortable environments for everyone. Improvements that can help improve LTS include on-street parking, separated bicycle facilities, increased frequency of crossings, and landscapes buffers between.

FIGURE 39. PEDESTRIAN LEVEL OF TRAFFIC STRESS



LEGEND

Pedestrian Level of Traffic Stress

- 1
- 2
- 3
- 4
- City of Temple Terrace
- City of Tampa
- 1-Mile Buffer

Data sources: FDOT, Hillsborough TPO, Hillsborough County, City of Tampa, City of Temple Terrace, Florida Geographic Data Library

Scale in Miles
0 1.3
North

Bicycle and Pedestrian Crashes

From 2016 through 2020, the corridor had 56 pedestrian crashes and 57 bicycle crashes, one of the highest rates in Hillsborough County.

Nearly 40 percent of pedestrian crashes occurred in a marked crosswalk. The other pedestrian crashes occurred outside of a crosswalk at an unsignalized intersection, near a signalized intersection away from a crosswalk, or at midblock.

A large portion—46 percent—of bicycle crashes happened in a marked crosswalk. So many bicycle crashes occurring in a crosswalk suggests that bicyclists are uncomfortable traveling on the road and that vehicles do not expect to encounter people on bikes in a crosswalk. (For detailed bicycle and pedestrian crash data and location information, see Appendix C.)

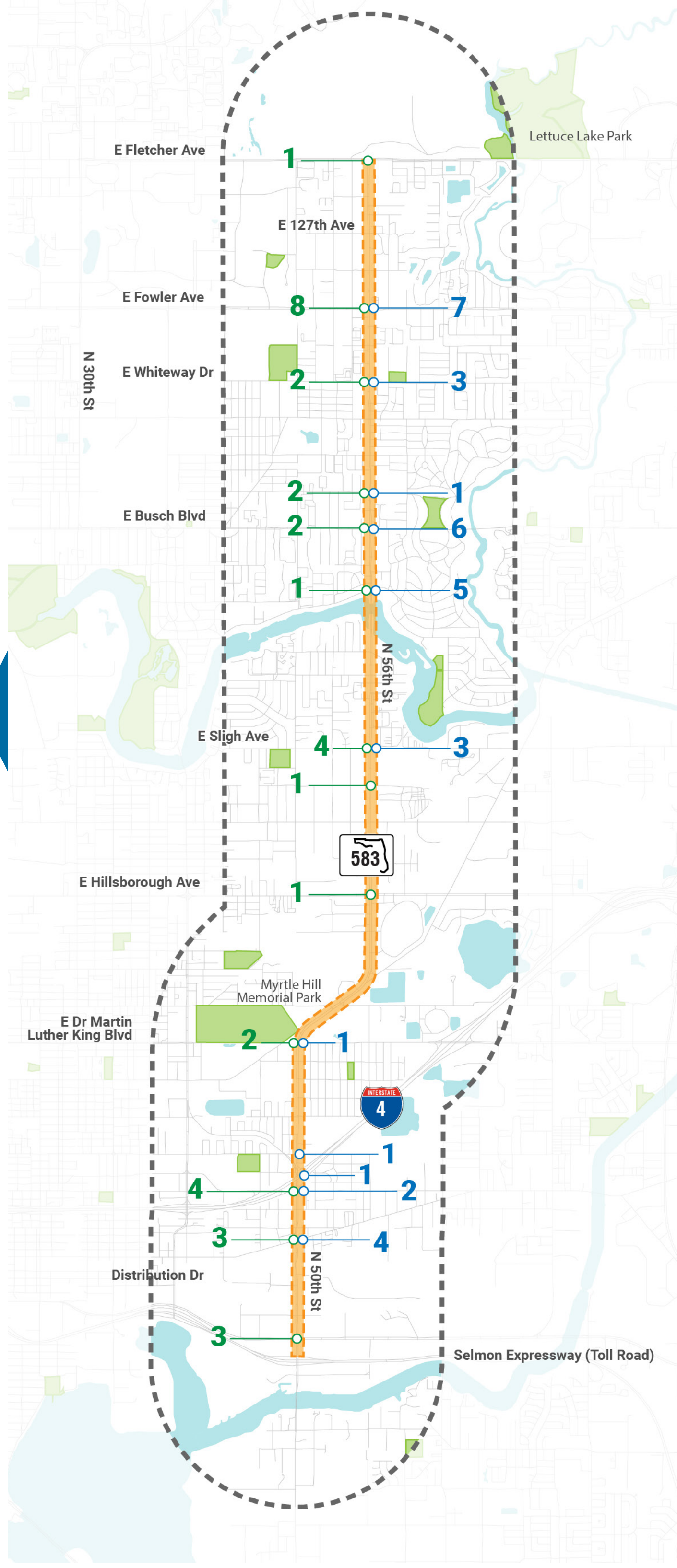
Intersections

More than half of pedestrian and bicycle collisions (61 percent and 60 percent, respectively) occurred at intersections. Comparing the number of bicycle or pedestrian crashes to the total number of crashes at a location helps assess the risk for bicyclists and pedestrians at that location (see Figure 38).

Key Findings:

- The intersection at Fowler Avenue had the greatest number of both crash types, with seven pedestrian crashes and eight bicycle crashes.
- Riverhills Drive's five pedestrian crashes accounted for seven percent of all its crashes. Of all corridor intersections, this one has the greatest share of pedestrian crashes. For comparison, the eight pedestrian crashes at Fowler Avenue accounted for 3 percent

FIGURE 40. NUMBER OF INTERSECTION CRASHES



LEGEND

Number of Intersection Crashes

- # Number of Intersection Pedestrian Crashes
- # Number of Intersection Bicycle Crashes
- Study Corridor
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, Signal 4

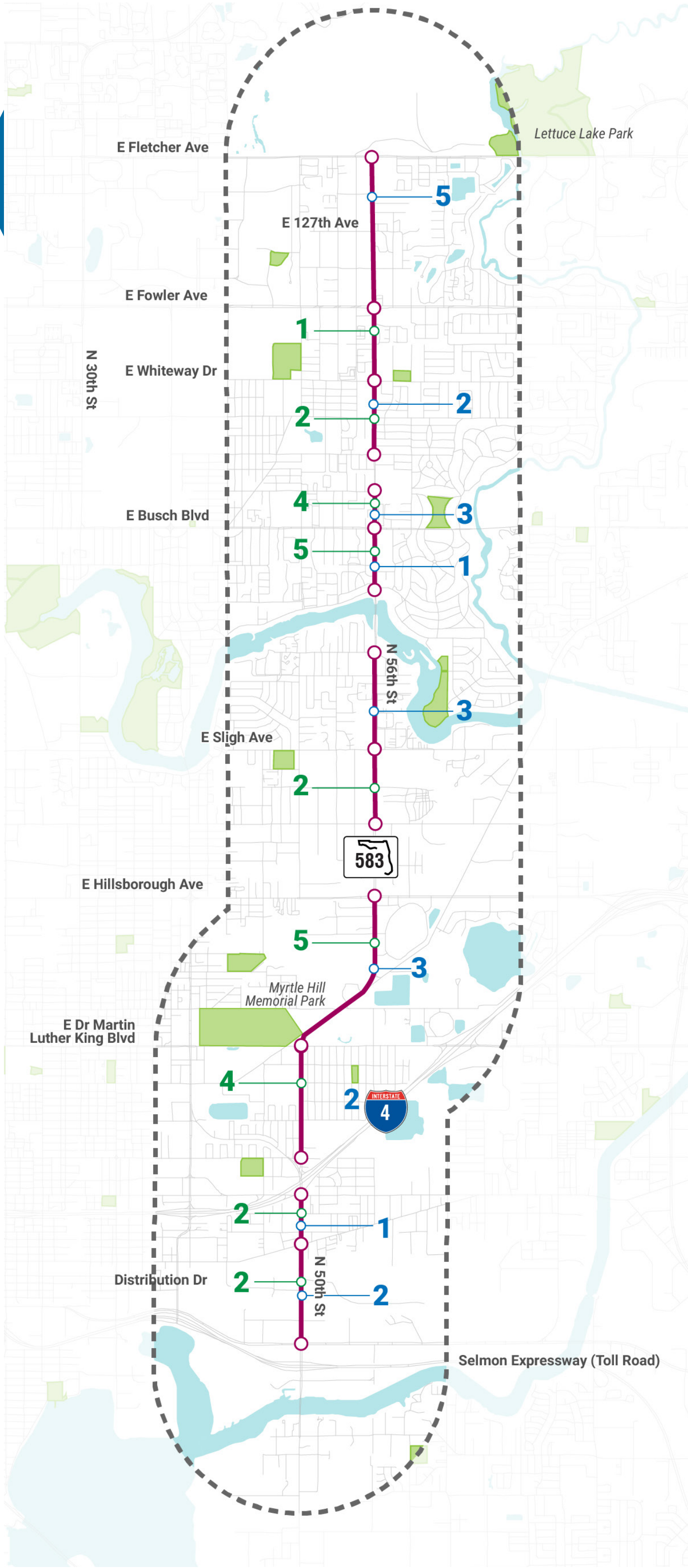
Segments

About 40 percent of both bicycle and pedestrian crashes occurred along segments.

Key Findings:

- The segment from Fowler Avenue to Fletcher Avenue had five pedestrian crashes, the greatest number of any corridor segment.
- The segment from Dr. Martin Luther King Jr. Boulevard to Hillsborough Avenue had five bicycle crashes, as did the segment from Riverhills Drive to Busch Boulevard, the greatest number of any corridor segment.
- The Hanna Avenue to Sligh Avenue segment's bicycle crashes made up 7 percent of that segment's total crashes. This is the greatest share of bicycle crashes relative to all crashes in the corridor.
- The segment from Busch Boulevard to Temple Heights Road had a total of three pedestrian crashes, but those crashes accounted for 12 percent of all crashes along that segment.

FIGURE 41. SEGMENT CRASHES



LEGEND

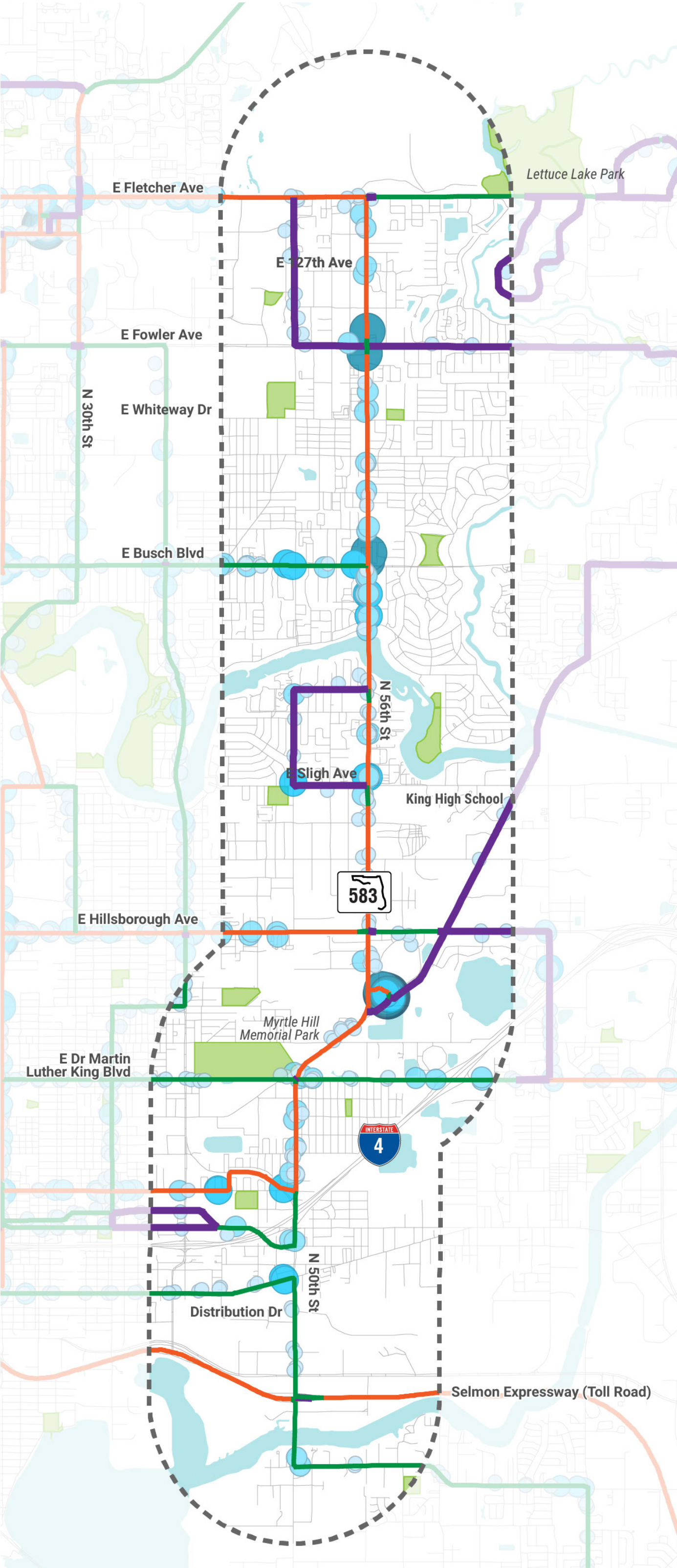
Number of Segment Crashes

- # Number of Segment Pedestrian Crashes
- # Number of Segment Bicycle Crashes
- Corridor Segment
- 1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, Signal 4

Scale in Miles 0 1.3 North

FIGURE 42. TRANSIT ROUTES AND ACTIVITY



LEGEND

Transit Frequency

- Infrequent (Buses run every 30+ minutes)
- Moderate (Buses run every 16-30 minutes)
- Frequent (Buses run every 15 minutes or less)

Transit Stops | Weekday Daily Activity

- 0 - 30
- 31 - 80
- 81 - 180
- 181 - 380
- 381 - 800

1-Mile Buffer

Data sources: FDOT, Hillsborough County, Florida Geographic Data Library, Hillsborough Area Regional Transit Authority

Scale in Miles
0 1.3
North

Transit Conditions

With more than 4,000 people boarding and alighting every day, the study corridor sees some of the highest ridership of all Hillsborough Area Regional Transit Authority (HART) corridors. Eight transit routes run on the corridor, and another seven cross it. Route 6 is the most frequent route, serving the majority of the study area from Fletcher Avenue to Melburne Boulevard/21st Avenue every 20 minutes. Still, transit vehicles are currently subject to the same congestion levels as passenger vehicles because they travel in mixed-traffic lanes with personal vehicles. Transit along the corridor serves many people with low incomes and people from marginalized backgrounds.

The Netpark Transfer Center is a major transit destination. It connects eight routes and sees about 12 buses per hour. Four locations have the highest transit activity in the study area:

- South of Hillsborough Avenue near the Netpark Transit Center
- Sligh Avenue
- Busch Boulevard, including just north and south of the intersection
- Fowler Avenue

Several of these high ridership areas are created by transit transfers, particularly at Fowler Avenue and Busch Boulevard.

STUDY PURPOSE AND CORRIDOR NEEDS

To understand what the corridor needs and how this project can address those needs, the project team worked closely with FDOT, the study's project advisory group, stakeholders, and local community members. (For more on the study's partnerships, see **Stakeholder Engagement and Outreach**) Together, they reviewed and analyzed corridor data; they developed alternatives for different sections of the corridor; and they set performance measures that evaluate how well each alternative meets the corridor's needs.

Study Purpose

The purpose of this study is to eliminate fatal and serious injury crashes and prioritize access to multimodal options through transportation design and operational strategies that support existing and future places.

Corridor Needs

1 Design streets for existing and future land uses and operate them accordingly.

- The corridor needs improved multimodal connectivity between its industrial areas and their adjacent suburban and urban areas.
- Corridor roadways do not alert drivers when they transition contexts.
- Throughout the corridor, 85th percentile speeds exceed the posted speeds, and such high speeds can increase crash severity, especially for people walking and biking.
- Redevelopment in Temple Terrace will increase density and demand for multimodal traffic.

2 Increase the safety and frequency of bicyclist and pedestrian crossings.

- Segments of the corridor have some of the highest fatal and serious injury crash rates in the county.
- Limited crossing opportunities, facility gaps, and high speeds make it challenging for people walking and biking to safely cross the corridor.

3 Improve transit access and service efficiency.

- The corridor has some of the transit highest ridership in the area.
- High transfer activity in some parts of the corridor indicate high demand for pedestrian and bicyclist access to transit.
- When transit vehicles must wait to re-enter the travel lane and then again to wait for a green signal, transit users experience delays and reduced travel time reliability.

4 Balance the needs of vulnerable road users, freight, and vehicles at conflict points.

- The corridor sees considerable freight traffic, and evolving land use will generate more walking and bicycling trips.
- Long crossing distances and high-speed vehicle turns pose challenges to people crossing the road on foot or by bicycle.
- As the corridor redevelops into higher density mixed land uses, interactions between freight and non-motorized users will increase.

5 Support safe multimodal access for residents and businesses.

- The study area has important parks and green spaces, schools, and multimodal traffic generators.
- Redevelopment in Temple Terrace will increase the need for accessible and continuous multimodal routes to business and destinations along the corridor.

6 Improve safe multimodal access for communities of concern.

- Many households in the corridor have low incomes, and some corridor residents are experiencing extreme poverty.
- Many people in the study corridor live in one- or zero-car households and rely on walking, biking, carpooling, and taking transit to meet their daily needs.
- Many workers along the corridor commute via modes that are not driving alone.

7 Improve bicyclist and pedestrian safety and comfort along the corridor.

- Most of the corridor does not feel safe or comfortable, even for the most experienced bicyclists.
- Walking facilities in the corridor also feel unsafe and uncomfortable for pedestrians.
- Despite high posted speeds and speeding, there is moderate to high bicycle and pedestrian activity.

Evaluation Measures

Using feedback from the PAG, stakeholders, and the public—plus corridor data analysis—the study team developed a long list of improvements and strategies to address the study corridor's needs. These alternatives were evaluated according to the study's needs, and the highest performing strategies were advanced to a more intensive round of evaluation.

This section outlines how the study team evaluated each improvement or alternative. Concepts were evaluated based on four main criteria:

- Ability to meet study needs
- Time and costs required for implementation
- Impact to utility and drainage systems
- Effect on traffic operations

The evaluation results for each alternative are detailed in the following report section.

Performance Metrics

Performance metrics helped the study team set standards for evaluating alternatives. Below, Tables 1 and 2 sets metrics for measuring the success of corridor-wide intersection and segment improvements. The study needs are measured by the degree to which they are met: low, moderate, and high. The study team used these metrics to evaluate each alternative or potential improvement. (Design standards were set according to the *2023 FDOT Design Manual (FDM),* the 2022 *FDOT Context Classification Guide,* and the *2020 Context Classification Framework for Bus Transit.)*

TABLE 1. CORRIDOR NEEDS AND INTERSECTION PERFORMANCE MEASURES

Need	Low	Moderate	High
Increase the safety and frequency of bicyclist and pedestrian crossings.	No change	Improve existing crossing (e.g., reducing crossing distances)	Add new crossing
Design streets for existing and future land uses and operate them accordingly.	No change	Speed management treatment	Multiple speed management treatments
Balance the needs of vulnerable road users, freight, and vehicles at conflict points.	No change	Reducing crossing distances or adding crossings	Implementing transit signal priority or queue jumps
	Negatively impacts freight access to key destinations	No change	Improves freight mobility
Support safe multimodal access for residents and businesses.	No changes or closing driveway access	Directional median opening	Adding new signal or increasing crossings
Improve safe multimodal access for communities of concern.	Not in a community of concern		In a community of concern and meets needs 1 or 3

TABLE 2. CORRIDOR NEEDS AND SEGMENT PERFORMANCE MEASURES

Need	Measure	Low	Moderate	High
Design streets for existing and future land uses and operate them accordingly.	Number of modes with the safest FDM criteria	1–2 modes meet FDM standards	3 modes meet FDM standards; 1 mode exceeds FDM standards	At least 2 modes exceed FDM standards
	Number of proven speed management strategies to achieve target speed	1–2 speed management strategies	3 speed management strategies	4 or more speed management strategies
Increase the safety and frequency of bicyclist and pedestrian crossings.	Maximum length of exposure at crossing locations	Longer than 42 feet	34–41 feet	33 feet or shorter
Balance the needs of vulnerable road users, freight, and vehicles at conflict points.	Quality of transit facility	Outside lane is at least 11 feet	Dedicated bus lane	Dedicated bus lane and buffer
Improve safe multimodal access for communities of concern. ***If extreme poverty is present, increase score by one level.**	Level of traffic stress (LTS) in communities of concern	Less than 50% coverage and LTS 3 or 4	50% or less coverage and LTS 2 or better	More than 50% coverage
	Number of proven speed management strategies to achieve target speeds in communities of concern	Less than 25% coverage and any number of speed management strategies; Less than 50% coverage and less than 3 speed management strategies	25–50% coverage and 3 or more speed management strategies; More than 50% coverage, but only 3 speed management strategies	50% coverage and 4 or more speed management strategies
Improve bicyclist and pedestrian safety and comfort along the corridor.	Level of Traffic Stress (LTS)	LTS 3 or worse	LTS 2	LTS 1
	Width of pedestrian facility or path	Less than 8 feet	8–11 feet	12 or more feet
	Buffer type and width	2 feet (only curb & gutter)	6 feet (4 feet of separation for C4 Shared Use Path)	Greater than 6 feet
	Amount of space available on walking paths for streetscape amenities	less than 2 feet	3–4 feet (i.e., can accommodate small trees, small palms, and benches)	5 feet or more (i.e., can accommodate most trees and benches)

Implementation Time

The study team also evaluated segment alternatives and intersection treatments by how long they would take to implement.

- **Short term** projects can be implemented in the next one or two years through maintenance or push-button contracts.
- **Medium term** projects require additional study and agency coordination and could be implemented in the next three to five years
- **Long term** projects require additional study, agency coordination, and prioritization in the work program for funding in more than five years.

Cost Estimates

The study team estimated planning-level costs to help compare and evaluate alternatives. To set costs, they used each alternative's individual treatment types with 12-month statewide moving averages and cost-per-mile models, where applicable. Costs fall into five categories:

- **$** Less than $50,000
- **$$** $50,000–$150,000
- **$$$** $150,001–$500,000
- **$$$$** $500,001–$1 million
- **$$$$$** More than $1 million

For more on individual treatment costs, see **Appendix D**. When a specific intersection has multiple options, the study team assigned a cost range in which the least expensive and easiest to implement treatment defines the lower cost and the bundle of all treatments defines the higher cost.

Drainage and Utility Impacts

The study team assessed expected drainage and utility impacts for each alternative. They used Google Earth aerial and street views to identify existing drainage and utility infrastructure locations. Then they compared existing infrastructure with each alternative's proposed roadway changes. For anticipated impacts from intersection modifications and spot treatments, see **Appendix G**.

For more on individual treatment costs, see Appendix D. When a specific intersection has multiple options, the study team assigned a cost range in which the least expensive and easiest to implement treatment defines the lower cost and the bundle of all treatments defines the higher cost.

Traffic Operations

The study team's traffic analysis evaluated 2045 conditions for the 56th/50th Street corridor. Traffic volumes were grown from 2021 counts based upon travel demand model growth rates and historic AADT growth throughout the corridor. Alternative- and improvement-specific operations analyses are summarized in the following section. For more detail on analysis methodologies, see **Appendix E and Appendix F**.

CORRIDOR ISSUES & ALTERNATIVES

This section presents the study corridor's corridor-wide pressing issues and potential solutions.

For the corridor as a whole, this section details

1. Corridor Issues
2. Intersection Improvements
3. Target Speed

Corridor Issues

The corridor has multimodal safety challenges.

- Segments of 56th/50th Street are ranked 9th and 15th of Hillsborough TPO's severe crash corridors.
- With more than 50 bicyclist and pedestrian crashes on long segments without controlled crossings, the corridor needs more mid-block and unsignalized intersection crossings.
- Nighttime crashes can be addressed with additional or better lighting. Although much of the corridor has been upgraded to LED lighting, six more intersections should be considered for upgrades: Selmon Expressway (81 crashes), Adamo Drive (73 crashes), I-4 (68 crashes), Hillsborough Avenue (96 crashes), Busch Boulevard (78 crashes), and Fowler Avenue (107 crashes).

The corridor has high posted speed limits and problems with speeding.

- Vehicle speeds do not correlate with posted speeds. The operating speed is high, regardless of the posted speed. Although the posted speed varies between 35 mph and 50 mph, the 85th percentile speed (the speed at which 85 percent of drivers travel) is approximately 52 mph throughout the corridor.
- Higher posted speeds do not equate to better operations due to intersection constraints. For example, the posted speed between Riverhills Drive and Whiteway Drive is 35 mph. Most segments along this section operate at LOS D or better during the AM and PM peak hours. The posted speed from Whiteway Drive to Fowler Avenue is 45 mph and operates at LOS F during the AM and PM peak hours.

The corridor currently has good traffic operations, but there are issues related to schools and transit.

- More than 80 percent of most segments operate at LOS D or better during AM and PM peaks.
- Downstream intersections affect segment operations. Almost 60 percent of segments that operate at LOS E or worse are constrained by a downstream intersection that operates at LOS E or worse.
- More than 70 percent of signalized intersections operate at LOS D or better during AM and PM peaks.
- Stakeholders have concerns about traffic congestion related to school pick-up and drop-offs and the reliability of transit services.

The corridor's redevelopment potential is largely in the City of Temple Terrace.

- There is high multimodal activity throughout the corridor, even in industrial areas. Stakeholders want to preserve industrial uses in the City of Tampa, so there are unique challenges in enhancing multimodal connectivity between the industrial area and the suburban and urban contexts north of it.
- There are plans to redevelop parcels within Temple Terrace CRA boundaries to increase development density and encourage multimodal traffic.

The corridor has a diverse population with greater multimodal access and mobility needs.

- Youth
  - The neighborhoods in Northview Hills between Dr. Martin Luther King Jr. Boulevard and Hillsborough Avenue and between Hillsborough Avenue and the Hillsborough River have many residents under 18. These young people may not have a driver's license and are more likely to carpool, walk, bike, or take transit to get around. There are many school nearby, so these young roadway users may be traveling during peak traffic times and could be vulnerable to high vehicle speeds and volumes.

- Household Income
  - Most study area households earn less than the county median of $53,000 per year. Some households earn less than $17,000 per year.
- Zero-Car Households
  - Countywide, 43 percent of households do not have access to a vehicle or have access to one vehicle per household. In the study area, block groups exceed this average. More than half of the households living south of Myrtle Hill Memorial Park, in Highland Pines and Grant Park, are zero- or one-car households.
- Commute Modes
  - For most study area block groups, 10 percent of workers commute by a mode other than driving. Continuous and safe bicycle and pedestrian facilities—including frequent crossings—are vital for connecting working people in the study corridor to destinations and transit stops.
- Where People Work
  - More than 2,000 residents live and work in the study area. Because many workers commute using modes other than driving, the corridor should provide continuous facilities to help people who live and work there meet their everyday needs.
  - Most jobs in the study area are located in Temple Terrace and are held by workers who live outside the study area and commute in.
  - Most jobs in the study area are service industry positions, such as retail, food services, administration and support, waste management and remediation, and health care and social assistance.

The corridor has robust transit service.

- HART Route 6, which runs along the majority of study corridor, has some of the highest ridership in the system.
- North of Melburne Boulevard/21st Avenue, HART routes give high-frequency service, with buses running every 15 minutes or less.
- Transit vehicles experience slowdowns when near-side bus bays require transit vehicles to weave back into traffic and stop twice before crossing a signalized intersection.

Intersection Improvements

Throughout the 56th Street/50th Street corridor, intersections have large footprints that can be reduced to encourage appropriate vehicle turning speeds and improve pedestrian and bicyclist safety. Recommendations for intersection changes include both geometric and signal timing improvements.

Signal Timing Changes

Signal timing changes can improve safety at an intersection for pedestrian and bicyclists as well as turning-vehicles. Potential signal timing strategies include

- **Implementing leading pedestrian interval (LPIs)** provide extra walk time for a pedestrian before the adjacent green phase. This allows pedestrians to establish themselves in the roadway and gives them more time to cross.
- **Converting permissive and protected/ permissive left-turn to protected-only phasing** provides dedicated signal phasing for turning vehicles and reduces conflicts with oncoming vehicle traffic, bicycles, and pedestrians.
- **Eliminating right-turn on red** reduces conflicts with pedestrians and bicyclists crossing the roadway.

Geometric Changes

Geometric changes to reduce crossing distance and reduce vehicle turning speeds can be applied throughout the corridor. While the changes may vary by individual intersection, potential geometric changes include:

- Relocating stop bars further from crosswalks.
- Extending median noses and adding pedestrian refuges to reduce pedestrian exposure in intersections.
  - Provide hardened centerline when the median is not present.

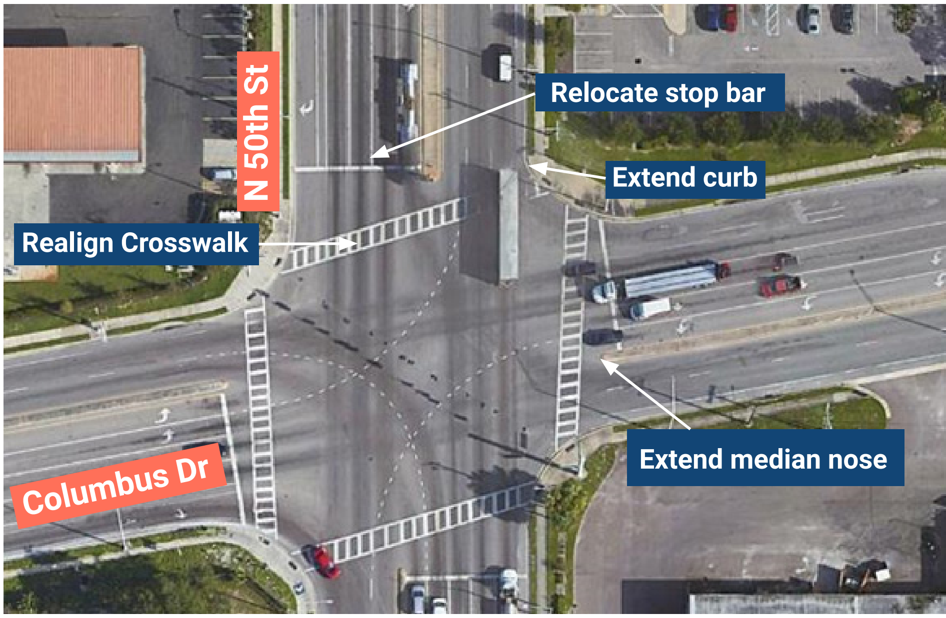
Adding missing crosswalks.

- Re-aligning existing crosswalks to reduce crossing distances.
- Texturizing or raising crosswalks to further reduce vehicle speeds.
- Right-sizing and reducing the number and/ or length of turning lanes to reduce crossing distances and enhance street enclosure.
- Adding bulb-outs or curb extensions to reduce vehicle speeds and crossing distances.
- Removing acceleration lanes and excess shoulder pavement to improve street enclosure and help manage speeds.
- Reconfiguring right-turns.
  - Removing channelized right-turns, if possible, and raising crosswalks and signalization at channelized right turns, if applicable.
  - Signalizing dedicated right-turn lanes and providing overlap phases.
  - Reducing curb return radii.
  - Providing truck aprons.

Geometric changes at the intersection of 50th Street and Columbus Drive could help (see Figure 43).

1. Realign Crosswalk
2. Relocate stop bar
3. Extend curb
4. Extend median nose

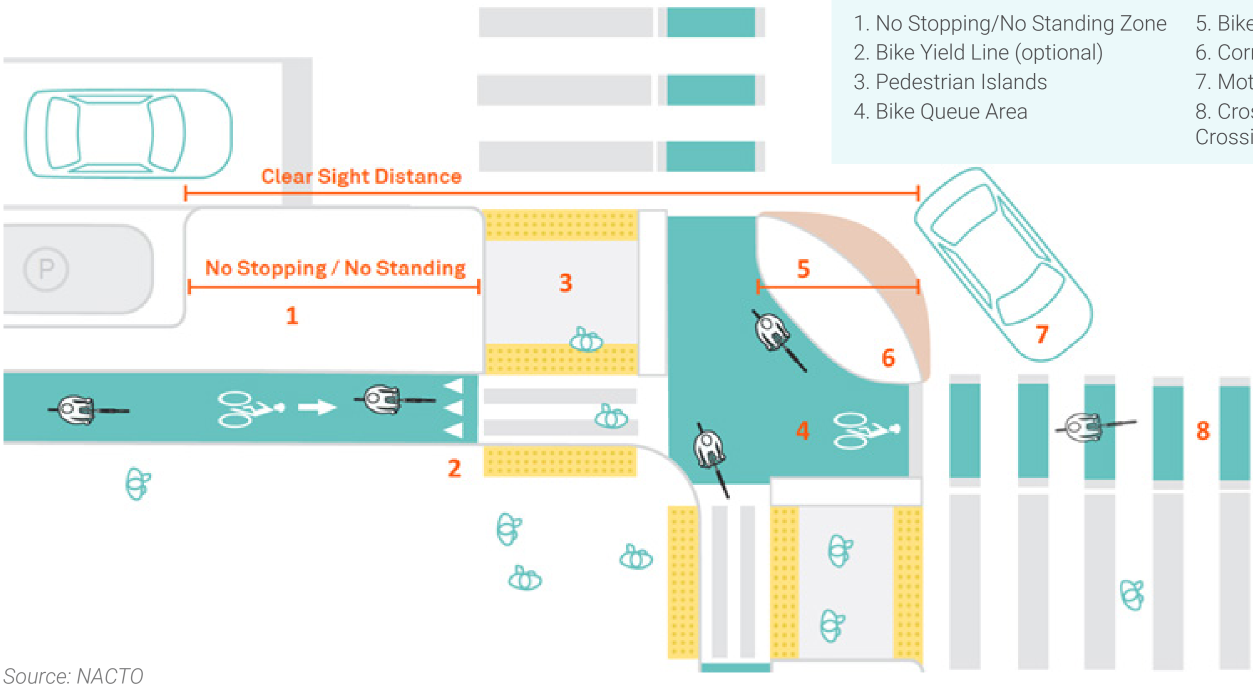
FIGURE 43. POTENTIAL GEOMETRIC CHANGES



Protected Intersections

Protected intersections should be considered at signalized intersections. Protected intersections reduce conflicts between turning bicyclists and vehicles because they allow for a two-stage left-turns for bicyclists. With two-stage turns, people on bikes travel through the intersection and then cross the street (see Figure 44).

FIGURE 44. PROTECTED INTERSECTION DIAGRAM



KEY

1. No Stopping/No Standing Zone
2. Bike Yield Line (optional)
3. Pedestrian Islands
4. Bike Queue Area
5. Bikeway Setback
6. Corner Island
7. Motorist Waiting Zone
8. Crossbikes/Intersection Crossing Markings

Source: NACTO

Target Speed

A common concern shared throughout the stakeholder engagement and existing conditions analysis was high operating speeds on the corridor. There is community support to set corridor target speeds lower than the existing posted speeds to improve multimodal safety. Considering the conditions along the corridor, the following target speeds are recommended (see Figure 45):

- Selmon Expressway to North Street/Diana Street: 35 mph target speed (from 40–50 mph posted speed).
- North Street/Diana Street to Busch Boulevard/ Bullard Parkway: 30 mph target speed (from 35–45 mph posted speed).
- Busch Boulevard/Bullard Parkway to Fletcher Avenue: 35 mph target speed (from 35–50 mph posted speed).

In some cases, there is a 15-mph change between the existing posted speed and proposed target speed. Multiple, complementing speed management strategies must be applied on these roadways to achieve lower speeds. These target speeds may also need to be achieved incrementally through a series of changes over time.

Target speed is the highest speed at which vehicles should operate on a roadway, given its context and multimodal activity. Target speed provides mobility for motor vehicles and a safer and more supportive environment for pedestrians, bicyclists, and transit riders. (For more, see the *FDM* section 202.2.1.)

Crash Reduction

Geometric and operational changes such as lane repurposing, changing left-turn signal phasing, and removing channelized right-turn lanes can reduce crashes along 50th/56th Street and at individual intersections. To quantify the benefits of these improvements, the study team applied crash modification factors (CMFs) from the *Highway Safety Manual 1st Edition (HSM)*, NCHRP 17-58, and the CMF Clearinghouse (see Table 3).[1] CMFs help transportation professionals estimate the number of crashes at an intersection after improvements.

Key Findings:

- Currently, multiple intersections along the corridor have channelized right-turn lanes. By removing channelized right-turns, crashes can decrease by 24 percent.
- Changing existing permissive left-turn phasing to protected-only can reduce crashes by 6 percent per approach.

[1] NCHRP 17-58, https://www.trb.org/Publications/Blurbs/182691.aspx; CMF Clearinghouse, https://www.cmfclearinghouse.org/

FIGURE 45. TARGET SPEED RECOMMENDATIONS

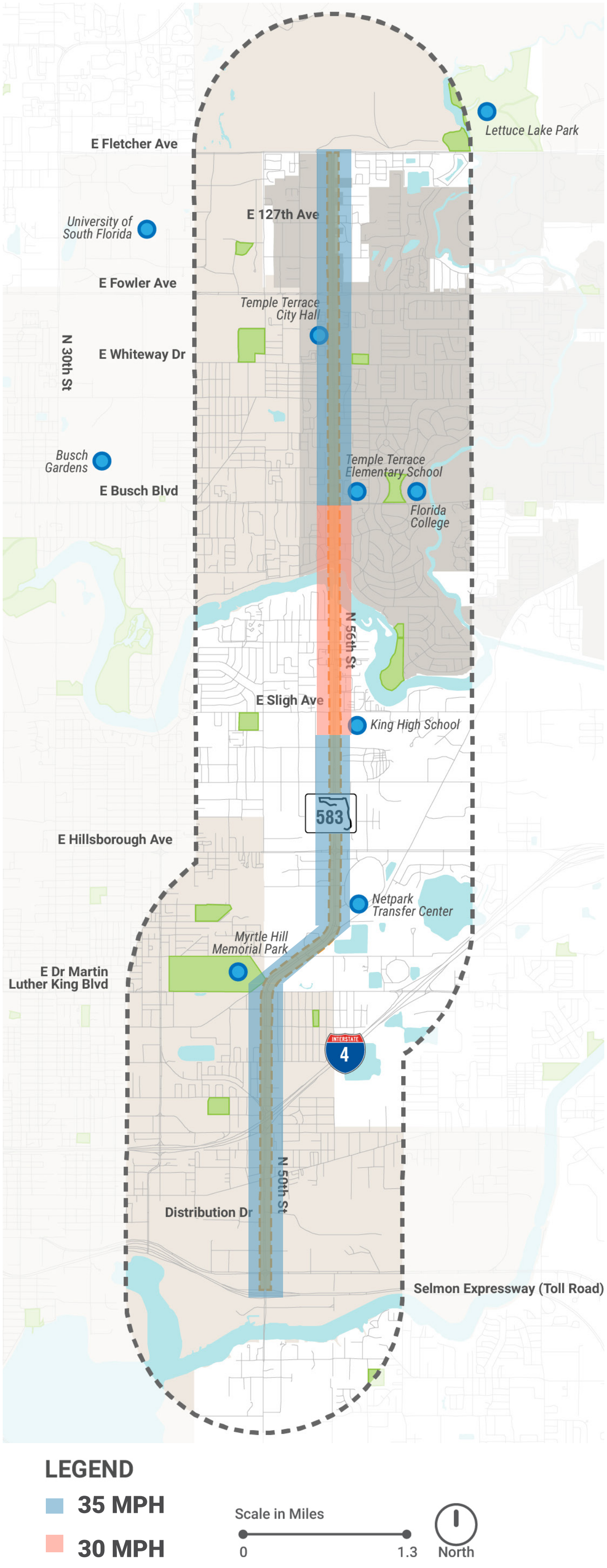


TABLE 3. CRASH REDUCTION

Countermeasure	CMF	Source
Installing Channelized Right-Turn Lanes	1.24 (24% increase) All Crashes and Severities	NCHRP 17-58
1.20 All Crashes and Fatal/Injury Crash Severity	NCHRP 17-58	HSM
Left-Turn Protected Signal Phasing	0.94 (6% decrease) All Crashes and Severities[2]	HSM
Area-Wide or Corridor Specific Traffic Calming	0.89 All Crashes and A (Serious Injury), B (Minor Injury), C (Possible Injury) Severities	CMF Clearinghouse ID 589; HSM

Method Notes

- Although HSM has a lane repurposing CMF of 0.71, that CMF is only applicable to four-lane undivided facilities. A lane repurposing from six to four lanes does not have a specified CMF. Therefore, the project team recommends applying the corridor specific traffic calming CMF of 0.89 for all crashes and serious injury, minor injury, and possible injury severities to the corridor. This CMF is likely a conservative estimate for geometric changes to 50th/56th Street because it does not consider the lane repurposing.
- The study team researched bicycle and pedestrian CMFs, but there was no consistent, high-quality, and directly applicable CMF for the alternatives considered. Nevertheless, proposed improvements are expected to improve pedestrian and bicycle safety and comfort, particularly given holistic changes along the corridor to reduce vehicle speeds.

[2] 0.94 CMF per approach converted to protected-only.

SEGMENT ISSUES & ALTERNATIVES

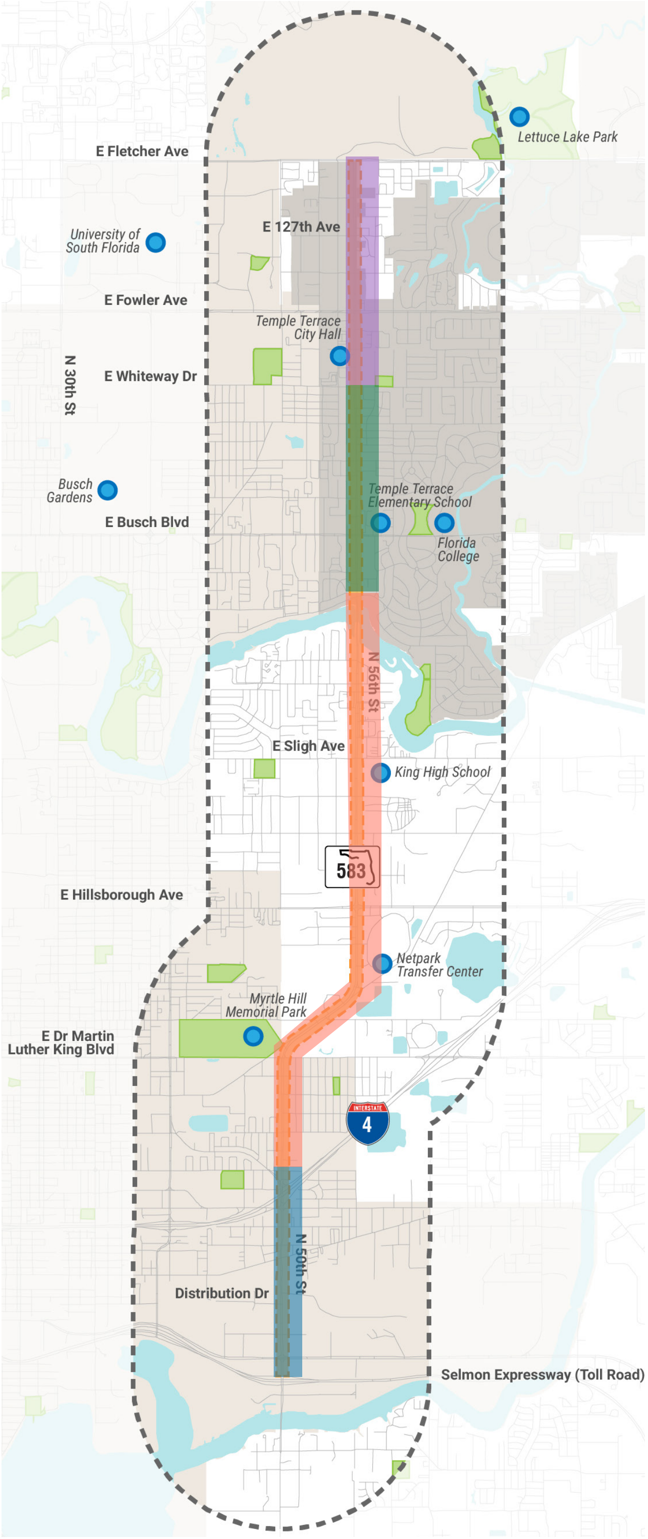
This section presents the study corridor's pressing issues and potential solutions for specific segments. For each corridor segment, this section details

1. Segment Challenges
2. Segment Alternatives
3. Alternatives Evaluation
4. Public & Stakeholder Feedback
5. Recommended Alternative
6. Next Steps

Based on land use, built form, and street network characteristics, the corridor has four unique areas:

- Selmon Expressway to Melburne Avenue/21st Avenue
- North of Melburne Avenue/21st Avenue to Riverhills Drive
- North of Riverhills Drive to Whiteway Drive
- North of Whiteway Drive to Fletcher Avenue

FIGURE 46. CORRIDOR SEGMENTS MAP



Selmon Expressway to Melburne Boulevard/21st Avenue

T`his segment of the corridor has two key parts: Selmon Expressway to 10th Avenue and 10th Avenue to Melburne Boulevard/21st Avenue. These parts share challenges but differ in the amount of available roadway space.

From the Selmon Expressway to Melburne Boulevard/21st Avenue, the existing posted speed is 40 mph. However, vehicle operating speeds are 50 mph and faster. Currently, it is a six-lane roadway with 36,000–37,000 AADT, which is within the capacity range of a four-lane roadway. The sidewalks are five feet wide.

Between the Selmon Expressway and 10th Avenue, 50th Street has 106 feet of right-of-way. There are no dedicated bicycle facilities, even though bicycling activity is in the top 40 percent for all State-owned roadways in FDOT District 7. In other words, bicycling activity is over 60 percent higher on this segment than on other state roadways in District 7. Pedestrian activity is in the top 20 percent. Three alternatives were initially defined for this segment.

North of 10th Avenue, right-of-way increases to 114 feet. Unlike the segment to the south, there are on-street bicycle lanes, but they are narrow and do not have any vertical separation from vehicles. There is high transit activity with buses running every 15 minutes or less. Both bicycling and pedestrian activity is in the top 20 percent for all state roadways in District 7. Given the additional space, four additional alternatives were defined for this segment.

FIGURE 47. SELMON EXPRESSWAY TO MELBURNE BOULEVARD/21ST AVENUE SEGMENT MAP

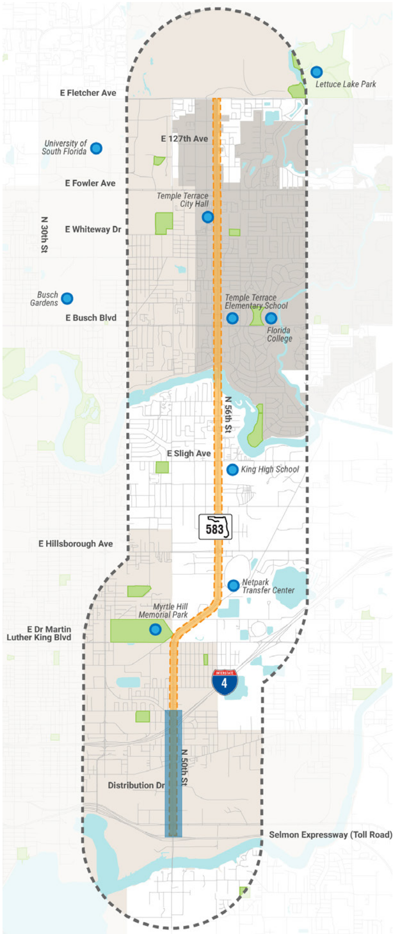


FIGURE 48. NORTH OF SELMON EXPRESSWAY TYPICAL SECTION

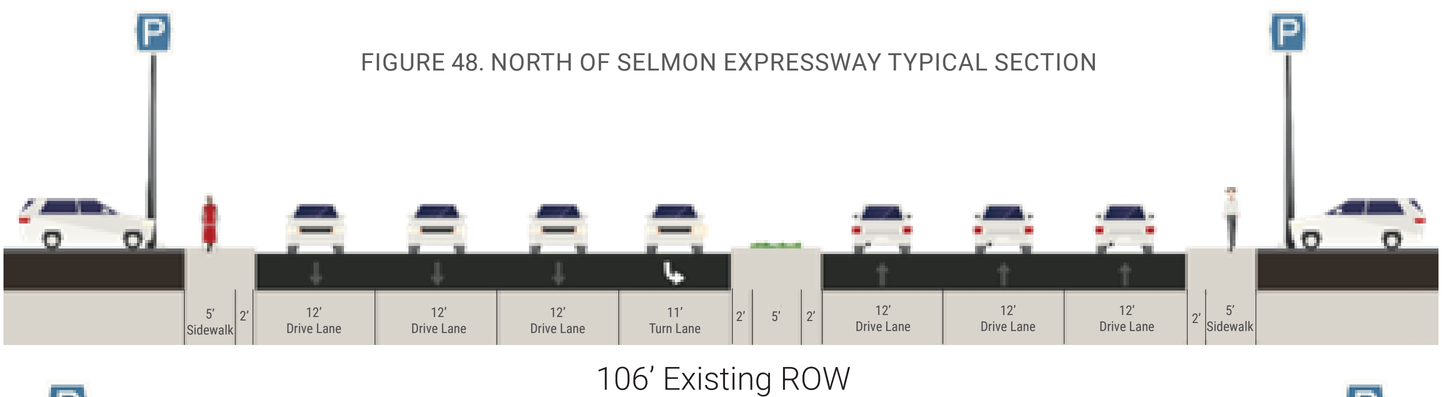
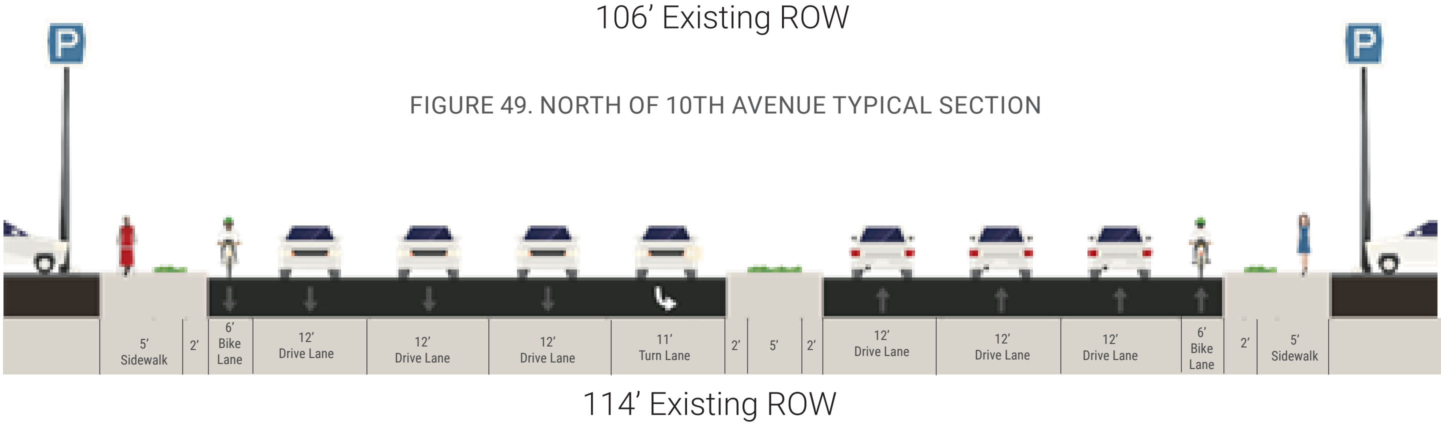


FIGURE 49. NORTH OF 10TH AVENUE TYPICAL SECTION



Segment Challenges

This section of the corridor is characterized by industrial land uses, six lanes of vehicle traffic, and high freight traffic. There are no on-street bicycle facilities, and existing sidewalk facilities have drainage issues and must be cleared of debris and overgrown vegetation. The I-4 interchange on- and off-ramps are in the northern extent of this segment.

Multimodal Conditions

- Despite industrial land use and no on-street bike lane, there is still moderate to high bicycle activity.
- Pedestrian activity along the segment from Adamo Drive to Melburne Boulevard/21st Avenue is in the top 20 percent districtwide.
- South of Columbus Drive is the only corridor section without frequent bus service.
- Challenges to bicycle and pedestrian crossings include:
  - Infrequent marked crossing opportunities, including a 0.65-mile gap from Adamo Drive to Broadway Avenue
  - Multiple turn lanes at intersections that create long crossing distances
  - Signalized intersections that lack marked crosswalks and require bicyclists and pedestrians to cross six lanes of traffic without a dedicated phase.
  - Conflicts between high-speed vehicle turns (such as turns from channelized right-turn lanes) and people crossing the road on foot or bicycle
  - Large driveways that create long crossings (such as the one on the SE corner of 50th Street and Adamo Drive)
- Some sidewalks are poorly maintained. The sidewalk on the east leg of 50th Street and the westbound Selmon Expressway off-ramps floods and is not usable when it rains.
- Poorly lit segments of the study corridor, such as Acline Drive, can create potentially dangerous walking and biking environments, particularly around marked crosswalks and transit stops.

Land Use

- Industrial areas between Selmon Expressway and I-4 are unlikely to change, as the City of Tampa has few remaining industrial parcels. Industrial land uses generate more frequent and higher volumes of truck traffic, which creates speed differentials and conflicts between street users.

Operations

- Segments operating at LOS F include:
  - Northbound from Selmon Expressway westbound ramps to Adamo Drive during AM and PM peaks
  - Northbound from 14th Avenue to I-4 eastbound ramps during AM and PM peaks
- Most signalized intersections (71 percent in the AM peak and 86 percent in the PM peak) operate at LOS D or better. Intersection movements at LOS F include:
  - 56th Street and Selmon Expressway (northbound left)
  - 56th Street and Adamo Drive (southbound)
  - 56th Street and Columbus Drive (eastbound right)
- There are no significant queuing issues at section intersections, so there may be opportunities to repurpose space for multimodal improvements without negatively impacting capacity.
- Signage and wayfinding at the I-4 interchange can confuse drivers who are negotiating turning movements with other street users.
- Southbound from E Melburne Boulevard/21st Avenue to the I-4 westbound ramps operates at LOS F during AM and PM peaks
- Three-quarters of signalized intersections operate at LOS D or better during the AM and PM peak hours.
- The northbound approach at the I-4 eastbound ramps operates at LOS F during the AM peak hour.

Crashes

- High bicycle and pedestrian crash intersections include:
  - 50th Street and Broadway Avenue, with four pedestrian and three bicycle crashes.
  - 50th Street and Columbus Drive, with three pedestrian and two bicycle crashes. Four of these crashes occurred in a crosswalk.
- 50th Street from Broadway Avenue to Columbus Drive saw 422 crashes per mile—double the ratio seen by other corridor segments. The segment from Adamo Drive to Broadway Avenue experienced the second highest ratio, at 205 crashes per mile.

Speeding

- The posted speed is 40 mph, but the actual operating speed is 53 mph. Combined with high truck volume, such a high speed can create a hostile environment for people walking and biking.
- Street design elements do not signal drivers to adjust operating speeds when land use changes abruptly from light and heavy industrial to residential and commercial north of I-4.
- Large turning radii (such as at Adamo Road) allow high vehicle turning speeds that can create conflicts with pedestrian and bicyclist crossing movements.

Demographics

- The residences southeast of I-4 around Broadway Avenue, Northview Hills, and around Normandy Park apartments north of Whiteway Drive are home to people experiencing extreme poverty. These block groups have a significant percentage of households living on $2.00 or less per day.

Segment Alternatives

Due to differences in available roadway space, addressing the challenges along this stretch of the corridor requires two sets of alternatives:

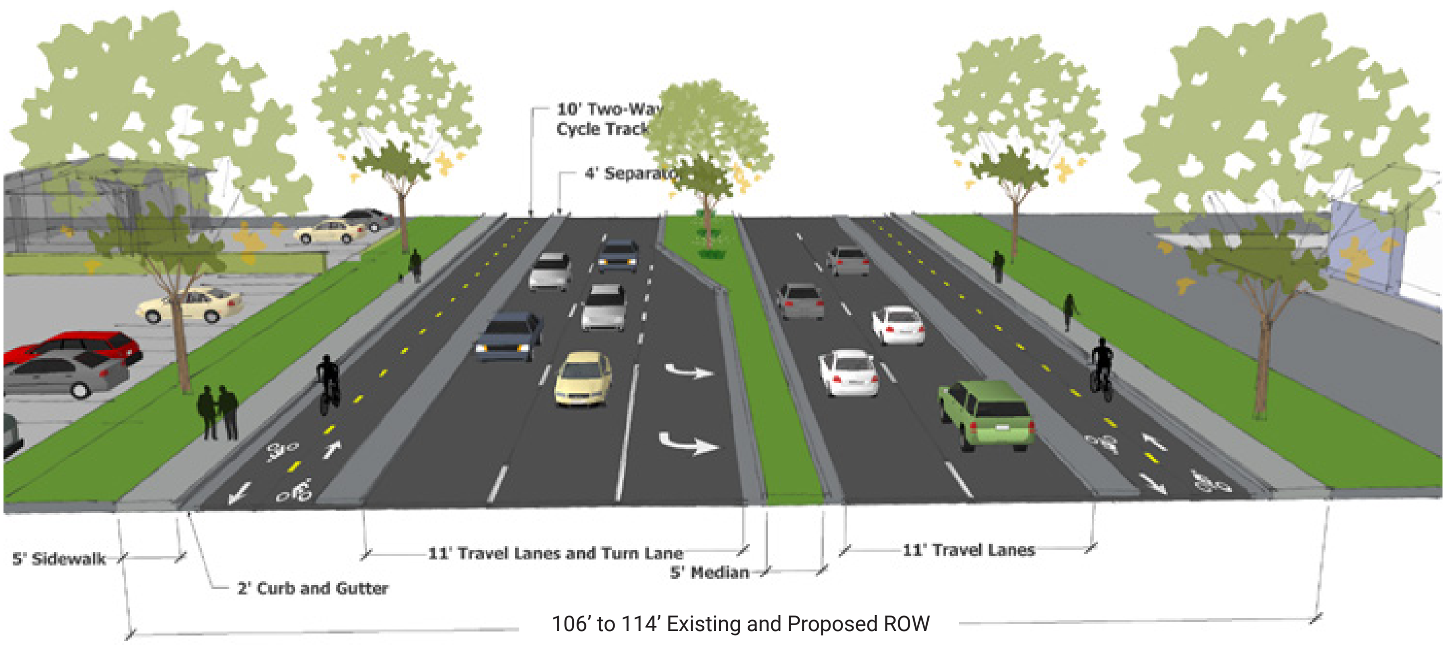
1-4: covers the entire segment from Selmon Expressway to Melburne Boulevard/21st Avenue

5-7: provides additional alternatives specific to 10th Avenue to Melburne Boulevard/21st Avenue.

Selmon Expressway to Melburne Boulevard/21st Avenue

ALTERNATIVE 1

FIGURE 50. SELMON EXPRESSWAY TO MELBURNE BOULEVARD/21ST AVENUE



Benefits

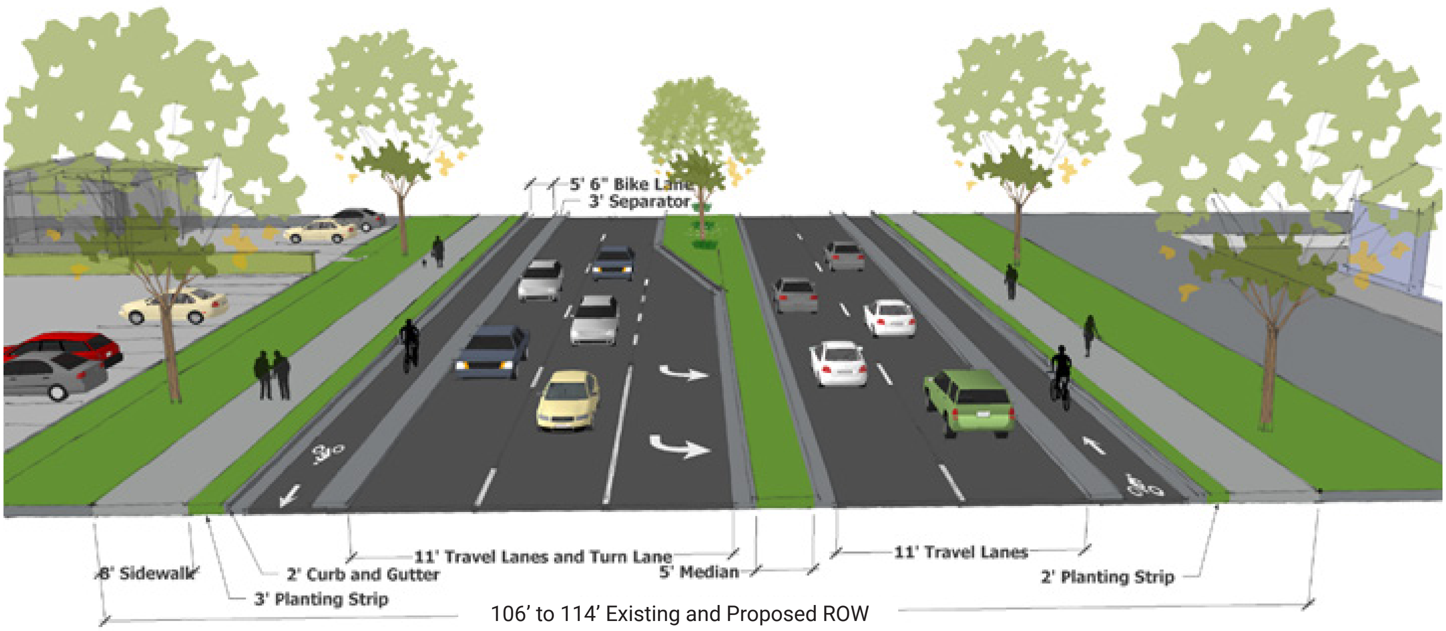
- Does not require moving or reconstructing curb and gutter (more cost-effective).
- Includes separated, two-way bicycle lane.
- All through lanes narrowed to encourage speed management.

Trade-Offs

- Does not widen the sidewalk.
- No separation between sidewalk and bicycle facility.
- Reducing one travel lane in each direction reduces vehicle capacity, but still serves current and future demand.
- Two-way bike lanes create more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.

ALTERNATIVE 2

FIGURE 51. SELMON EXPRESSWAY TO MELBURNE BOULEVARD/21ST AVENUE ALTERNATIVE 2—ONE-WAY SEPARATED BIKE LANES WITH WIDER SIDEWALK



Benefits

- Widens the sidewalk.
- Includes a separated, one-way bicycle lane, which would decrease potential conflicts between vehicles and bicyclists at driveways (as compared to a two-way bicycle facility).
- All through lanes narrowed to encourage speed management.
- Increases greenspace.

Trade-Offs

- Requires moving or reconstructing curb and gutter (less cost-effective).
- Reducing one travel lane in each direction reduces vehicle capacity but still serves current and future demand.

ALTERNATIVE 3

FIGURE 52. SELMON EXPRESSWAY TO MELBURNE BOULEVARD/21ST AVENUE

Benefits

- Includes 12-foot-wide shared use path.
- All through lanes narrowed to encourage speed management.
- Has increased green space to accommodate street trees.

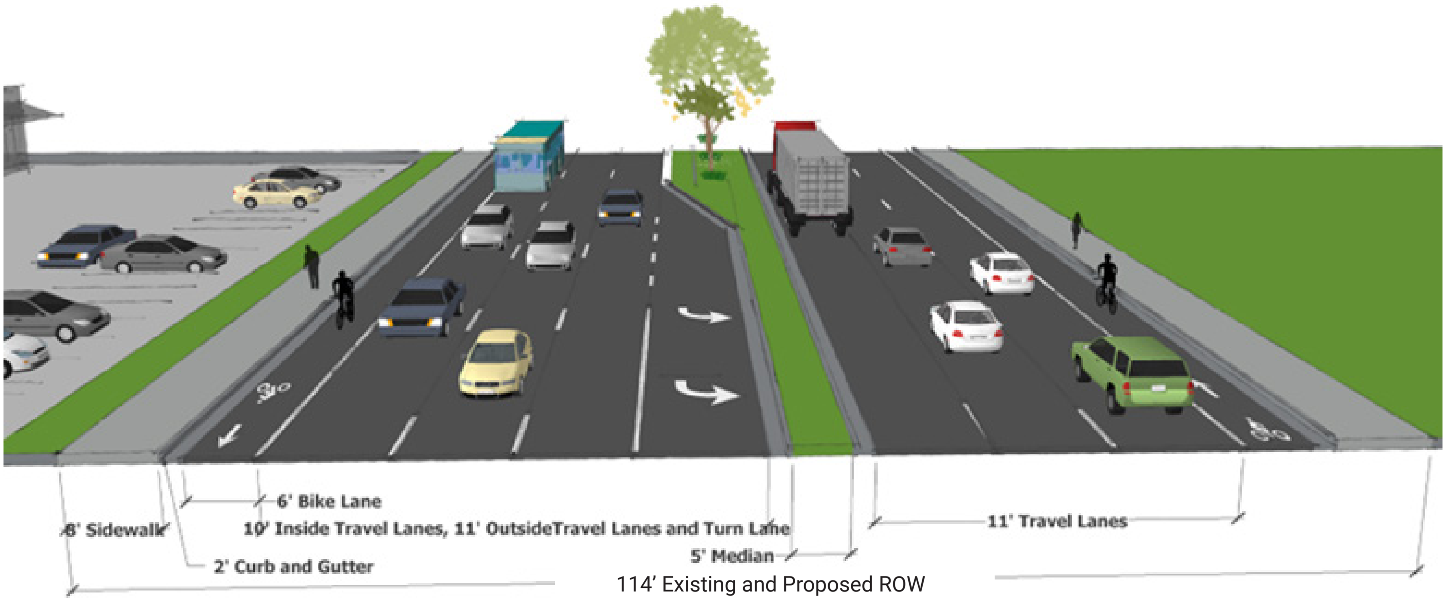
Trade-Offs

- Requires moving or reconstructing curb and gutter (less cost-effective).
- Bicyclists and pedestrians must share the same facility.
- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- Reducing one travel lane in each direction reduces vehicle capacity but still meets current and future demand.

10th Avenue to Melburne Boulevard/21st Avenue

ALTERNATIVE 4

FIGURE 53. 10TH AVENUE TO MELBURNE BOULEVARD/21ST AVENUE



Benefits

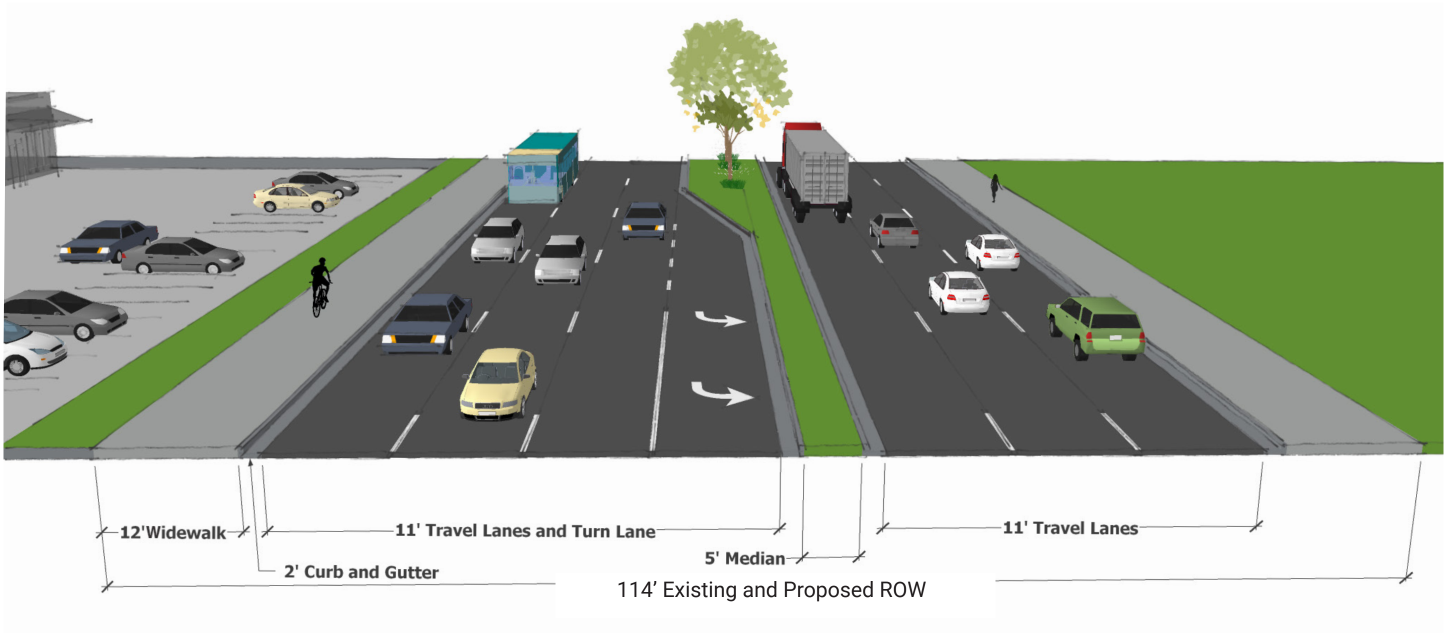
- Widens sidewalk without moving or reconstructing curb and gutter (more cost-effective).
- Widens bicycle lane.
- Narrows inside through lanes to encourage speed management.
- Maintains vehicle capacity.

Trade-Offs

- No vertical separation between bicyclists and vehicles.
- No separation between sidewalk and bicycle facility.
- No dedicated bus lane.
- Minimal green space.

ALTERNATIVE 5

FIGURE 54. 10TH AVENUE TO MELBURNE BOULEVARD/21ST AVENUE ALTERNATIVE 5—12-FOOT PATH



Benefits:

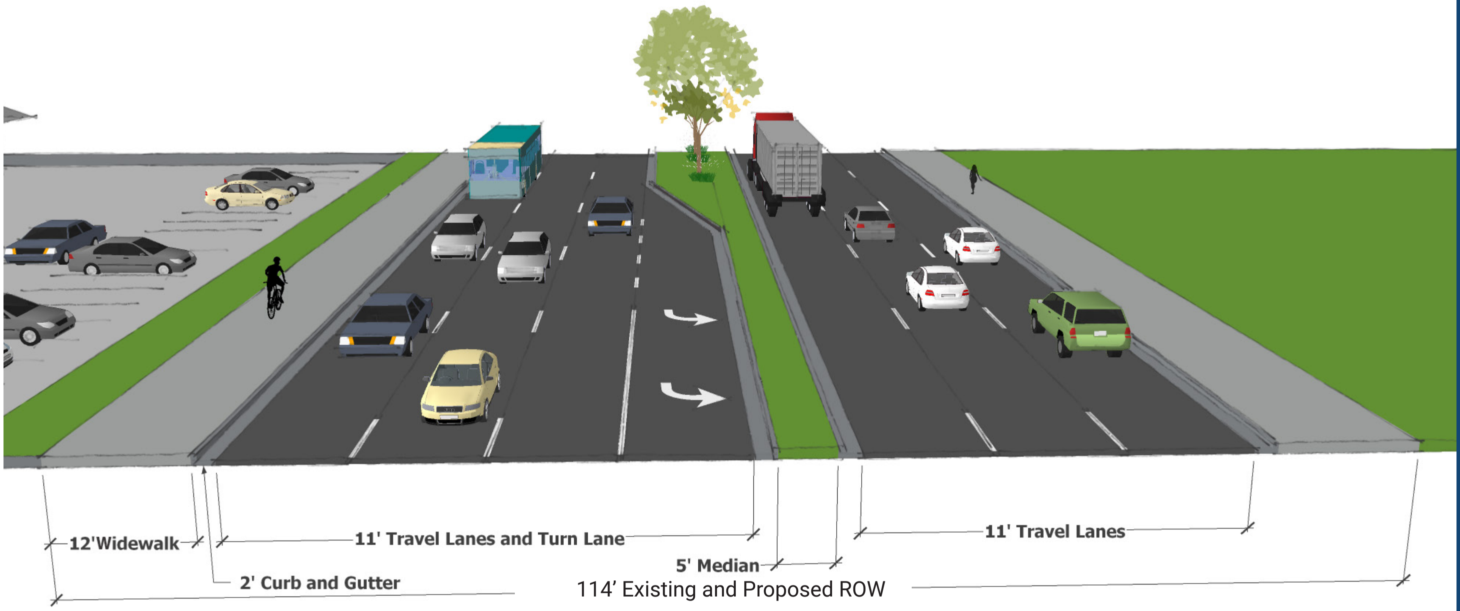
- Widens sidewalk to 12-foot-wide path.
- Maintains vehicle capacity.

Trade-Offs:

- Requires moving or reconstructing curb and gutter (less cost-effective)
- Bicyclists and pedestrians must share the same facility.
- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- No separation between path and vehicle lane.
- No dedicated bus lane.

ALTERNATIVE 6

FIGURE 55. 10TH AVENUE TO MELBURNE BOULEVARD/21ST AVENUE ALTERNATIVE 6—BUS LANE WITH 8-FOOT SIDEWALK MAINTAIN CURBS



Benefits:

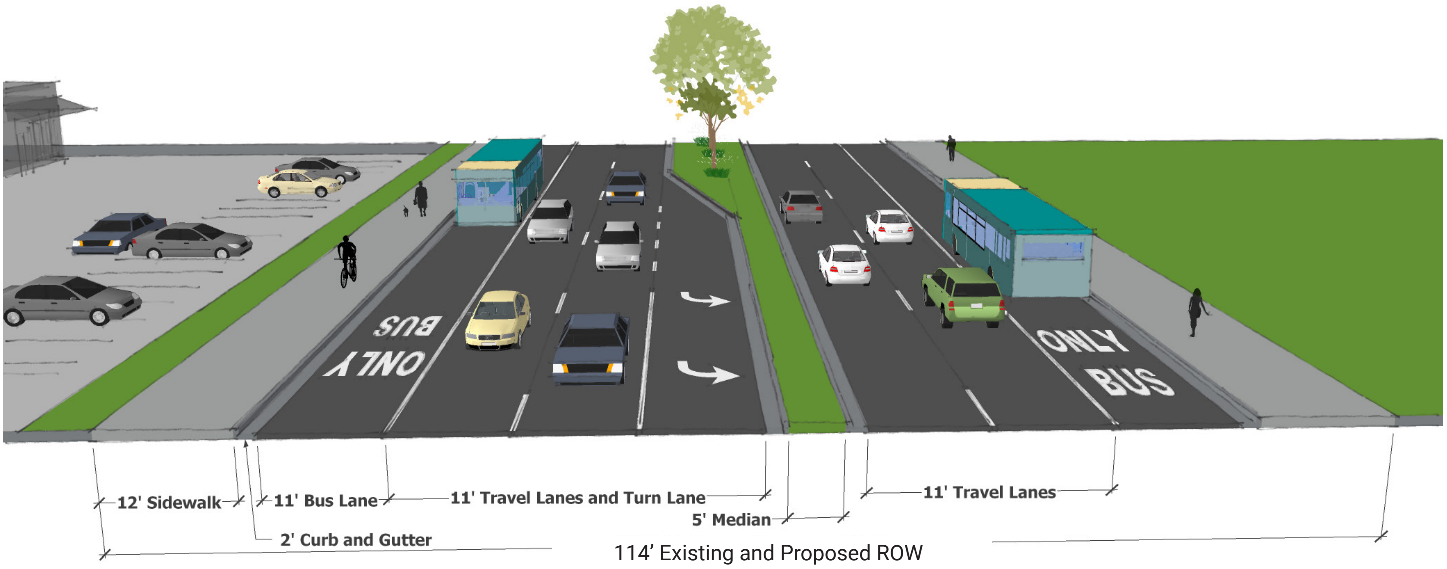
- Includes dedicated bus lane.
- Widens sidewalk without moving or reconstructing curb and gutter (more cost-effective).

Trade-Offs:

- No separation between sidewalk and bus-only facility.
- Bicyclists and pedestrians must share the same facility.
- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- Reducing one travel lane in each direction reduces vehicle capacity but still meets current and future demand.

ALTERNATIVE 7

FIGURE 56. 10TH AVENUE TO MELBURNE BOULEVARD/21ST AVENUE ALTERNATIVE 7—BUS LANE WITH 12-FOOT PATH



Benefits

- Includes dedicated bus lane.
- Widens sidewalk to 12-foot-wide path.

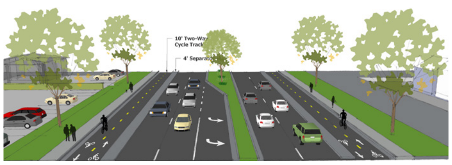
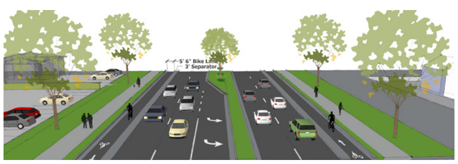
Trade-Offs

- Requires moving or reconstructing curb and gutter (less cost-effective).
- No separation between path and bus-only facility.
- Bicyclists and pedestrians must share the same facility.
- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- Reducing one travel lane in each direction reduces vehicle capacity but still meets current and future demand.

Alternative Evaluation

Based on input from FDOT and the PAG, the study team advanced a short list of alternatives for more detailed evaluation. The PAG generally preferred Alternative 2. For the options that maintain six lanes, Alternative 4 was removed in favor of Alternative 5, which widens the sidewalk into the bike lane. Because HART does not currently have plans to add bus rapid transit, Alternatives 6 and 7 were removed at this time. These alternatives could be reconsidered if premium transit service is funded in the future.

Segment

Typical Section Changes	Duration	Needs	Cost	Drainage and Utility Impacts
ALTERNATIVE 1: TWO-WAY SEPARATED BIKE LANES 			$900,000/mile	• Adjust or remove traffic signal heads due to removal of outside traffic lane. • No other foreseen utility impacts since this option involves repurposing the outside lane to a separated bike lane. • Drainage structure impacts are minimized because curb remains in place.
ALTERNATIVE 2: ONE-WAY SEPARATED BIKE LANES WITH WIDE SIDEWALKS 			$3,000,000/mile	• Adjust or remove traffic signal heads due to removal of outside traffic lane. • Drainage structures will need to be adjusted due to new curb locations. • Light poles and underground utilities are minimally impacted.
ALTERNATIVE 3: 12' SIDEWALK WITH GRASSED SEPARATION 			$2,800,000/mile	• Adjust or remove traffic signal heads due to removal of outside traffic lane. • Drainage structures will need to be adjusted due to new curb locations. • Light poles and underground utilities are minimally impacted.
ALTERNATIVE 5:12' SIDEWALK 			$2,900,000/mile	• Drainage structures will need to be adjusted due to new curb locations. • Some utility and light poles may need adjusting due to sidewalk widening. • Underground utilities are minimally impacted.

LEGEND

Meets Need	Somewhat Meets Need	Does Not Meet Need	
			1. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians
			2. Design and operate street consistent with surrounding land uses to support existing and future place types
			3. Provide better multimodal access for Communities of Concern
			4. Improve bicyclist and pedestrian safety and comfort along the corridor
			5. Improve transit access and service efficiency
			6. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points
			7. Support safe local resident and business access needs

Cost

- $ <$50,0000
- $$ $50,000 - $150,000
- $$$ $150,001 - $500,000
- $$$$ $500,001 - $1,000,000
- $$$$$ >$1,000,000

Duration

- Short Term
- Medium Term
- Long Term

Intersection

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
Selmon Expressway EB Ramps	Consider additional reflective signage			$-$$$
	Consider removing channelized right-turns and one through lane in each direction to reduce crossing distance and create space for a protected bicycle intersection			
Selmon Expressway WB Ramps	Consider protected only NB left-turn			$-$$$
	Consider additional reflective signage			
	Consider removing channelized right-turns and one through lane in each direction to reduce crossing distance and create space for a protected bicycle intersection			
Adamo Drive	Consider removing channelized right-turns and one through lane in each direction to reduce crossing distance and create space for a protected bicycle intersection			$-$$$$
	Extend median nose to serve as pedestrian refuge			
	Consider concurrent protected phasing			
	Consider protected-only EB and WB left-turns			
Acline Drive	Consider removing one through lane in each direction			$$-$$$$
	Install NB left-turn lane			
	Evaluate median modification (directional/full closure)			
	Upgrade lighting			
Broadway Avenue	Consider removing one through lane in each direction			$-$$$$
	Extend median nose to serve as pedestrian refuge			
	Straighten crosswalk to shorten crossing distances			
	Consider protected only left-turns			

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
10th Avenue	Evaluate traffic signal and/or pedestrian crossing			$-$$$$
	Restripe east/west leg crosswalk			
	Consider removing one through lane in each direction			
	Evaluate median modification (directional/full closure)			
Columbus Drive	Consider removing EB left-turn lane, WB left- and right-turn lanes, and one through lane in each direction to reduce crossing distance and create space for a protected bicycle intersection			$-$$$$
	Consider protected only left-turns			
	Extend median nose to serve as pedestrian refuge			
	Move NB/SB stop bars and straighten crosswalk			
I-4 EB Ramps	Consider removing channelized right-turns and one through lane in each direction to reduce crossing distance and create space for a protected bicycle intersection			$-$$$
	Add north/south leg crosswalk			
I-4 WB Ramps	Consider removing channelized right-turns and one through lane in each direction to reduce crossing distance and create space for a protected bicycle intersection			$-$$$
	Add north/south leg crosswalk			
Melburne Boulevard/21st Avenue	Consider removing EB right-turn lane and NB left-turn lane to reduce crossing distance and create space for a protected bicycle intersection			$-$$$$$
	Evaluate roundabout			
	Consider protected only left-turns			

Spot Treatment

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
Between Selmon Expressway EB and WB Ramps	Consider adding curbs			$
	Evaluate raised sidewalk			
	Evaluate drainage improvements			$$
At median opening south of Uceta Road	Evaluate median modification (directional/full closure)			
	Enhance landscaping			$$$
From Selmon Expressway to Melburne Boulevard /21st Avenue	Consider landscaped medians			

Traffic Operations

Reducing the number of lanes to four and the proposed turn lane removal will not create unreasonable increases in delay.

Key Findings

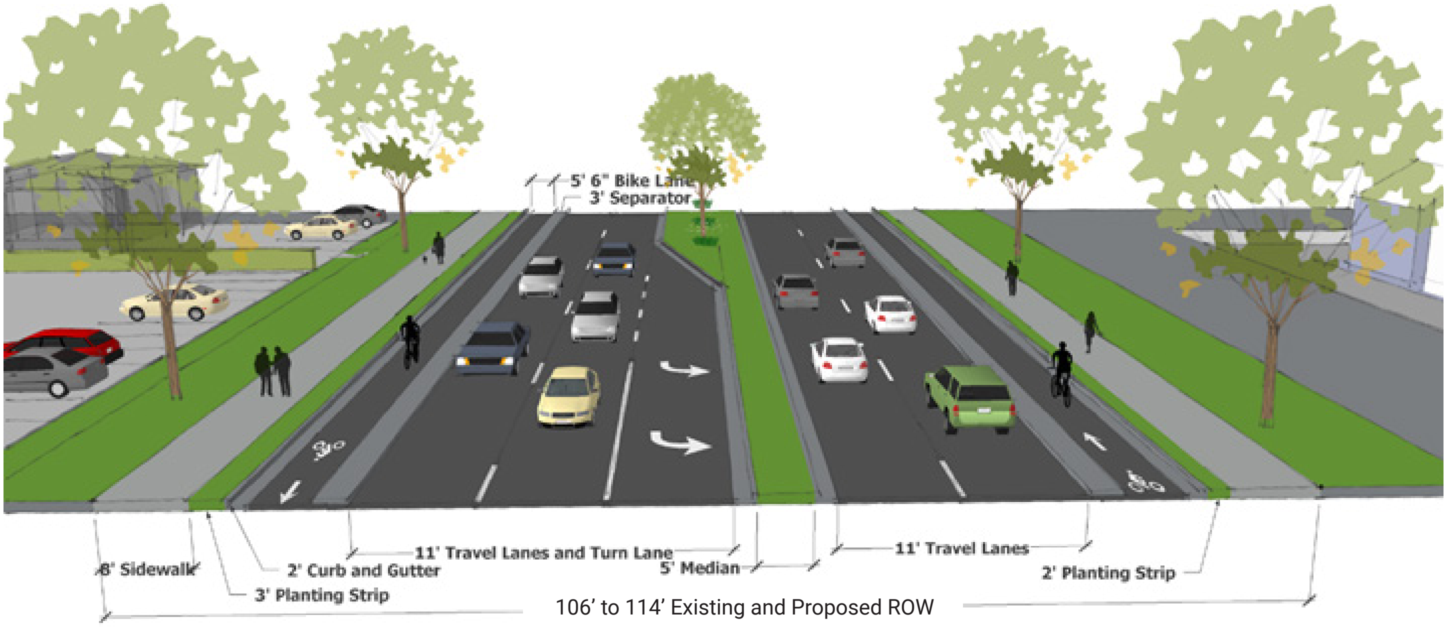
- With four lanes instead of six, the Selmon Expressway to Melburne Boulevard/ 21st Avenue segment is expected operate primarily at LOS D through 2045.
- For both the alternative and no build scenario, all intersections are expected to operate at LOS D or better, except for 50th Street and Adamo Drive, which operates at LOS E in the 2045 no build and shows a 5 second delay increase in the alternatives.
- Intersections that operate at LOS E or worse in the alternative were already operating at LOS E or worse under the no build scenario.
- For detailed overall intersection delay, LOS, and the worst performing movement's volume-to-capacity ratio across the no build and alternative scenarios, see Appendix F.

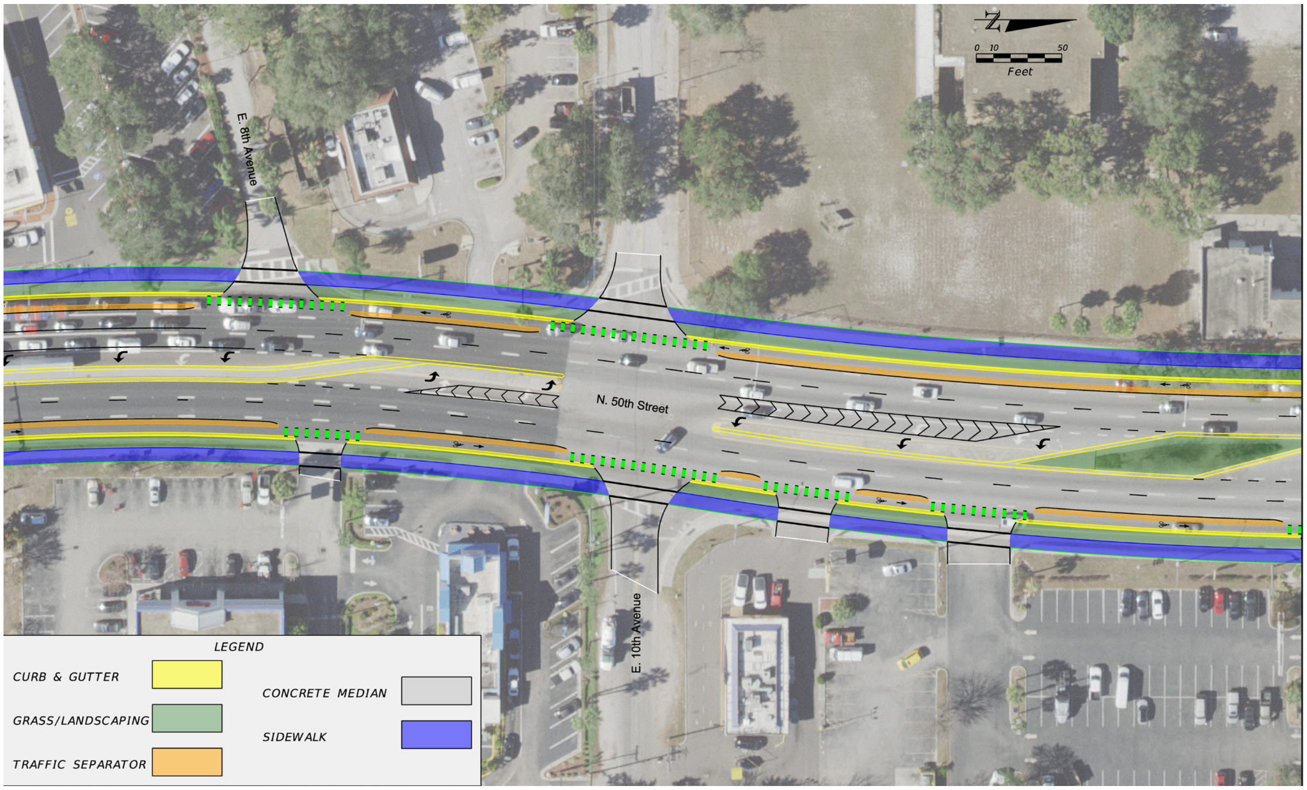
Public & Stakeholder Feedback

The study team presented Alternatives 1, 2, 3, and 5 to the public during the second round of meetings. The majority of public participants preferred Alternative 2, followed by Alternatives 3 and 4. Members of the PAG generally preferred Alternative 2.

Recommended Alternative

Based on FDOT, PAG, and public input, as well as the technical alternatives evaluation, the preferred typical section for Selmon Expressway to Melburne Avenue/21st Avenue is Alternative 2—One-Way Separated Bike Lanes with wider Sidewalk.





Next Steps

The recommended alternative requires a lane repurposing. The lane repurposing process should be coordinated by FDOT, the City of Tampa, and Tampa Hillsborough Expressway Authority (THEA). The City of Tampa will serve as the main applicant for the lane repurposing application, and they will be supported by FDOT District 7. FDOT should also work with the City of Tampa to advance pedestrian crossings in high crash areas.

North of Melburne Boulevard/21st Avenue to Riverhills Drive

North of Melburne Boulevard/21st Avenue, right-of-way increases to 164 feet. The posted speed transitions from 45 mph to 50 mph north of 23rd Avenue while vehicles are operating at 50 mph and faster. The corridor transitions from six to four lanes, and there is no curb and gutter. There is a narrow on-street bike facility and sidewalk separated by a wide grassed area. AADT ranges from 24,000 to 30,000. The sidewalk is setback from the on-street bicycle lane with a 26- to 28-foot-wide grassed area. The bicycle lane does not have vertical separation from the vehicle lanes, and buses run every 15 minutes or less. From Melburne Boulevard/21st Avenue to Riverhills Drive has 60 percent more activity than other state roadways in D7. From Dr. Martin Luther King Jr. Boulevard to Riverhills Drive, bicycling activity is in the top 20th percentile for all state roadways in D7. Pedestrian activity north of Dr. Martin Luther King Jr. Boulevard to Hillsborough Avenue ranges from the 60th to 20th percentiles.

FIGURE 57. NORTH OF MELBURNE BOULEVARD/21ST AVENUE TO RIVERHILLS DRIVE SEGMENT MAP

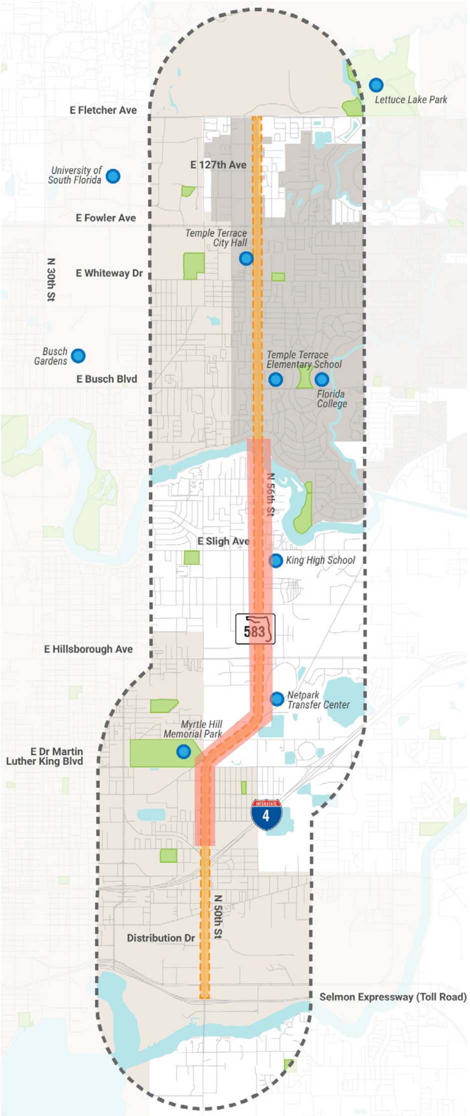
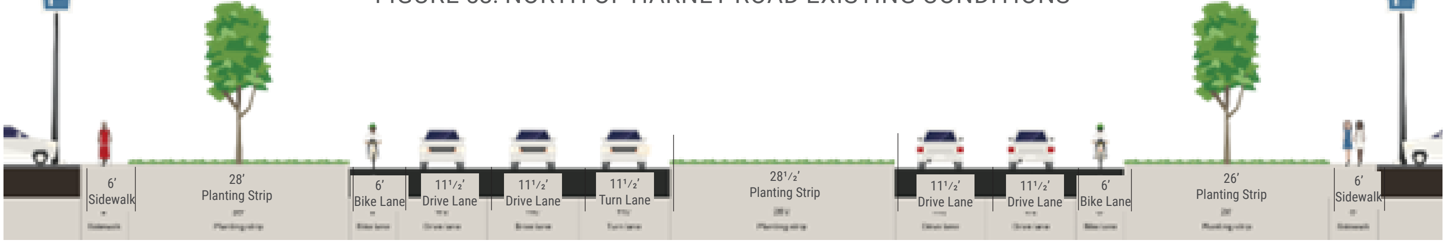


FIGURE 58. NORTH OF HARNEY ROAD EXISTING CONDITIONS



Segment Challenges

From I-4 to Dr. Martin Luther King Jr. Boulevard, land use transitions from mostly industrial to predominantly commercial and residential. Parcels here are smaller, and residential areas have more connections to other roads than those to the south. This segment has a 5-foot, on-street bicycle lane outside the travel lane in both directions. The sidewalks on both sides of the road are continuous and are 4 to 6 feet wide. Buildings are set back from the street, and the road configuration transitions to two lanes in each direction. The segment of the corridor is still within City of Tampa limits.

From Dr. Martin Luther King Jr. Boulevard to Riverhills Drive, land uses remain predominantly commercial and single-family and multifamily residential. Major destinations like King High School and Netpark Transfer Center generate multimodal activity. The 6-feet, on-street bicycle lanes continue through this section. There are sidewalks on both sides of the road, and buildings are setback from the street. Drainage swales are located between the sidewalks and front building entrances or on the median. This corridor section is in unincorporated Hillsborough County.

Multimodal Conditions

- A 4- to 6-foot on-street bicycle lane emerges north of 10th Avenue. The bicycle lane is striped, not buffered, and runs next to vehicular traffic lanes with posted speeds of 40–50 mph.
- Bicycle and pedestrian activity along this segment are in the top 40 percent districtwide from Melburne Boulevard/21st Avenue to Dr. Martin Luther King Jr. Boulevard.
- From Dr. Martin Luther King Jr. Boulevard to Riverhills Drive, bicyclist activity here is in the top 20 percent.
- Pedestrian activity in this section is medium or high. Pedestrian activity is higher from Dr. Martin Luther King Jr. Boulevard to Harney Road than from Harney Road to Hillsborough Avenue. This difference could be due to people walking to and from Netpark along Harney Road and east-west across the corridor.
- Challenges to bicycle and pedestrian crossings include:
  - Large driveways that create long crossings (such as the one at the southeast corner of north 50th Street and 32nd Avenue).
  - Gaps between crossing opportunities, including a 0.8-mile gap from east Melburne Boulevard/21st Avenue to Dr. Martin Luther King Jr. Boulevard, a 1.2-mile gap between Dr. Martin Luther King Jr. Boulevard and Hillsborough Avenue, and several other 0.5-mile gaps.
  - Permitted left-turn movements that cross in front of pedestrians in the crosswalk during protected crossings (such as the one at Dr. Martin Luther King Jr. Boulevard).
  - Large driveways that create long crossings for pedestrians and bicyclists (such as the ones between Henry Avenue and Hanna Avenue).
  - Channelized right-turn lanes and acceleration lanes that allow vehicles to make right-turn movements at high speeds.
  - Turn offs at Lake Avenue and Harney Road create an off-ramp effect. This allows for high vehicle speeds potentially that can create conflicting conflict with pedestrians in the crosswalks.

Land Use

- Land use characteristics here change from mostly industrial to the south to more commercial and residential land uses to the north. The industrial land is unlikely to change, so this transition area will need design strategies that help drivers expect to encounter people traveling by foot or bike.

Operations

- Most signalized intersections (60 percent during the AM an PM peak hour) operate at LOS D or better.
- The northbound approach at Hillsborough Avenue operates at LOS F during both peak hours.
- Intersections with movements at LOS F include:
  - 56th Street and Sligh Avenue (westbound left)

Crashes

- With 229 crashes in the past five years, this segment has the highest crash count of the entire study corridor. This segment also had the highest number of nighttime crashes, with 59 crashes, 46 of which occurred in areas with street lighting.
- Four run-off road crashes occurred along the segment between Chelsea Street and Cone Road. Three of these crashes involved vehicles crossing over the median. The posted speed along this section is 45–50 mph and the 85th percentile speed is 57 mph. Such a discrepancy indicates that design speed may be an issue.
- One segment has a high incidence of bicycle and pedestrian crashes: 56th Street from Melburne Boulevard/21st Avenue to Dr. Martin Luther King Jr. Boulevard had two pedestrian and four bicycle crashes.
- The segment from Dr. Martin Luther King Jr. Boulevard to Hillsborough Avenue had three pedestrian and five bicycle crashes.
- Many drivers use the full median opening just north of Dr. Martin Luther King Jr. Boulevard to cut through to head eastbound on Lake Avenue and avoid the signal at Dr. Martin Luther King Jr. Boulevard. Study team members observed four vehicles at one time waiting in the median opening to cut through. To reduce this behavior and improve safety, the full median opening should be converted to a directional median opening.

Speeding

- The segment from Melburne Boulevard/21st Avenue to Dr. Martin Luther King Jr. Boulevard has a C4—Urban General context classification. Such a classification means that the 50-mph posted speed exceeds the allowable design speed range provided by the *FDM*.
- Dr. Martin Luther King Jr. Boulevard has a 50-mph posted speed and a 57-mph 85th percentile speed. These were the highest speeds observed along the entire study corridor.
- From Dr. Martin Luther King Jr. Boulevard to Chelsea Street, the posted speed is 50 mph and the 85th percentile speed is 57 mph.
- From Chelsea Street to Riverhills Drive, the posted speed is 45 mph and the 85th percentile speed is 53 mph.

Demographics

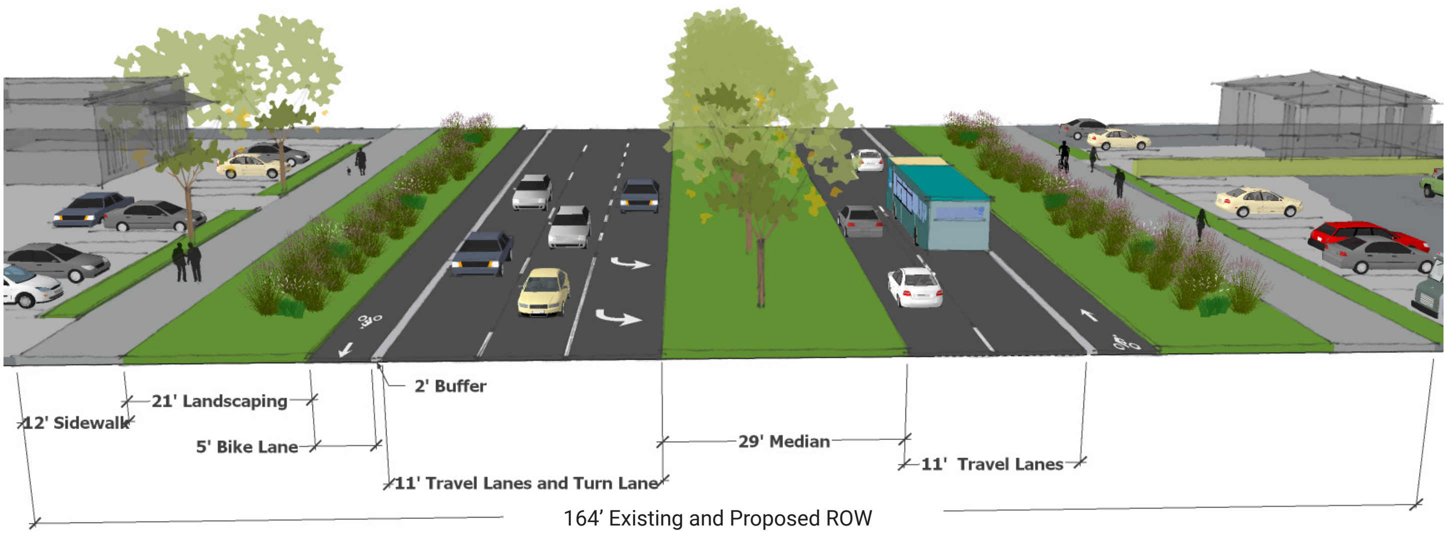
- The areas north of Melburne Boulevard/21st Avenue and in Grant Park are Hillsborough TPO-designated communities of concern. To achieve equity goals along the corridor, these communities must have safe and comfortable multimodal access to employment, recreation, education, and social opportunities.
- Most census block groups to the north of Dr. Martin Luther King Jr. Boulevard are transportation disadvantaged. The Northview Hills community northwest of Myrtle Hill Memorial Park is one of the most transportation disadvantaged in the entire study area. Residents in that neighborhood are experiencing extreme poverty, and many households live on $2.00 or less a day. As the corridor redevelops, this community's access to safe and comfortable transportation for employment opportunities and social services should be a top priority.
- The largest percentage of zero-car households are located in this area. About 70 percent of households in this segment are one- or zero-vehicle households and must rely on bicycle, pedestrian, and transit facilities for their everyday needs. This rate is far higher than the county median of 43 percent.
- This area sees increased demand for walking, biking, and transit due to nearby King High School at Sligh Avenue, multifamily residences west of the study corridor, and numerous residents under 18.

Transit

- North of Melburne Boulevard/21st Avenue, transit runs every 15 minutes or less. The highest transit activity in this segment happens around the Melburne Boulevard/21st Avenue intersection.
- There is also high transit activity beyond the study boundary at Melburne Boulevard/21st Avenue and 40th Street. The transit activity data suggests transit riders travel from these stops to the study corridor to get to their destinations. Because this section has posted speeds over 45 mph, transit users need safe crossing opportunities.
- The area around the Netpark Transfer Center near Harney Road north of Dr. Martin Luther King Jr. Boulevard and at Sligh Avenue see high transit activity.

ALTERNATIVE 1

FIGURE 59. NORTH OF HARNEY AVENUE ALTERNATIVE 1—12-FOOT PATH MAINTAIN PAVEMENT



Benefits

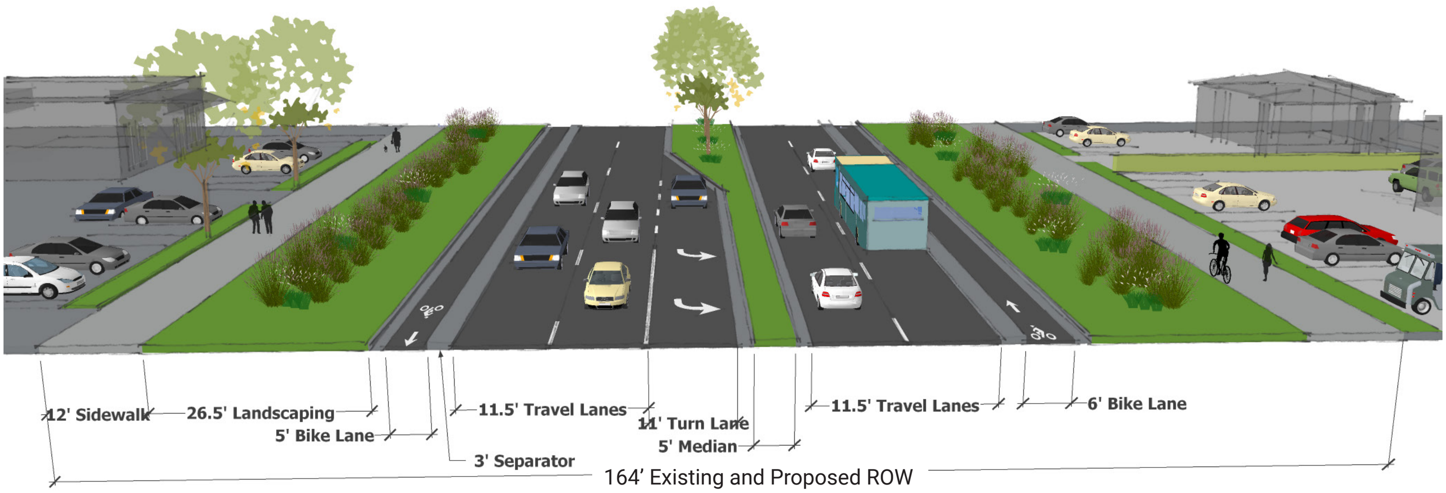
- Widens sidewalk to 12-foot-wide shared use path.
- Maintains existing paved area and minimizes drainage impacts (more cost effective).
- Narrows through lanes and increases buffer for on-street bike lane.

Trade-Offs

- No vertical separation between bicyclists and vehicles.
- Minimal speed management treatments with open drainage.
- No dedicated bus lane.

ALTERNATIVE 2

FIGURE 60. NORTH OF HARNEY AVENUE ALTERNATIVE 2—12-FOOT PATH WITH ONE-WAY SEPARATED BIKE LANES



Benefits

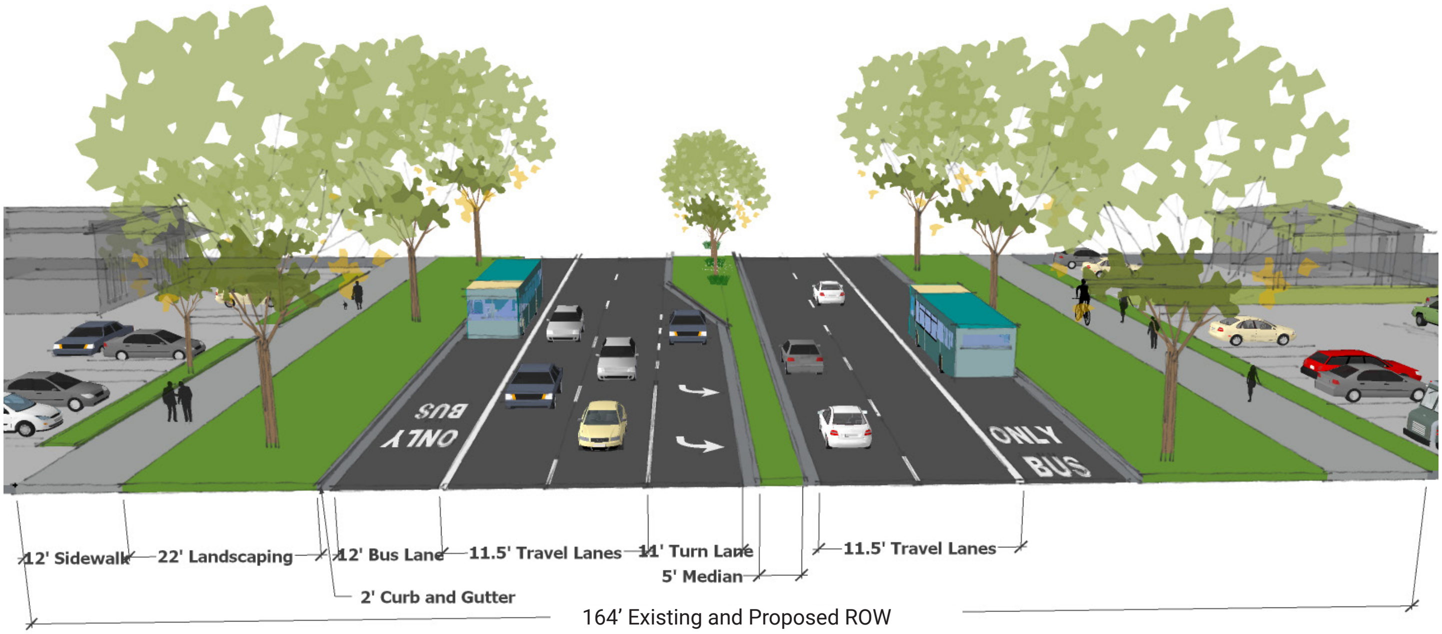
- Widens sidewalk to 12-foot-wide shared use path.
- Adds curb and gutter for increased speed management.
- Includes a separated, one-way bicycle lane, which would decrease potential conflicts between vehicles and bicyclists at driveways compared to two-way bicycle facility.
- Narrower median reduces crossing distance.

Trade-Offs

- Potentially more costly because it adds a curb.
- No dedicated bus lane.

ALTERNATIVE 3

FIGURE 61. NORTH OF HARNEY AVENUE ALTERNATIVE 3—12-FOOT PATH WITH 12-FOOT BUS-ONLY LANES



Benefits

- Widens sidewalk to 12-foot-wide shared use path.
- Includes bus-only lane.
- Adds curb and gutter for increased speed management.

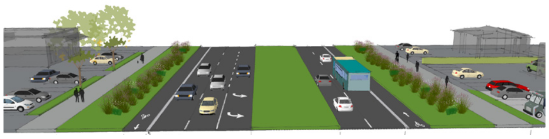
Trade-Offs

- Potentially more costly because it adds a curb.
- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- Bicyclists and pedestrians must share the same facility.
- Increases pedestrian crossing distance.

Alternative Evaluation

Based on initial input from FDOT and the PAG, the study team advanced a short list of alternatives for further evaluation. Alternative 2 was generally preferred by the PAG over the other alternatives. Because HART does not currently have plans to add bus rapid transit, Alternative 3 was removed. This alternative could be reconsidered if premium transit service is funded in the future.

Segment

Typical Section Changes	Duration	Needs	Cost	Drainage and Utility Impacts
ALTERNATIVE 1: 12' SHARED USE PATH WITH ONSTREET BIKE LANES 			$3,000,000/ mile	• Adjust or remove traffic signal heads as needed. • Possible drainage impacts (15 ditch bottom inlets and six cross drains) with addition of west-side sidewalk. • Underground utilities are minimally impacted.
ALTERNATIVE 2: 12' SHARED USE PATH W/ ONE-WAY SEPARATED BIKE LANES 			$5,600,000/ mile	• Adjust or remove traffic signal heads as needed. • Installation of separated bike lane and curb will likely require adjusting or replacing drainage structures (31 ditch bottom inlets, one curb inlet, 11 cross drains). • Utility and light poles are minimally impacted, as existing typical width remains the same. • Underground utilities are minimally impacted

LEGEND

Meets Need | Somewhat Meets Need | Does Not Meet Need

1. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians
2. Design and operate street consistent with surrounding land uses to support existing and future place types
3. Provide better multimodal access for Communities of Concern
4. Improve bicyclist and pedestrian safety and comfort along the corridor
5. Improve transit access and service efficiency
6. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points
7. Support safe local resident and business access needs

Cost

$ <$50,0000

$$ $50,000 - $150,000

$$$ $150,001 - $500,000

$$$$ $500,001 - $1,000,000

$$$$$ >$1,000,000

Duration

Short Term

Medium Term

Long Term

Intersection

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
26th Avenue	Evaluate median modifications (directional/full closure)			$$$
	Evaluate pedestrian crossing			
32nd Avenue	Explore roundabout			$$$$$
Dr. Martin Luther King Jr Boulevard	Consider removing NB right-turn lane			$-$$$$
	Enhance landscaping			
	Extend median nose to serve as pedestrian refuge			
	Straighten crosswalk to shorten crossing distance for east leg			
Lake Avenue	Evaluate closing SB-right turn "off-ramp"			$$-$$$
	Evaluate median modifications (directional/full closure)			
Chelsea Street	Consider removing channelized right-turns			$-$$$$$
	Explore a signalized RCUT or other pedestrian crossing treatment			
	Evaluate median modifications (directional/full closure)			
Harney Road	Consider removing channelized right-turns			$-$$$
	Evaluate removing NB right "off-ramp" and moving right-turn to the T-intersection			
	Evaluate median modification (directional/full closure)			
Netpark Main Entrance	Evaluate on-street transit transfer			$-$$$
	Evaluate moving stop bar and installing crosswalks on north and south leg			
	Evaluate removing NB/SB left-turn offset and channelized right-turns to reduce crossing distance and create space for a protected bicycle intersection			
	Evaluate shortening NB right-turn lane			
Cone Road	Evaluate median modifications (directional/full closure)			$-$$$
	Evaluate moving SB bus stop north of Cone Road to Cone Road			
	Evaluate pedestrian crossing			
Hillsborough Avenue	Evaluate transit priority (queue jumps)			$$$-$$$$
	Extend median nose to serve as pedestrian refuge			
	Consider removing channelized right-turns and NB right-turn lane to reduce crossing distance and create space for a protected bicycle intersection			
	Consider installing right-turn overlap phases			
Hanna Avenue	Consider protected only left-turns			$-$$
	Restripe crosswalks			
	Consider bulb-outs to shorten crossing distance			
Diana Street	Evaluate median modifications (directional/full closure)			$$

Location	Treatment to be Considered	Duration	Needs	Cost
Melburne Boulevard/ 21st Avenue to Dr. MLK Jr Boulevard	Include street trees along segment			$$$
Transit stop north of Dr. MLK Jr Boulevard	Consider utilizing pavement for bus pullout			$
	Consider modifying bicycle lane to go behind the transit shelter			
	Consider pedestrian level lighting at transit stop			
At Driveways north of Hillsborough Avenue	Install crosswalks			$
At Railroad Crossing south of Henry Avenue	Evaluate median modifications (directional/full closure)			$$-$$$
	Install pedestrian gates			
Between Henry Avenue and Hanna Avenue	Evaluate midblock crossing location and relocating transit stops to this location			$$$
At Bus Stop north of at Hanna Avenue	Consider moving bicycle lane behind bus shelter and install sidewalk connection to bus stop			$

Spot Treatment

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
Between Diana Street and Sligh Avenue at King High School south entrance	Evaluate pedestrian crossing			$$$
From Diana Street to North of Puritan Road	Consider landscaped median			$$
	Evaluate median modification north of Puritan Road (directional/full closure)			
From Hanna Avenue to Sligh Avenue	Evaluate chicane south of Sligh Avenue			$$$$$
Between Sligh Avenue and Society Park Boulevard	Evaluate midblock crossing just north of Sligh Avenue			$$$

Traffic Operations

Although the proposed changes cause one additional corridor intersection (at Hillsborough Avenue) to reach LOS F in 2045, delays at that intersection would only increase by two seconds. The remaining intersections maintain LOS D or better. Intersections originally at LOS F stay at LOS F with minimal increases in delay. Minor vehicle delay increases are outweighed by the safety improvements for drivers, bicyclists, and pedestrians. For more information about the traffic operations in this segment, see Appendix F.

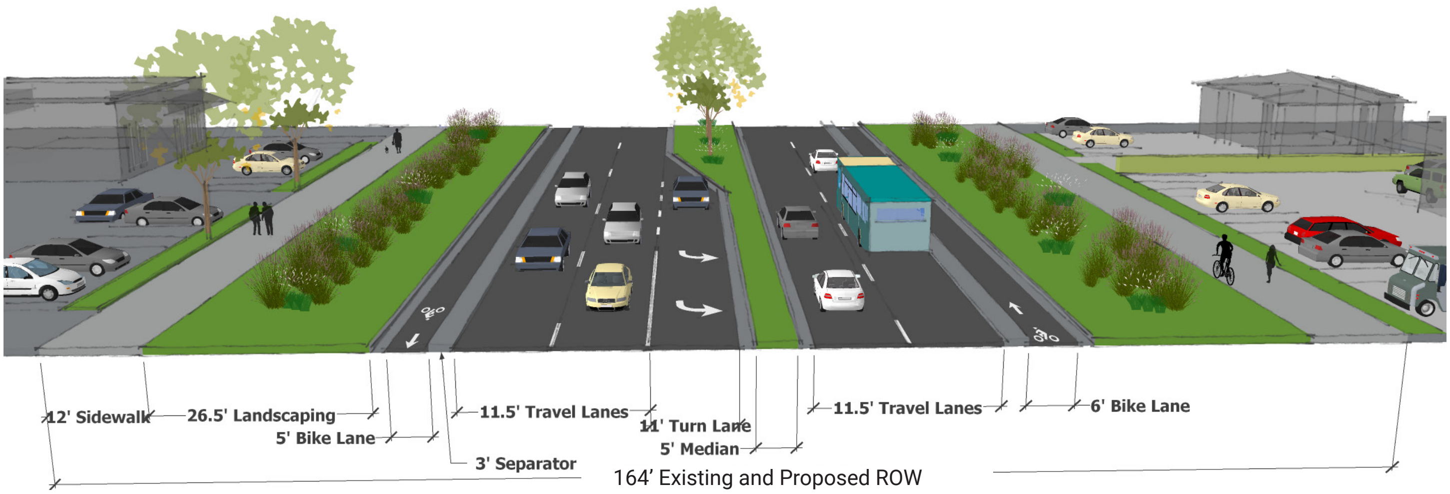
Public & Stakeholder Feedback

The study team presented Alternatives 1 and 2 to the public during the second round of meetings. Alternative 2 received all of the public's votes. Members of the PAG also generally prefer Alternative 2.

Recommended Alternative

The preferred alternative is Alternative 2, a 12-foot-wide shared use path with one-way separated bicycle lanes. A wide grassed area separates the shared use path from the vehicle lanes. This cross 26th Avenue section creates continuity in the bicycle facility from the segment to the south.

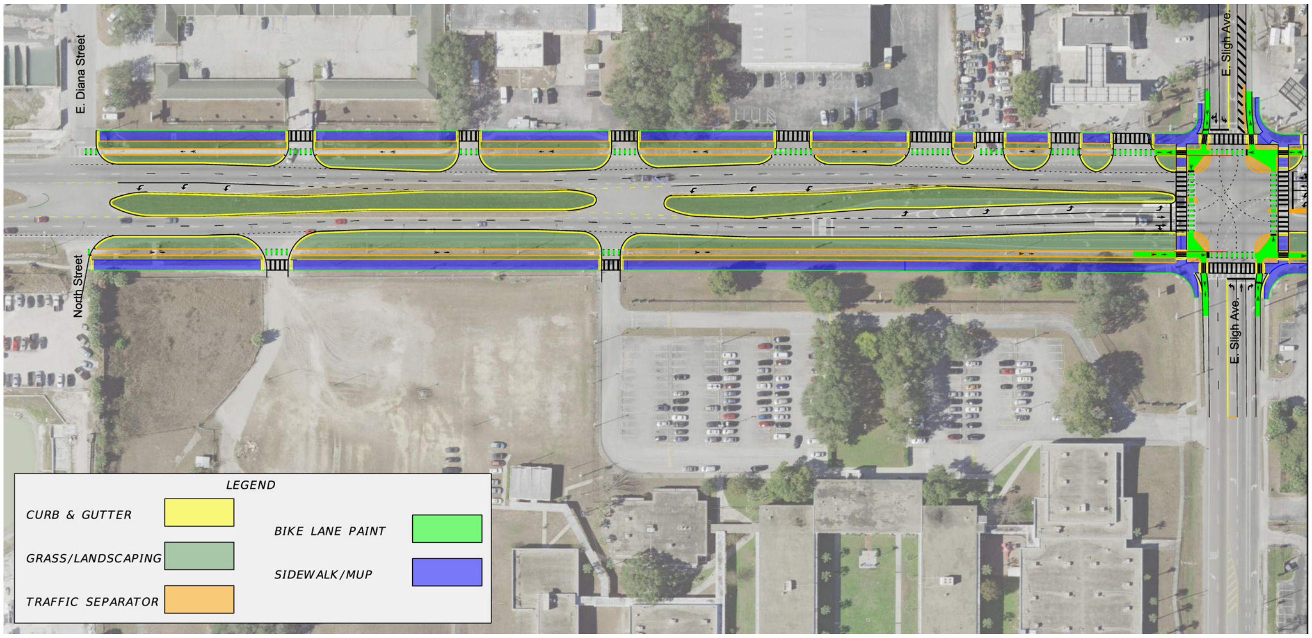
FIGURE 62. NORTH OF HARNEY AVENUE ALTERNATIVE 2—12-FOOT PATH WITH ONE-WAY SEPARATED BIKE LANES



Spot Improvements

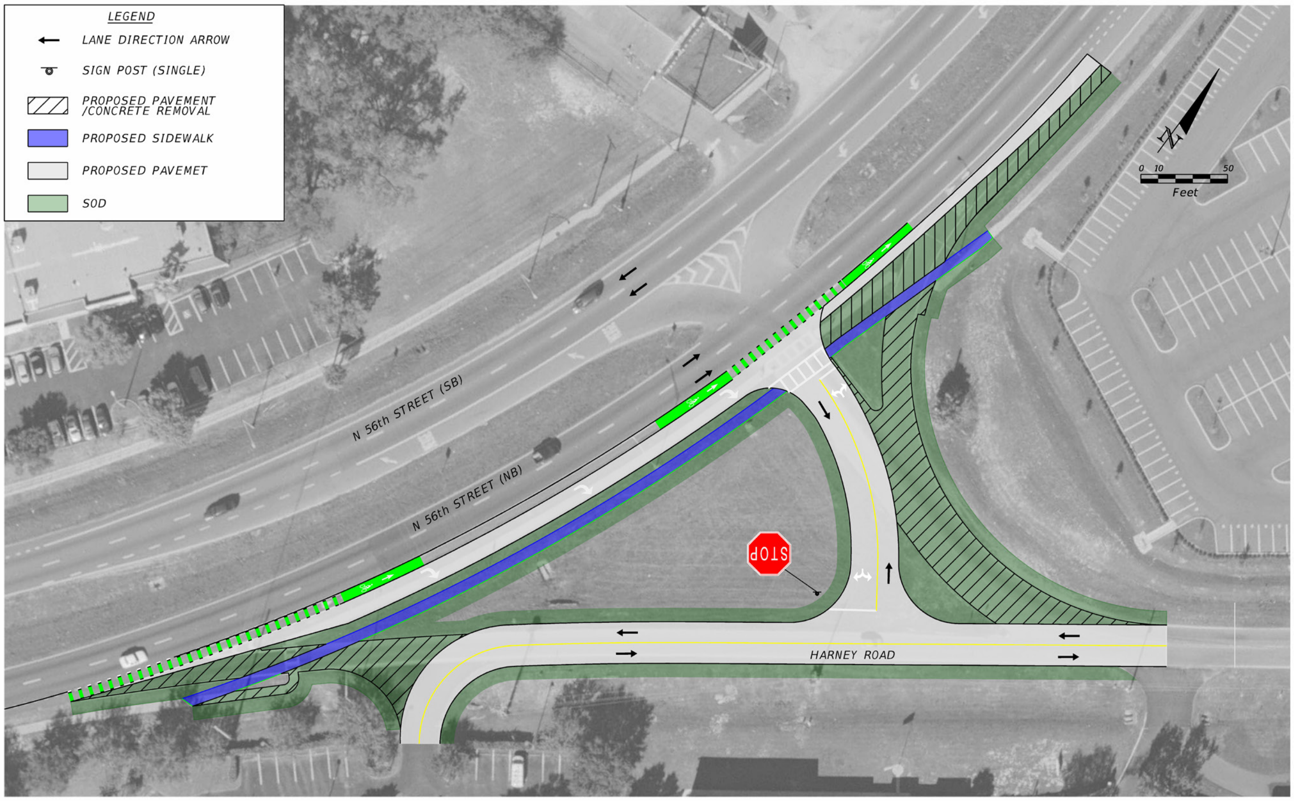
Chicanes are incorporated into the preferred alternative for this section south of Sligh Avenue, adjacent to King High School. Offset curb extensions and median width variations create a slight bend in the roadway to slow down drivers. The horizontal deflection further slows driving speeds near King High School where there is high student pedestrian activity (see Figure 63).

FIGURE 63. CHICANE CONCEPT SOUTH OF SLIGH AVENUE



Removing the channelized northbound right turn from 56th Street to Harney Road, and reconfiguring the right turn further north from 56th Street onto Harney Road into a right-angle will minimize conflicts between bicyclists and pedestrians with drivers turning onto Harney Road. A stop sign will also help decrease vehicle turning speeds (see Figure 64).

FIGURE 64. REMOVAL OF CHANNELIZED RIGHT TURN AT HARNEY ROAD INTERSECTION



Intersection Concepts

The study team prepared detailed concepts for the Hillsborough Avenue and Sligh Avenue intersections to show the potential intersection alternatives with all the geometric changes applied. **Similar changes are proposed at the other signalized intersections along the corridor.**

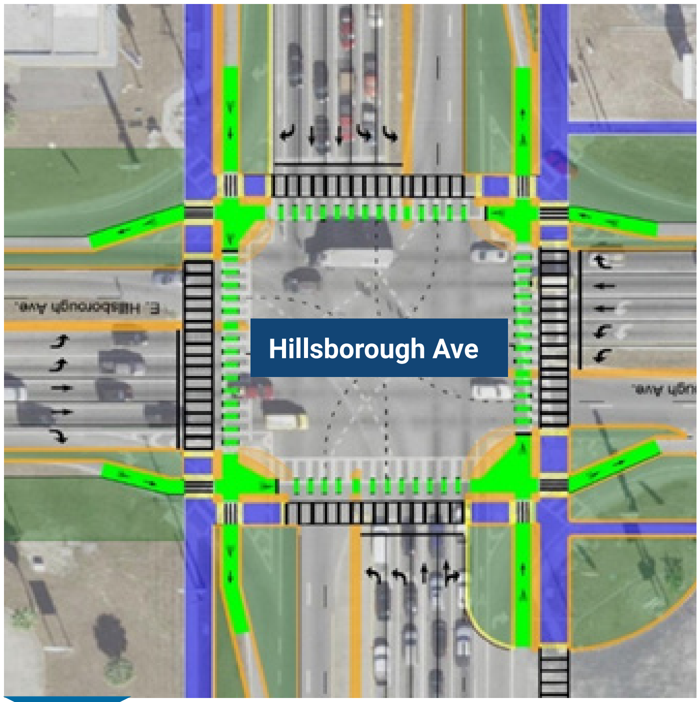
Even though geometric changes will increase vehicle delay during the peak hour, these concepts provide significant safety benefits to pedestrians and bicyclists—at all hours of the day—by reducing vehicle speeds and left-turn vehicle conflicts.

HILLSBOROUGH AVENUE CONCEPT

The intersection at 56th Street and Hillsborough Avenue is a crossroads for two high injury network segments from the TPO's Vision Zero Plan. For this intersection, the study team evaluated geometric changes, including removing the northbound right-turn lane and all existing channelized right-turns, against the no build scenario (see Figure 65 and Figure 66.)

FIGURE 65. HILLSBOROUGH AVENUE NO BUILD CONDITIONS

FIGURE 66. HILLSBOROUGH AVENUE ALTERNATIVE CONFIGURATION



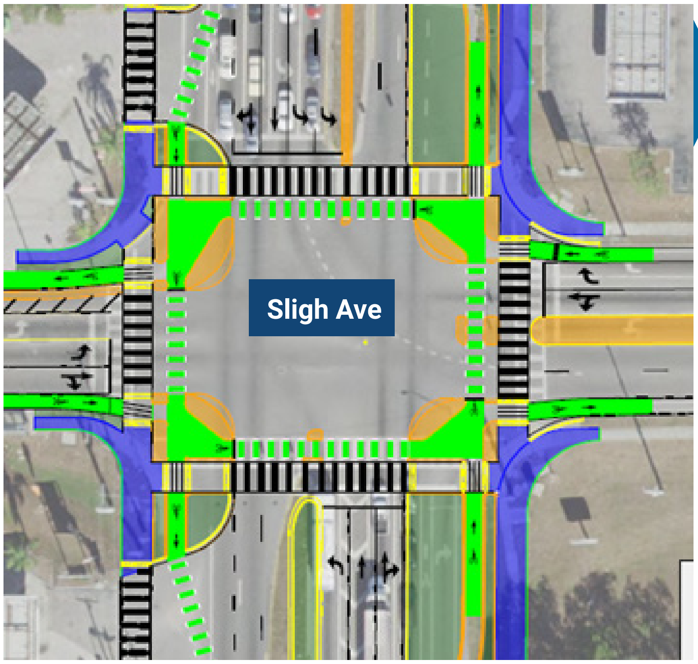
- Reduces turning speeds
- Reduces pedestrian crossing distance to 70 feet from 180 feet
- Provides space for protected bicycle intersection
- Expected to reduce crashes by 24 percent
- May reduce bicycle, left-turn, and angle crashes
- Increases average vehicle delay by three seconds during the PM peak hour

SLIGH AVENUE CONCEPT

King High School is located at the southeast corner of the Sligh Avenue intersection. Here, students frequently need to cross Sligh Avenue, but the current intersection configuration encourages vehicles to turn at high-speeds. For this intersection, the study team evaluated geometric changes, including removing the northbound right-turn lanes, the southbound right-turn lanes, and an eastbound through lane, against the no build scenario (see Figure 67 and Figure 68).

FIGURE 67. SLIGH AVENUE NO BUILD CONDITIONS

FIGURE 68. SLIGH AVENUE ALTERNATIVE CONFIGURATION



- Reduces pedestrian crossing distance to 70 ft from 120 ft
- Potentially reduces pedestrian, bicycle, left-turn, and angle crashes
- Potentially reduces vehicle speeds
- Provides space for protected bicycle intersection
- Reduces pedestrian delay from 64 seconds to 50 seconds
- Increases average vehicle delay by 15 seconds during the PM peak hour

Next Steps

In Hillsborough County, the segment adjacent to King High School is a priority for implementation. Collaboration between FDOT and Hillsborough Area Regional Transit (HART) is needed to prioritize new crosswalks for HART stops.

North of Riverhills Drive to Whiteway Drive

North of Riverhills Drive, the right-of-way narrows to 90 feet and the posted speed is 35 mph. Vehicles operate at 50 mph and faster. Currently, the road has four lanes with a turn lane and has 40,000 AADT. There is a sidewalk on both sides of the roadway. There is no dedicated bicycle facility, but there are sharrows on the outside lane. Bicycling activity is in the top 20 percent for all state roadways in District 7, and pedestrian activity is in the top 40 percent.

FIGURE 69. NORTH OF RIVERHILLS DRIVE TO WHITEWAY DRIVE SEGMENT MAP

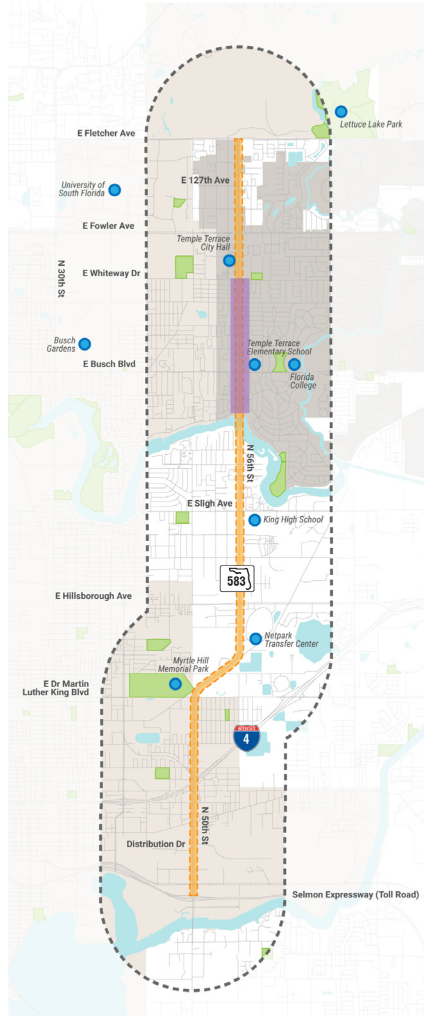
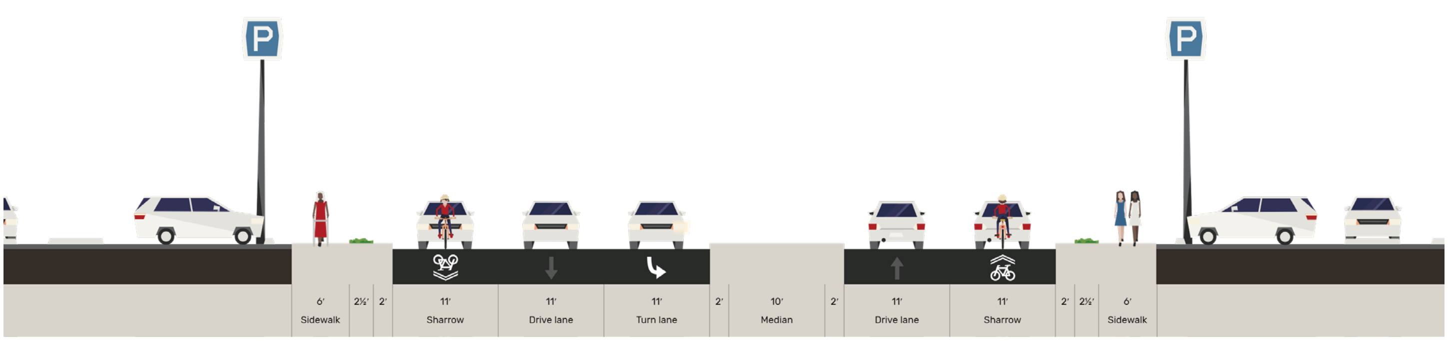


FIGURE 70. NORTH OF RIVERHILLS DRIVE TYPICAL SECTION



164' Existing ROW

Segment Challenges

At the Hillsborough River bridge, the corridor transitions from unincorporated Hillsborough County to the City of Temple Terrace. Sharrows are present along this segment. This segment has four vehicle lanes, and land uses are predominantly residential and commercial fronting the street. The street network becomes denser in Temple Terrace, and there are two schools: Temple Terrace Elementary School and Florida College to the east of the corridor.

Multimodal Conditions

- Pedestrian activity between Riverhills Drive and Busch Boulevard ranks in the top 20 percent of all district roadways.
- There are two main challenges to bicycle and pedestrian crossings:
  - Gaps in pedestrian crossing opportunities, including several gaps that are 0.5 miles or larger.
  - Large curb radii create long crossings (such as the one at Whiteway Drive)

Land Use

- This segment has a context classification of C4—Urban General from Riverhills Drive to 98th Avenue/Linda Avenue. Development of the community redevelopment area (CRA) between the Hillsborough River and Mission Hills Avenue supports street design that enables walking, biking, riding transit, and driving along the corridor.
- A bank and new multifamily residential units are being developed in the Temple Terrace CRA near Busch Boulevard. These new businesses will increase the need for safe pedestrian crossing opportunities.
- A residential development for people with visual disabilities called Hope Village is planned for the Temple Terrace CRA at Busch Boulevard and Overlook Drive (see Figure 71). The development includes audible pedestrian signals to help people walking cross Overlook Drive. Residents from this development will likely need to cross the study corridor to access shopping and area businesses.

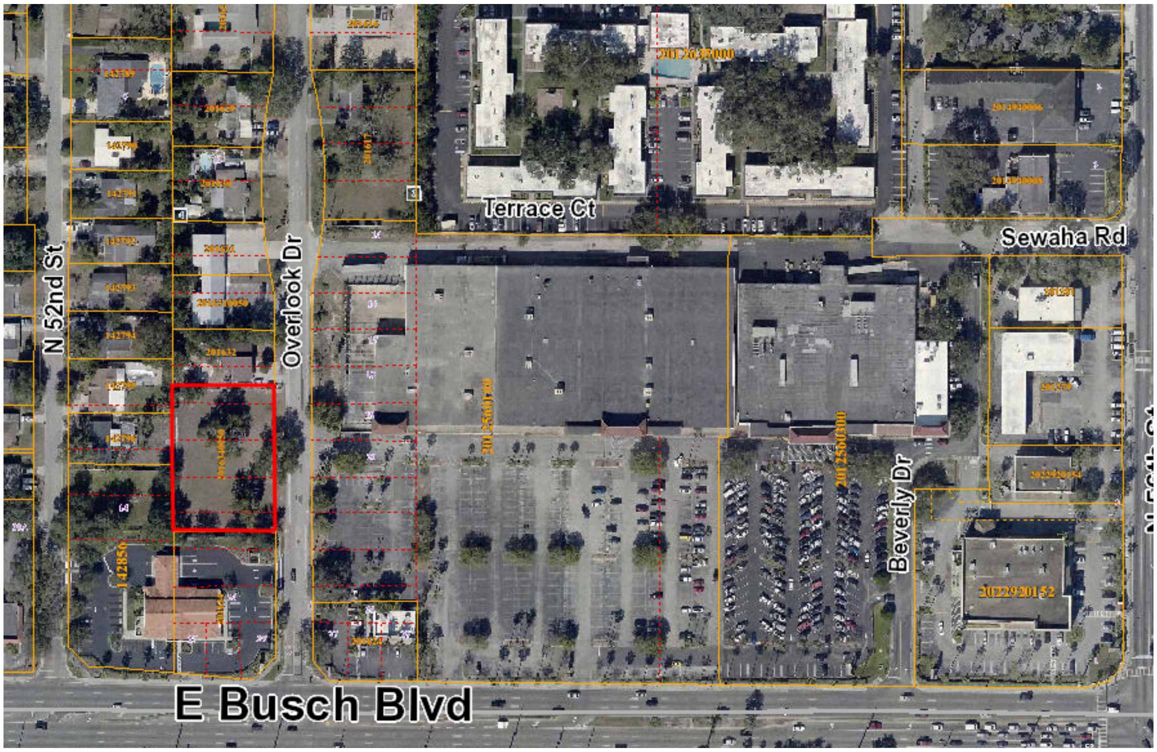
Operations

- Segments operating at LOS F include:
  - Northbound from Whiteway Drive to Fowler Avenue during AM and PM peaks
- Most signalized intersections (78 percent during the AM an PM peak hours) operate at LOS D or better. Intersections with movements at LOS F include:
  - Southbound from Temple Heights Road to Busch Boulevard during AM and PM peaks
  - 56th Street and Busch Boulevard (northbound left and southbound through/right)
  - 56th Street and Temple Heights Road (eastbound left)
  - 56th Street and Riverhills Drive (southbound through/right)

Crashes

- The posted speed between Riverhills Drive and Whiteway Drive is 35 mph, which is the lowest posted speed along the corridor. Even with such low posted speeds, this area experienced a high number of pedestrian and bicycle crashes over the past five years. There were 15 pedestrian and 7 bicycle crashes at intersections, and there were 6 pedestrian and 7 bicycle crashes along segments. As development continues throughout Temple Terrace, the number of people walking and biking through this area will likely increase.

FIGURE 71. SITE FOR HOPE VILLAGE



Hope Village will include marked crossings and accessible pedestrian signals at marked crosswalks to help residents access the destinations on 56th Street.

Speeding

- The 85th percentile speed for this segment is 53 mph.

Demographics

- North of the Hillsborough River, single-family and multifamily residential uses are more prevalent along the corridor and behind fronting uses. Residents here need safe crossing opportunities to access the nearby services to meet their daily needs.

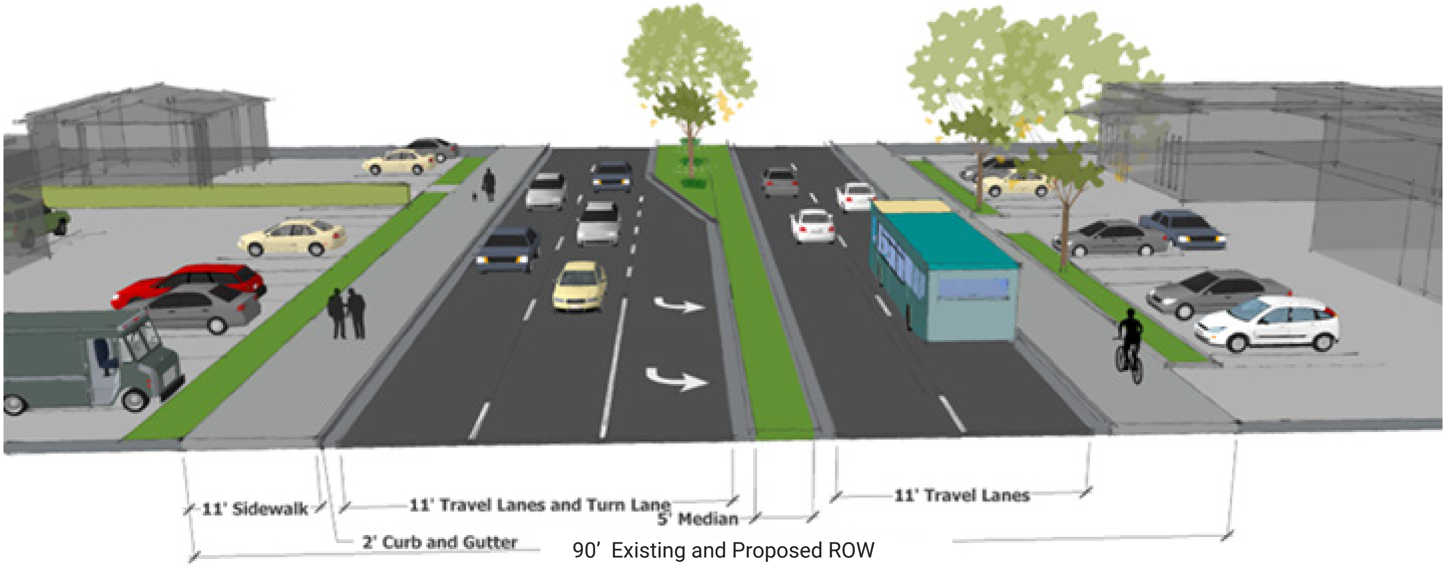
Transit

- There is high transit activity along Busch Boulevard and at the stops north and south of the intersection of 56th and Busch Boulevard. This indicates that transit riders are traveling from other parts of the region and transferring at Busch Boulevard.
- Busch Boulevard has bus stops with the highest activity (boarding plus alighting).

Segment Alternatives

ALTERNATIVE 1

FIGURE 72. NORTH OF RIVERHILLS DRIVE ALTERNATIVE A --11-FOOT PATH



Benefits

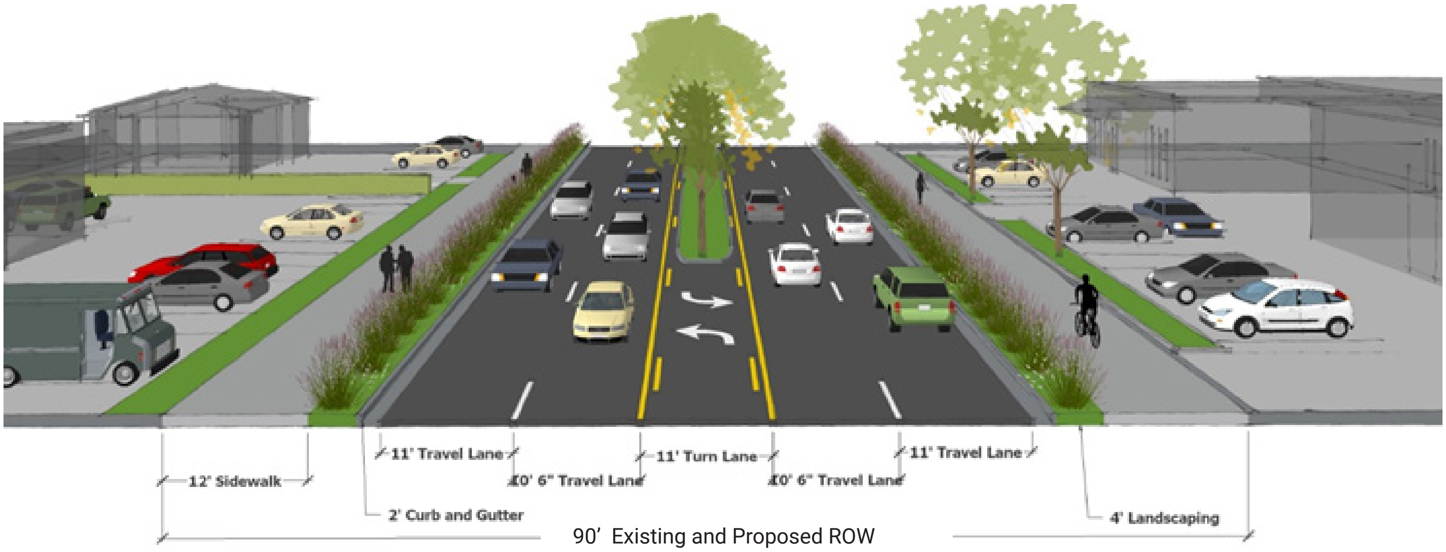
- Widens sidewalk to 11-foot-wide shared use path.
- Narrows median to reduce crossing distance.

Trade-Offs

- Requires moving or reconstructing curb and gutter (less cost-effective).
- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- Bicyclists and pedestrians must share the same facility.

ALTERNATIVE 2

FIGURE 73. NORTH OF RIVERHILLS DRIVE ALTERNATIVE 2 --12-FOOT PATH WITH SPOT MEDIANS



Benefits

- Widens sidewalk to 12-foot-wide shared use path.
- Reduces widths of inside through lanes and median to reduce crossing distance.
- Adds planting strip between path and outside vehicle lane.
- Uses spot medians to increase opportunities for local street connections, help create enclosure, and provide pedestrian refuge.

Trade-Offs

- Two-way bicycle travel creates more potential conflicts between vehicles and bicyclists at driveways when compared to one-way bicycle facilities. This can be mitigated by proper design, signage, and striping.
- Requires moving or reconstructing curb and gutter (less cost-effective).
- Bicyclists and pedestrians must share the same facility.

Alternative Evaluation

Alternatives 1 and 2 provide short-term and long-term options for the segment. The PAG generally preferred Alternative 2, but the study team carried forward both alternatives for more detailed evaluation.

Segment

Typical Section Changes	Duration	Needs	Cost	Drainage and Utility Impacts
ALTERNATIVE 1: 11' SIDEWALK WITH WIDE MEDIAN 			$3,000,000/ mile	• Adjust or remove traffic signal heads as needed. • Possible drainage impacts (15 ditch bottom inlets and six cross drains) with addition of west-side sidewalk. • Underground utilities are minimally impacted.
ALTERNATIVE 2: 12' SHARED USE PATH WITH SPOT MEDIANS 			$3,800,000/ mile	• Adjust or remove traffic signal heads as needed. • Installation of separated bike lane and curb will likely require adjusting or replacing drainage structures (31 ditch bottom inlets, one curb inlet, 11 cross drains). • Utility and light poles are minimally impacted, as existing typical width remains the same. • Underground utilities are minimally impacted

LEGEND

Meets Need | **Somewhat Meets Need** | **Does Not Meet Need**

1. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians
2. Design and operate street consistent with surrounding land uses to support existing and future place types
3. Provide better multimodal access for Communities of Concern
4. Improve bicyclist and pedestrian safety and comfort along the corridor
5. Improve transit access and service efficiency
6. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points
7. Support safe local resident and business access needs

Cost

$ <$50,0000
$$ $50,000 - $150,000
$$$ $150,001 - $500,000
$$$$ $500,001 - $1,000,000
$$$$$ >$1,000,000

Duration

Short Term
Medium Term
Long Term

Intersection

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
Riverhills Drive	Consider removing NB right-turn lane and striping next to SB left-turn lane to reduce crossing distance and create space for pedestrian refuge			$$
	Consider protected only-left turns			
	Improve signage for turning vehicles to yield to pedestrians			
Ridgeway Road	Consider raised crossing on west leg of intersection			$
Beverly Drive	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks			$$$
Chicago Avenue	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks			$$$
Grove Hill Road	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks			$$$
Winn-Dixie plaza north entrance	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks			$$$
The Fountain Shoppes at Temple Terrace entrance	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks			$$$
Bullard Parkway/ Busch Boulevard	Consider removing channelized WB right-turn			$$$$
	Remove WB departure lane			
	Extend median nose to serve as pedestrian refuge			
	Evaluate reducing pedestrian crossing distances using bulb outs			
Sewaha Road	Evaluate pedestrian crossing such as signalized RCUT			$$$$$
Temple Heights Road	Consider removing EB right-turn			$$$
	Consider protected only left-turns			
	Add north leg crosswalk			
98th Avenue	Evaluate pedestrian crossing			$$-$$$
	Evaluate median modification (directional/full closure)			

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
Mission Hills Avenue	Consider protected only left-turns			$
Serena Drive/Druid Hills Road	Consider relocating bus stops from south of the intersection to be closer to crosswalk			$-$$$$
	Evaluate shortening SB right-turn lane			
	Evaluate traffic or pedestrian signal			
	Evaluate median modification (directional/full closure)			
Whiteway Drive	Consider removing NB/SB right-turn lanes to reduce crossing distance and create space for a protected bicycle intersection			$-$$$$
	Extend median nose to serve as pedestrian refuge			
	Consider protected only left-turns			
	Evaluate golf cart crossing			
	Evaluate straightening north leg crosswalk			

Spot Treatment

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
Between Hillsborough River Bridge and Riverhills Drive	Evaluate a chicane on the south leg of Riverhills Drive			$$$
From Riverhills Drive to Temple Heights Road	Consider landscaped median			$$$

Traffic Operations

With the proposed changes, most intersections continue to operate at LOS D or better in the future. For more information about the traffic operations in this segment, see Appendix F.

Public & Stakeholder Feedback

The study team presented Alternatives 1 and 2 to the public during the second round of meetings, and Alternative 2 received all of the public's votes. Members of the PAG generally prefer Alternative 2.

Recommended Alternative

The preferred alternative is Alternative 2, a 12-foot-wide path with spot medians. Removing the existing outside lane sharrows will encourage bicyclists to use the path. With this alternative, bicyclists can also still travel in the vehicular lanes. This option leaves room for street trees and grassed separation between the path and outside vehicle lane and further supports lower driving speeds by narrowing the inside through lanes. Because roadway geometry is constrained in this section, the transition from a one-way, separated bike lane to a shared-use path will require further coordination with partner agencies.

Temple Terrace would like to see the study corridor north of Riverhills Drive to Serena Drive, serve as their main street and downtown area. The recommended alternative supports the City's desire to be a pedestrian- and bicycle-friendly community with street trees, raised crosswalks, and increased intersection density (see Figure 74).

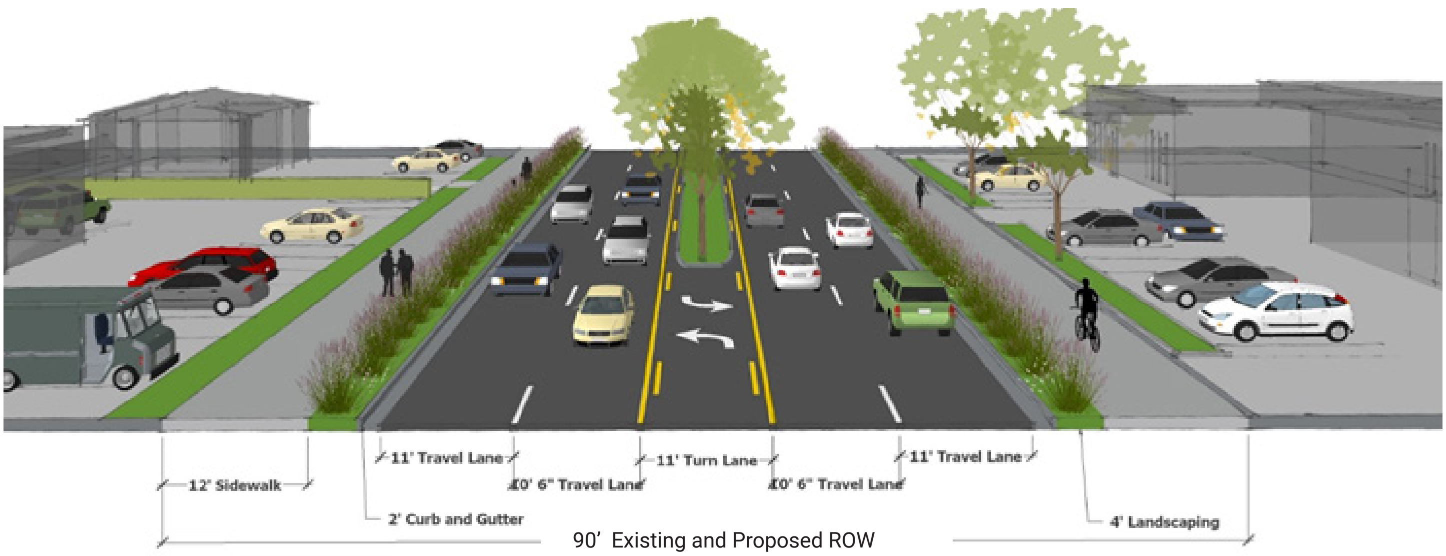


FIGURE 74. TEMPLE TERRACE MAIN STREET AREA SKETCH

Next Steps

The segment from the Hillsborough River to Busch Boulevard has been identified as a resurfacing candidate (FPID 451457-1) with the potential to be funded in the next few years. To prepare, the recommended alternatives and suggested strategies should be presented to Temple Terrace City Council. The City also recommends additional outreach to educate the community on the differences between speed bumps and raised crosswalks.

For the City of Temple Terrace, landscaping is both an important safety and comfort factor for people walking and biking and an important placemaking feature for the downtown area. If this alternative is advanced, the City would likely enter into a maintenance agreement in which FDOT would install landscaping (such as street trees) and the City would be responsible for maintenance. To install a golf cart crossing in Temple Terrace on East Whiteway Drive, FDOT and the City will need to agree on design specifications.

North of Whiteway Drive to Fletcher Avenue

North of Whiteway Drive to the north end of the study corridor at Fletcher Avenue, right-of-way widens to 164 feet. The segment has 19,000 AADT and lower traffic than all other segments of the corridor. The 45 mph posted speed changes to 50 mph at Fowler Avenue, and vehicles operate at 50 mph and faster. This segment has narrow sidewalks and on-street bicycle lanes on both sides of the roadway. A wide grassed area separates the sidewalk and on-street bicycle lanes, but there is no vertical separation between the bicycle lanes and vehicle lanes. Bicycling activity is in the top 20 percent for all state roadways in District 7, and pedestrian activity is in the top 40 percent.

FIGURE 75. NORTH OF WHITEWAY DRIVE TO FLETCHER AVENUE SEGMENT MAP

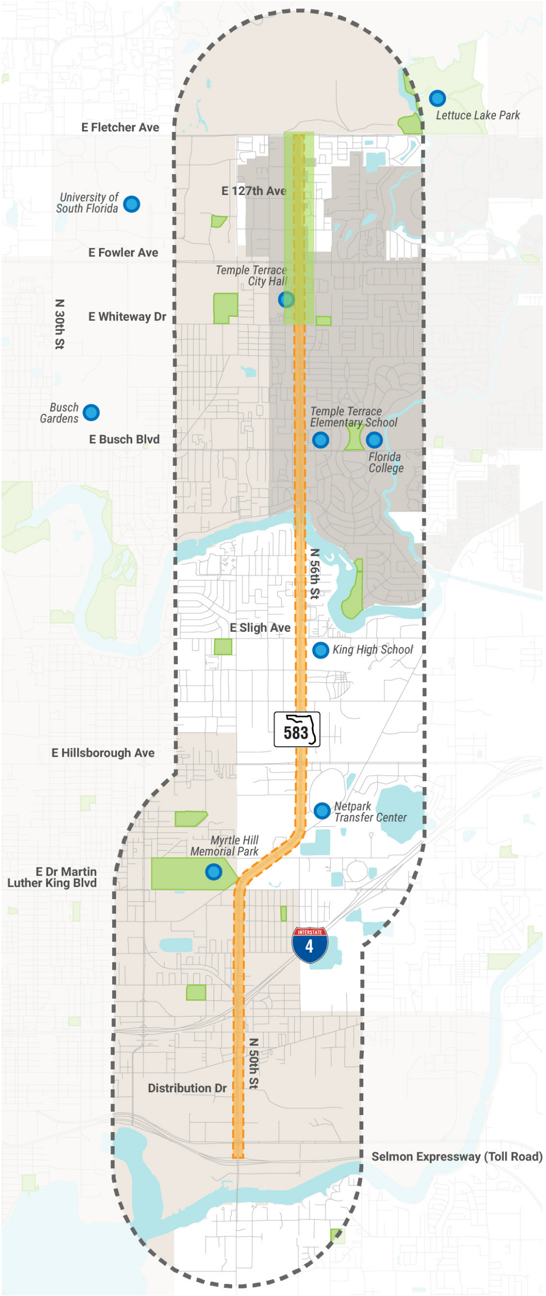
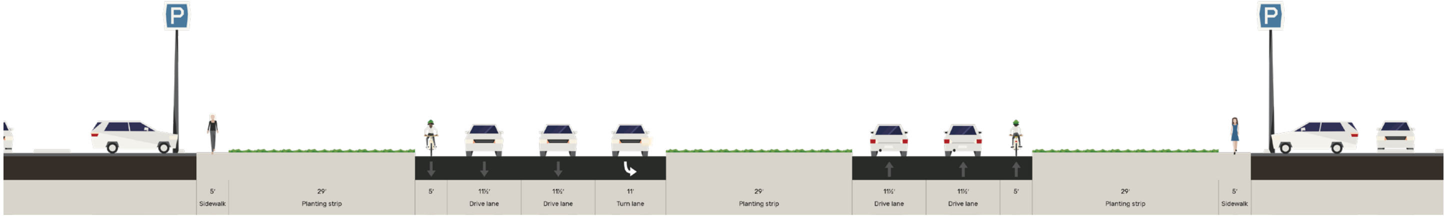


FIGURE 76. NORTH OF WHITEWAY DRIVE TYPICAL SECTION



164’ Existing ROW

Segment Challenges

North of 122nd Avenue, the corridor transitions from the City of Temple Terrace to unincorporated Hillsborough County. On street bike lanes are found throughout this segment of the corridor. This segment has four vehicle lanes, and land uses are predominantly residential and commercial fronting the street. The University of South Florida is located northwest of Fowler Avenue.

Multimodal Conditions

- There are two main challenges to bicycle and pedestrian crossings:
  - Gaps in pedestrian crossing opportunities, including several gaps that are 0.5 miles or larger.
  - Large curb radii create long crossings.

Land Use

- This segment has a context classification of C4—Urban General from Whiteway Drive to Fowler Avenue and C3C—Suburban Commercial from Fowler Avenue to Fletcher Avenue. Plans for a USF stadium to the west of the segment are in place and need to be considered.

Operations

- Most signalized intersections (78 percent during the AM an PM peak hours) operate at LOS D or better. Intersections with movements at LOS F include:
  - 56th Street and Fowler Avenue (northbound through and northbound right).

Crashes

- The Fowler Avenue intersection had the highest number of bicycle and pedestrian crashes in the study corridor, with seven pedestrian and eight bicycle crashes in the last five years.

Speeding

- There are several posted speeds through this segment:
  - 45 mph from south of Whiteway Drive to Fowler Avenue.
  - 50 mph from Fowler Avenue to Fletcher Avenue.
- The 85th percentile speed for this segment is 53 mph.

Demographics

- The census block groups south of Fowler Avenue are some of the most transportation disadvantaged in the entire study area, and many people here are experiencing extreme poverty. With nearby transit activity and many people walking and biking, this area should be designed for safe speeds and multimodal improvements.

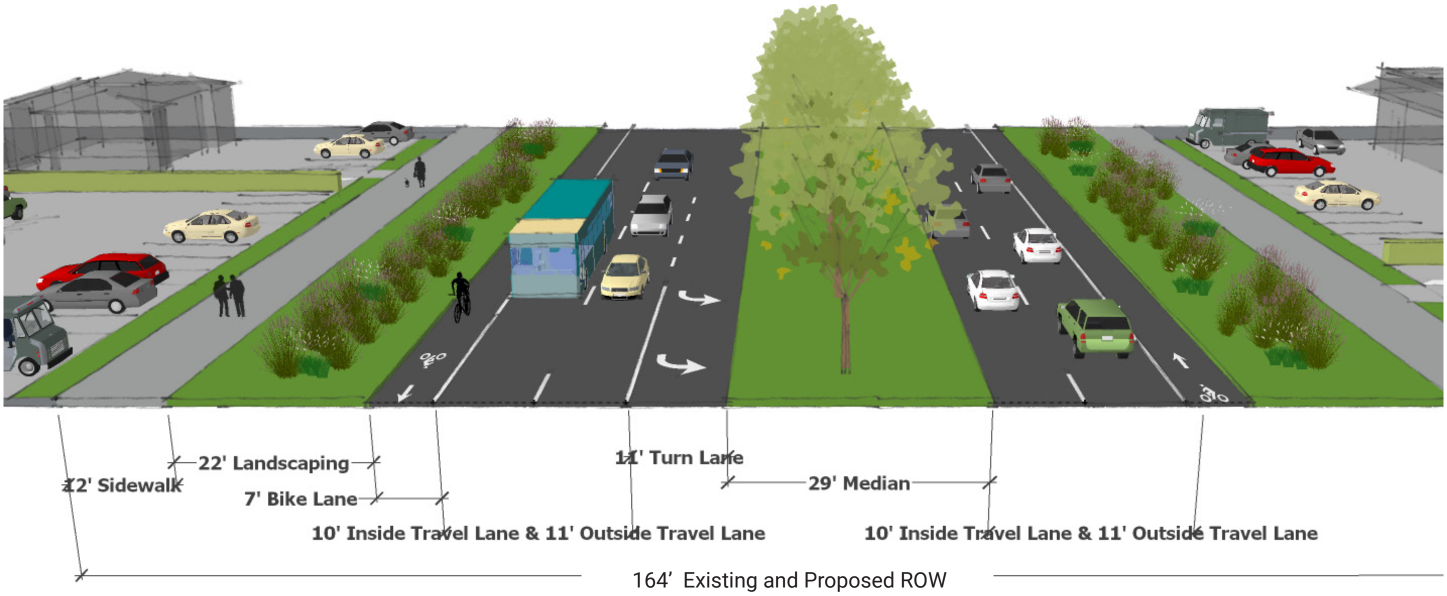
Transit

- Fowler Avenue has bus stops with the highest activity (boarding plus alighting).

Segment Alternatives

ALTERNATIVE 1

FIGURE 77. NORTH OF WHITEWAY DRIVE ALTERNATIVE 1—12-FOOT PATH MAINTAINS PAVEMENT



Benefits

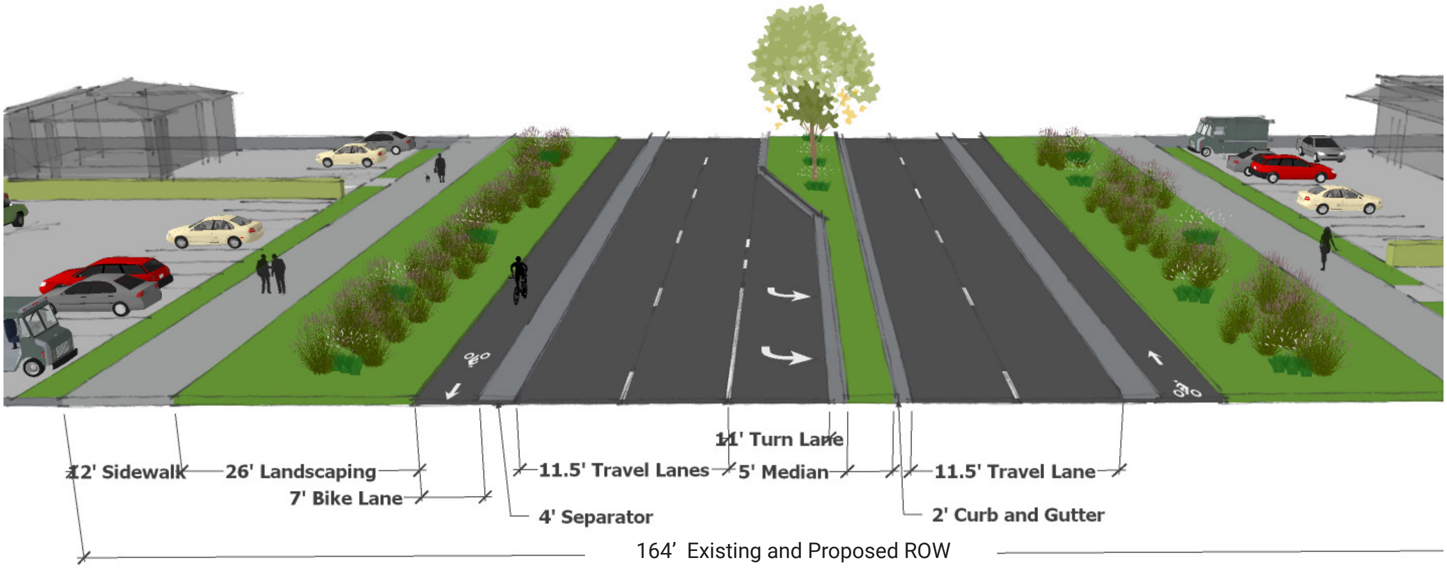
- Widens sidewalk to a 12-foot-wide shared use path.
- Maintains existing paved area and minimizes drainage impacts (more cost effective).
- Narrows through lanes and increases on-street bike lane buffer.

Trade-Offs

- No vertical separation between bicyclists and vehicles.
- Minimal speed management treatments with open drainage.

ALTERNATIVE 2

FIGURE 78. NORTH OF WHITEWAY DRIVE ALTERNATIVE 2—12-FOOT PATH WITH ONE-WAY SEPARATED BIKE LANES



Benefits

- Widens sidewalk to 12-foot-wide shared use path.
- Adds curb and gutter for increased speed management.
- Includes a separated, one-way bicycle lane, which would decrease potential conflicts between vehicles and bicyclists at driveways compared to a two-way bicycle facility.
- Narrows median to reduce crossing distance.

Trade-Offs:

- Potentially more costly since it adds a curb.

LEGEND

1. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians
2. Design and operate street consistent with surrounding land uses to support existing and future place types
3. Provide better multimodal access for Communities of Concern
4. Improve bicyclist and pedestrian safety and comfort along the corridor
5. Improve transit access and service efficiency
6. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points
7. Support safe local resident and business access needs

Cost

- $ <$50,0000
- $$ $50,000 - $150,000
- $$$ $150,001 - $500,000
- $$$$ $500,001 - $1,000,000
- $$$$$ >$1,000,000

Duration

- Short Term
- Medium Term
- Long Term

Alternative Evaluation

Alternatives 1 and 2 provide short term and long-term options for the segment. The PAG generally preferred Alternative 2, but both alternatives were carried forward for further evaluation.

Segment

Typical Section Changes	Duration	Needs	Cost
Alternative 1: 12' SHARED USE PATH WITH ONSTREET BIKE LANES 			$3,000,000/mile
Alternative 2: 12' SHARED USE PATH W/ ONE-WAY SEPARATED BIKE LANES 			$3,800,000/mile

Intersection

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
113th Avenue	Evaluate pedestrian crossing			$$$
Fletcher Avenue	Upgrade crosswalks to high-emphasis striping			$
	Evaluate signal timing optimization			

Spot Treatment

Intersection Name	Treatment to be Considered	Duration	Needs	Cost
From Whiteway Drive to Fletcher Avenue	Evaluate median modification to provide horizontal deflection			$$$$$
At Graduate Circle Driveway	Evaluate pedestrian crossing			$$$
From Temple Heights Road to Fowler Avenue	Eliminate continuous NB right-turn lanes into businesses			$$$
	Consider landscaped medians			

Traffic Operations

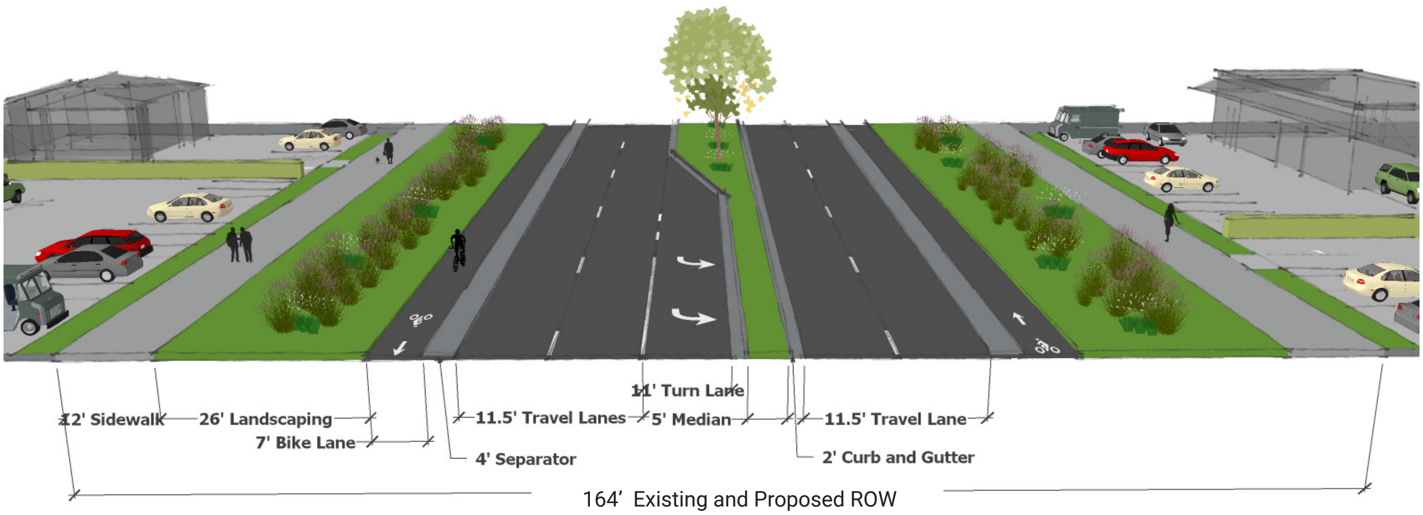
With the proposed changes, most intersections will operate at LOS D or better in the future. Although the recommended alternative will increase vehicle delays at Fowler Avenue by about ten seconds, the roadway's facilities will be significantly safer for pedestrians and bicyclists. For more information about the traffic operations in this segment, see Appendix F.

Public & Stakeholder Feedback

The study team presented Alternatives 1 and 2 to the public during the second round of meetings, and Alternative 2 received all of the public's votes. Members of the PAG generally prefer Alternative 2.

Recommended Alternative

The preferred alternative is a 12-foot-wide shared use path with one-way separated bicycle lanes. The alternative separates the shared use path from vehicle lanes with a wide grassed area. This alternative creates continuity in the bicycle facility from the segment to the south.



Next Steps

North of Fowler Avenue, 56th Street is maintained by Hillsborough County and within the city limits of Temple Terrace. FDOT does not have jurisdiction here. Hillsborough County should coordinate with Temple Terrace to determine which treatments to advance and to select appropriate traffic control devices. Hillsborough County would pay for and maintain the devices, as part of an agreement between the County and City. In coordination with Temple Terrace, the County supports exploring signal optimizations at Fletcher Road to shorten time pedestrians must wait to cross 56th Street.

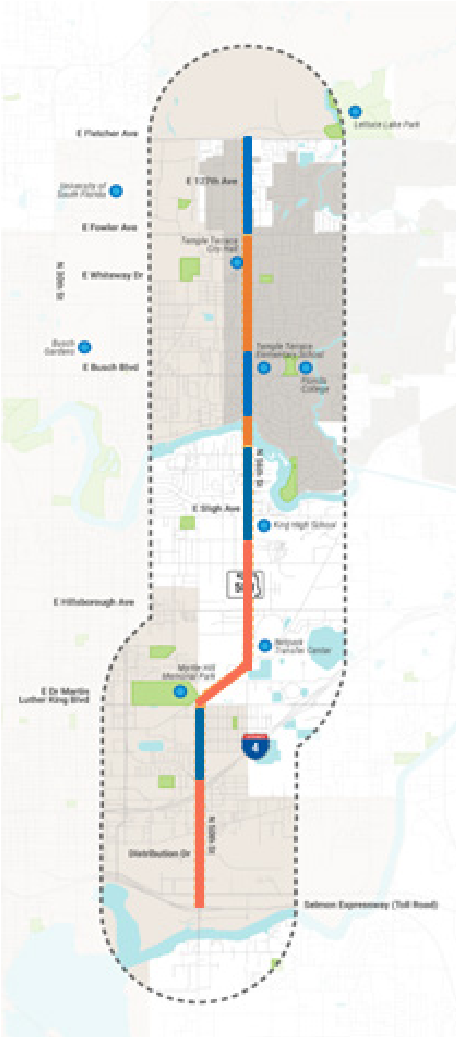
IMPLEMENTATION & FUNDING

This section summarizes project priorities developed by each jurisdiction's PAG members and identifies potential funding opportunities and partnerships.

To facilitate the discussion about project priorities with each jurisdiction, the study team divided the corridor into eight segments. FDOT can use these segments to program projects according to what each jurisdiction prioritizes. Each segment is defined by its jurisdiction, land use, context classification, and roadway geometry.

	Jurisdiction	Land Use	Context Classification	Geometry
Selmon Expressway to Melburne Boulevard/ 21st Avenue	City of Tampa	Heavily Industrial	C3C Suburban Commercial	Six Lanes
Melburne Boulevard/ 21st Avenue to MLK Boulevard	City of Tampa	Mixed Residential & Commercial	C4 Urban General	Four Lanes
MLK Boulevard to Diana Street	Hillsborough County	Mixed Industrial & Commercial	C3C Suburban Commercial	Four Lanes
Diana Street to South of Bridge	Hillsborough County	Mixed Residential & Commercial; includes King High School	C3C Suburban Commercial	Four Lanes
Bridge	City of Temple Terrace	N/A	C4 Urban General	Four Lanes
South of Riverhills Drive to Temple Heights Road	City of Temple Terrace	Commercial; Envisioned Main Street	C4 Urban General	Four Lanes
Temple Heights Road to Fowler Avenue	City of Temple Terrace	Mixed Residential & Commercial	C4 Urban General	Four Lanes
Fowler Avenue to Fletcher Avenue	Hillsborough County	Mixed Residential & Commercial	C3C Suburban Commercial	Four Lanes

FIGURE 79. PROJECT PRIORITIES SEGMENTS



Prioritization

As part of the final PAG meeting, the City of Tampa, Hillsborough County, and the City of Temple Terrace identified project segments and next steps. The PAG developed project priority ideas and treatments along the study corridor.

The City of Tampa

The City generally prioritizes improvements based on a reduction of serious injury and fatal crashes per mile. Its priority improvements for this corridor are:

- Additional pedestrian crossings.
- Intersection geometry modifications, including removing channelized right turns.
- Median modifications.

To implement the preferred alternative with one-way separated bicycle lanes, the City recommends a phased approach in which the curb is maintained. Sidewalk widening could follow when additional funding is available.

Hillsborough County

The County wants to prioritize Sligh Avenue and the segment adjacent to King High School because of speeding and safety issues. The County also wants to prioritize new crosswalks for transit stop access where there are none at:

- 56th Street and Cone Road
- 56th Street and Pitch Pine Circle
- 56th Street and the King High School south entrance

City of Temple Terrace

A resurfacing candidate project from the Hillsborough River to Busch Boulevard aligns with the City's priority segment for implementation. As part of this project, the City wants to evaluate a signal and raised crosswalks at Grove Hill Road. These improvements would begin to connect the roadway grid. To connect City Hall with the east side of the corridor, the City wants to prioritize the crosswalk on East 113th Avenue.

Funding Partners

There are many funding opportunities that can help address the study corridor's transportation challenges along the corridor.

Local and Regional Funding

Community redevelopment agencies (CRAs) can help fund improvements within their boundaries. CRAs can often fund treatments beyond FDOT's scope, and they can be helpful maintenance partners for landscaping and other aesthetic treatments.

The East Tampa CRA (ETCRA) covers the study corridor from I-4 to Dr. Martin Luther King Jr. Boulevard and can provide funding for sidewalks, bike and pedestrian facilities, lighting, and tree planting. Eligible projects include those that reduce high-speed traffic by implementing traffic calming devices; those that address infill street and park lighting to enhance nighttime safety; improve sidewalks and crossings for Safe Routes to School; landscaping and streetscape upgrades; support the completion of City bike routes and trails; improve transit stations; and those that improve drainage concerns.

The Temple Terrace CRA covers the Downtown Business District from the Hillsborough River to East 98th Avenue/ Linda Avenue. The CRA funds projects related to reducing traffic hazards and improving traffic facilities.

The Hillsborough TPO can help implement projects through its annually updated Transportation Improvement Program (TIP). Prioritized projects must align with the TPO's Long-Range Transportation Plan, which also includes county-wide safety and multimodal improvements. Although the TPO does not offer funding opportunities, it works in partnership with FDOT, HART, Hillsborough County, Temple Terrace, and the City of Tampa to prioritize projects and ensure they align with regional goals.

State Funding

Resurfacing, restoration, and rehabilitation (RRR) work managed by FDOT can fund numerous treatments:

- Safety improvements needed to address crash problems
- Modifications necessary to comply with the Americans with Disability Act
- Paved Shoulders
- Improvements to roadside barriers and guardrail necessary to meet minimum standards
- Improvements to bridge rails necessary to meet minimum standards
- Traffic signal mast arms within the mast arm policy area where existing strain poles require replacement or relocation (see FDM 232.8.1)

But other improvements can be included with the RRR projects, such as lighting, safety and operational improvements, signalization, and minor roadway widening with additional funding. For example, RRR project funding can be combined with CRA funding to improve safety and beautify the corridor.

Federal Funding

The Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), is a historic piece of federal legislation with $1.2 trillion in infrastructure spending. The BIL includes almost $300 billion to modernize and improve transportation, and it authorizes a significant overall increase in funding levels for existing and new transportation programs. The increase of approximately 30 percent in federal-aid formula programs also has a built-in escalation between two and three percent annually through 2026.

There are several BIL grant programs applicable to study corridor alternatives, and partnerships with Hillsborough County, the City of Tampa, the City of Temple Terrace, and the TPO will be crucial to win these grants:

- **Safe Streets & Roads for All** (SS4A) focuses on reducing fatalities and serious injuries, equity and engagement, and effective practices and strategies. Eligible activities include action plans, implementation plans, and specific segment-level projects.
- **Reconnecting Communities Pilot Program** (RCP) includes grants for planning and projects to remove, retrofit, or mitigate existing roadways that were built through neighborhoods and created a barrier to mobility and economic development.
- **Strengthening Mobility & Revolutionizing Transportation** (SMART) addresses projects that use smart city technologies to improve transportation for efficiency and safety. Because public transit agencies are also eligible for this grant opportunity, HART and the Hillsborough TPO can work together to upgrade transit facilities and traffic signals for corridor bus stops and routes.
- **Rebuilding American Infrastructure with Sustainability & Equity** (RAISE) funds road, rail, transit, and port projects that have significant local or regional impact.

NEXT STEPS

The study corridor has significant multimodal safety issues, and it is home to many people who are more vulnerable to fatal and serious injury crashes. The Hillsborough TPO's *Vision Zero Action Plan* identified 50th Street from Dr. Martin Luther King Jr. Boulevard to Hillsborough as the ninth highest crash corridor in Hillsborough County. The plan ranks 56th Street from Sligh Avenue to Busch Boulevard/Bullard Parkway as fifteenth in the county.

FDOT has a critical opportunity to address segment and intersection safety for study area communities. Some improvements can be implemented immediately, and others will require working with local partners over several years. Numerous funding sources exist to get projects implemented.

Addressing the safety and comfort challenges along the 56th/50th Street corridor will advance the Hillsborough TPO's Vision Zero efforts and FDOT's Target Zero initiative. Together, FDOT, local agencies and governments, and the public can set the example for state roadways in District 7 and across the state.

Appendix A

Stakeholder Engagement and Outreach

MEETING SUMMARY

ELECTED OFFICIALS KICK-OFF MEETING

May 20, 2020
1:00 PM – 2:00 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for the 56th/50th Street from Selmon Expressway to Fletcher Avenue. The following identifies the attendance and outlines the key comments that were discussed during the meeting.

Attendees:

Alex Henry, FDOT	Michelle Van Loan, City of Tampa
Brian Shroyer, FDOT	Cheri Donohue, City of Temple Terrace
Jonah Katz, Hillsborough County	Andrew Ross, City of Temple Terrace
Eric Lindstrom, Hillsborough County	Charles Stephenson, City of Temple Terrace
Jason Marlow, Hillsborough County	Justin Willits, HART
Richard Ranck, Hillsborough County	Clarence Eng, Kimley-Horn
Wanda West, Hillsborough County	Caroline Fraser, Kimley-Horn
Meagan Winchester, Hillsborough County	Jennifer Musselman, Kittelson & Associates
Mark Hudson, Hillsborough Planning Commission	Ryan Mansfield, Kittelson & Associates
Wade Reynolds, Hillsborough TPO	Mary Raulerson, Kittelson & Associates
Alana Brasier, City of Tampa	Leyi Zhang, Kittelson & Associates

Meeting Goal:

The goal of the meeting was to provide an overview of the project, gather information from the elected officials on the existing conditions of the corridor and the desired future vision of the corridor, and discuss how to engage different groups throughout the study.

Meeting Highlights:

56th Street Today

Attendees were asked to describe what they like about the 56th Street today:

- Through way
- Connections
- Access
- Job Center

- Straight Connection

56th Street in the Future

Attendees were asked to describe what they would like to be different the 56th Street in the next 10 years:

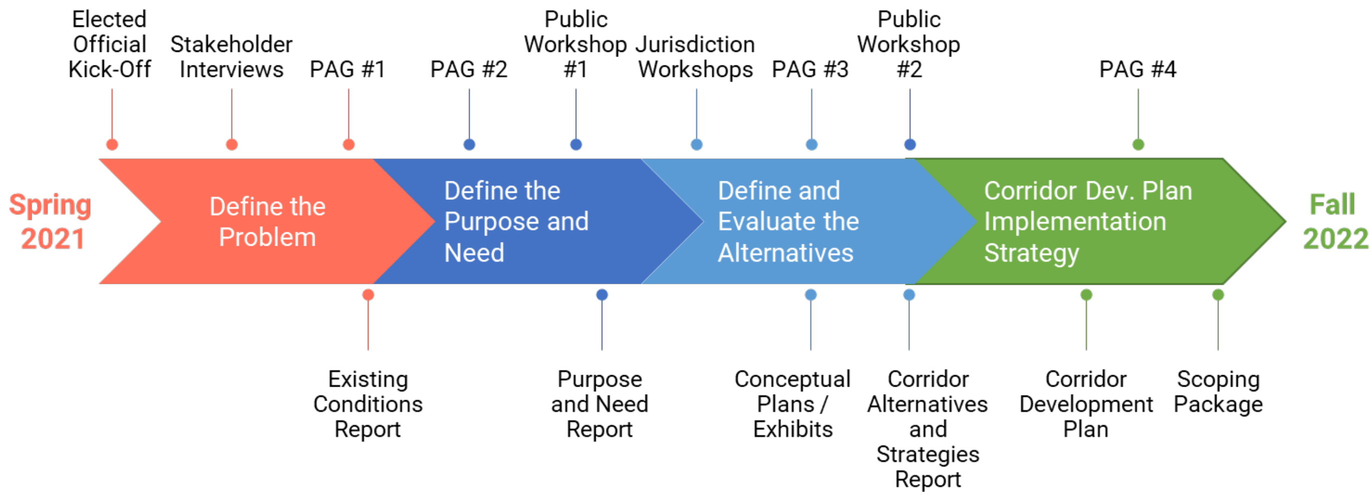
- Placemaking - making it a place to be
- Better bike routes
- Multi model options beyond sharrows
- More landscaping
- Wider
- Attractive
- Safer

Project Schedule

The proposed schedule is 18-months, with the study ending in Fall 2022. The project will be conducted in four phases:

1. Define the Problem
2. Define the Purpose and Need
3. Define and Select Alternatives
4. Corridor Development Plan Implementation Strategy

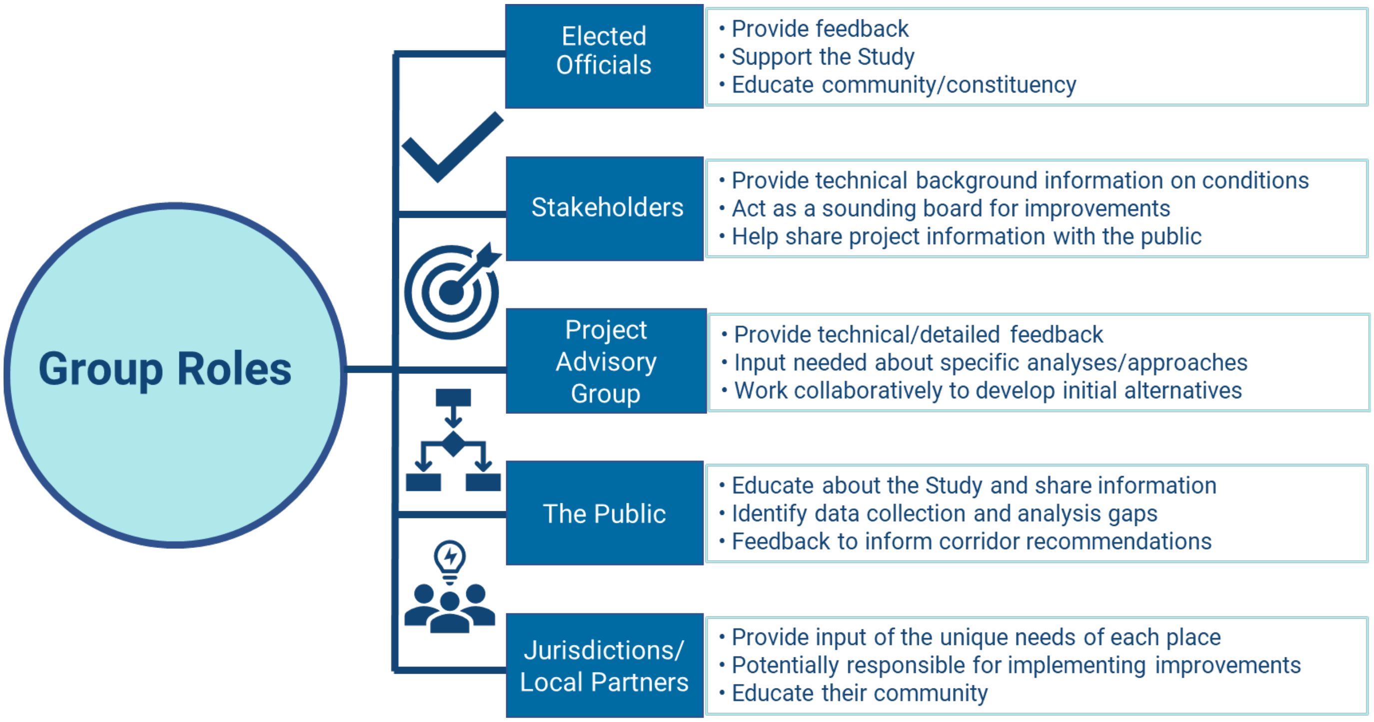
The following graphic illustrates the timing of deliverables and public involvement milestones.



56th/50th STREET CORRIDOR STUDY

Group Roles:

The following graphic illustrates the roles of different groups that will be engaged throughout the study:



Stakeholders to Interview:

Attendees provided the following suggestions for stakeholders to interview:

- Port Authority
- Hillsborough River Board
- Industrial realtors and brokers
- Churches
- CSX
- King High School
- Property managers of the large multifamily apartments
- Transit riders
- Business owners

Elected Officials' Comments:

City of Temple Terrace Mayor Andrew Ross was concerned that the study would only be focusing on the vision zero segments of the corridor (from Sligh Avenue to Busch Boulevard). The Study Team explained that the Hillsborough TPO's Vision Zero Action Plan serves as an impetus for the study, but the study will examine the whole 8.5 miles of 56^{th}/50^{th} Street from Selmon Expressway to Fletcher Avenue.

Other Comments:

HART staff asked if an exclusive transit lane could be considered. The Study Team explained they'd be working with PAG members, including HART, to identify and vet alternatives and an exclusive transit lane could be discussed as part of that process.

Attachments

- Presentation Slides

Stakeholder Interview Notes

City of Tampa

Attendees:

- Alana Brasier, City of Tampa
- Andy Mikulski, City of Tampa
- Calvin Hardie, City of Tampa
- Danni Jorgenson, City of Tampa
- Jonathan Scott, City of Tampa
- Margaret Kubilins, City of Tampa
- Stephen Benson, City of Tampa
- William, City of Tampa
- Jennifer Musselman, KAI
- Sigal Carmenate, KAI

Meeting Notes:

- What is your role in the agency/organization?
  - Alana – Vision Zero Coordinator
  - Andy – Urban Design Coordinator
  - Calvin – Project Manager for Trans.
  - Danni – Transportation PL in Mobility Dept
  - Jon – Development and Growth Management
  - Margaret – Smart Mobility Chief Engineer
  - William – Mobility Traffic investigations supervisor
- What issues do you see along the corridor?
  - Strong Vision Zero component, MPO identified this corridor on their Vision Zero list
  - in recent update, City Action Plan also identified on High Injury Network; safety is a big issue
  - can sometimes be forgotten about in a way
- What safety-specific issues have you observed on the corridor?
  - Next steps are to dig into safety issues on corridor
  - KAI also helping City with VZAP
  - Speed is probably a major factor
  - Freight corridor, close to I4 and Selmon E – lends itself to a lot of larger truck traffic
  - Probably conflicts between modes (between going to/from land uses on the corridor)
  - NetPark generates a lot of transit riders on this area
  - Margaret – priority areas to implement LPI in this corridor
    - Asking to take diff approach on signal timing to control speed

        - Implementation in 2019 or 2020 – when using crash data see if changes occurred in that timeframe
        - North of river – roadway characteristics change
        - Changed posted speed recently
    - William - a lot of schools south of MLK
        - 50th St as hazardous
        - School District supplies resources to help students cross?
        - Grant Park, East Tampa, East of Columbus or Broadway has safety issues (trucks, parking)
        - 26th Ave vehicles going in and out a lot – regular complaints here
        - MLK/50th St intx might have fatalities from roadway departure or something…
            - People running through the stop sign
            - Popped up on HIN; many turning conflicts
        - Broadway truck route
        - Industrial area south of tracks – different contexts and difficult to tie into the rest of the corridor which is more commercial/suburban
            - Might be three red light running light cameras (non operational?)
        - Being able to get in/out Washington onto 50th
            - Maybe younger Crew drivers from Tampa Prep (and multiple other high schools) – so younger drivers around here
            - City to update Washington into a more proper roadway
    - Stephen – will send City's speed limit reduction initiative (existing posted/operating 40+ to be reduced)
        - North side of Palm River to MLK is in City Limits
        - South of Broadway have heavy/light industrial uses
        - Once north of I4, transition into commercial and MFR and SFR
            - Residents Federally Designation protected groups; CoC
        - Taking a look at Melbourne Blvd (outside study area) – at intersection of 50th St is problematic
        - Adjacent FDOT project 433071-2 N 62ns St Access Imp (CSX facility to Columbus Drive)
            - Utilized 41 and turns into Columbus and into 62nd St
            - SIS facility
- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
    - Would like to see some offset RRFB crossings for peds in City Limits
        - 24/26 Ave has facilities on both sides of roads for folks
    - Multiuse path. Separated bike facility.
    - 10th Ave improvement
    - Something south of the railroad tracks toward Alamo, consider crossing

- Interchange at I4 – references SR #s but confusing to know which way Columbus or 50th is; going NB looks like frontage road
    - Consider pavement marking, signage
    - Exit 3 and touchdown to Columbus hard to tell
    - Pay extra attention to crossings and MFR residences wedge between I4 and industrial land uses
- Explore for wider shared use paths rather than on-street bike lanes
    - Seems like most places have enough ROW
- Calvin – generally, keep on-street BL and off-street facility as speed management and for lack of funds to move curb
    - Signage for whichever facility people want to use
- William – some people will bike on road
    - Maintenance on bike lanes, street sweeping, are issues that arise
- For the major intersections where there's high frequency of pedestrian potential with Bulbouts, High emphasis paint for crosswalks, have adequate lighting
- Any conversations about taking down to four lanes?
    - Not aware of discussions had about this
    - City always looks for opportunities to reallocate space; look at initial volumes and potential and see what the impact of doing this
    - HART might want dedicated bus lanes.
    - Southern part north of I4 in East Tampa Overlay (exists overlay)
        - Interested in design standards in this overlay; whole corridor needs improvements
    - Wants to see ped friendly designs on corridor in that section
- 50th was six-laned in modeling world where connector didn't exist
    - 50th is access to CSX yard
- 21st Ave is an important connector to adjacent uses along it

- Are there areas within the study area with a focus in growth or redevelopment to help achieve community vision plans?
    - Prelim engineering study from Melbourne to Nebraska is bike/ped project
    - FDOT managing prelim engineering for that project (Kevin Lee; JMT in-house)
        - Might have recommendations connecting to 50th
    - Limited amount of industrial land in city limits; continues to be transitioned to other uses
    - Comp Plan to preserve existing industrial areas
    - South of Selmon E by River will be big apartment development
    - Elevated development activity in city, and less likely on this corridor
- Are you aware of any effort that overlaps, or impacts this study? / What ongoing/planned projects do you have in the area?
    - Walk/Bike 2
    - Walk/Bike 1 – Serena crossing at Temple Terrace?
    - Meet with IP! (Sarah Hendricks w/ USF)
- Land mines?

    - Someone else with good info is Calvin Thornton lives in this area
- PAG
    - Will send names of who will participate in PAG
        - Alana will follow-up

City of Temple Terrace Civic Neighborhood Associations

Attendees:

- Camilo Clark, Victoria Terrace Community
- Lesem Ramos, Terrace Park Neighborhood Association
- Jennifer Musselman, KAI
- Leyi Zhang, KAI

Meeting Notes:

- What is your role in the agency/organization?
    - Victoria Terrace Community – Camilo
    - Lesem – Terrace Park Neighborhood Association
        - Even further west of Adventure Island
- How do you use the corridor today? How does your community/business rely on the corridor today?
    - No walk or bike along 56th St (not comfortable there)
    - Seems like everyone is in a hurry
    - Lesem – walked, biked and traveled corridor often
        - Works in NetPark – but doesn't take bus to NetPark; works remote and has vehicle (more convenient to drive)
- What issues do you see along the corridor? Do you have any safety concerns?
    - Common complaints from Lesem's pov
        - Increase in cars and traffic
        - Congestion issues have worsened
        - Has child in King HS – that area needs to be safer to get kids across street and through the intersection
        - Getting into Sligh poses many congestion challenges; heaviest getting into Hillsborough County
        - From bicyclists pov – painting bike lanes and more separation between BL's and vehicle lanes
            - Elevate motorists awareness
            - Drivers weave into the BL
            - Ideally would like to ride on the street
            - Would like to see a separated bike path
    - Camilo

        - Taking 56th St to Riverview – bad experience; would take 40th as detour because 56th has gotten so congested
        - Tends to stay off 56th St – mostly traffic-related
        - Mainly on peak times and when schools begins/let's out
        - Traffic on Fowler Ave in summertime has eased up a bit
        - Widen the bike lane on the road to give it more space; feels like cars try to move into the space of bicyclists
- What issues and challenges do we need to address to encourage better multi-modal mobility and access?
    - Crossing the street
        - Camilo has seen people following the rules crossing the street
        - Lesem feels that more bus pullouts would be great for transit to work better
- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
    - Designated space for transit vehicles to pull off for boarding/alighting
    - Adding a bus-only lane
    - Transit in the form of train?
- What are the future plans for your property/ business (expansion, etc.)? Are there plans for new developments along the corridor?
    - No addition plans for expansion/development in Camilo's communities
    - Yuengling project
    - Mofit? Hospital just put up their building
    - New homes going in on Temple Heights Road in Temple Terrace
        - By 52nd St – being developed into 6-8 new homes
- Are there areas that are not likely to change or have attributes that should be protected?
    - 56th and Fowler crosswalk w/ lighting by Boston Market – people still run across the street
    - NetPark is a community asset – more commercial, other land uses, density
        - Intersection of 56th and Hillsborough needs some help
- Temple Terrace as Main Street idea
    - No clear "downtown"
    - Where would downtown be? – where City Hall, Police Dept is
    - Shade trees
    - More commercial activity; more access to more mobility
- Locations to explore
    - By Selmon Expressway, by USF
    - Need better access – cut/rerouted ~20 routes
        - Expanding the scooter program to visit other busy parts of the city
        - Sees a lot of folks in the road walking/biking
    - Don't need to add more lanes, think of other smarter ideas

HART

Attendees:

- Justin Willits, HART
- Jennifer Musselman, KAI
- Sigal Carmenate, KAI

Meeting Notes:

- What is your role in the agency/organization?
    - Justin – short term service planning, safety and operations plans, future expansion planning, long range planning, agency coordinators
- What safety-specific issues have you observed on the corridor?
    - On Vision Zero corridor list
    - Justin will check with safety staff about spot specific safety concerns, keep in the loop on safety field reviews
    - Assume majority of pedestrian crashes are likely transit users
    - HART doesn't track bus crashes and minor incidents
    - Interview operations staff for Route 6, Justin can help coordinate
    - Bike lanes likely used as acceleration lane
    - Long left turn lanes at high speeds
    - Sketchy lefts off side streets
- Do you have any operational concerns?
    - Route 6 operates every 20 minutes, top 4 routes in the system
        - High density, low income/minority populations
    - Biggest slow downs are Hillsborough or Fowler, consider queue jump to repurpose extra turn lane or bike lane (if we replace with separated facility)
    - 56th and Busch Blvd is very congested and buses consistently having to wait for several light cycles to get through.
    - Buses at times find it difficult to return to traffic while using a number of the bus bays due to the amount of traffic.
    - High transfers at Fowler and Busch Blvd
        - Only a few 30 min routes will stay 30 min, Busch will
        - Hillsborough transfer activity happens at Netpark will stay 20 min
- What issues and challenges do we need to address to encourage better multi-modal mobility and access?
    - Open to recommendations to consolidate stops near crossings
        - May help justify pedestrian crossings if stops are consolidated
    - Route on Columbus heads to Netpark.
    - Route 8 goes to progress village
    - A number of walking transfers from 21st under the overpass to Columbus
    - Traffic and some bus stops could be improved.

- What type of user do you anticipate will benefit from improved transit, pedestrian, and/or bicycle investment?
  - Community outreach team does a lot of work with schools, can reach out and ask if there are any specific programs, tell them Justin sent you (Donny Murray MurrayD@gohart.org)
- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
  - Inline platforms for Route 6 so premium services didn't have to deviate into Netpark, and routes that are ending their trip in Netpark could go internal
  - Definitely could see the 56th Street corridor as a BRT in the future. Route 6 (Downtown – 21st Ave – Netpark – 56th – Fletcher UATC) is our busiest route) and Route 39 (56th-Busch-Gunn) is a steady route as well.
  - Some longer blocks on 56th between signalized intersections could use pedestrian crossings.
  - On 6-lane facilities, outside lane tends to already operate as a bus and turn lane
    - Look for opportunities to repurpose lane between 21st and Fletcher
    - Not much transit travel on the southern schedule, and working ok for operations
  - Corner of Columbus and 50th St, FDOT property/old DMV site
    - Discussions about satellite parking facility for paratransit vans to free up space at 21st HART facility
    - Could be of value to HART in the long term
    - Ask Lynda Crescentini CrescentiniL@gohart.org for status, copy Justin
  - A lot of ROW on this corridor, long term vision could be a median guideway, short term BAT lane
  - Shade trees
- What are the current activities in your organization that can benefit from improved transit, pedestrian, and/or bicycle investment?
  - Mixed reactions on bus pull outs. On congested corridors, far side bus pull outs are ideal, but if double lefts feed that it's not great
  - Consider bus pullouts at time points – look at map booklets (http://gohart.org/Pages/maps-schedules.aspx), weekday map for Route 6, all timepoints are on schedule booklet
    - Busch and 131s NB, Fletcher and Busch SB
- Are you aware of any effort that overlaps, or impacts this study? / What ongoing/planned projects do you have in the area?
  - Identified in vision plan for BRT, looking at as part of their strategic plan, no specific timeline.
  - Likely looking at an east-west BRT in the nearer term, maybe on SR 60.
  - New amazon distribution center off Bullard parkway near 301, riders will want to get there.

City of Temple Terrace

Attendees:

- Jennifer Musselman, KAI
- Sigal Carmenate, KAI
- Troy Tinch, City of Temple Terrace
- Brian McCarthy, City of Temple Terrace

Meeting Notes:

- Met with Troy Tinch, the Public Works Utilities Director for Temple Terrace and Brian McCarthy, City Engineer
- Observe high traffic on the corridor which is not ideal for the safety and comfort of bicyclists using the existing sharrows
- The City continues to seek opportunities to design streets for golf carts and provide safe crossing opportunities to cross 56th Street
    - The City has analyzed Temple Heights Road, Mission Hills Avenue, Serena Drive, and Whiteway Drive as potential crossing opportunities
- The City is investigating installing a traffic signal at Serena Drive which could create safe crossing opportunities for Woodmont Charter School
- Continued developing in CRA boundaries along Busch Boulevard
    - A Chase Bank and multifamily housing is opening soon
- Expecting continued and growth in pedestrian crossings as developments occur
- Would like to see pedestrian signal to provide for safe crossings between River Hills Road and Busch Boulevard
- With residences on both sides of the street, pedestrian travel expected to continue east to west
- City owns the Bus Bay northeast of Chicago Avenue
- Would like to explore using existing ROW to potentially to create a multiuse trail west and east of 56th Street along Riverhills Road
- Proposed trail on Busch Boulevard/Bullard Parkway as an east-west trail opportunity to bypass canal
- Consider a crossing at Sewaha Road
- Along Overlook Drive, Habitat for Humanity is developing parcels for a visually impaired community (Hope Village), which pedestrian signal on City roads from the residences to the CRA business district
- There are safety concerns at Fowler Avenue based on previous pedestrian crashes
- City has considered installing "porkchops" where there is high pedestrian activity
- City seeks to follow the DOT Pavement Marking Plan in an effort to reduce turn radii where possible
- The Amazon fulfillment center east of 56th Street on Harney Road may impact transit routes
    - Conversations in the City have begun regarding balancing Amazon freight, personal, and transit vehicles

- Traffic east of the corridor might increase because of developments of the new VA clinic and facilities

Tampa Chambers

Attendees:

- Ryan Mansfield, KAI
- Leyi Zhang, KAI
- Nicholas Glover, Tampa Chambers
- Andrea White, Tampa Chambers

Meeting Notes:

- What issues do you see along the corridor? Do you have any safety concerns?
  - Recent fatal crash at I-4.
  - Transparency is important
  - Local skatepark near 21st St, DACCO—rehab near 21st St, foot traffic, homeless people
  - Columbus Dr, short cut from Broadway, Fedex vehicle cause congestion.
  - Lack of vehicle capacity and bike/ped safety issue
  - Traffic backing onto 56th Street, WB in the AM and EB in the PM from Selmon expressway
- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
  - Focus on multi-modal improvements
  - Transit: shelter from the sun/rain, make it blend into the context/landscapes
- Other people/groups to engage?
  - Engage neighborhood associations, local businesses, chamber of commerce, African American Chamber of Commerce. Engage more people as early as possible.
  - Nicolas will send contact of elected officials.

City of Temple Terrace Police Department

Attendees:

- Ken Albano, Temple Terrace Police Chief
- Brian Shroyer, FDOT
- Sigal Carmenate, KAI
- Ryan Mansfield, KAI

Meeting Notes:

General Notes:

- City was not optimistic when the sharrows were put in
- Troy Tinch - City of Temple Terrace Engineer, possible PAG member
- The City of Temple Terrace will help share the meetings that we'll be having
  - Well followed social media

Developments:

- Redevelopment is a concern for Temple Terrace
  - Upscale apartment community - accepting residents by Fall 2021

  - Speed and pedestrian crossings in this area is a concern
  - Speeding is a concern from the bridge up to Whiteway Dr
- Bullard/Busch and 56th St redevelopment area
  - SE quadrant at Bullard Pkwy
  - This area is currently built out along 56th St
  - Commercial use will be opening before the apartments
  - Apartments are 75-80% complete - plan to be open in Fall 2021
    - 200+ units
- From River to just north of Busch/Bullard
  - There is a very high number of midblock pedestrian crossings on this segment
  - It's not illegal to cross midblock here
- Plan is for area on west side of 56th St from the bridge up to Temple Heights to be redeveloped

Speed:

- The design of 56th St lends itself to be driven at higher speeds
- Midblock crossings help to slow drivers
- The 35-mph section is fine
- To get a ticket to be approved by a judge, it has to be 10 mph or more over the speed limit
- Judges don't support tickets at 6 mph over
- Speeding at Woodmont Charter area
  - Drivers heading north can see the 40 mph speed limit sign and will drive 5 over
  - Remove the 40 mph sign south of Whiteway Dr
  - This is an issue due to the school
- Pedestrian crossings between Fowler Ave and Fletcher Ave
  - Law enforcement has seen lower speeds
  - Police make themselves visible in the area
- Intersection of Serena Dr/Druid Hills Dr at Woodmont Charter School
  - EB on Serena Dr, there is a break in the median that allows veh to cross the median
  - The median barely fits a car
  - A lot of near misses
  - Kids aren't supposed to be crossing here - but there are a high number of kids crossing here
- Those that use the sharrow tend to take the whole lane as they are allowed
- Bicyclist has no place to go with the raised curb along the edge

Corpus Christi Catholic School

Attendees:

- Kelly Kearney, Corpus Christi Catholic School
- Brian Shroyer, FDOT
- Sigal Carmenate, KAI
- Ryan Mansfield, KAI

Meeting Notes:

- Add crosswalk on north leg of Temple Heights Rd intersection
- Vehicles cut through the school parking lot to get to Ridgedale Rd

  - The school owns the baseball fields, but leases them out to the City
- Speeding is for the most part not an issue
- Students rarely walk - students are typically driven to school
- School's capacity is around 235 students
- Temple Terrace PD monitors Ridgedale regularly due to Temple Terrace Elementary School
- Amazon facility being built at 8706 Harney Road
- School is not in a designated school zone
  - The Ridgeline speed limit drops during school hours due to Temple Terrace Elementary
  - Speed limits seem to be low enough
  - The traffic light at Temple Heights Rd helps with access
  - Currently is no need for a designated school zone
- Would like to see more RRFBs on the southern end of the corridor

Hillsborough County

Attendees:

- Sigal Carmenate, KAI
- Ryan Mansfield, KAI
- Brian Shroyer, FDOT
- Robert (Bob) Campbel, County - Engineer
- Richard, Ranck, County - Community Infrastructure Planning Department (between CIP and LRP), merge land use and transportation
- Eric Lindstrom, County - Redevelopment Manager
- Jonah Katz, County - Economic Development
- Meagan Winchester, County - Community Infrastructure Planning Department, Planner
- Leland Dicus, County - Public Works Administration
- Michael Williams, County - Development Services

Meeting Notes:

- 56th St Redevelopment between Sligh and Hillsborough
  - Infrastructure assessment - utilities, road quality
    - Working with Kimley Horn

Observed Issues:

- Used future land use to develop context along the corridor which will lead to unique cross sections
  - Richard - send us a map of context
    - County completed this context based on future land use
    - Will send us contact info to get background info on the methodology for CC
- Drainage issues at 56th and Hanna
  - Just south of the Hillsborough River crossing
  - Roadway flooding issues

Developments:

- No major developments along the corridor

- City redeveloping SE corner of 56th St and Bullard Pkwy
    - Mid-rise apartment complex being built on this lot
    - This is a City development

Safety:

- Hazardous walking condition at Elementary School
    - 56th St and Broadway Ave
    - Issue crossing 56th St - no controlled crossing
- Sligh Ave and 56th at King High School
    - Students crossing 56th St to get to and from school
    - #2 priority school for safe school routes in Hillsborough County - TPO funded study
    - Have plans to study the school routes - working with DOT for routes crossing state roads
        - Abigail Flores at the County will be leading these studies
- Between Fowler and Fletcher
    - Put sidewalks on both sides and a crossing
    - A lot of ped and bike activity here
    - County has documents of design plans
- This corridor is in the County's ATMS (advanced traffic management system)
    - Fiber optic
    - Ped treatments at crosswalks
    - Real time data collection
    - Hillsborough County Master Plan
        - Available from the DOT
- Pedestrian Safety concerns at 56th St and Harney

Lighting:

- County not involved in the lighting since this is a state road
- Involved between Fowler and Fletcher
    - County has provided lighting on this particular segment
- Want to see update lighting for road/sidewalk - this would be a high priority for the County
    - Also lighting at signalized intersections

Wishlist:

- Shared use path on both sides throughout the entire corridor
- And protected bike lanes on the road as well
- Midblock crossings in large gaps between signals
    - No recommendations on specific location, but would like to see them throughout the entire corridor
- Access management

Vision for the Corridor:

- East Lake Community
    - Livable Communities
    - Info regarding where they wanted development to focus
    - Northern end of the corridor

PAG:

- Abigail Flores - Engineer at the County

- Bob Campbell

King High School

Attendees:

- Sigal Carmenate, KAI
- Leyi Zhang, KAI
- Brian Shroyer, FDOT
- Arlene Castelli, Principal of King High School
- Lucious, Captain

Meeting Notes:

What is your role in the school?

Arlene: Principal, deal with the pedestrian traffic in front of the school

- How are most students going to and from school (mode)?
  - Majority of the student exist on NW corner of 56th and Sligh, and go west, walking and taking bus
  - Parents parking at the gas station to pick up students
  - HART bus stop used by students
  - SE of bus depot discovered cemetery turning into an actual memorial
  - Some students make long commutes to the school for the Ivy Program
- What issues do you see along the corridor? Do you have any safety concerns?
  - Before and after school, students going to MacDonald, Gas Station (have asked gas station to control vegetation)
  - Change in lane
  - ROW difficult
  - Students not necessarily using crosswalk but crossing at gas station
  - Teenage drivers, not only kids going to KHS, kids going to Tampa Bay Tech (same start/release time)
- Are there programs in place to support parents and students walking, biking, and taking the bus to schools?
  - USF safe walking/biking to school program in 2019
- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
  - Upstream/downstream more signage
  - Mid-block crossing

Paideia Classical Christian School

Attendees:

- Ryan Mansfield, KAI
- Leyi Zhang, KAI
- Brian Shroyer, FDOT
- Debbie Coad, Paideia Classical Christian School

Meeting Notes:

- How are most students going to and from school (mode)?
  - From the north
  - Parent drop-off

    - 56th St is the major artery
    - 56th St—parking lot—school—Kirby—Pine Hill Drive
    - Hard to cross 56th St at Kirby St, too much traffic, back up onto Puritan Rd
    - The school looses people because of the traffic issue
    - No student walking
- What issues do you see along the corridor? Do you have any safety concerns?
    - Riverhills Dr, traffic, short cycle length,
    - Busch Blvd, NB left-turn lane queue
    - Bike lanes are not safe
    - Bus stop activities blocking through lanes
- PAG
    - Debbie can ask the board/teachers

Hillsborough County School Board

Attendees:

- Ryan Mansfield, KAI
- Leyi Zhang, KAI
- Brian Shroyer, FDOT
- Jessica Vaughn, School Board

Meeting Notes:

- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
    - Interested in building multi modal facilities: walk, bike, scooter
    - Concern: which schools will be impacted, student safety
- PAG
    - Jessica can get feedback from board members

Tampa Hillsborough Expressway Authority

Attendees:

- Jen Musselman, KAI
- Leyi Zhang, KAI
- Brian Shroyer, FDOT
- Anna Quinones, THEA
- Bob Frey, THEA

Meeting Notes:

- Do you have any operational concerns?
    - Selmon Exwy & 50th St intersection, so much space
    - Hard to come to good, clean solutions.
    - What is FDOT's perspective on rural interchanges? Esp. as development moves east.
    - Brian will ask
- What environmental constraints might we encounter during the study?
    - Trail system
    - Drainage system

- Project team to look into bypass canal trail crossing

- Are you aware of any effort that overlaps, or impacts this study? / What ongoing/planned projects do you have in the area?
  - PD&E from I-75 to downtown (Selmon Expressway)
    - Creating additional slip ramps to reversible express lanes west of I-75 and prior to downtown to continue on local lanes if drivers don't need to exit downtown.
    - Alternatives workshop in the fall
    - Looking to make interchanges safer for pedestrians, only so far THEA can go in ROW
    - Filling sidewalk gaps, timing strategies
    - THEA can contribute to improvements up to ½ mile if they show operational improvements
    - Big problem: rural interchange
    - THEA to connect the project team with Project manager from Kimley-Horn.
- PAG
  - Anna Quinones

University of South Florida

Attendees:

- Ryan Mansfield, KAI
- Leyi Zhang, KAI
- Ray Gonzalez, USF
- Chadaphan Hanwisai, USF
- Richard Piccininni, USF

Meeting Notes:

What is your role in the school?

- Ray—director of planning
- Chaddy-- campus planning manager
- Richard—campus engineer

- How are most students going to and from school (mode)?
  - Most of the students are driving to campus, no shuttle or bus service to campus
  - Majority use the crosswalks at Fowler Ave, high level of ped/bike activities (users are not students)
  - Students bike mostly on 50th Street, not 56th street
- What issues do you see along the corridor? Do you have any safety concerns?
  - Southbound approaching Fowler Ave, lane merged, cause speeding
  - Never a clear opening to turn left (Westbound) to 56th, between Fowler and Busch
  - Lack of crossing opportunity for vehicles (during peak hours)
  - SBL at Fowler delay, short cycle length
  - No continuous sidewalks leading to campus
  - Narrow travel lanes south of Bullard Pkwy. Not comfortable biking for average users
  - Students using 58th streets, across complex to avoid Fowler/56th intersection

- School (American Youth Academy?), traffic backup into 56th during pick-up time
- Fatal bicycle crash on Fowler Ave, other accidents on Fletcher Ave

- What would you like to see this study explore? What type of improvements, if any, would you like to see on the 56th Street?
    - Better landscaping
    - More ped/bike facilities
    - Separated bike lanes
    - Wider sidewalk
    - Shared use path
    - Complete street (Chaddy shared example of Seattle)
    - Facilities on Bruce B Downs (Ray shared example)
- Are you aware of any effort that overlaps, or feeds into/ impacts this study?
    - Speed bumps and Flashing beacons on 50th St (3 locations)
    - Speed limit reduced from 45 mph to 35 mph
    - The county is widening 50th St down to Fletcher Ave
- Other department to connect with?
    - Reach out to Parking & transportation Services:
      Peter M Tiberini
      Assistant Director
      Parking & Transportation Services
      University of South Florida
      Tampa campus
      813-974-7845
      4202 E Fowler Ave, PSB101
      Tampa, Florida 33620-8775
      ptiberini@usf.edu |usf.edu/parking
    - Center for Urban Transportation Research:
      Sara J. Hendricks, AICP, TDM-CP
      Senior Research Associate
      Center for Urban Transportation Research
      University of South Florida
      cutr.usf.edu
- Other comments
    - RRFBs on 50th street and Fletcher are used all the time.
    - Drivers getting used to RRFBs and obeying them more and more.
    - More ped/bike activities when the corridor enters Tample Terrace

MEETING SUMMARY

PROJECT ADVISORY GROUP (PAG) MEETING #1

June 30, 2021
1:00 PM – 3:00 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for 56th/50th Street from Selmon Expressway to Fletcher Avenue. A Project Advisory Group (PAG) was established to act as a sounding board for this project by providing technical feedback throughout major study milestones. Later in the Study, the PAG will also play a role in providing guidance on the development of initial alternatives. The following identifies the PAG members in attendance and outlines the key comments that were discussed during the meeting.

Attendees:

Brian Shroyer, FDOT	Troy Tinch, City of Temple Terrace
Richard Ranck, Hillsborough County	Brian McCarthy, City of Temple Terrace
Bob Campbell, Hillsborough County	Justin Willits, HART
Abigail Flores, Hillsborough County	Nicole McCleary, HART
Wade Reynolds, Hillsborough TPO	Robert Frey, THEA
Mark Hudson, Hillsborough TPO	Ray Gonzalez, University of Florida
Gena Torres, Hillsborough TPO	Sigal Carmenate, Kittelson & Associates
Cedric McCray, City of Tampa	Jennifer Musselman, Kittelson & Associates
Jayne Nmadu, City of Tampa	Ryan Mansfield, Kittelson & Associates
Stephen Benson, City of Tampa	Mary Raulerson, Kittelson & Associates
William Porth, City of Tampa	Leyi Zhang, Kittelson & Associates

Meeting Goal:

The purpose of the meeting was to provide an overview of the Study, gather initial feedback on the existing conditions of the corridor and the desired future vision of the corridor, and to discuss effective methods to engage different groups throughout the study.

Meeting Introduction:

The meeting began with FDOT Project Manager Brian Shroyer kicking-off the call and welcoming attendees. The Consultant Project Manager Jennifer Musselman facilitated introductions and an icebreaker at the start of the meeting and provided an overview of the project purpose, scope, and schedule. Interactive polling questions were launched throughout the presentation to gather feedback and foster discussion. The results of those polling questions are summarized in the sections below.

Attendees Polling Question Results:

Multimodal Challenges on 56th/50th Street

Attendees were asked what they see as the biggest challenge for multimodal improvements on the corridor. The following is a full list of answers provided by attendees:

- High Speed
- High Volume
- Utilities
- Need greater density
- Median Openings & Open Drainage
- Lack of crossing opportunities
- Right-of-Way
- Narrow Sidewalks
- Lack of Shade
- Truck Traffic

Other Initial Ideas for Improvements and Considerations

Attendees were asked what transportation elements should be considered in this study other than those identified through the Stakeholder Interviews. The following are additional improvements to complement those from the Stakeholder Interviews:

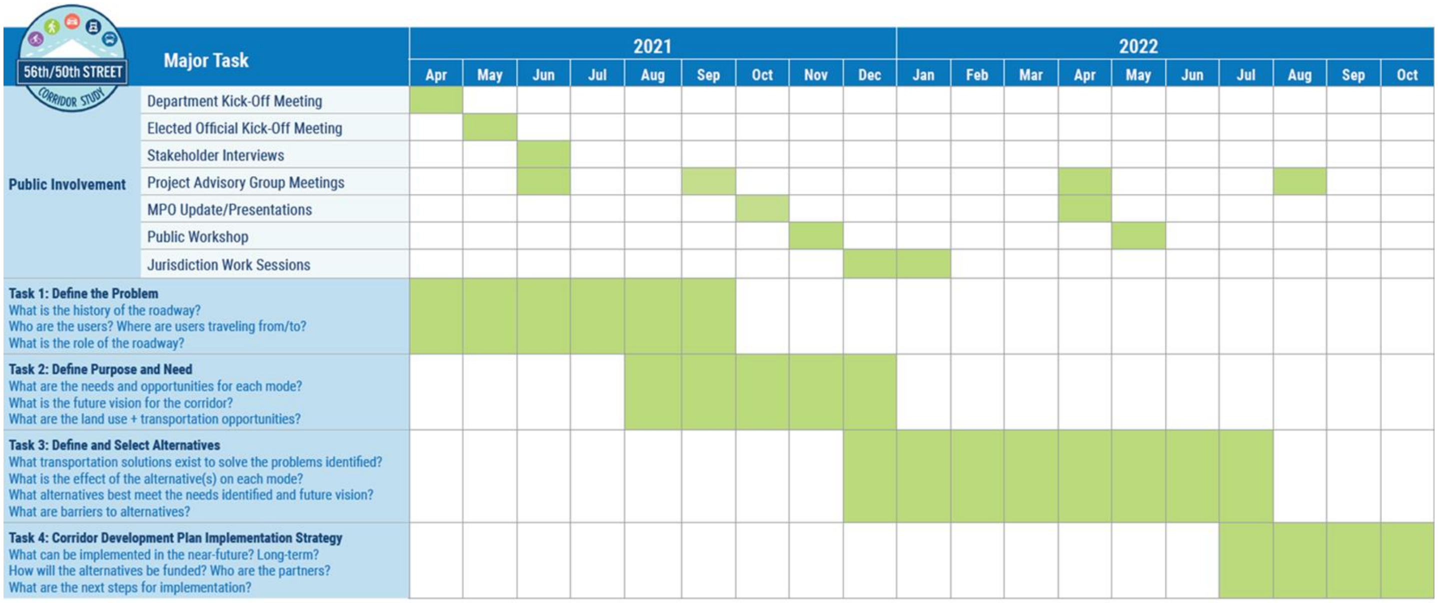
- Golf Cart Use
- Transit Riders
- Lane Repurposing
- Lighting

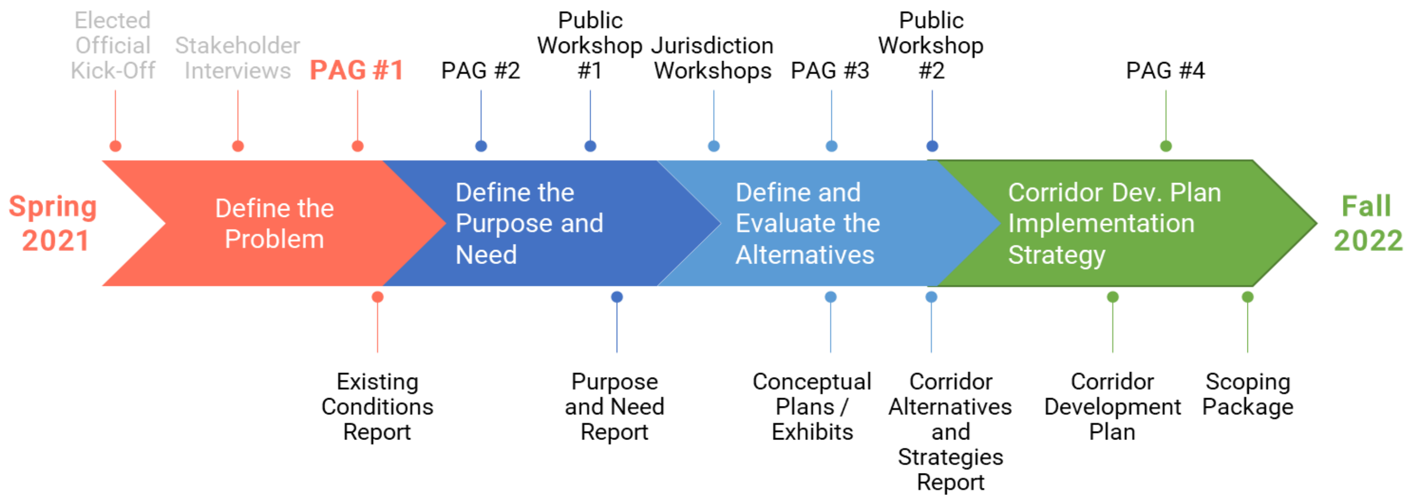
Project Schedule

The proposed schedule is 18-months, with the study ending in Fall 2022. The project will be conducted in four phases:

1. Define the Problem
2. Define the Purpose and Need
3. Define and Select Alternatives
4. Corridor Development Plan Implementation Strategy

The following graphics illustrates the project schedule, timing of deliverables and public involvement milestones.





Existing Conditions:

Consultant Deputy Project Manager Sigal Carmenate described the existing conditions developed to-date. The following existing conditions data was shared with the PAG with accompanying figures/graphics and key takeaways:

- Existing Typical Sections
- Context Classification
- Existing Land Use
- TPO Communities of Concern
- Transit Frequency & Ridership
- Alternative Commute Modes
- Speeds
- Annual Average Daily Traffic (AADT)

- Level of Service (LOS)

Ongoing & Previous Studies within Study Area:

The Study Team presented the following studies that were previously conducted or ongoing in the study area:

- City of Tampa Vision Zero Plan
- City of Tampa Mobility Department Transportation Engineering Division Citywide Speed Limit Reduction Program
- Hillsborough County Future of Hillsborough: Comprehensive Plan for Unincorporated Hillsborough County Florida - Livable Communities Element
- Hillsborough TPO Speed Management Action Plan
- City of Tampa Walk-Bike Plan
- Hillsborough TPO School Safety
- FDOT Area Multimodal Feasibility Study
- Temple Terrace Vision Map

The Study Team asked if there were any ongoing and previous local studies or projects that overlapped with the study area other than the ones presented. The following projects were mentioned:

- Hillsborough TPO Vision Zero Action Plan
- Corridor Study from Bypass Canal to Fletcher
- FDOT is constructing new hurricane proof traffic signal at Whiteway and 56^{th}.
- East Tampa CRA Plan Update

Virtual Walking Review & Short-Term Improvements Discussion:

The Consultant Engineering Lead Ryan Mansfield led the virtual walking audit and discussion on short-term improvements. The Study Team presented the multimodal issues observed during the walking review, and potential short-term improvements. The following short-term improvements were mentioned during the virtual walking review:

- Improving safety at intersections
  - Removing Right Turns on Red (RTOR)
  - Consider extending traffic separators/medians to create pedestrian refuge
  - Consider bulb-outs to shorten the crossing distance.
  - Consider outreach campaign for pedestrian and bicycle safety.
  - Multi-agency collaboration throughout the Study to develop a cohesive pedestrian and bicycle facility along the corridor
- Upgrade road lighting to LED, where possible
- Consider adding an on-street transfer for routes that don't need to go into Netpark Transfer Center
- Consider marking pavement for bus pullout

Other Comments:

During the Virtual Walking Review & Short-Term Improvements discussion, the following issues and recommendations were mentioned:

- Lack of buffer for pedestrians and bicyclists.
- Sidewalks are on a lower elevation than the travel lanes, which causes visibility issue.
- Would like to explore Transit-Oriented Development (TOD) potential along corridor considering proximity to Downtown/University of South Florida (USF) with a single seat transit ride.
- Knowing where crash victims live and work has been useful; consider the need for safe design in non-residential areas.
- Consider configuring Leading Pedestrian Intervals (LPI)
- Consider possibility of adding wider sidewalks or crossings that connect to FDOT’s multiuse trail planned for Fowler Avenue.

Next Steps

The presentation ended with outlining the next steps for the Study and an open discussion with all the attendees. The next steps outlined for the PAG are listed below.

- Continued Public Involvement Plan and Outreach – Stakeholder Interviews
- Task 1 Define the Problem Wrap-up – Issues/Opportunities Synthesis from Existing Conditions work
- Begin Task 2 - Define Purpose and Need
- PAG Meeting #2

Attachments

- Presentation Slides
- Meeting Chat Log

MEETING SUMMARY

PROJECT ADVISORY GROUP (PAG) MEETING #2

September 23, 2021
1:00 PM – 3:00 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for 56th/50th Street from Selmon Expressway to Fletcher Avenue. A Project Advisory Group (PAG) was established to act as a sounding board for this project by providing technical feedback throughout major study milestones. Later in the Study, the PAG will also play a role in providing guidance on the development of initial alternatives. The following identifies the PAG members in attendance and outlines the key comments that were discussed during the meeting.

Attendees:

Clarissa Grant, Hillsborough County
Meagan Winchester, Hillsborough County
Bob Campbell, Hillsborough County
Abigail Flores, Hillsborough County
Wade Reynolds, Hillsborough TPO
Gena Torres, Hillsborough TPO
Michelle Van Loan, City of Tampa
Calvin Hardie, City of Tampa
Danni Jorgenson, City of Tampa
Brian McCarthy, City of Temple Terrace
Anna Quinones, THEA
Michael Garau, Kimley-Horn
Sigal Carmenate, Kittelson & Associates
Jennifer Musselman, Kittelson & Associates
Ryan Mansfield, Kittelson & Associates
Jady Chen, Kittelson & Associates
Leyi Zhang, Kittelson & Associates

Meeting Goal:

The purpose of the meeting was to discuss issues & opportunities synthesis, gather feedback on purpose and need statements. A ConceptBoard link was provided to the attendees after the meeting to get input on evaluation criteria and measures of success.

Meeting Introduction:

The meeting began the Consultant Project Manager Jennifer Musselman facilitated introductions and an icebreaker at the start of the meeting and provided an overview of the project purpose, scope, and schedule. Interactive polling questions were launched throughout the presentation to gather feedback and foster discussion. The results of those polling questions are summarized in the sections below.

Issues & Opportunities Discussion:

Corridor-wide Opportunities

Consultant Deputy Project Manager Sigal Carmenate presented the overall opportunities for multimodal improvements on the corridor. The following opportunities were shared with the PAG with accompanying figures/graphics and key takeaways:

- There are multimodal safety needs throughout the corridor
- Corridor has some of HART's most robust transit service
- Generally operating well from a vehicular operations standpoint
- Redevelopment focused within Temple Terrace
- High posted and operating speeds remain a challenge
- Corridor serves diverse populations, including those with higher multimodal access needs and mobility needs

Attendees were asked which of the opportunities stands out as the most important. The most common (40%) response was "Corridor has some of HART's most robust transit service", while the same percentage (20%) of respondents chose "Redevelopment focused within Temple Terrace", "High posted and operating speeds remain a challenge", and "Corridor serves diverse populations, including those with higher multimodal access needs and mobility needs".

Segment Specific Opportunities

Based on land use mix, built form, and street network characteristics, the corridor can be broken into four unique character areas:

- Selmon Expressway to I-4
- I-4 to Dr. Martin Luther King Jr. Boulevard
- Dr. Martin Luther King Jr. Boulevard to Sligh Avenue
- Sligh Avenue to Fletcher Avenue CRAs distinct

The Consultant Engineering Lead Ryan Mansfield presented the segment specific opportunities for multimodal improvements.

Comments from the attendees included:

- Modify driveway widths in conjunction with speed management
- Recommend crossings not only by distances between the crossings, but also take common destinations and activity level into consideration

Purpose & Needs Discussion:

The Consultant Project Manager Jennifer Musselman led the discussion of purpose and needs.

Purpose

The draft purpose statement was "Design and operate the street to eliminate fatal and severe injury crashes, prioritizing vulnerable users, to support existing and future places".

The attendees were asked how well the purpose statement reflects the corridor on a scale of 1-5 (1 being the lowest ranking and 5 the highest ranking). All of the answers were 4.

Additional feedbacks from the PAG members included:

- Consider include transit
- Be more specific about how to serve vulnerable users.
- Add key word “access”
- Add key word “through”
- Change wording to capture purposes beyond safety

Based on these feedbacks, the study team refined the purpose statement to: Eliminate fatal and severe injury crashes and prioritize accessibility of multimodal options for vulnerable users, through design and operational strategies that support existing and future places

Needs

The draft needs statement included:

1. Eliminate fatal and severe injury crashes for all users through proactive safety and speed management strategies that align target, design, and operating speeds
2. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians
3. Design and operate street consistent with surrounding land uses to support existing and future place types
4. Improve transit access and service efficiency
5. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points
6. Support local access needs including safe routes to school
7. Support upward mobility by providing safe and convenient transportation choices
8. Improve bicyclist safety and comfort along the corridor
9. Provide for complete trips for people walking and biking
10. Encourage more non-auto trips for short trips

The attendees were asked which of these needs are the top three needs, and which are the bottom two needs. 29% of the responses included need #1 in the top three needs, followed by need #2, #6 and #9 (14%), and need #3 (10%). 44% of the responses chose need #10 as the bottom two needs, followed by need #9 (33%) and need #6 (22%)

Based on these results, the study team modified the needs to:

1. Eliminate fatal and severe injury crashes for all users through proactive safety and speed management strategies that align target, design, and operating speeds
2. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians
3. Design and operate street consistent with surrounding land uses to support existing and future place types
4. Improve transit access and service efficiency
5. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points
6. Support local resident and business access needs including safe routes to school
7. Support upward mobility by providing safe and convenient transportation choices
8. Improve bicyclist safety and comfort along the corridor

Next Steps

The presentation ended with outlining the next steps for the Study and an open discussion with all the attendees. The next steps outlined for the PAG are listed below.

- TPO Committee Presentations
- Public Workshop
- Finalize Task 2 – Define Corridor Needs
- Jurisdiction Workshops
- PAG Meeting #3
- PAG meeting #4

The PAG members were provided a ConceptBoard link to document their feedback and thoughts on evaluation criteria to support a comparative evaluation of the viable alternatives

Attachments

- Presentation Slides
- Meeting Chat Log

MEETING SUMMARY

PROJECT ADVISORY GROUP (PAG) MEETING #3

April 20, 2022
3:00 PM – 5:00 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for 56th/50th Street from the Selmon Expressway to Fletcher Avenue. A Project Advisory Group (PAG) was established to act as a sounding board by providing technical feedback throughout major study milestones. The following identifies the PAG members in attendance and outlines the key comments that were discussed during the meeting.

Attendees:

- Christopher DeAnnuntis, HART
- Troy Tinch, City of Temple Terrace
- Mayor Andy Ross, City of Temple Terrace
- Megan Winchester, Hillsborough County
- Matt Lewis, Hillsborough County
- Robert Campbell, Hillsborough County
- Gena Torres, Hillsborough TPO
- Wade Reynolds, Hillsborough TPO
- Mark Hudson, Hillsborough Planning Commission
- Cedric McCray, East Tampa CRA
- Kelly Fearon, City of Tampa
- Sigal Carmenate, Kittelson & Associates
- Jennifer Musselman, Kittelson & Associates
- Leyi Zhang, Kittelson & Associates
- Brian Shroyer, FDOT District 7

Meeting Goal:

The purpose of the meeting was to discuss the feedback received during the first public meeting and potential intersection and typical section changes for the corridor. Typical section alternatives were printed out for the PAG members to rank and comment on.

Meeting Introduction:

FDOT Project Manager Brian Shroyer started the meeting with introducing the high-level agenda items for the corridor study. Consultant Project Manager Jennifer Musselman facilitated introductions and provided an overview of the project purpose, scope, and schedule. Discussions and feedback were captured throughout the presentation as questions arose and through interactive polling. More detailed comments were recorded through the typical section alternative print-out.

Issues & Opportunities Overview:

Consultant Project Manager Jennifer Musselman presented the overall opportunities for multimodal improvements on the corridor. The following opportunities were shared with the PAG with accompanying figures/graphics and key takeaways:

- There are multimodal safety needs throughout the corridor
- Corridor has some of HART's most robust transit service
- Generally operating well from a vehicular operations standpoint
- Redevelopment focused within Temple Terrace
- High posted and operating speeds remain a challenge
- Corridor serves diverse populations, including those with higher multimodal access needs and mobility needs

Public Engagement Summary:

The Consultant Planner Leyi Zhang led the overview of previous PAG, stakeholder, and public feedback and comments.

Stakeholder & Public Comments

- Congestion and Safety – setting target speeds, updating lighting, safety concerns for students crossing the corridor
- Transit – interest for Bus Rapid Transit (BRT), better integration of buses returning to traffic
- Bicyclist and Pedestrians – desire for protected bike lanes, RRFB crossings, lane repurposing
- Land Use – industrial uses in City of Tampa, redevelopment in Downtown Temple Terrace

Needs Prioritization

Attendees of the public meeting were asked to vote on their three most important needs. The study needs are outlined below from the most votes to the least:

- Support safe local resident and business access needs (18/32 votes)
- Design and operate street consistent with surrounding land uses to support existing and future destinations (14/32 votes)
- Balance freight and vehicle mobility with the needs of vulnerable users and conflict points (7/32 votes)
- Provide better multimodal access for Communities of Concern (7/32 votes)
- Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians (4/32 votes)
- Improve bicyclist and pedestrian safety and comfort along the corridor (4/32 votes)
- Improve transit access and service efficiency (1/32 votes)

PAG members did not comment on the issues and opportunity overview or public engagement summary.

Study Needs & Concepts:

Potential Intersection Changes

Consultant Project Manager Jennifer Musselman presented the general intersection changes for the corridor, which include:

- Considering protected intersections
- Exploring signal timing strategies
- Adding intersection lighting or upgrading to LED
- Relocating stop bars
- Extending median noses and adding pedestrian refuges
- Adding or realigning crosswalks
- Removing unneeded turn lanes, acceleration lanes, and shoulders
- Adding bulb-outs/curb extensions
- Reconfiguring channelized right turns

Specific intersection configurations were provided with discussions of tradeoffs and benefits of the intersection changes. Feedback from the PAG members were in favor of the intersection changes with a suggestion to address the cumulative increases in travel times along the corridor.

Potential Typical Section Changes

Consultant Deputy Project Manager Sigal Carmenate presented the typical section alternatives. PAG members were given a typical section alternative print-out to rank their preferred alternatives for each segment. Concerns were raised about the 11 feet travel lanes and the standard size of buses. Across the PAG member rankings, typical section alternatives with one-way cycle tracks were preferred. The table below shows the top ranked alternative for each typical section.

Table 1. PAG Alternative Evaluation

Typical Section	Top Ranked Alternative
North of Acline Drive	Alternative #2: One-Way Separated Bike Lanes with Wider Sidewalk (8’)
North of 10th Street	Alternative #3: One-Way Separated Bike Lanes with 8’ Sidewalk
North of Harney Road	Alternative #1b: 12’ Path with One-Way Separated Bike Lanes Alternative #2: Bus Lane with 12’ Path
North of Sligh Avenue	Alternative #1b: 12’ Path with One-Way Separated Bike Lanes
North of Riverhills Drive	Alternative #1b: 11’ Path

Additional concerns of driveway conflict points with bicycle/ pedestrian facilities and bus bays were raised. PAG members also suggested bicyclists to utilize dedicated bus lanes to encourage transit ridership. Furthermore, PAG members recommended to keep the central island landscaping in the section north of Riverhills Drive and within Downtown Temple Terrace. Overall, PAG members advised for the roadway to be as uniform as possible so that users do not get confused maneuvering along the corridor.

Segment Operations Analysis

Using FDOT QLOS thresholds, the existing six lane segment was evaluated to see if it could be reduced to four lanes. Cycle lengths and performance measures are provided in the presentation slides.

Segment Prioritization

PAG members were asked to choose two segments to prioritize for safety changes. The segment north of Harney Road to North of Slight Avenue received the most votes. The following segments also received multiple votes:

- North of Acline Drive to North of 10^{th} Avenue
- North of Sligh Avenue to North of Riverhills Drive
- North of Riverhills Drive to North of Whiteway Drive

Next Steps

The presentation ended with outlining the next steps for the Study and an open discussion with all the attendees. The next steps outlined for the PAG are listed below.

- TPO Committees and Board
- Refine and Evaluate Alternatives
  - Meet with Public – Summer 2022
  - Select Final Alternative – Summer 2022
- Corridor Development Plan
  - Final PAG Meeting – Fall 2022

Attachments

- Presentation Slides

MEETING SUMMARY

PROJECT ADVISORY GROUP (PAG) MEETING #4

October 25, 2022
2:00 PM – 4:00 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for 56th/50th Street from the Selmon Expressway to Fletcher Avenue. A Project Advisory Group (PAG) was established to act as a sounding board by providing technical feedback throughout major study milestones. The following identifies the PAG members in attendance and outlines the key comments that were discussed during the meeting.

Attendees:	Robert Tabares, Hillsborough County	Sigal Carmenate, Kittelson & Associates
	Alex Henry, City of Tampa	Jennifer Musselman, Kittelson & Associates
	Meagan Winchester, Hillsborough County	Mary Raulerson, Kittelson & Associates
	Bob Campbell, Hillsborough County	Ryan Mansfield, Kittelson & Associates
	Brian McCarthy, City of Temple Terrace	Brian Shroyer, FDOT District 7
	Carlos Baia, City of Temple Terrace	
	Benjamin Gordon, Hillsborough TPO	

Meeting Goal:

The purpose of the meeting was to discuss the feedback received during the second public meeting and from FDOT staff. Proposed segment alternatives, intersection changes, and spot treatments were assessed to select preferred alternatives. Additional outcomes were to identify and prioritize projects to advance following the Study and to identify staff and groups responsible for advancing projects.

Meeting Introduction:

FDOT Project Manager Brian Shroyer started the meeting with introducing the high-level agenda items for the corridor study. Consultant Project Manager Jennifer Musselman facilitated introductions and provided an overview of the meeting goals, study background, and schedule. Discussions and feedback were captured throughout the presentation as questions arose. More detailed comments were recorded through the breakout groups following the presentation.

Issues & Opportunities Overview:

Consultant Project Manager Jennifer Musselman presented the overall opportunities for multimodal improvements on the corridor. The following opportunities were shared with the PAG with accompanying figures/graphics and key takeaways:

- There are multimodal safety needs throughout the corridor
- Corridor has some of HART's most robust transit service
- Generally operating well from a vehicular operations standpoint
- Redevelopment focused within Temple Terrace
- High posted and operating speeds remain a challenge
- Corridor serves diverse populations, including those with higher multimodal access needs and mobility needs

Public Engagement Summary:

Consultant Project Manager Jennifer Musselman led the overview of public feedback and comments from the August 30-31, 2022 public meetings. In general, most of the public's comments expressed gratitude toward a study being done on 56th Street/50th Street and for the opportunity to learn more about what is proposed for the corridor. Two comments also expressed the need for tree shading for bicyclists and pedestrians. One comment was about two existing left-turn lanes on 50th Street experiencing congestion.

Public Comments

- "Glad for the opportunity to view the proposed plans."
- "This information was awesome! Was able to ask questions, make comments, and get full understanding of the project. Thank you so much!"
- "Everyone was very knowledgeable and helpful. Please consider trees (for ped/bike shade) as vital infrastructure to be included in proposed enhancements."
- "Glad you're planning some improvements"
- "Continuous protected bike lane would be a game changer from USF to Ybor. Lots of tree shading would be great."
- "The NB 2 left-turn lanes from 41 onto 50th Street are not long enough to allow the amount of left-turners to wait/turn in reasonable time, to not back up into the regular flow of traffic lanes."

Needs Prioritization

Attendees of the public meeting were asked to vote on their three most important needs. The study needs are outlined below from the most votes to the least:

- Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians (5/14 votes)
- Improve bicyclist and pedestrian safety and comfort along the corridor (4/14 votes)
- Provide better multimodal access for Communities of Concern (3/14 votes)
- Design and operate street consistent with surrounding land uses to support existing and future destinations (1/14 votes)
- Improve transit access and service efficiency (1/14 votes)

Segment Alternatives Ranking

Attendees of the public meeting were asked to vote on their preferred segment alternative for each corridor section. The segment alternatives are outlined below from the most votes to the least:

- 6 Lane Section
    - #1 – Two-way separated bike lanes maintain curb (4/8 votes)

- #2 – One-way separated bike lanes with wide sidewalk (3/8 votes)
- #3 – 12' widewalk with grassed separation (1/8 votes)
- #4 – 12' widewalk (0/8 votes)

- 4 Lane Section
  - #2 – 12' shared use path with one-way separated bike lane (17/17 votes)
  - #1 – 12'; shared use path maintain pavement (0/17 votes)
- Downtown Temple Terrace
  - #2 – shared use path with spot medians (11/11 votes)
  - #1 – 11' widewalk with existing median 9 0/11 votes)

General Intersection Changes

Consultant Engineer Ryan Mansfield presented the general intersection changes for the corridor, which include:

- Considering protected intersections
- Exploring signal timing strategies
- Adding intersection lighting or upgrading to LED
- Relocating stop bars
- Extending median noses and adding pedestrian refuges
- Adding or realigning crosswalks
- Removing unneeded turn lanes, acceleration lanes, and shoulders
- Adding bulb-outs/curb extensions
- Reconfiguring channelized right turns

Specific intersection configurations were provided with discussions of tradeoffs and benefits of the intersection changes. Feedback from the PAG members were in favor of the intersection changes with a suggestion to address the cumulative increases in travel times along the corridor. PAG members discussed if tightening intersection corner radii would inhibit truck movements. It was determined that mountable curbs would be used to accommodate truck movements.

Project Segments:

Consultant Deputy Project Manager Sigal Carmenate presented how the corridor was broken into eight segments and how each alternative would be evaluated and scored for each segment.

Corridor Segments

The eight segments for alternative evaluation are as follows:

- Selmon Expressway to 21st Avenue
- 21st Avenue to MLK Boulevard
- MLK Boulevard to Diana Street
- Diana Street to south of the Bridge
- Bridge
- South of Riverhills Drive to Temple Heights Road
- Temple Heights Road to Fowler Avenue

- Fowler Avenue to Fletcher Avenue

Alternative Evaluation

Each alternative was evaluated for its respective segment based on the following metrics:

- Meets or does not meet goal
  - 1. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians.
  - 2. Design and operate street consistent with surrounding land uses to support existing and future place types.
  - 3. Improve transit access and service efficiency.
  - 4. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points.
  - 5. Support safe local resident and business access needs.
  - 6. Provide better multimodal access for Communities of Concern.
  - 7. Improve bicyclist and pedestrian safety and comfort along the corridor.
- Duration
  - Short Term
  - Medium Term
  - Long Term
- Cost
  - $ <$50,000
  - $$ $50,000 - $150,000
  - $$$ $150,001 - $500,000
  - $$$$ $500,001 - $1,000,000
  - $$$$$ >$1,000,000

Project Prioritization:

Breakout Groups

Attendees joined a breakout group based on their jurisdiction or interest. The breakout groups were as follows:

- City of Temple Terrace
- City of Tampa
- Hillsborough County

The following questions were posed to the groups to answer:

- What proposed changes meet the Study needs best?
- What intersection/spot treatments should be addressed first?
- What local agency approvals/partnerships are needed to advance a project? Who needs to be engaged?
- Are there obstacles to advancing aspects of the project?
- What funding opportunities can be used to advance priority projects?

Report Back

Following the breakout groups, Consultant Planner Mary Raulerson led the discussion to share findings from each group. The following summarizes the findings from each of the breakout groups:

- City of Temple Terrace
  - Potential resurfacing project between the Hillsborough River and Busch Blvd

- Community has expressed interest in on-street bike lanes, but it is not feasible without repurposing a lane or buying ROW.
- FDOT could pay to install additional landscaping, but the City would be responsible for maintenance.
- City is open to introducing a signal at Grove Hill, including raised crosswalks.
  - Education will be required to differentiate raised crosswalks from speed bumps
- Opportunity to add crosswalk on East 113th Avenue to connect City Hall with the east side of the corridor.
- Potential opportunity to introduce a golf cart crossing at East Whiteway Drive
- Next steps include presenting to Temple Terrace City Council

- City of Tampa
  - No issues were noted with the reduction from six to four travel lanes along the segment.
    - Need to coordinate lane repurposing with Tampa Hillsborough Expressway Authority (THEA).
    - The City would be the applicant for the lane repurposing but would like help with completing the application.
  - City prefers alternative #2 – one-way separated bike lanes with wide sidewalk.
    - Consider a phased approach, with the first phase maintaining curb for a lower cost implementation.
  - The City is in support of all of the proposed intersection treatments.
  - Maintain 11' lanes to accommodate freight.
  - The City's priorities for improvements are as follows:
    - Additional pedestrian crossings
    - Intersection geometry modifications, including removing channelized right turns.
    - Median modifications.
    - In general, the City prioritizes improvements based on a reduction of severe injury and fatal crashes per mile.
- Hillsborough County
  - Abigail Flores is leading a study on Safe Routes to Transit, which is looking at what multimodal facilities are needed close to transit stops.
  - The County would support exploring new crosswalks for access to transit stops where there are none.
  - The County is already implementing hardening centerlines and supports exploring extending medians into the intersection with a pedestrian refuge.
  - Installing a pedestrian gate at rail crossings requires coordination with CSX and could take 5+ years.
  - The County's preference is to make flashing beacons overhead rather than ground mounted and use Pedestrian Hybrid Beacons for midblock crossings.
  - Fully signalized intersections are coordinated with emergency vehicles, but midblock crossings are not.
  - Sligh Avenue and the segment adjacent to King High School is a priority for speeding and safety issues.
  - The County supports exploring signal optimizations at Fletcher Avenue to shorten time pedestrians wait to cross 56th Street.
  - Explore a chicane north of Fowler Avenue and include LED lighting.
  - From Fowler Avenue to Fletcher Avenue, Temple Terrace will choose device controls and Hillsborough County will pay for and maintain the devices.

Next Steps

This was the fourth and final PAG meeting. The next step for the Study is completion of the Corridor Development Plan.

Attachments

- Presentation Slides

MEETING SUMMARY

PUBLIC MEETING

December 14, 2021
5:30 PM – 7:30 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for 56th/50th Street from the Selmon Expressway to Fletcher Avenue. A public meeting was held to share findings with the public and gather feedback on travel preferences and specific corridor issues. The meeting was simultaneously held in-person and virtually. Seventeen (17) people attended the in-person meeting and 15 people attended the virtual meeting.

Meeting Goal:

The purpose of the meeting was to share identified issue and opportunities, present the purpose and needs, and gather feedback about travel preferences.

Location:

In-Person:

Lightfoot Senior Recreation Center

10901 N. 56th Street

Temple Terrace, FL 33617

Virtual:

GoToWebinar

Meeting Format:

In person: A video presenting the existing conditions was played every 15 minutes at the entrance of the meeting space. Boards exhibiting existing conditions, purpose and needs and interactive boards for feedback were stationed in the meeting room. A road map introducing the stations in the meeting space were handed out at the sign-in table. Comment forms were given to the attendees at the end of the meeting to provide additional comments.

Virtual: A ConceptBoard, or online white board, link was provided to the attendee who attended virtually: https://app.conceptboard.com/board/21s0-p6x2-nsc8-sp7e-udt5**.** The study team presented the existing conditions, purpose and needs to the virtual attendees and collected input via the online white board. Attendees received a survey at the end of the meeting to provide additional comments.

Meeting Feedback:

Roll Plot Comments:

The attendees were guided to look at an aerial roll plot and provide comments about specific issues they noticed on the corridor. The following details the comments received.

City of Temple Terrace

- From Fletcher Avenue to E Fowler Avenue
  - Multiple lanes are not needed here, and they encourage motorists to speed
- Intersection of E Fowler Avenue and N 56th Street
  - This intersection is too large for pedestrian and bicyclist comfort and causes left turning motorists to pick up too much speed as they travel through the intersection
- Intersection of Bullard Parkway and N 56th Street
  - "Difficult intersection to cross"
- From Busch Boulevard to Fowler Avenue
  - Many people jaywalking between Busch Boulevard and Riverhills Drive
  - Lack of street lighting at Riverhills Drive
  - Designated bike lanes instead of sharrows.
- Angel of Hope Park
  - Angel of Hope Park has no parking or safe access
- White Way Drive
  - North bound traffic is an issue
- Chicago Avenue
  - Need safe crossing
- Redesign the bridge across Hillsborough River, add bike lanes and sidewalks.
- Develop multi-modal connection from east of the corridor to USF.

Hillsborough County

- Put up plastic blockers along shoulders-people use them as through lane sometimes
- Heavy Traffic to Busch Gardens and King High School
- King High School
  - Cemetery underneath agriculture center at King High School
- Netpark Transfer Center
  - Need more high-density residential developments or high-intensity commercial near the transfer center. Or move the transfer center closer to the high school or somewhere else with more mixed-use density

City of Tampa

- Intersection of Lake Avenue and 50th Street
  - Poorly maintained access road where cars come off of 50th street onto Lake at high speeds, and where people make left turns off of Lake to go north on 50th
- E Dr. MLK Jr. Boulevard and 50th Street
  - Highly biked/walked, connect bike lanes to E Dr. MLK Jr. Boulevard, provide better protections for bicyclists and pedestrians

Live / Work Location and Travel Preferences

The attendees were asked to point out where they lived and worked and the routes they take for each mode. Figure 1 shows the information collected:

Figure 1: Live / Work Location and Travel Preferences

Needs Prioritization:

The attendees were asked to choose three needs that they think are the most important. The results are as followed:

1. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians (4)
2. Design and operate street consistent with surrounding land uses to support existing and future destinations (14)
3. Improve transit access and service efficiency (1)
4. Balance freight and vehicle mobility with the needs of vulnerable users at conflict points (7)
5. Support safe local resident and business access needs (18)
6. Provide better multimodal access for Communities of Concern (7)
7. Improve bicyclist and pedestrian safety and comfort along the corridor (4)

Other Comments:

This section documents the comments received on the comment forms:

- Speeding issues need to be addressed.
- Population will change dramatically within the next year – 300 new homes on TT Hwy, new 200+ apartments at Busch Boulevard and 56th Street, Amazon, and VA Hospital
- Need more streetlights I-4 and exit 3, and better landscape
- Need streetlights on Homey Road

Next Steps:

The next steps in the study include:

- Jurisdiction Workshops
- Define Initial Draft Alternatives
- Refine and Evaluate Alternatives
    - Meet with PAG – Spring 2022
    - Meet with Public – Summer 2022
    - Select Final Alternative – Summer 2022
- Corridor Development Plan
    - Final PAG Meeting – Fall 2022

Attachments

- Presentation Slides
- Meeting Materials

MEETING SUMMARY

PUBLIC MEETING

August 30 & 31, 2022
5:30 PM – 7:30 PM

The Florida Department of Transportation – District 7 is conducting a Corridor Planning Study to evaluate the multimodal needs and develop potential solutions for 56th/50th Street from the Selmon Expressway to Fletcher Avenue. A public meeting was held to share typical section and intersection alternatives with the public to gather feedback. The meeting was simultaneously held in-person and virtually. Nine (9) people attended the in-person meeting and 15 people attended the virtual meeting.

Meeting Goal:

The purpose of the meeting was to share and gather feedback on potential alternatives and intersection treatments.

Location:

In-Person:

The first in-person option will be on Tuesday, August 30, 2022, at the Holiday Inn Express & Suites, Tampa East located at 2520 N. 50th Street, Tampa, FL. 33619. The second in-person option will be on Wednesday, August 31, 2022, at the Lesley Miller Jr. All People's Community Park & Life Center located at 6105 E Sligh Ave, Tampa, FL 33617.

Virtual:

GoToWebinar

Meeting Format:

In person: A video presenting the existing conditions was played every 15 minutes at the entrance of the meeting space. Boards exhibiting existing conditions, purpose and needs and interactive boards for feedback were stationed in the meeting room. A road map introducing the stations in the meeting space were handed out at the sign-in table. Comment forms were given to the attendees at the end of the meeting to provide additional comments.

Virtual: A ConceptBoard, or online white board, link was provided to the attendee who attended virtually: https://app.conceptboard.com/board/3nxu-dcxi-gg0p-4ui2-ph0x**.** The study team presented potential alternatives and intersection treatments to the virtual attendees and collected input via the online white board. Attendees received a survey at the end of the meeting to provide additional comments.

Meeting Feedback:

Roll Plot Comments:

The attendees were guided to look at an aerial roll plot and provide comments about specific issues they noticed on the corridor. The following details the comments received.

Corridor wide

- Improve signage
- Add shade trees
- Leading Pedestrian Interval at all signals

City of Temple Terrace

- From Busch Blvd to Temple Heights Road
  - Evaluate median

Hillsborough County

- Hanna Avenue
  - Drainage issue

City of Tampa

- Columbus Drive to 20th Avenue
  - Evaluate crossings on side streets

Needs Prioritization:

The attendees were asked to choose three needs that they think are the most important. The results are as followed:

1. Design and operate street consistent with surrounding land uses to support existing and future destinations (1)
2. Increase the frequency and safety of crossing opportunities for bicyclists and pedestrians (5)
3. Improve transit access and service efficiency (1)
4. Provide better multimodal access for Communities of Concern (3)
5. Improve bicyclist and pedestrian safety and comfort along the corridor (4)

Alternative Preference:

The attendees were asked to choose the typical section alternatives that they prefer for 2 lane, 4 lane and Temple Terrace section. The results are as follows:

- 6 Lane Section
  - #1 – Two-way separated bike lanes maintain curb (4/8 votes)
  - #2 – One-way separated bike lanes with wide sidewalk (3/8 votes)
  - #3 – 12' widewalk with grassed separation (1/8 votes)
  - #4 – 12' widewalk (0/8 votes)
- 4 Lane Section
  - #2 – 12' shared use path with one-way separated bike lane (17/17 votes)
  - #1 – 12; shared use path maintain pavement (0/17 votes)

- Downtown Temple Terrace
    - #2 – shared use path with spot medians (11/11 votes)
    - #1 – 11’ widewalk with existing median (0/11 votes)

Other comments related to typical section alternatives include:

- Prefer concrete separation
- Need shade trees

Other Comments:

This section documents the comments received on the comment forms:

- Continuous protected bike lane preferred
- The northbound left-turn lanes from 41st Street onto 50th Street are not long enough for the left-turning queue, waiting vehicles would back up into through lanes.

Next Steps:

The next steps in the study include:

- Corridor Development Plan

Attachments

- Presentation Slides
- Meeting Materials

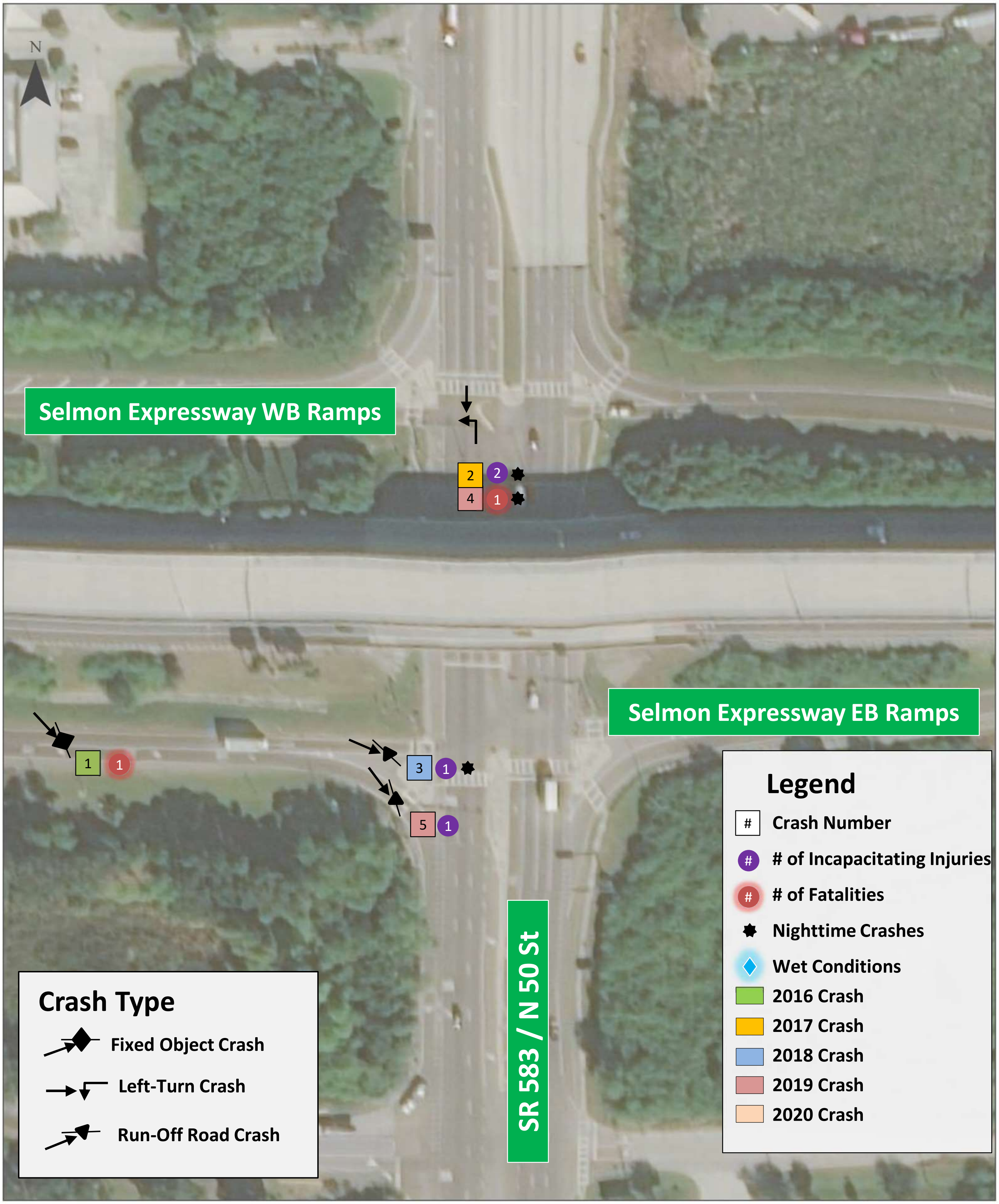
Appendix B

Context Classification

Roadway	Jurisdiction	Start	End	Mileposts		Distinguishing Characteristics	Existing Land Use	Existing Zoning	Future Land Use	Building Height	Building Placement	Fronting Uses	Location of Off-street Parking	Block Length	Block Perimeter	Intersection Density	Population Density (Existing)	Employment Density (Existing)	Allowed Residential Density	Allowed Office/Retail Density[3]	Current Context Classification
ID	Name	Name	Name	Beginning	End		*Land use mix for >50% of the fronting uses*	*Zoning Code*	*Land use mix for >50% of the fronting uses*	*Range in building heights for >50% of the properties (stories)*	*Location of buildings in terms of setbacks (ft) for >50% of parcels*	*>50% of buildings have front doors accessible from the sidewalk*	*Location of parking in relation to the building*	*Avg. distance between intersections (ft)*	*Avg. perimeter of blocks adjacent to the roadway on either side (ft)*	*Number of intersections per square mile*	*Population per acre based on the census block group (Persons/Acre)*	*Total number of jobs per acre (Jobs/Acre)*	*Maximum allowed residential density by adopted zoning (Dwelling Units/Acre)*	*Maximum allowed office or retail density in terms of Floor Area Ratio (FAR)*	
10060000	Tampa	Selmon Expressway	Railroad Crossing	25.362	26.083	Selmon Expressway on/off ramps (competing modes/movements crossing); freight vehicles traveling to/from industrial sites and sharing the road with HART transit vehicles and users get to/from HART transit stops.	Industrial	IH - Industrial Heavy	HI - Heavy Industrial	1	Detatched buildings with large (>80') front setbacks	No	Mostly in front and side; occasionally in rear	690.8	5054.8	49.5	0.3	2.4	N/A	NA	C3C
10060000	Tampa	Railroad Crossing	E Columbus Dr	26.083	26.572	Smaller parcels with general commercial and vehicular-focused destinations; Columbus Plaza (large place of employment); potential redevelopment on the corner of N 50th St and E 14th Ave; start of keyhole BL	Commercial	CI - Commercial Intensive; RM-16 - Residential Multi-Family; IG - Indistrial General	CC-35 - Community Commercial	1 to 2	Detatched buildings with large (>80') front setbacks	No	Mostly in front and side; occasionally in rear	605.1	2977.9	81.5	0.6	3.7	Varies	N/A	C3C
10060001	Tampa	E Columbus Dr	US 41/E 21St Ave	0.000	0.248	I-4 on/off ramps (competing modes/movements crossing); hotels/motels on both sides of road	Commercial	CI - Commercial Intensive	CC-35 - Community Commercial; UMU-60 - Urban Mixed Use	1	Detatched buildings with large (>75') front setbacks	No	Mostly in front and side; occasionally in rear	1337.0	2682.3	111.2	1.2	3.2	Varies	N/A	C3C
10330000	Tampa	US 41/E 21St Ave	SR 574/ E Dr MLK Jr Blvd	0.154	0.916	HART stops; commercial (ADESA Tampa) & residential fronting roadway; Memorial Cemetery	Commercial	RM-16 Residential Multi-Family; RS-60 Residential Single-Family; CI - Commercial Intensive	CC-35 - Community Commercial	1	Detatched buildings with medium (20' to 75') front setbacks	No	Mostly in side or rear; occasionally in front	1002.8	3066.5	107.4	1.1	4.6	Varies	N/A	C4
10330000	Hillsborough	SR 574/E Dr MLK Jr Blvd	E Sligh Ave	0.916	3.156	Large distribution site (Pepin's); Tampa Workforce Alliance; Netpark Transfer Center/HART stops; King High School; Coreslab Structures	Industrial	M - Manufacturing; PD - Planned Development; CI - Commercial Intensive; RSC-9 - Residential/Single Family/Conventional	LI - Light Industrial	1	Detatched buildings with large (>90') front setbacks	No	Mostly front; occassionally side and back	856.8	4833.7	42.0	0.3	4.9	N/A	0.75	C3C
10330000	Hillsborough	E Sligh Ave	Puritan Rd	3.156	3.812	HART stops; Turkish Cultural Center Of Tampa Bay	Commercial; Single Family/Multi Family; Industrial; Institutional	Commercial/Office/Industrial; Planned Development; Residential - Multi-Family Conventional; Commercial - Neighborhood; Residential - Single-Family Conventional	Suburban MU; Urban MU; Light Industrial; Public; Office/Commercial; Residential	1 to 2	Detatched buildings with large (50' to 115') setbacks	No	Mostly front; occassionally side and back	877.0	4618.3	52.7	6.4	6.4	N/A	1	C3C
10330000	Hillsborough/Temple Terrace	Puritan Rd	Fowler Ave	3.812	6.164	HART stops; potential redevelopment at Temple Terrace Plaza; Temple Terrace Elementary School; Corpus Christi Catholic School; Woodmont Charter School	Commercial; Single Family/Multi Family; Industrial; Institutional; Governmental	Commercial General; Planned Development; R-10 SFR; Commercial Office; RMF-MFR	Downtown MU-35; Commercial; Residential-4; Office/Institutional; Commercial; Residential-18; Public/Semi-Public;	1 to 2	Detatched buildings with large (50' to 115') setbacks	No	Mostly front; occassionally side and back	992.4	3221.5	91.9	3.3	4.9	N/A	1	C4
Off SHS	Temple Terrace	Fowler Ave	Fletcher Ave	N/A	N/A	USF nearby	Commercial; Single Family/Multi Family	CG - Commercial General	C - Commercial	1 to 2	Detatched buildings with large (50' to 115') setbacks	No	Mostly front; occassionally side and back	413.7	2420.7	80.1	7.7	6.4	N/A	1	C3C

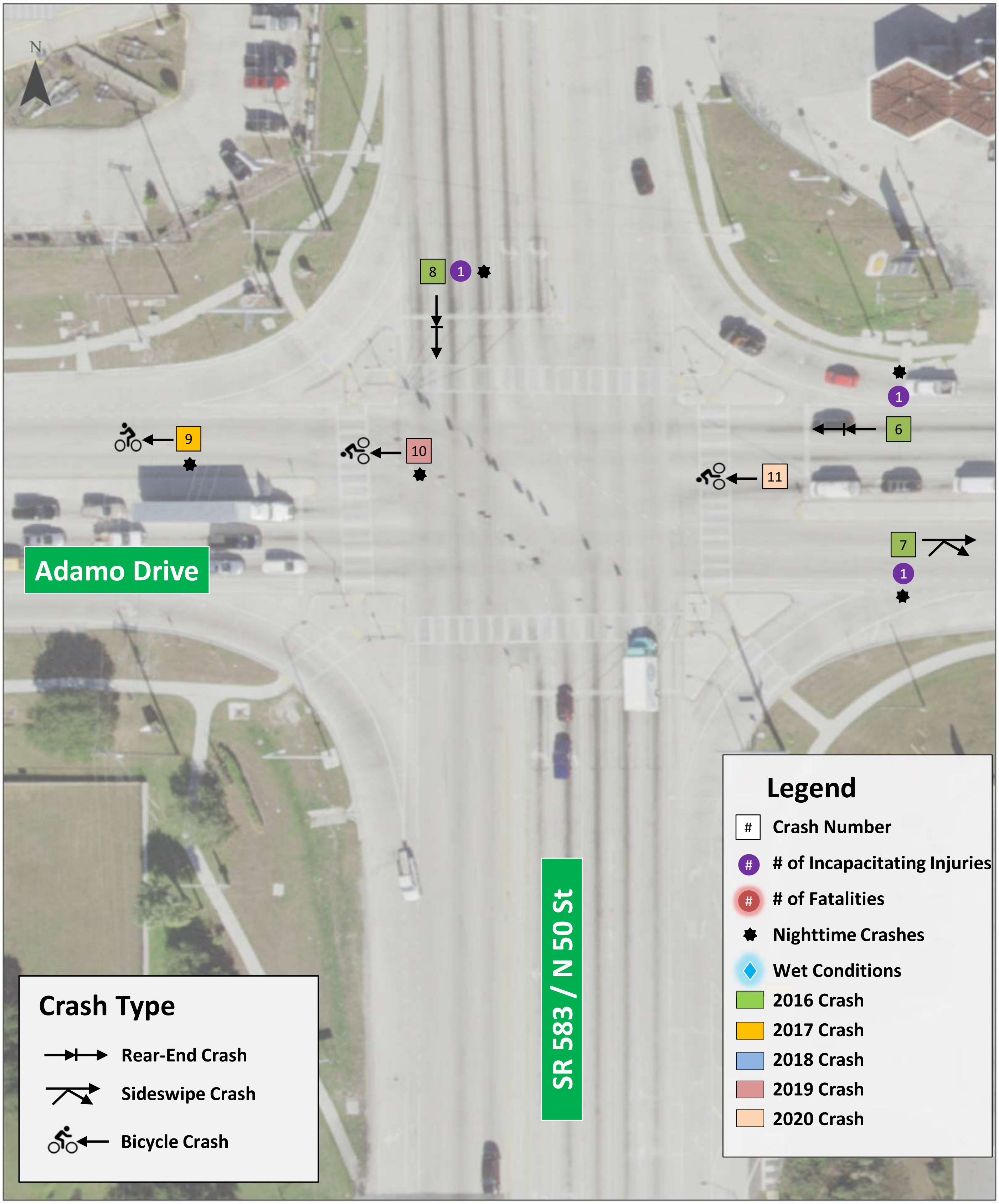
Appendix C

Collision Diagrams



Collision Diagram at 50th Street and Selmon Expressway Ramps

Figure 1



Collision Diagram at 50th Street and Adamo Drive

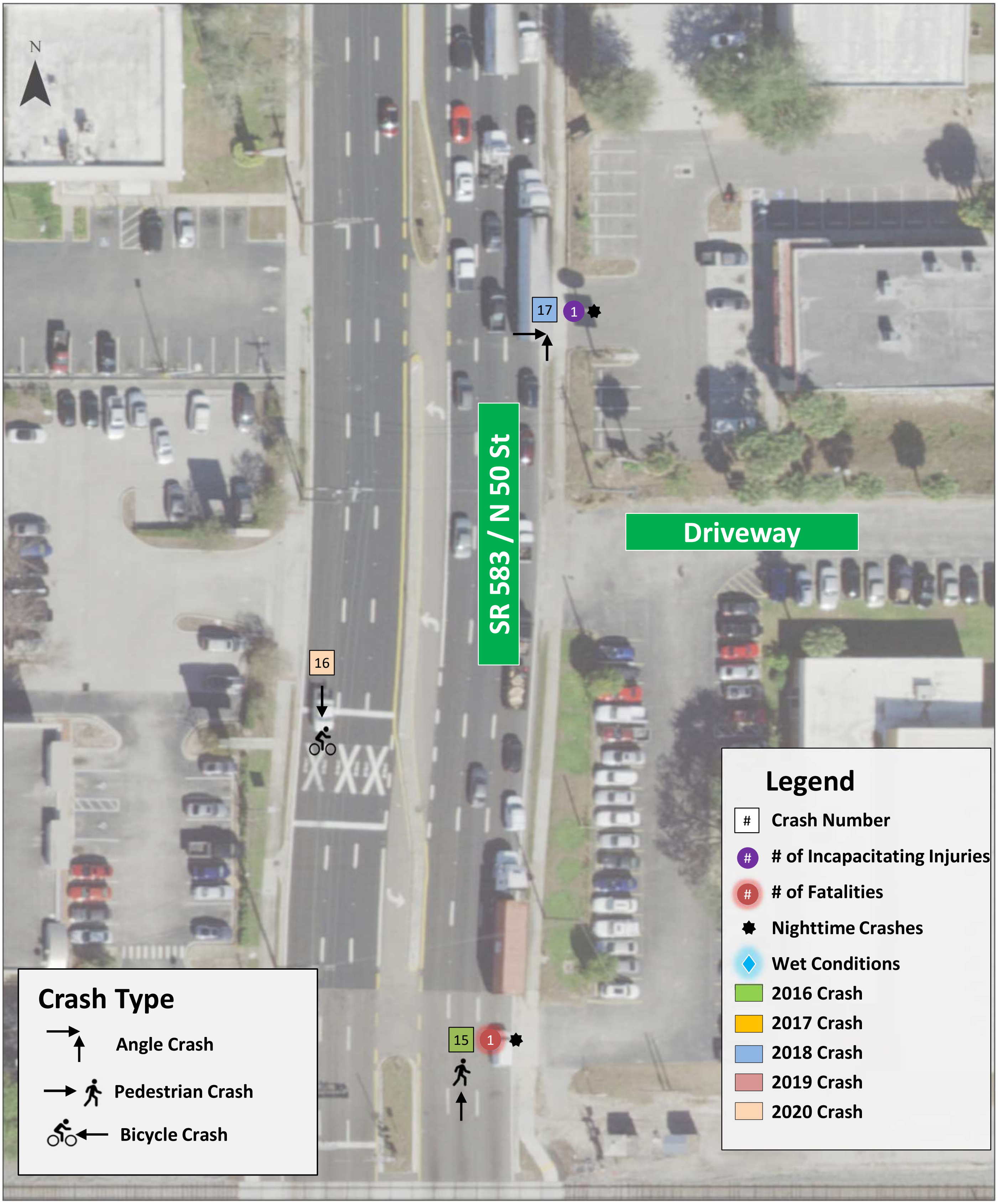
Figure 2

Collision Diagram at 50th Street and Acline Drive

Figure 3

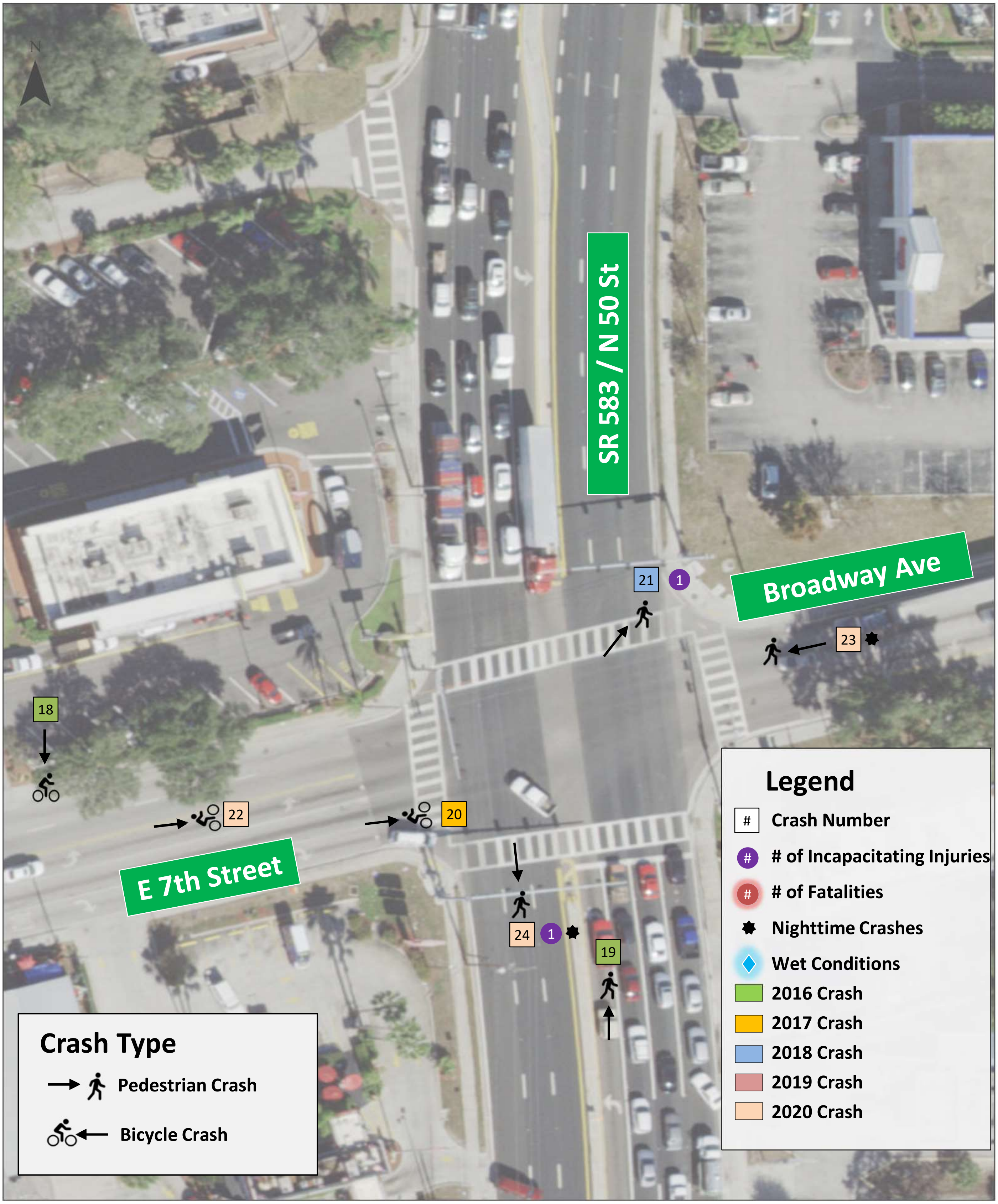
Collision Diagram at 50th Street and Distribution Drive

Figure 4



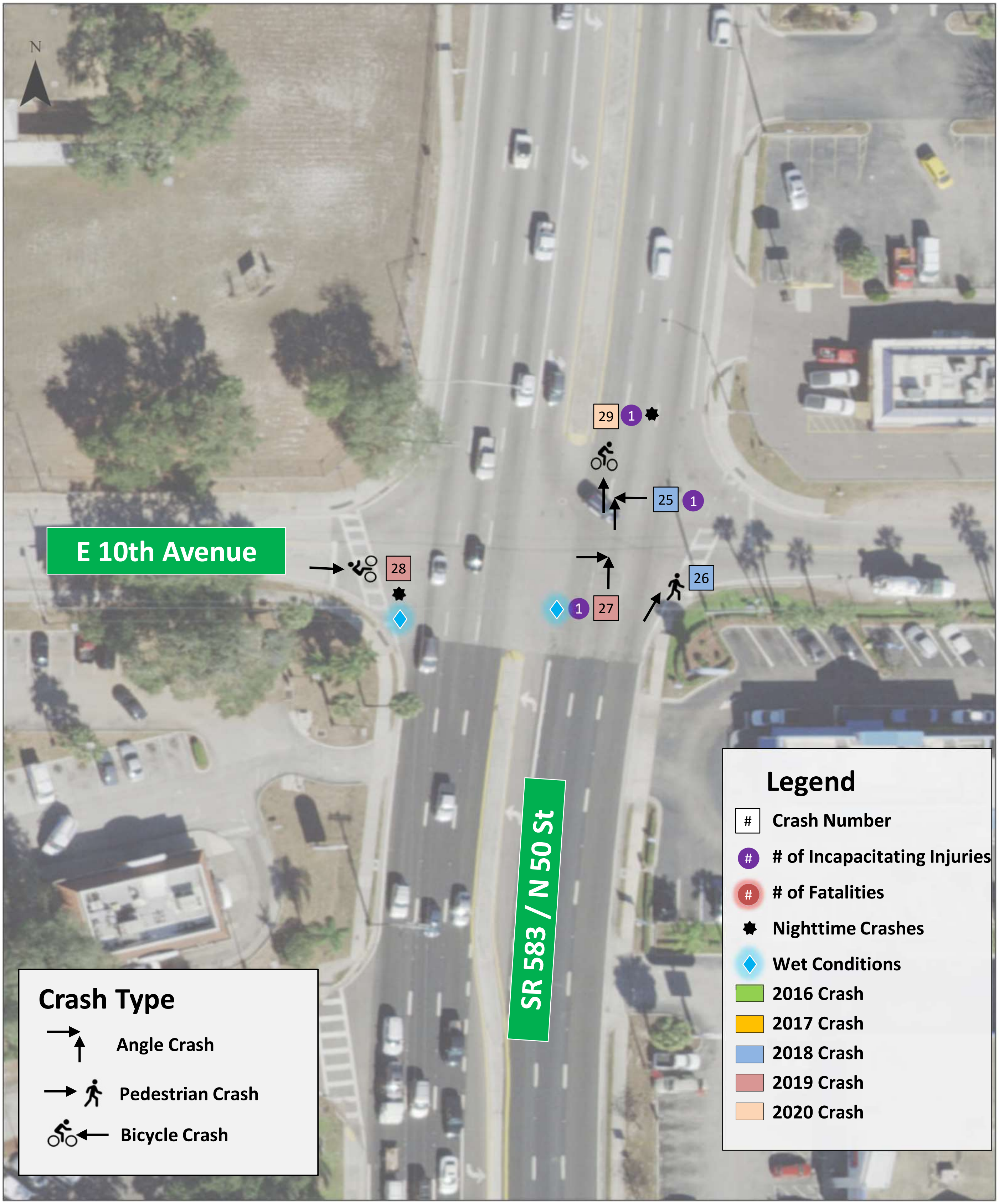
Collision Diagram at 50th Street and South of Broadway Ave

Figure 5



Collision Diagram at 50th Street and E 7th Street / Broadway Avenue

Figure 6

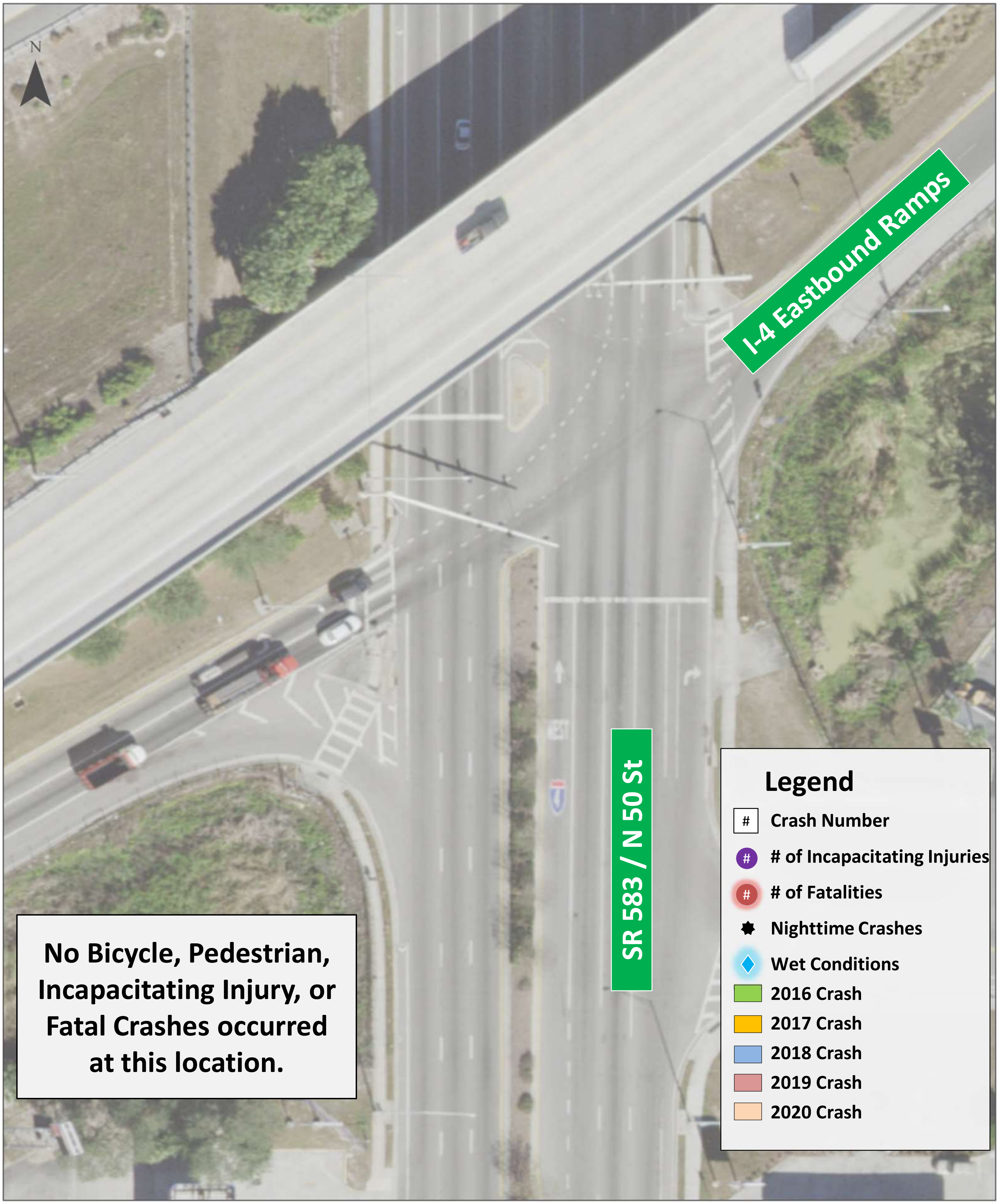


Collision Diagram at 50th Street and 10th Avenue

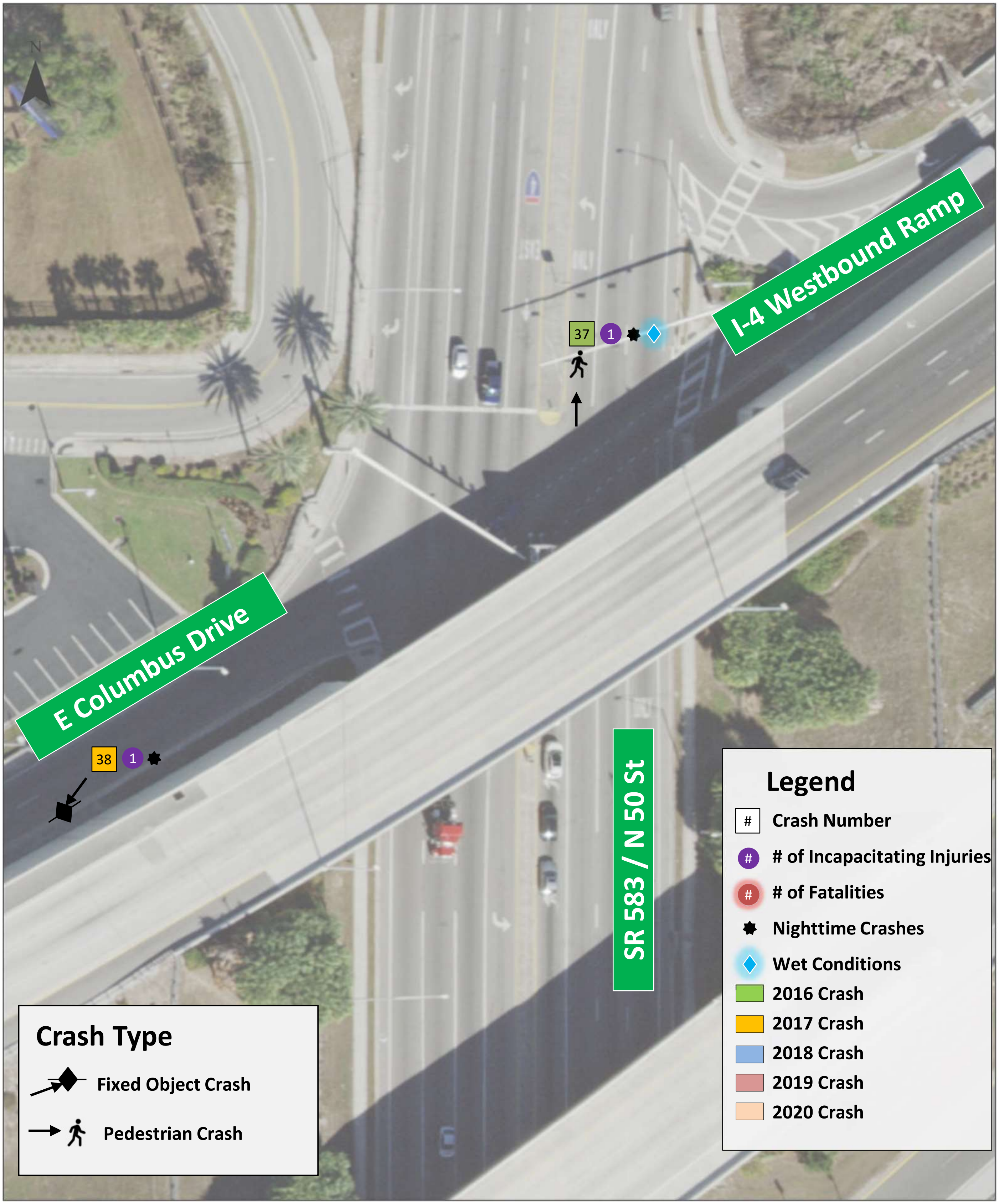
Figure 7

Collision Diagram at 50th Street and E 14th Avenue / Columbus Drive

Figure 8

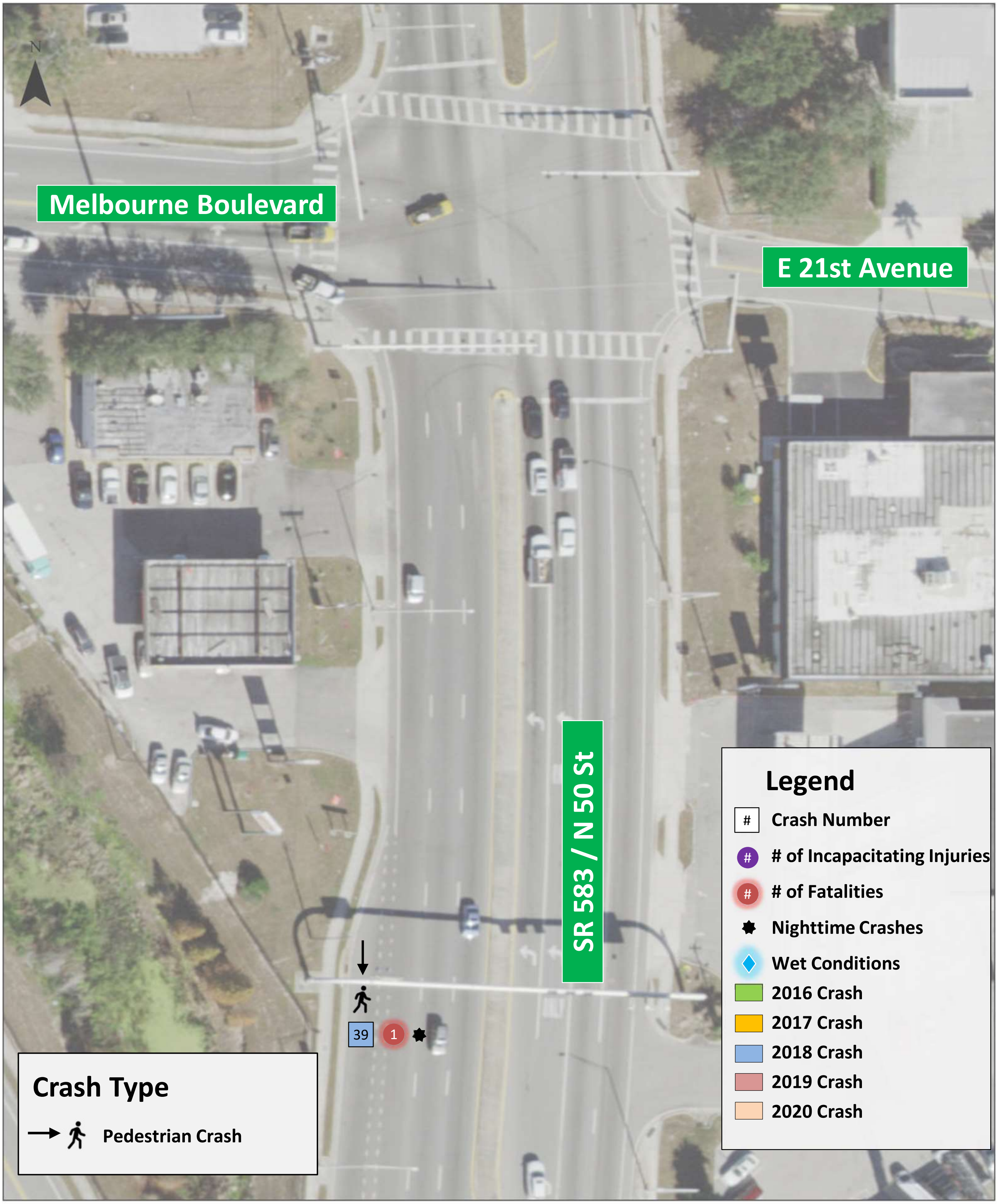


Collision Diagram at 50th Street and I-4 Eastbound Ramps **Figure 9**



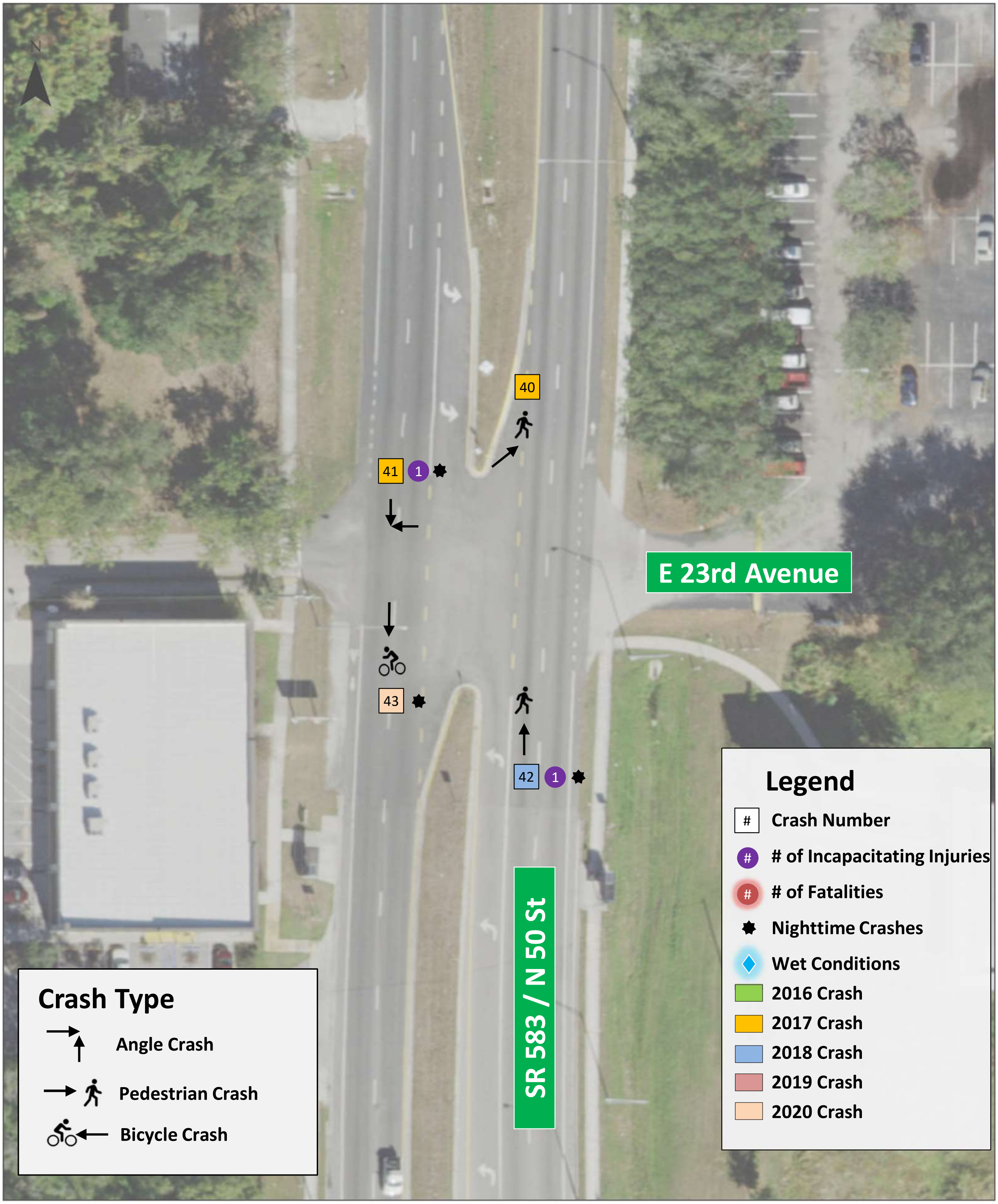
Collision Diagram at 50th Street and I-4 Westbound Ramp / E Columbus Drive

Figure 10



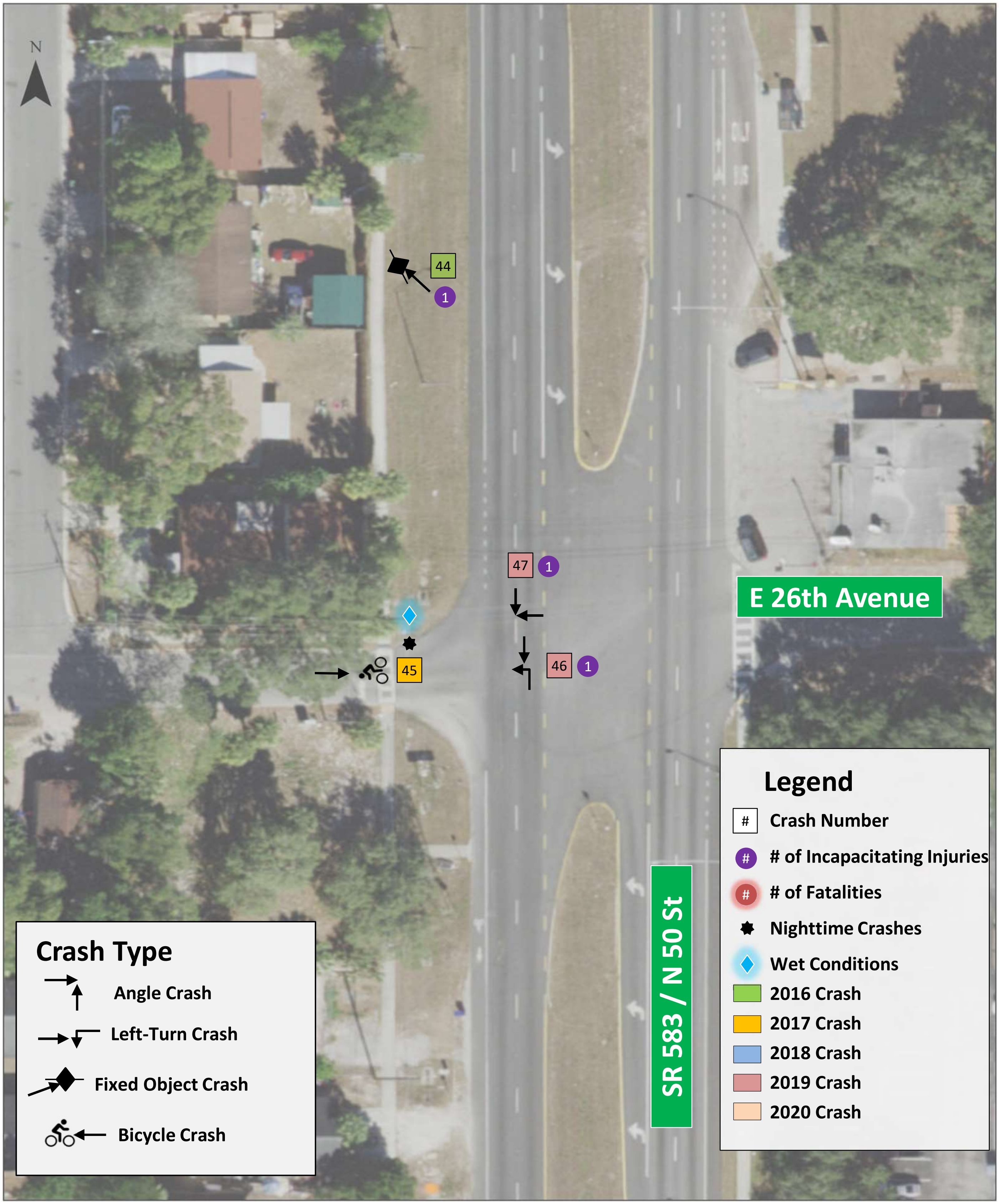
Collision Diagram at 50th Street and Melbourne Boulevard / E 21st Avenue

Figure 11



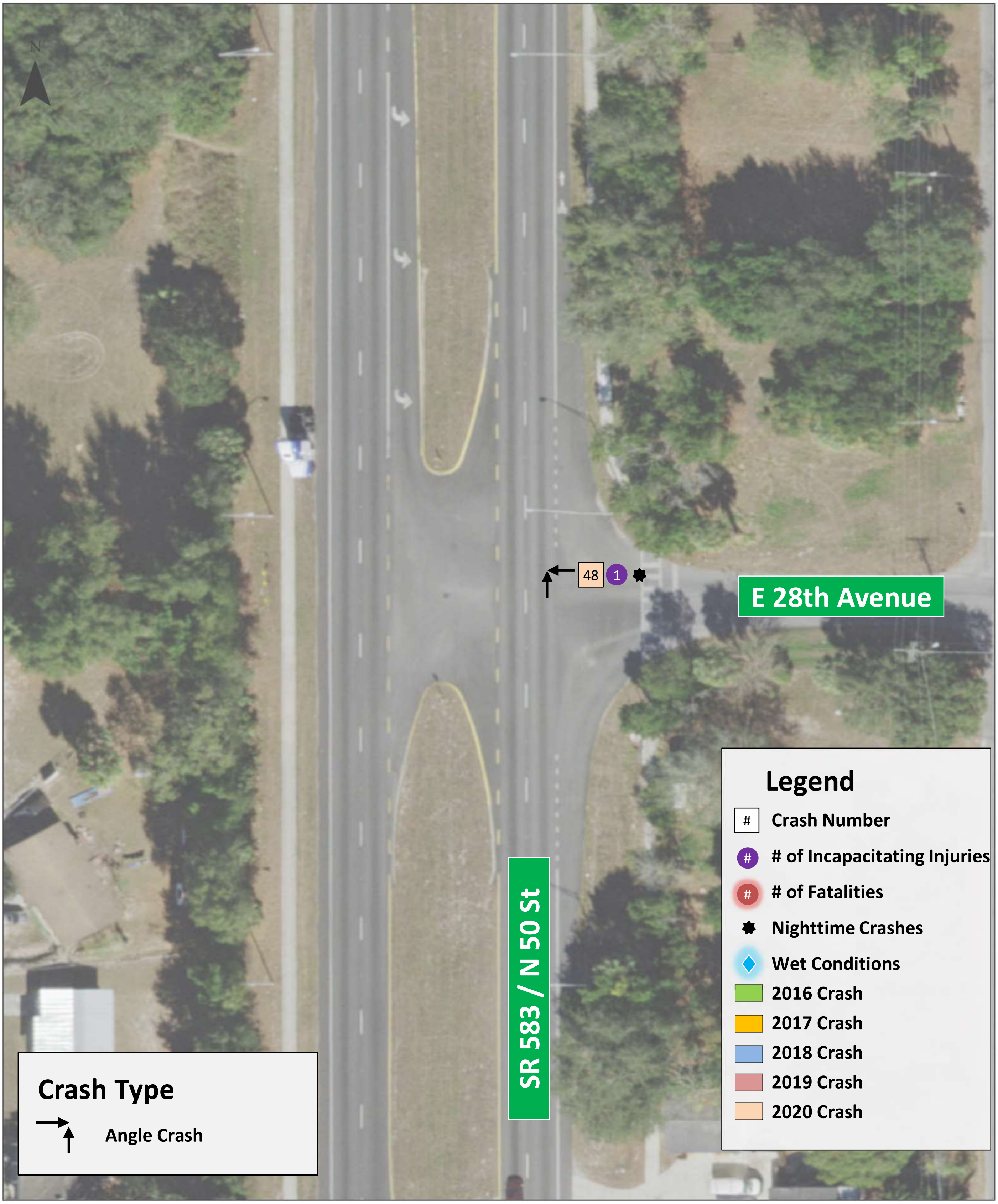
Collision Diagram at 50th Street and E 23rd Avenue

Figure 12



Collision Diagram at 50th Street and E 26th Avenue

Figure 13



Collision Diagram at 50th Street and E 28th Avenue

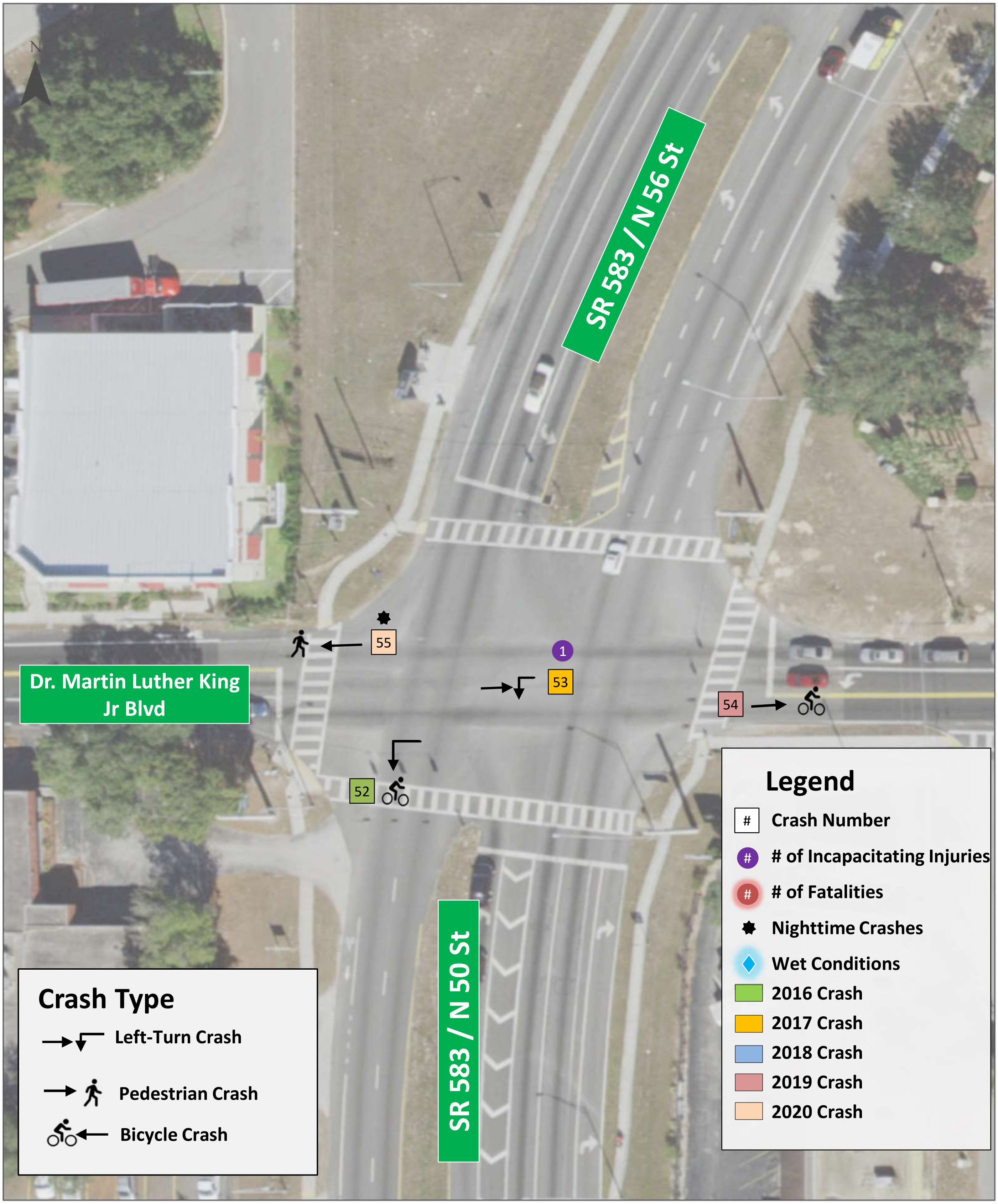
Figure 14

Collision Diagram at 50th Street and E 30th Avenue

Figure 15

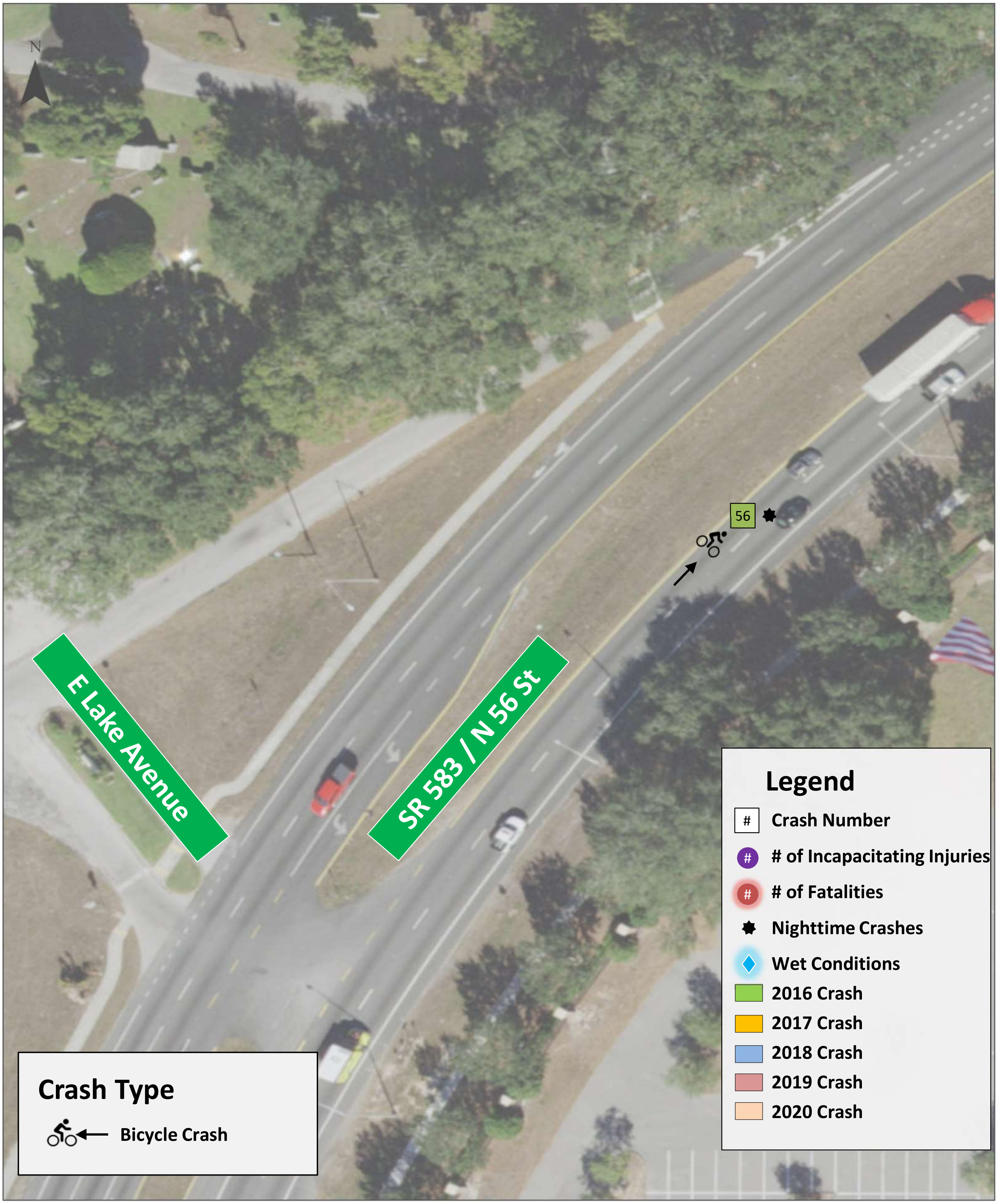
Collision Diagram at 50th Street and E 32nd Avenue

Figure 16



Collision Diagram at 50th Street and Dr. Martin Luther King Jr Boulevard

Figure 17



Collision Diagram at 56th Street and E Lake Avenue

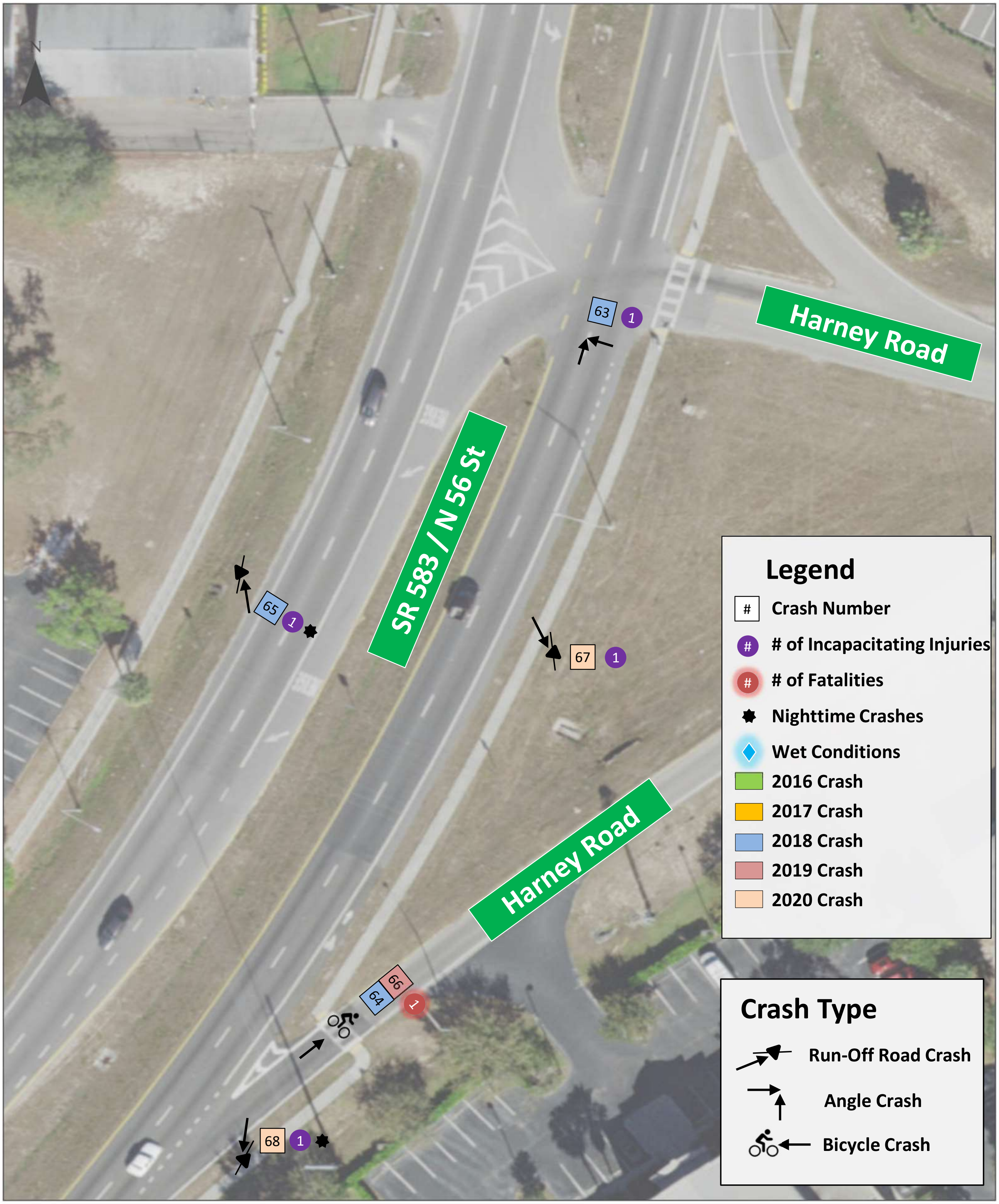
Figure 18

Collision Diagram at 56th Street and E Chelsea Street

Figure 19

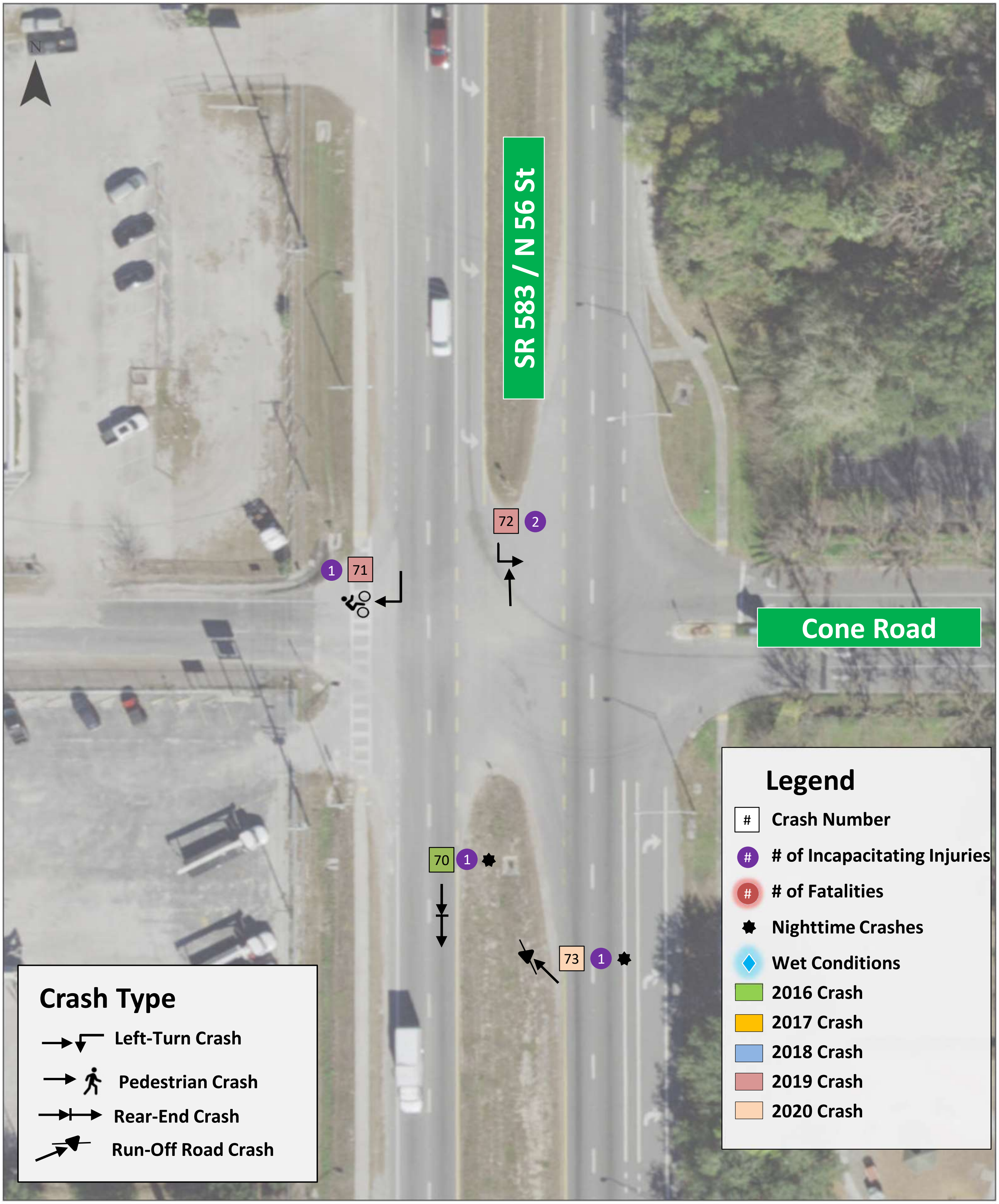
Collision Diagram at 56th Street and E Chelsea Street

Figure 20



Collision Diagram at 56th Street and Harney Road

Figure 21

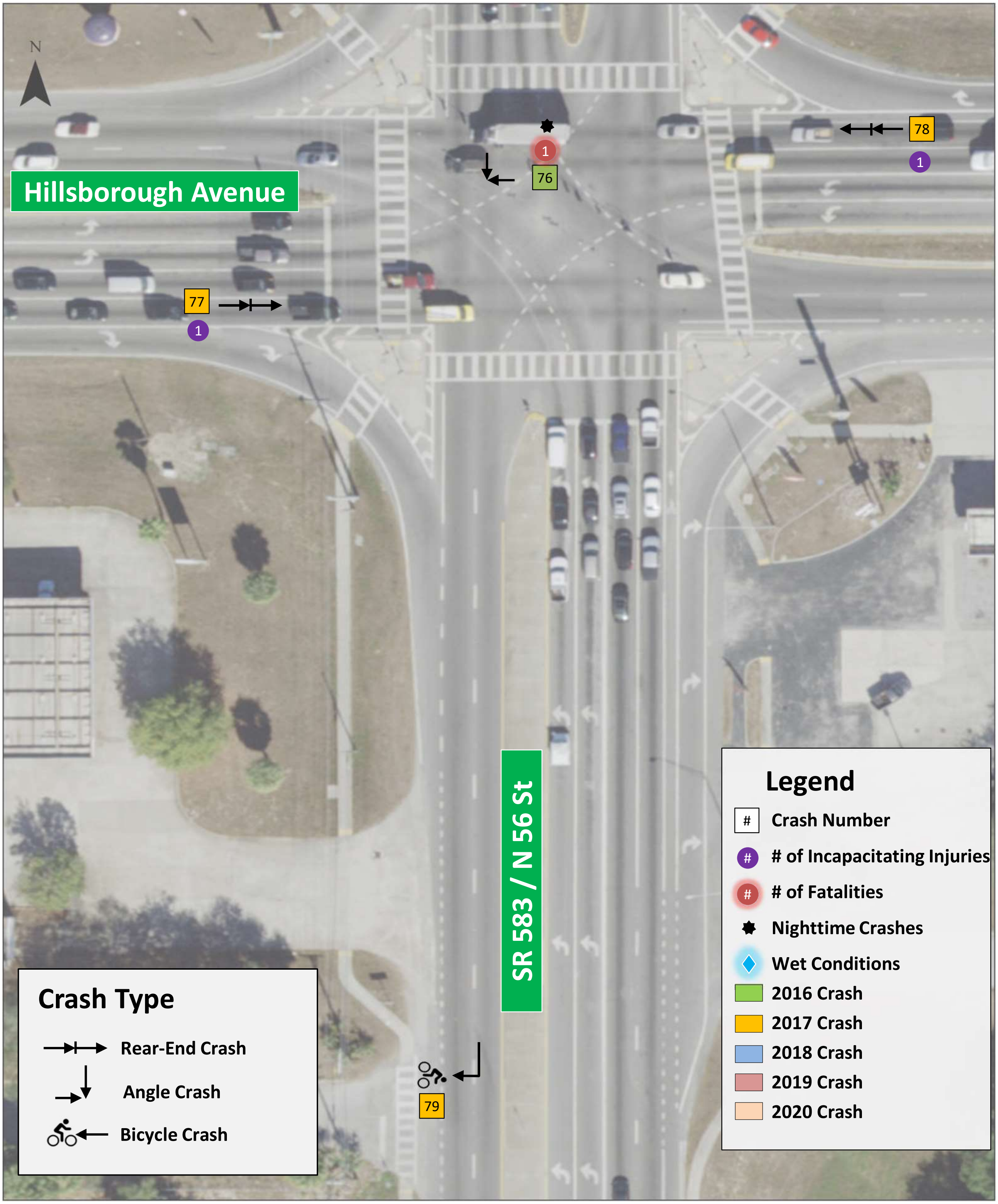


Collision Diagram at 56th Street and Cone Road

Figure 22

Collision Diagram at 56th Street and Shadowlawn Avenue

Figure 23



Collision Diagram at 56th Street and Hillsborough Avenue

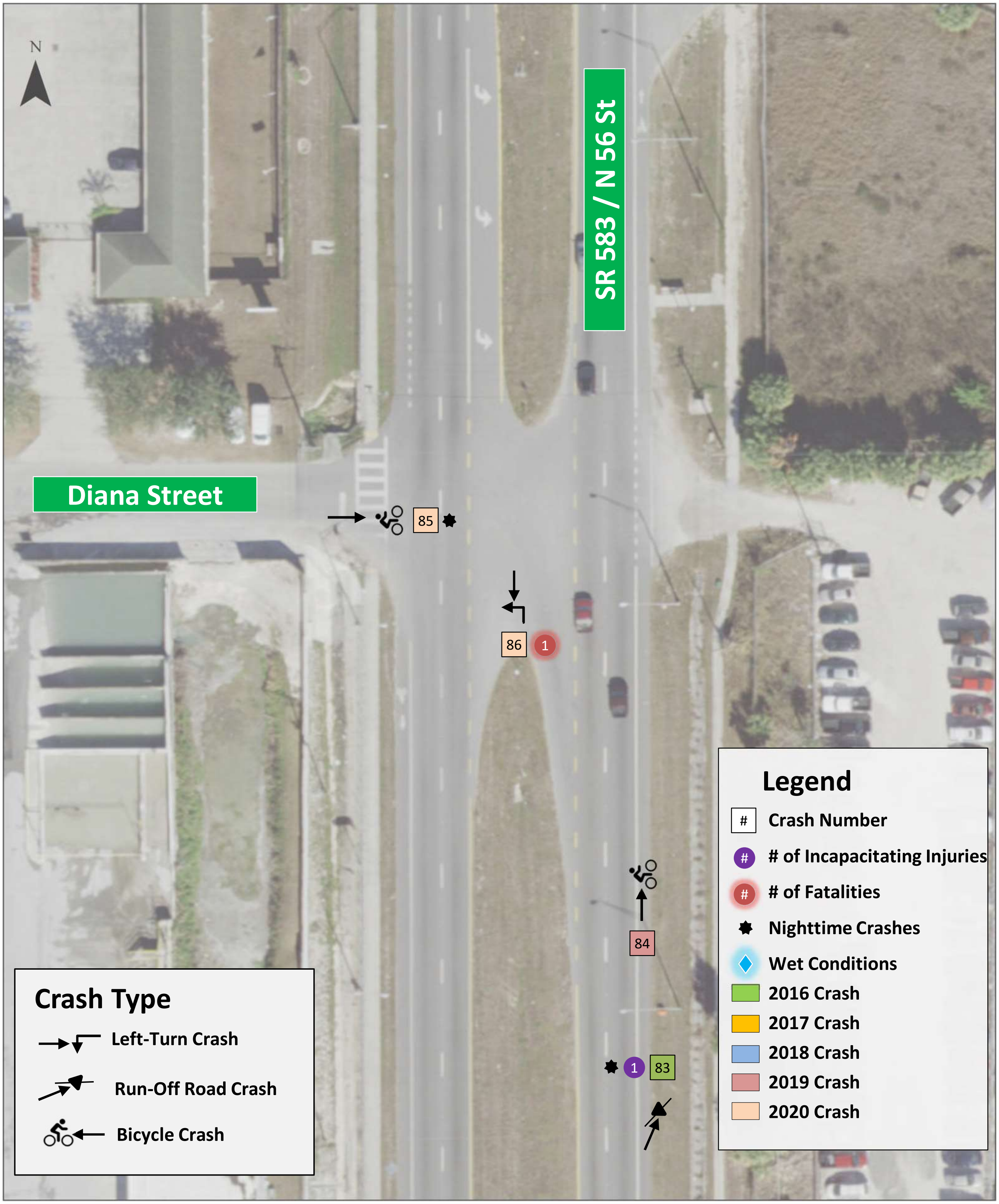
Figure 24

Collision Diagram at 56th Street and Hanna Avenue

Figure 25

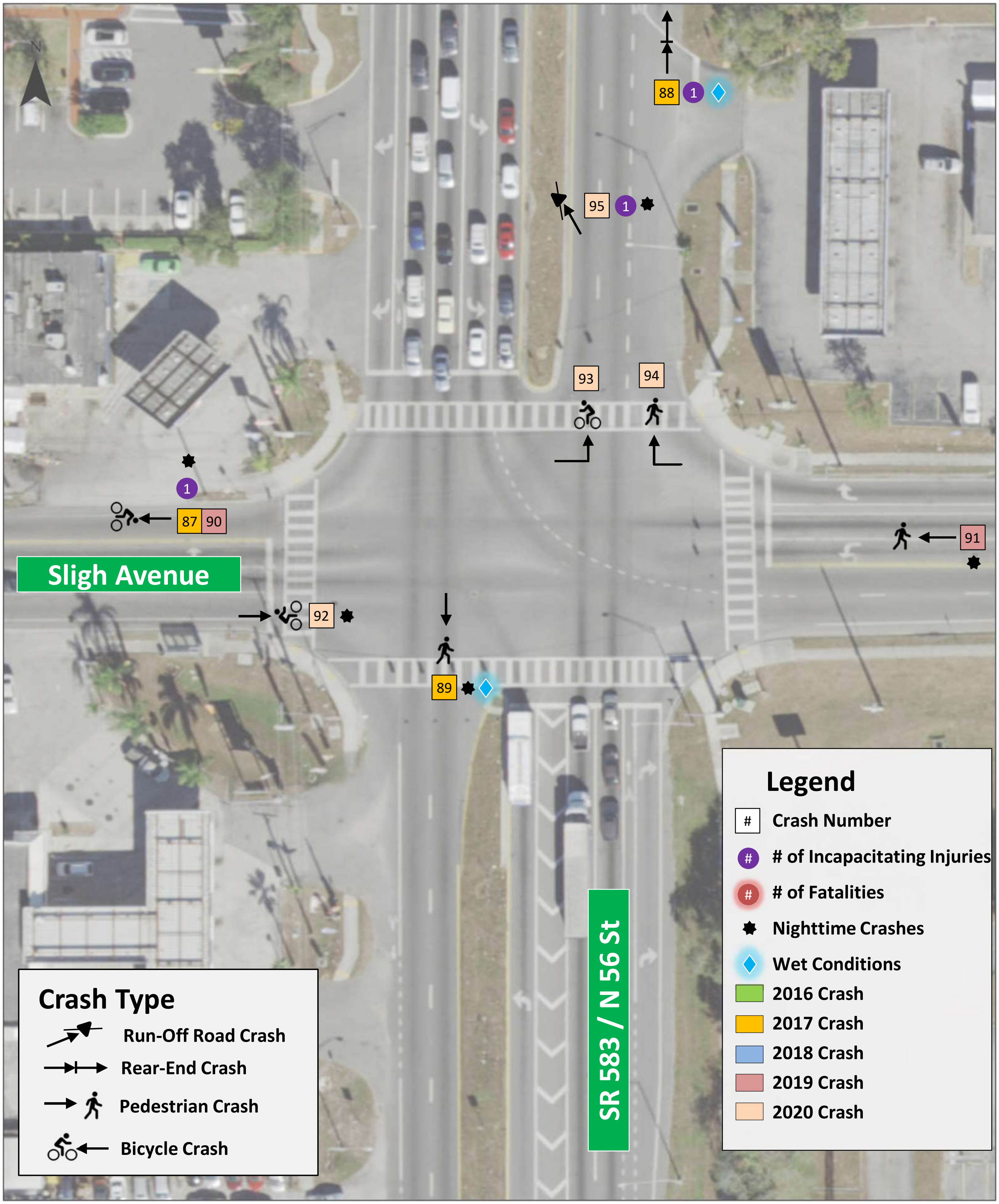
Collision Diagram at 56th Street and Driveway North of Hanna Avenue

Figure 26



Collision Diagram at 56th Street and Diana Street

Figure 27



Collision Diagram at 56th Street and Sligh Avenue

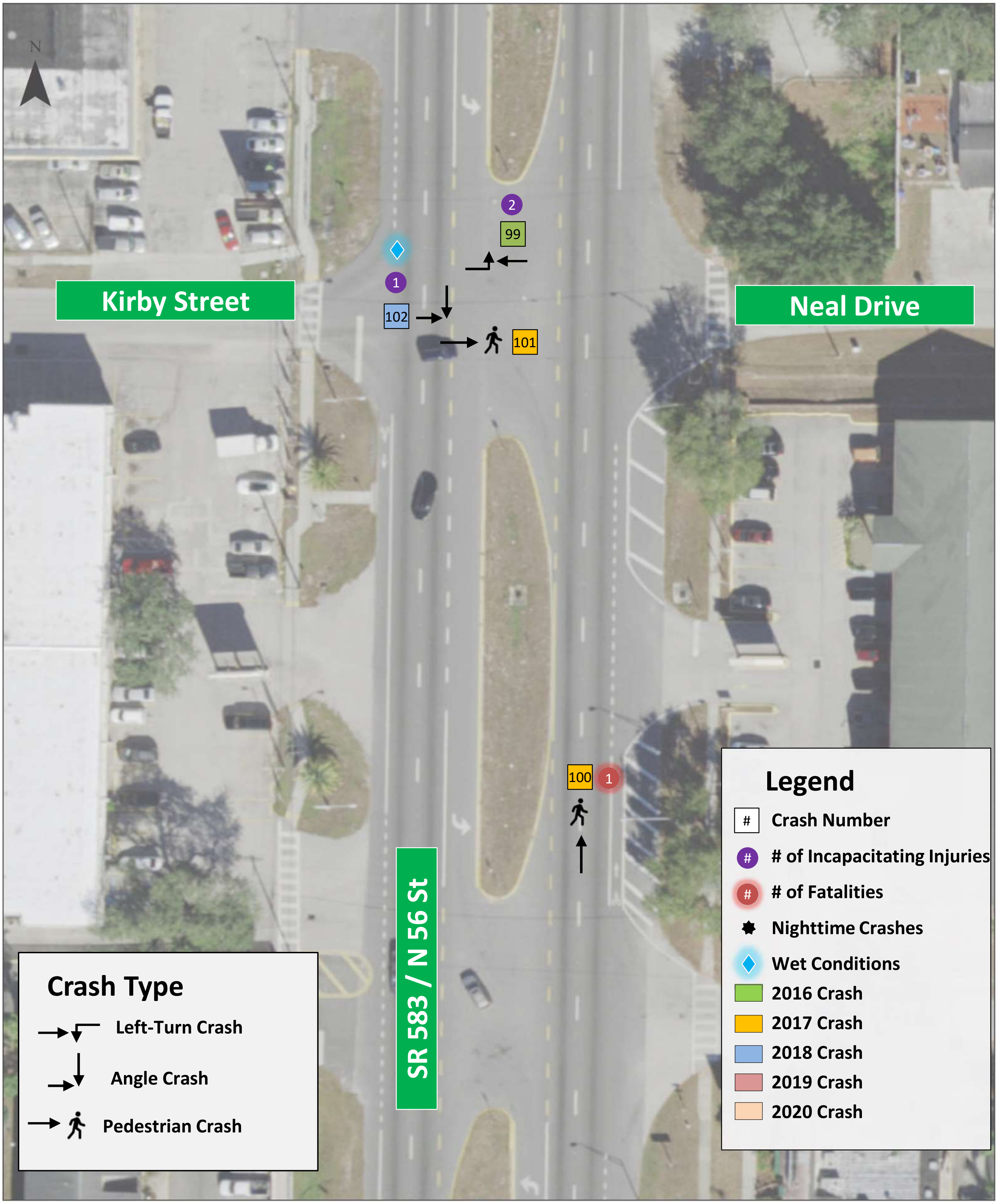
Figure 28

Collision Diagram at 56th Street and Society Park Boulevard

Figure 29

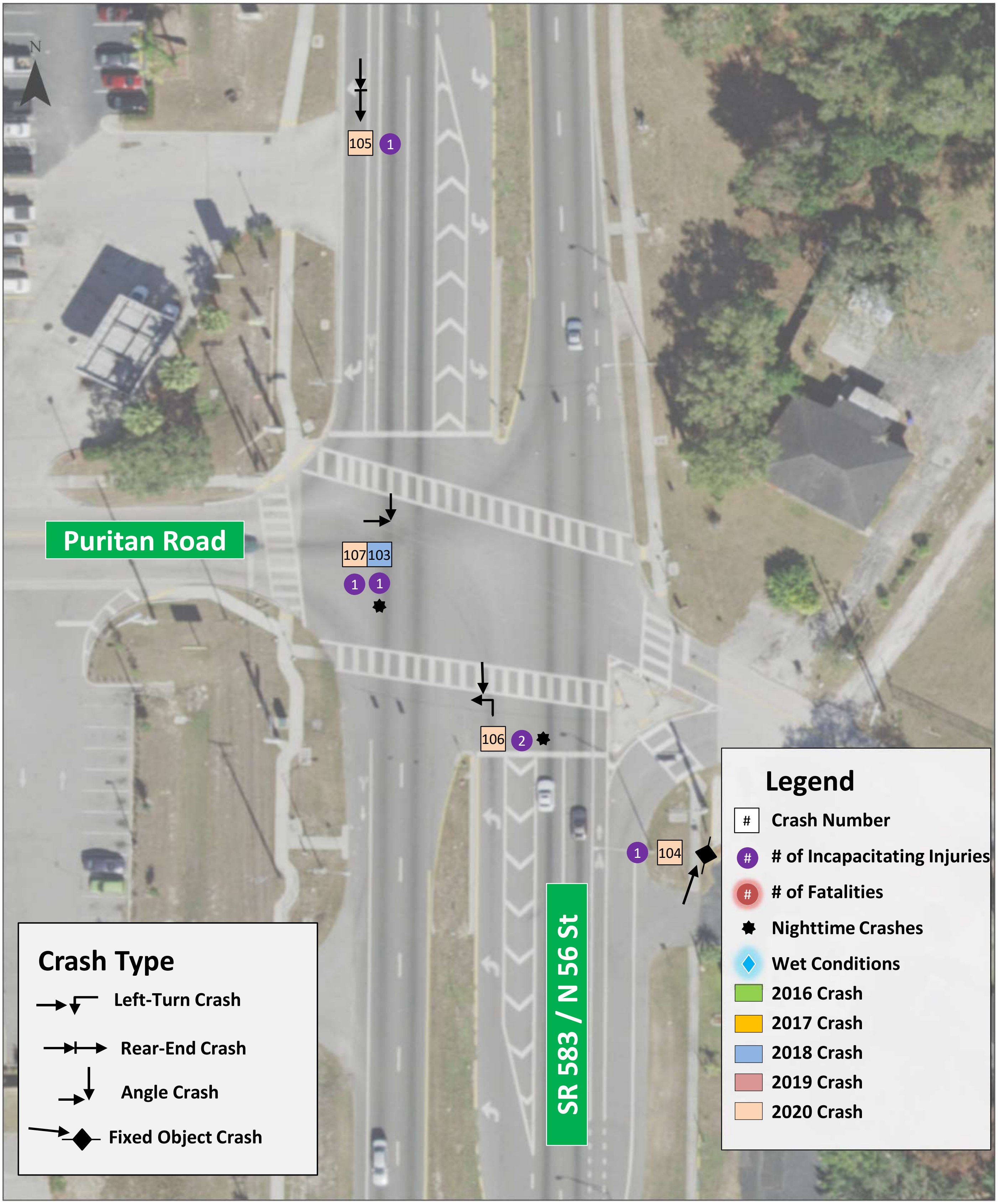
Collision Diagram at 56th Street and Corporate Square

Figure 30



Collision Diagram at 56th Street and Kirby Street

Figure 31



Collision Diagram at 56th Street and Puritan Road | **Figure 32**

Collision Diagram at 56th Street and Riverhills Drive

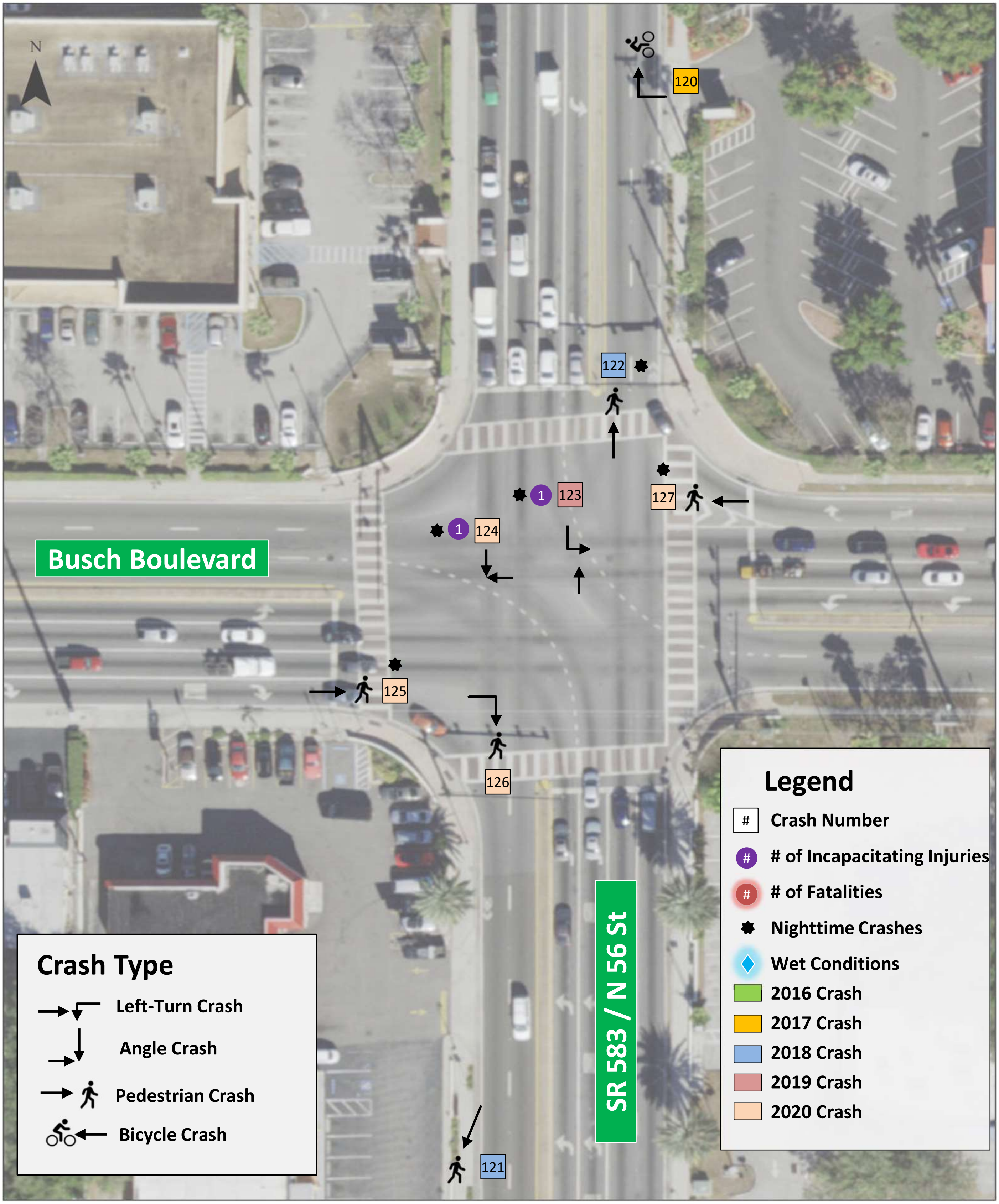
Figure 33

Collision Diagram at 56th Street and Chicago Avenue

Figure 34

Collision Diagram at 56th Street and South of Busch Boulevard

Figure 35



Collision Diagram at 56th Street and Busch Boulevard

Figure 36

Collision Diagram at Busch Boulevard and Beverly Drive

Figure 37

Collision Diagram at 56th Street and Sewaha Road

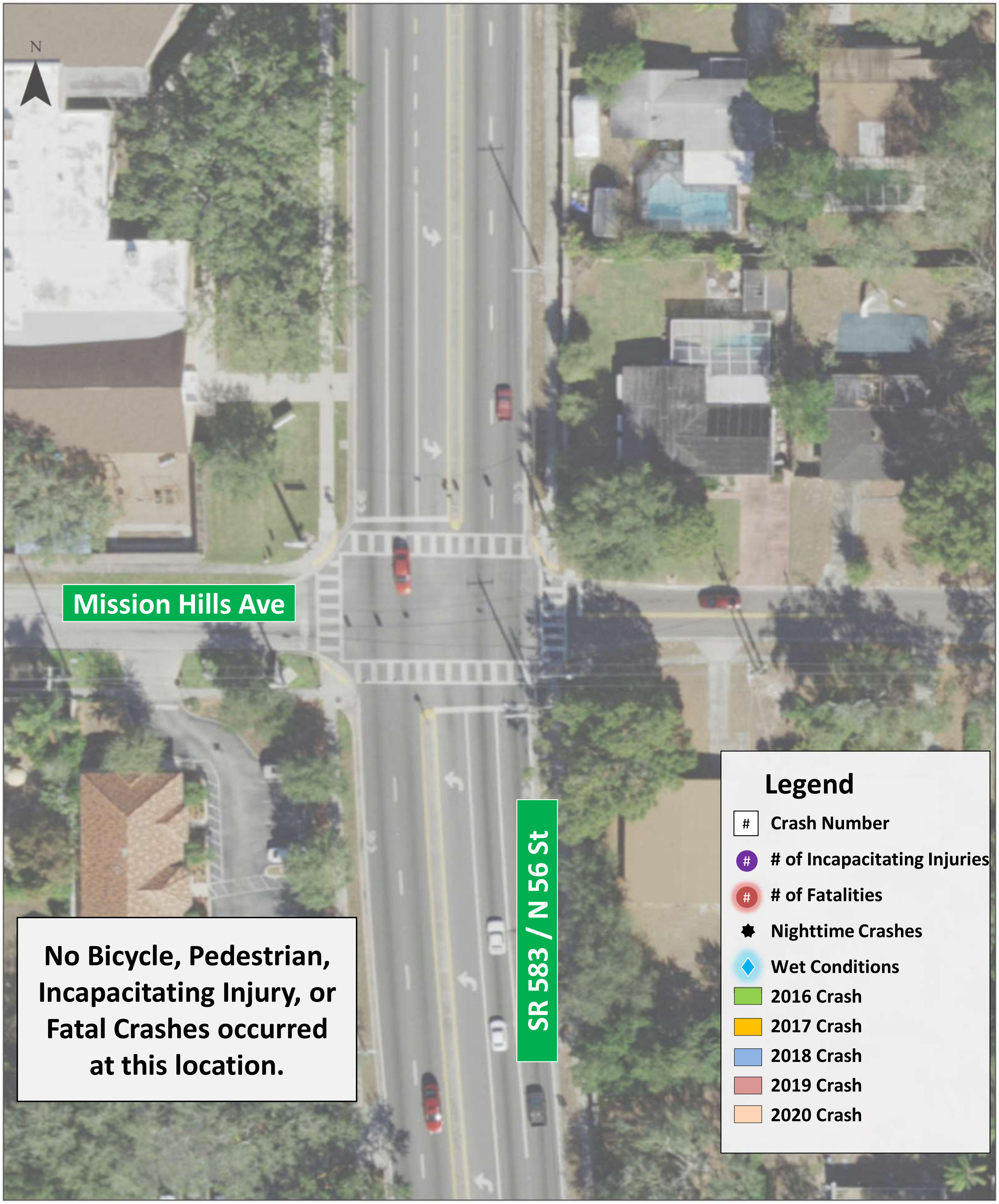
Figure 38

Collision Diagram at 56th Street and Temple Heights Road

Figure 39

Collision Diagram at 56th Street and E 98th Avenue

Figure 40



Collision Diagram at 56th Street and Mission Hills Avenue

Figure 41

Collision Diagram at 56th Street and Serena Drive

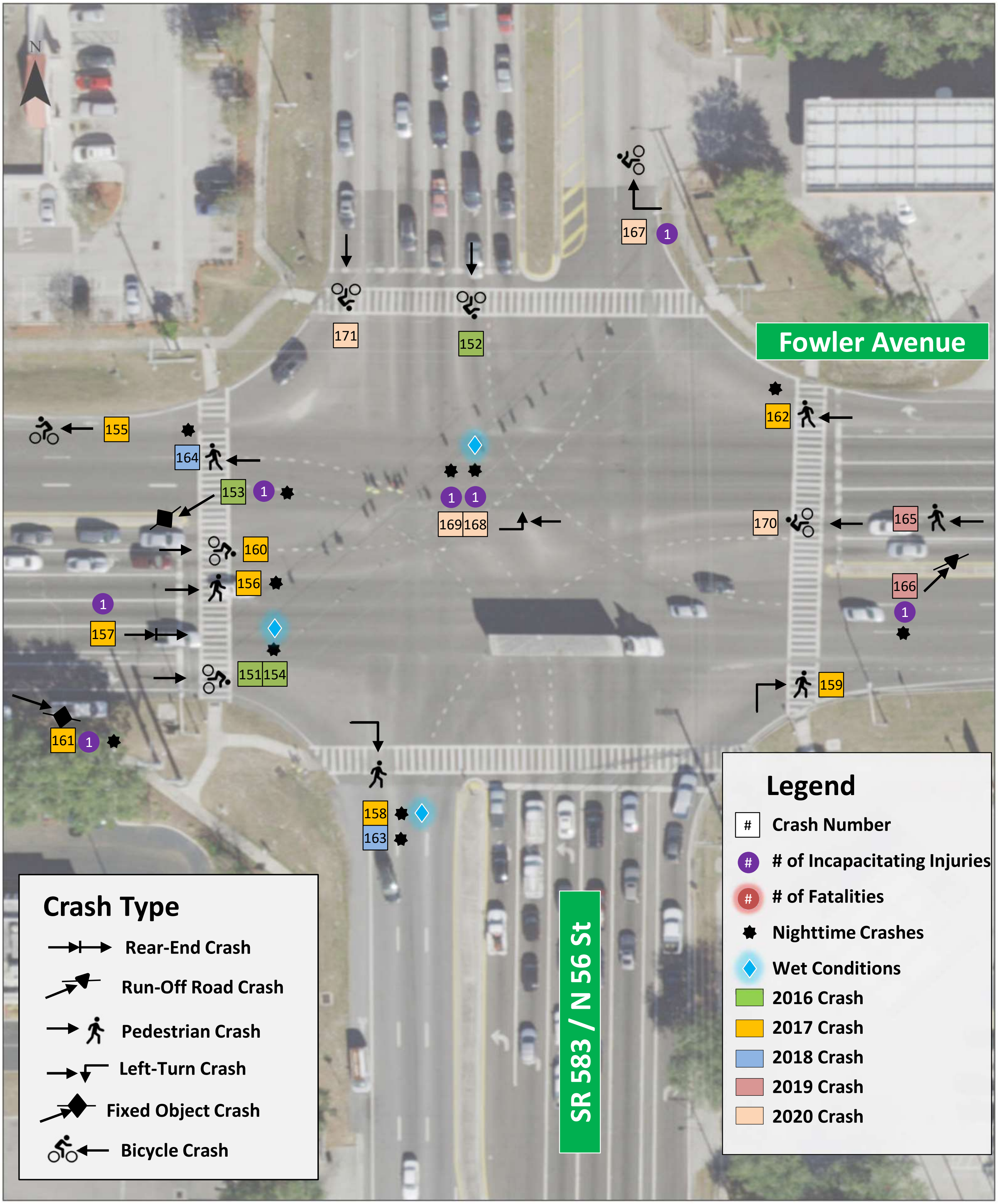
Figure 42

Collision Diagram at 56th Street and Whiteway Drive

Figure 43

Collision Diagram at 56th Street and Grandville Drive

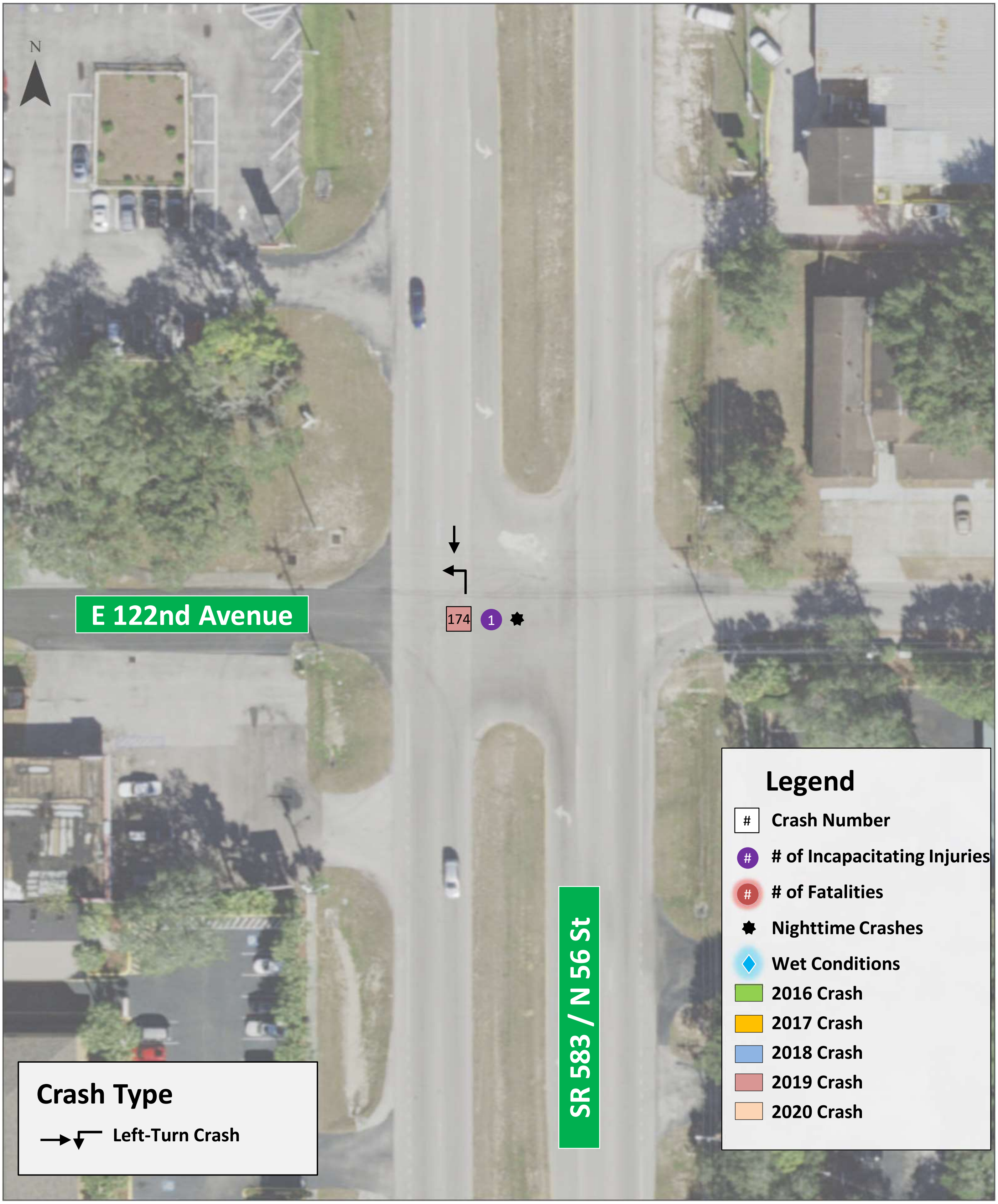
Figure 44



Collision Diagram at 56th Street and Fowler Avenue | **Figure 45**

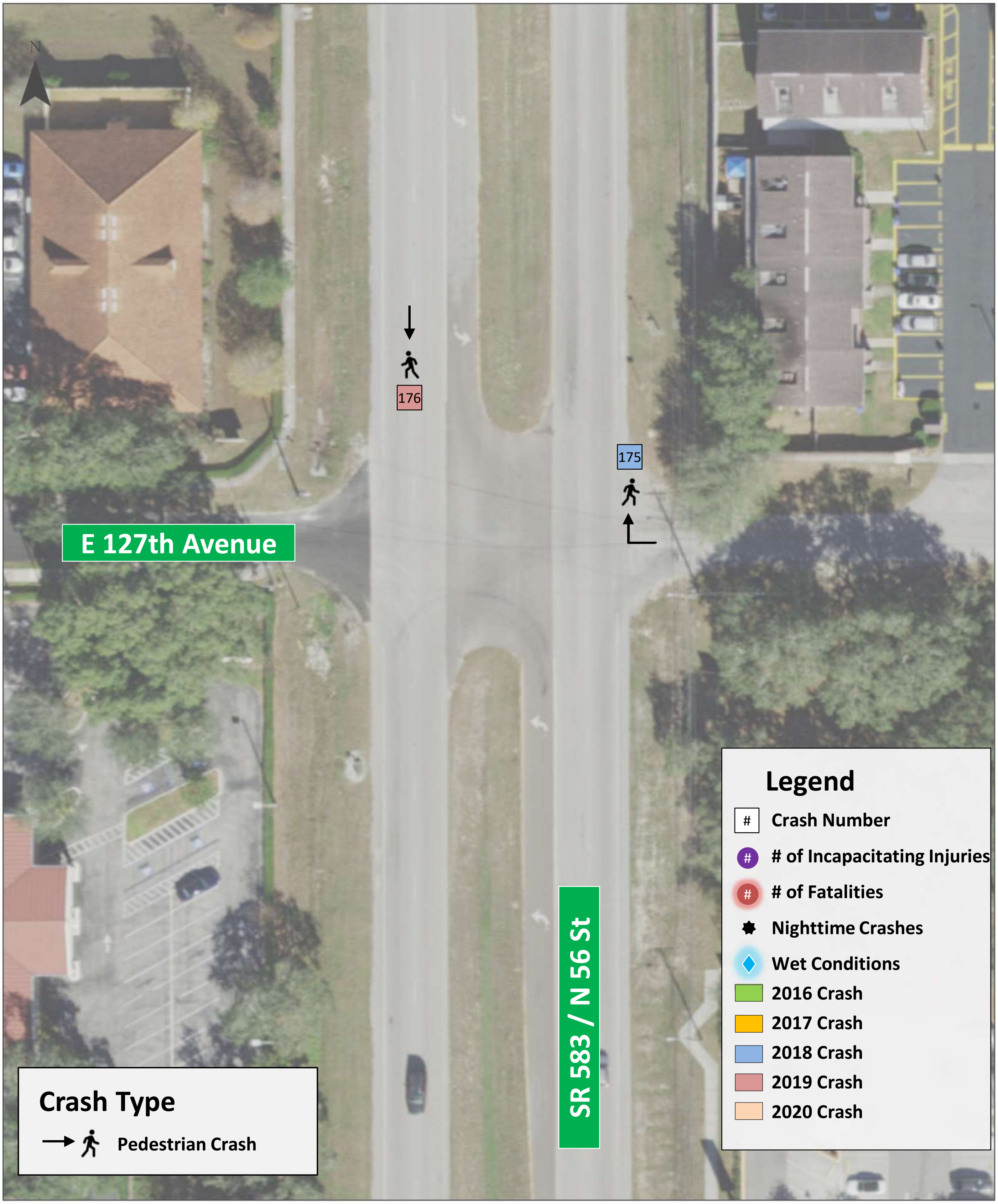
Collision Diagram at 56th Street and North of Fowler Avenue

Figure 46



Collision Diagram at 56th Street and E 122nd Avenue

Figure 47



Collision Diagram at 56th Street and E 127th Avenue

Figure 48

Collision Diagram at 56th Street and Gibson Avenue

Figure 49

Collision Diagram at 56th Street and E 131st Avenue

Figure 50

Collision Diagram at 56th Street and Fletcher Avenue

Figure 51

Appendix D

Planning-Level Opinion of Probable Cost

Location	Treatment	Cost	Low End	High End
Selmon Expressway EB Ramps	Consider additional reflective signage	$1,000.00	$1,000.00	$249,472.73
	Consider **removing channelized right-turns** and **one through lane** **in each direction** to reduce crossing distance and create space for a protected bicycle intersection	$248,472.73		
Selmon Expressway WB Ramps	Consider protected only NB left-turn	$1,500.00	$1,000.00	$250,972.73
	Consider additional reflective signage	$1,000.00		
	Consider **removing channelized right-turns** and **one through lane** **in each direction** to reduce crossing distance and create space for a protected bicycle intersection	$248,472.73		
Adamo Drive	Consider **removing channelized right-turns** and **one through lane** **in each direction** to reduce crossing distance and create space for a protected bicycle intersection	$269,672.73	$3,000.00	$632,672.73
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Consider concurrent protected phasing			
	Consider protected-only EB and WB left-turns	$3,000.00		
Acline Drive	Consider removing one through lane in each direction	$227,272.73	$65,000.00	$612,272.73
	Install NB left-turn lane	$200,000.00		
	Evaluate median modification (directional/full closure)	$120,000.00		
	Upgrade lighting Broadway Avenue Consider removing one	$65,000.00		
Broadway Avenue	Consider removing one through lane in each direction	$227,272.73	$6,000.00	$623,272.73
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Straighten crosswalk to shorten crossing distances	$30,000.00		
	Consider protected only left-turns	$6,000.00		

Location	Treatment	Cost	Low End	High End
10th Avenue	Evaluate traffic signal and/or pedestrian crossing	$570,000.00	$60,000.00	$857,272.73
	Restripe east/west leg crosswalk	$60,000.00		
	Consider removing one through lane in each direction	$227,272.73		
	Evaluate median modification (directional/full closure)	$120,000.00		
Columbus Drive	Consider **removing EB left-turn lane, WB left- and right-turn lanes, and one through lane in each direction** to reduce crossing distance and create space for a protected bicycle intersection	$568,181.82	$30,000.00	$958,181.82
	Consider protected only left-turns	-		
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Move NB/SB stop bars and straighten crosswalk	$30,000.00		
I-4 EB Ramps	Consider **removing channelized right-turns and one through lane in each direction** to reduce crossing distance and create space for a protected bicycle intersection	$237,872.73	$35,000.00	$272,872.73
	Add north/south leg crosswalk	$35,000.00		
I-4 WB Ramps	Consider **removing channelized right-turns and one through lane in each direction** to reduce crossing distance and create space for a protected bicycle intersection	$237,872.73	$35,000.00	$272,872.73
	Add north/south leg crosswalk	$35,000.00		
Melbourne Boulevard/21st Avenue	Consider **removing EB right-turn lane and NB left-turn lane** to reduce crossing distance and create space for a protected bicycle intersection	$227,272.73	$3,000.00	$3,500,000.00
	Evaluate roundabout	$3,500,000.00		
	Consider protected only left-turns	$3,000.00		
Between Selmon Expressway EB and WB Ramps	Consider adding curbs	$20,454.55	$20,454.55	-
	Evaluate raised sidewalk			
	Evaluate drainage improvements			

Location	Treatment	Cost	Low End	High End
At median opening south of Uceta Road	Evaluate median modification (directional/full closure)	$120,000.00	$120,000.00	-
	Enhance landscaping	-	-	-
26th Avenue	Evaluate median modifications (directional/full closure)	$120,000.00	$200,000.00	$320,000.00
	Evaluate pedestrian crossing	$200,000.00		
Dr. Martin Luther King Jr Boulevard	Consider removing NB right-turn lane	$113,636.36	$30,000.00	$503,636.36
	Enhance landscaping	-		
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Straighten crosswalk to shorten crossing distance for east leg	$30,000.00		
Lake Avenue	Evaluate closing SB-right turn "off-ramp"	$124,236.36	$120,000.00	$244,236.36
	Evaluate median modifications (directional/full closure)	$120,000.00		
Chelsea Street	Consider removing channelized right-turns	$10,600.00	$10,600.00	$2,610,600.00
	Explore a signalized RCUT or other pedestrian crossing treatment	$2,600,000.00		
	Evaluate median modifications (directional/full closure)	$120,000.00		
Harney Road	Consider removing channelized right-turns	$10,600.00	$10,600.00	$163,927.27
	Evaluate removing NB right "off-ramp" and moving right-turn to the T-intersection	$33,327.27		
	Evaluate median modification (directional/full closure)	$120,000.00		
Netpark Main Entrance	Evaluate on-street transit transfer	$3,000.00	$35,000.00	$226,654.55
	Evaluate moving stop bar and installing crosswalks on north and south leg	$35,000.00		
	Evaluate **removing NB/SB left-turn offset and channelized right-turns** to reduce crossing distance and create space for a protected bicycle intersection	$134,836.36		
	Evaluate shortening NB right-turn lane	$56,818.18		
Cone Road	Evaluate median modifications (directional/full closure)	$120,000.00	$3,000.00	$323,000.00
	Evaluate moving SB bus stop north of Cone Road to Cone Road	$3,000.00		
	Evaluate pedestrian crossing	$200,000.00		

Location	Treatment	Cost	Low End	High End
Hillsborough Avenue	Evaluate transit priority (queue jumps)	-	$360,000.00	$459,218.18
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Consider **removing channelized right-turns and NB right-turn lane** to reduce crossing distance and create space for a protected bicycle intersection	$99,218.18		
	Consider installing right-turn overlap phases	-		
Hanna Avenue	Consider protected only left-turns	$6,000.00	$6,000.00	$54,000.00
	Restripe crosswalks	$30,000.00		
	Consider bulb-outs to shorten crossing distance	$18,000.00		
Diana Street	Evaluate median modifications (directional/full closure)	$120,000.00	$120,000.00	-
Transit stop north of Dr. MLK Jr Boulevard	Consider utilizing pavement for bus pullout	$21,000.00	$750.00	$31,750.00
	Consider modifying bicycle lane to go behind the transit shelter	$10,000.00		
	Consider pedestrian level lighting at transit stop	$750.00		
At Driveways north of Hillsborough Avenue	Install crosswalks	$35,000.00	$35,000.00	-
At Railroad Crossing south of Henry Avenue	Evaluate median modifications (directional/full closure)	$120,000.00	$130,000.00	$250,000.00
	Install pedestrian gates	$130,000.00		
Between Henry Avenue and Hanna Avenue	Evaluate midblock crossing location and relocating transit stops to this location	$203,000.00	$203,000.00	-
At Bus Stop north of at Hanna Avenue	Consider moving bicycle lane behind bus shelter and install sidewalk connection to bus stop	$10,000.00	$10,000.00	-
Sligh Avenue	Consider **removing NB and SB right-turn lanes and EB through** lane to reduce crossing distance and create space for a protected bicycle intersection	$227,272.73	$3,000.00	$647,090.91
	Consider consolidating to a transit stop on west side south of Sligh Avenue	$3,000.00		
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Consider shortening SB left-turn lane	$56,818.18		

Location	Treatment	Cost	Low End	High End
Society Park Boulevard	Evaluate pedestrian crossing	$200,000.00	$65,000.00	$745,000.00
	Install/upgrade lighting	$65,000.00		
	Evaluate median modifications (directional/full closure)	$120,000.00		
	Extend median nose to serve as pedestrian refuge	$360,000.00		
Pitch Pine Circle	Install/upgrade lighting	$65,000.00	$65,000.00	$265,000.00
	Evaluate pedestrian crossing	$200,000.00		
Puritan Road	Consider protected only left-turns	$3,000.00	$3,000.00	$506,636.36
	Consider moving stop bars and straighten crosswalks	$30,000.00		
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Consider **removing SB right-turn and channelized NB right-turn** to reduce crossing distance and create space for a protected bicycle intersection	$113,636.36		
Between Diana Street and Sligh Avenue at King High School south entrance	Evaluate pedestrian crossing	$200,000.00	$200,000.00	-
From Diana Street to North of Puritan Road	Consider landscaped median	$120,000.00	$120,000.00	-
	Evaluate median modification north of Puritan Road (directional/full closure)			
From Hanna Avenue to Sligh Avenue	Evaluate chicane south of Sligh Avenue	$2,715,610.38	$2,715,610.38	-
Between Sligh Avenue and Society Park Boulevard	Evaluate midblock crossing just north of Sligh Avenue	$200,000.00	$200,000.00	-
Riverhills Drive	Consider removing **NB right-turn lane and striping next to SB left-turn lane** to reduce crossing distance and create space for pedestrian refuge	$113,636.36	$1,000.00	$120,636.36
	Consider protected only-left turns	$6,000.00		
	Improve signage for turning vehicles to yield to pedestrians	$1,000.00		
Ridgeway Road	Consider raised crossing on west leg of intersection	$44,000.00	$44,000.00	-
Beverly Drive	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks	$376,000.00	$376,000.00	-

Location	Treatment	Cost	Low End	High End
Chicago Avenue	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks	$376,000.00	$376,000.00	-
Grove Hill Road	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks	$376,000.00	$376,000.00	-
Winn-Dixie plaza north entrance	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks	$376,000.00	$376,000.00	-
The Fountain Shoppes at Temple Terrace entrance	Evaluate pedestrian crossings on north and south legs and consider raised crosswalks	$376,000.00	$376,000.00	-
Bullard Parkway/Busch Boulevard	Consider removing channelized WB right-turn	$10,600.00	$10,600.00	$502,236.36
	Remove WB departure lane	$113,636.36		
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Evaluate reducing pedestrian crossing distances using bulb outs	$18,000.00		
Sewaha Road	Evaluate pedestrian crossing such as signalized RCUT	$2,600,000.00	$2,600,000.00	-
Temple Heights Road	Consider removing EB right-turn	$113,636.36	$6,000.00	$319,636.36
	Consider protected only left-turns	$6,000.00		
	Add north leg crosswalk	$200,000.00		
Between Hillsborough River Bridge and Riverhills Drive	Evaluate a chicane on the south leg	$285,385.38	$285,385.38	-
98th Avenue	Evaluate pedestrian crossing	$200,000.00	$120,000.00	$320,000.00
	Evaluate median modification (directional/full closure)	$120,000.00		
Mission Hills Avenue	Consider protected only left-turns	$6,000.00	$6,000.00	-
Serena Drive/Druid Hills Road	Consider relocating bus stops from south of the intersection to be closer to crosswalk	$6,000.00	$6,000.00	$632,818.18
	Evaluate shortening SB right-turn lane	$56,818.18		
	Evaluate traffic or pedestrian signal	$570,000.00		
	Evaluate median modification (directional/full closure)	$120,000.00		

Location	Treatment	Cost	Low End	High End
Whiteway Drive	Consider removing NB/SB right-turn lanes to reduce crossing distance and create space for a protected bicycle intersection	$227,272.73	$6,000.00	$623,272.73
	Extend median nose to serve as pedestrian refuge	$360,000.00		
	Consider protected only left-turns	$6,000.00		
	Evaluate golf cart crossing	-		
	Evaluate straightening north leg crosswalk	$30,000.00		
From Temple Heights Road to Fowler Avenue	Eliminate continuous NB right-turn lanes into businesses	$227,272.73	$227,272.73	-
	Consider landscaped medians	-		
Fletcher Avenue	Upgrade crosswalks to high-emphasis striping	$90,000.00	$90,000.00	-
	Evaluate signal timing optimization	-		
From Fowler Avenue to Fletcher Avenue	Evaluate median modification to provide horizontal deflection	$5,514,778.00	$5,514,778.00	-
At Graduate Circle Driveway	Evaluate pedestrian crossing	$200,000.00	$200,000.00	-

Appendix E

Growth Rate Analysis

50th/56th Street Mainline									
Segment	2019 AADT	2015 - 2045	2007 - 2019	2010 - 2019	2016 - 2019	2021 - 2045			Applied Annual Growth Rate
		Model Rate	Historical AADT	Historical AADT	Historical AADT	BEBR Low	BEBR Medium	BEBR High	
South of Selmon Expressway	36,500	0.89%	0.73%	2.85%	6.49%	0.10%	1.20%	2.30%	**0.75%**
Between Adamo and Acline	36,000	0.18%	-0.90%	-1.24%	5.84%	0.10%	1.20%	2.30%	**0.75%**
Between Broadway and 10th Ave	35,000	0.18%	-1.47%	-2.67%	1.38%	0.10%	1.20%	2.30%	**0.75%**
Between I-4 Off and Melbourne Blvd	32,000	1.54%	-0.16%	0.88%	1.99%	0.10%	1.20%	2.30%	**0.75%**
Between Melbourne Blvd and SR 574	28,000	0.64%	1.34%	2.13%	2.30%	0.10%	1.20%	2.30%	**0.75%**
Between SR 574 and Chelsea Street	27,000	1.21%	0.77%	2.10%	0.89%	0.10%	1.20%	2.30%	**0.75%**
Between Netpark Entrance & E Hillsborough	28,000	1.16%	1.11%	2.43%	3.13%	0.10%	1.20%	2.30%	**0.75%**
Between E Hillsborough and Hanna Ave	37,500	0.61%	0.60%	1.95%	2.90%	0.10%	1.20%	2.30%	**0.75%**
Between Puritan Road and Busch Blvd	47,500	0.28%	1.04%	3.51%	3.23%	0.10%	1.20%	2.30%	**0.50%**
Between Whiteway Dr & E Fowler Ave	37,000	0.00%	-0.16%	1.03%	1.71%	0.10%	1.20%	2.30%	**0.50%**
Between Fowler Ave & Fletcher	27,000	1.57%	0.62%	1.12%	2.80%	0.10%	1.20%	2.30%	**0.75%**
Average		**0.75%**	**0.32%**	**1.28%**	**2.97%**	**0.10%**	**1.20%**	**2.30%**	-

Appendix F

Traffic Operations Analysis

Appendix F – Traffic Operations Analysis

The project team projected existing traffic operations and traffic operation to the year 2045 to determine if the proposed alternatives resulted in any major delays or operational issues at segments.

Today, 56th/50th Street operates with additional capacity in the existing six-lane section from the Selmon Expressway Ramps to Melburne Boulevard/21st Avenue. To confirm that potential alternatives will not create unreasonable delays along 56th/50th Street in the future, the project team projected both existing and alternative operations to the year 2045.

KEY FINDINGS

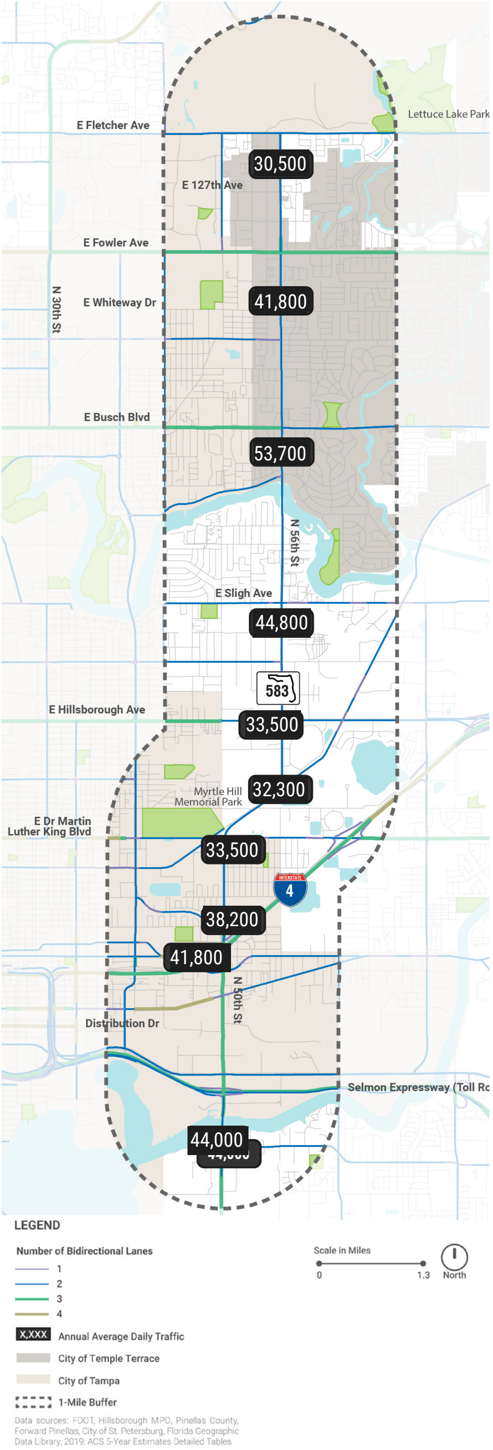
- A repurposing the existing six-lane segment from the Selmon Expressway Ramps to Melburne Boulevard/21st Avenue to four-lanes is feasible and can provide safety and operational benefits for drivers, bicyclists, and pedestrians.
- Removing unnecessary turn lanes will produce minimal additional delay throughout the entire corridor.
- Although some delay increases would occur at Dr. Martin Luther King Jr. Boulevard, Hillsborough Avenue, Busch Boulevard, and Fowler Avenue, alternatives would provide critical safety improvements for roadway users.

Growth Rates

Typically, as a region grows, its traffic demand increases. To estimate how much the corridor will grow in the future, the study team used Tampa Bay Regional Planning Model growth rates, historical AADT growth for the corridor and intersection streets, and a high-level screening of the Bureau of Economic and Business Research anticipated growth rates for Hillsborough County.[1] For a complete discussion of the analysis, see Appendix E Growth Rate Analysis.

After combining these data, the study team applied an 0.50 percent annual linear growth rate to the Temple Terrace area from Sligh Avenue to Fowler Avenue and a 0.75 percent growth rate to the rest of the corridor. The growth rate of 0.50 was applied to side streets between Sligh Avenue and Fowler Avenue, and the growth rate of 0.75 was applied to side streets for the rest of the corridor. To determine the volume of vehicles turning at study intersections in 2045, the project team applied these growth rates to existing peak hour volumes. From Sligh Avenue to Fowler Avenue, total volume is expected to grow by 12 percent from 2021 to 2045. The rest of the corridor's volume will grow by 18 percent. Figure 1 depicts the corridor's estimated AADT in 2045, given the applied growth rates.

Figure 1. 2045 Average Annual Daily Traffic



[1] Data was collected in 2021 and adjusted for COVID-19 conditions.

Segment Analysis

The study team analyzed level of service (LOS) for all signalized and major unsignalized study intersections. They also examined LOS at the northbound and southbound corridor segments between signalized study intersections. LOS is a qualitative measure which considers several factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. The analysis for this study used FDOT's Quality Level of Service (QLOS) Table 7—Generalized Peak Hour Directional Volumes for Florida's Urbanized Areas. LOS C, D, and E are defined below:

- **LOS C – Acceptable Delay:** Delay increases due to fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level of service. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
- **LOS D – Approaching Unstable Operation/Significant Delays:** The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume / capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
- **LOS E – Unstable Operation/Substantial Delays:** These high delay values generally indicate poor progression, long cycle lengths, and high volume / capacity ratios. Individual cycle failures are frequent occurrences.

The study team evaluated the six-lane segment from Selmon Expressway to Melburne Boulevard/21st Avenue for a potential lane repurposing. Here, the roadway would be reduced from six to four lanes. Whether or not this four-lane roadway could meet 2045 capacity depends, in part, on the posted speed limit as defined by FDOT in Table 4.

TABLE 1. QLOS FOUR-LANE DIVIDED ROADWAY PEAK HOUR DIRECTIONAL LOS THRESHOLDS

Four-Lane Divided Urban Roadway QLOS Thresholds	LOS C	LOS D	LOS E
35 mph or less	730	1,630	1,700
40 mph or greater	1,910	2,000	-

This analysis shows that the proposed lane repurposing from the Selmon Expressway to Melburne Boulevard/21st Avenue would continue to support the corridor demand in 2045, even with a posted speed of 35 mph. With a posted speed of 40 mph, the segment from Selmon Expressway to Melburne Boulevard/21st Avenue are expected to operate at LOS C. With a posted speed of 35 mph or less, most other corridor segments are expected to operate at LOS D; a few segments adjacent to either the Selmon Expressway or I-4 Ramps are expected to operate at LOS E.

TABLE 2. 2045 QLOS PEAK HOUR DIRECTIONAL ANALYSIS

Segment	2045 Maximum Peak Hour Directional Volumes	40 mph	35 mph
Selmon eastbound ramp to westbound ramp	1,587	LOS C	LOS D
Selmon westbound ramp to Adamo Drive	1,663	LOS C	LOS E
Adamo to Acline Drive	1,303	LOS C	LOS D
Acline to Broadway Avenue	1,369	LOS C	LOS D
Broadway to 10th Avenue	1,475	LOS C	LOS D
10th Avenue to Columbus Drive	1,520	LOS C	LOS D
Columbus to I-4 eastbound ramp	1,664	LOS C	LOS E
I-4 eastbound to westbound ramps	1,597	LOS C	LOS D
I-4 westbound ramp to Melburne Boulevard/21st Avenue	1,685	LOS C	LOS E

Intersection Operations Analysis

Key intersection improvements for this project include removing additional turn lanes. Reducing extra turn lanes provides benefit to both people walking and people driving. Fewer lanes mean shorter crossing distances for pedestrians. With fewer lanes to cross, pedestrians are exposed to vehicle traffic for shorter periods of time. Shorter crossings also mean shorter cycles and less wait time for drivers.

To make sure such improvements would be feasible, the study team investigated which geometry and signal timing improvements could address the corridor's safety needs while minimally impacting multimodal operations.

The team conducted the intersection operational analysis with the following general parameters to arrive at the results described further in this section:

- Remove dual left-turn lanes where feasible (where there are about 300 vehicles for a single lane).
- Remove right-turn lanes where feasible (where there are about 200 vehicles for a single lane).
  - Remove all channelized right-turn lanes.
- Include right-turn overlap phase (when a right turn runs simultaneously with a protected left in the opposite direction) where necessary.
- Optimize cycle length where applicable and maintain intersection coordination.
  - Reduced pedestrian crossing distances allow for shorter cycle lengths.
- Maintain a volume-to-capacity ratio less than 1.20 for all movements. (This is consistent with the City of Tampa approach.)
- Change all left turns with exclusive, protected-permissive lanes to protected-only.

Table 3, Table 4, and Table 5 depict the overall intersection delay and LOS for each analyzed intersection. The tables compare the 2045 No Build and Alternative scenarios for each intersection. Intersections that have an LOS D or better are highlighted in green. Intersections that are anticipated to operate at LOS F are highlighted in red. The volume to capacity (v/c) ratio is reported for the worst movement. If the v/c ratio is greater than one for the

TABLE 3. SELMON EXPRESSWAY RAMPS TO 21ST AVENUE 2045 INTERSECTION OPERATIONS

Intersection	Performance Measure	2045 AM Peak		2045 PM Peak	
		No Build	Alternative	No Build	Alternative
Selmon Expressway EB	Delay (s/veh)	9.4	20.3	13.3	26.3
	LOS	A	C	B	C
	v/c ratio*	0.86	0.98	0.88	1.18
Selmon Expressway WB	Delay (s/veh)	15.5	32.5	3.6	20.1
	LOS	B	C	A	C
	v/c ratio*	0.96	1.14	0.89	1.04
Adamo Drive	Delay (s/veh)	61.6	66.9	64.9	69.7
	LOS	E	E	E	E
	v/c ratio*	0.92	1.06	0.9	1.11
Acline Drive**	Delay (s/veh)	53.0	88.5	194.5	58.5
	LOS	F	F	F	F
	v/c ratio*	0.38	0.54	1.02	0.58
Broadway Ave	Delay (s/veh)	19.7	34.9	26.2	53.9
	LOS	B	C	C	D
	v/c ratio*	0.76	0.87	0.85	0.99
10th Ave**	Delay (s/veh)	66.2	132.2	65.9	50.4
	LOS	F	F	F	F
	v/c ratio*	0.36	0.56	0.61	0.47
Columbus Drive	Delay (s/veh)	39.1	46.3	37.6	43.2
	LOS	D	D	D	D
	v/c ratio*	0.97	1.02	0.97	1.04
I-4 EB	Delay (s/veh)	31.8	31.1	21.8	19.0
	LOS	C	C	C	B
	v/c ratio*	0.95	1.14	0.76	0.87
I-4 WB	Delay (s/veh)	32.6	38.7	27.2	46.0
	LOS	C	D	C	D
	v/c ratio*	0.97	1.19	0.80	0.90
21st Avenue	Delay (s/veh)	31.7	42.7	27.8	47.1
	LOS	C	D	C	D
	v/c ratio*	0.83	0.9	0.85	1.20

*v/c ratio is reported for the worst performing movement at each intersection.

**For TWSC intersections, the delay and LOS is reported for the worst stop-controlled approach.

TABLE 4. DR. MLK JR. BLVD TO PURITAN ROAD 2045 INTERSECTION OPERATIONS

Intersection	Performance Measure	2045 AM Peak		2045 PM Peak	
		No Build	Alternative	No Build	Alternative
Dr. MLK Jr. Blvd	Delay (s/veh)	71.7	88.0	69.1	94.7
	LOS	E	F	E	F
	v/c ratio*	0.99	1.13	0.99	1.12
Chelsea Street (S)**	Delay (s/veh)	66.1	66.1	97.7	97.7
	LOS	F	F	F	F
	v/c ratio*	0.86	0.86	1.15	1.15
Chelsea Street (N)**	Delay (s/veh)	32.2	36.2	35.6	40.2
	LOS	D	E	E	E
	v/c ratio*	0.62	0.68	0.64	0.70
Harney Road**	Delay (s/veh)	247.3	254.0	156.9	161.0
	LOS	F	F	F	F
	v/c ratio*	1.35	1.37	1.06	1.10
Netpark Entrance	Delay (s/veh)	5.0	8.0	6.2	8.9
	LOS	A	A	A	A
	v/c ratio*	0.57	1.05	0.62	0.87
Hillsborough Avenue	Delay (s/veh)	92.7	90.9	78.3	80.2
	LOS	F	F	E	F
	v/c ratio*	1.09	1.12	1.02	1.11
Hanna Avenue	Delay (s/veh)	22.6	45.4	20.6	34.4
	LOS	C	D	C	C
	v/c ratio*	0.98	1.11	1.08	0.98
Sligh Avenue	Delay (s/veh)	60.1	78.0	50.4	65.9
	LOS	E	E	D	E
	v/c ratio*	0.95	1.10	1.12	1.12
Puritan Road	Delay (s/veh)	6.1	13.4	15.6	23.2
	LOS	A	B	B	C
	v/c ratio*	0.86	0.94	0.95	0.98

*v/c ratio is reported for the worst performing movement at each intersection.

**For TWSC intersections, the delay and LOS is reported for the worst stop-controlled approach.

TABLE 5. RIVERHILLS DRIVE TO FLETCHER AVENUE 2045 OPERATIONAL ANALYSIS

Intersection	Performance Measure	2045 AM Peak		2045 PM Peak	
		No Build	Alternative	No Build	Alternative
Riverhills Drive	Delay (s/veh)	32.4	50.7	25.7	44.0
	LOS	C	D	C	D
	v/c ratio*	1.13	1.05	0.74	0.97
Busch Boulevard	Delay (s/veh)	67.3	86.6	76.2	86.9
	LOS	E	F	E	F
	v/c ratio*	1.18	1.20	1.07	1.17
Temple Heights Road	Delay (s/veh)	11.0	19.6	17.0	10.8
	LOS	B	B	B	B
	v/c ratio*	0.68	0.77	1.21	0.87
Mission Hills Road	Delay (s/veh)	8.1	15.1	8.0	15.5
	LOS	A	B	A	B
	v/c ratio*	0.56	0.70	0.59	0.73
Whiteway Drive	Delay (s/veh)	21.5	34.3	23.7	42.7
	LOS	C	C	C	D
	v/c ratio*	0.56	0.84	0.67	0.97
Fowler Avenue	Delay (s/veh)	69.0	80.3	79.3	86.2
	LOS	E	F	E	F
	v/c ratio*	0.95	1.18	1.04	1.03
Fletcher Avenue	Delay (s/veh)	37.7	29.5	49.5	51.9
	LOS	D	C	D	D
	v/c ratio*	0.93	0.93	1.16	1.12

*v/c ratio is reported for the worst performing movement at each intersection.

**For TWSC intersections, the delay and LOS is reported for the worst stop-controlled approach.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	3	227	0	0	0	0	1391	16	79	779	0
Future Volume (veh/h)	95	3	227	0	0	0	0	1391	16	79	779	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1678	1900	1707				0	1633	1159	1381	1633	0
Adj Flow Rate, veh/h	100	3	0				0	1464	0	83	820	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	15	0	13				0	18	50	35	18	0
Cap, veh/h	173	5					0	3463		97	3391	0
Arrive On Green	0.10	0.10	0.00				0.00	0.62	0.00	0.15	1.00	0.00
Sat Flow, veh/h	1759	53	1447				0	5847	982	1316	4606	0
Grp Volume(v), veh/h	103	0	0				0	1464	0	83	820	0
Grp Sat Flow(s),veh/h/ln	1812	0	1447				0	1405	982	1316	1486	0
Q Serve(g_s), s	5.2	0.0	0.0				0.0	12.8	0.0	5.8	0.0	0.0
Cycle Q Clear(g_c), s	5.2	0.0	0.0				0.0	12.8	0.0	5.8	0.0	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	178	0					0	3463		97	3391	0
V/C Ratio(X)	0.58	0.00					0.00	0.42		0.86	0.24	0.00
Avail Cap(c_a), veh/h	402	0					0	3463		198	3391	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.84	0.84	0.00
Uniform Delay (d), s/veh	40.9	0.0	0.0				0.0	9.5	0.0	40.0	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	0.0				0.0	0.4	0.0	6.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0				0.0	3.5	0.0	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	0.0				0.0	9.8	0.0	46.7	0.1	0.0
LnGrp LOS	D	A					A	A		D	A	A
Approach Vol, veh/h		103	A					1464	A		903	
Approach Delay, s/veh		47.1						9.8			4.4	
Approach LOS		D						A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		78.8			13.7	65.1		16.2				
Change Period (Y+Rc), s		6.5			* 6.7	6.5		6.9				
Max Green Setting (Gmax), s		60.5			* 14	39.5		21.1				
Max Q Clear Time (g_c+I1), s		2.0			7.8	14.8		7.2				
Green Ext Time (p_c), s		6.6			0.0	11.6		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			9.4									
HCM 6th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	19	1	203	398	1116	0	0	835	87
Future Volume (veh/h)	0	0	0	19	1	203	398	1116	0	0	835	87
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1515	1900	1707	1574	1663	0	0	1604	1426
Adj Flow Rate, veh/h				21	1	0	433	1213	0	0	908	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				26	0	13	22	16	0	0	20	32
Cap, veh/h				80	4		453	3679	0	0	2409	
Arrive On Green				0.05	0.05	0.00	0.60	1.00	0.00	0.00	0.29	0.00
Sat Flow, veh/h				1731	82	1447	1499	4689	0	0	5741	1208
Grp Volume(v), veh/h				22	0	0	433	1213	0	0	908	0
Grp Sat Flow(s),veh/h/ln				1813	0	1447	1499	1513	0	0	1379	1208
Q Serve(g_s), s				1.1	0.0	0.0	25.7	0.0	0.0	0.0	12.4	0.0
Cycle Q Clear(g_c), s				1.1	0.0	0.0	25.7	0.0	0.0	0.0	12.4	0.0
Prop In Lane				0.95		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				84	0		453	3679	0	0	2409	
V/C Ratio(X)				0.26	0.00		0.96	0.33	0.00	0.00	0.38	
Avail Cap(c_a), veh/h				283	0		587	3679	0	0	2409	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	0.67	0.67
Upstream Filter(I)				1.00	0.00	0.00	0.88	0.88	0.00	0.00	0.61	0.00
Uniform Delay (d), s/veh				43.7	0.0	0.0	18.2	0.0	0.0	0.0	23.3	0.0
Incr Delay (d2), s/veh				1.6	0.0	0.0	21.4	0.2	0.0	0.0	0.3	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.5	0.0	0.0	7.1	0.1	0.0	0.0	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				45.4	0.0	0.0	39.6	0.2	0.0	0.0	23.6	0.0
LnGrp LOS				D	A		D	A	A	A	C	
Approach Vol, veh/h					22	A		1646			908	A
Approach Delay, s/veh					45.4			10.6			23.6	
Approach LOS					D			B			C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	35.5	47.9		11.6		83.4
Change Period (Y+Rc), s	6.8	6.4		* 7.2		6.4
Max Green Setting (Gmax), s	37.2	22.6		* 15		66.6
Max Q Clear Time (g_c+I1), s	27.7	14.4		3.1		2.0
Green Ext Time (p_c), s	1.0	3.7		0.0		11.4

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	423	266	98	924	251	422	742	115	232	519	134
Future Volume (veh/h)	77	423	266	98	924	251	422	742	115	232	519	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1574	1796	1693	1470	1752	1737	1796	1648	1470	1693	1559	1663
Adj Flow Rate, veh/h	81	445	0	103	973	0	444	781	0	244	546	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	22	7	14	29	10	11	7	17	29	14	23	16
Cap, veh/h	95	1600		117	1627		482	926		281	639	
Arrive On Green	0.06	0.47	0.00	0.08	0.49	0.00	0.29	0.41	0.00	0.09	0.15	0.00
Sat Flow, veh/h	1499	3413	1434	1400	3328	1472	3319	4499	1246	3127	4397	0
Grp Volume(v), veh/h	81	445	0	103	973	0	444	781	0	244	546	0
Grp Sat Flow(s),veh/h/ln	1499	1706	1434	1400	1664	1472	1659	1500	1246	1564	1419	0
Q Serve(g_s), s	10.2	15.1	0.0	13.8	40.1	0.0	24.6	29.7	0.0	14.6	23.8	0.0
Cycle Q Clear(g_c), s	10.2	15.1	0.0	13.8	40.1	0.0	24.6	29.7	0.0	14.6	23.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	95	1600		117	1627		482	926		281	639	
V/C Ratio(X)	0.85	0.28		0.88	0.60		0.92	0.84		0.87	0.85	
Avail Cap(c_a), veh/h	140	1600		178	1627		596	1163		377	849	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.90	0.90	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	88.1	30.8	0.0	86.1	35.1	0.0	66.3	53.1	0.0	85.4	78.7	0.0
Incr Delay (d2), s/veh	26.2	0.4	0.0	25.7	1.6	0.0	16.1	4.3	0.0	15.2	6.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	6.4	0.0	5.8	16.6	0.0	10.4	10.1	0.0	6.5	9.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	114.3	31.3	0.0	111.8	36.7	0.0	82.4	57.4	0.0	100.5	85.3	0.0
LnGrp LOS	F	C		F	D		F	E		F	F	
Approach Vol, veh/h		526	A		1076	A		1225	A		790	A
Approach Delay, s/veh		44.0			43.9			66.5			90.0	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	100.6	24.0	46.2	23.1	96.8	34.5	35.6
Change Period (Y+Rc), s	7.2	7.7	6.9	* 7.1	7.2	7.7	6.9	* 7.1
Max Green Setting (Gmax), s	17.8	71.3	22.9	* 49	24.2	64.9	34.1	* 38
Max Q Clear Time (g_c+I1), s	12.2	42.1	16.6	31.7	15.8	17.1	26.6	25.8
Green Ext Time (p_c), s	0.1	7.5	0.4	4.8	0.1	3.1	1.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	61.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	2.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	0	20	15	0	21	30	1002	67	58	866	56
Future Vol, veh/h	23	0	20	15	0	21	30	1002	67	58	866	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	9	0	8	8	0	8	3	23	6	11	20	8
Mvmt Flow	24	0	21	16	0	22	32	1066	71	62	921	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1565	2276	491	1658	2271	569	981	0	0	1137	0	0
Stage 1	1075	1075	-	1166	1166	-	-	-	-	-	-	-
Stage 2	490	1201	-	492	1105	-	-	-	-	-	-	-
Critical Hdwy	6.58	6.5	7.26	6.56	6.5	7.26	5.36	-	-	5.52	-	-
Critical Hdwy Stg 1	7.48	5.5	-	7.46	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.88	5.5	-	6.86	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.89	4	3.98	3.88	4	3.98	3.13	-	-	3.21	-	-
Pot Cap-1 Maneuver	110	41	435	97	41	387	397	-	-	312	-	-
Stage 1	168	298	-	145	270	-	-	-	-	-	-	-
Stage 2	467	260	-	468	289	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	26	435	65	26	387	397	-	-	312	-	-
Mov Cap-2 Maneuver	107	92	-	96	105	-	-	-	-	-	-	-
Stage 1	130	239	-	113	210	-	-	-	-	-	-	-
Stage 2	341	202	-	357	231	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35	32	1.3	1.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	397	-	-	165	171	312	-	-
HCM Lane V/C Ratio	0.08	-	-	0.277	0.224	0.198	-	-
HCM Control Delay (s)	14.9	1	-	35	32	19.4	-	-
HCM Lane LOS	B	A	-	E	D	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	1.1	0.8	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	76	78	98	156	33	101	894	58	76	958	120
Future Volume (veh/h)	91	76	78	98	156	33	101	894	58	76	958	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1292	1648	1544	1322	1722	1322	1693	1618	1455	1515	1663	1574
Adj Flow Rate, veh/h	95	79	81	102	162	34	105	931	60	79	998	125
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	41	17	24	39	12	39	14	19	30	26	16	22
Cap, veh/h	149	132	155	164	217	45	389	2629	169	332	2525	316
Arrive On Green	0.07	0.08	0.08	0.07	0.08	0.08	0.04	0.62	0.62	0.07	1.00	1.00
Sat Flow, veh/h	1231	1648	1309	1259	2704	555	1612	4242	273	1443	4087	511
Grp Volume(v), veh/h	95	79	81	102	97	99	105	646	345	79	739	384
Grp Sat Flow(s),veh/h/ln	1231	1648	1309	1259	1636	1622	1612	1473	1569	1443	1513	1571
Q Serve(g_s), s	10.3	6.9	8.7	10.3	8.7	9.0	3.6	16.0	16.1	3.1	0.0	0.0
Cycle Q Clear(g_c), s	10.3	6.9	8.7	10.3	8.7	9.0	3.6	16.0	16.1	3.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.17	1.00		0.33
Lane Grp Cap(c), veh/h	149	132	155	164	131	130	389	1825	973	332	1870	971
V/C Ratio(X)	0.64	0.60	0.52	0.62	0.74	0.76	0.27	0.35	0.35	0.24	0.39	0.40
Avail Cap(c_a), veh/h	149	442	400	164	438	435	492	1825	973	407	1870	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.5	66.6	62.2	59.9	67.4	67.6	9.5	13.9	13.9	10.3	0.0	0.0
Incr Delay (d2), s/veh	8.7	4.3	2.7	7.1	7.7	8.9	0.4	0.5	1.0	0.4	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.1	3.0	3.9	3.9	4.0	1.3	5.3	5.8	0.9	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	70.9	64.9	67.0	75.1	76.5	9.9	14.4	14.9	10.7	0.6	1.2
LnGrp LOS	E	E	E	E	E	E	A	B	B	B	A	A
Approach Vol, veh/h		255			298			1096			1202	
Approach Delay, s/veh		68.0			72.8			14.1			1.5	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	99.7	18.0	19.8	12.2	100.0	18.0	19.8
Change Period (Y+Rc), s	6.8	* 7	* 7.7	7.8	* 7.2	* 7	* 7.7	7.8
Max Green Setting (Gmax), s	15.2	* 55	* 10	40.2	* 13	* 57	* 10	40.2
Max Q Clear Time (g_c+I1), s	5.6	2.0	12.3	11.0	5.1	18.1	12.3	10.7
Green Ext Time (p_c), s	0.1	9.3	0.0	1.0	0.1	7.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	2	14	6	4	11	7	996	5	45	1135	30
Future Vol, veh/h	14	2	14	6	4	11	7	996	5	45	1135	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	18	0	0	0	0	21	0	21	33	8	18	3
Mvmt Flow	15	2	15	6	4	12	7	1048	5	47	1195	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1740	2372	614	1638	2386	527	1227	0	0	1053	0	0
Stage 1	1305	1305	-	1065	1065	-	-	-	-	-	-	-
Stage 2	435	1067	-	573	1321	-	-	-	-	-	-	-
Critical Hdwy	6.76	6.5	7.1	6.4	6.5	7.52	5.3	-	-	5.46	-	-
Critical Hdwy Stg 1	7.66	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	7.06	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.98	4	3.9	3.8	4	4.11	3.1	-	-	3.18	-	-
Pot Cap-1 Maneuver	78	35	377	108	35	388	309	-	-	352	-	-
Stage 1	106	232	-	182	302	-	-	-	-	-	-	-
Stage 2	485	301	-	435	228	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	65	30	377	90	30	388	309	-	-	352	-	-
Mov Cap-2 Maneuver	91	115	-	142	118	-	-	-	-	-	-	-
Stage 1	104	201	-	178	295	-	-	-	-	-	-	-
Stage 2	453	294	-	358	197	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.9	25.1	0.1	0.6
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	309	-	-	144	201	352	-	-
HCM Lane V/C Ratio	0.024	-	-	0.219	0.11	0.135	-	-
HCM Control Delay (s)	16.9	-	-	36.9	25.1	16.8	-	-
HCM Lane LOS	C	-	-	E	D	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.4	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	170	428	22	199	42	286	735	17	122	770	28
Future Volume (veh/h)	31	170	428	22	199	42	286	735	17	122	770	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1693	1796	1781	1604	1663	1752	1544	1559	1811	1752	1678	1530
Adj Flow Rate, veh/h	34	185	465	24	216	46	311	799	18	133	837	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	14	7	8	20	16	10	24	23	6	10	15	25
Cap, veh/h	79	1085	480	62	991	466	346	1572	35	152	1543	437
Arrive On Green	0.03	0.32	0.32	0.02	0.31	0.31	0.24	0.73	0.73	0.18	0.67	0.67
Sat Flow, veh/h	3127	3413	1510	2963	3159	1485	2853	4283	96	1668	4580	1296
Grp Volume(v), veh/h	34	185	465	24	216	46	311	529	288	133	837	30
Grp Sat Flow(s),veh/h/ln	1564	1706	1510	1481	1580	1485	1427	1419	1542	1668	1527	1296
Q Serve(g_s), s	1.6	5.9	45.5	1.2	7.6	3.3	15.8	11.8	11.9	11.6	14.1	1.2
Cycle Q Clear(g_c), s	1.6	5.9	45.5	1.2	7.6	3.3	15.8	11.8	11.9	11.6	14.1	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	79	1085	480	62	991	466	346	1042	566	152	1543	437
V/C Ratio(X)	0.43	0.17	0.97	0.38	0.22	0.10	0.90	0.51	0.51	0.87	0.54	0.07
Avail Cap(c_a), veh/h	104	1092	483	99	1011	475	472	1042	566	240	1543	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	72.0	36.9	50.4	72.5	37.9	36.4	55.9	14.2	14.2	60.5	18.5	16.4
Incr Delay (d2), s/veh	1.4	0.1	32.8	1.4	0.1	0.1	13.3	1.8	3.2	11.3	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.5	21.2	0.5	2.9	1.2	5.6	3.0	3.5	4.9	3.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.4	37.0	83.2	73.9	38.0	36.5	69.2	16.0	17.4	71.8	19.8	16.7
LnGrp LOS	E	D	F	E	D	D	E	B	B	E	B	B
Approach Vol, veh/h		684			286			1128			1000	
Approach Delay, s/veh		70.2			40.8			31.0			26.6	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.8	58.1	11.4	54.7	21.3	62.7	10.8	55.3				
Change Period (Y+Rc), s	* 7.6	* 7.6	7.6	7.6	* 7.6	* 7.6	7.6	7.6				
Max Green Setting (Gmax), s	* 25	* 42	5.0	48.0	* 22	* 45	5.0	48.0				
Max Q Clear Time (g_c+I1), s	17.8	16.1	3.6	9.6	13.6	13.9	3.2	47.5				
Green Ext Time (p_c), s	0.4	6.1	0.0	1.5	0.1	5.7	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			39.1									
HCM 6th LOS			D									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	54	15	0	0	0	0	943	343	66	1223	0
Future Volume (vph)	294	54	15	0	0	0	0	943	343	66	1223	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.6	8.6	8.6					8.6	8.6	8.6	8.6	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	1.00	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1559	1510	1272					5784	1070	1570	4287	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1559	1510	1272					5784	1070	1570	4287	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	320	59	16	0	0	0	0	1025	373	72	1329	0
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	210	0	0	0
Lane Group Flow (vph)	189	190	2	0	0	0	0	1025	163	72	1329	0
Heavy Vehicles (%)	10%	28%	27%	0%	0%	0%	0%	13%	51%	15%	21%	0%
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	1	1	1					2 3		4 5	2 3 4 5	
Permitted Phases									2 3			
Actuated Green, G (s)	19.8	19.8	19.8					51.4	51.4	53.0	113.0	
Effective Green, g (s)	19.8	19.8	19.8					51.4	51.4	53.0	113.0	
Actuated g/C Ratio	0.13	0.13	0.13					0.34	0.34	0.35	0.75	
Clearance Time (s)	8.6	8.6	8.6									
Vehicle Extension (s)	3.0	3.0	3.0									
Lane Grp Cap (vph)	205	199	167					1981	366	554	3229	
v/s Ratio Prot	0.12	c0.13	0.00					c0.18		0.05	c0.31	
v/s Ratio Perm									0.15			
v/c Ratio	0.92	0.95	0.01					0.52	0.44	0.13	0.41	
Uniform Delay, d1	64.3	64.7	56.6					39.4	38.2	32.9	6.6	
Progression Factor	1.00	1.00	1.00					0.78	1.38	0.52	0.43	
Incremental Delay, d2	41.5	50.5	0.0					1.0	3.8	0.1	0.1	
Delay (s)	105.8	115.1	56.6					31.6	56.6	17.1	2.9	
Level of Service	F	F	E					C	E	B	A	
Approach Delay (s)		108.3			0.0			38.3			3.7	
Approach LOS		F			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	484	152	84	121	1095	0	0	842	448
Future Volume (vph)	0	0	0	484	152	84	121	1095	0	0	842	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.6	4.0	4.0	8.6	8.6			8.6	8.6
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.86	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1340	1489	1509	1480	4673			5683	1417
Flt Permitted				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1340	1489	1509	1480	4673			5683	1417
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	526	165	91	132	1190	0	0	915	487
RTOR Reduction (vph)	0	0	0	0	0	91	0	0	0	0	0	352
Lane Group Flow (vph)	0	0	0	342	349	0	132	1190	0	0	915	135
Heavy Vehicles (%)	0%	0%	0%	28%	7%	7%	22%	11%	0%	0%	15%	14%
Turn Type				Prot	NA	NA	Prot	NA			NA	Perm
Protected Phases				5			1 2	1 2 3 4			3 4	
Permitted Phases												3 4
Actuated Green, G (s)				39.4	39.4	0.0	43.2	93.4			41.6	41.6
Effective Green, g (s)				39.4	39.4	0.0	43.2	93.4			41.6	41.6
Actuated g/C Ratio				0.26	0.26	0.00	0.29	0.62			0.28	0.28
Clearance Time (s)				8.6								
Vehicle Extension (s)				3.0								
Lane Grp Cap (vph)				351	391	0	426	2909			1576	392
v/s Ratio Prot				c0.26	0.23		0.09	c0.25			c0.16	
v/s Ratio Perm												0.10
v/c Ratio				0.97	0.89	0.00	0.31	0.41			0.58	0.34
Uniform Delay, d1				54.8	53.3	75.0	41.7	14.3			46.7	43.3
Progression Factor				1.00	1.00	1.00	1.30	0.05			0.58	0.72
Incremental Delay, d2				40.9	21.7	0.0	0.3	0.1			0.4	0.4
Delay (s)				95.7	75.0	75.0	54.6	0.8			27.3	31.5
Level of Service				F	E	E	D	A			C	C
Approach Delay (s)		0.0			84.0			6.2			28.7	
Approach LOS		A			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	3	243	4	3	6	196	973	8	1	1048	119
Future Volume (veh/h)	69	3	243	4	3	6	196	973	8	1	1048	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1396	1900	1693	1900	1900	1900	1722	1752	1900	1900	1693	1856
Adj Flow Rate, veh/h	75	3	264	4	3	7	213	1058	9	1	1139	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	34	0	14	0	0	0	12	10	0	0	14	3
Cap, veh/h	256	9	383	75	62	106	258	2217	19	2	1677	190
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.05	0.44	0.44	0.00	0.58	0.58
Sat Flow, veh/h	1125	50	1434	237	333	570	3182	3382	29	1810	2912	329
Grp Volume(v), veh/h	78	0	264	14	0	0	213	521	546	1	628	640
Grp Sat Flow(s),veh/h/ln	1176	0	1434	1140	0	0	1591	1664	1747	1810	1608	1633
Q Serve(g_s), s	0.3	0.0	24.8	0.1	0.0	0.0	9.9	33.3	33.3	0.1	40.8	41.0
Cycle Q Clear(g_c), s	12.4	0.0	24.8	12.3	0.0	0.0	9.9	33.3	33.3	0.1	40.8	41.0
Prop In Lane	0.96		1.00	0.29		0.50	1.00		0.02	1.00		0.20
Lane Grp Cap(c), veh/h	266	0	383	243	0	0	258	1091	1145	2	926	940
V/C Ratio(X)	0.29	0.00	0.69	0.06	0.00	0.00	0.83	0.48	0.48	0.41	0.68	0.68
Avail Cap(c_a), veh/h	384	0	501	364	0	0	327	1091	1145	62	926	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.92	0.92	0.92	0.14	0.14	0.14
Uniform Delay (d), s/veh	54.8	0.0	49.4	50.3	0.0	0.0	69.9	23.8	23.8	74.8	22.1	22.2
Incr Delay (d2), s/veh	0.6	0.0	2.7	0.1	0.0	0.0	12.0	1.4	1.3	14.4	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	9.1	0.4	0.0	0.0	4.5	14.2	14.9	0.0	14.9	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	0.0	52.1	50.4	0.0	0.0	81.9	25.2	25.1	89.2	22.7	22.8
LnGrp LOS	E	A	D	D	A	A	F	C	C	F	C	C
Approach Vol, veh/h		342			14			1280			1269	
Approach Delay, s/veh		52.8			50.4			34.6			22.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.8	94.0		36.3	7.8	105.9		36.3
Change Period (Y+Rc), s	7.6	7.6		* 8.4	7.6	7.6		* 8.4
Max Green Setting (Gmax), s	15.4	70.8		* 40	5.1	81.1		* 40
Max Q Clear Time (g_c+I1), s	11.9	43.0		14.3	2.1	35.3		26.8
Green Ext Time (p_c), s	0.2	9.7		0.0	0.0	7.7		1.1

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	393	52	32	593	124	70	966	41	96	977	28
Future Volume (veh/h)	52	393	52	32	593	124	70	966	41	96	977	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1811	1826	1648	1826	1796	1781	1693	1752	1648	1678	1455
Adj Flow Rate, veh/h	57	427	57	35	645	135	76	1050	45	104	1062	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	26	6	5	17	5	7	8	14	10	17	15	30
Cap, veh/h	65	716	96	252	670	140	80	1057	488	106	1104	31
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.05	0.33	0.33	0.07	0.35	0.35
Sat Flow, veh/h	561	1565	209	803	1464	306	1697	3216	1485	1570	3166	89
Grp Volume(v), veh/h	57	0	484	35	0	780	76	1050	45	104	535	557
Grp Sat Flow(s),veh/h/ln	561	0	1773	803	0	1771	1697	1608	1485	1570	1594	1662
Q Serve(g_s), s	4.5	0.0	30.6	5.1	0.0	64.1	6.7	48.8	3.1	9.9	49.3	49.3
Cycle Q Clear(g_c), s	68.6	0.0	30.6	35.7	0.0	64.1	6.7	48.8	3.1	9.9	49.3	49.3
Prop In Lane	1.00		0.12	1.00		0.17	1.00		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	65	0	811	252	0	810	80	1057	488	106	556	579
V/C Ratio(X)	0.88	0.00	0.60	0.14	0.00	0.96	0.95	0.99	0.09	0.98	0.96	0.96
Avail Cap(c_a), veh/h	65	0	811	252	0	810	80	1057	488	106	556	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.3	0.0	30.4	43.7	0.0	39.5	71.3	50.2	34.9	69.9	47.9	47.9
Incr Delay (d2), s/veh	75.8	0.0	2.2	0.7	0.0	23.4	77.7	24.9	0.3	82.2	29.9	29.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	13.5	1.1	0.0	32.4	4.6	22.5	1.2	6.3	23.4	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	150.2	0.0	32.6	44.4	0.0	62.9	148.9	75.1	35.2	152.0	77.7	77.0
LnGrp LOS	F	A	C	D	A	E	F	E	D	F	E	E
Approach Vol, veh/h		541			815			1171			1196	
Approach Delay, s/veh		45.0			62.1			78.3			83.9	
Approach LOS		D			E			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.4	59.6		76.0	17.4	56.6		76.0				
Change Period (Y+Rc), s	7.3	7.3		7.4	7.3	7.3		7.4				
Max Green Setting (Gmax), s	7.1	52.3		68.6	10.1	49.3		68.6				
Max Q Clear Time (g_c+I1), s	8.7	51.3		66.1	11.9	50.8		70.6				
Green Ext Time (p_c), s	0.0	0.7		1.9	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			71.7									
HCM 6th LOS			E									

Intersection	
Int Delay, s/veh	5.8

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	91	96	147	965	1101	153
Future Vol, veh/h	91	96	147	965	1101	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	50	0	450	-	-	0
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	4	1	13	15	2
Mvmt Flow	100	105	162	1060	1210	168

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2064	605	1378	0	-	0
Stage 1	1210	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Critical Hdwy	6.86	6.98	4.12	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.34	2.21	-	-	-
Pot Cap-1 Maneuver	~ 47	436	499	-	-	-
Stage 1	243	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	436	499	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	164	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	66.1	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	499	-	116	436	-	-
HCM Lane V/C Ratio	0.324	-	0.862	0.242	-	-
HCM Control Delay (s)	15.6	-	119	15.9	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	1.4	-	5.2	0.9	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	3.6

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	95	176	1096	65	84	1198
Future Vol, veh/h	95	176	1096	65	84	1198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	50	0	-	250	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	6	6	6	7	15
Mvmt Flow	100	185	1154	68	88	1261

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1834	577	0	0	1222	0
Stage 1	1154	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.41	7.02	-	-	4.24	-
Critical Hdwy Stg 1	5.96	-	-	-	-	-
Critical Hdwy Stg 2	6.16	-	-	-	-	-
Follow-up Hdwy	3.73	3.36	-	-	2.27	-
Pot Cap-1 Maneuver	~ 82	450	-	-	539	-
Stage 1	245	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 69	450	-	-	539	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	245	-	-	-	-	-
Stage 2	352	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	32.2	0	0.9
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	162	450	539	-
HCM Lane V/C Ratio	-	-	0.617	0.412	0.164	-
HCM Control Delay (s)	-	-	57.7	18.5	13	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	3.4	2	0.6	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s   +: Computation Not Defined   *: All major volume in platoon

Intersection						
Int Delay, s/veh	20.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	4	997	170	10	1118
Future Vol, veh/h	203	4	997	170	10	1118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	14	67	10	20	57	12
Mvmt Flow	221	4	1084	185	11	1215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1807	-	0	0	1269	0
Stage 1	1177	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Critical Hdwy	7.08	-	-	-	5.24	-
Critical Hdwy Stg 1	6.08	-	-	-	-	-
Critical Hdwy Stg 2	6.08	-	-	-	-	-
Follow-up Hdwy	3.64	-	-	-	2.77	-
Pot Cap-1 Maneuver	~ 62	0	-	-	321	-
Stage 1	232	0	-	-	-	-
Stage 2	461	0	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 60	-	-	-	321	-
Mov Cap-2 Maneuver	~ 163	-	-	-	-	-
Stage 1	232	-	-	-	-	-
Stage 2	445	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	247.3	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	163	321	-
HCM Lane V/C Ratio	-	-	1.354	0.034	-
HCM Control Delay (s)	-	-	247.3	16.6	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	13.4	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s   +: Computation Not Defined   *: All major volume in platoon

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	25	930	76	18	1106
Future Volume (veh/h)	36	25	930	76	18	1106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1381	1159	1767	1633	877	1722
Adj Flow Rate, veh/h	39	0	1011	0	20	1202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	35	50	9	18	69	12
Cap, veh/h	68		2462		258	2400
Arrive On Green	0.05	0.00	0.73	0.00	0.73	0.73
Sat Flow, veh/h	1316	982	3445	1384	262	3358
Grp Volume(v), veh/h	39	0	1011	0	20	1202
Grp Sat Flow(s),veh/h/ln	1316	982	1678	1384	262	1636
Q Serve(g_s), s	2.2	0.0	8.6	0.0	2.4	11.6
Cycle Q Clear(g_c), s	2.2	0.0	8.6	0.0	11.0	11.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	68		2462		258	2400
V/C Ratio(X)	0.57		0.41		0.08	0.50
Avail Cap(c_a), veh/h	182		2462		258	2400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.27	0.27
Uniform Delay (d), s/veh	34.7	0.0	3.8	0.0	5.9	4.2
Incr Delay (d2), s/veh	7.3	0.0	0.5	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.6	0.0	0.1	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	0.0	4.3	0.0	6.1	4.4
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	39	A	1011	A		1222
Approach Delay, s/veh	42.0		4.3			4.4
Approach LOS	D		A			A

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.5		12.5		62.5
Change Period (Y+Rc), s		* 7.5		* 8.6		* 7.5
Max Green Setting (Gmax), s		* 49		* 10		* 49
Max Q Clear Time (g_c+I1), s		10.6		4.2		13.6
Green Ext Time (p_c), s		11.8		0.0		15.5

Intersection Summary			
HCM 6th Ctrl Delay			5.0
HCM 6th LOS			A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1019	236	182	1472	416	225	575	99	433	842	248
Future Volume (veh/h)	200	1019	236	182	1472	416	225	575	99	433	842	248
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1752	1678	1470	1796	1707	1737	1781	1203	1678	1767	1856
Adj Flow Rate, veh/h	213	1084	0	194	1566	0	239	612	0	461	896	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	8	10	15	29	7	13	11	8	47	15	9	3
Cap, veh/h	211	1344		229	1447		229	587		442	821	
Arrive On Green	0.06	0.40	0.00	0.08	0.42	0.00	0.02	0.06	0.00	0.14	0.24	0.00
Sat Flow, veh/h	3291	3328	1422	2716	3413	1447	3209	3385	1020	3100	3357	1572
Grp Volume(v), veh/h	213	1084	0	194	1566	0	239	612	0	461	896	0
Grp Sat Flow(s),veh/h/ln	1646	1664	1422	1358	1706	1447	1605	1692	1020	1550	1678	1572
Q Serve(g_s), s	9.6	43.2	0.0	10.6	63.6	0.0	10.7	26.0	0.0	21.4	36.7	0.0
Cycle Q Clear(g_c), s	9.6	43.2	0.0	10.6	63.6	0.0	10.7	26.0	0.0	21.4	36.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	1344		229	1447		229	587		442	821	
V/C Ratio(X)	1.01	0.81		0.85	1.08		1.04	1.04		1.04	1.09	
Avail Cap(c_a), veh/h	211	1344		252	1447		229	587		442	821	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.93	0.93	0.00	0.38	0.38	0.00
Uniform Delay (d), s/veh	70.2	39.5	0.0	67.7	43.2	0.0	73.2	70.7	0.0	64.3	56.6	0.0
Incr Delay (d2), s/veh	64.9	5.3	0.0	21.3	49.3	0.0	69.3	47.6	0.0	38.1	49.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	18.1	0.0	4.3	35.5	0.0	6.8	15.7	0.0	10.6	20.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.1	44.8	0.0	89.1	92.5	0.0	142.6	118.3	0.0	102.4	105.9	0.0
LnGrp LOS	F	D		F	F		F	F		F	F	
Approach Vol, veh/h		1297	A		1760	A		851	A		1357	A
Approach Delay, s/veh		59.6			92.1			125.1			104.7	
Approach LOS		E			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	44.0	17.0	71.0	28.7	33.3	20.0	68.0
Change Period (Y+Rc), s	7.3	7.3	7.4	7.4	7.3	7.3	7.4	7.4
Max Green Setting (Gmax), s	10.7	36.7	9.6	63.6	21.4	26.0	13.9	59.3
Max Q Clear Time (g_c+I1), s	12.7	38.7	11.6	65.6	23.4	28.0	12.6	45.2
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	7.8

Intersection Summary	
HCM 6th Ctrl Delay	92.7
HCM 6th LOS	F

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	72	121	22	61	50	94	997	37	77	1449	68
Future Volume (veh/h)	41	72	121	22	61	50	94	997	37	77	1449	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1604	1841	1381	1159	1796	1574	1530	1781	1574	1870	1811	1693
Adj Flow Rate, veh/h	44	77	130	24	66	54	101	1072	40	83	1558	73
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	20	4	35	50	7	22	25	8	22	2	6	14
Cap, veh/h	185	80	136	58	55	34	207	1747	65	458	1745	81
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.12	1.00	1.00	0.05	0.52	0.52
Sat Flow, veh/h	1090	615	1039	12	422	261	1457	3327	124	1781	3347	156
Grp Volume(v), veh/h	44	0	207	144	0	0	101	545	567	83	798	833
Grp Sat Flow(s),veh/h/ln	1090	0	1654	696	0	0	1457	1692	1759	1781	1721	1783
Q Serve(g_s), s	0.0	0.0	9.3	0.5	0.0	0.0	2.4	0.0	0.0	1.6	31.1	31.5
Cycle Q Clear(g_c), s	4.5	0.0	9.3	9.8	0.0	0.0	2.4	0.0	0.0	1.6	31.1	31.5
Prop In Lane	1.00		0.63	0.17		0.37	1.00		0.07	1.00		0.09
Lane Grp Cap(c), veh/h	185	0	216	147	0	0	207	889	924	458	897	930
V/C Ratio(X)	0.24	0.00	0.96	0.98	0.00	0.00	0.49	0.61	0.61	0.18	0.89	0.90
Avail Cap(c_a), veh/h	185	0	216	147	0	0	225	889	924	503	897	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.35	0.35	0.35	0.54	0.54	0.54
Uniform Delay (d), s/veh	30.3	0.0	32.4	33.0	0.0	0.0	15.3	0.0	0.0	7.1	16.0	16.1
Incr Delay (d2), s/veh	0.9	0.0	49.4	68.2	0.0	0.0	0.6	1.1	1.1	0.1	7.6	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	6.5	5.3	0.0	0.0	0.7	0.3	0.3	0.5	11.4	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	81.8	101.2	0.0	0.0	15.9	1.1	1.1	7.2	23.6	23.9
LnGrp LOS	C	A	F	F	A	A	B	A	A	A	C	C
Approach Vol, veh/h		251			144			1213			1714	
Approach Delay, s/veh		73.0			101.2			2.3			22.9	
Approach LOS		E			F			A			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	45.9		17.0	10.9	46.2		17.0				
Change Period (Y+Rc), s	6.8	6.8		* 7.2	6.8	6.8		* 7.2				
Max Green Setting (Gmax), s	5.3	39.1		* 9.8	6.0	38.4		* 9.8				
Max Q Clear Time (g_c+I1), s	4.4	33.5		11.8	3.6	2.0		11.3				
Green Ext Time (p_c), s	0.0	4.8		0.0	0.0	12.2		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	177	96	107	188	315	60	777	154	471	1178	111
Future Volume (veh/h)	140	177	96	107	188	315	60	777	154	471	1178	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1870	1841	1663	1856	1870	1767	1811	1870	1885	1856	1722
Adj Flow Rate, veh/h	147	186	101	113	198	332	63	818	162	496	1240	117
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	2	4	16	3	2	9	6	2	1	3	12
Cap, veh/h	219	469	244	126	624	533	75	892	411	525	1288	533
Arrive On Green	0.21	0.21	0.21	0.08	0.34	0.34	0.04	0.26	0.26	0.15	0.37	0.37
Sat Flow, veh/h	825	2262	1174	1584	1856	1585	1682	3441	1585	3483	3526	1459
Grp Volume(v), veh/h	147	144	143	113	198	332	63	818	162	496	1240	117
Grp Sat Flow(s),veh/h/ln	825	1777	1659	1584	1856	1585	1682	1721	1585	1742	1763	1459
Q Serve(g_s), s	25.8	10.5	11.2	10.6	11.9	26.4	5.6	34.6	12.6	21.2	51.7	8.3
Cycle Q Clear(g_c), s	25.8	10.5	11.2	10.6	11.9	26.4	5.6	34.6	12.6	21.2	51.7	8.3
Prop In Lane	1.00		0.71	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	369	344	126	624	533	75	892	411	525	1288	533
V/C Ratio(X)	0.67	0.39	0.41	0.90	0.32	0.62	0.84	0.92	0.39	0.95	0.96	0.22
Avail Cap(c_a), veh/h	307	557	520	126	820	701	75	892	411	525	1288	533
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77	0.35	0.35	0.35
Uniform Delay (d), s/veh	57.3	51.3	51.5	68.5	37.0	41.8	71.1	54.0	45.8	63.1	46.6	32.8
Incr Delay (d2), s/veh	5.0	1.0	1.1	50.8	0.4	1.7	44.3	12.7	2.2	12.5	8.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	4.8	4.7	6.0	5.5	10.5	3.3	16.2	5.2	10.1	23.4	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.3	52.2	52.7	119.3	37.4	43.5	115.5	66.7	48.0	75.6	55.0	33.2
LnGrp LOS	E	D	D	F	D	D	F	E	D	E	E	C
Approach Vol, veh/h		434			643			1043			1853	
Approach Delay, s/veh		55.8			55.0			66.8			59.2	
Approach LOS		E			D			E			E	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	62.2		57.8	30.0	46.3	19.3	38.5				
Change Period (Y+Rc), s	7.4	7.4		7.4	7.4	7.4	7.4	7.4				
Max Green Setting (Gmax), s	6.7	54.8		66.3	22.6	38.9	11.9	47.0				
Max Q Clear Time (g_c+I1), s	17.6	53.7		28.4	23.2	36.6	12.6	27.8				
Green Ext Time (p_c), s	0.0	1.0		3.7	0.0	1.5	0.0	3.3				
Intersection Summary												
HCM 6th Ctrl Delay			60.1									
HCM 6th LOS			E									

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	0	93	1	0	0	31	1229	1	4	1694	139
Future Volume (veh/h)	201	0	93	1	0	0	31	1229	1	4	1694	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1885	1900	1900	1900	1841	1811	1900	1900	1841	1856
Adj Flow Rate, veh/h	212	0	98	1	0	0	33	1294	0	4	1783	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	1	0	0	0	4	6	0	0	4	3
Cap, veh/h	374	0	265	266	0	0	255	2042		271	2076	933
Arrive On Green	0.16	0.00	0.16	0.16	0.00	0.00	0.59	0.59	0.00	1.00	1.00	1.00
Sat Flow, veh/h	1418	0	1610	885	0	0	227	3441	1610	433	3497	1572
Grp Volume(v), veh/h	212	0	98	1	0	0	33	1294	0	4	1783	146
Grp Sat Flow(s),veh/h/ln	1418	0	1610	885	0	0	227	1721	1610	433	1749	1572
Q Serve(g_s), s	4.5	0.0	3.2	0.0	0.0	0.0	4.1	14.7	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	7.8	0.0	3.2	3.3	0.0	0.0	4.1	14.7	0.0	14.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	0	265	266	0	0	255	2042		271	2076	933
V/C Ratio(X)	0.57	0.00	0.37	0.00	0.00	0.00	0.13	0.63		0.01	0.86	0.16
Avail Cap(c_a), veh/h	388	0	282	279	0	0	255	2042		271	2076	933
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.74	0.74	0.00	0.20	0.20	0.20
Uniform Delay (d), s/veh	24.0	0.0	22.3	23.7	0.0	0.0	5.8	7.9	0.0	3.1	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	1.2	0.0	0.0	0.0	0.8	1.1	0.0	0.0	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	1.2	0.0	0.0	0.0	0.2	3.6	0.0	0.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	0.0	23.5	23.7	0.0	0.0	6.6	9.1	0.0	3.1	1.0	0.1
LnGrp LOS	C	A	C	C	A	A	A	A		A	A	A
Approach Vol, veh/h		310			1			1327	A		1933	
Approach Delay, s/veh		25.4			23.7			9.0			1.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		42.6		17.4		42.6		17.4
Change Period (Y+Rc), s		* 7		7.5		* 7		7.5
Max Green Setting (Gmax), s		* 35		10.5		* 35		10.5
Max Q Clear Time (g_c+I1), s		16.9		5.3		16.7		9.8
Green Ext Time (p_c), s		14.8		0.0		11.8		0.1

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes
User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑	↱	↰	↑↑↱	
Traffic Volume (veh/h)	40	58	218	172	59	65	123	1240	90	54	1495	35
Future Volume (veh/h)	40	58	218	172	59	65	123	1240	90	54	1495	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1900	1870	1900	1900	1841	1841	1737	1856	1826	1796	1900
Adj Flow Rate, veh/h	43	62	232	183	63	69	131	1319	96	57	1590	37
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	0	2	0	0	4	4	11	3	5	7	0
Cap, veh/h	191	247	206	231	108	118	250	1591	758	260	1566	36
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.07	0.48	0.48	0.05	0.46	0.46
Sat Flow, veh/h	1218	1900	1585	1102	829	908	1753	3300	1572	1739	3409	79
Grp Volume(v), veh/h	43	62	232	183	0	132	131	1319	96	57	794	833
Grp Sat Flow(s),veh/h/ln	1218	1900	1585	1102	0	1737	1753	1650	1572	1739	1706	1782
Q Serve(g_s), s	2.1	1.8	7.8	6.0	0.0	4.3	2.3	20.7	2.0	1.0	27.6	27.6
Cycle Q Clear(g_c), s	6.4	1.8	7.8	7.8	0.0	4.3	2.3	20.7	2.0	1.0	27.6	27.6
Prop In Lane	1.00		1.00	1.00		0.52	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	191	247	206	231	0	226	250	1591	758	260	784	819
V/C Ratio(X)	0.22	0.25	1.13	0.79	0.00	0.58	0.52	0.83	0.13	0.22	1.01	1.02
Avail Cap(c_a), veh/h	191	247	206	231	0	226	266	1591	758	316	784	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.67	0.67	0.67	0.20	0.20	0.20
Uniform Delay (d), s/veh	27.6	23.5	26.1	28.2	0.0	24.6	13.4	13.4	8.6	11.1	16.2	16.2
Incr Delay (d2), s/veh	0.6	0.5	100.6	17.0	0.0	3.8	1.1	3.5	0.2	0.1	17.8	18.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	8.5	3.6	0.0	1.9	0.7	6.8	0.6	0.3	12.5	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	24.0	126.7	45.1	0.0	28.4	14.5	16.9	8.8	11.2	34.0	34.7
LnGrp LOS	C	C	F	D	A	C	B	B	A	B	F	F
Approach Vol, veh/h		337			315			1546			1684	
Approach Delay, s/veh		95.3			38.1			16.2			33.6	
Approach LOS		F			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.9	34.1		15.0	9.6	35.4		15.0
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2
Max Green Setting (Gmax), s	5.0	27.0		* 7.8	5.0	27.0		* 7.8
Max Q Clear Time (g_c+I1), s	4.3	29.6		9.8	3.0	22.7		9.8
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	3.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	199	476	499	150	823	268	403	761	71	194	896	118
Future Volume (veh/h)	199	476	499	150	823	268	403	761	71	194	896	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1781	1856	1856	1900	1722	1811	1826	1885	1856	1856
Adj Flow Rate, veh/h	216	517	542	163	895	0	438	827	77	211	974	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	8	3	3	0	12	6	5	1	3	3
Cap, veh/h	184	967	613	246	972		419	1074	100	264	882	116
Arrive On Green	0.06	0.27	0.27	0.06	0.28	0.00	0.13	0.34	0.34	0.15	0.56	0.56
Sat Flow, veh/h	1781	3526	1510	1767	3526	1610	3182	3182	296	3483	3133	412
Grp Volume(v), veh/h	216	517	542	163	895	0	438	447	457	211	548	554
Grp Sat Flow(s),veh/h/ln	1781	1763	1510	1767	1763	1610	1591	1721	1758	1742	1763	1781
Q Serve(g_s), s	7.1	15.0	32.9	7.3	29.6	0.0	15.8	27.9	27.9	7.0	33.8	33.8
Cycle Q Clear(g_c), s	7.1	15.0	32.9	7.3	29.6	0.0	15.8	27.9	27.9	7.0	33.8	33.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.23
Lane Grp Cap(c), veh/h	184	967	613	246	972		419	581	593	264	497	502
V/C Ratio(X)	1.18	0.53	0.88	0.66	0.92		1.05	0.77	0.77	0.80	1.10	1.10
Avail Cap(c_a), veh/h	184	967	613	246	972		419	581	593	308	497	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.57	0.57	0.57	0.80	0.80	0.80
Uniform Delay (d), s/veh	38.9	37.0	33.0	32.1	42.2	0.0	52.1	35.6	35.6	50.0	26.2	26.2
Incr Delay (d2), s/veh	121.7	2.1	17.0	6.4	15.1	0.0	45.7	5.6	5.5	9.8	67.8	67.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	6.5	16.6	3.8	14.4	0.0	8.9	12.4	12.6	3.2	17.8	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.6	39.2	50.0	38.5	57.2	0.0	97.8	41.2	41.1	59.8	94.0	94.1
LnGrp LOS	F	D	D	D	E		F	D	D	E	F	F
Approach Vol, veh/h		1275			1058	A		1342			1313	
Approach Delay, s/veh		64.4			54.3			59.6			88.6	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	41.0	16.3	47.7	15.2	40.8	23.0	41.0
Change Period (Y+Rc), s	7.9	7.9	7.2	7.2	7.9	7.9	7.2	7.2
Max Green Setting (Gmax), s	7.1	33.1	10.6	39.0	7.3	32.9	15.8	33.8
Max Q Clear Time (g_c+I1), s	9.1	31.6	9.0	29.9	9.3	34.9	17.8	35.8
Green Ext Time (p_c), s	0.0	0.9	0.1	3.7	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	67.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	15	81	15	14	0	55	1105	12	31	1113	67
Future Volume (veh/h)	71	15	81	15	14	0	55	1105	12	31	1113	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1826	1900	1900	1900	1900	1826	1900	1900	1870	1841
Adj Flow Rate, veh/h	77	16	88	16	15	0	60	1201	13	34	1210	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	5	0	0	0	0	5	0	0	2	4
Cap, veh/h	253	41	175	143	104	0	327	2379	26	358	1773	107
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.00	0.05	0.68	0.68	0.52	0.52	0.52
Sat Flow, veh/h	1267	366	1547	463	914	0	1810	3516	38	467	3405	205
Grp Volume(v), veh/h	93	0	88	31	0	0	60	593	621	34	631	652
Grp Sat Flow(s),veh/h/ln	1632	0	1547	1377	0	0	1810	1735	1819	467	1777	1833
Q Serve(g_s), s	0.0	0.0	3.2	0.0	0.0	0.0	0.8	10.1	10.1	2.3	15.8	15.9
Cycle Q Clear(g_c), s	2.8	0.0	3.2	2.9	0.0	0.0	0.8	10.1	10.1	3.0	15.8	15.9
Prop In Lane	0.83		1.00	0.52		0.00	1.00		0.02	1.00		0.11
Lane Grp Cap(c), veh/h	295	0	175	247	0	0	327	1174	1231	358	925	955
V/C Ratio(X)	0.32	0.00	0.50	0.13	0.00	0.00	0.18	0.50	0.50	0.10	0.68	0.68
Avail Cap(c_a), veh/h	314	0	196	268	0	0	383	1174	1231	358	925	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.50	0.50	0.50	0.81	0.81	0.81
Uniform Delay (d), s/veh	24.8	0.0	25.0	24.0	0.0	0.0	7.9	4.8	4.8	7.8	10.7	10.7
Incr Delay (d2), s/veh	0.6	0.0	2.2	0.2	0.0	0.0	0.1	0.8	0.7	0.4	3.3	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.2	0.4	0.0	0.0	0.2	1.9	2.0	0.2	5.2	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	0.0	27.2	24.2	0.0	0.0	8.0	5.5	5.5	8.2	14.0	13.9
LnGrp LOS	C	A	C	C	A	A	A	A	A	A	B	B
Approach Vol, veh/h		181			31			1274			1317	
Approach Delay, s/veh		26.3			24.2			5.6			13.8	
Approach LOS		C			C			A			B	

Timer - Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	9.4	37.4		13.2		46.8		13.2
Change Period (Y+Rc), s	6.2	6.2		6.4		6.2		6.4
Max Green Setting (Gmax), s	5.0	28.6		7.6		39.8		7.6
Max Q Clear Time (g_c+I1), s	2.8	17.9		4.9		12.1		5.2
Green Ext Time (p_c), s	0.0	5.9		0.0		8.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	24	42	24	31	37	27	1129	5	42	1220	36
Future Volume (veh/h)	44	24	42	24	31	37	27	1129	5	42	1220	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1856	1900	1841	1856	1900	1826	1900	1811	1841	1900
Adj Flow Rate, veh/h	48	26	46	26	34	40	29	1227	5	46	1326	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	3	0	4	3	0	5	0	6	4	0
Cap, veh/h	143	54	70	110	81	76	314	2402	10	342	2352	69
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.68	0.68	0.68	0.68	0.68	0.68
Sat Flow, veh/h	521	472	618	300	710	673	405	3543	14	438	3469	102
Grp Volume(v), veh/h	120	0	0	100	0	0	29	601	631	46	668	697
Grp Sat Flow(s),veh/h/ln	1612	0	0	1682	0	0	405	1735	1823	438	1749	1822
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	2.4	10.2	10.2	3.5	11.9	12.0
Cycle Q Clear(g_c), s	4.0	0.0	0.0	3.2	0.0	0.0	14.4	10.2	10.2	13.7	11.9	12.0
Prop In Lane	0.40		0.38	0.26		0.40	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	267	0	0	267	0	0	314	1176	1236	342	1186	1236
V/C Ratio(X)	0.45	0.00	0.00	0.37	0.00	0.00	0.09	0.51	0.51	0.13	0.56	0.56
Avail Cap(c_a), veh/h	368	0	0	373	0	0	314	1176	1236	342	1186	1236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	0.0	25.0	0.0	0.0	8.8	4.8	4.8	8.1	5.0	5.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.9	0.0	0.0	0.5	1.4	1.3	0.8	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	1.3	0.0	0.0	0.2	2.1	2.2	0.3	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	0.0	25.9	0.0	0.0	9.3	6.1	6.1	8.9	7.0	6.9
LnGrp LOS	C	A	A	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		120			100			1261			1411	
Approach Delay, s/veh		26.5			25.9			6.2			7.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		46.8		13.2		46.8		13.2
Change Period (Y+Rc), s		6.1		6.4		6.1		6.4
Max Green Setting (Gmax), s		36.6		10.9		36.6		10.9
Max Q Clear Time (g_c+I1), s		15.7		5.2		16.4		6.0
Green Ext Time (p_c), s		12.8		0.2		11.1		0.2

Intersection Summary	
HCM 6th Ctrl Delay	8.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	37	96	114	68	81	71	973	62	56	987	33
Future Volume (veh/h)	69	37	96	114	68	81	71	973	62	56	987	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1900	1856	1841	1870	1870	1826	1900	1737	1841	1781
Adj Flow Rate, veh/h	73	39	102	121	72	86	76	1035	66	60	1050	35
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	0	0	3	4	2	2	5	0	11	4	8
Cap, veh/h	204	93	244	218	153	183	330	1992	924	307	2000	863
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.04	0.57	0.57	0.04	0.57	0.57
Sat Flow, veh/h	1228	465	1216	1238	764	913	1781	3469	1610	1654	3497	1510
Grp Volume(v), veh/h	73	0	141	121	0	158	76	1035	66	60	1050	35
Grp Sat Flow(s),veh/h/ln	1228	0	1681	1238	0	1676	1781	1735	1610	1654	1749	1510
Q Serve(g_s), s	6.7	0.0	8.8	11.3	0.0	10.0	2.1	21.7	2.2	1.8	22.0	1.2
Cycle Q Clear(g_c), s	16.7	0.0	8.8	20.1	0.0	10.0	2.1	21.7	2.2	1.8	22.0	1.2
Prop In Lane	1.00		0.72	1.00		0.54	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	0	337	218	0	336	330	1992	924	307	2000	863
V/C Ratio(X)	0.36	0.00	0.42	0.56	0.00	0.47	0.23	0.52	0.07	0.20	0.53	0.04
Avail Cap(c_a), veh/h	449	0	672	465	0	671	337	1992	924	317	2000	863
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	41.8	50.6	0.0	42.3	11.9	15.5	11.3	11.8	15.7	11.3
Incr Delay (d2), s/veh	1.5	0.0	1.2	3.1	0.0	1.5	0.4	1.0	0.1	0.3	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.7	3.7	0.0	4.2	0.8	8.1	0.8	0.6	8.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	0.0	43.0	53.8	0.0	43.8	12.2	16.5	11.5	12.1	16.7	11.3
LnGrp LOS	D	A	D	D	A	D	B	B	B	B	B	B
Approach Vol, veh/h		214			279			1177			1145	
Approach Delay, s/veh		45.8			48.1			15.9			16.3	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	75.5		33.0	11.2	75.8		33.0				
Change Period (Y+Rc), s	6.9	6.9		* 8.9	6.9	6.9		* 8.9				
Max Green Setting (Gmax), s	5.1	44.2		* 48	5.1	44.2		* 48				
Max Q Clear Time (g_c+I1), s	4.1	24.0		22.1	3.8	23.7		18.7				
Green Ext Time (p_c), s	0.0	9.6		2.0	0.0	9.7		1.6				
Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	1218	238	357	2499	272	326	513	279	183	516	192
Future Volume (veh/h)	207	1218	238	357	2499	272	326	513	279	183	516	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1811	1841	1856	1856	1856	1826	1841	1767	1870	1856	1870
Adj Flow Rate, veh/h	218	1282	251	376	2631	286	343	540	294	193	543	202
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	6	4	3	3	3	5	4	9	2	3	2
Cap, veh/h	246	2471	780	415	2781	863	388	587	432	218	769	354
Arrive On Green	0.07	0.50	0.50	0.12	0.55	0.55	0.08	0.17	0.17	0.06	0.15	0.15
Sat Flow, veh/h	3428	4944	1560	3428	5066	1572	4904	3497	1497	3456	5066	1585
Grp Volume(v), veh/h	218	1282	251	376	2631	286	343	540	294	193	543	202
Grp Sat Flow(s),veh/h/ln	1714	1648	1560	1714	1689	1572	1635	1749	1497	1728	1689	1585
Q Serve(g_s), s	13.9	38.5	21.1	23.8	107.2	22.1	15.2	33.4	36.9	12.2	22.4	24.9
Cycle Q Clear(g_c), s	13.9	38.5	21.1	23.8	107.2	22.1	15.2	33.4	36.9	12.2	22.4	24.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	2471	780	415	2781	863	388	587	432	218	769	354
V/C Ratio(X)	0.89	0.52	0.32	0.91	0.95	0.33	0.88	0.92	0.68	0.88	0.71	0.57
Avail Cap(c_a), veh/h	246	2471	780	524	2781	863	415	587	432	218	769	354
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	101.2	37.2	32.8	95.4	46.5	27.3	100.3	90.1	69.2	102.2	88.7	76.0
Incr Delay (d2), s/veh	29.5	0.8	1.1	16.7	8.4	1.0	18.8	20.0	4.3	31.9	3.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	15.8	8.3	11.6	45.9	8.6	7.2	16.7	15.1	6.5	10.0	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.7	37.9	33.9	112.2	54.9	28.4	119.1	110.1	73.5	134.1	91.6	78.2
LnGrp LOS	F	D	C	F	D	C	F	F	E	F	F	E
Approach Vol, veh/h		1751			3293			1177			938	
Approach Delay, s/veh		48.9			59.2			103.6			97.5	
Approach LOS		D			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	129.0	22.0	45.0	34.8	118.2	25.5	41.5
Change Period (Y+Rc), s	8.2	8.2	* 8.1	* 8.1	8.2	8.2	* 8.1	* 8.1
Max Green Setting (Gmax), s	15.8	120.8	* 14	* 37	33.6	103.0	* 19	* 32
Max Q Clear Time (g_c+I1), s	15.9	109.2	14.2	38.9	25.8	40.5	17.2	26.9
Green Ext Time (p_c), s	0.0	11.2	0.0	0.0	0.8	13.4	0.2	1.9

Intersection Summary	
HCM 6th Ctrl Delay	69.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1119	427	529	1656	502	400
Future Volume (veh/h)	1119	427	529	1656	502	400
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1870	1841	1870	1856	1841
Adj Flow Rate, veh/h	1216	464	575	1800	546	435
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	4	2	3	4
Cap, veh/h	1649	1083	621	2473	738	621
Arrive On Green	0.47	0.47	0.18	0.70	0.22	0.22
Sat Flow, veh/h	3618	1585	3401	3647	3428	1560
Grp Volume(v), veh/h	1216	464	575	1800	546	435
Grp Sat Flow(s),veh/h/ln	1763	1585	1700	1777	1714	1560
Q Serve(g_s), s	47.6	22.3	28.3	53.1	25.3	36.6
Cycle Q Clear(g_c), s	47.6	22.3	28.3	53.1	25.3	36.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1649	1083	621	2473	738	621
V/C Ratio(X)	0.74	0.43	0.93	0.73	0.74	0.70
Avail Cap(c_a), veh/h	1649	1083	766	2473	738	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	12.1	68.3	15.9	62.3	42.7
Incr Delay (d2), s/veh	3.0	1.2	13.8	1.9	4.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	14.5	13.3	20.4	11.3	33.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.7	13.3	82.1	17.8	66.2	46.2
LnGrp LOS	D	B	F	B	E	D
Approach Vol, veh/h	1680			2375	981	
Approach Delay, s/veh	32.4			33.4	57.4	
Approach LOS	C			C	E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		126.0		44.0	38.8	87.2
Change Period (Y+Rc), s		7.7		7.4	7.7	7.7
Max Green Setting (Gmax), s		118.3		36.6	38.3	72.3
Max Q Clear Time (g_c+I1), s		55.1		38.6	30.3	49.6
Green Ext Time (p_c), s		35.0		0.0	0.8	14.5

Intersection Summary			
HCM 6th Ctrl Delay			37.7
HCM 6th LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	6	401	0	0	0	0	1268	52	222	1337	0
Future Volume (veh/h)	81	6	401	0	0	0	0	1268	52	222	1337	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1485	1900	1737				0	1796	1707	1826	1811	0
Adj Flow Rate, veh/h	88	7	0				0	1378	0	241	1453	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	28	0	11				0	7	13	5	6	0
Cap, veh/h	163	13					0	3301		274	3769	0
Arrive On Green	0.10	0.10	0.00				0.00	0.53	0.00	0.16	0.76	0.00
Sat Flow, veh/h	1682	134	1472				0	6431	1447	1739	5107	0
Grp Volume(v), veh/h	95	0	0				0	1378	0	241	1453	0
Grp Sat Flow(s),veh/h/ln	1816	0	1472				0	1545	1447	1739	1648	0
Q Serve(g_s), s	4.7	0.0	0.0				0.0	12.7	0.0	12.9	9.4	0.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0				0.0	12.7	0.0	12.9	9.4	0.0
Prop In Lane	0.93		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	176	0					0	3301		274	3769	0
V/C Ratio(X)	0.54	0.00					0.00	0.42		0.88	0.39	0.00
Avail Cap(c_a), veh/h	575	0					0	3301		335	3769	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.83	0.83	0.00
Uniform Delay (d), s/veh	40.9	0.0	0.0				0.0	13.3	0.0	39.1	3.8	0.0
Incr Delay (d2), s/veh	5.4	0.0	0.0				0.0	0.4	0.0	15.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0				0.0	4.1	0.0	6.4	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.3	0.0	0.0				0.0	13.7	0.0	54.2	4.1	0.0
LnGrp LOS	D	A					A	B		D	A	A
Approach Vol, veh/h		95	A					1378	A		1694	
Approach Delay, s/veh		46.3						13.7			11.2	
Approach LOS		D						B			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		78.9			21.7	57.2		16.1				
Change Period (Y+Rc), s		6.5			* 6.7	6.5		6.9				
Max Green Setting (Gmax), s		51.5			* 18	26.5		30.1				
Max Q Clear Time (g_c+I1), s		11.4			14.9	14.7		6.7				
Green Ext Time (p_c), s		13.8			0.1	6.9		0.8				

Intersection Summary			
HCM 6th Ctrl Delay			13.3
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	23	0	99	228	1132	0	0	1564	99
Future Volume (veh/h)	0	0	0	23	0	99	228	1132	0	0	1564	99
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1218	1900	1574	1811	1767	0	0	1796	1841
Adj Flow Rate, veh/h				25	0	0	245	1217	0	0	1682	0
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				46	0	22	6	9	0	0	7	4
Cap, veh/h				92	0		277	3887	0	0	3547	
Arrive On Green				0.05	0.00	0.00	0.32	1.00	0.00	0.00	1.00	0.00
Sat Flow, veh/h				1810	0	1334	1725	4982	0	0	6431	1560
Grp Volume(v), veh/h				25	0	0	245	1217	0	0	1682	0
Grp Sat Flow(s),veh/h/ln				1810	0	1334	1725	1608	0	0	1545	1560
Q Serve(g_s), s				1.3	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				1.3	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				92	0		277	3887	0	0	3547	
V/C Ratio(X)				0.27	0.00		0.89	0.31	0.00	0.00	0.47	
Avail Cap(c_a), veh/h				225	0		439	3887	0	0	3547	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	0.00	0.68	0.68	0.00	0.00	0.40	0.00
Uniform Delay (d), s/veh				43.4	0.0	0.0	31.4	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				1.6	0.0	0.0	8.9	0.1	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.6	0.0	0.0	4.8	0.1	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				45.0	0.0	0.0	40.4	0.1	0.0	0.0	0.2	0.0
LnGrp LOS				D	A		D	A	A	A	A	
Approach Vol, veh/h					25	A		1462			1682	A
Approach Delay, s/veh					45.0			6.9			0.2	
Approach LOS					D			A			A	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	22.0	60.9	12.0	83.0
Change Period (Y+Rc), s	6.8	6.4	* 7.2	6.4
Max Green Setting (Gmax), s	24.2	38.6	* 12	69.6
Max Q Clear Time (g_c+I1), s	14.8	2.0	3.3	2.0
Green Ext Time (p_c), s	0.5	16.6	0.0	10.8

Intersection Summary	
HCM 6th Ctrl Delay	3.6
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	890	611	133	566	342	270	787	162	276	860	93
Future Volume (veh/h)	109	890	611	133	566	342	270	787	162	276	860	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1856	1856	1811	1826	1826	1767	1737	1500	1826	1796	1826
Adj Flow Rate, veh/h	116	947	0	141	602	0	287	837	0	294	915	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	8	3	3	6	5	5	9	11	27	5	7	5
Cap, veh/h	134	1575		159	1596		319	1001		331	1036	
Arrive On Green	0.08	0.45	0.00	0.09	0.46	0.00	0.20	0.42	0.00	0.10	0.21	0.00
Sat Flow, veh/h	1697	3526	1572	1725	3469	1547	3264	4742	1271	3374	5065	0
Grp Volume(v), veh/h	116	947	0	141	602	0	287	837	0	294	915	0
Grp Sat Flow(s),veh/h/ln	1697	1763	1572	1725	1735	1547	1632	1581	1271	1687	1635	0
Q Serve(g_s), s	12.8	38.6	0.0	15.4	21.5	0.0	16.3	30.0	0.0	16.4	34.4	0.0
Cycle Q Clear(g_c), s	12.8	38.6	0.0	15.4	21.5	0.0	16.3	30.0	0.0	16.4	34.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	134	1575		159	1596		319	1001		331	1036	
V/C Ratio(X)	0.87	0.60		0.89	0.38		0.90	0.84		0.89	0.88	
Avail Cap(c_a), veh/h	202	1575		198	1596		366	1126		375	1159	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	86.5	39.8	0.0	85.3	33.5	0.0	75.5	52.0	0.0	84.7	72.7	0.0
Incr Delay (d2), s/veh	21.7	1.7	0.0	30.8	0.7	0.0	21.4	4.9	0.0	20.4	7.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	17.1	0.0	8.2	9.3	0.0	7.2	10.7	0.0	8.1	15.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.2	41.5	0.0	116.1	34.2	0.0	96.8	56.9	0.0	105.1	80.3	0.0
LnGrp LOS	F	D		F	C		F	E		F	F	
Approach Vol, veh/h		1063	A		743	A		1124	A		1209	A
Approach Delay, s/veh		48.8			49.7			67.1			86.3	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	95.1	25.5	47.2	24.7	92.6	25.5	47.2
Change Period (Y+Rc), s	7.2	7.7	6.9	* 7.1	7.2	7.7	6.9	* 7.1
Max Green Setting (Gmax), s	22.6	72.3	21.1	* 45	21.8	73.1	21.3	* 45
Max Q Clear Time (g_c+I1), s	14.8	23.5	18.4	32.0	17.4	40.6	18.3	36.4
Green Ext Time (p_c), s	0.1	4.3	0.3	4.5	0.1	7.4	0.3	3.8

Intersection Summary	
HCM 6th Ctrl Delay	64.9
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	41	22	0	31	23	1230	34	43	1240	40
Future Vol, veh/h	37	0	41	22	0	31	23	1230	34	43	1240	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	18	0	13	4	10	21	23	8	3
Mvmt Flow	40	0	45	24	0	34	25	1337	37	47	1348	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2049	2888	696	2039	2891	687	1391	0	0	1374	0	0
Stage 1	1464	1464	-	1406	1406	-	-	-	-	-	-	-
Stage 2	585	1424	-	633	1485	-	-	-	-	-	-	-
Critical Hdwy	6.46	6.5	7.1	6.76	6.5	7.36	5.38	-	-	5.76	-	-
Critical Hdwy Stg 1	7.36	5.5	-	7.66	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.76	5.5	-	7.06	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.83	4	3.9	3.98	4	4.03	3.14	-	-	3.33	-	-
Pot Cap-1 Maneuver	58	16	333	50	16	314	248	-	-	212	-	-
Stage 1	93	195	-	89	208	-	-	-	-	-	-	-
Stage 2	421	204	-	363	190	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 29	7	333	24	7	314	248	-	-	212	-	-
Mov Cap-2 Maneuver	45	46	-	43	58	-	-	-	-	-	-	-
Stage 1	53	152	-	50	118	-	-	-	-	-	-	-
Stage 2	213	116	-	245	148	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	194.5	104.9	3.1	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	248	-	-	83	87	212	-	-
HCM Lane V/C Ratio	0.101	-	-	1.021	0.662	0.22	-	-
HCM Control Delay (s)	21.1	2.9	-	194.5	104.9	26.7	-	-
HCM Lane LOS	C	A	-	F	F	D	-	-
HCM 95th %tile Q(veh)	0.3	-	-	5.8	3.2	0.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	195	128	116	133	50	94	1158	82	97	1126	71
Future Volume (veh/h)	215	195	128	116	133	50	94	1158	82	97	1126	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1841	1767	1767	1781	1722	1693	1781	1500	1589	1767	1648
Adj Flow Rate, veh/h	219	199	131	118	136	51	96	1182	84	99	1149	72
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	6	4	9	9	8	12	14	8	27	21	9	17
Cap, veh/h	263	234	246	175	204	73	345	2701	192	269	2730	171
Arrive On Green	0.11	0.13	0.13	0.06	0.08	0.08	0.04	0.58	0.58	0.08	1.00	1.00
Sat Flow, veh/h	1725	1841	1497	1682	2438	878	1612	4635	329	1513	4639	291
Grp Volume(v), veh/h	219	199	131	118	93	94	96	827	439	99	796	425
Grp Sat Flow(s),veh/h/ln	1725	1841	1497	1682	1692	1623	1612	1621	1722	1513	1608	1714
Q Serve(g_s), s	17.3	16.9	12.8	10.3	8.5	9.0	3.9	22.9	22.9	4.4	0.0	0.0
Cycle Q Clear(g_c), s	17.3	16.9	12.8	10.3	8.5	9.0	3.9	22.9	22.9	4.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.54	1.00		0.19	1.00		0.17
Lane Grp Cap(c), veh/h	263	234	246	175	141	136	345	1889	1003	269	1892	1009
V/C Ratio(X)	0.83	0.85	0.53	0.68	0.66	0.70	0.28	0.44	0.44	0.37	0.42	0.42
Avail Cap(c_a), veh/h	263	532	487	175	415	398	439	1889	1003	361	1892	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.8	68.3	61.3	62.8	71.1	71.3	12.3	18.7	18.7	13.8	0.0	0.0
Incr Delay (d2), s/veh	20.0	8.4	1.8	9.9	5.1	6.3	0.4	0.7	1.4	0.8	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	8.4	4.9	4.8	3.8	4.0	1.4	8.6	9.3	1.4	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	76.7	63.1	72.7	76.2	77.6	12.7	19.4	20.1	14.6	0.7	1.3
LnGrp LOS	E	E	E	E	E	E	B	B	C	B	A	A
Approach Vol, veh/h		549			305			1362			1320	
Approach Delay, s/veh		74.7			75.3			19.2			1.9	
Approach LOS		E			E			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	101.1	25.0	21.2	13.6	100.2	18.0	28.2
Change Period (Y+Rc), s	6.8	* 7	* 7.7	7.8	* 7.2	* 7	* 7.7	7.8
Max Green Setting (Gmax), s	15.2	* 59	* 17	39.2	* 16	* 58	* 10	46.2
Max Q Clear Time (g_c+I1), s	5.9	2.0	19.3	11.0	6.4	24.9	12.3	18.9
Green Ext Time (p_c), s	0.1	10.4	0.0	0.9	0.1	10.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	1	34	12	5	61	11	1441	23	106	1213	38
Future Vol, veh/h	17	1	34	12	5	61	11	1441	23	106	1213	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	6	0	6	0	0	3	0	7	4	2	9	5
Mvmt Flow	18	1	37	13	5	66	12	1549	25	114	1304	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2199	3151	673	2336	3159	787	1345	0	0	1574	0	0
Stage 1	1553	1553	-	1586	1586	-	-	-	-	-	-	-
Stage 2	646	1598	-	750	1573	-	-	-	-	-	-	-
Critical Hdwy	6.52	6.5	7.22	6.4	6.5	7.16	5.3	-	-	5.34	-	-
Critical Hdwy Stg 1	7.42	5.5	-	7.3	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.82	5.5	-	6.7	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.86	4	3.96	3.8	4	3.93	3.1	-	-	3.12	-	-
Pot Cap-1 Maneuver	45	11	334	40	11	285	271	-	-	205	-	-
Stage 1	78	176	-	78	170	-	-	-	-	-	-	-
Stage 2	380	167	-	340	172	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 17	5	334	19	~ 5	285	271	-	-	205	-	-
Mov Cap-2 Maneuver	53	29	-	50	44	-	-	-	-	-	-	-
Stage 1	75	78	-	75	163	-	-	-	-	-	-	-
Stage 2	270	160	-	133	76	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.8	65.9	0.1	3.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	271	-	-	114	137	205	-	-
HCM Lane V/C Ratio	0.044	-	-	0.49	0.612	0.556	-	-
HCM Control Delay (s)	18.9	-	-	63.8	65.9	42.6	-	-
HCM Lane LOS	C	-	-	F	F	E	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	3.2	3	-	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s   +: Computation Not Defined   *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	124	425	29	280	58	358	1082	28	106	858	15
Future Volume (veh/h)	32	124	425	29	280	58	358	1082	28	106	858	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1752	1811	1648	1856	1663	1856	1796	1737	1678	1767	1707
Adj Flow Rate, veh/h	35	135	462	32	304	63	389	1176	30	115	933	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	10	6	17	3	16	3	7	11	15	9	13
Cap, veh/h	79	1028	474	72	1085	434	430	1942	50	132	1698	509
Arrive On Green	0.02	0.31	0.31	0.02	0.31	0.31	0.25	0.79	0.79	0.17	0.70	0.70
Sat Flow, veh/h	3209	3328	1535	3045	3526	1409	3428	4917	125	1598	4823	1447
Grp Volume(v), veh/h	35	135	462	32	304	63	389	782	424	115	933	16
Grp Sat Flow(s),veh/h/ln	1605	1664	1535	1522	1763	1409	1714	1635	1774	1598	1608	1447
Q Serve(g_s), s	1.7	4.7	47.6	1.7	10.5	5.2	17.6	15.4	15.4	11.2	14.9	0.5
Cycle Q Clear(g_c), s	1.7	4.7	47.6	1.7	10.5	5.2	17.6	15.4	15.4	11.2	14.9	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	79	1028	474	72	1085	434	430	1291	700	132	1698	509
V/C Ratio(X)	0.44	0.13	0.97	0.44	0.28	0.15	0.90	0.61	0.61	0.87	0.55	0.03
Avail Cap(c_a), veh/h	108	1028	474	103	1089	435	587	1291	700	214	1698	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	76.9	39.8	54.7	77.1	41.9	40.1	59.0	11.8	11.8	65.9	17.6	15.4
Incr Delay (d2), s/veh	1.4	0.1	34.8	1.6	0.1	0.2	11.7	2.1	3.9	10.6	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	22.7	0.7	4.6	1.8	7.4	3.9	4.5	4.6	4.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.4	39.9	89.5	78.6	42.1	40.3	70.7	13.9	15.7	76.6	18.7	15.5
LnGrp LOS	E	D	F	E	D	D	E	B	B	E	B	B
Approach Vol, veh/h		632			399			1595			1064	
Approach Delay, s/veh		78.3			44.7			28.2			24.9	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.7	63.9	11.5	56.8	20.8	70.8	11.4	57.0
Change Period (Y+Rc), s	* 7.6	* 7.6	7.6	7.6	* 7.6	* 7.6	7.6	7.6
Max Green Setting (Gmax), s	* 27	* 47	5.4	49.4	* 21	* 53	5.4	49.4
Max Q Clear Time (g_c+I1), s	19.6	16.9	3.7	12.5	13.2	17.4	3.7	49.6
Green Ext Time (p_c), s	0.5	7.1	0.0	2.2	0.1	9.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	112	20	0	0	0	0	1235	429	132	1409	0
Future Volume (vph)	285	112	20	0	0	0	0	1235	429	132	1409	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.6	8.6	8.6					8.6	8.6	8.6	8.6	
Lane Util. Factor	0.95	0.95	1.00					0.86	1.00	1.00	0.91	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1573	1629	1524					6108	1455	1687	4759	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1573	1629	1524					6108	1455	1687	4759	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	297	117	21	0	0	0	0	1286	447	138	1468	0
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	186	0	0	0
Lane Group Flow (vph)	205	209	4	0	0	0	0	1286	261	138	1468	0
Heavy Vehicles (%)	9%	8%	6%	0%	0%	0%	0%	7%	11%	7%	9%	0%
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	1	1	1					2 3		4 5	2 3 4 5	
Permitted Phases									2 3			
Actuated Green, G (s)	27.4	27.4	27.4					63.5	63.5	43.3	115.4	
Effective Green, g (s)	27.4	27.4	27.4					63.5	63.5	43.3	115.4	
Actuated g/C Ratio	0.17	0.17	0.17					0.40	0.40	0.27	0.72	
Clearance Time (s)	8.6	8.6	8.6									
Vehicle Extension (s)	3.0	3.0	3.0									
Lane Grp Cap (vph)	269	278	260					2424	577	456	3432	
v/s Ratio Prot	c0.13	0.13	0.00					c0.21		0.08	c0.31	
v/s Ratio Perm									0.18			
v/c Ratio	0.76	0.75	0.01					0.53	0.45	0.30	0.43	
Uniform Delay, d1	63.2	63.1	55.1					36.9	35.5	46.4	9.0	
Progression Factor	1.00	1.00	1.00					0.62	0.72	0.38	0.36	
Incremental Delay, d2	12.0	10.9	0.0					0.8	2.4	0.2	0.1	
Delay (s)	75.2	74.0	55.1					23.6	28.1	17.7	3.3	
Level of Service	E	E	E					C	C	B	A	
Approach Delay (s)		73.6			0.0			24.8			4.5	
Approach LOS		E			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	322	42	69	81	1396	0	0	1275	410
Future Volume (vph)	0	0	0	322	42	69	81	1396	0	0	1275	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.6	4.0	4.0	8.6	8.6			8.6	8.6
Lane Util. Factor				0.95	0.95	1.00	1.00	0.91			0.86	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1329	1360	1455	1752	4848			6346	1538
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1329	1360	1455	1752	4848			6346	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	335	44	72	84	1454	0	0	1328	427
RTOR Reduction (vph)	0	0	0	0	0	72	0	0	0	0	0	315
Lane Group Flow (vph)	0	0	0	188	191	0	84	1454	0	0	1328	112
Heavy Vehicles (%)	0%	0%	0%	29%	24%	11%	3%	7%	0%	0%	3%	5%
Turn Type				Prot	NA	NA	Prot	NA			NA	Perm
Protected Phases				5			1 2	1 2 3 4			3 4	
Permitted Phases												3 4
Actuated Green, G (s)				29.3	29.3	0.0	62.9	113.5			42.0	42.0
Effective Green, g (s)				29.3	29.3	0.0	62.9	113.5			42.0	42.0
Actuated g/C Ratio				0.18	0.18	0.00	0.39	0.71			0.26	0.26
Clearance Time (s)				8.6								
Vehicle Extension (s)				3.0								
Lane Grp Cap (vph)				243	249	0	688	3439			1665	403
v/s Ratio Prot				c0.14	0.14		0.05	c0.30			c0.21	
v/s Ratio Perm												0.07
v/c Ratio				0.77	0.77	0.00	0.12	0.42			0.80	0.28
Uniform Delay, d1				62.2	62.1	80.0	30.9	9.7			55.0	46.9
Progression Factor				1.00	1.00	1.00	1.03	0.15			0.67	0.54
Incremental Delay, d2				14.2	13.2	0.0	0.1	0.1			1.9	0.3
Delay (s)				76.4	75.3	80.0	31.9	1.5			38.9	25.5
Level of Service				E	E	E	C	A			D	C
Approach Delay (s)		0.0			76.5			3.2			35.7	
Approach LOS		A			E			A			D	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	4	424	6	1	1	231	1241	12	5	1222	96
Future Volume (veh/h)	71	4	424	6	1	1	231	1241	12	5	1222	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1900	1856	1900	1900	1900	1737	1796	1900	1900	1841	1826
Adj Flow Rate, veh/h	73	4	437	6	1	1	238	1279	12	5	1260	99
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	11	0	3	0	0	0	11	7	0	0	4	5
Cap, veh/h	395	21	533	213	36	30	281	2061	19	11	1687	132
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.18	1.00	1.00	0.01	0.51	0.51
Sat Flow, veh/h	1396	82	1572	691	142	119	3209	3464	32	1810	3285	258
Grp Volume(v), veh/h	77	0	437	8	0	0	238	630	661	5	669	690
Grp Sat Flow(s),veh/h/ln	1478	0	1572	952	0	0	1605	1706	1790	1810	1749	1794
Q Serve(g_s), s	0.0	0.0	40.2	0.0	0.0	0.0	11.5	0.0	0.0	0.4	48.3	48.6
Cycle Q Clear(g_c), s	6.0	0.0	40.2	6.1	0.0	0.0	11.5	0.0	0.0	0.4	48.3	48.6
Prop In Lane	0.95		1.00	0.75		0.12	1.00		0.02	1.00		0.14
Lane Grp Cap(c), veh/h	415	0	533	279	0	0	281	1015	1065	11	898	922
V/C Ratio(X)	0.19	0.00	0.82	0.03	0.00	0.00	0.85	0.62	0.62	0.44	0.75	0.75
Avail Cap(c_a), veh/h	415	0	533	279	0	0	469	1015	1065	58	898	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.91	0.91	0.91	0.37	0.37	0.37
Uniform Delay (d), s/veh	47.1	0.0	48.4	45.1	0.0	0.0	64.9	0.0	0.0	79.2	30.7	30.7
Incr Delay (d2), s/veh	0.2	0.0	9.9	0.0	0.0	0.0	6.6	2.6	2.5	9.8	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	17.2	0.2	0.0	0.0	4.5	0.7	0.7	0.2	20.4	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	0.0	58.3	45.2	0.0	0.0	71.6	2.6	2.5	89.0	32.8	32.8
LnGrp LOS	D	A	E	D	A	A	E	A	A	F	C	C
Approach Vol, veh/h		514			8			1529			1364	
Approach Delay, s/veh		56.6			45.2			13.3			33.0	
Approach LOS		E			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.6	89.8		48.6	8.6	102.8		48.6				
Change Period (Y+Rc), s	7.6	7.6		* 8.4	7.6	7.6		* 8.4				
Max Green Setting (Gmax), s	23.4	72.8		* 40	5.1	91.1		* 40				
Max Q Clear Time (g_c+I1), s	13.5	50.6		8.1	2.4	2.0		42.2				
Green Ext Time (p_c), s	0.5	9.6		0.0	0.0	11.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			27.8									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	594	84	32	487	164	106	1064	67	157	1054	24
Future Volume (veh/h)	71	594	84	32	487	164	106	1064	67	157	1054	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1856	1856	1841	1841	1841	1841	1811	1870	1811	1826	1426
Adj Flow Rate, veh/h	75	625	88	34	513	173	112	1120	71	165	1109	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	11	3	3	4	4	4	4	6	2	6	5	32
Cap, veh/h	76	662	93	73	548	185	122	1185	546	176	1307	29
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.07	0.34	0.34	0.10	0.38	0.38
Sat Flow, veh/h	702	1591	224	725	1317	444	1753	3441	1585	1725	3468	78
Grp Volume(v), veh/h	75	0	713	34	0	686	112	1120	71	165	555	579
Grp Sat Flow(s),veh/h/ln	702	0	1815	725	0	1761	1753	1721	1585	1725	1735	1812
Q Serve(g_s), s	7.0	0.0	60.4	6.2	0.0	59.6	10.2	50.6	4.9	15.2	46.9	46.9
Cycle Q Clear(g_c), s	66.6	0.0	60.4	66.6	0.0	59.6	10.2	50.6	4.9	15.2	46.9	46.9
Prop In Lane	1.00		0.12	1.00		0.25	1.00		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	76	0	756	73	0	733	122	1185	546	176	654	683
V/C Ratio(X)	0.99	0.00	0.94	0.47	0.00	0.94	0.92	0.95	0.13	0.94	0.85	0.85
Avail Cap(c_a), veh/h	76	0	756	73	0	733	122	1185	546	176	654	683
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	78.6	0.0	44.9	77.5	0.0	44.7	74.0	51.0	36.0	71.4	45.7	45.7
Incr Delay (d2), s/veh	100.7	0.0	20.9	12.2	0.0	20.1	52.5	14.4	0.4	50.1	12.9	12.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	31.2	1.7	0.0	29.7	6.3	23.4	1.9	9.0	21.8	22.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	179.3	0.0	65.8	89.6	0.0	64.7	126.5	65.4	36.4	121.5	58.6	58.1
LnGrp LOS	F	A	E	F	A	E	F	E	D	F	E	E
Approach Vol, veh/h		788			720			1303			1299	
Approach Delay, s/veh		76.6			65.9			69.0			66.4	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	18.4	67.6	74.0	23.6	62.4	74.0
Change Period (Y+Rc), s	7.3	7.3	7.4	7.3	7.3	7.4
Max Green Setting (Gmax), s	11.1	60.3	66.6	16.3	55.1	66.6
Max Q Clear Time (g_c+I1), s	12.2	48.9	68.6	17.2	52.6	68.6
Green Ext Time (p_c), s	0.0	6.5	0.0	0.0	1.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	69.1
HCM 6th LOS	E

Intersection						
Int Delay, s/veh	10					

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	116	167	170	1207	1209	177
Future Vol, veh/h	116	167	170	1207	1209	177
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	50	0	450	-	-	0
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	1	1	8	6	2
Mvmt Flow	120	172	175	1244	1246	182

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2218	623	1428	0	-	0
Stage 1	1246	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Critical Hdwy	6.8	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	~ 38	431	477	-	-	-
Stage 1	238	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 24	431	477	-	-	-
Mov Cap-2 Maneuver	~ 104	-	-	-	-	-
Stage 1	151	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	97.7	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	477	-	104	431	-	-
HCM Lane V/C Ratio	0.367	-	1.15	0.399	-	-
HCM Control Delay (s)	16.9	-	211.4	18.8	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	1.7	-	7.7	1.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.5

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	97	160	1220	67	67	1287
Future Vol, veh/h	97	160	1220	67	67	1287
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	50	0	-	250	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	6	4	0	7	7
Mvmt Flow	101	167	1271	70	70	1341

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1947	636	0	0	1341	0
Stage 1	1271	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Critical Hdwy	6.25	7.02	-	-	4.24	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.65	3.36	-	-	2.27	-
Pot Cap-1 Maneuver	~ 77	411	-	-	484	-
Stage 1	226	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 66	411	-	-	484	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	226	-	-	-	-	-
Stage 2	378	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	35.6	0	0.7
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	157	411	484	-
HCM Lane V/C Ratio	-	-	0.644	0.406	0.144	-
HCM Control Delay (s)	-	-	62.1	19.6	13.7	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	3.6	1.9	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	157	7	1132	275	9	1246
Future Vol, veh/h	157	7	1132	275	9	1246
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	17	7	7	14	5
Mvmt Flow	164	7	1179	286	9	1298

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1989	-	0	0	1465	0
Stage 1	1322	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Critical Hdwy	6.88	-	-	-	4.38	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	-	-	-	2.34	-
Pot Cap-1 Maneuver	~ 52	0	-	-	401	-
Stage 1	210	0	-	-	-	-
Stage 2	466	0	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 51	-	-	-	401	-
Mov Cap-2 Maneuver	~ 151	-	-	-	-	-
Stage 1	210	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	156.9	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	151	401	-
HCM Lane V/C Ratio	-	-	1.083	0.023	-
HCM Control Delay (s)	-	-	156.9	14.2	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	8.7	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	65	27	1110	41	20	1196
Future Volume (veh/h)	65	27	1110	41	20	1196
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1618	1366	1796	1500	1070	1841
Adj Flow Rate, veh/h	68	0	1156	0	21	1246
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	19	36	7	27	56	4
Cap, veh/h	109		2439		254	2499
Arrive On Green	0.07	0.00	0.71	0.00	0.71	0.71
Sat Flow, veh/h	1541	1158	3503	1271	278	3589
Grp Volume(v), veh/h	68	0	1156	0	21	1246
Grp Sat Flow(s),veh/h/ln	1541	1158	1706	1271	278	1749
Q Serve(g_s), s	3.2	0.0	11.0	0.0	2.6	11.8
Cycle Q Clear(g_c), s	3.2	0.0	11.0	0.0	13.6	11.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	109		2439		254	2499
V/C Ratio(X)	0.62		0.47		0.08	0.50
Avail Cap(c_a), veh/h	234		2439		254	2499
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.66	0.66
Uniform Delay (d), s/veh	33.9	0.0	4.6	0.0	7.6	4.7
Incr Delay (d2), s/veh	5.7	0.0	0.7	0.0	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.3	0.0	0.2	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.6	0.0	5.3	0.0	8.0	5.2
LnGrp LOS	D		A		A	A
Approach Vol, veh/h	68	A	1156	A		1267
Approach Delay, s/veh	39.6		5.3			5.3
Approach LOS	D		A			A
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		61.1		13.9		61.1
Change Period (Y+Rc), s		* 7.5		* 8.6		* 7.5
Max Green Setting (Gmax), s		* 48		* 11		* 48
Max Q Clear Time (g_c+I1), s		13.0		5.2		15.6
Green Ext Time (p_c), s		13.7		0.1		15.4

Intersection Summary		
HCM 6th Ctrl Delay		6.2
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	1229	237	99	1187	475	321	832	142	459	705	369
Future Volume (veh/h)	245	1229	237	99	1187	475	321	832	142	459	705	369
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1826	1722	1559	1826	1752	1811	1811	1737	1826	1826	1856
Adj Flow Rate, veh/h	250	1254	0	101	1211	0	328	849	0	468	719	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	5	12	23	5	10	6	6	11	5	5	3
Cap, veh/h	263	1314		121	1184		374	837		472	942	
Arrive On Green	0.08	0.38	0.00	0.04	0.34	0.00	0.07	0.16	0.00	0.14	0.27	0.00
Sat Flow, veh/h	3319	3469	1459	2881	3469	1485	3346	3441	1472	3374	3469	1572
Grp Volume(v), veh/h	250	1254	0	101	1211	0	328	849	0	468	719	0
Grp Sat Flow(s),veh/h/ln	1659	1735	1459	1440	1735	1485	1673	1721	1472	1687	1735	1572
Q Serve(g_s), s	11.3	52.8	0.0	5.2	51.2	0.0	14.6	36.5	0.0	20.8	28.6	0.0
Cycle Q Clear(g_c), s	11.3	52.8	0.0	5.2	51.2	0.0	14.6	36.5	0.0	20.8	28.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	1314		121	1184		374	837		472	942	
V/C Ratio(X)	0.95	0.95		0.83	1.02		0.88	1.01		0.99	0.76	
Avail Cap(c_a), veh/h	263	1314		121	1184		408	837		472	942	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	0.88	0.88	0.00	0.60	0.60	0.00
Uniform Delay (d), s/veh	68.8	45.3	0.0	71.3	49.4	0.0	68.4	62.8	0.0	64.4	50.2	0.0
Incr Delay (d2), s/veh	41.7	16.1	0.0	37.1	32.0	0.0	16.1	32.7	0.0	29.7	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	24.9	0.0	2.5	26.7	0.0	7.2	20.1	0.0	10.7	12.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	110.5	61.4	0.0	108.5	81.4	0.0	84.5	95.5	0.0	94.1	53.8	0.0
LnGrp LOS	F	E		F	F		F	F		F	D	
Approach Vol, veh/h		1504	A		1312	A		1177	A		1187	A
Approach Delay, s/veh		69.6			83.5			92.4			69.7	
Approach LOS		E			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.1	48.0	19.3	58.6	28.3	43.8	13.7	64.2
Change Period (Y+Rc), s	7.3	7.3	7.4	7.4	7.3	7.3	7.4	7.4
Max Green Setting (Gmax), s	18.3	39.2	11.9	51.2	21.0	36.5	6.3	56.8
Max Q Clear Time (g_c+I1), s	16.6	30.6	13.3	53.2	22.8	38.5	7.2	54.8
Green Ext Time (p_c), s	0.2	3.7	0.0	0.0	0.0	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	78.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	10	114	60	15	104	97	1486	36	50	1311	47
Future Volume (veh/h)	79	10	114	60	15	104	97	1486	36	50	1311	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1707	1737	1781	1411	1811	1441	1841	1544	1856	1856	1856
Adj Flow Rate, veh/h	81	10	116	61	15	106	99	1516	37	51	1338	48
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	16	13	11	8	33	6	31	4	24	3	3	3
Cap, veh/h	210	17	194	88	20	61	244	1781	43	232	1722	62
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.08	0.68	0.68	0.06	0.66	0.66
Sat Flow, veh/h	1130	116	1348	165	138	422	1372	3489	85	1767	3472	124
Grp Volume(v), veh/h	81	0	126	182	0	0	99	759	794	51	679	707
Grp Sat Flow(s),veh/h/ln	1130	0	1465	725	0	0	1372	1749	1825	1767	1763	1833
Q Serve(g_s), s	0.0	0.0	6.0	4.8	0.0	0.0	2.6	24.7	24.9	1.0	20.1	20.2
Cycle Q Clear(g_c), s	7.3	0.0	6.0	10.8	0.0	0.0	2.6	24.7	24.9	1.0	20.1	20.2
Prop In Lane	1.00		0.92	0.34		0.58	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	210	0	211	168	0	0	244	893	932	232	874	909
V/C Ratio(X)	0.39	0.00	0.60	1.08	0.00	0.00	0.41	0.85	0.85	0.22	0.78	0.78
Avail Cap(c_a), veh/h	210	0	211	168	0	0	277	893	932	278	874	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.30	0.30	0.30	0.60	0.60	0.60
Uniform Delay (d), s/veh	30.6	0.0	30.1	34.5	0.0	0.0	11.8	9.9	9.9	12.4	9.9	9.9
Incr Delay (d2), s/veh	1.7	0.0	5.4	92.5	0.0	0.0	0.3	3.3	3.2	0.3	4.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.3	7.3	0.0	0.0	0.6	5.4	5.7	0.3	5.3	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	0.0	35.5	127.0	0.0	0.0	12.1	13.1	13.1	12.7	14.0	13.9
LnGrp LOS	C	A	D	F	A	A	B	B	B	B	B	B
Approach Vol, veh/h		207			182			1652			1437	
Approach Delay, s/veh		34.2			127.0			13.0			13.9	
Approach LOS		C			F			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	44.0		18.0	10.1	45.1		18.0				
Change Period (Y+Rc), s	6.8	6.8		* 7.2	6.8	6.8		* 7.2				
Max Green Setting (Gmax), s	6.2	37.2		* 11	5.2	38.2		* 11				
Max Q Clear Time (g_c+I1), s	4.6	22.2		12.8	3.0	26.9		9.3				
Green Ext Time (p_c), s	0.0	9.8		0.0	0.0	8.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay			20.6
HCM 6th LOS			C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑	↱	↰	↑↑	↱	↰↰	↑↑	↱
Traffic Volume (veh/h)	222	180	101	81	160	351	89	1329	126	284	1022	158
Future Volume (veh/h)	222	180	101	81	160	351	89	1329	126	284	1022	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1781	1811	1870	1856	1885	1856	1841	1870	1856	1826
Adj Flow Rate, veh/h	234	189	106	85	168	369	94	1399	133	299	1076	166
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	8	6	2	3	1	3	4	2	3	5
Cap, veh/h	299	619	332	76	715	601	114	1384	612	267	1434	629
Arrive On Green	0.29	0.29	0.29	0.04	0.38	0.38	0.13	0.79	0.79	0.08	0.41	0.41
Sat Flow, veh/h	868	2146	1150	1725	1870	1572	1795	3526	1560	3456	3526	1547
Grp Volume(v), veh/h	234	149	146	85	168	369	94	1399	133	299	1076	166
Grp Sat Flow(s),veh/h/ln	868	1706	1589	1725	1870	1572	1795	1763	1560	1728	1763	1547
Q Serve(g_s), s	39.4	10.2	10.8	6.6	9.1	28.4	7.7	58.9	3.3	11.6	39.1	10.7
Cycle Q Clear(g_c), s	39.4	10.2	10.8	6.6	9.1	28.4	7.7	58.9	3.3	11.6	39.1	10.7
Prop In Lane	1.00		0.72	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	299	493	459	76	715	601	114	1384	612	267	1434	629
V/C Ratio(X)	0.78	0.30	0.32	1.12	0.24	0.61	0.83	1.01	0.22	1.12	0.75	0.26
Avail Cap(c_a), veh/h	320	535	498	76	761	639	135	1384	612	267	1434	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.56	0.56	0.52	0.52	0.52
Uniform Delay (d), s/veh	52.0	41.6	41.8	71.7	31.5	37.4	64.7	16.1	10.1	69.2	38.0	29.6
Incr Delay (d2), s/veh	12.2	0.5	0.6	139.6	0.2	2.0	18.0	20.8	0.5	76.5	1.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	4.3	4.3	5.8	4.2	11.1	3.8	10.2	1.1	7.9	16.7	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	42.0	42.4	211.3	31.7	39.4	82.7	36.9	10.6	145.7	39.9	30.1
LnGrp LOS	E	D	D	F	C	D	F	F	B	F	D	C
Approach Vol, veh/h		529			622			1626			1541	
Approach Delay, s/veh		51.9			60.8			37.4			59.4	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.9	68.4		64.7	19.0	66.3	14.0	50.7				
Change Period (Y+Rc), s	7.4	7.4		7.4	7.4	7.4	7.4	7.4				
Max Green Setting (Gmax), s	11.3	55.5		61.0	11.6	55.2	6.6	47.0				
Max Q Clear Time (g_c+I1), s	19.7	41.1		30.4	13.6	60.9	8.6	41.4				
Green Ext Time (p_c), s	0.0	8.4		3.6	0.0	0.0	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay		50.4
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	2	63	4	1	7	72	1748	9	7	1415	257
Future Volume (veh/h)	252	2	63	4	1	7	72	1748	9	7	1415	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1411	1900	1900	1870	1885	1900	1900	1856	1885
Adj Flow Rate, veh/h	271	2	68	4	1	8	77	1880	0	8	1522	276
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	33	0	0	2	1	0	0	3	1
Cap, veh/h	415	9	322	144	61	201	176	1982		135	1951	884
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.55	0.55	0.00	0.55	0.55	0.55
Sat Flow, veh/h	1428	46	1571	318	295	981	262	3582	1610	246	3526	1598
Grp Volume(v), veh/h	271	0	70	13	0	0	77	1880	0	8	1522	276
Grp Sat Flow(s),veh/h/ln	1428	0	1617	1594	0	0	262	1791	1610	246	1763	1598
Q Serve(g_s), s	10.7	0.0	2.2	0.0	0.0	0.0	12.8	29.6	0.0	1.9	20.4	5.6
Cycle Q Clear(g_c), s	11.0	0.0	2.2	0.4	0.0	0.0	33.2	29.6	0.0	31.5	20.4	5.6
Prop In Lane	1.00		0.97	0.31		0.62	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	415	0	332	405	0	0	176	1982		135	1951	884
V/C Ratio(X)	0.65	0.00	0.21	0.03	0.00	0.00	0.44	0.95		0.06	0.78	0.31
Avail Cap(c_a), veh/h	415	0	332	405	0	0	176	1982		135	1951	884
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.29	0.29	0.00	0.67	0.67	0.67
Uniform Delay (d), s/veh	23.3	0.0	19.8	19.1	0.0	0.0	25.3	12.6	0.0	27.4	10.5	7.2
Incr Delay (d2), s/veh	4.1	0.0	0.4	0.0	0.0	0.0	2.3	4.1	0.0	0.6	2.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.8	0.1	0.0	0.0	1.1	8.8	0.0	0.1	5.8	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	0.0	20.3	19.2	0.0	0.0	27.6	16.7	0.0	28.0	12.7	7.9
LnGrp LOS	C	A	C	B	A	A	C	B		C	B	A
Approach Vol, veh/h		341			13			1957	A		1806	
Approach Delay, s/veh		26.0			19.2			17.1			12.0	
Approach LOS		C			B			B			B	

Timer - Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.2		19.8		40.2		19.8
Change Period (Y+Rc), s		* 7		7.5		* 7		7.5
Max Green Setting (Gmax), s		* 33		12.3		* 33		12.3
Max Q Clear Time (g_c+I1), s		33.5		2.4		35.2		13.0
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	81	198	144	57	51	198	1570	150	67	1324	77
Future Volume (veh/h)	78	81	198	144	57	51	198	1570	150	67	1324	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1841	1900	1841	1856	1870	1900	1870	1900
Adj Flow Rate, veh/h	80	83	202	147	58	52	202	1602	153	68	1351	79
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	2	0	4	0	4	3	2	0	2	0
Cap, veh/h	211	329	275	211	155	139	271	2189	984	212	2028	118
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.06	0.62	0.62	0.03	0.40	0.40
Sat Flow, veh/h	1304	1900	1585	1112	894	802	1753	3526	1585	1810	3412	199
Grp Volume(v), veh/h	80	83	202	147	0	110	202	1602	153	68	702	728
Grp Sat Flow(s),veh/h/ln	1304	1900	1585	1112	0	1696	1753	1763	1585	1810	1777	1835
Q Serve(g_s), s	6.9	4.5	14.5	15.8	0.0	6.9	5.3	37.9	4.9	1.7	38.8	39.0
Cycle Q Clear(g_c), s	13.8	4.5	14.5	20.3	0.0	6.9	5.3	37.9	4.9	1.7	38.8	39.0
Prop In Lane	1.00		1.00	1.00		0.47	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	211	329	275	211	0	294	271	2189	984	212	1056	1090
V/C Ratio(X)	0.38	0.25	0.74	0.70	0.00	0.37	0.74	0.73	0.16	0.32	0.66	0.67
Avail Cap(c_a), veh/h	211	329	275	211	0	294	400	2189	984	243	1056	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.21	0.21	0.21	0.21	0.21	0.21
Uniform Delay (d), s/veh	50.0	42.9	47.0	51.7	0.0	43.8	21.2	15.8	9.5	15.3	26.3	26.4
Incr Delay (d2), s/veh	1.1	0.4	9.8	9.7	0.0	0.8	0.9	0.5	0.1	0.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.2	6.4	4.9	0.0	2.9	3.4	14.1	1.6	0.7	17.4	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	43.3	56.8	61.4	0.0	44.6	22.1	16.3	9.6	15.5	27.0	27.1
LnGrp LOS	D	D	E	E	A	D	C	B	A	B	C	C
Approach Vol, veh/h		365			257			1957			1498	
Approach Delay, s/veh		52.5			54.2			16.3			26.5	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.2	77.8		28.0	11.0	81.0		28.0
Change Period (Y+Rc), s	6.5	6.5		* 7.2	6.5	6.5		* 7.2
Max Green Setting (Gmax), s	16.5	62.5		* 21	6.5	72.5		* 21
Max Q Clear Time (g_c+I1), s	7.3	41.0		22.3	3.7	39.9		16.5
Green Ext Time (p_c), s	0.4	10.5		0.0	0.0	17.0		0.6

Intersection Summary		
HCM 6th Ctrl Delay		25.7
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	821	594	130	770	295	580	983	85	324	818	158
Future Volume (veh/h)	249	821	594	130	770	295	580	983	85	324	818	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1841	1900	1870	1885	1870	1870	1885	1885	1856	1856
Adj Flow Rate, veh/h	257	846	612	134	794	304	598	1013	88	334	843	163
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	4	4	0	2	1	2	2	1	1	3	3
Cap, veh/h	240	918	669	162	758	515	576	1078	94	380	791	153
Arrive On Green	0.10	0.26	0.26	0.05	0.21	0.21	0.17	0.33	0.33	0.04	0.09	0.09
Sat Flow, veh/h	1795	3497	1560	1810	3554	1598	3456	3308	287	3483	2946	570
Grp Volume(v), veh/h	257	846	612	134	794	304	598	544	557	334	504	502
Grp Sat Flow(s),veh/h/ln	1795	1749	1560	1810	1777	1598	1728	1777	1819	1742	1763	1753
Q Serve(g_s), s	12.0	28.2	31.5	6.1	25.6	19.1	20.0	35.7	35.7	11.5	32.2	32.2
Cycle Q Clear(g_c), s	12.0	28.2	31.5	6.1	25.6	19.1	20.0	35.7	35.7	11.5	32.2	32.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.32
Lane Grp Cap(c), veh/h	240	918	669	162	758	515	576	579	593	380	473	470
V/C Ratio(X)	1.07	0.92	0.91	0.83	1.05	0.59	1.04	0.94	0.94	0.88	1.07	1.07
Avail Cap(c_a), veh/h	240	918	669	162	758	515	576	579	593	380	473	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	0.66	0.66	0.66
Uniform Delay (d), s/veh	36.3	43.0	32.2	40.2	47.2	34.0	50.0	39.3	39.3	57.0	54.7	54.7
Incr Delay (d2), s/veh	78.8	15.9	19.1	28.4	45.7	4.9	41.1	19.0	18.8	14.5	52.7	52.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	13.8	19.1	4.3	15.7	7.8	11.8	18.2	18.6	6.0	22.1	22.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.1	58.9	51.3	68.6	92.9	38.9	91.1	58.3	58.1	71.5	107.4	107.5
LnGrp LOS	F	E	D	E	F	D	F	E	E	E	F	F
Approach Vol, veh/h		1715			1232			1699			1340	
Approach Delay, s/veh		64.6			77.0			69.8			98.5	
Approach LOS		E			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.9	33.5	20.3	46.3	14.0	39.4	27.2	39.4				
Change Period (Y+Rc), s	7.9	7.9	7.2	7.2	7.9	7.9	7.2	7.2				
Max Green Setting (Gmax), s	12.0	25.6	13.1	39.1	6.1	31.5	20.0	32.2				
Max Q Clear Time (g_c+I1), s	14.0	27.6	13.5	37.7	8.1	33.5	22.0	34.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			76.2									
HCM 6th LOS			E									

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	7	126	1	7	0	166	1339	10	9	1228	137
Future Volume (veh/h)	178	7	126	1	7	0	166	1339	10	9	1228	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1900	1856	1900	1900	1900	1885	1885	1737	1900	1856	1900
Adj Flow Rate, veh/h	184	7	130	1	7	0	171	1380	10	9	1266	141
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	3	0	0	0	1	1	11	0	3	0
Cap, veh/h	154	4	467	34	201	0	335	2181	16	250	1538	171
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.00	0.13	1.00	1.00	0.96	0.96	0.96
Sat Flow, veh/h	322	12	1572	0	678	0	1795	3645	26	395	3199	355
Grp Volume(v), veh/h	191	0	130	8	0	0	171	678	712	9	695	712
Grp Sat Flow(s),veh/h/ln	334	0	1572	678	0	0	1795	1791	1880	395	1763	1792
Q Serve(g_s), s	0.0	0.0	7.6	0.0	0.0	0.0	5.7	0.0	0.0	0.1	8.7	9.0
Cycle Q Clear(g_c), s	35.6	0.0	7.6	35.6	0.0	0.0	5.7	0.0	0.0	0.1	8.7	9.0
Prop In Lane	0.96		1.00	0.12		0.00	1.00		0.01	1.00		0.20
Lane Grp Cap(c), veh/h	158	0	467	235	0	0	335	1072	1125	250	847	861
V/C Ratio(X)	1.21	0.00	0.28	0.03	0.00	0.00	0.51	0.63	0.63	0.04	0.82	0.83
Avail Cap(c_a), veh/h	158	0	467	235	0	0	438	1072	1125	250	847	861
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.35	0.35	0.35	0.82	0.82	0.82
Uniform Delay (d), s/veh	48.8	0.0	32.4	32.0	0.0	0.0	12.6	0.0	0.0	1.2	1.4	1.4
Incr Delay (d2), s/veh	138.6	0.0	0.3	0.1	0.0	0.0	0.4	1.0	1.0	0.2	7.3	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	0.0	2.9	0.2	0.0	0.0	2.0	0.3	0.3	0.0	2.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.4	0.0	32.7	32.1	0.0	0.0	13.0	1.0	1.0	1.4	8.7	8.8
LnGrp LOS	F	A	C	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		321			8			1561			1416	
Approach Delay, s/veh		124.7			32.1			2.3			8.7	
Approach LOS		F			C			A			A	

Timer - Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	14.1	63.9		42.0		78.0		42.0
Change Period (Y+Rc), s	6.2	6.2		6.4		6.2		6.4
Max Green Setting (Gmax), s	11.8	50.8		35.6		71.8		35.6
Max Q Clear Time (g_c+I1), s	7.7	11.0		37.6		2.0		37.6
Green Ext Time (p_c), s	0.2	12.2		0.0		12.4		0.0

Intersection Summary			
HCM 6th Ctrl Delay			17.0
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	23	40	13	21	27	51	1397	31	27	1282	56
Future Volume (veh/h)	59	23	40	13	21	27	51	1397	31	27	1282	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1900	1767	1900	1841	1796	1885	1900	1900	1870	1870
Adj Flow Rate, veh/h	60	23	41	13	21	28	52	1426	32	28	1308	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	0	0	9	0	4	7	1	0	0	2	2
Cap, veh/h	164	45	60	96	83	88	306	2436	55	293	2360	103
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.68	0.68	0.68	0.68	0.68	0.68
Sat Flow, veh/h	674	407	534	210	744	785	383	3581	80	370	3469	151
Grp Volume(v), veh/h	124	0	0	62	0	0	52	712	746	28	669	696
Grp Sat Flow(s),veh/h/ln	1616	0	0	1739	0	0	383	1791	1871	370	1777	1843
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	4.8	12.7	12.7	2.6	11.6	11.6
Cycle Q Clear(g_c), s	4.3	0.0	0.0	1.9	0.0	0.0	16.5	12.7	12.7	15.3	11.6	11.6
Prop In Lane	0.48		0.33	0.21		0.45	1.00		0.04	1.00		0.08
Lane Grp Cap(c), veh/h	269	0	0	266	0	0	306	1218	1273	293	1209	1254
V/C Ratio(X)	0.46	0.00	0.00	0.23	0.00	0.00	0.17	0.58	0.59	0.10	0.55	0.55
Avail Cap(c_a), veh/h	376	0	0	381	0	0	306	1218	1273	293	1209	1254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	0.0	0.0	24.6	0.0	0.0	9.2	5.1	5.1	9.2	4.9	4.9
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.4	0.0	0.0	1.0	1.7	1.6	0.6	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	0.8	0.0	0.0	0.4	2.7	2.8	0.2	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	0.0	25.0	0.0	0.0	10.1	6.8	6.7	9.8	6.8	6.7
LnGrp LOS	C	A	A	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		124			62			1510			1393	
Approach Delay, s/veh		26.7			25.0			6.9			6.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		46.9		13.1		46.9		13.1				
Change Period (Y+Rc), s		6.1		6.4		6.1		6.4				
Max Green Setting (Gmax), s		36.6		10.9		36.6		10.9				
Max Q Clear Time (g_c+I1), s		17.3		3.9		18.5		6.3				
Green Ext Time (p_c), s		12.0		0.1		12.5		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		8.0
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	83	129	80	64	81	108	1304	67	74	1076	59
Future Volume (veh/h)	106	83	129	80	64	81	108	1304	67	74	1076	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1752	1870	1885	1885	1885	1870	1826	1870	1870
Adj Flow Rate, veh/h	108	85	132	82	65	83	110	1331	68	76	1098	60
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	1	10	2	1	1	1	2	5	2	2
Cap, veh/h	239	146	226	173	162	207	308	1990	880	237	1960	874
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.56	0.56	0.04	0.55	0.55
Sat Flow, veh/h	1259	671	1042	1090	746	953	1795	3582	1585	1739	3554	1585
Grp Volume(v), veh/h	108	0	217	82	0	148	110	1331	68	76	1098	60
Grp Sat Flow(s),veh/h/ln	1259	0	1712	1090	0	1699	1795	1791	1585	1739	1777	1585
Q Serve(g_s), s	9.7	0.0	13.6	8.7	0.0	9.0	3.2	31.5	2.4	2.2	24.1	2.1
Cycle Q Clear(g_c), s	18.6	0.0	13.6	22.4	0.0	9.0	3.2	31.5	2.4	2.2	24.1	2.1
Prop In Lane	1.00		0.61	1.00		0.56	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	0	372	173	0	369	308	1990	880	237	1960	874
V/C Ratio(X)	0.45	0.00	0.58	0.47	0.00	0.40	0.36	0.67	0.08	0.32	0.56	0.07
Avail Cap(c_a), veh/h	470	0	685	372	0	680	332	1990	880	243	1960	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	42.1	52.2	0.0	40.3	13.7	18.9	12.4	15.6	17.5	12.5
Incr Delay (d2), s/veh	1.9	0.0	2.1	2.9	0.0	1.0	0.7	1.8	0.2	0.8	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	5.9	2.5	0.0	3.8	1.2	12.4	0.8	0.9	9.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	0.0	44.2	55.0	0.0	41.3	14.4	20.7	12.6	16.4	18.6	12.7
LnGrp LOS	D	A	D	E	A	D	B	C	B	B	B	B
Approach Vol, veh/h		325			230			1509			1234	
Approach Delay, s/veh		46.2			46.2			19.8			18.2	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	73.1		34.9	11.5	73.6		34.9				
Change Period (Y+Rc), s	6.9	6.9		* 8.9	6.9	6.9		* 8.9				
Max Green Setting (Gmax), s	6.7	42.6		* 48	5.0	44.3		* 48				
Max Q Clear Time (g_c+I1), s	5.2	26.1		24.4	4.2	33.5		20.6				
Green Ext Time (p_c), s	0.0	9.0		1.7	0.0	7.7		2.5				

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	308	2298	357	336	1631	225	408	618	464	262	567	282
Future Volume (veh/h)	308	2298	357	336	1631	225	408	618	464	262	567	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1885	1885	1870	1885	1885	1870	1885	1870	1900
Adj Flow Rate, veh/h	318	2369	368	346	1681	232	421	637	478	270	585	291
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	3	1	1	2	1	1	2	1	2	0
Cap, veh/h	355	2451	755	375	2496	769	477	653	460	285	868	439
Arrive On Green	0.10	0.48	0.48	0.11	0.48	0.48	0.09	0.18	0.18	0.08	0.17	0.17
Sat Flow, veh/h	3456	5106	1572	3483	5147	1585	5063	3582	1585	3483	5106	1610
Grp Volume(v), veh/h	318	2369	368	346	1681	232	421	637	478	270	585	291
Grp Sat Flow(s),veh/h/ln	1728	1702	1572	1742	1716	1585	1688	1791	1585	1742	1702	1610
Q Serve(g_s), s	20.0	99.0	34.9	21.7	55.0	19.4	18.1	38.9	40.1	17.0	23.6	35.3
Cycle Q Clear(g_c), s	20.0	99.0	34.9	21.7	55.0	19.4	18.1	38.9	40.1	17.0	23.6	35.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	2451	755	375	2496	769	477	653	460	285	868	439
V/C Ratio(X)	0.90	0.97	0.49	0.92	0.67	0.30	0.88	0.98	1.04	0.95	0.67	0.66
Avail Cap(c_a), veh/h	452	2451	755	378	2496	769	559	653	460	285	868	439
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	97.5	55.5	38.8	97.2	43.3	34.2	98.4	89.5	78.1	100.5	85.6	71.0
Incr Delay (d2), s/veh	17.0	11.9	2.2	27.6	1.5	1.0	13.8	29.1	52.8	39.3	2.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	44.2	14.0	11.2	23.6	7.8	8.5	20.6	32.5	9.2	10.6	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	114.5	67.3	41.1	124.9	44.8	35.2	112.3	118.6	130.9	139.8	87.7	74.7
LnGrp LOS	F	E	D	F	D	D	F	F	F	F	F	E
Approach Vol, veh/h		3055			2259			1536			1146	
Approach Delay, s/veh		69.1			56.1			120.7			96.7	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.8	114.9	26.1	48.2	31.9	113.8	28.8	45.5
Change Period (Y+Rc), s	8.2	8.2	* 8.1	* 8.1	8.2	8.2	* 8.1	* 8.1
Max Green Setting (Gmax), s	28.8	100.5	* 18	* 40	23.9	105.4	* 24	* 34
Max Q Clear Time (g_c+I1), s	22.0	57.0	19.0	42.1	23.7	101.0	20.1	37.3
Green Ext Time (p_c), s	0.6	26.3	0.0	0.0	0.0	4.1	0.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	79.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1584	521	284	1099	562	504
Future Volume (veh/h)	1584	521	284	1099	562	504
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1856	1885	1885	1885
Adj Flow Rate, veh/h	1722	566	309	1195	611	548
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	2	3	1	1	1
Cap, veh/h	2073	1222	351	2593	670	471
Arrive On Green	0.58	0.58	0.10	0.72	0.19	0.19
Sat Flow, veh/h	3676	1585	3428	3676	3483	1598
Grp Volume(v), veh/h	1722	566	309	1195	611	548
Grp Sat Flow(s),veh/h/ln	1791	1585	1714	1791	1742	1598
Q Serve(g_s), s	70.2	22.9	16.0	24.9	30.9	34.6
Cycle Q Clear(g_c), s	70.2	22.9	16.0	24.9	30.9	34.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2073	1222	351	2593	670	471
V/C Ratio(X)	0.83	0.46	0.88	0.46	0.91	1.16
Avail Cap(c_a), veh/h	2073	1222	558	2593	670	471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	7.3	79.7	10.3	71.2	63.5
Incr Delay (d2), s/veh	4.0	1.3	6.1	0.6	16.9	95.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.2	15.9	7.3	9.4	15.2	52.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.8	8.6	85.7	10.9	88.2	158.5
LnGrp LOS	C	A	F	B	F	F
Approach Vol, veh/h	2288			1504	1159	
Approach Delay, s/veh	28.3			26.3	121.4	
Approach LOS	C			C	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		138.0		42.0	26.1	111.9
Change Period (Y+Rc), s		7.7		7.4	7.7	7.7
Max Green Setting (Gmax), s		130.3		34.6	29.3	93.3
Max Q Clear Time (g_c+I1), s		26.9		36.6	18.0	72.2
Green Ext Time (p_c), s		17.8		0.0	0.4	17.9

Intersection Summary			
HCM 6th Ctrl Delay			49.5
HCM 6th LOS			D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	3	227	0	0	0	0	1419	16	79	779	0
Future Volume (veh/h)	95	3	227	0	0	0	0	1419	16	79	779	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1678	1900	1707				0	1633	1159	1381	1633	0
Adj Flow Rate, veh/h	100	3	239				0	1494	17	83	820	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	15	0	13				0	18	50	35	18	0
Cap, veh/h	296	9	244				0	1933	22	94	1888	0
Arrive On Green	0.17	0.17	0.17				0.00	0.43	0.43	0.14	1.00	0.00
Sat Flow, veh/h	1759	53	1447				0	4692	52	1316	3185	0
Grp Volume(v), veh/h	103	0	239				0	977	534	83	820	0
Grp Sat Flow(s),veh/h/ln	1812	0	1447				0	1486	1624	1316	1552	0
Q Serve(g_s), s	3.0	0.0	9.9				0.0	16.9	16.9	3.7	0.0	0.0
Cycle Q Clear(g_c), s	3.0	0.0	9.9				0.0	16.9	16.9	3.7	0.0	0.0
Prop In Lane	0.97		1.00				0.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	305	0	244				0	1264	691	94	1888	0
V/C Ratio(X)	0.34	0.00	0.98				0.00	0.77	0.77	0.88	0.43	0.00
Avail Cap(c_a), veh/h	305	0	244				0	1264	691	116	1888	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.36	0.36	0.00
Uniform Delay (d), s/veh	22.0	0.0	24.9				0.0	14.8	14.8	25.5	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	52.5				0.0	4.6	8.2	18.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	0.0	10.8				0.0	9.4	11.0	2.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	77.3				0.0	19.4	23.0	43.9	0.3	0.0
LnGrp LOS	C	A	E				A	B	C	D	A	A
Approach Vol, veh/h		342						1511			903	
Approach Delay, s/veh		61.1						20.7			4.3	
Approach LOS		E						C			A	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		43.0			11.0	32.0		17.0				
Change Period (Y+Rc), s		6.5			* 6.7	6.5		6.9				
Max Green Setting (Gmax), s		36.5			* 5.3	24.5		10.1				
Max Q Clear Time (g_c+I1), s		2.0			5.7	18.9		11.9				
Green Ext Time (p_c), s		6.6			0.0	4.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			20.3
HCM 6th LOS			C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	19	1	203	398	1116	0	0	839	87
Future Volume (veh/h)	0	0	0	19	1	203	398	1116	0	0	839	87
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1515	1900	1707	1574	1663	0	0	1604	1426
Adj Flow Rate, veh/h				21	1	221	433	1213	0	0	912	95
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				26	0	13	22	16	0	0	20	32
Cap, veh/h				242	12	203	380	2001	0	0	1074	112
Arrive On Green				0.14	0.14	0.14	0.51	1.00	0.00	0.00	0.35	0.35
Sat Flow, veh/h				1731	82	1447	1499	3243	0	0	4173	418
Grp Volume(v), veh/h				22	0	221	433	1213	0	0	660	347
Grp Sat Flow(s),veh/h/ln				1813	0	1447	1499	1580	0	0	1459	1528
Q Serve(g_s), s				0.6	0.0	8.4	15.2	0.0	0.0	0.0	12.5	12.6
Cycle Q Clear(g_c), s				0.6	0.0	8.4	15.2	0.0	0.0	0.0	12.5	12.6
Prop In Lane				0.95		1.00	1.00		0.00	0.00		0.27
Lane Grp Cap(c), veh/h				254	0	203	380	2001	0	0	778	408
V/C Ratio(X)				0.09	0.00	1.09	1.14	0.61	0.00	0.00	0.85	0.85
Avail Cap(c_a), veh/h				254	0	203	380	2001	0	0	778	408
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	0.00	1.00	0.55	0.55	0.00	0.00	0.52	0.52
Uniform Delay (d), s/veh				22.5	0.0	25.8	14.8	0.0	0.0	0.0	18.2	18.3
Incr Delay (d2), s/veh				0.1	0.0	89.6	79.9	0.8	0.0	0.0	6.2	11.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				0.5	0.0	12.7	16.5	0.4	0.0	0.0	6.3	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.6	0.0	115.4	94.7	0.8	0.0	0.0	24.4	29.5
LnGrp LOS				C	A	F	F	A	A	A	C	C
Approach Vol, veh/h					243			1646			1007	
Approach Delay, s/veh					107.0			25.5			26.2	
Approach LOS					F			C			C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	22.0	22.4		15.6		44.4						
Change Period (Y+Rc), s	6.8	6.4		* 7.2		6.4						
Max Green Setting (Gmax), s	15.2	16.0		* 8.4		38.0						
Max Q Clear Time (g_c+I1), s	17.2	14.6		10.4		2.0						
Green Ext Time (p_c), s	0.0	0.9		0.0		11.4						

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	423	266	98	924	251	422	742	115	232	519	134
Future Volume (veh/h)	77	423	266	98	924	251	422	742	115	232	519	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1574	1796	1693	1470	1752	1737	1796	1648	1470	1693	1559	1663
Adj Flow Rate, veh/h	81	445	280	103	973	264	444	781	121	244	546	141
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	22	7	14	29	10	11	7	17	29	14	23	16
Cap, veh/h	95	1058	625	103	1065	601	418	781	121	276	583	150
Arrive On Green	0.06	0.31	0.31	0.07	0.32	0.32	0.13	0.29	0.29	0.09	0.25	0.25
Sat Flow, veh/h	1499	3413	1434	1400	3328	1472	3319	2717	421	3127	2332	600
Grp Volume(v), veh/h	81	445	280	103	973	264	444	450	452	244	346	341
Grp Sat Flow(s),veh/h/ln	1499	1706	1434	1400	1664	1472	1659	1566	1572	1564	1481	1451
Q Serve(g_s), s	6.4	12.4	16.4	8.8	33.7	15.5	15.1	34.5	34.5	9.3	27.4	27.6
Cycle Q Clear(g_c), s	6.4	12.4	16.4	8.8	33.7	15.5	15.1	34.5	34.5	9.3	27.4	27.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		0.41
Lane Grp Cap(c), veh/h	95	1058	625	103	1065	601	418	450	452	276	370	363
V/C Ratio(X)	0.85	0.42	0.45	1.00	0.91	0.44	1.06	1.00	1.00	0.88	0.93	0.94
Avail Cap(c_a), veh/h	95	1058	625	103	1065	601	418	450	452	276	370	363
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	32.8	23.7	55.6	39.2	25.6	52.5	42.7	42.7	54.1	44.0	44.1
Incr Delay (d2), s/veh	48.8	1.2	2.3	89.7	13.3	2.3	56.3	36.9	36.9	26.7	30.5	32.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.6	9.0	9.8	9.5	21.8	9.7	14.3	23.6	23.7	8.2	18.9	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.4	34.1	26.0	145.3	52.5	27.9	108.7	79.6	79.6	80.8	74.6	76.3
LnGrp LOS	F	C	C	F	D	C	F	E	E	F	E	E
Approach Vol, veh/h		806			1340			1346			931	
Approach Delay, s/veh		38.4			54.8			89.2			76.8	
Approach LOS		D			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	46.1	17.5	41.6	16.0	44.9	22.0	37.1
Change Period (Y+Rc), s	7.2	7.7	6.9	* 7.1	7.2	7.7	6.9	* 7.1
Max Green Setting (Gmax), s	7.6	38.4	10.6	* 35	8.8	37.2	15.1	* 30
Max Q Clear Time (g_c+I1), s	8.4	35.7	11.3	36.5	10.8	18.4	17.1	29.6
Green Ext Time (p_c), s	0.0	1.8	0.0	0.0	0.0	3.7	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	66.9
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	3.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	0	20	15	0	21	30	1002	67	58	866	56
Future Vol, veh/h	23	0	20	15	0	21	30	1002	67	58	866	56
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	9	0	8	8	0	8	3	23	6	11	20	8
Mvmt Flow	24	0	21	16	0	22	32	1066	71	62	921	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1672	2276	491	1751	2271	569	981	0	0	1137	0	0
Stage 1	1075	1075	-	1166	1166	-	-	-	-	-	-	-
Stage 2	597	1201	-	585	1105	-	-	-	-	-	-	-
Critical Hdwy	7.68	6.5	7.06	7.66	6.5	7.06	4.16	-	-	4.32	-	-
Critical Hdwy Stg 1	6.68	5.5	-	6.66	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.68	5.5	-	6.66	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4	3.38	3.58	4	3.38	2.23	-	-	2.31	-	-
Pot Cap-1 Maneuver	58	41	508	51	41	450	693	-	-	561	-	-
Stage 1	222	298	-	196	270	-	-	-	-	-	-	-
Stage 2	440	260	-	449	289	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	49	35	508	43	35	450	693	-	-	561	-	-
Mov Cap-2 Maneuver	49	35	-	43	35	-	-	-	-	-	-	-
Stage 1	212	265	-	187	258	-	-	-	-	-	-	-
Stage 2	399	248	-	383	257	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	88.5	70.7	0.3	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	693	-	-	85	91	561	-	-
HCM Lane V/C Ratio	0.046	-	-	0.538	0.421	0.11	-	-
HCM Control Delay (s)	10.4	-	-	88.5	70.7	12.2	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	1.7	0.4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	76	78	98	156	33	101	894	58	76	958	120
Future Volume (veh/h)	91	76	78	98	156	33	101	894	58	76	958	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1292	1648	1544	1322	1722	1322	1693	1618	1455	1515	1663	1574
Adj Flow Rate, veh/h	95	79	81	102	162	34	105	931	60	79	998	125
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	41	17	24	39	12	39	14	19	30	26	16	22
Cap, veh/h	109	99	101	118	190	40	126	1376	89	94	1297	162
Arrive On Green	0.09	0.13	0.13	0.09	0.14	0.14	0.08	0.47	0.47	0.13	0.92	0.92
Sat Flow, veh/h	1231	746	765	1259	1380	290	1612	2933	189	1443	2825	354
Grp Volume(v), veh/h	95	0	160	102	0	196	105	488	503	79	558	565
Grp Sat Flow(s),veh/h/ln	1231	0	1510	1259	0	1670	1612	1537	1584	1443	1580	1599
Q Serve(g_s), s	9.2	0.0	12.3	9.6	0.0	13.8	7.7	29.6	29.6	6.4	11.8	11.8
Cycle Q Clear(g_c), s	9.2	0.0	12.3	9.6	0.0	13.8	7.7	29.6	29.6	6.4	11.8	11.8
Prop In Lane	1.00		0.51	1.00		0.17	1.00		0.12	1.00		0.22
Lane Grp Cap(c), veh/h	109	0	200	118	0	229	126	721	743	94	725	734
V/C Ratio(X)	0.87	0.00	0.80	0.87	0.00	0.85	0.83	0.68	0.68	0.84	0.77	0.77
Avail Cap(c_a), veh/h	109	0	327	118	0	370	129	721	743	96	725	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	0.0	50.5	53.7	0.0	50.6	54.5	24.8	24.8	51.6	3.1	3.1
Incr Delay (d2), s/veh	49.2	0.0	7.2	45.3	0.0	10.4	34.1	5.0	4.9	44.9	7.7	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.7	0.0	8.7	8.0	0.0	10.5	7.7	17.0	17.4	6.0	5.2	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.3	0.0	57.7	99.0	0.0	61.0	88.7	29.8	29.7	96.4	10.8	10.8
LnGrp LOS	F	A	E	F	A	E	F	C	C	F	B	B
Approach Vol, veh/h		255			298			1096			1202	
Approach Delay, s/veh		74.7			74.0			35.4			16.4	
Approach LOS		E			E			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	62.1	17.4	24.3	15.0	63.3	18.0	23.7
Change Period (Y+Rc), s	6.8	* 7	6.8	7.8	* 7.2	* 7	6.8	7.8
Max Green Setting (Gmax), s	9.6	* 45	10.6	26.6	* 8	* 46	11.2	26.0
Max Q Clear Time (g_c+I1), s	9.7	13.8	11.2	15.8	8.4	31.6	11.6	14.3
Green Ext Time (p_c), s	0.0	8.9	0.0	0.7	0.0	5.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	34.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	2	14	6	4	11	7	996	5	45	1135	30
Future Vol, veh/h	14	2	14	6	4	11	7	996	5	45	1135	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	18	0	0	0	0	21	0	21	33	8	18	3
Mvmt Flow	15	2	15	6	4	12	7	1048	5	47	1195	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1845	2372	614	1758	2386	527	1227	0	0	1053	0	0
Stage 1	1305	1305	-	1065	1065	-	-	-	-	-	-	-
Stage 2	540	1067	-	693	1321	-	-	-	-	-	-	-
Critical Hdwy	7.86	6.5	6.9	7.5	6.5	7.32	4.1	-	-	4.26	-	-
Critical Hdwy Stg 1	6.86	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.86	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.51	2.2	-	-	2.28	-	-
Pot Cap-1 Maneuver	39	35	440	55	35	449	575	-	-	622	-	-
Stage 1	147	232	-	241	302	-	-	-	-	-	-	-
Stage 2	455	301	-	405	228	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	32	32	440	47	32	449	575	-	-	622	-	-
Mov Cap-2 Maneuver	32	32	-	47	32	-	-	-	-	-	-	-
Stage 1	145	214	-	238	298	-	-	-	-	-	-	-
Stage 2	432	297	-	358	211	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	132.2	70.7	0.1	0.4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	575	-	-	56	76	622	-	-
HCM Lane V/C Ratio	0.013	-	-	0.564	0.291	0.076	-	-
HCM Control Delay (s)	11.3	-	-	132.2	70.7	11.3	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	2.2	1.1	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	170	428	22	199	42	286	735	17	122	770	28
Future Volume (veh/h)	31	170	428	22	199	42	286	735	17	122	770	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1693	1796	1781	1604	1663	1752	1544	1559	1811	1752	1678	1530
Adj Flow Rate, veh/h	34	185	465	24	216	46	311	799	18	133	837	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	14	7	8	20	16	10	24	23	6	10	15	25
Cap, veh/h	74	340	653	35	415	88	304	1199	27	155	914	33
Arrive On Green	0.23	0.23	0.23	0.02	0.31	0.31	0.21	0.40	0.40	0.19	0.58	0.58
Sat Flow, veh/h	175	1504	1510	1527	1329	283	1471	2962	67	1668	3139	112
Grp Volume(v), veh/h	219	0	465	24	0	262	311	400	417	133	425	442
Grp Sat Flow(s),veh/h/ln	1678	0	1510	1527	0	1612	1471	1481	1547	1668	1594	1657
Q Serve(g_s), s	5.1	0.0	27.1	1.9	0.0	16.0	24.8	26.4	26.4	9.3	28.6	28.6
Cycle Q Clear(g_c), s	13.5	0.0	27.1	1.9	0.0	16.0	24.8	26.4	26.4	9.3	28.6	28.6
Prop In Lane	0.16		1.00	1.00		0.18	1.00		0.04	1.00		0.07
Lane Grp Cap(c), veh/h	414	0	653	35	0	503	304	600	626	155	464	483
V/C Ratio(X)	0.53	0.00	0.71	0.68	0.00	0.52	1.02	0.67	0.67	0.86	0.92	0.92
Avail Cap(c_a), veh/h	414	0	653	64	0	533	304	600	626	190	464	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	41.0	0.0	27.9	58.2	0.0	33.9	47.6	29.1	29.1	48.1	23.7	23.7
Incr Delay (d2), s/veh	1.3	0.0	3.6	21.0	0.0	0.8	57.7	5.8	5.5	18.5	20.9	20.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.8	0.0	16.8	1.7	0.0	10.4	20.2	15.3	15.9	7.3	14.2	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	0.0	31.6	79.2	0.0	34.7	105.3	34.9	34.6	66.5	44.6	44.1
LnGrp LOS	D	A	C	E	A	C	F	C	C	E	D	D
Approach Vol, veh/h		684			286			1128			1000	
Approach Delay, s/veh		35.0			38.5			54.2			47.3	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.4	42.5		45.1	18.8	56.2	10.4	34.7				
Change Period (Y+Rc), s	* 7.6	* 7.6		7.6	* 7.6	* 7.6	7.6	7.6				
Max Green Setting (Gmax), s	* 25	* 33		39.7	* 14	* 44	5.0	27.1				
Max Q Clear Time (g_c+I1), s	26.8	30.6		18.0	11.3	28.4	3.9	29.1				
Green Ext Time (p_c), s	0.0	1.1		1.5	0.0	4.6	0.0	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			46.3
HCM 6th LOS			D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	54	15	0	0	0	0	943	343	66	1260	0
Future Volume (vph)	294	54	15	0	0	0	0	943	343	66	1260	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.6	8.6	8.6					8.6	8.6	8.6	8.6	
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1559	1510	1272					4590	1070	1570	2983	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1559	1510	1272					4590	1070	1570	2983	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	320	59	16	0	0	0	0	1025	373	72	1370	0
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	209	0	0	0
Lane Group Flow (vph)	189	190	2	0	0	0	0	1025	164	72	1370	0
Heavy Vehicles (%)	10%	28%	27%	0%	0%	0%	0%	13%	51%	15%	21%	0%
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	1	1	1					2 3		4 5	2 3 4 5	
Permitted Phases									2 3			
Actuated Green, G (s)	13.2	13.2	13.2					41.6	41.6	39.4	89.6	
Effective Green, g (s)	13.2	13.2	13.2					41.6	41.6	39.4	89.6	
Actuated g/C Ratio	0.11	0.11	0.11					0.35	0.35	0.33	0.75	
Clearance Time (s)	8.6	8.6	8.6									
Vehicle Extension (s)	3.0	3.0	3.0									
Lane Grp Cap (vph)	171	166	139					1591	370	515	2227	
v/s Ratio Prot	0.12	c0.13	0.00					c0.22		0.05	c0.46	
v/s Ratio Perm									0.15			
v/c Ratio	1.11	1.14	0.01					0.64	0.44	0.14	0.62	
Uniform Delay, d1	53.4	53.4	47.6					33.0	30.3	28.4	7.1	
Progression Factor	1.00	1.00	1.00					0.72	0.28	0.67	0.67	
Incremental Delay, d2	99.8	114.0	0.0					1.9	3.6	0.1	0.3	
Delay (s)	153.2	167.4	47.6					25.7	12.0	19.2	5.1	
Level of Service	F	F	D					C	B	B	A	
Approach Delay (s)		155.8			0.0			22.0			5.8	
Approach LOS		F			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	484	152	84	121	1116	0	0	842	448
Future Volume (vph)	0	0	0	484	152	84	121	1116	0	0	842	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.6	4.0	8.6	8.6	8.6			8.6	8.6
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1340	1489	1509	1480	3252			4510	1417
Flt Permitted				0.95	0.97	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1340	1489	1509	1480	3252			4510	1417
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	526	165	91	132	1213	0	0	915	487
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	0	0	0	318
Lane Group Flow (vph)	0	0	0	342	349	20	132	1213	0	0	915	169
Heavy Vehicles (%)	0%	0%	0%	28%	7%	7%	22%	11%	0%	0%	15%	14%
Turn Type				Prot	NA	custom	Prot	NA			NA	Perm
Protected Phases				5		5	1 2	1 2 3 4			3 4	
Permitted Phases												3 4
Actuated Green, G (s)				25.8	25.8	25.8	26.8	77.0			41.6	41.6
Effective Green, g (s)				25.8	25.8	25.8	26.8	77.0			41.6	41.6
Actuated g/C Ratio				0.22	0.22	0.22	0.22	0.64			0.35	0.35
Clearance Time (s)				8.6		8.6						
Vehicle Extension (s)				3.0		3.0						
Lane Grp Cap (vph)				288	320	324	330	2086			1563	491
v/s Ratio Prot				c0.26	0.23	0.01	0.09	c0.37			c0.20	
v/s Ratio Perm												0.12
v/c Ratio				1.19	1.09	0.06	0.40	0.58			0.59	0.34
Uniform Delay, d1				47.1	47.1	37.5	39.7	12.3			32.1	29.1
Progression Factor				1.00	1.00	1.00	1.48	0.15			0.60	0.47
Incremental Delay, d2				113.7	76.8	0.1	0.5	0.3			0.3	0.2
Delay (s)				160.8	123.9	37.5	59.4	2.1			19.6	13.9
Level of Service				F	F	D	E	A			B	B
Approach Delay (s)		0.0			130.0			7.7			17.6	
Approach LOS		A			F			A			B	

Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	3	243	4	3	6	196	973	8	1	1048	119
Future Volume (veh/h)	69	3	243	4	3	6	196	973	8	1	1048	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1396	1900	1693	1900	1900	1900	1722	1752	1900	1900	1693	1856
Adj Flow Rate, veh/h	75	3	264	4	3	7	213	1058	9	1	1139	129
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	34	0	14	0	0	0	12	10	0	0	14	3
Cap, veh/h	102	15	271	97	80	138	240	1963	17	2	1268	143
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.05	0.19	0.19	0.00	0.44	0.44
Sat Flow, veh/h	295	66	1221	262	359	621	1640	3382	29	1810	2912	329
Grp Volume(v), veh/h	342	0	0	14	0	0	213	521	546	1	628	640
Grp Sat Flow(s),veh/h/ln	1582	0	0	1243	0	0	1640	1664	1747	1810	1608	1633
Q Serve(g_s), s	22.0	0.0	0.0	0.0	0.0	0.0	15.5	33.8	33.8	0.1	43.4	43.6
Cycle Q Clear(g_c), s	25.7	0.0	0.0	0.8	0.0	0.0	15.5	33.8	33.8	0.1	43.4	43.6
Prop In Lane	0.22		0.77	0.29		0.50	1.00		0.02	1.00		0.20
Lane Grp Cap(c), veh/h	387	0	0	314	0	0	240	966	1014	2	700	711
V/C Ratio(X)	0.88	0.00	0.00	0.04	0.00	0.00	0.89	0.54	0.54	0.40	0.90	0.90
Avail Cap(c_a), veh/h	387	0	0	314	0	0	251	966	1014	75	700	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.81	0.81	0.81	0.21	0.21	0.21
Uniform Delay (d), s/veh	46.3	0.0	0.0	36.6	0.0	0.0	56.1	34.0	34.0	59.9	31.4	31.4
Incr Delay (d2), s/veh	20.6	0.0	0.0	0.1	0.0	0.0	24.7	1.8	1.7	20.8	4.3	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.9	0.0	0.0	0.6	0.0	0.0	12.8	21.3	22.2	0.1	20.1	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	0.0	0.0	36.7	0.0	0.0	80.8	35.8	35.7	80.7	35.7	35.8
LnGrp LOS	E	A	A	D	A	A	F	D	D	F	D	D
Approach Vol, veh/h		342			14			1280			1269	
Approach Delay, s/veh		66.9			36.7			43.3			35.8	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.1	59.9		35.0	7.8	77.2		35.0				
Change Period (Y+Rc), s	7.6	7.6		* 8.4	7.6	7.6		* 8.4				
Max Green Setting (Gmax), s	18.4	51.4		* 27	5.0	64.8		* 27				
Max Q Clear Time (g_c+I1), s	17.5	45.6		2.8	2.1	35.8		27.7				
Green Ext Time (p_c), s	0.1	3.7		0.0	0.0	7.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			42.7									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	393	52	32	593	124	70	966	41	96	977	28
Future Volume (veh/h)	52	393	52	32	593	124	70	966	41	96	977	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1515	1811	1826	1648	1826	1796	1781	1693	1752	1648	1678	1455
Adj Flow Rate, veh/h	57	427	57	35	645	135	76	1050	45	104	1062	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	26	6	5	17	5	7	8	14	10	17	15	30
Cap, veh/h	53	626	84	43	572	120	86	1041	45	101	1152	33
Arrive On Green	0.04	0.40	0.40	0.03	0.39	0.39	0.05	0.33	0.33	0.06	0.36	0.36
Sat Flow, veh/h	1443	1565	209	1570	1464	306	1697	3142	135	1570	3166	89
Grp Volume(v), veh/h	57	0	484	35	0	780	76	537	558	104	535	557
Grp Sat Flow(s),veh/h/ln	1443	0	1773	1570	0	1771	1697	1608	1668	1570	1594	1662
Q Serve(g_s), s	5.5	0.0	33.8	3.3	0.0	58.6	6.7	49.7	49.7	9.7	48.1	48.2
Cycle Q Clear(g_c), s	5.5	0.0	33.8	3.3	0.0	58.6	6.7	49.7	49.7	9.7	48.1	48.2
Prop In Lane	1.00		0.12	1.00		0.17	1.00		0.08	1.00		0.05
Lane Grp Cap(c), veh/h	53	0	710	43	0	692	86	533	553	101	580	605
V/C Ratio(X)	1.08	0.00	0.68	0.82	0.00	1.13	0.88	1.01	1.01	1.02	0.92	0.92
Avail Cap(c_a), veh/h	53	0	710	62	0	692	86	533	553	101	580	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.2	0.0	37.1	72.6	0.0	45.7	70.8	50.2	50.2	70.2	45.6	45.7
Incr Delay (d2), s/veh	147.1	0.0	3.9	40.5	0.0	75.0	54.8	38.3	37.7	96.1	22.3	21.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.5	0.0	21.8	3.3	0.0	54.5	7.3	33.2	34.2	10.9	30.2	31.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.4	0.0	41.1	113.1	0.0	120.7	125.6	88.5	87.9	166.3	68.0	67.3
LnGrp LOS	F	A	D	F	A	F	F	F	F	F	E	E
Approach Vol, veh/h		541			815			1171			1196	
Approach Delay, s/veh		59.9			120.4			90.6			76.2	
Approach LOS		E			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	61.9	10.0	66.0	17.0	57.0	8.6	67.4
Change Period (Y+Rc), s	4.5	7.3	4.5	7.4	7.3	7.3	4.5	7.4
Max Green Setting (Gmax), s	7.6	54.6	5.5	58.6	9.7	49.7	5.9	58.2
Max Q Clear Time (g_c+I1), s	11.7	50.2	7.5	60.6	11.7	51.7	5.3	35.8
Green Ext Time (p_c), s	0.0	3.1	0.0	0.0	0.0	0.0	0.0	6.4

Intersection Summary	
HCM 6th Ctrl Delay	88.0
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	5.8

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Vol, veh/h	91	96	147	965	1101	153
Future Vol, veh/h	91	96	147	965	1101	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	450	-	-	250
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	4	1	13	15	2
Mvmt Flow	100	105	162	1060	1210	168

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2064	605	1378	0	-	0
Stage 1	1210	-	-	-	-	-
Stage 2	854	-	-	-	-	-
Critical Hdwy	6.86	6.98	4.12	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.34	2.21	-	-	-
Pot Cap-1 Maneuver	~ 47	436	499	-	-	-
Stage 1	243	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	436	499	-	-	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	164	-	-	-	-	-
Stage 2	375	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	66.1	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	499	-	116	436	-	-
HCM Lane V/C Ratio	0.324	-	0.862	0.242	-	-
HCM Control Delay (s)	15.6	-	119	15.9	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	1.4	-	5.2	0.9	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	4

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	95	176	1096	65	84	1198
Future Vol, veh/h	95	176	1096	65	84	1198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	250	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	6	6	6	7	15
Mvmt Flow	100	185	1154	68	88	1261

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1961	577	0	0	1222	0
Stage 1	1154	-	-	-	-	-
Stage 2	807	-	-	-	-	-
Critical Hdwy	6.96	7.02	-	-	4.24	-
Critical Hdwy Stg 1	5.96	-	-	-	-	-
Critical Hdwy Stg 2	5.96	-	-	-	-	-
Follow-up Hdwy	3.58	3.36	-	-	2.27	-
Pot Cap-1 Maneuver	~ 52	450	-	-	539	-
Stage 1	250	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 44	450	-	-	539	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	250	-	-	-	-	-
Stage 2	321	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	36.2	0	0.9
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	148	450	539	-
HCM Lane V/C Ratio	-	-	0.676	0.412	0.164	-
HCM Control Delay (s)	-	-	69.1	18.5	13	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	3.8	2	0.6	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	21.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	4	997	170	10	1118
Future Vol, veh/h	203	4	997	170	10	1118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	14	67	10	20	57	12
Mvmt Flow	221	4	1084	185	11	1215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1807	635	0	0	1269	0
Stage 1	1177	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Critical Hdwy	7.08	8.24	-	-	5.24	-
Critical Hdwy Stg 1	6.08	-	-	-	-	-
Critical Hdwy Stg 2	6.08	-	-	-	-	-
Follow-up Hdwy	3.64	3.97	-	-	2.77	-
Pot Cap-1 Maneuver	~ 62	295	-	-	321	-
Stage 1	232	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 60	295	-	-	321	-
Mov Cap-2 Maneuver	~ 163	-	-	-	-	-
Stage 1	232	-	-	-	-	-
Stage 2	445	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	254	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	164	321	-
HCM Lane V/C Ratio	-	-	1.372	0.034	-
HCM Control Delay (s)	-	-	254	16.6	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	13.8	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	25	930	76	18	1106
Future Volume (veh/h)	36	25	930	76	18	1106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1381	1159	1767	1633	877	1722
Adj Flow Rate, veh/h	39	27	1011	83	20	1202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	35	50	9	18	69	12
Cap, veh/h	92	68	2124	876	19	2342
Arrive On Green	0.07	0.07	0.63	0.63	0.02	0.72
Sat Flow, veh/h	1316	982	3445	1384	836	3358
Grp Volume(v), veh/h	39	27	1011	83	20	1202
Grp Sat Flow(s),veh/h/ln	1316	982	1678	1384	836	1636
Q Serve(g_s), s	2.1	2.0	11.9	1.8	1.7	12.4
Cycle Q Clear(g_c), s	2.1	2.0	11.9	1.8	1.7	12.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	92	68	2124	876	19	2342
V/C Ratio(X)	0.43	0.39	0.48	0.09	1.05	0.51
Avail Cap(c_a), veh/h	165	123	2124	876	72	2342
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.30	0.30
Uniform Delay (d), s/veh	33.4	33.4	7.2	5.4	36.6	4.8
Incr Delay (d2), s/veh	3.1	3.6	0.8	0.2	67.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	0.9	6.3	0.8	1.2	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.5	37.0	8.0	5.6	104.0	5.0
LnGrp LOS	D	D	A	A	F	A
Approach Vol, veh/h	66		1094			1222
Approach Delay, s/veh	36.7		7.8			6.7
Approach LOS	D		A			A
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.2	55.0		13.8		61.2
Change Period (Y+Rc), s	4.5	* 7.5		* 8.6		* 7.5
Max Green Setting (Gmax), s	6.5	* 39		* 9.4		* 50
Max Q Clear Time (g_c+I1), s	3.7	13.9		4.1		14.4
Green Ext Time (p_c), s	0.0	11.1		0.1		15.6
Intersection Summary						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1019	236	182	1472	416	225	575	99	433	842	248
Future Volume (veh/h)	200	1019	236	182	1472	416	225	575	99	433	842	248
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1752	1678	1470	1796	1707	1737	1781	1203	1678	1767	1856
Adj Flow Rate, veh/h	213	1084	251	194	1566	443	239	612	105	461	896	264
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	8	10	15	29	7	13	11	8	47	15	9	3
Cap, veh/h	211	1105	573	200	1402	794	229	553	95	428	866	506
Arrive On Green	0.06	0.33	0.33	0.14	0.41	0.41	0.09	0.25	0.25	0.14	0.26	0.26
Sat Flow, veh/h	3291	3328	1422	1400	3413	1447	3209	2890	495	3100	3357	1572
Grp Volume(v), veh/h	213	1084	251	194	1566	443	239	358	359	461	896	264
Grp Sat Flow(s),veh/h/ln	1646	1664	1422	1400	1706	1447	1605	1692	1692	1550	1678	1572
Q Serve(g_s), s	9.6	48.4	19.2	20.7	61.6	29.9	10.7	28.7	28.7	20.7	38.7	20.5
Cycle Q Clear(g_c), s	9.6	48.4	19.2	20.7	61.6	29.9	10.7	28.7	28.7	20.7	38.7	20.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	211	1105	573	200	1402	794	229	324	324	428	866	506
V/C Ratio(X)	1.01	0.98	0.44	0.97	1.12	0.56	1.04	1.11	1.11	1.08	1.03	0.52
Avail Cap(c_a), veh/h	211	1105	573	200	1402	794	229	324	324	428	866	506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.93	0.09	0.09	0.09
Uniform Delay (d), s/veh	70.2	49.6	32.4	64.0	44.2	22.0	67.9	55.9	55.9	64.7	55.7	41.4
Incr Delay (d2), s/veh	64.9	22.9	2.4	55.2	63.0	2.8	69.3	79.6	80.9	39.6	20.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	31.3	11.4	15.7	51.8	16.0	10.6	27.1	27.3	12.6	21.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.1	72.5	34.8	119.2	107.2	24.8	137.2	135.6	136.9	104.2	75.6	41.8
LnGrp LOS	F	E	C	F	F	C	F	F	F	F	F	D
Approach Vol, veh/h		1548			2203			956			1621	
Approach Delay, s/veh		75.0			91.7			136.5			78.2	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	46.0	17.0	69.0	28.0	36.0	28.8	57.2				
Change Period (Y+Rc), s	7.3	7.3	7.4	7.4	7.3	7.3	7.4	7.4				
Max Green Setting (Gmax), s	10.7	38.7	9.6	61.6	20.7	28.7	21.4	49.8				
Max Q Clear Time (g_c+I1), s	12.7	40.7	11.6	63.6	22.7	30.7	22.7	50.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			90.9									
HCM 6th LOS			F									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	72	121	22	61	50	94	997	37	77	1449	68
Future Volume (veh/h)	41	72	121	22	61	50	94	997	37	77	1449	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1604	1841	1381	1159	1796	1574	1530	1781	1574	1870	1811	1693
Adj Flow Rate, veh/h	44	77	130	24	66	54	101	1072	40	83	1558	73
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	20	4	35	50	7	22	25	8	22	2	6	14
Cap, veh/h	61	127	215	75	87	63	101	1429	53	107	1406	66
Arrive On Green	0.04	0.21	0.21	0.11	0.11	0.11	0.14	0.86	0.86	0.06	0.42	0.42
Sat Flow, veh/h	1527	615	1039	174	818	595	1457	3327	124	1781	3347	156
Grp Volume(v), veh/h	44	0	207	144	0	0	101	545	567	83	798	833
Grp Sat Flow(s),veh/h/ln	1527	0	1654	1586	0	0	1457	1692	1759	1781	1721	1783
Q Serve(g_s), s	2.1	0.0	8.5	4.1	0.0	0.0	5.2	9.6	9.6	3.4	31.5	31.5
Cycle Q Clear(g_c), s	2.1	0.0	8.5	6.6	0.0	0.0	5.2	9.6	9.6	3.4	31.5	31.5
Prop In Lane	1.00		0.63	0.17		0.37	1.00		0.07	1.00		0.09
Lane Grp Cap(c), veh/h	61	0	342	225	0	0	101	727	756	107	723	749
V/C Ratio(X)	0.72	0.00	0.61	0.64	0.00	0.00	1.00	0.75	0.75	0.78	1.10	1.11
Avail Cap(c_a), veh/h	102	0	386	225	0	0	101	727	756	147	723	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.22	0.22	0.22	0.14	0.14	0.14
Uniform Delay (d), s/veh	35.6	0.0	27.0	32.8	0.0	0.0	32.3	3.7	3.7	34.8	21.7	21.8
Incr Delay (d2), s/veh	14.7	0.0	2.9	6.8	0.0	0.0	42.0	1.6	1.6	2.6	50.4	53.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	0.0	6.2	5.2	0.0	0.0	4.1	2.6	2.7	2.3	26.1	28.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	0.0	29.8	39.6	0.0	0.0	74.3	5.3	5.2	37.3	72.2	75.4
LnGrp LOS	D	A	C	D	A	A	F	A	A	D	F	F
Approach Vol, veh/h		251			144			1213			1714	
Approach Delay, s/veh		33.4			39.6			11.0			72.1	
Approach LOS		C			D			B			E	

Timer - Assigned Phs	1	2	3	4	5	6	8
Phs Duration (G+Y+Rc), s	12.0	38.3	7.5	15.2	11.3	39.0	22.7
Change Period (Y+Rc), s	6.8	6.8	4.5	* 7.2	6.8	6.8	* 7.2
Max Green Setting (Gmax), s	5.2	31.5	5.0	* 8	6.2	30.5	* 18
Max Q Clear Time (g_c+I1), s	7.2	33.5	4.1	8.6	5.4	11.6	10.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	9.6	0.8

Intersection Summary	
HCM 6th Ctrl Delay	45.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	177	96	107	188	315	60	777	154	471	1178	111
Future Volume (veh/h)	140	177	96	107	188	315	60	777	154	471	1178	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1870	1841	1663	1856	1870	1767	1811	1870	1885	1856	1722
Adj Flow Rate, veh/h	147	186	101	113	198	332	63	818	162	496	1240	117
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	9	2	4	16	3	2	9	6	2	1	3	12
Cap, veh/h	146	261	142	135	390	539	70	792	157	453	1189	112
Arrive On Green	0.09	0.23	0.23	0.09	0.21	0.21	0.04	0.28	0.28	0.13	0.37	0.37
Sat Flow, veh/h	1682	1140	619	1584	1856	1585	1682	2863	567	3483	3257	307
Grp Volume(v), veh/h	147	0	287	113	198	332	63	492	488	496	670	687
Grp Sat Flow(s),veh/h/ln	1682	0	1759	1584	1856	1585	1682	1721	1709	1742	1763	1800
Q Serve(g_s), s	10.4	0.0	18.0	8.4	11.3	21.0	4.5	33.2	33.2	15.6	43.8	43.8
Cycle Q Clear(g_c), s	10.4	0.0	18.0	8.4	11.3	21.0	4.5	33.2	33.2	15.6	43.8	43.8
Prop In Lane	1.00		0.35	1.00		1.00	1.00		0.33	1.00		0.17
Lane Grp Cap(c), veh/h	146	0	403	135	390	539	70	476	473	453	643	657
V/C Ratio(X)	1.01	0.00	0.71	0.84	0.51	0.62	0.90	1.03	1.03	1.10	1.04	1.05
Avail Cap(c_a), veh/h	146	0	469	165	495	629	70	476	473	453	643	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.66	0.66	0.66	0.48	0.48	0.48
Uniform Delay (d), s/veh	54.8	0.0	42.6	54.1	41.9	33.0	57.2	43.4	43.4	52.2	38.1	38.1
Incr Delay (d2), s/veh	76.7	0.0	4.9	25.6	1.5	1.8	56.5	42.2	42.4	58.9	35.9	37.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.0	0.0	13.0	7.7	9.1	12.9	5.3	25.8	25.7	14.7	31.3	32.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	131.5	0.0	47.5	79.6	43.3	34.9	113.7	85.6	85.8	111.1	74.0	75.3
LnGrp LOS	F	A	D	E	D	C	F	F	F	F	F	F
Approach Vol, veh/h		434			643			1043			1853	
Approach Delay, s/veh		76.0			45.3			87.4			84.4	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	51.2	17.0	32.6	23.0	40.6	14.7	34.9
Change Period (Y+Rc), s	7.4	7.4	6.6	7.4	7.4	7.4	4.5	7.4
Max Green Setting (Gmax), s	5.0	43.8	10.4	32.0	15.6	33.2	12.5	32.0
Max Q Clear Time (g_c+I1), s	16.5	45.8	12.4	23.0	17.6	35.2	10.4	20.0
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	78.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	0	93	1	0	0	31	1229	1	4	1694	139
Future Volume (veh/h)	201	0	93	1	0	0	31	1229	1	4	1694	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1885	1900	1900	1900	1841	1811	1900	1900	1841	1856
Adj Flow Rate, veh/h	212	0	98	1	0	0	33	1294	1	4	1783	146
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	1	0	0	0	4	6	0	0	4	3
Cap, veh/h	236	0	364	134	0	0	49	2153	2	9	1926	156
Arrive On Green	0.13	0.00	0.23	0.06	0.00	0.00	0.03	0.61	0.61	0.01	1.00	1.00
Sat Flow, veh/h	1781	0	1610	1318	0	0	1753	3528	3	1810	3277	265
Grp Volume(v), veh/h	212	0	98	1	0	0	33	631	664	4	940	989
Grp Sat Flow(s),veh/h/ln	1781	0	1610	1318	0	0	1753	1721	1811	1810	1749	1793
Q Serve(g_s), s	14.1	0.0	6.0	0.1	0.0	0.0	2.2	27.1	27.1	0.3	0.0	0.0
Cycle Q Clear(g_c), s	14.1	0.0	6.0	0.1	0.0	0.0	2.2	27.1	27.1	0.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.15
Lane Grp Cap(c), veh/h	236	0	364	134	0	0	49	1050	1105	9	1028	1054
V/C Ratio(X)	0.90	0.00	0.27	0.01	0.00	0.00	0.68	0.60	0.60	0.43	0.91	0.94
Avail Cap(c_a), veh/h	236	0	368	137	0	0	75	1050	1105	75	1028	1054
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.31	0.31	0.31	0.10	0.10	0.10
Uniform Delay (d), s/veh	51.3	0.0	38.3	53.5	0.0	0.0	57.8	14.4	14.4	59.2	0.0	0.0
Incr Delay (d2), s/veh	32.9	0.0	0.6	0.0	0.0	0.0	5.0	0.8	0.8	3.0	1.8	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.1	0.0	4.4	0.1	0.0	0.0	1.9	13.0	13.6	0.2	0.9	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.2	0.0	38.8	53.5	0.0	0.0	62.8	15.2	15.1	62.2	1.8	2.4
LnGrp LOS	F	A	D	D	A	A	E	B	B	E	A	A
Approach Vol, veh/h		310			1			1328			1933	
Approach Delay, s/veh		69.8			53.5			16.4			2.2	
Approach LOS		E			D			B			A	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	77.5	20.4	14.2	5.1	80.2		34.6				
Change Period (Y+Rc), s	4.5	* 7	4.5	7.5	4.5	* 7		7.5				
Max Green Setting (Gmax), s	5.1	* 69	15.9	7.0	5.0	* 69		27.4				
Max Q Clear Time (g_c+I1), s	4.2	2.0	16.1	2.1	2.3	29.1		8.0				
Green Ext Time (p_c), s	0.0	43.4	0.0	0.0	0.0	17.0		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	58	218	172	59	65	123	1240	90	54	1495	35
Future Volume (veh/h)	40	58	218	172	59	65	123	1240	90	54	1495	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1900	1870	1900	1900	1841	1841	1737	1856	1826	1796	1900
Adj Flow Rate, veh/h	43	62	232	183	63	69	131	1319	96	57	1590	37
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	6	0	2	0	0	4	4	11	3	5	7	0
Cap, veh/h	55	282	235	204	190	208	124	1533	111	73	1577	37
Arrive On Green	0.03	0.15	0.15	0.11	0.23	0.23	0.07	0.49	0.49	0.04	0.46	0.46
Sat Flow, veh/h	1725	1900	1585	1810	829	908	1753	3120	226	1739	3409	79
Grp Volume(v), veh/h	43	62	232	183	0	132	131	696	719	57	794	833
Grp Sat Flow(s),veh/h/ln	1725	1900	1585	1810	0	1737	1753	1650	1696	1739	1706	1782
Q Serve(g_s), s	3.0	3.4	17.5	12.0	0.0	7.6	8.5	44.5	44.9	3.9	55.5	55.5
Cycle Q Clear(g_c), s	3.0	3.4	17.5	12.0	0.0	7.6	8.5	44.5	44.9	3.9	55.5	55.5
Prop In Lane	1.00		1.00	1.00		0.52	1.00		0.13	1.00		0.04
Lane Grp Cap(c), veh/h	55	282	235	204	0	398	124	811	834	73	789	824
V/C Ratio(X)	0.78	0.22	0.99	0.90	0.00	0.33	1.05	0.86	0.86	0.78	1.01	1.01
Avail Cap(c_a), veh/h	191	282	235	204	0	398	124	811	834	100	789	824
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.79	0.79	0.79	0.09	0.09	0.09
Uniform Delay (d), s/veh	57.7	45.0	51.0	52.6	0.0	38.6	55.8	26.8	26.9	57.0	32.2	32.3
Incr Delay (d2), s/veh	21.3	0.4	54.8	36.7	0.0	0.5	87.1	9.3	9.3	2.6	11.2	12.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	3.0	15.7	11.9	0.0	5.9	10.7	25.1	25.9	2.4	26.8	28.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.9	45.4	105.8	89.2	0.0	39.1	142.9	36.1	36.2	59.5	43.5	44.3
LnGrp LOS	E	D	F	F	A	D	F	D	D	E	F	F
Approach Vol, veh/h		337			315			1546			1684	
Approach Delay, s/veh		91.2			68.2			45.2			44.4	
Approach LOS		F			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	62.0	8.3	34.7	11.5	65.5	18.0	25.0
Change Period (Y+Rc), s	6.5	6.5	4.5	* 7.2	6.5	6.5	4.5	* 7.2
Max Green Setting (Gmax), s	8.5	55.5	13.3	* 18	6.9	57.1	13.5	* 18
Max Q Clear Time (g_c+I1), s	10.5	57.5	5.0	9.6	5.9	46.9	14.0	19.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.0	6.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	476	499	150	823	268	403	761	71	194	896	118
Future Volume (veh/h)	199	476	499	150	823	268	403	761	71	194	896	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1856	1781	1856	1856	1900	1722	1811	1826	1885	1856	1856
Adj Flow Rate, veh/h	216	517	542	163	895	291	438	827	77	211	974	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	3	8	3	3	0	12	6	5	1	3	3
Cap, veh/h	194	943	577	149	855	515	366	1016	95	270	882	116
Arrive On Green	0.11	0.27	0.27	0.08	0.24	0.24	0.12	0.32	0.32	0.03	0.09	0.09
Sat Flow, veh/h	1781	3526	1510	1767	3526	1610	3182	3182	296	3483	3133	412
Grp Volume(v), veh/h	216	517	542	163	895	291	438	447	457	211	548	554
Grp Sat Flow(s),veh/h/ln	1781	1763	1510	1767	1763	1610	1591	1721	1758	1742	1763	1781
Q Serve(g_s), s	13.1	15.1	32.1	10.1	29.1	18.0	13.8	28.7	28.7	7.2	33.8	33.8
Cycle Q Clear(g_c), s	13.1	15.1	32.1	10.1	29.1	18.0	13.8	28.7	28.7	7.2	33.8	33.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.23
Lane Grp Cap(c), veh/h	194	943	577	149	855	515	366	549	561	270	497	502
V/C Ratio(X)	1.11	0.55	0.94	1.10	1.05	0.56	1.20	0.81	0.81	0.78	1.10	1.10
Avail Cap(c_a), veh/h	194	943	577	149	855	515	366	549	561	302	497	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48	0.80	0.80	0.80
Uniform Delay (d), s/veh	53.5	37.7	35.7	54.9	45.5	33.9	53.1	37.6	37.6	57.5	54.4	54.4
Incr Delay (d2), s/veh	97.4	0.7	23.3	101.8	43.8	4.4	101.2	6.4	6.3	9.2	67.8	67.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.2	10.7	25.6	13.9	25.3	12.1	15.4	16.9	17.2	6.4	34.8	35.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	150.8	38.4	59.0	156.7	89.2	38.3	154.3	44.0	43.9	66.7	122.2	122.3
LnGrp LOS	F	D	E	F	F	D	F	D	D	E	F	F
Approach Vol, veh/h		1275			1349			1342			1313	
Approach Delay, s/veh		66.2			86.4			80.0			113.4	
Approach LOS		E			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	37.0	16.5	45.5	18.0	40.0	21.0	41.0
Change Period (Y+Rc), s	7.9	7.9	7.2	7.2	7.9	7.9	7.2	7.2
Max Green Setting (Gmax), s	13.1	29.1	10.4	37.2	10.1	32.1	13.8	33.8
Max Q Clear Time (g_c+I1), s	15.1	31.1	9.2	30.7	12.1	34.1	15.8	35.8
Green Ext Time (p_c), s	0.0	0.0	0.1	3.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	86.6
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	15	81	15	14	0	55	1105	12	31	1113	67
Future Volume (veh/h)	71	15	81	15	14	0	55	1105	12	31	1113	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1826	1900	1900	1900	1900	1826	1900	1900	1870	1841
Adj Flow Rate, veh/h	77	16	88	16	15	0	60	1201	13	34	1210	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	5	0	0	0	0	5	0	0	2	4
Cap, veh/h	124	27	103	127	106	0	78	2391	26	51	2265	136
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.00	0.01	0.22	0.22	0.06	1.00	1.00
Sat Flow, veh/h	602	204	762	604	785	0	1810	3516	38	1810	3405	205
Grp Volume(v), veh/h	181	0	0	31	0	0	60	593	621	34	631	652
Grp Sat Flow(s),veh/h/ln	1567	0	0	1389	0	0	1810	1735	1819	1810	1777	1833
Q Serve(g_s), s	11.8	0.0	0.0	0.0	0.0	0.0	4.0	35.8	35.8	2.2	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	0.0	1.7	0.0	0.0	4.0	35.8	35.8	2.2	0.0	0.0
Prop In Lane	0.43		0.49	0.52		0.00	1.00		0.02	1.00		0.11
Lane Grp Cap(c), veh/h	254	0	0	233	0	0	78	1180	1237	51	1182	1219
V/C Ratio(X)	0.71	0.00	0.00	0.13	0.00	0.00	0.77	0.50	0.50	0.67	0.53	0.53
Avail Cap(c_a), veh/h	401	0	0	379	0	0	163	1180	1237	118	1182	1219
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.49	0.49	0.49	0.77	0.77	0.77
Uniform Delay (d), s/veh	50.6	0.0	0.0	45.6	0.0	0.0	58.5	28.8	28.8	56.1	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.0	0.0	0.3	0.0	0.0	7.5	0.8	0.7	10.9	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.4	0.0	0.0	1.5	0.0	0.0	3.6	21.5	22.5	2.1	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	0.0	0.0	45.9	0.0	0.0	66.0	29.5	29.5	66.9	1.3	1.3
LnGrp LOS	D	A	A	D	A	A	E	C	C	E	A	A
Approach Vol, veh/h		181			31			1274			1317	
Approach Delay, s/veh		54.3			45.9			31.2			3.0	
Approach LOS		D			D			C			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	86.0		22.6	9.6	87.8		22.6				
Change Period (Y+Rc), s	6.2	6.2		6.4	6.2	6.2		6.4				
Max Green Setting (Gmax), s	10.8	62.8		27.6	7.8	65.8		27.6				
Max Q Clear Time (g_c+I1), s	6.0	2.0		3.7	4.2	37.8		15.5				
Green Ext Time (p_c), s	0.0	12.0		0.1	0.0	9.3		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		19.6
HCM 6th LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	24	42	24	31	37	27	1129	5	42	1220	36
Future Volume (veh/h)	44	24	42	24	31	37	27	1129	5	42	1220	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1826	1856	1900	1841	1856	1900	1826	1900	1811	1841	1900
Adj Flow Rate, veh/h	48	26	46	26	34	40	29	1227	5	46	1326	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	5	3	0	4	3	0	5	0	6	4	0
Cap, veh/h	143	54	70	110	81	76	58	1890	8	77	1894	56
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.03	0.53	0.53	0.04	0.55	0.55
Sat Flow, veh/h	521	472	618	300	710	673	1810	3543	14	1725	3469	102
Grp Volume(v), veh/h	120	0	0	100	0	0	29	601	631	46	668	697
Grp Sat Flow(s),veh/h/ln	1612	0	0	1682	0	0	1810	1735	1823	1725	1749	1822
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.0	0.9	14.8	14.8	1.6	16.8	16.9
Cycle Q Clear(g_c), s	4.0	0.0	0.0	3.2	0.0	0.0	0.9	14.8	14.8	1.6	16.8	16.9
Prop In Lane	0.40		0.38	0.26		0.40	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	267	0	0	267	0	0	58	925	972	77	955	995
V/C Ratio(X)	0.45	0.00	0.00	0.37	0.00	0.00	0.50	0.65	0.65	0.60	0.70	0.70
Avail Cap(c_a), veh/h	286	0	0	287	0	0	151	925	972	144	955	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	0.0	25.0	0.0	0.0	28.6	10.0	10.0	28.1	10.0	10.0
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.9	0.0	0.0	5.6	3.0	2.8	7.2	4.3	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	0.0	0.0	2.3	0.0	0.0	0.9	8.4	8.7	1.4	10.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	0.0	25.9	0.0	0.0	34.1	13.0	12.8	35.4	14.3	14.1
LnGrp LOS	C	A	A	C	A	A	C	B	B	D	B	B
Approach Vol, veh/h		120			100			1261			1411	
Approach Delay, s/veh		26.5			25.9			13.4			14.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	38.9		13.2	8.7	38.1		13.2				
Change Period (Y+Rc), s	6.0	6.1		6.4	6.0	6.1		6.4				
Max Green Setting (Gmax), s	5.0	28.9		7.6	5.0	28.9		7.6				
Max Q Clear Time (g_c+I1), s	2.9	18.9		5.2	3.6	16.8		6.0				
Green Ext Time (p_c), s	0.0	7.3		0.1	0.0	7.8		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			15.1									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	37	96	114	68	81	71	973	62	56	987	33
Future Volume (veh/h)	69	37	96	114	68	81	71	973	62	56	987	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1900	1856	1841	1870	1870	1826	1900	1737	1841	1781
Adj Flow Rate, veh/h	73	39	102	121	72	86	76	1035	66	60	1050	35
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	0	0	3	4	2	2	5	0	11	4	8
Cap, veh/h	93	50	130	144	104	125	96	1733	110	75	1777	59
Arrive On Green	0.05	0.11	0.11	0.08	0.14	0.14	0.05	0.52	0.52	0.05	0.51	0.51
Sat Flow, veh/h	1781	465	1216	1767	764	913	1781	3311	211	1654	3454	115
Grp Volume(v), veh/h	73	0	141	121	0	158	76	542	559	60	532	553
Grp Sat Flow(s),veh/h/ln	1781	0	1681	1767	0	1676	1781	1735	1788	1654	1749	1820
Q Serve(g_s), s	4.9	0.0	9.8	8.1	0.0	10.8	5.1	26.0	26.0	4.3	25.4	25.4
Cycle Q Clear(g_c), s	4.9	0.0	9.8	8.1	0.0	10.8	5.1	26.0	26.0	4.3	25.4	25.4
Prop In Lane	1.00		0.72	1.00		0.54	1.00		0.12	1.00		0.06
Lane Grp Cap(c), veh/h	93	0	180	144	0	229	96	908	936	75	900	937
V/C Ratio(X)	0.78	0.00	0.78	0.84	0.00	0.69	0.79	0.60	0.60	0.80	0.59	0.59
Avail Cap(c_a), veh/h	116	0	492	144	0	518	96	908	936	79	900	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	0.0	52.2	54.3	0.0	49.4	56.1	19.8	19.8	56.7	20.3	20.3
Incr Delay (d2), s/veh	23.8	0.0	10.1	33.2	0.0	5.2	34.1	2.9	2.8	40.9	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.0	0.0	8.1	8.5	0.0	8.4	5.7	16.2	16.6	4.8	16.1	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.0	0.0	62.3	87.5	0.0	54.6	90.1	22.7	22.6	97.7	23.2	23.0
LnGrp LOS	E	A	E	F	A	D	F	C	C	F	C	C
Approach Vol, veh/h		214			279			1177			1145	
Approach Delay, s/veh		68.3			68.9			27.0			27.0	
Approach LOS		E			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	68.7	12.7	25.3	12.4	69.7	16.2	21.7
Change Period (Y+Rc), s	6.9	6.9	6.4	* 8.9	6.9	6.9	6.4	* 8.9
Max Green Setting (Gmax), s	6.5	39.5	7.8	* 37	5.7	40.3	9.8	* 35
Max Q Clear Time (g_c+I1), s	7.1	27.4	6.9	12.8	6.3	28.0	10.1	11.8
Green Ext Time (p_c), s	0.0	6.9	0.0	1.2	0.0	7.1	0.0	1.0

Intersection Summary		
HCM 6th Ctrl Delay		34.3
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	1218	238	357	2499	272	326	513	279	183	516	192
Future Volume (veh/h)	207	1218	238	357	2499	272	326	513	279	183	516	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1811	1841	1856	1856	1856	1826	1841	1767	1870	1856	1870
Adj Flow Rate, veh/h	218	1282	251	376	2631	286	343	540	294	193	543	202
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	6	4	3	3	3	5	4	9	2	3	2
Cap, veh/h	251	2529	798	422	2844	883	290	532	412	226	463	324
Arrive On Green	0.07	0.51	0.51	0.12	0.56	0.56	0.09	0.15	0.15	0.07	0.13	0.13
Sat Flow, veh/h	3428	4944	1560	3428	5066	1572	3374	3497	1497	3456	3526	1585
Grp Volume(v), veh/h	218	1282	251	376	2631	286	343	540	294	193	543	202
Grp Sat Flow(s),veh/h/ln	1714	1648	1560	1714	1689	1572	1687	1749	1497	1728	1763	1585
Q Serve(g_s), s	13.8	37.6	20.6	23.8	104.3	21.5	18.9	33.4	33.4	12.2	28.9	25.6
Cycle Q Clear(g_c), s	13.8	37.6	20.6	23.8	104.3	21.5	18.9	33.4	33.4	12.2	28.9	25.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	251	2529	798	422	2844	883	290	532	412	226	463	324
V/C Ratio(X)	0.87	0.51	0.31	0.89	0.93	0.32	1.18	1.02	0.71	0.86	1.17	0.62
Avail Cap(c_a), veh/h	309	2529	798	760	2844	883	290	532	412	281	463	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	100.9	35.4	31.3	95.0	44.0	25.9	100.6	93.3	72.0	101.8	95.6	79.8
Incr Delay (d2), s/veh	19.3	0.7	1.0	6.7	6.6	1.0	112.1	43.1	5.8	18.6	98.4	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.2	22.1	12.9	16.5	55.9	13.3	19.9	25.7	22.2	10.2	28.9	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	120.3	36.2	32.3	101.7	50.6	26.8	212.6	136.4	77.7	120.4	194.0	83.4
LnGrp LOS	F	D	C	F	D	C	F	F	E	F	F	F
Approach Vol, veh/h		1751			3293			1177			938	
Approach Delay, s/veh		46.1			54.4			144.0			155.0	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.3	131.7	22.5	41.5	35.3	120.7	27.0	37.0
Change Period (Y+Rc), s	8.2	8.2	* 8.1	* 8.1	8.2	8.2	* 8.1	* 8.1
Max Green Setting (Gmax), s	19.8	119.8	* 18	* 30	48.8	90.8	* 19	* 29
Max Q Clear Time (g_c+I1), s	15.8	106.3	14.2	35.4	25.8	39.6	20.9	30.9
Green Ext Time (p_c), s	0.3	13.1	0.2	0.0	1.3	14.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	80.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1119	427	529	1656	502	400
Future Volume (veh/h)	1119	427	529	1656	502	400
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1870	1841	1870	1856	1841
Adj Flow Rate, veh/h	1216	464	575	1800	546	435
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	4	2	3	4
Cap, veh/h	1379	895	620	2341	594	555
Arrive On Green	0.39	0.39	0.18	0.66	0.17	0.17
Sat Flow, veh/h	3618	1585	3401	3647	3428	1560
Grp Volume(v), veh/h	1216	464	575	1800	546	435
Grp Sat Flow(s),veh/h/ln	1763	1585	1700	1777	1714	1560
Q Serve(g_s), s	28.9	16.2	15.0	31.5	14.1	15.6
Cycle Q Clear(g_c), s	28.9	16.2	15.0	31.5	14.1	15.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1379	895	620	2341	594	555
V/C Ratio(X)	0.88	0.52	0.93	0.77	0.92	0.78
Avail Cap(c_a), veh/h	1379	895	620	2341	594	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	12.1	36.2	10.6	36.6	25.9
Incr Delay (d2), s/veh	8.4	2.1	20.0	2.5	19.5	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.7	13.2	12.3	16.0	11.7	26.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.9	14.2	56.2	13.1	56.1	33.2
LnGrp LOS	C	B	E	B	E	C
Approach Vol, veh/h	1680			2375	981	
Approach Delay, s/veh	28.5			23.6	45.9	
Approach LOS	C			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.0		23.0	24.1	42.9
Change Period (Y+Rc), s		7.7		7.4	7.7	7.7
Max Green Setting (Gmax), s		59.3		15.6	16.4	35.2
Max Q Clear Time (g_c+I1), s		33.5		17.6	17.0	30.9
Green Ext Time (p_c), s		20.0		0.0	0.0	3.7

Intersection Summary			
HCM 6th Ctrl Delay			29.5
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	6	401	0	0	0	0	1268	52	222	1337	0
Future Volume (veh/h)	81	6	401	0	0	0	0	1268	52	222	1337	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1485	1900	1737				0	1796	1707	1826	1811	0
Adj Flow Rate, veh/h	88	7	436				0	1378	57	241	1453	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	28	0	11				0	7	13	5	6	0
Cap, veh/h	423	34	370				0	2817	117	212	2810	0
Arrive On Green	0.25	0.25	0.25				0.00	0.58	0.58	0.12	0.82	0.00
Sat Flow, veh/h	1682	134	1472				0	4991	200	1739	3532	0
Grp Volume(v), veh/h	95	0	436				0	933	502	241	1453	0
Grp Sat Flow(s),veh/h/ln	1816	0	1472				0	1635	1760	1739	1721	0
Q Serve(g_s), s	2.5	0.0	15.1				0.0	10.0	10.0	7.3	8.0	0.0
Cycle Q Clear(g_c), s	2.5	0.0	15.1				0.0	10.0	10.0	7.3	8.0	0.0
Prop In Lane	0.93		1.00				0.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	457	0	370				0	1907	1027	212	2810	0
V/C Ratio(X)	0.21	0.00	1.18				0.00	0.49	0.49	1.14	0.52	0.00
Avail Cap(c_a), veh/h	457	0	370				0	1907	1027	212	2810	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.21	0.21	0.00
Uniform Delay (d), s/veh	17.7	0.0	22.4				0.0	7.3	7.3	26.3	1.7	0.0
Incr Delay (d2), s/veh	0.5	0.0	104.3				0.0	0.9	1.7	74.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	0.0	23.6				0.0	4.6	5.4	9.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	126.7				0.0	8.2	9.0	101.2	1.9	0.0
LnGrp LOS	B	A	F				A	A	A	F	A	A
Approach Vol, veh/h		531						1435			1694	
Approach Delay, s/veh		107.3						8.5			16.0	
Approach LOS		F						A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.0			14.0	42.0		22.0				
Change Period (Y+Rc), s		6.5			* 6.7	6.5		6.9				
Max Green Setting (Gmax), s		31.5			* 7.3	18.0		15.1				
Max Q Clear Time (g_c+I1), s		10.0			9.3	12.0		17.1				
Green Ext Time (p_c), s		11.0			0.0	4.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			26.3
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	23	0	99	228	1132	0	0	1564	99
Future Volume (veh/h)	0	0	0	23	0	99	228	1132	0	0	1564	99
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1218	1900	1574	1811	1767	0	0	1796	1841
Adj Flow Rate, veh/h				25	0	106	245	1217	0	0	1682	106
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				46	0	22	6	9	0	0	7	4
Cap, veh/h				268	0	197	236	2099	0	0	1770	111
Arrive On Green				0.15	0.00	0.15	0.14	0.63	0.00	0.00	0.38	0.38
Sat Flow, veh/h				1810	0	1334	1725	3445	0	0	4877	297
Grp Volume(v), veh/h				25	0	106	245	1217	0	0	1166	622
Grp Sat Flow(s),veh/h/ln				1810	0	1334	1725	1678	0	0	1635	1743
Q Serve(g_s), s				0.7	0.0	4.4	8.2	12.8	0.0	0.0	20.8	20.8
Cycle Q Clear(g_c), s				0.7	0.0	4.4	8.2	12.8	0.0	0.0	20.8	20.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		0.17
Lane Grp Cap(c), veh/h				268	0	197	236	2099	0	0	1227	654
V/C Ratio(X)				0.09	0.00	0.54	1.04	0.58	0.00	0.00	0.95	0.95
Avail Cap(c_a), veh/h				302	0	222	236	2099	0	0	1227	654
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.17	0.17	0.00	0.00	0.17	0.17
Uniform Delay (d), s/veh				22.1	0.0	23.7	25.9	6.6	0.0	0.0	18.2	18.2
Incr Delay (d2), s/veh				0.1	0.0	2.3	35.0	0.2	0.0	0.0	4.0	6.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				0.5	0.0	2.5	6.9	3.7	0.0	0.0	8.9	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.2	0.0	25.9	60.9	6.8	0.0	0.0	22.2	25.1
LnGrp LOS				C	A	C	F	A	A	A	C	C
Approach Vol, veh/h					131			1462			1788	
Approach Delay, s/veh					25.2			15.9			23.2	
Approach LOS					C			B			C	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	15.0	28.9	16.1	43.9
Change Period (Y+Rc), s	6.8	6.4	* 7.2	6.4
Max Green Setting (Gmax), s	8.2	21.4	* 10	36.4
Max Q Clear Time (g_c+I1), s	10.2	22.8	6.4	14.8
Green Ext Time (p_c), s	0.0	0.0	0.1	8.7

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	890	611	133	566	342	270	787	162	276	860	93
Future Volume (veh/h)	109	890	611	133	566	342	270	787	162	276	860	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1856	1856	1811	1826	1826	1767	1737	1500	1826	1796	1826
Adj Flow Rate, veh/h	116	947	650	141	602	364	287	837	172	294	915	99
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	8	3	3	6	5	5	9	11	27	5	7	5
Cap, veh/h	140	952	586	145	943	566	335	847	174	318	939	102
Arrive On Green	0.08	0.27	0.27	0.08	0.27	0.27	0.21	0.62	0.62	0.09	0.30	0.30
Sat Flow, veh/h	1697	3526	1572	1725	3469	1547	3264	2726	560	3374	3106	336
Grp Volume(v), veh/h	116	947	650	141	602	364	287	507	502	294	503	511
Grp Sat Flow(s),veh/h/ln	1697	1763	1572	1725	1735	1547	1632	1650	1636	1687	1706	1736
Q Serve(g_s), s	8.1	32.2	32.4	9.8	18.3	23.4	10.2	36.1	36.1	10.4	35.0	35.0
Cycle Q Clear(g_c), s	8.1	32.2	32.4	9.8	18.3	23.4	10.2	36.1	36.1	10.4	35.0	35.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.19
Lane Grp Cap(c), veh/h	140	952	586	145	943	566	335	513	509	318	516	525
V/C Ratio(X)	0.83	0.99	1.11	0.97	0.64	0.64	0.86	0.99	0.99	0.93	0.97	0.97
Avail Cap(c_a), veh/h	150	952	586	145	943	566	373	513	509	318	516	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	43.7	37.6	54.8	38.5	31.5	46.8	22.5	22.5	53.9	41.4	41.4
Incr Delay (d2), s/veh	29.4	28.0	70.7	65.8	3.3	5.5	14.2	33.4	33.6	31.9	33.0	32.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	24.1	39.0	11.1	12.7	14.4	7.5	17.9	17.8	9.7	26.1	26.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.6	71.7	108.3	120.6	41.8	37.1	61.0	55.9	56.1	85.8	74.5	74.2
LnGrp LOS	F	E	F	F	D	D	E	E	E	F	E	E
Approach Vol, veh/h		1713			1107			1296			1308	
Approach Delay, s/veh		86.4			50.3			57.1			76.9	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.1	40.3	18.2	44.4	17.3	40.1	19.2	43.4
Change Period (Y+Rc), s	7.2	7.7	6.9	* 7.1	7.2	7.7	6.9	* 7.1
Max Green Setting (Gmax), s	10.6	31.9	11.3	* 37	10.1	32.4	13.7	* 35
Max Q Clear Time (g_c+I1), s	10.1	25.4	12.4	38.1	11.8	34.4	12.2	37.0
Green Ext Time (p_c), s	0.0	2.8	0.0	0.0	0.0	0.0	0.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	69.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	41	22	0	31	23	1230	34	43	1240	40
Future Vol, veh/h	37	0	41	22	0	31	23	1230	34	43	1240	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	18	0	13	4	10	21	23	8	3
Mvmt Flow	40	0	45	24	0	34	25	1337	37	47	1348	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2183	2888	696	2174	2891	687	1391	0	0	1374	0	0
Stage 1	1464	1464	-	1406	1406	-	-	-	-	-	-	-
Stage 2	719	1424	-	768	1485	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.5	6.9	7.86	6.5	7.16	4.18	-	-	4.56	-	-
Critical Hdwy Stg 1	6.56	5.5	-	6.86	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.5	-	6.86	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4	3.3	3.68	4	3.43	2.24	-	-	2.43	-	-
Pot Cap-1 Maneuver	~ 25	16	389	~ 21	16	365	478	-	-	399	-	-
Stage 1	133	195	-	127	208	-	-	-	-	-	-	-
Stage 2	383	204	-	327	190	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 20	13	389	~ 16	13	365	478	-	-	399	-	-
Mov Cap-2 Maneuver	87	78	-	78	81	-	-	-	-	-	-	-
Stage 1	126	172	-	120	197	-	-	-	-	-	-	-
Stage 2	329	193	-	255	168	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	58.5	45.8	0.2	0.5
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	478	-	-	147	144	399	-	-
HCM Lane V/C Ratio	0.052	-	-	0.577	0.4	0.117	-	-
HCM Control Delay (s)	12.9	-	-	58.5	45.8	15.2	-	-
HCM Lane LOS	B	-	-	F	E	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-	3	1.7	0.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	195	128	116	133	50	94	1158	82	97	1126	71
Future Volume (veh/h)	215	195	128	116	133	50	94	1158	82	97	1126	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1841	1767	1767	1781	1722	1693	1781	1500	1589	1767	1648
Adj Flow Rate, veh/h	219	199	131	118	136	51	96	1182	84	99	1149	72
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	6	4	9	9	8	12	14	8	27	21	9	17
Cap, veh/h	221	218	143	142	206	77	105	1264	90	107	1295	81
Arrive On Green	0.13	0.21	0.21	0.08	0.17	0.17	0.07	0.39	0.39	0.14	0.81	0.81
Sat Flow, veh/h	1725	1036	682	1682	1235	463	1612	3205	228	1513	3208	201
Grp Volume(v), veh/h	219	0	330	118	0	187	96	623	643	99	601	620
Grp Sat Flow(s),veh/h/ln	1725	0	1718	1682	0	1698	1612	1692	1740	1513	1678	1730
Q Serve(g_s), s	15.2	0.0	22.5	8.3	0.0	12.4	7.1	42.4	42.5	7.8	29.2	29.3
Cycle Q Clear(g_c), s	15.2	0.0	22.5	8.3	0.0	12.4	7.1	42.4	42.5	7.8	29.2	29.3
Prop In Lane	1.00		0.40	1.00		0.27	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	221	0	361	142	0	283	105	668	686	107	677	698
V/C Ratio(X)	0.99	0.00	0.91	0.83	0.00	0.66	0.92	0.93	0.94	0.92	0.89	0.89
Avail Cap(c_a), veh/h	221	0	414	175	0	368	105	668	686	107	677	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.2	0.0	46.3	54.1	0.0	46.9	55.8	34.8	34.9	51.2	9.7	9.7
Incr Delay (d2), s/veh	57.3	0.0	22.7	23.2	0.0	2.8	61.8	21.9	21.8	63.1	15.9	15.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.1	0.0	17.2	7.8	0.0	9.1	8.2	28.2	28.9	8.1	10.8	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.5	0.0	69.0	77.3	0.0	49.7	117.6	56.8	56.7	114.3	25.6	25.3
LnGrp LOS	F	A	E	E	A	D	F	E	E	F	C	C
Approach Vol, veh/h		549			305			1362			1320	
Approach Delay, s/veh		85.2			60.3			61.0			32.1	
Approach LOS		F			E			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	55.4	22.2	27.8	15.7	54.3	16.9	33.0
Change Period (Y+Rc), s	6.8	* 7	6.8	7.8	* 7.2	* 7	6.8	7.8
Max Green Setting (Gmax), s	7.8	* 42	15.4	26.0	* 8.5	* 41	12.5	28.9
Max Q Clear Time (g_c+I1), s	9.1	31.3	17.2	14.4	9.8	44.5	10.3	24.5
Green Ext Time (p_c), s	0.0	5.7	0.0	0.7	0.0	0.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	53.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	1	34	12	5	61	11	1441	23	106	1213	38
Future Vol, veh/h	17	1	34	12	5	61	11	1441	23	106	1213	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	150	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	6	0	6	0	0	3	0	7	4	2	9	5
Mvmt Flow	18	1	37	13	5	66	12	1549	25	114	1304	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2354	3151	673	2467	3159	787	1345	0	0	1574	0	0
Stage 1	1553	1553	-	1586	1586	-	-	-	-	-	-	-
Stage 2	801	1598	-	881	1573	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.5	7.02	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.62	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4	3.36	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 18	11	388	16	11	332	519	-	-	415	-	-
Stage 1	114	176	-	115	170	-	-	-	-	-	-	-
Stage 2	336	167	-	312	172	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 11	8	388	~ 11	8	332	519	-	-	415	-	-
Mov Cap-2 Maneuver	62	35	-	69	65	-	-	-	-	-	-	-
Stage 1	111	128	-	112	166	-	-	-	-	-	-	-
Stage 2	255	163	-	203	125	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	50.4	41.7	0.1	1.3
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	519	-	-	133	179	415	-	-
HCM Lane V/C Ratio	0.023	-	-	0.42	0.469	0.275	-	-
HCM Control Delay (s)	12.1	-	-	50.4	41.7	16.9	-	-
HCM Lane LOS	B	-	-	F	E	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	2.2	1.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	124	425	29	280	58	358	1082	28	106	858	15
Future Volume (veh/h)	32	124	425	29	280	58	358	1082	28	106	858	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1752	1811	1648	1856	1663	1856	1796	1737	1678	1767	1707
Adj Flow Rate, veh/h	35	135	462	32	304	63	389	1176	30	115	933	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	11	10	6	17	3	16	3	7	11	15	9	13
Cap, veh/h	79	274	671	43	471	98	376	1393	36	135	952	16
Arrive On Green	0.23	0.23	0.23	0.03	0.32	0.32	0.42	0.82	0.82	0.17	0.56	0.56
Sat Flow, veh/h	192	1218	1535	1570	1491	309	1767	3400	87	1598	3377	58
Grp Volume(v), veh/h	170	0	462	32	0	367	389	590	616	115	464	485
Grp Sat Flow(s),veh/h/ln	1410	0	1535	1570	0	1800	1767	1706	1781	1598	1678	1756
Q Serve(g_s), s	3.5	0.0	27.0	2.4	0.0	21.0	25.5	24.3	24.3	8.4	32.3	32.3
Cycle Q Clear(g_c), s	13.6	0.0	27.0	2.4	0.0	21.0	25.5	24.3	24.3	8.4	32.3	32.3
Prop In Lane	0.21		1.00	1.00		0.17	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	353	0	671	43	0	568	376	699	730	135	473	495
V/C Ratio(X)	0.48	0.00	0.69	0.75	0.00	0.65	1.04	0.84	0.84	0.85	0.98	0.98
Avail Cap(c_a), veh/h	353	0	671	65	0	594	376	699	730	136	473	495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	40.6	0.0	27.2	57.9	0.0	35.3	34.5	8.6	8.6	49.1	25.9	25.9
Incr Delay (d2), s/veh	1.0	0.0	3.0	9.2	0.0	2.3	56.0	11.9	11.5	28.6	31.3	30.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	0.0	16.1	1.9	0.0	14.4	20.5	9.5	9.7	7.0	17.2	17.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	30.1	67.1	0.0	37.6	90.5	20.5	20.1	77.7	57.2	56.4
LnGrp LOS	D	A	C	E	A	D	F	C	C	E	E	E
Approach Vol, veh/h		632			399			1595			1064	
Approach Delay, s/veh		33.2			39.9			37.4			59.1	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.1	41.4		45.5	17.8	56.8	10.9	34.6
Change Period (Y+Rc), s	* 7.6	* 7.6		7.6	* 7.6	* 7.6	7.6	7.6
Max Green Setting (Gmax), s	* 26	* 32		39.6	* 10	* 47	5.0	27.0
Max Q Clear Time (g_c+I1), s	27.5	34.3		23.0	10.4	26.3	4.4	29.0
Green Ext Time (p_c), s	0.0	0.0		1.9	0.0	8.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	112	20	0	0	0	0	1235	429	132	1409	0
Future Volume (vph)	285	112	20	0	0	0	0	1235	429	132	1409	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.6	8.6	8.6					8.6	8.6	8.6	8.6	
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1573	1629	1524					4848	1455	1687	3312	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1573	1629	1524					4848	1455	1687	3312	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	297	117	21	0	0	0	0	1286	447	138	1468	0
RTOR Reduction (vph)	0	0	18	0	0	0	0	0	199	0	0	0
Lane Group Flow (vph)	205	209	3	0	0	0	0	1286	248	138	1468	0
Heavy Vehicles (%)	9%	8%	6%	0%	0%	0%	0%	7%	11%	7%	9%	0%
Turn Type	Perm	NA	Perm					NA	Perm	Prot	NA	
Protected Phases		1						2 3		4 5	2 3 4 5	
Permitted Phases	1		1						2 3			
Actuated Green, G (s)	18.0	18.0	18.0					43.6	43.6	32.6	84.8	
Effective Green, g (s)	18.0	18.0	18.0					43.6	43.6	32.6	84.8	
Actuated g/C Ratio	0.15	0.15	0.15					0.36	0.36	0.27	0.71	
Clearance Time (s)	8.6	8.6	8.6									
Vehicle Extension (s)	3.0	3.0	3.0									
Lane Grp Cap (vph)	235	244	228					1761	528	458	2340	
v/s Ratio Prot								c0.27		0.08	c0.44	
v/s Ratio Perm	c0.13	0.13	0.00						0.17			
v/c Ratio	0.87	0.86	0.01					0.73	0.47	0.30	0.63	
Uniform Delay, d1	49.9	49.7	43.4					33.1	29.3	34.7	9.3	
Progression Factor	1.00	1.00	1.00					0.51	0.11	0.57	0.66	
Incremental Delay, d2	27.9	24.3	0.0					2.2	2.5	0.2	0.3	
Delay (s)	77.8	74.1	43.5					19.3	5.6	19.8	6.5	
Level of Service	E	E	D					B	A	B	A	
Approach Delay (s)		74.3			0.0			15.8			7.6	
Approach LOS		E			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	322	42	69	81	1396	0	0	1275	410
Future Volume (vph)	0	0	0	322	42	69	81	1396	0	0	1275	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				8.6	4.0	8.6	8.6	8.6			8.6	8.6
Lane Util. Factor				0.95	0.95	1.00	1.00	0.95			0.91	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1329	1360	1455	1752	3374			5036	1538
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				1329	1360	1455	1752	3374			5036	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	335	44	72	84	1454	0	0	1328	427
RTOR Reduction (vph)	0	0	0	0	0	61	0	0	0	0	0	279
Lane Group Flow (vph)	0	0	0	188	191	11	84	1454	0	0	1328	148
Heavy Vehicles (%)	0%	0%	0%	29%	24%	11%	3%	7%	0%	0%	3%	5%
Turn Type				Prot	NA	custom	Prot	NA			NA	Perm
Protected Phases				5			1 2	1 2 3 4			3 4	
Permitted Phases						5						3 4
Actuated Green, G (s)				19.0	19.0	19.0	33.6	83.8			41.6	41.6
Effective Green, g (s)				19.0	19.0	19.0	33.6	83.8			41.6	41.6
Actuated g/C Ratio				0.16	0.16	0.16	0.28	0.70			0.35	0.35
Clearance Time (s)				8.6		8.6						
Vehicle Extension (s)				3.0		3.0						
Lane Grp Cap (vph)				210	215	230	490	2356			1745	533
v/s Ratio Prot				c0.14	0.14		0.05	c0.43			c0.26	
v/s Ratio Perm						0.01						0.10
v/c Ratio				0.90	0.89	0.05	0.17	0.62			0.76	0.28
Uniform Delay, d1				49.5	49.5	42.8	32.7	9.6			34.8	28.3
Progression Factor				1.00	1.00	1.00	1.74	0.31			1.23	5.83
Incremental Delay, d2				34.7	32.6	0.1	0.1	0.3			0.7	0.1
Delay (s)				84.3	82.1	42.9	57.0	3.3			43.4	165.2
Level of Service				F	F	D	E	A			D	F
Approach Delay (s)		0.0			76.7			6.2			73.0	
Approach LOS		A			E			A			E	

Intersection Summary			
HCM 2000 Control Delay	46.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	43.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	4	424	6	1	1	231	1241	12	5	1222	96
Future Volume (veh/h)	71	4	424	6	1	1	231	1241	12	5	1222	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1900	1856	1900	1900	1900	1737	1796	1900	1900	1841	1826
Adj Flow Rate, veh/h	73	4	437	6	1	1	238	1279	12	5	1260	99
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	11	0	3	0	0	0	11	7	0	0	4	5
Cap, veh/h	81	12	334	139	23	16	259	1906	18	12	1315	103
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.31	1.00	1.00	0.01	0.40	0.40
Sat Flow, veh/h	190	49	1356	349	95	63	1654	3464	32	1810	3285	258
Grp Volume(v), veh/h	514	0	0	8	0	0	238	630	661	5	669	690
Grp Sat Flow(s),veh/h/ln	1595	0	0	507	0	0	1654	1706	1790	1810	1749	1794
Q Serve(g_s), s	25.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.3	44.6	44.9
Cycle Q Clear(g_c), s	29.6	0.0	0.0	0.4	0.0	0.0	16.7	0.0	0.0	0.3	44.6	44.9
Prop In Lane	0.14		0.85	0.75		0.12	1.00		0.02	1.00		0.14
Lane Grp Cap(c), veh/h	428	0	0	178	0	0	259	939	985	12	700	718
V/C Ratio(X)	1.20	0.00	0.00	0.05	0.00	0.00	0.92	0.67	0.67	0.43	0.96	0.96
Avail Cap(c_a), veh/h	428	0	0	178	0	0	281	939	985	77	700	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.77	0.77	0.77	0.22	0.22	0.22
Uniform Delay (d), s/veh	46.3	0.0	0.0	34.2	0.0	0.0	40.5	0.0	0.0	59.4	35.0	35.1
Incr Delay (d2), s/veh	111.3	0.0	0.0	0.1	0.0	0.0	26.8	2.9	2.8	5.5	8.6	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	38.0	0.0	0.0	0.3	0.0	0.0	11.2	1.4	1.4	0.3	23.2	23.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	157.7	0.0	0.0	34.3	0.0	0.0	67.3	2.9	2.8	64.9	43.6	43.9
LnGrp LOS	F	A	A	C	A	A	E	A	A	E	D	D
Approach Vol, veh/h		514			8			1529			1364	
Approach Delay, s/veh		157.7			34.3			12.9			43.8	
Approach LOS		F			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.4	55.6		38.0	8.4	73.6		38.0				
Change Period (Y+Rc), s	7.6	7.6		* 8.4	7.6	7.6		* 8.4				
Max Green Setting (Gmax), s	20.4	46.4		* 30	5.1	61.7		* 30				
Max Q Clear Time (g_c+I1), s	18.7	46.9		2.4	2.3	2.0		31.6				
Green Ext Time (p_c), s	0.1	0.0		0.0	0.0	10.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	594	84	32	487	164	106	1064	67	157	1054	24
Future Volume (veh/h)	71	594	84	32	487	164	106	1064	67	157	1054	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1856	1856	1841	1841	1841	1841	1811	1870	1811	1826	1426
Adj Flow Rate, veh/h	75	625	88	34	513	173	112	1120	71	165	1109	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	11	3	3	4	4	4	4	6	2	6	5	32
Cap, veh/h	85	597	84	44	460	155	131	1065	67	170	1207	27
Arrive On Green	0.05	0.38	0.38	0.03	0.35	0.35	0.07	0.32	0.32	0.10	0.35	0.35
Sat Flow, veh/h	1654	1591	224	1753	1317	444	1753	3286	208	1725	3468	78
Grp Volume(v), veh/h	75	0	713	34	0	686	112	586	605	165	555	579
Grp Sat Flow(s),veh/h/ln	1654	0	1815	1753	0	1761	1753	1721	1774	1725	1735	1812
Q Serve(g_s), s	6.8	0.0	56.3	2.9	0.0	52.4	9.5	48.6	48.6	14.3	46.0	46.0
Cycle Q Clear(g_c), s	6.8	0.0	56.3	2.9	0.0	52.4	9.5	48.6	48.6	14.3	46.0	46.0
Prop In Lane	1.00		0.12	1.00		0.25	1.00		0.12	1.00		0.04
Lane Grp Cap(c), veh/h	85	0	681	44	0	615	131	557	575	170	604	631
V/C Ratio(X)	0.88	0.00	1.05	0.77	0.00	1.12	0.86	1.05	1.05	0.97	0.92	0.92
Avail Cap(c_a), veh/h	85	0	681	60	0	615	131	557	575	170	604	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.74	0.74	0.74	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.7	0.0	46.8	72.7	0.0	48.8	68.6	50.7	50.7	67.4	46.9	46.9
Incr Delay (d2), s/veh	60.7	0.0	47.2	33.3	0.0	72.2	30.9	47.1	47.0	59.7	21.3	20.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.7	0.0	44.9	3.1	0.0	48.2	8.5	36.0	37.0	13.9	30.4	31.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	131.4	0.0	94.0	106.0	0.0	121.0	99.5	97.8	97.7	127.0	68.2	67.5
LnGrp LOS	F	A	F	F	A	F	F	F	F	F	E	E
Approach Vol, veh/h		788			720			1303			1299	
Approach Delay, s/veh		97.6			120.3			97.9			75.4	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	59.5	12.2	59.8	22.1	55.9	8.3	63.7
Change Period (Y+Rc), s	7.3	7.3	4.5	7.4	7.3	7.3	4.5	7.4
Max Green Setting (Gmax), s	11.2	52.2	7.7	52.4	14.8	48.6	5.1	55.0
Max Q Clear Time (g_c+I1), s	11.5	48.0	8.8	54.4	16.3	50.6	4.9	58.3
Green Ext Time (p_c), s	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	94.7
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	10

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations	↰	↱	↰	↑↑	↑↑	↱
Traffic Vol, veh/h	116	167	170	1207	1209	177
Future Vol, veh/h	116	167	170	1207	1209	177
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	450	-	-	250
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	1	1	8	6	2
Mvmt Flow	120	172	175	1244	1246	182

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2218	623	1428	0	-	0
Stage 1	1246	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Critical Hdwy	6.8	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	~ 38	431	477	-	-	-
Stage 1	238	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 24	431	477	-	-	-
Mov Cap-2 Maneuver	~ 104	-	-	-	-	-
Stage 1	151	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	97.7	2.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	477	-	104	431	-	-
HCM Lane V/C Ratio	0.367	-	1.15	0.399	-	-
HCM Control Delay (s)	16.9	-	211.4	18.8	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	1.7	-	7.7	1.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.9

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	97	160	1220	67	67	1287
Future Vol, veh/h	97	160	1220	67	67	1287
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	250	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	6	4	0	7	7
Mvmt Flow	101	167	1271	70	70	1341

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2082	636	0	0	1341	0
Stage 1	1271	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Critical Hdwy	6.8	7.02	-	-	4.24	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.36	-	-	2.27	-
Pot Cap-1 Maneuver	~ 47	411	-	-	484	-
Stage 1	231	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 40	411	-	-	484	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	231	-	-	-	-	-
Stage 2	345	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	40.2	0	0.7
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	144	411	484	-
HCM Lane V/C Ratio	-	-	0.702	0.406	0.144	-
HCM Control Delay (s)	-	-	74.2	19.6	13.7	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	4	1.9	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	157	7	1132	275	9	1246
Future Vol, veh/h	157	7	1132	275	9	1246
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	300	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	4	17	7	7	14	5
Mvmt Flow	164	7	1179	286	9	1298

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1989	733	0	0	1465	0
Stage 1	1322	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Critical Hdwy	6.88	7.24	-	-	4.38	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.47	-	-	2.34	-
Pot Cap-1 Maneuver	~ 52	331	-	-	401	-
Stage 1	210	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 51	331	-	-	401	-
Mov Cap-2 Maneuver	~ 151	-	-	-	-	-
Stage 1	210	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	161	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	155	401	-
HCM Lane V/C Ratio	-	-	1.102	0.023	-
HCM Control Delay (s)	-	-	161	14.2	-
HCM Lane LOS	-	-	F	B	-
HCM 95th %tile Q(veh)	-	-	9.1	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	65	27	1110	41	20	1196
Future Volume (veh/h)	65	27	1110	41	20	1196
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1618	1366	1796	1500	1070	1841
Adj Flow Rate, veh/h	68	28	1156	43	21	1246
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	19	36	7	27	56	4
Cap, veh/h	124	93	2119	789	24	2464
Arrive On Green	0.08	0.08	0.62	0.62	0.02	0.70
Sat Flow, veh/h	1541	1158	3503	1271	1019	3589
Grp Volume(v), veh/h	68	28	1156	43	21	1246
Grp Sat Flow(s),veh/h/ln	1541	1158	1706	1271	1019	1749
Q Serve(g_s), s	3.2	1.7	14.6	1.0	1.5	12.3
Cycle Q Clear(g_c), s	3.2	1.7	14.6	1.0	1.5	12.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	124	93	2119	789	24	2464
V/C Ratio(X)	0.55	0.30	0.55	0.05	0.87	0.51
Avail Cap(c_a), veh/h	214	161	2119	789	88	2464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.66	0.66
Uniform Delay (d), s/veh	33.2	32.5	8.1	5.6	36.5	5.1
Incr Delay (d2), s/veh	3.7	1.8	1.0	0.1	42.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	0.9	7.4	0.4	1.2	4.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.9	34.2	9.2	5.7	78.5	5.6
LnGrp LOS	D	C	A	A	E	A
Approach Vol, veh/h	96		1199			1267
Approach Delay, s/veh	36.1		9.0			6.8
Approach LOS	D		A			A

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	6.3	54.1	14.7	60.3
Change Period (Y+Rc), s	4.5	* 7.5	* 8.6	* 7.5
Max Green Setting (Gmax), s	6.5	* 38	* 10	* 49
Max Q Clear Time (g_c+I1), s	3.5	16.6	5.2	14.3
Green Ext Time (p_c), s	0.0	10.9	0.1	15.1

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	1229	237	99	1187	475	321	832	142	459	705	369
Future Volume (veh/h)	245	1229	237	99	1187	475	321	832	142	459	705	369
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1826	1722	1559	1826	1752	1811	1811	1737	1826	1826	1856
Adj Flow Rate, veh/h	250	1254	242	101	1211	485	328	849	145	468	719	377
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	7	5	12	23	5	10	6	6	11	5	5	3
Cap, veh/h	235	1217	672	95	1193	696	368	778	133	421	969	550
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.22	0.53	0.53	0.12	0.28	0.28
Sat Flow, veh/h	3319	3469	1459	1485	3469	1485	3346	2939	502	3374	3469	1572
Grp Volume(v), veh/h	250	1254	242	101	1211	485	328	497	497	468	719	377
Grp Sat Flow(s),veh/h/ln	1659	1735	1459	1485	1735	1485	1673	1721	1721	1687	1735	1572
Q Serve(g_s), s	10.6	52.6	16.1	9.6	51.6	38.7	14.3	39.7	39.7	18.7	28.3	30.7
Cycle Q Clear(g_c), s	10.6	52.6	16.1	9.6	51.6	38.7	14.3	39.7	39.7	18.7	28.3	30.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	235	1217	672	95	1193	696	368	455	455	421	969	550
V/C Ratio(X)	1.07	1.03	0.36	1.06	1.01	0.70	0.89	1.09	1.09	1.11	0.74	0.69
Avail Cap(c_a), veh/h	235	1217	672	95	1193	696	408	455	455	421	969	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	0.23	0.23	0.23
Uniform Delay (d), s/veh	69.7	48.7	26.1	70.2	49.2	31.4	57.6	35.3	35.3	65.7	49.1	41.7
Incr Delay (d2), s/veh	77.3	34.0	1.5	110.3	29.8	5.7	17.5	66.3	66.3	59.1	1.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.5	37.2	9.7	10.9	35.3	20.7	9.9	28.8	28.9	14.8	14.9	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	147.0	82.7	27.6	180.5	79.0	37.2	75.1	101.6	101.6	124.7	50.4	43.3
LnGrp LOS	F	F	C	F	F	D	E	F	F	F	D	D
Approach Vol, veh/h		1746			1797			1322			1564	
Approach Delay, s/veh		84.3			73.4			95.0			70.9	
Approach LOS		F			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.8	49.2	18.0	59.0	26.0	47.0	17.0	60.0
Change Period (Y+Rc), s	7.3	7.3	7.4	7.4	7.3	7.3	7.4	7.4
Max Green Setting (Gmax), s	18.3	40.1	10.6	51.6	18.7	39.7	9.6	52.6
Max Q Clear Time (g_c+I1), s	16.3	32.7	12.6	53.6	20.7	41.7	11.6	54.6
Green Ext Time (p_c), s	0.2	4.3	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	80.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	10	114	60	15	104	97	1486	36	50	1311	47
Future Volume (veh/h)	79	10	114	60	15	104	97	1486	36	50	1311	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1663	1707	1737	1781	1411	1811	1441	1841	1544	1856	1856	1856
Adj Flow Rate, veh/h	81	10	116	61	15	106	99	1516	37	51	1338	48
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	16	13	11	8	33	6	31	4	24	3	3	3
Cap, veh/h	100	27	310	99	15	70	113	1550	38	77	1407	50
Arrive On Green	0.06	0.23	0.23	0.11	0.11	0.11	0.11	0.59	0.59	0.04	0.41	0.41
Sat Flow, veh/h	1584	116	1348	330	144	661	1372	3489	85	1767	3472	124
Grp Volume(v), veh/h	81	0	126	182	0	0	99	759	794	51	679	707
Grp Sat Flow(s),veh/h/ln	1584	0	1465	1134	0	0	1372	1749	1825	1767	1763	1833
Q Serve(g_s), s	3.8	0.0	5.4	7.1	0.0	0.0	5.3	31.5	31.7	2.1	27.9	28.0
Cycle Q Clear(g_c), s	3.8	0.0	5.4	8.0	0.0	0.0	5.3	31.5	31.7	2.1	27.9	28.0
Prop In Lane	1.00		0.92	0.34		0.58	1.00		0.05	1.00		0.07
Lane Grp Cap(c), veh/h	100	0	336	185	0	0	113	777	811	77	715	743
V/C Ratio(X)	0.81	0.00	0.37	0.98	0.00	0.00	0.87	0.98	0.98	0.66	0.95	0.95
Avail Cap(c_a), veh/h	108	0	344	185	0	0	113	777	811	120	715	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.16	0.16	0.16	0.51	0.51	0.51
Uniform Delay (d), s/veh	34.7	0.0	24.4	34.8	0.0	0.0	33.0	15.0	15.0	35.3	21.6	21.6
Incr Delay (d2), s/veh	34.2	0.0	1.0	61.2	0.0	0.0	11.6	8.5	8.7	4.9	14.7	14.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.0	3.4	10.5	0.0	0.0	2.9	10.6	11.1	1.7	16.8	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.9	0.0	25.3	96.0	0.0	0.0	44.6	23.5	23.7	40.2	36.3	36.2
LnGrp LOS	E	A	C	F	A	A	D	C	C	D	D	D
Approach Vol, veh/h		207			182			1652			1437	
Approach Delay, s/veh		42.4			96.0			24.8			36.4	
Approach LOS		D			F			C			D	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	37.2	9.2	15.2	10.1	40.1		24.4				
Change Period (Y+Rc), s	6.8	6.8	4.5	* 7.2	6.8	6.8		* 7.2				
Max Green Setting (Gmax), s	6.2	30.4	5.1	* 8	5.1	31.5		* 18				
Max Q Clear Time (g_c+I1), s	7.3	30.0	5.8	10.0	4.1	33.7		7.4				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.0	0.0	0.0		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	180	101	81	160	351	89	1329	126	284	1022	158
Future Volume (veh/h)	222	180	101	81	160	351	89	1329	126	284	1022	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1796	1781	1811	1870	1856	1885	1856	1841	1870	1856	1826
Adj Flow Rate, veh/h	234	189	106	85	168	369	94	1399	133	299	1076	166
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	7	8	6	2	3	1	3	4	2	3	5
Cap, veh/h	209	307	172	104	399	457	108	1302	123	267	1278	197
Arrive On Green	0.12	0.28	0.28	0.06	0.21	0.21	0.12	0.80	0.80	0.08	0.42	0.42
Sat Flow, veh/h	1781	1081	606	1725	1870	1572	1795	3255	308	3456	3062	471
Grp Volume(v), veh/h	234	0	295	85	168	369	94	754	778	299	619	623
Grp Sat Flow(s),veh/h/ln	1781	0	1687	1725	1870	1572	1795	1763	1800	1728	1763	1771
Q Serve(g_s), s	17.6	0.0	22.8	7.3	11.6	32.0	7.7	60.0	60.0	11.6	47.2	47.5
Cycle Q Clear(g_c), s	17.6	0.0	22.8	7.3	11.6	32.0	7.7	60.0	60.0	11.6	47.2	47.5
Prop In Lane	1.00		0.36	1.00		1.00	1.00		0.17	1.00		0.27
Lane Grp Cap(c), veh/h	209	0	479	104	399	457	108	705	720	267	736	739
V/C Ratio(X)	1.12	0.00	0.62	0.81	0.42	0.81	0.87	1.07	1.08	1.12	0.84	0.84
Avail Cap(c_a), veh/h	209	0	479	140	399	457	108	705	720	267	736	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.35	0.35	0.35	0.31	0.31	0.31
Uniform Delay (d), s/veh	66.2	0.0	46.6	69.6	51.0	49.3	65.4	15.0	15.0	69.2	39.2	39.3
Incr Delay (d2), s/veh	98.1	0.0	2.8	22.8	1.0	10.8	22.9	41.6	45.5	68.8	3.8	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.6	0.0	15.0	6.9	9.4	20.1	5.9	18.5	19.9	10.6	24.7	24.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	164.3	0.0	49.3	92.4	52.0	60.1	88.3	56.6	60.5	138.0	43.0	43.2
LnGrp LOS	F	A	D	F	D	E	F	F	F	F	D	D
Approach Vol, veh/h		529			622			1626			1541	
Approach Delay, s/veh		100.2			62.3			60.3			61.5	
Approach LOS		F			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.4	70.0	24.2	39.4	19.0	67.4	13.6	50.0
Change Period (Y+Rc), s	7.4	7.4	6.6	7.4	7.4	7.4	4.5	7.4
Max Green Setting (Gmax), s	9.0	62.6	17.6	32.0	11.6	60.0	12.2	39.5
Max Q Clear Time (g_c+I1), s	19.7	49.5	19.6	34.0	13.6	62.0	9.3	24.8
Green Ext Time (p_c), s	0.0	8.1	0.0	0.0	0.0	0.0	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	65.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	2	63	4	1	7	72	1748	9	7	1415	257
Future Volume (veh/h)	252	2	63	4	1	7	72	1748	9	7	1415	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1411	1900	1900	1870	1885	1900	1900	1856	1885
Adj Flow Rate, veh/h	271	2	68	4	1	8	77	1880	10	8	1522	276
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	33	0	0	2	1	0	0	3	1
Cap, veh/h	294	12	400	53	21	55	96	2109	11	18	1594	283
Arrive On Green	0.16	0.25	0.25	0.05	0.05	0.05	0.05	0.58	0.58	0.02	1.00	1.00
Sat Flow, veh/h	1810	46	1571	246	377	997	1781	3653	19	1810	2992	531
Grp Volume(v), veh/h	271	0	70	13	0	0	77	921	969	8	883	915
Grp Sat Flow(s),veh/h/ln	1810	0	1617	1621	0	0	1781	1791	1882	1810	1763	1760
Q Serve(g_s), s	17.7	0.0	4.0	0.0	0.0	0.0	5.1	53.7	53.9	0.5	0.0	0.0
Cycle Q Clear(g_c), s	17.7	0.0	4.0	0.9	0.0	0.0	5.1	53.7	53.9	0.5	0.0	0.0
Prop In Lane	1.00		0.97	0.31		0.62	1.00		0.01	1.00		0.30
Lane Grp Cap(c), veh/h	294	0	412	128	0	0	96	1034	1086	18	939	938
V/C Ratio(X)	0.92	0.00	0.17	0.10	0.00	0.00	0.80	0.89	0.89	0.45	0.94	0.98
Avail Cap(c_a), veh/h	294	0	460	173	0	0	96	1034	1086	77	939	938
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.09	0.09	0.09	0.41	0.41	0.41
Uniform Delay (d), s/veh	49.5	0.0	34.8	54.0	0.0	0.0	56.1	22.1	22.1	58.5	0.0	0.0
Incr Delay (d2), s/veh	32.7	0.0	0.3	0.5	0.0	0.0	4.3	1.2	1.2	7.3	9.2	14.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.9	0.0	2.9	0.7	0.0	0.0	3.1	22.6	23.7	0.5	4.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.2	0.0	35.1	54.5	0.0	0.0	60.4	23.3	23.3	65.8	9.2	14.0
LnGrp LOS	F	A	D	D	A	A	E	C	C	E	A	B
Approach Vol, veh/h		341			13			1967			1806	
Approach Delay, s/veh		72.6			54.5			24.8			11.8	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	8
Phs Duration (G+Y+Rc), s	11.0	70.9	24.0	14.1	5.7	76.3	38.1
Change Period (Y+Rc), s	4.5	* 7	4.5	7.5	4.5	* 7	7.5
Max Green Setting (Gmax), s	6.5	* 60	19.5	10.1	5.1	* 62	34.1
Max Q Clear Time (g_c+I1), s	7.1	2.0	19.7	2.9	2.5	55.9	6.0
Green Ext Time (p_c), s	0.0	33.4	0.0	0.0	0.0	5.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	78	81	198	144	57	51	198	1570	150	67	1324	77
Future Volume (veh/h)	78	81	198	144	57	51	198	1570	150	67	1324	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1870	1900	1841	1900	1841	1856	1870	1900	1870	1900
Adj Flow Rate, veh/h	80	83	202	147	58	52	202	1602	153	68	1351	79
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	2	0	4	0	4	3	2	0	2	0
Cap, veh/h	102	250	209	158	146	131	230	1714	162	87	1515	88
Arrive On Green	0.06	0.13	0.13	0.09	0.16	0.16	0.13	0.53	0.53	0.05	0.44	0.44
Sat Flow, veh/h	1810	1900	1585	1810	894	802	1753	3255	308	1810	3412	199
Grp Volume(v), veh/h	80	83	202	147	0	110	202	860	895	68	702	728
Grp Sat Flow(s),veh/h/ln	1810	1900	1585	1810	0	1696	1753	1763	1800	1810	1777	1835
Q Serve(g_s), s	5.2	4.8	15.2	9.7	0.0	7.0	13.6	54.1	56.2	4.5	43.6	43.9
Cycle Q Clear(g_c), s	5.2	4.8	15.2	9.7	0.0	7.0	13.6	54.1	56.2	4.5	43.6	43.9
Prop In Lane	1.00		1.00	1.00		0.47	1.00		0.17	1.00		0.11
Lane Grp Cap(c), veh/h	102	250	209	158	0	276	230	928	948	87	789	815
V/C Ratio(X)	0.78	0.33	0.97	0.93	0.00	0.40	0.88	0.93	0.94	0.78	0.89	0.89
Avail Cap(c_a), veh/h	158	250	209	158	0	276	270	928	948	113	789	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.49	0.49	0.49	0.12	0.12	0.12
Uniform Delay (d), s/veh	55.9	47.3	51.8	54.4	0.0	45.0	51.2	26.2	26.7	56.5	30.7	30.7
Incr Delay (d2), s/veh	12.7	0.8	52.9	50.8	0.0	0.9	13.6	9.3	11.0	3.1	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	4.1	14.0	10.8	0.0	5.4	9.8	29.2	31.2	2.9	20.8	21.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	48.1	104.8	105.2	0.0	45.9	64.8	35.5	37.7	59.6	32.8	32.9
LnGrp LOS	E	D	F	F	A	D	E	D	D	E	C	C
Approach Vol, veh/h		365			257			1957			1498	
Approach Delay, s/veh		84.0			79.8			39.6			34.0	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	59.8	11.3	26.7	12.3	69.7	15.0	23.0
Change Period (Y+Rc), s	6.5	6.5	4.5	* 7.2	6.5	6.5	4.5	* 7.2
Max Green Setting (Gmax), s	18.5	50.5	10.5	* 16	7.5	61.5	10.5	* 16
Max Q Clear Time (g_c+I1), s	15.6	45.9	7.2	9.0	6.5	58.2	11.7	17.2
Green Ext Time (p_c), s	0.2	3.3	0.0	0.2	0.0	2.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	821	594	130	770	295	580	983	85	324	818	158
Future Volume (veh/h)	249	821	594	130	770	295	580	983	85	324	818	158
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1841	1900	1870	1885	1870	1870	1885	1885	1856	1856
Adj Flow Rate, veh/h	257	846	612	134	794	304	598	1013	88	334	843	163
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	4	4	0	2	1	2	2	1	1	3	3
Cap, veh/h	226	930	646	137	767	511	513	1001	87	363	761	147
Arrive On Green	0.13	0.27	0.27	0.08	0.22	0.22	0.15	0.30	0.30	0.03	0.09	0.09
Sat Flow, veh/h	1795	3497	1560	1810	3554	1598	3456	3308	287	3483	2946	570
Grp Volume(v), veh/h	257	846	612	134	794	304	598	544	557	334	504	502
Grp Sat Flow(s),veh/h/ln	1795	1749	1560	1810	1777	1598	1728	1777	1819	1742	1763	1753
Q Serve(g_s), s	15.1	28.1	31.9	8.9	25.9	19.2	17.8	36.3	36.3	11.5	31.0	31.0
Cycle Q Clear(g_c), s	15.1	28.1	31.9	8.9	25.9	19.2	17.8	36.3	36.3	11.5	31.0	31.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.32
Lane Grp Cap(c), veh/h	226	930	646	137	767	511	513	537	550	363	455	453
V/C Ratio(X)	1.14	0.91	0.95	0.98	1.04	0.59	1.17	1.01	1.01	0.92	1.11	1.11
Avail Cap(c_a), veh/h	226	930	646	137	767	511	513	537	550	363	455	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.35	0.35	0.35	0.44	0.44	0.44
Uniform Delay (d), s/veh	52.5	42.7	33.9	55.3	47.0	34.3	51.1	41.8	41.9	57.4	54.9	54.9
Incr Delay (d2), s/veh	101.9	14.4	24.6	69.4	41.9	5.0	82.8	26.0	25.8	15.5	62.3	62.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.0	19.6	27.9	10.8	22.4	12.5	18.4	23.9	24.4	8.7	29.5	29.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	154.4	57.1	58.5	124.8	89.0	39.3	133.9	67.8	67.7	72.9	117.2	117.3
LnGrp LOS	F	E	E	F	F	D	F	F	F	E	F	F
Approach Vol, veh/h		1715			1232			1699			1340	
Approach Delay, s/veh		72.2			80.6			91.0			106.2	
Approach LOS		E			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	33.8	19.7	43.5	17.0	39.8	25.0	38.2
Change Period (Y+Rc), s	7.9	7.9	7.2	7.2	7.9	7.9	7.2	7.2
Max Green Setting (Gmax), s	15.1	25.9	12.5	36.3	9.1	31.9	17.8	31.0
Max Q Clear Time (g_c+I1), s	17.1	27.9	13.5	38.3	10.9	33.9	19.8	33.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	86.9
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	7	126	1	7	0	166	1339	10	9	1228	137
Future Volume (veh/h)	178	7	126	1	7	0	166	1339	10	9	1228	137
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1900	1856	1900	1900	1900	1885	1885	1737	1900	1856	1900
Adj Flow Rate, veh/h	184	7	130	1	7	0	171	1380	10	9	1266	141
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	0	3	0	0	0	1	1	11	0	3	0
Cap, veh/h	247	8	141	63	390	0	196	2195	16	20	1612	179
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.00	0.22	1.00	1.00	0.02	1.00	1.00
Sat Flow, veh/h	867	33	612	126	1694	0	1795	3645	26	1810	3199	355
Grp Volume(v), veh/h	321	0	0	8	0	0	171	678	712	9	695	712
Grp Sat Flow(s),veh/h/ln	1512	0	0	1820	0	0	1795	1791	1880	1810	1763	1792
Q Serve(g_s), s	24.5	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	24.9	0.0	0.0	0.4	0.0	0.0	11.0	0.0	0.0	0.6	0.0	0.0
Prop In Lane	0.57		0.40	0.12		0.00	1.00		0.01	1.00		0.20
Lane Grp Cap(c), veh/h	396	0	0	453	0	0	196	1078	1132	20	888	902
V/C Ratio(X)	0.81	0.00	0.00	0.02	0.00	0.00	0.87	0.63	0.63	0.46	0.78	0.79
Avail Cap(c_a), veh/h	445	0	0	512	0	0	236	1078	1132	78	888	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.22	0.22	0.22	0.74	0.74	0.74
Uniform Delay (d), s/veh	45.1	0.0	0.0	35.7	0.0	0.0	46.1	0.0	0.0	58.4	0.0	0.0
Incr Delay (d2), s/veh	9.9	0.0	0.0	0.0	0.0	0.0	7.0	0.6	0.6	12.0	5.1	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.5	0.0	0.0	0.3	0.0	0.0	6.3	0.3	0.3	0.6	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	0.0	0.0	35.7	0.0	0.0	53.1	0.6	0.6	70.3	5.1	5.2
LnGrp LOS	D	A	A	D	A	A	D	A	A	E	A	A
Approach Vol, veh/h		321			8			1561			1416	
Approach Delay, s/veh		54.9			35.7			6.4			5.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.3	66.6		34.1	7.5	78.5		34.1
Change Period (Y+Rc), s	6.2	6.2		6.4	6.2	6.2		6.4
Max Green Setting (Gmax), s	15.8	53.8		31.6	5.2	64.4		31.6
Max Q Clear Time (g_c+I1), s	13.0	2.0		2.4	2.6	2.0		26.9
Green Ext Time (p_c), s	0.1	12.6		0.0	0.0	12.3		0.8

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	23	40	13	21	27	51	1397	31	27	1282	56
Future Volume (veh/h)	59	23	40	13	21	27	51	1397	31	27	1282	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1900	1767	1900	1841	1796	1885	1900	1900	1870	1870
Adj Flow Rate, veh/h	60	23	41	13	21	28	52	1426	32	28	1308	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	0	0	9	0	4	7	1	0	0	2	2
Cap, veh/h	164	45	60	96	83	88	83	1967	44	56	1845	80
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.05	0.55	0.55	0.03	0.53	0.53
Sat Flow, veh/h	674	407	534	210	744	785	1711	3581	80	1810	3469	151
Grp Volume(v), veh/h	124	0	0	62	0	0	52	712	746	28	669	696
Grp Sat Flow(s),veh/h/ln	1616	0	0	1739	0	0	1711	1791	1871	1810	1777	1843
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	1.8	17.9	17.9	0.9	17.0	17.0
Cycle Q Clear(g_c), s	4.3	0.0	0.0	1.9	0.0	0.0	1.8	17.9	17.9	0.9	17.0	17.0
Prop In Lane	0.48		0.33	0.21		0.45	1.00		0.04	1.00		0.08
Lane Grp Cap(c), veh/h	269	0	0	266	0	0	83	984	1027	56	945	980
V/C Ratio(X)	0.46	0.00	0.00	0.23	0.00	0.00	0.63	0.72	0.73	0.50	0.71	0.71
Avail Cap(c_a), veh/h	292	0	0	291	0	0	143	984	1027	151	945	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	0.0	0.0	24.6	0.0	0.0	28.0	10.1	10.1	28.6	10.5	10.6
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.4	0.0	0.0	5.9	3.6	3.4	6.7	4.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	0.0	0.0	1.4	0.0	0.0	1.4	9.1	9.4	0.8	9.7	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	0.0	25.0	0.0	0.0	33.9	13.7	13.6	35.3	15.0	14.9
LnGrp LOS	C	A	A	C	A	A	C	B	B	D	B	B
Approach Vol, veh/h		124			62			1510			1393	
Approach Delay, s/veh		26.7			25.0			14.3			15.4	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	38.0		13.1	7.9	39.1		13.1				
Change Period (Y+Rc), s	6.0	6.1		6.4	6.0	6.1		6.4				
Max Green Setting (Gmax), s	5.0	28.9		7.6	5.0	28.9		7.6				
Max Q Clear Time (g_c+I1), s	3.8	19.0		3.9	2.9	19.9		6.3				
Green Ext Time (p_c), s	0.0	7.0		0.1	0.0	6.8		0.1				

Intersection Summary			
HCM 6th Ctrl Delay			15.5
HCM 6th LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	83	129	80	64	81	108	1304	67	74	1076	59
Future Volume (veh/h)	106	83	129	80	64	81	108	1304	67	74	1076	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1885	1752	1870	1885	1885	1885	1870	1826	1870	1870
Adj Flow Rate, veh/h	108	85	132	82	65	83	110	1331	68	76	1098	60
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	1	10	2	1	1	1	2	5	2	2
Cap, veh/h	112	103	159	92	109	139	118	1741	89	83	1657	91
Arrive On Green	0.06	0.15	0.15	0.05	0.15	0.15	0.07	0.50	0.50	0.05	0.48	0.48
Sat Flow, veh/h	1810	671	1042	1668	746	953	1795	3467	177	1739	3426	187
Grp Volume(v), veh/h	108	0	217	82	0	148	110	686	713	76	569	589
Grp Sat Flow(s),veh/h/ln	1810	0	1712	1668	0	1699	1795	1791	1853	1739	1777	1837
Q Serve(g_s), s	7.1	0.0	14.7	5.9	0.0	9.8	7.3	37.1	37.3	5.2	29.2	29.2
Cycle Q Clear(g_c), s	7.1	0.0	14.7	5.9	0.0	9.8	7.3	37.1	37.3	5.2	29.2	29.2
Prop In Lane	1.00		0.61	1.00		0.56	1.00		0.10	1.00		0.10
Lane Grp Cap(c), veh/h	112	0	262	92	0	248	118	899	931	83	860	888
V/C Ratio(X)	0.97	0.00	0.83	0.89	0.00	0.60	0.93	0.76	0.77	0.92	0.66	0.66
Avail Cap(c_a), veh/h	112	0	512	92	0	497	118	899	931	83	860	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	0.0	49.3	56.4	0.0	47.9	55.8	24.1	24.2	56.9	23.5	23.5
Incr Delay (d2), s/veh	74.8	0.0	9.2	60.6	0.0	3.2	61.4	6.1	6.0	72.7	4.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.4	0.0	11.2	7.2	0.0	7.7	9.0	22.6	23.3	7.0	18.2	18.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	130.9	0.0	58.5	116.9	0.0	51.1	117.2	30.2	30.2	129.6	27.5	27.4
LnGrp LOS	F	A	E	F	A	D	F	C	C	F	C	C
Approach Vol, veh/h		325			230			1509			1234	
Approach Delay, s/veh		82.5			74.6			36.5			33.8	
Approach LOS		F			E			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	64.9	13.8	26.5	12.6	67.1	13.0	27.3				
Change Period (Y+Rc), s	6.9	6.9	6.4	* 8.9	6.9	6.9	6.4	* 8.9				
Max Green Setting (Gmax), s	7.9	40.5	7.4	* 35	5.7	42.7	6.6	* 36				
Max Q Clear Time (g_c+I1), s	9.1	31.2	9.1	11.8	7.2	39.3	7.9	16.7				
Green Ext Time (p_c), s	0.0	5.8	0.0	1.1	0.0	2.7	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			42.7									
HCM 6th LOS			D									

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	308	2298	357	336	1631	225	408	618	464	262	567	282
Future Volume (veh/h)	308	2298	357	336	1631	225	408	618	464	262	567	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1885	1885	1870	1885	1885	1870	1885	1870	1900
Adj Flow Rate, veh/h	318	2369	368	346	1681	232	421	637	478	270	585	291
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	3	1	1	2	1	1	2	1	2	0
Cap, veh/h	353	2304	710	376	2352	724	435	744	500	296	596	434
Arrive On Green	0.10	0.45	0.45	0.11	0.46	0.46	0.12	0.21	0.21	0.09	0.17	0.17
Sat Flow, veh/h	3456	5106	1572	3483	5147	1585	3483	3582	1585	3483	3554	1610
Grp Volume(v), veh/h	318	2369	368	346	1681	232	421	637	478	270	585	291
Grp Sat Flow(s),veh/h/ln	1728	1702	1572	1742	1716	1585	1742	1791	1585	1742	1777	1610
Q Serve(g_s), s	20.0	99.3	36.9	21.6	57.9	20.5	26.5	37.7	45.7	16.9	36.1	35.4
Cycle Q Clear(g_c), s	20.0	99.3	36.9	21.6	57.9	20.5	26.5	37.7	45.7	16.9	36.1	35.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	353	2304	710	376	2352	724	435	744	500	296	596	434
V/C Ratio(X)	0.90	1.03	0.52	0.92	0.71	0.32	0.97	0.86	0.96	0.91	0.98	0.67
Avail Cap(c_a), veh/h	412	2304	710	383	2352	724	435	744	500	296	596	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	97.7	60.4	43.2	97.2	48.2	38.0	95.8	84.0	73.8	99.8	91.2	71.6
Incr Delay (d2), s/veh	20.6	26.4	2.7	27.0	1.9	1.2	34.5	9.7	29.3	30.6	32.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	15.2	60.3	21.3	16.7	33.3	13.0	20.2	25.4	39.3	13.8	26.4	21.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	118.3	86.7	45.9	124.2	50.0	39.2	130.3	93.7	103.0	130.5	123.3	75.5
LnGrp LOS	F	F	D	F	D	D	F	F	F	F	F	E
Approach Vol, veh/h		3055			2259			1536			1146	
Approach Delay, s/veh		85.1			60.3			106.6			112.8	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.6	108.8	26.8	53.8	31.9	107.5	35.6	45.0
Change Period (Y+Rc), s	8.2	8.2	* 8.1	* 8.1	8.2	8.2	* 8.1	* 8.1
Max Green Setting (Gmax), s	26.2	96.8	* 19	* 46	24.2	98.8	* 28	* 37
Max Q Clear Time (g_c+I1), s	22.0	59.9	18.9	47.7	23.6	101.3	28.5	38.1
Green Ext Time (p_c), s	0.4	23.7	0.0	0.0	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	86.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1584	521	284	1099	562	504
Future Volume (veh/h)	1584	521	284	1099	562	504
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1870	1856	1885	1885	1885
Adj Flow Rate, veh/h	1722	566	309	1195	611	548
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	2	3	1	1	1
Cap, veh/h	1578	1008	379	2280	681	489
Arrive On Green	0.44	0.44	0.11	0.64	0.20	0.20
Sat Flow, veh/h	3676	1585	3428	3676	3483	1598
Grp Volume(v), veh/h	1722	566	309	1195	611	548
Grp Sat Flow(s),veh/h/ln	1791	1585	1714	1791	1742	1598
Q Serve(g_s), s	39.6	18.2	7.9	16.4	15.4	17.6
Cycle Q Clear(g_c), s	39.6	18.2	7.9	16.4	15.4	17.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1578	1008	379	2280	681	489
V/C Ratio(X)	1.09	0.56	0.82	0.52	0.90	1.12
Avail Cap(c_a), veh/h	1578	1008	392	2280	681	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	9.3	39.1	8.9	35.3	31.2
Incr Delay (d2), s/veh	51.9	2.3	11.2	0.9	14.7	78.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	36.7	15.0	6.8	8.9	12.0	43.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	77.1	11.5	50.4	9.8	50.0	109.2
LnGrp LOS	F	B	D	A	D	F
Approach Vol, veh/h	2288			1504	1159	
Approach Delay, s/veh	60.9			18.1	78.0	
Approach LOS	E			B	E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		65.0		25.0	17.7	47.3
Change Period (Y+Rc), s		7.7		7.4	7.7	7.7
Max Green Setting (Gmax), s		57.3		17.6	10.3	39.3
Max Q Clear Time (g_c+I1), s		18.4		19.6	9.9	41.6
Green Ext Time (p_c), s		14.9		0.0	0.0	0.0

Intersection Summary			
HCM 6th Ctrl Delay			51.9
HCM 6th LOS			D

Appendix G

Drainage and Utility Impacts

Spot Location	Drainage and Utility Impacts
Selmon Expressway EB Ramps	Possible new drainage modification with the adjustment of edge of travel. No current drainage structures noted, but drainage may need to be re-evaluated when adjusting EOP. No lighting conflicts noted. Traffic and ped signal adjustments.
Selmon Expressway WB Ramps	Possible new drainage with the adjustment of edge of travel. No current drainage structures noted, but drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic and ped signal adjustments.
Adamo Drive	Possible new drainage and modifications (curb flume, SW corner) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic and ped signal adjustments.
Acline Drive	Possible new drainage and modifications (DBI, NE & SE corners, curb inlet NW & NE corner) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP. No lighting conflicts noted. Traffic and ped signal adjustments.
Broadway Avenue	Possible new drainage and modifications (Curb inlet- NW & NE corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic and ped signal adjustments.
10th Avenue	Possible new drainage and modifications (Curb inlets- NW & NE corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic signals would impact overhead power lines on all four corners but sufficient room for ped signals.
Columbus Drive	Possible new drainage and modifications (Curb inlets- NW, 2-NE, SW & SE corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic and ped signal adjustments.
I-4 EB Ramps	Possible new drainage and modifications (Curb inlets- NW, NE & SW corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic and ped signal adjustments.
I-4 WB Ramps	Possible new drainage and modifications (Curb inlets- NW, & 2-NE corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP. No lighting conflicts noted. Traffic and ped signal adjustments.
Melbourne Boulevard/21st Avenue	Possible new drainage and modifications (Curb inlets- NW, NE, SW & SE corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. No lighting conflicts noted. Traffic and ped signal adjustments.
Between Selmon Expressway EB and WB Ramps	Drainage will need to be re-evaluated when adding curb. No lighting conflicts noted.
26th Avenue	Mast arms for ped signals would impact overhead power lines on NW, SW, and NE corners. Drainage would be impacted on NW & SW corners (cross drains), NE corner (DBI), and SE corner (drainage flume).
32nd Avenue	Cross drain, both sides, DBI- SE corner, lighting adjustments.
Dr. Martin Luther King Jr Boulevard	DBI in northside median nose.
Chelsea Street	Mast arms for ped signals would impact overhead power lines on NW & SW corners, possible Overhead line on SE corner. No apparent drainage impacts.

Spot Location	Drainage and Utility Impacts
Cone Road	Possible new drainage and modifications (DBIs-NE, SW & SE corners, Cross drain on west side) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. Mast arms for ped signals would impact overhead power lines on NW & SW corners. Drainage impacts on NW & SW corners (DBI-1, Cross drain).
Hillsborough Avenue	Possible new drainage and modifications (DBIs-NE & NW corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. Traffic signal adjustments.
Hanna Avenue	Possible new drainage and modifications (DBIs-NE, NW & SE corners, cross drain on west side) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes. Traffic signal adjustments.
Transit stop north of Dr. MLK Jr Boulevard	Possible gas line marker, Lighting/power pole conflicts if adjusting bike lane behind transit shelter. No drainage conflicts noted.
Sligh Avenue	Possible new drainage and modifications (DBIs:2-NE, NW & SE corners as well as south side median, curb inlet on median SB side) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike lanes.
Society Park Boulevard	Mast arms for ped signals would impact overhead power lines on NW & SW corners. Drainage impacts on NW & SW corners (Cross drain).
Pitch Pine Circle	Mast arms for ped signals would impact overhead power lines on NW & SW corners. Drainage impacts on NW & SW corners (Cross drain).
From Hanna Avenue to Sligh Avenue	Possible modification to drainage depending on chicane location.
98th Avenue	Mast arms for ped signals would impact overhead power lines on NE & SE corners as well as fire hydrant on SE corner. NE & SE corners are very space limited. Drainage impacts on SW corner (curb inlet). Gas line marker on NW corner.
Mission Hills Avenue	Traffic signal adjustments.
Serena Drive/Druid Hills Road	Mast arms for ped signals would impact overhead power lines on NE & SE corners as well as fire hydrant on SE corner. NE & SE corners are very space limited. Drainage impacts on NW & SW corners (curb inlets). Gas line marker on NW corner.
Whiteway Drive	Possible new drainage and modifications (DBIs:2-NE, 2-NW, SE & SW corners) with the adjustment of edge of travel. Drainage may need to be re-evaluated when adjusting EOP or adding protected bike intersection. Traffic signal adjustments.
At Graduate Circle Driveway	Mast arms for ped signals would impact overhead power lines on all 4 corners as well as gas line marker on the SE corner. Drainage impacts on all 4 corners (cross drains).