

Orange County Public Works Department

**Chuluota Road (CR 419)
RCA Study &
Intersection Control Evaluation (ICE)
Work Session**

April 22, 2025



Presentation Outline

2

- Background
- RCA Study
- ICE Alternatives Analysis and Recommendation
- Public Involvement
- Project Funding and Schedule
- Summary
- Board Direction

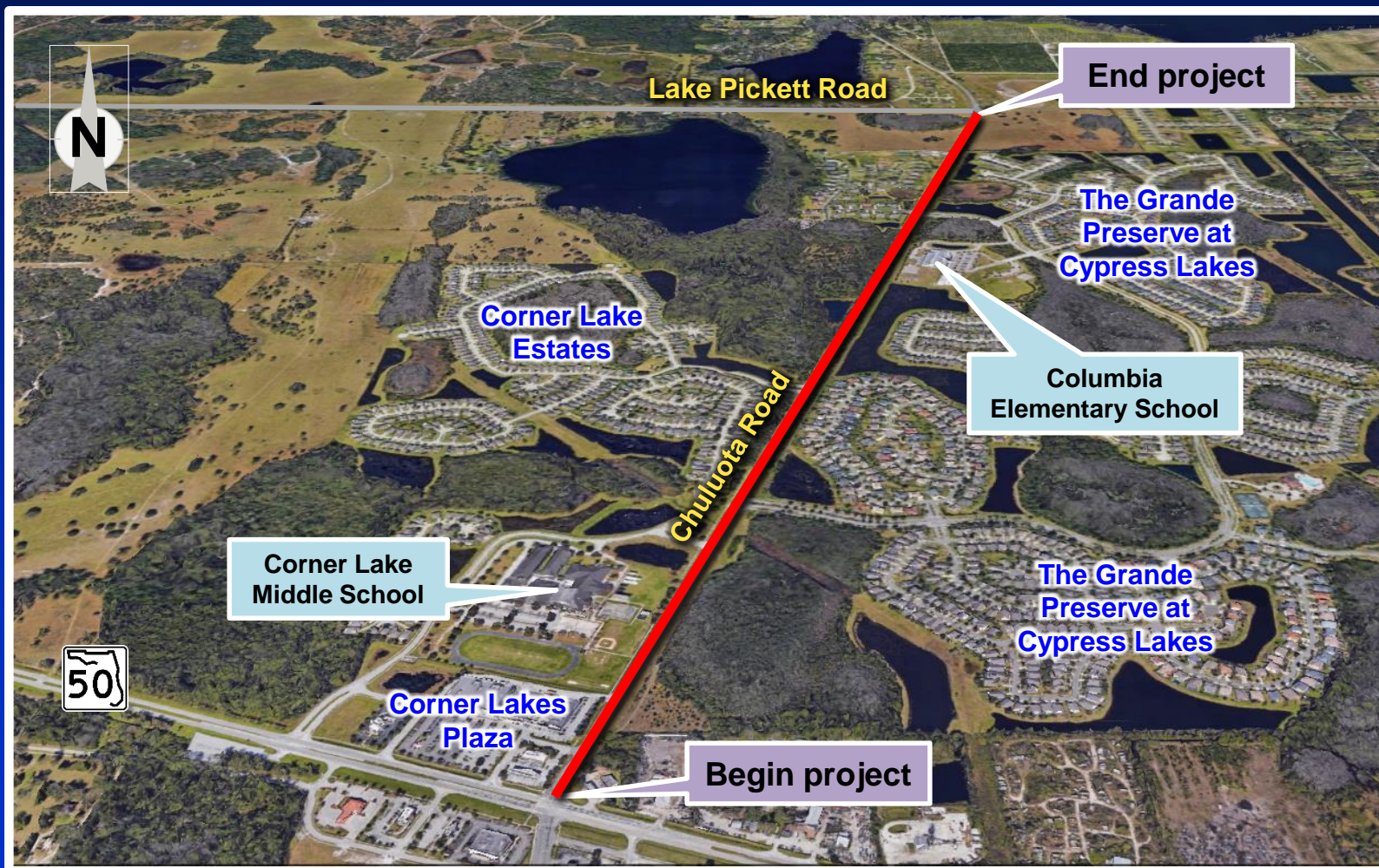


Presentation Outline

3

- Background
- RCA Study
- ICE Alternatives Analysis and Recommendation
- Public Involvement
- Project Funding and Schedule
- Summary
- Board Direction

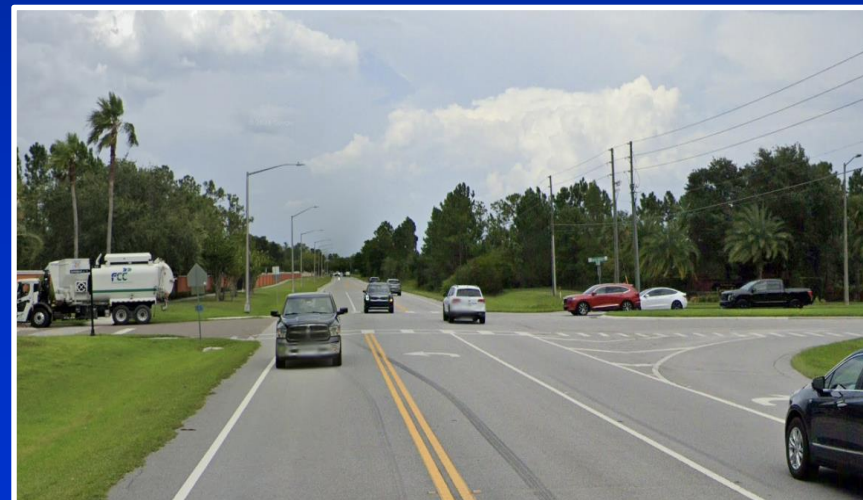
■ Project Location



Background

5

- Chuluota Road has been in County's LRTP for more than 25 years
- Traffic has consistently increased over that time
- The County's Currency Management System shows no available capacity for the segment
- Community identified safety as a persistent problem
- Project part of \$200M Invest in Our Home for Life initiative
 - Funds new roadways
 - Improve existing roadways
 - Relieves traffic congestion throughout Orange County
 - Funded the RCA study, and can fund design, ROW, and portion of construction

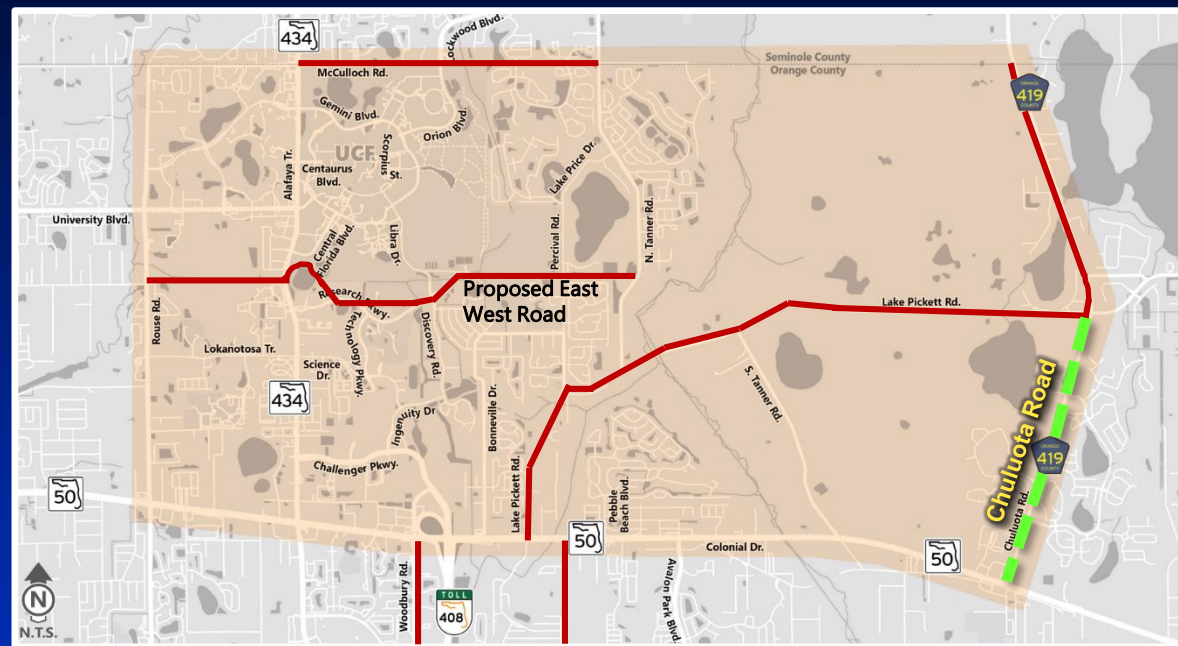




Background

6

- Chuluota Road, Lake Pickett Road, McCulloch Road, and others were identified as needing improvements as part of the 2024 NEOCATS study
- Reaffirmed need for LRTP projects
- Existing subdivisions paid impact fees for road improvements
- Some developments paid Proportionate Fair Share mitigation for road impacts



Background

7

- RCA Study commenced in 2021 to evaluate improvements to Chuluota Road
- Study Goals:
 - Improve safety
 - Address forecasted traffic growth and congestion
 - Improve multi-modal elements with sidewalks and multi-use pedestrian/bicyclist path
 - Identify drainage issues and other deficiencies
 - Minimize property impacts



VISION ZERO
CENTRAL FLORIDA
Counting down to zero traffic deaths



Presentation Outline

8

- Background
- **RCA Study**
- ICE Alternatives Analysis and Recommendation
- Public Involvement
- Project Funding and Schedule
- Summary
- Board Direction

■ RCA Study Framework

- Corridor context
- Safety analysis
- Traffic projections
- Operations
- Recommendations



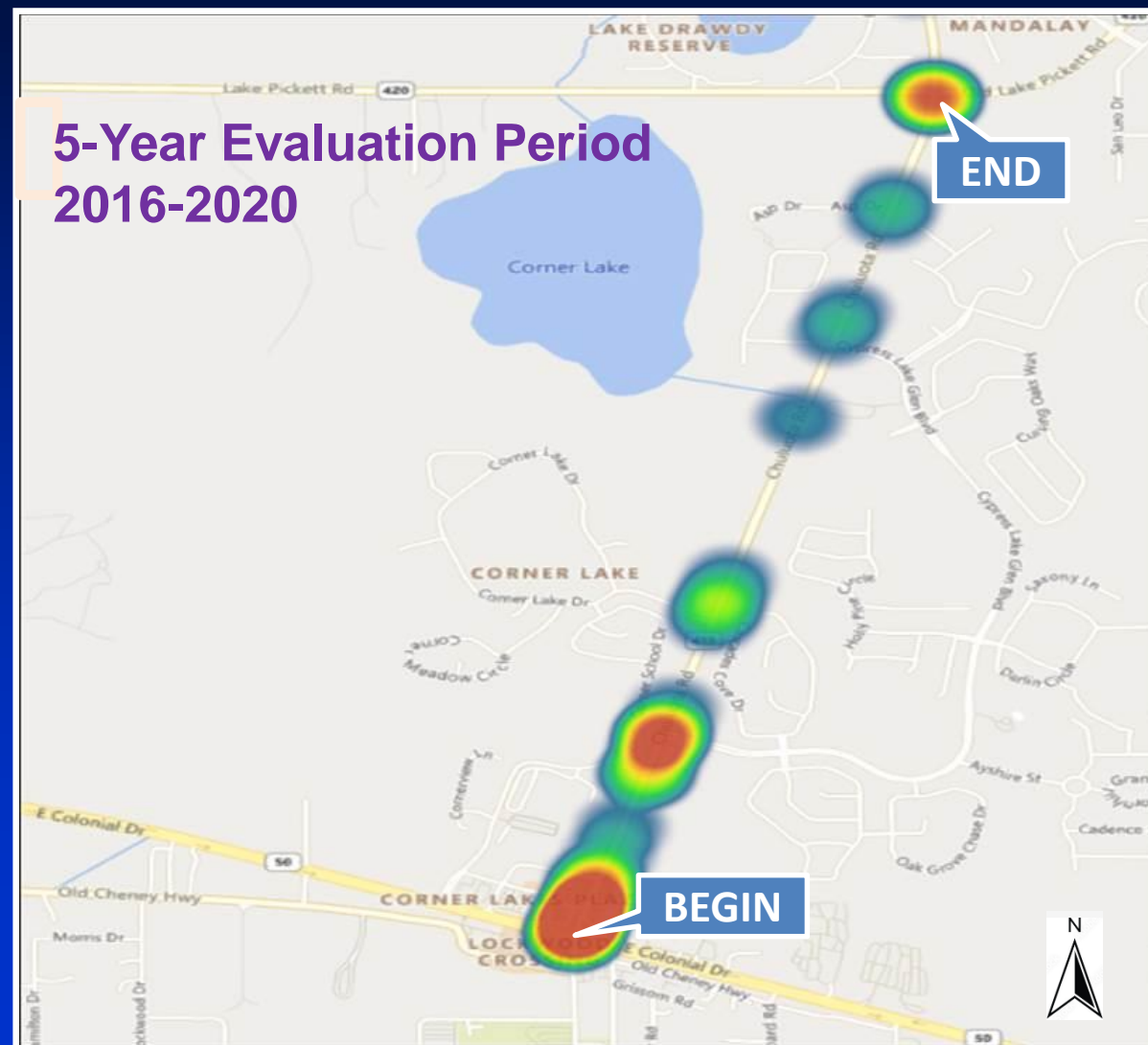
- Context Classification C3C Suburban Commercial and C3R Suburban Residential



Allows for 35-45 mph Design Speed According to Context
Allows the Creation of Project Specific Transition Zones

■ Safety Analysis

- 113 Total Crashes
- 36 Injury Crashes
- No Fatalities
- One Pedestrian Crash
- Three Bicycle Crashes
- Most crashes at congested commercial areas and intersections



▪ Safety Considerations at SR 50

—North of SR 50

- Right-in, right-out movements maintained for Corner Lakes Plaza south driveway
- North driveway retains full median access
- FDOT's SR 50 interim pedestrian improvements

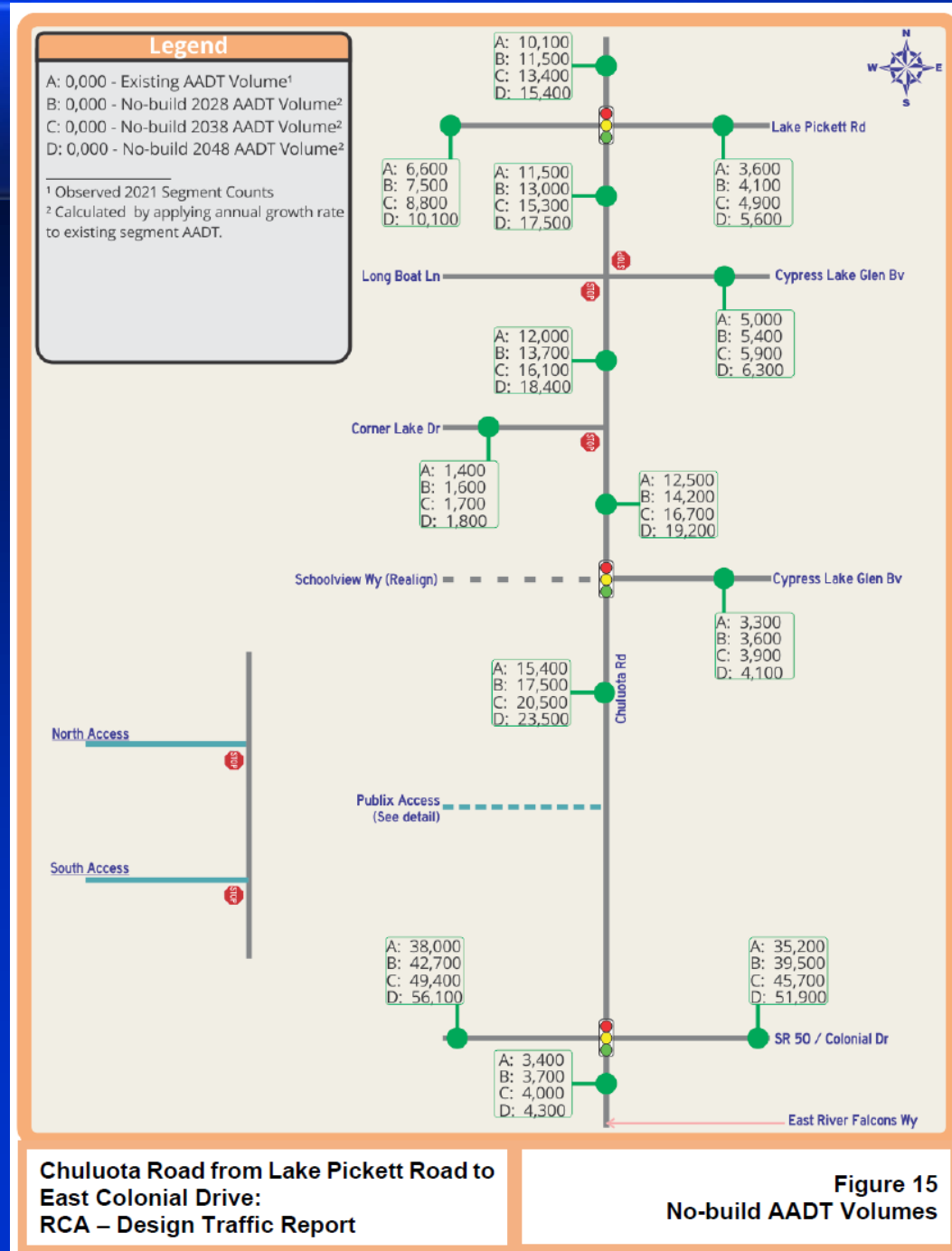
—South of SR 50

- Regional bus dispatch center affected by proposed improvements to SR 50
- Results in rerouting busses to Chuluota Road and introduces safety/operational issues



RCA Study

- 2048 Design Year Traffic
 - Documents consistent traffic grown
 - Study reflects a 20-year design life
 - Study segment is approaching capacity
 - Roadway failure (LOS F) is projected between 2035 and 2038
 - County policy recommends four lanes when projections indicate failure
 - Data indicates four lanes are needed

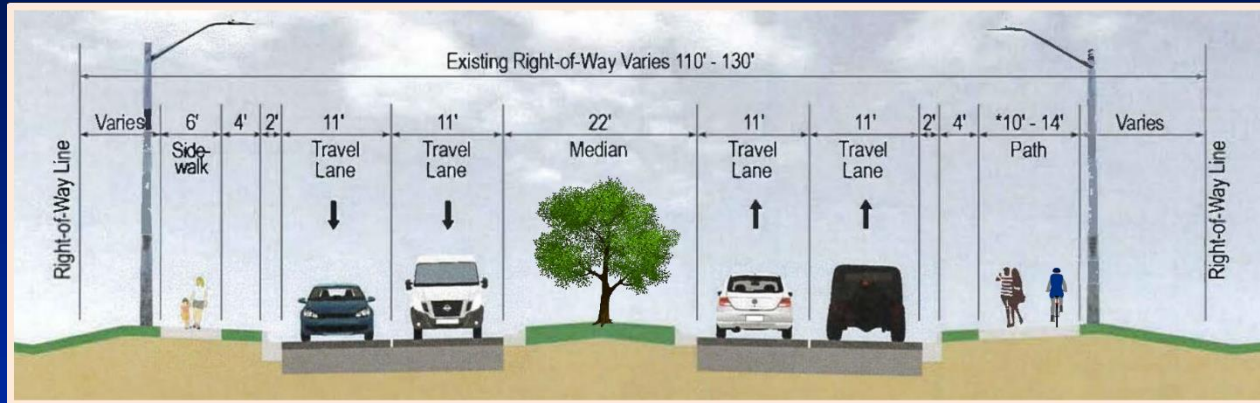


■ RCA Recommendation Rational

| Study Intersections | Future | Peak | 2048 Build Four-Lane Chuluota Road Cross Section | | | | | | | | | |
|--------------------------------------|---------|--------|--|-----|-------|-----|-------|-----|-------|-----|---------|-----|
| | Traffic | Hour | EB | | WB | | NB | | SB | | Overall | |
| | Control | Period | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| Chuluota Rd Lake Pickett Rd | Signal | AM | 31.5 | C | 33.6 | C | 17.5 | B | 27.6 | C | 24.5 | C |
| | | PM | 30 | C | 37 | C | 20.6 | C | 27 | C | 25.8 | C |
| | R/A | AM | 19.5 | C | 26.6 | D | 8.8 | A | 21.5 | C | 16.9 | C |
| | | PM | 305.1 | F | 15.4 | C | 16.7 | C | 11.6 | B | 95.9 | F |
| Chuluota Rd Cypress Lake Glen Bv (S) | Signal | AM | 20.6 | C | 29.4 | C | 22.9 | C | 20.5 | C | 22.5 | C |
| | | PM | 29.9 | C | 28.3 | C | 20.5 | C | 19.2 | B | 21 | C |
| | R/A | AM | 10 | A | 13.3 | B | 6.4 | A | 9.4 | A | 8.7 | A |
| | | PM | 19.6 | C | 14.4 | B | 9.7 | A | 11.6 | B | 11.3 | B |

- Delay between traditional intersections and roundabouts was calculated
- Traditional intersections were recommended due to longer roundabout delay times and school traffic accommodation
- Additional considerations included ROW Impacts, subdivision landscaping and monuments

RCA Study Typical Section



RCA Evaluation Matrix

- Other than for ponds and minor intersection improvements, the bulk of needed ROW exists

| Chuluota Road RCA From SR 50 to Lake Pickett Road Alternatives Evaluation Matrix | | |
|--|----------------------|--|
| | No-Build Alternative | Preferred Alternative |
| | No Improvements | Four-Lane Urban Section with 6' SW and 10-14' Path |
| Evaluation Criteria | | |
| Relocations | | |
| Number of Residential Acquisitions | None | 1 |
| Number of Business Acquisitions | None | None |
| Number of Parcels Impacted | None | 10 |
| Social, Natural and Physical Impacts | | |
| Social and Neighborhood | None | Low |
| Archeological/Historic Sites | None | None |
| Threatened and Endangered Species | None | No Adverse Impacts |
| Wetland Impacts (Acres) | None | None |
| RHPZ Uplands Impacts (Acres) | None | 1.03 |
| Floodplain Impacts (Acre-Feet) | None | 0.798 |
| Potential High or Medium Ranked Contamination Sites | None | None |
| Estimated Costs (Present Day Costs) | | |
| Estimated Construction Cost | No Cost | \$27,538,176 |
| Design, Adm Costs (15% of Construction) | No Cost | \$4,130,726 |
| CEI (15% of Construction) | No Cost | \$4,130,726 |
| Right-of-Way Costs | No Cost | \$2,148,566 |
| Wetland Mitigation | No Cost | |
| RHPZ Uplands Mitigation | No Cost | \$103,000 |
| Reimbursable Utility Relocation | No Cost | |
| Subtotal | | \$38,051,194 |
| Contingency (20%) | | \$7,610,239 |
| TOTAL ESTIMATED COSTS | | \$45,661,433 |

- The RCA Study presented to Board at a Public Hearing on March 7, 2023
- Board delayed hearing to allow staff to perform additional outreach and analysis including:
 - Evaluate a broader set of intersection configurations as an alternative to widening
 - Conduct a formalized Intersection Control Evaluation (ICE) on four intersections
 - Use ICE analyses results to develop corridor alternatives
 - Conduct two additional public meetings





Presentation Outline

17

- Background
- RCA Study
- **ICE Alternatives Analysis and Recommendation**
- Public Involvement
- Project Funding and Schedule
- Summary
- Board Direction



ICE Alternative Analysis and Recommendations

18

■ Intersection Control Evaluation (ICE)

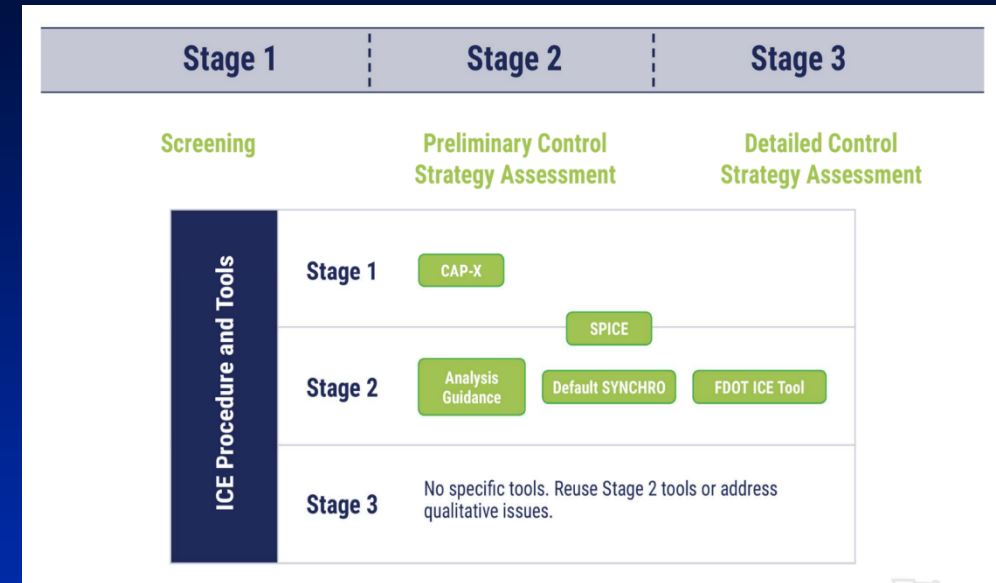
- Federal platform adopted by FDOT
- Three stage data-driven framework to predict intersection controls, impacts, and costs

■ Three Stage Analysis

- Stage 1: Review data, preliminary analyses, screen for viable control strategies, CAP-X and SPICE
- Stage 2: Detailed analysis to identify preferred intersection options
- Stage 3: Assessment for ROW impacts and costs

■ Corridor Integration Method (outside ICE)

- Apply ICE analysis to the corridor to determine functionality

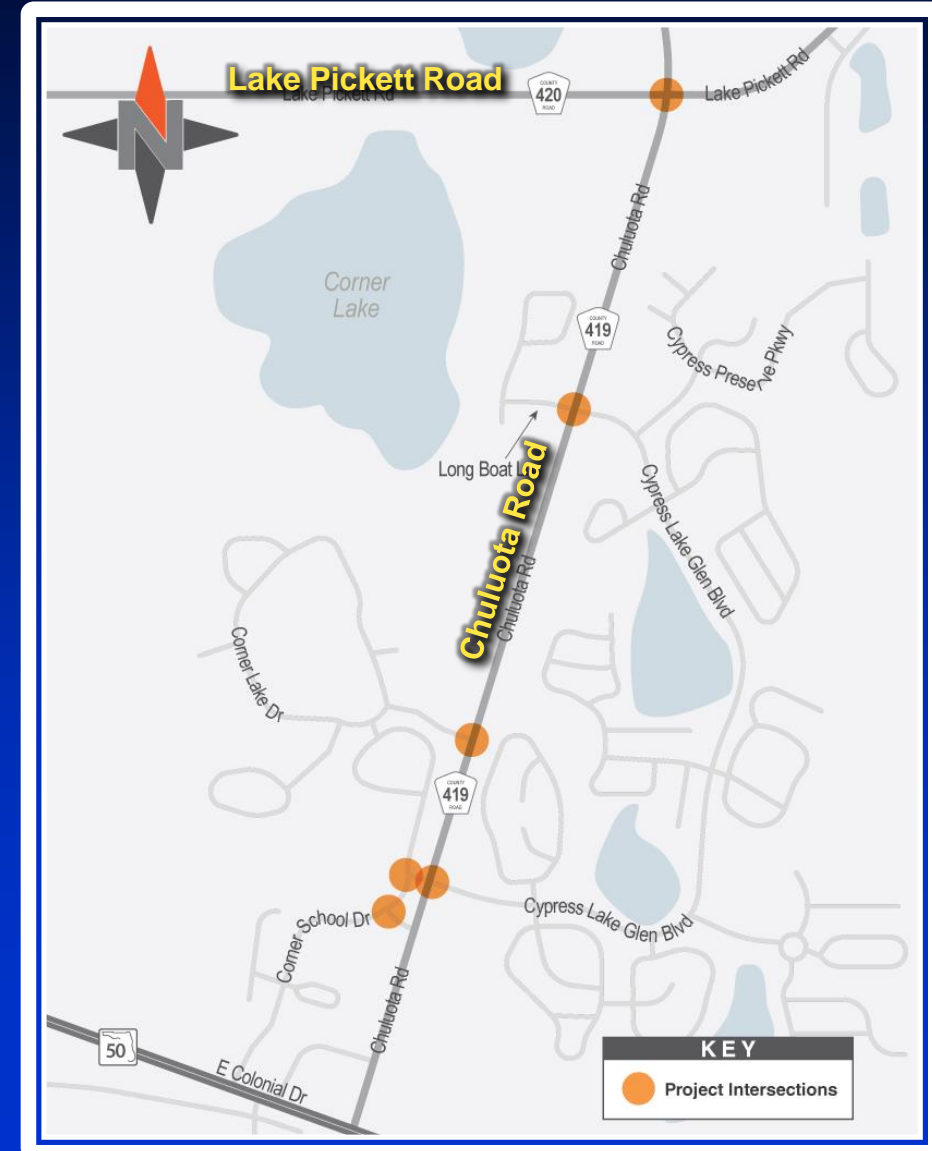




ICE Alternative Analysis and Recommendations

19

- ICE Study evaluated options at:
 - Lake Pickett Road
 - Long Boat Lane/(North) Cypress Lake Glen Boulevard
 - Corner Lake Drive
 - Cypress Lake Glen Boulevard (South)
 - Schoolview Way at Corner School Drive
 - Relocated Schoolview Way
- Analyzed 15 possible intersection options generating 1,080 scenarios
 - Included two and four-lane intersections at AM and PM peaks



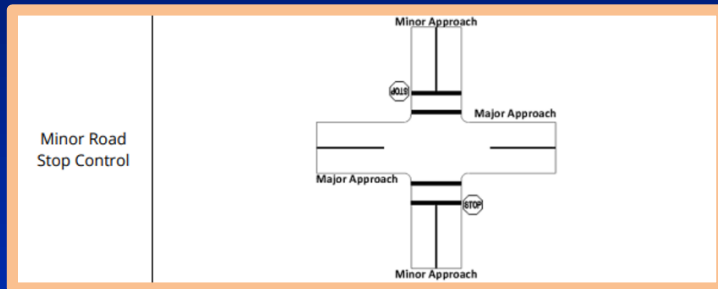


ICE Alternative Analysis and Recommendations

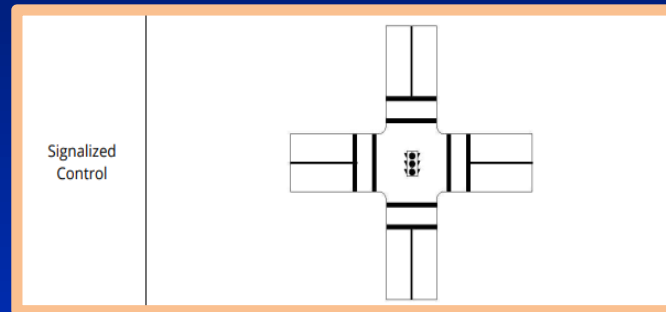
20

■ ICE STAGE 1

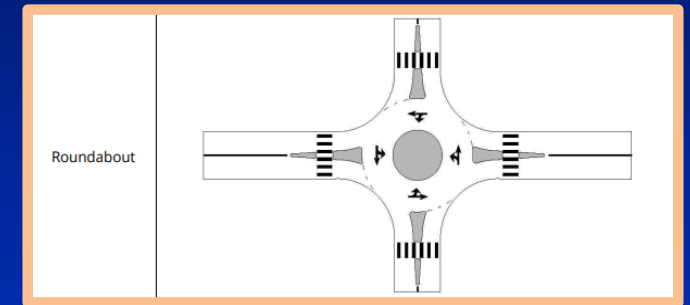
- 15 intersections analyzed - seven Interchange Control Strategies excluded
- 5 successful options:



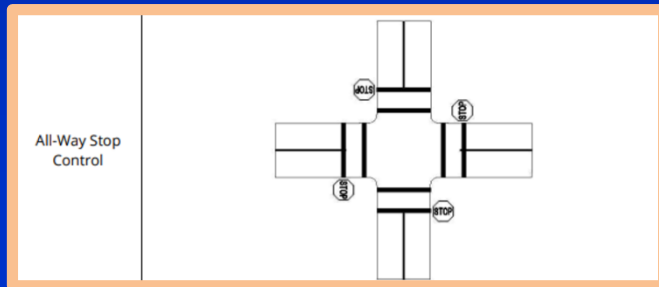
Minor Road Stop Control (2 Stop Signs)



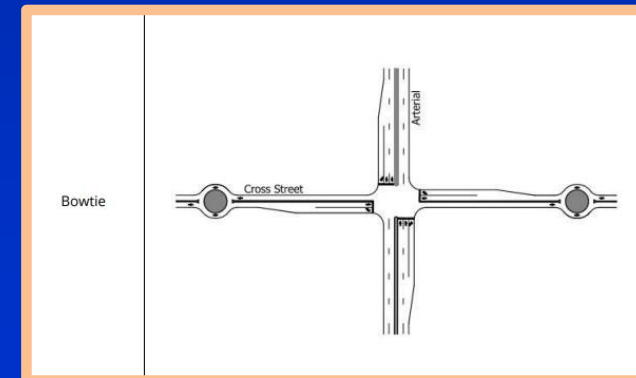
Signalized Control



Roundabout



All Way Stop Control (Stop Signs)



Bowtie (Chuluota / Lake Pickett only)



ICE Alternative Analysis and Recommendations

21

■ ICE STAGE 2

- Create intersection concepts for 5 successful strategies
- Expand SPICE crash prediction and incorporate crash data
- Conduct 2 and 4 lane analysis using SYNCRO traffic simulation

| 2 AND 4-LANE ICE ANALYSIS OPTIONS CONSIDERED | | | | |
|--|--------------|--------|------------|--------|
| INTERSECTION | STOP CONTROL | SIGNAL | ROUNDABOUT | BOWTIE |
| Corner Lake – Cypress Lake Glenn | | X | X | |
| Corner Lake Drive | X | | X | |
| Long Boat Lane – Cypress Lake Glenn | X | | X | |
| Lake Pickett Road | | X | X | X |

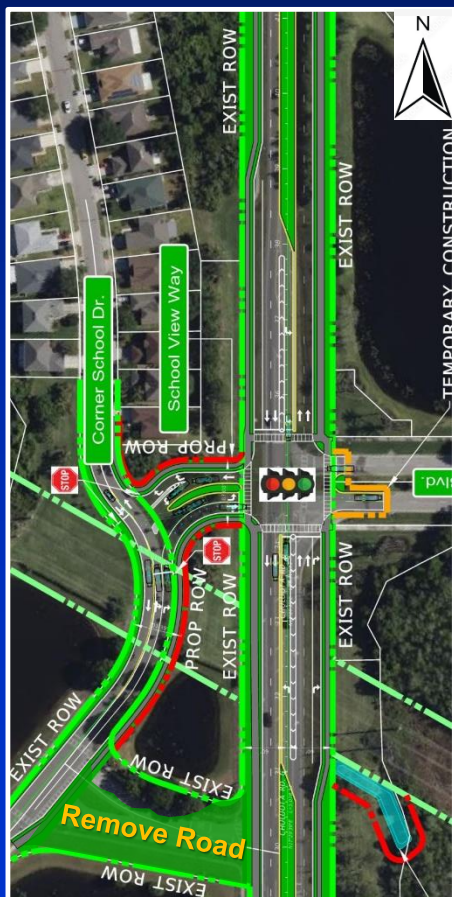


ICE Alternative Analysis and Recommendations

22

Intersection 1: Cypress Lake Glen Boulevard

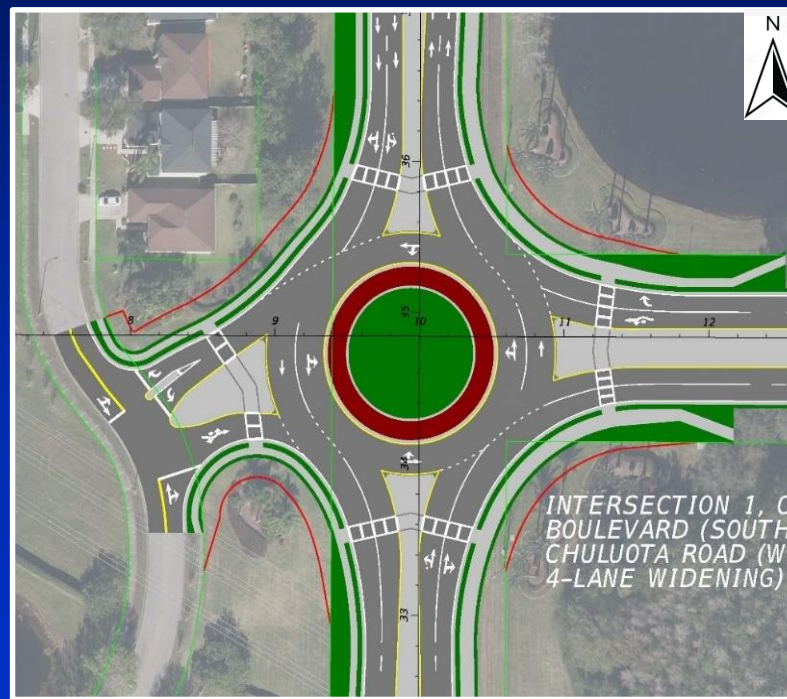
Traffic Signal



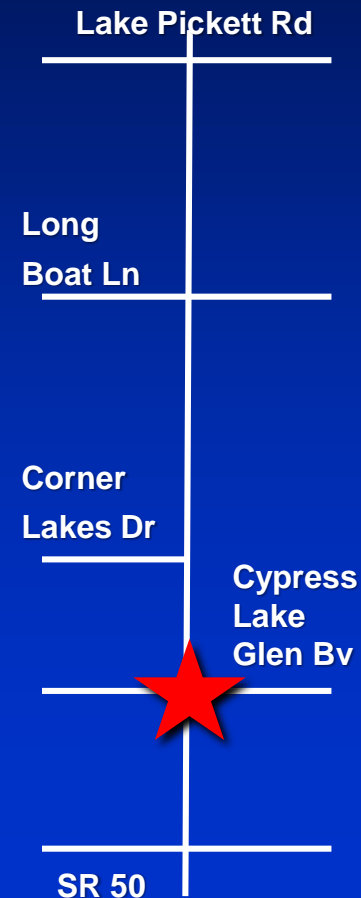
2 Lane Roundabout



4 Lane Roundabout

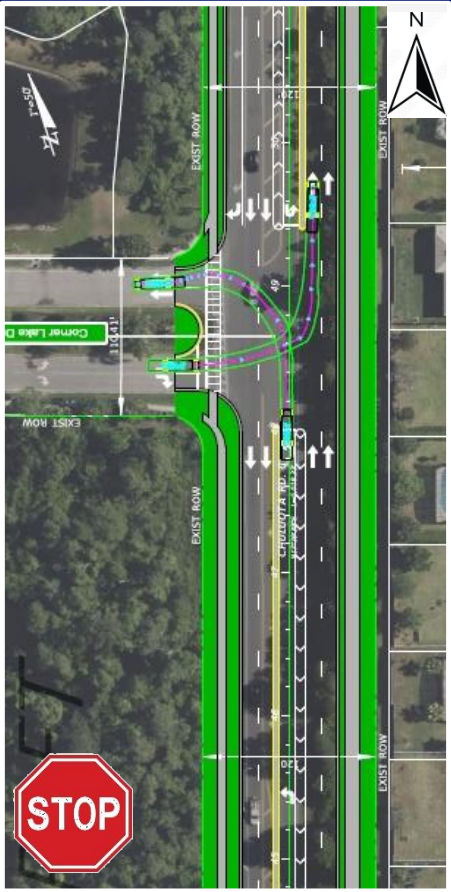


Key Map

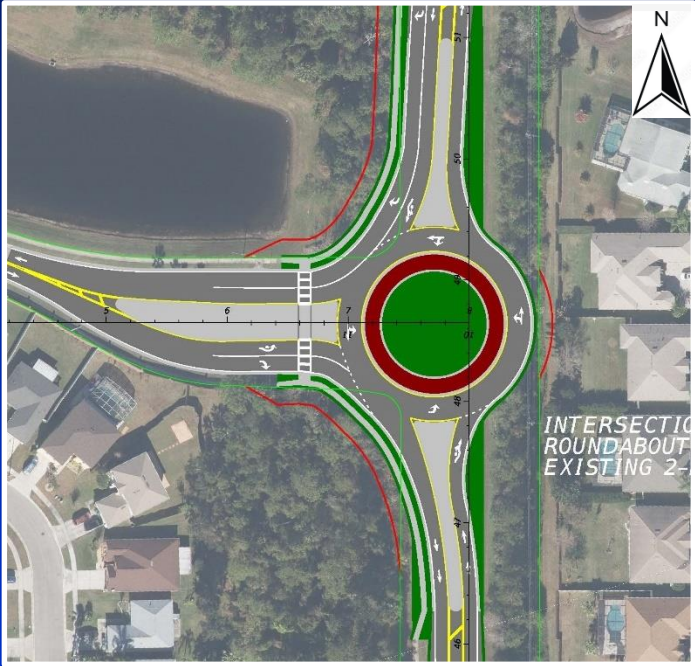


Intersection 2: Corner Lake Drive

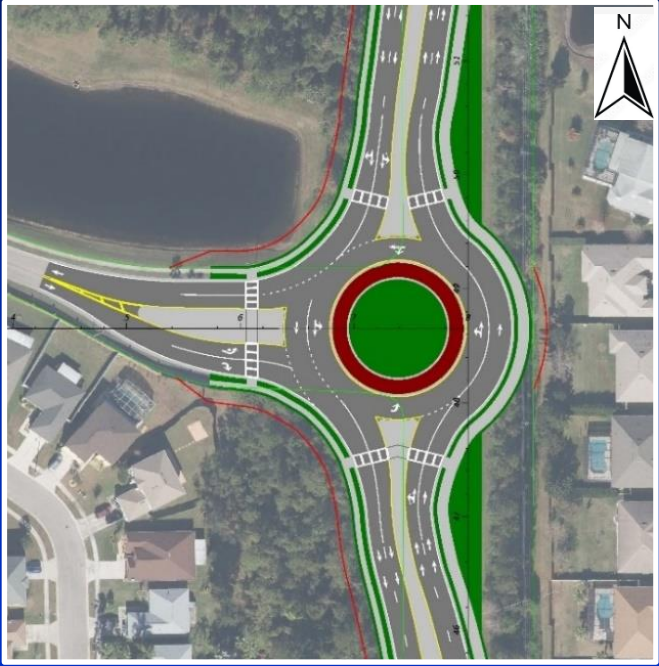
Stop Sign



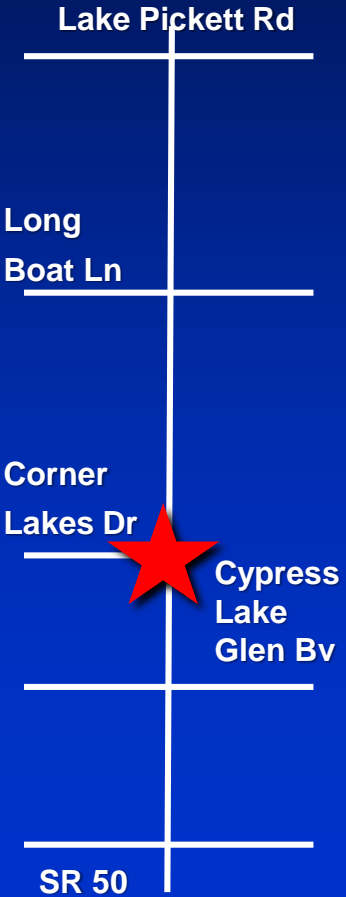
2 Lane Roundabout



4 Lane Roundabout



Key Map





ICE Alternative Analysis and Recommendations

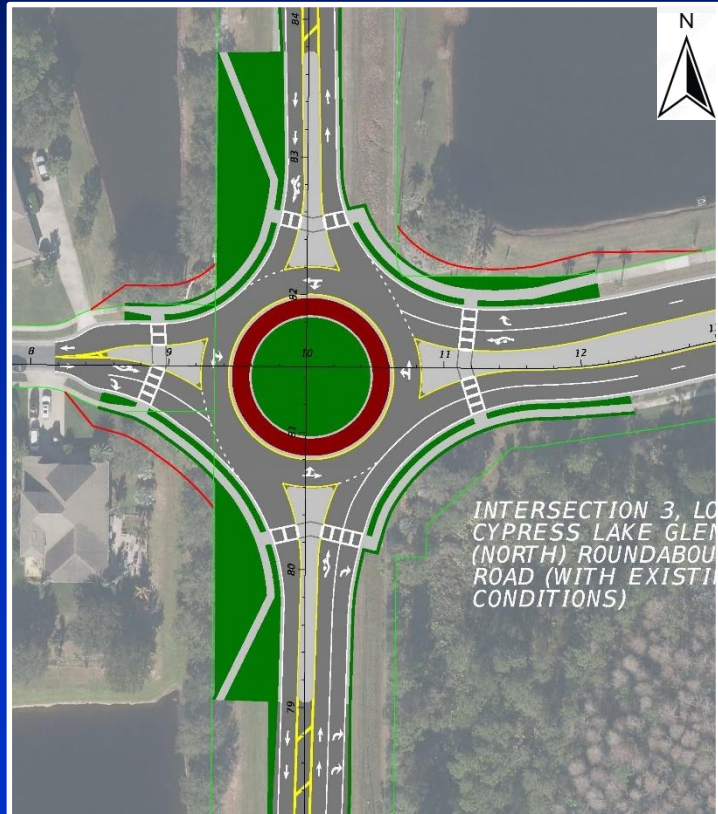
24

Intersection 3: Long Boat Ln /Cypress Lake Glen Blvd (North)

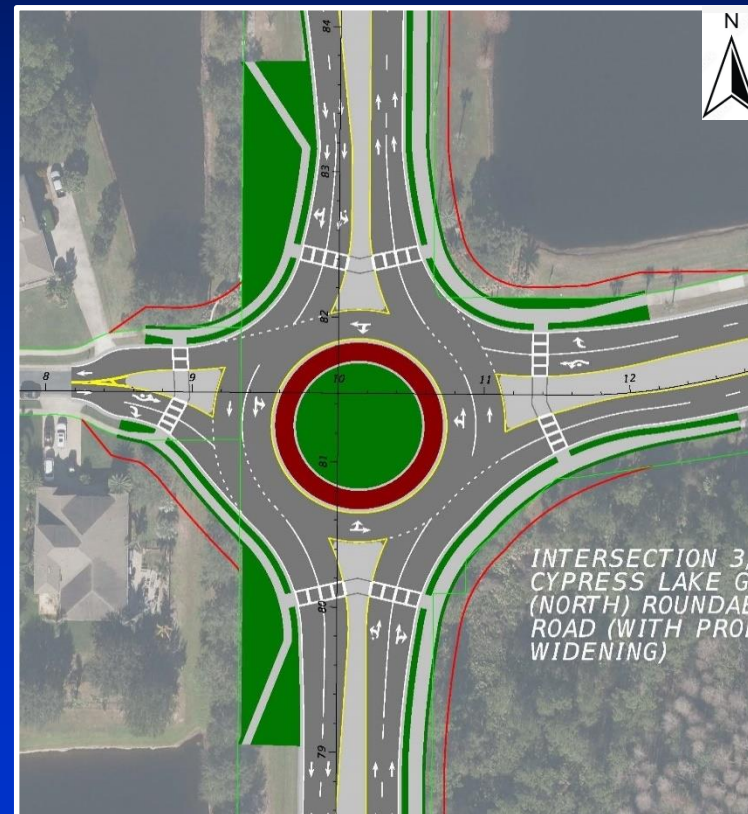
Stop Sign



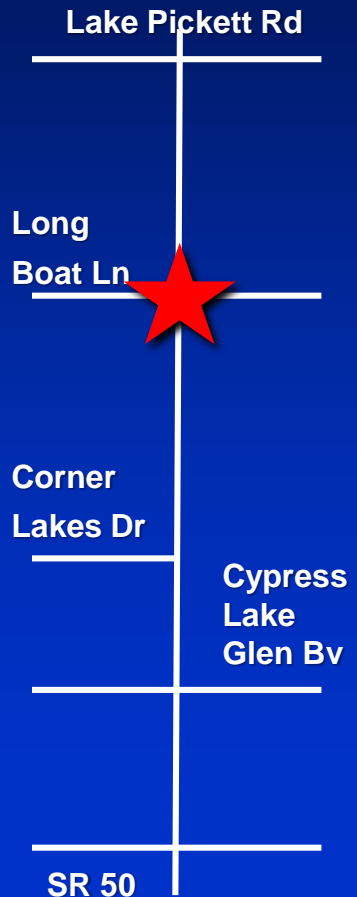
2 Lane Roundabout



4 Lane Roundabout



Key Map





ICE Alternative Analysis and Recommendations

25

Intersection 4: Lake Pickett Road - 2 lane

2 Lane Signal



Key Map

Lake Pickett Rd

Long
Boat Ln

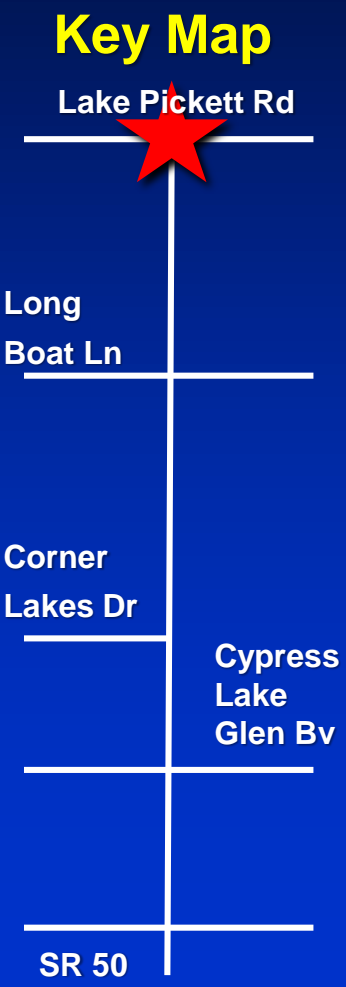
Corner
Lakes Dr

Cypress
Lake
Glen Bv

SR 50

Intersection 4: Lake Pickett Road - 4 lane

4 Lane Signal





ICE Alternative Analysis and Recommendations

27

ICE STAGE 2 and STAGE 3

CHULUOTA ROAD INTERSECTION CONTROL EVALUATION (ICE) STUDY RESULTS FROM ICE STAGE 3 ANALYSIS

| EXISTING 2-LANE SECTION WITH ALTERNATIVE INTERSECTION CONCEPTS | | | | | | | | | |
|--|--------------------------------|---------------------------------|----------------------|-----------------------------------|----------------------|--------------------------------|----------------------|---|----------------------|
| | CORRIDOR TRAFFIC CONTROL TYPE | EXISTING TRAFFIC CONTROLS (ETC) | | ROUNDBABOUTS AT ALL INTERSECTIONS | | ETC & ROUNDBABOUTS MIXTURE (1) | | ETC & ROUNDBABOUT AT LONG BOAT LANE (2) | |
| | MEASURE OF EFFECTIVENESS (MOE) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) |
| CORRIDOR TRAVEL DIRECTION | NORTHBOUND | 66.3 | 34 (C) | 167.9 | 21 (E) | 98.4 | 27 (D) | 76.5 | 31 (C) |
| | SOUTHBOUND | 239.1 | 19 (E) | 343.8 | 15 (F) | 268.1 | 16 (F) | 248.3 | 18 (E) |

Two Lane Fails

Two lane options ceases to function resulting in significant failure approaching 2032

| 4-LANE ICE ANALYSIS RESULTS | | | | |
|-------------------------------------|--------------|--------|-------------|--------|
| INTERSECTION | STOP CONTROL | SIGNAL | ROUNDBABOUT | BOWTIE |
| Corner Lake – Cypress Lake Glenn | | X | | |
| Corner Lake Drive | X | | | |
| Long Boat Lane – Cypress Lake Glenn | | | X | |
| Lake Pickett Road | | X | | |

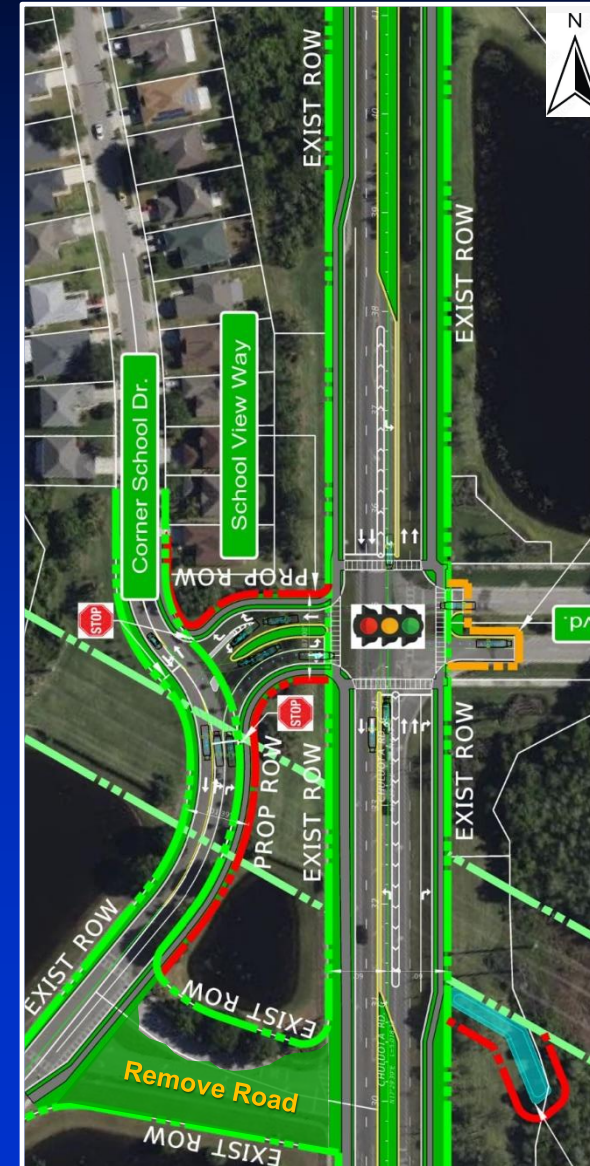
Recommended intersection controls by the ICE analysis + one speed reduction option



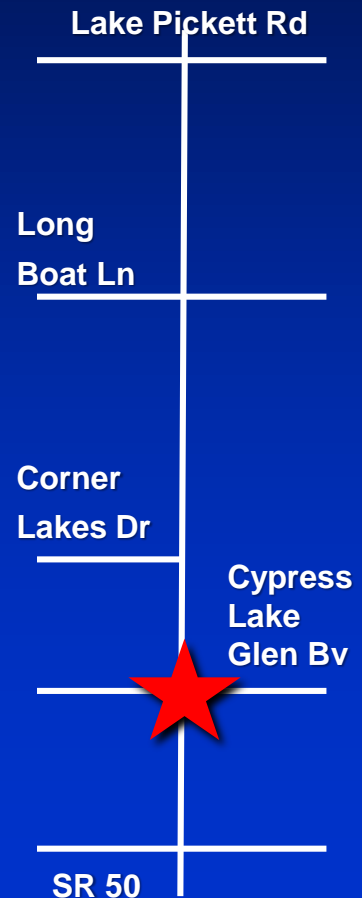
ICE Alternative Analysis and Recommendations

28

- **Intersection 1: Cypress Lake Glen Boulevard Recommendation**
 - Traffic signal option
 - Provides new connection to Corner School Drive at signalized Cypress Lake Glen Boulevard
 - Improves access and operations for school traffic



Key Map





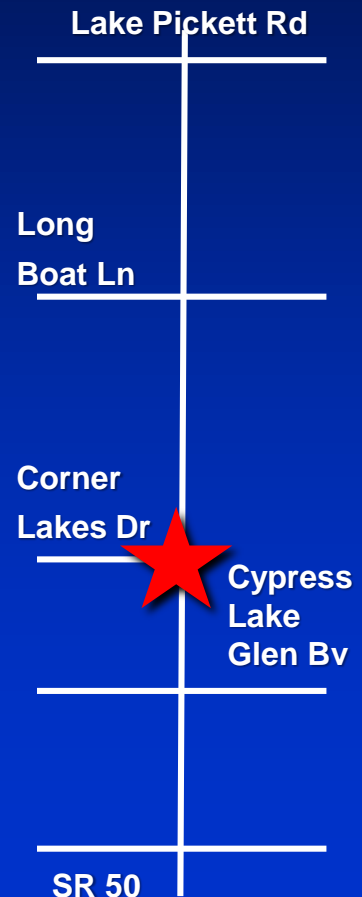
ICE Alternative Analysis and Recommendations

29

- Intersection 2: Corner Lake Drive
Recommendation
 - Stop Sign Option



Key Map

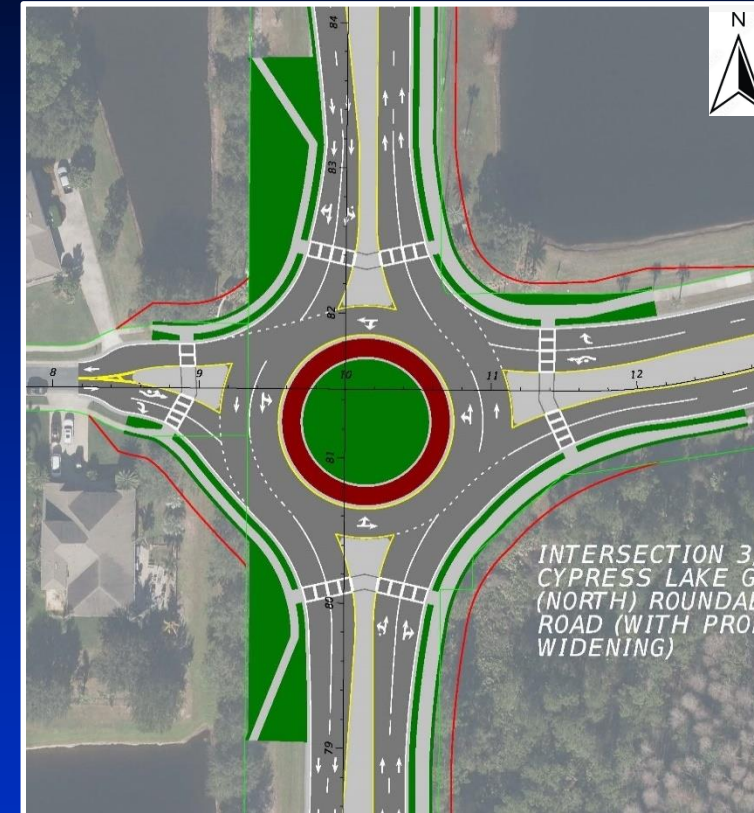




ICE Alternative Analysis and Recommendations

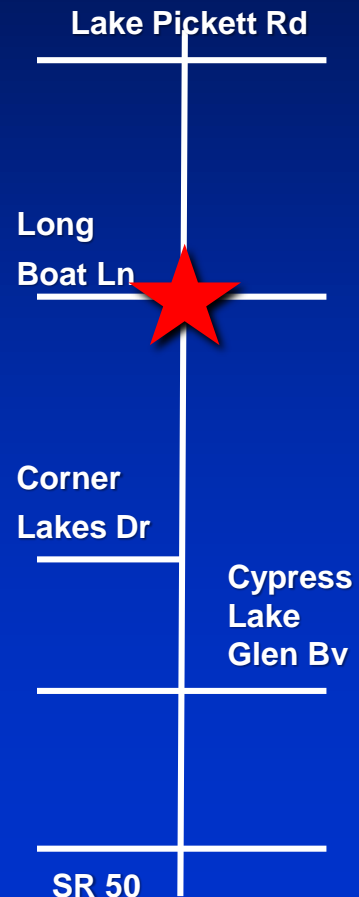
30

- **Intersection 3: Long Boat Lane/Cypress Lake Glen Blvd (North) Recommendation**
 - Roundabout Option
 - Presented to Country Lakes Estates and The Grande Preserve at Cypress Lakes HOA's
 - Reduce speeding on long segment between the Cypress Lakes Glenn Boulevard and Lake Pickett Road traffic signals



- Reduces conflict points and speeding
- 90% fewer fatalities
- 75% fewer injuries
- 10-40% fewer pedestrian/ bicycle crashes

Key Map



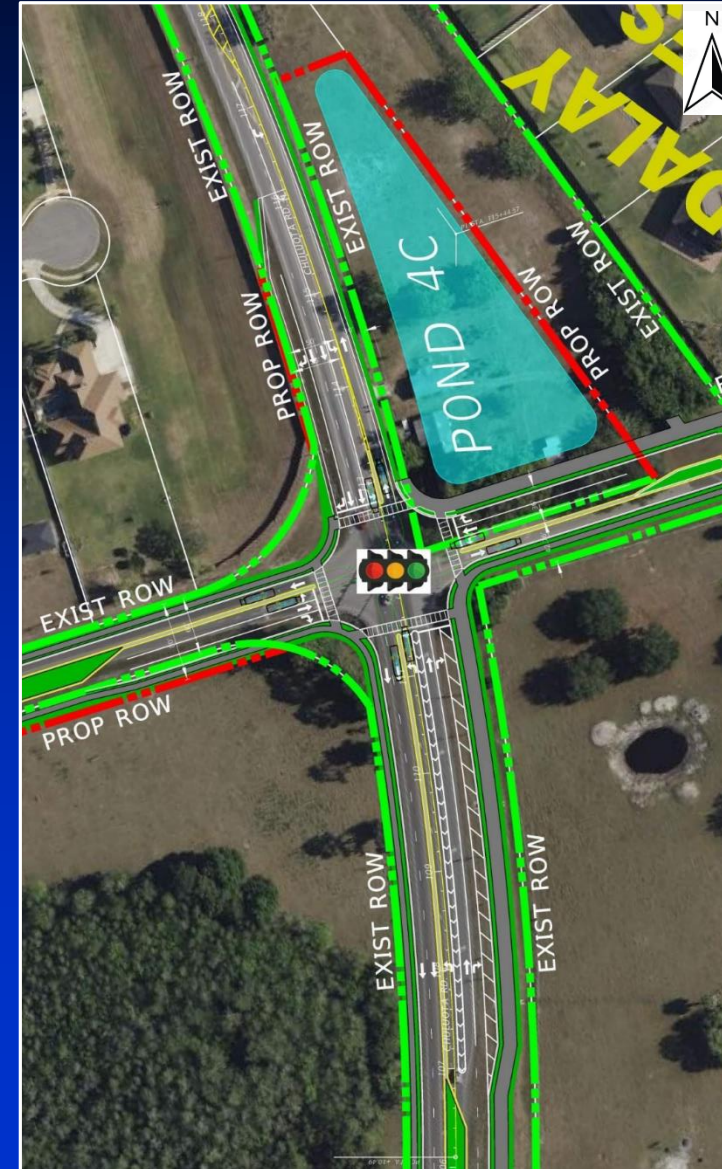


ICE Alternative Analysis and Recommendations

31

■ Intersection 4: Lake Pickett Road Recommendation

- Traffic signal option
- Includes portion of East Orange Regional Trail Section 1D and 1E
- North project limit



Key Map

Lake Pickett Rd

Long
Boat Ln

Corner
Lakes Dr

Cypress
Lake
Glen Bv

SR 50



ICE Alternative Analysis and Recommendations

32

■ Evaluation conclusions:

- Stage 2: Traffic Signals, Stop Signs, Roundabout, and Bowtie were advanced for further assessments, including cost evaluations
- **4-lane options advance**

CHULUOTA ROAD INTERSECTION CONTROL EVALUATION (ICE) STUDY
RESULTS FROM ICE STAGE 3 ANALYSIS

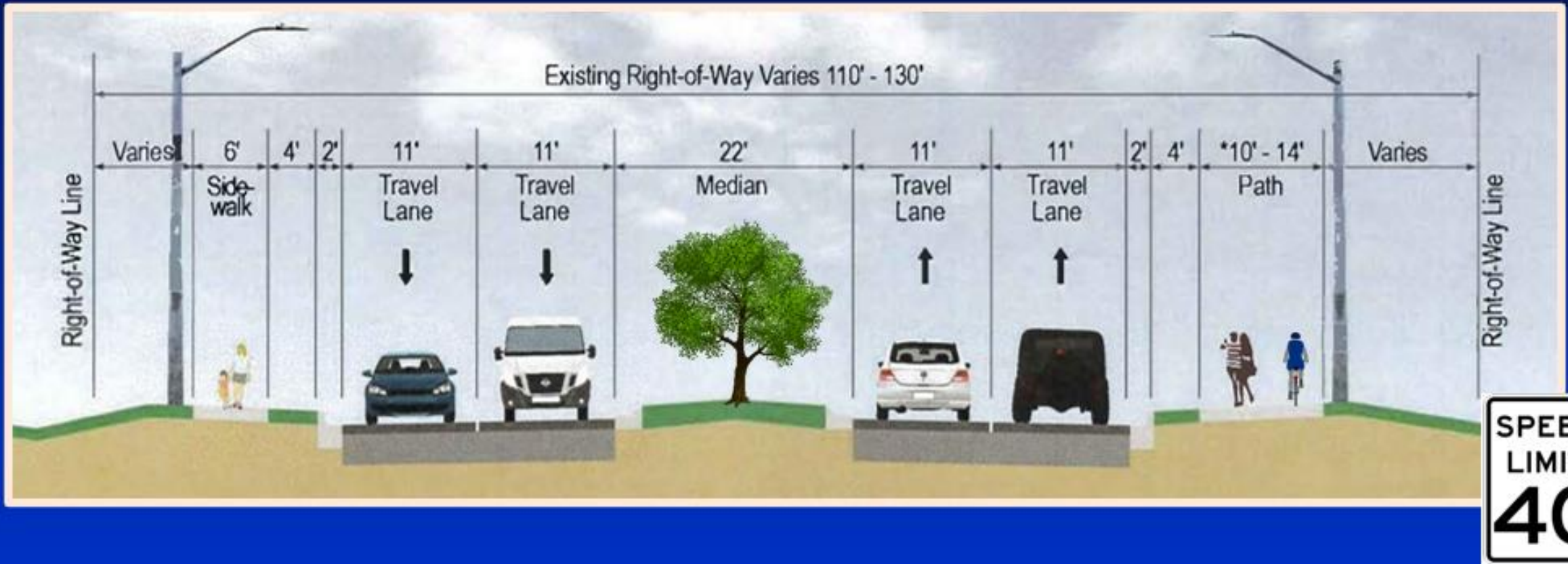
| 4-LANE WIDENING SECTION WITH ALTERNATIVE INTERSECTION CONCEPTS | | | | | | | | | |
|--|--------------------------------|---------------------------------|----------------------|-----------------------------------|----------------------|--------------------------------|----------------------|---|----------------------|
| | CORRIDOR TRAFFIC CONTROL TYPE | EXISTING TRAFFIC CONTROLS (ETC) | | ROUNDBABOUTS AT ALL INTERSECTIONS | | ETC & ROUNDBABOUTS MIXTURE (1) | | ETC & ROUNDBABOUT AT LONG BOAT LANE (2) | |
| | MEASURE OF EFFECTIVENESS (MOE) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) | DELAY (S/VEH) | ARTERIAL SPEED (LOS) |
| CORRIDOR TRAVEL DIRECTION | NORTHBOUND | 52.5 | 35 (B) | 86.4 | 28 (C) | 71.9 | 31 (C) | 61.1 | 33 (B) |
| | SOUTHBOUND | 57.0 | 35 (B) | 50.3 | 35 (B) | 77.3 | 31 (C) | 65.5 | 33 (B) |



ICE Alternative Analysis and Recommendations

33

■ Typical Section: Cypress Lake Glen Boulevard to Lake Pickett Road





ICE Alternative Analysis and Recommendations

34

■ Recommended improvement

- Original study intersections with roundabout at Longboat Lane
- Improved safety
- Low parcel impacts
- Low enviro/social impacts
- Cost efficient alternative

| EVALUATION CRITERIA | Four-Lane Widening with Existing Intersection Controls (ETC) | Four-Lane Widening with Roundabout at Longboat Lane, ETC at Other Intersections | Four-Lane Widening with Roundabouts at All Intersections | Recommended Four-Lane Widening with Bow Tie at Lake Pickett Road and Roundabouts at Other Intersections |
|---|--|---|--|---|
| RELOCATIONS | | | | |
| Number of Residential Acquisitions | 1 | 1 | 1 | 1 |
| Number of Business Acquisitions | None | None | None | None |
| Number of Parcels Impacted | 10 | 14 | 39 | 40 |
| Social, Natural and Physical Impacts | | | | |
| Social and Neighborhood | Low | Low | Medium | Medium |
| Archeological/Historic Sites | None | None | None | None |
| Threatened and Endangered Species | No Adverse Impacts | No Adverse Impacts | No Adverse Impacts | No Adverse Impacts |
| Wetland Impacts (Acres) | Low | Low | Low | Low |
| RHPZ Uplands Impacts (Acres) | Low | Low | Low | Low |
| Floodplain Impacts (Acre-Feet) | 1.9 | 2.16 | 2.16 | 2.16 |
| Potential High or Medium Ranked Contamination Sites | None | None | None | None |
| Estimated Costs (Present Day) | | | | |
| Estimated Construction Costs | \$ 40,968,339 | \$ 44,102,180 | \$ 48,811,549 | \$ 48,977,856 |
| Estimated Design/Adm Costs (12%) | \$ 4,916,201 | \$ 5,292,262 | \$ 5,857,386 | \$ 5,877,343 |
| Preliminary Estimated CEI Costs (15%) | \$ 6,145,251 | \$ 6,615,327 | \$ 7,321,732 | \$ 7,346,678 |
| Preliminary Estimated Right-of-Way Impacts | 11.864 | 12.453 | 17.466 | 19.115 |
| Preliminary Estimated Right-of-Way Costs | \$ 2,196,355 | \$ 2,305,449 | \$ 3,233,481 | \$ 3,538,760 |
| Mitigation/RHPZ | \$ 103,000 | \$ 103,000 | \$ 103,000 | \$ 103,000 |
| Subtotal | \$ 54,329,146 | \$ 58,418,218 | \$ 65,327,148 | \$ 65,843,637 |
| Contingency (20%) | \$ 10,865,829 | \$ 11,683,644 | \$ 13,065,430 | \$ 13,168,727 |
| TOTAL PRELIMINARY ESTIMATED PROJECT COSTS | \$ 65,194,975 | \$ 70,101,862 | \$ 78,392,578 | \$ 79,012,364 |

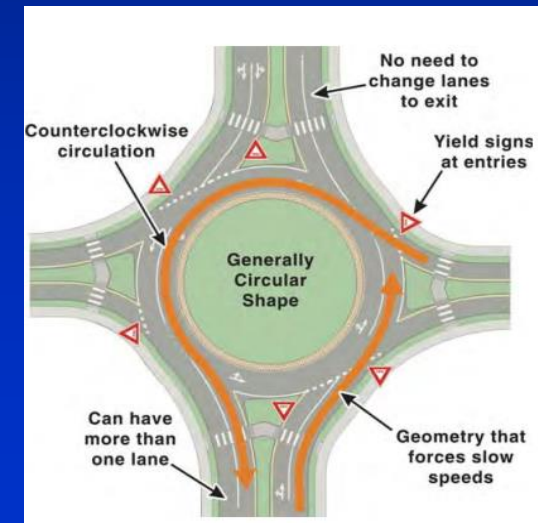


ICE Alternative Analysis and Recommendations

35

■ Interim safety measures to be considered:

- Interim 2 Lane Roundabout
- Chicane requires vehicle operators to make horizontal movements reducing speed
- Leading Pedestrian Interval pedestrians enter intersections before vehicles green
- Extend Pedestrian Crossing lengthen time for pedestrian crossing
- Advance Stop Bars stop lines before crossings
- Flashing Beacon / Advance Warning notify motorists of upcoming intersection or crosswalk
- Painted Centerline and Raised Pavement Markers enhance awareness
- Lighting improvements –roadway/pedestrian
- High emphasis crosswalks
- Advance traffic signs



Roundabout



Presentation Outline

36

- Background
- RCA Study
- ICE Alternatives Analysis and Recommendation
- **Public Involvement**
- Project Funding and Schedule
- Summary
- Board Direction



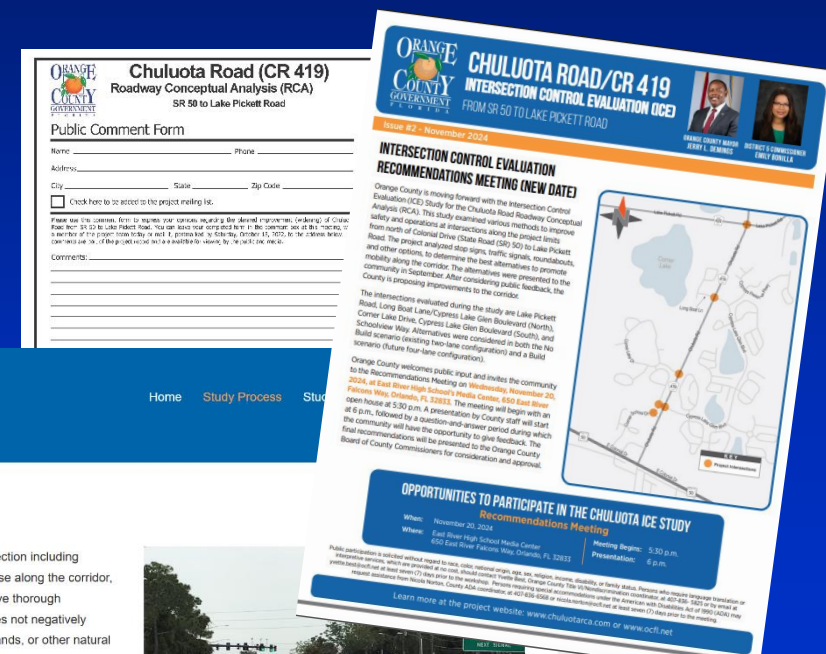
Public Involvement

37

- Study Website: <https://chuluotarca.com/>
- Twenty-eight (28) Stakeholder Meetings
- Four (4) Community Meetings
- On-line survey
- Six (6) Newsletters
- Call/Email
- LPA & BCC Hearings

"The southbound turn lane at Corner Lakes Estate is really needed" September 24 – Public Comment (HOA)

"Children's safety is top priority"
September 24 – Public Comment



"Transportation Planning has done a wonderful job. Thank heaven for the team. They are truly heroes. What a wonderful project." September 22 - Resident written comment

Chuluota Road RCA Study

From Colonial Drive (SR 50) to Lake Pickett Road

[Home](#) [Study Process](#) [Study Area](#)

Study Process

The Study process involves significant data collection including current traffic volumes, current and future land use along the corridor, and right of way needs. The study also will involve thorough environmental analysis to ensure the project does not negatively impact protected and endangered species, wetlands, or other natural resources. Alternative roadway alignments will be considered to develop and propose a recommended alignment that best addresses the needs of the community and region.

The public will be invited to learn about the project and provide public comment during the RCA study. Two public meetings are anticipated, as well as public hearings and project newsletters, to help keep the community informed.

OPPORTUNITIES TO PARTICIPATE IN THE CHULUOTA ICE STUDY

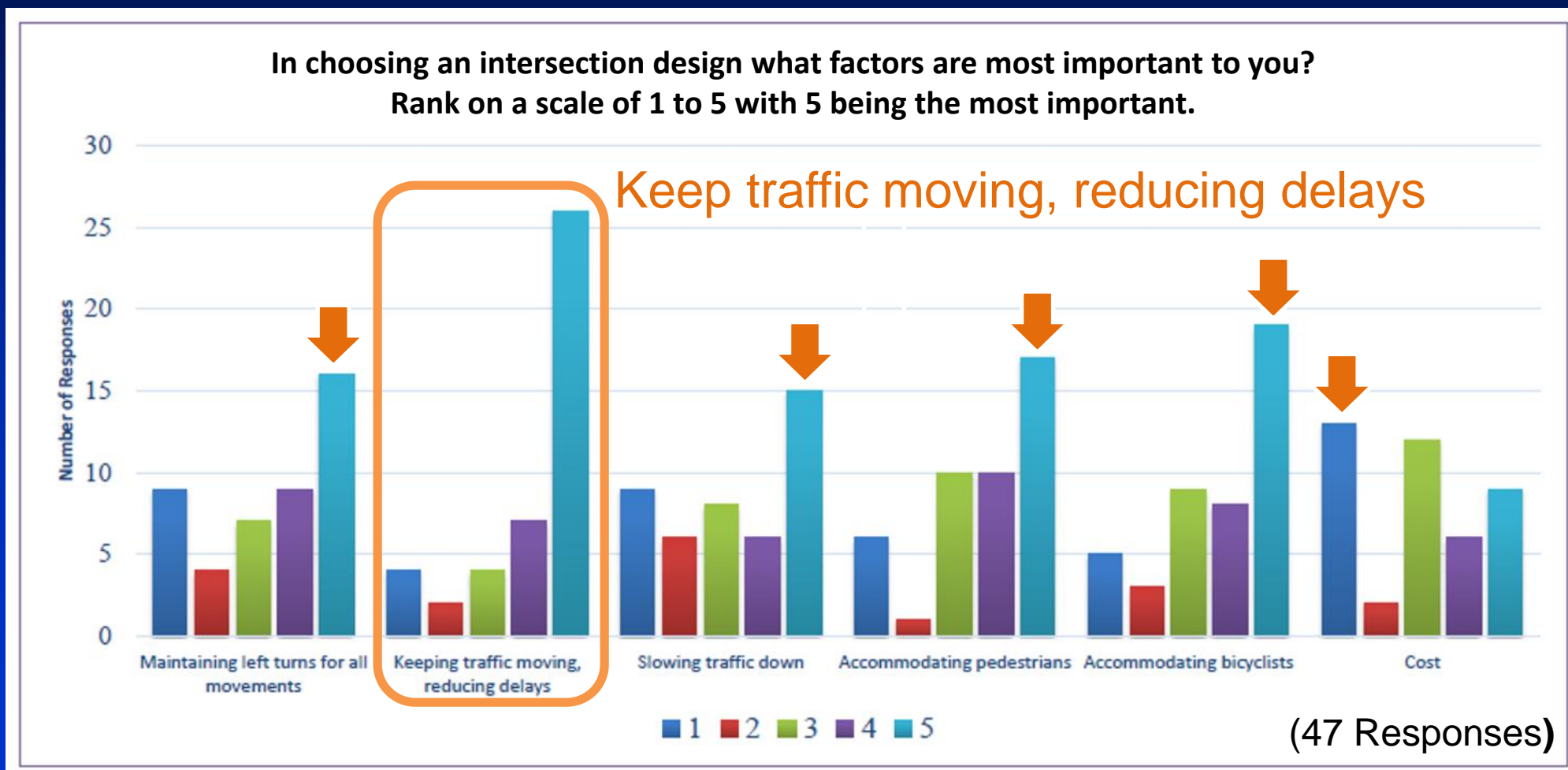
Recommendations Meeting
When: November 20, 2024
Where: East River High School Media Center
650 East River Parkway, Ocala, FL 32063

Meeting Begins: 5:30 p.m.
Presentation: 6 p.m.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, marital status, or family status. Persons who cannot attend in person may participate via video conference. For more information, please contact the project manager at 407-454-1400 or visit the project website at www.chuluotarca.com or www.ocfl.net.

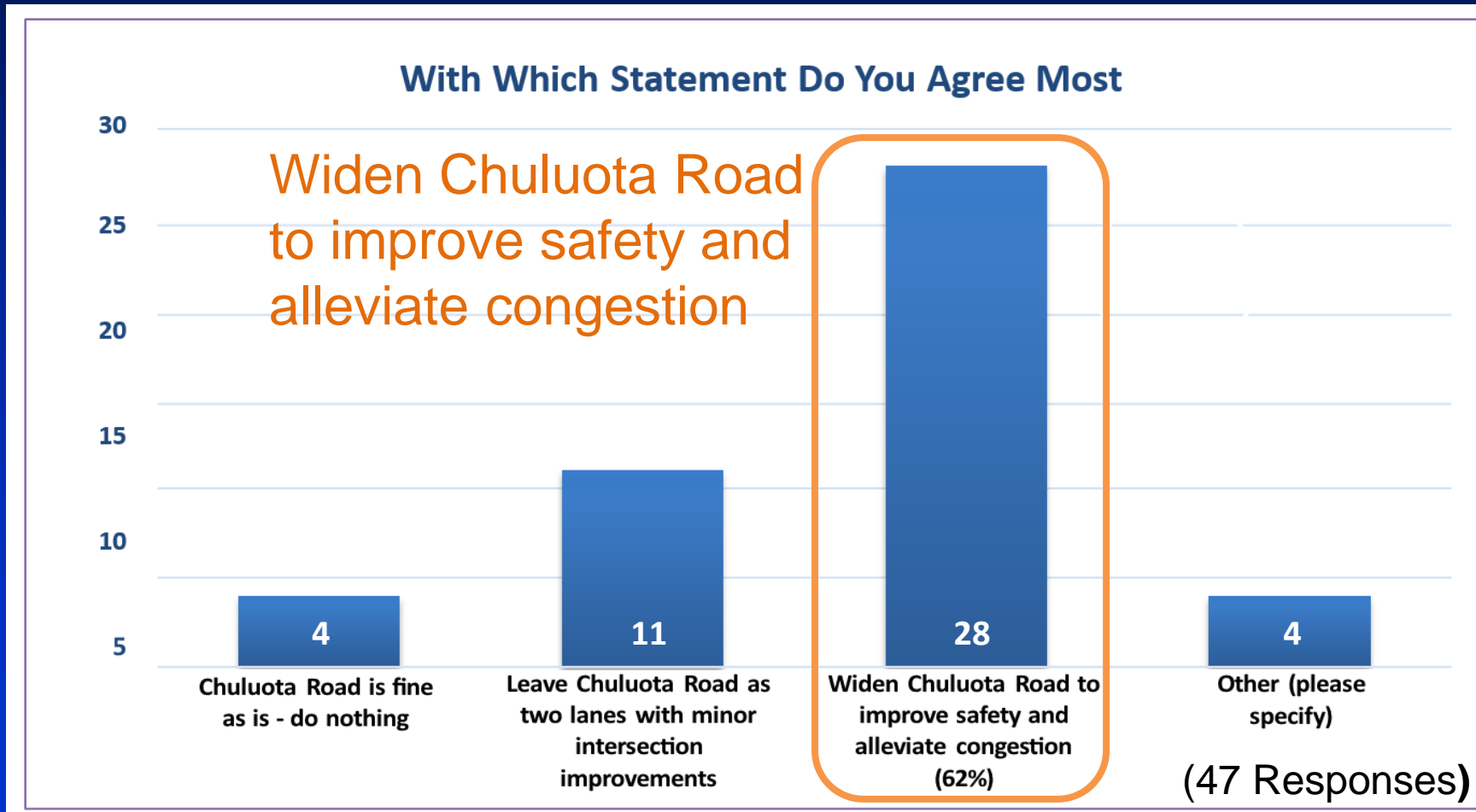


■ Results of the September 2024 RCA/ICE On-Line Survey





■ Results of the RCA/ICE September 2024 On-Line Survey





Presentation Outline

40

- Background
- RCA Study
- ICE Alternatives Analysis and Recommendation
- Public Involvement
- **Project Funding and Schedule**
- Summary
- Board Direction



Project Funding and Schedule

41

- Funds spent: \$1,058,418 = Study \$708,775 + \$349,643 ICE
- Initial recommendations proven sound by ICE analysis
- TransMAC recommended approval of proposed improvements

| Project Funding Schedule | | | | |
|--------------------------|--------------|-------------------|-------------|---------------|
| Phase | Costs | Available Funding | Fiscal Year | Fund Source |
| Design | \$6,474,314 | \$10,300,000 | 2025 | PW CIP |
| Right-of-way | \$2,766,539 | | | |
| Construction/CEI | \$60,861,009 | \$29,200,000 | 2025-2026 | PW Prop Share |
| | | \$20,000,000 | 2026 - 2030 | PW CIP/INVEST |
| Total: | \$70,101,862 | \$59,500,000 | | |
| Funding Needs: | \$10,601,862 | | | |

Costs include 20% Contingency



Presentation Outline

42

- Project Location
- RCA Study
- ICE Process
- Intersection Options
- Public Involvement and Funding
- Schedule
- Summary
- Board Direction

- Chuluota Road is a developing collector roadway
- Road improvements in County's LRTP for more than 25 years
- All three Stages of ICE have been completed
- ICE analysis evaluated 1,080 options
- Study confirmed need for four lanes
- County engaged the public and received positive response
- Proposed roundabout at Long Boat Lane addresses speeding problem
- Project cost of \$70M has \$60M in budgeted funding



Board Direction

44

- **Requesting Board to direct staff to schedule Public Hearing**
 - Find consistency with the Comprehensive Plan
 - Approval of the study confirming the need for four lanes
 - Direction to move forward with design, right-of-way acquisition and construction

- **Staff will continue to evaluate opportunities for interim safety improvements such as the proposed speed reduction**