

Seminole County Trails & Greenways Safety Improvement Plan August 2023





Agenda

- Need for a Safety Improvement Plan
- Peer Community Benchmarking and Local Projects
- Case Studies and Pilot Projects
- Next Steps

Need for a Safety Improvement Plan

Impetus for the Study

- A marked increase in trail users at the onset of the COVID-19 pandemic
- Continuation of this usage pattern through 2023
- Safety concerns emerged through user complaints and crash events
- Updated design guidance was needed to address safety issues and incorporate emerging best practices (originally developed in 1990's, last update 2017)



Components of the Study

- Examination of current County design and user guidance
- Summary of interviews with peer jurisdictions from Central Florida and the metropolitan Denver area
- Evaluation and field review summary of nine pilot locations
- Standard details of recommended treatments, organized by order of magnitude
- Reviewed with Public Works (Engineering and Traffic staff)
- Coordinated with Master Plan team



Peer Community Benchmarking and Local Projects

Peer Community: Orlando

- Speed and safety issues have caught the eye of City Commissioners. The City is looking to establish a formal speed limit but is concerned about its enforcement.
- City has implemented the following design treatments:
 - Organized wayfinding signage
 - Bulbouts
 - RRFBS
 - Bollards and Flex Post usage
 - Slow Zones for mixed traffic



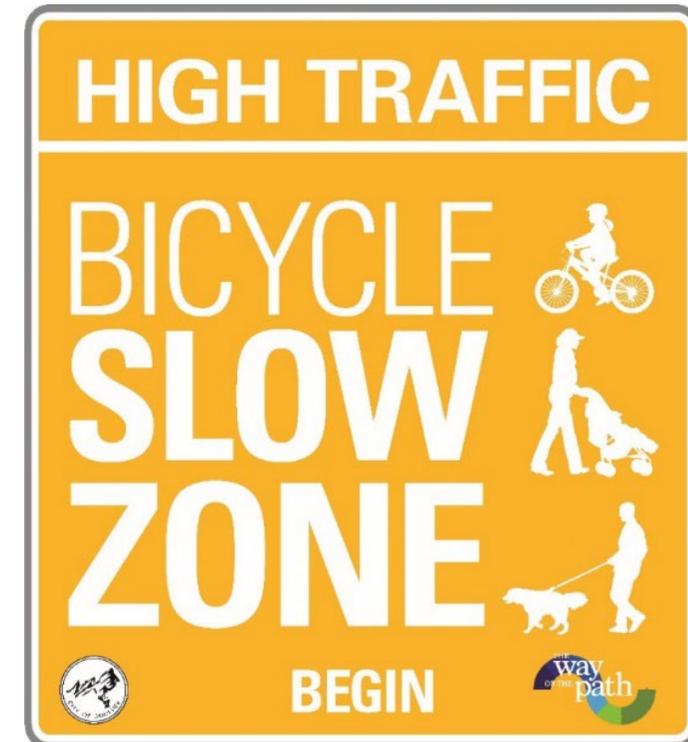
Peer Community: Bike Walk Central Florida

- Consistency is important for wayfinding and continuity of trail usage
- Completed a study measuring the utilization of driver yield rate when studying crosswalk success
- Maintaining landscaping around intersection yield better safety outcomes



Peer Community: CDOT, Denver, Boulder

- CDOT has received several complaints about the speed differential among users on their trail system, with those on PEVs and cyclists exceeding the 15 MPH speed limit
- Agencies rely primarily on peer enforcement to ensure those using the trail are complying with the rules, named The Way of the Path in Boulder
- Denver uses a codified toolbox of treatments, examples include:
 - Speed humps/lumps on neighborhood bikeways;
 - Geofencing of rented e-scooters and e-bikes to limit speed in slow-zones, limiting potential harm in pedestrian and PEV users



Emerging Best Practices in Central Florida

- SR 436 Improvement Project
 - Project provides enhanced cyclist safety and preserved multimodal connectivity along SR 436.
 - Inclusion of protected cycle-track near major attractors
 - Full Sail University
 - University of Central Florida
 - Winter Park and Goldenrod neighborhoods



S.R. 436 Improvements

From north of Old Cheney Highway to north of University Park Drive

Orange County

Financial Project Identification (FPID) No.: 445303-1

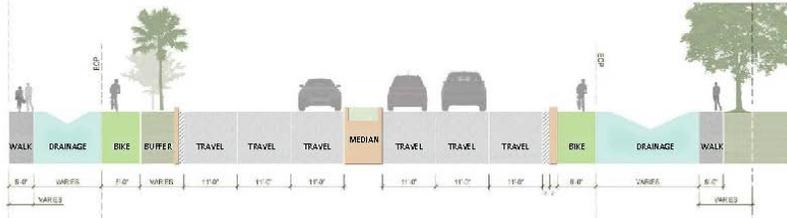


Project Description

The Florida Department of Transportation (FDOT) is planning improvements along State Road (S.R.) 436 from north of Old Cheney Highway to north of University Park Drive in Orlando. This project proposes to repave the roadway and implement strategies to increase safety for all users along the project corridor.

Safety improvements include speed management enhancements such as narrowing lane widths, placing a barrier curb, changing right turn movements in some areas, modifying driveways and installing traffic calming landscaping to help encourage slower driving speeds.

The project will also focus on cyclist safety with separated and designated bicycle facilities, and special emphasis pavement markings. Additionally, protected intersection design opportunities are being evaluated that will help to separate vehicles from pedestrians and cyclists, extend the corner curbs to encourage vehicles to turn slower, and shorten pedestrian crosswalks. A midblock crossing with a Pedestrian Hybrid Beacon is also being evaluated at University Park Drive.



Project Status and Estimated Costs*

Design:	Ongoing - completion early 2023	\$ 1.8 million
Right of Way:	Within existing	--
Construction:	Funded - summer 2023	\$ 14.5 million

*subject to change

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CFLRoads.com

Pilot Projects and Standard Details

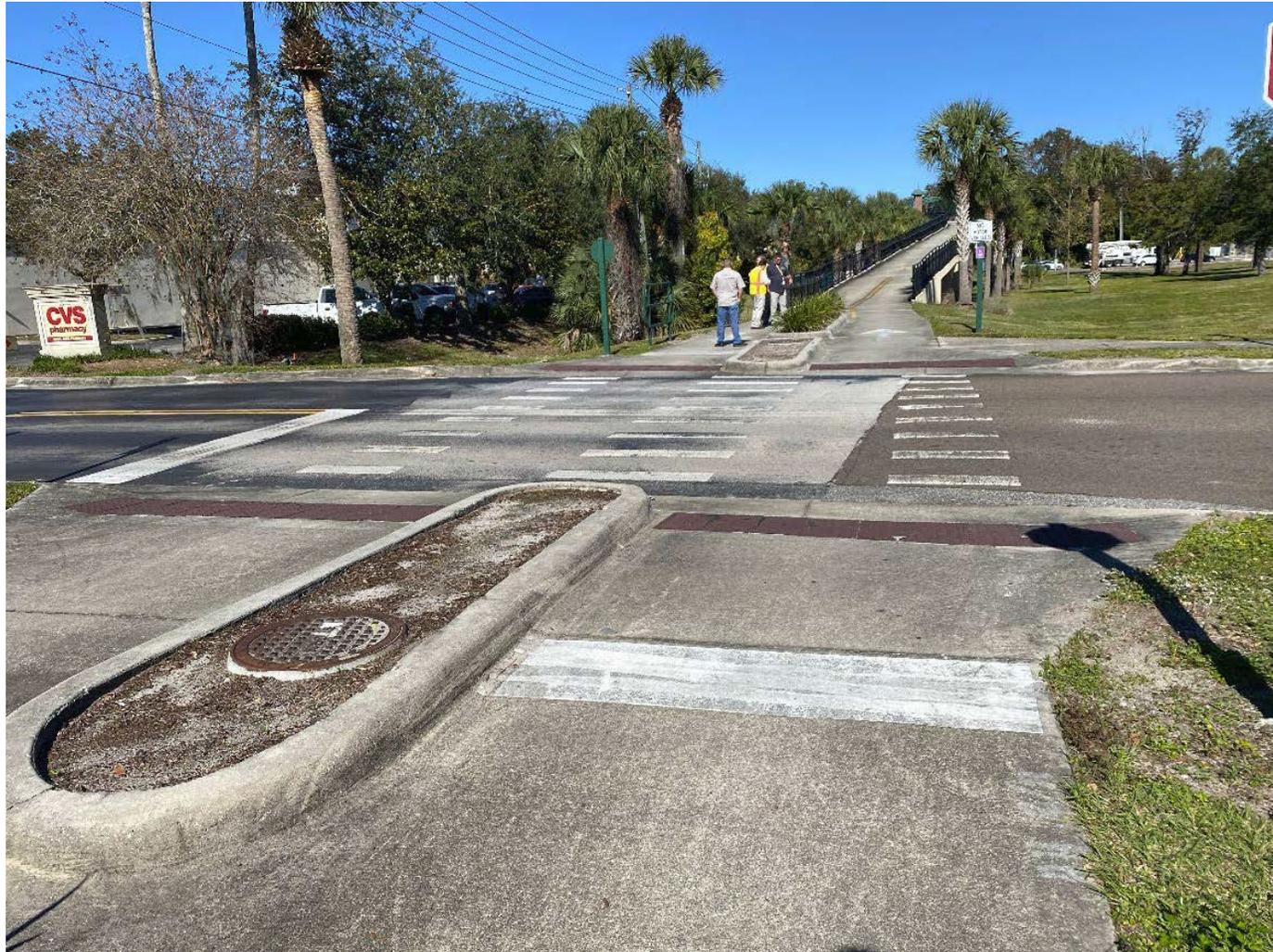
Process

- Identified 9 locations with demonstrated safety issues
- Performed field reviews
- Developed concepts using best practices
 - Tier 1 – Lower cost, more immediate
 - Tier 2 – Build on Tier 1, additional elements
- Developed Standard Details



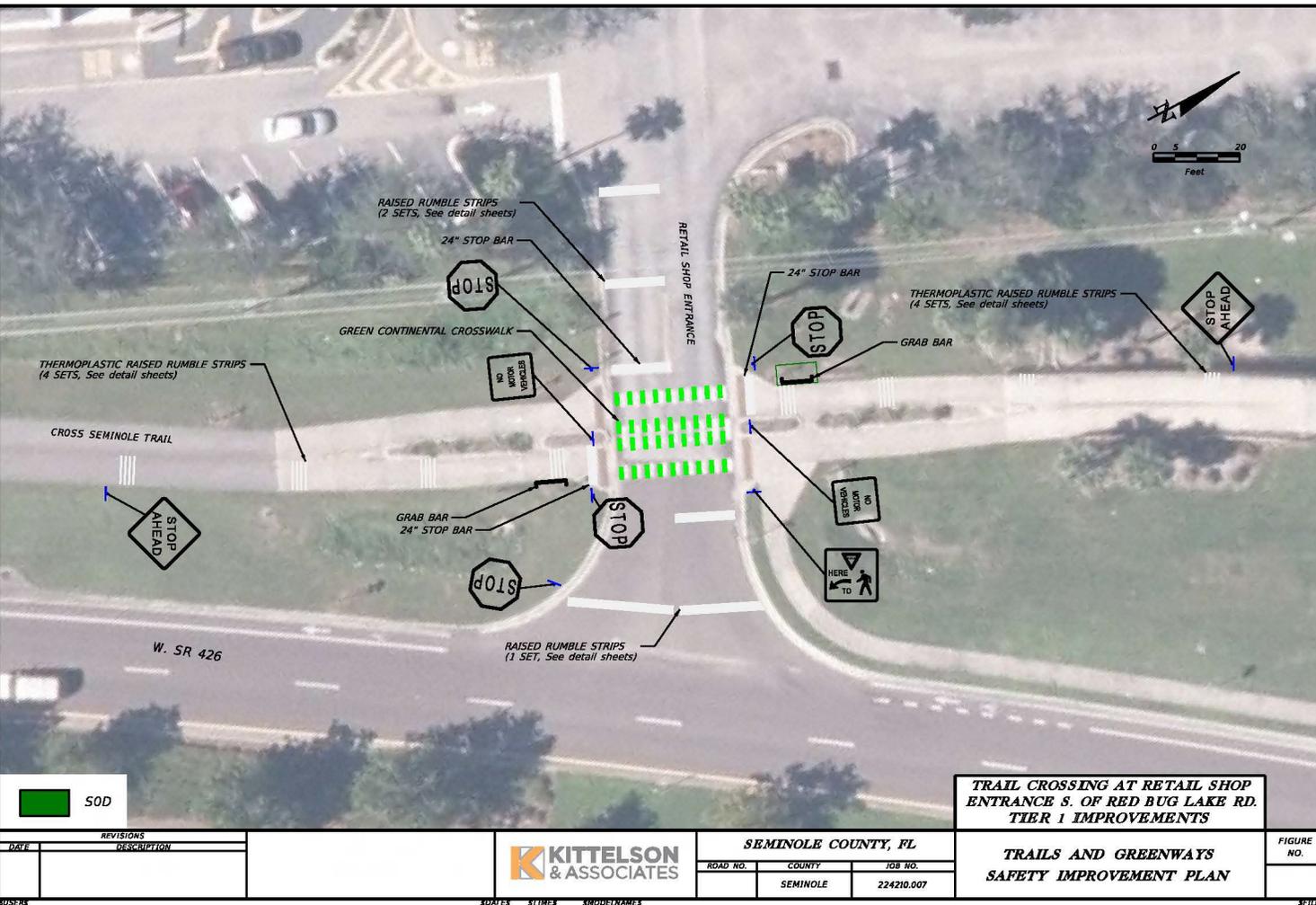


Cross Seminole Trail at Red Bug Lake Rd. (Major Driveway Crossing)





Cross Seminole Trail at Red Bug Lake Rd. (Tier 1)



- High Emphasis Green Markings
- Enhanced Vehicle Control (advance stop, rumble strips)
- Advance Signs and Audible Strips
- Grab Bars

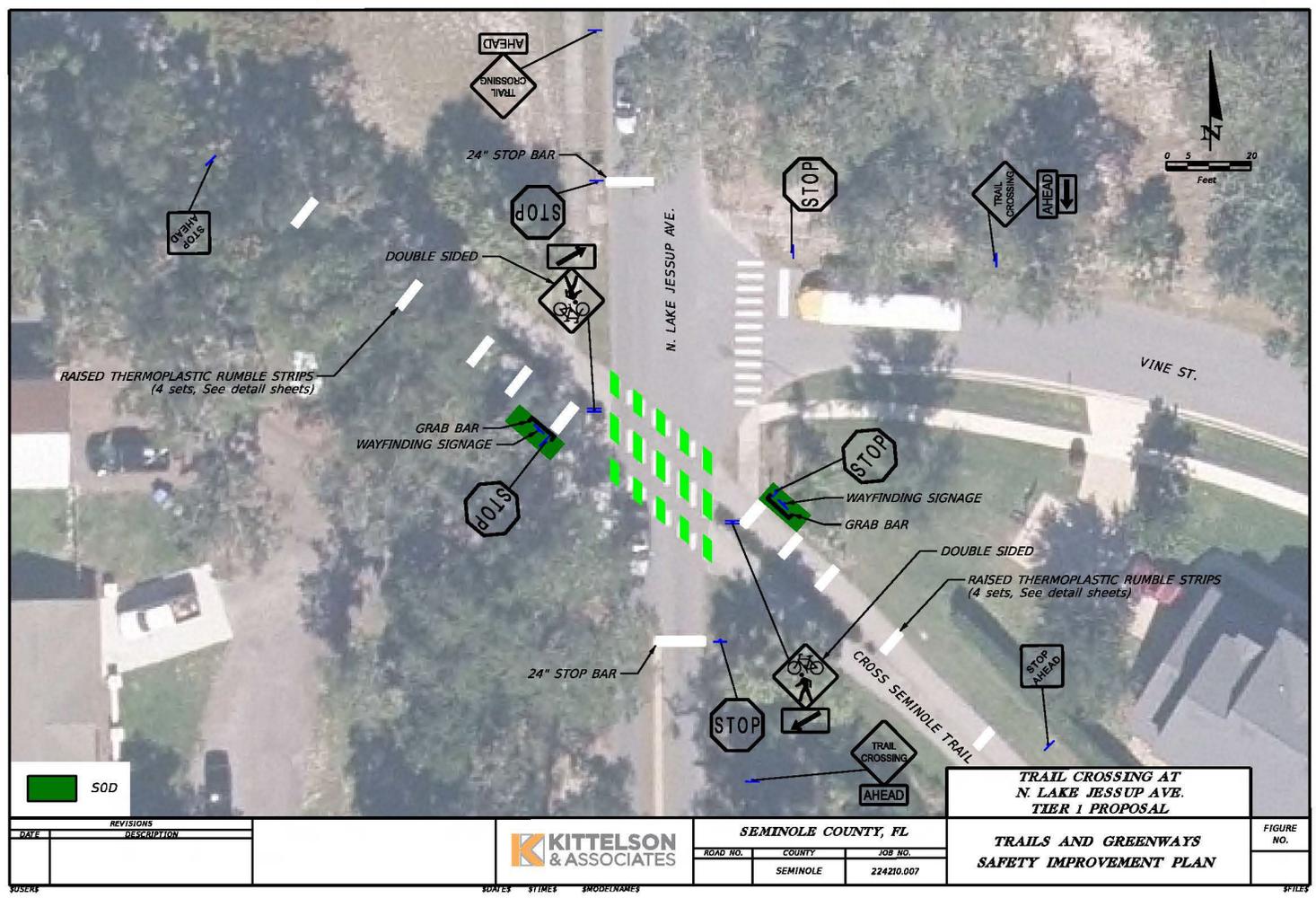


Cross Seminole Trail – Oviedo (Minor Street Crossing)





Cross Seminole Trail – Oviedo (Tier 1)

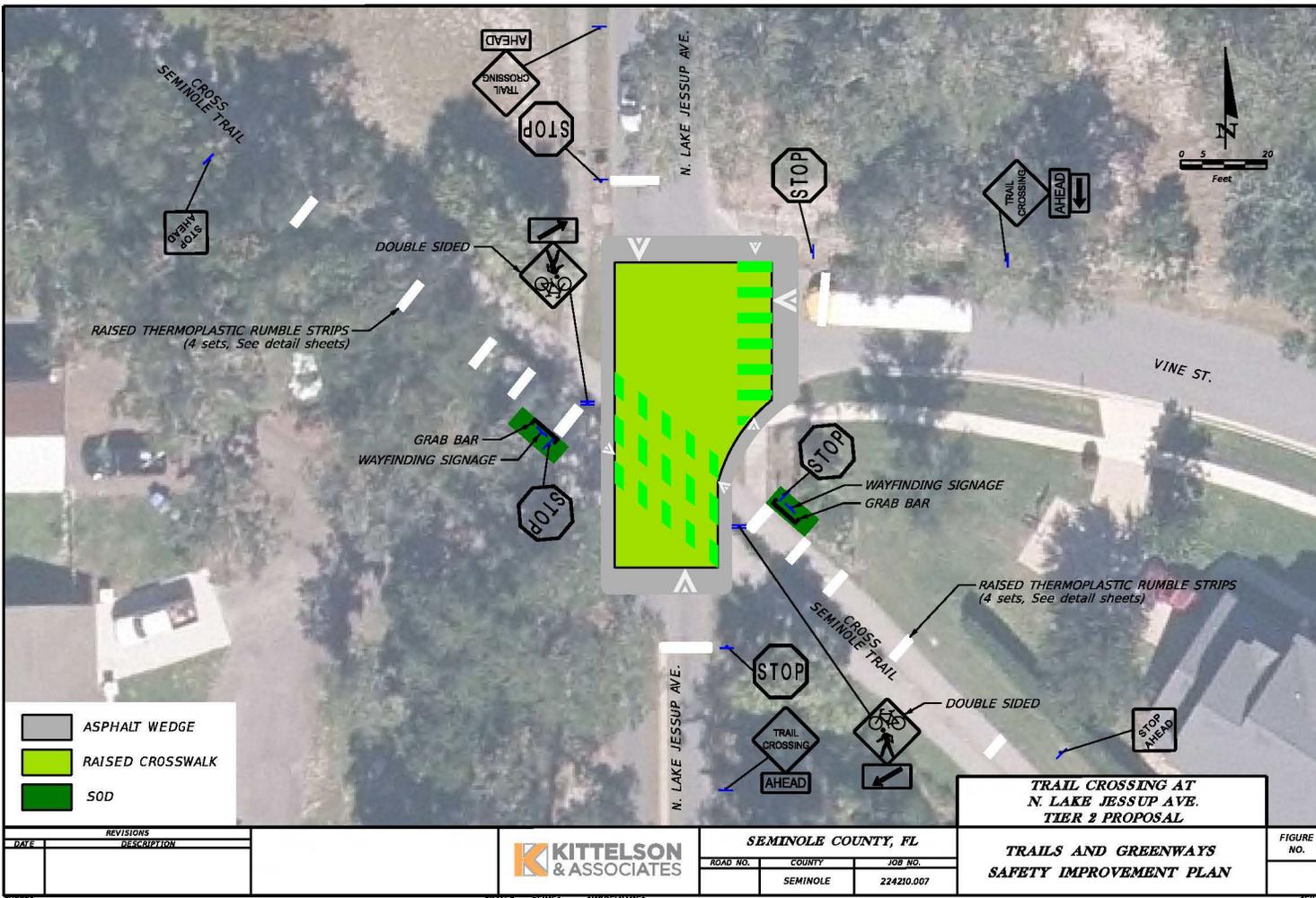


- High Emphasis Green Markings
- Enhanced Vehicle Control
- Advance Warning Signs and Audible Strips
- Grab Bars



Cross Seminole Trail – Oviedo (Tier 2)

- Raised Intersection

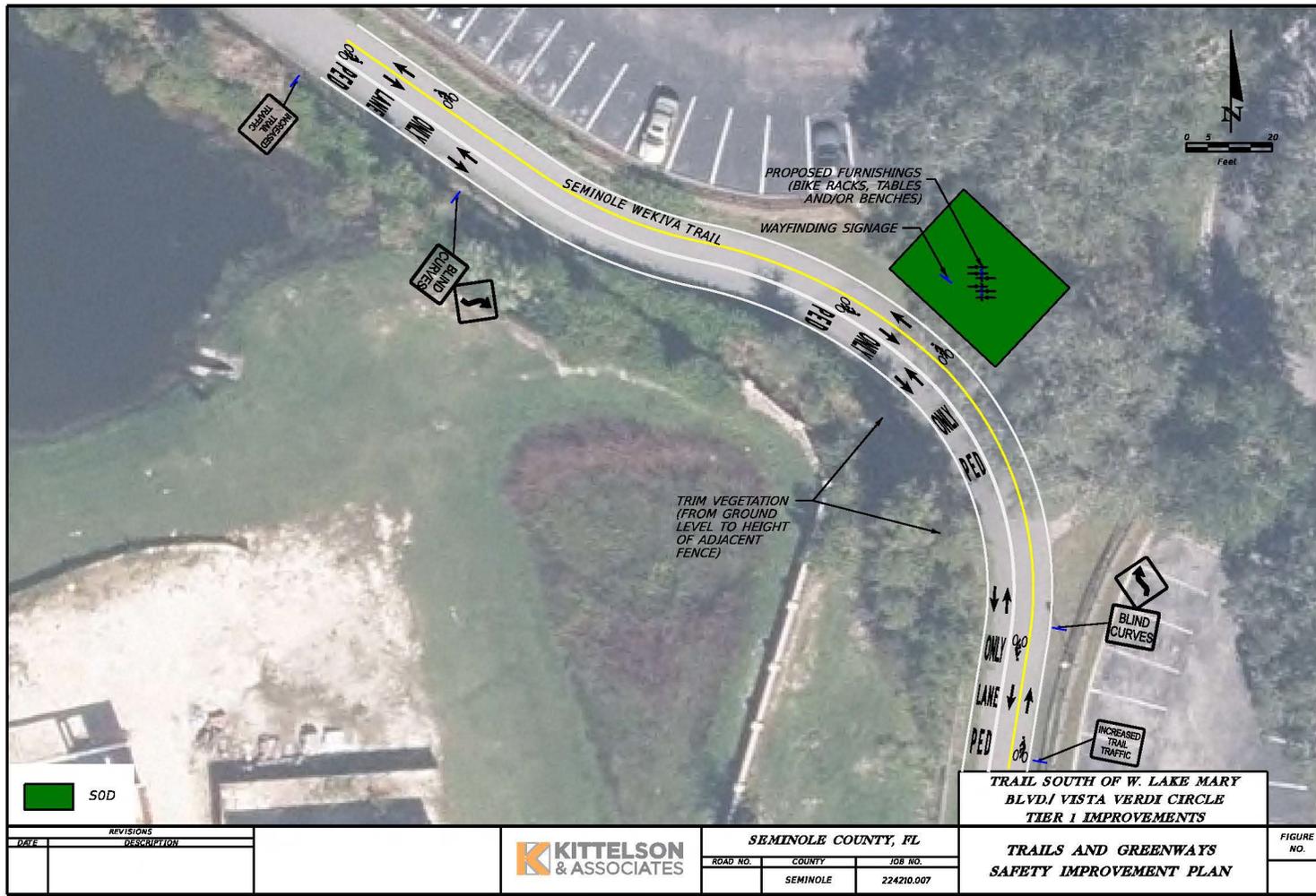




Seminole Wekiva Trail at Lake Mary/Vista Verde (Speed Differential, Sight Lines)

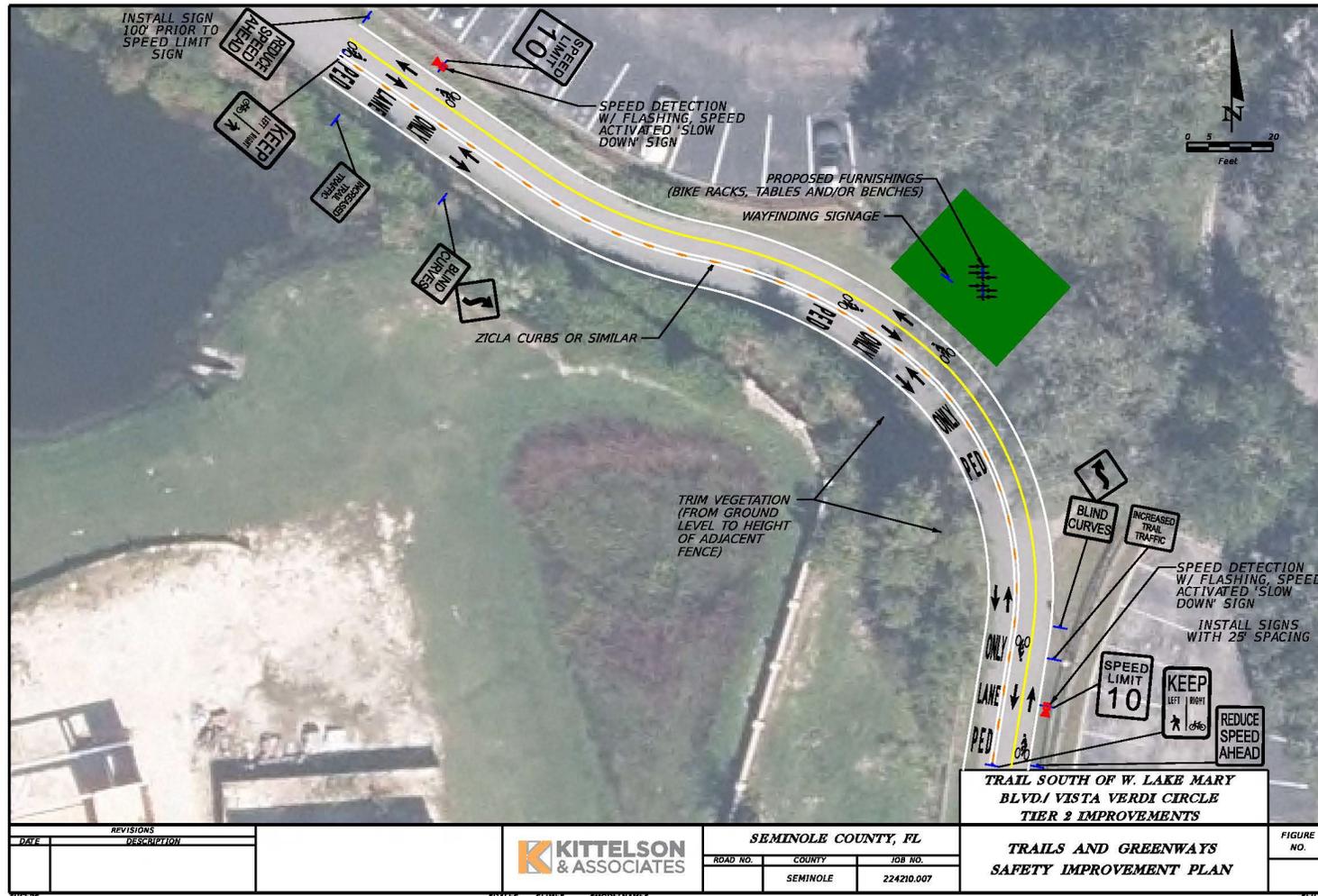


Seminole Wekiva Trail at Lake Mary/Vista Verde Tier 1



- Delineate Pedestrian and Bicycle Space Around Curve
- Advance Warning Signs and Pavement Markings
- Trim Vegetation for Clear Sight Lines
- Create Trail Wayside

Seminole Wekiva Trail at Lake Mary/Vista Verde Tier 2



- Add Speed Feedback Displays

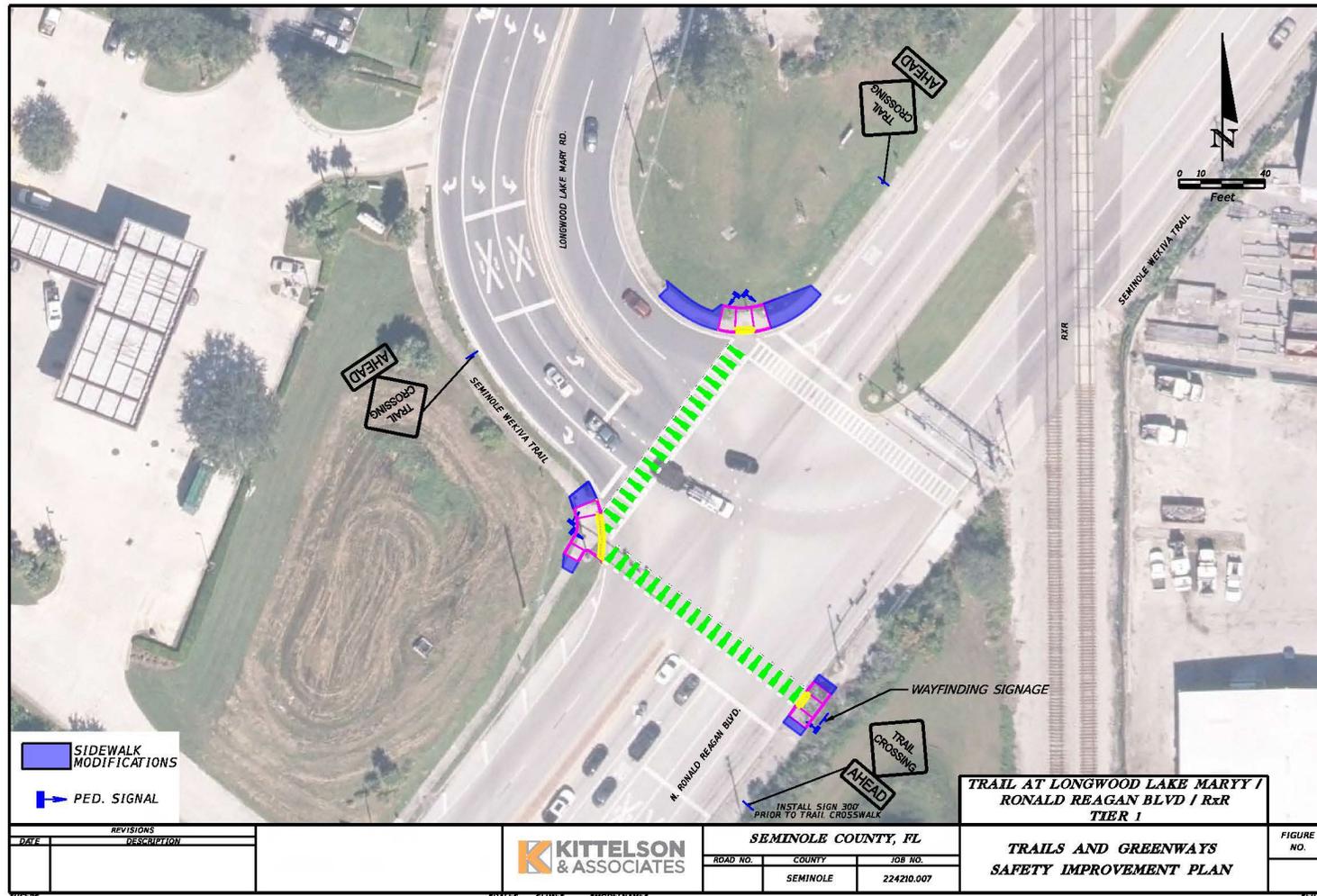


Seminole Wekiva Trail at Ronald Reagan (Major Crossing)





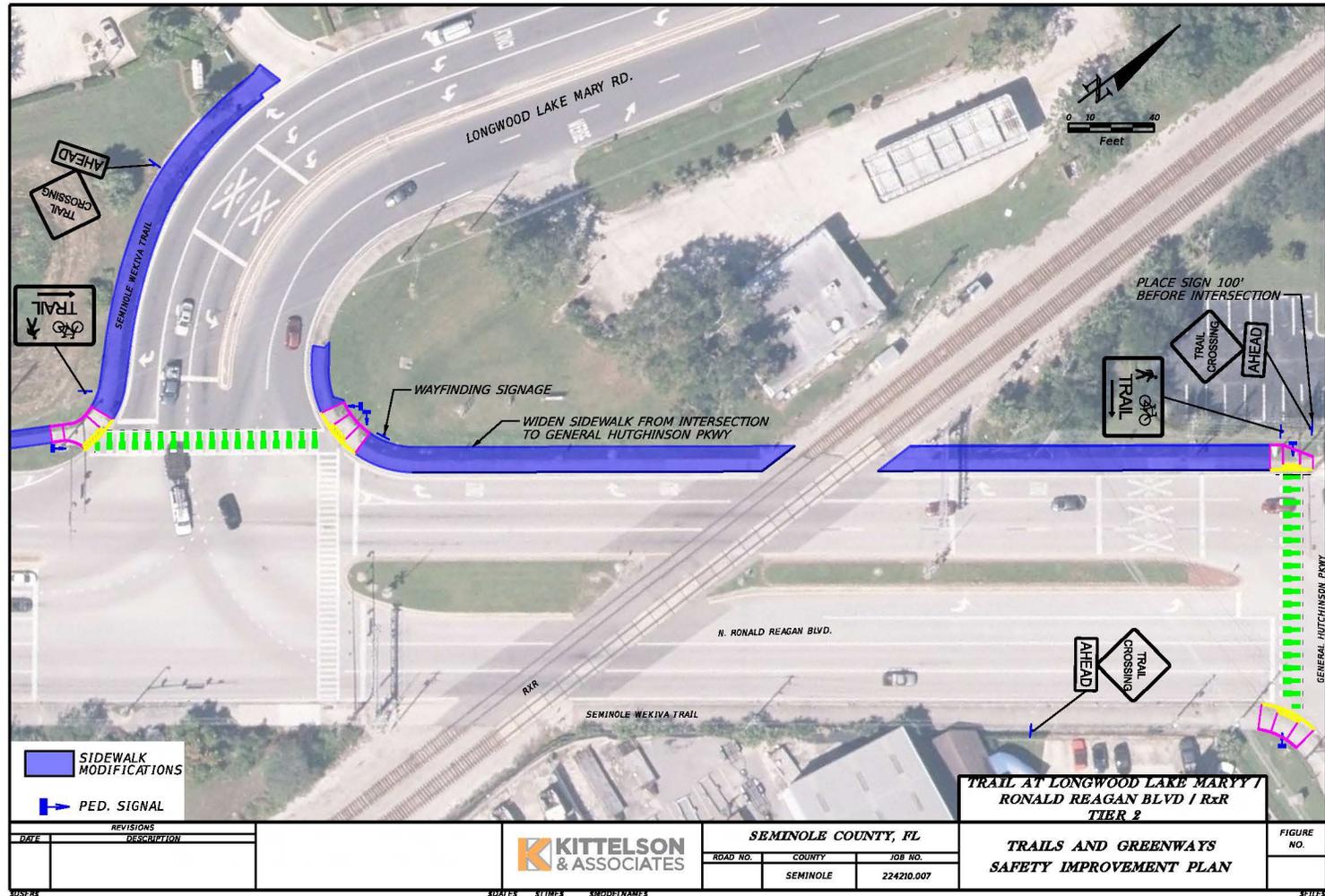
Seminole Wekiva Trail at Ronald Reagan Tier 1



- Complete Intersection Crosswalks
- High Emphasis Green Markings
- Advance Warning Signs
- Expand Curb Ramp Area



Seminole Wekiva Trail at Ronald Reagan Tier 2



- Realign Trail on North Side of Ronald Reagan
- New Trail Crossing at General Hutchinson Pkwy



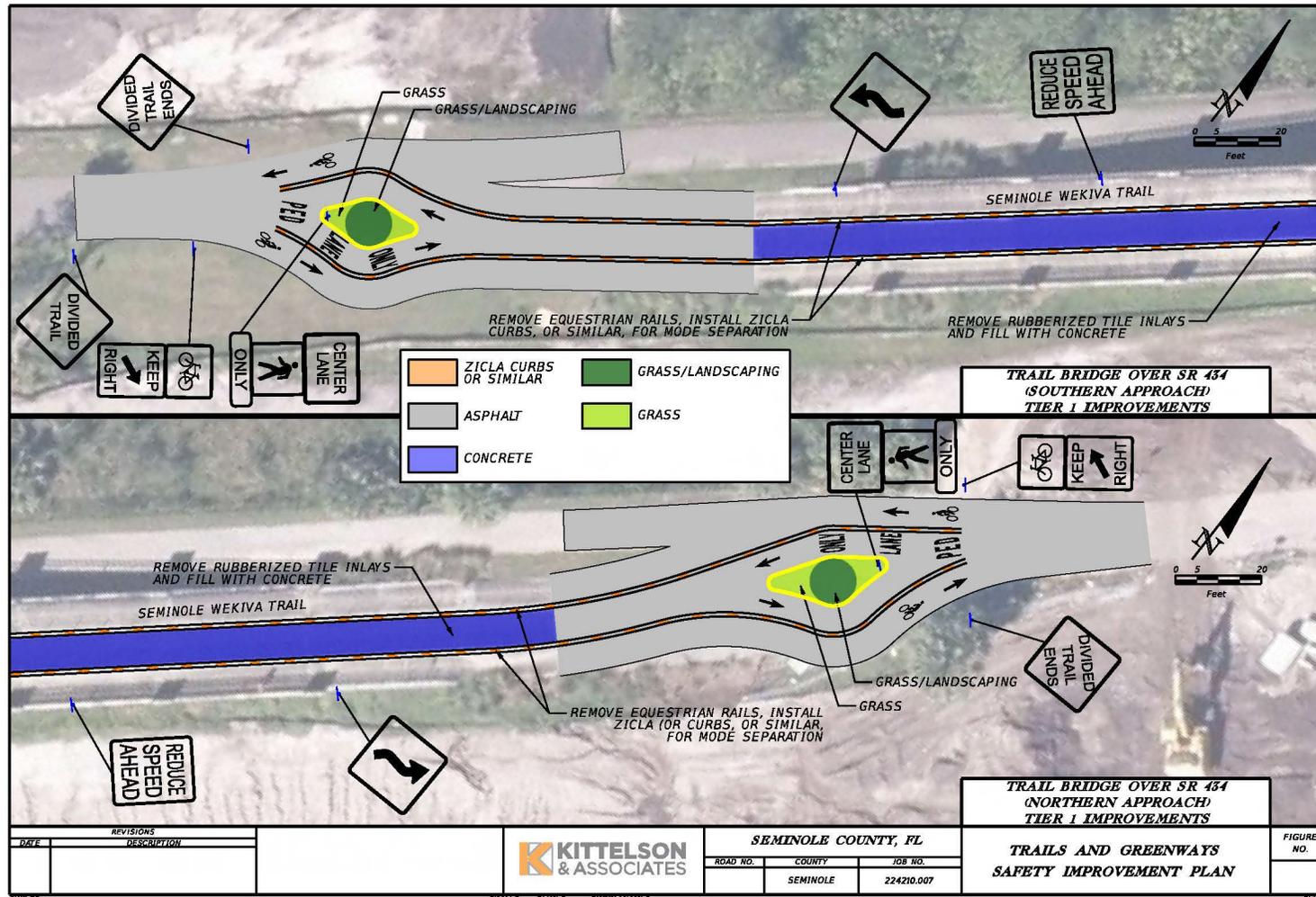
Cross Seminole Trail at SR 434 Bridge (Speed Differential, Obstructions)





Cross Seminole Trail at SR 434 Bridge

Tier 1

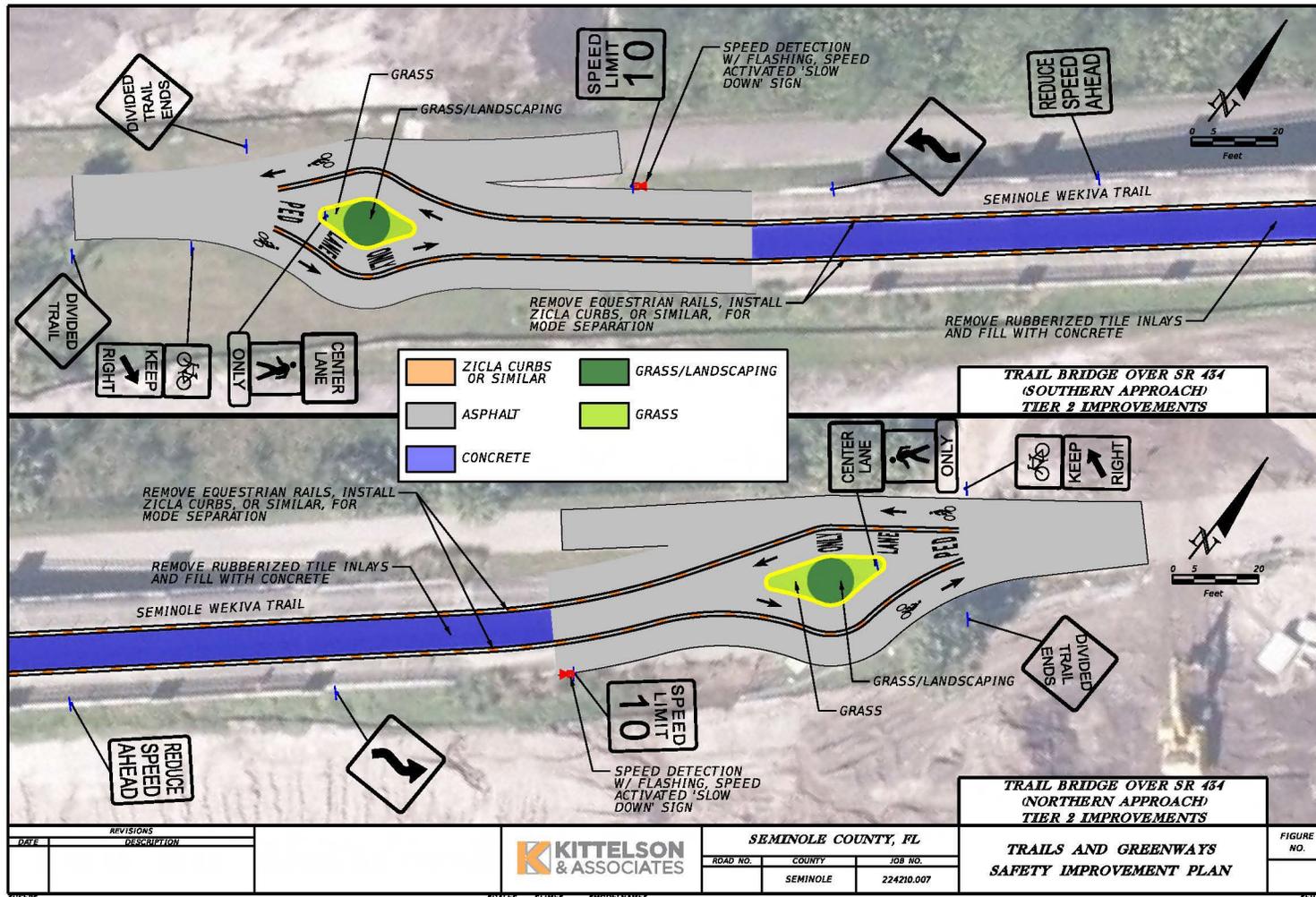


- Remove railings and rubberized tiles on bridge
- Delineate Pedestrian and Cyclist Space with Lightweight Separators
- Install Mini-Roundabouts at Bridge Landings



Cross Seminole Trail at SR 434 Bridge

Tier 2



- Add Speed Feedback Displays

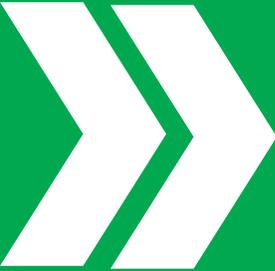


Project Contacts

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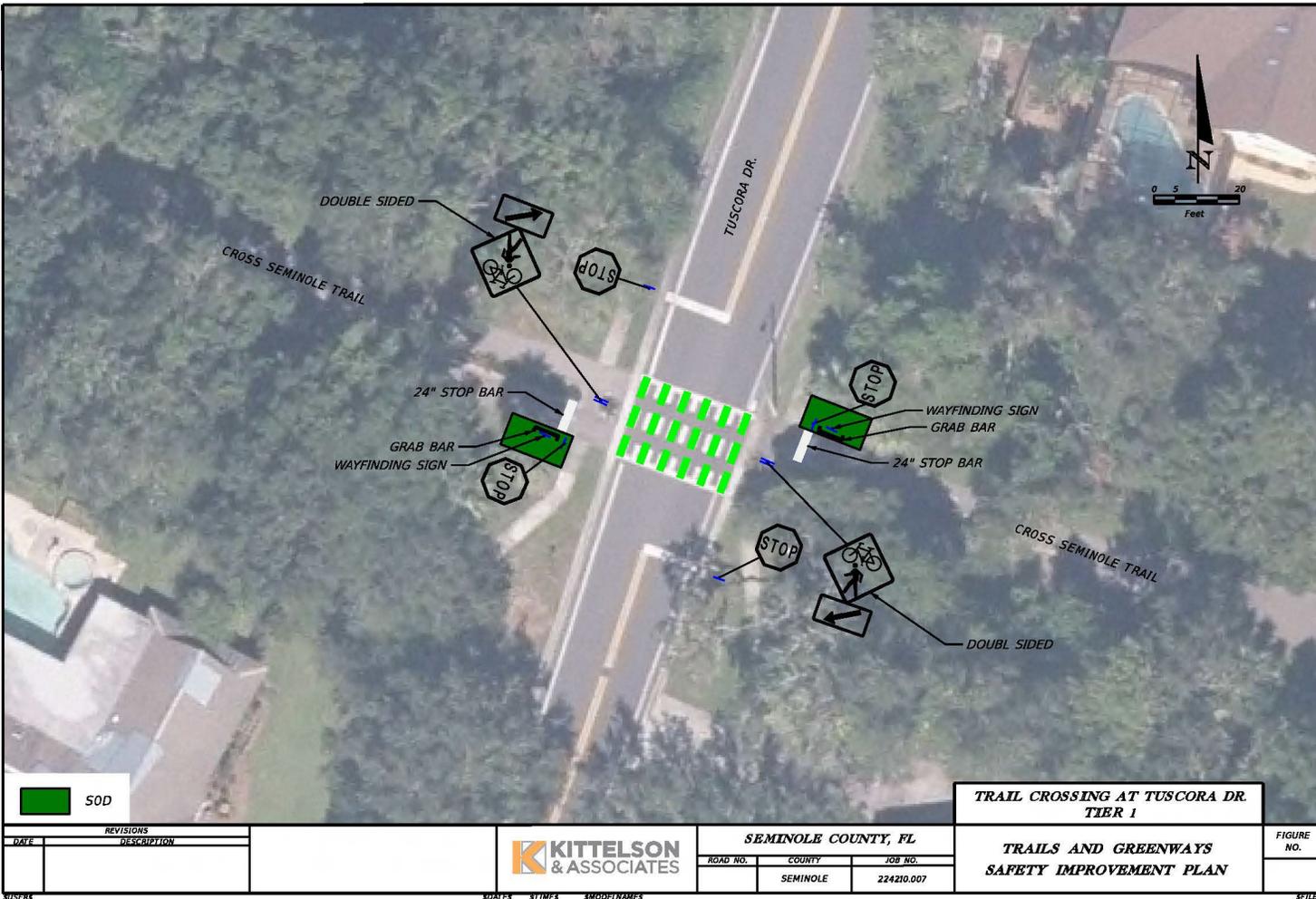


Additional Pilots



Cross Seminole Trail – Tuscarora Tier 1

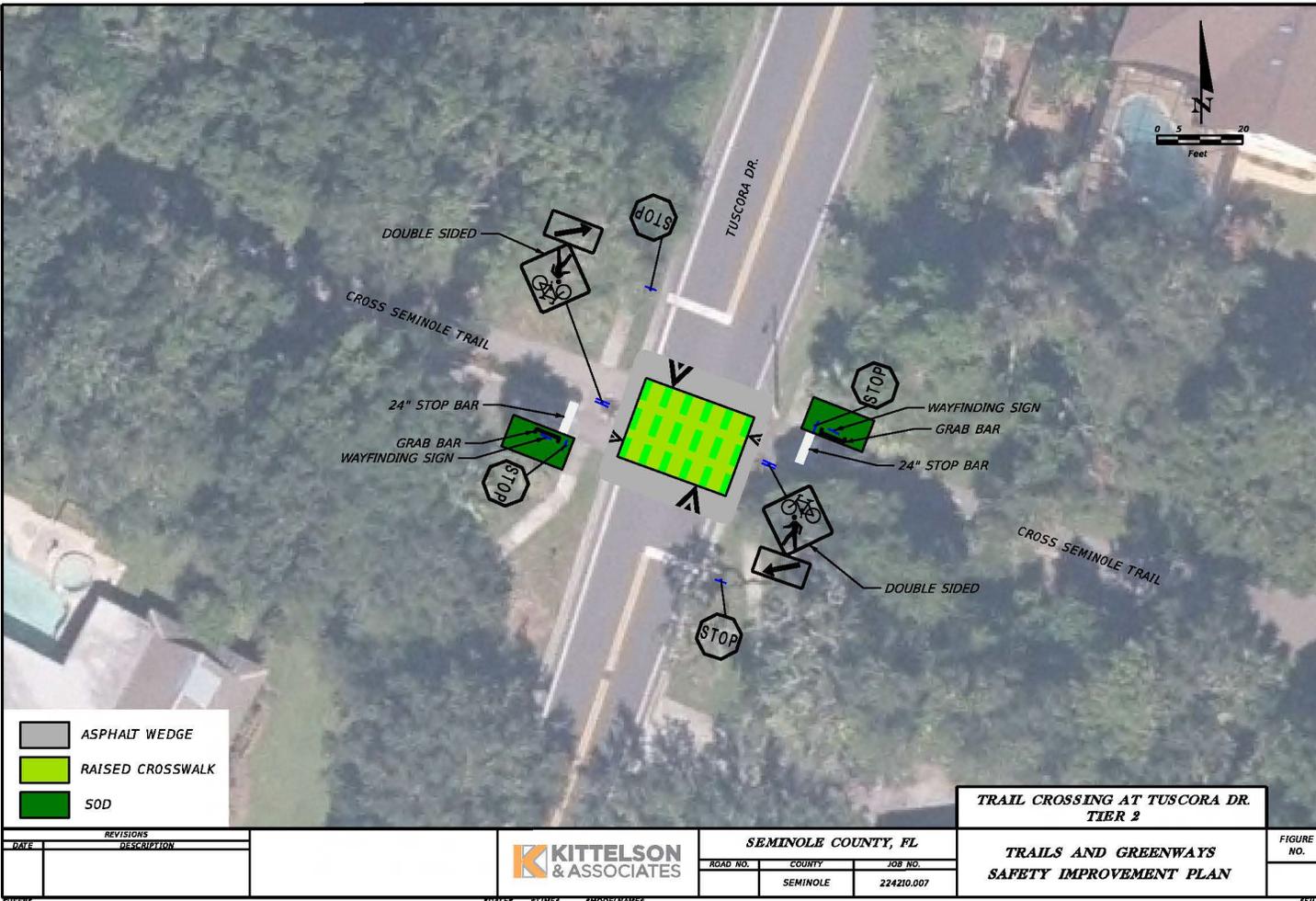
- High Emphasis Markings
- Enhanced Vehicle Control
- Advance Warning Signs
- Grab Bars





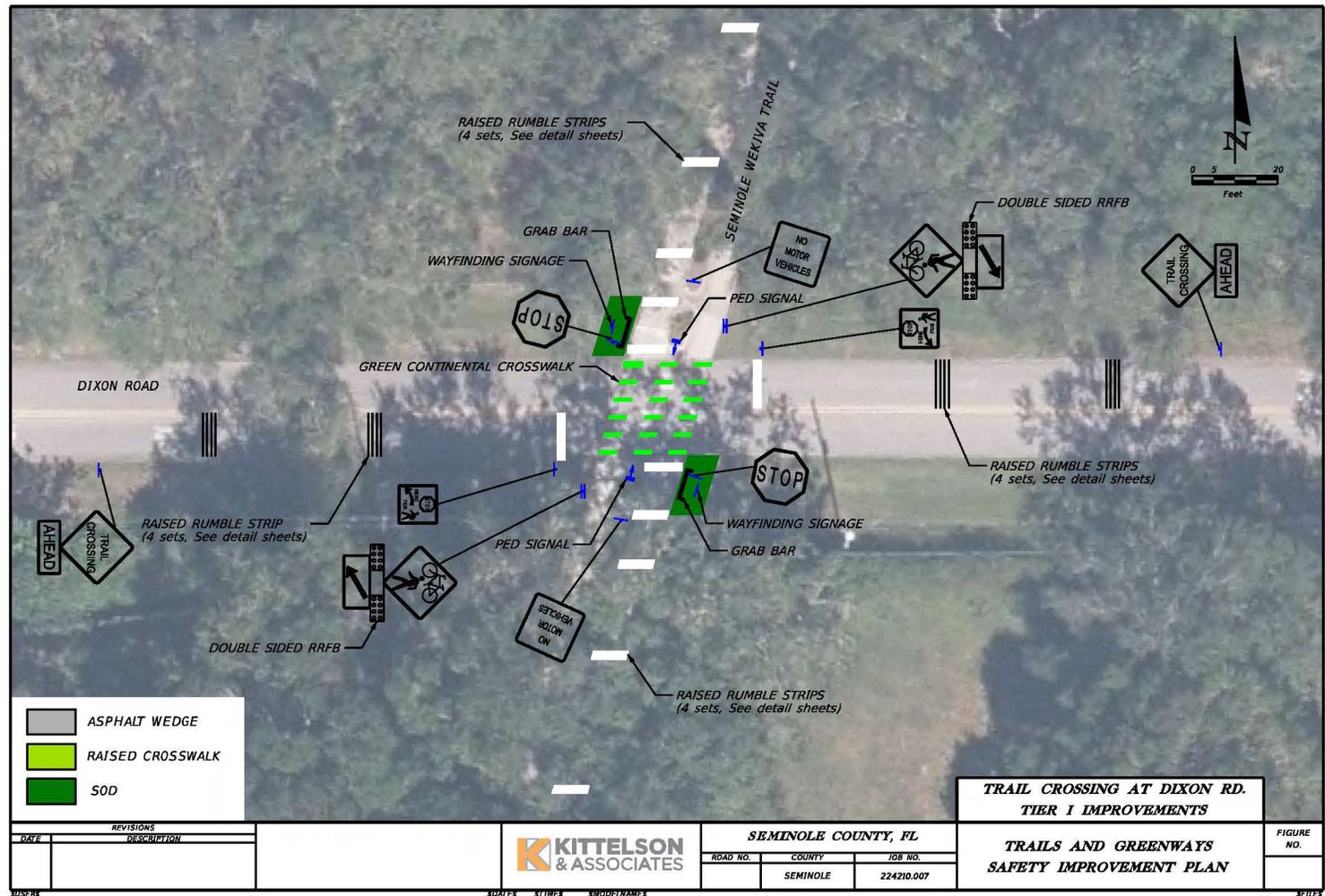
Cross Seminole Trail – Tuscarora Tier 2

- Raised Crossing





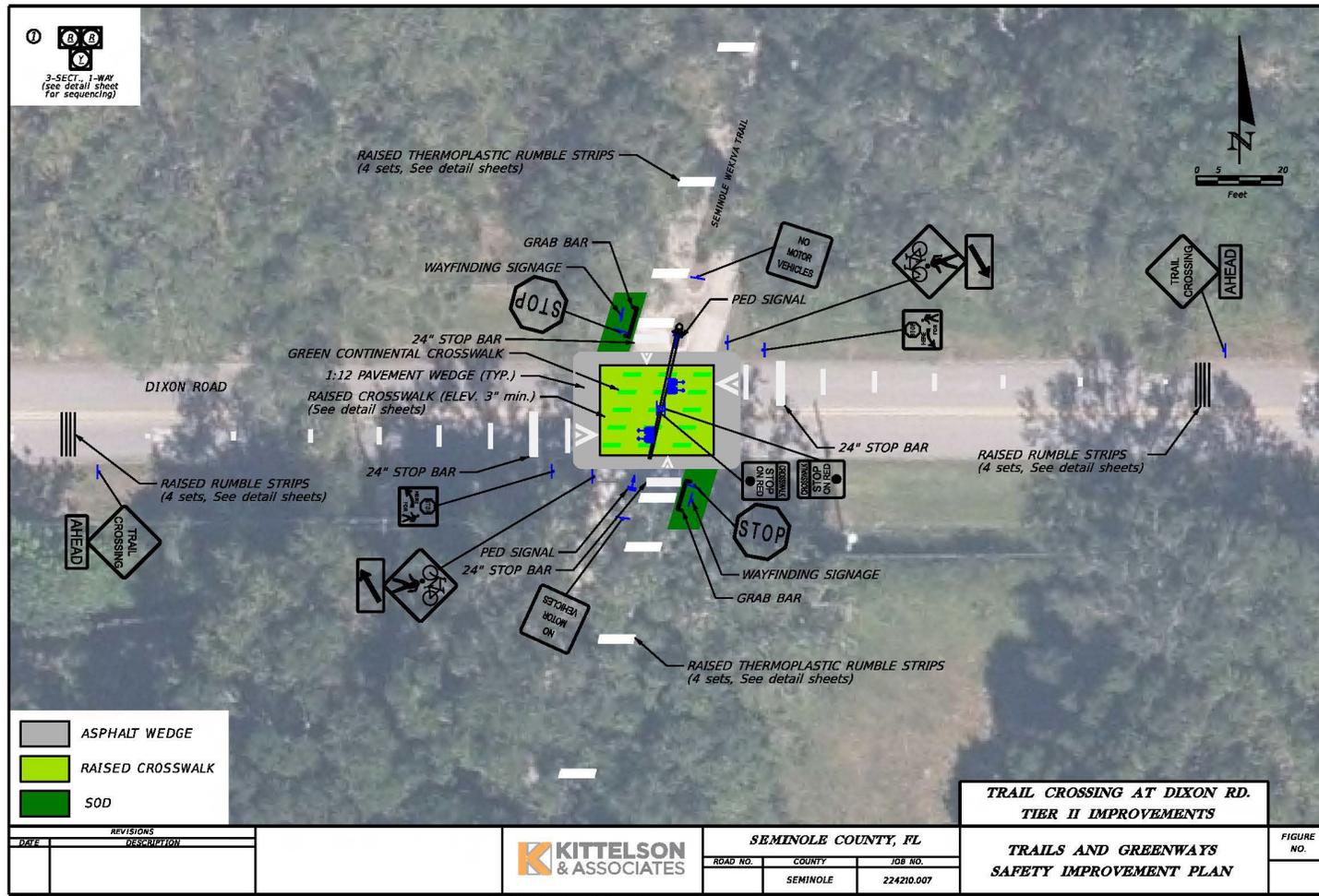
Seminole Wekiva Trail at Dixon Rd. Tier 1



- High Emphasis Green Markings
- Rectangular Rapid Flashing Beacons (RRFB)
- Enhanced Vehicle Control
- Advance Warning Signs and Audible Strips
- Grab Bars



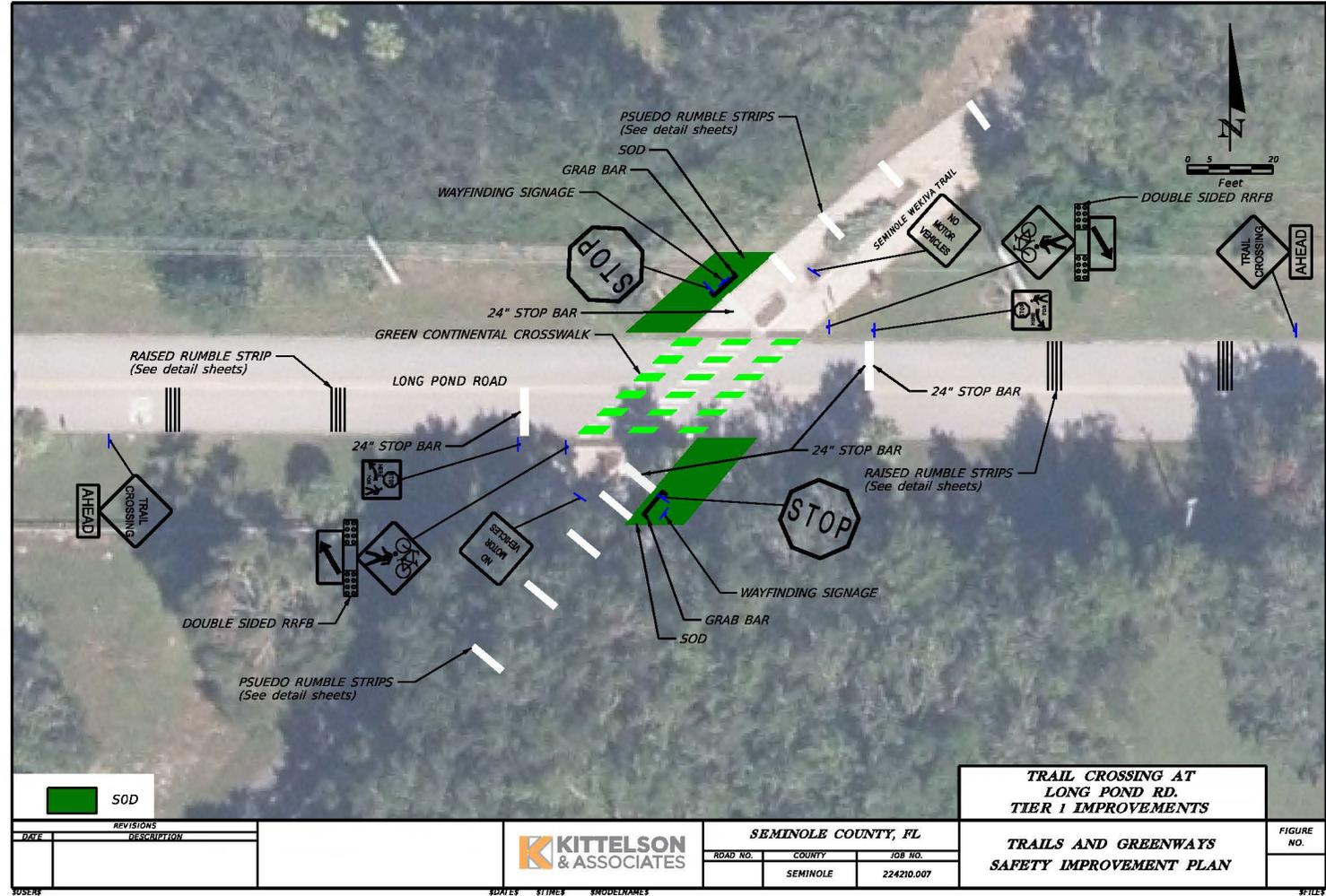
Seminole Wekiva Trail at Dixon Rd. Tier 2



- Raised Crossing
- Pedestrian Hybrid Beacon (PHB)



Seminole Wekiva Trail at Long Pond Rd. Tier 1

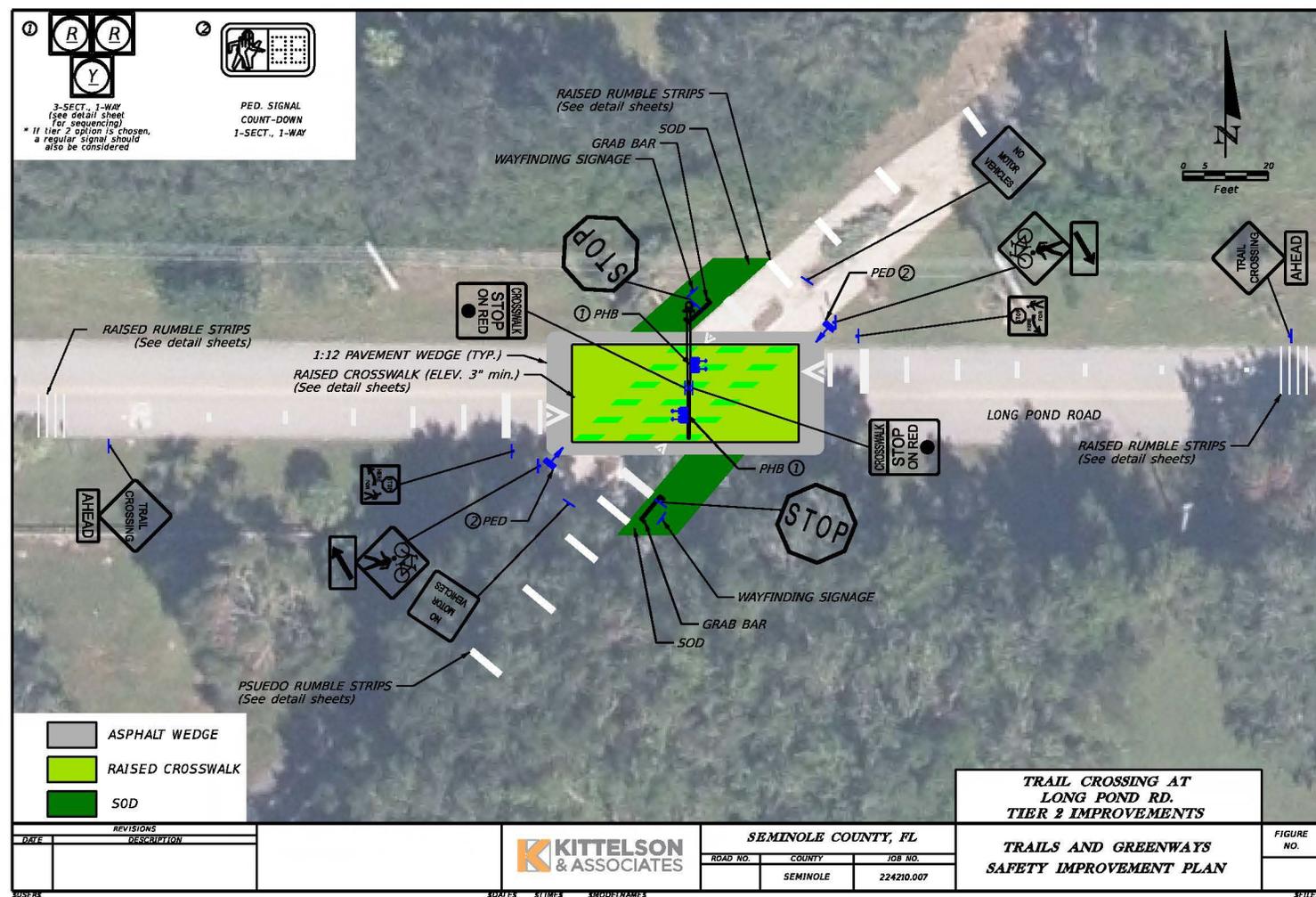


- High Emphasis Green Markings
- Rectangular Rapid Flashing Beacons (RRFB)
- Enhanced Vehicle Control
- Advance Warning Signs and Audible Strips
- Grab Bars





Seminole Wekiva Trail at Long Pond Rd. Tier 2

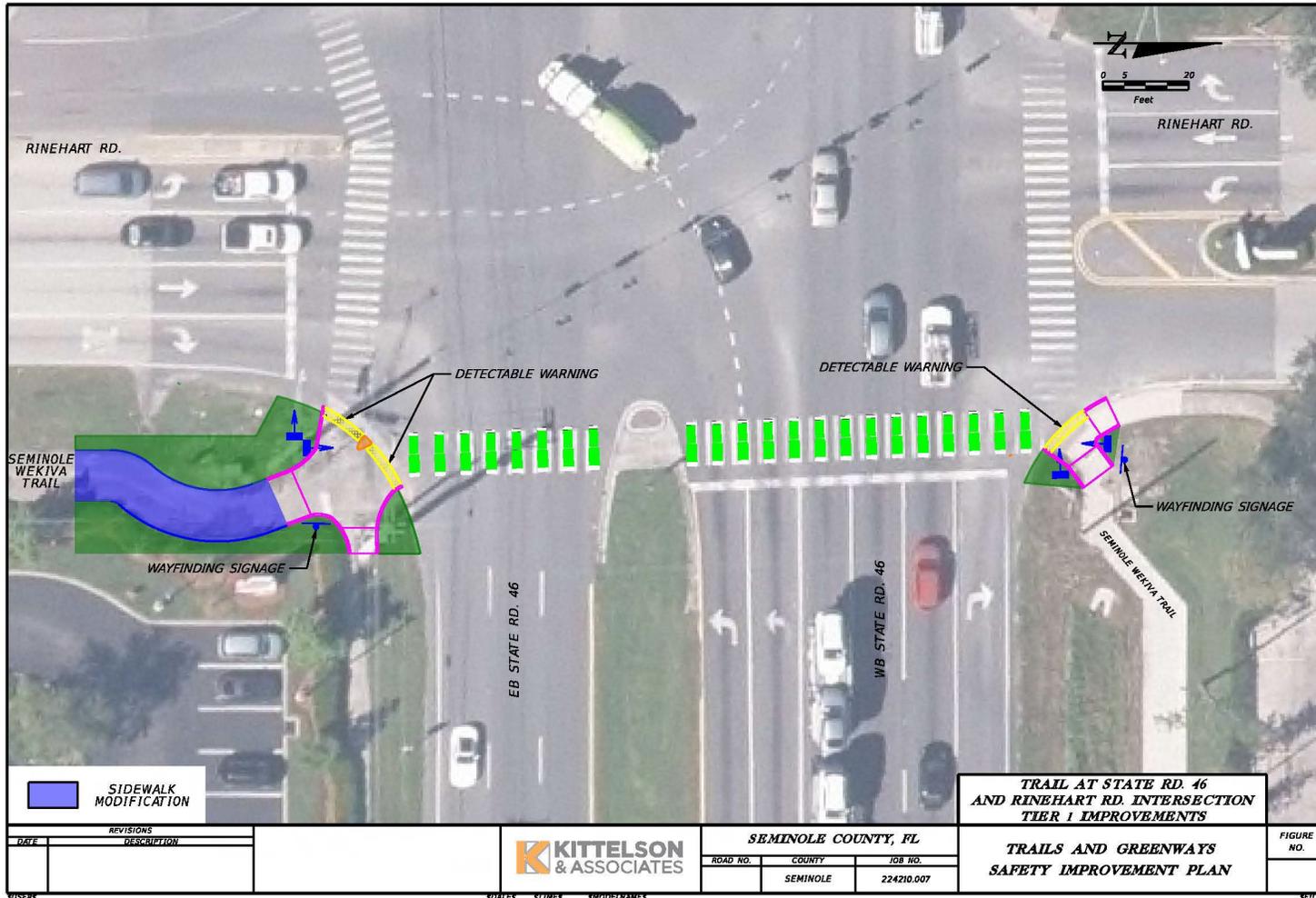


- Raised Crossing
- Pedestrian Hybrid Beacon (PHB)





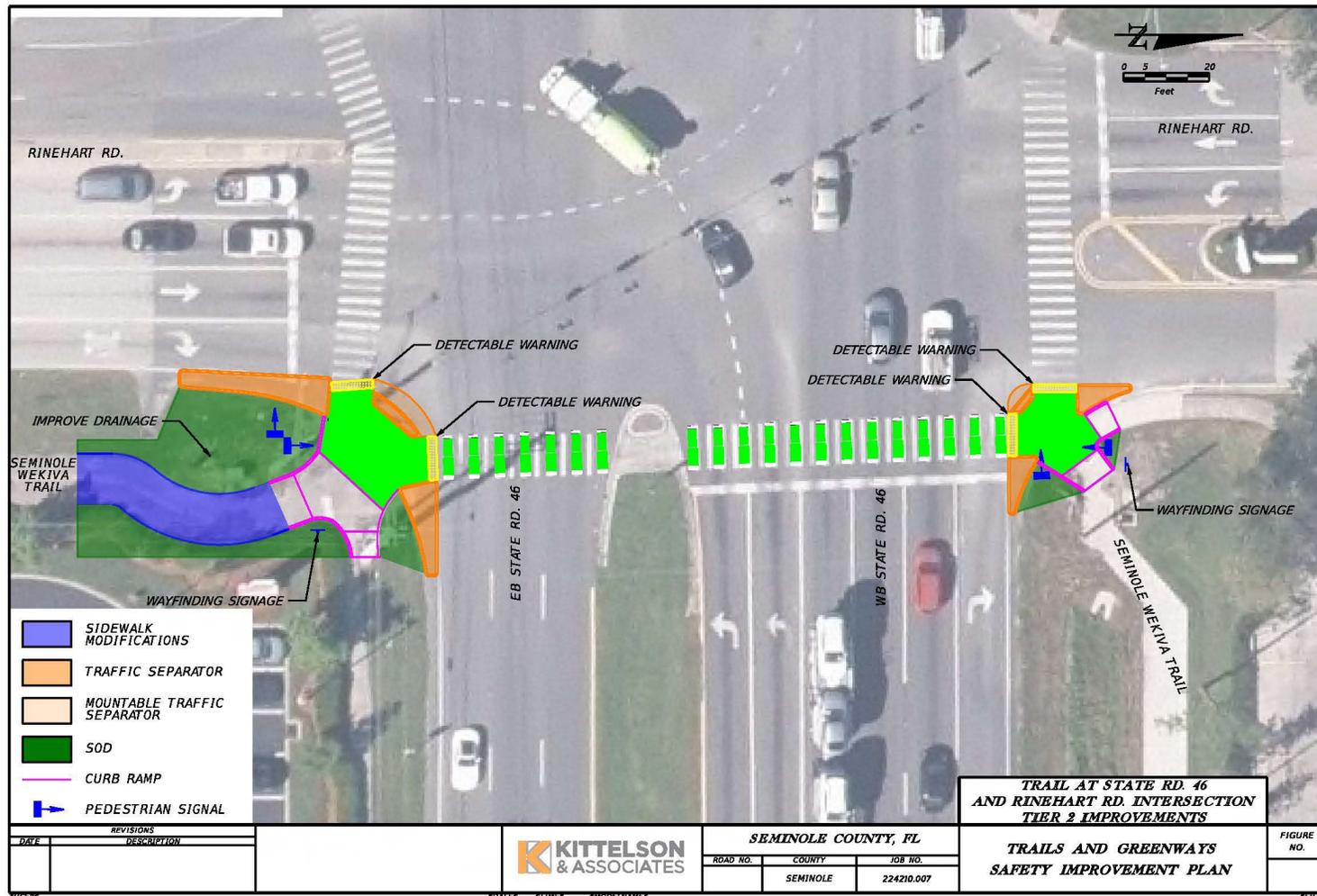
Seminole Wekiva Trail at SR 46 Tier 1



- High Emphasis Green Markings
- Correct Ponding/Drainage in SE Corner
- Add Wayfinding



Seminole Wekiva Trail at SR 46 Tier 2



- Partial Protected Intersection
- Tighten Radius/Shorten Crossing Distance