



# Lakeland Area Alternatives Analysis

## US 92/Memorial Boulevard Corridor Action Plan



**DRAFT**

FDOT DISTRICT ONE  
FPID NO. 432459 1 22 01

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SUPPORTING DOCUMENTATION UNDER SEPARATE COVER:  
EXISTING CONDITIONS ASSESSMENT, DECEMBER 2017  
PRELIMINARY SAFETY ASSESSMENT, DECEMBER 2017  
ROAD SAFETY AUDIT, JUNE 2018  
TRAFFIC TECHNICAL MEMORANDUM, AUGUST 2018  
PUBLIC INVOLVEMENT REPORT, NOVEMBER 2018



# INTRODUCTION

PROJECT BACKGROUND

PURPOSE

STUDY GOALS

STUDY PROCESS

KEY STAKEHOLDERS



# INTRODUCTION

## PROJECT BACKGROUND

Long considered a prominent center of commerce in Polk County, the City of Lakeland is expanding at a higher rate than most cities in Florida. Many of its historic suburban neighborhoods are urbanizing, while the transportation corridors serving these communities have not advanced at the same pace, with safety and operational levels performing lower than expectations. As these communities continue to develop, the role of its transportation corridors should also expand to serve more diverse mobility needs for people and freight. Roadway design improvements must be focused on creating a safe, connected and accessible environment for all modes of transportation, especially for pedestrians and bicyclists.

Through the City's Comprehensive Plan and associated goals and objectives, the intent is that Lakeland become more attractive and 'walkable' and that neighborhoods and communities be strengthened. Additions and improvements to the multimodal transportation network are an essential part of the plan for Lakeland to continue to evolve as a better place to live and attract more visitors. In response to the City's progressive community development and transportation goals, the Florida Department of Transportation (FDOT) has initiated the Lakeland Area Alternatives Analysis (LAAA). Originally conceived as a study to examine the potential for widening US 98/State Road (SR) 37 to provide capacity needs, FDOT expanded the analysis area and scope to create the LAAA. Rather than focusing on one facility, the LAAA looked holistically at the transportation network to ensure that we are meeting the community's transportation needs along major corridors within the study area.

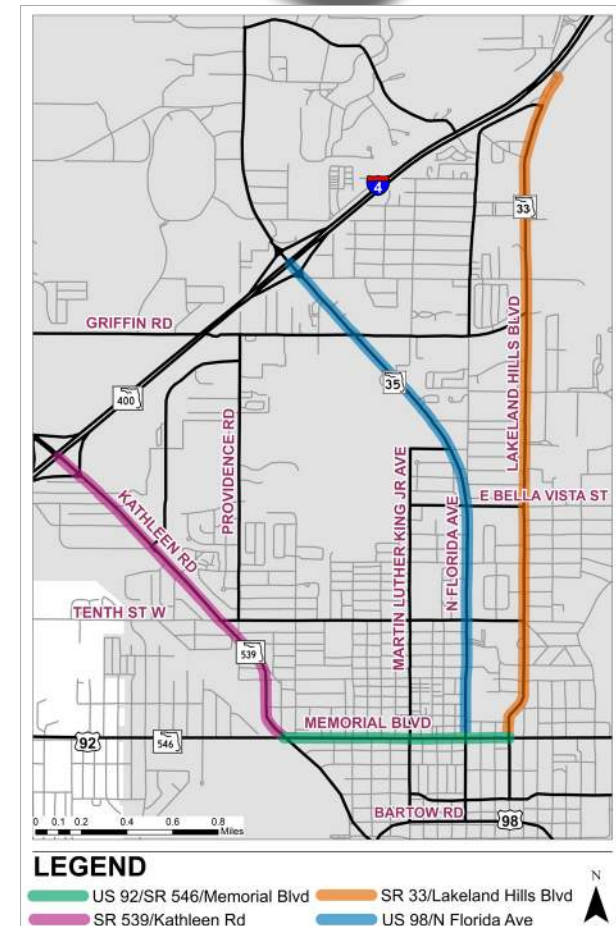
The LAAA is a comprehensive study of the mobility and accessibility needs for people and goods in the northern part of Lakeland, as well as regional travel and freight movement. The study integrates land use, transportation, economic and roadway design considerations to define a unique approach in identifying potential solutions to address the diverse mobility challenges that exist in the area. These advancements will increase vehicular safety, enhance pedestrian/bicycle safety and access, expand emergency evacuation capabilities, and facilitate tourism and the movement of people and goods. The study's collaborative approach will ensure the goals, objectives and recommended improvement strategies are supportive of both the City of Lakeland and Polk County's vision for a more balanced transportation network that safely accommodates all modes.



## PURPOSE

The purpose of the LAAA is to identify opportunities for a balanced, multimodal transportation network that improves mobility, prioritizes safety, connectivity, and accessibility for the north Lakeland community, while providing capacity to serve regional demands. The study results provide transportation strategies that are supportive of the land use, context and collective vision of the corridor; redefine the public space and enhance the sense of place and corridor aesthetics; contribute to and foster economic development; improve quality of life for communities where people want to live, work and play; and create a safe and efficient transportation network that accommodates those who choose to use public transit, drive a vehicle, walk or ride a bicycle to their destination.

The LAAA study area falls within the limits of the City's largest Community Redevelopment Area (CRA) known as Midtown, and includes more than 3.5 square miles. The study area is bound by SR 539/Kathleen Road, US 92/Memorial Boulevard, SR 33/Lakeland Hills Boulevard and SR 400/Interstate 4. The study corridors also include US 98/North Florida Avenue, as well as Providence Road, Dr. Martin Luther King, Jr. Avenue, Tenth Street, and SR 37/South Florida Avenue. As a component of the LAAA, Corridor Action Plans (CAPs) were developed for four primary corridors: US 92/Memorial Boulevard, SR 33/Lakeland Hills Boulevard, SR 539/Kathleen Road and US 98/North Florida Avenue. This CAP examines the US 92/Memorial Boulevard corridor, from SR 539/Kathleen Road to SR 33/Lakeland Hills Boulevard, building on the Complete Streets Policy adopted by the City of Lakeland and Polk County. This CAP also integrates FDOT's Complete Streets policies, as outlined in the FDOT Design Manual (FDM), and principles where safety, quality of life and economic development are at the forefront of design. The Plan identifies short-term and long-term opportunities/strategies to enhance pedestrian, bicycle and vehicular safety; promote economic growth and development and movement of people and goods; encourage multimodal travel by improving accessibility to transit, jobs, commercial development, residential communities, healthcare, recreational facilities, and other destinations within the study area.



# INTRODUCTION

## PROCESS TO ACHIEVE STUDY GOALS

The five study goals were established through stakeholder engagement, existing conditions analysis, and understanding the vision within the community. Progressive community redevelopment and the study vision have encouraged the LAAA study team to define a unique approach in identifying potential solutions to address the diverse mobility challenges that exist in the area. Great streets are safe and accessible for all users and create great community value!



**Address transportation issues for all modes through community and stakeholder engagement.**



**Develop context solutions to address pedestrian, bicycle and vehicular needs.**



**Align transportation strategies with community needs and values.**



## STUDY PROCESS

The LAAA includes the three phases displayed below. Once the comprehensive vision and goals for the study area were understood, the corresponding Performance Measures could then be defined. These Performance Measures demonstrate Complete Streets goals related to access, economy, environment, equity, place, public health, and safety. The study corridors were evaluated using strategies such as Road Safety Audits (RSAs), where field assessments were conducted to examine the conditions and performance of the roadway. The RSA was used to identify the issues and opportunities that exist along the corridor and develop strategies to improve the facility and accommodate all users. Strategies identified were ranked using the Performance Measures to indicate the level of goal support.



# INTRODUCTION

## KEY STAKEHOLDERS

Progressive community redevelopment and transportation goals have encouraged the LAAA study team to define a unique approach in identifying potential solutions to the transportation challenges. The team presented the study overview and conducted interviews with stakeholders who frequently use these study corridors. They have a vested interest, directly or indirectly, in overcoming transportation challenges in Midtown. The stakeholders identified for this study have guided decisions and contributed valuable perspectives and information who include, but are not limited to:

- City of Lakeland
- Neighborhood representatives
- Polk County
- Polk Transportation Planning Organization
- Central Florida Regional Planning Council
- Lakeland Vision
- Keiser University
- St. Luke's Ministries
- Lakeland Regional Medical Center
- Bryant Stadium
- Rochelle School of the Arts
- Lakeland Interstate Business Park
- Bike Lakeland
- Sierra Club
- Downtown Lakeland Partnership
- Lakeland Economic Development Council
- Lakeland Downtown Development Authority
- Lakeland Area Chamber of Commerce
- Puerto Rican/Hispanic Chamber of Polk County
- Calvary Baptist Church
- Citrus Connection



# PHASE I: UNDERSTANDING THE VISION

WHAT ARE THE COMMUNITY NEEDS?  
WHAT IS THE VISION?  
PERFORMANCE MEASURES  
FUTURE GROWTH

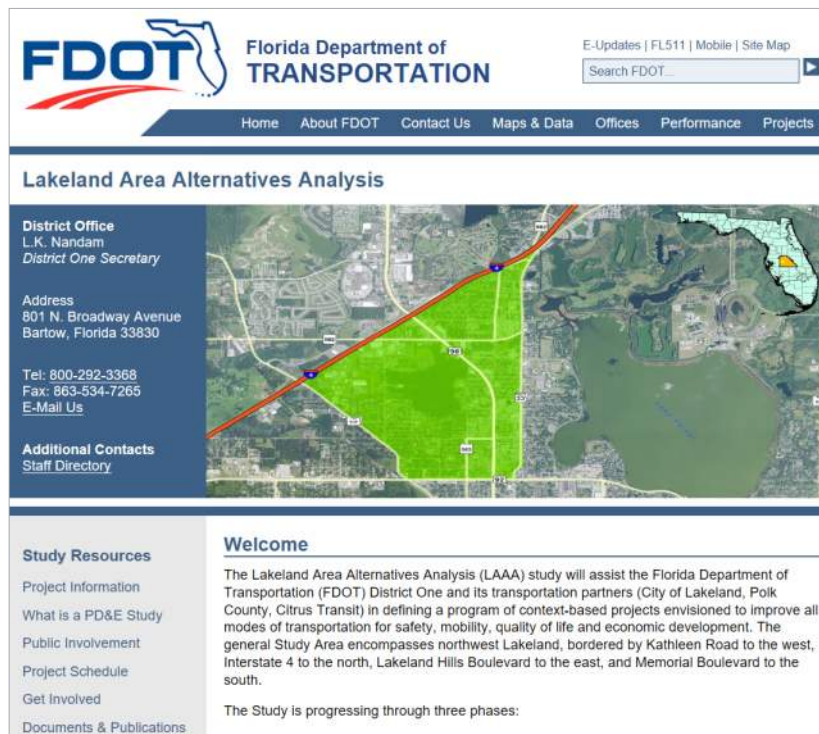


# PHASE I: UNDERSTANDING THE VISION

## WHAT ARE THE COMMUNITY NEEDS?

The FDOT encourages the community's participation to promote awareness and improve safety by integrating the '3E' approach: Engineering, Enforcement and Education. To fully understand the comprehensive needs of the community and how US 92/Memorial Boulevard affects daily life of the traveling public, the Study Team engaged the public and project stakeholders throughout the study process. This engagement helped the Team understand the community vision and desires for the transportation corridors serving Midtown.

A project website ([www.swflroads.com/study/LAAA/home.html](http://www.swflroads.com/study/LAAA/home.html)) was established and continuously updated during the progression of the study to keep the community informed of the study status and key events.

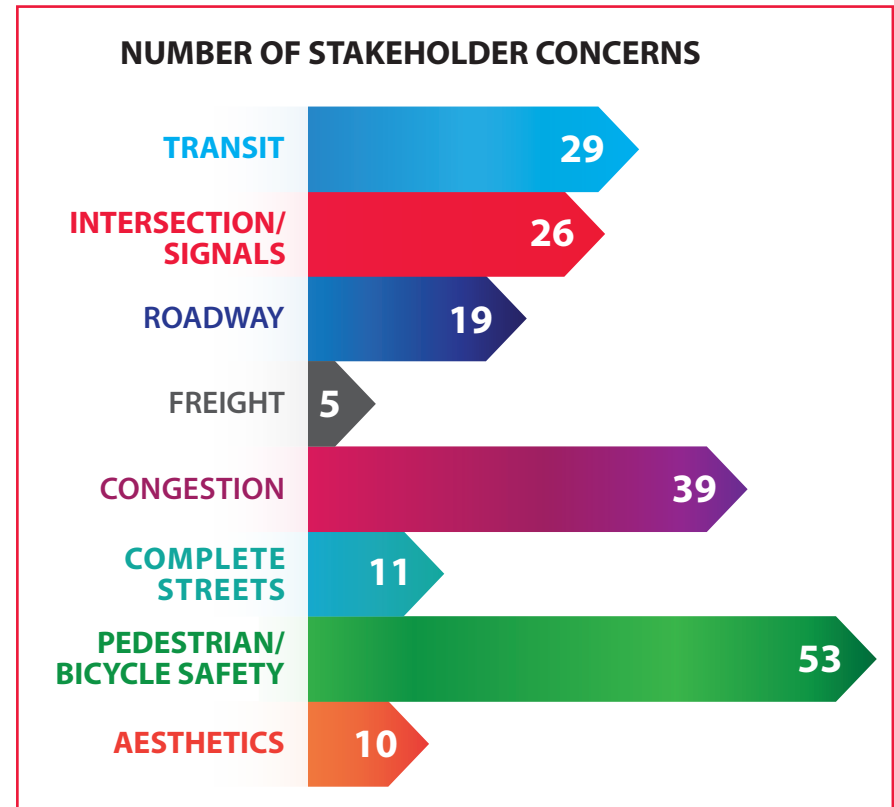


Additionally, the Study Team held over 20 interviews with the project stakeholders, wherein the team presented the study overview, schedule, and study process. Employing tailored surveys, the stakeholders shared their concerns of various state road corridors, intersections, and general mobility issues. The attendees were provided with polling devices and were asked a series of questions in two rounds. Attendees were queried on their opinions and perceptions of transportation issues within the area.



# PHASE I: UNDERSTANDING THE VISION

Although all stakeholder comments are provided in the Existing Conditions Report (located in the Summary Documents section), the main issues heard are summarized in the map and bar chart.



- Implement pedestrian and bicycle improvements on Memorial Blvd
- Address congestion possibly using a road diet with buffered bike lanes
- Need safer crossings for pedestrians to access destinations
- Desire more frequent and accessible transit service
- Improved connection with Kathleen Rd
- Consider intersection improvements on MLK Jr. Ave, US 98/Florida Ave, SR 33/Lakeland Hills Blvd
- Address freight movement/issues

# PHASE I: UNDERSTANDING THE VISION

## WHAT IS THE VISION?

In 2014, FDOT embarked on a journey to change the way we think about our transportation systems in Florida by adopting the Complete Streets Policy. The policy states that "...the Department will routinely plan, design, construct, reconstruct and operate a context sensitive system of 'Complete Streets.' While maintaining safety and mobility, Complete Streets shall serve the transportation needs of transportation system users of all ages and abilities, including but not limited to: cyclists, freight handlers, motorists, pedestrians, and transit riders." The 2060 Florida Transportation Plan (FTP), updated in 2015, calls for a fundamental change in how and where Florida invests in transportation. Consistent with the goals and objectives of the FTP, the FDOT Complete Streets Implementation Plan was developed in 2015 to ensure that context is at the center of decision-making. In 2017, the FDOT Context Classification Document was established to guide decisions about planning, designing, constructing, reconstructing and operating a context-sensitive system of Complete Streets. The context classification system broadly identifies the various built environments existing in Florida, as identified in the FDOT Context Classification figure. The Context Classification defined for the US 92/Memorial Boulevard study corridor is C3C-Suburban Commercial.



**C1 Natural**  
Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural conditions.

**C2-Rural**  
Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.

**C2T-Rural Town**  
Small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.

**C3R-Suburban**  
Residential  
Mostly residential uses within large blocks and a disconnected or sparse roadway network.

**C3C-Suburban**  
Commercial Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.

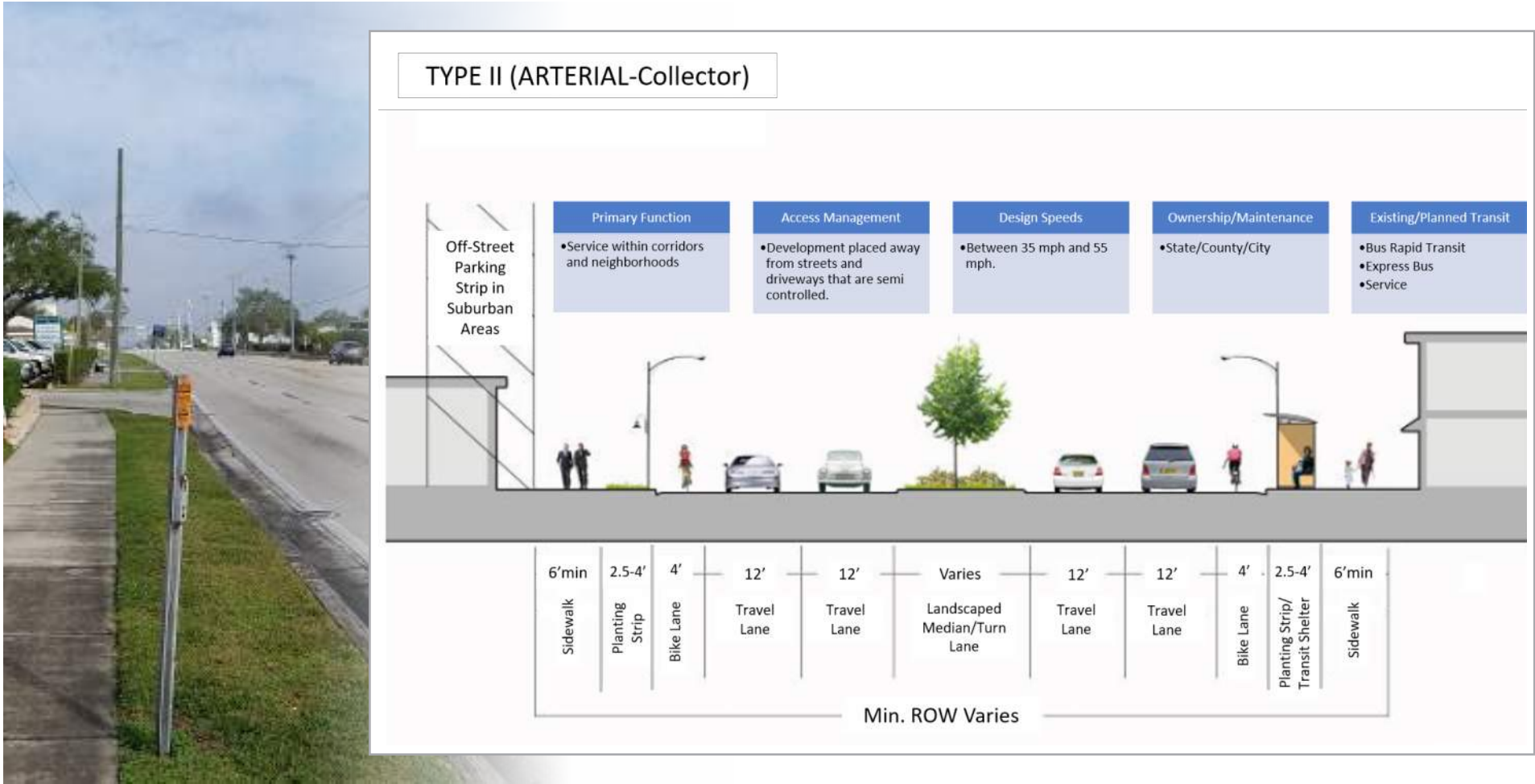
**C4-Urban General**  
Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.

**C5-Urban Center**  
Mix of uses set within small blocks with a well-connected roadway network. Typically connected around a few blocks and identified as part of a civic or economic center of a community, town, or city.

**C6-Urban Core**  
Areas with the highest densities and building heights, and within FDOT classified Large Urbanized Areas (population > 1,000,000). Many are regional centers and destinations. Buildings have mixed uses, are built up to the center of a community, and are within a well-connected roadway network.

# PHASE I: UNDERSTANDING THE VISION

Throughout this study, FDOT has worked with the City of Lakeland, the Polk Transportation Planning Organization (TPO) and Citrus Connection to ensure that decisions for this corridor are consistent with Complete Streets and context-sensitive objectives. Working closely with these partners helped in understanding the comprehensive Vision for the Midtown CRA and specifically for the US 92/Memorial Boulevard corridor. The City of Lakeland continues to develop progressive transportation and land development policies that facilitate urban infill, increased densities, and promote redevelopment. The City's Comprehensive Plan envisions a Type II roadway typology for the corridor. The Midtown Community Redevelopment Plan identifies goals that directly impact US 92/Memorial Boulevard: (1) preserve and enhance neighborhoods; (2) intensify and beautify the Development Corridors in Midtown; and (3) continue to improve areawide open space and infrastructure, services, and facilities.



# PHASE I: UNDERSTANDING THE VISION

The Polk TPO is developing eight Complete Streets Action Plans for potential corridors identified for safer, multimodal use within the County. These plans build on Complete Streets policies adopted in 2012 by the TPO and local governments throughout Polk County. US 92/Memorial Boulevard is not one of the specific corridors identified by the Polk TPO for the initial Complete Streets Action Plans. However, the process being used for the LAAA is consistent with, and supports, the policies of the Polk TPO and the City of Lakeland. It also recognizes the priority for “completing streets” for all users, while balancing the values of safety, economic development, regional and personal mobility, and convenient access to transit and other services.

The Study Team developed a Vision that was not only consistent with the goals of the stakeholders, but reflective of the community needs and desires. The corridor issues will be satisfied with improvement opportunities, and the Vision will become a reality.

## STUDY VISION

Create equitable transportation systems which reduce barriers between residents and visitors, employment, education, and healthcare to provide safer streets, economic vitality, and improve quality of life along Memorial Boulevard.



# PHASE I: UNDERSTANDING THE VISION

## PERFORMANCE MEASURES

The goal of Complete Streets implementation for FDOT, as outlined in the FTP, is to promote safety, quality of life, and economic development. This goal will be achieved by integrating people and places into the transportation decision-making process.

Five study goals were established to guide decisions about appropriate Complete Streets strategies along the study corridor. Performance measures and indicators were also established to further define how the strategies would meet the goals.

### GOAL 1: Improve pedestrian, bicycle and vehicle safety.

- Performance Measures: crash rates and gaps in the pedestrian and bicycle network.
- Indicators: severe (incapacitating and fatal) crashes and percentages of facilities with infrastructure gaps.

### GOAL 2: Reduce congestion along US 92/Memorial Boulevard.

- Performance Measures: peak hour delay, travel time, intersection connectivity and duration of congestion.
- Indicators: exceeds the volume/capacity (V/C) ratio of 1.5, encourages shifts to other modes, travel diversion routes, results in a more balanced transportation system overall, travel time index, percentage of intersections with connected infrastructure capabilities and total duration.



# PHASE I: UNDERSTANDING THE VISION

## GOAL 3: Minimize the impact of incidents and special events to multimodal travel conditions along US 92/Memorial Boulevard.

- Performance Measures: availability of pedestrian crossings and refuge proximate to event areas, queue dissipation time, potential for diversion to parking areas before entering event area, pedestrian mode share increase and availability of traveler notification (ITS/ signage) for pedestrians/bicyclists/vehicles for events.
- Indicators: number of pedestrian refuge areas near event and parking areas, total dissipation time, estimated vehicle diversion to parking areas, presence of pedestrian infrastructure proximate to event destinations and identified need from Road Safety Audit.



## GOAL 4: Improve multimodal connections and accessibility to destinations and other areas.

- Performance Measures: job access, transit availability, environmental health, traveler wayfinding, regional trails connectivity and multimodal accessibility.
- Indicators: accessibility scores to assess level of goal support and inform recommendations for long-term strategies, level of transit service, percentage of facility with bicycle and pedestrian infrastructure gaps, provision of wayfinding signage, pedestrian and bicycle facility access to regional trails.



# PHASE I: UNDERSTANDING THE VISION



## GOAL 5: Improve community livability and economic potential.

- Performance Measures: multimodal level of service (MMLOS), travel time, transportation affordability measures, access to health/active living, availability of infrastructure to foster economic productivity and alignment with context classification.
- Indicators: MMLOS score, availability of transit to households without a vehicle and low-income populations, average trip length, availability of pedestrian and bicycle facilities within ¼ mile of a health care facility or public park, availability of tree canopy, bus shelters, 15-minute bus frequency, planted medians and strategies which are supportive of the goals.

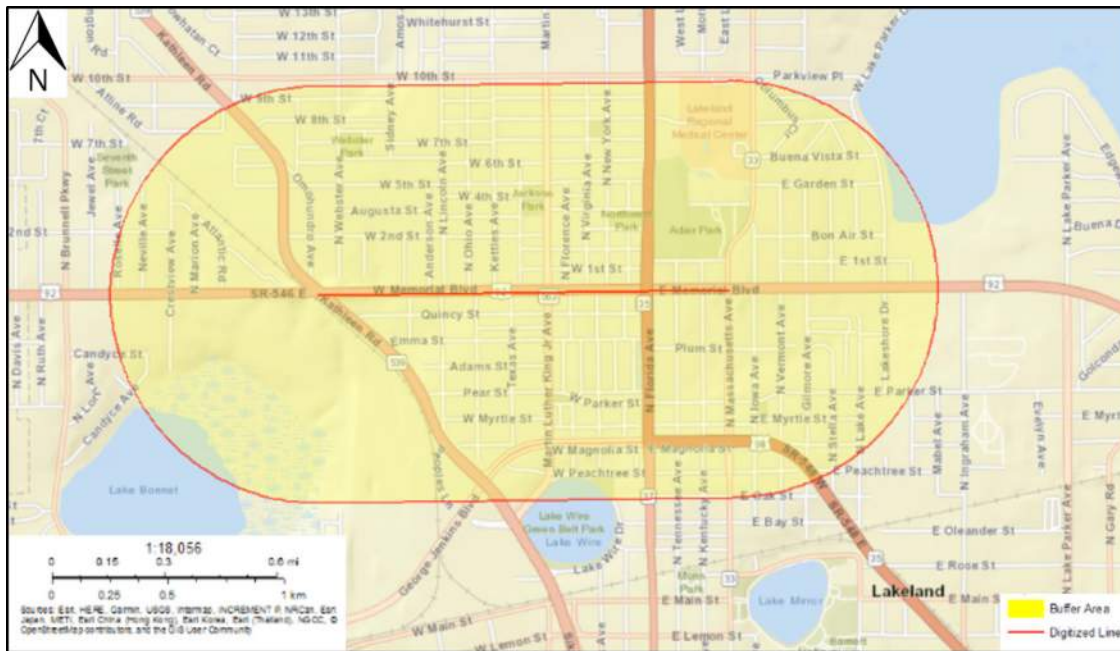


# PHASE I: UNDERSTANDING THE VISION

## FUTURE GROWTH

According to the City of Lakeland 2017 Demographic Guide, Lakeland had a population growth rate of 23.5% between 2000 – 2016, which far surpasses the nation’s growth rate of just under 1%. The US Census Bureau ranked the Lakeland Metropolitan Statistical Area (MSA) as the 12th fastest growing metro area in the US from 2015 to 2016. It is expected that upward population growth in the area will continue to increase, building a strong case for multimodal transportation improvements.

Within a half-mile radius of US 92/Memorial Boulevard, the following population statistics are characterized in the Environmental Justice Screen Census 2011 – 2015:



82% of the population are minorities



45% of the population are between the ages of 0 to 18 and over 65



Per capita income is \$11,275, which is below national average



Unemployment rate is higher than national average

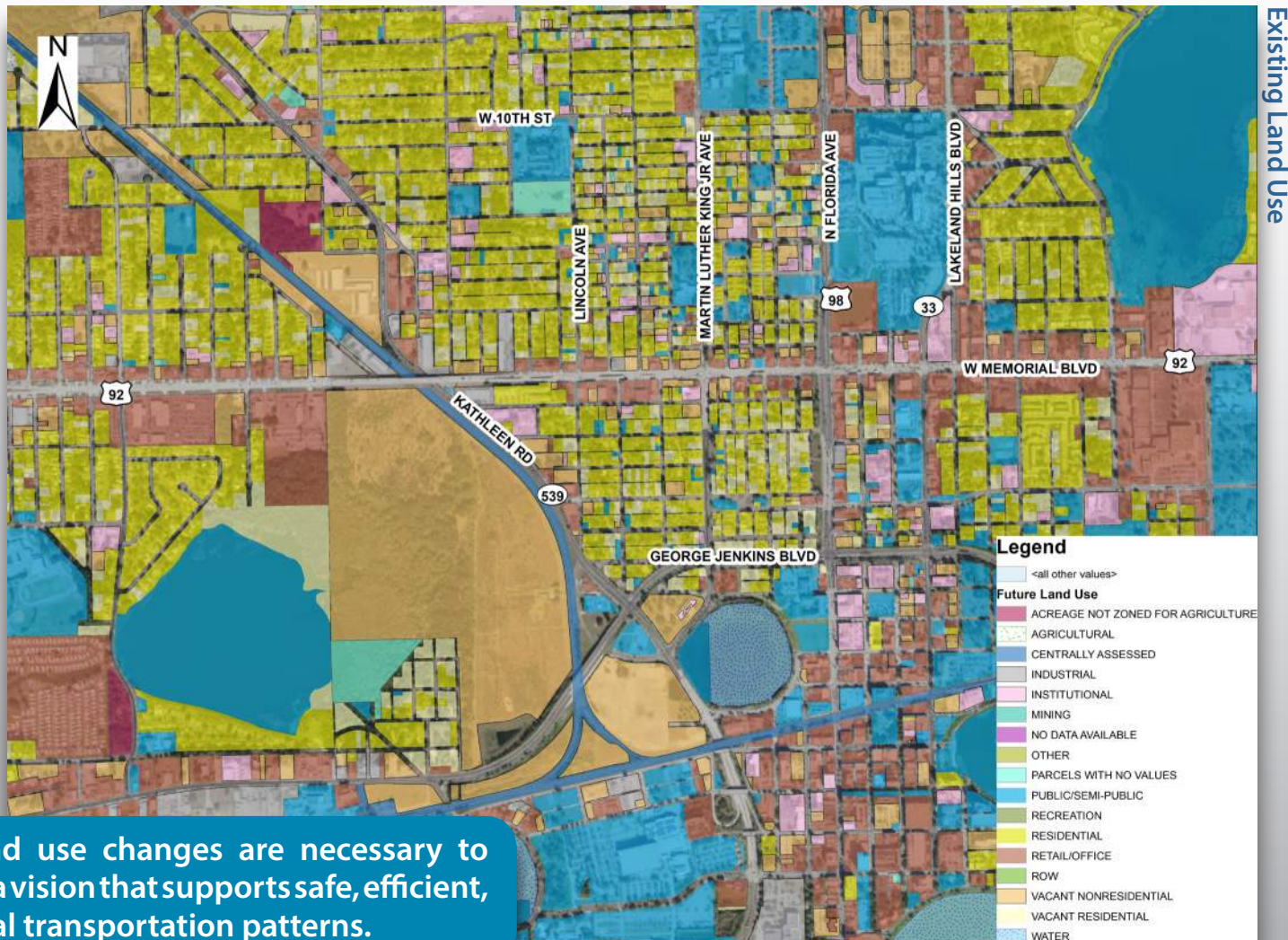
These are key characteristics of populations who rely heavily on alternate transportation modes such as walking, biking, and transit. Providing safe mobility options to existing and future users is not a choice.

## Environmental Justice (EJ)

...is defined as fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income regarding the development, implementation, and enforcement of environmental laws, regulations, and policies. ...seeks to unburden minority and/or low-income populations from disproportionately high and adverse effects of federal transportation policies and projects.

# PHASE I: UNDERSTANDING THE VISION

Existing land uses along the corridor are mostly mixed commercial, with residential neighborhoods immediately behind the uses fronting the roadway, and are not supportive of Complete Streets or livable communities. Within the study area, the Context Classification is identified as C3C-Suburban Commercial. Roads should be developed as intense, mixed-use corridors with interconnected parcels and parking lots, horizontal and vertical mix of uses including medium and high density residential, commercial and office. Public buildings also fit well into this environment. Design standards that create functionally and aesthetically desirable results are the key to the success of these streets and the adjacent development. Successful corridors can enhance the visual image of the community and the economic performance of the land for both private and public gain. The infrastructure will become more legible and coherent which, in turn, will further encourage investment and job creation. As such, residents who seek to be close to their employers will move into the adjacent US 92/Memorial Boulevard corridor. This supports the increasing need for multimodal transportation options for livability and economic vitality.



Existing Land Use

Future land use changes are necessary to align with a vision that supports safe, efficient, multimodal transportation patterns.



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ROAD SAFETY AUDIT SUMMARY

CORRIDOR WIDE

SEGMENT SPECIFIC

BRUNNELL PARKWAY TO KATHLEEN ROAD

KATHLEEN ROAD TO MLK JR AVENUE

MLK JR AVENUE TO LAKESHORE DRIVE

## ISSUES & OPPORTUNITIES

1 COMPLETE STREETS

2 CRASH RATE/ SAFETY

3 PEDESTRIAN AND BICYCLE SAFETY

4 CONGESTION RELIEF

5 TRANSIT SERVICE

6 PLACEMAKING

7 IMPROVED MAINTENANCE

## ADDITIONAL OPPORTUNITIES



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES



## ISSUES

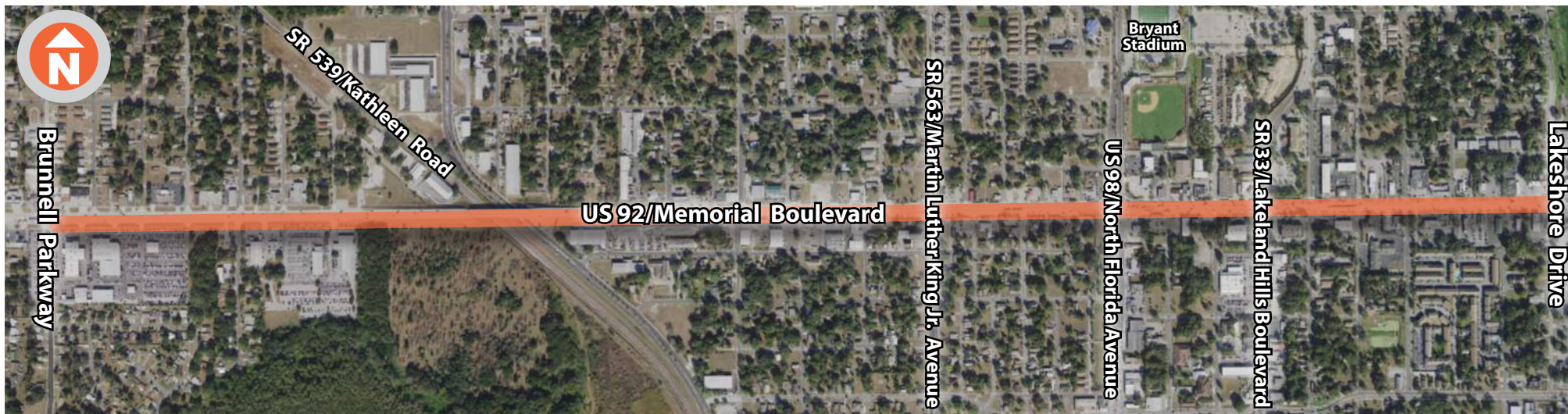
After hearing concerns from the community and stakeholders during Phase I of the process, the Study Team conducted an RSA on **November 17, 2017**. The purpose of the audit was to examine the corridor characteristics and safety performance, as well as understanding the challenges and factors that contribute to them. The team walked along each side of the US 92/Memorial Boulevard corridor from North Brunnell Parkway to Lakeshore Drive and noted observations to assess existing operating conditions.



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

Not only were many of the community concerns verified, many additional issues were identified and documented in the RSA Report which can be found in the Summary Documents section. Challenges ranged from accessibility and safety to maintenance and infrastructure. The issues identified along the US 92/Memorial Boulevard corridor provide opportunities for improving safe, reliable travel for all users. Not only will these opportunities serve to shape the recommended improvements set forth in this CAP, they will assist agency partners in achieving their goals for the corridor and the City of Lakeland. The primary challenges for the entire corridor are listed below. The challenges for specific segments are listed on the following pages.

CORRIDOR WIDE ISSUES	IMPROVEMENT TYPE	COMMENT OBSERVED
	Accessibility/ADA	The curb ramps within the study limits do not meet ADA requirements
		There are raised sidewalks/utility and sewer lids
	Maintenance	There is sand, debris and landscaping within the sidewalk that obstructs the width of the sidewalk
		Sidewalks need repairing
		Overgrown vegetation observed throughout the study limits
	Safety	High level of trucks observed in this corridor
		High level of pedestrian activity observed in this corridor
		Low level of street lighting for pedestrians
		Low visibility for many pedestrian crossings within the corridor
Buildings observed too close to the roadway with very limited right-of-way		
High speeds and traffic observed within the study limits		



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## BRUNNELL PARKWAY TO SR 539/KATHLEEN ROAD

IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Accessibility/ADA	Steep slope connecting overpass sidewalk to the at-grade sidewalk (west end of overpass)	Overpass across Kathleen Road/Railroad
	Northwest corner raised curb	Neville Avenue
	Examine ADA slope compliance	OK Carz Driveway
	Transition of a concrete gutter to the sidewalk that creates a concerningly uneven surface	Overpass across Kathleen Road/Railroad (west of overpass crossing the railroad)
Geometry	Examine stop bar location	Brunnell Parkway (north side)
	Distance between the stop bar and the crosswalk is over 10 feet (more than the standard)	Neville Avenue to Atlantic Road
	Crossing behind the stop bar	Atlantic Road
	Side street southbound left turn movement precarious due to site distance from hill facing west	Roselle Avenue
	Question the use of the pedestrian island	Brunnell Parkway
	Cow path directly in line with sidewalk on the other side (not using the current path)	Jewel Avenue
	Bad angle of northeast corner crosswalk	Jewel Avenue (east side of the intersection)
	No clear purpose for sidewalk connecting the sidewalk to the street	Neville Avenue/Atlantic Road (slightly east of Marion Avenue)
	Sidewalk and crosswalk angle- connectivity, examine if it can be made straight	Opposite Neville Avenue sidewalk (south side)
	Opposite Marion Avenue consider closing sidewalk/extension ramp	N Marion Avenue (south side)
	On bridge ramp, sidewalk and angle do not meet ADA standards	Kathleen Road Overpass



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## BRUNNELL PARKWAY TO SR 539/KATHLEEN ROAD

IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Maintenance	Deep sand on the sidewalk	Between Brunnell Parkway and Jewel Avenue, Neville Avenue
	Manhole cover	East of OK Carz
	Light pole bump out	Kathleen Road Overpass (south side)
	90 degree corners on the sidewalk	Jewel Avenue, Roselle Avenue, Neville Avenue, Crestview Avenue, N Marion Avenue
	Cracks in the sidewalk	Between Jewel Avenue and Roselle Avenue, Approach to Kathleen Road overpass
	Tree breaking barrier	West of Atlantic Road
	Fix existing pedestrian crossing sign	Brunnell Parkway
Safety	No street lighting	Roselle Avenue
	Need high visibility crossing	Driveway east side of Lakeland Automall, Crestview Avenue (north side left turn), Crestview Avenue (south side), Ed Morse Mazda driveways (2)
	No bike lane demarcation	Crestview Avenue
	No bike lane/shoulder on the overpass	Overpass across Kathleen Road/Railroad



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## BRUNNELL PARKWAY TO SR 539/KATHLEEN ROAD

IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Safety (continued)	No buffer between Sunny's Food Store Plaza and sidewalk	Jewel Avenue
	Sidewalk jogs north at Neville Avenue, making the sidewalk on either corner north and south of Neville and the crosswalk uncomfortably close to the roadway. There does not appear to be an obvious reason for this.	N Brunell Parkway to Neville Avenue
	Sidewalk jogs north at Crestview Avenue, making the sidewalk on either corner north and south of Crestview and the crosswalk uncomfortably close to the roadway.	Neville Avenue to Atlantic Road
	Crosswalk very close to traffic	Neville Avenue
	Northeast corner- cars back out over the sidewalk	Crestview Avenue
	Remove access path to auto lot across from Marion Avenue	Access path across from N Marion Avenue (south side)
	Access management issue facing northbound	Brunnell Parkway
	Bad angle, really wide driveway, no clearance	Sunny's Discount Beverages
	Driveway access runs along entire length of business parking and access at Jewel Avenue	Jewel Avenue (north side)
	On the empty lot, examine ramps/driveway for ADA compliance, extra access from Atlantic Road. Question if the driveway is needed	Atlantic Road (south side)



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## SR 539/KATHLEEN ROAD TO SR 563/MARTIN LUTHER KING JR. AVENUE

IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Accessibility/ADA	Sidewalk is a tripping hazard in poor condition (slightly west of Anderson Avenue alignment in front of the water meter)	N Walker Avenue to N Ohio Avenue
	Narrow curb ramp	N Walker Avenue
	Narrow sidewalk eastbound	N Walker Avenue
Geometry	Sidewalk with dangerous drop off to landscape area/roadway (west side of Texas Avenue)	N Ohio Avenue to Martin Luther King Jr Avenue
	Driveway leads to nowhere; consider closing	N Walker Avenue to N Ohio Avenue
	Site distance poor due to building	Anderson Avenue
	Stop bar is too far back, creating forward movement through right crosswalk	Anderson Avenue
	Consider sidewalk (N Lincoln Avenue crosswalk) for realignment	N Lincoln Avenue (south side)
	Pedestrian cut in the median does not line up with crosswalk; may encourage jaywalking; consider removal or bolster with crosswalk and/or pedestrian-activated walk signal	N Ohio Avenue to Martin Luther King Jr Avenue
	South along Texas Avenue includes sidewalk for only one block on one side of the road	N Ohio Avenue to Martin Luther King Jr Avenue
	Consider shifting crosswalk to the west; current alignment of crosswalk across the right turn lane is concerning. Pedestrians on the west side of the crosswalk cannot see approaching vehicles in the right turn lane	N Ohio Avenue to Martin Luther King Jr Avenue
	Visibility sight distance	Texas Avenue (north side)
Maintenance	Repaint SCHOOL marking	Between N Walker Avenue and Anderson Avenue
	Sidewalk outside West Star auto shop needs maintenance or replacement	Near Anderson Avenue/N Lincoln Avenue
	Pedestrian beacon	N Kettles Avenue



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## SR 539/KATHLEEN ROAD TO SR 563/MARTIN LUTHER KING JR. AVENUE

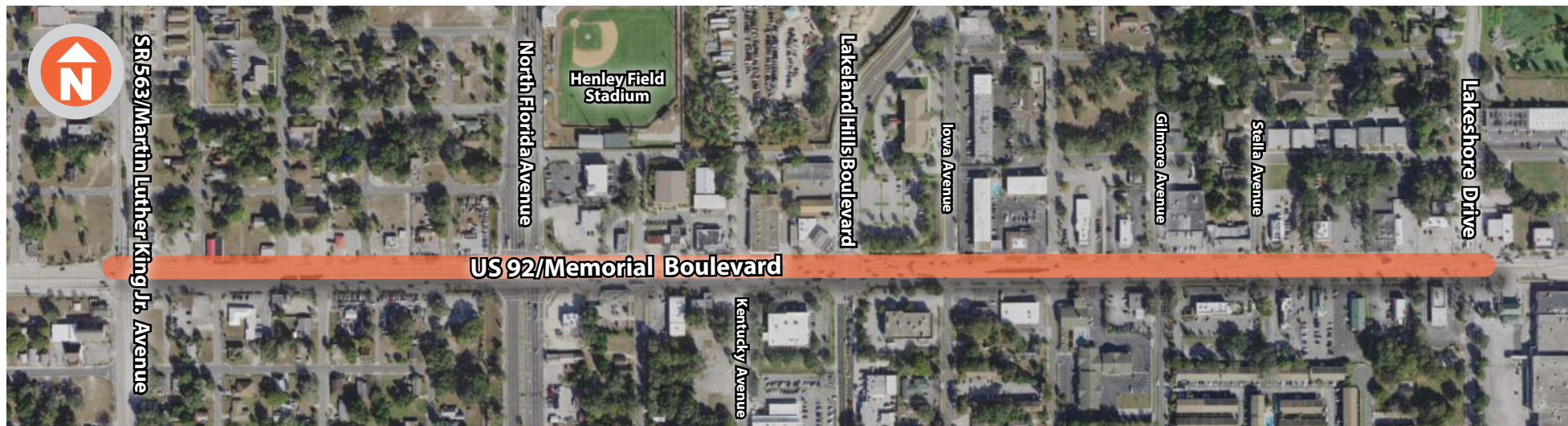
IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Maintenance (continued)	No bus shelter at transit stop	N Lincoln Avenue (north side)
	Pedestrian signal repair	South of N Kettles Avenue N Lincoln Avenue
	Lakeland sign leaving	East of Texas Avenue
	SR 563 signage is low	East of Texas Avenue
Safety	Driveway just north of Lincoln that is dangerously close to the road (N Lincoln Avenue)	N Walker Avenue to N Ohio Avenue
	No bike lane along this stretch of Memorial Boulevard	N Walker Avenue to N Ohio Avenue
	The building is too close to the sidewalk	N Lincoln Avenue
	High visibility crosswalk for all approaches	N Lincoln Avenue Texas Avenue
	No pedestrian lighting	N Lincoln Avenue to N Ohio Avenue
	Big driveway, repair	Advance Auto Parts
	No buffer between parking lot just east of N Ohio Avenue and the sidewalk	N Ohio Avenue to Martin Luther King Jr Avenue
	Cars parked along the sidewalk have no parking stop and encroach on the sidewalk	N Ohio Avenue to Martin Luther King Jr Avenue
	No buffer between sidewalk and the street along the exclusive right turn lane at MLK Jr	N Ohio Avenue to Martin Luther King Jr Avenue
	Add crosswalk	N Kettles Avenue
	SuperChoice food parking lot needs access management redesign; no curb to separate the parking lot from the sidewalk; vehicles obstructing the sidewalk	N Kettles Avenue
	N crosswalk although there is a pedestrian crossing sign and a median cut	N Kettles Avenue
	Access management issue on driveway at Texas Avenue	Texas Avenue (south side)



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## SR 563/MARTIN LUTHER KING JR. AVENUE TO LAKESHORE DRIVE

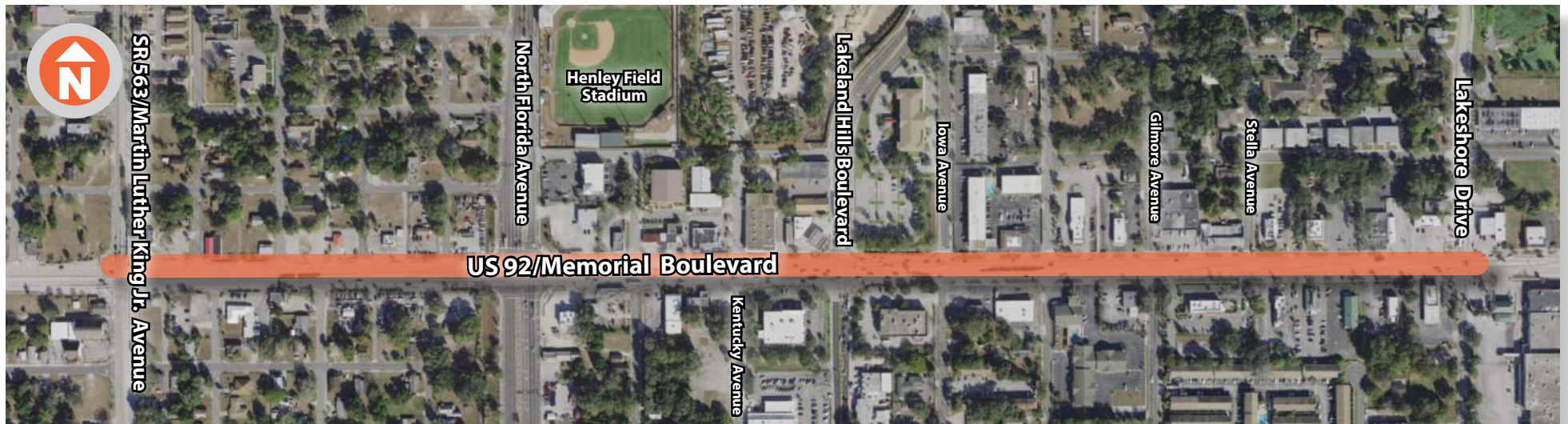
IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Accessibility/ADA	Pole in the sidewalk; too narrow (southwest corner of the intersection)	Martin Luther King Jr Avenue
	Intersection too large for all modes to navigate	N Florida Avenue
	Make crossing distances less	N Florida Avenue
	Hole/pole cut (south east corner)	N Florida Avenue (south side)
	Light pole in the sidewalk/driveway (west of intersection)	N Florida Avenue to Lakeshore Drive N Kentucky Avenue
	Crosswalk seems fast for limited mobility persons	Lakeland Hills Boulevard/Massachusetts Avenue
	Narrow crosswalk	N Stella Avenue (north side)
Geometry	Permissive left turn interfaces with pedestrians (southbound to eastbound)	Martin Luther King Jr Avenue
	Remove free flow right turn movement on all legs	Martin Luther King Jr Avenue
	Shorten radius of right turn movement	Martin Luther King Jr Avenue



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## SR 563/MARTIN LUTHER KING JR. AVENUE TO LAKESHORE DRIVE

IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Geometry (continued)	Bolt up hole in pork chop	Martin Luther King Jr Avenue
	Cannot see yeild or pedestrians (south side of intersection)	Martin Luther King Jr Avenue
	Protected eastbound left phase running with permissive	Lakeland Hills Boulevard/Massachusetts Avenue
	No space to safely pass through	N Virginia Avenue
	Drop off on the north east corner	N Iowa Avenue
	Signal cabinet in sight triangle	Lakeshore Drive
Maintenance	Cow path outside of sidewalk due to overgrown palms over sidewalk	Lakeland Hills Boulevard/Massachusetts Avenue
	Pedestrian light not flashing	Gilmore Avenue
	Pole in the middle of the sidewalk	Gilmore Avenue
	Metal tie down sticking out of the ground (in front of McDonalds/transit stop)	Between Gilmore Avenue and Sella Avenue



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## SR 563/MARTIN LUTHER KING JR. AVENUE TO LAKESHORE DRIVE

IMPROVEMENT TYPE	COMMENT OBSERVED	AREA
Safety	Midblock crossing requested, add crossings to safety plan	N Virginia Avenue
	Sidewalk too close to the street	Between N Florence Avenue and N Virginia Avenue
	Approach to intersection from N Missouri Avenue; sidewalk on the north side has no buffer; back of curb; dangerous speeds near pedestrians	N Florida Avenue
	Need high visibility crosswalks	N Florida Avenue Lakeland Hills Boulevard/Massachusetts Avenue
	Driveway and the sidewalk blend with driveway immediately west of N Kentucky Avenue create an uncomfortable/unsafe pedestrian experience	N Florida Avenue to Lakeshore Drive
	Flashing yellow pedestrian signal likely encourages pedestrian crossing activity but there is no crosswalk (over 10 pedestrians in a 10 minute period)	N Florida Avenue to Lakeshore Drive
	Large demand for a midblock crossing	N Kentucky Avenue Lakeland Hills Boulevard/Massachusetts Avenue
	No access	El Bohio restaurant
	Heavy pedestrian movement (near AMSCOT)	Between N Vermont Avenue and Gilmore Avenue
	Lots of pedestrian crossings at median opening on either side of Gilmore	Gilmore Avenue



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ISSUE 1: AUTO-CENTRIC GEOMETRY

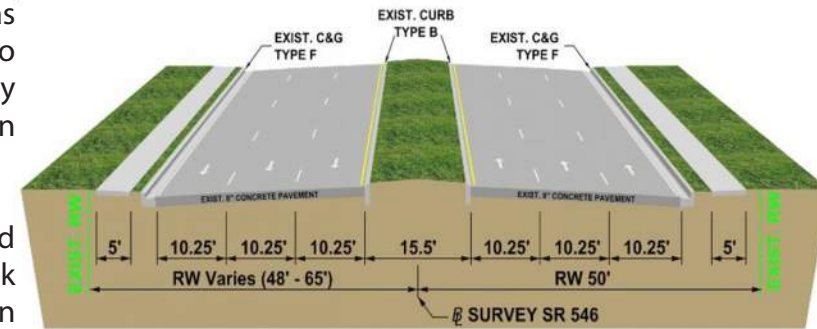
US 92/Memorial Boulevard is designated as part of Florida's Strategic Intermodal System (SIS), and serves a high volume of automobile, commercial vehicle, and bicycle/pedestrian traffic. It is also a state evacuation route, and the corridor's proximity to Interstate 4 promotes truck overflow onto Memorial Boulevard. This facility is functionally classified as an urban principal arterial roadway and has a posted speed limit ranging from 35 mph to 45 mph along the study corridor. Crash rates are above the statewide average for a facility of this type, and 2016 Annual Average Daily Traffic (AADT) volumes recorded were between 24,600 and 38,600.

As shown in the typical section graphic, the existing roadway geometry is centered around vehicular movement and presents a variety of challenges for other users. The sidewalk is discontinuous and is a substandard width between Anderson Avenue and Lincoln Avenue, along the southside. The existing five-foot sidewalk does not allow bicyclists and pedestrians to safely traverse together. Several observations were made to indicate that curb ramps and other geometric conditions within the study limits do not meet the Americans with Disabilities Act (ADA) requirements. Throughout the corridor, there were issues noted related to driveway widths, improper locations for driveways and also driveways that are not used as they do not meet the needs of users in the area.

## OPPORTUNITY 1: COMPLETE STREETS AND ADA FRIENDLY FACILITIES

Consideration of a revised typical section to accommodate bike lanes or a side path along Memorial Boulevard would provide for the high pedestrian/bicycle traffic within the corridor. In the long term, the recommended lane elimination, sometimes referred to as a "road diet", from six general use lanes to four lanes. This would offer improved personal mobility with the associated geometric modifications needed to provide a "Complete Street". The alternative typical section would include the buffered bike lanes and other elements missing in the existing roadway section and improve aesthetics, safety, connectivity and traveler reliability. Additionally, there is an opportunity to correct many of the noted ADA deficiencies along the corridor by:

- Evaluating existing median openings/driveways consistent with current criteria to address access issues
- Repairing cracked sidewalks and updating/realigning curb ramps
- Installing sidewalk to eliminate sidewalk gaps
- Repairing sidewalk where lateral difference exceeds 1/4 inch to reduce tripping hazards
- Installing curb and refurbishing sections of curb that do not currently meet standards
- Correcting steep slopes, missing or misaligned detectable warning surfaces, and poor pavement
- Relocating utility junction boxes/manholes, light poles and other items outside of the sidewalk



EXISTING TYPICAL SECTION  
WALKER AVE TO LAKELAND HILLS BLVD  
MP 3.149 TO 3.928

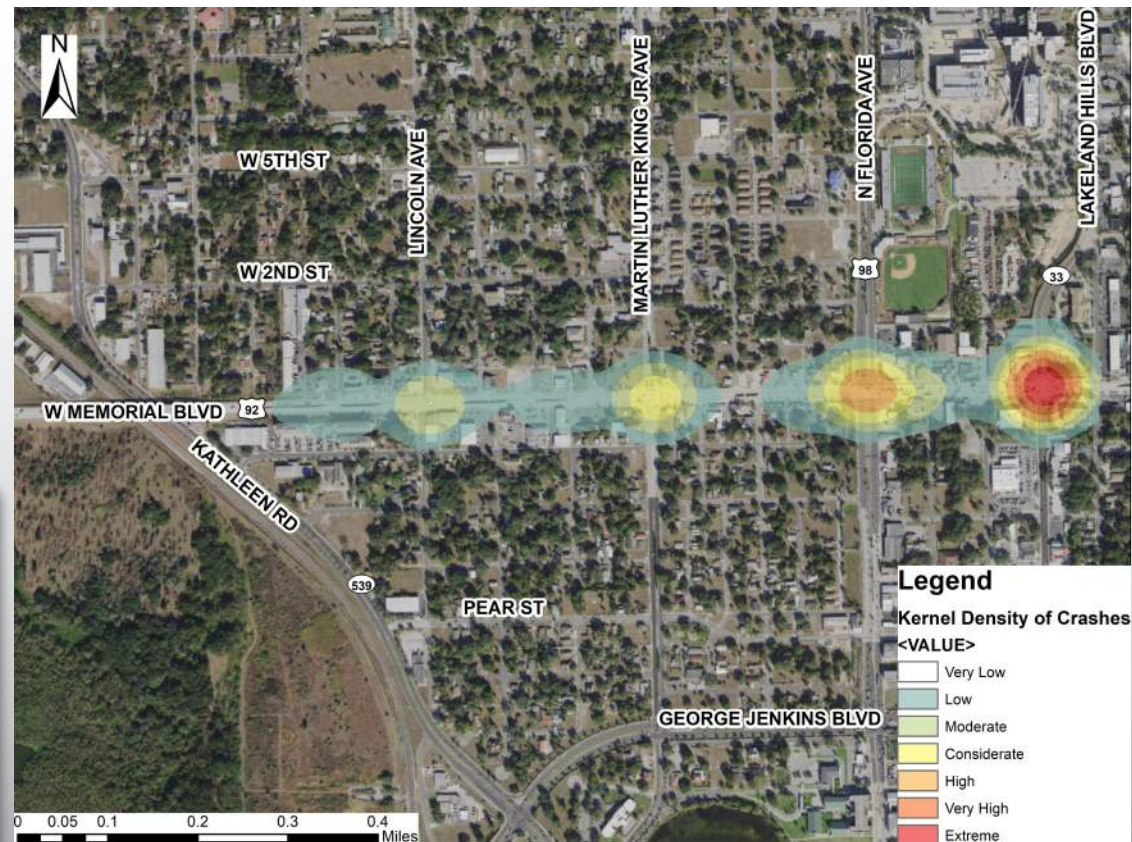
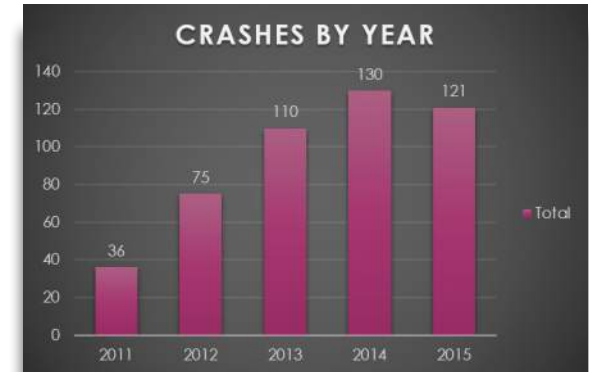


# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

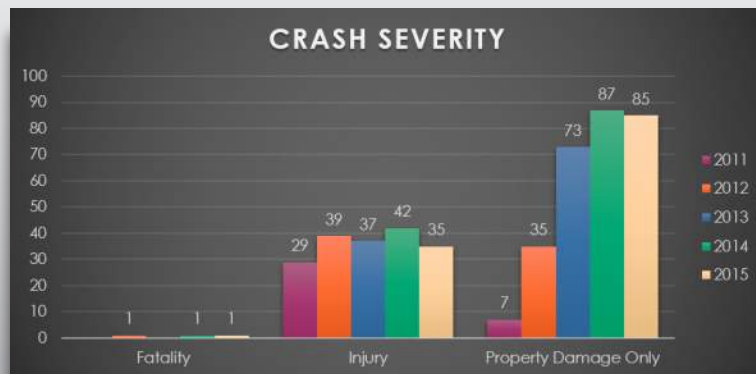
## ISSUE 2: HIGH CRASH RATE

Memorial Boulevard is a high crash corridor, reporting a total of 790 collisions from January 2011 through December 2015. Over the five-year period, crash rates along this segment were above the statewide average for similar facilities with a segment crash rate of 8.045 crashes per million vehicle-miles of travel (MVMT) and a statewide segment crash rate of 4.019 MVMT. Almost half of these crashes were rear end collisions, which can be caused by long queues and inattentive driving. There were also a high number of sideswipe collisions, with less left turn and angle collisions reported within the study segment. Property damage was reported in 509 of the crashes, 277 involved injuries and four resulted in fatalities.

There are six signalized intersections within the study limits, which include North Brunnell Parkway, Lincoln Avenue, SR 563/Martin Luther King, Jr. Avenue, US 98/North Florida Avenue, SR 33/Massachusetts Avenue/Lakeland Hills Boulevard, and Lakeshore Drive. Over 72% of the total 790 crashes reported occurred at a signalized intersection. The highest average number of crashes occurred at Memorial Boulevard's intersection with SR 33/Lakeland Hills Boulevard, US 98/North Florida Avenue, SR 563/Martin Luther King Jr. Avenue and North Lincoln Avenue. Two of the intersections reporting the highest number of crashes are very wide and allow vehicles to maneuver at a high rate of speed. A driver's ability to adequately process information and have sufficient reaction time decreases as speed increases.



Crash Hot Spot Map

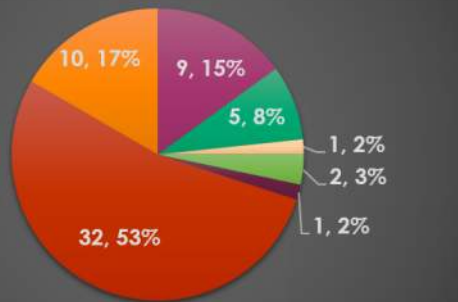


# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

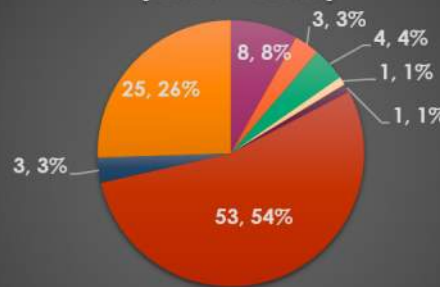
## OPPORTUNITY 2: MULTIMODAL SAFETY

The crash data provides an overview of the factors contributing to the crashes experienced within the corridor. There is an opportunity along US 92/Memorial Boulevard to implement various improvements for the anticipated reduction of crash types and an overall increase in corridor safety for all users. Based on data relative to the high number of rear-end crashes, there is an opportunity to consider installation of a Queue Detection Warning System. This type of system would provide information to assist drivers along the corridor to make more advanced decisions. Data regarding crashes at intersections provide an opportunity to make long term improvements at the three locations that experienced the highest number of crashes along US 92/Memorial Boulevard: SR 563/Martin Luther King Jr. Avenue, US 98/North Florida Avenue and SR 33/Lakeland Hills Boulevard. Design and implementation of these intersection enhancements will introduce additional safety features; provide larger areas for pedestrian staging; reduce right turn radii for shorter crossings; and include streetscape, landscape and traffic calming features. In addition, the associated aesthetic improvements will help to create a sense of place and an asset for the community.

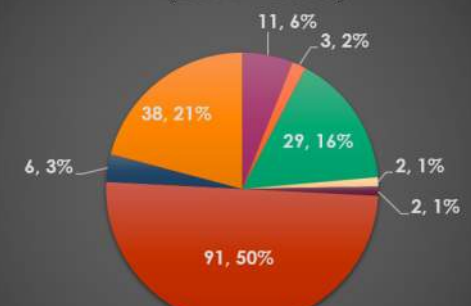
Memorial Blvd at SR 563  
(2011 - 2015)



Memorial Blvd at US 98  
(2011 - 2015)



Memorial Blvd at SR 33  
(2011 - 2015)



Memorial Boulevard/SR 563

Memorial Boulevard/US 98

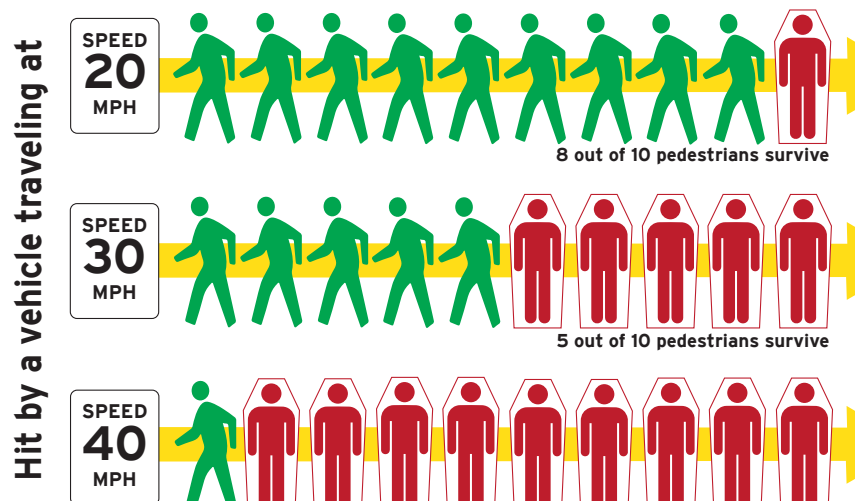
Memorial Boulevard/SR 33

# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ISSUE 3: INADEQUATE PEDESTRIAN AND BICYCLE FACILITIES

There are no bicycle facilities provided along Memorial Boulevard, although significant bicycle and pedestrian traffic volumes were observed within the study limits. Sidewalks along the corridor are discontinuous, substandard and in poor condition within certain segments. The characteristics of the proximate population indicate that users are highly dependent on walking and biking to access activity centers in the area such as schools, shopping, jobs, healthcare, recreational facilities and other services. Walkability is measured on a scale from 0 - 100 based on walking routes to destinations such as grocery stores, schools, parks, restaurants, and retail. Bikeability is measured in a similar way based on available bike lanes/paths and efficiency of using a bicycle to get around. Within the US 92/Memorial Boulevard corridor, 'walk scores' and 'bike scores' are relatively low and vary within a range of 25-49 and 0-49, respectively. The walk score range indicates "car-dependent" and most errands require a car. The bike score reflects "somewhat bikeable" and indicates minimal bike infrastructure is available. Higher walk and bike scores were noted at a few locations; however, they do not represent typical conditions within the corridor.

Due to the lack of bicycle facilities and designated bicycle lanes, cyclists are forced to share the road or sidewalk in high traffic areas, thereby increasing the number of crashes and the level of traffic stress. The most critical gap for bicyclists exists between Kathleen Road and Lakeland Hills Boulevard. Local stakeholder input and field observations indicate a number of issues for pedestrians and bicyclists, which include: operational issues with pedestrian detectors at various intersections; worn or missing pavement markings for crosswalks at schools and several unsignalized intersections/side streets; insufficient lighting to emphasize the presence of pedestrians; potential conflict with pedestrians at certain signalized intersections due to permissive left turns; flashing beacons for pedestrians not working properly; and a high rate of pedestrians crossing improperly due to incorrect placement of stop bars. Field observations indicate a significant amount of midblock pedestrian crossings due to the nature of the corridor and proximity to various activity centers. Inadequate facilities to accommodate controlled crossings, along with the volume of high speed vehicle and freight traffic within the corridor, significantly impact pedestrians trying to safely cross Memorial Boulevard. The existing bridge over Kathleen Road is outdated and does not adequately accommodate pedestrians and bicyclists in a safe manner, offering limited refuge for those users and no trail connectivity.





# Summary Documents

- I Existing Conditions Assessment
- II Preliminary Safety Assessment (PSA)
- III Road Safety Audit (RSA)
- IV Traffic Technical Memorandum
- V Public Involvement Report



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

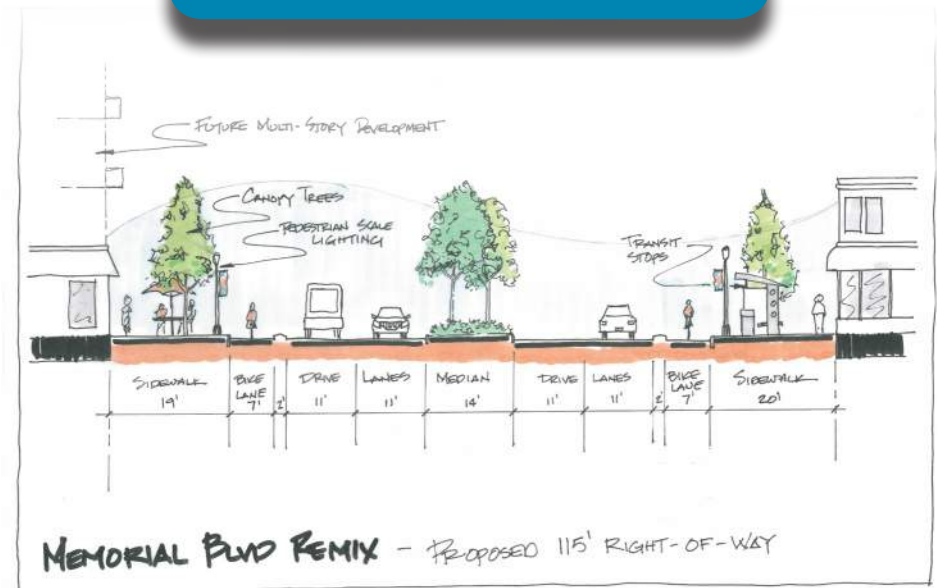
## OPPORTUNITY 3: IMPROVED SAFETY FOR PEDESTRIANS AND BICYCLISTS

In the short term, there is an opportunity to use wayfinding signage, sharrow markings and “Share the Road” signs to encourage the use of safer, alternative parallel routes for bicycles. Another component of that strategy is to establish a long-term plan to add bike lanes or a sidepath along Memorial Boulevard. These initial recommendations present the opportunity for a two-tiered approach that would include implementation of a Road Diet with Buffered Bike Lanes in the future. The opportunity for lane elimination and buffered bike lanes will improve walkability and livability in the area; be supportive of improved safety, multimodal connections and accessibility; improve pedestrian and bicycle safety; decrease vehicle speed; and improve infrastructure connectivity, provide aesthetic enhancements and opportunities for redevelopment in the area.

In the long term, the Trail Bridge over Kathleen Road will provide the opportunity to improve pedestrian/bicycle connectivity and safety, provide ADA compliant access and trail connection, and include aesthetic/gateway features that will enhance the area.



Residents are 65 percent more likely to walk in a neighborhood with sidewalks. source: Smart Growth America



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ISSUE 4: CONGESTION

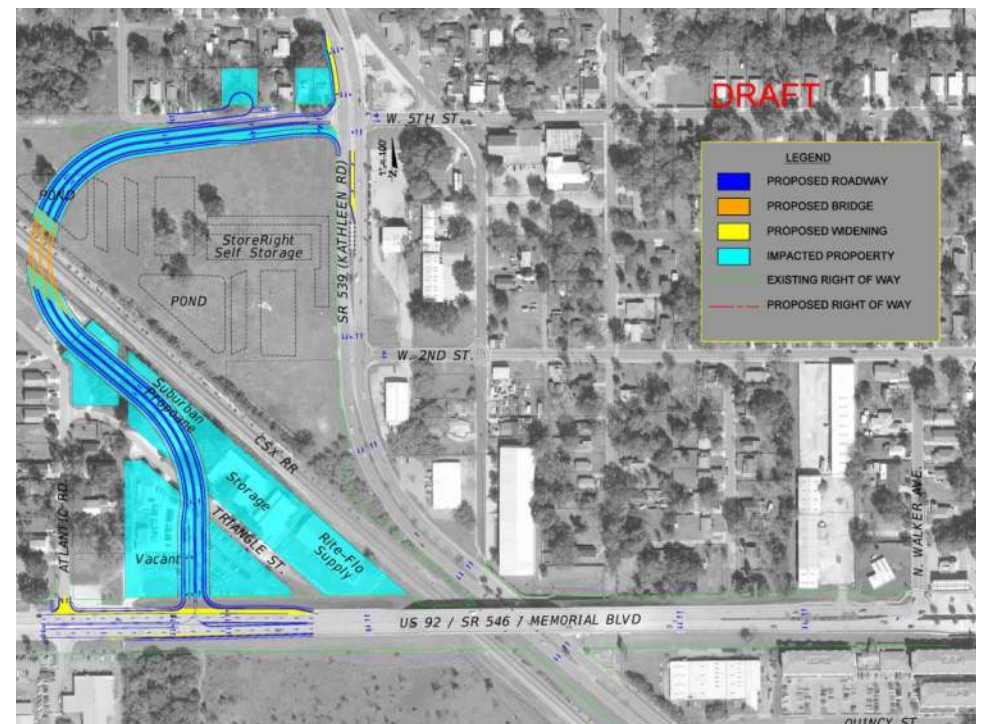
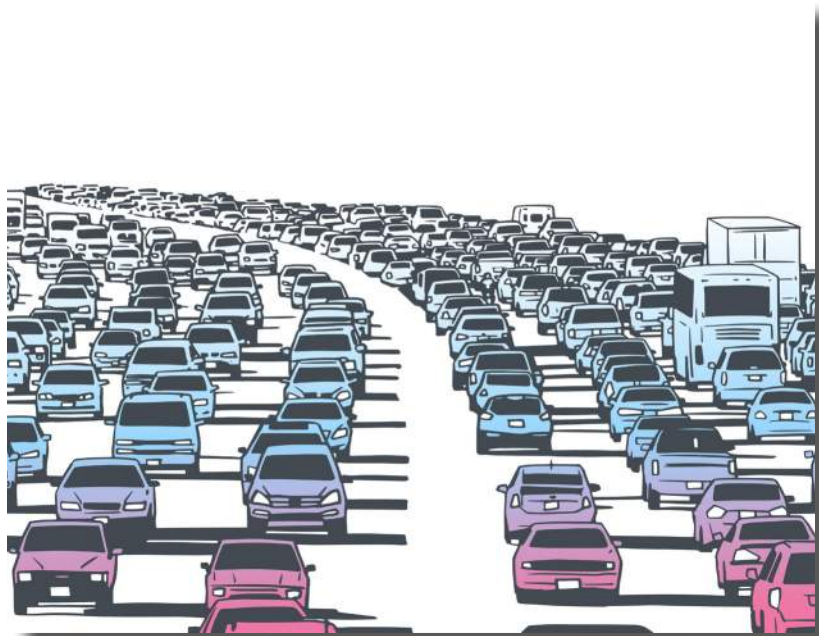
Average annual daily traffic (AADT) volumes recorded for 2016 within the corridor were between 24,600 and 38,600. In addition to the automobile component, there is significant freight movement and high bicycle/pedestrian traffic volumes evident along the corridor. Level of Service (LOS) standards are measures of the minimum amount of a public facility which should be provided to meet that community's basic needs and expectations. Although the City's Comprehensive Plan includes an adopted LOS, these standards are not enforced as there is an established, acceptable tolerance for congested conditions. A certain level of congestion indicates economic vitality and encourages shifts to other modes, resulting in a more balanced transportation system overall. The Polk TPO has adopted Multimodal Transportation LOS (MMLoS) Standards included in the current adopted Polk County Comprehensive Plan. These standards recognize that travel needs cannot be met by a single mode such as the automobile and must include other travel options as part of a multimodal approach. The study corridor experiences congestion during peak travel times and is impacted by events being held at Bryant Stadium and Joker Marchant Stadium in nearby areas. Other issues related to congestion include high crash rates and levels of traffic stress; limited accessibility to other modes; expansive intersections which create open views and encourage speeding, while creating longer pedestrian crossings; poor aesthetics and vehicular delay; and lack of event management for other area corridors that may increase congestion along Memorial Boulevard during special events.



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## OPPORTUNITY 4: CONGESTION RELIEF

Several of the long-term improvements contribute to relieving congestion within the US 92/Memorial Boulevard corridor. The improved connection with Kathleen Road provides better network connectivity for pedestrians, bicycles, automobiles and freight, while helping to disperse traffic throughout the roadway system. Areawide enhancements to transit service and associated amenities may, over time, encourage people to consider transit as a reliable option to their personal vehicles. Intersection improvements supportive of congestion reduction include: larger areas for pedestrian staging; reduced conflict areas for pedestrians/bicyclists; delay reduction; and reduced right turn radii for shorter crossings allowing more efficient use of traffic signal timings. The transportation community is moving away from planning and design of roadway facilities using vehicle throughput and traditional LOS. There is strong support for prioritizing multimodal LOS standards based on corridor and community characteristics, therefore more emphasis can be given to improvements for other modes resulting in overall reduction of vehicular congestion to create a more balanced transportation system.



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ISSUE 5: LIMITED TRANSIT SERVICE AND FACILITIES

Public transit for Polk County is provided by the Lakeland Area Mass Transit District (LAMTD), operating as Citrus Connection. The characteristics of the proximate population within the corridor indicate users are highly dependent on alternate modes of transportation such as walking, biking and public transit to get to jobs, activity centers and a variety of other needed services. There are five routes, in the west county area, that riders can use to access Memorial Boulevard: Route 1 (Florida Avenue Corridor), Route 3 (Lakeland Hills Corridor), Route 14 (Combee/Edgewood), Route 15 (Kathleen/Providence/Harden) and Route 46 (10th/Wabash/Ariana). Route 14 is one of the highest ridership routes between Martin Luther King, Jr. Avenue and North Ingraham Avenue. Previously, all five routes operated on weekdays only and not in the evenings. Effective October 1, 2018, service hours for these routes were expanded to 6 a.m. to 7 p.m. on weekdays and 8 a.m. to 5 p.m. on Saturdays. These recent service enhancements provide some additional travel choices, however there are still limited mobility options for users who may be accessing transit to get to jobs that may have evening shift changes after transit service stops or any activities on Sundays. Issues that are characteristic of the current routes available are long headways and poor travel time reliability. This is especially critical for those taking transit to access jobs and other scheduled appointments.

In addition to the limited transit service that is available, unsafe bus stop locations, unmarked crossing locations and inadequate shelter facilities were observed within the corridor. The lack of appropriate infrastructure does not encourage ridership or promote safe regional connectivity and mobility for users.

## OPPORTUNITY 5: IMPROVED TRANSIT SERVICE AND FACILITIES

The Polk TPO's 2060 Transportation Vision Plan provides the basis for the Transit Corridor and Centers Overlay (TCCO). The TCCO provides a framework for land use policies and mobility strategies that support improved transit access, increase multi-modal travel options and reduce reliance on single occupant vehicles and vehicle miles traveled. Based on its identification as a regional transit corridor in the Vision Plan and in the CRA's Redevelopment Plan, US 92/Memorial Boulevard will have increased opportunities for improved transit services, facilities and other related benefits. Opportunities for proposed transit improvements include: extended operating hours, with consideration given to schedules for major employers in the area; reduced headways; additional/enhanced amenities at most used bus stops, including benches and shelters; improved safety, accessibility and connectivity for bus stops; and potential for transit signal priority systems to maintain schedules and improve overall transit system reliability. Marked mid-block crossings could be installed adjacent to transit shelters to safely accommodate current riders and encourage new users of the system.



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ISSUE 6: INADEQUATE PLACEMAKING

Stakeholders, including businesses, identified the need to improve signage for visitors and residents and to provide landscaping to beautify the area and promote a community presence. Field observations indicated the need for “wayfinding” signage for bicyclists to encourage safer routes as an alternate to Memorial Boulevard and provide connectivity to the areawide bicycle network. The need for lighting was noted to safely illuminate sidewalks and pedestrian crossings. The lack of aesthetic features results in a reduced sense of place. The absence of shade trees and other structures may discourage walking, especially during the summer months. Walking promotes physical activity and health, improves community livability and economic potential.

## OPPORTUNITY 6: ADEQUATE PLACEMAKING

There is an opportunity to improve the sense of place for the community and visitors by providing improved signage, lighting, landscaping, and streetscaping within the corridor. There is also an opportunity to improve overall community livability and well-being by installing shade trees/structures to promote walking and other physical activities.



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ISSUE 7: DEFERRED MAINTENANCE

A significant number of maintenance issues were observed during the RSA including, but not limited to, missing or defective traffic operations equipment, pavement markings that are absent or worn, poor sidewalk conditions and obstructions to the sidewalk including, sand, debris and overgrown vegetation.

## OPPORTUNITY 7: MAINTENANCE IMPROVEMENTS

There are many opportunities to improve the overall safety, mobility, accessibility and connectivity for users within the corridor by implementing consistent maintenance responsibilities such as:

- Repairing cracked sidewalks and updating/realigning curb ramps
- Repairing sidewalk where lateral difference exceeds ¼ inch to reduce tripping hazards
- Replacing worn pavement markings and adding markings at needed locations
- Repairing/replacing traffic operations devices, and installing additional equipment where needed
- Trimming overgrown vegetation
- Removing debris, vegetation and other items within the sidewalk that could contribute to tripping hazards and mobility issues



# PHASE II: UNDERSTANDING THE ISSUES AND OPPORTUNITIES

## ADDITIONAL OPPORTUNITIES

This study provides an opportunity to reevaluate both the local comprehensive plan and land development regulations to ensure the goals are consistent with future growth momentum. Locations most attractive for multimodal development will be prioritized by the market (i.e. developers) for land development projects. The attractiveness of a location for multimodal development is primarily a function of its walk and transit accessibility to various elements.



# PHASE III: DEVELOPING STRATEGIES

## SHORT-TERM

## LONG-TERM

IMPROVED CONNECTION WITH KATHLEEN ROAD  
TRAIL BRIDGE  
INTERSECTION IMPROVEMENTS  
MARTIN LUTHER KING, JR. AVENUE  
US 98/ FLORIDA AVENUE  
LAKELAND HILLS BOULEVARD  
ROAD DIET WITH BUFFERED BIKE LANES  
ENHANCED TRANSIT SERVICE



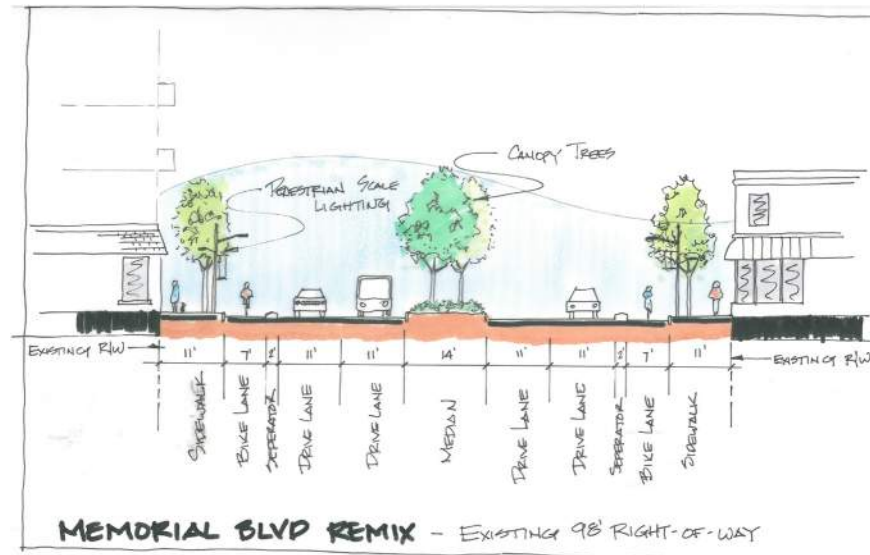
# Phase III: Developing Strategies

## SHORT-TERM IMPROVEMENTS

Most of the recommended improvements identified through stakeholder feedback or during the RSA are classified as short-term. Implementation of these type improvements is not expected to be extensive and many are maintenance items that can be addressed through a maintenance work order. Some of the recommended improvements are corridor wide, while others are more site-specific. Each of the improvements has been grouped into the following categories: Access Management, Sidewalk, Maintenance, Signing & Pavement, and Traffic Operations.

Type	Description
Access Management	Evaluate existing median openings and driveways consistent with current criteria.
Sidewalk	Update curb ramps to meet current ADA requirements.
	Repair sidewalk where lateral difference exceed 1/4 inch to reduce tripping hazards.
	Install sidewalk to eliminate sidewalk gaps
	Align curb ramps at the intersection of Lincoln Avenue.
Maintenance	Remove sand, debris and landscaping within the sidewalk that obstructs the width of the sidewalk.
	Remove overgrown vegetation.
Signing & Pavement	Repair worn pavement markings.
	Replace all signs in poor condition.
Traffic Operations	Add retroreflective back plates to the traffic signals at Lincoln Avenue.
	Install a barrier for cars parked at the Super Choice Foods to eliminate encroachment on sidewalk.

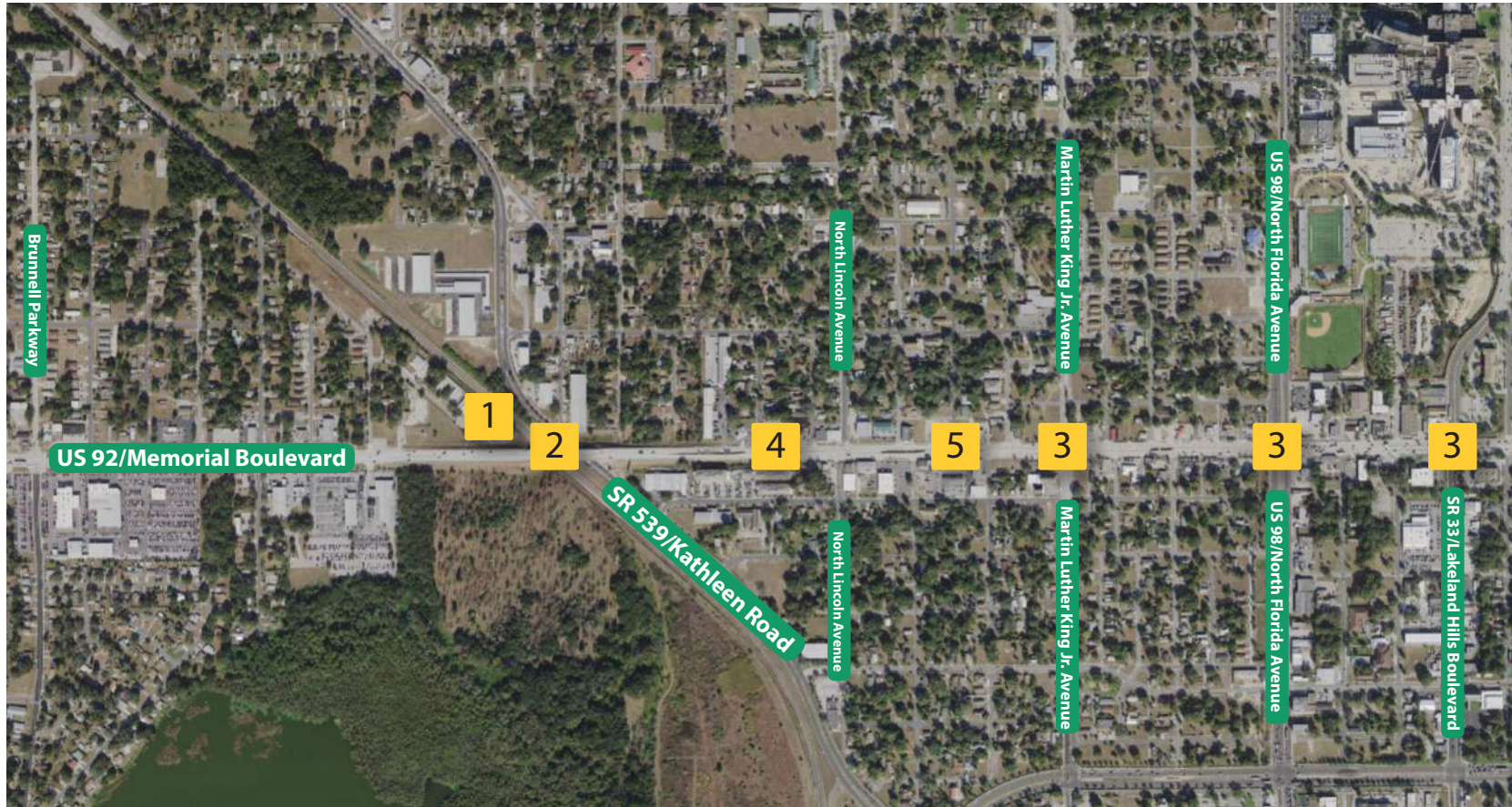
Pre-construction activities are currently underway for the Rigid Pavement Rehabilitation Project (FPID 436569-1) on US 92/Memorial Boulevard from Wabash Avenue to East Gary Road with the following improvements: School area signage, pedestrian warning signage, installing a special emphasis crosswalk along the east leg of Lincoln Avenue, constructing medians to provide pedestrian refuge at Virginia Avenue and west of Kentucky Avenue, converting the full median opening at Stella Avenue and west of Lakeshore Drive, and reconstructing medians to install HAWK signals with special emphasis markings at Kettles Avenue, Vermont Avenue, and Stella Avenue.



# Phase III: Developing Strategies

## LONG-TERM IMPROVEMENTS

Five of the recommended improvements, developed from stakeholder outreach and visioning workshops, are classified as long-term since implementation of the improvements is more extensive. These improvements are summarized and graphically depicted. The goal alignment with the community context and vision is also summarized for each improvement. Percentage of goal alignment is shown for each recommended improvement. Although implementation of the long-term improvements may be more extensive in nature, the benefits far outweigh the efforts required.



### Site-Specific Improvements

- 1** Improved Connection with Kathleen Road
- 2** Trail Bridge
- 3** Intersection Improvements

### Corridor Wide Improvements

- 4** Road Diet with Buffered Bike Lanes
- 5** Enhanced Transit Service

# Phase III: Developing Strategies

## 1 Improved Connection with Kathleen Road

US 92/Memorial Boulevard and Kathleen Road are main connectors to I-4 and generate high traffic and truck volumes. Currently, there is no direct connection between the two corridors. Stakeholders emphasized the need for connected arterials and safe crossings.

- Elevated ramp connection between US 92/Memorial Boulevard and Kathleen Road
- Signalized intersection at both connection points
- Wayfinding signs
- Improved neighborhood connections
- Improved access to new Bonnet Springs Park

### Goal 1 Provision:

- Provides safe crossing area
- Reduces midblock conflict potential
- Completes gaps in the pedestrian and bicycle network

### Goal 2 Provision:

- Diverts local traffic from adjacent arterials
- Reduces the V/C ratio
- Improves the travel time index by providing a shorter travel distance to Kathleen Road
- Provides intersection connectivity via geometric design and Intelligent Transportation Systems (ITS) applications

### Goal 3 Provision:

In anticipation of future events at the proposed Bonnet Springs Park:

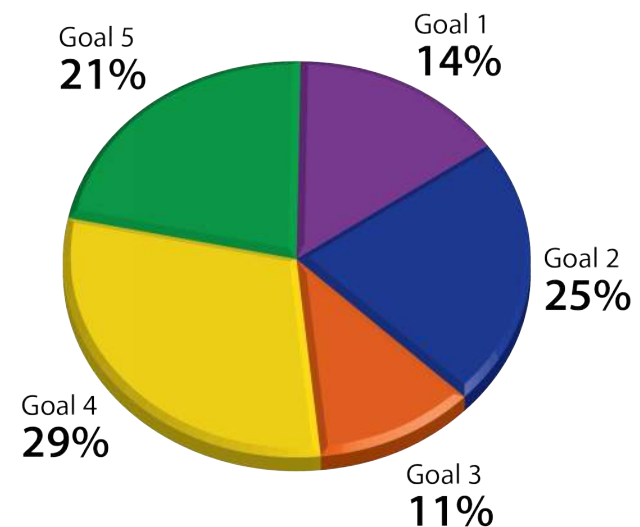
- Provides safe crossing along US 92/Memorial Boulevard for park patrons
- Assists with queue dissipation by providing a more direct connection to I-4 via Kathleen Road

### Goal 4 Provision:

- Improves access and connectivity to job centers
- Provides better access to existing transit routes along Kathleen Road
- Provides wayfinding to the I-4 corridor
- Provides connectivity to anticipated trails within proposed Bonnet Springs Park
- Provides multimodal access to adjacent arterials and venues

### Goal 5 Provision:

- Improves LOS for all road users
- Shortens the distance to existing transit routes along Kathleen Road
- Provides direct access from Kathleen Road to the proposed Bonnet Springs Park
- Intersection design will be supportive of the preferred context classification



Percent of Goal Support

# Phase III: Developing Strategies



# Phase III: Developing Strategies

## 2 Trail Bridge

US 92/Memorial Boulevard has high pedestrian and bicyclist activity along the corridor. With the proposed Bonnet Springs Park, pedestrian and bicyclist activity is anticipated to increase. Stakeholders emphasized the need for connectivity and safe crossings.

- Located adjacent to and on the south side of the US 92/Memorial Boulevard bridge over Kathleen Road and the parallel railroad tracks
- Possible switchback ramps to Kathleen Road
- Aesthetic gateway feature
- Improved walkability
- Improved neighborhood connections

### Goal 1 Provision:

- Provides refuge for pedestrians and bicyclists
- Bridges the gap in the pedestrian and bicycle connectivity

### Goal 2 Provision:

- Reduces pedestrian/bicycle to vehicle conflicts thereby improving travel time reliability

### Goal 3 Provision:

- Provides refuge for pedestrians and bicyclists
- Provides access to/from designated parking areas and the proposed Bonnet Springs Park
- Improves infrastructure to increase the utility of the pedestrian and bicycle mode share

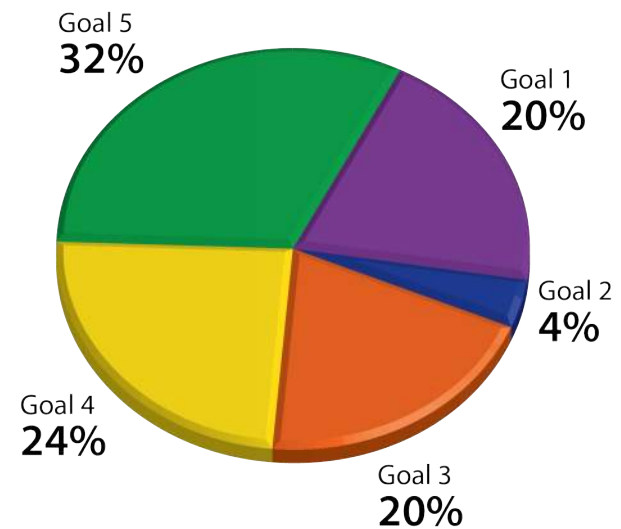
### Goal 4 Provision:

- Improves pedestrian and bicyclist accessibility by providing a safer facility
- Provides better access to existing transit routes along Kathleen Road

- Provides connectivity to anticipated trails within proposed Bonnet Springs Park
- Enhances multimodal access to adjacent arterials and venues

### Goal 5 Provision:

- Improves LOS for vulnerable road users
- Improves access to transit via a more desirable route
- Can be designed as an aesthetic gateway feature
- Can be constructed to offer shade for users
- Provides more direct access from neighborhoods east of Kathleen Road to the proposed Bonnet Springs Park



Percent of Goal Support

# Phase III: Developing Strategies



Our New Park is...



# Phase III: Developing Strategies

## 3 Intersection Improvements

US 92/Memorial Boulevard intersections with SR 563/MLK Jr Ave, US 98/Florida Ave and SR 33/Lakeland Hills Blvd exhibit a high crash rate in comparison with state averages. The existing intersection geometry provides a greater number of conflict areas thereby increasing the occurrence of collisions.

- Geometric Improvements to reduce corner radii
- Enhanced pavement markings
- Wayfinding signs
- Traffic signal timing adjustments
- ITS installation
- Queue detection
- Improved walkability

### Goal 1 Provision:

- Geometric improvements reduce exposure for vulnerable users thereby reducing the crash rate
- Provides driver awareness of intersection infrastructure and vulnerable users thereby improving driver behavior
- Reduces multimodal conflict areas
- Closes gaps in the pedestrian and bicycle network
- ITS implementation improves pedestrian detection and driver expectancy

### Goal 2 Provision:

- Signal timing adjustments improve performance and level of service (LOS) for all modes
- ITS implementation improves multimodal detection, efficiency, and reliability
- Provides a zone of connected and optimized signal infrastructure along corridor

### Goal 3 Provision:

- Adjustment of signal timing will improve reliability of the system during incidents and special events

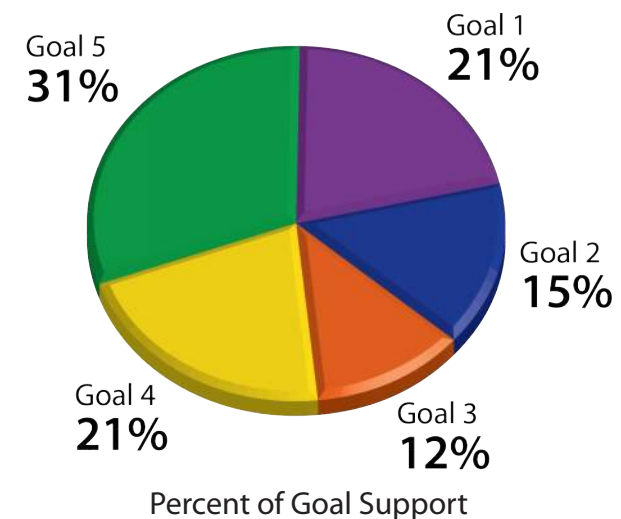
- Improvements in walkability to/from events/venues
- Availability of traveler notification through ITS signs will alert multimodal users of events such that informed travel decisions can be better made.

### Goal 4 Provision:

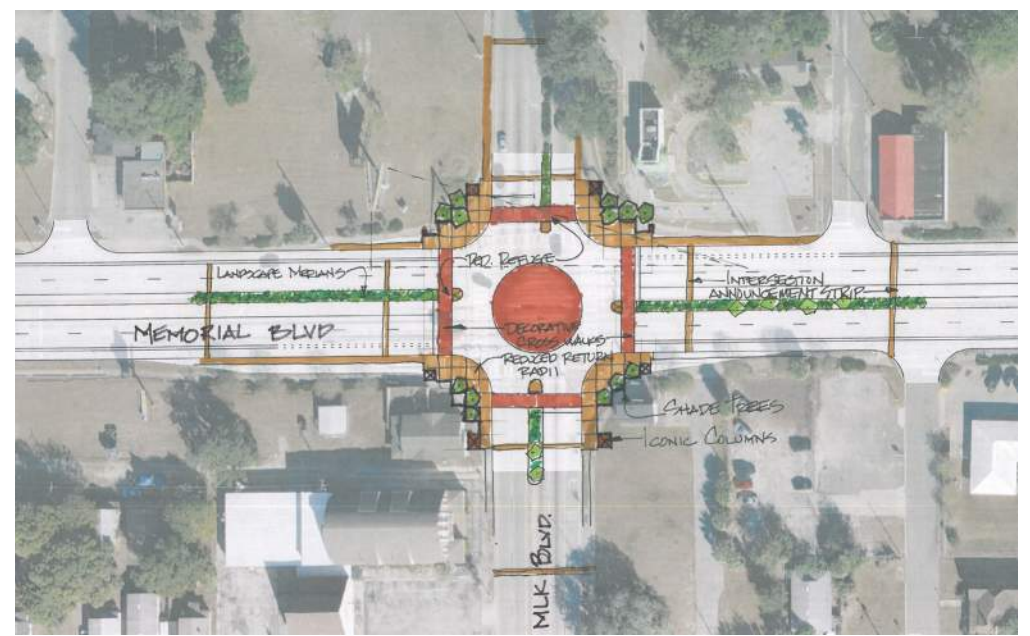
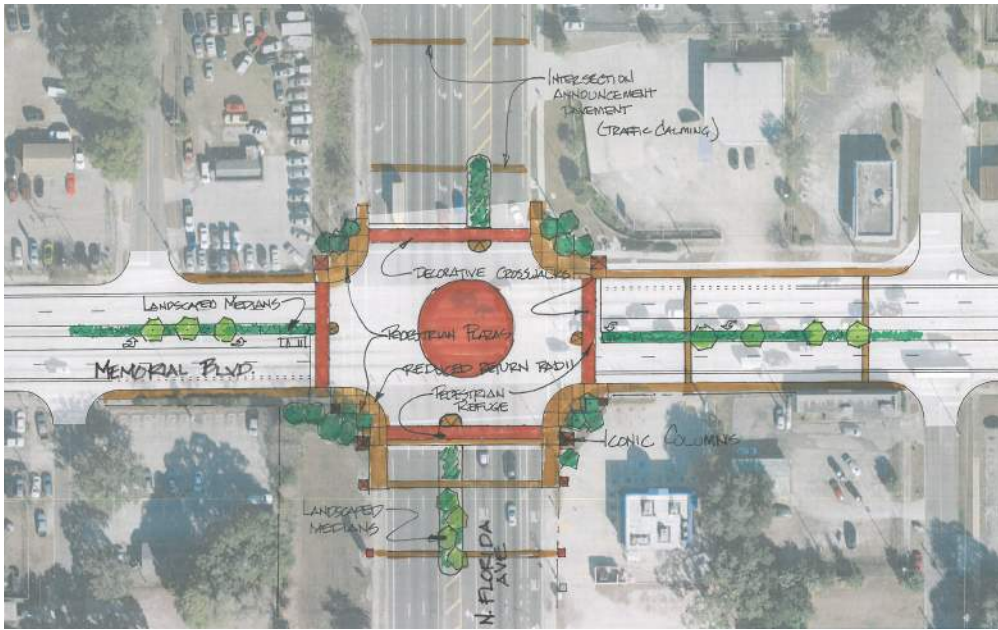
- Reducing congestion and improving reliability will improve job access and transit availability
- Geometric improvements will close pedestrian and bicycle gaps
- Improves multimodal utility, therefore attracting more facility users

### Goal 5 Provision:

- Geometric and ITS modifications improve multimodal LOS and supports transit accessibility
- Reduced exposure for vulnerable users encourages walking to transit stops
- Promotes healthy and active living
- Provides planted medians and tree canopies thereby fostering economic productivity
- Highly supports preferred context classification



# Phase III: Developing Strategies



# Phase III: Developing Strategies

## 4 Road Diet with Buffered Bike Lanes

There is a high volume of pedestrian and bicycle traffic along US 92/Memorial Boulevard, although there are gaps in pedestrian and bicycle infrastructure. There is a recognized need, from the community, the City and the study team to provide connected infrastructure for safe, multimodal options.

- Road diet from six travel lanes to four travel lanes, buffered bicycle lanes, wider sidewalks and a wider landscaped median for pedestrian refuge
- Wayfinding signs
- Improved corridor ornamental lighting

### Goal 1 Provision:

- Provides an improved travel way for pedestrians and a dedicated travel way for bicyclists thereby reducing exposure and crash rate
- Narrowing lanes promote slower speeds thereby reducing the severity of crashes for all modes
- Provides connectivity and reduces gaps in the pedestrian and bicycle infrastructure network

### Goal 2 Provision:

- Although this alternative is not supportive of reducing vehicular congestion, increases pedestrian and bicycle LOS, may promote distribution of vehicles to adjacent roadways and encourage shifts to other modes, resulting in a more balanced transportation system overall

### Goal 3 Provision:

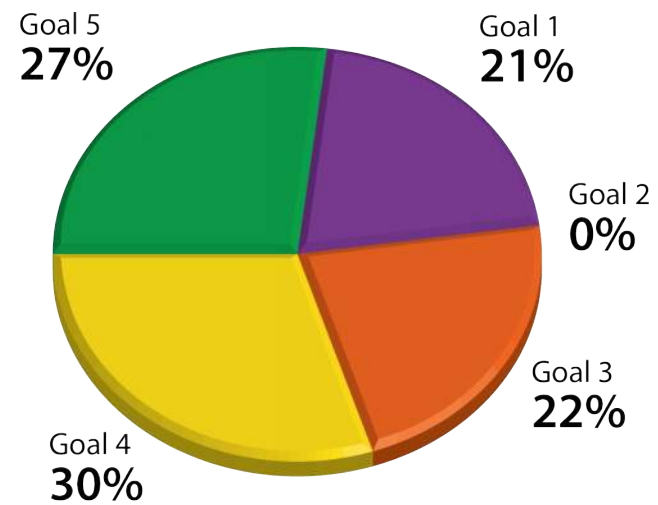
- Provides refuge for pedestrians and bicyclists
- Increases pedestrian mode share
- Provides wayfinding signs that may assist with event management
- Recommendation is consistent with RSA

### Goal 4 Provision:

- Increases accessibility score and provides multimodal job access
- Provides access to transit
- Reduces pedestrian and bicycle infrastructure gaps
- Provides wayfinding signs to assist travelers
- Increases multimodal accessibility

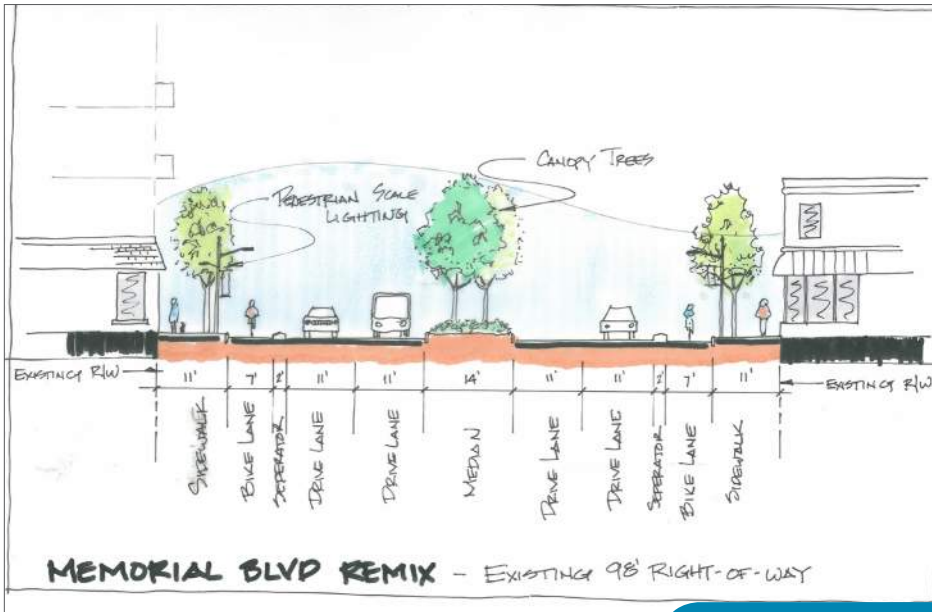
### Goal 5 Provision:

- Supports the City's progressive transportation and land development policies, improving sense of place, community livability and economic potential
- Improves multimodal LOS and supports transit accessibility
- Reduces exposure for vulnerable users and encourages walking to transit stops
- Enhances walkability, promoting healthy and active living
- Provides planted medians and tree canopies thereby fostering economic productivity
- Highly supports preferred context classification (C4)

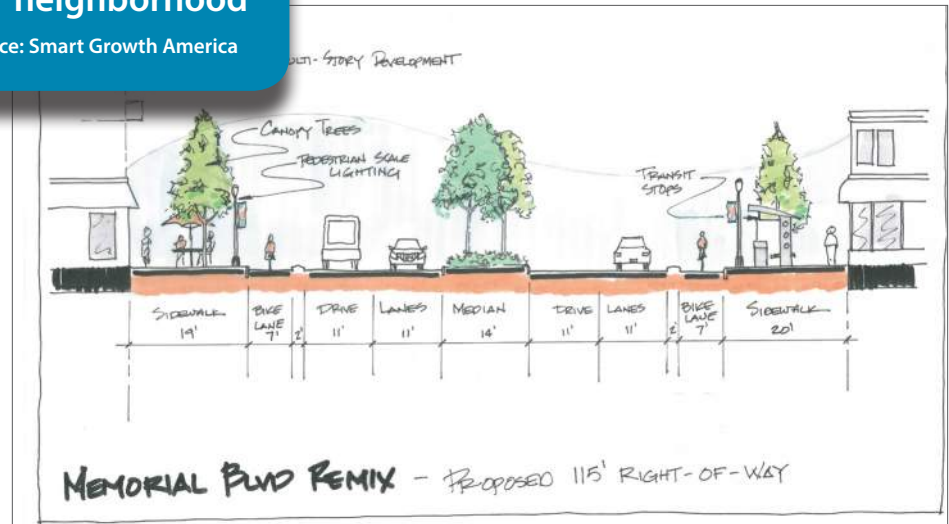


Percent of Goal Support

# Phase III: Developing Strategies



Residents are 65 percent more likely to walk in a neighborhood with sidewalks. source: Smart Growth America



# Phase III: Developing Strategies

## 5 Enhanced Transit Service

A large percentage of population within the study limits depends on transit for everyday commuting, although the current transit mode is limited in both service and accessibility. The stakeholders expressed a need for more robust transit services.

- More frequent service
- Service along US 92/Memorial Boulevard between the Kathleen Road overpass and US 98/Florida Avenue
- Service during events
- Installation of more shelters and alighting pads
- User information signs

### Goal 1 Provision:

- Provides options for alternate travel mode
- Enhanced service may reduce exposure for system users thereby reducing the crash rates
- Reduces gaps in the pedestrian and bicycle network

### Goal 2 Provision:

- Promotes transit ridership thereby reducing vehicular congestion and duration of congestion
- Improves LOS for buses
- Improves travel time reliability
- Connects intersections with both modes and infrastructure capabilities

### Goal 3 Provision:

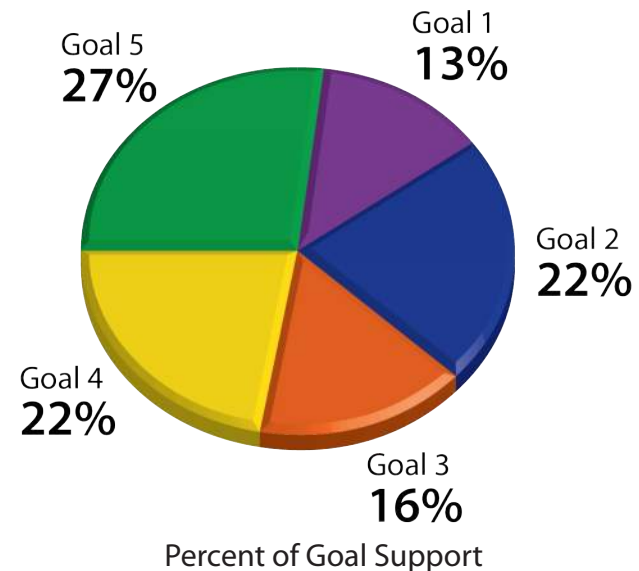
- Provides refuge for pedestrians and bicyclists
- Reduces total queue dissipation time
- Provides travel to/from events and event parking areas
- Provides traveler notification opportunities as identified in the RSA

### Goal 4 Provision:

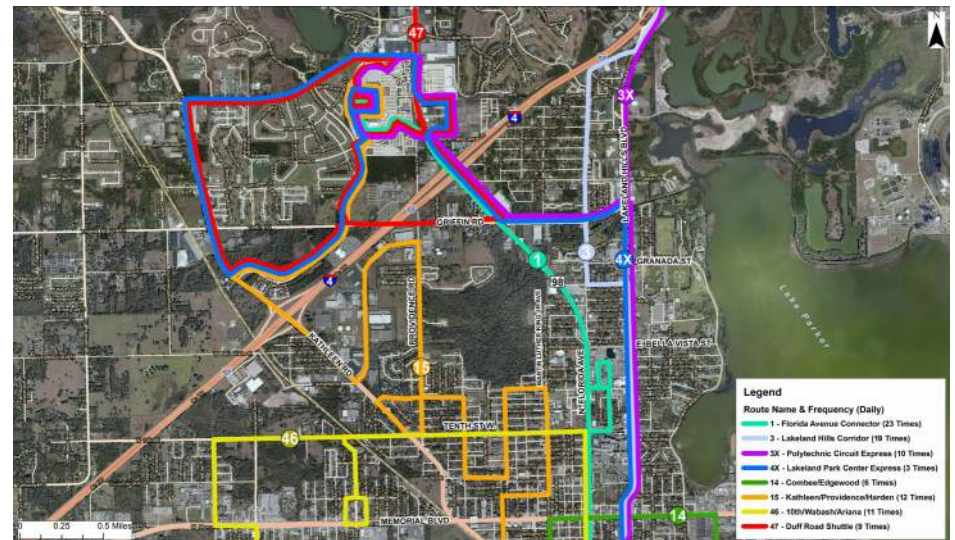
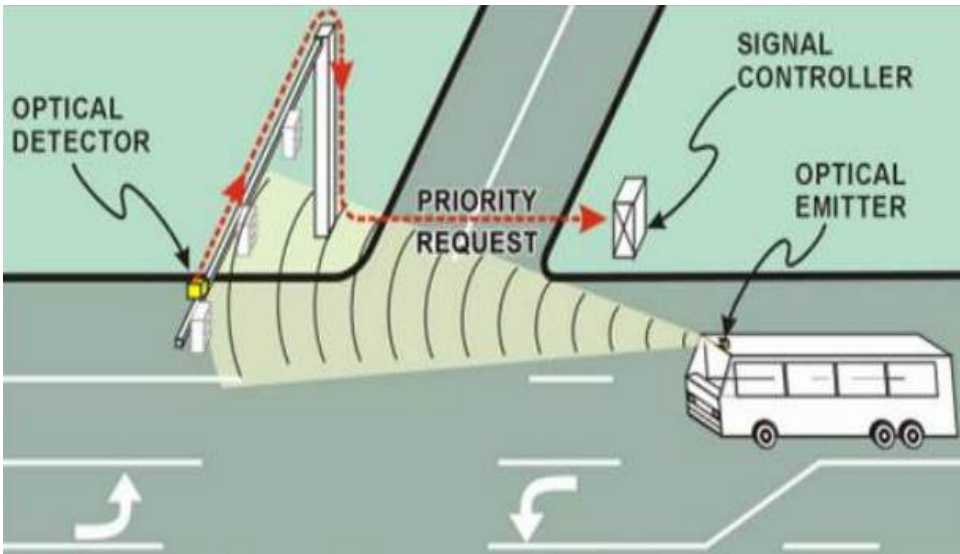
- Improves job accessibility
- Improves transit availability and available service
- Reduces gaps for pedestrians and bicyclists
- Provides better pedestrian and bicycle access to trail facilities
- Improves multimodal accessibility

### Goal 5 Provision:

- Improves multimodal LOS
- Provides affordable transportation options for low income populations
- Reduces walk access/trip length to transit facilities
- Provides bus shelters and bus frequency to foster economic productivity
- Highly supports preferred context classification



# Phase III: Developing Strategies



# Phase III: Developing Strategies

## Long-Term

Indicator		Goal 1: Improve pedestrian, bicycle and vehicle safety					Goal 2: Reduce Congestion			Goal 3: Minimize impact of incidents and multimodal travel conditions on the transport system			
		No. of crashes (per VMT)	No. & rate (per VMT) of bike/ped severe crashes	No. & rate (per VMT) of all crashes	Percent of facility with ped and bike infrastructure gaps	Exceeds V/C ratio of 1.5	Travel Time Index/ consistency of travel times	% of intersections with connected infrastructure capabilities	Total duration	Number of ped refuge areas near event areas and parking	Total dissipation time	Estimated vehicle diversion to parking areas	Presence of ped infrastructure proximate to event destinations
Performance Measure	Severe Crash Rate	Severe Crash Rate Involving Ped & Bikes	Total Crash Rate & No.	Gaps In Bike & Ped Network	Peak Hour Excessive Delay	Travel Time Reliability	Intersection Connectivity	Duration Of Congestion	Availability Of Ped Crossings And Refuge	Queue Dissipation Time	Diversion To Parking Areas Before Entering Event Area	Ped Mode Share Increase	
Improved Connection W/ Kathleen Road	●	●	●	●	●	●	●	●	●	●	○	●	
Trail Bridge	●	●	●	●	○	●	○	○	●	○	●	●	
Intersection Improvements	●	●	●	●	●	●	●	●	○	●	○	●	
Road Diet With Buffered Bicycle Lanes	●	●	●	●	○	○	○	○	●	●	●	●	
Enhanced Transit Service	●	●	●	●	●	●	●	●	●	○	●	●	

Proposed Improvements

Level of Goal Support    Very Supportive ●    Supportive ●    Not Supportive ○

# Phase III: Developing Strategies

Special events to transportation system		Goal 4: Improve multimodal connections and accessibility						Goal 5: Improve community livability and economic potential																	
Identified need from Road Safety Audit		Accessibility scores		Level of transit service		% of facility with ped and bike infrastructure gaps		Provision of wayfinding signage		Ped & bike facility access to regional trails		Existing accessibility scores		MMLOS score		Transit for low income populations		Average trip length		Ped and bike facilities within 1/4 mile of a health care facility or public park		Availability of tree canopy, bus shelters, 15-minute planted medians, and gateways		Strategy is supportive of context classification	
Availability Of Traveler Notification	Job Access	Transit Availability	Environmental Health	Traveler Wayfinding	Regional Trails Connectivity	Multimodal Accessibility	Multimodal LOS	Transportation Affordability Measures	Walk Access To Transit	Access To Health/ Active Living	Infrastructure To Foster Economic Productivity	Alignment With Context Classification													

# Phase III: Developing Strategies

## Improved Connection with Kathleen Road

US 92/Memorial Boulevard and Kathleen Road are main connectors to I-4 and generate high traffic and truck volumes. Currently, there is no direct connection between the two corridors. Stakeholders emphasized the need for connected arterials and safe crossings.

## Trail Bridge

US 92/Memorial Boulevard has high pedestrian and bicyclist activity along the corridor. With the proposed development of Bonnet Springs Park, pedestrian and bicyclist use of Memorial Boulevard is anticipated to increase. Stakeholders emphasized the need for connectivity and safe crossings.

## Intersection Improvements

US 92/Memorial Boulevard intersections with SR 563/MLK Jr. Avenue, US 98/Florida Avenue and SR 33/Lakeland Hills Boulevard exhibit a high crash rate in comparison with state averages. The existing intersection geometry, which includes large crossing distances, provides a greater number of conflict areas, thereby increasing the occurrence of collisions. It also increases open view, and therefore vehicle speed through the intersection, increasing unsafe conditions for other modes.

## Road Diet with Buffered Bike Lanes

There is a high volume of pedestrian and bicycle traffic along US 92/Memorial Boulevard, although there are gaps in pedestrian and bicycle infrastructure. There is a recognized need, from the community, the City and the study team to provide connected infrastructure for safe, multimodal options.

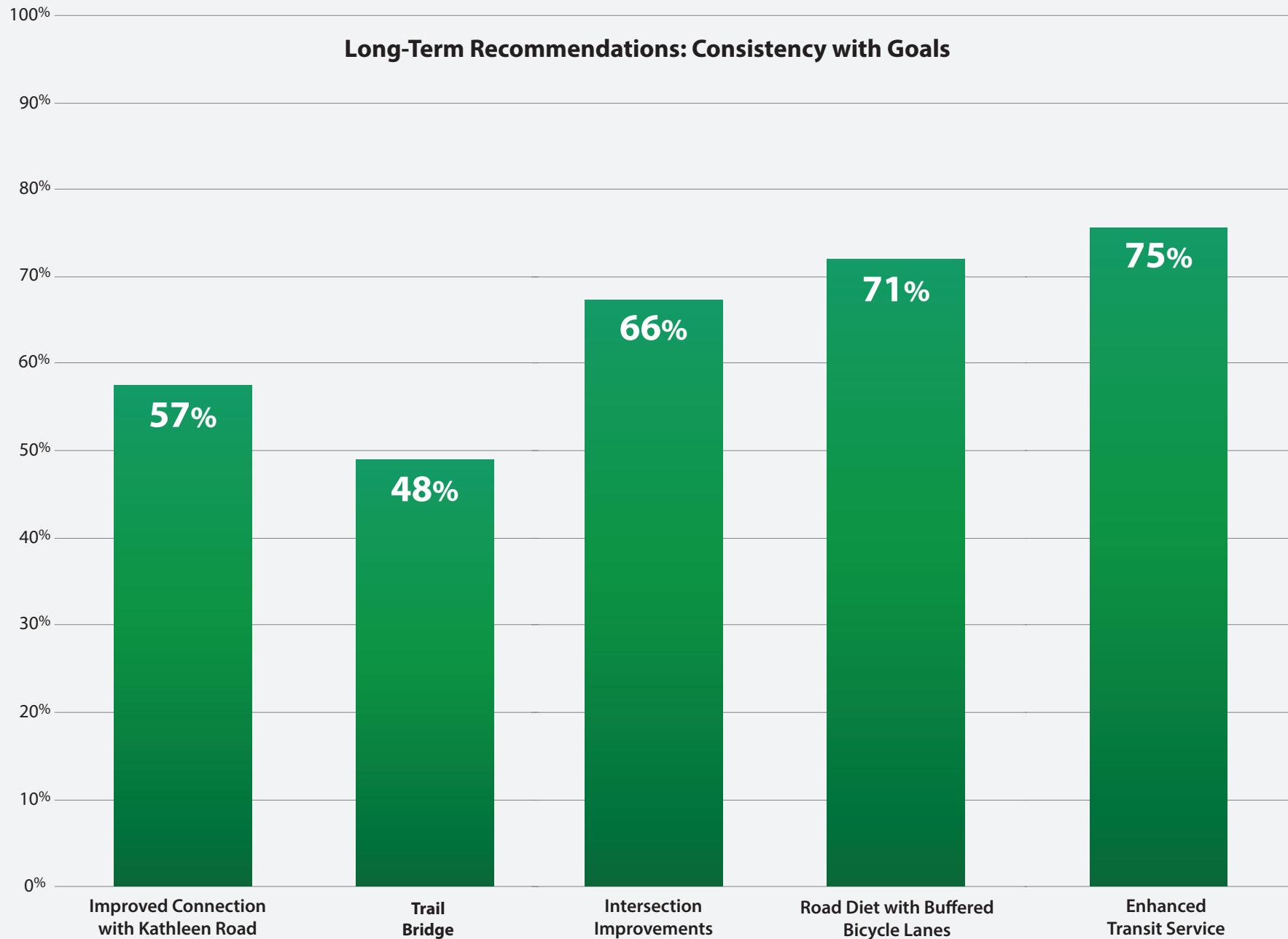
## Enhanced Transit System

A large percentage of population within the study limits depends on transit for everyday commuting, although the current transit mode is limited in both service and accessibility. The stakeholders expressed a need for more robust transit services.



The bar graph indicates the results of the level of goal support for each of the long-term recommendations. Enhanced Transit is most supportive at 75%, followed closely by Road Diet with Buffered Bicycle Lanes at 71% and Intersection Improvements at 66%. Improved Connection with Kathleen Road falls second to last with 57% and the Trail Bridge recommendation is last in the group with 48%. Whether singular or comprehensive, each of these recommended improvements will result in compelling support of a comprehensive vision for the US 92/Memorial corridor.

# Phase III: Developing Strategies



# Phase III: Developing Strategies

## THE PATH FORWARD

Although there were many steps to developing the corridor recommendations, the path forward will ensure the successful implementation. The summary tables provide different means to be considered for achieving each of the recommended improvements. These improvements support the community vision and, as such, system planning and future projects should prioritize these improvements. With this accomplished, multimodal accessibility goals are met, livability is achieved, and streets are complete.

## SHORT TERM

Short-term recommendations are prioritized according to the required deployment efforts and the amount of resources available to assist in implementation. The first ranked recommendations require the least relative endeavor and the shortest application time. Many of the recommendations are supported by traffic operations, maintenance and design which require coordination between FDOT, City of Lakeland and in some cases private businesses. Most of the recommendations can be implemented either as an “in-house work order” or “completed as part of a planned project”. Some of the “Design” related strategies can be implemented as “part of a planned project” or as a “stand-alone” project. There may be potential for certain recommendations to be implemented “by developer or local businesses”. All improvements will require collaboration with partner agencies and continued stakeholder and public engagement.

Alternative Strategy		Priority	Traffic Operations
<b>Accessibility / ADA</b>			
Repair sidewalk where lateral difference exceed ¼ inch to reduce tripping hazards	3	■	
Update sidewalks to meet current design and ADA standards	2		
Update curb ramps to meet current ADA requirements	1		
Consider crossing distances and speeds for all modes and abilities	5	■	
Fix raised sidewalk/utility and sewer lids	4		
Remove obstacles in sidewalk (light pole, drains, etc)	6		
Consider bus shelter at bus stop	7	■	
<b>Geometry</b>			
Align curb ramps at the intersection of Lincoln Avenue	3		
Review stop bar locations for site distances and crossings	2	■	
Review site distances due to buildings, other large obstructions or current geometry	6		
Consider sidewalk/crosswalk path correction (realignment/straightening or closing of sidewalk)	4	■	
<b>Intersection Upgrades</b>			
Install sidewalk to eliminate sidewalk gaps	1		

Short Term

\*For specifics regarding the locations targeted for short term recommendations, please see the Implementation Plan in the Appendix

# Phase III: Developing Strategies

Interagency Coordination				Partners					Strategies			
Maintenance	Planning	Design	FDOT	City of Lakeland	Citrus Connection	Polk TPO	Private Business	In-house Work	Completed as part of a Planning Project	Stand-alone Project	Completed by Developer or Local Business	
			■				■	■			■	
■		■	■					■	■		■	
		■	■						■	■		
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	■	■	■	■			■		■	■	■	
	■	■	■	■		■	■		■	■	■	
	■	■	■	■		■	■		■	■	■	

# Phase III: Developing Strategies

Alternative Strategy				
Alternative Strategy			Priority	Traffic Operat
Short Term	<b>Maintenance</b>			
	Remove sand, debris and landscaping within the sidewalk that obstructs the width of the sidewalk	2		
	90 degree corners on sidewalk	6		
	Repair sidewalk	4		
	Remove overgrown vegetation	3		
	Repair worn pavement markings	6		
	Repair pedestrian signal	1		
	Replace all signs in poor condition	7		
	<b>Safety</b>			
	Consider "No Trucks" designation (Corridor Wide)	15		■
	Consider Complete Streets treatments to enhance safety and aesthetics (Corridor Wide)	1		■
	Add retroreflective back plates to the traffic signals at Lincoln Avenue	3		■
	Add street lighting for pedestrians	4		■
	Consider increasing to high visibility at pedestrian crossings	5		■
Consider adding crosswalks	2		■	
Consider midblock crossings	6		■	

\*For specifics regarding the locations targeted for short term recommendations, please see the Implementation Plan in Appendix

# Phase III: Developing Strategies

Interagency Coordination				Partners					Strategies			
Maintenance	Planning	Design	FDOT	City of Lakeland	Citrus Connection	Polk TPO	Private Business	In-house Work	Completed as part of a Planning Project	Stand-alone Project	Completed by Developer or Local Business	
■			■	■			■	■			■	
■			■	■				■	■			
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	■	■	■	■		■		■	■	■		

## LONG TERM

The long-term recommendations will likely require a higher level of support and partner involvement than the short-term recommendations. However, it is anticipated that the benefits of implementing these long-term strategies will be most supportive of the goals and objectives of this study.

The long-term recommendations were ranked as to how well they each supported the five goals. The three levels of goal support included *not supportive*, *supportive*, and *very supportive*. A simple, weighted point methodology was used to determine the total goal support for each recommendation. The first ranked recommendation was the Enhanced Transit Service and the last ranked recommendation was the Trail Bridge.

		Alternative Strategy		
		Alternative Strategy		
			Priority	Traffic Op
Short Term	<b>Safety (continued)</b>			■
	Consider bike lanes or markings for existing bike lanes	7		■
	Consider a buffer between driveway/building and sidewalk	9		■
	Sidewalk too close to the road	10		■
	Buildings too close to the roadway, limited right-of-way	12		■
	Remove access path to auto lot from Marion Avenue	11		■
	Install a barrier for cars parked at the Super Choice Foods to eliminate storage on sidewalk	8		■
	Conduct a speed study and apply traffic calming measures (Corridor Wide)	13		■
Evaluate existing median openings and driveways consistent with current criteria	14		■	
Long Term	Improved connection w/ Kathleen Road	4		
	Trail Bridge	5		
	Intersection Improvements	2		
	Road diet with buffered bicycle lanes	3		
	Enhanced transit service	1		

\*For specifics regarding the locations targeted for short term recommendations, please see the Implementation Plan in Appendix

Interagency Coordination				Partners					Strategies			
Operations	Maintenance	Planning	Design	FDOT	City of Lakeland	Citrus Connection	Central FL RPC	Private Business	In-house Work Order	Completed as part of a Planning Project	Stand-alone Project	Completed by Developer or Local Business
	■		■	■	■					■	■	
	■		■	■	■			■		■	■	■
	■		■	■	■					■	■	
			■	■	■			■			■	■
				■	■			■			■	■
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# Lakeland Area Alternative Analysis

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## US 92/Memorial Boulevard CORRIDOR ACTION PLAN

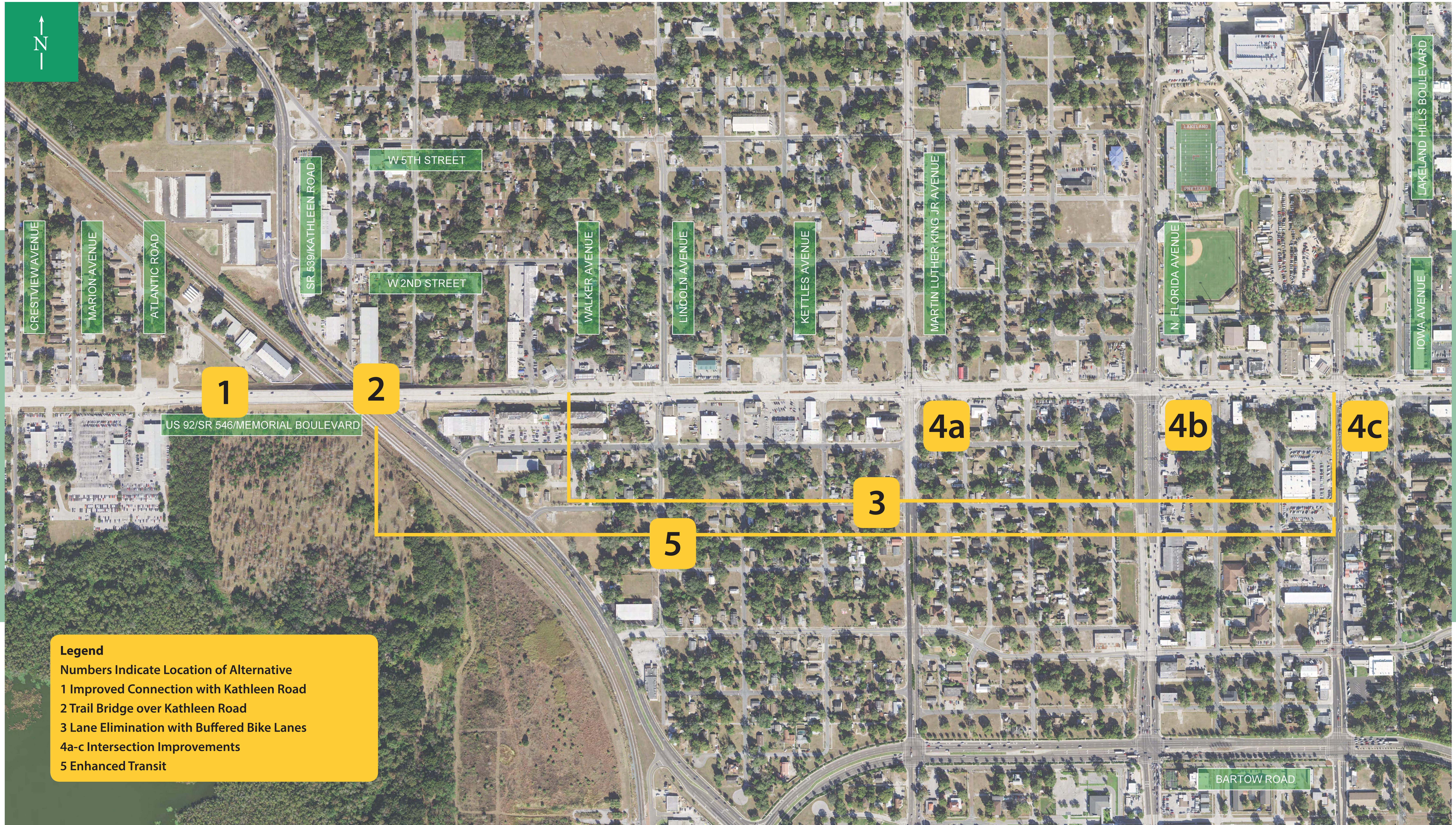
FDOT DISTRICT ONE • FPID NO. 432459 1 22 01



# Appendix

US 92/Memorial  
Boulevard & SR 539/  
Kathleen Road  
Concept Plans





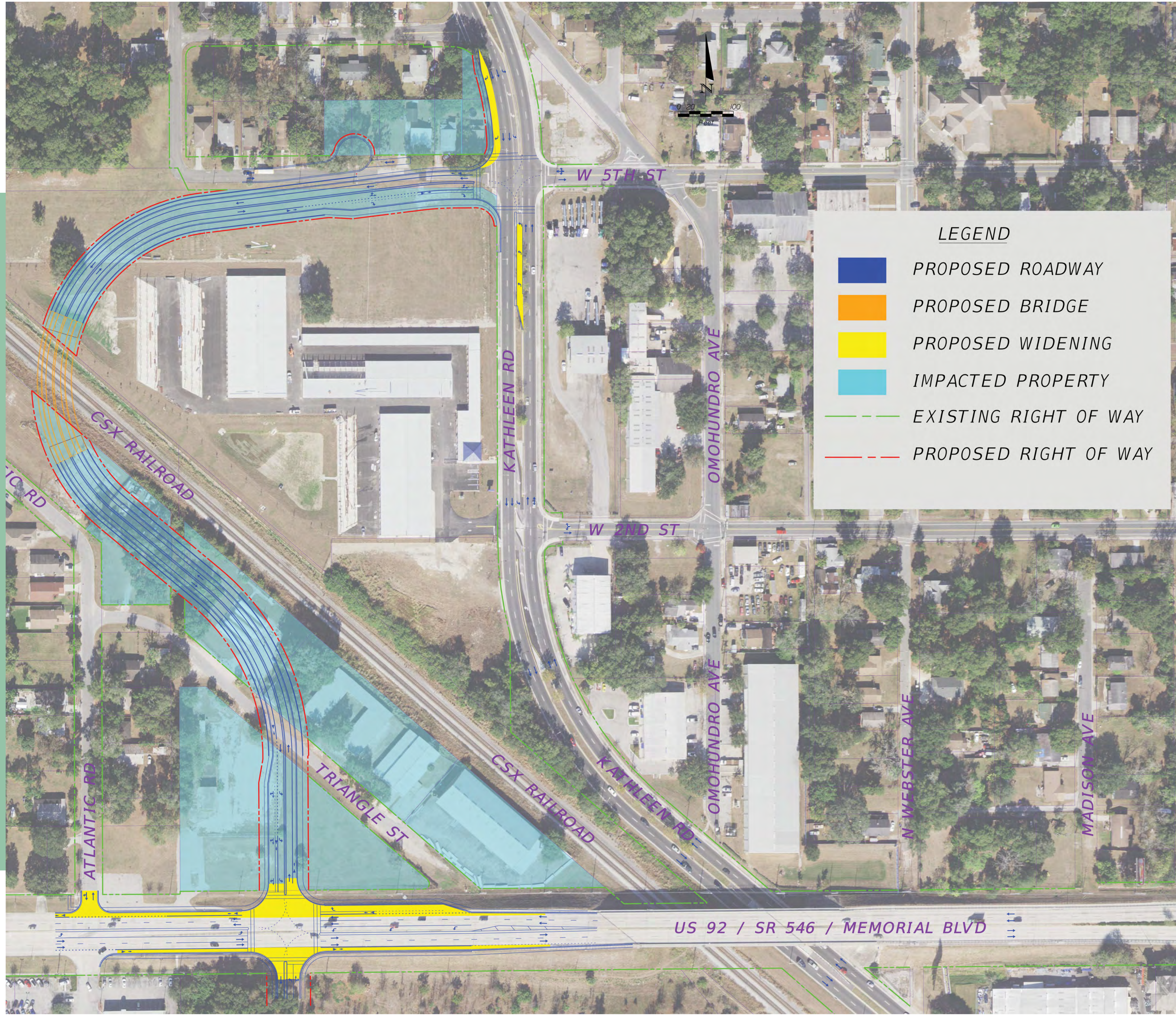
**Legend**  
 Numbers Indicate Location of Alternative  
 1 Improved Connection with Kathleen Road  
 2 Trail Bridge over Kathleen Road  
 3 Lane Elimination with Buffered Bike Lanes  
 4a-c Intersection Improvements  
 5 Enhanced Transit



# Lakeland Area Alternative Analysis

**1**  
Indicates Location  
of Alternative

## US 92 / SR 546 / Memorial Boulevard Improved Connection with Kathleen Road



Looking North from Bonnet Springs Park



Looking North Approaching CSX Overpass



Looking Southwest Toward Bonnet Springs Park



# Lakeland Area Alternative Analysis

2

Indicates Location  
of Alternative

## US 92 / SR 546 / Memorial Boulevard Trail Bridge over Kathleen Road



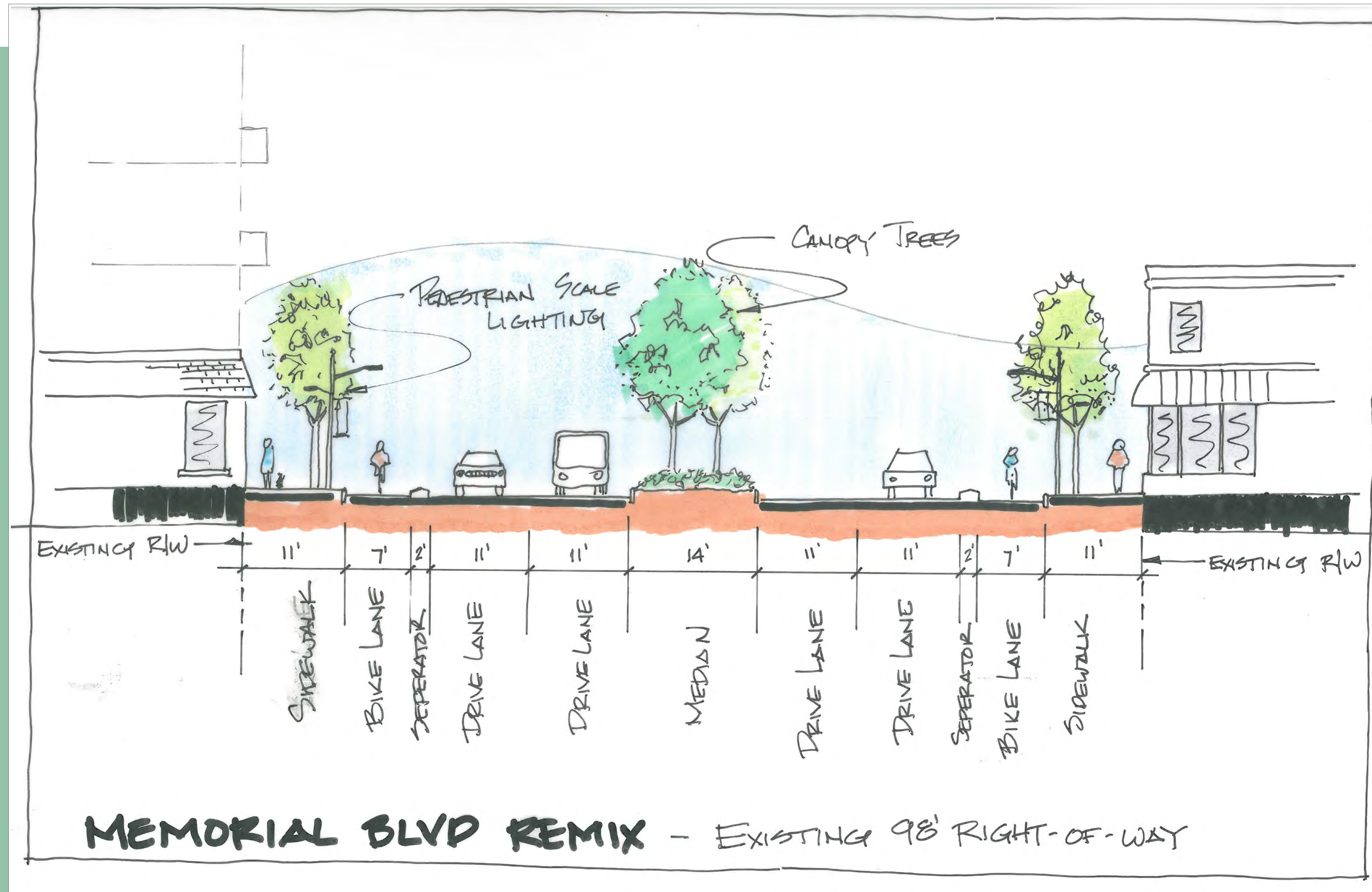


# Lakeland Area Alternative Analysis

**3**  
Indicates Location  
of Alternative

# US 92 / SR 546 / Memorial Boulevard Lane Elimination with Buffered Bike Lanes

Existing US 92 / Memorial Boulevard from Walker Avenue to SR 33 / Lakeland Hills Boulevard

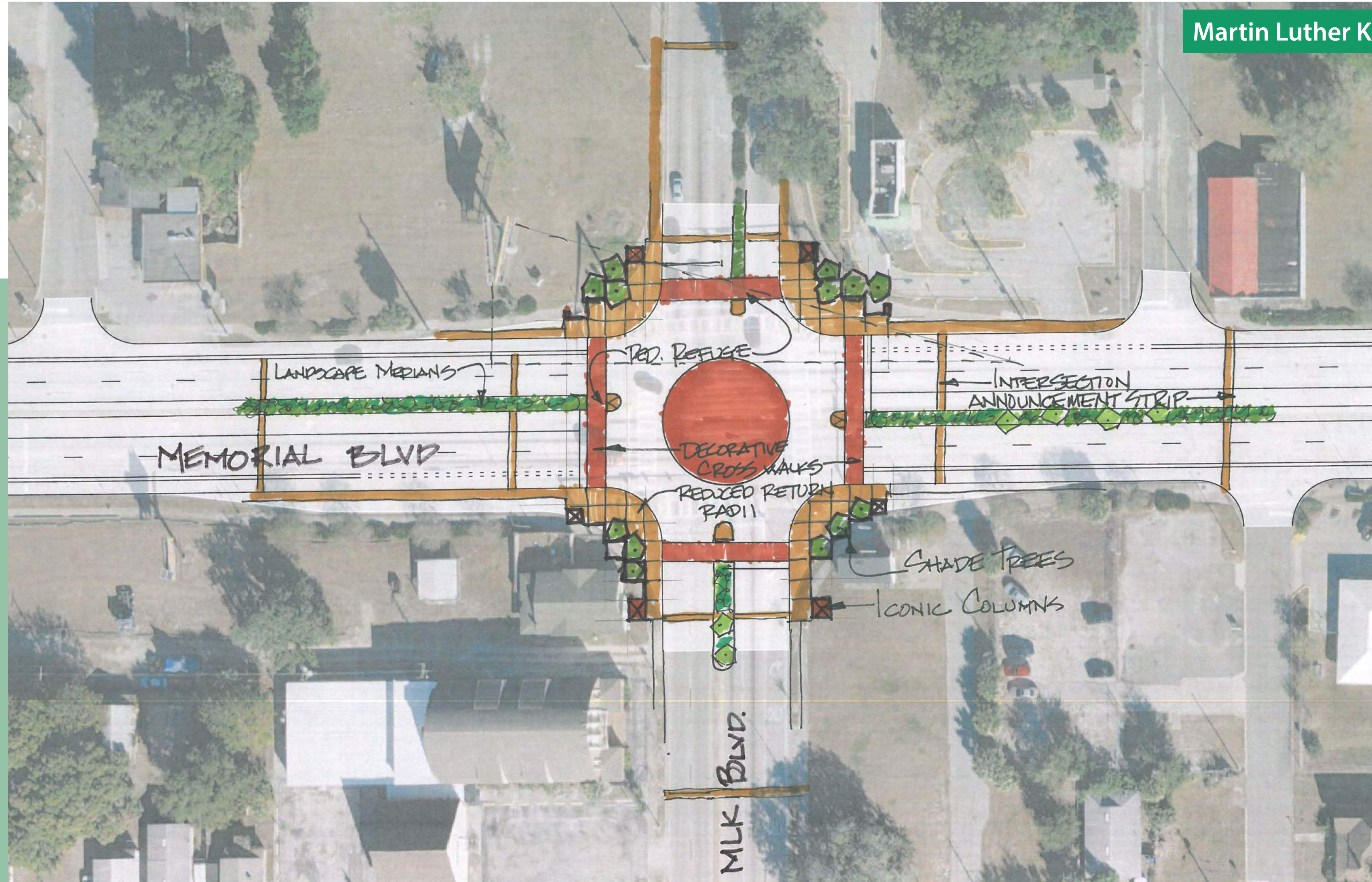




# Lakeland Area Alternative Analysis

**4a-c**  
Indicates Location  
of Alternative

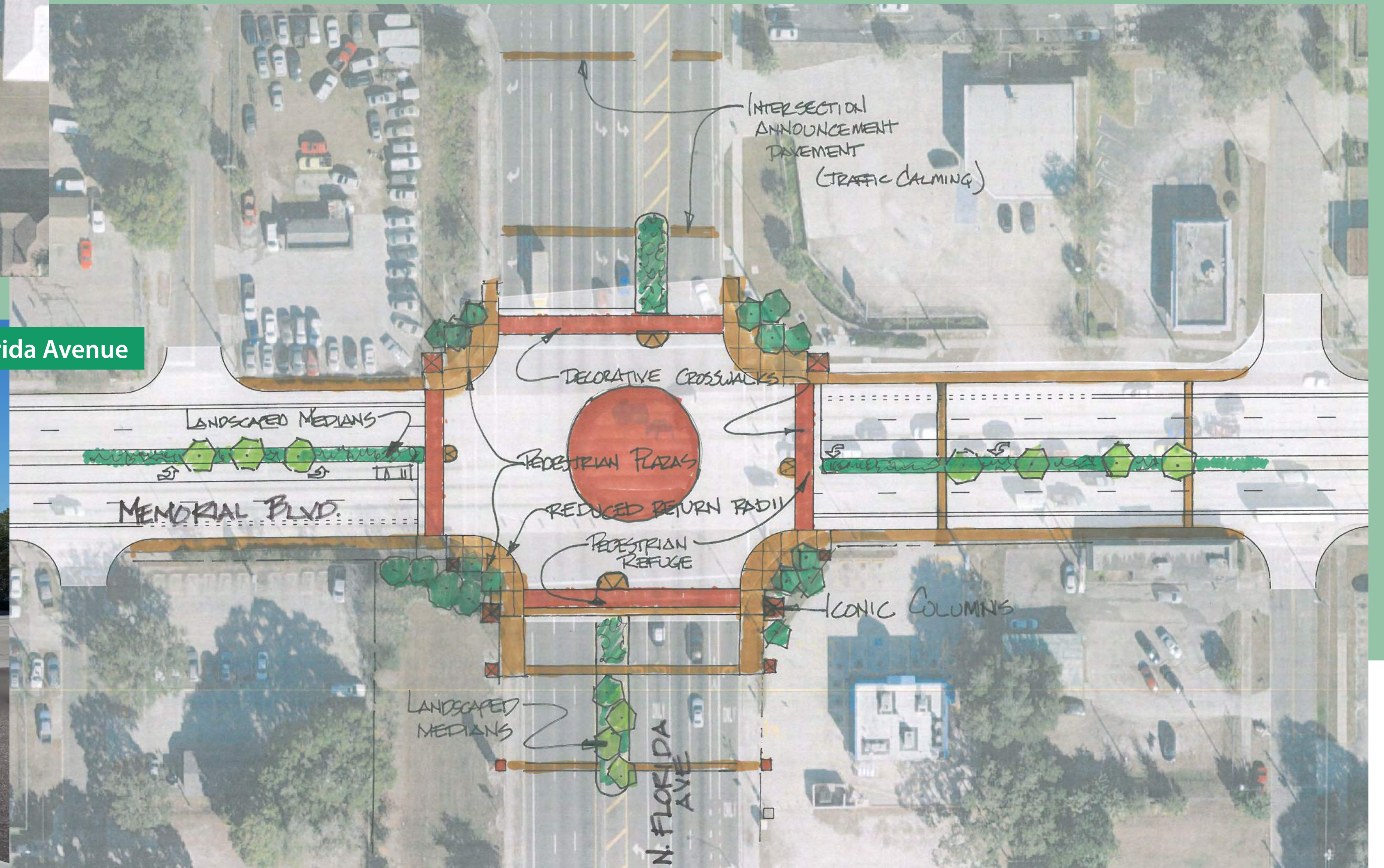
# US 92 / SR 546 / Memorial Boulevard Intersection Improvements



Martin Luther King, Jr. Avenue



US 98/Florida Avenue





# Lakeland Area Alternative Analysis

**5**  
Indicates Location  
of Alternative

## US 92 / Memorial Boulevard Enhanced Transit

