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Technical Memorandum

September 29, 2022   Project# 27310.0

To: James Philp and Mike Kuntz
Jackson County Roads Department
200 Antelope Road
White City, Oregon 97503

From: Matt Bell, Amy Griffiths, EIT, Susan Wright, PE, PMP, Kittelson & Associates, Inc.

Project   Jackson County Transportation System Plan Update

Subject: Final Tech Memo #3: Equity Analysis (Task 4.1)

INTRODUCTION

Jackson County (County) is in the process of updating its 2017 Transportation System Plan (2017 TSP) to incorporate the findings and recommendations from the Rogue Valley Active Transportation Plan (RVATP) as well as several other planning documents that have been adopted since 2017. The TSP update is expected to include several new transportation system improvement projects needed to support development of the active transportation network as well as general growth within the county over the next 20 years. The new projects will be prioritized and organized into the County's tiered project list (Tier 1, Tier 2, or Tier 3) following the same methodology and using the same criteria used in the 2017 TSP. However, as described throughout this memorandum, the equity criteria will be updated to reflect more of the historically transportation disadvantaged populations within the county.

This memorandum summarizes information on historically transportation disadvantaged populations within Jackson County. This memorandum also identifies the criteria used to prioritize projects in the 2017 TSP and presents an approach to incorporate more of the transportation disadvantaged populations into the prioritization process for the TSP update. The information provided in this memorandum will be used to update the priorities of existing projects in the 2017 TSP as well as develop priorities for new projects associated with the RVATP and other relevant planning documents. As indicated below, the priorities will be refined based on input from the project team and project advisory committees.

TRANSPORTATION DISADVANTAGED

This section summarizes information on historically transportation disadvantaged populations within Jackson County and describes the process of developing transportation disadvantage index (TDI) scores by census block group.

Transportation Disadvantaged Populations

Historically transportation disadvantaged populations within Jackson County include older adults, youth, people of color, people with limited English proficiency, people with low incomes, and people with disabilities. They also include people who live in households without access to personal vehicles and in

crowed households. As a result, these populations tend to rely on walking, biking, and taking public transit for daily travel.

Demographic Information was obtained for Jackson County from the American Community Survey (ACS) 5-year estimates (2016-2020). The data include the total population/households and percent of total population/households for each of the demographics used to identify transportation disadvantaged populations. Table 1 summarizes the data for Jackson County and the state of Oregon.

Table 1: Transportation Disadvantaged Populations

Demographics	Jackson County		Oregon	
	Population	% of Total Population	Population	% of Total Population
Total Population	**218,781**	**100.0%**	**4,176,346**	**100.0%**
65 and Over	48,119	22.0%	734,932	17.6%
17 and Younger	44,937	20.5%	867,076	20.8%
Non-white or Hispanic	21,431	9.8%	727,265	17.4%
Limited English Proficiency	6,387	3.1%	216,654	5.5%
200% of Poverty	71,301	32.9%	1,199,723	29.3%
Disability	33,206	15.4%	589,248	14.4%
Demographics	**Households**	**% of Total Households**	**Households**	**% of Total Households**
Households	**89,690**	**100.0%**	**1,642,579**	**100.0%**
No Vehicle Households	5,413	6.0%	88,692	5.4%
Crowded Households	3,264	3.6%	53,366	3.2%

As shown in Table 1, Jackson County has a larger percentage of people 65 and over, people with low incomes, and people with disabilities than the state of Oregon as a whole. Jackson County also has a larger percentage of people who do not have access to a vehicle and people who live in crowded households. Figures 1A-1H in Attachment A illustrate demographic information by census block group. The following section describes the process by which the demographic information was combined to develop TDI scores for Jackson County.

Transportation Disadvantaged Index

The TDI is a culmination of the demographic information used to identify transportation disadvantaged populations. The TDI score is calculated at the census block group level as the sum of people 65 and over, 17 and younger, who are non-white or Hispanic, with limited English proficiency, living in 200% of poverty, with a disability, living in households without access to a personal vehicle, and in crowded households, divided by total population of the census block group. People fitting into multiple categories are counted multiple times (e.g., a non-white individual with limited English proficiency that earns less than 200% of poverty would be counted multiple times). The higher the score, the more disadvantaged the population is with respect to transportation. The equation used to develop the TDI score is shown below:

$$TDP\ Index = \frac{(Eld + Yth + (NH \times 1.5) + LEP + Pov + (HH \times Veh) + Dis) + (Crwd \times HH)}{Pop}$$

Where:

- Pop = Total population
- Eld = # of people 65 and over
- Yth = # of people 17 and younger
- NH = # of non-white or Hispanic people – this value is multiplied by 1.5 to emphasize this population
- LEP = # of people with limited English proficiency, or speak English less than "Very Well"
- Pov = # of people with income less than 200% of poverty level
- Dis = # of people with a disability
- HH = Average Oregon household size
- Veh = # of households with 0 vehicles*
- Crwd = # of households with more than 1.0 occupants per room*

*Data at the household level is multiplied by the average household size for each block group (2.51).

Figure 1 illustrates the TDI scores by census block group for Jackson County. As shown, the areas with the highest concentration of transportation disadvantaged populations are located in the incorporated cities of Central Point, Jacksonville, Medford, and Phoenix; outside of the incorporated cities, the areas with the highest concentration are located near White City. It should be noted that there are anomalies in the data that create relatively high TDI scores in areas where they are not expected, such as areas with little to no population and areas that are known to be affluent. This is likely due to the size of the census block group, the size of the total population within the census block group, and/or the size of the transportation disadvantaged populations relative to the total population.

For example, the census block group that contains the Jackson County Fairgrounds is shown to have a TDI score of 1.45 (for reference, the lowest score in the county is 0.77 and the highest is 2.35). The census block group is bounded by I-5, Table Rock Road, Gibbon Road, and Upton Road. Despite a large portion of the census block group being occupied by the fairgrounds, it has a total population of 3,043, which is primarily located in the northeast and southeast portions of the census block group. The following displays the formula from above with input values from the census data.

$$TDP\ Index = \frac{(567 + 796 + (420 \times 1.5) + 16 + 1{,}503 + (2.51 \times 45) + 780) + (0 \times 2.51)}{3043} = 1.45$$

The TDI score of 1.45 is applied to the overall block group, not just the areas with population, and therefore, the fairgrounds are shown to have a TDI score of 1.45. These types of anomalies will be reviewed throughout the prioritization process and manual edits will be made to either the TDI scores or the project priority outcomes to address the anomalies. The following section identifies how projects were prioritized in the 2017 TSP and presents an approach to incorporate the TDI scores into the prioritization process for the TSP update.

PROJECT PRIORITIZATION

Projects in the 2017 TSP were prioritized based on series of factors and variables. Factors are the general categories used to express community or agency values while variables are the characteristics that can be measured and organized under each factor. Seven factors were used in the prioritization process, each with its own variables. The factors and variables are summarized below.

- **Stakeholder Input** – This factor considered the amount of public feedback in support of (or against) a project and was represented by three variables: *included in an adopted plan, recommended by an advisory committee, and recommended by the general public.*
- **Constraints** – This factor considered the relative level of difficulty in implementing a project and was represented by three variables: *available right of way, multi-jurisdiction, and order of magnitude cost.*
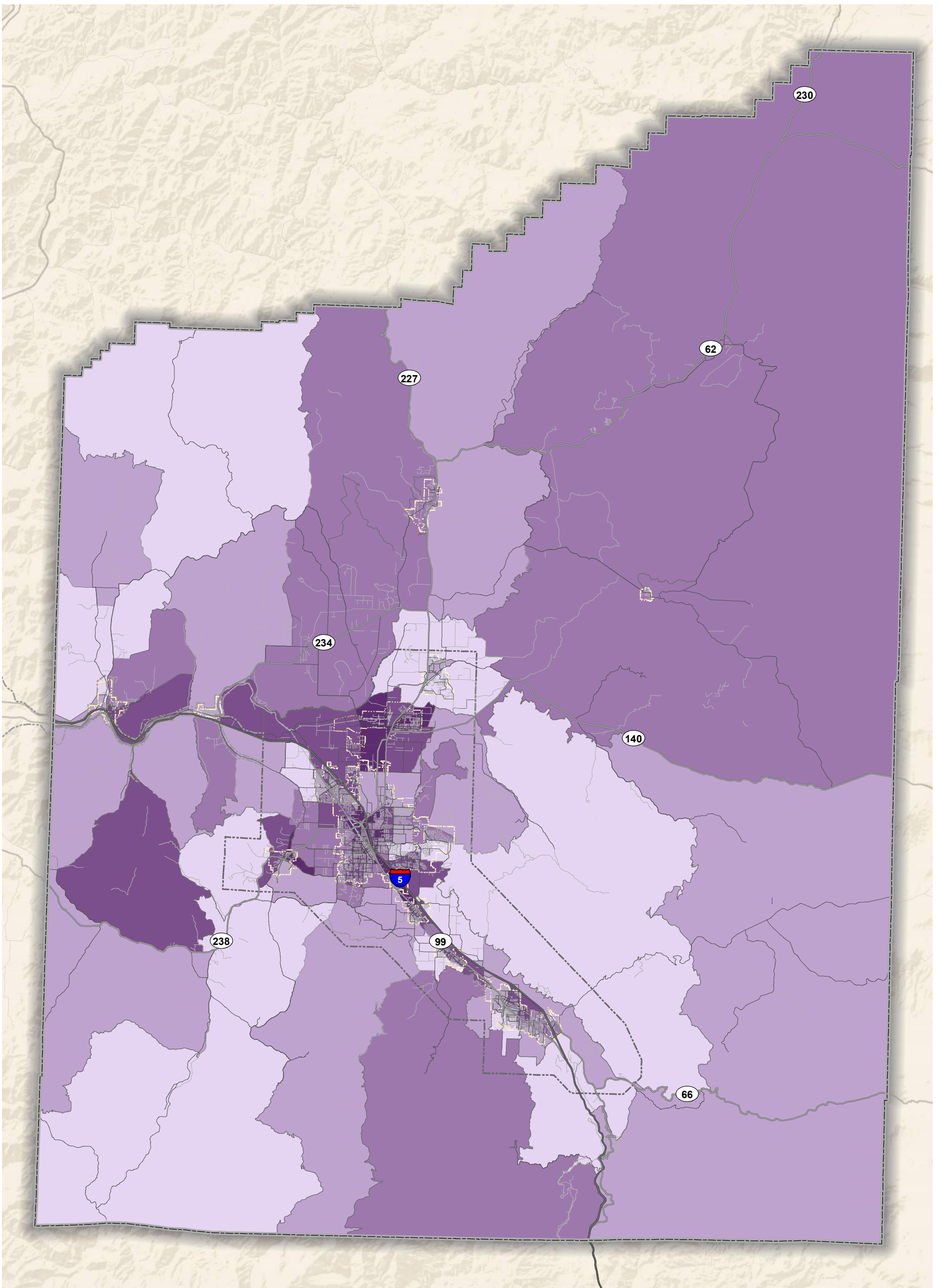
Transportation Disadvantaged Index Score

	0.769719 - 0.974444
	0.974445 - 1.162501
	1.162502 - 1.350086
	1.350087 - 1.649524
	1.649525 - 2.346187

City Boundary
Urban Containment Boundary
Urban Growth Boundary
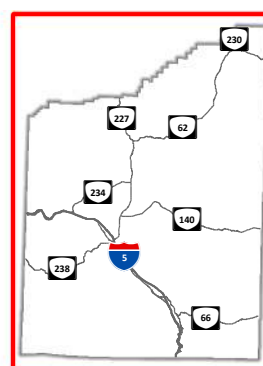Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1

TDI Score

0 2 4
Miles

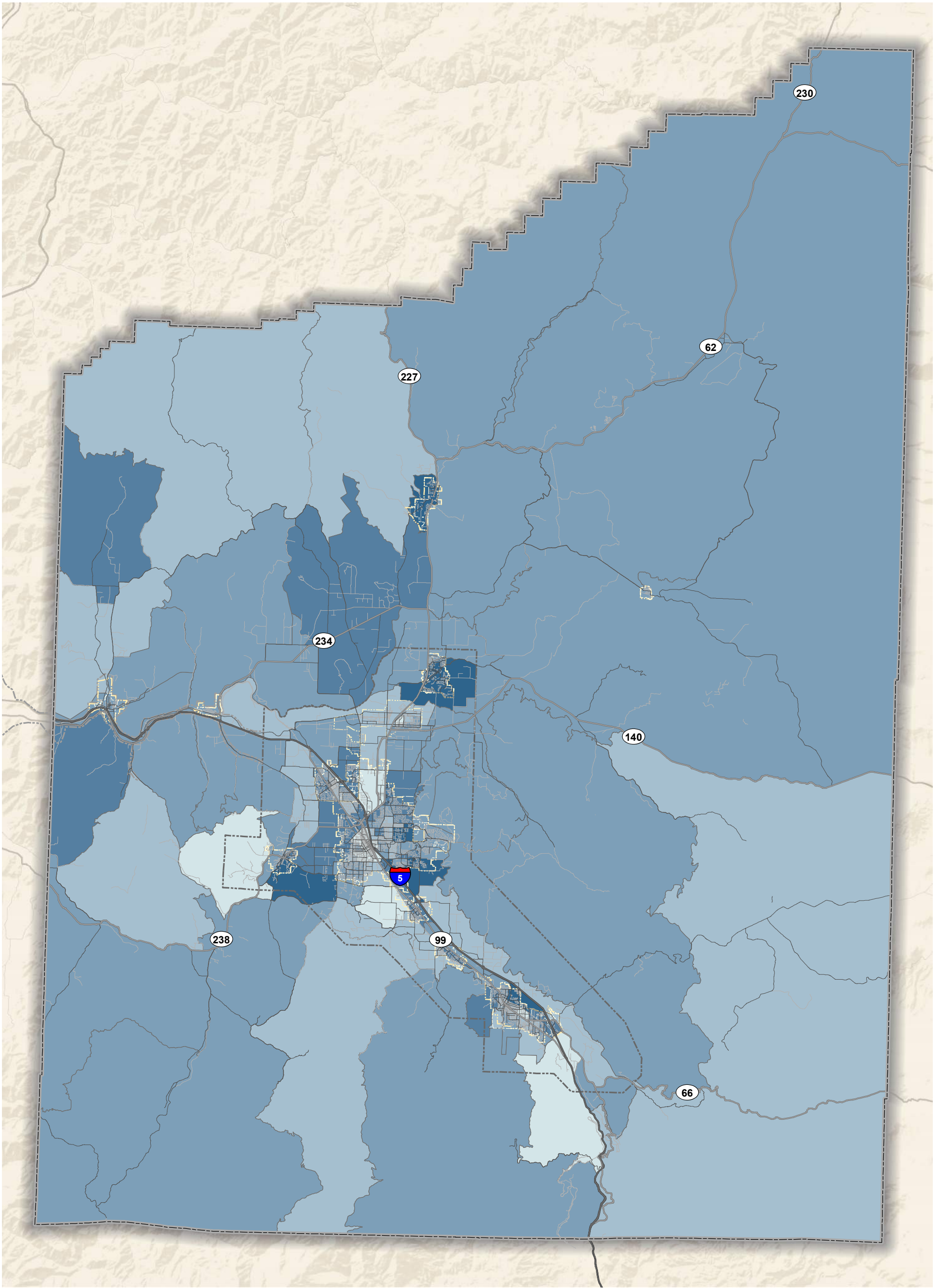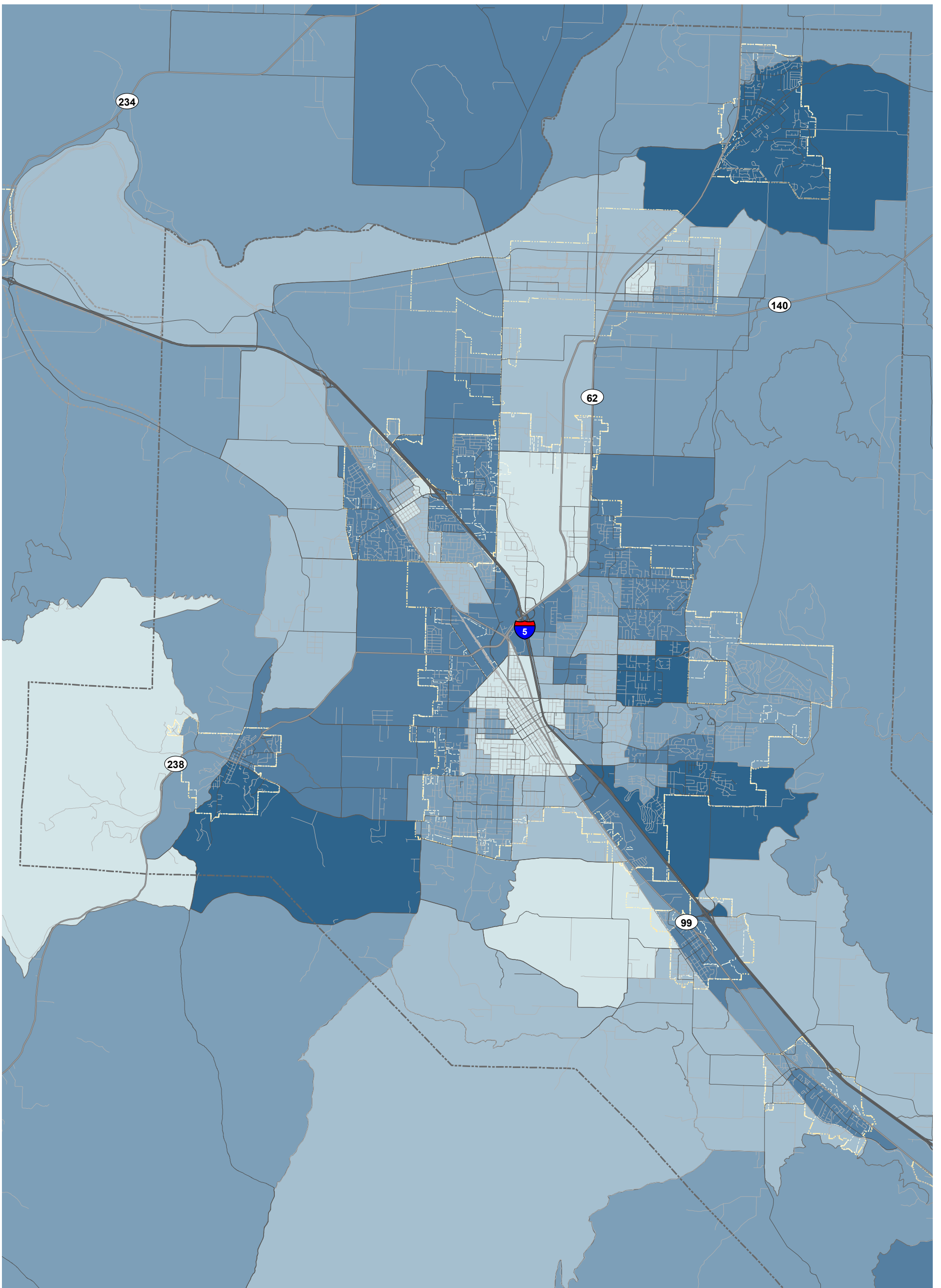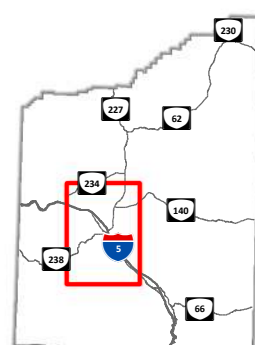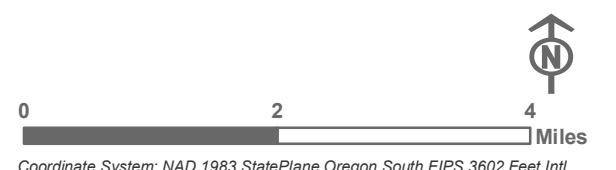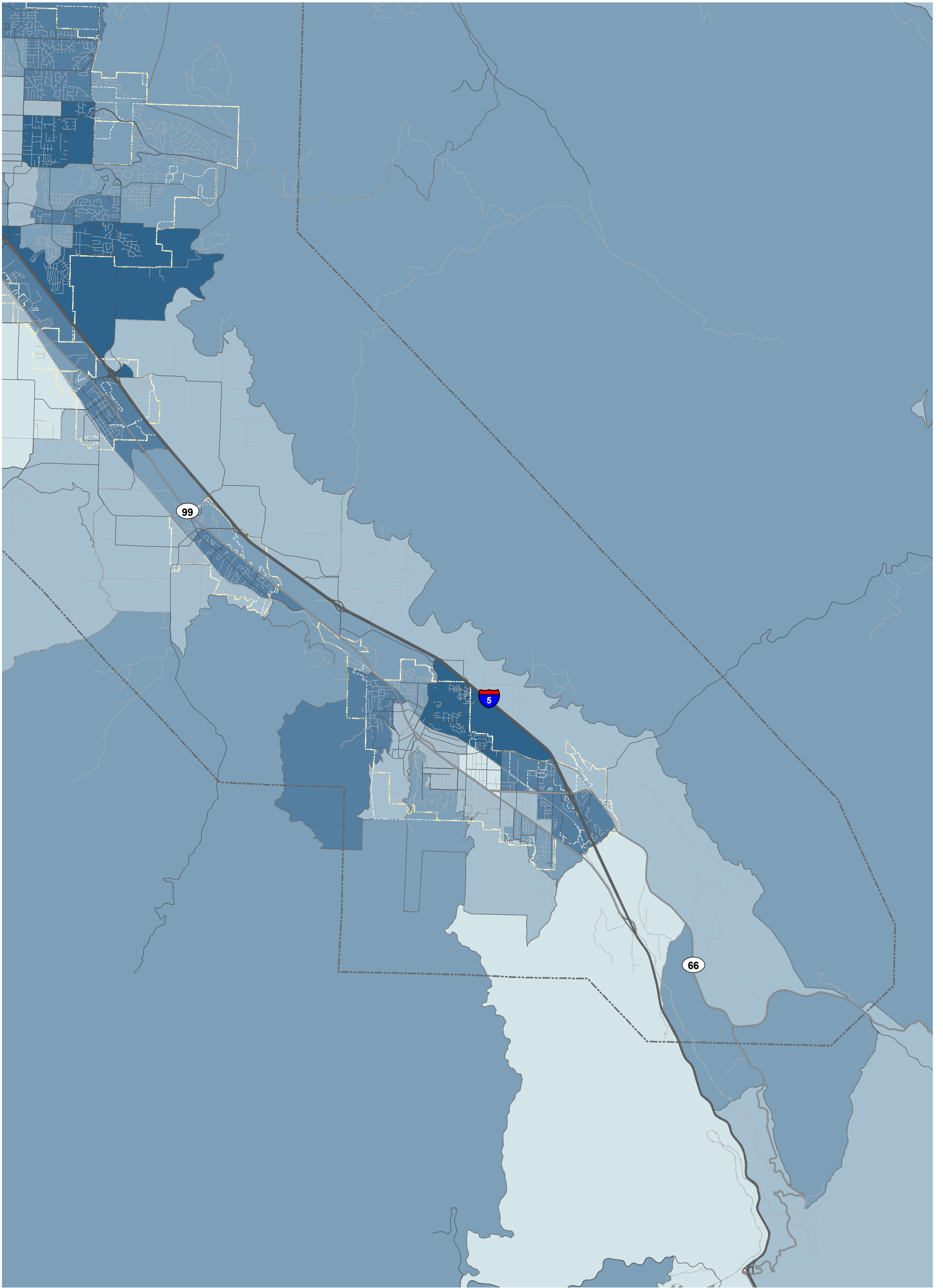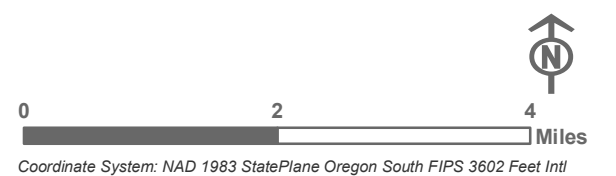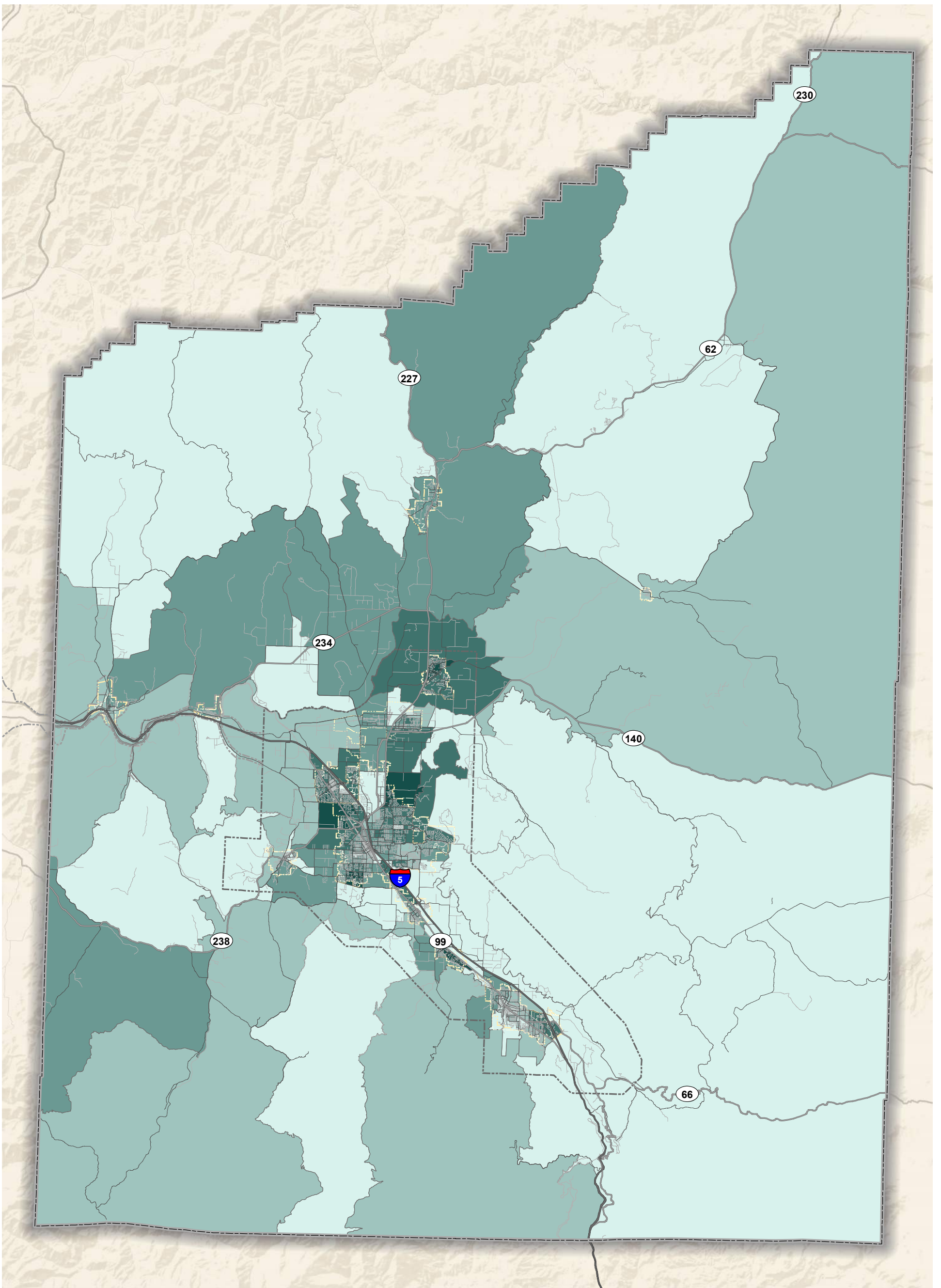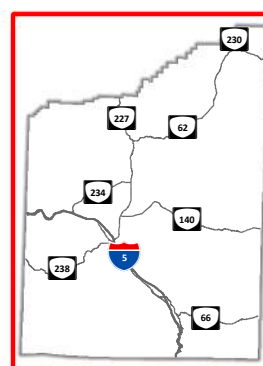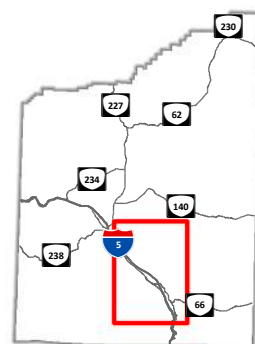*Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl*

- **Safety** – This factor considered the crash history of a roadway segment or intersection and was represented by two variables: *total crashes and total fatal and severe crashes.*
- **Existing Conditions** – This factor considered the physical and operational characteristics of a roadway segment or intersection and was represented by four variables: *width of travel lanes, presence of shoulders or bike lanes, travel speed, and average daily traffic (ADT).*
- **Connectivity** – This factor accounted for the degree to which a project will allow residents to travel comfortably and continuously throughout their community and was represented by two variables: *fills a gap in an existing facility or network and connects to an existing regional facility or activity center.*
- **Equity** – This factor represented the degree to which improvements were distributed evenly to all groups within a community, particularly those who are dependent on alternative forms of transportation and was represented by one variable: *percent of households in poverty.*
- **Designation** – This factor captured the overlapping classifications and designations of roadways and was represented by three variables: *functional classification, freight route designation, bicycle route designation.*

As indicated above, equity was considered in the prioritization process for the 2017 TSP; however, equity was only represented by one of the population groups generally considered to be transportation disadvantaged. The prioritization process used in the TSP update will continue to include the equity factor; however, *percent of households in poverty* will be replaced by the TDI described above. All existing projects will be reevaluated using the updated equity factor and all new projects will be evaluated based on all the factors and variables used in the previous prioritization process. The final project priorities will be updated based on input from the project team and project advisory committees.

ATTACHMENTS

A. Demographic Information

Attachment A   Demographic Information

People 65 and Over

▢	11 - 130
▢	131 - 274
▢	275 - 455
▢	456 - 711
▢	712 - 1079

City Boundary
Urban Containment Boundary
Urban Growth Boundary
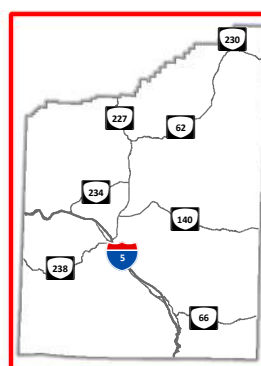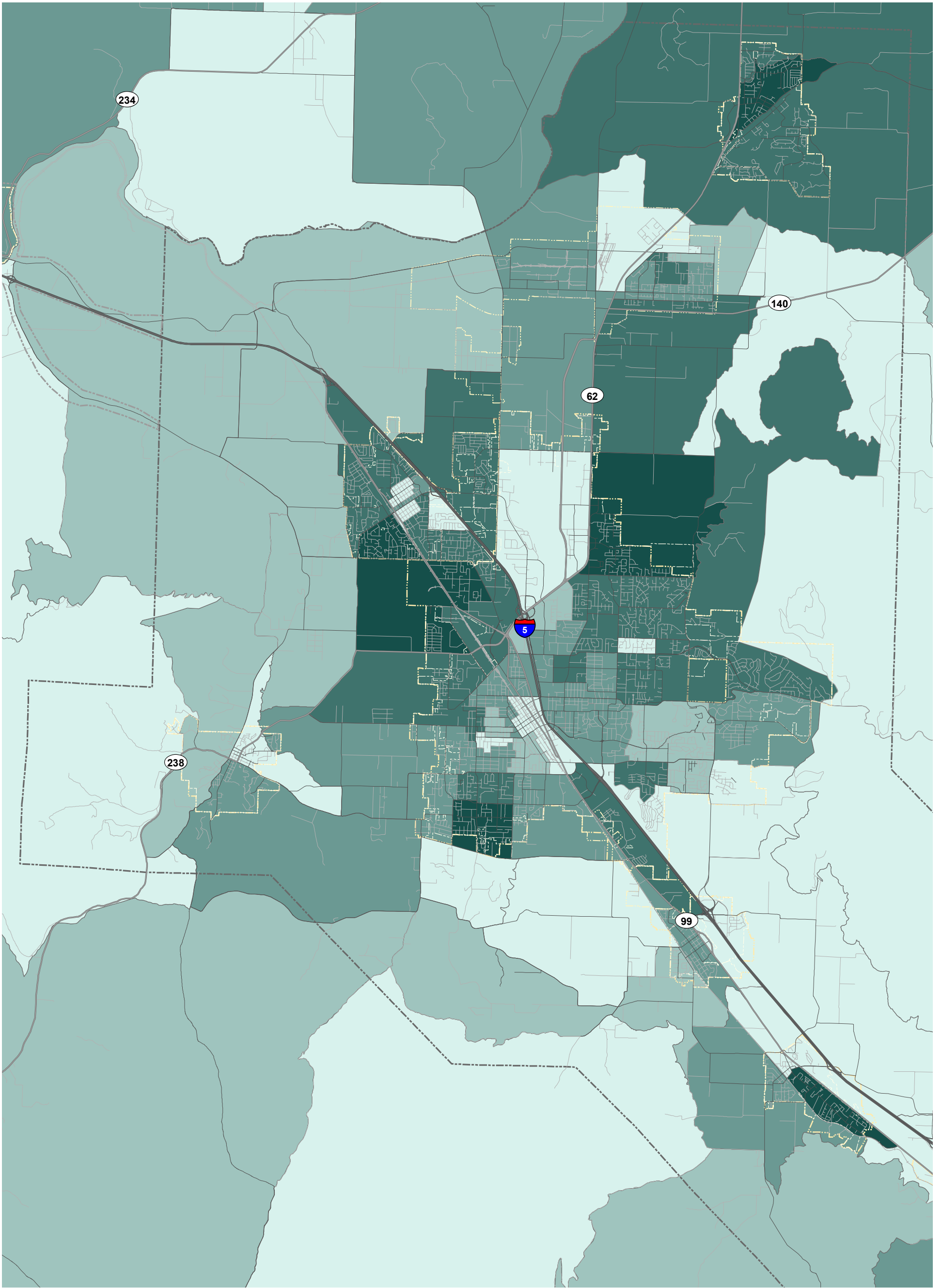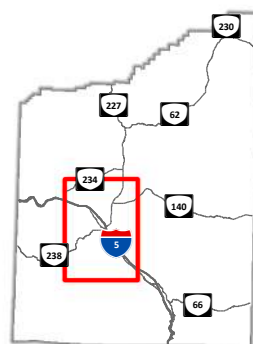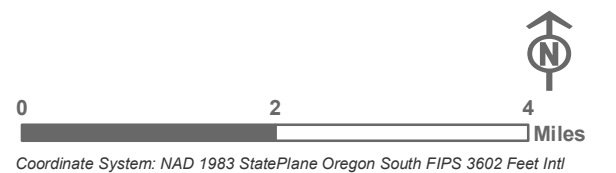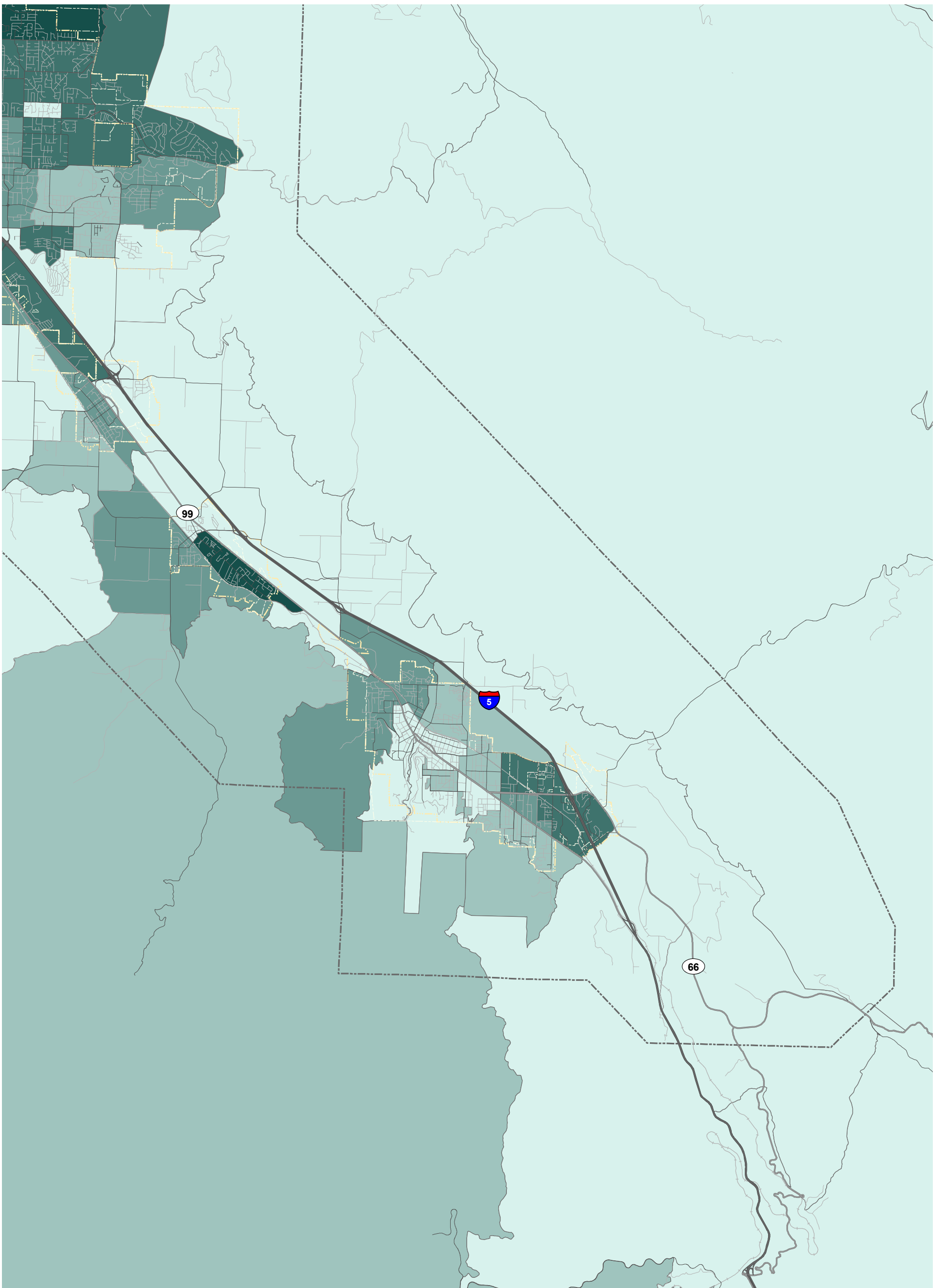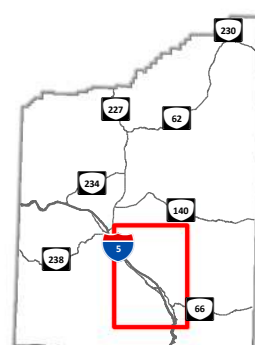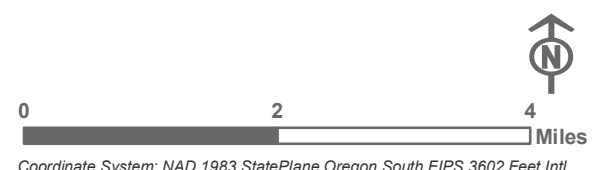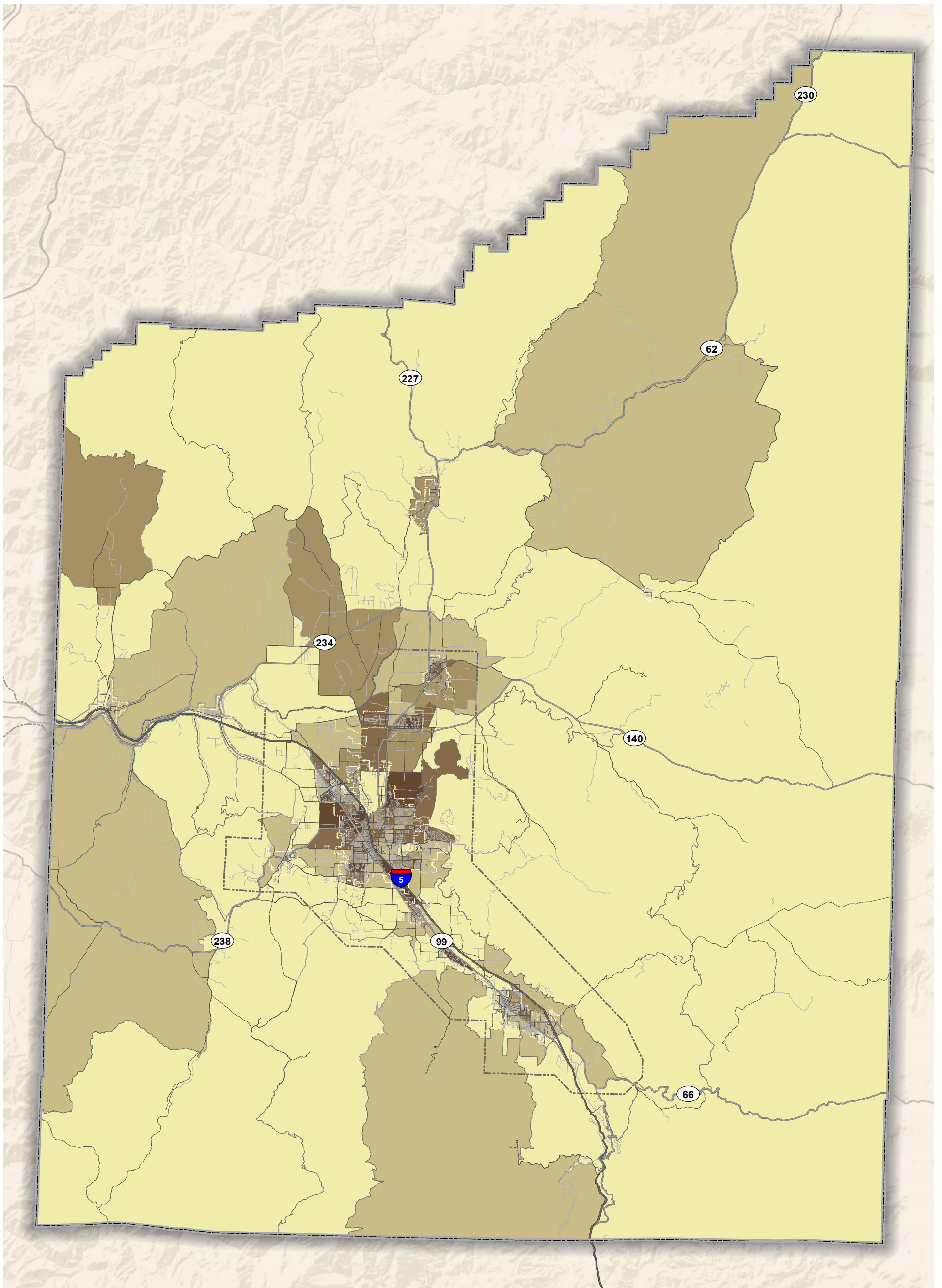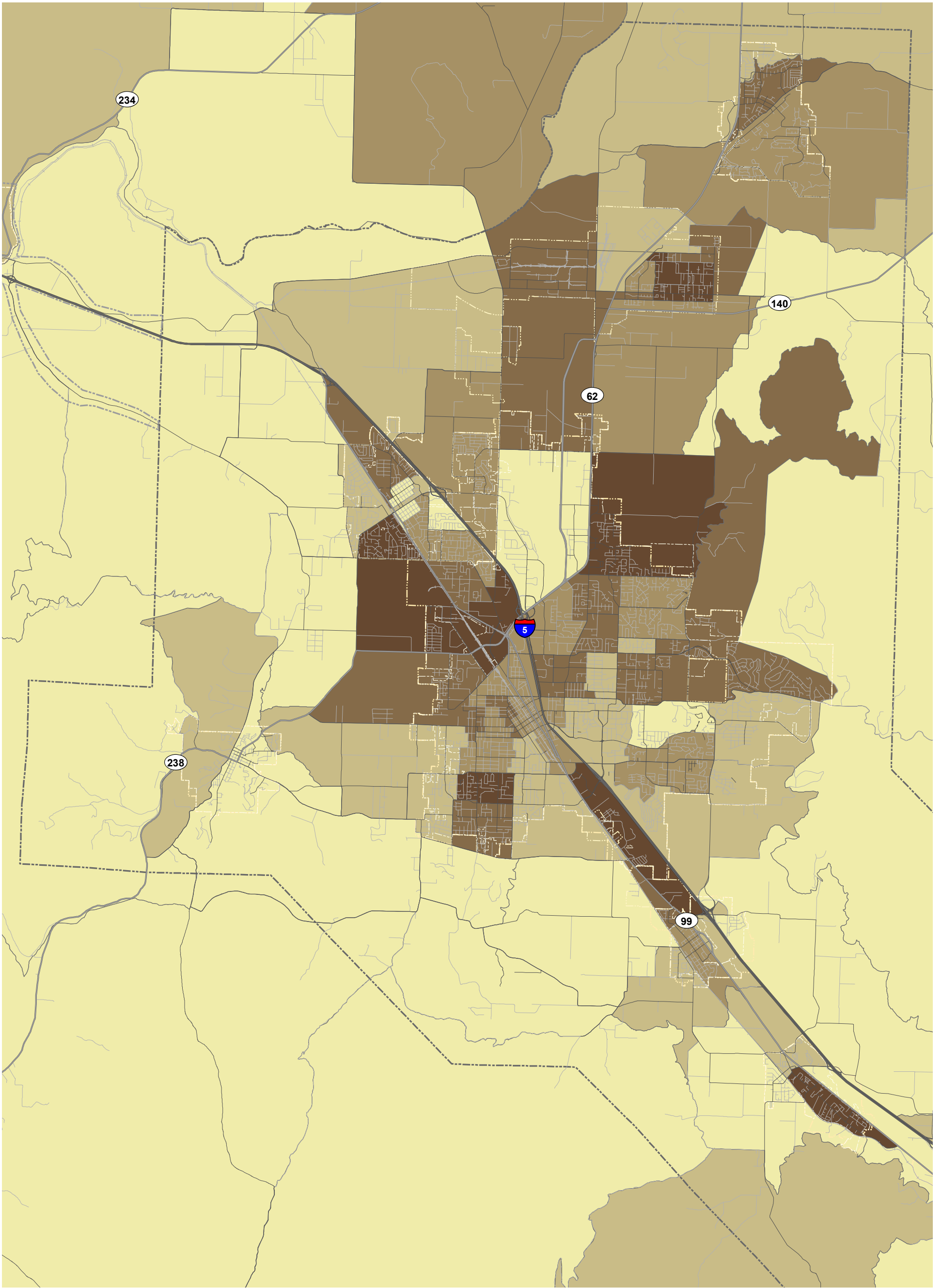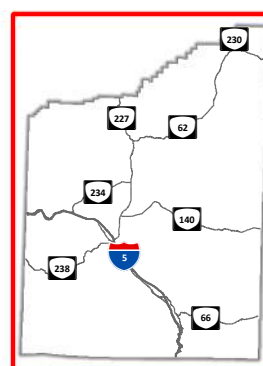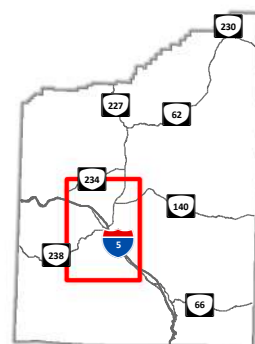Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1A
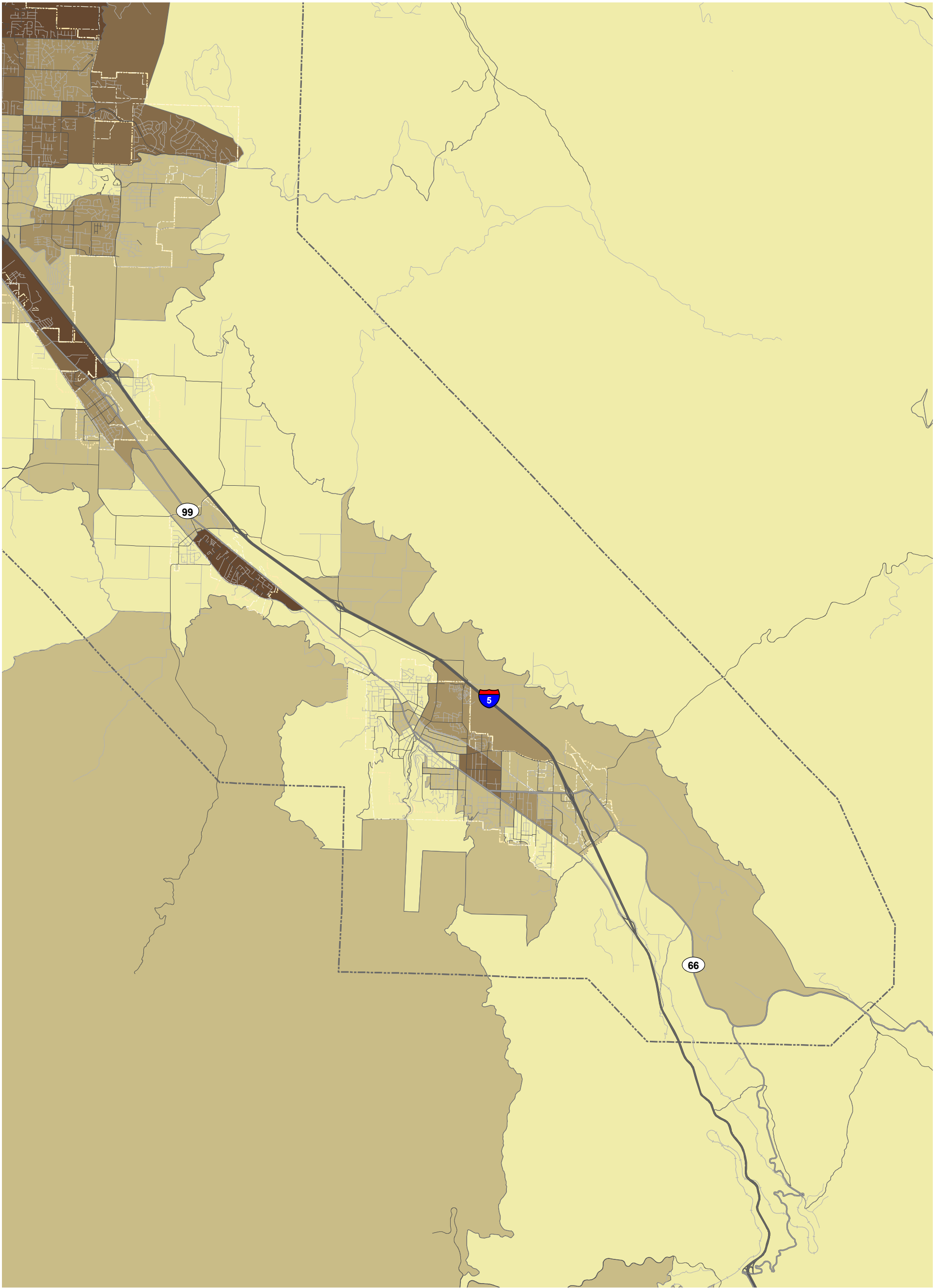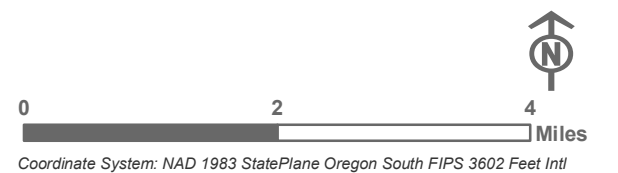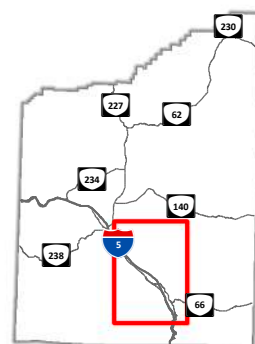
TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People 65 and Over

▨ 11 - 130	City Boundary
▨ 131 - 274	Urban Containment Boundary
▨ 275 - 455	Urban Growth Boundary
▨ 456 - 711	Middle Rogue MPO
▨ 712 - 1079	Rogue Valley MPO
	County Boundary

Figure 1A

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People 65 and Over

☐	11 - 130
☐	131 - 274
☐	275 - 455
☐	456 - 711
☐	712 - 1079

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1A
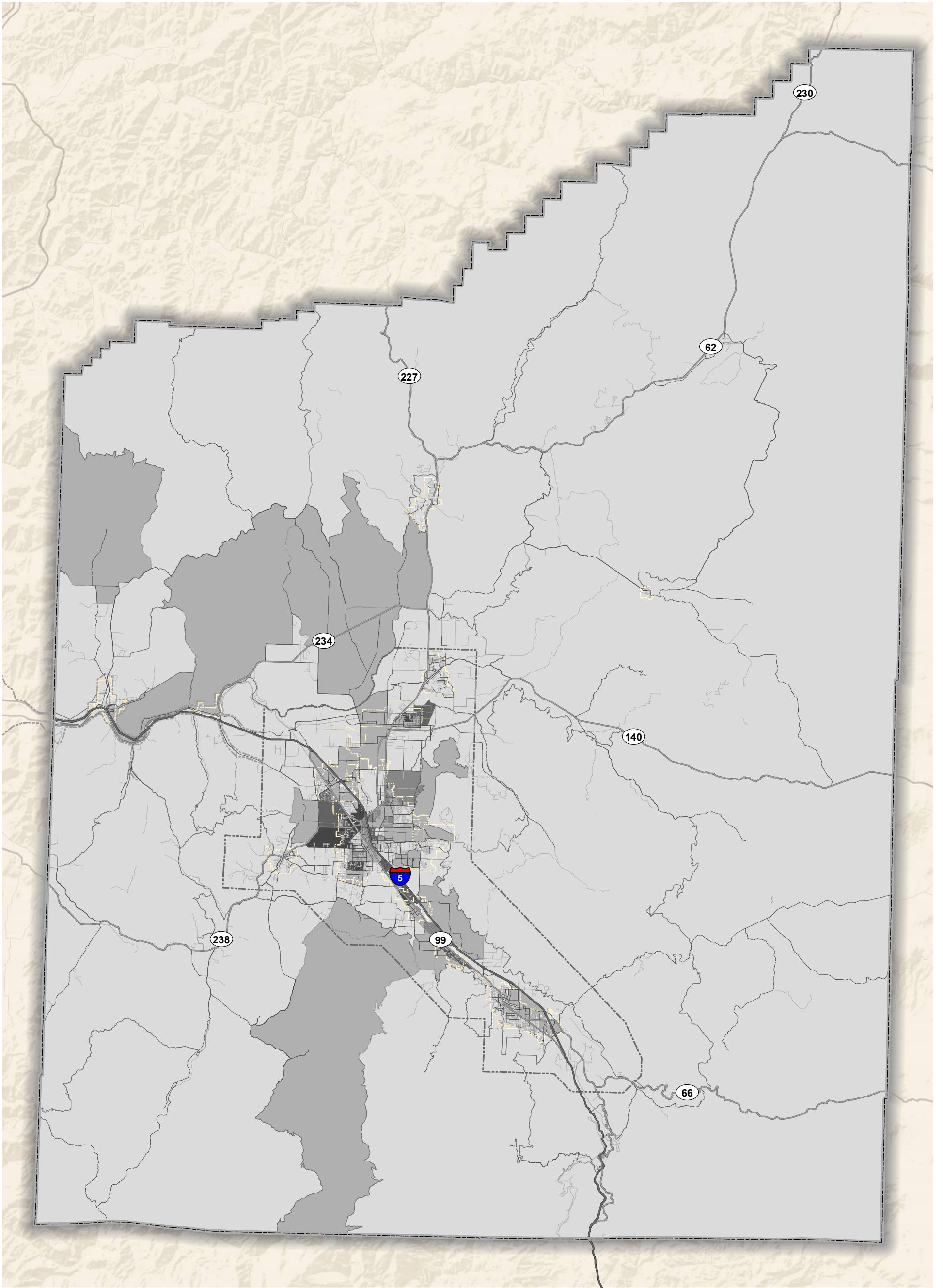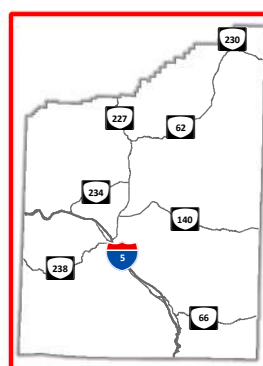
TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People 17 and Younger

- 0 - 146
- 147 - 291
- 292 - 493
- 494 - 870
- 871 - 1682

City Boundary

Urban Containment Boundary

Urban Growth Boundary

Middle Rogue MPO

Rogue Valley MPO

County Boundary

Figure 1B
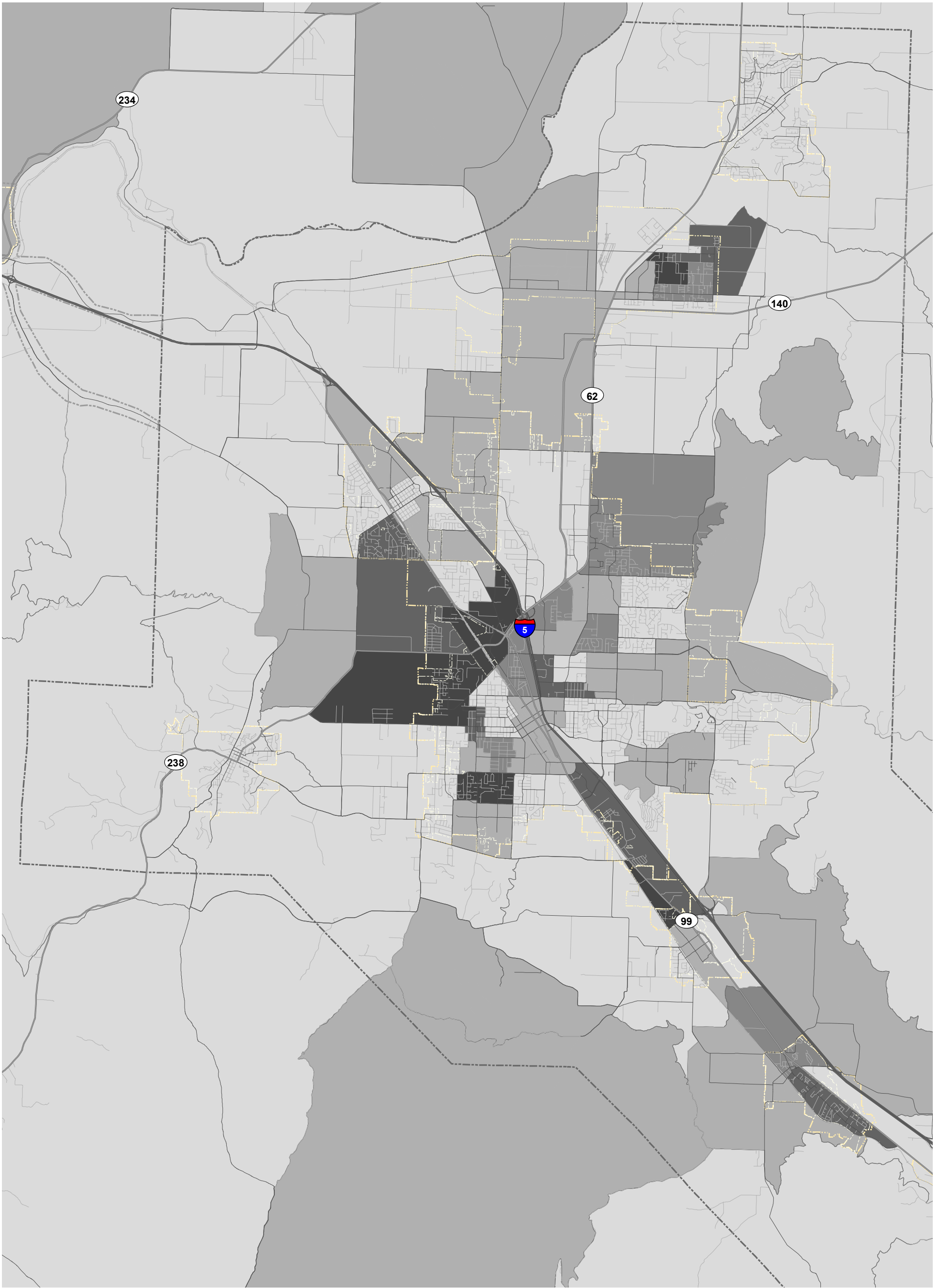
TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People 17 and Younger

- 0 - 146
- 147 - 291
- 292 - 493
- 494 - 870
- 871 - 1682

City Boundary
Urban Containment Boundary
Urban Growth Boundary
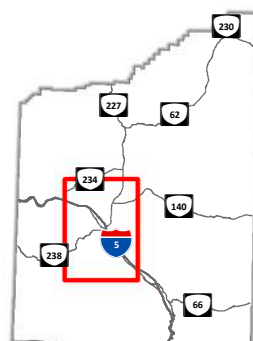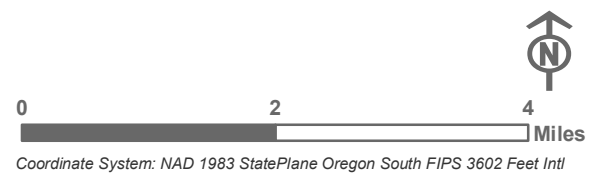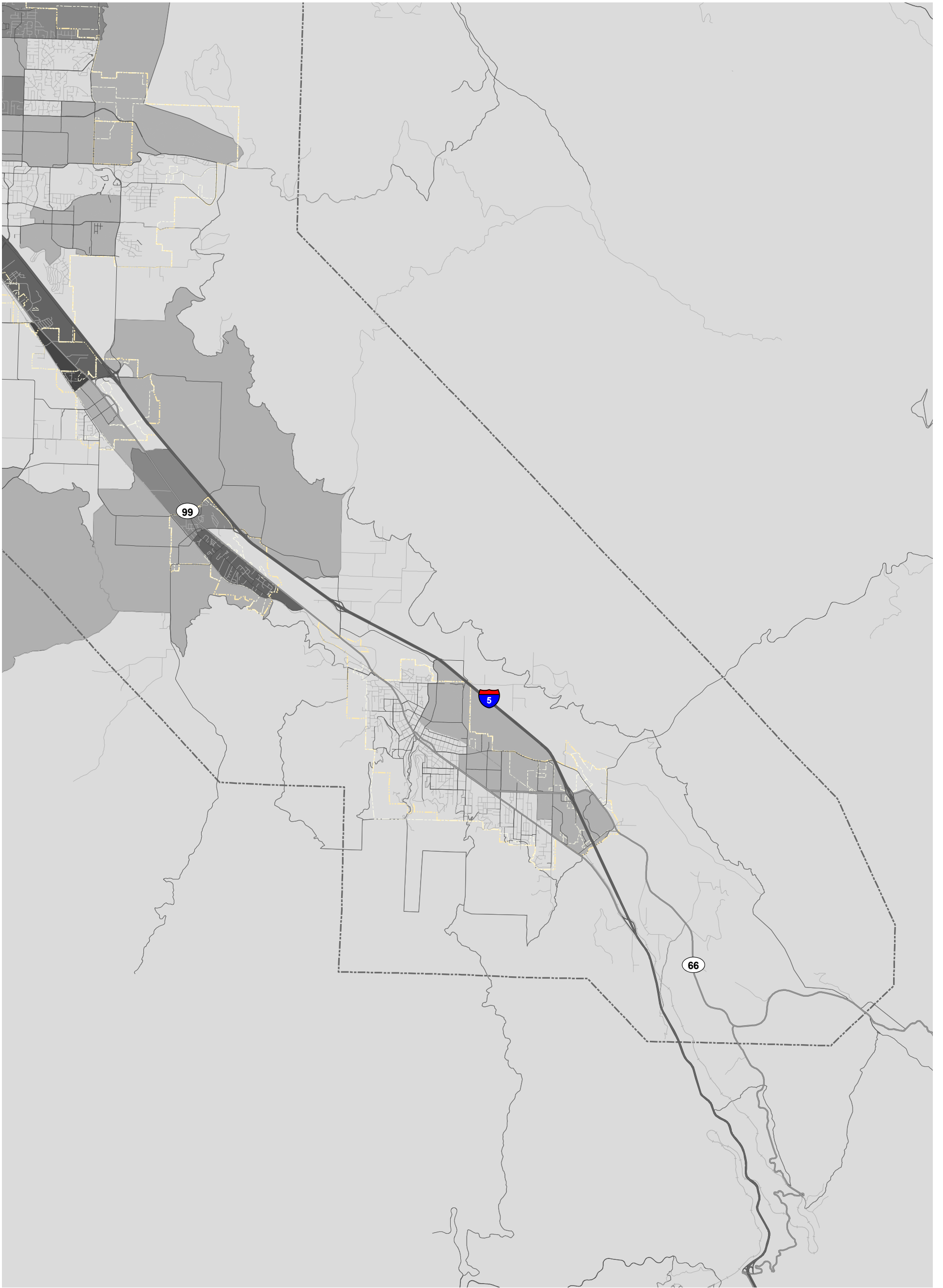Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1B

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People 17 and Younger

- 0 - 146
- 147 - 291
- 292 - 493
- 494 - 870
- 871 - 1682

City Boundary
Urban Containment Boundary
Urban Growth Boundary
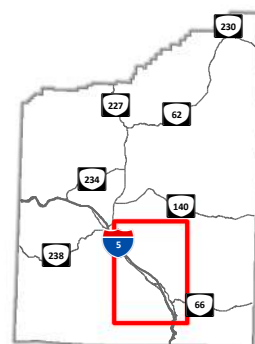Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1B

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People Non-White or Hispanic

- 0 - 119
- 120 - 285
- 286 - 530
- 531 - 870
- 871 - 1576

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1C
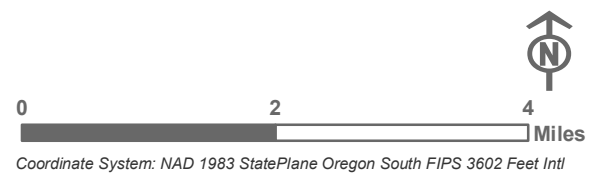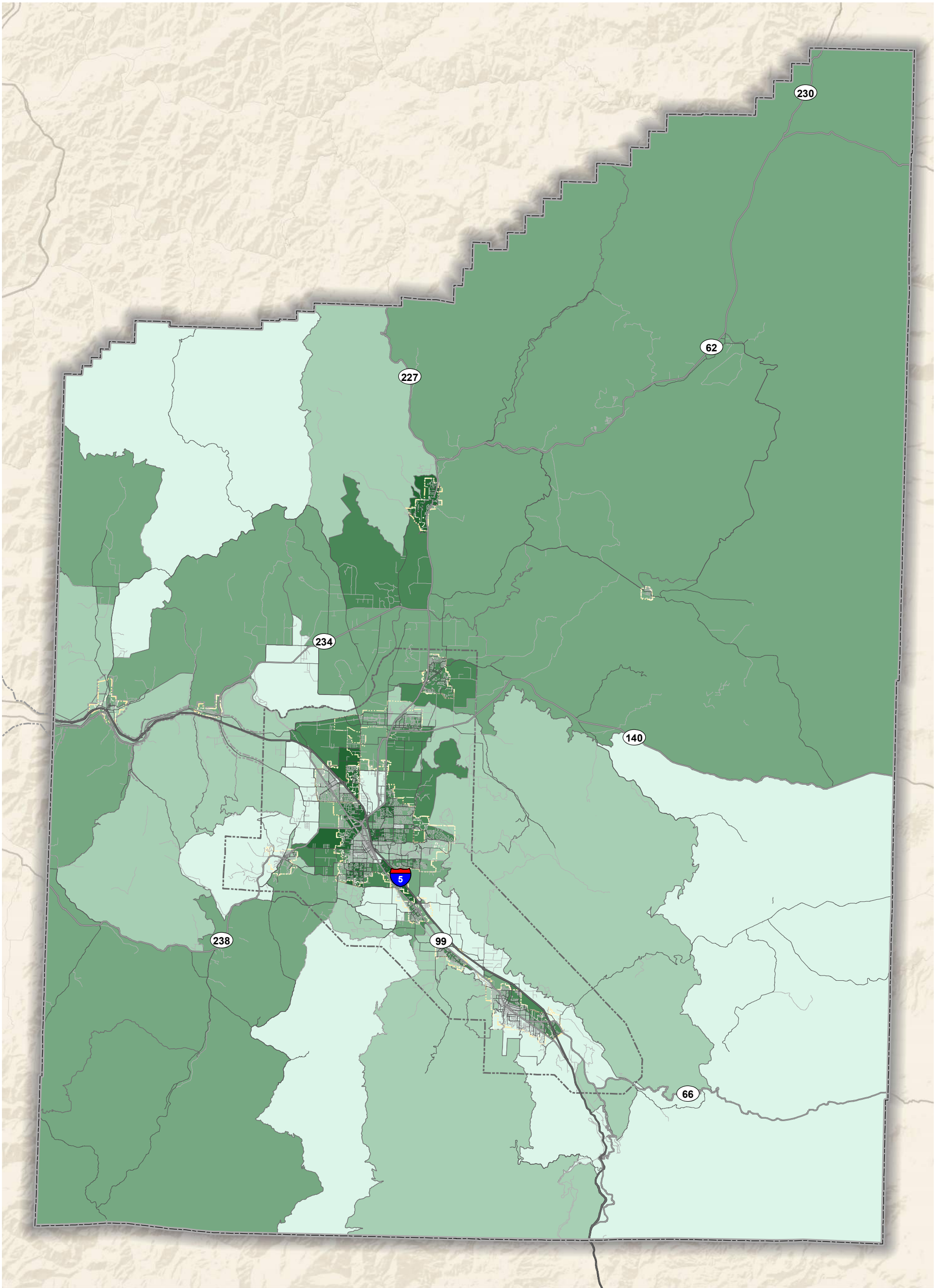
TDI Demographic Data

0 2 4 Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People Non-White or Hispanic

- 0 - 119
- 120 - 285
- 286 - 530
- 531 - 870
- 871 - 1576

City Boundary
Urban Containment Boundary
Urban Growth Boundary
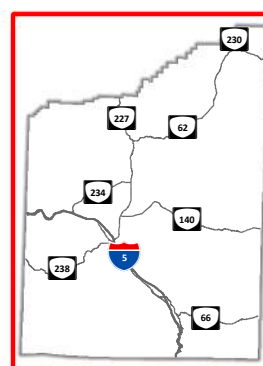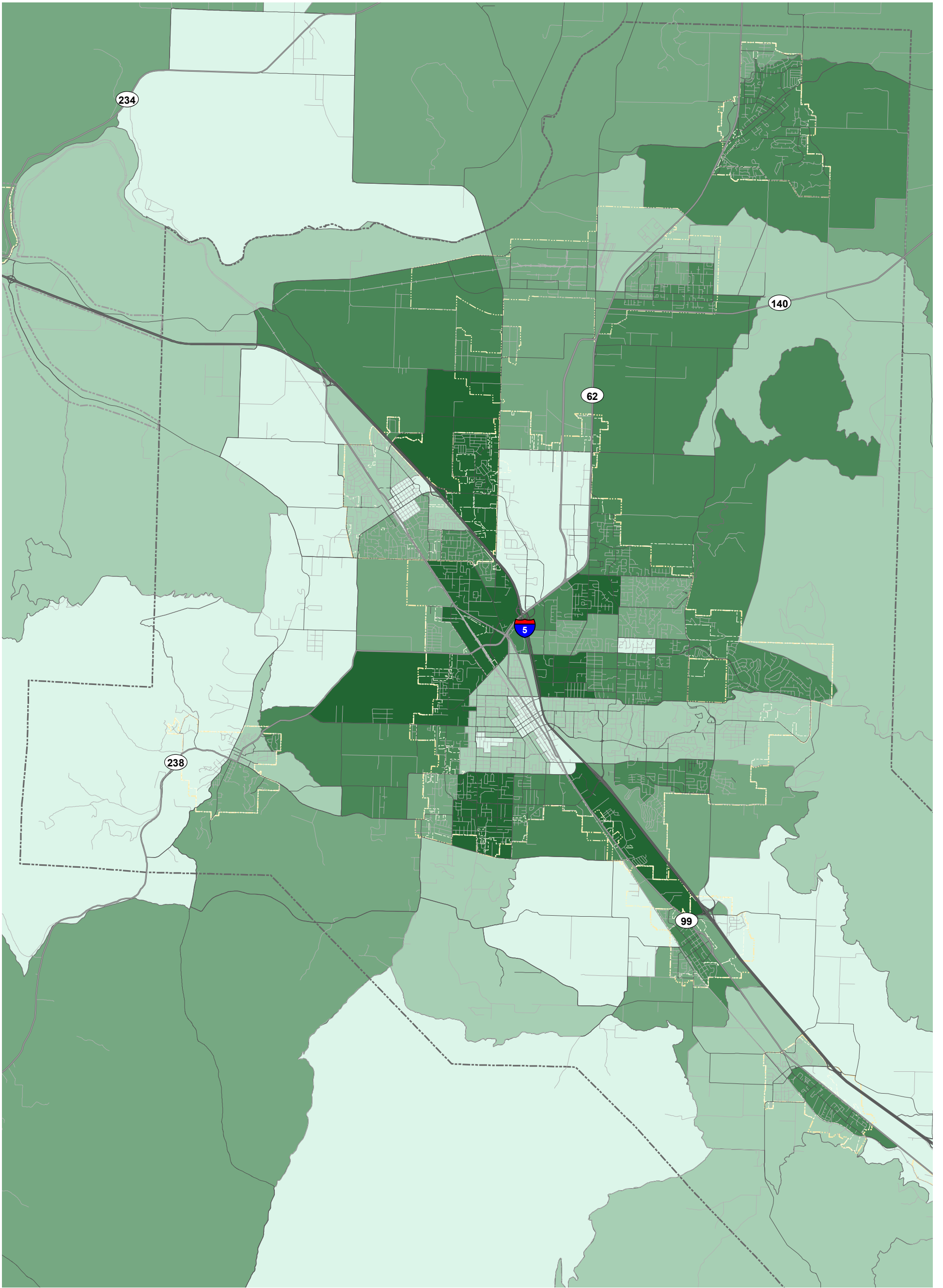Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1C

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People Non-White or Hispanic

- 0 - 119
- 120 - 285
- 286 - 530
- 531 - 870
- 871 - 1576

City Boundary
Urban Containment Boundary
Urban Growth Boundary
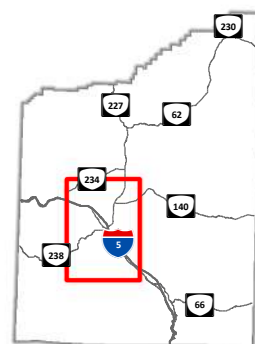Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1C

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People with Limited English Proficiency

- 0 - 13
- 14 - 48
- 49 - 94
- 95 - 165
- 166 - 305

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1D
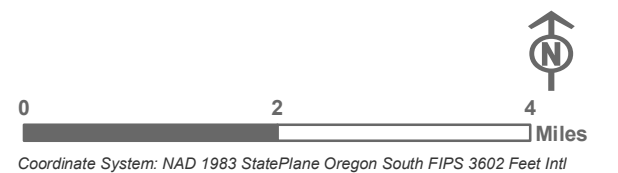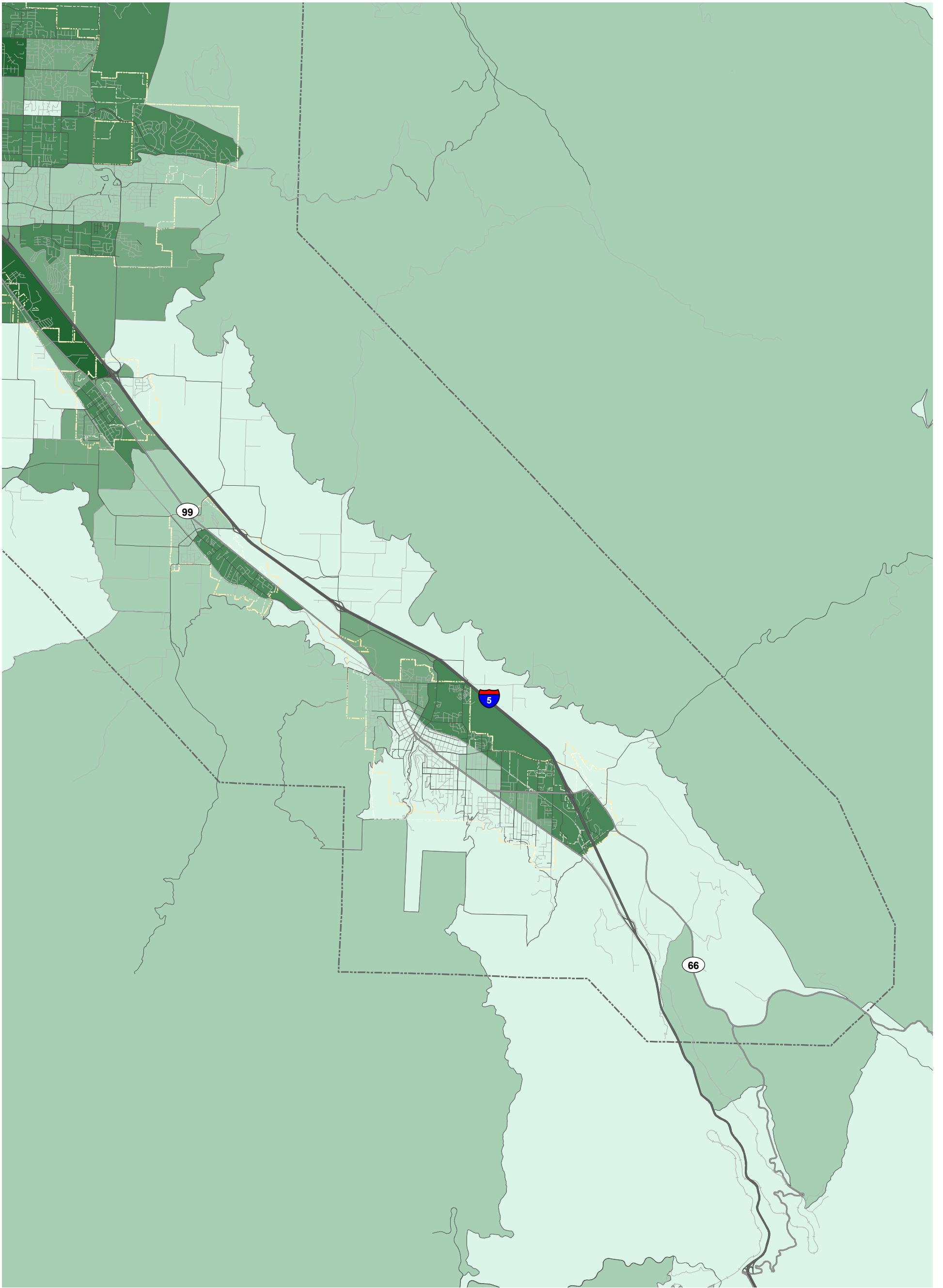
TDI Demographic Data

0 2 4 Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People with Limited English Proficiency

- ☐ 0 - 13
- ☐ 14 - 48
- ☐ 49 - 94
- ☐ 95 - 165
- ☐ 166 - 305

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

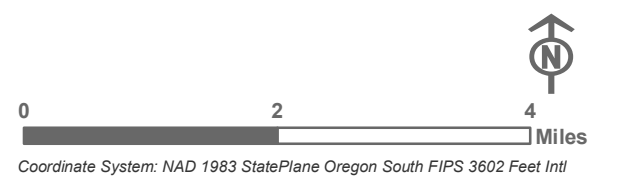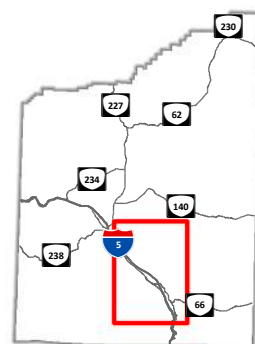Figure 1D

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People with Limited English Proficiency

- 0 - 13
- 14 - 48
- 49 - 94
- 95 - 165
- 166 - 305

City Boundary
Urban Containment Boundary
Urban Growth Boundary
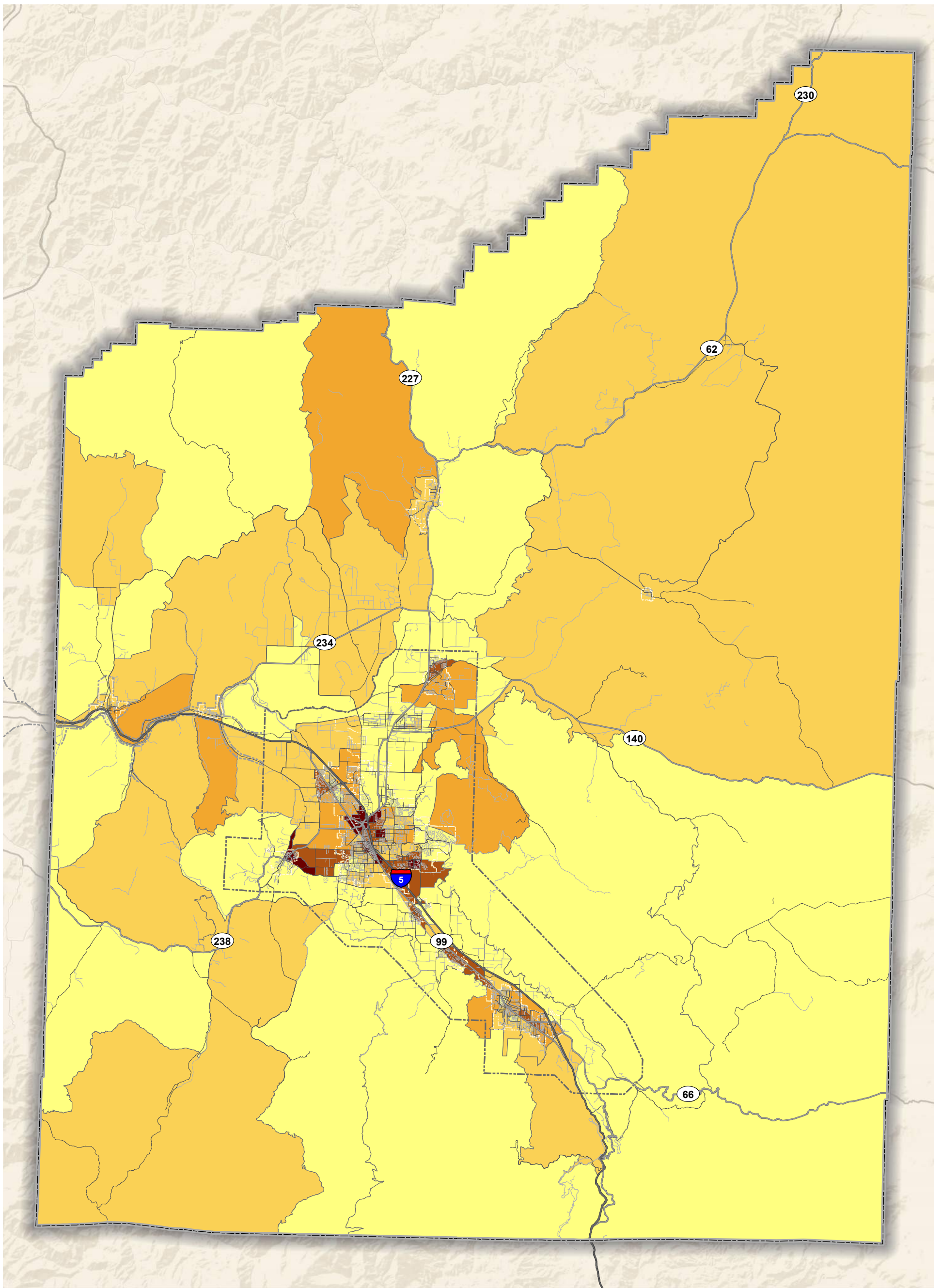Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1D
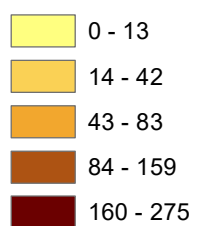
TDI Demographic Data

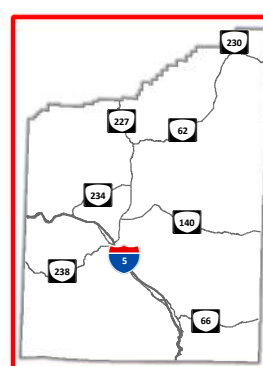0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People with a Disability

- 9 - 131
- 132 - 226
- 227 - 343
- 344 - 523
- 524 - 874

City Boundary
Urban Containment Boundary
Urban Growth Boundary
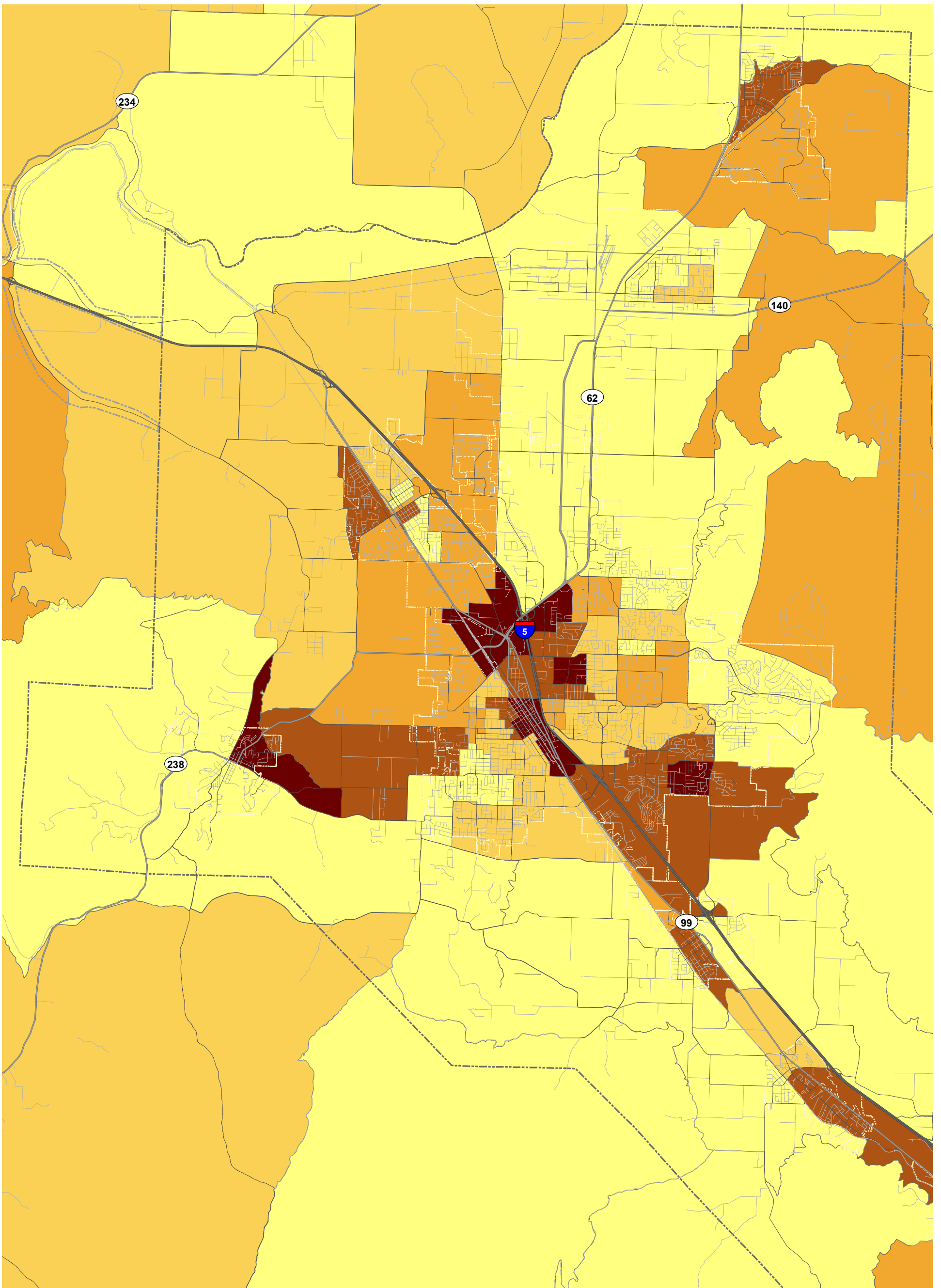Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1E

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People with a Disability

▢	9 - 131
▢	132 - 226
▢	227 - 343
▢	344 - 523
▢	524 - 874

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1E

TDI Demographic Data
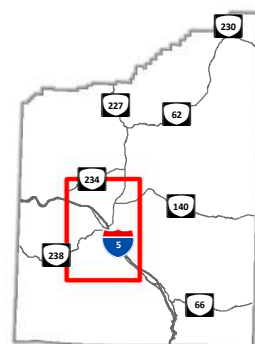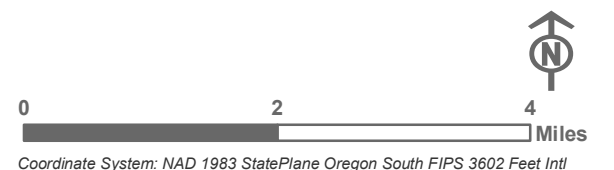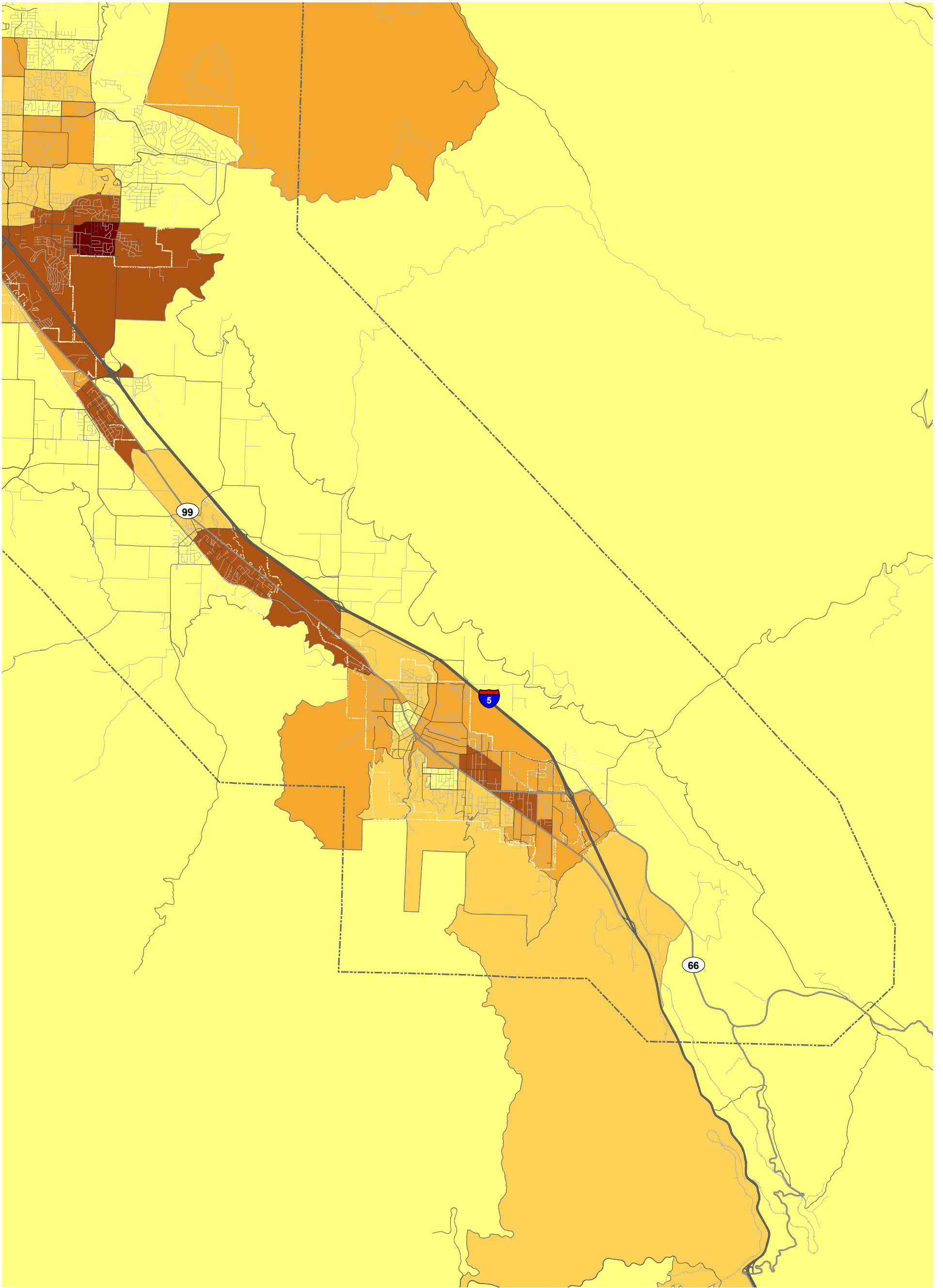
0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People with a Disability

▢	9 - 131
▢	132 - 226
▢	227 - 343
▢	344 - 523
▢	524 - 874

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1E

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

Hhouseholds with No Vehicle Access

- 0 - 13
- 14 - 42
- 43 - 83
- 84 - 159
- 160 - 275

City Boundary
Urban Containment Boundary
Urban Growth Boundary
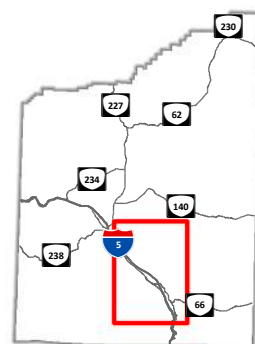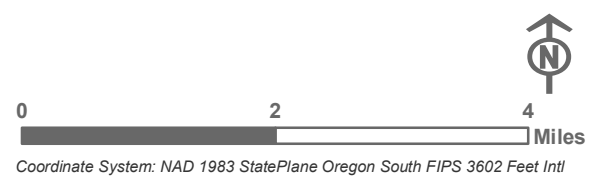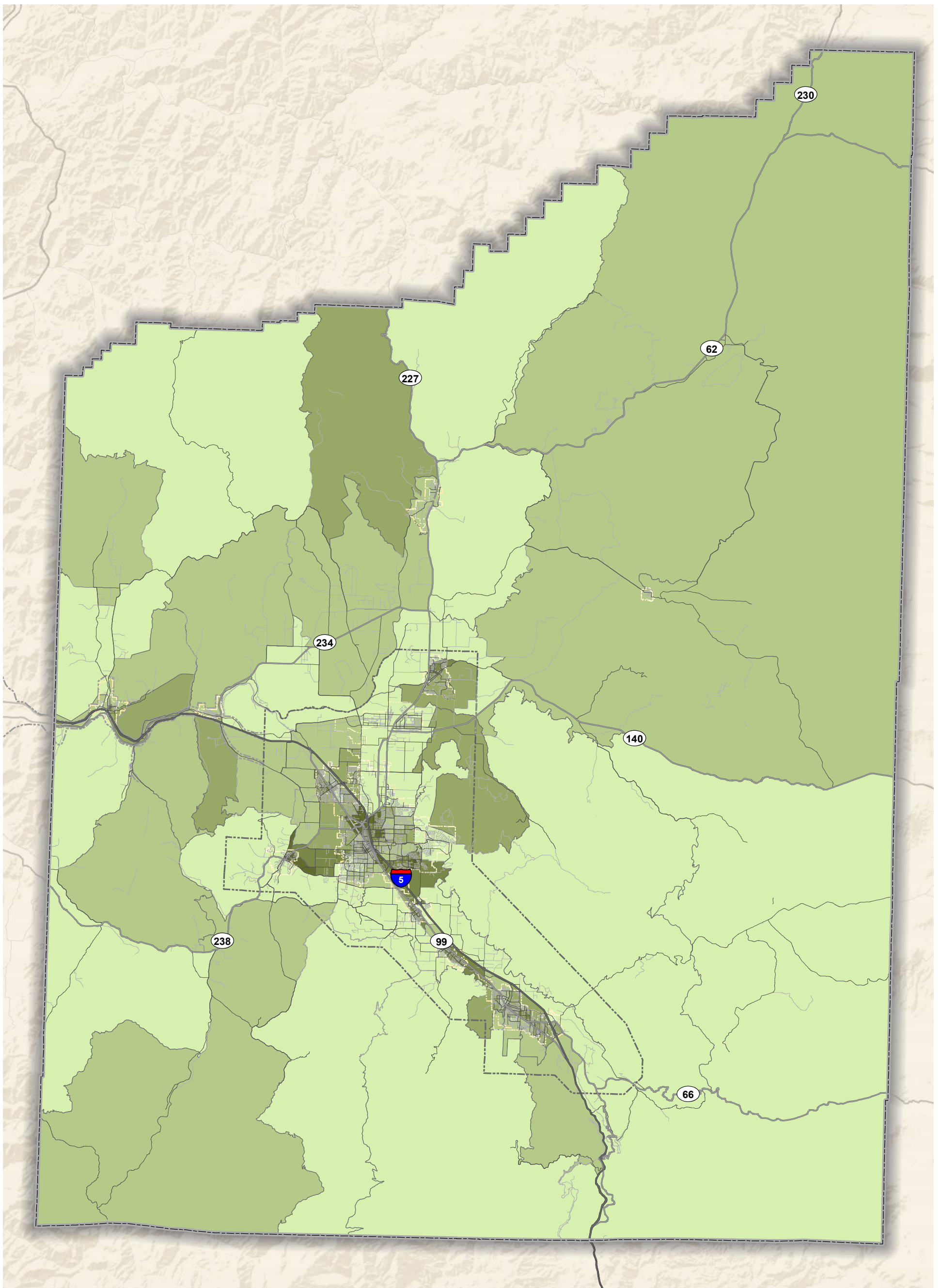Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1F

TDI Demographic Data

0   2   4   Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

Hhouseholds with No Vehicle Access

- 0 - 13
- 14 - 42
- 43 - 83
- 84 - 159
- 160 - 275

City Boundary
Urban Containment Boundary
Urban Growth Boundary
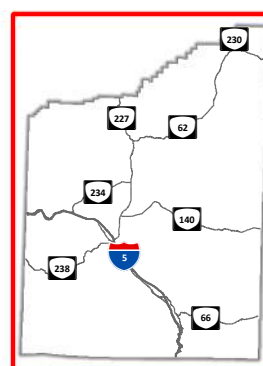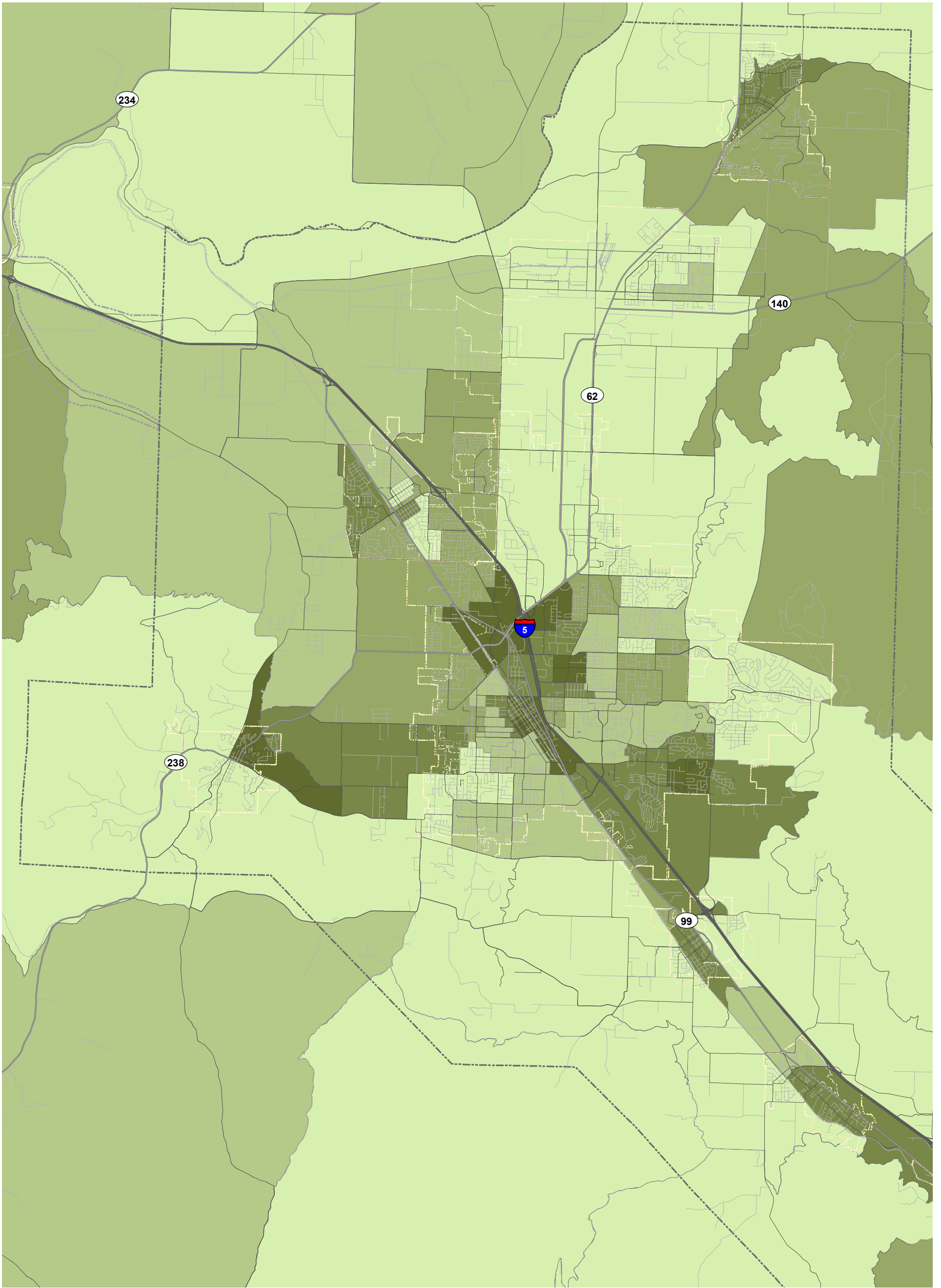Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1F

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

Hhouseholds with No Vehicle Access

- 0 - 13
- 14 - 42
- 43 - 83
- 84 - 159
- 160 - 275

City Boundary
Urban Containment Boundary
Urban Growth Boundary
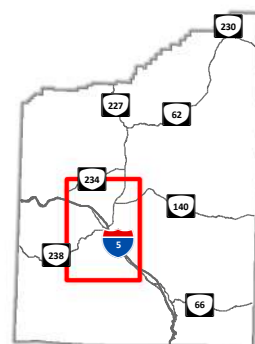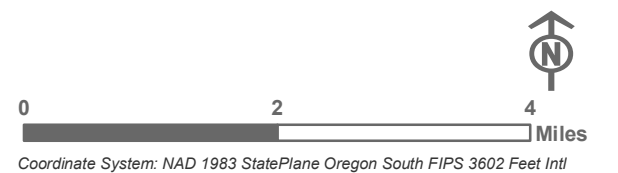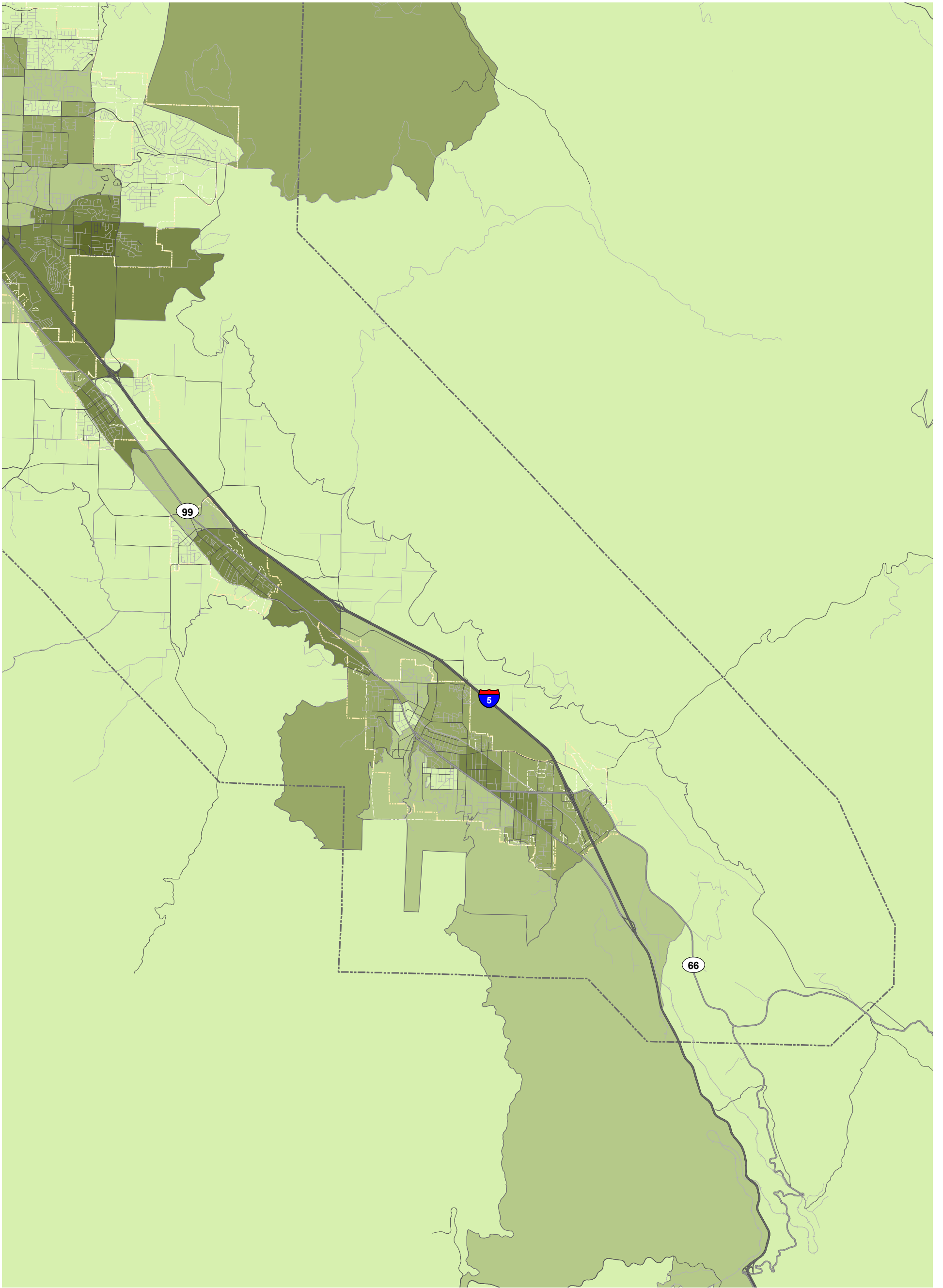Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1F

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

Over Crowded Households

▢	0 - 13
▢	14 - 42
▢	43 - 83
▢	84 - 159
▢	160 - 275

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1G

TDI Demographic Data

0 2 4 Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

Over Crowded Households

- 0 - 13
- 14 - 42
- 43 - 83
- 84 - 159
- 160 - 275

City Boundary
Urban Containment Boundary
Urban Growth Boundary
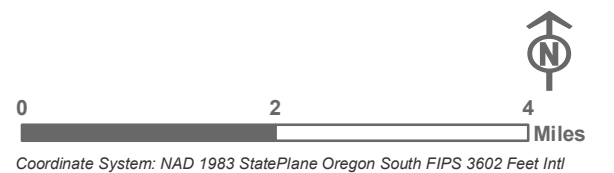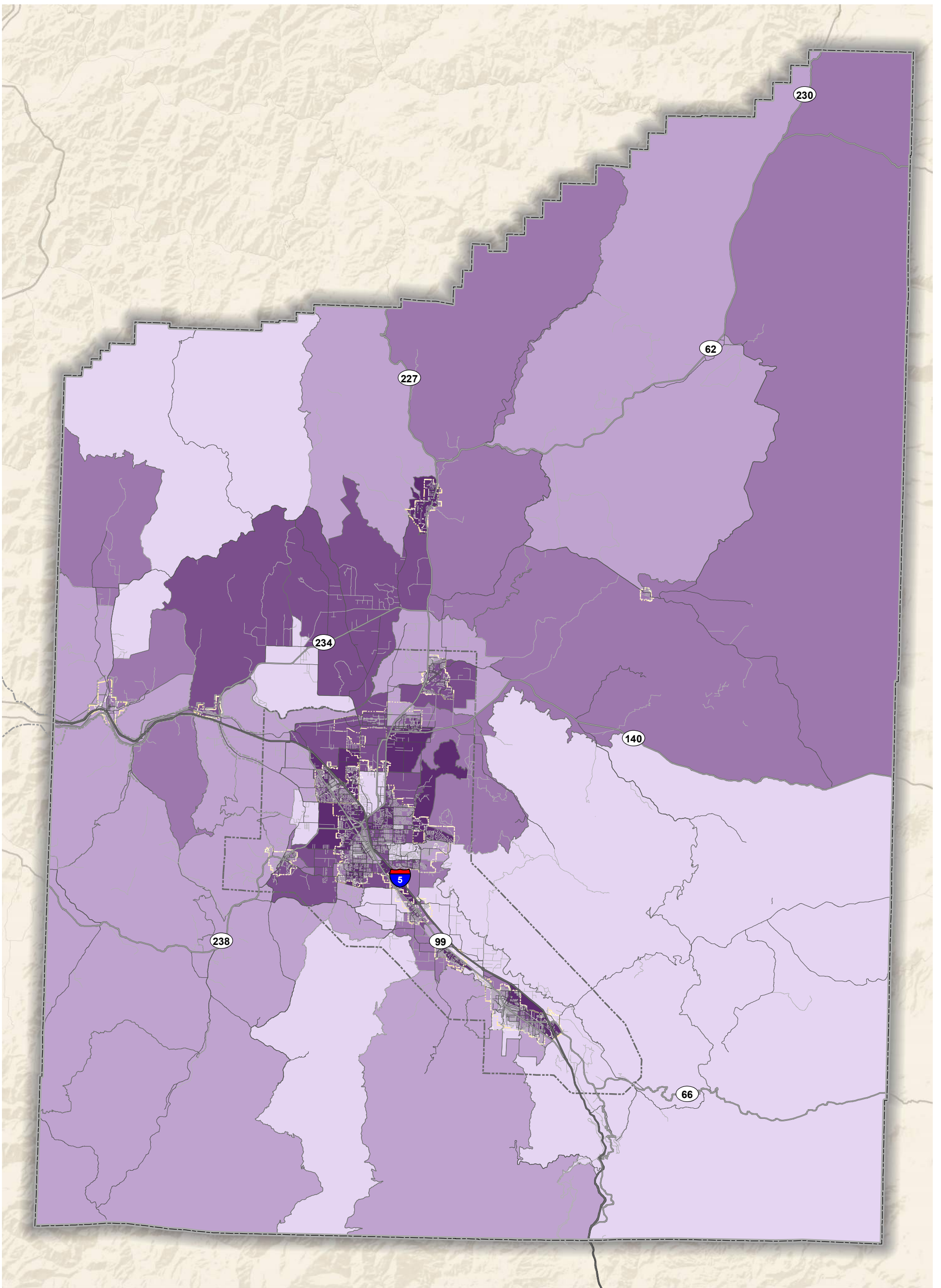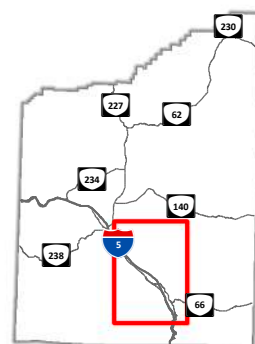Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1G

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

Over Crowded Households

- 0 - 13
- 14 - 42
- 43 - 83
- 84 - 159
- 160 - 275

City Boundary
Urban Containment Boundary
Urban Growth Boundary
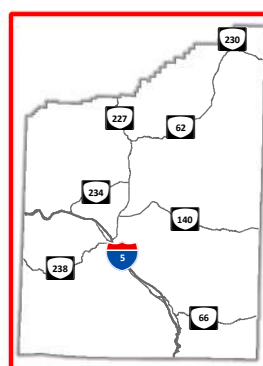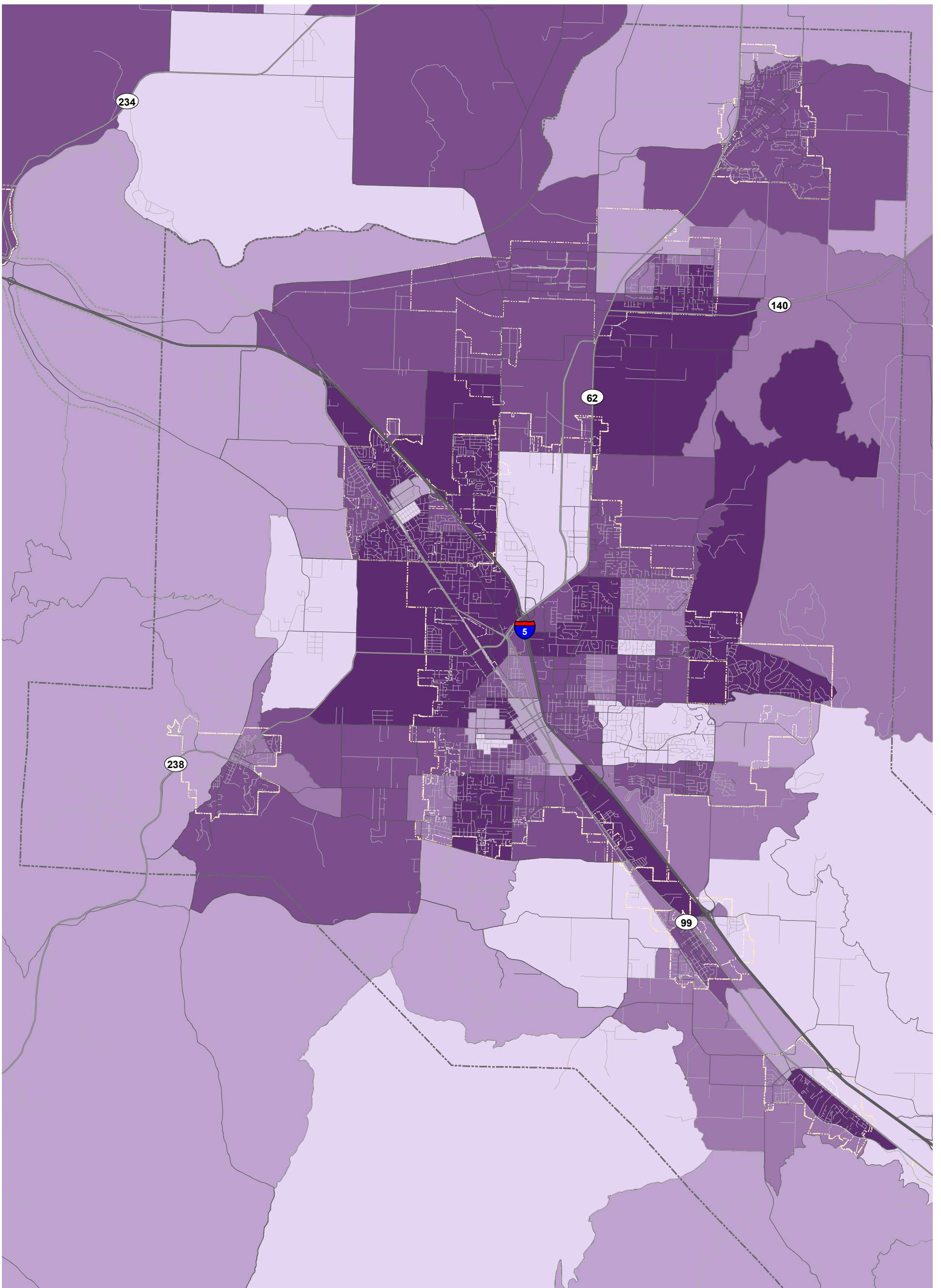Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1G

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People Living in Poverty

	18 - 264
	265 - 421
	422 - 633
	634 - 909
	910 - 1806

City Boundary

Urban Containment Boundary

Urban Growth Boundary

Middle Rogue MPO

Rogue Valley MPO

County Boundary

Figure 1H

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People Living in Poverty

▨	18 - 264
▨	265 - 421
▨	422 - 633
▨	634 - 909
▨	910 - 1806

City Boundary
Urban Containment Boundary
Urban Growth Boundary
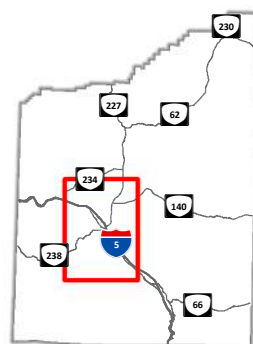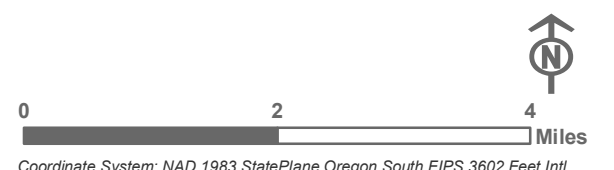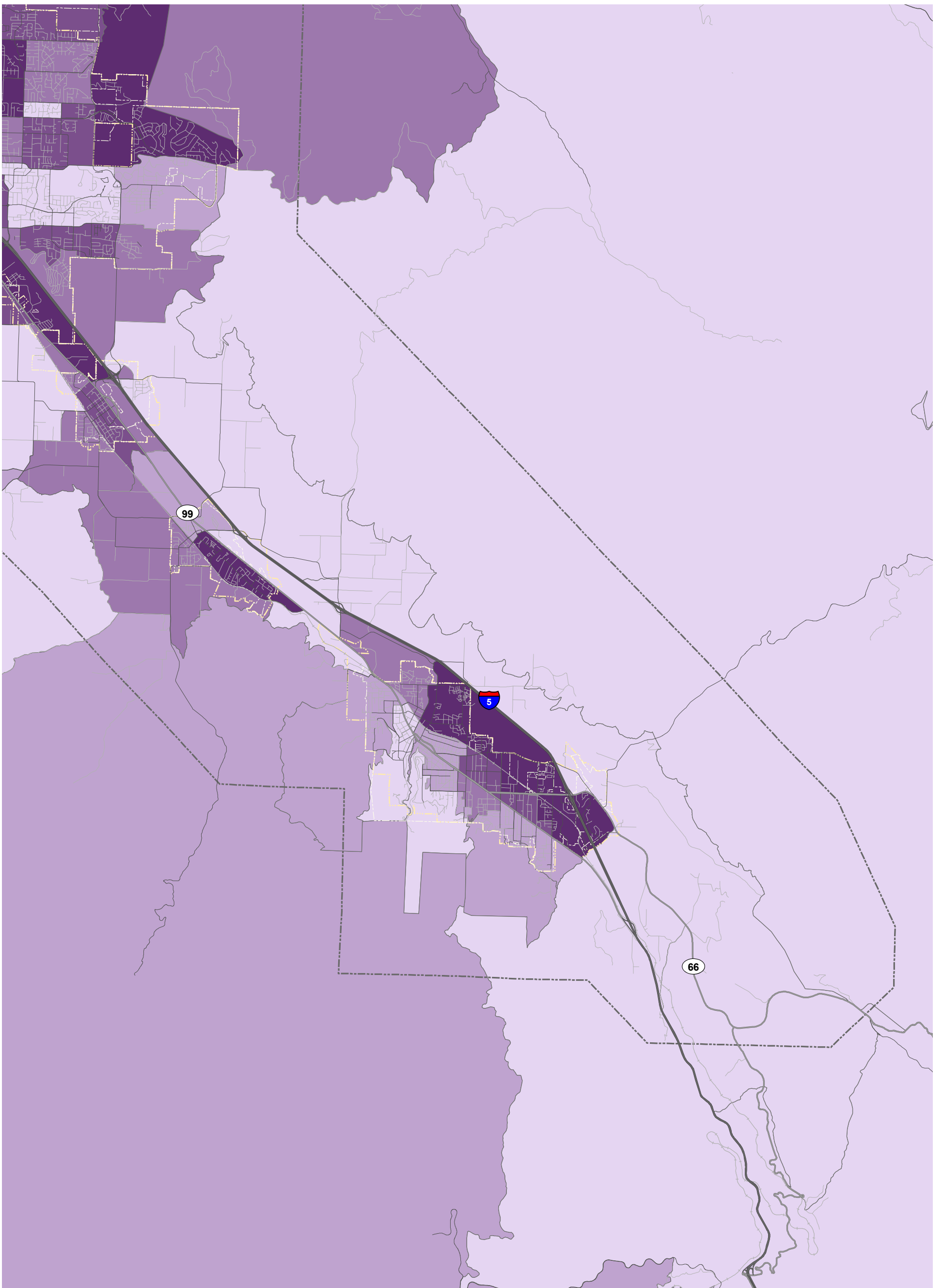Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1H

TDI Demographic Data

0   2   4
Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl

People Living in Poverty

	18 - 264
	265 - 421
	422 - 633
	634 - 909
	910 - 1806

City Boundary
Urban Containment Boundary
Urban Growth Boundary
Middle Rogue MPO
Rogue Valley MPO
County Boundary

Figure 1H

TDI Demographic Data

0   2   4
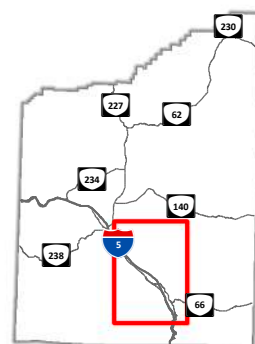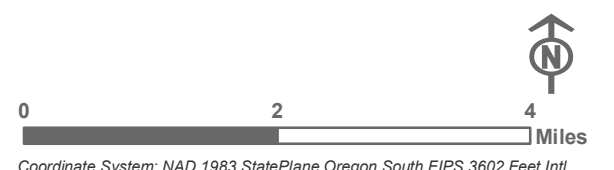Miles

Coordinate System: NAD 1983 StatePlane Oregon South FIPS 3602 Feet Intl