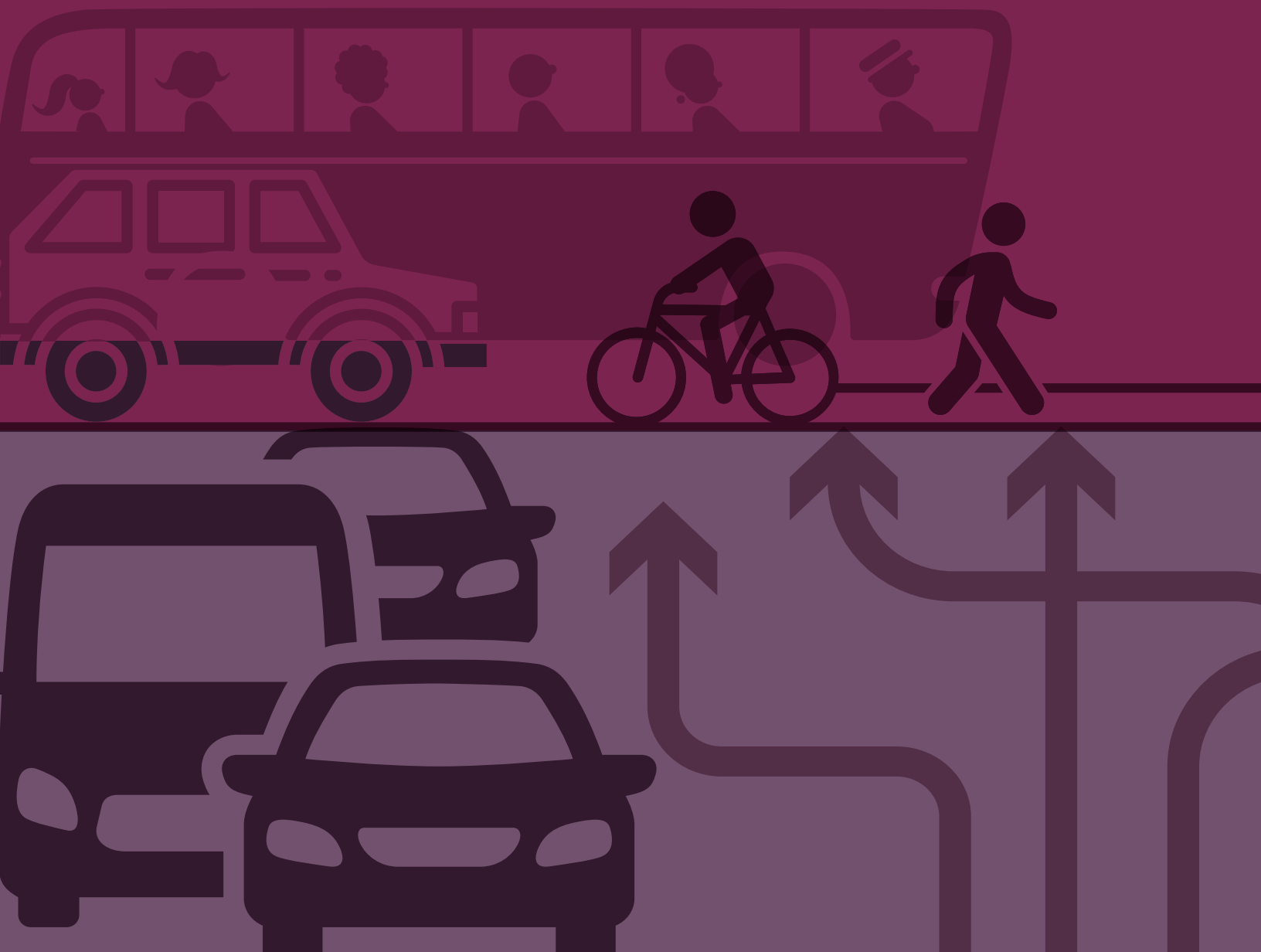
Appendix D:
Regional Forecasts (Planning Variables)



PLANNING VARIABLES
METHODOLOGY AND DEVELOPMENT

Regional Transportation Commission
Of Southern Nevada (RTC)
Metropolitan Planning Organization
600 South Grand Central Parkway, Suite 350
Las Vegas, Nevada 89106

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Acknowledgement

The Planning Variable (PV) projections are the results of the collaborative efforts of the Land Use Working Group (LUWG) and the RTC of Southern Nevada (RTC). The LUWG includes the following organizations:

Clark County Comprehensive Planning Department
City of Las Vegas Planning and Development Department
City of North Las Vegas Planning and Development Department
City of Henderson Community Development Department
City of Boulder City
City of Mesquite
Clark County School District
Harry Reid International Airport
Nellis Air Force Base
Southern Nevada Water Authority
Las Vegas Valley Water District
Clark County Water Reclamation District

RTC wishes to recognize and extend its appreciation to the above organizations for their valuable assistance in the development of PV projections. RTC would also like to express its appreciations to the LUWG, the following LUWG members and individuals for their input and participation in the planning process:

LUWG Members
Martin Gies, Michael Homa: Clark County
Richard Wassmuth, Rick Schroder: City of Las Vegas
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Consultant Team
Greg Gaides, Sathya Thyagaraj: Parsons Transportation Group

RTC MPO Staff
Andrew Kjellman: Senior Director of MPO
Nathan Goldberg: Transportation Planning Manager
Lijuan Su, Hui Shen, Grant Shirts: Senior Transportation Planner

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Executive Summary

The Travel Demand Model (TDM) is an essential tool used by the Regional Transportation Commission (RTC) to forecast future regional travel conditions and estimate future transportation system needs that guide the development of the Regional Transportation Plan (RTP).

Socioeconomic data, called Planning Variables or PV in TDM, is one of the most important elements in TDM development. To determine the TDM's input projections, one has to:

1) Determine the current and future land use development patterns and.
2) Convert the land use patterns into PV variables.

The Southern Nevada Regional Planning Coalition (SNRPC) formed a Land Use Working Group (LUWG) at the request of RTC a decade ago. The LUWG's goals are tackling the land use forecasting challenges and providing forecasted land use activity for RTC's TDM through collective and collaborative efforts of the LUWG and RTC. The LUWG consists of planning staff from Clark County, City of Las Vegas, City of North Las Vegas, City of Henderson and from other planning entities.

For RTC's 2025-2050 RTP, the LUWG has developed forecasts for the years of 2025, 2030, 2035, 2040, 2045 and 2050. The allocation of the growth is based on the available vacant land identified in Clark County Assessor's 2022 parcel database (July 2022). The PV variables are developed based on Clark County's Geographic Integrated Land Use Information System (GILIS) 2022, the planned land use polices for 2025-2050 and Clark County total population and employment forecasts made by Center of Business and Economic Research (CBER) at University of Nevada, Las Vegas (UNLV).

This report documents the methodologies and procedures used in the development of PV variables and the results of the PV variables for the RTC TDM that will be used for RTC's 2025-2050 RTP.

The executive summary includes the following three tables from this document. These tables summarize the projected total dwelling units, total occupied dwelling units, population, and employment by entity.

Table 7 Projected Populations by Entity

Year	Entity	Dwelling Unit	Occ. Dwelling Unit	Population	Group Quarters Population	Total Population
2022	Boulder City	7,209	6,632	14,612	360	14,972
	Unincorporated CC	413,425	384,122	1,008,387	15,506	1,023,893
	Las Vegas	260,019	246,978	654,616	4,620	659,236
	N. Las Vegas	92,632	88,649	276,699	1,234	277,933
	Henderson	140,952	133,224	332,500	1,253	333,753
	Mesquite	11,994	10,159	21,925	221	22,146
	Total	926,231	869,765	2,308,740	23,194	2,331,934
2025	Boulder City	7,317	6,732	14,831	360	15,191
	Unincorporated CC	429,016	398,899	1,049,916	15,506	1,065,422
	Las Vegas	272,204	258,638	688,528	4,620	693,148
	N. Las Vegas	97,417	93,159	290,119	1,234	291,353
	Henderson	149,065	140,798	351,358	1,253	352,611
	Mesquite	13,343	11,302	24,392	221	24,613
	Total	968,362	909,529	2,419,145	23,194	2,442,339
2030	Boulder City	7,500	6,900	15,202	360	15,562
	Unincorporated CC	438,482	407,825	1,074,622	15,506	1,090,128
	Las Vegas	285,919	271,647	724,179	4,620	728,799
	N. Las Vegas	105,910	101,215	314,408	1,234	315,642
	Henderson	164,408	155,092	387,633	1,253	388,886
	Mesquite	15,845	13,421	28,966	221	29,187
	Total	1,018,064	956,100	2,545,010	23,194	2,568,204
2035	Boulder City	7,688	7,073	15,582	360	15,942
	Unincorporated CC	443,024	411,973	1,086,577	15,506	1,102,083
	Las Vegas	309,173	293,315	778,305	4,617	782,922
	N. Las Vegas	111,968	107,010	330,364	1,234	331,598
	Henderson	179,274	168,870	423,112	1,253	424,365
	Mesquite	18,816	15,937	34,397	221	34,618
	Total	1,069,943	1,004,178	2,668,337	23,191	2,691,528
2040	Boulder City	7,880	7,249	15,972	360	16,332
	Unincorporated CC	445,868	414,575	1,094,085	15,506	1,109,591
	Las Vegas	335,032	317,165	838,497	4,455	842,952
	N. Las Vegas	119,468	114,142	350,635	1,234	351,869
	Henderson	191,940	180,331	452,363	1,253	453,616
	Mesquite	22,344	18,926	40,846	221	41,067
	Total	1,122,532	1,052,388	2,792,398	23,029	2,815,427
2045	Boulder City	8,077	7,431	16,371	360	16,731
	Unincorporated CC	446,085	414,785	1,094,637	15,506	1,110,143
	Las Vegas	358,714	338,622	888,562	4,096	892,658
	N. Las Vegas	128,115	122,287	375,203	1,234	376,437
	Henderson	205,574	193,062	485,345	1,253	486,598
	Mesquite	26,534	22,474	48,505	221	48,726
	Total	1,173,099	1,098,661	2,908,623	22,670	2,931,293
2050	Boulder City	8,279	7,616	16,780	360	17,140
	Unincorporated CC	446,167	414,861	1,094,855	15,506	1,110,361
	Las Vegas	380,779	358,714	935,677	3,909	939,586
	N. Las Vegas	135,347	129,081	395,738	1,234	396,972
	Henderson	220,787	207,376	523,086	1,253	524,339
	Mesquite	31,509	26,688	57,599	221	57,820
	Total	1,222,867	1,144,336	3,023,736	22,483	3,046,219

Table 17 Projected Total Employment by Entity (Constrained)

Jurisdiction	2022	2025	2030	2035	2040	2045	2050
Boulder City	3,367	3,427	3,577	3,620	3,636	3,641	4,008
CC Unincorporated	560,221	580,012	615,109	632,220	652,267	667,144	681,306
Las Vegas	205,836	218,728	248,578	261,133	265,662	270,351	277,070
North Las Vegas	86,138	93,865	115,742	132,266	149,313	168,447	183,168
Henderson	99,301	109,197	125,394	130,719	144,080	152,612	160,710
Mesquite	6,686	6,810	7,711	7,820	7,879	8,013	8,120
Total	961,549	1,012,039	1,116,111	1,167,779	1,222,837	1,270,208	1,314,382

Table 18 Projected Total Employment by Entity (Unconstrained)

Jurisdiction	2022	2025	2030	2035	2040	2045	2050
Boulder City	3,367	3,427	3,577	3,620	3,636	3,641	4,008
CC Unincorporated	560,221	580,012	615,109	641,384	666,057	683,847	701,313
Las Vegas	205,836	218,728	248,578	261,133	265,662	269,804	276,522
North Las Vegas	86,138	93,865	115,742	132,269	149,093	168,091	182,688
Henderson	99,301	109,197	125,394	130,720	143,369	151,368	159,071
Mesquite	6,686	6,810	7,711	7,820	7,879	7,949	8,055
Total	961,549	1,012,039	1,116,111	1,176,947	1,235,696	1,284,700	1,331,657

1. INTRODUCTION

This document provides the methodology and procedures used in the development of the RTC's PV's for the TDM. Socioeconomic data is one of the most important elements in TDM development. To determine the TDM's land use forecast, one has to:

1) Determining the current and future land use development patterns and
2) Converting the land use patterns to the PV variables that are required by the TDM.

Land use forecasting is a complicated process. All of the land use models currently in use in the United States, from the most sophisticated to the simplified, all of them leave substantial uncertainty in their forecasts. It requires careful attention, the introduction of expert knowledge, and the expenditure of significant amounts of time.

The Southern Nevada Regional Planning Coalition (SNRPC)[1] formed a Land Use Working Group (LUWG) at the request of RTC. LUWG's goals are tackling the land use forecasting challenges and providing forecasted land use activity for RTC's TDM. The LUWG consists of planning staff from Clark County and the City of Las Vegas, City of North Las Vegas, City of Henderson and from other planning entities.

The SNRPC provides a consensus methodology for population and housing unit projections. The methodology was developed by LUWG in 2003. LUWG also identified planned land development in 5-year increments using LUWG-defined land use classifications in order to address the data needs of TDM development.

For RTC's 2025-2050 Regional Transportation Plan (RTP), LUWG has developed the forecast for the years of 2025, 2030, 2035, 2040, 2045 and 2050. The allocation of the growth is based on the available vacant land identified in Clark County Assessor's 2022 parcel database (July 2022). The PV variables are developed based on GILIS 2022 and the planned land use polices for 2025-2050.

[1] In its 1997 session, the Nevada State Legislature enabled the formation of the Southern Nevada Regional Planning Authority (SNRPA). There are ten members in the Coalition membership and Board. Two elected officials are appointed by the governing body of each public entity (except Boulder City and the Clark County School District with one appoint member each). The SNRPC conducts some of its business through subcommittees.

2. DATA NEEDED FOR PV VARIBLES CREATION

2.1 Data Source for PV Variables Development

The PV variables tables are developed using the sources listed below.

1) Base Year Land Use: Clark County Department of Comprehensive Planning's 2022 GILIS Data (July 1, 2022, as cut-off date),
2) 2017-2022 5-year American Community Survey,
3) Future Year Land Use: SNRPC LUWG developed land use growth plans in 5-year increments from year 2025 through year 2050, which is briefly described in the future land use forecast section,
4) Land Use Classification: Current Clark County Department of Comprehensive Planning's 2022 Geographically Integrated Land Use Information System (GILIS) table (table 2),
5) Planned Land Use Classification: LUWG defined future planned land-use category (table 4),
6) Employment Data: Nevada State Department of Employment, Training and Rehabilitation (DETR) 2022 2nd Quarter employer data,
7) Population and Employment Control Totals: Population Forecasts: Long-Term Projections for Clark County, Nevada 2023-2080, May 2023,
8) Data from various agencies/institutions' staff and web sites, including Nellis Air Force Base (NAFB), Creech Air Force Base, Harry Reid International Airport, University of Nevada at Las Vegas (UNLV), Nevada State University (NSU), College of Southern Nevada (CSN), Clark County School District (CCSD),
9) Aerial photographs from Clark County Geographic Information System Management Office (GISMO).

2.2 Data Structure of PV variables

PV variables are the land use input for Travel Demand Model (TDM). RTC's TDM requirements dictate inputs identified in the PV variable's structure. The PV variables are aggregated to the Traffic Analysis Zones (TAZs) which were developed for travel demand forecasting purposes. Table 1 lists the current required structure. This document focuses on the development of population and employment which are the major components in the model input.

Table 1 Planning Variable Data Structure

Field	Description
TAZ	Traffic Analysis Zones
GroupQuarterPopulation	Population in Group Quarters
Population	Population without Group Quarters
Occupied_HH	Occupied Dwelling Units
K12Enrollment	Total K - 12 Enrollment
CollegeEnrollment	Sum of UNLV Enrollment, CSN Enrollment and NSU Enrollment
UNLVEnrollment	UNLV Enrollment
CSNEnrollment	CSN Enrollment
NSCEnrollment	NSU Enrollment
UNLVDorms	Numbers of UNLV Students living in the Dorms
NSCDorms	Numbers of NSU Students living in the Dorms
UNLVStudents	Numbers of Students Attending UNLV
NSCStudents	Numbers of Students Attending NSU
CONV_SPACE	Convention Space in Square Feet
TerminalTime	Origin and Destination Terminal Time
Hotel_Rooms	Numbers of Hotel Rooms
Avg Median_Income	Average Median Income
AcresManWar	Manufacturing/Warehouse Acres
AcresOthInd	Other Industrial Acres
UnivGQ	1 if TAZ Houses University Dorm Residents
UnivTAZ	TAZ Destination of University
University	University That Houses Dorm Residents
NAFB_Emp	Nellis (or Other Air Force) Employment
MIA_Emp	Harry Reid Airport Employment
MIA_Pass	Harry Reid Airport Average Daily Passengers
IVPH_Emp	Southern Nevada Supplemental Airport Employment
IVPH_Pass	Southern Nevada Supplemental Airport Average Daily Passengers
HSR_Pass	High Speed Rail passengers
HSR_District	Flag for HSR district

Table 1 Planning Variable Data Structure (Continued)

Field	Description
EMP_NAICS_11	Number of jobs in NAICS sector 11 (Agriculture, Forestry, Fishing and Hunting)
EMP_NAICS_21	Number of jobs in NAICS sector 21 (Mining, Quarrying, and Oil and Gas Extraction)
EMP_NAICS_22	Number of jobs in NAICS sector 22 (Utilities)
EMP_NAICS_23	Number of jobs in NAICS sector 23 (Construction)
EMP_NAICS_31-33	Number of jobs in NAICS sector 31-33 (Manufacturing)
EMP_NAICS_42	Number of jobs in NAICS sector 42 (Wholesale Trade)
EMP_NAICS_44-45	Number of jobs in NAICS sector 44-45 (Retail Trade)
EMP_NAICS_48-49	Number of jobs in NAICS sector 48-49 (Transportation and Warehousing)
EMP_NAICS_51	Number of jobs in NAICS sector 51 (Information)
EMP_NAICS_52	Number of jobs in NAICS sector 52 (Finance and Insurance)
EMP_NAICS_53	Number of jobs in NAICS sector 53 (Real Estate and Rental and Leasing)
EMP_NAICS_54	Number of jobs in NAICS sector 54 (Professional, Scientific, and Technical Services)
EMP_NAICS_55	Number of jobs in NAICS sector 55 (Management of Companies and Enterprises)
EMP_NAICS_56	Number of jobs in NAICS sector 56 (Administrative and Support and Waste Management and Remediation Services)
EMP_NAICS_61	Number of jobs in NAICS sector 61 (Educational Services)
EMP_NAICS_62	Number of jobs in NAICS sector 62 (Health Care and Social Assistance)
EMP_NAICS_71	Number of jobs in NAICS sector 71 (Arts, Entertainment, and Recreation)
EMP_NAICS_72	Number of jobs in NAICS sector 72 (Accommodation and Food Services)
EMP_NAICS_81	Number of jobs in NAICS sector 81 (Other Services [except Public Administration])
EMP_NAICS_92	Number of jobs in NAICS sector 92 (Public Administration)
EMP_NAICS_99	Number of jobs in NAICS sector 92 (Nonclassifiable Establishments)
Emp_Agriculture	EMP_NAICS_11
Emp_Manufacturing	EMP_NAICS_21 + EMP_NAICS_31-33
Emp_Wholesale	EMP_NAICS_42
Emp_Retail	EMP_NAICS_44-45
Emp_TransportConstruction	EMP_NAICS_23+EMP_NAICS_22+EMP_NAICS_48-49+EMP_NAICS_56
Emp_FinanceRealEstate	EMP_NAICS_51-55
Emp_Education	EMP_NAICS_61
Emp_HealthCare	MP_NAICS_62
Emp_Services	EMP_NAICS_71-72 + EMP_NAICS_81
Emp_Public	EMP_NAICS_92
Emp_CasinoHotel	Casino Hotel Employment NAICS 721120
Emp_NonCasinoHotel	NonCasino Hotel Employment NAICS 721110
Emp_CasinoGaming	Casino Employment (Except Casino Hotels NAICS 713210)
Emp_Casino	Emp_CasinoHotel + Emp_CasinoGaming
EMP_NAICS_71_MinusCasinos	Arts, Entertainment, and Recreation minus Casino Employment
EMP_NAICS_72_MinusCasino	Accommodation and Food Services minus Casino Hotel Employment
Emp_OtherRetail	Retail EMP_NAICS_44-45 in TAZs that also have Emp_Casino employment
Emp_FoodandDrink	Food and Drink employment (NAICS 722)
Emp_servicesMinusCasino	Services Employment (NAICS 71, 72, 81) minus Emp_Casino

3. DEVELOPMENT OF POPULATION

In the RTC's PV variables development process, GILIS 2022 parcel land use data and SNRPC planned future land use for 2025-2050 were converted to PV variables (see table 1 for details) for the base year and the future year inputs except the base year employment. The base year employment is processed from DETR 2022 2nd Quarter employer data.

RTC's PV variables development process includes:

1) Obtain and process the base year population from GILIS 2022 parcel data provided by Clark County Department of Comprehensive Planning,
2) Obtain and process future land use 2025-2050 forecasts through working with SNRPC LUWG,
3) Establish jobs/acreage conversion method and factors,
4) Develop PV variables, and
5) Validate PV variables. Post processes such as control total benchmark and LUWG review/quality control were performed as necessary.

PV variables inputs that not based on the land use policies are acquired through other data sources. Additional data sources include Nellis Air Force Base (NAFB), Creech Air Force Base, Harry Reid International Airport, University of Nevada at Las Vegas (UNLV), Nevada State University (NSU), and College of Southern Nevada (CSN) as they are treated as special generators in TDM. Their employments are not included in the employment categories in PV variables creation process. The method to derive special generators' relevant employment/passengers is described in the next section. The school enrollment is discussed in the section entitled CCSD SCHOOL ENROLLMENT.

Methodology and procedures of developing population and employment are listed below.

3.1 Base Year Land Use and Population

In June every year, Clark County's Assessor's Office releases an official version (closed roll) of parcel geography along with AoExt (the parcel attributes database) for the year. The version is submitted to the State of Nevada and then certified by the state.

The current base year land use data is Clark County Assessor's 2022 closed roll parcel. It contains two elements: the parcel geography and AoExt. AoExt is a parcel attribute database which includes land use codes. A copy of AoExt, called GILIS database, is maintained by Clark County Comprehensive Planning Department. It contains verified Assessor's parcel information and some additional information for other planning purposes. The GILIS 2022 data is developed by keeping the Assessor's parcel geography and some attributes. The parcel geography is linked to the AoExt data through the parcel numbers. During the GILIS data creation process, information such as zip codes and census tract numbers are added to the parcel attributes table. The units for condominium (an example of the one-to-many relationship among parcel geography and GILIS database) are calculated by assigning total units to the corresponding single parcel's capacity in parcel geography.

RTC's base year PV variables are developed using the GILIS 2022 data. Each parcel in the parcel geography is assigned to a TAZ. The parcel capacity in GILIS data is the number of residential dwelling units. Number of dwelling units, occupied dwelling units and population obtained using GILIS land use code, then they were aggregated to the TAZ level.

Table 2 GILIS Land Use Code

GILIS LAND USE CODE		PRIMARY USE DESCRIPTION
From	To	
00.000	19.000	Vacant
20.110	26.110	Residential
27.100	27.195	Single Family Common Area
28.199	36.100	Residential Minor Improvements. Enclosed Structures
37.100	37.100	Multi Family Common Area
39.100	39.100	Residential
40.230	40.399	General Commercial
41.335	41.460	Offices, Professional and Business Services
42.310	42.325	Casino or Hotel Casino
43.178	43.321	Commercial Living Accommodations
44.470	44.470	Commercial Recreation. Non-Profit Entertainment and Rec Facilities
45.346	45.349	Golf Course
46.300	46.300	Commercial - Auxiliary Area
47.395	47.395	Commercial - Common Area
48.399	48.730	Minor Improvements on Commercial zoned land
49.330	49.335	Mixed Use with General & prof & Business Services Commercial as primary use
50.210	50.240	Light Manufacturing
51.200	51.250	Commercial Industrial
52.210	52.210	Heavy Manufacturing
57.200	57.200	Industrial - Common Area
58.730	58.730	Industrial Minor Improvements
59.200	59.200	Mixed Use with Industrial as primary use
60.510	60.520	Agricultural; Qualified.
61.500	61.500	Agricultural; Not qualified
62.999	62.999	Open Space
70.620	70.630	Operating Communication, Transportation & Utility (state)
71.630	71.630	Communication, Transportation and Utility (local). Utilities
72.610	72.630	Communication, Transportation and Utilities
73.630	73.630	Alternative Energy
78.630	78.630	Locally Assessed Utility Use with Minor Improvements
80.220	80.220	Mining Properties (local)
81.220	81.220	Mining Properties (state)
84.221	84.221	Aggregates, Quarries (local)
90.440	90.440	Parks for Public Use
91.330	91.330	Cemeteries
92.335	92.335	Hospitals & skilled nursing homes
93.420	93.470	Special Purpose, Limited-Market Properties (Library, Museums and Government Facilities, etc.)
98.400	98.400	Special Purpose Minor Improvements

Table 2 presents the GILIS land use codes and their corresponding definition. Table 3 provides the summary of dwelling units and population for year 2022 by Entity. Chart 1 illustrates 2022 population distribution among entities, while Chart 2 displays the developed land use acreage by Entity.

Table 3 Summary of Residential Use and Population for Year 2022

Year	Entity	Dwelling Unit	Occupied Dwelling Unit	Population	Group Quarters Population	Total Population
2022	Boulder City	7,209	6,632	14,612	360	14,972
	Unincorporated CC	413,425	384,122	1,008,387	15,506	1,023,893
	Las Vegas	260,019	246,978	654,616	4,620	659,236
	N. Las Vegas	92,632	88,649	276,699	1,234	277,933
	Henderson	140,952	133,224	332,500	1,253	333,753
	Mesquite	11,994	10,159	21,925	221	22,146
	Total	926,231	869,765	2,308,740	23,194	2,331,934

Figure 1 - Year 2022 Population Distribution by Entities

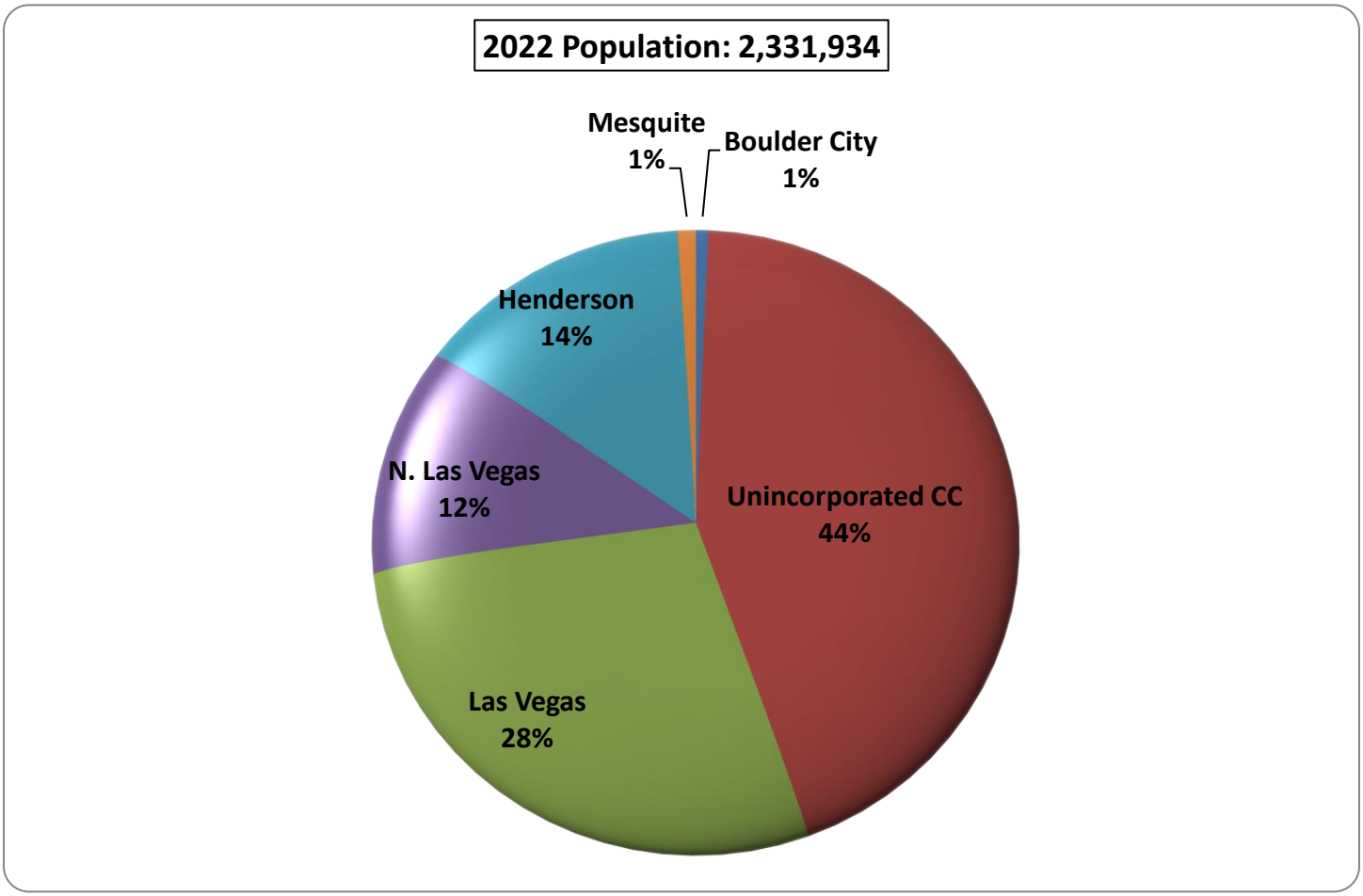
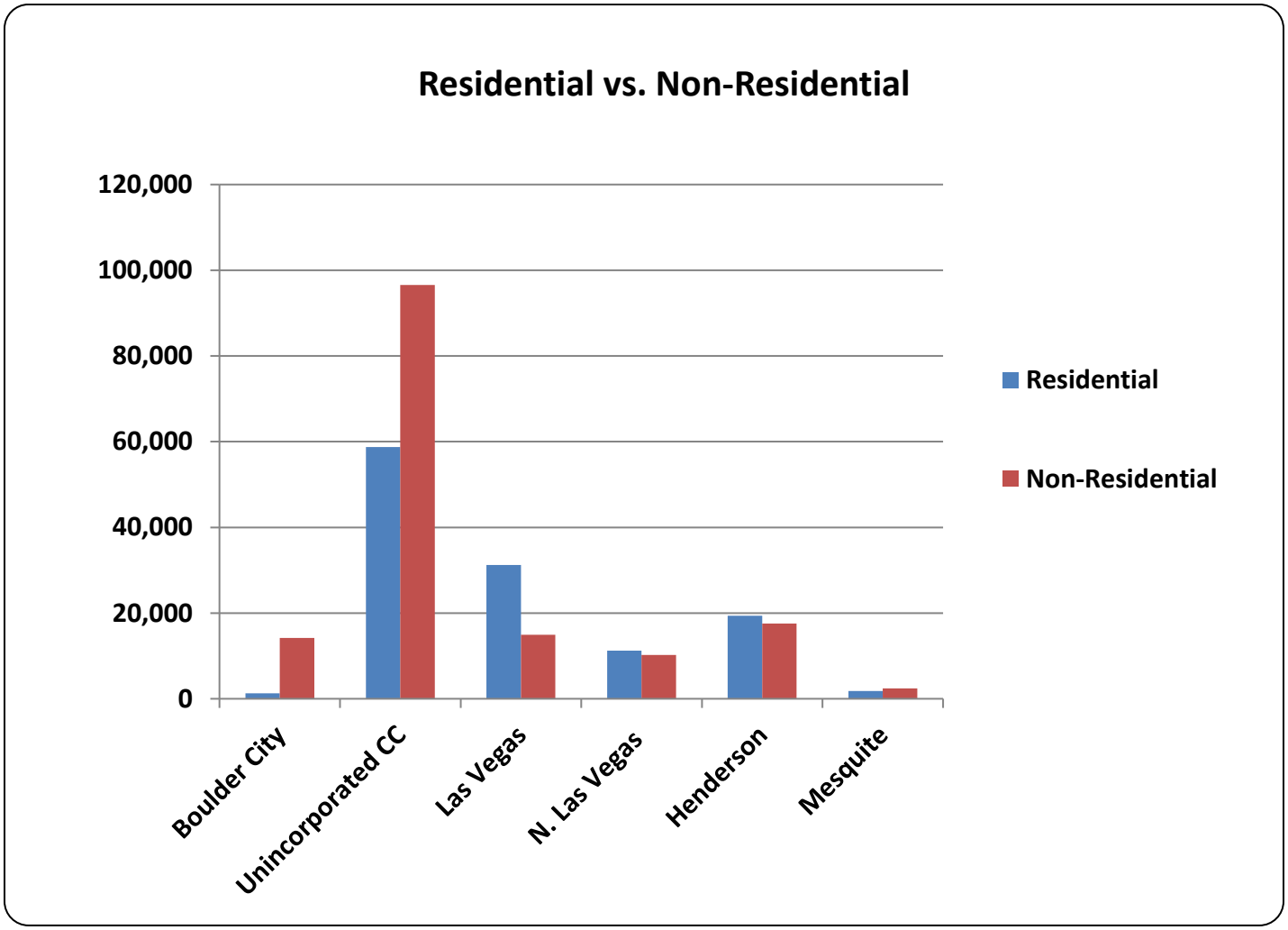


Figure 2 - Year 2022 Developed Land Use Acreage



3.2 Future Year Land Use Forecast

The future year land use forecast was created through the work of the Southern Nevada Regional Planning Coalition (SNRPC) Land Use Workgroup (LUWG) with the members representing the City of Las Vegas, City of North Las Vegas, City of Henderson, City of Boulder City, City of Mesquite, Clark County and the RTC. The working group was formed to develop a consensus-based process to transfer future land use plans to future PV Variables for RTC's transportation planning process. Based on the available vacant land in GILIS 2022, the group created GIS data of future planned land development using the SNRPC/RTC planned land use categories. This future land use is in 5-year increments by jurisdiction for years 2025 through 2050. It contains acreage and residential density / dwelling units for each residential development, and acreage for non-residential uses. Table 4 provides the SNRPC defined planned land use categories. Table 5 is the summary of planned land use acreage by Entity. Chart 3 illustrates the data in Table 5.

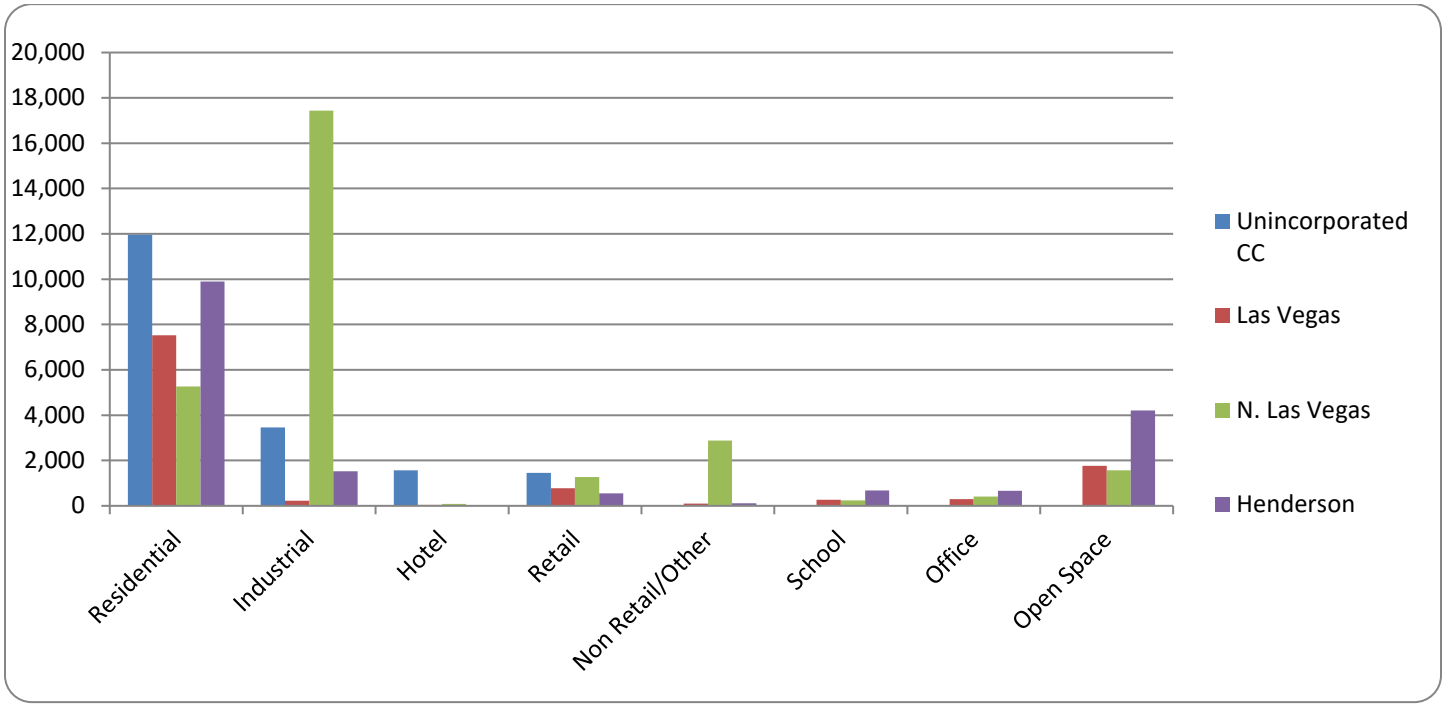
Table 4 SNRPC/RTC Planned Land Use Categories

#	SNRPC/RTC Planned Land Use	
	Category	Description
1	SF	Residential - Single Family
2	MF	Residential - Multi Family
3	Hotel	Hotel
4	Ret	Retail
5	Office	Office
6	School	School
7	OS	Open Space
8	Ind	Industrial
9	Other_Non	Everything Else

Table 5 2025-2050 Planned Land Use Acreage by Category

Entity	Residential	Industrial	Hotel	Retail	Non Retail/Other	School	Office	Open Space
Unincorporated CC	11,964	3,458	1,564	1,452	0	0	0	0
Las Vegas	7,520	220	37	770	94	272	303	1,762
N. Las Vegas	5,272	17,435	79	1,273	2,880	242	407	1,572
Henderson	9,896	1,518	0	544	114	680	668	4,205
Total	34,652	22,630	1,679	4,039	3,088	1,194	1,378	7,539

Figure 3 – 2025-2050 Planned Land Use Acreage by Entity



3.3 Future Year Population Development

Given the acreage and units, the planned land use development must be converted to population by multiplying occupancy rate and household size.

The occupancy rate is provided by Clark County Department of Comprehensive Planning, and it is estimated using postal ZIP code geography. 2022 occupancy rates were used in the calculation. Due to lack of information on how the occupancy rates change over time, the 2022 occupancy rates were applied to each horizon year. The household size is based on 2020 census data by census tract. By applying the following formula, information such as dwelling units, occupied dwelling units, population can be obtained on parcel level.

Occupied Dwelling Units = Dwelling Units * Occupancy Rate

Population = Occupied Dwelling Units * Household Size

The parcel level data is then processed with GIS to get the data for all the Traffic Analysis Zones (TAZs).

Table 6 and Table 7 show the projected growth and population projections by entity respectively.

Table 6 does not include projected growth figures for the City of Boulder City and City of Mesquite due to a lack of available planned land use data. Instead, both cities have provided their respective annual growth rates to RTC for projecting their future population. A 0.5 % of annual growth for City of Boulder City and 3.75 % of annual growth rate for City of Mesquite were applied to their base year dwelling units, occupied dwelling units and population, resulting in the projections listed on Table 7. Additionally, projections from redevelopment plans outlined in the City of Las Vegas Master Plan were also included in Table 7.

Chart 4 illustrates the 5-year population growth rates for entities, while Chart 5 depicts the distribution of population shares among entities in 2050.

Table 6 Projected Growths by Entity

Year	Entity	Dwelling Units	Occupied Dwelling Units	Population
2025	Unincorporated CC	10,222.8	9,660.1	27,148.7
	Las Vegas	10,067.3	9,647.9	28,531.2
	N. Las Vegas	4,785.0	4,510.1	13,420.8
	Henderson	8,113.0	7,573.9	18,857.5
	Subtotal	33,188.1	31,392.1	87,958.3
2030	Unincorporated CC	9,466.2	8,925.5	24,706.4
	Las Vegas	8,963.9	8,501.5	24,858.5
	N. Las Vegas	8,492.8	8,056.0	24,288.5
	Henderson	15,343.0	14,293.8	36,275.1
	Subtotal	42,265.9	39,776.9	110,128.5
2035	Unincorporated CC	4,541.5	4,148.3	11,954.6
	Las Vegas	8,751.1	7,973.2	22,888.3
	N. Las Vegas	6,058.7	5,794.1	15,956.3
	Henderson	14,866.0	13,778.3	35,479.3
	Subtotal	34,217.3	31,693.8	86,278.5
2040	Unincorporated CC	2,844.4	2,602.5	7,508.4
	Las Vegas	9,507.0	8,306.0	23,599.4
	N. Las Vegas	7,499.6	7,132.5	20,271.1
	Henderson	12,666.0	11,460.9	29,250.4
	Subtotal	32,516.9	29,501.9	80,629.2
2045	Unincorporated CC	217.3	210.0	551.6
	Las Vegas	8,152.9	6,675.9	19,187.1
	N. Las Vegas	8,646.5	8,144.8	24,567.6
	Henderson	13,634.0	12,731.1	32,982.0
	Subtotal	30,650.6	27,761.7	77,288.3
2050	Unincorporated CC	81.7	75.2	217.7
	Las Vegas	8,884.4	7,653.7	22,045.5
	N. Las Vegas	7,232.8	6,794.7	20,535.1
	Henderson	15,213.0	14,313.7	37,741.7
	Subtotal	31,412.0	28,837.3	80,540.0
Total	Unincorporated CC	27,373.9	25,621.6	72,087.4
	Las Vegas	54,326.6	48,758.2	141,109.9
	N. Las Vegas	42,715.3	40,432.2	119,039.5
	Henderson	79,835.0	74,151.7	190,586.1
	Subtotal	204,250.8	188,963.7	522,822.8

Table 7 Projected Populations by Entity

Year	Entity	Dwelling Unit	Occ. Dwelling Unit	Population	Group Quarters Population	Total Population
2022	Boulder City	7,209	6,632	14,612	360	14,972
	Unincorporated CC	413,425	384,122	1,008,387	15,506	1,023,893
	Las Vegas	260,019	246,978	654,616	4,620	659,236
	N. Las Vegas	92,632	88,649	276,699	1,234	277,933
	Henderson	140,952	133,224	332,500	1,253	333,753
	Mesquite	11,994	10,159	21,925	221	22,146
	Total	926,231	869,765	2,308,740	23,194	2,331,934
2025	Boulder City	7,317	6,732	14,831	360	15,191
	Unincorporated CC	429,016	398,899	1,049,916	15,506	1,065,422
	Las Vegas	272,204	258,638	688,528	4,620	693,148
	N. Las Vegas	97,417	93,159	290,119	1,234	291,353
	Henderson	149,065	140,798	351,358	1,253	352,611
	Mesquite	13,343	11,302	24,392	221	24,613
	Total	968,362	909,529	2,419,145	23,194	2,442,339
2030	Boulder City	7,500	6,900	15,202	360	15,562
	Unincorporated CC	438,482	407,825	1,074,622	15,506	1,090,128
	Las Vegas	285,919	271,647	724,179	4,620	728,799
	N. Las Vegas	105,910	101,215	314,408	1,234	315,642
	Henderson	164,408	155,092	387,633	1,253	388,886
	Mesquite	15,845	13,421	28,966	221	29,187
	Total	1,018,064	956,100	2,545,010	23,194	2,568,204
2035	Boulder City	7,688	7,073	15,582	360	15,942
	Unincorporated CC	443,024	411,973	1,086,577	15,506	1,102,083
	Las Vegas	309,173	293,315	778,305	4,617	782,922
	N. Las Vegas	111,968	107,010	330,364	1,234	331,598
	Henderson	179,274	168,870	423,112	1,253	424,365
	Mesquite	18,816	15,937	34,397	221	34,618
	Total	1,069,943	1,004,178	2,668,337	23,191	2,691,528
2040	Boulder City	7,880	7,249	15,972	360	16,332
	Unincorporated CC	445,868	414,575	1,094,085	15,506	1,109,591
	Las Vegas	335,032	317,165	838,497	4,455	842,952
	N. Las Vegas	119,468	114,142	350,635	1,234	351,869
	Henderson	191,940	180,331	452,363	1,253	453,616
	Mesquite	22,344	18,926	40,846	221	41,067
	Total	1,122,532	1,052,388	2,792,398	23,029	2,815,427
2045	Boulder City	8,077	7,431	16,371	360	16,731
	Unincorporated CC	446,085	414,785	1,094,637	15,506	1,110,143
	Las Vegas	358,714	338,622	888,562	4,096	892,658
	N. Las Vegas	128,115	122,287	375,203	1,234	376,437
	Henderson	205,574	193,062	485,345	1,253	486,598
	Mesquite	26,534	22,474	48,505	221	48,726
	Total	1,173,099	1,098,661	2,908,623	22,670	2,931,293
2050	Boulder City	8,279	7,616	16,780	360	17,140
	Unincorporated CC	446,167	414,861	1,094,855	15,506	1,110,361
	Las Vegas	380,779	358,714	935,677	3,909	939,586
	N. Las Vegas	135,347	129,081	395,738	1,234	396,972
	Henderson	220,787	207,376	523,086	1,253	524,339
	Mesquite	31,509	26,688	57,599	221	57,820
	Total	1,222,867	1,144,336	3,023,736	22,483	3,046,219

Figure 4 - 2025-2050 5-year Population Growth Rates by Entities

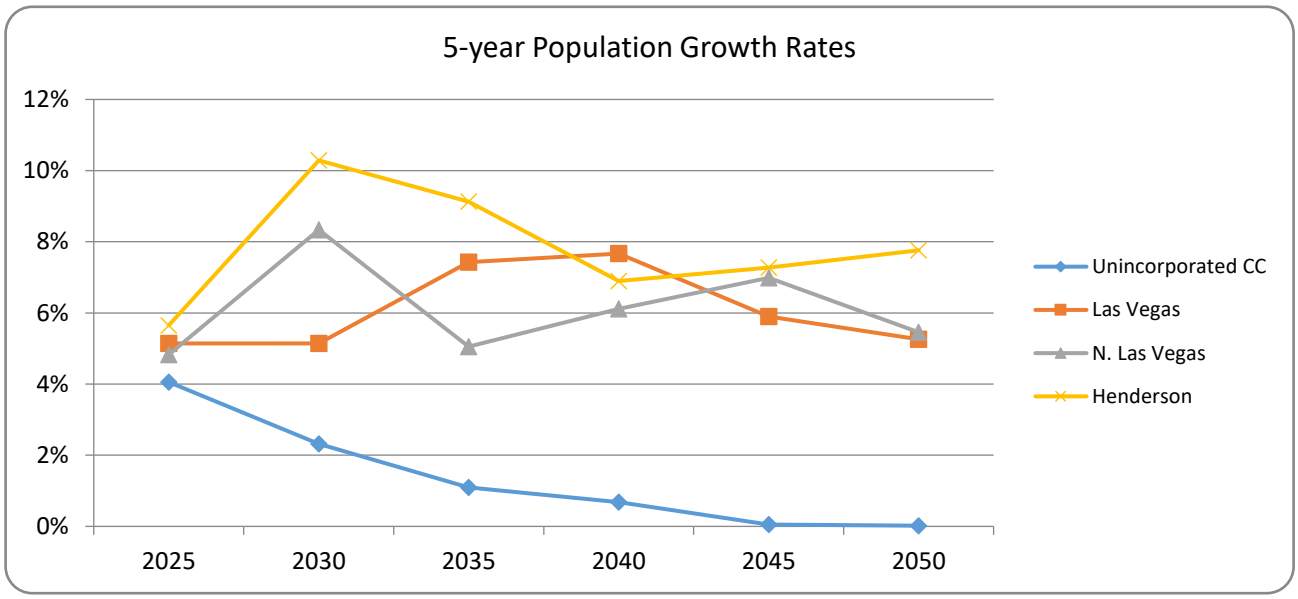
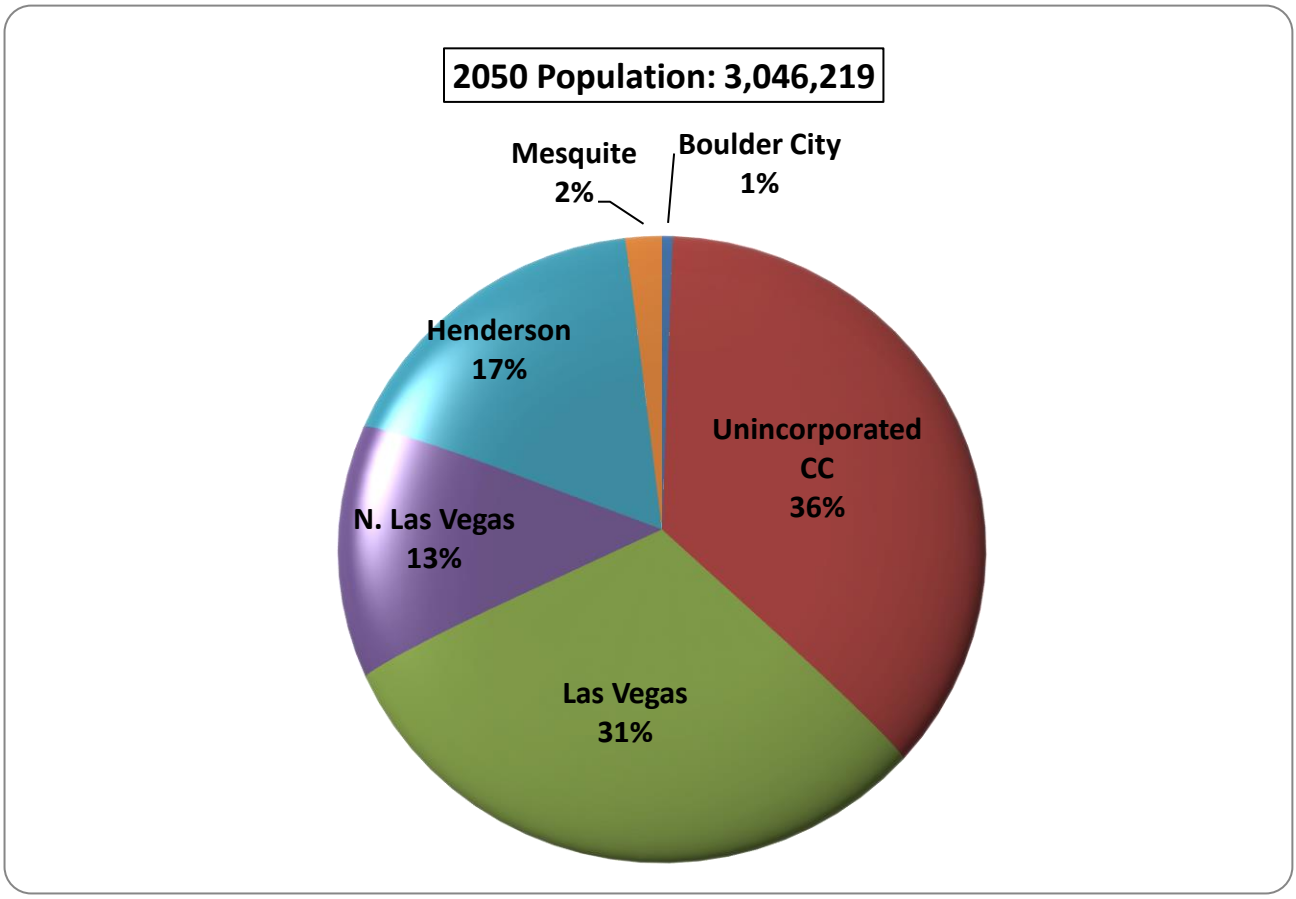


Figure 5 - Year 2050 Population Distribution by Entities



3.4 Benchmark

LUWG decided to use the 2023-2080 Clark County population forecast published by University of Nevada Las Vegas (UNLV) the Center for Business and Economic Research (CBER) in May 2023 as the control total and the benchmark. Therefore, the populations projected from the land-use planning process described in the previous section were compared to CBER's control totals. Table 8 and chart 6 present the population projections by LUWG and CBER, while Chart 7 displays the population growth by LUWG and CBER.

Table 8 Comparison with CBER Control Total

Year	CBER Population	LUWG Projected Population	Difference
2022	2,331,934	2,331,934	0
2025	2,438,000	2,442,339	-4,339
2030	2,645,000	2,568,204	76,796
2035	2,750,000	2,691,528	58,472
2040	2,848,000	2,815,427	32,573
2045	2,935,000	2,931,293	3,707
2050	3,014,000	3,046,219	-32,219

Figure 6 - Population Projection by LUWG and CBER

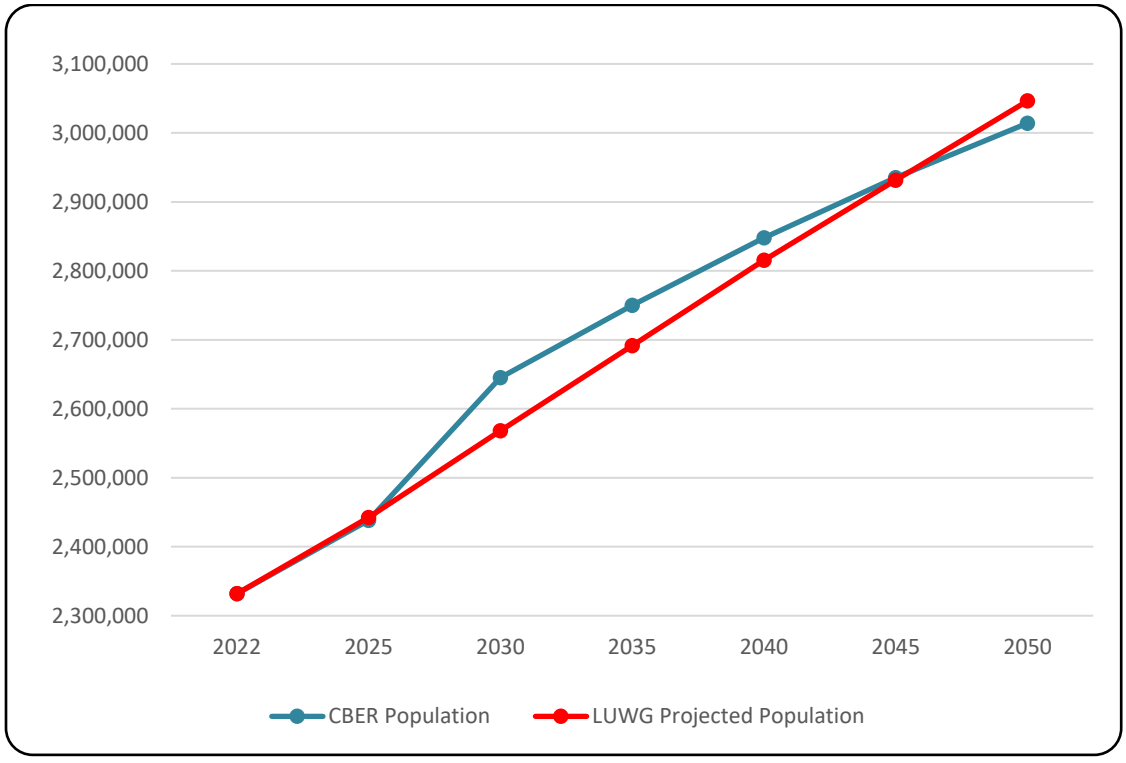
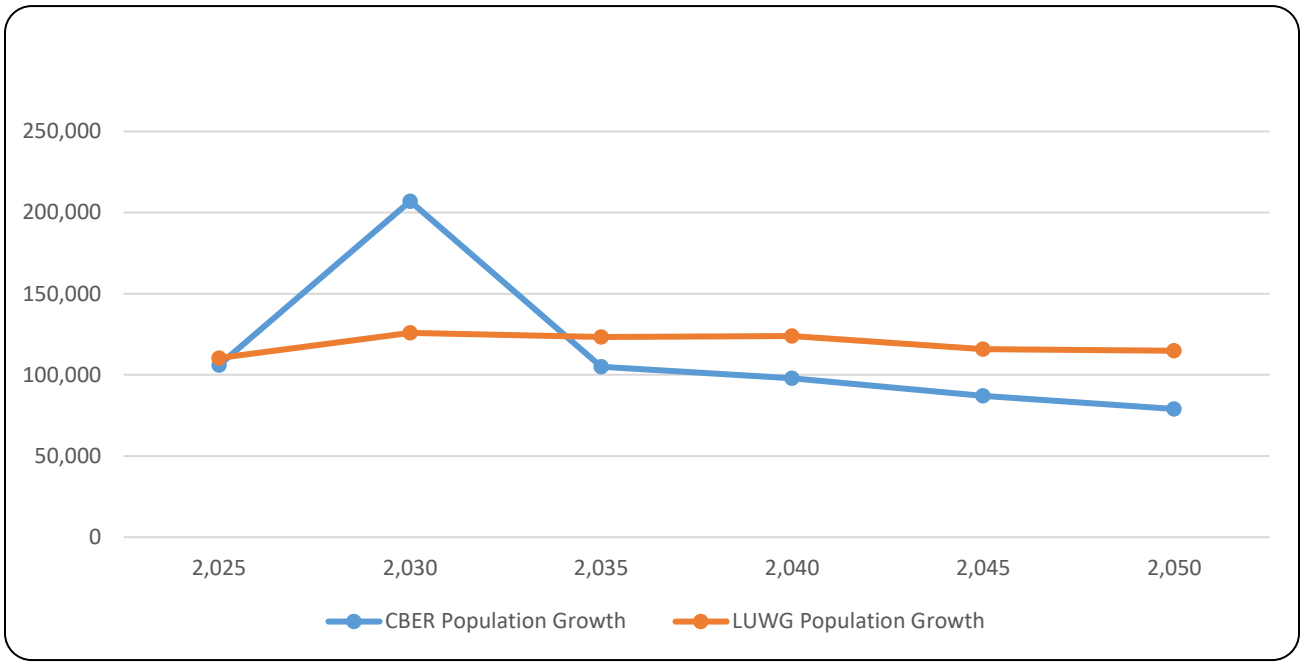


Figure 7 - Projected Population Growth by LUWG and CBER



CBER initially projected significant growth for 2030, followed by a tapering off, while our projections remained consistent after 2030, as indicated in Chart 7. The projected population in 2030 exhibited a difference of 77,000 between the two projections, but this disparity gradually narrowed in the subsequent years. By 2045, the difference had decreased to 3,700. In 2050, LUWG population projection exceeded CBER population projection by 32,000, as shown in Table 8. Despite the substantial gap observed in 2030, we concluded that LUWG population projections were generally in alignment with CBER control totals over the long term. Therefore, we determined that further adjustments are unnecessary, as our focus remains on the overall long-term trend rather than individual horizon years.

4. DEVELOPMENT OF EMPLOYMENT

4.1 Base Year Employment

The base year employment is not factored by acreage. It is developed from Nevada State Department of Employment, Training and Rehabilitation (DETR) employer data. The DETR 2022 2nd quarter employer data is used to generate year 2022 employment data for modeling purposes. The process consists of: 1) address matching with street center line; 2) translating DETR employer code to TDM categories; 3) aggregating the employment to TAZs by category; and 4) post processing. The details are described in the following sections.

4.1.1 DETR Address Information & Address Matching

There are total of 68,023 records in the DETR 2022 2nd quarter employer database that RTC have received. Of those, 49,755 (73%) of them are reported with address or with latitude/longitude, while it accounts for 95% of total employment reported. Some establishments reported the total employment to a single address (Headquarter). The addresses in the database are examined and standardized to the addresses with matching issues before geocoding. The matching results that have 80% less matching score and employment is more than 50 are manually checked with Google Maps, GISMO and aerial photos.

4.1.2 Category Translation – DETR Industry Code to TDM Employment Category

A conversion table was created by assigning each of the employment categories in DETR's employer database to the appropriate TDM employment category. This lookup table was used in the employment data conversion process and is listed below.

Table 9 Employment Category Conversion Table

Model Work Industry		NAICS	
Code	Description	Code	Description
1	Agriculture, Mining	11	Agriculture, Forestry. Fishing and Hunting
		21	Mining, Quarrying. and Oil and Gas Extraction
2	Manufacturing	31	Manufacturing
		32	Manufacturing
		33	Manufacturing
3	Utilities. Construction. Transportation, Waste Management	22	Utilities
		23	Construction
		48	Transportation and Warehousing
		49	Transportation and Warehousing
		56	Administrative and Support and Waste Management and Remediation Services
4	Wholesale	42	Wholesale Trade
5	Retail trade	44	Retail Trade
		45	Retail Trade
6	Information. Finance, Insurance, Professional, Scientific, Technical, Management, Real Estate	51	Information
		52	Finance and Insurance
		53	Real Estate and Rental and Leasing
		54	Professional. Scientific, and Technical Services
		55	Management Of Companies and Enterprises
7	Education, Health, Social Services	61	Educational Services
		62	Health Care and Social Assistance
8	Food, Art, Entertainment, Recreation, Other Services	71	Arts. Entertainment, and Recreation (except Casinos)
		72	Accommodation and Food Services (except Casino Hotels)
		81	Other Services (except Public Administration)
9	Public Administration, Military	92	Public Administration
11	Casinos	71	Casinos
12	Casino Hotels	72	Casino Hotels

4.1.3 Post Processes (Headquarter Issue)

Clark County School District Employment (CCSD) – In the DETR 2022 employment data, CCSD reported that all employees were working at the district office (headquarters) address (5100 W. Sahara Ave). However, there were only 137 people who actually worked at the headquarters address. The number of employees working at each school site and non-school site in school year 2022-2023 were provided by CCSD. The process for allocating the employment was completed by geocoding the school and non-school site addresses, and then assigned CCSD employees to the education employment category.

Local Governments -- The local governments, including the City of Las Vegas, City of North Las Vegas, City of Henderson, Clark County, City of Bouder City, and City of Mesquite reported all employment to their respective main offices. The correction process mirrored the employment allocation method used for CCSD. The actual numbers of employment at each agency's main location and associated facilities were obtained from these agencies. After geocoding, the employment was assigned to the public administration category. Table 10 is the summary of DETR 2022 geocoded employment data results.

Table 10 Summary of Address Matched DETR 2022 2nd Quarter Employer Data By Employment Category

Code	Description	Employment	Percentage
1	Agriculture, Mining	2,361	0.2%
2	Manufacturing	26,760	2.8%
3	Utilities, Construction, Transportation, Waste Management	193,116	20.1%
4	Wholesale trade	19,877	2.1%
5	Retail trade	102,341	10.6%
6	Information, Finance, Insurance, Professional, Scientific, Technical, Management, Real Estate	108,811	11.3%
7	Education, Health, Social Services	141,931	14.8%
8	Food, Art, Entertainment, Recreation, Other Services	165,042	17.2%
9	Public Administration, Military	71,747	7.5%
11	Casinos	2,594	0.3%
12	Casino Hotels	124,782	13.0%
99	Undetermined	2,187	0.2%
Total		961,549	100.0%

4.2 Future Year Employment

Compared to the population projections, the development of the future employment projection and allocation is very challenging. While population data can be tracked in a relatively straightforward manner using dwelling unit count data from the Clark County Comprehensive Planning and entity' land use data, the allocation of future employment projection must consider several factors, including:

1) Number and type of employees per acre or square feet of building space,
2) Conversion factors relating property acreage and square feet of building space,
3) Location of employees compared with main office address,
4) Variability of employment types such as hotel, retail, office, and industrial.
5) Last but not least, there are much more uncertainty in terms of where and what type of employment will occur in future.

To project initial employment distributions, non-residential acreage is converted into employment using factors derived from the analysis of data from Clark County Comprehensive Planning, and the DETR. The base year parcel data contains the information about parcel acreage and land use type. The DETR data provides the information of employer's industry code, number of employees and address. Employment factors based on acreage were developed previously by combining the DETR data, with the industry codes interpreted into relevant land use types, and a base year parcel data. Table 11 summarizes these factors. For samples and methods in developing the factors, refer to Regional Transportation Plan FY 2006-2030 Appendix V.

The future year employment growth then was projected by applying the employment factors to the projected future non-residential acreages of different land use types.
The general formula is as follows:

$$\text{Number of Employee Growth} = \sum(\text{AcG} * \text{GtN} * \text{Emp per Ac})$$

Where:

AcG	Employment's corresponding land use acreage growth
GtN	Land use's corresponding gross to net ratio
Emp per Ac	Land use's corresponding employee per acre
∑	Employment of an employment category is the total of all the land use categories (Table 4) falls into the employment category (Table 11)

Table 11 Acreage to Employment Factors

IDX	LAND USE		EMPLOYMENT		
	LU	DESCRIPTION	CATEGORY	Per Acre	Gross to Net
1	Hotel	Hotel (Resort Corridor)	Hotel	100	0.80
2	Hotel_N	Hotel (Not on Resort Corridor)	Hotel	40	0.80
3	Ret	Retail	Retail	22	0.80
4	Other_Non	Land use not in any other categories	Other_Non	20	0.80
5	Office	Office	Office	50	0.80
6	School	School	Other_Non	15	0.80
7	Hospital	Hospital	Other_Non	70	0.80
8	Ind	Industrial	Indust	12	0.80
9	OS	Open Space	Other_Non	0.5	0.80

Note: The Land Use is for the purpose of corresponding to the LUWG planned land use category. The Employment category corresponds to TDM's employment category. The gross to net ratio is for the purpose of reducing the land needed for public facilities such as ROW.

As stated, the factors in Table 11 serve only as a starting point to project initial employment information that may be adjusted during validation steps.

5 QUALITY CONTROL AND VALIDATION OF DEVELOPMED PLANNING VARIABLES (POPULATION & EMPLOYMENT)

The PV variables were validated using aerial photographs from the Clark County GISMO for each TAZ. The intention was to do a reasonable check for how many acres can be developed between 2022 and 2050. The numbers can be used to estimate the population and employment totals. In particular, developing employment control totals for industrial, transportation, utility facilities and areas with a lot of open space needs to be carefully reviewed.

The employment data was then validated by Parsons Transportation Group (PTG), see Attachment 1 from PTG at the end of this document.

The final PV variables were made available to members of LUWG for quality and reality review. The questions, comments, and suggestions from the review have been addressed and incorporated into the final adjustments.

6 SPECIAL GENERATORS

Nellis Air Force Base (NAFB), Creech Air Force Base, Harry Reid International Airport, Southern Nevada Supplemental Airport (SNSA), University of Nevada at Las Vegas (UNLV, including the main campus and North Las Vegas campus), College of Southern Nevada (CSN), Nevada State University

(NSU) and High-Speed Rail (HSR) station are treated as special generators in RTC's TDM. Thus, their employments are not included in the employment categories in the PV variables development process. The current and the future special generator data is obtained/derived from relevant agencies, departments, and institutions. Sources include each agency's planning staff and information published on their web sites. Table 12 -Table 16 lists the employment and student enrollments / Passengers for Special Generators accordingly.

Please be aware that all projections presented here come with the following conditions:

a) As is typical with all forecasts, future activity levels may vary from the forecast due to fluctuations in demand and/or unexpected events. The forecasts provide approximate estimations of future activity levels.

b) The airport forecasts have not received approval from the Federal Aviation Administration. They are provided as broad ranges and estimates solely for planning purposes. The Environmental Impact Statement (EIS) for SNSA is still on-going. Therefore, the certainty regarding the advancement and scale of the project is yet to be determined.

c) The forecast distribution of activity between Harry Reid Airport and SNSA airport is based on assumptions regarding the allocation of passenger airlines and specific travel segments of travel between the two airports. However, this distribution is subject to change as it has not been finalized. The actual airline users and activity will be determined through future negotiations between Clark County Department of Aviation and airline users."

d) For Creech AFB employment, without knowledge of its future budget or mission, they are unable to adjust their projected personnel numbers.

Table 12 Employment and Passengers of Airports

Year	Harry Reid Airport			Southern Nevada Supplemental Airport		
	Total Passengers	Average Daily Passengers	Employment	Total Passengers	Average Daily Passengers	Employment
2022	52,667,741	144,000	21,000			
2025	56,226,575	154,000	22,500			
2030	63,235,149	174,000	25,000			
2035	70,823,658	194,000	25,000			
2040	57,570,336	158,000	25,000	21,481,225	58,000	6,700
2045	58,504,573	160,000	25,000	29,495,575	80,000	9,600
2050	65,048,406	178,000	25,000	32,794,704	90,000	12,500

Table 13 Employment of Air Force Base

Year	Nellis AFB	Creech AFB
2022	15,065	4,320
2025	15,517	4,320
2030	16,292	4,320
2035	17,106	4,320
2040	17,961	4,320
2045	18,860	4,320
2050	19,803	4,320

Table 14 UNLV Employment and Enrollment

Year	Main Campus		Shadow Lane Campus		North Las Vegas Campus	
	Enrollment	Employment	Enrollment	Employment	Enrollment	Employment
2022	25,045	3,792	318	286		
2025	25,350	3,838	322	290		
2030	27,205	4,119	345	311	5,000	371
2035	29,200	4,421	371	334	7,500	556
2040	31,346	4,746	398	358	10,000	741
2045	33,656	5,096	427	385	12,500	925
2050	36,141	5,472	459	413	15,000	1,111

Table 15 CSN Employment and Enrollment

Year	Charleston Campus		Henderson Campus		North Las Vegas Campus	
	Enrollment	Employment	Enrollment	Employment	Enrollment	Employment
2022	8303	583	3208	161	5791	392
2025	8,720	612	3,369	169	6,082	412
2030	9,450	664	3,651	183	6,591	446
2035	9,115	640	3,522	177	6,357	430
2040	8,791	617	3,397	170	6,132	415
2045	8,791	617	3,397	170	6,132	415
2050	8,791	617	3,397	170	6,132	415

Table 16 NSU Employment and Enrollment

Year	Total Enrollment	Students On Campus	Employment
2022	7162	2533	333
2025	7103	2598	339
2030	7804	3317	443
2035	8617	3,846	553
2040	9559	4,458	705
2045	10,652	5,169	900
2050	11,136	5,483	1,148

7 CCSD SCHOOL ENROLLMENT

The Clark County School District provided 2022-2023 school year enrollment numbers by grade to RTC. The attribute K12Enrollment in PV table represents the total student enrollment from kindergarten to Grade 12.

The 2022-2023 school year enrollment data from CCSD are geocoded and aggregated to TAZs. The future schools that plan to open after the year 2022 are defined through the LUWG land use.

8 CONCLUSION

The land use forecasting is both a complex and continuous process. Great care and effort were taken during the process, but there are some areas in the process that could be improved. It is very challenging to estimate employment data for a large area such as Clark County under the current economic situation. Given the nature of the land use planning process, more fine-tuning will occur in each of the subsequent land use updates. Table 17 and Table 18 list total employment by entity in Clark County. Details on the development and results of the future year employment projections are documented in Attachment 1.

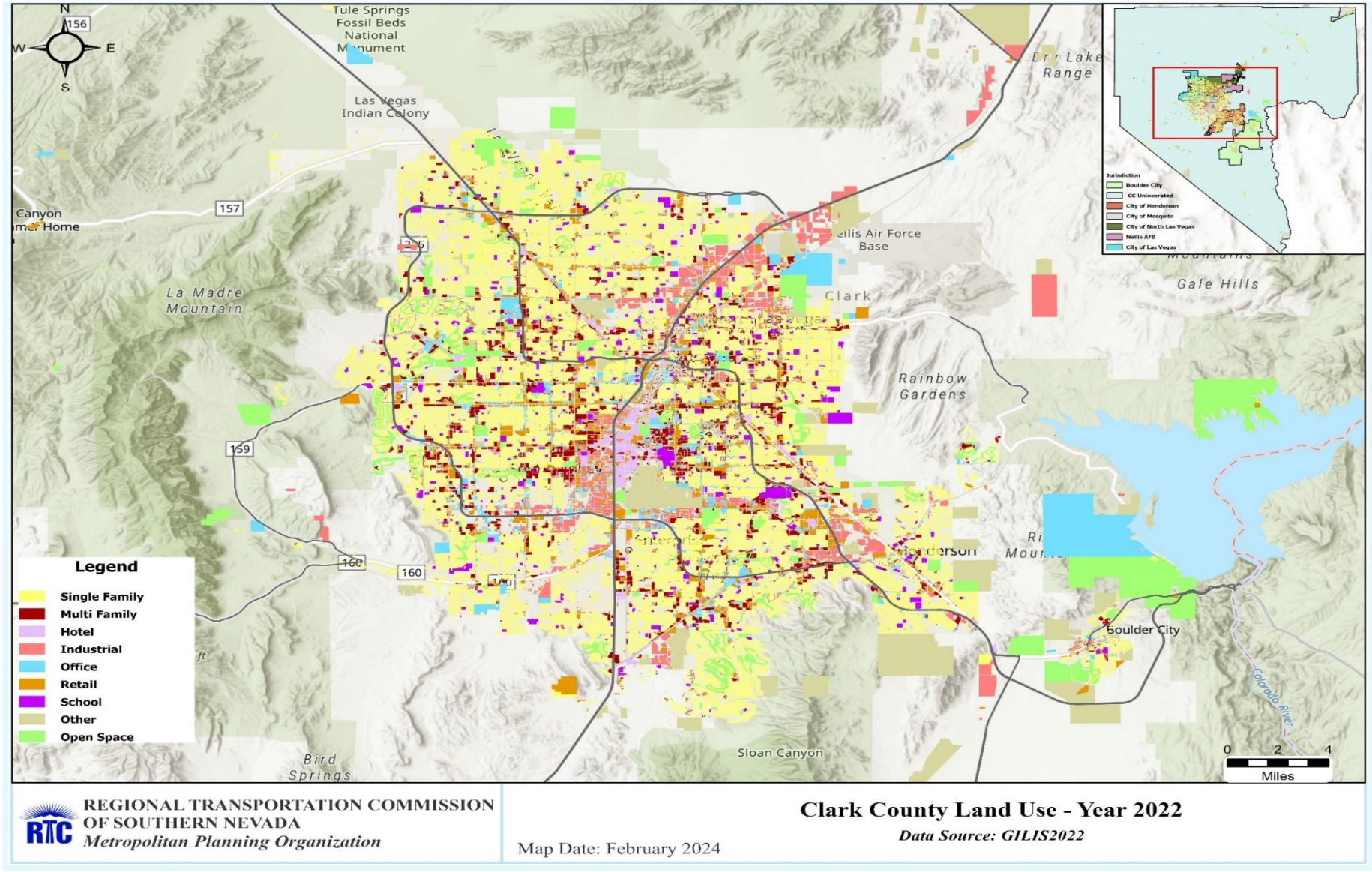
Table 17 Projected Total Employment by Entity (Constrained)

Jurisdiction	2022	2025	2030	2035	2040	2045	2050
Boulder City	3,367	3,427	3,577	3,620	3,636	3,641	4,008
CC Unincorporated	560,221	580,012	615,109	632,220	652,267	667,144	681,306
Las Vegas	205,836	218,728	248,578	261,133	265,662	270,351	277,070
North Las Vegas	86,138	93,865	115,742	132,266	149,313	168,447	183,168
Henderson	99,301	109,197	125,394	130,719	144,080	152,612	160,710
Mesquite	6,686	6,810	7,711	7,820	7,879	8,013	8,120
Total	961,549	1,012,039	1,116,111	1,167,779	1,222,837	1,270,208	1,314,382

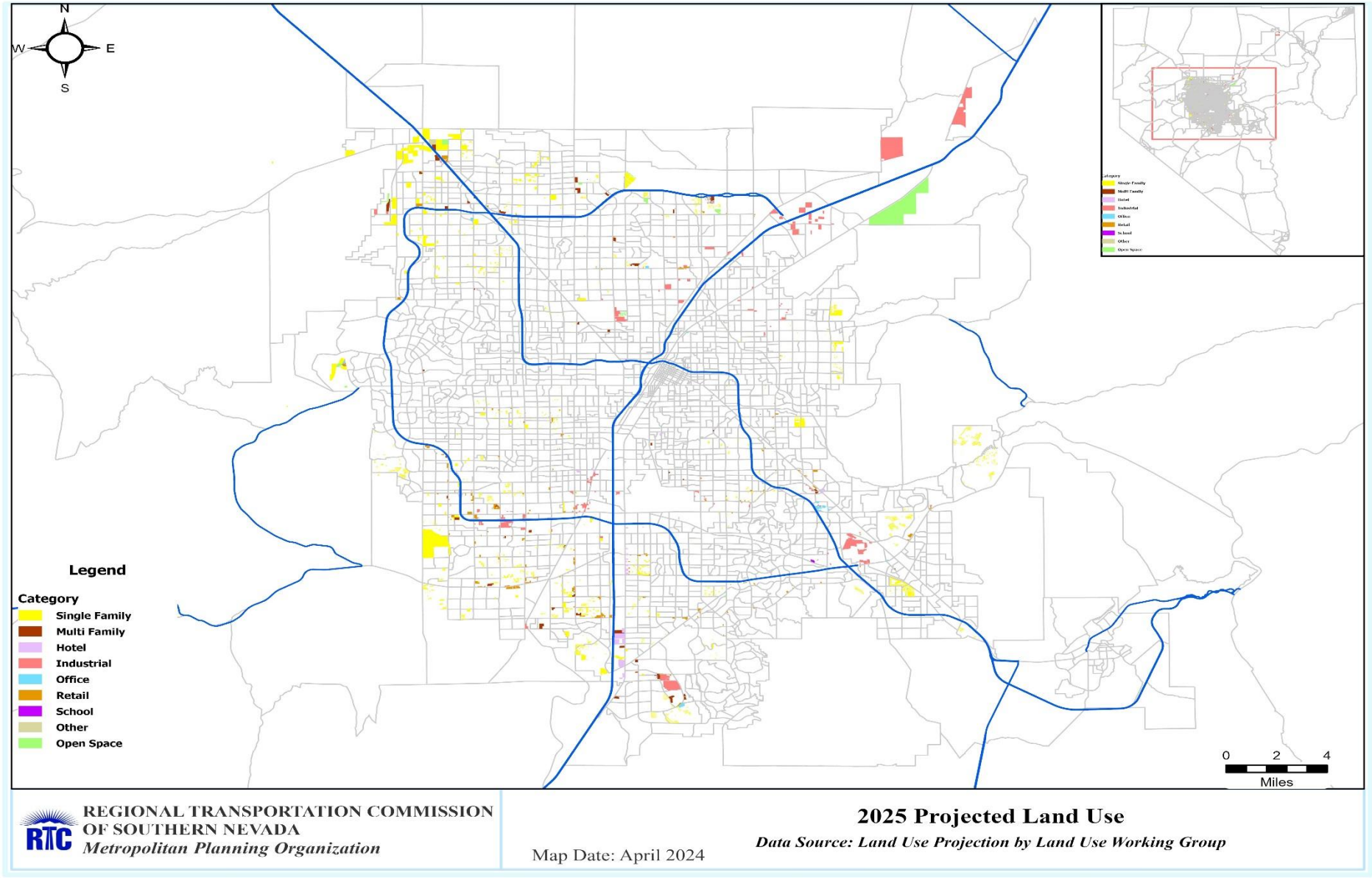
Table 18 Projected Total Employment by Entity (Unconstrained)

Jurisdiction	2022	2025	2030	2035	2040	2045	2050
Boulder City	3,367	3,427	3,577	3,620	3,636	3,641	4,008
CC Unincorporated	560,221	580,012	615,109	641,384	666,057	683,847	701,313
Las Vegas	205,836	218,728	248,578	261,133	265,662	269,804	276,522
North Las Vegas	86,138	93,865	115,742	132,269	149,093	168,091	182,688
Henderson	99,301	109,197	125,394	130,720	143,369	151,368	159,071
Mesquite	6,686	6,810	7,711	7,820	7,879	7,949	8,055
Total	961,549	1,012,039	1,116,111	1,176,947	1,235,696	1,284,700	1,331,657

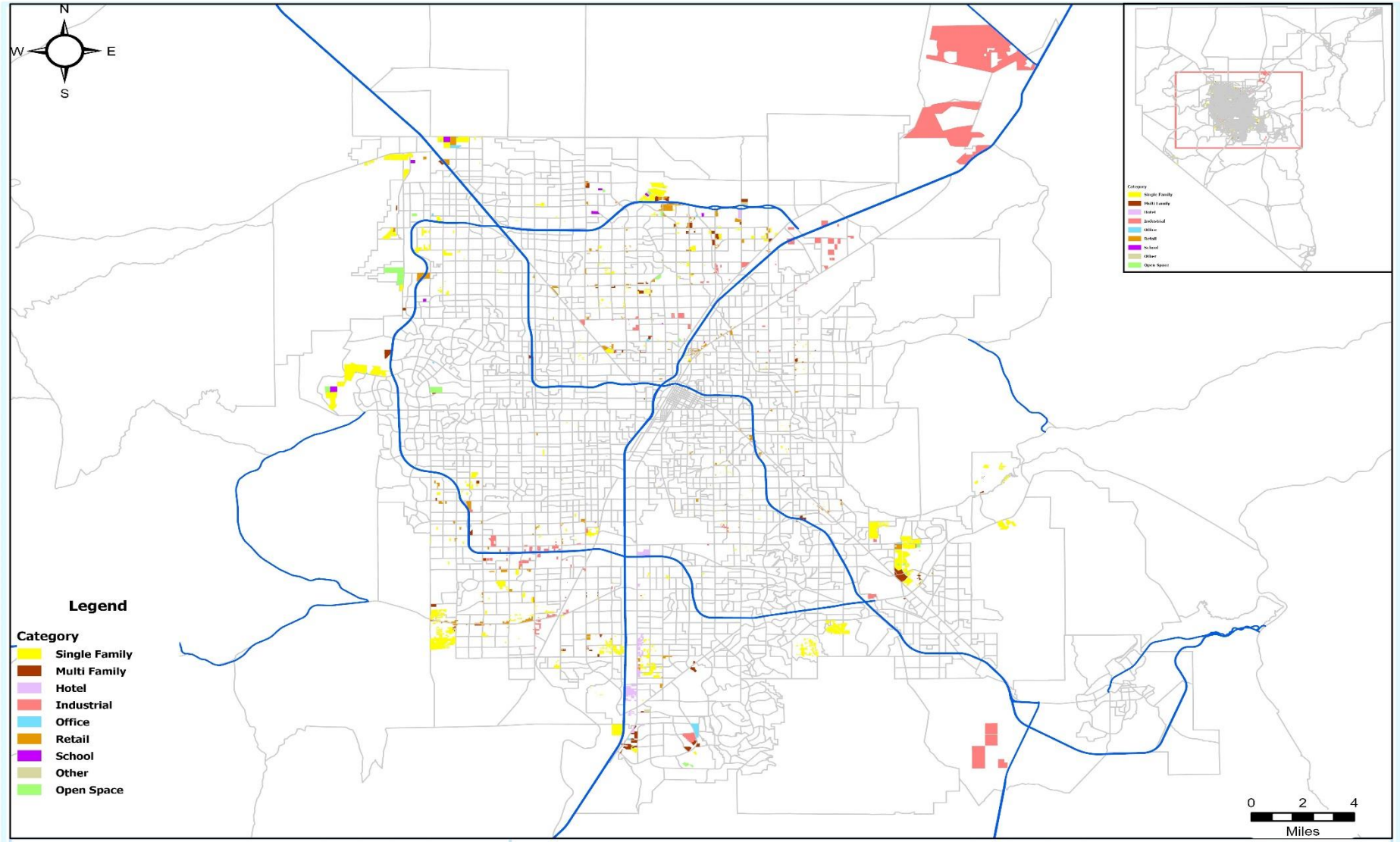
Map 1 -- Base Year 2022 Land Use



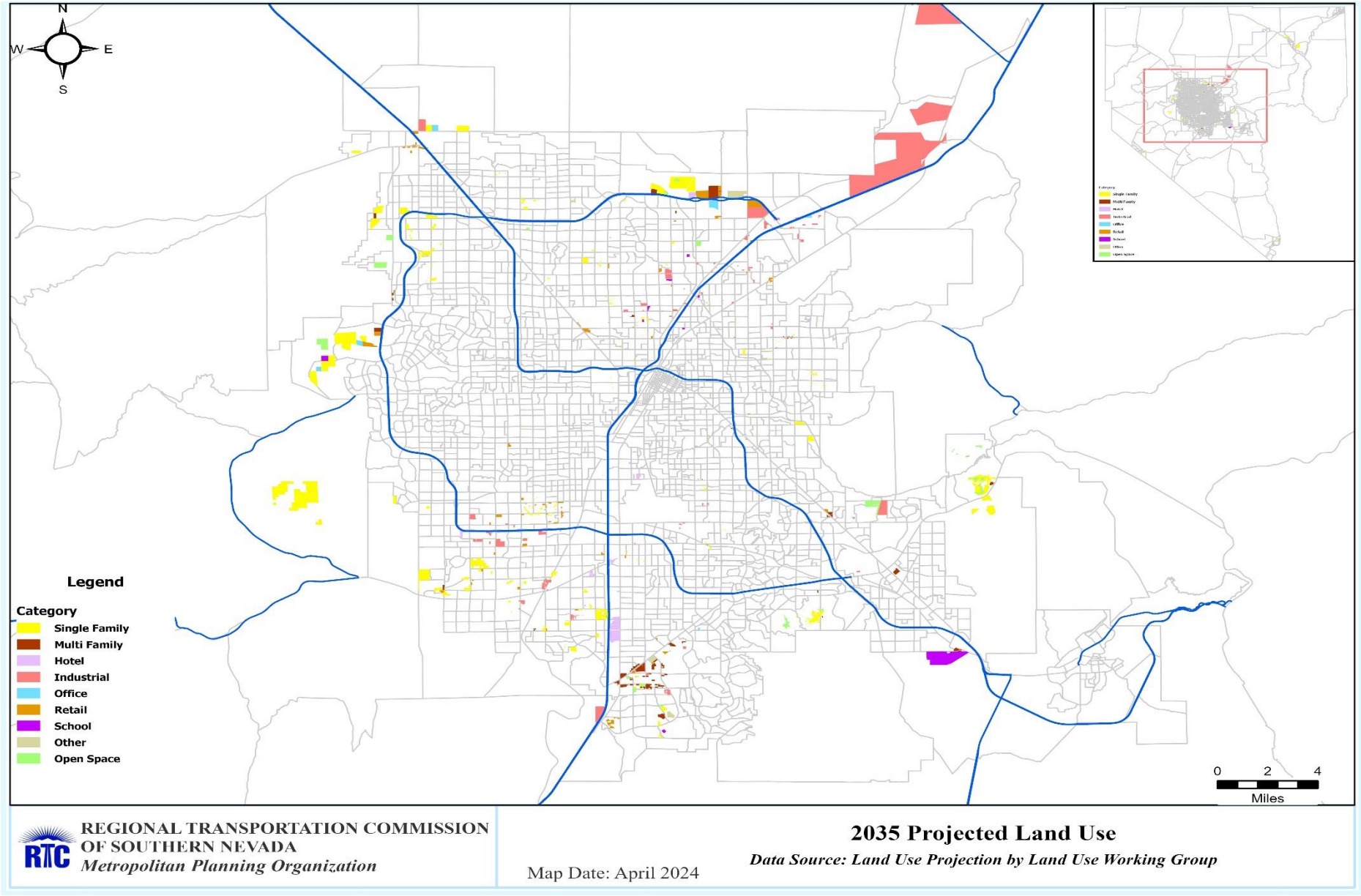
Map 2 -- Planned Land Use Growth 2022 – 2025



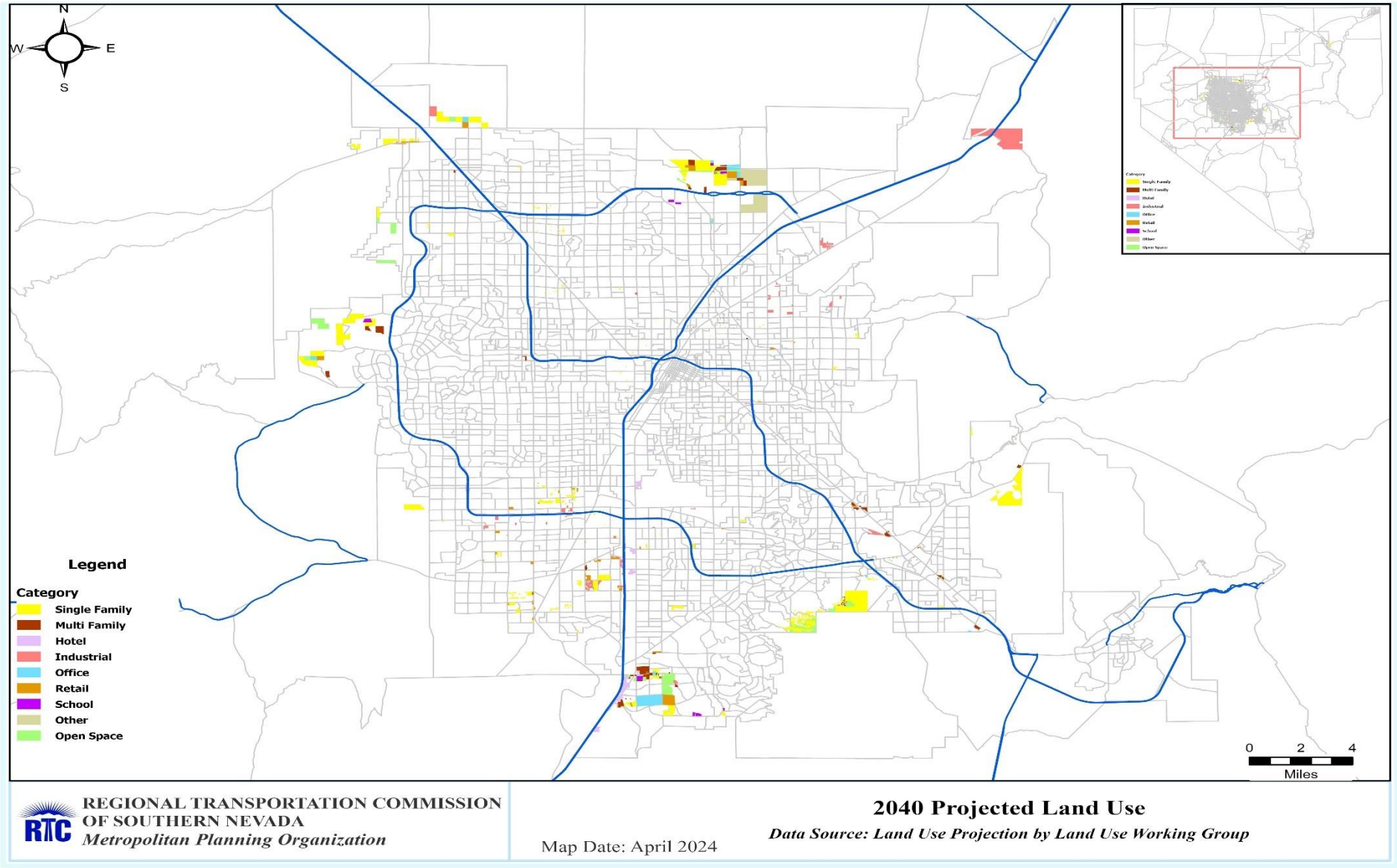
Map 3 -- Planned Land Use Growth 2025 – 2030



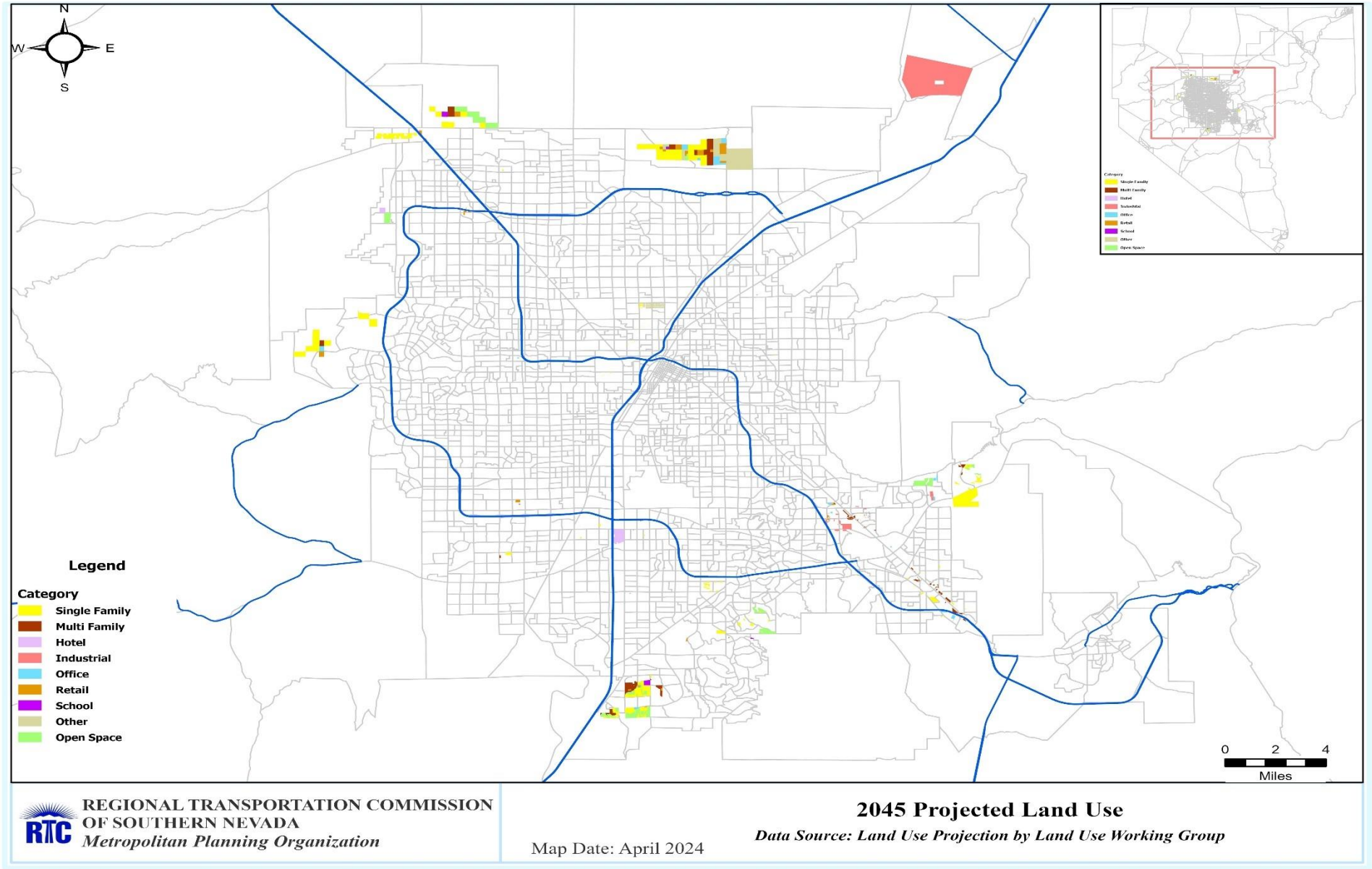
Map 4 -- Planned Land Use Growth 2030 – 2035



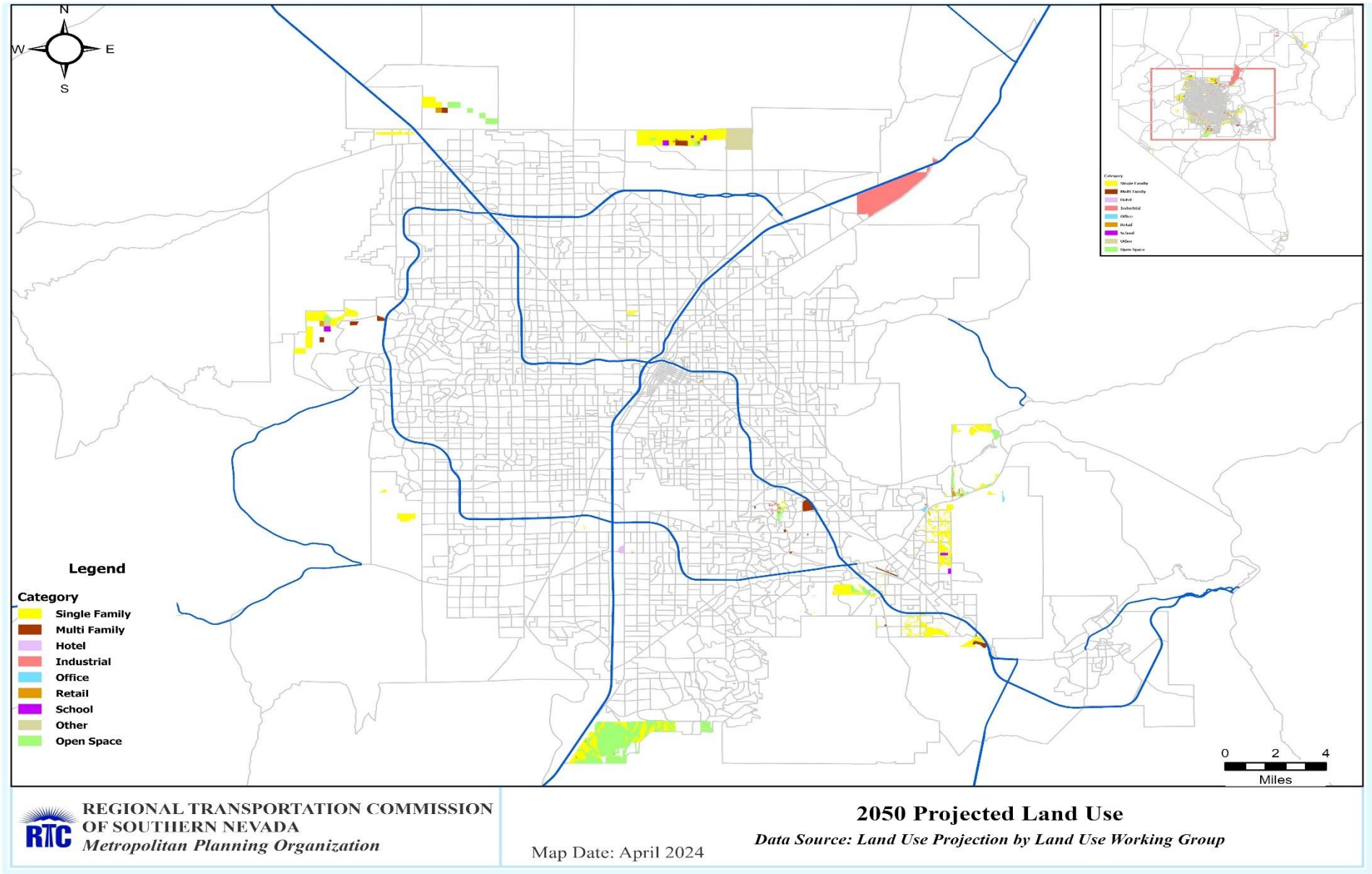
Map 5 -- Planned Land Use Growth 2035 – 2040



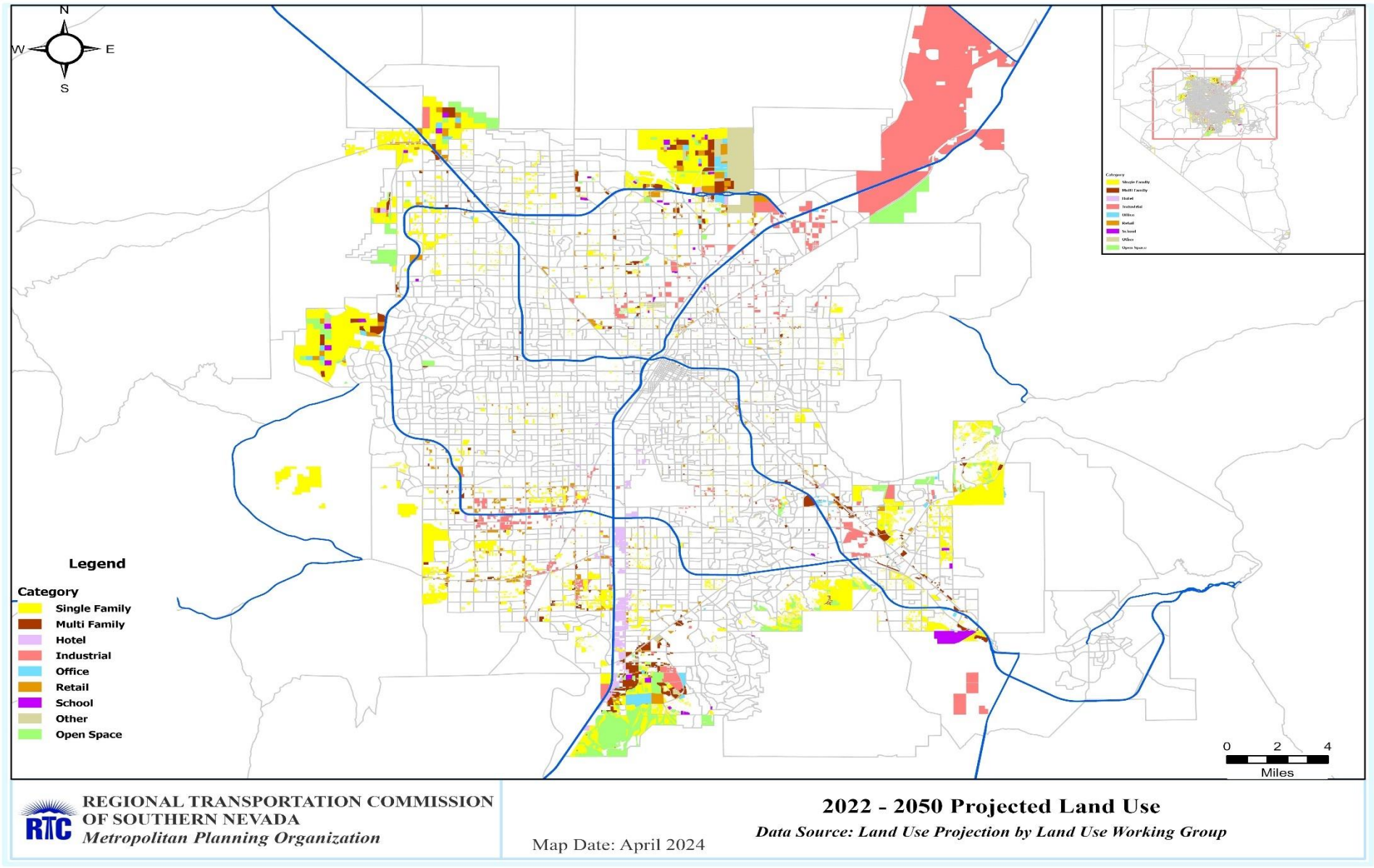
Map 6 -- Planned Land Use Growth 2040 – 2045



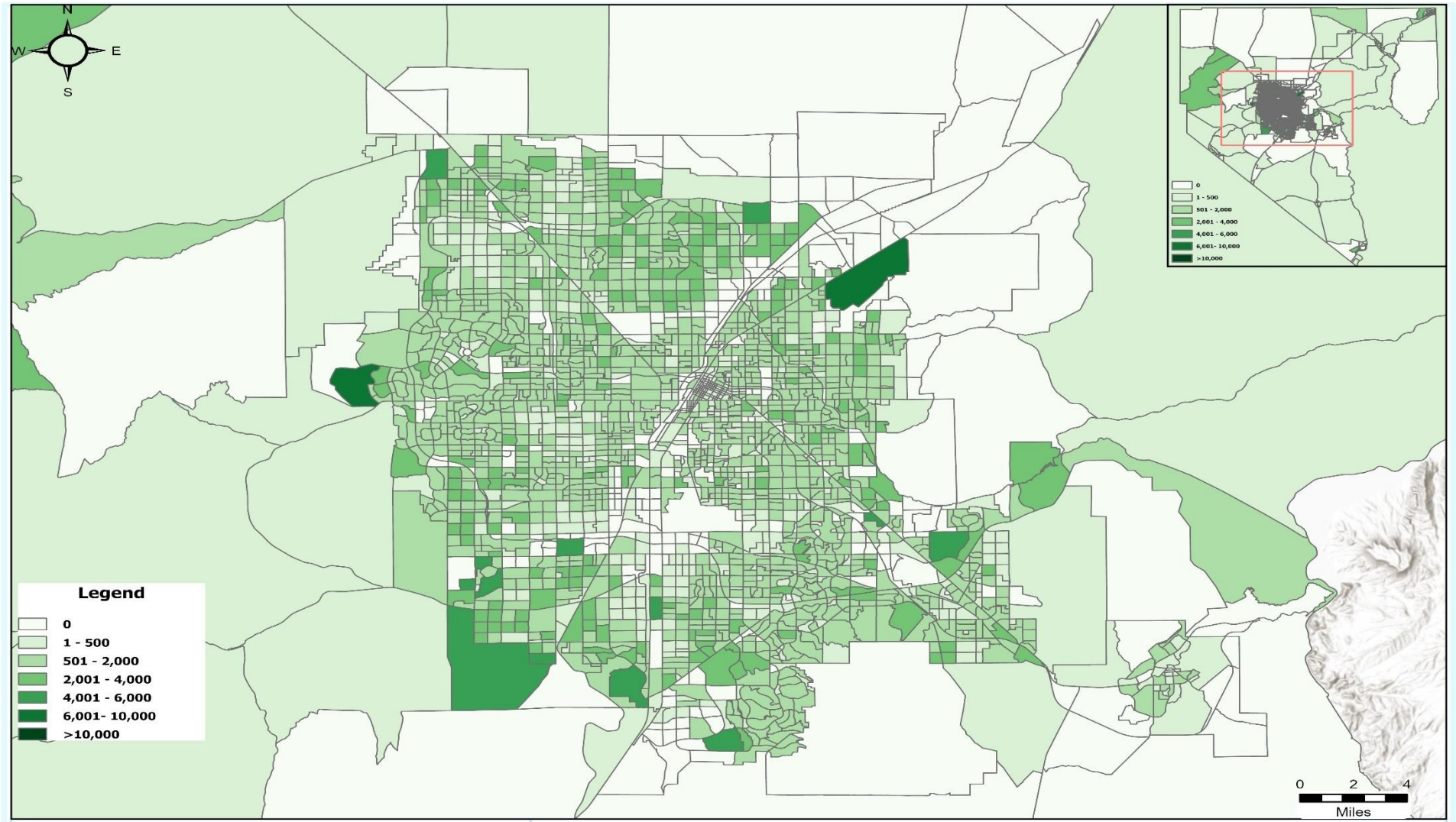
Map 7 -- Planned Land Use Growth 2045 – 2050



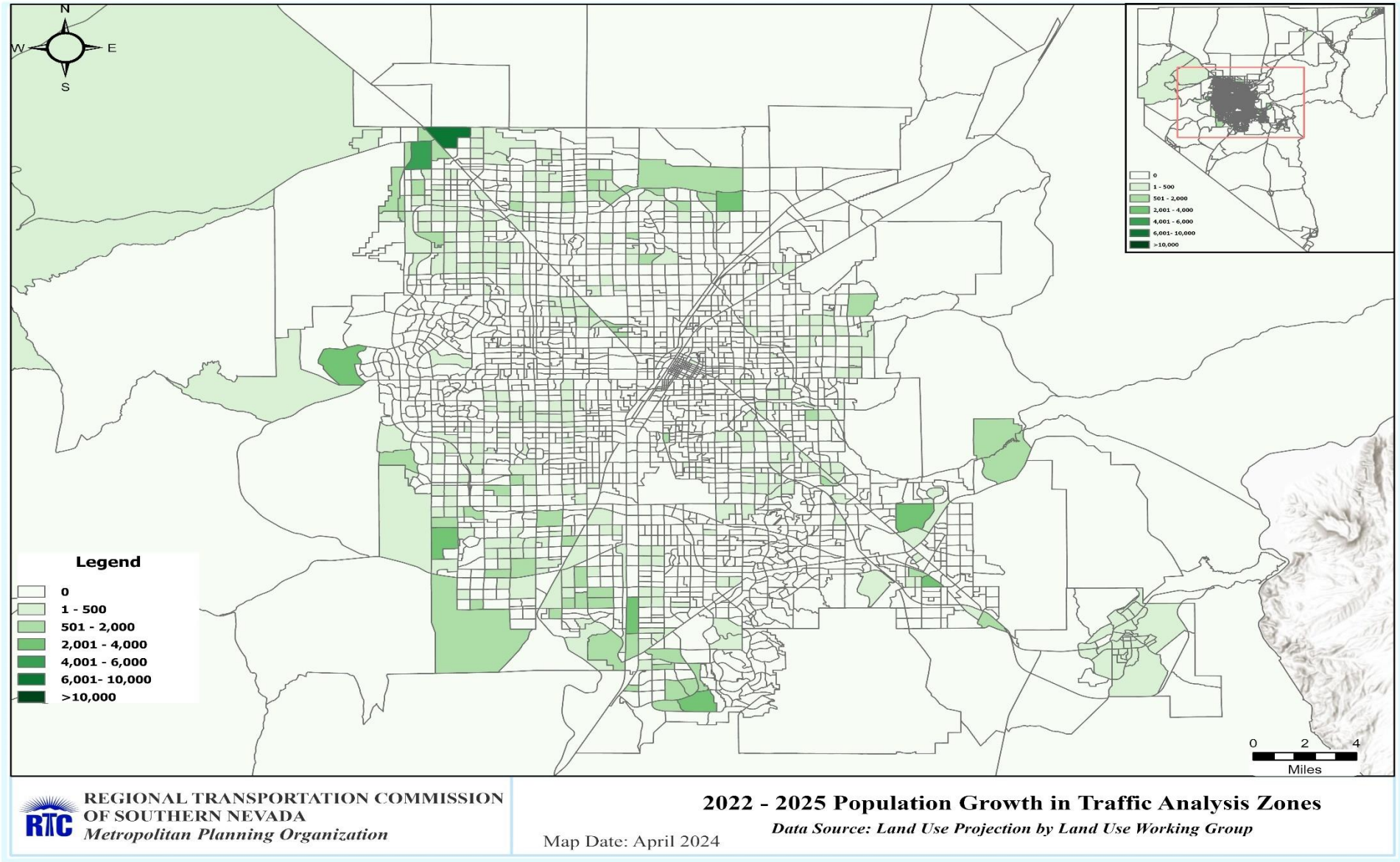
Map 8 -- Planned Land Use Growth 2022 – 2050



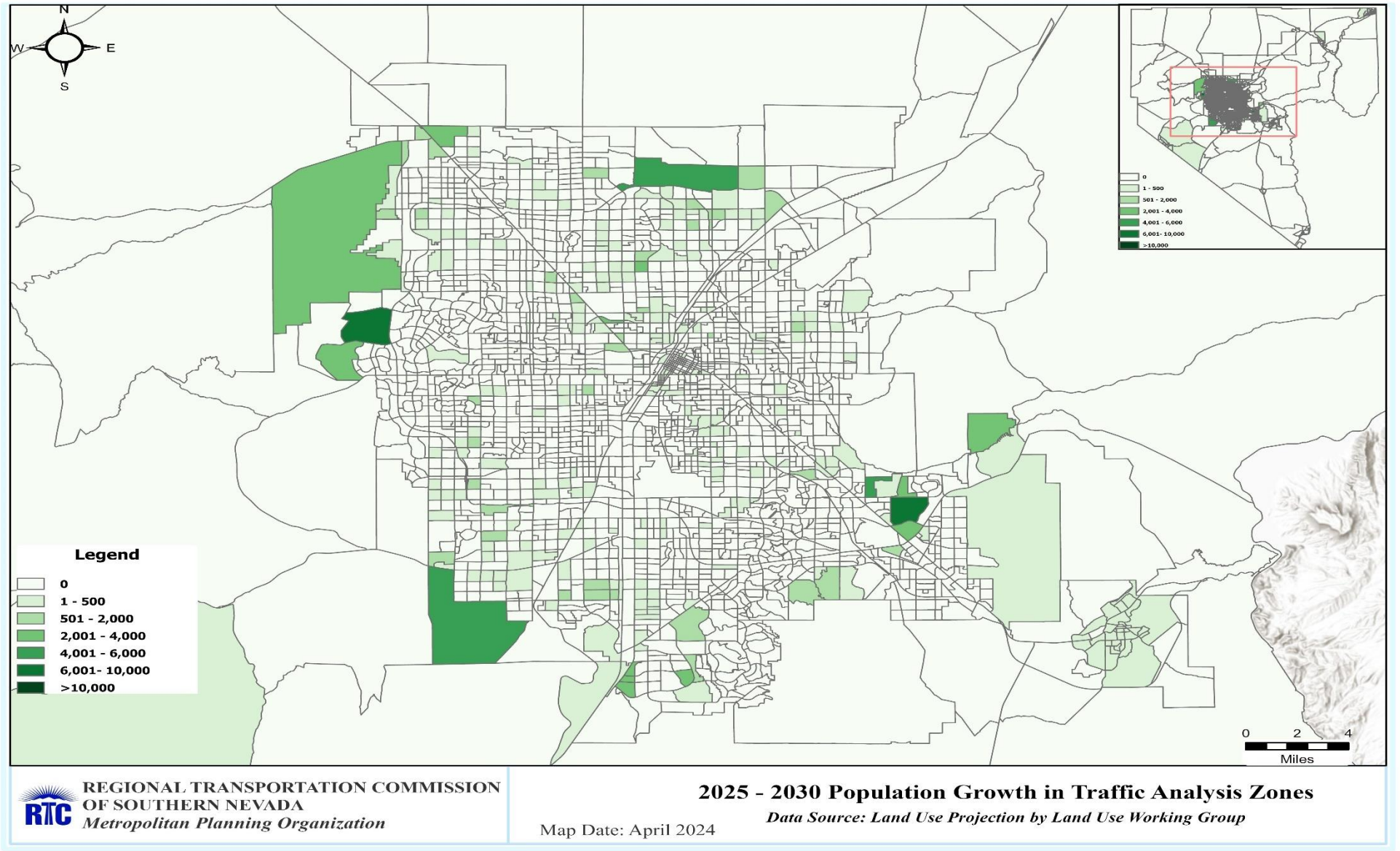
Map 9 -- 2022 Population in Traffic Analysis Zones



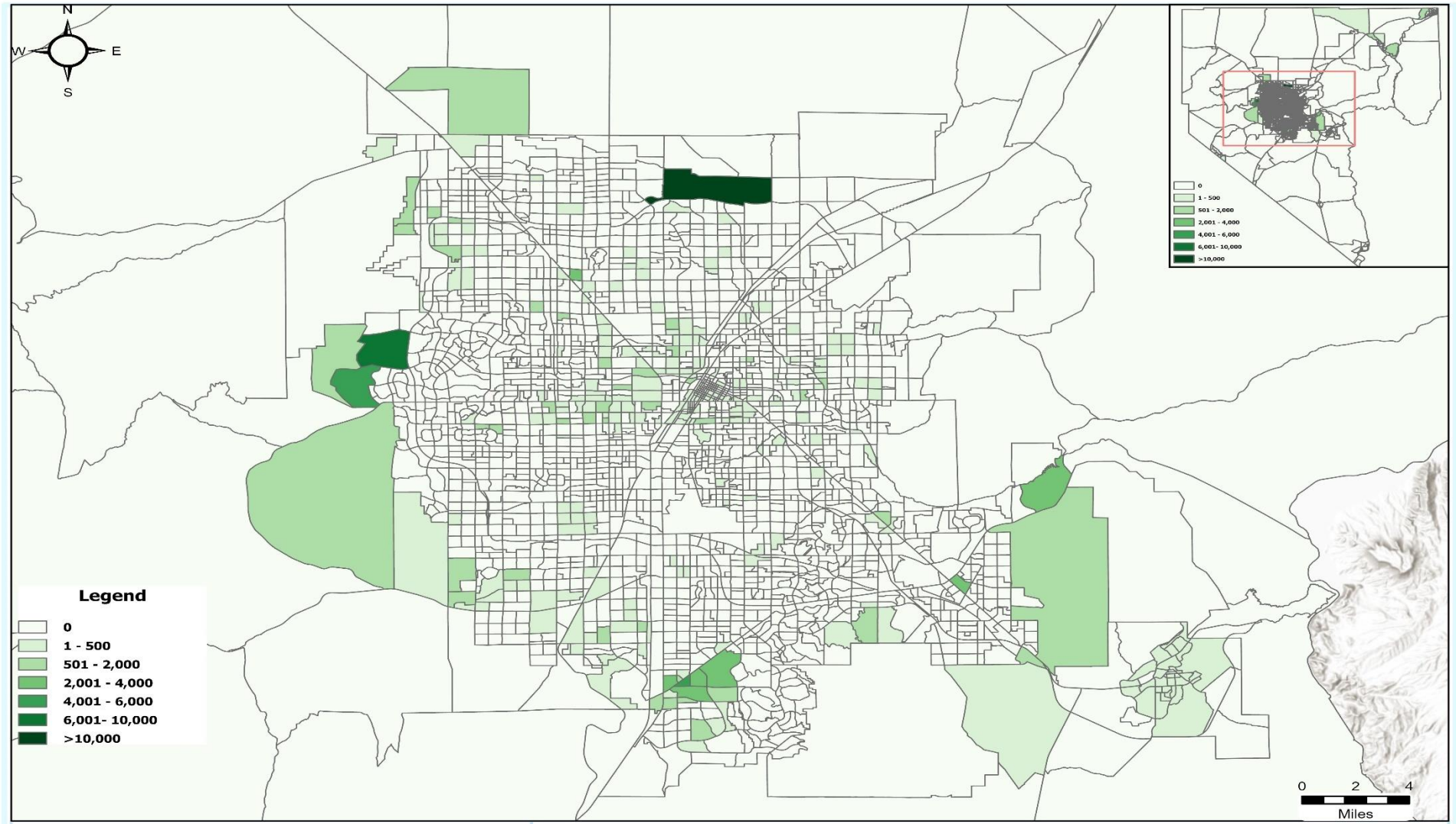
Map 10 -- 2022-2025 Population Growth in Traffic Analysis Zones



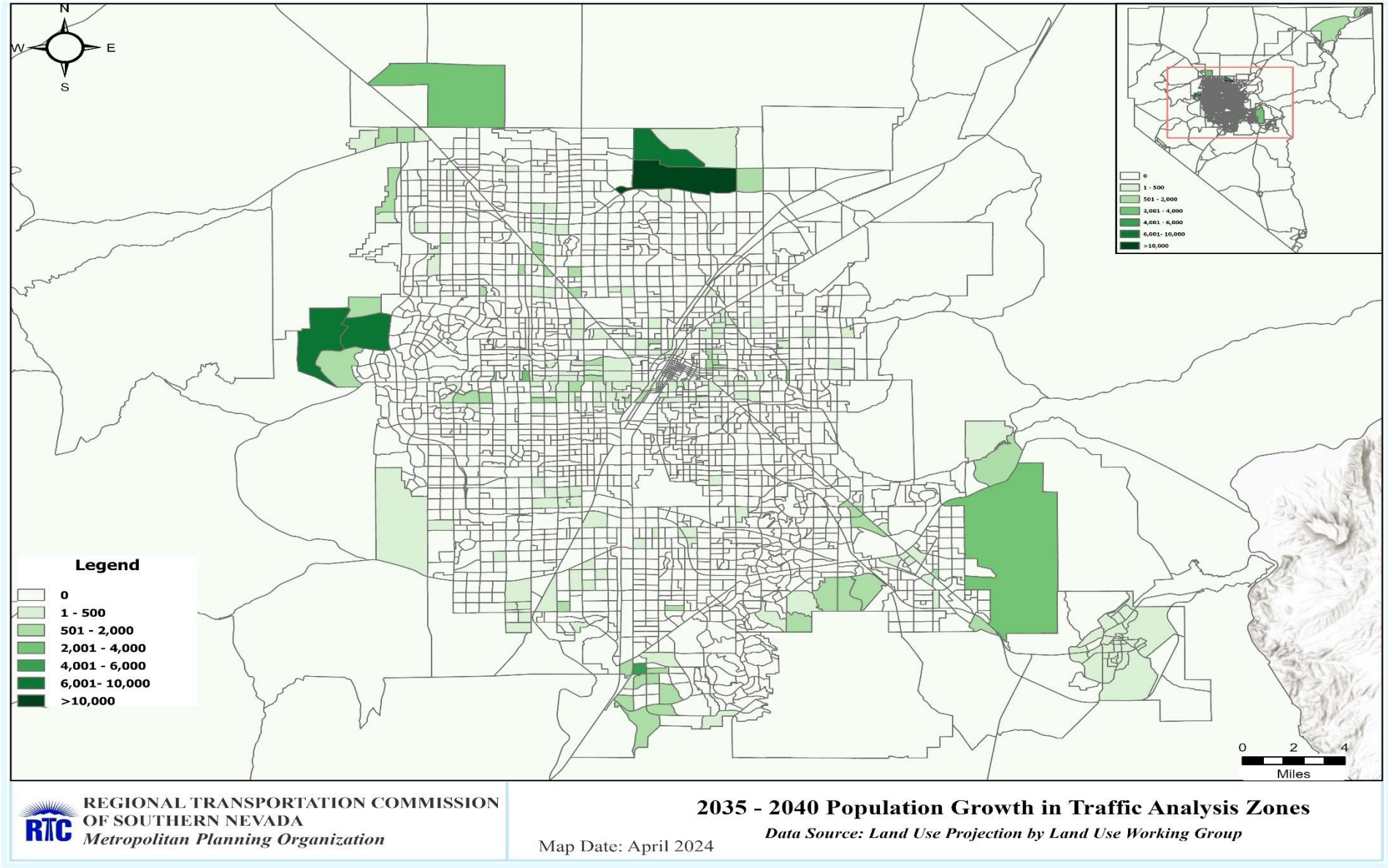
Map 11 -- 2025-2030 Population Growth in Traffic Analysis Zones



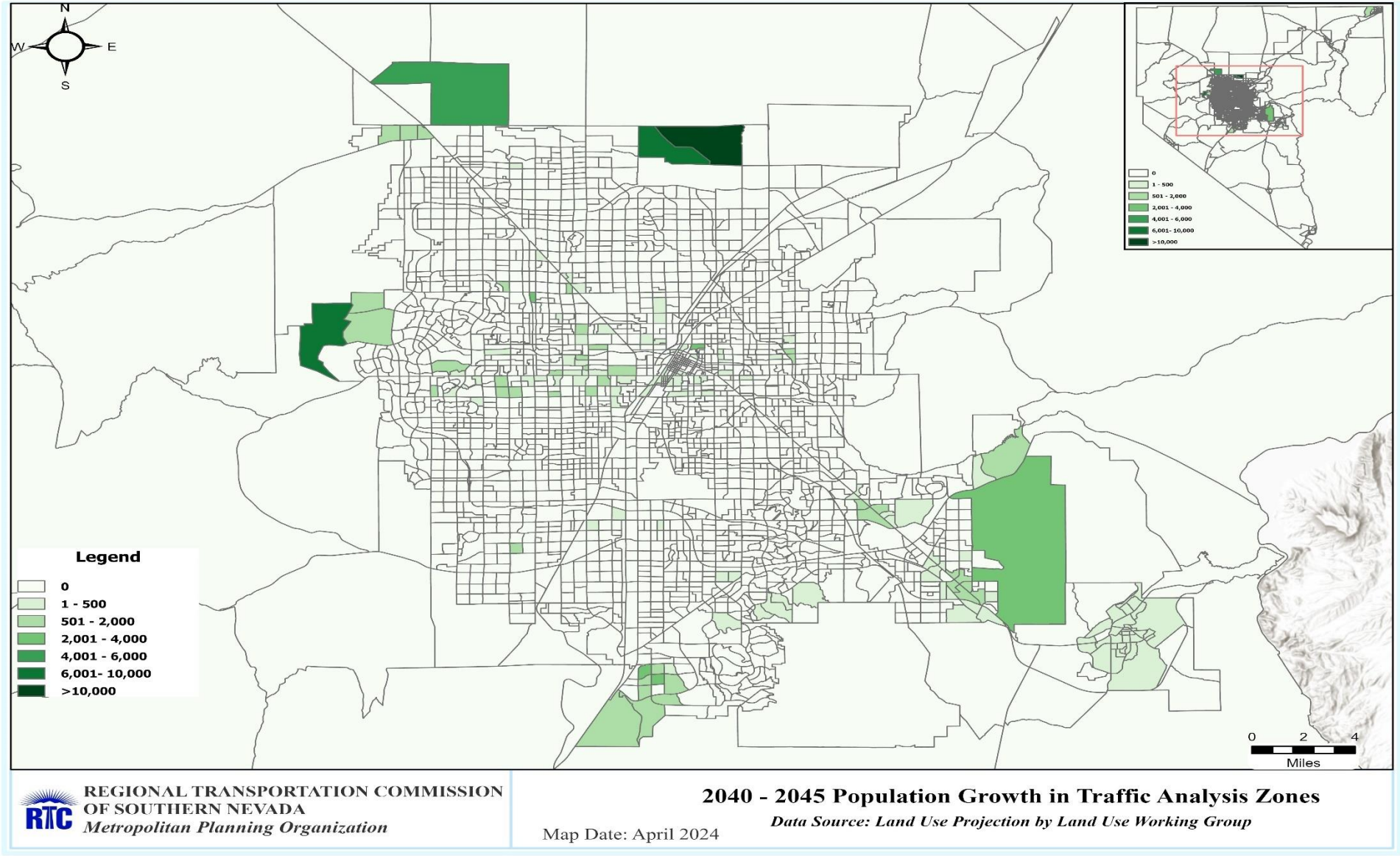
Map 12 -- 2030-2035 Population Growth in Traffic Analysis Zones



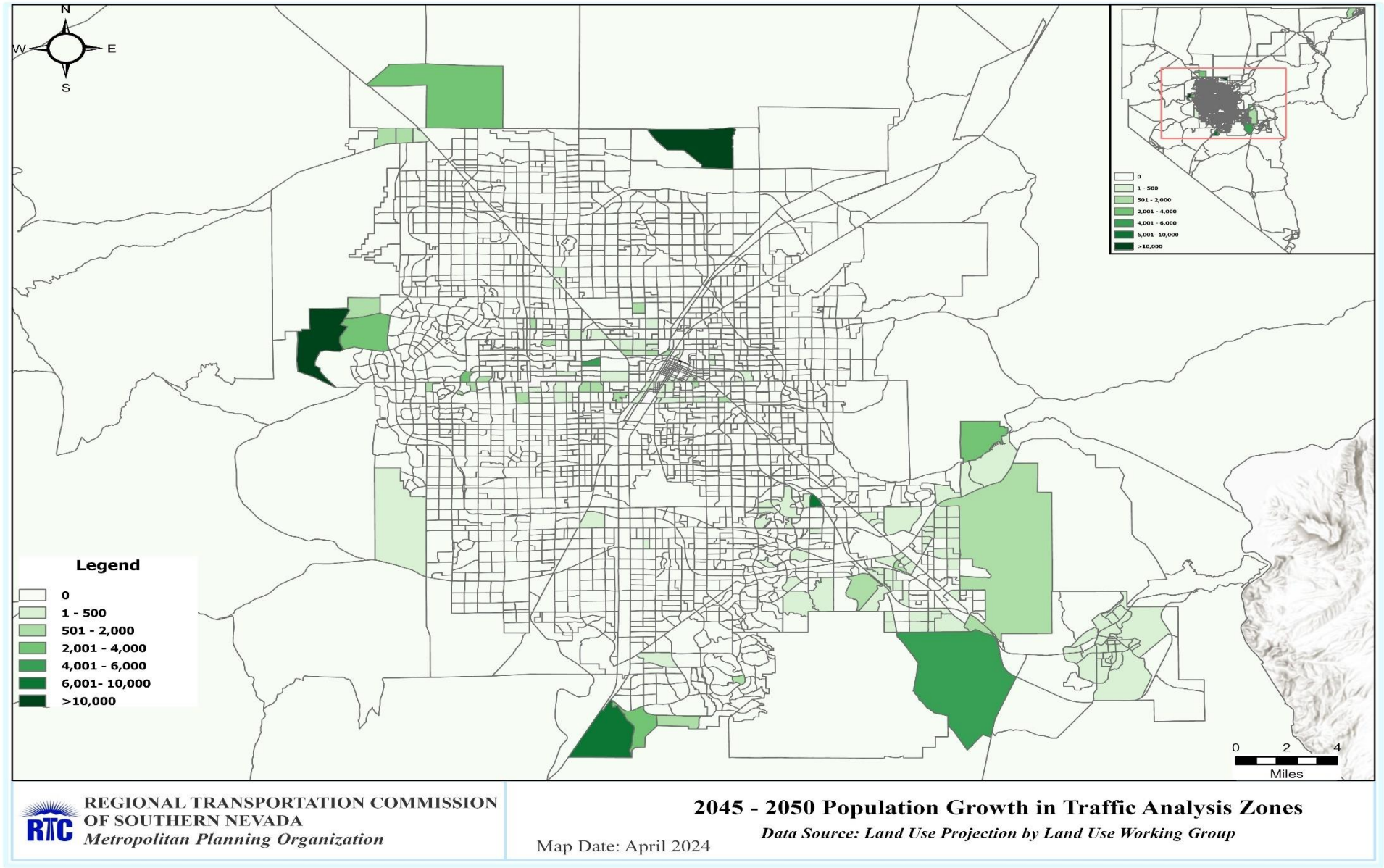
Map 13 -- 2035-2040 Population Growth in Traffic Analysis Zones



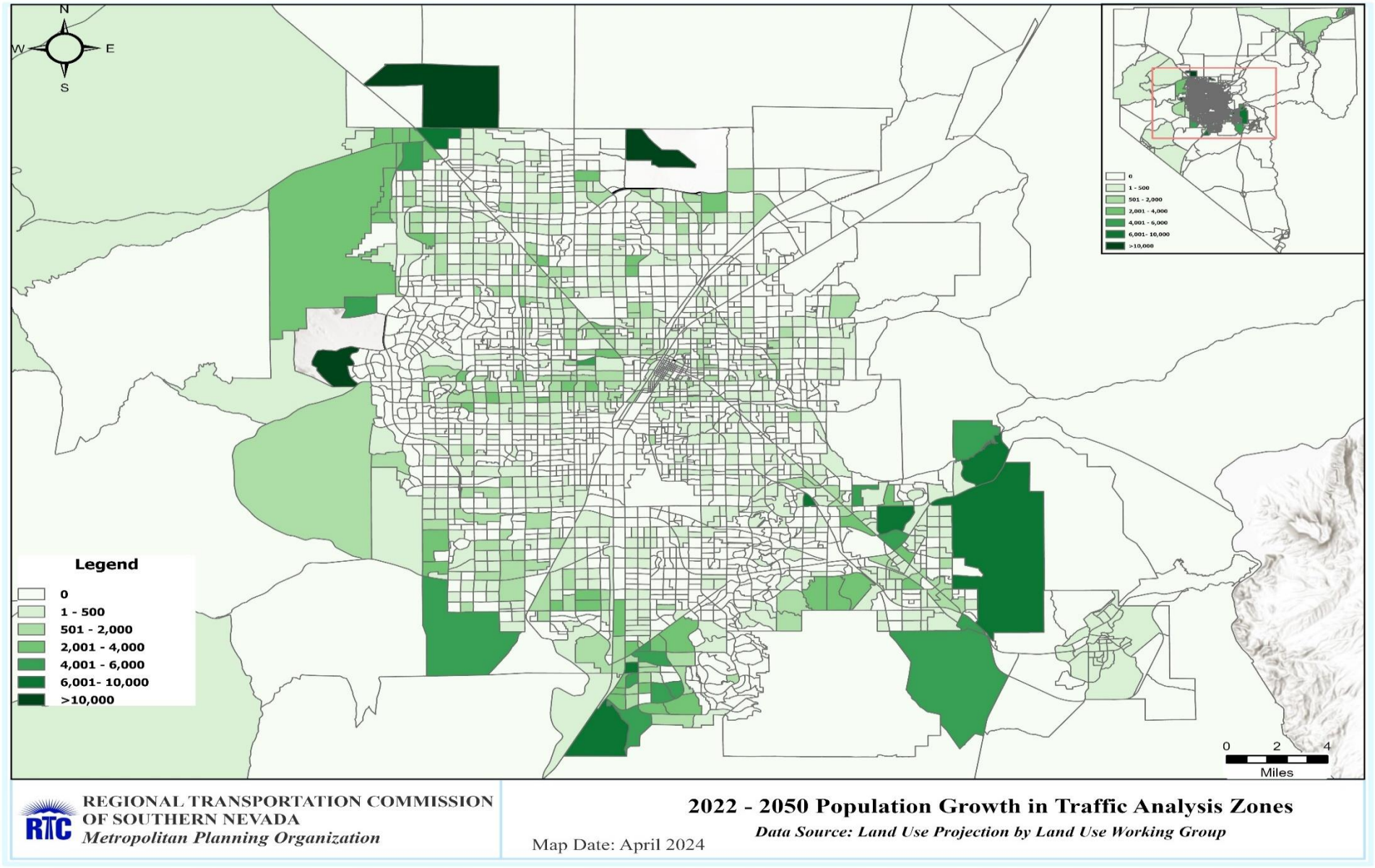
Map 14 -- 2040-2045 Population Growth in Traffic Analysis Zones



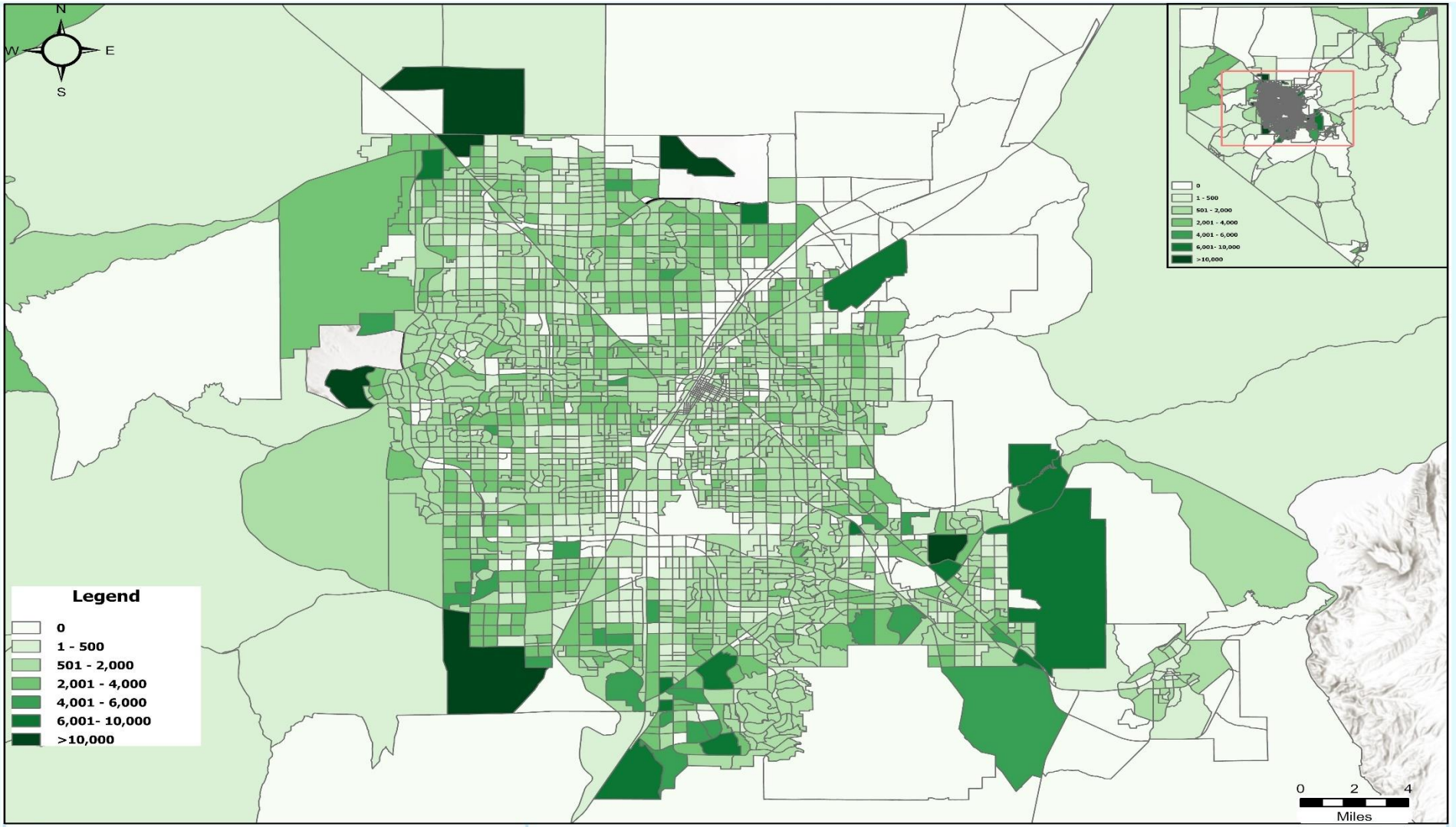
Map 15 -- 2045-2050 Population Growth in Traffic Analysis Zones



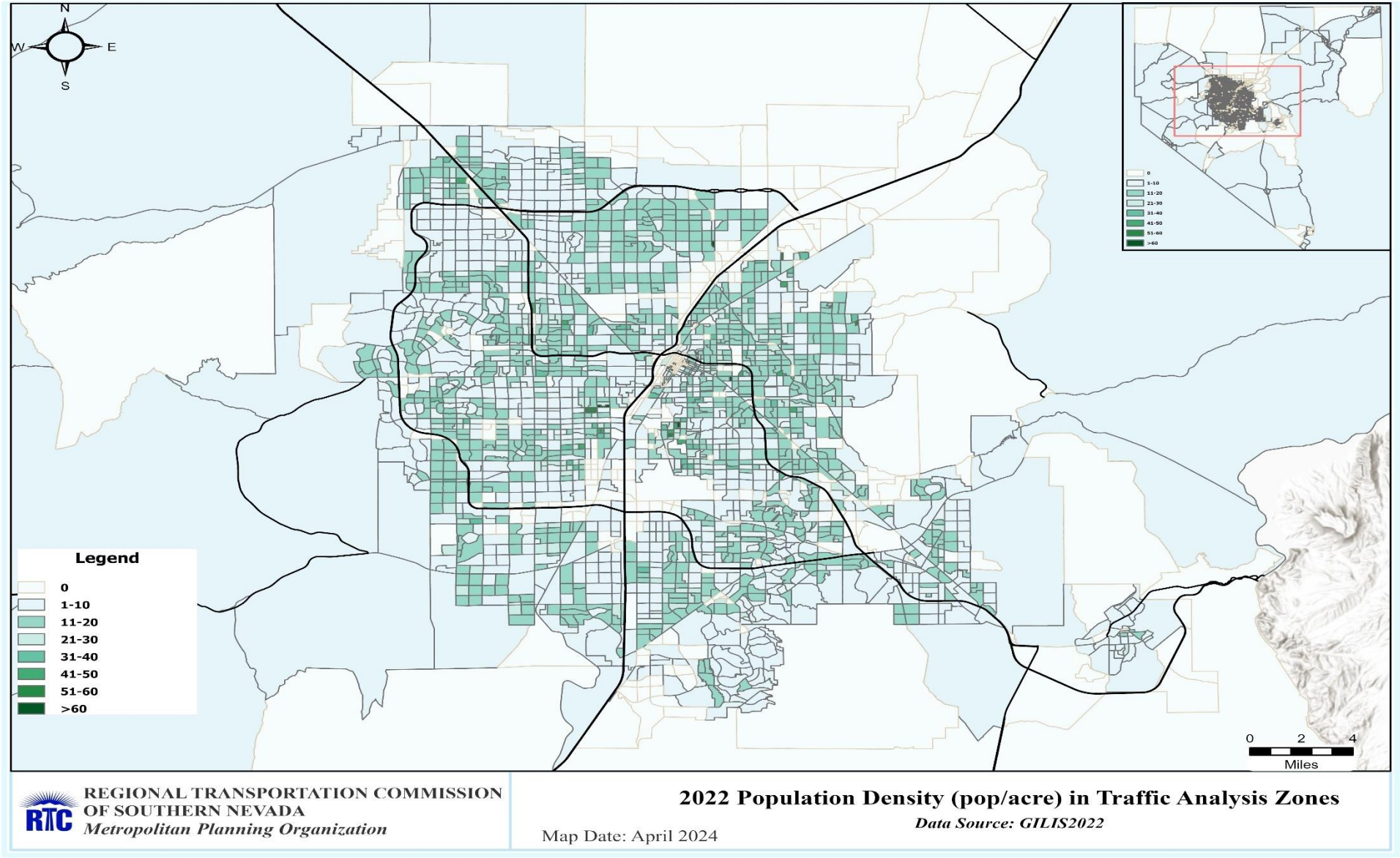
Map 16 -- 2022-2050 Total Population Growth in Traffic Analysis Zones



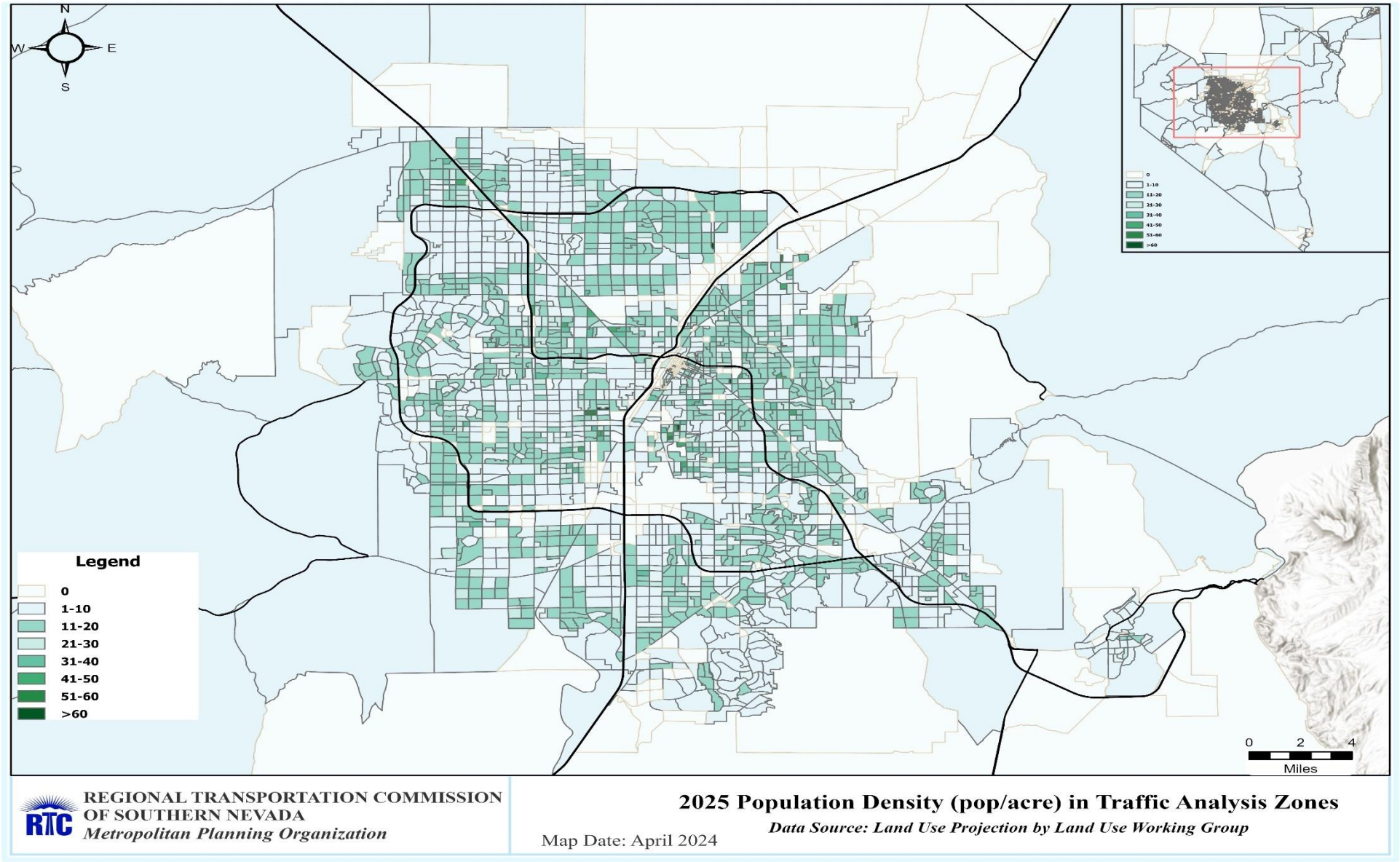
Map 17 -- 2050 Total Population in Traffic Analysis Zones



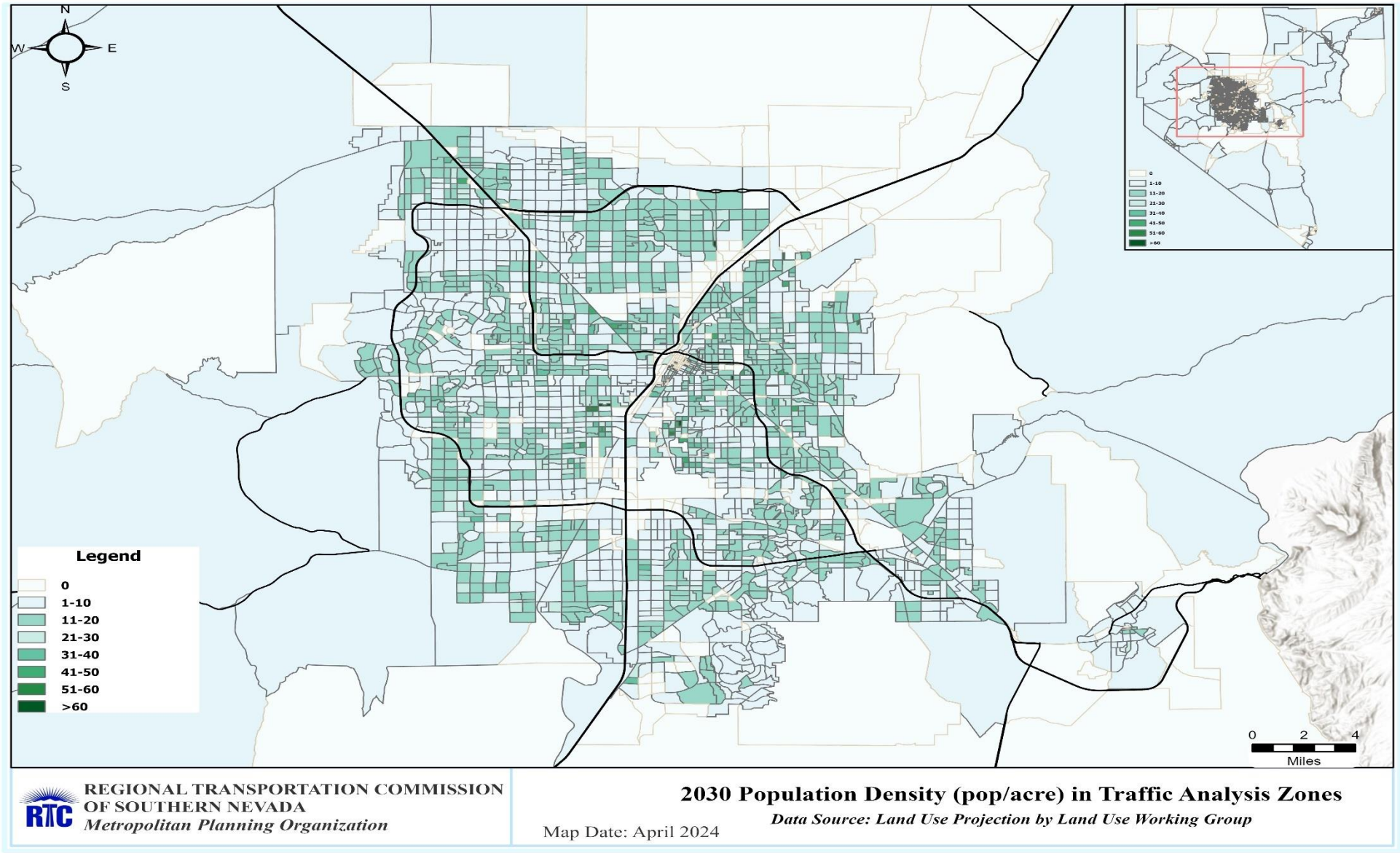
Map 18 -- 2022 Population Density (Pop/Acre) in Traffic Analysis Zones



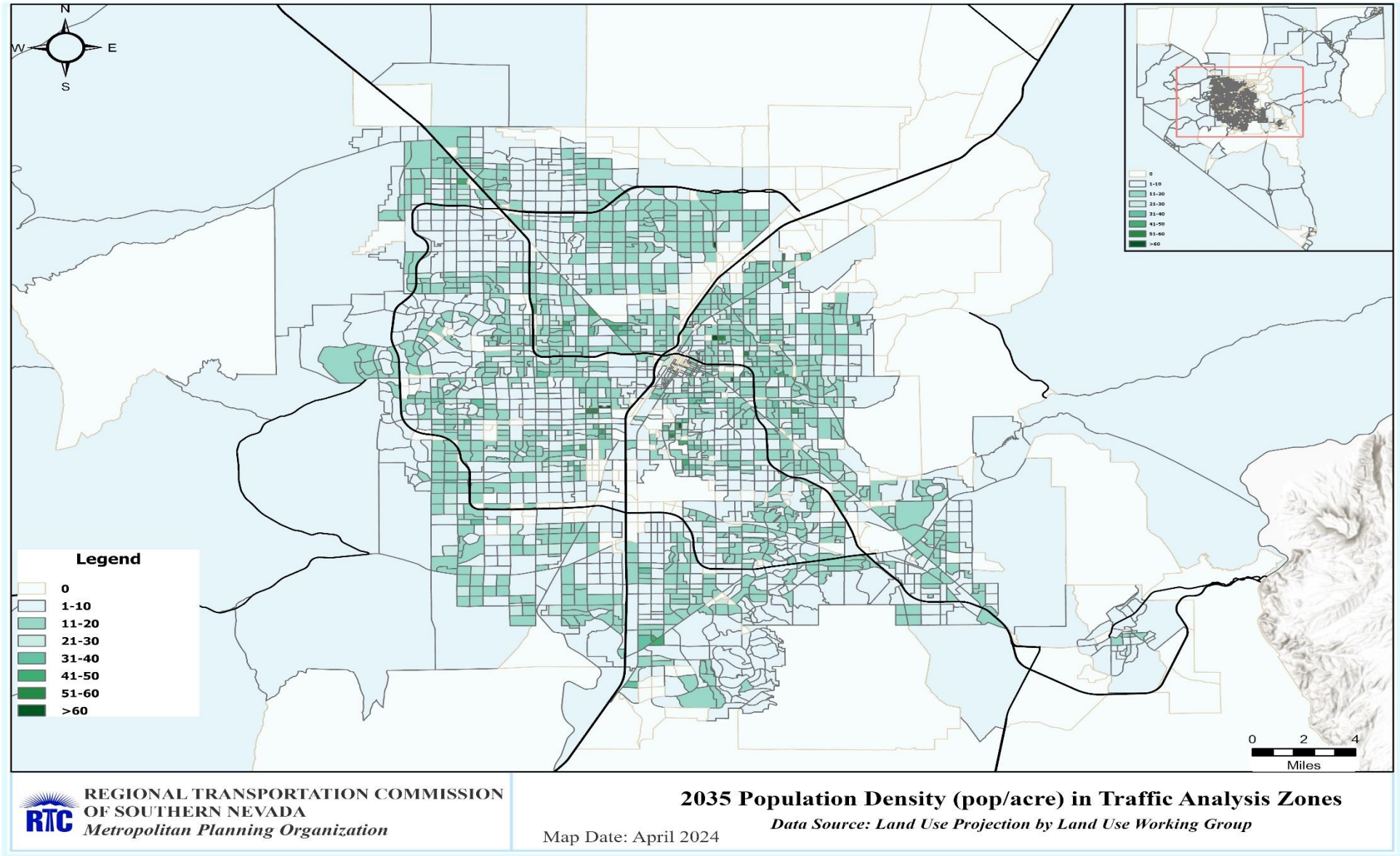
Map 19 -- 2025 Population Density (Pop/Acre) in Traffic Analysis Zones



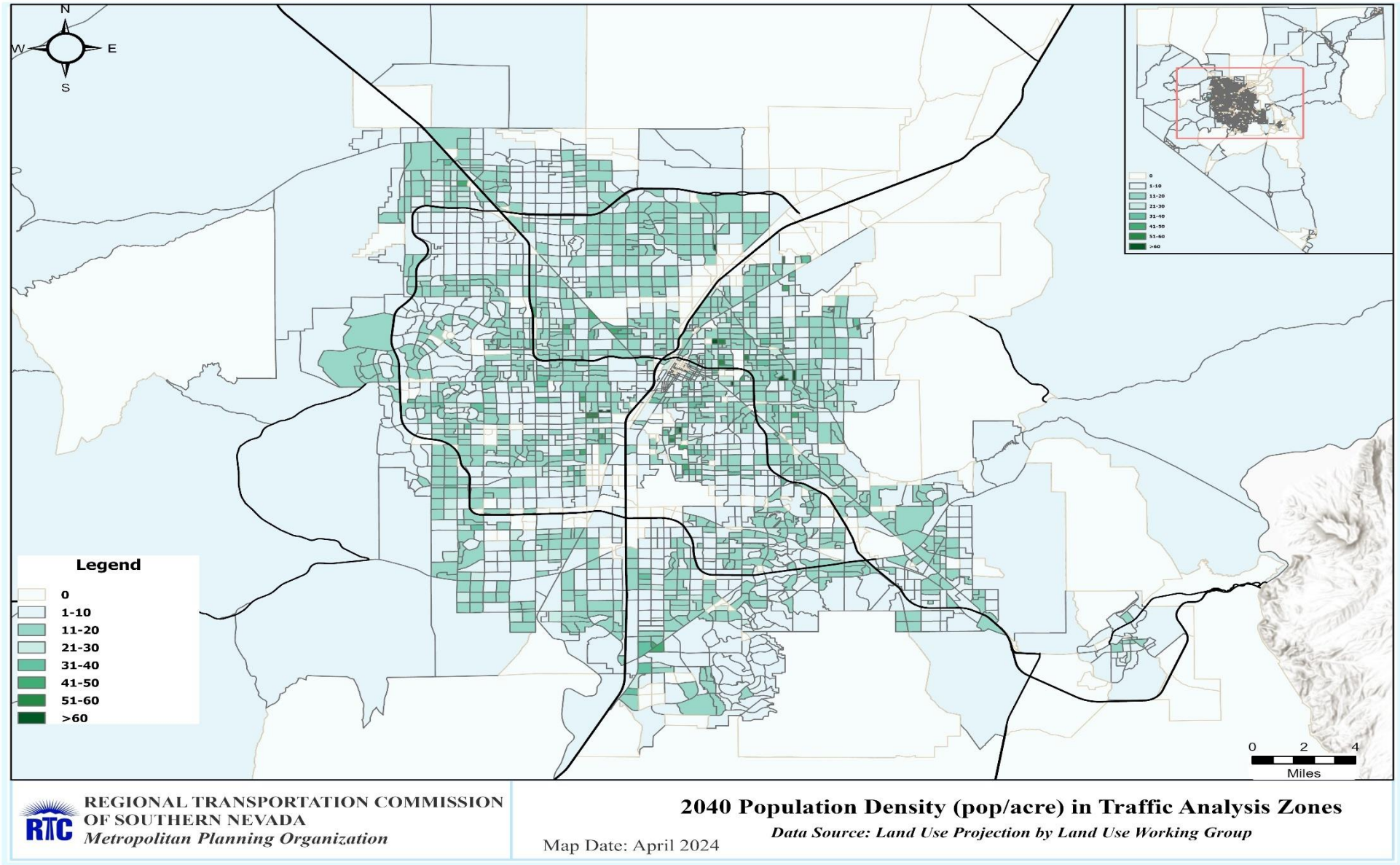
Map 20 -- 2030 Population Density (Pop/Acre) in Traffic Analysis Zones



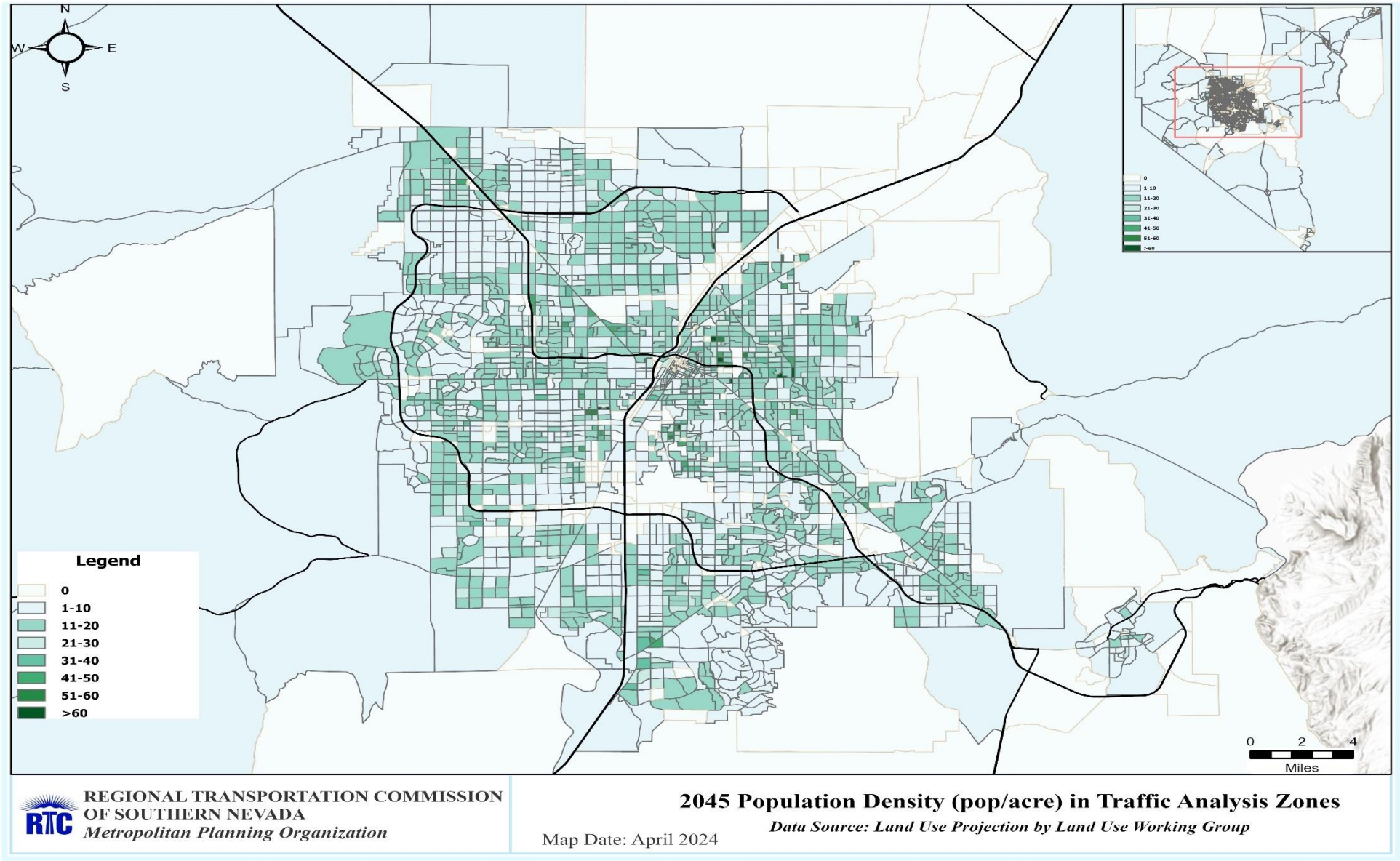
Map 21 -- 2035 Population Density (Pop/Acre) in Traffic Analysis Zones



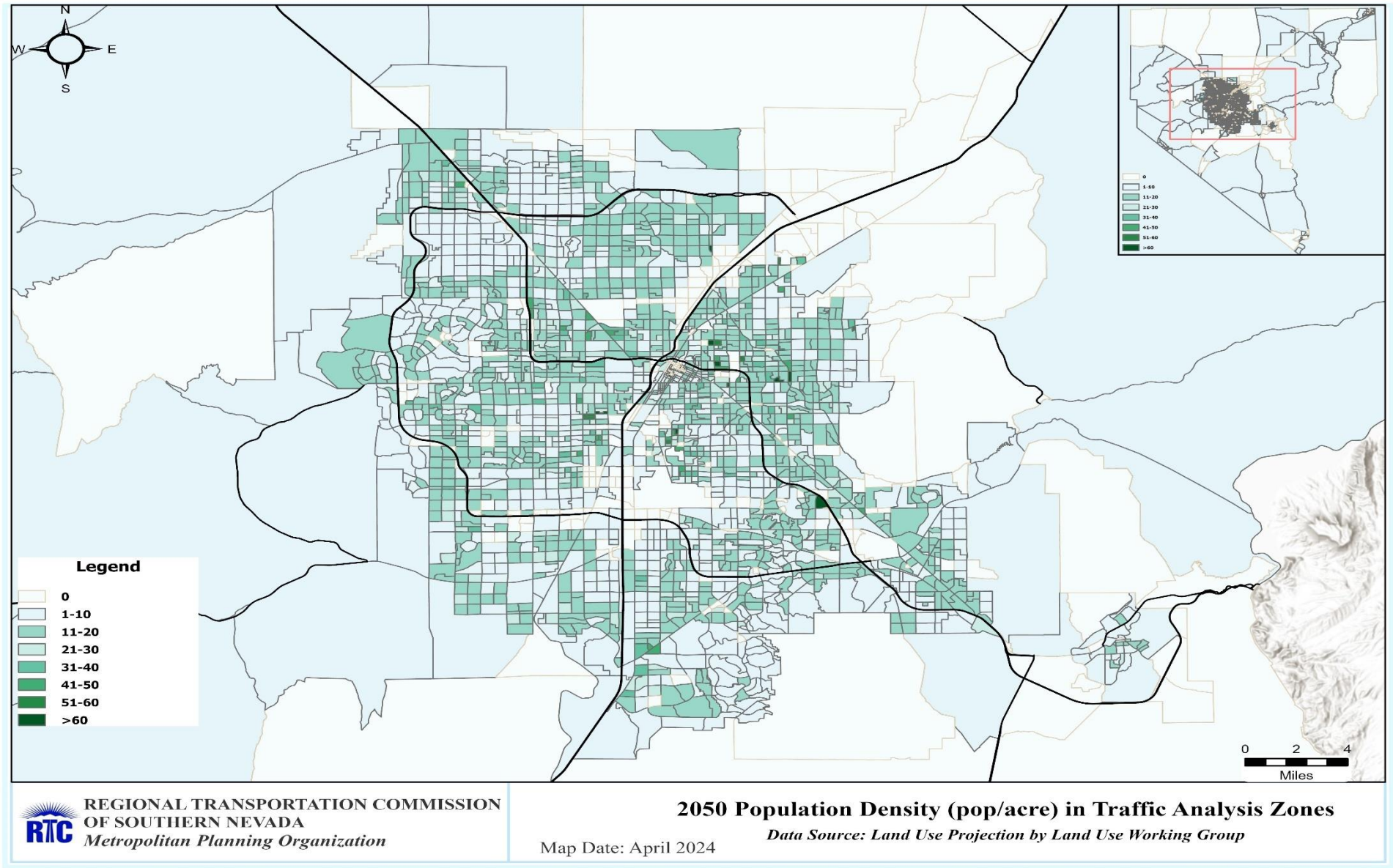
Map 22 -- 2040 Population Density (Pop/Acre) in Traffic Analysis Zones



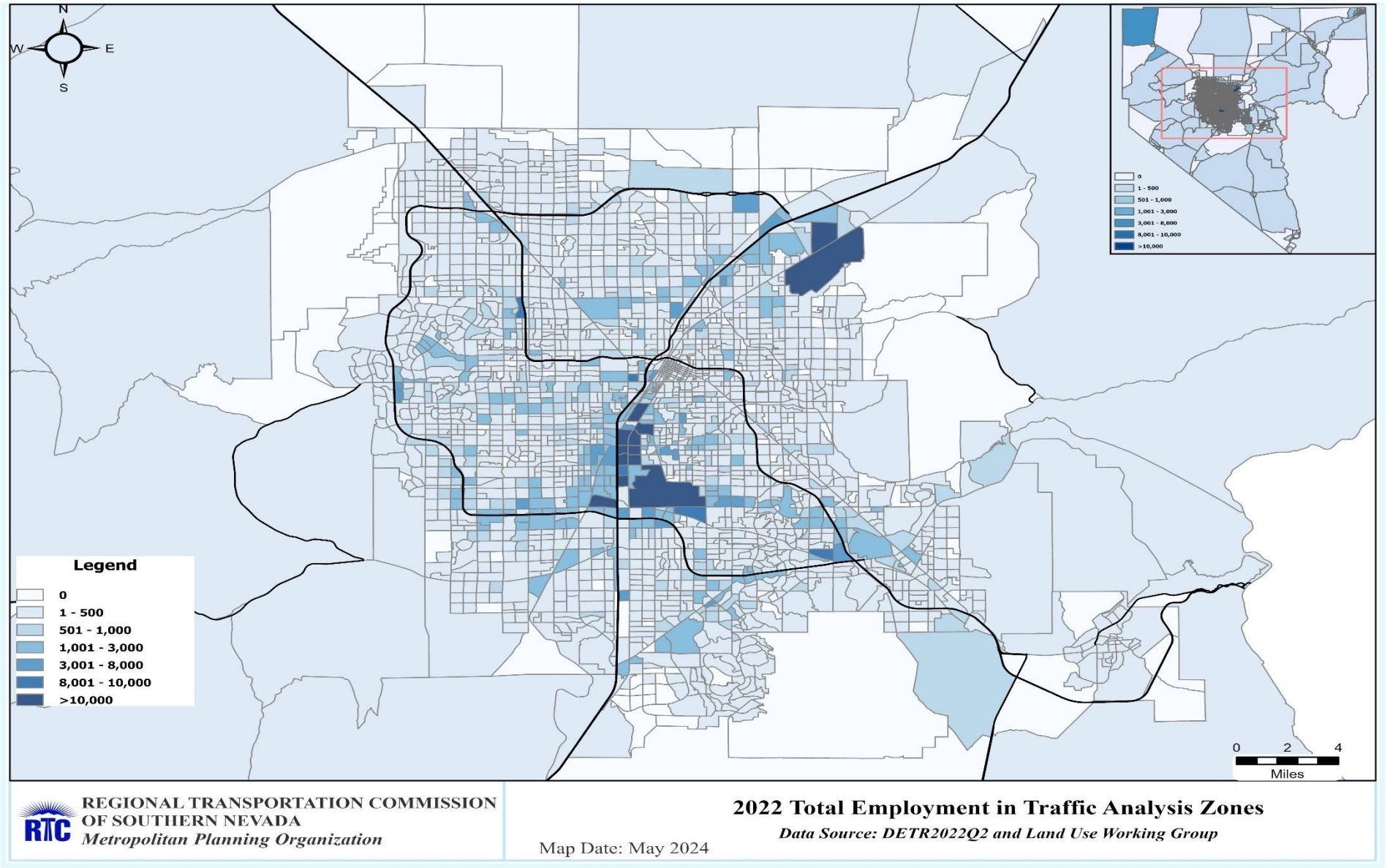
Map 23 -- 2045 Population Density (Pop/Acre) in Traffic Analysis Zones



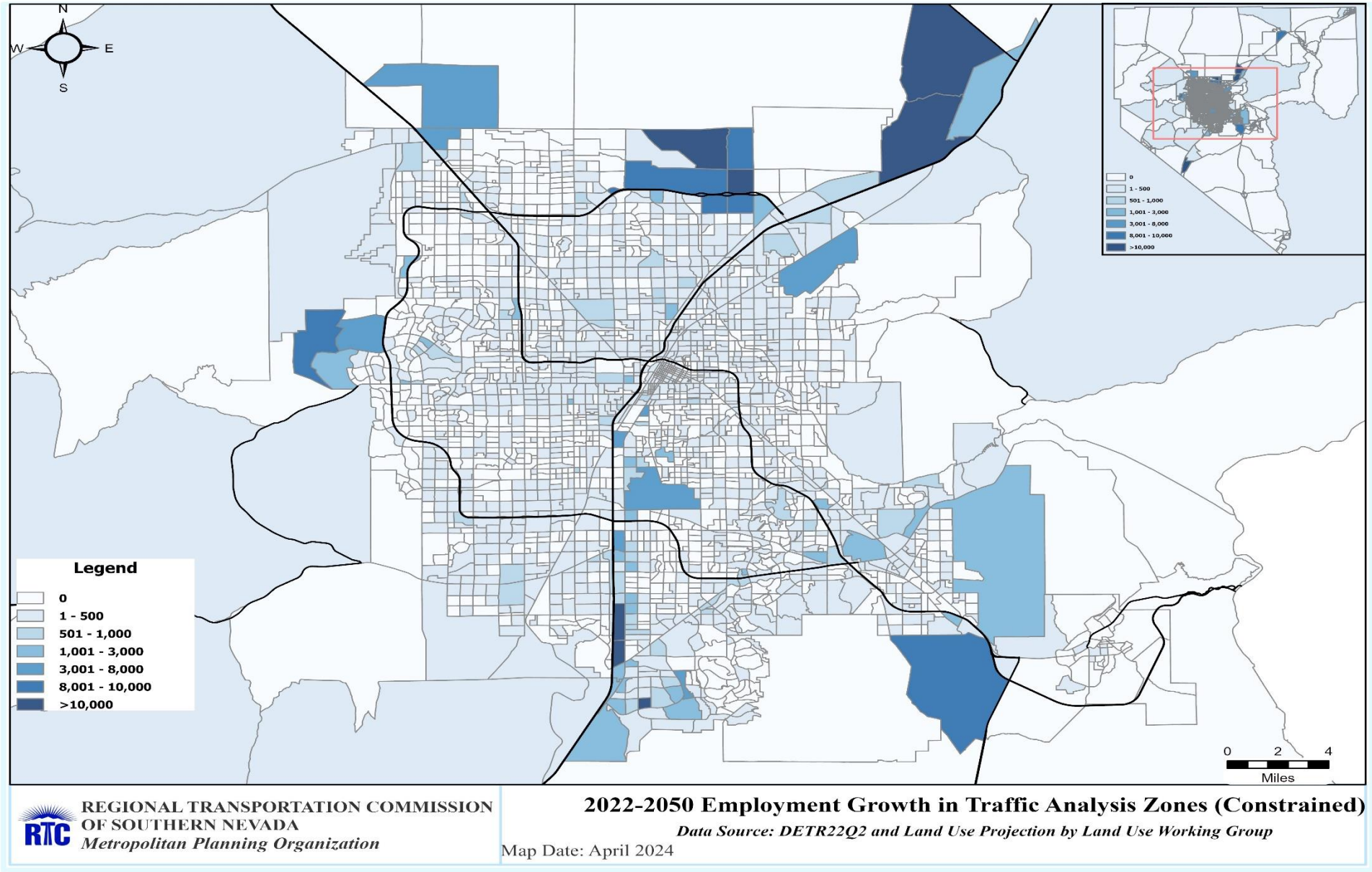
Map 24 -- 2050 Population Density (Pop/Acre) in Traffic Analysis Zones



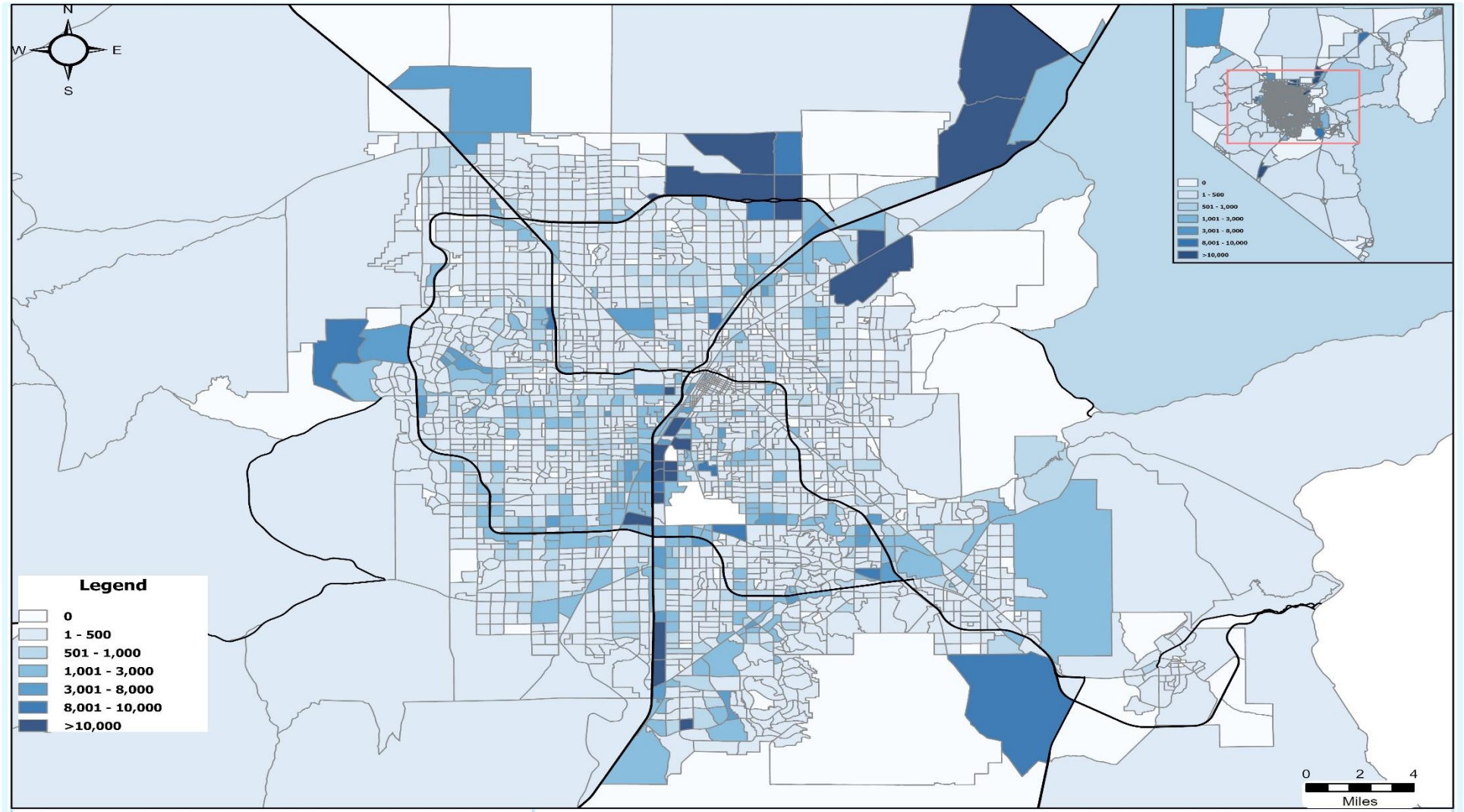
Map 25 -- 2022 Total Employment in Traffic Analysis Zones



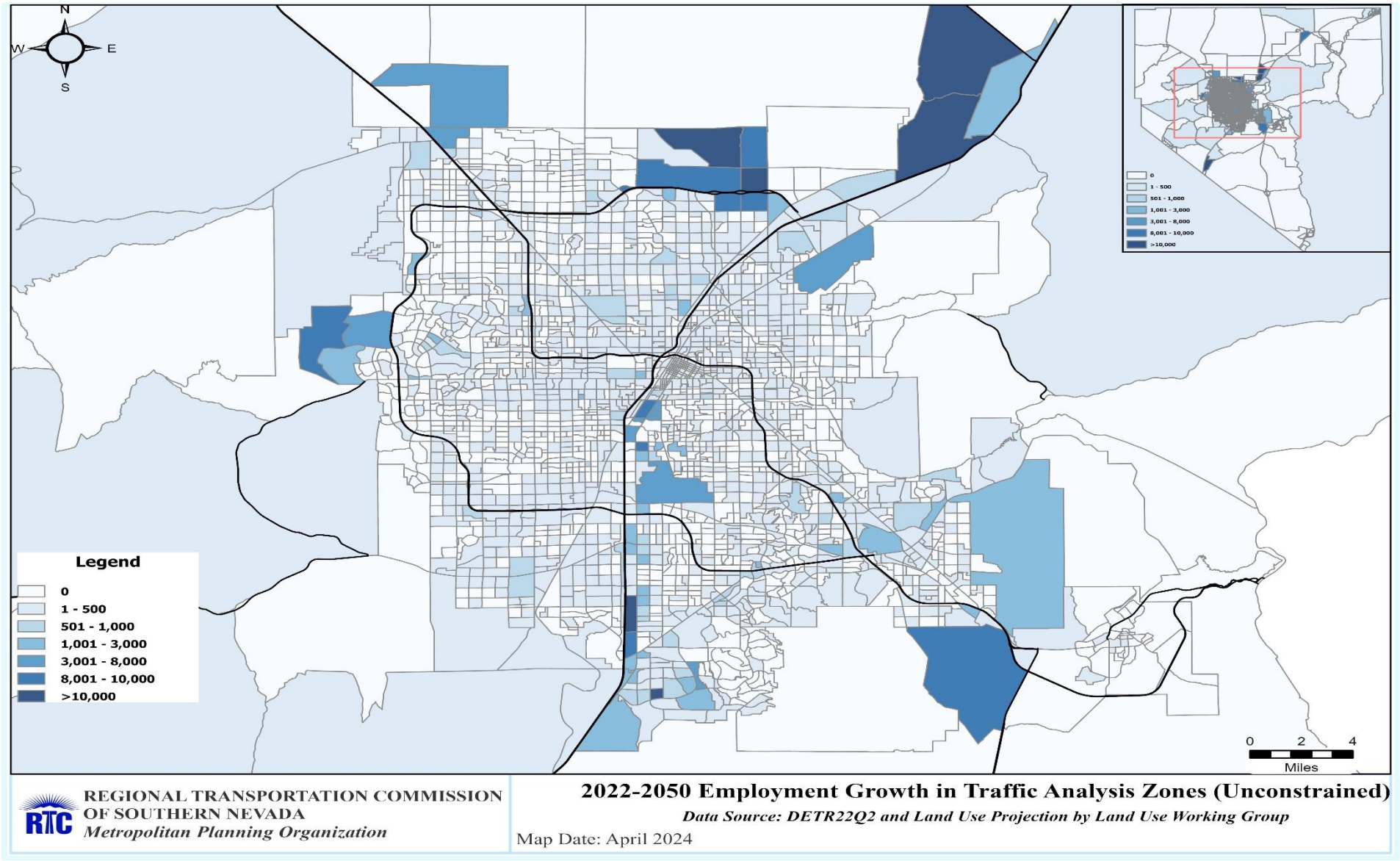
Map 26 -- 2022-2050 Total Employment Growth in Traffic Analysis Zone (Constrained)



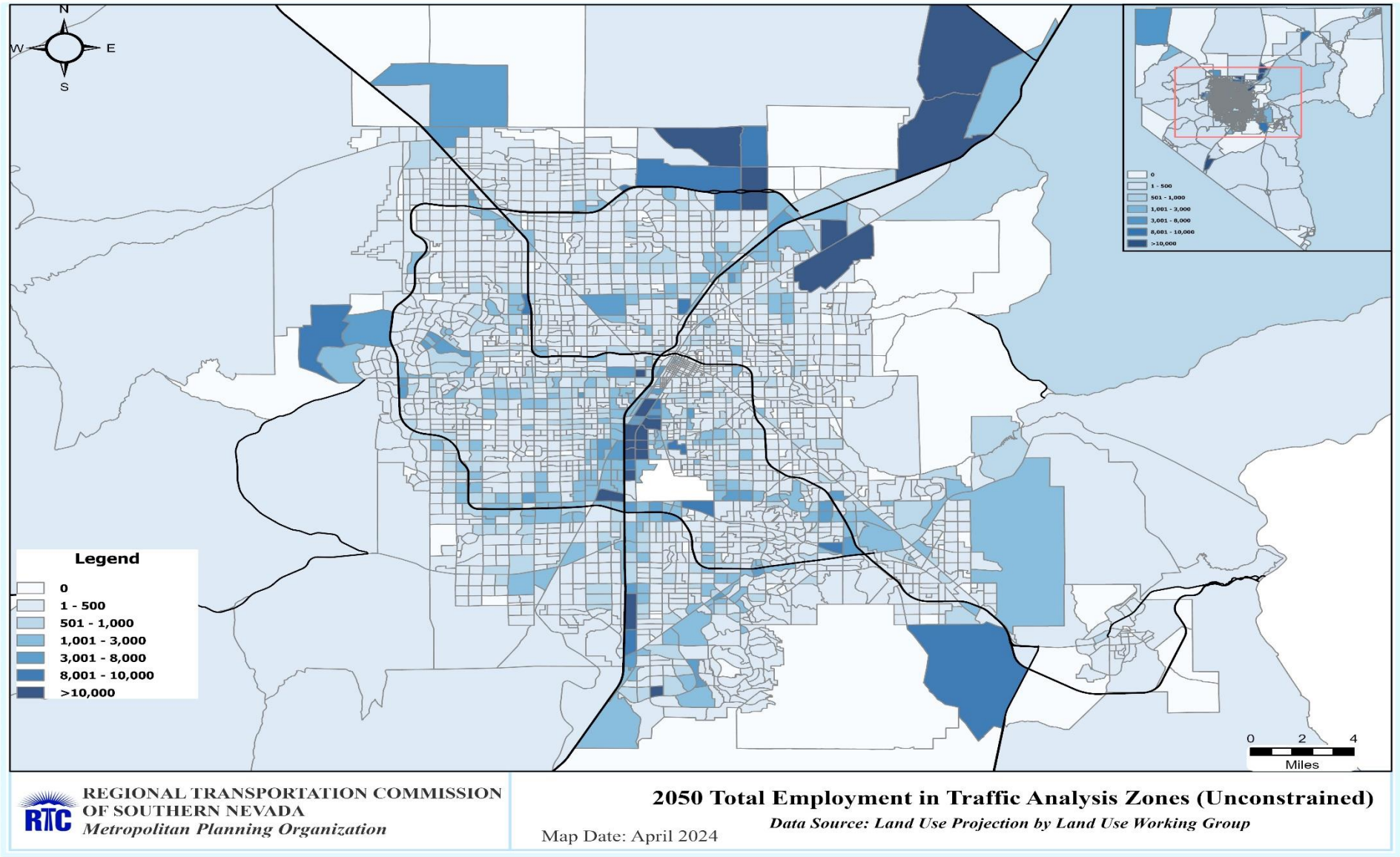
Map 27 -- 2050 Total Employment in Traffic Analysis Zones (Constrained)



Map 28 -- 2022-2050 Total Employment Growth in Traffic Analysis Zone (Unconstrained)



Map 29 -- 2050 Total Employment in Traffic Analysis Zone (Unconstrained)



ATTACHMENT 1: PARSONS' MEMO ON EMPLOYMENT ESTIMATES

Memorandum

To: Hui Shen and Lijuan Su, RTC

From: Greg Gaides and Sathya Thyagaraj, Parsons

Date: July 31, 2024

Subject: Final Clark County Employment Forecasts 2022-2050

684167

Employment forecasts for Clark County have been prepared based on updated population forecasts prepared by the Center for Business and Economic Research (CBER), historical employment relationships dependent on population, and projections regarding the regional economic outlook for Clark County, Nevada and the hotel accommodation and gaming industry. These forecasts update employment projections prepared for the 2007 Planning Variable data set, documented in a memorandum to the Regional Transportation Commission of Southern Nevada (RTC) dated January 21, 2008; the employment projections prepared for the 2010 Planning Variable data set, documented in a memorandum to RTC dated October 28, 2011; the employment projections prepared for the 2014 Planning Variable data set, documented in a memorandum to RTC dated January 26, 2016, and most recently, the employment projections prepared for the 2019 Planning Variable data set, documented in a memorandum to RTC dated June 25, 2020.

Like the prior forecasts, this edition reflects employment absorption and the acreage required to support future employment growth. This forecast is demand based rather than land availability based. Additionally, this edition is for the traffic analysis zone (TAZ) system developed for all of Clark County, consistent with the forthcoming revised RTC Travel Demand Forecast (TDF) Model.

BASE YEAR EMPLOYMENT AND HISTORICAL EMPLOYMENT TRENDS

Base year employment was established by RTC staff based on geocoded employer records obtained from the Nevada Department of Employment Training and Rehabilitation (DETR). Second quarter June 2022 records were used for this analysis and represent the entirety of Clark County, consistent with the new RTC TDF Model currently under development. The DETR dataset utilized for this project includes physical address location which facilitates geocoding the employment records. The dataset also reports the number of employees at each location as a single number. In past years, the DETR dataset utilized by RTC reported the number of employees at each location as a range, thereby requiring RTC to use the average of the range reported as the employee estimate for each location.

The DETR Information Development & Processing Division maintains historical data regarding Las Vegas Metropolitan Statistical Area (MSA) (Clark County) workers covered by unemployment insurance. Covered employment does not include workers in the sectors of farming, agricultural services, forestry, or fisheries. Uncovered employment also includes self-employed non-agricultural workers, some domestic workers, members of the Armed Forces stationed in the United States, and some other workers.

The DETR maintains the employment data on an industry basis. These industries can be grouped to approximately correspond with the employment categories used in the TDF model. Table 1 summarizes 33 years of historical DETR "covered" employment data, grouped into categories approximating those used in the TDF model.

These employment data, when converted to an employment per capita basis, display very consistent employment trends. Figure 1 illustrates the DETR industry-covered employment ratios for 1990 through 2022. Figure 2 reports the same information at an expanded scale through excluding the total of all industries.

The graphics illustrate that the growth trend in the hospitality industry is negative relative to overall population growth in Clark County. The graphics also illustrate that growth in most of the other job categories is remarkably flat or constant when viewed on a per capita basis. Exceptions include Construction (NAICS 123) which is up and down with the local economy, and the following categories which overall exhibit slight increases in their ratios over the 33-year analysis period: Food Services and Drinking Places (NAICS 722), Education and Health Services (NAICS 61-62), and Administrative, Support and Waste Management (NAICS 56).

Table 1: Clark County Historical Non-Farm Employment (thousands)

Industry	Job Category	NAICS 2 or 3-Digit	July 2022	July 2021	July 2020	July 2019	July 2018	July 2017	July 2016	July 2015	July 2014	July 2013	July 2012	July 2011	July 2010	July 2009	July 2008	July 2007	July 2006
Arts, Entertainment and Recreation	Hotel2	71	27.3	23.0	16.8	24.4	23.9	22.0	21.7	19.9	19.4	18.0	17.9	17.2	15.8	16.2	18.6	18.9	18.4
Accomodation	Hotel1	721	139.2	126.6	94.8	165.6	167.6	166.9	167.6	169.1	171.7	167.0	166.5	167.5	164.4	163.1	175.1	180.8	184.7
Food Services and Drinking Places	Hotel2	722	114.9	105.3	80.3	107.0	103.7	101.9	99.9	94.8	89.8	86.6	80.0	77.6	74.6	72.2	77.6	74.2	71.6
			281.4	**254.9**	**191.9**	**296.9**	**295.2**	**290.8**	**289.1**	**283.7**	**280.9**	**271.5**	**264.4**	**262.3**	**254.8**	**251.5**	**271.3**	**273.9**	**274.7**
Natural Resources & Mining	Industrial1	11 , 21	2.6	2.4	1.9	2.6	2.4	1.6	0.8	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5
Construction	Industrial1	23	75.8	69.7	66.3	70.1	64.1	58.7	55.1	50.6	45.3	40.9	37.1	37.9	45.4	61.5	95.7	103.8	110.6
Durable Goods	Industrial2	31-32	15.5	13.6	12.4	13.9	13.3	12.4	12.1	11.5	11.3	11.8	11.3	10.9	11.2	12.2	16.2	17.0	17.6
Non-durable Goods	Industrial2	33	12.6	11.1	10.1	11.3	10.8	10.1	9.5	8.9	8.6	8.3	8.2	7.9	7.6	8.4	8.7	9.1	8.9
Trans, Warehousing & Utilities	Industrial3	22, 48-49	50.6	46.0	39.9	44.0	43.3	42.7	41.4	40.2	38.0	36.4	36.2	35.1	34.0	34.6	37.2	35.9	34.4
			157.0	**142.8**	**130.7**	**141.8**	**133.9**	**125.5**	**118.9**	**111.7**	**103.7**	**97.8**	**93.3**	**92.1**	**98.5**	**117.2**	**158.3**	**166.4**	**172.0**
Administrative & Support and Waste Mgt.	Non Retail	56	84.0	76.3	65.3	82.5	78.6	75.0	74.0	67.6	60.5	58.4	55.3	54.3	51.4	48.3	58.7	62.4	65.4
Other Services	Non Retail	81 & 99	29.3	27.5	24.3	28.4	27.7	27.1	26.2	24.0	23.7	22.2	22.3	21.5	20.8	19.7	22.8	22.6	22.1
			113.3	**103.7**	**89.6**	**110.9**	**106.3**	**102.1**	**100.3**	**91.6**	**84.3**	**80.6**	**77.5**	**75.8**	**72.2**	**68.0**	**81.5**	**85.0**	**87.5**
Information	Office1	51	13.4	11.8	9.5	12.3	12.1	11.1	11.1	10.2	10.2	10.0	9.2	9.1	9.4	9.6	10.8	11.2	11.5
Finance and Insurance	Office1	52	32.3	30.6	28.4	28.8	27.5	26.8	25.5	24.3	23.3	23.4	23.0	22.2	22.9	24.4	26.5	28.2	29.6
Real Estate and Rental and Leasing	Office1	53	22.5	20.1	18.2	21.8	21.9	21.1	20.5	20.0	18.4	17.7	16.9	17.0	16.8	17.4	20.9	21.9	21.1
Professional, Scientific and Technical	Office1	54	49.6	46.3	43.7	45.3	44.1	40.7	39.0	37.3	35.8	34.5	32.6	32.6	32.8	33.1	37.2	38.2	38.0
Management of Companies	Office1	55	24.1	20.6	18.2	22.9	22.5	20.9	19.8	18.4	16.8	15.9	15.3	13.9	14.0	13.3	13.9	12.7	10.7
Education and Health Services	Office2	61-62	114.1	111.6	104.8	103.0	97.0	93.9	89.8	84.9	79.9	76.4	73.7	71.6	69.0	67.2	66.0	63.2	59.2
Government	Office3	100	110.0	105.8	100.0	107.1	103.2	101.1	88.3	86.4	84.1	82.4	82.2	82.6	88.3	89.3	92.4	89.9	84.9
			366.0	**346.8**	**322.8**	**341.2**	**328.2**	**315.4**	**293.9**	**281.6**	**268.5**	**260.1**	**253.1**	**249.0**	**253.1**	**254.3**	**267.8**	**265.3**	**254.9**
Wholesale	Retail	42	25.7	23.9	22.0	24.7	23.6	22.8	21.6	21.5	21.1	20.5	20.2	20.3	20.4	21.2	24.1	24.3	23.7
Retail	Retail	44-45	109.5	106.9	99.9	108.6	109.0	106.6	106.0	105.8	101.8	98.8	96.5	93.1	92.5	90.5	99.4	99.3	96.9
			135.1	**130.7**	**121.8**	**133.3**	**132.7**	**129.5**	**127.6**	**127.3**	**122.9**	**119.3**	**116.7**	**113.4**	**112.9**	**111.7**	**123.4**	**123.5**	**120.6**
Total All Industries			**1052.8**	**979.0**	**856.9**	**1024.1**	**996.2**	**963.3**	**929.9**	**895.9**	**860.3**	**829.3**	**805.0**	**792.5**	**791.5**	**802.6**	**902.3**	**914.2**	**909.7**

Industry	Job Category	NAICS 2 or 3-Digit	July 2005	July 2004	July 2003	July 2002	July 2001	July 2000	July 1999	July 1998	July 1997	July 1996	July 1995	July 1994	July 1993	July 1992	July 1991	July 1990
Arts, Entertainment and Recreation	Hotel2	71	18.2	18.6	18.7	17.0	17.2	17.1	16.1	15.8	15.3	15.0	13.6	13.3	12.4	11.9	11.7	11.8
Accomodation	Hotel1	721	182.1	168.6	165.4	163.2	172.0	170.5	165.2	145.4	141.0	135.8	127.9	122.5	99.5	97.9	97.3	97.7
Food Services and Drinking Places	Hotel2	722	67.3	62.6	56.0	53.5	50.6	47.9	44.6	38.9	38.0	35.9	32.3	29.1	24.9	22.7	22.7	22.3
			267.6	**249.8**	**240.1**	**233.7**	**239.8**	**235.5**	**225.9**	**200.1**	**194.3**	**186.7**	**173.8**	**164.9**	**136.8**	**132.5**	**131.7**	**131.8**
Natural Resources & Mining	Industrial1	11 , 21	0.5	0.4	0.4	0.3	0.5	0.6	0.6	0.7	0.6	0.6	0.5	0.5	0.5	0.3	0.5	0.3
Construction	Industrial1	23	103.1	90.6	75.7	70.6	70.3	68.2	66.0	68.6	64.5	57.6	47.0	41.4	36.4	28.3	29.7	36.5
Durable Goods	Industrial2	31-32	16.2	15.4	14.5	13.8	13.4	12.4	11.6	11.3	11.3	10.7	9.5	8.2	7.5	6.3	5.8	6.1
Non-durable Goods	Industrial2	33	8.2	8.0	7.5	7.5	7.7	7.7	7.7	7.4	7.0	6.9	6.5	5.9	5.7	5.2	4.9	4.4
Trans, Warehousing & Utilities	Industrial3	22, 48-49	31.9	30.3	28.0	28.6	29.2	27.6	25.5	23.3	22.2	21.1	19.6	18.2	16.3	15.4	15.6	14.1
			159.9	**144.7**	**126.1**	**120.8**	**121.1**	**116.5**	**111.4**	**111.3**	**105.6**	**96.9**	**83.1**	**74.2**	**66.4**	**55.5**	**56.5**	**61.4**
Administrative & Support and Waste Mgt.	Non Retail	56	61.3	56.3	50.1	47.1	47.0	45.1	40.3	37.1	34.7	30.4	27.0	25.3	20.1	19.9	18.0	17.0
Other Services	Non Retail	81 & 99	20.3	24.2	20.5	20.4	20.1	18.8	18.2	16.5	16.6	14.9	13.7	12.9	11.8	11.4	11.7	11.0
			81.5	**80.5**	**70.6**	**67.5**	**67.1**	**63.9**	**58.5**	**53.6**	**51.3**	**45.3**	**40.7**	**38.2**	**31.9**	**31.3**	**29.7**	**28.0**
Information	Office1	51	10.2	10.4	10.2	12.0	13.2	14.0	12.5	10.2	9.3	8.3	7.9	7.1	6.5	6.1	5.8	6.2
Finance and Insurance	Office1	52	30.2	28.5	27.2	25.1	25.2	23.5	22.3	20.9	19.6	19.3	17.5	16.0	14.6	13.2	12.5	11.0
Real Estate and Rental and Leasing	Office1	53	19.4	18.0	16.7	16.5	15.9	14.8	14.5	14.3	14.5	12.9	12.1	11.4	10.1	10.1	9.8	10.1
Professional, Scientific and Technical	Office1	54	33.4	31.3	29.3	27.0	26.0	23.1	21.7	20.7	19.2	18.4	17.5	16.7	15.0	14.3	14.9	15.1
Management of Companies	Office1	55	8.4	7.2	5.7	5.4	5.1	4.3	4.1	3.6	3.7	3.5	3.1	3.1	3.0	3.0	2.9	2.7
Education and Health Services	Office2	61-62	57.4	53.8	50.1	47.8	45.0	40.6	37.5	35.2	33.3	31.7	29.8	27.8	26.0	24.1	22.9	20.3
Government	Office3	100	81.1	77.5	75.1	71.7	68.6	65.9	62.0	58.6	53.8	50.4	47.6	45.1	43.0	42.7	38.8	36.0
			240.1	**226.7**	**214.3**	**205.5**	**199.0**	**186.2**	**174.6**	**163.5**	**153.4**	**144.5**	**135.5**	**127.2**	**118.2**	**113.5**	**107.6**	**101.4**
Wholesale	Retail	42	22.4	20.5	19.9	19.9	19.8	17.8	17.1	16.5	15.7	14.9	13.4	12.0	10.2	10.4	10.7	10.7
Retail	Retail	44-45	93.7	88.7	83.0	80.0	79.1	73.5	69.2	65.5	60.4	56.1	51.4	48.1	43.9	44.0	42.8	41.5
			116.1	**109.2**	**102.9**	**99.9**	**98.9**	**91.3**	**86.3**	**82.0**	**76.1**	**71.0**	**64.8**	**60.1**	**54.1**	**54.4**	**53.5**	**52.2**
Total All Industries			**865.1**	**810.9**	**754.0**	**727.4**	**725.9**	**693.4**	**656.7**	**610.5**	**580.7**	**544.4**	**497.9**	**464.6**	**407.4**	**387.2**	**379.0**	**374.8**

Source: Nevada and Metro CES Reports—1995 to Current, Research & Analysis Bureau, Nevada Department of Employment, Training & Rehabilitation (*http://www.nevadaworkforce.com/?PAGEID=4&SUBID=159*) *July 2022*

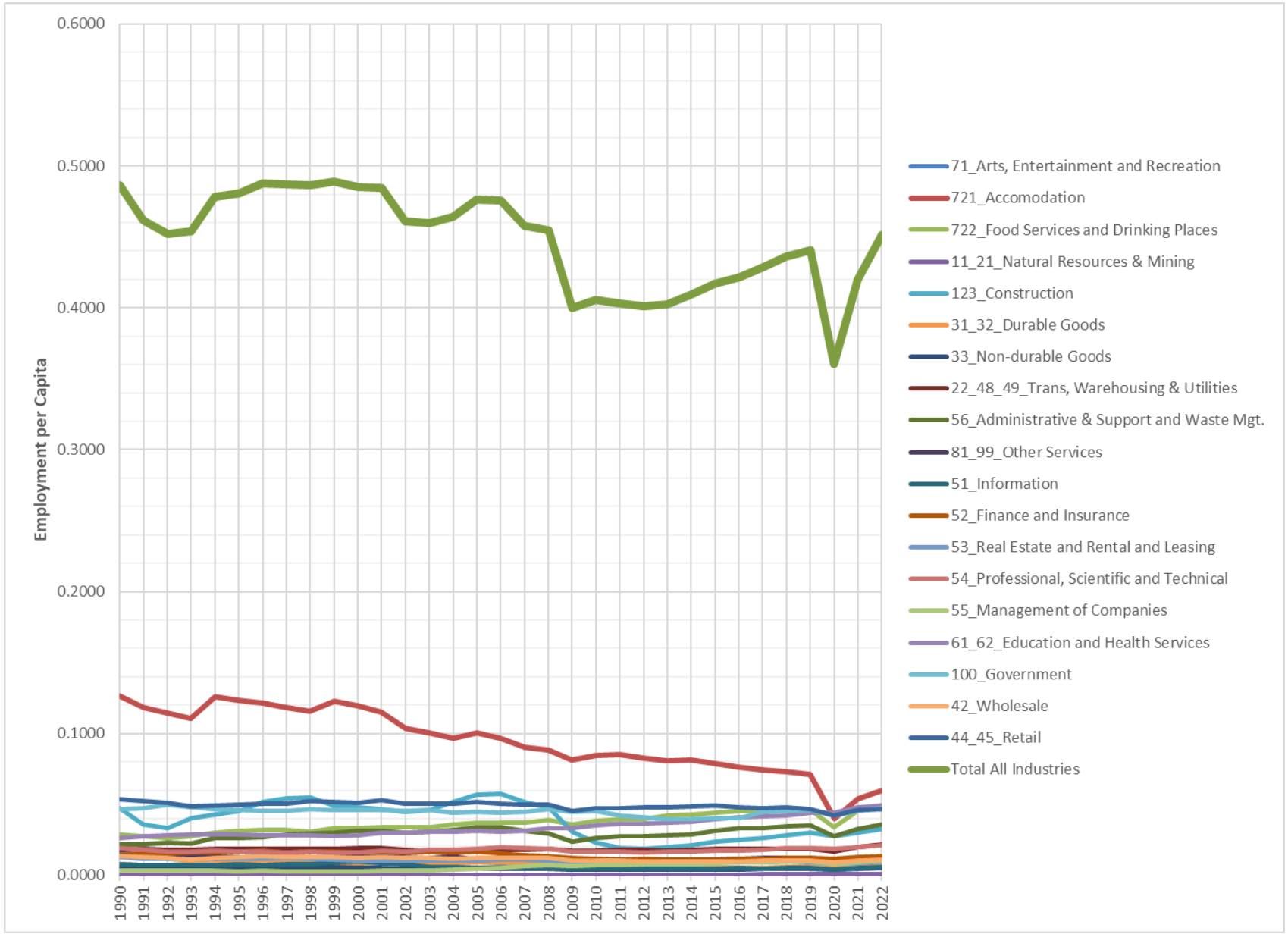


Figure 1: Employment/Population Ratio by Industry (NAICS), including Total, 1990-2022

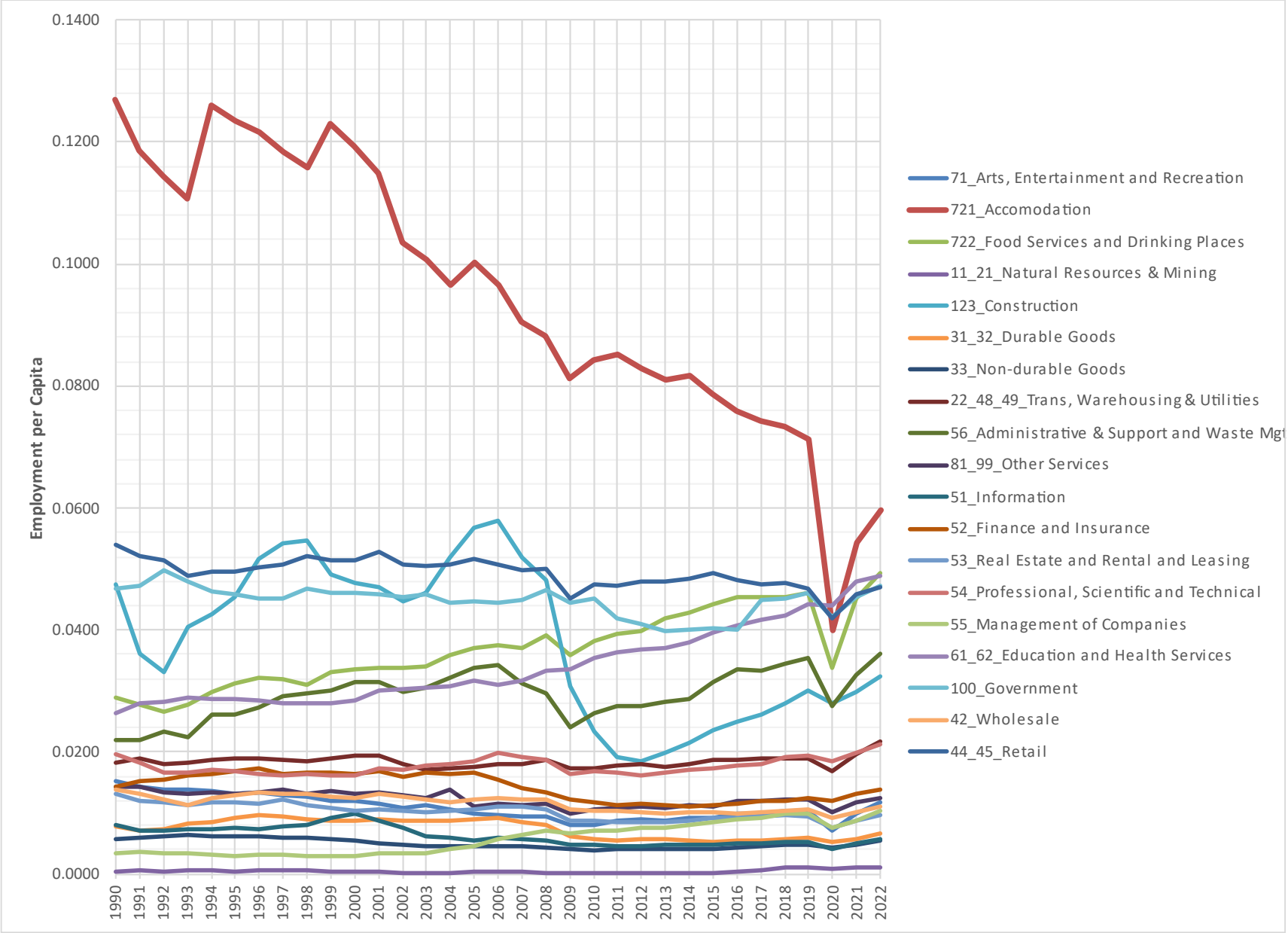


Figure 2: Employment/Population Ratio by Industry (NAICS), Excluding Total, 1990-2022

POPULATION FORECASTS

Population forecasts are prepared annually by the CBER at the University of Nevada, Las Vegas. The projection issued in May 2023, covering the period from 2015 through 2050, was used for this analysis.[1]

Table 2 compares the fourteen most recent population forecasts prepared by CBER, omitting a 2020-release due to the COVID-19 pandemic. The table indicates that the population forecast, which was more conservative through the recession, is increasing as the economy improves, but remains far below earlier forecasts prepared by CBER. Each successive forecast post-COVID-19 has exhibited a slower rate of population growth than the previous year. This latest 2023 edition has population forecasts in the 2030-2040 timeframe that is one-to-three percent below 2019-issued forecasts. The 2019- and 2023-issued forecasts are essentially equal by 2045, and the latest 2023-issued forecast's population is one percent higher than the 2019-based forecast.

[1] 2023-2080 Population Forecasts, Long-Term Projections for Clark County, Nevada, Prepared by Center for Business and Economic Research, University of Nevada Las Vegas, May 2023.

Table 2: UNLV Center for Business and Economic Research Population Forecast

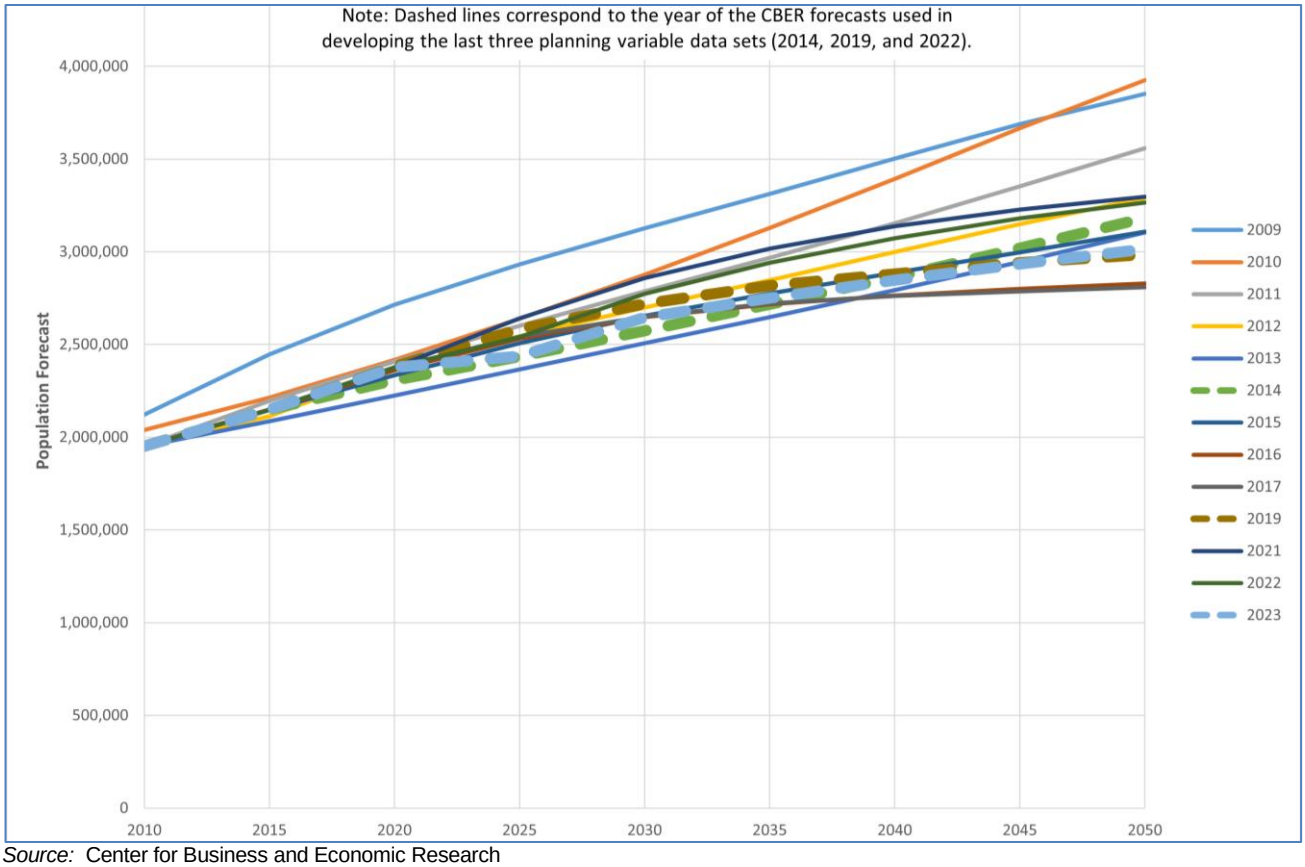
Year	Population Forecast					
	6/8/2009	4/19/2010	5/27/2011	6/19/2012	7/11/2013	6/5/2014
2010	2,122,000	2,039,000	1,951,269	1,951,269	1,951,269	1,951,269
2015	2,446,000	2,214,000	2,195,000	2,112,000	2,085,000	2,148,000
2020	2,715,000	2,418,000	2,409,000	2,365,000	2,224,000	2,307,000
2025	2,933,000	2,639,000	2,600,000	2,545,000	2,365,000	2,436,000
2030	3,126,000	2,876,000	2,786,000	2,699,000	2,506,000	2,574,000
2035	3,313,000	3,129,000	2,967,000	2,848,000	2,648,000	2,716,000
2040	3,502,000	3,394,000	3,153,000	2,999,000	2,793,000	2,863,000
2045	3,688,000	3,665,000	3,352,000	3,149,000	2,946,000	3,019,000
2050	3,851,000	3,926,000	3,559,000	3,291,000	3,104,000	3,182,000

Year	Population Forecast					
	6/5/2014	6/4/2015	5/12/2016	6/8/2017	5/31/2018	6/2019
2010	1,951,269	1,951,269	1,951,269	1,951,269	1,951,269	1,951,269
2015	2,148,000	2,146,000	2,147,641	2,147,641	2,147,641	2,147,641
2020	2,307,000	2,335,000	2,361,000	2,375,000	2,389,000	2,382,000
2025	2,436,000	2,507,000	2,532,000	2,542,000	2,530,000	2,583,000
2030	2,574,000	2,654,000	2,648,000	2,651,000	2,615,000	2,719,000
2035	2,716,000	2,776,000	2,718,000	2,721,000	2,672,000	2,817,000
2040	2,863,000	2,887,000	2,765,000	2,762,000	2,719,000	2,880,000
2045	3,019,000	2,996,000	2,799,000	2,786,000	2,766,000	2,940,000
2050	3,182,000	3,109,000	2,828,000	2,809,000	2,816,000	2,986,000

Year	Population Forecast				
	6/2019	2020	6/2021	6/2022	5/2023
2010	1,951,269	N/A	1,951,269	1,951,269	1,951,269
2015	2,147,641	N/A	2,147,641	2,147,641[1]	2,147,641[1]
2020	2,382,000	N/A	2,376,683[1]	2,376,683[1]	2,376,683[1]
2025	2,583,000	N/A	2,640,000	2,540,000	2,438,000[2]
2030	2,719,000	N/A	2,859,000	2,773,000	2,645,000
2035	2,817,000	N/A	3,018,000	2,940,000	2,750,000
2040	2,880,000	N/A	3,138,000	3,073,000	2,848,000
2045	2,940,000	N/A	3,228,000	3,181,000	2,935,000
2050	2,986,000	N/A	3,296,000	3,266,000	3,014,000

[1]SNRPC consensus population estimate.
[2]CBER 2023 Economic outlook forecast, April 2023.
Source: Center for Business and Economic Research

Figure 3 presents a visualization of the CBER population forecasts reported in Table 2. This family of forecasts reflects declining optimism during the recession years from 2009 to 2013, and a stabilized outlook from 2016 through 2019. The 2023 forecasts lag the 2019 forecasts slightly through 2040, are about even by 2045, and are marginally higher by 2050, suggesting the effects of the COVID-19 pandemic dissipate by the long term planning horizon.



Source: Center for Business and Economic Research

Figure 3: Clark County Population Forecasts

EMPLOYMENT FORECASTS (INITIAL)

Table 3 presents two sets of employment forecasts for the year 2050 (one computed by CBER and the other projected by Parsons), and the forecasted employment growth between a base year of 2022 (used by CBER) and the horizon year 2050. The CBER forecasts are based on complex econometric modeling. The Parsons forecasts are based on simple relationships between population and employment (as reported by DETR), and 33 years of trend line data.

As far as land use planning, the 2022-era CBER year 2050 horizon projection of 1,740,490 jobs (excluding farm and military) is much higher than Parsons' projection of 1,306,106 jobs. A significant reason for this difference is that the base year 2022 estimate of private, non-farm jobs is far different—1,365,300 by CBER versus 942,803 by DETR. As mentioned previously, the DETR employment counts reflect jobs covered by unemployment insurance, and do not include workers in the sectors of farming, agricultural services, self-employed, and some other workers. The DETR employment data is used for travel demand forecasting purposes because it can be tied to a physical location.

As the physical location of the DETR employment is based on second quarter June 2022 data by individual employer, the 2022 estimates of employment by industry sector are used for the Parsons trend line forecasts.

Table 3: CBER Clark County Employment Forecasts

Variable	NAICS	2022		2050		2022-2050 Growth	
		CEBR	DETR	CEBR	Parsons	CEBR	Parsons
Private Non-Farm		1,365,300	942,803	1,613,930	1,162,096	18%	23%
Forestry, Fishing, Other	11	520	2,156	790	2,133	52%	-1%
Mining	21	1,700	406	1,910	313	12%	-23%
Utilities	22	2,990	2,631	2,480	4,178	-17%	59%
Construction	23	94,370	75,752	109,860	81,776	16%	8%
Manufacturing	31-33	32,200	28,776	43,030	34,942	34%	21%
Wholesale Trade	42	31,710	25,685	34,430	27,390	9%	7%
Retail Trade	44-45	140,640	109,453	146,170	134,355	4%	23%
Transportation and Warehousing	48-49	114,310	47,942	138,780	69,799	21%	46%
Information	51	16,500	13,382	17,000	11,413	3%	-15%
Finance and Insurance	52	83,940	32,267	88,970	27,403	6%	-15%
Real Estate and Rental and Leasing	53	87,230	22,487	106,900	25,208	23%	12%
Professional and Technical Services	54	84,900	49,571	109,400	53,067	29%	7%
Management of Companies and Enterprises	55	30,860	24,099	31,070	35,331	1%	47%
Admin and Waste Services	56	116,820	84,024	160,940	121,172	38%	44%
Educational Services	61	17,570	10,801	25,060	19,541	43%	81%
Health Care and Social Assistance	62	125,320	103,344	163,750	130,670	31%	26%
Arts, Entertainment, and Recreation	71	46,600	27,290	64,210	26,331	38%	-4%
Accommodation and Food Services	72	264,770	254,152	288,460	319,234	9%	26%
Other Services (except public administration)	81	72,350	26,800	80,730	34,594	12%	29%
UNDETERMINED INDUSTRY	99		1,785		3,244		
Government		105,140	110,015	126,560	144,010	20%	31%
State and local		90,440		109,140			
Federal civilian		14,700		17,420			
Total Private & Government (Excluding Farm, Military)		1,470,440	1,052,818	1,740,490	1,306,106	18%	24%

Note: The Parsons 2050 employment forecast for NAICS 72 Accommodation and Food Services includes a constrained and unconstrained scenario. The constrained scenario reflects planned hotel construction posted in the Las Vegas Convention and Visitors Bureau (LVCVA) Construction Bulletin whereas the unconstrained scenario reflects hotel projects carried over from the 2019 Base Year Planning Variable forecasts necessary to provide enough hotel rooms to satisfy forecast visitor demand. The unconstrained NAICS 72 employment estimate for 2050 is 336,760, which is 17,526 (5 percent) higher than the constrained forecast shown in Table 3.

With respect to the 2050 forecast, Parsons assumes a jobs per capita rate of 43.3 percent of the 2050 population, estimated by CBER to be 3,014,000. The resulting estimate of annual employment for 2050, as a control total, is 1,307,000[2] (rounded). This jobs per capita rate is the same as experienced in 2019, and the same as experienced in 2007 once construction jobs are lowered to the same level as recorded in 2019.

Table 4 lists the preliminary employment forecasts in five-year increments covering the 2025 to the 2050 planning horizon for the major employment categories used in previous forecast editions. Note that Table 4 includes two forecasts of hotel employment. The constrained forecast assumes construction and opening of all the hotel properties outlined in the *Las Vegas Tourism Construction Bulletin*, February 2024 edition, produced by the Las Vegas Convention and Visitors Authority (LVCVA). The unconstrained version checks the planned hotel room supply against forecast Las Vegas visitation demand and adjusts the supply to be in-line with

[2] This reflects the constrained scenario on the NAICS 72 Accommodation and Food Services category. The 2050 unconstrained total employment is 1,324,000 (rounded).

forecast visitation. The basis for determining the unconstrained employment totals is discussed immediately following Table 4.

Table 4: Preliminary Clark County Employment Forecasts by Land Use (Old Model Category)

Land Use Category	DETR	Parsons						
	2022[1]	2022[2]	2025	2030	2035	2040	2045	2050
Hotel	281,400							
Constrained	-	269,093	277,339	308,460	319,582	329,245	338,467	346,039
Unconstrained	-	269,093	277,339	308,460	328,750	342,105	352,958	363,314
Industrial	157,000	151,164	159,781	172,951	178,917	184,455	189,091	193,142
Non-retail	113,300	131,810	139,718	152,954	160,393	167,466	173,917	179,921
Office	366,000	203,006	215,155	241,129	257,083	272,814	287,665	302,643
Retail	135,100	122,218	128,365	140,361	146,445	152,125	157,166	161,744
School		41,010	42,930	46,634	48,537	50,136	51,293	52,120
Special Gen.	-	46,055	47,997	52,149	53,537	61,733	66,288	70,969
TOTAL	**1,052,800**							
Constrained	**-**	**964,356**	**1,011,286**	**1,114,638**	**1,164,495**	**1,217,974**	**1,263,888**	**1,306,580**
Unconstrained	**-**	**964,356**	**1,011,286**	**1,114,638**	**1,173,663**	**1,230,834**	**1,278,379**	**1,323,855**

[1]Includes DETR data that could not be geocoded.

[2]Reflects adjustment to geocoded DETR employment to account for locations of missing school employment where enrollment exists. Was only used for future forecasts only.

Source: Parsons, based on CBER June 2023 population forecasts.

Because the future number of hotel rooms (and therefore hotel employment) is tied to future visitation to the Las Vegas Valley, a check is made to ensure forecast hotel room supply and demand are in-line with market conditions. A visitor-to-room ratio of 290 has been used as a breakpoint in the previous forecast editions for determining the need to adjust room supply; a ratio greater than 290 indicates strong market conditions which prompts an increase in supply. Table 5 presents the forecast annual visitation, the number of hotel rooms available, and the required number of hotel rooms (based on the ratio) by five-year increment. According to Table 5, the constrained forecast of hotel employment based on the LVCVA *Construction Bulletin* indicates hotel room supply will be in line with demand through 2035 after which a deficit of room supply steadily grows.

Table 5: Constrained Hotel Room Supply vs. Visitation Demand Check

Year	Annual Visitation Forecast (Million)[1]	Hotel Rooms Required[2]	Available Hotel Rooms[3]	Excess Hotel Rooms
2022	-	-	161,631	-
2025	N/A	-	163,204	-
2030	48.2	166,207	169,161	2,954
2035	49.7	171,379	174,287	2,908
2040	51.2	176,552	174,287	(2,265)
2045	52.5	181,034	175,238	(5,796)
2050	53.8	185,517	176,927	(8,590)

[1]The 2030, 2040, and 2050 estimates are from the 2019 base year employment forecasts, as updated visitation estimates are not available. The 2035 and 2045 estimates are interpolated from the 2030, 2040, and 2050 estimates.
[2]Based on a visitor-to-room ratio of 290.
[3]Based on the constrained forecast of hotel employment.

To address the room-supply deficit, future hotel development projects identified in the 2019 base year forecast but no longer represented in the LVCVA *Construction Bulletin*, February 2024 edition were extracted and placed in a "pool" of development opportunities to include as needed to curb the forecast deficit of hotel rooms. While the specific development proposals included in the pool may no longer be valid, they represent a concept for hotel development at a specific location and are treated as "representative" of the approximate number of hotel rooms that may be realized at a given site in the future insofar as this edition of the Employment Forecasts is concerned.

Table 6 represents the projects identified in the LVCVA *Construction Bulletin*, February 2024 edition, which is the basis for the constrained hotel employment forecasts. The hotel development proposals from the 2019 base year employment forecasts that were subsequently abandoned are carried forward to form the "pool" of development opportunities beyond the current LVCVA *Construction Bulletin* and are documented in Table 7. The development proposals in Tables 6 and 7 are mutually exclusive.

Note the added hotel employment shown in Table 7 does not necessarily match the difference between the constrained and unconstrained hotel employment forecasts. This is because hotel industry comprises both NAICS 71 and 72 and these two NAICS categories are normalized separately to their future targets based on DETR information. Because the hotels are a subset of NAICS 72 and the normalization process applies to the entire NAICS 72, the hotel growth in the unconstrained scenario offsets the amount needed to normalize to the DTER target when compared to the constrained scenario. For example, the constrained scenario has less hotel employment, and the normalization process may need more to normalize the hotel employment to match the DETR targets. In this regard, it is noted all hotel employment is used as is and is not modified. Hotel employment is only "borrowed" if the employment is deficient when compared to the targets.

Table 6: Projects Represented in the Constrained Hotel Employment Forecasts

TDF Model Horizon Year Start[1]	Project Description	TAZ_2678 Location	NAICS Code	Convention Space (Sq. Ft.)	Rooms	Employment
2025	Nirvana Hotel (formerly Motel 8)	29	721	0	25	12
2025	Aloft Henderson	618	721	0	136	68
2025	Home2 Suites by Hilton Las Vegas North	1938	721	0	91	45
2025	SpringHill Suites Las Vegas Airport	215	721	0	127	63
2025	Silverton Casino Lodge	316	721120	0	300	319
2025	Bent Inn & Pub	833	721	0	33	16
2025	Durango Casino & Resort (Phase 1)	1304	721120	21,000	211	224
2025	Fontainebleau Las Vegas	309	721120	550,000	3,644	3,878
2025	Tropicana Las Vegas	29	721120	(138,500)	(1,470)	0
2025	Atwell Suites at the Pass	1671	721120	0	90	95
2025	Delta Hotels by Marriott	208	721	10,000	284	142
2025	M Resort Spa & Casino (Expansion)	1348	721120	40,000	384	408
2025	AC Hotel by Marriott Symphony Park	853	721	18,025	322	161
2025	Element by Westin Symphony Park	853	721	0	119	59
2025	Inspirada Station	1541	721120	6,670	201	213
2025	The Mirage Hotel & Casino (Closed until 2027)	180	721120	(200,000)	(3,044)	0
2025	Home2Suites by Hilton Las Vegas I-215 Curve	1150	721	1,100	120	128
2030	Majestic Las Vegas	221	721	0	720	360
2030	Courtyard by Marriott South	186	721	0	149	74
2030	Majestic Las Vegas former Clarion Hotel/Casino site)	221	721	0	720	360
2030	SpringHill Suites by Marriott South	40	721	0	170	85
2030	Durango Casino & Resort (Phase 2)	1304	721120	0	214	227
2030	The Mirage Hotel & Casino (Hard Rock)	180	721120	83,000	600	638
2030	Nuance Las Vegas Hotel & Spa at Allegiant Stadium	75	721	0	340	170
2030	High Speed Rail Station	139	48	0	0	120
2030	A's Ballpark	29	81	0	0	200
2030	High Speed Rail (VMF) Maintenance Facility	1924	48	0	0	100
2030	The Mirage Hotel & Casino (Opens in 2027)	180	721120	200,000	3,044	6,362
2035	Aloft Hotel	58	721	0	132	33
2035	Element Hotel	58	721	0	119	30
2035	Otonomus Hotel	250	721	0	303	151
2035	OVG Las Vegas Hotel & Casino	209	721120	0	2,000	2,128
2035	TBD-Tilman Fertitta (POLV LLC)	60	721	0	2,420	2,575
2035	Best Western Plus Casino Royale Center Strip	148	721120	0	152	162
2040	High Speed Rail Station (Expansion)	139	48	0	0	110
2045	Dream Las Vegas	29	721120	12,000	531	565
2045	Element Las Vegas Airport	58	721	0	119	59
2045	Hylo Park (former Texas Station site)	1383	721	0	150	75
2045	Skyline Hotel & Casino	1258	721120	0	41	43
2045	The Waterfalls	1385	721	0	110	55
Total	**-**	**-**	**-**	**603,295**	**13,607**	**20,513**

[1]Project opening year may be sooner (i.e., a development scheduled to open in 2027 will first appear in the TDF Model 2030 dataset).

Table 7: Projects Added to Produce Unconstrained Hotel Employment Forecasts

TDF Model Horizon Year Start[1]	Project Description	TAZ_2678 Location	NAICS Code	Convention Space (Sq. Ft.)	Rooms	Employment
2035	Caesars East	96	721120	0	3000	3500
2035	Resorts World Phase 2	307	721120	0	1000	1000
2035	Howard Hughes	1931	721	0	267	67
2035	Mardi Gras (close)	166	721	0	(314)	(100)
2035	Mardi Gras (open)	166	721120	0	700	700
2035	CAI Investments	175	721120	0	125	63
2035	Wynn West	244	721120	0	1110	4000
2040	Circus Circus Manor	307	721	0	(810)	(200)
2040	MGM North	307	721120	0	3000	3500
2040	Mariott Courtyard	221	721	0	(149)	(50)
2040	Mariott Residence Inn	221	721	0	(192)	(50)
2040	Mariott Marquis	221	721120	0	3500	4100
2045	Triple Five/New LV North Strip Holdings	252	721120	0	3000	3500
2045	Resorts World Phase 3	307	721120	0	1300	1300
2050	Edge Resort	96	721120	0	2600	3050
2050	Edge East	71	721120	0	2000	2350
Total	**-**	**-**	**-**	**0**	**20,137**	**26,730**

[1]Project opening year may be sooner (i.e., a development scheduled to open in 2027 will first appear in the TDF Model 2030 dataset).
Source: Parsons

Table 8 indicates the unconstrained forecast provides enough hotel rooms to satisfy forecast visitation.

Table 8: Unconstrained Hotel Room Supply vs. Visitation Demand Check

Year	Annual Visitation Forecast (Million)[1]	Hotel Rooms Required[2]	Available Hotel Rooms[3]	Excess Hotel Rooms
2022	-	-	161,631	-
2025	N/A	-	163,204	-
2030	48.2	166,207	169,161	2,954
2035	49.7	171,379	180,175	8,796
2040	51.2	176,552	185,524	8,972
2045	52.5	181,034	189,824	8,790
2050	53.8	185,517	194,424	8,907

[1]The 2030, 2040, and 2050 estimates are from the 2019 base year employment forecasts, as updated visitation estimates are not available. The 2035 and 2045 estimates are interpolated from the 2030, 2040, and 2050 estimates.
[2]Based on a visitor-to-room ratio of 290.
[3]Based on the unconstrained forecast of hotel employment.

Having two hotel employment forecasts raises the issue of which hotel room forecast scenario to officially adopt for the Regional Transportation Plan. To address this question, it may be prudent to first consider if the forecast

visitation estimates (from 2019) are still valid.[3] Recent annual visitation data suggest the Las Vegas Valley is just now returning to pre-pandemic visitor demand. Thus, it may be reasonable to conclude the previous (2019 base year) visitation forecasts will lag by about five years (i.e., the previous 2045 forecast visitation shown in this document will now be forecast to occur in 2050). Additionally, RTC may wish to test both scenarios under their new TDF Model to see what incremental impact it has on the system.

Table 9 presents the employment forecasts for the same five-year planning increments as Table 4 but using the North American Industrial Classification System (NAICS)-based employment categories, recognizing the new TDF Model employment is NAICS-based rather than land use-based. Note NAICS 101, 102, and 103 in Table 9 are not actual NAICS codes. Rather, they are placeholder categories created to help transition to the new employment basis.

[3] RTC could not provide any newer visitation forecasts for this edition of the employment forecasts.

Table 9: Preliminary Clark County Employment Forecasts by NAICS

NAICS Industry	Code	2022[1]	2025	2030	2035	2040	2045	2050
Ag, Forestry, Fishing & Hunting	11	2,059	2,059	2,133	2,133	2,133	2,133	2,133
Mining	21	302	302	313	313	313	313	313
Utilities	22	3,163	3,414	3,675	3,818	3,946	4,067	4,178
Construction	23	66,542	69,264	74,869	77,107	79,044	80,566	81,776
Durable Goods	31	5,669	5,963	6,409	6,608	6,787	6,937	7,066
Durable Goods	32	10,297	10,832	11,641	12,002	12,328	12,601	12,835
Non-Durable Goods	33	10,794	11,456	12,662	13,318	13,943	14,512	15,042
Wholesale Trade	42	19,877	21,045	23,325	24,482	25,561	26,519	27,390
Retail Trade	44	44,120	46,266	50,455	52,579	54,562	56,323	57,921
Retail Trade	45	58,221	61,053	66,580	69,384	72,001	74,324	76,433
Transp. & Warehousing	48	16,070	17,345	19,111	19,838	20,710	21,325	21,889
Transp. & Warehousing	49	36,268	39,146	42,139	43,779	45,251	46,637	47,910
Information	51	8,117	8,997	9,876	10,348	10,769	11,118	11,413
Finance and Insurance	52	24,750	25,884	27,397	27,403	27,403	27,403	27,403
Real Estate, Rental & Leasing	53	18,977	20,329	22,221	23,105	23,911	24,602	25,208
Prof., Scientific & Tech. Services	54	37,026	37,026	41,960	44,916	47,789	50,488	53,067
Mgmt. Companies and Enterprises	55	19,941	21,690	25,207	27,748	30,308	32,829	35,331
Admin and Support and Waste Services	56	71,073	77,255	88,882	97,049	105,241	113,254	121,172
Educational Services (Private)	61	14,683	15,410	16,812	17,568	18,285	18,937	19,541
Health Care and Social Assistance	62	98,181	103,046	112,419	117,476	122,272	126,629	130,670
Arts, Entertainment and Recreation	71	24,207	25,015	26,277	26,277	26,277	26,277	26,331
Accommodation & Food Services	72							
Constrained		244,886	252,324	282,183	293,306	302,969	312,191	319,708
Unconstrained		244,886	252,324	282,183	302,474	315,828	326,682	336,984
Other Service	81	23,325	25,303	28,030	29,777	31,474	33,070	34,594
Public Admin.	92	9,880	10,257	10,985	11,348	11,627	11,787	11,820
Undet. Industry	99	2,187	2,372	2,628	2,792	2,951	3,101	3,244
Public Schools	101	26,327	27,520	29,822	30,969	31,851	32,356	32,579
Office, Government	102	21,359	22,715	24,478	25,514	26,534	27,302	28,641
Special Gen.	103	46,055	47,997	52,149	53,537	61,733	66,288	70,969
TOTAL								
Constrained		**964,356**	**1,011,286**	**1,114,638**	**1,164,495**	**1,217,974**	**1,263,888**	**1,306,580**
Unconstrained		**964,356**	**1,011,286**	**1,114,638**	**1,173,663**	**1,230,834**	**1,278,379**	**1,323,855**

[1]Reflects adjustment to geocoded DETR employment to account for locations of missing school employment where enrollment exists. Was only used for future forecasts only.

Source: Parsons. Note that NAICS codes 101-103 are technically not NAICS codes, but rather additional codes created by Parsons.

SPECIAL GENERATOR EMPLOYMENT

Table 10 lists the special generator employment suggested for the planning variables dataset. RTC prepared the special generator information for all generators listed in the table except for high speed rail, which Parsons provided. RTC sought information from each of the providers. Key assumptions are noted below.

- **Creech Air Force Base**
  RTC discussions with Creech Air Force Base (AFB) yielded considerable uncertainty in long-term employment at this AFB. The future year employment is therefore kept at the 2022 levels, which consists of 3,920 active duty personnel and 200 each of civilian and contractor employees.
- **Nellis Air Force Base**
  All forecast employment was provided to RTC by Nellis AFB.
- **Harry Reid International and Southern Nevada Supplemental Airports**
  The estimates include both scheduled and charter airline passengers. Growth in passenger volumes conform to growth in visitor estimates. According to RTC, the forecast distribution of activity between the two airports is based on assumptions about the allocation of passenger airlines and specific segments of travel. The distribution has not been finalized and is for planning purposes only. Employment at Harry Reid Airport is forecast to grow about 2 percent annually between 2022 and 2030. At the Southern Nevada Supplemental Airport, the annual employment growth is expected to about 11.5 percent from 2037 through 2050.
- **UNLV**
  Enrollment is forecast at the Main and Shadow Lane campuses, exclusive of online, study abroad, and other off-campus enrollment offerings. The UNLV North Las Vegas campus is projected to open 2030. The enrollment and employment data for UNLV North Las Vegas were provided by the UNLV Real Estate Division and are based on previous master plan efforts.
- **Nevada State University**
  Nevada State University (NSU) provided RTC two sets of enrollment projections. The lower, more conservative enrollment forecast is used, recognizing NSU's farthest out forecast is 2047. The 2050 NSU enrollment assumes the 2047 enrollment sourced from NSU directly.
- **College of Southern Nevada**
  Enrollment was sourced from a Nevada System of Higher Education (NSHE) report titled "NSHE Financial Model Assessment & Projection, July 2023. Forecast employment grew proportional to enrollment at each of the three campuses.
- **High-speed Rail Station**
  A passenger rail station is planned serving trips between a Southern California station in Rancho Cucamonga and a Las Vegas station located west of the Las Vegas South Premium Outlets and Las Vegas Boulevard. Ridership estimates reported in Table 7 are based on "Brightline West Cajon Pass High Speed Rail Environmental Assessment", prepared in 2022. Employment consists of station and on-train employees, the latter of which is evenly split between the termini (i.e., half the on-train employees are based in Southern California and the other half are based in Las Vegas). The number of daily runs is forecast to increase from 46 to 90 effective 2038. Hence, the forecast employment increases starting with

the 2040 data set. High-speed rail station employment is accounted for directly in the planning variable file (Zone 139 of the new TDF Model zone system) as NAICS 48 rather than within the special generator file. Similarly, the high speed rail maintenance facility is represented in the planning variable file rather than this special generator file.

Table 10: Special Generator Information

Special Generator	TAZ	2022		2025		2030		2035		2040		2045		2050	
		Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment
Creech Air Force Base	2595		4,320		4,320		4,320		4,320		4,320		4,320		4,320
Nellis Air Force Base (Zone 1)	2105		12,965		13,354		14,021		14,722		15,458		16,231		17,043
Nellis Air Force Base (Zone 2)	2128		2,100		2,163		2,271		2,384		2,503		2,629		2,760
Harry Reid International Airport	1	144,000	21,123	154,000	22,500	174,000	25,000	194,000	25,000	158,000	25,000	160,000	25,000	178,000	25,000
Southern Nevada Supplemental Airport	2542	—	—	—	—	—	—	—	—	58,000	6,700	80,000	9,600	90,000	12,500
University of Nevada, Las Vegas—Main Campus	49	25,045	3,792	25,350	3,838	27,205	4,119	29,200	4,421	31,346	4,746	33,656	5,096	36,141	5,472
University of Nevada, Las Vegas—Shadow Lane Campus	683	318	286	322	290	345	311	371	334	398	358	427	385	459	413
University of Nevada, Las Vegas—North Las Vegas Campus (Zone 1)	2323	—	—	—	—	1,750	130	2,625	195	3,500	259	4,375	324	5,250	389
University of Nevada, Las Vegas—North Las Vegas Campus (Zone 2)	2409	—	—	—	—	3,250	241	4,875	361	6,500	482	8,125	601	9,750	722
Nevada State University	2284	2,533	333	2,598	339	3,317	443	3,846	553	4,458	705	5,169	900	5,483	1,148
College of Southern Nevada -Charleston Campus (Zone 1)	1097	8,303	583	8,720	612	9,450	664	9,115	640	8,791	617	8,791	617	8,791	617

Source: RTC, 2024

Table 10: Special Generator Information (Continued)

Special Generator	TAZ	2022		2025		2030		2035		2040		2045		2050	
		Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment	Enrollment/ Passengers	Employment
College of Southern Nevada -Henderson Campus (Zone 2)	1903	3,208	161	3,369	169	3,651	183	3,522	177	3,397	170	3,397	170	3,397	170
College of Southern Nevada – North Las Vegas Campus (Zone 3)	1706	5,791	392	6,082	412	6,591	446	6,357	430	6,132	415	6,132	415	6,132	415
High-speed Rail Station[1]	139	—	—	—	—	41,644	—	58,082	—	60,274	—	63,562	—	66,301	—

1The employment consists of station and on-train employees (NAICS 48), assumed to be 120 starting in 2028 and increasing to 230 starting in 2038 when train frequency is scheduled to increase from 46 to 90 daily runs. This employment is represented separate from the special generator file.
Source: RTC, 2024

EMPLOYMENT FORECASTS (FINAL)

To generate the final set of employment forecasts for use in the new TDF Model, it is necessary to conform to the NAICS codes used by the model. This requires reallocating the non-standard NAICS categories (NAICS 101, 102, and 103) to those used by the TDF Model. Table 11 documents the re-allocation of the non-standard NAICS categories shown in Table 9 to the categories used in the TDF Model.

Table 11: Allocation of Non-Standard NAICS Categories to TDF Model NAICS Categories

TDF Model NAICS Code	NAICS Code (Table 9) and/or Special Generator (Table 10)
31-33	31 + 32 + 33
44-45	44 + 45
48-49	48 + 49 + Airport Spec. Gen. (Harry Reid + Southern Nevada Supplemental Airport)
61	61 + 101 + All School Spec. Gen. (UNLV, NSU, CSN)
92	92 + 102 + AFB Spec. Gen. (Nellis + Creech)

The preliminary employment estimates in Table 9 (converted to TDF Model NAICS scheme) are then allocated to the regional TAZ system. During this process, it became necessary to make some adjustments affecting both private (NAICS 61) and public (NAICS 102) school categories. The adjustments provide (1) base year school employment in zones where enrollment exists, but school employment does not, and (2) additional growth in school employment for zones where school enrollment increases over the planning horizon. This post-processing school employment adjustment is reflected in Table 12, which is a summary of the employment by TDF Model category for each of the five-year incremented datasets.

Table 12: Final Clark County Employment Forecasts by NAICS (New Model Category)

NAICS Industry	Code	2022[1]	2025	2030	2035	2040	2045	2050
Ag, Forestry, Fishing & Hunting	11	2,059	2,059	2,133	2,133	2,133	2,133	2,133
Mining	21	302	302	313	313	313	313	313
Utilities	22	3,163	3,414	3,675	3,818	3,946	4,067	4,178
Construction	23	66,542	69,264	74,869	77,107	79,044	80,566	81,776
Durable & Non-Durable	31-33	26,760	28,251	30,711	31,929	33,058	34,050	34,942
Wholesale Trade	42	19,877	21,045	23,325	24,482	25,561	26,519	27,390
Retail Trade	44-45	102,341	107,319	117,035	121,964	126,563	130,647	134,355
Transp. & Warehousing	48-49	73,461	78,991	86,250	88,618	97,661	102,562	107,299
Information	51	8,117	8,997	9,876	10,348	10,769	11,118	11,413
Finance and Insurance	52	24,750	25,884	27,397	27,403	27,403	27,403	27,403
Real Estate, Rental & Leasing	53	18,977	20,329	22,221	23,105	23,911	24,602	25,208
Prof., Scientific & Tech. Services	54	37,026	37,026	41,960	44,916	47,789	50,488	53,067
Mgmt. Companies and Enterprises	55	19,941	21,690	25,207	27,748	30,308	32,829	35,331
Admin. and Support and Waste Services	56	71,073	77,255	88,882	97,049	105,241	113,254	121,172
Educational Services (Public and Private)	61	44,271	49,343	54,644	58,933	62,751	66,122	69,269
Health Care and Social Assistance	62	98,181	103,046	112,419	117,476	122,272	126,629	130,670
Arts, Entertainment and Recreation	71	24,207	25,015	26,277	26,277	26,277	26,277	26,331
Accommodation & Food Services	72							
Constrained		244,886	252,324	282,183	293,306	302,969	312,191	319,708
Unconstrained		244,886	252,324	282,183	302,474	315,828	326,682	336,984
Other Service	81	23,325	25,303	28,030	29,777	31,474	33,070	34,594
Public Admin.	92	50,624	52,809	56,075	58,288	60,442	62,269	64,585
Undet. Industry	99	2,187	2,372	2,628	2,792	2,951	3,101	3,244
TOTAL								
Constrained		**961,549**	**1,012,039**	**1,116,111**	**1,167,779**	**1,222,837**	**1,270,208**	**1,314,382**
Unconstrained		**961,549**	**1,012,039**	**1,116,111**	**1,176,947**	**1,235,696**	**1,284,700**	**1,331,657**

[1]DETR
Source: Parsons

LAND USE REQUIREMENTS TO ACCOMMODATE EMPLOYMENT GROWTH

Table 9 reports the employment to acreage conversion factors which have been used by RTC and the member entities of the Land Use Working Group (LUWG) since 2005. Acreage requirements by employment subsector are discussed below, along with suggested updates to several of the factors listed in Table 13. These conversion factors are used in conjunction with LUWG member jurisdiction available acreage forecasts to produce employment estimates by TAZ.

Table 13: Employment to Acreage Conversion Factors

	Land Use		Employment		
IDX	LU	Description	Category	Per Acre	Gross to Net
1	Hotel	Hotel (resort corridor)	Hotel	100	0.80
2	Hotel_N	Hotel (not on resort corridor)	Hotel	40	0.80
3	RRet	Retail—Regional	R_Shop	22	0.80
4	CRet	Retail—Community	C_Shop	22	0.80
5	NRet	Ret—Neighborhood	Other_Ret	22	0.80
6	Other_Non	Land use not in any other categories	Other_Non	20	0.80
7	Office	Office	Office	50	0.80
8	School	School	Other_Non	15	0.80
9	Hospital	Hospital	Other_Non	70	0.80
10	Ind	Industrial	Indust	12	0.80
11	OS	Open Space	Other_Non	0.5	0.80

Source: "Planning Variable Development and Methodology," Regional Transportation Commission of Nevada, October 2005

DISTRIBUTION OF EMPLOYMENT

Figures 4 through 10 illustrate the distribution of employment summarized by the older TDF Model category and TAZ boundaries. Use of the older TDF Model categories is easier to visualize and less burdensome compared to a separate figure for each NAICS category. The extent of the figures is focused on the more developed areas of the Las Vegas Valley, as opposed to the entirety of Clark County. This focusing is done to more clearly see where the preponderance of jobs are located.

Figure 4 illustrates the location of hotel employment as of 2022. The preponderance of these jobs is located along the Las Vegas Strip, not surprisingly.

Figure 5 illustrates the location of industrial jobs. These are concentrated along I-15, along the south side of McCarran International Airport, and near the junction of I-215 and U.S. 93/95.

Figure 6 illustrates the location of nonretail, medical, education and "other" types of jobs, Figure 7 illustrates the location of office jobs, and Figure 8 shows where retail jobs are located. These are spread throughout the Las Vegas Valley, with a focus in the center, west, and south generally adjacent to arterials.

Location and magnitude of special generator employment is shown on Figure 9 and includes Harry Reid Airport, Nellis Air Force Base and the various colleges and universities in the Valley.

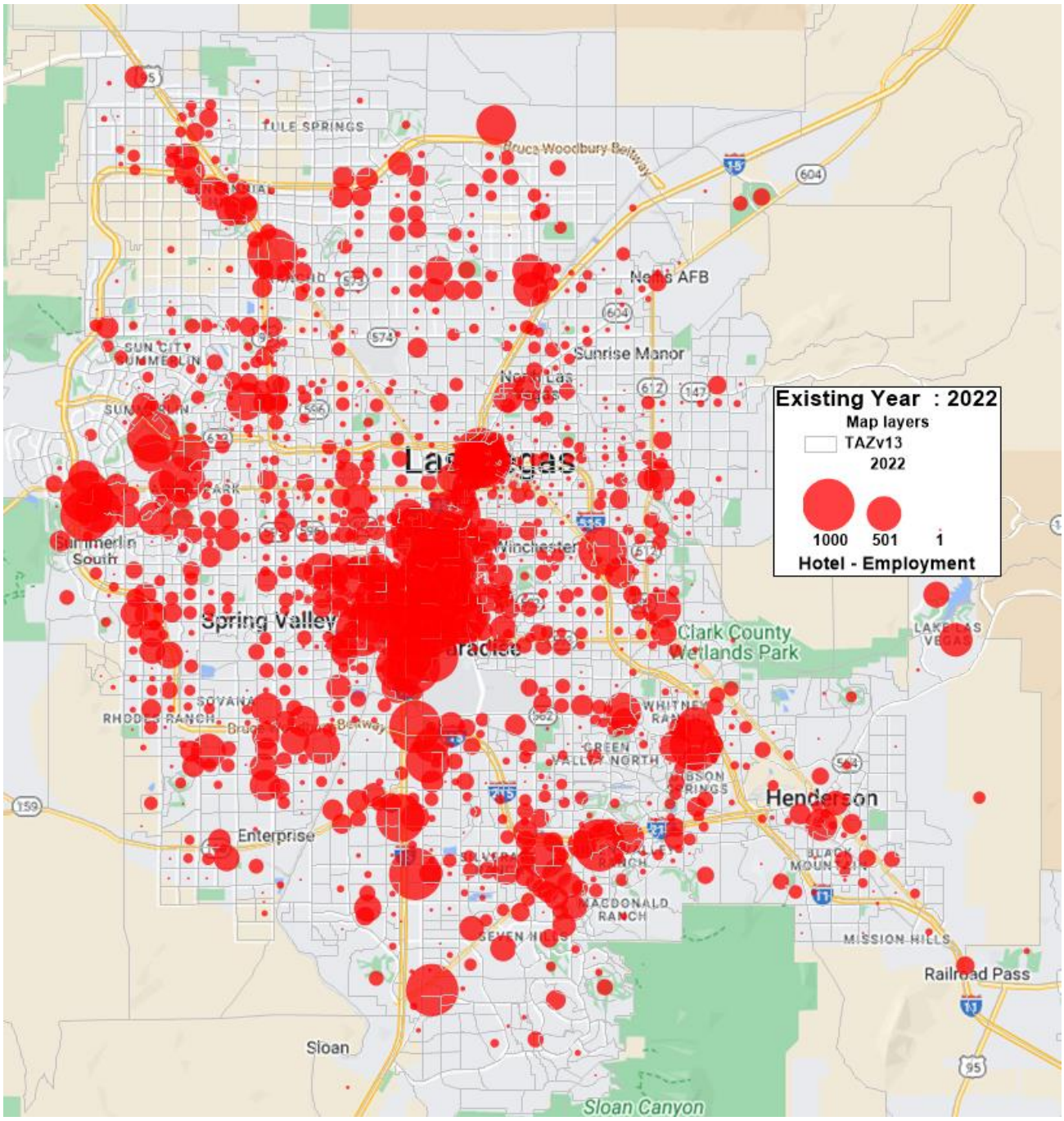


Figure 4: Existing (2022) Hotel Employment

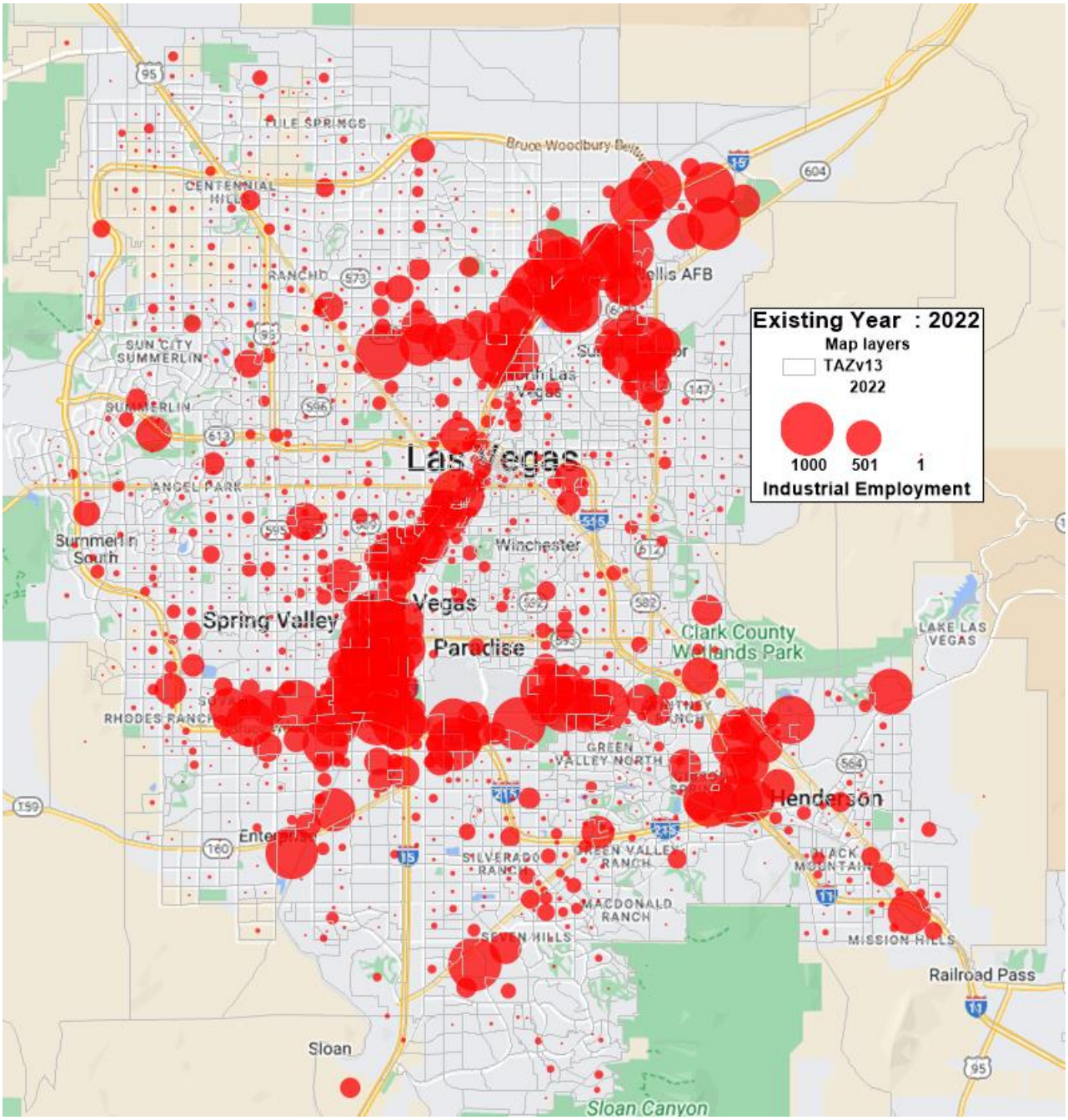


Figure 5: Existing (2022) Industrial Employment

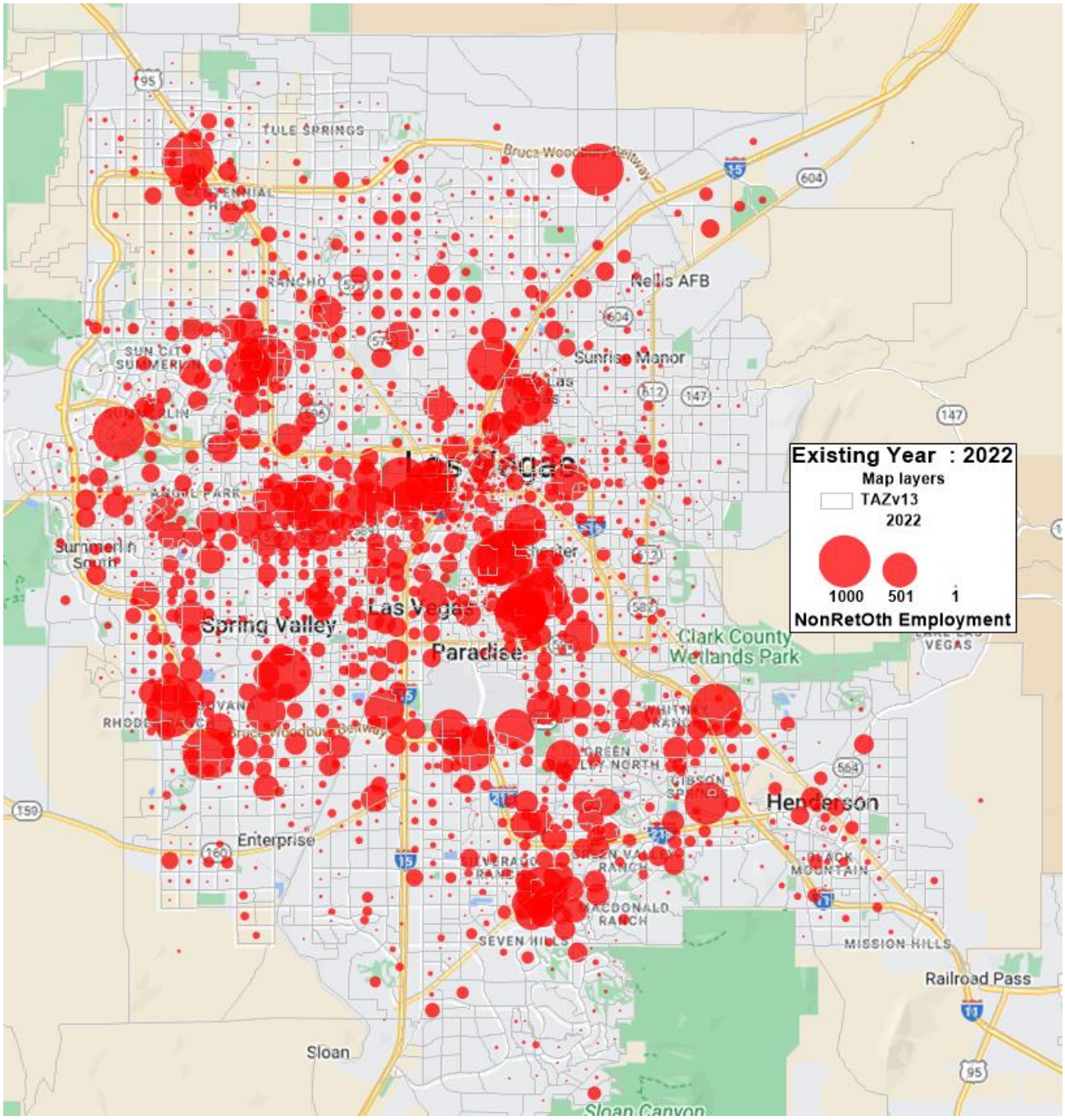


Figure 6: Existing (2022) Nonretail/Other Employment

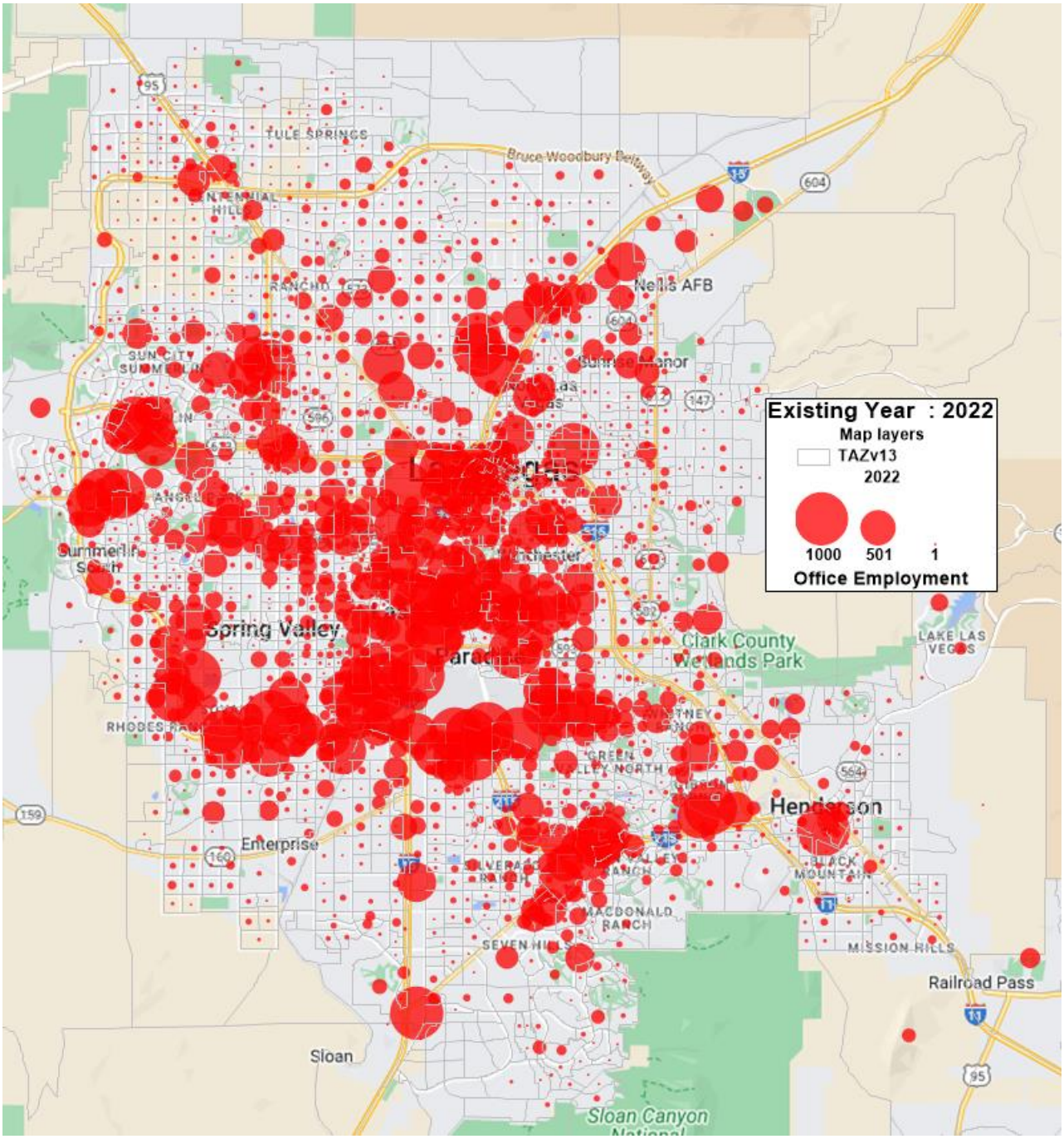


Figure 7: Existing (2022) Office Employment

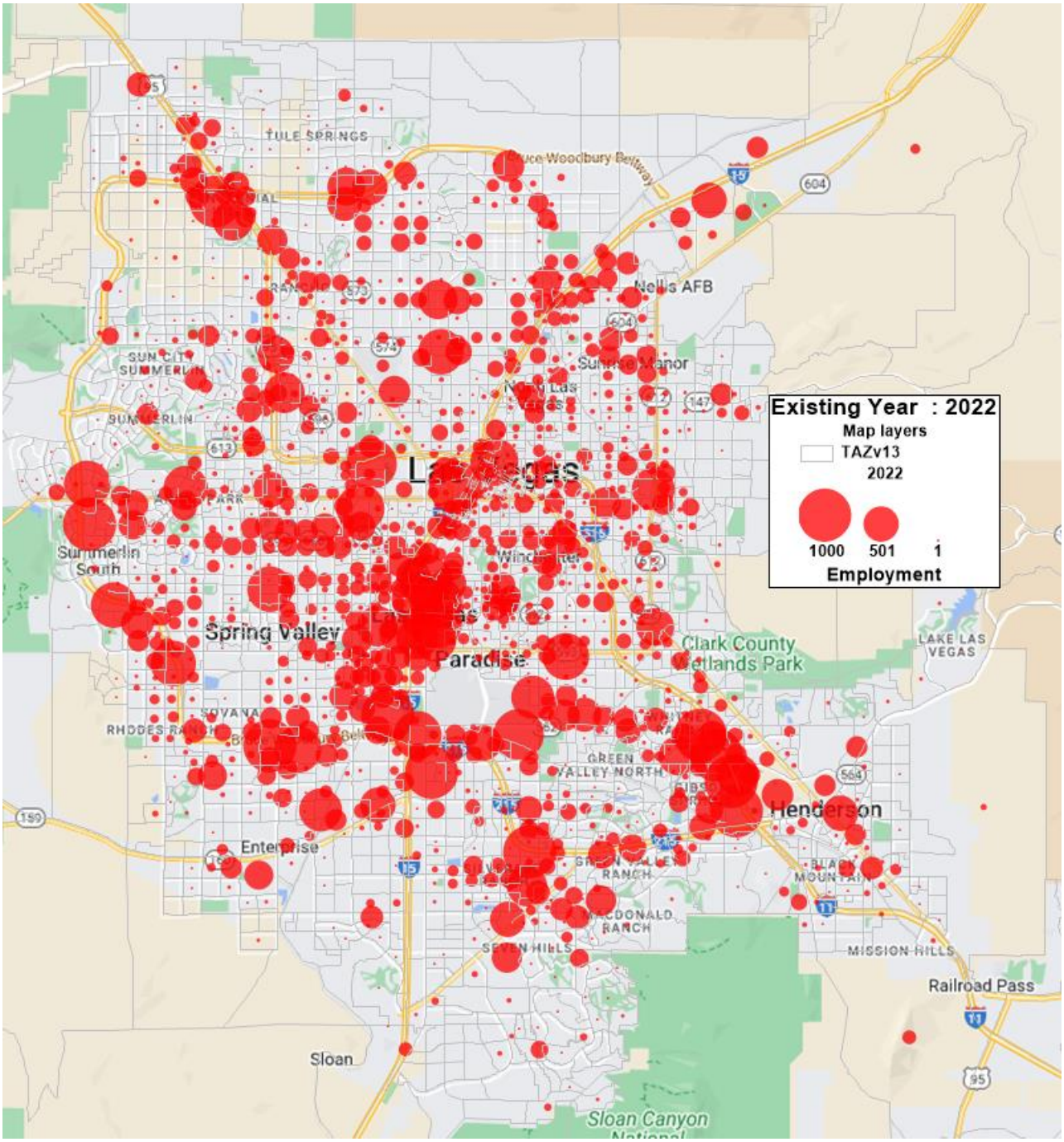


Figure 8: Existing (2022) Retail Employment

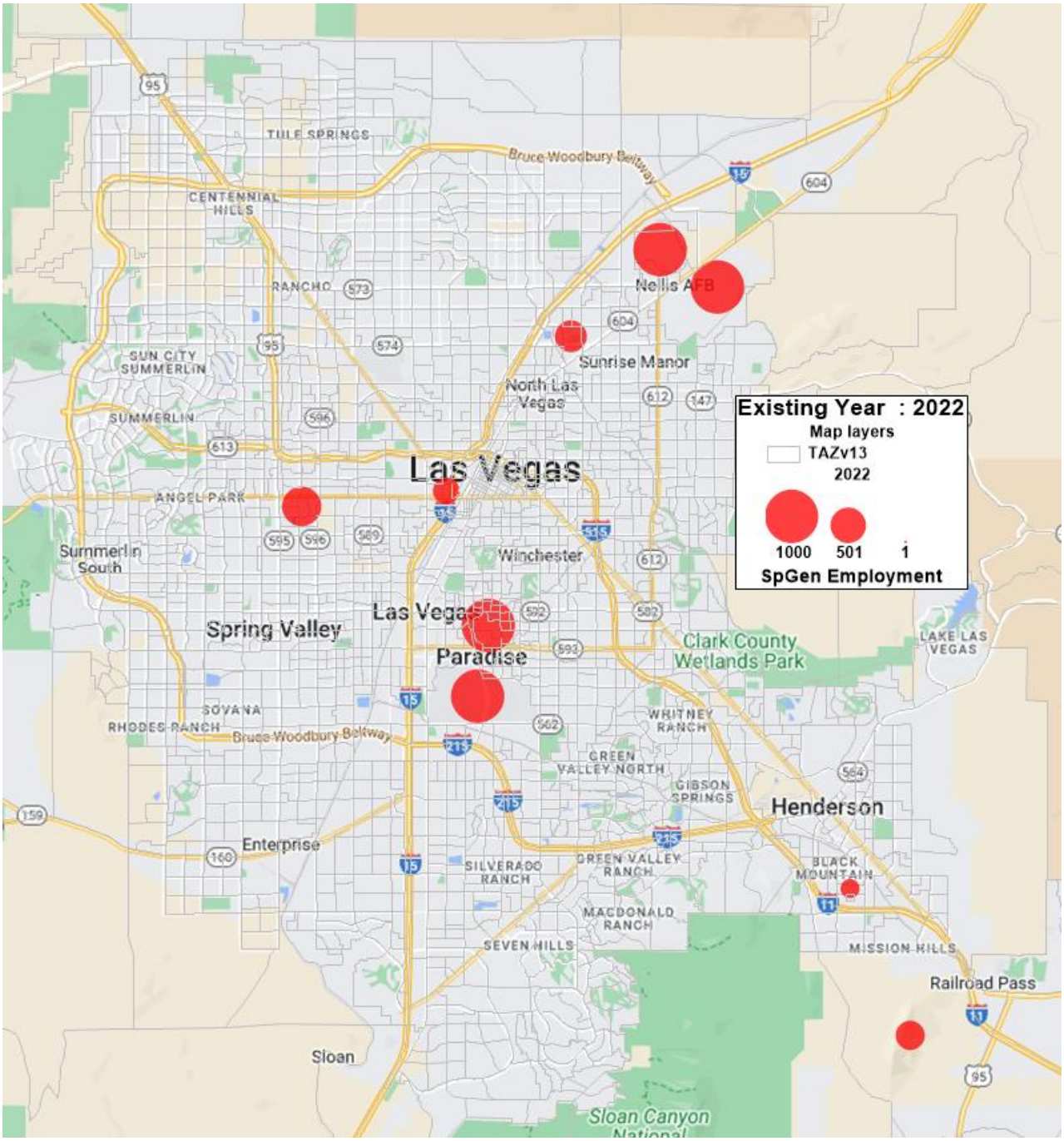


Figure 9: Existing (2022) Special Generator Employment

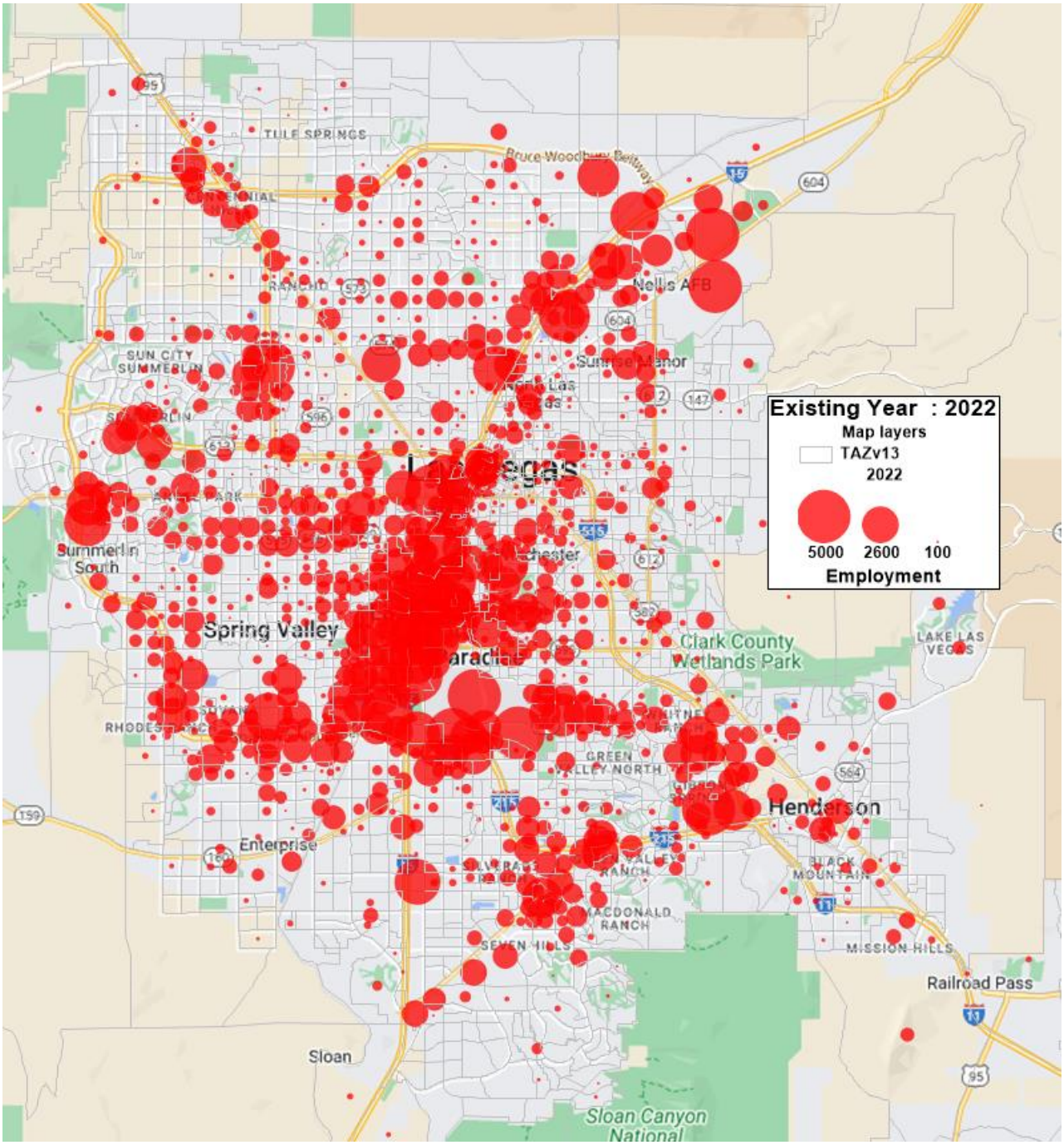


Figure 10: Existing (2022) Total Employment

LOCATION OF 2019–2050 GROWTH

The member entities of the Land Use Working Group (LUWG) provided RTC with geographic information system (GIS) "shape files" of parcels available for development by land use type. RTC then aggregated the parcel areas by TAZ and provided the sum of acreage by land use type to Parsons. Parsons subsequently converted the acreages to employment holding capacity using the conversion factors listed in Table 13.

The distribution of 2022-to-2050 growth in hotel employment for the constrained scenario is illustrated on Figure 11. The growth in hotel employment is 76,472 (28% higher than existing hotel employment).

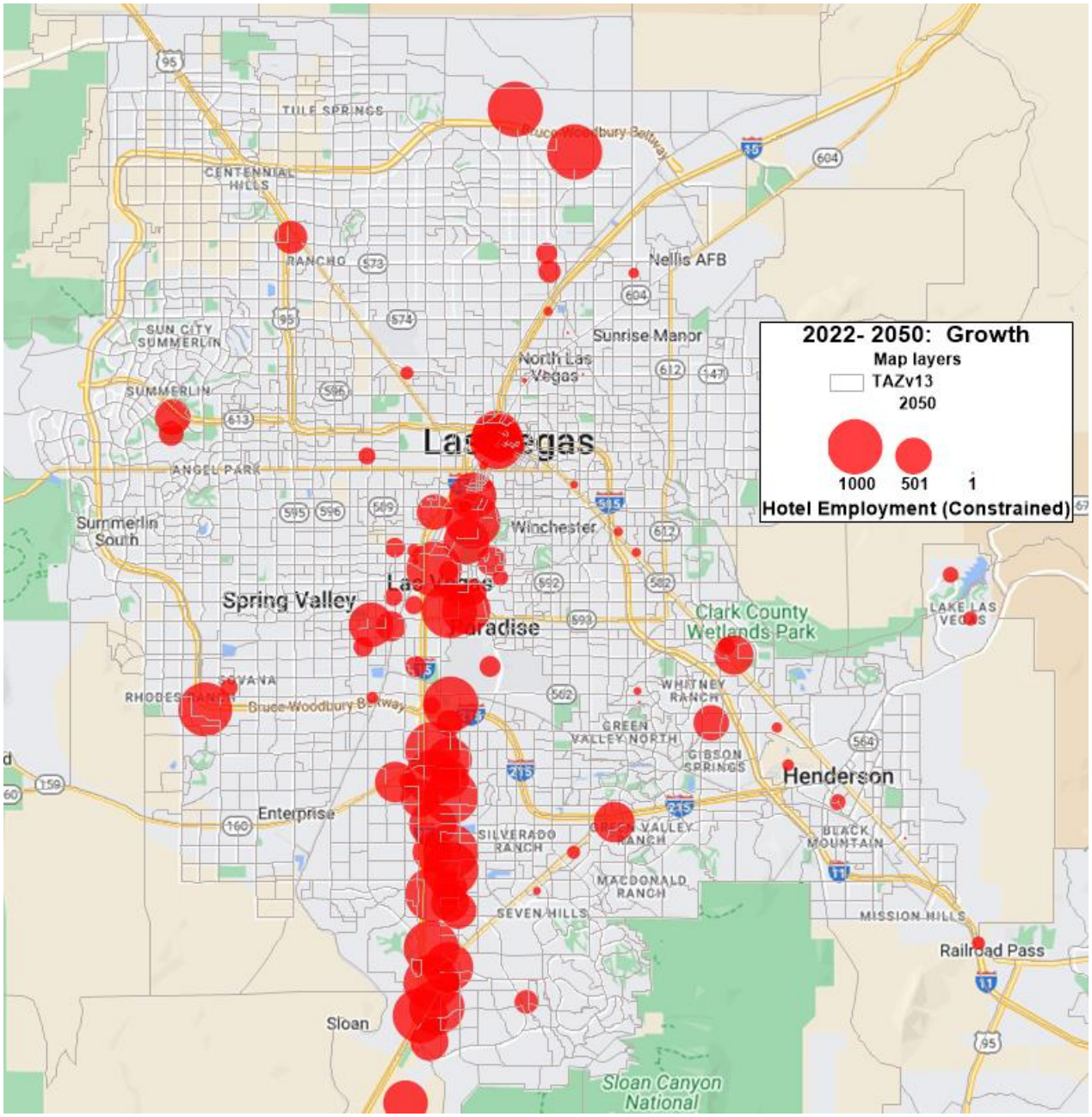


Figure 11: Growth (2022-2050) in Hotel Employment

The distribution of 2022-to-2050 growth in industrial employment is illustrated on Figure 12. Industrial employment will grow by 41,978, which is a 28% increase over existing industrial employment. Most industrial growth is forecast to occur in the North Las Vegas/APEX area.

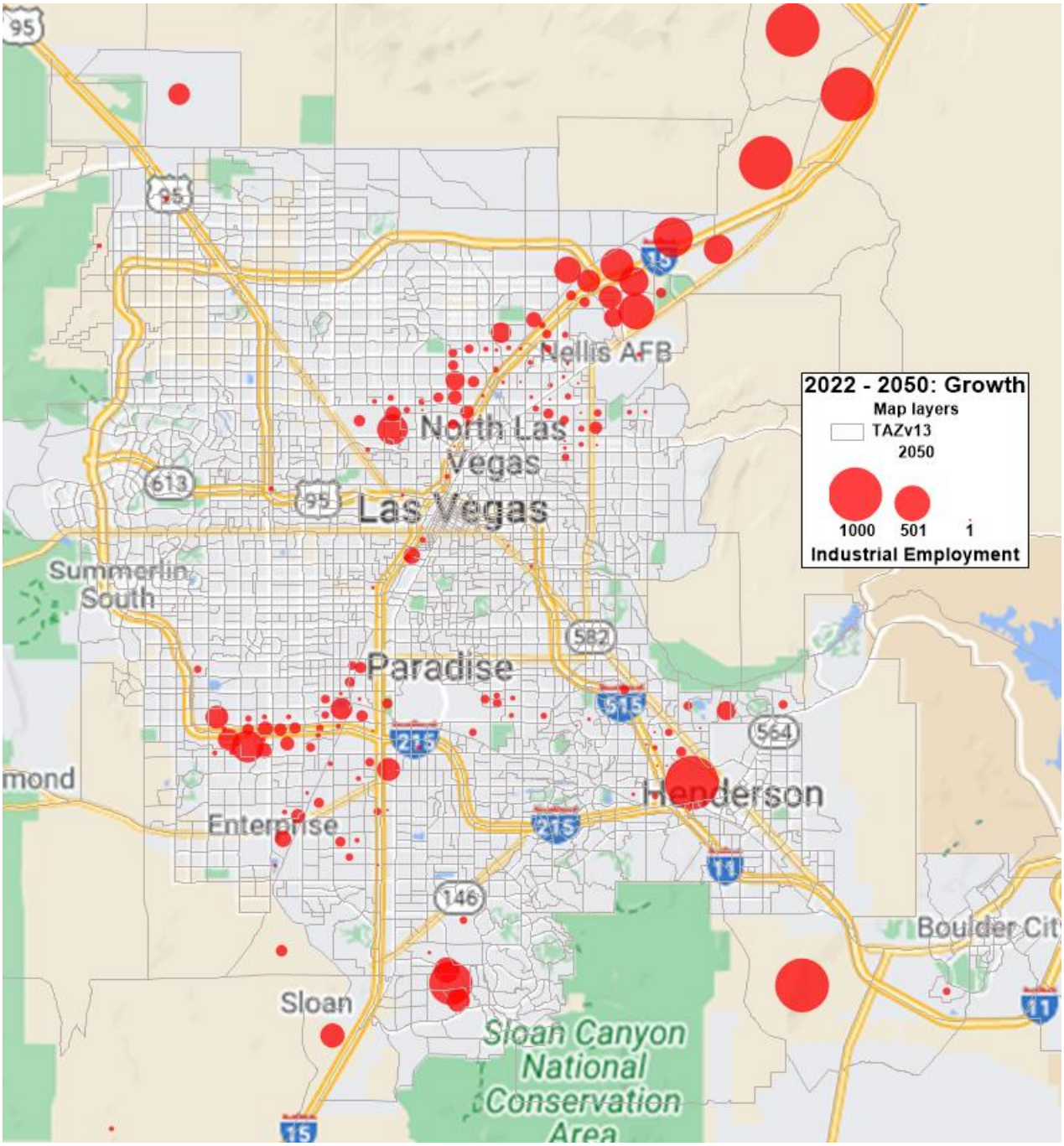


Figure 12: Growth (2022-2050) in Industrial Employment

The distribution of 2022-to-2050 growth in nonretail/other employment is illustrated on Figure 13. This growth is forecast to be 48,111, which is 37% more than existing nonretail/other employment levels.

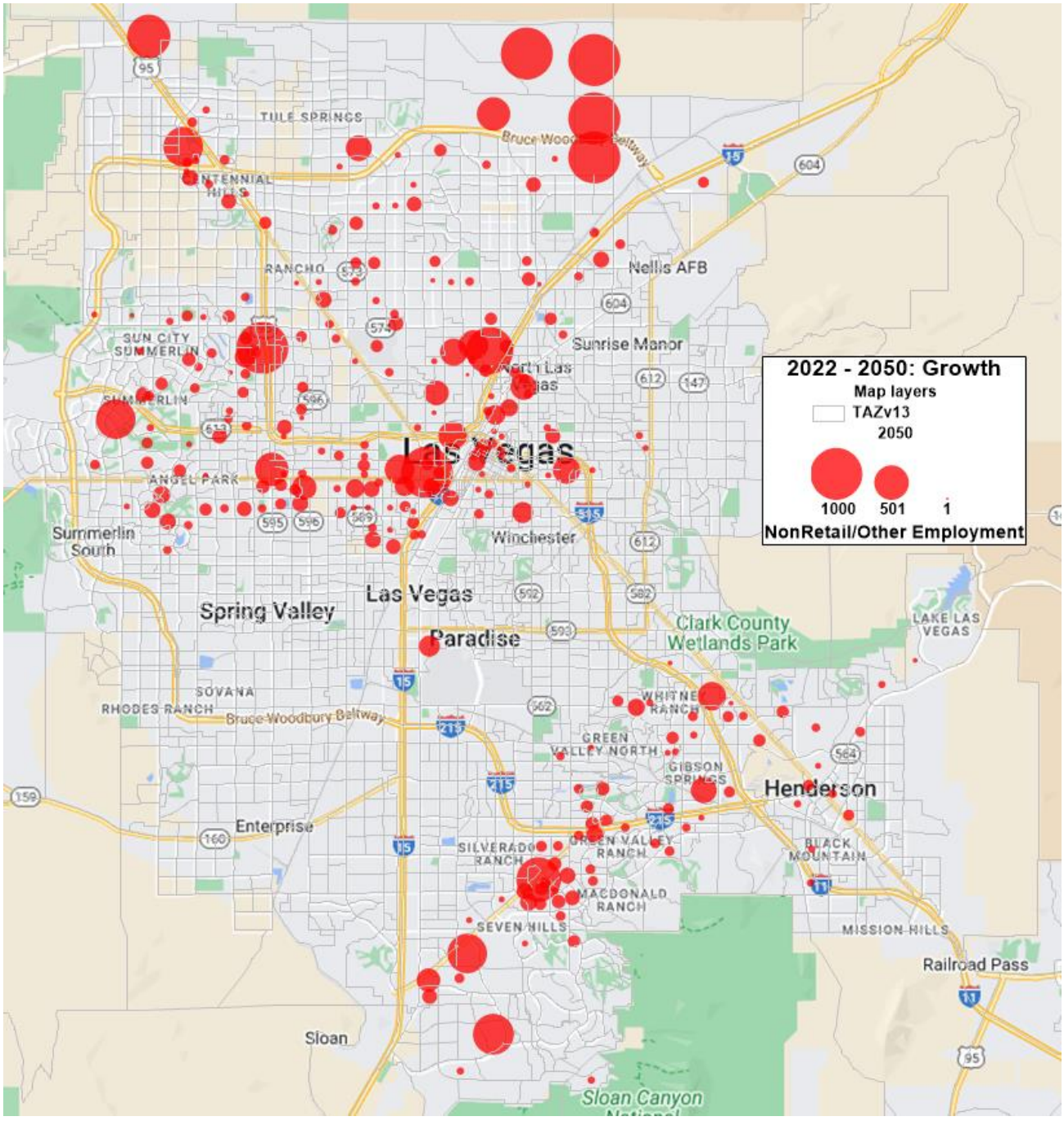


Figure 13: Growth (2022-2050) in Nonretail/Other Employment

The distribution of same period growth in office employment is illustrated on Figure 14. Office growth is forecast to be 99,637 higher than existing, which represents a 49% overall increase.

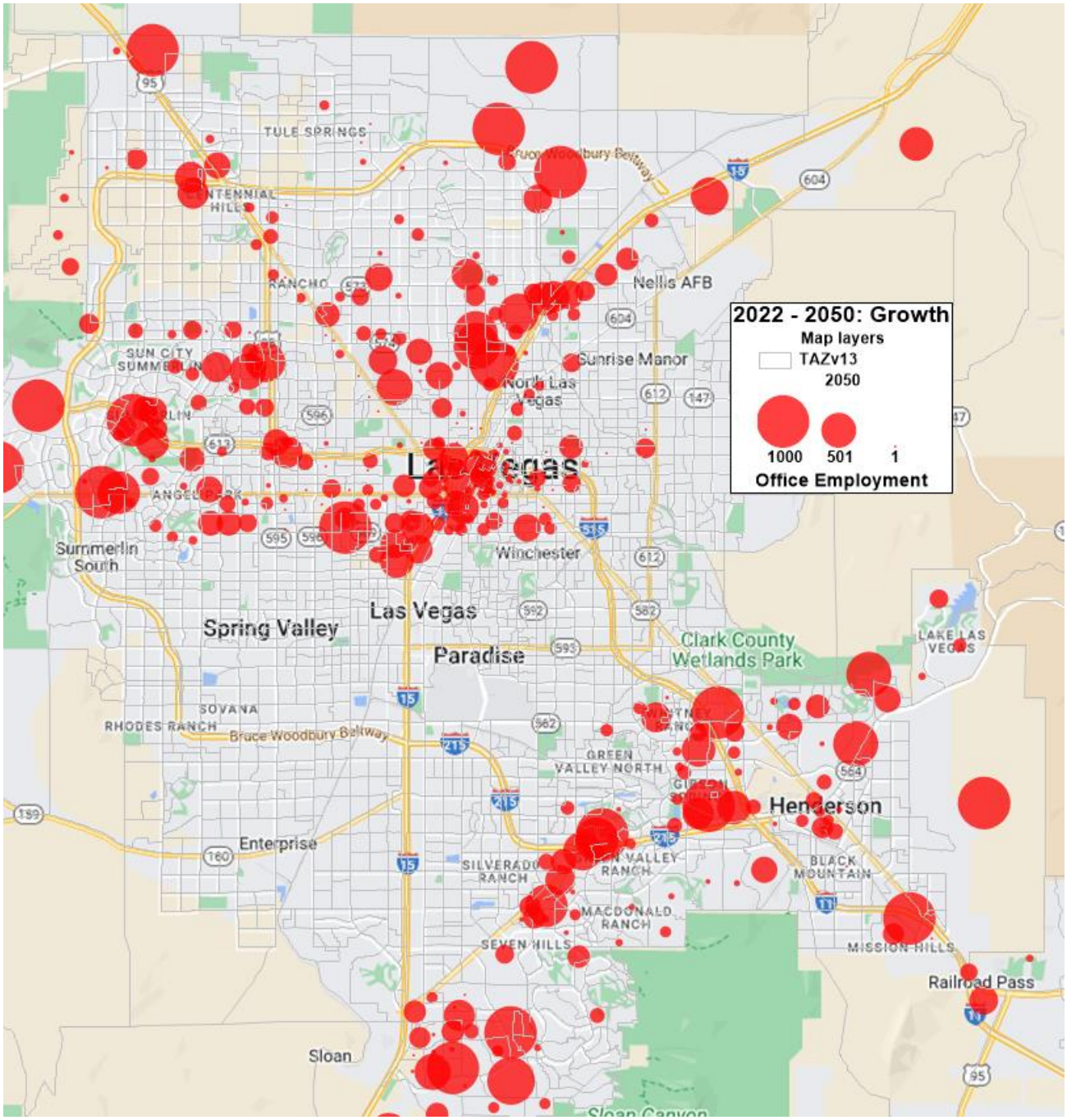


Figure 14: Growth (2022-2050) in Office Employment

The distribution of 2022-to-2050 growth in retail employment is illustrated on Figure 15. The retail growth is 39,526 jobs, which is 32% higher than existing retail employment. Most of the retail increase is forecast on the periphery of the Valley.

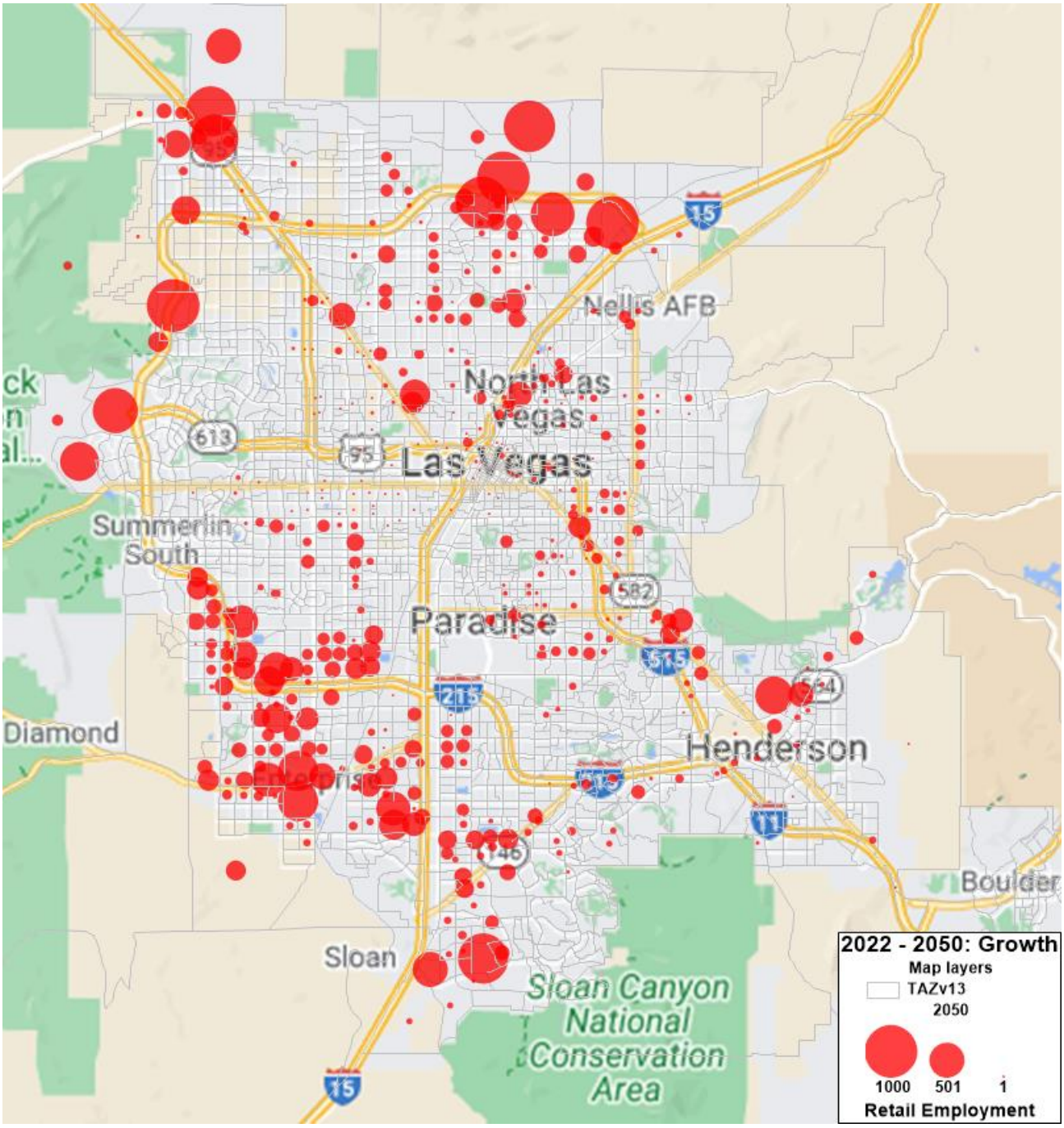


Figure 15: Growth (2022-2050) in Retail Employment

The distribution special generator employment growth is illustrated on Figure 16 and represents an increase of 24,914 from existing (54%). The large generator adjacent to I-15 near the California state line is the Southern Nevada Supplemental Airport.

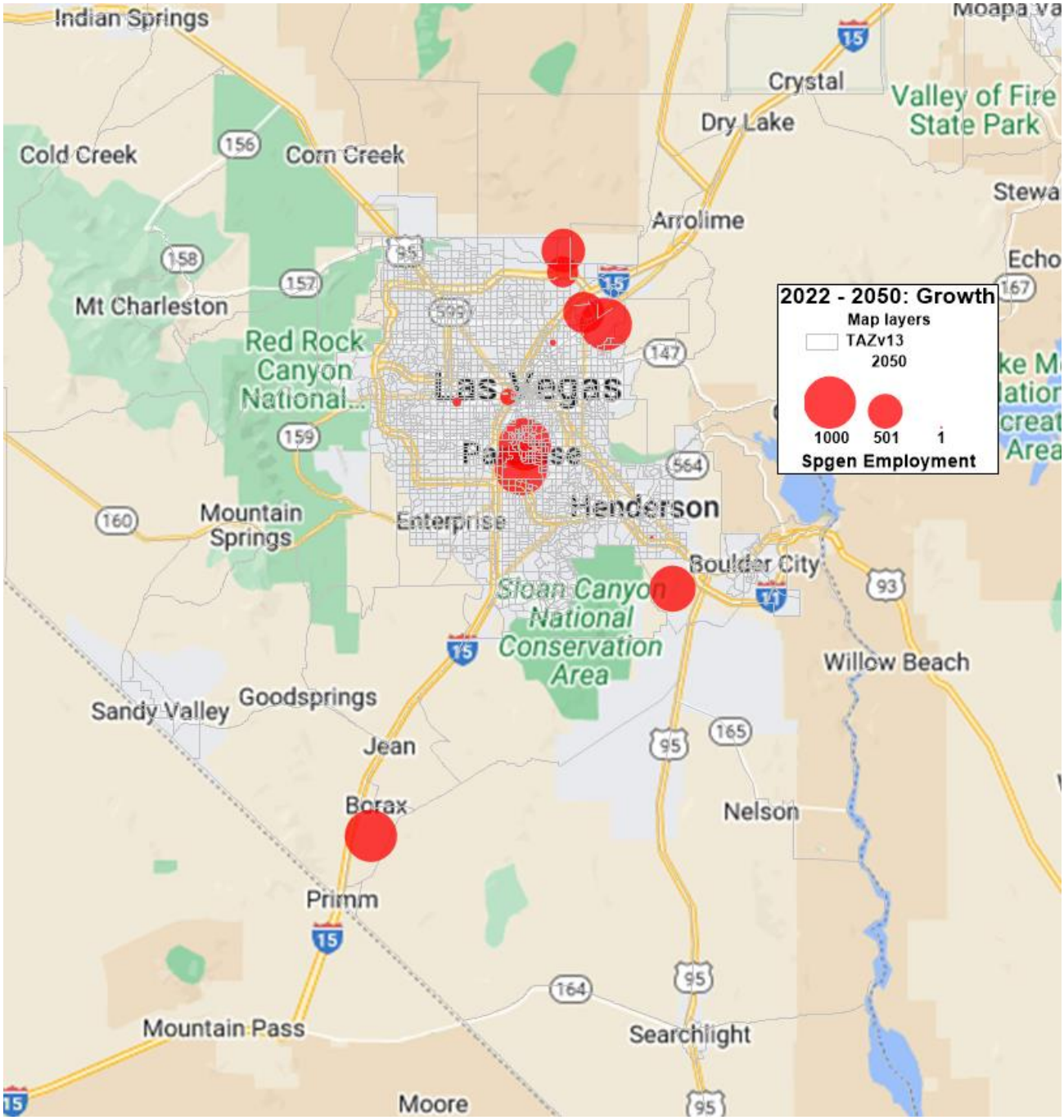


Figure 16: Growth (2022-2050) in Special Generator Employment

Figure 17 represents a synthesis of the previous growth figures, without special generators, and with hotel employment constrained. The growth in total employment is 316,836, which is a 35% increase over existing job levels.

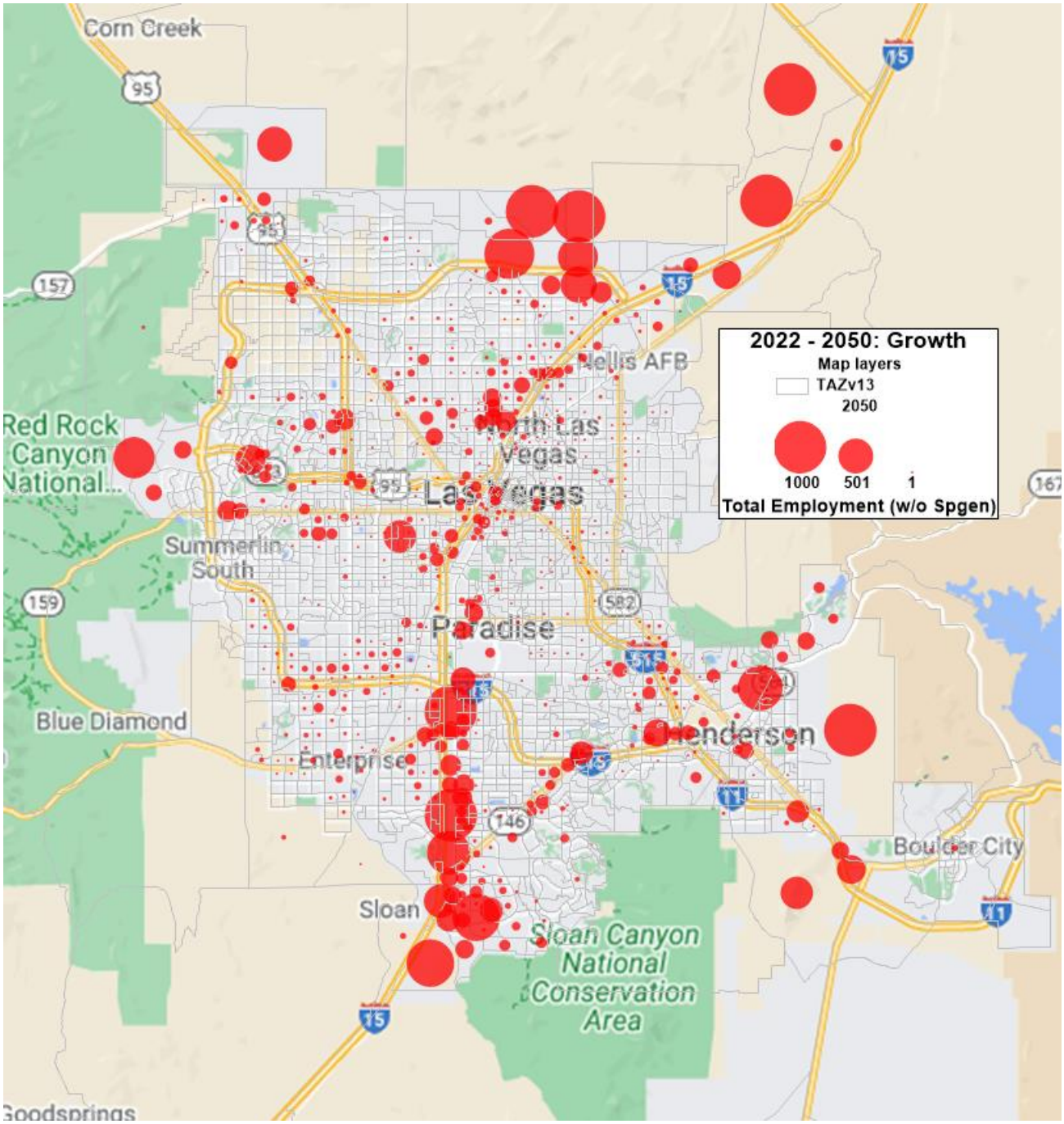


Figure 17: Growth (2022-2050) in Total Employment without Special Generators

Figure 18 is like Figure 11, except it represents unconstrained scenario hotel employment. The growth in hotel employment is 93,997 (35% increase).

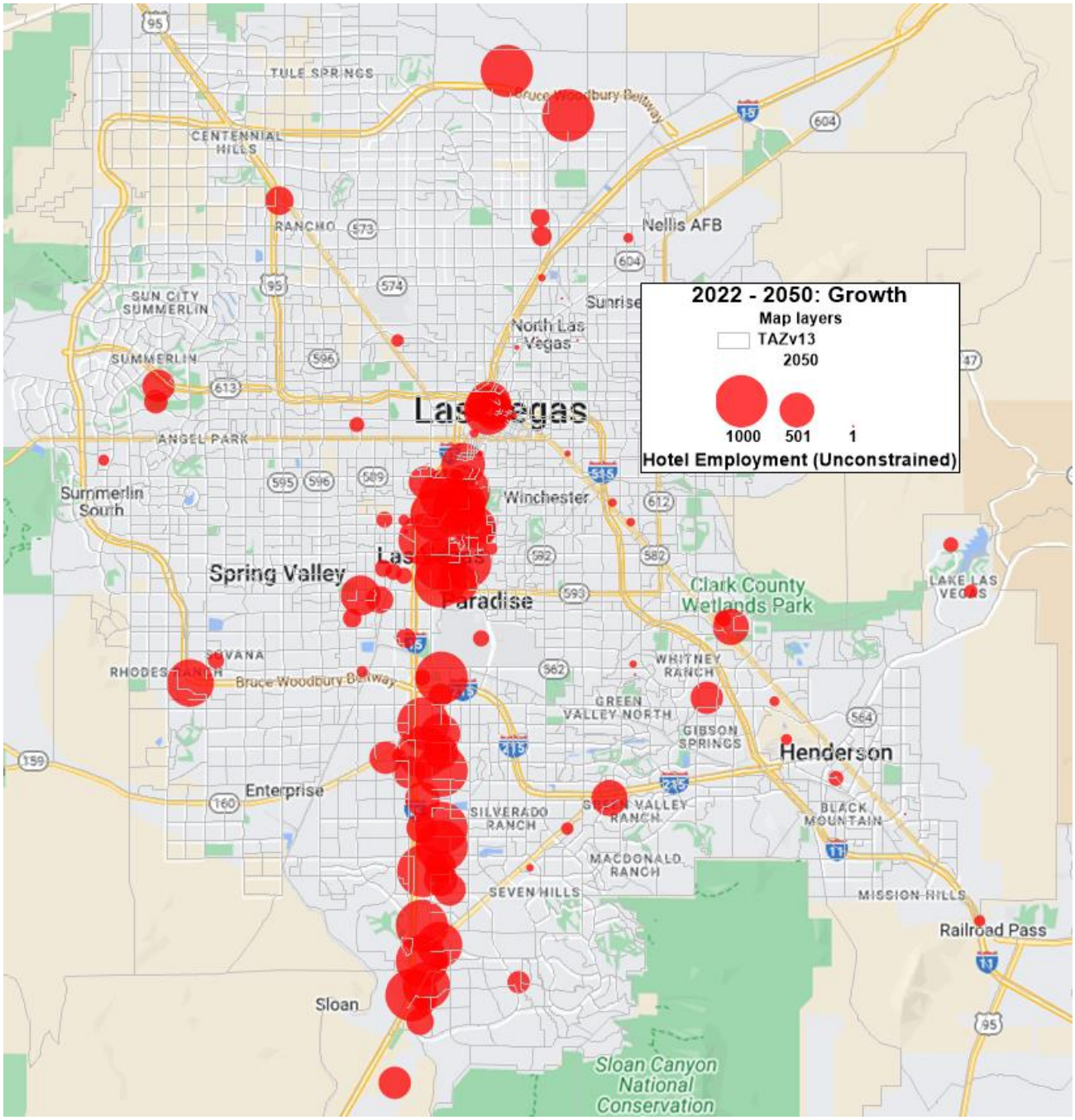


Figure 18: Growth (2022-2050) Hotel Employment (Unconstrained)

Figure 19 represents the distribution of growth in total employment (without special generators) for the hotel unconstrained scenario. The growth in total employment is 334,361, which represents a 37% increase over existing total employment.

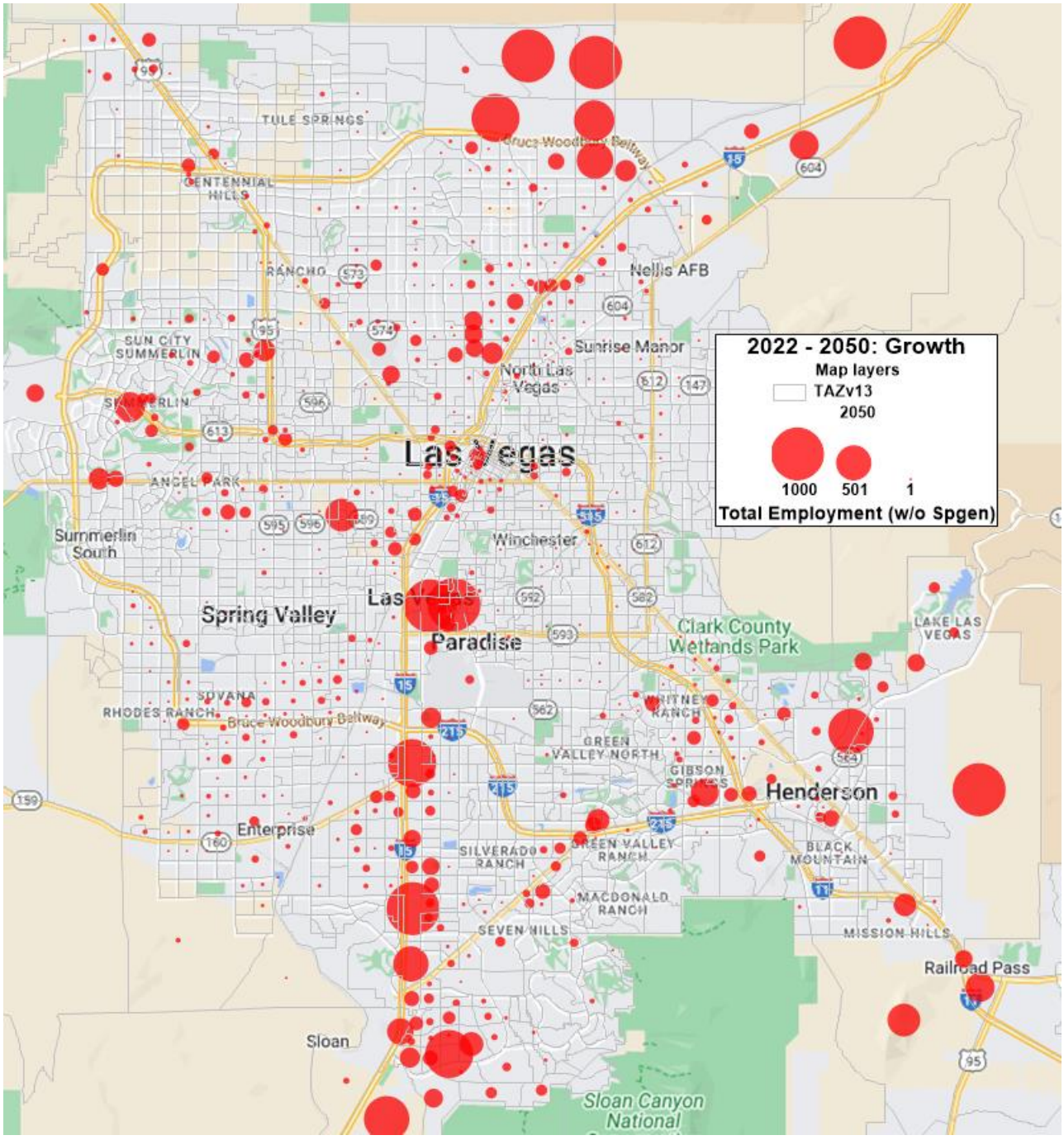


Figure 19: Growth (2022-2050) Total Employment without Special Generators (unconstrained)