# UNIVERSITY CONTEXT AREA ANALYSIS

## OCTOBER 2019

PLANNING, DESIGN&
CONSTRUCTION DIVISION

UF | UNIVERSITY of FLORIDA

## INTRODUCTION

**Background.**  The University of Florida (UF) is required by Chapter 1013.30, Florida Statutes to update its Campus Master Plan every five years. As part of this process the University coordinates with the City of Gainesville and Alachua County to identify the University's Context Area. This identification has historically focused on mapping of university student and employee home addresses to understand their distribution across the community. The "Context Area for Campus Development Agreements" is defined in the Florida Board of Governor's (FBOG) Chapter 21 Regulation as amended in June 2009 (previously in Florida Administrative Code Section 6C-21.20) as follows:

> "…an area surrounding the university, within which on-campus development may impact local public facilities and services and natural resources, and within which off-campus development may impact university resources and facilities. The size of the context area may be defined by natural or man-made functional or visual boundaries, such as areas of concentration of off-campus student-oriented housing and commercial establishments, stormwater basins, habitat range, or other natural features.  To facilitate planning analysis and intergovernmental coordination, the context area may differ in configuration in the various elements of the campus master plan."

The 2015 - 2025 University Context Area boundary is presented in Figure 1. This map was developed through an analysis of 2010 U.S. Census data, transit ridership data, and information provided by the University for student and employee residences. Figure 13 represents the 2020 – 2030 University Context Area Boundary, which was expanded to include the areas west of campus around Haile Plantation and Archer Road. This expansion was made in recognition of the high number of university personnel living in this area.

**Update for 2020-2030 Campus Master Plan.**  In order to update the Context Map for the 2020 Campus Master Plan, the University analyzed current employee and student home addresses to identify whether additional areas should be considered for inclusion, and to verify that areas currently included should remain within the boundary. This report documents the analysis process and findings.

The results of this analysis allowed the University, City of Gainesville, and Alachua County to jointly consider and identify a Context Area for the campus master plan and Campus Development Agreement for the years 2020-2030.  In addition to this application, the analysis contained herein should prove to be highly valuable for other planning applications, particularly transit facility and service planning.

## ANALYSIS

**Methodology.**  The following data sources where used in the creation of this report.

- Transportation Analysis Zone (TAZ) Boundary File with Population for 2015 from North Central Florida Regional Planning Council (NCFRPC) as developed for the MTPO Long Range Transportation Plan, 2010-2035.
- UF Employee and Student Home Addresses from the UF Directory, 2019
- UF Employee Addresses from Parking Decals, 2019
- Alachua County E-911 Address Data
- Alachua County Property Appraiser's Parcel Data
- Florida Department of Transportation Data 2017 RGB Imagery

Three UF datasets were used in the mapping process. Two datasets were used for employee mapping, one based on UF Directory information and the other from parking decal data. Student data was provided by the UF Directory.

In order to determine the locations of UF employee and student homes for potential impacts to local jurisdictions, University staff compiled all available home addresses. Once compiled, the addresses were sorted to remove duplicates, eliminate un-mappable addresses, and exclude areas outside of Alachua County. The refined data was brought into ArcInfo mapping software and geo-coded using special utilities specifically designed for 911 address mapping. This process led to three distinctive geographic data sets that were then intersected with NCFRPC TAZ data. Included within the TAZ data was general Alachua County population data that contains the number of people expected to live within each TAZ confines.

**Data Limitations.** Geo-coding (i.e. address mapping) uses specifically designed software that relates data from roads or line data to specific addresses or points. In order for this process to work, road data must be divided into segments that contain attributes defining the road name, range of address on each side of the road, city, county and zip code information. The address dataset must contain a full street address, city, county, and zip code information. When both datasets contain the correct information the results from the geo-coding exercise are matched at a very high confidence level. However, errors in mapping will occur when either of the datasets are incomplete (primarily found in the address or point datasets), contain extra information, P. O. boxes, named streets, and any other erroneous information. These issues will lead to either un-mappable data or miss-mapped data. The software utilities in ArcInfo provide a confidence scoring mechanism (score High = 80-100, Med = 60 -80) to help users gain an understanding of the relative success of the geo-coding exercise. However, it must be noted that this scoring has limitations of its own, where occasionally addresses that have been perfectly matched are shown with a low score and addresses that did not match showing a high score.

The process of intersecting the geo-coded data with TAZ data can also lead to errors in the output data. Individual TAZs are created primarily by defining areas bounded by major roads. The output from this exercise creates TAZ polygon boundaries that follow the middle of the road line data. When this data is intersected with the geo-coded point data there is the possibility that specific addresses may fall within the adjacent TAZ.

In order to effectively address the limitations related above, the analysis included a number of exercises to confirm a relatively high level of confidence in the results. On the geo-coded point datasets, a random sampling of point data was conducted to ensure correct geographic locations. On the combined geo-coded TAZ datasets, the results were visually inspected using imagery and parcel information to ensure that areas had been properly intersected.

The parking decal dataset includes only those UF employees who buy parking decals and does not include employees who exclusively bike, walk, use the bus, or work at off-campus facilities that do not require parking decals. It may have included some students who are also employees eligible to buy employee decals, but this is a relatively small number. Employee addresses in both datasets were not screened to ensure that these employees report to main campus, therefore, some of these employees may work at satellite properties in Alachua County (e.g. Eastside Campus, TREEO Center and IFAS research units), or facilities outside of Alachua County (e.g. Citra plant science unit, Jacksonville medical campus, county extension offices, etc). The student directory data is limited because many students use parent home addresses that are out of county and do not have local addresses on file. Student addresses located in on-campus housing were not mapped because their location on campus is not relevant to Context Area identification in the community. The trends and conclusions resulting from this analysis should be

viewed with an understanding of these data limitations.  Still, the large number of successfully mapped employee and student addresses are assumed to be a reasonable representative sample upon which macro trend observations can be made.

## **Results - Number of UF Employees and Students by TAZ**

Student Home Address Mapping –Figures 2 & 3
Figures 2 & 3 show the results from the intersection of student home addresses with TAZs in Alachua County. Figure 2 illustrates the student distribution county-wide, while Figure 3 focuses on areas close to the University and adjacent to the existing 2015 Context Area.

A total of 25,806 independent student addresses were mappable from the UF Directory for students. The University Office of Institutional Research reported that 47,526 students were enrolled on the main campus in 2018.  That same year, over 10,500 students were reported to live in on-campus residence halls, graduate student villages and Greek houses.

Student Change Figure 4
Figure 4 shows the change in number of students residing in each TAZ from 2014 – 2019. Since the number of mappable addresses does not remain constant, along with the fact that many students addresses are not included in the on-campus and off-campus numbers in the previous figures, only gross trends should be discerned from the data. The trends shown on Figure 4 point to more students residing on the north and eastern sides of campus, along with a correlating loss of students from the south and western areas around campus. These trends are in line with the increased building of denser student housing in the north and eastern areas around campus.

Employee Home Address Mapping (from UF Directory data set) – Figures 5 & 6
Figures 5 & 6 illustrate the results from the intersection of employee home addresses (UF Directory) with TAZs in Alachua County. Figure 4 illustrates the employee distribution county-wide, while Figure 5 focuses on areas close to the University and adjacent to the existing 2015 Context Area.

A total of 23,537 independent employee addresses were accessible from the UF Directory for employees. After geo-coding and manually mapping, 19,961 addresses were mapped. The unmappable, addresses were either P. O. boxes, erroneous addresses or outside the county.

Employee Home Address Mapping (Decal Parking) – Figures 7 & 8
Figures 7 & 8 illustrate the results from the intersection of employee home addresses (parking decal data) with TAZs in Alachua County. Figure 7 illustrates the employee distribution county-wide, while Figure 8 focuses on areas close to the University and adjacent to the existing 2015 Context Area.

A total of 14,419 independent employee addresses were accessible from the UF employee parking decal data set. After geo-coding, 11,497 addresses were matched.

Student Density per Acre Mapping – Figures 9 & 10
Figures 9 & 10 illustrate the results of mapping student addresses on a per acre population density. The results show that the densest student population are immediately adjacent to campus. This analysis can provide some insight into possible distortions of the number of students or employees when a TAZ is very large or very small and has a high number of either resident group.

Employee Density per Acre Mapping – Figures 11 & 12
Figures 11 & 12 illustrate the results of mapping employee addresses (UF Directory) on a per acre population density. The results show the densest employee populations close to campus, but also that the

employee populations are much more dispersed into the City and County. Like the student density mapping, this analysis can provide some insight into possible distortions of the number of students or employees when a TAZ is very large or very small and has a high number of either resident group.

## DISCUSSION

**Students.** While student populations are distributed across Alachua County, the mapping results show that the majority of students live close to the University and along transportation corridors that lead to campus. The number of students residing in certain TAZs is fairly high (greater than 100) and are contained almost entirely within the 2015 Context Area, with the exception of TAZ 276, which shows 110 students living within Haile Plantation. Based on the analysis of change from 2014, it is clear that students are moving closer to campus and that the recent high-density development north and east of campus has had the planned effect of moving students into the urban core.

**Employees.** The results of UF employee mapping show a much less concentrated distribution as compared to student populations, particularly immediately around the University.

Analysis of the number of employees by TAZ reveals high numbers of employees in TAZs along Tower Rd. and Archer Rd., in the vicinity of Haile Plantation; along NW 53rd Ave. and NW 43rd St. in the vicinity of Talbot Elementary School and Hunters Crossing; along NW 16th Ave/Blvd. between NW 43rd Street and NW 13th Street; in the Turkey Creek subdivision and an increasing number south of Archer Road around the Mentone Subdivision. High employee populations were apparent from both the UF Directory and UF Parking Decal database analyses. However, it should be noted that TAZs outside of the urban core tend to be larger with lower total populations, which must be considered when analyzing UF's impacts in relation to the Context Area. For example, looking at the map would lead one to think that most UF employees live in Haile Plantation and the Mentone Subdivision. However, closer inspection shows that areas north of NW 16th Avenue include large numbers of university employees as well, just in smaller TAZs. Large TAZs outside of the urban core may be reasonably considered for transit park-and-ride collection points and express buses, but the concentrations of employees relative to land area and total population do not constitute a reasonable nexus to on-campus development impact.

## CONCLUSION

The 2015 Context Area continues to reflect the concentration of student populations close to campus. Overall students appear to be moving closer to campus and towards new development on the north and eastern perimeters of campus in line with new high-density housing developments. The picture is more complicated for university employees who are more dispersed into the county, with high numbers living outside the urban core and the City of Gainesville. Most low-density residential development in the last 10 years had been taking place west of Gainesville in the unincorporated areas.

Based on student mapping, it is clear from the data that the current 2015 Context Area boundary sufficiently encompasses the majority of the student populations. However, based on the mapping results for employees, it is reasonable to discern that areas west of campus should be included within the context area. Therefore, the University has moved to include the TAZs with high populations around Haile Plantation and Mentone as shown on Figure 13.

Figure 1
Context Area 2015

UF Master Plan Properties
Context Area 2015 - 2025

N

Miles
0   0.325  0.65      1.3       1.95      2.6

23rd Ave.

16th Ave.

8th Ave.

University Ave.

Main Street

Waldo Road

US 441 /13 th Street

75th Street / Tower Road

24th Ave.

I-75

24th Street / 121

35th Place

Williston Road

46TH Blvd.

Archer Road

122nd Street
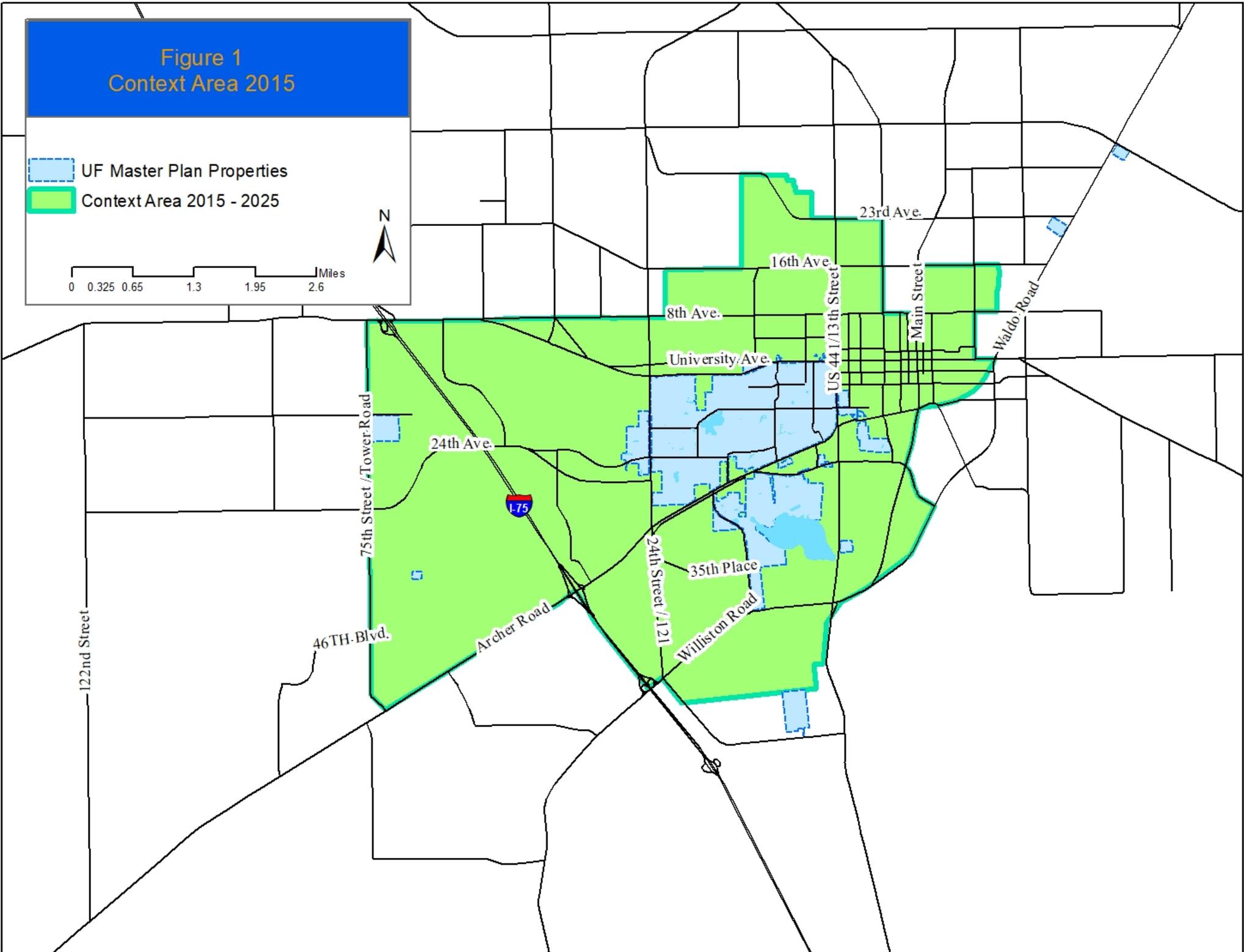
**Figure 2**
**Student Home Address 2019**

UF Master Plan Properties
0 - 100
101 - 250
251 - 500
501 - 750
751 - 1000
1001 - 1500
1501 - 2440

Miles
0    1.25  2.5        5        7.5        10

N

High Springs
Alachua
Waldo
Newberry
Hawthorne
Archer
Micanopy
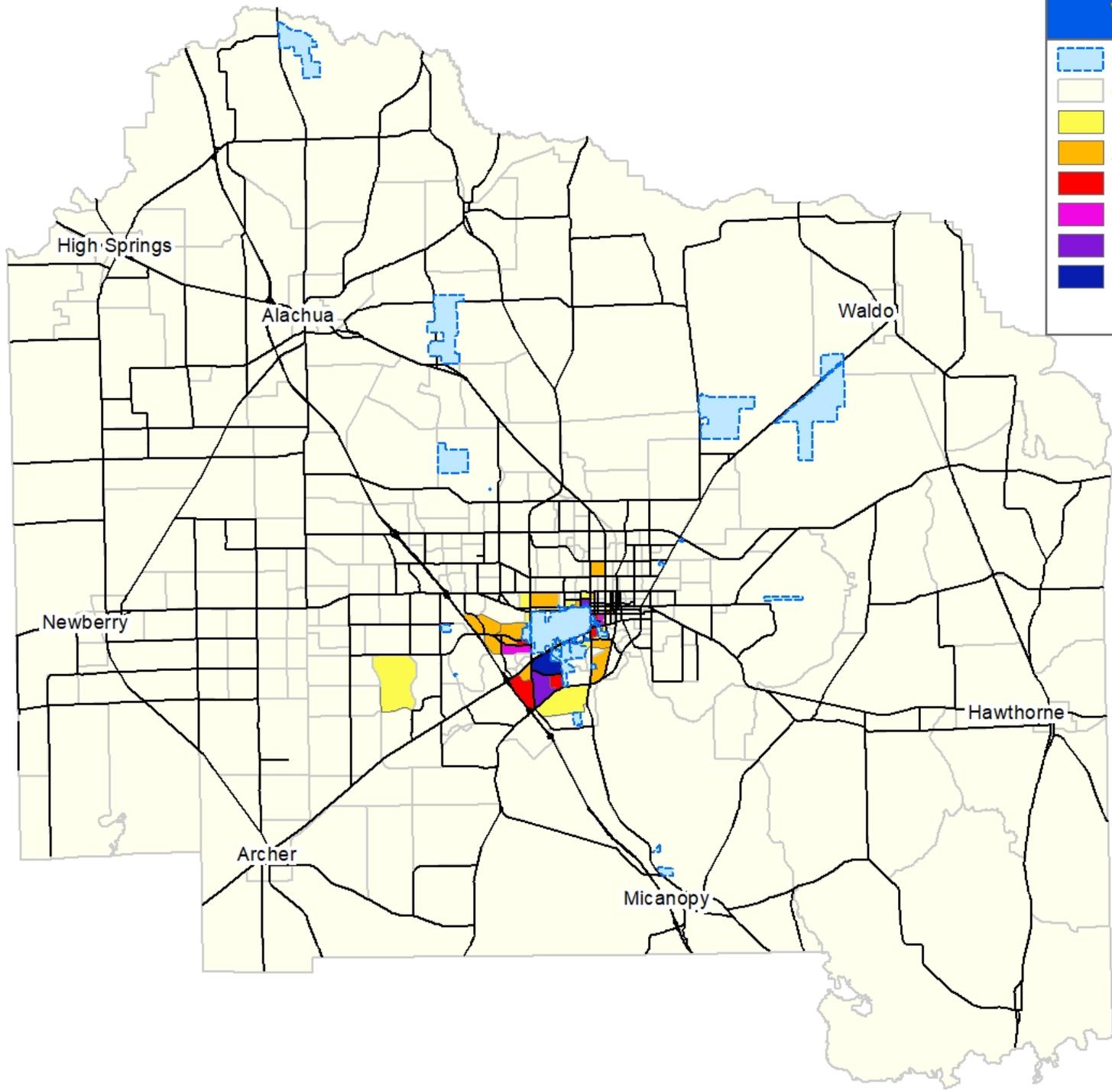
Figure 3
Student Home Address 2019
Zoom

UF Master Plan Properties
0 - 100
101 - 250
251 - 500
501 - 750
751 - 1000
1001 - 1500
1501 - 2440

N

Miles
0    0.2  0.4      0.8       1.2      1.6

1481
794
514
604
906
707
712
543
975
2440
729
529
1487
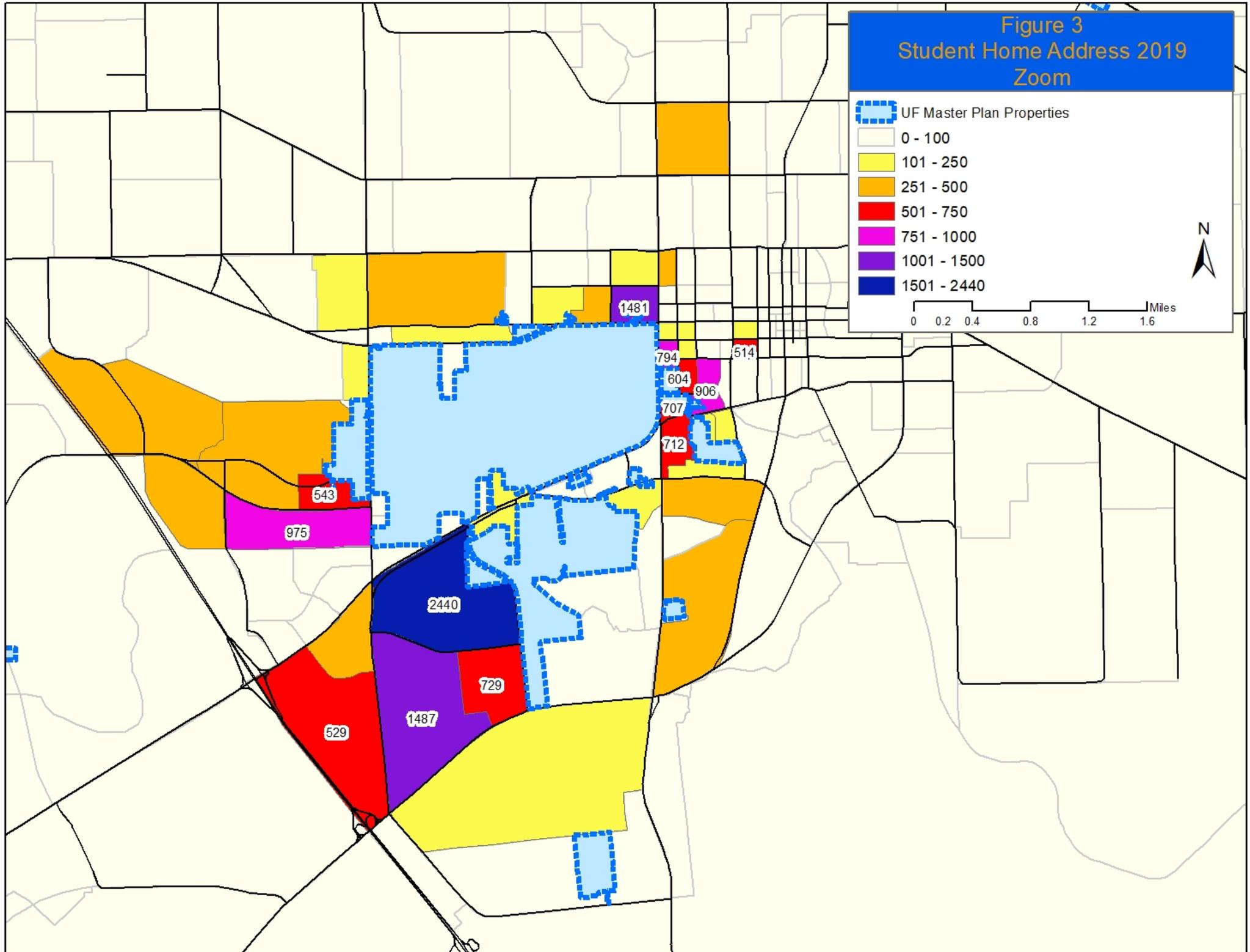
Figure 4
Student Change From 2014

UF Master Plan Properties
-500 - -402
-401 - -101
-100 - 0
1 - 101
102 - 350
351 - 938

N

Miles
0    0.2  0.4        0.8        1.2        1.6
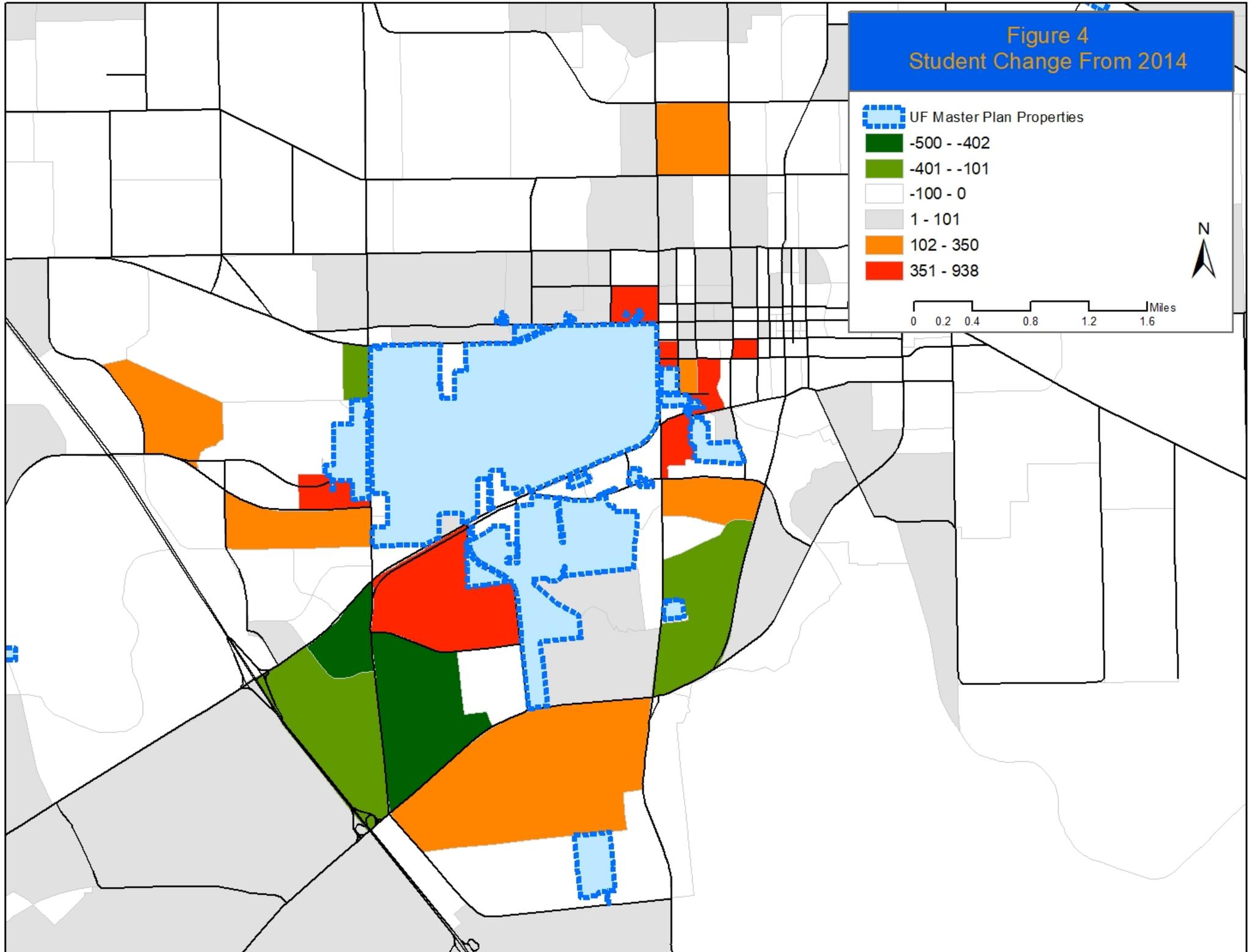
Figure 5
Employee Home Address 2019

UF Master Plan Properties
0 - 50
51 - 100
101 - 200
201 - 300
301 - 500
501 - 750

High Springs

Alachua

Waldo

Newberry

Hawthorne

Archer

Micanopy

N

0   1.25  2.5        5        7.5        10   Miles
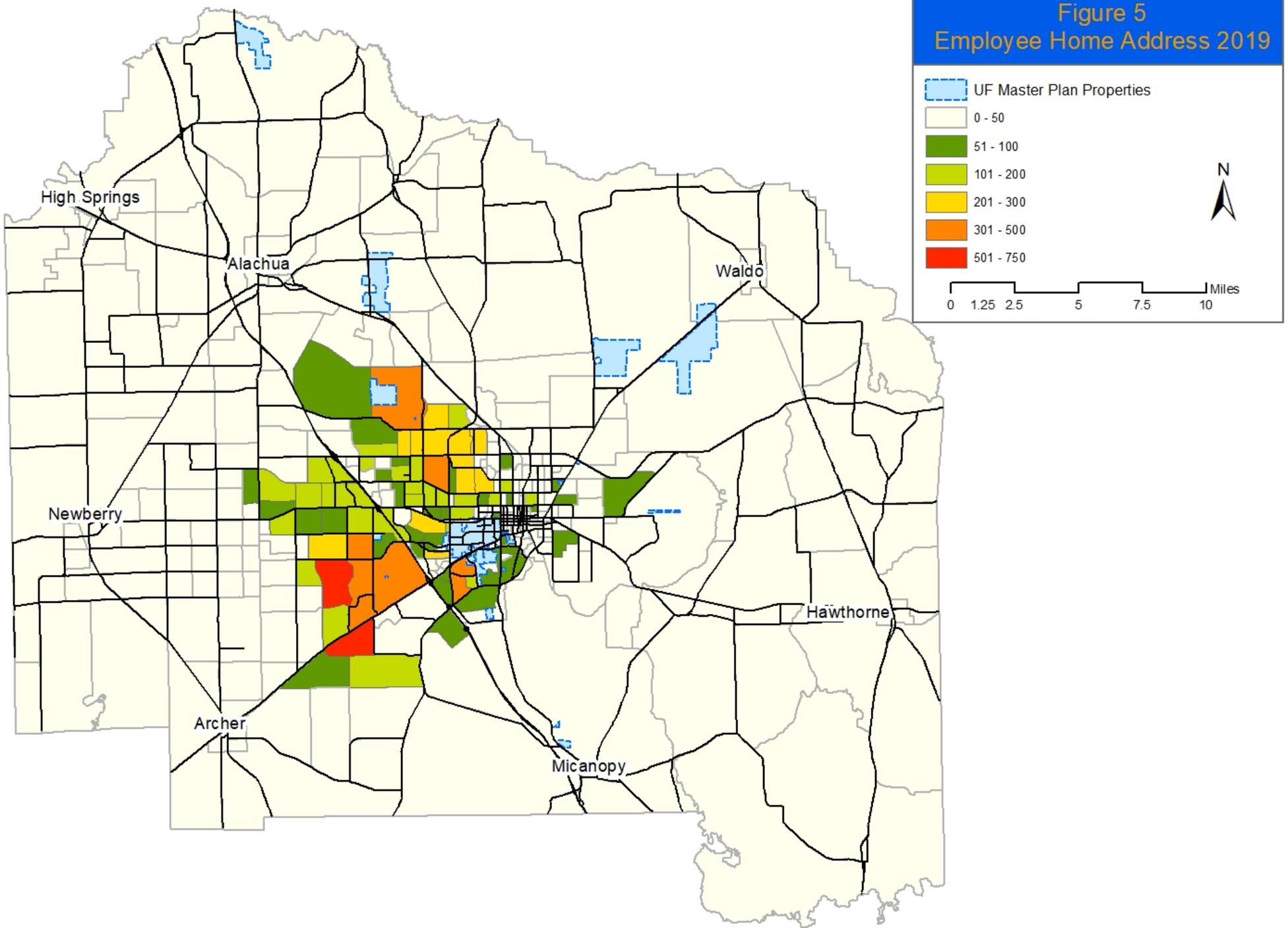
Figure 6
Employee Home Address 2019

UF Master Plan Properties
0 - 50
51 - 100
101 - 200
201 - 300
301 - 500
501 - 750
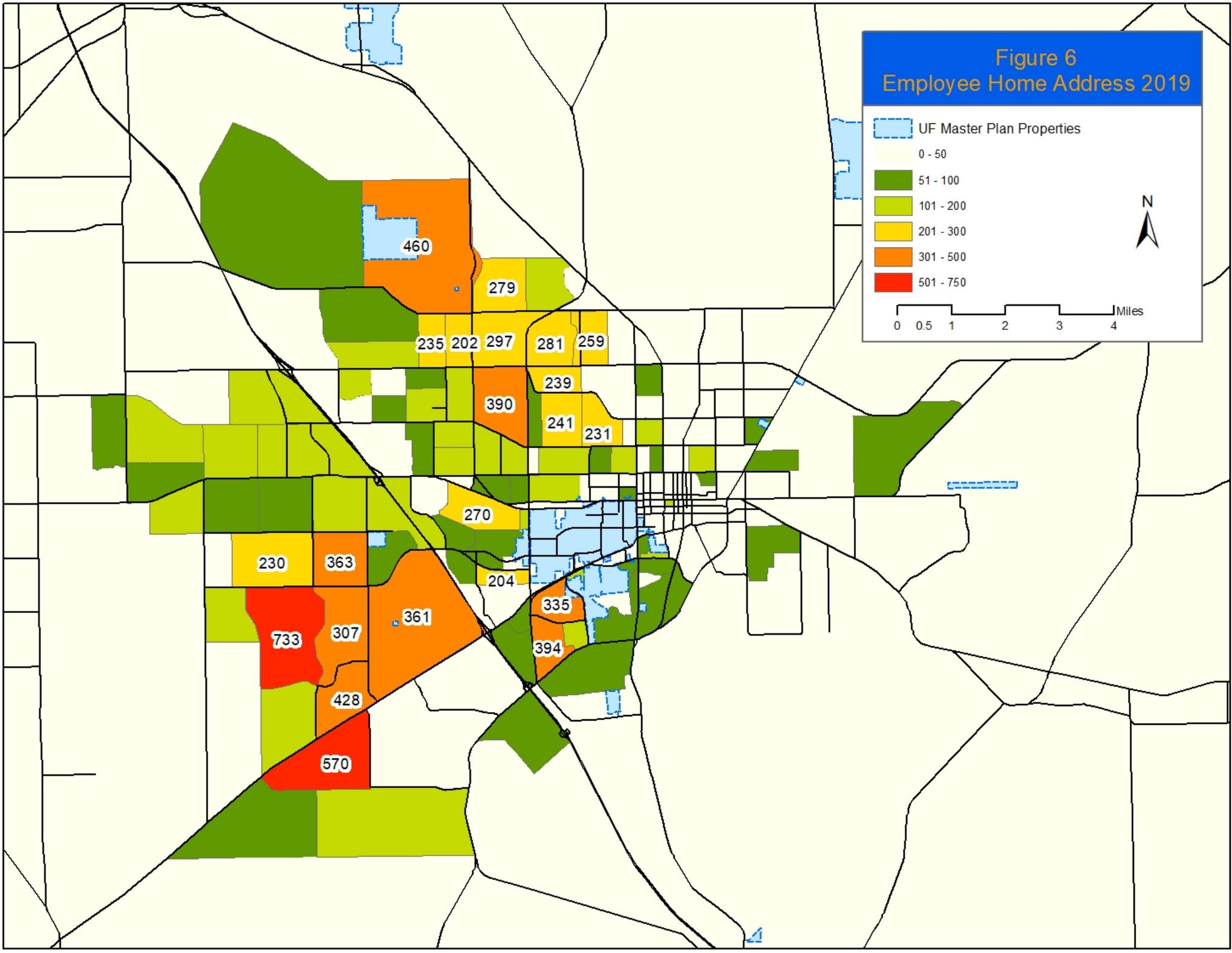
Figure 7
Employee Home Address 2019
Parking Decal

Legend:
- 0 - 50
- 51 - 100
- 101 - 200
- 201 - 300
- 301 - 500
- 501 - 515

N

Miles
0  1.25  2.5      5      7.5      10

High Springs
Alachua
Waldo
Newberry
Hawthorne
Archer
Micanopy
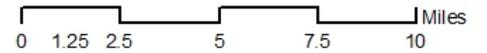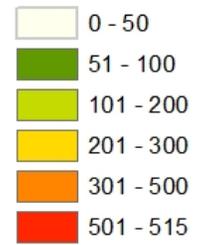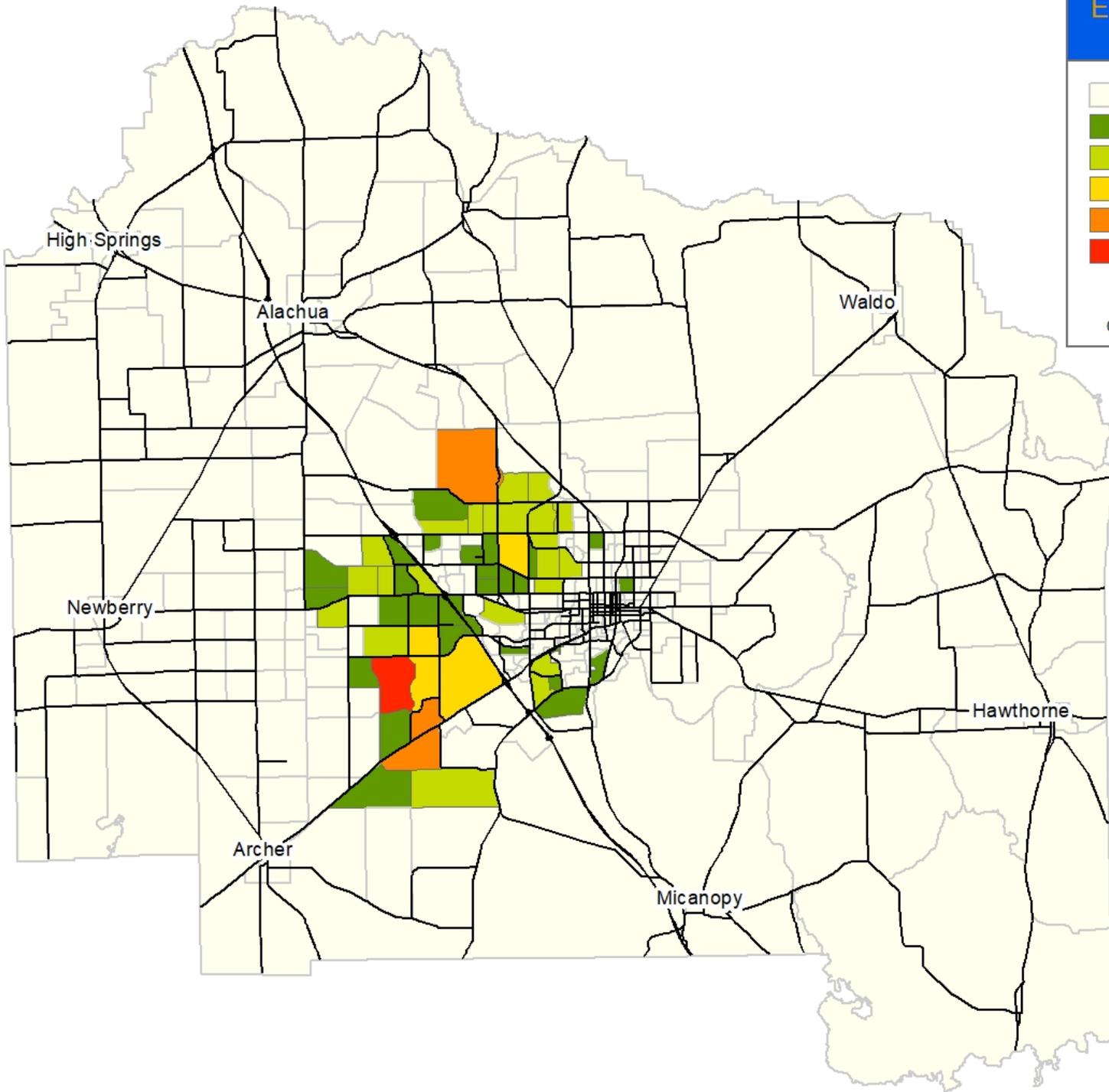
Figure 8
Employee Home Address 2019
Parking Decal - Zoom

Legend:
- 0 - 50
- 51 - 100
- 101 - 200
- 201 - 300
- 301 - 500
- 501 - 515

N
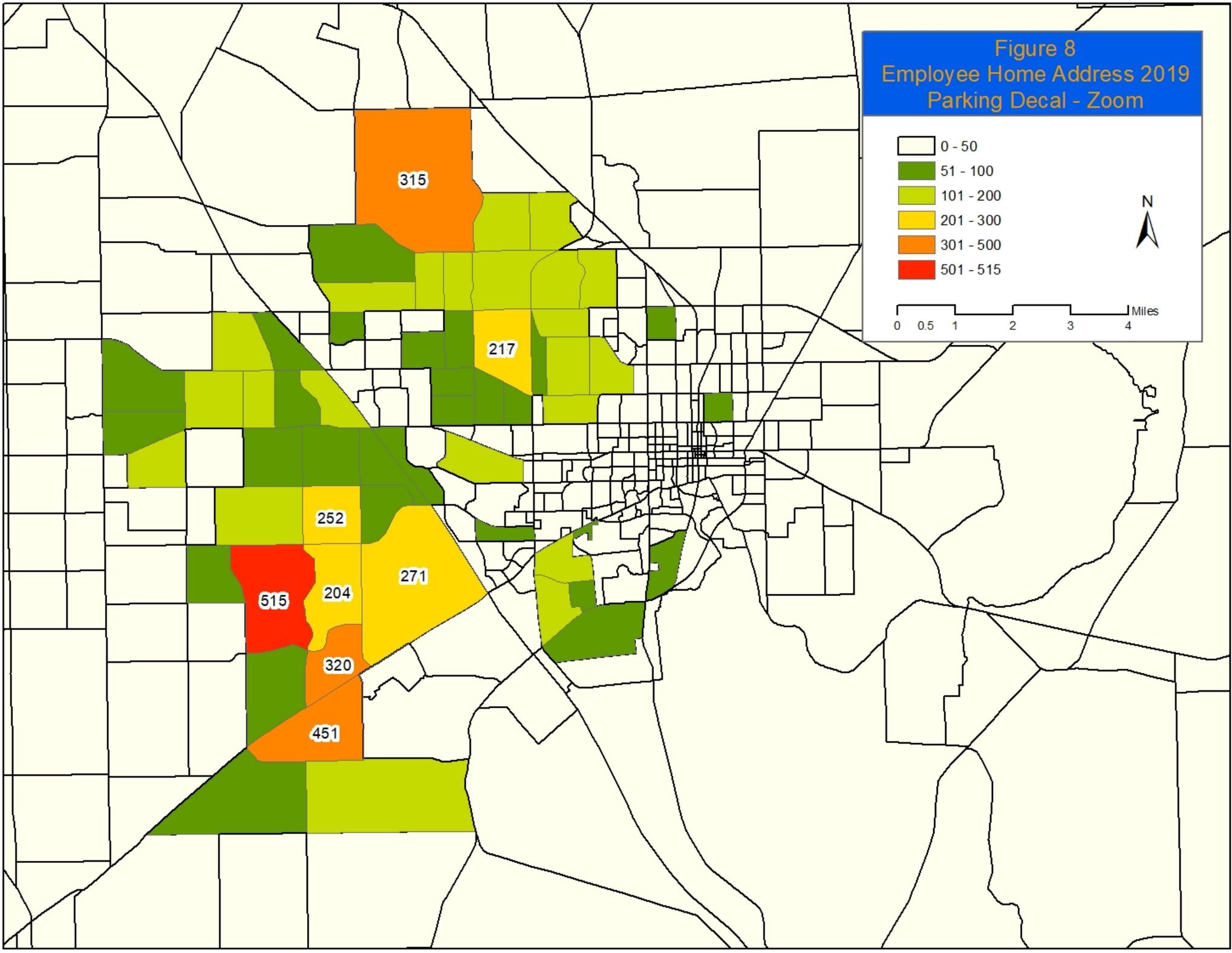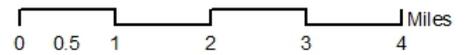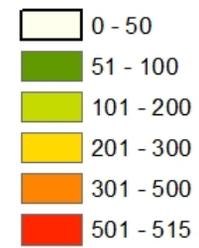
Miles
0   0.5   1   2   3   4

Figure 9
Student Density per Acre 2019

UF Master Plan Properties
0.00
0.01 - 5.00
5.01 - 10.00
10.01 - 14.00
14.01 - 27.00
27.01 - 40.00
40.01 - 53.00

High Springs
Alachua
Waldo
Newberry
Archer
Micanopy
Hawthorne

N

Miles
0   1.25   2.5   5   7.5   10

Figure 10
Student Density per Acre 2019

UF Master Plan Properties
0.00
0.01 - 5.00
5.01 - 10.00
10.01 - 14.00
14.01 - 27.00
27.01 - 40.00
40.01 - 53.00

N

Miles
0    0.15  0.3        0.6        0.9        1.2
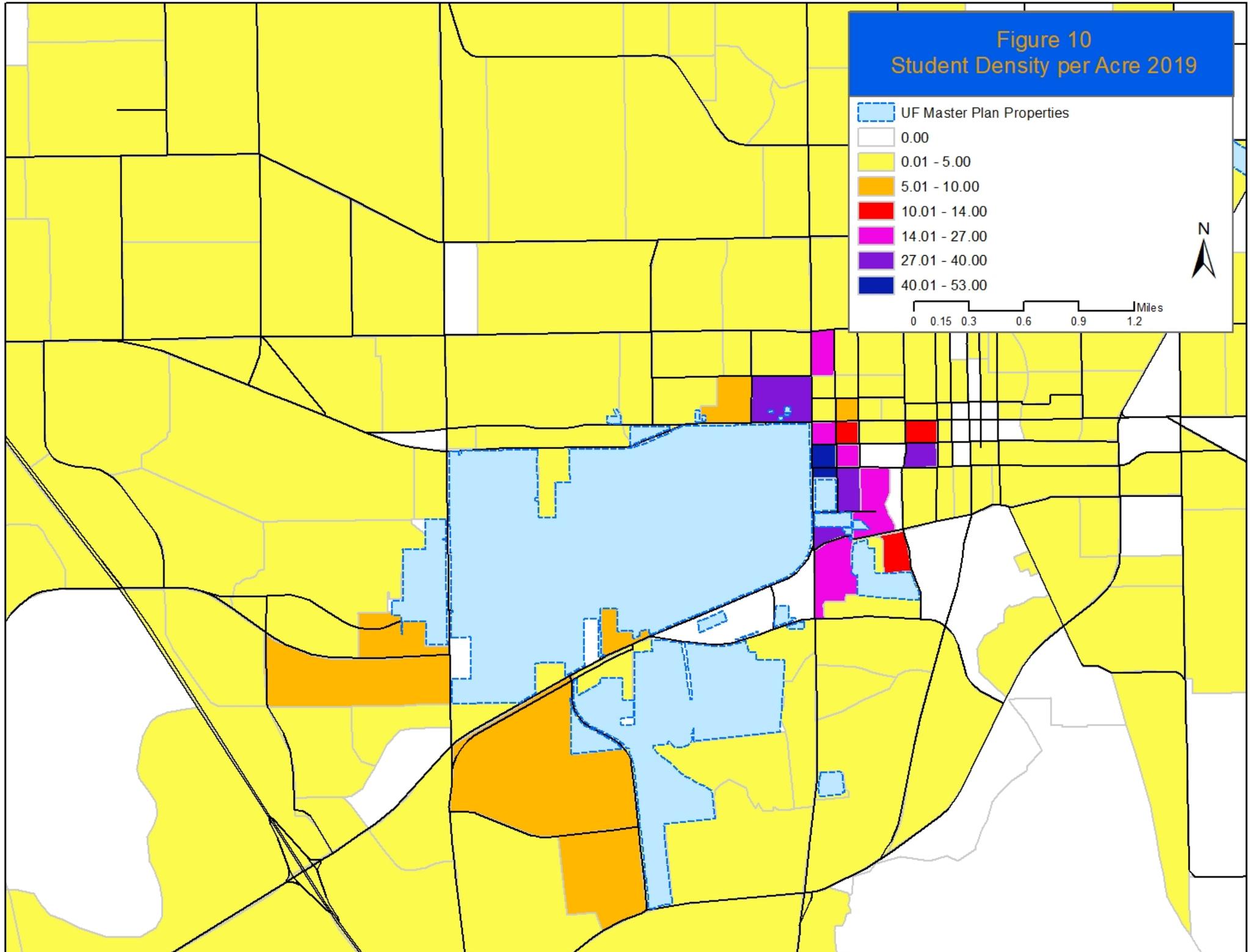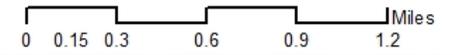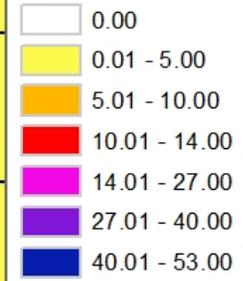
Figure 11
Employee Density per Acre 2019

UF Master Plan Properties
0.00
0.01 - 1.00
1.01 - 3.00
3.01 - 5.00
5.01 - 6.00
6.01 - 7.35

High Springs
Alachua
Waldo
Newberry
Archer
Micanopy
Hawthorne

N
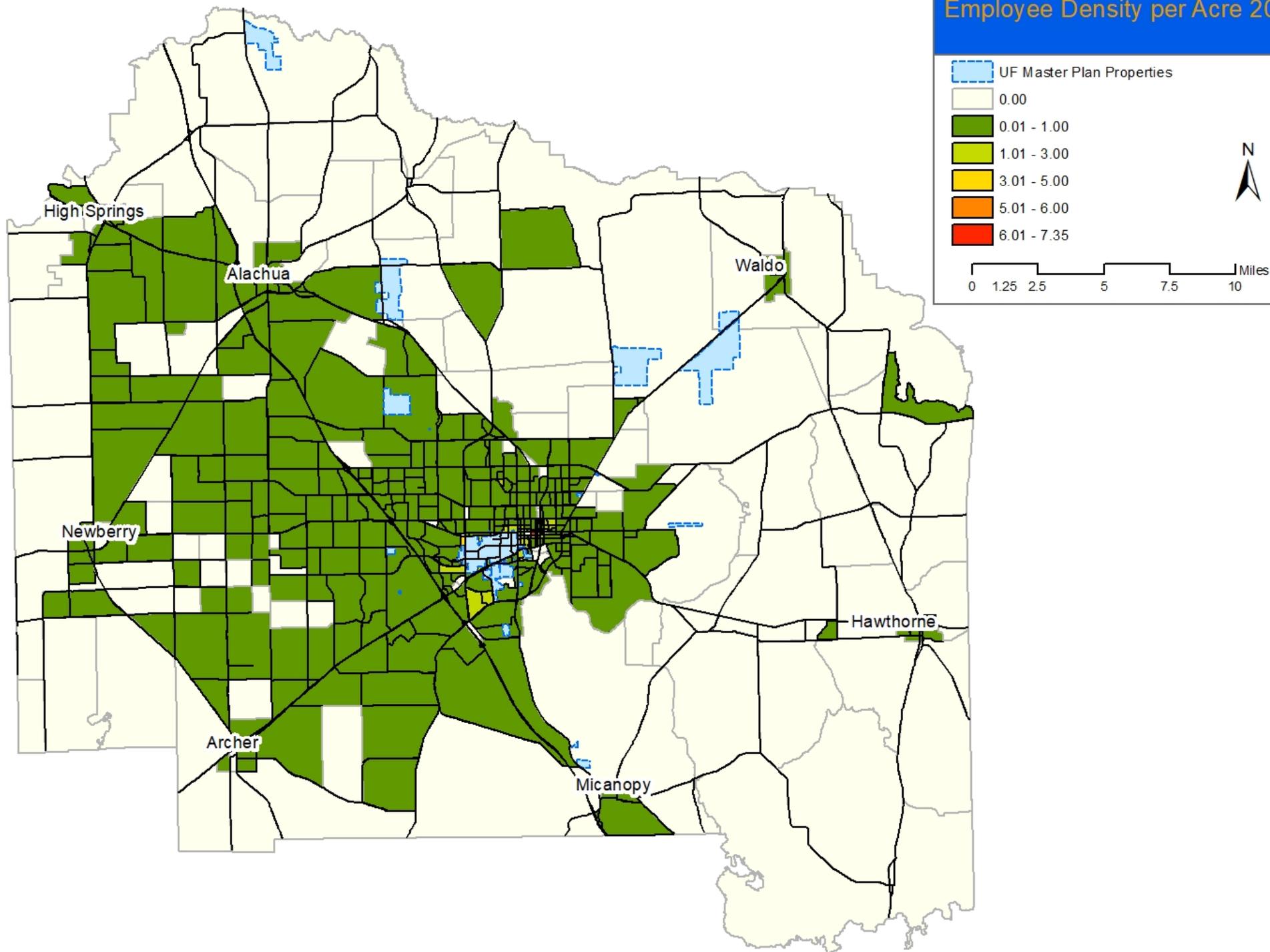
Miles
0   1.25  2.5          5          7.5          10

Figure 12
Employee Density per Acre 2019
Zoom

UF Master Plan Properties
0.00
0.01 - 1.00
1.01 - 3.00
3.01 - 5.00
5.01 - 6.00
6.01 - 7.35

Miles
0    0.275  0.55    1.1    1.65    2.2
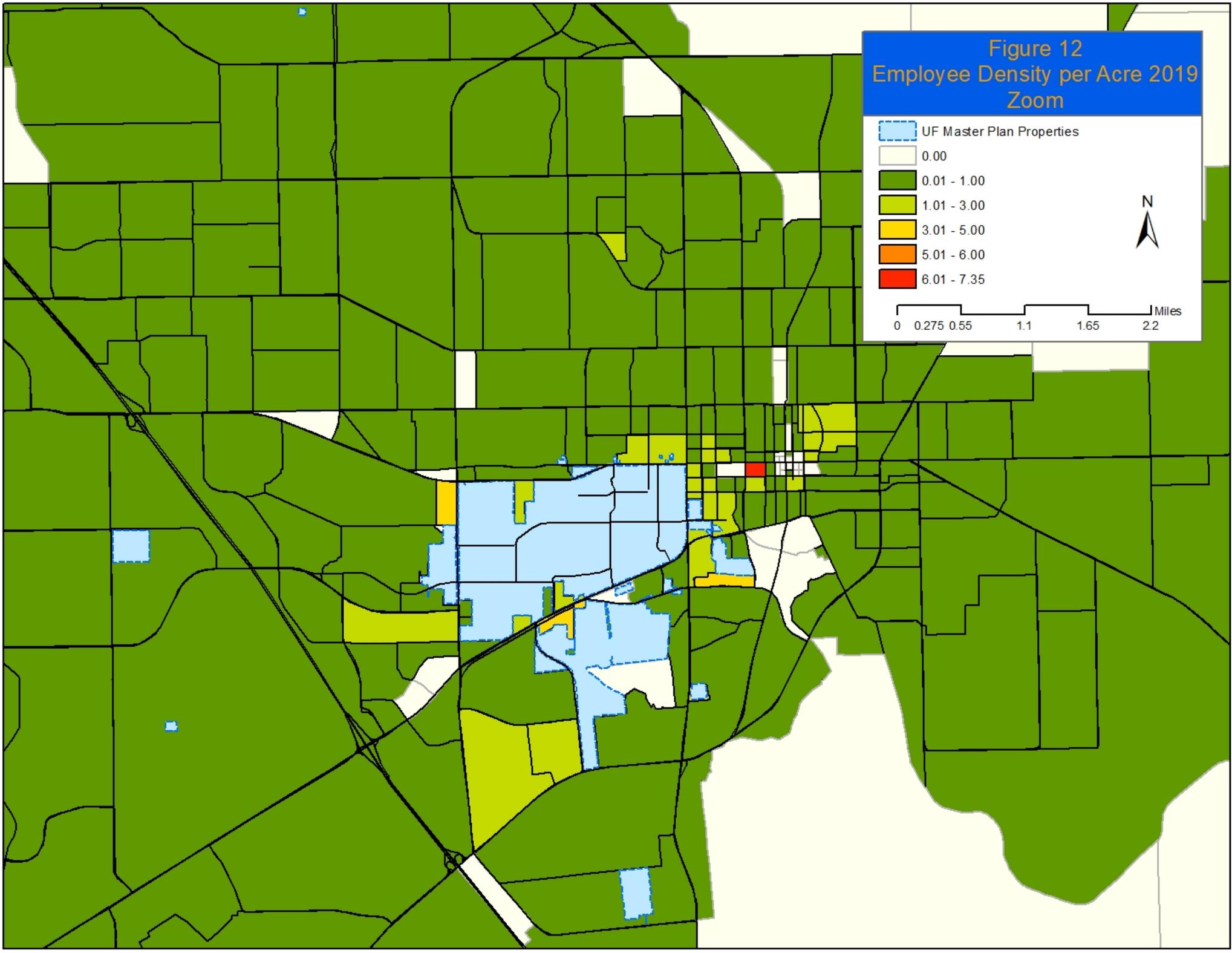
Figure 13
Context Area 2020 - 2030

UF Master Plan Properties
Context Area 2015
Proposed Context Area 2020 Addition

N

Miles
0   0.325  0.65      1.3       1.95       2.6

122nd Street

75th Street / Tower Road

24th Ave.

I-75

46TH Blvd.

Archer Road

24th Street / 121

35th Place

Williston Road

8th Ave.

University Ave.

16th Ave.

23rd Ave.

US 441 / 13th Street

Main Street

Waldo Road