

CHAPTER 3

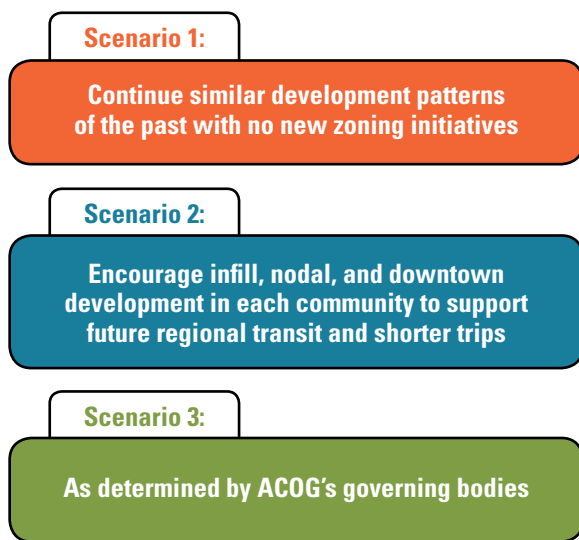
REGIONAL SOCIOECONOMIC TRENDS



The rapid growth experienced by Central Oklahoma in recent years is expected to continue. By 2040, the region is forecasted to add roughly 453,000 new residents and 275,000 new jobs. How the region develops will have a direct impact on the performance of the transportation system. An increase in population combined with continued outward expansion has the potential to lead to more vehicles on already stressed roadways, while downtown redevelopment may increase the demand for pedestrian and cycling infrastructure as well as transit access.

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REGIONAL SCENARIO PLANNING

FIGURE 3.1: ENCOMPASS 2040 SCENARIOS



To assist in determining the potential impacts that future growth might have on the transportation system, a regional scenario planning component was incorporated into the Encompass 2040 long-range planning process. Scenario planning, or land use modeling, recognizes that many alternatives exist for future growth policy and that these evolving rules and regulations could have a significant impact on the shape, type, and rate of growth going into the future.

The Encompass 2040 Land Use Scenarios study was undertaken as an educational exercise to investigate potential alternative development patterns that could address some of the issues facing the region in the future. The study also helps to illustrate the impact land use policies have on the transportation system. The previous long-range, metropolitan transportation plans used a growth allocation model, or GAM, to allocate future growth based on current trends. Scenario planning allows multiple

futures to be developed based on changes in land use policies. Quantitatively analyzing the results of these hypothetical policies can guide officials to the best alternative going forward.

Encompass 2040 was developed using two potential growth scenarios, with the option for a third scenario (Figure 3.1). Each scenario was developed with generous support from planners, local leaders, and interested citizens.

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CENTRAL OKLAHOMA SOCIOECONOMIC DATA

Scenario planning is a data intensive process. The Encompass 2040 Land Use Scenario study required a number of regional datasets, including: land use, population, employment, dwelling units, and school enrollment within the transportation study area (see Table 3.1 for a full list of data inputs). The data was gathered to establish conditions as they existed in the OCARTS area in 2010, the base year for analysis for Encompass 2040. Once collected, the data was used in the scenario planning modeling process to determine the forecast year (2040) socioeconomic and development conditions. By analyzing potential development patterns, or where people are likely to live and work in the future for various scenarios, an assessment of the forecast year travel demand can be made and the impacts on the transportation system can be assessed.

SUBAREAS OF DATA COLLECTION

For the purposes of data collection and analysis, socioeconomic information was gathered at the smallest geographic level possible and then aggregated to larger areas, which include traffic analysis zones (TAZs), city boundaries, the full or partial counties that comprise the OCARTS area, and the entire study area. Socioeconomic data available from the U.S. Census Bureau was obtained at the Census Block or Block Group level, which served as the building blocks for TAZs. Each TAZ is similar in population although their geographic sizes vary from a few blocks in heavily developed areas to several square miles in the rural portions of the study area. In total, the OCARTS area contains 2,855 TAZ datasets that provided input to the scenario planning and regional transportation models.

LAND USE

ACOG works closely with local planners on the collection of base year land use within each OCARTS area entity. Each local government also provides information on future, planned land

uses based on their adopted comprehensive plans, zoning ordinances, and other sources reflective of local development trends. For the 2040 Plan, base year land use information was grouped into twelve existing, or present, land use categories, and all undeveloped land was assigned a planned land use category, as shown in Table 3.2. These standardized categories provided regional consistency for modeling purposes.

Land Use Trends in Central Oklahoma

In 2010, roughly 39 percent of the land within the Oklahoma City Area Regional Transportation Study (OCARTS) boundary was classified as developed. The developed land can further be divided into three distinct categories: residential, employment, and other (Figure 3.2). Suburban residential developments, also known as rural residential, make up the majority of land classified as residential (67 percent). This type of development is characterized by larger homes on large lots (greater than one acre) with a low population density (persons per acre). The development type with the highest population density, multi-family residential, accounts for only two percent of the existing residential land use. Forty-eight percent of land designated as employment is industrial. Similar to suburban residential, industrial land tends to have low employment density (employees per acre) and in many cases, consists of underdeveloped parcels. The third land use category is divided between parks/open space (55 percent), transportation corridors (45 percent), with mixed use developments accounting for only 0.004 percent of developed land within the region.

BUILDING PERMITS

Along with land use data, the MPO works with local municipal and county entities to collect recent building permit data within the OCARTS area. Local government entities provided recent

18% OF RESIDENTIAL BUILDING PERMITS WERE ISSUED OUTSIDE THE EXISTING SEWER SERVICE BOUNDARY

construction and demolition data for both commercial and residential (single-family, multi-family, single-family attached, etc.) developments from 2010 to 2014. During this time period, 36,252 housing units were permitted within the study area and 2,582 housing units were demolished (Table 3.3). Regional

TABLE 3.1: ENCOMPASS 2040 LAND USE SCENARIOS DATA COMPONENTS

DATA INPUTS FOR ENCOMPASS 2040 LAND USE SCENARIOS
Parcels/TAZs (includes land use, population, and employment information)
Existing Growth Areas (based on current sewer service areas)
Metropolitan Centers (town centers/central business districts)
Region/Community Activity Nodes
Colleges and Universities
Schools (K-12)
Water Bodies
Floodplains
Wildlife Management Areas
Wetlands
Conservation Areas and Other Protected Areas
Parks and Open Space
Road Network and Road Rights-of-Way
Prime and Cultivated Farmland
Proposed Commuter Rail Corridors and Stations (TODs)
Proposed Transit Corridors (extended vision bus and streetcar network)
Bicycle Facilities
Transit Routes and Stops
Sidewalks
Sewer Service Areas
Vacant Housing
Maximum Building Units
Future Developments

TABLE 3.2: ENCOMPASS 2040 LAND USE CATEGORIES

NAME	DESCRIPTION
Single-Family Residential	Urban and suburban single-family residences on lots smaller than one acre. Includes mobile home parks.
Multi-Family Residential	Apartments and other residential dwelling units with 3 or more units under one roof.
Commercial	Retail establishments including offices in commercial settings. Includes shopping malls.
Office	Private offices including veterinarians and medical offices near hospitals.
Public/Institutional	Schools, colleges, government office buildings, hospitals, places of worship, and other institutions.
Industrial	Light, moderate, and heavy industrial, manufacturing, warehousing, utilities, mineral extraction, landfills, and public industrial properties (water treatment plants, etc.).
Parks/Open Space	Parks, open spaces, cemeteries, golf courses, drainage channels, stormwater basins, rivers, and open water.
Transportation Corridors	Roads, highways, alleys, railroads, and other public rights-of-way.
Suburban Residential	Single-family residential on lots between 1-5 acres.
Mixed Use	Combination of land uses in one area, e.g. a building with retail on the ground floor and apartments above.
Group Quarters	College dorms, jails, nursing homes, and other facilities where a large number of people live in one facility.
Single-Family Attached	Attached single-family housing units, including duplexes and townhomes.
Agriculture	Land primarily used for agriculture. May eventually contain residences and outbuildings at an extremely low density.
Agriculture Residential	Single-family residential on lots greater than 5 acres.

construction data assists with the creation of regional controls for population and employment datasets. These datasets are ultimately used to create population and employment projections for future transportation plans.

POPULATION AND EMPLOYMENT GROWTH

Population

Base year population for the counties, cities, towns, and TAZs within the OCARTS boundary were developed using 2010 Census data. The Intermodal Transportation Policy Committee (ITPC) approved a base year population of 1,142,407 for the OCARTS area in June 2013. The Committee also approved base year totals for each county and entity, at that time.

The 2040 population projections for the OCARTS area were developed using three sources—county level projections from Woods & Poole² (2010-2040), the Oklahoma Department of Commerce (2010-2075), and 1980-2010 historical population data—along with the 2010 population estimates, extrapolated to 2040. The three methodologies generated different growth rates for each county. When choosing which methodology to use, both the recent historical population trends (i.e. building permit data) and the county and city control totals from the 2035

FIGURE 3.2: RESIDENTIAL, EMPLOYMENT, AND OTHER LAND USE PERCENTAGES (2010)

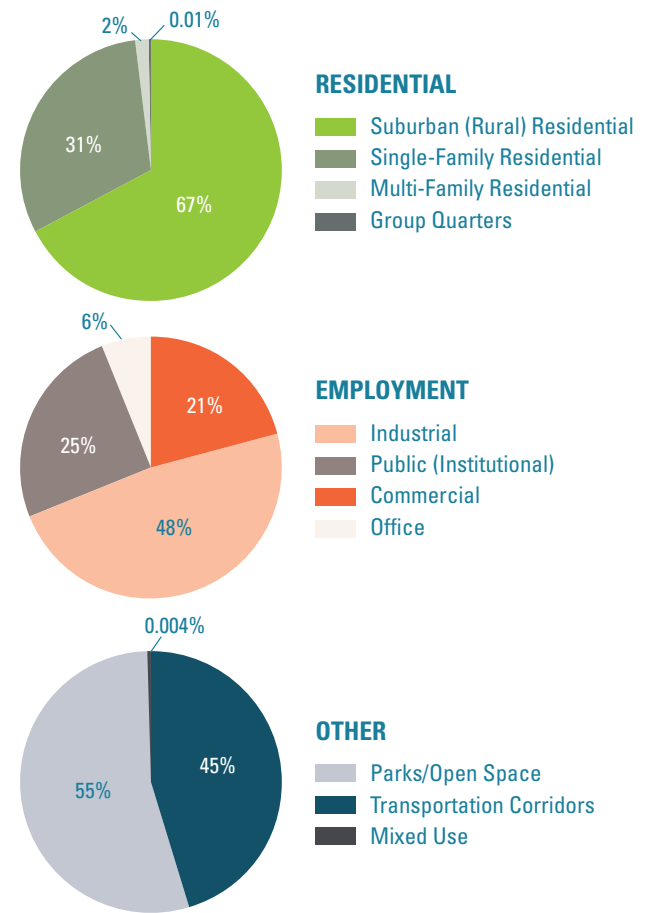


TABLE 3.3: RESIDENTIAL AND COMMERCIAL BUILDING PERMITS ISSUED PER YEAR (2010-2014)

PERMIT TYPE	2010	2011	2012	2013	2014	TOTAL (2010-2014)
Residential	6,224	5,725	8,505	7,770	8,028	36,252
Commercial	368	358	577	377	366	2,046

TABLE 3.4: POPULATION ESTIMATES BY COUNTY, 2010 AND 2040

COUNTY	2010 POPULATION	2040 POPULATION	CHANGE
Canadian (pt.)	90,940	176,735	94.3%
Cleveland	255,755	379,998	48.6%
Grady (pt.)	15,076	20,538	36.2%
Logan (pt.)	31,656	41,768	31.9%
McClain (pt.)	28,594	44,393	55.3%
Oklahoma	720,386	931,131	29.3%
OCARTS Total	1,142,407	1,594,563	39.6%

Note: "(Pt.)" means the part of the county located within the OCARTS area.

OCARTS Plan were analyzed. A method was chosen for each county reflective of its rate of growth based on recent historical trends.

The 2040 population control total of 1,594,563 for the OCARTS area was approved by the ITPC in December 2014, as shown in Table 3.4. This represents a projected 39.6 percent increase in population between 2010 and 2040, which equals an average annual growth of 1.3 percent.

{FOOTNOTE: 2 Woods & Poole Economics, Inc. is a private econometric research firm that specializes in long-term county economic and demographic projections.}

Employment

The 2010 base employment data was developed from Oklahoma Employment Security Commission (OESC) wage and salary employment records (Year 2010, second calendar quarter) and Census Transportation Planning Package (CTPP Year 2010, Part 2) self-employment counts. This information was supplemented with data from online searches, local newspapers, and input from member entities to ensure employment was distributed throughout the region accurately. Employment records were sorted by Standard Industrial Classification (SIC) codes and categorized as either retail or non-retail for the transportation modeling process.

Future employment within the region was estimated by comparing base year conditions with 2035 employment projections. Employment in the OCARTS area is expected to reach 875,274 in the year 2040, which represents a 45.4 percent increase from the 2010 employment total of 601,839. The ITPC approved the employment control totals for Encompass 2040 in December 2014. The projected growth in employment was allocated among the counties (or portions) included in the OCARTS area as shown in Table 3.5.

SCHOOL ENROLLMENT

Schools are a driving force for development and traffic within Central Oklahoma. As such, school enrollment has long been incorporated into ACOG's long-range transportation plans. Base year school enrollment data was compiled from a number of sources, including: the Oklahoma Department of Education, the Oklahoma State Department of Vocational and Technical Education, the Oklahoma State Regents for Higher Education, various news articles, and telephone surveys. Enrollment data was collected for four categories of education—public schools (pre-kindergarten through 12th grade), private schools (pre-kindergarten through 12th grade), vocational-technical schools, and universities/colleges.

In Central Oklahoma, a strong relationship exists between population growth and school enrollment. Therefore, future school enrollment can be projected based on a historical analysis of this trend. Public school district projections for 2040 were created based upon the relationship between the 2010 population throughout the OCARTS area and school enrollment figures obtained from the Oklahoma Department of Education. Projections for private and vocational-technical schools, and universities and colleges were developed using historical trend analysis of available enrollment data from 1990-2010. Adjustments were made for new schools that were planned or recently built, but not yet operational, or based on planned changes or enrollment maximums identified by school administrators. New school enrollments were included only if a known location of the school could be provided by the district. Comments from school district planning personnel were solicited and considered in the case of magnet or other specialty schools.

Generally, school enrollment is expected to increase in the OCARTS area at a slightly lower rate than population. As shown

TABLE 3.5: EMPLOYMENT ESTIMATES BY COUNTY, 2010 AND 2040

COUNTY	2010 EMPLOYMENT	2040 EMPLOYMENT	CHANGE
Canadian (pt.)	25,763	48,415	87.9%
Cleveland	91,767	171,034	86.4%
Grady (pt.)	2,509	3,521	40.3%
Logan (pt.)	6,795	11,444	68.4%
McClain (pt.)	10,756	15,584	44.9%
Oklahoma	464,249	625,276	34.7%
OCARTS Total	601,839	875,274	45.4%

Note: "(Pt.," means the part of the county located within the OCARTS area.

in Table 3.6, total school enrollment is estimated to increase 35.5 percent from 288,077 students in 2010 to 390,218 students in 2040.

ENCOMPASS 2040 SCENARIOS

Each scenario is comprised of a variety of different parts that help determine where future growth is likely to occur given the assumed land use policies. These parts, or factors, include:

- Constraints: Where development cannot occur
- Attractiveness: Where development will occur first
- Housing: Type, density, and location of housing
- Employment: Type, density, and location of employment
- Transportation: Modes available; new infrastructure or service

Note: Factors might be the same for each scenario, but may impact the region differently based on spatial distribution.

Scenario 1-Historical Trend

Scenario 1 continued the region’s historical trend of outward growth based on the assumption that no new zoning initiatives will be adopted. This scenario included the following factors:

- Constraints: Parks, floodways, road rights-of-way, wetlands, etc.
- Attractions: Current growth trend, schools, income (TAZ)
- Housing: Lower density single-family developments, around periphery
- Employment: Separated from housing, along transportation corridors
- Transportation: Auto-dependent

Future population and employment density based on this scenario can be viewed in Figure 3.4 and 3.5, respectively.

Scenario 2-Nodal Growth

Scenario 2 assumed a change in regional land use policy which focused on growth that would encourage infill, nodal, and downtown development within communities, which would be more supportive of future regional transit (see Chapter 8 for more information on future regional transit). The factors contained in Scenario 2 include:

- Constraints: Same as Scenario 1 with the addition of prime farmland (reduced growth areas)
- Attractions: Downtowns, existing service area boundaries, transit-oriented development (proposed regional transit)
- Housing: Mixed-use, infill, higher density developments
- Employment: Downtowns, transit-oriented developments, mixed-use

- Transportation: More transportation options (including regional transit facilities)

Future population and employment density based on scenario 2 can be viewed in Figure 3.6 and 3.7, respectively.

LINKING LAND USE AND TRANSPORTATION

The development patterns created during the scenario planning process were integrated into the regional transportation model (regional travel demand model or RTDM) and analyzed using several funding alternatives. In total, three alternate networks were evaluated, and each was modeled in relation to the two development scenarios (see Chapter 11 for more information and scenario evaluation results). The Encompass 2040 Land Use Scenarios demonstrate that the region has the potential to gain more transportation efficiencies if it adopts a development pattern like Scenario 2, however this pattern is dependent on future land use decisions made at the local level.

FIGURE 3.3: ENCOMPASS 2040 SCENARIOS PROCESS

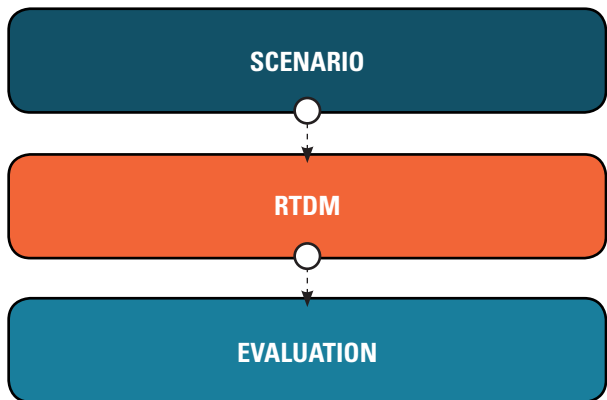
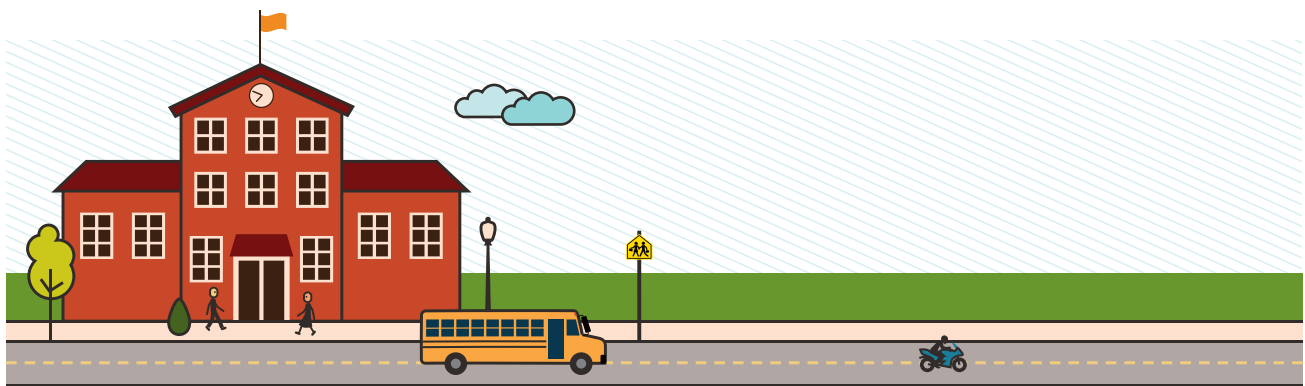


TABLE 3.6: ESTIMATED SCHOOL ENROLLMENT BY ENTITY, 2010 AND 2040

ENTITY	2010			2040		
	PUBLIC PK-12	PRIVATE PK-12	OTHER*	PUBLIC PK-12	PRIVATE PK-12	OTHER*
Bethany	3,951	172	2,773	4,366	172	2,515
Blanchard	1,677	0	0	2,650	0	0
Bridge Creek	1,369	0	0	1,793	0	0
Choctaw	3,764	167	809	5,575	167	1164
Del City	4,211	1,171	0	4,301	1,288	0
Dibble	708	0	0	927	0	0
Edmond	16,701	1,792	14,040	28,166	2,163	13,971
Forest Park	208	0	0	358	0	0
Guthrie	3,309	208	0	4,600	248	0
Harrah	2,235	36	0	3,622	36	0
Jones	1,156	0	0	2,774	0	0
Lexington	1,091	0	0	2,020	0	0
Luther	849	0	0	2,615	0	0
Midwest City	9,204	356	6,211	10,614	426	6,751
Moore	11,126	625	200	17,881	697	200
Mustang	5,329	0	0	8,441	0	0



ENTITY	2010			2040		
	PUBLIC PK-12	PRIVATE PK-12	OTHER*	PUBLIC PK-12	PRIVATE PK-12	OTHER*
Newcastle	1,668	0	0	2,669	0	0
Nichols Hills	0	427	0	0	550	0
Nicoma Park	1,219	0	0	1,938	0	0
Noble	2,957	0	0	5,795	0	0
Norman	15,971	1,261	25,035	22,176	1,686	28,071
Oklahoma City	78,626	6,703	35,645	107,400	7,861	10,660
Piedmont	2,061	0	0	5,3791	0	0
Purcell	1,458	0	0	2,625	0	0
Spencer	1,146	39	0	2,292	39	0
The Village	904	1,217	0	1,034	1,303	0
Tuttle	1,705	0	0	3,018	0	0
Warr Acres	3,724	223	0	4,394	223	0
Washington	916	0	0	1,420	0	0
Yukon	6,755	211	0	11,169	191	0
Oklahoma Co.	2,619	139	0	7,695	129	0
OCARTS Total	188,617	14,747	84,713	279,707	17,179	93,332

Table reflects only those communities that have at least one school. *Other – Colleges, Universities and Vocational-Technology Centers

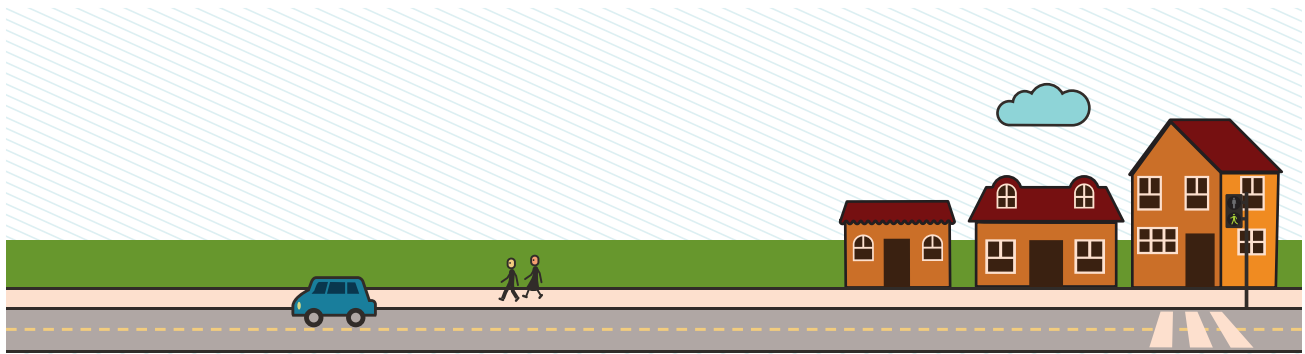
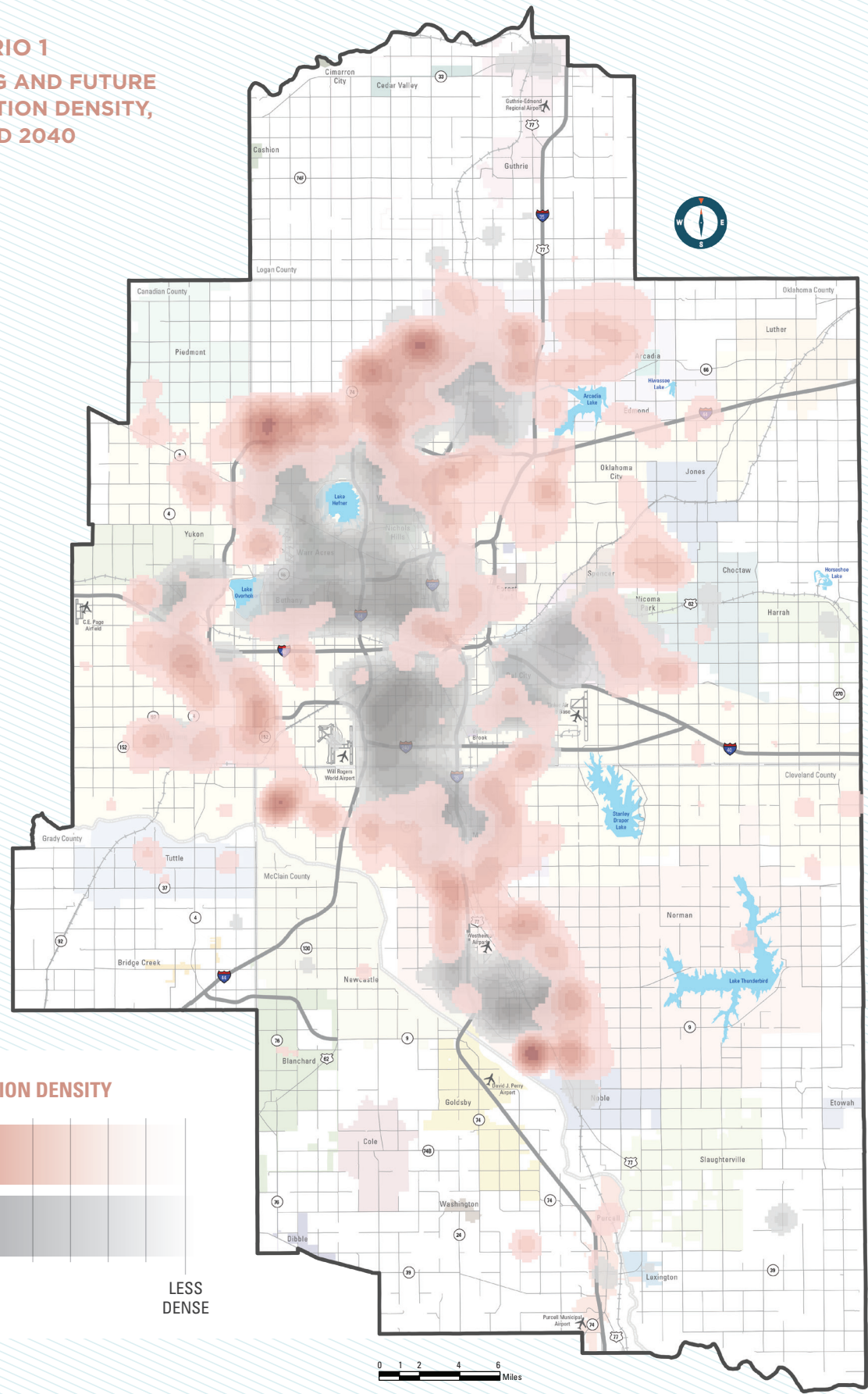


FIGURE 3.4: SCENARIO 1 – EXISTING AND FUTURE POPULATION DENSITY, 2010 AND 2040

SCENARIO 1
EXISTING AND FUTURE
POPULATION DENSITY,
2010 AND 2040



POPULATION DENSITY

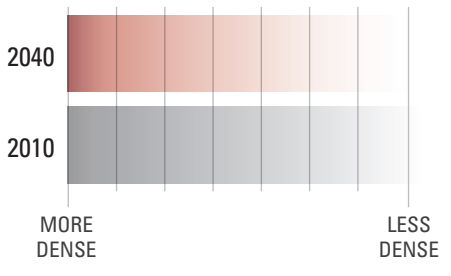


FIGURE 3.5: SCENARIO 1 – EXISTING AND FUTURE EMPLOYMENT DENSITY, 2010 AND 2040

SCENARIO 1
EXISTING AND FUTURE
EMPLOYMENT DENSITY,
2010 AND 2040

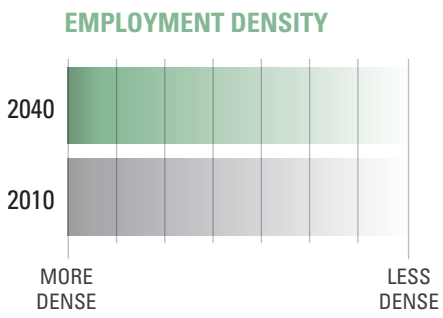
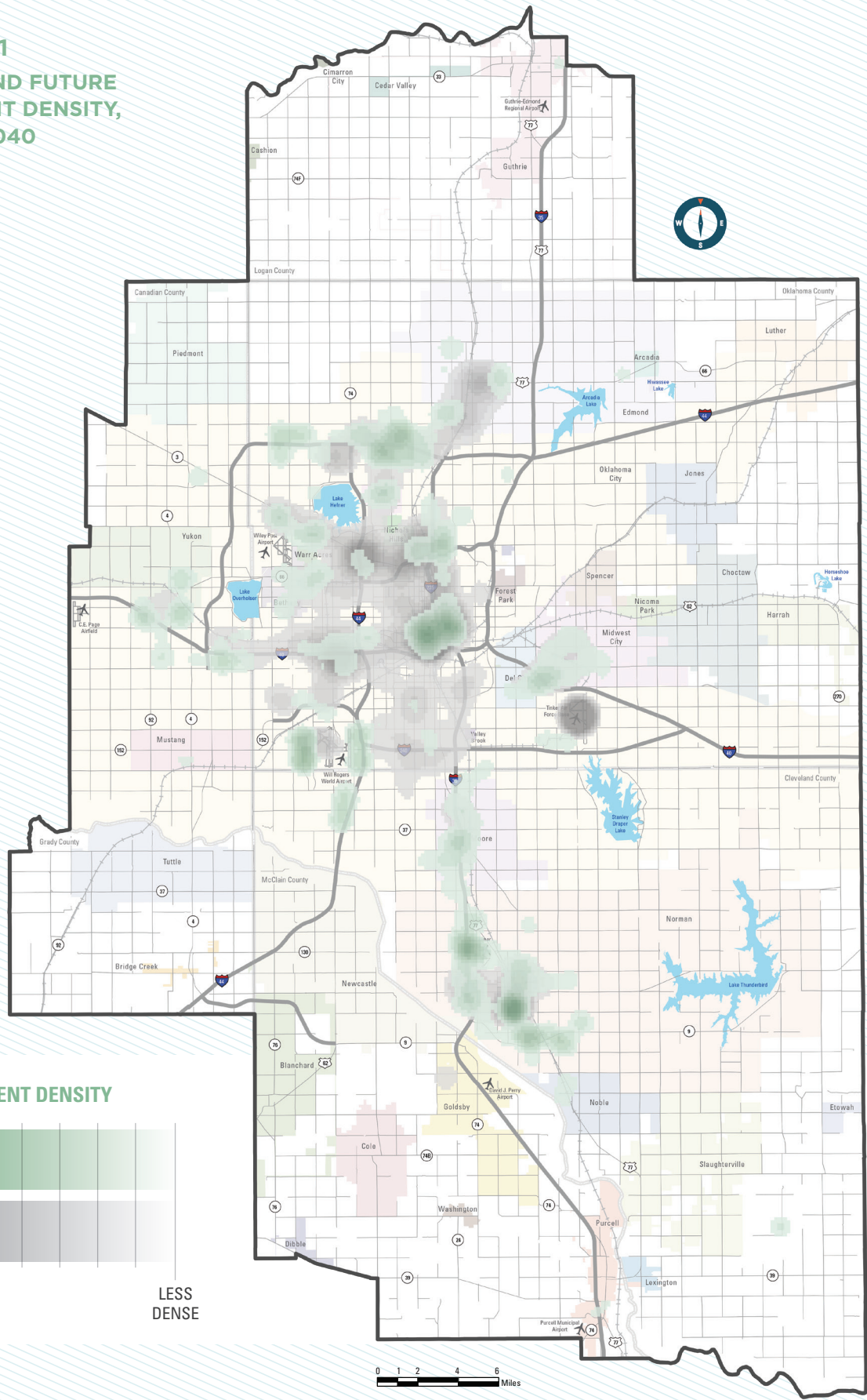
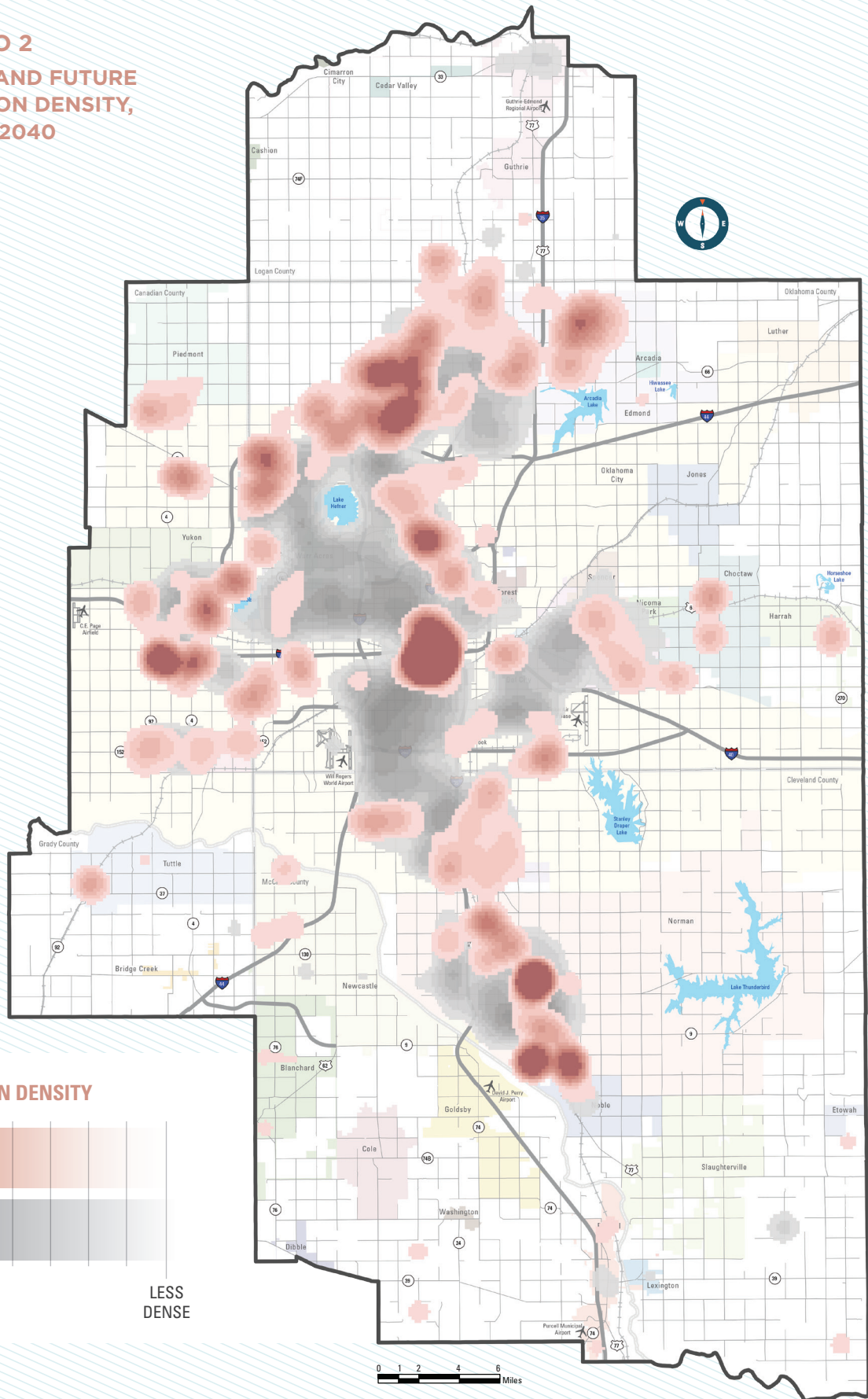
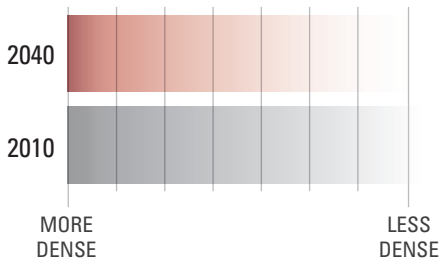


FIGURE 3.6: SCENARIO 2 – EXISTING AND FUTURE POPULATION DENSITY, 2010 AND 2040

SCENARIO 2
EXISTING AND FUTURE
POPULATION DENSITY,
2010 AND 2040



POPULATION DENSITY



0 1 2 4 6 Miles

FIGURE 3.7: SCENARIO 2 – EXISTING AND FUTURE EMPLOYMENT DENSITY, 2010 AND 2040

SCENARIO 2
EXISTING AND FUTURE
EMPLOYMENT DENSITY,
2010 AND 2040

