APRIL 2019

COMPLETE STREETS

CORRINE DRIVE

FINAL REPORT & RECOMMENDED DESIGN

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ACKNOWLEDGEMENTS

The Corrine Drive Study and resulting recommendations are the culmination of a two-year planning process. Throughout 2017 and 2018, the study benefited from the involvement of hundreds of people, the technical assistance of more than a dozen professionals, and guidance from senior and elected officials. The recommendations contained in this Draft Plan are derived from several Best Practices documents, including the National Association of City Transportation Officials' Urban Street Design Guide, the Federal Highway Administration's Transportation to Health in Transportation Corridor Planning Framework, and the Urban Land Institute's Healthy Corridors project. MetroPlan Orlando's draft Complete Streets policy informed the entire study process.

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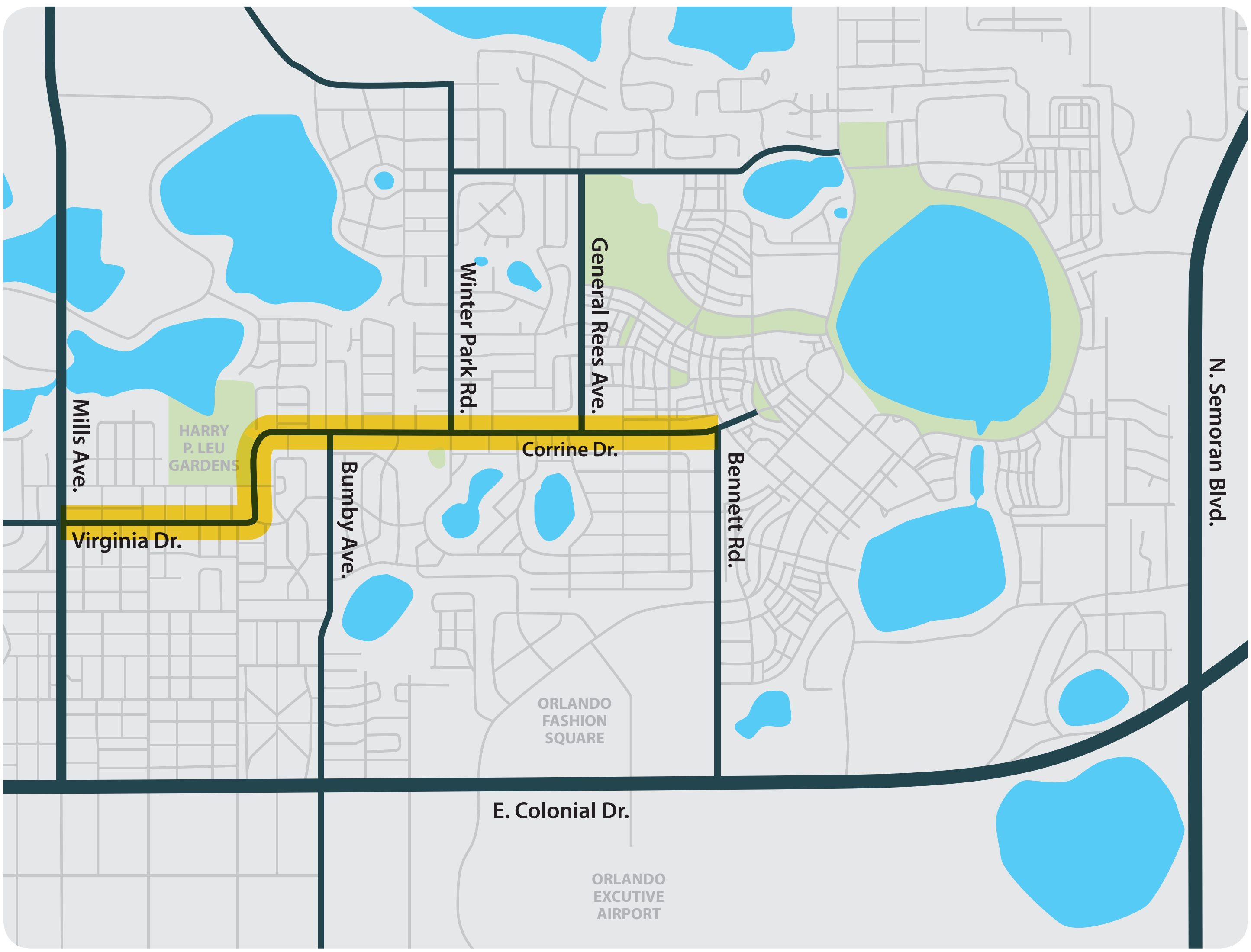
APPROACHING CORRINE DRIVE

Corrine Drive – a 2-mile street lined with homes, restaurants, and shops – connects Northeast Orlando with Winter Park and unincorporated Orange County. Between Mills Avenue and Bennett Road, it serves as a regional connector to downtown Orlando as well as to everything the immediate neighborhoods have to offer.

The area surrounding the street has evolved in the past 50 years – from rural orange groves to established residential enclaves and Main Street business districts in the core of a metropolitan region. This evolution has reshaped virtually everything close to Corrine Drive, except the street itself, which has not changed to meet current needs.

Corrine Drive is surrounded by a thriving cluster of residential neighborhoods, retail destinations, and urban parks and trails. Audubon Park is the center, with many shops and restaurants directly on Corrine. Colonialtown North and several smaller neighborhoods are on the western side, moving toward busy U.S. 17/92 (Mills Avenue). Baldwin Park, a planned development on the site of a former military base at the eastern end, encompasses nearly a third of the study area. The City of Winter Park reaches down to the study area's northern border. The majority of students in the study area are zoned for a K-8 school near one of the busiest intersections.

Commuters, shoppers, residents, students, and outdoor enthusiasts all have reasons to travel in the area, in a variety of ways. Corrine Drive is the string that connects it all. But with deteriorating infrastructure, a car-centric design amid a strong community desire for active transportation, and several glaring safety concerns, Corrine Drive is ripe for a makeover.



CORRINE DRIVE STUDY AREA AT A GLANCE

The Corrine Drive study area is a great place to live, work, and play. It's known for an array of unique local businesses, a warm neighborhood atmosphere, and an intense neighborhood pride. Residents of the study area like to stay involved in civic life.

POPULATION

15,730 residents, including 1,759 children ages (5-14), live in the Corrine Drive Complete Streets Study area

STUDY AREA NEIGHBORHOODS

The study area includes 8 neighborhoods identified by the City of Orlando. These are: Audubon Park, Baldwin Park, Colonialtown Center, Colonialtown North, Coytown, Merritt Park, Rose Isle, and Rowena Gardens. In addition, the study area includes portions of unincorporated Orange County and the City of Winter Park.

GEOGRAPHIC AREA

The study area encompasses everything within a mile of the corridor, running from Mills Avenue on the west to Bennett Road on the east. That stretch of corridor is approximately 2 miles long.

RESIDENT DEMOGRAPHICS

Median age: 41 years

Median household income: $67,000

White/Caucasian: 90.2%

Residents who commute via motor vehicle: 84.4%

Residents who work from home: 12.3%

Data source: U.S. Census Bureau American Community Survey (2011-2015)

CORRINE DRIVE STUDY PROCESS

MetroPlan Orlando, the region's long range transportation planning agency, led the Corrine Drive Complete Streets Study and worked closely with three local governments – Orange County, City of Orlando, and City of Winter Park. The study, an independent evaluation of transportation options on Corrine Drive, had three distinct phases. The study goal is to design a street for people of all ages and abilities, whether driving, cycling, walking, or taking transit. This approach to planning is known as creating a Complete Street.

Through the study process, MetroPlan Orlando identified problems and opportunities with the existing road, considered possible solutions that would fit within the current right-of-way, and ultimately developed a recommendation for turning Corrine Drive into a Complete Street. In each study phase, MetroPlan Orlando shaped the work with guidance from local government partners, insight from the Project Visioning Team, extensive public participation, and industry best practices.

The Corrine Drive Complete Streets Study kicked off in January 2017, and the release of this draft plan in the spring of 2019 completes the study. The plan's future steps will be taken over by an implementing partner –a local government.

Here's a review of the study's phases:

Phase 1: Existing Conditions

This portion of the study had a two-part approach. First, MetroPlan Orlando collected data and analyzed Corrine Drive as it is today, identifying technical issues that should be addressed. Second, an opinion survey and a series of small community meetings examined what people want in the study area and their concerns about the road. Phase 1 work took place between January and June 2017, concluding with a public workshop in July 2017 to share the results.

MetroPlan Orlando also has added a health focus to its work in recent years. For the Corrine Drive study, the Federal Highway Administration's Health in Transportation Corridor Planning Framework was a key resource for addressing health issues throughout the study process. A health profile of the study area is found in the appendix.

Phase 2: Development of Six Concepts

In this phase, MetroPlan Orlando led the development of preliminary design concepts after reviewing technical data and community responses from the first phase.No one solution could fully address all the corridor's critical needs, but the study team came up with six ideas for how Corrine could become a Complete Street – three main concepts, each with a variation. Besides the design concepts, seven safety solutions were developed that could be implemented with any design. The safety solutions grew out of specific concerns that came up during Phase 1.

All the concepts and safety solutions were presented on the digital platform Neighborland, where the public could examine them and give feedback. Five pop-up meetings along the corridor offered more chances for people to learn about the concepts. Nearly 1,200 people shared their thoughts through Neighborland. Phase 2 occurred from August 2017 through March 2018.

Phase 3: Refinement of Concept and Release of Draft Plan

The study's final phase used public feedback from Phase 2 in drafting the final plan. MetroPlan Orlando worked with consultants and local government partners to refine the ideas into one recommended concept, which includes elements from three of the Phase 2 concepts. This recommendation also includes five of the seven proposed safety solutions and some features that were included in all six original concepts, such as street trees.

A two-way cycle track in one section of the corridor, which is included in this plan, was not part of any of the six concepts. It is offered as an option for enhancing bicycling connections between the Orlando Urban Trail, Baldwin Park, and Winter Park.

Phase 3 started in April 2018 and will conclude with an outreach period that includes a public meeting and acceptance of Corrine Drive redesign by the relevant local governments.

All reports from the study are available at MetroPlanOrlando.org.

CORRINE DRIVE STUDY PROCESS

Phase 1: SPRING & SUMMER 2017

PURPOSE

To learn about the study area and the people who live, work, and play there. Assess the conditions and listen to people's thoughts about Corrine Drive.

TECHNICAL ACTIVITIES

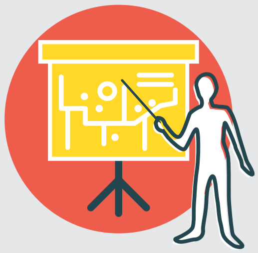
- Use various types of data collection – along with formal and informal observations – to measure such things as speed, crash types, traffic counts, health, utilities, pedestrian and cyclist activity, vehicle turning movement, and air quality
- Summarize current state of the study area in Existing Conditions Report

PUBLIC INVOLVEMENT ACTIVITIES

- Online and paper opinion surveys from more than 1,700 people
- Digital newsletter devoted to Corrine Drive Complete Streets Study
- Small-group discussions with 13 resident and interest groups along Corrine Drive
- Public meeting with 150 people, where preliminary technical and survey data was shared

CORRINE DRIVE STUDY PROCESS

Phase 2: FALL 2017 & SUMMER 2018



PURPOSE

To present possible design concepts, based on technical data and public comments from Phase 1. Get reactions and comments from the public that can be used to refine the ideas into a recommended plan for Corrine Drive.

TECHNICAL ACTIVITIES

- Use technical data analysis and community input from Phase 1, along with industry best practices, to come up with 3 main ideas and 3 variations, offering 6 concepts for Corrine Drive
- Propose possible site-specific safety improvements, based on residents' concerns
- Summarize technical information about the corridor and design concepts

PUBLIC INVOLVEMENT ACTIVITIES

- Feedback on design concepts from more than 1,100 people through Neighborland digital platform
- Promote Neighborland via website, social media, word-of-mouth, and direct mailings
- 5 pop-up meetings in the corridor for people to talk with MetroPlan Orlando staff members about design concepts

CORRINE DRIVE STUDY PROCESS

Phase 3: FALL 2018 & SPRING 2019

PURPOSE

To present a corridor plan recommendation (including cost estimates) to local governments for review and acceptance.

TECHNICAL ACTIVITIES

- Draft a final plan that refines elements of some of the design concepts, using community feedback and best practices as guidance
- Coordinate all aspects of recommended design with local governments, including implementation options and funding

PUBLIC INVOLVEMENT ACTIVITIES

- Public meeting to present the recommended corridor plan and get community input
- Small group presentations with stakeholders, as requested, to answer questions about the study recommendations
- One-month public comment period to gather feedback

CORRINE DRIVE ISN'T COMPLETE NOW

The Area Today

Corrine Drive's complex history has influenced the street's current situation. First appearing on local maps in the 1920s, it was a two-lane road in unincorporated Orange County, bordered by orange groves.

A couple of decades later, Corrine Drive began serving a succession of military facilities on its eastern edge – Army Air Corps, then Air Force, and finally Navy. The road was expanded to six lanes in the early 1960s as military traffic increased. Meanwhile, the cities of Orlando and Winter Park were expanding toward the road as well.

Now, the nearly four-square-mile area around Corrine Drive features comfortable residential streets, local businesses, and various public facilities that include a K-8 public school, a city-owned garden, several parks, and trail connections. Residents of the area generally have more education and higher household incomes than the average in Central Florida, according to the U.S. Census Bureau.

Important Changes on Corrine Drive

1940

Army Air Corps begins operating military base

1960-1964

Corrine Drive is widened to six lanes

1968

Military base becomes Orlando Naval Training Center

1988

Interlocal agreement between Orange County and City of Orlando transfers operations and maintenance to the city while the county retained right-of-way ownership

Corrine Drive undergoes its last reconstruction into its current design

2000-2002

Naval Training Center closes and gives way to the start of Baldwin Park, a new community incorporated into the City of Orlando

2018

Audubon Park K-8 School opens, just south of Corrine Drive and Winter Park Road intersections

CORRINE DRIVE ISN'T COMPLETE NOW

The Road Today

Corrine Drive accommodates a daily average of 23,000 vehicles Monday through Friday, and 11,700-17,600 on weekends. At 80 feet wide, it has five lanes for vehicles, no bicycle infrastructure, and several sidewalk gaps. Current conditions have led to many vehicles traveling well above the 35 mph posted speed limit, which makes walking and cycling along the corridor more difficult. Crashes are fairly common. From 2011 through 2016, 289 crashes occurred, and most were related to speed, such as rear-end collisions and sideswipes.

Though Corrine Drive is home to a thriving shopping and restaurant scene, as well as being a popular travel route, it is not in good physical condition. Asphalt is cracked and worn, with faded markings and a smattering of narrow on-street parking spaces. There are few crosswalks for pedestrians and bicyclists, particularly in the street's busy commercial section. Most of the available crossings fail to provide appropriate ramps for those with mobility limitations, according to the Americans with Disabilities Act (ADA).

In fact, most of Corrine Drive appears inhospitable for anyone who wants to walk, bike, or use transit. Sidewalks are broken and uneven, usually no wider than four feet, and stop suddenly in several places. Where they exist, sidewalks often run directly beside traffic and are cluttered with obstructions, such as utility poles and overgrown bushes, which make them almost impossible to navigate for people using wheelchairs or pushing strollers.

The landscape along the road, for the most part, is unattractive and fails to provide shade or buffers from traffic for pedestrians or cyclists. The overall unsafe feeling of Corrine Drive deters families from walking along it and causes concerns for the safety of children attending the Audubon Park K-8 School. Half of study area households are within a 10-minute walk of Corrine Drive, with 35% located less than a 10-minute walk from Corrine's commercial hubs. During the study, however, residents repeatedly expressed a reluctance to walk in the area, saying the conditions made them feel unsafe.

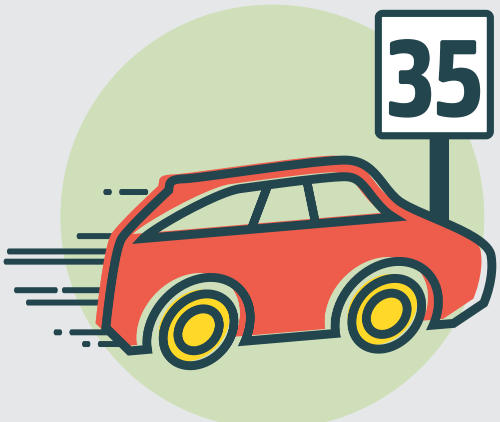
Likewise, although there is a desire for cycling, it is difficult under current conditions on Corrine Drive. Traffic signs are overhung by plants; there is no wayfinding system or set of maps, and there is no bicycling infrastructure. The Cady Way Trail and Orlando Urban Trail have access points to the Corrine Drive area, but they are disconnected because of the absence of bike lanes or other markings.

Complicating matters, Corrine Drive is subject to a confusing network of responsibilities and ownership among jurisdictions. Orange County owns the street's 80 feet of right-of-way, while the City of Orlando is responsible for the street's operations and maintenance. The study area's north edge includes parts of the City of Winter Park. And some side streets are not officially maintained by any governmental entity.

The Corrine Drive Complete Streets Study addressed all these situations in its quest to make the street accessible for all. The resulting recommendations will make the future Corrine Drive into something very different from what it is today.

EXISTING CONDITIONS ON CORRINE DRIVE

Safety Issues



Speeding

75%

of traffic travels above the 35 mph speed limit. The worst area for speeding is Bumby Ave. to General Rees Ave. Most speeding happens in morning and evening rush hours.

Data source: Traffic counts taken May 2017

Crashes *(2011-2016)*

289

total crashes and 3 fatalities. 70% of all crashes were rear-ends, sideswipes, and left turns. 23 of the total crashes (4%) were alcohol-related, 4 bicycle-related crashes, and 0 pedestrian-related crashes.

Data source: Signal Four Analytics

Safety Issues (continued)

Infrastructure Conditions

WALKING

Incomplete and sub-par sidewalks are not ADA-accessible

CYCLING

No bicycling facilities or connections to nearby trails

ROAD SURFACE

Cracked pavement and faded markings

PARKING

On-street parking spots are too narrow and often block sight lines for cars exiting driveways

LANDSCAPING

Lack of shade trees for people who walk and bike

APPEARANCE

Infrastructure contributes to poor aesthetics and does not match character of the thriving neighborhoods and commercial areas

TRANSIT

Limited public transportation options, with two LYNX bus routes serving the area every hour (Links 13 and 313)

EXISTING CONDITIONS ON CORRINE DRIVE

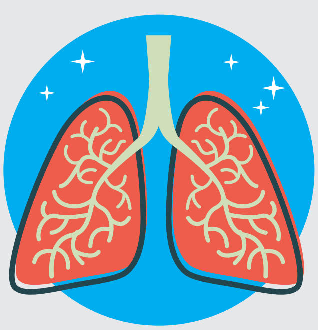
Health Opportunities

Walking Potential

More than 8,000 people live within a 10-minute walk of Corrine Drive, yet few of them get around the neighborhood on foot because of uninviting walking conditions. Nearly 100 students cross Corrine Drive on foot daily to reach the new Audubon Park K-8 School.

Bicycling Potential

Corrine Drive is one of the most frequently used bike share areas in Orlando, yet there's no infrastructure to encourage cycling. Connections to four nearby trails are also lacking.



Did You Know?

An assessment by the Florida Department of Health - Orange County found that Corrine Drive has good air quality, making it a lung-friendly place to walk and bike.

EXISTING CONDITIONS ON CORRINE DRIVE

Local Government Coordination

Several

jurisdictions serve the corridor, resulting in a patchwork of boundaries

ORANGE COUNTY:
Owns the road's right-of-way

CITY OF ORLANDO:
Responsible for the road's operations and maintenance

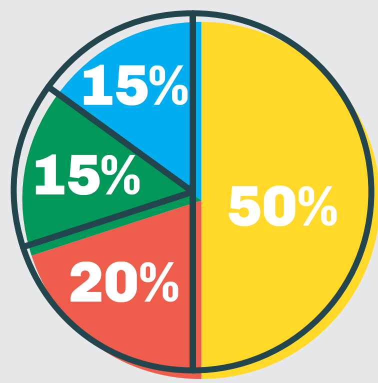
CITY OF WINTER PARK:
About ¼ of study area within Winter Park boundaries

Traffic Volumes

23K
cars daily, Monday-Friday

11.7K-17.6K
cars daily, on weekends

Traffic Flow



- 50% use it as a regional connector and pass through
- 15% start their trips along the road and travel outside the area
- 20% come in from the outside and visit the area as a destination
- 15% stay inside the neighborhood, starting and ending their trips in the area

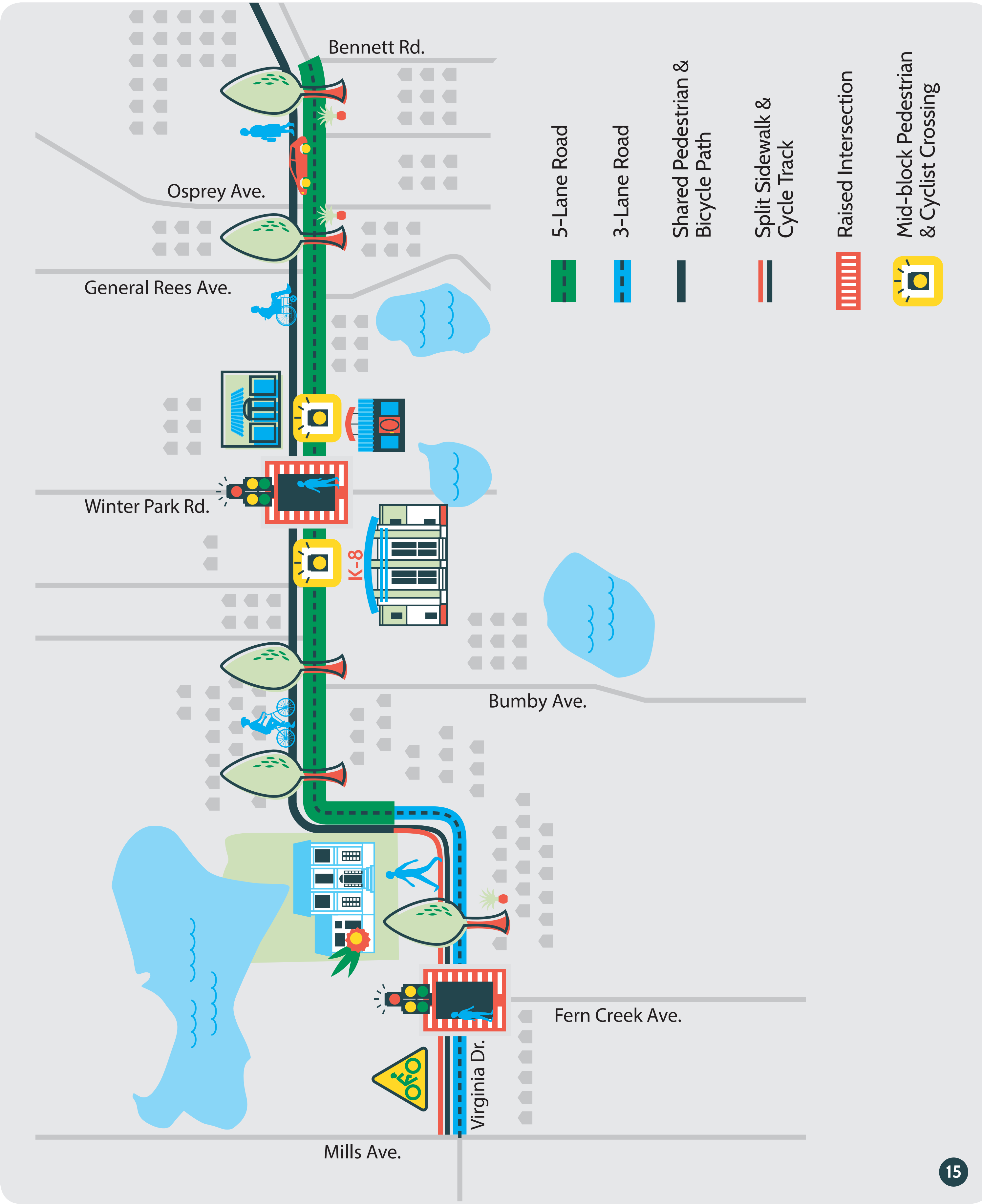
Data source: Tube counts and Bluetooth counts, May 2017
(Percentages rounded to nearest whole number)

COMPLETE STREETS

RECOMMENDATIONS

TURNING CORRINE DRIVE INTO A COMPLETE STREET

RECOMMENDED DESIGN FOR CORRINE DRIVE



THE NEW CORRINE DRIVE: KEY FEATURES

The recommended design makes Corrine Drive a complete street – a pleasant place for everyone to safely and comfortably enjoy the street. These key features make it more inviting for pedestrians and cyclists, while supporting safe vehicle travel.

5-LANE AND 3-LANE SECTIONS

From Bennett Rd. to Nebraska St., Corrine Dr. is 5 lanes (two travel lanes in each direction + center lane). From Nebraska St. to Mills Ave., it is 3 lanes (one travel lane in each direction + center lane). Each section is appropriately sized for the current traffic volumes, consistent with the Highway Capacity Manual 2010.

DESIGN SPEED OF 30 MPH

The new Corrine Dr. is designed for a target speed of 30 mph to improve safety for everyone, with several traffic calming features. According to the National Association of City Transportation Officials (NACTO) Urban Street Design Guide, "narrower lane widths, roadside landscaping, speed humps, and curb extensions reduce traffic speeds and improve the quality of the bicycle and pedestrian realm."

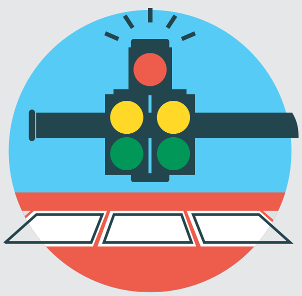
WHEELCHAIR-ACCESSIBLE & STROLLER-FRIENDLY SIDEWALKS

Complete sidewalks throughout the entire corridor are fully compliant with the Americans with Disabilities Act, a federal law setting widths for sidewalks, ramps, and slopes.

THE NEW CORRINE DRIVE: KEY FEATURES

NEW PEDESTRIAN & BICYCLIST INFRASTRUCTURE

Pedestrians and cyclists will share a 12 ft. path, located along the north side of Corrine Dr., in the 5-lane section. This will widen into a 10 ft., two-way cycle track with a separate 6 ft. sidewalk in the 3-lane section.



2 RAISED INTERSECTIONS

Winter Park Rd. and Fern Creek Ave. feature raised signalized intersections, the first of their kind in Central Florida. Raising the pavement of the whole intersection to sidewalk level promotes slow speeds and encourages drivers to yield to people crossing on foot. The corners of the intersection will be extended to make more room for walkers.

2 RAISED MID-BLOCK PEDESTRIAN & CYCLIST CROSSINGS

New pedestrian hybrid beacons with raised crosswalks in front of East End Market and the West Plaza are new signals that only turn red when activated by a pedestrian or cyclist.

LANDSCAPING AND STREET TREES

Extensive landscaping with nearly 300 street trees will greatly enhance the corridor's visual appeal and provide shade for walkers and cyclists. The NACTO Urban Street Design guide says trees "can reduce speeding and crashes, improving safety for all street users" because they visually narrow the street and provide a well-defined roadside edge.

TURNING CORRINE DRIVE INTO A COMPLETE STREET

Bennett Road to Nebraska Street

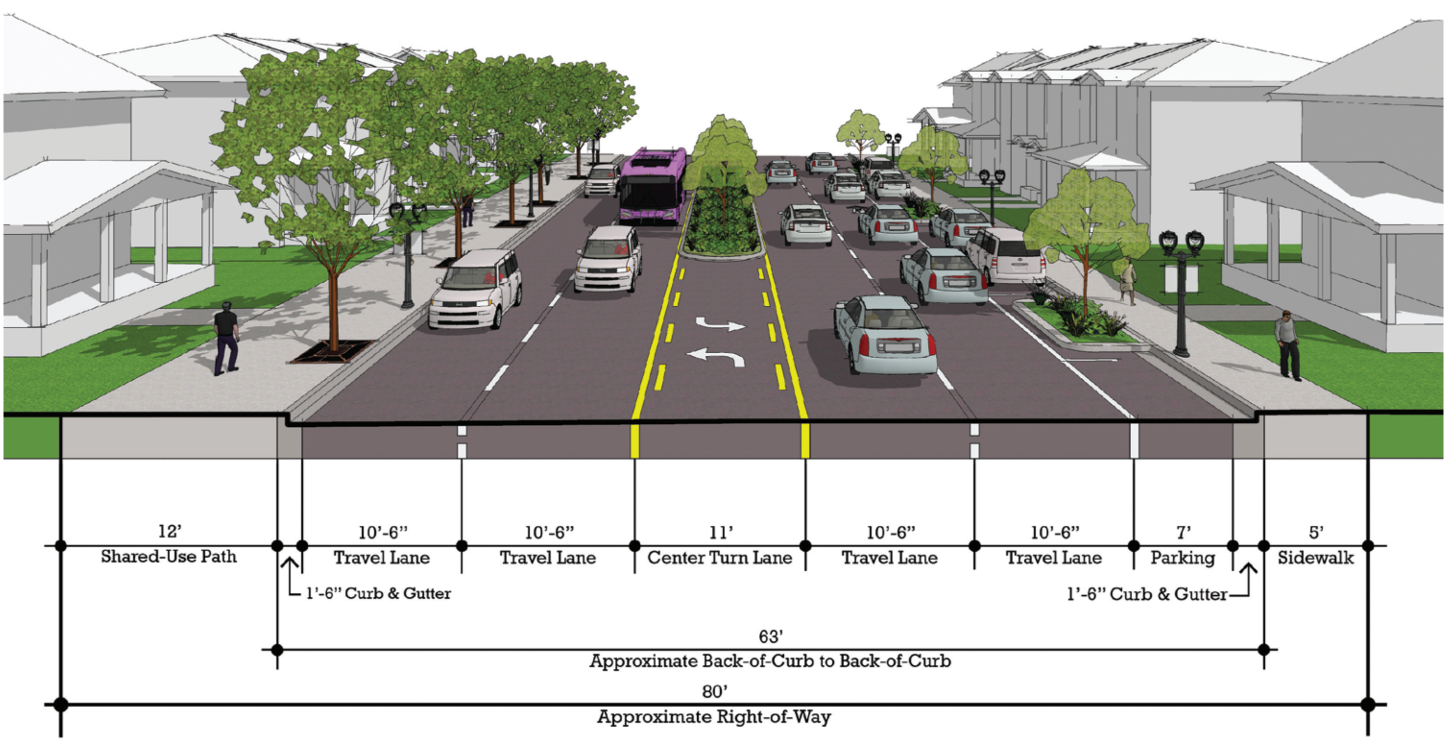
From Bennett Road to Nebraska Street, Corrine Drive has two travel lanes in each direction as well as a center lane alternating between **landscaped medians**, providing a turn lane where necessary. The north side of this section will feature a **shared-use path for bicyclists and pedestrians**. The south side will offer a sidewalk and **on-street parking**.

The section of Corrine Drive between East End Market and Bennett Road is mostly residential. The recommended design will provide walking and bicycling facilities as well as on-street parking. The road is designed for a speed of 30 mph, which is expected to reduce the number of vehicles traveling faster than the posted limit of 35 mph. The area around Winter Park Road is a focal point. The recommended improvements should create a pedestrian-friendly, slow speed zone between Janice Avenue and East End Avenue – the heart of the commercial district.

A **raised intersection** is recommended at Winter Park Road, which will slow vehicle speeds near the Audubon Park K-8 School and will offer a safer way to cross the street for those walking and biking. A **mid-block crossing** is located on each side of the intersection. These crossings also will be raised to encourage slower speeds. The **pedestrian hybrid beacons** at the crossings signal to drivers that they are entering a pedestrian friendly zone. One crossing is east of Janice Avenue, near Redlight Redlight and the other is in front of East End Market. Traveling west from Janice Avenue past Leu Gardens, Corrine Drive has the same look as between East End Market and Bennett Road.

Terms in bold text are discussed in later chapters.

5 Lanes from Bennett Road to Nebraska Street



TURNING CORRINE DRIVE INTO A COMPLETE STREET

Nebraska Street to Mills Avenue

At the intersection of North Forest Avenue and Nebraska Street, the configuration changes. From Nebraska Street to Belgrade Avenue, the Virginia section of Corrine Drive has **a travel lane in each direction, center turn lane with median, parking on both sides, sidewalk on both sides, and a two-way cycle track on the north side.** This configuration extends approximately a half mile.

The traffic operations analysis for Belgrade Avenue to Nebraska Street shows that this section of the Corrine Drive corridor can be three lanes without causing any diversion of cars to the Colonialtown North and Rowena Park neighborhoods. The 3-lane configuration allows for **separate facilities for pedestrians and cyclists**, one of the most popular aspects of the original 3-lane alternatives presented during Phase 2. The design brings Corrine Drive into conformity with current design guidance for a residential street with the existing traffic volumes.

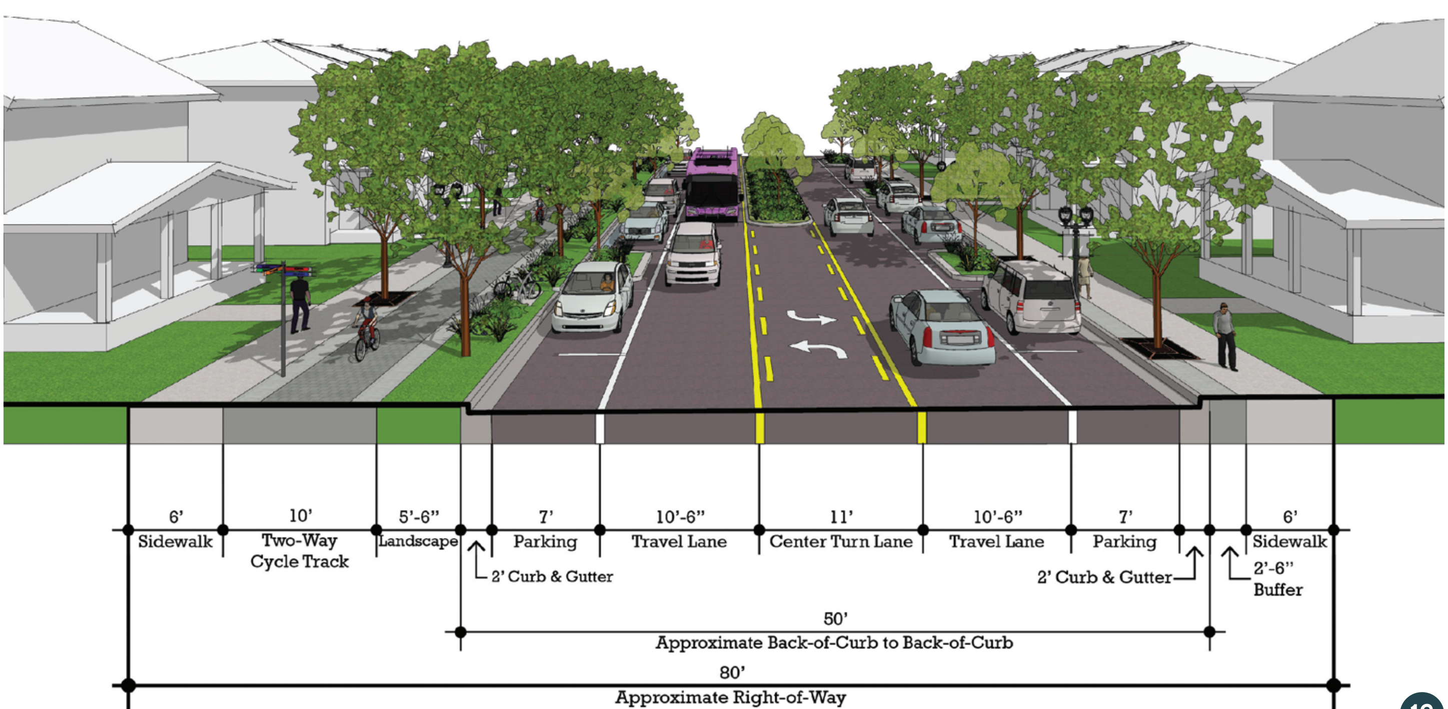
The recommended changes include modifying the curve where Virginia Drive and North Forest Avenue meet (as demonstrated in the section 4 aerial view on page 21). The design uses **curb extensions and medians** to facilitate safer and slower vehicle turning between Belgrade Avenue and Mills Avenue.

The Fern Creek Avenue and Virginia Drive intersection will be a **raised intersection**, allowing smoother transitions from the bicycle trail and the bicycle lanes on Fern Creek Avenue. Additionally, this will slow eastbound traffic as the street transitions from the busy Mills intersection to the 3-lane Virginia/Corrine Drive.

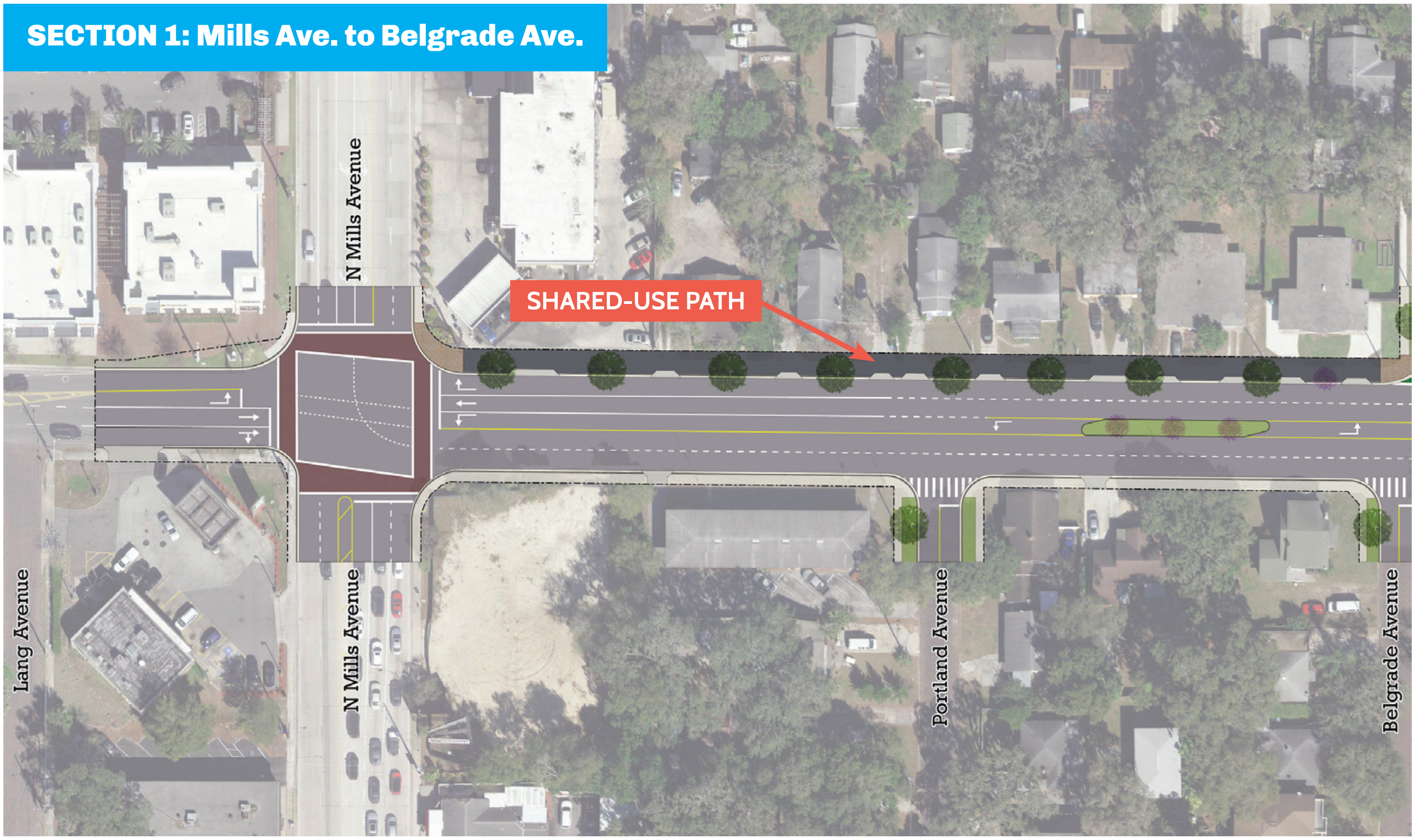
The cycle track and sidewalk will be combined into a shared use path for a block on the north side of the intersection. This connects the recommended bicycling facilities to the Orlando Urban Trail, on the west side of the Mills intersection.

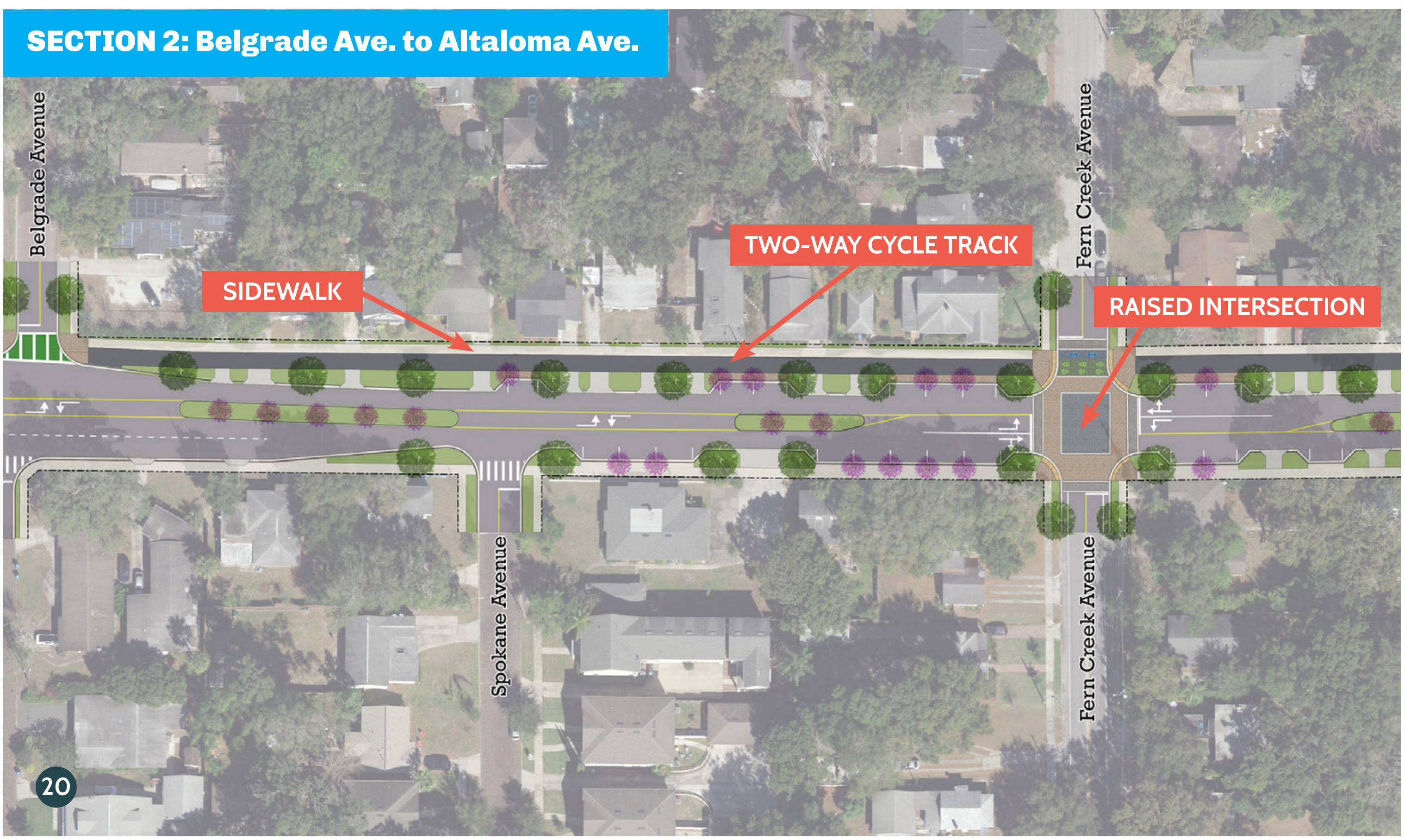
Terms in bold text are discussed in later chapters.

3 Lanes from Nebraska Street to Mills Avenue



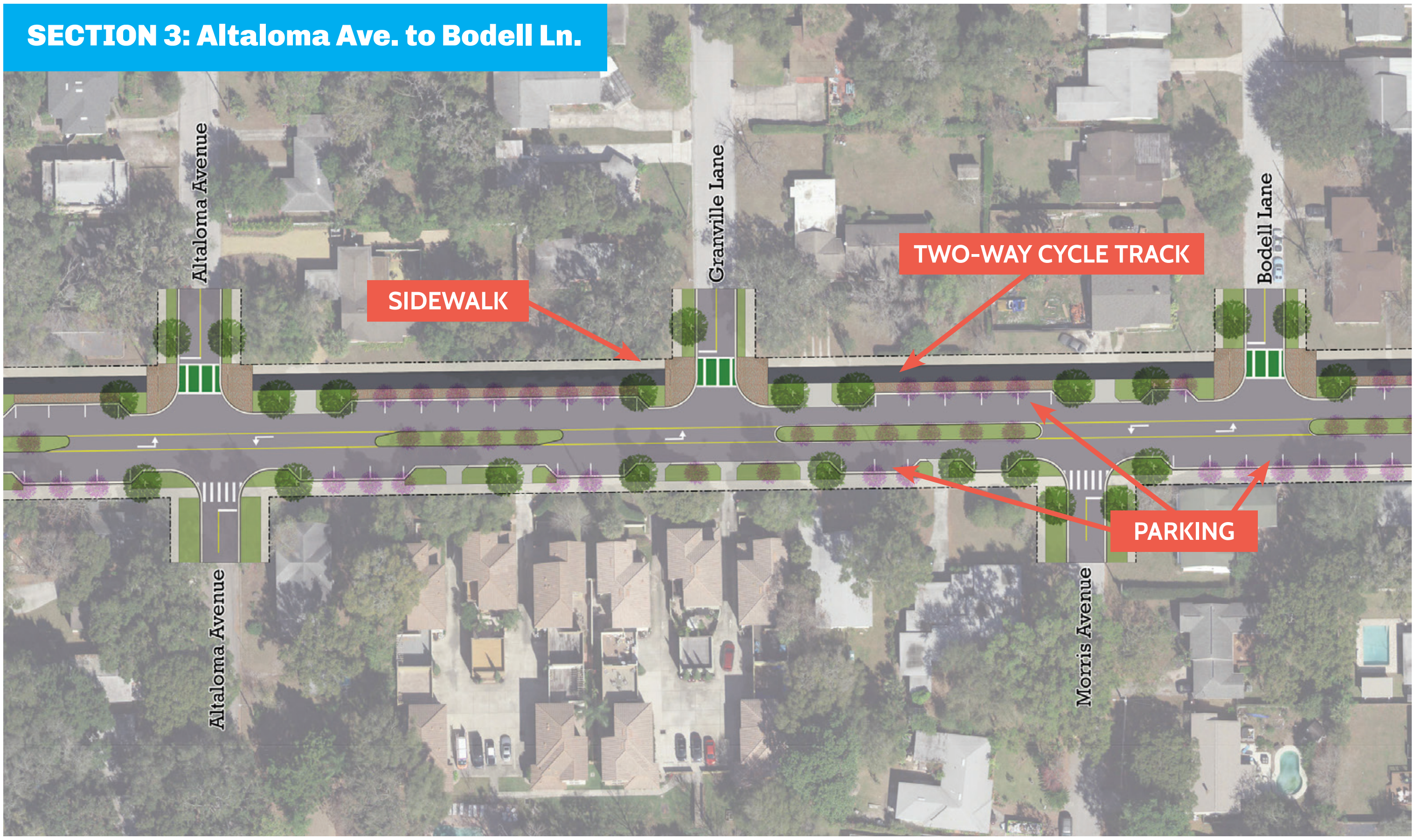
AERIAL VIEW OF SUGGESTED IMPROVEMENTS



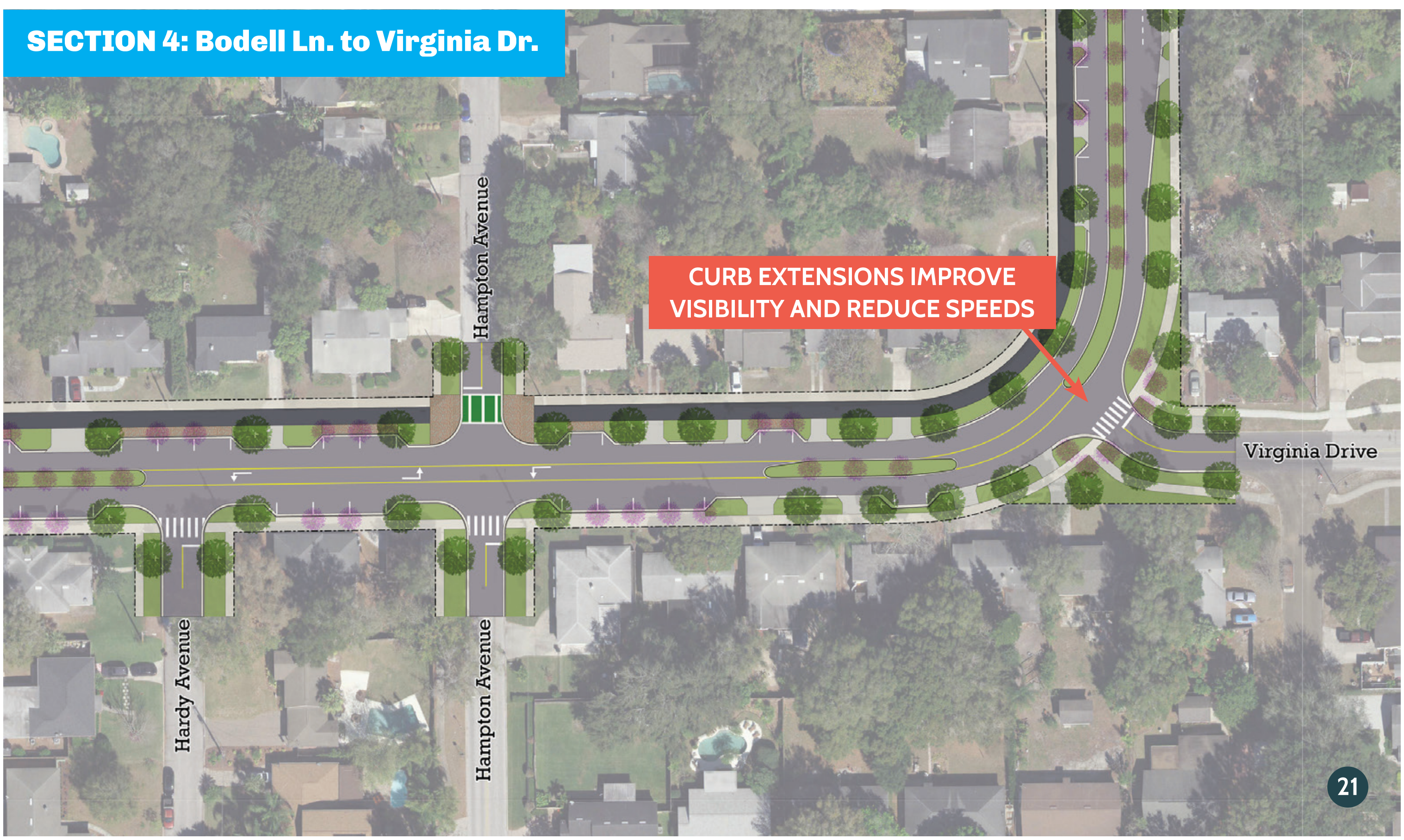


AERIAL VIEW OF SUGGESTED IMPROVEMENTS

SECTION 3: Altaloma Ave. to Bodell Ln.



SECTION 4: Bodell Ln. to Virginia Dr.



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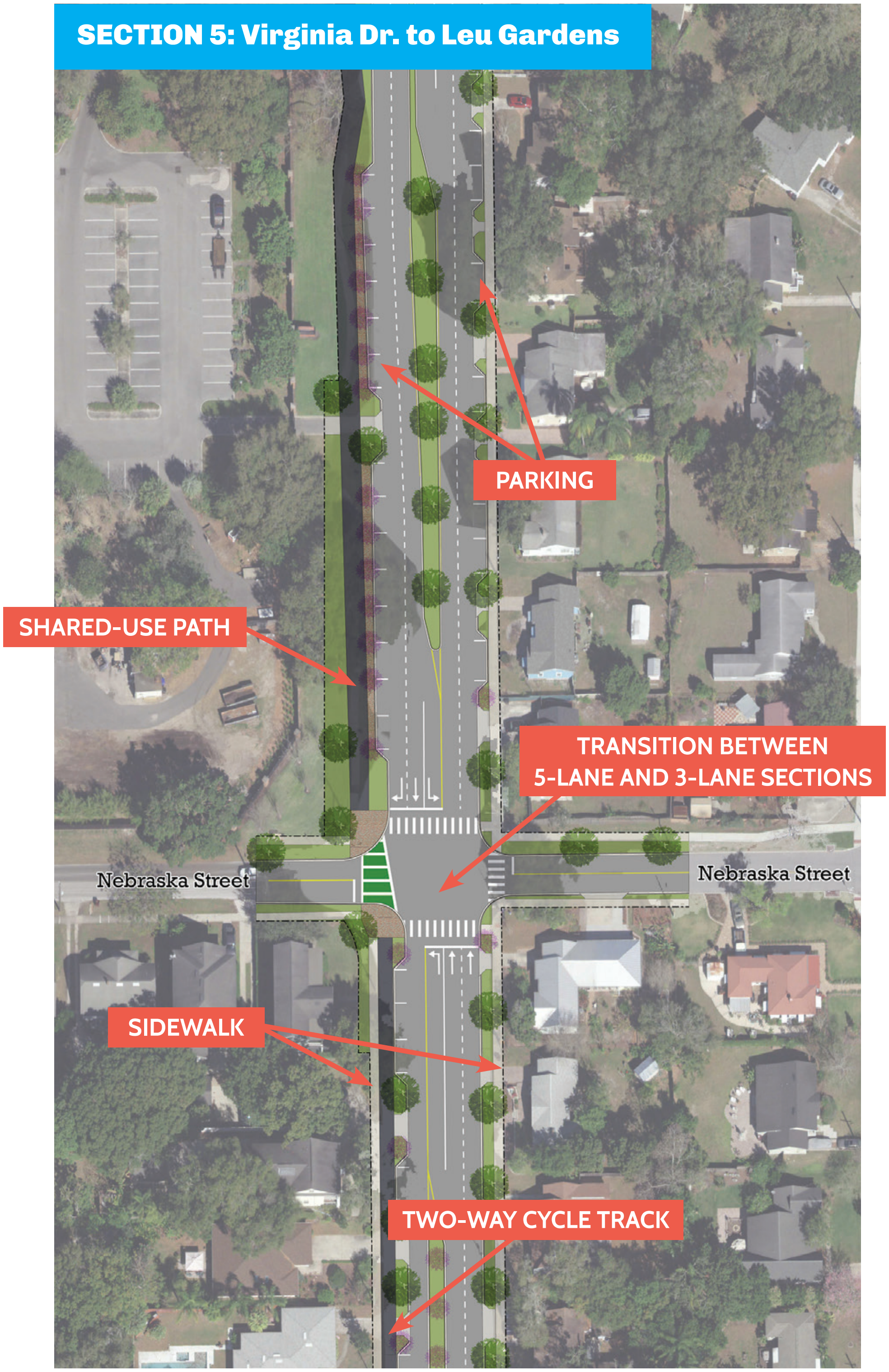

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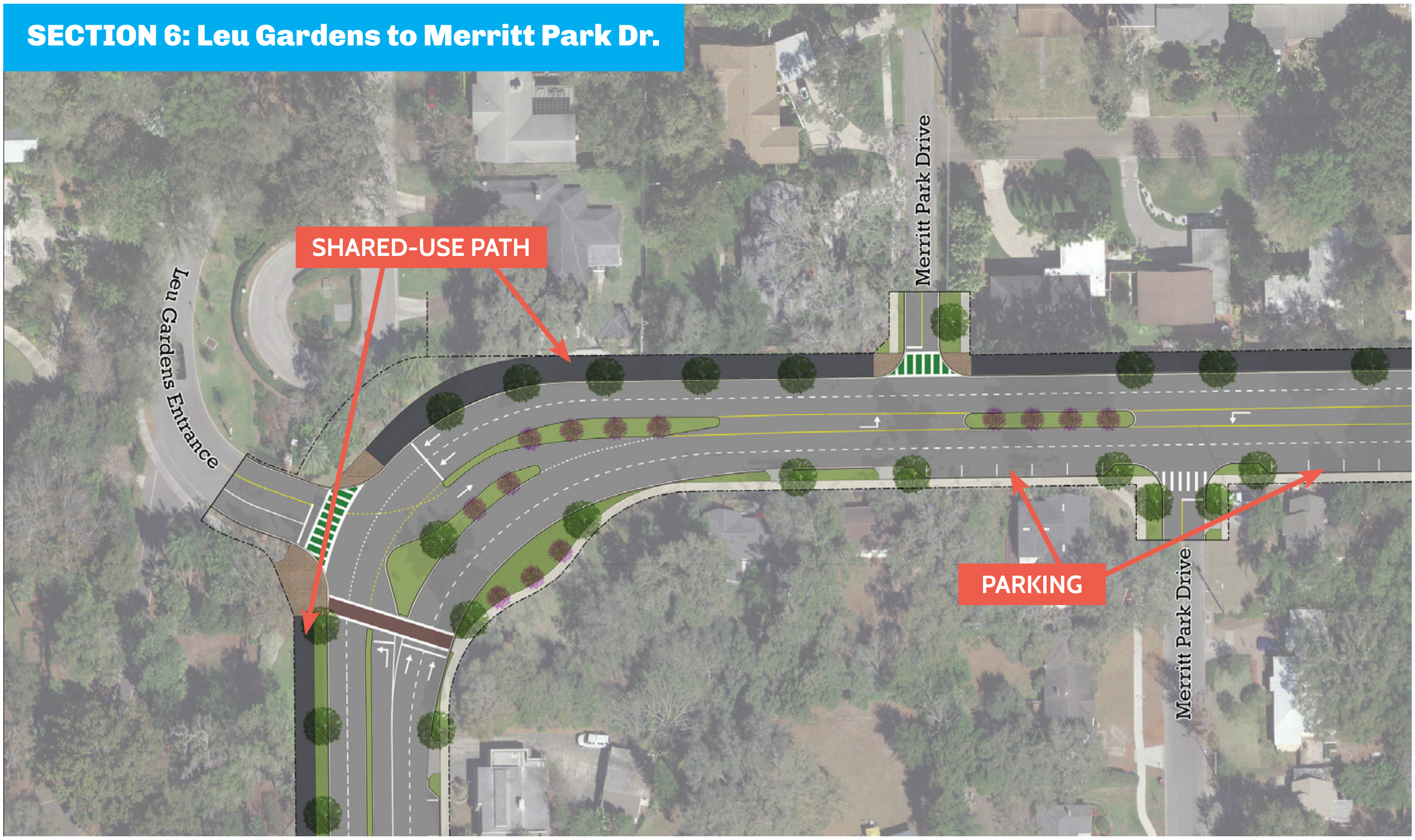

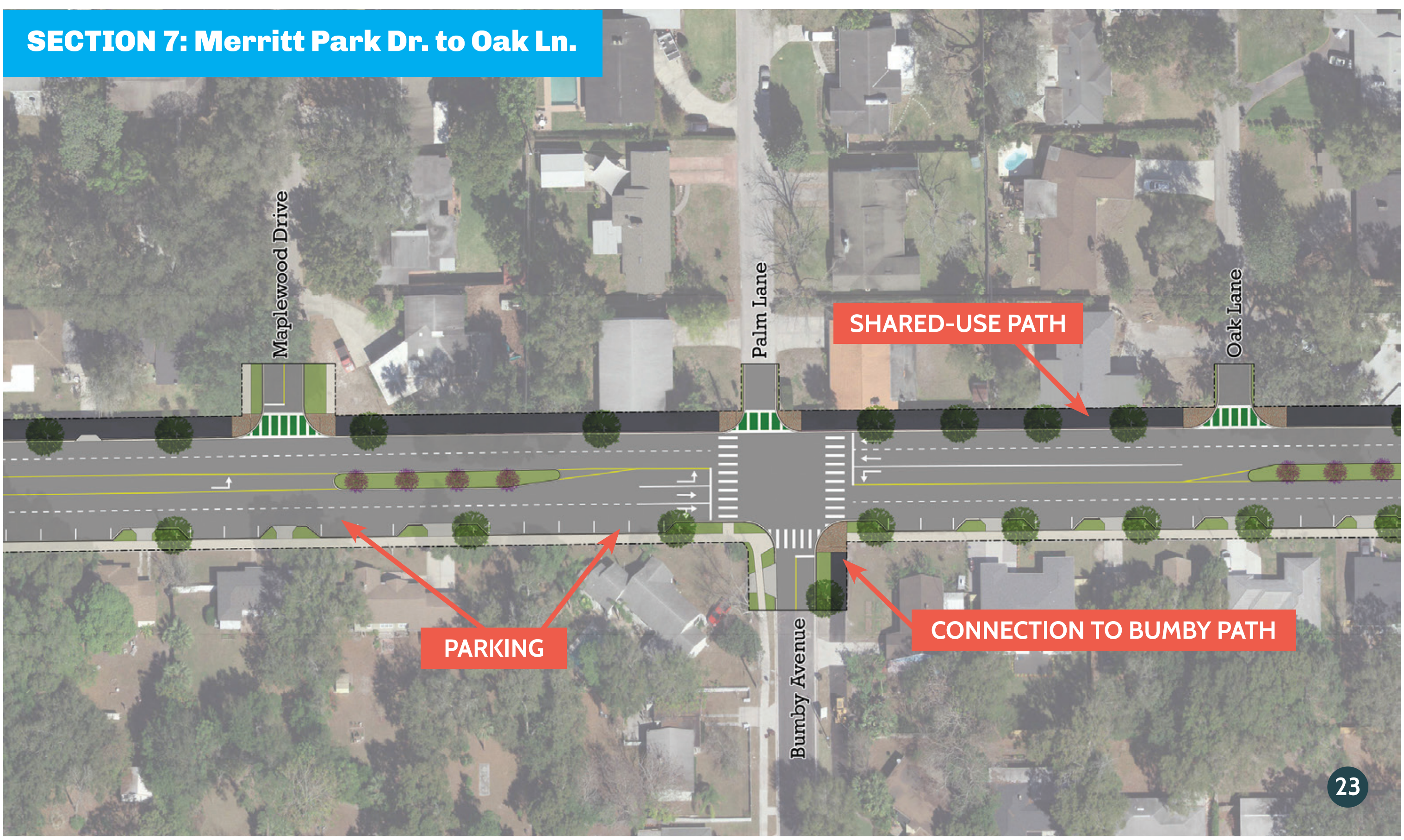

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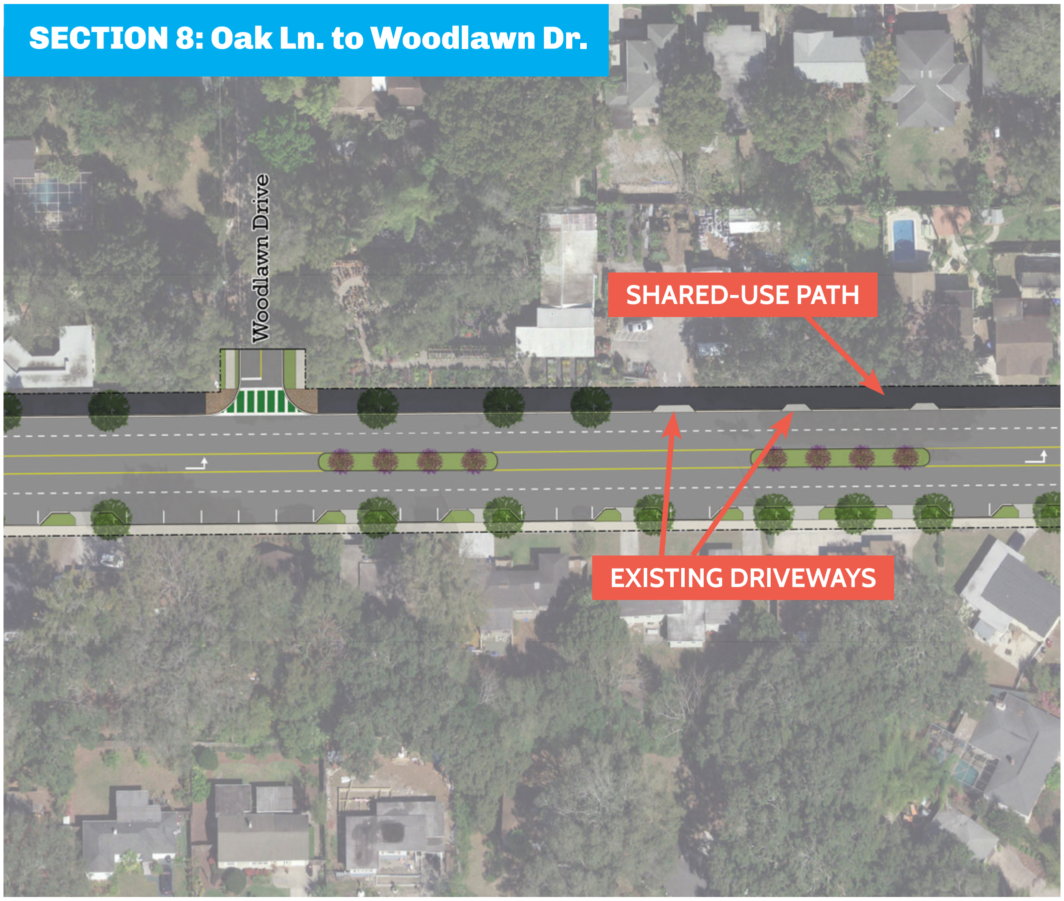
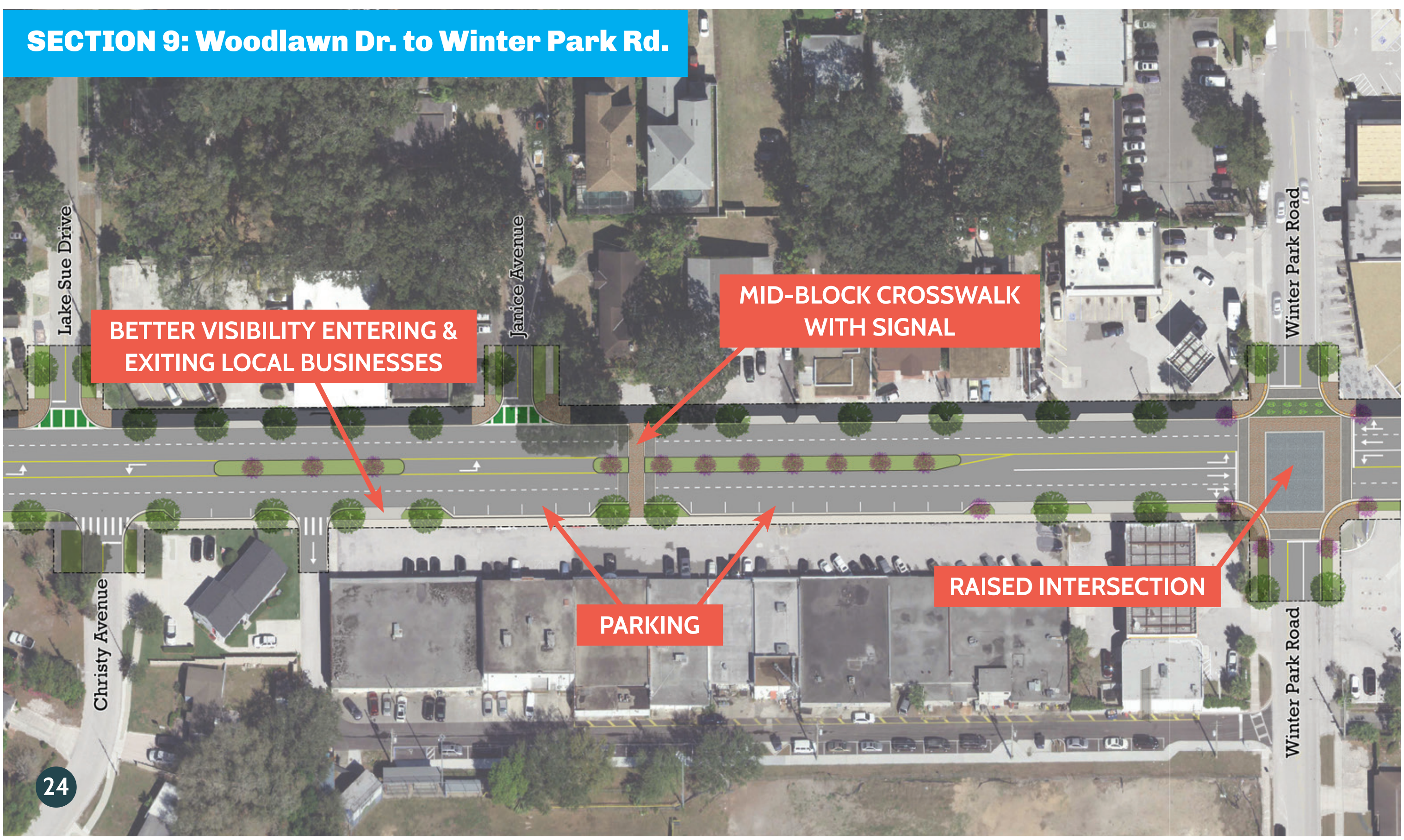
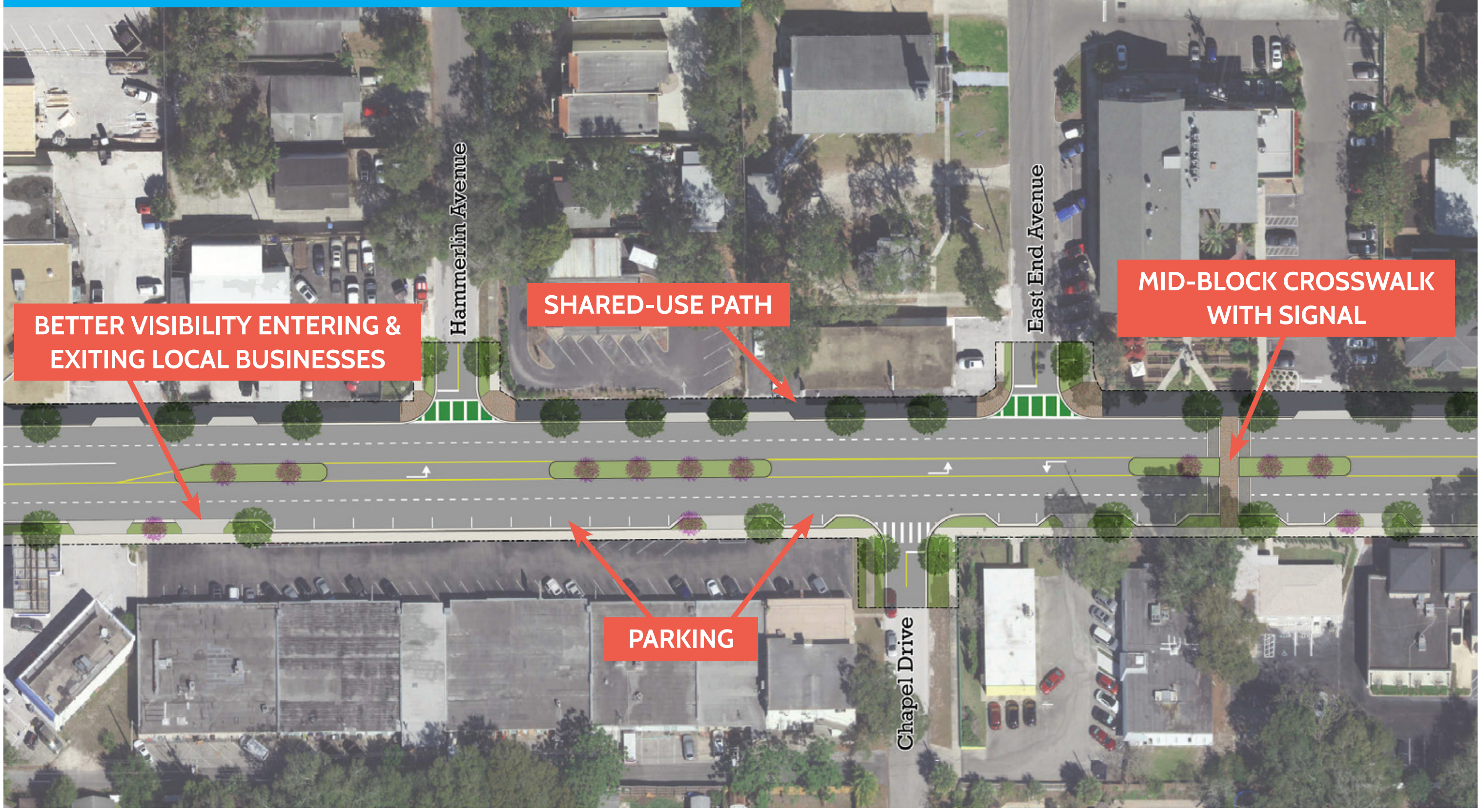


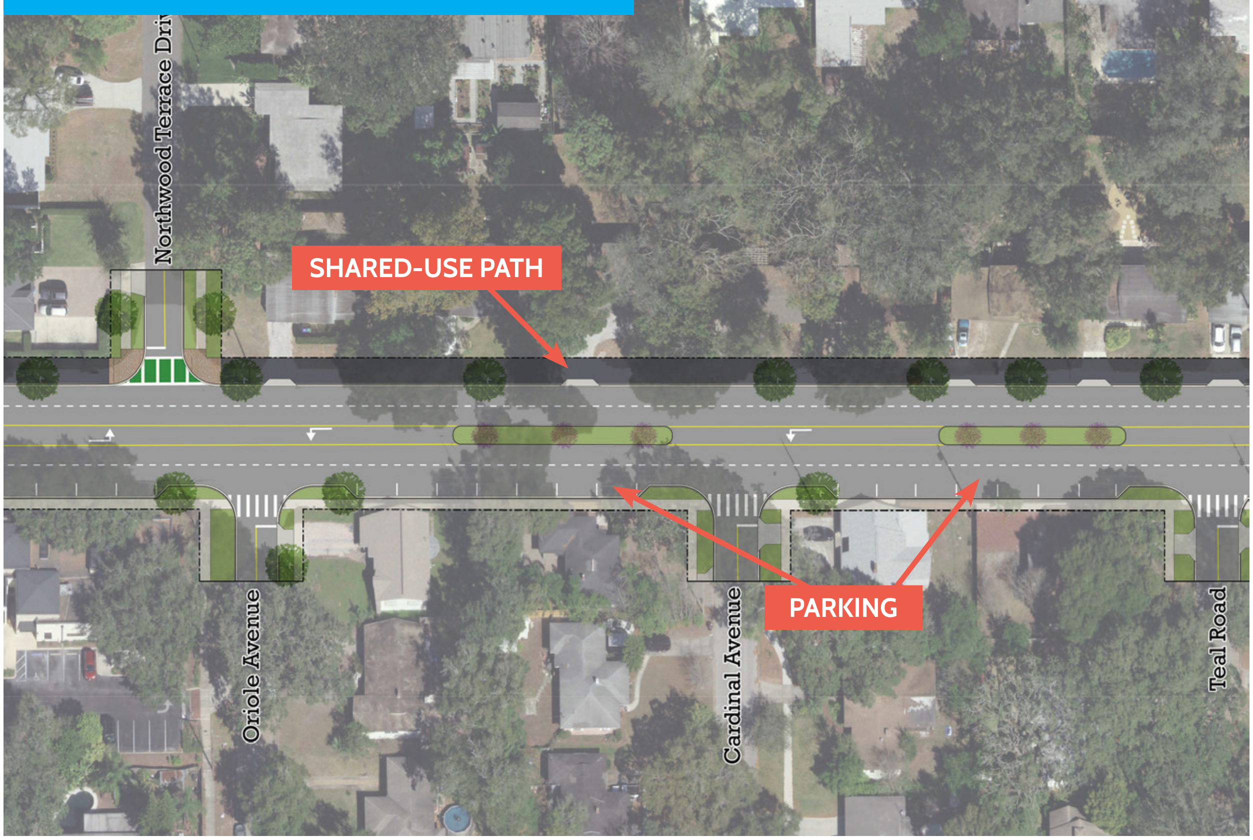


AERIAL VIEW OF SUGGESTED IMPROVEMENTS

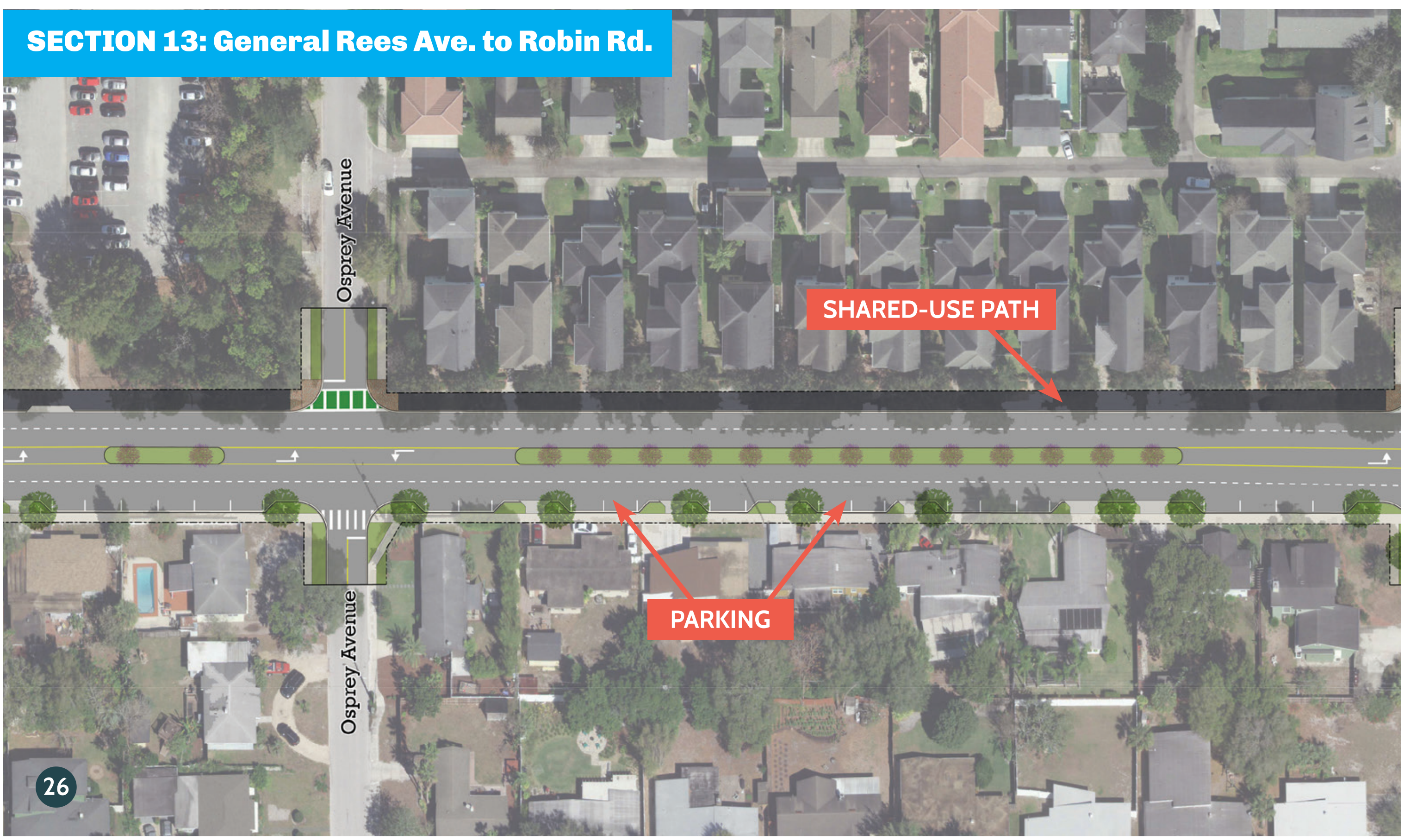
SECTION 10: Winter Park Rd. to East End Ave.



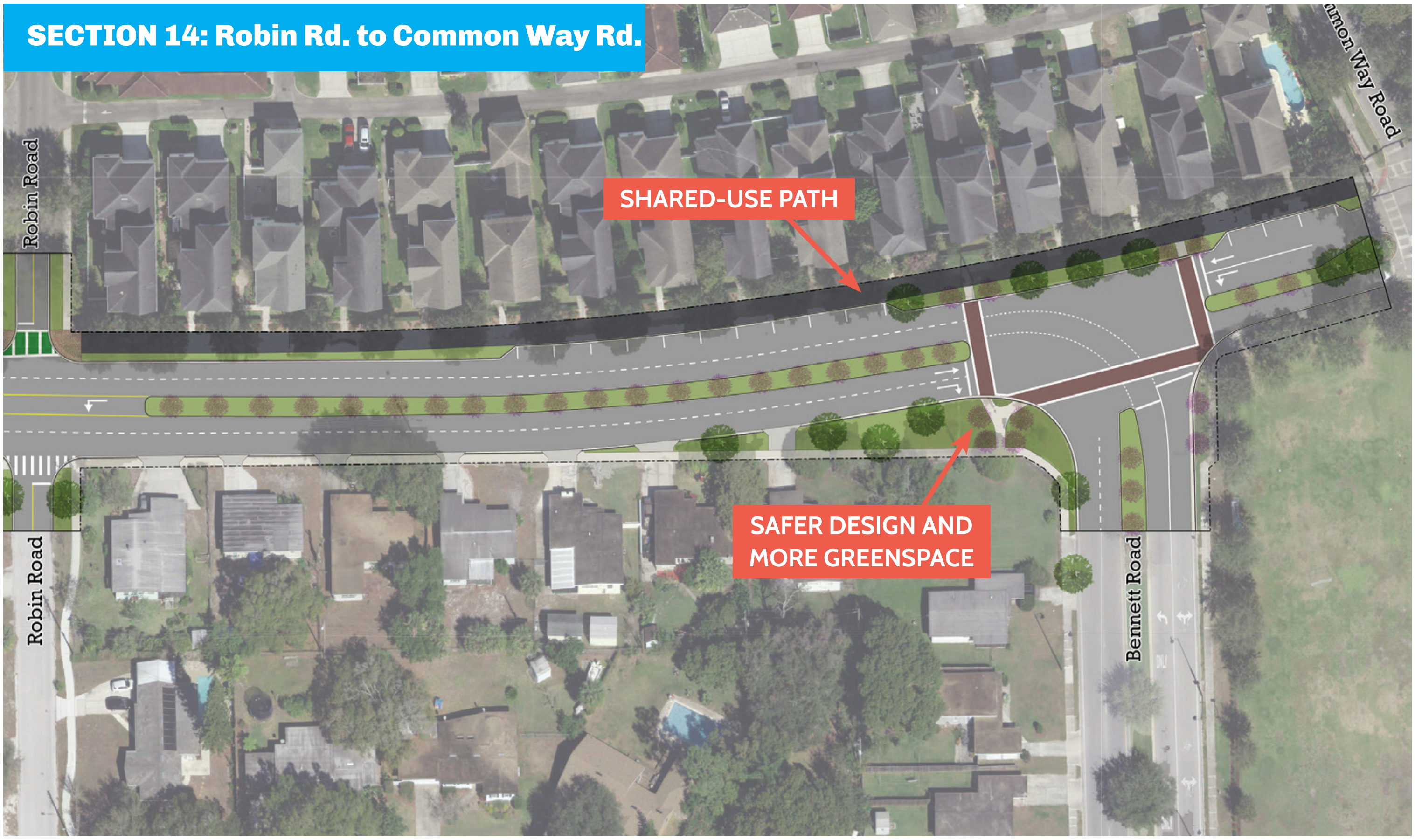
SECTION 11: East End Ave. to Teal Rd.



AERIAL VIEW OF SUGGESTED IMPROVEMENTS



AERIAL VIEW OF SUGGESTED IMPROVEMENTS



DESIGN FEATURES THAT REDUCE SPEEDING

Raised intersection at Corrine Dr. & Winter Park Rd.

The recommended design for Corrine Drive combines a series of features to address a key safety problem identified during the study process. Most cars moving through the Audubon Park Garden District travel at speeds that far exceed the 35 mph posted speed limit. The features discussed here can address Corrine Drive's speeding problems. Unless cited otherwise, best practices mentioned are drawn from the National Association of City Transportation Officials.

RAISED INTERSECTION:

The entire intersection features pavement elevated to be level with the sidewalk and curbs at the corner. The Winter Park Road and Fern Creek Avenue intersections are both proposed to be raised intersections. The elevated pavement slows travel speeds through the intersection, while the level connection to the sidewalk makes it easier to walk across the street and makes pedestrians more visible to drivers.

CURB EXTENSIONS:

Curb extensions narrow the roadway and are a proven way to reduce speeds, especially of turning vehicles. They also shorten the crossing distance for pedestrians. The Corrine Drive recommended design features curb extensions at every intersection and throughout the 2-mile street. This feature mostly occurs on the south side of the street from Leu Gardens to Baldwin Park.

REDUCING LANE WIDTHS:

The width of a travel lane often has a direct impact on how fast a driver will travel. The Corrine Drive plan recommends a lane width of 10.5 feet for each travel lane, which significantly reduces the current widths of 11-13 feet. Narrower lanes slow vehicle speed and shorten a street's crossing distance. The 10.5-foot lanes encourage drivers to slow down while still providing enough space to safely drive 30 mph.

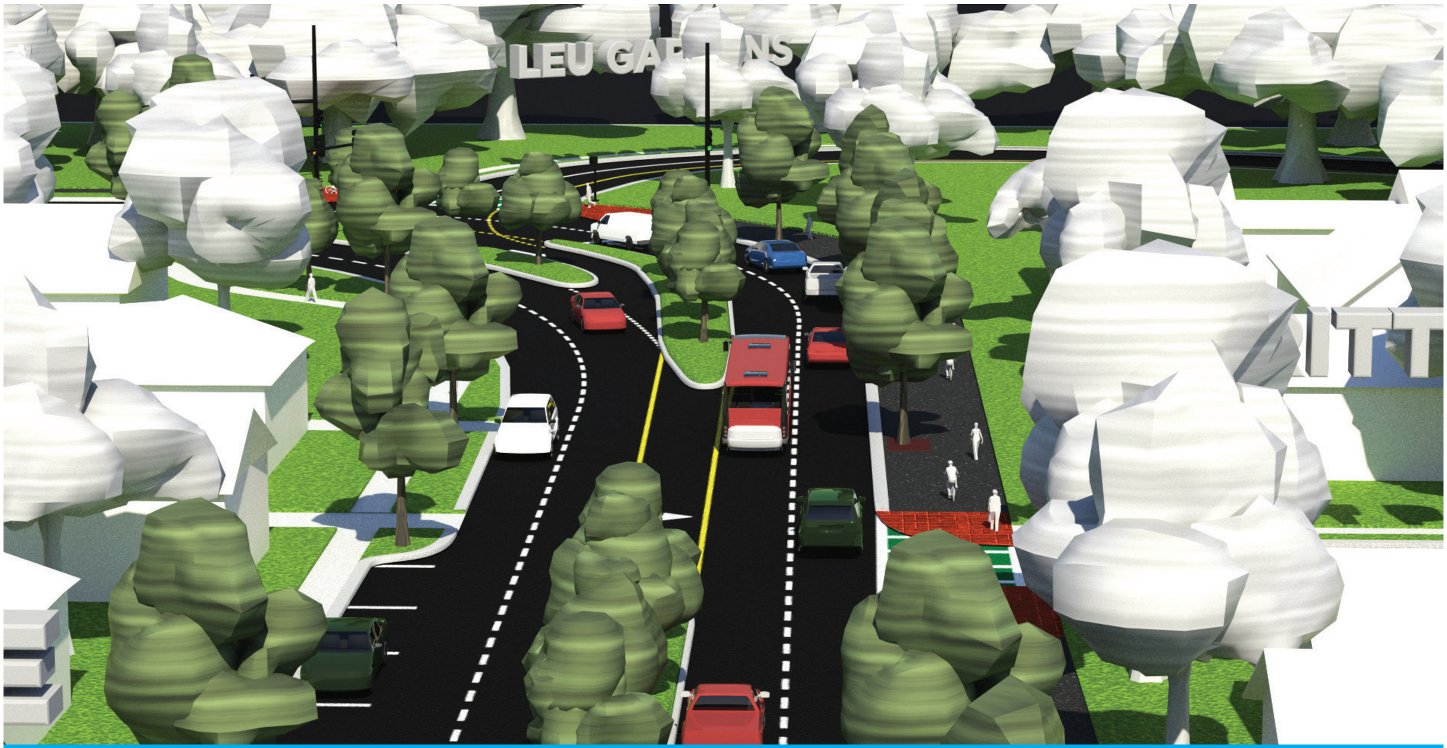
FULL MEDIANS:

Medians are a proven design feature for reducing vehicle speeds. The development process for the Corrine Drive recommended design began with the assumption of a full median for the 2-mile street. Then, the project team identified all locations where turning movements are needed.

LIGHTING:

Street lighting has a significant impact on how safe and comfortable one feels while walking, biking, or driving through an area. The Corrine Drive design is enhanced by better street lighting throughout the entire 2 miles. The

DESIGN FEATURES THAT REDUCE SPEEDING



Tree-lined approach to the curve at Leu Gardens

Orlando Utilities Commission (OUC) conducted a lighting study in Fall 2018 to determine the specific type of light fixtures appropriate for Corrine Drive. In early 2019, the existing 37 street lights along Corrine Drive switched from high pressure sodium (HPS) lights to light emitting diode (LED) lights. Additionally, 18 LED street lights were added to existing OUC poles. Another study for pedestrian scale lighting is suggested, as the design progresses through engineering and construction. Early in the Corrine Drive Study process, several community members requested lighting that complies with Dark Sky requirements. If this is desired, the community members should approach OUC, request a light pollution evaluation, and follow OUC's process.

STREET TREES:

The Corrine Drive plan includes a recommendation for 290 trees - a mix of oak and smaller trees. These trees add a sense of enclosure to Corrine Drive. According to several resources, including the Congress for New Urbanism, the level of a street's sense of enclosure can make it appear smaller or larger than it really is, which has a direct effect on the speed a vehicle travels. In this case, the tree-enclosed feeling would work similarly to the narrower lanes to encourage drivers to slow down.

A Note about Design Speed vs. Posted Speed:

The majority of Corrine Drive has a posted speed limit of 35 mph, but its "design speed" is much higher, with features – such as wide lanes – that encourage drivers to go faster than the posted limit. This is the main reason most cars travel faster than 35mph between Bumby Avenue and General Rees Avenue. This Plan introduces a design speed of 30 mph, meaning that design features encourage drivers to travel no faster than 30mph. It's expected that there will be a projected, reliable travel time of 7-8 minutes during rush hour. Once the recommended design is implemented, a speed study can be conducted to determine what the posted speed limit should be on Corrine Drive.

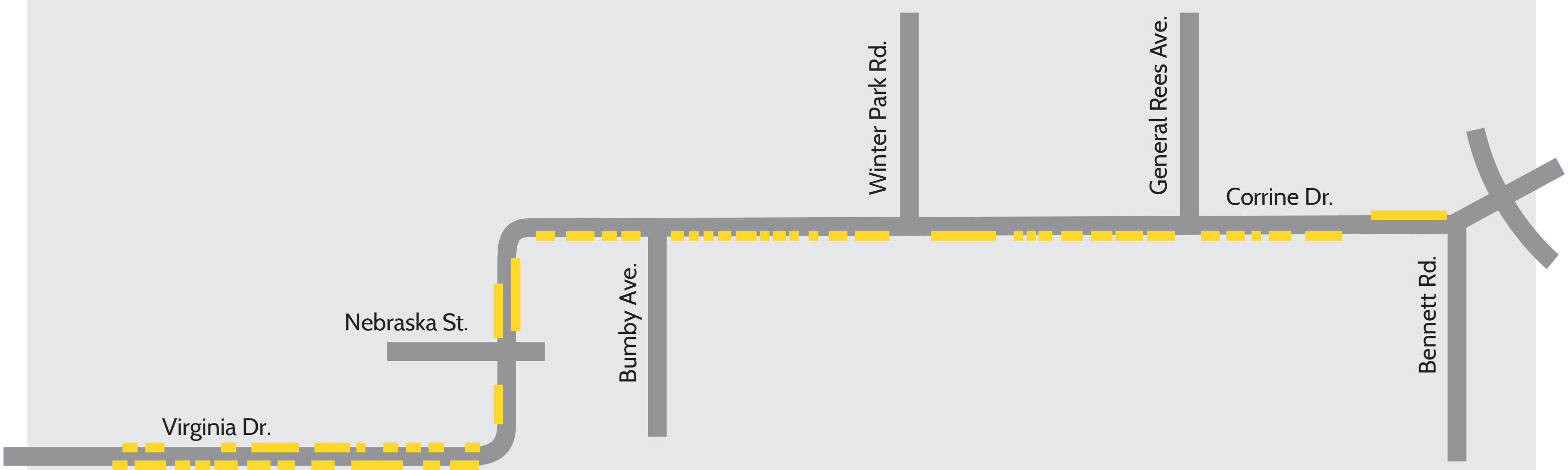
PARKING LOCATIONS ON CORRINE DRIVE

STREET PARKING

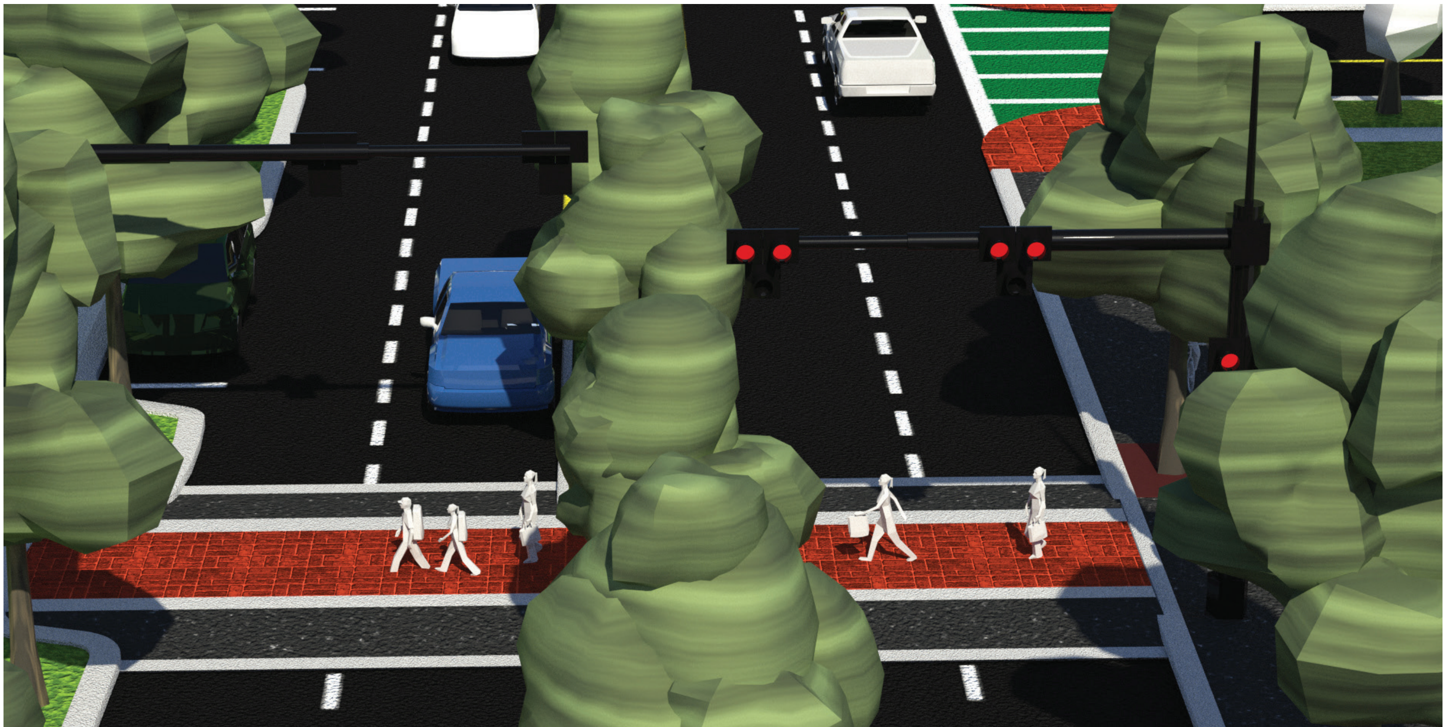
The map illustrates the location of on-street parking along Corrine Drive.

Numbers of parking spaces and exact locations will be finalized during the design phase, right before construction.

Similar to street trees, parking spaces add a sense of enclosure to the Corrine Drive traveling experience. Additionally, the parking spots are slightly wider than the ones currently on Corrine Drive, which puts them in compliance with the City of Orlando code and allows for safer entry and exit from each parking space.



DESIGN FEATURES THAT ENCOURAGE WALKING AND CYCLING



Mid-block crossing with signal for pedestrians and cyclists in front of East End Market

Our opinion research during Phase 1 showed that a safer and more supportive place to walk and bike is the Corrine Drive community's top concern. The recommended design includes several features expected to encourage more walking and biking. The features complement those mentioned in the previous section to reduce speeding.

CONTINUOUS SIDEWALKS:

Sidewalks of 5-6 feet will run the length of Corrine Drive – from Belgrade Avenue to Bennett Road. These sidewalks will fully comply with the Americans with Disabilities Act. Between Mills Avenue and Nebraska, sidewalks are on both sides of the street. The improved sidewalks between Nebraska Avenue and Bennett Road are on the south side of the street. A shared use path on the north side between Nebraska and Bennett Road provides space to walk as well as cycle.

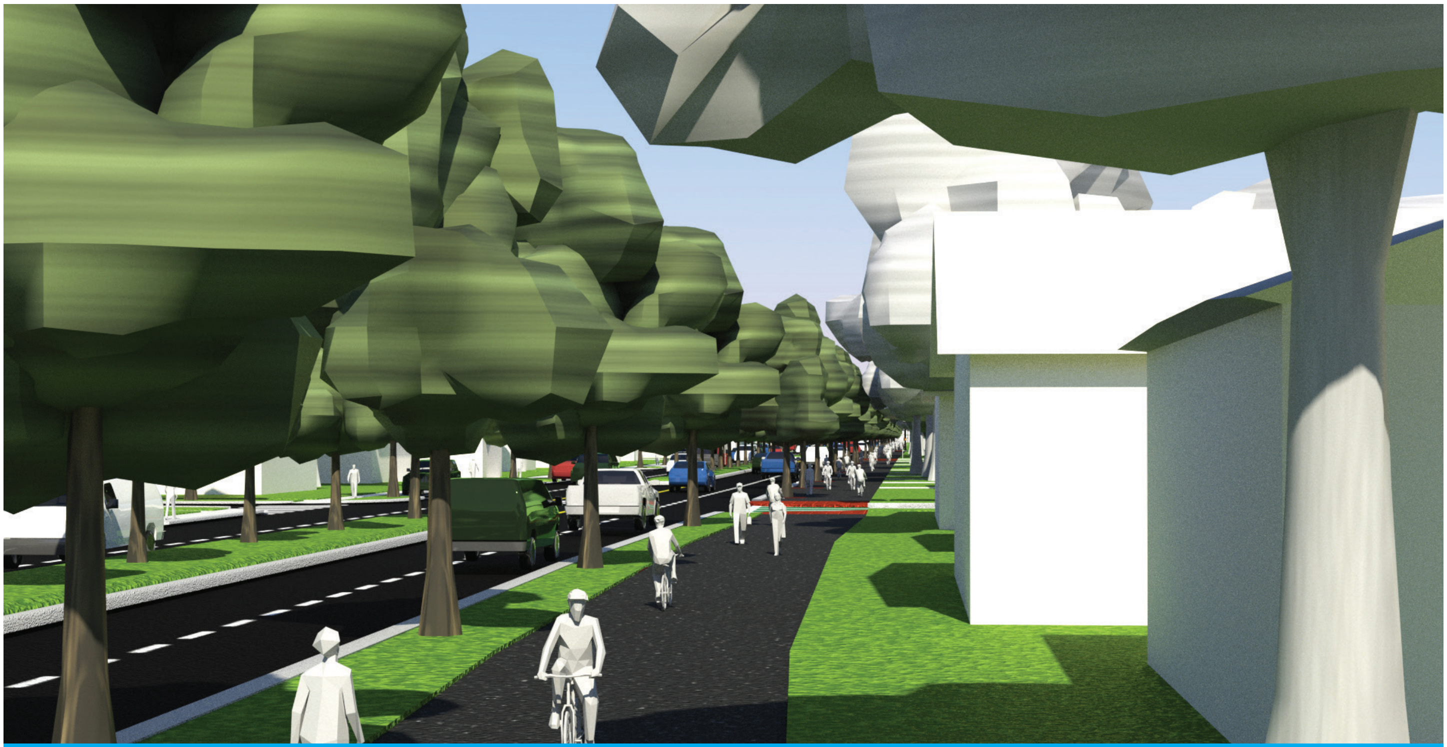
RAISED MID-BLOCK CROSSINGS:

Two mid-block crossings frame the commercial area on Corrine Drive. These two crossings include pedestrian hybrid beacons, traffic signals activated by walkers that stop vehicle travel and allow for a controlled crossing. Both are raised, similar to the raised intersections, for an easier walk across the street. Research cited in the World Resources Institute's Cities Safer by Design report states that mid-block speeds can be reduced by 10% with raised crosswalks.

CYCLE TRACK:

From Nebraska Street to the Belgrade Avenue intersection, the north side of the street has a 10-foot wide cycle track, separated from a 6-foot wide sidewalk. The cycle track allows for two-way bicycle traffic and separates cyclists from cars and people walking on the sidewalk. The cycle track closes a gap in the area's bicycle facilities, connecting Winter Park bike lanes and the Cady Way Trail to the Orlando Urban Trail and downtown Orlando. Closing this gap enables an easier and safer bicycle commuting trip between northeast Orlando, Winter Park, and downtown Orlando.

DESIGN FEATURES THAT ENCOURAGE WALKING AND CYCLING



Shared use path on north side of Corrine Drive

SHARED USE PATH:

A 1.5-mile shared use path is on the north side of the street and turns into a cycle track between Nebraska Street and Mills Avenue. The 12-foot wide path offers a protected space off the street for people to walk and bike. Cars entering or exiting driveways at businesses and residences can create safety conflicts with the path or cycle track, but there are measures to help minimize these until drivers become used to the arrangement. Paint and signage can help bring attention to the path and let drivers know what is expected of them. Research shows that, after an adjustment period, these conflicts can be smoothed out significantly.

HIGH EMPHASIS CROSSWALKS:

At each side street on Corrine Drive's north side, the crosswalks are painted green, which identifies the crosswalk as a continuation of a bicycling facility. Since these crossings continue the shared use path, it's important for drivers to see them clearly and understand that cyclists are likely to be passing.

LEADING PEDESTRIAN INTERVALS:

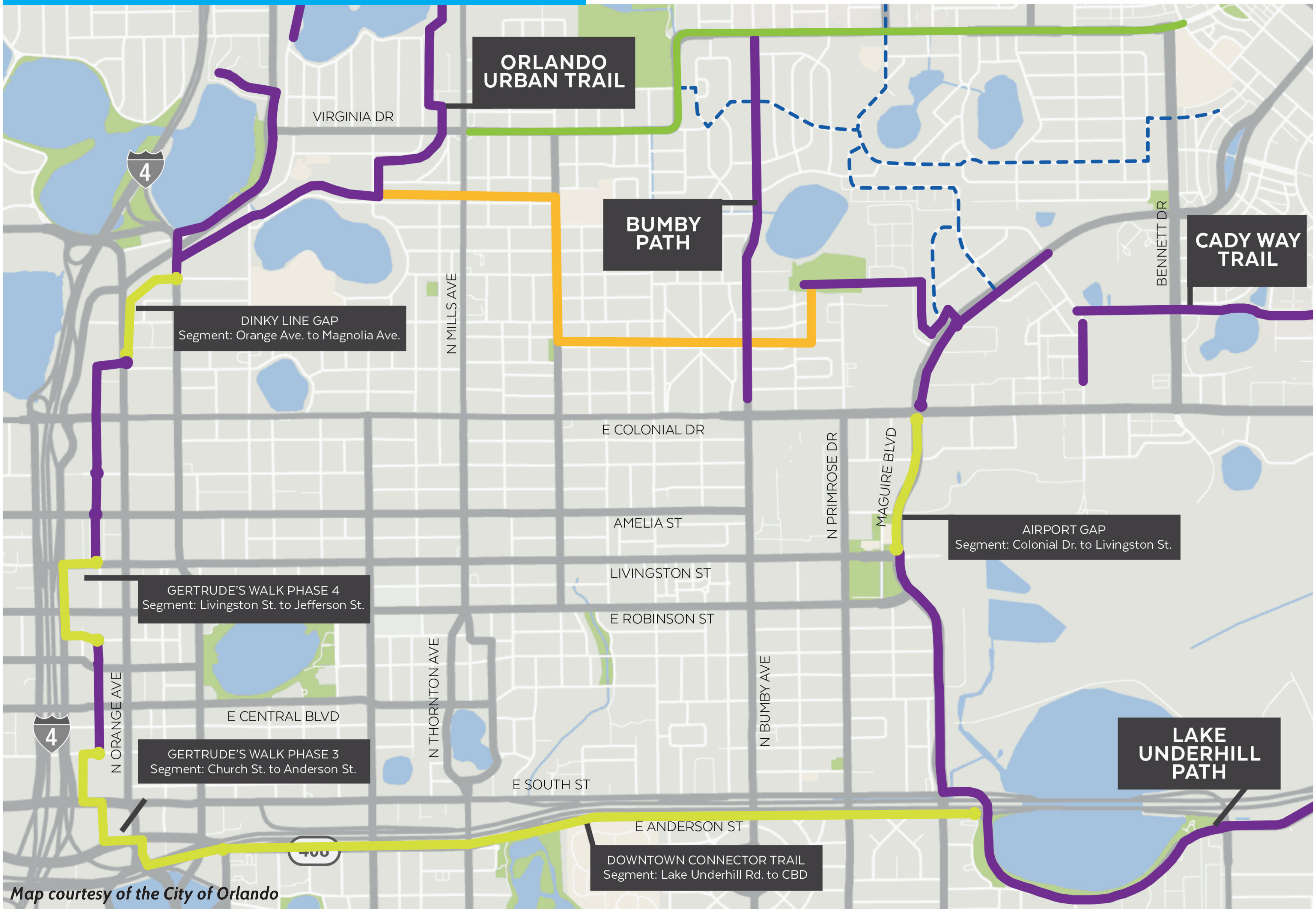
A Leading Pedestrian Interval (LPI) typically gives pedestrians a 3–7 second head start to cross the street before a green light is given to vehicles in the same direction of travel. LPIs enhance the visibility of pedestrians in the intersection and reinforce their right-of-way over turning vehicles, especially in locations with a history of conflict. LPIs have been shown to reduce pedestrian-vehicle collisions as much as 60% at treated intersections, per NACTO.

CYCLING IMPROVEMENTS OFF CORRINE:

MetroPlan Orlando has identified a number of bicycle and pedestrian improvements along quieter local streets to help bicyclists access popular destinations. The improvements would use signage, pavement markings, and other traffic control features to guide bicyclists to routes off Corrine Drive. A bicycle boulevard emphasizes a slower speed street with low traffic volumes. Signs would indicate turns and destinations along the routes while shared lane markings (commonly called sharrows) can be used for additional directional and wayfinding support. Sharrows are best suited for streets with fewer than 3,000 cars per day and a speed limit of 25 mph or lower.

ORLANDO'S BICYCLE BELTWAY

Corrine Drive Study Proposed Off Street Trail
Design Underway
Existing Off Street Trail
Existing On Street Bicycle Boulevard
Corrine Drive Study Prposed Bicycle Bouevards



Map courtesy of the City of Orlando

OPPORTUNITIES FOR FUTURE ENHANCEMENT

The Corrine Drive recommended design can be further enhanced through involvement from community groups, arts organizations, main street districts, and local governments as the implementation of the design progresses. This chapter highlights some opportunities that were not in the scope of this study.

CREATIVE PLACEMAKING

According to the National Endowment for the Arts, creative placemaking is the use of arts and cultural activities to shape the physical and social character of an area. An already vibrant community such as Corrine Drive can use creative placemaking to further enhance the area and address community concerns.

Public art, a heavily used component of creative placemaking, could augment many areas of the recommended design, including beautification, safety, and connection to surrounding trails. Several members of the public expressed a desire to see more public art in the corridor in the Corrine Drive Complete Streets Study Phase 1 community survey. Public art along Corrine Drive could take the form of sculptures, bicycle parking that is both practical and visually interesting, decorated public benches and utility boxes, and pavement markings, such as painted crosswalks.

Implementing a creative placemaking plan lies with community stakeholders, such as the Audubon Park Garden District, and with local governments. MetroPlan Orlando has no authority to implement these activities, but it can support a community-led strategy.

Funding for creative placemaking projects can be found from a variety of organizations across the United States. The opportunities for funding change frequently and will need to be evaluated on a case-by-case basis, as different organizations will fund different types of projects. The National Endowment for the Arts, The Kresge Foundation, and Transportation for America are among the organizations that provide funding opportunities.

CURB MANAGEMENT

NACTO notes that "cities across North America are recognizing the value of their curbsides as flexible zones." Balancing the often conflicting needs of pedestrians, cyclists, transit riders, deliveries, parking, and rideshare pick-up/drop-off is a challenge that can be tackled through active curb management policies. As technology continues to advance, the curb will become increasingly valuable space. The City of Orlando is responsible for enacting curb management strategies along Corrine Drive. Some opportunities that could be explored include:

- **Signage for parking further from the commercial district.** Parking just outside the commercial district along Corrine Drive is often underutilized. Implementing signage along Corrine Drive identifying available spaces and their distance to the destinations could encourage people to park slightly further away. This strategy would be further strengthened by the design of the street, making walking and biking down Corrine Drive an attractive and safe choice.

- **Charge to park within commercial area on Corrine Drive.** Charging for parking in the Corrine Drive commercial district serves several purposes. First, it could encourage walking, biking, and using transit, which would negate the need to park on Corrine. Second, revenue from parking in the Corrine area could be added back into the Main Street district, providing an additional stream of revenue. The cost of parking could vary depending on demand (demand-responsive pricing), helping maintain an ideal level of use for the parking spaces. Varying price by demand could take into account not only time of day or day of week, but also a spot's location in relation to the Corrine commercial district. This means that spots closer to the district – if they are in higher demand – could cost more than spots further down the street. Existing technology enables this strategy to be implemented.

- **Implement parking time limits.** Parking time limits encourage quick turnover in parking spaces. These limits should be set with consideration for the average time spent at the businesses at which the parking spots are located. Google Analytics can be used for setting these time limits. These limits do not have to be enforced 24/7; rather, they could apply to peak hours only, allowing for longer parking times when the spot is not in high demand. Spaces outside the commercial district can be left unlimited, encouraging parking outside of the commercial district for longer trips, and allowing spaces for residents.

- **Rideshare zones.** The implementation of rideshare pick-up/drop-off zones near popular destinations on Corrine Drive would increase the visibility and convenience of rideshare as an alternative to parking.

- **Increasing transit service.** Currently, LYNX bus routes in the Corrine Drive area serve regional trips. These routes could change, though, to include more local or Main-Street oriented trips. A circulator-type service could also be added to connect key destinations in and around this area of Orange County. More transit trips by commuters and residents of the area would reduce vehicle trips on Corrine Drive.

FUTURE PROOFING

Future proofing is building flexibility into a plan so it can adapt to changes that might occur. The Corrine Drive Complete Streets Study was a process to identify a street design that creates safe transportation options available in this economically vibrant area with multiple neighborhoods. This recommended design requires tradeoffs – between space for pedestrians, cyclists, transit users, and drivers – and the design balances these tradeoffs based on technical conditions and community preferences.

Conditions could change over the coming decades, especially with the rapid pace of innovation occurring in transportation. This could result in a mode shift trend away from single-occupancy vehicles to other types of transportation. If several thousand more bicycling, walking, transit, and shared trips occur, the recommended design could be adapted in the following ways:

- The section between Bennett Road and Nebraska Street could be converted to a 3-lane section, similar to the design between Nebraska and Belgrade, at minimal costs. These modifications can be done without significant capital outlay and are recommended IF there is a very significant shift in travel modes over the next 20 years. Additional community outreach should be conducted if this modification is considered in the future.

- Implementing the recommended design enables the Corrine Drive area to support the smart city-related technological changes expected to occur in the coming years. The design provides an easier environment for electric and autonomous vehicles to operate in, especially if autonomous vehicles are part of a shared, connected fleet. Currently, the poor conditions of the street prohibit the effective implementation of connected and automated vehicle deployment.

COMPLETE STREETS

NEXT STEPS

TURNING CORRINE DRIVE INTO A COMPLETE STREET

WHAT NEEDS TO HAPPEN TO MAKE THIS PLAN A REALITY

PHASE 1

Implementing Partner

MetroPlan Orlando turns plan over to a local government to implement the project.

PHASE 2

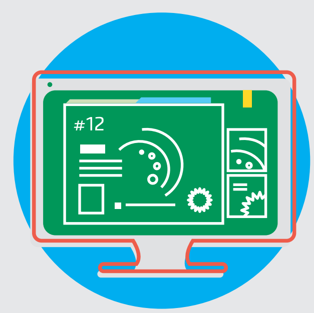
Finding the Funds

Implementing partner pursues local and federal funding sources, with MetroPlan Orlando support.

PHASE 3

Design

Design moves conceptual plans into formal construction drawings that include storm water drainage, traffic signals, lighting, medians, and other details. The Corrine Drive Complete Streets Study plan achieves 15% of total design.



PHASE 4

Construction

Roadway built during this phase. The length of construction time will depend on the approach the implementing partner takes for building the road.

MOVING FORWARD

Now that the study has concluded and there is a recommended design for Corrine Drive, what's next? Local governments will identify funding, finish design, and oversee construction.

Implementing the recommended design for Corrine Drive would be easier if it were owned, operated, and maintained by one jurisdiction. If not, Orange County and the City of Orlando will have to work together to clarify roles and responsibilities moving forward.

IMMEDIATE ACTIONS

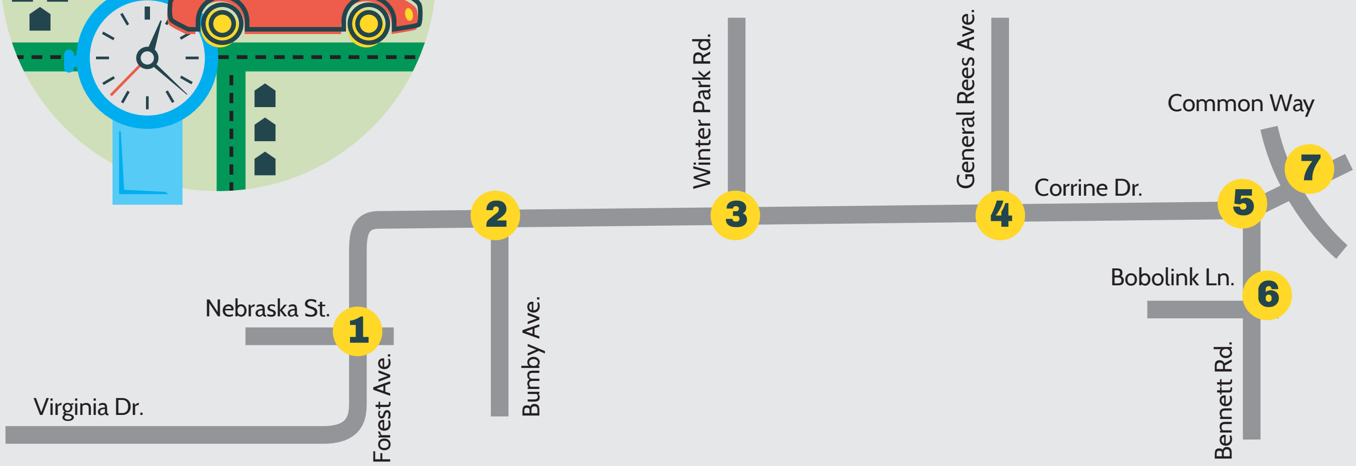
Meanwhile, these two recommendations are already complete, as of April 2019:

- **Traffic Signal Retiming.** This cost-effective way to reduce intersection delays and increase safety by giving pedestrians more time to cross was applied to seven traffic signals in the Corrine Drive corridor as part of MetroPlan Orlando's Signal Retiming Program. The retiming program took the new Audubon Park K-8 School traffic into consideration and should result in better flow on the main street, which helps decrease cut-through traffic on side streets.

- **Street Lighting Conversion.** As noted on pages 28-29, the Orlando Utilities Commission conducted a lighting study and has converted 37 street lights to LED (light emitting diode) technology, which provides more light. Another 18 LED street lights were added. Pedestrian-level lighting still needs to be studied.

TRAFFIC SIGNAL RETIMING ON CORRINE DRIVE

The seven intersections below in the Corrine Drive study area were retimed as part of MetroPlan Orlando's 2019 Signal Retiming Program.



Retiming procedures follow guidelines from industry manuals, including the Manual on Uniform Traffic Studies (MUTS), Manual on Uniform Traffic Control Devices (MUTCD), the Highway Capacity Manual (HCM) and FDOT District 5 standards.

3 OPTIONS FOR IMPLEMENTATION

Approach 1: SPRINT TO THE FINISH

Implement full recommended design as one project. Could be completed within 5-10 years, depending on when funding is identified

TOTAL COST

$9.3M

Approach 2: JOG TO THE FINISH

Implement as two projects: 2A) Safety features (raised intersection & two mid-block crossings), completed within two years; 2B) Full recommended design within 10 years

TOTAL COST

$10.3M

Approach 3: WALK TO THE FINISH

Implement as two projects: 3A) Resurfacing and safety features within 5 years; 3B) Full recommended design at a much later date (beyond 15 years)

TOTAL COST

$14.6M

3 OPTIONS FOR IMPLEMENTATION

MetroPlan Orlando has identified preliminary costs for the Corrine Drive recommended design and will work with local governments to identify funding for implementation. Funding has not yet been allocated for design and construction.There are three potential options for making this plan a reality. An overview of each approach is provided, including cost. Detailed cost estimates are found in the appendix.

Acquiring funding may take some time. The Corrine Drive project is eligible for federal funding available through MetroPlan Orlando. It's likely that the project will involve a mix of federal and local (county and city) funding.

Estimated Timelines

After the implementing partner and funds are identified, design and construction phases still need to be completed. The timelines here describe how quickly the project can be accomplished once funding becomes available. The implementing partner will determine exact procedures for completing the remaining project phases. Timelines are generalized and do not account for local government process such as procurement, changes to accommodate drainage or other utility relocations, and any necessary coordination with state and federal agencies.

The design phase will require survey work, additional public involvement, and the procurement of a consultant to conduct the technical work. Because Corrine Drive needs to be reconstructed, the design phase for the full recommended plan is expected to be approximately 1-2 years. Construction follows the design phase. A contractor will need to be procured. It is expected the construction phase for the full recommended plan is about 2 years.

In addition to the full recommended plan for Corrine Drive, Approach 2 and Approach 3 include short-term fixes, like installing interim safety features or doing resurfacing. These short-term fixes will also have design and construction phases. To accomplish these short-term fixes requires a design phase of approximately 9 months-1 year and a construction phase of about 12-18 months.

APPROACH 1: SPRINT TO THE FINISH

Implement all improvements as one project within 5-10 years

All improvements within the recommended design can be implemented as one project, with design and construction phases, for a cost of $9.3 million (in 2018 dollars). This cost does not include any potential drainage or green infrastructure changes the implementing partner may want to make.

For this plan to be accomplished within five years from the time design work starts, the necessary funding would have to be allocated and an implementing agency identified through interlocal agreement. Once money is available, design and construction could begin.

Improvement	*Cost*
Design and Construction of Full Recommended Design (includes moving curb and putting in all features outlined in this plan)	$7,983,276
Two mid-block crossings	$684,951
Raised intersection at Winter Park Rd. ($301,411) & at Fern Creek Rd. ($270,651)	$572,062
TOTAL	**$9.3 million**

3 OPTIONS FOR IMPLEMENTATION

APPROACH 2: JOG TO THE FINISH

Implement as two projects, with the first incorporating some safety improvements in 1-2 years and the second completing the full recommended design within 10 years

Three safety features could be implemented in the immediate future, pending available funds: the two mid-block crossings and the raised intersection at Corrine Drive and Winter Park Road. These could immediately begin addressing speeding and improving pedestrian connectivity and safety near Audubon Park K-8 School. Installing these features costs approximately $986,000. Survey work, design and construction could be completed in 10-16 months once funds are available.

Within the next decade, Corrine Drive's condition will continue to decline. If the immediate safety features are implemented, it is recommended to also implement the full design within 10 years at an additional cost of $9.3 million (in 2018 dollars). Construction of the full design would completely replace any interim improvements that are installed.

Improvement	*Cost*
Interim Safety Improvements (Raised intersection at Winter Park Road and two mid-block crossings)	$986,362
Full design (including the replacement of interim improvements)	$9.25 million
TOTAL	**$10.3 million**

APPROACH 3: WALK TO THE FINISH

Implement as two projects through resurfacing and the full design at a much later date. (*Note: This approach is not recommended.)

A third, less desirable option would also divide the improvements into two projects. Some of the recommended design can be accomplished through resurfacing at a cost of $5.3 million, including narrower lanes, wider parking lanes, and some safety features like the raised intersection at Winter Park Rd. and two mid-block crossings. Survey work, design and construction could be completed in 10-16 months once funds are available. However, many safety features cannot be implemented through a resurfacing, including the pedestrian and bicyclist shared use path, the 3-lane section, complete sidewalks, or the design speed of 30 mph.

Pursuing a resurfacing project is not recommended. It is only a temporary solution to extend the street's lifetime another 10-15 years. This approach does not truly address the safety concerns in the corridor. While a resurfacing would reconstruct the street, it would not move curbs, meaning that resurfacing would not provide the bicycle and pedestrian shared use path and cycle track. The full design would still need to be implemented at a cost of $9.3 million (in 2018 dollars). This cost is expected to be much higher once adjusted for future year dollars.

Improvement	*Cost*
Resurfacing	$4,324,881
Two mid-block crossings	$684,951
Raised intersection at Winter Park Rd	$301,411
Full design (including replacements of previous improvements)	$9.25 million
TOTAL	**$14.6 million**

3 OPTIONS FOR IMPLEMENTATION PROS & CONS

APPROACH 1: SPRINT TO THE FINISH

Pros

- All construction is completed at once
- Quickest timeline for full design
- Cheapest overall approach

Cons

- Have to find all funding at once
- Several years before any improvements can be implemented to address today's walkability and speeding problems

APPROACH 2: JOG TO THE FINISH

Pros

- Easier to find the initial funding for interim safety features
- Community benefits by receiving some safety features more quickly

Cons

- Costs more than doing full design at one time
- Construction takes place in two phases

APPROACH 3: WALK TO THE FINISH

Pros

- Community can receive narrower lanes, smoother pavement, and some safety features more quickly

Cons

- Most expensive approach
- Construction takes place in two phases
- Longest timeline for full design

TIMELINE FOR OPTIONS

TODAY — IN 5 YEARS — IN 10 YEARS — IN 15 YEARS — IN 20 YEARS

1: Build all features as one project

2A: Safety features as first projects

2A: All features as second project

3A: Resurfacing & Safety as first projects

3B: All features as second project

Approach 1 · Approach 2 · Approach 3

CONCLUSION

The Corrine Drive Complete Streets Study has brought to the forefront situations the community must address.

The recommended design for Corrine Drive is safer, more attractive, and attainable. It would alleviate the greatest community concerns and make the road accessible to everyone. While it comes with a 7-figure price tag, the study team is optimistic that funds can be found to make this vision a reality. Doing nothing is simply not a reasonable option.

Corrine Drive's past is unique, and the importance of the street today is clear. The Corrine Drive area should have a street that serves as connector between neighborhoods, supports its unique character, enhances walkability, and makes it easier for each person to move around.

COMPLETE STREETS

APPENDIX

COST ESTIMATES

TRAFFIC OPERATIONS ANALYSIS FOR RECOMMENDED DESIGN

LIGHTING PLAN

HEALTH PROFILE

Corrine Drive Final Report – Cost Estimates

Two Mid-Block Crossings

Winter Park Road Raised Intersection

Fern Creek Avenue Raised Intersection

Recommended Design (exclusive of above items)

Resurfacing

Guide to Acronyms

AC – Acre (.01)

AS – Assembly

CY – Cubic Yard (.1)

EA – Each

GM – Gross Mile (.001)

LF – Linear Foot

LS – Lump Sum

PI – Per Intersection

SF – Square Foot

SY – Square Yard

TN – Ton

Corrine Drive - Mid-Block Crossings

City of Orlando, FL

MetroPlan Orlando

KITTELSON & ASSOCIATES TRANSPORTATION ENGINEERING/

Engineer's Opinion of Probable Cost - Conceptual Improvements

Prepared By: Daniel Torre				*Date: October 19, 2018*		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
		MID-BLOCK CROSSINGS				
1	110-1	Clearing & Grubbing	AC	0.06	$17,618.92	$987.20
2	0425-1-201	Inlets, Curb, Type 5, <10'	EA	4.00	$5,544.22	$22,176.88
3	0520-1-10	Concrete Curb & Gutter, Type F	LF	350	$16.33	$5,715.50
4	0522-1	Concrete Sidewalk and Driveways, 6"	SY	292	$51.02	$14,876.01
5	0527-2	Detectable Warnings	SF	88	$27.32	$2,404.16
6	630-2-11	Conduit, F&I, Open Trench	LF	90	$9.58	$862.20
7	630-2-12	Conduit, F&I, Directional Bore	LF	1,010	$15.38	$15,533.80
8	632-7-1	Signal Cable- New or Recovered, Fur & Install	PI	2	$5,216.50	$10,433.00
9	633-4-1	Signals Communication- Twisted Pair Cable	LF	872	$2.60	$2,267.20
10	635-1-11	Pull & Junction Box, F&I, Pull Box	EA	8	$624.74	$4,997.92
11	635-2-11	Pull & Splice Box, F&I, 13" X 24"	EA	2	$627.21	$1,254.42
12	639-1-122	Electrical Power Srv, F&I, UG, Pur Cont	AS	2	$2,028.29	$4,056.58
13	639-2-1	Electrical Service Wire, F&I	LF	504	$9.86	$4,969.44
14	646-1-11	Aluminum Signals Pole, Pedestal	EA	4	$1,104.38	$4,417.52
15	649-21-10	Mast Arm, F&I, WS-130, Single Arm, Without LUM-60	EA	4	$38,820.88	$155,283.52
16	650-1-14	Traffic Signal, F&I Aluminum, 3 S 1 W	AS	8	$899.33	$7,194.64
17	653-1-11	Pedestrian Signal, F&I LED Count, 1 Way	AS	4	$679.41	$2,717.64
18	665-1-11	Pedestrian Detector, F&I, Standard	EA	4	$947.83	$3,791.32
19	670-5-111	Traffic Control Assembly, F&I, NEMA, 1 Preempt	AS	2	$26,002.90	$52,005.80
20	700-1-11	Single Post Sign, F&I GM,	AS	8	$325.66	$2,605.28
21	700-3-101	Sign Panel, F&I GM, Up to 12 SF	EA	4	$328.01	$1,312.04
22	706-3	Retro-reflective Pavement Markers	EA	20	$3.39	$67.80
23	711-11-123	Thermoplastic, Standard, White, Solid, 12"	LF	400	$2.18	$872.00
24	711-11-125	Thermoplastic, Standard, White, Solid, 24"	LF	144	$4.00	$576.00
25	711-16-101	Thermoplastic, Standard-Oth, White, Solid, 6"	GM	0.08	$3,926.85	$314.15
26	711-16-201	Thermoplastic, Standard-Oth, Yellow, Solid, 6"	GM	0.06	$4,047.59	$246.99
27	711-17	Thermoplastic, Remove	SF	69	$2.22	$153.18
28	715 1 60	Light Pole Complete, F&I - STD, 30'	EA	2.00	$5,325.00	$10,650.00
29		Erosion, Pollution, Sediment Control	LS	1.00	$5,000.00	$5,000.00
		SUBTOTAL MID-BLOCK CROSSINGS				$ 337,742
					SUBTOTAL	$ 337,742
		MAINTENANCE OF TRAFFIC				
30		Subtotal	LS	10.00%	$33,774.22	$33,774.22
		MOBILIZATION/CONSTRUCTION TECHNIQUES				
31		Subtotal	LS	10.00%	$33,774.22	$33,774.22
					ESTIMATED CONSTRUCTION COSTS	$ 405,291
					30% CONTINGENCY	$ 121,590
					TOTAL ESTIMATED CONSTRUCTION COSTS	$ 526,881
		CAPITAL SUPPORT COSTS				
32		Project Engineering	LS	20%	$ 526,881	$105,380.00
33		Construction Support / Construction Management	LS	10%	$ 526,881	$52,690.00
					TOTAL ESTIMATE CAPITAL SUPPORT COSTS	$ 158,070
					TOTAL PROJECT COST	$ 684,951

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

X **Level B:** Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Corrine Drive - Winter Park Raised Intersection

City of Orlando, FL

MetroPlan Orlando

Engineer's Opinion of Probable Cost - Conceptual Improvements Small Work Area 20%

Prepared By: Daniel Torre				*Date: October 19, 2018*		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
		RAISED INTERSECTION				
1	110-1	Clearing & Grubbing	AC	0.11	$21,142.70	$2,292.24
2	327-70-5	Milling Existing Asphalt Pavement (2" Avg. Depth)	SY	621	$3.19	$1,981.03
3	350-3-5	Plain Cement Concrete Pavement, 8"	SY	621	$63.73	$39,560.58
4	425-1-201	Inlets, Curb, Type 5, <10'	EA	4.00	$6,653.06	$26,612.26
5	0425-2-41	Manholes, P-7, <10'	EA	2.00	$6,323.51	$12,647.02
5	520-1-10	Concrete Curb and Gutter, Type F	LF	400	$19.60	$7,838.40
6	527-2	Detectable Warnings	SF	32	$32.78	$1,049.09
7	630-2-12	Conduit, F&I, Directional Bore	LF	234.79	$18.46	$4,333.28
8	632-7-1	Signal Cable- New or Recovered, Fur & Install	PI	1	$6,259.80	$6,259.80
9	635-2-11	Pull & Splice Box, F&I, 13" X 24"	EA	4	$752.65	$3,010.61
10	639-1-122	Electrical Power Srv, F&I, UG, Pur Cont	AS	1	$2,433.95	$2,433.95
11	639-2-1	Electrical Service Wire, F&I	LF	235	$11.83	$2,778.04
12	653-1-11	Pedestrian Signal, F&I LED Count, 1 Way	AS	8	$815.29	$6,522.34
13	653-1-60	Pedestrian Signal, Remove	AS	8	$0.00	$0.00
14	665-1-11	Pedestrian Detector, F&I, Standard	EA	8	$1,137.40	$9,099.17
15	700-1-11	Single Post Sign, F&I GM,	AS	8	$390.79	$3,126.34
16	700-3-101	Sign Panel, F&I GM, Up to 12 SF	EA	4	$393.61	$1,574.45
17	706-3	Retro-reflective Pavement Markers	EA	20	$4.07	$81.36
18	710-11-101	Painted Pavement Marking, Standard, White, Solid, 6"	GM	0	$1,172.83	$93.83
19	710-11-123	Painted Pavement Marking, Standard, White, Solid, 12"	LF	135	$0.91	$123.12
20	710-11-125	Painted Pavement Marking, Standard, White, Solid, 24"	LF	68	$1.39	$94.10
21	710-11-160	Painted Pavement Marking, Standard, White, Solid, Message"	EA	8	$64.24	$513.89
22	711-11-123	Thermoplastic, Standard, White, Solid, 12"	LF	135	$2.62	$353.16
23	711-11-125	Thermoplastic, Standard, White, Solid, 24"	LF	67.60	$4.80	$324.48
24	0711-14160	Thermoplastic, Preformed, White, Message	EA	8.00	$244.48	$1,955.81
25	711-16-101	Thermoplastic, Standard-Oth, White, Solid, 6"	GM	0.08	$4,712.22	$376.98
26	715 1 60	Light Pole Complete, F&I - STD, 30'	EA	1.00	$6,000.00	$6,000.00
27	715-11-211	Luminaire, F&I-Replace Existing, Roadway, Cobra H	EA	1.00	$1,466.32	$1,466.32
28	715-1-15	Luminaire, Remove	EA	1.00	$114.66	$114.66
29		Erosion, Pollution, Sediment Control	LS	1.00	$6,000.00	$6,000.00
		SUBTOTAL RAISED INTERSECTION				$ 148,616
					SUBTOTAL	$ 148,616
		MAINTENANCE OF TRAFFIC				
30		Subtotal	LS	20.00%	$29,723.25	$29,723.25
		MOBILIZATION/CONSTRUCTION TECHNIQUES				
31		Subtotal	LS	10.00%	$14,861.63	$14,861.63
					ESTIMATED CONSTRUCTION COSTS	$ 193,201
					30% CONTINGENCY	$ 57,970
					TOTAL ESTIMATED CONSTRUCTION COSTS	$ 251,171

		CAPITAL SUPPORT COSTS				
32		Project Engineering	LS	10%	$ 251,171	$25,120.00
33		Construction Support / Construction Management	LS	10%	$ 251,171	$25,120.00
					TOTAL ESTIMATE CAPITAL SUPPORT COSTS	$ 50,240
					TOTAL PROJECT COST	$ 301,411

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

X **Level B:** Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Corrine Drive - Winter Park Raised Intersection

City of Orlando, FL

MetroPlan Orlando

Engineer's Opinion of Probable Cost - Conceptual Improvements Small Work Area 20%

Prepared By: Daniel Torre				*Date: October 19, 2018*		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Corrine Drive - Fern Creek Raised Intersection

City of Orlando, FL

MetroPlan Orlando

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Engineer's Opinion of Probable Cost - Conceptual Improvements Small Work Area 20%

Prepared By: Daniel Torre *Date: October 19, 2018*

	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
		RAISED INTERSECTION				
1	110-1	Clearing & Grubbing	AC	0.11	$21,142.70	$2,292.24
2	327-70-5	Milling Existing Asphalt Pavement (2" Avg. Depth)	SY	394	$3.19	$1,257.84
3	350-3-5	Plain Cement Concrete Pavement, 8"	SY	394	$63.73	$25,114.30
4	425-1-201	Inlets, Curb, Type 5, <10'	EA	4.00	$6,653.06	$26,612.26
5	0425-2-41	Manholes, P-7, <10'	EA	2.00	$6,323.51	$12,647.02
6	520-1-10	Concrete Curb and Gutter, Type F	LF	400	$19.60	$7,838.40
7	527-2	Detectable Warnings	SF	32	$32.78	$1,049.09
8	630-2-12	Conduit, F&I, Directional Bore	LF	234.79	$18.46	$4,333.28
9	632-7-1	Signal Cable- New or Recovered, Fur & Install	PI	1	$6,259.80	$6,259.80
10	635-2-11	Pull & Splice Box, F&I, 13" X 24"	EA	4	$752.65	$3,010.61
11	639-1-122	Electrical Power Srv, F&I, UG, Pur Cont	AS	1	$2,433.95	$2,433.95
12	639-2-1	Electrical Service Wire, F&I	LF	235	$11.83	$2,778.04
13	653-1-11	Pedestrian Signal, F&I LED Count, 1 Way	AS	8	$815.29	$6,522.34
14	653-1-60	Pedestrian Signal, Remove	AS	8	$0.00	$0.00
15	665-1-11	Pedestrian Detector, F&I, Standard	EA	8	$1,137.40	$9,099.17
16	700-1-11	Single Post Sign, F&I GM,	AS	8	$390.79	$3,126.34
17	700-3-101	Sign Panel, F&I GM, Up to 12 SF	EA	4	$393.61	$1,574.45
18	706-3	Retro-reflective Pavement Markers	EA	20	$4.07	$81.36
19	710-11-101	Painted Pavement Marking, Standard, White, Solid, 6"	GM	0.08	$1,172.83	$93.83
20	710-11-123	Painted Pavement Marking, Standard, White, Solid, 12"	LF	135	$0.91	$123.12
21	710-11-125	Painted Pavement Marking, Standard, White, Solid, 24"	LF	68	$1.39	$94.10
22	710-11-160	Painted Pavement Marking, Standard, White, Solid, Message"	EA	8	$64.24	$513.89
23	711-11-123	Thermoplastic, Standard, White, Solid, 12"	LF	135	$2.62	$353.16
24	711-11-125	Thermoplastic, Standard, White, Solid, 24"	LF	68	$4.80	$324.48
25	0711-14160	Thermoplastic, Preformed, White, Message	EA	8.00	$244.48	$1,955.81
26	711-16-101	Thermoplastic, Standard-Oth, White, Solid, 6"	GM	0.08	$4,712.22	$376.98
27	715 1 60	Light Pole Complete, F&I - STD, 30'	EA	1.00	$6,000.00	$6,000.00
28	715-11-211	Luminaire, F&I-Replace Existing, Roadway, Cobra H	EA	1.00	$1,466.32	$1,466.32
29	715-1-15	Luminaire, Remove	EA	1.00	$114.66	$114.66
30		Erosion, Pollution, Sediment Control	LS	1.00	$6,000.00	$6,000.00
		SUBTOTAL RAISED INTERSECTION				$ 133,447
					SUBTOTAL	$ 133,447
		MAINTENANCE OF TRAFFIC				
31		Subtotal	LS	20.00%	$26,689.36	$26,689.36
		MOBILIZATION/CONSTRUCTION TECHNIQUES				
32		Subtotal	LS	10.00%	$13,344.68	$13,344.68
					ESTIMATED CONSTRUCTION COSTS	$ 173,481
					30% CONTINGENCY	$ 52,050
					TOTAL ESTIMATED CONSTRUCTION COSTS	$ 225,531
		CAPITAL SUPPORT COSTS				
33		Project Engineering	LS	10%	$ 225,531	$22,560.00
34		Construction Support / Construction Management	LS	10%	$ 225,531	$22,560.00
					TOTAL ESTIMATE CAPITAL SUPPORT COSTS	$ 45,120
					TOTAL PROJECT COST	$ 270,651

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

X **Level B:** Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Corrine Drive Mix Alternative Construction

City of Orlando, FL

MetroPlan Orlando

KITTELSON & ASSOCIATES
TRANSPORTATION ENGINEERING/PL

Engineer's Opinion of Probable Cost - Conceptual Improvements

Prepared By: Daniel Torre				Date: October 19, 2018		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
		SECTION 1: ROADWAY				
1	110-1	Clearing & Grubbing	AC	3.50	$17,618.92	$61,656.51
2	0327-70-5	Milling Existing Asphalt Pavement (2" Avg. Depth)	SY	72,686	$2.66	$193,345.25
3	334-1-11	Superpave Ashphaltic Conc, Traffic B	TN	4,038	$139.73	$564,246.71
4	0337-7-80	Asph Conc FC, Traffic B, FC-9.5, PG 76-22	TN	4,038	$98.47	$397,633.82
5	0520-1-10	Concrete Curb and Gutter, Type F	LF	20,987	$16.33	$342,719.51
6	0522-1	Concrete Sidewalk and Driveways, 4"	SY	16,638	$29.97	$498,633.77
7	0522-2	Concrete Sidewalk and Driveways, 6"	SY	5,042	$51.02	$257,248.25
8	0527-2	Detectable Warnings	SF	3,424	$24.90	$85,257.60
9	0570-1-2	Performance, SOD	SY	5,063	$3.00	$15,189.71
10	0580-1-2	Landscape Complete- Small Plants	LS	1.00	$88,859.91	$88,859.91
11	0580-5133	Landscape- Trees, Crape Myrtle Standard	EA	90.00	$616.67	$55,500.30
12	0580-5653	Landscape- Trees, Cathedral Live Oak	EA	200.00	$900.00	$180,000.00
		SUBTOTAL ROADWAY				$ 2,740,291
		SECTION 2: SHARED USE PATH				
13	0160-4	Type B Stabilization	SY	3,800	$3.65	$13,870.00
14	0285-701	Optional Base, Base Group 1	SY	2,557	$16.04	$41,011.39
15	334-1-11	Superpave Ashphaltic Conc, Traffic B	TN	284	$139.73	$39,700.02
		SUBTOTAL SHARED USE PATH				$ 94,581
		SECTION 3: STRIPING				
16	0710-11101	Painted Pavement Marking, Standard, White, Solid, 6"	GM	5.75	$977.36	$5,619.82
17	0710-11123	Painted Pavement Marking, Standard, White, Solid, 12"	LF	256	$0.76	$194.56
18	0710-11124	Painted Pavement Marking, Standard, White, Solid, 18"	LF	4,107	$0.72	$2,957.24
19	0710-11125	Painted Pavement Marking, Standard, White, Solid, 24"	LF	933	$1.16	$1,081.93
20	0710-11131	Painted Pavement Marking, Standard, White, Skip, 6"	GM	2.37	$422.23	$1,002.76
21	0710-11160	Painted Pavement Marking, Standard, White, Solid, Message"	EA	26.00	$53.53	$1,391.78
22	0710-11170	Painted Pavement Marking, Standard, White, Arrows	EA	64.00	$31.93	$2,043.52
23	0710-11201	Painted Pavement Marking, Standard, Yellow, Solid, 6"	GM	2.23	$942.95	$2,100.84
24	0710-11231	Painted Pavement Marking, Standard, Yellow, Skip, 6"	GM	0.06	$628.65	$36.82
25	0711-11123	Thermoplastic, STD, White, Solid, 12"	LF	256	$0.71	$181.76
26	0711-11124	Thermoplastic, STD, White, Solid, 18"	LF	4,107	$0.65	$2,669.73
27	0711-11125	Thermoplastic, STD, White, Solid, 24"	LF	933	$1.09	$1,016.64
28	0711-14160	Thermoplastic, Preformed, White, Message	EA	26.00	$203.73	$5,296.98
29	0711-14170	Thermoplastic, Preformed, White, Arrows	EA	64.00	$129.89	$8,312.96
30	0711-16101	Thermoplastic, STD-OTH, White, Solid, 6"	GM	5.75	$4,221.06	$24,271.10
31	0711-16131	Thermoplastic, STD-OTH, White, Skip, 6"	GM	2.37	$1,247.82	$2,963.47
32	0711-16201	Thermoplastic, STD-OTH, Yellow, Solid, 6"	GM	2.23	$4,055.50	$9,035.45
33	0711-16231	Thermoplastic, STD-OTH, Yellow, Skip, 6"	GM	0.06	$1,287.44	$75.40
		SUBTOTAL STRIPING				$ 70,253
		SECTION 4: DRAINAGE				
34	0425-1-351	Inlets, Curb, Type P-5, <10'	EA	78.00	$5,040.58	$393,165.24
35	0425-1-361	Inlets, Curb, Type P-6, <10'	EA	0.00	$5,011.97	$0.00
36	0425-2-41	Manholes, P-7, <10'	EA	36.00	$5,269.59	$189,705.24
37	0430-175-118	Pipe Culvert, Optional Material, Round, 18"S/CD	LF		$70.51	$0.00
		SUBTOTAL DRAINAGE				$ 582,870
		SECTION 5: LIGHTING				
38	715 1 60	Light Pole Complete, F&I - STD, 30'	EA	2.00	$5,000.00	$10,000.00
39	715-4-70	Light Pole Complete, Remove Pole/Found	EA	0.00	$641.08	$0.00
40	715-5-31	Luminaire & Bracket Arm, F&I New	EA	0.00	$4,017.69	$0.00
40	715-11-211	Luminaire, F&I-Replace Existing, Roadway, Cobra H	EA	4.00	$1,221.93	$4,887.72
41	715-1-15	Luminaire, Remove	EA	4.00	$95.55	$382.20

Corrine Drive Mix Alternative Construction

City of Orlando, FL

MetroPlan Orlando

KITTELSON & ASSOCIATES
TRANSPORTATION ENGINEERING/P

Engineer's Opinion of Probable Cost - Conceptual Improvements

Prepared By: Daniel Torre				*Date: October 19, 2018*		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
		SUBTOTAL LIGHTING				$ 15,270
		SECTION 6: ADDITIONAL MODIFICATIONS				
42		Water Quality	LS	15.00%	$173,027.38	$173,027.38
43		Utility Relocation	LS	1.00	$20,000.00	$20,000.00
44		Erosion, Pollution, Sediment Control	LS	15.00%	$509,012.19	$76,351.83
45		Embankment	CY	800.00	$8.02	$6,416.00
		SUBTOTAL ADDITIONAL MODIFICATIONS				$ 275,795
					SUBTOTAL SECTIONS 1 -6	$ 3,779,061
		SECTION 7: MAINTENANCE OF TRAFFIC				
46		Subtotal Sections 1-6	LS	10.00%	$377,906.11	$377,906.11
		SECTION 8: MOBILIZATION/CONSTRUCTION TECHNIQUES				
47		Subtotal Sections 1-6	LS	15.00%	$566,859.17	$566,859.17
					ESTIMATED CONSTRUCTION COSTS	$ 4,723,826
					30% CONTINGENCY	$ 1,417,150
					TOTAL ESTIMATED CONSTRUCTION COSTS	$ 6,140,976

		CAPITAL SUPPORT COSTS				
48		Project Engineering	LS	20%	$ 6,140,976	$1,228,200.00
49		Construction Support / Construction Management	LS	10%	$ 6,140,976	$614,100.00
					TOTAL ESTIMATE CAPITAL SUPPORT COSTS	$ 1,842,300

TOTAL PROJECT COST	$ 7,983,276

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

X **Level B:** Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range

Corrine Drive - Resurfacing

City of Orlando, FL

MetroPlan Orlando

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Engineer's Opinion of Probable Cost - Conceptual Improvements

Prepared By: Daniel Torre				*Date: October 19, 2018*		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
		SECTION 1: ROADWAY				
1	110-1	Clearing & Grubbing	AC	0.00	$17,618.92	$0.00
2	0327-70-5	Milling Existing Asphalt Pavement (2" Avg. Depth)	SY	92,381	$2.66	$245,734.68
3	334-1-11	Superpave Ashphaltic Conc, Traffic B	TN	5,132	$139.73	$717,136.73
4	0337-7-80	Asph Conc FC, Traffic B, FC-9.5, PG 76-22	TN	5,132	$98.47	$505,377.90
5	0520-1-7	Concrete Curb and Gutter, Type E	LF	0.00	$19.87	$0.00
6	0520-1-10	Concrete Curb and Gutter, Type F	LF	4,365	$16.33	$71,283.44
7	0527-2	Detectable Warnings	SF	3,424	$24.90	$85,257.60
8	0580-1-2	Landscape Complete- Large Plants	LS	0.00	$11,700.00	$0.00
9	0509-70-3	Mass Transit - Grade Crossing Assembly, Furnish and Install, Type III	EA	0.00	$15,000.00	$0.00
10	0509-70-4	Mass Transit - Grade Crossing Assembly, Furnish and Install, Type IV	EA	0.00	$20,000.00	$0.00
		SUBTOTAL ROADWAY				$ 1,624,790
		SECTION 2: STRIPING				
11	0710-11101	Painted Pavement Marking, Standard, White, Solid, 6"	GM	5.75	$977.36	$5,618.21
12	0710-11123	Painted Pavement Marking, Standard, White, Solid, 12"	LF	256	$0.76	$194.56
13	0710-11124	Painted Pavement Marking, Standard, White, Solid, 18"	LF	4,107	$0.72	$2,957.24
14	0710-11125	Painted Pavement Marking, Standard, White, Solid, 24"	LF	933	$1.16	$1,081.93
15	0710-11131	Painted Pavement Marking, Standard, White, Skip, 6"	GM	4.75	$422.23	$2,005.52
16	0710-11160	Painted Pavement Marking, Standard, White, Solid, Message"	EA	26.00	$53.53	$1,391.78
17	0710-11170	Painted Pavement Marking, Standard, White, Arrows	EA	64.00	$31.93	$2,043.52
18	0710-11201	Painted Pavement Marking, Standard, Yellow, Solid, 6"	GM	2.23	$942.95	$2,100.84
19	0710-11231	Painted Pavement Marking, Standard, Yellow, Skip, 6"	GM	0.12	$628.65	$73.64
20	0711-11123	Thermoplastic, STD, White, Solid, 12"	LF	256	$0.71	$181.76
21	0711-11124	Thermoplastic, STD, White, Solid, 18"	LF	4,107	$0.65	$2,669.73
22	0711-11125	Thermoplastic, STD, White, Solid, 24"	LF	933	$1.09	$1,016.64
23	0711-14160	Thermoplastic, Preformed, White, Message	EA	26.00	$203.73	$5,296.98
24	0711-14170	Thermoplastic, Preformed, White, Arrows	EA	64.00	$129.89	$8,312.96
25	0711-16101	Thermoplastic, STD-OTH, White, Solid, 6"	GM	5.75	$4,221.06	$24,264.16
26	0711-16131	Thermoplastic, STD-OTH, White, Skip, 6"	GM	4.75	$1,247.82	$5,926.94
27	0711-16201	Thermoplastic, STD-OTH, Yellow, Solid, 6"	GM	2.23	$4,055.50	$9,035.45
28	0711-16231	Thermoplastic, STD-OTH, Yellow, Skip, 6"	GM	0.12	$1,287.44	$150.80
		SUBTOTAL STRIPING				$ 74,323
		SECTION 3: DRAINAGE				
29	0425-1-351	Inlets, Curb, Type P-5, <10'	EA	24.00	$5,040.58	$120,973.92
30	0425-1-361	Inlets, Curb, Type P-6, <10'	EA	0.00	$5,011.97	$0.00
31	0425-2-41	Manholes, P-7, <10'	EA	0.00	$5,269.59	$0.00
32	0430-175-118	Pipe Culvert, Optional Material, Round, 18"S/CD	LF		$70.51	$0.00
		SUBTOTAL DRAINAGE				$ 120,974
		SECTION 4: LIGHTING				
33	715 1 60	Light Pole Complete, F&I - STD, 30'	EA	0.00	$5,000.00	$0.00
34	715-4-70	Light Pole Complete, Remove Pole/Found	EA	0.00	$641.08	$0.00
35	715-5-31	Luminaire & Bracket Arm, F&I New	EA	0.00	$4,017.69	$0.00
35	715-11-211	Luminaire, F&I-Replace Existing, Roadway, Cobra H	EA	4.00	$1,221.93	$4,887.72
36	715-1-15	Luminaire, Remove	EA	4.00	$95.55	$382.20
		SUBTOTAL LIGHTING				$ 5,270
		SECTION 5: ADDITIONAL MODIFICATIONS				
33		Water Quality	LS	15.00%	$75,806.68	$75,806.68
34		Utility Relocation	LS	1.00	$20,000.00	$20,000.00
35		Erosion, Pollution, Sediment Control	LS	15.00%	$273,013.04	$40,951.96
42		Embankment	CY	800.00	$8.02	$6,416.00
		SUBTOTAL ADDITIONAL MODIFICATIONS				$ 143,175
					SUBTOTAL SECTIONS 1 -6	$ 1,968,531
		SECTION 6: MAINTENANCE OF TRAFFIC				
43		Subtotal Sections 1-5	LS	15.00%	$295,279.72	$295,279.72
		SECTION 7: MOBILIZATION/CONSTRUCTION TECHNIQUES				
44		Subtotal Sections 1-5	LS	15.00%	$295,279.72	$295,279.72
					ESTIMATED CONSTRUCTION COSTS	$ 2,559,091
					30% CONTINGENCY	$ 767,730

Corrine Drive - Resurfacing

City of Orlando, FL

MetroPlan Orlando

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Engineer's Opinion of Probable Cost - Conceptual Improvements

Prepared By: Daniel Torre				*Date: October 19, 2018*		
	PAY ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
					TOTAL ESTIMATED CONSTRUCTION COSTS $	3,326,821
		CAPITAL SUPPORT COSTS				
45		Project Engineering	LS	20%	$ 3,326,821	$665,370.00
46		Construction Support / Construction Management	LS	10%	$ 3,326,821	$332,690.00
					TOTAL ESTIMATE CAPITAL SUPPORT COSTS $	998,060
					TOTAL PROJECT COST $	4,324,881

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

X **Level B:** Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Corrine Drive Final Report – Traffic Operations Analysis for Recommended Design

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑	↱	↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	54	248	71	248	502	342	84	920	90	113	895	80
Future Volume (veh/h)	54	248	71	248	502	342	84	920	90	113	895	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.98	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1900	1859	1900	1863	1881	1863	1792	1863	1900	1900	1848	1900
Adj Flow Rate, veh/h	61	279	71	279	564	271	94	1034	101	127	1006	86
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	2	2	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	2	1	2	6	2	2	0	3	3
Cap, veh/h	113	618	154	412	605	507	111	1488	145	169	1433	122
Arrive On Green	0.03	0.22	0.22	0.13	0.32	0.32	0.07	0.46	0.46	0.05	0.44	0.44
Sat Flow, veh/h	1810	2797	699	1774	1881	1576	1707	3253	318	3510	3266	279
Grp Volume(v), veh/h	61	174	176	279	564	271	94	562	573	127	541	551
Grp Sat Flow(s),veh/h/ln	1810	1766	1730	1774	1881	1576	1707	1770	1801	1755	1755	1789
Q Serve(g_s), s	4.7	15.4	15.9	21.3	52.3	25.4	9.8	45.5	45.5	6.4	45.0	45.0
Cycle Q Clear(g_c), s	4.7	15.4	15.9	21.3	52.3	25.4	9.8	45.5	45.5	6.4	45.0	45.0
Prop In Lane	1.00		0.40	1.00		1.00	1.00		0.18	1.00		0.16
Lane Grp Cap(c), veh/h	113	390	382	412	605	507	111	810	824	169	770	785
V/C Ratio(X)	0.54	0.45	0.46	0.68	0.93	0.53	0.84	0.69	0.70	0.75	0.70	0.70
Avail Cap(c_a), veh/h	113	390	382	500	682	572	130	810	824	371	770	785
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	56.0	60.6	60.8	44.3	59.2	50.0	83.2	38.8	38.8	84.6	41.0	41.0
Incr Delay (d2), s/veh	5.1	0.8	0.9	2.8	18.5	0.9	33.7	4.9	4.8	6.6	5.3	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	4.5	12.1	12.3	16.2	39.4	16.7	9.6	31.2	31.7	5.9	30.8	31.3
LnGrp Delay(d),s/veh	61.0	61.4	61.7	47.1	77.7	50.9	116.9	43.7	43.7	91.2	46.3	46.2
LnGrp LOS	E	E	E	D	E	D	F	D	D	F	D	D
Approach Vol, veh/h		411			1114			1229			1219	
Approach Delay, s/veh		61.5			63.5			49.3			50.9	
Approach LOS		E			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	85.4	12.0	64.6	14.7	88.8	30.1	46.5
Change Period (Y+Rc), s	6.3	* 6.4	* 6.8	6.7	6.0	* 6.4	6.2	6.7
Max Green Setting (Gmax), s	13.7	* 70	* 5.2	65.3	19.0	* 65	32.8	38.3
Max Q Clear Time (g_c+I1), s	11.8	47.0	6.7	54.3	8.4	47.5	23.3	17.9
Green Ext Time (p_c), s	0.0	2.4	0.0	3.6	0.2	2.4	0.6	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	E

Notes

* HCM 2010 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)	2	404	40	108	934	21	121	91	65	4	15	5
Future Volume (veh/h)	2	404	40	108	934	21	121	91	65	4	15	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1267	1883	1900	1900	1882	1900	1900	1892	1900	1900	1819	1900
Adj Flow Rate, veh/h	2	454	41	121	1049	23	136	102	56	4	17	4
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	50	1	1	0	1	1	0	0	0	0	0	0
Cap, veh/h	156	1144	103	580	1235	27	198	121	63	73	262	56
Arrive On Green	0.67	0.67	0.67	0.67	0.67	0.67	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	356	1698	153	916	1834	40	702	587	303	150	1267	270
Grp Volume(v), veh/h	2	0	495	121	0	1072	294	0	0	25	0	0
Grp Sat Flow(s),veh/h/ln	356	0	1852	916	0	1874	1593	0	0	1687	0	0
Q Serve(g_s), s	0.4	0.0	11.9	6.8	0.0	43.6	16.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	44.1	0.0	11.9	18.7	0.0	43.6	17.9	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.02	0.46		0.19	0.16		0.16
Lane Grp Cap(c), veh/h	156	0	1247	580	0	1262	382	0	0	390	0	0
V/C Ratio(X)	0.01	0.00	0.40	0.21	0.00	0.85	0.77	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	156	0	1247	580	0	1262	434	0	0	445	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	29.3	0.0	7.3	11.5	0.0	12.5	38.5	0.0	0.0	31.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.9	0.8	0.0	7.3	7.7	0.0	0.0	0.1	0.0	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(95%),veh/ln	0.1	0.0	10.5	3.3	0.0	33.1	13.6	0.0	0.0	1.0	0.0	0.0
LnGrp Delay(d),s/veh	29.4	0.0	8.2	12.3	0.0	19.7	46.2	0.0	0.0	32.0	0.0	0.0
LnGrp LOS	C		A	B		B	D			C		
Approach Vol, veh/h		497			1193			294			25	
Approach Delay, s/veh		8.3			19.0			46.2			32.0	
Approach LOS		A			B			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		73.3		26.7		73.3		26.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		64.0		24.0		64.0		24.0
Max Q Clear Time (g_c+I1), s		45.6		19.9		46.1		3.1
Green Ext Time (p_c), s		17.1		0.7		8.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	4	1	1	16	1	7	378	1	1	799	497
Future Volume (veh/h)	211	4	1	1	16	1	7	378	1	1	799	497
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1900	1864	1900	1900	1900	1900	1900	1863	1900	1900	1881	1881
Adj Flow Rate, veh/h	229	4	1	1	17	0	8	411	1	1	868	432
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	1
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	0	0	0	0	0	2	2	0	1	1
Cap, veh/h	333	5	1	43	355	0	271	2572	6	738	1336	1135
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.00	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	1381	24	6	26	1868	0	431	3622	9	989	1881	1598
Grp Volume(v), veh/h	234	0	0	18	0	0	8	201	211	1	868	432
Grp Sat Flow(s),veh/h/ln	1411	0	0	1894	0	0	431	1770	1861	989	1881	1598
Q Serve(g_s), s	15.3	0.0	0.0	0.0	0.0	0.0	1.0	3.7	3.7	0.0	24.8	10.7
Cycle Q Clear(g_c), s	16.1	0.0	0.0	0.8	0.0	0.0	25.8	3.7	3.7	3.7	24.8	10.7
Prop In Lane	0.98		0.00	0.06		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	0	397	0	0	271	1257	1322	738	1336	1135
V/C Ratio(X)	0.69	0.00	0.00	0.05	0.00	0.00	0.03	0.16	0.16	0.00	0.65	0.38
Avail Cap(c_a), veh/h	465	0	0	566	0	0	271	1257	1322	738	1336	1135
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	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	39.2	0.0	0.0	33.1	0.0	0.0	14.7	4.7	4.7	5.3	7.8	5.8
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.0	1.9	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(95%),veh/ln	10.7	0.0	0.0	0.7	0.0	0.0	0.2	3.4	3.6	0.0	18.4	8.1
LnGrp Delay(d),s/veh	41.8	0.0	0.0	33.2	0.0	0.0	14.9	5.0	5.0	5.3	9.7	6.5
LnGrp LOS	D			C			B	A	A	A	A	A
Approach Vol, veh/h		234			18			420			1301	
Approach Delay, s/veh		41.8			33.2			5.2			8.6	
Approach LOS		D			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		76.0		24.0		76.0		24.0
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		62.0		28.0		62.0		28.0
Max Q Clear Time (g_c+I1), s		27.8		18.1		26.8		2.8
Green Ext Time (p_c), s		2.7		0.9		10.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	1	1	4	591	1299	6		
Future Volume (veh/h)	1	1	4	591	1299	6		
Number	7	14	5	2	6	16		
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		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		
Adj Flow Rate, veh/h	1	1	4	649	1427	7		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91		
Percent Heavy Veh, %	0	0	0	0	0	0		
Cap, veh/h	7	6	193	2890	2228	11		
Arrive On Green	0.00	0.00	0.11	0.80	0.60	0.60		
Sat Flow, veh/h	1810	1615	1810	3705	3779	18		
Grp Volume(v), veh/h	1	1	4	649	699	735		
Grp Sat Flow(s),veh/h/ln	1810	1615	1810	1805	1805	1897		
Q Serve(g_s), s	0.0	0.0	0.1	2.5	14.0	14.1		
Cycle Q Clear(g_c), s	0.0	0.0	0.1	2.5	14.0	14.1		
Prop In Lane	1.00	1.00	1.00			0.01		
Lane Grp Cap(c), veh/h	7	6	193	2890	1092	1147		
V/C Ratio(X)	0.14	0.16	0.02	0.22	0.64	0.64		
Avail Cap(c_a), veh/h	612	546	193	4496	1895	1991		
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	27.9	27.9	22.5	1.4	7.2	7.2		
Incr Delay (d2), s/veh	9.2	11.8	0.0	0.0	0.8	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	0.1	0.0	0.1	2.1	11.4	11.8		
LnGrp Delay(d),s/veh	37.2	39.7	22.5	1.4	7.9	7.9		
LnGrp LOS	D	D	C	A	A	A		
Approach Vol, veh/h	2			653	1434			
Approach Delay, s/veh	38.4			1.5	7.9			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		50.0		6.2	11.0	39.0		
Change Period (Y+Rc), s		5.0		6.0	5.0	5.0		
Max Green Setting (Gmax), s		70.0		19.0	6.0	59.0		
Max Q Clear Time (g_c+I1), s		4.5		2.0	2.1	16.1		
Green Ext Time (p_c), s		6.5		0.0	0.0	17.9		
Intersection Summary								
HCM 2010 Ctrl Delay			5.9					
HCM 2010 LOS			A					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	619	20	152	1316	1	50	0	144	11	3	13
Future Volume (veh/h)	1	619	20	152	1316	1	50	0	144	11	3	13
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1900	1864	1900	1792	1881	1900	1900	1823	1900	1900	1900	1900
Adj Flow Rate, veh/h	1	680	18	167	1446	1	55	0	155	12	3	7
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	6	1	1	0	0	0	0	0	0
Cap, veh/h	300	2143	57	540	2662	2	96	14	183	147	43	63
Arrive On Green	0.61	0.61	0.61	0.12	1.00	1.00	0.16	0.00	0.16	0.16	0.16	0.16
Sat Flow, veh/h	374	3523	93	1707	3665	3	311	86	1119	561	265	385
Grp Volume(v), veh/h	1	342	356	167	705	742	210	0	0	22	0	0
Grp Sat Flow(s),veh/h/ln	374	1771	1845	1707	1787	1881	1516	0	0	1211	0	0
Q Serve(g_s), s	0.1	9.4	9.4	3.6	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	9.4	9.4	3.6	0.0	0.0	13.4	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.00	0.26		0.74	0.55		0.32
Lane Grp Cap(c), veh/h	300	1077	1122	540	1298	1366	294	0	0	254	0	0
V/C Ratio(X)	0.00	0.32	0.32	0.31	0.54	0.54	0.72	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	300	1077	1122	645	1298	1366	452	0	0	404	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.7	9.5	9.5	5.9	0.0	0.0	40.5	0.0	0.0	35.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.2	0.8	0.8	3.2	0.0	0.0	0.1	0.0	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(95%),veh/ln	0.0	8.2	8.4	2.9	0.5	0.5	9.8	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	7.7	9.7	9.7	6.1	0.8	0.8	43.7	0.0	0.0	35.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	D			D		
Approach Vol, veh/h		699			1614			210			22	
Approach Delay, s/veh		9.7			1.4			43.7			35.6	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		78.6		21.4	11.8	66.8		21.4
Change Period (Y+Rc), s		6.0		5.0	6.0	6.0		5.0
Max Green Setting (Gmax), s		62.0		27.0	12.0	44.0		27.0
Max Q Clear Time (g_c+I1), s		2.0		15.4	5.6	11.4		3.0
Green Ext Time (p_c), s		23.8		0.9	0.2	6.8		0.1

Intersection Summary			
HCM 2010 Ctrl Delay			7.5
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	627	25	13	1177	124	49	42	11	101	24	163
Future Volume (veh/h)	100	627	25	13	1177	124	49	42	11	101	24	163
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	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
Adj Sat Flow, veh/h/ln	1810	1870	1900	1759	1863	1900	1667	1900	1900	1900	1884	1900
Adj Flow Rate, veh/h	108	674	26	14	1266	101	53	45	11	109	26	174
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
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, %	5	1	1	8	2	2	14	0	0	0	0	0
Cap, veh/h	235	1958	75	469	1772	141	162	214	52	306	31	210
Arrive On Green	0.08	1.00	1.00	0.01	0.53	0.53	0.04	0.15	0.15	0.04	0.15	0.15
Sat Flow, veh/h	1723	3486	134	1675	3315	264	1587	1470	359	1810	212	1418
Grp Volume(v), veh/h	108	343	357	14	674	693	53	0	56	109	0	200
Grp Sat Flow(s),veh/h/ln	1723	1777	1843	1675	1770	1809	1587	0	1830	1810	0	1630
Q Serve(g_s), s	2.9	0.0	0.0	0.4	28.7	28.9	2.8	0.0	2.7	4.0	0.0	11.9
Cycle Q Clear(g_c), s	2.9	0.0	0.0	0.4	28.7	28.9	2.8	0.0	2.7	4.0	0.0	11.9
Prop In Lane	1.00		0.07	1.00		0.15	1.00		0.20	1.00		0.87
Lane Grp Cap(c), veh/h	235	998	1035	469	946	967	162	0	266	306	0	242
V/C Ratio(X)	0.46	0.34	0.34	0.03	0.71	0.72	0.33	0.00	0.21	0.36	0.00	0.83
Avail Cap(c_a), veh/h	235	998	1035	514	946	967	166	0	439	306	0	391
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.94	0.94	0.94	0.77	0.77	0.77	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	0.0	10.3	17.5	17.5	35.3	0.0	37.7	35.9	0.0	41.3
Incr Delay (d2), s/veh	1.3	0.9	0.9	0.0	3.5	3.5	1.2	0.0	0.4	0.7	0.0	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	2.5	0.4	0.4	0.3	20.3	20.8	2.3	0.0	2.5	4.7	0.0	9.8
LnGrp Delay(d),s/veh	16.0	0.9	0.9	10.3	21.0	21.1	36.4	0.0	38.1	36.6	0.0	49.0
LnGrp LOS	B	A	A	B	C	C	D		D	D		D
Approach Vol, veh/h		808			1381			109			309	
Approach Delay, s/veh		2.9			20.9			37.3			44.6	
Approach LOS		A			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	59.5	10.0	20.5	7.3	62.2	9.7	20.8
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	4.0	44.0	4.0	24.0	4.0	44.0	4.0	24.0
Max Q Clear Time (g_c+I1), s	4.9	30.9	6.0	4.7	2.4	2.0	4.8	13.9
Green Ext Time (p_c), s	0.0	9.1	0.0	0.2	0.0	7.1	0.0	0.8

Intersection Summary			
HCM 2010 Ctrl Delay			18.8
HCM 2010 LOS			B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	203	511	841	68	98	443
Future Volume (veh/h)	203	511	841	68	98	443
Number	5	2	6	16	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1861	1900	1810	1863
Adj Flow Rate, veh/h	211	532	876	66	102	295
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	1	2	2	5	2
Cap, veh/h	401	2378	1767	133	370	340
Arrive On Green	0.15	1.00	0.36	0.36	0.21	0.21
Sat Flow, veh/h	1792	3668	3427	251	1723	1583
Grp Volume(v), veh/h	211	532	465	477	102	295
Grp Sat Flow(s),veh/h/ln	1792	1787	1768	1817	1723	1583
Q Serve(g_s), s	5.3	0.0	20.6	20.6	4.9	18.0
Cycle Q Clear(g_c), s	5.3	0.0	20.6	20.6	4.9	18.0
Prop In Lane	1.00			0.14	1.00	1.00
Lane Grp Cap(c), veh/h	401	2378	937	963	370	340
V/C Ratio(X)	0.53	0.22	0.50	0.50	0.28	0.87
Avail Cap(c_a), veh/h	535	2378	937	963	517	475
HCM Platoon Ratio	2.00	2.00	0.67	0.67	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.76	0.76	1.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	21.8	21.8	32.8	37.9
Incr Delay (d2), s/veh	0.8	0.2	0.4	0.4	0.6	13.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	0.1	14.7	15.1	4.3	22.3
LnGrp Delay(d),s/veh	11.6	0.2	22.2	22.2	33.3	51.4
LnGrp LOS	B	A	C	C	C	D
Approach Vol, veh/h		743	942		397	
Approach Delay, s/veh		3.4	22.2		46.8	
Approach LOS		A	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		72.5		27.5	13.5	59.0		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		58.0		30.0	15.0	37.0		
Max Q Clear Time (g_c+I1), s		2.0		20.0	7.3	22.6		
Green Ext Time (p_c), s		5.8		1.5	0.3	6.8		

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	225	336	79	263	502	119
Future Volume (veh/h)	225	336	79	263	502	119
Number	6	16	5	2	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1863	1900	1900	1845	1845
Adj Flow Rate, veh/h	234	350	82	274	523	112
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	2	0	0	3	3
Cap, veh/h	811	1198	496	1035	589	525
Arrive On Green	0.72	0.72	0.05	0.54	0.34	0.34
Sat Flow, veh/h	1881	1549	1810	1900	1757	1568
Grp Volume(v), veh/h	234	350	82	274	523	112
Grp Sat Flow(s),veh/h/ln	1881	1549	1810	1900	1757	1568
Q Serve(g_s), s	4.4	4.2	2.3	7.7	28.2	5.1
Cycle Q Clear(g_c), s	4.4	4.2	2.3	7.7	28.2	5.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	811	1198	496	1035	589	525
V/C Ratio(X)	0.29	0.29	0.17	0.26	0.89	0.21
Avail Cap(c_a), veh/h	811	1198	507	1035	861	768
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.6	1.6	13.1	12.1	31.5	23.8
Incr Delay (d2), s/veh	0.3	0.2	0.2	0.6	9.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	7.6	2.1	7.6	21.6	8.9
LnGrp Delay(d),s/veh	8.9	1.8	13.2	12.7	40.8	24.1
LnGrp LOS	A	A	B	B	D	C
Approach Vol, veh/h	584			356	635	
Approach Delay, s/veh	4.6			12.8	37.9	
Approach LOS	A			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.5		39.5	11.4	49.1		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		39.0		49.0	6.0	27.0		
Max Q Clear Time (g_c+I1), s		9.7		30.2	4.3	6.4		
Green Ext Time (p_c), s		2.5		3.3	0.0	4.1		

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Notes

User approved changes to right turn type.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	445	100	87	304	205	101	910	153	299	1176	57
Future Volume (veh/h)	93	445	100	87	304	205	101	910	153	299	1176	57
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	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
Adj Sat Flow, veh/h/ln	1881	1900	1900	1863	1881	1881	1900	1884	1900	1845	1882	1900
Adj Flow Rate, veh/h	94	449	88	88	307	126	102	919	151	302	1188	55
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	2	2	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	0	0	2	1	1	0	1	1	3	1	1
Cap, veh/h	113	522	102	135	340	287	121	1660	273	346	1995	92
Arrive On Green	0.03	0.17	0.17	0.04	0.18	0.18	0.07	0.54	0.54	0.10	0.57	0.57
Sat Flow, veh/h	1792	3002	584	1774	1881	1586	1810	3072	505	3408	3480	161
Grp Volume(v), veh/h	94	269	268	88	307	126	102	535	535	302	610	633
Grp Sat Flow(s),veh/h/ln	1792	1805	1781	1774	1881	1586	1810	1790	1786	1704	1788	1853
Q Serve(g_s), s	4.0	26.0	26.4	2.2	28.8	10.1	10.0	35.3	35.3	15.7	39.8	39.8
Cycle Q Clear(g_c), s	4.0	26.0	26.4	2.2	28.8	10.1	10.0	35.3	35.3	15.7	39.8	39.8
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.28	1.00		0.09
Lane Grp Cap(c), veh/h	113	314	310	135	340	287	121	967	965	346	1025	1063
V/C Ratio(X)	0.83	0.86	0.87	0.65	0.90	0.44	0.84	0.55	0.55	0.87	0.60	0.60
Avail Cap(c_a), veh/h	151	439	433	161	453	381	188	967	965	460	1025	1063
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	84.7	72.2	72.3	82.5	72.2	40.9	83.0	27.1	27.1	79.7	24.9	24.9
Incr Delay (d2), s/veh	24.4	11.3	12.6	6.9	17.3	1.1	17.8	2.3	2.3	13.3	2.5	2.5
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(95%),veh/ln	9.2	20.1	20.2	8.0	23.3	7.9	9.5	25.0	24.9	12.7	27.8	28.7
LnGrp Delay(d),s/veh	109.1	83.5	84.9	89.5	89.5	42.0	100.8	29.4	29.4	93.0	27.4	27.3
LnGrp LOS	F	F	F	F	F	D	F	C	C	F	C	C
Approach Vol, veh/h		631			521			1172			1545	
Approach Delay, s/veh		87.9			78.0			35.6			40.2	
Approach LOS		F			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	109.6	12.8	39.3	24.3	103.7	14.0	38.0
Change Period (Y+Rc), s	6.3	* 6.4	6.8	* 6.7	6.0	* 6.4	6.8	* 6.7
Max Green Setting (Gmax), s	18.7	* 82	9.8	* 43	24.3	* 77	9.9	* 44
Max Q Clear Time (g_c+I1), s	12.0	41.8	6.0	30.8	17.7	37.3	4.2	28.4
Green Ext Time (p_c), s	0.1	2.9	0.1	1.8	0.6	2.4	0.1	2.9

Intersection Summary			
HCM 2010 Ctrl Delay			51.7
HCM 2010 LOS			D

Notes

* HCM 2010 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)	3	837	75	60	517	5	72	57	150	11	78	4
Future Volume (veh/h)	3	837	75	60	517	5	72	57	150	11	78	4
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1900	1883	1900	1900	1881	1900	1900	1885	1900	1900	1900	1900
Adj Flow Rate, veh/h	3	854	67	61	528	3	73	58	114	11	80	3
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	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, %	0	1	1	0	1	1	0	0	0	0	0	0
Cap, veh/h	592	1210	95	325	1314	7	117	80	131	57	300	10
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	886	1720	135	616	1869	11	400	454	744	95	1699	59
Grp Volume(v), veh/h	3	0	921	61	0	531	245	0	0	94	0	0
Grp Sat Flow(s),veh/h/ln	886	0	1855	616	0	1879	1598	0	0	1854	0	0
Q Serve(g_s), s	0.1	0.0	29.2	6.5	0.0	11.7	10.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.8	0.0	29.2	35.7	0.0	11.7	14.8	0.0	0.0	4.3	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.01	0.30		0.47	0.12		0.03
Lane Grp Cap(c), veh/h	592	0	1305	325	0	1322	329	0	0	368	0	0
V/C Ratio(X)	0.01	0.00	0.71	0.19	0.00	0.40	0.74	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	592	0	1305	325	0	1322	411	0	0	462	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.6	0.0	8.7	19.3	0.0	6.1	39.8	0.0	0.0	35.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	3.2	1.3	0.0	0.9	6.1	0.0	0.0	0.4	0.0	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(95%),veh/ln	0.1	0.0	22.3	2.2	0.0	10.5	11.5	0.0	0.0	4.1	0.0	0.0
LnGrp Delay(d),s/veh	8.6	0.0	12.0	20.5	0.0	7.0	45.9	0.0	0.0	36.1	0.0	0.0
LnGrp LOS	A		B	C		A	D			D		
Approach Vol, veh/h		924			592			245			94	
Approach Delay, s/veh		12.0			8.4			45.9			36.1	
Approach LOS		B			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		76.3		23.7		76.3		23.7
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		65.0		23.0		65.0		23.0
Max Q Clear Time (g_c+I1), s		37.7		16.8		31.2		6.3
Green Ext Time (p_c), s		13.8		0.9		25.9		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	409	19	7	0	8	0	8	808	4	2	451	271
Future Volume (veh/h)	409	19	7	0	8	0	8	808	4	2	451	271
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.98
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
Adj Sat Flow, veh/h/ln	1900	1896	1900	1900	1900	1900	1520	1881	1900	1900	1881	1881
Adj Flow Rate, veh/h	435	20	3	0	9	0	9	860	4	2	480	214
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	1
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, %	5	5	5	0	0	0	25	1	1	0	1	1
Cap, veh/h	529	21	3	0	643	0	323	2049	10	349	1056	878
Arrive On Green	0.34	0.34	0.34	0.00	0.34	0.00	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1355	62	9	0	1900	0	610	3648	17	650	1881	1563
Grp Volume(v), veh/h	458	0	0	0	9	0	9	421	443	2	480	214
Grp Sat Flow(s),veh/h/ln	1426	0	0	0	1900	0	610	1787	1878	650	1881	1563
Q Serve(g_s), s	31.0	0.0	0.0	0.0	0.3	0.0	0.9	13.5	13.5	0.2	15.0	7.0
Cycle Q Clear(g_c), s	31.3	0.0	0.0	0.0	0.3	0.0	15.9	13.5	13.5	13.7	15.0	7.0
Prop In Lane	0.95		0.01	0.00		0.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	553	0	0	0	643	0	323	1004	1055	349	1056	878
V/C Ratio(X)	0.83	0.00	0.00	0.00	0.01	0.00	0.03	0.42	0.42	0.01	0.45	0.24
Avail Cap(c_a), veh/h	570	0	0	0	665	0	323	1004	1055	349	1056	878
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	0.00	1.00	0.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	32.4	0.0	0.0	0.0	22.0	0.0	17.6	12.6	12.6	16.5	12.9	11.1
Incr Delay (d2), s/veh	9.7	0.0	0.0	0.0	0.0	0.0	0.2	1.3	1.2	0.0	1.4	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(95%),veh/ln	19.9	0.0	0.0	0.0	0.3	0.0	0.3	11.4	11.8	0.1	12.8	5.6
LnGrp Delay(d),s/veh	42.1	0.0	0.0	0.0	22.0	0.0	17.7	13.9	13.8	16.5	14.3	11.8
LnGrp LOS	D				C		B	B	B	B	B	B
Approach Vol, veh/h		458			9			873			696	
Approach Delay, s/veh		42.1			22.0			13.9			13.5	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		61.2		38.8		61.2		38.8
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		55.0		35.0		55.0		35.0
Max Q Clear Time (g_c+I1), s		17.9		33.3		17.0		2.3
Green Ext Time (p_c), s		6.6		0.5		4.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	4	4	1216	714	3
Future Volume (veh/h)	10	4	4	1216	714	3
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	11	4	4	1294	760	1
Adj No. of Lanes	1	1	1	2	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	49	43	314	2491	1435	2
Arrive On Green	0.03	0.03	0.17	0.69	0.39	0.39
Sat Flow, veh/h	1810	1615	1810	3705	3794	5
Grp Volume(v), veh/h	11	4	4	1294	371	390
Grp Sat Flow(s),veh/h/ln	1810	1615	1810	1805	1805	1899
Q Serve(g_s), s	0.2	0.1	0.1	6.7	6.2	6.2
Cycle Q Clear(g_c), s	0.2	0.1	0.1	6.7	6.2	6.2
Prop In Lane	1.00	1.00	1.00			0.00
Lane Grp Cap(c), veh/h	49	43	314	2491	700	737
V/C Ratio(X)	0.23	0.09	0.01	0.52	0.53	0.53
Avail Cap(c_a), veh/h	885	789	372	6502	2647	2785
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	18.5	18.4	13.3	2.9	9.2	9.2
Incr Delay (d2), s/veh	2.3	0.9	0.0	0.2	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.2	0.1	5.9	5.6	5.9
LnGrp Delay(d),s/veh	20.8	19.4	13.3	3.1	9.9	9.9
LnGrp LOS	C	B	B	A	A	A
Approach Vol, veh/h	15			1298	761	
Approach Delay, s/veh	20.4			3.1	9.9	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		31.8		7.0	11.7	20.1		
Change Period (Y+Rc), s		5.0		6.0	5.0	5.0		
Max Green Setting (Gmax), s		70.0		19.0	8.0	57.0		
Max Q Clear Time (g_c+I1), s		8.7		2.2	2.1	8.2		
Green Ext Time (p_c), s		18.1		0.0	0.0	6.9		

Intersection Summary		
HCM 2010 Ctrl Delay		5.7
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			✣			✣	
Traffic Volume (veh/h)	9	1286	38	177	711	10	48	4	280	5	4	3
Future Volume (veh/h)	9	1286	38	177	711	10	48	4	280	5	4	3
Number	1	6	16	5	2	12	7	4	14	3	8	18
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		0.98	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
Adj Sat Flow, veh/h/ln	1900	1882	1900	1881	1881	1900	1900	1879	1900	1900	1754	1900
Adj Flow Rate, veh/h	10	1383	39	190	765	10	52	4	301	5	4	2
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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	1	1	1	1	1	0	0	0	25	25	25
Cap, veh/h	436	1828	52	274	2327	30	83	19	328	134	99	40
Arrive On Green	0.51	0.51	0.51	0.09	0.86	0.86	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	706	3551	100	1792	3612	47	170	79	1337	334	403	164
Grp Volume(v), veh/h	10	695	727	190	379	396	357	0	0	11	0	0
Grp Sat Flow(s),veh/h/ln	706	1788	1864	1792	1787	1872	1585	0	0	901	0	0
Q Serve(g_s), s	0.7	30.9	31.0	4.8	4.2	4.2	15.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	30.9	31.0	4.8	4.2	4.2	21.9	0.0	0.0	0.5	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.03	0.15		0.84	0.45		0.18
Lane Grp Cap(c), veh/h	436	920	960	274	1152	1206	431	0	0	274	0	0
V/C Ratio(X)	0.02	0.76	0.76	0.69	0.33	0.33	0.83	0.00	0.00	0.04	0.00	0.00
Avail Cap(c_a), veh/h	436	920	960	347	1152	1206	469	0	0	305	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.73	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	19.3	19.3	18.3	2.8	2.8	36.6	0.0	0.0	28.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	5.7	5.6	3.1	0.6	0.5	11.1	0.0	0.0	0.1	0.0	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(95%),veh/ln	0.3	23.2	24.3	5.3	3.9	4.1	16.4	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	12.0	25.0	24.9	21.4	3.4	3.4	47.7	0.0	0.0	28.7	0.0	0.0
LnGrp LOS	B	C	C	C	A	A	D			C		
Approach Vol, veh/h		1432			965			357			11	
Approach Delay, s/veh		24.8			6.9			47.7			28.7	
Approach LOS		C			A			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		70.4		29.6	13.0	57.5		29.6
Change Period (Y+Rc), s		6.0		5.0	6.0	6.0		5.0
Max Green Setting (Gmax), s		62.0		27.0	11.0	45.0		27.0
Max Q Clear Time (g_c+I1), s		6.2		23.9	6.8	33.0		2.5
Green Ext Time (p_c), s		8.4		0.7	0.2	8.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	1266	29	16	676	128	38	57	36	180	61	163
Future Volume (veh/h)	231	1266	29	16	676	128	38	57	36	180	61	163
Number	1	6	16	5	2	12	7	4	14	3	8	18
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		0.98	0.99		0.97	0.99		0.97
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
Adj Sat Flow, veh/h/ln	1881	1880	1900	1792	1881	1900	1900	1856	1900	1881	1886	1900
Adj Flow Rate, veh/h	254	1391	29	18	743	99	42	63	40	198	67	175
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	6	1	1	0	2	2	1	0	0
Cap, veh/h	423	1789	37	195	1403	187	192	189	120	297	78	203
Arrive On Green	0.06	0.34	0.34	0.04	0.44	0.44	0.05	0.18	0.18	0.04	0.17	0.17
Sat Flow, veh/h	1792	3579	75	1707	3160	421	1810	1050	667	1792	454	1185
Grp Volume(v), veh/h	254	694	726	18	420	422	42	0	103	198	0	242
Grp Sat Flow(s),veh/h/ln	1792	1786	1867	1707	1787	1794	1810	0	1717	1792	0	1639
Q Serve(g_s), s	7.2	34.9	35.0	0.5	17.1	17.1	0.0	0.0	5.2	0.0	0.0	14.4
Cycle Q Clear(g_c), s	7.2	34.9	35.0	0.5	17.1	17.1	0.0	0.0	5.2	0.0	0.0	14.4
Prop In Lane	1.00		0.04	1.00		0.23	1.00		0.39	1.00		0.72
Lane Grp Cap(c), veh/h	423	893	933	195	793	797	192	0	309	297	0	281
V/C Ratio(X)	0.60	0.78	0.78	0.09	0.53	0.53	0.22	0.00	0.33	0.67	0.00	0.86
Avail Cap(c_a), veh/h	538	893	933	195	793	797	192	0	309	351	0	344
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.44	0.78	0.78	0.78	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.9	28.2	28.3	18.0	20.2	20.2	44.2	0.0	35.8	41.5	0.0	40.3
Incr Delay (d2), s/veh	0.6	3.0	2.9	0.2	2.0	2.0	0.6	0.0	2.9	3.8	0.0	16.8
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(95%),veh/ln	5.6	22.6	23.5	0.5	13.1	13.2	2.0	0.0	4.9	9.5	0.0	12.4
LnGrp Delay(d),s/veh	15.5	31.2	31.2	18.2	22.2	22.2	44.8	0.0	38.6	45.2	0.0	57.1
LnGrp LOS	B	C	C	B	C	C	D		D	D		E
Approach Vol, veh/h		1674			860			145			440	
Approach Delay, s/veh		28.8			22.1			40.4			51.8	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	50.4	10.0	24.0	10.0	56.0	10.9	23.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	16.0	35.0	7.0	18.0	4.0	47.0	4.0	21.0
Max Q Clear Time (g_c+I1), s	9.2	19.1	2.0	7.2	2.5	37.0	2.0	16.4
Green Ext Time (p_c), s	0.4	6.4	0.2	0.3	0.0	7.5	0.0	0.6

Intersection Summary			
HCM 2010 Ctrl Delay			30.7
HCM 2010 LOS			C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	415	1035	555	108	121	260
Future Volume (veh/h)	415	1035	555	108	121	260
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1878	1900	1863	1900
Adj Flow Rate, veh/h	456	1137	610	114	133	132
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	1	1	1	2	0
Cap, veh/h	582	2466	1379	257	337	307
Arrive On Green	0.34	1.00	0.15	0.15	0.19	0.19
Sat Flow, veh/h	1810	3668	3085	558	1774	1615
Grp Volume(v), veh/h	456	1137	363	361	133	132
Grp Sat Flow(s),veh/h/ln	1810	1787	1784	1765	1774	1615
Q Serve(g_s), s	14.2	0.0	18.5	18.6	6.6	7.2
Cycle Q Clear(g_c), s	14.2	0.0	18.5	18.6	6.6	7.2
Prop In Lane	1.00			0.32	1.00	1.00
Lane Grp Cap(c), veh/h	582	2466	823	814	337	307
V/C Ratio(X)	0.78	0.46	0.44	0.44	0.39	0.43
Avail Cap(c_a), veh/h	710	2466	823	814	337	307
HCM Platoon Ratio	2.00	2.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.47	0.47	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	10.2	0.0	30.7	30.7	35.5	35.7
Incr Delay (d2), s/veh	2.1	0.3	0.4	0.5	3.4	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	0.2	13.8	13.8	6.4	11.3
LnGrp Delay(d),s/veh	12.2	0.3	31.1	31.2	38.9	40.1
LnGrp LOS	B	A	C	C	D	D
Approach Vol, veh/h		1593	724		265	
Approach Delay, s/veh		3.7	31.2		39.5	
Approach LOS		A	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		75.0		25.0	22.9	52.1		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		69.0		19.0	24.0	39.0		
Max Q Clear Time (g_c+I1), s		2.0		9.2	16.2	20.6		
Green Ext Time (p_c), s		17.1		0.9	0.7	5.9		

Intersection Summary		
HCM 2010 Ctrl Delay		15.1
HCM 2010 LOS		B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	380	709	147	297	378	121
Future Volume (veh/h)	380	709	147	297	378	121
Number	6	16	5	2	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1845	1863	1881	1881
Adj Flow Rate, veh/h	404	748	156	316	402	94
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	3	2	1	1
Cap, veh/h	939	1212	341	1157	464	414
Arrive On Green	0.33	0.33	0.06	0.62	0.26	0.26
Sat Flow, veh/h	1881	1599	1757	1863	1792	1599
Grp Volume(v), veh/h	404	748	156	316	402	94
Grp Sat Flow(s),veh/h/ln	1881	1599	1757	1863	1792	1599
Q Serve(g_s), s	16.7	21.9	4.1	7.7	21.4	4.6
Cycle Q Clear(g_c), s	16.7	21.9	4.1	7.7	21.4	4.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	939	1212	341	1157	464	414
V/C Ratio(X)	0.43	0.62	0.46	0.27	0.87	0.23
Avail Cap(c_a), veh/h	939	1212	390	1157	770	688
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	7.4	12.2	8.7	35.4	29.2
Incr Delay (d2), s/veh	0.4	0.9	1.0	0.6	7.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.2	27.0	3.6	7.4	17.2	8.1
LnGrp Delay(d),s/veh	22.6	8.3	13.2	9.2	42.9	29.6
LnGrp LOS	C	A	B	A	D	C
Approach Vol, veh/h	1152			472	496	
Approach Delay, s/veh	13.3			10.5	40.4	
Approach LOS	B			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		68.1		31.9	12.2	55.9		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		45.0		43.0	9.0	30.0		
Max Q Clear Time (g_c+I1), s		9.7		23.4	6.1	23.9		
Green Ext Time (p_c), s		3.1		2.5	0.1	3.9		

Intersection Summary		
HCM 2010 Ctrl Delay		19.1
HCM 2010 LOS		B

Notes
User approved changes to right turn type.

Arterial Level of Service: EB Virginia Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Mills Ave	1	60.9	70.4	0.1	4
	29	4.6	18.2	0.1	24
Fern Creek Ave	2	9.2	21.1	0.1	20
	13	3.0	38.2	0.3	28
Total		77.8	148.0	0.6	15

Arterial Level of Service: WB Virginia Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fern Creek Ave	2	21.2	49.0	0.3	22
	29	4.2	18.2	0.1	23
Mills Ave	1	53.4	67.7	0.1	7
	24	2.9	13.7	0.1	22
Total		81.6	148.5	0.6	15

Arterial Level of Service: NB Forest Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	19	0.4	6.4	0.0	28
Nebraska St	3	3.5	12.0	0.1	23
Corrine Dr	4	1.1	15.9	0.1	29
	9	0.4	10.2	0.1	30
Total		5.4	44.4	0.3	27

Arterial Level of Service: SB Forest Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Corrine Dr	4	3.9	13.8	0.1	22
Nebraska St	3	11.9	27.0	0.1	17
	19	2.3	11.5	0.1	24
	13	0.5	6.4	0.0	28
Total		18.6	58.7	0.3	21

Arterial Level of Service: EB Corrine Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Forest Ave	4	29.8	38.3	0.1	5
	9	0.9	14.3	0.1	21
Bumby Ave	5	13.1	26.3	0.1	18
Winter Park Rd	6	9.4	44.5	0.3	28
General Rees Ave	7	12.9	50.8	0.4	27
Bennett Rd	8	23.4	69.9	0.4	19
Total		89.6	244.2	1.4	20

Arterial Level of Service: WB Corrine Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Bennett Rd	8	19.9	27.0	0.1	7
General Rees Ave	7	20.1	50.4	0.4	26
Winter Park Rd	6	24.2	62.5	0.4	22
Bumby Ave	5	13.0	47.2	0.3	26
	9	3.0	18.6	0.1	25
Corrine Dr	4	1.3	14.1	0.1	21
Total		81.6	219.9	1.4	22

Arterial Level of Service: EB Virginia Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Mills Ave	1	65.7	75.1	0.1	4
	29	9.3	22.5	0.1	20
Fern Creek Ave	2	19.7	31.6	0.1	13
	13	4.9	40.3	0.3	27
Total		99.5	169.5	0.6	13

Arterial Level of Service: WB Virginia Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fern Creek Ave	2	13.7	41.4	0.3	26
	29	2.1	16.2	0.1	26
Mills Ave	1	62.9	77.1	0.1	6
	24	2.7	13.5	0.1	23
Total		81.5	148.2	0.6	15

Arterial Level of Service: NB Forest Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	19	0.7	6.7	0.0	26
Nebraska St	3	11.3	19.9	0.1	14
Corrine Dr	4	2.9	18.0	0.1	25
	9	0.7	10.5	0.1	29
Total		15.7	55.2	0.3	22

Arterial Level of Service: SB Forest Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Corrine Dr	4	1.2	11.0	0.1	27
Nebraska St	3	20.0	35.3	0.1	13
	19	1.9	11.2	0.1	25
	13	0.4	6.3	0.0	28
Total		23.5	63.8	0.3	19

Arterial Level of Service: EB Corrine Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Forest Ave	4	13.1	21.5	0.1	10
	9	0.9	12.7	0.1	24
Bumby Ave	5	25.3	38.5	0.1	12
Winter Park Rd	6	19.9	54.3	0.3	23
General Rees Ave	7	10.2	49.3	0.4	28
Bennett Rd	8	39.4	85.8	0.4	15
Total		108.9	262.1	1.4	19

Arterial Level of Service: WB Corrine Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Bennett Rd	8	21.0	28.2	0.1	7
General Rees Ave	7	40.8	75.3	0.4	17
Winter Park Rd	6	15.4	54.8	0.4	25
Bumby Ave	5	7.3	42.4	0.3	30
	9	1.6	16.8	0.1	28
Corrine Dr	4	-	-	0.1	-
Total		85.9	217.5	1.4	23

Arterial Level of Service: EB Virginia Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Mills Ave	1	24.7	34.3	0.1	9
	29	4.4	17.9	0.1	25
Fern Creek Ave	2	6.5	18.3	0.1	23
	13	3.1	38.2	0.3	28
Total		38.6	108.8	0.6	21

Arterial Level of Service: WB Virginia Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fern Creek Ave	2	5.9	34.4	0.3	31
	29	1.5	15.5	0.1	27
Mills Ave	1	25.8	38.7	0.1	11
	24	2.5	13.1	0.1	23
Total		35.6	101.8	0.6	22

Arterial Level of Service: NB Forest Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	19	0.5	6.4	0.0	28
Nebraska St	3	2.4	10.6	0.1	26
Corrine Dr	4	2.7	17.9	0.1	25
	9	0.7	10.4	0.1	29
Total		6.3	45.3	0.3	27

Arterial Level of Service: SB Forest Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Corrine Dr	4	4.2	14.0	0.1	21
Nebraska St	3	6.2	21.5	0.1	21
	19	1.2	10.4	0.1	27
	13	0.3	6.2	0.0	28
Total		12.0	52.1	0.3	23

Arterial Level of Service: EB Corrine Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Forest Ave	4	16.3	24.4	0.1	9
	9	0.6	11.7	0.1	26
Bumby Ave	5	10.5	23.4	0.1	20
Winter Park Rd	6	18.4	52.8	0.3	24
General Rees Ave	7	6.0	42.3	0.4	33
Bennett Rd	8	25.3	71.5	0.4	18
Total		77.1	226.2	1.4	22

Arterial Level of Service: WB Corrine Dr

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Bennett Rd	8	12.9	19.8	0.1	9
General Rees Ave	7	28.7	61.7	0.4	21
Winter Park Rd	6	11.0	48.3	0.4	29
Bumby Ave	5	4.4	39.0	0.3	32
	9	1.0	16.5	0.1	28
Corrine Dr	4	1.1	13.8	0.1	22
Total		59.1	199.1	1.4	25

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	346	174	82	281	160	111	648	69	76	668	57
Future Volume (veh/h)	127	346	174	82	281	160	111	648	69	76	668	57
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.97
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
Adj Sat Flow, veh/h/ln	1881	1887	1900	1863	1900	1845	1863	1879	1900	1900	1880	1900
Adj Flow Rate, veh/h	140	380	155	90	309	68	122	712	67	84	734	60
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	2	2	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	1	1	2	0	3	2	1	1	0	1	1
Cap, veh/h	233	508	204	243	374	303	271	1114	105	232	822	67
Arrive On Green	0.05	0.20	0.20	0.05	0.20	0.20	0.15	0.34	0.34	0.07	0.25	0.25
Sat Flow, veh/h	1792	2494	1003	1774	1900	1536	1774	3295	310	3510	3336	273
Grp Volume(v), veh/h	140	272	263	90	309	68	122	386	393	84	393	401
Grp Sat Flow(s),veh/h/ln	1792	1793	1703	1774	1900	1536	1774	1785	1819	1755	1786	1823
Q Serve(g_s), s	4.0	10.7	10.9	3.0	11.7	2.8	4.7	13.7	13.7	1.7	15.9	16.0
Cycle Q Clear(g_c), s	4.0	10.7	10.9	3.0	11.7	2.8	4.7	13.7	13.7	1.7	15.9	16.0
Prop In Lane	1.00		0.59	1.00		1.00	1.00		0.17	1.00		0.15
Lane Grp Cap(c), veh/h	233	365	347	243	374	303	271	604	615	232	440	449
V/C Ratio(X)	0.60	0.74	0.76	0.37	0.83	0.22	0.45	0.64	0.64	0.36	0.89	0.89
Avail Cap(c_a), veh/h	233	442	420	243	456	369	271	604	615	295	479	489
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	25.6	28.0	28.1	22.9	28.9	25.3	28.9	21.0	21.0	33.5	27.3	27.3
Incr Delay (d2), s/veh	4.2	5.4	6.4	0.9	10.0	0.4	1.2	5.1	5.0	0.9	23.1	22.8
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(95%),veh/ln	2.1	9.8	9.7	2.7	11.5	2.2	4.3	12.1	12.3	1.5	16.0	16.3
LnGrp Delay(d),s/veh	29.8	33.4	34.5	23.9	38.8	25.7	30.1	26.1	26.0	34.5	50.4	50.1
LnGrp LOS	C	C	C	C	D	C	C	C	C	C	D	D
Approach Vol, veh/h		675			467			901			878	
Approach Delay, s/veh		33.1			34.0			26.6			48.7	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	24.9	10.8	21.5	11.0	31.8	10.3	22.0
Change Period (Y+Rc), s	* 6.4	* 6.4	* 6.8	6.7	6.0	* 6.4	6.2	6.7
Max Green Setting (Gmax), s	* 6.7	* 20	* 4	18.0	6.3	* 21	4.1	18.5
Max Q Clear Time (g_c+I1), s	6.7	18.0	6.0	13.7	3.7	15.7	5.0	12.9
Green Ext Time (p_c), s	0.0	0.5	0.0	0.8	0.0	1.0	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	35.9
HCM 2010 LOS	D

Notes

* HCM 2010 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)	39	455	4	4	416	34	3	23	1	45	22	41
Future Volume (veh/h)	39	455	4	4	416	34	3	23	1	45	22	41
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1849	1900	1900	1900	1900	1900	1881	1900
Adj Flow Rate, veh/h	43	506	4	4	462	35	3	26	1	50	24	28
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	0	3	3	0	0	0	5	5	5
Cap, veh/h	689	1398	11	682	1283	97	51	190	7	128	57	47
Arrive On Green	0.76	0.76	0.76	0.76	0.76	0.76	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	915	1845	15	904	1694	128	65	1735	62	626	519	433
Grp Volume(v), veh/h	43	0	510	4	0	497	30	0	0	102	0	0
Grp Sat Flow(s),veh/h/ln	915	0	1860	904	0	1823	1862	0	0	1579	0	0
Q Serve(g_s), s	1.5	0.0	8.3	0.1	0.0	8.2	0.0	0.0	0.0	3.7	0.0	0.0
Cycle Q Clear(g_c), s	9.7	0.0	8.3	8.4	0.0	8.2	1.3	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.07	0.10		0.03	0.49		0.27
Lane Grp Cap(c), veh/h	689	0	1409	682	0	1380	248	0	0	232	0	0
V/C Ratio(X)	0.06	0.00	0.36	0.01	0.00	0.36	0.12	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	689	0	1409	682	0	1380	533	0	0	474	0	0
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	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	3.7	5.1	0.0	3.6	36.3	0.0	0.0	38.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.7	0.0	0.0	0.7	0.3	0.0	0.0	1.6	0.0	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(95%),veh/ln	0.7	0.0	7.8	0.1	0.0	7.7	1.2	0.0	0.0	4.5	0.0	0.0
LnGrp Delay(d),s/veh	5.4	0.0	4.4	5.1	0.0	4.4	36.5	0.0	0.0	39.6	0.0	0.0
LnGrp LOS	A		A	A		A	D			D		
Approach Vol, veh/h		553			501			30			102	
Approach Delay, s/veh		4.5			4.4			36.5			39.6	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		74.2		15.8		74.2		15.8
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0
Max Green Setting (Gmax), s		54.0		24.0		54.0		24.0
Max Q Clear Time (g_c+I1), s		10.4		3.3		11.7		7.4
Green Ext Time (p_c), s		14.6		0.1		15.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	12	5	0	4	0	1	371	1	1	392	196
Future Volume (veh/h)	136	12	5	0	4	0	1	371	1	1	392	196
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	1.00		1.00	1.00		0.98	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1900	1883	1900	1900	1900	1900	1900	1881	1900	1900	1881	1845
Adj Flow Rate, veh/h	143	13	3	0	4	0	1	391	1	1	413	163
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	1	1
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, %	0	0	0	0	0	0	0	1	1	0	1	3
Cap, veh/h	261	17	4	0	274	0	652	2723	7	799	1400	1143
Arrive On Green	0.14	0.14	0.14	0.00	0.14	0.00	0.74	0.74	0.74	0.74	0.74	0.74
Sat Flow, veh/h	1279	116	27	0	1900	0	850	3657	9	1007	1881	1535
Grp Volume(v), veh/h	159	0	0	0	4	0	1	191	201	1	413	163
Grp Sat Flow(s),veh/h/ln	1422	0	0	0	1900	0	850	1787	1879	1007	1881	1535
Q Serve(g_s), s	9.6	0.0	0.0	0.0	0.2	0.0	0.0	2.8	2.8	0.0	6.5	2.7
Cycle Q Clear(g_c), s	9.7	0.0	0.0	0.0	0.2	0.0	6.5	2.8	2.8	2.8	6.5	2.7
Prop In Lane	0.90		0.02	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	0	0	0	274	0	652	1330	1399	799	1400	1143
V/C Ratio(X)	0.57	0.00	0.00	0.00	0.01	0.00	0.00	0.14	0.14	0.00	0.29	0.14
Avail Cap(c_a), veh/h	553	0	0	0	633	0	652	1330	1399	799	1400	1143
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	0.00	1.00	0.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	37.2	0.0	0.0	0.0	33.0	0.0	4.8	3.3	3.3	3.7	3.8	3.3
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.5	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	7.1	0.0	0.0	0.0	0.2	0.0	0.0	2.5	2.7	0.0	6.4	2.2
LnGrp Delay(d),s/veh	39.0	0.0	0.0	0.0	33.0	0.0	4.8	3.5	3.5	3.7	4.3	3.5
LnGrp LOS	D				C		A	A	A	A	A	A
Approach Vol, veh/h		159			4			393			577	
Approach Delay, s/veh		39.0			33.0			3.5			4.1	
Approach LOS		D			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		72.0		18.0		72.0		18.0
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0
Max Green Setting (Gmax), s		50.0		30.0		50.0		30.0
Max Q Clear Time (g_c+I1), s		8.5		11.7		8.5		2.2
Green Ext Time (p_c), s		2.5		0.8		3.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	24	35	22	486	551	29		
Future Volume (veh/h)	24	35	22	486	551	29		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1881	1882	1900		
Adj Flow Rate, veh/h	25	37	23	512	580	7		
Adj No. of Lanes	1	1	1	2	2	0		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	0	1	1	1		
Cap, veh/h	157	140	267	2295	1342	16		
Arrive On Green	0.09	0.09	0.15	0.64	0.37	0.37		
Sat Flow, veh/h	1810	1615	1810	3668	3712	44		
Grp Volume(v), veh/h	25	37	23	512	287	300		
Grp Sat Flow(s),veh/h/ln	1810	1615	1810	1787	1788	1873		
Q Serve(g_s), s	0.5	0.9	0.4	2.4	4.9	4.9		
Cycle Q Clear(g_c), s	0.5	0.9	0.4	2.4	4.9	4.9		
Prop In Lane	1.00	1.00	1.00			0.02		
Lane Grp Cap(c), veh/h	157	140	267	2295	663	695		
V/C Ratio(X)	0.16	0.26	0.09	0.22	0.43	0.43		
Avail Cap(c_a), veh/h	1026	916	536	4936	1720	1802		
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	17.1	17.3	14.9	3.0	9.6	9.6		
Incr Delay (d2), s/veh	0.5	1.0	0.1	0.1	0.5	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	0.5	1.5	0.4	2.1	4.5	4.7		
LnGrp Delay(d),s/veh	17.6	18.3	15.0	3.1	10.1	10.1		
LnGrp LOS	B	B	B	A	B	B		
Approach Vol, veh/h	62			535	587			
Approach Delay, s/veh	18.0			3.6	10.1			
Approach LOS	B			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		31.0		9.5	11.0	20.0		
Change Period (Y+Rc), s		5.0		6.0	5.0	5.0		
Max Green Setting (Gmax), s		56.0		23.0	12.0	39.0		
Max Q Clear Time (g_c+I1), s		4.4		2.9	2.4	6.9		
Green Ext Time (p_c), s		4.8		0.1	0.0	4.7		
Intersection Summary								
HCM 2010 Ctrl Delay			7.6					
HCM 2010 LOS			A					

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	518	30	145	558	5	65	1	151	3	4	5
Future Volume (veh/h)	6	518	30	145	558	5	65	1	151	3	4	5
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	0.99		0.99	1.00		0.98
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
Adj Sat Flow, veh/h/ln	1900	1861	1900	1863	1860	1900	1900	1876	1900	1900	1900	1900
Adj Flow Rate, veh/h	7	563	26	158	607	5	71	1	154	3	4	3
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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	2	2	2	2	2	0	0	0	0	0	0
Cap, veh/h	256	788	36	848	2526	21	122	16	184	110	138	84
Arrive On Green	0.23	0.23	0.23	0.54	0.94	0.94	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	819	3436	158	1774	3591	30	401	93	1055	330	791	481
Grp Volume(v), veh/h	7	289	300	158	299	313	226	0	0	10	0	0
Grp Sat Flow(s),veh/h/ln	819	1768	1826	1774	1767	1854	1549	0	0	1602	0	0
Q Serve(g_s), s	0.6	13.6	13.6	0.0	1.3	1.3	10.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.9	13.6	13.6	0.0	1.3	1.3	12.6	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.02	0.31		0.68	0.30		0.30
Lane Grp Cap(c), veh/h	256	405	419	848	1243	1304	323	0	0	331	0	0
V/C Ratio(X)	0.03	0.71	0.72	0.19	0.24	0.24	0.70	0.00	0.00	0.03	0.00	0.00
Avail Cap(c_a), veh/h	414	746	771	848	1243	1304	480	0	0	493	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.0	32.0	32.0	11.5	0.9	0.9	35.8	0.0	0.0	30.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	10.3	10.0	0.1	0.3	0.3	2.8	0.0	0.0	0.0	0.0	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(95%),veh/ln	0.3	12.3	12.6	3.3	1.1	1.2	9.5	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	28.2	42.2	42.0	11.6	1.2	1.2	38.6	0.0	0.0	30.9	0.0	0.0
LnGrp LOS	C	D	D	B	A	A	D			C		
Approach Vol, veh/h		596			770			226			10	
Approach Delay, s/veh		41.9			3.3			38.6			30.9	
Approach LOS		D			A			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		69.3		20.7	42.7	26.6		20.7
Change Period (Y+Rc), s		6.0		5.0	6.0	6.0		5.0
Max Green Setting (Gmax), s		54.0		25.0	10.0	38.0		25.0
Max Q Clear Time (g_c+I1), s		3.3		14.6	2.0	15.6		2.4
Green Ext Time (p_c), s		6.1		0.9	0.2	5.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	548	24	21	543	106	38	30	28	117	40	117
Future Volume (veh/h)	113	548	24	21	543	106	38	30	28	117	40	117
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.96	0.99		0.99	0.99		0.99
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
Adj Sat Flow, veh/h/ln	1881	1879	1900	1900	1860	1900	1900	1900	1900	1863	1876	1900
Adj Flow Rate, veh/h	119	577	25	22	572	83	40	32	28	123	42	120
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	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, %	1	1	1	0	2	2	0	0	0	2	5	5
Cap, veh/h	392	1437	62	465	1219	176	335	186	163	441	106	302
Arrive On Green	0.12	0.83	0.83	0.04	0.40	0.40	0.03	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1792	3480	151	1810	3082	446	1810	929	813	1774	426	1218
Grp Volume(v), veh/h	119	296	306	22	327	328	40	0	60	123	0	162
Grp Sat Flow(s),veh/h/ln	1792	1785	1846	1810	1767	1761	1810	0	1742	1774	0	1644
Q Serve(g_s), s	3.5	3.9	3.9	0.6	12.4	12.4	1.6	0.0	2.6	4.8	0.0	7.4
Cycle Q Clear(g_c), s	3.5	3.9	3.9	0.6	12.4	12.4	1.6	0.0	2.6	4.8	0.0	7.4
Prop In Lane	1.00		0.08	1.00		0.25	1.00		0.47	1.00		0.74
Lane Grp Cap(c), veh/h	392	737	762	465	699	696	335	0	348	441	0	407
V/C Ratio(X)	0.30	0.40	0.40	0.05	0.47	0.47	0.12	0.00	0.17	0.28	0.00	0.40
Avail Cap(c_a), veh/h	460	737	762	465	699	696	384	0	348	444	0	407
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	4.9	4.9	14.3	20.2	20.2	27.5	0.0	29.8	25.2	0.0	28.2
Incr Delay (d2), s/veh	0.4	1.6	1.5	0.0	2.0	2.0	0.2	0.0	1.1	0.3	0.0	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(95%),veh/ln	3.1	3.8	3.9	0.6	10.3	10.3	1.4	0.0	2.4	4.3	0.0	6.1
LnGrp Delay(d),s/veh	14.6	6.5	6.4	14.4	22.2	22.3	27.6	0.0	30.9	25.5	0.0	28.9
LnGrp LOS	B	A	A	B	C	C	C		C	C		C
Approach Vol, veh/h		721			677			100			285	
Approach Delay, s/veh		7.8			22.0			29.6			27.4	
Approach LOS		A			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	41.6	12.8	24.0	10.0	43.2	8.5	28.3
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	9.0	32.0	7.0	18.0	4.0	37.0	5.0	20.0
Max Q Clear Time (g_c+I1), s	5.5	14.4	6.8	4.6	2.6	5.9	3.6	9.4
Green Ext Time (p_c), s	0.1	5.1	0.0	0.2	0.0	5.6	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	179	447	394	91	99	242
Future Volume (veh/h)	179	447	394	91	99	242
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1881	1863	1900	1863	1845
Adj Flow Rate, veh/h	188	471	415	87	104	95
Adj No. of Lanes	1	2	2	0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	2	3
Cap, veh/h	515	2145	1320	274	473	418
Arrive On Green	0.16	1.00	0.15	0.15	0.27	0.27
Sat Flow, veh/h	1792	3668	3000	604	1774	1568
Grp Volume(v), veh/h	188	471	251	251	104	95
Grp Sat Flow(s),veh/h/ln	1792	1787	1770	1741	1774	1568
Q Serve(g_s), s	4.9	0.0	11.4	11.6	4.1	4.3
Cycle Q Clear(g_c), s	4.9	0.0	11.4	11.6	4.1	4.3
Prop In Lane	1.00			0.35	1.00	1.00
Lane Grp Cap(c), veh/h	515	2145	804	790	473	418
V/C Ratio(X)	0.36	0.22	0.31	0.32	0.22	0.23
Avail Cap(c_a), veh/h	732	2145	804	790	473	418
HCM Platoon Ratio	2.00	2.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.91	0.91	1.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	25.7	25.8	25.7	25.8
Incr Delay (d2), s/veh	0.3	0.2	0.3	0.3	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	0.1	9.4	9.4	3.9	7.6
LnGrp Delay(d),s/veh	10.6	0.2	26.0	26.1	26.8	27.0
LnGrp LOS	B	A	C	C	C	C
Approach Vol, veh/h		659	502		199	
Approach Delay, s/veh		3.2	26.1		26.9	
Approach LOS		A	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		60.0		30.0	13.1	46.9		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		54.0		24.0	18.0	30.0		
Max Q Clear Time (g_c+I1), s		2.0		6.3	6.9	13.6		
Green Ext Time (p_c), s		5.0		0.8	0.3	3.7		

Intersection Summary		
HCM 2010 Ctrl Delay		15.1
HCM 2010 LOS		B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	158	365	66	174	275	69
Future Volume (veh/h)	158	365	66	174	275	69
Number	6	16	5	2	7	14
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
Adj Sat Flow, veh/h/ln	1881	1881	1845	1863	1881	1900
Adj Flow Rate, veh/h	166	371	69	183	289	50
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	3	2	1	0
Cap, veh/h	1010	1173	647	1248	352	318
Arrive On Green	0.90	0.90	0.07	0.67	0.20	0.20
Sat Flow, veh/h	1881	1599	1757	1863	1792	1615
Grp Volume(v), veh/h	166	371	69	183	289	50
Grp Sat Flow(s),veh/h/ln	1881	1599	1757	1863	1792	1615
Q Serve(g_s), s	1.0	2.0	1.4	3.2	13.9	2.3
Cycle Q Clear(g_c), s	1.0	2.0	1.4	3.2	13.9	2.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1010	1173	647	1248	352	318
V/C Ratio(X)	0.16	0.32	0.11	0.15	0.82	0.16
Avail Cap(c_a), veh/h	1010	1173	647	1248	1174	1059
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	2.2	0.8	6.6	5.4	34.6	30.0
Incr Delay (d2), s/veh	0.1	0.2	0.1	0.2	6.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.9	2.5	1.2	3.1	12.1	4.1
LnGrp Delay(d),s/veh	2.3	1.0	6.7	5.7	41.3	30.3
LnGrp LOS	A	A	A	A	D	C
Approach Vol, veh/h	537			252	339	
Approach Delay, s/veh	1.4			6.0	39.6	
Approach LOS	A			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		66.3		23.7	12.0	54.3		
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		
Max Green Setting (Gmax), s		19.0		59.0	6.0	7.0		
Max Q Clear Time (g_c+I1), s		5.2		15.9	3.4	4.0		
Green Ext Time (p_c), s		1.1		1.8	0.0	1.0		

Intersection Summary			
HCM 2010 Ctrl Delay			13.9
HCM 2010 LOS			B

Notes
User approved changes to right turn type.

Corrine Drive Final Report – Lighting Plan

OUC
OUConvenient *Lighting*

Governmental
Street Light Request Form

Agency Name	**Date**
City of Orlando	08/16/2018

Requested By	**Telephone**
Yaminel Reyes Albino; Civil Engineer I – Transportation Engineering Division	407-246-2760
Fax	**Email Address**
407-246-3392	yaminel.reyesalbino@cityoforlando.net

Specific Request (Fixture and pole type, number to be installed, additional facilities)

E-mail from Yaminel Reyes:

Good afternoon,

I received the email below regarding a lighting study on Corrine Dr. The project limits are Virginia Dr/Forest Ave/Corrine Dr from Mills Ave to Bennett Rd. This study will evaluate an upgrade to LED lighting and if additional fixtures are needed on the corridor.

OUC recommendation:

- Change (37) 250W HPS Cobra Head fixtures on existing poles to 250W equivalent LED Cobra Head fixtures. These poles are located on Corrine Dr./Forest Ave/Virginia Dr. between Mills Ave. & Bennett Rd.
- Install (18) new 250W equivalent LED Cobra Head fixtures on existing OUC poles on Corrine Dr./Forest Ave/Virginia Dr. between Mills Ave. & Bennett Rd.

Location (Road name including to and from, lighting facility #, MSTU #)

Corrine Dr/Forest Ave/Virginia Dr between Mills Ave. & Bennett Rd.

Special Billing Information

Total cost to install project = $29932.00 to be covered by OUC
O & M cost for (55) 250W LED equivalent cobra head fixtures = $562.05 added to the City monthly payment.
Remove monthly cost for (37) 250W HPS cobra head fixtures = $525.75
Net O & M cost = 562.05 – 525.75 = $36.30

OUC – Product (Description of lighting system to be installed)

Pole type/quantity:	Existing Poles
Fixture type/quantity:	(55) 250W equivalent LED Cobra Head fixtures
Additional facilities:	(18) 8 foot aluminum bracket arms and approximately 300 feet of overhead wire
Work Order #:	649962

Installation Date (Expected service date)

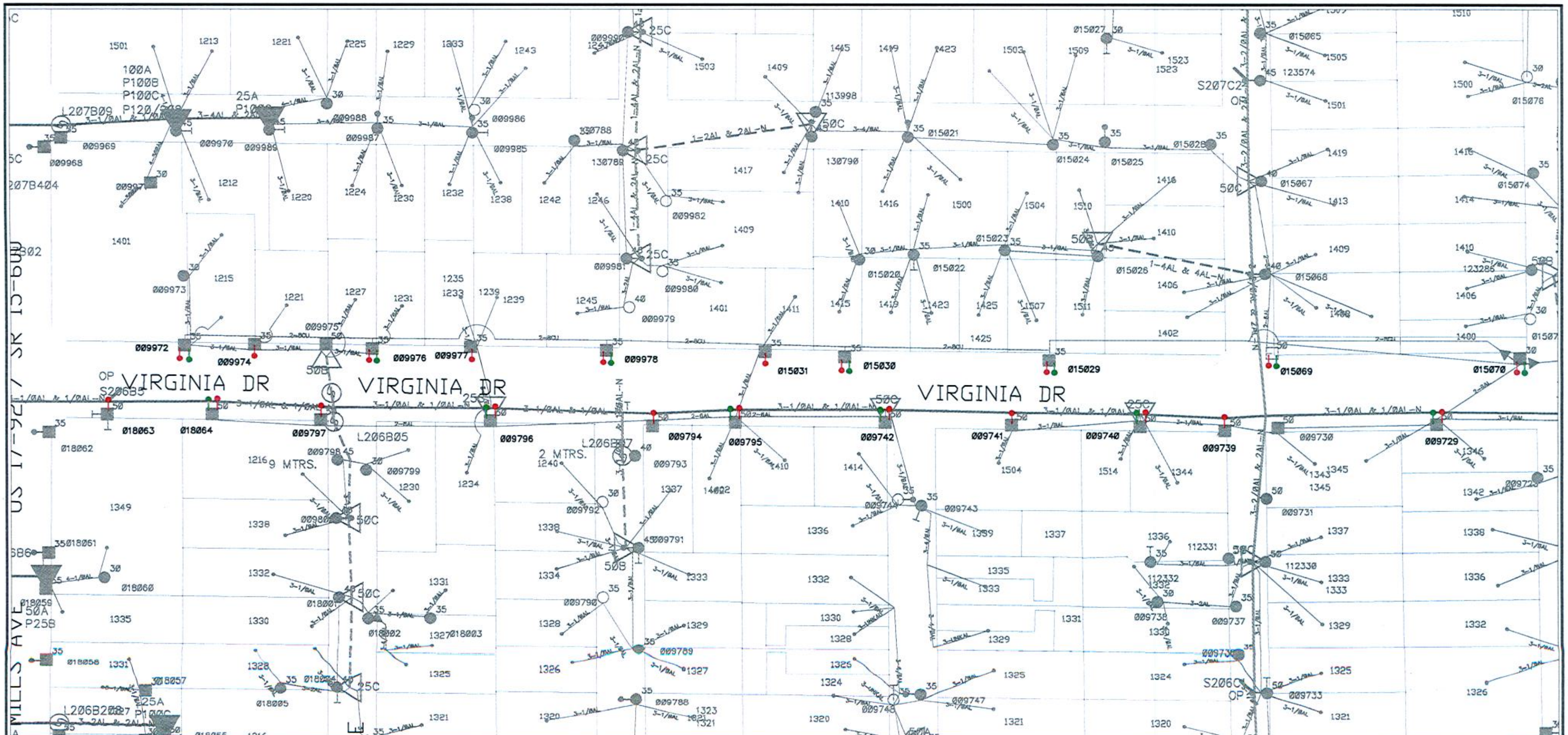
Twelve weeks after receiving signed SLRF

Authorization To Proceed By

Name: Cade Braud, PE, PTOE, AICP	**Title:**	**Date of Authorization:**
[signature]	Traffic Operations Engineering Transportation Engineering	9/10/18

Installation Completion/System Activation Date

OUConvenient Lighting Representative	**Date**
Vernon L. Ford – Lighting Manager *Vernon L. Ford*	08/16/2018



-REMOVE (13) 250W HPS COBRA HEAD FIXTURES FROM OUC POLES 009972, 009976, 009978, 018064, 009796, 009795, 009742, 015030, 015029, 009740, 015069, 009729 & 015070.

-INSTALL (21) 250W EQ LED COBRA HEAD FIXTURES 036-23168 W/ 8' ARMS ON OUC POLES 009972, 009976, 009978, 018064, 009796, 009795, 009742, 015030, 015029, 009740, 015069, 009729, 015070, 018063, 009974, 009797, 009977, 009794, 015031, 009741 & 009739

OUC The Reliable One®
Electric Engineering
Distribution
6003 Pershing Ave.
Orlando, FL 32822
(407) 434-4427

ePETS# 649962 DATE: 8/14/2018

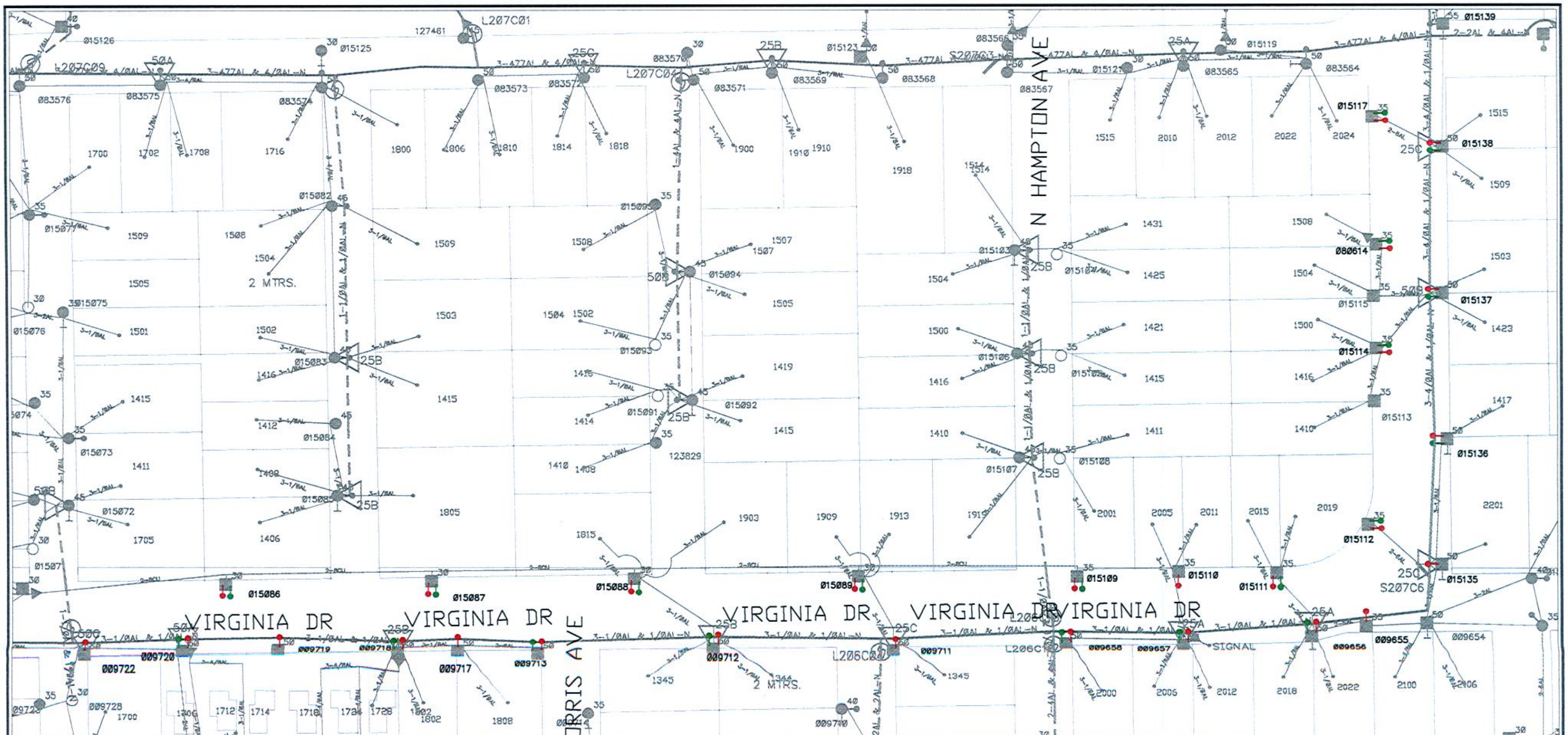
JOB NAME: Virginia/Forest/Corrine

LOCATION: Virginia/Forest/Corrine Between Mills & Bennett

DESIGNER: Carmelo Nieves

INSPECTOR: MAP PANEL:

CONTRACTOR INVOICE # LCITYORRWY



-REMOVE (20) 250W HPS COBRA HEAD FIXTURES FROM OUC POLES 015086, 009720, 009718, 015087, 015088, 009713, 009712, 015089, 015109, 009658, 009657, 015111, 009656, 015112, 015136, 015114, 015137, 080614, 015138 & 015117

-INSTALL (27) 250W EQ LED COBRA HEAD FIXTURES 036-23168 W/ 8' ARMS ON OUC POLES 015086, 009720, 009718, 015087, 015088, 009713, 009712, 015089, 015109, 009658, 009657, 015111, 009656, 015112, 015136, 015114, 015137, 080614, 015138, 015117, 009722, 009719, 009717, 009711, 015110, 009655, 015135

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6003 Pershing Ave.
Orlando, FL 32822
(407) 434-4427

ePETS# 649962

DATE: 8/14/2018

JOB NAME: Virginia/Forest/Corrine

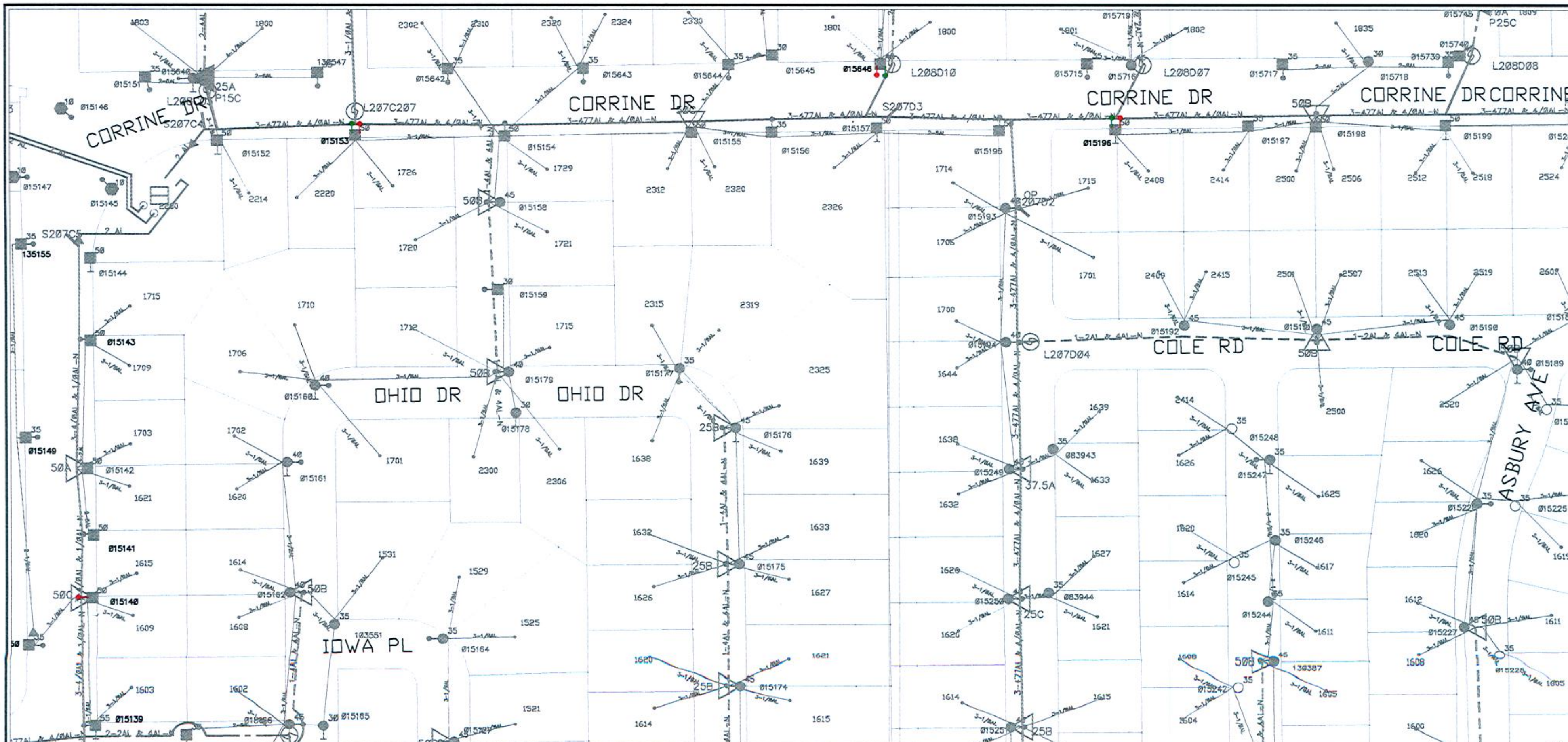
LOCATION: Virginia/Forest/Corrine Between Mills & Bennett

DESIGNER: Carmelo Nieves

INSPECTOR:

MAP PANEL:

CONTRACTOR INVOICE # LCITYORRWY



-REMOVE (3) 250W HPS COBRA HEAD FIXTURES FROM OUC POLES Ø15153, Ø15646 & Ø15196

-INSTALL (4) 250W EQ LED COBRA HEAD FIXTURES Ø36-23168 W/ 8' ARMS ON OUC POLES Ø15140, Ø15153, Ø15646 & Ø15196

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Distribution
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Orlando, FL 32822
(407) 434-4427

ePETS# 649962

DATE: 8/14/2018

JOB NAME: Virginia/Forest/Corrine

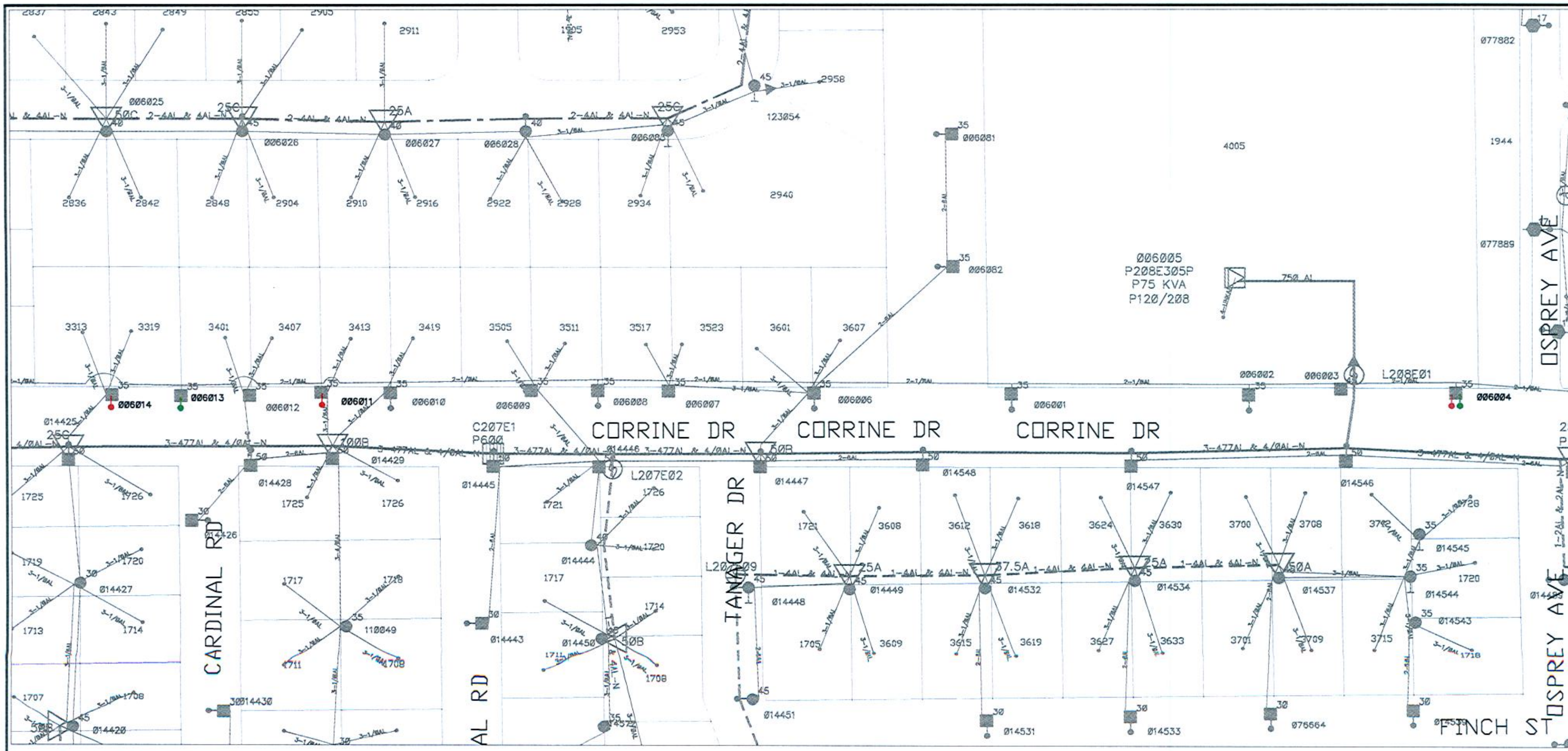
LOCATION: Virginia/Forest/Corrine
Between Mills & Bennett

DESIGNER: Carmelo Nieves

INSPECTOR:

MAP PANEL:

CONTRACTOR INVOICE # LCITYORRWY



- REMOVE (2) 250W HPS COBRA HEAD FIXTURES FROM OUC POLES 006013 & 006004

- INSTALL (3) 250W EQ LED COBRA HEAD FIXTURES 036-23168 W/ 8' ARMS ON OUC POLES 006014, 006011 & 006004

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Orlando, FL 32822
(407) 434-4427

ePETS# 649962

DATE: 8/14/2018

JOB NAME: Virginia/Forest/Corrine

LOCATION: Virginia/Forest/Corrine Between Mills & Bennett

DESIGNER: Carmelo Nieves

INSPECTOR:

MAP PANEL:

CONTRACTOR INVOICE # LCITYORRWY

Corrine Drive Final Report – Health Profile April 2019

Table of Contents

Health Profile

The Corrine Drive Complete Streets Study was an opportunity to incorporate health considerations into the transportation planning process. In Central Florida, this was the first time health aspects were explicitly considered throughout the entire process. The study aligned well with MetroPlan Orlando's Health in all Transportation Policies initiative.

The existing conditions phase included collecting and analyzing health data, which enabled MetroPlan Orlando to identify several considerations for each successive phase of the study. This profile describes the health considerations, how we incorporated health throughout the process, evaluates Corrine Drive now and its recommended design using the Urban Land Institute (ULI)'s Healthy Corridors Tool, and provides health data analysis.

Established Health Considerations

- *Lack of bicycle and pedestrian facilities:* The biggest health consideration in the study area is its lack of bicycle and pedestrian facilities. This lack of safe infrastructure is even more acute when local context is considered. The eight neighborhoods surrounding Corrine Drive are experiencing population growth. The Main Street commercial districts have little to no vacancies. A new K-8 school opened in August 2018. Nearly every connecting street to Corrine Drive has a bike lane or parallel dedicated bike facility.

- *Thriving local neighborhood economy:* Over the last decade, the Audubon Park Garden District and the Mills50 Main Street District have overseen an increase in new small business starts. These local businesses include restaurants, bars, bakeries, breweries, community hubs, and more. As part of its efforts, the National Main Street Association named the Audubon Park Garden District its National Award Winner in 2016.

- *Engaged citizenry:* An informed, engaged community is critical for ensuring an inclusive, community-driven planning process. During Phases 1 and 2, nearly 3,000 people provided feedback to MetroPlan Orlando.

- *Good air quality:* The Florida Department of Health-Orange County used portable monitors to test the air quality at several locations in the study area. At each location, the team tested the air quality at the curb (closest to cars), 6-8 feet from the curb (where someone could be walking on a sidewalk), and at the entrance to a business (where someone could be dining outside). At every location and every point, the air quality received a Good rating.

- *Presence of fresh food (front yard gardens):* The Audubon Park neighborhood has two food systems initiatives that factor into its health stats. Many homes have front yard gardens, part of Fleet Farming, a community supported agriculture program. The Monday Night Market at the Stardust Café offers opportunities for regional farmers to sell fresh food. The market also has a Double Bucks program, enhancing the value of SNAP benefits.

- *New K-8 School:* In August 2018, the Audubon Park K-8 School opened, just south of Corrine Drive. It is designed to be a neighborhood school with easy access for children to walk or bike to school as well as for the school's athletic facilities to be community amenities. Roughly 100 students (out of approximately 900) walk to school, according to MetroPlan Orlando traffic counts.

- *Health issues as expected for demographic and socioeconomic characteristics:* More than 15,000 people live in the Corrine Drive area. These residents have a median income of $67,000, a median age of around 40, and overwhelming white in a majority-minority region. Considering this, the health statistics for the area are as expected and indicate no significant disparities or health equity issues in the study area. A more detailed summary is located at the end of this profile.

Recommended Design

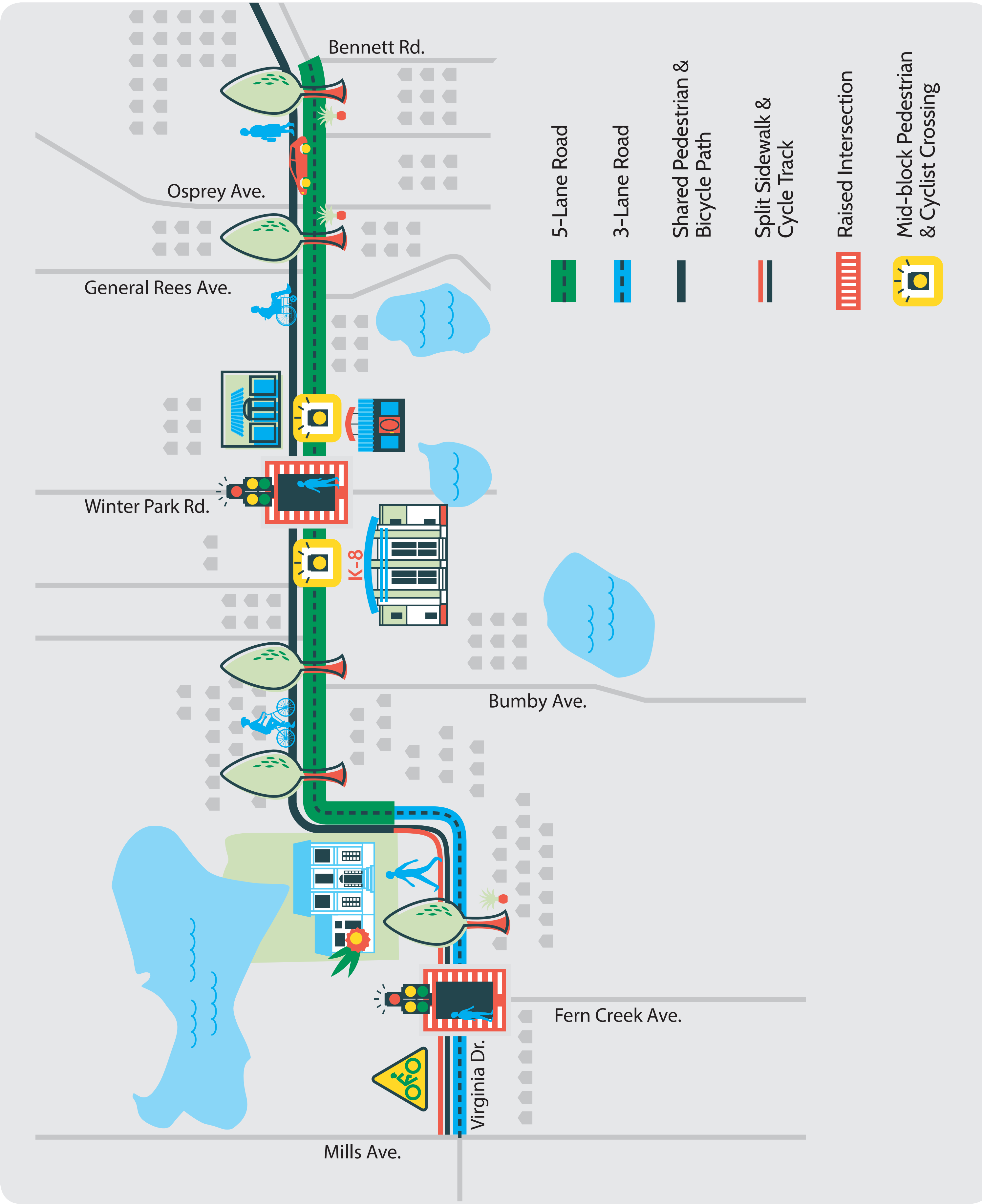
The recommended redesign includes several features to address the established health considerations, such as the lack of bicycle and pedestrian facilities. These features will promote healthy behaviors and enhance the area's health status.

- A Shared-Use Path for 1.5 miles
- A two-way cycle track for a half mile
- 290 street trees
- 2 mid-block crossings
- 2 raised intersections
- Design speed of 30mph that supports slower speeds for its current and expected travel volumes
- Creative placemaking opportunities to enhance existing aesthetics of the local neighborhood

Safe Routes to Schools

The two mid-block crossings and the Winter Park Raised Intersection are located in close proximity to the Audubon Park K-8 School. These three improvements will make it safer and easier for kids to walk and bike to the school. Combined with the improved sidewalks, shared use path, and slower speeds, these infrastructure improvements support a Safe Routes to School program.

RECOMMENDED DESIGN FOR CORRINE DRIVE



Health Profile

How We Did This

MetroPlan Orlando used nationally-recognized resources to inform scope development, data collection, and analysis. The Federal Highway Administration's Health in Transportation Corridor Planning Framework helped identify specific points within the scope for including health partners and collecting health data. Also, the framework provided strategic support for how MetroPlan Orlando could best incorporate health considerations into the Corrine Drive study process.

As part of its Building Healthy Corridors project, the Urban Land Institute developed a Healthy Corridors evaluation tool. MetroPlan Orlando's use of the tool identified potential indicators for establishing baseline measurements.

MetroPlan Orlando worked with local health partners to collect health data and identify particular health concerns in the corridor. Stakeholder participation and community outreach are key elements related to public health and transportation. The Corrine Drive Study's Project Advisory Group includes two health-related stakeholders, representing the Florida Department of Health-Orange County and Bike Walk Central Florida, a local advocacy group. Throughout the study process, MetroPlan Orlando engaged a variety of community groups including the local AARP volunteer group, school representatives, local business owners, and neighborhood groups.

The Florida Department of Health-Orange County provided asthma statistics at the U.S. Census Bureau's 2010 Census Tract level. Additionally, the agency's Environment Health division collected air quality data at key locations during the traffic data collection period. The air quality report is at the end of this health profile.

The 500 Cities project, a collaboration between the Centers for Disease Control (CDC), the Robert Wood Johnson Foundation, and the CDC Foundation, provided health data at the Census tract level. The data is reported using statistically modeled, Small Area Estimates from the 2014 Behavioral Risk Factor Surveillance Survey (BRFFSS) data[i]. All data are reported in *crude prevalence.* Two of the Corrine Drive study area's Census Block Groups are in one Census Tract in the City of Winter Park. 500 Cities data is unavailable for that portion of the study area.

Prevalence measures the *frequency of existing disease,* and is defined as: the proportion of the total population that *is diseased (or the respective measure).* In this document, the prevalence reported is the proportion of the total population within each respective Census Tract. Prevalence is useful for estimating the needs of facilities or resources for treating people who already have a disease.[ii]

All other health-related data was obtained through traditional transportation data collection methods and field observations.

Health Profile

ULI Healthy Corridors Evaluation

MetroPlan Orlando analyzed Corrine Drive as it is today and how it will be with this redesign. The comparison results, using the ULI Healthy Corridors evaluation tool are below:

	Current	Future
Improved Infrastructure		
Frequent, safe, and well-marked pedestrian crossings The proposed Corrine Drive redesign will improve the crosswalks and distance a pedestrian has to cross at signals. The 2 midblock crossings facilitate ease of access to commercial district destinations and signify that vehicles are entering an area with heavy pedestrian traffic.	x	✔
Safe and well-marked bike lanes Bicycles on Corrine are accommodated on a separate facility on the 3-lane section and on a shared-use path on the 5-lane section	x	✔
Traffic speeds that accommodate pedestrians, bicyclists, and other users The proposed Corrine Drive redesign has a design speed of 30 mph, which encourages vehicles to travel at or below the posted speed limit while providing a friendlier environment for pedestrians and bicyclists	/	✔
Reduced traffic congestion Traffic analysis does not show a significant increase in travel times with the implementation of the Corrine Drive redesign	✔	✔
Utility lines and traffic signs and signals that are underground or blend in Currently, all utility lines are overhead. The decision to underground utilities belongs to the City of Orlando and the Orlando Utilities Commission (OUC).	x	unknown
Sidewalks that link adjacent neighborhoods to the corridor and that are unobstructed, wide enough for a variety of users, and buffered from the street. The proposed Corrine Drive redesign will feature sidewalks on both sides of the street that continue uninterrupted for the full 2 miles of the corridor. They will be wider and buffered by landscaping.	x	✔
Lighting that improves visibility and safety for pedestrians and cyclists Lighting improvements are part of the safety solutions in the plan for Corrine Drive	x	✔
Features that improve accessibility for all types of users, in compliance with Americans with Disabilities Act standards All new construction on Corrine Drive will be ADA compliant	x	✔

Health Profile

Design and land use patterns that support community needs

Vibrant retail environment	✔	✔
Housing options for all income levels	x	x
Buildings adjacent or proximate to sidewalks	/	/
Improved parking strategies and shared parking Parking strategies are included in the Corrine Drive Update plan	/	✔
High-quality parks and public spaces Public spaces can be improved by the creative placemaking measures in the Corrine Drive update plan	/	✔
Healthy food options	✔	✔

Engaged and supported people who live, work, and travel along the corridor

Engaged residents and local business owners	✔	✔
Organizations that facilitate long term improvements and resident engagement	✔	✔
Regular programs in community gather spaces	✔	✔
Accommodations for pets	/	/
Accommodations for vulnerable populations, including children, the elderly, and people with disabilities. The proposed Corrine Drive redesign will include ADA compliant sidewalks that will better serve all vulnerable populations. Safety measures, such as signalized midblock crossings, will also make the road safer for vulnerable populations.	x	✔
A defined identity, drawing on the arts and culture of the community and supported by creative placemaking and programming Creative placemaking suggestions included in the Corrine Drive plan will provide an opportunity to further enhance Corrine's thriving community	✔	✔
Measures to address safety and perceptions of safety A set of safety measures is put forth in the plan for Corrine Drive, including signalized crosswalks, a raised intersection, and improved lighting.	x	✔

Health Profile

Linkages to other parts of the city

Well-connected, multi-modal street networks The network of bicycle boulevards, broadly, will enhance connectivity, and the shared use path will connected the Orlando Urban Trail and the Cady Way Trail	x	✔
Safe and easily identifiable connections, including sidewalks and trails A wayfinding system and the new bicycle facilities on Corrine will improve the safety of and ease of identifying connections to the Urban Trail, Bumby shared use path, and Cady Way Trail.	x	✔
Transit including enhanced bus service or rail While the recommended design is transit-supportive, at this moment, there are no plans to increase or improve transit service in the immediate area.	x	x
Bike infrastructure on or adjacent to the corridor Corrine Drive will be home to a shared use path that will work in conjunction with the Urban Trail, Cady Way Trail, and Bumby shared use path to provide more cohesive bicycle infrastructure.	/	✔

Health Profile

Health Behaviors and Outcomes

The health behaviors and outcomes data is grouped into four Census Tracts and identified by neighborhoods: Colonialtown North, Leu Gardens/Rowena Gardens, Coytown/Audubon Park/Colonialtown Center, and Baldwin Park.

Preventive Behavior

Prevalence (%) of Preventive Behaviors			
Neighborhood	**Current lack of health insurance among adults aged 18–64 Years**	**Visits to doctor for routine checkup within the past Year***	**Cholesterol screening***
Colonialtown North	15.7	66.7	73.8
Leu Gardens/ Rowena Gardens	8.8	73.9	84.4
Coytown/Audubon Park/ Colonialtown Center	11.9	69.5	76.6
Baldwin Park	15.4	66.1	70.4
Average	**13.0**	**20.9**	**20.9**
* Adults aged >=18 Years			

Unhealthy Behaviors

Prevalence (%) of Unhealthy Behaviors*					
Neighborhood	**Binge drinking**	**Current smoking**	**No leisure-time physical activity[iii]**	**Sleeping less than 7 hours[iv]**	**Obesity**
Colonialtown North	21.8	17.4	18.8	32.6	20.5
Leu Gardens/ Rowena Gardens	18.0	11.6	16.2	27.6	20.9
Coytown/Audubon Park/ Colonialtown Center	21.6	13.1	15.8	30.1	23.1
Baldwin Park	22.0	16.1	17.5	31.8	22
Average	**20.9**	**14.6**	**17.1**	**30.5**	**21.6**
*Among adults aged >=18 Years					

Health Outcomes

Coronary heart disease among adults aged >=18 Years	
Neighborhood	**Prevalence (%)**
Colonialtown North	4.4
Leu Gardens/ Rowena Gardens	6.7
Coytown/Audubon Park/ Colonialtown Center	4.6
Baldwin Park	3.8
Average	**4.875**

Health Profile

Stroke among adults aged >=18 Years	
Neighborhood	**Prevalence (%)**
Colonialtown North	1.9
Leu Gardens/ Rowena Gardens	2.5
Coytown/Audubon Park/ Colonialtown Center	1.9
Baldwin Park	1.7
Average	**2**

Diagnosed diabetes among adults aged >=18 Years	
Neighborhood	**Prevalence (%)**
Colonialtown North	6.4
Leu Gardens/ Rowena Gardens	7.8
Coytown/Audubon Park/ Colonialtown Center	6.3
Baldwin Park	5.6
Average	**6.5**

Physical health not good for >=14 days among adults aged >=18 Years	
Neighborhood	**Prevalence (%)**
Colonialtown North	9.3
Leu Gardens/ Rowena Gardens	8.9
Coytown/Audubon Park/ Colonialtown Center	8
Baldwin Park	8.4
Average	**8.7**

Mental health not good for >=14 days among adults aged >=18 Years	
Neighborhood	**Prevalence (%)**
Colonialtown North	11.6
Leu Gardens/ Rowena Gardens	8.8
Coytown/Audubon Park/ Colonialtown Center	9.5
Baldwin Park	11.1
Average	**10.3**

Endnotes

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[i] "BRFSS is used to collect prevalence data among adult U.S. residents regarding their risk behaviors and preventive health practices that can affect their health status." CDC (2013). Retrieved from: https://www.cdc.gov/brfss/data_documentation/pdf/userguidejune2013.pdf
[ii] Aschengrau and Seage (2008) Essentials of Epidemiology in Public Health. *pg. 48-51.*
[iii] According to the CDC, "Regular physical activity can improve the health and quality of life of persons in the United States of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk for early death, coronary heart disease, stroke, high blood pressure, type 2 diabetes, breast and colon cancer, falls, and depression. The 2008 guidelines state that some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits."
[iv] According to the CDC, "Insufficient sleep is associated with numerous chronic diseases and conditions, such as diabetes, cardiovascular disease, hypertension, obesity, and depression. Insufficient sleep is associated with the onset of these conditions and also poses important implications for their management and outcome. Moreover, insufficient sleep is responsible for motor vehicle crashes and industrial errors, causing substantial injury and disability each year. Sleepiness can also reduce productivity and quality of life."[iv]

COMPLETE STREETS