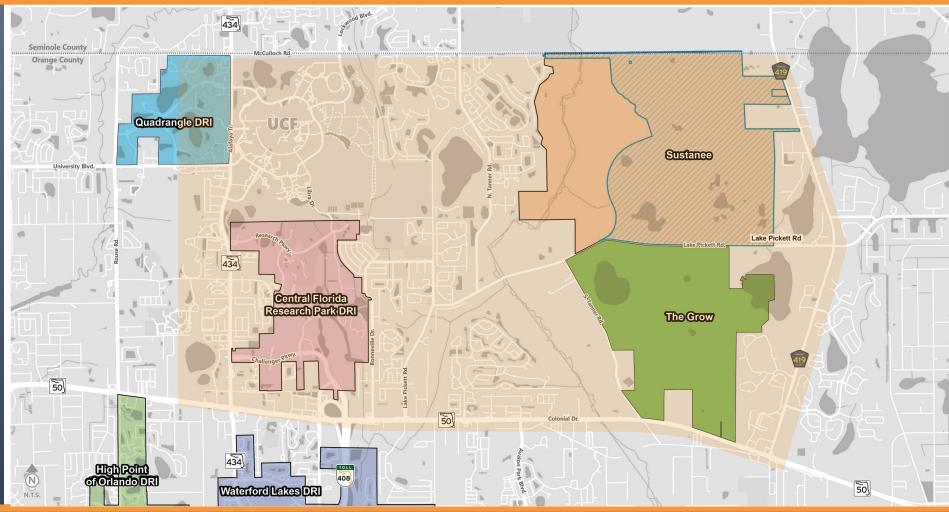


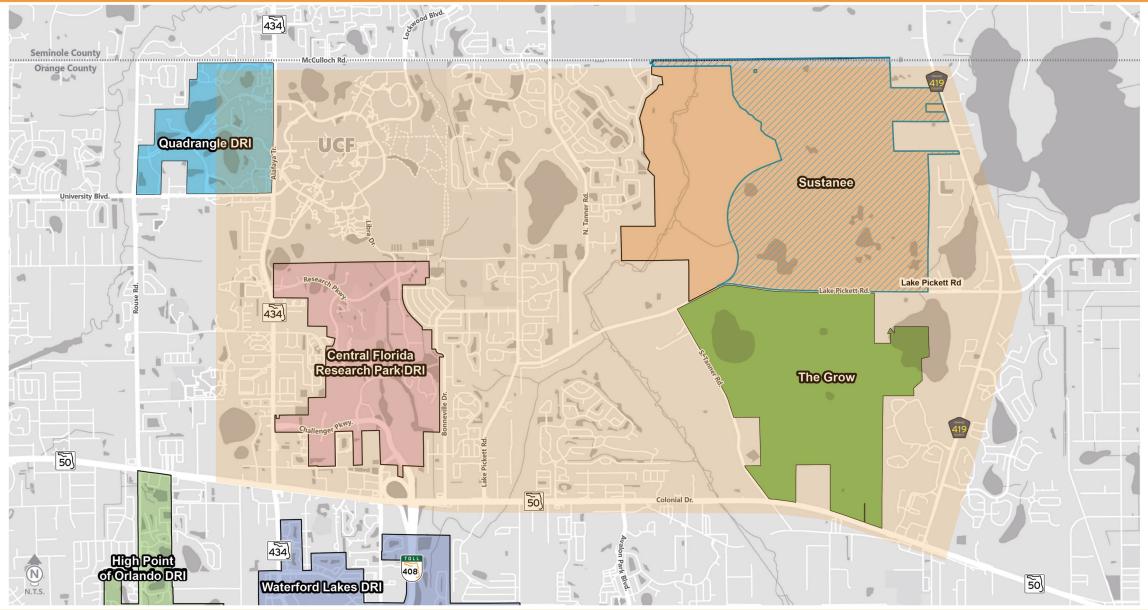
Stakeholder Coordination Meeting # 2 April 28, 2022





Study Area

















Study Purpose and Objectives





Study Purpose

"Support future growth while preserving community character"

Objectives

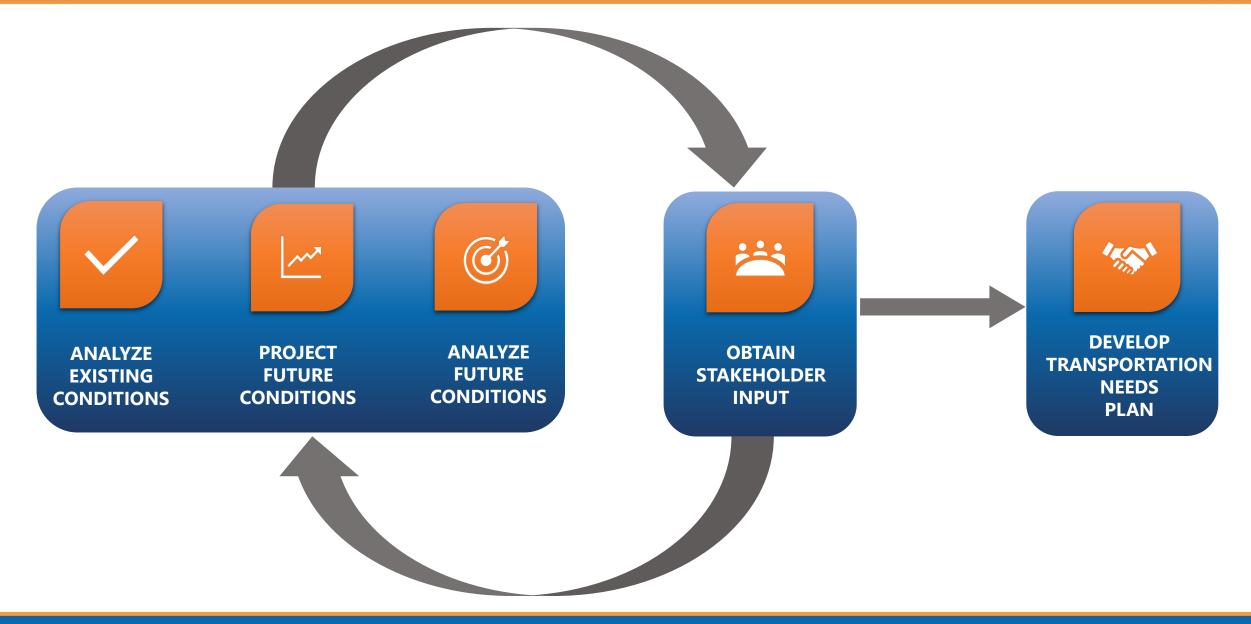
- Improve Safety, Mobility & Connectivity for people who drive, walk, bike and use transit
- Identify and prioritize potential transportation projects
 - Improve network connectivity
 - Provide relief to constrained corridors
 - Short-term (2025), mid-term (2035), and long-term (2045) improvements for all road users





Study Approach







Community/Agency Meetings



Community Meetings #1 & #2

Agency Meeting #1

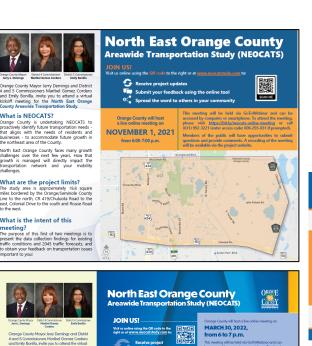
November 1, 2021 (#1) & March 30, 2022 (#2)

Mail-outs: 8,656

Forums: Website, Newspaper Advertisement and GoToMeeting

January 21, 2022

- Florida Department of Transportation (FDOT)
- **Orange County** E
- Seminole County
- University of Central Florida (UCF) E
- LYNX
- MetroPlan Orlando г
- Central Florida Expressway Authority (CFX) Г
- **Orange County Fire Rescue**
- Orange County Sheriff's Office
- Orange County Public Schools (OCPS)
- Central Florida Research Park (CFRP)



À.♥ North East Orange County Areawide Transportation Study (NEOCATS)



ly Meeting No. 2 for the North Ed What is NEOCATS? re arowth in the r ed will directly im What are the project limits? What is the intent of this meeting:

Spread the word to oth









Study Methodology

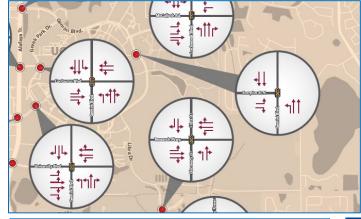


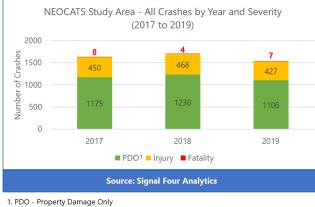
Study Methodology

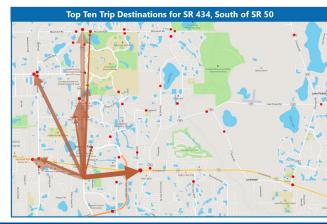


Key Elements

- Roadway data
 - Major developments
 - Pedestrian/bicycle gaps
 - Transit routes
 - Lighting
 - ITS
- Historical crash data
- Traffic data
 - Traffic volumes
 - Origin-Destination (OD) study
 - Multimodal operational analysis
 - Connected Autonomous Vehicles (CAV) impacts*
- Stakeholder input
- Programmed and planned projects
- Orange County, FDOT, and FHWA guidelines
- Similar projects







Capacity Analysis for Planning of Junctions						
Dynamic Results Summary						
TYPE OF INTERSECTION	Overall V/C Ratio	V/C Ranking	Multimodal Score	Pedestrian Accommodations	Bicycle Accommodations	Transit Accommodations
Displaced Left Turn	0.49	1	4.8	Fair	Fair	Good
Signalized Restricted Crossing U- Turn N-S	0.50	2	6.3	Good	Good	Fair
Quadrant Roadway S-W	0.51	3	4.4	Fair	Fair	Fair
Quadrant Roadway N-W	0.51	3	4.4	Fair	Fair	Fair
Quadrant Roadway N-E	0.52	5	4.4	Fair	Fair	Fair
Quadrant Roadway S-E	0.52	5	4.4	Fair	Fair	Fair
Partial Displaced Left Turn N-S	0.52	5	4.8	Fair	Fair	Good
Partial Median U-Turn N-S	0.53	8	6.3	Good	Good	Fair
Traffic Signal	0.56	9	4.8	Fair	Fair	Good
2NS X 1EW	0.70	10	5.6	Fair	Good	Good



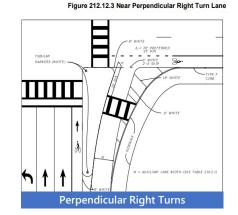
Improvement Types



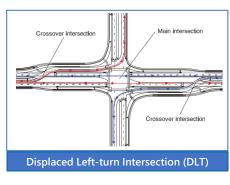
Range of Improvements

- Traditional
 - Turn lanes
 - Operational
- Innovative Intersection Types
- Safety
 - Data driven approach
 - Lighting
 - ADA
- Emerging Technologies/Intelligent Transportation Systems (ITS)
 - CAV impacts
- Multimodal
 - Pedestrian/bicycle/trails
 - Transit
- Transportation Demand Management (TDM) strategies









SCHEME 1 Crosswalk with Stop Signing

Midblock Crosswalks

Hardened Centerlines/Pedestrian Refuge





High Friction Surface Treatments (HFST) are pavement surfacing systems with exceptional skid-resistant properties that are not typically acquired by conventional materials.



Adaptive Signal System









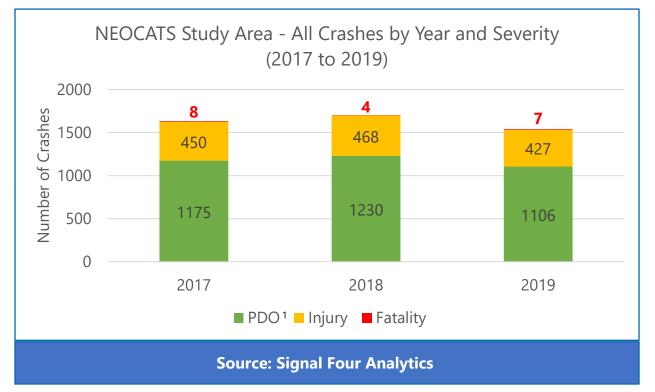
Safety Review and Operational Analysis Results





Signal Four Analytics (2017-2019)

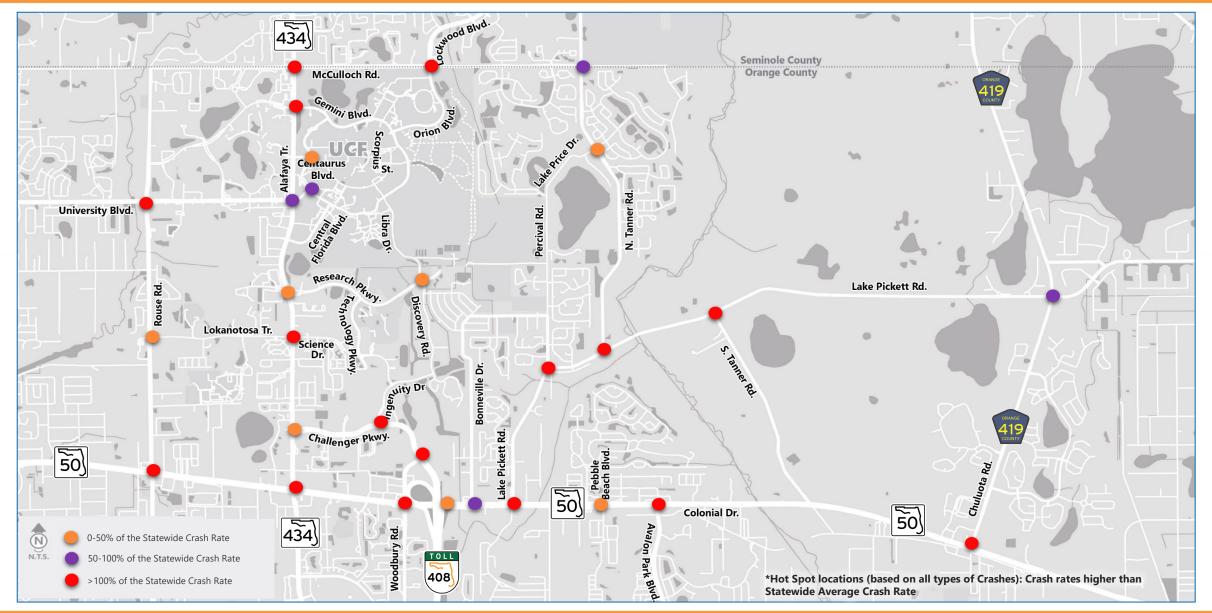
- Totals (roadway + intersections)
 - 4,875
 - 19 fatalities
 - 1,345 injury crashes
 - 3,511 property damage
 - Major types rear-end, angle & sideswipe
- Intersections
 - 2,728 (56% of total)
- Mid-segments
 - 2,147 (44% of total)



1. PDO - Property Damage Only

Hot Spot Locations (2017-2019)

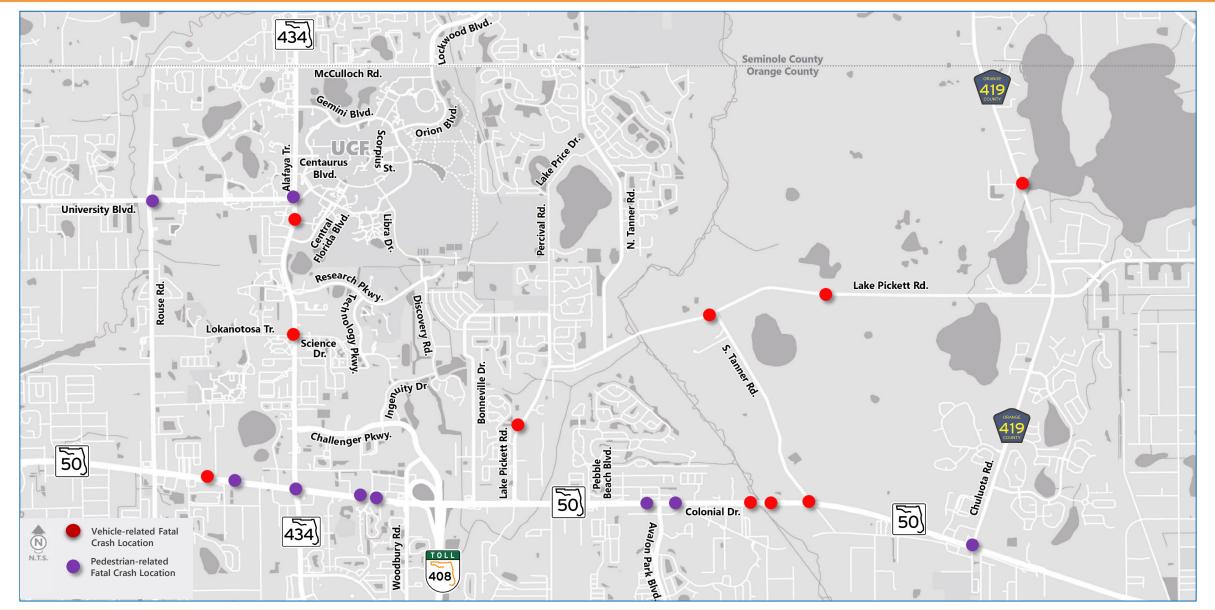




Fatal Crash Locations (2017-2019)

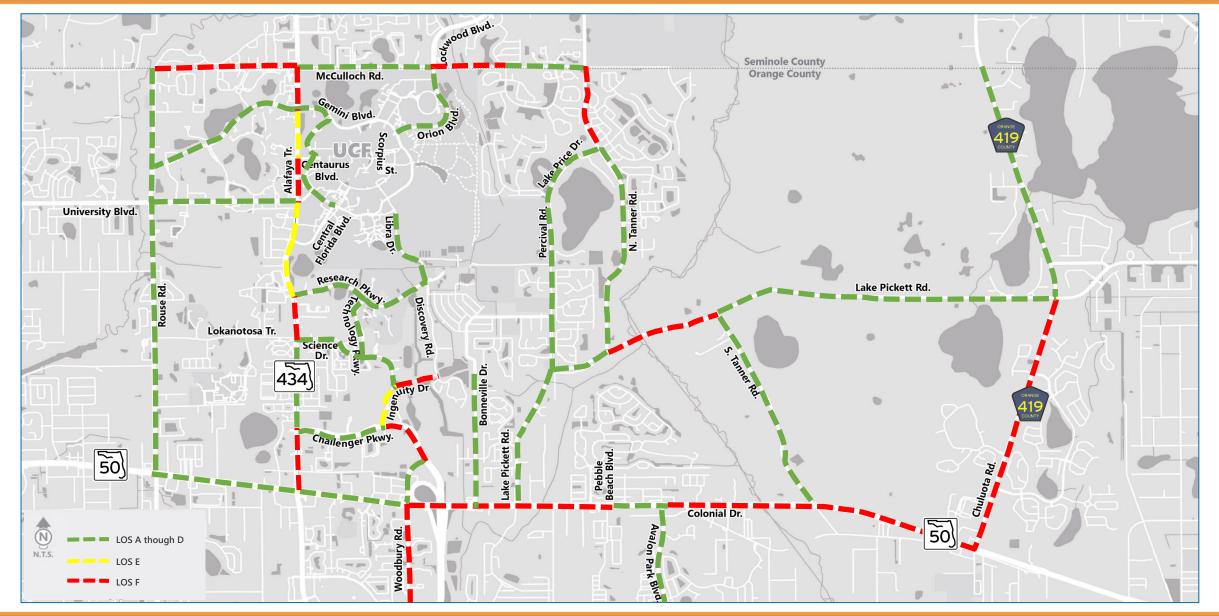
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Existing Traffic Conditions - Segments

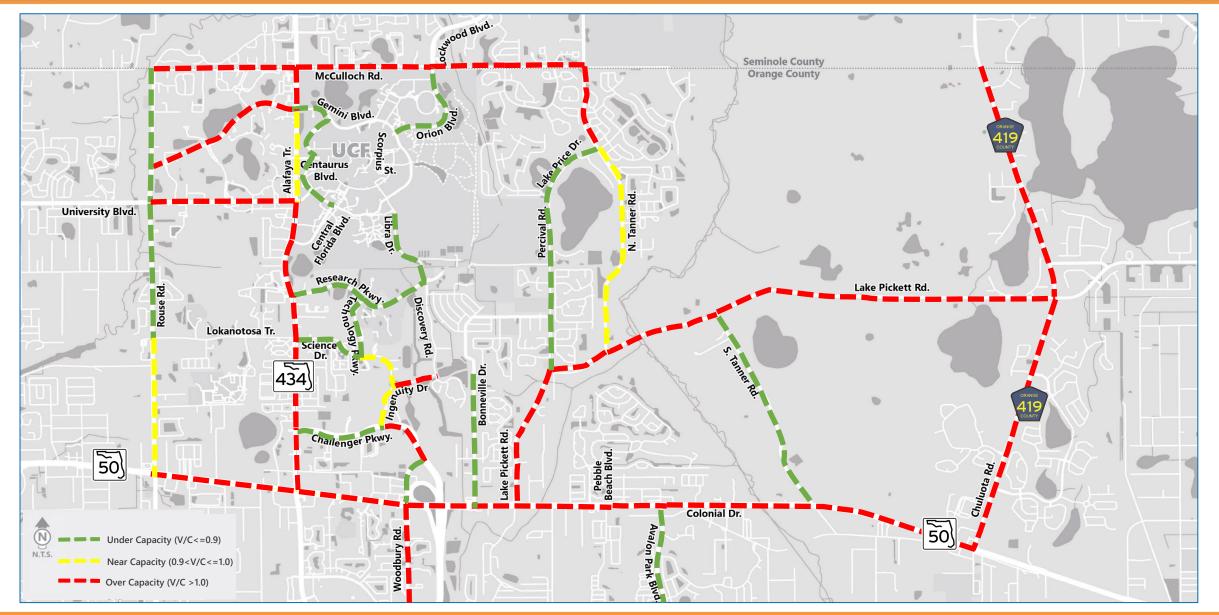






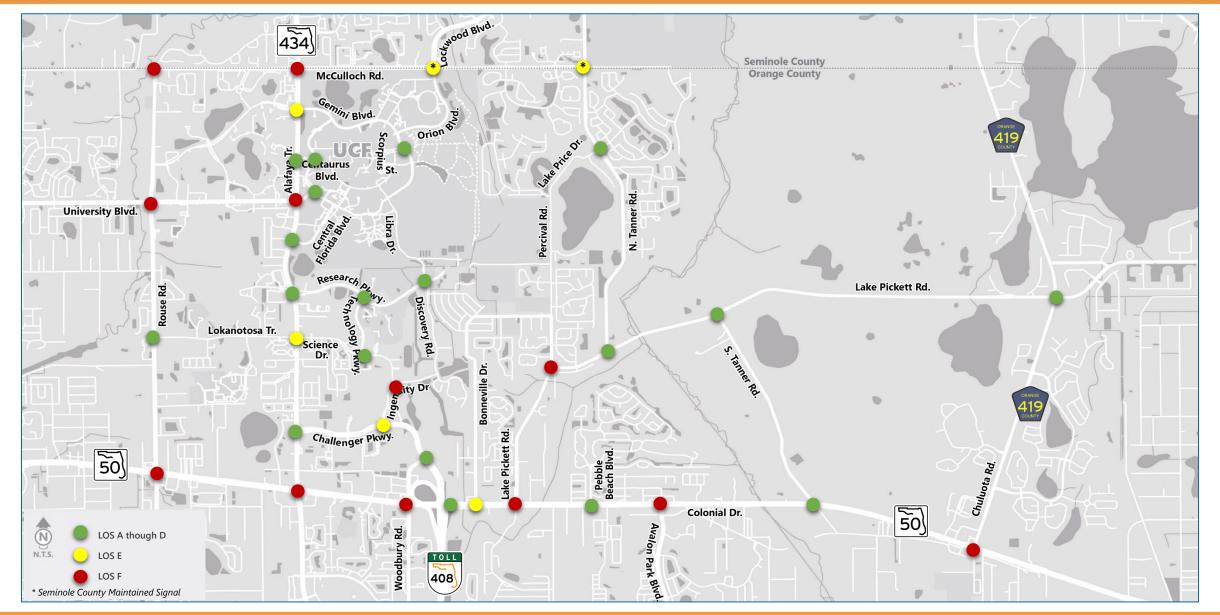
2045 No Build Traffic Conditions - Segments





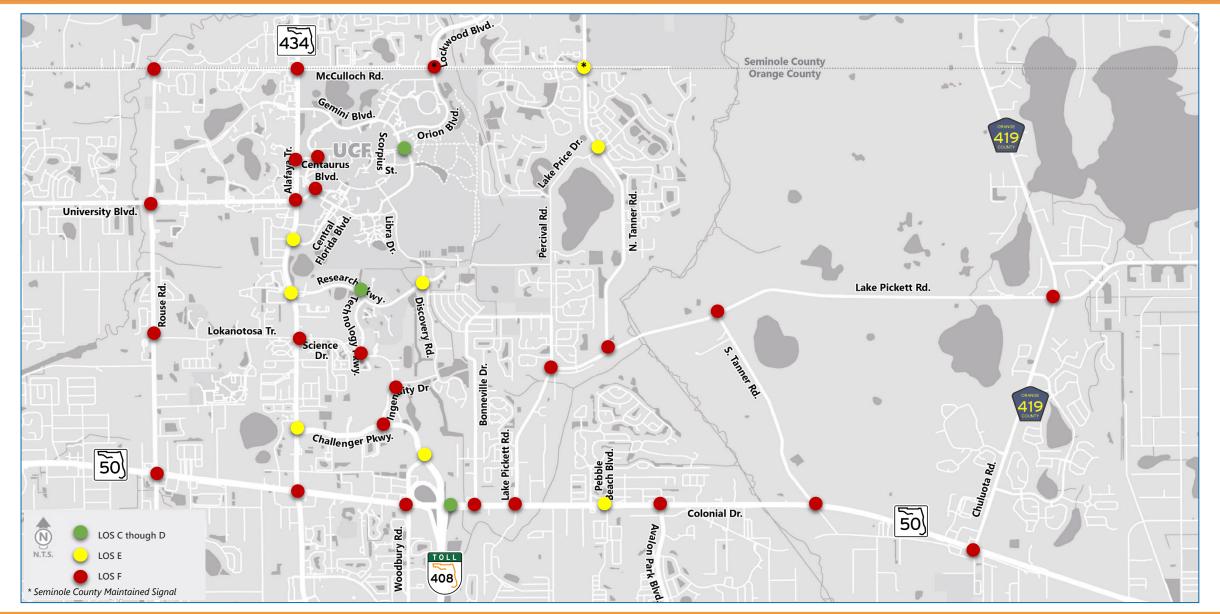
Existing Traffic Conditions – Intersections





2045 No Build Conditions – Intersections









Recommended Improvements



CAV Impacts for 2045

Highway Capacity Manual (7th Edition)

- CAV adjustments for 2045 traffic conditions
- For through movements
- 33% of CAVs in traffic stream
 - Approximately 10% increase in capacity (Base Saturation Flow Rate)

Intersections					
Proportion of CAVs in Traffic Stream	Base Saturation Flow Rate (pc/h/ln)				
0	1,900				
20	2,000				
40	2,150				
60	2,250				
80	2,550				
100	2,900				

Exhibit 31-64: Base Saturation Flow Rates for CAVs for Through Movements at Signalized

Notes: CAV = connected and automated vehicle, defined here as a vehicle with an operating cooperative adaptive cruise control system.

Assumes no interaction with non-motorized road users, no adverse weather impacts, and a facility without driveways

or access points impacting saturation flow rates. Interpolate for other CAV proportions.



UNESE

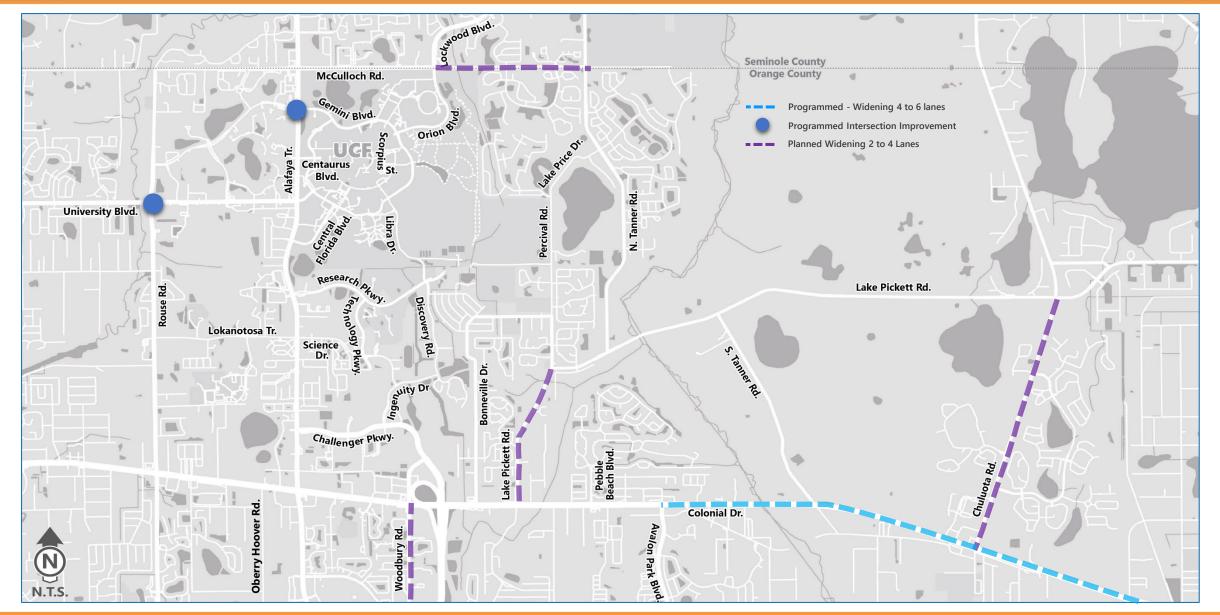


The National Academies of SCIENCES - ENGINEERING - MEDICIN

Programmed/Planned Improvements

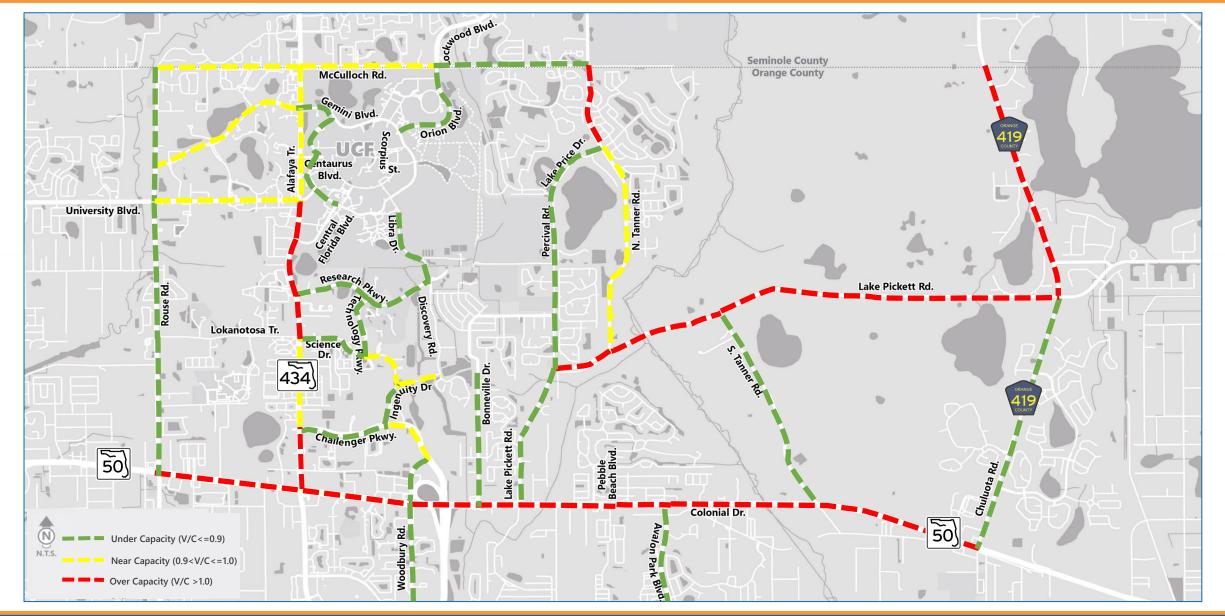
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2045 Build Traffic Conditions – Roadway Segments (With Planned/Programmed Improvements)

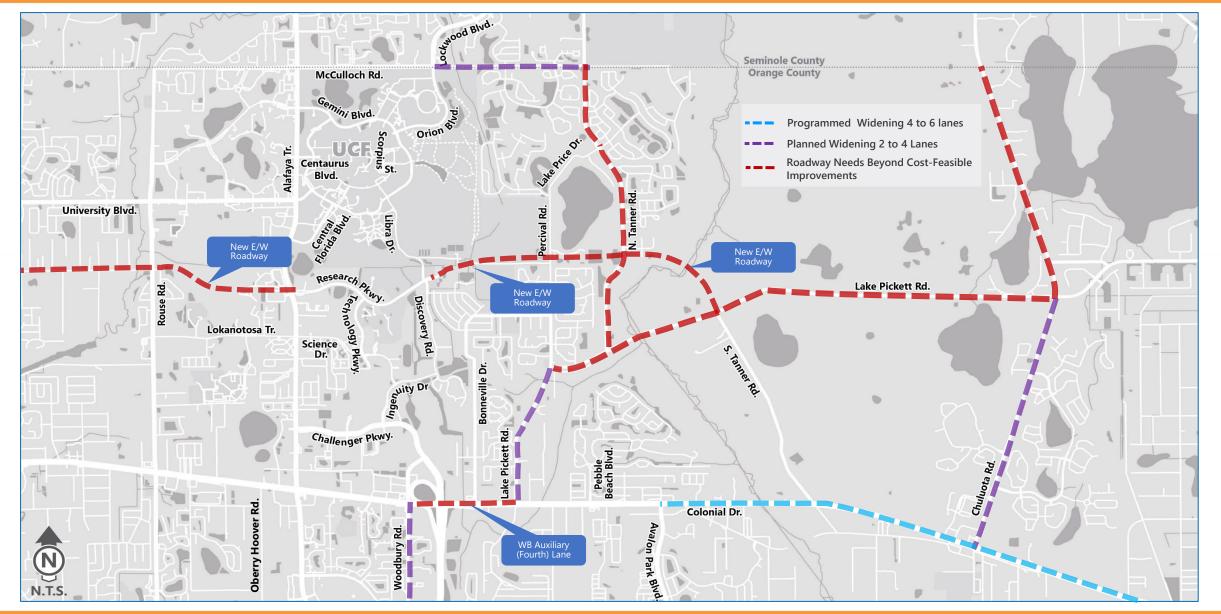






Roadway Needs

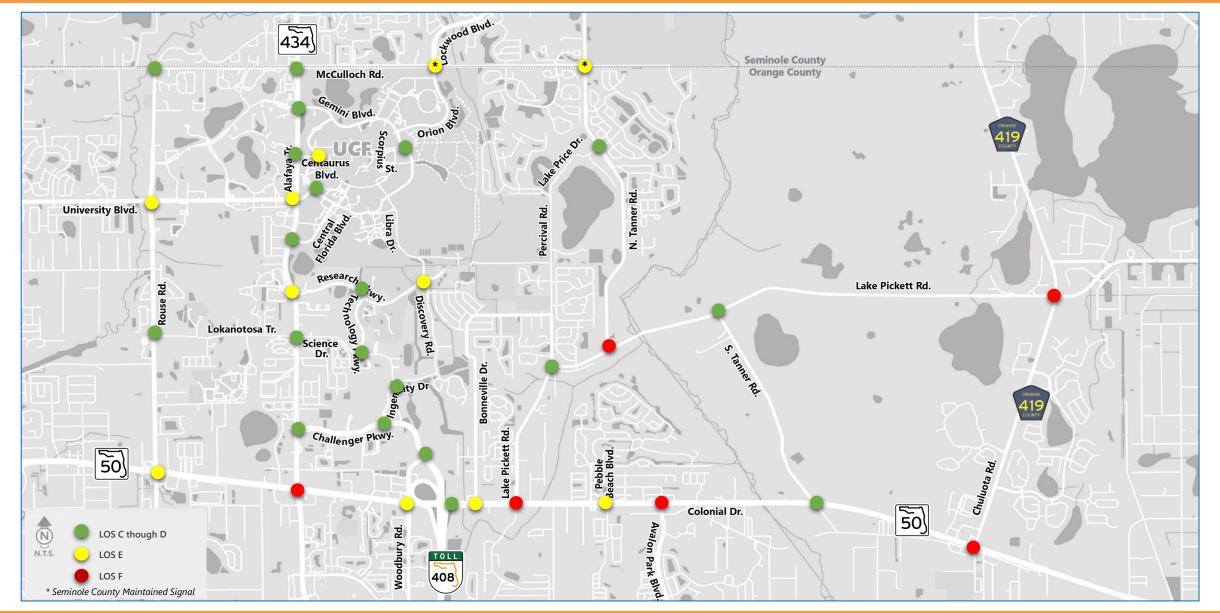




2045 Build Traffic Conditions – Intersections (With Planned/Programmed Improvements)

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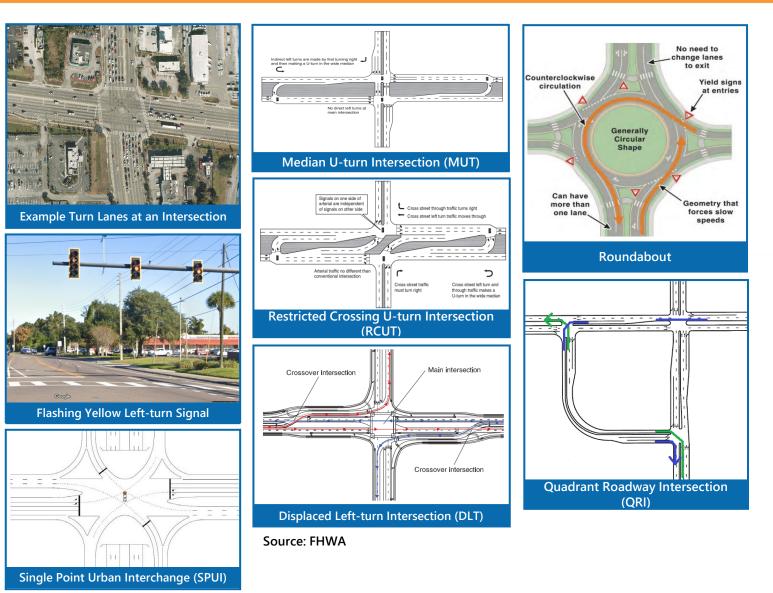


Traditional/Innovative Intersection Improvements



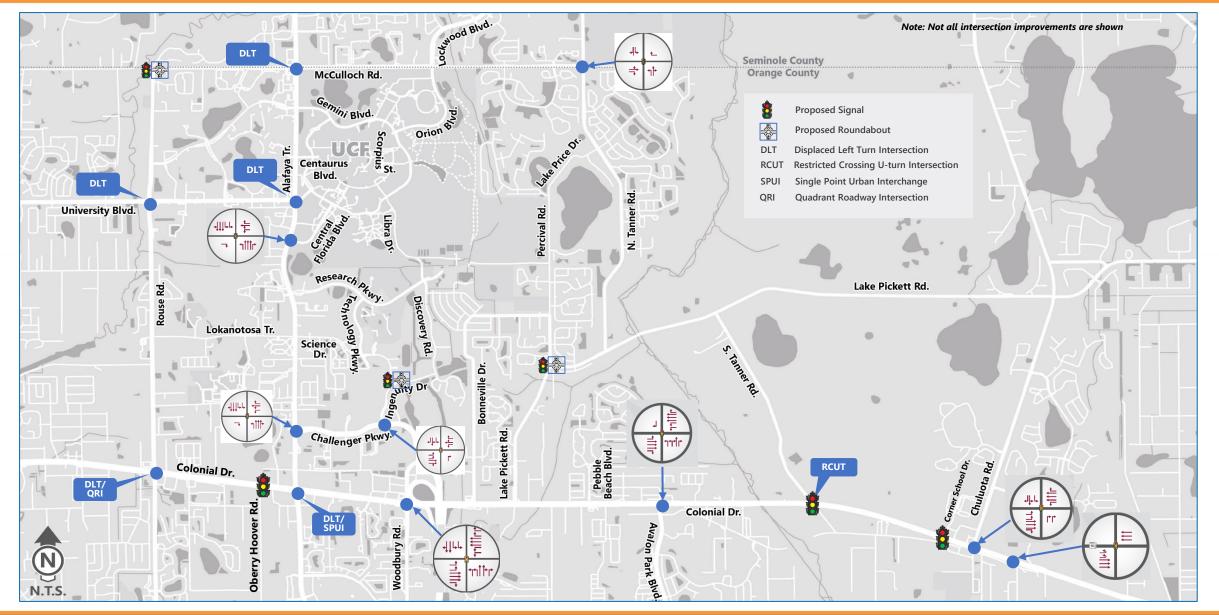
Anticipated Safety Benefits

- Permissive to protected left turns
 - 6% reduction in all crashes
- Exclusive right turn lane
 - **11%** reduction in all crash types
- Additional left turn lane
 - 4% reduction in all crash types
- Roundabout
 - 90% fewer fatalities/75% fewer injuries
 - **10-40%** fewer pedestrian/bicycle crashes
- Traffic signal
 - 23% fewer crashes versus a stop-controlled intersection
- RCUT
 - 20% fewer crashes versus to a traditional intersection
- DLT
 - 12% fewer crashes compared to a stopcontrolled intersection



Innovative Intersection Improvements





Safety/Multimodal/ADA Improvements



Anticipated Safety Benefits

- Retroreflective back plates to signal heads
 - 15% reduction in all crashes
- Hardened centerlines/pedestrian refuge
 - **32%** reduction in all pedestrian/vehicle crashes
- High-friction surface treatment
 - 58% reduction in wet weather crashes
- High emphasis crosswalks
 - **40%** reduction in pedestrian-related crashes
- Lighting improvements
 - 38-42% reduction pedestrian/vehicle crashes
- Advance traffic signs
 - 20% reduction in rear-end & sideswipe crashes
- HAWK/Pedestrian Hybrid Beacon
 - **57%** reduction in pedestrian/vehicle crashes
- Detectable warning surfaces on curb ramps
- Tighten corner radii
 - Improves pedestrian/bicycle safety









Example Intersection Improvements



Alafaya Tr & University Blvd Intersection Improvements



	Period	Intersection Improvements	Safety/ADA/ Multimodal Improvements
	Short-term Improvements	Study Improvements	 Evaluate intersection lighting to meet FDOT guidelines Add retroreflective back plates to signal heads Provide special emphasis crosswalk markings Reduce curb radii on all intersection corners
4 2 5	Mid-term Improvements		 Install wayfinding signs providing directions to major destinations Consider providing a supplemental signal head for westbound traffic to mitigate horizontal curvature and obscured sight lines of signal heads
	Long-term Improvements	4 – Third EB Left Turn Lane (or) 5 - Partial Displaced Left Turn Intersection	 Consider adding a Leading Pedestrian Interval and blank-out yield to pedestrian signs for all right turns at intersection



SR 50 & Avalon Park Blvd Intersection Improvements



	Period	Intersection Improvements	Safety/ADA/ Multimodal Improvements
	Short-term Improvements	1 - Adaptive Signal Control	 Reduce corner radii or consider installing channelizing corner islands with near perpendicular right turn lane design and truck
		2 – Additional NB Left Turn Lane 3 – Three EB Through Lanes as part of SR 50 Widening to Six Lanes	 aprons on the southwest and southeast intersection corners Provide curb extension on EB departure leg Upgrade intersection lighting to meet FDOT guidelines
A 2 ark Blvd.		4 – Convert SB Approach to Right-out Only & Provide U-turn West of this Intersection	



SR 50 & Avalon Park Blvd Intersection Improvements







SR 50 & Chuluota Rd Intersection Improvements

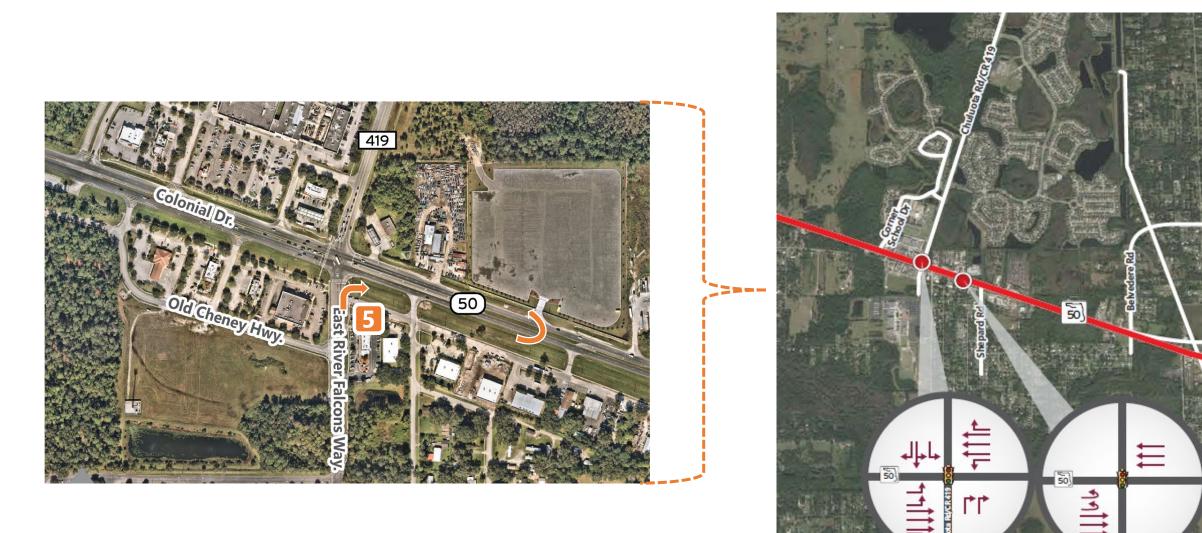


	Period	Intersection Improvements	Safety/ADA/ Multimodal Improvements
	Short-term Improvements	1 - Second EB Left Turn Lane 2 - Change SB Approach to 2 SB Lefts, 1 SB Through and 1 SB Right 3- Adaptive Signal Control	 Evaluate intersection lighting to meet FDOT guidelines Provide lane-line extensions to guide travel along the curved alignments through the intersection on both the SR 50 and Chuluota
5 3 5 E Colonial Dr.	Mid-term Improvements	4 – Change NB Approach to 2 NB Lefts and add 1 NB Through-Right Turn Lane 5 – Six Lanes on SR 50	 Rd approaches Revise strain pole configuration to improve signal head placement and visibility Reduce corner radii on the northwest and southeast intersection corners or provide corner islands with near-perpendicular right
	Long-term Improvements	6 – Convert NB Approach to Right-out Only & Provide U-turn East of this Intersection	 turn lane design Add retroreflective back plates to signal heads Consider crosswalks on the north and east legs and fill the sidewalk gap to the Gas Station driveway



SR 50 & Chuluota Rd Intersection Improvements







Agenda









Multimodal Improvements

34



Pedestrian/Bicycle Facilities – Programmed Improvements

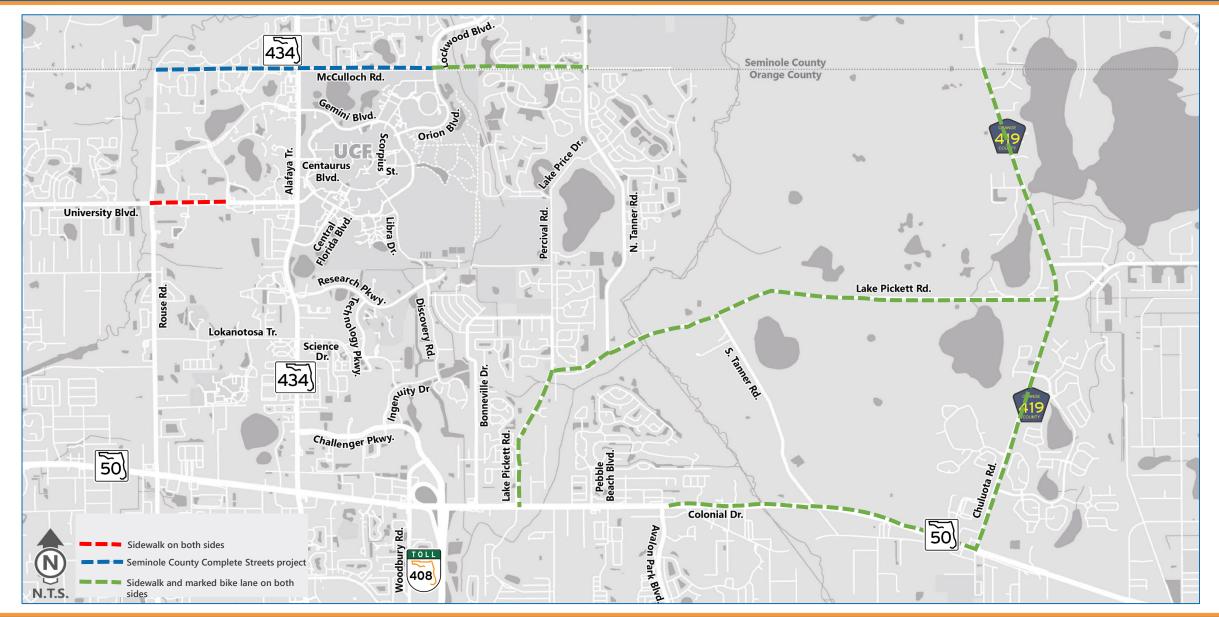




Pedestrian/Bicycle Facilities – Planned Improvements

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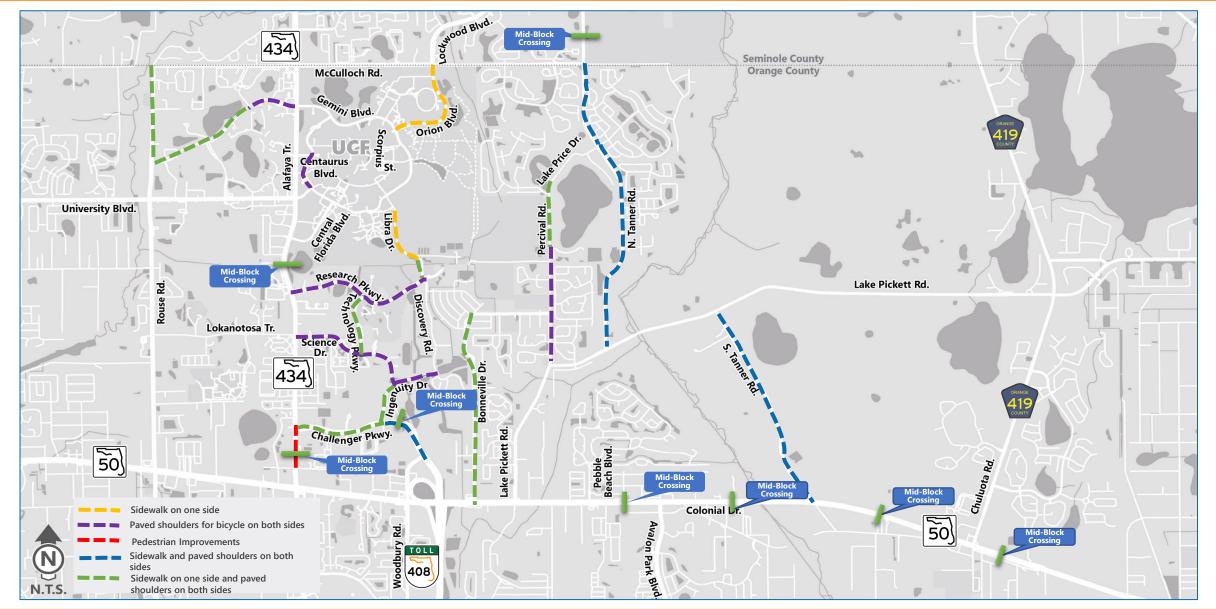






Pedestrian/Bicycle Needs

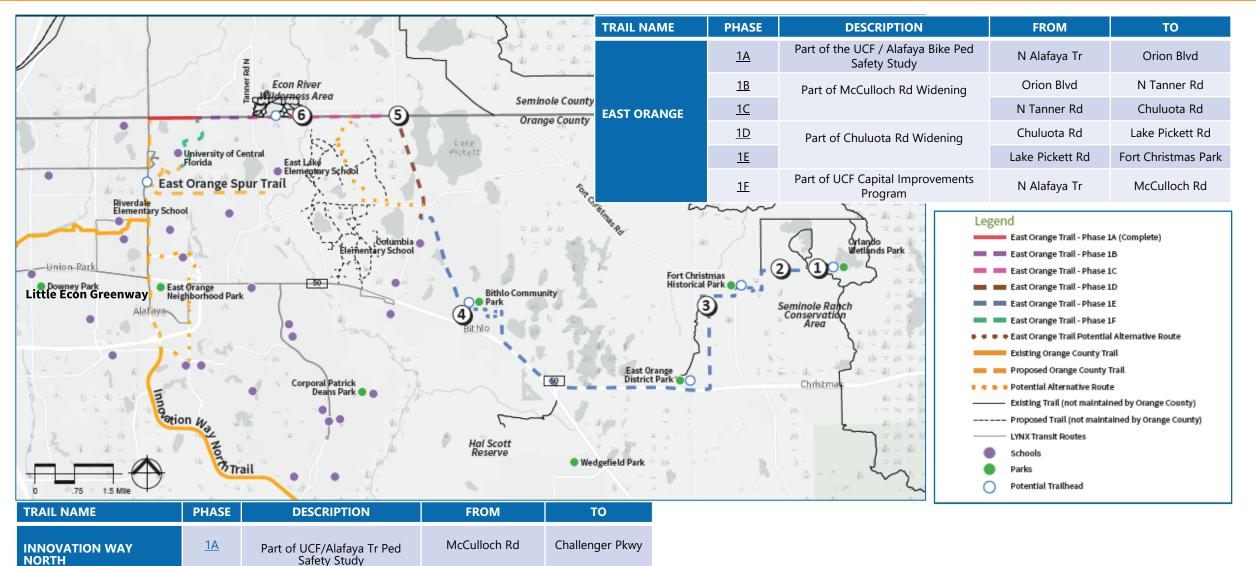




Planned Trail Improvements

1B





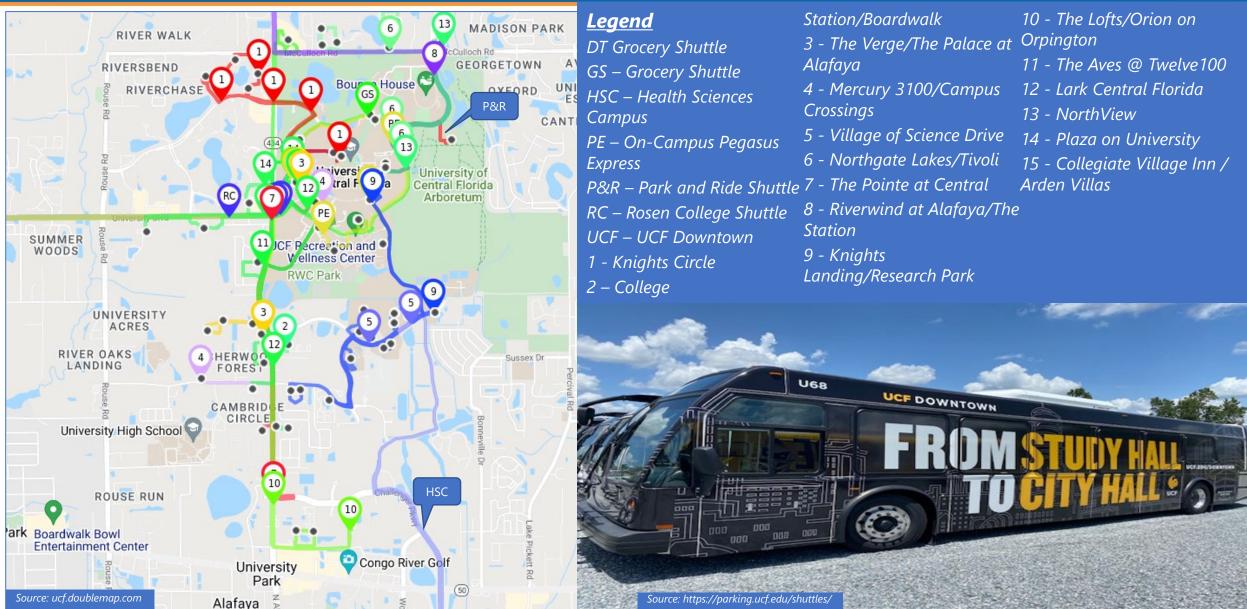
Lake Underhill Rd

Challenger Pkwy

* 🔇

Existing Transit - UCF

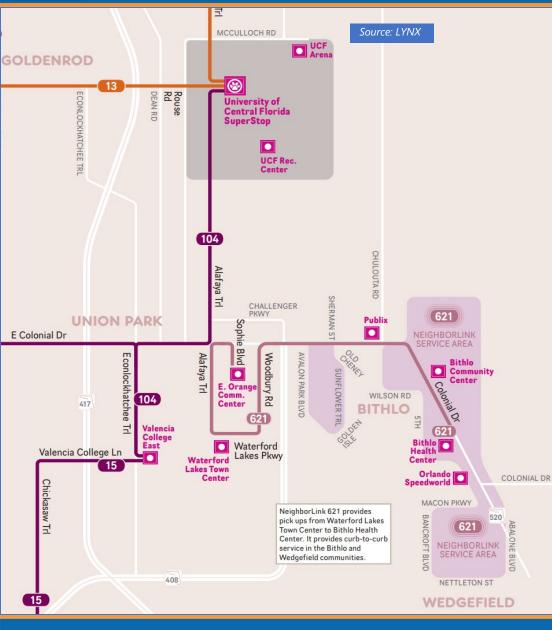






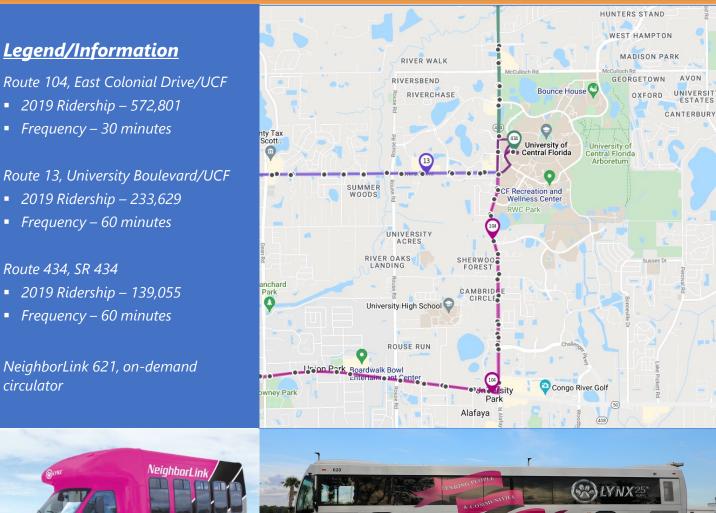
Existing Transit - LYNX





circulator

*



Source: golynx.doublemap.com

Planned Transit Improvements - LYNX



Orange County Transit Plan – Enhanced Service

- Enhanced service in existing zones (Curb to Curb)
- 11 New Enhanced On-Demand/Flexible Routes/Zones
 - Bithlo NeighborLink
 - Waterford Lakes/Avalon Park Neighbor Link
- Four Express Routes
 - Increased frequencies/Connections to Rail Station & transfer centers
- BRT Corridor between Ocoee and UCF
 - 20-30 minute frequency
- UCF to Oviedo via Lockwood Blvd



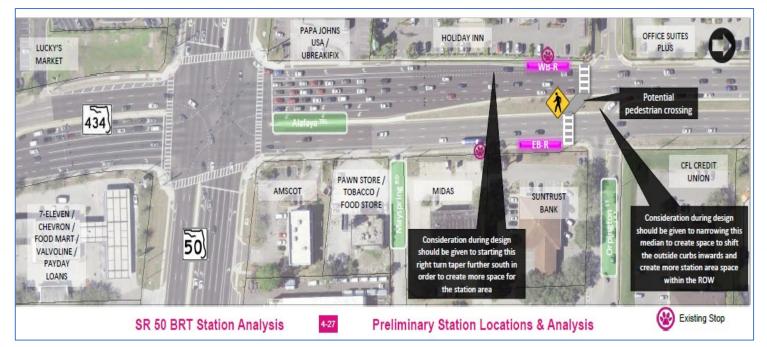
Network On-Demand/Flexible Services (source: Orange County Transit Plan, LYNX, March 2022)

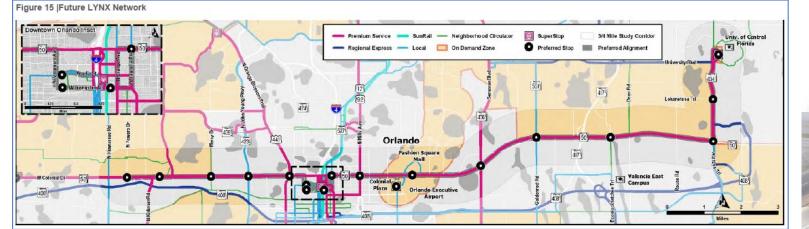
Route Number	Route Name	Frequency (Weekday)						
Planned Routes (Future Condition)								
104	SR 50 UCF-Downtown	20-30 min						
204	SR 50 Limited Stop	20 min						
308	UCF-Downtown Regional Express	30 min						
311B	UCF-Medical City/Lake Nona - Meadowoods Regional Express	30 min						
401A	Waterford Lakes Commuter Express	30 min						
401B	Waterford Lakes Commuter Express (Pattern of 401A)	30 min						
506	Lake Underhill-UCF	30 min						
522	UCF-SR 436/Aloma	30 min						
600B	Red Bug Lake/Alafaya	60 min						
601	Oviedo/Lockwood	60 min						
821	Bithlo NeighborLink (On-Demand/Flex-Route Hybrid)	Flexible (30 min)						
866	Waterford Lakes/Avalon Park (On-Demand/Flex Zone)	Flexible (30 min)						
Source: Orange	County Transit Plan, LYNX, March 2022							

SR 50 Bus Rapid Transit [BRT] Corridor

ORANGE COUNTY GOVERNMENT F L 0 R L D A

- Recommended as part of 2013 SR 50/UCF Connector Alternatives Analysis
- Bus Stations in NEOCATS Area
 - Alafaya Tr and Lokanotosa Tr
 - Alafaya Tr and SR 50
- Transit Signal Priority (TSP) recommended for the entire BRT









Travel Demand Management (TDM) Strategies



- New NeighborLinks (Expansion Area/On-Demand)
- Transportation Management Organization (TMO)
- Transit Marketing, Real-Time Information, and Wayfinding
- Special Transit Benefits Zone
- Active Transportation Commuter Stations
- Dedicated Traffic Safety Instructor
- Mobility Hub (UCF SuperStop) and Facility Enhancement
- Express Bus Service and New Park & Ride Lots (TSP/Queue Jumps)

Anticipated Vehicle Trip Reduction 5-15% for NEOCATS Example Mobility Hub									
National Evidence on TDM Program	National Evidence on TDM Program Impacts Vehicle Trip Reduction from Background Conditions								
TDM Program or Strategy	High Transit	Moderate Transit	Low Transit						
Support, Promotion, Information	3-5%	1-3%	<1%						
Alternative Commute Services	5-10%	5-10%	1-3%						
Financial Incentives	10-20%	5-15%	1-5%						
Combined Strategies									
With Free Parking	15-20%	10-15%	3-7%						
With Paid Parking	25-30%	15-20%	N/A						



JUMP

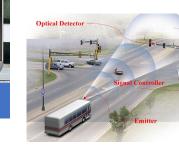
👽 relay

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(z) zipcar





Example Bus Stop Digital Sign

Source: Cambridge Systematics, 2010 (Fairfax County, VA), FHWA







ITS Improvements/Emerging Technologies

ITS Improvements/Emerging Technologies



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Horn

Period	ITS Project	Description
	 SR 50 Adaptive Signal System (Forsyth Rd to Avalon Park Blvd) 	 Install an adaptive signal system
erm	 Intelligent Transportation Systems/Customer Information Systems/Travel Planning 	 Test upcoming transit technologies and real time transit dissemination applications
Short-term	 Data Sharing Application 	 Access real-time information from other agencies (dashboard with performance measures, and tools to measure performance and communicate information)
	 Active Arterial Management (AAM) 	 AAM is a collection of strategies for managed corridors and an integrated regional system. Strategies include traveler information, signal timing, and more.
	 Connected Vehicle Pilot Project 	 Test connected vehicle strategies
	 UCF - Bicycle and Pedestrian Innovative ITS Solution 	 Install bicycle and pedestrian ITS technologies
Mid-term	 CAV Technology Ready Corridors 	 Vehicle-to-vehicle (V2V) & Vehicle-to-Infrastructure (V2I), Road-side Units & Communications Infrastructure Congestion alerts, collision avoidance, weather alerts, blind spot alerts, pedestrians nearby etc. Can be combined with adaptive traffic control system
2	 Install speed/volume sensors, Bluetooth devices, and Arterial DMS (ADMS) 	 Disseminate real-time traffic information, detour routing for incidents, construction & event information Measure near real-time/historic travel time & origin-destination information for performance reporting and optimization

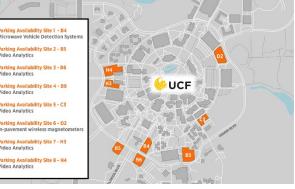
ITS Improvements/ATTAIN Central Florida



- Deploy smart technologies in Central Florida Four distinct programs
- Funded by FHWA grant and local matching funds
- PedSafe hardware installations complete
 - Innovative ped/bike collision avoidance system that will operate with CV technologies
 - Pilot deployment at/between signals on Alafaya Tr adjacent to UCF
- Greenway CV Technologies installed at 33 signals (Orange County)
 - Cellular vehicle-to-everything (C-V2X) roadside units (RSU),
 - Emergency vehicle preemption (EVP),
 - Transit signal priority (TSP)
 - Passive pedestrian detection (PPD) technology
 - Initially will be used by UCF transit /first responder vehicles
- Smart Community
 - District's 1st autonomous vehicle (AV) shuttles (2) within UCF
 - Surface Parking Management
- SunStore FDOT's Data Storage & Research Sharing Initiative



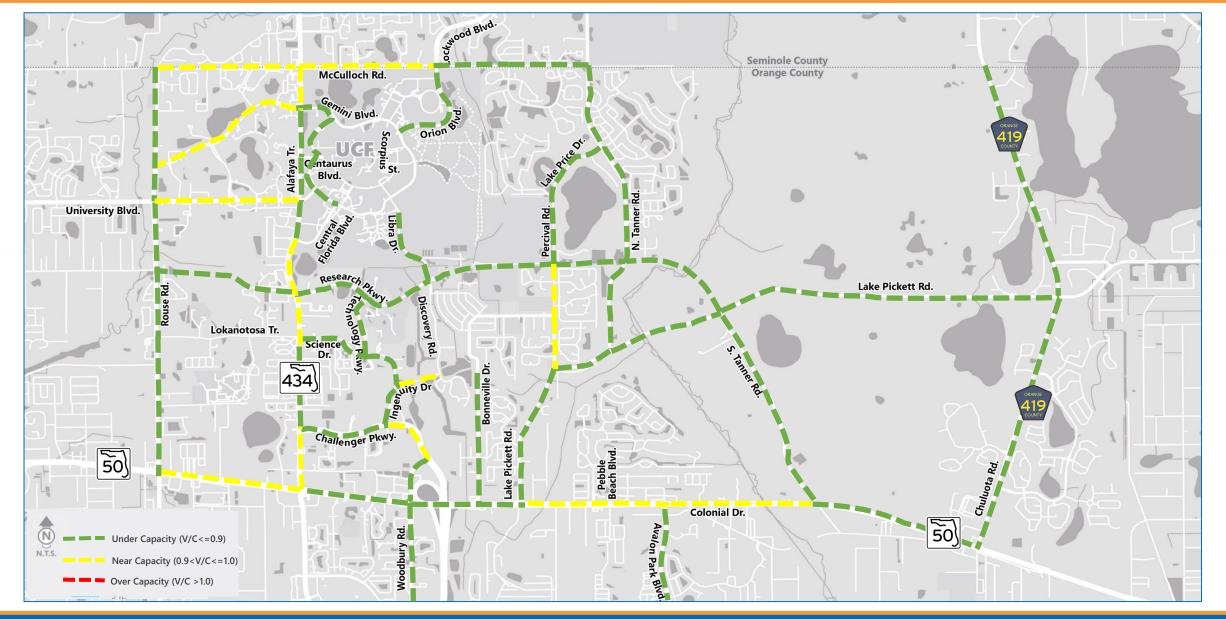




Source: https://cflsmartroads.com/projects/ATTAIN-CFL.html

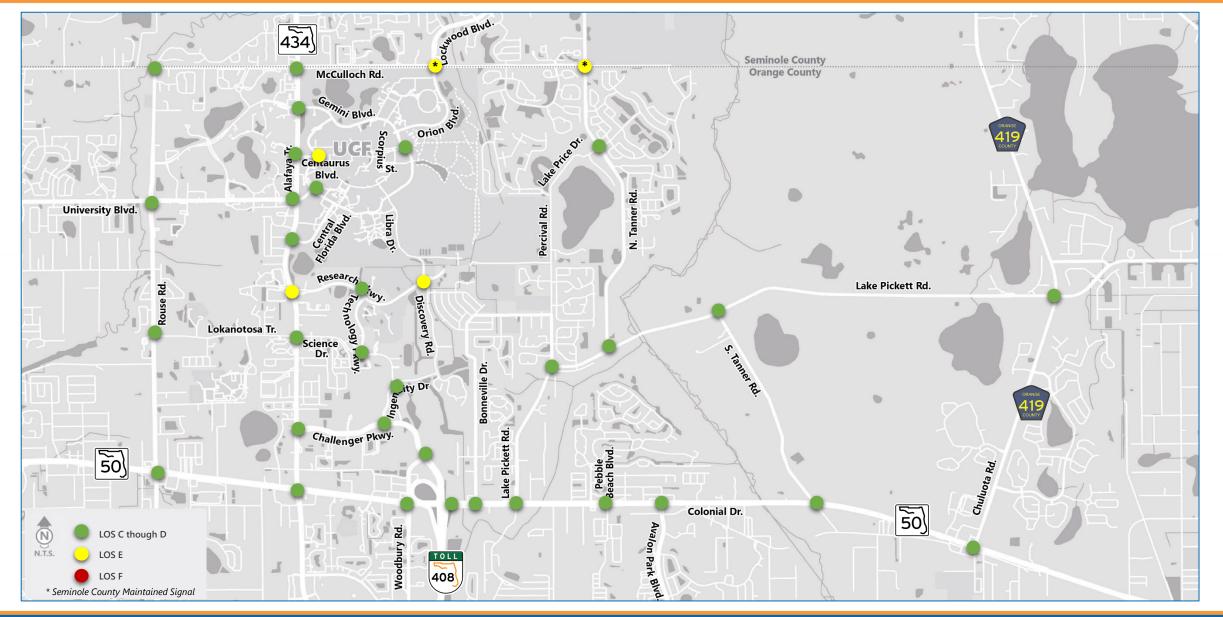
2045 Build Traffic Conditions – Segments (With Improvements based on Roadway Needs)





2045 Build Traffic Conditions – Intersections (With Improvements based on Roadway & Intersection Needs)











Study Timeline/ Next Steps



NEOCATS Study Timeline/ Next Steps



	2021 2022													
Study Schedule	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Project Kick-off	\star													
Community Meetings							İ				Í			
Local Planning Agency (LPA) / Board of County Commissioners (BCC) Workshops & Public Hearings												(To I	Be Deci	ded)
Traffic Data Collection & Analysis														
Transportation Modeling														
Evaluation of Scenarios & Needs Plan														
Environmental Conditions														
Final Report & Project Wrap-up														

★ Project Kick-off

TCommunity Meeting LPA/BCC Hearing

Project Milestones

50







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Project Manager Orange County Transportation Planning Division 4200 S. John Young Pkwy. Orlando, FL. 32839

(407) 836-8023

Babuji Ambikapathy, AICP, P.E.

Consultant Project Manager 225 E. Robinson Street, Suite 300 Landmark Center Two Orlando, FL 32801-4326

(407) 230-2762



www.neocatstudy.com







NEOCATS – Website/Feedback



	$ \begin{array}{c} \hline \\ \hline $	5 Project Schedule Submit Feedback
	Submit Feedback Vour opinion is important to us. Share your thoughts with us on social media. You may also contact the Orange County Transportation Planning Division at 407-836-8023 or at Hatem Abour Senna@ocfl.net @ Check back for updates on upcoming Public Involvement Activities	e Interested in receiving project updates? Sign up here to be included on our mailing lists. Name (required) Agency Email (required) SUBSCRIBE
Contacts Hatem A. Abou-Senna, PhD, P.E. Project Manager Orange County Transportation Planning Division 4200 S. John Young Pkwy. Orlando, FL. 32839 (407) 836-8023 @hatem.abou-senna@ocfl.net [2]	Consultant Team Babuji Ambikapathy, AICP, P.E. Consultant Project Manager 225 E. Robinson Street, Suite 300 Landmark Center Two Orlando, FL 32801-4326 (407) 230-2762 @ bambikapathy@vhb.com [2]	Social Media f Orange County, Florida Government S @OrangeCoFL

Visit the project web page. We want to know what you think!





Feedback and Discussion

