KIRKMAN ROAD
VISION PLAN

Capstone 2020/2021

PREPARED FOR

CITY OF ORLANDO

PREPARED BY

UCF | School of Public Administration
UNIVERSITY OF CENTRAL FLORIDA

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EXECUTIVE SUMMARY

University of Central Florida Master of Urban and Regional Planning Capstone students were invited to participate in a multi-faceted capstone project to create a vision plan for a section of the Kirkman Road corridor, which is primarily situated within the City of Orlando. The purpose of the proposed 20-year vision plan is to identify opportunities and challenges that will face the City in redeveloping the area as well as engage area residents in civic life. Student planning inquiry has focused on transforming the area into a character driven mixed-use, multi-modal corridor, through using traditional planning approaches and potential smart growth, future ready concepts.

Over the decades, the Kirkman Road corridor has developed into a high-speed urban arterial that could be located anywhere in suburban Florida, due to its disjointed and antiquated appearance. The challenge during this period of change is to unlock the area's potential and reorganize uses as well as space through unifying planning themes, while engaging area residents.

The first section of the report provides a detailed background and initial analysis of the Kirkman Road corridor, placing particular emphasis on four components: population and infrastructure, assets that lead to a sustainable future, a market analysis and stakeholder consultation and engagement. Key findings from each of these components, as well as ten key guiding principles for development, constituted the base for the development of four proposed interventions that would propel the Kirkman Road corridor into a sustainable future.

The second section of the report presents four interventions designed by Capstone students with the guidance and assistance of urban planning professionals in the City of Orlando, local public agencies and private organizations, as well as University of Central Florida faculty. Innovative solutions included affordable housing projects, a shared-use path, a Bus Rapid Transit SuperStop and a nature boardwalk. All proposals address current challenges identified by key stakeholders and seek to improve livability in the area, facilitating access to housing, transportation and recreation facilities. The Kirkman Road Vision Plan will provide a road map to pursue sustainable development in the area, balancing economic development, environmental protection and social equity considerations to enhance livability for present and future residents and visitors.

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1.1. INTRODUCTION

Kirkman Road, also known as State Road 435, is a 7.01-mile-long public highway located in the western portion of Orange County, Florida. Displayed in **Figure 1.1**, the corridor runs from West Colonial Drive in the north to its southern terminus at West Sand Lake Road. From West Colonial Drive to Old Winter Garden Road, Kirkman Road runs through unincorporated Orange County. From Old Winter Garden Road to Sand Lake Road, the corridor runs through the jurisdictional boundaries of the City of Orlando. Kirkman Road provides multiple connection points to many neighborhoods, including Tangelo Park, MetroWest, Richmond Heights, and Washington Shores. This section provides an array of analyses that delve into the various dynamics of the population and physical characteristics within the greater Kirkman Road study area. Sections include:

- A depiction of the region's demographic profiles covering varying aspects of both the permanent and working populations
- An overview of the region's housing profiles that depict the quality and age of housing structures
- A quantitative measure of the Corridor's public safety elements and its role in influencing the view that residents have on their quality of life
- A thorough discussion of Kirkman Road's zoning measures depicting both current and forecasted developments
- Structural developments that will improve residents' quality of life

The main objective of the Kirkman Road Vision Plan is to incorporate developmental frameworks into the urbanized area to provide an appealing location in which to live, work, and play. As such, a thorough discussion regarding the corridor's existing population is necessary. The results of

Figure 1.1 -
Map of Kirkman Road Corridor

Source: *City of Orlando, 2020.*

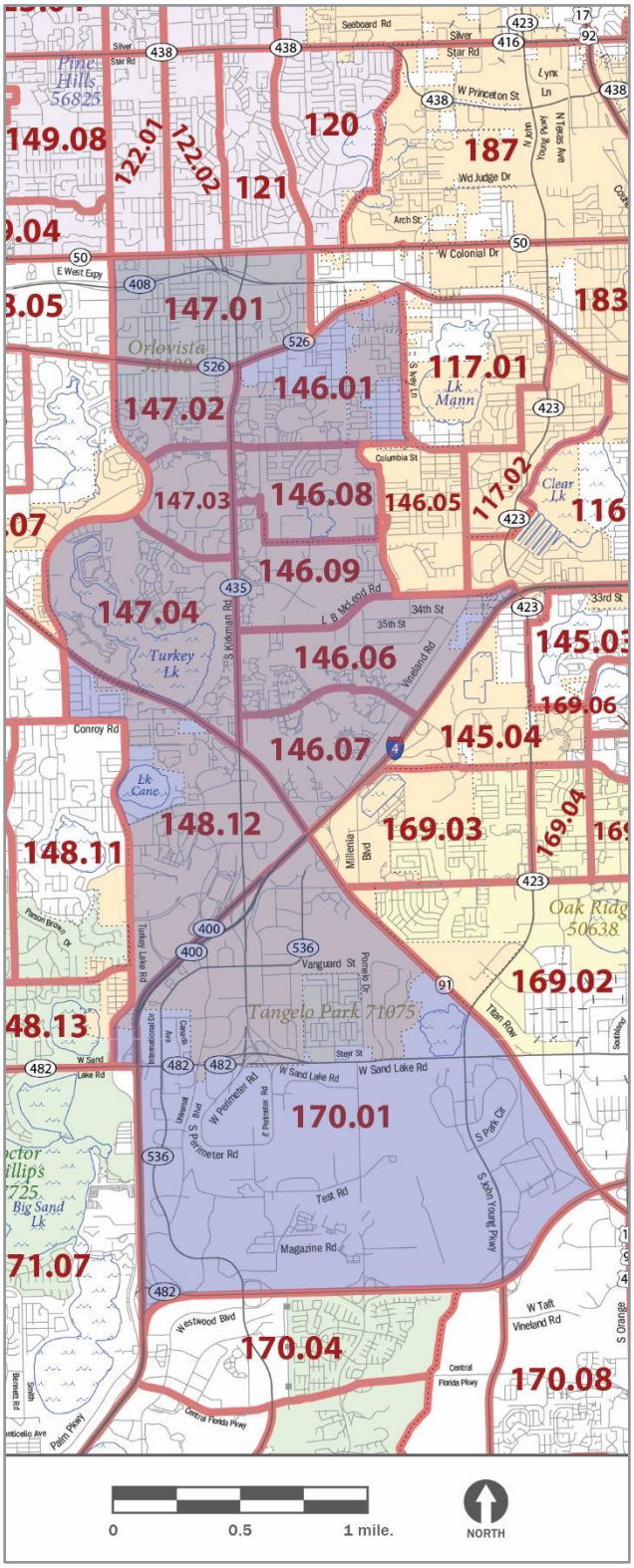
such a discussion will promote a more open dialogue between city officials and the public, leading to public/private investments in economic developments, transportation plans that encourage other forms of travel besides the use of vehicles, and developments that balance environmental preservation with an increase in development. From understanding how this location is zoned and the relationships between each zoning category to its surrounding uses, a more functioning roadway can be developed in which future developments can capitalize from their surroundings in creating an attractive place in which to be.

1.2. BACKGROUND AND POPULATION

1.2.1. SUBJECT AREA

The Kirkman Road corridor is located approximately 4 miles west of Downtown Orlando. Approximately 71,000 residents live in the vicinity of the corridor in several adjacent communities and neighborhoods, including Tangelo Park, Orla Vista, MetroWest, Richmond Heights, and Washington Shores. Notable businesses along the corridor include Universal Orlando Resort and the Valencia College West Campus. Universal Orlando Resort opened in 1990 and serves as a major economic driver for the region, attracting millions of visitors from around the world and providing jobs for thousands of residents. The 180-acre Valencia College West Campus opened along the corridor in 1971 and provides a multitude of educational opportunities. As shown in **Figure 1.2**, The corridor runs through 11 census tracts: 146.01, 146.06, 146.07, 146.08, 146.09, 147.01, 147.02, 147.03, 147.04, 148.12, and 170.01. This analysis uses demographic data for the 11 census tracts, and it should be noted that the corridor only spans a portion of the tracts' total areas.

Figure 1.2 -
Study Area Census Tracts



Source: *U.S. Census Bureau - TIGERweb, 2020.*

1.2.2. ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS

According to the U.S. Census Bureau's 2018 American Community Survey (ACS) 5-Year Estimates, the most populous census tract along the corridor is 147.04, with nearly 21 percent of the total population of all 11 census tracts. The corridor is made up of 48 percent Caucasian residents, 39 percent African Americans, and 27 percent Latino. The ratio of the African American population is considerably higher than that of Orange County. The median age is 31, which is younger than the median age of Orange County (34.9). Approximately 6 percent of the population are over 65 years, which is considerably less than the 11 percent in Orange County. The corridor is comprised of 53 percent female and 47 percent male, a ratio that is slightly less than Orange County (51 percent female, 49 percent male).

1.2.3. EDUCATION, WORK, AND INCOME

The 2018 ACS 5-Year Estimates indicate the median household income for the studied census tracts of $54,000 is approximately $14,000 less than the median household income of Orange County. The unemployment rate is 4 percent, compared to 3.2 percent in Orange County. There are more than 27,000 households located in the 11 census tracts, with 18 percent of households falling below the poverty line and 7 percent receiving food stamps. The number of people receiving food stamps is nearly half of the average for Orange County and there is a slightly higher percentage of households below the poverty line. The study area possesses a high literacy rate, with 89 percent of residents having a high school diploma. There are three high schools, two middle schools, and nine elementary schools that service the corridor. Approximately 20 percent of residents over the age of 25 have achieved a bachelor's degree, compared to 23 percent in Orange County.

Table 1.1 - *Socioeconomic Indicators: Study Area vs. Orange County, FL 2010 and 2018*

Indicators	Study Area* (2010)	Orange County (2010)	Study Area* (2018)	Orange County (2018)
White/Caucasian	42%	48%	64%	67%
African American	41%	39%	21%	23%
Latino	22%	27%	27%	31%
Median Age	30.4	31	33.4	34.9
% over 65	6.7%	6%	9.4%	11%
High School Diploma	90.4%	89%	90%	76%
Employment	94%	94%	87%	94%
Median Household Income	$40,119	$40,369	$50,138	$54,335
% Poverty	13.9%	18%	16.3%	15%
% Food Stamps	8.8%	7%	12.7%	16%
White/Caucasian	42%	48%	64%	67%
African American	41%	39%	21%	23%
Latino	22%	27%	27%	31%
Median Age	30.4	31	33.4	34.9
% over 65	6.7%	6%	9.4%	11%

Source:
U.S. Census Bureau 2018 American Community Survey 5-Year Estimates, 2018.

Note:
** = Study Area consists of 11 census tracts through which the Kirkman Road Corridor passes: 146.01, 146.06, 146.07, 146.08, 146.09, 147.01, 147.02, 147.03, 147.04, 148.12, 170.01*

1.3. HOUSING

The Kirkman Road corridor is heavily occupied by multi-family communities, the majority of which directly front the road. Along the 7.01-mile corridor are nine single-family areas, two mobile home communities, and 34 multi-unit complexes (e.g., apartment, condominium, duplex communities). As shown below in **Figure 1.3**, all but two of these residential communities—the Tangelo Park neighborhood and Bell at Universal Apartments—are located between Vineland Road and State Road 50 (West Colonial Drive).

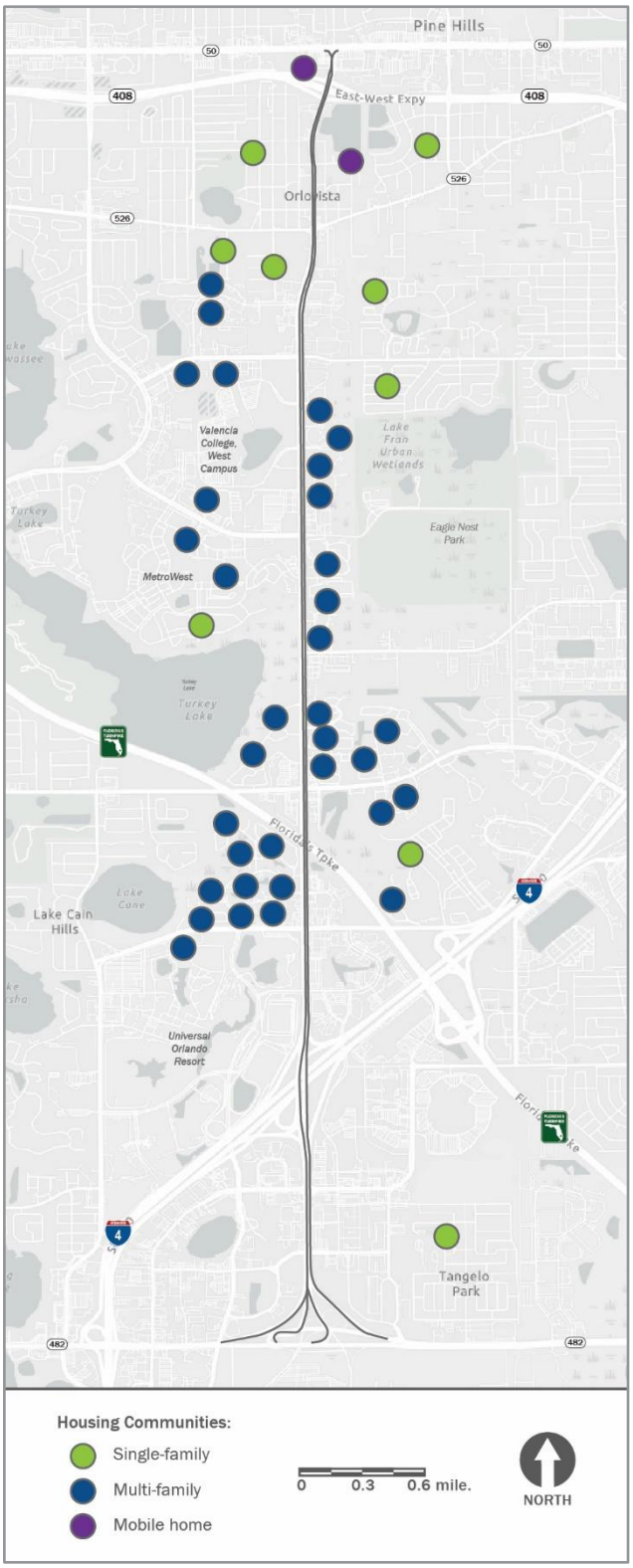
According to the 2018 ACS 5-Year Estimates, there are a total of 32,319 housing units within the 11 census tracts described in **Section 2.1**. The mean

age of these units is between 21 and 30 years, and the median number of total rooms within each home is 4.3. 85 percent of these housing units are occupied, and 15 percent are vacant. When compared to the City of Orlando (14.53 percent) and Orange County (12.88 percent), the studied census tracts possess a high vacancy rate. An estimated 77 percent of occupied homes within the studied census tracks are renter-occupied—a well above the City of Orlando's rate of renter-occupied units (65 percent) and more than double the renter rate of the State of Florida (34.99 percent). With a median population age of 31—as previously noted—and a high rental rate, it can be reasonably deduced that the studied census tracts serve as bedroom communities for the robust hospitality and tourism industries of the area.

Of the nearly 6,500 owner-occupied housing units, the median home value is $116,300, which is just over half the City's median home value of $217,800. Housing is often the largest expense in a family or individual's budget. As a widely accepted rule, households should spend no more than 30 percent of total income on housing. If more than 30 percent of total household income is spent on housing, the household is considered to be cost burdened (Schwartz & Wilson, 2007). Within the 11 census tracts studied for this analysis, an area that is largely comprised of the Kirkman Road corridor, 42.98 percent of owner-occupied housing units and 57 percent of renter-occupied housing units pay more than 30 percent of total household income on mortgage or rent payments, respectively. The Kirkman Road corridor's housing cost burden is high and exceeds both the City and State rates of cost-burden households.

Another metric of housing affordability is the Housing and Transportation Affordability (H+T Index) indicator, which measures the percentage of income that the average household spends on housing and transportation combined (U.S.

Figure 1.3 -
Map of Residential Communities



Source: *Google Earth, 2020.*

Department of Transportation, 2020). This index includes fixed household costs not included in the 30-percent rule described above and highlights the relationship between the built environment and household travel behavior. It is generally stated that transportation costs should not exceed 15 percent of total household income (Center for Neighborhood Technology, 2017). Combined with the 30-percent rule for housing affordability, a new view of housing affordability can be defined as combined housing and transportation costs consuming no more than 45 percent of household income. According to the Center for Neighborhood Technology's H+T Index tool (2020), the communities along the Kirkman Road corridor possess H+T Indexes ranging from 46 percent (residential communities near the corridor's northern terminus) to 53 percent (residential communities near the corridor's southern terminus, including the Tangelo Park neighborhood), with an average H+T Index of 49 percent. As all communities possess H+T Indexes greater than 45 percent, housing along the Kirkman Road corridor may be defined as unaffordable according to this methodology.

From a visual inspection conducted in October 2020, most single-family structures to the east of the corridor were observed to be single-story, 1960's-era ranch-style structures with shingle roofs, stucco facades, and car ports or garages for one-to-two vehicles. There is a pocket of newer single-family development at the former Shingle Creek Golf Course to the east. To the west of the corridor lies the MetroWest Development of Regional Impact, which was mostly developed during the 80's and 90's. Overall, the balance of single-family homes appeared to be in moderate condition. However, there is a large percentage of 1960's-era structures appearing to be unoccupied or suffering from deferred maintenance in moderate-to-poor condition.

According to the Orange County Property Appraiser (2020), the average age of the 34 multi-unit communities along the Kirkman Road corridor is 29 years. The oldest communities—Coconut Palms Apartments, Cypress Woods Condominiums, and Summerfield Apartments, each of which is located near the intersection of South Kirkman Road and Conroy Road—were constructed in 1973, making these communities 47 years old. The newest community, Bell at Universal Apartments, was constructed in 2010 and is 10 years old.

1.4. EXISTING LAND USE AND ZONING

Within the city of Orlando, the Kirkman Road corridor begins with a Community Activity Center (AC-1) where the roadway intersects with Old Winter Garden Road in its northerly reaches. A large developing property also incorporates a Resource Protection (RP) Overlay District on the west side of this Activity Center, with several properties designated as Public Use (P) to the east. As identified in **Figures 1.4** and **1.5** on the following page, traveling southwards Kirkman Road serves as the main arterial thoroughfare within the area, providing a connecting point for various collector roads that are bordered along an array of zoning designations adjacent to its eastern border such as:

- Industrial District (I-C and I-P) along Westgate Boulevard
- Residential Districts (R-3B) along Preferred Parkway
- Office Residential District (0-1) and Industrial Park zoning along Raleigh Street

Traveling south, Valencia College's western campus incorporates a large zoning tract categorized as Public Use (P). Several multi-block Medium Intensity Development (R-3B)

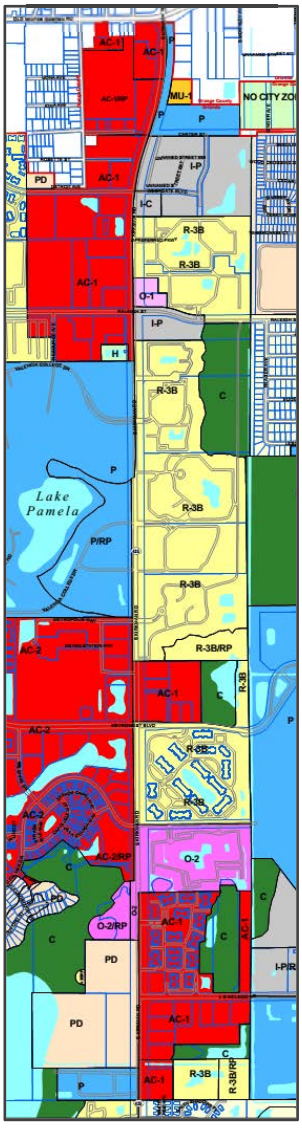
designations are located on the eastern half of Kirkman Road. After passing MetroWest Blvd, two locations of importance within **Figure 1.4** are the two Community Activity Centers (AC-1), responsible for providing both economic and housing opportunities for the local populace. The first AC-1, referred to as the MetroWest Activity Center is located south of the large zoning tract categorized as Public Use (P), whereas the second AC-1 is further southwards, located between two Medium Intensity Office-Residential (0-2) zoning tracts, several Conservation (C) tracts, and two Planned Development (PD) lots. Due to the locations of the two AC-1 Centers, there is an interspersion of Office and Multi-family zoning designations that have resulted in Multi-family developments appearing along the Corridor. Also identified in **Figure 1.4** between the two southern AC-1 centers are four Conservation (C) tracts, split between the east and west side of the southern portion of Kirkman Road. Due to the AC-1 centers incorporating mixed-used developments, additional land can be spared from construction, resulting in the local population being able to enjoy room for a variety of outdoor activities.

From examining **Figure 1.5**, several areas of importance to examine further are: the two AC-1 Centers, several blocks of Metropolitan Activity Center (AC-3) units near Kirkman Road's intersection with the highway, several dispersed Conservation Tracts (C), and the Residential Districts (R-3B) that align Kirkman Road's east and western border before its intersection with the southern highway. The first AC-1 Center is rather small, located on South Kirkman Road between a Public Use (P) lot on its left-hand side, two R-3B on its right-hand side, and to its southern border, a Low Intensity Development (R-3A) tract. This AC-1 Center provides an ample supply of franchises within walking distance of nearby residential developments. There are also two Conservation (C) plots that border the north and south of Courtney PL, a small inlet road that connects an R-3B tract on the right as depicted in **Figure 1.5** to South Kirkman Road to the east. Whereas, the second AC-1 Center is larger in size, located in the center of four R-3B zoning units and occupying the intersection of Conroy Road and South Kirkman Road. Due to the size of this AC-1 Center, it helps to provide economic activity and bring travelers to

Figure 1.4 -
Zoning Districts, Map 6 of South Kirkman Road

Source: *City of Orlando, 2018.*

Figure 1.5 -
Zoning Districts, Map 11 of South Kirkman Road

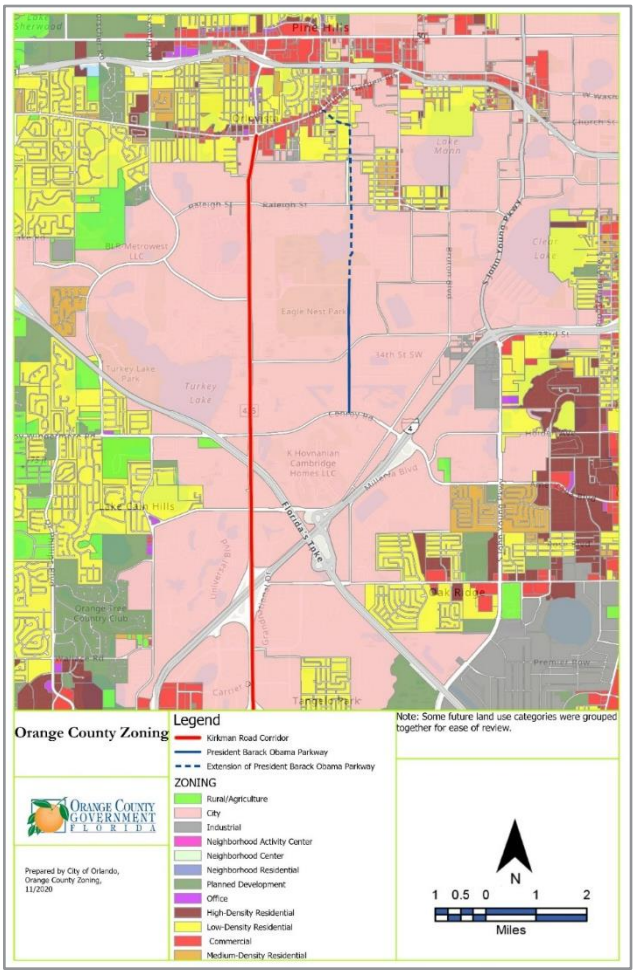


Source: *City of Orlando, 2018.*

nearby minor arterial streets including, Conroy Storage Lane, Lawing Lane, and Summeroak Street. Once passing the last AC-1 Center on Kirkman Road, there are several blocks of AC-3 units along the corridor, with the first one located across the street from Eaglesmere Drive and continuing southbound until the corridor intersects with the highway.

After completing a thorough analysis of the Kirkman Road Corridor's zoning designation strictly from a city viewpoint, the focus is now going to be shifted to a more broadened examination of the study area from a regional perspective. This is vital to improving the quality of life for both residents and businesses within the Kirkman Road Corridor, to ensure that any future mitigations to the study area's zoning categorizations follow some form of uniformity to ensure an equilibrium in land uses between current and future uses. **Figure 1.6** presents a zoning map of the land surrounding Kirkman Road within unincorporated Orange County. The main distinction worth noting is the majority of Low-Density Residential zoning classifications (yellow) that enclose the study region, signifying a large population of individuals that reside within a moderate distance of the corridor. Additionally, a conglomeration of Commercial zoning (red) borders the Kirkman Road Corridor's northern entrance at Old Winter Garden Road, a combination of Rural/Agriculture designations (light green) are located west of the corridor, and some High-Density Residential (brown) areas that are centered to the east of the Corridor. Both the City and County maps show that the Kirkman Road Corridor is a significant thoroughfare surrounded by a great deal of Low-Density Residential areas and Activity Centers (AC-1) that depend on the corridor for their daily economic sustenance and compose the quality of the thoroughfare as a vital connector node with the Central Florida Region.

Figure 1.6 -
Orange County Zoning



Source: *Orange County Government, n.d.*

1.5. MOBILITY AND ACCESSIBILITY

1.5.1. STREETSCAPE

Kirkman Road varies in width along the 7.01-mile corridor, from 108 feet to 240 feet wide, and consists of five to seven travel lanes. Landscaping along the corridor is largely minimal, with medians made up of concreate and patches of grass, and most foliage visible from the corridor is associated with adjacent communities and businesses. Sidewalks and bike lanes are present along the length of the corridor. However, the existing overall streetscape provides an environment that is less

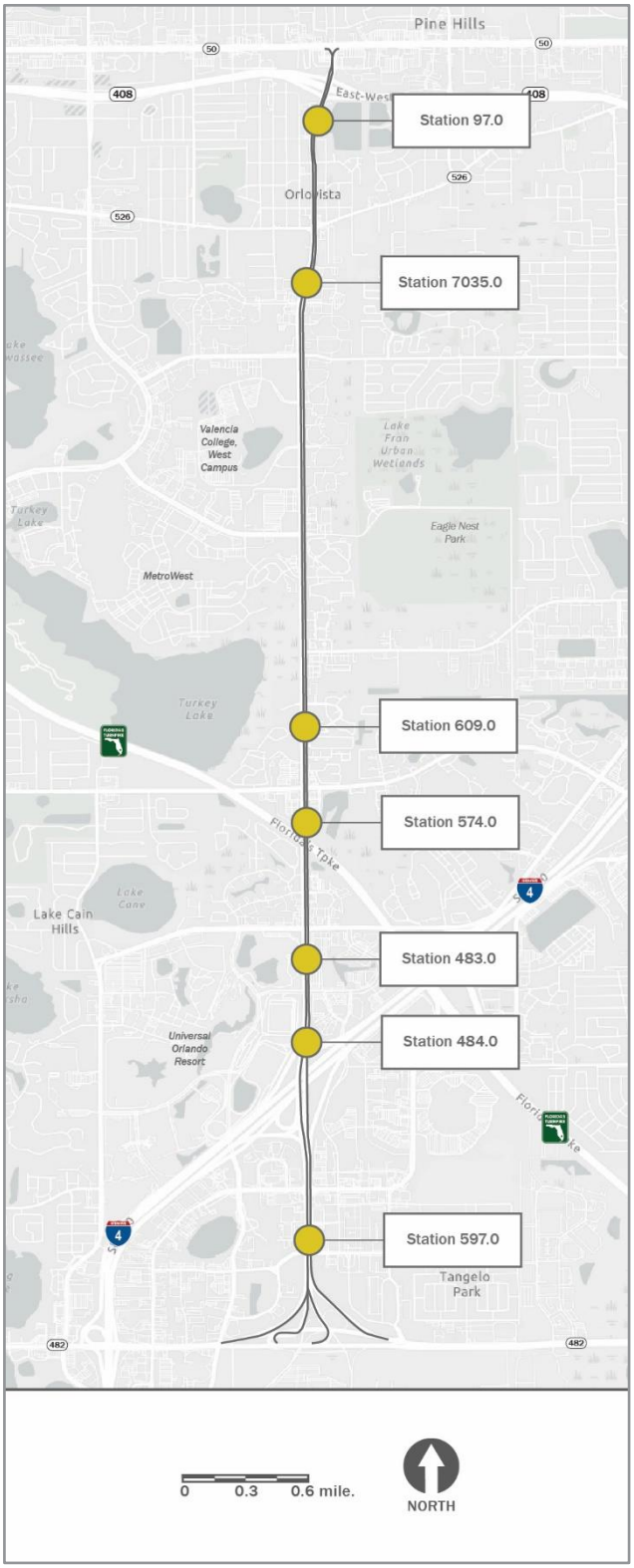
than ideal for pedestrians and bicyclists, which will be further analyzed in later sections.

1.5.2. AUTOMOBILE TRAFFIC

The Orange County Traffic Engineering Division, part of Orange County Public Works, publishes annual traffic count data for roadways throughout the County. As displayed in **Figure 1.7**, the County records traffic data for seven points, or stations, along the Kirkman Road corridor. Data recorded include average annual daily traffic (AADT) (total number of vehicles passing a station in both directions for one year divided by 365), peak hour daily volume (number of vehicles passing a station during the single hour of the day with the highest hourly volume), and peak direction (the direction in which the greatest volume of traffic flows).

Table 1.2 below presents 2019 traffic counts for the seven stations along the Kirkman Road corridor. As shown in the table, AADT is greatest at station 609.0, with AADT peaking from the station in both directions. Although this station is located in an area that contains less development than other areas along the corridor (between MetroWest Boulevard and Conroy Road), the high AADT may be a product of the station's central location through which residents, students, and tourists travel. Peak hourly daily volume is greatest at station 484.0, which is located at the Kirkman Road and Interstate 4 interchange, a fact that can be reasonably attributed to the continuous traffic associated with the interchange. Also evident in **Table 1.2** is the fact that northbound represents peak direction for all stations, which may reveal that users of Kirkman Road most often travel north toward State Road 408 and West Colonial Drive.

Figure 1.7 -
Vehicle Traffic Count Stations



Source: *Orange County Public Works, 2019.*

Table 1.2 - *Vehicle Traffic Counts: Kirkman Road, 2019*

Station No.	Location	AADT	Peak Hour Volume	Peak Direction
97.0	Colonial to Old Winter Garden	38,546	1,931	NB
7035.0	Old Winter Garden to MetroWest	56,064	2,412	NB
609.0	MetroWest to Conroy-Windermere	70,733	2,619	NB
574.0	Conroy-Windermere to Vineland	60,258	2,304	NB
483.0	Vineland to Major	50,895	2,101	NB
484.0	Major to International	59,828	2,645	NB
597.0	International to Sand Lake	33,768	2,137	NB
97.0	Colonial to Old Winter Garden	38,546	1,931	NB

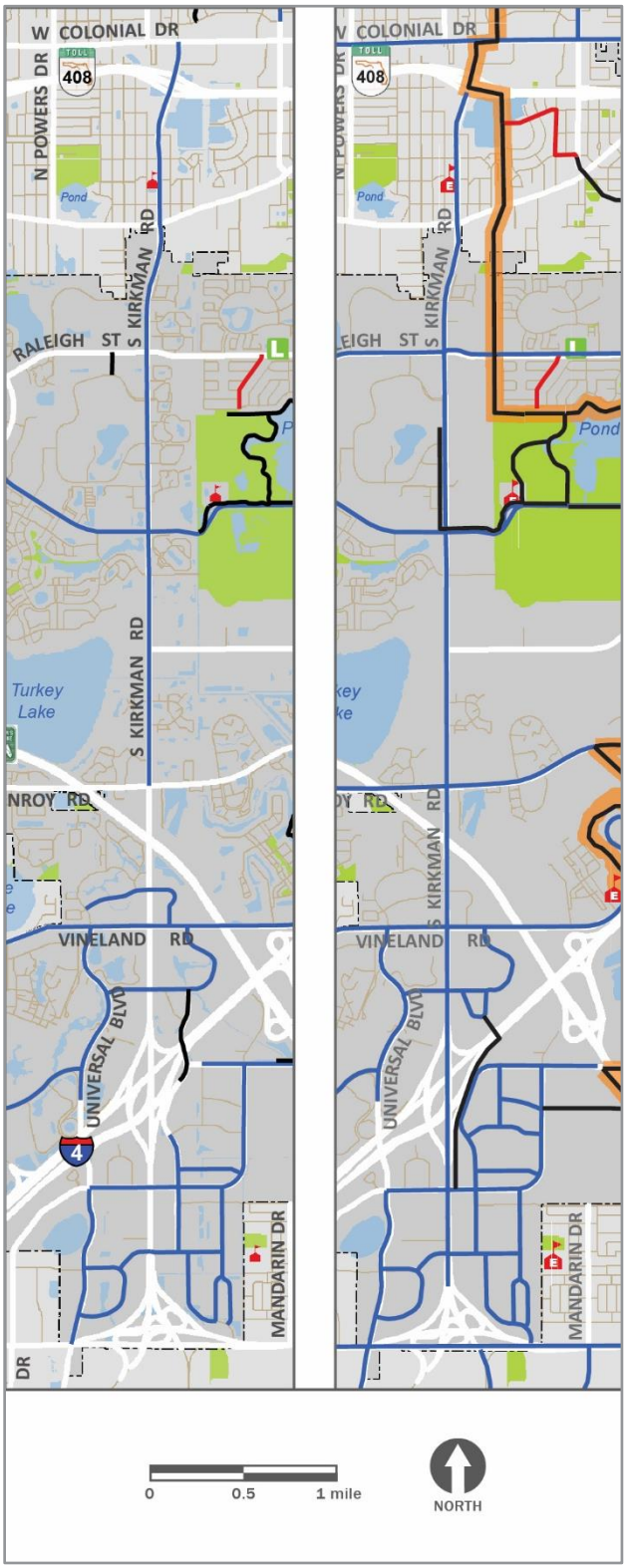
Source:
Orange County Public Works, 2019.

Notes:
AADT = Average annual daily traffic
NB = Northbound

1.5.3. BICYCLE FACILITIES

As illustrated by the blue lines in **Figure 1.8**, bicycle facilities are present along the northern half of the Kirkman Road corridor in both the northbound and southbound directions. Additionally, while not directly along the roadway, bike lanes are also present throughout various residential and commercial areas of the southern half of the corridor area (City of Orlando, 2020a). Most existing bicycle facilities are in the form of on-street bike lanes, measuring four to five feet wide and striped with a solid line to differentiate between travel lanes for automobiles and bicycles. Signed routes are also present in various locations (illustrated by red lines in **Figure 1.8**), which are on-street bike lanes that connect to trails when there is limited space or right-of-way. According to the City of Orlando Bicycle Plan (2014), on-street bike lanes should include marked bicycle-shaped symbols and directional arrows. While dedicated bike lanes are provided along the Kirkman Road corridor, bicycle-shaped symbols and directional arrows are largely nonexistent throughout the

Figure 1.8 -
Existing and Proposed Bicycle Facilities



Source: *City of Orlando, 2020.*

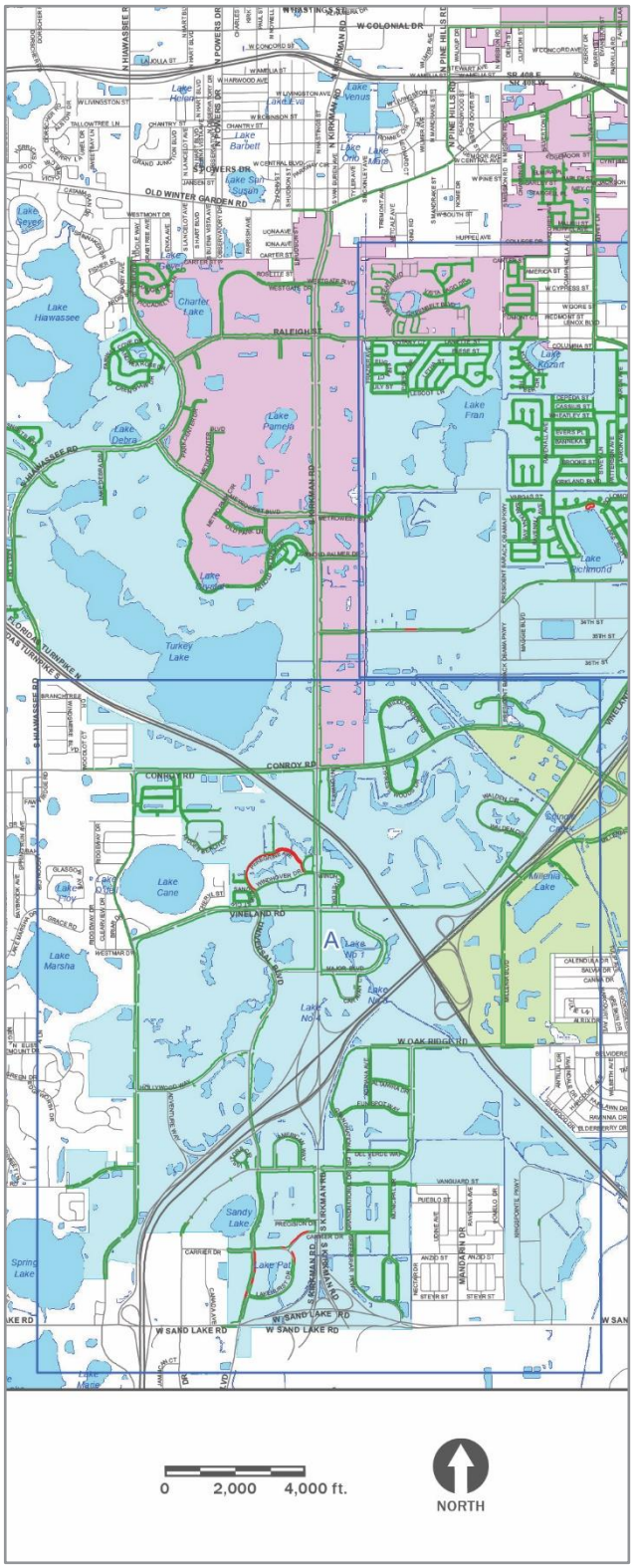
northern half of the corridor. In the absence of dedicated bicycle facilities (opposed to on-street bike lanes), bicycle-shaped symbols and directional arrows should be placed along the designated bicycle lane at least every one-quarter mile per the City of Orlando Bicycle Plan (2014). Alternatively, bike lanes throughout the residential and commercial areas in the southern half of the corridor area do contain the appropriate markings. It should be noted that the black lines in **Figure 1.8** represent off-street bike lanes, which are physically separated from automobile traffic and currently run through parks or follow roadway overpasses.

The City of Orlando proposes new on-street bike lanes along Kirkman Road that extend from the existing bike lanes at Conroy Road to Kirkman Road's southern terminus immediately south of Carrier Drive. As a result, on-street bike lanes will be present along the entire length of the corridor. Additionally, on-street bike lanes are also proposed along Raleigh Street, Conroy Road, and multiple side streets throughout the commercial area south of Interstate 4. Other proposed bicycle facilities, represented in **Figure 1.8** by black lines, include off-street bike lanes running through Eagle Nest Park and extending north to West Colonial Drive, as well as off-street bike lanes along Kirkman Road that will provide pedestrian access to Walmart and Valencia College's West Campus. Signed routes are proposed to serve as connections between on- and off-street bike lanes, and a trails extension (illustrated in orange) is planned north of Eagle Nest Park.

1.5.4. SIDEWALKS

As represented by green lines in **Figure 1.9**, sidewalks are presents along the majority of the Kirkman Road corridor with the exception of the Kirkman Road and Interstate 4 interchange. The concrete-paved sidewalks located on both sides of the roadway and measure from five to six feet in

Figure 1.9 -
Existing and Proposed Sidewalks



Source: *City of Orlando, 2019.*

width. Sidewalks are set back from curbs at various distances depending on the location, ranging from approximately 4 to 68 feet. Landscaping and on-street bike lanes, previously described above, serve as buffers between sidewalks and vehicle travel lanes. Upon visual inspection, the pavement condition of the corridor's sidewalks is currently good to fair, with some locations in need of minor maintenance. Various locations of sidewalk are periodically replaced in conjunction with nearby development along the corridor. At the time of writing, multiple sidewalk locations are interrupted due to adjacent construction. Additionally, some sidewalk locations are currently obstructed or interrupted by overgrown vegetation, utility poles, and bus stop shelters. **Figure 1.9** also includes red lines, which illustrate proposed sidewalk locations near the Kirkman Road corridor. As shown, new sidewalks are planned for only a few locations within the study area, notably west of Kirkman Road near Peregrine Avenue and Vineland Road and segments near Sand Lake Road.

1.5.5. PEDESTRIAN AND BICYCLE TRAFFIC

Like vehicle traffic counts that were previously presented in Section 5.2, the Orange County Traffic Engineering Division publishes annual traffic count data for pedestrian and bicycle trails throughout the County. The County records data for three stations along the Kirkman Road corridor. The most recent pedestrian and bicycle counts were conducted in 2015. These counts were recorded in 15-minute intervals during two periods: between 7:00 am to 9:00 am and 4:00 pm to 6:00 pm. **Table 1.3** below presents the total number of bicycle and pedestrian counts for each station by direction of traffic: northbound (NB), eastbound (EB), westbound (WB), southbound (SB). Overall, the intersections of South Kirkman Road/Conroy Road and South Kirkman Road/State Road 50 had the greatest number on non-automobile traffic with 79 and 62 pedestrians and bicyclists, respectively, during the observation periods. Analyzing direction of travel, pedestrian and bicycle traffic may be funneling toward Valencia College's West Campus and Universal Orlando Resort. However, station 33, located at the intersection of Kirkman Road and Conroy Road, is the southernmost station analyzed for pedestrian and bicycle counts. An additional station south of Vineland Road and/or the Interstate 4 interchange would provide further insight into the potential destination of pedestrians and bicyclists.

Table 1.3 - *Pedestrian and Bicycle Counts: Kirkman Road, 2015*

	Station No.	Location (Intersection)	NB	EB	SB	WB
Ped. Counts	24	SR 50 and Kirkman*	10	7	32	13
	76	Old Winter Garden and Kirkman	3	1	1	4
	33	Conroy and Kirkman	24	17	32	6
Bike Counts	24	SR 50 and Kirkman*	3	1	15	1
	76	Old Winter Garden & Kirkman	6	3	6	2
	33	Conroy and Kirkman	6	8	11	2

Source:
Orange County Public Works, 2015.

Notes:
AADT = Average annual daily traffic
NB = Northbound
EB = Eastbound
SB = Southbound
WB = Westbound
**SR 50 = West Colonial Drive*

1.5.6. PUBLIC TRANSPORTATION

Public transportation along the Kirkman Road corridor consists of fixed-route bus service provided by Lynx, a local bus system run by the Central Florida Regional Transportation Authority. **Figure 1.10** displays the Kirkman Road portion of the Lynx System Map. The purple bubbles

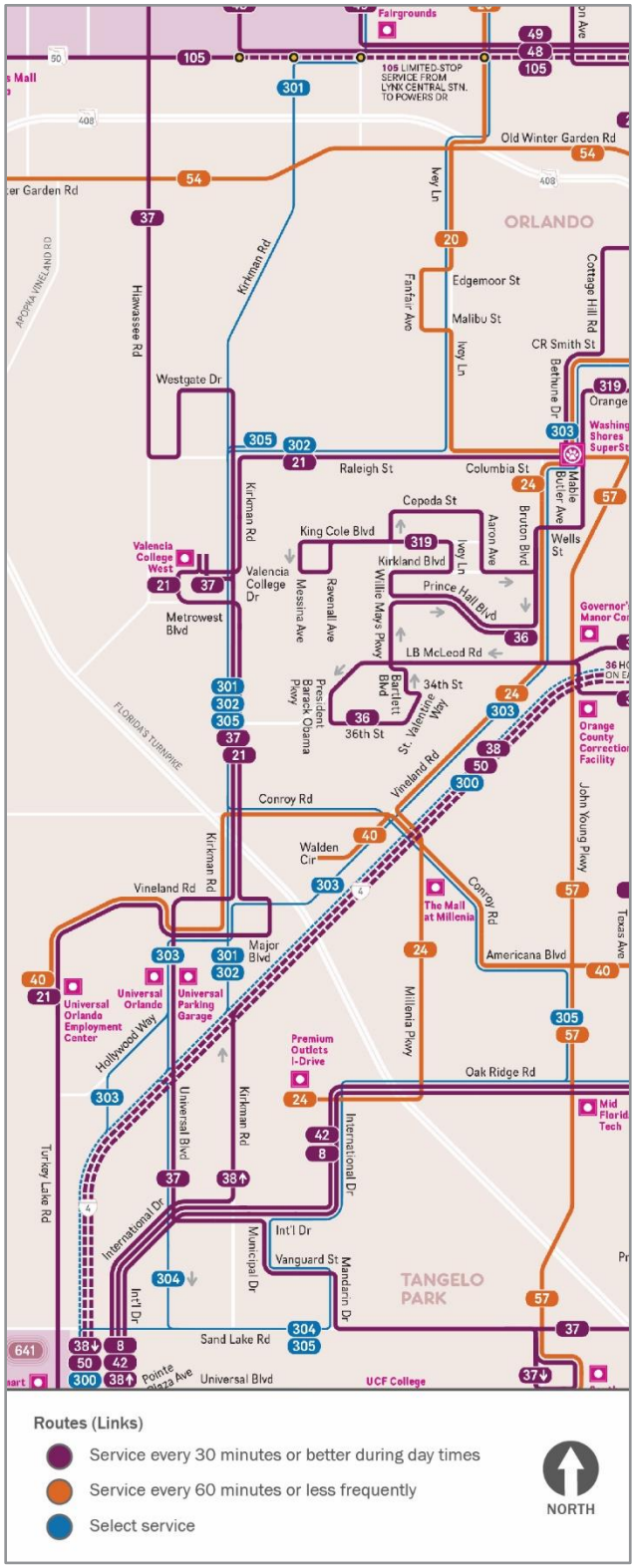
represent routes with service every 30 minutes, the orange bubbles represent routes with service every 60 minutes, and the blue bubbles represent routes with select service. The blue routes shown in **Figure 1.10** are part of Lynx's Disney Springs Direct route, which connect to Lynx's Disney Springs West Side Transfer Center and onto other destinations around the Walt Disney World Resort (Lynx, 2020). As routes providing select service, buses do not arrive at stops every 30 to 60 minutes for the Disney Springs Direct routes. Rather, Lynx publishes updated schedules on their website. The purple routes that run directly along Kirkman Road are routes 21 (named Universal Studies), 37 (Pine Hills / Florida Mall), and 38 (Downtown Orlando / SeaWorld), which provide bus transportation every 30 minutes. The orange routes near the corridor are routes 40 (American Boulevard / Universal Orlando) and 54 (Old Winter Garden Road), which run east/west and intersect Kirkman Road at Conroy Road and Old Winter Garden Road, respectively.

Lynx bus stops are identifiable by signs with a pink bus or paw and a route number or numbers. Using Google Earth, 12 bus stops were identified on the northbound side of Kirkman Road and 16 bus stops were identified on the southbound side, all of which are located north of the Kirkman Road and Interstate 4 interchange. The majority of bus stops along Kirkman Road have shelters, benches, and trash receptacles, while others are only marked with a sign. Currently, bus service to intersecting roadways such as International Drive and Sand Lake Road provide access areas of Kirkman Road south of the interchange.

1.6. PARKS AND RECREATION

A number of parks and recreational facilities are located along or near the Kirkman Road corridor. As shown below in **Figure 1.11**, Eagle Nest Park and Bill Frederick Park at Turkey Lake are the

Figure 1.10 -
Lynx Bus Service Map

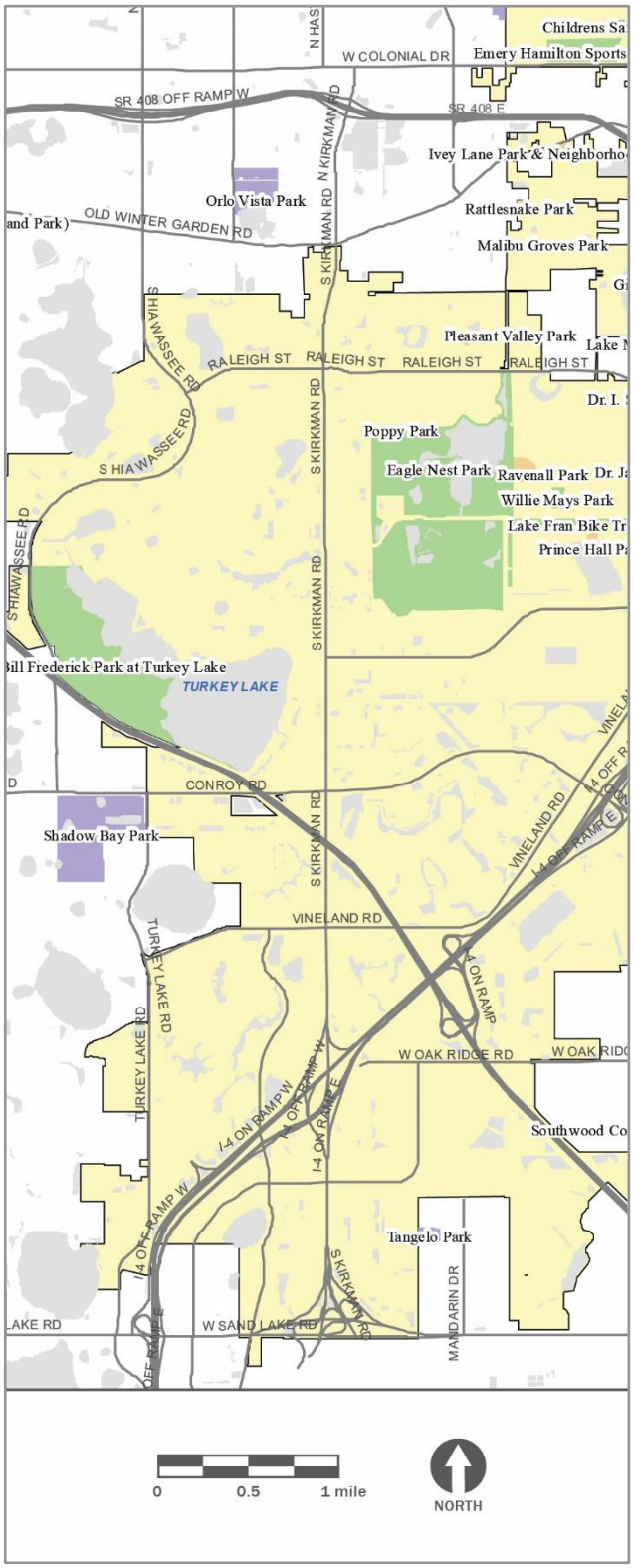


Source: *Lynx, 2020.*

largest parks near the corridor, both of which are managed by the City of Orlando Parks Division. Located one quarter mile east of Kirkman Road between Raleigh Street and L.B. McLeod Road, Eagle Nest Park consists of 485 acres of urban wetlands (Florida Communities Trust, 2020). The park's amenities include paved and unpaved biking and hiking trails, baseball and soccer fields, restrooms and concessions, and pavilions (City of Orlando, 2020b). Bill Frederick Park at Turkey Lake is located alongside Turkey Lake less than one mile west of Kirkman Road and north of Florida's Turnpike. The 183-acre park is known as a top-rated fishing location and includes a variety of amenities such as paved and unpaved trails, boat rentals, volleyball courts, grills, pavilions, and disc golf (City of Orlando, 2020c). Smaller city parks near the Kirkman Road corridor include Poppy Park and Willie Mays Park. Additionally, four parks near the corridor are managed by Orange County Parks and Recreation, including Orla Vista Park, Prince Hall Park, Shadow Bay Park, and Tangelo Park.

As seen in **Figure 1.12** on the following page, there are multiple on- and off-street trails near the Kirkman Road corridor. The map displayed in the figure is the City of Orlando Southwest Trail Map, which only displays the section of the corridor between Raleigh Street and the Interstate 4 interchange. Eagle Nest Park serves as the trailhead for the Shingle Creek Trail, a portion of which is known as the Lake Fran Bike Trail, which is a multi-use paved trail that offers a two-mile loop around Lake Fran and runs south to Sand Lake Road (City of Orlando, 2020d). Previously, the trail terminated at Oak Ridge Road (as shown in **Figure 1.13**) but has recently been extended south to its current terminus at Sand Lake Road. According to the City of Orlando (2020d), the Shingle Creek Trail as an average daily ridership (bicyclists and pedestrians) of 140, with a weekly average of 978 and a monthly average of 4,252. When compared

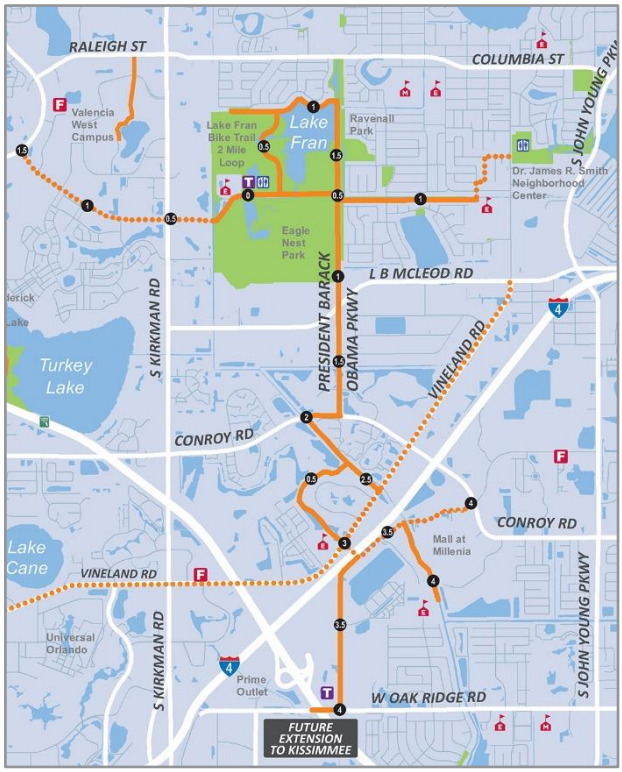
Figure 1.11 -
Parks in the Vicinity of the Kirkman Road Corridor



Source: *City of Orlando, 2020.*

with the pedestrian and bicyclist counts previously presented in **Table 1.3**, the Shingle Creek Trail's ridership is nearly double that of the on-street bicycle lanes of Kirkman Road. Additional trails near Kirkman Road include a short trail that connects Raleigh Street and Valencia College's West Campus, an east/west trail that connects South Hiawassee Road and the Dr. James R. Smith Neighborhood Center via MetroWest Boulevard and Eagle Nest Park, and an on-street trails that follows Vineland Road between L.B. McLeod Road and Turkey Lake Road.

Figure 1.12 -
City of Orlando Southwest Trail Map



Source: *City of Orlando Parking and Transportation 2019.*

1.7. FLOODPLAINS

As defined by the Federal Emergency Management Agency (FEMA), floodplains are lowland and relatively flat areas adjoining inland and coastal waters that are subject to a 1 percent or greater chance of flooding in any given year (FEMA, 1977). The Kirkman Road corridor is located in the South Florida Water Management District and is shown on FEMA Flood Panel numbers 240 and 405. The flood panels show that much of the corridor's northern half and some areas in the southern half lie within AE flood zones. According to FEMA (2020), AE flood zones are areas that present a 1 percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. There are no records of severe flooding along the Kirkman Road corridor in recent history.

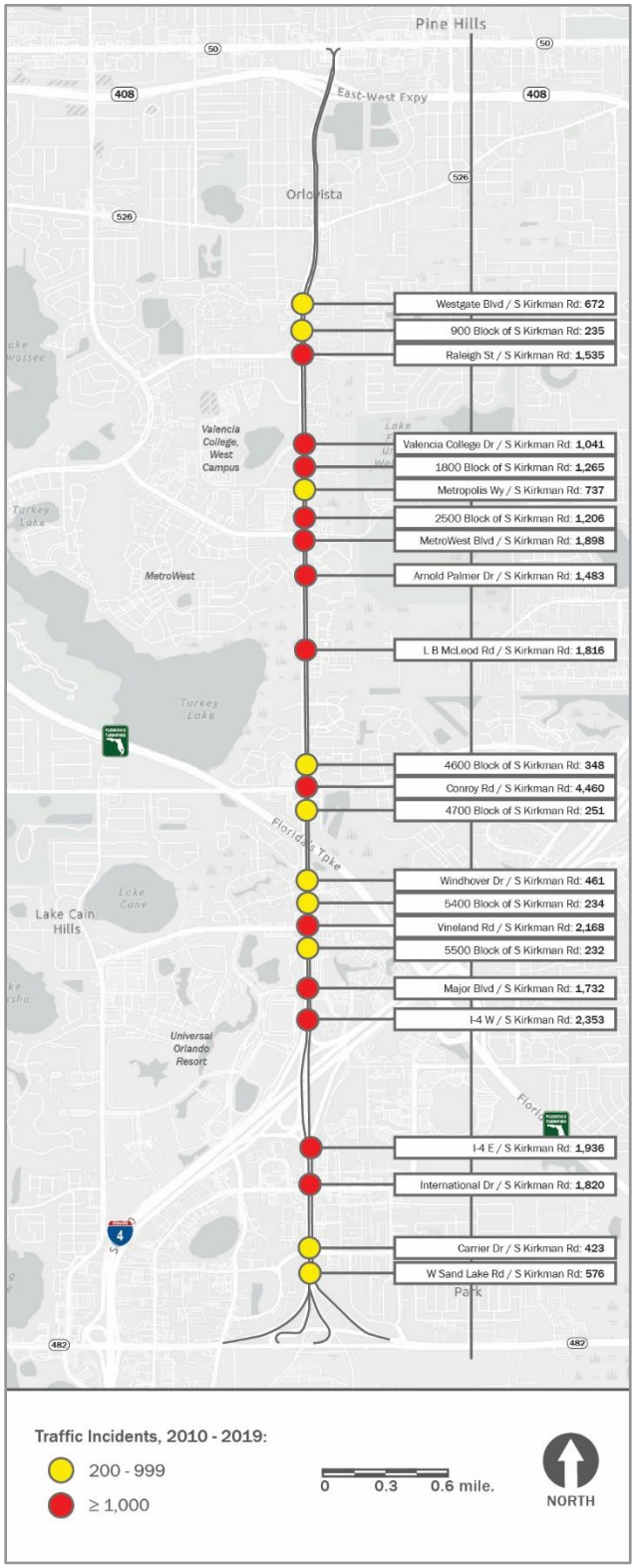
1.8. PUBLIC SAFETY

1.8.1. TRAFFIC INCIDENTS

The Orlando Police Department (2020a) maintains historical data for calls for service. From this data, calls for service classified as traffic accidents and hit-and-run incidents were utilized between the years 2010 and 2019. A summary of accident types, severity, and frequency of occurrence is presented in this section. According to the data, 32,196 traffic incidents occurred along the Kirkman Road corridor between 2010 and 2019. The large majority of incidents over that period, 13.85 percent, occurred at the intersection of South Kirkman Road and Conroy Road, which also had the most incidents in each year analyzed. Of significant note, the intersection of South Kirkman Road and Conroy Road is one of the most incident-heavy intersections in the City of Orlando.

Other notable locations with high numbers of traffic incidents, relative to other locations along the corridor, include where Kirkman Road intersects Arnold Palmer Drive (4.61 percent of total incidents between 2010 and 2019), International Drive (5.65 percent), L. B. Mcleod Road (5.64 percent), Major Boulevard (5.89 percent), and MetroWest Boulevard (5.89 percent). Additionally, traffic incidents have historically occurred at high rates on both the entrance and exit ramps to Interstate 4 westbound (7.31 percent) and Interstate 4

Figure 1.13 -
Traffic Incidents, 2010 - 2019

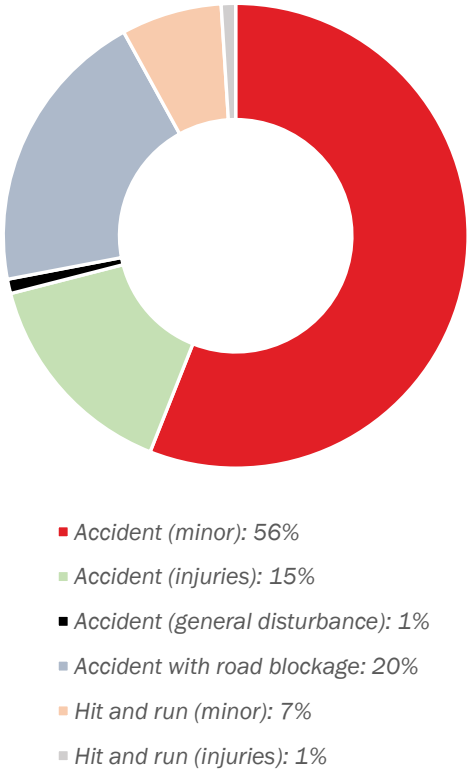


Source: *Orlando Police Department, 2020.*

eastbound (6.01 percent). **Figure 1.13** presents a map illustrating locations with high volumes of traffic incidents along the corridor.

The Orlando Police Department classifies traffic incidents into seven categories: Accident (general disturbance), Accident (injuries), Accident (minor), Hit and run (injuries), and Hit and run (minor). Between 2010 and 2019, more than half of reported incidents (56.14 percent) were classified as Accident (minor). Accident with road blockage (19.75 percent) and Accident (injuries) (15.11 percent) accounted for the second and third most common incident types, respectively. All hit-and-run incident types accounted for less than 8 percent of total reported traffic incidents along the corridor. **Figure 1.14** shows a summary of traffic incident types along the corridor for the years described herein.

Figure 1.14 -
Traffic Incidents by Type, 2010 - 2019



Source: *Orlando Police Department, 2020.*

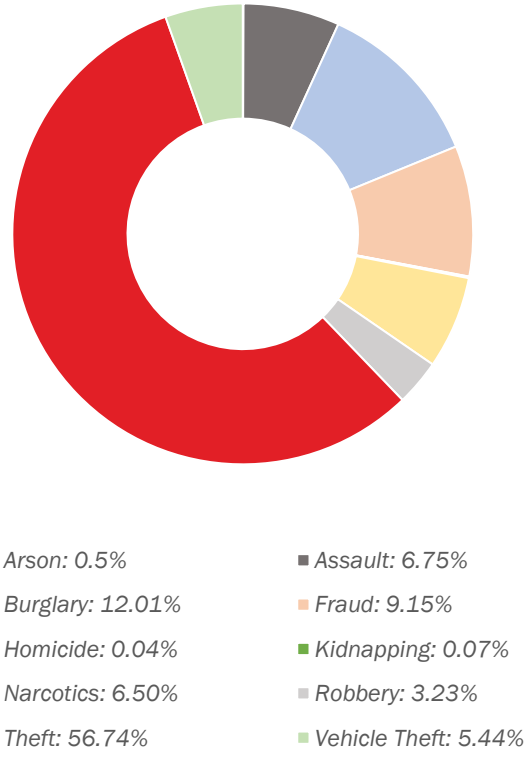
1.8.2. CRIME

According to crime records from the Orlando Police Department (2020b), between 2010 and 2019 there were 9,537 reported crimes along the Kirkman Road corridor. Theft made up approximately 57 percent of total reported crimes and accounts for the vast majority of reported crimes annually. **Figure 1.15** on the following page presents a breakdown of reported crimes by type over the past ten years.

Crime data from the Orlando Police Department show that reported crime along the Kirkman Road corridor has decreased by approximately 15 percent between 2010 and 2019. For comparison, reported crime in the City of Orlando has decreased by approximately 8 percent over the same time period. In 2019, crime along the corridor made up approximately 4 percent of total reported crime in the City of Orlando.

The majority of reported crimes occurred north of Vineland Road, where a large concentration of apartment complexes and condominium communities are clustered. Nearly 23 percent of total reported crimes between 2010 and 2019 (2,162 reported crimes) occurred at or near the intersection of South Kirkman Road and MetroWest Boulevard. The number of reported crimes at this location over the past ten years is more than three times as many reported crimes at the next highest location, at or near the intersection of South Kirkman Road and Raleigh Street, which makes up approximately 6.5 percent of reported crime along the corridor (619 reported crimes). It is likely that the disproportionate number of reported crimes near the intersection of South Kirkman Road and MetroWest Boulevard is associated with the shopping center, the Walmart Supercenter, and a concentration of residential communities in the area.

Figure 1.15 -
Crimes by Type, 2010 - 2019



Source: *Orlando Police Department, 2020.*

KIRKMAN ROAD VISION PLAN

ASSETS THAT LEAD TO A SUSTAINABLE FUTURE

CITY OF ORLANDO

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2.1. INTRODUCTION

This chapter provides insight into managing land use for sustainable growth. Maps of future land use and points of interest are provided in the pages below. These maps paint a picture of place and feel along the Kirkman Road Corridor. It is important to have a strong understanding of the corridor to ensure future land use implementations are not only sustainable, but effective. Understanding future land use figures will help identify areas that are ultimately lacking in sustainable growth. This chapter is organized into the following sections:

1. **Managing Land Use for Sustainable Growth:** This includes future land use, points of interest (focused on a sustainability theme), capacity, supply and demand analysis. The focus is on sustainable land development.
2. **Multi-modal Transportation Network:** This includes bikes, transit, sidewalks. The focus is on diversifying mobility options.
3. **Green Infrastructure:** This includes parks, accessibility to parks, drainage, landscaping, and street lighting to reduce light pollution. The focus is on promoting green infrastructure.

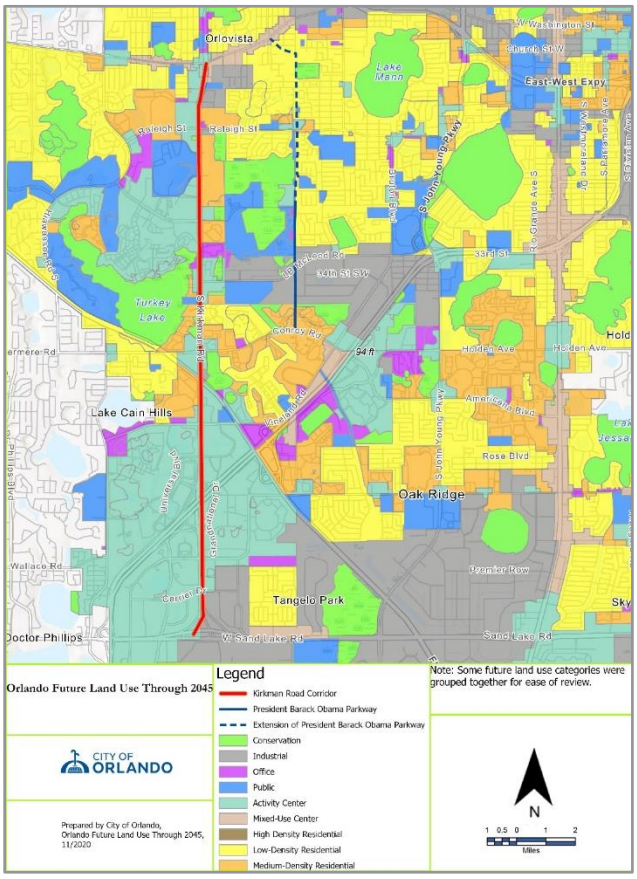
The understanding of current and future conditions should be complemented by capacity planning and a supply-and-demand analysis. While locations for measures can be identified using zoning, future land use, and points-of-interest maps, these maps do not show areas that are most suitable for sustainable land use interventions. The figures within this chapter will help complete the puzzle of managing land use for sustainable development.

2.1.1. FUTURE LAND USE AND POINTS OF INTEREST

2.1.1.1. FUTURE LAND USE

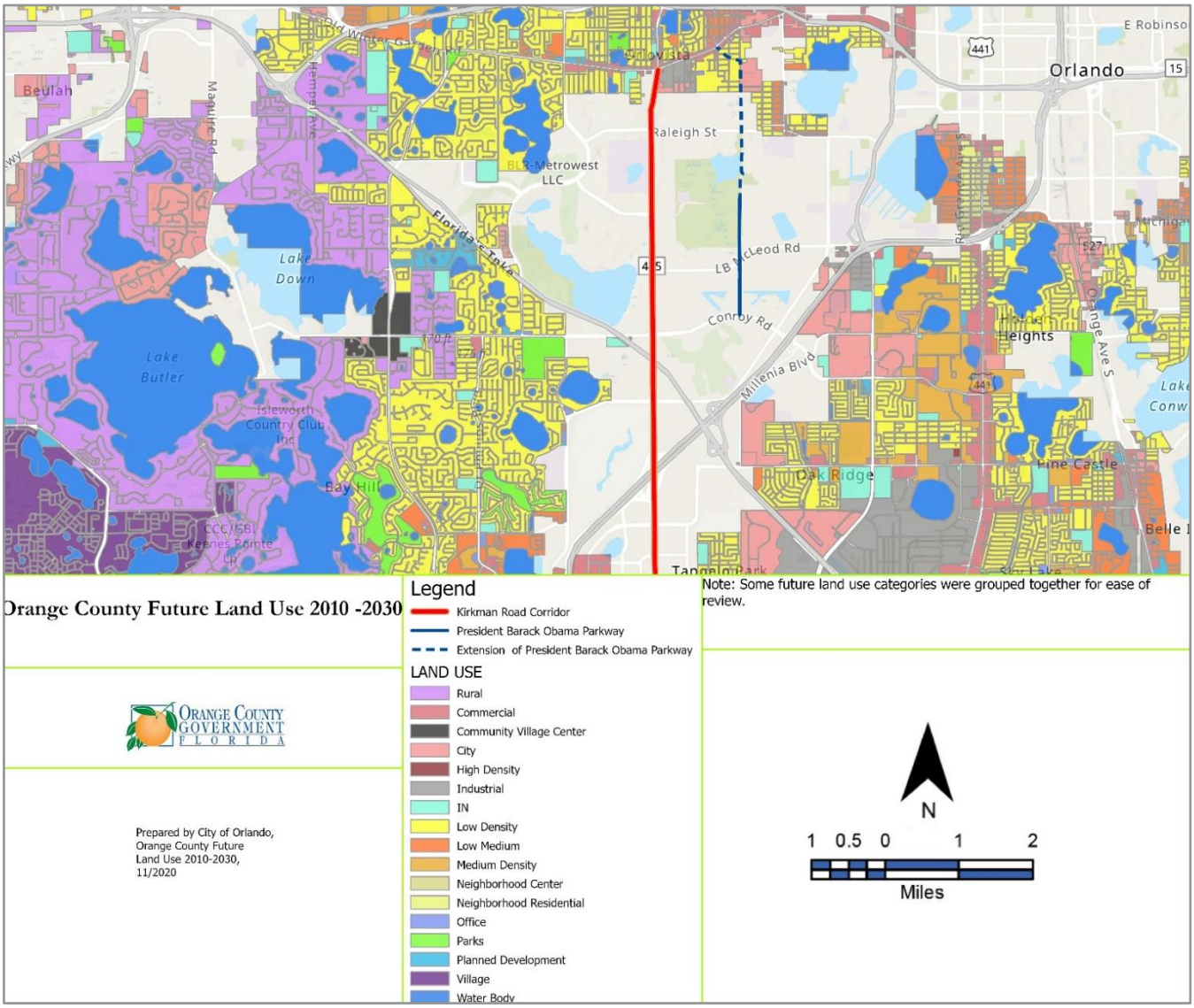
The future land use map of Kirkman Road and surrounding areas within the City of Orlando is displayed in **Figure 2.1**. Additionally, **Figure 2.2** on the following page presents future land use for the areas around the corridor within unincorporated Orange County. As shown, from Lake Cain Hills to West Sand Lake Road, much of the future land use is designated for activity center and industrial. The area surrounding Turkey Lake is zoned for future public land, residential, and activity centers. The southeastern portion is zoned for a mix of low and medium density residential, while the Lake Mann area is zoned for low density residential and public areas. Most opportunities to develop future land use into amenities lies above Windermere Road, while only few opportunities lie south of Windermere Road.

Figure 2.1 -
Future Land Use Map - City of Orlando



Source: *City of Orlando, 2020.*

Figure 2.2 -
Future Land Use Map – Orange County



Source: *Orange County Government, n.d.*

In addition to the figures above, **Figures 2.3** and **2.4** are provided below to illustrate future land use practices from Old Winter Garden Road to Pine Hills Road. This area is generally designated for low-density residential and commercial use. West of Kirkman Road, the future land use is primarily designated for low-density residential and public land. Medium-density residential is planned, but sparsely to the west of Kirkman Road. To the east of the planned extension of President Barack Obama Parkway, the future land use is primarily designated for low-density and commercial residential. **Figures 2.3** and **2.4** below are two examples of conditional use permits (CUP) that have been implemented within the Kirkman Road corridor. It is important to highlight these areas based on the fact that they are not indicated within the Future Land Use maps; however, their uses have received approval from city officials due to their conformance with the area's designated

zoning amendments. The first (CUP) is approximately 1.31 acres, located on the eastern half of the corridor within the AC-1 zoning category in the southern portion of **Figure 2.4**, bordered by the Public Use (P) tract across the street, south of L.B. McLeod Road, and slightly north of Pine Shadows Pkwy. The developer sought to demolish the vacant Denny's restaurant and construct two restaurants (Checkers and Twistee Treat). Although the AC-1 zoning tract allows drive-throughs via a conditional use permit, city officials permitted the application because the CUP was consistent with the area's Land Development Code (LDC), the City's Growth Management Plan, and it was found to be compatible with both the area's surrounding land use and general characteristics (City of Orlando, 2017).

The second CUP is shown in **Figure 2.3** on the 0-1 parcel (Office Residential District) and located between the AC-1 center to the left, the R-3B to the north, and an I-P (Industrial Park) zoning parcel to the south. The developer sought to construct a new 8,650 sq. ft. multi-tenant retail/restaurant building with an accompanying drive-thru on the 1.10-acre parcel located at 5641 Raleigh Street, by rezoning the property from an 0-1 classification to an AC-N to accommodate the retail/restaurant uses (City of Orlando, 2019). City officials inspected the developer's CUP, analyzed previous zoning alterations made in the region, and forecast future changes that would occur within the region if the development were to be allowed. Following a thorough inspection of the area's zoning amendments, the developer's CUP was approved based on its conformity with Chapter 65 of the Land Development Code (LDC), the City of Orlando's Growth Management Plan (GMP), its compatibility with surrounding development patterns, and its presence won't increase demands on public facilities or services (City of Orlando, 2019).

Figure 2.3 -
Future Land Use - Map 6 of South Kirkman Road

Source: *City of Orlando, 2018.*

Figure 2.4 -
Future Land Use, Map 11 of South Kirkman Road

Source: *City of Orlando, 2018.*

Other noticeable changes in zoning categorizations are seen at the intersection of Old Winter Garden Road, the land on the east of the corridor that was previously identified as Public Use (P) in **Figure 2.4** will be converted into a Mixed-Use Corridor Medium Intensity Unit except for the lower portion of the

area that borders Carter Street to the south and the Orange County Jurisdiction Boundary to the north. The Resource Protection (RP) Overlay District that encompasses the AC-1 (Community Activity Center) from Old Winter Garden Road until Carter Street will still maintain its Resource Protection (RP) Overlay designation. From Carter Street until L.B. Mcleod Road, all of the zoning classifications identified in **Figure 2.4** will maintain their original classification, except for the small lot previously identified as Holding/No City Zoning (H) immediately north of the large Public Use (P) zoning tract in **Figure 2.4**, will now be converted into a Conservation zone.

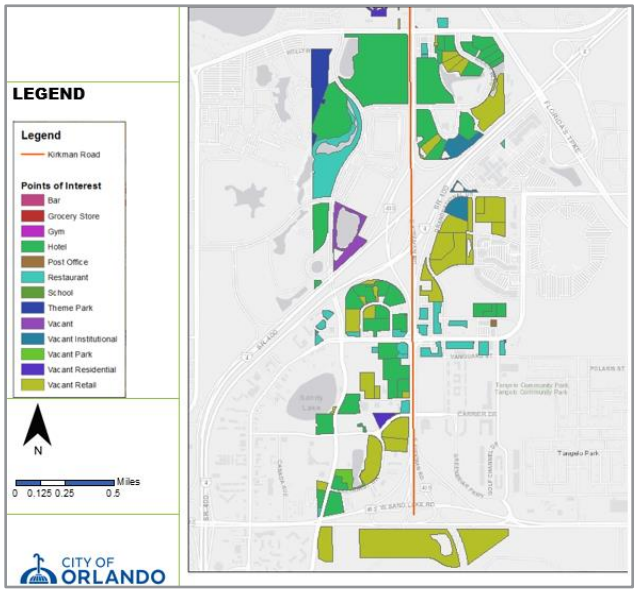
From Raleigh Street to L.B. Mcleod Road, these two roads will serve as the Growth Management Plan Sub-Area Policy, identifying a future growth management plan by the City of Orlando. The two Planned Development (PD) zoning lots in the southern portion of **Figure 2.3** that border the Kirkman Road corridor will be converted into both a Community Activity Center (C-AC) and a Residential Low Intensity Unit. From Pine Shadows Pkwy until the corridor reaches the entrance into the highway intersection, all of the existing zoning classifications found in the Existing Land Use Maps (**Figures 2.3** and **2.4**) will remain unchanged except for the Planned Development (PD) lot that borders both South Kirkman Road to the west and Lawing LN to the east. This previously Planned Development (PD) zoning parcel will be converted into an Industrial zoning classification.

2.1.1.2. POINTS OF INTEREST

Figures 2.5 through **2.8** show current existing points of interest around Kirkman Road. These points of interest matter both in terms of understanding context and for staging any potential future interventions. It is important to know where amenities are located along and near the corridor to understand which areas are lacking resources. Ultimately, quality urban design and effective interventions rely on a comprehensive understanding of sense of place along the Kirkman Road Corridor.

Figure 2.5 shows the points of interest around the southern terminus of Kirkman Road. This area is primarily intersected by the International Dr corridor which is one of the central hubs of Orlando's tourism industry. This is reflected in the represented uses of the parcels in this section of Kirkman as a vast majority of the area has Hotel and Restaurant uses as well as the Universal Studios theme park.

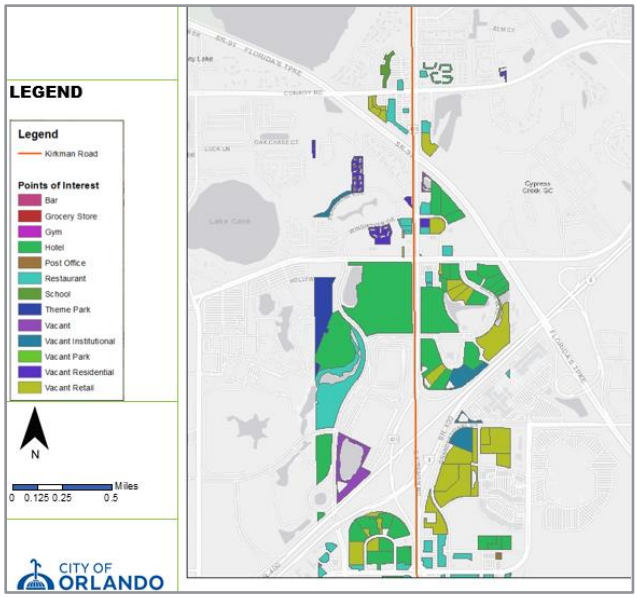
Figure 2.5 -
Southern Portion of Kirkman Road Points of Interest (Intersection of International Drive)



Source: *City of Orlando, 2020.*

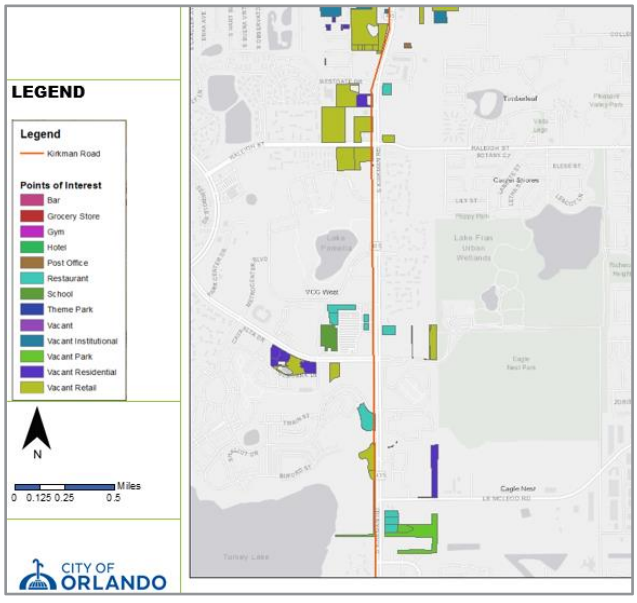
Figure 2.6 on the following page moves further north on the Kirkman Road corridor to present the points of interest between Vineland Road and Metro West Boulevard. The primarily residential character of this section of the corridor is reflected in the makeup of its points of interest, with mostly retail, restaurants, and parks making up the parcels around the corridor.

Figure 2.6 -
Southern Portion of Kirkman Road Points of Interest
(Intersection of International Drive)



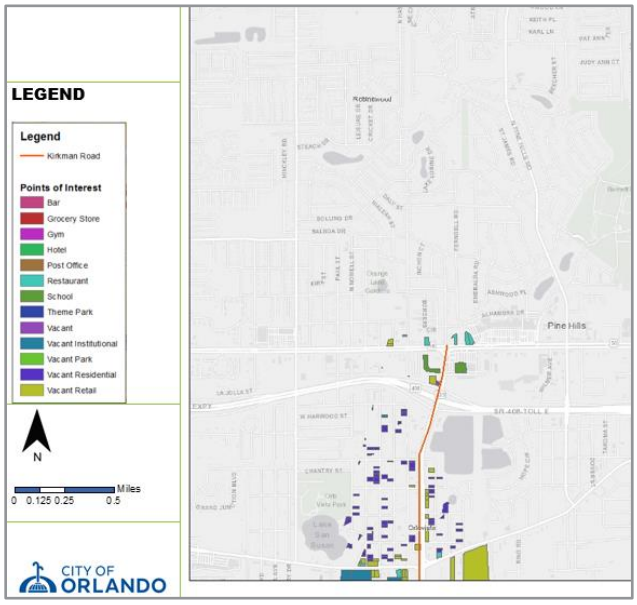
Source: *City of Orlando, 2020.*

Figure 2.7 -
Southern Portion of Kirkman Road Points of Interest
(North Central Quarter)



Source: *City of Orlando, 2020.*

Figure 2.8 -
Southern Portion of Kirkman Road Points of Interest
(Old Winter Garden to Colonial)



Source: *City of Orlando, 2020.*

Figure 2.7 represents the north central quarter of the Kirkman Road corridor. This section contains the west campus of Valencia Community college as well as the bulk of Eagle's Nest Park. Apart from those major features, the main points of interest are once again reflective of the residential character of this section of Kirkman Road, with vacant retail and residential parcels being the main parcels of note.

Figure 2.8 represents the far northern end of the Kirkman Road corridor from Old Winter Garden Road up to Colonial Drive. This section, sometimes known as the Orlovista neighborhood, is largely made up of single-family residential parcels. Thus, this map represents the many vacant residential parcels that make up this section of the corridor.

2.1.2. CAPACITY AND SUPPLY AND DEMAND ANALYSIS

Capacity and Supply and Demand Analysis should help to further understand existing conditions, as well as which interventions are possible for the corridor in terms of sustainability. The example below, Hoffner Avenue Staff Report showcases some of the demand and capacity available for public facilities and water (City of Orlando, 2019). Furthermore, the example provides an example of public facility supply analysis and existing capacity analysis for water and parks demand. If capacity and demand are not able to be met in certain proposed intervention sites, it would not be logical to proceed further without increasing capacity.

It would make sense to consider the cost of increasing capacity when sustainable measures are suggested for land uses, from an affordability perspective. It is assumed that increasing capacity will lead to greater costs, therefore it would make sense to organize sustainable land use implementations in areas where capacity and supply of public facilities are available and able to meet projected demand. Any interventions must consider not only land use, but also capacity and supply/demand of services.

2.1.3. CASE STUDY

In November 2019, the City of Orlando conducted a Staff Report to the Municipal Planning Board for annexation of 5001, 5051, 5053, 5121, 5147 Hoffner Ave (City of Orlando, 2019). This plan included a demand for public facilities displayed in **Table 2.1** below. The proposed annexation meets the criteria set forth in the Florida Statutes, Subsection 171.043, character of the area to be annexed (City of Orlando, 2019). The proposed GMP amendment is being processed as a large-scale amendment to the Official Future Land Use Map in accordance with the requirements of Chapter 163.3184, of the Florida Statutes (City of Orlando, 2019).

Table 2.1 - Demand for Public Facilities *(Hoffner Avenue Sites)*

	Potable Water (GPD)	Waste-water (GPD)	Comm. Parks (Acres)	Neigh. Parks (Acres)	Transp-ortation (Trips)
Evaluation 1	79,989	58,328	0.49	0.28	4,362
Evaluation 2	114,022	91,479	0.56	0.32	5,414
Not Increase (Decrease)	34,033	33,151	0.07	0.04	1,053

Source:
City of Orlando, 2019.

According to the City of Orlando (2019), the amount of development included in the evaluations above translates to a total project demand for public facilities shown in **Table 2.2**, below. Details about how the above impacts were calculated are available in the City's Capacity Availability Report (City of Orlando, 2019).

Table 2.2 summarizes available capacity, existing demand, projected increases in demand from city-wide growth, projected increases in supply (such as from construction of a new facility) and the maximum demand expected from this GMP amendment (City of Orlando, 2019). According to the City of Orlando (2019), the proposed amendment will not adversely impact the city's level of service for potable water and wastewater, as it will be provided by Orange County. The sanitary sewer and reclaimed water design will need to be coordinated with and reviewed by Orange County Utilities (City of Orlando, 2019). Regarding the parks, no adverse impact on the City's level of service, there is sufficient capacity to accommodate the demand of this project (City of Orlando, 2019).

According to the City of Orlando (2019), Stormwater, and Solid Waste, the City's adopted

stormwater level of service standards require new development to provide on-site stormwater retention and/or detention consistent with the requirements of the St. John's River Water Management District. Therefore, each increment of new development, if properly permitted, will meet the stormwater level of service standard (City of Orlando, 2019). Solid waste collection is funded by user fees; any new customers generate revenues sufficient to fund any capital costs. Therefore, a solid waste capacity analysis was not performed" (City of Orlando, 2019).

Table 2.2 - Capacity, Demand, Supply, and Impact of Park/Water Resources at Hoffner Avenue Sites

	Potable Water (MGPD)	Waste-water (MGPD)	Comm. Parks (Acres) for CPS 4	Neigh. Parks (Acres) for NPSA 17
Capacity	109.20	68.5	196.83	35.50
Reported Demand (2018)	86.73	43.321	102.04	4.66
Projected Increase in Demand (2019-2023)	4.45	2.87	5.45	0.34
Projected Increase in Supply (2019-2023)	0.00	0	20.40	0.00
Demand from GMP (2019) – 10024	0.03	0.03	0.07	0.04
Net Available Capacity	17.99	22.28	109.67	33.46

Source:
City of Orlando, 2019.

State law requires the City to perform a public facilities evaluation for GMP amendments that would increase the allowable density of a property (City of Orlando, 2019). Per the City of Orlando (2019), to understand the demand, a Capacity Availability Report (CAR) should be conducted to identify any surpluses or deficiencies in the ability to provide public services. The CAR also accounts for future population and employment growth consistent with the City's adopted future land use categories (City of Orlando, 2019). Because the growth associated with this Growth Management Plan (GMP) amendment was not included in the growth projections, this analysis is performed to ensure capacity is available to serve the development (City of Orlando, 2019).

This section aimed to provide useful insight into how zoning, future land use, capacity planning, and supply and demand analysis play a role in sustainable land use management. Each of these topics provide a piece of the puzzle to understanding current conditions, future projections, and where interventions can logically occur based upon natural and financial conditions. Together, these topics paint the complete picture as to where sustainable land use management could be utilized by teams working to suggest intervention sites.

It is recommended any teams suggesting improvements to the Kirkman corridor considers the impacts and information each of the topics in Section 1 identify and inform upon. Sustainable land use management cannot be informed without insight into grey infrastructure. Future research should be conducted by implementation teams into blending grey and green infrastructure to provide the best sustainable land use process.

2.2. MANAGING LAND USE FOR SUSTAINABLE GROWTH

According to the 2019 Smart Growth America Dangerous by Design report, the Orlando-Kissimmee-Sanford Metropolitan Statistical Area holds the number one spot for most dangerous metro areas for bicyclists and pedestrians (Smart Growth America, 2019). There is much work that remains to be done to improve the transportation network around the City to reverse the narrative that Orlando is hostile to anyone not in an automobile.

It is vital to understand the existing infrastructure available for members of the Orlando community who may not have access to a car for many reasons. Primarily, this understanding is vital in working to bridge the transportation gap as it will allow everyone, regardless of economic status or physical ability, to have access to all available amenities.

As shown in Chapter 1, bicycle facilities are extremely limited along the Kirkman Road Corridor. However, reducing the need for automobile usage and increasing the availability and safety of bicycle usage will be crucial in reducing carbon dioxide emissions. As the majority of existing bicycle lanes are located south of L.B. McLeod Road, there are opportunities for new facilities on the northern half of the corridor. These new facilities would serve the Valencia College West Campus and large number of residential communities and in this area.

In addition to existing bicycle facilities, an understanding of the corridor's transit system is also pertinent to the development of sustainable growth initiatives. Currently, the only existing transit systems on the corridor include the region-wide Lynx Bus system and the International Drive Trolley. Like bicycle infrastructure, increasing high-capacity transit availability will be necessary to reduce automobile dependency and carbon dioxide emissions.

As the existing conditions show, there is much work to be done to improve the availability and safety of bicycle and transit infrastructure along the Kirkman Road Corridor. Focusing on critical areas for opportunity—including dedicated sidewalks and bicycle lanes near the Valencia College West Campus, incorporating bicycle lane protection along the corridor, and improving overall connectivity—multi-modal accessibility can be achieved.

2.3. GREEN INFRASTRUCTURE

A major focus for the Kirkman Road Extension project is to consider green infrastructure as a sustainable approach to stormwater management. Green infrastructure could include improvements in drainage systems, infiltration, evapotranspiration, capture and reuse of stormwater. Green infrastructure should thus improve the livability and resiliency of the Kirkman Road Corridor community.

Green infrastructure should be utilized to offset the input of grey infrastructure being implemented within the corridor. It should help add to the sense of place to the corridor (Hu & Chen, 2018). This will make the corridor more attractive to development and the local community. When green infrastructure is carefully planned and developed it allows the existing community and recreational amenities to benefit from the utility services as multi-purpose capital projects. According to Dr. Robert Pitt, PE, "we have found these benefits (improved curb-side aesthetics for example) to be profound in retrofitted green infrastructure areas, especially in areas of prior poor infrastructure. Any expected increased costs associated with green infrastructure can likely be offset by these direct and indirect benefits." (Pitt, 2002). Green infrastructure can help to maximize the environmental, economic, and social benefits of parks.

Table 2.3 on the following page identifies the different divisions of the expected projects that will occur based on the type of construction for each division. This helps explain the process for a checklist for new construction.

Table 2.3 - Site Development and New Construction Requirements by Division

Division 1	General Requirements, Vehicular Access and Parking, Traffic Control, Temporary Barriers and Enclosures
Division 2	Existing Conditions, Subsurface Investigation
Division 26	Electrical, Common Work Results for Electrical, Raceway and Boxes for Electrical Systems, Conduit for Electrical Systems, Exterior Lighting, Lighting Poles and Standards, Roadway Lighting, Landscape Lighting, Site Lighting
Division 31	Earthwork, Grading, Fine Grading, Roadway Subgrade Reshaping, Embankments, Roadway Embankments, Erosion and Sedimentation Controls, Stabilization Measures for Erosion and Sedimentation Control, Hydraulically Applied Erosion Control, Rolled Erosion Control Mats and Blankets, Earthwork Methods
Division 32	Exterior Improvements, Flexible Paving, Asphalt Paving, Road-Mix Asphalt Paving, Rigid Paving, Concrete Paving, Paving Specialties, Pavement Markings, Irrigation, Planting Preparation, Landscape Grading
Division 33	Utilities, Storm Drainage Utilities, Storm Drainage Structures
Division 34	Transportation, Roadway, Construction, Roadway Equipment
Division 35	Waterway and Marine Construction, Waterway and Marine Construction and Equipment, Dredging
Division 41	Material Processing and Handling Equipment, Miscellaneous Mobile Equipment, Mobile Paving Equipment

Source:
Construction Journal, 2020.

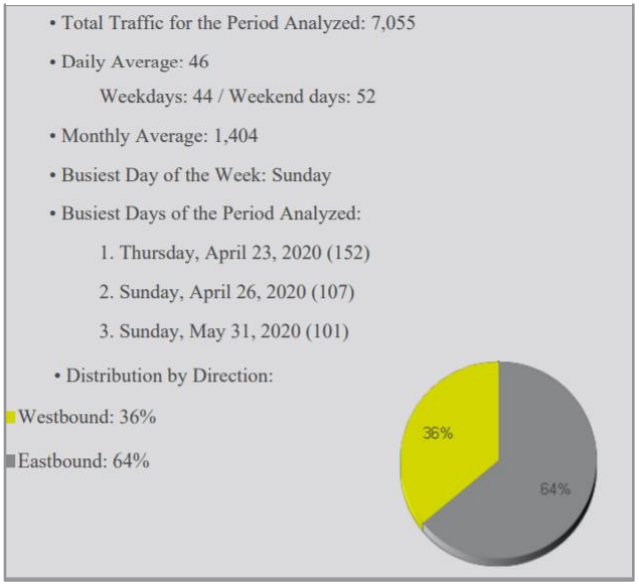
2.3.1. OPEN SPACES AND RECREATIONAL AMENITIES

The community has four local public open spaces near Kirkman road which is Bill Frederick Park at Turkey Lake, Shadow Bay Park/Lake Cane Tennis Center, Eagle Nest Park, and Shingle Creek Trail. These recreational amenities in the community can support green infrastructure, for low impact development and other sustainable design concepts. Orlando is home to more than 148 beautiful parks, gardens, recreation areas, neighborhood centers and playgrounds (City of Orlando, 2020). This vision plan can look at the parks and green space to create a sense of interconnectivity along the corridor of Kirkman road.

2.3.1.1. BILL FREDERICK PARK AT TURKEY LAKE

The first community asset in the area is known as Bill Frederick Park at Turkey Lake is 183 acres of land adjacent to Turkey Lake. The land is part of a biodiverse region of Central Florida and the Everglades watershed, which plays an important role in aquifer replenishment as well as wildlife. **Figure 2.9** provides usage counts to Bill Frederick Park. This data is useful in understanding park usage metrics, especially if amenities are being considered for expansion of services. Sunday is the busiest day of the week for the park, with 1,404 average monthly visitors at the park.

Figure 2.9 -
Bill Frederick Park Usage Data



Source: *Sikonia, Bill Frederick Park Entrance Eco Counter, 2020.*

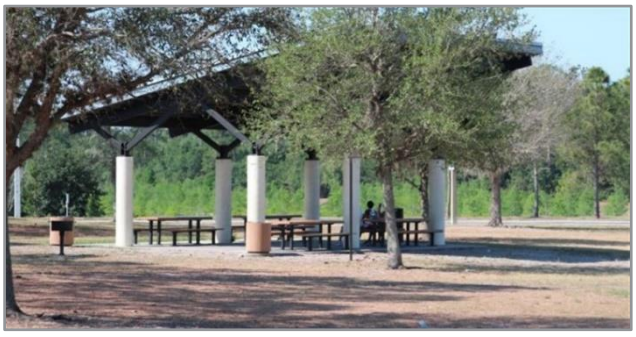
2.3.1.2. SHADOW BAY PARK/LAKE CANE TENNIS CENTER

Shadow Bay Park/Lake Cane Tennis Center consists of 111 acres of land at the intersection of Conroy Road and Turkey Lake Road. Recreational opportunities at this park include pickleball, badminton, tennis, and nature access.

Shadow Bay Park/Lake Cane Tennis Center (Orange County Florida, 2020).

2.3.1.3. EAGLE NEST PARK AND TRAIL

Eagle Nest Park is located in the MetroWest community and is a wetland of 485 acres in size. The park provides a unique opportunity to see a variety of bird species. Eagle Nest Park also serves as a trailhead for the Shingle Creek Trail.

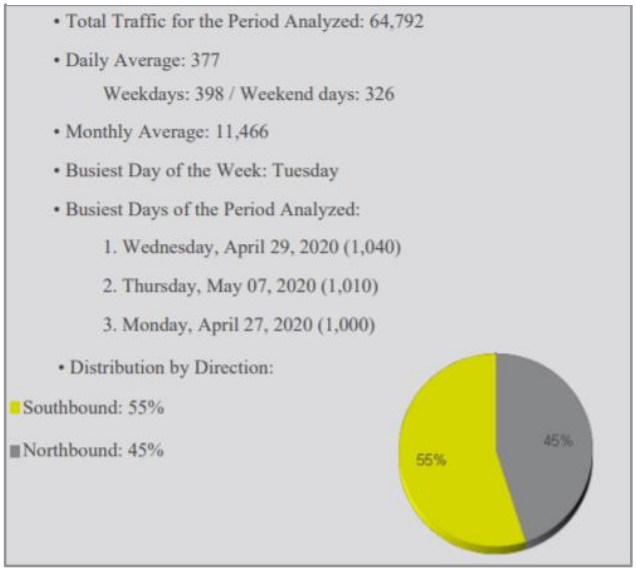


Eagle Nest Park (City of Orlando, 2020).

2.3.1.4. SHINGLE CREEK TRAIL

The Shingle Creek Trail is a multi-use trail that will serve the Cities of Orlando and Kissimmee as well as Orange and Osceola Counties. The trail begins at Eagles Nest Park and terminates at Oak Ridge Road, which is east of Orlando International Premium Outlets. The latest 2-mile trail expansion provides a connector to the Orange County Trail section via Sand Lake Road. The southern part of the trail is suburban and provide a link to the International Drive Tourist Center. The neighborhoods served by the trail are Eagles Nest, Florida Center, Florida Center North, Kirkman North and Kirkman South. Trail use data from April 2019 to March 2020 can be seen in **Figure 2.10**.

Figure 2. 10 -
Shingle Creek Trail Usage Data



Source: *Sikonia, Shingle Creek Trail Eco Counter, 2020.*

2.3.2. MEDIAN/VERGE DRAINAGE IMPROVEMENTS

This portion of Section 3 will discuss median/verge drainage improvements in the Kirkman Road Corridor as part of the green infrastructure vision plan. Proper drainage is conducive to safer transportation conditions for both drivers and

pedestrians. In addition, the implementation of Sustainable Urban Drainage System principles opens new avenues of use for harvested rainwater.

Figure 2.11 -
Southern Portion of South Kirkman Road Flood Hazard Map

Source: *FEMA, 2020.*

As defined by the Federal Emergency Management Agency (FEMA), floodplains are lowland and relatively flat areas adjoining inland and coastal waters that are subject to a 1 percent or greater chance of flooding in any given year (Federal Emergency Management Agency, 1977). The Kirkman Road corridor is located in the South Florida Water Management District and is shown on FEMA Flood Panel numbers 240 and 405. The flood panels show that much of the corridor's northern half and some areas in the southern half lie within AE flood zones. According to FEMA (2020), AE flood zones are areas that present a 1 percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. There are no records of severe flooding along the Kirkman Road Corridor in recent history.

Figure 19 provides an overview of the national flood map as generated by FEMA for the Southern Portion of South Kirkman Road (FEMA, 2020). This map provides useful insight into areas that may be prone to flooding (FEMA, 2020). These areas may need interventions in the future to reduce flooding impacts (FEMA, 2020).

Several areas along the southern portion of the corridor are susceptible to flood hazards. To compound this, the drainage systems that serve the central and northern zones effectively are less frequently dispersed in the south.

South Kirkman Road Verge Flooding (Google Maps, 2020).

The southern (tourist) zone [figure 20] has low-lying areas just as traffic comes from West Sand Lake Road. The lack of appropriate drainage leads to potentially dangerous driving conditions for a large-scale road. Conversely, the central section [Figure 28] features adequate drains, relatively evenly spaced, on both the verge and median. These principals should be adopted to the road verges on either side of Kirkman road in the southern zone. A low-profile, minimal curb can stop the pooling up of stormwater. Adaptation of these principals would, at a minimum, place/update the drains at:

- Carrier Drive and Kirkman Road
- Strip adjacent to and north of Lobel Financial building
- International Drive and Kirkman Road

In addition to the curbs is to convert the area between the sidewalks and roads into bioswales. The Environmental Protection Agency recommends bioswales as an important part of green infrastructure (2020).

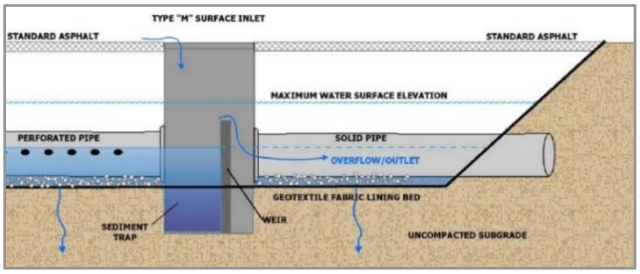
Example of Bioswale (United States Environmental Protection Agency, 2020).

"Bioswales are essentially rain gardens placed in long narrow spaces such as the space between the sidewalk and the curb" (United States Environmental Protection Agency, 2020). Rainwater gardens are discussed in the Median/Verge Landscaping section following. Investing in bioswales accomplishes both environmental impact goals as well as aesthetic considerations.

Central Portion of South Kirkman Road Pavement (Google Maps, 2020).

The medians of the southern section face an addition problem: an inward sloping median. A potential solution, in the interest of following the city's commitment to sustainability, rainwater harvesting drains can be placed, either in the center of the median or the asphalt next to the median. Any drainage update should consider Sustainable Urban Drainage System principles (Douglas, Goode, Houck, & Wang, 2011).

Figure 2.12 -
Example of Urban Drainage System and Rainwater Harvesting



Source: *Save the Rain, 2011.*

Much of the central and northern sections of the corridor feature a raised median with a curb. There are, however, a few points in which the median returns to the inward slope. While the southern portion is mostly inward sloping, this occurs infrequently through the central and northern portions. To maintain consistency, these two sections should have the medians raised and leveled. These sections already contain stormwater drains in the median, and these should be maintained/updated as they are raised [Figure 24]. Alternatively, the inward slope in the median is well suited for swales.

Central Portion of South Kirkman Road Median Drainage System (Google Maps, 2020).

Any drainage considerations can and should be applied to parking structures along the corridor. Given the proximity to Universal, there is ample parking and public-private coordination should be

utilized to bolster green infrastructure, including permeable pavements in parking areas (United States Environmental Protection Agency, 2020).

2.3.3. MEDIAN/VERGE LANDSCAPING IMPROVEMENTS

This portion of Section 3 will discuss median/verge landscaping improvements in the Kirkman Road Corridor. The City's nickname, "The City Beautiful," is not an accident. Great consideration is placed on design decisions. Kirkman Road, being a major arterial road, requires a delicate balance between aesthetic elements and ease of use. The recommended improvements will encourage green infrastructure practices which typically is integrated into the landscape and rely mainly on soils, vegetation, and infiltration to reduce runoff. This section will detail aesthetic considerations that promote safety and user-friendly roads.

2.3.3.1. MEDIAN IMPROVEMENTS

South Kirkman Road contains a business that separates it from most other streets: Universal Studios. For this reason, an empty median can be very effective. Signs and other directional information are pertinent to manage the heavy traffic the industry brings in. The image near the International Drive and South Kirkman Road intersection illustrates the utility of keeping medians empty (the image also shows the need to update the drainage systems mentioned in the median/verge drainage section). With the abundance of industry, mingled with the amusement park visitors and tourists, traffic can become difficult to manage. Rather than fill the median with bright or colorful flora, well-managed grass will keep the area clean without distracting.

The Florida Department of Transportation states the eye level for people in cars is around 3.5 ft (2014). Plants and signs near that height or above will obstruct vision.

Southern Portion of South Kirkman Road Median Flooding (Google Maps, 2020).

One form of sign that could potentially be placed are signs advertising nearby green spaces. Amongst the prime green spaces are:

- Eagles' Nest Park and Trail
- Turkey Lake Park
- Grand National Sidewalk –Shingle Creek Trail Connection
- Obama Parkway
- Lake Cane Marsha Park

While the industrial hustle of the nearby amusement parks is happening, signage could increase the number of visitors to parks and trails by informing people the spaces exist. Signs on the medians should be raised to avoid distractions, though ideally signs should be placed on the verges in non-obstructive locations.

Plaguing much of the central portion of the corridor is a lack of clearly defined or well-protected crosswalks. One way to define these areas is using curbs, which blends with other goals for the area. The image below is of the International Drive and South Kirkman Road intersection and illustrates the importance of good design. The bold white lines, bricks lain in the gaps and clear, raised curbs and well-kept green grass create a hierarchy to

keep pedestrians safe while crossing a major road. The importance of frequent and clearly defined crosswalks was summarized in the Curry Ford Vision Plan (2019): "Low frequency of crosswalks combined with high corridor speeds create dangerous pedestrian conditions."

International Drive and South Kirkman Road Crosswalk (Google Maps, 2020).

Moving to the central and northern portions of the corridor features a primarily raised/curbed median. However, there are portions throughout which revert to the inward sloping median. In the interest of cohesion (and as mentioned above) it could be worth raising these sections to match the others in the immediate area. The median in these areas has more room for potential landscaping as signage is less frequent here. Several options discussed in the following section will be transferable to these medians.

The road verges, on the other hand, have a lot of flexibility as to how to landscape them effectively. There can be no doubt Florida is a hot state. As people walk, bike, or wait for public transportation, it is important to help protect them from the sun's rays. The ideal way to accomplish this goal while committing to greenifying the city is to use low maintenance trees along current and future sidewalks.

2.3.3.2. LANDSCAPING IMPROVEMENTS

Previously, the Curry Ford Vision Plan (2019) recommended the following species to line Curry Ford Road:

Table 2.4 - Tree Species Suitable for Kirkman Road

Common Name	Scientific Name	Measurements
Live Oak "High Rise"*	Quercus virginiana	14'-16' ht. X 8'-10' sp.
Bald Cypress*	Taxodium distichum	14'-16' ht. X 8'-10' sp
Bosque Elm	Ulmus parvifolia	14'-16' ht. X 8'-10' sp.
Lavender Crepe Myrtle	Lagerstromia indica "Muscogee"	12'14' ht.; Standard, 6' C.T.
Southern Magnolia*	Magnolia grandiflora	14'-16' ht. X 8'-10' sp.
Pink Tabebuia	Tabebuia heterophylla	14'-16' ht. X 8'-10' sp.
Desert Fan Palm	Washingtonia filifera	14' C.T. min.
Wild Date Palm	Phoenix sylvestris	14' C.T. min.
Cabbage Palm*	Sabal palmetto	14' C.T. min.

Source:
Curry Ford Vision Plan (2019)

Note:
** = The species is native to Florida, though all have been introduced to the ecosystem and are poised to fit within the local and regional context of the city*

A truly unique opportunity exists in the southern section of the corridor (and there is likely opportunity to expand the concept north). Several locations contain a road verge that slopes downward. This area could be reinvigorated by creating rainwater gardens/landscaping. The southeast corner of South Kirkman Road and Carrier Drive [Figure 29] is a prime example of how well local flora can thrive. More careful curation of these rainwater hotspots will further establish the identity of the corridor. These gardens can connect or build off proposed bioswales.

Live Oak Highrise [top left]; Southern Magnolia DD Blanchard [top right]; Crape Myrtle Muskogee [bottom left]; Wild Date Palm [bottom right] (Cherrylake, n.d.)

International Drive and South Kirkman Road Crosswalk (Google Maps, 2020).

In addition, the plants will create a natural barrier between pedestrians and vehicles. While there are other precautions taken to ensure safety for pedestrians, an extra barrier helps ensure the safety, while enhancing the "City Beautiful" concepts.

2.3.3.3. STREETLIGHTS

Heavier traffic areas such as Kirkman Road must pay attention to streetscape lighting to create a safer, pedestrian-friendly area. The southern portion of the road may have foot traffic from nearby restaurants and attractions while the central and northern sections contain businesses and residencies. Proper lighting will not only make the area feel safer, but it will be safer.

An emerging technique is to opt for dark sky lighting. The City of Chicago (2010), published a document for establishing green alleys, which emphasized the usefulness of dark sky lighting. Among the numerous benefits are the reduced use of energy by directing the light down, where it is needed, which also serves to lower light pollution in the corridor. In addition, as written in the Curry Ford Vision Plan, lamp posts can be designed to aid select Smart City principles, from 5G technology to security cameras. Alternatively, a similar benefit can be obtained by switching to LED bulbs to lessen the glare emitted from existing light sources.

Green infrastructure can serve to protect the community by preserving, enhancing, and protecting natural resources for the area. The recommendations discussed would provide more than reductions to stormwater runoff rate and volume. These additional benefits add to the quality of life, carbon sequestration, traffic calming and economic development.

The improvements to green infrastructure throughout the corridor mesh cohesively with other goals set forth throughout the report. Underlying each measure is a people-centric viewpoint in line with city goals.

2.3.4. CONNECTING ASSETS

To improve the quality of life for Kirkman/Orlando it would need connecting assets strengthened by identifying and defining basic principles that represent the area/districts of Kirkman Road & Orlando. These include:

1. Create a sustainable vision plan
2. Define appropriate areas/assets (e.g. Everglades)
3. Identify density and mix land uses
4. Include multiple mobility/accessibility connections
5. Preserve and enhance cultural character
6. Provide eco-friendly technological connections-- “smart city”
7. Implement sustainable infrastructure—Low impact development strategies for stormwater, new power systems/distribution systems

According to Mayor Buddy Dyer, he has pledged to adopt long-term, system-wide strategies to make sure every Orlando resident has access to all the benefits parks provide.

"I have endorsed the vision that everyone deserves a park or open space within a 10-minute walk of home." — Mayor Dyer

Figure 2.13 depicts an example of a Vision Plan with diagrams highlighting ecological and cultural assets in the Parkmerced Vision Plan, a neighborhood revitalization project in San Francisco. The ecological and cultural assets from a neighborhood revitalization plan in San Francisco are highlighted in Figure 30, it is suggested a graphics team provide a similar diagram for the Kirkman Road Corridor, to depict the corridor better visually.

Figure 2.14 -
Example of a Vision Plan

Source: *Biomorphic Urbanism: A Guide for Sustainable Cities, 2019.*

2.4. CONCLUSION

It is the hope of these three sections in the Vision Plan to lay groundwork into improving and adding onto green assets in the Kirkman Road Corridor. Understanding the land uses, both current and future, ensure understanding as to what changes need to occur in the corridor. Knowledge of both motor and non-motor-powered transportation options should help to identify any deficiencies in transportation for both current and future needs. Drainage and connecting assets build upon the knowledge of land and transportation uses, as a main goal is to ensure residents have adequate green assets and a diverse means of accessing and preserving such assets.

The information found in these three sections should provide strong background information for any intervention teams. It is hoped this report should guide a balanced process of managing green and grey infrastructure in the corridor. The three sections in this report only inform on green assets; however, it would be illogical to only focus on green assets, as grey infrastructure is also required.

KIRKMAN ROAD VISION PLAN

MARKET ANALYSIS

CITY OF ORLANDO

UCF

3.1. INTRODUCTION

Market analysis is an important component to any area study for municipal planners. Development patterns, property values, and employment are predicated on market demand. In the state of Florida, property taxes pay for a majority of public services like schools, parks, maintenance of roads, and police and firefighters. As such, one of the main goals of a city should be to maximize property values which in turn should maximize property taxes, allowing for municipalities to provide better services and residents to enjoy higher property values.

This market analysis focuses on Kirkman Road, a major north-south arterial in west Orlando and Orange County. The approximately seven-mile long corridor supports a variety of subdivisions and commercial properties. Notably, it is one of the main roads used to get to Universal Orlando, a major theme park. It connects five major east-west corridors: SR-50 (Colonial Drive), SR-408, Florida's Turnpike, I-4, and W Sand Lake Road.

There are three sections of Kirkman Road that have distinct features which make analyzing specific segments easier. The three segments are depicted in the map below. The north section includes all properties within 1000' of Kirkman Rd between SR-50 and Old Winter Garden Rd. This section is characterized by intense commercial use along the SR-50 corridor, low-density residential further away from SR-50, and some office use along Kirkman Rd. The southern third includes all properties within 1000 feet of Kirkman Rd between Florida's Turnpike and W Sand Lake Rd. This section is characterized by intense commercial, entertainment, and hotel uses, and includes parts of the Universal Orlando resort, Universal Blvd, and International Drive. The middle third includes all properties within 1000' of Kirkman Road between Old Winter Garden Road and Florida's Turnpike. This section is characterized by a prevalence of medium to low intensity residential and various commercial uses along the Kirkman Rd corridor. This section also includes Valencia College's West Campus. Each of these sections have their own character and are large enough to analyze on their own.

3.1.1. LAND USE DEMAND ANALYSIS

In order to determine the future development needs within the greater than 20-year vision period, it is necessary to analyze the current demographics, housing and non-residential characteristics against population and employment projections. Each section of the vision area was analyzed separately to create a demographic and market profile including population and employment projections. Projections were informed by Traffic Section data from the City of Orlando 2020-2045 Growth Projections Report (2019) and adjusted using U.S. Census Bureau, 2018 American Community Survey 5-year Estimates as needed.

3.1.1.1. EXISTING CHARACTERISTICS - DEMOGRAPHICS AND HOUSING

North Third - This section consists of the Pine Hills and Orlovista communities, characterized by a significant number of older single-family subdivisions, with a large long-term owner population, and high percentages of impoverished and housing burdened households (U.S. Census Bureau, 2018). The population projection for this area indicates an increase of 864 households resulting in a housing deficit of 696 units (U.S. Census Bureau, 2018). This analysis recommends a ratio of 2 units per new household for a total of 1,392 units. In addition, multi-family units are suggested to allow for an increase in density to improve housing availability and affordability concerns.

Middle Third - This section consists of the MetroWest community, Valencia College, and an abundance of condominium and apartment complexes. U.S. Census Bureau (2018) data indicates a significant renter population, high ratio of multi-family versus single family housing stock, and a moderate percentage of housing burden. The large concentration of multi-family housing is likely generated by the major employers to the south including Universal Studios, Westgate Resorts, and Lockheed Martin. The population projection for this area indicates an increase of 1,600 households (City of Orlando, 2019). However, the Growth Projections Report indicates a projected increase of 1,767 housing units by 2040 (City of Orlando, 2019). This will allow for a total of approximately 2.87 available units per new household. Therefore, no increase over the GPR projection is proposed.

South Third - This section is characterized by a moderate amount of multi-family housing supporting the tourism industry and major employers that are located within the south third. U.S. Census Bureau and City of Orlando data indicate a significant renter population, multi-family housing stock, and a moderate percentage of housing burden, comparable to the Middle Third (City of Orlando, 2019; U.S. Census Bureau, 2018). The population projection for this area indicates an increase of 1,096 households (City of Orlando, 2019). A total of 2,192 new units are suggested to accommodate population growth.

3.1.1.2. EXISTING CHARACTERISTICS - COMMERCIAL USES AND EMPLOYMENT

A breakdown of non-residential square footage is included in **Figure 3** below. Within the vision area as a whole, Commercial uses account for the greatest percentage of non-residential square footage followed by Office and Industrial uses. **North Third** - This section is characterized by general and neighborhood serving commercial uses concentrated along the major roadways. Commercial uses account for the greatest percentage of non-residential square footage followed by institutional, office, and industrial uses at comparable levels. An analysis of residential support of retail for this area using consumer expenditure data indicated a saturated retail market. Finally, since employment projection data was inconclusive, no office square footage is proposed.

Middle Third - This section is characterized by commercial, office and industrial uses located within nodes at the major intersections. The highest non-residential square footage percentages include office and commercial uses followed by industrial and institutional uses. Residential support of retail analysis indicates a saturated retail market. Finally, employment projections indicate a total of 185,085 sf of office need to accommodate new employee growth.

South Third - This section is characterized by Universal Studios and tourism related uses, which serve as a major driver of employment and development within the section. Several top Central Florida employers are located within this section including Universal Studios, Westgate Resorts, and Lockheed Martin. Commercial uses account for 70 percent of non-residential square footage followed by office and industrial uses. Residential support of retail analysis indicates a saturated retail market. Employment projections indicate adequate office sf to accommodate projected employment growth. Finally, projected tourism growth indicates a total of 8,426 hotel rooms needed.

3.1.1.3. POPULATION AND EMPLOYMENT PROJECTIONS

Table 3.1 - *Summary of Existing Non-residential Square footage in the Kirkman Road Corridor*

Section	Commercial	Institutional	Industrial	Office
North	57%	15%	13.5%	14%
Middle	29%	15%	20%	35%
South	70%	0%	10%	21%

Sources:
City of Orlando Growth Projections Report, 2019.
Orange County Government, 2020.

Population and employment projection results are summarized in Tables 4.3 and 4.4 below. The projected population change for the vision area as a whole is low at 14%, compared to Orlando's projected 38% growth (City of Orlando, 2019; U.S. Census Bureau, 2018). However, the south and north sections indicate moderate growth at 33% and 25% respectively (City of Orlando, 2019; U.S. Census Bureau, 2018). The projected employment growth for each section is low at 15% or less, compared to Orlando's projected 33% growth (City of Orlando, 2019; U.S. Census Bureau, 2018).

Table 3.2 - *Population Change of Kirkman Road Corridor*

Corridor Section	2018 Estimate	2040 Projection	% Change
North	10,613	13,255	25%
Middle	48,986	53,003	8%
South	8,775	11,647	33%
Total	**68,374**	**77,905**	**14%**

Sources:
City of Orlando Growth Projections Report, 2019.
2018 ACS 5-Year Estimates.

Table 3.3 - *Employment Change of Kirkman Road Corridor*

Corridor Section	2018 Estimate	2040 Projection	% Change
North	3,384	3,384	0%
Middle	8,572	9,554	11%
South	24,965	28,831	15%
Total	**36,921**	**41,769**	**13%**

Sources:
City of Orlando Growth Projections Report, 2019.
2018 ACS 5-Year Estimates.

3.1.1.4. LAND USE DEMAND METHODOLOGY & RESULTS

The market profile and population and employment projections were used to calculate land use demands for each land use category within the 20-year horizon. The following methods were utilized for four of the land use categories to estimate land use demand:

- **Residential:** Land use needs were estimated according to a minimum ratio of 2 units per new household.
- **Office:** Land use needs to accommodate projected employment growth were estimated according to the 2018 average square footage per employee.
- **Commercial/Retail:** Land use needs were estimated according to the assumption that $300 annual consumer expenditure/retail square foot is required to support a retail use.
- **Hotel:** Land use needs to accommodate projected tourism growth were estimated according to the 2018 average number of rooms per tourist.

The Growth Projections Report's (2019) projected development figures were compared against the projected land use needs above to come up with

modified land use demand totals for each category. Projected land use totals for the Institutional and Industrial categories were not modified and reflect the Growth Projections Report's totals. The following land use demands are projected for the 20-year time horizon:

Table 3.4 - *Projected Land Use Demands by Land Use Category (2040)*

Land Use	North	Middle	South	Total
Commercial	0	<255,997 sf	<336,874 sf	**<592,871 sf**
Institutional	0	30,000 sf	0	**30,000 sf**
Industrial	0	548,941 sf	0	**548,941 sf**
Office	0	185,085 sf	<519,722 sf	**<704,807 sf**
Hotel	0	0	8,426 rooms	**8,426 rooms**
Residential	1,392 units	1,767 units	2,192 units	**5,351 units**

Sources:
City of Orlando Growth Projections Report, 2019.
Esri Household Budget Expenditures, 2020.
2018 ACS 5-Yr Estimates.

3.2. GEOGRAPHIC INFORMATION SYSTEM (GIS)

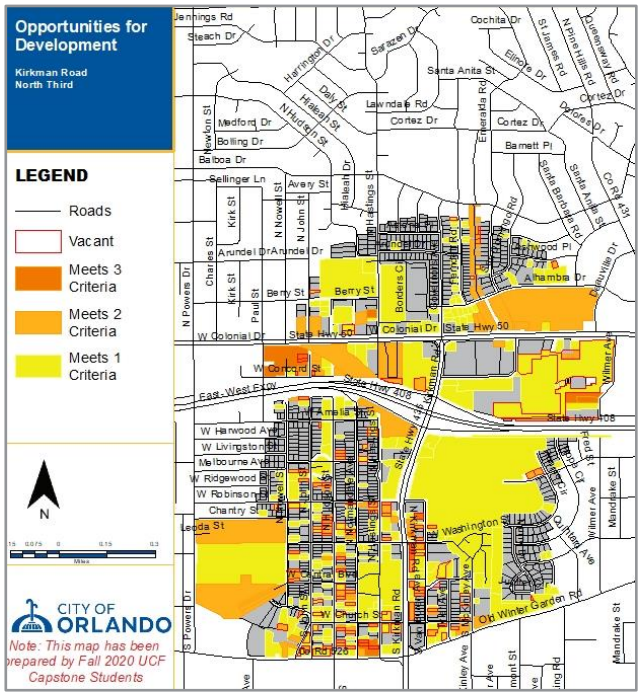
3.2.1. METHODOLOGY

A significant portion of the analysis done includes identifying key parcels for development or redevelopment. These key parcels were identified using several criteria. The criteria and justification for their use are summarized below.

- **Vacancy:** Vacant lands are among the easiest to identify as potential redevelopment sites.
- **Non-conforming use:** Parcels with non-conforming uses are typically limited by municipal codes to redevelop the site as a conforming use and limits their ability to improve an existing non-conforming use. The limitations include restricting expansion, restricting investment above a certain level in the non-conforming use (unless the site is brought up to code), and requiring mitigation for any possible adverse effects to surrounding properties. These limitations are intended to limit the economic value of the property so long as it does not conform to the permissible land use in the code. However, the economic value of the property could drastically increase if the use was changed to a conforming use, as the aforementioned limitations no longer apply.
- **Adjacent parcels with common ownership:** Developers will often have to aggregate adjacent parcels in order to create enough development potential to justify investing in a development or redevelopment opportunity. However, it can be difficult to aggregate parcels if they are owned by different entities, especially when the entities may have conflicting ideas of how to maximize their property value. It is generally easier to work with a smaller group of property owners as a consensus is more likely to be reached.
- **Market value disproportionate to building value:** Market value is defined as the sum of the land value, building value, and value of other features on the property. Parcels that have a building value of less than 100 percent of the market value are generally good redevelopment opportunities because newer buildings would significantly increase the total market value of the site, while properties where the building value is less than 50 percent are highly likely to redevelop.

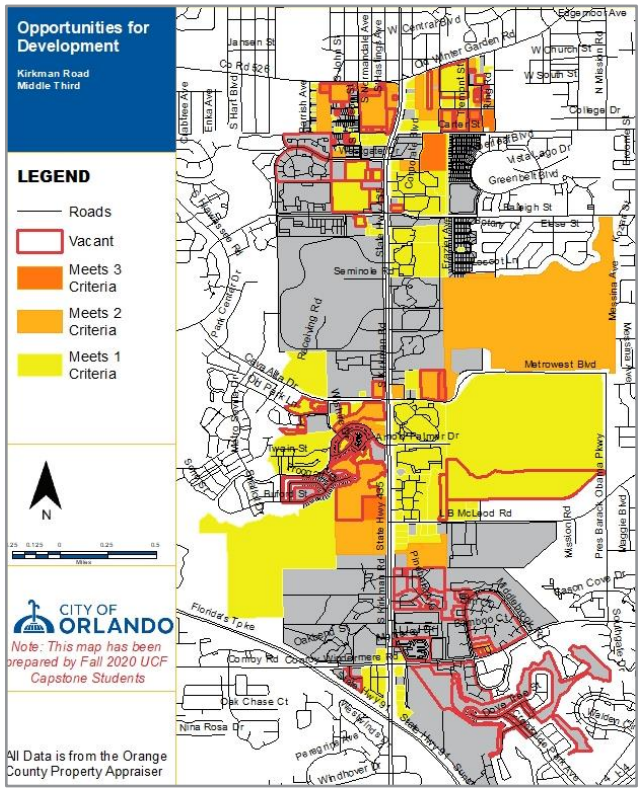
These four criteria were layered to identify key redevelopment opportunities. See the maps below.

Figure 4.1 –
Opportunities for Development (North Third)



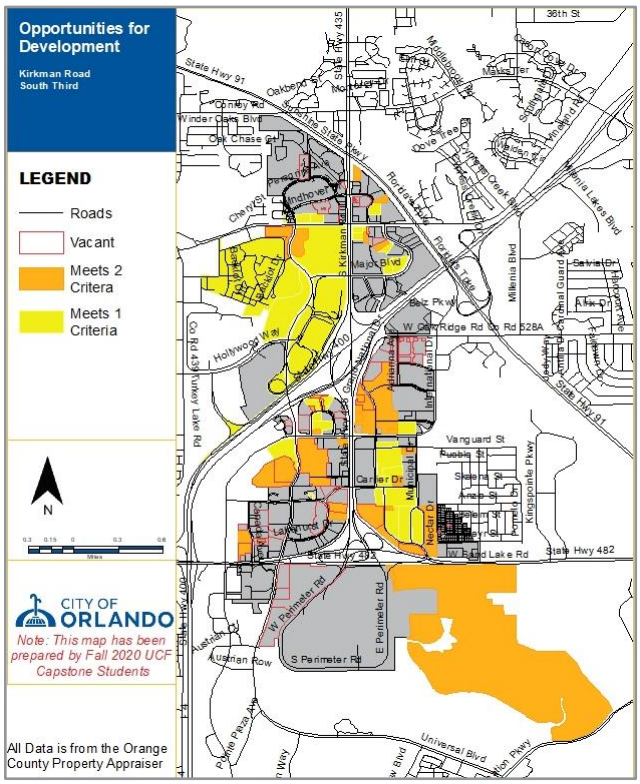
Source: *Kirkman Road Vision Plan Analysis, 2021.*

Figure 4.2 –
Opportunities for Development (Middle Third)



Source: *Kirkman Road Vision Plan Analysis, 2021.*

Figure 4.3 –
Opportunities for Development (South Third)



Source: *Kirkman Road Vision Plan Analysis, 2021.*

3.2.2. RESULTS

In order to maximize development potential or proposed developments and harmoniously urbanize them with the existing character of their surroundings a strategy for each third of the corridor was used. This strategy acknowledges the needs of the surrounding neighborhoods while also considering future needs.

In the north third, especially in existing residential neighborhoods, low to mid residential densities provide the best possible redevelopment scenario. Desirable uses include townhomes, duplexes and other small multiplexes, and single-family homes. These uses address the need for affordable housing and higher density without significantly altering the character of the existing residential neighborhoods. Along the SR-50 corridor relatively

higher density multifamily and commercial shopping centers would be most compatible with their surrounding land uses.

In the southern third there is strong demand for additional entertainment, hotel, high intensity multifamily, and high intensity commercial uses. These uses address the demand created by tourist attractions in the area as well as potential housing for employees in the tourism related industries.

In the middle third there is strong demand for multifamily and commercial, especially near Valencia College's main campus. There is strong demand for affordable, student housing. This section can provide a transition between the character of the north third and the south third by providing a blend of uses that act as a balanced urbanization of their surroundings.

3.3. DEVELOPMENT OPPORTUNITIES

3.3.1. POTENTIAL REDEVELOPMENT VALUE

Development potential was estimated by identifying the existing zoning, permissible land uses, permissible intensities (FAR and dwelling units per acre), and acreage of the site.

To calculate projected taxable value, we found comparable redevelopment projects that had been completed in the past 4 years, and analyzed the value increases that occurred on those projects. We looked at some examples of each of the types of redevelopment proposed on identified parcels within the study area (multi-family, single family - both detached and attached, commercial, hotel, office, industrial, and mixed use). We tried to analyze a variety of comparable types of redevelopment, in regard to density, intensity, and overall project size, that could be executed within the study area.

On each of the comparable projects, we identified the market value of the property when it was vacant (or in some cases prior to the re-development, as there may have existed some other use), and compared that to the market value of the project after the redevelopment had been complete. We then divided that increase in value by the number of either dwelling units or square footage a project has, to establish a value added per unit (either per dwelling unit or per square foot). Once the value per unit was established, we used this number as a metric to predict an aggregate potential value added to the proposed redevelopment projects within the study area.

Under the presumption that the proposed redevelopment project would yield a similar added value per unit as the comparable project, we then proposed a few scenarios of different development types (with varying increases in density and intensity - typically a "high" and "low" development program) for the subject properties identified as having the greatest development potential within the study area. Using the increase in density or intensity, and multiplying it by the added value per unit, we were able to calculate a potential building value. This number, combined with the existing underlying land value, enabled us to project a market value. This projected market value (and increase from the current market value), is the projected taxable value for the proposed redevelopment.

Two of the guiding principles for the success of the entire Kirkman Road study area, specifically as it relates to market analysis within, are site availability, and construction and maintenance costs (as it relates to new or existing development). Site availability rates with a high level of potential contribution to success of any sort of proposed implementation, as it directly impacts development. Site availability has the strongest impact on the market of nearly any variable. The amount of available land for redevelopment directly correlates to cost of land in the corridor,

which impacts the potential for development. If there are no sites available in the corridor, development (or redevelopment) will cost more, as land will cost more since there is less supply. We found that there are some suitable sites potentially available for development, which impacts the market of the corridor as a whole in a positive way, by allowing for a variety of types of redevelopment. Site availability plays a specific and important role in some of the properties analyzed within the Redevelopment Scenarios listed in the report.

The other guiding principle, construction and maintenance cost, would rate with medium level of potential contribution to success of any sort of proposed implementation. The cost of construction would impact any decisions made on redevelopment, as it would obviously be a factor in the overall cost of redevelopment. If construction costs get too high, it could dissuade certain types of redevelopment that typically require more of an undertaking for vertical construction (but add taxable value), and lead to less dense or less costly types of development. Or could dissuade development entirely, even if available land exists. Similarly, maintenance costs for certain project types, such as those that may require HOAs or POAs, or that just require a high level of upkeep, could impact development of certain product types, and negatively impact the market. But conversely, high maintenance costs of existing or aging structures and development could also have a positive impact on redevelopment. As if existing maintenance costs outweigh the potential costs of new construction, redevelopment, or just land value in general, it would logically lead to future redevelopment. In many of the redevelopment scenarios provided in this paper, construction costs were taken to be similar and consistent throughout both the corridor and the outside locations reviewed, in the comparisons made. However, it should be noted that a change (either positive or negative) in construction costs or maintenance costs would impact the development opportunities on specific sites, and the market as a whole. Both two criteria would have an impact on the market within the corridor and would need to be considered in any future redevelopment.

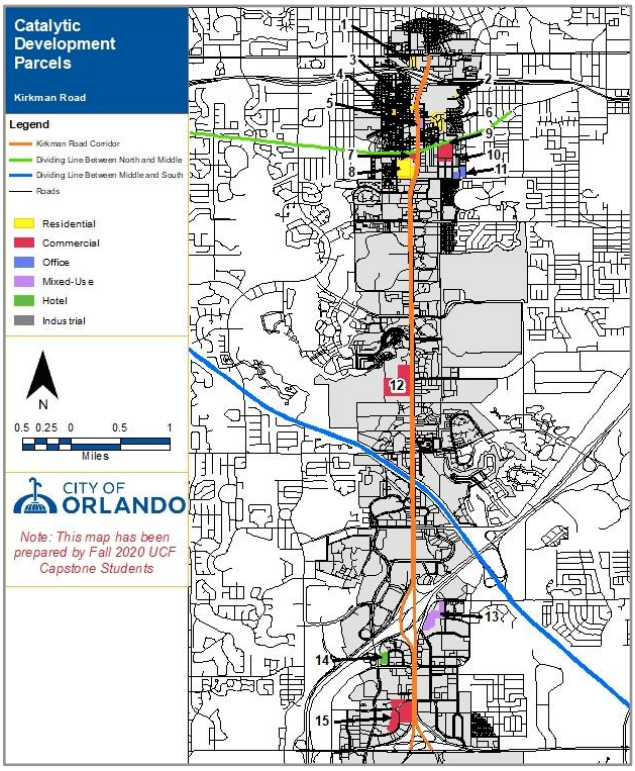
3.3.2. RESULTS

Table 3.5 on the following page details the parcels identified as having the greatest catalytic development potential along with the maximum possible development potential, categorized in both number of dwelling units and gross square footage achievable based solely on the acreage, zoning, and future land use. It is more than likely that due to site constraints these values are not realistically achievable. The reference numbers correspond to the maps below.

Table 3.5 - *Parcels with Catalytic Development*

Ref. #	Area (AC)	Area (SF)	Zoning	Proposed Rezoning	Intended Use	MAX. DUs / AC	MAX. FAR	MAX. DUs	MAX. (non-res.) SF	Existing MKT value	2020 Taxes Paid
1	4.49	195,367	C-2	-	MF		3	-	586,100	$820,112	$12,317
2	0.55	23,827	R-1A	R-2	Townhomes	4du/ 15k; 2du/ 8k	-	6	-	$46,600	$612
3	0.74	32,278	R-1	R-2	Townhomes	4da/ 15k	-	8	-	$27,500	$541
4	0.93	40,467	R-1	R-2	Townhomes	4da/ 15k; 2du/ 8k	-	10	-	$173,160	$2,085
5	2.67	116,262	varies	NC	Mixed use (MF and Office/ Commer-cial)	40	2	106	232,523	$370,324	$7,078
6	9.50	413,776	R-T	R-3	MF	-	-	-		$1,690,576	$25,753
7	2.04	88,688	AC-1, C-1	AC-1	Commercial (CFA and/or Walgreens)	40	0.7	81	62,082	$667,474	$12,605
8	17.39	757,378	AC-1/RP	-	MF	40	0.7	695	530,164	$1,271,411	$24,756
9	13.96	608,185	C-3	-	Shopping Center	-	3	-	1,824,554	$826,187	$13,210
10	1.32	57,456	IND-2/ IND-3	-	Industrial	-	0.75	-	43,092	$240,140	$2,976
11	5.51	239,798	IND-2/ IND-3	P-O	Office	-	3	-	719,393	$342,800	$5,356
12	34.34	1,495,633	PD	AC-2	Lifestyle Shopping Center/MF	100	1	3,433	1,495,633	$88,899	$2,174
13	15.02	654,476	AC-3	-		200	1.5	3,004	981,714	$7,301,201	$133,103
14	4.39	191,098	AC-3	-		200	1.5	877	286,647	$3,479,941	$68,475
15	26.98	1,175,440	AC-3	-	Masterplan Mixed Use	200	1.5	5,396	1,763,160	$14,765,520	$268,812
TOT.	**139.81**	**6,090,128**						**13,616**	**8,525,062**	**$32,111,845**	**$579,853**

Figure 4.4 –
Catalytic Development Parcels



Source: *Kirkman Road Vision Plan Analysis, 2021.*

3.4. REDEVELOPMENT SCENARIOS

3.4.1. NORTH THIRD REDEVELOPMENT SITES

The north third of the study area, which contains all of the parcels within 1,000 feet of Kirkman Rd, between State Road 50 and Old Winter Garden Rd, is comprised of mostly single family residential, with commercial uses along State Road 50, and some intermixed office and commercial uses directly along Kirkman Rd. The existing block pattern and lots for a majority of the study area on both sides of Kirkman, were created with the original Orlo Vista Terrace plats (and additions), recorded in the 1920's. These plats originally contemplated 50 ft wide lots. A total of 77 percent of all of the dwelling units within the north third of the study area are single family, and of those dwellings, 69 percent were built prior to 1980. There are many vacant lots within this section, and a number of parcels where the value of the land makes up more than 50 percent of the market value of the parcel. Most of this section of the study area lies within unincorporated Orange County.

Given the age of much of the existing housing stock, and general availability of vacant lots and redevelopment sites, and existing block pattern, this third would be best positioned for affordability and attainability regarding housing redevelopment. There may potentially be opportunities for actual affordable housing projects within this. But because of its potential for redevelopment, given its relative lower land values and site availability, it is also important to maintain the general affordability and attainability of housing within the third, as this is one of the few portions of the study area suitable for larger portions of single family availability. As will be evident from a few of these redevelopment scenarios provided, there is potential to exponentially increase land values of certain sites within this area with housing redevelopment. And while these increases are a positive element, it is important to balance any sort of increase to maintain affordability. This could be done through redeveloping different housing types (and not just detached single family) to provide more housing stock, and competitive market values.

The total taxes for this section of the study area is $2,340,303.44, which represents 1.1 percent of the total market value of this section of the study area. There are 1137 parcels in this section of the study area with an average market value of $184,679. Because most parcels in this section of the study area are single family residences, the average size of parcels are relatively low (0.47 acres).

3.4.1.1. PARCEL 3

This parcel is made up of 3 contiguously owned parcels of land, that are all vacant. The 3 parcels contain 5 original, platted 46.08 ft. wide lots, from the ORLO VISTA TERRACE ANNEX plat recorded in 1926. This parcel is surrounded by P-O zoning and uses (office uses) to the south and the east.

Table 3.6 - *Redevelopment Parcel 3*

Parcel ID (s)	30-22-29-6426-16-010, (020, 050)
Size	.75 acres
Current Use	Vacant
Current Zoning	R-1 (detached single family zoning)
Current FLU	Low Density Residential (LDR)
Current Allowable Density	4 DU per acre
Current Market Value	$17,500
Current Land Value	$17,500
Current Building Value	$0
2020 Taxes Paid	$409

Source:
Orange County Property Appraiser, 2021.

Proposed Redevelopment to Single Family

Presently, this parcel is zoned for single family dwellings on 50 ft. wide lots. The density would allow a total of 3 units should the lots be reconfigured to meet zoning requirements. As this parcel abuts the more intense P-O uses, a slightly higher density could be suitable

Scenario 1 (Lower Development): Rezone this parcel to R-2 and construct a detached Single family home on each of the 5 original platted lots, for 5 total dwellings. County policy allows a home to be built on a platted lot of record, regardless of underlying density, so long as the lot meets requirements of the zoning district for lot width and lot area. Presently, these lots are substandard to width. R-2 requires only 45 ft. wide lots with 4,500 sq. ft. of lot area. If rezoned to R-2, each platted lot would meet these standards, and be able to be developed. A comparable SFR development, in which a lot containing 3 platted lots was developed with a home on each platted 50 ft. lot, yielded the results shown in **Table 3.7**.

Table 3.7 - *Comparable Development: Low Scenario*

Parcel ID (s)	06-23-30-0024-01-341 (342, 343)
Development	3 Single Family Dwellings
Size	.65 acres (3, 50 ft wide lots)
Density	n/a
Pre-development value	$ 134,000.00
Market Value after development	$ 988,490.00
Value added per dwelling unit	$ 284,830.00

Source:
Orange County Property Appraiser, 2021.

Assuming a similar increase in value added per dwelling, this proposed redevelopment could potentially yield the following:

Table 3.8 - *Potential Redevelopment Value*

Proposed dwelling units	5
Existing Land Value	$ 17,500.00
Potential Building Value	$ 1,424,150.00
Potential Market Value	$ 1,441,650.00

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2 (higher development): Increase the density to allow for 10 DUs per acre by processing a small scale Comprehensive Plan Amendment to change the Future Land Use designation to Low Medium Density Residential (LMDR) and change the zoning to R-2 to allow for attached single family (townhomes), for construction of 7 attached dwelling units. This parcel abuts P-O, and no

detached single-family properties, which makes this an appropriate site for a higher density housing option, and this increase in density would allow for more housing options, while still allowing for home ownership, in the study area. A comparable townhome development, in which 8 platted 25 ft. wide lots were redeveloped into 6 dwelling units (2 triplex buildings), yielded the results shown in **Table 3.9**.

Table 3.9 - *Comparable Development: High Scenario*

Parcel ID (s)	31-22-30-1684-05-010 (031,041,050,061,071)
Development	6 townhome dwellings (2 triplexes)
Size	.83 acres
Density	10 DU per acre
Pre-development value	$ 180,000.00
Market Value after development*	$ 1,864,614.00
Value added per dwelling unit	$ 280,769.00

Source:
Orange County Property Appraiser, 2021.

Note:
** Total assuming each lot built has an average market value of 310,769, which is the average value of the 3 buildings that are completed.*

Assuming a similar increase in value added per dwelling, this proposed redevelopment could potentially yield the following:

Table 3.10 - *Potential Redevelopment Value*

Proposed dwelling units	7
Existing Land Value	$ 17,500.00
Potential Building Value	$ 1,965,838.00
Potential Market Value	$ 1,982,883.00

Source:
Kirkman Road Vision Plan Analysis, 2021.

3.4.1.2. PARCEL 5

Redevelopment parcel 5 as shown on the map consists of an entire block, containing 10 parcels, and consisting of portions of 22 original platted lots. The parcels abutting Kirkman Rd consist of remnants of lots that are currently 70 ft. deep and are zoned P-O (professional office) with Office Future Land Use. All of the lots abutting Kirkman are vacant, most likely as they would not be able to be developed for P-O uses without a number of variances, given the shallowness of the lots. The lots abutting Van Buren are all residential, either R-1 (single family) or R-3 (multi-family). Of the 10 parcels, only 4 are developed, each with an older single-family home. Although of the 10 parcels, there are 7 individual property owners. All parcels on this block have a land area that is greater than 50 percent of the market value of the parcels, making it appropriate for redevelopment. For redevelopment purposes, the largest parcel within this block was chosen specifically for this study, as given its size and current density allowances, it may be most suitable for redevelopment at present. But given that all of the P-O uses are vacant (and almost entirely under single ownership), it may be able to be combined with this parcel, and others on the block, sometime in the future, which would increase both density and design possibilities. This parcel is a .64-acre parcel made up of 4 original platted 50 ft. wide platted lots. Currently there is 1 home, built in 1925, with only 576 square feet of living area on the site.

Table 3.11 - *Redevelopment Parcel 5 (single parcel within)*

Parcel ID (s)	30-22-29-6426-10-160
Size	.64 acres
Current Use	SFR (576 sq. ft)
Current Zoning	R-1 (specific mobile home park district)
Current FLU	Low Medium Density Residential (LMDR)
Current Allowable Density	10 DU per acre
Current Market Value	$30,765
Current Land Value	$17,000
Current Building Value	$13,765
2020 Taxes Paid	$491.72

Source:
Orange County Property Appraiser, 2021.

Low Scenario: Develop 1 single family home on each of the original platted lots, for 4 total dwelling units. Similar to the redevelopment scenario for redevelopment parcel 3, except in this case, there is no action required, such as a rezoning or comprehensive plan amendment. The current zoning and future land use existing allow this outright, and permits could be pulled today for the 4 new dwelling units. A comparable SFR development, in which a lot containing 3 platted lots was developed with a home (approximately 1950 sq. ft. of living area per home) on each platted 50 ft. lot, yielded the results shown in **Table 3.12**.

Table 3.12 - *Comparable Development: Low Scenario*

Parcel ID (s)	06-23-30-0024-01-341 (342, 343)
Development	3 Single Family Dwellings
Size	.65 acres (3, 50 ft wide lots)
Density	n/a
Pre-development value	$ 134,000.00
Market Value after development	$ 988,490.00
Value added per dwelling unit	$ 284,830.00

Source:
Orange County Property Appraiser, 2021.

Assuming a similar increase in value added per dwelling, this proposed redevelopment could potentially yield the following:

Table 3.13 - *Potential Redevelopment Value*

Proposed dwelling units	4
Existing Land Value	$ 17,000.00
Potential Building Value	$ 1,139,320.00
Potential Market Value	$ 1,156,320.00

Source:
Kirkman Road Vision Plan Analysis, 2021.

High Scenario: Redevelop the site to allow for a single multifamily building containing 6 units. The current density allows for 10 dwelling units per acre, which for this property would allow 6 units. A rezoning to either R-2 or R-3 would be required. There is existing R-3 zoning within this block, and there are abutting blocks to the south that contain R-2. A small multifamily complex could easily be limited to one or 2 stories and be designed to match the existing form of any abutting single-family homes, so as not to be out of character with the existing neighborhood, specifically those single family homes on the other side of Van Buren. The abutting P-O and proximity to Kirkman also help to justify any change in zoning required. Additional

multifamily dwellings in the North third would help to provide different housing options. A similar development, in which a single story, 3-unit multi-family building was developed, yielded the results shown in **Table 3.14**.

Table 3.14 - *Comparable development: Low scenario*

Parcel ID (s)	31-22-30-1684-05-010
Development	3-unit, single story MF building
Size	0.24 acres
Density	12 DU per acre
Pre-development value	$ 25,000.00
Market Value after development	$ 236,203
Value added per dwelling unit	$ 70,401.00

Source:
Orange County Property Appraiser, 2021.

Assuming a similar increase in value added per dwelling, this proposed redevelopment could potentially yield the following:

Table 3.15 - *Potential Redevelopment Value*

Proposed dwelling units	6
Existing Land Value	$ 25,000.00
Potential Building Value	$ 422,406.00
Potential Market Value	$ 447,406.00

Source:
Kirkman Road Vision Plan Analysis, 2021.

As much of redevelopment parcel 5 is vacant, and suitable the entire block suitable for redevelopment, any ability to combine and contiguously own more of the parcels within it would only increase the allowable density, and also provide more land area to positively impact design options for any buildings, adding to the overall development potential. If the entire block were to somehow be under contiguous ownership, at its current density it would permit 26 dwelling units (based on 2.65-acre area of block), and its naturally existing block shape could allow for any number of housing options including attached and detached single family, or multifamily. If the entirety of the block was able to be redeveloped as one project, this would also enable potentially office uses, or even some sort of a mixed-use possibilities.

3.4.1.3. PARCEL 6

This parcel is currently a mobile home park, with a total of 75 mobile spaces (as approved by County Mobile Home park plan). The land value makes up 66 percent of the market value.

Table 3.16 - *Redevelopment Parcel 6*

Parcel ID (s)	30-22-29-0000-00-043
Size	9.5 acres
Current Use	Mobile Home Park (75 Mobile Homes)
Current Zoning	R-T (specific mobile home park district)
Current FLU	Low Medium Density Residential (LMDR)
Current Allowable Density	10 DU per acre
Current Market Value	$1,690,576
Current Land Value	$1,119,898
Current Building Value	$494,678
2020 Taxes Paid	$26,645

Source:
Orange County Property Appraiser, 2021.

Proposed Redevelopment to Multi-Family

This site has direct vehicular access to Kirkman Rd, from W. Washington St. (which dead ends at this parcel), and there is already an existing traffic signal at W. Washington St. The side has natural buffers from single family on all sides. Lake Orla (which serves as a retention pond) separates adjacent single family to the west, another large retention pond abuts to the north, and there is a power line easement that serves as a 100 ft. buffer

to the East. Multi-family would be compatible in this area, and have a very limited effect, if any, on existing single family surrounding it. A mobile home park and a multi-family development operate similarly in that there are no individual property owners, only renters.

Scenario 1: Redevelop to Multi-family with current allowable density of 10 Dwelling units per acre, yielding a total of 95 dwelling units. This would be only a slight increase in the current 75 dwelling units in the mobile home park, and still within allowance of density permitted by the comprehensive plan. A comparable MF development developed at a similar density yielded the results shown in **Table 3.17**.

Table 3.17 - *Comparable Development: Low Scenario*

Parcel ID (s)	11-21-28-9131-01-000
Development	120 MF Dwelling units
Size	12 acres
Density	10 DU per Acre
Pre-development value	$ 1,680,000.00
Market Value after development	$ 8,233,055.00
Value added per dwelling unit	$ 54,608.79

Source:
Orange County Property Appraiser, 2021.

Assuming a similar increase in value added per dwelling, this proposed redevelopment could potentially yield the following:

Table 3.18 - *Potential Redevelopment Value*

Proposed dwelling units	95
Existing Land Value	$ 1,119,898.00
Potential Building Value	$ 5,187,835.05
Potential Market Value	$ 6,307,733.05

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: Redevelop to Multi-family with an increased density of 20 Dwelling units per acre, yielding a total of 190 dwelling units. This would require a small-scale comprehensive plan amendment to change the Future Land Use to Medium Density Residential (MDR). While an increase in the existing and current allowable densities, this site offers great opportunities to increase density and housing options, given its existing access to the arterial road and existing natural buffers to the nearby single family. This increase in density could help serve the more than 50 percent of residents in the study area who are renters. A comparable MF development developed at a similar density yielded the following:

Table 3.19 - *Comparable Development: High Scenario*

Parcel ID (s)	09-24-29-3051-04-001
Development	314 MF DU
Size	13.59 acres
Density	23 DU per acre
Pre-development value	$ 3,811,793.00
Market Value after development	$ 66,382,667.00
Value added per dwelling unit	$ 199,270.30

Source:
Orange County Property Appraiser, 2021.

Table 3.20 - *Potential Redevelopment Value*

Proposed dwelling units	190
Existing Land Value	$ 1,119,898.00
Potential Building Value	$ 37,861,357.00
Potential Market Value	$ 38,981,255.00

Source:
Kirkman Road Vision Plan Analysis, 2021.

3.4.2. MIDDLE THIRD REDEVELOPMENT SITES

The middle section of the study area is bound by Old Winter Garden Road to the north, and Florida's Turnpike to the south, located mostly within the City of Orlando with some parcels within unincorporated Orange County located along Older Winter Garden Road. The development pattern in this section is predominantly a mix of multi-family residential and non-residential uses. Office makes up the majority of non-residential uses followed by commercial and industrial type uses. Housing characteristics for this section include a renter majority (82 percent of households), moderate renter housing burden (57 percent of households), and an older housing stock with a majority of units dated 20 to 40 years old. There are many vacant lots within this section, and a significant number of parcels where the value of the land makes up more than 50 percent of the market value of the parcel. The population and employment projections for this section indicate a strong need for multi-family, office and industrial uses.

Existing and future housing development is needed to serve the major employers and tourism industry to the south. Development projects within this section should incorporate site design and features with these end users in mind.

The total taxes for this section of the study area is $1,380,855,675, which represents 1.4 percent of the total market value of this section of the study area. There are 1144 parcels in this section of the study area with an average value of $ 379,355.95. The average parcel size is 0.82 acres, which is relatively large.

3.4.2.1. PARCEL 8

Parcel 8 consists of seven vacant tax parcels located on the west side of Kirkman Road, just south of Old Winter Garden Road in the City of Orlando.

Table 3.21 - *Redevelopment Parcel 8*

Parcel ID (s)	36-22-28-0000-00-020; 30-22-29-2940-00-150; 25-22-28-4484-12-040; (-070); (-090); (-100) & (-140)
Size	17.39 acres
Current Use	Vacant
Current Zoning	unassigned
Current FLU	Community-Activity Center / Resource Protection Overlay
Current Allowable Density	N/A
Current Market Value	$1,271,411
Current Land Value	$1,271,411
Current Building Value	$0
2020 Taxes Paid	$24,854.20

Source:
Orange County Property Appraiser, 2021.

Proposed Redevelopment to Multi-family

This site has extensive visibility and frontage along Kirkman Road with secondary access/frontage along Hudson Avenue. Additional physical site characteristics include a slightly irregular shape, 17.39 acre size, location within flood zone X (outside the limits of the 100 year flood zone), and some wetland encumbrance according to USFWS National Wetland Inventory map. In addition, the site has a resource protection overlay which may result in additional development criteria.

Currently, the site has a future land use of Community-Activity Center (C-AC) but no zoning has been assigned. According to the City of Orlando land development code, the C-AC future land use shall be implemented by the Activity Center-1 (AC-1) zoning district. Under a proposed rezoning to AC-1, the site would consider a maximum density of 40 du/acre (roughly 695 dus) and a maximum building height of 75 ft or approximately 5 stories.

Adjacent development includes commercial/retail to the north, institutional to the northeast, light industrial (self-storage) to the south, and single family residential to the west. Based on the development pattern in the vicinity, the proposed multi-family use would serve as an appropriate transition between the single-family residential uses to the west and the higher intensity/non-residential uses to the north and south. In addition, the proposed use is consistent with the intent of the Community-Activity Center future land use category. It is also acknowledged that this particular site has been proposed for development as a three and four story 320-unit apartment complex, Hudson Acres, recommended for approval by the Municipal Planning Board at its July 2020 meeting (MPL2020-10029).

Scenario 1: This scenario mirrors the currently proposed Hudson Acres mid-rise multi-family project with 10 buildings at a maximum density of 18.4 du/acre. This density and site layout serve as an appropriate transition from the single-family residences to the west. A comparable MF development developed at a similar density yielded the following:

Table 3.22 - *Comparable Development: Low Scenario*

Parcel ID (s)	09-24-29-3051-04-001
Development	314 MF DUs / 9 bldgs at 3 stories
Size	13.6 acres
Density	23 DUs per Acre
Pre-development value	$ 3,811,793.00
Market Value after development	$ 74,732,000.00
Value added per dwelling unit	$ 225,860.53

Source:
Orange County Property Appraiser, 2021.

Table 3.23 - *Potential Redevelopment Value*

Proposed dwelling units	320 (18.4 DUs/Acre)
Existing Land Value	$ 1,271,411.00
Potential Building Value	$ 72,725,370.19
Potential Market Value	$ 75,546,781.19

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: Mid-rise multi-family concept with one 5-story building at a maximum density of 30 du/acre. Under this scenario, the project would yield a total of 522 dwelling units. A comparable MF development developed with a similar concept and density yielded the following:

Table 3.24 - *Comparable Development: High Scenario*

Parcel ID (s)	23-22-31-1809-01-000
Development	296 MF DUs / 1 bldg at 4 stories
Size	10.46 acres
Density	28 DUs per Acre
Pre-development value	$ 5,328,000.00
Market Value after development (Sales Price)	$ 66,000,000.00
Value added per dwelling unit	$ 204,972.97

Source:
Orange County Property Appraiser, 2021.

Table 3.25 - *Potential Redevelopment Value*

Proposed dwelling units	522 (30 DUs/Acre)
Existing Land Value	$ 1,271,411.00
Potential Building Value	$ 106,995,891.89
Potential Market Value	$ 109,267,302.89

Source:
Kirkman Road Vision Plan Analysis, 2021.

3.4.2.2. PARCEL 11

Parcel 11 consists of two tax parcels located on the west side of Ring Road, approximately 1,600 ft south of Old Winter Garden Road in unincorporated Orange County. The current use of the site is a car-towing business.

Table 3.26 - *Redevelopment Parcel 11*

Parcel ID (s)	30-22-29-6244-02-010; 30-22-29-6244-02-240
Size	5.89 acres
Current Use	Car-towing business
Current Zoning	IND-2/IND-3 (Orange County)
Current FLU	Industrial (Orange County)
Current Allowable Intensity	0.75 FAR
Current Market Value	$372,800
Current Land Value	$320,717
Current Building Value	$49,083
2020 Taxes Paid	$6,203

Source:
Orange County Property Appraiser, 2021.

Proposed Redevelopment to Office

his property is a 5.89-acre site with very limited visibility and exposure characteristics. Access to the site is provided by Ring Road, a two-lane local roadway which transitions into a dead-end dirt road south of the subject property. Additional physical characteristics include a slightly irregular shape, and flood zone AE encumbrance.

Currently, the site has a future land use of Industrial and a zoning of IND-2/IND-3 within Orange County. However, the site is located adjacent to the City of Orlando and is within the Orlando Utilities Commission service area. Based on these characteristics, annexation of the site into the city is proposed. The Orlando future land use and zoning pattern in the area for office uses includes the Office-Low and Office-Medium future land use categories with corresponding Planned Development (PD) and Office-1 zoning districts. For the purpose of this analysis, two scenarios are considered including a future land use change to Office-Low with PD zoning and a future land use change to Office-Medium with PD zoning.

Adjacent development in the vicinity is predominantly industrial uses to the north and west and residential and institutional uses to the east and south. Based on this development pattern, the proposed office use will serve as a buffer between the industrial and residential uses. In addition, an office use is considered preferable to a use such as commercial that relies on roadway frontage and exposure due to the extensive setback and lack of visibility from a major roadway.

Scenario 1: This scenario includes annexation into the City of Orlando with a future land use change to Office-Low and Planned Development rezoning. The proposed development program includes a 102,627 SF office building to achieve the maximum intensity of 0.40 FAR under the Office-Low district. A comparable Office development developed at a similar FAR yielded the following:

Table 3.27 - *Comparable Development: Low Scenario*

Parcel ID (s)	15-22-31-0000-00-002
Development	85,000 SF office
Size	4.43 acres
Density	0.44 FAR
Pre-development value	$ 2,432,576
Market Value after development	$ 19,253,865
Value added per sf	$ 197.90

Source:
Orange County Property Appraiser, 2021.

Table 3.28 - *Potential Redevelopment Value*	
Proposed dwelling units	102,627 SF (0.40 FAR)
Existing Land Value	$ 320,717
Potential Building Value	$ 20,309,954.54
Potential Market Value	$ 20,630,671.54

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: This scenario includes annexation into the City of Orlando with a future land use change to Office-Medium and Planned Development rezoning. The proposed development program includes a 179,598 SF office building to achieve the maximum intensity of 0.70 FAR under the Office-Medium district. A comparable Office development developed at a similar FAR yielded the following:

Table 3.29 - *Comparable Development: High Scenario*	
Parcel ID (s)	15-22-31-0000-00-002
Development	85,000 SF office
Size	4.43 acres
Density	0.44 FAR
Pre-development value	$ 2,432,576
Market Value after development	$ 19,253,865
Value added per sf	$ 197.90

Source:
Orange County Property Appraiser, 2021.

Table 3.30 - *Potential Redevelopment Value*	
Proposed dwelling units	179,598 SF (0.70 FAR)
Existing Land Value	$ 320,717
Potential Building Value	$ 35,542,420.45
Potential Market Value	$ 35,863,137.45

Source:
Kirkman Road Vision Plan Analysis, 2021.

3.4.2.3. PARCEL 12

Parcel 12 consists of three vacant tax parcels located on the west side of Kirkman Road and the east side of Turkey Lake in the City of Orlando.

Table 3.31 - *Redevelopment Parcel 12*	
Parcel ID (s)	12-23-28-0000-00-002; (-003); (-014)
Size	34.34 acres
Current Use	Vacant
Current Zoning	Planned Development (PD)
Current FLU	Split: Residential-Medium and Comm-AC (Resource Protection Overlay)
Current Allowable Density	30 DUs per Acre
Current Market Value	$88,899
Current Land Value	$88,899
Current Building Value	$0
2020 Taxes Paid	$2,094.7

Source:
Orange County Property Appraiser, 2021.

Proposed Redevelopment to Multi-family / Mixed-Use

This property is a 34.34-acre site with extensive visibility and frontage along Kirkman Road. The majority of the site is encumbered by wetlands and flood zone “AE”, and a significant portion of the site has a resource protection overlay. Adjacent development includes utility uses to the south, commercial/retail to the east, and single family and multi-family residential to the north and northeast. The proposed multi-family and mixed-use development scenarios are considered appropriate for the subject property based on compatibility with the surrounding development pattern.

Currently, the site has a split future land use of Community-Activity Center (C-AC) and Residential-Medium and a Planned Development (PD) zoning. The PD zoning (Kirkman Road-JNS Planned

Development) was approved in 2011 to allow for a mix of residential and commercial uses (City of Orlando, 2011). The conditions of the PD require that approximately 24.7 acres be dedicated as conservation easement (City of Orlando, 2011). The remaining ±9.92 net developable acres are generally consistent with the portion of the site designated C-AC (City of Orlando, 2011). According to the PD, this area shall be developed in accordance with the AC-1 zoning district standards (City of Orlando, 2011).

This analysis considers two development scenarios allowable under the existing PD entitlements. Scenario 1 mirrors the approved site plan with a mix of 200 multi-family units (3.3 du/gross acre, 20 du/net acre) and 50,000 sf of commercial (0.13 net FAR). Scenario 2 proposes multi-family throughout the site with 397 dwelling units or 11.56 du/ gross acre (40 du/net acre). This scenario may require a PD amendment to modify the approved site plan with the proposed MF use.

Scenario 1: Mixed-use development program including 200 MF units (20 du/net acre) and 50,000 SF commercial uses (0.13 net FAR). A comparable mixed-use development developed at a similar density/intensity yielded the following:

Table 3.32 - *Comparable Development: Mixed Use*

Parcel ID (s)	12-23-29-8185-02-000; 12-23-29-8185-01-000
Development	300 MF DUs / 65,674 SF commercial
Size	11.68 acres
Density	26 DUs per Acre / 0.13 FAR
Pre-development value	$11,779,567
Market Value after development	$67,164,787
Value added per dwelling unit	$137,907.26 per DU / $ 134.57 per SF

Source:
Orange County Property Appraiser, 2021.

Table 3.33 - *Potential Redevelopment Value*

Proposed dwelling units	200 DUs (20 DU per Acre) / 50,000 SF (0.13 FAR)
Existing Land Value	$ 88,899
Potential Building Value	$ 34,310,174.08
Potential Market Value	$ 34,399,073.08

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: MF development including 397 dwelling units or 40 du/net acre. A comparable MF development developed at a similar density yielded the following:

Table 3.34 - *Comparable Development: MF Residential*

Parcel ID (s)	23-22-31-1809-01-000
Development	296 MF DUs / 1 bldg. at 4 stories
Size	10.46 acres
Density	28 DUs per Acre
Pre-development value	$ 5,328,000.00
Market Value after development (Sales Price)	$ 66,000,000.00
Value added per dwelling unit	$ 204,972.97

Source:
Orange County Property Appraiser, 2021.

Table 3.35 - *Potential Redevelopment Value*

Proposed dwelling units	397 units (40 DUs / Acre)
Existing Land Value	$ 88,899
Potential Building Value	$ 81,374,269.09
Potential Market Value	$ 81,463,168.09

Source:
Kirkman Road Vision Plan Analysis, 2021.

3.4.3. SOUTH THIRD REDEVELOPMENT SITES

The south section is bounded by Florida's Turnpike to the north and W Sand Lake Rd to the south. This section contains parts of Universal Orlando, International Drive, Universal Blvd, Universal's forthcoming Epic Universe, Lockheed Martin, and a high concentration of hotel and entertainment uses. Tourism is the main driver of development in this area and most development has occurred since 1990, when Universal opened its first of two existing resorts, although parts of International Drive were laid out in the 60s and 70s as an alternative tourist destination to Disney. There are over 25 hotels in this portion of the study area, a strong indicator of demand for hotel space. In each of the proposed scenarios below, scenario 1 represents a lower intensity (smaller FAR or dwelling units per acre) than scenario 2. All scenarios adhere to the existing zoning and future land use designations.

The total taxes for this section of the study area is $53,602,255, which represents 1.7 percent of the 2019 total market value of this section of the study area. There is a total of 1,144 parcels in this section of the study area with an average value of $2,818,052. The higher per-property value in this section is likely due to the relatively larger parcel size (2.1 acres).

3.4.3.1. PARCEL 15

Parcel 15 consists of three specific sites. Site 1 is northwest of Carrier Dr, just west of Kirkman Rd. Site 2 is south of Carrier Dr and west of Lakehurst Dr. Site 3 is east of Lakehurst Dr and south of Carrier Dr. These sites are being considered holistically as a master planned development.

Table 3.36 - *Redevelopment Parcel 15*

Parcel ID (s)	28-23-25-2795-00-101, 28-23-25-2795-00-100, 28-23-25-2795-00-090, 28-23-25-2795-00-120, 28-23-25-2777-00-110, 28-23-25-2795-00-110,
Size	26.98 acres
Current Use	Mostly Vacant
Current Zoning	AC-3
Current FLU	MET-AC
Current Allowable Density	200 DUs per Acre & 1.5 FAR
Current Market Value	$12,765,520
Current Land Value	$14,765,520
Current Building Value	$0
2020 Taxes Paid	$268,812

Source:
Orange County Property Appraiser, 2021.

Proposed Development of Hotel and Multi-Family

Site 1 includes the two northernmost parcels of which on has an existing CrossFit gym. The gym is in a renovated auto repair shop. This site is large enough to support a variety of uses. Adjacent uses include a hotel to the west, industrial to the north, and vacant land on the south and east. The surrounding land uses are very flexible in terms of compatibility, however hotel development, would likely be the best scenario for development.

Scenario 1: 240 room hotel including restaurant structured parking. This scenario just meets the minimum FAR (0.75) listen in the future land use.

Table 3.37 - *Parcel 15, Site 1, Comparable Development: Large Hotel*

Parcel ID (s)	Parcel ID (s)
Development	Development
Size	Size
Density	Density
Pre-development value	Pre-development value
Market Value after development (OCPAFL 2020 working value)	Market Value after development (OCPAFL 2020 working value)
Value added per sf	Value added per sf
Added tax value per sf	Added tax value per sf

Source:
Orange County Property Appraiser, 2021.

Table 3.38 - *Comparable Development: Low Scenario*

Proposed sf	150,000 (240 rooms)
Existing Land Value	$ 3,857,986
Existing Taxes	$ 73,157.05
Potential Building Value	$ 19,186,500
Potential Market Value	$ 23,044,486
Potential Taxes	$ 378,000

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: 300,000 sf hotel with structured parking. This development program represents 1.5 FAR and would require multiple floors of commercial space.

Table 3.39 - *Parcel 15, Site 1, Comparable Development: Large Hotel*

Parcel ID (s)	25-23-28-8188-01-000
Development	509,307sf hotel (750 rooms)
Size	11.79 acres
Density	.99 FAR (63.6 hotel rooms per acre)
Pre-development value	$ 12,147,805
Market Value after development (OCPAFL 2020 working value)	$ 65,147,240
Value added per sf	$ 127.91
Added tax value per sf	$ 2.52

Source:
Orange County Property Appraiser, 2021.

Table 3.40 - *Parcel 15, Site 1, Scenario 2, Potential Redevelopment Value*

Proposed sf	300,000 (480 rooms)
Existing Land Value	$ 3,857,986
Existing Taxes	$ 73,157.05
Potential Building Value	$ 38,373,000
Potential Market Value	$ 42,230,986
Potential Taxes	$ 756,000

Source:
Kirkman Road Vision Plan Analysis, 2021.

Site 2 includes the large parcel at the southwest of the intersection of Carrier Dr and Lakehurst Dr. It is vacant but has been cleared of most of the natural landscaping. Adjacent uses include office and industrial to the east, hotel and commercial to the north, vacant land and a small lake to the west, and industrial to the south. The surrounding land uses are very flexible in terms of compatibility. High intensity multifamily oriented towards the lake is being proposed.

Scenario 1: High intensity multifamily. Proposed density is approximately 55 dwelling units per acre.

Table 3.41 - *Parcel 15, Site 2, Comparable Development: Mid Rise Multifamily*

Parcel ID (s)	23-24-28-2900-01-000
Development	309 MF units
Size	13.7 acres
Density	22.5 dua
Pre-development value	$ 6,426,000
Market Value after development	$ 70,635,398
Value added per unit	$ 207,797.40
Added tax value per unit	$ 3,359.78

Source:
Orange County Property Appraiser, 2021.

Table 3.42 - *Parcel 15, Site 2, Scenario 1, Potential Redevelopment Value*

Proposed units	273
Existing Land Value	$ 4,263,777
Existing Taxes	$ 66,638.45
Potential Building Value	$ 56,728,690.20
Potential Market Value	$ 60,992,467.20
Potential Taxes	$ 917,219.94

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: High intensity multifamily with ground floor retail. Proposed density is approximately 164 dwelling units per acre and 0.25 FAR. The development would have a large 5 floor garage with active use at the ground floor. On top of the garage would be three towers, each 12 stories tall, topping out around 200 feet tall. 10 of the floors would be entirely residential, with about 50 units per floor. The remaining two floors would be amenities for the residents which could include a fitness center, pool, dog park, business center, etc. These would likely be high end, market rate apartments in order to justify the initial investment.

Table 3.43 - *Parcel 15, Site 2, Comparable Development: Mid Rise Multifamily*

Parcel ID (s)	01-22-29-3712-07-031
Development	268 units
Size	2.38 acres
Density	112.5 dua
Pre-development value	$ 6,072880
Market Value after development	$ 77,873,571

Source:
Orange County Property Appraiser, 2021.

Table 3.44 - *Parcel 15, Site 2, Scenario 1, Potential Redevelopment Value*

Proposed units	910
Existing Land Value	$ 4,263,777
Existing Taxes	$ 66,638.45
Potential Building Value	$ 243,800,857
Potential Market Value	$ 248,064,634
Potential Taxes	$ 4,241,719.30

Source:
Kirkman Road Vision Plan Analysis, 2021.

Site 3 includes the three easternmost parcels, south of Carrier Dr and east of Lakehurst Dr, with a significant amount of Kirkman Rd frontage. It includes one building which houses the International Drive Chamber of Commerce. This site is large enough to accommodate a large hotel that would serve tourists visiting any of the various nearby attractions. It has large frontage along Kirkman Rd which would enhance commute times to any of the nearby attractions.

Scenario 1: 923 room hotel with amenities including pool, restaurant, gym, business center, and more. This hotel is south east of the existing concentration of hotels, which are closer to Universal Orlando's existing theme parks, however a hotel in this location could be one of the closest to Universal Orlando's forthcoming Epic Universe

which would drastically increase its value. The supportable number of hotel rooms was calculated by dividing the average square footage of recently developed Orlando Universal Resort hotels by the number of hotel rooms. The comparable development in **Table 4.46** is Loews Universal's Endless Summer - Surfside Inn and Suites, which was developed by Universal Orlando in 2019 on a parcel of similar size. The average square footage per hotel room* (625sf) was also derived from this comparable hotel.

*Average square footage per hotel room includes all square footage of the building, not just the actual rooms.

Table 3.45 - *Parcel 15, Site 3, Comparable Development: Large Resort Hotel*

Parcel ID (s)	25-23-28-8188-01-000
Development	509,307sf hotel (750 rooms)
Size	11.79 acres
Density	.99 FAR (63.6 hotel rooms per acre)
Pre-development value	$ 12,147,805
Market Value after development (OCPAFL 2020 working value)	$ 65,147,240
Value added per sf	$ 127.91
Added tax value per sf	$ 2.52

Source:
Orange County Property Appraiser, 2021.

Table 3.46 - *Parcel 15, Site 2, Scenario 1, Potential Redevelopment Value*

Proposed sf	576,762 (.99 FAR, or 923 hotel rooms)
Existing Land Value	$ 6,643,757
Existing Taxes	$ 128,910.61
Potential Building Value	$ 73,773,627.40
Potential Market Value	$ 80,417,384.40
Potential Taxes	$ 1,453,440.24

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: a slightly more intense hotel, 1398 rooms with similar amenities to scenario 1. This scenario would require a taller building, but recognizes, even more so than scenario 1, the value proposition of having a large hotel with resort style amenities close to a new theme park, which would be more attractive to potential tourists than some of the older hotels that are farther away.

Table 3.47 - *Parcel 15, Site 3, Comparable Development: Large Resort Hotel*

Parcel ID (s)	24-23-28-8836-02-000
Development	403,936sf hotel (600 units)
Size	5.86 acres
Density	1.58 FAR (102.4 hotel rooms per acre)
Pre-development value	$ 3,256,000
Market Value after development (OCPAFL 2020 working value)	$ 52,091,236
Value added per sf	$ 120.90
Added tax value per sf	$ 2.40

Source:
Orange County Property Appraiser, 2021.

Table 3.48 - *Parcel 15, Site 2, Scenario 1, Potential Redevelopment Value*

Proposed sf	873,882 (1.5 FAR, or 1,398 hotel rooms)
Existing Land Value	$ 6,643,757
Existing Taxes	$ 128,910.61
Potential Building Value	$ 105,652,334
Potential Market Value	$ 112,296,091
Potential Taxes	$ 2,097,316.80

Source:
Kirkman Road Vision Plan Analysis, 2021.

In total these development programs in scenario 1 for each of the three sites, if built, would increase taxes on these properties by $2,748,660.18 per year. The development programs in scenario 2 for each of the three sites, if built, would increase taxes by $7,095,036.10 million per year. At a total of 26.98 acres, scenario 1 would represent

approximately $101,877.17 taxes per acre, whereas scenario 2 would represent approximately $262,973.91 per acre.

3.4.3.2. PARCEL 14

Parcel 14 is a vacant site just north of International Drive of about 4.4 acres. It has direct frontage on Universal Blvd to the west, and is near five hotel properties to the north and east. The existing zoning, future lane use, and surrounding uses are compatible with a hotel.

Scenario 1: A 364 room hotel, representing a density of about 1.2 FAR. This density is consistent with some of the newer hotels in the area, as well as the comparable hotel, and exceeds the density of older hotels.

Table 3.49 - *Parcel 14, Comparable Development: Hotel*

Parcel ID (s)	15-24-28-4350-01-000
Development	252132 sf (335 rooms)
Size	4.868
Density	1.19 FAR (68.8 hotel rooms per acre)
Pre-development value	$ 3,450,500
Market Value after development (OCPAFL 2020 working value)	$ 29,510,833
Value added per sf	$ 103.36
Added tax value per sf	$ 1.87

Source:
Orange County Property Appraiser, 2021.

Table 3.50 - *Parcel 14, Scenario 1, Potential Redevelopment Value*

Proposed sf	227,406sf (364 rooms)
Existing Land Value	$ 3,479,941
Existing Taxes	$ 68,475.37
Potential Building Value	$ 23,504,684.20
Potential Market Value	$ 26,984,625.20
Potential Taxes	$ 418,427.04

Source:
Kirkman Road Vision Plan Analysis, 2021.

Scenario 2: A 500 room hotel, representing a density of about 1.5 FAR. The proposed density is slightly higher than that of the relatively newer inventory of hotels in the area, however densities of hotel rooms in the area are increasing. Also, the maximum FAR is 3.0, much higher than the proposed density for hotel space.

Table 3.51 - *Parcel 14, Comparable Development: Hotel*

Parcel ID (s)	15-24-28-4350-01-000
Development	252132 sf (335 rooms)
Size	4.868
Density	1.19 FAR (68.8 hotel rooms per acre)
Pre-development value	$ 3,450,500
Market Value after development (OCPAFL 2020 working value)	$ 29,510,833
Value added per sf	$ 103.36
Added tax value per sf	$ 1.87

Source:
Orange County Property Appraiser, 2021.

Table 3.52 - *Parcel 14, Scenario 1, Potential Redevelopment Value*

Proposed sf	312,500sf (500 rooms)
Existing Land Value	$ 3,479,941
Existing Taxes	$ 68,475.37
Potential Building Value	$ 32,300,000
Potential Market Value	$ 35,779,941
Potential Taxes	$ 584,375

Source:
Kirkman Road Vision Plan Analysis, 2021.

If either of these development programs were pursued, the City could anticipate an increase in tax revenue of approximately $418,427 per year for scenario 1 or $584,375 per year for scenario 2. These increases in tax revenue represent approximately $95,337 per acre and $133,206 per acre respectively.

The proposed tax revenue per acre for these sites is less than that of some of the other proposed developments in the north and middle thirds, however it has not been proven that there is significant market demand for high density residential in this part of the sub area, while it is clear that there is very high demand for additional hotel space. If, in the future, demand for high density residential is proven then it may be advantageous to incentivize that land use over hotel use due to the increased property value and tax revenue. This would also address the desire to have affordable, residential units in close proximity to Universal Orlando.

3.5. CONSLUSION

These scenarios represent catalytic development opportunities for the corridor. acknowledging the current and future needs of the people and businesses in the area.

While proximity to Universal Orlando Resort presents some challenges, it also provides a unique opportunity to differentiate the surrounding area from the rest of Orlando. It certainly drives value for hotels and commercial uses, but more work is needed to provide affordable housing for the large proportion of low-income employees that work for Universal or a different tourism related industry.

Beyond what is proposed above, the City could explore other opportunities to increase tax revenue in this area. The corridor is home to several top Central Florida employers including Universal Studios, Westgate Resorts, and Lockheed Martin. Universal Studios alone accounted for 24,500 employees in 2019, suggesting the major impact the company has on the corridor as a whole (Orlando Business Journal, 2020). Potential development scenarios should incorporate site design and marketing strategies that reflect the proximity to Universal and should consider coordination with Universal Studios and other major employers and stakeholders along the corridor.

Orlando has a strong main street program that has allowed participating businesses to flourish, create vibrant neighborhoods, and preserve historic aspects of the neighborhood. A potential market street in the south third could be evaluated in coordination with relevant stakeholders including International Drive Chamber of Commerce Members, owners of various hotels, Universal Orlando, and the I-Drive MSTU. Increased connections between existing neighborhoods and the corridor would allow for businesses along the corridor to expand their reach, without having to intrude into residential areas. Bike paths, pedestrian connections, and shared use paths are some potential options that would benefit businesses and residents, particularly students of Valencia College who may not have the disposable income to drive to their preferred destinations.

Affordable housing opportunities could be pursued within the North Third. And general affordability and attainability should be considered as any sort of residential redevelopment occurs in the North Third, to maintain a balance between economic growth (an increase in taxable value) and the affordability for housing in the area, and specifically for those existing residents in the North Third.

These ideas should be explored further with City Business Development staff to plot out possible courses to maximize potential tax revenue, recruit developers, and organize the local business community.

KIRKMAN ROAD VISION PLAN

STAKEHOLDER CONSULTATION

CITY OF ORLANDO

UCF

4.1. INTRODUCTION

This chapter presents a summary of stakeholder engagement initiatives as part of the Kirkman Road Vision Plan. Various stakeholders were consulted to better understand the needs and wants of those directly impacted by future development, including representatives from Universal Studios Orlando and Valencia College, 5th District Commissioner Regina I. Hill, 6th District Commissioner Bakari Burns, and residents throughout the corridor.

4.1.1. METHODOLOGY

Having open communication between the City and stakeholders along the corridor ensures that everyone's voice is heard and that their input is taken into consideration for the future of Kirkman Road. Gathering observation and insight firsthand from residents and users of the corridor area was juxtaposed against knowledge of proposed use scenarios and general facts about the corridor's business and resident environment. The two primary methods of data collection used were stakeholder engagement interviews and a City-sponsored online public survey. Due to the COVID-19 Pandemic, all stakeholder engagement interviews were conducted virtually through the Microsoft Teams platform and the resident survey was conducted online through a City of Orlando sponsored link - orlando.gov/kirkman.

4.1.1.1. STAKEHOLDER INTERVIEWS

Selected participants for the stakeholder engagement interviews included City Commissioners of the districts represented along the corridor as well as representatives of Universal Studios and Valencia College (West Campus), two organizations also along the corridor. Names and titles of stakeholders who participated in the engagement interviews as well as dates in which the interviews took place are located below in Table 4.1. Topics discussed included current challenges along the corridor, the stakeholders' vision for the future of Kirkman Road, benefits of being located along the corridor, ideas for recreational opportunities, and suggestions on how to improve accessibility.

Table 4.1 - *Stakeholder Interviews*

Stakeholder	Title	Interview Date
Commissioner Regina I. Hill	Commissioner, District 5	October 28, 2020
Commissioner Bakari F. Burns	Commissioner, District 6	November 3, 2020
Carrie Black	Sustainability Director: Valencia College (West Campus)	October 30, 2020
Shaun Andrew	Assistant Vice-President of Facilities and Construction: Valencia College (West Campus)	October 30, 2020
John McReynolds	Senior Vice President of External Affairs: Universal Orlando Resort	November 3, 2020

Source:
Kirkman Vision Plan, 2020

As previously mentioned, a survey to the residents within the Kirkman Road Corridor was also created and sent out to gain more insight on what the residents would want from the expansion. The survey was created through collaboration between the UCF student members of the Stakeholder Engagement Group and members of the City of Orlando's Communications team. Questions in the survey were strategically formulated to ensure that responses would help the City understand the resident responses along the corridor.

Specifically, surveys began with a question asking respondents for their level of trust in the city to handle local issues. This is often used as the first question in surveys through the city in order to gauge overall how they are doing and what they can improve. From there, the next question regarding

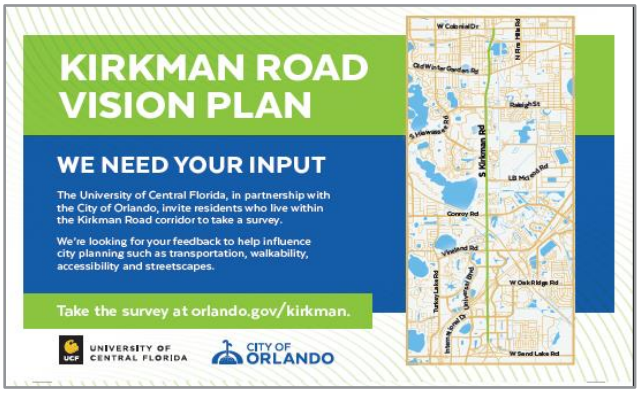
the respondents' relationship to Kirkman Road was used as a qualifier that provided us the ability to easily screen and filter responses throughout the survey. From there, a majority of the questions throughout the survey utilized a weighted scale of 5 options (neutral being the middle response). Also. a few questions were multiple choice, which also allowed the respondents to write in a response if their opinion was not reflected in the options provided. Lastly, demographic questions were strategically placed to ensure that the survey was answered in full just in case respondents chose to close out prior to answering demographic questions.

Notification of the survey was sent via postcard to residents along the corridor, and was also posted on the City of Orlando's social media platforms as well as on the Nextdoor Neighborhood Application. Additionally, the City's communication team forwarded a link to the survey to Commissioner Hill and Commissioner Burns and asked them to post the information onto their social media platforms as well. A total of 4,526 mailers notifying residents living along the corridor of the survey were sent on November 4, 2020. An example of the survey mailer is located in **Figure 4.1**.

The survey was published online in English and Spanish by the City of Orlando's Communications team on October 28, 2020 and is still active for residents to respond to. For the purpose of this report, only the surveys completed prior to December 7, 2020 were taken into consideration. A copy of the English version of the survey is included in Appendix A and a copy of the Spanish version of the survey is included in Appendix B.

The survey was created, and results were gathered through the online survey platform Qualtrics, which allows the user to filter and aggregate results based on specific responses and target areas the user might be interested in looking into further.

Figure 4.1 -
Kirkman Vision Plan Postcard Distributed to Stakeholders to Participate in an Online Survey



Source: *City of Orlando, 2020.*

Topics covered in the survey included safety, modes of transportation, demographics, and suggested community improvements. More specifically, some questions asked included: how much trust or distrust do you have in the City of Orlando when it comes to handling local problems, what is your relationship to the Kirkman Road area, rate how happy you would be to live along the Kirkman Road corridor for the next several years, rate how safe you feel in your neighborhood, rate how easy it is to get to places you need to go, what is the most important influence in your decision to live here, do you rent or own your home, are you employed, how many jobs do you have, what time of day do you commute to work, how long of a commute do you have, rate the importance of a walkable neighborhood, what could be improved about your neighborhood, and what is your main mode of transportation.

As of the issuance of this report, 199 resident responses were received through Qualtrics. Demographics wise 71 percent of those responses identified as being white, while 22 percent of those responses identified as being black or African American (**Table 4.2**). In addition, 50 percent of the responses were from females while 46 percent of the responses received were from males (**Table**

4.3). Also, 28 percent of the respondents reported making between $30,000 and $50,000 per year, 22 percent of the respondents reported making between $50,000 and $70,000 per year, and 17 percent of respondents reported making between $20,000 and $30,000 per year (**Table 4.4**). Finally, 45 percent of respondents reported living in apartments, 26 percent of respondents reported living in single family housing, and 21 percent of respondents reported living in a condominium co-op (**Table 4.5**).

Table 4.2 - *Race of Respondents*

Answer	%	Count
Indigenous North or South American, including American Indian, Alaska Native and Quechua	4.17%	6
Asian, including East Asia and Indian Subcontinent	2.78%	4
Black of African American	21.53%	31
Native Hawaiian or Other Pacific Islander	0.00%	0
White	71.53%	103
Total	**100%**	**144**

Source:
Kirkman Vision Plan Resident Survey, 2020

Table 4.3 - *Gender of Respondents*

Answer	%	Count
Male	46.43%	65
Female	50.00%	70
Transgender	0.00%	0
Non-Binary	1.43%	2
I would like to write my gender	2.14%	3
Total	**100%**	**140**

Source:
Kirkman Vision Plan Resident Survey, 2020

Table 4.4 – *Income of Respondents*

Answer	%	Count
Less than $10,000	1.52%	2
$10,000 but less than $20,000	3.79%	5
$20,000 but less than $30,000	17.42%	23
$30,000 but less than $50,000	28.03%	37
$50,000 but less than $75,000	21.97%	29
$75,000 but less than $100,000	12.88%	17
$100,000 but less than $150,000	9.09%	12
$150,000 or more	5.30%	7
Total	**100%**	**132**

Source:
Kirkman Vision Plan Resident Survey, 2020

Table 4.5 – *Respondent Housing Type*

Answer	%	Count
Single Family House	26.06%	37
Two Family House with Two Separate Living Units	0.00%	0
Townhouse or Row House	7.04%	10
Apartment	45.07%	64
Condominium or Coop	21.13%	30
Mobile Home	0.00%	0
Senior Housing or Assisted Living Facility	0.00%	0
Other	0.70%	1
Total	**100%**	**142**

Source:
Kirkman Vision Plan Resident Survey, 2020

4.1.1.2. IN-DEPTH INTERVIEWS

In addition to stakeholder engagement interviews, two in-depth interviews were conducted for the Kirkman Vision Plan to understand stakeholder perceptions of the corridor, including current challenges, perceived benefits along the corridor, and their desired vision of the area, along with suggested improvements. Participant one has a wealth of experience in government and community organizing, while participant two is a professional with a background in engineering, architecture and real estate. A summary of responses to six questions posed during an interview session is provided in Appendix C of this document.

4.1.2. ANALYSIS OF RESULTS

Overwhelmingly, the survey and stakeholder interview results drew emphasis to concerns or ideas about mobility, housing, and the offerings of amenities and services.

4.1.2.1. MOBILITY & CONNECTIVITY

Of the results, the greatest concerns were with respect to mobility and connectivity for cars, pedestrians, as well as users of alternative forms of transportation.

1.1.1.1.1. TRAFFIC CONGESTION

Traffic congestion was the most common concern for the interviewed stakeholders and survey respondents. As shown in **Table 4.6**, among survey respondents, 29 percent stated that traffic was an area that could be improved about the neighborhood.

Table 4.6 – *Survey Response to Question: "What could be improved about your neighborhood?"*

Answer	%	Count
Traffic	28.71%	122
Crime	23.53%	100
Length of Commute to Work or School	9.41%	40
Quality of Schools	9.88%	42
Access to Grocery Stores	6.59%	28
Access to Banks	2.82%	12
Access to Places for Community Gatherings	11.06%	47
Other	8.00%	34
Total	**100%**	**425**

Source:
Kirkman Vision Plan Resident Survey, 2020

In particular, traffic continuity and the tendency for traffic to bottleneck at the entrances and exits of businesses and schools, including Universal Studios and Valencia College – West Campus. **Figure 4.2** provides a location of the college's exit at which traffic tends to bottleneck as students enter and leave campus at peak times.

Figure 4.2 -
Intersection of Resource Avenue and Raleigh Street

Sources:
Google Maps, 2020.
Kirkman Road Vision Plan Analysis, 2020.

Regarding the residential mobility, many survey respondents indicated the highway facilities were extremely unsatisfactory and unsafe. Similar to the issue of exiting the Valencia College's campus, residents of apartment complexes said that it's very difficult to get onto Kirkman Road and the existing traffic lights are not helpful. Furthermore, safety within the residentials was of great concern as respondents reported drivers ignoring stop signs, traffic cutting through the neighborhood, and speeding. Recommendations addressing this phenomenon would include speed reduction devices such as the installation of speed bumps through neighborhood roads. However, the root of the problem is the conditions of highway traffic on Kirkman that push drivers to search for alternate roads. For some, Kirkman Road is considered so "congested and confusing" that alternatives for commuting north and south would be preferred. However, focusing on what is needed on the highway facilities, the primary concerns are auto traffic control and the need to expand safe pedestrian access and connections.

1.1.1.1.2. WALKABILITY

Concurrent to the discussion of automobile traffic was the nature of walkability within the corridor, both in the commercial and retail areas. Many of the limitations to walkability include the danger associated with traffic management within the corridor. Based on the survey results, walkability is certainly of high interest to residents. As shown in **Table 4.7**, 71 percent of survey respondents believe that it is 'extremely important' that their neighborhood is walkable.

Table 4.7 – *Survey Response to Question: "How important is walkability to you?"*

Answer	%	Count
Extremely Important	1.97%	3
Somewhat Important	2.63%	4
Neither Important nor Unimportant	4.61%	7
Somewhat Important	19.74%	30
Extremely Important	71.05%	108
Total	**100%**	**152**

Source:
Kirkman Vision Plan Resident Survey, 2020

Several suggestions were made for the construction of pedestrian bridges to improve pedestrian connections between different destinations within the corridor. However, given the expense of construction such a facility, traffic lights at intersections, another given suggestion, are more likely. For context, a single pedestrian bridge at Florida International University cost nearly $14.2 million dollars (Patricia Mazzei, 2019). This is much more than the expense of installing traffic management tools and increasing the number of high-visibility, controlled crosswalks. To supplement this, perhaps one pedestrian bridge could be funded in an area with particularly high pedestrian traffic.

1.1.1.1.3. ALTERNATIVE TRANSPORTATION

At the moment, one of the main alternatives to personal cars, the SunRail, ride shares, and walking is the public bus system, Lynx (**Table 4.8**). For some of the input, buses were mentioned as a popular, well-connected choice, but suggestions for improving their use is the construction of covered bus stop shelters. The stakeholders interviewed said they were open to the possible inclusion of scooters as another form of transportation, but this would largely depend on the improvement of traffic management and road safety.

Table 4.8 – *Survey Response to Question: "What is/are your preferred mode(s) or transportation?"*

Answer	%	Count
SunRail	15.29%	37
Drive Yourself	58.26%	141
Have Family or Friends Drive You	4.96%	12
Taxi	0.41%	1
Transportation Network Company (e.g., Uber, Lyft)	9.92%	24
Use a Special Transportation Service (e.g., Service for Seniors or Persons with Disabilities)	0.83%	2
Lynx	4.13%	10
Ride a Bike	5.37%	13
Other	0.00%	0
I Do Not Leave My House	0.83%	2
Total	**100%**	**242**

Source:
Kirkman Vision Plan Resident Survey, 2020

4.1.2.2. HOUSING

Housing is one of the topics where the resident survey results diverged from the ideas of their representative public leaders. Commissioner Hill felt that despite a large housing stock in the corridor, too little of available housing is considered affordable housing. Notwithstanding, as displayed in **Table 4.9**, 32 percent of survey respondents said they chose to live within the Kirkman Road Corridor because of its affordability. However, interpreting the results would be remiss to define "affordable" in an objective way versus a subjective perspective. Due to the limitation of the survey, defining how respondents consider an area "affordable" is unknown. To the best of knowledge, Kirkman Road can be defined as affordable in comparison to other communities in Orlando.

Table 4.9 – *Survey Response to Question: "What influences your decision to live on/near Kirkman Road?"*

Answer	%	Count
My Family Lives Nearby	8.87%	11
I Live Close to Work	31.45%	39
It is Affordable	32.26%	40
I Was Born Here or My Parents Live Here	3.23%	4
To Be in the School District	4.84%	6
Other	19.35%	24
Total	**100%**	**124**

Source:
Kirkman Vision Plan Resident Survey, 2020

That being said, identifying Kirkman road as affordable does not preclude a need for affordable housing. One challenge to collecting public input is the disparity in survey responses corresponding to income level. People that have a lower income, and assumingly, a higher housing burden often participate in public engagement activities at lower levels (McBride, A., Sherraden, M., & Pritzker, S., 2006). Keeping this in mind, the survey respondents who may possibly feel the Kirkman Road corridor neighborhoods are not affordable enough as are the most likely to be unrepresented in the survey. Without the inclusion of Census data for analysis, housing would not appear to be a priority for the area according to stakeholders that participated.

A caveat to the data is the survey respondents' comprehension of the question about housing affordability. The research team intended to collect objective data on affordability: whether or not housing on the Kirkman Road corridor is affordable based on the residents' personal finances. Census and American Community Survey data indicate that many residents pay a significant amount of their take-home pay towards housing, making housing unaffordable or barely affordable. Moreover, long-time community leaders agree with the data and

have a track record for actively championing the issue of housing affordability along the Corridor. However, the survey respondent data conflicts with Orlando area statistics regarding housing affordability. The research team posits that many respondents may have interpreted the question to ask whether the Kirkman Road corridor is affordable within the context of the Orlando area. Such conflict of data and perception may nullify the validity of survey responses for this question.

4.1.2.3. AMENITIES & SERVICES

When asked to explain their reason for choosing to live in the Kirkman Road corridor area, the second most popular answer was the proximity to amenities and services. Elected City officials felt that a multi-use/multi-directional trail would be a positive point of investment for improving options for creation as well as connection to amenities. The Kirkman Road corridor is uniquely situated near the start of the Shingle Creek recreation trail that begins near the intersection of Oak Ridge Road and Millenia Blvd. This is only one block over to the east which means there is room to expand into the Kirkman Road corridor. There is an opportunity to become connected with the Shingle Creek Trail leading into Osceola County and heading towards Kissimmee.

However, since the survey did not specifically cover recreation, not enough data exists for complete analysis. Looking at the survey and interview results that mentioned amenities (including recreation), the density of such offerings appears to be one of the major draws to the area. Therefore, recommendations would be made to not only strengthen the operations of currently existing amenities, but to also support the expansion of businesses along the corridor.

4.1.3. ANALYSIS OF RESULTS

With the results of the stakeholder meetings and the community survey, it is clear that all members of the community share the same concerns over the challenges and opportunities within the corridor. An improvement to mobility through safety upgrades and the increase of amenities are the top concerns within the corridor.

4.1.4. RECOMMENDATIONS

4.1.4.1. MOBILITY & CONNECTIVITY

With the results of the stakeholder meetings and the community survey, it is clear that all members of the community share the same concerns over the challenges faced within the corridor. Universal Studios and Valencia College both share an interest in improving mobility around the corridor as well as recreational opportunities. From the survey results, it is clear that walkability and traffic are a major concern of residents within the Kirkman Road corridor.

Implementing a traffic signal at the intersection of Resource Avenue and Raleigh Street may improve pedestrian safety and traffic flow into the highly congested area of Valencia College. Universal Studios, as well as the residents from the survey, would like to see a pedestrian bridge implemented at high pedestrian traffic areas. Although this not only will help address the safety concerns of the residents and allow for more connectability throughout the corridor, a pedestrian bridge is unlikely for the City of Orlando to implement. Instead, the City of Orlando can look into more high visibility crosswalks to address the safety concerns of the residents. Regional mobility is something that major stakeholders would like to see improved with the vision plan. Increased mobility will allow for the area to handle more people within the corridor and not add to the existing traffic issues.

4.1.4.2. AMENITIES & SERVICES

Another possibility for improvement that was mentioned in the stakeholder interviews was the opportunities for maintaining and expanding the density of business services and amenities in the corridor. Commissioner Hill believes that local businesses are most important for the community and should be prioritized with the rationale that such businesses will hire locally sourced employees, and therefore have a positive impact on the local economy. Mr. McReynolds of Universal Studios points out that it is important to keep "wallets open" whilst operating in the community to benefit all users and residents.

Also, with the closing of the Golf Channel's headquarters located at 7580 Golf Channel Drive, Orlando, FL 32819, the business complex will soon be vacant, and provide an opportunity to repurpose the facility as an affordable local business hub. Jason Burton, Assistant City Planning Manager with the City of Orlando, mentioned that the Entrepreneurship Center, currently housed in Fashion Square Mall, could be relocated to the Kirkman Road Corridor area once the mall is redeveloped. This center could either be housed within Valencia College or in the soon-to-be vacant Golf Channel facility.

Looking to the future, as pointed out by John with Universal Studios, when the area was being developed, it appears the long term was not fully considered. For example, the I-4 Ultimate project is projected to solve long term connectability problems with the regional area, but what about locally? It still appears that there is one side of I-4 to live on, which splits the economy and community within this area. Being a large financial foothold in the area, Universal Studios brings in a large amount of revenue into the area. Universal looks to focus on the whole guest experience when they come to visit the park. This includes the connection to the local community.

4.1.4.3. HOUSING

Although housing was not identified as a priority item, given the public engagement considerations for lower-income residents, the project would benefit from further targeted analysis.

4.1.5. CONCLUSION

The City of Orlando has partnered with the UCF Urban Planning Capstone course to assist in conducting research on a vision plan for the Kirkman Road Corridor. The UCF students conducted major stakeholder interviews as well as community resident surveys to get a better understanding of the needs and wants of those directly affected by redevelopment.

The common theme within the areas was to create a more walkable and efficient traffic corridor. With the influence of Universal Studios, Interstate 4, and Valencia College, the area sees an abundance of traffic every day. Residents in the community survey stressed a desire for more recreation opportunities. These recreational needs can be addressed while also addressing traffic problems such as the one near Valencia College. With the information gathered from the stakeholder interviews and the community survey, the City will be able to accurately understand the community's needs

KIRKMAN ROAD VISION PLAN

Sustainable Interventions

CITY OF ORLANDO

UCF

KIRKMAN ROAD VISION PLAN

Guiding Principles

CITY OF ORLANDO

UCF

5.1. GUIDING PRINCPLES FOR PROPOSED DEVELOPMENT

The following chapter will present those principles that will guide long term development in the Kirkman Road corridor. As a document that aspires to create a more livable environment for all, interventions in the corridor should be framed in solid sustainable practices. Sustainability seeks to protect the long-term welfare of all area residents by establishing a balance among three key components: economic development, environmental protection, and social equity.

The guiding principles will be used to evaluate and weigh all available alternatives in a consistent and critical manner. Each proposed project will be evaluated according to each of the following principles or criteria and assigned a value that will allow us to rank all proposed alternatives, assessing their feasibility and implementation potential.

1. HARMONIZES RELATIONSHIPS BETWEEN BUILDINGS, STREETS, AND OPEN SPACES

The goal of achieving an enhanced living environment for the Kirkman Road Corridor within the 21st century, one that will increase the quality of life for both residents and visitors, must have an optimal balance between sustainable economic development and residential living. From examining both existing and future zoning maps for the Kirkman Road Corridor, the overwhelming percentage of zoning categories that encapsulate the region are AC-1 Activity Centers and Residential Districts, with several Conservation Tracts scattered throughout the study region. This finding exemplifies the fact that the region is well suited for pedestrian travel, with the potential to connect both residential areas to nearby shopping outlets while increasing access to desired destinations for those without a vehicle.

To achieve a harmonious relationship between future urban development and the minimal
amount of Conservation Tracts available along the corridor, interventions must:

- Advocate for dense development, physically separated bicycling paths, landscaping that could provide shade for walking, and the addition of more public art.
- Factor additional space to be utilized for recreational projects, including walkways, bicycle facilities, and other amenities that can be accessed by pedestrians.
- Incorporate signage, public art, landscaping enhancements, and various safety measures along the corridor to encourage more pedestrian use, calm traffic, and promote the area as a safe and enjoyable location for all.
- Offer a blend of amenities that can attract more pedestrian traffic.

2. SUPPORTS PUBLIC TRANSPORT AND BICYCLING

Safe and energy-efficient transportation options are vital in reducing greenhouse gas emissions, oil consumption, and roadway congestion that accompany personal automobile dependence.

Additionally, alternative forms of transportation promote increased opportunities for physical activity and provide greater access to job opportunities. Supporting the expansion and improvement of public transportation and bicycle networks means ensuring that infrastructure is widely available, safe, and comfortable to use. This includes providing:

- Physically separated bike facilities and a clear understanding for all roadway users.
- Safe roadway crossings, including the use of colored pavement treatments.
- CPTED (Crime Prevention Through Environmental Design) concepts to well-lit and secure bus stops.
- Continuous bus routes to promote transit ridership.
- Dedicated bus lanes or queue jumps, to help relieve traffic congestion and reduce delays in roadway traffic.
- Interconnectivity of trails or shared-use paths to extend the pedestrian network for all ages and abilities.
- Accessibility for all, including consideration of equitable improvements.

3. ENHANCE THE PEDESTRIAN EXPERIENCE

Currently, the Kirkman Road Corridor is automobile centric and is considerably lacking pedestrian-friendly facilities. Sidewalks run parallel to the roadway on both the east and west sides and crosswalks are present at most intersections. The lack of shade provides an inhospitable environment for walking. There are various destinations along the corridor that are accessible from both multifamily and single-family housing units.

Enhancing the pedestrian experience would require increased connectivity, accessibility, and safety to influence more people to walk rather than driving the short trips. Interventions that enhance the pedestrian experience may include:

- Addressing the distance between crosswalks and highlighting them with treatments.
- Studying pedestrian counts to determine the number of people utilizing each crosswalk location.
- Using pedestrian bridges near high-traffic intersections, such as the newly constructed bridge near the intersection of South Kirkman Road and Major Boulevard.
- Implementing traffic calming measures at intersections such as street trees, safety bollards, and pedestrian hybrid beacons

4. ACCESSIBILITY TO THE BROADER COMMUNITY

Evaluating the implementation of future-oriented improvements requires verifying that those affected by the action are able to fully participate in intended benefits as they qualify. The American Planning Association requires that practicing planners acknowledge the right of citizens to participate in the planning process, make non confidential information public, and ensure the “choice and opportunity for all persons.” These ethical underpinnings point to a multi-faceted approach when defining and measuring access. One aspect to especially consider is the access to public engagement activities that inform participants, gather input, and incorporate suggestions into the planning process. Without thorough or accurate information, the results of public engagement activities may produce flawed or unnecessarily biased data. This includes ensuring the information and the engagement session activities use inclusive language that is

generated at an easy-to-understand level and is in alternative formats. Moreover, the results of public engagement, alternatives, and decisions made should be readily available to all levels of stakeholders throughout the Planning process.

5. ENCOURAGES SOCIAL ACTIVITY

A community benefits from citizens that are socially engaged in various endeavors. While formal education primarily takes place within institutions or structured substitutes, social and emotional education are strongly derived from interactions between people. After a certain age, many of the necessary interactions must take place with others outside of the household and, perhaps, outside of one's niche social microcosm. To promote a sense of community that encourages social engagement in public spaces and activity centers, the Plan should have a human-scale wherein areas have clear sight lines, are walkable, and provide communal spaces. Connecting the community to the created space is pivotal.

6. INTEGRATES COMMON OPEN SPACE AND LANDSCAPE WITH ARCHITECTURE

This concept revolves around mixing green and grey infrastructure to design a sustainable area. Interventions should focus on balancing necessary infrastructure improvements, paying heed to open space/landscape requirements and desires. The reverse should also hold true. Landscape/common space requirements and needs should balance with necessary architectural upgrades/additions to the specified intervention site.

7. RESPECTS AND EXHIBITS NATURAL SYSTEMS AND FEATURE

Any proposed intervention should take place with the goal of supporting natural systems and features. Green areas provide various critical ecosystem services to the population, including oxygen production and carbon sequestration, temperature regulation, recreational and aesthetic benefits, among others. Natural features, such as parks, should be highlighted in the proposed intervention as a benefit to the region. The goal should be to avoid damage/loss of the natural systems and features in the intervention area. Overall, natural systems and features should be looked at through a lens of "how does my intervention incorporate the natural areas?"

8. INTEGRATES SUSTAINABLE PRACTICES INTO THE LANDSCAPE

The underlying idea for this principle is to ensure interventions are harmonious with the natural landscape. Intervention measures should address key components of sustainability, including environmental protection; an intervention that requires the adoption of sustainable practices will lead to improvement and protection of the natural environment.

9. SITE AVAILABILITY

Site availability contributes to the feasibility of any sort of proposed implementation, as it directly impacts development. Site availability has the strongest impact on the market of nearly any variable. The amount of available land for redevelopment directly correlates to cost of land in the corridor, which impacts the potential for development. If there are no sites available in the

corridor, development (or redevelopment) will cost more, as land will cost more since there is less supply. We found that there are some suitable sites potentially available for development, which impacts the market of the corridor as a whole in a positive way, by allowing for a variety of types of redevelopment. Site availability plays a specific and important role in some of the properties analyzed within the Redevelopment Scenarios listed in our vision plan.

10. CONSTRUCTION AND MAINTENANCE COST

Construction and maintenance costs should also be considered when assessing the success of any sort of proposed implementation. The cost of construction would impact any decisions made on redevelopment, as it would obviously be a factor in the overall cost of redevelopment. If construction costs get too high, it could dissuade certain types of redevelopment that typically require more of an undertaking for vertical construction (but add taxable value), and lead to less dense or less costly types of development. High costs could also dissuade development entirely, even if available land exists. Similarly, maintenance costs for certain project types, such as those that may require HOAs or POAs, or that just require a high level of upkeep, could impact development of certain product types, and negatively impact the market. But conversely, high maintenance costs of existing or aging structures and development could also have a positive impact on redevelopment. If existing maintenance costs are greater than the potential costs of new construction, redevelopment, or just land value in general, it may lead to future redevelopment. A change (either positive or negative) in construction costs or maintenance costs would impact the development opportunities on specific sites, and the market as a whole.

KIRKMAN ROAD VISION PLAN

Affordable Housing

CITY OF ORLANDO

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6.1. INTRODUCTION

As part of the overall Kirkman Road Vision Plan, housing is considered a top priority to ensuring regionally necessary affordability. This plan proposes an increase in affordable and attainable housing options at the doorstep of Orlando's tourism center. Through public-private-partnerships, short and long term strategies will strengthen housing development, encourage investment in communities, and advance affordability. Providing context and inspiration to this intervention, the goals of the affordable housing program are:

- Short term strategy: Acquisition Rehab Program supporting existing low-income communities.
- Long term strategy: Mixed Income Multi-Family Program supporting low to moderate income households.

6.1.1. ACQUISITION REHAB PROGRAM

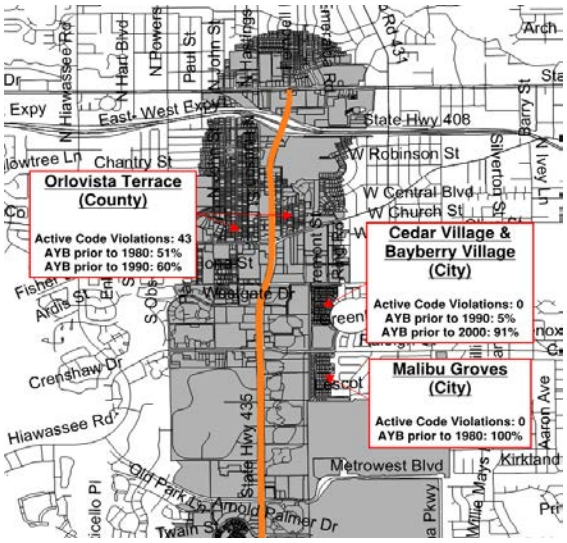
6.1.1.1. BACKGROUND & SITE SELECTION

As identified within Chapter 4, Market Analysis, the Kirkman Road Corridor consists of a number of established residential neighborhoods spanning the City and County jurisdictional limits. These findings also suggest a moderate amount (±60%) of households experiencing housing burden along the corridor typically paying greater than 30% of their income towards housing costs. Conversely, feedback from stakeholders and residents interviewed as a part of this study (see Chapter 5, Stakeholder Consultation), suggests a general perception that the existing housing stock is "relatively affordable" as compared to other areas within the area.

In order to limit the effects of regional pressures on housing cost due to demands outpacing the supply of housing, investment in the existing housing stock through public private partnership between the City, County and a private developer is proposed. This strategy will help to maintain the current level of perceived "affordability" along the corridor as well as increase the number of housing options meeting regulated affordability criteria.

Areas along the corridor most suitable for housing rehabilitation were determined using HUD data including housing age, household income, and the presence of severe housing problems as defined by HUD. This data is included within **Exhibits 6.2 and 6.3** on page 84. Three neighborhoods were selected from these general areas using housing age and code violation data as depicted in **Figure 6.1** below.

Figure 6.1 - *Neighborhood Selection Results*



Source: Orange County Property Appraiser

6.1.1.2. PROGRAM DETAILS

The successful developer for this project will acquire and rehabilitate homes from the neighborhoods listed above. These homes will then be sold at an affordable price to income eligible buyers at a targeted rate of two homes per fiscal year.

Funding will be obtained by the developer through a mix of private and public funding sources. In general, the program will benefit residents at very low to moderate income levels, up to 120% of Area Median Income (AMI). However, the type of funding obtained will ultimately inform the income eligibility of potential buyers. To ensure continued affordability, an "affordability period" will be established and monthly mortgage payments will be limited. Additional program details including scope of work and cost estimates are included under **Exhibit 6.1** on page 83.

6.1.1.3. BENEFITS

The acquisition rehab program offers a range of benefits to the established neighborhoods along the corridor. By investing in existing single family housing stock, existing affordability patterns can be maintained and opportunities for home ownership will be created. In addition, this program combines initiatives across jurisdictional lines, preventing gaps in housing services and creating new partnerships to increase housing affordability. Finally, this program will make use of existing community centers, public facilities, and schools to allow for continued stability along the corridor as an infill or rehabilitation strategy.

6.1.2. MIXED-INCOME MULTI-FAMILY PROGRAM

6.1.2.1. BACKGROUND & SITE SELECTION

Another strategy to maintain affordability along the corridor is to add new housing units to the existing housing stock. Mixed-income projects can help to address workforce housing needs by targeting low to moderate income households. Including market rate units within an affordable housing project can lessen the effects of concentrating affordable units.

According to conversations with a local affordable housing developer, potential sites should be located within existing areas of growth and private investment. The selected site is located at the intersection of Kirkman Road and LB McLeod Road proximate to the West Valencia College campus and less than 1.5 miles from Universal Studios. Proximity to a major employment center makes the site an ideal candidate for an affordable housing development.

The site is also in an ideal location for new connection opportunities along the corridor including bus stops, connection to Shingle Creek trail, and access to Turkey Lake.

6.1.2.2. PROGRAM SPECIFICS

This program will include a public-private partnership with an affordable housing developer to develop the selected site with approximately 270 mixed-income multi-family units.

Low Income Housing Tax Credits (LIHTC) combined with private and public gap funding as needed will be utilized to finance the project. Affordability will be established by designating a certain number of units as income restricted, with the remaining units to be rented at market rate. In addition, an affordability period will be established to ensure continued use as an affordable housing project in the future. Additional program details and pro forma are included under **Exhibits 6.4 and 6.5** on pages 84 and 85.

6.1.2.3. SITE DEVELOPMENT

In September of 2010, the City of Orlando rezoned the proposed site into a planned development (PD) which includes mixed commercial and residential development. The site is approved for 56,175 square feet of non-residential and 200 residential units. The maximum height of buildings on this site is 75 feet. The property is made up of three parcels consisting of 36.4 acres in total and is majority

wetlands. Before building permits can be issued, the owner must convey a conservation easement to the city covering approximately 24.7 acres of retained and improved wetlands on the portion of property outside of the future land use designated Community Activity Center.

The PD will need to be amended to allow the proposed project to be feasible. The PD allows 200 residential units while the proposed interventions have at most 270 units (Exhibit 7). The footprint in the PD designated for residential and commercial development will all be used for residential. The other conditions within the PD will remain intact.

In order to develop the site, a portion of the wetlands will have to be impacted. The proposed property falls under the jurisdiction of the South Florida Water Management District (SFWMD) as well as the Florida Department of Environmental Protection (FDEP). An environmental resource permit (ERP) will need to be received from both regulation authorities in order to conduct work in the wetlands. With the SFWMD, the wetland permitting is done through the stormwater management permit for that site and will need to be applied for at the same time. FDEP has a stand alone ERP that can be applied for at any time.

It should be noted that if the project were to have occurred before December 2020, there would be a separate permitting process required with the US Army Corps of Engineers (ACOE). Since the project is being handled after this date, the State assumption of non-retained waters is in effect. The immediate watershed of the proposed site is located directly east of Turkey Lake and is a direct contributor to the lake. According to the ACOE retained waters list, Turkey Lake is not considered retained and can be assumed by the State regulatory agencies. FDEP will handle the 404 permitting in a joint application with the submitted ERP.

Using aerial imagery and online resources we are able to give a possible estimate to how much it would cost to develop the property. In the PD ordinance (No. 2011-12) the amount of development area needed is ±9.92 acres out of the total ±34.6 acres available. Out of the ±9.92 acres of the estimated development footprint there are an estimated ±5.59 acres of wetlands (Exhibit 6). Wetlands impact costs can vary based on the quality of wetlands that are present onsite. There are a few ways of assessing the quality of wetlands but the most commonly used is the Uniform Mitigation Assessment Method (UMAM). UMAM was established in 62-330.345 F.A.C and is used to figure out how much functional loss (FL) occurs to a wetland system when it is impacted using a scoring system 1-10 with 10 being the best (FDEP, 2019). Using a conservative mock score, to impact the ±5.59 acres of wetlands, the system would have a FL of ±3.87 credits. In order to offset the FL, the same amount of functional gain (FG) must be achieved. As conditioned in the PD, the remaining ±24.7 acres of undeveloped area is to be put under conservation easement. The FG that the easement provides will allow for a FG of 2.22 credits. This leaves the remaining FL at 1.65 credits and will need to be offset using mitigation bank credits. Based on current mitigation credit cost estimates, it will cost about $165,000 in mitigation bank credits to completely offset the FL.

Two mixed-income multi-family development scenarios are proposed for the ±9.92 acre developable portion of the site (Exhibit 7). Scenario 1 will consist of a five-story mid-rise structure with 270 units and will utilize only a portion of the developable area. Scenario 2 is a garden style concept with 11 buildings and 264 units and will utilize the entire developable area. A pro forma analysis of the proposed development scenario (±270 units) is included as Exhibit 5. Development cost assumptions are based on a similar mixed-income project in the Orlando area and include

both 9% and 4% Low Income Housing Tax Credit (LIHTC) funding options.

6.1.2.4. BENEFITS

There are multiple benefits to utilizing this area for the affordable housing program. The proposed project will provide additional housing units along the corridor in support of low to moderate income workforce housing needs, on the doorstep of Orlando's tourism center. In addition, developing the property will convert it from a vacant/underutilized site to an opportunity for economic and community development, providing tax revenue to the city.

Environmentally, the opportunity to utilize the remaining conservation lands is one of the main benefits. The project design has been altered to reduce the amount of impacts that occur to the wetlands system. In addition, the project design attempts to impact mostly the 'least desirable' and lowest functioning portions of the wetland system. Having a protected conservation easement, such as the one proposed, can help reduce the stormwater runoff that may be building up in the surrounding area. The system can act as a reservoir to be utilized in order to offset the impervious area by the development.

The conservation area can also be utilized as an educational opportunity sponsored by the City of Orlando. In other sections of this vision plan, a boardwalk is proposed to be built throughout the proposed conservation easement. This is a great opportunity to make this an educational boardwalk with public access to the residents throughout the corridor. Wetland systems are crucial habitats within Florida and around the world. Along the boardwalk, signs can be placed with educational messaging directed to the residents utilizing the boardwalk.

6.2. CONCLUSION

Investment in housing needs through the acquisition rehab and the mixed income multi-family programs will have a significant impact on the Kirkman Road Corridor. The options that are presented offer the City multiple avenues for leveraging existing housing stock as well as converting underutilized/undeveloped land.

Through the acquisition rehab program, investment in established neighborhoods will help to maintain affordability and provide stability across jurisdictional lines. Creating opportunities for homeownership will address housing needs for low-income households and decrease the prevalence of severe housing problems along the corridor.

The mixed income multi-family program offers a different avenue for housing affordability by increasing the housing stock along the corridor. This program will support low to moderate income workforce households in close proximity to the tourism industry and major employment center. One of the main benefits generated with this development opportunity is the conversion of an underutilized site to one that offers economic and community development, and environmental sustainability.

These interventions offer the City of Orlando multiple opportunities to provide for the housing needs of residents along the Kirkman Road Corridor.

APPENDIX

Exhibit 6.1

Kirkman Road Acquisition Rehab Program

Briefing Sheet April 2021

Background & Purpose:

As part of the Kirkman Road Vision Plan, a considerable amount of dated single family housing stock was identified along the Kirkman Road corridor, spanning both the City and County jurisdictional limits. In order to bolster the existing residences from the effects of new development along the corridor and associated increase in housing costs, acquisition and rehabilitation of existing homes through public private partnership between the City, County and a private affordable housing developer such as Orlando Neighborhood Improvement Corporation (ONIC) is proposed.

Benefits:

- Invest in existing single family housing stock and create opportunities for home ownership.
- Stabilize and maintain affordability of established neighborhoods.
- Provide for housing needs across jurisdictional lines.
- Target areas with existing community centers, public facilities, and schools to support proposed redevelopment.

Existing Housing:

Census areas with very low to moderate come levels with the presence of severe housing problems (as defined by HUD) were identified as areas in need of rehabilitation. These areas were further analyzed using active code violation data and housing age data to select three neighborhoods (2 in the City and 1 in the County).

Recommended Course of Action - Acquire and rehabilitate eligible homes as they become available at a target rate of 2 homes per year. Sell rehabilitated homes to income eligible buyers at an affordable price. *(Note, if the availability of eligible homes is limited, the program should consider expansion to include owner occupied rehabilitation.)*

- **Public-private partnership with an affordable housing developer:** The City of Orlando and Orange County will procure an affordable housing developer through the Request for Proposal (RFP) process, who will handle all aspects of the project including funding, acquisition, rehabilitation, and resale of the residences.
- **Funding:** Developer will acquire properties through private financing and will secure grant funding through the City/County (e.g., SHIP, HOME, and CDBG) and other sources as necessary, to finance the rehabilitation process.
- **Scope of Work:** Rehabilitation activities will include general residential repair/remodel, testing/remediation services, accessibility improvements (as necessary), and energy-efficiency improvements.
- **Construction Cost & Timeline:** Overall costs include acquisition costs at ±$100/sf to $140/sf (Orange County Property Appraiser, 2021) and renovation costs at approximately $60,000 to $100,000 per home and will take 4 to 6 months to complete.
- **Sale and Affordability Controls:** Rehabilitated homes will be sold to income eligible residents at an affordable price. Monthly mortgage payments will be limited to 30% or less of the area median income (AMI) for the established income level. An "affordability period" will be established through a deed restriction or covenant to ensure continued affordability of the home in the event of resale.

  Buyer eligibility is dependent upon the type of funding secured as follows:

  - CDBG - low- and moderate-income households (up to 80% AMI)
  - HOME - very low- and low-income households (up to 80% AMI)
  - SHIP - very low-, low- and moderate-income households, depending on local government funding distribution (up to 120% AMI)
    *Note: CDBG has different definitions for income levels then the HUD definitions.

Construction cost and timeline data is based on research with a local affordable housing developer and Orange County Property Appraiser sales data. Affordability requirement information was obtained from The Florida Housing Coalition June 2020 Affordable Housing Resource Guide.

Source: Orange County Property Appraiser Interactive Map (2021); Florida Housing Coalition (2020)

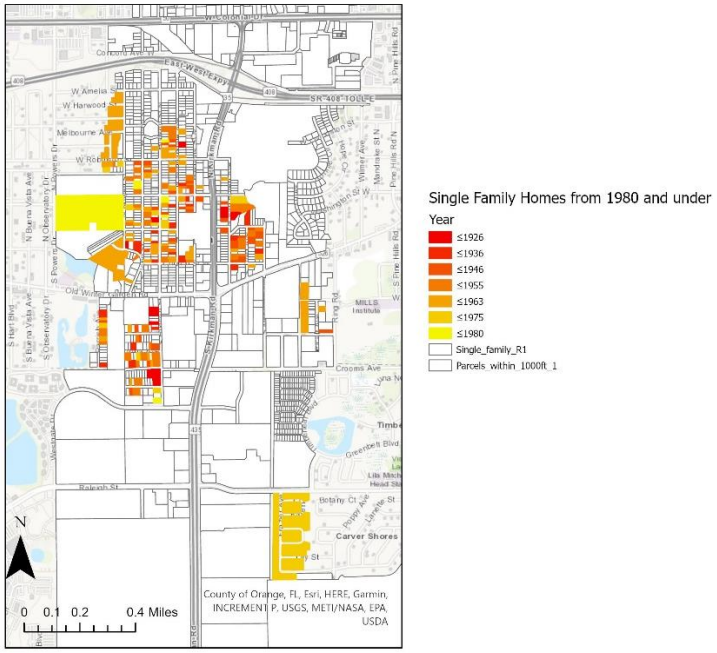
Exhibit 6.2

Kirkman Road Corridor Income Level Distribution and Severe Housing Problems

Source: HUD Community Planning and Development Map

Source: HUD (2021) Community Planning and Development Map

Exhibit 6.3



Source: HUD (2021) Community Planning and Development Map

Exhibit 6.4

Kirkman Road Mixed-Income Multi-family

Briefing Sheet April 2021

Overview - Partner with a private developer to acquire and develop LB McLeod site with 200 to 270 mixed income multi-family units.

Public-private partnership - the City of Orlando will acquire the site and donate to a developer such as Orlando Neighborhood Improvement Corporation (ONIC). Developer will handle all aspects of the project including funding, permitting, procurement, project management, and leasing.

Funding - Development of the site will be financed through a combination of funding options such as 4% or 9% Low Income Housing Tax Credits (LIHTC), State Housing Initiative Program (SHIP), HOME Investment Partnerships Program (HOME), and State Apartment Incentive Loan (SAIL).

Scope of Work - The project will include environmental and building permitting, site design and engineering, building construction, property management, and leasing.

Cost Estimate & Timeline - Total project cost is approximately $180,000/unit and will take roughly 3 to 5 years to complete.

Affordability Controls -

- **Allowable unit mix:** To meet LIHTC requirements, the project must devote at least 20% of units for households earning ≤50% of AMI or at least 40% of units for households earning ≤60% of AMI. Rent for income restricted units must be limited to 30% or less of the area median income (AMI) for the established income level.
- **Proposed unit mix:** 90% affordable units, 10% market rate units.
- **Affordability period:** An "affordability period" will be established to ensure continued affordability of the project.

Comparable Project Examples - Below are two examples of mixed-income projects within the City to be used as a guideline for the proposed project.

- City View at Hughes Square - 266 unit multi-family development in Parramore
  - Unit mix:

Market rate	159 units or 60%
50% AMI	27 units or 10%
60% AMI	80 units or 30%

  - Affordability period: 30 years
  - Public funding sources: 4% LIHTC, HOME, Local Bonds
- Lexington Court - 104 unit multi-family development in downtown Orlando
  - Unit mix:

Market rate	7 units or 7%
35% AMI	11 units or 10%
60% AMI	86 units or 83%

  - Affordability period: 50 years
  - Public funding sources: 9% LIHTC

Construction cost and timeline data is based on research with a local affordable housing developer. Affordability requirement information and project examples are obtained from The Florida Housing Coalition June 2020 Affordable Housing Resource Guide and the Florida Housing Finance Corporation's mapping system and RFA application database.

Source: Florida Housing Coalition (2020); Florida Housing Finance Corporation (2013 & 2021)

Exhibit 6.5

Pro Forma (Proposed Development = 270 units with 90% Housing Credit Eligible Units)				
		9% LIHTC	4% LIHTC	
1	Construction Cost	$37,800,000.00	$37,800,000.00	Assume $140,000/unit
2	General Contractor Fee	$5,292,000.00	$5,292,000.00	14% of Construction Cost (Line1)
3	Actual Construction	$43,092,000.00	$43,092,000.00	Lines 1:2
4	General Development Cost	$5,601,960.00	$5,601,960.00	13% of Actual Construction Cost (Line
	(Site design, fees, permitting, etc.)			
5	Financial Costs	$1,292,760.00	$1,292,760.00	3% of Actual Construction Cost (Line
	(Construction loans, closing costs)			
6	Development Cost	$49,986,720.00	$49,986,720.00	Lines 3:5
7	Developers Fee	$7,997,875.20	$7,997,875.20	16% of Development Cost (Line 6)
8	Land Cost	$88,899.00	$88,899.00	(Property Appraiser Value)
9	Total Development Cost	$58,073,494.20	$58,073,494.20	Lines 6:8
10	Eligible Development Cost	$52,266,144.78	$52,266,144.78	Line 9 * 90%
11	HC Annual Amount	$4,703,953.03	$2,090,645.79	Line 10*9% / Line 10*4%
12	HC Total Amount (Annual Amount * 10 years)	$47,039,530.30	$20,906,457.91	Line 11*10
13	Grants		$6,750,000.00	at $25,000/eligible unit
14	Mortgage Amount Required	$11,033,963.90	$30,417,036.29	Line 9 - (Line 12+Line 13)
15	Total Sources	$58,073,494.20	$58,073,494.20	Lines 12:14
16	Funding Shortfall	$ -	$ -	Line 9 - Line 15

Note: Assumptions based on research with local housing developer and Florida Housing Finance Corporation records.

Source: Florida Housing Finance Corporation (2013)

Exhibit 6.6

Source: Google Earth (2021)

Exhibit 7

Concept 1: Mid-rise Apartment Bldg - 270 units

Concept 2: Garden Style Apartments - 264 units

Source: Orange County Property Appraiser Map (2021); Google Street View (2020)

KIRKMAN ROAD VISION PLAN

Shared Use Path

CITY OF ORLANDO

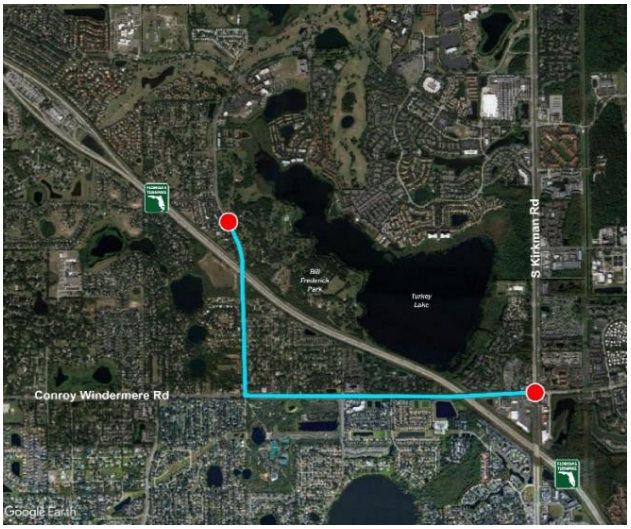
UCF

7.1. INTRODUCTION

The proposed intervention is to incorporate a pedestrian and bicycle dedicated trail connection between the intersection of Kirkman Road and Conroy Windemere Road and adjacent environmental amenities. This improvement has the potential to grant access to Bill Frederick Park to the residents of the Kirkman corridor. The shared use path will enhance connectivity, engage the community along Kirkman Road, filter pollution, and curb storm surge runoff via a bioswale. The addition of the bioswale creates a low-impact storm water improvement that furthers the City sustainability goals.

Bill Frederick Park, the adjacent environmental amenity, is the City of Orlando's largest natural park complete with 183 acres of recreational areas such as a petting farm, camping grounds, cabins, bike paths, disc golf, and boathouse for water activities on Turkey Lake. Access to this area is hindered by limited access caused by the location of the Florida Turnpike and Conroy Windemere Road which traverses over the Turnpike. This limited access in its current state results in a 30–45-minute walk and a 5–10-minute bike ride for residents along the southern section of the Kirkman Road study area. Opening the park to residents, which number in realm of 14k along the corridor, could reach some of the primary goals of additional open space along the corridor.

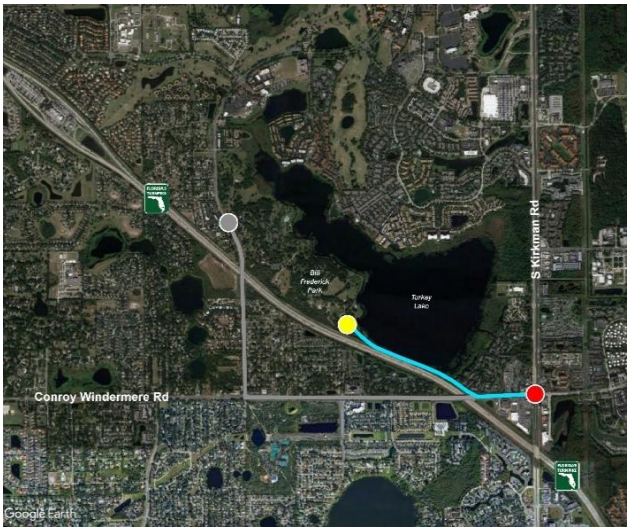
Figure 7.1 - *Existing Route Access*



Source: *Google Earth, 2021*

This southern section of the Kirkman Road study area is within a 7–10-minute walk and a 2–4-minute bike ride to the park. Unfortunately, the park is secluded from residents because of roadway projects involving the Florida Turnpike and the Conroy Windemere Road overpass that makes the closest park amenity inaccessible without traveling around the roadway to access the park's front entrance on Hiawassee Road.

Figure 7.2 - *Proposed Route Access*



Source: *Google Earth, 2021*

Therefore, the proposed intervention is to incorporate this pedestrian and bicycle dedicated trail connection from Kirkman Road to Bill Frederick Park, which aligns with the Orlando City Plan of 1926 to connect the city's main lakes and parks with an emphasized need to integrate quality parks and greenspaces into Orlando neighborhoods (City of Orlando, 1926). This connection would result in realizing the intent of the nearly 100-year-old plan as well as improve the overall bicycle connectivity. The plan imagines a system of "pleasure drives" that would surround City lakes, making them accessible to the general public.

Figure 7.3 - *Orlando City Plan, 1926*

***Source**: City of Orlando, 2021*

Figure 7.4 - *Bicycle Infrastructure Connectivity*

***Source**: City of Orlando, 2021*

7.1.1. CONSIDERATIONS

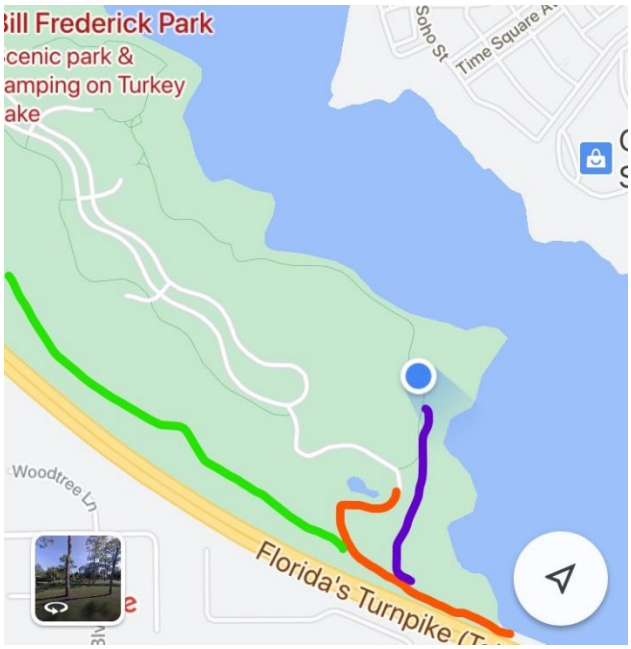
7.1.1.1. ALTERNATIVE 1: NEW PARK ENTRANCE ON SOUTHEAST SIDE OF PROPERTY

Provisions for this amenity will require additional resources from the Parks Division of the City of Orlando to secure the additional entrance at the southeast corner for the park. Through interviews with department management, an additional guard shack as well as staffing, fencing and gates will be needed to secure the entrance and trail. Alternative 1 provides a method of least expense wherein the trail would end at the southeastern corner of the park and require additional staffing of a security gatehouse. Electronic monitoring for nightly gate closures would also be required for the new entrance. The benefits of this intervention include existing park trail enhancements such as pathway widening, increased use and biodiversity.

7.1.1.2. ALTERNATIVE 2: ROUTE TRAIL ALONG PARK PERIMITER UTLIZING EXISTING ENTRANCE

Operational considerations for Alternative 2 would involve the need for additional usage of the Turnpike right of way to route users to the Hiawassee corridor and current park front entrance. The route would require significant fencing to both the Turnpike and existing park along its southeast edge leading towards the existing entrance (off Hiawassee Rd). This route could utilize the existing park area outside the front entrance along Hiawassee. The added benefit of this route provides the Parks Department an opportunity to relocate the existing fence along the front entrance to better reflect the park's actual property line. Currently, the fence line is offset roughly 40 feet from the park's actual property line. Further, such an addition to the park will provide an enhancement that results in greater accessibility and recreation. The alternative route is illustrated in green below. Alternative 1 is illustrated in purple and orange.

Figure 7.5 – *Alternative Routes*



***Source**: Google Maps, 2021*

7.2. CONCEPTUAL DESIGN

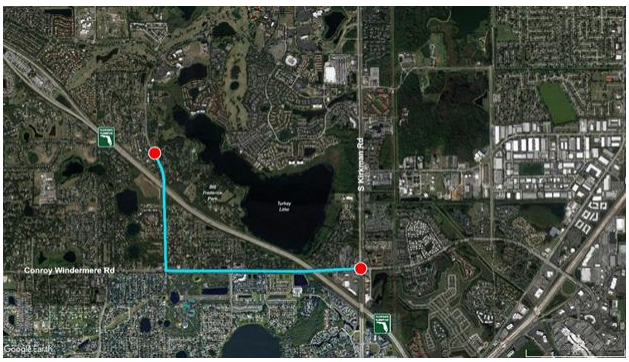
7.2.1. EXISTING CONDITIONS

Located less than one mile east of the corridor, Bill Frederick Park is separated from Kirkman Road by only Turkey Lake. However, existing barriers significantly increase this distance and reduce park accessibility for residents that live along or near Kirkman Road.

Shown in **Figure 7.6**, the most direct route between Kirkman Road and Bill Frederick Park is via Conroy Windermere Road and Hiawassee Road. Conditions along this 2.5-mile route are not ideal for pedestrians and bicyclists, and route residents outside of the city to access the Park. There are no bicycle lanes along the existing route, and sidewalks are narrow with little-to-no buffer from the vehicle travel lane. Furthermore, pedestrian facilities are frequently interrupted by intersections and driveways. Not including stops for intersecting vehicle traffic, the current route between Kirkman Road and Bill Frederick Park will take, on average, eight to 15 minutes to bike and 45 to 60 minutes to walk.

Figure 7.6 –

Existing Route Between Kirkman Road and Bill Frederick Park



***Source**: Google Earth, 2021*

7.2.2. PROPOSED SHARED USE PATH

A new shared use path is proposed to provide the residents of Kirkman Road greater accessibility to

Bill Frederick Park. This new path will utilize the most direct route from Kirkman Road to the park. Beginning at the intersection of Kirkman Road and Conroy Windermere Road, the proposed path will run adjacent to Turkey Lake, utilizing approximately 3,089 linear feet (0.59 miles) of the right of way associated with Florida's Turnpike (considerations related to utilizing the Turnpike right of way are addressed below in Section 7.4).

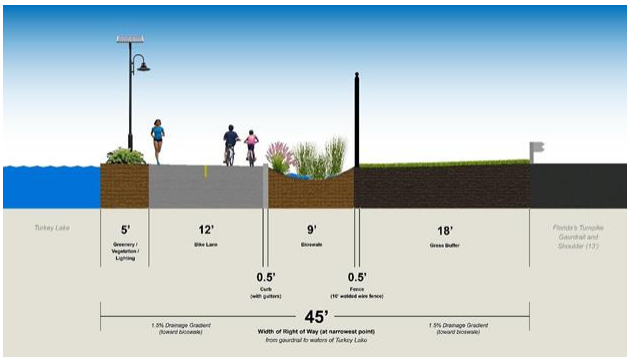
The path will feature a 12-foot paved trail (intended for bicyclists and pedestrians), lighting, vegetation, a bioswale to regulate stormwater runoff, and a 10-foot-tall welded wire fence to serve as a physical barrier between the Turnpike's travel lanes and the path. **Figure 7.7** is a photo of the existing Turnpike right of way taken from the southeastern corner of Bill Frederick Park. **Figure 7.8** presents a concept of the proposed path, which includes an illustration of the aforementioned project elements.

Figure 7.7 – *Existing Turnpike Right of Way*

Figure 7.8 – *Rendering of Proposed Shared Use Path*

Figure 7.9 below presents an ideal cross-section of the proposed path, which can be adjusted. The width of the extraneous Turnpike right of way varies between 45 feet and 120 feet along the portion of land on which the new shared use path will traverse. The illustration shows a 45-foot cross section to represent the narrowest portion of the right of way and to demonstrate that there is more than enough space to accommodate the paved path, vegetation, and associated amenities while providing a substantial buffer between the path and the nearest Turnpike travel lane (a minimum of 41 feet).

Figure 7.9 – *Cross Section of Proposed Shared Use Path*



As shown in the cross section above, from right to left: The Turnpike includes a 13-foot shoulder with a guardrail between the travel lane and the existing grass line. Beyond the guardrail, an 18-foot grass buffer is proposed to maximize the separation distance between pedestrians/bicyclists and the Turnpike travel lanes. It should be noted that the 18-foot grass buffer will increase as the right of way increases—the cross section shown in **Figure 7.9** represents the narrowest portion of the Turnpike right of way as it narrows along Turkey Lake. Additionally, a 10-foot-tall welded wire fence will serve as a physical barrier between the Turnpike and the path. Due to the high speeds and limited-access nature of the Turnpike, the fence could have a crash rating of no less than M50 and will not be climbable in addition to existing crash barriers. Separating the fence and path will be a

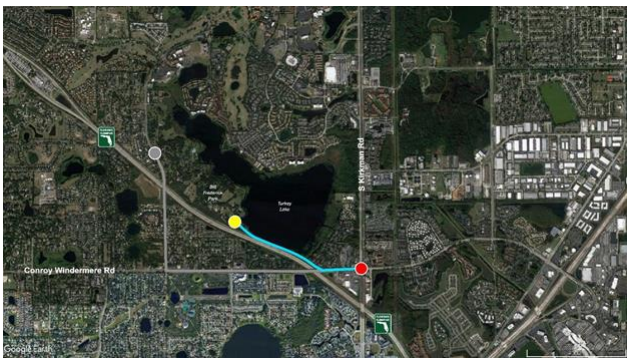
nine-foot bioswale featuring pink muhly grass and fakahatchee grass. The bioswale and vegetation will beautify the path and regulate stormwater runoff (more information on the project's bioswale can be found in Section 7.3). The 12-foot paved path can accommodate walkers, runners, bicyclists, Park vehicles and emergency vehicles if needed, and could be separated from the bioswale by a curb. Between the waters of Turkey Lake and the path will be space for additional vegetation, lighting, and retaining walls if needed.

While the conceptual design and cross section of the shared use path will remain the same, two routing alternatives were developed as part of this intervention. These alternatives are described in further detail in the following sections.

7.2.2.1. ALTERNATIVE 1

As shown in **Figure 7.10**, the shared use path in Alternative 1 begins near the intersection of Kirkman Road and Conroy Windermere Road, runs west to the Kirkman Road/Turnpike overpass, turns northwest to utilize the Turnpike right of way adjacent to Turkey Lake (approximately 3,089 linear feet / 0.59 miles of right of way), and provides access to Bill Frederick Park on the southeastern corner of park property. This proposed path reduces the existing 2.5-mile route to 0.6 miles—from an eight- to 15-minute bike ride to a two- to four-minute bike ride, and from a 45- to 60-minute walk to an eight- to 12-minute walk. Since access to the park will be provided via a new entrance, new infrastructure will be required to monitor park entry, maintain existing park operations and amenities, and secure the park after hours. Additional park staff may also be required to accommodate an increase in park users. Sections 7.2.3-5 presents a detailed discussion on considerations from a park operations perspective as they relate to Alternative 1.

Figure 7.10 – *Proposed Shared Use Path: Alternative 1*

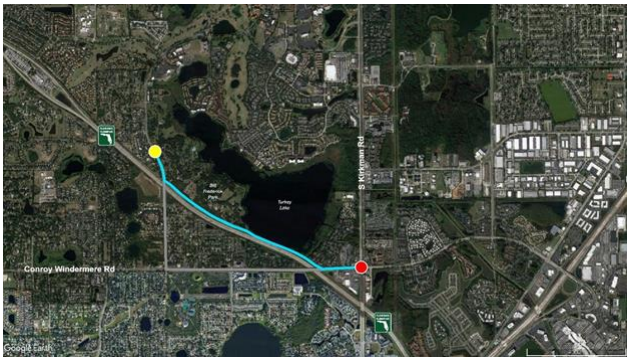


Source: *Google Earth, 2021*

7.2.2.2. ALTERNATIVE 2

Like Alternative 1, the shared use path in Alternative 2 (displayed in **Figure 7.11**) begins near the intersection of Kirkman Road and Conroy Windermere Road, runs west to the Kirkman Road/Turnpike overpass, and turns northwest to utilize the Turnpike right of way adjacent to Turkey Lake (approximately 3,089 linear feet / 0.59 miles of right of way). However, rather than providing access to the park on the southeastern corner of the property, the path in Alternative 2 continues to run northwest along the park property line, turns north to follow Hiawassee Road, and provides park access via the park's existing entrance.

Figure 7.11 – *Proposed Shared Use Path: Alternative 2*



Source: *Google Earth, 2021*

While a longer route than Alternative 1, Alternative 2 reduces the existing route of 2.5 miles to 1.6 miles— from an eight- to 15-minute bike ride to a

five- to eight- minute bike ride, and from a 45- to 60-minute walk to a 25- to 30-minute walk. It should be noted that, although this alternative proposes an extended path (when compared with Alternative 1) to provide park access via the existing entrance, no additional Turnpike right of way is utilized to accommodate the extension. The path will exit the Turnpike right of way at the same location proposed in Alternative 1 and will traverse the park's southern property line until the path reaches Hiawassee Road. This alternative does not require new park entrance infrastructure, but may necessitate additional park staff to accommodate an increase in park users. See Sections 7.2.3-5 for additional park operations considerations.

7.2.3. TRAILHEADS

Despite the selected shared use path alternative, the new path could include prominent trailheads at both termini. Trails heads will feature a variety of amenities for path users, including bicycle racks, seating, drinking fountains, and trail maps. Additionally, the trailheads provide an opportunity to display public art and incorporate educational exhibits on the 1926 Orlando City Plan, Florida's Turnpike, and the Florida Highway Patrol. Emergency "blue light" call boxes could also be incorporated in both trailheads.

Figure 7.12 presents the proposed locations of the trailheads. For both alternatives, the eastern trailhead will be located near the intersection of Kirkman Road and Conroy Windermere Road, and immediately south of the Kirkman Oaks Shopping Center. Featuring a Publix and the Bloodhound Brew Pub and Eatery among other shops and restaurants, the Kirkman Oaks Shopping Center is a central location that attracts a variety of users and represents a prime setting for the eastern trailhead of the proposed path.

The western trailhead associated with Alternative 1 will be located at the southeastern corner of Bill Frederick Park. As previously noted, this trailhead will feature a new park entrance along with the aforementioned amenities. The western trailhead associated with Alternative 2 will be located between Hiawassee Road and Bill Frederick Park's existing entrance.

Figure 7.12 – *Proposed Shared Use Path: Alternative*

***Source**: Google Earth, 2021*

7.2.4. BENEFITS OF PROPOSED SHARED USE PATH

Bill Frederick Park is a vast recreational amenity located less than one mile west of Kirkman Road. The proposed shared use path will greatly increase accessibility to the park from the corridor. Additionally, the path will create an efficient connection between Kirkman Road and Hiawassee Road via Bill Frederick Park, connecting two major residential corridors with the potential of an extended path leading to the Turkey Lake Plaza / Florida's Turnpike Enterprise offices and beyond. This connectivity will lead to the realization of benefits originally identified in the 1926 Orlando City Plan: the connection around the city's lakes with landscaped streets to integrate recreational amenities into Orlando's neighborhoods, with accessible parks.

The plentiful vegetation and bioswale will promote a variety of ecosystem services, including connecting residents to the environment, oxygen production from new vegetation, and

stormwater/flood regulation with the incorporation of the bioswale (the environmental elements of this proposal are presented in further detail in Section 7.3). Additionally, while traversing the heavily traveled Turnpike, the naturally landscaped and colorful plantings and path will be visible by thousands of travelers per day. This high visibility will promote visitation of Bill Frederick Park and endorse the City of Orlando as a pedestrian- and bicycle-friendly municipality.

7.2.5. EXAMPLES OF SIMILAR PATHWAY INTERVENTIONS IN FLORIDA

While not typical, there are other examples of shared use paths located within limited access highways within the State of Florida. One such path is the Suncoast Parkway Trail. This trail is located within Hillsborough, Pasco, and Hernando Counties (and passing entirely through Pasco County). The trail is 21 miles long and runs along the Suncoast Parkway / Florida State Road 589 (toll road). The trail is owned by FDOT (specifically, the Turnpike Enterprise) but managed by the three counties within which it is located (Pasco, Hillsborough, Hernando), specifically by their respective Parks and Rec departments. This is similar to the proposed multi-use path, in that it is on land owned by the Turnpike Enterprise, but would be managed by the City of Orlando, and its Parks department. Images of the trail are shown in **Figure 7.13 and Figure 7.14**. From these images, it is clear that the proposed path has less proposed safety and design features, yet is still successfully implemented.

Figure 7.13 - Suncoast Parkway Trail

Source: *Google Maps, 2021*

Figure 7.14 - Suncoast Parkway Trail

Source: *Google Maps, 2021*

Another shared use path within the right-of-way of a limited access highway is the Skyway Trail, in St. Petersburg. This shared use path is within the I-275 right-of-way, connecting the Sunshine Skyway Bridge Fishing Pier to other bike paths in the city. Similar to this proposed shared use path, the Skyway trail is located between a limited access highway travel lane, and a body of water. On some portions of the right-of-way, the trail is located on a bridge, directly next to the shared vehicular travel lane, with minimal physical intervention separating the 2 paths. See **Figure 7.15 and Figure 7.16** for images showing the Skyway Trail.

Figure 7.15 - Skyway Trail Bridge

Source: *Google Maps, 2021*

Figure 7.16 - Skyway Trail

Source: *Google Maps, 2021*

The proposed Shared Use path within the Turnpike right of way would help provide access to an underutilized asset of the community. The proposed path is consistent with all FDOT design standards and minimum requirements, as well as meeting all criteria, and definitions set forth in the FDOT Greenbook, and being consistent with the intent and goals of both a shared use path, and the Turnpike's own Master Plans as will be described in section 7.4. The trail would beautify this portion of the turnpike, in addition to providing access to the park. While not typical, other cities and counties have successfully implemented shared use paths with limited access right-of ways, and this path could follow that example.

7.3. THE ENVIRONMENT AND GREEN INFRASTRUCTURE

Improvements throughout the Kirkman Road corridor should place emphasis on low impact development to result in greater sustainability. The City of Orlando can use any corridor improvements as an opportunity to reaffirm its commitment to sustainability. Research found in Report part 1, Section 2.3.2 revealed the corridor's susceptibility to flooding in low-lying areas. Following this framework should be a top priority for new improvements.

A particularly suitable measure is the implementation of an extensive bioswale. The Environmental Protection Agency (2020) considers bioswales to be both an accessible and significant tool in a city's arsenal of green infrastructure. Boiled down to its simplest terms, the EPA considers bioswales as "essentially rain gardens placed in long narrow spaces such as the space between the sidewalk and the curb" (2020). There are long, open areas which match this description and would benefit from a swale's implementation throughout the corridor**. Figure 7.17** is an example of an extensive bioswale from Hunters Point Park Conservatory in New York.

Figure 7.17 – Extensive Bioswale Example

Source: *Hunters Point Park Conservatory, 2020*

The primary benefits to implementing bioswales are their ability to manage stormwater volumes as well as their ability to reduce and absorb pollutants (National Oceanic and Atmospheric Administration [NOAA], 2015). The reduction of pollutants is even more pronounced near water, such as Orlando's lakes found near the corridor. Bioswales work in conjunction with hardscape areas to ease their burden of stormwater management.

7.3.1. AESTHETIC CONSIDERATIONS

A bioswale can also add aesthetic value to the corridor not only near the proposed connection, but throughout the corridor. Careful curation of the location can significantly bolster the city's ability to create an identity for Kirkman Road. Depending on the location, the plants that compose the bioswale can act as a visual and physical barrier between pedestrians and vehicles, while being attractive and in-line with Orlando's City Beautiful concepts. Accordingly, a Focus Group Participant expressed interest in greater vision "coning" as a traffic calming measure, a feat that could be furthered by incorporating a swale.

Swales are a staple of Low Impact Development but have high value. In addition to managing stormwater and pollution, there is evidence to support the mental and physical benefits of access to nature which can also contribute to a "sense of social well-being and civic pride" (Carmona et al., 2001, p. 79).

7.3.2. AN ARRAY OF OPTIONS

There are many options for flora that will be suitable for the area. Florida, in particular, "rel[ies] on plants that will survive dry spells but then soak up excess stormwater during Florida's rainy months" (University of Florida Institute of Food and Agricultural Sciences [UFIFAS], n.d., para. 5). In addition, it is best practice to include different species to create a diverse but cohesive aesthetic. In a blend of beauty and reliability, Central Florida has found success in utilizing pink muhly grass and coontie cycads in bioswale projects.

Figure 7.18 – Photograph of Pink Muhly Grass

Source: *Brighterblooms.com, n.d.*

Figure 7.19 – Coontie in Landscape

Source: *Rogers, n.d.*

Both species react well to the climate. The pink of the muhly grass plays well with the greens of other vegetation and with the blues emanating from Turkey Lake. These plants can be a scenic yet undistracting view for motorists on the Turnpike and trail users alike.

7.3.3. COST CONSIDERATIONS

Cost is an important consideration for green infrastructure. Generally, bioswales are considered to be cost-effective. Though there is an upfront cost for the purchase and installation of the plants, once they are acclimated to the environment there is a steep decline in costs, with maintenance and occasional replacement being the major factors (NOAA, 2015). Rough estimates have ranged from $5-25 per square foot in installation, $0.06-0.21 per square foot in maintenance, and can last from 20-50 years (Center for Neighborhood Technology, n.d.). These numbers serve as preliminary estimates and will require clarification as the project progresses.

Table 7.1 – Prospective Component Costs of Bioswale

	Installation	Maintenance	Component Lifespan
Low	$5.50/sq ft	$0.060/sq ft	50 years
Medium	$15.00/sq ft	$0.12/sq ft	30 years
High	$24.00/sq ft	$0.210/sq ft	20 years

***Source**: Center for Neighborhood Technology, n.d.*

7.3.4. LOCALE CONSIDERATIONS

There is also considerable flexibility in the location of the swale. Though the previous and following sections propose the bioswale along the proposed connection, there are further possibilities. Another option would be to install less-extensive, more-intensive bioswales suited for more dense, urban areas, such as along South Kirkman Road or in adjacent parking areas. The benefits of placing the swale along an area with heavy foot or bicycle traffic is beneficial in combatting flooding. They also serve as spectacle along the trail, providing extra incentive to use that particular trail.

Though Turkey Lake is the ideal location, given the scope of the proposal, installation of a bioswale will benefit whichever area it is in. There is also the option of community interaction in the project. Community members can be taught to care for the plants or notice signs the plants may need help thriving. The American Society of Landscape Architects notes the potential for community members to be engaged in general maintenance (n.d.). With a more extensive swale, such as the one proposed for Turkey Lake, the community may not be able to provide maintenance, but they can help keep it litter-free and clean.

7.4. CONSIDERATIONS: FDOT AND FLORIDA'S TURNPIKE

The proposed shared use path connecting the Kirkman Road Corridor to Bill Friedrich Park will require the use of a portion of the Florida Turnpike right-of-way. Either potential route included in the intervention (referred to in plan as Alternative 1 and Alternative 2) will require this right-of-way use, specifically, a portion of the grass area between the travelled Turnpike lanes and Turkey Lake itself. This area is approximately 45 ft. wide at its narrowest point, and the proposed path would utilize a portion of this area of the right-of-way.

Florida's Turnpike is a limited access highway and qualifies as a State defined "limited access facility". Florida Statutes, Chapter 34.03 defines limited access facilities as: "A street or highway especially designed for through traffic, and over, from, or to which owners or occupants of abutting land or other persons have no right or easement of access, light, air, or view by reason of the fact that their property abuts upon such limited access facility or for any other reason. Such highways or streets may be facilities from which trucks, buses, and other commercial vehicles are excluded; or they may be facilities open to use by all customary forms of street and highway traffic". This definition

does not prohibit, or even deter, a potential shared use path within the right-of-way.

The Turnpike is managed by the Florida Department of Transportation (FDOT), specifically the Turnpike Enterprise Authority, which is a part of FDOT. In meeting with a representative from FDOT who works for the Turnpike Enterprise Authority, Jennifer Stoltz, the proposed intervention was met with optimism, and was seen as feasible, subject to complying with FDOT regulations for shared use paths listed in the FDOT Greenbook, and is not in conflict within anything listed within the FDOT 5 year Work Program. The FDOT Greenbook is the Manual of Uniform Minimum Standards for Design, Construction and Maintenance, and provides criteria for public streets, roads, highways, bridges, sidewalks, curbs and curb ramps, crosswalks, bicycle facilities, underpasses, and overpasses used by the public for vehicular and pedestrian travel. As FDOT, and the Turnpike Enterprise control this limited access facility, and the right-of-way, they can determine if they will allow a shared use path within the right-of-way. Their buy-in, cooperation, and involvement is a critical component to the success and feasibility of this implementation.

The FDOT 5 Year work program lists 2 work items that are occurring within the subject area of the turnpike where the proposed shared use path is located. The first is Work Item # 440293-2. The proposed scope of work for this work item is Safety Improvements to Turnpike Mainline (Orange County) between mile posts 260.2 and 265.3 and includes improvements of Guardrails. A map of the location of this work item can be seen in **Figure 7.20**. This work item does not negatively impact the proposed shared use path, but in fact may help it, by providing additional road safety and buffering of the proposed path.

Figure 7.20 Turnpike Mainline Improvement 440293-2

Source: *FDOT*

The second Work Item within the subject area of the turnpike where the proposed shared use path is located refers to Work Item # 444006-1. This is a proposed PD&E Study to widen Turnpike from S of Sand Lake Rd. to S of SR 408 (mile posts 257 to 263). A map is included in **Figure 7.21**. This Work Item may impact the proposed shared use path, as the widening of the road may impact the location and could have a direct impact on the feasibility and location of any path, if the usable area between Turnpike and Turkey Lake is reduced. However, this work item is currently only a study. The FDOT defines the work phase of PD & E (Project Development and Environment) as "A study that satisfies the National Environmental Policy Act (NEPA) process resulting in a location design concept for an engineering and environmentally feasible alternative to meet the determined in the planning phase. As this is only in a study phase at present, it is unknown at this time what impact it would have. It may have no impact, as the study may show widening is not feasible, or it may determine that widening is needed. The timetable of activity, in **Figure 7.22**, shows that any activities within the study will not take place for another 3 years at a minimum. So, while this could impact the implementation of the proposed intervention, it

is not known what this study will determine at this time. Perhaps this proposed shared use path can be considered in the study and implemented as a reason for not widening this portion of the road.

Figure 7.21 - Turnpike Mainline Improvement 444006-1

Source: *FDOT*

Figure 7.22 - 444006-1 PD&E Study

444006-1 PD&E WIDEN TPK(SR91) FROM S OF SAND LAKE RD TO S OF SR 408 (MP257 262)
District 05 Orange County Project Manager: ELYWOOD
** Turnpike **
Type of Work: PD&E/EMO STUDY

Activity	Description	Planned Start	Planned Finish
718000080	PLANNING CONSISTENCY COMPL	Fiscal Year: 2024	Fiscal Year: 2024
709000080	ETDM/STAT PROG. SCREEN START	Fiscal Year: 2024	Fiscal Year: 2024
747000080	KICK-OFF MEETING	Fiscal Year: 2024	Fiscal Year: 2025
701000080	ETDM PROG PRELIM SUM RLP PUD	Fiscal Year: 2025	Fiscal Year: 2025
164000080	PREPARE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
155000080	UPDATE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
705000080	PD&E ADVERTISEMENT	Fiscal Year: 2025	Fiscal Year: 2025
469000080	LETTERS OF INTEREST	Fiscal Year: 2025	Fiscal Year: 2025
401000080	CONSULT SHORTLISTING	Fiscal Year: 2025	Fiscal Year: 2025
249000080	TECHNICAL PROPOSAL DUE	Fiscal Year: 2025	Fiscal Year: 2025
402000080	CONSULT FINAL SELECTION	Fiscal Year: 2025	Fiscal Year: 2025
238000080	CONSULTANT SCOPE MEETING	Fiscal Year: 2025	Fiscal Year: 2025
155001080	UPDATE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
155002080	UPDATE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
155003080	UPDATE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
155004080	UPDATE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
155005080	UPDATE SCOPE OF WORK	Fiscal Year: 2025	Fiscal Year: 2025
767000080	TRAFFIC ANALYSIS/REPORT	Fiscal Year: 2026	Fiscal Year: 2026
229000080	P.D & E CONTRACT EXECUTED	Fiscal Year: 2026	Fiscal Year: 2026
709000080	NEPA START	Fiscal Year: 2026	Fiscal Year: 2026
365000080	PREPARE FOR PUBLIC MEETING	Fiscal Year: 2026	Fiscal Year: 2026
365001080	PREPARE FOR PUBLIC MEETING	Fiscal Year: 2026	Fiscal Year: 2027

Source: *FDOT*

The FDOT Greenbook defines a Shared Use Path as follows: "Shared use paths are paved facilities physically separated from motorized vehicular traffic by an open space or barrier, and either within the highway right of way or an independent right of way, with minimal cross flow by motor vehicles. Shared use paths are used by bicyclists, pedestrians, runners, skaters, and in some cases equestrians. The bicycle's operating characteristics will govern the design of shared use pathways". This proposed shared use path meets this definition, as it is specifically separated from the Turnpikes Vehicular right-of-way. Additionally, the Greenbook describes shared use paths as having the following attributes and purposes:

- They can provide a school age child, a recreational cyclist, or a person with a disability an alternative to busy roadways.
- Located along the banks of rivers and canals, as well as through parks and forests.
- Shared use paths can also provide access to areas otherwise served only by limited access highways.

This proposed shared use path is consistent with all of these, serving various groups, by providing an alternative to getting to Bill Friedrich Park. Currently, pedestrians, bikes, or vehicles must all use the same facilities to access the park. These facilities are designed for automobiles, and take neither pedestrians nor bicycles into consideration, as they are only considered secondarily.

This path will be located along the banks of Turkey Lake and lead to a park. A second alternative route also directs part of the path through the park. And perhaps most importantly, this path will provide access to areas otherwise served only by a limited access highway. Currently, a limited access highway effectively cuts off the park from the entirety of the Kirkman Road Corridor. This shared use path proposes to bridge that gap, and connect the park with the corridor, and provide adequate access to the more than 14,000 residents in the corridor.

The FDOT Greenbook provides for a variety of minimum design standards for all elements for the

design of shared use paths. This proposed path far exceeds these FDOT minimums. The path complies with minimum path width, minimum separation from travelled vehicular right-of-way, required physical barriers, and satisfies required grading along edges. The minimum standards outlined by the FDOT Greenbook, and the proposed design elements of this shared use path, are listed and contrasted in **Table 7.2** below.

Table 7.2 - FDOT Greenbook Design Standards

Design Element	Minimum FDOT Greenbook Standards	Proposed Trail
Paved path width and clearance	10'	12'
Separation from traveled edge of road	5' (physical barrier required if less than 5')	41' total (includes curb, 9' bioswale, 10' tall, welded wire fence, 18' grass buffer, and 13' of Turnpike guardrail and shoulder)
Graded edges of paths	2' wide graded area on either side of path	5' graded area with greenery, vegetation, and lighting 9' bioswale

Source: *FDOT*

In addition to meeting and exceeding all of the FDOT minimum standards found in the Greenbook for shared use paths, the proposed path also is consistent with the Turnpike's Landscape Master Plan. Within the path's bioswales, the intervention proposes planting both pink muhly grass and coontie palms. Both of these species are listed on the preferred plant lists for Central Florida within the Master Plan. By incorporating these specific species in our proposed planting, and by incorporating the bioswales in general, and locating them on the turnpike side of the buffer, this multi-use path is consistent with the Master Plan's goal of increasing highway beautification, promoting conservation, and enhancing natural resources.

7.5. CONCLUSION

The City of Orlando currently has an opportunity to increase access to Turkey Lake park through the Kirkman Road development plan. Within city limits, this proposed intervention could enable to city to enhance trail and bike path connectivity, as well as provide access to greenspace for residents. Currently, Bill Frederick Park is isolated from residents along the corridor, and therefore lack the attendance to amenities offered by the park.

To proceed, the next step should be an evaluation of planned objectives for the Planning Department for the consideration of this proposed intervention. Further, collaboration between the City and the Florida Turnpike Enterprise's Planning and Engineering divisions will be necessary to coordinate necessary design specifications and potential value provided to the proposed area. Next, an informative discussion with the Parks Division of the City of Orlando could produce decisions on the management of the trail and entrance, based on the alternatives provided in this report. Lastly, the residents along the corridor should be informed of the collaboration between the City and the University of Central Florida's MSURP involvement in creating access to Bill Frederick Park which will also serve to build anticipation for the use of the trail.

KIRKMAN ROAD VISION PLAN

Bus Rapid Transit Superstop

CITY OF ORLANDO

UCF

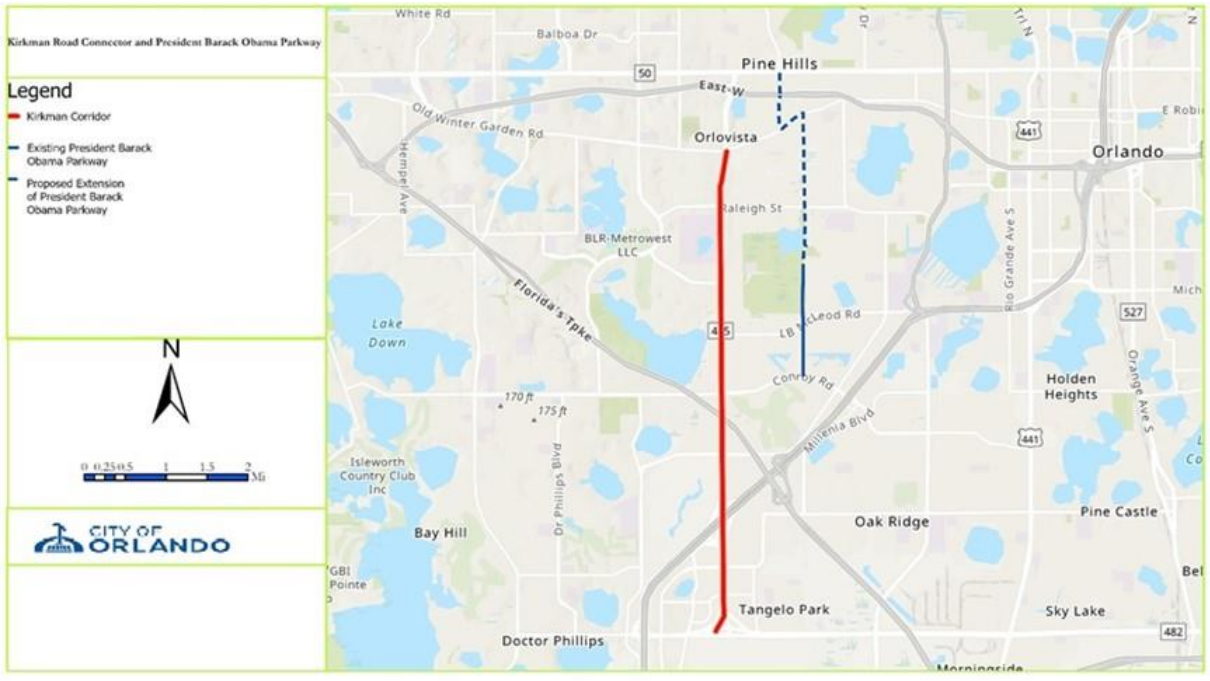
8.1. INTRODUCTION

The Kirkman Road corridor has the potential to be a major regional transit corridor, offering premium service. Similar to past studies of Bus Rapid Transit on Semoran Blvd and Colonial Drive, the major road connects several regional assets such as the convention center, International Drive resort area, the Universal Orlando Resort and its Epic Universe expansion, MetroWest and Valencia College.

Transit improvements are sought to strengthen the connectivity along the corridor and into the surrounding community, which was a key concept identified during stakeholder engagement with the local community and key business partners in the corridor. These combined interventions should allow for stronger alternative transportation options for residents and visitors to workplaces, greenspaces, educational areas, and recreational spaces. The two proposed interventions work hand in hand seeking to improve transit along the Kirkman Corridor. The first intervention is the implementation of a Superstop at Valencia College's west campus and a Bus Rapid Transit (BRT) route along the corridor. The second intervention is the implementation of a center median bus lane along the Kirkman Corridor for the BRT route to travel. Pedestrian Hybrid Beacons (PHB's) will also be implemented to increase crossing safety for pedestrians/cyclists to cross into the center median bus lane. Potential partners include LYNX, City of Orlando, and Universal Studios.

Figure 8.1, displayed below, shows the current corridor length, along with proposed extensions of Barack Obama Parkway. This project would ultimately serve to be a new line to continue the transit improvement between the City of Orlando, Orange County, Universal Orlando, and Lynx.

Figure 8.1 - Project focus area along the Kirkman Road Corridor



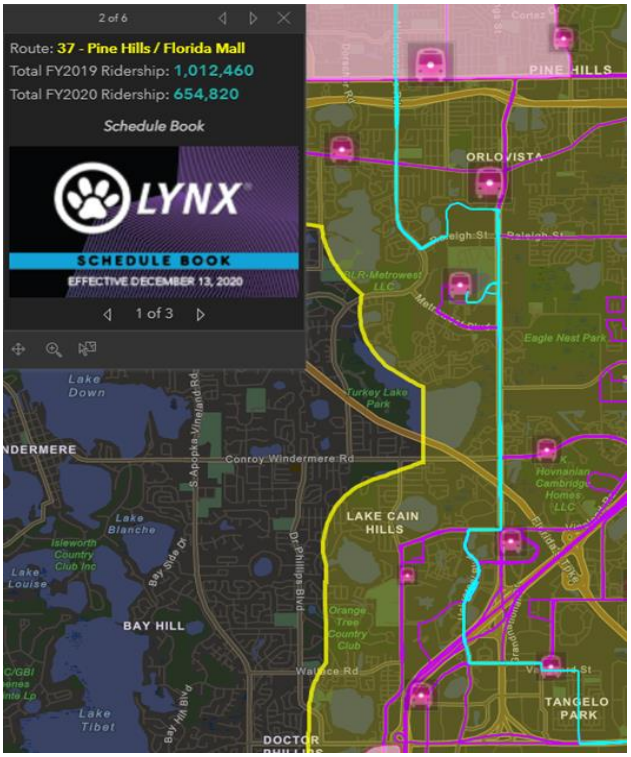
8.2. CURRENT CONDITIONS & ROUTES

8.2.1. CURRENT TRANSIT SYSTEM (LYNX)

This section will provide a background on existing routes and current transit conditions. Route ridership, type of rider, rider age, rider employment, rider education by employment sector, rider home address zip-codes, number of vehicles per household, number of riders with drivers' licenses, destination origin/trips, will also be analyzed from the last available LYNX Ridership Survey conducted in 2017 (O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021). There are six major routes on the Kirkman corridor currently: Routes 37, 21, 40, 301, 302, 305 (LYNX, n.d.).

Route 37, as displayed in **Figure 8.2**, is the Pine Hills/Florida Mall route. In Fiscal Year 2019 this route had a ridership of 1,012,460 passengers. The route travels down Hiawasee Road and cuts through a residential neighborhood to Kirkman Road. The route stops at the Valencia College West Campus before continuing south along Kirkman Road and turning west onto Vineland Road. From there the route turns and travels south along Universal Boulevard and then heads east along International Drive where it then travels through the Tangelo Park neighborhood.

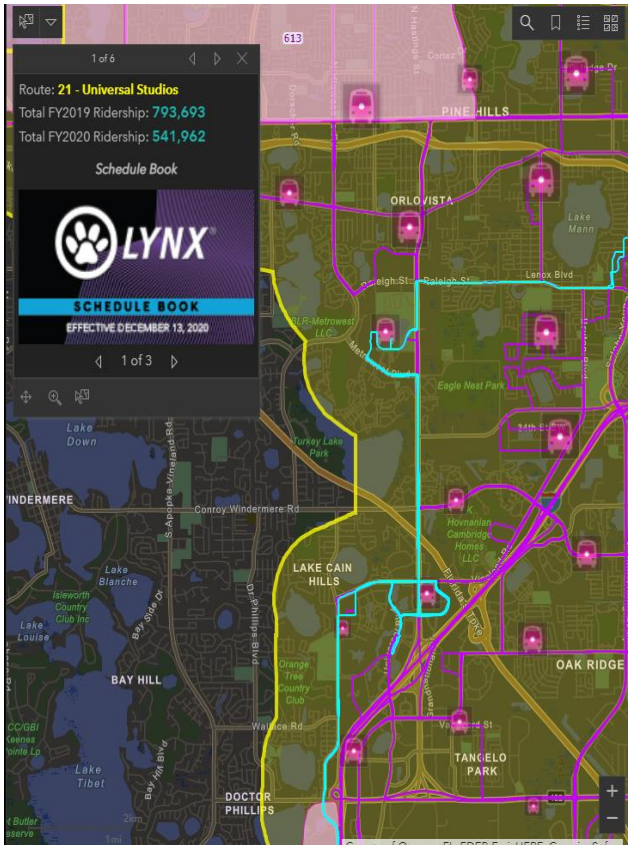
Figure 8.2 - View of Lynx Route 37



Source: *LYNX, n.d.*

Route 21, as displayed in **Figure 8.3**, is the Universal Studios route and is one of two routes along the Kirkman Corridor which run to Universal Studios. Route 21 had a Fiscal Year 2019 ridership of 793,693 passengers. The route runs west along Raleigh Street to Kirkman Road. The route then cuts through the Valencia College West Campus to Metro West Boulevard, and ultimately back to Kirkman Road where the buses head south. The route then loops around the Universal Studios campus before cutting over to Turkey Lake Road and heading south.

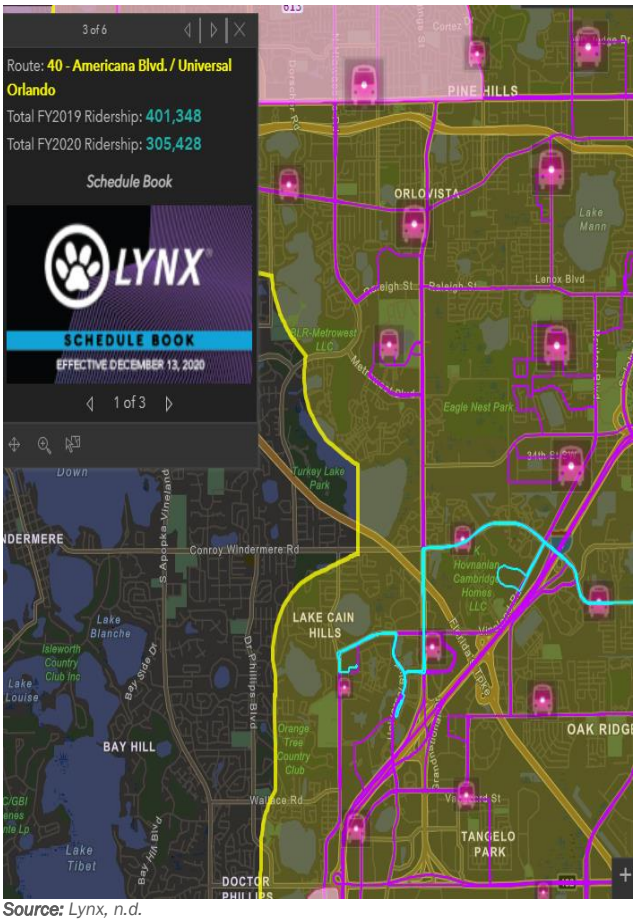
Figure 8.3 – View of Lynx Route 21



Source: *Lynx, n.d.*

Route 40, as displayed in **Figure 8.4**, is the American Boulevard/Universal Orlando route and is the second route along the Kirkman corridor that run to Universal Studios. The route had a Fiscal Year 2019 ridership of 401,348 passengers. The route runs west along Conroy Road, down Vineland Road and loops around the Walden Palms Condos, then runs back up Vineland Road and back west along Conroy Road to Kirkman Road. The route then runs south along Kirkman Road and loops around the Universal Studios campus and then west down Vineland Road.

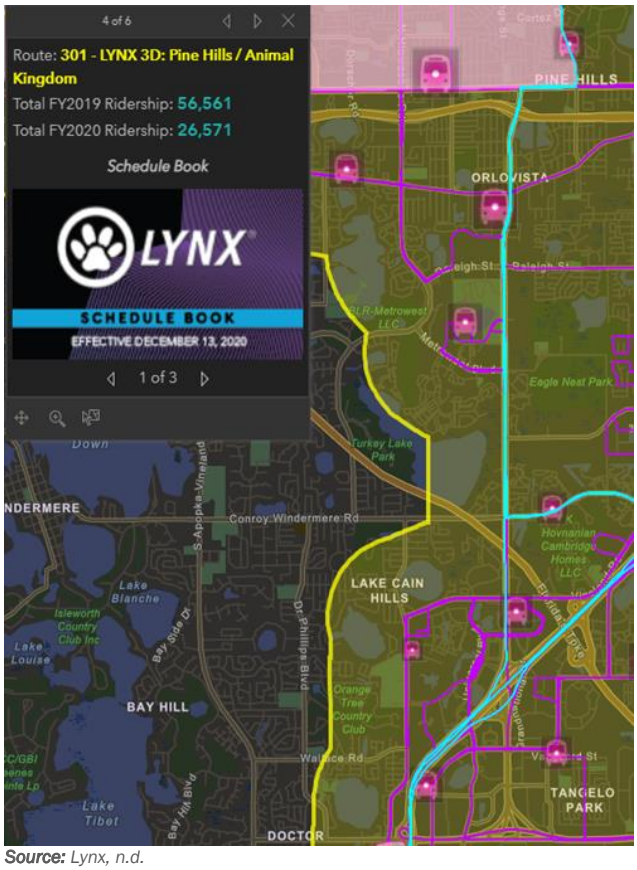
Figure 8.4 – View of Lynx Route 40



Source: *Lynx, n.d.*

Route 301, as displayed in **Figure 8.5**, is the Pine Hills/Animal Kingdom route and is one of three routes along the Kirkman corridor that run to Disney World. Route 301 had a Fiscal Year 2019 ridership of 56,561 passengers. The route runs from Pine Hills to Colonial Drive and then runs south along Kirkman Road. The route then heads west on Interstate 4 (I-4) to Animal Kingdom.

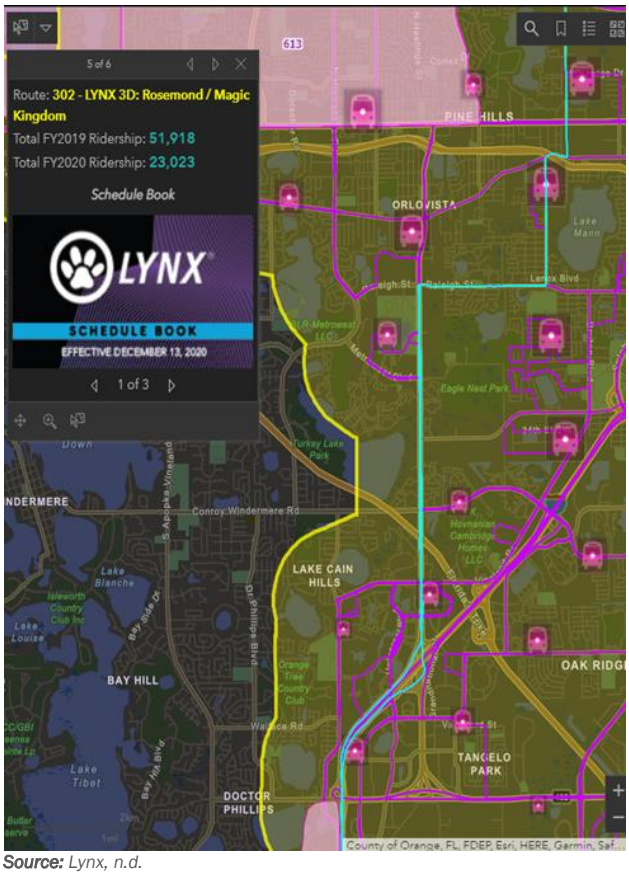
Figure 8.5 – View of Lynx Route 301



Source: *Lynx, n.d.*

Route 302, as displayed below in **Figure 8.6**, is the Rosemond/ Magic Kingdom route and is the second of three routes along the Kirkman corridor that run to Disney World. Route 302 had a Fiscal Year 2019 ridership of 51,918 passengers. The route runs from the Rosemont neighborhood down Raleigh Street to Kirkman Road The route heads south down Kirkman Road to I-4t where it heads west towards Magic Kingdom.

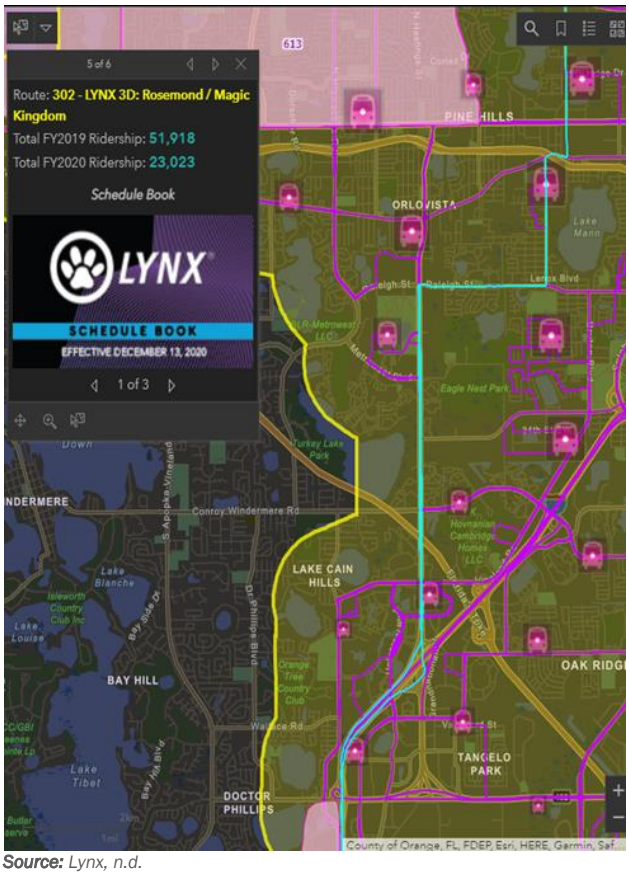
Figure 8.6 – View of Lynx Route 302



Source: *Lynx, n.d.*

Route 305, as displayed below in **Figure 8.7**, is the Metro West/ Disney's All Star Resort route and is the last of three routes along the Kirkman corridor that run to Disney World. Route 305 had a Fiscal Year 2019 ridership of 21,815 passengers. The route runs from the Metro West neighborhood (in front of Valencia College's West campus) down Kirkman Road. The route then heads east on Conroy Road to John Young Parkway and weaves through the Tangelo Park neighborhood before getting onto I-4 and heading west towards Disney's All-Star Resort.

Figure 8.7 – View of Lynx Route 305



Source: *Lynx, n.d.*

The below selected ridership stops, displayed in Table 8.1, were analyzed by querying the top one thousand weekday average on/offs for Routes 37, 21, 40, 301, 302 & 305 in Fiscal Year 2019, which was then compared to Fiscal Year 2020 data. Current ridership is impacted negatively by COVID – 19, as seen by the Ridership 2020 Data. However, it can logically be assumed with addition of stronger transportation systems, the 2019 ridership should increase by a strong amount.

Table 8.1 - View of top bus stops along the corridor, displayed by weekly average ridership

LYNX Ridership Weekly Average for Routes Servicing Kirkman Corridor

Stop ID	Stop Name	Ridership 2019	Ridership 2020	Percent Change (%)
5023	UNIVERSAL BOULEVARD AND HOLL	1080	361	-66.6
5024	BACKLOT DRIVE AND UNIVERSAL	244	75	-69.3
5241	S KIRKMAN ROAD AND CONROY RO	190	134	-29.6
5218	RALEIGH STREET AND S KIRKMAN	166	91	-45.3
4944	S KIRKMAN ROAD AND WINDHOVER	157	39	-75.2
4968	S KIRKMAN ROAD AND WINDHOVER	146	76	-48.0
5219	RALEIGH STREET AND S KIRKMAN	140	90	-35.7
5251	S KIRKMAN ROAD AND CONROY RO	135	53	-60.9
5244	S KIRKMAN ROAD AND METROPOLI	123	84	-31.5
5946	S KIRKMAN ROAD AND CONROY RO	117	40	-65.8
5953	S KIRKMAN ROAD AND METROPOLI	114	70	-38.4
5246	S KIRKMAN ROAD AND RALEIGH S	113	68	-39.6
5247	S KIRKMAN ROAD AND PREFERRED	89	16	-82.0
5245	S KIRKMAN ROAD AND VALENCIA	82	54	-34.0
5863	UNIVERSAL BOULEVARD AND BRE - EOL	74	30	-59.7
4935	S KIRKMAN ROAD AND VALENCIA	73	52	-28.4
4943	S KIRKMAN ROAD AND ARNOLD PA	68	21	-69.3
5243	S KIRKMAN ROAD AND ARNOLD PA	59	37	-37.5
4969	S KIRKMAN ROAD AND PINE SHAD	57	35	-38.2
5248	S KIRKMAN ROAD AND METROWEST	46	33	-28.6
5253	VINELAND ROAD AND UNIVERSAL	46	28	-38.8
4970	S KIRKMAN ROAD AND L B MCLEO	45	26	-42.5
6252	WESTGATE DRIVE AND S KIRKMAN	32	28	-11.8
4942	WESTGATE DRIVE AND S KIRKMAN	30	45	48.9
SUM:		3427	1586	

Source: *LYNX, n.d.; O'Keefe, LYNX_FY2019_BUS_STOP_RIDERSHIP_RANKING_WEEKDAY*

8.3. JUSTIFICATION

8.3.1. TRANSIT SYSTEM ANALYSIS

The following tables summarize responses to the 2017 Lynx ridership survey and have been filtered to only display responses of those who ride the six routes along the Kirkman corridor.

A review of the age range of riders, as displayed below in **Table 8.2**, show that out of the 1,177 responses received, a majority of the riders are between the age range of 18 to 44. More specifically, 27% of riders (313 responses) were between the age range of 25-34, 26% of the riders (309 responses) were between the age range of 18-24, and 18% of the riders (206 responses) were between the age range of 35-44. This data shows that a majority of the riders would fall under the age range category of young adult, with a steady drop off in ridership of 20% and 38% in each of the next two age classes above 44 years (45-54 and 55-64).

Table 8.2 - View of responses to riders age from the 2017 Lynx ridership survey along the Kirkman corridor routes

Rider Age

ROUTE_SURVEYED	(Multiple Items)

Row Labels	Count of AGE
13-15	6
16-17	27
18-24	309
25-34	313
35-44	206
45-54	165
55-64	102
65-74	42
75-84	5
Under 12	2
Grand Total	**1177**

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

A review of numbers of riders with drivers' licenses, as displayed below in **Table 8.3**, showed some interesting results. Of the 1,177 responses received, 53% of riders (620 responses) did not have a driver's license, while 47% of responses (553 responses) did have a driver's license. This is interesting because Orlando is known as being a very car centric city. This is also interesting because only 6 of the 1,177 responses came from individuals too young to qualify for a driver's license, meaning this number is not largely skewed by respondents who do not have a driver's license because they are not old enough to have one yet.

Table 8.3 - View of responses to numbers of riders with driver's licenses from the 2017 Lynx ridership survey along the Kirkman corridor routes

Number of Riders with Driver's Licenses

ROUTE_SURVEYED	(Multiple Items)

Row Labels	Count of DRIVING_LICENSE
Don't Know/Refuse	4
No	620
Yes	553
Grand Total	**1177**

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

In addition to the question regarding drivers' licenses, the survey also asked how many vehicles each respondent had in their household. As displayed in **Table 8.4**, 44% of riders (484 responses) stated that they do not have a vehicle accessible in their household. The next highest response, with 36% of riders (395 responses) stated that they only have 1 vehicle in their household. Only 20% of riders stated that they have two or more vehicles in their household.

Table 8.4 - View of responses to numbers of riders with driver's licenses from the 2017 Lynx ridership survey along the Kirkman corridor routes

Rider Vehicle's Per Household

ROUTE_SURVEYED (Multiple Items)	
Row Labels	**Count of COUNT_VH_HH**
Five (5)	4
Four (4)	10
None (0)	483
One (1)	395
Three (3)	44
Two (2)	175
(blank)	
Grand Total	**1111**

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

The survey question regarding employment industry contained results that were not so surprising giving what is located around the Kirkman Road corridor. As displayed in **Table 8.5**, of the 918 responses received, 52% riders (481 responses) stated that their employment industry fell under the category of "arts-entertainment-recreation-accommodation-food service". The next highest response after that was "retail trade" with 23% of riders (216 responses). With Kirkman Road being located in proximity to the likes of Universal Studios, International Drive, and some of the top tourist and retail attractions in the city (other than those located on Disney property), it should come as no surprise that a majority of respondents are in fields that could be categories as hospitality, entertainment, or retail.

Table 8.5 - View of responses to numbers of riders with driver's licenses from the 2017 Lynx ridership survey along the Kirkman corridor routes

Employment	
ROUTE_SURVEYED	(Multiple Items)
Row Labels	**Count of EMPLOYMENT_INDUSTRY**
Arts - Entertainment - Recreation - Accommodation - Food Services	481
Don't Know/Refuse	17
Education Services - Health Care - Social Assistance	72
Finance - Insurance - Real Estate Rental and Leasing	9
Other	37
Professional - Scientific - Management - Administrative - Waste Management	86
Retail Trade	216
(blank)	
Grand Total	**918**

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

As displayed in **Table 8.6**, a majority of the respondents live in six zip codes. Of the 1,177 responses, 24% of riders (288 responses) live in the 32811-zip code, which consists of the neighborhood east of Kirkman Road between FL-408 and Interstate 4. The second highest response, with 12% of riders (144 responses), was zip code 32839 which consists of the Millenia and Holden Heights neighborhoods. The next four zip codes each received between 8% and 9% of riders. Zip code 32805 received 108 total responses and consists of the Washington Shores and Rio Grande Park neighborhoods. Zip code 32818 received 102 responses and consists of Hiawassee and the western portion of Pine Hills. Zip code 32808 received 100 responses and consists of the Pine Hills, Rosemont, and Princeton/Silverstar neighborhoods. Finally, zip code 32835 received 96 responses and consists of the Metro West neighborhood located area west of Kirkman Road between FL-408 and the Florida Turnpike.

Table 8.6 - View of responses to home zip code from the 2017 Lynx ridership survey along the Kirkman corridor routes

Rider Home Address Zipcode	
ROUTE_SURVEYED	(Multiple Items)
Row Labels	**Count of HOME_ADDRESS [ZIP]**
32127	1
32174	1
32701	3
32703	11
32707	2
32708	1
32712	4
32714	2
32725	3
32730	1
32738	1
32750	1
32765	1
32771	3
32773	4
32779	1
32789	2
32792	10
32801	17
32803	10
32804	8
32805	108
32806	18
32807	7
32808	100
32809	41
32810	13
32811	288
32812	7
32814	1
32817	4
32818	102
32819	74
32820	1
32821	5
32822	19
32824	9
32825	3
32826	4
32828	1
32835	95
32836	1
32837	16
32839	144
33897	1
34711	1
34741	7
34744	3
34746	1
34747	2
34758	1
34759	2
34761	5
34769	2
34771	1
OUT OF STATE	3
Grand Total	**1177**

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

Trip origin for respondents is displayed below in **Table 8.7**. 50% of the riders (588 responses) stated that they were coming from their home while an additional 29% of the riders (339 responses) stated that they were coming from work. While all the other responses were significantly less than these top two responses, the third highest overall response was college/university with 5% of the riders (58 responses).

Table 8.7 - View of rider trip origin from the 2017 Lynx ridership survey along the Kirkman corridor routes

Rider Trip Origin	
ROUTE_SURVEYED	(Multiple Items)
Row Labels	**Count of ORIGIN_PLACE_TYPE**
Airport (passengers only)	2
College / University (students only)	58
Hotel	1
Medical / Doctor / Clinic / Hospital (non-work)	39
Other	1
Personal Business	14
School K-12 (students only)	16
Shopping	39
Sightseeing / Restaurant	13
Social Visit / Recreation / Religious / Community	57
Sporting or Special Event	1
Work	339
Work related	9
Your HOME	588
Grand Total	**1177**

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

In addition to rider trip origin the survey also asked for rider destination. As displayed in **Table 8.8**, the top two responses of "home" and "work" are the same as the question regarding trip origin. 42% of riders (499 respondents) stated that they were traveling to home, while 33% of riders (393 respondents) stated that they were traveling to work.

Table 8.8 - View of rider destination from the 2017 Lynx ridership survey along the Kirkman corridor routes

Rider Destination	
ROUTE_SURVEYED	(Multiple Items)
Row Labels	**Count of DESTIN_PLACE_TYPE**
Airport (passengers only)	1
College / University (students only)	49
Hotel	3
Medical / Doctor / Clinic / Hospital (non-work)	33
Personal Business	18
School K-12 (students only)	10
Shopping	75
Sightseeing / Restaurant	17
Social Visit / Recreation / Religious / Community	65
Sporting or Special Event	2
Work	393
Work related	12
Your HOME	499
Grand Total	**1177**
ROUTE_SURVEYED	(Multiple Items)

Source: O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021

Based upon latest ridership demographics, improved transit would only enhance the lives of those living in the corridor currently. The majority of riders live in the corridor, do not own vehicles, and are commuting to and from work. A significant portion of the riders are college students, supporting the need for a SuperStop at Valencia College to serve students appropriately.

8.3.2. PEDESTRIAN HYBRID BEACONS

Pedestrian Hybrid Beacons (PHB's) will be used at midblock crossings to ensure safe pedestrian crossings from sidewalks to the Bus Rapid Transit in the Kirkman Corridor. PHB's are only activated when pedestrians press a signalized button, which allows for better vehicular traffic flow in the corridor (US Department of Transportation Federal Highway Administration, n.d.).

When the pedestrian pushes the crossing button, vehicles are required to stop moving (US Department of Transportation Federal Highway Administration, n.d.). PHB's are best suited for areas where vehicle speeds and volumes are high in count, such as multilane streets (US Department of Transportation Federal Highway Administration, n.d.). Several benefits of PHB's can be seen in the following images, which are renderings of existing PHB's along Orange Blossom Trail starting at Holden Avenue (Florida Department of Transportation).

Figure 8.8 – View of Enhanced Pavement Markings, Pedestrian Hybrid Beacons, Raised Crosswalks, Decorative Median Fencing, Landscaping for Traffic Calming, Improved Pedestrian Lighting, and In-Road lighting

Source: FDOT

Figure 8.9 – Depiction of PHB's at nighttime. The overhead beacon is widely visible with enhanced in-road lighting pedestrian lighting for safer crossing

Source: *FDOT*

Figure 8.10 - View of potential landscaping options for the center median for PHB's to enhance the pedestrian experience

Source: *FDOT*

Florida Department of Transportation (FDOT) Crash Analysis Reporting System (CARS) data, as shown below in **Figure 8.11**, does not indicate a high number of pedestrian and cyclist crashes in the corridor as of 2016 – 2020 data (Rohan Sadhai, 2021). However, with corridor improvements, it is logical to assume pedestrian and cyclist activity would increase. Therefore, the needs for PHB's will increase as well in the corridor.

Figure 8.11 - View of CARS data along Kirkman Road 2016-2020

Source: *Rohan Sadhai, 2021*

8.3.3. PROPOSED BUS RAPID TRANSIT ROUTES

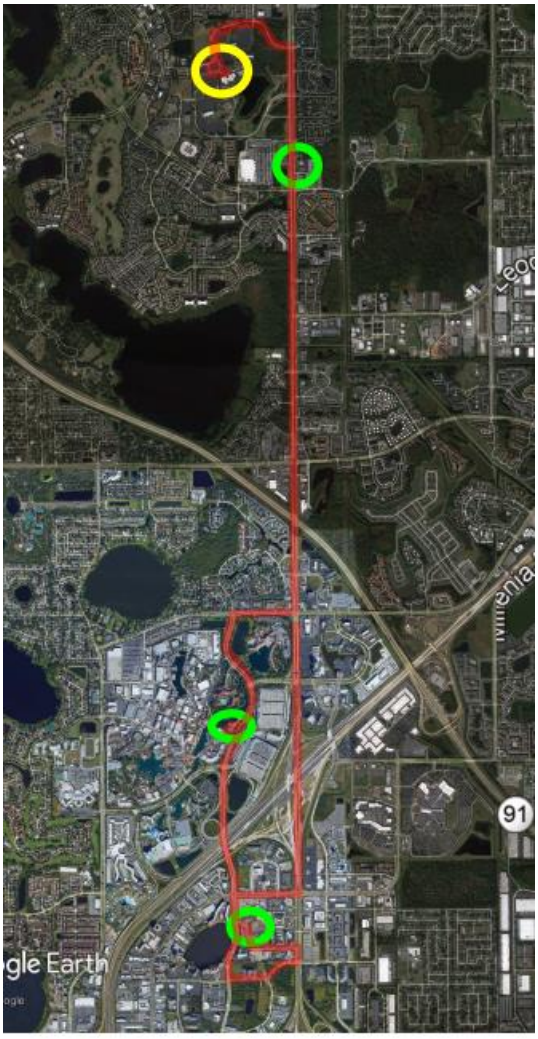
Based on the current Lynx bus routes in service, along with guidance from Claudia Korobkoff (Transportation Planning Division Manager) and Jason Burton (Assistant City Planning Division Manager) the following two BRT routes have been created. For both of these routes we are proposing 4 buses which will allow for pickup times to be about every 15 minutes (O'Keefe, LYNX_ODSURVEY_WEEKDAY_UCF Project 2021).

Route 1, as displayed in **Figure 8.12**, begins at the Valencia College West Campus Superstop (yellow circle), which we are proposing be placed in Lot E near buildings 5, 6, and 7. From there the route will take Valencia Community College Drive to the north exit of the campus, where it will turn onto Kirkman Road and head south. The first stop along the route will be in front of the Walmart that is located just north of the intersection of Kirkman Road and Metro West Boulevard. The second stop will occur just north of the intersection of Kirkman Road and Conroy Road, and the third stop will occur just north of the intersection of Kirkman Road and Vineland Road. The bus route will then turn right onto International Drive, left onto Universal Boulevard, left onto Carrier Drive and then left back onto Kirkman road where it will head north to its final stop which is just south of the intersection of International Drive and Kirkman Road. From there the bus will return to the Superstop. This proposed route is approximately 6.3 miles from the Superstop to the final stop south of the Intersection of Kirkman Road and International Drive and is approximately 11.25 miles round trip.

Figure 8.12 - Proposed BRT route 1 along the Kirkman corridor

Route 2, as displayed in **Figure 8.13**, begins at the Valencia College West Campus SuperStop (yellow circle), which we are proposing be placed in Lot E near buildings 5, 6, and 7. From there the route will take Valencia Community College Drive to the north exit of the campus, where it will turn onto Kirkman Road and head south. The first stop along the route will be in front of the Walmart that is located just north of the intersection of Kirkman Road and MetroWest Boulevard. From there the route will head south and will make a right onto Vineland Road and then make a left onto Universal Boulevard and head south. Stop number two will be at the ground transportation pick-up at Universal Studios. The route will then continue south along Universal Boulevard to stop number three which will be located near the entrance to Universal's Endless Summer Resort – Dockside Inn and Suites. The route then continues onto Precision Drive, turns right onto Kirkman Road, right onto Carrier Drive, right onto Universal Boulevard, and right onto International Drive before turning left back onto Kirkman Road and heading north back to the Superstop. This proposed route is approximately 5.7 miles from the Superstop to the final stop at the entrance to Universal's Endless Summer Resort – Dockside Inn and Suites and is approximately 12.15 miles round trip.

Figure 8.13 - Proposed BRT route 2 along the Kirkman corridor



In addition, once the Kirkman Road Extension south of FL-528 is built, as displayed in **Figure 8.14**, this route can be extended to service Universal Studio's Epic Universe (once completed) as well as any other associated housing/development Universal has planned along the Kirkman Road extension. The $305 million, 1.7-mile project is brought by a public/private partnership between Orange County and Universal. Construction will begin around December 2021 with a possible completion date of mid-2025. A total of eight lanes will be built - three travel lanes in each direction and two additional dedicated "transit" lanes displayed in **Figure 8.15**, along with additional improvements for pedestrians and bicycles. Funding for the project includes roughly $125 million from Orange County and about $164 million from Universal as well as a $16 million grant was provided. This project will be completed in three total phases and may create hundreds of temporary construction jobs and opportunities for suppliers.

Figure 8.14 - Kirkman Road Extension and Universal Studio's Epic Universe

Source: *Lynch, 2020*

Figure 8.15 – Dedicated Transit Lanes

Source: *Lynch 2020*

8.4. CASE STUDY: CURITIBA, BRAZIL

Orlando's Sister City- Curitiba, Brazil is well-known for pioneering the first Bus Rapid Transit (BRT) in the world. About 75% of the population utilizes the BRT system including about 60 kilometers (37 miles) of median busways while carrying 2 million passengers each day. The following is a timeline of Curitiba's BRT:

Table 8.9 - Timeline of events for Curitiba, Brazil Bus Rapid Transit

Timeline of Events	
1974	Constructed the first two BRT Corridors
1979	Feeder and inter-district buses integrated with BRT- Rede Integrada de Transporte (RIT)
1982	All 5 major BRT corridors were fully functional
1992	Introduced the circular boarding platforms as well as biarticulated buses to increase system capacity
2009	Opened the New Green Line BRT corridor

Source: *Institute, 2018*

Figure 8.16 – Curitiba Bus Lanes

Source: *Wikimedia, 2020*

Land Use policies and transport are integrated together into a concept of structural axes for high density development creating corridors with a travel demand suited to be met by transit. BRT operates an express service- segregated from other traffic and direct services- running along one-way roads with fewer stops. Travel demand for the busway system is further generated as (1) the busways enter and cross the central business district (CBD) while traffic access is limited by traffic management methods (bus-only access, pedestrianization, parking controls, etc.), and (2) bus feeder services are integrated into the busway at through interchange terminals and stops.

Figure 8.17 – View of Transfer Stations

Source: *Institute, 2018*

8.5. EXISTING BRT IN CENTRAL FLORIDA

The Disney Bus is scheduled to operate every 15-20 minutes daily with running times 60-90 minutes before park opening and 60-90 minutes after park closing. **Figure 8.18 and Figure 8.19** display the current mapping conditions of the BRT lanes at Disney Springs.

Figure 8.18 – Street View of the Disney Springs BRT

Source: *Google Maps, n.d.*

Figure 8.19 – Street View of the Disney Springs BRT

Source: *Google Maps, n.d.*

8.6. BRT BENEFITS

The BRT could serve long-distances and more stops while also eliminating conflicts with potential drop-offs, deliveries, or illegal parking along the roadway edge. Intersections are required to install turning provisions for vehicles. Enforcement is necessary to ensure their effectiveness with the through movements of the transit vehicles. Installation should be coordinated with land use changes that maximize economic growth potential.

Setback guidelines and other land use regulations must be tailored to create a more inviting pedestrian realm. **Figure 8.20** demonstrates median bus lanes located on a major route with applied colored paint, safe and controlled crossings, and accessible transit stops.

Figure 8.20 – Example of a Median BRT Lane

Source: *NACTO, 2018*

8.7. COSTS

The costs for the intervention elements are broken down by each project: SuperStop and Bus Rapid Transit (BRT). The primary costs for the SuperStop are the design of the SuperStop, and the cost of the Pedestrian Hybrid Beacons. Please note the costs provided are based upon case studies and may vary significantly if and when this measure moves forward with implementation.

The cost for the Super Stop based on a prior project, the Kissimmee Super Stop created by LYNX Kissimmee Super Stop is $1 million to $1.1 million (Lynx). **Table 8.10** shows a full breakdown of the costs for the Kissimmee Super Stop. Funding for PHB's would be primarily from Florida Department of Transportation (FDOT) grants.

Table 8.10 – Kissimmee SuperStop Costs

DRAFT 10-15-10

KISSIMMEE SUPER STOP BUDGET ESTIMATE

Item	Description	Quantity Phase I	Quantity Phase II	Units	Unit Cost	Phase I Total	Phase II Total	Item Total
	Installation of Type 6' x 13' shelter	14		EA	$7,197.00	$100,758.00	$0.00	$100,758.00
	4" thick sidewalk and passenger loading platform	10954	4405	SQ. Ft	$5.14	$56,303.56	$22,641.70	$78,945.26
	Sodding-Bahia	400		SQ. YD	$4.05	$1,620.00	$0.00	$1,620.00
	4" PVC Conduit	1800		LF	$2.40	$4,320.00	$0.00	$4,320.00
	Bollards	30		EA	$360.00	$10,800.00	$0.00	$10,800.00
	Landscaping/irrigation	1		LS	$65,000.00	$65,000.00	$0.00	$65,000.00
	Type F 6" curb and gutter	1650	655	LF	$17.80	$29,370.00	$11,659.00	$41,029.00
	Valley Gutter	108.7	45	LF	$22.00	$2,391.40	$990.00	$3,381.40
	8" Reinforce concrete including excavation	491	203	CY	$675.00	$331,558.33	$137,300.00	$468,858.33
	Demolition	1		EA	$50,000.00	$50,000.00	$0.00	$50,000.00
	12" stabilized soil subgrade	2605	1073	SY	$8.00	$20,838.22	$8,580.44	$29,418.67
	Excavation	882	363	CY	$6.25	$5,512.50	$2,271.25	$7,783.75
	ADA Ramp	8	4	EA	$600.00	$4,800.00	$2,400.00	$7,200.00
	Type 4 inlet	2	1	EA	$4,800.00	$9,600.00	$4,800.00	$14,400.00
	15" RCP	1000	50	LF	$68.76	$68,760.00	$3,438.00	$72,198.00
	Maintenance of Traffic	1		LS	$15,000.00	$15,000.00	$0.00	$15,000.00
	Mobilization	1		LS	$10,000.00	$10,000.00	$0.00	$10,000.00
	Permitting	1		LS	$3,000.00	$3,000.00	$0.00	$3,000.00
	Signs & markings	8		EA	$400.00	$3,200.00	$0.00	$3,200.00
	ESTIMATE OF TOTAL COSTS					$792,832	$194,080	$986,912
					CONTINGENCY AT	15.00%		$148,037
					TOTAL CONST. BUDGET			$1,134,949
			Additional Items Estimate					
	Lighting			8	EA	$6,000.00	$48,000.00	
	SECURITY CAMERA connectoin ot control center			4	EA	$41,120.00	$164,480.00	
	Ticket Vending Machine			1	EA	$62,700.00	$62,700.00	
	Pass Assist Phone			2	ea	$10,000.00	$20,000.00	
					SQ. Ft		$0.00	
	ESTIMATE OF TOTAL COSTS FOR ADDITIONAL ITEMS							$295,180
	ESTIMATE OF TOTAL COSTS							
						CONTINGENCY AT	15.00%	$44,277
						TOTAL BUDGET		$339,457
	Allowance for SFWMT permitting							
	Allowance for lighting CRA has standard fixture							
								$108,000
	LYNX Furnished Items							
	Solar Lights	16		EA	$3,100.00	$49,600.00	lynx fy budget	
	Type6 ' x 13' shelter	14		EA	$6,500	$91,000.00	lynx fy budget	
	Trash receptacles	8		EA	5500	$44,000.00		
	BENCHES	20		EA	1800	$36,000.00	lynx fy budget	
					Value of LYNX Items			$220,600
	TOTAL COST						$1,803,006	
							includes a 15% contingency	

Source: *LYNX*

Table 8.11 – PHB Cost

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Pedestrian Hybrid Beacon	Pedestrian Hybrid Beacon	$51,460	$57,680	$21,440	$128,660	Each	9(9)

Source: *US Department of Transportation Federal Highway Administration. n.d.*

PHB's have a cost range on average of roughly $58,000. PHB's have been found to reduce pedestrian vehicular impacts by roughly 55% (US Department of Transportation Federal Highway Administration, n.d.).

According to the Curitiba Transportation Department, the initial cost of the BRT in 1971 was 1.5 million (equivalent to 8.5 million in 2012) with an estimated construction cost of $200,000 (equivalent to $214,000 in 2012) per kilometer at the time of construction. The estimated cost for the initial 9.4-kilometer-long segment of the Green Line in 2009 was $60 million (equivalent to 64 million in 2012) (Institute, 2018).

8.8. POTENTIAL DESIGNS

Figures 8.21 and 8.22 are potential designs conducted through Street Mix for the Kirkman corridor. Bus Lanes have been dedicated to the median with tree buffers to add more greenery and shade with external transit lanes for automobiles, trucks, etc.

Figure 8.21 includes external bike lanes while **Figure 8.22** includes a shared bike and bus lanes. The current landscaping in the medians of the Kirkman Corridor is barren and needs more landscaping such as trees, shrubs, flowers, etc.

Figure 8.21 - Median Bus Lanes with External Bike Lanes

***Source**: Streetmix, n.d.*

Figure 8.22 - Median Bus Lanes with External Bike Lanes

***Source**: Streetmix, n.d.*

8.9. PLANNING FOR THE FUTURE

Figures 8.23 and 8.24 are potential long-term designs and future investments for the Kirkman corridor. **Figure 8.23**, also constructed from Street Mix, transforms the designs from **Figures 8.21 and 8.22** from dedicated bus lanes into Streetcar or shared Buses and Streetcars lanes. European trams also known as American street cars have been reintroduced into countries such as France, The United Kingdom, Germany, and Ireland. This mixed traffic rail provides clean energy, high quality, and high amenity services to serve tourists and residents in the area.

Figure 8.24 displays the potential of transforming the median bus lanes into autonomous buses. Lake Nona launched the first autonomous bus route in Central Florida. Autonomous Buses Rapid Transit has improved safety features by reducing the number of bus-related accidents and allows for accurate docking. Thus, buses will be close to the curb consistently, removing the time-consuming task of deploying a boarding extension to bridge the gap between the bus and the platform.

Figure 8.23 – Future Median Street-Car Lanes

Source: *Streetmix, n.d.*

Figure 8.24 – Autonomous Buses

Source: *Technology, 2019*

8.10. CONCLUSION

The key focus for enhancing the Kirkman Road Corridor is transit improvements. The potential partners for these improvements will include LYNX, City of Orlando, and Universal Studios. Kirkman Road connects to several major Central Florida assets such as the Orange County convention center, International Drive resort area, the Universal Orlando Resort and its Epic Universe expansion, MetroWest and Valencia College.

The Kirkman Road Corridor proposed two interventions of innovative transportation design will strengthen the connectivity of West Orlando. The first intervention for implementation is the West Campus Valencia College Superstop with Pedestrian Hybrid Beacons (PHB's) to increase crossing safety for pedestrians/cyclists to cross into the center median bus lane. The second invention will be the Bus Rapid Transit (BRT) route located along the street median within the corridor. Kirkman Road plans to expand South of Sand Lake Road in the future with dedicated transit lanes to allow more travel accesses to Universal Studios Epic Universe and upcoming development. The BRT includes two routes that will begin at Valencia College traveling to Carrier Drive with the potential extension to the Kirkman Road expansion. Bus Rapid Transit Lanes located along the median could transform both urban and suburban centers by converting car lanes to dedicated bus and bike lanes. Overall, the combined interventions provide alternative opportunities for residents and tourists.

KIRKMAN ROAD VISION PLAN

Nature Boardwalk

CITY OF ORLANDO

UCF

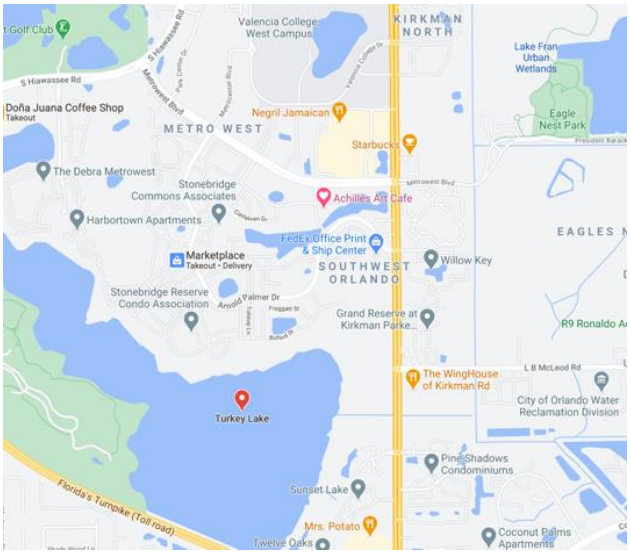
9.1. NATURE BOARDWALK

The City of Orlando is conducting a Visioning Plan process for the Kirkman Road corridor, an area most well-known for serving as a feeder for traffic into the Universal Studios theme park located on the road's southern end. This chapter illustrates the concept of a Wetlands Boardwalk Park built as just one integral part of the interventions proposed in the Kirkman Road Vision Plan.

The Boardwalk project will be located within the vacant wetlands area near the western terminus of L B McLeod Road. Both entrance-exits to the park are intended to be located at this intersection. The project will extend from Kirkman Road on the east through the southeastern portions of Turkey Lake on the western boundary of the wetlands.

As it stands, the location of this project will serve as a transitional recreation space. Currently, Bill Frederick Park is on the west side of Turkey Lake and Eagle Nest Park on the northeast of Kirkman Road, leaving a gap in usable open space, as shown in **Figure 9.1**. By providing a Boardwalk giving access to Turkey Lake, the residential and commercial users in that area gain immediate benefit. Moreover, a separate proposed housing intervention can be included on the subject property, should the city require the parcel. This strategic acquisition could both improve affordable housing and permit public access to the eastern end of Turkey Lake.

Figure 9.1 – Geographical Area



Source: *Google Maps, 2021*

Spanning approximately 1 mile, the Boardwalk is intended to improve the quality of life for nearby residents and visitors through air quality management, urban heat impact mitigation, increased access to safe locations for physical activity, mental health boosts, stress abatement, and advancement in local social equity.

Although not yet in final form, as this project is directly on conservation land located between residential and commercial zones, the design and architectural details are intended to respect the surrounding urban form. **Figure 9.2** illustrates the Boardwalk project's current conceptual design. The Appendix provides illustrations of other proposed area projects that can inform Boardwalk design.

Figure 9.2 – Conceptual Design

Source: *Google Earth, 2021*

9.2. JUSTIFICATION

9.2.1. SOCIAL BENEFITS

The benefits that could be achieved from the implementation of the Kirkman Nature Boardwalk will increase the quality of life for both residents and visitors to the region. When examining the social aspects of the corridor more intricately, approximately 71,000 residents reside within the study area, mainly within the neighborhoods of Pine Hills, Tangelo Park, MetroWest, Richmond Heights, Washington Shores, and Orla Vista (U.S. Census Bureau, 2018). Due to the relatively large population that resides within the region, the Kirkman Nature Boardwalk will serve as a vital component of the area's urban fabric. The benefits achieved from this project will result in:

1. Improved rates of physical activity for residents
2. Improved mental health
3. More equitable access to urban recreation facilities
4. Safe methods of stress reduction
5. Urban heat mitigation
6. Air quality maintenance

9.2.1.1. AIR QUALITY

When examining Orlando's AQI (Air Quality Index) metric for 2021, the annual average is 22 AQI, and the daily average hovers around 45 AQI, establishing the fact that the air is moderately polluted, which poses an increased risk of health complications for individuals with weaker immune systems (plume labs, 2021). Orlando's daily AQI of 45 is representative of a moderate score for the city's air metrics, as identified by the Environmental Protection Agency's (EPA) AQI metric. The AQI metric ranges from 0 – 500, indicative of rankings from Good to Very Unhealthy, where a score less than 100 is deemed as "satisfactory" by EPA standards and scores higher than 100 poses increased risks for certain categories of individuals (Florida Department of Environmental Protection, 2021).

As the Kirkman Nature Boardwalk will combine smart urban designs with environmental preservation, the goal would be to utilize the region's environmental assets in ways that can increase the quality of life for its residents. It was noted that (Nowak et al., 2018) in 2010 alone, trees removed an estimated 17.4 million tons of air pollution such as sulphur dioxide and nitrogen dioxide, among others, across the U.S. which prevented 850 deaths and 670,000 cases of respiratory symptoms.

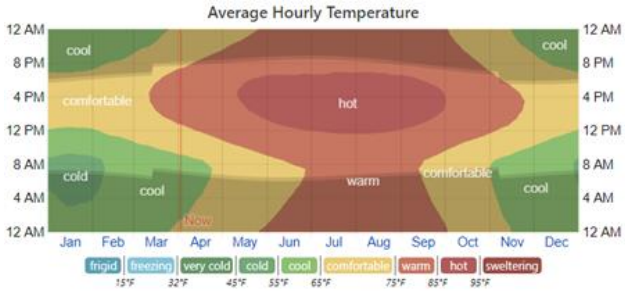
9.2.1.2. URBAN HEAT

The term Urban Heat is derived from the notion of a lack of viable green locations within cities which experience rapid development, often referred to as "concrete jungles." With a changing global climate that brings forth gradual increases in heat temperatures, it is vital for cities to incorporate infrastructures that provide both recreational and safe locations for individuals to enjoy natural amenities. The two charts below (**Figures 9.3 & 9.4**) are representative of Orlando's average temperatures gathered from data from the past several years. From examining Figure 3, Orlando's hottest months are categorized as between June and September, with average temperatures ranging from 85 degrees F – 95 degrees F. These months coincide with summer, in which many residents and visitors choose to embark on outside activities within the city and highlight the importance of providing amenities while still staying safe from the dangerous weather.

Figure 9.4 depicts Humidity Comfort Levels for the city, in which it experiences seasonal variations in

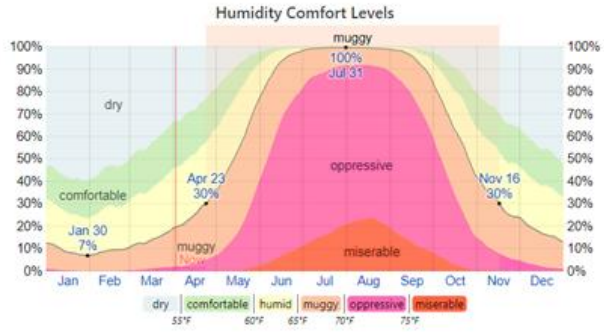
its perceived humidity levels where the muggiest time of the year lasts for roughly seven (7) months (April-November), during which time the weather condition is generally in the "oppressive range" (Weather Spark, n.d.). As Orlando faces extreme temperatures during its summer months and is highly dependent upon its tourism industry, outside amenities such as the Kirkman Nature Boardwalk can increase the city's long-term social and economic benefits. According to Zupancic et al., 2018), urban locations with a diversified portfolio of plants assist in reducing the urban heat island effect through evapotranspiration, an intricate process where water is evaporated back into the air at a faster rate compared to areas with minimal green locations.

Figure 9.3 - Avg. Hourly Temperature (Orlando, FL)



Source: Weather Spark, n.d.

Figure 9.4 - Avg. Hourly Temperature (Orlando, FL)



Source: Weather Spark, n.d.

9.2.1.3. BENEFITS OF PHYSICAL ACTIVITY

One of the benefits of having an urban trail near residential developments is the easy access that residents have to a safe and reliable form of recreation. Individuals can utilize the boardwalk for a variety of different activities such as walking or jogging and even congregating with friends for a brisk walk after dinner. It was noted by Ceci and Hassmen (2018) that people who exercised outdoors tend to do so for longer periods and more energetically compared to those who solely exercised indoors. By providing a Kirkman Nature Boardwalk, more residents will be encouraged to spend time outdoors, not only to exercise but also to make more trips within the immediate region on foot rather than by vehicle.

9.2.1.4. GENERAL MENTAL HEALTH

When focusing on the overall health of residents and visitors, neighborhoods should be accommodating to all individuals despite their physical or age limits. The Kirkman Nature Boardwalk will provide safe amenities for its users, helping to increase not only their quality of life but also their overall mood and perceived outlook on life. As noted by White et al. (2018), a study of life factors by researchers from the University of Exeter, in which they examined over 10,000 participants' general outlook on their lives ranking categories such as depression, anxiety, or other psychological disorders, they concluded that as green space increased within a 2.5-mile radius of residents' homes, overall well-being received a boost as well.

9.2.1.5. STRESS REDUCTION

Stress is a common factor within life in the 21st century, evident in the daily routines of many individuals. However, with the advent of Covid-19 at the beginning of 2020 and its continued presence well into 2021, stress is impacting many

areas of people's lives. One of the benefits of urban boardwalks is their natural ability to reduce one's stress levels without the need to resort to other methods that may be more harmful. The practice of Forest Bathing found within Japanese culture is a prime example of the necessity of having nature as a part of urban life and its benefits to residents. Shinrin-yoku, also referred to as Forest Bathing, is an ancient practice found within both Shinto and Buddhist practices that involve individuals taking meditative walks through green locations, in which the body can experience nature through its five senses (United States Department of Agriculture, 2018). As this practice is popular throughout the world, the advent of green locations such as the Kirkman Nature Boardwalk within cities is becoming a popular attraction in many areas throughout the Western hemisphere in the 21st century. It was noted that Lee et al. 2018) when comparing the practice of Forest Bathing to urban walks within cities, Forest Bathing was credited with an overall reduction in an individual's stress levels such as a 12.4 % decrease in the production of cortisol, a 7 % decrease in sympathetic nerve activity, a 1.4 % decrease in blood pressure, and a 5.8 % decrease in heart rate.

9.2.1.6. IMPROVING SOCIAL EQUITY

The Kirkman Nature Boardwalk will improve the quality of life for its residents and visitors by offering a centralized location in which individuals can enjoy the park's amenities in an ideal location that is free of charge. Inducing residents to make more trips on foot rather than by vehicle is a difficult task that cities are grappling with in the 21st century, as many cities are making green locations more accessible within their urban systems. An important tenet to note is the range of proximity of residents to parks and nature trails, which play a significant factor in accounting for their access to these locations within cities. To assist in increasing the quality of life for all residents and combatting long-standing inequalities resulting from urban development, accessibility to green area locations such as the Kirkman Nature Boardwalk can assist in bridging equity gaps.

9.2.2. ECONOMIC BENEFITS

In addition to providing municipalities with an enhanced appeal of the region, safe locations for public gatherings, and helping localities achieve climate change metrics, urban trails are notable for their economic investments. These investments are achieved in the long-term in the form of public and municipal savings, as well as in developments that are built out of the urban trail's implementation within a region. Developments that have been implemented in tandem with urban trails include hotels, local shops, eateries, outside music venues, among others which help in increasing a region's economic and social indicators. Some of the benefits achieved by municipalities as a result of incorporating urban trails include: an increase in the value of nearby properties, increased spending within local businesses as urban trails encourage more foot traffic within the immediate region, urban trails help in attracting more investors to the region due to their unique appeal, they assist in revitalizing other depressed areas such as developing community gardens or retrofitting un-developed/under-developed buildings, and they help increase tax revenues within their communities (Pennsylvania Land Trust Association, 2011).

An urban trail that we propose to emulate is the Virginia Creeper Trail (VCT), located in the southwestern region in Virginia, USA. The VCT is a widely utilized multipurpose rail-trail that has been in existence since the late 19th century, measuring approximately 34 miles long, beginning in the town of Abingdon, passing through Damascus, and

concluding in Whitetop (Bowker, Bergstrom, and Gill, 2007). As the trail encompasses a variety of different outdoor terrains, its components consist of boardwalks, bridges extending over rivers, and paths through forests, including the Appalachian Trail. When evaluating the VCT's economic impact on the surrounding communities in 2007, approximately 106,000 visitors embarked on the trail, spending roughly $23-$38 per patron on various outdoor supplies including camping equipment, bicycling apparatus, and snacks (Bowker et al., 2007). The VCT is also a significant economic component within these towns, helping to provide a steady supply of public financing. When examining the trail's economic contributions within its entrance in the town of Abingdon and its exit in Whitetop, there was a recorded $1.2 million in economic contribution directly in the two-county community around the trail. In comparison, the total economic spending within the trail itself generated $1.6 million which supported 27 jobs and $610,000 in labor earnings (Bowker et al., 2007).

9.3. OVERVIEW

The Wetlands Boardwalk park project (see **Figure 9.2**) is intended to serve as a micro-park that adds a quick access to nature as well as provides an ideal spot for photography. The boardwalk will extend from its road entrances, through and above the wetlands, and into the lake itself. Although the final design may vary, our preliminary design proposes a boardwalk that will span at least 10 feet northwest as a pier, creating multiple opportunities for visitors to walk above the lake. The boardwalk's water pier section will return to the wetlands area either at the same point of origin or as a separate entry-exit. Throughout the extension of the boardwalk, wildlife-safe programmable lighting will be added to assist vision for visitors at dusk and discourage late night visitation as the lights will turn off at a designated hour.

9.3.1. CONSTRUCTION AND DESIGN DETAILS

9.3.1.1. MATERIALS

The project will consist of an 8-foot-wide elevated boardwalk that extends from two entrances along Kirkman Road. These entrances will also serve as the exits to the park.

Regarding construction of the boardwalk, the likely material choices are a mixture of synthetic composite and pressure-treated wood parts, which have varying levels of durability, heat capture, and aesthetic presentation. Wood will be the major material component for the railing, as it helps to maintain an atmosphere of a natural escape from the urban setting just outside of the park. A synthetic composite material, designed to mimic the appearance of wood will be used for the decking. This composite is used instead of wood in order to preserve durability while remaining cost-effective. **Figure 9.5 and Figure 9.6** illustrate the appearance of the materials, respectively.

Figure 9.5 - Wood Picket Railing

***Source**: Fender Marine Construction, 2021*

Figure 9.6 - Composite Decking and Cap Rails

***Source**: Fender Marine Construction, 2021*

9.3.1.2. DESIGN

The elevation is estimated to be approximately two feet, just above the moist ground as seen in **Figure 9.7**, however soil survey data may result in an adjustment to the elevation. As the boardwalk extends into the water, the height of the boardwalk is expected to remain fairly level with slight gradual elevation through some parts of the water as seen in **Figure 9.8**.

Figure 9.7 - Elevated Boardwalk in a Wetland

***Source**: The WildDeck Company, n.d.*

Figure 9.8 - Gradual Pier Elevation (Lake David Park)

***Source**: City of Groveland, n.d.*

As the Concept Design (**Figure 9.1**) shows, the trail was designed with multiple components, some of which are optional add-ons. However, two critical components that should be included in the final design are the pier (dock) and a trail that has a loop. Orlando is known as "The City Beautiful," and "beautiful cities" trends include providing leisure amenities that contain picturesque aesthetics. With the advent and integration of social media into daily life, the sharing of locations that are attractive for taking photos has grown as a tourism source between the late 90s and 2000s. Moreover, the importance of accessible scenic locations has been enhanced by the recent COVID19 pandemic which forced people to increase digital consumption as they stayed indoors and increased outdoor activity as two methods of staying safe from the SARS-2-COV virus, which lingered in the indoors air (Carlino & Saiz, 2019). However, to further address aesthetics, **Figure 9.1** includes an optional pavilion, a wetlands overlook, as well as a Gazebo.

The loop design of the trail is a necessary design component. City of Orlando staff observe that trails are more attractive if they have a looped walking design where walkers and runners can move in a continuous fashion instead of walking to an

endpoint and then reversing movement direction (Cohen et al., 2017). Moreover, the loop serves as a directional amenity to help users if they become lost. Both American Trails and the State of Minnesota recognize importance of designing trails that minimize re-routing of users and potential for becoming lost (American Trails, 2007; Minnesota Department of Transportation & Wisconsin Department of Transportation, n.d.).

9.3.2. LIGHTING DETAILS

The lights proposed for the Boardwalk are Solar Bollard Lights (**Figure 9.9**), a model of Solar Lighting frequently used in recreational and outdoor settings. Due to their compatibility with ecological locations and their numerous cost-saving benefits, solar Bollard Lights are among the most requested types of lighting for outdoor settings. Therefore, the BC13 Solar LED Bollard Light is the recommended lighting choice for this project.

Figure 9.9 - BC13 Solar Bollard Light

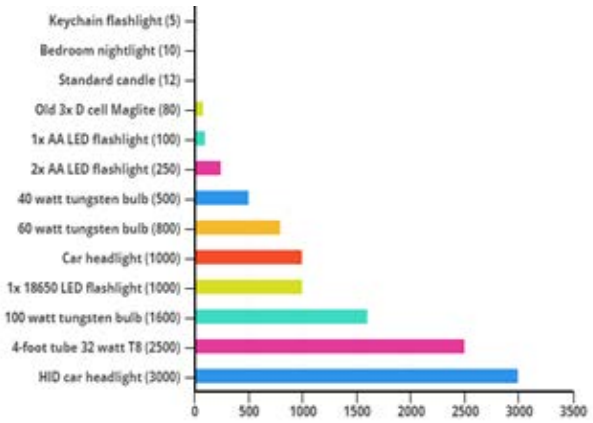
***Source**: Solar Illuminations, 2021*

Below, is the specifications description summarized from the manufacturer, Solar Illuminations:

> The lights are made in two height options, 33 inches tall (small) and 41 inches tall (large). All versions of this model include a powder- coated anti-rust aluminum base, single 3.7V 2400mAh lithium battery (safe in inclement weather), a 100 (lm) output, and a 2.5-watt solar panel polycarbonate lampshade. The lampshade produces 360-degree continuous illumination for over 10 hours. The light's programming abilities allow for automatic on/off functions based on owner preferences. (Solar Illuminations, 2020)

The selection of light fixtures is initially based on the four primary categories of light model differences: duration of operation, heat emittance, brightness index, and consumer reliability. Four categories of lighting types, illustrated in **Figure 9.10**, are as follows: Fluorescent (Compact fluorescent lamps and Fluorescent tube/circline lamps), Incandescent, Outdoor Solar, and Lighting-emitting diode (LED) (U.S. Department of Energy, n.d.). One of the main benefits of utilizing a solar lighting apparatus such as the BC13 Solar LED Bollard, in comparison to other popular lighting types, is its cost saving benefits over a long-term usage period. For example, when comparing LED Solar lighting to Incandescent lighting, LED Solar lighting uses approximately 75% less energy, has a longer duration of active use (averaging 25 times longer), and emits less heat compared to an Incandescent bulb's higher energy consumption (U.S. Department of Energy, n.d.). As the Boardwalk is a part of the Kirkman Road Corridor's overall urban transformation, a lighting product that preserves the region's fragile ecological location is best suited for urban form compatibility and utility.

Figure 9.10 - Lumens Brightness Chart



Source: Source: Miller, 2018

One of the notable features of Solar Bollard Lights is their durability, which provides ample lighting for recreational activities while still maintaining an ecological equilibrium in its immediate surroundings. When choosing an LED light fixture for a location, one of the most significant aspects to take into consideration is the light's Lumen output. The term Lumens, also commonly referred to as "lm", is a measure of the total amount of visible light emanating from a light source to the human eye. Lumens take into account an LED's heat index rating, light color output on the Kelvin Scale, and its lm number which depicts how bright or dim the light will be in operation (Integral LED, n.d.). As depicted above in **Figure 9.10**, the Lumens Brightness Chart is a measurable tool used to gauge a bulb's specific output of light, like how Incandescent and Fluorescent Bulbs utilize Wattage (w) to gauge their brightness and temperature/heat index. When considering the BC13 Solar Bollard Light, this fixture emits 100 lumens of light which is comparable to 1 AA LED Flashlight, as depicted in Figure 6 above. This comparison portrays the non-intrusive feature of the product, able to produce a light that is accommodating to its region while not being harmful to nearby wildlife or plants.

When comparing the average lifespan for LED to both Fluorescent and Incandescent lights, LED's offer a superior lifetime capacity due to their unique composition.

> Both Incandescent (750-2,000 hours of use) and Fluorescent (24,000-36,000 hours of use) light sources contain a single tungsten filament, a thin wire held in between two opposing rods responsible for generating light, which generally burns out in a minimal amount of time. However, LED's (35,000-50,000 hours of use) undergo a process known as lumen depreciation, in which its emittance of light becomes dimmer over time but still operational (Levison, 2020).

The specific placement of solar lights on a property depends on a multitude of factors such as the size of the location, its geological composition (hilly, tall grass, trees, etc.), and what type of lighting effect the owner(s) are trying to accomplish with the LED lights. It is generally recommended to place LED lighting at least 6-8 ft. apart for residential applications and 4-6 ft. apart for commercial locations (SolarTown, n.d.). Being that the Boardwalk is located in a natural area, it may be advantageous to only place the lights at 10-foot intervals to avoid the pathway being too bright and distracting.

9.4. TRAIL EXAMPLES

Trails similar to the proposed trail can be found within Orlando's existing park inventory, and inspiration for additional features can be found throughout the country at similar facilities. One park in Orlando that meets some of the same goals as the proposed trail is the Carl T. Langford Park boardwalk trail. This boardwalk allows park visitors to experience the natural conditions of natural wetlands without significantly damaging or

interfering with the natural environment that Orlando has.

Figure 9.11 - Carl T Langford Park Boardwalk Trail

***Source**: City of Orlando, n.d.*

The Nature Pavilion at Lincoln Park Zoo in Chicago, Illinois, is an example of what this trail could resemble. It includes several scenic overlooks into a restored wetland, an education pavilion, and informational plaques that allow visitors to learn about the natural vegetation and wildlife. The pavilion is used for educational exhibits, weddings, and small events.

Figure 9.12 - Lincoln Park Zoo Nature Pavilion

***Source**: City of Chicago*

Figure 9.13 - Lincoln Park Zoo Concept Aerial

***Source**: City of Chicago*

The City of Groveland, Florida has implemented a boardwalk that is not dissimilar to what is being proposed at Turkey Lake (see **Figure 9.14**). The park includes a curvilinear boardwalk with a covered section to shield guests from inclement or hot weather. It opens up the natural asset that is Lake David to the public, as the proposed park would leverage the natural beauty of Turkey Lake

and the surrounding wetlands to the Kirkman Road corridor.

Figure 9.14 - Lake David Boardwalk Pier

***Source**: City of Groveland*

9.5. ESTIMATED PROJECT COSTS

9.5.1. CONSTRUCTION MATERIALS

The choice for the Boardwalk's construction materials equally weighed price, eco-friendliness, and durability as factors. Per recommendations from a Central Florida-based decking company, the decking materials will be a synthetic composite, pressure-treated wood for the picket railing with cap rails made of the synthetic composite.

At the approximate prices of $50/SF for the decking and $90/LF for the railing, a basic 1-mile long boardwalk construction typically costs near $3,000,000. If cable railing, shown in **Figure 9.15**, were to be used, the project price would significantly increase as cable railing is approximately $150/LF. However, the aesthetics of the Boardwalk would significantly improve as the material is less visible, providing a better view of nature.

Figure 9.15 - Cable Railing

***Source**: Atlantis Rail*

9.5.2. LIGHTING

A single BC13 Solar LED Bollard Light in size small (33 inches tall) is $179.99, and large (41 inches tall) is $199.99 (Solar Illuminations, 2020). When deciding on which option to select, both the small or large lighting apparatus can provide the ample light needed for the Kirkman Nature Boardwalk to function properly at dusk. Using the estimated 10-foot spacing alternating intervals along two sides of a ~1 mile (5280 feet) path, the cost of just over 520 lights is roughly $93,600 to $104,000 for lighting.

The high cost for this brand of LED light may seem daunting at first. However, when comparing the cost to other traditional forms of lighting the cost-benefits will be achieved within a relatively short time frame. Comparing the price of LED lights to their counterparts (Incandescent and Fluorescent), LEDs, on average, are twice as expensive due to the unique composition that allows them to function for longer durations. Some of these price differences are seen in the composition of LED lights such as additional units required to construct

a single bulb, their incorporation of an LED Driver (a device that monitors the structure's heat and directs energy to the required components), and their incorporation of aluminum that assists in dispelling produced heat (Supreme Imports Ltd, 2015).

Table 9.1 below is a cost comparison chart depicting several categorical differences for LED lights, CFLs, and incandescent bulbs. When examining the cost per bulb, a single LED bulb is twice as expensive as a CFL, and four times the price of an incandescent bulb. However, cost savings can be realized when factoring in the lifespan duration and maintenance needs.

Noting the cost of electricity at $0.10 per kilowatt-hour, for 25,000 hours (approx. 3 years), the LED light totaled $21.25, which is nearly $14 cheaper than a CFL and $120 cheaper than an incandescent bulb. Moreover, in calculation of the number of needed bulbs to light the trail equally, the required frequency of LED bulb placement still leads to lower long-term electricity expenditures.

Table 9.1 - Lighting Costs Comparisons

	LED	CFL	Incandescent
Light bulb projected lifespan	25,000 hours	10,000 hours	1,200 hours
Watts per bulb (equiv. 60 watts)	8.5	14	60
Cost per bulb	$5	$2	$1
KWh of electricity used over 25,000 hours	212.5	350	1500
Cost of electricity (@ 0.10 per KWh)	$21.25	$35	$150
Bulbs needed for 25,000 hours of use	1	2.5	21
Equivalent 25,000 hours bulb expense	$5	$5	$21
Total cost for 25,000 hours	$26.25	$40	$171
Energy Savings over 25,000 hours, assuming 25 bulbs per household			
Total cost for 25 bulbs	$656.25	$1000	$4275
Savings to household by switching from incandescent bulbs	$3618.75	$3275	$0

***Source**: Eartheasy, 2021*

9.6. IMPLEMENTATION CHALLENGES

The biggest potential hurdle implementing this intervention would be acquiring a permit to construct the trail in the conservation easement/wetland areas found onsite. According to the St. John's Water Management District, the official definition of a conservation easement is a "legal agreement designed to conserve open space, water recharge areas, environmentally sensitive lands, wildlife habitat or historic features on a specific parcel of land (SJRWMD, 2021)." As it stands today, the parcel sits on a forested wetland that the city considers a City Protected Tier I wetland as per the 1992 city-wide wetland study. As a part of this reality, considerations will need to be made to ensure the boardwalk and park intervention will minimize impacts to the wetland and the larger ecological system. Some potential adjustments might need to be made, such as providing options for rehydration of the remaining wetlands onsite, potential mitigation banking for any development which removes wetlands, and a proper on-site mitigation plan to minimize wetland loss. All of these potential barriers are going to be commensurated with the managing water management district, the South Florida Water Management District, and their specific requests and requirements per a review of the site and the boardwalks' impacts.

An additional barrier to the successful implementation of this intervention involves managing the existing attractive nuisance issue onsite. As satellite imagery and local knowledge have revealed, there are reports of individuals using the site for recreational activities such as illegally accessing Turkey Lake from the area, riding vehicles through the wetlands, and potentially using the area for camping and other outdoor recreation. Per the attractive nuisance doctrine, the landowner (in this case, the City) would be held liable for any injuries to individuals trespassing on

the property. As a result, individuals who are currently using the land illegally would need to be removed, and improvements may need to be made to the boardwalk/park intervention to ensure nobody trespasses after hours. Some potential interventions could include fencing or security to provide legal protection for the City and increase public confidence in the safety of the park. However, these interventions will ultimately add further cost to the intervention, so a discussion with the city/community would have to be made about the trade-off.

Finally, the last potential hurdle to the construction of the boardwalk/park involves impacts to any existing endangered species that exist within the wetland/forested site. Specifically, and most frequently noted in similar parcels around the Central Florida region, the Gopher Tortoise would be the most likely species impacted by this construction. As a result, the area will need to be surveyed for any existing Gopher Tortoise holes, and staff will need to coordinate with the Florida Fish and Wildlife Commission to complete a permit ensuring no impact if there are Tortoises onsite or a potential relocation plan if they are to be impacted.

9.7. CONCLUSION

Serving as just one link to a chain of interventions proposed in the Kirkman Road Corridor, the Nature Boardwalk will be a calming getaway in the midst of a densely-populated urban built environment. The design of the project took into account function and appeal to users with hopes that the Boardwalk provide residents and visitors a valued space for recreation and personal wellness utility. Moreover, the Boardwalk's installation is expected to provide secondary benefits from increased foot traffic in the nearby commercial corridor, boardwalk user preparation purchases, and improved productivity from area employees that use the Boardwalk to decompress. As the project is connected to proposed and currently existing features within the Kirkman Road Corridor, hope remains for improved quality of life for residents/visitors as well as increased investment in an area, that lacks the economic power of nearby tourist attractions.

APPENDIX

Exhibit 9.1 - Proposed Nearby Residential Development

Source: Google Earth, 2021

Exhibit 9.2 - Proposed Multi-use Path

Source: Google Earth, 2021

Exhibit 9.3 - Proposed Bridge Connection

Source: Google Earth, 2021

APPENDIX

APPENDIX A

Kirkman Road Vision Plan Survey – English

KIRKMAN ROAD VISION PLAN

English

Introduction

University of Central Florida and City of Orlando are working to create a vision plan for the Kirkman Road Corridor. The purpose of the proposed 20 year vision plan is to identify opportunities to improve the experience of residents, business owners, and visitors to the area. As someone who lives, works, or owns property in the area, your feedback is important. Thank you for taking the time to let us know what you think.

How much trust or distrust do you have in the City of Orlando when it comes to handling local problems?

- ◯ A lot of trust
- ◯ Some trust
- ◯ Neither trust nor distrust
- ◯ Some distrust
- ◯ A lot of distrust

What is your relationship to the Kirkman Road area? Check all that apply

- ☐ I live here
- ☐ I work here
- ☐ I own property here
- ☐ I own a business here
- ☐ I go to school here
- ☐ Other

Please rate how much you agree or disagree with the following statements:

I would be happy to live in my neighborhood for the next several years

- ◯ Strongly agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Strongly disagree

Why not?

I feel safe in my neighborhood

- ◯ Strongly agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Strongly disagree

It's easy to get to the places I need to go

- ◯ Strongly agree
- ◯ Somewhat agree
- ◯ Neither agree nor disagree
- ◯ Somewhat disagree
- ◯ Strongly disagree

What do you need better access to?

What is the most important influence on your decision to live here?

- ◯ My family lives nearby
- ◯ Close to work
- ◯ It's affordable
- ◯ I was born here or my parents live here
- ◯ To be in the school district
- ◯ Other

Do you rent or own your home?

- ◯ Rent
- ◯ Own
- ◯ I live with relatives or friends short term
- ◯ Other

Are you employed?

- ◯ Yes
- ◯ No

How many jobs do you have?

What times of day do you usually travel to and from work? Check all that apply

- ☐ Morning
- ☐ Afternoon
- ☐ Evening
- ☐ Overnight

How many hours a week do you work?

How many minutes does it take you to get to work?

How important or unimportant do you think it is that your neighborhood is walkable?

- ◯ Extremely important
- ◯ Somewhat important
- ◯ Neither important nor unimportant
- ◯ Somewhat unimportant
- ◯ Extremely unimportant

How do you usually get around for things like shopping, doctor appointments, etc.? **Check all that apply.**

- ☐ Walk
- ☐ Drive yourself
- ☐ Have family or friends drive you
- ☐ Lynx
- ☐ Ride a bike
- ☐ SunRail
- ☐ Taxi
- ☐ Uber or Lyft
- ☐ Use a special transportation service, such as one for seniors or persons with disabilities
- ☐ Other
- ☐ I don't leave my house

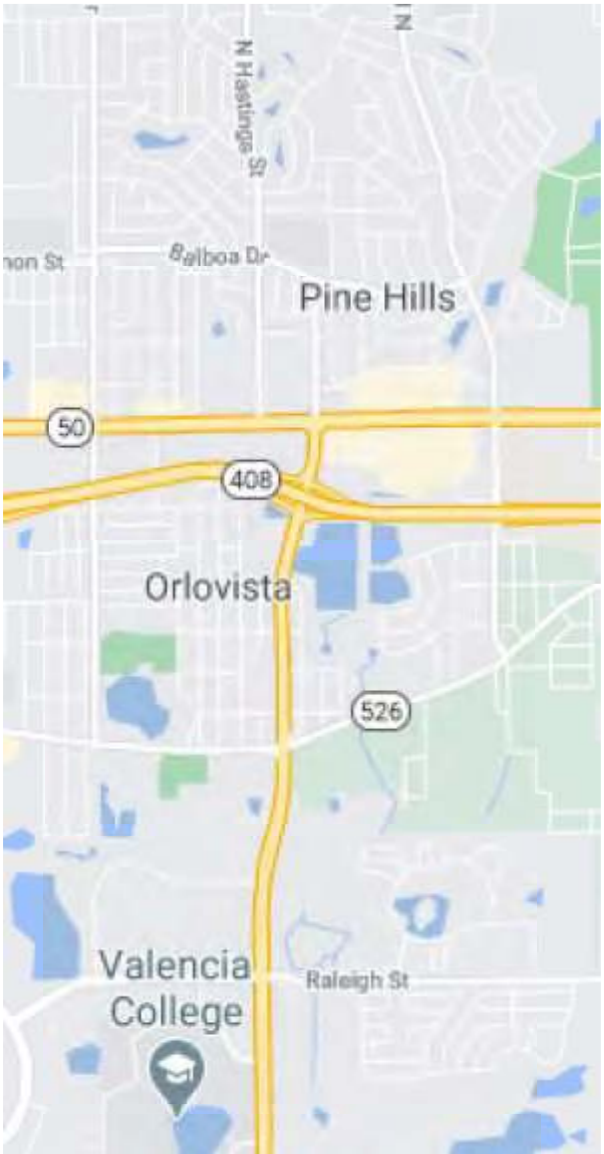
What could be improved about your neighborhood? Check the 3 items that are most important to you

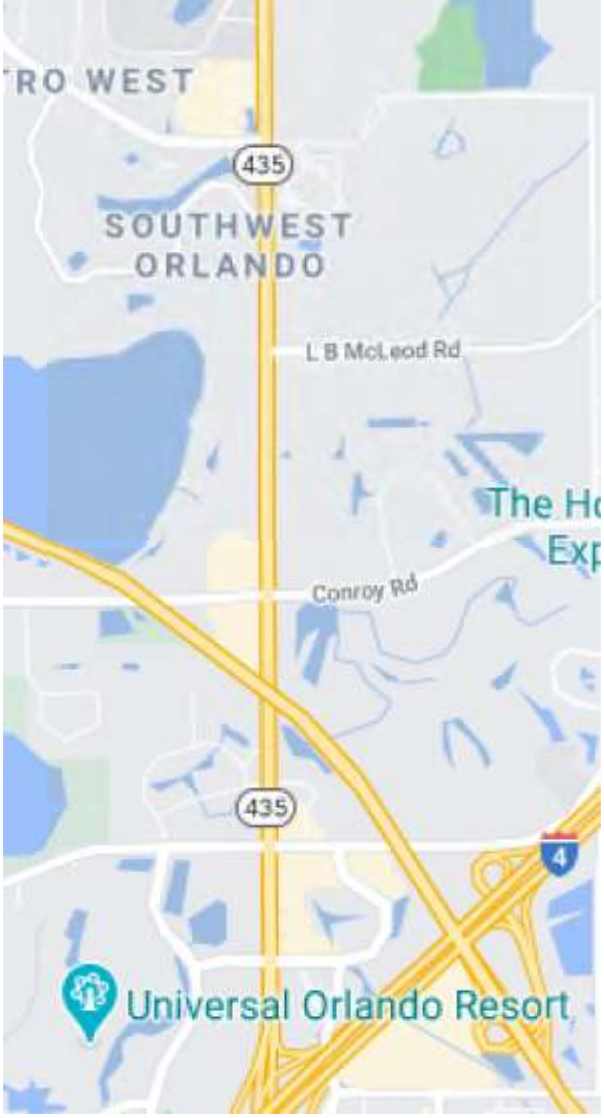
- ☐ Traffic
- ☐ Crime
- ☐ Length of commute to work or school

- [ ] Quality of schools
- [ ] Access to grocery stores
- [ ] Access to banks
- [ ] Access to places for community gatherings
- [ ] Other

Is there anything else you would like to tell us about your neighborhood?

Click the area on the map nearest to your home, business or property





Demographics Questions

The following optional questions will provide us with information that will allow us to understand the unique needs of our residents.

How long have you lived in the City of Orlando?

- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ More than 10 years
- ◯ My whole life

How long have you lived in your current house or apartment?

- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ More than 10 years
- ◯ My whole life

Which of the following best describes where you currently live?

- ◯ A single family house
- ◯ A two family house that has two separate living units
- ◯ A townhouse or row house
- ◯ An apartment
- ◯ A condominium or coop
- ◯ A mobile home
- ◯ Senior housing or assisted living facility
- ◯ Other

Do you live by yourself?

- ◯ Yes
- ◯ No

Who else lives in your household? **Check all that apply.**

- ☐ Spouse/partner
- ☐ Child/children under 18
- ☐ Child/children 18 or older
- ☐ Child/children away at college
- ☐ Parents
- ☐ Other adult relative, friend or roommate who is 18 or older

Which of the following best describes your current employment status?

- ◯ Self-employed, full-time
- ◯ Self-employed, part-time
- ◯ Employed, full-time
- ◯ Employed, part-time
- ◯ Retired, not working at all

- ◯ Unemployed, looking for work
- ◯ Other

What is the highest level of education that you completed?

- ◯ Less than high school
- ◯ High school graduate or equivalent
- ◯ Some college
- ◯ 2 year degree
- ◯ 4 year degree
- ◯ Professional degree
- ◯ Doctorate

In which category did your annual household income before taxes fall in 2018?

- ◯ Less than $10,000
- ◯ $10,000 but less than $20,000
- ◯ $20,000 but less than $30,000
- ◯ $30,000 but less than $50,000
- ◯ $50,000 but less than $75,000
- ◯ $75,000 but less than $100,000
- ◯ $100,000 but less than $150,000
- ◯ $150,000 or more

Are you Hispanic, Latino or of Spanish origin?

- ◯ Yes
- ◯ No

How would you describe yourself? If you fit into more than one category, check all that apply.

- ☐ Indigenous North or South American, including American Indian, Alaska Native and Quechua
- ☐ Asian, including East Asia and Indian Subcontinent
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White

Which language do you prefer to speak?

- ◯ English
- ◯ Spanish
- ◯ I don't have a preference
- ◯ Other

Are you a member of an underrepresented group (such as LGBTQ or disability) that you would like us to know about?

- ◯ Yes
- ◯ No

What group do you belong to?

Gender: **Check all that apply**

- ☐ Male
- ☐ Female
- ☐ Transgender
- ☐ Non-Binary
- ☐ I would like to write in my gender

Gender

Panel Opt-In

Would you like to opt-in to our panel to participate in future research projects for the City of Orlando?

- ◯ Yes
- ◯ No

Please enter your contact information below.

First Name	${m://FirstName}
Last Name	${m://LastName}
Email	${m://Email1}

APPENDIX B

Kirkman Road Vision Plan Survey – Spanish

Kirkman Vision Plan Survey

Start of Block: Introduction

Q1 University of Central Florida and City of Orlando are working to create a vision plan for the Kirkman Road Corridor. The purpose of the proposed 20 year vision plan is to identify opportunities to improve the experience of residents, business owners, and visitors to the area. As someone who lives, works, or owns property in the area, your feedback is important. Thank you for taking the time to let us know what you think.

Q1 La Universidad de Florida Central y el municipio de Orlando están colaborando para crear un plan de visión para Kirkman Road. El propósito del plan de visión de 20 años propuesto es identificar oportunidades para mejorar la experiencia de los residentes, dueños de negocios y visitantes del área. Como alguien que vive, trabaja o es dueño de una propiedad en el área, sus comentarios son importantes. Gracias por tomarse el tiempo para dejarnos saber lo que piensa.

Q2 How much trust or distrust do you have in the City of Orlando when it comes to handling local problems?

- O A lot of trust (5)
- O Some trust (4)
- O Neither trust nor distrust (3)
- O Some distrust (2)
- O A lot of distrust (1)

Q2 ¿Cuánta confianza o desconfianza tiene en el municipio de Orlando cuando se trata del manejo de problemas locales?

- O Mucha confianza (5)
- O Algo de confianza (4)
- O Ni confianza ni desconfianza (3)
- O Algo de desconfianza (2)
- O Mucha desconfianza (1)

Q3 What is your relationship to the Kirkman Road area? Check all that apply

- ☐ I live here (1)
- ☐ I work here (2)
- ☐ I own property here (3)
- ☐ I own a business here (4)
- ☐ I go to school here (5)
- ☐ Other (6) _____

Q3 ¿Cuál es su relación con el área de Kirkman Road? Marque todo lo que corresponda

- [ ] Vivo aquí (1)
- [ ] Trabajo aquí (2)
- [ ] Soy dueño de una propiedad aquí (3)
- [ ] Tengo un negocio aquí (4)
- [ ] Voy a la escuela aquí (5)
- [ ] Otro (6) _____

Q4 Please rate how much you agree or disagree with the following statements:

Q4 Califique cuán de acuerdo o en desacuerdo está con las siguientes afirmaciones:

Q5 I would be happy to live in my neighborhood for the next several years

- O Strongly agree (1)
- O Somewhat agree (2)
- O Neither agree nor disagree (3)
- O Somewhat disagree (4)
- O Strongly disagree (5)

Q5 Me encantaría vivir en mi vecindario durante los próximos años

- O Totalmente de acuerdo (1)
- O Algo de acuerdo (2)
- O Ni de acuerdo ni en desacuerdo (3)
- O Algo en desacuerdo (4)
- O Totalmente en desacuerdo (5)

Display This Question:

If I would be happy to live in my neighborhood for the next several years = Somewhat disagree

Or I would be happy to live in my neighborhood for the next several years = Strongly disagree

Q6 Why not?

_____

_____

_____

_____

_____

Q6 ¿Por qué no?

_____

_____

_____

_____

_____

Q7
I feel safe in my neighborhood

- O Strongly agree (1)
- O Somewhat agree (2)
- O Neither agree nor disagree (3)
- O Somewhat disagree (4)
- O Strongly disagree (5)

Q7 Me siento seguro en mi vecindario

- O Totalmente de acuerdo (1)
- O Algo de acuerdo (2)
- O Ni de acuerdo ni en desacuerdo (3)
- O Algo en desacuerdo (4)
- O Totalmente en desacuerdo (5)

Q8 It's easy to get to the places I need to go

- O Strongly agree (1)
- O Somewhat agree (2)
- O Neither agree nor disagree (3)
- O Somewhat disagree (4)
- O Strongly disagree (5)

Q8 Es fácil llegar a los lugares a los que necesito ir

- O Totalmente de acuerdo (1)
- O Algo de acuerdo (2)
- O Ni de acuerdo ni en desacuerdo (3)
- O Algo en desacuerdo (4)
- O Totalmente en desacuerdo (5)

Display This Question:

If It's easy to get to the places I need to go = Neither agree nor disagree

Or It's easy to get to the places I need to go = Somewhat disagree

Or It's easy to get to the places I need to go = Strongly disagree

Q9 What do you need better access to?

_____

_____

_____

_____

_____

Q9 ¿A qué necesita un mejor acceso?

_____

_____

_____

_____

_____

Display This Question:

If What is your relationship to the Kirkman Road area? Check all that apply = I live here

Q10 What is the most important influence on your decision to live here?

- O My family lives nearby (1)
- O Close to work (2)
- O It's affordable (3)
- O I was born here or my parents live here (4)
- O To be in the school district (5)
- O Other (6) _____

Q10 ¿Cuál de los siguientes factores ejercieron mayor influencia sobre su decisión de vivir aquí?

- O Mi familia vive cerca (1)
- O Cerca del trabajo (2)
- O Es asequible (3)
- O Nací aquí o mis padres viven aquí (4)
- O El distrito escolar (5)
- O Otro (6) _____

Q12 Do you rent or own your home?

- O Rent (1)
- O Own (2)
- O I live with relatives or friends short term (3)
- O Other (4) _____

Q12 ¿Alquila o es dueño de su casa?

- O Alquilo (1)
- O Propietario (2)
- O Vivo con familiares o amigos a corto plazo (3)
- O Otro (4) _____

Q13 Are you employed?

- O Yes (1)
- O No (2)

Q13 ¿Tiene empleo?

- O Sí (1)
- O No (2)

Display This Question:

If Are you employed? = Yes

*

Q14 How many jobs do you have?

_____

Q14 ¿Cuántos trabajos tiene?

_____

Q15 What times of day do you usually travel to and from work? Check all that apply

- ☐ Morning (2)
- ☐ Afternoon (3)
- ☐ Evening (4)
- ☐ Overnight (5)

Q15 ¿A qué hora del día viaja habitualmente hacia y desde el trabajo? Marque todo lo que corresponda

- ☐ Mañana (2)
- ☐ Tarde (3)
- ☐ Noche (4)
- ☐ Pernoctar (5)

Display This Question:

If Are you employed? = Yes

*

Q16 How many hours a week do you work?

_____

Q16 ¿Cuántas horas trabaja a la semana?

_____

Q17 How many minutes does it take you to get to work?

_____

Q17 ¿Cuántos minutos le toma llegar al trabajo?

_____

Q18 How important or unimportant do you think it is that your neighborhood is walkable?

- O Extremely important (5)
- O Somewhat important (4)
- O Neither important nor unimportant (3)
- O Somewhat unimportant (2)
- O Extremely unimportant (1)

Q18 ¿Qué tan importante o poco importante es que pueda caminar por su vecindario?

- O Extremadamente importante (5)
- O Algo importante (4)
- O Ni importante ni poco importante (3)
- O Algo sin importancia (2)
- O Extremadamente sin importancia (1)

Q19
How do you usually get around for things like shopping, doctor appointments, etc.? **Check all that apply.**

- [ ] Walk (1)
- [ ] Drive yourself (2)
- [ ] Have family or friends drive you (3)
- [ ] Lynx (7)
- [ ] Ride a bike (9)
- [ ] SunRail (1)
- [ ] Taxi (4)
- [ ] Uber or Lyft (5)
- [ ] Use a special transportation service, such as one for seniors or persons with disabilities (6)
- [ ] Other (10)
- [ ] I don't leave my house (11)

Q19 ¿Cómo se desplaza habitualmente para realizar compras, citas con el médico, etc.? **Marque todas las opciones que correspondan**.

- [ ] Camino (1)
- [ ] Manejo (2)
- [ ] Mis familiares o amigos me llevan (3)
- [ ] Autobús Lynx (7)
- [ ] Bicicleta (9)
- [ ] Tren SunRail (1)
- [ ] Taxi (4)
- [ ] Uber o Lyft (5)
- [ ] Uso un servicio de transporte especial, como para personas mayores o personas con discapacidad (6)
- [ ] Otro (10)
- [ ] No salgo de mi casa (11)

Q20 What could be improved about your neighborhood? Check the 3 items that are most important to you

- [ ] Traffic (1)
- [ ] Crime (2)
- [ ] Length of commute to work or school (3)
- [ ] Quality of schools (4)
- [ ] Access to grocery stores (5)
- [ ] Access to banks (6)
- [ ] Access to places for community gatherings (7)
- [ ] Other (8) _____

Q20 ¿Qué se podría mejorar en su vecindario? Marque los 3 elementos que son más importantes para usted

- [ ] Tráfico (1)
- [ ] Crimen (2)
- [ ] Duración del viaje al trabajo o la escuela (3)
- [ ] Calidad de las escuelas (4)
- [ ] Acceso a supermercados (5)
- [ ] Acceso a bancos (6)
- [ ] Acceso a lugares para reuniones comunitarias (7)
- [ ] Otro (8) _____

Q21 Is there anything else you would like to tell us about your neighborhood?

_____

_____

_____

_____

_____

Q21 ¿Hay algo más que le gustaría comentar sobre su vecindario?

_____

_____

_____

_____

_____

Q11 Click the area on the map nearest to your home, business or property

	Dislike (1)	Neutral (2)	Like (3)
Region #1 (10)			
Region #2 (11)			
Region #3 (12)			
Region #4 (13)			
Region #5 (14)			
Region #6 (15)			
Region #7 (16)			
Region #8 (17)			


N Hastings St
Balboa Dr
Pine Hills
50
408
Orlovista
526
Valencia College
Raleigh St
RO WEST
435
SOUTHWEST ORLANDO
L B McLeod Rd
Conroy Rd

Q11 Oprima en el área del mapa más cercana a su casa, negocio o propiedad

	Dislike (1)	Neutral (2)	Like (3)
Region #1 (10)			
Region #2 (11)			
Region #3 (12)			
Region #4 (13)			
Region #5 (14)			
Region #6 (15)			
Region #7 (16)			
Region #8 (17)			


N Hastings St
Balboa Dr
Pine Hills
50
408
Orlovista
526
Valencia College
Raleigh St
SOUTHWEST ORLANDO
435
L B McLeod Rd
Conroy Rd

End of Block: Introduction

Start of Block: Demographics Questions

Q22 The following optional questions will provide us with information that will allow us to understand the unique needs of our residents.

Q22 Las siguientes preguntas opcionales nos proporcionarán información que nos permitirá comprender las necesidades únicas de nuestros residentes.

Display This Question:

If How long in Orlando Is Empty

Q23 How long have you lived in the City of Orlando?

- O Less than 1 year (1)
- O 1-5 years (2)
- O 6-10 years (3)
- O More than 10 years (4)
- O My whole life (5)

Q23 ¿Cuánto tiempo ha vivido en la ciudad de Orlando?

- O Menos de 1 año (1)
- O 1-5 años (2)
- O 6-10 años (3)
- O Más de 10 años (4)
- O Toda mi vida (5)

Q24 How long have you lived in your current house or apartment?

- O Less than 1 year (1)
- O 1-5 years (2)
- O 6-10 years (3)
- O More than 10 years (6)
- O My whole life (5)

Q24 ¿Cuánto tiempo ha vivido en su casa o apartamento actual?

- O Menos de 1 año (1)
- O 1-5 años (2)
- O 6-10 años (3)
- O Más de 10 años (6)
- O Toda mi vida (5)

X→

Q25 Which of the following best describes where you currently live?

- O A single family house (1)
- O A two family house that has two separate living units (2)
- O A townhouse or row house (3)
- O An apartment (4)
- O A condominium or coop (5)
- O A mobile home (6)
- O Senior housing or assisted living facility (7)
- O Other (8)

Q25 ¿Cuál de las siguientes opciones describe mejor dónde vive actualmente?

- O Una casa unifamiliar (1)
- O Una casa para dos familias que tiene dos unidades de vivienda separadas (2)
- O Una casa adosada (3)
- O Un apartamento (4)
- O Un condominio o cooperativa (5)
- O Una casa móvil (6)
- O Vivienda para personas mayores o centro/vecindario de vida asistida (7)
- O Otro (8)

Q26 Do you live by yourself?

- O Yes (1)
- O No (2)

Q26 ¿Vives solo?

- O Sí (1)
- O No (2)

Display This Question:

If Do you live by yourself? = No

Q27 Who else lives in your household? **Check all that apply.**

- ☐ Spouse/partner (1)
- ☐ Child/children under 18 (6)
- ☐ Child/children 18 or older (2)
- ☐ Child/children away at college (3)
- ☐ Parents (4)
- ☐ Other adult relative, friend or roommate who is 18 or older (5)

Q27 ¿Quién más vive en su hogar? Marque las opciones que correspondan.

- [ ] Cónyuge / pareja (1)
- [ ] Niño / niños menores de 18 años (6)
- [ ] Niño / niños mayores de 18 años (2)
- [ ] Niño / niños en la universidad (3)
- [ ] Padres (4)
- [ ] Otro pariente adulto, amigo o compañero de cuarto que tenga 18 años o más (5)

Q28 Which of the following best describes your current employment status?

- O Self-employed, full-time (1)
- O Self-employed, part-time (2)
- O Employed, full-time (3)
- O Employed, part-time (4)
- O Retired, not working at all (5)
- O Unemployed, looking for work (6)
- O Other (7)

Q28 ¿Cuál de las siguientes opciones describe mejor su situación laboral actual?

- O Trabajo por cuenta propia, a tiempo completo (1)
- O Trabajo por cuenta propia, a tiempo parcial (2)
- O Empleado, a tiempo completo (3)
- O Empleado, a tiempo parcial (4)
- O Jubilado, sin trabajar (5)
- O Desempleado, buscando trabajo (6)
- O Otro (7)

Q29 What is the highest level of education that you completed?

- O Less than high school (1)
- O High school graduate or equivalent (2)
- O Some college (3)
- O 2 year degree (4)
- O 4 year degree (5)
- O Professional degree (6)
- O Doctorate (7)

Q29 ¿Cuál es el nivel más alto de educación formal que completó?

- O Menos que escuela secundaria/superior (1)
- O Graduado de escuela secundaria/superior o equivalente (2)
- O Algunos estudios universitarios (3)
- O Grado universitario de 2 años (4)
- O Grado universitario de 4 años/bachillerato (5)
- O Título profesional (6)
- O Doctorado (7)

Display This Question:

If Household income Is Empty

X→

Q30 In which category did your annual household income before taxes fall in 2018?

- O Less than $10,000 (1)
- O $10,000 but less than $20,000 (2)
- O $20,000 but less than $30,000 (3)
- O $30,000 but less than $50,000 (4)
- O $50,000 but less than $75,000 (5)
- O $75,000 but less than $100,000 (6)
- O $100,000 but less than $150,000 (7)
- O $150,000 or more (8)

Q30 ¿En qué categoría se encuentra su ingreso familiar anual previo al pago de impuestos en el 2018?

- O Menos de $ 10,000 (1)
- O más de $ 10,000 pero menos de $ 20,000 (2)
- O más de $ 20,000 pero menos de $ 30,000 (3)
- O más de $ 30,000 pero menos de $ 50,000 (4)
- O más de $ 50,000 pero menos de $ 75,000 (5)
- O más de $ 75,000 pero menos de $ 100,000 (6)
- O más de $ 100,000 pero menos de $ 150,000 (7)
- O $ 150,000 o más (8)

Display This Question:

If Are you hispanic Is Empty

Q31 Are you Hispanic, Latino or of Spanish origin?

- O Yes (1)
- O No (2)

Q31 ¿Es usted hispano, latino o de origen español?

- O Sí (1)
- O No (2)

Display This Question:

If Ethnicity Is Empty

Q32 How would you describe yourself? If you fit into more than one category, check all that apply.

- ☐ Indigenous North or South American, including American Indian, Alaska Native and Quechua (1)
- ☐ Asian, including East Asia and Indian Subcontinent (2)
- ☐ Black or African American (3)
- ☐ Native Hawaiian or Other Pacific Islander (4)
- ☐ White (5)

Q32 ¿Cómo se describiría a sí mismo? Si encaja en más de una categoría, marque todas las que correspondan.

- ☐ Indígena de Norteamérica o Suramérica, incluyendo amerindio, nativo de Alaska y quechua (1)
- ☐ Asiático, incluyendo el este de Asia y el subcontinente indio (2)
- ☐ Negro o afroamericano (3)
- ☐ Nativo de Hawái u otra isla del Pacífico (4)
- ☐ Blanco (5)

Display This Question:

If Are you Hispanic, Latino or of Spanish origin? = Yes

Q33 Which language do you prefer to speak?

- O English (1)
- O Spanish (2)
- O I don't have a preference (3)
- O Other (4)

Q33 ¿Qué idioma prefiere hablar?

- O Inglés (1)
- O Español (2)
- O No tengo preferencia (3)
- O Otro (4)

Display This Question:

If Are you a member of an underrepresented group Is Empty

Q34 Are you a member of an underrepresented group (such as LGBTQ or disability) that you would like us to know about?

- O Yes (1)
- O No (2)

Q34 ¿Forma parte de un grupo subrepresentado (como LGBTQ+, o discapacidad, etc.) del que le gustaría que supiéramos?

- O Sí (1)
- O No (2)

Display This Question:

If Are you a member of an underrepresented group (such as LGBTQ or disability) that you would like u... = Yes

And If

What group do you belong to Is Empty

Q35 What group do you belong to?

_____

Q35 ¿A qué grupo pertenece?

_____

Display This Question:

If Gender Is Empty

Q36 Gender: **Check all that apply**

- ☐ Male (1)
- ☐ Female (2)
- ☐ Transgender (3)
- ☐ Non-Binary (4)
- ☐ I would like to write in my gender (7)

Q36 Género: **marque todas las que correspondan**

- ☐ Varón (1)
- ☐ Mujer (2)
- ☐ Transgénero (3)
- ☐ No binario (4)
- ☐ Me gustaría escribir mi género (7)

Display This Question:

If Gender: Check all that apply = I would like to write in my gender

And If

Gender write in Is Empty

Q37 Gender

_____

Q37 Género

_____

End of Block: Demographics Questions

Start of Block: Panel Opt-In

Display This Question:

If PanelID != CG_eJzS26nnWDVjAW1

Q38 Would you like to opt-in to our panel to participate in future research projects for the City of Orlando?

O Yes (2)

O No (4)

Q38 ¿Le gustaría inscribirse en nuestro panel para participar en futuros proyectos de investigación de la ciudad de Orlando?

O Sí (2)

O No (4)

Display This Question:

If Would you like to opt-in to our panel to participate in future research projects for the City of... = Yes

Q39 Please enter your contact information below.

- O First Name (1) _____
- O Last Name (2) _____
- O Email (3) _____

Q39 Ingrese su información de contacto a continuación.

- O Nombre (1) _____
- O Apellido (2) _____
- O Correo electrónico (3) _____

End of Block: Panel Opt-In

APPENDIX C

Summary of In-Depth Interviews

SUMMARY OF IN-DEPTH INTERVIEWS

Two in-depth interviews were conducted to understand stakeholder perceptions of the corridor, including current challenges, perceived benefits along the corridor, and their desired vision of the area, along with suggested improvements. Participant one has a wealth of experience in government and community organizing, while participant two is a professional with a background in engineering, architecture and real estate. The following is a summary of their responses to six questions posed during an interview session. Responses are organized by participant.

Which current challenges do you see along the Kirkman corridor (security, traffic, aesthetics, etc.)?

Participant 1

- The members of the community (MetroWest/Carver Shores) are concerned with traffic buildup. There are similar issues with Raleigh street. I have observed the repaving occurring currently to make it look and drive better. There are also issues in getting from Raleigh Street onto Kirkman.
- The bike trails have made pedestrian safety a little better. It seems like they pushed the path away from the street which I think leads to safety. Three major concerns are: increased bike paths, speeding concerns, and congestion issues.
- There is a need for increased access to more businesses, such as those in the Arnold Palmer Area.
- As you get further towards Universal Studios (near KFC and Taco Bell), the turn out of that nearby community onto Kirkman is difficult and dangerous. Cars are going over the bridge, often going fast, leading to a lot of crashes with people making a left onto Kirkman.

Participant 2

- When traveling through Kirkman the issue is that it is a corridor, people travel through it. There are nice buildings and nice landscaping on one side because of universal. There are nice places to access like Universal Studios, however, it seems that there are a lot of nice aesthetics on one side of the corridor. The central issue is the corridor is viewed as a corridor. What can we do to make it feel less like a corridor?
- We need to try to replace the word corridor and think of ways to transform the area. I believe we need young fresh minds to transform the area. Turn Kirkman road into a more pleasant drive. Essentially, you would take it from a tool to a place. A major benefit of the corridor is its proximity to International Drive.

Follow up question from Jason Burton, Assistant City Planning Division Manager: If we were to redesign the corridor (lower speed, aesthetics, reduce lane widths) that slow/calm the traffic, would these be things that are supported?

Participant 1: If that were to happen how do you think that would impact congestion? He thinks overall it would be great, as of right now he says people only travel Kirkman if they have to.

What are some of the current challenges faced by your organization or you personally before the pandemic and now?

Participant 1: One challenge faced during the pandemic is the ability of the community to have necessary access, particularly to information for community outreach and community meetings, and access to other organizations that could provide assistance was limited, as these organizations were also impacted by the pandemic. Another challenge faced was that of constituent fear due to uncertainty caused by pandemic. Some of the study area contains lower wage areas, which were greatly impacted by the pandemic, and these areas faced employment challenges. Another challenge participant 1 faced at the start of the pandemic was that of resource availability, specifically testing availability at the start, and now the challenge faced is the availability of the vaccine. Participant 1 also noted that they found that certain priorities of citizens changed, due to the pandemic.

Participant 2: Participant 2 found one of the challenges caused by the pandemic stems directly from working from home, and some of the loss of camaraderie and the office environment in general that results. One of the main challenges with working from home is a loss of learning opportunities between coworkers. When in an office environment, employees have more of an ability to learn from each other through interaction, and that is lost with people working remotely. Another challenge of the pandemic that stems from people working from home is that companies will inevitably loose employees, as they are more freely able to go other places with remote working, and there is a certain loss of office culture and professionalism. He mentioned office dress codes, as now people dress more casually in an office, and those working remotely don't dress professionally at all any longer. Participant 2 also noted a challenge in the uncertainty of commercial and office space markets, given this shift in remote working.

Which benefits are associated with being located along the Kirkman Road Corridor?

Participant 1: The benefits of being located along the Kirkman Road Corridor is its familiarity within the greater Orlando region and its proximity to the I-4 thoroughfare, providing a direct connecting route for individuals to reach the location within minimal time frames. Businesses along the Corridor benefit from the name recognition that the street offers, providing a recognizable and easy to reach destination due to its popularity within the greater Orlando region. The I-4 causeway allows residents in the area to connect the Corridor with other streets within the greater Orlando region, providing more name recognition and economic activity that is able to reach the Corridor.

Participant 2: Wholeheartedly agrees that the Kirkman Road Corridor provides both an excellent connector route to other major destinations within the Orlando region and its name popularity which provides businesses along the area an advantage to its familiarity with residents. The Metro West community has had numerous events in the past that have operated smoothly due to its location within the Corridor, providing easy advertising to the public. The mix of community housing, the array of amenities, and Valencia College's

Western Campus provides easy access for individuals to reach their locations on foot rather than vehicular use. However, improving the quality of life for locals within the Corridor could be achieved by relieving the amount of traffic congestion around peak travel times and engaging in speed reduction techniques. If traffic is alleviated, then more individuals would feel comfortable pursuing other forms of travel or outdoor recreational activities including walking or bicycling without the fear of being involved in a vehicular accident.

What future development/improvements would you like to see along the Kirkman Road corridor (please focus on physical elements)? Which recreational features would you like to see on the corridor? What do you think could be done to increase the walkability of the area?

Participant 1 focused primarily on the high number of pedestrians along the corridor as a result of nearby Valencia College and the multiple apartment complexes. This participant notes that during their time living in the corridor, they often did not feel safe walking as opposed to driving due to the speed and density of the traffic. There was heavy emphasis on the amount of traffic both during and between peak hours. They shared a story: there is a particular pizza shop the family likes in the corridor, but often, they will opt for another shop so they will not have to deal with the traffic of Kirkman.

Then, of course, the speed of the corridor plays a factor in the participant's avoidance of the road. As they stated themselves, it is common during their time on the road to be driving and suddenly realize they are travelling well above the speed limit, without meaning to. Participant 1 mentioned having young children and how that impacts their desire to take a road that has fast and somewhat unpredictable drivers.

Participant 1 was very receptive to design measures that work to control speeds, brought up by the moderators in an earlier question. Concepts of landscaping that narrows vision or less wide lanes for traffic that work to slow cars down were considered. Moreover, the participant recommended physical separators between pedestrians/bicyclers and vehicles. Whether built structures or natural, the separation between cars and people would play a role in their determining whether an area felt safe enough to walk.

Participant 2 believes it would be beneficial to focus on developing areas that A) attract people to the location and B) retain those people, both by inspiring repeat visits or making the location a habitable area. Two major ideas were suggested to inspire repeat visits. The first is to make it memorable in terms of having activities and locations that are enjoyable and leave a lasting impression, but also to have landmarks that help to jog these memories. The second is to have all day activity. Ideally there should be something for all ages and groups of people to enjoy from dawn to dusk; Participant 2 also noted activities going to midnight or the early hours of the morning are popular.

Participant 2, throughout their answer, stressed the importance of mixed land use. They shared a story about living in College Park and not needing their car from Friday night to Monday morning due to the ability to walk to most major needs, from grocery stores to barbers and doctors. The ability to walk lessens the need for cars and makes for a good environment for schools, especially elementary schools which are attractive to young families looking for areas to live.

The benefits of hidden parking areas were also brought up. In areas where pure pedestrian transportation is not effective, having parking areas relegated to one portion of the area, such that you can park on one side

(say south) and walk to the bulk of the shops and restaurants, etc. to the north so cars are mostly out of sight. The benefit is two-fold: pedestrian safety is increased by not having cars and people mingle, but also the lack of cars gives the impression of walkability. This is brought to fruition by developing the area with multi-use locations in mind.

What is your vision of the future of Kirkman Road?

Participant 1: Accessibility would be a primary factor for the vision of the future of the Kirkman Road making it more pedestrian friendly, taking away the negative connotation associated with walking. This area should be made a destination and have more recreational activities. They mentioned that the people living in the more established communities within the corridor such as MetroWest and Carver shores would much rather drive around the corridor than walk or bike.

Participant 2: Kirkman Road locations are remarkably close for driving but too far of a walk for pedestrians. They suggested that the seven-mile stretch should be divided into small interlocutory islands that interconnect and depend on each other. The area needs a sense of place, partly achieved through successful walkability and accessibility strategies.

Do you have any additional comments?

Participant 1 emphasized the importance of encouraging community "ownership" of improvement initiatives. Efforts will be most successful when community members "buy into" design projects such as recreational facilities, parking, and landscaping. They also commented on changes to the community engagement process as a result of Covid-19 restrictions. Meeting with HOA's and neighborhood associations virtually has remained a strategy for community engagement. However, the frequency of meetings has been reduced significantly and this is more of a placeholder or "stop gap" until normal, in person meetings can be resumed.

Participant 2 stated they did not have any additional comments to add. They suggested there were a lot of similarities and potential takeaways from the Orlando Gateway corridor to the Kirkman Road study area. Participant 2 wanted to know further information about the Orlando Gateway project and how it can support the Kirkman Vision Plan. They shared that the word "corridor" should be renamed "area" to define it, not an easy thing to do but this would create identity.

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