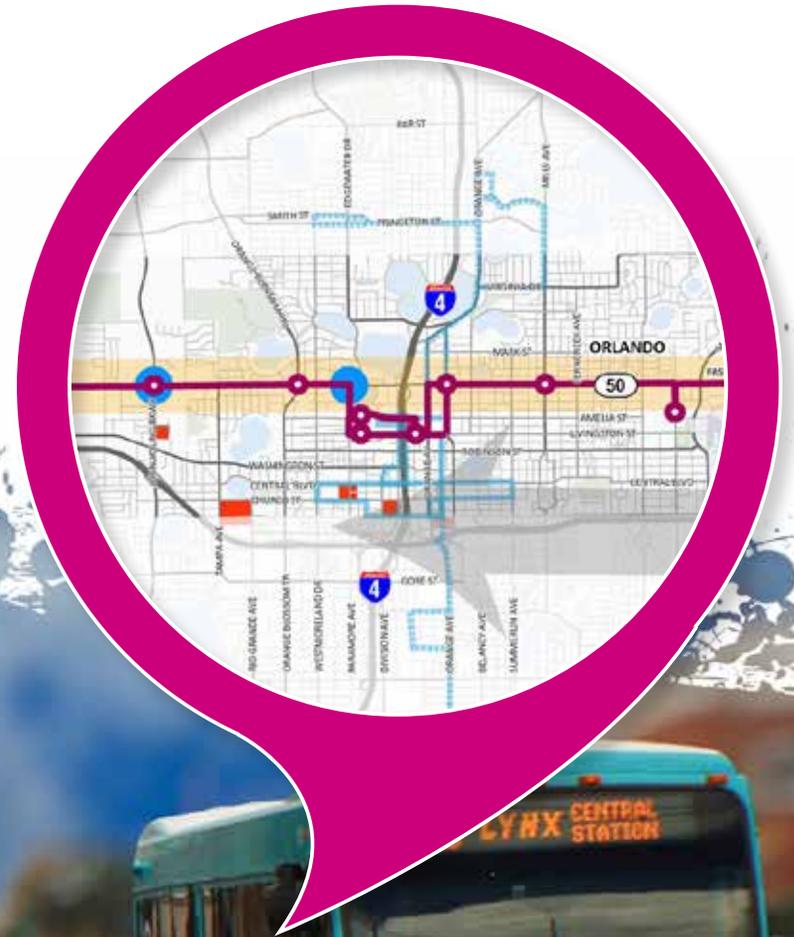




SR 50/UCF CONNECTOR ALTERNATIVES ANALYSIS

OCTOBER 2015



Acknowledgments

Study Team

Central Florida Regional Transportation Authority (LYNX)
Kittelson and Associates, Inc.
Connetics Transportation Group
Rummerl, Klepper & Kahl, LLP
Plan Active Studio, LLC
Laura Turner Planning Services
Sasaki Associates, Inc.
Studio Jefre
W-ZHA, Inc.

Thank you to the many professionals who participated in and contributed to this study. From the communities along the corridor to the Project Advisory Working Group members, each person played a crucial role in forming the results and conclusions contained in this study.

LYNX

Andrea Ostrodka
Carleen Flynn
Laura Minns

City of Orlando

Claudia Korobkoff
Gus Castro
Fabian de la Espriella
Jason Burton

Orange County

Carla Bell Johnson
Photenie Burnett
Sara Forelle
Yvette Brandt

FDOT District 5

Brenda Young
Jo Santiago
Libertad Acosta-Anderson

MetroPlan Orlando

Eric Hill
Gabriella Arismendi
Gary Huttman

City of Winter Garden

Ed Williams
Michael Bollhoefer

City of Ocoee

Craig Shadrix
Mike Rumer

Town of Oakland

Dennis Foltz

East Central Florida Regional Planning Council

Hugh Harling
Fred Milch
Andrew Landis

Contents

INTRODUCTION

BACKGROUND/STUDY OVERVIEW
OVERVIEW OF LOCALLY PREFERRED ALTERNATIVE
REPORT ORGANIZATION

THE PROCESS

DECISION MAKING FRAMEWORK
THE SCREENING PROCESS AND
PUBLIC & AGENCY ENGAGEMENT

THE CHALLENGE

EXISTING PLANNING CONTEXT
LAND USE CONTEXT AND DEVELOPMENT PATTERN

PURPOSE & NEEDS

SUMMARY OF NEEDS, GOALS, AND OBJECTIVES

ALTERNATIVES ANALYSIS

SCREENING OF TRANSIT MODES 88
LONG-LIST OF TRANSIT MODES 90
SHORT-LIST OF TRANSIT MODES 91
SCREENING OF ALIGNMENTS 92
EVALUATING OPERATING SCENARIOS 106
RESULTS OF FINAL SHORT-LIST EVALUATION 108

9 THE SOLUTION

10 LOCALLY PREFERRED ALTERNATIVE 112
16 ALIGNMENT AND OPERATION 114
18 STATION LOCATIONS AND ENHANCEMENTS 115
CONCEPTUAL IDEAS FOR STATION DESIGN 116
BRT SERVICE BRANDING 120
BUS NEEDS 122
21 MEETING CORRIDOR NEEDS AND
22 ACHIEVING PROJECT GOALS 123
25

31 IMPLEMENTATION

32 IMPLEMENTATION AND NEXT STEPS 125
38 126

43

80

85

88
90
91
92
106
108

Figures & Tables

FIGURE 1 - STUDY AREA	12	FIGURE 17 - PEOPLE AGE 18 AND UNDER WITHIN EACH CENSUS TRACT	58
FIGURE 2 - VISION 2030 PREMIUM TRANSIT CORRIDORS	15	FIGURE 18 - PEOPLE OVER THE AGE OF 65 WITHIN EACH CENSUS TRACT	58
FIGURE 3 - SR 50 LOCALLY PREFERRED ALTERNATIVE	16	FIGURE 19 - EXISTING LAND USE	62
FIGURE 4 - DECISION MAKING FRAMEWORK	24	FIGURE 20 - VACANT AND UNDERUTILIZED LAND	64
FIGURE 5 - EXISTING PLANNING CONTEXT	32	FIGURE 21 - EXISTING BUS ROUTES ON SR 50	70
FIGURE 6 - COMMUNITY CONTEXT & CORRIDOR CHARACTER	40	FIGURE 22 - AVERAGE DAILY BOARDING AND ALIGHTINGS AT STOPS ALONG SR 50	72
FIGURE 7 - CORRIDOR INFLOW AND OUTFLOW OF WORKERS	45	FIGURE 23 - EXISTING TRANSIT NETWORK	74
FIGURE 8 - HOME LOCATIONS OF WORKERS ALONG THE CORRIDOR	46	FIGURE 24 - CORRIDOR RIGHT-OF-WAY CONDITIONS	78
FIGURE 9 - EMPLOYMENT LOCATIONS OF RESIDENTS ALONG THE CORRIDOR	47	FIGURE 25 - SYNTHESIS OF THE SR 50 CORRIDOR NEEDS AND CONTEXT	80
FIGURE 10 - LEVEL OF SERVICE (LOS) AND AVERAGE ANNUAL DAILY TRAFFIC (AADT)	48	FIGURE 26 - TECHNICAL ANALYSIS AND PUBLIC ENGAGEMENT APPROACH	86
FIGURE 11 - BICYCLE & PEDESTRIAN CRASH FREQUENCY	50	FIGURE 27 - ROADWAY SEGMENT ALIGNMENT ALTERNATIVES	94
FIGURE 12 - EXISTING AND PROPOSED BICYCLE & PEDESTRIAN FACILITIES	52	FIGURE 28 - LONG-LIST OF ALIGNMENT ALTERNATIVES	96
FIGURE 13 - ETHNIC/RACIAL MINORITIES	54	FIGURE 29 - LONG-LIST ALIGNMENT ALTERNATIVES EVALUATION	98
FIGURE 14 - HOUSEHOLDS WITH NO VEHICLE WITHIN EACH CENSUS TRACT	56	FIGURE 30 - TRANSIT QUEUE JUMP EXAMPLE	99
FIGURE 15 - PEOPLE LIVING BELOW THE POVERTY LINE WITHIN EACH CENSUS TRACT	56	FIGURE 31 - EXAMPLE BAT LANE SIGNAGE	101
FIGURE 16 - RESIDENTS TAKING TRANSIT TO WORK WITHIN EACH CENSUS TRACT	57	FIGURE 32 - EXAMPLE BAT LANE TYPICAL SECTION	101
		FIGURE 33 - EXAMPLE BAT LANE CONFIGURATION	101

FIGURE 34 - SHORT-LIST ALTERNATIVES	103	FIGURE 49 - WHAT WOULD THE SR 50 BUS RAPID TRANSIT LINE LOOK LIKE?	122
FIGURE 35 - SHORT-LIST ALTERNATIVES EVALUATION	105	TABLE 1A - TRANSIT MODE SCREENING	90
FIGURE 36 - ALTERNATIVES IN THE OLD CHENEY HIGHWAY AREA	106	TABLE 1B - LONG-LIST MODE SCREENING	91
FIGURE 37 - OPERATING PLAN ALTERNATIVES	107	TABLE 2 - SR 50 POTENTIAL STATION TYPES AND AMENITIES	115
FIGURE 38 - FINAL SHORT-LIST ALTERNATIVES EVALUATION RESULTS	109		
FIGURE 39 - LOCALLY PREFERRED ALTERNATIVE	112		
FIGURE 40 - PROPOSED TYPICAL SECTION AT MILLS AVENUE AND SR 50	114		
FIGURE 41 - PROPOSED TYPICAL SECTION AT HIAWASSEE ROAD QUEUE JUMP STATION	114		
FIGURE 42 - ILLUSTRATIVE CONCEPTS OF BRT STATION MASSING/FORM	116		
FIGURE 43 - SWIFT BRT STATION CONCEPT (SEATTLE, WA)	118		
FIGURE 44 - EXISTING CONDITIONS AT THE MILLS50 STATION AREA	118		
FIGURE 45 - ILLUSTRATIVE CONCEPT OF SHORT-TERM POTENTIAL AT THE MILLS50 STATION AREA	119		
FIGURE 46 - ILLUSTRATIVE CONCEPT OF LONG-TERM POTENTIAL AT THE MILLS50 STATION AREA	119		
FIGURE 47 - EXAMPLE LOGOS FOR LEAP BRT	120		
FIGURE 48 - ILLUSTRATIVE CONCEPTS OF STATION INCORPORATING BRANDING	121		



Introduction

Introduction

Background/Study Overview

In the last decade, Central Florida has experienced growth that is unparalleled by any time in the history of the region. Between 2000 and 2014, Orange County added more than 330,000 people, more than 35% of its population in 2000¹. Although this growth has slowed down with the economic recession, population growth has started to rise again and is expected to continue increasing. According to MetroPlan Orlando's Long Range Transportation Plan (LRTP), by 2040, the Region will experience a 51% increase in residential population, and associated increased demand for regional and local mobility.

There is a need to address this demand for mobility considering demographic changes (aging population, younger families) desiring more mobility options; declining local and Federal funding streams requiring more creativity and partnerships to get projects implemented; and the visions of cities and counties seeking to enhance their citizens' quality of life through thoughtful community-building investments. Many of Central Florida's planning agencies have increasingly turned their sights to premium transit as a viable solution to these demands. For instance, the MetroPlan Orlando 2040 LRTP includes a \$15.1 billion investment of Federal, state, and local dollars from 2019-2040. About half of these funds will be spent on transit and half on roads.

The SR 50/UCF Connector Alternatives Analysis (AA) Study (the Study) is a great opportunity for LYNX and its partner agencies to address these challenges and focus public investments to support growth corridors that form the framework of a regional transit system. This Study has the opportunity to not only crystallize the regional transit vision for the Study Corridor, but will also serve as a venue for understanding the land use goals of local communities and how transit can play a part in realizing community visions.

The Study focused on identifying the issues, opportunities, and multi-modal mobility and livability improvements in the Study Corridor. The Study Corridor (*Figure 1*) is a two-mile wide east-west corridor that includes a 27-mile stretch following State Road 50 (SR 50), bound by the Orange County/Lake County line on the west side and Alafaya Trail (State Road 434 (SR 434) to the east. The Study Corridor also includes a three-mile long, two-mile wide north-south corridor along Alafaya Trail north of SR 50, extending up to the University of Central Florida (UCF) campus and the Seminole County Line. In total, the corridor encompasses about 30 miles along SR 50 and SR 434.

¹ Bureau of Economic and Business Research (BEBR) 2014 Population Estimates
Table 6

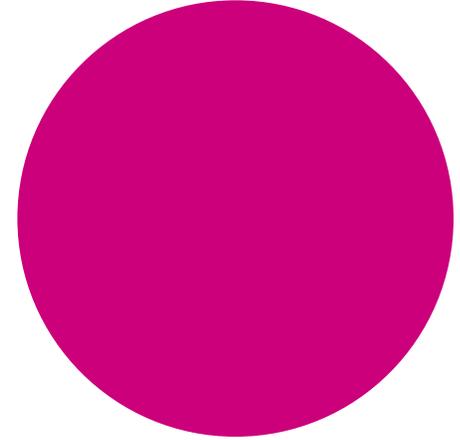
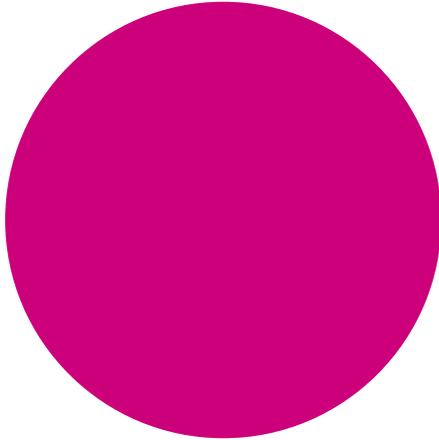
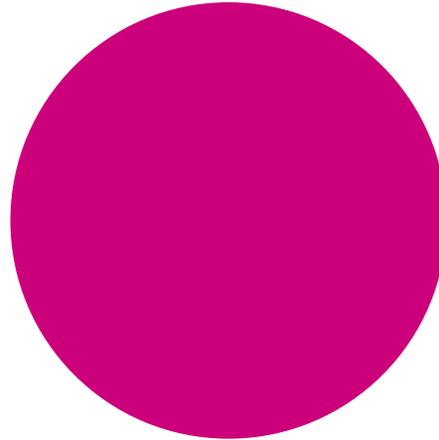
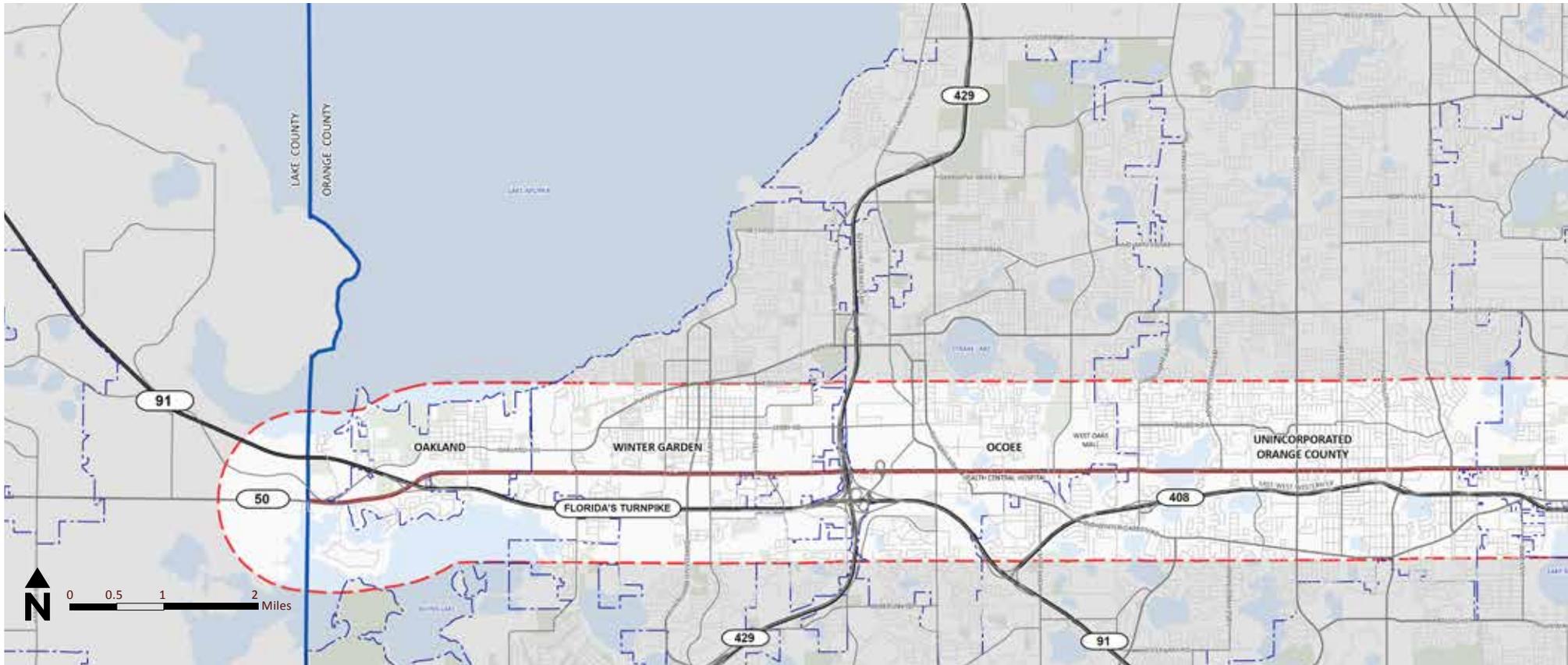
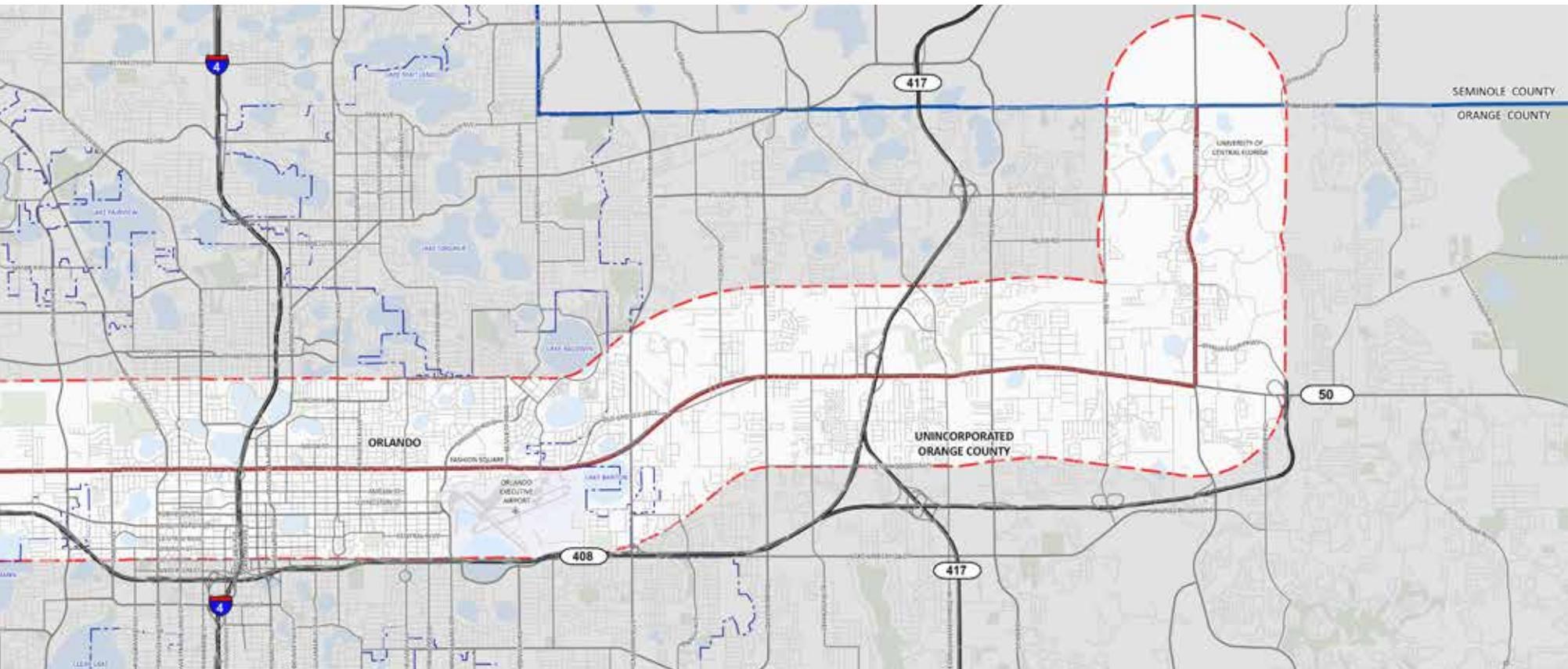


Figure 1 - Study Area



Source: ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community



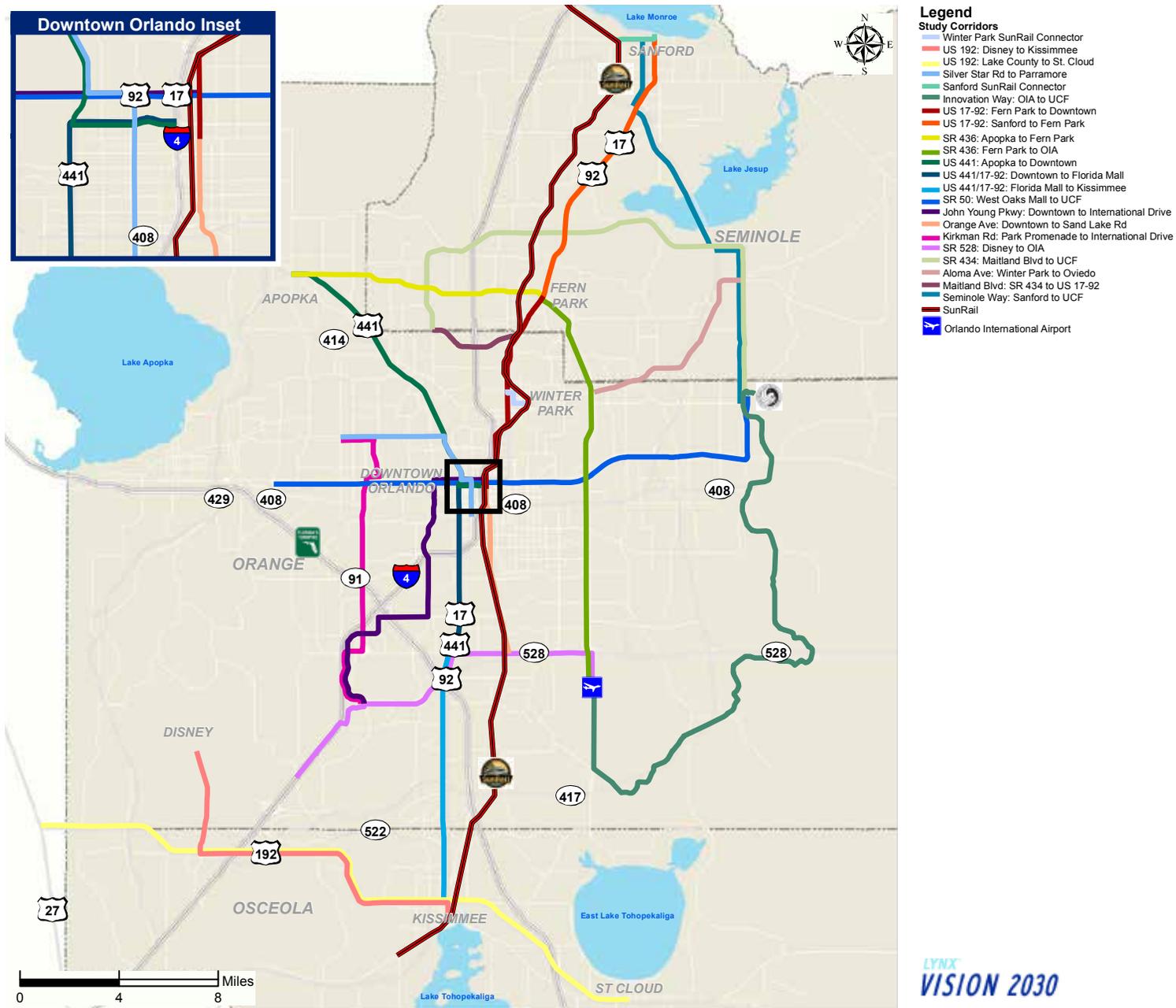
The Study was funded, in partnership with LYNX, through a grant administered by the Federal Transportation Administration (FTA) for the AA Program. In 2011, LYNX developed its long range strategic plan (known as Vision 2030) to undertake the examination of 22 high intensity transit corridors within the LYNX service area to outline future priorities. The SR 50 corridor ranked as one of the highest priorities for premium transit implementation in the next 20 years and LYNX's 2010 Five-Year Strategic Plan also ranked SR 50 as the highest priority for implementing premium transit. *Figure 2* shows the premium transit corridors identified in Vision 2030.

SR 50 is not only a key transit link, it is also an important east-west connection to the SunRail Commuter Rail Corridor. Within the study area, SR 50 and SR 434 are regional arterial roadways that form important framework pieces to the region's Strategic Intermodal System (SIS) facilities, including US 19, US 27, Florida's Turnpike, SR 429, SR 408, I-4, and SR 417. Thoughtful investment in transportation and transit service along the SR 50 corridor will support current and future economic development for the corridor and the rest of the Region, as well as leverage Central Florida's collective investments and policies to enhance economic competitiveness and residents' quality of life.

The Study process relied on input and participation by public agencies at the local, regional, state, and federal levels; by community groups, residents, and travelers; and by businesses, employers, and institutions that have a stake in the corridor. The Study developed alternatives and evaluated them based on a broad set of land use and transportation performance metrics in order to help inform the selection of the locally preferred alternative (LPA). The Study also identified possible funding sources to advance the LPA to further development and implementation.



Figure 2 - Vision 2030 Premium Transit Corridors

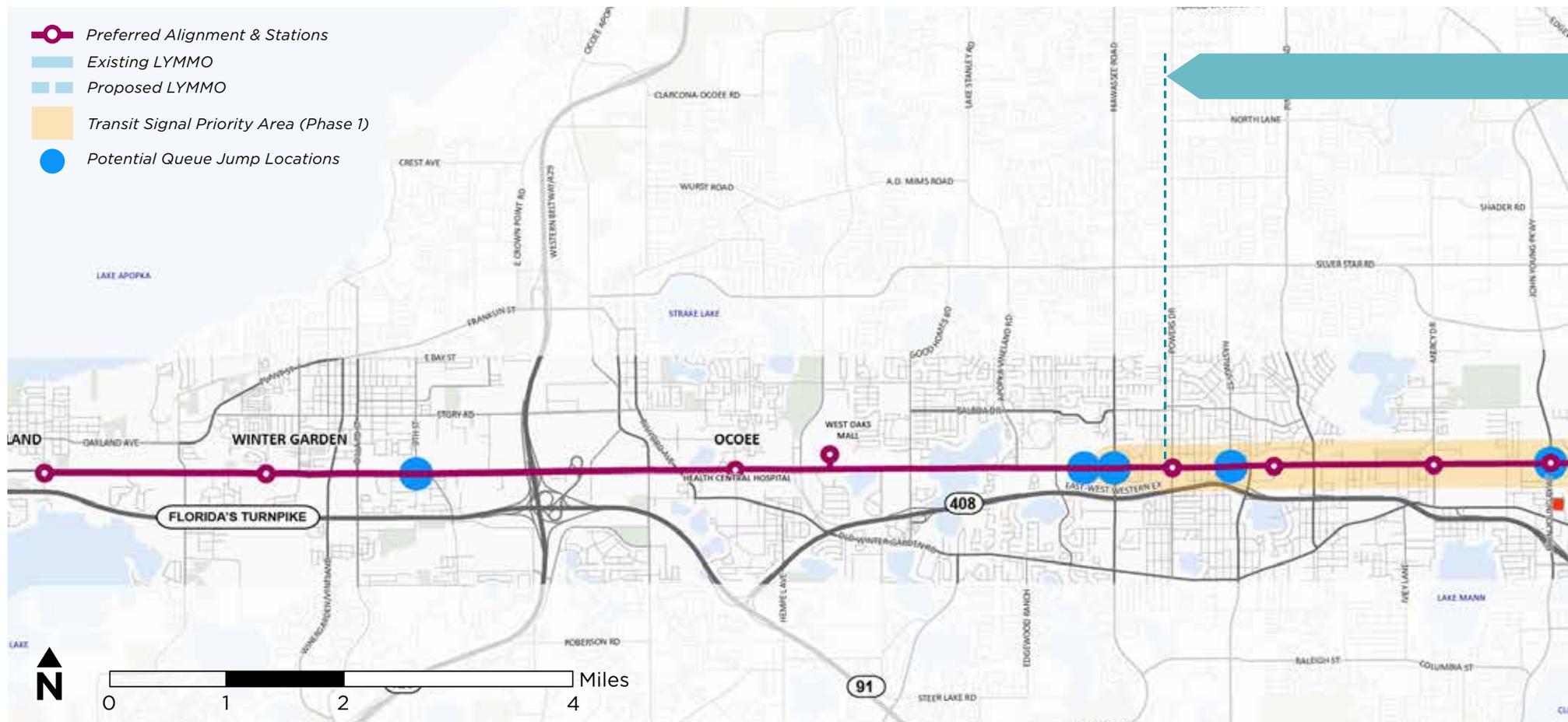


Overview of Locally Preferred Alternative

During the final short-list alternative evaluation, one alternative best met the needs, goals, and objectives of the SR 50 corridor study and was subsequently adopted as the LPA. The recommended LPA is Bus Rapid Transit (BRT) service traveling in mixed-traffic along SR 50 from Oakland in west Orange County into Downtown

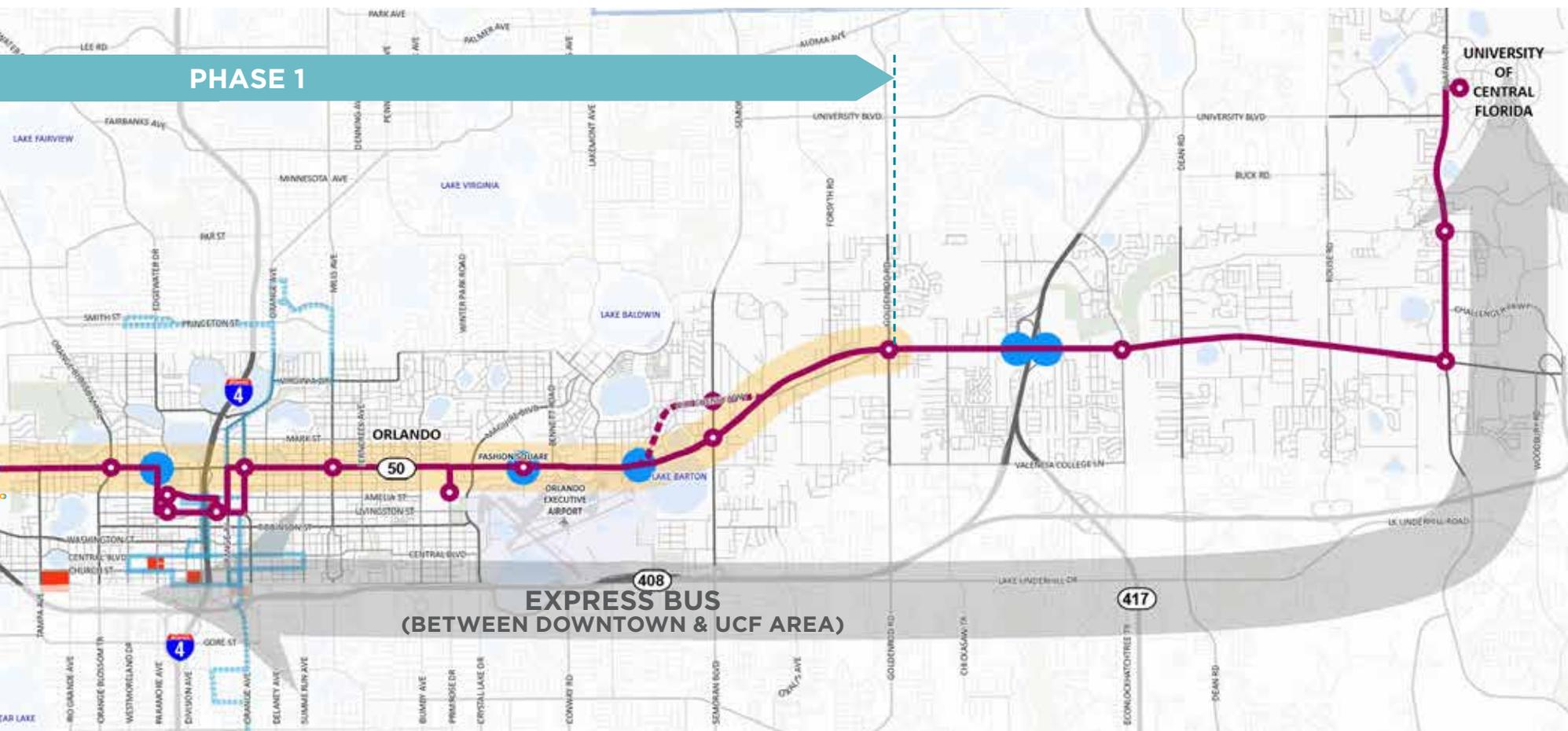
Orlando to connect to LYNX Central Station and then on to Alafaya Trail, then up Alafaya Trail to UCF. The full LPA is shown in *Figure 3*. The project will be implemented incrementally with Phase 1 initially providing BRT service along SR 50 between Powers Drive and Goldenrod Road. This phase is proposed to operate at 10-minute

Figure 3 - SR 50 Locally Preferred Alternative



frequencies during peak times and 15-minute frequencies during off-peak times. It will include features such as enhanced stations, unique bus branding, transit queue jumps, transit signal priority (TSP), off-board ticketing, and user amenities such as free Wi-Fi on the bus. Phase 2 service would be implemented in later years depending

on Phase 1 ridership and future growth and development patterns along SR 50. The LPA is coupled with a proposed Express Bus Service between two of the biggest activity centers in the Region - Downtown Orlando and the UCF area. The Express Bus Service is anticipated to be implemented in the next 1-2 years.



Report Organization

This final report discusses the key issues and opportunities facing the SR 50 corridor, the process used to arrive at an LPA, and a detailed discussion of the recommended LPA. Some information from the Existing Conditions report is referenced throughout this report, and the complete Existing Conditions Report (dated October 2013) contains more detailed information.

This report is divided into the following sections:

THE PROCESS - Describes the framework in which the Study's decisions were made and the process used to advance the Study based on public input, agency coordination, and technical evaluation.

THE CHALLENGE - Provides a thorough analysis of the existing conditions and describes the planning and land use context along the Study Corridor.

PURPOSE AND NEED - Outlines the Study purpose, need, and associated goals and objectives based on the existing conditions assessment and input gained from the Corridor stakeholders.

ALTERNATIVES ANALYSIS - Describes the mode, segment, and alignment alternatives considered and outlines the analysis performed to ultimately identify the Locally Preferred Alternative (LPA).

THE SOLUTION - Describes the LPA resulting from the Alternatives Analysis study. This section provides an overview of how and when the LPA might operate, perform, and look like when implemented.

IMPLEMENTATION - Outlines the next steps necessary to develop and implement the LPA.





The Process

The Process

Decision Making Framework

Significant interagency and public outreach efforts were made as part of the Study. There were three groups who provided input throughout the course of the Study, acting as a sounding board for the LYNX Study Team – the Project Advisory Working Group (PAWG), Community Liaisons Group (CLG), and Corridor communities and residents. The input obtained from these three groups was vetted through the LYNX Study Team and incorporated into the final alternatives that were presented to the LYNX Board of Directors at the end of the Study (see *Figure 4* for an outline of the decision-making framework).

The PAWG was comprised of key public agencies along the corridor and acted as the first line of review and input for the Study Team. This group provided input on the technical details of the project and was made up of the active and coordinating partners for the Study. The PAWG members include (in no particular order):

- City of Ocoee
- City of Orlando
- City of Winter Garden
- East Central Florida Regional Planning Council (ECFRPC)
- Federal Transit Administration (FTA)
- Florida Department of Transportation (FDOT)
- LYNX
- Lake-Sumter Metropolitan Planning Organization (LSMPO)
- MetroPlan Orlando
- Orange County
- Town of Oakland

The CLG was comprised of the key stakeholder representatives and community leaders along the corridor including major employers, neighborhood groups, key property owners, and other corridor stakeholders. This group acted as the second line of review and input for the Study. The CLG members include:

- African-American Chamber of Commerce
- Asian-American Chamber of Commerce
- Azalea Park Safe Neighborhood Association
- Barry University – School of Law (invited)
- Bike/Walk Central Florida (invited)
- Caribbean American Chamber of Commerce
- Central Florida Fairgrounds
- Central Florida Research Park (invited)
- Central Florida Urban League
- College Park Neighborhood Association (invited)
- Colonial Plaza and Colonial Landing (Weingarten Realty)
- Creative Village (Ustler Development)
- East Orlando Chamber of Commerce (invited)
- Fashion Square Mall (invited)
- Greater Orlando Aviation Authority (GOAA)(invited)
- Hispanic Chamber of Commerce of Metro Orlando
- Lake Eola Heights Neighborhood
- Mills50 Main Street
- Milk District
- Orange County Public Schools
- Orlando Health Central
- Orlando Regional Chamber of Commerce
- Pine Hills Community Council
- Pine Hills Neighborhood Improvement District
- Pine Hills Safe Neighborhoods Partnership
- ReThink Program (FDOT)
- Rock Lake Homeowners and Neighborhood Association
- Semoran Business Partnership (SeBuPa)
- University of Central Florida (UCF) – Leadership, Parking and Transportation, Housing and Residence Life
- Valencia College (invited)
- West Oaks Mall (Moonbeam Properties LLC)(invited)
- West Orange Chamber of Commerce

The 30-mile Study Corridor passes through four different cities and unincorporated areas of Orange County. It is home to a wide diversity of residential neighborhoods, business communities, educational institutions, medical centers, and large employers. The Study utilized a variety of agency and community engagement activities and methods to better understand the needs and opportunities of the corridor, as well as obtain feedback on alternative solutions. Throughout the Study, updates were provided to the general public via social media outlets and email blasts (LYNX and project partner Facebook and Twitter accounts).

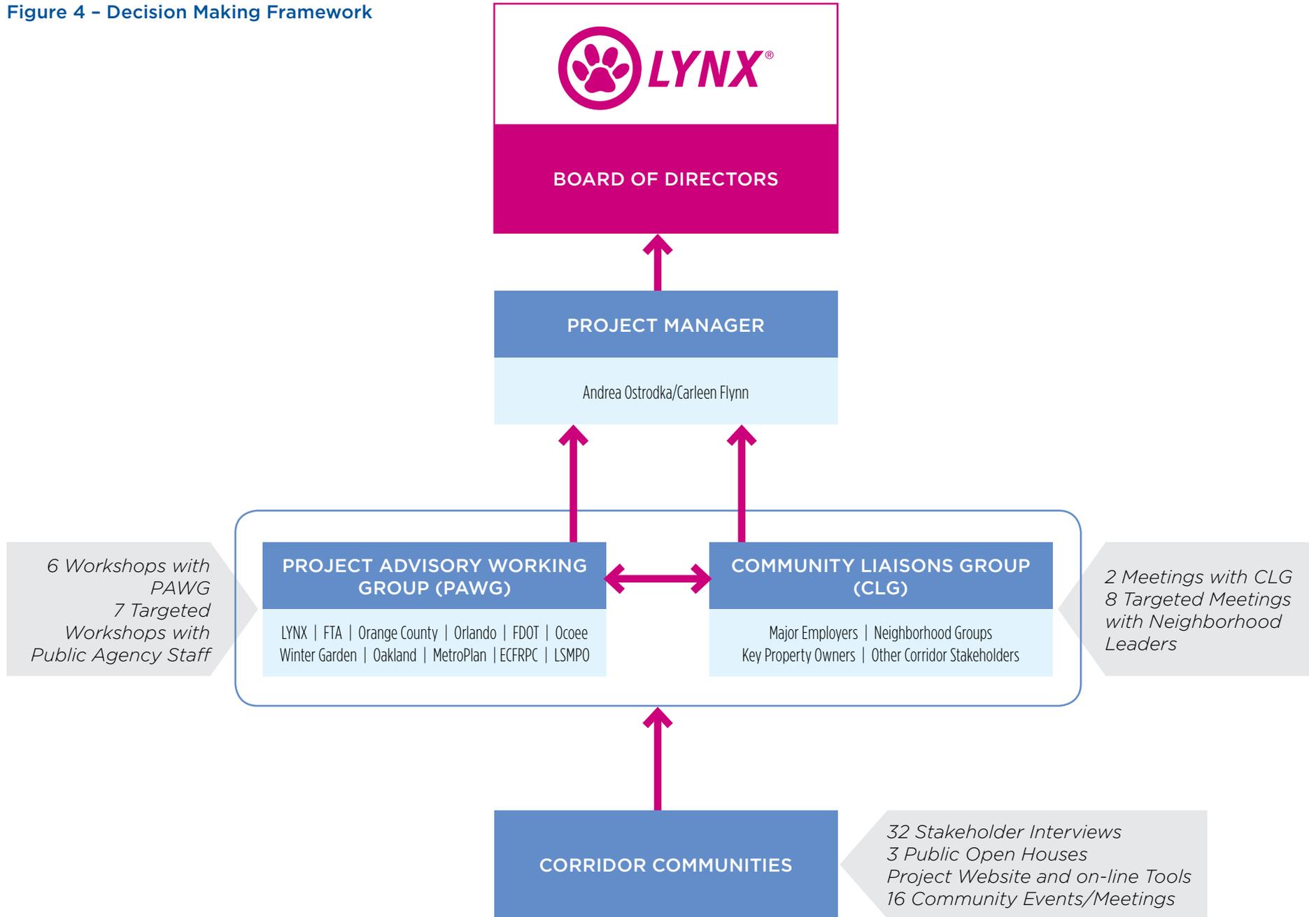
The Corridor communities/residents were engaged through one-on-one stakeholder interviews, public workshops, the project website, and other community events/meetings; and were represented by the PAWG and CLG members. Corridor community representatives interviewed included:

- LYNX
- City of Orlando
- Downtown Orlando Development Board
- Orange County
 - » Office of Regional Mobility
 - » Public Works
 - » Neighborhood Preservation and Revitalization Division
 - » Planning Department
- FDOT
 - » SunRail project team
 - » US 441 AA project team
 - » District 5 Planning
 - » District 5 ReThink
- City of Winter Garden
- City of Ocoee
- Town of Oakland
- Oakland Nature Preserve
- Greater Orlando Aviation Authority (GOAA)
- MetroPlan Orlando Staff
- MetroPlan Orlando Transportation Disadvantaged Local Coordinating Board
- ECFRPC
- Lake County
- LSMPO
- UCF
 - » Parking and Transportation Division
 - » Facilities Planning and Construction Division
- Valencia College
- Orlando Health Central
- UP Development (Fashion Square Mall)
- Ustler Development (Creative Village)
- West Orange Chamber of Commerce
- East Orlando Chamber of Commerce
- College Park Neighborhood Association
- Azalea Park Safe Neighborhood Association
- Pine Hills Neighborhood Improvement District
- Orange County Public Schools
- Bravo SuperMarkets
- Florida Career College (IEC)



PAWG Meetings throughout the Study Process

Figure 4 - Decision Making Framework



The Screening Process and Public & Agency Engagement

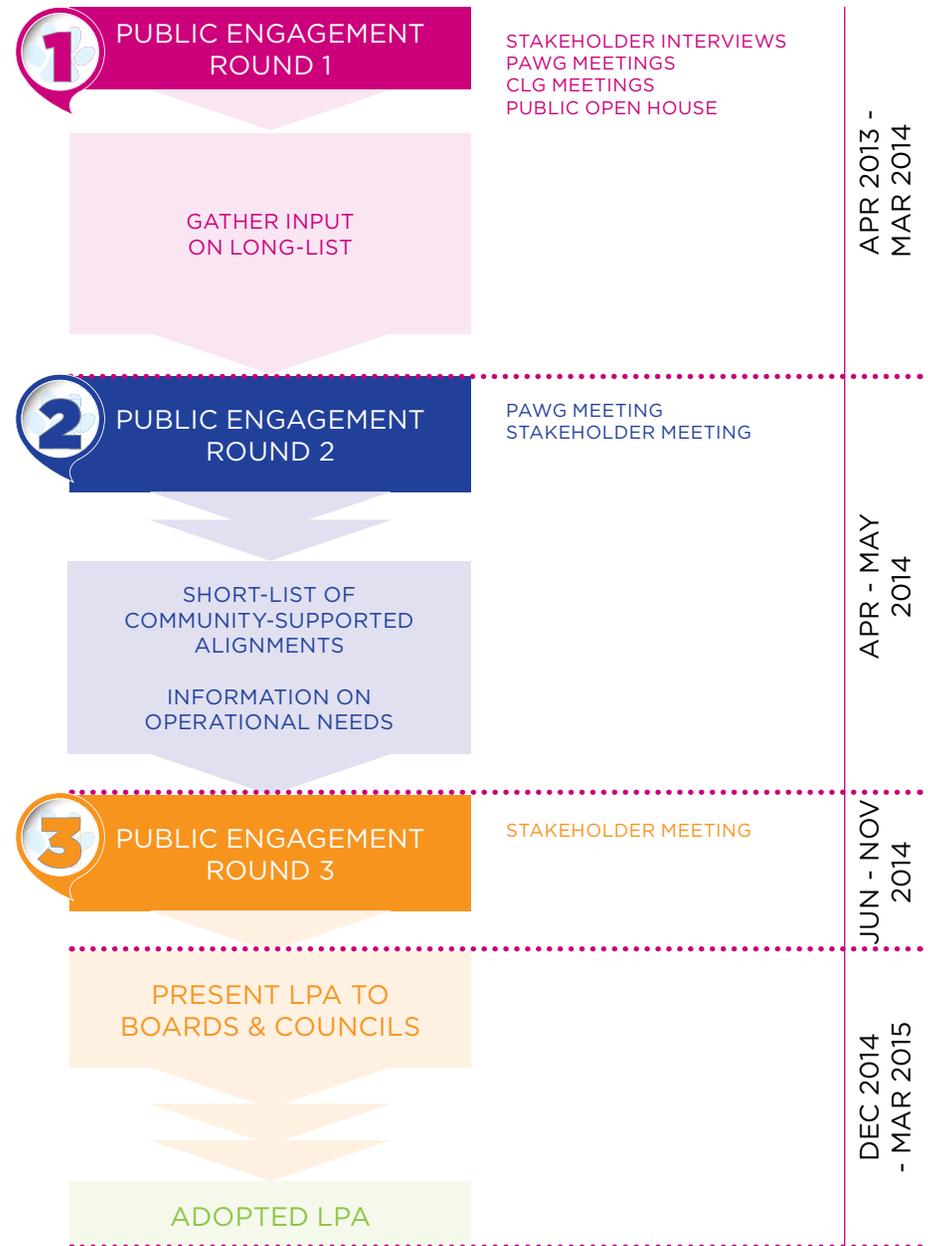
The SR 50 Alternatives Analysis involved the evaluation of multiple transit modes, alignment options, and operating scenarios. With the established evaluation criteria (explained in the Alternatives Analysis section), technical analysis, and public input, the alternatives were narrowed down through a tiered screening process shown on this page. Once a short-list of modes was determined, several iterations of segments and alignments (long-list and short-list) were tested with these modes applied. Preliminary operating plans and stations were then identified and tested for each alignment.

The public involvement for the Study was done in three rounds answering three essential questions for the SR 50 Corridor with varying levels and types of outreach for each round. This input fed into each of the screening process tiers. The following pages detail the tiers of analysis and associated public involvement activities.



Public Workshop at the Orange County - Herndon Library

PUBLIC ENGAGEMENT



1

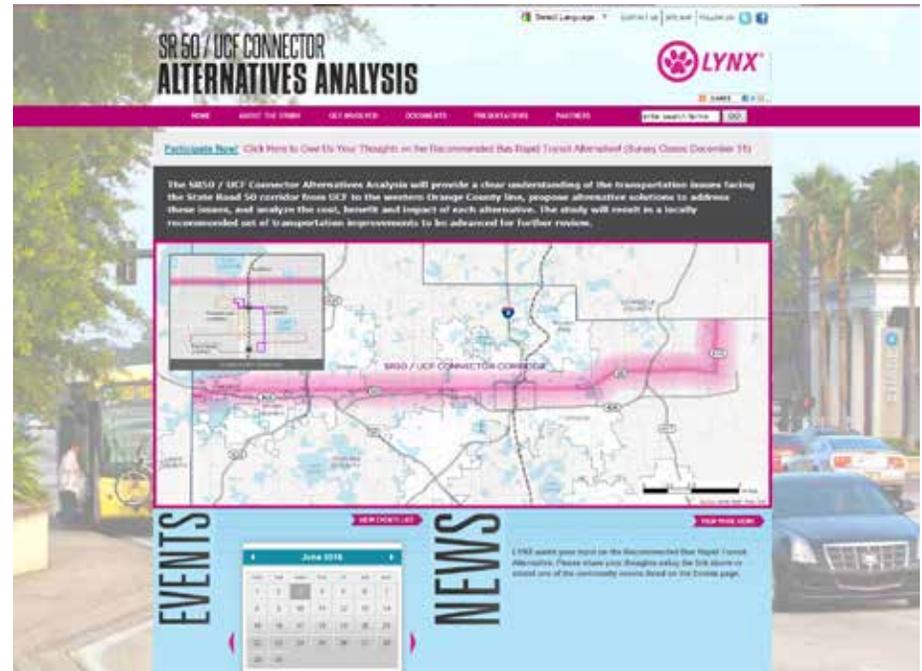
WHAT ARE THE PURPOSE AND NEEDS OF THE SR 50 CORRIDOR? WHAT ARE THE ISSUES AND OPPORTUNITIES ALONG THE CORRIDOR? WHAT ARE THE GOALS AND OBJECTIVES OF THE STUDY?

The first round of public engagement occurred during the data collection phase of the Study. The intended outcome of this phase was to increase public awareness of the study, develop Study goals and objectives, and obtain input about existing issues and opportunities of the corridor from the community's perspective. From this round of public discussions, a short-list of transit modes/technologies and a long-list of alignments were agreed upon and advanced.

ROUND 1 OUTREACH EVENTS/ACTIVITIES:

- 32 one-on-one stakeholders interviews
- 4 PAWG meetings
- 2 CLG meetings
- 3 Public Open Houses – public notices distributed in English, Spanish, Haitian Creole, and Vietnamese
 - » West Corridor (February 5, 2014) – Orange County Public Library- Hiwassee Branch
 - » Central Corridor (February 6, 2014) – Downtown Orlando- Wall Street Plaza
 - » East Corridor (February 6, 2014) – Orange County Public Library- Herndon Branch
- Project website – www.lynxSR50.com (updated throughout project duration)

Various input related to the long-list of alignment alternatives was gathered during this round of public involvement. There was strong public support to evaluate improved transit service along SR 50, to serve existing uses and support future potential uses and redevelopment along the corridor. The Study Team discovered a strong community desire to evaluate an alignment along SR 50 from Orange Avenue/Magnolia Avenue to Primrose Drive in order to support the development and redevelopment activity in that area. Because of this, an alignment alternative along this section was added in the next round of evaluation. In addition, while gathering input from current bus riders, the Study Team learned that longer, more regional transit trips along the corridor can occasionally take an unreasonably long time (e.g. trip from UCF to Downtown Orlando takes more than an hour).



SR 50 Website



WHAT ARE OUR PREMIUM TRANSIT CHOICES/ALTERNATIVES AND WHICH ALTERNATIVES BEST MEET THE NEEDS, GOALS, AND OBJECTIVES OF THE STUDY?

The second round of public engagement was intended to identify a shorter list of possible alternatives drawing on the existing conditions assessment and the long-list of alternatives. This round explored which alternatives best consider the specific issues and opportunities discovered in Round 1 and identified the alternatives to be advanced to the final evaluation. From these discussions, a short-list of seven premium transit alternatives was developed. These alternatives, together with the minimum operating segment, were vetted with the PAWG and the public and advanced to the next phase.

ROUND 2 OUTREACH EVENTS/ACTIVITIES:

- PAWG meeting
- 5 Neighborhood meetings
 - » Mills50 and Lake Eola Heights (February 20, 2014 and July 1, 2014) - Quantum Leap Winery and Snap!
 - » Rock Lake (May 5, 2014) - Rock Lake Community Center
 - » Parramore (May 14, 2014) - Callahan Neighborhood Center
 - » Milk District (June 19, 2014) - Space Bar
- 6 MetroPlan Orlando Committee and Board meetings (March and April 2014)
- 4 Meetings with City of Orlando Commissioners
 - » Commissioner Tony Ortiz
 - » Commissioner Robert Stuart
 - » Commissioner Patty Sheehan
 - » Commissioner Regina Hill and Daisy Lynum
- 5 Technical Staff Coordination meetings (Parramore Neighborhood Plan, other Transit Studies, regarding modeling, etc)
- SeBuPa Executive Board Meeting
- FDOT Traffic and Design Units
- Florida Hospital meeting
- Orlando City Soccer
- UCF Leadership and MetroPlan Orlando

From this round of public involvement, it was confirmed that the initial long-list alignments on Westmoreland Drive and Parramore Avenue are consistent with Parramore Neighborhood Plan and that there are

neighborhood concerns about the alignments traveling along the relatively residential section of Tampa Avenue. There was also strong community support of the Red Alternative (traveling along SR 50 from Orange Avenue/Magnolia Avenue to the east) and moderate community support of the Yellow Alternative (traveling along Robinson Street from Magnolia Avenue to Primrose Street). These alternatives are discussed in more detail in the Alternatives Analysis section of this report. Input from FDOT indicated that any travel time or ridership benefits that might be a result of the implementation of BAT lanes, exclusive lane, and/or queue jumps must outweigh negative impacts (delay, reduced speed) to vehicle traffic.



SR 50 Presentation at Parramore Neighborhood Plan Meeting



WHICH PREMIUM TRANSIT ALTERNATIVE SHOULD BE ADVANCED?

The third round of public engagement occurred after the short-list alternatives were identified and resulted in the definition of a potential LPA. The intended outcome of this round was to obtain agreement on and gauge public support for the recommended LPA. Initial conversations regarding future implementation and funding options also occurred during this phase.

ROUND 3 OUTREACH EVENTS/ACTIVITIES:

- PAWG Meeting
- LYNX Oversight Committee Meeting
- LYNX Board Meeting
- Small Group meetings with business community
- Radio spot (November 2014)
- Online survey (November 2014 – January 2015)
- MetroPlan Orlando Committee & Board meetings (January & February 2015)
- City of Orlando Municipal Planning Board Meeting (January 2015)
- Orange County Commissioner’s Meeting (January 2015)
- Community Events throughout the corridor (English and Spanish flyer distribution)
 - » Parramore area – Fall Festival (November 7, 2014)
 - » Ocoee – Ocoee Founders’ Day Festival (November 7, 2014)
 - » Union Park – Community Health Fair (November 8, 2014)
 - » Milk District
 - » Tasty Tuesdays (November 11, 2014)
 - » Primrose SuperStop (December 4, 2014)
 - » Valencia Community College – Valencia Study Break (December 4, 2014)
 - » UCF – UCF SuperStop (December 1, 2014)
 - » Pine Hills – Safe Neighborhood Partnership Community Meeting (November 13, 2014)
 - » Downtown Orlando
 - » Orlando Farmer’s Market
 - » Parramore area – Fall Festival (November 16, 2014)
 - » LYNX-a-Palooza (November 19, 2014)
 - » Tree Lighting Celebration (December 5, 2014)
 - » Mills50 – Business AfterHours (November 19, 2014)
 - » Semoran area
 - » SeBuPa Jazz Fiesta (November 20, 2014)
 - » Bravo Supermarket (December 17, 2014)
 - » Florida Career College (December 17, 2014)
 - » Fashion Square Mall area – The Daily City Food Truck Rally (December 14, 2014)

This last round of public involvement, revealed that most of the corridor stakeholders agree and support the advancement of the SR 50 Red Alignment BRT alternative, including the initial operating segment and express bus service to UCF. The public discussions concluded that when asked to indicate their most frequent anticipated destination, many meeting participants and survey respondents would use the SR 50 BRT line to travel to Downtown Orlando, Mills50/Fashion Square Mall area, Waterford Lakes, or UCF. According to the surveys, respondents felt that the most important features of the proposed BRT are:

- safe and well lit stations,
- access to Wi-Fi/electrical outlets,
- option to pay by smartphone, and
- bus tracking by mobile app.

In the SR 436 area, most residents believe the alignment should go along Old Cheney Highway in the area of the SR 436 interchange because the transit user environment near the interchange is perceived as being unsafe and difficult to navigate.

This round of public involvement resulted in strong public support for the LPA. It also led to the unanimous approval and adoption of the recommended LPA by the LYNX and MetroPlan Orlando Boards.



Public Outreach at Bravo Supermarket



Public Outreach at Lake Eola Christmas Tree Lighting Event



Public Open House at Herndon Library



Public Outreach at Wall Street Plaza



PAWG Meeting



The Challenge

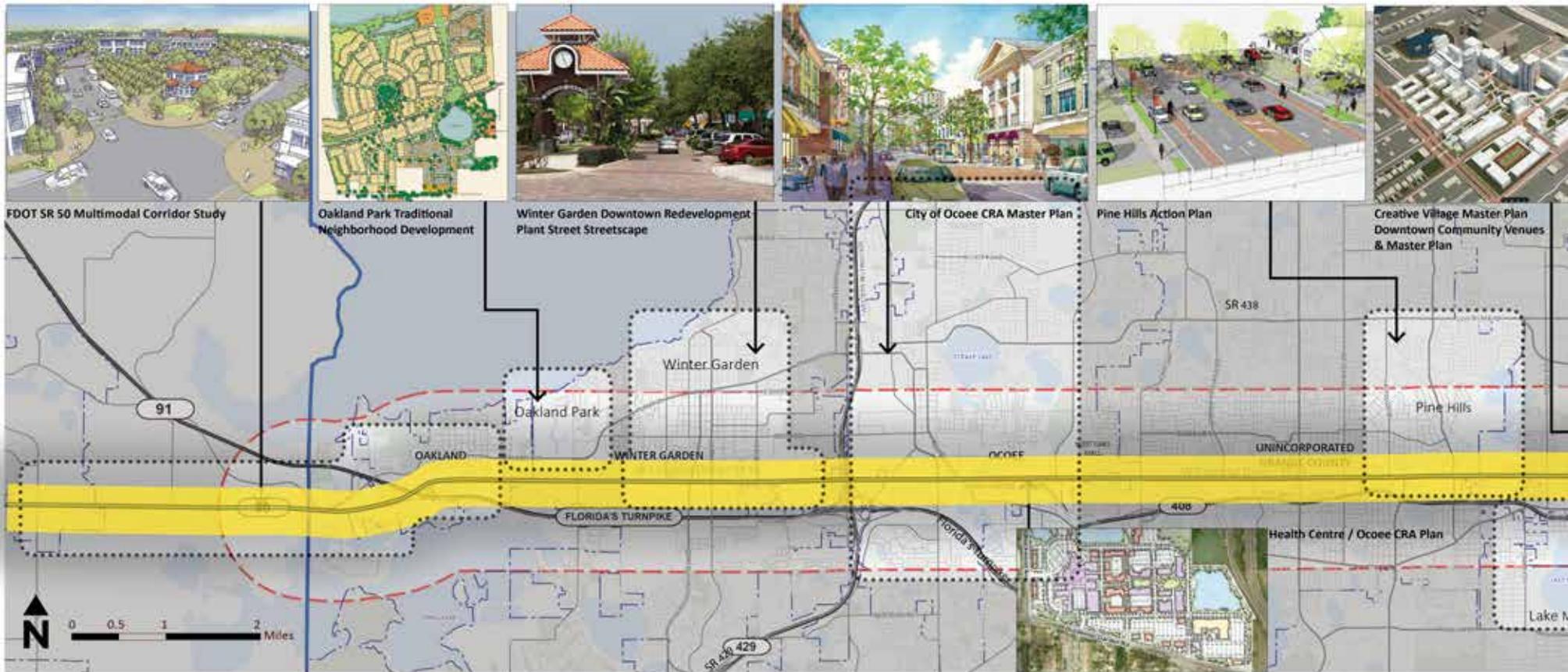
The Challenge

Existing Planning Context

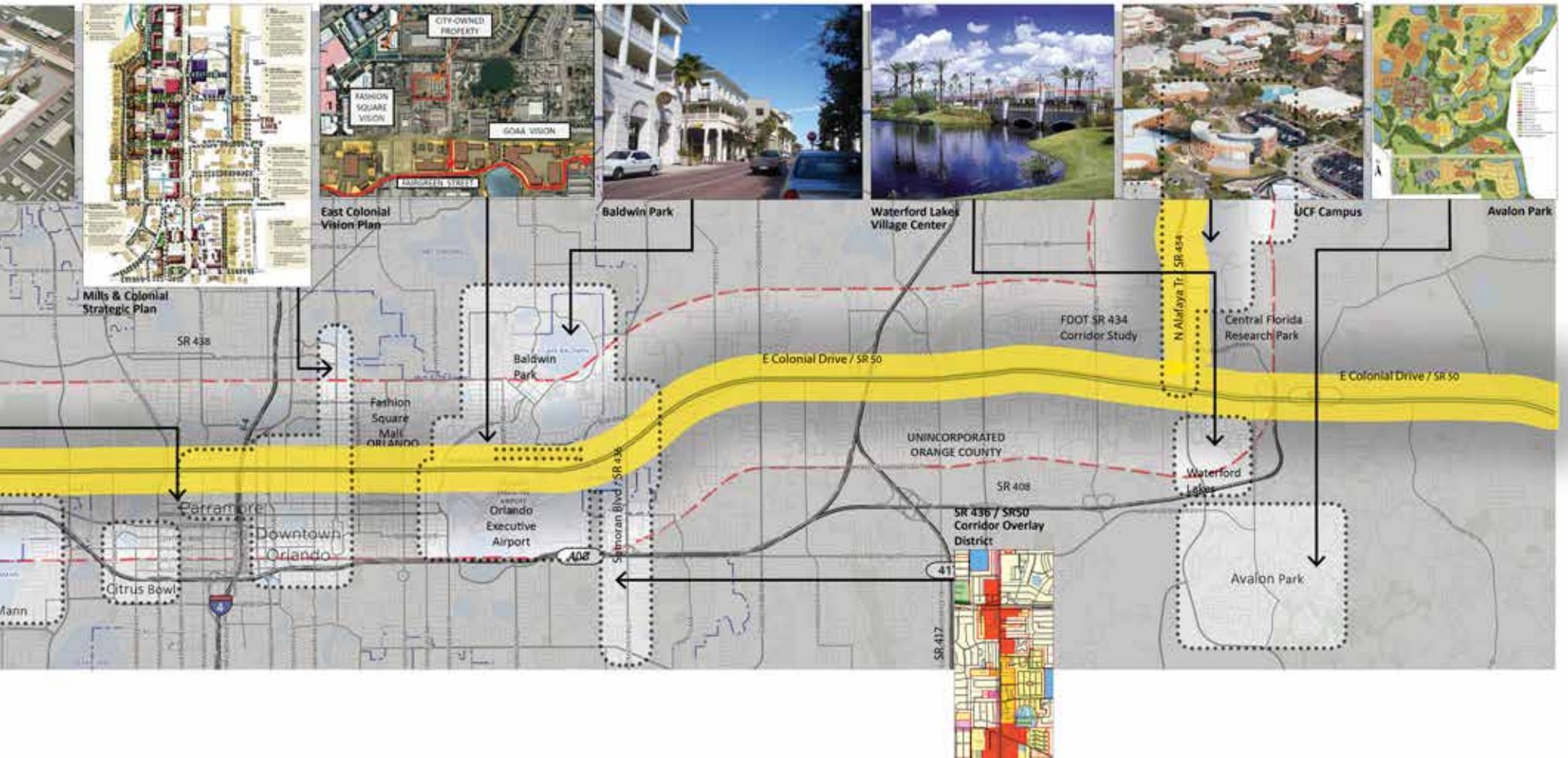
Many corridor municipalities have aligned their plans and policies to support significant transit investment along SR 50. Many are preparing for and embracing transit and multimodal transportation needs and realities along the corridor. Also, the corridor is experiencing significant private and public development and

investment. The corridor's planning context is synthesized and illustrated on *Figure 5*, and the following sections highlight some of the key plans being advanced by local and regional entities along the corridor.

Figure 5 - Existing Planning Context



Source: Future plans from the City of Orlando, City of Winter Garden, City of Ocoee, Orange County, and FDOT. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.



LYNX

Holding the primary responsibility for planning and operating premium transit, LYNX has an important role in advancing a premium transit network in the region. In 2011, LYNX conducted the Vision 2030 study to plan the long-term vision for the LYNX service area. The LYNX Transit Development Plan outlines the strategy map for Central Florida's transit system for the next 10 years. In recent years, LYNX has greatly expanded their LYMMO downtown circulator service, conducted the US 192 Alternatives Analysis, and has been an active partner in other premium transit alternatives analyses in the Region including the US 441 AA and the OIA Connector AA Refresh studies.

LYNX VISION 2030: The LYNX Vision 2030 study, jointly conducted by LYNX and MetroPlan Orlando, developed a comprehensive examination of 22 high transit ridership corridors in Orange, Osceola, and Seminole Counties to determine potential transit improvements along those corridors. SR 50 from West Oaks Mall to Alafaya Trail up to UCF is one of the corridors identified in the study as a high capacity transit corridor where future premium transit service is desired.

LYNX TDP: The LYNX Transit Development Plan is a needs-based evaluation of the existing services and the anticipated demand for future services. It outlines planned transit for the next 10 years, following LYNX goals around service provision, funding, and communication.

LYMMO EXPANSIONS: LYMMO is LYNX's Bus Rapid Transit (BRT) downtown circulator, offering free service to various downtown points of interest. The LYMMO Orange Line connecting LYNX Central Station to Orlando City Hall has been operating since 1997, the LYMMO Grapefruit (East/West) Line connecting Lake Eola to Amway Center has been operating since 2014, and the Lime Line (Creative Village to Amway Center), North Corridor (Florida Hospital to Downtown), and South Corridor (Downtown to SODO/Pine Ridge) are yet to be opened.



LYMMO Grapefruit Line

MetroPlan Orlando

MetroPlan Orlando has been tasked with setting the region's transportation priorities. The Long Range Transportation Plan (LRTP) is the region's 20-year plan for transportation based on population and employment projections, travel demand forecasts, and public input. The recent LRTP places significant value on advancing transit projects in the region, and the SR 50 Corridor is identified as a regional transit priority.

MetroPlan is currently waiting on re-adopting the LRTP to include a reprioritization of funds based on the results of the region's transit alternatives analysis studies and recently passed the unprecedented allocation of District Discretionary Revenues (traditionally allocated to only roadway projects) to premium transit projects in the Region.



Creative Village Conceptual Rendering

City of Orlando

The City of Orlando has encouraged development and redevelopment along the corridor, through policies, plans, targeted infrastructure investments, and public-private partnerships. Key pieces of the City's vision that will benefit from a higher level of transit investment along the SR 50/UCF Connector Corridor include the Creative Village, Project DTO, bike and car sharing initiatives, Downtown Community Venues Master Plan, the LYMMO expansions (Grapefruit, Lime, North, and South lines), the East Colonial Vision Plan, plans and programs for the Mills/Colonial area (Mills/Colonial Strategic Plan and Mills50 Main Street effort), and the Parramore Neighborhood Plan.

CREATIVE VILLAGE: Currently under construction on the former 68-acre Amway Arena site, Creative Village will be a mixed use, transit-oriented urban infill development with offices, creative studios, residences, retail/commercial, and educational uses. The new development will be anchored by a new downtown UCF and Valencia campus that is projected to have 12,000 students in the next 10 years.

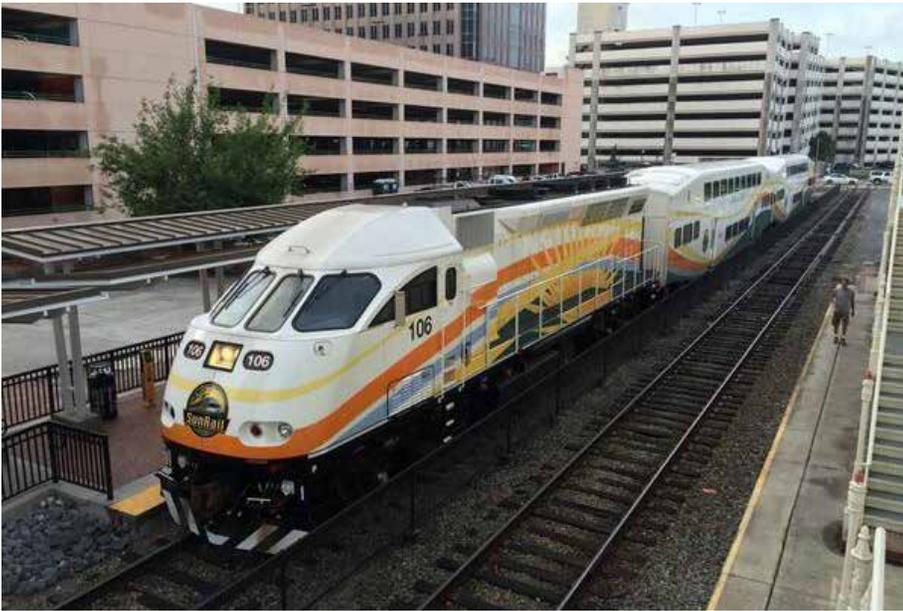
PROJECT DTO: Completed in 2015, Project DTO is a comprehensive visioning process to formulate the next chapter of Downtown Orlando's evolution. Project DTO entails development and approval of a community-guided vision and strategic plan for Downtown Orlando that will define actions to be undertaken by the Downtown Orlando Community Redevelopment Agency (CRA).

MILLS50 MAIN STREET: One of the City of Orlando's nine Main Street programs, Mills50 exists to encourage economic development within the context of historic preservation in ways appropriate to the area surrounding the SR 50/US 17-92 (Mills Ave) intersection. The group acts as a community organization entity - facilitating community interaction, enhancing area aesthetics, and focusing on social and economic vitality in the Mills50 area.

FDOT

FDOT is taking on a growing interest and leadership role in advancing multimodal thinking throughout the region, and recently completed two multimodal corridor studies along the Corridor - one west of the study area along SR 50 and another along Alafaya Trail between UCF and SR 50. FDOT District 5 also recently adopted a districtwide guidebook on multimodal corridor planning that calls for integration of land use and transportation planning and decision-making.

SUNRAIL: In May 2014, FDOT started running SunRail, Central Florida's first commuter rail and an important north-south premium transit connection that will provide an alternative to I-4 through the region. SunRail connects to the SR 50 Corridor in Downtown Orlando. Future Phases II and III are proposed to extend to Kissimmee, DeLand, and the Orlando International Airport.



SunRail, Central Florida's First Commuter Rail

Orange County

Orange County has created a Mixed-Use Development Activity Center (MXDAC) designation in their zoning code and is currently working to develop land development regulations for transit-oriented developments. The County has also worked with local neighborhoods and communities along SR 50 and established action plans and guidelines to encourage neighborhood re-investment and economic development.

SR 436/SR 50 REDEVELOPMENT PLAN: In 2009, Orange County conducted a small area planning study around the SR 436/SR 50 intersection. The plan called for retail and commercial infill, business incubators, community gathering space, expansion of trails and sidewalk network, improved transit stops, and evaluation of a local circulator as another transit option.

PINE HILLS SAFE NEIGHBORHOOD ACTION PLAN: Safe neighborhood action plans are focused on empowering residents in "transitioning communities" that may be experiencing rising crime, increased code enforcement violations, or minor structural disrepair. The Pine Hills Action Plan identified community issues of beautification/code enforcement, infrastructure improvements, business redevelopment, and crime and safety.

University of Central Florida

With 58,000 students, UCF is the second largest university in the country and is located on the Study Corridor. With \$129 million in research funding¹, UCF specializes in advanced lasers/optics, hospitality, digital media, and healthcare, and is expected to continue to grow and attract more students. The university has invested in car-sharing and ride-sharing programs and funds a robust and well-utilized shuttle system that serves student housing within 1.5 miles of the campus. In the next few years, there are plans to open a 12,000-student downtown Orlando campus as part of the Creative Village development. This expansion would create a significant need for a robust transit connection between the two campuses, both on the SR 50 Corridor.



Winter Garden's Redeveloped Downtown along the West Orange Trail

City of Ocoee

The City of Ocoee has created a Community Redevelopment Area (CRA) Special Development Plan that calls for redevelopment with a mix of uses and housing types, a system of connected multi-modal streets, and support for two of the corridor's key nodes- Health Central Hospital and the West Oaks Mall. The Plan promotes a vision of centers of vibrant, urban, mixed-use development and provides guidance for redevelopment that leverages the City's existing assets. The City's location near regional highways, its regional anchors, and the potential for redevelopment create an area where transit can play a large role in the City's future development.

City of Winter Garden

The City of Winter Garden has taken steps to enhance their communities' livability. Through their CRA, the City of Winter Garden has successfully redeveloped downtown into a vibrant activity center along the West Orange Trail.

Town of Oakland

Although it was stalled by the economic recession, the town of Oakland's Oakland Park Traditional Neighborhood Development is moving forward. It is based on the principles of green living and community neighborhood design. Ultimately, it is envisioned to hold 900 residences, and includes numerous amenities and activities for residents within walking distance.

¹ University of Central Florida Annual Report FY12

Land Use Context and Development Pattern

The SR 50 Corridor is a dynamic, diverse area with numerous existing activity centers, such as UCF, Downtown Orlando, Health Central Hospital, and Fashion Square Mall, and nearly as many opportunities for redevelopment immediately adjacent to the corridor. The diversity of the Corridor is apparent not just in the land use mix but also in the age of development and the neighborhood types/population groups served by the Corridor. The growth and development of SR 50 can almost be traced chronologically as one travels out from Downtown Orlando to either side of the corridor, where the age, densities and intensities slowly decrease with distance from the most urban area of Downtown Orlando.

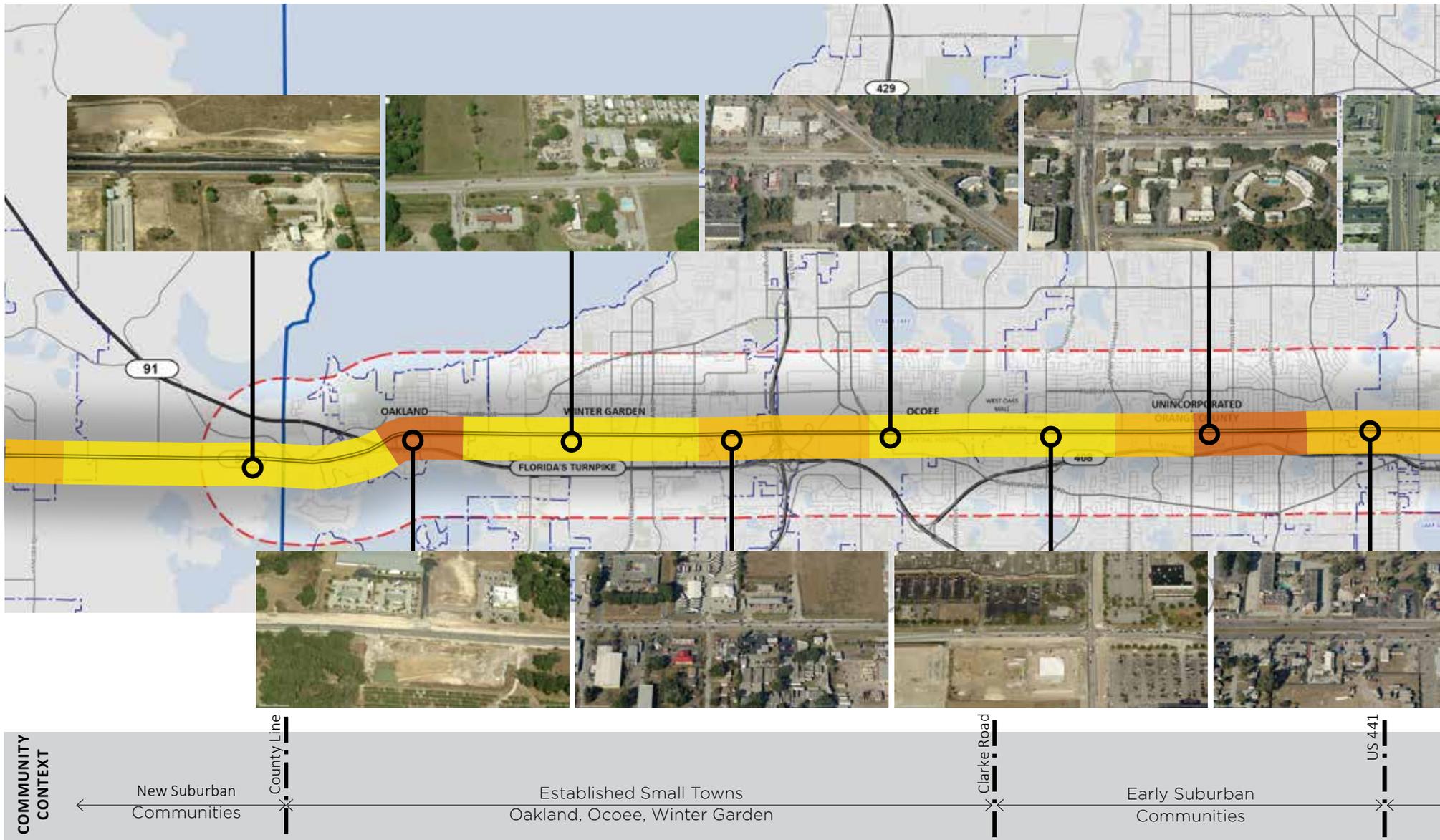
Between the western edge of Orange County and UCF, the corridor ties a number of city centers and activity nodes and transitions through various land uses and development patterns. *Figure 6* shows the corridor's land use context (corridor character) immediately adjacent to the roadway and its surrounding areas (community context).

The corridor character can be generally described by the following categories:

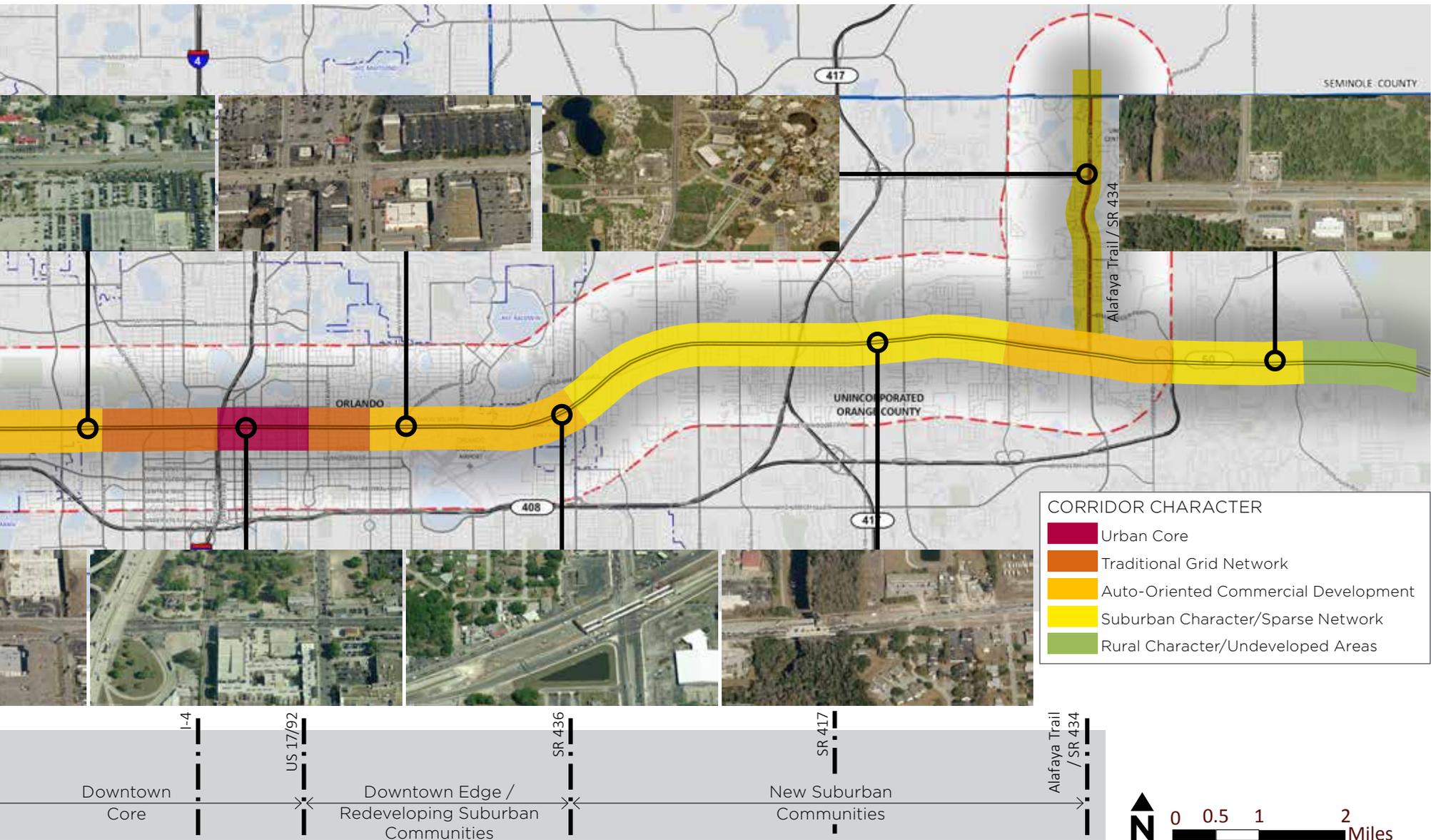
-  **URBAN CORE:** Characterized by a mix of uses and development densities, properties in the Orlando downtown core are generally on small, shallow lots except for a few larger parcels, and buildings are built up to the street with limited on-site parking.
-  **TRADITIONAL GRID NETWORK:** There are lower densities around the edge of Downtown Orlando, in Pine Hills and Oakland; but some of these areas have experienced redevelopment, which is expected to continue. Baldwin Park and the Mills50 area have tremendous redevelopment potential, building in Baldwin Park on the availability of large properties under single ownership and building in Mills50 on the economic redevelopment attention given in the last few years.
-  **AUTO-ORIENTED COMMERCIAL DEVELOPMENT:** Older (post-war) suburban communities including the Pine Hills neighborhood and some areas east of SR 436 are located closer to the center of the Corridor.
-  **SUBURBAN CHARACTER/SPARSE NETWORK:** On the westernmost end of the Study Corridor, SR 50 passes through some recent (developed in the last decade) suburban communities that are mostly low-density residential planned unit development. The corridor's eastern end transitions back to newer suburban communities before terminating at the Central Florida Research Park and UCF.
-  **RURAL CHARACTER/UNDEVELOPED AREAS:** These areas are outside the Study Corridor but consist of large plots of land, fewer uses, and little to no roadway network.



Figure 6 - Community Context & Corridor Character



Source: ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community, Google Maps.





Purpose & Needs

Purpose & Needs

Analysis of the existing transportation and land use conditions, combined with input received throughout the Study from the public, the corridor stakeholders, the PAWG, and the CLG, was synthesized into the key opportunities and issues relevant to the Study Corridor. These key issues and opportunities formed the basis of the Study's needs, presented in the succeeding pages. Each need is supported by a discussion of existing issues and opportunities. These issues and opportunities are discussed in more detail in the separate Existing Conditions Report. Each one of the Study's needs has related Goals and Objectives, shown at the end of each need, which formed the basis of the alternative evaluation.



NEED 1 BETTER ACCESS TO JOBS AND EDUCATION THROUGH IMPROVED EAST-WEST MOBILITY

SR 50 is a key employment corridor.

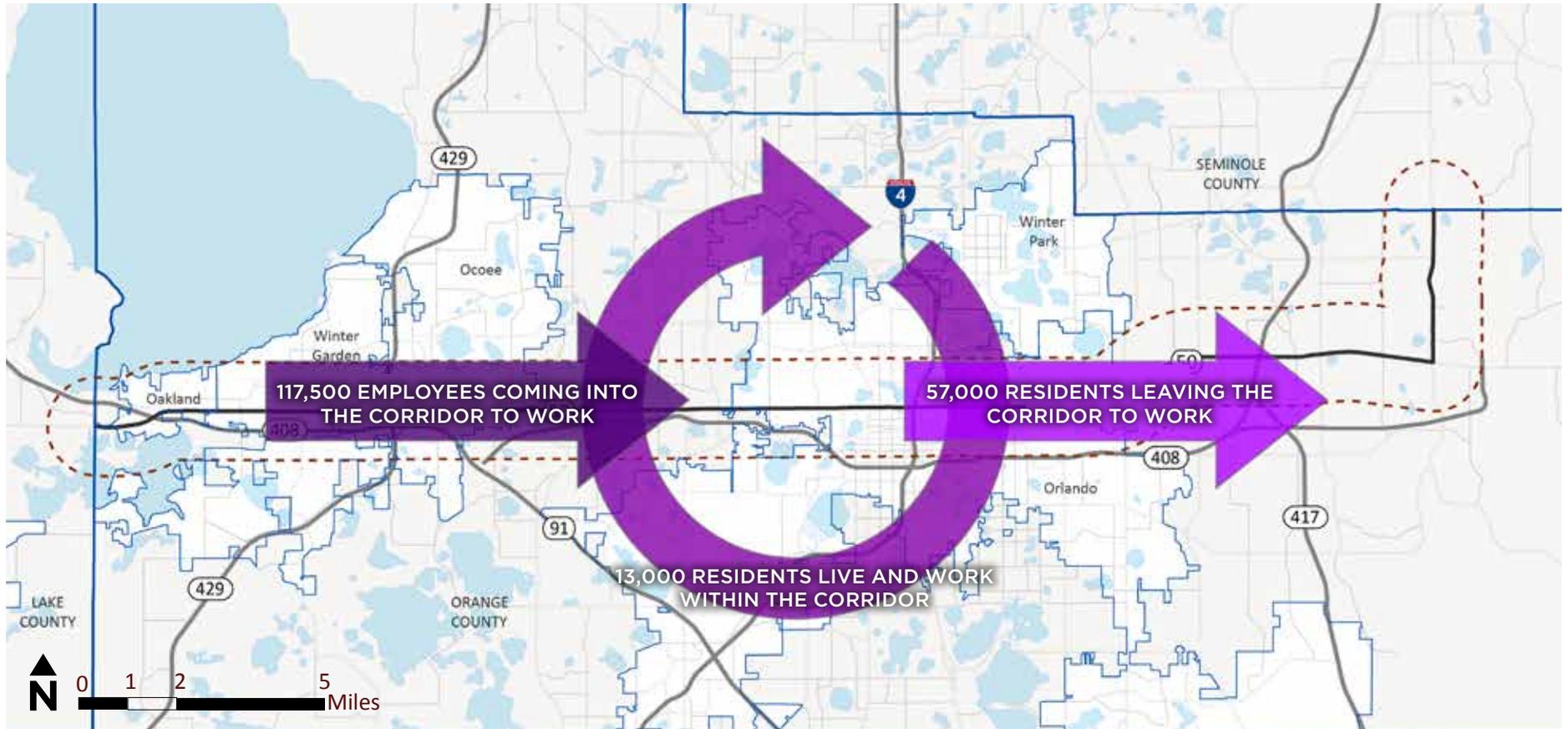
The SR 50 corridor is a major employment and educational corridor. As a key regional non-tolled east-west arterial that continuously runs throughout the Region and the State, it connects many of Central Florida's significant jobs and education centers. Within one mile on each side of SR 50 and Alafaya Trail, the Corridor holds about 130,000 jobs (shown in *Figure 7*). Approximately 117,500 of these jobs are filled by workers living outside the corridor, coming from all over Central Florida. About 13,000 are filled by people that both live and work in the Study Corridor area. *Figure 8* shows the home locations of people that work in the corridor¹.

In addition to the 13,000 workers that live and work within the corridor there are approximately 57,000 workers that live in the Study Corridor but travel outside it to their workplaces. *Figure 9* shows the employment locations of the people that live within the one-mile corridor, revealing large concentrations both within the corridor in the Downtown Orlando area and near the eastern end of the corridor. In this area, there are 40,000 jobs between UCF, Central Florida Research Park, Siemens, Lockheed, and Quadrangle. This area and the downtown Orlando area represent a highly educated population who are likely to use reliable premium transit that is reliable and who typically desire to connect to rest of the Region.

The SR 50 corridor is also a major educational corridor. UCF, Valencia College's East and West Campuses, Barry University and various technical colleges are located along the corridor. These colleges have about 100,000 students all together. Valencia College has indicated a desire to have a better transit connection between their East and West Campuses. UCF is planning for a new 12,000-student downtown campus. If this vision is realized, connecting UCF to downtown Orlando with reliable transit will be paramount to mobility in the region.

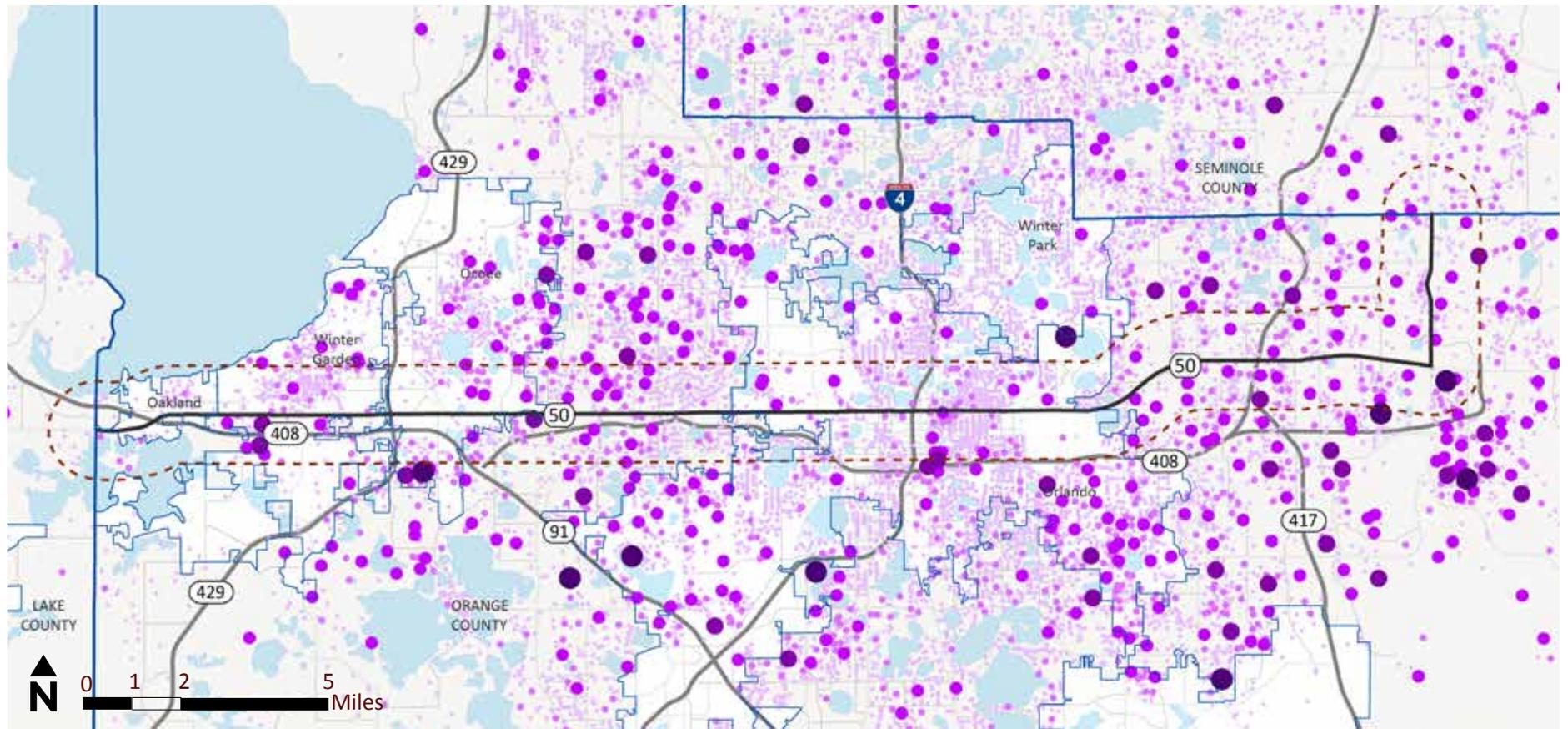
¹ 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor

Figure 7 - Corridor Inflow and Outflow of Workers



Source: 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

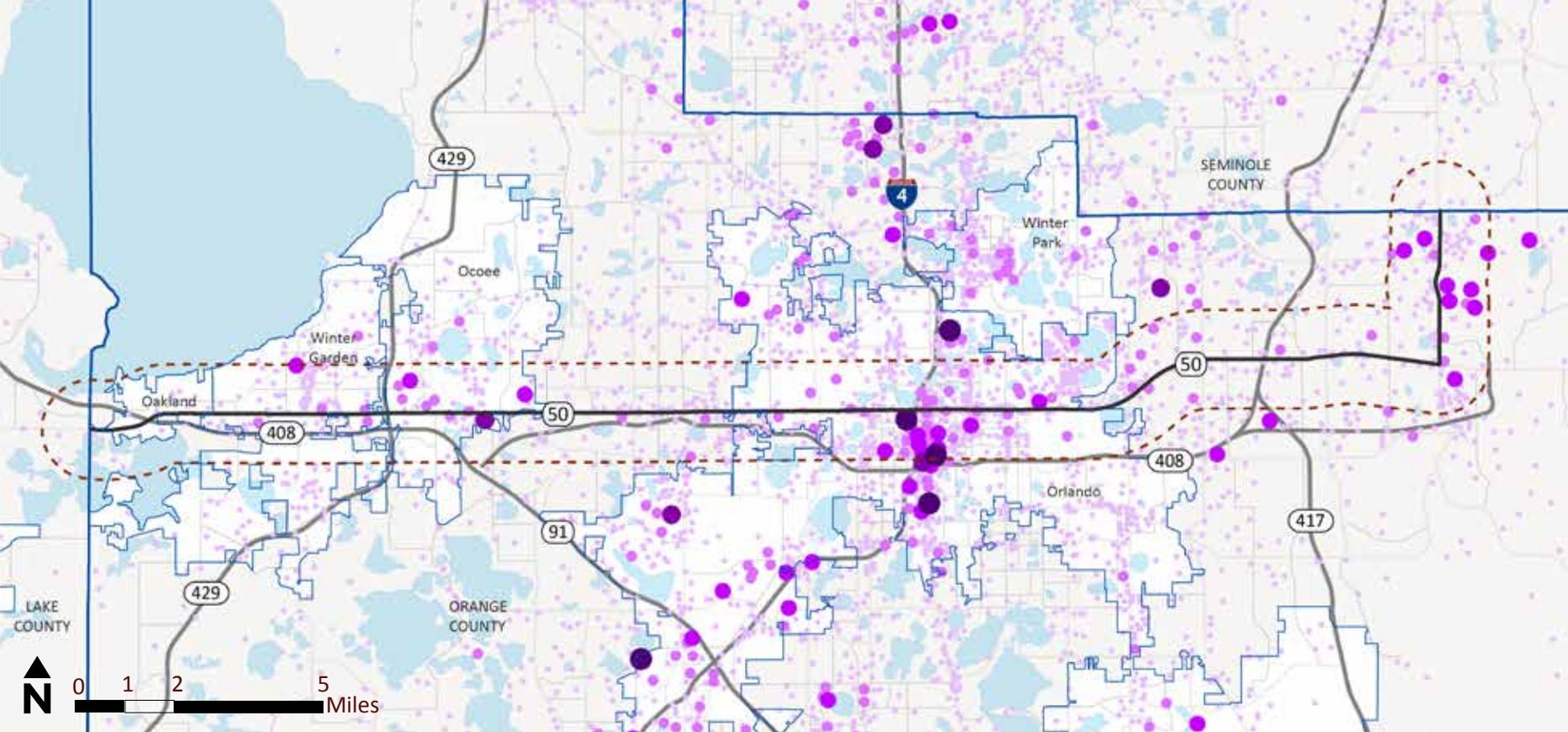
Figure 8 - Home Locations of Workers Along the Corridor



- 1-10 Workers' Homes
- 11-25 Workers' Homes
- 26-75 Workers' Homes
- 76-150 Workers' Homes
- More than 150 Workers' Homes

Source: 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

Figure 9 - Employment Locations of Residents along the Corridor



- 1-25 Jobs
- 26-100 Jobs
- 101-250 Jobs
- 251-500 Jobs
- More than 500 Jobs

Source: 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

SR 50 is a heavily traveled corridor.

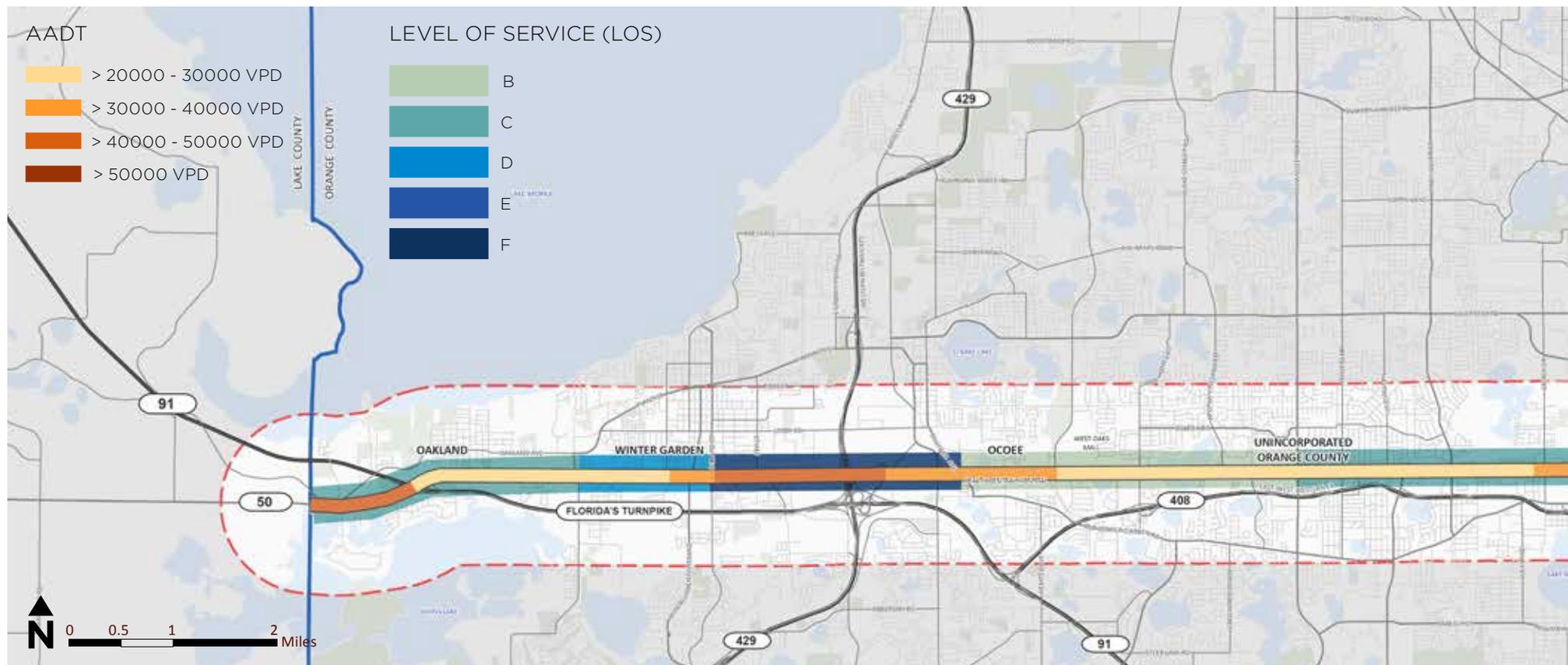
As a key regional arterial in an area of significant growth, it is not surprising that the SR 50 corridor is experiencing both heavy traffic volumes and high transit ridership. The Study Corridor varies between a four-lane cross section (between Tubb Street and Avalon Road, through Ocoee, through the downtown Orlando area, and between Dean Road and Alafaya Trail) and a six-lane cross section

with median (everywhere else along the Study Corridor).¹ Traffic congestion impacts operating speeds and therefore affects east-west mobility along SR 50, not just for vehicular traffic but also for transit service along the corridor. Traffic volumes vary throughout the corridor between 20,000 and 45,000 vehicles per day² with some

¹ At the time of analysis (2012)

² 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor

Figure 10 - Level of Service (LOS) and Average Annual Daily Traffic (AADT)

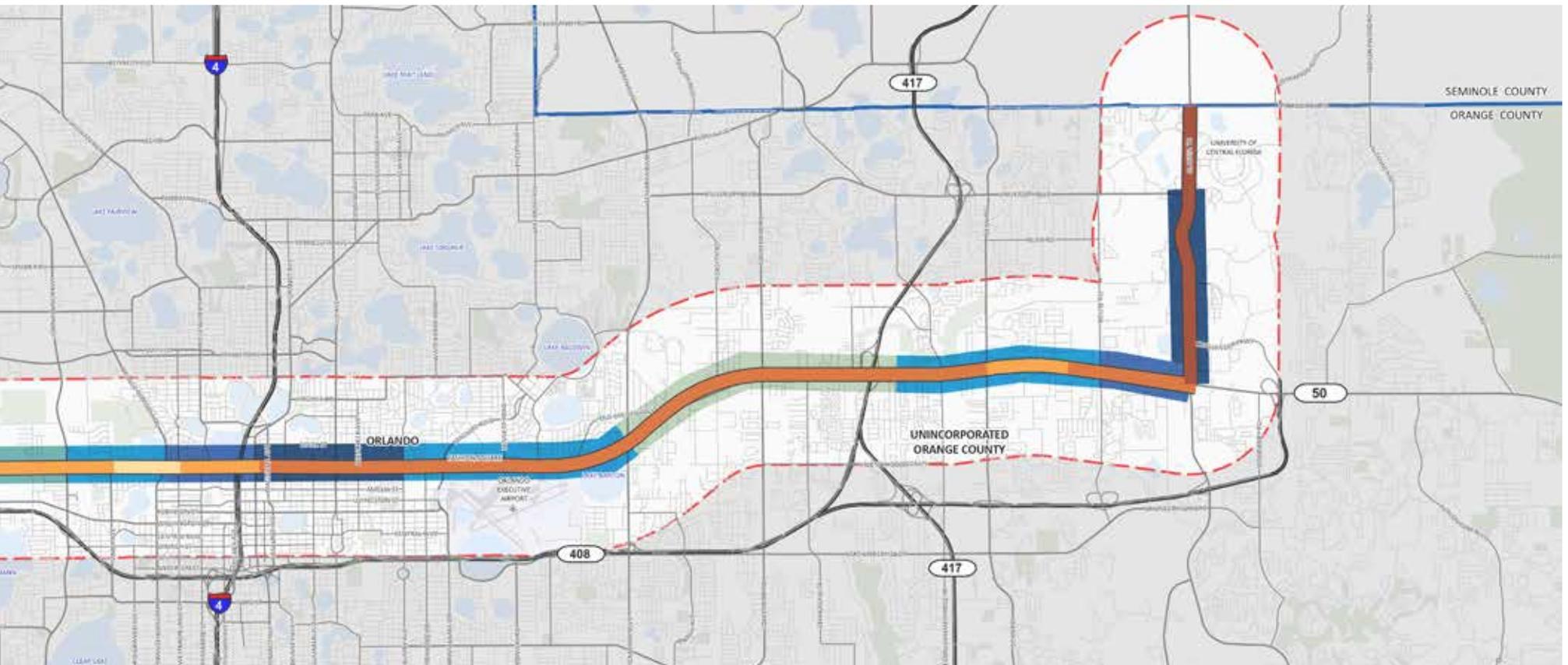


Source: LOS and AADT from Florida Department of Transportation District 5 LOS ALL Spreadsheet. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

segments along SR 50 considered to be “at-capacity,” exhibiting Level-of-Service E or F (see *Figure 10*). The roadway network around and parallel to the corridor can help address vehicular demand on congested sections of SR 50 and Alafaya Trail for local and regional mobility. However, several congested sections do not have available roadway network to provide parallel roadway capacity.

Some sections of SR 50 are programmed for roadway widenings in the next 20 years, including Tubb Street to Avalon Road (widen to 3 lanes each direction), sections of roadway between SR 429 and Good Homes Road (widen to 3 lanes each direction), and Dean Road to Avalon Park Blvd (widen to 3 lanes each direction).¹

¹ At the time of analysis (2012)

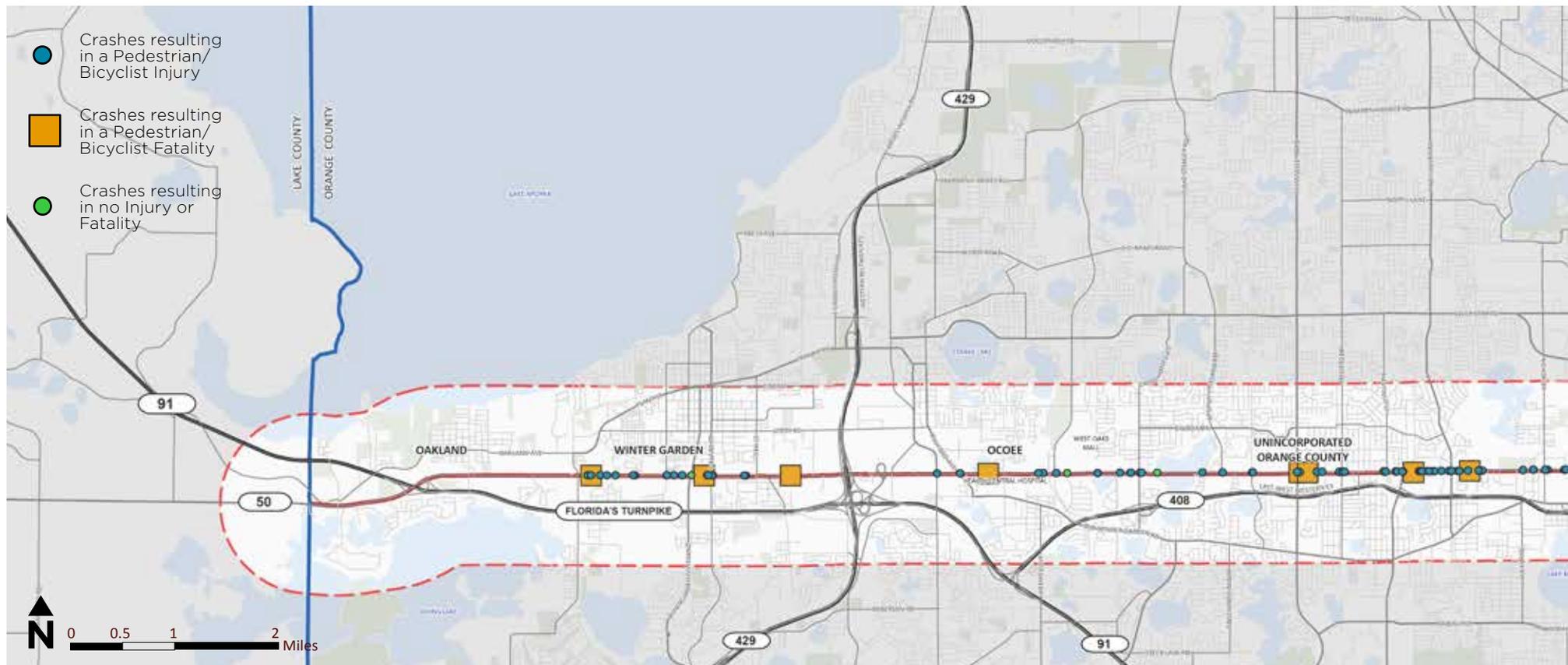


SR 50 is experiencing pedestrian & bicycling safety and mobility challenges.

The corridor's posted speed ranges from 35 mph close to the downtown core to 50 mph in the more suburban sections. Traffic speeds are a concern for pedestrian and bicyclist safety and mobility in some sections of the corridor, especially in areas where crossing opportunities are widely spaced. Certain sections of the corridor experience high levels of transit activity and, therefore,

high pedestrian and bicycling activity. Many of these high transit/pedestrian/bicycle activity sections experience critical pedestrian and bicycling safety issues and higher crash frequencies (see *Figure 11*). Through the community stakeholder interviews, the Study Team discovered that some sections of the corridor are particularly difficult for transit users to navigate, like the SR 436/SR

Figure 11 - Bicycle & Pedestrian Crash Frequency



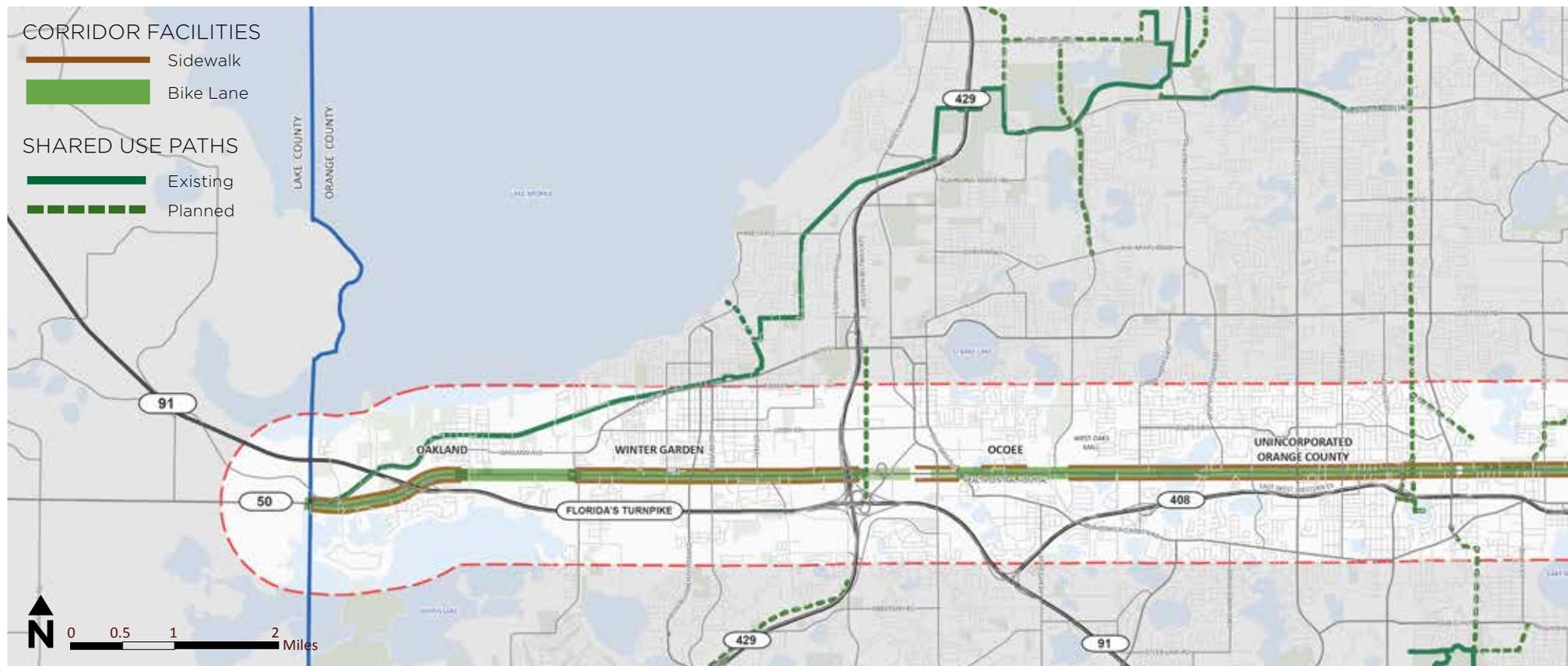
Source: Crash data from Florida Department of Transportation CARS Database (2007-2011). Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

Improvements for pedestrian & bicycling mobility are being considered along SR 50.

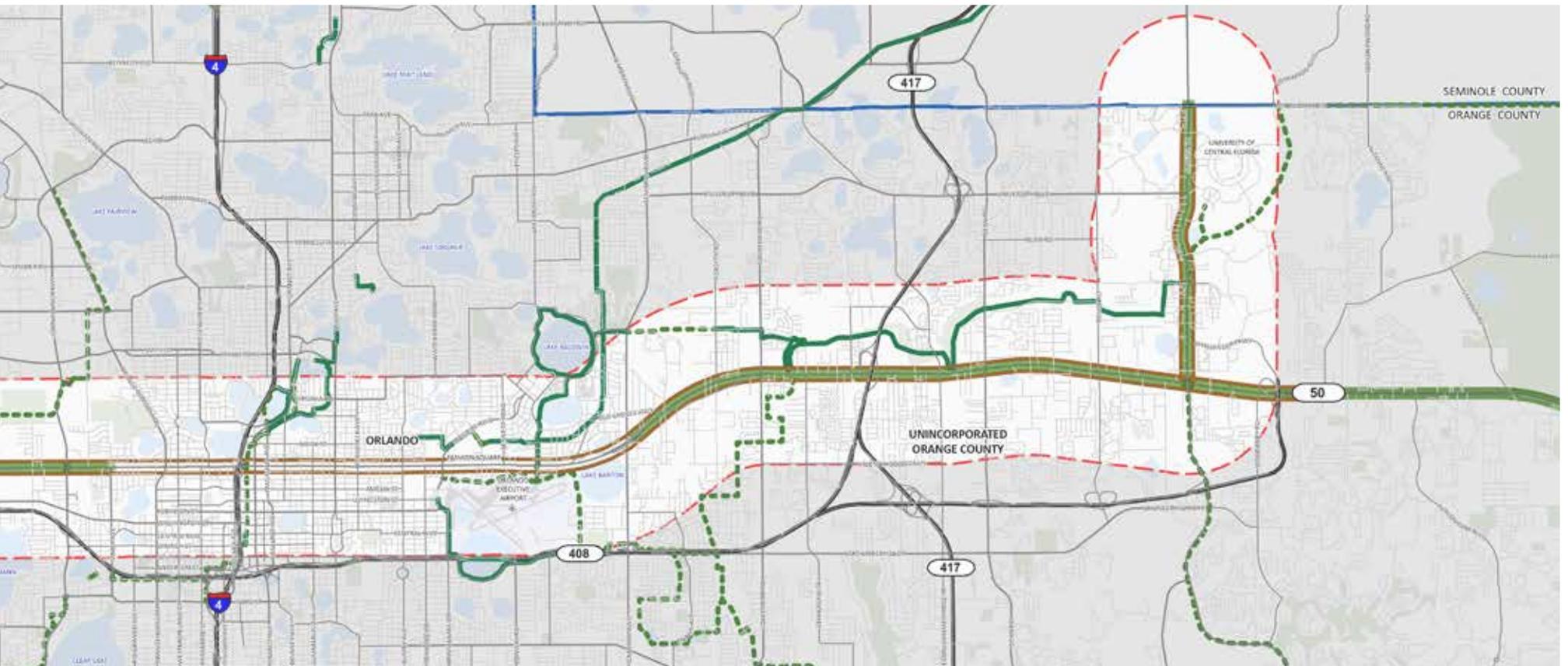
More effective multimodal connections in the study area network are important not just for vehicular, pedestrian, and bicycling mobility and safety but for the effectiveness of transit. The City of Orlando, Orange County, and other jurisdictions have had and continue to place significant focus on and investment in creating safe and

efficient bicycle facilities in the Study Corridor. When connected to transit station areas, these facilities can provide key first and last-mile connections to surrounding land uses. *Figure 12* illustrates current and future investments in bike and pedestrian facilities throughout the SR 50 corridor.

Figure 12 - Existing and Proposed Bicycle & Pedestrian Facilities



Source: Existing and proposed bicycle/pedestrian facilities information from MetroPlan Orlando 2030 LRTP. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.



The SR 50 corridor is a very diverse corridor comprised of high populations of various ethnic and racial minorities.

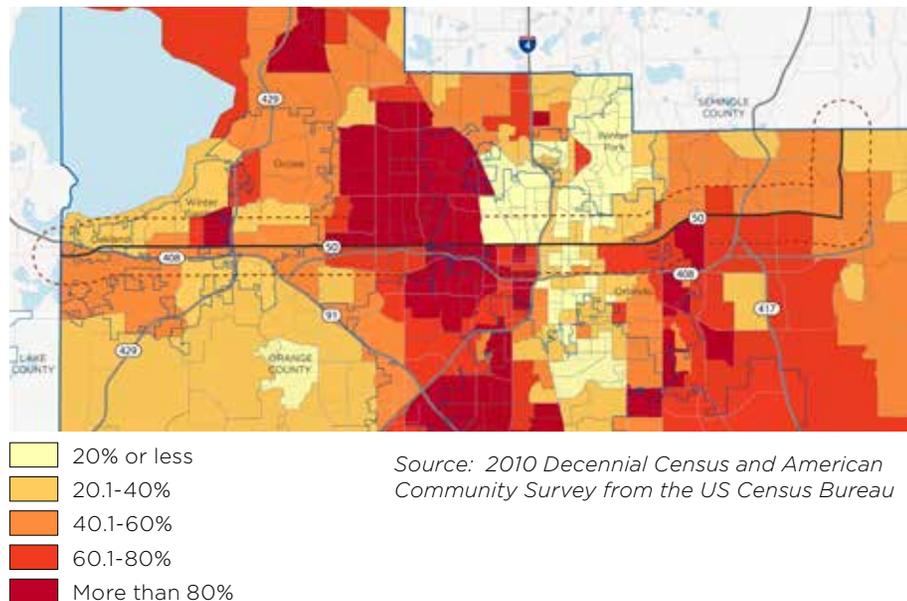
In 2010, 54% of Orange County's population belonged to an ethnic or racial minority group, higher than the State of Florida at 42% and the United States at 36%¹. As seen in *Figure 13*, much of the corridor is above local, state, and national ethnic and minority averages.

These pockets include parts of Winter Garden, the Pine Hills area, the West Lakes area (Callahan, Rock Lake, Lake Lorna Doone, Clear Lake), Azalea Park, and Union Park, which all have more than 60% minority population. A clear understanding of the distribution of

the Study Corridor's racial and ethnic minority groups ensured that transit alternatives considered impacts and benefits to the populations that have historically been impacted or under served.

¹ 2010 Decennial Census and American Community Survey from the US Census Bureau

Figure 13 - Ethnic/Racial Minorities



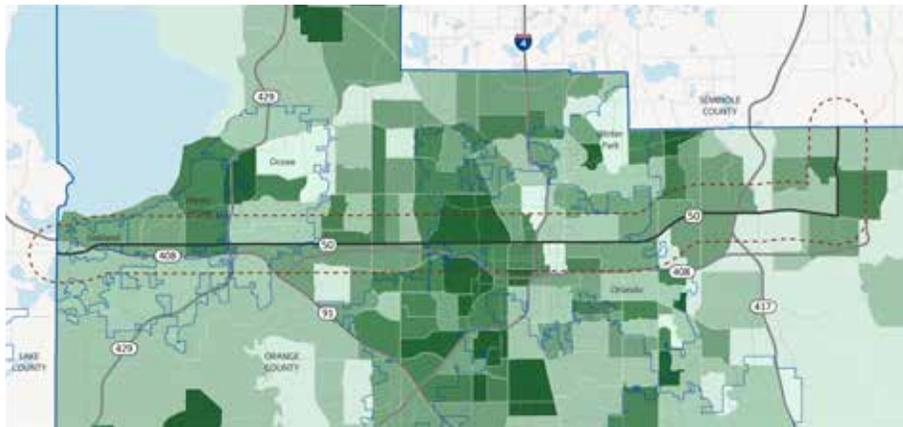


The Corridor is home to many residents that have limited mobility choices.

Approximately 50% of the projected corridor ridership is transit-dependent population. Transit-dependent populations often include people that live below the poverty line and those that do not have access to a vehicle. *Figure 14* shows a relatively high portion of the population that do not have vehicle access immediately east of SR 429 in Ocoee and Winter Garden, Pine Hills, Downtown Orlando, and the UCF area.

As shown in *Figure 15*, the number of households below the poverty line can also be an indicator of the level of potentially transit-dependent population that would benefit from improved service in the Corridor. These areas include Pine Hills and the West Lakes area, west of Downtown Orlando. Areas around the UCF campus show the same patterns. University students likely account for some of the population that is classified as living below the poverty line.

Figure 14 - Households with No Vehicle within each Census Tract



Source: 2010 Decennial Census and American Community Survey from the US Census Bureau

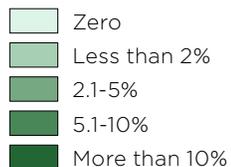
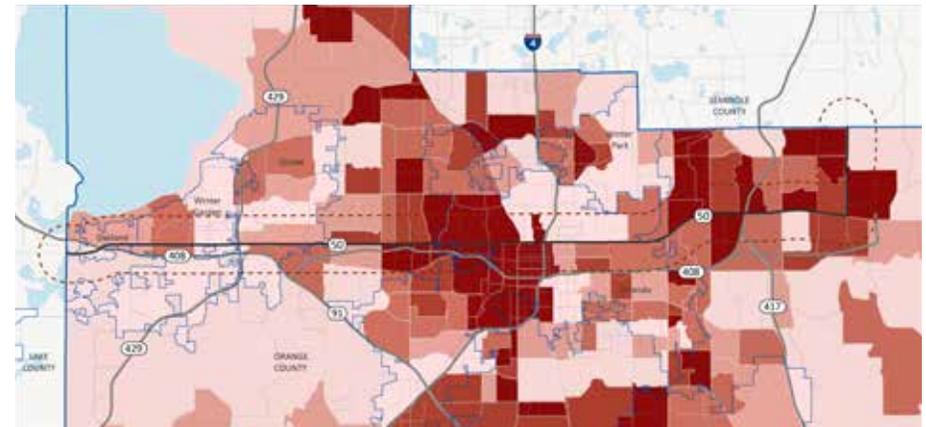


Figure 15 - People Living below the Poverty Line within each Census Tract



Source: 2010 Decennial Census and American Community Survey from the US Census Bureau

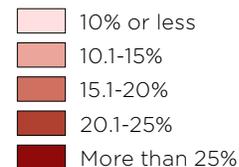
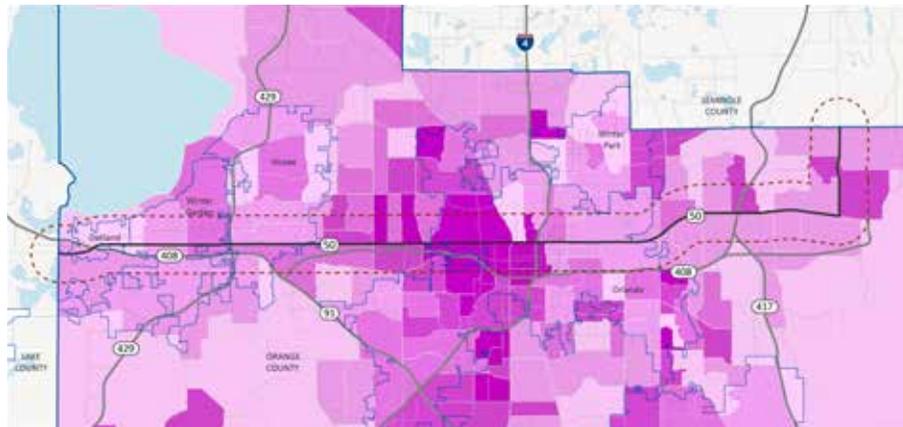


Figure 16 confirms where these transit-dependent populations reside, indicating that the highest percentages of transit to work population occur in Pine Hills, downtown Orlando, the West Lakes area, and parts of Azalea Park. Premium transit investment in areas with predominant transit-dependent populations has the ability to significantly enhance existing residents' access to jobs and services.



Figure 16 - Residents taking Transit to Work within each Census Tract



- Zero
- Less than 2%
- 2.1-5%
- 5.1-10%
- More than 10%

Source: 2010 Decennial Census and American Community Survey from the US Census Bureau



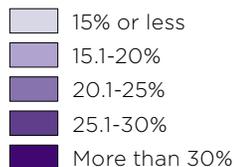
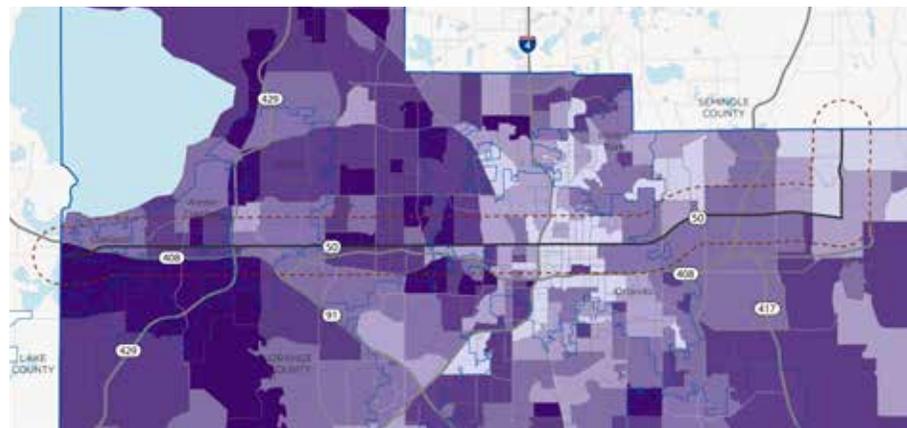
The Corridor has pockets of older population and the Region has a growing millennial population.

Younger residents and the elderly may also rely on transit service, especially if given more premium transit options. These two groups along the corridor are illustrated in *Figures 17 and 18*. They show that the lowest concentrations of both youth and elderly populations are near the center of the corridor, east of I-4. There are, however, some areas with high concentrations of elderly near Downtown Orlando. More of the over 65 population is concentrated in the closer-in residential neighborhoods, particularly in Winter Park. The highest concentrations of youth are in residential neighborhoods farther from Downtown Orlando and also in the Pine Hills neighborhood. The millennial generation (those born between 1982 and 2003) is the largest and most diverse generation in American history. A recent APTA (American Public Transportation Association) report

on Millennials and Mobility found that millennials typically seek communities that offer a multitude of transportation choices for their fast-paced lifestyle. Millennials desire more reliable transportation, real-time transportation information, connection to technology and internet, and an intuitive travel experience - many of the features which come along with premium transit. Between 2010 and 2013, the Orlando millennial population grew by 8.1%, causing Forbes magazine to name the Orlando area as the third ranked metro area for millennials.¹ This increasingly growing population of Central Florida Millennials will have a significant impact on the way the Region travels.

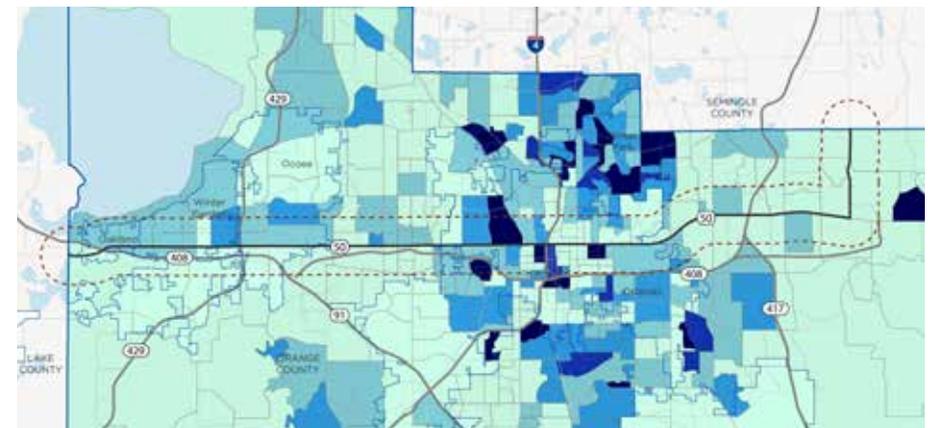
¹ Forbes Magazine, "Metro Areas that are Magnets for Millennials"

Figure 17 - People Age 18 and Under within each Census Tract



Source: 2010 Decennial Census and American Community Survey from the US Census Bureau

Figure 18 - People Over the Age of 65 within each Census Tract



Source: 2010 Decennial Census and American Community Survey from the US Census Bureau

SR 50 will provide a critical piece to complete the framework for enhanced regional and local transit in Central Florida. It presents a tremendous opportunity to build on the corridor's strong existing ridership base within the framework of this enhanced regional and local transit system. Premium transit along SR 50 will be needed on a variety of levels to serve the existing riders of the system and prepare for growing populations that are more amenable to transit.

NEED 1 BETTER ACCESS TO JOBS AND EDUCATION THROUGH IMPROVED EAST-WEST MOBILITY

Goals

Objectives

Improve service for existing transit riders	Improve transit travel times in corridor
	Improve transit reliability
	Address congestion-related delay for transit vehicles
Improve access to jobs and educational institutions	Improve connectivity/access to economic and educational centers via transit



NEED 2 ENCOURAGE DEVELOPMENT AND REDEVELOPMENT THAT SUPPORT TRANSIT CONSISTENT WITH COMMUNITY GOALS

The Corridor has significant redevelopment potential.

Premium transit can help catalyze development and redevelopment along SR 50. The majority of the SR 50 corridor is lined with commercial/office uses, with some mixed-use and industrial development (see *Figure 19*). Beyond the commercial parcels abutting SR 50, the majority of the land uses are single family residential. The existing land use data shows that significant portions of the corridor are currently vacant or considered “underutilized,” where the buildings on a parcel are much lower than the total value of the property. There are opportunities for redevelopment where there are large areas of these vacant and underutilized properties (see *Figure 20*). These areas include the West Oaks Mall, Fashion Square Mall, Creative Village, Simons Property, and GOAA property; large parcels of vacant land in the Ocoee CRA target areas and other parts of the western end of the corridor; and a concentration of parcels adjacent to SR 50 between SR 436 and SR 417. Many of these areas have been targeted for redevelopment by the municipalities along the corridor, where cities and the County have crafted small area plans, vision plans, CRAs, Main Street Districts, and Neighborhood Improvement Districts (NIDs) that call for development patterns and uses that are more supportive of premium transit.



Rendering of proposed Creative Village Development.

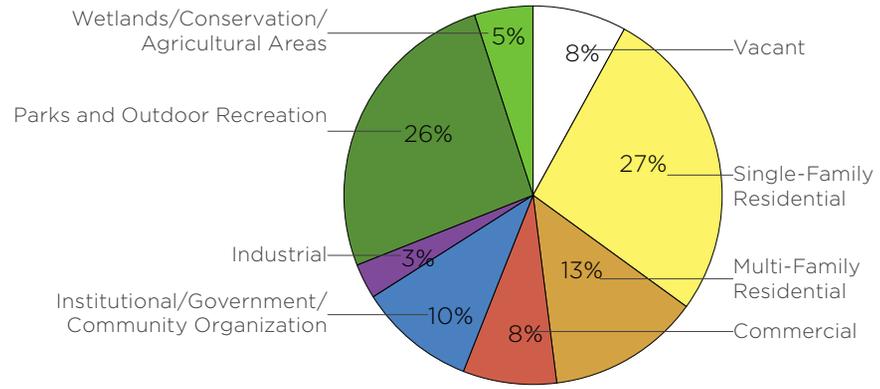
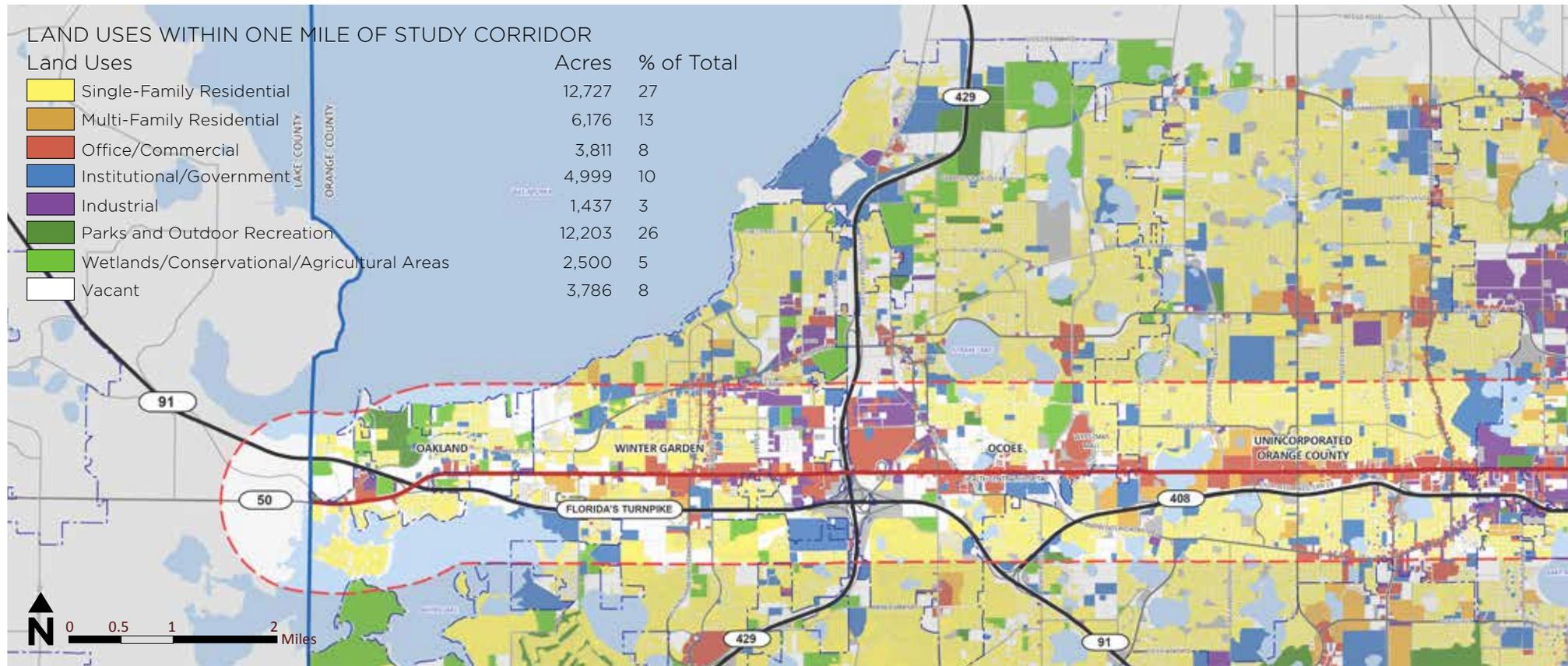


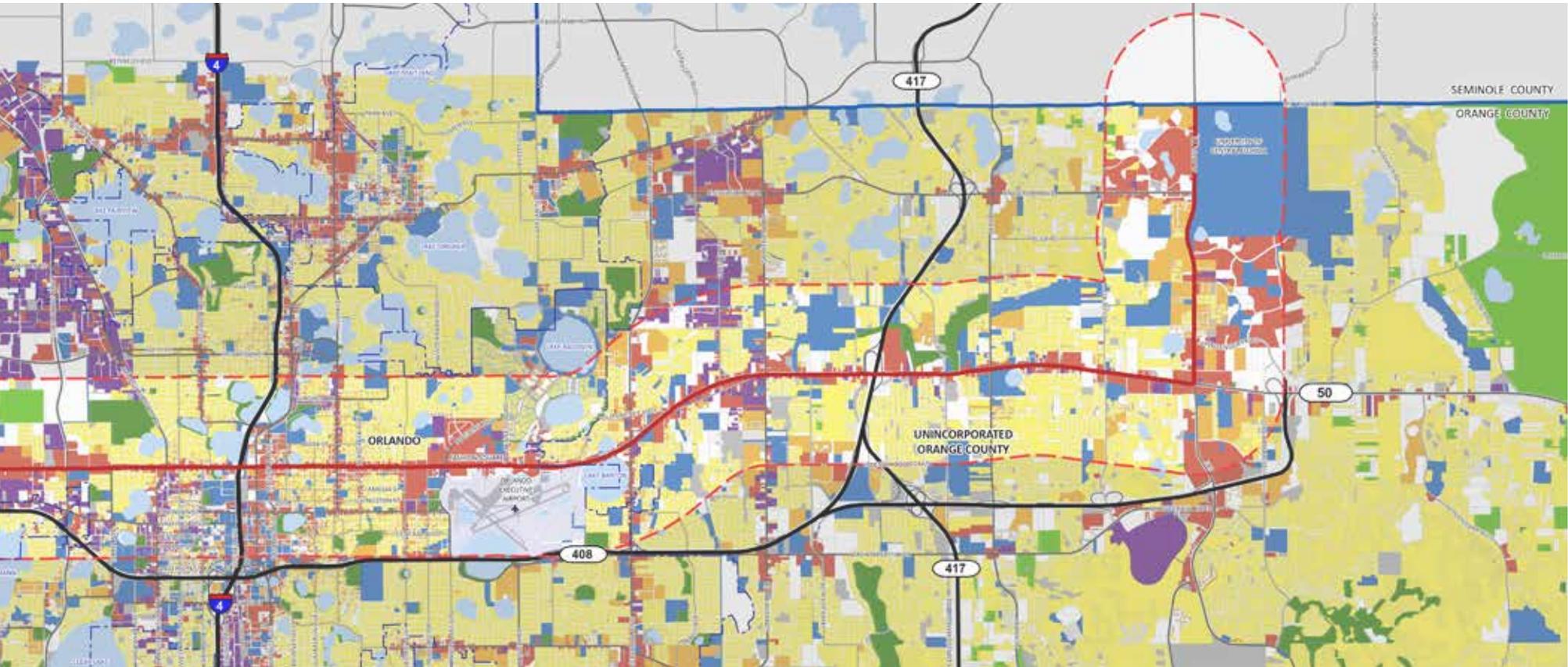
Fashion Square Mall is planning to add a hotel and residential uses.

The Corridor has existing and planned future concentrations of higher density development supportive of premium transit service.

Higher population densities tend to improve the feasibility of premium transit as they typically indicate higher potential ridership. In general, the average population densities along the corridor are appropriate for BRT implementation as commonly seen in other BRT contexts around the country. Many of the Corridor's subareas have among the highest concentration of residents and businesses in the region. There are some pockets of more than 6,000 residents/square mile in the downtown Orlando and UCF areas, but most areas along the corridor have densities between 2,000 and 6,000 residents/square mile. These lower densities mean that, while there might be existing activity centers, there is opportunity to develop higher-density transit-oriented development around stations to encourage economic development.

Figure 19 - Existing Land Use





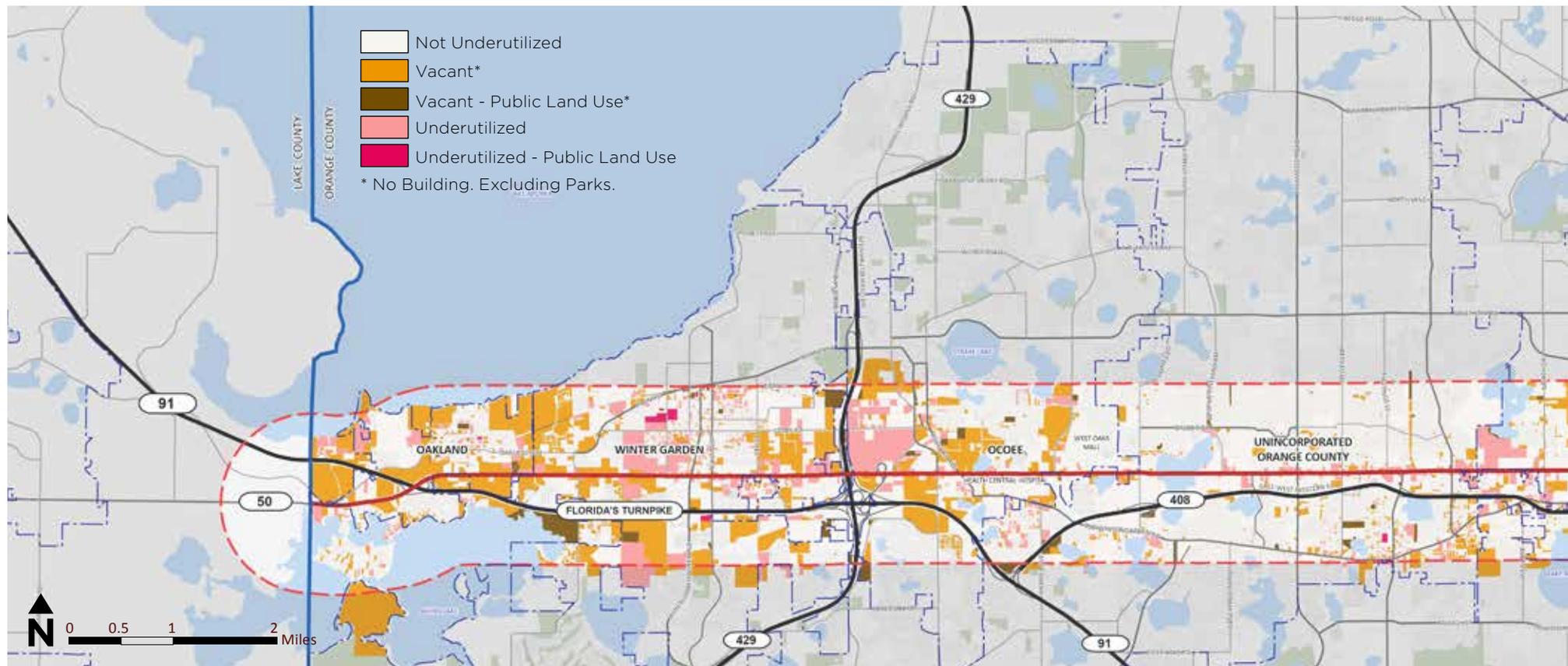
Source: Land Use Data from the City of Orlando, City of Winter Garden, City of Ocoee, and Orange County. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

The future land use vision in various nodes along the corridor includes mixed use development and a continued focus on commercial and office along SR 50.

Additional medium to higher density residential development in the corridor would help to complement this growth and support future premium transit. These higher intensity development patterns also present opportunities to evaluate and target active transportation

(bike and pedestrian) infrastructure improvements along the Study Corridor. Many corridor jurisdictions already hold redevelopment and Transit-Oriented Development (TOD) supportive visions with varying amounts of transit-supportive policy. In addition, stakeholders along the corridor agree with encouraging the development of mixed-use nodes, improving walkability, and providing robust transit service to strengthen existing neighborhoods.

Figure 20 - Vacant and Underutilized Land



Source: Property Tax Data from Orange County. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

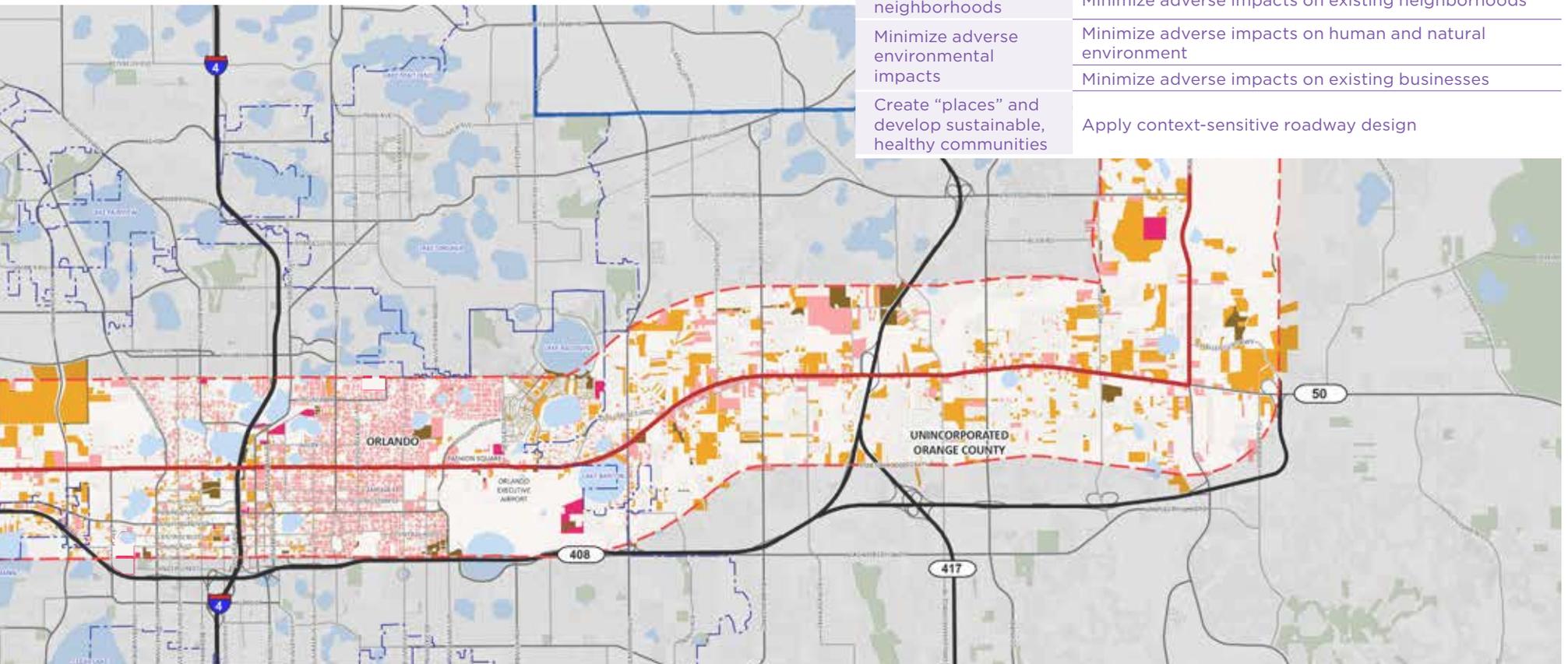
As shown in *Figure 20*, the SR 50 corridor is where the Central Florida Region has and continues to focus development and redevelopment. It is home to 17% of Orange County’s residents – about 200,000 people live within 1 mile of SR 50. It is also home to 20% of Orange County’s jobs and 13% of Metro Orlando’s jobs with 130,000 employees. This includes 12,000 people who both live and work in the corridor.

NEED 2 ENCOURAGE DEVELOPMENT AND REDEVELOPMENT THAT SUPPORT TRANSIT CONSISTENT WITH COMMUNITY GOALS

Goals

Objectives

Encourage development of activity/mixed-use nodes	Serve areas with development/redevelopment potential
	Serve areas with zoning/future land use that allows higher intensity development and mixed uses
	Serve planned transit-supportive development
	Create family, leisure, entertainment places to go/stay
Improve walkability	Increase station area street connectivity
	Provide safe and appealing pedestrian facilities and environments between transit and destinations
Strengthen/preserve existing neighborhoods	Provide transit service to existing neighborhoods
	Minimize adverse impacts on existing neighborhoods
Minimize adverse environmental impacts	Minimize adverse impacts on human and natural environment
	Minimize adverse impacts on existing businesses
Create “places” and develop sustainable, healthy communities	Apply context-sensitive roadway design



Local land use regulations are not in conflict with the implementation of transit and development of transit-supportive land uses.

Land use regulations that are supportive of transit-oriented development (TOD) are critical to the success of any premium transit investment. In fact, the Federal Transit Administration (FTA) has published guidance on how Federally funded premium transit investments should consider “ratings applied in assessments of land use criterion” (FY2013 Annual Report on Funding Recommendations, Table III-3). The guidance calls for local jurisdictions to have transit supportive plans and policies that can:

- Support increased development density in transit station areas
- Enhance transit-oriented character of station area development and pedestrian access
- Provide allowances for reduced parking and traffic mitigation

A detailed evaluation of existing land development regulations for all areas along the SR 50 Corridor was conducted. Aside from helping to position the project for future transit funding, this evaluation helped to understand opportunities to refine policies to promote future TOD. The details of this evaluation is included in Appendix A. The audit is not meant to dictate policy but was meant to better understand how the current corridor regulations fare against FTA’s guidance requirements. The regulatory audit was conducted for five site and building design regulation categories that may support or inhibit TOD. These include regulations related to building setbacks, parking, vehicular access, pedestrian access, and building features.

The audit findings show that regulations that are currently in place along SR 50 are adequate and do not directly conflict with the implementation of premium transit. However, local municipalities can consider refining regulations to strengthen the transit focus and leverage the full potential of the future transit investment. With adoption of transit-specific policies, the SR 50 corridor policies can have a more cohesive and consistent purpose and intent. A consistent policy will further confirm the collective commitment of the multiple SR 50 municipalities to the success of regional premium transit.

New policies can include long-term land use and zoning targeted around transit station areas and also throughout the corridor along the transit line. While fully operating a new form of transit in this corridor is still years away, new development and redevelopment in the corridor will continue to occur. Having transit supportive regulations in place now will ensure that, over time, the development and land uses in the corridor will be reshaped to support transit. The strategy for new policies should address station areas and transit corridors areas in between stations differently. Station area policies can focus on land within half-mile radius of a station and provide standards for higher intensity and density of development. Corridor policies can address potential land use changes that occur with the investment related to transit. These corridor policies should recognize that segments between stations do not warrant the same amount of intensity and design control because these parcels do not have direct transit access.





NEED 3 INCREASE TRANSIT RIDERSHIP

High transit ridership along the Corridor is expected to continue.

Currently, the corridor consists of six bus routes and 18 crossing routes. These routes are among the LYNX system's best routes for farebox recovery (illustrated in *Figure 21*). Current ridership levels are reasonably served by the existing combined service of the six routes along the Corridor. However, projections indicate that the level of service will be difficult to maintain as ridership continues to grow and corridor congestion worsens. It was made apparent through input received from corridor stakeholders that it is important to not only maintain, but improve service for existing riders through increased transit reliability, higher frequency, faster travel times, and additional bus and station amenities.

Currently, LYNX serves 12,000 riders per day and 3.75 million riders per year with the six routes that run along the corridor – Links 104, 105, 28, 29, 48, and 49. All of these routes operate at 30-minute frequencies during the day Monday-Saturday and 60-minute frequencies during weeknights, Sundays, and holidays. Three of these routes (105, 48, and 49) service the western half of the corridor (LYNX Central Station (LCS) through Pine Hills to Ocoee) and the other three routes (104, 28, and 29) service the eastern half of the corridor (LCS through Azalea Park/Semoran area to UCF). At their peak, when all routes are operating at 30-minute frequency, these routes combine to provide six trips per hour per direction along SR 50 between Pine Hills and SR 436 (Semoran Boulevard). The routes begin to deviate from the corridor beyond these points, thus reducing the number of buses per hour along the corridor.



Colonial SuperStop



LYNX Central Station



Bus Stop on West SR 50



Bus Stop on East SR 50

Figure 21 - Existing Bus Routes on SR 50

48

LINK 48 - WEST COLONIAL DRIVE/PARK PROMENADE PLAZA

Link 48 provides local service along SR 50 until Powers Drive then turns north to serve the Pine Hills area. It operates daily with frequency ranging from 30 to 60 minutes. Link 48 and Link 49 schedules are designed to complement each other when operating along SR 50. When both routes overlap, Link 48 and 49 offer 15-minute peak headway and 30-minute off-peak headway along SR 50, between Pine Hills Road and LCS. Of the LYNX fixed-routes, Link 48 ranks 3rd in farebox recovery and has the 2nd highest farebox recovery of the six routes in the SR 50 Corridor. Farebox recovery for this route is highest during Sundays when service hours are focused on the core of the day and fewer overall trips are offered in the corridor.

105

LINK 105 - WEST COLONIAL DRIVE/WINTER GARDEN

Link 105 provides limited stop service along SR 50 until Powers Drive and continues with local service along SR 50 serving Pine Hills, Ocoee, and Winter Garden. Link 105 operates daily with frequency ranging from 30 to 60 minutes. Select evening and weekend trips only operate between LCS and West Oaks Mall. Link 105 ranks 14th in farebox recovery among all LYNX fixed routes and has the 5th highest farebox recovery of the six routes in the SR 50 Corridor. Link 105's farebox recovery performance appears to weaken on Saturdays when compared to weekdays and Sundays. This may be attributed to the alternating patterns on Saturdays in which every other trip serves Winter Garden.

49

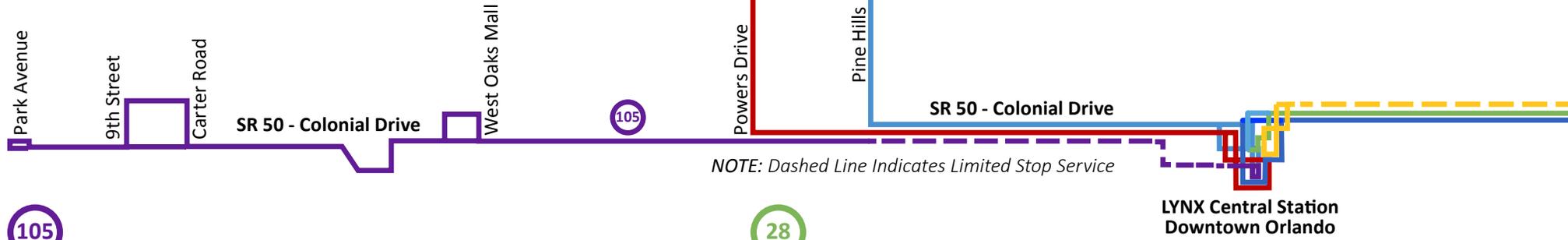
LINK 49 - WEST COLONIAL DRIVE/PINE HILLS ROAD

Link 49 provides local service along SR 50 until Pine Hills Road then turns north to serve the Pine Hills area. It operates daily with frequency ranging from 30 to 60 minutes. When both routes overlap, Link 48 and 49 offer 15-minute peak headway and 30-minute off-peak headway along SR 50, between Pine Hills Road and LCS. Link 49 ranks 1st in farebox recovery among all LYNX fixed routes including the six routes in the corridor. Link 49 is consistently a strong performer in terms of farebox recovery. Its strongest farebox recovery occurs on weekends when service hours are focused on the core of the day and fewer overall trips are offered in the corridor.

28

LINK 28 - EAST COLONIAL DRIVE/AZALEA PARK

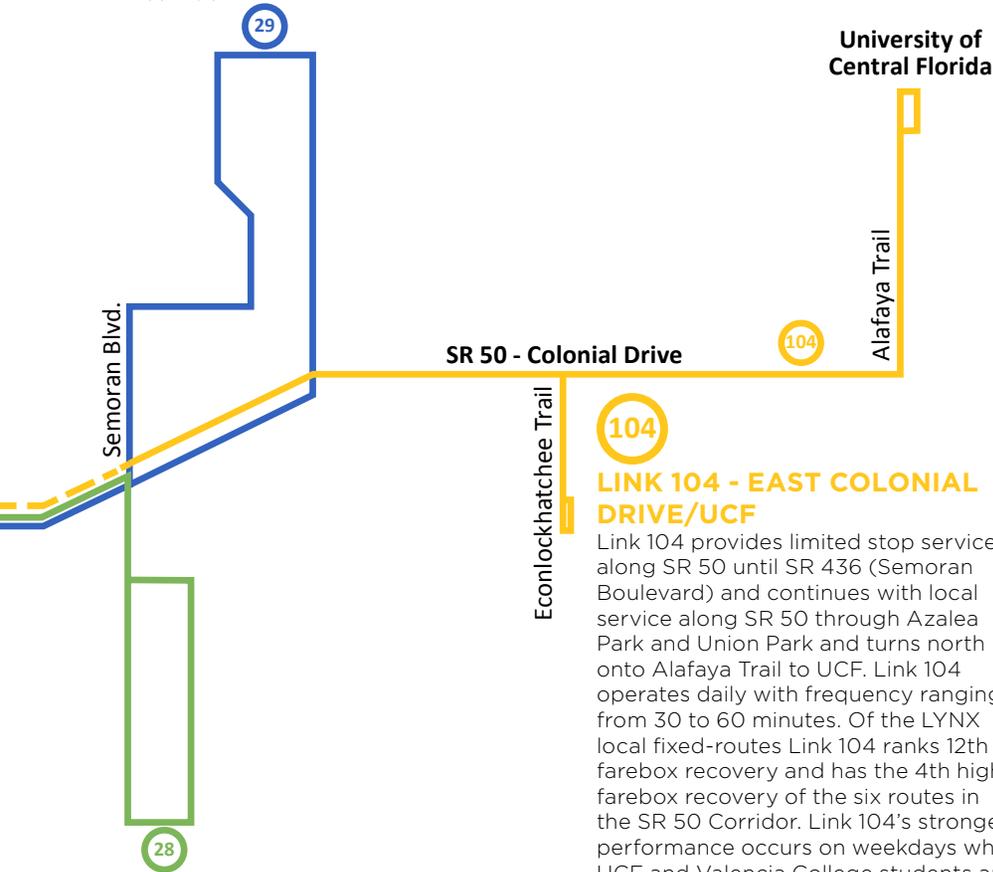
Link 28 provides local service along SR 50 until Semoran Boulevard then turns south to serve the Azalea Park area. It operates daily with frequency ranging from 30 to 60 minutes. When both Link 28 and 29 operate at 30-minute frequency, trips are spaced to provide a balanced 15-minute headway between LCS and Semoran Boulevard where both routes diverge. Likewise, when both operate at 60-minute frequency, the combined schedule provides a balanced 30-minute headway through the corridor. Of the 68 local fixed-routes LYNX operates, Link 28 ranks 15th in farebox recovery but has the lowest farebox recovery of the six routes in the SR 50 corridor. Nonetheless, Link 28 is still a strong performer. Farebox recovery for this route is highest during Sundays when service hours are focused on the core of the day and fewer overall trips are offered in the corridor.



29

LINK 29 - EAST COLONIAL DRIVE/GOLDENROD ROAD

Link 29 provides local service along SR 50 until Goldenrod Road then turns north to serve the Goldenrod and Aloma area. It operates daily with frequency ranging from 30 to 60 minutes. This route complements Link 28 and together when the two routes overlap they provide 15-minute peak headway and 30-minute off-peak headway on SR 50. Link 29 ranks 6th in farebox recovery of all LYNX fixed routes and has the 3rd highest farebox recovery of the six routes in the SR 50 Corridor. Farebox recovery for this route is highest during Sundays when service hours are focused on the core of the day and fewer overall trips are offered in the corridor.



104

LINK 104 - EAST COLONIAL DRIVE/UCF

Link 104 provides limited stop service along SR 50 until SR 436 (Semoran Boulevard) and continues with local service along SR 50 through Azalea Park and Union Park and turns north onto Alafaya Trail to UCF. Link 104 operates daily with frequency ranging from 30 to 60 minutes. Of the LYNX local fixed-routes Link 104 ranks 12th in farebox recovery and has the 4th highest farebox recovery of the six routes in the SR 50 Corridor. Link 104's strongest performance occurs on weekdays when UCF and Valencia College students are commuting to their respective campuses.

Ridership of LYNX Bus Routes along Study Corridor

	Average Weekday	Average Saturday	Average Sunday	Annual
LINK 28	1,653	945	654	548,526
LINK 29	1,754	984	652	536,403
LINK 104	2,343	1,688	721	726,595
LINK 48	1,972	1,116	831	608,368
LINK 49	2,072	1,194	707	629,843
LINK 105	2,224	1,780	662	696,901

Source: LYNX GPI Monthly Ridership Report (May 2012-April 2013)

Connecting Services

LYNX provides 18 other local routes that interact with the SR 50 corridor. Together with the 6 routes along the Corridor, these routes are some of the highest performing routes in the LYNX system, combining to make up 50% of the system's average daily ridership.

The 14 routes that intersect and provide connections to the Study Corridor include:

- Link 13 - University Boulevard
- Link 106 - North US 441/Apopka
- Link 20 - Malibu/Mercy Drive
- Link 25 - Mercy Drive/Shader Road
- Link 37 - Pine Hills/Florida Mall
- Link 436S - SR 436
- Link 54 - Old Winter Garden Road
- Link 102 - North Orange Avenue/Fern Park
- Link 125 - Silver Star Road
- Link 301 - Pine Hills Downtown Disney Direct
- Link 302 - Rosemont Downtown Disney Direct
- Link 303 - Washington Shores Downtown Disney Direct
- Link 313 - Lakemont Avenue
- Link 445 - Apopka/West Oaks Mall

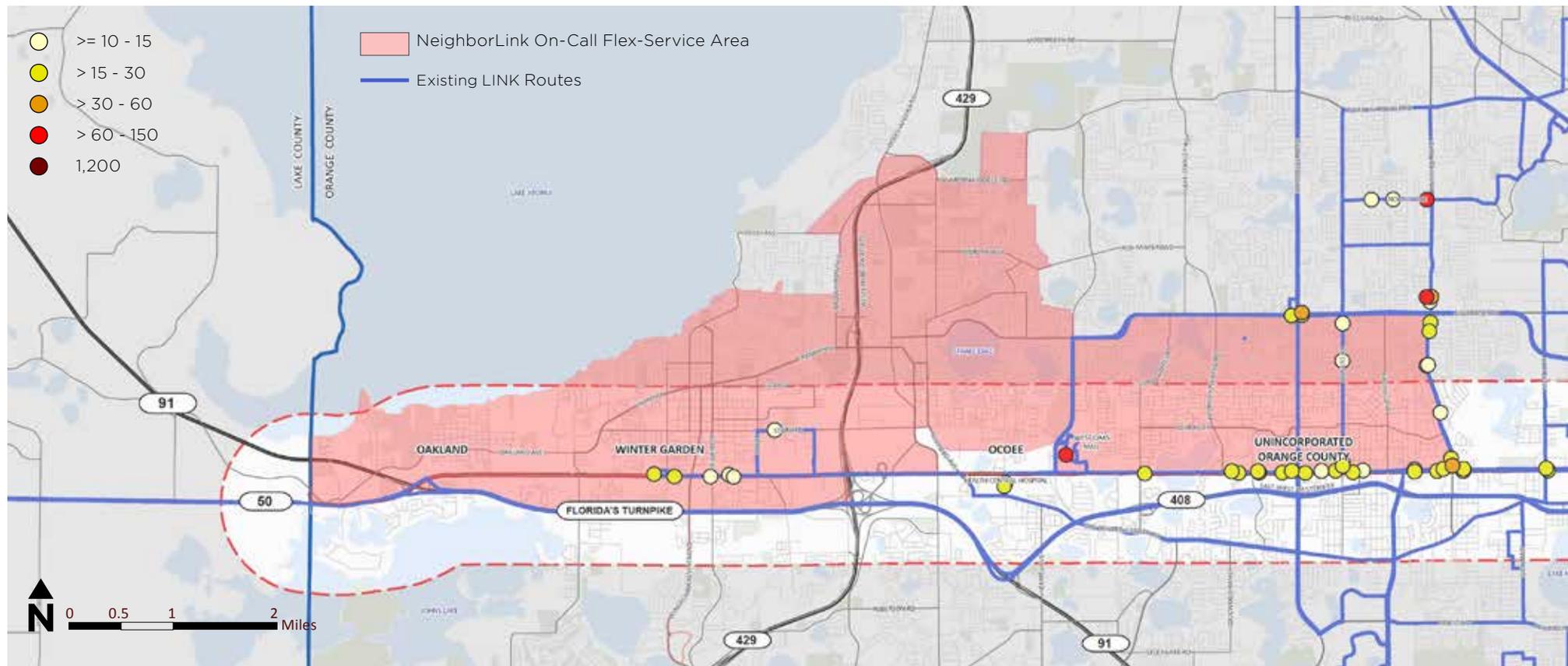
On either end of the Study Corridor, there are four service areas served by LYNX's on-demand transit service, NeighborLink:

- Link 611 - Ocoee NeighborLink
- Link 612 - Winter Garden NeighborLink
- Link 613 - Pine Hills NeighborLink
- Link 621 - Bithlo/Wedgefield NeighborLink

There are certain sections of the Study Corridor that exhibit high transit ridership. Premium transit can build on these high ridership sections near Fashion Square Mall, between Hiawassee Road and Maguire Road, and SR 436 (as shown in *Figure 22*). Through the public involvement process, some of these communities expressed the desire to have transit “hubs” in these high activity areas. Some

community members also currently perceive bus transit as being unsafe, inconvenient, or slow. Future transit service can only be successful if service combats these perceptions by being efficient, timely, and safe.

Figure 22 - Average Daily Boarding and Alightings at Stops along SR 50



Source: Ridership from LYNX APC Data (October to December 2012). Routes and stop locations from LYNX GIS Data. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

NEED 3 INCREASE TRANSIT RIDERSHIP

Goals

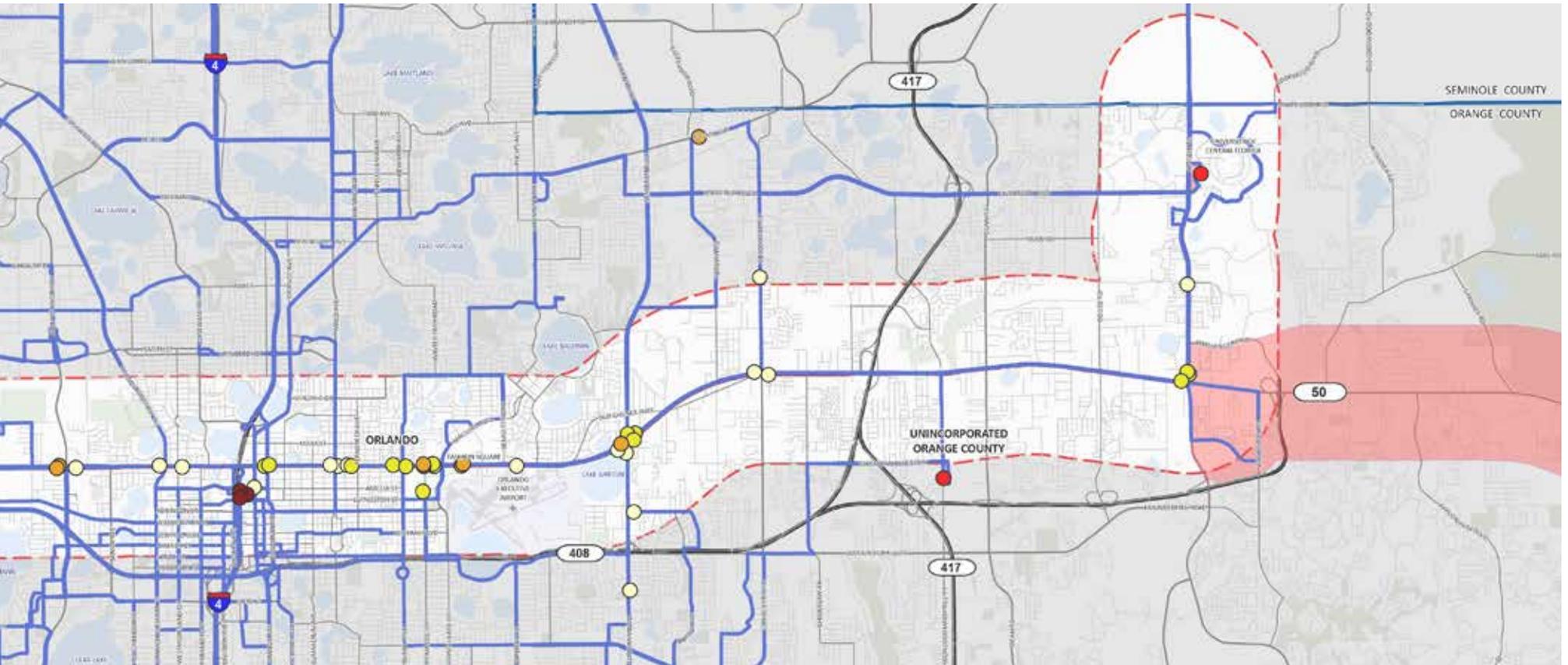
Attract new riders

Serve existing and future activity centers

Objectives

Provide service that is competitive with alternatives in terms of trip time, frequency, and convenience
Effectively market transit as an option to choice riders

Increase catchment/service area

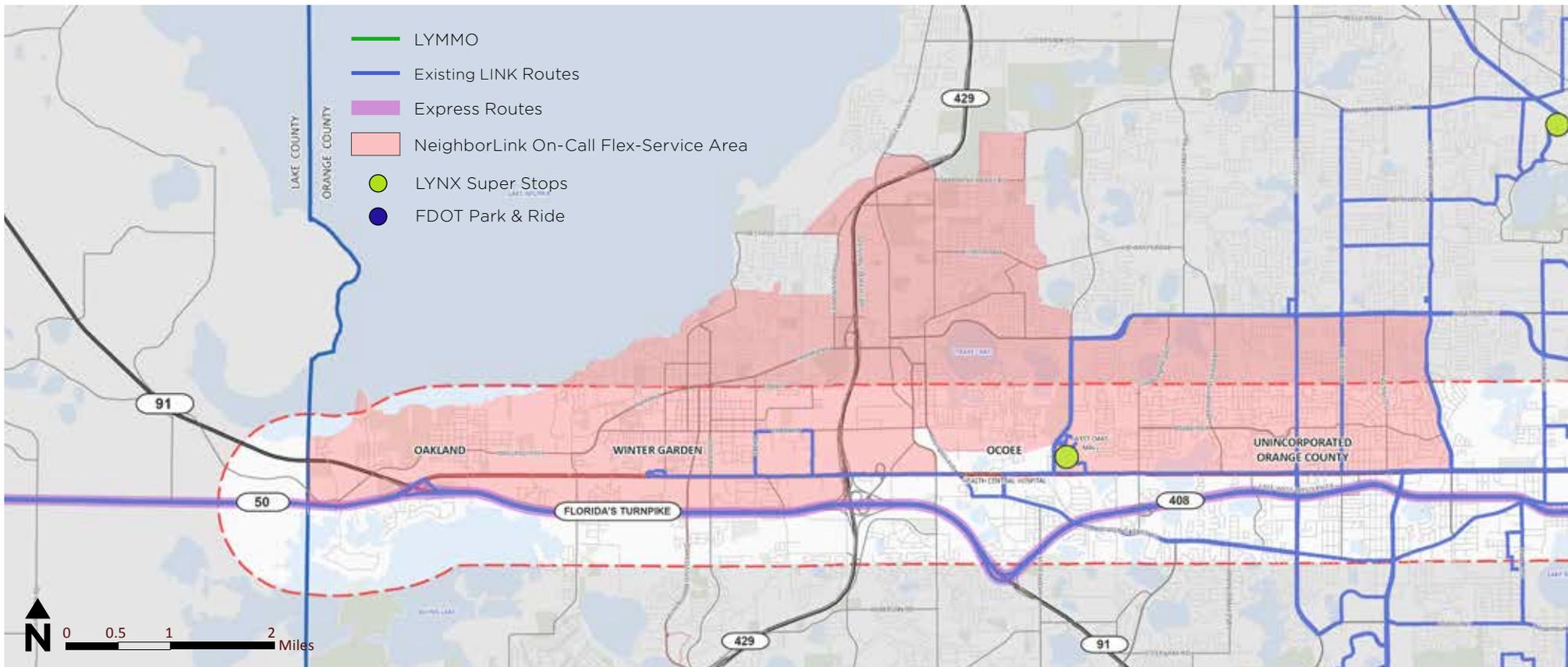




NEED 4 SUPPORT LYNX STRATEGIC PLAN AND REGIONAL TRANSIT NETWORK

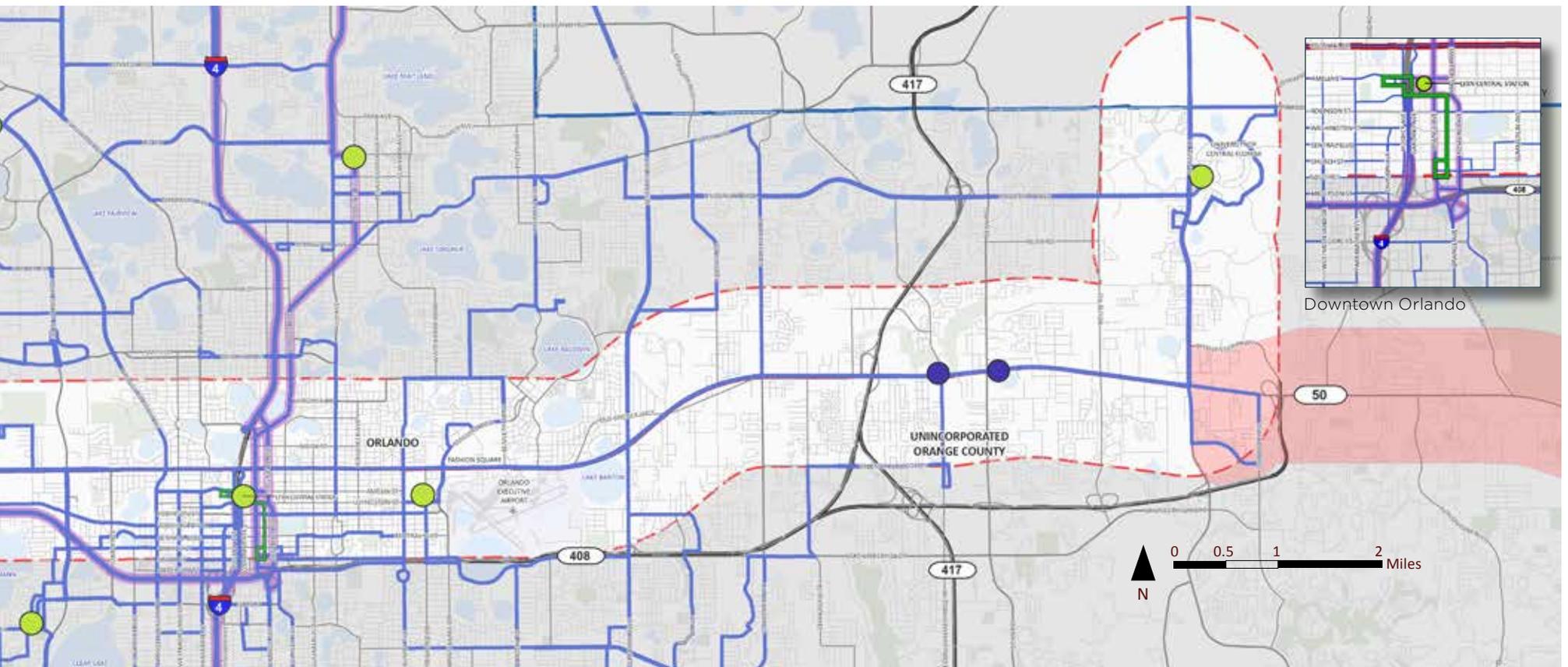
Providing a robust supporting network is crucial to reaching the activity centers outside the corridor study area. *Figure 23* shows the region's existing transit network. Both the land use analysis and public input showed that providing effective connections to the system-wide transit network is very important for regional mobility. Specifically, this can be done through a number of strategies including accurately anticipating regional transit investments and providing quick and efficient transfers between routes. SR 50

Figure 23 - Existing Transit Network



Source: Routes and stop locations from LYNX GIS Data. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

premium transit can enhance key regional and local investments that have already been made and those being advanced by various agencies in the Study Corridor including SunRail, LYMMO, and other high capacity transit corridors like SR 436, US 441, and the OIA Connector. Seamless connections between these current and future premium transit opportunities will enhance system-wide performance and effectiveness of these investments.



Note: Since the writing of the Existing Conditions report, SunRail and LYMMO Grapefruit line has opened along with various changes to the LYNX fixed route system including the re-routing of Link 104 along Robinson Street in the Downtown area and changes to NeighborLink 621 (Bithlo) and LYMMO Orange Line.

FDOT and its regional partners have invested in SunRail, the region's first commuter rail line. SunRail provides a solid north-south connection from DeBary through the northern suburbs of Orlando, Downtown Orlando, to the Pine Castle area and the jobs and residential areas located along the SunRail Corridor. SR 50 premium transit will significantly extend SunRail's reach, more than doubling the number of residential dwelling units within a 10-minute walk of premium transit (from 7,400 to 19,400) and almost doubling the number of jobs within a 10-minute walk of premium transit (from 109,000 to 190,000). In addition, SR 50 premium transit will result in 150% more SunRail station area workers being able to access their current SunRail area jobs by premium transit.

NEED 4 SUPPORT LYNX STRATEGIC PLAN AND REGIONAL TRANSIT NETWORK

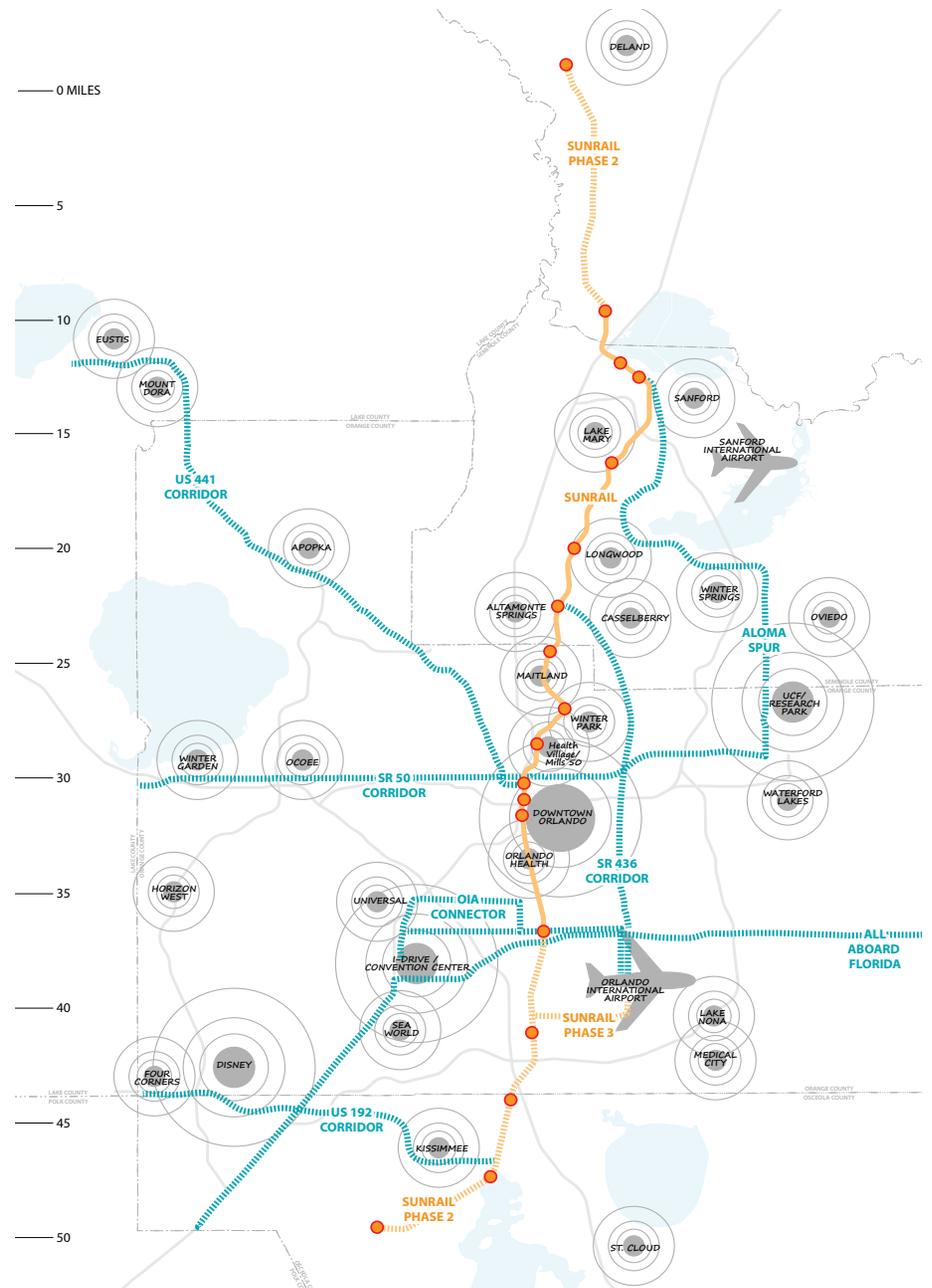
Goals

Provide effective connections to regional transit network

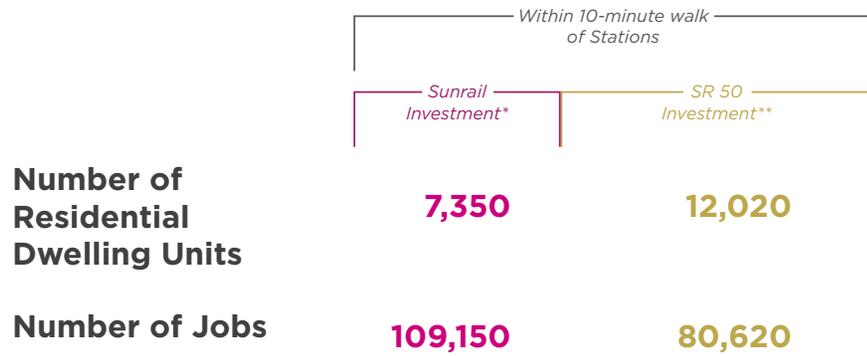
Objectives

- Provide quick and efficient transfers
- Increase station area connectivity to other modes
- Connect to and support SunRail and LYMMO seamlessly
- Coordinate and promote bike sharing and carsharing

CENTRAL FLORIDA REGIONAL TRANSIT INITIATIVES



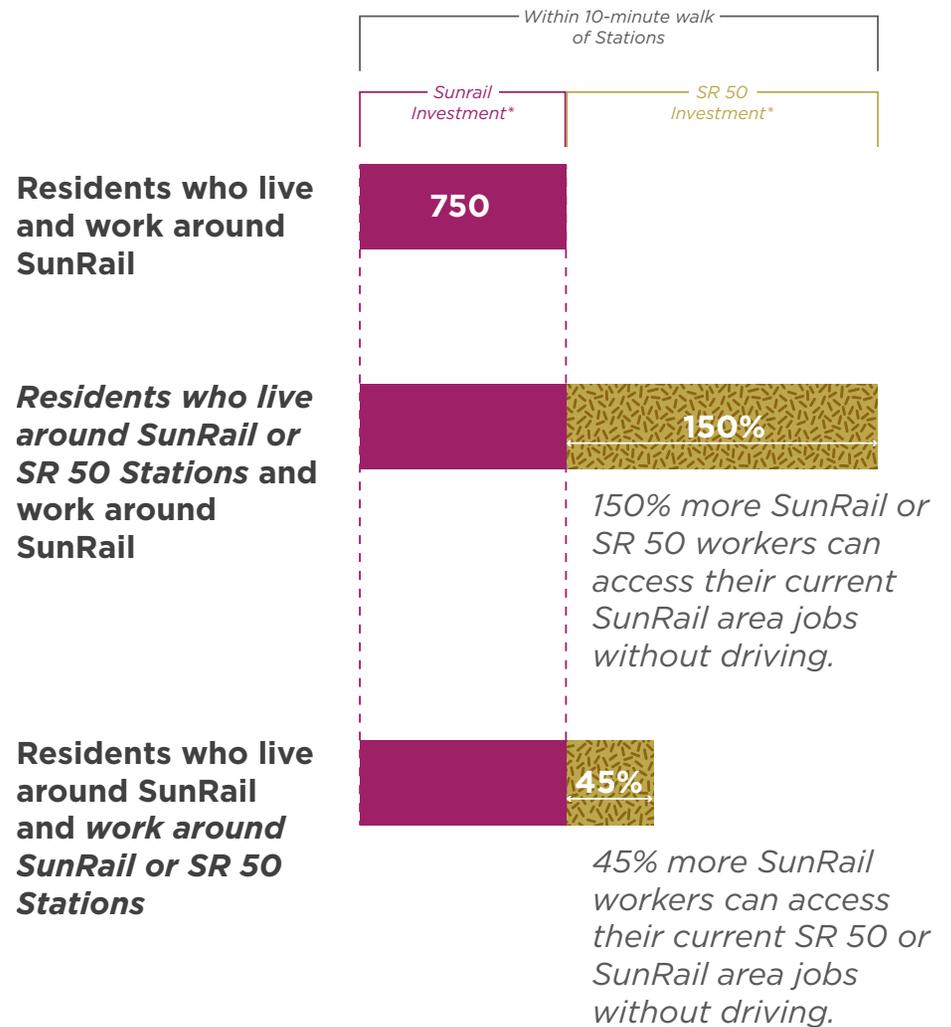
SUNRAIL AND SR 50'S POTENTIAL TRANSIT REACH



* Based on SunRail TOD Metrics, Florida Department of Transportation

** Based on 2010 US Census and 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor.

PREMIUM TRANSIT INVESTMENT ON SR 50 CAN SIGNIFICANTLY EXPAND SUNRAIL'S REACH



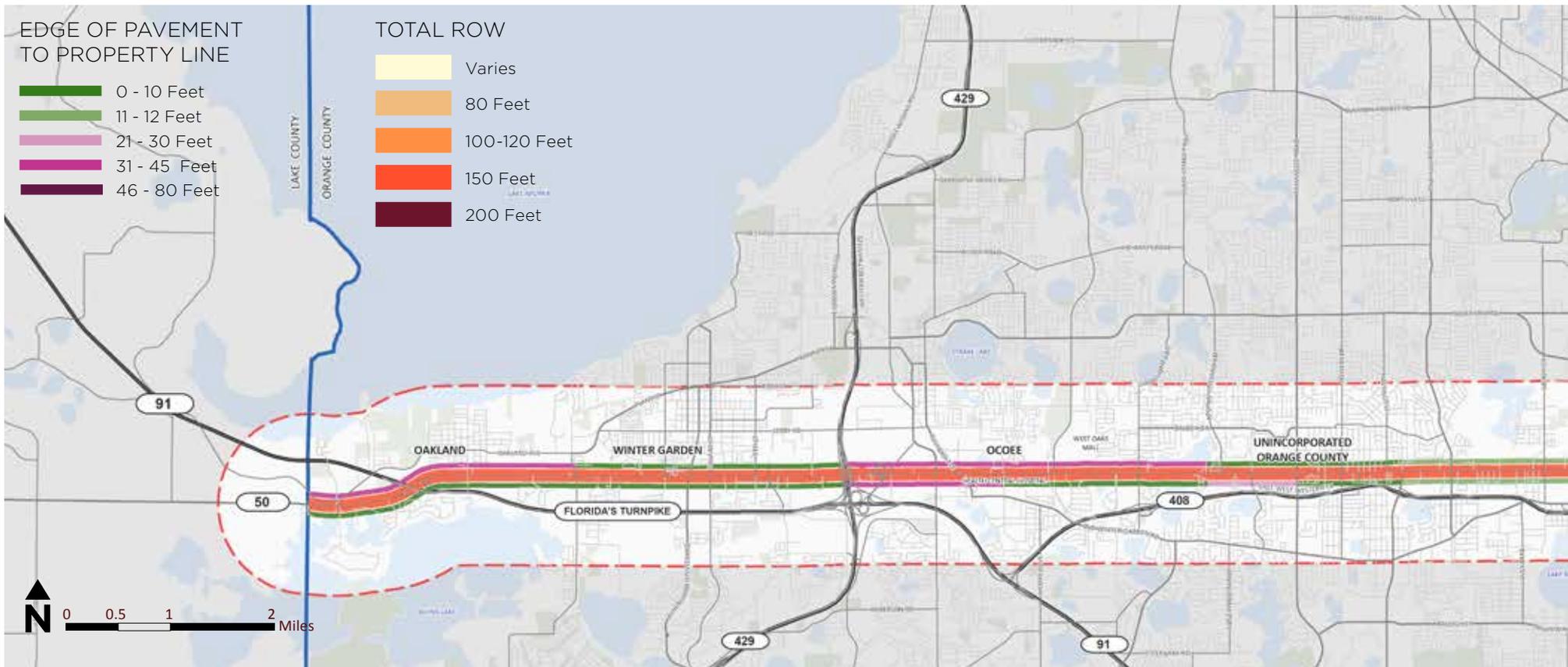
* Data based on 2010 Longitudinal and Employment Dynamics Data, US Census Bureau and US Department of Labor.



NEED 5 INVEST IN TRANSIT IMPROVEMENTS THAT ARE FISCALLY RESPONSIBLE

Funding is limited at all levels of government. The latest MetroPlan Orlando LRTP indicated a large gap between transit visions and plans and what is financially feasible for the Region. Now more than ever it is important that any transit investment, including potential SR 50 premium transit, consider long term financial feasibility and effectively leverage public funds. Corridor stakeholders agree with this. It was found that they generally desire that transit investments should be leveraged to attract public/private partnership throughout

Figure 24 - Corridor Right-of-Way Conditions

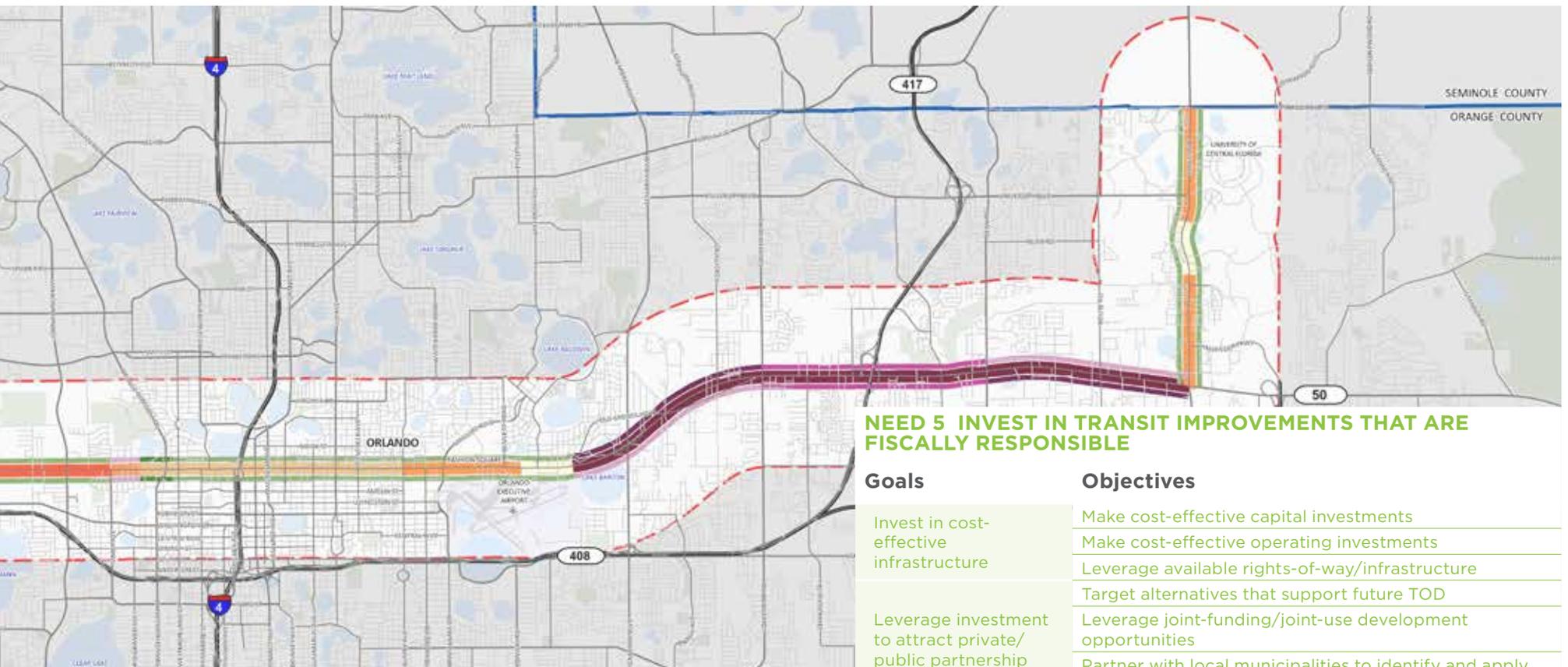


Source: Right-of-Way (ROW) information from Florida Department of Transportation ROW Maps. Basemap information from ESRI, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community.

the corridor. In addition, agency stakeholders want to ensure that any proposed alternative consider longer-term transit operating and maintenance needs.

As seen in *Figure 24*, there are sections of the SR 50 corridor which have limited right-of-way (ROW) available for additional exclusive transit lanes. Seen in combination with *Figure 10*, it is evident that in sections of SR 50 with the least amount of roadway capacity (LOS

D or F), ROW is also the most limited. These constrained conditions provide a challenge when considering exclusive ROW premium transit options. On the other hand, in the sections of the SR 50 corridor with more ROW, there is also plenty of roadway capacity (LOS C or above). To provide a solution that is cost-effective and operationally efficient, any implementation of exclusive ROW premium transit would need to balance the need for exclusive lanes with the ability to service and not impact existing uses.



NEED 5 INVEST IN TRANSIT IMPROVEMENTS THAT ARE FISCALLY RESPONSIBLE

Goals

- Invest in cost-effective infrastructure
- Leverage investment to attract private/public partnership
- Identify sustainable funding sources

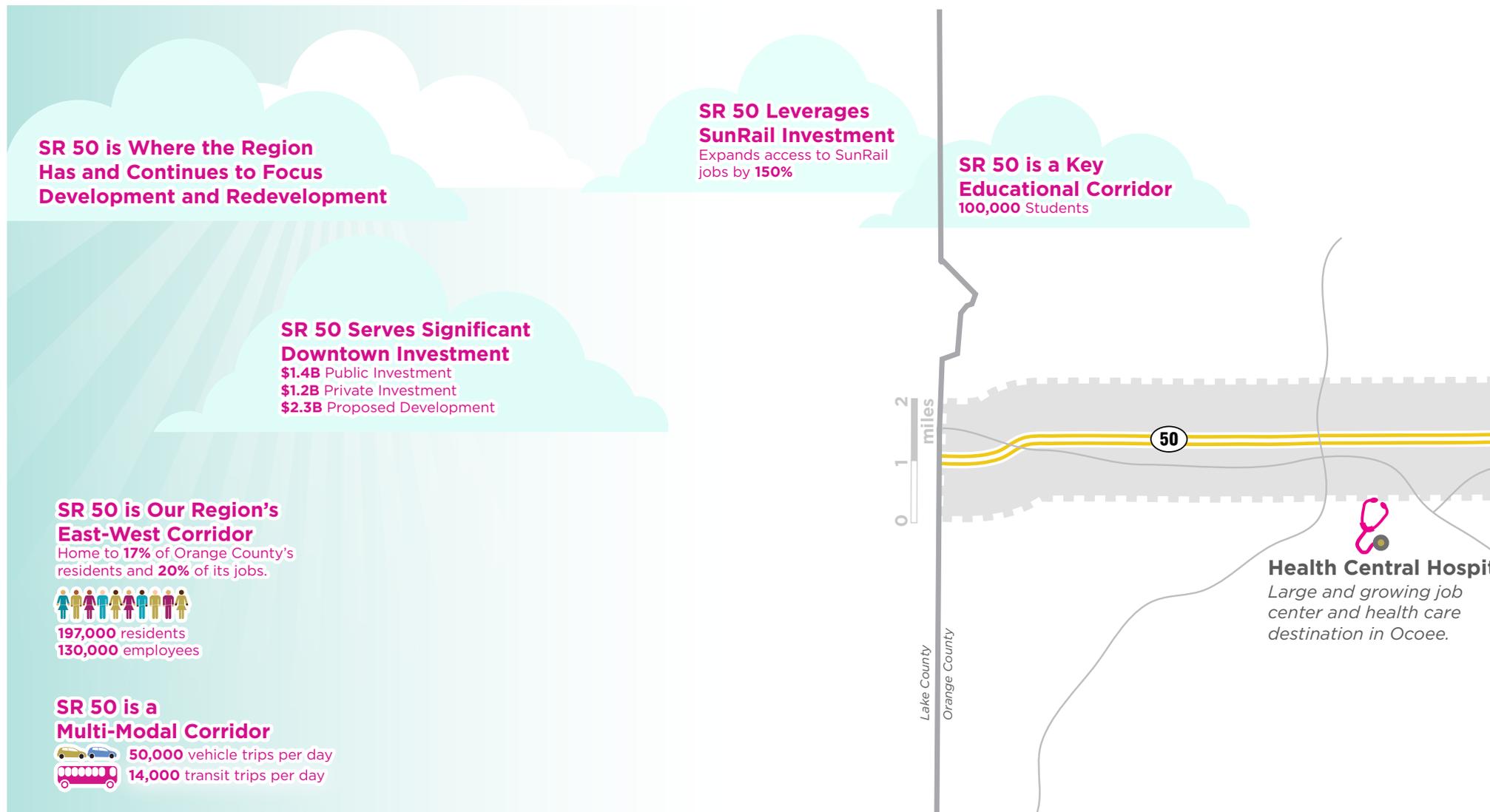
Objectives

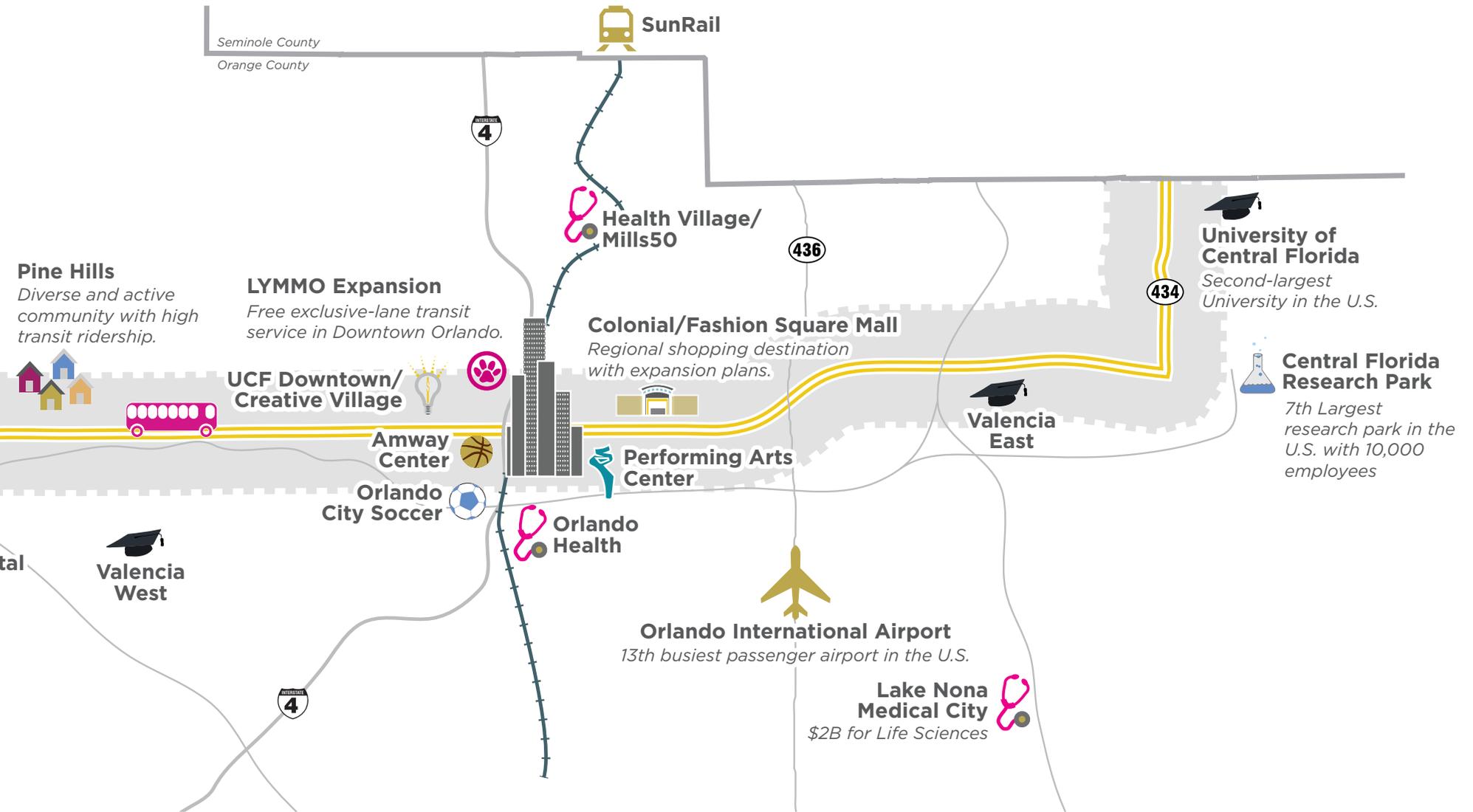
- Make cost-effective capital investments
- Make cost-effective operating investments
- Leverage available rights-of-way/infrastructure
- Target alternatives that support future TOD
- Leverage joint-funding/joint-use development opportunities
- Partner with local municipalities to identify and apply for transit and TOD funding
- Target other funding sources

Summary of Needs, Goals, and Objectives

By having a clear understanding of the purpose of the Study and needs of the corridor (synthesized in *Figure 25*), the Study Team identified goals along with more specific objectives. Together, this list of Needs, Goals, and Objectives (shown on the next page) provided the evaluation framework used during the screening process.

Figure 25 - Synthesis of the SR 50 Corridor Needs and Context





Needs	Goals
	ENHANCE ACCESS TO JOBS AND EDUCATIONAL OPPORTUNITIES BY IMPROVING EAST-WEST TRANSIT MOBILITY
	ENCOURAGE DEVELOPMENT AND REDEVELOPMENT THAT SUPPORTS TRANSIT CONSISTENT WITH COMMUNITY GOALS
	INCREASE TRANSIT RIDERSHIP
	SUPPORT LYNX VISION 2030 PLAN AND THE REGION'S TRANSIT NETWORK
	INVEST IN TRANSIT IMPROVEMENTS THAT YIELD SUBSTANTIAL AND SUSTAINABLE RETURNS AND ARE FISCALLY RESPONSIBLE
	Improve service for existing transit riders
	Improve access to jobs and educational institutions
	Encourage development of activity/mixed-use nodes
	Improve walkability
	Strengthen/preserve existing neighborhoods
	Minimize adverse environmental impacts
	Create “places” and develop sustainable, healthy communities
	Attract new riders
	Serve existing and future activity centers
	Provide effective connections to regional transit network
	Invest in cost-effective infrastructure
	Leverage investment to attract private/public partnership
	Identify sustainable funding sources

Objectives

Improve transit travel times in corridor

Improve transit reliability

Address congestion-related delay for transit vehicles

Improve connectivity/access to economic and educational centers via transit

Serve areas with development/redevelopment potential

Serve areas with zoning/future land use that allows higher intensity development and mixed uses

Serve planned transit-supportive development

Create family, leisure, entertainment places to go/stay

Increase station area street connectivity

Provide safe and appealing pedestrian facilities and environments between transit and destinations

Provide transit service to existing neighborhoods

Minimize adverse impacts on existing neighborhoods

Minimize adverse impacts on human and natural environment

Minimize adverse impacts on existing businesses

Apply context-sensitive roadway design

Provide service that is competitive with alternatives in terms of trip time, frequency, and convenience

Effectively market transit as an option to choice riders

Increase catchment/service area

Provide quick and efficient transfers

Increase station area connectivity to other modes

Connect to and support SunRail and LYMMO seamlessly

Coordinate and promote bike sharing and carsharing

Make cost-effective capital investments

Make cost-effective operating investments

Leverage available rights-of-way/infrastructure

Target alternatives that support future TOD

Leverage joint-funding/joint-use development opportunities

Partner with local municipalities to identify and apply for transit and TOD funding

Target other funding sources



Alternatives Analysis

Alternatives Analysis

Alternatives were developed for different aspects of the SR 50 premium transit line. The alternatives analysis included:

- Screening of transit modes;
- Three-tiered screening of alignments (segments, long-list, and short-list); and
- Evaluating operating scenarios that addressed integration with existing LYNX system.

The analysis followed the same basic three-round structure as the public involvement and agency coordination schedule as shown in *Figure 26*.



LYMMO Orange Line

Figure 26 - Technical Analysis and Public Engagement Approach

- 26 segments/alignments were screened to arrive at a long-list of alternative alignments for the entire Study Corridor
- The full list of modes was screened to arrive at a list of five viable modes
- Travel times were analyzed for the long-list of alignments
- A short-list of community supported alignments was chosen
- Smaller set of modes was determined
- The segment with the most immediate need was determined
- Locally Preferred Alternative (LPA) was selected and defined

TECHNICAL ANALYSIS

PUBLIC ENGAGEMENT

OUTCOME

1



PUBLIC ENGAGEMENT ROUND 1



LONG-LIST OF ALIGNMENTS & INPUT ON LONG-LIST OF ALIGNMENTS

APR 2013 -
MAR 2014

2



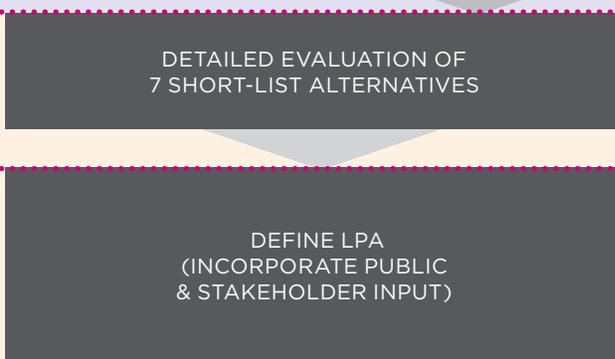
PUBLIC ENGAGEMENT ROUND 2



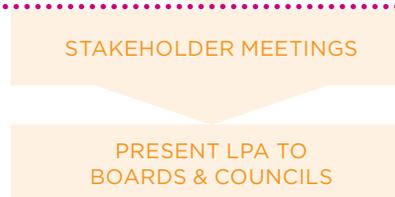
SHORT-LIST OF COMMUNITY SUPPORTED ALIGNMENTS & INFORMATION ON OPERATIONAL NEEDS

APR - MAY
2014

3



PUBLIC ENGAGEMENT ROUND 3



7 PREMIUM TRANSIT ALTERNATIVES

DEFINED & ADOPTED LPA

JUN - NOV
2014

DEC 2014 -
MAR 2015

Screening of Transit Modes

The alternatives analysis started with evaluating a full range of transit modes – local bus, enhanced bus, bus rapid transit (BRT), modern streetcar, light rail transit (LRT), commuter rail transit (CRT), heavy rail transit (HRT), personal rapid transit (PRT), monorail/people mover, high speed rail (HSR), and Magnetic Levitation (MagLev). Below shows a summary of operating characteristics for each mode evaluated.



LOCAL/ CITY BUS

- Can serve 40 to 75 passengers per vehicle
- Operates on a fixed route and fixed schedule
- Stops every 500 feet to 1 mile, most common spacing is 1,000 feet to 1,200 feet
- Generally a mix of federal and local funding to implement
- Typical capital costs are between \$250,000 and \$500,000 per mile



ENHANCED BUS

- Can serve up to 120 passengers per vehicle
- Runs in mixed-traffic
- Fewer stops, farther apart
- Longer routes, connecting city centers to smaller suburban centers
- May have enhanced stations
- May use transit signal priority
- Typically have strong branding and image
- Regular buses or larger buses
- Peak periods or all-day service
- Typical capital costs are between \$1 and \$2 million per mile



BUS RAPID TRANSIT

- Can run in mixed traffic or exclusive rights-of-way
- Stations typically spaced between ½ mile and 2 miles
- Enhanced stations
- Enhanced ticketing/off-board payment
- Employs transit signal priority or queue jumps
- Modern vehicle design using rubber-tired vehicles
- Branded service; buses have strong branding/image
- Service frequency is typically between 8 to 20 minutes
- Route length varies but could provide urban and regional service
- Typical capital costs are between \$4 and \$40 million per mile



MODERN STREETCAR

- Can operate in exclusive lanes or in mixed traffic
- Runs on embedded steel rail tracks
- Typical applications are for in-town and local trips
- Typical station spacing is between a 1-2 blocks (200 – 300 feet), ½ mile to 1 mile spacing outside of downtown areas
- Enhanced ticketing/off-board payment
- Runs in short segments within urban core and neighborhoods at an operating speed of between 8 to 12 mph
- Typical capital costs are between \$25 and \$50 million per mile¹



LIGHT RAIL TRANSIT

- Electric powered rail cars propelled by overhead catenary wires
- Can operate in exclusive lanes, at-grade or grade-separated
- Station spacing typically is 1 to 3 miles
- Enhanced ticketing/off-board payment
- Service frequency between 5 to 30 minutes
- Route length is typically between 5 and 25 miles
- Typically operates at speeds between 20 and 60 mph
- Typical capital costs are \$45 and \$130 million per mile²



COMMUTER RAIL TRANSIT

- Operates in exclusive ROW
- Typically operates at speeds between 30 and 60 mph
- Typically urban passenger train service consisting of commuting travel operating between a central city and adjacent suburbs
- Service frequency is typically between 20 to 30 minutes at peak
- Typical station spacing is 3 miles or more
- Typical capital costs are between \$3 and \$25 million per mile



HEAVY RAIL TRANSIT

- Typically consist of steel-wheeled, electric powered vehicles operating in trains of two or more cars
- Operates on fully grade-separated right of way
- Typically operates at speeds between 50 and 80 mph
- Provides regional, urban type of service
- Typical distance between stations in the urban core is less than one mile while in the periphery between 1 and 5 miles
- Service frequency averages 5 to 10 minutes at peak
- Typical capital costs are between \$50 and \$250 million per mile



PERSONAL RAPID TRANSIT

- Small automated vehicles can operate very quietly on grade separated, exclusive-use guideway
- Typically operates at speeds between 25-45 mph
- Each car carries between 3-6 people at a time
- Typically serve relatively small areas such as academic campuses and airports
- Often used as a “last-mile” application in conjunction with other transit modes
- Can operate at extremely low headways (as low as 2 seconds) to provide almost continuous vehicle availability
- Typical capital costs are between \$10 and \$26 million per mile³



MONORAIL/ PEOPLE MOVER

- Single rail track that operates in an elevated configuration
- Typically operates at speeds up to 45 mph
- Fully-automated and grade-separated
- Serves relative small area such as airports, parks, or districts
- Typical capital costs are between \$140 and \$200 million per mile⁴



HIGH SPEED RAIL

- HSRs have the same characteristics as CRTs but at substantially higher speeds.
- Typically operates at speeds of up to 150 mph, and dedicated track in some countries now exceed 200 mph
- Does not operate in roadway rights-of-way
- Used for intercity and interstate travel
- Typical capital costs are between \$2.4 and \$67 million per mile⁵



MAGNETIC LEVITATION

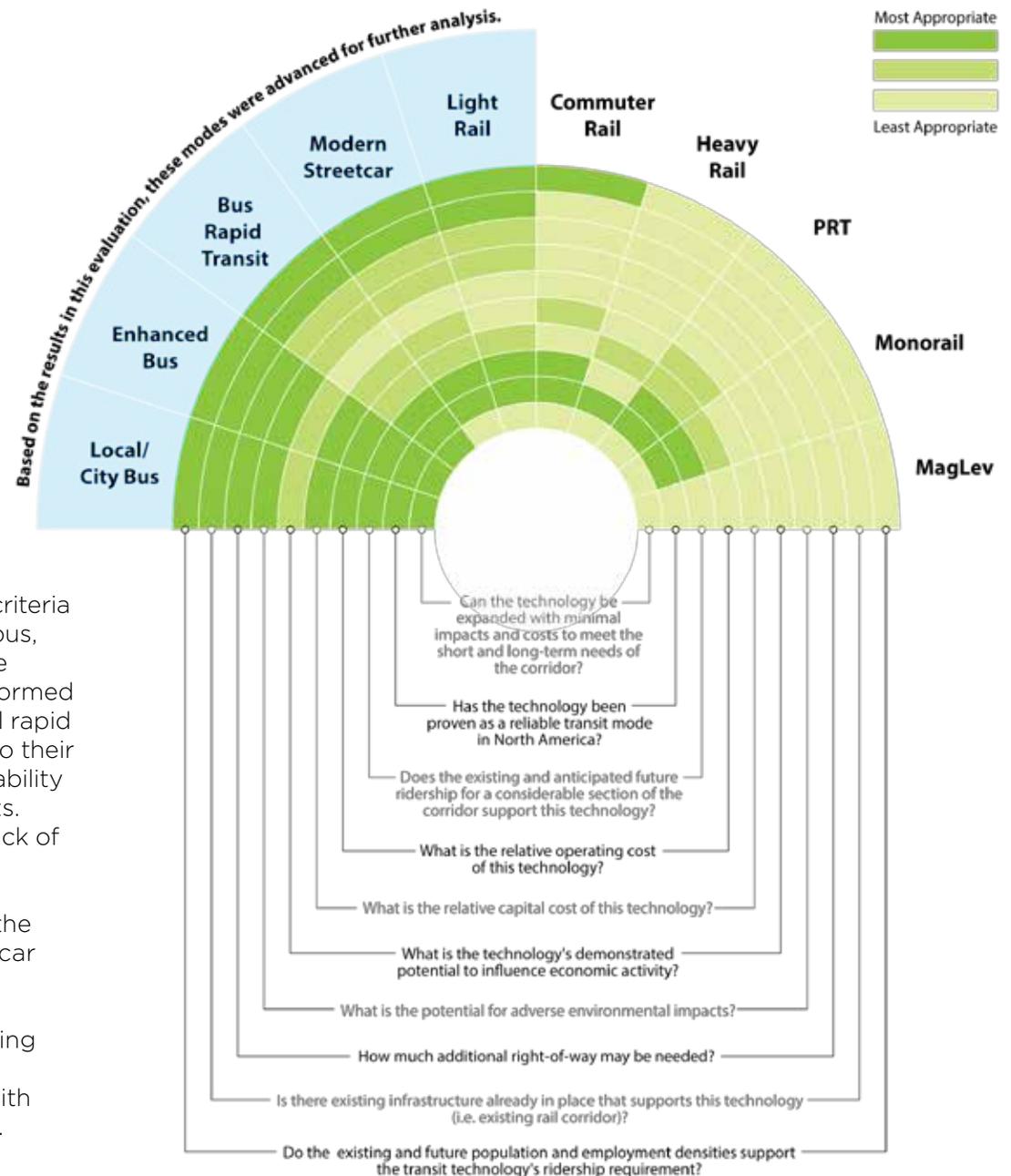
- MagLev is relatively new and currently has three public systems around the world (Japan, China, and South Korea)
- Average top speeds are between 250-350 mph
- Operations occur on a raised track above ground that cannot be paired with traditional or other transit types
- Technology based on magnet attraction and repulsion and can operate quietly (60-65 decibels)
- Typical capital costs are between \$96 and \$684 million per mile⁶

- 1 Estimates developed based on Tucson Modern Streetcar (\$47 million/mile) and the Tempe Streetcar (\$48 million/mile)
- 2 Estimates developed based on the Charlotte South Corridor LRT (\$48.2 million/mile), Houston University Corridor LRT (\$130 million/mile), Denver/Southeast Corridor LRT (\$45 million/mile), Minneapolis/Hiawatha Corridor LRT (\$58 million/mile)
- 3 Estimates developed based on cost of West Virginia University PRT and Heathrow Airport Ultra PRT
- 4 Estimates developed based on cost of the Las Vegas Monorail at \$141.9/mile
- 5 Estimates developed using cost projected for the Midwest system (\$2.4 million/mile), New York system (\$3.9 million/mile), Florida (\$22 to \$27 million/mile), and the California system (\$67 million/mile).
- 6 Estimates developed using various costs for the existing Shanghai MagLev system (\$684 million/mile) and projected cost from the Baltimore-Washington MagLev EIS (\$96 million/mile)

THE TRANSIT MODES WERE SCREENED BASED ON:

- Consistency with the Study Area's existing and future context
- Cost-effectiveness
- If the mode is a sustainable and proven technology

Table 1a - Transit Mode Screening



Long-list of Transit Modes

Each of the screening factors had more specific screening criteria associated with them as outlined in *Tables 1a and 1b*. Local bus, enhanced bus, bus rapid transit, streetcar, and light rail were supported by the PAWG and a qualitative analysis was performed on each of these modes. Commuter rail, heavy rail, personal rapid transit, and monorail were screened out first primarily due to their high ROW impacts, high supporting peak hour ridership, inability to be easily expanded in the future, and/or high capital costs. MagLev technology was screened out primarily due to its lack of proven effectiveness in the United States.

The long-list of transit modes were further screened, and the PAWG and study team agreed that the light rail and streetcar modes were not cost-effective investments for the SR 50 Corridor given their relatively high capital costs and low compatibility with existing transit fleets and facilities. Existing local bus will remain along the corridor. The existing local bus service is already operating at an optimum capacity with combined 15-minute peak and 30-minute off-peak service.

Table 1b – Long-list Mode Screening

Screening Criteria		Local/ City Bus	Enhanced Bus	Bus Rapid Transit	Modern Streetcar	Light Rail	Commuter Rail	Heavy Rail	PRT	Monorail	MagLev
CONSISTENCY WITH CONSIDERABLE SECTIONS OF THE STUDY AREA'S EXISTING AND FUTURE CONTEXT	Existing Population and Employment Density	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
	Available/ Existing Infrastructure	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
	Right-of-Way Impacts	Low	Low	Low to Med.	Low to Med.	Med. to High	High	High	High	High	High
	Environmental Impacts	Low	Low	Low to Med.	Low to Med.	Med. to High	High	High	High	High	High
	Economic Development Impact	Low	Low	Med.	Med.	Med. to High	Low to Med.	Med. to High	N/A	Med.	N/A
COST-EFFECTIVENESS	Capital Cost	Low	Low	Med.	Med.	High	Med.	High	Med.	High	High
	Operating Cost	Low	Low	Low to Med.	Med.	Med.	High	Med.	Med.	Med. to High	High
	Peak Hour Ridership	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No
SUSTAINABLE AND PROVEN TECHNOLOGY	Maturity	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	Expandability	Yes	Yes	Yes	No	No	No	No	No	No	No

Short-List of Transit Modes

Enhanced Bus and Bus Rapid Transit were advanced to further evaluation in terms of costs and impacts as part of the short-list alternatives. Based on discussions with the PAWG, the Streetcar mode was also advanced to the short-list alternative testing to have a reference for understanding the performance of “rail-type” modes. These three short-listed modes were tested on the segment with the highest need.

Screening of Alignments

In order to arrive at the most operationally efficient and cost-effective alignment, the Study Team analyzed multiple parallel roadways in segments where the Study Corridor has relatively higher levels of congestion, constrained right-of-way, and available parallel network. These segments are in the Downtown Orlando and the SR 436/Old Cheney area. In addition, it was also understood that the proposed alignment would need to connect to LYNX Central Station to allow it to interface with more than 30 LYNX routes that the station serves. The Study Team conducted a three-tiered screening of alignments to determine the overall alignment for routing the proposed premium transit:

- 1) Evaluating roadway segments,
- 2) Evaluating the long-list alignments, and
- 3) Evaluating the short-list alignments.

1) Evaluating Roadway Segments

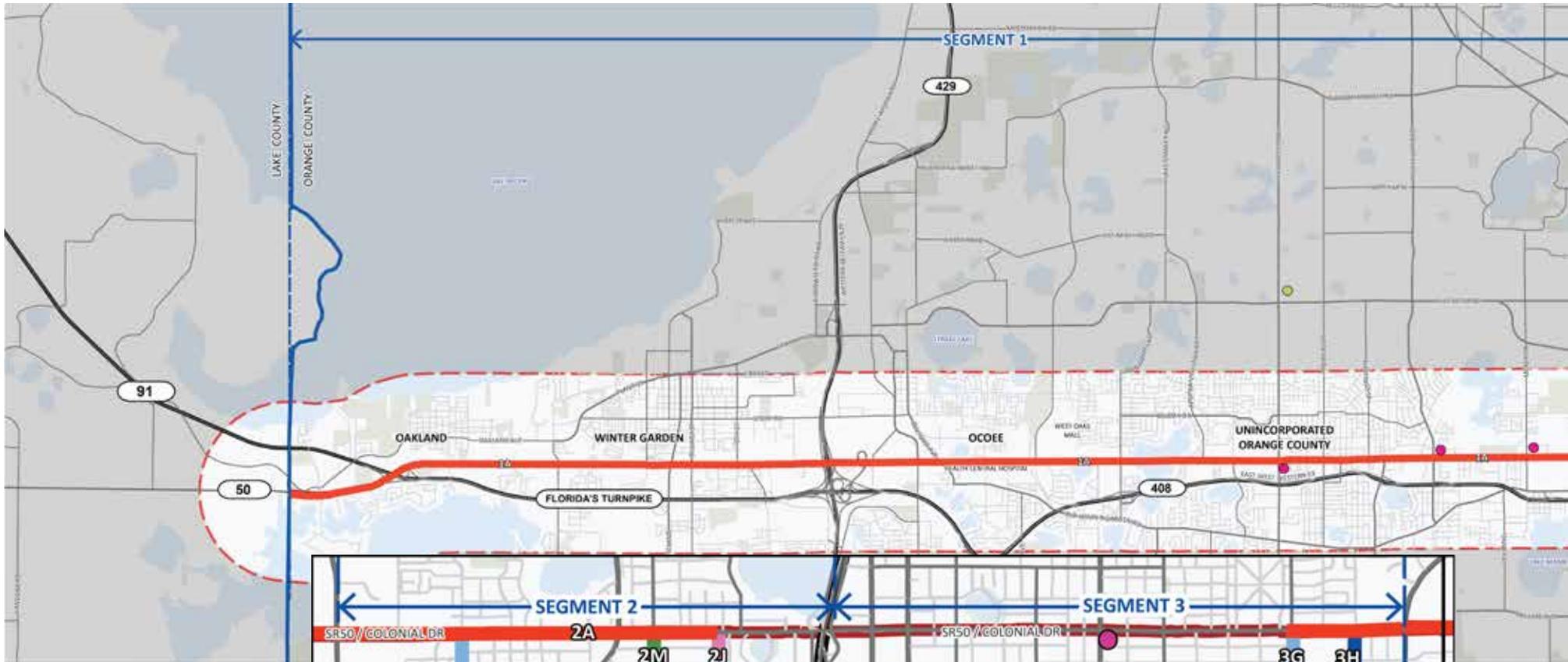
The Study Corridor was split into four different segments as illustrated in *Figure 27*. There were a total of 27 segment alternatives analyzed across all four corridor segments (shown in *Figure 27*). In the Downtown Orlando area (Segments 2 and 3), parallel and intersecting street segments along the Corridor were identified as potential alternatives to SR 50.

The full list of segment alternatives was evaluated using the evaluation framework based on the five stated needs of the corridor. These performance measures included potential for excess vehicular capacity, job and population density, percentage of alignment within CRA, availability of bike and pedestrian infrastructure, minority populations, access to regional transit facilities, and presence of existing exclusive transit lanes. The full roadway segment evaluation matrix can be found in Appendix B.

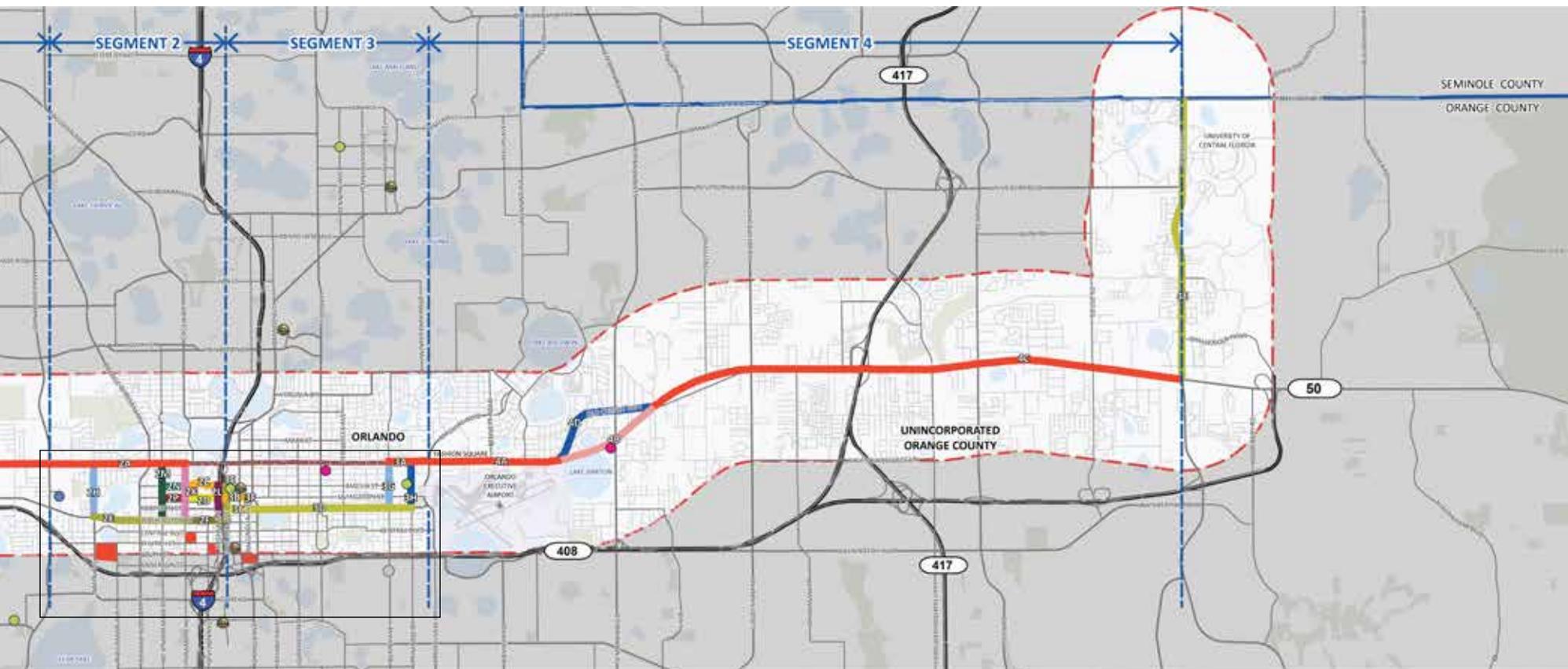




Figure 27 - Roadway Segment Alignment Alternatives



Segments 2 & 3 Alignments Alternatives



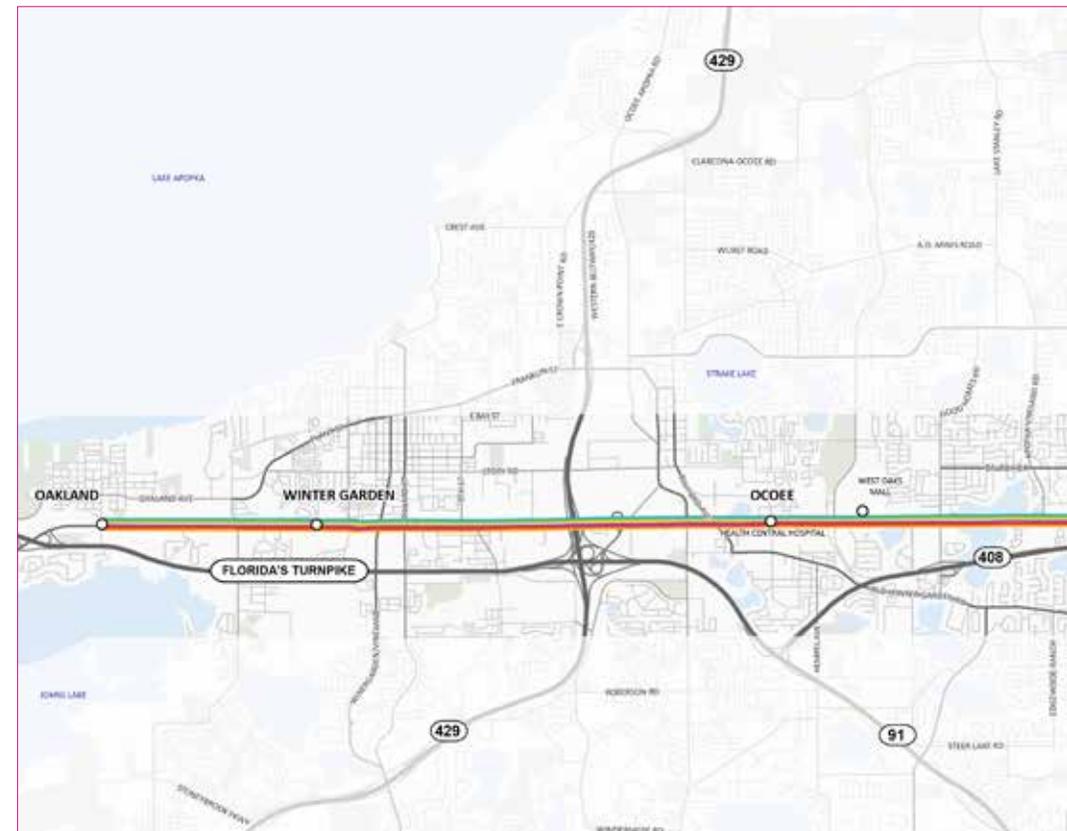
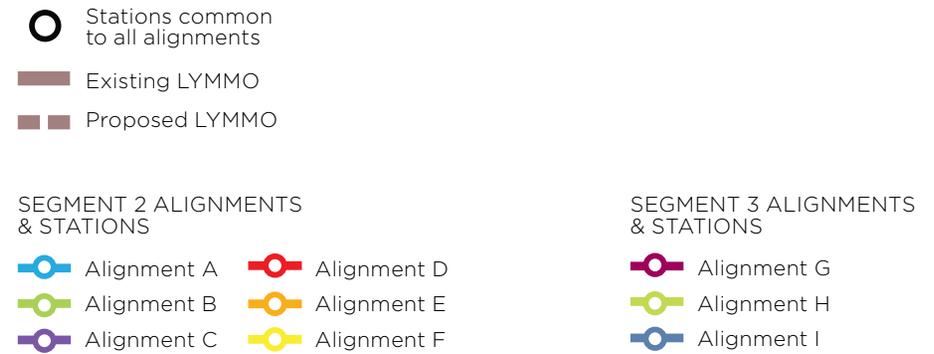
The evaluation resulted in the identification of six continuous alignment alternatives that were made up of the highest ranking segments. These alignments were presented to the public during the series of open houses. Based on the input from the public open houses, it was determined that the following segments through Downtown should be added to the evaluation to understand their potential to serve the Mills50 and Uptown areas:

- Along SR 50 between Orange Avenue/Magnolia Avenue (SR 527) and Primrose Drive
- Along SR 50 between Orange Avenue/Magnolia Avenue and US 17-92 (Mills Avenue)
- Along Robinson Street (SR 526) between Orange Avenue/Magnolia Avenue and US 17-92 (Mills Avenue)

This resulted in a long-list of nine alternative alignments (shown in *Figure 28*). Six of these alignments were on the west side of LYNX Central Station (Segment 2) and three were on the east side of LYNX Central Station (Segment 3).

In addition, as part of the long-list identification, preliminary station locations were identified along the Study Corridor every 1-2 miles. These were located based on known high transit origins/destinations, known future development, and potential redevelopment opportunities (presence of vacant and underutilized land). These station locations will be discussed in more detail in The Solution section.

Figure 28 - Long-list of Alignment Alternatives



2) Evaluating the Long-list of Alignments

The nine alignment alternatives went through a second tier of evaluation based on their general performance in meeting the needs of the corridor while also taking into consideration the level of public support and travel time results for each alignment alternative based on the Central Florida regional Plan Model (CFRPM) v5.6 (see SR 50/UCF Connector AA Ridership Report for details). The second tier alignment evaluation matrix is shown in *Figure 29* and a more detailed evaluation matrix is included in Appendix C.

As seen in *Figure 29*, most of the alignments performed similarly and were only distinguished by a couple of factors. For Segment 2 of the corridor, Alignments D, E, and F did a better job of encouraging

development and redevelopment (Need 2), and experienced shorter travel times than the rest of the alignments. These alignment alternatives (Alignments D, E, and F) were advanced to the short-list. Of these, Alignment F performed best, showing the shortest travel time and performing the best at encouraging development and redevelopment that supports community goals.

For Segment 3, Alignment G performed best, showing the shortest travel time and performing well at enhancing access through east-west mobility, increasing corridor ridership, and supporting the LYNX strategic plan/regional transit network. Due to the limited alternative options for this portion of the corridor, all of the alignment alternatives for Segment 3 (Alignments G, H, and I) were advanced to the short-list evaluation.

Figure 29 - Long-list Alignment Alternatives Evaluation

	 NEED 1 BETTER ACCESS TO JOBS AND EDUCATION THROUGH IMPROVED EAST- WEST MOBILITY	 NEED 2 ENCOURAGE DEVELOPMENT AND REDEVELOPMENT THAT SUPPORTS TRANSIT	 NEED 3 INCREASE CORRIDOR TRANSIT RIDERSHIP	 NEED 4 SUPPORT LYNX STRATEGIC PLAN AND REGIONAL TRANSIT NETWORK	 NEED 5 INVEST IN TRANSIT IMPROVEMENTS THAT ARE FISCALLY RESPONSIBLE	 PUBLIC INPUT	 POTENTIAL TO MINIMIZE TRAVEL TIME	 OVERALL RATING
ALIGNMENT								
 Alignment A	Medium High	Medium	Medium	Low	Low	Low	Medium	Medium Low
 Alignment B	Medium	Medium	Medium	Low	Low	Low	Medium	Medium Low
 Alignment C	Medium Low	Medium	Medium	Low	Low	Low	Low	Medium Low
 Alignment D	Medium	Medium High	Medium	Medium	Medium	Medium	High	Medium
 Alignment E	Medium	High	Medium	Medium	Medium	Medium	Medium	Medium
 Alignment F	Medium	High	Medium	Medium	Medium	Medium	High	Medium High
 Alignment G	High	Medium Low	Medium High	High	Medium Low	Medium	High	Medium High
 Alignment H	Medium	Medium	Medium	Medium High	Medium Low	Medium High	Low	Medium
 Alignment I	Medium	Medium High	Medium High	Medium	Low	High	Low	Medium

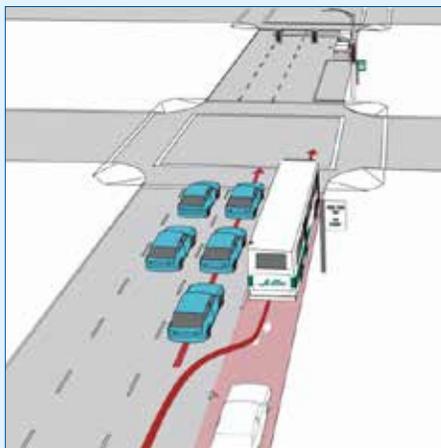
During this evaluation phase, preliminary transit queue jump locations were identified and incorporated into the travel time forecasting. Queue jumps allow the transit vehicle to bypass the vehicle queue at a congested signal. See *Figure 30* for a graphical representation of how a queue jump might operate. Queue jump implementation coupled with transit signal priority (TSP) can result in substantial transit travel time savings, allowing the transit vehicle to proceed through the intersection before the rest of traffic. For the evaluation, the following criteria were developed in conjunction with FDOT Traffic Operations to identify intersections for potential queue jump implementation:

- 1) Presence of right-turn lane along Study Corridor
- 2) The Study Corridor approach experiences high level of congestion and traffic queues are longer than 200 feet
- 3) There is sufficient cross street capacity for transit phase or, if there is no sufficient cross street capacity, it is a major intersection
- 4) There is sufficient right-turn lane length or potential to increase right-turn lane length within existing ROW

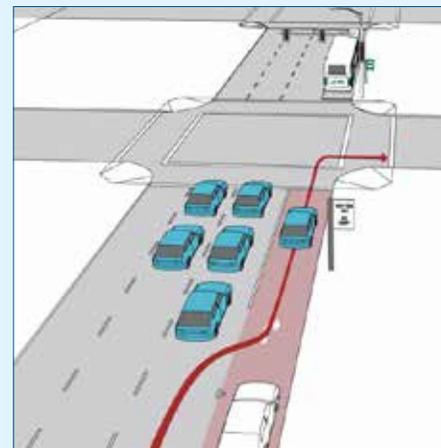
The following intersections along SR 50 were identified for potential queue jump installation and are subject to further operational analysis in the next phase of project development.

- 9th Street
- Highland Lake Plaza entrance
- Hiawassee Road
- Hastings Street
- John Young Parkway (SR 423)
- Parramore Avenue
- Fashion Square Mall/Colonial Landing
- Old Cheney Highway (west)
- SR 417 (SB)
- Constantine Street

Figure 30 – Transit Queue Jump Example



At select intersections, the bus could pull into the designated queue jump/right-turn lane to bypass the through queue.



When coupled with Transit Signal Priority (TSP), the stopped bus gets the green signal before the through traffic to safely and efficiently cross the intersection.

Source: AC Transit

3) Evaluating the Short-list Alternatives

The Short-list of Alternatives was developed using the alignment alternatives resulting from the long-list evaluation and incorporates the short-list of transit modes. The Alternatives also went through the testing of four operating scenarios, as outlined below:

- 1) STREETCAR: Rail-running vehicles operating in mixed traffic (except for LYMMO exclusive lanes) with enhanced stations, TSP, queue jumps, and off-board ticketing
- 2) ENHANCED BUS: Express bus running in mixed traffic (except for LYMMO exclusive lane) with limited stops, enhanced stations, and TSP
- 3) BUS RAPID TRANSIT (BRT): BRT running in mixed traffic (except for LYMMO exclusive lanes), enhanced stations, TSP, queue jumps, and off-board ticketing
- 4) BUS RAPID TRANSIT AND BUSINESS ACCESS & TRANSIT LANE (BRT BAT): BRT running in mixed traffic (except for exclusive LYMMO lanes) and BAT lanes in key locations, enhanced stations, TSP, queue jumps, and off-board ticketing

TRANSIT SIGNAL PRIORITY (TSP) is a strategy for enhancing transit service at intersections by shortening red time and extending green time for transit vehicles when approaching an intersection to allow them to travel through intersections when running 5 or more minutes late. It is different than pre-emption (for emergency vehicles) in that TSP does not immediately skip to the transit phase. TSP was proposed for all short-list alternatives and for the entire corridor along SR 50. FDOT is currently looking to implement TSP on all LYNX routes connecting with SunRail, with SR 50 included in Phase 2 (implementation in 2016) of the Implementation Project. Continued coordination between LYNX and FDOT is needed to ensure SR 50 premium transit TSP is implemented along the SR 50 Corridor.

BUSINESS ACCESS AND TRANSIT (BAT) LANES were evaluated as a possible operating scenario along SR 50. In a BAT lane configuration, the outside lanes of the roadway are reserved for buses and right-turning vehicles only (as seen in *Figures 31, 32, and 33*). They improve access to businesses and residences and typically save time for transit riders by moving the bus out of the general through lanes. Ideal locations for BAT lanes are along congested sections of the roadway where there is already a continuous right-turn lane, or where there is excess capacity to convert the outside through lane to a BAT lane. Specific criteria were developed in conjunction with FDOT for the selection of BAT lane locations. This criteria included:

- LOS D or better,
- three lanes or more, and
- locations where bus travel time would see significant benefit from BAT lane implementation.

Figure 31 - Example BAT Lane Signage



Figure 32 - Example BAT Lane Typical Section

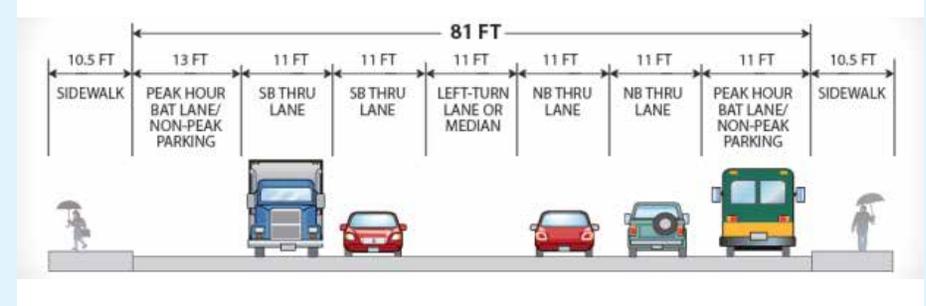


Figure 33 - Example BAT Lane Configuration



Source: City of Seattle and King County, WA

Short-list Alternatives

The seven alternative alignments are described following the corridor from west to east and are also illustrated in *Figure 34*.

The PINK ALTERNATIVE is the Streetcar alternative and would travel along SR 50 from the Lake County line to Parramore Avenue, turn south to use the proposed exclusive lanes of the LYMMO Lime Line along Amelia Avenue and Livingston Street and continue east to LYNX Central Station. From LCS, it would use the existing lanes of the LYMMO Orange line and then turn north onto Orange Avenue/Magnolia Avenue one-way pair to SR 50, travel east along SR 50 to Alafaya Trail, then north to the UCF Campus.

The RED ALTERNATIVE would follow the same alignment as the Pink Alternative but operate as either Enhanced Bus or BRT.

The ORANGE ALTERNATIVE would operate as Enhanced Bus or BRT along SR 50 from the Lake County Line to Parramore Avenue, turn south to use the exclusive lanes of the LYMMO Lime Line along Amelia Avenue and Livingston Street and continue east to LCS. From LYNX Central Station it would use the existing LYMMO Orange line exclusive lanes along Livingston Avenue and Magnolia Avenue, then turn east onto Robinson Street. It would turn north onto Mills Avenue, then east onto SR 50 to Alafaya Trail, then north to the UCF Campus.

The YELLOW ALTERNATIVE would operate as Enhanced Bus or BRT along SR 50 from the Lake County Line to Parramore Avenue, turn south to use the proposed exclusive lanes of the LYMMO Lime Line along Amelia Avenue and Livingston Street and continue east to LCS. From LCS it would use the existing LYMMO Orange line exclusive lanes along Livingston Avenue and Magnolia Avenue, then turn east onto Robinson Street. It would travel east along Robinson Street, turn north onto Primrose Drive, then turn east onto SR 50 to Alafaya Trail, then north to the UCF Campus.

The GREEN ALTERNATIVE would operate as Enhanced Bus or BRT along SR 50 from the Lake County line to Tampa Avenue, turn south to Washington Street where it would turn eastbound and travel to Parramore Avenue. It would then turn north to use the proposed exclusive lanes of the LYMMO Lime Line along Amelia Avenue and Livingston Street and continue east to LCS. From LCS, it would use the existing LYMMO Orange line exclusive lanes and then turn north onto Orange Avenue/Magnolia Avenue one-way pair to SR 50, travel east along SR 50 to Alafaya Trail, then north to the UCF Campus.

The BLUE ALTERNATIVE would operate as Enhanced Bus or BRT along SR 50 from the Lake County line to Tampa Avenue, turn south to Washington Street where it would turn eastbound and travel to Parramore Avenue. It would then turn north to use the proposed exclusive lanes of the LYMMO Lime line along Amelia Avenue and Livingston Street traveling and continue east to LCS. From LCS it would use the existing LYMMO Orange line exclusive lanes along Livingston Avenue and Magnolia Avenue, then turn east onto Robinson Street. It would turn north onto Mills Avenue, then east onto SR 50 to Alafaya Trail, then north to the UCF Campus.

The PURPLE ALTERNATIVE would operate as Enhanced Bus or BRT along SR 50 from the Lake County line to Tampa Avenue, turn south to Washington Street where it would turn eastbound and travel to Parramore Avenue. It would then turn north to use the proposed LYMMO Lime Line exclusive lanes along Amelia Avenue and Livingston Street and continue east to LCS. From LCS it would use the existing LYMMO Orange line exclusive lanes along Livingston Avenue and Magnolia Avenue, then turn east onto Robinson Street. It travel east along Robinson Street, turn north onto Primrose Drive, then turn east onto SR 50 to Alafaya Trail, then north to the UCF Campus.

SR 50/SR 436/Old Cheney Area: Each of the alternatives includes an option in the Semoran Blvd (SR 436) area. One alternative would remain along SR 50 through the interchange with SR 436 (Option B). Another option would route the alignment along Old Cheney Highway (Option A).

Figure 34 - Short-list Alternatives



Alternative Name	Mode
Pink	Streetcar
Red	Enhanced Bus
	BRT Mixed
	BRT BAT (BAT Lanes between Bumby and SR 436)
Orange	Enhanced Bus
	BRT Mixed
	BRT BAT (BAT Lanes between Bumby and SR 436)
Yellow	Enhanced Bus
	BRT Mixed
	BRT BAT (BAT Lanes between Primrose and SR 436)
Green	Enhanced Bus
	BRT Mixed
	BRT BAT (BAT Lanes between Bumby and SR 436)
Blue	Enhanced Bus
	BRT Mixed
	BRT BAT (BAT Lanes between Bumby and SR 436)
Purple	Enhanced Bus
	BRT Mixed
	BRT BAT (BAT Lanes between Primrose and SR 436)

Enhanced Bus: Express bus running in mixed traffic (except for LYMMO exclusive lanes) with limited stops, enhanced stations, and TSP (Transit Signal Priority)
BRT (Bus Rapid Transit) Mixed: BRT running in mixed traffic (except for LYMMO exclusive lanes), enhanced stations, TSP, queue jump lanes, and off-board ticketing
BRT BAT (Business Access & Transit Lane): Mixed traffic with exclusive LYMMO lanes, additional BAT lanes, enhanced stations, TSP, queue jumps, and off-board ticketing

Evaluating BRT with BAT Lanes

Using criteria developed with FDOT, the Study Team identified the section of SR 50 from Bumby Avenue to Old Cheney Highway for evaluation of converting the outside through lane to a BAT lane. This analysis was done to determine if the travel time and ridership benefits outweigh the anticipated impacts to the other users of SR 50. The evaluation included a more detailed peak hour traffic analysis (using Synchro and based on HCM 2010 procedures) at each of the intersections within the SR 50 segment where BAT lane was being considered. A summary of the analysis results and the full Synchro reports can be found in Appendix D & E.

Some intersections along this section of the SR 50 corridor in the PM peak hour are currently nearing capacity, exhibiting LOS D (SR 50/Bumby Avenue, SR 50/Baldwin Lane, and SR 50/Old Cheney Highway) and LOS E (SR 50/Maguire Road). When applying the BAT lane condition to this section of the corridor, average intersection delay is increased by less than 10 seconds for most intersections and increased by more than 10 seconds at three already congested intersections (SR 50/Maguire Road, SR 50/Bennett Road and SR 50/Baldwin Lane).

At the same time, transit ridership forecasting and travel time analysis showed that the BAT lane scenario resulted in an increase of less than 50 additional riders corridor-wide and no significant travel time savings. Through discussions with the PAWG and the FDOT, it was evident that these minimal benefits to ridership and travel time did not justify the moderate increases to existing SR 50 travel times. **Therefore, the BAT lane operating scenario for each alternative was eliminated.**

Results of the Short-list Alternatives Evaluation

The short-list alternatives screening was based on the needs of the corridor and included public input heard throughout the Study. The specific measures of effectiveness used during this screening included number of jobs served within a 1/2 mile of each station, increase in transit access to SunRail jobs within a 1/2 mile of each station, level of retail activity within a 1/2 mile of each station, ability to serve planned redevelopment areas within a 1/2 mile of each station, new transit riders served (based on the CFRPM ridership forecasting), capital and operating costs, and level of public support (shown in *Figure 35*). Again, as with the previous evaluations and screenings, measures for evaluating the shortlist alternatives relate to each of the Study's needs as established with the PAWG.

The Pink alignment (Streetcar alternative) was screened out due to its significantly higher capital cost with relatively low ridership increase compared to the other alternatives. The Green, Blue, and Purple alignments were screened out as they did not perform well in their ability to serve developing and redeveloping areas and had a lower level of public support based on the input from community events and surveys. **The Red, Orange, and Yellow alignments were distinguished by ranking high on planned development areas served, number of jobs served, and retail activity present along the corridor. These alternatives were confirmed by the PAWG members to be the top performing alternatives and advanced to more detailed evaluation and ridership modeling.**

In addition, through the ridership modeling, it was discovered that BRT operation along the corridor can yield higher levels of ridership compared to Enhanced Bus with relatively lower operating and maintenance costs compared to rail-based modes. **Based on the results of the analysis and the input from the PAWG members, the Mixed Traffic BRT option was selected as the operating scenario for the remaining short-list alternatives.**

Summary for cost assumptions per unit (based on current year 2014 costs):

- Bus Vehicles = \$4,950,000
- Walk-Up Station = \$130,000
- Community Station = \$180,000
- Queue Jump = \$50,000 per intersection
- Transit Signal Priority (TSP) = \$40,000 per intersection
- Roadway Improvements (Striping) = \$264,000 per mile
- Intersection Improvements = \$30,000 per station
- System Requirements (fare collection, basic safety/security, maintenance equipment) = \$9,700,000
- 30% Contingency
- 30% Design, Engineering, Construction
- O&M = \$83 per year per vehicle-hour

Figure 35 - Short-list Alternatives Evaluation

CORRIDOR NEEDS	 NEED 1 BETTER ACCESS TO JOBS AND EDUCATION THROUGH IMPROVED EAST-WEST MOBILITY			 NEED 2 ENCOURAGE DEVELOPMENT AND REDEVELOPMENT THAT SUPPORTS TRANSIT			 NEED 3 INCREASE CORRIDOR TRANSIT RIDERSHIP				 NEED 4 SUPPORT LYNX STRATEGIC PLAN AND REGIONAL TRANSIT NETWORK		 NEED 5 INVEST IN TRANSIT IMPROVEMENTS THAT ARE FISCALLY RESPONSIBLE
	CORRIDOR GOALS			Encourage Development and Redevelopment of Activity/Mixed-use Nodes			Serve Existing and Future Activity Centers with Transit				Invest in cost-effective infrastructure		Minimize Public Opposition
	MEASURES OF EFFECTIVENESS			Retailing Activity			2035 Corridor-Wide Ridership (based on CFRPM)				Corridor-Wide Costs (\$ Million)		Level of Public Support
	Number of Jobs Served	Add'l. SunRail Area Jobs reached by SR 50 Area	% of Additional. SunRail Jobs Served		Acree of CRAs, NIDs, BIDs, Main Streets Served	Serves Planned Areas for Redevelop	Total Corridor Linked Trips	% of Corridor Ridership - Transit Dependent	# of New Transit Riders Served	Travel Time Savings Per Rider	Capital Costs	Annual O&M Costs	
PINK ALIGNMENT	75,510	2,450	150%	High	1,500	High	20,100	46%	1,488	18	\$713M	\$16M	High
RED ALIGNMENT	75,510	2,450	150%	High	1,500	High	19,800	46%	1,159	16	\$93M	\$5M	High
ORANGE ALIGNMENT	90,650	2,490	150%	High	1,560	High	19,200	48%	524	16	\$93M	\$5M	Medium
YELLOW ALIGNMENT	89,620	2,490	150%	Medium	1,560	High	19,200	48%	605	17	\$93M	\$5M	Low
GREEN ALIGNMENT	78,010	2,480	150%	High	1,780	Low	19,300	49%	692	18	\$93M	\$5M	Medium
BLUE ALIGNMENT	93,130	2,510	150%	High	1,840	Low	19,400	49%	713	19	\$93M	\$5M	Low
PURPLE ALIGNMENT	92,110	2,520	150%	Medium	1,850	Low	19,400	49%	774	19	\$93M	\$5M	Low

SR 50/SR 436 Area Evaluation

During discussions with corridor stakeholders and PAWG members, it was discovered that the SR 50/SR 436 interchange provides a challenge for transit users, especially those needing to transfer between east-west and north-south bus routes. This location is among the highest transfer activity along the corridor and yet many users perceive the interchange to be unsafe and difficult to navigate.

Through the grassroots public outreach effort, input was gathered on the Old Cheney Highway alternative in the SR 436 area (shown in *Figure 36*). Based on online survey and face-to-face interviews, about 44% of respondents indicated they would prefer the Old Cheney Highway alignment (Option A) over the SR 50 alignment (Option B) in this area (25% of respondents voted for the SR 50 option). The PAWG recommended that both the Old Cheney Hwy and SR 50 options be advanced with the short-list alternatives.

Evaluating Operating Scenarios

Determining the Minimum Operating Segment

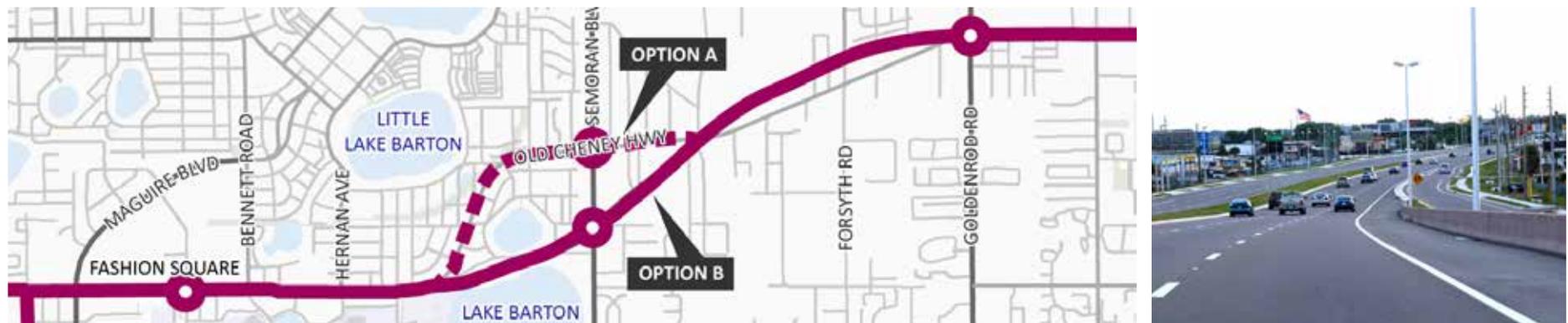
In order to determine the portion of the corridor with the most immediate need, a minimum operating segment (MOS) analysis was performed to observe the incremental benefits in terms of ridership capture and cost of operating along various increasing distances on the Study Corridor. A detailed discussion of this analysis is provided in the separate SR 50/UCF Connector AA Ridership Report.

Considering riders per mile, transit dependent riders, annualized ridership (from the data-driven ridership model), and operating costs, the segment of the Study Corridor between Powers Drive (in Pine Hills) and Goldenrod Road (in Azalea Park) yielded the most riders per additional incremental operating cost. This segment was presented to the PAWG who identified it as the MOS for the SR 50 corridor.

Testing the Alternatives using Potential Operating Plans

During this round of evaluations, planning-level operating plans were discussed to determine the most efficient operating service plans for the proposed SR 50 BRT service and the local bus service along the corridor. Originally, the MOS operating plan was thought to include the new 10/15-minute BRT service with local routes 104 and 105 providing local service between Powers Drive and Goldenrod Road (MOS). On either end of the BRT service, the current local routes – local routes 28, 29, 48, and 49 – would provide local circulator routes to the areas they currently service and Route 104 and 105 would continue east and west, respectively, to provide local service to the

Figure 36 - Alternatives in the Old Cheney Highway Area



areas they currently service. The testing results of this operating plan indicated that the transfer time at either end of the BRT service caused current linked transit trips to take longer, on average, than existing local service allows. As a result and to decrease time lost by transfers, alternative operating plans were developed which considered a variety of options for interlining (linking two bus routes together through one common stop location to allow buses from each route to travel through from one route to the other, resulting in sharing of buses to create operational efficiencies and cost savings) the SR 50 BRT with local service along the SR 50 corridor to the east and west as shown in *Figure 37*. Alternatives 1 and 2 were modeled in the ridership and travel time forecasting analysis. Alternative 3 should be developed and modeled under future project development phases.

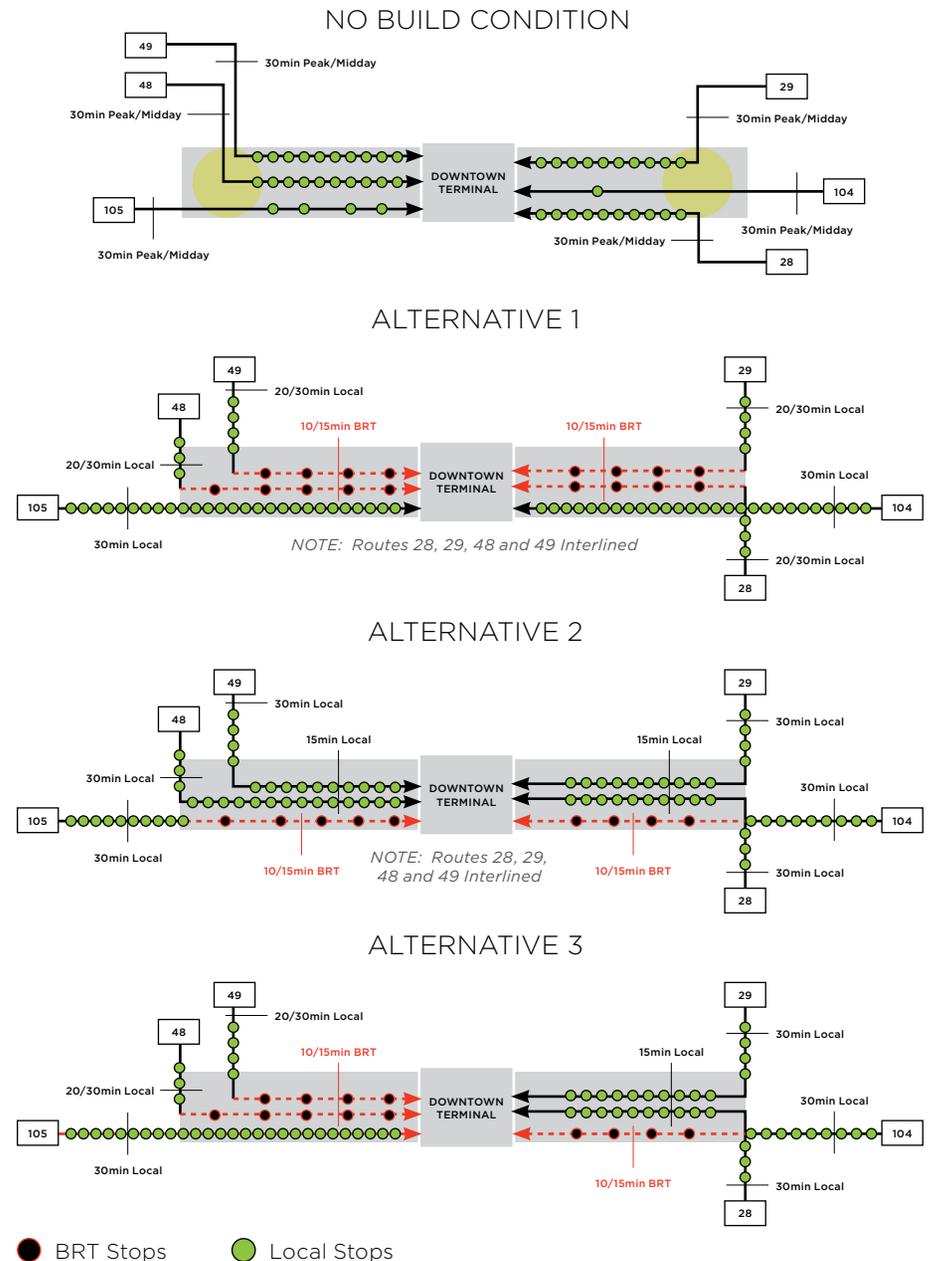
Alternative 1 includes keeping local routes 104 and 105 as they currently are and, on the western end of the BRT service, interlining the 10/15-minute BRT service with local routes 48 and 49, alternating between the two routes, to provide 20/30-minute local service in the Pine Hills area where these routes currently service. On the eastern end of the corridor, this alternative includes interlining 10/15-minute BRT service with Routes 28 and 29, alternating between the two routes, to provide 20/30-minute service in the Goldenrod and Azalea Park areas where these routes currently serve.

Alternative 2 includes keeping local routes 28, 29, 48, and 49 as they currently are and creating a 10/15-minute BRT service with every three buses in the peak and every other bus in the off-peak interlining with local routes 104 and 105 to provide 30-minute local service to the areas east and west of the MOS that these routes currently serve.

Alternative 3 includes keeping local routes 105, 28, and 29 as they are and interlining a 10/15-minute BRT service with local routes 48 and 49 to provide 20/30-minute local service in the Pine Hills area where these routes currently service and, on the eastern end of the corridor, interlining every third bus in the peak and every other bus in the off-peak with local route 104 to provide 30-minute service to the areas east of the MOS that these routes currently serve.

These operating alternatives should be further analyzed later in the project development phase.

Figure 37 - Operating Plan Alternatives



Results of Final Short-List Evaluation

The MOS for the remaining alternatives – Red, Orange, and Yellow – were compared to one another, looking specifically at their anticipated ridership (see Appendix F for Ridership Forecasting Methodology Report) and travel time savings using the data driven ridership forecasting model. *Figure 38* shows how each alternative performed during the final evaluation screening:

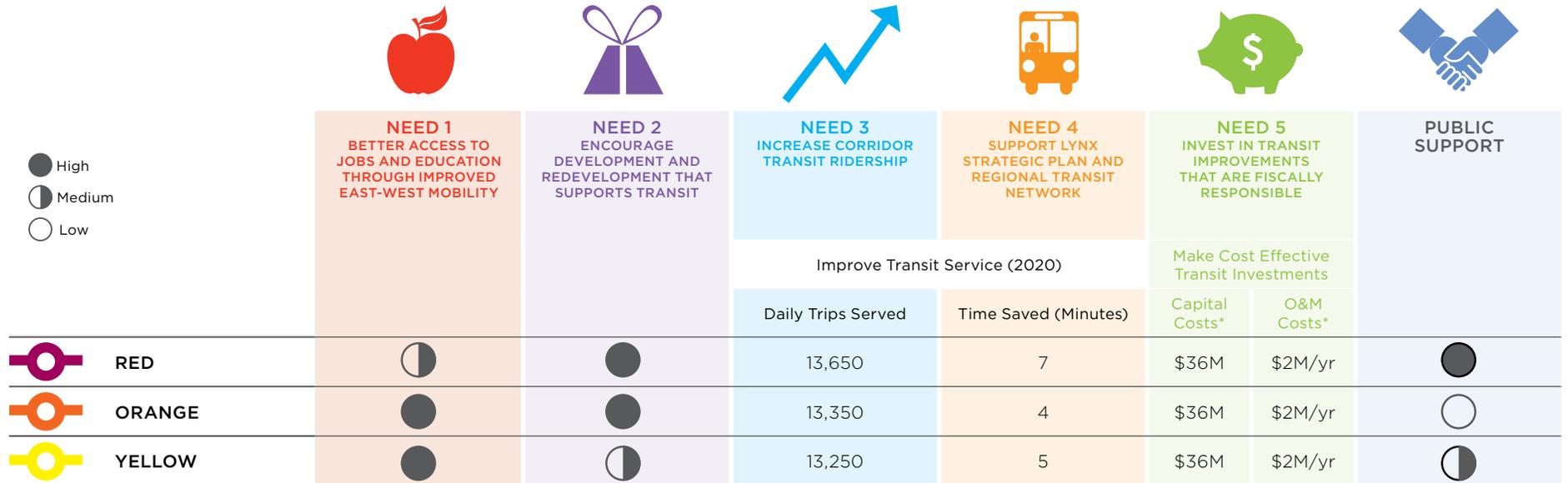
- The ORANGE ALTERNATIVE has the potential to strongly enhance access to jobs and education, strongly encourage development and redevelopment, but will save the least amount of travel time and also garnered the least amount of public support.
- The YELLOW ALTERNATIVE can strongly enhance access to jobs and education, but was only moderately supported by the public.
- The RED ALTERNATIVE can strongly encourage development and redevelopment, has the highest projected ridership, saves the most travel time (7 minutes for an average round trip), and is the most strongly supported alternative by the public. THE RED ALTERNATIVE WAS RECOMMENDED BY THE PAWG TO BE THE LOCALLY PREFERRED ALTERNATIVE.

Express Service Between UCF and the Downtown Area

Throughout the Study process, input was received regarding a need for Express Bus service, in the short term, between Downtown Orlando and UCF. Considering the plans for a Downtown UCF campus and a burgeoning population of students at UCF, it will become more and more imperative to provide a direct premium transit connection between UCF and Downtown Orlando. This service has already been considered by LYNX in the past, and in fact, LYNX has programmed the implementation of this express bus service in its latest five-year transit development plan (TDP).

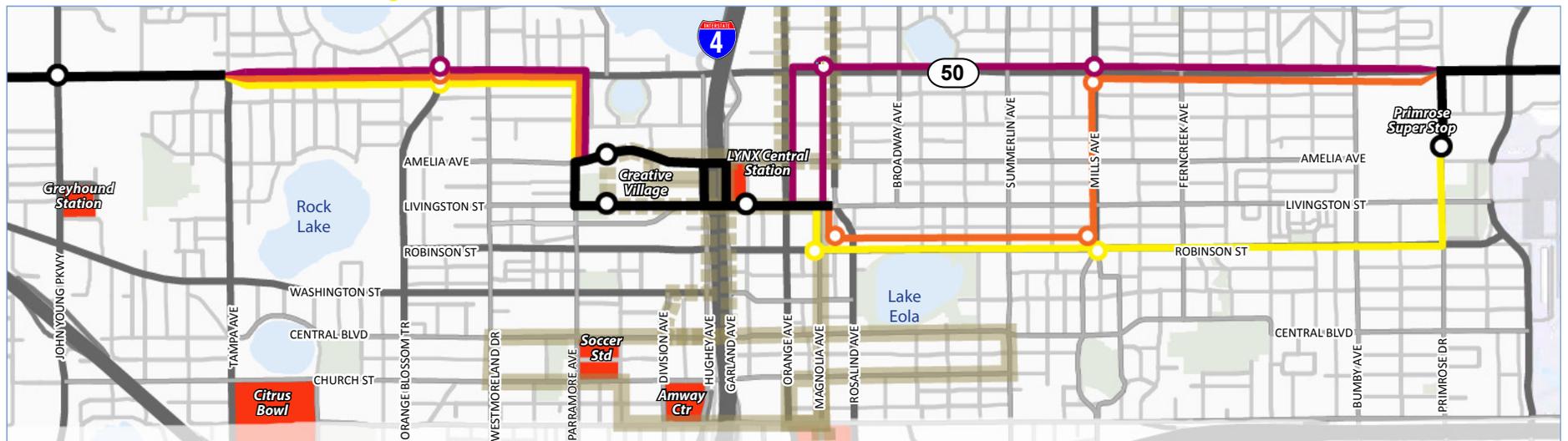
LYNX and the PAWG members all recognized the importance of advancing a longer term premium transit solution on SR 50, as well as the point-to-point express service between the UCF main campus area and the downtown area. **As such, LYNX and the PAWG recommended that the SR 50 BRT LPA be coupled with a recommendation to advance the express bus service.** The express bus service is being advanced by LYNX independently towards a potential implementation in the next one to two years.

Figure 38 - Final Short-list Alternatives Evaluation Results



* Current Year (2014) Costs

- Alignments & Stations common to all
- Existing LYMMO
- Proposed LYMMO
- Red Alternative
- Orange Alternative
- Yellow Alternative





The Solution

The Solution

Locally Preferred Alternative

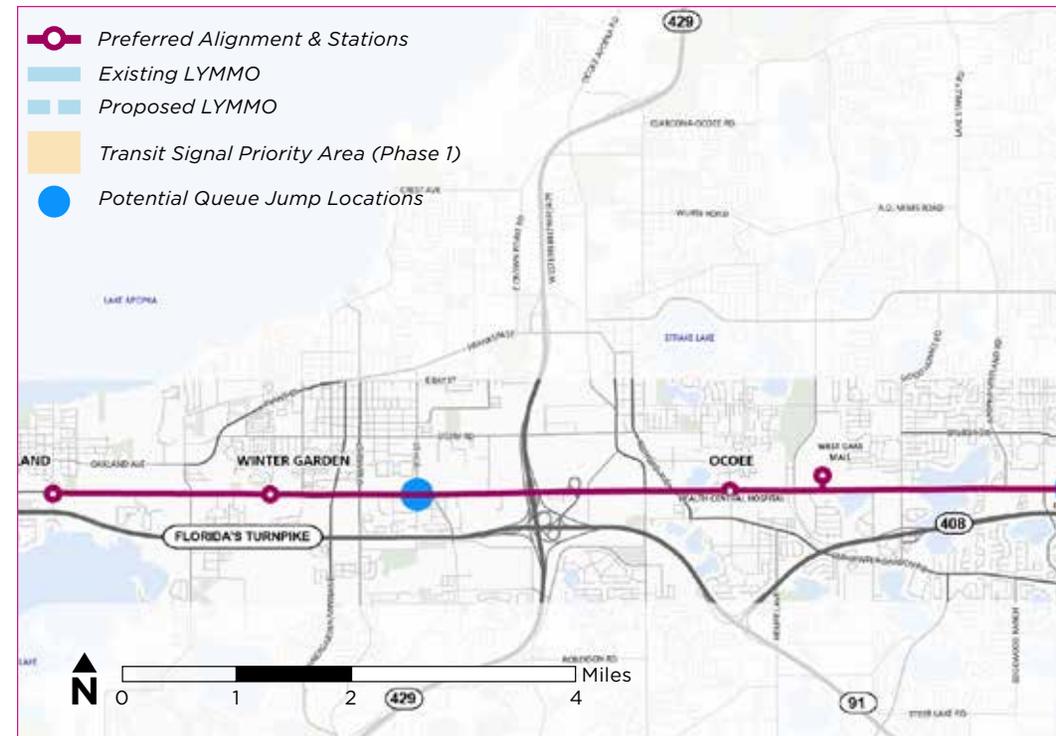
The SR 50 Locally Preferred Alternative is BRT service traveling in mixed-traffic. The alignment would run along SR 50 from Oakland in west Orange County to Parramore Avenue. It would then turn south to serve the Downtown area using the proposed exclusive lanes of the LYMMO Lime line along Amelia Avenue and Livingston Street, continuing east to LCS. Connection to LCS will provide transfer opportunities to the rest of the LYNX bus system and SunRail. From LCS it uses the existing exclusive lanes of the LYMMO Orange line and then turns north onto the Orange Avenue and Magnolia Avenue one-way pair, and travels east along SR 50 to Alafaya Trail, and north to UCF.

The project will be implemented in two phases. Phase 1 will initially provide BRT service to the portion of the corridor with the highest immediate need (minimum operating segment), between Powers Drive and Goldenrod Road, a total of approximately 12.2 miles. This alternative is projected to serve approximately 14,300 riders per day with an estimated capital cost of \$36 million (\$2 million per mile) and additional operating and maintenance cost of \$2 million per year.¹ Phase 1 is proposed to operate at 10-minute frequencies during peak times and 15-minute frequencies during off-peak times while maintaining the existing local service routes along SR 50. It will include premium transit features such as enhanced stations, unique bus branding, transit signal priority, off-board ticketing, and user amenities such as free Wi-Fi on the bus.

The alternative is coupled with an enhanced connection between two of the biggest activity centers in the region, Downtown Orlando and the UCF area, through an Express Bus Service. The Express Bus Service is anticipated to be implemented in the fall of 2016.

Phase 2 will consider extending BRT service to Oakland and UCF, expanding the total length of the corridor to 30 miles, and would be implemented in later years. The implementation will depend upon future growth and development patterns along SR 50 and the associated ridership demand. The full LPA is shown in [Figure 39](#).

Figure 39 - Locally Preferred Alternative



¹ Current Year (2014) Costs



Alignment and Operation

It is assumed that the BRT alignment would operate in mixed traffic in the outside lane, similarly to current local route operations, and would run in exclusive lane for the downtown portions of the corridor that already include exclusive LYMMO lanes. The BRT would stop at curb-side bus stops as shown in [Figure 40](#).

In order to improve travel times, Transit Signal Priority (TSP) is proposed along the entire route. This proposed TSP will be conditional TSP, where change in regular signal cycles will only triggered by a transit vehicle if it is running late based on bus schedule and a lateness threshold.

Coupled with TSP, five queue jump locations are proposed for Phase 1 of the project including the following intersections:

- SR 50/Hastings Street,
- SR 50/John Young Parkway (SR 423),
- SR 50/Parramore Avenue,
- SR 50/Fashion Square/Colonial Landing, and
- SR 50/Old Cheney Highway (W).

The following five queue jump locations are proposed for Phase 2 BRT:

- SR 50/9th Street,
- SR 50/Highland Lakes Plaza Entrance,
- SR 50/Hiawassee Road,
- SR 50/SR 417 (SB ramp), and
- SR 50/Constantine Street.

A typical section of these queue jumps is shown in [Figure 41](#) and their locations are included in [Figure 39](#).

Figure 40 - Proposed Typical Section at Mills Avenue and SR 50

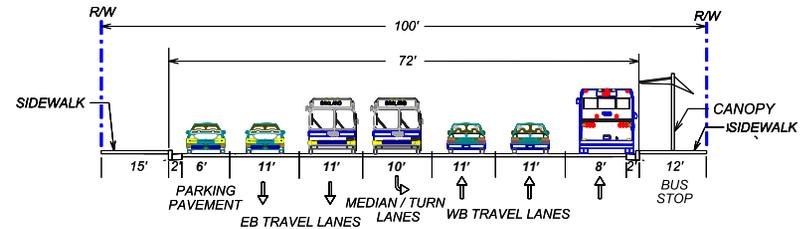
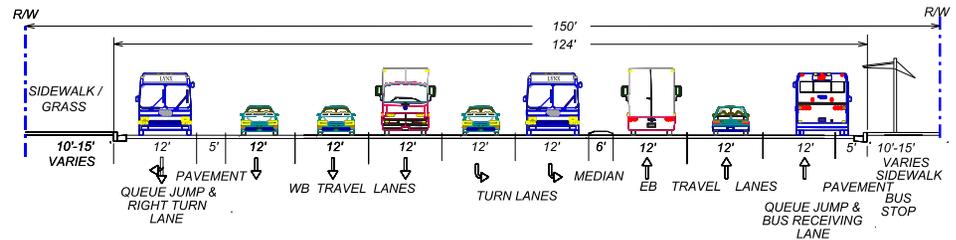


Figure 41 - Proposed Typical Section at Hiawassee Road Queue Jump Station



Station Locations and Enhancements

Stations are proposed at approximate one to two mile intervals along the corridor. In total, 13 stations are proposed for Phase 1, including LYNX Central Station, and 8 additional stations are proposed for Phase 2. Almost all of the Phase 1 station locations will allow for connection to other LYNX routes. These stations include:

- Powers Drive – Links 48 and 105
- Pine Hills Road – Links 48, 49, 105, and 301
- Mercy Drive – Links 20, 48, 49, and 302
- John Young Parkway (SR 423) – Link 25, 105, and 303
- Orange Blossom Trail (US 441) – Link 105 and 106
- Creative Village – proposed LYMMO Lime line and Link 8
- LYNX Central Station – 33 different Links, LYMMO Orange line, and proposed LYMMO Lime line
- North Quarter – Link 102 and LYMMO Orange line
- Mills50 – Link 28, 29, and 125
- Primrose Super Stop – Links 6, 13, 15, and 313
- Orlando Fashion Square – Link 28, 29, and 104
- Semoran Blvd – Links 28, 29, 104, and 436S
- Goldenrod Road – Links 29 and 104

The proposed stations would include a near-level boarding platform, sheltered waiting area, seating, ticket vending machines, route maps, estimated arrival signs, and public art. Depending on the context and type of station, different amenities are needed. *Table 2* summarizes the potential amenities to be included at each station depending on location and type.

Table 2 – SR 50 Potential Station Types and Amenities

Station Type	Location	Components
WALK-UP STATIONS	<ul style="list-style-type: none"> • Urban Area • On-street • Can integrate with LYMMO stops 	<ul style="list-style-type: none"> • Station Marker • Ticket Vending Machine • Station Shelter
COMMUNITY STATIONS	<ul style="list-style-type: none"> • Urban Areas/ Suburban Areas • At Intersections of Major Roadways • On-street 	<ul style="list-style-type: none"> • Station Marker • Ticket Vending Machine • Station Shelter • Bicycle Parking
INTERMODAL STATIONS	<ul style="list-style-type: none"> • At Super Stops • Off-street 	<ul style="list-style-type: none"> • Station Marker • Ticket Vending Machine • Furnishings/Infrastructure integrated with Super Stop • Shelter • Bicycle Parking • Bus lay-over areas • Driver rest areas
REGIONAL STATIONS/ TERMINAL STATIONS	<ul style="list-style-type: none"> • At the end of the line • Can be on- or off-street 	<ul style="list-style-type: none"> • Station Marker • Ticket Vending Machine • Shelter • Bicycle Parking • Bus lay-over areas • Driver rest areas • Parking- developed with FDOT or by adjacent TOD

BUS COMPONENTS AT ALL STATIONS:

- Seating
- Trash Can
- Maps and wayfinding information
- Lighting
- Real-time passenger information

Conceptual Ideas for Station Design

The study team explored preliminary conceptual ideas for the design of the BRT stations. These concepts draw inspiration from the service's branding and leverage the public art and sculptural potential of future BRT stations. *Figure 42* illustrates a number of ideas studied for the massing/form of the BRT station.

The massing concepts show the basic form for each potential station. Each station can build on this basic form and be refined to include design elements or material finishes that reflect the station

area's local district or neighborhood character. The preliminary concept also considers incorporating station elements depending on the station needs and context. Each station can be made up of elements from a "kit-of-parts" that may include a station marker, ticket vending machine, and a station shelter, at the minimum. Additional amenities and the scale of various elements can be tailored to each station type (See *Table 2* on previous page).

Figure 42 - Illustrative Concepts of BRT Station Massing/Form



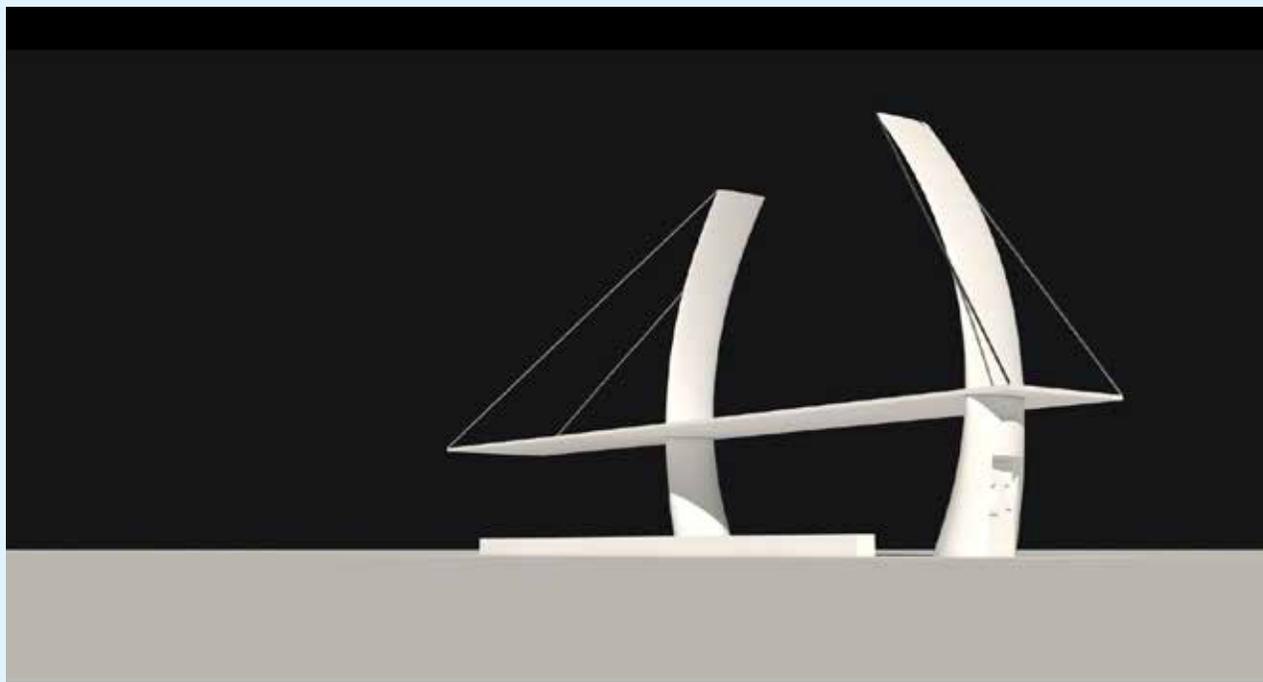
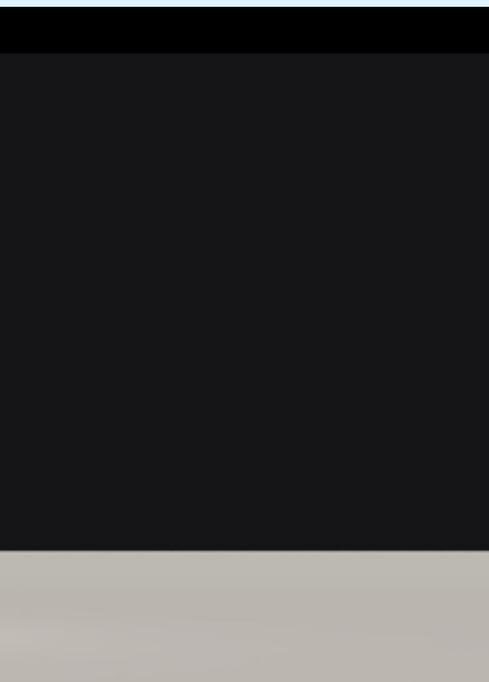


Figure 43 illustrates a similar BRT station with amenities recently implemented in Seattle, Washington. *Figures 44 - 46* provide a before and after of an illustrative concept for the potential SR 50 BRT station at the Mills50 district with a vision of potential future transit-oriented development around the station using existing land development code.

Where appropriate, the stations could be integrated with new developments along the corridor. Where on-street parking is present, a station “bump out” would be necessary to make the boarding location accessible from the outside driving lane. It should be noted that although park-and-ride facilities are not proposed as part of this study, potential opportunities can be further explored as part of the next phase of project development.

Figure 43 - Swift BRT Station Concept (Seattle, WA)



Figure 44 - Existing Conditions at the Mills50 Station Area



Figure 45 - Illustrative Concept of Short-Term Potential at the Mills50 Station Area



Figure 46 - Illustrative Concept of Long-Term Potential at the Mills50 Station Area



BRT Service Branding

A branding of the BRT project can bring a unique identity that differentiates the premium service from the local bus routes. Combined with more substantial stations, this unique branding and identity not only reinforces marketing efforts for the new line, but also communicates a commitment to the permanence of the premium public transit investment. Permanence in public infrastructure investments creates predictability for the private partners and will help to catalyze development along the Corridor. This branding would include enhancements to bus vehicles, station amenities, and signage.

LYNX undertook a preliminary BRT branding exercise to brainstorm potential branding themes for this BRT line. The proposed name and identity of the BRT line is “50Leap,” with the tag line of BRT- “Be Right There.” Potential logos for the BRT line are shown in *Figure 47*.

Figure 47 - Example Logos for LEAP BRT



Figure 48 illustrates a conceptual idea of the station concept incorporating the “50 Leap” branding, explained in the next section.

As the transit study progresses into project development, further evaluation and more detailed design exploration with stakeholders and community representative should be conducted.

Figure 48 - Illustrative Concepts of Station Incorporating Branding

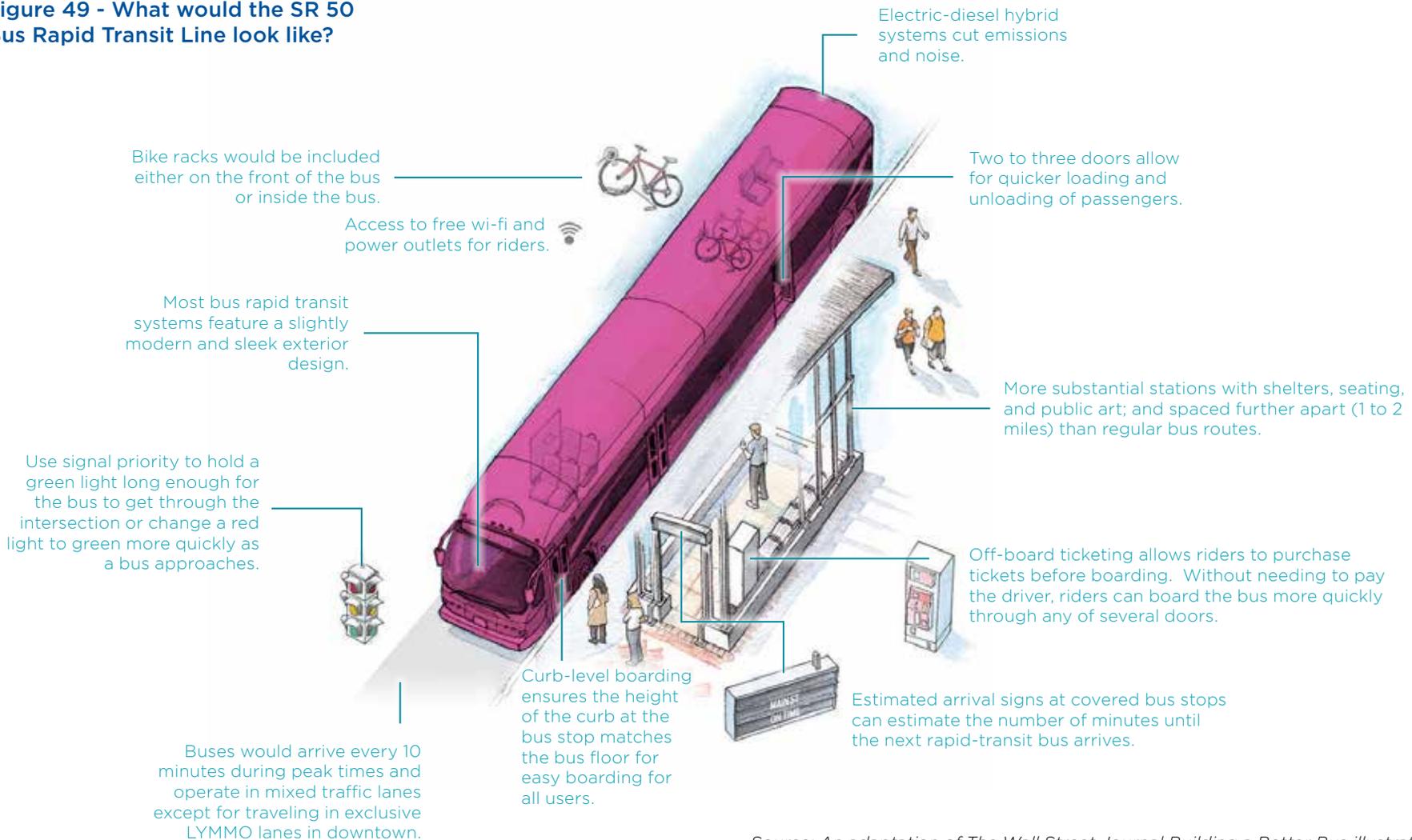


Bus Needs

The current SR 50 corridor service requires 23 peak hour buses while the LPA requires 30 peak vehicles. This constitutes an increase of seven peak BRT vehicles or nine fleet BRT vehicles (including spare vehicles). Although subject to refinement in future project development phases, the BRT service is assumed to use 40-foot BRT vehicles, with low-floor boarding, interior bike racks, radio

communication systems, and global positioning system (GPS) units. The use of articulated buses is not anticipated to be immediately necessary. These buses should be branded in alignment with the stations and signage and should have a modern vehicle design with wi-fi capabilities and increased accommodation of bicycles. *Figure 49* illustrates some of the features proposed for the BRT vehicles, stations, and service.

Figure 49 - What would the SR 50 Bus Rapid Transit Line look like?



Source: An adaptation of *The Wall Street Journal Building a Better Bus* illustration.

Meeting Corridor Needs and Achieving Project Goals

As evaluated and demonstrated throughout this report, the LPA described above best meets the SR 50 corridor's needs and achieves the study's goals.



NEED 1 BETTER ACCESS TO JOBS AND EDUCATION THROUGH IMPROVED EAST-WEST MOBILITY

The proposed BRT project would significantly improve service for the 12,000 existing transit riders along the corridor and, thereby, improve access to jobs and educational institutions along the corridor. This premium transit alternative will serve an estimated 75,500 jobs upon construction and increase the reach of one of Central Florida's most significant transit investments, SunRail. The SR 50 BRT will increase the "transit-shed" of SunRail station area jobs by 150%. In addition to providing a more reliable and frequent service for riders, existing riders will save an estimated 7 minutes per round trip.

Ranks in the "Medium" category for Employment Served and "Medium-Low" for Population Density in the FTA New/Small Starts Project Justification Criteria.



NEED 2 ENCOURAGE DEVELOPMENT AND REDEVELOPMENT THAT SUPPORTS TRANSIT

Recent research has suggested that the ability of a premium transit system to attract development and redevelopment has less to do with the nature of the line (rail vs. rubber-tire) and more to do with the permanence of the stations. The preferred LPA will include permanent, substantial stations. This BRT will support and serve the \$4.9 billion of development that has and will occur in the corridor in the next few years. It will also serve some of the most active retailing centers in the region and over 1,500 acres of CRAs, NIDs, BIDs, and/or Main Street districts.

Ranks in the "Medium" or "High" in most subcategories for Economic Development Effects in the FTA New/Small Starts Project Justification Criteria.



NEED 3 INCREASE CORRIDOR TRANSIT RIDERSHIP

By introducing a faster, more reliable BRT service, the SR 50 BRT is projected to increase ridership in the Corridor by 16% between now and 2020. In addition, almost half (46%) of the ridership is anticipated to be transit-dependent population. This not only increases the regional momentum towards multi-modalism, and promotes the multimodal vision of many of the municipalities and agencies along the corridor, but provides a necessary mobility option for a large portion of Central Florida population.

Ranks in the "Medium" category for Mobility Improvements in the FTA New/Small Starts Project Justification Criteria.



NEED 4 SUPPORT LYNX STRATEGIC PLAN AND REGIONAL TRANSIT NETWORK

SR 50 premium transit is one of LYNX's top transit priorities for the Region as it is the key east-west connector through the heart of Central Florida. Being home to 17% of Orange County's residents and 20% of its jobs, the SR 50 corridor will be a key east-west artery in the Central Florida transit network. This will help to connect SunRail and other key proposed high capacity transit corridors in the region including the LYMMO system, SR 436, and US 441.



NEED 5 INVEST IN TRANSIT IMPROVEMENTS THAT ARE FISCALLY RESPONSIBLE

The proposed BRT project is a fiscally responsible investment. The proposed alignment will utilize 1.25 miles of existing exclusive LYMMO lanes in the downtown Orlando area and will not require additional lane widening or significant roadway reconstruction. This results in a cost-affordable estimated capital cost of approximately \$3 million per mile and an additional operating and maintenance cost of \$2 million per year (for Phase 1).

Ranks in the "High" category for Cost Effectiveness in the FTA New/Small Starts Project Justification Criteria.



Implementation

Implementation

Implementation and Next Steps

The Federal Transportation bill passed in 2012, Moving Ahead for Progress in the 21st Century (MAP-21), requires the adoption of the Locally Preferred Alternative (LPA) by the local Metropolitan Planning Organization.

The proposed Locally Preferred Alternative described in this report has been reviewed and adopted by the LYNX Board of Directors and the MetroPlan Orlando Board. The project has also been presented to and reviewed by the City of Orlando Municipal Planning Board and Orange County Commission.

Some of the critical next steps for advancing the project towards implementation through FTA's project implementation process include:

- Advance the implementation of corridor-wide transit supportive projects such as Transit Signal Priority and Queue Jumps
- Work with the City of Orlando and Orange County to strengthen transit-supportive land use policies and regulations along the corridor and at station areas
- Prepare NEPA documentation, incorporating this Alternatives Analysis and resulting LPA
- Prepare FTA Letter for Entry into Project Development Phase
- Prepare Preliminary Financial Plan
- Prepare Project Rating Package
- Prepare FTA Letter for Entry into Engineering Phase

Since the adoption of the SR 50 LPA, MetroPlan Orlando has initiated a Health Impact Assessment (HIA) on the proposed SR 50 BRT alternative. This HIA represents the strong local commitment and regional momentum toward premium transit investment along SR 50 and will provide decision-makers with an understanding of the impacts of the SR 50 BRT on the overall health of the communities that would be served by this proposed transit investment. Once finished, it is anticipated that this HIA will recommend the advancement of the SR 50 BRT LPA towards implementation.

As the project gets ready to advance into the next stages of project development, a preliminary assessment of LYNX's financial capacity as well as capital and operating sources of funds available to LYNX, is critical to the successful implementation of the project. A preliminary assessment of LYNX's current financial state was conducted to understand potential funding scenarios for implementation of the LPA. This preliminary assessment was not intended to provide and/or assess LYNX's state of finances, but rather to understand critical information that may influence the viability of implementing the SR50/UCF Connector project. To that end, and as noted in the Comprehensive Annual Financial Report issued by LYNX in 2013, LYNX's net position has consistently increased from 2004 to 2013. Total assets increased 99%, from \$103.4M to \$206M, during that same period. From 2004 to 2013, the Authority expanded service, purchased new rolling stock, developed land around key service locations, and constructed the LYNX Central Station and Operations Center. Liabilities have also increased at a controlled rate, 21% higher in 2013 when compared to liabilities in 2004. Similarly, LYNX's total debt has consistently decreased over the same period, 2004-2013. When comparing Annual Debt Service Payments against Pledged Revenues and Total Debt against median income, the results reflect a healthy financial status. Overall, LYNX's financial status appears sound.

Since the adoption of the LPA, LYNX has been working with MetroPlan Orlando to identify a dedicated funding source for premium transit operations. On May 13, 2015, the MetroPlan Orlando Board approved the use of District Dedicated Revenues (DDR) to fund operations of premium transit projects.

Continued partnerships and coordination with FDOT and other local agencies is critical to help the corridor be ready for and leverage the region's premium transit investment. Though the station location identification considered a planning-level analysis of bike and pedestrian safety around the stations, more detailed analysis is necessary to prepare each of the station areas for increased bike and pedestrian usage. In addition, continuation of ongoing discussions at the local and regional levels to review and refine (if necessary) any land use and transportation policy and regulations is critical. The project development phase should build on and continue to engage the PAWG and CLG members in leveraging local city and county investments and policy decisions to align with the implementation of premium transit service along the SR 50 corridor.

