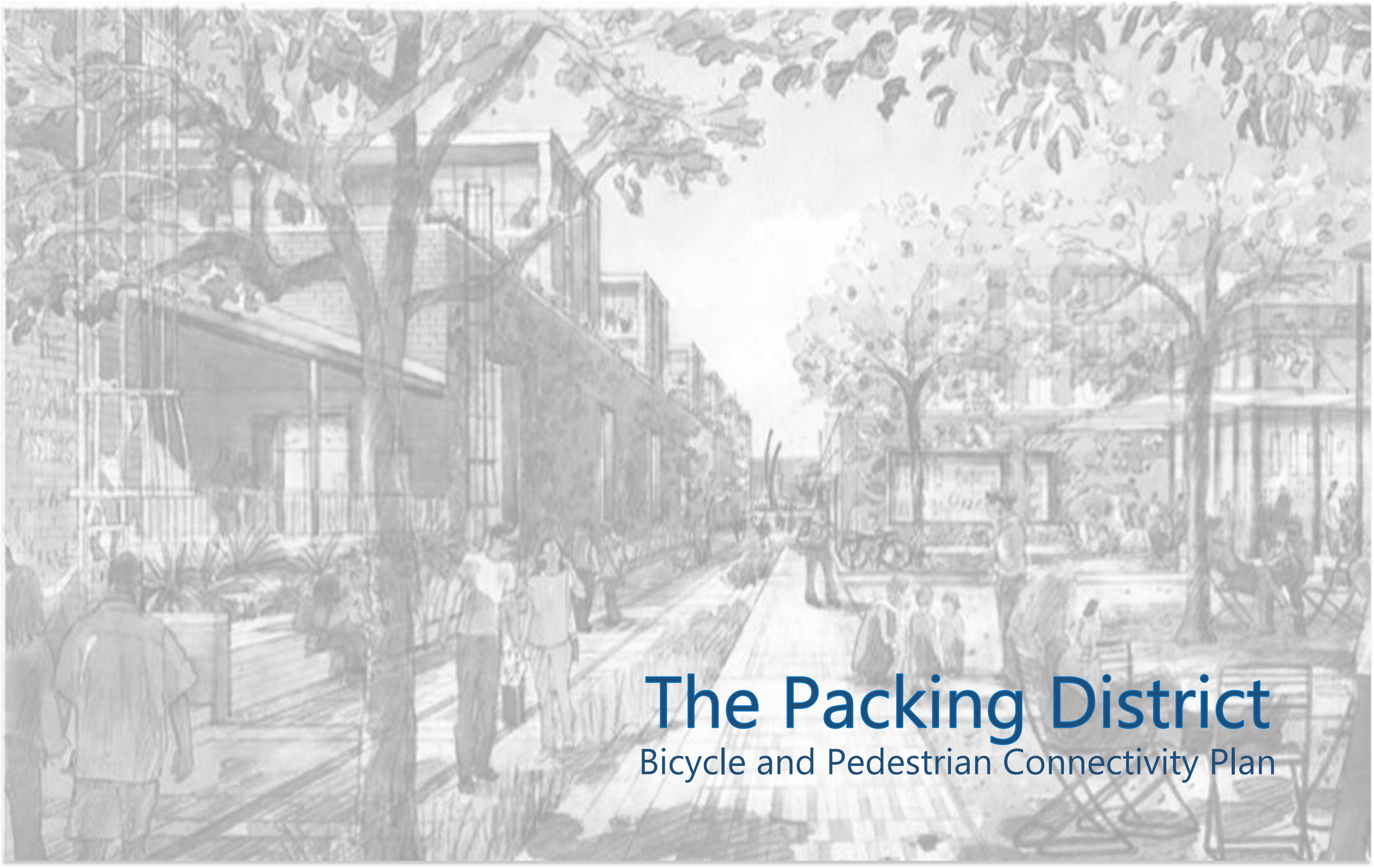

The Packing District

Bicycle and Pedestrian Connectivity Plan

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I. Executive Summary

This study identifies strategies for connecting The Packing District to neighboring communities and activity centers via walking and biking trails to advance Dr. Phillips, Inc.'s mission to integrate the district into the City of Orlando and beyond.

Within this assessment, The Packing District's latest site-specific development plans are aggregated into a comprehensive site plan and a feasibility analysis is undertaken to identify barriers and obstructions along potential on-and-off-site trail routes. During the development of these analyses, numerous public and private sector stakeholders were convened in order to quality assure and narrow down potential trail corridors.

Using the feasibility analysis and stakeholder engagement, the project team prioritized potential trail alignments into primary, secondary and visionary networks. These networks consist of internal district-wide connections and off-site routes that connect the district to nearby activity centers, parks, cultural and economic points of interest, and statewide trail corridors.

The analysis concludes with trail funding information, a preliminary cost analysis and a phased strategy that will assist Dr. Phillips, Inc. in furthering their mission to connect The Packing District to surrounding communities.

Project Team

Bike/Walk Central Florida | xGeographic

Project Stakeholders

City of Orlando
Florida Central Railroad
Florida Department of Transportation
MetroPlan Orlando
Orange County
Orlando Bike Coalition
Third Wave Development

Funding Provided By

Dr. Phillips, Inc.

II. Overview & Goals

This study identifies mobility solutions to connect the Packing District to the surrounding Orlando community, including population, economic and cultural centers, as well as existing and planned bicycle and pedestrian routes. This study includes a proposal and documented methodology reverse-engineered from goals intended to enhance district-wide site connectivity with specific on-site mobility solutions while connecting the district to activity centers.

Goal 1: Enhance District-Wide Site Connectivity

Fluid connections, block structures and signage will allow residents and visitors to move within the district with ease. This will be enhanced through a connected network of bicycle and pedestrian paths that utilize available right of way and redeveloped blocks.

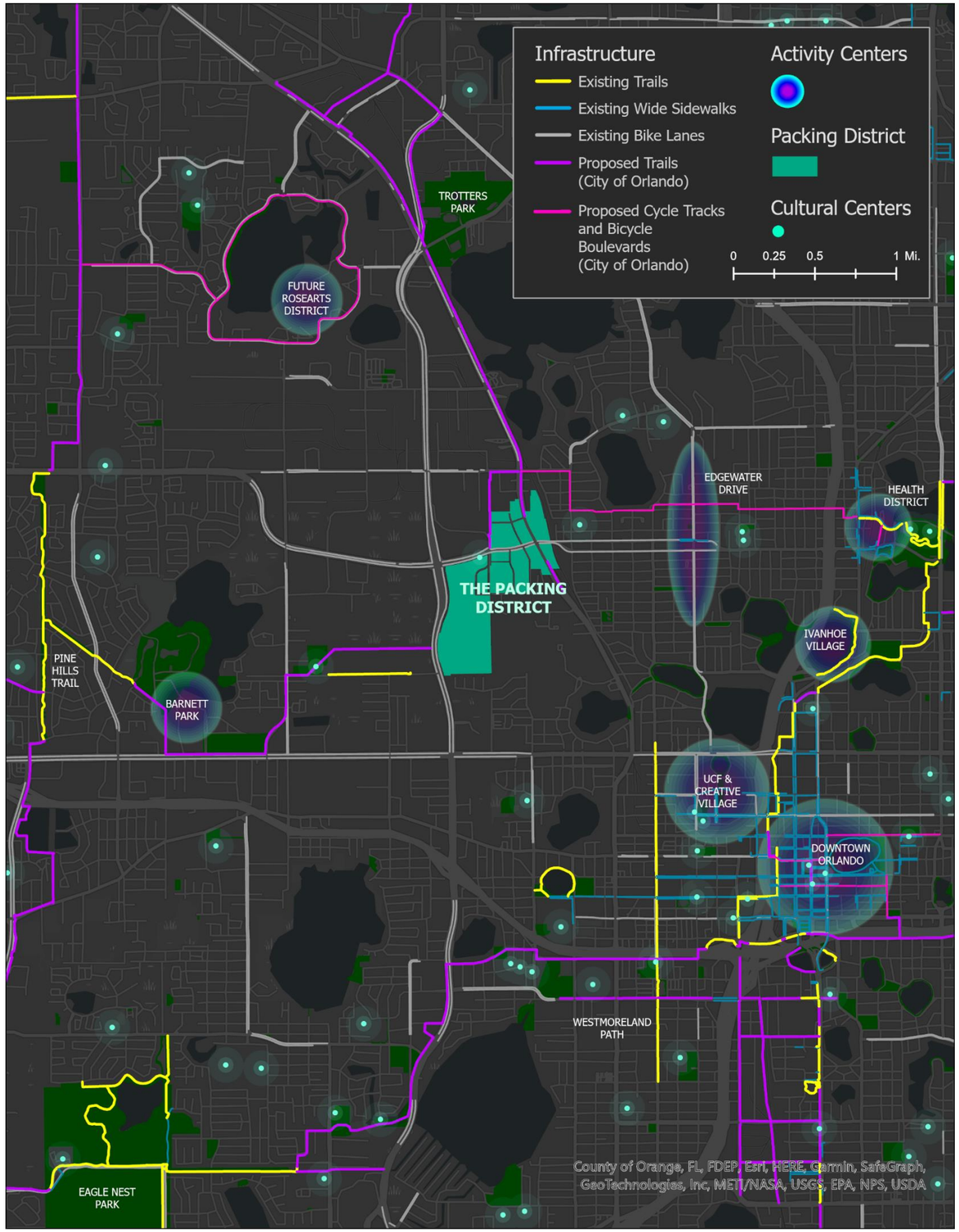
Goal 2: Connect the District to Activity Centers

- **Population Centers**
  Connecting the Packing District with where people live ensures that the district is accessible to people who want to visit the district's many future destinations or those who will work in businesses on-site.

- **Economic Centers**
  Connecting the Packing District with economic centers will improve residents' ability to visit entertainment venues, shopping centers, and employment centers outside of the district without the use of a car.

- **Cultural Centers**
  Cultural centers include schools, community centers, libraries, parks, and other resources. Aligning new trails with these community assets leverages the builder's ability to receive funding for construction.

- **Biking Routes**
  Connecting new routes to existing and planned trail corridors will enhance the region's level of bicycle and pedestrian connectivity.



III. Existing Conditions

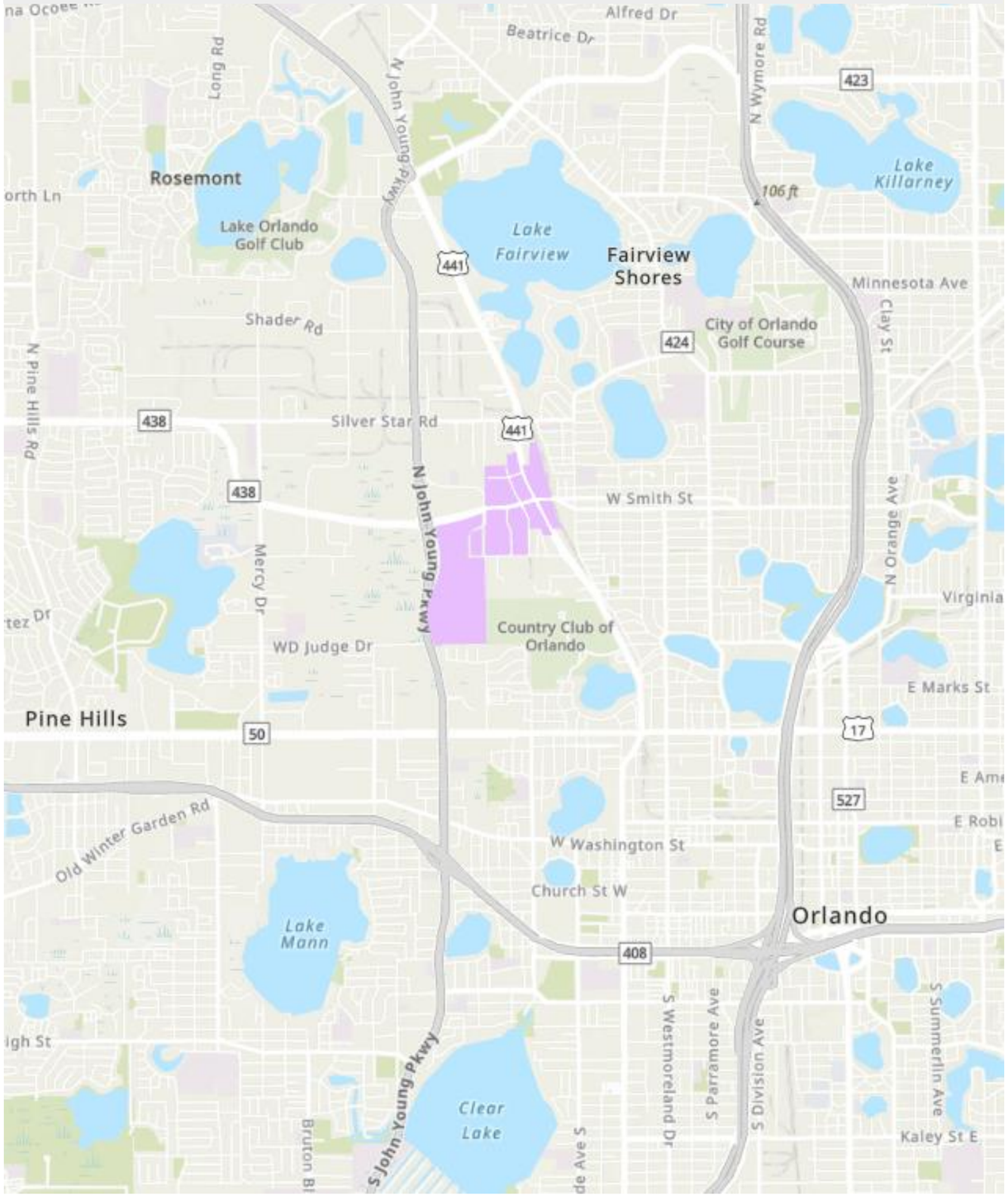
The existing conditions analysis analyzes the current progress that has been made on the Packing District site and identifies on-and-off site indicators that will influence the proposed routes that are identified as part of this report.

Section Outline

- **On-Site Analysis**
  - Land Use & Development
    - Land Use Analysis
    - New Development & Adaptive Re-Use
    - Potential Block Massing
  - Transportation Mobility
    - Ongoing Road Retrofits
    - Major On-Site Roadway Intersections
    - Planned On-Site Trails and Parks
    - Railroad Analysis

- **Area-Wide Analysis**
  - Transportation
    - Roadway Characteristics
    - Activity Centers
    - Current & Planned Bike/Ped Infrastructure
  - Public Lands
    - Analysis of Potential Use Cases

Area-Wide Analysis Area



On-Site Analysis | Land Use & Development

Land Use Analysis

❖ Zoning

Three zoning classifications are present on the Packing District site, and all three are subject to the Wekiva Overlay rules and regulations of site development.

- PD/W — Planned Development (Wekiva Overlay)
  This category is site-specific and subject to the requirements of the approved district development plan with the City. Changes can be made to this plan by the property owner following the development of 50% of the site.

- AC-2 — Urban Activity Center (Wekiva Overlay)
  Allows for a mix of uses at intensities much higher than surrounding neighborhoods with a maximum intensity of 200 units per acre (100, plus 100 bonus) and 2.00 floor area ratio (1.00 plus 1.00 bonus).

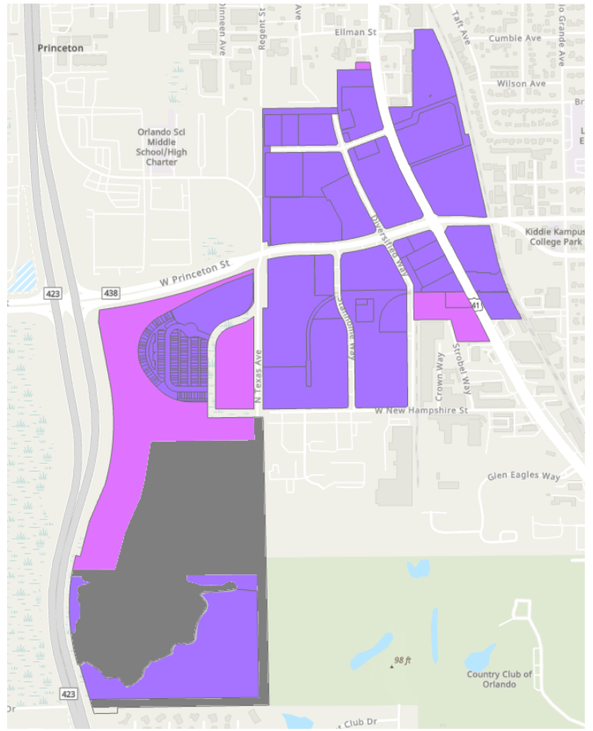
- H/W — Holding (Wekiva Overlay)
  The Holding classification describes lands that have a somewhat unclear usage in the future, and are typically left undeveloped for a limited time period.

❖ Planned Development Regulations (Ord. 2019-20)

The expansion and restating of The Packing District Planned Development is now over 100 acres and gives flexibility to how the district is developed. Minimum setback, densities and park space requirements are among the few restrictions listed in the PD language.

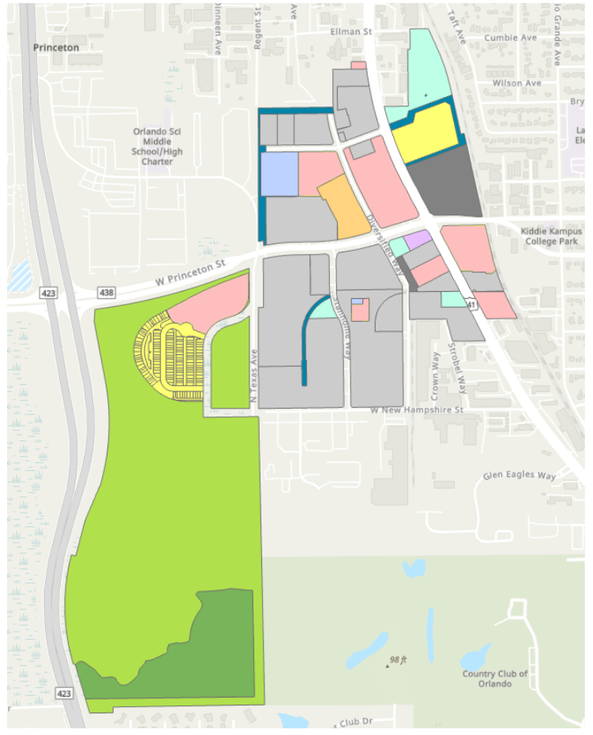
❖ Department of Revenue Code Category

Department of Revenue (DOR) Codes provide a snapshot of the economic classification of parcels to date. The classifications within the map will change over time as development is finalized and taxes are paid by parcel owners. The classifications depicted in the map to the right group numerous DOR Codes into bundled classifications.



Zoning Classifications

- PD/W — Planned Development (Wekiva Overlay)
- AC-2/W — Urban Activity Center (Wekiva Overlay)
- H/W — Holding (Wekiva Overlay)



Department of Revenue Code Classification Type

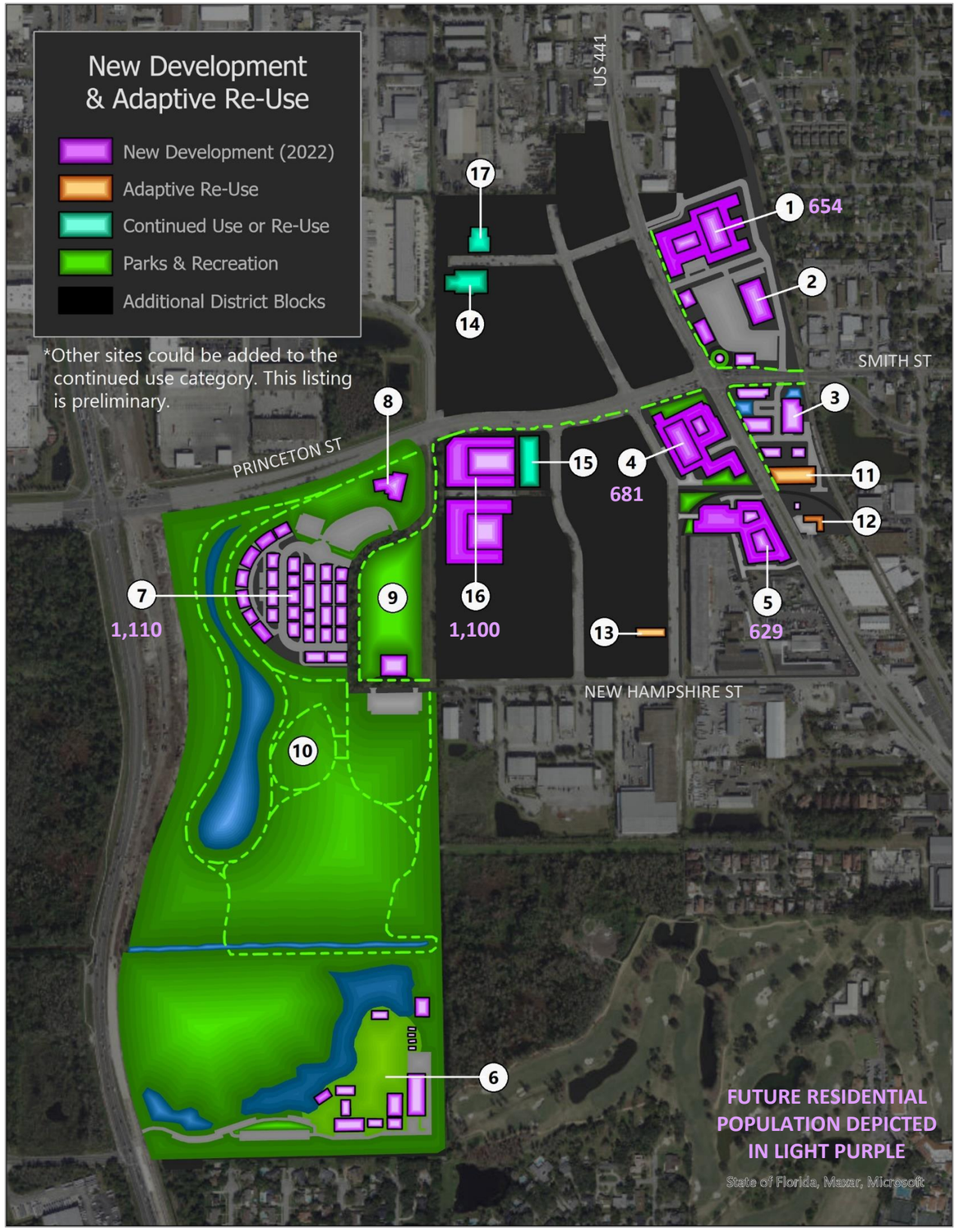
- Residential (All Types)
- Warehouses & Industrial Flex
- Commercial & Retail
- Institutional & Municipal
- Office
- Conservation
- Banks & Financial
- Recreation, Parks & Forests
- Parking
- Private Right of Way
- Industrial (Vacant)
- Utility

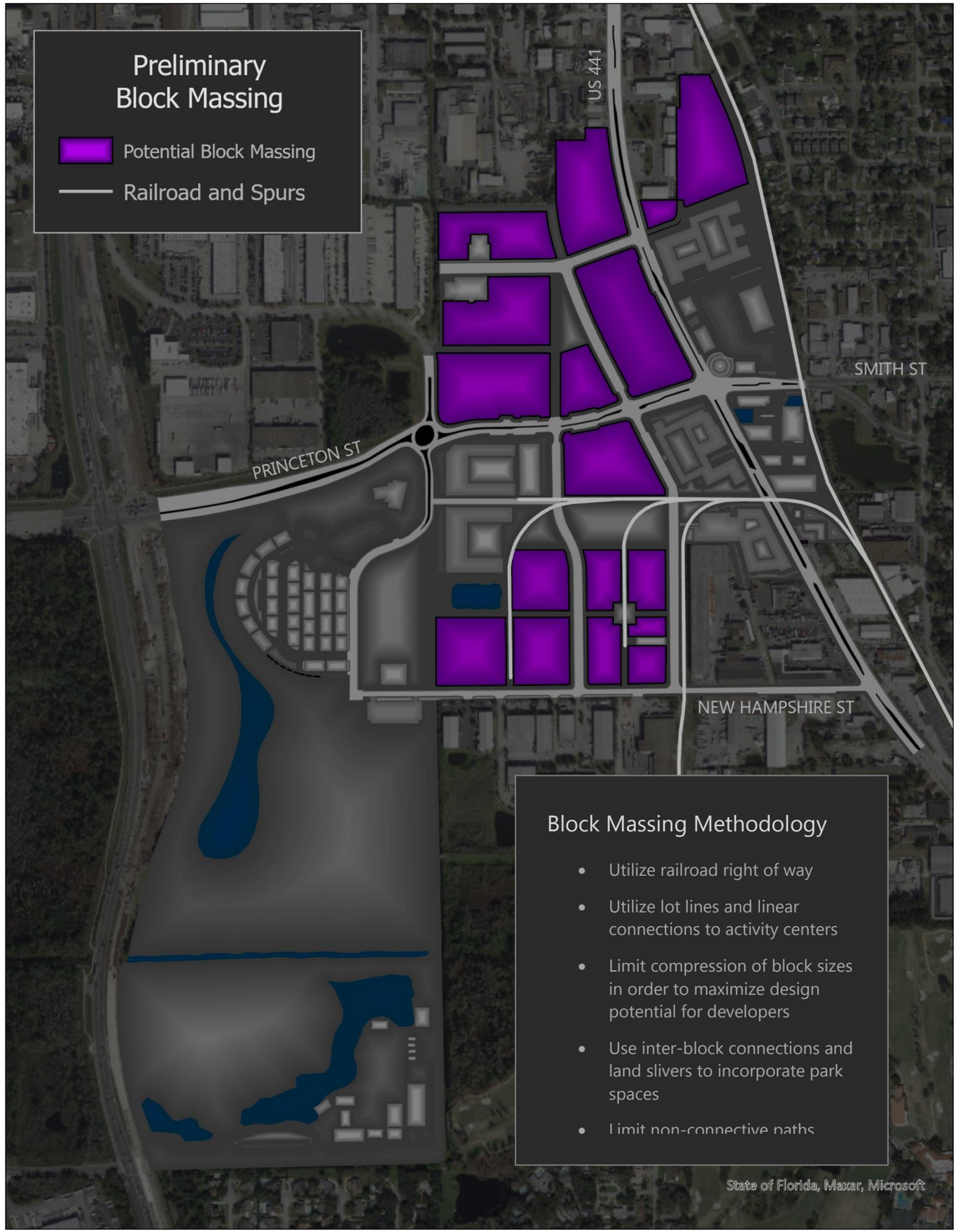
New Development & Adaptive Re-Use

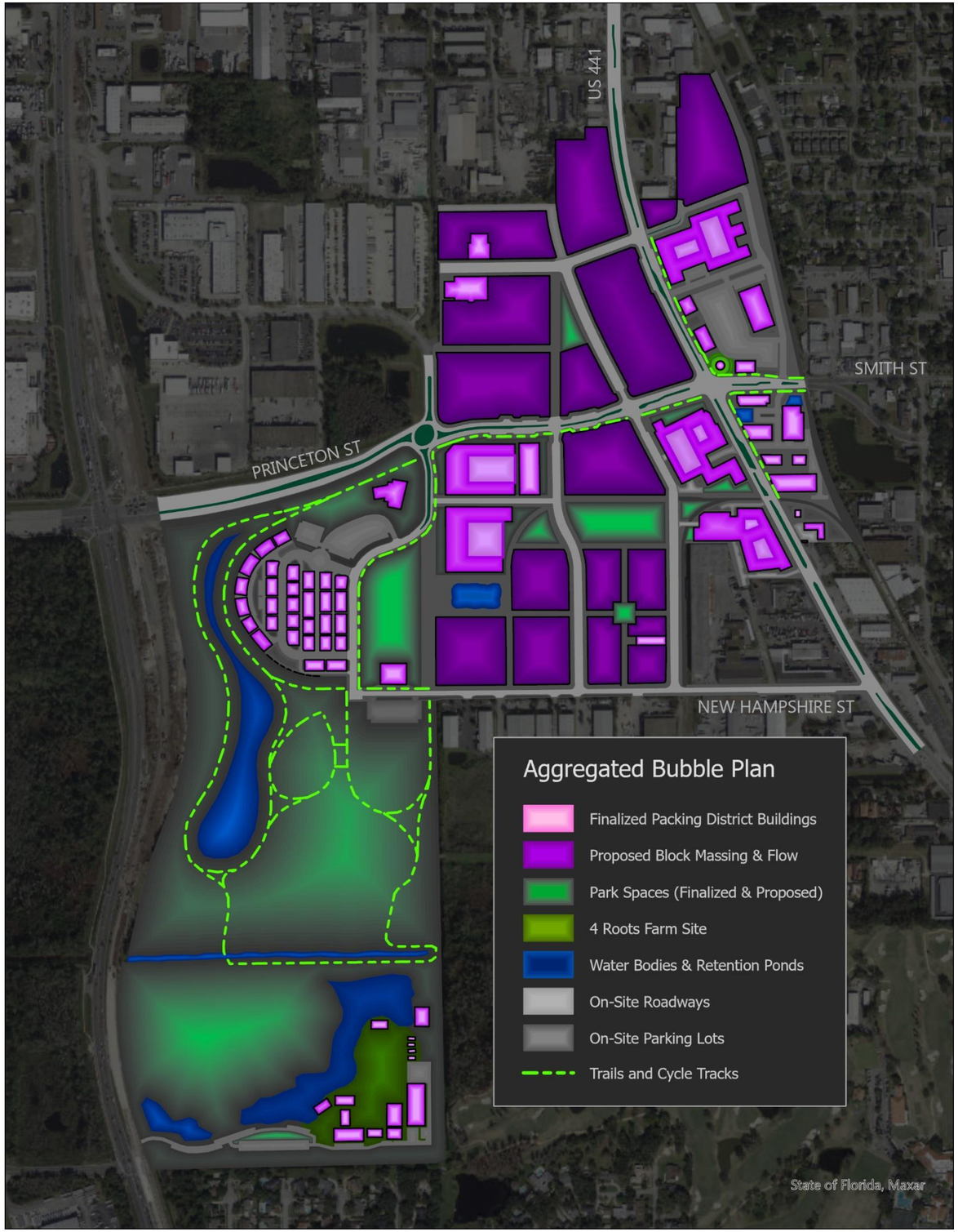
The map to the right depicts current development occurring on The Packing District site, as well as buildings identified as potential adaptive re-use or continued use. Other buildings may be identified for potential re-use as the development progresses. The listing below identifies the locations numbered on the new development and adaptive re-use map, with approximate number of residents in parenthesis.

1. The Cannery Residential Development (~654)
2. Publix, Juice Stand, Plaza & Supporting Commercial
3. Parking Garage, 43K S.F. Office Space, 120-Room Hotel
4. Embrey Residential Development #2 (~681)
5. Northside Yards Residential Development (~629) *
6. 4 Roots Farm Activity Center
7. Townhome Residential Development (~1,110)
8. Leonard & Marjorie Williams Family YMCA
9. Tennis Complex
10. Park Space, Trails and Pavilion
11. Proposed Food Hall (~3,000 visitors per weekend
12. 2021 North Orange Blossom Trail
13. 1900 Diversified Way
14. United Way Building
15. 1918 Princeton Street (4 Roots Farm Building)
16. K and D Investments Residential Development (~1,100) *
17. 1925 Cannery Way

* #5 and #16 not located within Packing District P.D.




Preliminary
Block Massing
Potential Block Massing
Railroad and Spurs
US 441
SMITH ST
PRINCETON ST
NEW HAMPSHIRE ST
Block Massing Methodology
Utilize railroad right of way
Utilize lot lines and linear connections to activity centers
Limit compression of block sizes in order to maximize design potential for developers
Use inter-block connections and land slivers to incorporate park spaces
Limit non-connective paths
State of Florida, Maxar, Microsoft


US 441
SMITH ST
PRINCETON ST
NEW HAMPSHIRE ST
Aggregated Bubble Plan
Finalized Packing District Buildings
Proposed Block Massing & Flow
Park Spaces (Finalized & Proposed)
4 Roots Farm Site
Water Bodies & Retention Ponds
On-Site Roadways
On-Site Parking Lots
Trails and Cycle Tracks
State of Florida, Maxar

On-Site Analysis | Transportation Mobility

Ongoing Road Retrofits and Construction

- **Orange Blossom Trail**
  Scheduled to be completed in January 2023 (includes resurfacing)

- **Princeton Street**
  Scheduled to be completed in January 2023

- **Packing District Way & New Hampshire Street Extensions**
  Ongoing with Tennis Center and townhome development

Major On-Site Roadway Intersections

1. **Orange Blossom Trail & Princeton Street**
   Safety enhancements included in ongoing roadway reconstruction

2. **Orange Blossom Trail & New Hampshire Street**
   This report will identify enhancements to this intersection

3. **John Young Parkway & WD Judge Drive**
   Safety enhancements included in previous roadway retrofit

4. **Orange Blossom Trail & Cannery Way**
   This report will identify enhancements to this intersection

5. **Princeton Street, Packing District Way & Lynx Lane (Roundabout)**
   Safety enhancements included in roadway retrofit

6. **Princeton Street & Diversified Way**
   Diversified Way runs through the entire Packing District P.D.

Planned On-Site Trails and Parks

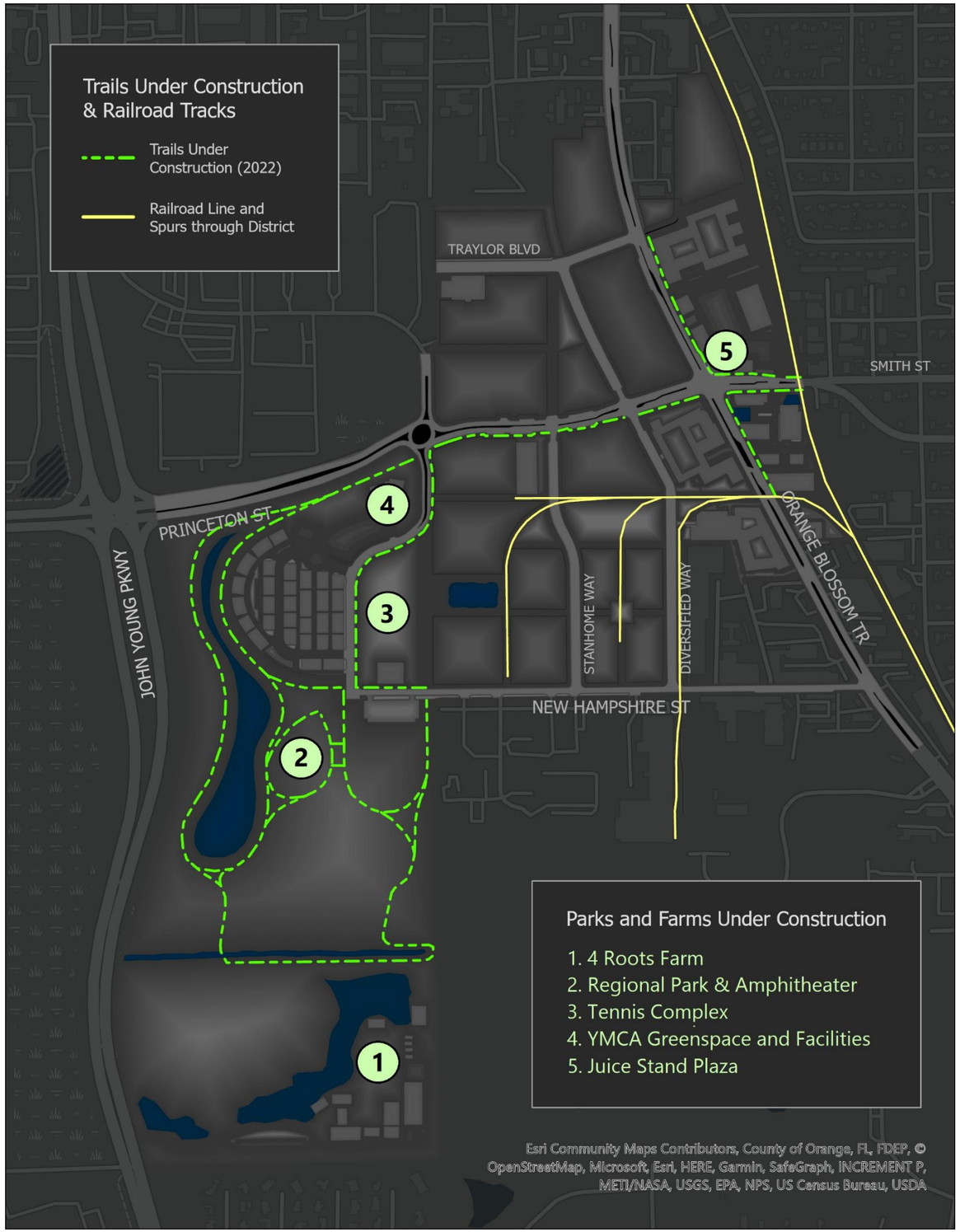
- **Regional Park Trails**
  A highly connected network of on-and-off network trails will connect the regional park, townhome development, tennis center and YMCA to the Orange Blossom Trail and Princeton Street intersection via a multi-use trail along the south side of Princeton Street.

- **Cycle Tracks Along Princeton Street & OBT**
  The Cycle Track along Princeton Street will be wide enough to accommodate bi-directional bicycle travel and is co-located with planned foliage and a dedicated pedestrian path. This trail will connect to a planned trail alignment along Orange Blossom Trail, connecting at the intersection with Princeton Street.

Railroad Analysis

- **Railroad Spur Co-Location with Future Trails**
  The existing railroad spurs are likely to not be needed in the future as the Packing District develops. The ideal routes through the Packing District do align with the existing railroad spurs. The rail spurs are planned to be utilized to enhance the bicycle and pedestrian network due to right-of-way availability, inter-block connectivity and historic preservation value. These alignments will be looked at as part of the planned route network proposed in this plan.

- **Railroad Parcel Analysis**
  An analysis of sites adjacent to the regional rail line and spurs along the primary rail line has been completed and provided to Dr. Phillips, Inc. in order to assist with future right-of-way use discussions.



Area-Wide Analysis | Transportation

Roadway Characteristics

- **Daily Traffic**
  Roadways with traffic counts below 20,000 are typically recommended for bicycle and pedestrian infrastructure such as trails and bike lanes.

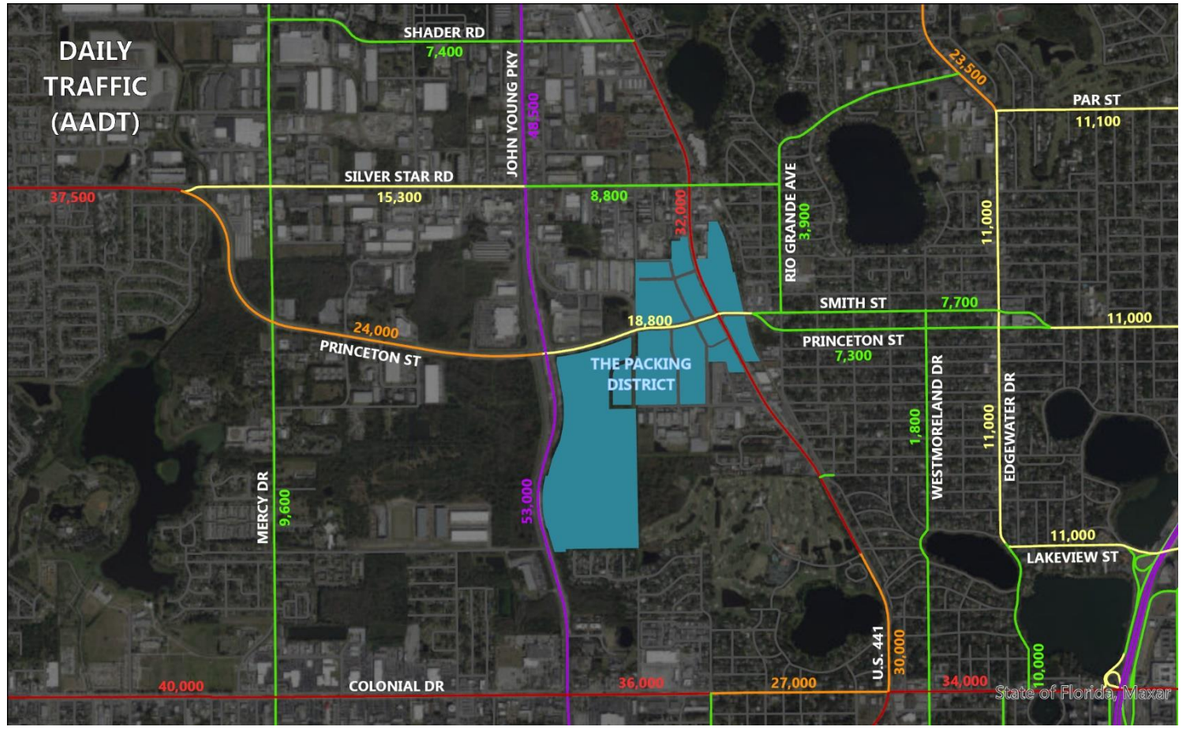
- **Daily Truck Traffic**
  John Young Parkway is the primary trucking route in the area, and a majority if this traffic travels westward down Silver Star Road and Princeton Street, away from the district. Limiting truck traffic on Orange Blossom Trail can be assisted with traffic calming.

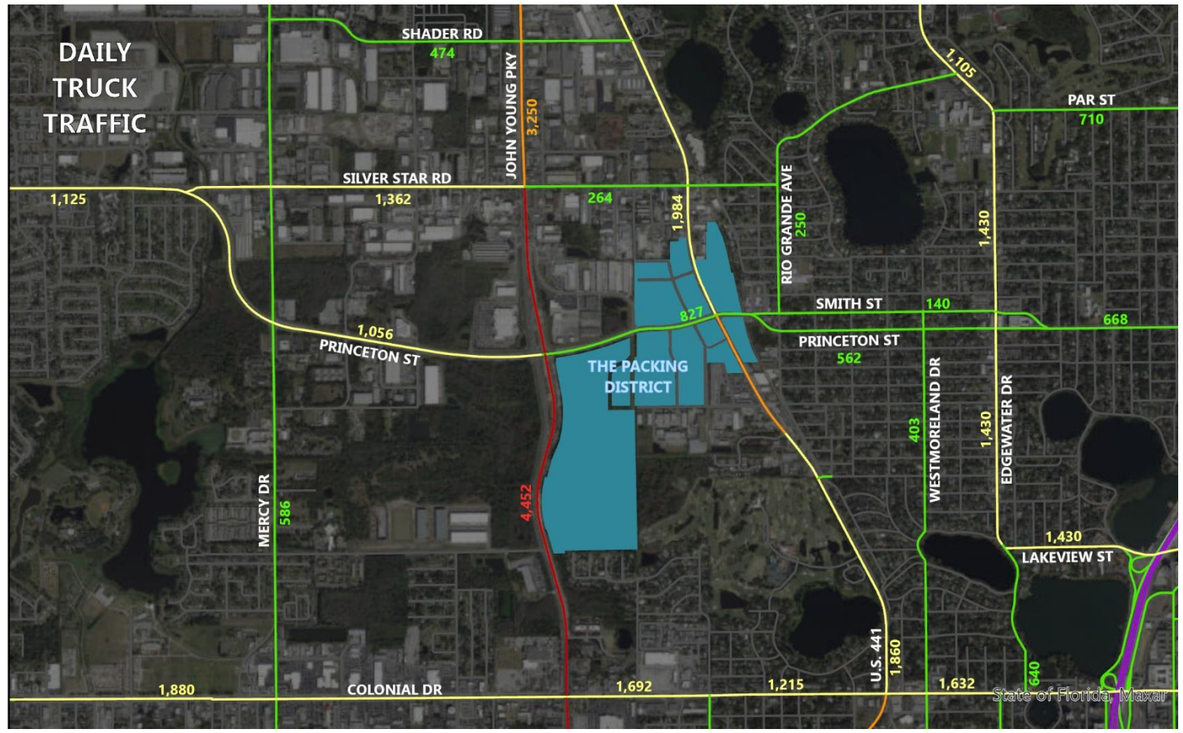
- **Speed Limits**
  Roadways with high-speed limits are not bicycle and pedestrian friendly and will primarily be avoided as part of the future route analysis. John Young Parkway, Princeton Street (west of John Young) and Colonial Drive are routes with high levels of traffic stress.

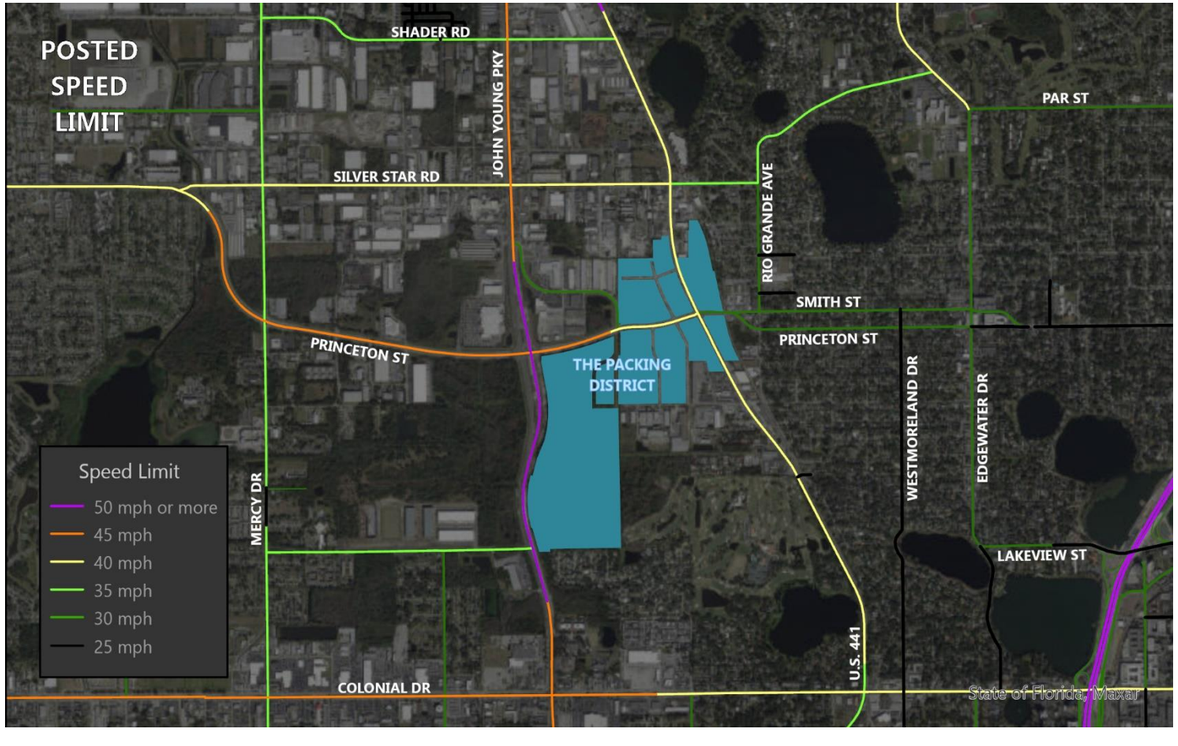
- **Number of Lanes**
  Roads with a large number of lanes present challenges at crossing points. The map on the following page depicts Princeton Street and Orange Blossom Trail before the road diet treatments that reduced the total number of lanes.

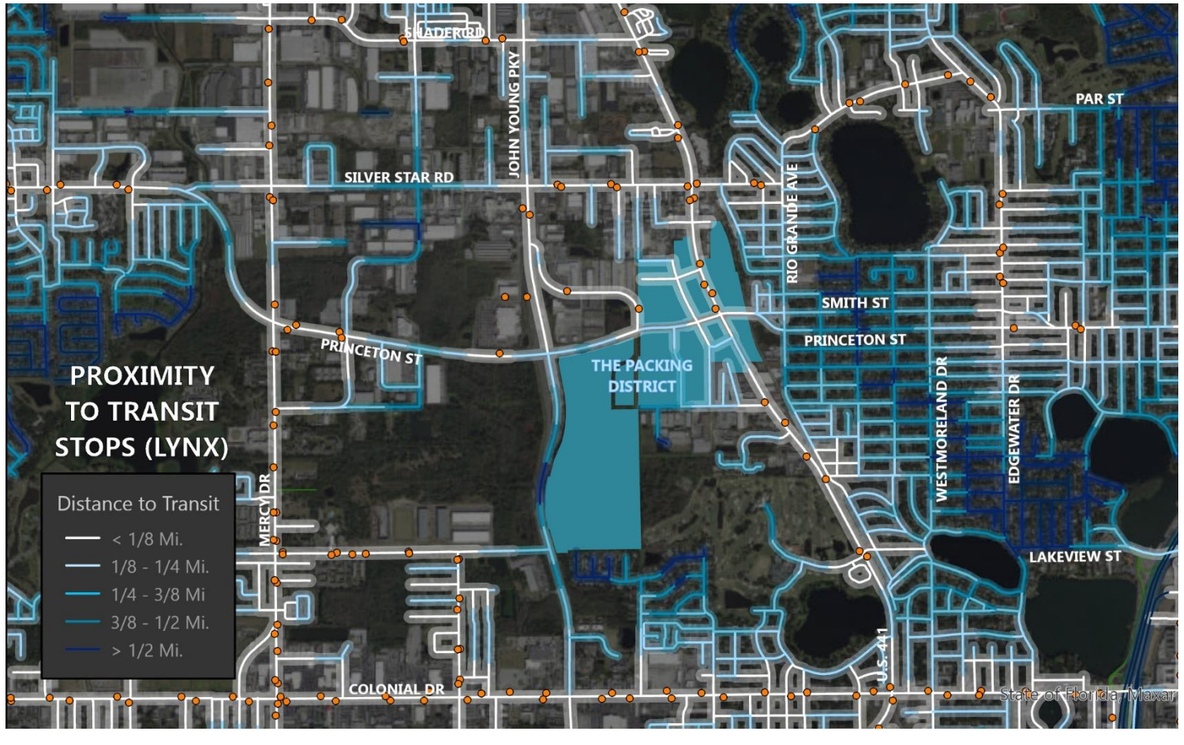
- **Proximity to Transit Stops**
  The Packing District is situated along numerous transit routes connecting the district to numerous activity centers.

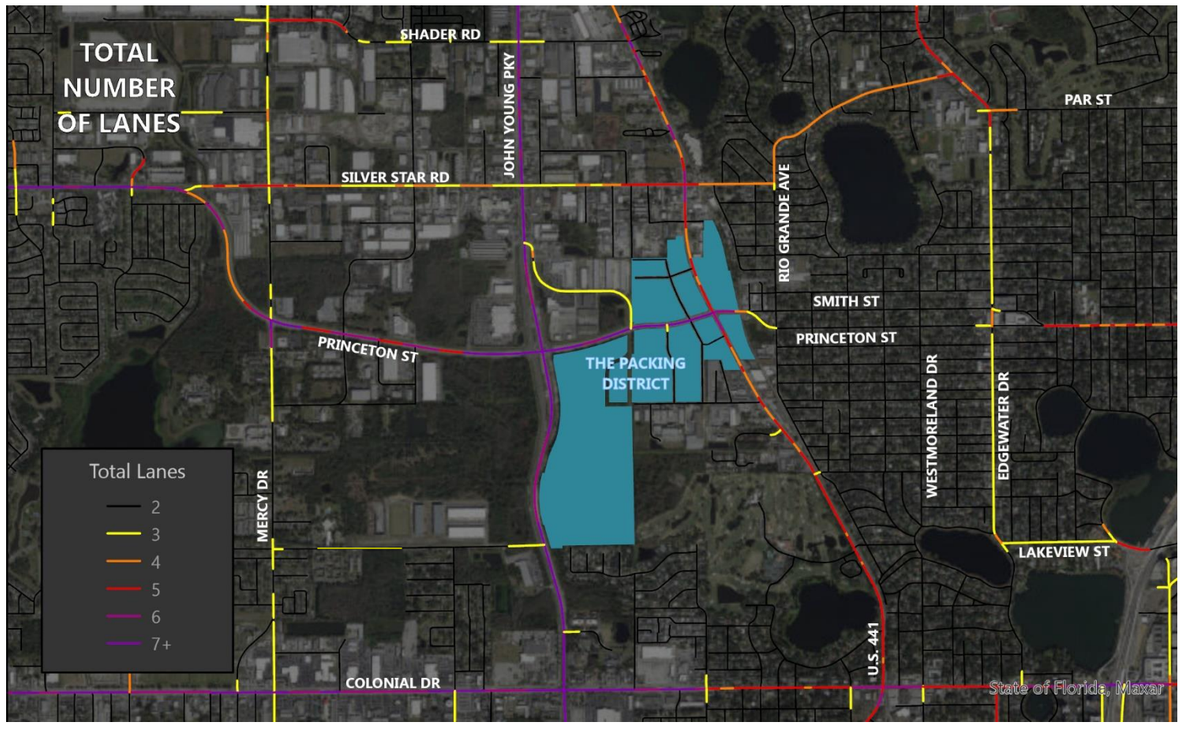
- **Bike-Ped Crash Locations**
  The bike/ped crash data highlights the Princeton and Orange Blossom Trail intersection as an area with bike/ped conflicts. Colonial Drive is another statistically significant area with several bike/ped crashes indicated within the area, and crossings connecting the district with downtown Orlando must incorporate high-visibility countermeasures.

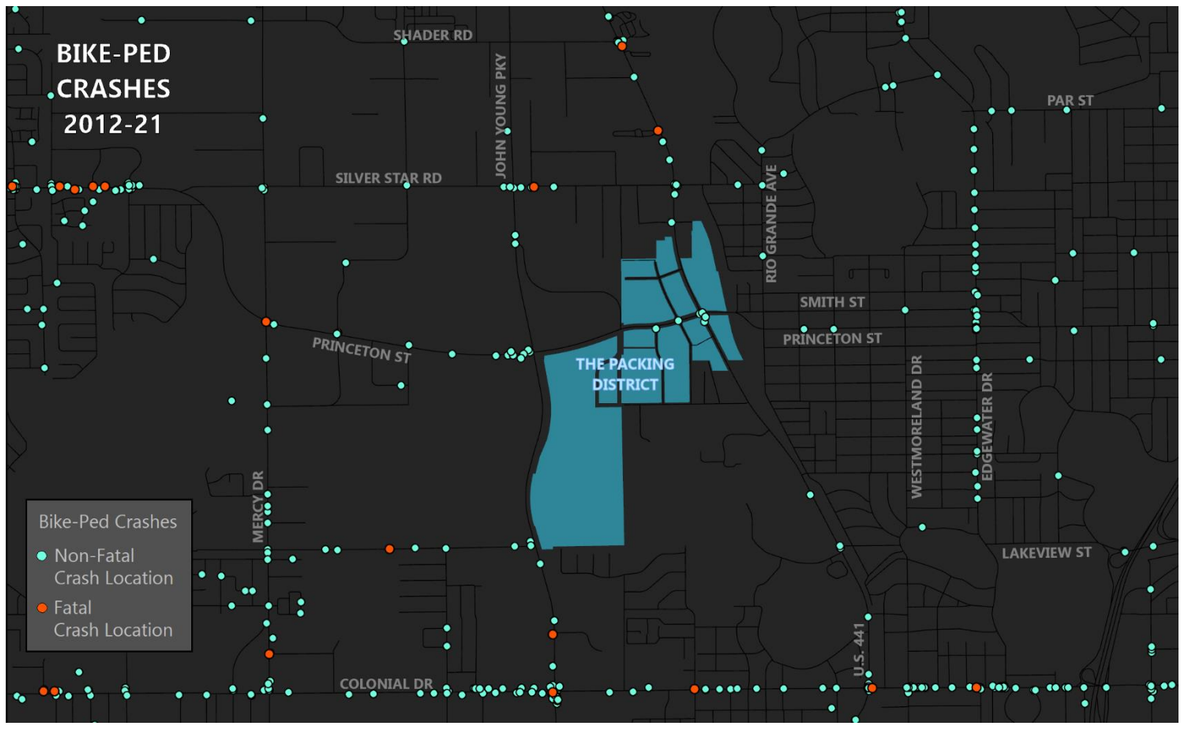





POSTED SPEED LIMIT
SHADER RD
JOHN YOUNG PKY
SILVER STAR RD
RIO GRANDE AVE
PAR ST
SMITH ST
PRINCETON ST
PRINCETON ST
THE PACKING DISTRICT
WESTMORELAND DR
EDGEWATER DR
LAKEVIEW ST
MERCY DR
U.S. 441
COLONIAL DR
Speed Limit
50 mph or more
45 mph
40 mph
35 mph
30 mph
25 mph
State of Florida, Maxar


PROXIMITY TO TRANSIT STOPS (LYNX)
SHADER RD
JOHN YOUNG PKY
SILVER STAR RD
RIO GRANDE AVE
PAR ST
SMITH ST
PRINCETON ST
PRINCETON ST
THE PACKING DISTRICT
WESTMORELAND DR
EDGEWATER DR
LAKEVIEW ST
MERCY DR
U.S. 441
COLONIAL DR
Distance to Transit
< 1/8 Mi.
1/8 - 1/4 Mi.
1/4 - 3/8 Mi
3/8 - 1/2 Mi.
> 1/2 Mi.
State of Florida, Maxar

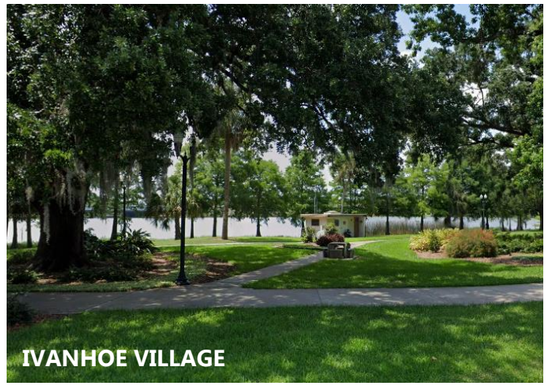

TOTAL NUMBER OF LANES
SHADER RD
JOHN YOUNG PKY
SILVER STAR RD
RIO GRANDE AVE
PAR ST
SMITH ST
PRINCETON ST
PRINCETON ST
THE PACKING DISTRICT
WESTMORELAND DR
EDGEWATER DR
LAKEVIEW ST
MERCY DR
U.S. 441
COLONIAL DR
Total Lanes
2
3
4
5
6
7+
State of Florida, Maxar


BIKE-PED CRASHES 2012-21
SHADER RD
JOHN YOUNG PKY
SILVER STAR RD
RIO GRANDE AVE
PAR ST
SMITH ST
PRINCETON ST
PRINCETON ST
THE PACKING DISTRICT
WESTMORELAND DR
EDGEWATER DR
LAKEVIEW ST
MERCY DR
U.S. 441
COLONIAL DR
Bike-Ped Crashes
Non-Fatal Crash Location
Fatal Crash Location

Activity Centers

Connecting the district with activity centers is a primary goal of Dr. Phillips, Inc. The following activity centers are in close proximity to the Packing District.


DOWNTOWN ORLANDO


IVANHOE VILLAGE


EDGEWATER DRIVE


CREATIVE VILLAGE & UCF


BARNETT PARK


HEALTH DISTRICT

Current & Planned Bike-Ped Infrastructure

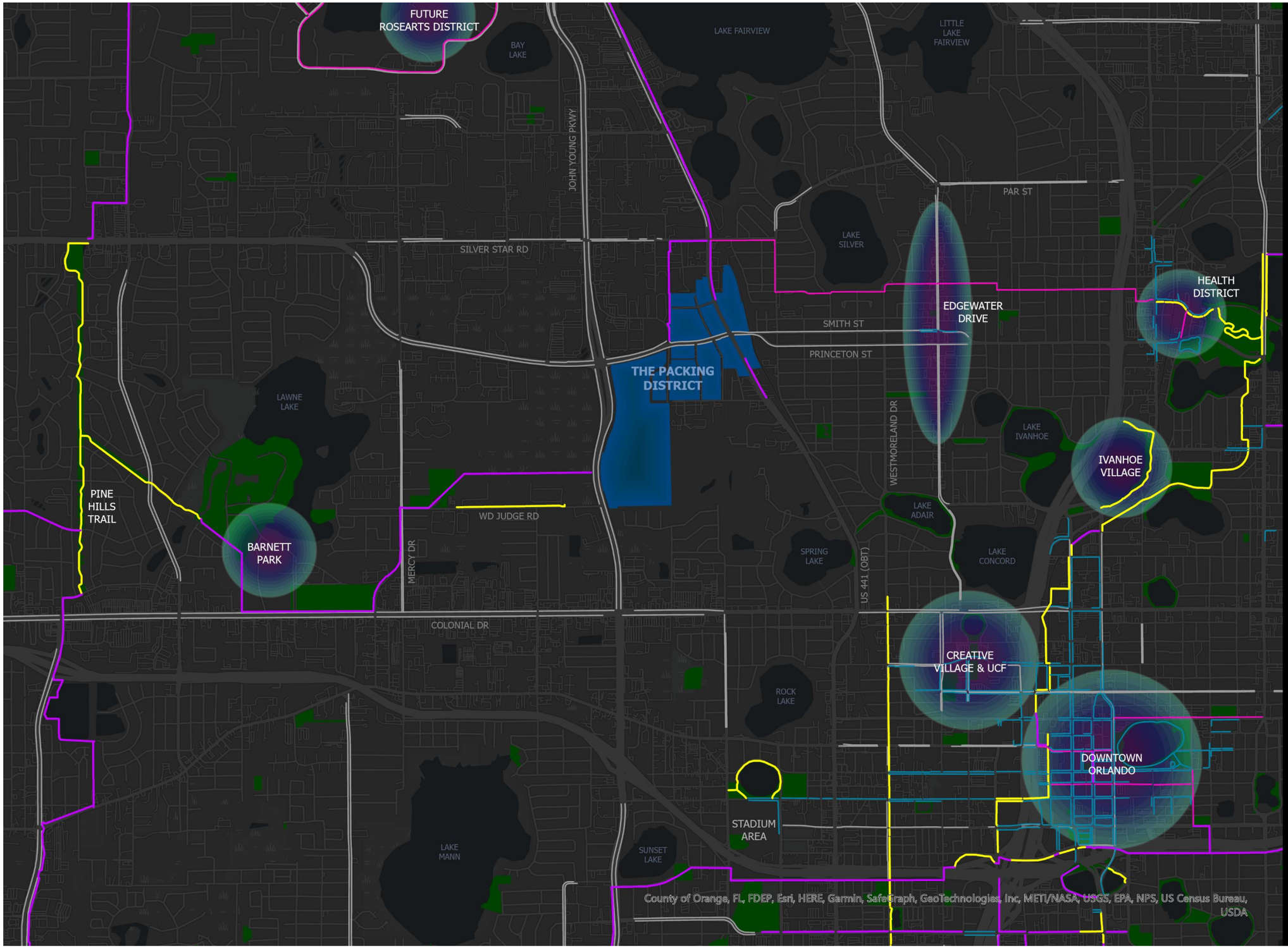
The map on the following page depicts all existing bicycle and pedestrian infrastructure as well as planned trails, bicycle boulevards and bicycle lanes.

- **Existing Trails**
  A new trail along WD Judge Drive has been built, partially closing the gap between the district and the Pine Hills Trail and Barnett Park. To the west, the Pine Hills Trail is planned to be a regional route that will connect to the Shingle Creek Trail to the south and the Coast-to-Coast Trail to the north. The downtown Orlando area to the southeast also has existing trails, the most critical of which being the Westmoreland Multi-Use Path, the Orlando Urban Trail, Gertrude's Walk and lakefront trails in the Ivanhoe Village neighborhood.

- **Existing Bike Lanes**
  Princeton Street and Smith Street each have one-way bike lanes that stretch to the Edgewater Drive activity center from the district. The Edgewater bike lanes travel southward to the downtown Orlando and Creative Village areas and are used as a primary supplementary route to those proposed in this report. There are bicycle lanes along John Young Parkway and Colonial Drive as well, but those bike lanes are on high-speed facilities with a larger amount of truck traffic which makes the stress level for a cyclist riding on this facility very high.

- **City of Orlando Planned & Proposed Trails**
  The City plans to extend the Pine Hills Trail to Barnett Park in addition to routes near Texas Avenue and along Orange Blossom Trail. Select City of Orlando routes will be incorporated into the bike route plan portion of this report based on an analysis of right of way availability and overall connectivity to the site.

- **City of Orlando Planned Bicycle Boulevard**
  The City plans to build a bicycle boulevard at the northern portion of the district (at Silver Star Road), connecting through Edgewater Drive to the Health District and Orlando Urban Trail to the east.



ACTIVITY CENTERS AND PROPOSED BIKE/PED NETWORK

Existing Infrastructure

- Existing Trails
- Existing Wide Sidewalks > 9 Ft. (No Biking)
- Existing Bike Lanes

Activity Centers

Packing District

Proposed Infrastructure

- Proposed Trails (City of Orlando)
- Proposed Bicycle Boulevards (City of Orlando)

0 0.125 0.25 0.5 Miles

N

Area-Wide Analysis | Public Lands

Analysis of Potential Use Cases

1. Barnett Park
Site Owners (3): City of Orlando; Central Florida Fair Inc.; Orange County
Potential Use Case: Trail connection through park to Pine Hills Trail

2. Northwest Community Center
Site Owner: City of Orlando
Potential Use Case: Trail landing spot; use of land for right of way

3. Southern Utility Easement
Site Owner: City of Orlando. OUC utilizes land for power lines.
Potential Use Case: Co-location of trails and utility lines

4. Texas Ave. Canal and Land Sliver
Site Owners (2): Dr. Phillips, Inc. & Public Right of Way
Potential Use Case: Use of land for trail right of way

5. Public Parcels Along Princeton Street Gateway
Site Owner: City of Orlando
Potential Use Case: Shading; park; use of land for trail right of way

6. Orange County Parks Building
Site Owner: Orange County B.C.C
Potential Use Case: Use of land for trail connection and US 441 right of way

7. Guernsey Park
Site Owner: City of Orlando
Potential Use Case: Trail landing spot; use of land for trail right of way

8. Lake Silver Elementary School
Site Owner: Orange County Public Schools
Potential Use Case: Trail landing spot; opportunity for additional connection

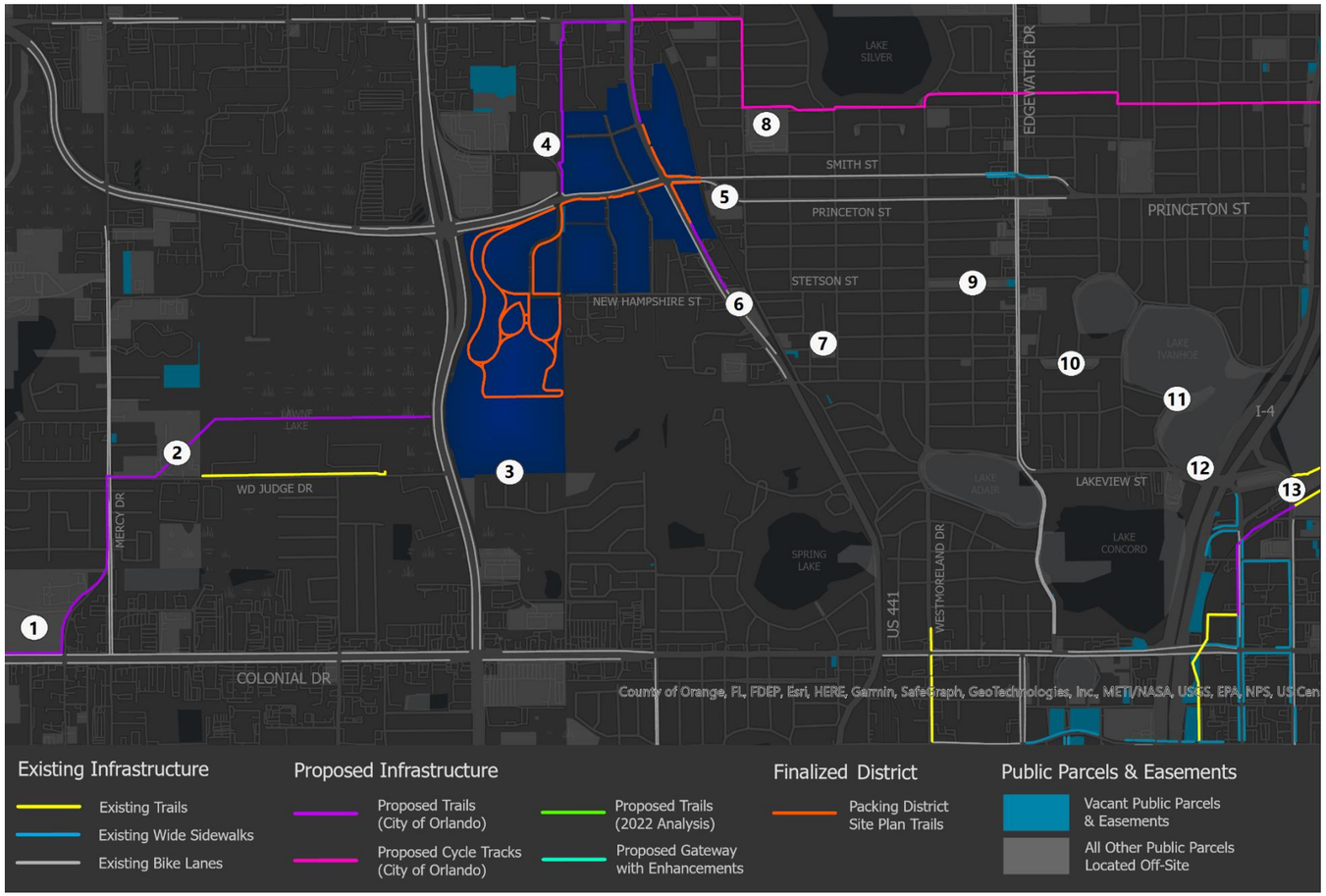
9. Dartmouth Park
Site Owner: City of Orlando
Potential Use Case: Trail landing spot; use of land for trail right of way

10. Ivanhoe Plaza Park
Site Owner: City of Orlando
Potential Use Case: Use of land for trail right of way

11. Lake Ivanhoe Lakeshore
Site Owner: City of Orlando
Potential Use Case: Use of land for trail right of way

12. Ivanhoe Boulevard Right of Way
Site Owner: City of Orlando
Potential Use Case: Use of land for trail right of way

13. 1108 and 1111 North Orange Avenue
Site Owner: City of Orlando (Both Parcels)
Potential Use Case: Use of land for trail right of way



IV. Proposed Network Overview

This section of the report outlines the methodology used to select routes connecting the district to surrounding activity centers and provides an overview of the routes selected with maps and associated high-level data. This section is a preliminary assessment of the proposed network, as later sections of the report provide more in-depth information on the routes selected and individual barriers and opportunities present if they are to be constructed.

Methodology

Background

The project team utilized an "inside out, outside in" methodology to make high-level decisions on the preliminary placement of routes prior to further network feasibility analysis. As part of this methodology, numerous routes were pre-selected that met the following connectivity goals.

- **Inside Out**
  Using the finalized and preliminary building, roadway and public space placement in the district as reviewed in the *Existing Conditions* section, the project team aimed to enhance on-site connectivity by identifying 1) site exit points, 2) critical intersections that would present viable opportunities for bicycle and pedestrian movement off-site, and 3) the enhancement of existing on-site roadways and railroad right-of-way that improve intra-connectivity. This "inside out" approach ensured that a seamless connectivity transition occurs from the district to immediately adjacent areas.

- **Outside In**
  Using the off-site activity centers, cultural centers and population centers identified in the *Existing Conditions* section, the project team worked backwards from the presence of these assets to select 1) direct routes to-and-from these locations, and 2) indirect routes that connect with these locations, but that also pass adjacent to trail landing spots that will be discussed later in this report.

Route Selection Criteria

The following criteria were used to select routes from a preliminary listing that included most of the streets and easements within a one-mile radius of the district.

- **Right-of-Way Availability & Obstructions**
  Trail routes require a minimum of 10-feet of available public right-of-way in order to be feasible. In this report, a 9-foot parameter was adopted to allow 9-foot-wide sidewalks to be constructed in lieu of trails in some locations.

- **Level of Traffic Stress**
  Routes with speed limits exceeding 35 miles per hour were removed from consideration unless that route was proposed by the City of Orlando.

- **Connecting to Activity Centers and Trail Landing Spots**
  Routes that dead-end or that do not connect fairly linearly to activity centers were removed from consideration. Trail landing spots (opportunities for recreation adjacent to the trail) provide a caveat to the former requirement.

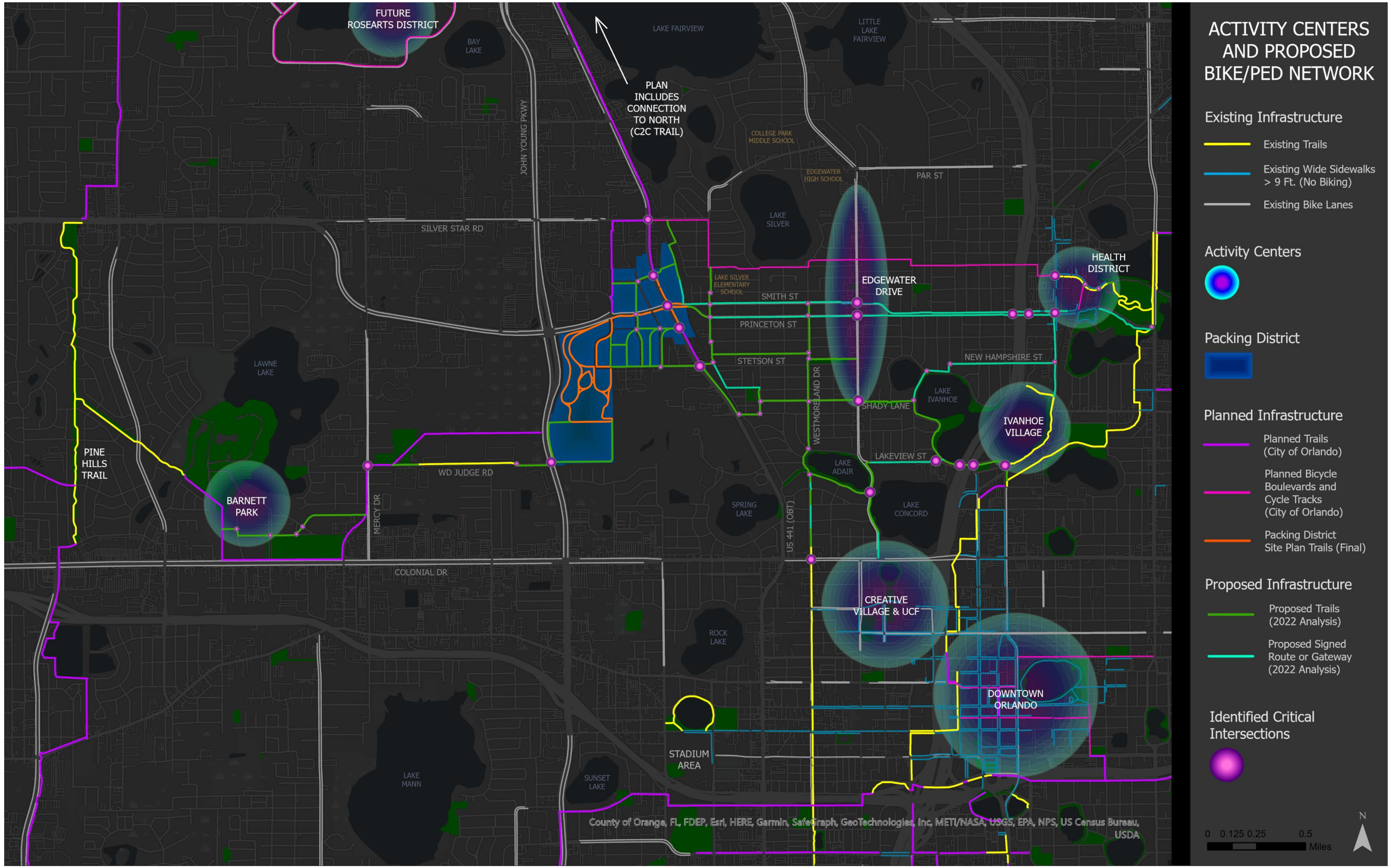
Route Types

The following route types are proposed as part of this report.

- **Trails**
  Generally, trails are 10-feet-wide and intended for bicyclist and pedestrian use.

- **Signed Routes (Sidewalks)**
  Signed routes within this report are typically highly-utilized route connections that do not have the right-of-way available for 9-to-10-foot-wide trails. These routes are proposed to be enhanced with signage guiding travelers to-and-from the district and activity centers. These routes are also proposed to be enhanced with high-canopy trees to improve aesthetics and traveler comfort.

- **Sharrows**
  Sharrows are pavement markings with coordinated signage that designate a roadway as a shared route for automobiles and bicyclists. Sharrows are typically located on low-speed, low-traffic roadways.


FUTURE ROSEARTS DISTRICT
BAY LAKE
LAKE FAIRVIEW
LITTLE LAKE FAIRVIEW
PLAN INCLUDES CONNECTION TO NORTH (C2C TRAIL)
JOHN YOUNG PKWY
COLLEGE PARK MIDDLE SCHOOL
EDGEWATER HIGH SCHOOL
PAR ST
LAKE SILVER
SILVER STAR RD
HEALTH DISTRICT
LAKE SILVER ELEMENTARY SCHOOL
SMITH ST
EDGEWATER DRIVE
PRINCETON ST
STETSON ST
NEW HAMPSHIRE ST
LAWNE LAKE
WESTMORELAND DR
LAKE IVANHOE
SHADY LANE
IVANHOE VILLAGE
LAKEVIEW ST
LAKE ADAIR
PINE HILLS TRAIL
WD JUDGE RD
BARNETT PARK
MERCY DR
SPRING LAKE
US 441 (OBT)
LAKE CONCORD
COLONIAL DR
CREATIVE VILLAGE & UCF
ROCK LAKE
DOWNTOWN ORLANDO
STADIUM AREA
LAKE MANN
SUNSET LAKE
County of Orange, FL, FDEP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA
ACTIVITY CENTERS AND PROPOSED BIKE/PED NETWORK
Existing Infrastructure
Existing Trails
Existing Wide Sidewalks > 9 Ft. (No Biking)
Existing Bike Lanes
Activity Centers
Packing District
Planned Infrastructure
Planned Trails (City of Orlando)
Planned Bicycle Boulevards and Cycle Tracks (City of Orlando)
Packing District Site Plan Trails (Final)
Proposed Infrastructure
Proposed Trails (2022 Analysis)
Proposed Signed Route or Gateway (2022 Analysis)
Identified Critical Intersections
N
0 0.125 0.25 0.5
Miles

Proposed Network | Area Wide

❖ Signed Routes (Gateways with Sidewalks)

1. Princeton Street Gateway
2. Smith Street Gateway
3. Lakeview Street Gateway
4. Poinsettia, Ivanhoe, Gerda, New Hampshire Signed Route
5. Orange Avenue Signed Route

❖ Trail Segments

6. Lake Adair Loop
7. Stetson Street Trail
8. Ivanhoe Boulevard and Poinsettia Avenue Trail
9. Rio Grande Avenue Trail
10. New Hampshire Street Rail Crossing
11. WD Judge Drive Trail
12. Barnett Park Trail
13. Taft Avenue Trail and Rail Crossing
14. Shady Lane Trail
15. Orange Blossom Trail, Golfview, Northumberland Connector

NS. Loch Haven Park Trail Extension (short segment; not shown)

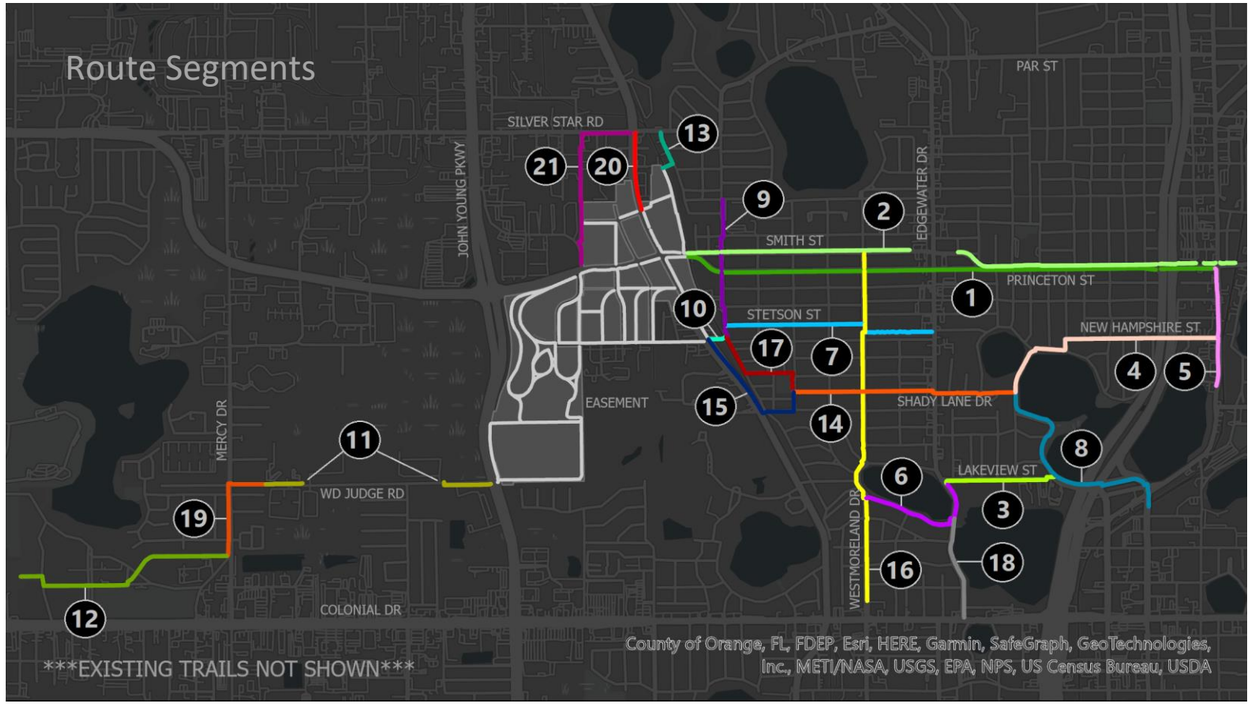
NS. Coast-to-Coast Trail Connection (not shown)

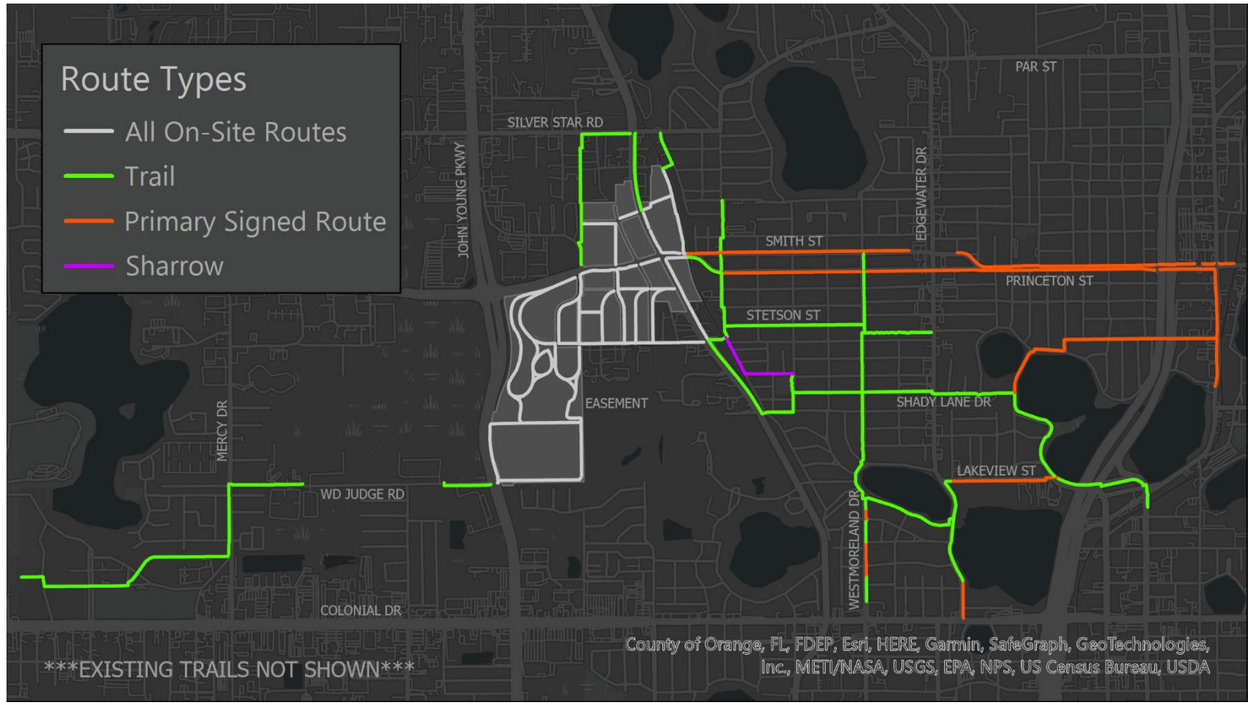
❖ Hybrid Routes (Trails & Signed Routes)

16. Westmoreland Drive Multi-Use Path Extension
17. Sharrow to Guernsey Park & Shady Lane
18. Edgewater Drive South of Lake Adair

❖ City of Orlando-Proposed Trails for Further Analysis

19. WD Judge Road to Mercy Drive to Barnett Park
20. OBT Northern Trail Extension to Silver Star
21. Silver Star to Canal to Texas Avenue Trail





Proposed Network | On-Site

Overview of On-Site Routes

❖ Confirmed Site Plan Routes

Confirmed routes are depicted in green within the maps on the following page. These include cycle tracks along Orange Blossom Trail and Princeton Street in addition to a vast trail network connecting the YMCA with park spaces and an amphitheater in the western portion of the site.

❖ Roadway Co-Location

New Hampshire Street, Stanhome Way, Diversified Way and Traylor Boulevard have been identified as roadways with potential for future trail placement. Stanhome, Diversified and Traylor were built for industrial activity and are wide enough for complete redesigns as the district develops. New Hampshire Street has a 29-to-30-foot typical section which, when combined with publicly-owned land adjacent to the roadway, could support a trail in the future.

❖ Railroad Co-Location

At the time of this report, the Florida Central Railroad Company was hesitant to place trails along railroad tracks within the district. However, the presence of the railroad tracks should shape the long-term block structure of the district and plans should be in place to utilize this right-of-way when the industrial transport usage increases.

❖ Easement Co-Location

The easements surrounding the 4 Roots Farm activity center have been proposed as primary trail corridors as part of this report.

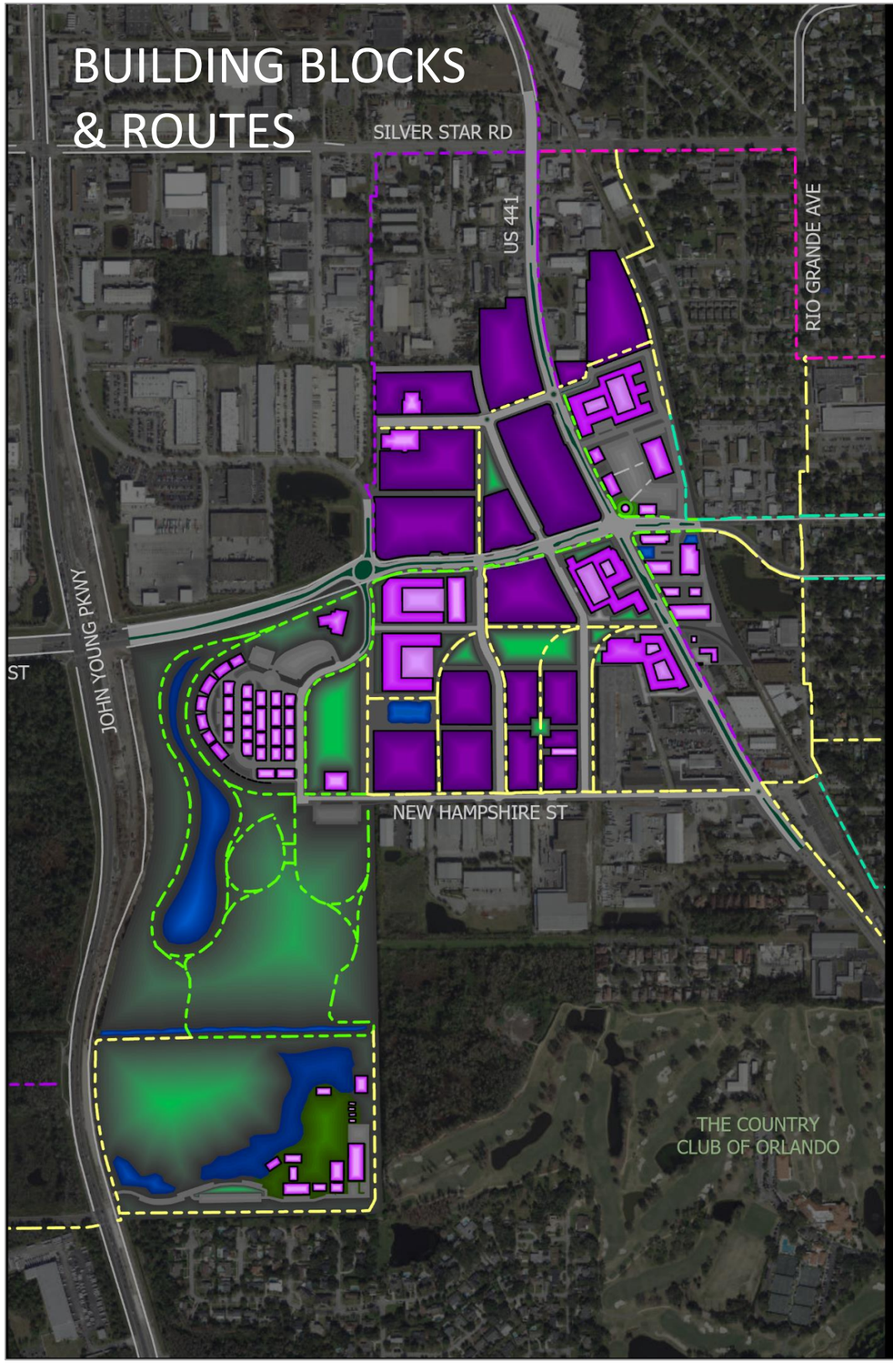
❖ Inter-Block Connections

These will be further identified as on-site parcels are developed.

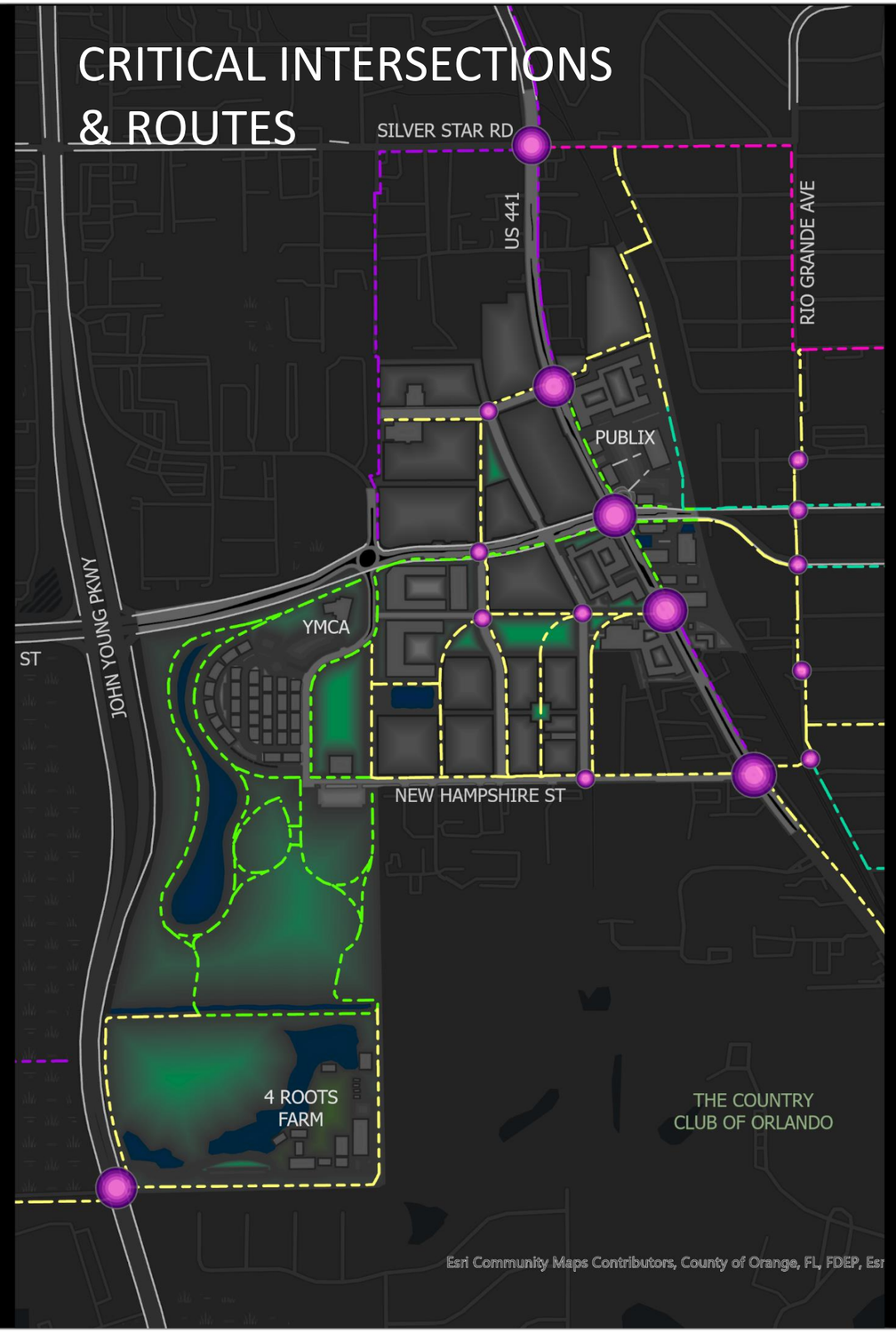
Above: Princeton Street with under construction cycle track on south side of road (Source: Orlando.gov)

Below: The YMCA trail network will connect to the park space and pavilion (Source: YMCA of C. Florida)

BUILDING BLOCKS & ROUTES



CRITICAL INTERSECTIONS & ROUTES



MASTER SITE PLAN WITH EXISTING AND PROPOSED ROUTES

Existing Infrastructure

- Existing Trails
- Existing Wide Sidewalks
- Existing Bike Lanes

Proposed Infrastructure

- Proposed Trails (City of Orlando)
- Proposed Cycle Tracks (City of Orlando)
- Packing District Site Plan (Final)
- Proposed Trails (2022 Analysis)
- Proposed Signed Route or Gateway (2022 Analysis)

Critical Intersections for Bicyclists & Pedestrians

- Tier 1 Critical Intersections
- Tier 2 Critical Intersections

Packing District Aggregated Bubble Plan

- Finalized Packing District Buildings
- Proposed Block Massing & Flow
- Park Spaces Finalized & Proposed
- 4 Roots Farm Site Finalized Layout
- Water Bodies & Retention Ponds

N

0 0.05 0.1 0.2 Miles

V. Network Analysis

This section of the report provides a detailed analysis of the methodology criteria used to select routes and prioritize routes for future placement.

Section Outline

- **Right-of-Way Availability**
  - Criteria & Countermeasure Types
  - On-Site Overview
  - Off-Site Overview
  - Countermeasures by Corridor
- **Obstruction Analysis**
  - On-and-Off-Site Overview
  - Obstruction Types
  - Countermeasure Types
  - Countermeasures by Corridor
- **Shading Analysis**
  - On-and-Off-Site Overview
  - Tree Shading Priorities
- **Level of Bike/Ped Traffic Stress**
  - Traffic Stress by Corridor
  - Assessment of Proposed Routes
- **Critical Intersections**
  - Countermeasures by Intersection
  - Potential Future Roundabouts
  - Orange Blossom Trail Countermeasures
  - Princeton Street & OBT Crossing Demand Analysis
  - Critical Railroad Crossings & Population Centers

Network Analysis | Right of Way Availability

Right-of-way availability is an important first step in determining the feasibility of future trail routes. This section of the report outlines the criteria that were used to determine right-of-way availability, countermeasure types to increase usable right-of-way, and maps and analysis showing specific countermeasures.

Criteria & Countermeasure Types

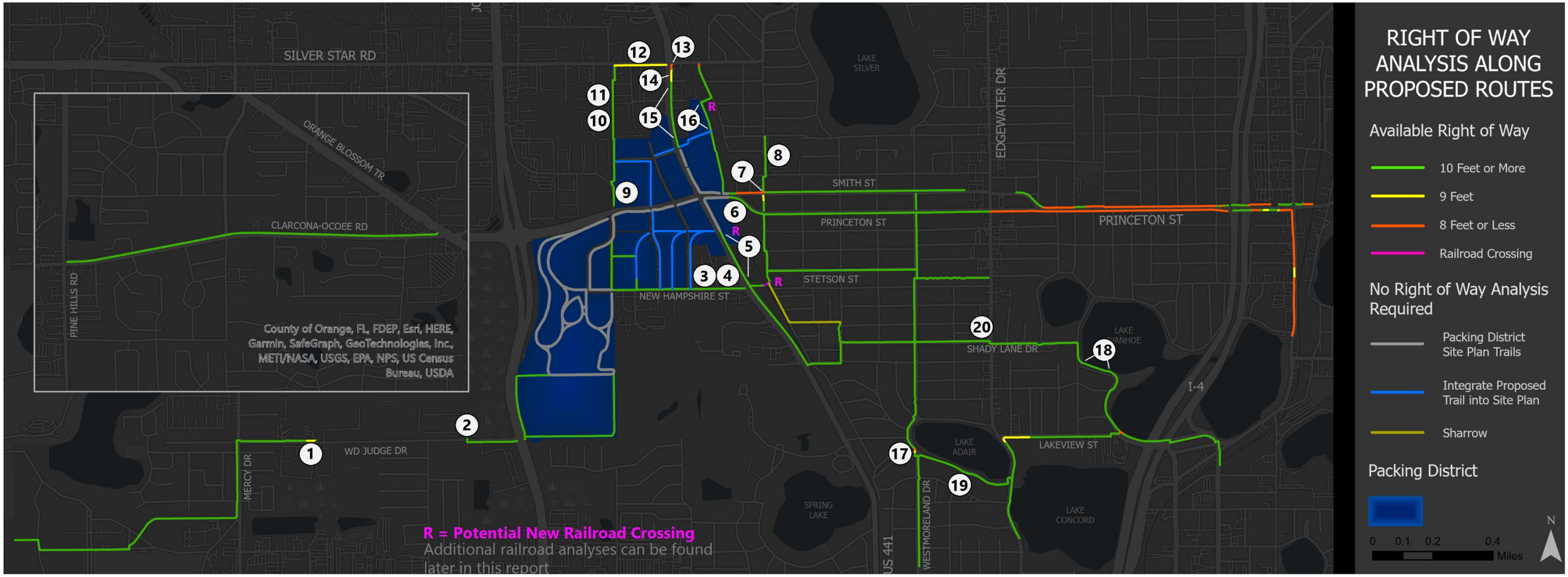
Ten feet of right-of-way was used as the primary criteria for trail placement in this analysis due to the general standard of 10-foot-wide trail minimums. However, all potential trail segments with 9-feet of right of way were also included in this analysis, as 9 feet is typically enough space to accommodate bi-directional bicyclist and pedestrian traffic. In areas where right-of-way was less than 9 feet, a range of strategies were used to increase right-of-way availability including utilizing roadway paved shoulder space, combining bicycle lanes with sidewalks, and other countermeasures. The map on the following page depicts right-of-way availability with the identified countermeasures included.

On-Site Overview

The majority of on-site trails are either under construction or are proposed to be integrated into future site development. Generally, the on-site trails do not have right-of-way issues. The proposed trail along the north side of New Hampshire Street would require the elimination of on-street parking near Orange Blossom Trail. This parallel parking is located on public right-of-way. The New Hampshire Street alignment also has some grading (pavement slope) issues.

Off-Site Overview

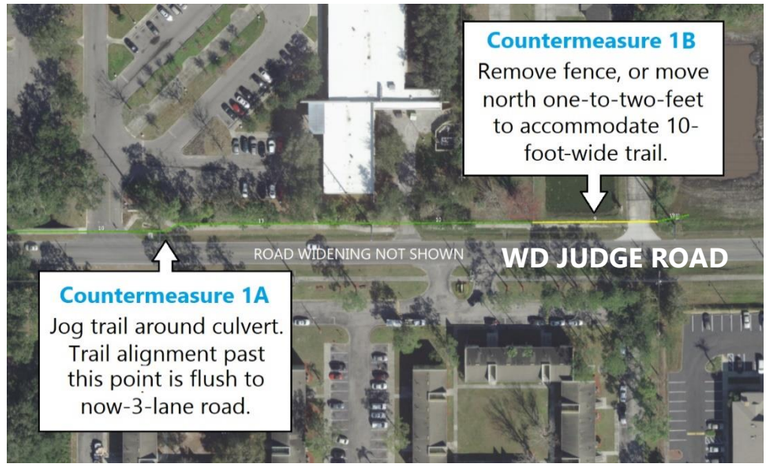
Princeton Street does not have the needed right-of-way for trail placement to the east of Edgewater Drive. Off-site trails are analyzed later in this section of the report and include detailed countermeasures.

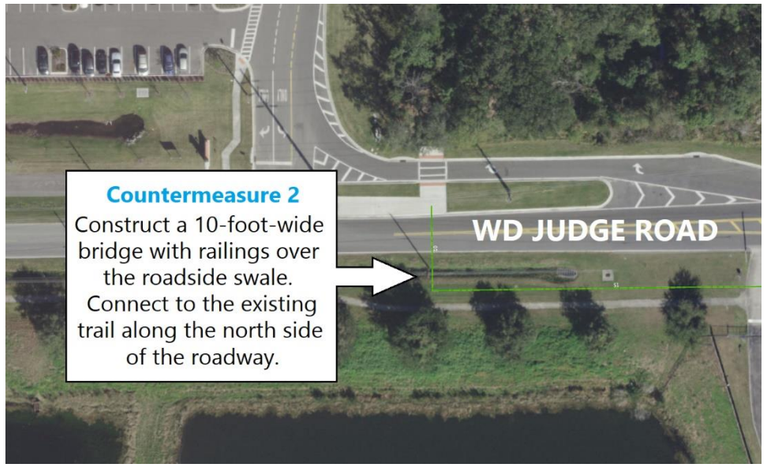


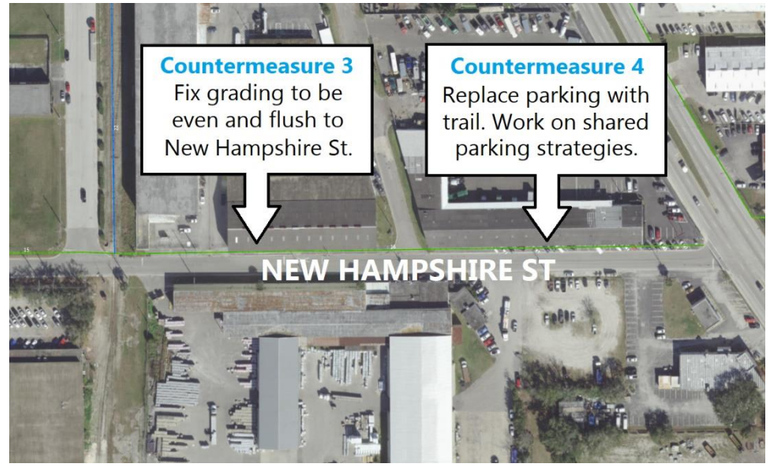
Annotated Right-of-Way Countermeasures

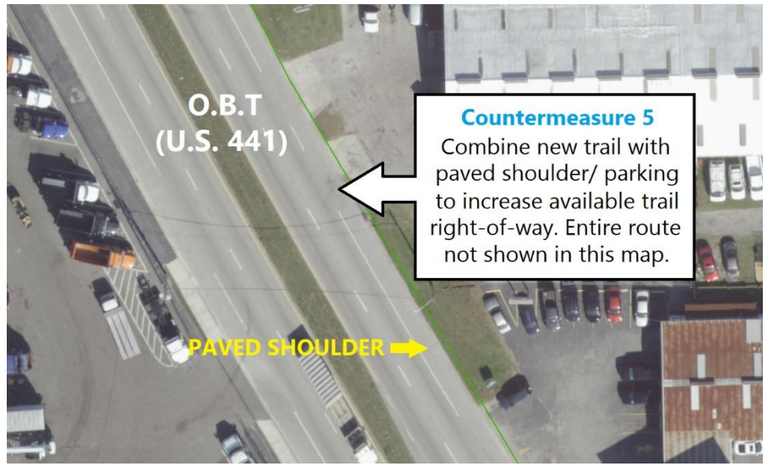
1. WD Judge Road: Trail flush to newly-widened road. Remove Tabernacle Christian Church fence.
2. WD Judge Road: Place bridge with railings over swale at crossing.
3. New Hampshire Street: Grading (slope) issues. Even out with road.
4. New Hampshire Street: Eliminate on-street parking (on public right of way). Work with property owners for shared parking solutions.
5. Orange Blossom Trail: Combine trail with existing wide paved shoulders and parallel parking along OBT. Re-curb as necessary.
6. Princeton Street: Combine existing sidewalk with existing bike lane. Re-curb as necessary. See more information later in report.
7. Rio Grande Avenue: Reduce roadway width near intersection to allow for additional right-of-way availability.
8. Rio Grande Avenue: Use school property as necessary.
9. Texas Avenue: Integrate into finalized roadway redesign.
10. Public Right-of-Way: Fence off both sides of trail.
11. Public Right-of-Way: Co-locate with roadway. Repave roadway and integrate trail into design.
12. Silver Star Road: Reduce roadway width 5 feet to 55 feet.
13. Orange Blossom Trail: Work with 7-Eleven to increase space availability. Re-landscape property to trail edge.
14. Orange Blossom Trail: Extend curb 1-foot into roadway to eliminate gap between roadway and sidewalk.
15. Orange Blossom Trail: Combine trail with existing wide paved shoulders along OBT. Re-curb as necessary.
16. Railroad Property: Add fence for railroad separation. Rail crossing is private property (work with property owner).
17. Westmoreland Drive: Redesign right-turn lane at two locations to thin road. Extend curb inward to roadway.
18. Ivanhoe/Poinsettia: Add fence to lakefront where grading issues present a safety issue. Extend eastern curb to the west on Poinsettia Avenue.
19. Lake Adair Boulevard: Private residential property in this area partially includes sidewalks.
20. Shady Lane Drive: Remove 7-Eleven Parking located within public right-of-way. Not mapped on next pages.

* The Poinsettia Avenue, to Ivanhoe, to Gerda, to New Hampshire Street signed route is not included in this section's analysis.

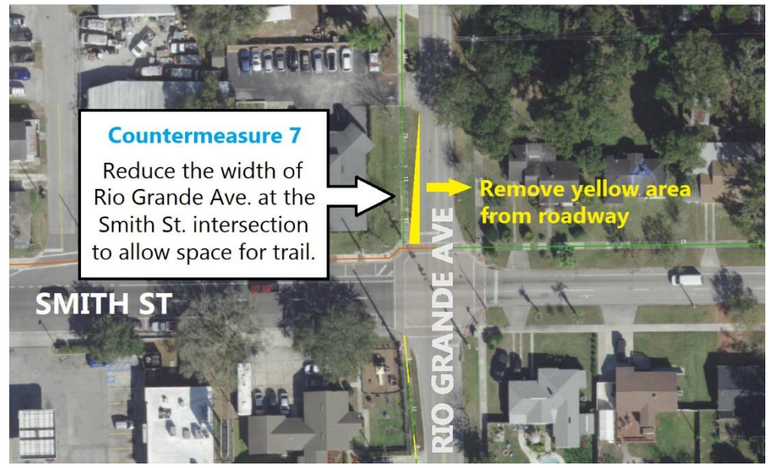

Countermeasure 1B
Remove fence, or move north one-to-two-feet to accommodate 10-foot-wide trail.
ROAD WIDENING NOT SHOWN
WD JUDGE ROAD
Countermeasure 1A
Jog trail around culvert. Trail alignment past this point is flush to now-3-lane road.

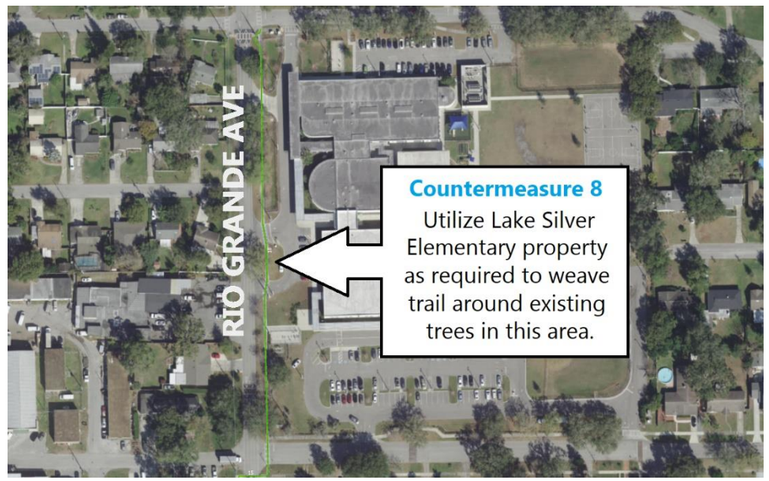

Countermeasure 2
Construct a 10-foot-wide bridge with railings over the roadside swale. Connect to the existing trail along the north side of the roadway.
WD JUDGE ROAD

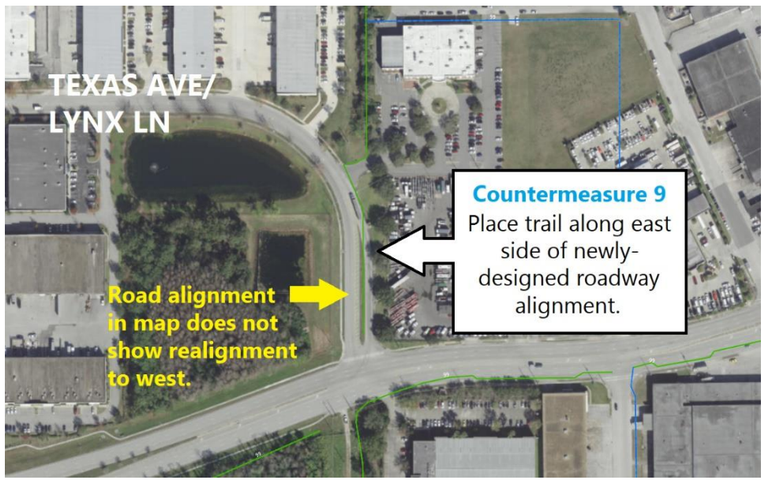

Countermeasure 3
Fix grading to be even and flush to New Hampshire St.
Countermeasure 4
Replace parking with trail. Work on shared parking strategies.
NEW HAMPSHIRE ST

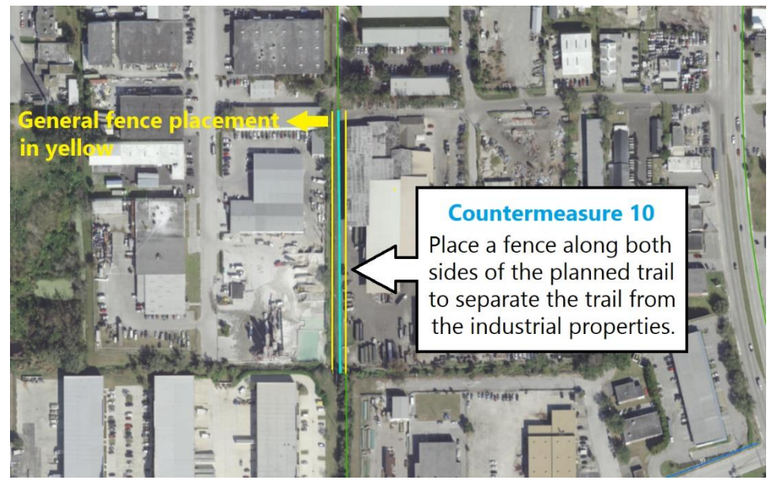

O.B.T
(U.S. 441)
Countermeasure 5
Combine new trail with paved shoulder/ parking to increase available trail right-of-way. Entire route not shown in this map.
PAVED SHOULDER

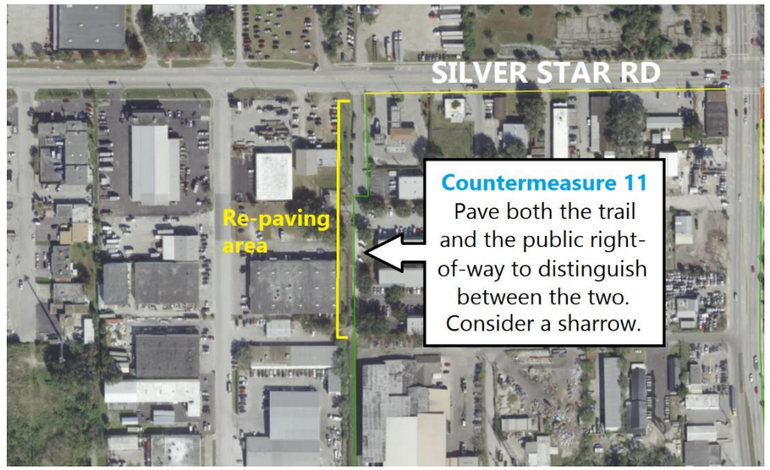

SMITH ST
Trail Section
Countermeasure 6
Combine existing bike lane and sidewalk from OBT to Rio Grande Ave. Re-curb as necessary.

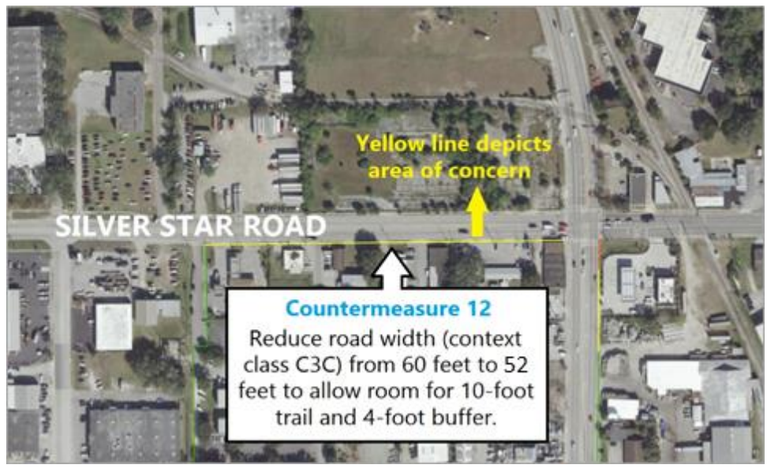

Countermeasure 7
Reduce the width of Rio Grande Ave. at the Smith St. intersection to allow space for trail.
Remove yellow area from roadway
SMITH ST
RIO GRANDE AVE


RIO GRANDE AVE
Countermeasure 8
Utilize Lake Silver Elementary property as required to weave trail around existing trees in this area.

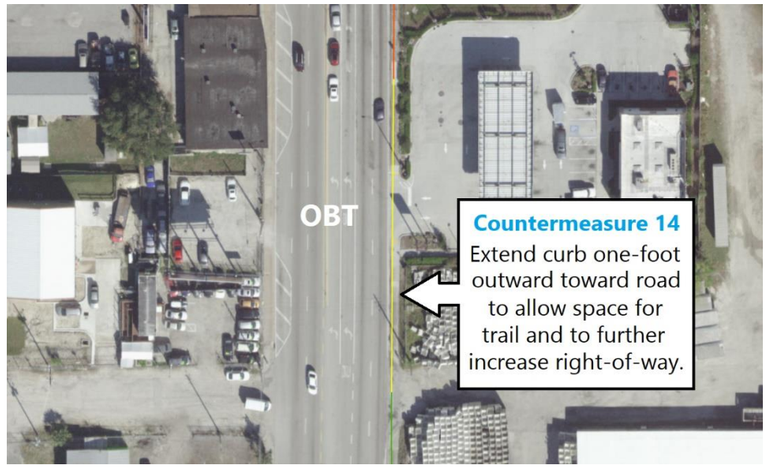

TEXAS AVE/
LYNX LN
Road alignment in map does not show realignment to west.
Countermeasure 9
Place trail along east side of newly-designed roadway alignment.

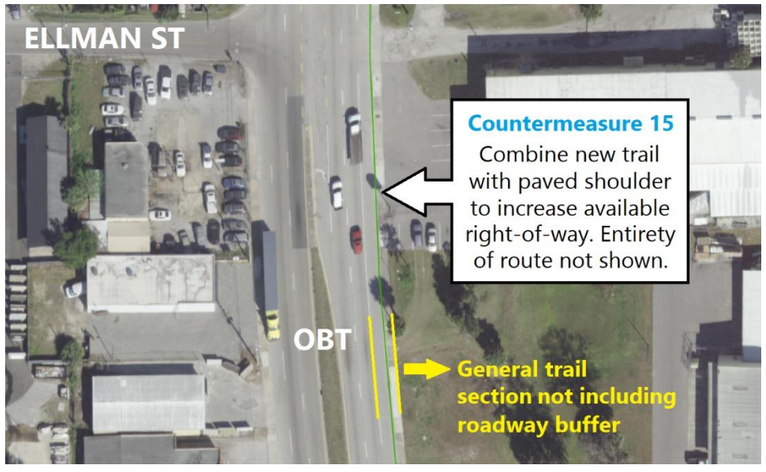

General fence placement in yellow
Countermeasure 10
Place a fence along both sides of the planned trail to separate the trail from the industrial properties.

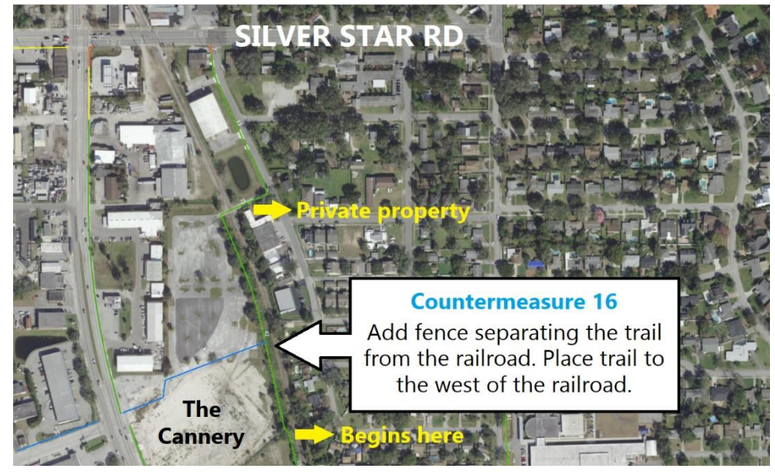

SILVER STAR RD
Re-paving area
Countermeasure 11
Pave both the trail and the public right-of-way to distinguish between the two. Consider a sharrow.


Yellow line depicts area of concern
SILVER STAR ROAD
Countermeasure 12
Reduce road width (context class C3C) from 60 feet to 52 feet to allow room for 10-foot trail and 4-foot buffer.

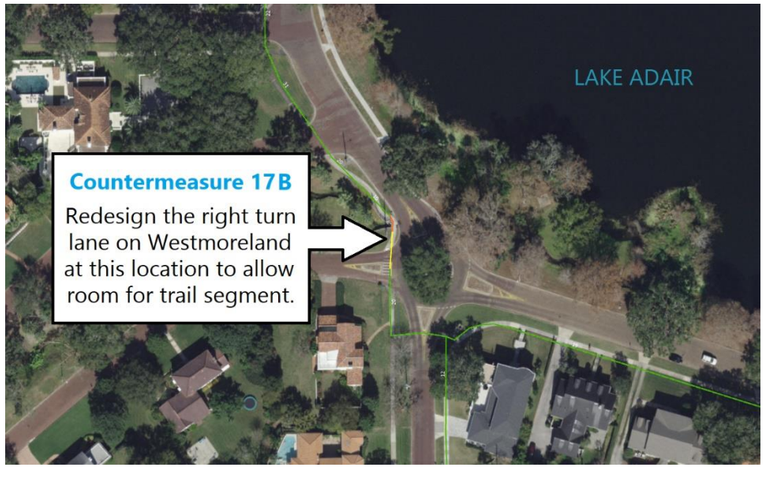

SILVER STAR RD
7-Eleven
Countermeasure 13
Work with 7-Eleven on new landscaping to allow space for trail.
OBT


OBT
Countermeasure 14
Extend curb one-foot outward toward road to allow space for trail and to further increase right-of-way.


ELLMAN ST
Countermeasure 15
Combine new trail with paved shoulder to increase available right-of-way. Entirety of route not shown.
OBT
General trail section not including roadway buffer


SILVER STAR RD
Private property
Countermeasure 16
Add fence separating the trail from the railroad. Place trail to the west of the railroad.
The Cannery
Begins here


Countermeasure 17A
Redesign the right turn lane on Westmoreland at this location to allow room for trail segment.
LAKE ADAIR BLVD


LAKE ADAIR
Countermeasure 17B
Redesign the right turn lane on Westmoreland at this location to allow room for trail segment.


Lake Ivanhoe
Extend curb on east side of Poinsetta Avenue 3 feet to the west
Countermeasure 18
Add fences along lakeside trails located on Ivanhoe Boulevard and Lakeview Street to ensure safety.

Right-of-Way Countermeasures Pictured

The right of way countermeasures included in this report include reducing lane widths, combining on-and-off-road features, and utilizing publicly-owned lands and right-of-way to improve trail feasibility.

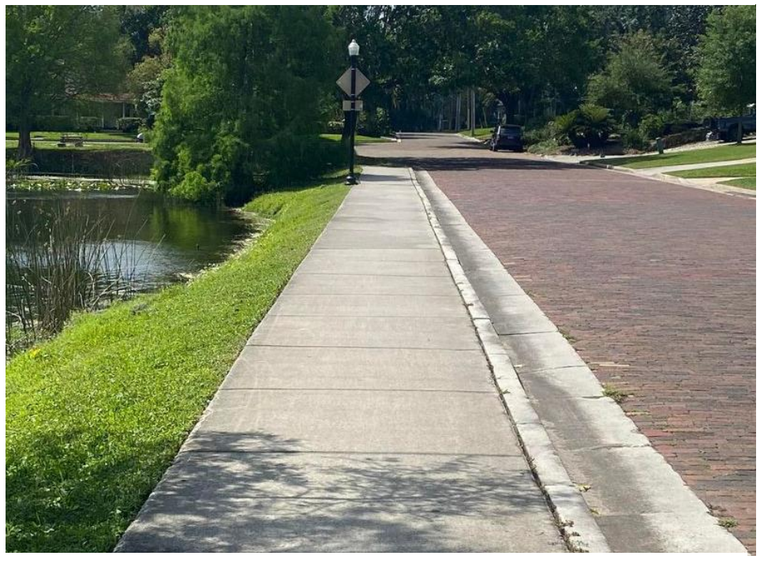
The countermeasures analyzed in this report are primarily aimed at maximizing trail widths in order to attain a 10-foot width standard.

It is recommended that trail segments be reduced in width to 8-to-9 feet in some of these locations in order to reduce project costs. Appropriate signage could be placed in these locations to inform trail riders of trail-width-thinning.

Countermeasure #6: This project would combine the bike lane and sidewalk, resulting in a multi-use path on the south side of Princeton Street. The fence to the south could be removed in order to plant trees on the City of Orlando-owned parcel shown above. This strategy would improve bike-ped comfort and safety.

Countermeasure #17A: This trail segment would be adjacent to the roadway at the Lake Adair Boulevard intersection. If warranted, the curb could be extended inward toward the road in order to provide 10-feet of space for the trail. Thinning the trail to 8-to-9-feet in this location is also an alternative.

Countermeasure #17B: Located at Edgewater Court and Westmoreland Boulevard, this project would reduce the width of the right turn lane in order to add more width to the trail. Alternatively, the trail could be reduced in size to 7-to-9-feet in this location.



Countermeasure #18 (North): This image is taken on Poinsettia Avenue, looking south along the proposed lakeside trail segment. It is recommended that this section of Poinsettia Avenue (located south of Shady Lane Drive) be reduced in width in order to allow 10-feet of width for a trail.

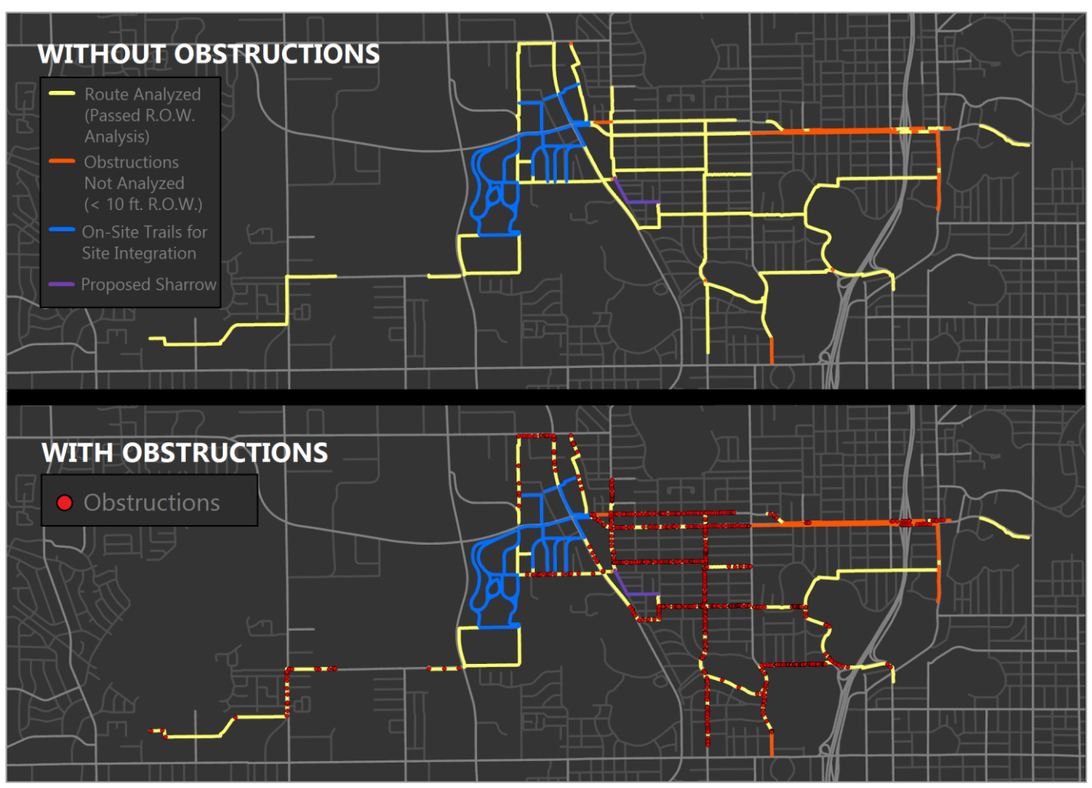
Countermeasure #18 (South): To the south of Poinsettia Avenue, the trail runs along Ivanhoe Boulevard. This image shows the wide sidewalk that the City of Orlando built along this section of trail in 2022 during the late development stages of this report. This was previously a countermeasure area.

Network Analysis | Obstructions

The obstruction analysis identifies objects such as utilities, trees and light poles that obstruct (or get in the way of) prospective trails in locations that were identified as viable trail placement locations within the right-of-way availability analysis. This section of the report provides countermeasures, by corridor, that can mitigate these obstructions. These will help to determine route costs.

On-and-Off Site Overview

Due to the historic nature of the areas surrounding The Packing District, numerous obstructions exist along many of the routes proposed for prospective trail placement. The primary obstructions observed include large oak trees and above-ground utilities such as electrical boxes and utility poles. The following pages analyze obstructions by corridor.



Obstruction Types

- Benches
- Buildings
- Off-Grade Curbs
- Fences
- Fire Hydrants
- Flashing Beacons
- Light Poles
- Mailboxes
- Parking
- Private Property
- Shrubs
- Signs
- Swales
- Trash Cans (Fixed)
- Trees (Large & Small)
- Utility Poles
- Utility Stumps/Boxes

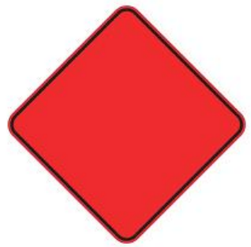
Countermeasure Types

- Bridge Swale
- Pipe Swale (Fill)
- Keep Object in Place
  - Combine Trail and Shoulder
  - Combine Trail and Bike Lane
  - Cut Trail to Base of Tree
  - Make Signed Route Instead
  - Redesign Street
  - Trail Jog (Re-Align)
  - Trail Split (Centered)
  - Warning Marker (X-OM4-3)
- Move Object
  - Move to (Direction)
  - Move Closer to Road
- Remove Object
- Remove or Relocate Object
- Remove and Fill
- Thin Road Lane / Re-Curb

Cut Trail to Base of Tree

Warning Marker

(X-OM4-3)



Split Trail (Centered)

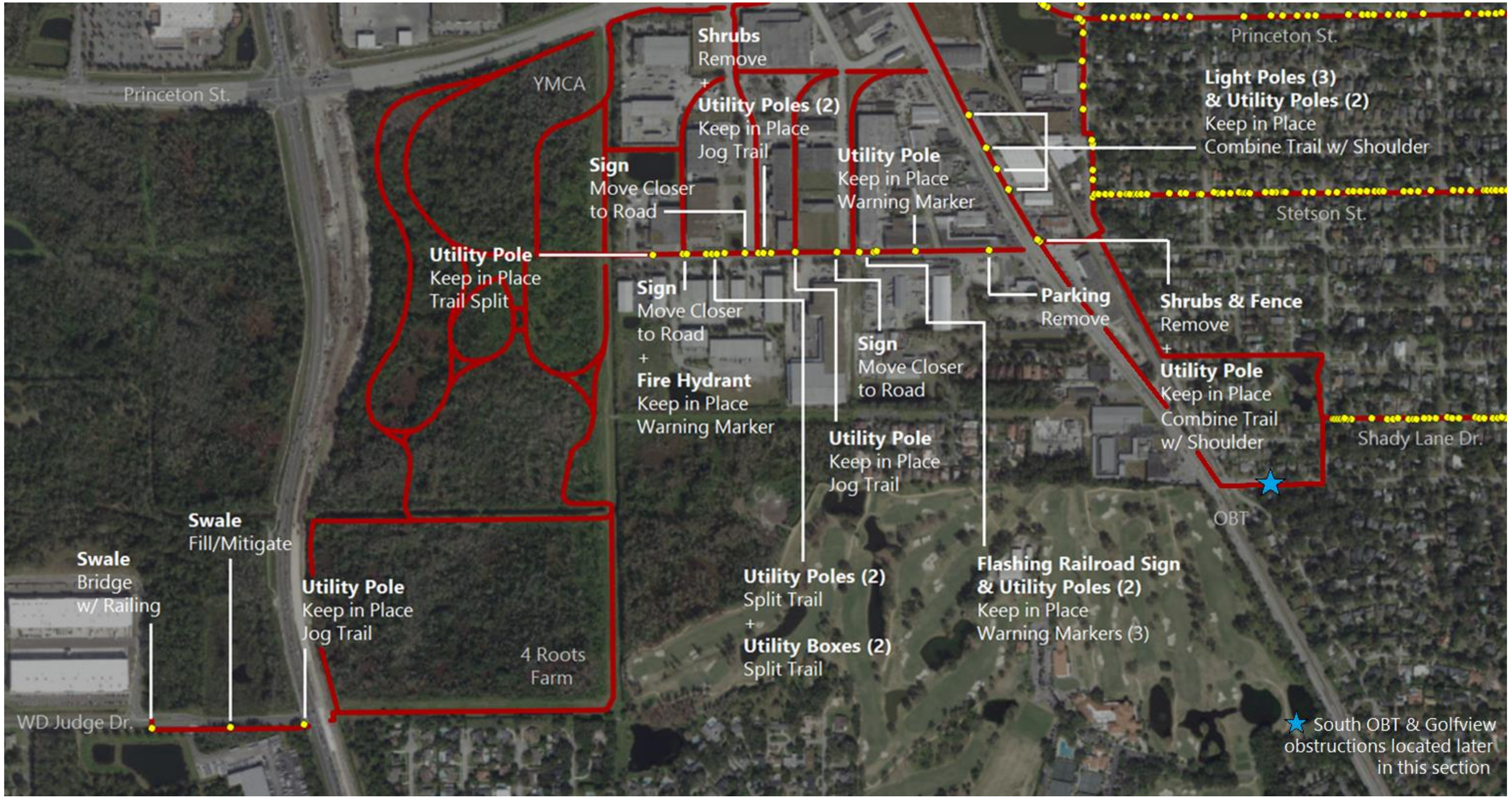
- It is recommended that the City of Orlando and OUC work on placing utilities underground throughout the College Park area.

Obstruction Analysis

- Barnett Park Trail
- WD Judge Road to Mercy Drive to Barnett Park (Orlando Corridor)
- WD Judge Road Trail (West Side)

Obstruction Analysis

- WD Judge Trail (East) & Southern Utility Easement
- New Hampshire Street Trail
- OBT South (Orlando Corridor)

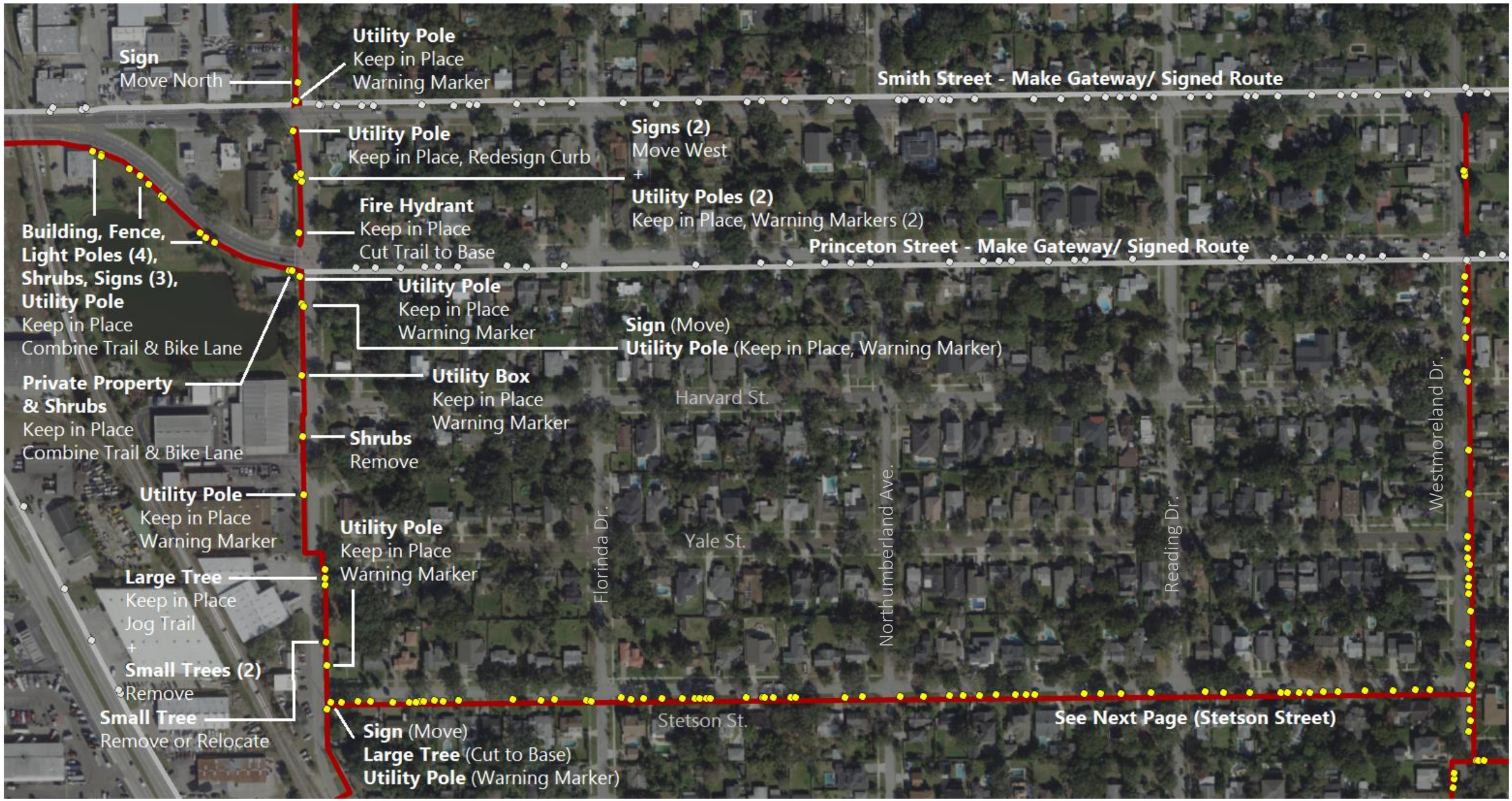


Obstruction Analysis

- Silver Star to Canal to Texas Avenue Trail
- OBT North (Orlando Corridor)
- Taft Avenue Trail
- Rio Grande Avenue Trail (North)

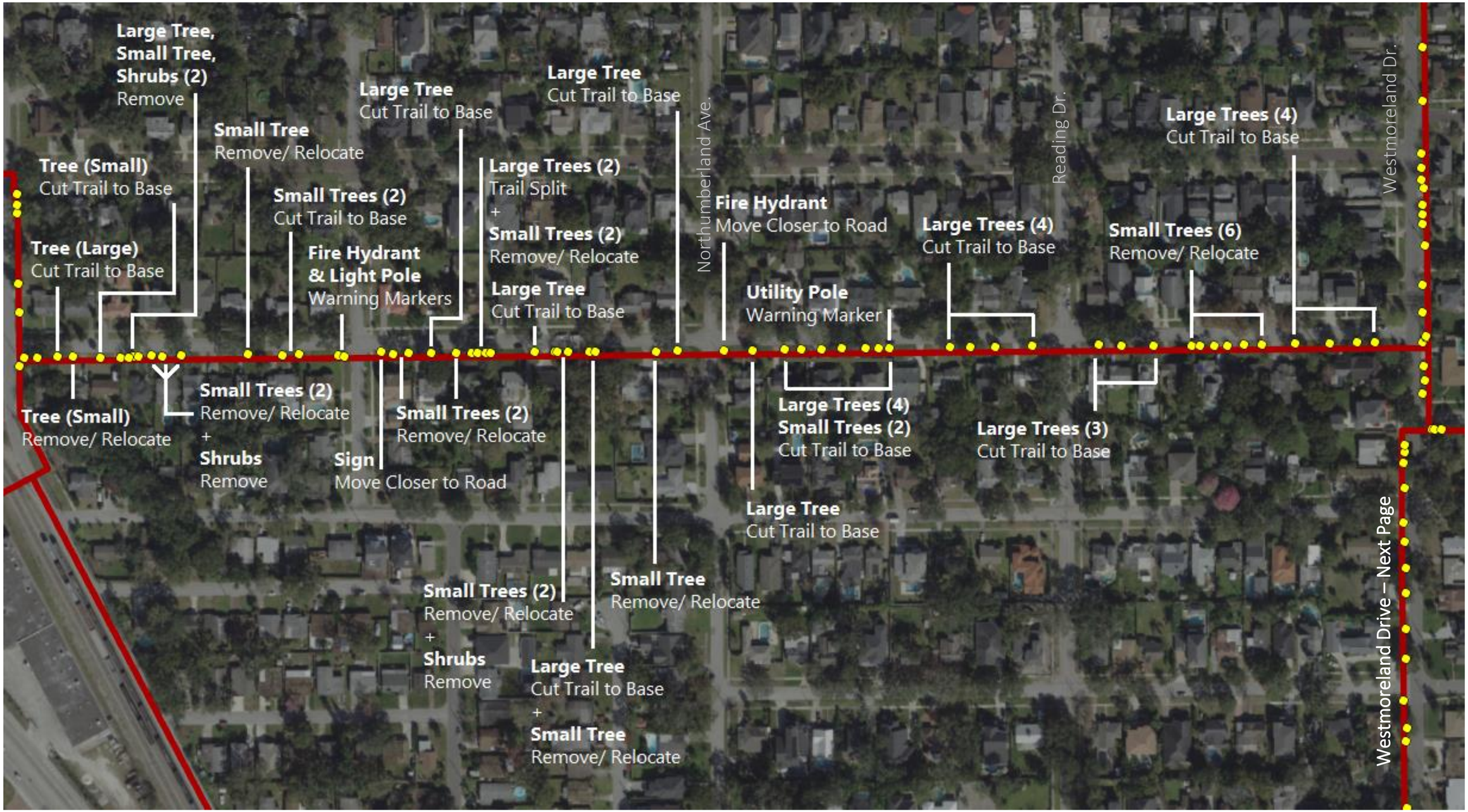
Obstruction Analysis

- Princeton Street Combined Bike Lane & Sidewalk
- Rio Grande Avenue Trail (South)
- Smith Street & Princeton Street Gateways – No Mitigation to Obstructions



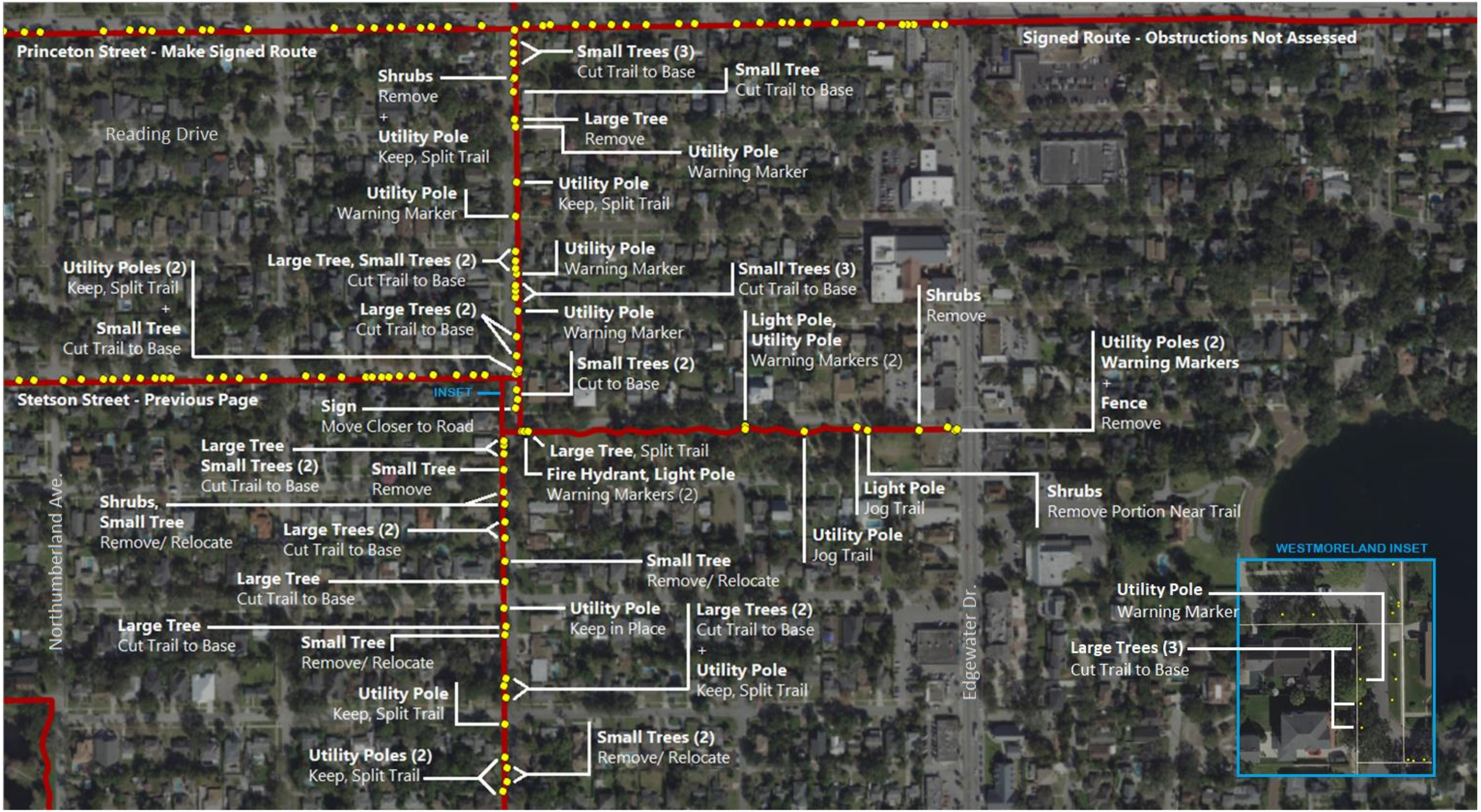
Obstruction Analysis

- Stetson Street Trail (Rio Grande Ave. to Westmoreland Dr.)



Obstruction Analysis

- Stetson Street Trail (Westmoreland Dr. to Edgewater Dr.)
- Westmoreland Drive Multi-Use Path (Princeton St. to Shady Lane Dr.)

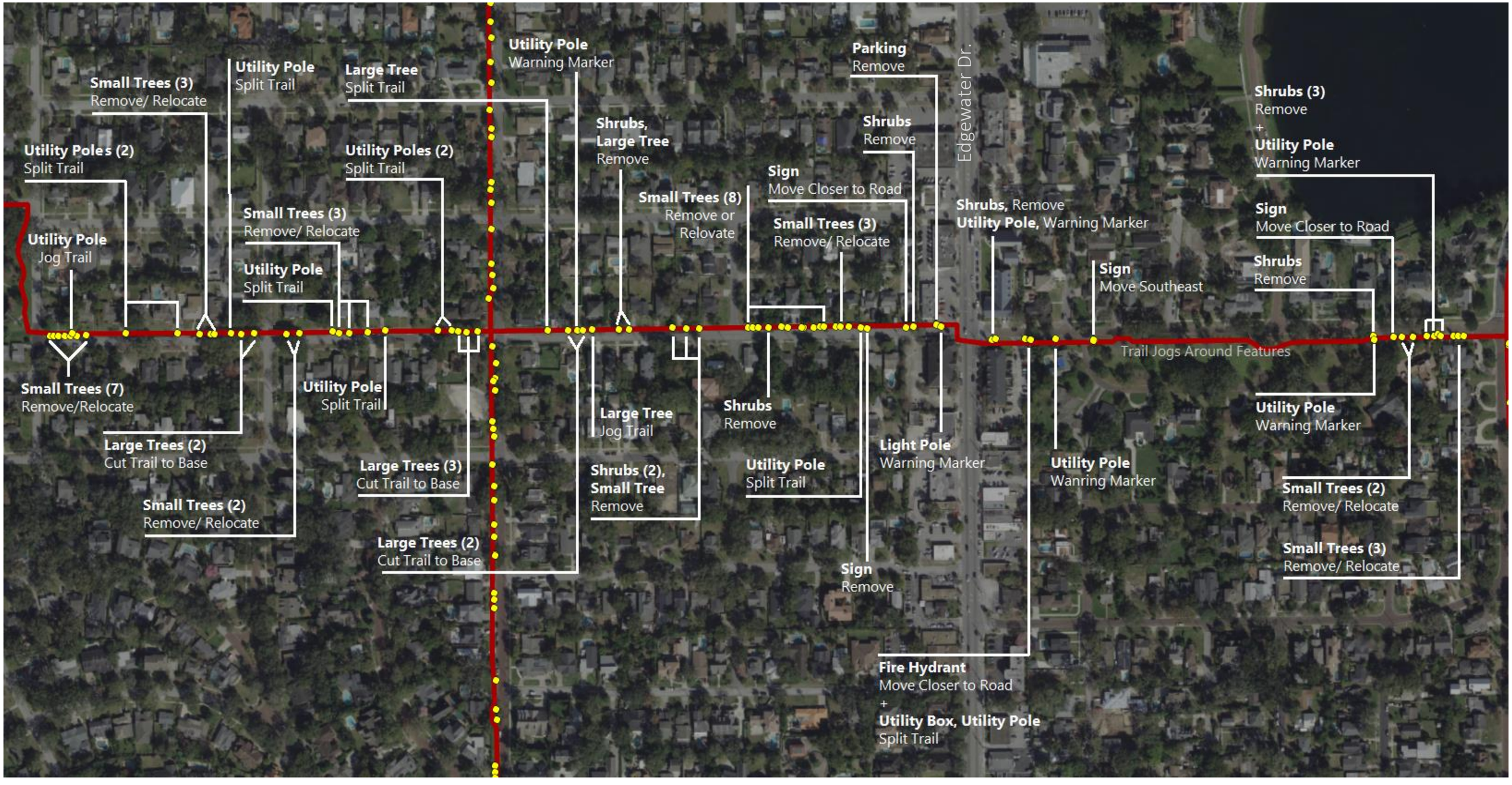


Obstruction Analysis

- Lake Adair Boulevard Trail
- Westmoreland Drive Multi-Use Path (Shady Lane Dr. to Colonial Dr.)
- Poinsettia Avenue and Ivanhoe Boulevard Trail

Obstruction Analysis

- Shady Lane Drive Trail (Guernsey Park to Poinsettia Ave.)

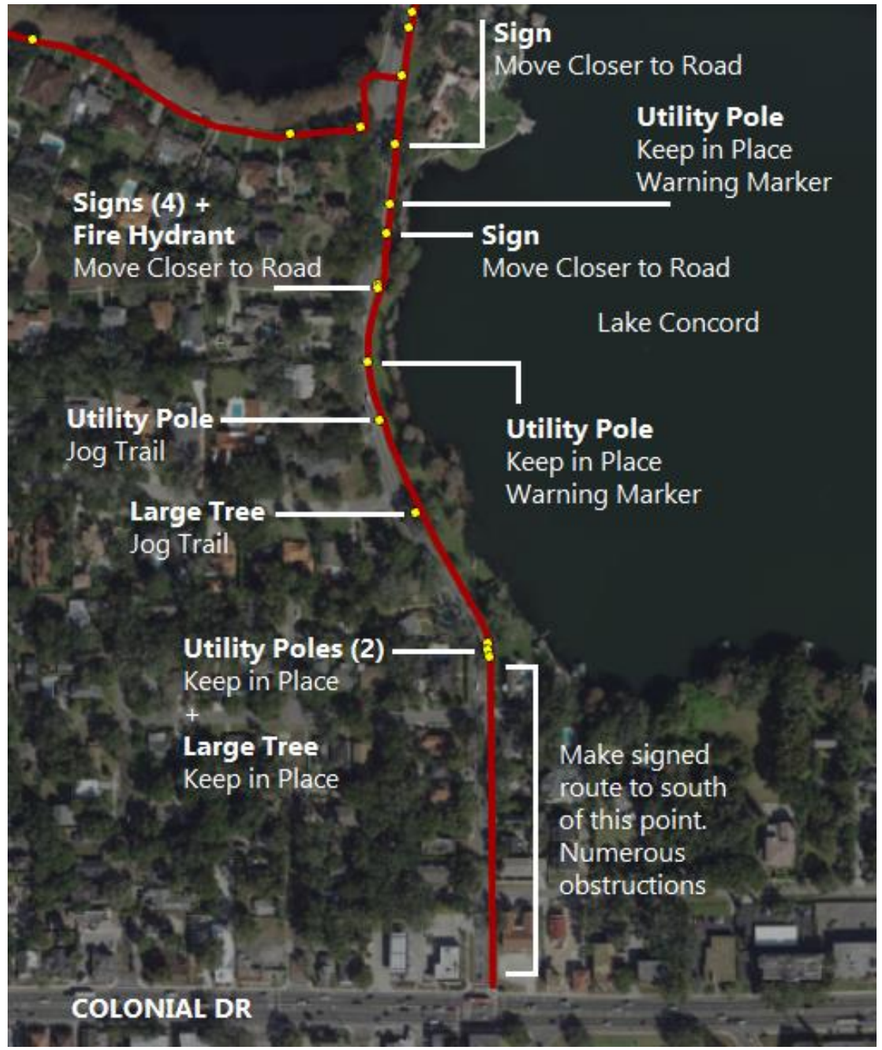


Obstruction Analysis

- Orange Blossom Trail to Golfview to Northumberland

Obstruction Analysis

- Edgewater Drive, Lake Adair to Colonial Drive



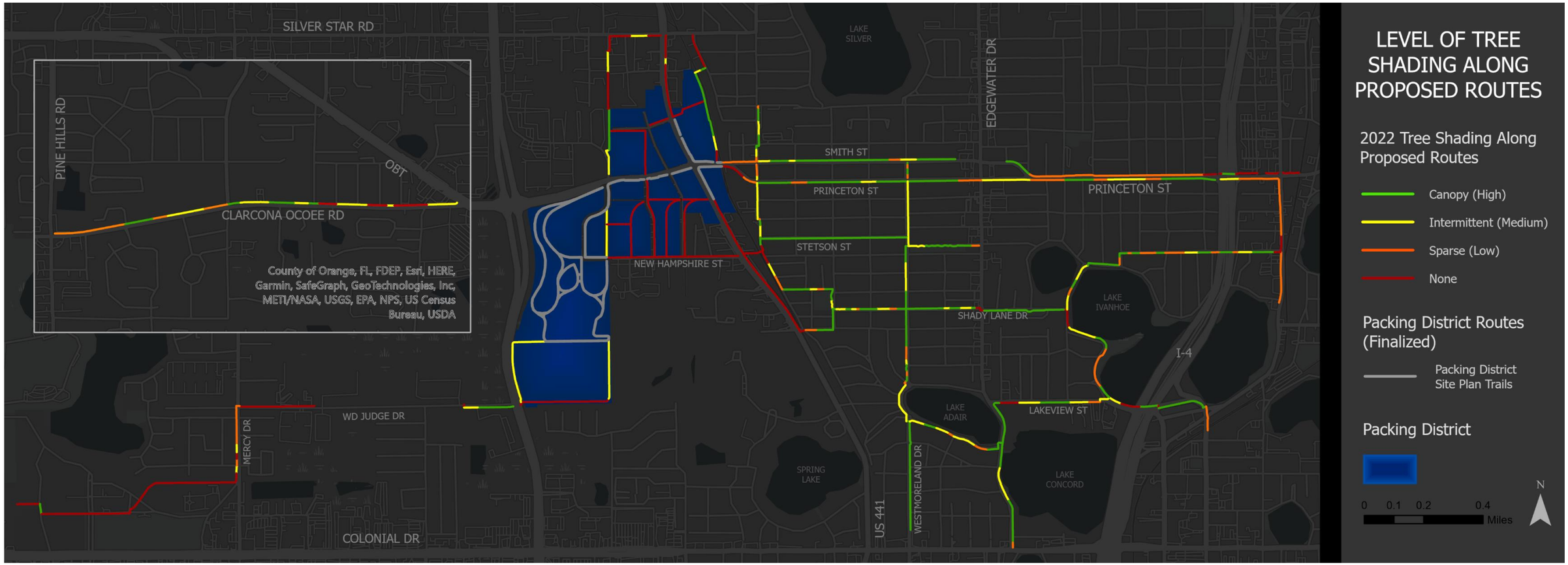
Network Analysis | Shading

On-and-Off Site Overview

Using the routes proposed in this report, the project team completed an analysis of shading to determine future tree coverage needs. This analysis can be utilized alongside the obstruction analysis, which identified small trees for potential relocation. Overall, it is recommended that site developers maximize tree coverage on The Packing District site in order to improve bicyclist and pedestrian comfort. Off site, it is recommended that the City of Orlando focus on low-shade and no-shade routes for future tree planting.

Tree Shading Priorities

- Barnett Park: Tree coverage is light throughout the Barnett Park property where the trail is proposed.
- Packing District Site: Adding high canopy trees such as oaks can ensure that bicyclists and pedestrians are comfortable on-site.
- Orange Blossom Trail: Where right-of-way permits, additional shading along OBT will increase comfort and can serve as a road diet solution to slow down traffic.
- Lake Ivanhoe Lakeshore: Where right of way permits and viewsheds are preserved, increased tree coverage could benefit this area.



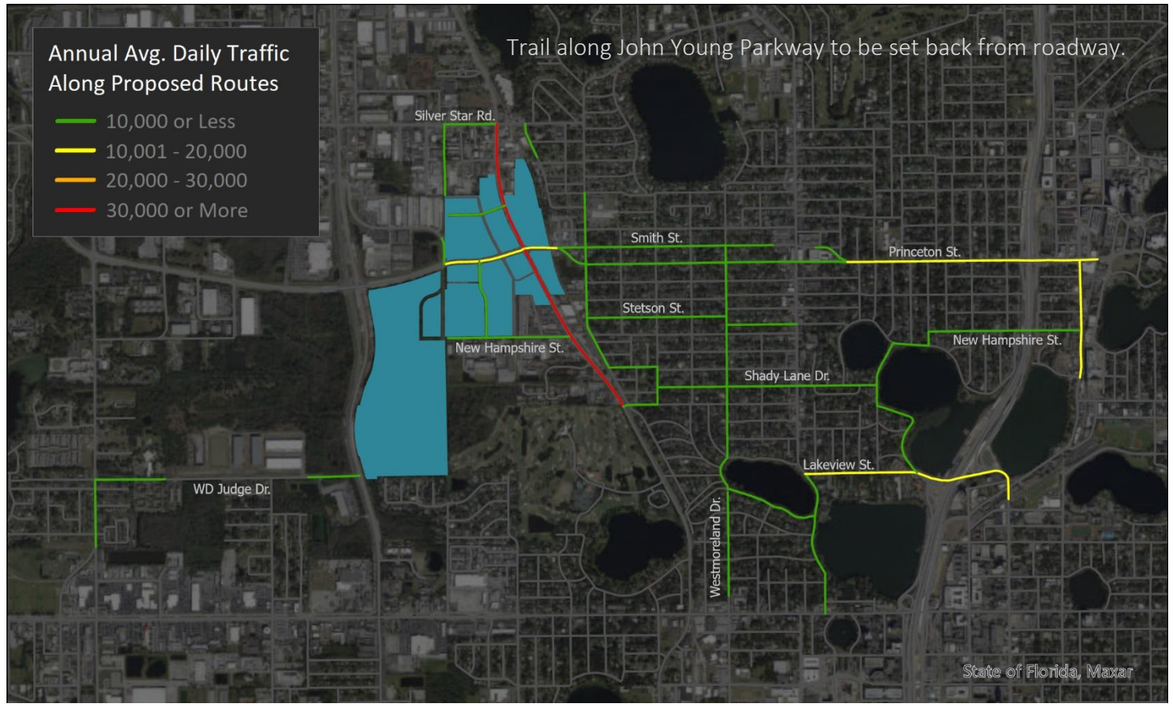
Network Analysis | Bike-Ped Traffic Stress

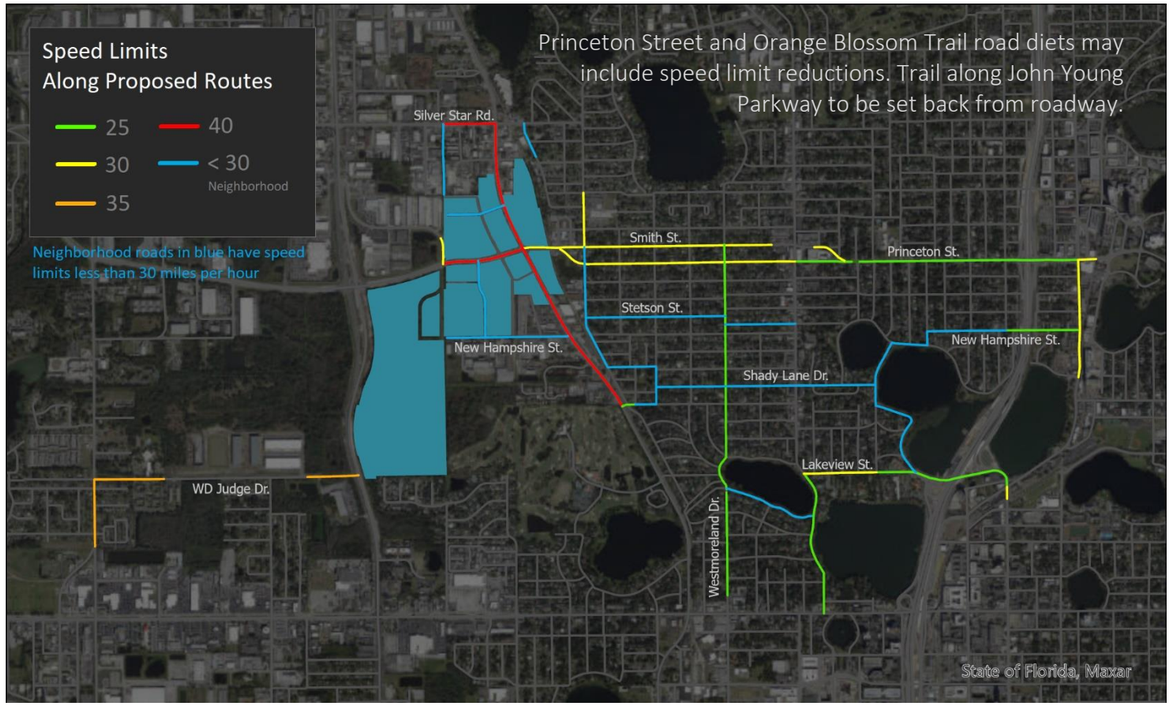
Traffic Stress by Corridor

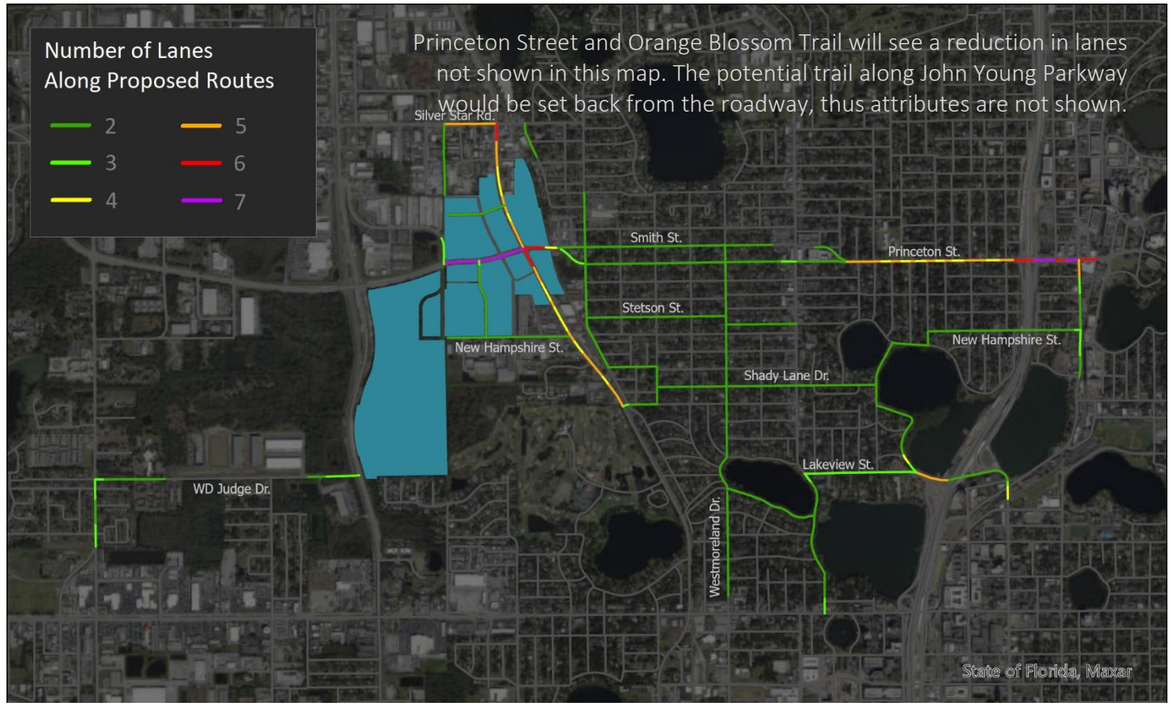
Bicycle and pedestrian traffic stress is a measure of stress that a bicyclist or pedestrian faces while on a journey by way of traffic volumes, speed limits, number of lanes, and other factors. This analysis provides maps of the proposed route network encoded with roadway data for traffic volumes, speed limits and number of lanes. Proposed routes that are not shown on this map are not located on the roadway network (example: Barnett Park Trail).

Assessment of Proposed Routes

The project team selected routes with low traffic stress as a criteria metric as discussed earlier in this report. An analysis of the proposed route network confirms that the proposed routes are indeed low in traffic stress with the exception of Princeton Street and Orange Blossom Trail, which are currently undergoing road diets with potential speed limit reductions.







Network Analysis | Critical Intersections

Countermeasures by Intersection

Countermeasures applicable to the intersections included in the map to the right include MUTCD signage, high visibility crosswalks, ADA tactile surfaces, and other traffic calming strategies shown on this page.

Critical Traffic Calming Intersections

- New Hampshire Street at Orange Blossom Trail

  This intersection is expected to become a more in-demand intersection as The Packing District is developed due to the direct connectivity that New Hampshire Street provides to the planned park area, tennis center, and townhome development. This intersection will be a southern gateway into the district.

- Cannery Way at Orange Blossom Trail

  Traffic calming at this location, in addition to calming at New Hampshire Street and Orange Blossom Trail, would change the context of Orange Blossom Trail between the two intersections to fit the context of a high-density area with increased bike-ped activity.

- Cannery Way at Diversified Way

  This potential roundabout intersection is within The Packing District Planned Development area. Conflict points between bicyclists and pedestrians with automobiles are reduced when roundabouts are present, and this intersection is located where a proposed trail along Cannery Way meets with a north/south trail alignment.

Trail Street Crossing General Countermeasures

All trail/ roadway crossings not identified in the map on this page should be equipped with painted crosswalks and trail crossing signage.

Potential Countermeasures at Critical Intersections

W-11 Crossing Ahead

Use: All critical intersections

This sign informs drivers of an upcoming pedestrian crossing, but does not constitute a stopping condition where placed.

High-Visibility Crosswalk

Use: All trail intersections***

High visibility crosswalks provide a visual cue for drivers to be aware of bicycle and pedestrian activity. Faded markings are not as effective.

R1-5B Stop for Ped

Use: All critical intersections

This sign, placed with a stop bar, requires drivers to stop for crossing bicyclists and pedestrians. Preferred by FDOT over yield signs.

Rapid Flashing Beacon

Use: Select Tier 1 intersections

RRFB's are placed in or alongside a roadway and are a clear marker of pedestrian activity. These signs have been shown to increase yield rates.

R1-6A In-Street Stop

Use: Select critical intersections

This sign is placed in the roadway and provides high visibility for drivers informing them to stop for bicyclists and pedestrians.

ADA Tactile Surface

Use: All critical intersections

ADA tactile surfaces assist people with disabilities of the presence of an intersection. These surfaces are graded to ADA standards.

In-Road Lighting

Use: Select critical intersections

In-road lighting is used to light up crosswalks and other features to emphasize drivers of crossing activity during dark hours.

ADA Audible Signal

Use: Tier 1 critical intersections

Placed at roadway intersections with higher lane counts and traffic volumes, these signals inform those with disabilities when to cross.

Ped. Hybrid Beacon

Use: Select critical intersections

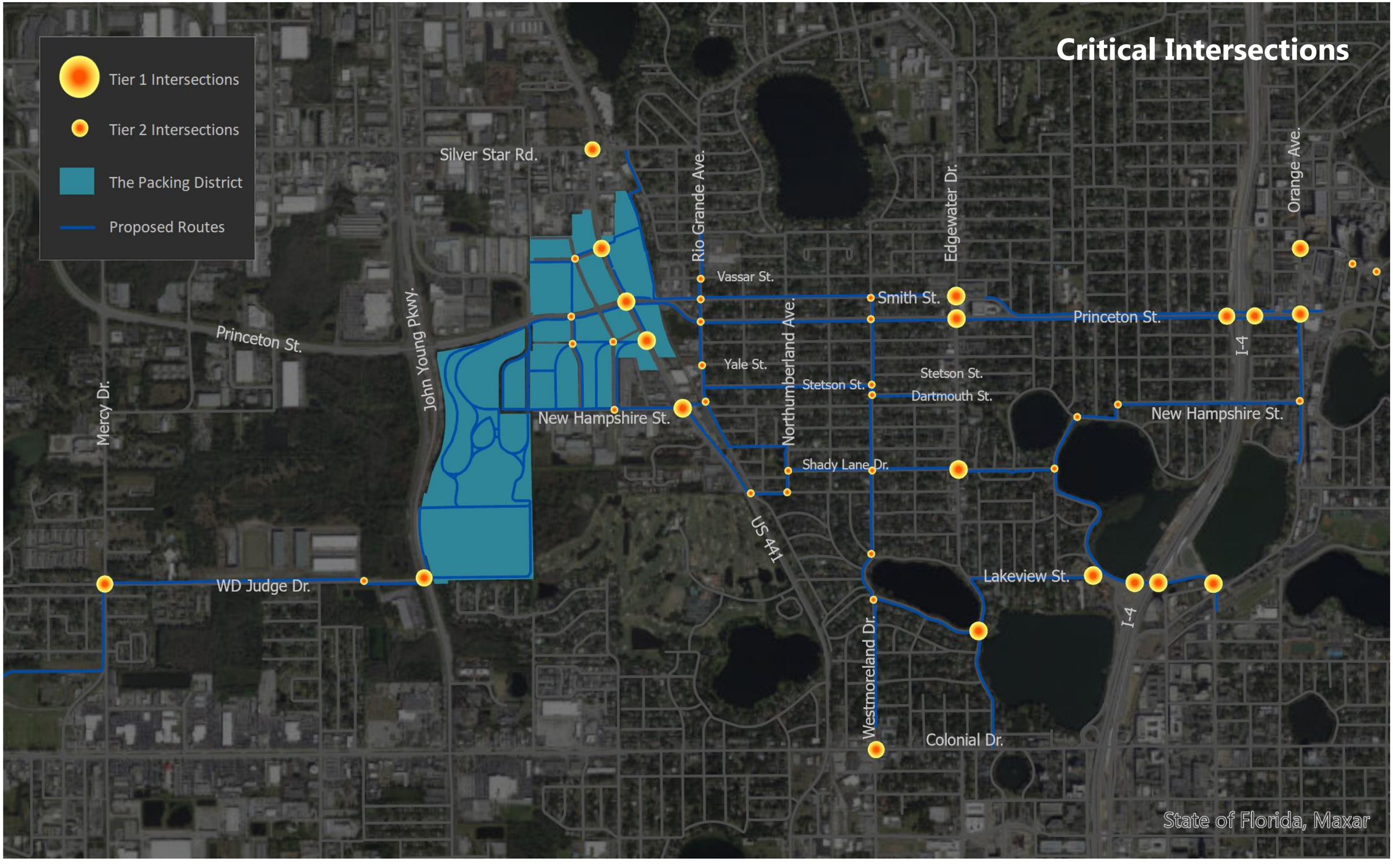
These beacons are activated by bicyclists and pedestrians and stop traffic at unsignalized intersections.

Roundabout

Use: Select critical intersections

Roundabouts smoothen traffic flow and reduce conflict points for bicyclists and pedestrians by limiting turn movements.

Critical Intersections



Network Analysis | Critical Intersections *(cont.)*

❖ Orange Blossom Trail Countermeasures

Orange Blossom Trail (O.B.T.) is a primary north/south roadway that runs through the Orlando Metropolitan Area. In order to maximize bicycle and pedestrian connectivity and safety within The Packing District, it is recommended that numerous safety enhancements are made between New Hampshire Street and Cannery Way. These enhancements are aimed at changing the context of the roadway between these intersections from an "auto-centric" roadway to a roadway that prioritizes bike-ped mobility.

1. Traffic Calming at Cannery Way and New Hampshire Street

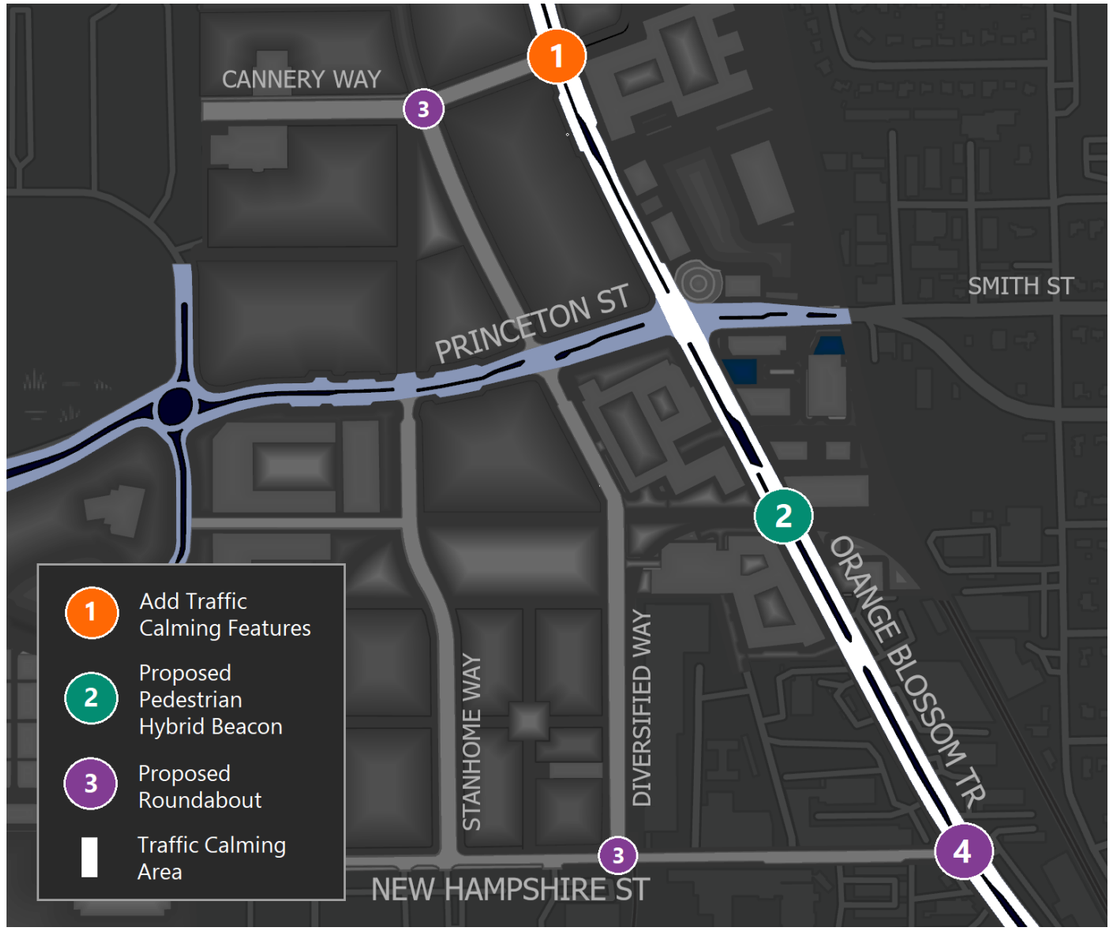
These two intersections would anchor the traffic calming area on O.B.T. The presence of traffic calming countermeasures will inform drivers of a change in roadway context. Countermeasures would be best implemented alongside a change in FDOT Context Classification of the roadway between these two intersections.

2. Pedestrian Hybrid Beacon at the Railroad Crossing

These beacons are activated by crossing pedestrians and have a high rate of motorist compliance (stopping appropriately) according to the Florida Highway Administration. A hybrid beacon at this location would provide direct west-to-east connectivity to the food hall, which will host hundreds of daily visitors. A mid-block trail crossing is also proposed at this location.

3. Speed Limit Reduction to 35 or 30 Miles Per Hour

Reducing the speed limit will reduce the probability of a serious injury or fatality in the event of a bicycle-or-pedestrian-involved crash. The Institute of Transportation Engineers estimates that the fatality rate for pedestrians when hit at 40 miles per hour is 80%, and the fatality rate drops to 40% when the speed limit is reduced to 30 miles per hour.



Critical Railroad Crossings & Population Centers

Critical Railroad Crossings

1. Princeton Street Railroad Crossing
2. Orange Blossom Trail Railroad Crossing
3. Stanhome Way Railroad Crossing
4. Diversified Way Railroad Crossing
5. Northern Area Railroad Crossing

Potential Above-Grade Crossing

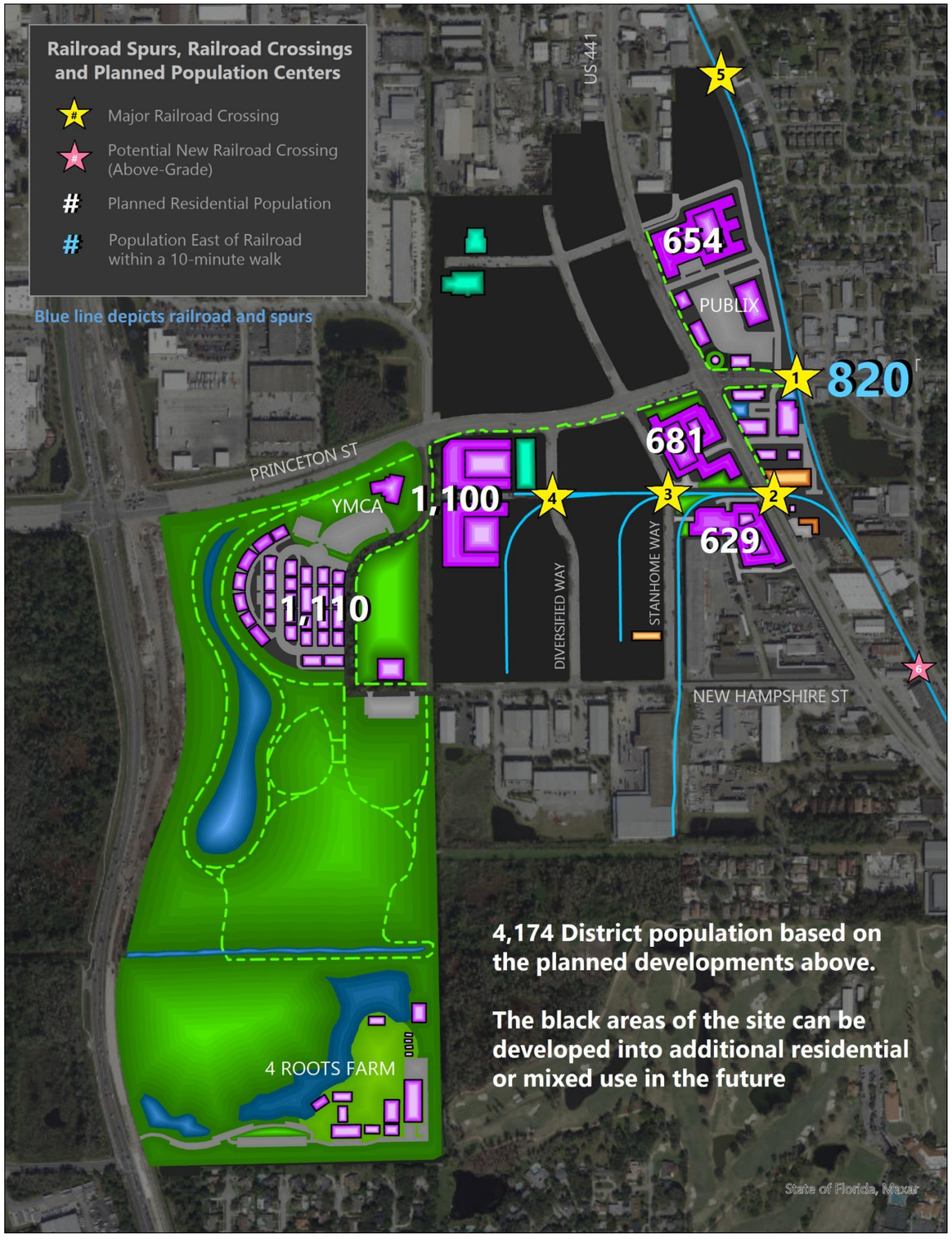
The pink star in the map to the right shows the location of an Orange County Parks and Recreation property that could potentially be utilized to implement an above-grade crossing over the railroad tracks. This crossing, if implemented, would require ADA ramps and enough space to vertically clear the railroad. This crossing location is of strategic importance, as the nearest railroad crossing to the south of Princeton Street is located at Golfview Street, 0.61 miles south of the Princeton Street crossing. The proposed crossing is likely a long-term strategy and, thus, is not included in the tier 1 trail network.

Long Term Primary Railroad Strategy (Commuter Rail)

The Florida Central Railroad line runs from downtown Orlando, through the east side of The Packing District, to Rosement, Apopka and beyond. This railroad has been proposed as a commuter rail line known as the "Orange Blossom Express". If this commuter corridor is implemented, Dr. Phillips Inc. has proposed to utilize the parcel to the west of crossing #5 as a commuter rail station with parking.

Long Term Rail Spur Strategy

Over the long term, it is recommended that railroad spurs that travel on site be decommissioned and converted into trails. This will rely on freight activity ceasing on site. At least one active business uses the existing railroad spurs as of May 2022.

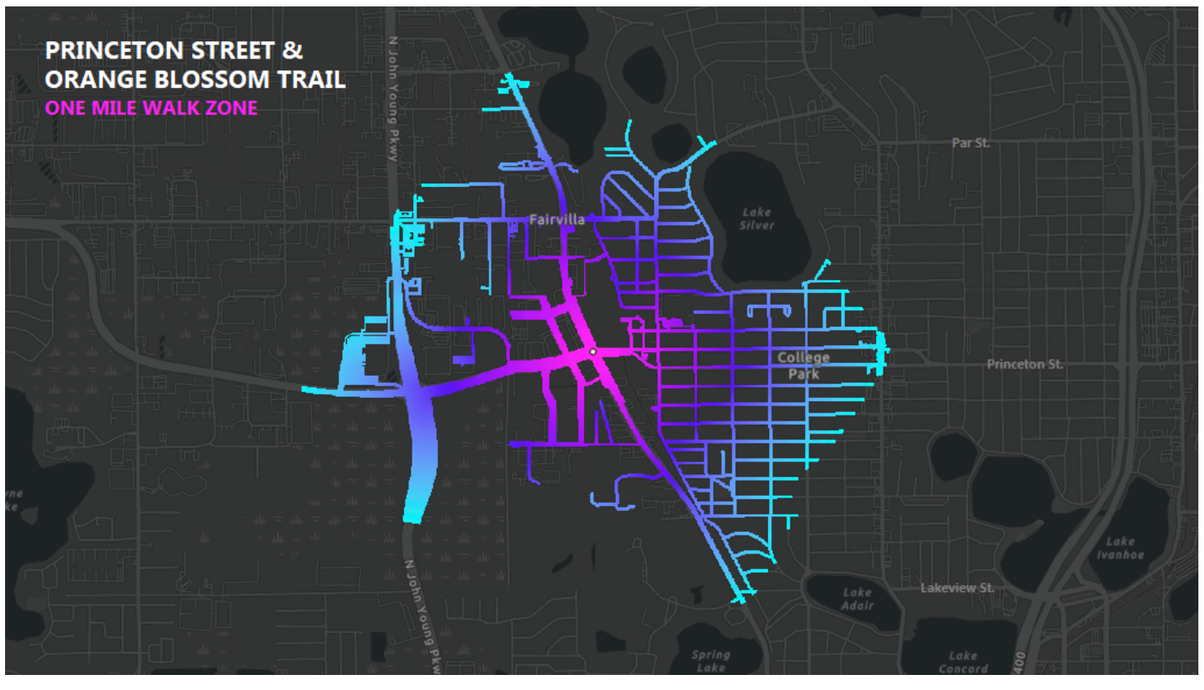


Princeton Street & OBT Crossing Demand Analysis

This analysis simulates potential crossing metrics for the Princeton Street and Orange Blossom Trail intersection using population figures within distance ranges and three associated "per person" walking trip probability scenarios. The high scenario assumes that persons living within 1/8-mile of the intersection will cross the intersection once per week, then assumes linear trip generation decay where one-third of the number of trips occur at the 1/2-mile radius relative to the 1/8-mile radius.

			Probability of a Weekly Walking Trip Across Intersection, Per Person ^		
Distance (Mi.)	Walking Time	Future Population in Zone *	Low Scenario	Medium Scenario	High Scenario
0.000 - 0.125 Mi.	0.00 - 2.50 Min.	1,964	50.00%	75.00%	100.00%
0.126 - 0.250 Mi.	2.51 - 5.00 Min.	1,123	37.50%	56.25%	75.00%
0.251 - 0.375 Mi	5.01 - 7.50 Min.	211	25.00%	37.50%	50.00%
0.376 - 0.500 Mi	7.51 - 10.00 Min.	1,697	16.50%	24.75%	33.00%
0.501 - 0.625 Mi	10.01 - 12.50 Min.	852	8.34%	12.50%	16.67%
0.626 - 0.750 Mi	12.50 - 15.00 Min.	1,035	2.50%	3.75%	5.00%
0.751 - 0.875 Mi.	15.01 - 17.50 Min.	1,032	1.25%	1.88%	2.50%
0.876 - 1.000 Mi.	17.51 - 20.00 Min.	1,257	0.63%	0.94%	1.25%

* Population calc: Units x 2.85 Persons Per HH (U.S. Census 2020, Orange Co. FL); PD area uses 2.0 PPHH; Assumes district population of 4,174
* Assumes that each walking trip will include 2 trips across the intersection (origin to destination, back to origin)
^ Uses linear decay from 1/8 mile * Percentages above 100% equal average number of weekly trips. 100% equates to an average of 1.0 weekly trips



Low Scenario			
Weekly Crossings	Daily Crossings	Hourly Crossings @ 12hr	Annual Crossings
1,964	281	23	102,409
842	120	10	43,910
105	15	1	5,498
560	80	7	29,202
142	20	2	7,407
52	7	1	2,697
26	4	0	1,345
16	2	0	819
3,707	**530**	**44**	**193,287**

Medium Scenario			
Weekly Crossings	Daily Crossings	Hourly Crossings @ 12hr	Annual Crossings
2,946	421	35	153,613
1,263	180	15	65,864
158	23	2	8,248
840	120	10	43,803
213	30	3	11,111
78	11	1	4,046
39	6	0	2,017
24	3	0	1,229
5,560	**794**	**66**	**289,931**

High Scenario			
Weekly Crossings	Daily Crossings	Hourly Crossings @ 12hr	Annual Crossings
3,928	561	47	204,817
1,684	241	20	87,819
211	30	3	10,997
1,120	160	13	58,404
284	41	3	14,814
103	15	1	5,394
52	7	1	2,690
31	4	0	1,638
7,414	**1,059**	**88**	**386,574**

VI. Network Priority Levels

Methodology Criteria

❖ Feasibility

High priority routes must be feasible when analyzed through the lens of right-of-way availability, obstruction avoidance, and low levels of bicycle and pedestrian traffic stress.

❖ Utility & Connectivity

Routes designed properly minimize trip lengths and connect people to important leisure, cultural and economic points of interest.

Trail Priority Levels

❖ Primary Network

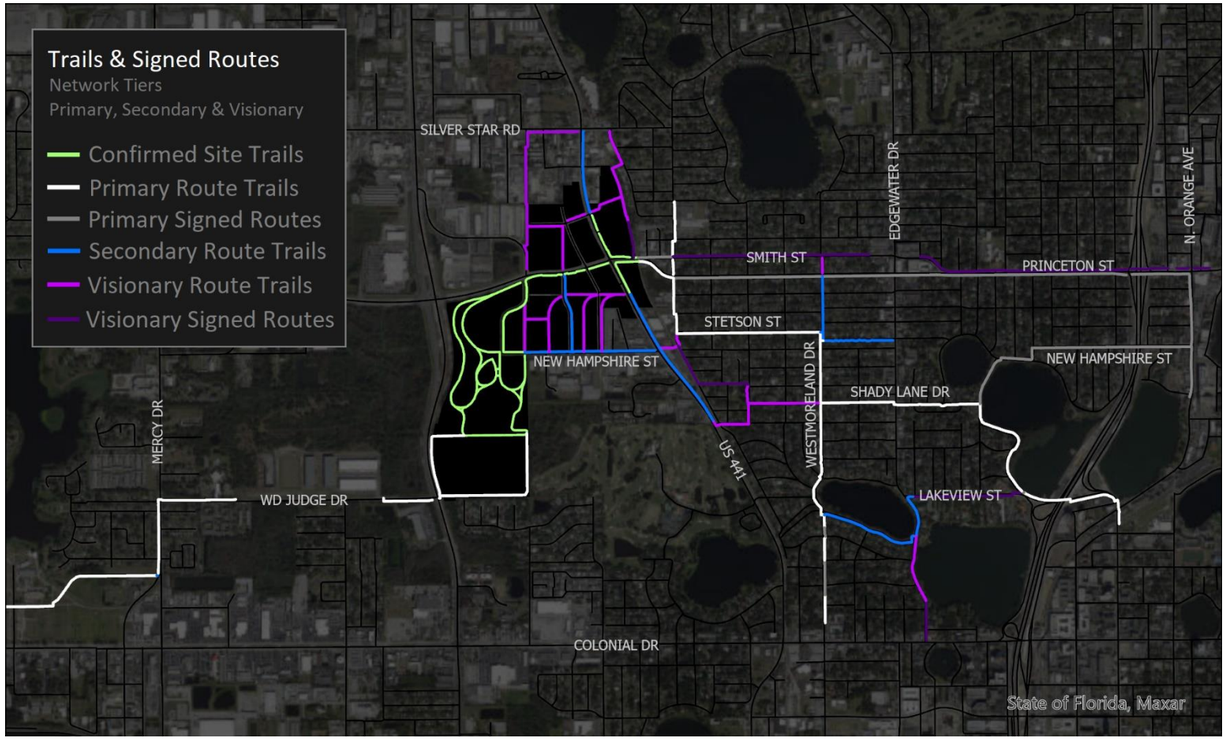
The primary trail network includes the routes that provide the greatest connectivity to area wide activity centers and regional trail corridors. Focus was placed primarily on connecting The Packing District to the Creative Village, the UCF Downtown Campus and downtown Orlando to the south, and to the AdventHealth District and Edgewater Drive to the east. Signed routes along Princeton Street, Smith Street, Poinsettia Avenue, New Hampshire Street and Orange Avenue are critical to this network.

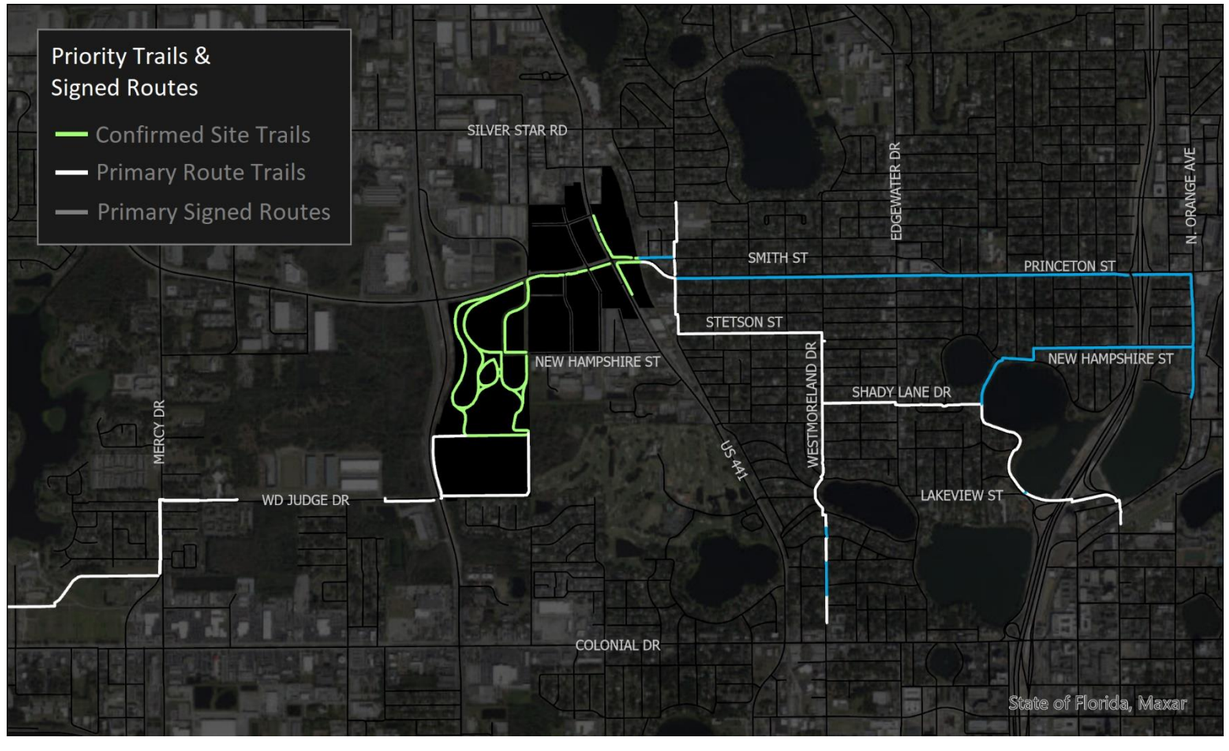
❖ Secondary Network

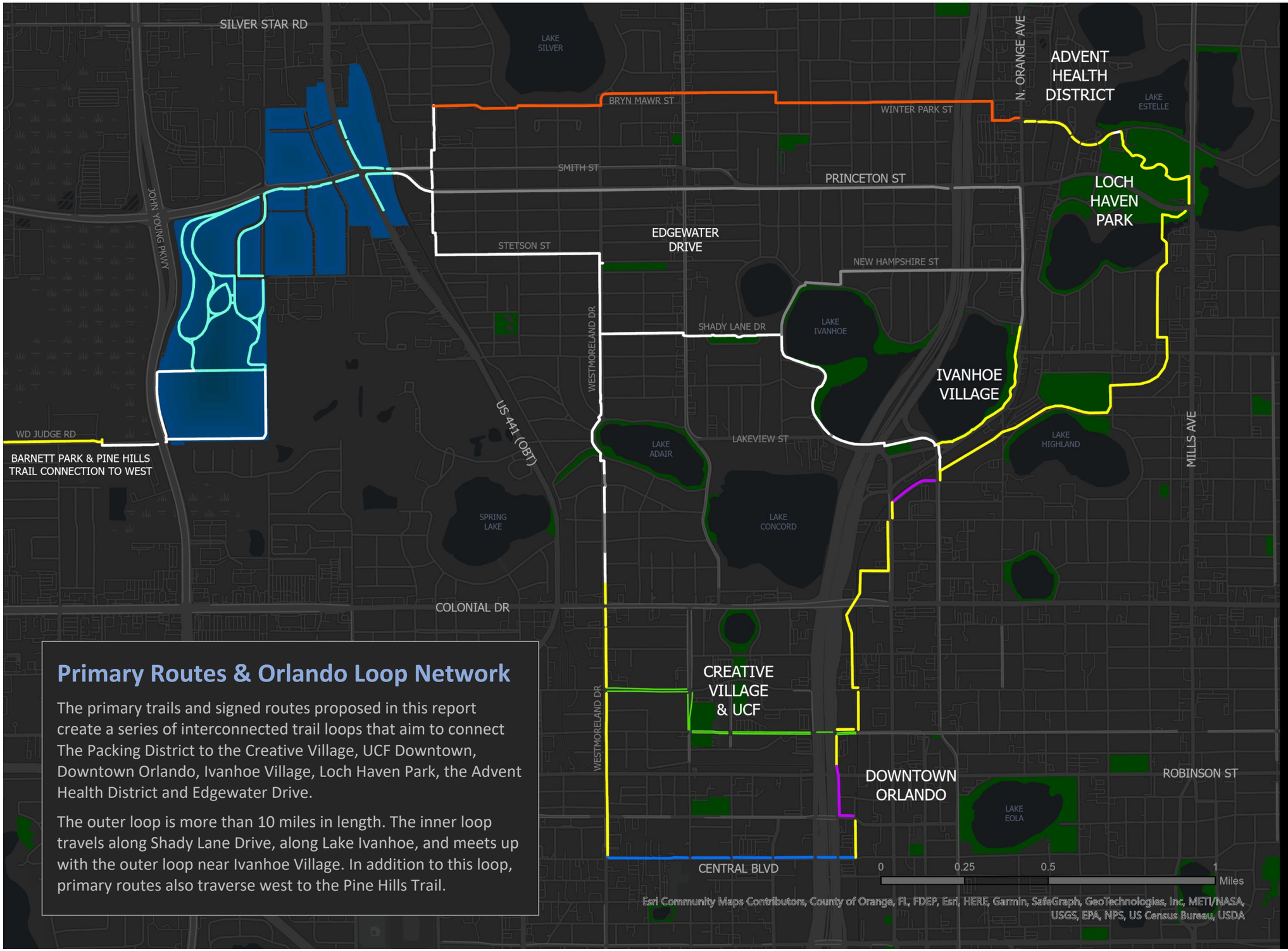
The secondary network is a medium-to-long-term network (5-to-15-years) that would enhance the Orange Blossom Trail corridor while providing trail connections to The Packing District via New Hampshire Street and Stanhome Way. Additional secondary network routes provide enhanced connectivity to Edgewater Drive from the west.

❖ Visionary Network

The visionary network includes all proposed trail segments identified as part of this report and is a longer term (10-to-20-year) strategy. Emphasis is primarily placed on internal Packing District site connectivity.







Primary Routes & Orlando Loop Network

The primary trails and signed routes proposed in this report create a series of interconnected trail loops that aim to connect The Packing District to the Creative Village, UCF Downtown, Downtown Orlando, Ivanhoe Village, Loch Haven Park, the Advent Health District and Edgewater Drive.

The outer loop is more than 10 miles in length. The inner loop travels along Shady Lane Drive, along Lake Ivanhoe, and meets up with the outer loop near Ivanhoe Village. In addition to this loop, primary routes also traverse west to the Pine Hills Trail.

LOOP ROUTE CONNECTIONS --- ROUTE TYPES & BUILD STATUS

Primary Proposed Network

- Primary Trails
- Primary Signed Routes

Existing Infrastructure for Loop Integration

- Existing Trails
- Existing Wide Sidewalks for Incorporation into Loop (>10 feet wide)
- Existing Bike Lanes for Incorporation into Loop (UCF Downtown)
- Connecting Bike Lanes

City of Orlando Funded & Proposed Infrastructure for Loop Integration

- Planned Trails (City of Orlando)
- Planned North College Park Bicycle Boulevard

Packing District

- P.D. Parcels
- Packing District Site Plan Trails (Final)

VII. Impact Analysis

Section Outline

❖ Regional Trail Connectivity

This plan connects The Packing District and proposed trail alignments to numerous state-and-regionwide trail systems. This will allow future residents to connect to statewide corridors such as the Coast-to-Coast Trail, and opens the door for out-of-area bicyclists to make a stop in The Packing District.

❖ Economic Points of Interest

Connecting to economic points of interest such as markets, convenience stores, restaurants and retail stores allows for improved leisure and task-completion utility for trail riders. Trails and adjacent businesses can leverage each other, especially with the use of effective signage.

❖ Cultural Points of Interest

Connecting to cultural points of interest such as community centers, schools, senior centers, libraries and other community assets increases the probability of match-funding from the Florida Department of Environmental Protection.

❖ Landing Spots & Trailheads

Landing spots provide leisure and resting opportunities for trail riders. The proposed routes included in this report were identified in part due to their proximity to active outdoor spaces.

❖ Population Access

This section of the report identifies the number of people who will be located within different proximities of the proposed trail network. Additional metrics and statistics show the magnitude of the proposed routes.

8,777

Population within a 2-Minute Walk of the Primary Proposed Trail System

66

Economic Points of Interest within a 5-Minute Walk of the Primary Proposed Trail System

2

Statewide Trail Networks Connected to Primary Proposed Trail Network & Other Planned Trails

8

Existing or Planned Parks Adjacent to Primary Proposed Trail System

14,930

Population within a 5-Minute Walk of the Primary Proposed Trail System

Impact Analysis | Regional Trail Connectivity

The proposed network outlined in this report and the associated 'loops' are part of a larger network depicted in the regional trail maps on the following pages. The trails and corridors listed below are connected to the proposed network.

❖ Statewide Trail Corridors

- Coast-to-Coast Trail
- Florida National Scenic Trail

❖ Regional and City-Wide Trail Corridors

East

- Orlando Urban Trail
- Dinky Line
- Gertrude's Walk
- Future Corrine Drive Multi-Use Paths
- Baldwin Park Trail to Cady Way Trail

West

- Pine Hills Trail & Trail Extension
- West Orange Trail
- Healthy West Orange Proposed Trail Network

South

- Westmoreland Multi-Use Path
- Shingle Creek Trail
- Future O-Line

North

- Clarcona-Ocoee Connector Trail
- Seminole Wekiva Trail

Connectivity to the North

By connecting to the Pine Hills Trail to the west, The Packing District will be connected to the Seminole Wekiva Trail by way of the Pine Hills Trail extension to the north. The aforementioned extension also connects to the Coast-to-Coast Trail corridor, which runs from the gulf to the Atlantic Ocean.

Connectivity to the West

Connecting to the Pine Hills Trail and extension will connect The Packing District to the Clarcona-Ocoee Connector and, from there, the West Orange Trail. The West Orange Trail then connects to Apopka (at its northernmost extent) and Winter Garden to the south.

Proposed Network

- - -

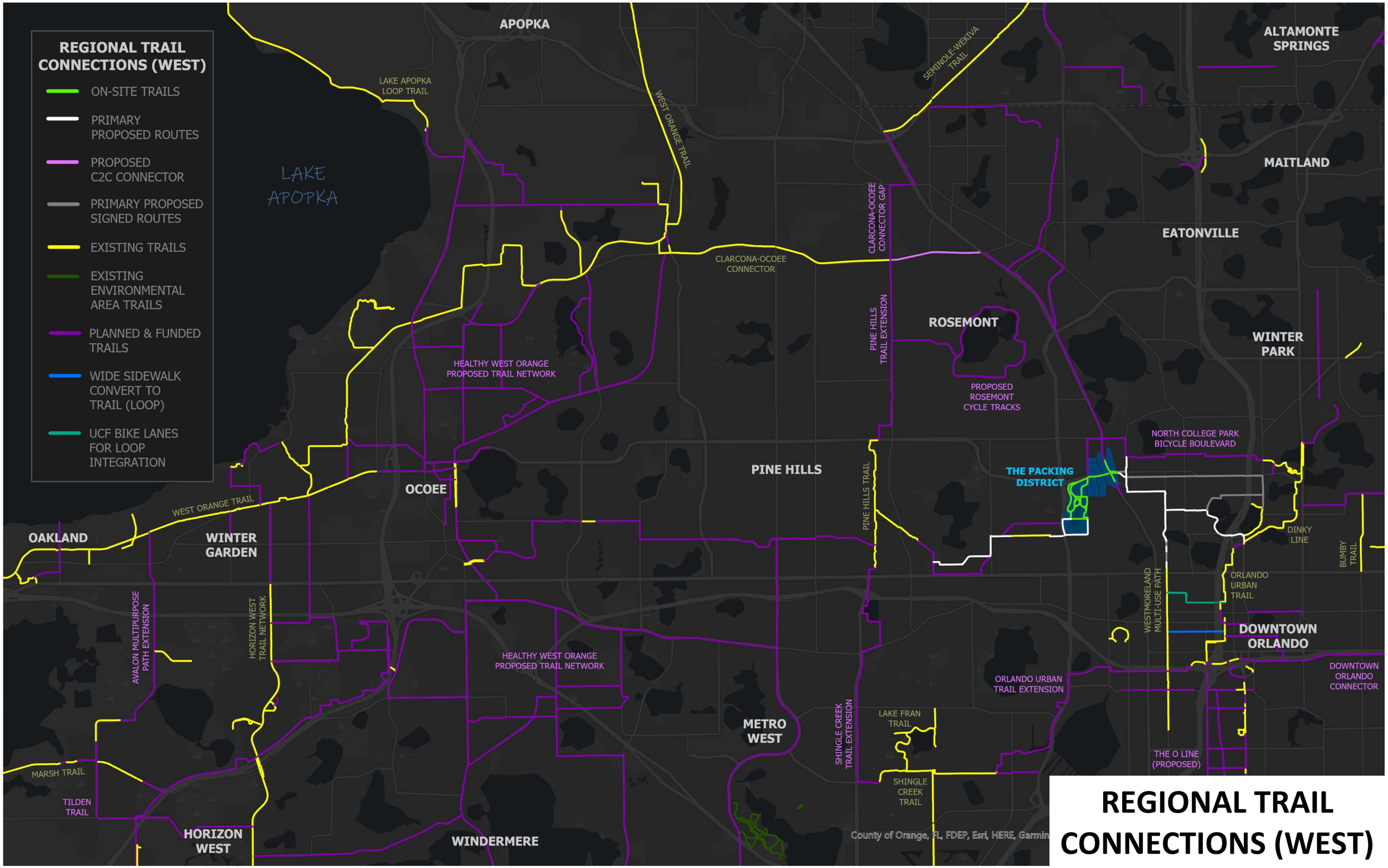
Regional Impacts by Direction

Connectivity to the East

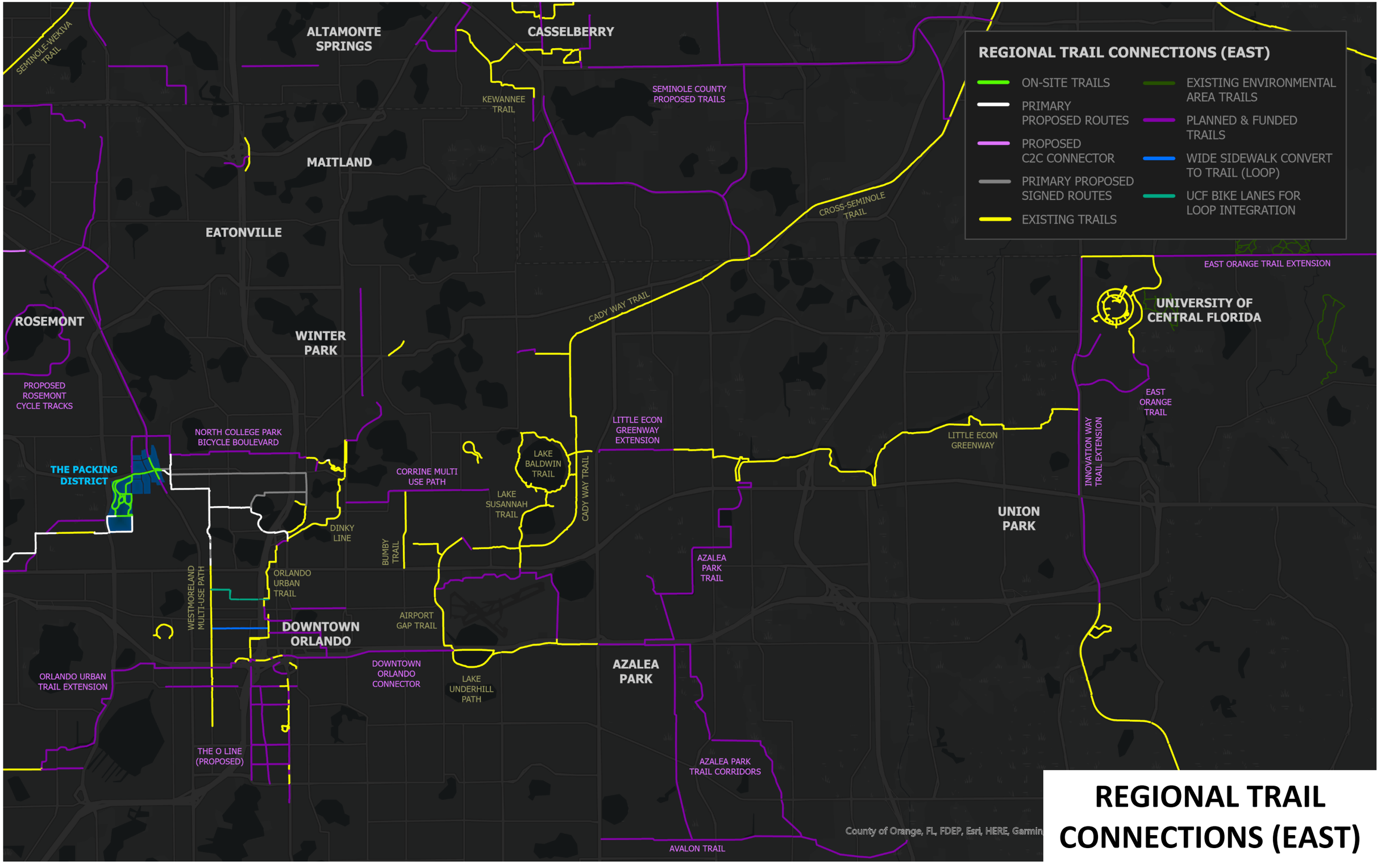
The proposed route that runs along Lake Ivanhoe connecting to the Orlando Urban Trail will allow for bike access to northwest Orange County and the University of Central Florida when the Little Econ Greenway extension, Downtown Connector extension and Corrine Drive Multi-Use Path are built.

Connectivity to the South

The connection to the Westmoreland Multi-Use Path ultimately connects to the Orlando Urban Trail extension near Clear Lake. This extension then connects to the Shingle Creek Trail, which runs through Orange County. Planned extensions of the Shingle Creek Trail corridor connect to Kissimmee.



REGIONAL TRAIL CONNECTIONS (WEST)



REGIONAL TRAIL CONNECTIONS (EAST)

Impact Analysis | Economic Points of Interest

This portion of the report analyzes the economic points of interest located in close proximity to the proposed “primary” trail network and Packing District site trails.

❖ Economic Points of Interest | Proximity Analysis

Adjacent to Primary Proposed Trails & Site Plan Trails

Name	Type	Business Address
4 Roots Farm	Interactive Farm	N. John Young Pkwy.
7 Eleven	Convenience Store	1500 W. Smith St.
7 Eleven	Convenience Store	1500 Edgewater Dr.
Ambassador Motel	Lodging	929 W. Colonial Dr.
Central Fla. Fairgrounds	Entertainment Venue	4603 W. Colonial Dr.
Dr. Phillips Juice Stand	Café	1625 W. Princeton St.
Packing District Food Hall	Restaurants (7)	2105 N. Orange Blossom Tr.
Publix Supermarket	Grocery Store	1625 W. Princeton St.

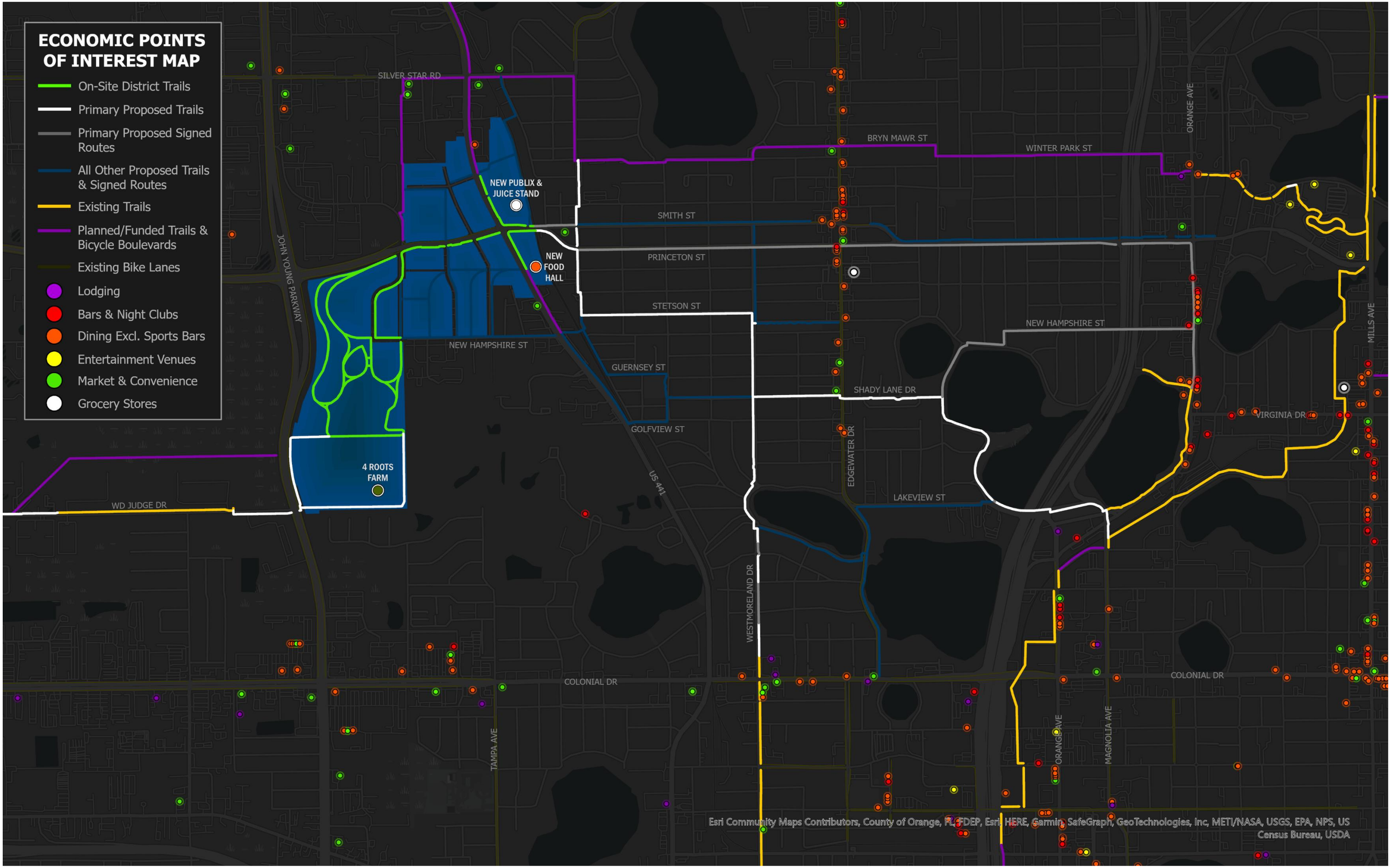
Within 2-Minute Walk of Primary Proposed Trails & Site Plan Trails

Name	Type	Business Address
7 Eleven	Convenience Store	938 W. Colonial Dr.
Café Perks	Café	2575 N. Orange Blossom Tr.
Café Xinh Xinh	Café	1015 W. Colonial Dr.
Dollar Tree	Market	1610 Edgewater Dr.
DoubleTree	Hotel	60 S. Ivanhoe Blvd.
Family Dollar	Market	918 W. Colonial Dr.
Gratitude Coffee	Café – Currently Closed	1305 Edgewater Dr.
Motel X Orlando	Motel	919 W. Colonial Dr.
Infusion Tea	Café	1600 Edgewater Dr.
Shakers American Café	Restaurant	1308 Edgewater Dr.
Sixty South Restaurant	Restaurant	60 S. Ivanhoe Blvd.
Sunoco	Convenience Store	1850 N. Orange Blossom Tr.

❖ Economic Points of Interest within Proximity Ranges of Primary Trail Network

Point Type	# Adjacent	# Within 2 Min. Walk	# Within 5 Min. Walk
Lodging	1	3	4
Bars & Clubs	0	1	7
Café & Dining	8	13	37
Entertainment	1	1	1
Market	2	5	15
Grocery	1	1	2

Dr. Phillips Juice Stand Rendering


ECONOMIC POINTS OF INTEREST MAP
On-Site District Trails
Primary Proposed Trails
Primary Proposed Signed Routes
All Other Proposed Trails & Signed Routes
Existing Trails
Planned/Funded Trails & Bicycle Boulevards
Existing Bike Lanes
Lodging
Bars & Night Clubs
Dining Excl. Sports Bars
Entertainment Venues
Market & Convenience
Grocery Stores
SILVER STAR RD
NEW PUBLIX & JUICE STAND
NEW FOOD HALL
JOHN YOUNG PARKWAY
BRYN MAWR ST
WINTER PARK ST
ORANGE AVE
SMITH ST
PRINCETON ST
STETSON ST
NEW HAMPSHIRE ST
GUERNSEY ST
SHADY LANE DR
GOLFVIEW ST
EDGEWATER DR
MILLS AVE
VIRGINIA DR
4 ROOTS FARM
WD JUDGE DR
US 441
LAKEVIEW ST
WESTMORELAND DR
COLONIAL DR
TAMPA AVE
ORANGE AVE
MAGNOLIA AVE
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Impact Analysis | Cultural Points of Interest

This portion of the report analyzes the cultural points of interest located in close proximity to the proposed "primary" trail network and Packing District site trails.

❖ Cultural Points of Interest | Proximity Analysis

Adjacent to Primary Proposed Trails & Site Plan Trails

Name	Type	Address
4 Roots Farm	Interactive Farm	N. John Young Pkwy.
Barnett Park	Park	4801 W. Colonial Dr.
Dartmouth Park	Park	822 Dartmouth St.
Dr. Phillips Juice Stand Plaza	Park (Plaza)	1625 W. Princeton St.
Ivanhoe Plaza Park	Park	510 Shady Lane Dr.
Lake Adair Park	Park	995 Lake Adair Blvd.
Lake Ivanhoe Park	Park	57 S. Ivanhoe Blvd.
Lake Silver Elementary	School	2401 N. Rio Grande Ave.
Northwest Neighborhood Ctr.	Community Center	3955 WD Judge Dr.
Packing District Reg. Park	Park	N. John Young Pkwy.
Packing District Tennis Center	Park	N. John Young Pkwy.
Senator Beth Johnson Park	Park	59 S. Ivanhoe Blvd.
Williams Family YMCA	YMCA	N. John Young Pkwy.

Major Destinations Adjacent to Loop Network

Name	Type	Address
Gaston Edwards Park	Park	1236 N. Orange Ave.
Lake Highland Park	Park	1132 Ferris Ave.
Loch Haven Park	Park	777 E. Princeton St.
Exploria Stadium	Soccer Stadium	655 W. Church St.
Orlando Museum of Art	Museum	2416 N. Mills Ave.
Orlando Science Center	Museum	777 E. Princeton St.
The Mennello Museum of Art	Museum	900 E. Princeton St.

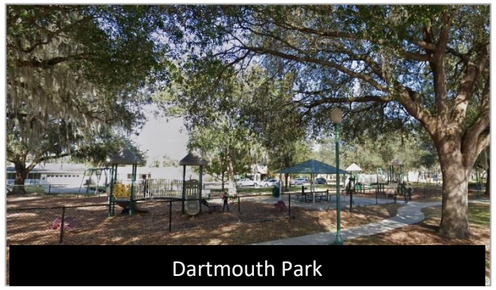
❖ Proposed Trailheads (Landing Spots)

It is recommended that parks located adjacent to the primary proposed route be utilized as trailheads. This can occur by placing bicycle racks, trailhead signage and other amenities at the locations depicted below.

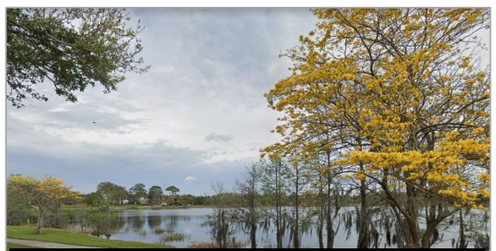

Barnett Park


Packing District Regional Park

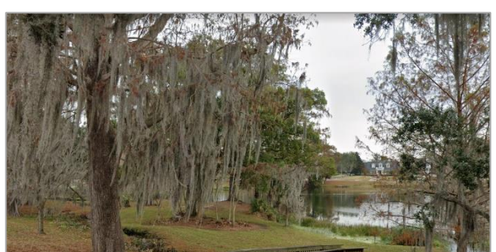

Dr. Phillips Juice Stand Plaza


Dartmouth Park


Ivanhoe Plaza Park


Lake Ivanhoe Park


Senator Beth Johnson Park


Lake Adair Park

CULTURAL POINTS OF INTEREST MAP

- On-Site District Trails
- Primary Proposed Trails
- Primary Proposed Signed Routes
- All Other Proposed Trails & Signed Routes
- Existing Trails
- Planned/Funded Trails & Bicycle Boulevards
- Existing Bike Lanes
- Cultural Centers

Note: The bike lanes traversing through the UCF downtown campus run adjacent to Luminary Green and the future Under-I Park.

Impact Analysis | Population Access

This section includes an analysis that models the approximate number of residents within specified walking distances of the proposed primary trail system. The maps depict the 5-minute walk zone (1/4 mile) as well as the residential parcels within specified distances of the proposed trail network.

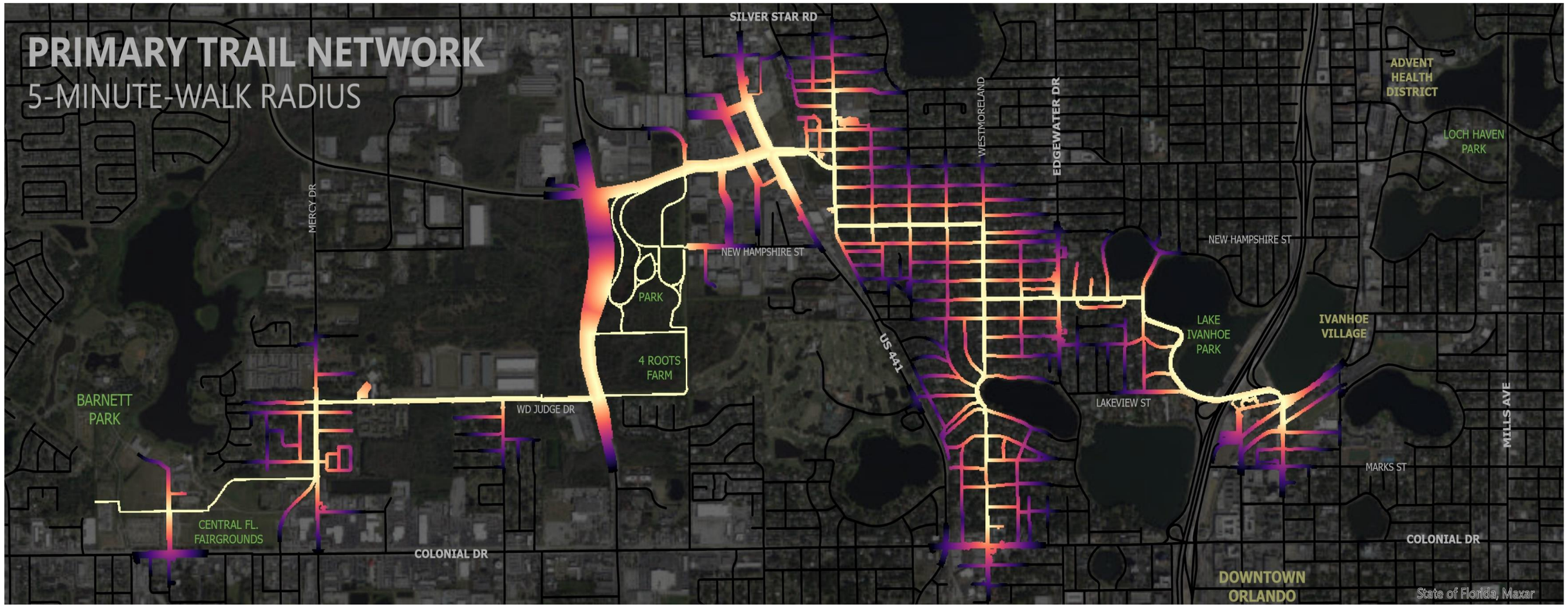
Over the long term, the primary proposed trail system is designed to link to existing and proposed trails (by the City of Orlando, Orange County, and others) as well as to statewide trail systems including the Coast-to-Coast Trail. The population access analysis quantifies the number of people who would be connected to the statewide system if the primary proposed network is built.

❖ Primary Proposed Trail Access

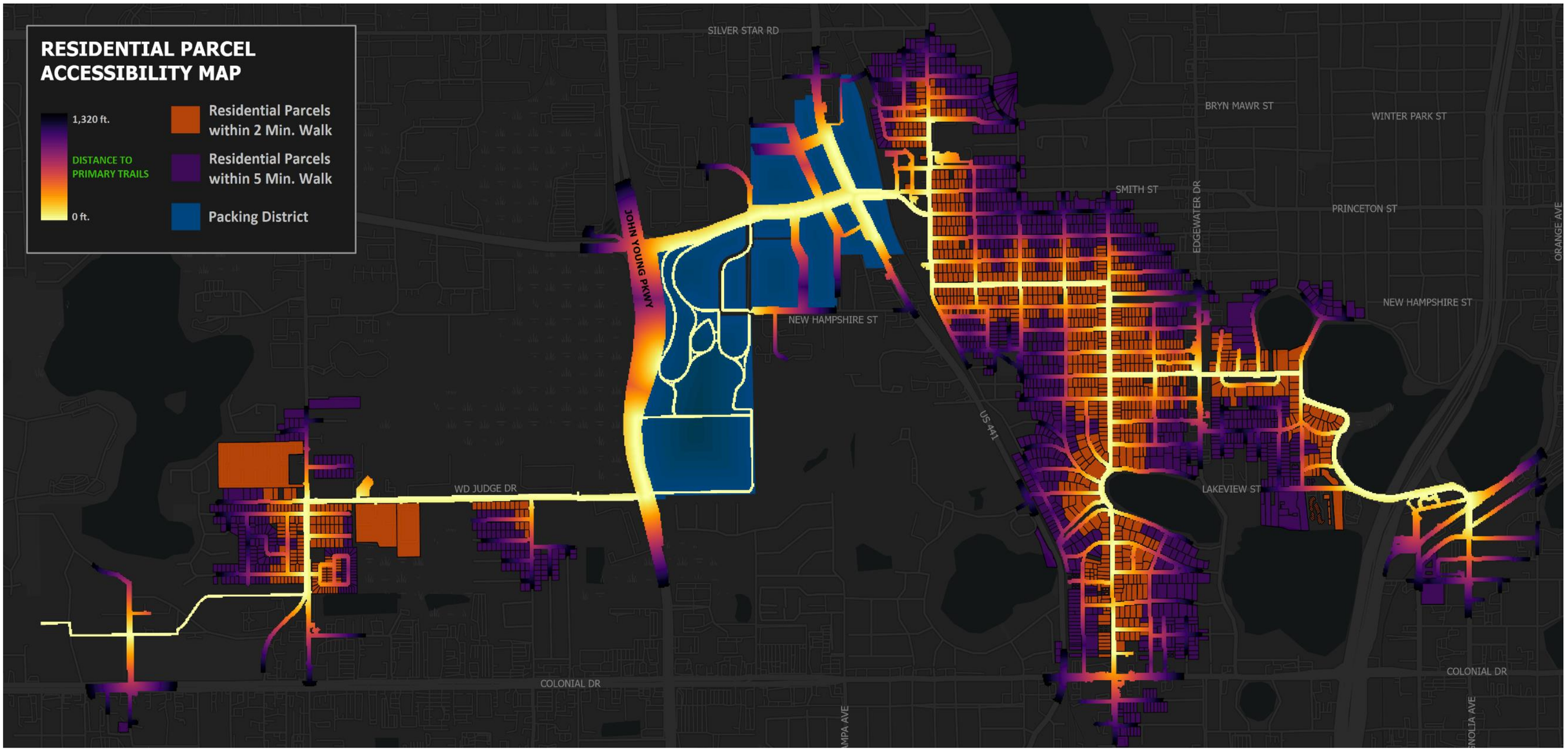
Population Within Walking Distances of Primary Proposed Trails

Distance	Packing Dist.	Off-Site	Total
0-2-Minute Walk	4,174	4,603	**8,777**
2-5-Minute Walk	4,174	10,756	**14,930**

* Includes five planned Packing District Developments included in Section II
* Assumes 2.87 persons per household off-site (U.S. Census 2020, Orange Co.)
* Utilized Orange Co. Property Appraiser D.O.R. code information



RESIDENTIAL PARCEL ACCESSIBILITY MAP



4,174
On-site population within a 5-minute-walk of the primary trail routes

10,756
Off-site population within a 5-minute-walk of the primary trail routes

31.4%
Percent of units within 5 minutes of priority trail routes are multi-family

14,930
Total population within a 5-minute-walk of the primary trail routes

VIII. Wayfinding Plan

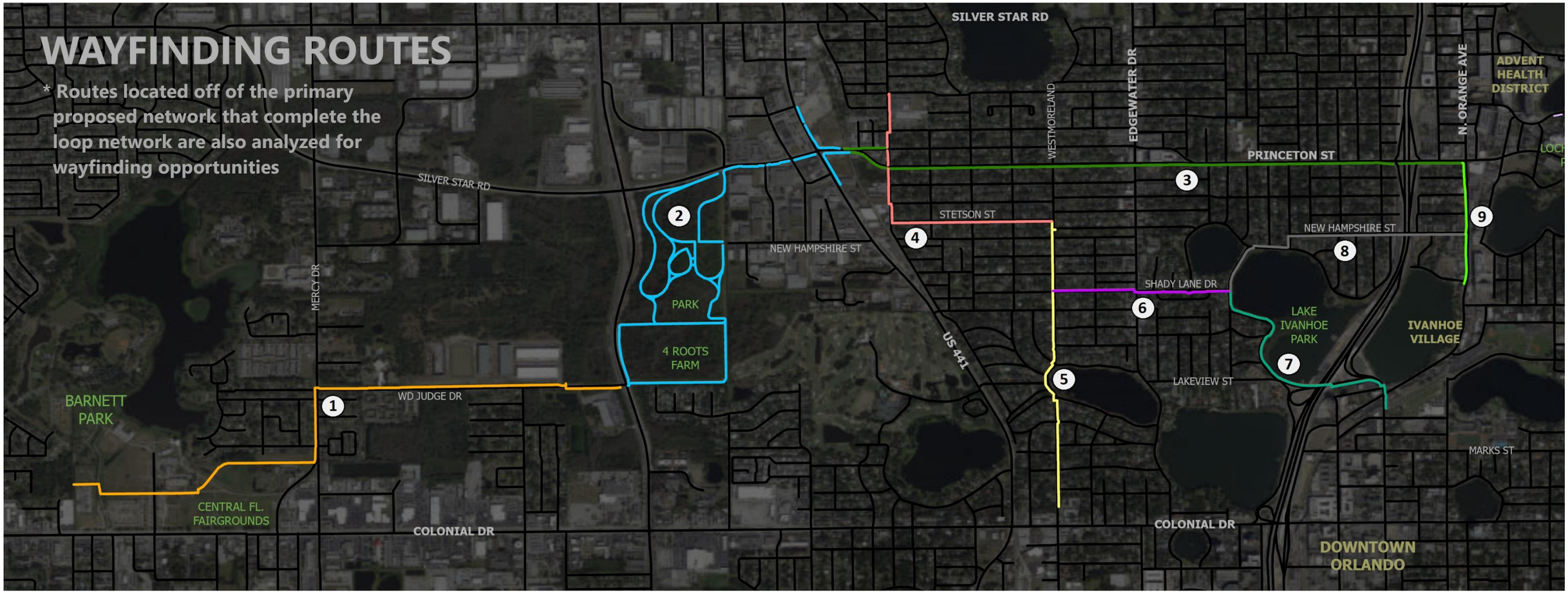
This section of the report provides a signage plan to enhance wayfinding for users of the primary proposed trail and signed route network.

The signage proposed includes directional-and-distance signage to activity centers, network signage for trail users, and other miscellaneous sign types. Signage is analyzed on a corridor-by-corridor basis for the primary corridors listed to the right.

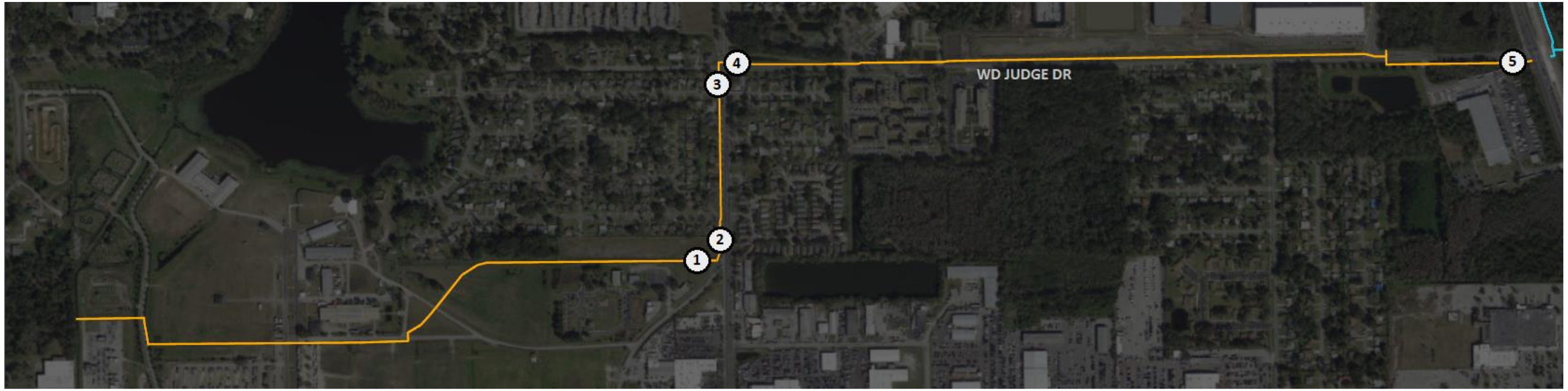
PRIMARY PROPOSED ROUTES

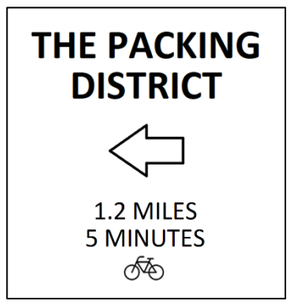
1. Barnett Park Trail & W.D. Judge Drive Trail
2. Packing District (On-Site)
3. Princeton Street Gateway (Signed Route)
4. Rio Grande Avenue Trail & Stetson Street Trail
5. Westmoreland Drive Multi-Use Path Extension
6. Shady Lane Trail
7. Ivanhoe Boulevard & Poinsettia Avenue Trail
8. Poinsettia, Ivanhoe, Gerda, New Hampshire Signed Route
9. Orange Avenue Signed Route

** Signage depicted in this section is for informational purposes only. Final signage will be themed as decided by project stakeholders.



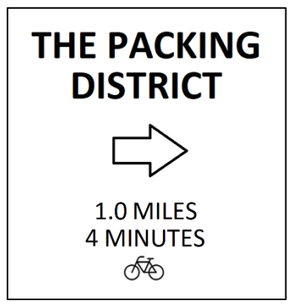
Wayfinding | Barnett Park Trail & W.D. Judge Drive Trail





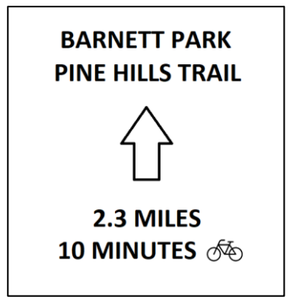
Sign #1
Eastbound

Sign #2
Southbound

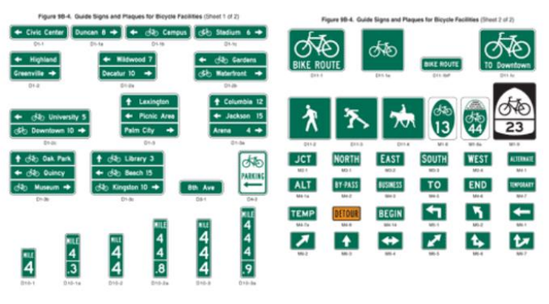


Sign #3
Northbound

Sign #4
Westbound



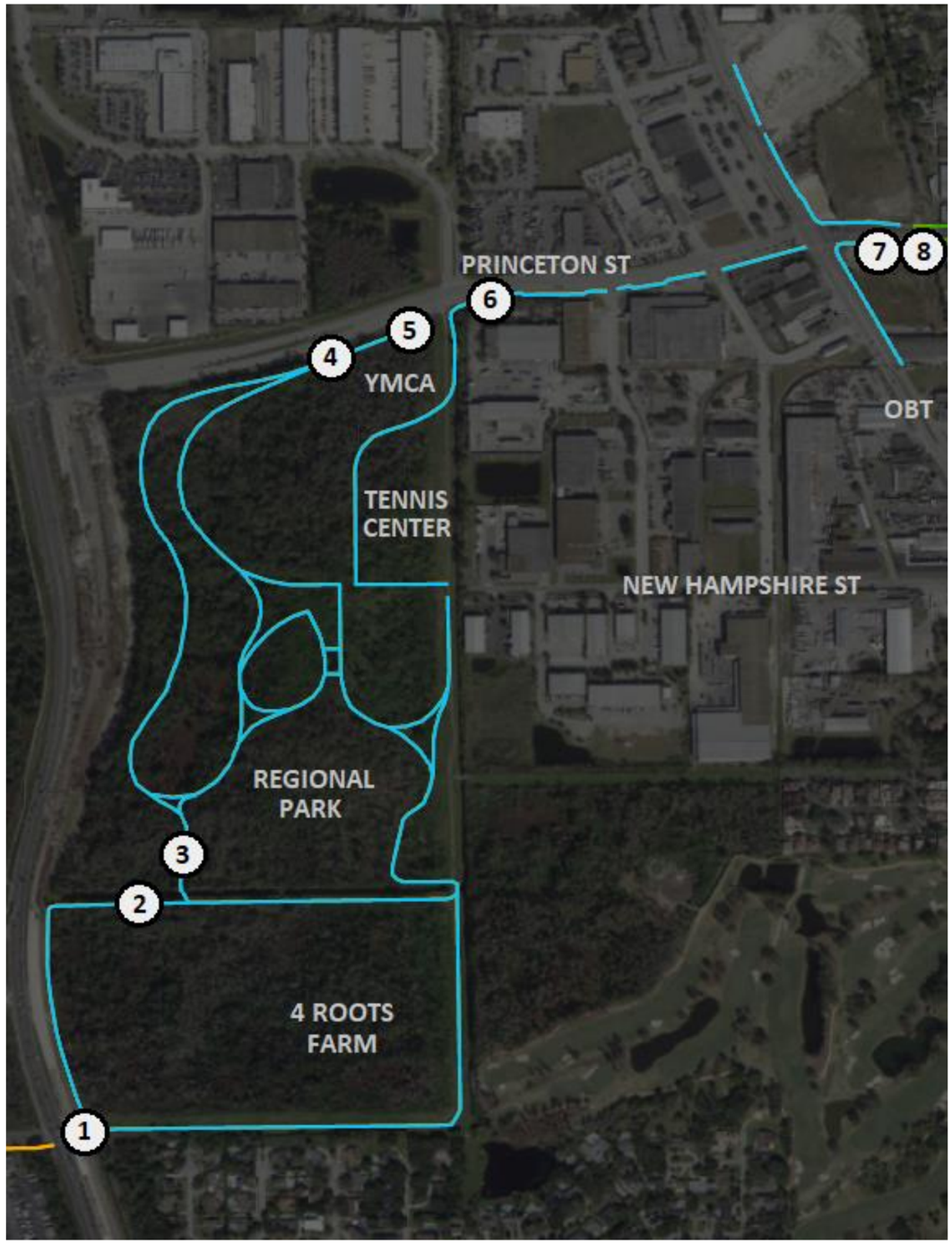
Sign #5
Westbound



MUTCD Signage Note

The signage depicted in this section of the report is intended to show direction, mileage and biking travel time to the destinations located on each sign. The signage is not intended to depict the specific design of each sign. See MUTCD guidelines for more information.

Wayfinding | Packing District (On-Site)



Sign #1
Eastbound

4 ROOTS FARM
0.2 MILES
1 MINUTE

PARKS, YMCA, TRAIL NETWORK

Sign #2
Eastbound

YMCA, TRAIL NETWORK

0.9 MILES
4 MINUTES

Sign #3
Southbound

BARNETT PARK
PINE HILLS TRAIL

2.7 MILES
11 MINUTES

Sign #4
Westbound

BARNETT PARK
PINE HILLS TRAIL

3.7 MILES
15 MINUTES

Sign #5
Eastbound

DISTRICT CENTER, TRAIL NETWORK

0.3 MILES
1 MINUTE

Sign #6
Westbound

TRAIL NETWORK
TO BARNETT PARK, PINE HILLS TRAIL

PARKS, TENNIS CENTER

Sign #7
Eastbound

TRAIL NETWORK
TO HEALTH DISTRICT, DOWNTOWN

HEALTH DISTRICT
3.7 MILES SIGNED ROUTE

Sign #8
Westbound

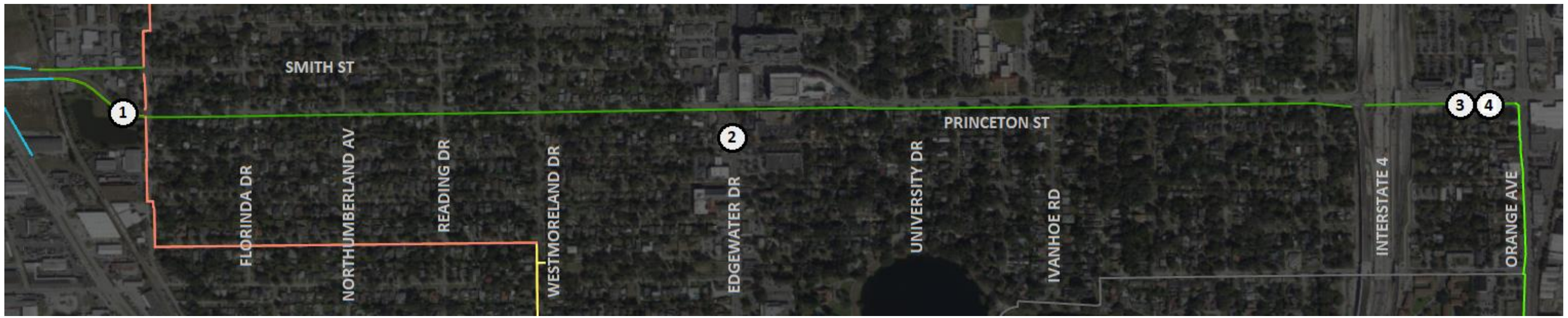
TRAIL NETWORK

TO YMCA
BARNETT PARK,
PINE HILLS TRAIL

On-Site Signage

Signage to the 4 Roots Farm, Tennis Center, and other district points of interest should be placed separately and in addition to the trail-specific signage shown on this page.

Wayfinding | **Princeton Street Gateway** (Signed Route with Bike Lanes)



Sign #1
Eastbound

TRAIL NETWORK

CREATIVE VILLAGE 2.5 MILES

CYCLE TRACK 0.3 MILES

EDGEWATER DRIVE
0.75 MILES

HEALTH DISTRICT
2.0 MILES

Sign #2
Northbound

PACKING DISTRICT
1.0 MILES
SIGNED ROUTE

HEALTH DISTRICT
1.2 MILES
SIGNED ROUTE

Sign #3
Eastbound

IVANHOE VILLAGE
0.5 MILES
SIGNED ROUTE

HEALTH DISTRICT
0.2 MILES
SIGNED ROUTE

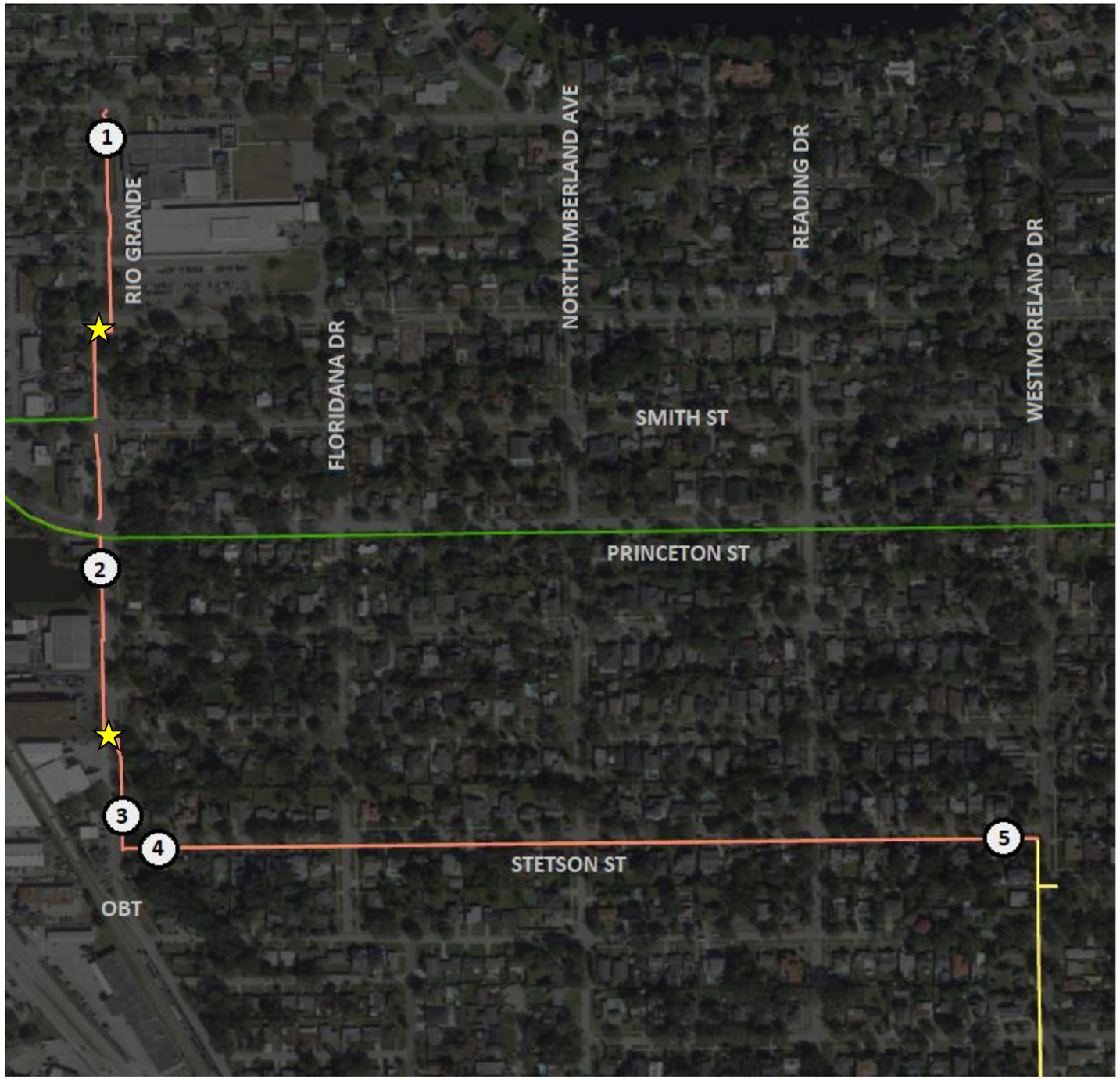
Sign #4
Westbound

EDGEWATER DRIVE
1.0 MILES

THE PACKING DISTRICT
1.75 MILES

Packing District
Over-Road Gateway

Wayfinding | Rio Grande Avenue Trail & Stetson Street Trail



Sign #1
Northbound

HEALTH DISTRICT, LOCH HAVEN PARK

2.0 MILES
8 MINUTES

Sign #2
Northbound

PACKING DISTRICT	HEALTH DISTRICT
0.15 MILES 1 MINUTE	2.3 MILES 10 MINUTES

Sign #3
Southbound

IVANHOE VILLAGE DISTRICT	UCF & CREATIVE VILLAGE
2.1 MILES 9 MINUTES	2.3 MILES 10 MINUTES

Sign #4
Westbound

THE PACKING DISTRICT

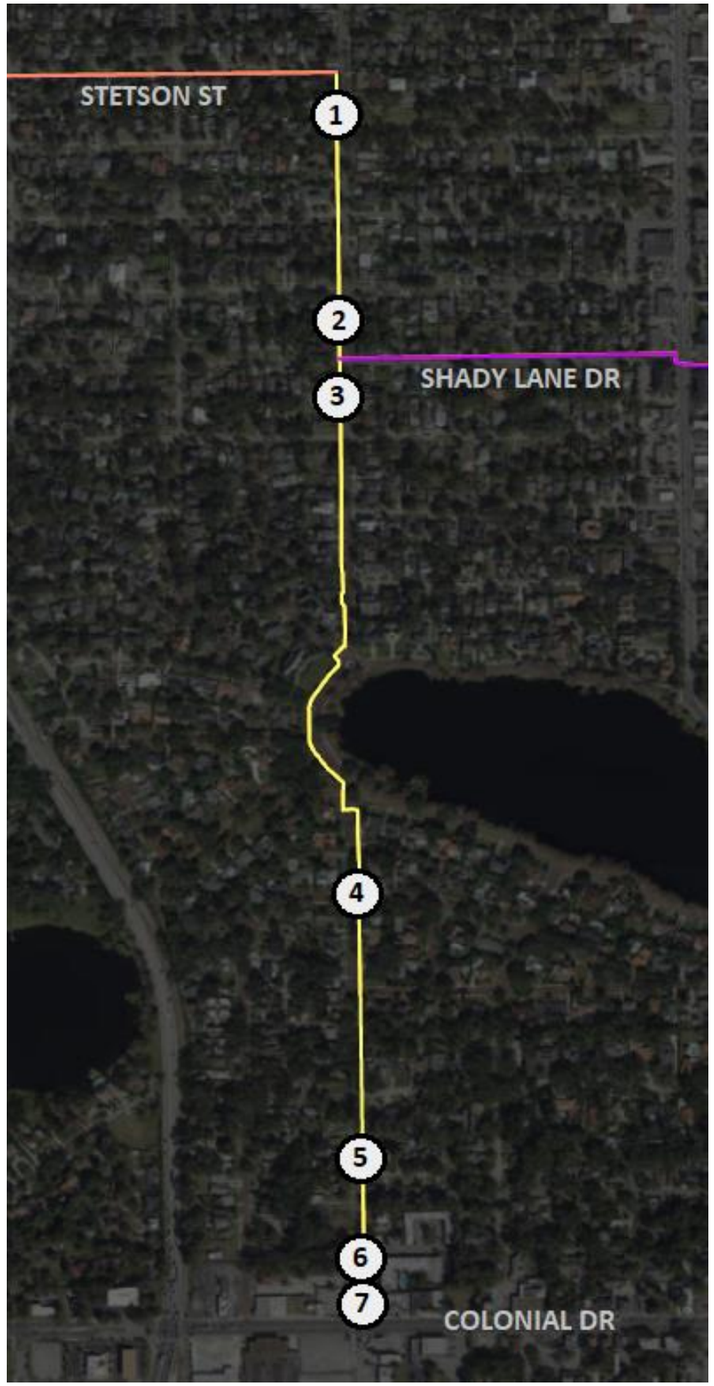
0.5 MILES
2 MINUTES

Sign #5
Eastbound

IVANHOE VILLAGE DISTRICT	UCF & CREATIVE VILLAGE
1.6 MILES 6 MINUTES	1.8 MILES 7 MINUTES

Directional Trail
Crossing Sign

Wayfinding | Westmoreland Drive Multi-Use Path Extension



Sign #1
Northbound

THE PACKING DISTRICT

1.0 MILES
4 MINUTES

Sign #2
Southbound

IVANHOE VILLAGE DISTRICT
1.35 MILES
5-6 MINUTES

UCF & CREATIVE VILLAGE
1.55 MILES
6-7 MINUTES

Sign #3
Northbound

IVANHOE VILLAGE DISTRICT
1.35 MILES
5-6 MINUTES

THE PACKING DISTRICT
1.2 MILES
5 MINUTES

Sign #4
Southbound

CAUTION

TRAIL NARROWS AHEAD

Sign #5
Northbound

CAUTION

TRAIL NARROWS AHEAD

Sign #6
Southbound

CENTRAL BUSINESS DISTRICT
2.3 MILES
10 MINUTES

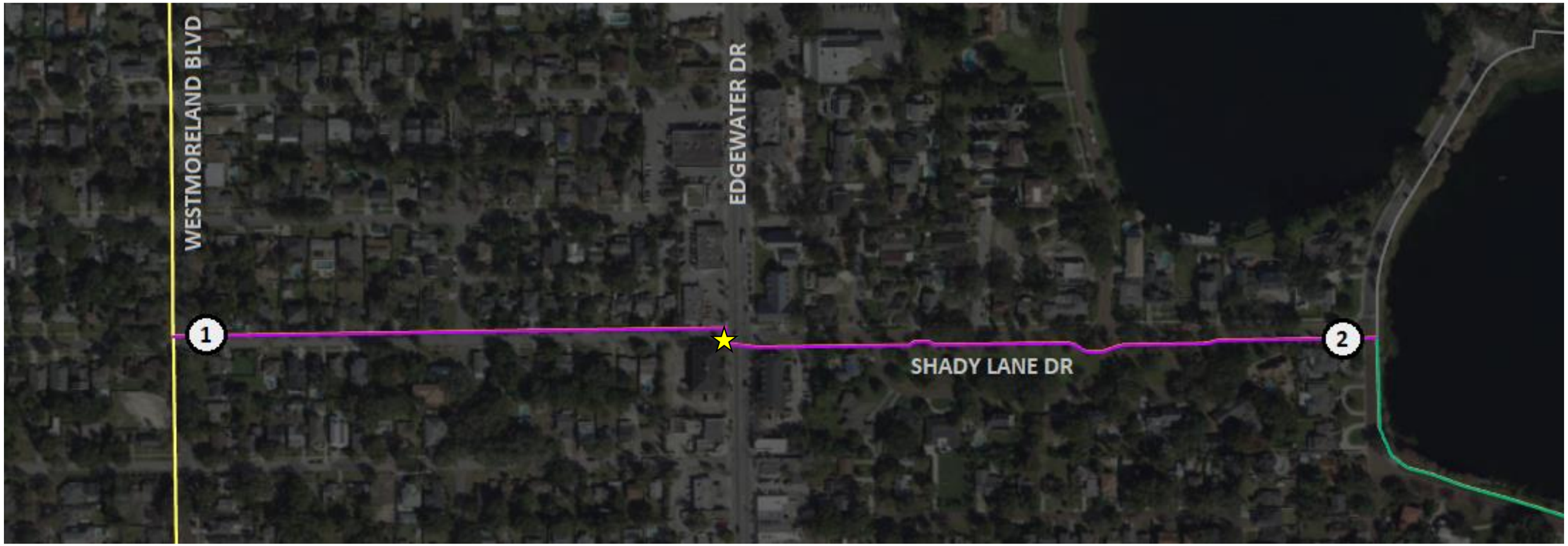
UCF & CREATIVE VILLAGE
0.8 MILES
3-4 MINUTES

Sign #7
Northbound

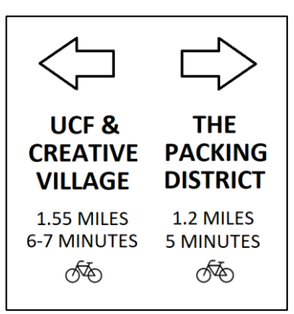
THE PACKING DISTRICT

2.0 MILES
8 MINUTES

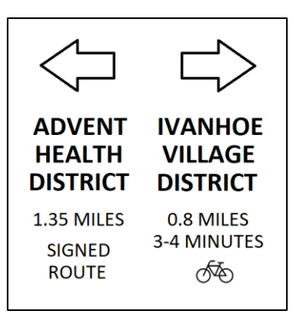
Wayfinding | Shady Lane Trail



Sign #1
Westbound



Sign #2
Eastbound



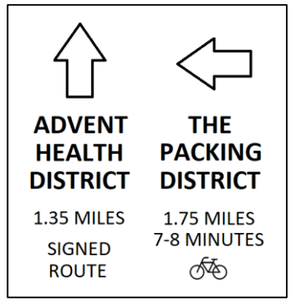
Directional Trail
Crossing Sign

Shady Lane Drive &
Edgewater Drive Intersection

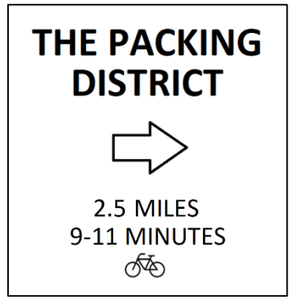
Consider adding a pedestrian hybrid beacon

Wayfinding | Ivanhoe Boulevard & Poinsettia Avenue Trail

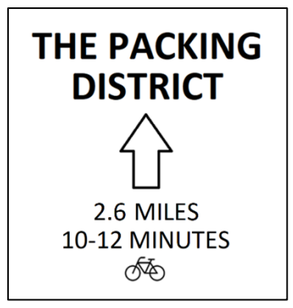
Sign #1
Northbound



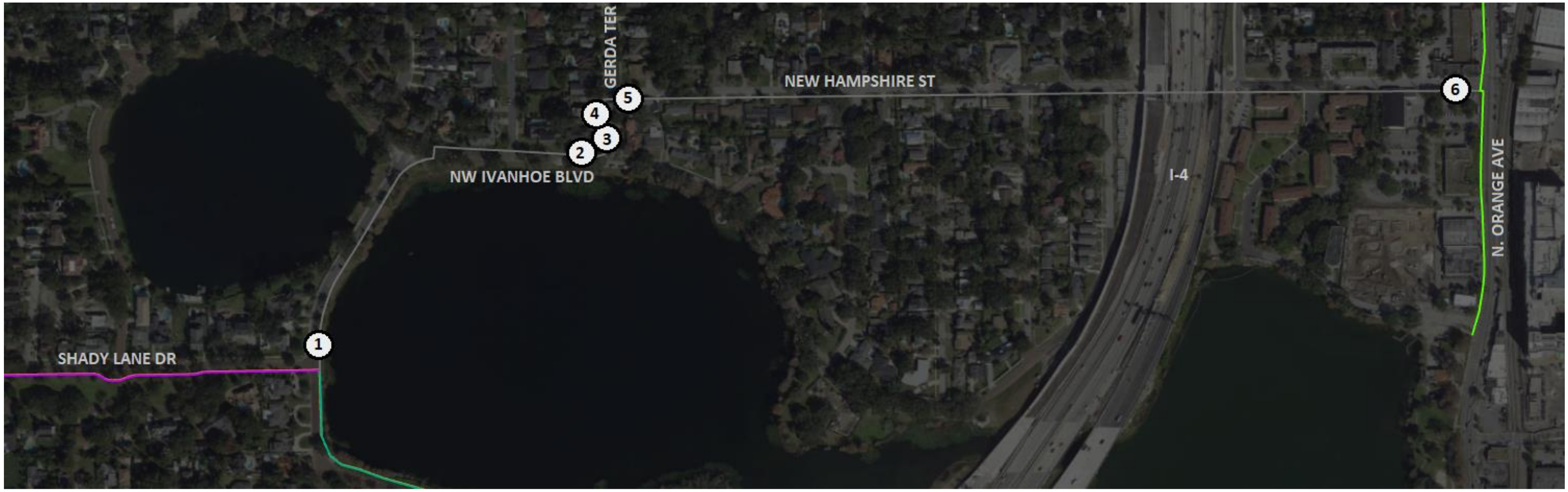
Signs #2 and #3
Westbound (2)



Sign #4
Northbound



Wayfinding | Poinsettia, Ivanhoe, Gerda & New Hampshire Route



Sign #1
Southbound

IVANHOE VILLAGE DISTRICT
0.8 MILES
3-4 MINUTES

THE PACKING DISTRICT
1.75 MILES
7-8 MINUTES

Sign #2
Eastbound

HEALTH DISTRICT, LOCH HAVEN PARK
1.1 MILES
4-5 MINUTES

Sign #3
Southbound

THE PACKING DISTRICT
2.0 MILES
8-9 MINUTES

Sign #4
Northbound

HEALTH DISTRICT, LOCH HAVEN PARK
1.0 MILES
4 MINUTES

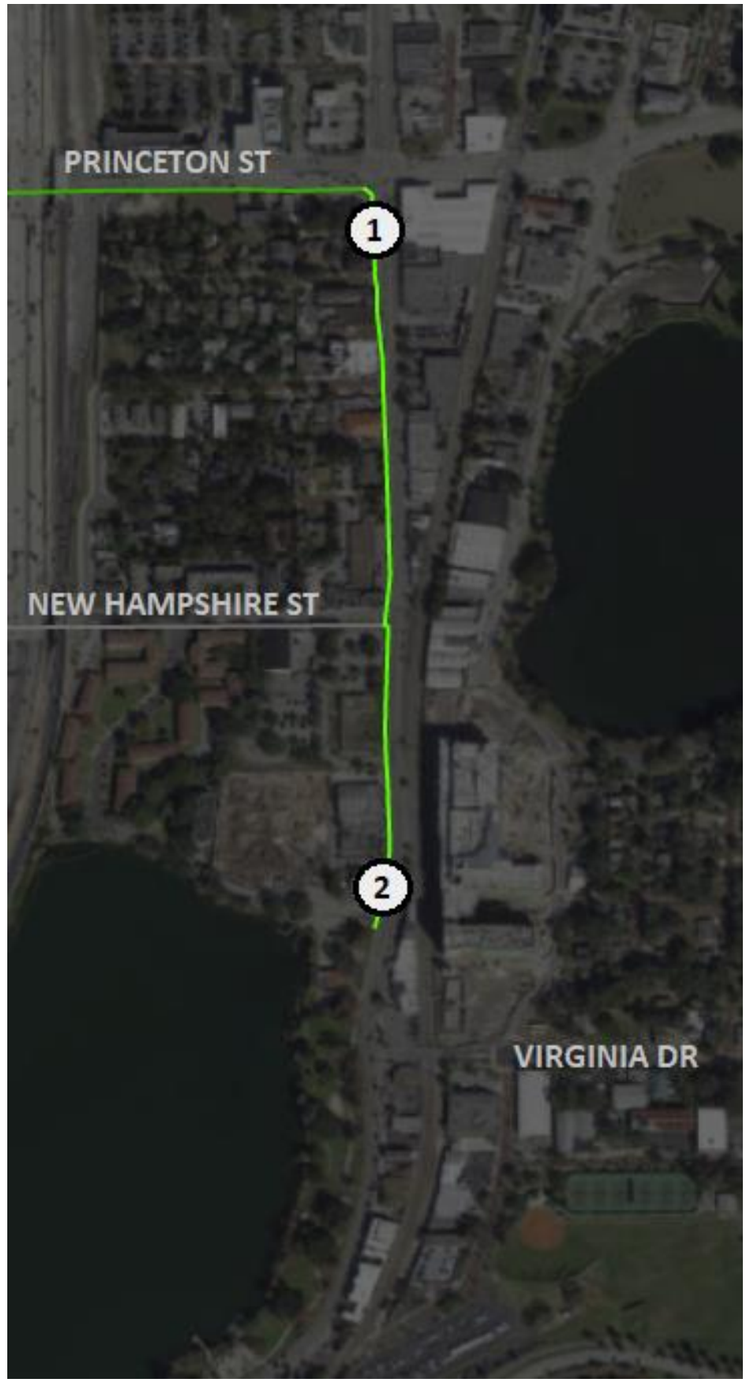
Sign #5
Westbound

THE PACKING DISTRICT
2.0 MILES
8-9 MINUTES

Sign #6
Eastbound

HEALTH DISTRICT, LOCH HAVEN PARK
0.5 MILES
2 MINUTES

Wayfinding | Orange Avenue Signed Route



Sign #1
Southbound

IVANHOE VILLAGE DISTRICT

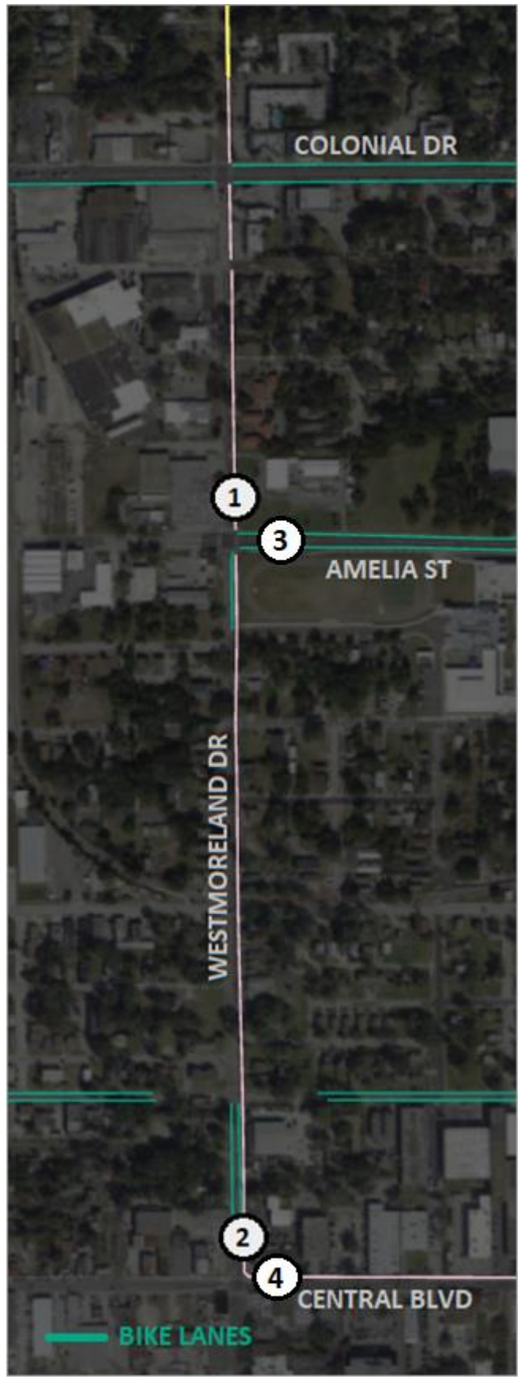
0.65 MILES
3 MINUTES

Sign #2
Northbound

HEALTH DISTRICT, LOCH HAVEN PARK

0.65 MILES
3 MINUTES

Wayfinding | Westmoreland to UCF and Downtown



Sign #1
Southbound

UCF & CREATIVE VILLAGE

0.25 MILES
1-2 MINUTES

Sign #2
Southbound

DOWNTOWN ORLANDO

0.75 MILES
3-4 MINUTES

Sign 3
Westbound

THE PACKING DISTRICT

2.6 MILES
9-11 MINUTES

Sign 4
Westbound

THE PACKING DISTRICT

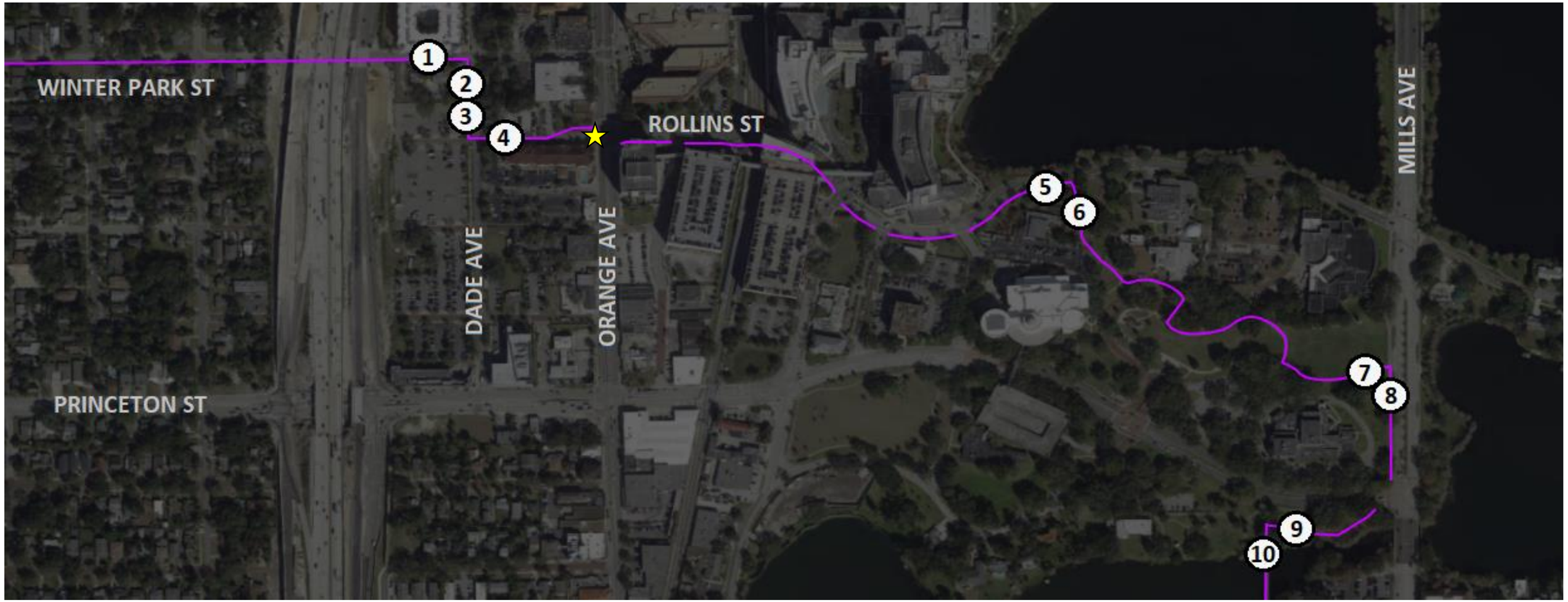
2.8 MILES
10-12 MINUTES

Wayfinding | **UCF Bike Lanes** (Loop Route)

Signs 2, 3, 5

Signs 1, 4, 6

Wayfinding | **Loch Haven Park to Bicycle Boulevard** (Loop Route)



Signs 2, 3, 6, 8, 9

BIKING LOOP ROUTE CONTINUES

Signs 1, 4, 5, 7, 10

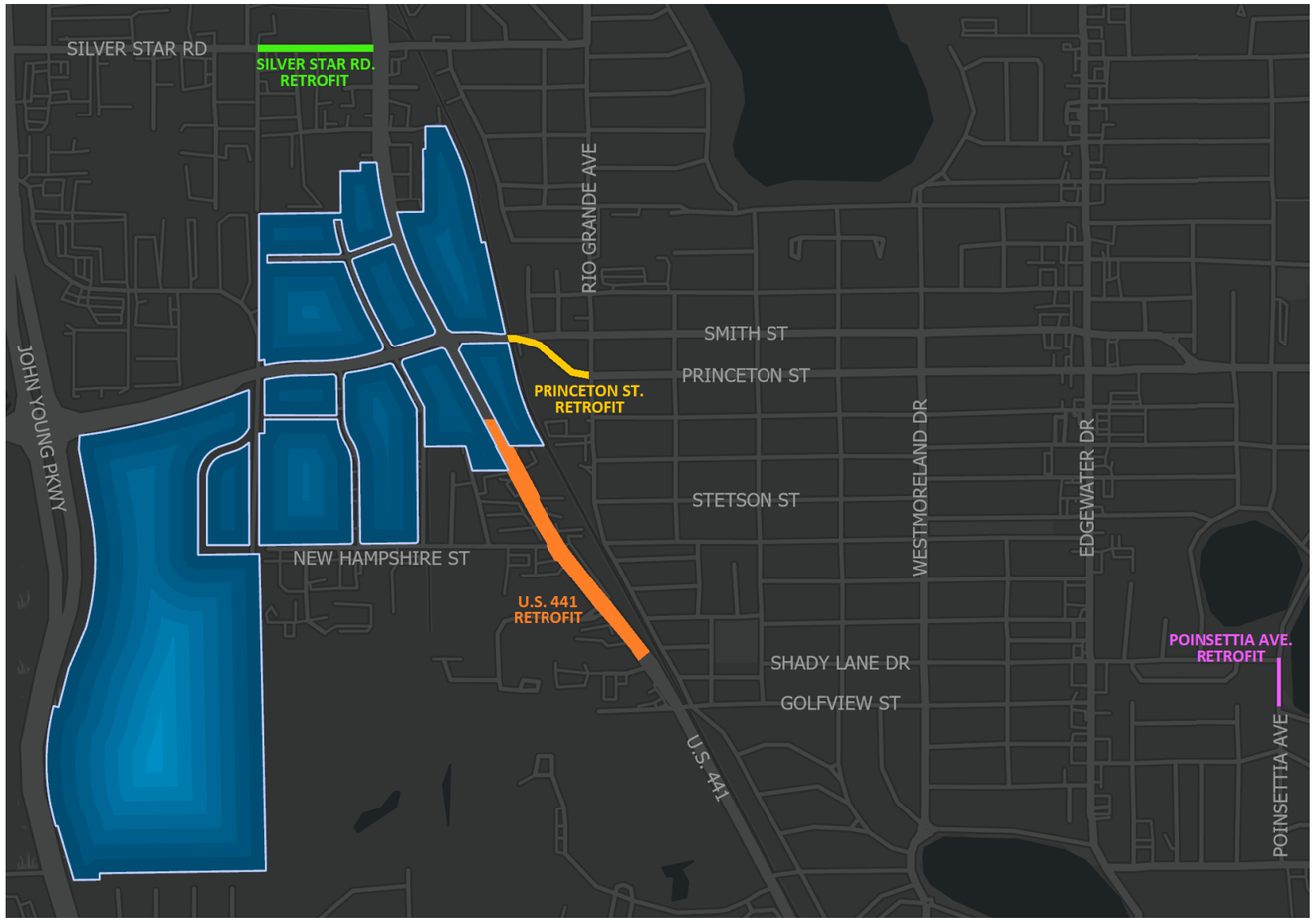
BIKING LOOP ROUTE CONTINUES

Directional Trail Crossing Sign (Rollins St.)

IX. Preliminary Roadway Designs

Four design projects have been identified that would enhance the walking and biking experience along the primary, secondary and visionary networks identified in this report. This section provides section-renderings of each project.

Rendering: 10-foot-wide trail along Poinsettia Avenue



❖ Princeton Street Retrofit

Project Type: Roadway Retrofit
Potential Action: Combine existing bicycle lane and sidewalk; plant trees
Purpose: Allow for trail extension from The Packing District along Princeton St.
Network Priority Tier: Primary

❖ Poinsettia Avenue Retrofit

Project Type: Roadway Retrofit
Potential Action: Reduce roadway width to 25 feet (from 28 feet); widen sidewalk
Purpose: Provides a 10-foot-wide walking and biking route along Lake Ivanhoe
Network Priority Tier: Primary

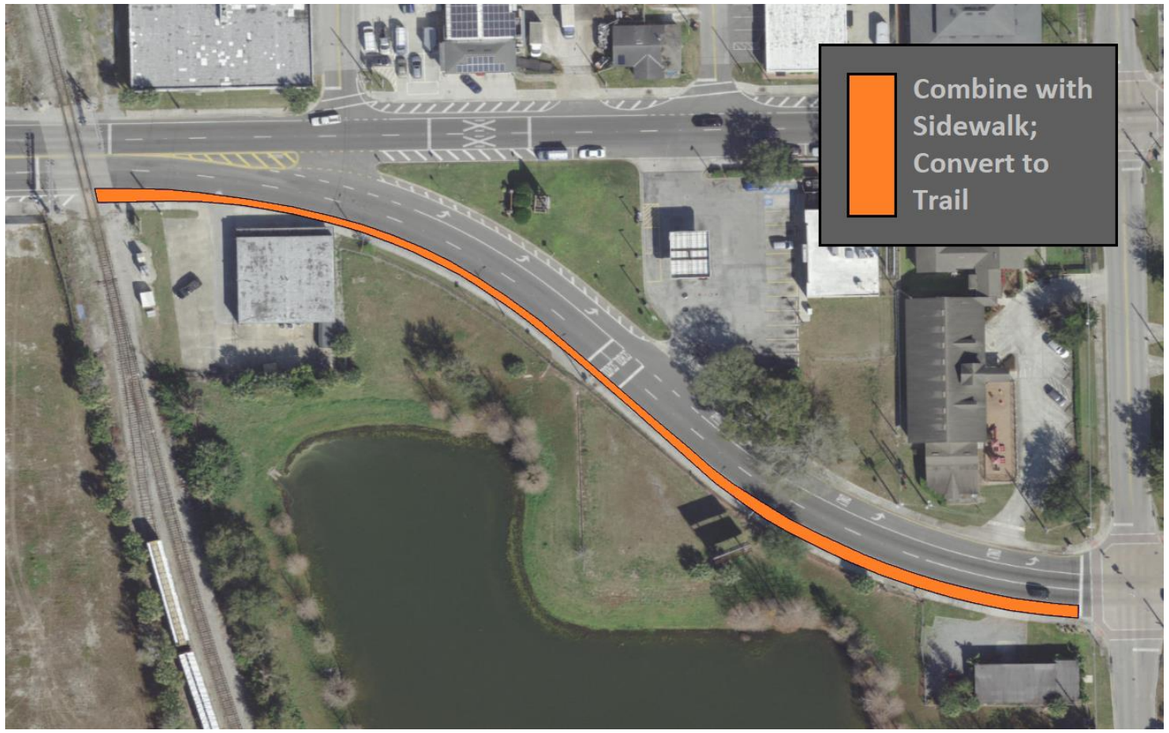
❖ U.S. 441 Retrofit

Project Type: Roadway Retrofit
Potential Action: Remove paved shoulders, widen sidewalk
Purpose: Traffic calming; increased right-of-way availability for wide sidewalks
Network Priority Tier: Secondary

❖ Silver Star Road Retrofit

Project Type: Roadway Retrofit
Potential Action: Reduce lane widths from 12 feet to 10 feet; widen sidewalks
Purpose: Increase usable right-of-way; conform to Context Class standards
Network Priority Tier: Visionary

Preliminary Road Alteration | Princeton Street Retrofit



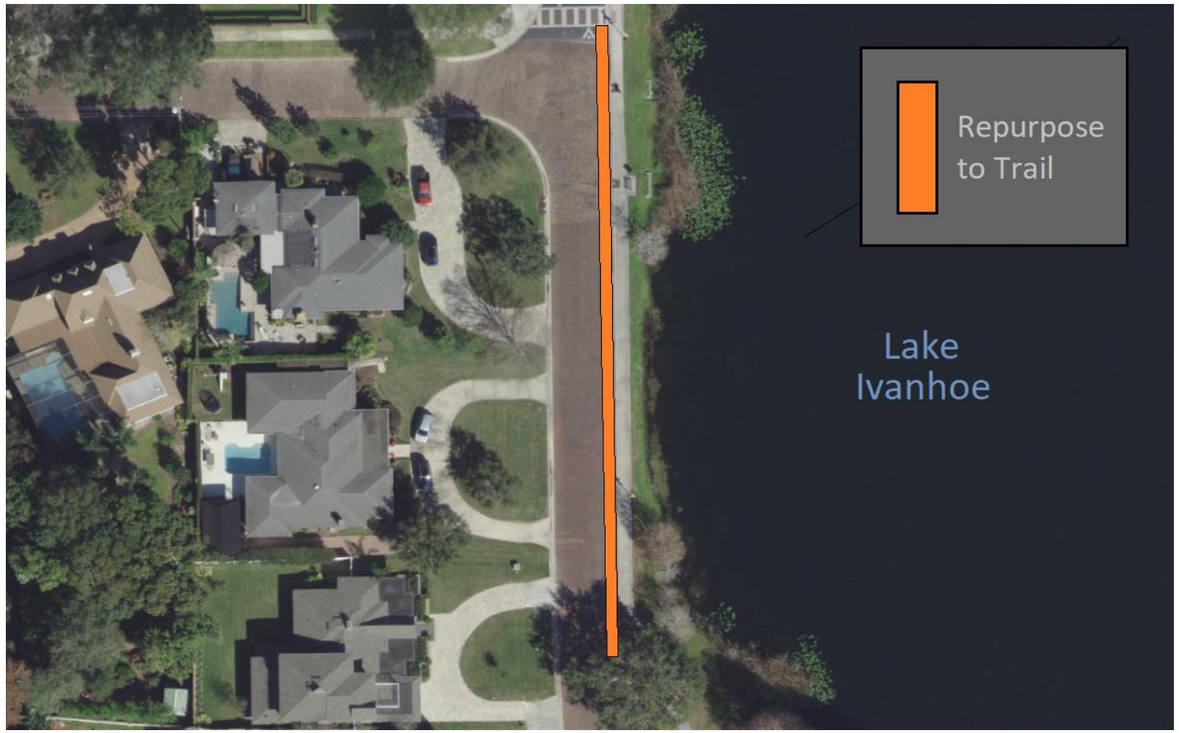
Project Details

From: Florida Central Railroad Tracks
To: Rio Grande Avenue

Status: Not Funded (Pre-Design Phase)

RENDERING

Preliminary Road Alteration | Poinsettia Avenue Retrofit



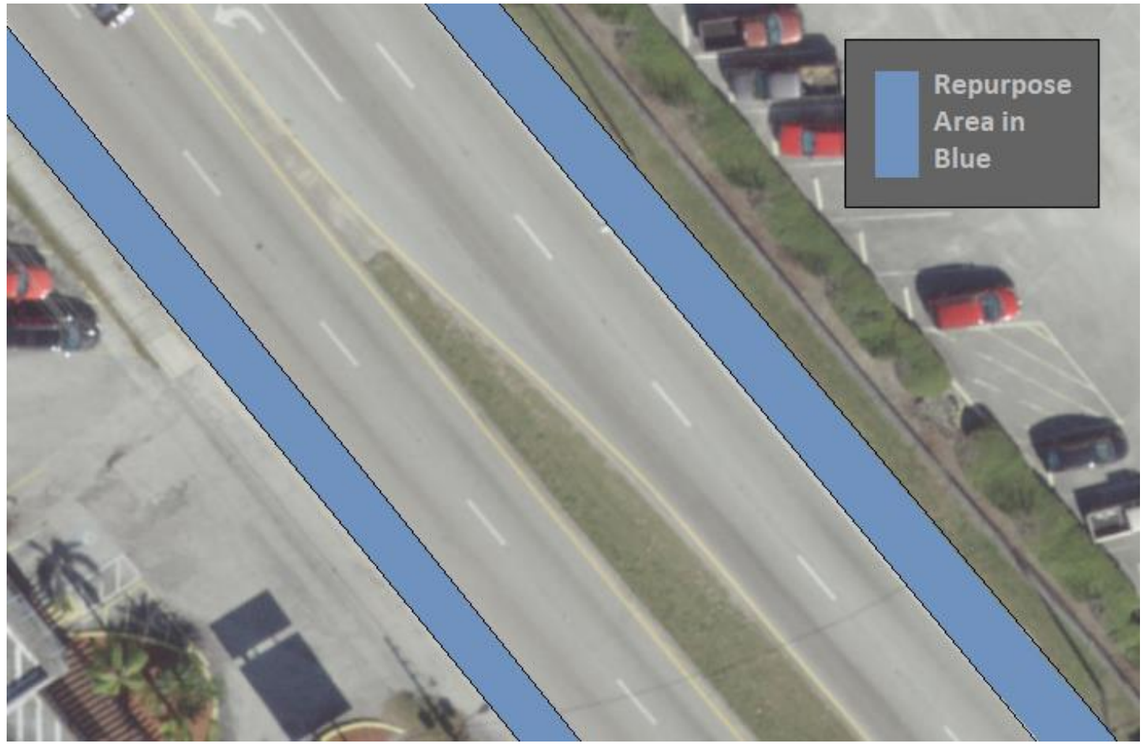
Project Details

From: Shady Lane Drive
To: Slightly North of West Ivanhoe Boulevard

Status: Not Funded (Pre-Design Phase)


RENDERING

Preliminary Road Alteration | U.S. 441 Retrofit

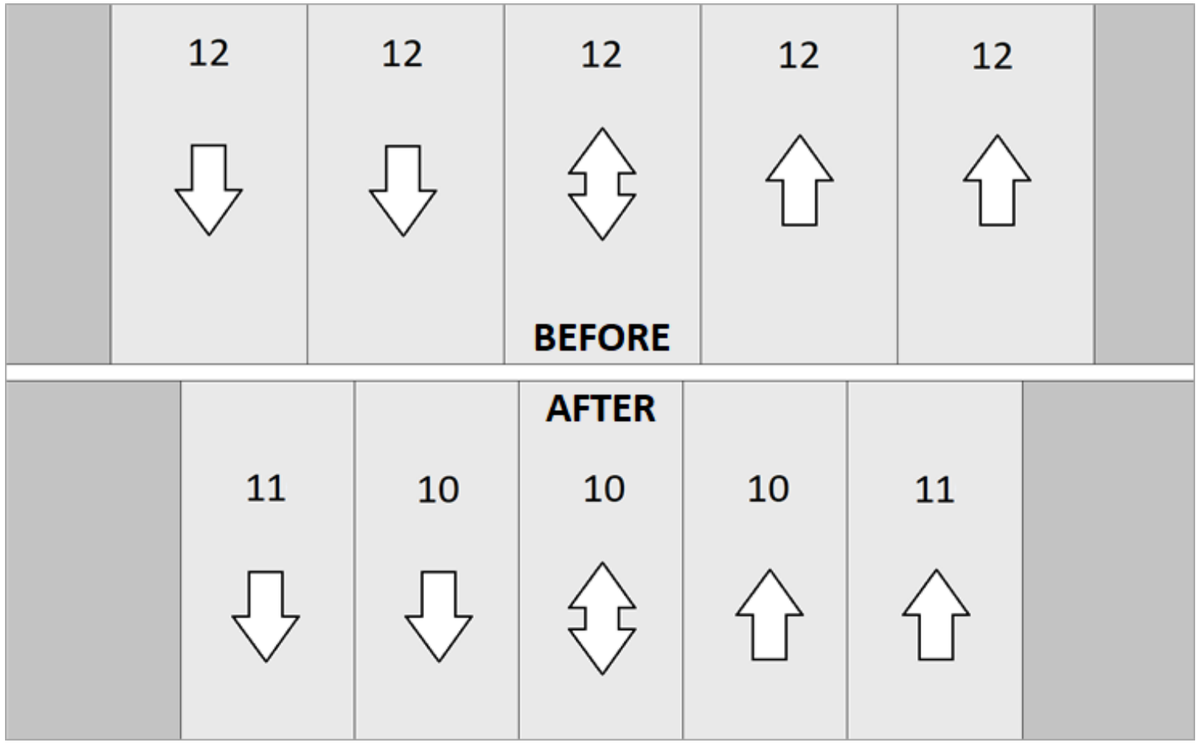


Project Details

From: 180 feet north of Golfview Street & U.S. 441 Intersection
To: Current FDOT Roadway Reconstruction

Status: Not Funded (Pre-Design Phase)

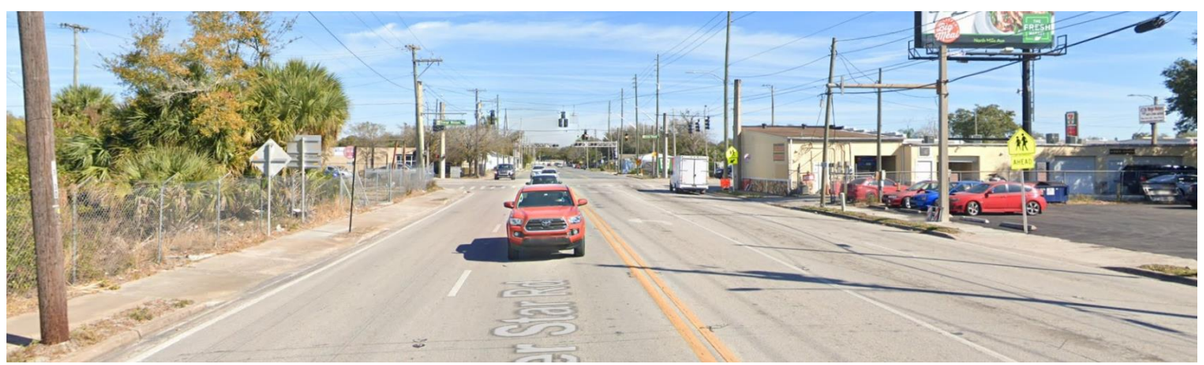
Preliminary Road Dimensions | Silver Star Road Retrofit



Project Details

From: Regent Avenue
To: Orange Blossom Trail

Status: Not Funded (Pre-Design Phase)



Funding, Phasing & Cost Analysis

Funding

Trail funding can be obtained by municipalities through the Recreational Trails Program (RTP), a program of the Federal Highway Administration. The Florida Recreational Trails Program is the state of Florida's funding arm of the RTP and is managed by the Division of State Lands within the Florida Department of Environmental Protection.

Funding for RTP grants is provided on a match basis, with a local government providing a percentage of the project funding and the grantor providing the remainder of the capital. Match levels can be 20%, 40%, or 50% locally funded, with 50% local funding receiving more "points" on the scorecard that decides which projects will be funded for a given year.

These grants also prioritize funding (reward points) based on numerous trail attributes such as overall community impacts, connections to parks and cultural centers, connections to statewide trail corridors, and other criteria. RTP funding cannot be spent on planning; thus, this report enhances the probability of the proposed routes in this report obtaining funding.

It is recommended that Dr. Phillips, Inc. collaborate with the City of Orlando on a FHWA Recreational Trails Program grant application.

Phasing

It is recommended that the project is implemented in phases, beginning with wayfinding signage along the primary proposed routes detailed in Section XIII of this report. Wayfinding signage is a financially feasible starting point that will familiarize the community with the primary trail network (and loop network) while clearly directing residents to-and-from The Packing District and surrounding activity centers.

Following the wayfinding phase, two roadway retrofits included in the primary proposed network would need to be undertaken at Princeton Avenue (between the train tracks and Rio Grande Avenue) and Poinsettia Avenue along Lake Ivanhoe. Other minor retrofits can be found within the right-of-way analysis.

The third phase of implementation is the final design, engineering and construction of 10-foot-wide trails along the primary proposed routes identified in Section XI this report. The obstructions and right-of-way analyses in Section V will assist in the design and engineering process.

1. **Phase 1: Wayfinding Signage & Bike Racks** (Primary Routes)
   Signage locations can be found in Section XIII. Bike racks would be placed at identified trailheads. The total cost would be approximately $102,060.

2. **Phase 2: Roadway Retrofits** (Primary Routes)
   Roadway retrofits can be found in Section IX. Primary route large-scale retrofits are located on Princeton Street and Poinsettia Avenue. Coordination with the City of Orlando would be required.

3. **Phase 3: Trail Development** (Primary Routes)
   Approximate costs associated with development are located in this report section. Costs do not include drainage, lighting, design or construction.

Cost Analysis (Primary Routes)

Item	Number (Unit)	Cost Per Unit	Labor Cost	Total Cost
Bicycle Racks at Trailheads (9-Bike Capacity)	16 (2 per trailhead)	$859.00[1]	20 Mins. @ $75/hour	$14,144.00
Bridge Swales (2)	300 square ft.	$175 per square ft.[2]	Included in Unit Cost	$52,500.00
Construct Asphalt Trail (10'ft-wide)	5.57 (miles)	$1,197,000 per mile[3]	Included in Unit Cost	$6,667,290.00
Cut Trail to Hydrant Base	1	See Labor Cost (Per Unit)	20 Mins. @ $75/hour	$25.00
Cut Trail to Tree Base	99	See Labor Cost (Per Unit)	20 Mins. @ $75/hour	$2,475.00
Fill Swale	2	$1,000 per swale	Included in Unit Cost	$2,000.00
Move Fire Hydrant	3	$3,250 per hydrant[4]	Included in Unit Cost	$9,750.00
Move Mailbox	1	See Labor Cost (Per Unit)	20 Mins. @ $75/hour	$25.00
Move Sign	15	See Labor Cost (Per Unit)	20 Mins. @ $75/hour	$375.00
Place Warning Markers (X-OM4-3)	27	$42.75 per sign[5]	20 Mins. @ $75/hour	$1,829.25
Remove Fence	140 linear ft.	$10 per linear ft.	Included in Unit Cost	$1,400.00
Remove Large Tree	2	$1,500 per tree[6]	Included in Unit Cost	$3,000.00
Remove Small Tree	63	$625 per tree[6]	Included in Unit Cost	$39,375.00
Remove Shrubs	19	$200 per shrub[7]	Included in Unit Cost	$3,800.00
Road Retrofits, Crosswalks, Other	N/A (City)	N/A (City)	N/A (City)	N/A (City)
Wayfinding Signs	62	$1,418 per sign[8]	Included in Unit Cost	$87,916.00
Approximate Cost				**$6,885,904.25**

Source Documentation

1: Belson.com
https://www.belson.com/Traditional-Bike-Rack

2: Span the Gap
https://spanthegap.com/how-much-does-it-cost-to-build-a-pedestrian-bridge/

3: Indiana Department of Transportation, Trail Cost Calculator.
https://www.in.gov/indot/files/INDOT_TrailsCostCalculator_Memo.pdf

4: FireHydrant.org
http://www.firehydrant.org/info/faqs_ask1.html#:~:text=Depending%20on%20the%20type%20of,is%20the%20most%20expensive%20approach.

5: Stop Signs and More.
https://www.stopsignsandmore.com/p-401-om4-1-red-reflector-warning-sign-18x18.aspx?gclid=Cj0KCQjwma6TBhDIARIsAOKuANz0T839vDp_dStEywzuGjb5n1wpIHk12f8_SooYH0BO0YaDajYpfD4aAhqCEALw_wcB

6: TreeRemoval.com
https://www.treeremoval.com/costs/#.YmwMX9rMKUl

7: Home Advisor
https://www.homeadvisor.com/cost/lawn-and-garden/trim-or-remove-trees-and-shrubs/

8: DiscoverNortheastMichigan.com
http://www.discovernortheastmichigan.org/downloads/cost_est_trail_wayfinding_signs.pdf

Construction Costs Include:

- Design
- Earthwork and Grading
- Aggregate Base Material, Surface Material
- Landscaping
- Drainage
- Traffic Maintenance
- Utility Adjustments

Construction Costs Do Not Include:

- Construction Management
- Permitting
- Ongoing Maintenance