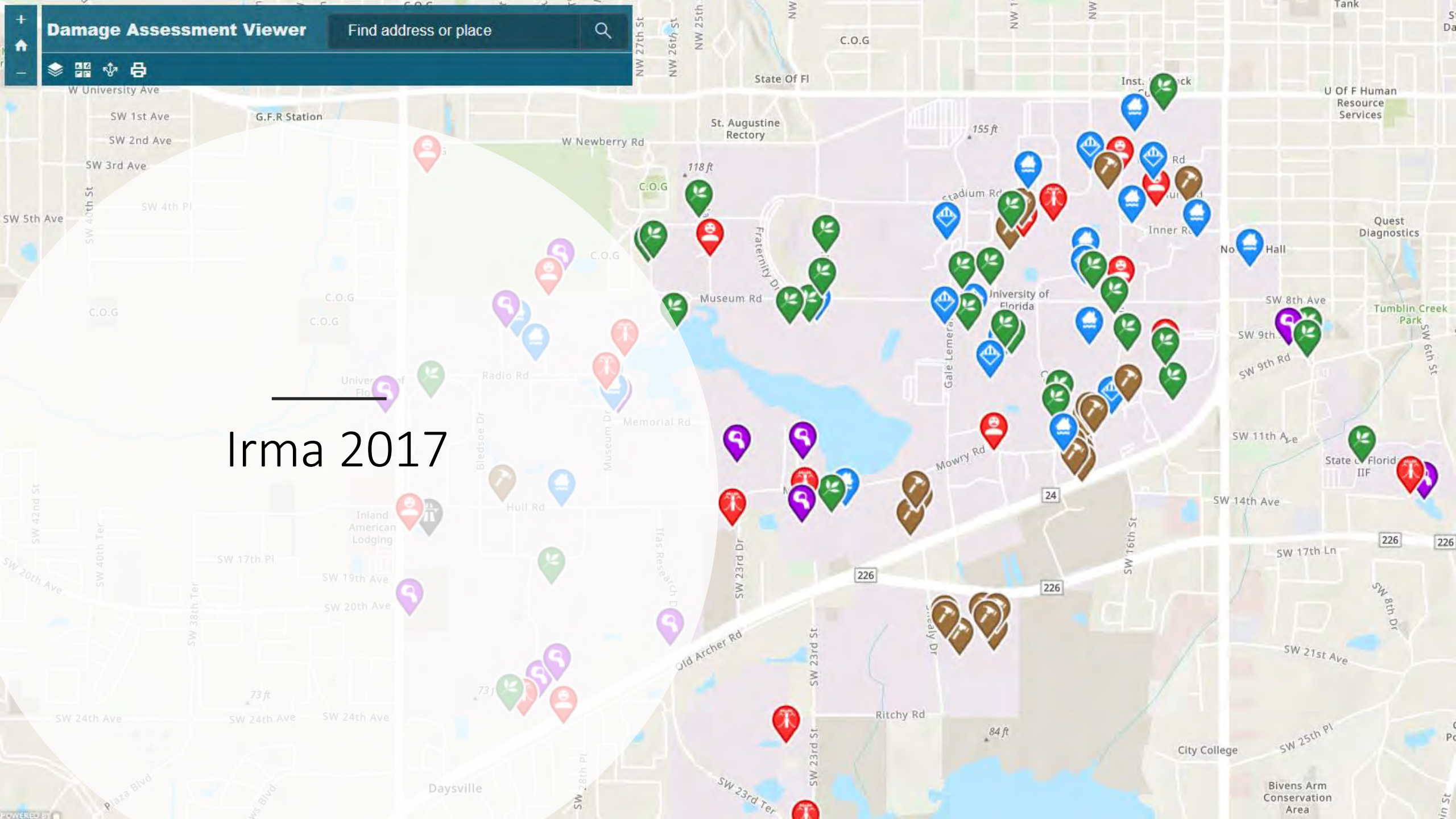
APPLICATIONS FOR CAMPUS GIS

WINTER FEFPA 2022

SUZANNE WYNN
ALACHUA COUNTY SCHOOLS
JOHN GILREATH, GISP

DRMP


Damage Assessment Viewer
Find address or place
Irma 2017
W University Ave
SW 1st Ave
SW 2nd Ave
SW 3rd Ave
SW 4th Pl
SW 5th Ave
G.F.R Station
W Newberry Rd
St. Augustine Rectory
State Of Fl
C.O.G
118 ft
155 ft
Museum Rd
Fraternity Dr
Radio Rd
Bledsoe Dr
Memorial Rd
Hull Rd
Inland American Lodging
SW 17th Pl
SW 19th Ave
SW 20th Ave
SW 24th Ave
73 ft
Daysville
Old Archer Rd
SW 23rd Dr
SW 23rd St
SW 23rd Ter
Ritchy Rd
84 ft
Mowry Rd
Gale Lemerand Dr
University of Florida
Stadium Rd
Inner Rd
Hall
Quest Diagnostics
SW 8th Ave
SW 9th Rd
Tumblin Creek Park
SW 6th St
SW 11th Ave
SW 14th Ave
SW 16th St
SW 17th Ln
SW 21st Ave
SW 8th Dr
SW 25th Pl
City College
Bivens Arm Conservation Area
U Of F Human Resource Services
24
226

GIS is a Platform for Analysis

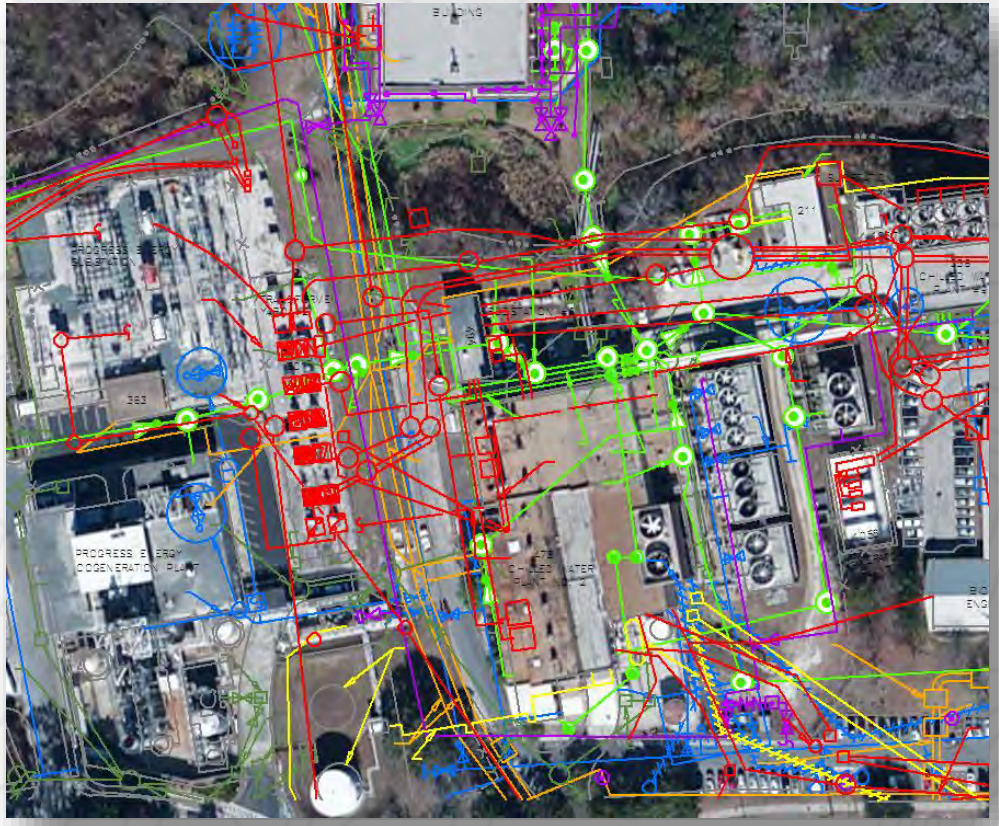
- ESRI is a $6 billion privately-held software company
- Dozens of extensions and add-ons to your basic license purchase
- Simple, Scalable, Sustainable

GIS is a Platform for Analysis

“I’ve had coursework in GIS”

“It’s a tool for what I do”

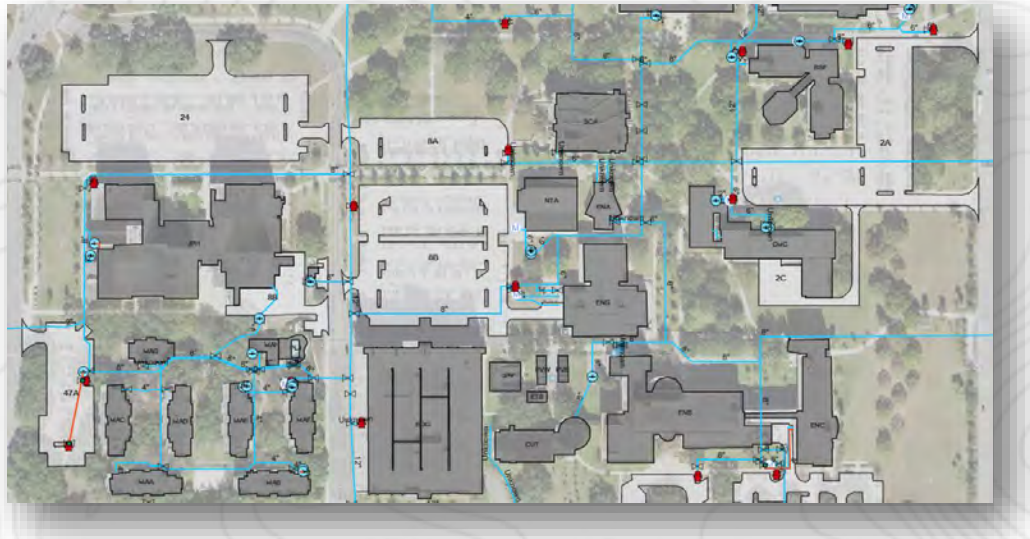
“It isn’t accurate enough”



Existing utility survey data from CAD

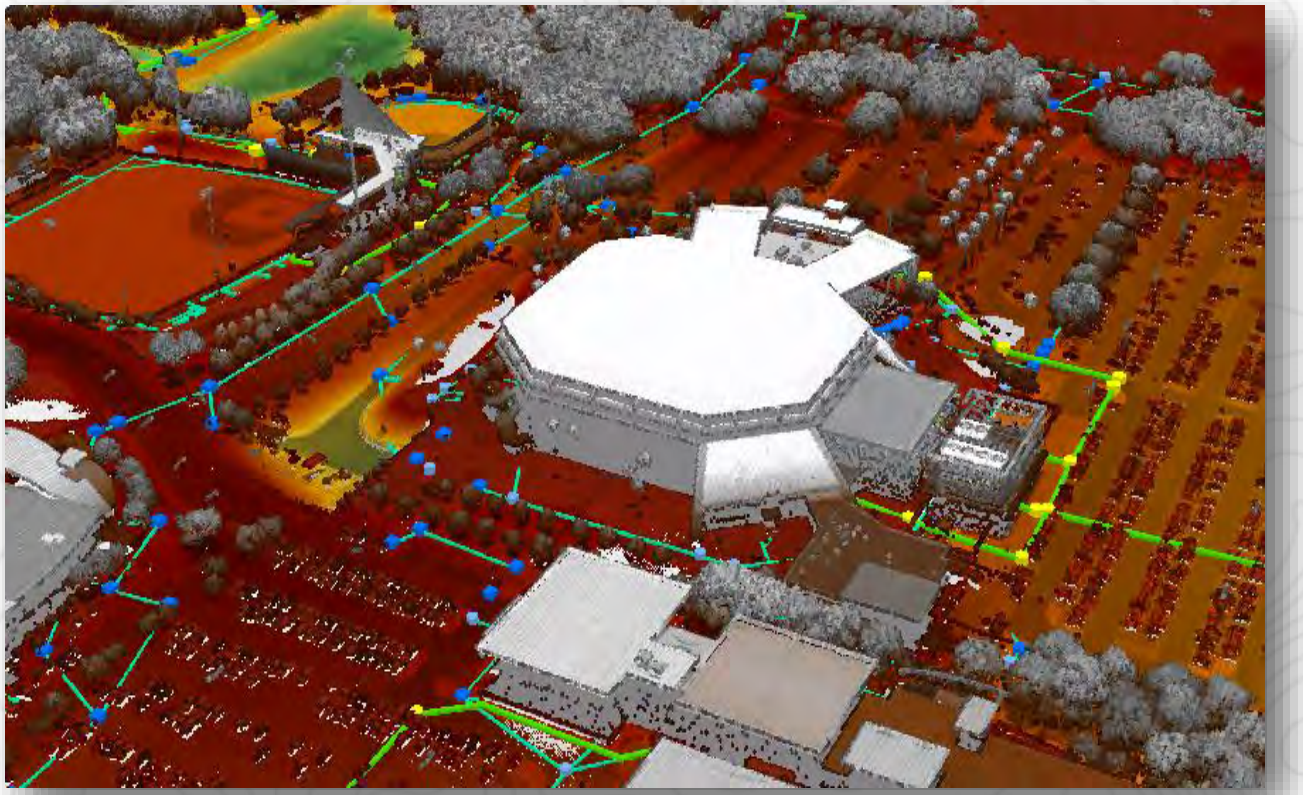
A Brave New World Driven by Data

- GPS clock – 6 major base stations globally that affects all major branches of industry, finance, and defense
- Citizens, countries, and corporations
- State and federal allocations
- Regulatory & reporting metrics



Changes in the Geospatial World

- Web Design and Development
- Database Management
- BIM
- Remote Sensing
- Artificial Intelligence



USF Sun Center LiDAR

Applications Across K-12 and Higher Ed

K-12

Redistricting & Rezoning
Additional Uses

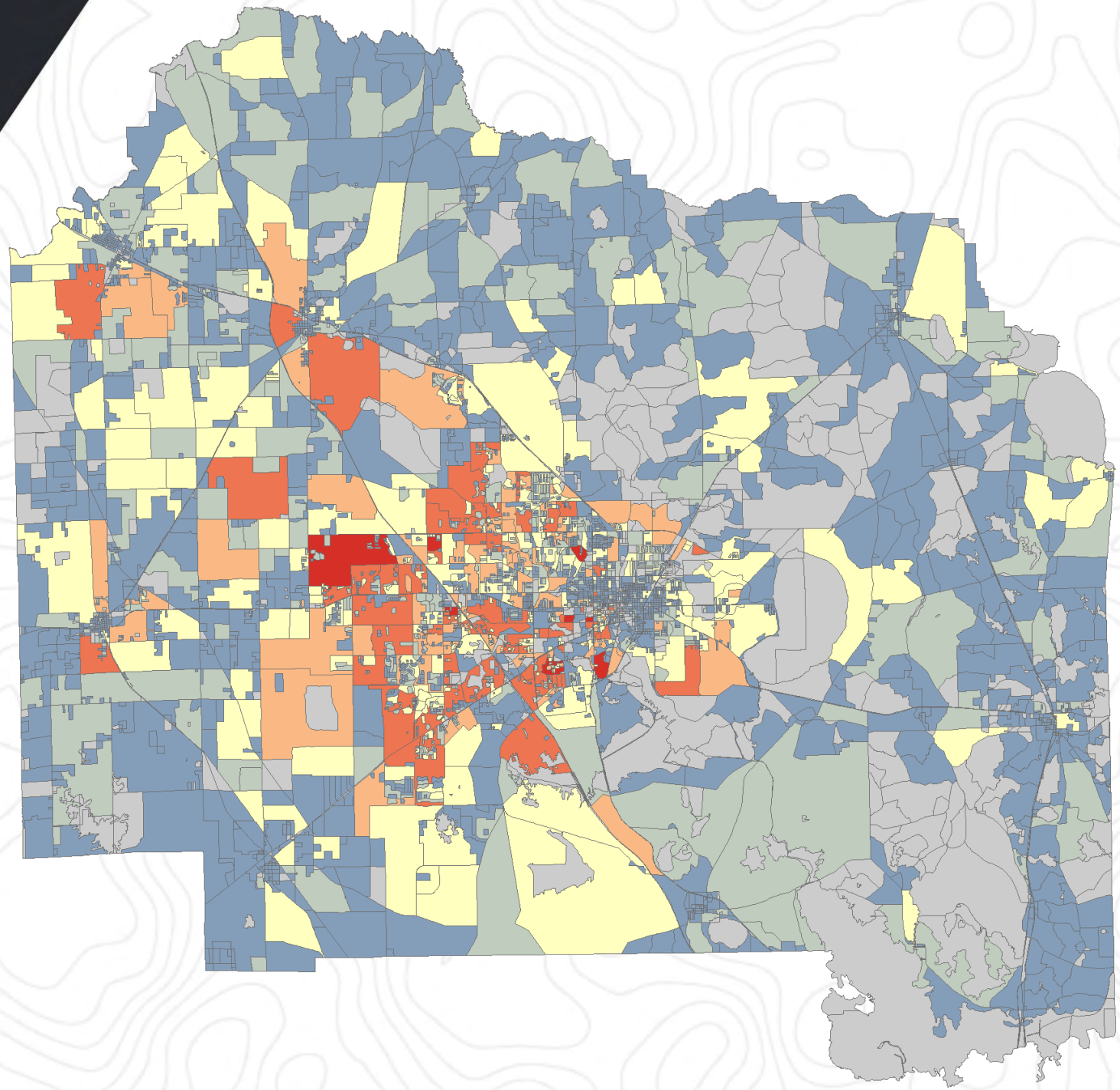
Benefits of ArcGIS Online

Free*

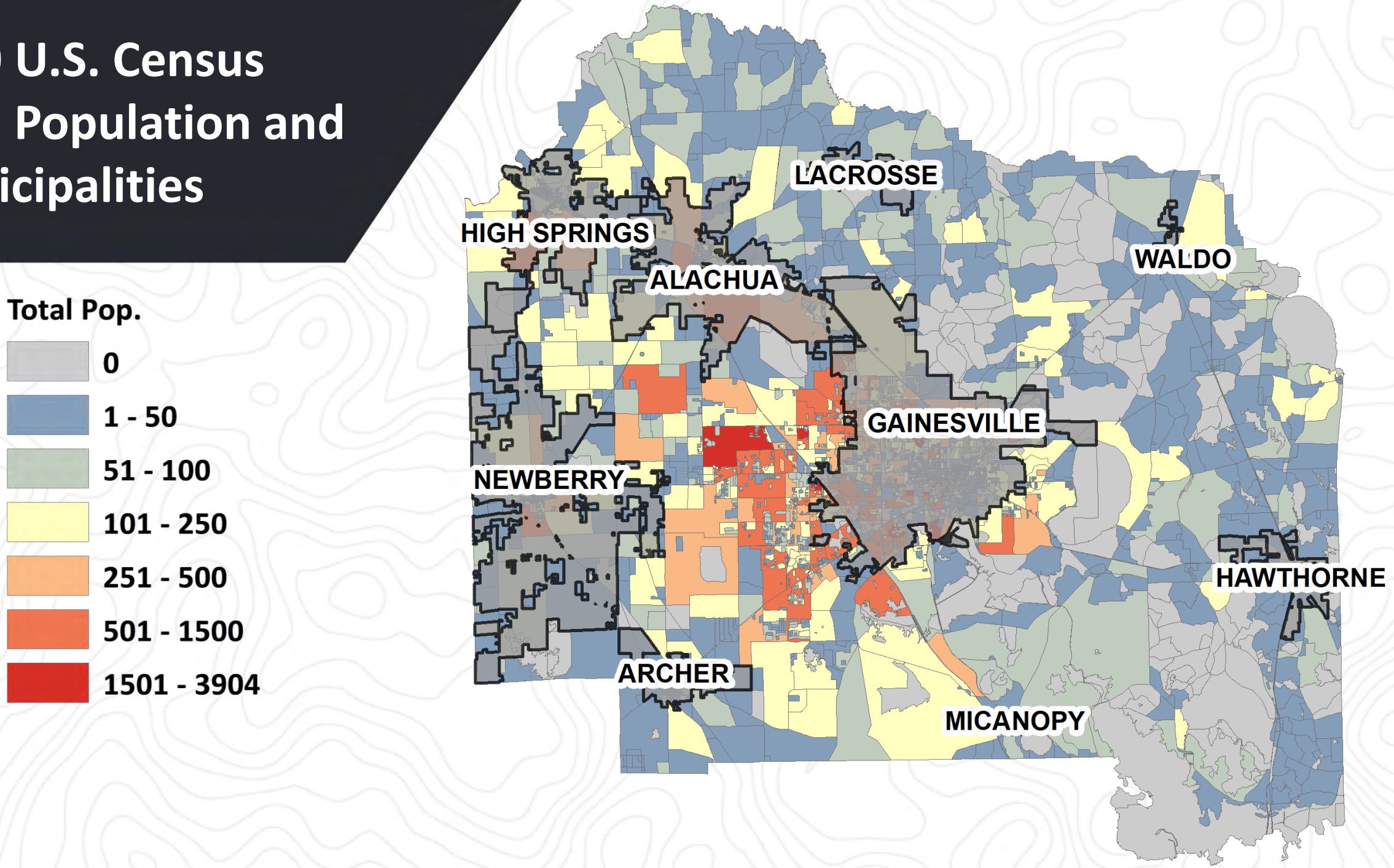
Higher Education

Overall Considerations
Campus Specifics
Case Studies

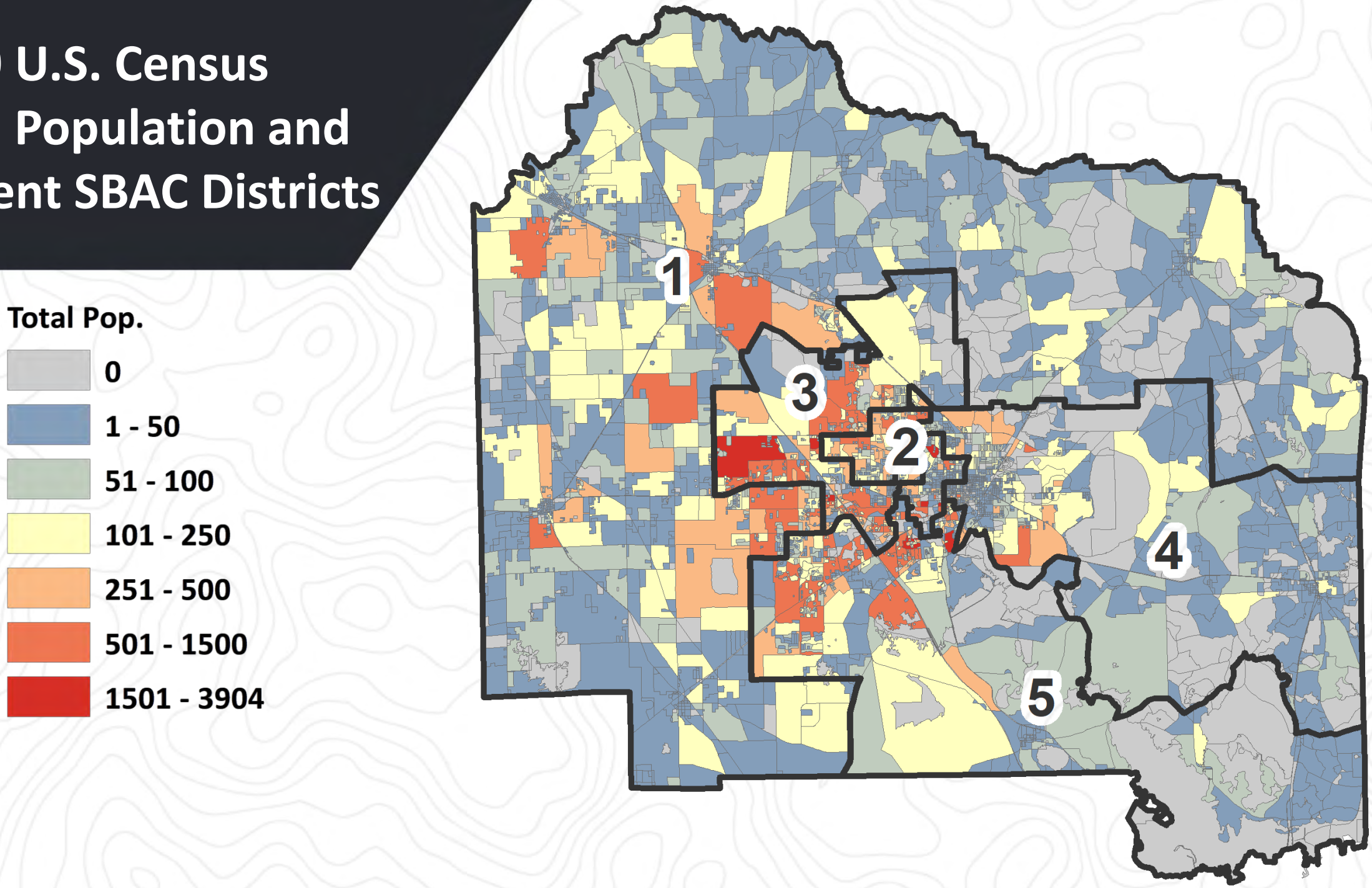
2020 U.S. Census Total Population (Census Block)



2020 U.S. Census Total Population and Municipalities

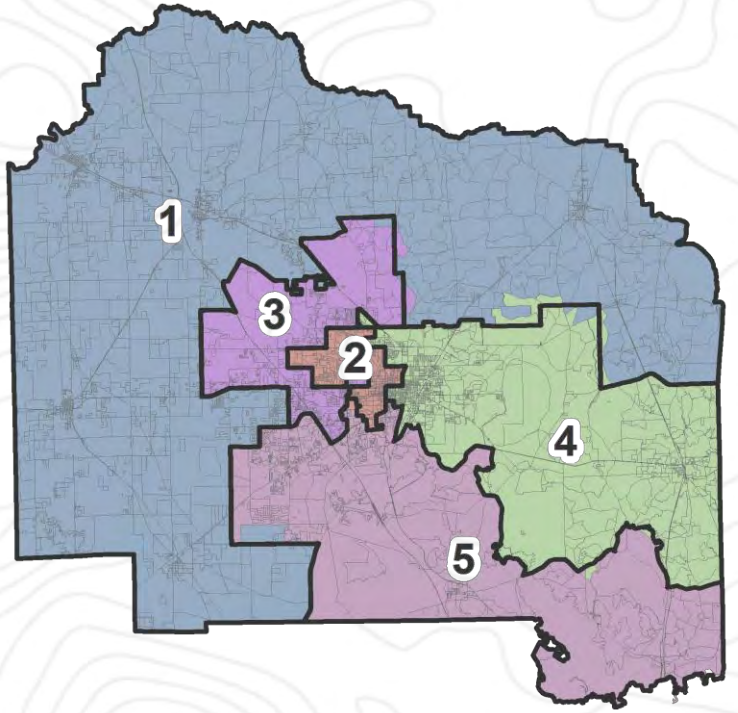


2020 U.S. Census Total Population and Current SBAC Districts



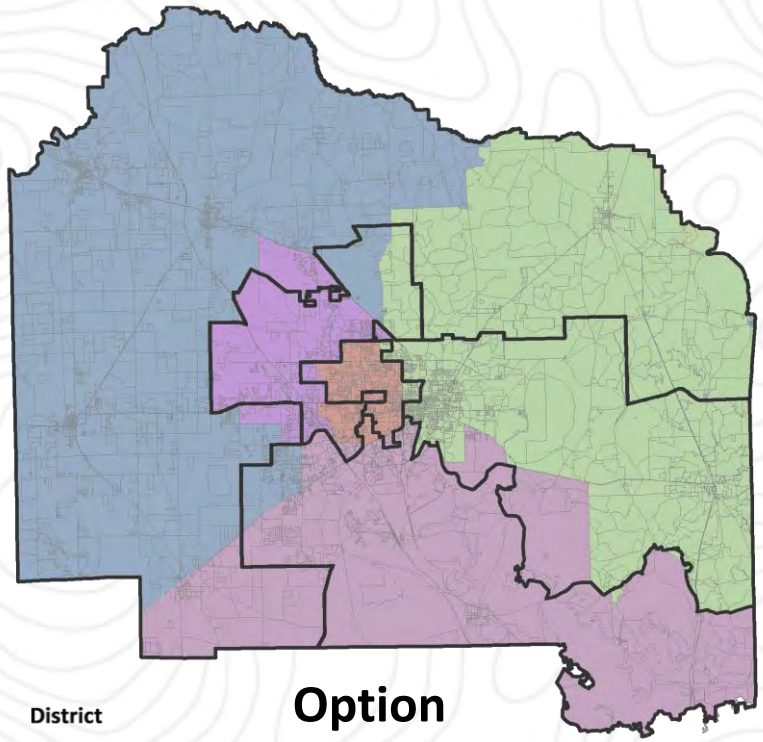
Specific Goals

- Create compact, contiguous, and community districts
- Total Population Balance
- No Current Member Exclusions
- Interactive Map

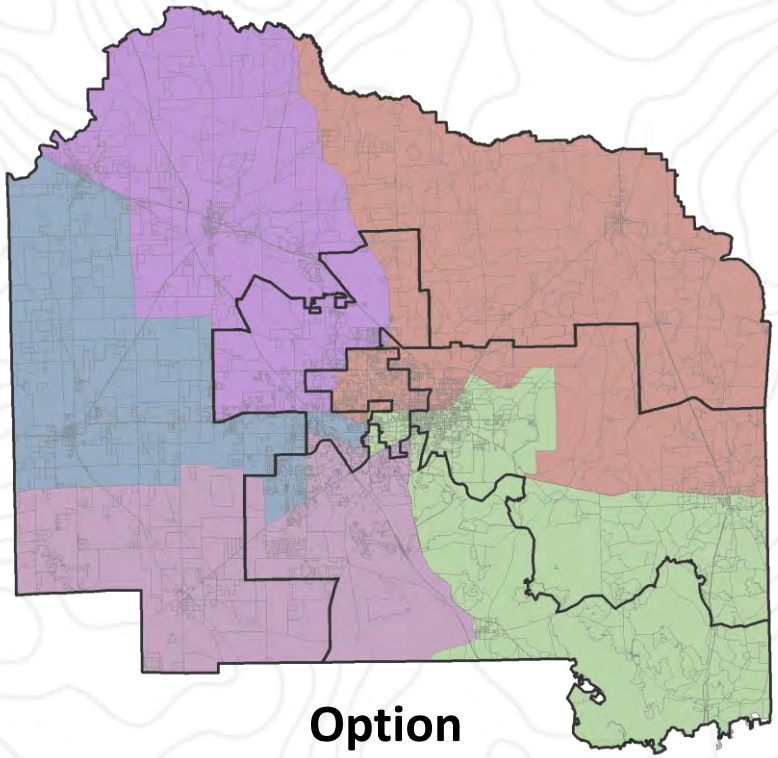


District	Population
5	63,510
3	63,252
1	61,486
4	45,629
2	44,598

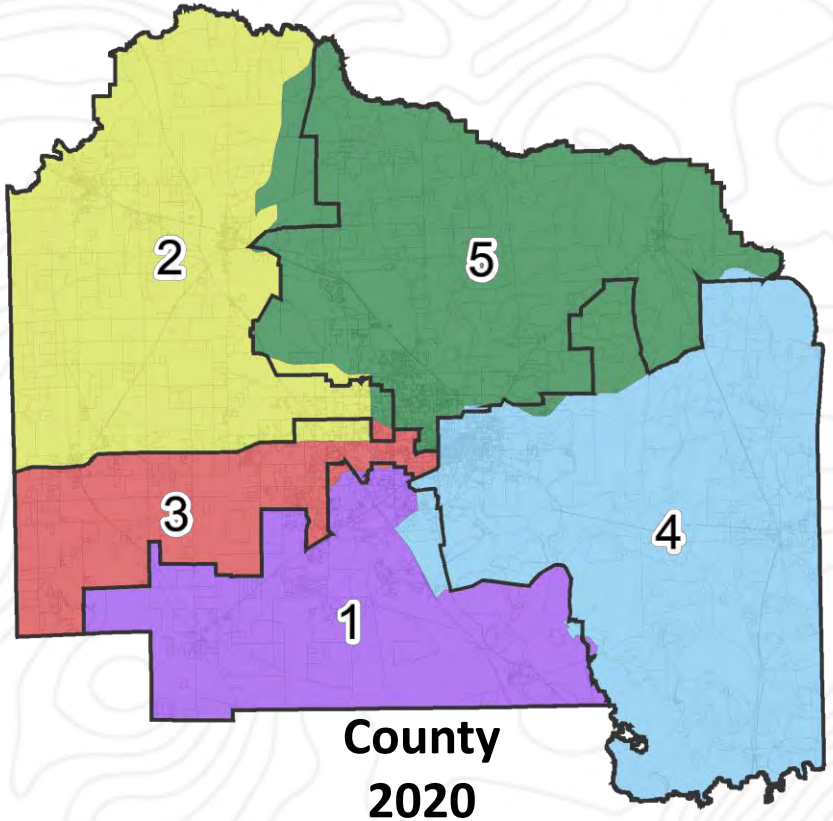
Three Final Considerations



Option 1



Option 2



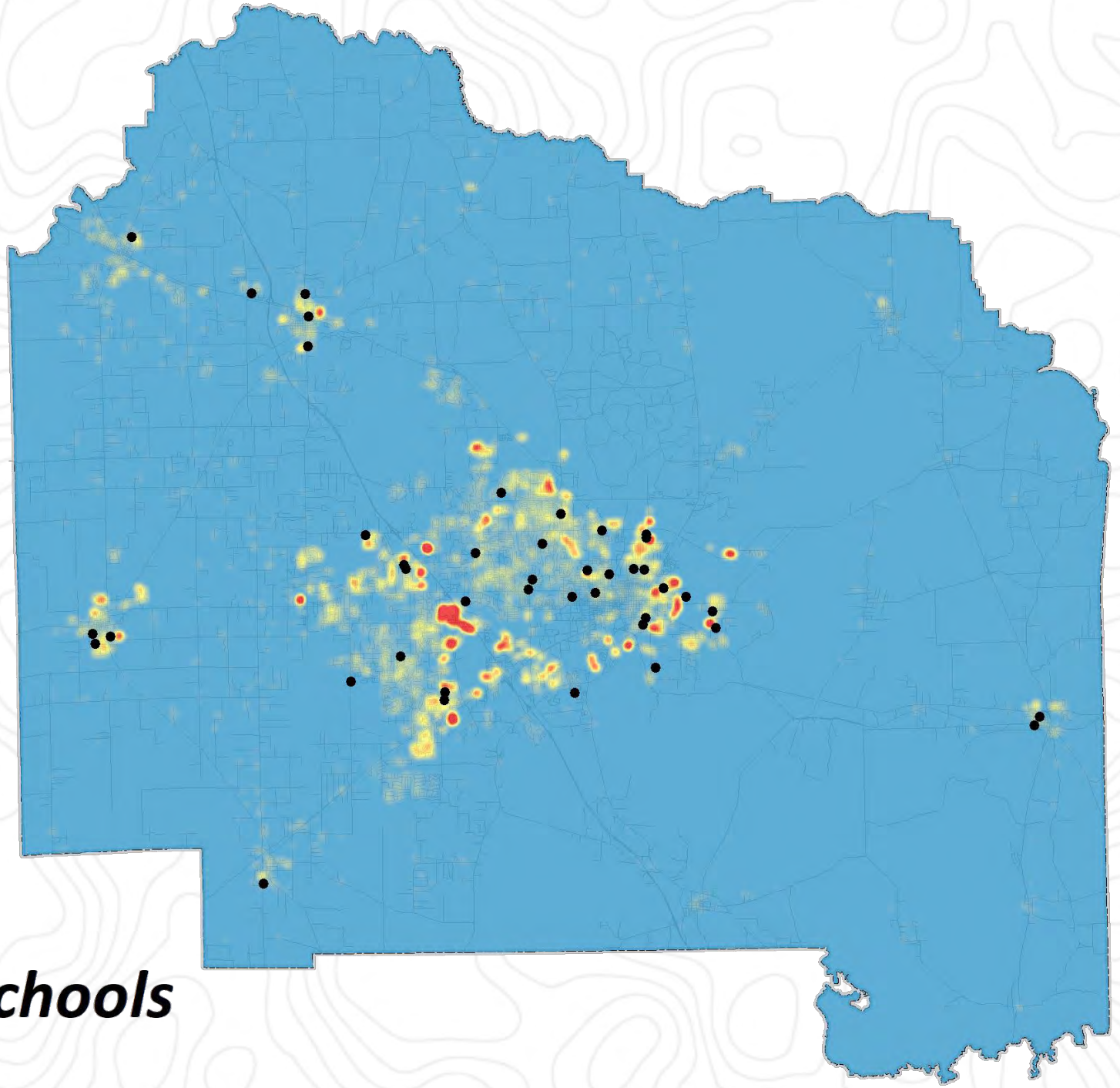
County 2020

District
1
2
3
4
5

run_task/AddressDatabaseValidation
/Address Data Management
>Attendance System
>Transportation System
r/Validate address ranges
insert_E911
call_Address
call_E911 Streets
add_Property Appraiser
call_Parcels
call_Address Points
task/AddressDatabaseValidation done

Student Address Density 2015-22

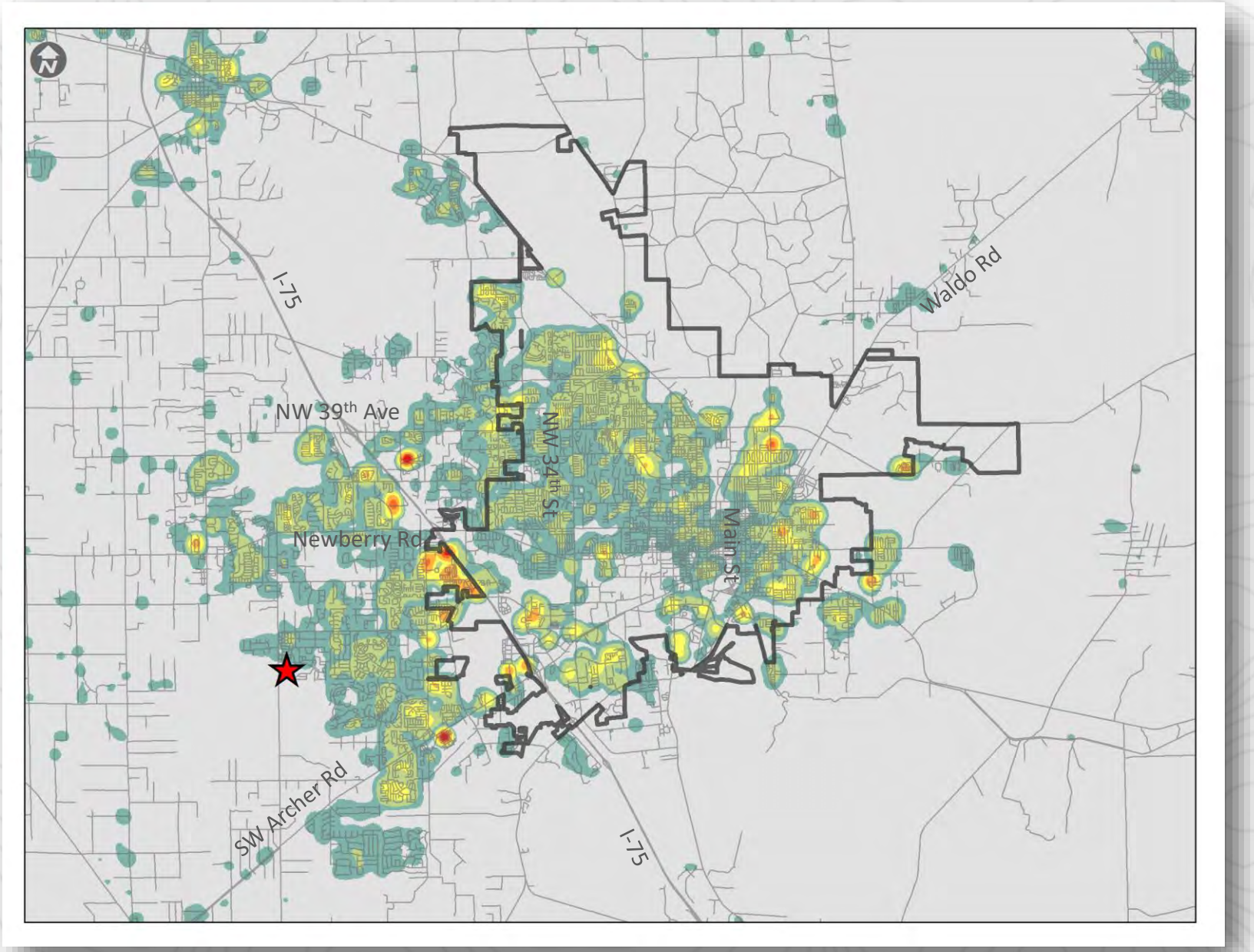
- K- 12 Student Addresses
- Geocoded and joined to student info
- Created for school programs and demographic data



- ***Schools***

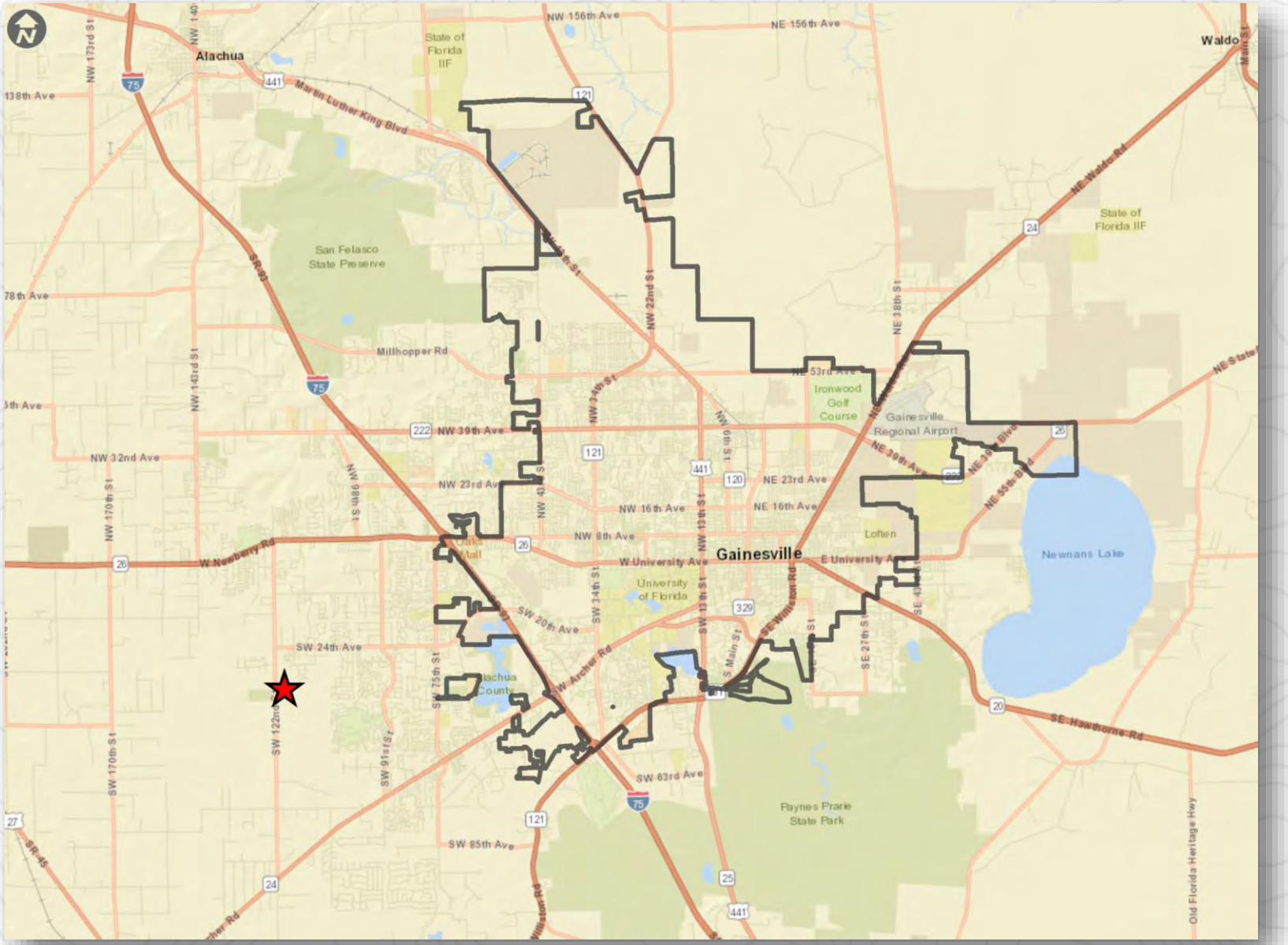
Student Address Density 2015-22

- ¼ mile search
- District-wide
- Public Schools
- Charter Schools
- Home Schooled

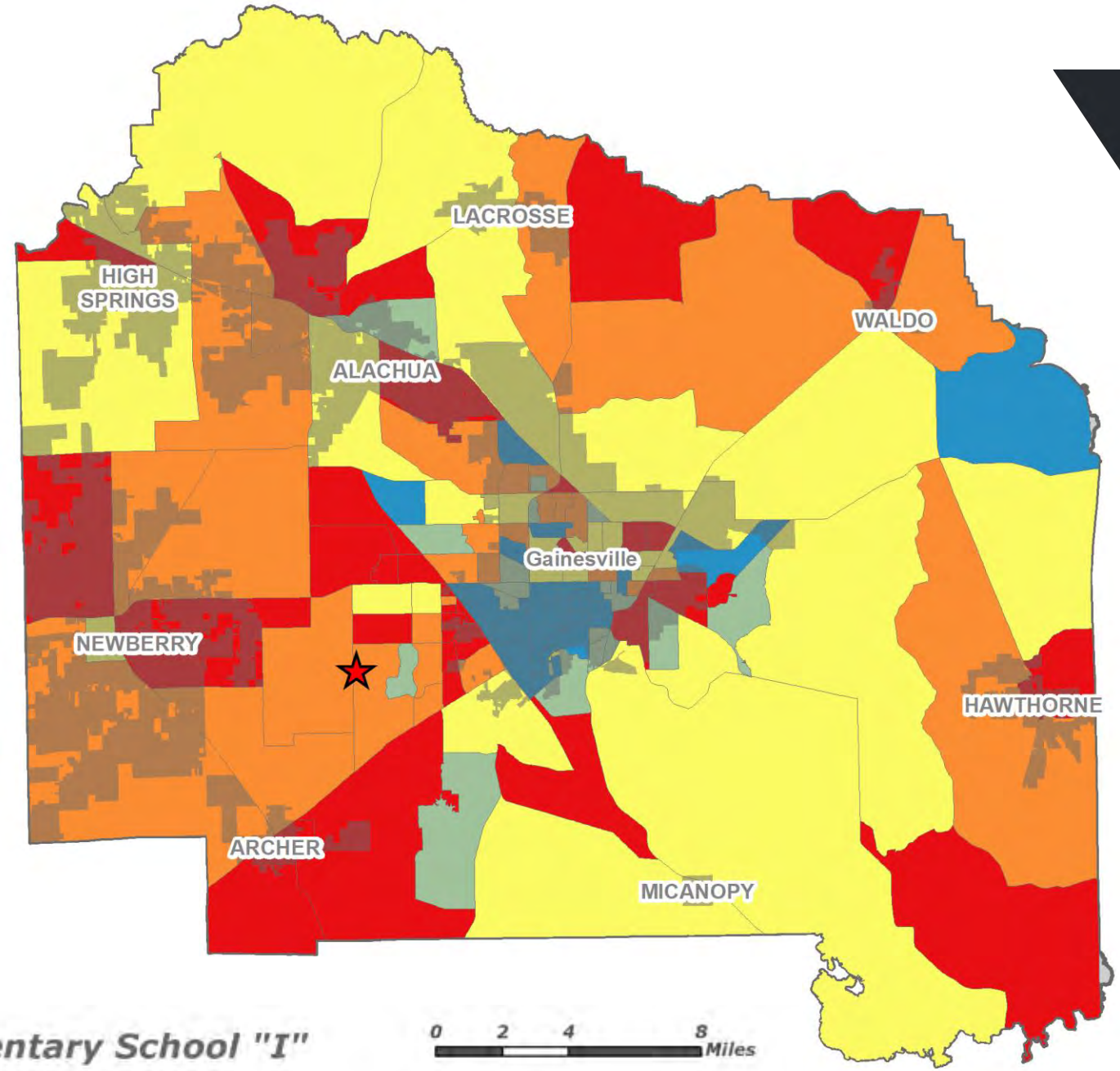


Elementary School "I" Overview

- Up to 900 elementary school children
- Oakmont PD- 18 acres
- Located in Unincorporated Alachua County
- 2017-2018 SPAC site selection



2016 ACS Data- Percentage of Population Under 18



★ *Elementary School "I"*

0% - 10%

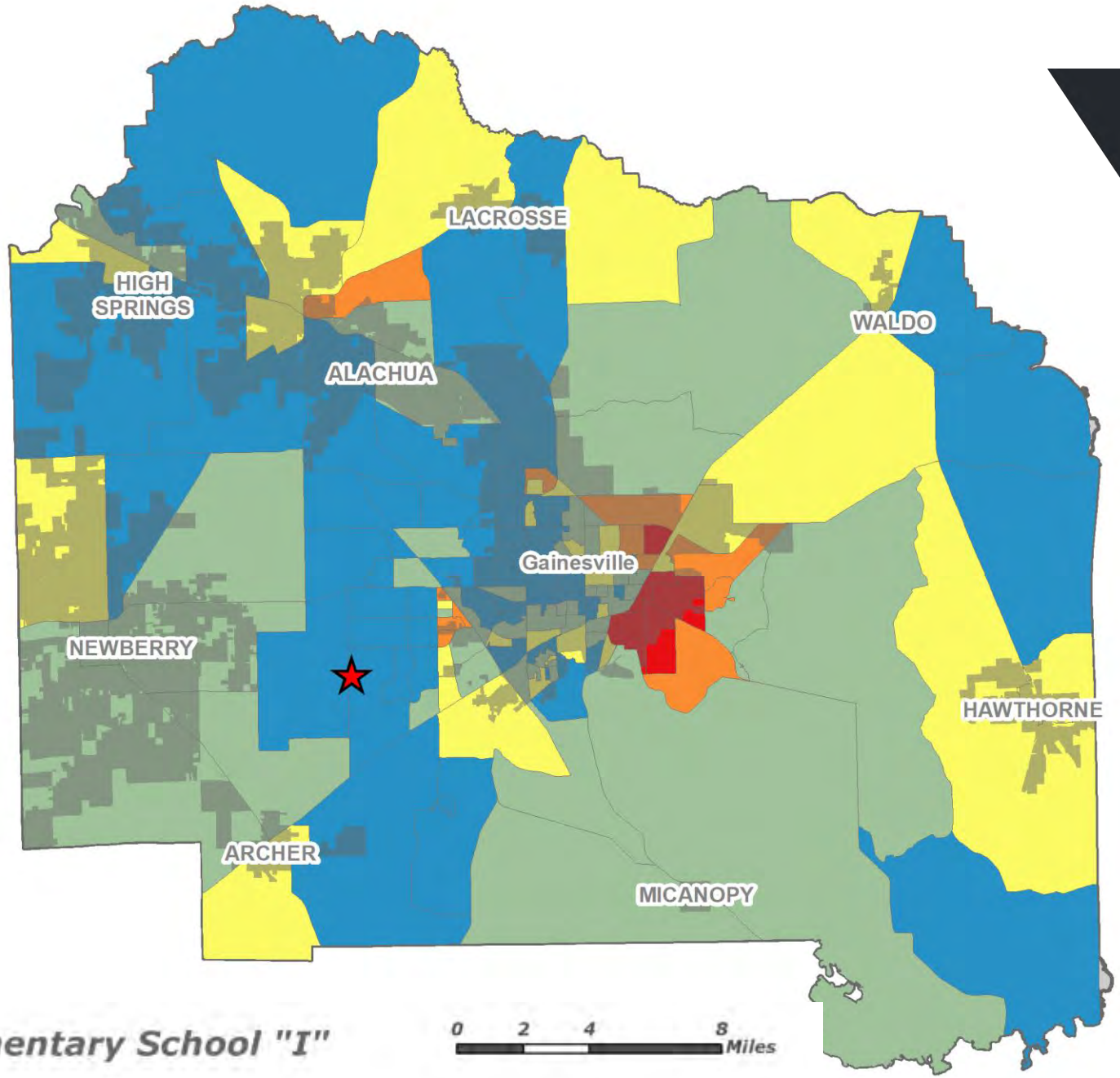
10.1% - 15%

15.1% - 20%

20.1% - 25%

25.1% - 50.5%

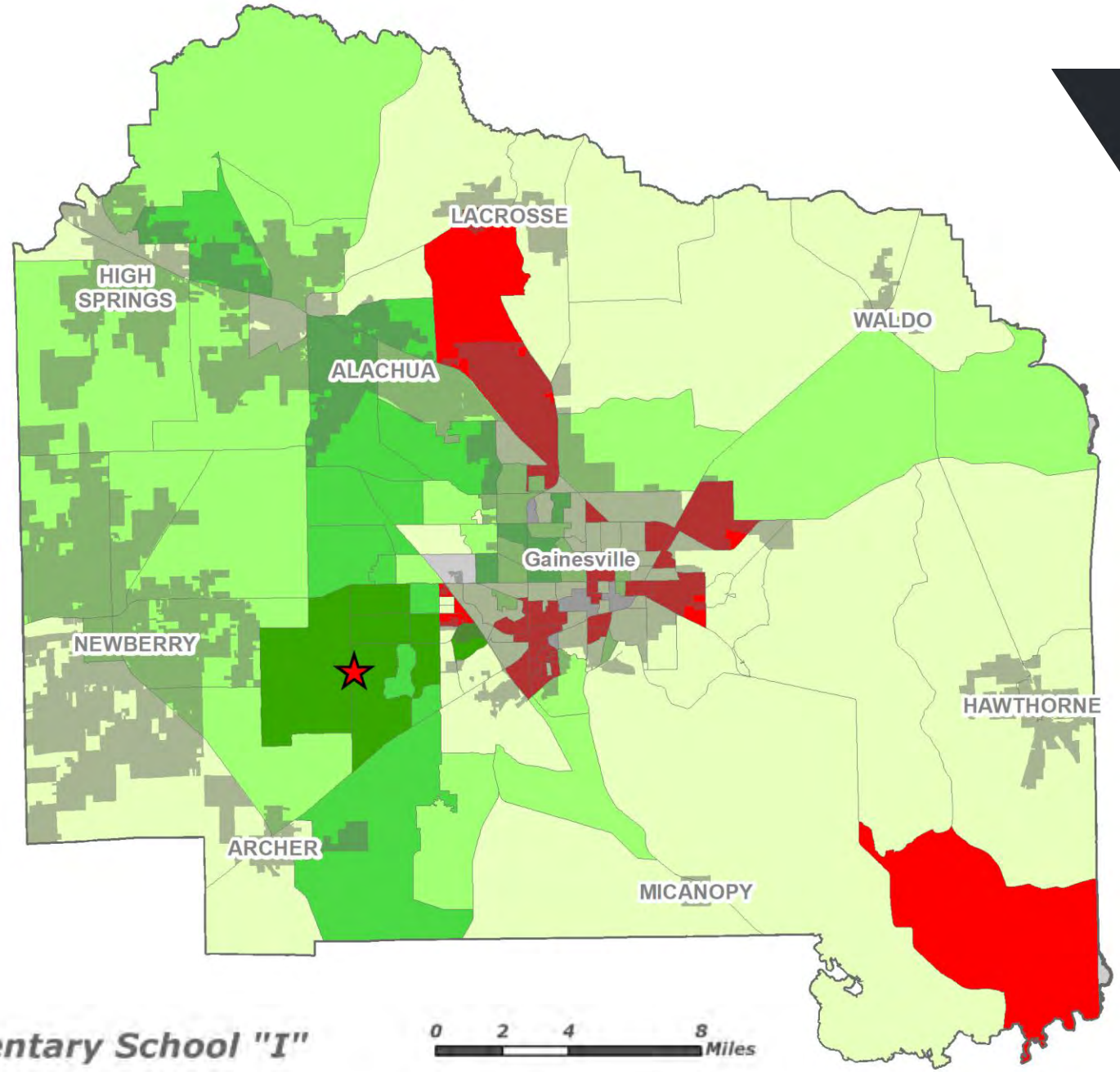
2016 ACS Data-Percentage of Total Population- African-American



★ Elementary School "I"

0-10%
11-25%
26-50%
51-75%
76-100%

2016 ACS Data- Median Income by Household



★ Elementary School "I"

$14,974.00 - $26,000.00

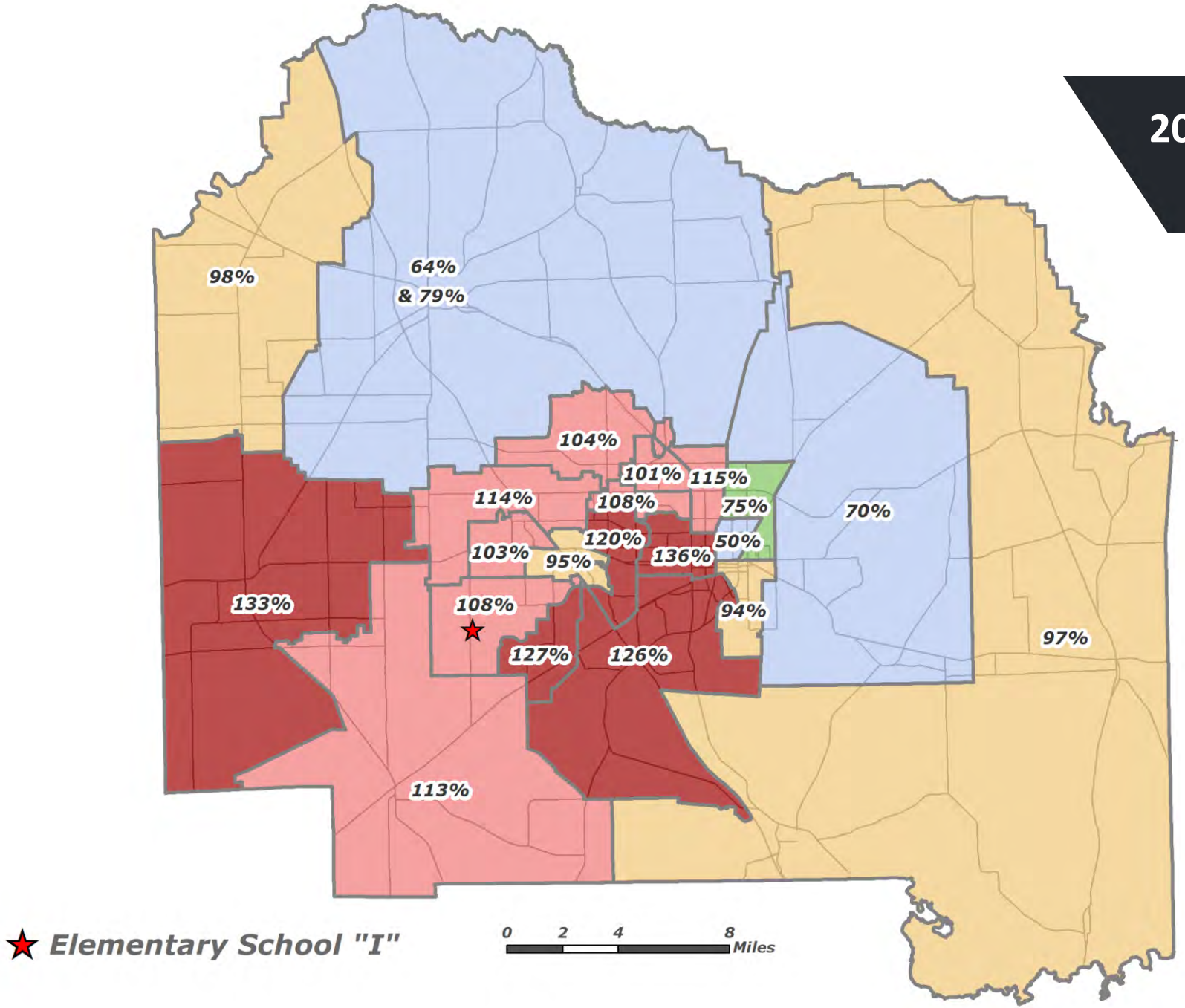
$26,000.01 - $50,000.00

$50,000.01 - $75,000.00

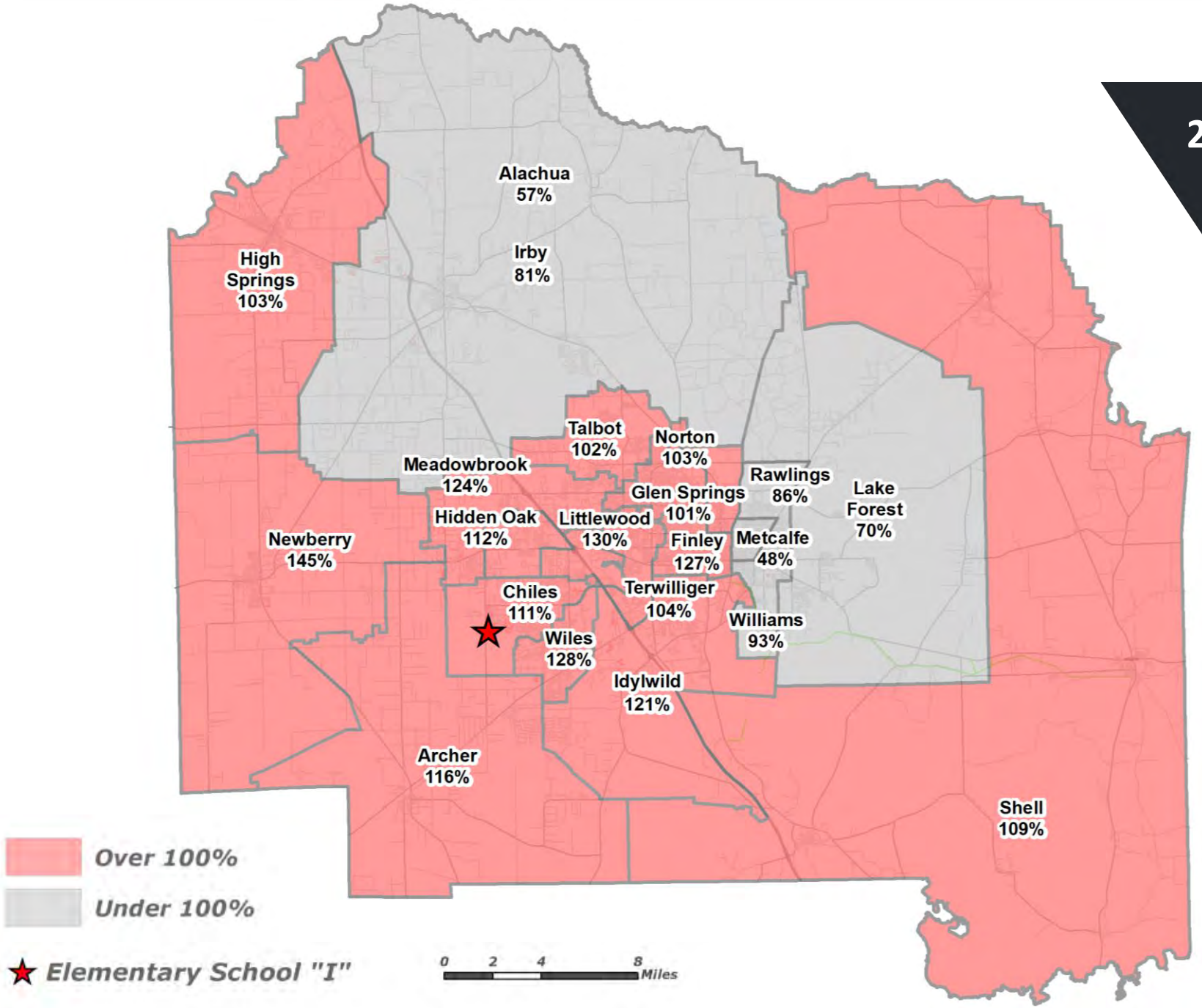
$75,000.01 - $100,000.00

$100,000.01 - $134,792.00

2019 Capacity Versus Enrollment for Elementary Schools

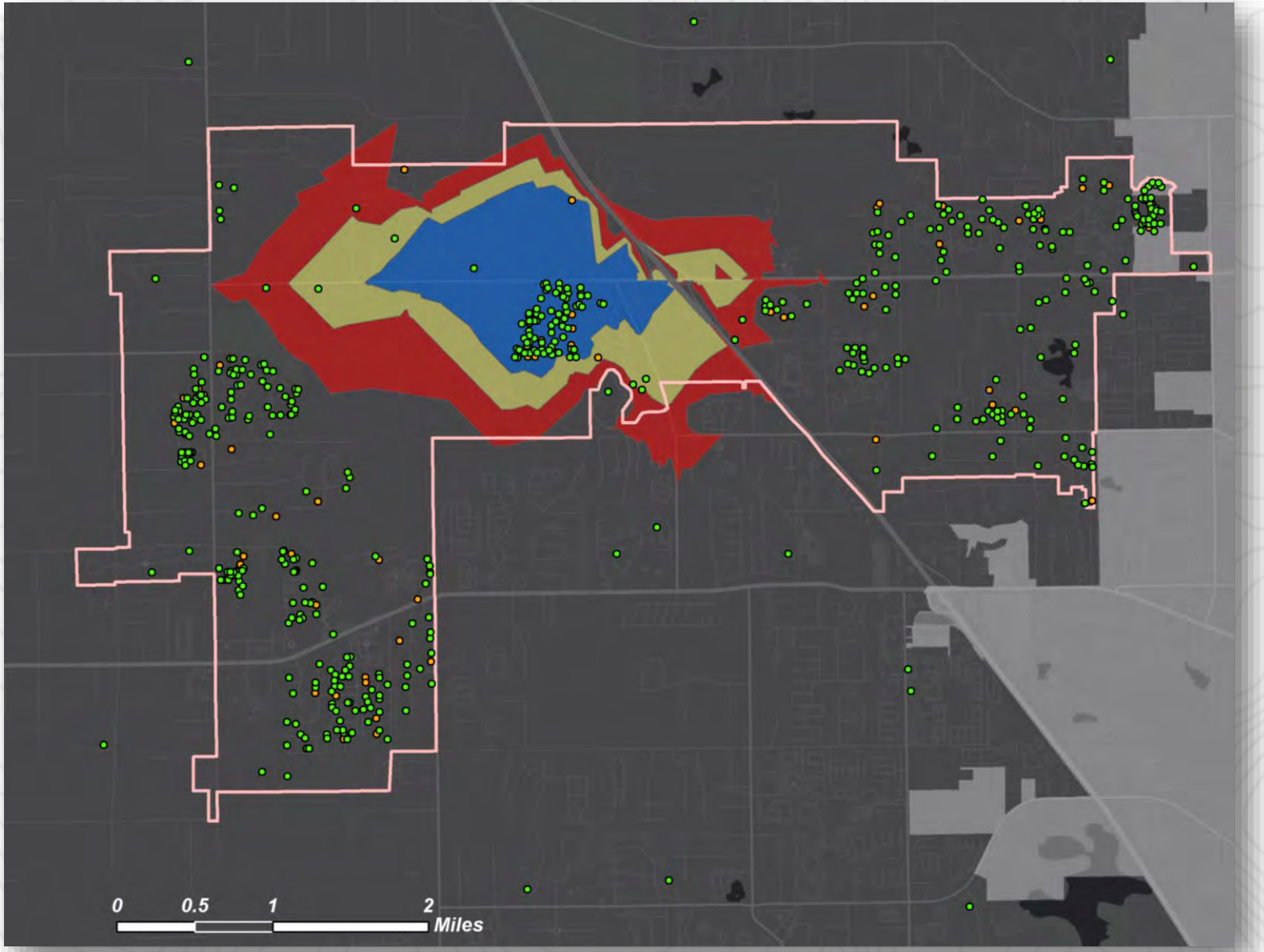


2020 Capacity Versus Enrollment for Elementary Schools



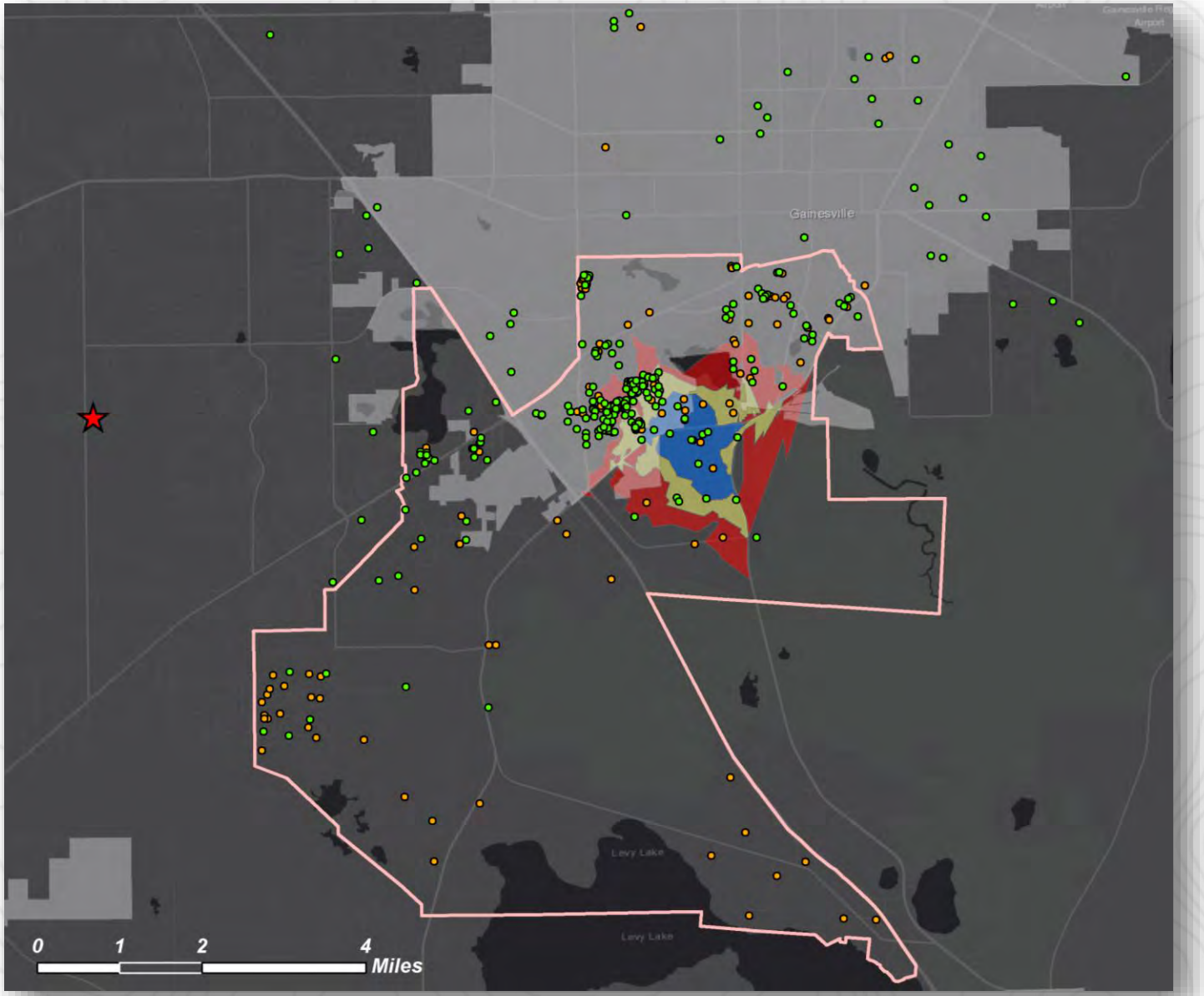
936 Zoned for Meadowbrook Elementary if all students attended

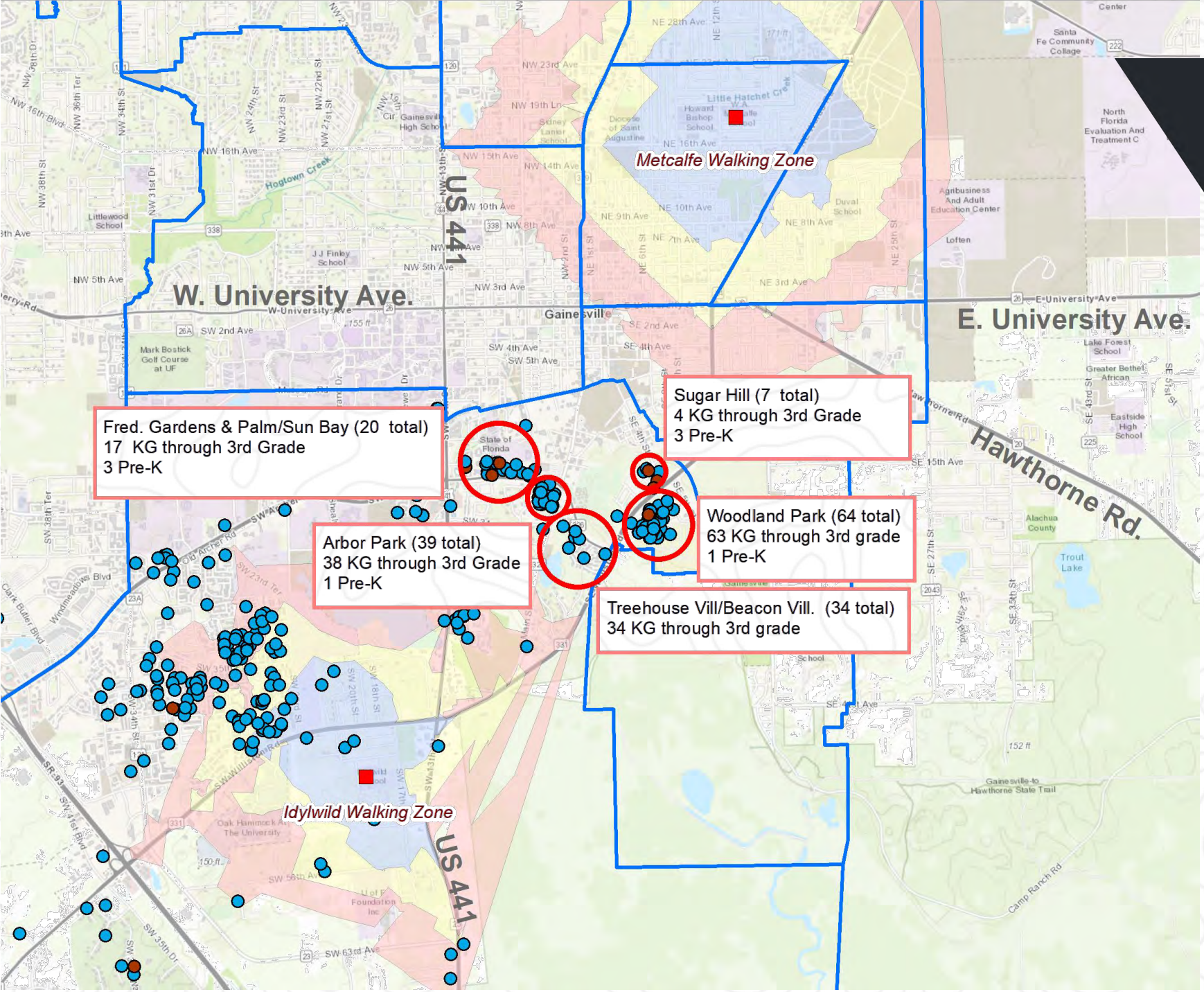
Current School	Students
ALACHUA ESCHOOL ELEMENTARY	4
ALACHUA LEARNING ACADEMY ELEMENTARY	4
ARCHER ELEMENTARY SCHOOL	4
BOULWARE SPRINGS	2
CARING & SHARING LEARNING	4
CHILES, LAWTON M. ELEMENTARY	6
EARLY LEARNING ACADEMY AT DUVAL	1
FINLEY, J. J. ELEMENTARY	5
GLEN SPRINGS ELEMENTARY	3
HEALTHY LEARNING ACADEMY	16
HIDDEN OAK ELEMENTARY	25
HIGH SPRINGS COMMUNITY SCHOOL	1
IDYLWILD ELEMENTARY	1
IRBY, W.W. ELEMENTARY	1
LITTLEWOOD ELEMENTARY	3
LOFTEN, W.T. HIGH SCHOOL	1
MEADOWBROOK ELEMENTARY SCHOOL	806
METCALFE, W.A. ELEMENTARY	1
MICANOPY AREA COOP SCHOOL	1
NEWBERRY ELEMENTARY	5
NORTON, C.W. ELEMENTARY	2
OAK VIEW MIDDLE SCHOOL	1
ONE ROOM SCHOOL HOUSE	6
SHELL, CHESTER ELEMENTARY	2
TALBOT, WILLIAM S. ELEMENTARY	10
TERWILLIGER, MYRA ELEMENTARY	10
WILES HEAD START	1
WILES, KIMBALL ELEMENTARY	3
WILLIAMS, JOSEPH ELEMENTARY	4
OTHER	3



1108 Zoned for Idylwild Elementary if all students attended

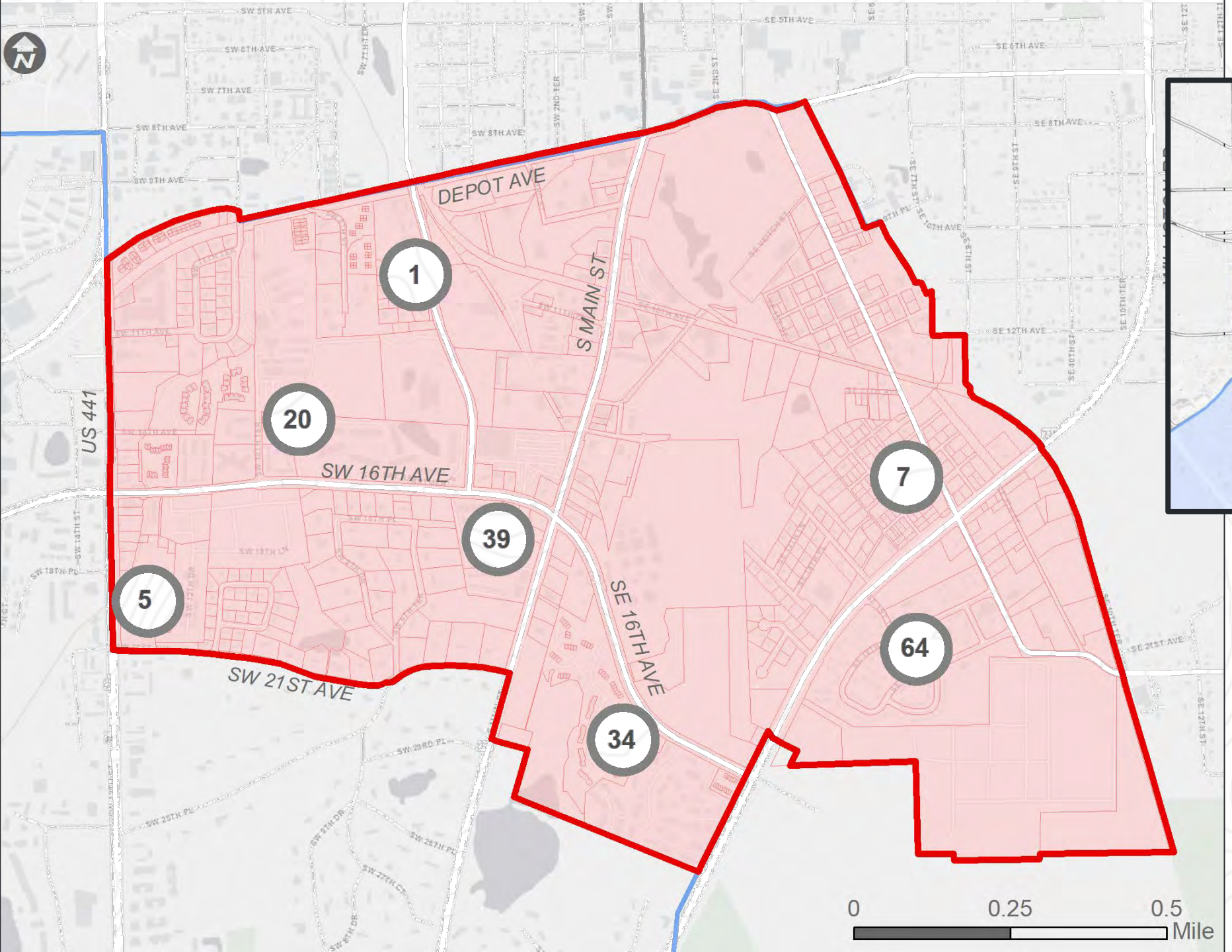
Current School	Students
ALACHUA ELEMENTARY	1
ALACHUA ESCHOOL ELEMENTARY	2
ALACHUA LEARNING ACADEMY ELEMENTARY	1
ARCHER ELEMENTARY SCHOOL	15
BOULWARE SPRINGS	20
CARING & SHARING LEARNING	43
CHILES, LAWTON M. ELEMENTARY	23
EARLY LEARNING ACADEMY AT DUVAL	48
EXPRESSIONS ACADEMY	17
FEARNSIDE CENTER	3
FINLEY, J. J. ELEMENTARY	64
GENESIS PREP SCHOOL	10
GLEN SPRINGS ELEMENTARY	12
HEALTHY LEARNING ACADEMY	3
HIDDEN OAK ELEMENTARY	6
HIGH SPRINGS COMMUNITY SCHOOL	1
IDYLWILD ELEMENTARY	624
IRBY, W.W. ELEMENTARY	1
LAKE FOREST ELEMENTARY	10
LANIER, SIDNEY CENTER	4
LITTLEWOOD ELEMENTARY	15
LOFTEN, W.T. HIGH SCHOOL	1
METCALFE, W.A. ELEMENTARY	2
MICANOPY AREA COOP SCHOOL	27
NEWBERRY ELEMENTARY	2
NORTON, C.W. ELEMENTARY	8
ONE ROOM SCHOOL HOUSE	19
RAWLINGS, MARJORIE K. ELEMENTARY	4
SHELL, CHESTER ELEMENTARY	2
TALBOT, WILLIAM S. ELEMENTARY	4
TERWILLIGER, MYRA ELEMENTARY	33
THE EINSTEIN SCHOOL, INC	7
WILES HEAD START	23
WILES, KIMBALL ELEMENTARY	13
WILLIAMS, JOSEPH ELEMENTARY	27
OTHER	13

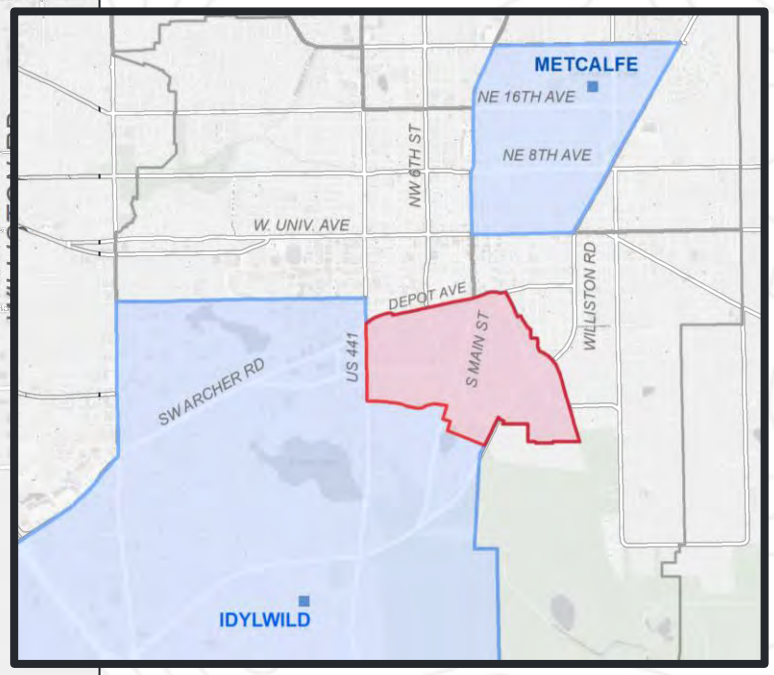




Idylwild Elementary Spot Rezoning

- Recent spot rezone of over 130+ students from Idywild Elementary
- Rapid Timeline and Rule-Making Process
- Needed to complete ahead of magnet registration

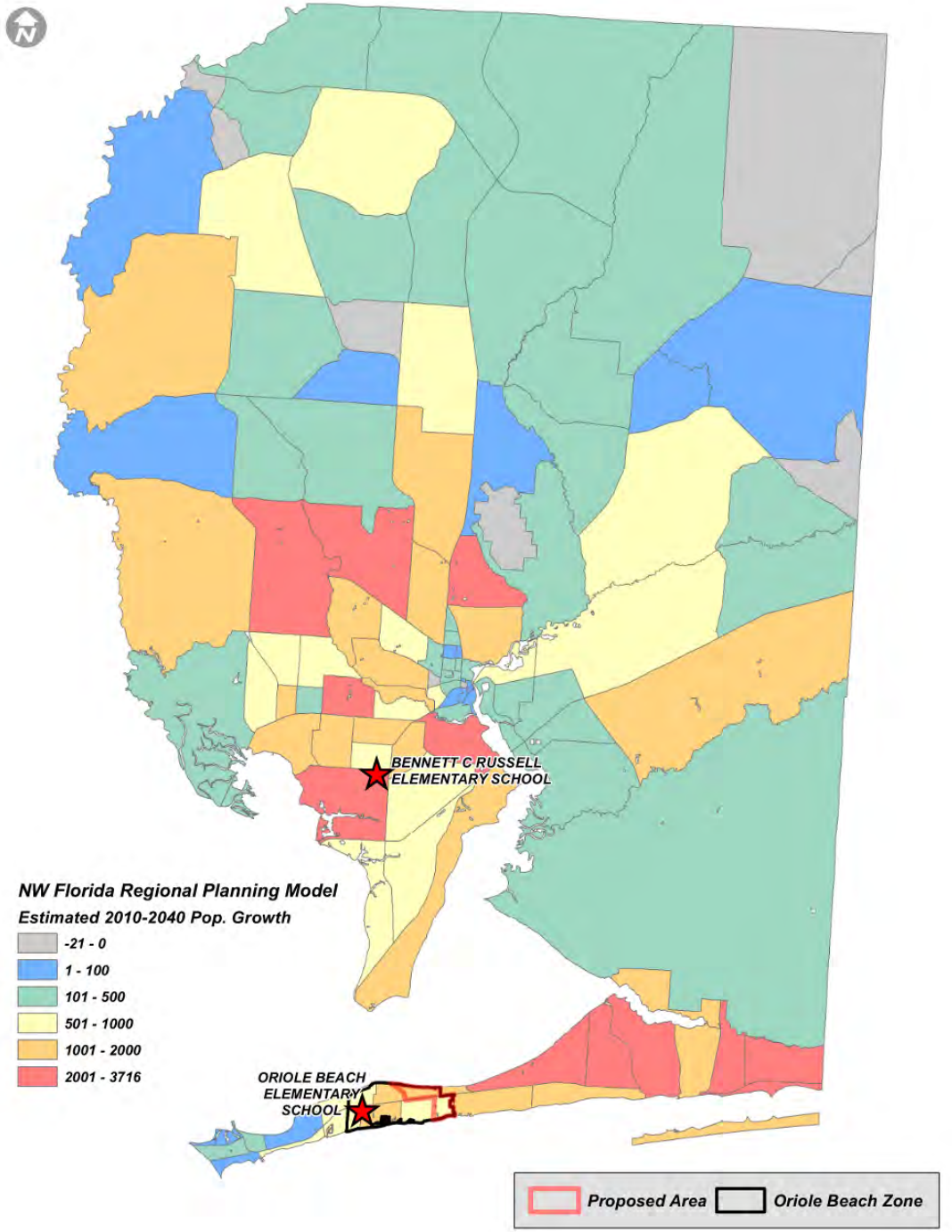




170 Students Pre-K Through 3rd Grade Were Rezoned to the New Metcalfe Elementary School

Transportation Analysis

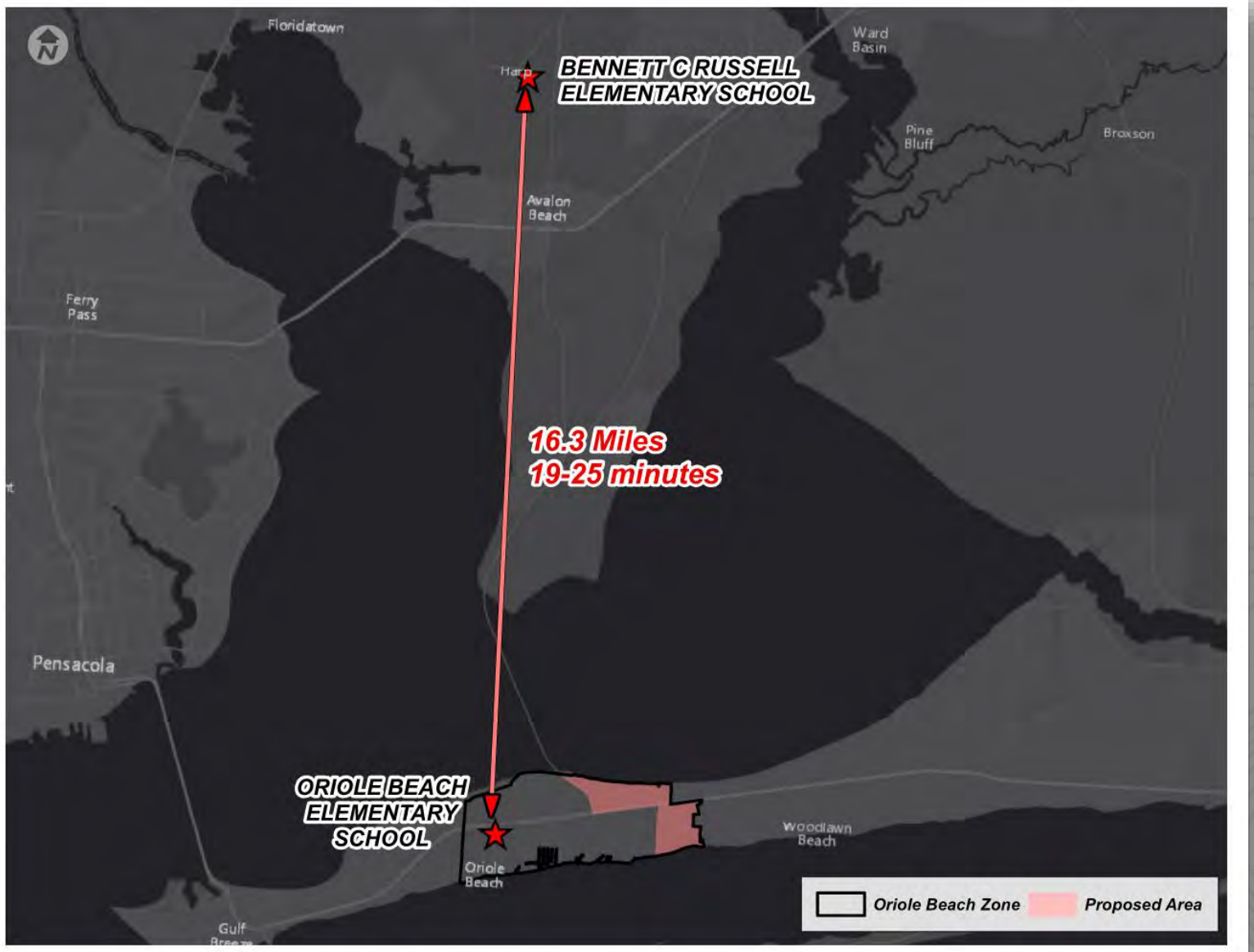
Santa Rosa County
Public Schools, FL

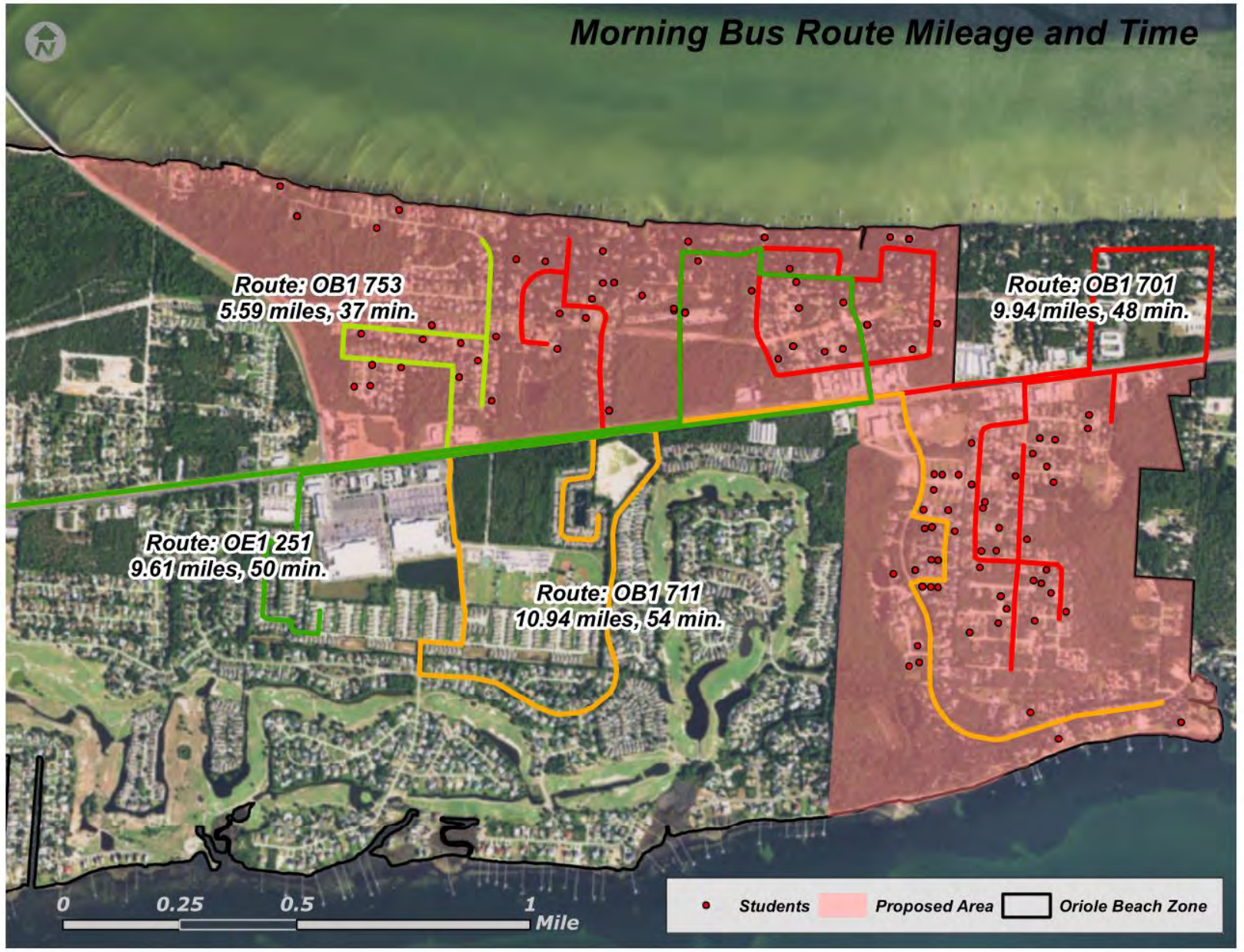


Transportation

Santa Rosa County Schools

Bus Routing decision




Morning Bus Route Mileage and Time
Route: OB1 753
5.59 miles, 37 min.
Route: OB1 701
9.94 miles, 48 min.
Route: OE1 251
9.61 miles, 50 min.
Route: OB1 711
10.94 miles, 54 min.
0
0.25
0.5
1
Mile
Students
Proposed Area
Oriole Beach Zone

832 STUDENTS TOTAL *AS OF 12/8

98% CAPACITY

125 STUDENTS IN SCENARIO

3 APPROXIMATELY MILE AVERAGE

117 93% LIVE UNDER 3.5 MILES POPULATION

&

37 29% LIVE UNDER 2.5 MILES

SERVED BY 4 INBOUND ROUTES: 701 711 753 251

150 STUDENTS IN SCENARIO

SUM OUTSIDE SCENARIO

36.08 TOTAL ROUTE MILES

55.02 DEADHEAD MILES

91.1 TOTAL MILES

45 MINUTES AVERAGE ROUTE TIME

Route 101 CLOSEST TO COVERING THE SCENARIO AREA

57 STUDENTS

9.94 MILES

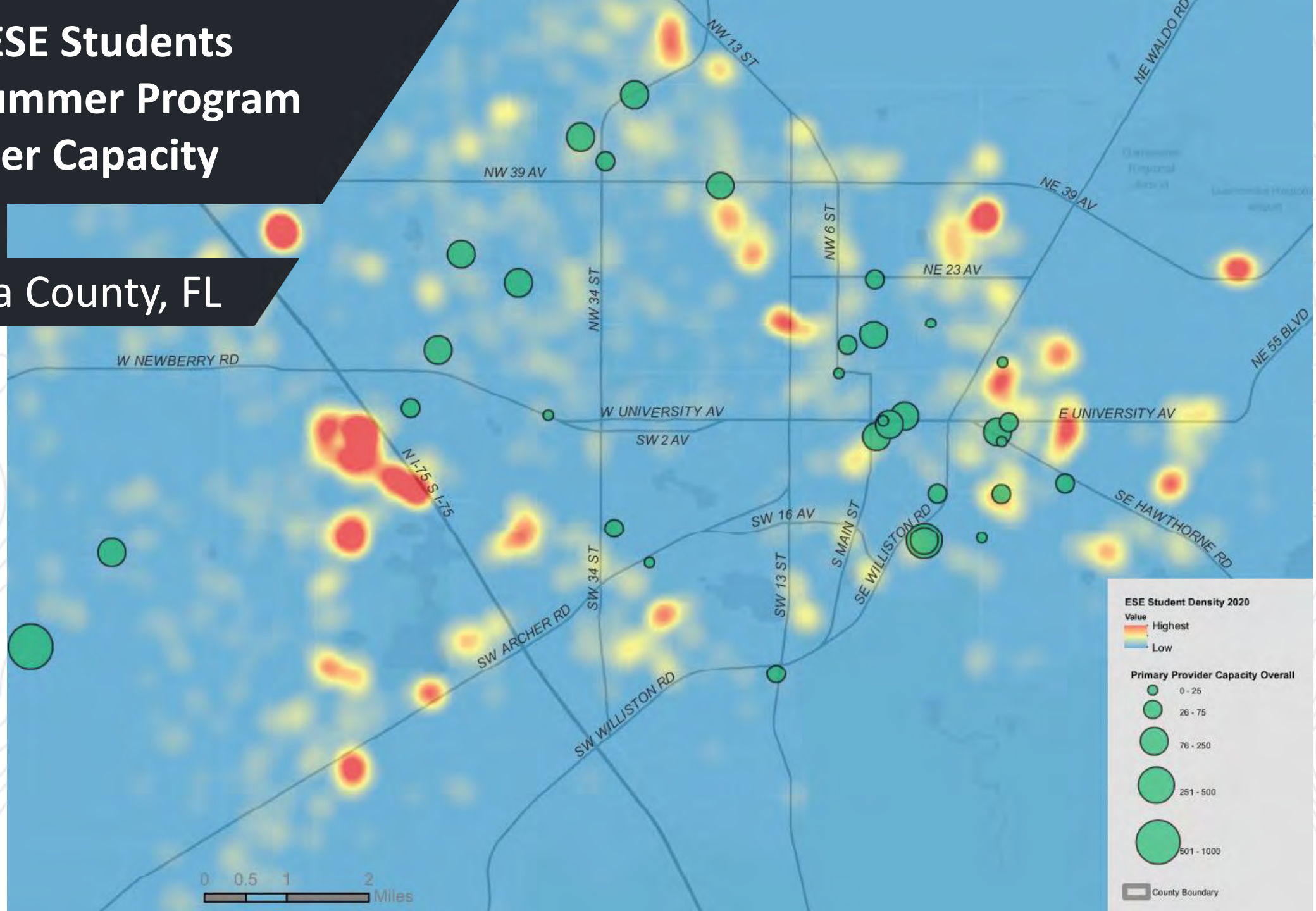
13.24 DEADHEAD MILES

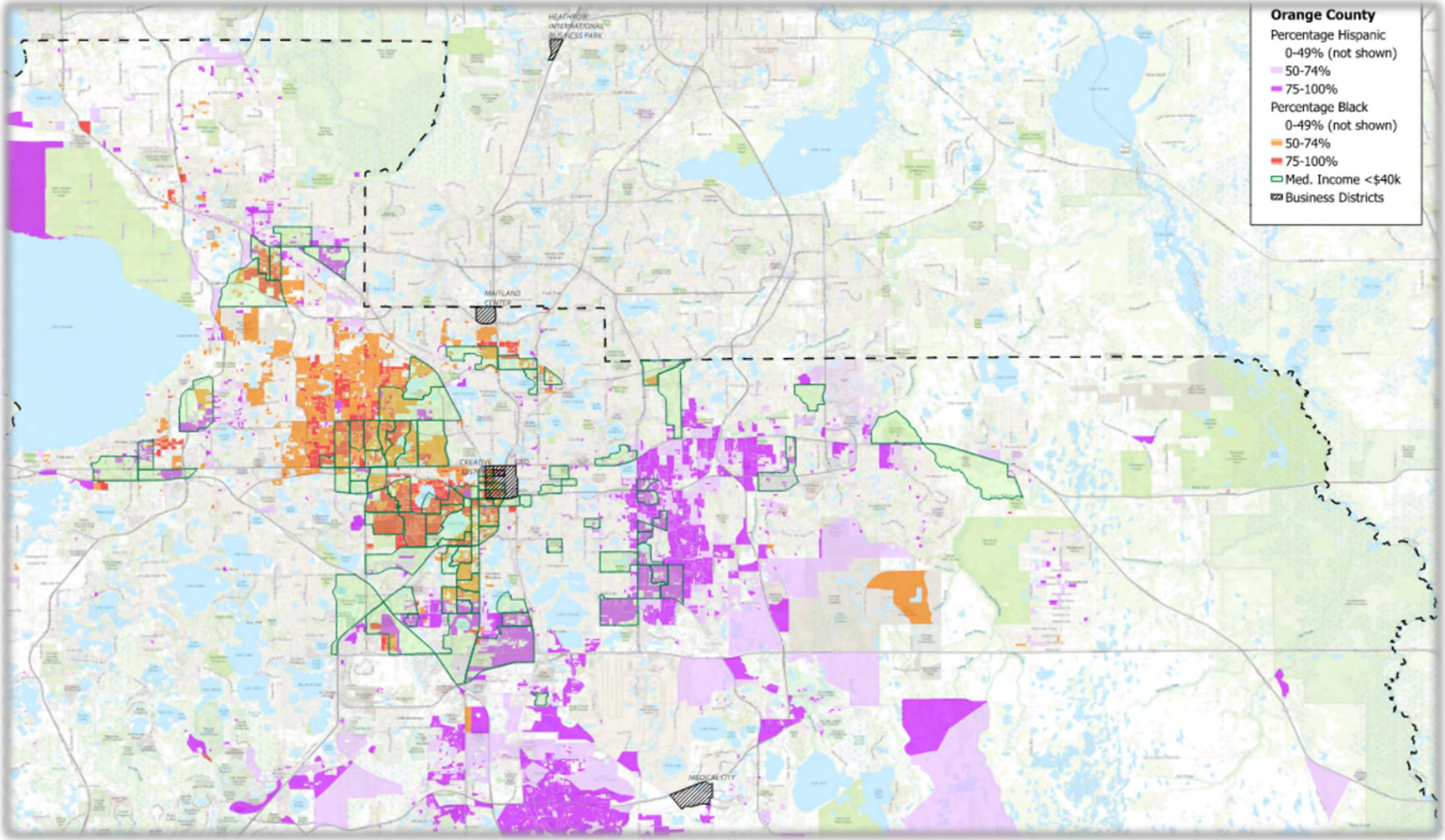
23.18 TOTAL

48 MINUTES

2021 ESE Students and Summer Program Provider Capacity

Alachua County, FL



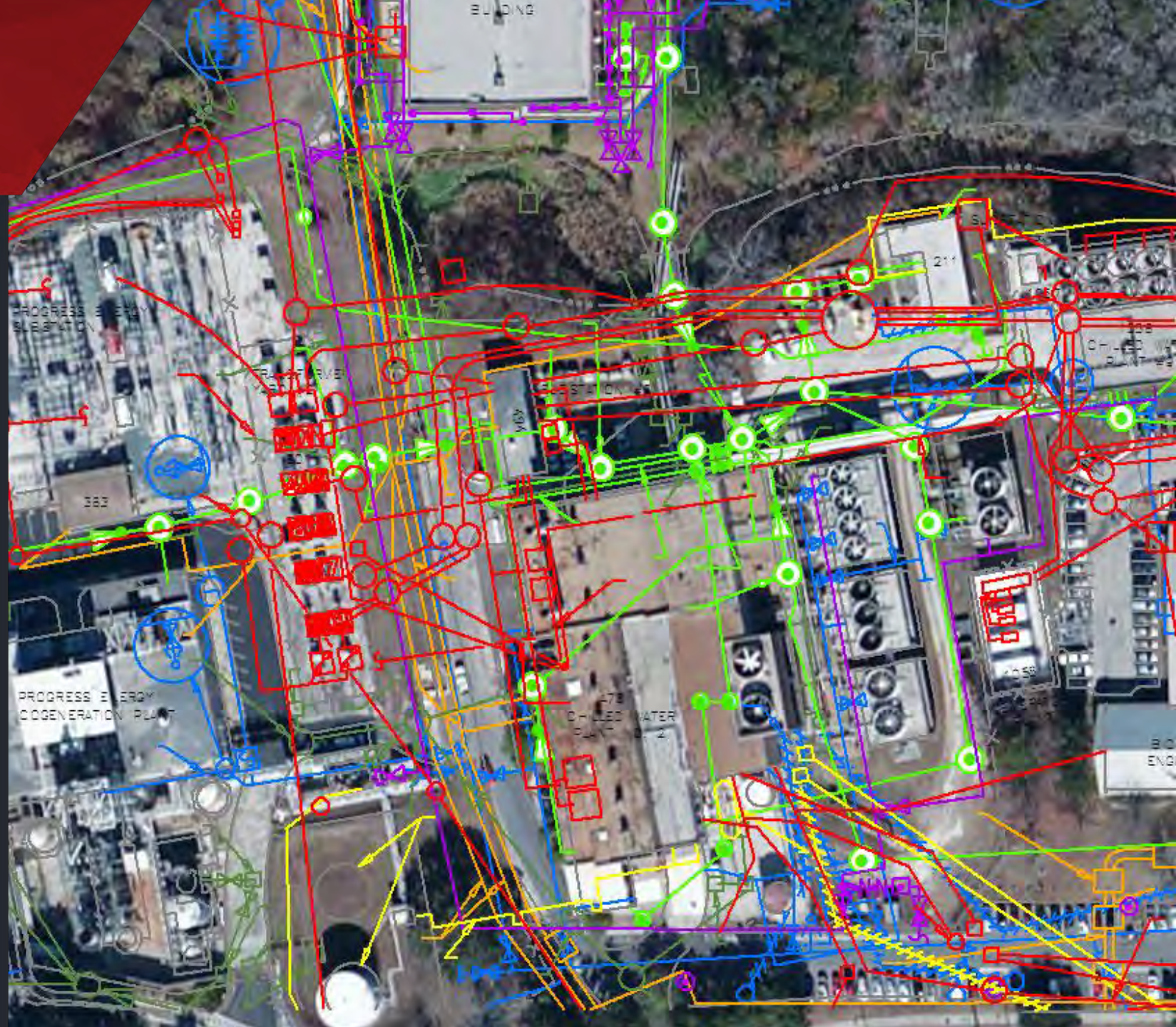

Orange County
Percentage Hispanic
0-49% (not shown)
50-74%
75-100%
Percentage Black
0-49% (not shown)
50-74%
75-100%
Med. Income <$40k
Business Districts
HEATHROW INTERNATIONAL BUSINESS PARK
MAITLAND CENTER
MEDICAL CITY

Higher Education

- Large campuses with specific needs and events
- Constant construction, renovation, and maintenance
- Campus communication is key
  - Who are your stakeholders?
    - Housing, Research, Athletics, Vendors, Facilities, Utilities, Transportation, etc.
    - Students and Faculty
    - Consultants

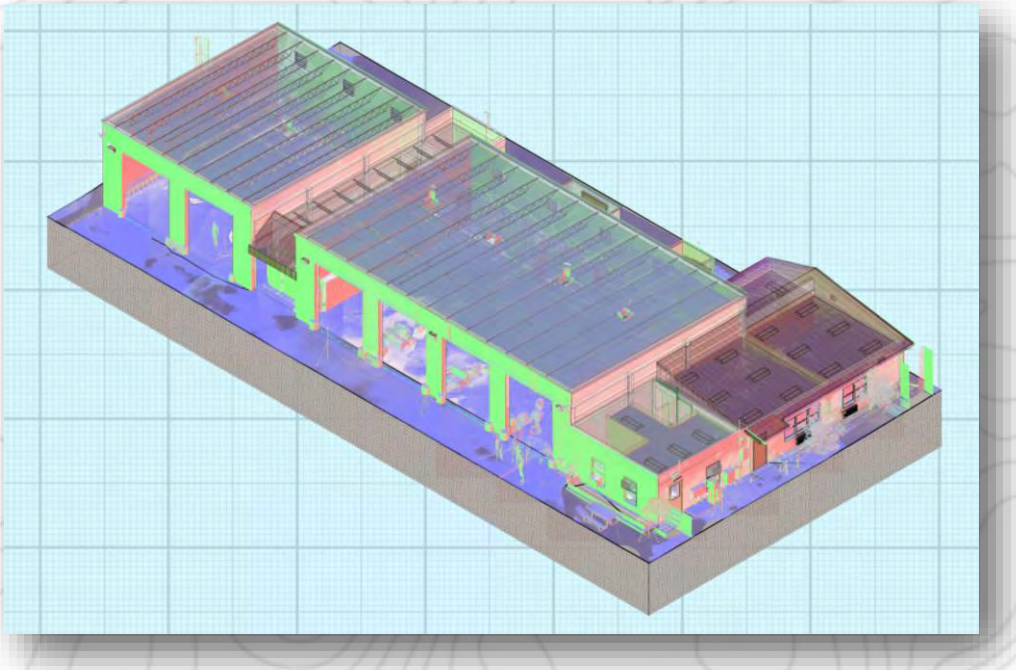
Standardization

- Consultant data is key offender
- Campus reference network
- CAD/GIS standards for submittals
- Authoritative data



BIM and Space Planning

- Design from your desired outcome
  - Level of detail needed
  - Level of standards required
- Reporting requirements are key
- Georeferenced to Horizontal/Vertical
- National BIM Standard-U.S. (NBIMS-US)



Work Order Management

- Software can dovetail or divide for campuses
- SaaS requires adaptability and interdependency
  - Exports, Extracts, & Efficiency
  - Emergency Management
- Interfaces come and go, relational databases are your foundation
- Enterprise solutions & eager expectations

Utilities

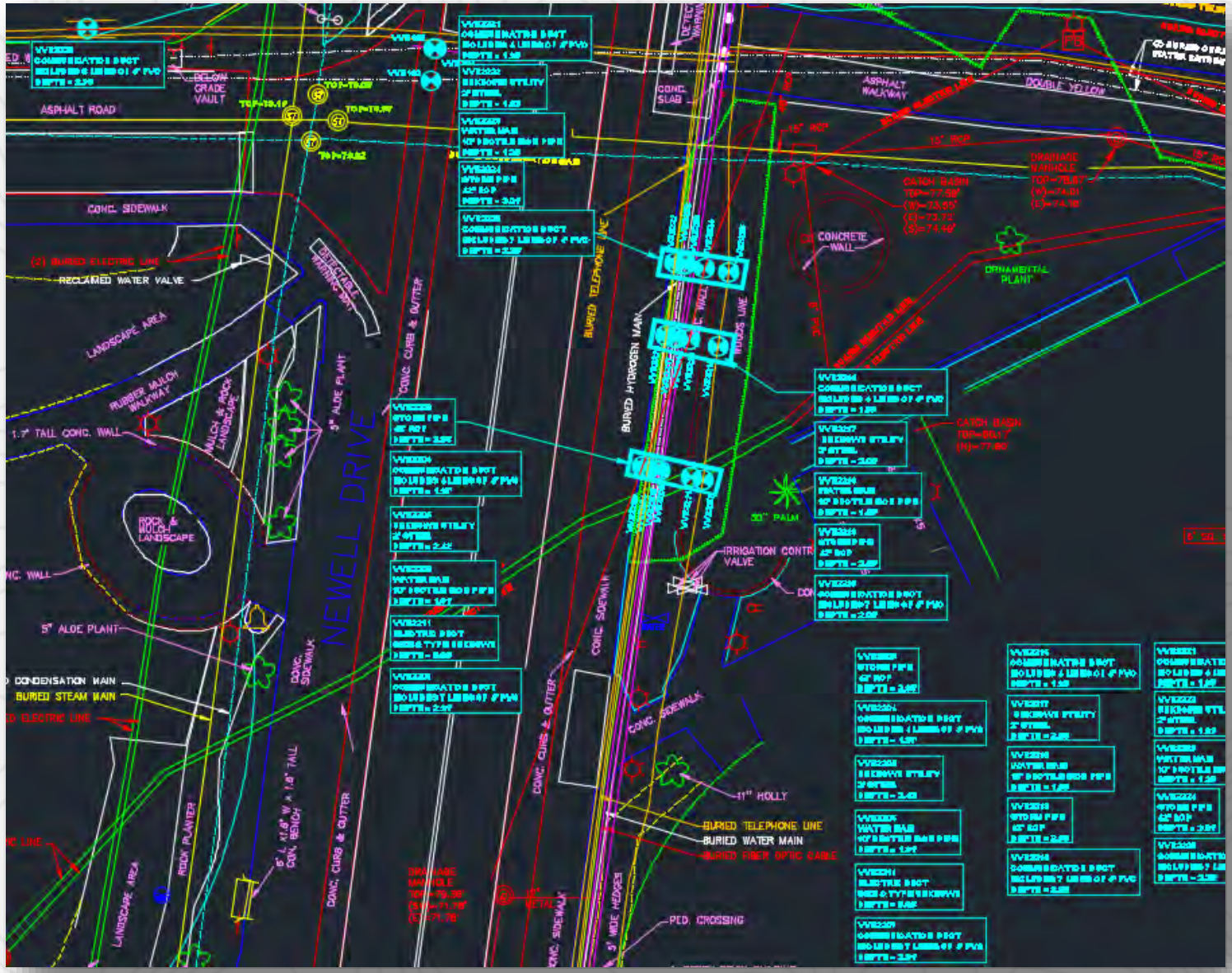
- Disparate datasets to different deliverables
  - CAD, Bentley, 3D Design, PDF, Tabular
  - Surveyors, Engineers, Architects, PMs, Lawyers
- Vertical and horizontal coordination
- WMD, USACE, DEP, FDOT Permitting
- Encroachment and setbacks

University of Florida

- ArcGIS Online (AGO) and Portal
- CAD/GIS Integration of 12 utilities
- Campus wide CCTV Sanitary
- Easement and Master Plan
- Field Collection /System Architecture
- LiDAR mapping efforts underway

University of South Florida

- AGO, ArcGIS Server, & Portal
- CAD/GIS Integration of 6 utilities
- Campus wide field inventories for Sanitary and Stormwater Systems
- Campus wide aerial LiDAR
- Campus reference network
- Campus Art Web mapping

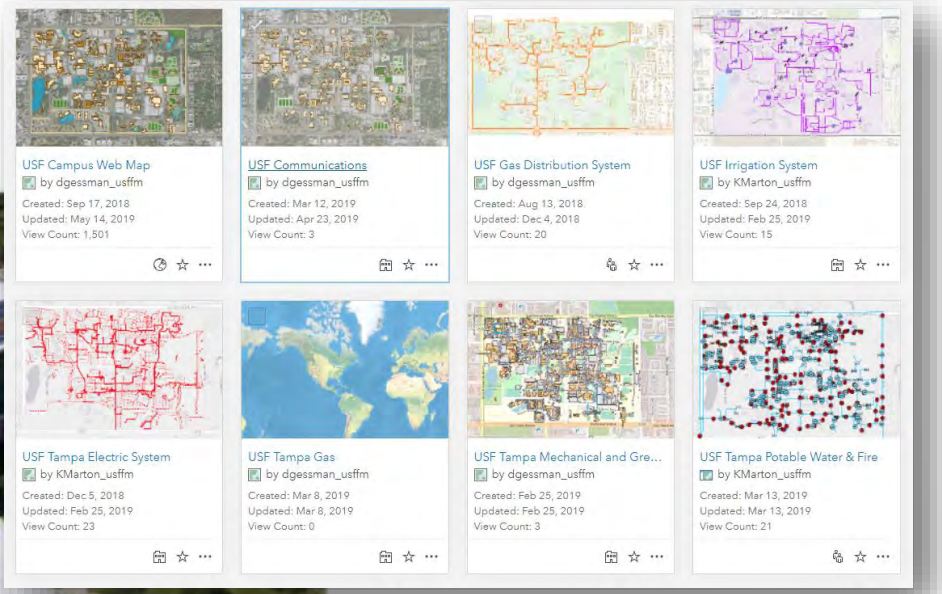


Home Gallery Map Scene Groups Content Organization

USF Public Art Collection

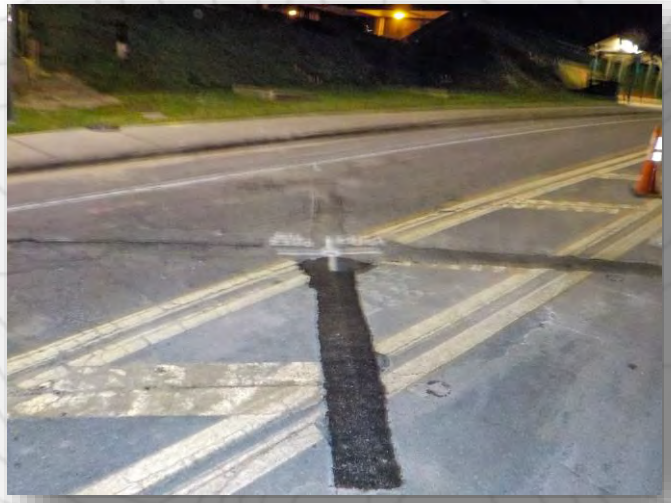
USF Emergency Management - Weather & Warnings

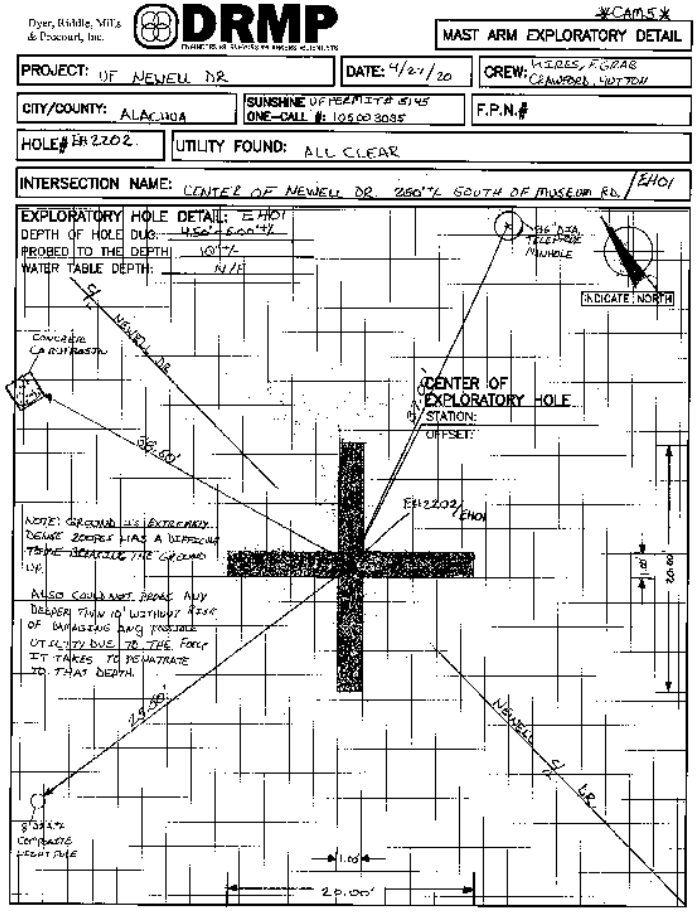
USF Interactive Campus Map



***USF Facilities Management** is an integral part of Administrative Services with responsibility for campus planning, development, maintenance, enhancement, safety, and the operation of USF's buildings, grounds, and utilities. The division's objectives are carried out by experienced, professional employees within its six departments.*

SUE – Subsurface Utility Engineering




Dyer, Riddle, Mills & Precourt, Inc.

DRMP

CAM5

MAST ARM EXPLORATORY DETAIL

PROJECT: UF NEWELL DR

DATE: 4/27/20

CREW: WIRES, F.GRAB CRAWFORD, HUTTON

CITY/COUNTY: ALACHUA

SUNSHINE UF PERMIT# 8145 ONE-CALL #: 105003095

F.P.N.#

HOLE# EH2202

UTILITY FOUND: ALL CLEAR

INTERSECTION NAME: CENTER OF NEWELL DR. 250'± SOUTH OF MUSEUM RD. /EH01

EXPLORATORY HOLE DETAIL: EH01

DEPTH OF HOLE DUG: 450'±60"Ø

PROBED TO THE DEPTH: 10'±

WATER TABLE DEPTH: N/E

INDICATE NORTH

CENTER OF EXPLORATORY HOLE

STATION:

OFFSET:

EH2202/EH01

NOTE: GROUND IS EXTREMELY DENSE SOILS HAS A DIFFICULT TIME PENETRATING THE GROUND UP.

ALSO COULD NOT PROBE ANY DEEPER THAN 10' WITHOUT RISK OF DAMAGING ANY POSSIBLE UTILITY DUE TO THE FORCE IT TAKES TO PENETRATE TO THAT DEPTH.

20.00'

Vacuum Excavation Report

6.5 MILES

OF ROAD CORRIDOR SURVEYED

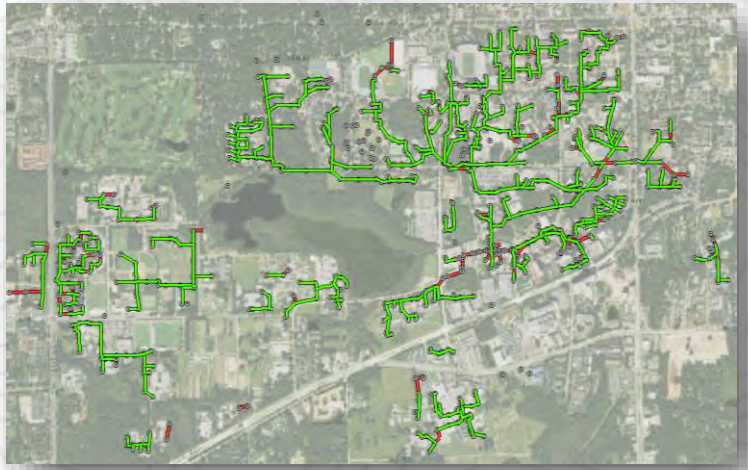
UF Utilities
GIS DATA PLATFORM

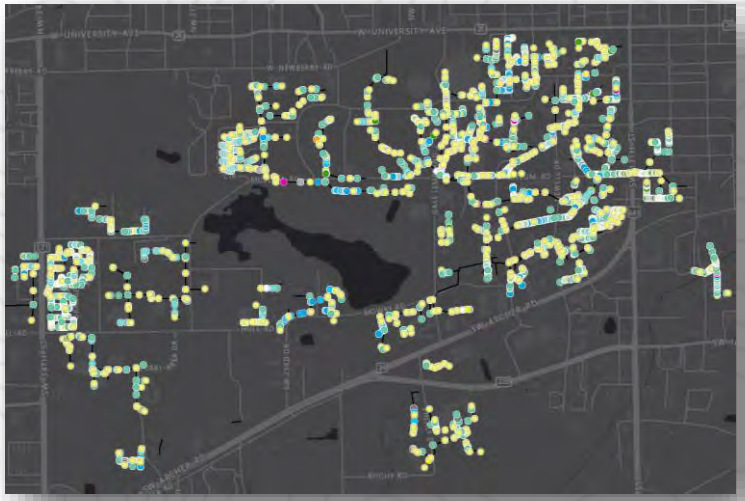
30+ MINOR PROJECTS COMPLETED

Surveyed 68 miles of UNDERGROUND UTILITIES

Hundreds of **VERTICAL VERIFICATION HOLES** for Utility Locations

University of Florida CCTV Sanitary Inventory



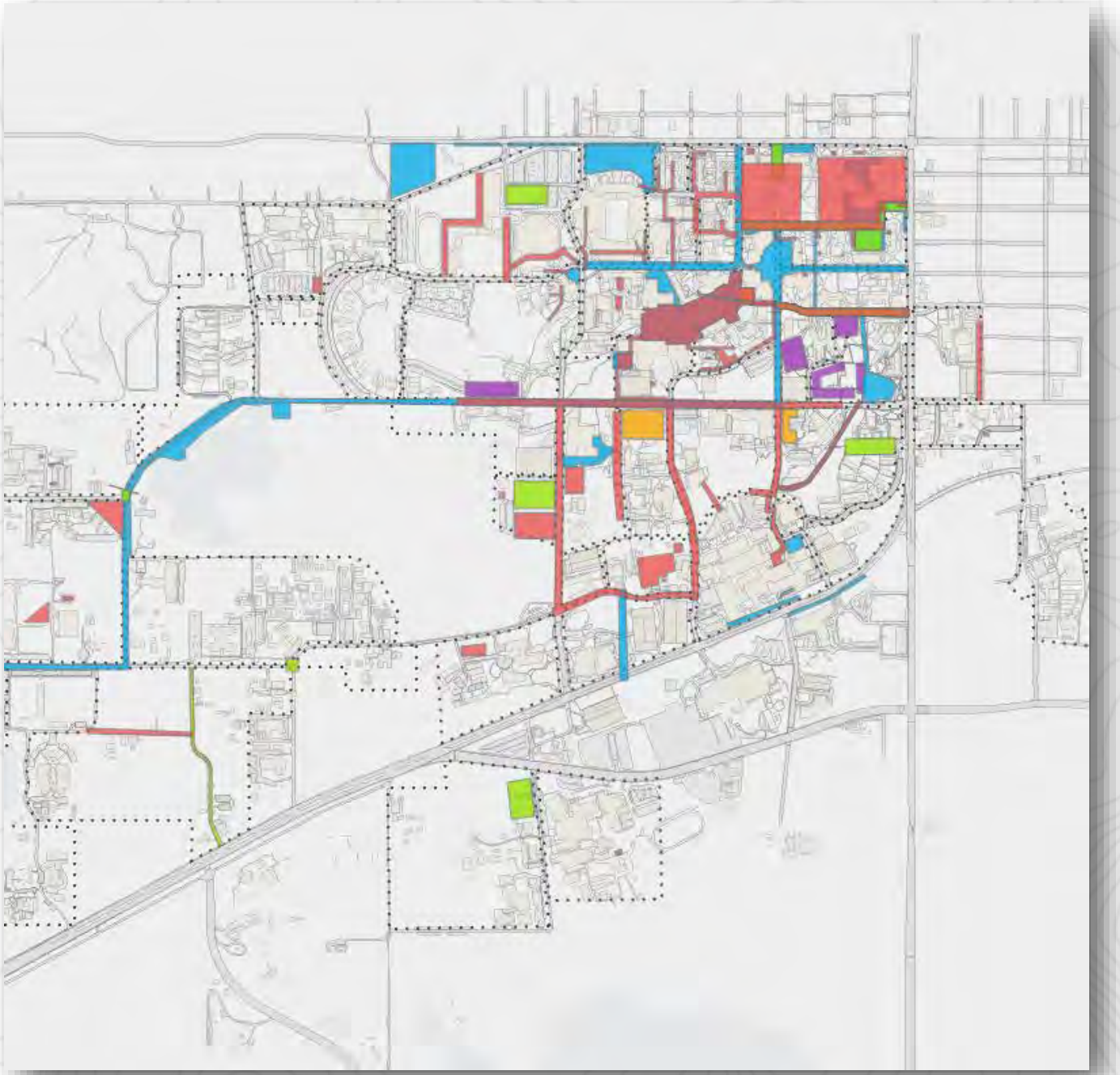


Campus Planning

Easements w/ OR links

CIP/ Local Agency

Master Plan Projects

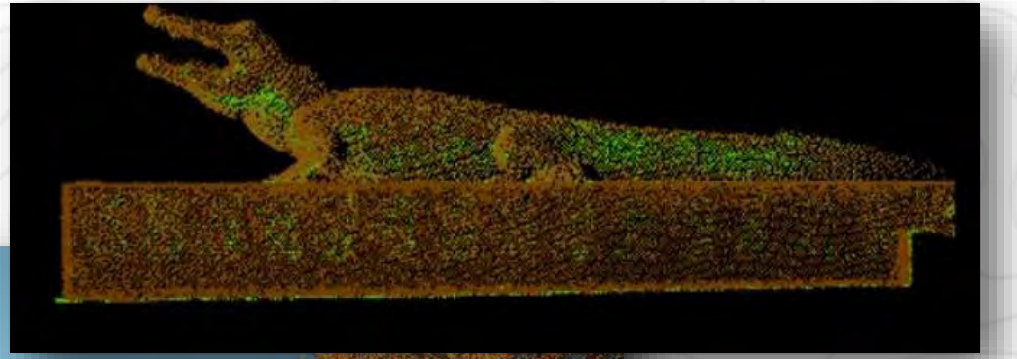


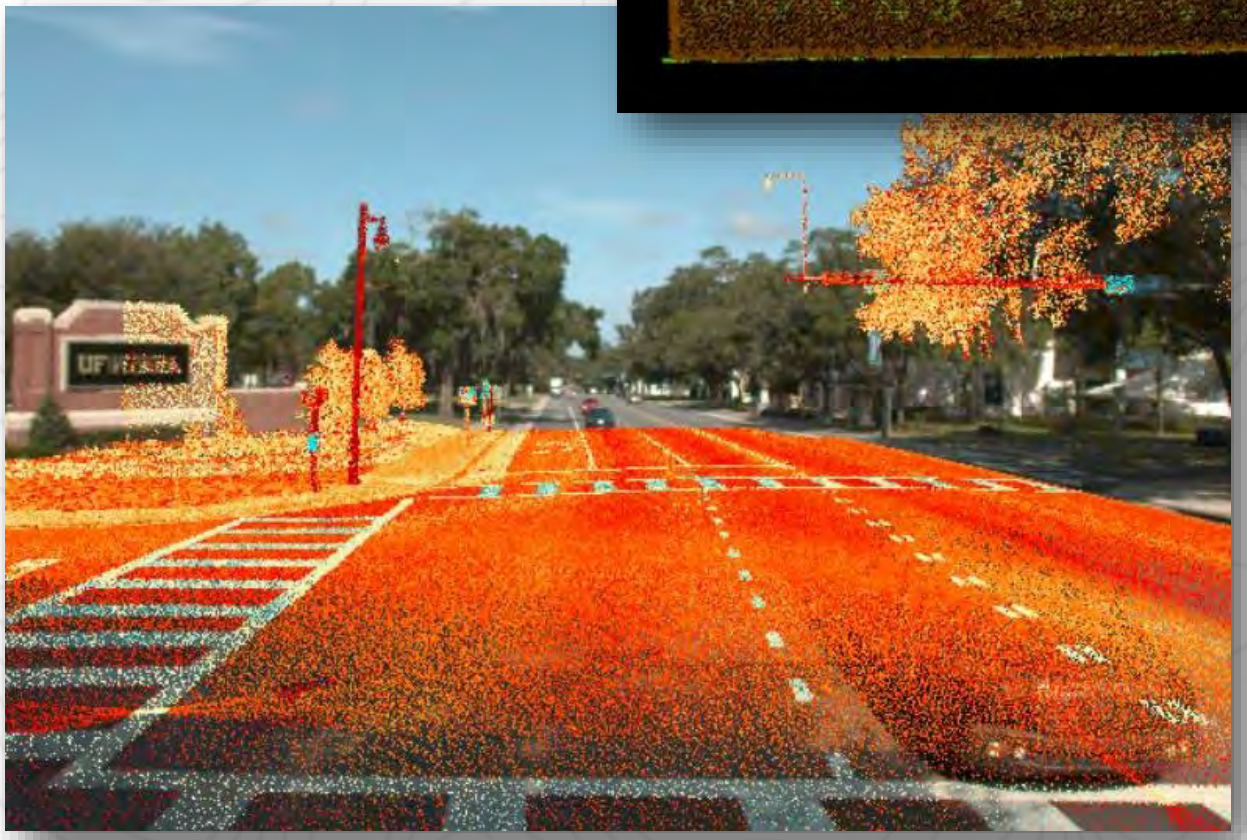
Pedestrian Safety & Mobility

Lighting, Signs, & Vegetation

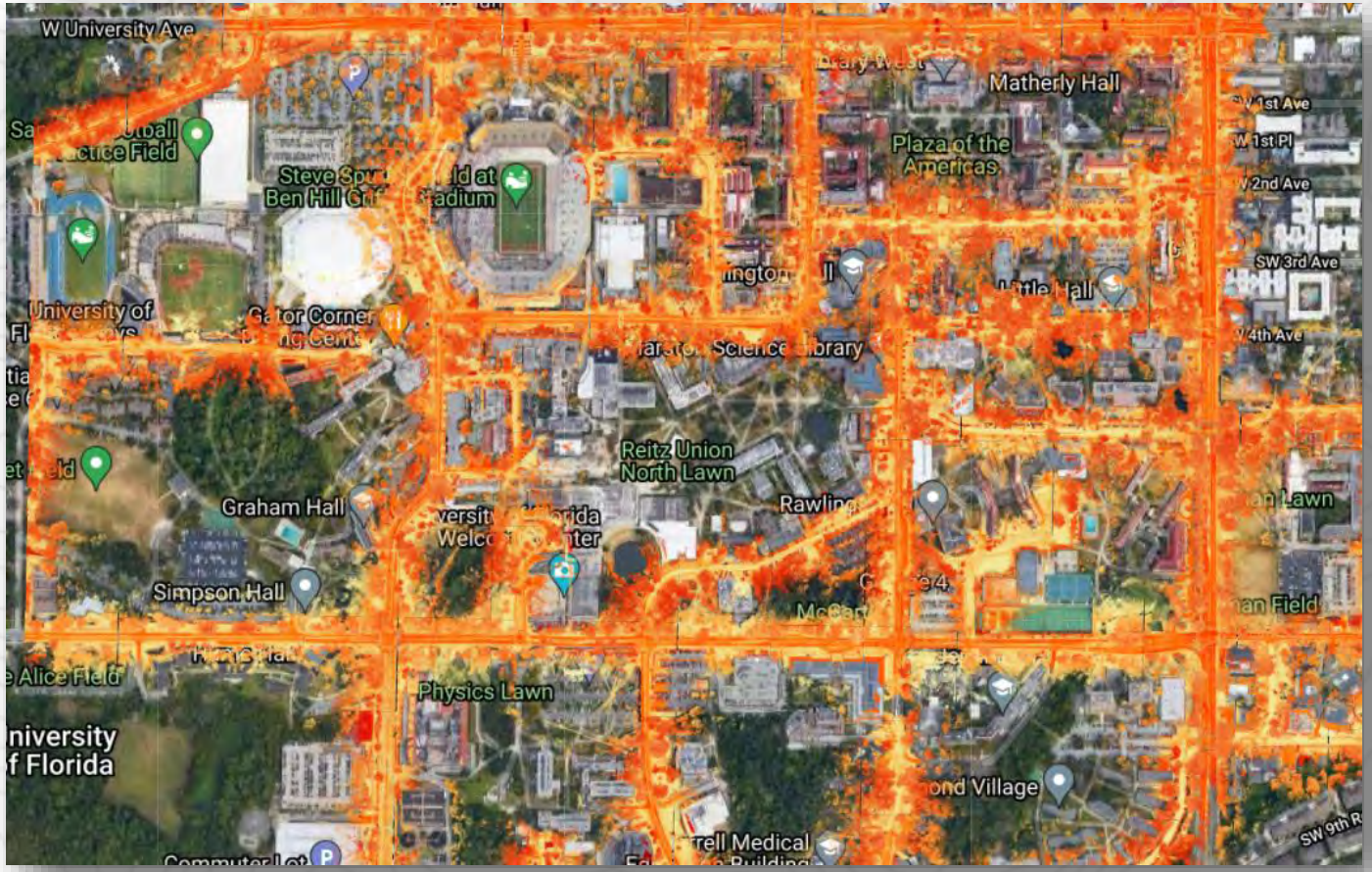
ADA & MUTCD Compliance

FDOT Design Criteria



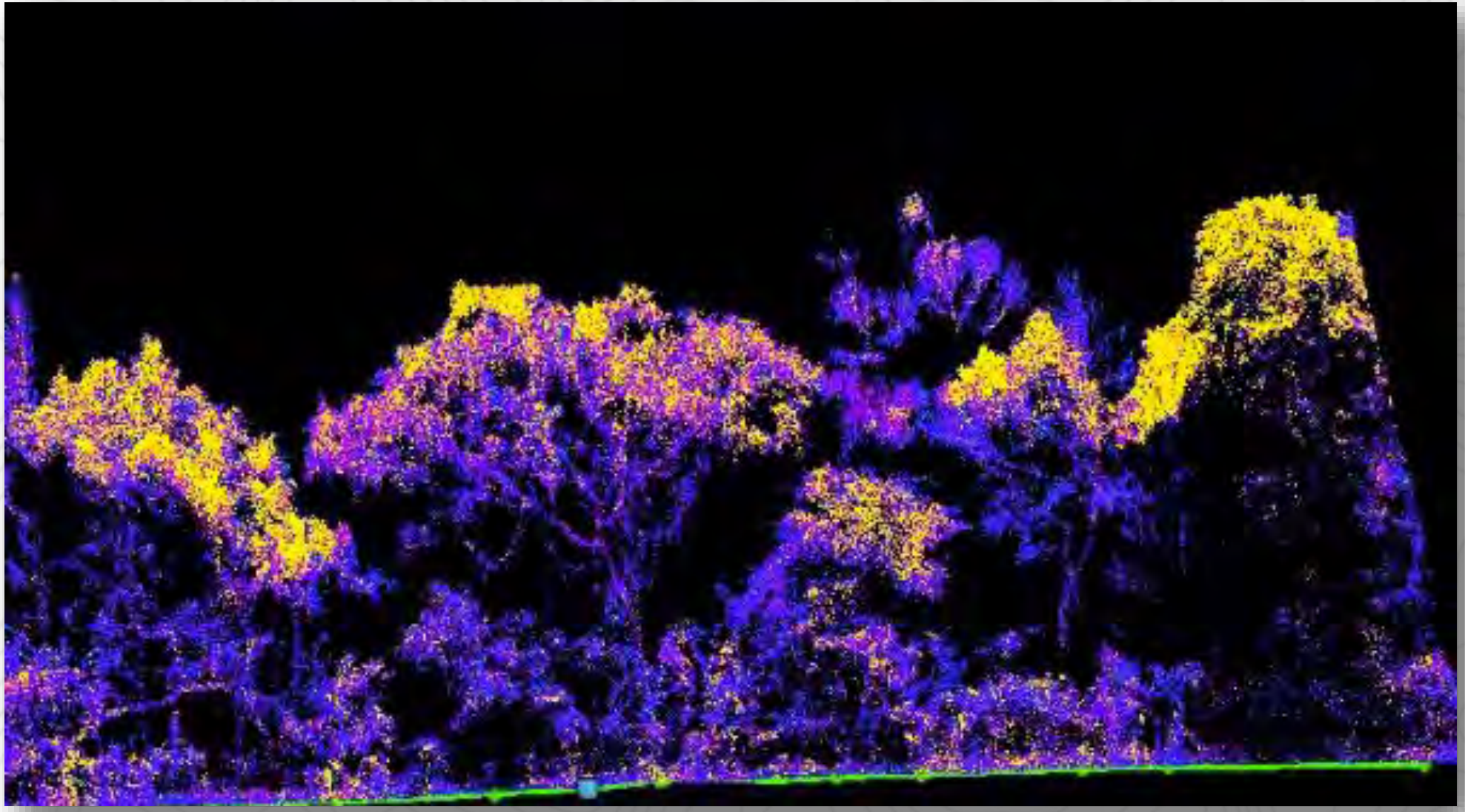


40 lane miles 28 surface lots collected to date



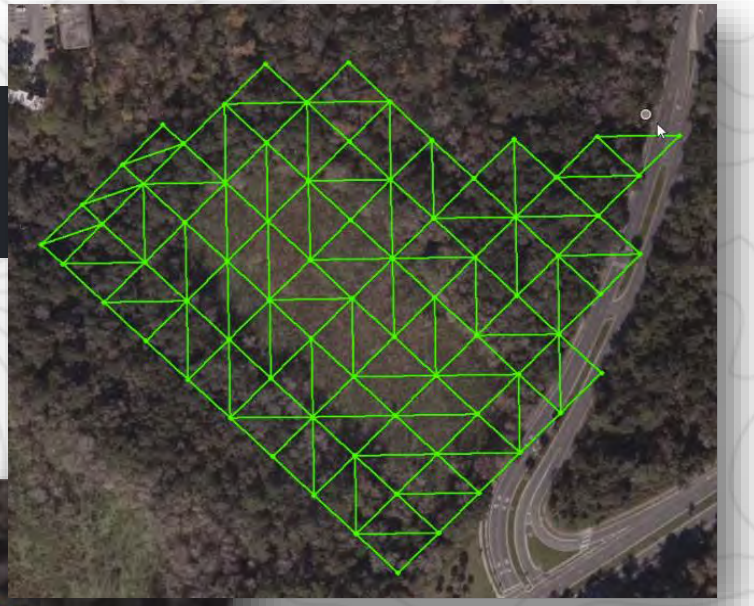
Historic Preservation

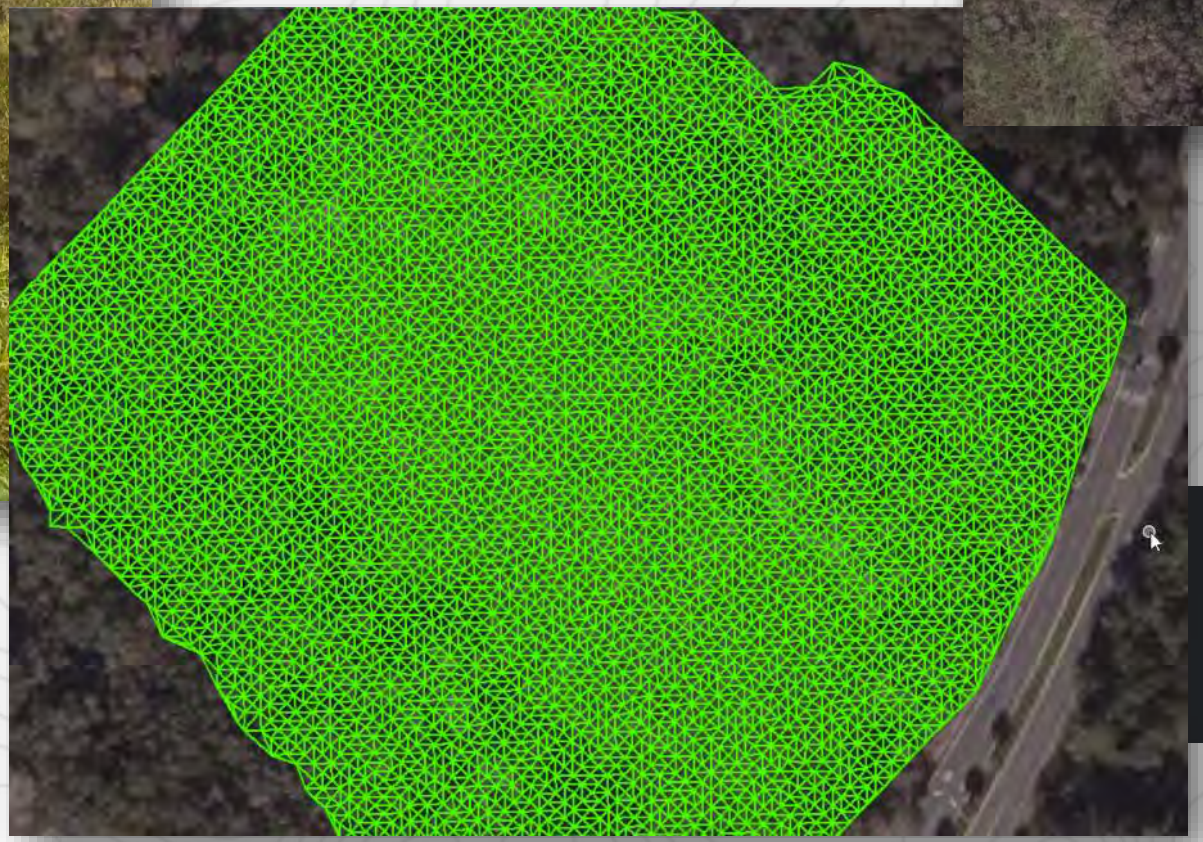
Wetlands



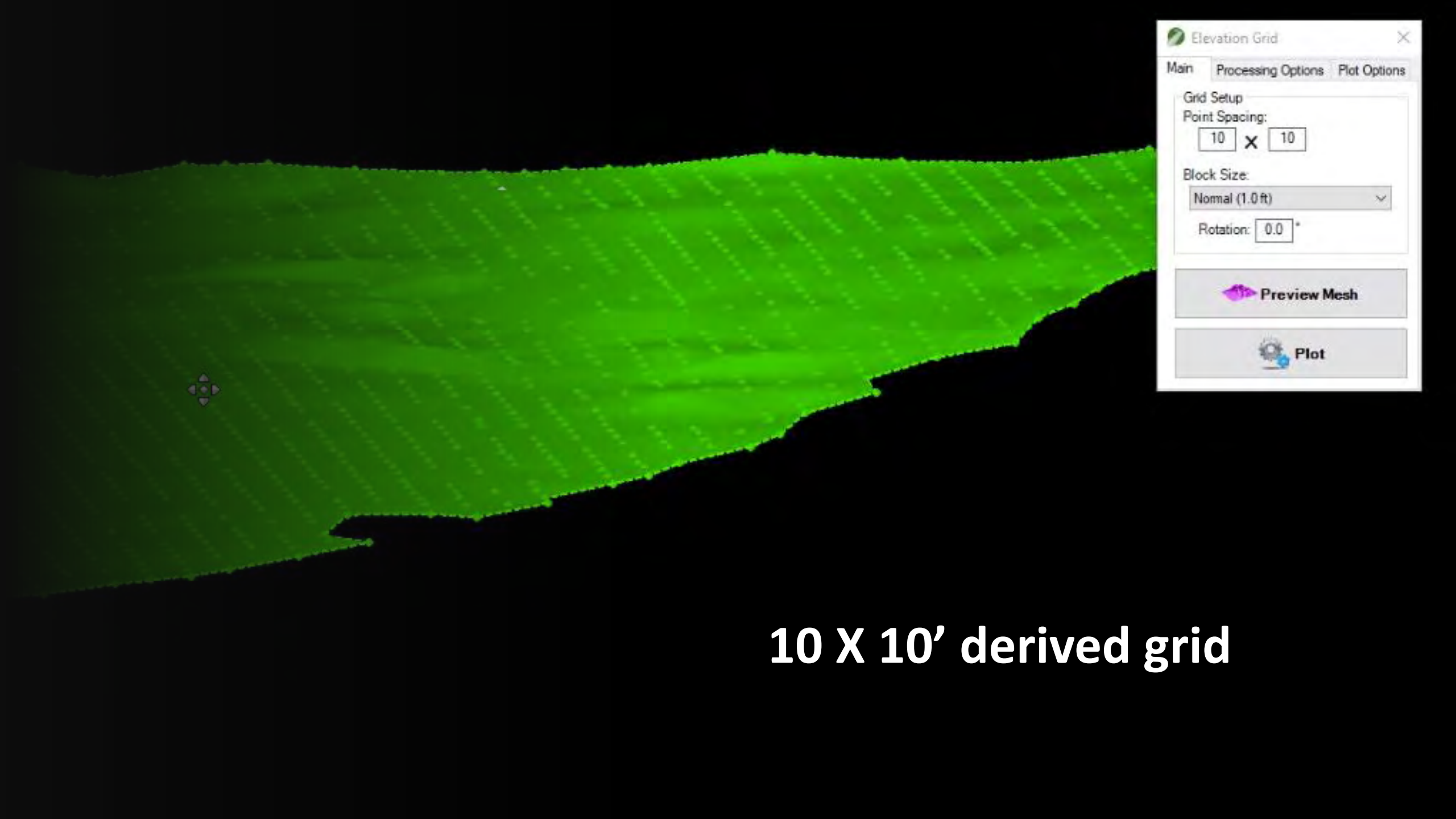
Extremely Marshy Site

Requested 100 x 100’
for wetland restoration



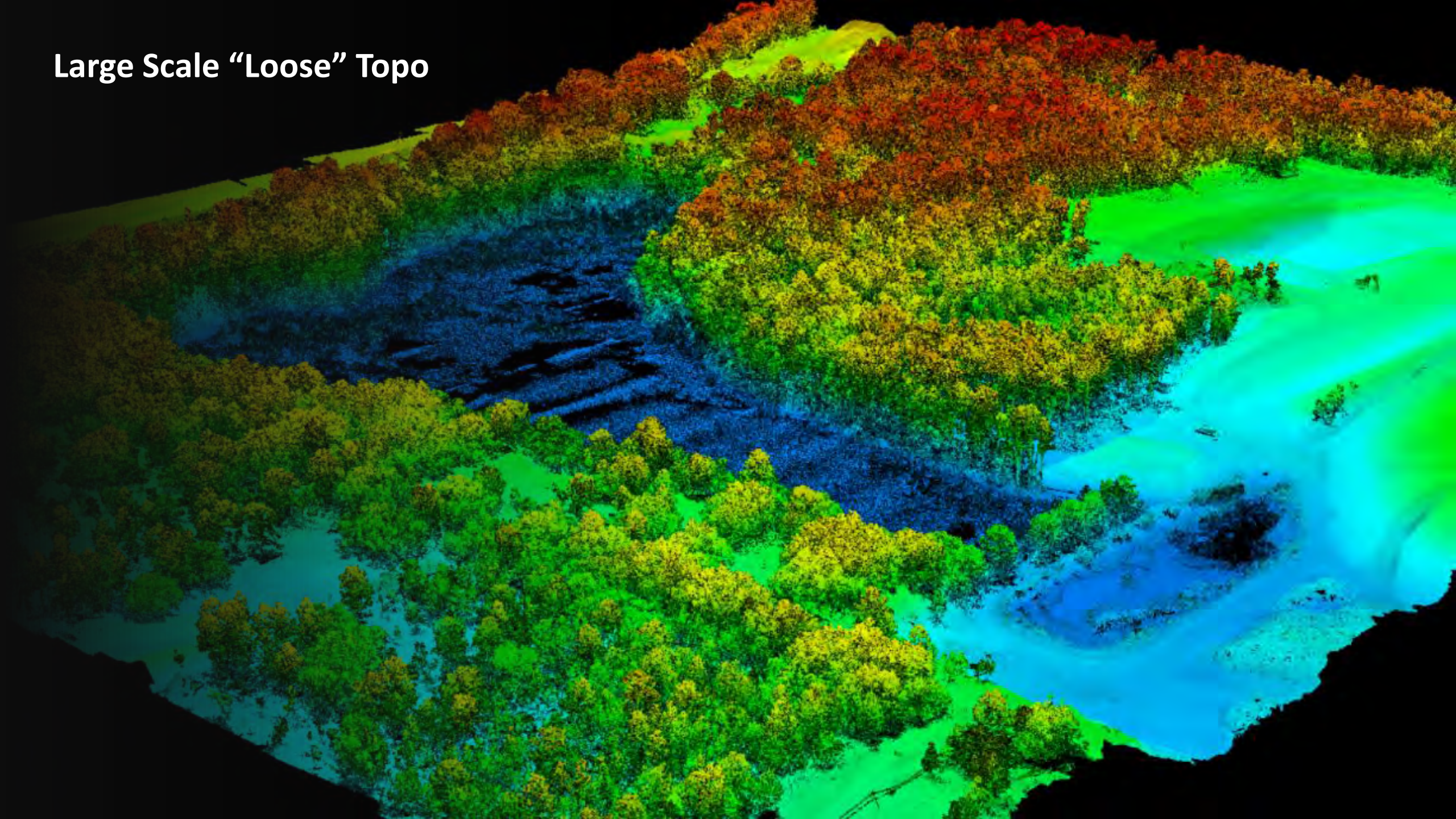


LiDAR 1 x 1’
Non-controlled
derived surface



10 X 10’ derived grid

Large Scale “Loose” Topo



THANK YOU!

DRMP

JOHN GILREATH, GISP

JGilreath@drmp.com

352.514.5178