2012 Southern Nevada Existing Conditions Report

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CHAPTER 1 – INTRODUCTION

The following report is intended to describe current conditions in the Southern Nevada region. It is focused on findings relating to key areas such as: the economy and jobs, housing, transportation, the environment, and community health. The report identifies areas of strength and areas that can be improved upon in the region. The goal of the report is to inform the broader efforts of the Southern Nevada Strong, the SCI Grant project.

Southern Nevada Strong is a regional planning effort focused on the sustainable development of Southern Nevada. Residents and local leaders will identify a vision and aspirations for the region, explore potential scenarios and establish a direction for our future. This project is supported by a $3.5 million grant from the Partnership for Sustainable Communities – a joint effort between the Department of Housing and Urban Development, the Department of Transportation, and the Environmental Protection Agency. The Partnership seeks to help communities nationwide take an integrated approach to improving livability. The effort is leveraged by $1.5 million in local in-kind contributions.

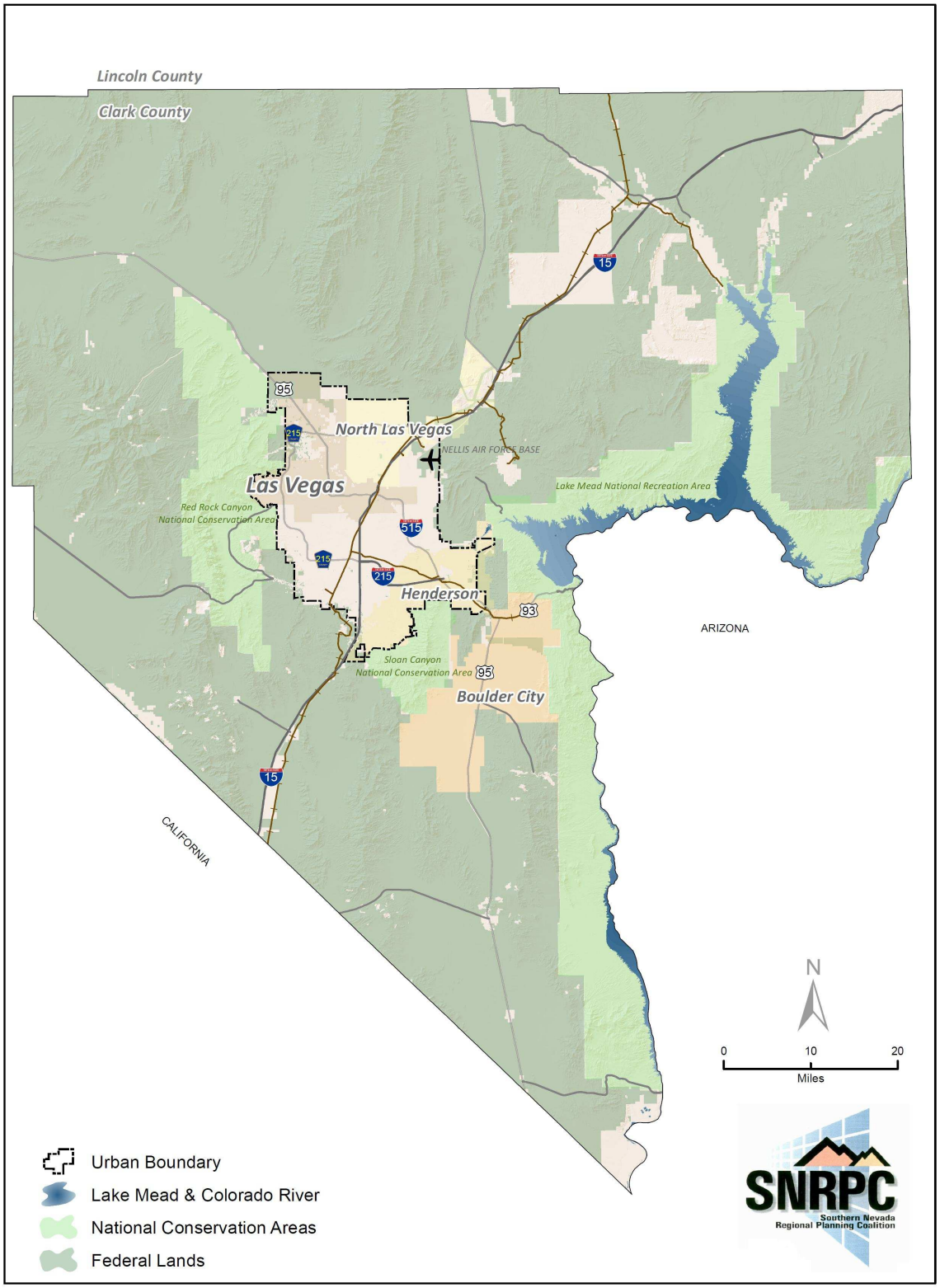
1.1 REGIONAL LOCATION & GEOGRAPHY

One county and four cities form the Southern Nevada region: Clark County, Las Vegas, Henderson, North Las Vegas and Boulder City (see Figure 1). These communities constitute the Las Vegas-Paradise Metropolitan Statistical Area (MSA). MSA is a term developed by the federal Office of Management and Budget to describe metropolitan regions with a population over 50,000 and a high degree of economic integration. In Clark County, the MSA boundary is the same as the Clark County boundary.

Most data in this report use the MSA as the geographic reference. Some data use the Census defined urban area boundary, which is most closely aligned with the BLM disposal boundary. In an effort to provide as much detail as possible, most maps use the Southern Nevada urban area map (see Figure 2).

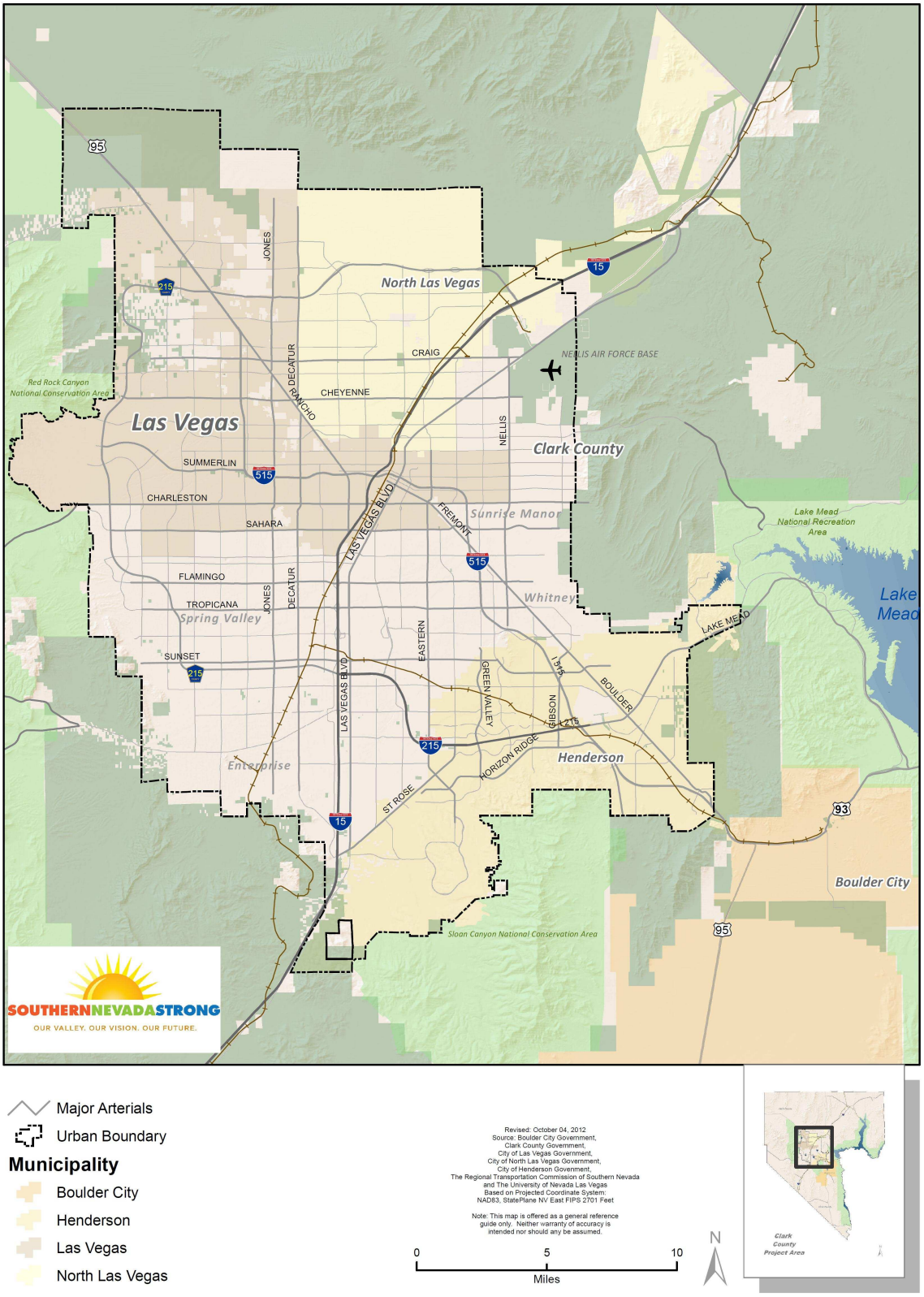
The Southern Nevada region is located in the Mojave Desert and bordered in the east by the States of Utah and Arizona and west by the State of California. The region's natural waterway is the Colorado River, which lies 30 miles to the southeast. The region is served by Interstate 15, which connects to the Southern California metro area to the south and the Salt Lake City metro area to the north. US Highway 93 connects the region to the Phoenix metro area to the south and Reno metro area to the north. The Union Pacific rail line connects Los Angeles-Long Beach with Salt Lake City and Union Pacific's transcontinental line to the eastern United States. McCarran International Airport is the major airport serving the region.

Figure 1: Southern Nevada Region



Source: SNRPC (2012)

Figure 2: Southern Nevada Urban Area



Source: SNRPC (2012)

1.2 PEER REGIONS

For the most part, peer regions used for comparisons throughout this report include Mountain West Metropolitan Areas. Regions from the Mountain West were selected for comparison because the Mountain West is unique from the rest of the Nation in that it is experiencing some of the "fastest population growth and economic and demographic transition" (Brookings, 2008) , Comparisons were made when data were available. If data were not available at the Metropolitan Area level, then county data were utilized when available. For the Economy section, peer regions included other US Metropolitan Areas with similar tourism characteristics (ex. Orlando).

CHAPTER 2 – DEMOGRAPHICS

Findings Summary

POPULATION GROWTH AND PROJECTIONS

- Southern Nevada experienced an average annual growth rate of 5.2 percent from 2000-2007 and a slow (1.5 percent) growth rate from 2008-2011.
- While population growth is projected to be positive in Southern Nevada 2014-2025, the rate of growth will be slower than in the past decade.
- The Hispanic population as a percentage of the total population in the region is projected to surpass the White population around 2030.
- The median age (in years) in the region increased by 3.2 percent between 2000 and 2010.
- The 65+ age group is projected to increase as a percentage of the total population from 2015-2050 while other age groups are projected to decrease.

INCOME

- Residents have a higher median household income ($56,258) and a lower percentage of people living below the poverty level (11.7 percent) compared to the national median household income ($51,914) and poverty level (13.8 percent).

EDUCATION

- Compared to peer regions, Southern Nevada has a lower percentage of residents with a Bachelor's degree or graduate/professional degree.
- Nevada graduation rates are the lowest in the nation (56.3 percent). Clark County School District graduation rates are lowest for Hispanic (59.8 percent) and Black students (57.6 percent), who make up a majority of the student population at 55 percent combined.

Key Findings

2.1 POPULATION CHANGE

The region's population increased dramatically between 1990 and 2010. Clark County grew by 163 percent between 1990 and 2010, from 741,459 to 1,951,269. Based on US Census estimates, the population of Southern Nevada reached the highest level in 2011 at 1,969,975 people. This represented a 1 percent population increase from 2010 (US Census, 2012).

Table 1: Population Growth, 1990-2010

	1990	2000	2010	% Change, 1990 - 2010
Clark County	741,459	1,375,765	1,951,269	163%

Source: US Census (2010)

The region will continue to grow over the next two decades, but at a slower rate than that of the 1990 – 2010 period. Population projections released by the University of Nevada at Las Vegas' Center for Business and Economic Research (CBER) in June 2012 show that the region will continue to see moderate population growth in the coming decades. However, the growth rate will be lower than that between 1990 and 2010. Going forward, the region's growth rate is projected to decline to 2 percent by 2020 and approach 1.1 percent by 2035. The region's population will increase by nearly 20 percent each decade (see Table 2). Most of the growth is expected as a result of new employment opportunities and net in-migration.

Table 2: Population Projections, 2010-2030

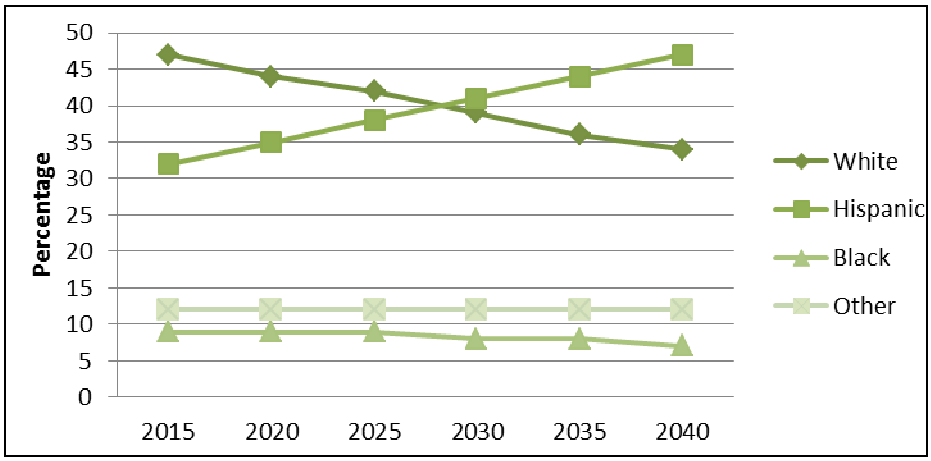
	2010	2020	2030	Change, 2010 - 2030	% Change, 2000 - 2010
Clark County	1,951,269	2,365,000	2,699,000	747,731	38%

Source: CBER, Population Forecast (2012)

Over the next two decades, the region is expected to see a large increase in the Hispanic population as a percentage of the total population. The increase in the Hispanic population corresponds with a decrease in the White population, with relatively no change in population for Black and other ethnic groups (Figure 3). By 2030, the Hispanic population is projected to be a higher percentage of the population than the White population. This forecast incorporates the same assumptions utilized by national population forecasts. The Hispanic share of the population will increase because of

lower median age within childbearing years, than the overall population, higher birth rates than the overall population and new immigrants and their children will account for the majority of population growth through the next few decades.

Figure 3: Population Forecast by Race/Ethnicity



Source: CBER, Population Forecast (2012)

2.2 HOUSEHOLD TYPE

The region's percentage of traditional family households has declined. In 2000, over 66 percent of the region's households were family households (i.e., composed of persons related to each other biologically or by marriage). Married couples comprised more than 48 percent of the region's households and almost 22 percent were the traditional married with children type. In 2010, however, family households decreased to 65.4 percent, married couples to 45 percent, and married with children households to 19.9 percent (see Table 3). This decrease was accompanied by growth in single-person households and non-family households: non-family households rose from 33.7 percent to 34.6 percent and single-person households rose from 24.5 percent to 25.3 percent.

Table 3: Change in Household Type, 2000-2010

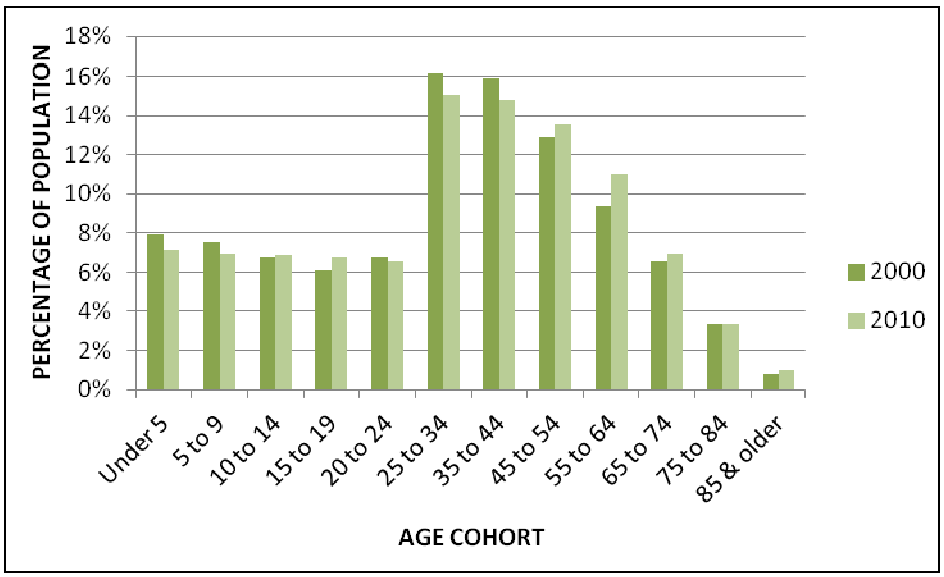
Household Type	Percentage of Regional Households, 2000	Percentage of Regional Households, 2010
Family	66.3%	65.4%
Married Couple	48.7 %	45%
Married with Children (subset of "Married couple")	21.7 %	19.9%
Nonfamily	33.7%	34.6%
Single-Person	24.5 %	25.3%

Source: US Census Bureau, Decennial Data (2000 & 2010)

2.3 POPULATION BY AGE

The number of households with residents aged 55 and older increased in the past decade. Growth during the past decade reflected the aging of the baby boomer generation with the largest rates of increase occurring among the older age groups (see Figure 4 for change between 2000 and 2010). Between 2000 and 2010, the highest growth rates of all age cohorts were those aged 85 and older (87 percent) and 55 to 64 (67 percent). Overall, the 65+ age group is projected to increase as a percentage of the total population from 2015 (15 percent) to 2050 (23 percent).

Figure 4: Change in Age Cohorts, 2000-2010

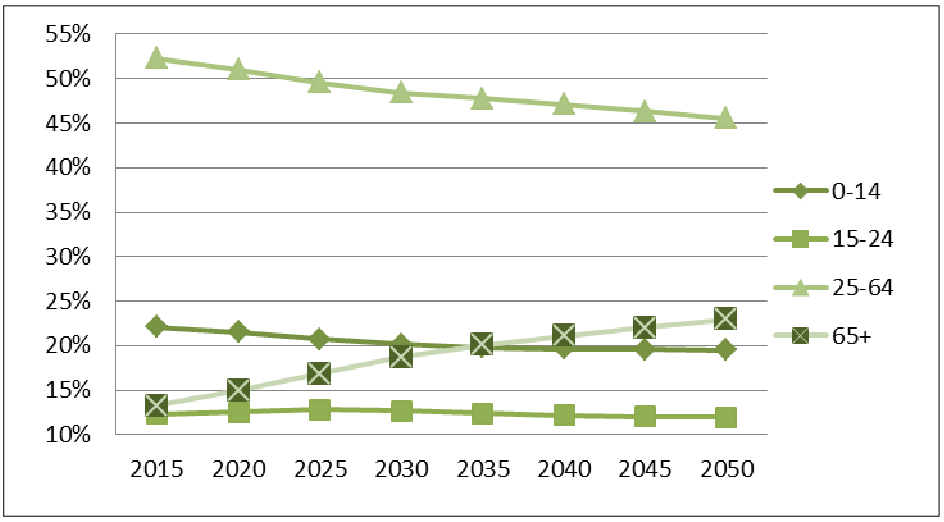


Source: US Census Bureau, Decennial Data (2000 & 2010)

2.4 AGE PROJECTIONS

While the 65+ age group is projected to have a 10 percent increase as a percentage of the total population from 2015 to 2050, all other age groups are projected to decrease. Although still the largest overall component of total population, the 25-64 age group is anticipated to have the greatest decrease at 7 percent.

Figure 5: Population Projections, by Age Group, 2015-2050



Source: CBER, Population Forecast (2012)

2.5 RACIAL AND ETHNIC DIVERSITY

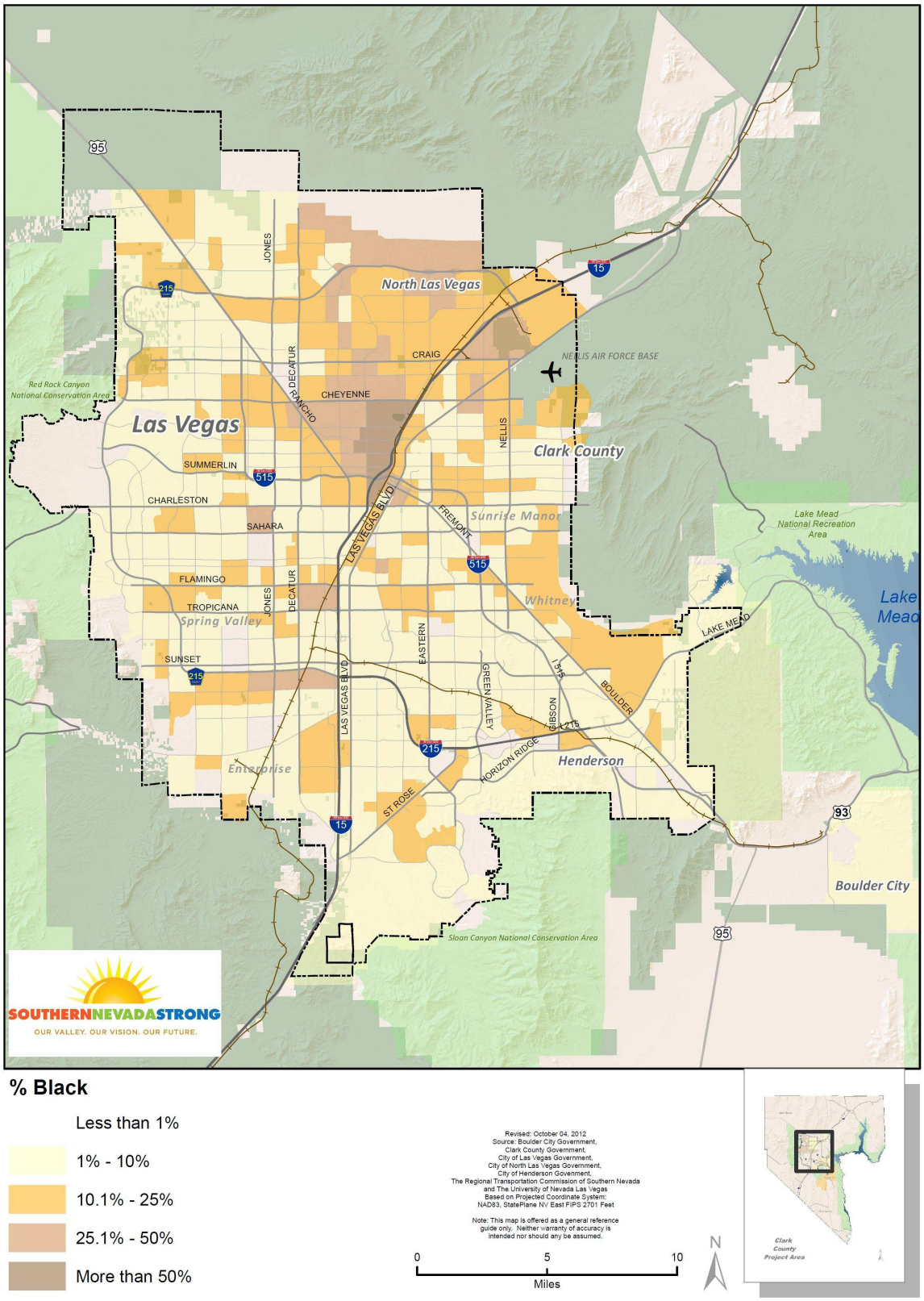
The region is becoming more racially and ethnically diverse. Between 2000 and 2010, all of the region's non-white populations increased. The Hispanic population grew by over 88 percent, representing almost 30 percent of the region's total population. The Black population grew by 56 percent, representing 10 percent of the region's total population. The Asian population grew by over 127 percent, representing 8.5 percent of the region's total population. Minorities now make up 52 percent of the region's total population (an increase from 39.8 percent in 2000) representing a majority, minority. Similar trends are occurring across the nation. Over the last decade, minorities, especially Hispanics and Asians, accounted for the majority of the nation's population growth.

Table 4: Changes in Race/Ethnic Composition, 2000-2010

Race/Ethnicity	2000 Population	2010 Population	% Change	% of Population 2000	% of Population 2010	Difference in % 2010 - 2000
Non-Hispanic White	828,669	935,955	12.9%	60.2%	48.0%	-12.3%
Hispanic	302,143	568,644	88.2%	22.0%	29.1%	7.2%
Black	124,885	194,821	56.0%	9.1%	10.0%	0.9%
Asian	72,547	165,121	127.6%	5.3%	8.5%	3.2%
Other	47,521	86,728	82.5%	3.5%	4.4%	1.0%
Total population	1,375,765	1,951,269	41.8%			

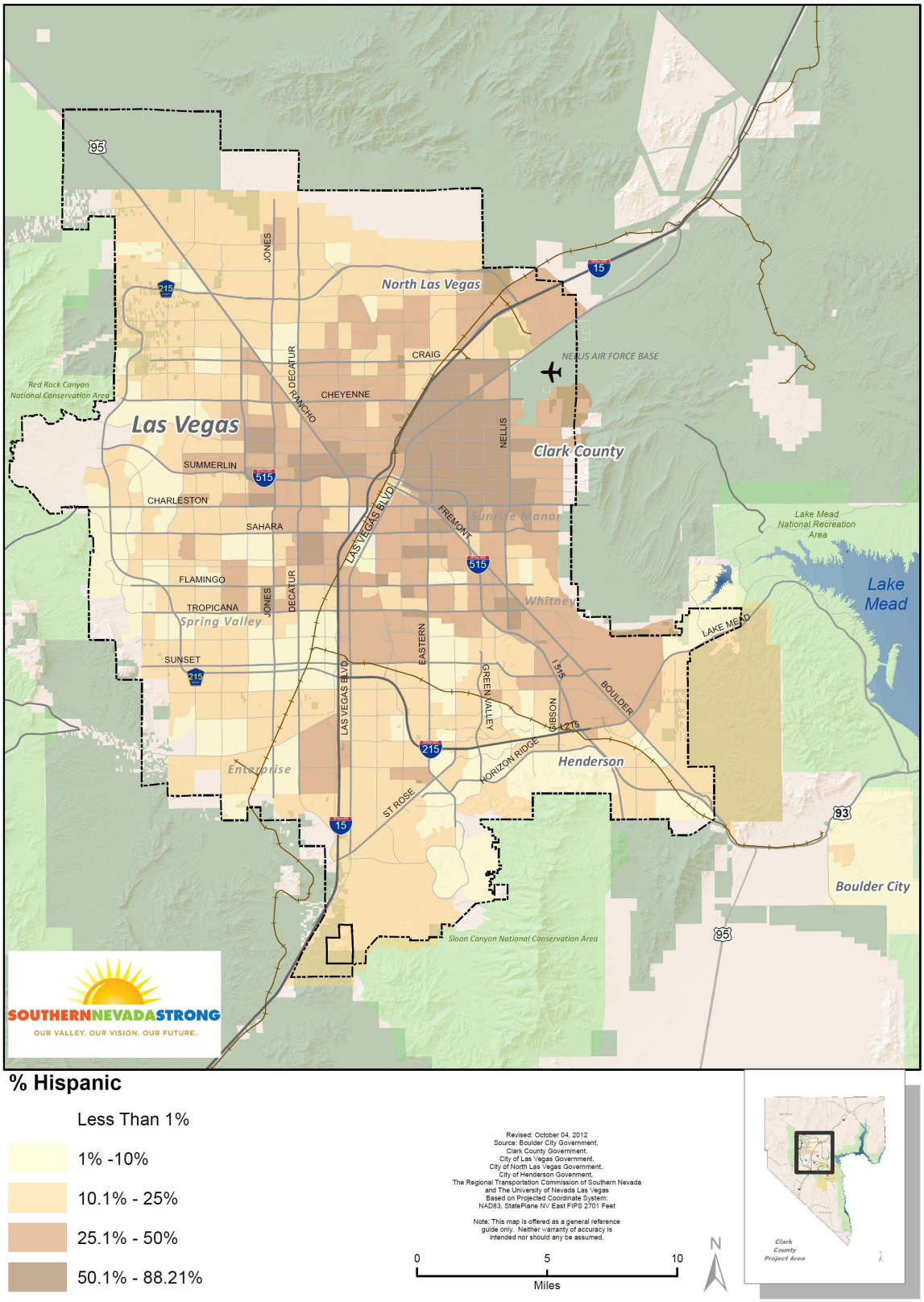
Source: US Census Bureau, Decennial Data (2000 & 2010)

Figure 6: 2010 Black Population by Census Tract



Source: US Census (2010)

Figure 7: 2010 Hispanic Population by Census Tract



Source: US Census (2010)

2.6 HOUSEHOLD INCOME

The majority of the region's households have annual incomes less than $50,000. In 2010, 51 percent of the region's households earned less than $50,000 annually, and 33.7 percent earned less than $35,000 (see Table 5).

Table 5: Annual Household Income, 2010

Annual Household Income	% of Total Households
Less than $25,000	21.4%
$25,000 to $34,999	12.3%
$35,000 to $49,999	17.1%
$50,000 to $74,999	24.6%
$75,000 to $99,999	16.1%
$100,000 to $149,999	15.2%
$150,000 or more	9.3%

Source: US Census Bureau, American Community Survey 5-Year Estimate (2010)

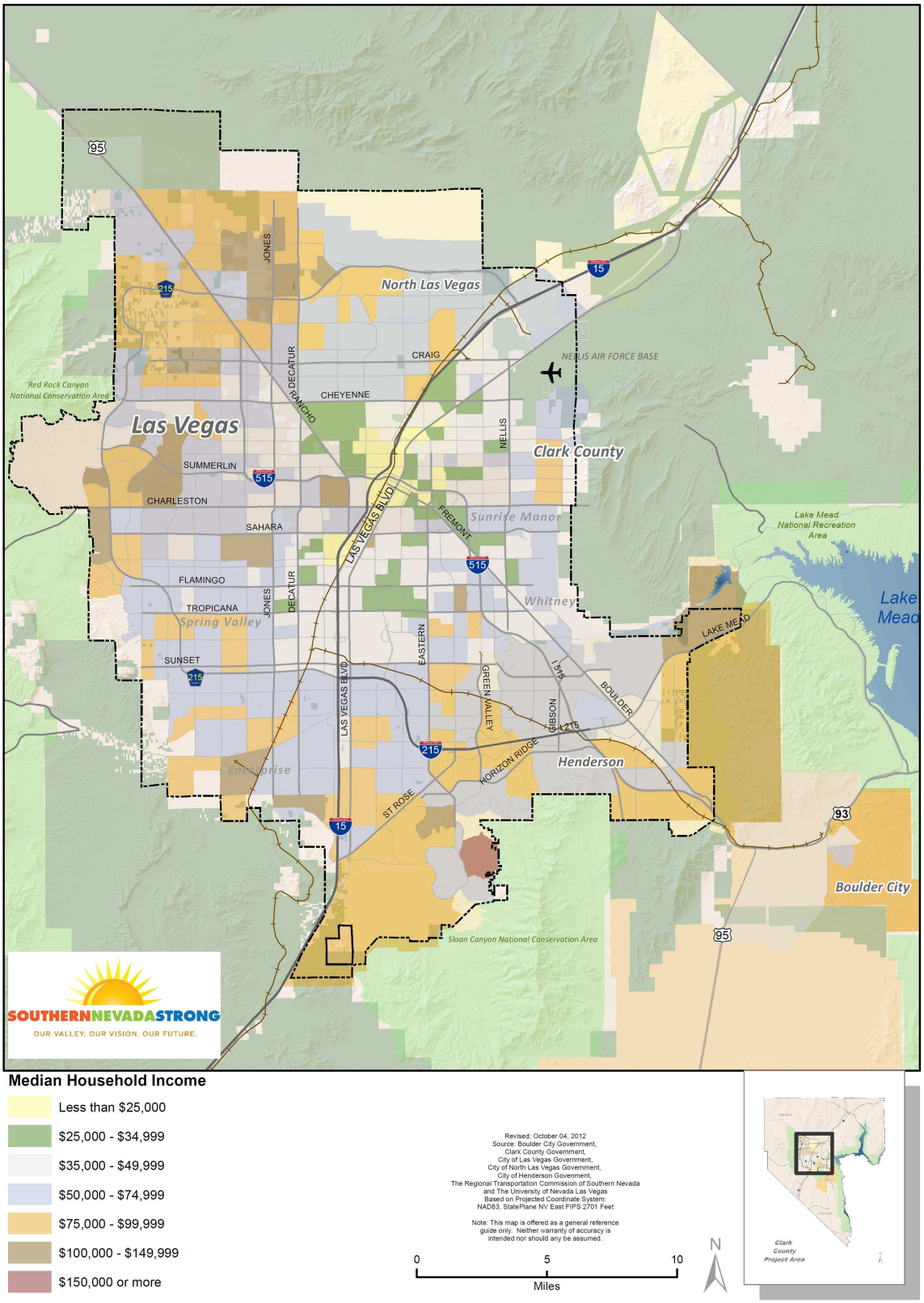
Annual household incomes are higher for White and Asian households compared to Black and Hispanic households. In 2010, 24.6 percent of Asian households and 21.6 percent of White households had incomes higher than $100,000 (see Table 6). In comparison, 10.5 percent of Black and 19.8 percent of Hispanic households had incomes higher than $100,000. Conversely, 44.5 percent of Black and 36.9 percent of Hispanic households had incomes less than $35,000 annually. By comparison, 28.7 percent of White and 26.1 percent of Asian households have household incomes less than $35,000 annually.

Table 6: Annual Household Income by Race/Ethnicity, 2010

Annual Household Income	White	Asian	Black	Other	Hispanic
Less than $24,999	18.00%	17.20%	31.10%	18.90%	21.60%
$25,000 - $34,999	10.70%	8.90%	13.40%	7.00%	15.30%
$35,000 - $49,999	14.80%	14.10%	15.30%	16.00%	18.10%
$50,000 - $74,999	21.00%	21.00%	19.90%	26.80%	22.40%
$75,000 - $99,999	13.80%	14.40%	9.60%	16.00%	11.90%
$100,000 - $149,999	13.40%	15.80%	7.40%	10.60%	7.90%
$150,000 or more	8.20%	8.50%	3.10%	4.70%	2.90%

Source: US Census Bureau, American Community Survey 3-Year Estimate (2008-2010)

Figure 8: 2010 Median Household Income by Census Tract

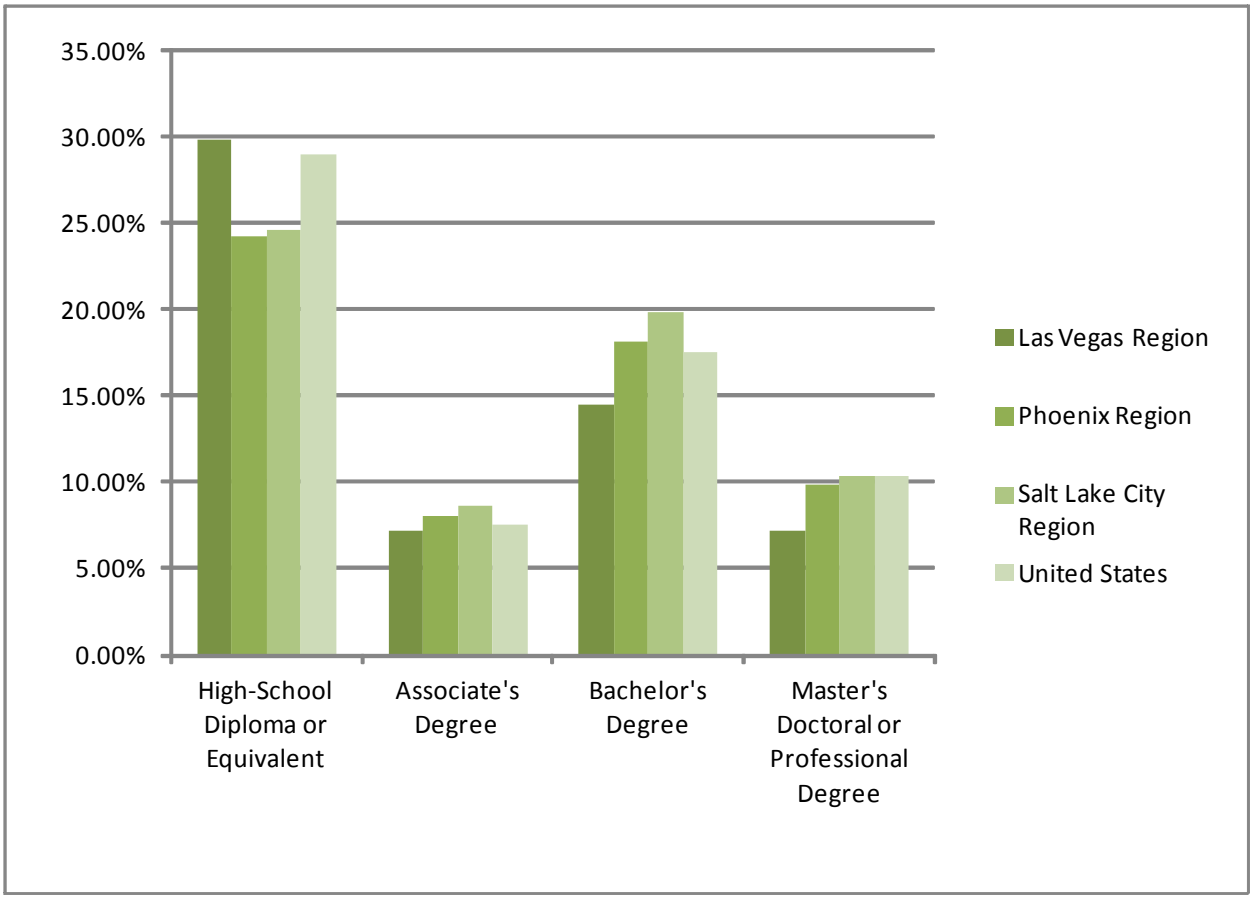


Source: US Census, ACS 5-Year (2006-2010)

EDUCATIONAL ATTAINMENT

Working age people have lower levels of educational attainment compared to peer regions. The region has a high number of working age people with a high school degree. In addition, the region has fewer working age people with a Bachelor's degree or a graduate/professional degree compared to peer regions. This could be due to low education requirements of many of the major occupations in the regions primary industry, gaming and hospitality.

Table 7: Highest Level of Educational Attainment, Population 25 and Older, 2010



US Census, ACS (2006-2010)

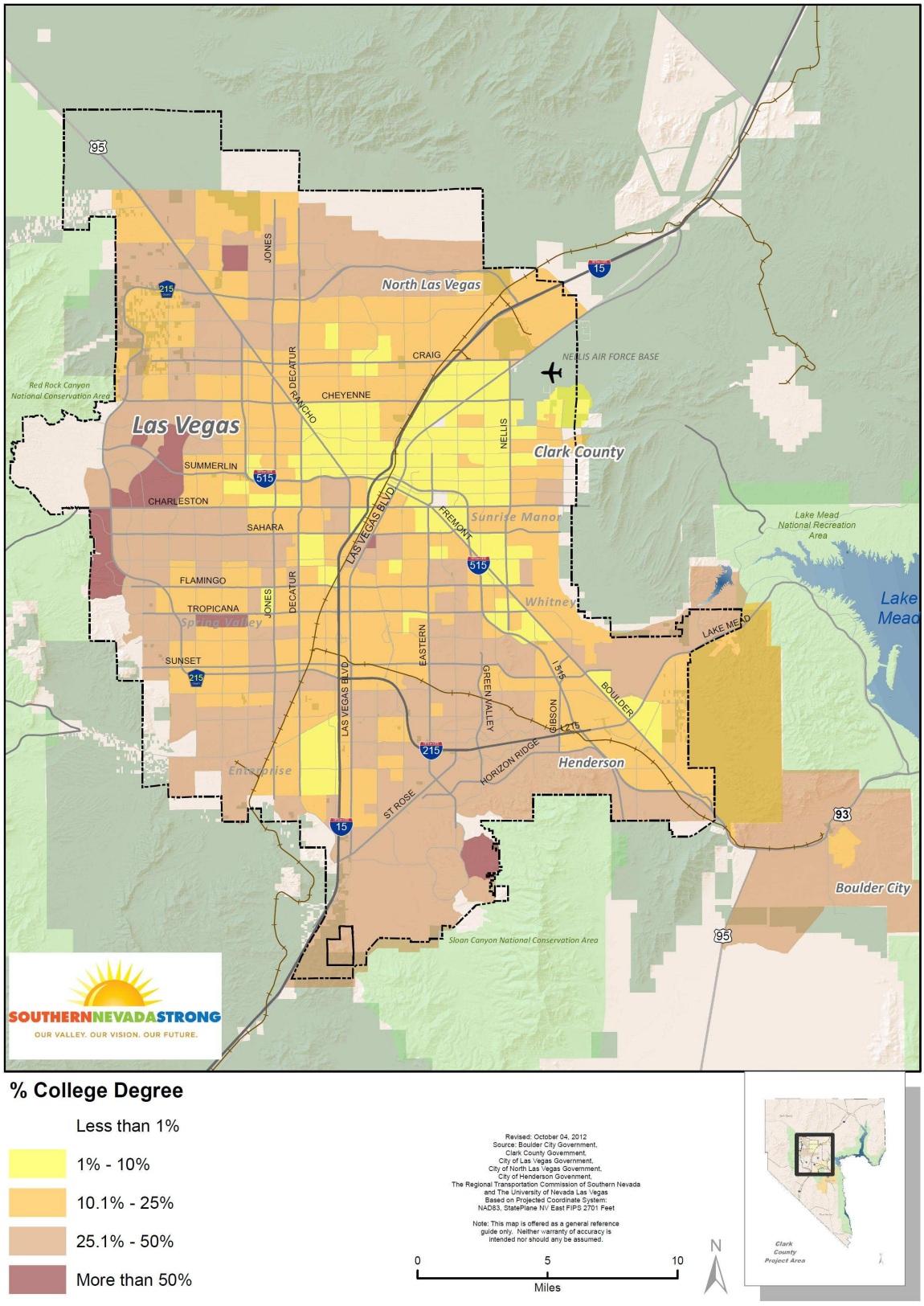
Educational attainment is higher for White and Asian populations and lower for Hispanic and Black populations. Among the population 25 and older, Asian (38.5 percent) and White (21.5 percent) have completed a Bachelor's degree or higher (see Table 8). By comparison, Black (16.2 percent) and Hispanic (8.2 percent) residents have completed a bachelor's degree or higher.

Table 8: Educational Attainment, Population 25 and Older by Race/Ethnicity, 2010

Highest Educational Attainment	White	Asian	Black	Other	Hispanic
High-School Diploma or Equivalent	26.2%	20.1%	29.4%	27.3%	26.1%
Associate's Degree	6.7%	9.2%	7.9%	12.1%	4.1%
Bachelor's Degree	14.1%	29.8%	10.4%	5.0%	6.1%
Master's Doctoral or Professional Degree	7.4%	8.7%	5.8%	3.5%	2.1%

US Census, American Community Survey, 5-year (2008-2010)

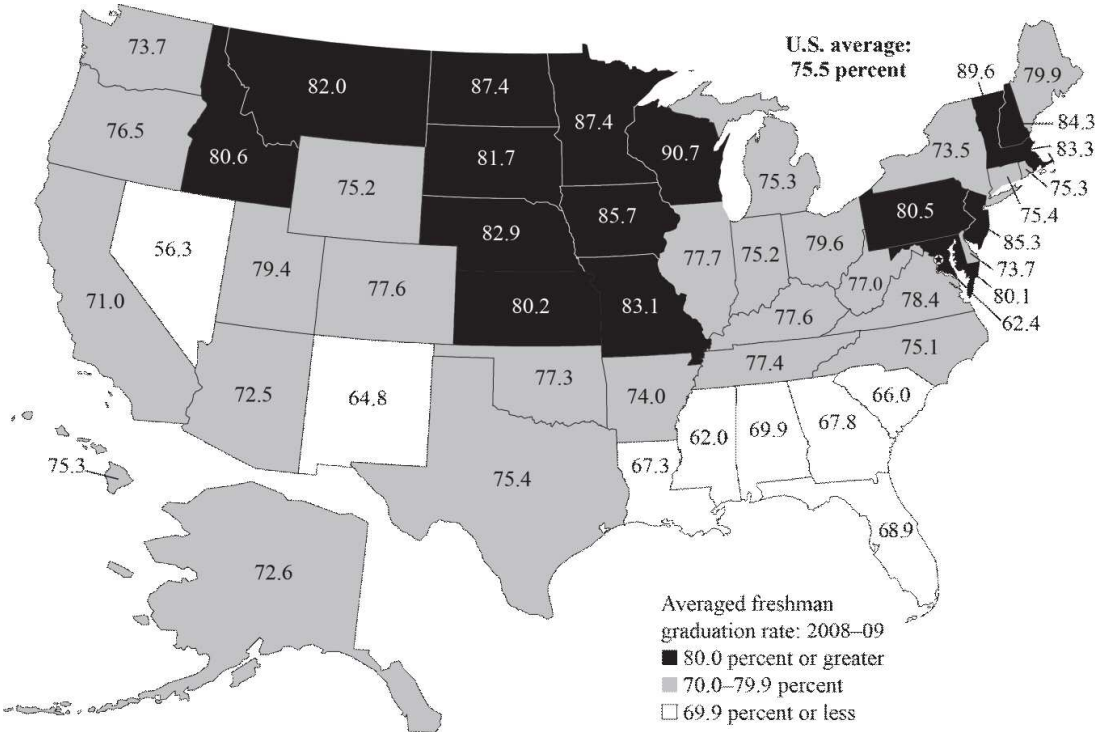
Figure 9: College Degree by Census Tract



Source: US Census, ACS 5-Year (2006-2010)

Nevada high school graduation rates are the lowest in the nation. Failure to complete high school has a direct impact on a person's income potential and quality of life (Tyler & Owens, 2010). Based on data from the US Department of Education, Nevada had the lowest high school graduation rate (56.3 percent) in 2008-2009 (Figure 10) as compared to 75.5 percent nationally. The state with the second lowest graduation rate was Mississippi at 62 percent.

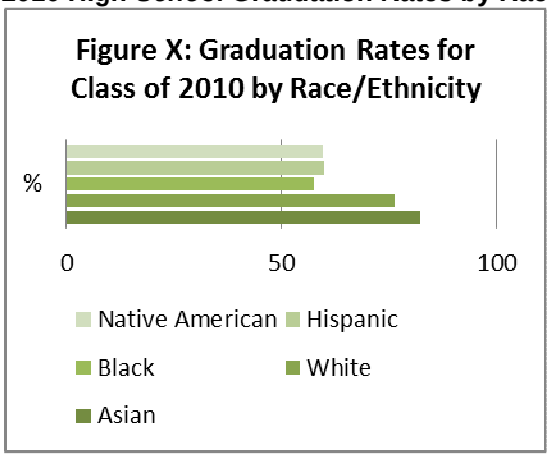
Figure 10: Average Graduation Rate for US States, 2009



Source: U.S. Department of Education (2009)

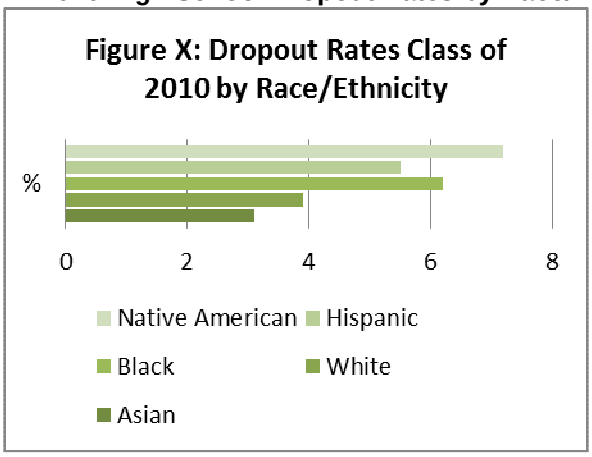
High school graduation rates and dropout rates vary by race/ethnicity in the Clark County School District. High school graduation rates for the Class of 2010 were the lowest for Native American/Alaskan Native (59.5 percent), Black (57.6 percent) and Hispanic (59.8 percent) students. The highest graduation rates were for Asian (82.3 percent) and White (76.4 percent) students (Figure 11). High School dropout rates for the Class of 2010 in Clark County were the highest rate among Native American/Alaskan Native (7.2 percent), Hispanic (5.5 percent) and Black (6.2 percent) and the lowest for Asian (3.1 percent) and White (3.85 percent) students (Figure 12) (Nevada Department of Education, 2012).

Figure 11: 2010 High School Graduation Rates by Race/Ethnicity



Source: Nevada Department of Education (2012)

Figure 12: 2010 High School Dropout Rates by Race/Ethnicity



Source: Nevada Department of Education (2012)

Students score low in national reading and math assessments. According to the 2011 National Center for Educational Statistics study titled "National Assessment of Educational Progress", Nevada was 41st in average 8th grade math scores, 44th in average 8th grade reading scores, and 44th in average 8th grade science scores. Fourth grade average scores had Nevada ranked 39th in math and 44th in reading in 2011.

Table 9: State Test Score Rankings, 2011

National Assessment of Educational Progress Scores					
	Math 4th grade	Reading 4th Grade	Math 8th Grade	Reading 8th Grade	Science 8th Grade
Nevada	39th	44th	41st	44th	44th

Source: National Center for Educational Statistics, National Assessment of Educational Progress (2012)

CHAPTER 3 – HOUSING

Findings Summary

HOUSING VALUES, SALES & RENTALS

- Since 2006, median home values have decreased 60.4 percent.
- The majority of mortgage holders hold negative equity in their homes.
- Median rental rates are higher than the national average.

HOUSING UNITS

- Single-family units comprise the bulk of the region's housing stock.
- The region has a high rate of vacant units compared to the nation.
- There are fewer owner occupied units compared to the national average.
- The majority of the region's housing units were built after 1990.

HOUSING AFFORDABILITY

- Housing costs are unaffordable for half of renters and half of owners, based on percent of income.

HOMELESSNESS

- In 2011, over 9,000 residents in the region were homeless.

The foreclosure crisis significantly changed economic conditions in Clark County, with over 58,000 foreclosures recorded since 2007. According to the Brookings Institute, Las Vegas experienced one of the largest decreases in housing values. Home values dropped 59.5 percent from the peak in 2006 to the second quarter of 2012, compared with a national average of 26.7 percent (S&P/Case-Shiller, 2012). The housing bubble burst and the resultant economic recession and widespread job losses make it difficult for all homeowners to remain in and maintain their housing, particularly low income households. The inflation in housing price was much larger in Southern Nevada from 2003 to 2006 than in much of the US; consequently, the subsequent decline in values was large as well (S&P/Case-Shiller, 2011). Moreover, Southern Nevada had a disproportionately high number of high risk loans, resulting in exceedingly high foreclosure rates. This has forced many homeowners to walk away from homes they can no longer afford.

Key Findings

3.1 HOUSING VALUES, SALES, & RENTALS

Since 2006, median home values have decreased 60.4 percent. The median home value was estimated at $134,315 in the second quarter of 2012. This figure was lower than the national median of $181,100. These values represent a 60.4 percent decrease regionally and 15.7 percent nationally from 2006 values. The falling housing market has affected a multitude of issues, including the foreclosure rate, fiscal budgets of state and local governments, the school system, and the economy; all of which are discussed throughout this report.

Table 10: Median Home Values, 2012

Housing prices	Southern Nevada	NV	Nation
Median home value	$134,315*	$116,850	$181,100**
Percent change from 2006 (median existing home price)	-60.4*	-57.0***	-15.7***

*Source: *CBER-LIED (2012); **HUD (2012), ***FHFA (2012)*

The majority of mortgage holders have negative equity in their homes. According to the New York Federal Reserve, 85 percent of all mortgage holders in Las Vegas have negative equity in their homes (Haughwout, Peach, and Tracy, 2010; Shaulis et al, 2012). This has considerable negative consequences as research has shown that once individuals are underwater in their homes they are more likely to default.

Median rental rates are higher than the national average. The region's median gross rent is $986, 15 percent higher than the median cost nationally of $855. In addition, median gross rent in the region is higher than other metropolitan areas with similar median housing values, such as Phoenix ($883) and St. Louis ($734) (US Census, ACS 2010).

3.2 HOUSING UNITS

Single-family units comprise the bulk of the region's housing stock. In 2010, 62.7 percent of the region's housing units were single-family homes. This is less than the national average of 67.1 percent (see Table 11).

Table 11: Housing Units by Type, 2010

Housing units	Las Vegas	Nation
Single family	62.7%	67.2%
Multi-unit structures	33.4%	26.2%
Mobile homes	3.9%	6.6%

Source: US Census Bureau, ACS 3- Year Estimates (2008-2010)

The region has a higher than average rate of vacant housing units. The percent of vacant units in the region is higher than the United States (Table 12). In 2012, 16.9 percent of housing units were vacant, compared with 13 percent nationally in 2010. The majority of vacant units were condominiums (18.2 percent), followed by apartments (13.1 percent), townhouses (12.3 percent) and single family units (10.5 precent). The substantial amount of vacant units is concerning, as vacant units become vandalized or dilapidated, attract crime, contribute to neighborhood decline, and pose a threat to public safety (GAO, 2011). Additionally, the cost burden of inspecting vacant units and mitigating unsafe conditions falls on local governments, which are already overburdened.

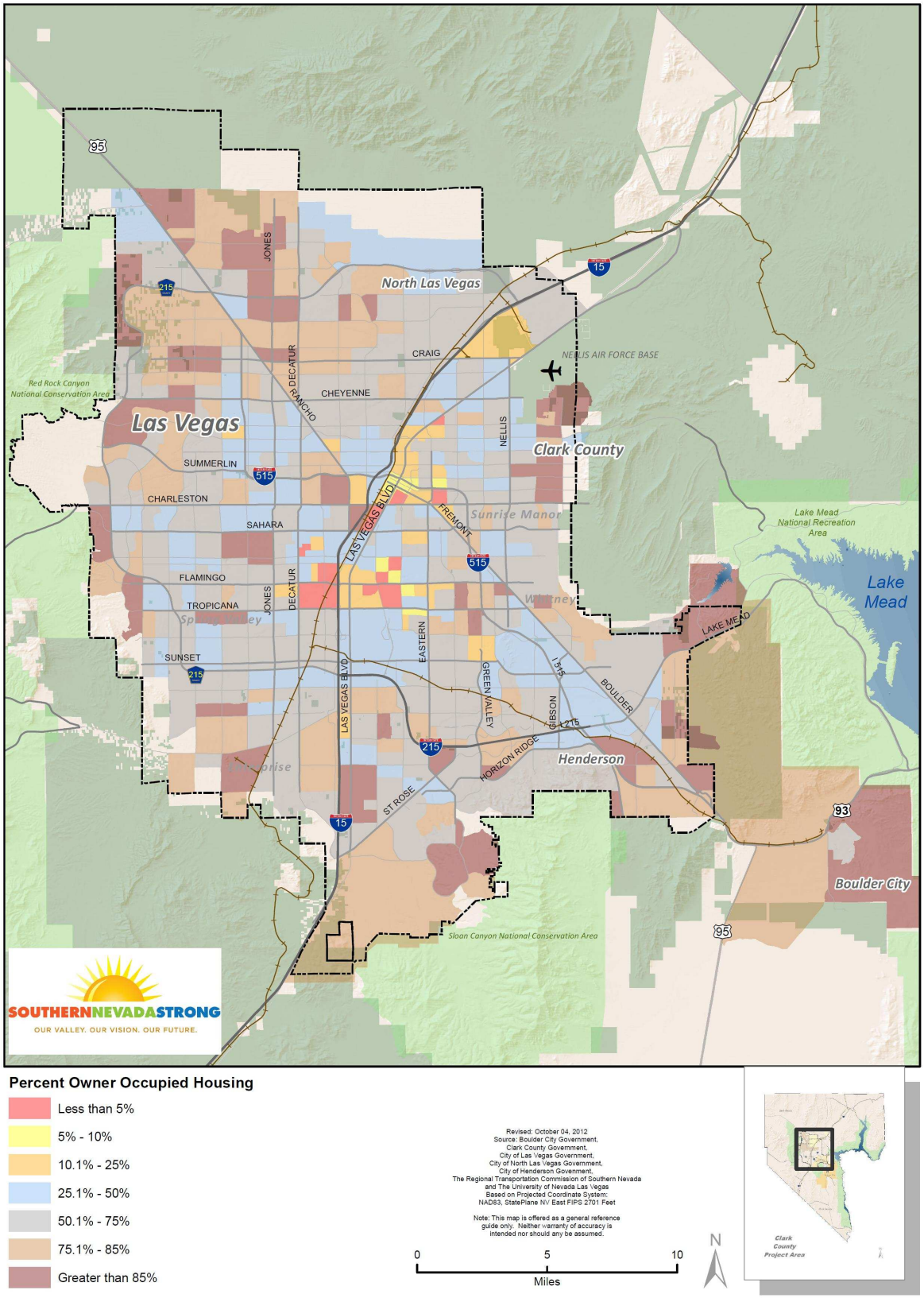
Table 12: Vacant Housing Units by Type, 2010

Vacancy	Las Vegas	Nation
Vacant housing units	16.9%**	13.1%*
Vacant condominiums	18.2%**	
Vacant apartments	13.1%*	
Vacant townhouses	12.3%**	
Vacant single family units	10.5%**	

*Source: *US Census Bureau, ACS (2010) and **CBER-LIED (2012)*

The region has a lower than average rate of owner occupancy. The percentage of residents who own their housing units in the region is lower than the United States. According to the 2010 Census, 55 percent of occupied units are owner-occupied, compared with 65 percent nationally. Figure 13 shows the distribution of housing tenure by Census Tract.

Figure 13: Owner Occupied Housing by Census Tract



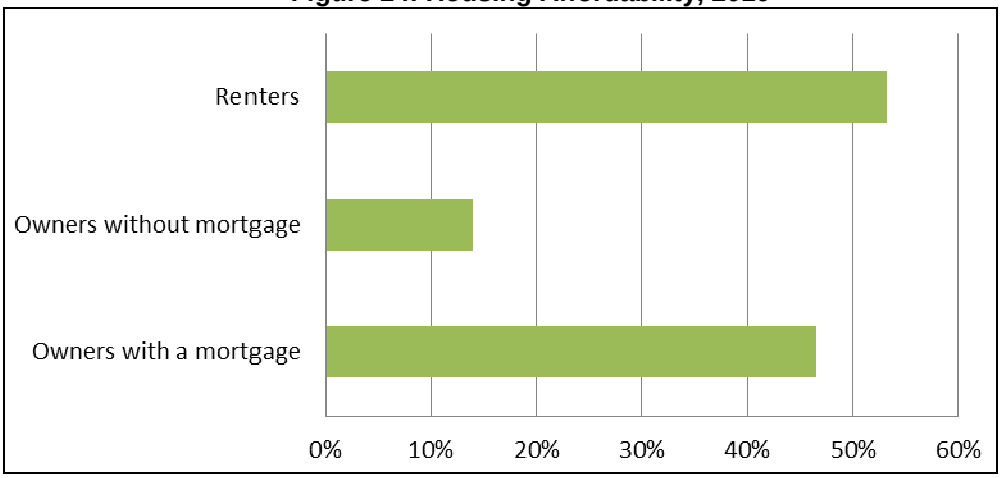
Source: US Census Bureau, ACS 5-Year (2006-2010)

The region has a relatively new housing stock. The 2010 American Community Survey indicates that the majority of the region's housing units (63 percent) were built after 1990. This is much higher than the national average of 28.5 percent. In addition, only 8 percent of homes in Southern Nevada were built prior to 1970, compared to 41 percent of homes nationally.

3.3 HOUSING AFFORDABILITY

Housing costs are unaffordable for half of renters and half of owners. Affordable housing costs generally are considered to be less than 30 percent of household income. Under this definition of affordability, 53 percent of renters and 46 percent of owners with a mortgage dedicate greater than 30 percent of their household income on housing (see Figure 14). This is concerning, as households which spend greater than 30 percent of household income on rent are considered to have a housing-cost burden (US Census, ACS 2010).

Figure 14: Housing Affordability, 2010



Source: US Census Bureau, ACS (2010)

3.4 HOMELESSNESS

In 2011, over 9,000 residents in the region were homeless. According to the 2011 HUD Homeless Census, 9,432 Clark County residents were homeless in 2011. This is a 29 percent decrease from the 2009 Homeless Census. According to the Homeless Census, 63 percent of sheltered homeless were males and 37 percent were females. The race/ethnic distribution was 47 percent White, 29 percent Black, 12 percent Hispanic/Latino, and 5 percent Asian/Pacific Islander.

The primary reason cited for homelessness was job loss (50 percent), followed by alcohol or drug use (27 percent), argument or family/friend asked to leave (17 percent)

family or domestic violence (16 percent), illness or medical problem (13 percent), and mental health issue (13 percent).

The impacts of Homelessness go beyond the burden of providing shelter and food. Homeless individuals have higher rates morbidity and mortality. One study found that homeless individuals had an age of adjusted mortality rate nearly four times that of the general population (Hibbs et al., 1994). Homeless individuals are more likely to suffer from mental illness, malnutrition, and preventable infectious diseases such as tuberculosis (TB), Hepatitis C, and HIV (Beijer & Fazel, 2012). Homelessness is also taxing on the healthcare system, as individuals have hospital stays 36 percent longer than the general population (Salit et al, 1998). HUD Secretary Shaun Donovan has stated that the cost of homelessness is about $40,000 per person per year (including social services such as jails and shelter costs) (The Daily Show, March 2012). Much of this burden falls ultimately on the taxpayer. Preventing homelessness is a much more cost effective alternative.

CHAPTER 4 – TRANSPORTATION

Findings Summary

REGIONAL COMMUTING

- The majority of residents commute to work alone and own a vehicle; however, carpool and transit use is greater than the national average.

HIGHWAY CONGESTION

- Commuters in 2012 spend more hours in traffic delays than in 2000.
- Freeway congestion has increased 35 percent since 2000.

HIGHWAY INFRASTRUCTURE

- Nevada has more highway miles per resident than Utah or Colorado but fewer than Arizona.

TRANSPORTATION COSTS

- Transportation costs are unaffordable for the average household.
- Combined housing and transportation costs are also unaffordable.

TRANSPORTATION OPTIONS

- Carpool and transit usage is higher than the national average.
- Though the region has not invested in commuter rail or light rail, it has invested in Bus Rapid Transit.

ACCESS TO TRANSIT

- 86 percent of residents live within ¾ mile of transit.
- Residents can reach about 44 percent of jobs in the region via transit in 90 minutes.

WALKABILITY

- The region has poor connectivity and has a lower walkscore than other Mountain West metro areas.
- Low income neighborhoods are more walkable than high income neighborhoods.

VISITOR TRANSPORTATION

- Over half of visitors reach Las Vegas by car.

AIR TRAVEL AND CARGO SERVICES

- McCarran Airport received over 40 million passengers a year.
- McCarran Airport receives less air cargo than its Mountain West counterparts.

Key Findings

4.1 REGIONAL COMMUTING

The majority of residents commute to work alone and own a vehicle. Workers in the region depend heavily on a personal vehicle for travel. In 2010, 89 percent of trips were made using a personal vehicle (Table 13). The rate of vehicle ownership, in turn, is high, with 92 percent of occupied housing units having a vehicle available. As shown in the figure below, commute trips to work are overwhelmingly by private auto. Today the average travel time in the region to work is 24 minutes (American Community Survey, 1-Year, 2010).

Table 13: Transportation to Work and Vehicle Availability, 2010

	Las Vegas Region	
Total Labor Force (Employed, Age 16+)	872,794 people	
Car	681,984	78.9%
Carpool	90,905	10.5%
Transit	32,457	3.8%
Walk	13,496	1.6%
Other	16,865	2.0%
Worked at Home	28,538	3.3%
Mean Travel Time to Work	24.3 minutes	
Occupied Housing Units	698,955 units	
Households without a Vehicle	55,394	7.9%

Source: U.S. Census (2010)

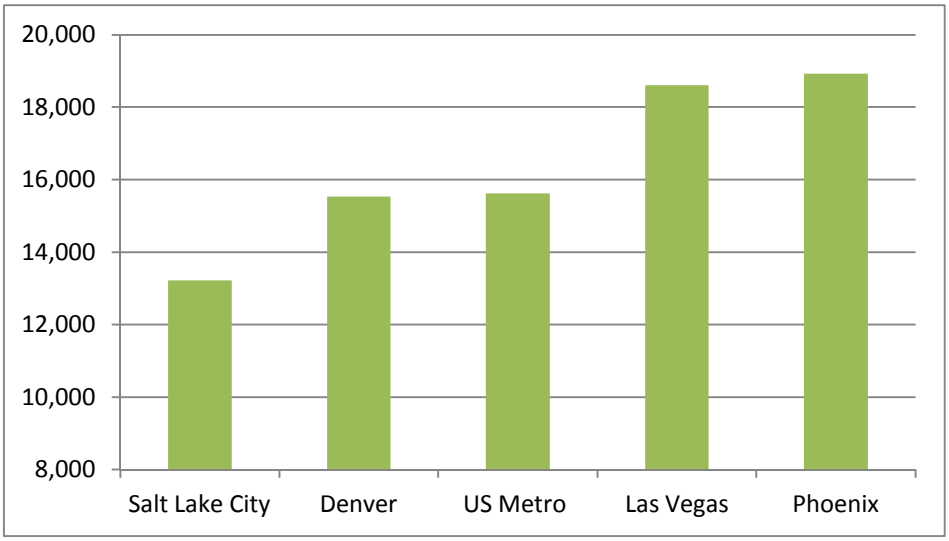
4.2 HIGHWAY CONGESTION

Commuters spend more hours in traffic delays than in 2000. According to the Texas Transportation Institute, the average time spent delayed in traffic by a commuter during peak commute periods rose from 21 to 28 hours per year between 2000 and 2010. By comparison, the average for all urban communities in the U.S. was 34 hours. For urban areas similar to Las Vegas (population between 1 and 3 million), including Salt Lake City and Denver, the average was 31 hours (Schrank & Lomax).

Freeway congestion has increased 35 percent since 2000. One way to measure congestion is to compare the ratio of total usage to total capacity (i.e. miles of vehicle travel per lane mile). This measure compares the demand for travel relative to the supply of road space.

According to the Texas Transportation Institute, the number of vehicle miles traveled daily on Las Vegas' freeways rose 35 percent between 2000 and 2010 to 10.53 million. Between 2000 and 2010, the number of available land miles of freeway increased from 415 to 566. As a result, Las Vegas' ratio of miles of vehicle travel per lane mile climbed to 18,600 in 2010, up from 16,500 in 2000 (Schrank et al, 2011) . Measured this way, Las Vegas is second after Phoenix, in congestion among cities in the Mountain West (see Figure 15).

Figure 15: Daily Freeway Miles per Lane, 2011



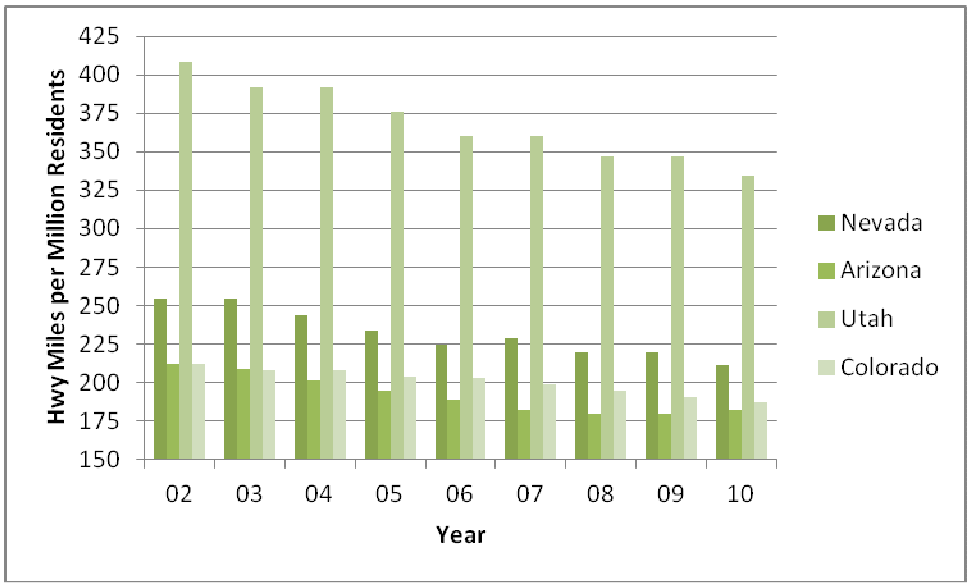
Source: Texas Transportation Institute (2011)

4.3 HIGHWAY INFRASTRUCTURE

Nevada's highway system is more connected than Arizona's and Colorado's but less connected than Utah's. The amount of interstate highway miles per permanent resident measures Nevada's relative connectedness compared with other Mountain

West states (Figure 16). This number will increase as new roads are added (i.e. the creation of Interstate 11). However, the number does not change as new lanes are added to an existing roadway. Population growth has been outpacing the expansion of the interstate highway system, which has caused this number to decrease over time.

Figure 16: Interstate Highway Miles per Million Residents, by Year



Source: U.S. Census, Bureau of Transportation Statistics, (2002-2010)

4.4 TRANSPORTATION COSTS

Transportation costs in the region are unaffordable for the average household. The Center for Neighborhood Technology (CNT) states that spending 15 percent of income on transportation is considered affordable. The average percent of income spent on transportation in Southern Nevada is 24 percent (Table 14). They also include all other travel that is part of the household daily routine. The methods for the cost model are drawn from peer reviewed research findings on the factors that drive household transportation costs.

Table 14: Metro Area Transportation Costs

Metro Area	Ave HH Income	Ave Pct of Income
Las Vegas	$56,080	24%
Phoenix	$54,713	26%
Salt Lake City	$57,682	25%
Denver	$59,932	22%

Source: Center for Neighborhood Technology (2011)

Combined housing and transportation costs in the Southern Nevada are also unaffordable. According to the Center for Neighborhood Technology, spending 45 percent of income on combined housing and transportation costs is considered affordable. In the region, 53 percent of residents spend greater than 45 percent of their income on combined housing and transportation costs (Table 15). Forty five percent of the median household income equates to about $25,236 annually or $2,103 each month.

Table 15: Metro Area Housing & Transportation Costs

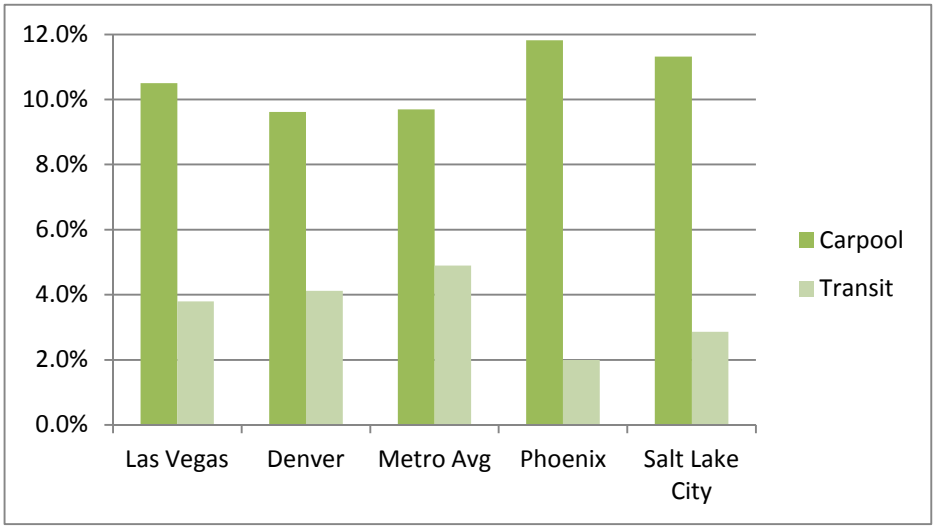
Metro Area	Ave HH Income	Ave Pct of Income
Las Vegas	$56,080	53%
Phoenix	$54,713	52%
Salt Lake City	$57,682	50%
Denver	$59,932	49%

Source: Center for Neighborhood Technology (2011)

4.5 TRANSPORTATION OPTIONS

Carpool and transit usage in the region is higher than the national average. The use of carpooling and transit in the Southern Nevada is comparable with other metro areas in the West and higher than the nation. In 2010, 10.5 percent of trips are made using carpool and 3.8 percent are made using transit. Among these metro areas, Phoenix has the highest rate of carpool use at 11.8 percent and Denver has the highest rate of transit use at 4.1 percent.

Figure 17: Carpool and Transit Usage by Metro Area, 2010



Source: U.S. Census (2010)

Though the Las Vegas region has not invested in commuter rail or light rail, it has invested in Bus Rapid Transit. Commuter rail, light rail, and bus rapid transit (BRT) are three high capacity public transport options used throughout the United States. Commuter rail operates primarily between a city center and suburban areas and serves commuters. Light rail typically operates on a fixed guide way separated with dedicated stations and electric rail cars to provide higher capacity and speed than bus service. BRT uses buses to provide faster, more efficient service than an ordinary bus line by operating with dedicated travel lanes, specialized buses, and strategic scheduling.

The Salt Lake City metro area provides the most commuter rail service (44 mi) of any city in the Mountain West. It connects the suburban communities along the Wasatch Front to Salt Lake City. In addition, it has 83 miles of planned rail in the region. The Denver metro area also has plans to provide over 90 miles of commuter rail by 2016.

The Salt Lake metro area also provides the most light rail (35.3 mi) service in the Mountain West. Phoenix (20 mi) and Denver (34.9 mi) have substantial light rail systems in place with significant expansions in the construction or planning phases. Of additional note is that in Denver, Salt Lake and Phoenix, light rail connects the airport to the central business district as well as suburban neighborhoods.

Southern Nevada has the most existing (115 mi) and planned (44 mi) BRT of any other Mountain West metro area. According to the Institute for Transportation and Development Policy, the region's BRT system ranks as one of the top 5 BRT systems in the County (ITDP, 2011).

Table 16: High Capacity Public Transport Investments in the Mountain West

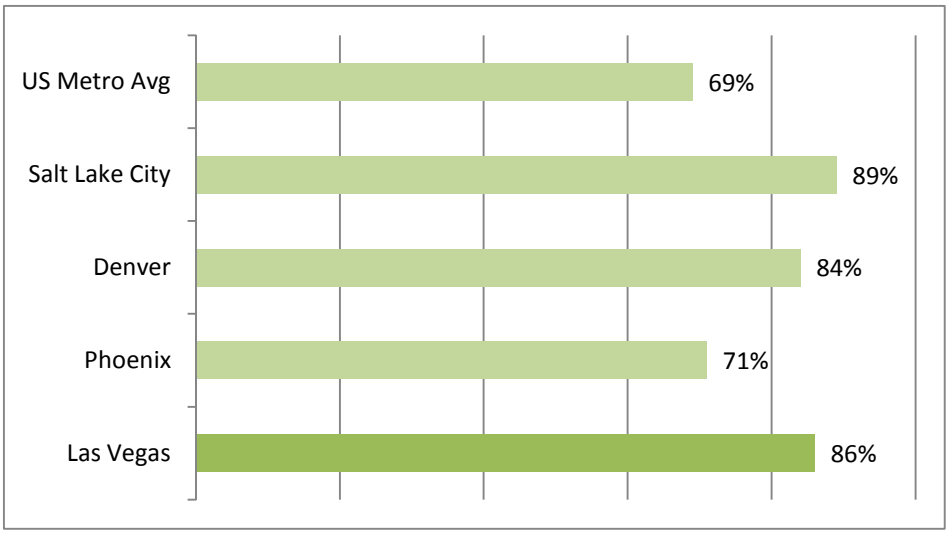
Region	Commuter Rail		Light Rail		Bus Rapid Transit	
	Existing (mi)	Additional Planned (mi)	Existing (mi)	Additional Planned (mi)	Existing (mi)	Additional Planned (mi)
Phoenix	0	0	20	35.1	24.9	14
Denver	0	93.4	34.9	27.4	6.6	18
Salt Lake City	44	83	35.3	9.5	15	11
Las Vegas	0	0	0	0	115	44

Sources: Valley Metro Regional Public Transportation Authority; Regional Transportation District; Utah Transit Authority; Southern Nevada Regional Transportation Commission (2012).

4.6 ACCESS TO TRANSIT

86 percent of Southern Nevada residents live within ¾ mile of transit. In 2011, the Brookings Institution published an analysis of data from transit providers across the country. This analysis assessed the nation's 100 largest metropolitan areas. The report revealed that transit access in Las Vegas is much higher than the US metro average (see Figure 18). In terms of peer regions, the percent of working age residents within ¾ mile of a transit stop (86 percent) is more than the Denver metro area (84 percent) and less than Salt Lake City (89 percent).

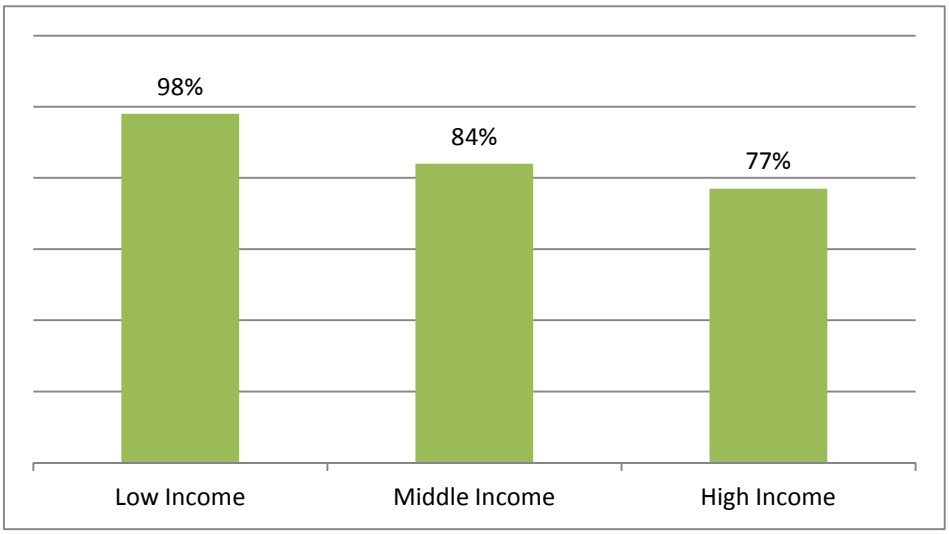
Figure 18: Share of Residents with Access to Transit, 2011



Source: Brookings Institution (2011)

In addition, 98 percent of working-age residents in low income neighborhoods live within ¾ mile of a transit stop (Figure 19). This is the highest across income groups with 84 percent of middle income and 77 percent of high income residents having the same access to transit.

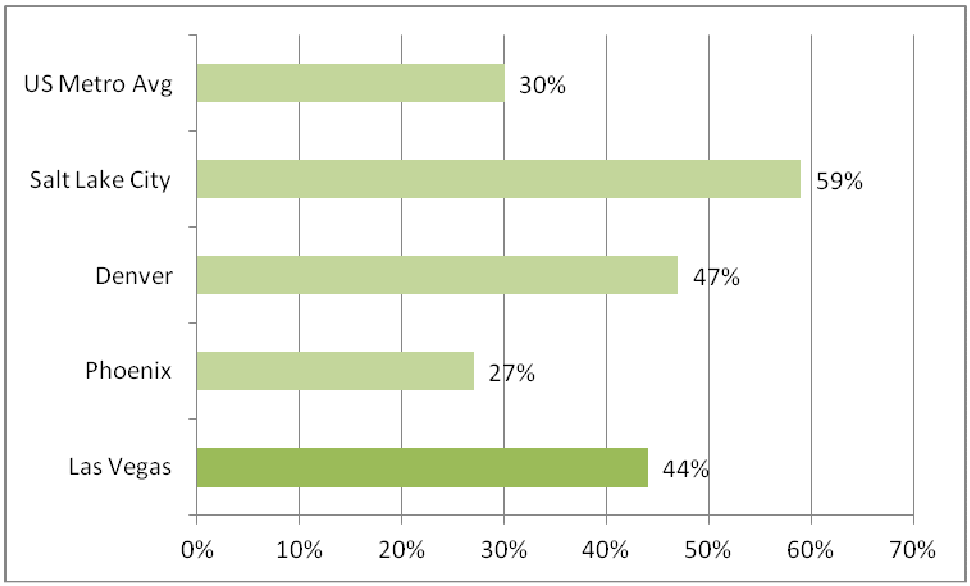
Figure 19: Resident Access to Transit, by Income, 2011



Note: Low Income: under 80% Area Median Income (AMI); High Income: over 120% AMI
Source: Brookings Institution (2011)

Las Vegas metro residents can reach about 44 percent of jobs in the region via transit in 90 minutes. Job access differs across the Mountain West, from 27 percent in Phoenix to 59 percent in Salt Lake City. These figures reflect variable transit coverage levels and service frequencies, as well as variable levels of employment and population density.

Figure 20: Share of Jobs Accessible by Transit, 2011

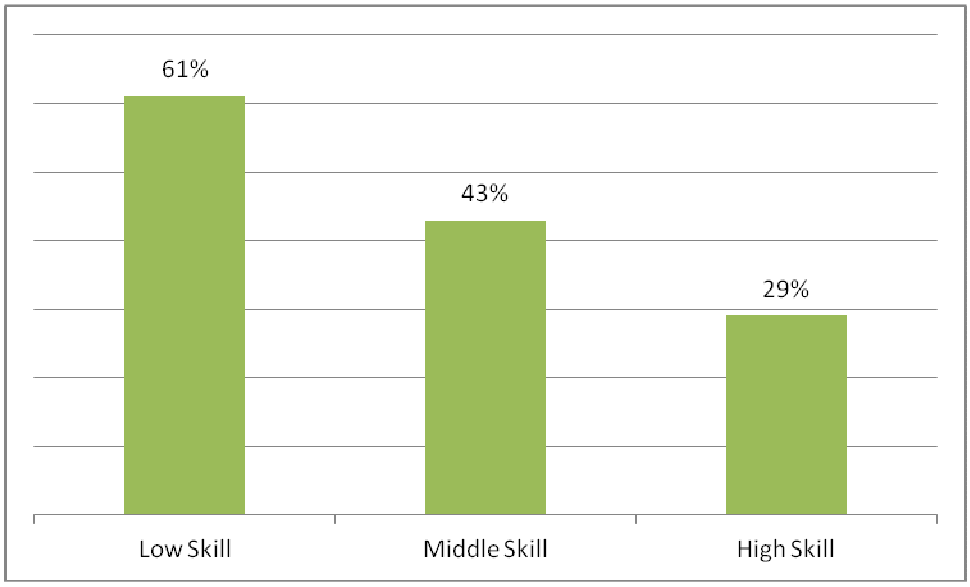


Source: Brookings Institution (2011)

Job location within a metro area affects how many jobs are accessible via transit. In addition, the distribution of different types of industries within a region may affect the kinds of jobs residents can reach via transit. As a result, the degree to which transit systems "match" workers and the jobs for which they are most qualified depends on a range of factors that vary across metro areas.

The 2011 Brookings Report classifies major industries by the average educational attainment of their workers. High skill industries include finance, business and legal services, and public administration. Middle skill industries include wholesale trade and manufacturing and low skill industries include construction, personal services, and hospitality. In the region, the typical working-age resident can reach 61 percent of low skill jobs, 43 percent of middle skill and 29 percent of high skill jobs within 90 minutes via transit. By comparison, in all Western metro areas, the typical commuter can access 31 percent of low-skill industry jobs, and 35 percent of high-skill industry jobs.

Figure 21: Job Access via Transit to Residents by Skill, 2011



Source: Brookings Institution (2011)

4.7 WALKABILITY

Most places in the region are considered car-dependent and have lower walkscores than other places in the Mountain West. According to the website Walkscore.com, most of the cities and places in the region are auto-dependent. Walkscore measures the walkabilty of a place based on proximity to nearby amenities such as restaurants, stores, schools, parks and entertainment. For example, a score between 24 and 49 is considered car-dependant because few amenities are located within walking distance. A score between 50 and 69 is considered somewhat walkable because some amenities are located within walking distance, and a score above 70 is considered highly walkable.

Las Vegas (43), Henderson (39), North Las Vegas (42) and Enterprise Township (31) all score as car-dependent. However, Spring Valley Township (51) and Paradise Township (57) score as somewhat walkable. Other mountain west city centers are somewhat walkable, yet the suburbs are auto-dependent, similar to the Southern Nevada region. Phoenix (45) scores as car-dependent and Salt Lake City (58) and Denver (60) score as somewhat walkable. Table 17 shows all region and comparative walkscores. .

This is significant to the sustainability of Southern Nevada, as walking offers both health benefits and is a more sustainable form of transportation. Increasing the amount of time spent walking decreases the likelihood of chronic diseases such as heart disease, diabetes, and obesity. Further, walking promotes better psychosocial health by way of increased levels of social capital and an increased sense of community (Leyden, 2003; Lund, 2003).

Table 17: Walkscores by Place

Walkscore (Out of 100)		
Las Vegas	49	auto-dependent
Henderson	39	auto-dependent
North Las Vegas	42	auto-dependent
Enterprise Township	31	auto-dependent
Paradise Township	57	somewhat walkable
Spring Valley Township	51	somewhat walkable
Phoenix, AZ	45	auto-dependent
Tempe, AZ	62	somewhat walkable
Mesa, AZ	43	auto-dependent
Scottsdale, AZ	42	auto-dependent
Salt Lake City, UT	58	somewhat walkable
West Jordan, UT	34	auto-dependent
West Valley City, UT	41	auto-dependent
Sandy, UT	45	auto-dependent
Denver, CO	60	somewhat walkable
Aurora, CO	48	auto-dependent
Lakewood, CO	53	somewhat walkable
Arvada, CO	46	auto-dependent

Source: Walkscore.com (2012)

Low income neighborhoods are significantly more walkable than high income neighborhoods. In a stratified random sample of twelve neighborhoods, those with a median household income of less than $42,000 lived in a significantly more walkable neighborhood than households with a median income greater than $70,000 (Coughenour, C., 2012). This demonstrates an overall better combination of street

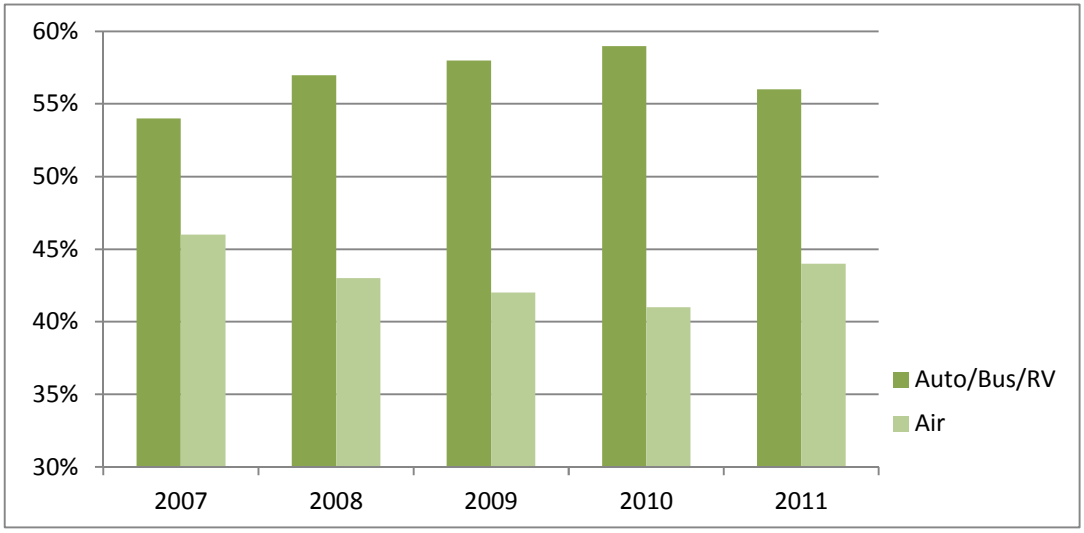
connectivity, diverse destinations or mixed use, greater concentration of housing units, and smaller building set-backs and parking lots in low income neighborhoods.

Southern Nevada is one of the most dangerous metro areas for walking. The region has many unique urban design characteristics which result in an unsafe pedestrian environment. It has developed along a grid-design with numerous high-speed arterial streets, which is where pedestrian crashes most frequently occur (Transportation for America, 2011). The urban area was designed to accommodate the automobile, typical of the time when the community was developed. Streets were designed for speed and capacity accompanied by a dense but disconnected neighborhoods. As a consequence, the development pattern presents a hazardous environment for pedestrians. Transportation for America ranks the most dangerous metropolitan areas for walkers each year, and in 2011 ranked Las Vegas the sixth most dangerous with an annual average of 2.5 pedestrian deaths per 100,000 people.

4.8 VISITOR TRANSPORTATION

Over half of visitors reach the region by car. The Las Vegas Convention and Visitor's Authority produces an annual Las Vegas Visitor Profile Study. This study provides an ongoing assessment of Las Vegas visitor behavior over time. According to the 2011 Report, 44 percent of visitors to Las Vegas arrived by air, up from 41 percent in 2010, while 56 percent arrived by ground transportation, down from 59 percent in 2010 (GLS Research, 2011).

Figure 22: Visitor Transportation to Las Vegas, 2007-2011

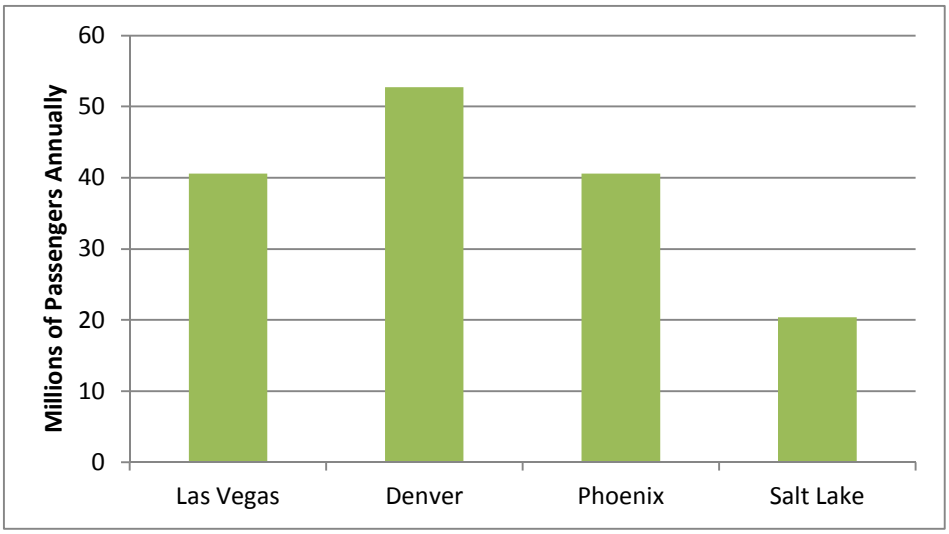


Source: Las Vegas Convention and Visitors Authority (2012)

4.9 AIR TRAVEL AND CARGO SERVICES

McCarran Airport receives over 40 million passengers a year. In 2011, McCarran Airport received 40,560,285 passengers (Figure 23), making it one of the busiest airports in the Country. (Air Traffic Report, 2011). McCarran is served by an extensive list of airlines that includes Aeromexico, Air Canada, AirBerlin, AirTran, Alaska, Allegiant, American, ArkeFly, British Airways, Condor, Copa, Delta, Frontier, Great Lakes, Hawaiian, jetBlue, Korean Air, MagniCharters, Omni, Phillipine Airlines, Southwest, Spirit Airlines, Sun Country, Sunwing, Thomas Cook, Unites, US Airways, Virgin America, Virgin Atlantic, Viva aerobus, Volaris, WestJet, and XL Airways.

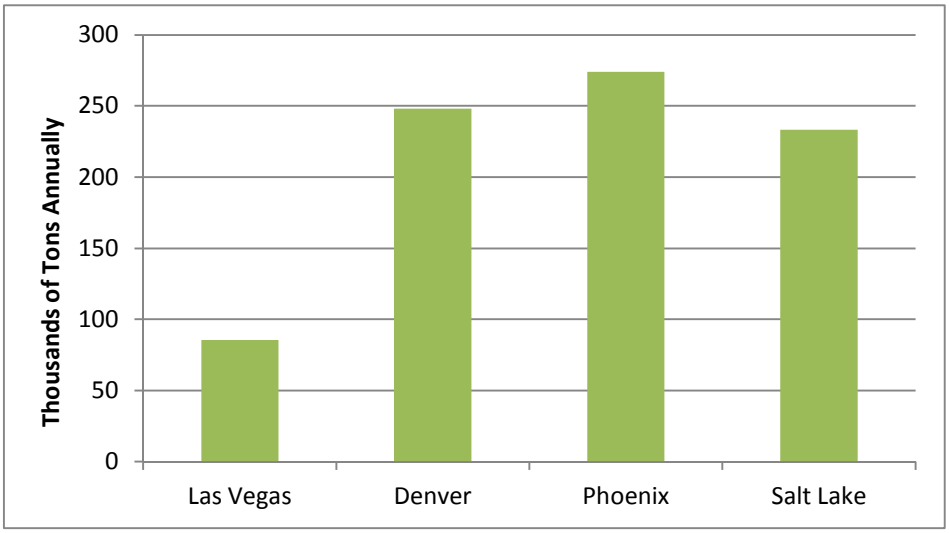
Figure 23: Airport Passenger Traffic, 2011



Source: Airports Council International – North America (2011)

McCarran receives less air cargo than its Mountain West counterparts. In 2011, McCarran Airport handled 85,494 metric tonnes of cargo (Air Traffic Report, 2011). By comparison, Denver, Phoenix and Salt Lake handled nearly triple this amount, demonstrating the clear dominance of a visitor-based economy versus shipping, trade, and logistics. In late 2010, the 200,000 square foot Marnell Air Cargo Center opened, next to the Terminal 3 expansion. The $29 million center on 19 acres houses FedEx, UPS, and Southwest freight operations among others.

Figure 24: Airport Cargo Traffic, 2011



Source: Airports Council International – North America (2011)

CHAPTER 5 – ENVIRONMENT

Findings Summary

WATER

- Annual rainfall averages less than 4 inches per year.
- The region only draws about 3 percent of the Colorado River's total flow, but that accounts for almost 97 percent of the region's entire supply.
- US Geologic Survey analysis concludes that water flows to the area will be lower by 2050.

AIR

- Between 2008 and 2010, the region had 24 days in which the ozone levels and 2 days in which the particulate pollution were considered dangerous.
- Criteria pollutants have declined consistently in the region since the mid 1990's.

BROWNFIELDS

- Approximately 165 brownfield sites exist in the region; however, none are designated as Superfund sites.

BIODIVERSITY

- The region has a high level of biodiversity.

LAND COVER

- Developed land cover is mostly low (31.8 percent) and medium (35.7 percent) intensity.

CLIMATE AND TEMPERATURE

- The region's climate is characterized as a desert climate, arid and warm.
- Southern Nevada has a 30-year average of 24 winter days with low temperatures at or below 32^{o}F.

HEAT ISLAND

- The region's average temperature has risen four degrees in four decades (1970's – 2000's)
- High-density urban areas of Las Vegas (The Strip & Downtown) have higher temperatures than non-urban areas

Key Findings

5.1 WATER

Southern Nevada is located in one of the most arid regions of North America. However, water was the feature that initially attracted people to the area. The natural springs of Las Vegas, Spanish for "the meadows," made it a watering stop for nomadic Native Americans, Spanish and American traders, Mormon settlers and the Los Angeles & Salt Lake Railroad. As Las Vegas transformed from a train depot to a city, pressure on the water supply increased (UNLV Digital Collections, 2012).

Since annual rainfall averages less than four inches per year, Southern Nevada depends upon the Colorado River for its water supply. The region only draws about 3 percent of the Colorado River's total flow, but that accounts for almost 97 percent of the region's entire supply. Residents are provided water from the Colorado River via Lake Mead. Water is drawn from Lake Mead and sent to one of two treatment centers, Alfred Merritt Smith or River Mountain Treatment Center (Southern Nevada Water Authority (SNWA), 2012). The other 3 percent of Lake Mead's inflow comes from groundwater, the Virgin and Muddy Rivers and the Las Vegas Wash.

Southern Nevada's use of return flow credits – recycling of wastewater – extends the use of Colorado River water. Southern Nevada is allowed to use more water than its allocation of Colorado River water, as long as water is return back to the river. As an example, in 2012 Nevada's allocation was 300,000 acre feet. Based on return flow volume of 215,000 acre feet, Nevada's full diversion was 515,000 acre feet.

The Colorado is the only major surface water source in the American Southwest, and through the construction of thirteen dams, was the first river on Earth to come under complete human control. The river is the primary water source for 25 million people and irrigates 2.5 million acres of farmland in seven states and Mexico (SNWA, 2012). Table 18 shows the amount of water from the Colorado River utilized by Colorado, Utah, Wyoming, New Mexico, Arizona, California, Nevada and Mexico.

Table 18: Colorado River Apportionment, 2012

Allocation	Million Acre-Feet Per Year (MAFY)
Upper Basin	
Colorado	3.9 MAFY
Utah	1.7 MAFY
Wyoming	1 MAFY
New Mexico	0.85 MAFY
Lower Basin	
Arizona	2.85 MAFY
California	4.4 MAFY
Nevada	0.3 MAFY
Additional Allocations	
Mexico	1.5 MAFY
TOTAL	**16.5 MAFY**

Source: Southern Nevada Water Authority (2012)

Construction of the Hoover Dam, which began in 1931 and created Lake Mead, ensured a water source for Southern Nevada. Lake Mead, with a surface area of 157,900 acres (at full pool) and a 29-million-acre-ft storage capacity, is the largest reservoir in North America. In addition to being the main source for water for the region, Lake Mead is a water-based recreational area which hosts more than 8 million people per year and a critical habitat for many species (National Park Service, Lake Mead, 2012). Lake Mead and the Colorado River receive most of their water supply from snow melt in the Rocky Mountains (SNWA, 2012)

Because 97 percent of the drinking water for Southern Nevada comes from the Colorado River (via Lake Mead) with a small percentage coming from the Las Vegas Wash, there is potential for contamination from the lake that includes: urban chemicals (fertilizers and pesticides), industrial activities and wildlife (SNWA, 2012). Because there is little agricultural activity upstream of the region, there is limited drinking water exposure to farm-related contaminants. Based on surface water assessments water quality at the Southern Nevada Water System intakes is within state and federal-drinking water standards except for microbiological contaminants naturally found in all surface waters, even before undergoing treatment, (SNWA, 2012).

Potential contaminating activities with the highest vulnerability rating (chance for contamination of drinking water intake) include: septic systems, golf courses/parks, storm channels, gasoline stations, auto repair shops, construction and wastewater treatment plant discharges (SNWA, 2012). According to the SNWA:

> Based on water-quality data (prior to treatment) and the results of the vulnerability analysis of potential contaminating activities, the drinking water intakes are at a moderate level of risk for volatile organic (VOC), synthetic organic carbon (SOC), microbiological and radiological contaminants and at a high level of risk for inorganic (IOC) contaminants. All of the Las Vegas Valley governmental agencies coordinate their watershed management programs to minimize the vulnerability risk to Lake Mead. (SNWA, 2012)

The Southern Nevada Water System is tested for more than 100 regulated and unregulated substances drinking water each month (SNWA, 2012). A summary of the Las Vegas Valley Water District (LVVWD) Quality report in 2012 showed that the region's water did not exceed the maximum contaminant level set by the Environmental Protection Agency (EPA) for any of the substances tested (SNWA, 2012).

> In 1999, the Nevada Legislature passed Assembly Bill 284, requiring the SNWA to add fluoride to Southern Nevada's municipal water supply beginning in March 2000. In November 2000, Clark County residents voted to continue fluoridation of their municipal water supply. Low levels of fluoride, about 0.3 milligrams per liter (mg/L), occur naturally in Southern Nevada's water supply. Per regulations developed by the Nevada State Health Division and administered by the Nevada Department of Environmental Protection, SNWA adds 0.5 mg/L of fluoride to bring the level within the required range of 0.7 - 1.2 mg/L in the municipal water supply. These levels are considerably lower than the federal Safe Drinking Water Act limit of 4.0 mg/L and the Nevada secondary standard of 2.0 mg/L. (SNWA, 2012)

The US Bureau of Reclamation forecasts that Colorado River flows will be lower by 2050. Most climate models predict a drier, hotter Southwest with more variable precipitation. Water use will remain a fundamental challenge to sustainability in the region. Water stress will increase even if demand remains constant. The US Department of the Interior, Bureau of Reclamation (2012) projects that the Colorado River's "mean annual flows are projected to continue to decrease over time (from -7.5 percent around 2025 to -10.9 percent around 2055, to -12.4 percent around 2080) as compared to the 1906–2007 mean". Additionally, drought or low levels of snow and precipitation in the Rocky Mountains has caused Lake Mead's water level has dropped approximately 100 feet since 2000 (Las Vegas Valley Water District, 2012). Because of this, the LVVWD has adopted a number of water conservation programs to help curb the demand for water. Additionally, the SNWA has sufficient resources available or in development to meet future demands until 2060 (see Infrastructure Section).

An additional issue of interest is the elevation of Lake Mead. In 2009, Lakes Mead and Powell were 52 percent of their total combined capacity. This was the result of annual average inflow more than two-thirds below normal. Lake Mead's elevation dropped 133 feet from a peak of elevation of 1,214 to 1,081 feet. If the elevation dropped below 1,075 feet, federal officials could declare a shortage and cut Nevada's river allocation by 6 percent. The decrease in lake level also impacts drinking water intakes that serve Southern Nevada, the lowest of which is at 1,000 feet. In 2011, wetter seasons and increased inflow to the Colorado River raised the elevation of Lake Mead to 1,127 feet.

5.2 AIR

From 2008 to 2010, the American Lung Association measured ozone and particle pollution (PM) in 277 metropolitan areas across the US. They created a list of the 25 best and 25 worst cities for ozone and PM pollution. Southern Nevada did not rank in the top 25 (best) or bottom 25 (worst) cities for ozone or PM pollution. The region had 24 days between 2008 and 2010 where ozone concentrations were unhealthy for sensitive groups and 2 days where particulate matter was unhealthy for sensitive groups. The region received a score of F and B, respectively in these two categories. An 'F' score represents 9 days or more over the standard: 10 orange days or 9 total including at least 1 or more red, purple or maroon. A 'B' score means 1 to 2 over the standard with no red, purple or maroon days (orange = unhealthy for sensitive groups, red = unhealthy, purple = very unhealthy, and maroon = hazardous). Results for non-attainment days between 2008 and 2010 are shown in Table 19.

Table 19: Number of Poor Air Quality Days, 2008-2012

	Ozone Orange	Ozone Red	Ozone Purple	Particulate Orange	Particulate Red	Particulate Purple
Las Vegas	24	0	0	2	0	0

Explanation of Colors: Orange: Individuals with respiratory disorders are likely to be affected by high levels of ozone and individuals with respiratory disorders and heart disease are likely to be affected by high levels of particulates. Red: Members of the general population may experience adverse effects, and individuals in sensitive populations may experience serious health effects. Purple: All individuals may experience serious health effects.

Source: American Lung Association, State of the Air (2008 - 2012)

Part of Southern Nevada's air quality challenge arises from its natural geography: the mountains surrounding the valley create a bowl, tending to trap exhaust over the metropolis for long periods. Thermal inversions are also common which trap pollutants. Additionally, its location at the center of a great desert means no oceans; large lakes or dense forests exist nearby to naturally filter pollution out of the air (known as ecosystem services). However, Nevada uses less coal for electrical production than the U.S. as a whole (under 16 percent for Nevada, but over 40 percent for the U.S. in 2011) and the

state's use of coal has declined dramatically since 2000, resulting in improved air quality (EPA.gov, 2012)

Carbon monoxide (CO) levels peaked in the mid 1970's which resulted in the region being designated a CO nonattainment are in 1978 by the EPA. In response to this designation, Clark County and Nevada "adopted and implemented new air quality plans and control measures, including state and local wintertime gasoline fuel requirements. These measures helped reduce the number of exceedances of the CO standard from over 40 each year in the mid-1980s to less than 5 by the mid-1990s. The last recorded exceedances of the CO air quality standard occurred in 1998" (EPA, 2012).

Each year the Clark County Department of Air Quality and Environmental Management issues the Annual Network Plan Report. This report provides air quality data for Clark County. Levels of criteria pollutants are:

- City of Las Vegas
    - Annual average CO concentration is 0.56 ppm
    - Annual average O_3 concentration is 0.053 ppm
    - Annual average PM_{10} concentration is 24.93 µg/m^3
    - Average $PM_{2.5}$ concentration is 7.42 µg/m^3
    - Annual average NO_2 concentration is 0.013 ppm.
- City of Henderson
    - Annual average PM_{10} concentration is 14.48 µg/m^3
    - Average $PM_{2.5}$ concentration is 5.56 µg/m^3

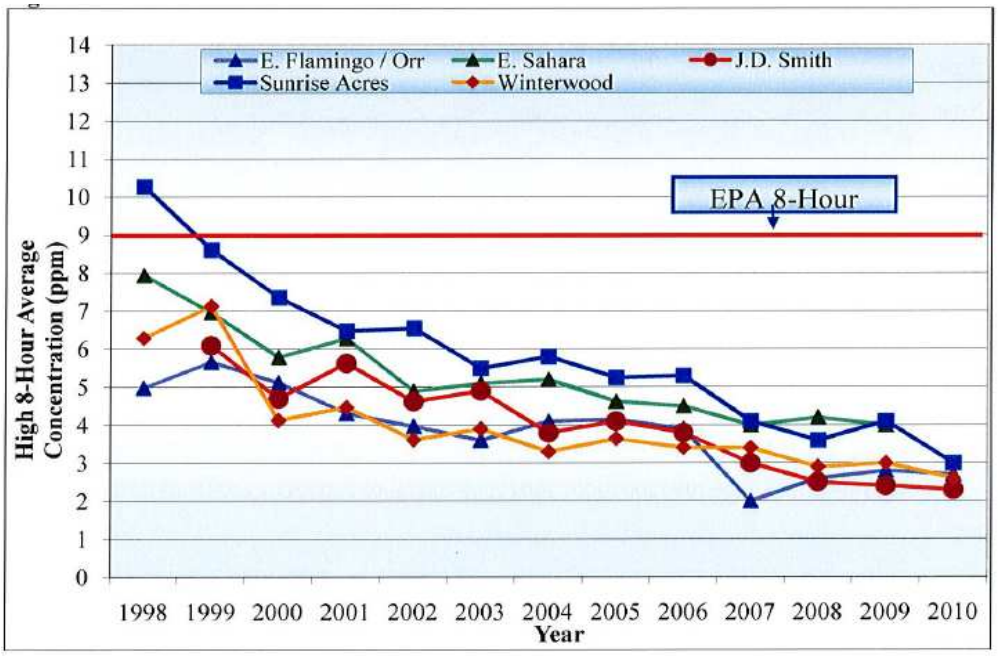
(Clark County Department of Air Quality and Environmental Management, 2011)

Based on this information, Clark County has zero CO exceedance days, zero NO_2 exceedance days, one $PM_{2.5}$ exceedance day (because of fireworks) and zero PM_{10} exceedance days in 2010 (CCDAQEM, 2011).

There are two primary sources of allergens in Clark County: fruitless mulberry which pollinates in March and European olive which pollinates in April. Clark County banned further planting of these trees after April 1, 1991(except certified low-pollinating varieties) because of their higher levels of pollen (CCDAQEM, 2011).

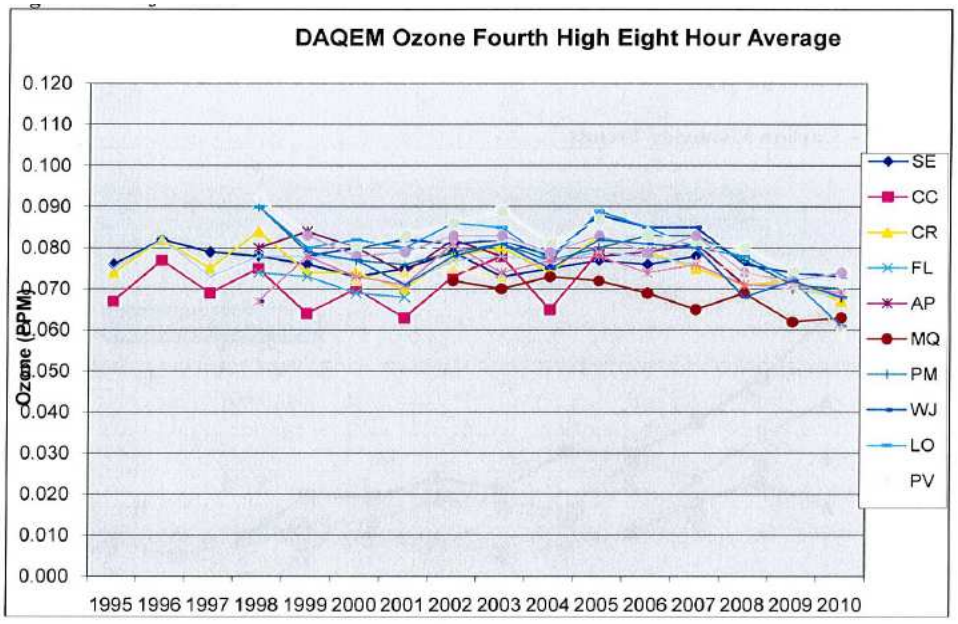
As shown in Figures 25 – 29, criteria pollutants have declined since the mid 1990's.

Figure 25: Carbon Monoxide Trends, 1998-2010



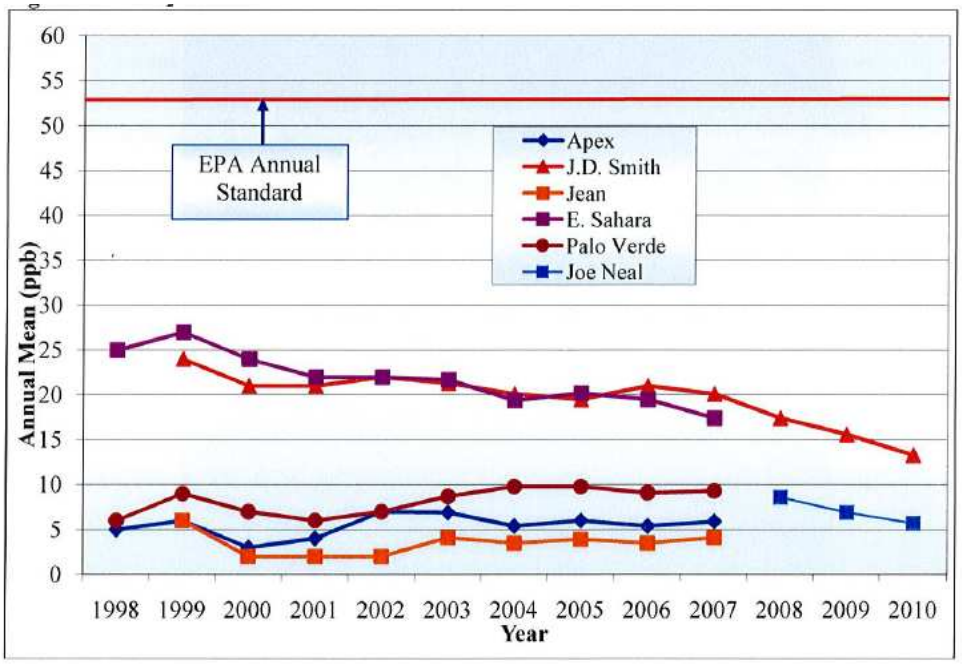
Source: Clark County Department of Air Quality, Annual Network Plan Report (2011)

Figure 26, 1995-2010: Ozone Trends



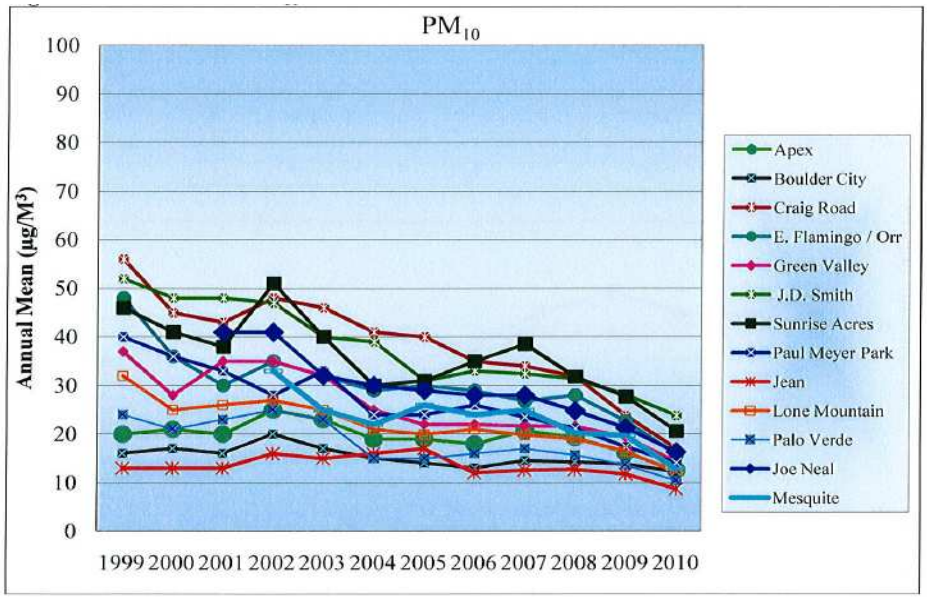
Source: Clark County Department of Air Quality, Annual Network Plan Report (2011)

Figure 27: NO2 Trends, 1998-2010



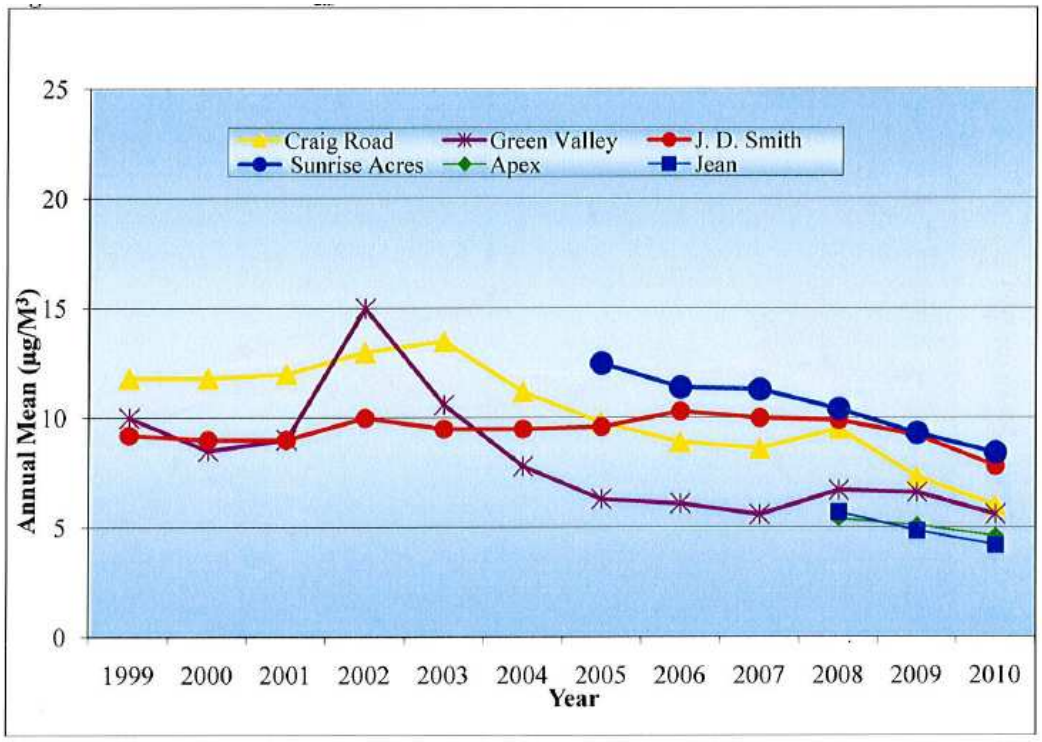
Source: Clark County Department of Air Quality, Annual Network Plan Report (2011)

Figure 28: PM 10 Trends, 1999-2010



Source: Clark County Department of Air Quality, Annual Network Plan Report (2011)

Figure 29: PM 2.5 Trends



Source: Clark County Department of Air Quality, Annual Network Plan Report (2011)

5.3 BROWNFIELDS

According to the Nevada Department of Environmental Protection (2012), brownfields are "sites that are currently being underutilized because of real or potential contamination." Approximately 165 brownfield sites exist in the region. However, there are no Superfund designated sites. There have been projects focused on re-developing Brownfields in the region. Two examples are:

- **Symphony Park,** a 61 acre mixed use neighborhood in downtown Las Vegas is being developed on a former brownfield and is LEED Gold certified for Neighborhood Development. It includes the recently constructed nearly $470 million Smith Center for the Performing Arts. The Las Vegas Valley currently has more LEED-certified buildings, per capita, than any metropolitan area in the US.
- **Nellis Solar Plant**, a 14-megawatt (MW) solar energy site serving Nellis Air Force Base, is built on a former brownfield.
- **Landwell,** a 2,200 acre master-planned community will accommodate 30,000 residents on a reclaimed industrial site in Henderson.

5.4 BIODIVERSITY

The region has a high level of biodiversity. With 3,800 plant and animal species, Nevada ranks between 4th and 10th overall in various measures of biodiversity (Nature Serve, 2002; Fenstermaker, 2009). Clark County, which includes Mount Charleston (part of the Spring Mountain Range which reaches almost 12,000 ft in elevation) and Lake Mead, consists of 11 ecosystems and 209 species (including plants and animals). Table 20 includes the ecosystems along with the number of species in each system. Threats that are common to many of these ecosystems include: human disturbance (recreation, urbanization, rural and urban development, foot traffic), non-native and invasive species, fire (mega fire), over grazing, climate change, decreased pollinators, altered air quality, and desert dumping (Adaptive Management Report for Clark County Nevada, 2008).

Table 20: Clark County Ecosystems

Ecosystem	Number of Species (Including Plant & Animal)
Spring	14
Desert Riparian	14
Alpine	11
Bristle Cone Pine	24
Mix Conifer	34
Pinyon Juniper	33
Sagebrush	20
Blackbrush	10
Mojave Desert Scrub	22
Salt Desert Scrub	17
Mesquite Catclaw Acacia	10

Source: Clark County, Adaptive Management Report (2008)

5.5 LAND COVER

A majority of the region's land cover is arid shrubland. The majority of Clark County (85.4 percent) land coverage is classified as shrubland (US Department of Agriculture, 2011). The majority of the remaining land is coved by development (5 percent), the open water of Lake Mead (1.5 percent), the evergreen forest of the Spring Mountain Range and Mount Charleston (5.4 percent) or barren (2.2 percent).

Table 21: Land Cover by Type

Land Cover Type	Percent of Total Land Coverage
Shrubland	85.4%
Developed	5.0%
Open Water	1.5%
Barren	2.2%
Evergreen Forest	5.4%

Source: USDA (2011)

5.6 AGRICULTURE

Clark County has limited agriculture areas, with most located in Moapa Valley and Virgin Valley outside the Las Vegas urban area. Agricultural data for Clark County are included in Table 22.

Table 22: Agricultural Summary Data, 2009

Agricultural Data for Clark County, 2009	
Average size of farms	272 acres
Average value of agricultural products sold per farm:	$67,207
The value of nursery, greenhouse, floriculture, and sod as a percentage of the total market value of agricultural products sold	27.33%
The value of livestock, poultry, and their products as a percentage of the total market value of agricultural products sold	61.03%
Average total farm production expenses per farm	$67,826
Average market value of all machinery and equipment per farm	$54,791
The percentage of farms operated by a family or individual	89.33%
Average age of principal farm operators	55 years
Vegetables	62 harvested acres
Land in orchards	107 acres

Source: Clark County (2009)

5.7 CLIMATE AND TEMPERATURE

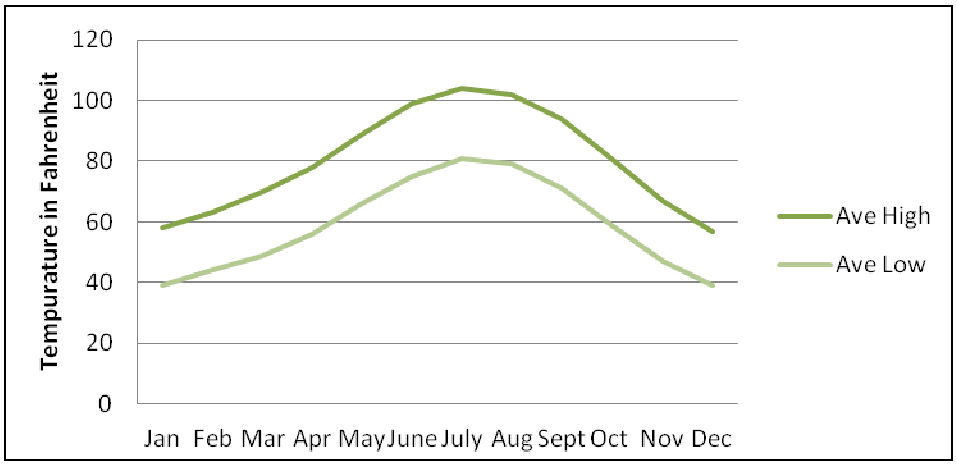
The region's climate is a key advantage for location. The region's climate is characterized as a desert climate, arid and warm. However, Southern Nevada does have four distinct seasons (Clark County Department of Air Quality and Environmental Management, Annual Network Plan Report, 2011). Figure 30 shows the average monthly high and low temperatures for the region (theweatherchannel.com, 2012).

Summer daily high temperatures typically exceed 100° with extremely low relative humidity (19-24 percent June-August). The highest recorded temperature in the area was 118℉ in 1931. Although relative humidity in the summer months is typically low, it can increase for several weeks with subtropical flow from the south (typically in July and August). The subtropical flow can produce severe thunderstorms that result in flash flooding (CCDAQEM, 2011).

Winter months are typically mild and pleasant with average highs around 60°F. Accumulating snow is rare in Las Vegas; however snowfall of an inch or more occurs once every four to five years (CCDAQEM, 2011). Although the average low temperature during the winter months is 39°F, freezing temperatures occur each year. The region has a 30-year average of 24 days with low temperatures at or below 32°F (CCDAQEM, 2011). The lowest *recorded* temperature as 8°F in 1963. The mountains surrounding the region have an annual snowfall of 5 to 10 feet. Spring and fall season are mild, however sharp temperature changes can occur (CCDAQEM, 2011).

Strong winds are one of the greatest weather hazards in the region. Winds over 50 miles per hour can occur. High winds in the winter and spring can "generate widespread areas of blowing dust and sand" (CCDAQEM, 2011).

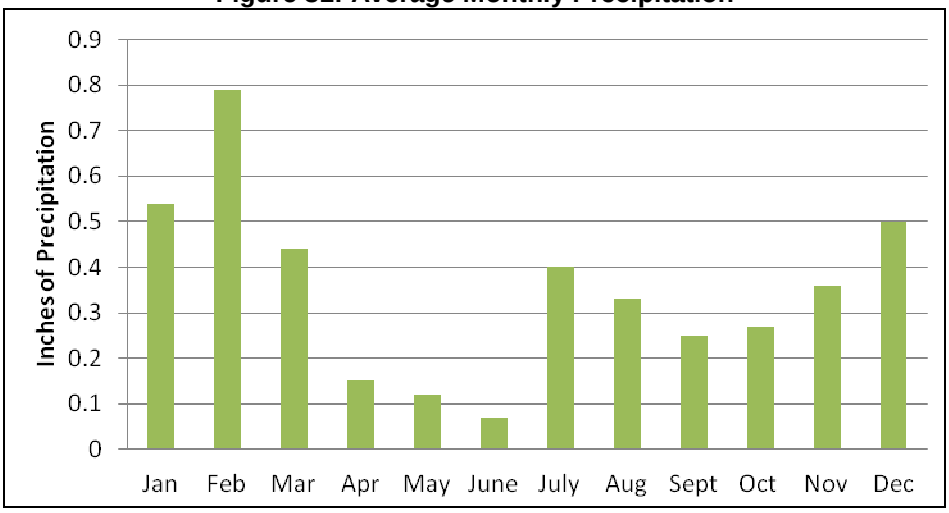
Figure 30: Average Monthly Temperatures



Source: CCDAQEM (2011)

Precipitation amounts in the region are low (yearly average of 4 inches). According to the CCDAQEM (2011), "Pacific storms occasionally produce rainfall in Las Vegas, but in general, the Sierra Nevada Mountains of California and the Spring Mountains immediately west of Las Vegas act as effective barriers to" rainfall. Figure 31 shows the average precipitation amounts in Southern Nevada in inches. February is typically the wettest month.

Figure 31: Average Monthly Precipitation



Source: Clark County Department of Air Quality and Environmental Management (2011)

The region's average temperature (as measured at McCarran Airport) has risen four degrees in four decades. The term "heat island" describes urban, developed areas that are hotter than nearby rural areas. The annual mean air temperature of a city with 1 million people or more can be 1.8–5.4℉ warm er than surrounding areas with lower population density. In the evening, the difference can be as high as 22℉ (EPA, 2012). "Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality" (EPA, 2012)

The temperature increase has corresponded to the population increase. As more people have moved to the region, there has been a greater demand for roads, highways, residential and commercial buildings. These new surfaces absorb and radiate heat which has resulted in an increase in the average temperature (City of Las Vegas, 2010). The region's average temperature (as measured at McCarran Airport) has risen four degrees in four decades (City of Las Vegas, 2010)

Landsat satellite images have been used to evaluate the heat island effects in the region. Results from this imagery show that non-urban areas have higher temperatures than low to medium-density urban areas and lower temperatures than high-density urban areas (City of Las Vegas, 2010). Urban land use and land cover in low to medium-density urban areas create a daytime cooling effect from new landscape and vegetation. High-density urban areas are more likely to have hardscape which creates a 'heat island'. Landsat satellite imagery shows 'hot characteristics' for the Strip and downtown areas (City of Las Vegas, 2010). These areas are comprised of tall commercial buildings (which reduce airflow) that are surrounded by parking lots, roads and highways and use air conditioners (which produce additional heat). New developments on the west side of town do not show 'heat island' characteristics due to newer construction materials (stucco and clay/fiber tile roofs) and larger quantities of

vegetation and landscape. Heat islands can be mitigated through the use of trees and vegetation, green roofs, cool roofs and cool pavement (EPA, 2012).

CHAPTER 6 – HEALTH & COMMUNITY SERVICES

Findings Summary

HEALTHCARE

- Clark County has a low physician to population ratio compared to other counties in Nevada and in the US.
- Clark County has a primary care physician to population ratio of 1:1,244 while the national benchmark for this ratio is 1:631.
- In 2009, 24.9 percent of residents under age 65 had no health insurance, while 18.1 percent under 19 had no insurance. These are the highest rates of uninsured in the Mountain West and among the highest in the nation.
- Since 2002, there has been a 70.1 percent increase in Medicaid enrollment and a 23.8 percent increase in Nevada Check-up in Clark County.
- Middle-income households (400 percent of federal poverty level) were more likely to be uninsured (21.9 percent of adults, 16.9 percent of children) than lower-income households (138 percent of federal poverty level) (9.5 percent of adults and 7.9 percent of children).

COMMUNITY HEALTH

- Compared to other Mountain West Metropolitan areas, the region had the highest rate of diabetes (9 percent) and people reporting fair or poor health (17.4 percent).
- In 2009, 22.1percent of residents smoke compared to the US median of 17.3 percent.
- Residents were less likely to exercise (76.3 percent) compared to other Mountain West communities and had higher rates of heavy alcohol consumption (5.1 percent).

COMMUNITY HEALTH, continued

- Residents reported the lowest utilization of mammography (69.9 percent), colonoscopy (60.5 percent), flu vaccinations (65+) (59.4 percent) and pneumonia vaccinations (65+) (64 percent) in the Mountain West.
- Leading causes of death in the region that were not leading causes of death in the nation were lung cancer, pedestrian deaths, prostate and breast cancers.
- The Black population had a higher mortality rate than other race/ethnicities in Southern Nevada and in the nation.
- In 2009, Clark County ranked 1st of Nevada Counties for violent crimes (786.1 /100,000) and second for property crimes (3,059.2 /100,000 population).

Key Findings

6.1 HEALTHCARE

Nevada operates at about 64 percent of health care resources compared to other states (Brookings, 2011). Additionally, studies suggest that medium- and high-income Nevada residents routinely leave the state for specialty care and surgical procedures (Brookings, 2011). Hamilton (2004) found that more than 50 percent of Nevada residents seek care in California and Arizona for surgical procedures. Given unmet demand, there are opportunities for employment in the healthcare sector. Based on a Brookings Report (August, 2012) the Health Diagnosing and Treating Practitioners had the highest number of job openings in Southern Nevada (5,723 open positions).

The region has 15 hospitals. Of these hospitals, 9 are for-profit hospitals, 3 are not-for-profit hospitals, a county/non-profit and two Veteran's Administration (VA) hospitals. There are a total of 3,435 hospital beds in Clark County (not including the VA) (Frontier, 2011). Occupancy rates vary among the hospitals and rang from 46.6 percent at Mountain View and 90.6 percent at St. Rose Siena Campus (Table 23). Occupancy rates for all of Clark County Hospitals was 64.6 percent compared to 67.8 percent in the US (Nevada Healthcare Quarterly Report, 2012, American Hospital Association Survey of American Hospitals, 2011)

Table 23: Hospital Occupancy, 2011

Clark County Hospitals	Occupancy %	US Hospitals	Occupancy %
For Profit Hospitals		For Profit US Hospitals – '09	57.7
Centennial Hills Hospital Medical Center	56.74		
Desert Springs Hospital Medical Center	46.62		
Mountain View Hospital	84.65		
North Vista Hospital	69.17		
Southern Hills Hospital and Medical Center	49.02		
Spring Valley Hospital Medical Center	74.17		
Summerlin Hospital Medical Center	57.99		
Sunrise Hospital and Medical Center	61.64		
Valley Hospital Medical Center	58.07		
County Hospitals		State-local Government US Hospitals – '09	65.0
University Medical Center of Southern Nevada	68.36		
Non-Profit Hospitals		Non-profit US Hospitals – '09	67.4
St. Rose Dominican Hospitals - Rose de Lima Campus	70.42		
St. Rose Dominican Hospitals - San Martin Campus	64.58		
St. Rose Dominican Hospitals - Siena Campus	90.57		
Total Clark County	**64.62**	**Total US**	**67.8**

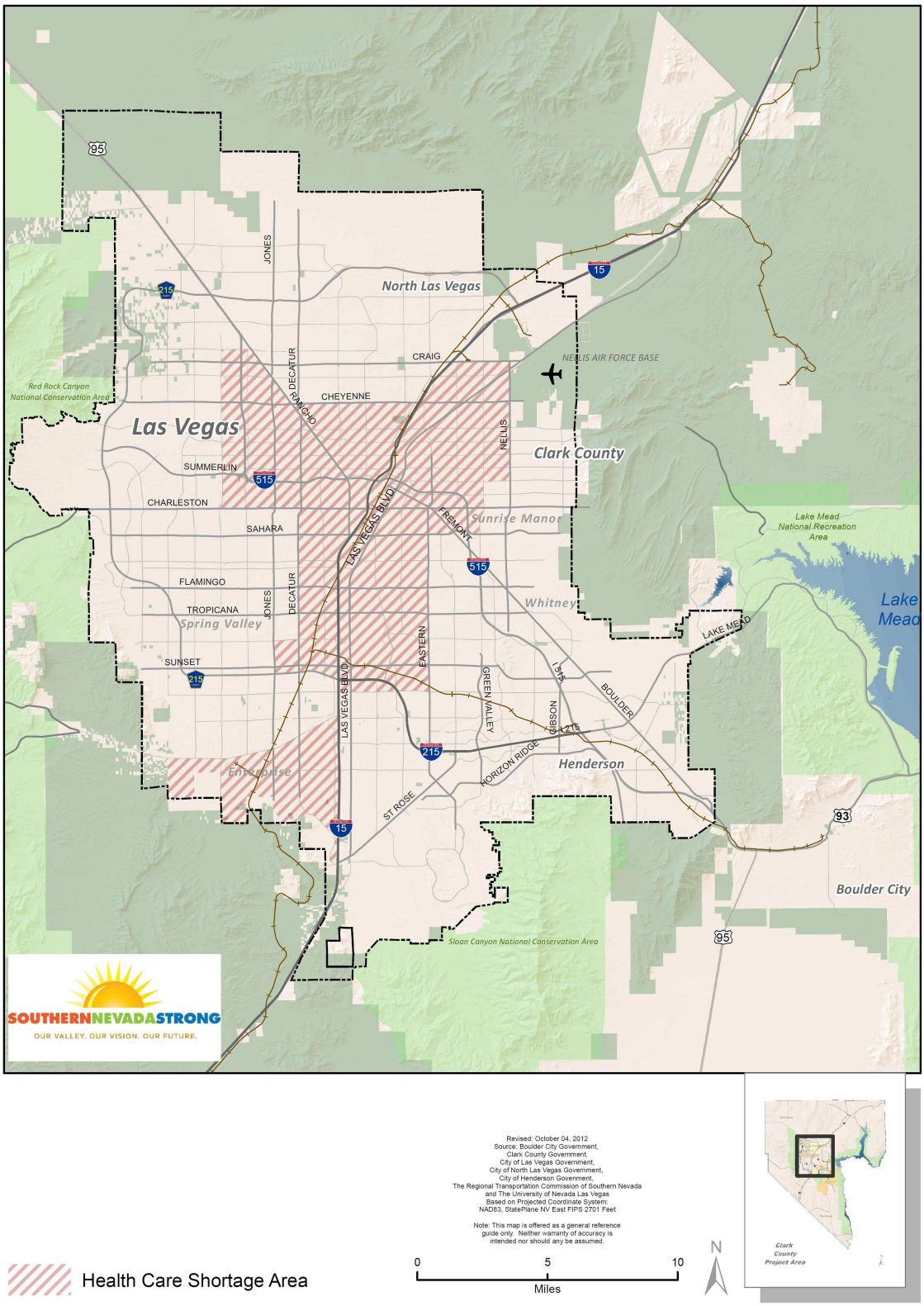
Source: Nevada Healthcare Quarterly Reports, 2012, American Hospital Association, 2011

The region has a low physician to population ratio compared to other counties in Nevada and in the US. Clark County has a primary care physician to population ratio of 1:1,244 while the national benchmark for this ratio is 1:631 (County Health Rankings, 2012). Clark County has 77 licensed MD's and DO's per 100,000 population compared to 114 in Carson City and 91 in Washoe County.

Preventable hospital stays are measured by the hospital discharge rate for diagnoses that should have been handled in an ambulatory setting. Clark County had 61/1000 preventable hospital stays per year while the national benchmark is 49/1000 per year. The number equals the rate per 1,000 Medicare enrollees. The measure may also represent the population's tendency to overuse the hospital as a main source of care" (County Health Rankings, 2012).

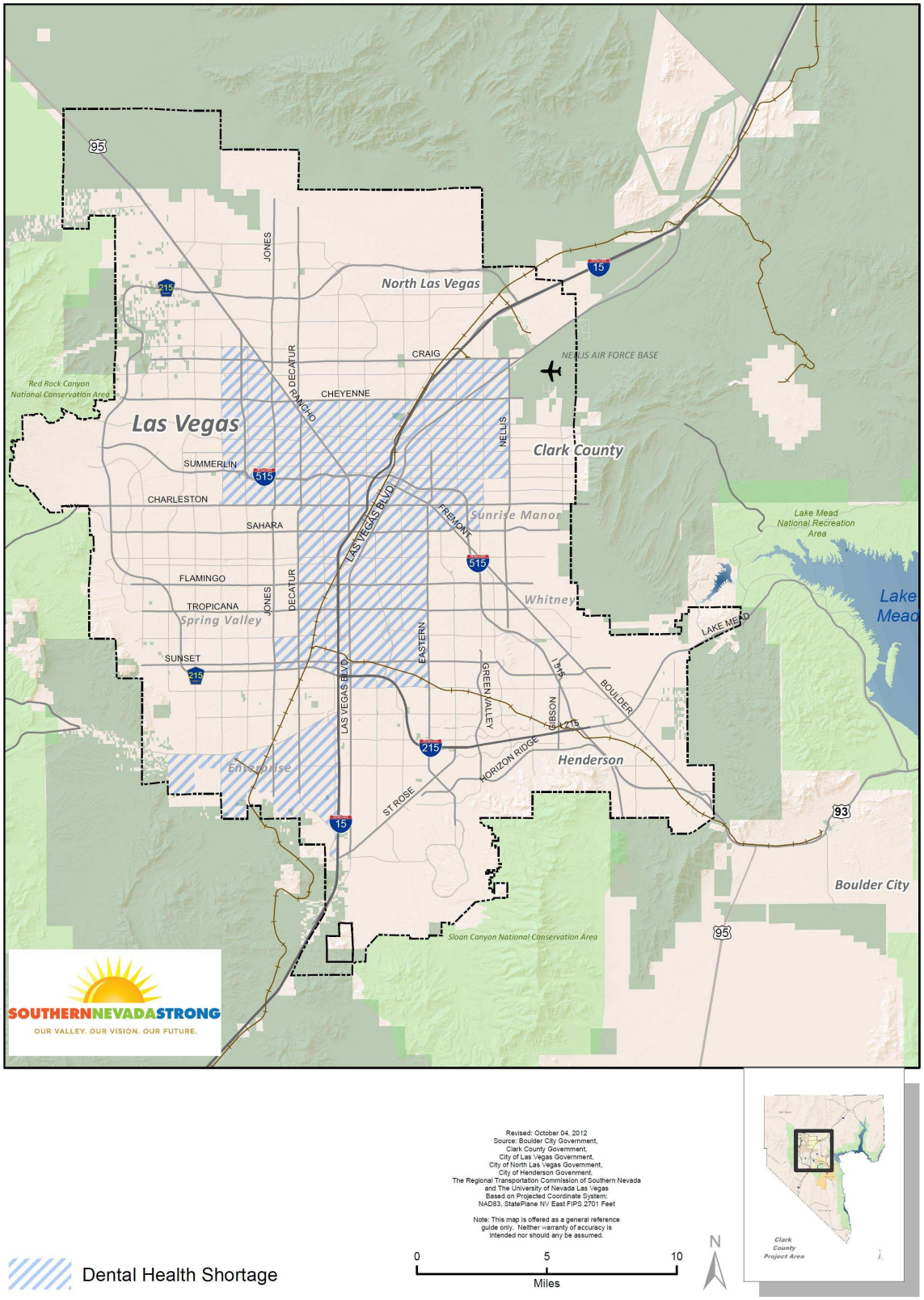
Medically underserved areas for primary care and Dentistry have been identified in the central corridor of the city and in outlying census tract (Map X & Map X). Medically Underserved Areas are geographic areas (contiguous county areas or smaller) that reach a certain score or lower on the Index of Medical Underservice (IMU), which is a summary of weighted values for four characteristics: 1) the ratio of primary medical care physicians per 1,000 population, 2) infant mortality rate, 3) percentage of the population with incomes below the poverty level, and 4) percentage of the population age 65 or over. The same criteria can be applied to underserved population groups within an area of residence to declare a Medically Underserved Population (MUP).

Figure 32: Primary Medical Care Shortage Areas



Source: NV Office of Rural Health (2012)

Figure 33: Dental Health Professional Shortage Areas



Source: NV Office of Rural Health (2012)

Many residents report failing to seek medical care due to concerns about cost. According to the Centers for Disease Control and Prevention**,** 18 percent of Clark County residents reported that they did not see a doctor when they needed to in the past 12 months due to cost**.** This percentage has increased since 2005 and remains higher than the national percentage. A slightly higher proportion of Clark County residents had their routine medical exam in 2010 compared to 2005 (61.4 percent and 58.8 percent, respectively); however this proportion is lower than the US proportion (67.4 percent in 2010) (CDC, BRFSS data 2010 and 2005).

Table 24: Access to Healthcare, 2005-2010

	2005		2010	
	Clark County %	US %	Clark County %	US %
A time in the past 12 months when they needed to see a doctor but could not because of cost	13.3	13.5	**18.0**	14.6
Routine Check-up in the past 12 months	58.8	66.3	61.4	67.4
Visited a dentist, dental hygienist or dental clinic within the past year	64.8	67.4	68.3	69.5

Source: Center for Disease Control and Prevention, BRFSS 2005 & 2010

The region's adults have lower rates of health insurance coverage that those in the Mountain West and the nation as a whole. According to the US Census Bureau, in 2009, 24.9 percent of the region's residents under age 65 had no health insurance, while 18.1 percent under age 19 had no insurance. These are some of the highest rates in the nation and the highest rates compared to other metropolitan areas in the Mountain West (Table 25). The US average for uninsured in 2009 was 17 percent for people under 65. Nevada's rate for uninsured is double California's rate. By comparison: Massachusetts has the lowest rates: 4.6 percent of people under 65, and only 2.1 percent of those under 18. In addition, the US average for uninsured was 8.6 percent for people under age 19 and Nevada's rate was 18.1 percent.

Table 25: Percent Uninsured, 2010

City, State (MSA)	Uninsured < 65 years	Uninsured < 19 years
Albuquerque, NM (MSA)	19.8%	10.6%
Denver, CO (MSA)	21.6%	12.9%
Las Vegas, NV (MSA)	**24.9%**	**18.1%**
Phoenix (MSA)	20.2%	12.8%
Salt Lake City, UT (MSA)	17%	11.4%
US Average*	15.1%	8.6%

*Sources: U.S. Census Bureau Small Area Health Insurance Estimates (2009), *U.S. Census, American Community Survey 3-Year Estimate 2008-2010*

Enrollment in state healthcare programs has increased since 2002. There was a 70.1 percent increase in Medicaid enrollment and a 23.8 percent increase in Nevada Check-ups in Clark County since 2002. Clark County and Nevada both saw increases in the percentage of Medicaid and Nevada Check-up enrollments in 2010 compared to 2002. The percent change was more dramatic in Clark County with 23.8 percent change in Nevada Check-ups compared to 8.6 percent increase in Nevada (see Table 26).

Table 26: Enrollment in Nevada Medicaid and Nevada Check-up

	Clark County	Nevada
Medicaid Enrollment - % of population, 2010	12.7%	12.3%
% change in Medicaid enrollment 2002 to 2010	70.1%	63.1%
Nevada Check-up - % of population, 2010	4.6%	4.8%
% change in Nevada Check-up enrollment 2002 to 2010	23.8%	8.6%

Source: Nevada Office of Rural Health, 2011

Middle-income households are more likely to be uninsured than lower-income households. In 2009, the region's middle income households had lower rates of health insurance coverage than those with household incomes closer to the poverty level ($22,050 for a family of four in 2009). More than 21.9 percent of residents under 65 in households earning at or below 400 percent above poverty level ($88,200 for a family of four) were uninsured, compared with 9.5 percent of those in households earning 138 percent above poverty level ($30,429 for a family of four). This gap closed slightly with households earning 250 percent above poverty level ($55,125 for a family of four): nearly 17 percent of these individuals were uninsured.

As demonstrated in Table 27, the higher rates of uninsured are similar for residents under 19.

Table 27: Uninsured by Percent Federal Poverty Level

Clark County Uninsured	% Uninsured < 65 years	% Uninsured < 19 years
All residents without health insurance coverage	24.9%	18.1%
Living in household at or below 138% of federal poverty level*	9.5%	7.9%
Living in household at or below 200% of federal poverty level*	14.1%	11.7%
Living in household at or below 250% of federal poverty level*	16.9%	13.9%
Living in household at or below 400% of federal poverty level*	21.9%	16.9%

*2009 federal poverty level: family of four: $22,050

Source: U.S. Census Bureau Small Area Health Insurance Estimates (2009)

Males age 18-24 have the highest rates of being uninsured in the region. Forty-five percent of men age 18-24 lack health care coverage in Southern Nevada while 38 percent of women in the same age bracket lack health insurance. The rates uninsured residents are highest for both men and women between the ages of 18 and 54 years.

Table 28: People without Health Insurance by Gender and Age

	Total Population	Percent without Health Insurance
Total:	1,929,325	
Male:	964,235	
Under 6 years:	85,987	15.3
6 to 17 years:	163,792	18.4
18 to 24 years:	86,878	45.3
25 to 34 years:	144,369	39.1
35 to 44 years:	143,627	29.1
45 to 54 years:	131,922	23.1
55 to 64 years:	104,565	16.5
65 to 74 years:	65,440	2.2
75 years and over:	37,655	2.3
Female:	965,090	
Under 6 years:	82,535	14.0
6 to 17 years:	156,119	17.6
18 to 24 years:	86,618	38.4
25 to 34 years:	143,420	31.4
35 to 44 years:	139,064	24.3
45 to 54 years:	129,222	23.2
55 to 64 years:	111,014	16.7
65 to 74 years:	69,875	3.6
75 years and over:	47,223	2.3

Source: American Community Survey (2009-2011)

The Patient Protection and Affordable Care Act (PPACA) will extend Medicaid coverage to adults under the age of 65 with incomes equal to or less than 133 percent of the federal poverty level. Projection for Nevada by the Kaiser Commission show that the PPACA could decrease the number of uninsured adults living at 133 percent of the federal poverty level or lower by 47 percent to 72.7 percent in 2019 based on the projection model utilized. Medicaid enrollment is projected to increase by 61.7 percent to 88.6 percent in 2019 compared to the baseline in 2009 based different projection models. State spending on Medicaid would increase by 2.9 percent to 5.2 percent while federal spending would increase by 49.8 percent to 59.3 percent, again, based on the projection model selected (Kaiser Commission, 2010).

Nevada has the lowest per capital investment in public health funding. Spending per capita on public health in the state of Nevada was $3.45 per person in fiscal year 2010-2011. This amount ranked the state of Nevada as 51st for funding of public health (Healthyamerica.org).

6.2 HEALTHY PEOPLE

Nearly one-quarter of the region's children live in poverty, which puts them at risk for unhealthy behaviors and health problems. Research has established a link between income and health (Marmott, 2006). People who live in poverty have a greater risk of unhealthy behaviors and chronic diseases. Poverty impacts a family's ability to provide healthy food, safe shelter and access to pediatric health care for children, which could ultimately increase the risk of health problems and risky health behaviors in adulthood (Marmott, 2006). In 2010, the Census estimated that 22.2 percent of families with children under the age of 18 were living in poverty. This rate was slightly higher than the national average.

Table 29: Percentage of Children Living in Poverty, 2010

City, State (County)	Pct of Families with Children Under Age 18 living in poverty	Pct of Families with Children Ages 5-17 living in poverty
Albuquerque, NM (Bernalillo)	23.9%	22.5%
Denver, CO (Denver)	30.8%	27.3%
Las Vegas, NV (Clark)	**22.2**%	**20.1**%
Phoenix (Maricopa)	23.5%	21.5%
Salt Lake City, UT (Salt Lake)	17.8%	16.3%
US Average	21.6%	19.8%

Source: U.S. Census Bureau Small Area Income and Poverty Estimates (2010).

Compared to other Mountain West Metropolitan areas, Southern Nevada had the highest rates of diabetes and people reporting fair or poor health. In the region, 9 percent of people reported being diagnosed with diabetes and 17.4 percent would rate their general health as fair or poor; these rates were the highest in the Mountain West. Rates of diabetes increased from 7.2 percent in 2005 to 9 percent in 2010. Compared to other Mountain West Metropolitan Areas, Southern Nevada had similar rates of asthma and people reporting disabilities; however, rates of asthma did increase in 2010 compared to 2005. The region had the second highest rate of CVD. However, this rate was lower than the US average (CDC, BRFSS, SMART 2010, 2005).

Table 30: Chronic Disease and Conditions, 2010

City, State (MSA) 2010	Diabetes	Asthma	CAD	Fair or Poor Health	People with Disability
Denver, CO (MSA)	5.4%	9.9%	2.8%	9.8%	18.9%
Las Vegas, NV (MSA)	**9%**	**9.3%**	**3.9%**	**17.4%**	**19.8%**
Phoenix (MSA)	7.1%	9.6%	3.6%	13.1%	18.3%
Salt Lake City, UT (MSA)	6.6%	10.1%	2.8%	12.3%	19.4%
US median	8.7%	9.1%	4.1%	14.7%	21.2%
Las Vegas, NV (MSA), 2005*	**7.2%**	**6.8%**	**4.4%****	**17%**	**19%**

*Source: Center for Disease Control and Prevention, BRFSS data 2010, *2005, **2007*

The region's adult residents have higher chronic disease risk factors than other Mountain West regions. Southern Nevada residents were less likely to exercise compared to other Mountain West communities and had high rates of heavy alcohol consumption, tied for first with Denver although, for both of these behaviors, the rates improved in the region since 2005 (CDC yr, BRFSS yr, SMART 2010, 2005). In 2009, 22.1 percent of Southern Nevada residents were smokers compared to the US median of 17.3 percent (CDC, BRFSS, 2010). Nevada's rate for smoking is the highest of any Western state, and among the top 8 highest rates of any state (Center for Disease Control, 2010). Nevada's $0.80 per pack cigarette tax is low , ranking 34th among US states (CDC, 2011).

Table 31: Chronic Disease Risk Factors, 2010

City, State (MSA), 2010	Heavy Drinker	Current Smoker	Overweight	Obese	Exercise	5 Servings Fruit/Veg*
Denver, CO (MSA)	5.1%	14.6%	37.4%	19.6%	83.8%	24.3%
Las Vegas, NV (MSA)	**5.1**%	**22.1**%	**37.3**%	**23.1**%	**76.3**%	**23.9**%
Phoenix (MSA)	4.5%	14.8%	41.1%	22.8%	81.5%	23.6%
Salt Lake City, UT (MSA)	4%	10.8%	34.6%	23.6%	81.7%	23.2%
US Average	5.0%	17.3%	36.2%	27.5%	76.1%	23.4%
Las Vegas, NV (MSA) 2005	**6.5**%	**23.5**%	**37.1**%	**21**%	**71.3**%	

*Source: Center for Disease Control and Prevention, BRFSS data 2010, 2005, *2009*

The region's youth have higher rates of risky behaviors than peer regions. *Youth Risk Behavior Survey* is conducted every two years by the Centesr for Disease Control and Prevention. The survey includes national and Clark County data monitoring six types of health-risk behaviors that contribute to the leading causes of death and disability among youth and young adults enrolled in grades 9 – 12 at the time of the survey including: tobacco use, alcohol and other drug use, sexual risk behaviors, unhealthy dietary behavior and physical inactivity. Results from the 2009 survey appear in Table 32. 15.4 percent of Clark County youth reported smoking at least one day in the past 30 days compared to 19.5 percent of national youth. Among students who currently smoke, 8.9 percent of Clark County children smoke 10 or more cigarettes per day compared to 7.8 percent of students in the nation. 4.2 percent of the region's students report using chewing tobacco, snuff or dip compared to 8.9 percent of students in the nation. Significantly fewer Clark County students reported drinking at least one alcoholic drink within the last 30 days (36.7 percent) compared to the national students (41.8 percent). 47.8 percent of the region's students reported that they have had sex and 37 percent reported that they did not use a condom during their last sexual intercourse, neither of which were significantly different than national students. Significantly fewer Clark County students reported being physically active for 60 minutes, 5 days per week (57.6 percent) compared to National students (63 percent). Significantly more students reported eating 5 or more servings of fruit and vegetables (82.5 percent) compared to national students (77.7 percent). Twelve percent of all students were considered to be obese however 12.9 percent in Clark County of the region's students were considered to be overweight, whereas 15.8 percent of national students were considered to be overweight. Significantly more high school students in Clark County had been offered, sold or given illegal drugs at school (38.8 percent) or have ever used methamphetamines (5.9 percent) compared to the nation (22.7 percent and 4.1 percent, respectively); however, Clark County students were not significantly

more likely to use marijuana, cocaine or inhalants. The region's students were more likely to have seriously considered (18.2 percent) or attempted (10.0 percent) suicide than students in the nation (13.8 percent and 6.3 percent, respectively).

Table 32: Risky Health Behaviors of High School Students, Clark County and the Nation

	Clark County	Nation
Smoking at least 1 day in past 30	15.4%	19.5%
Currently smoke 10 or more per day	8.9%	7.8%
Chew tobacco	4.2%	8.9%
Currently use marijuana	20.5%	20.8%
Ever used cocaine	7.7%	6.4%
Ever used inhalants	12.4%	11.7%
Ever used methamphetamines	5.9%	4.1%
Offered, sold, given illegal drugs at school	38.8%	22.7%
Overweight	12.9%	15.8%
Obese	12.3%	12.0%
1 alcoholic drink in past 30 days	36.7%	41.8%
Ever had sex	47.8%	46.0%
Did not use condom during last intercourse	37%	38.9%
Physically active 60 minutes, 5 days/week	57.6%	63%
Eating 5 or more fruit & vegetables	82.5%	77.7%
Seriously considered suicide	18.2%	13.8%
Attempted suicide	10.0%	6.3%

Source: Youth Risk Behavior Surveillance, 2009

Residents report low utilization of preventive health exams and vaccinations. Southern Nevada residents reported the lowest utilization of mammography, colonoscopy, flu vaccinations (65+) and pneumonia vaccinations (65+) in the Mountain West and the second lowest utilization of Pap test. Compared to 2005, Southern Nevada residents' utilization of colonoscopy, flu vaccination (65+) and pneumonia vaccination (65+) were higher in 2009 (Table 33).

Table 33: Comparison of Preventative Care Utilization, 2010

City, State (County)	Pap test 18+ Past 3 yrs	Mammogram 50+ Past 2 yrs	PSA 40+ Past 2 yrs	Colono-scopy 50+ Ever	Flu 65+ Past yr	Pneumonia 65+ Ever
Albuquerque, NM (MSA)	83.6%	79.4%	54.6%	65.7%	74%	72.8%
Boise, ID (ADA)	77.1%	71.7%	50.5%	62.2%	61.6%	70.2%
Colorado Springs, CO (MSA)	77.5%	77.7%	46.8%	65.3%	69.5%	72.3%
Denver, CO (MSA)	81.3%	73.6%	50.5%	67.5%	76.4%	75.7%
Las Vegas, NV (MSA)	**79**%	**69.9**%	**51.6**%	**60.5**%	**59.4**%	**64**%
Ogden, UT (MSA)	76.4%	74%	53.2%	72.6%	71.4%	65.2%
Phoenix (MSA)	83.3%	78.6%	51.8%	64.4%	68.8%	73.7%
Provo-Orem, UT (MSA)	63.3%	73.3%	48.4%	68.9%	64.4%	68%
Salt Lake City, UT (MSA)	78.8%	72.2%	49.9%	71.5%	70.2%	73.6%
Tucson, AZ (MSA)	84.9%	79.6%	56.2%	71.1%	69.1%	75.3%
U.S. average	81.3%	77.9%	53.2%	65.2%	67.5%	68.8%
Las Vegas, NV (MSA) 2005	82.9%	74.1%	53%	55%	54.1%	69.5%

Source: Center for Disease Control and Prevention, BRFSS data (2010)

Heart disease and cancer are the leading causes of death in the region. The ten leading causes of death in Clark County and in the Nation are listed in Table 34. The top 3 causes of death in Clark County and the Nation were the same in 2008 (heart disease, malignant neoplasm, and chronic lower respiratory disease). Clark County residents were more likely to die from lung cancer, pedestrian deaths, prostate and breast cancers (Nevada State Health Division 2008, CDC, 2008).

Table 34: Leading Causes of Death in Clark County and the Nation, 2008

	Clark County	Nation
1	Heart Disease	Heart Disease
2	Malignant Neoplasm	Malignant Neoplasm
3	Chronic Lower Respiratory Disease	Chronic Lower Respiratory Disease
4	Lung Cancer	Stroke
5	Stroke	Accident (unintentional injury)
6	Pedestrian Deaths	Alzheimer's disease
7	Prostate Cancer	Diabetes
8	Breast Cancer	Flu and pneumonia
9	Kidney Disease	Kidney Disease
10	Flu and Pneumonia	Intentional self-harm (suicide)

Sources: Nevada State Health Division 2008, CDC, 2008

Age adjusted mortality rate is lower in Clark County than Nevada as a whole (782.2 per 100,000 compared to 808.1 per 100,000) in 2008. The black population had a higher age adjusted mortality rate than other race/ethnicities in Clark County, Nevada and the Nation (Table 35) (Nevada State Health Division 2008, CDC, 2008). In 2009, Nevada had a higher mortality rate than any other Mountain West State (Table 36) (CDC, 2011)

Table 35: Mortality Rates, 2008

Rate per 100,000 people			
	Clark County	Nevada	Nation
White	783.9	818.4	751.2
Black	1032.8	1034.7	942.6
Native American	493.8	650.3	625.3
Asian	701.2	690.7	409.7
Hispanic	723.2	684.5	530.7
Total	782.2	808.1	760.3

Sources: Nevada State Office of Rural Health (2011), CDC (2009)

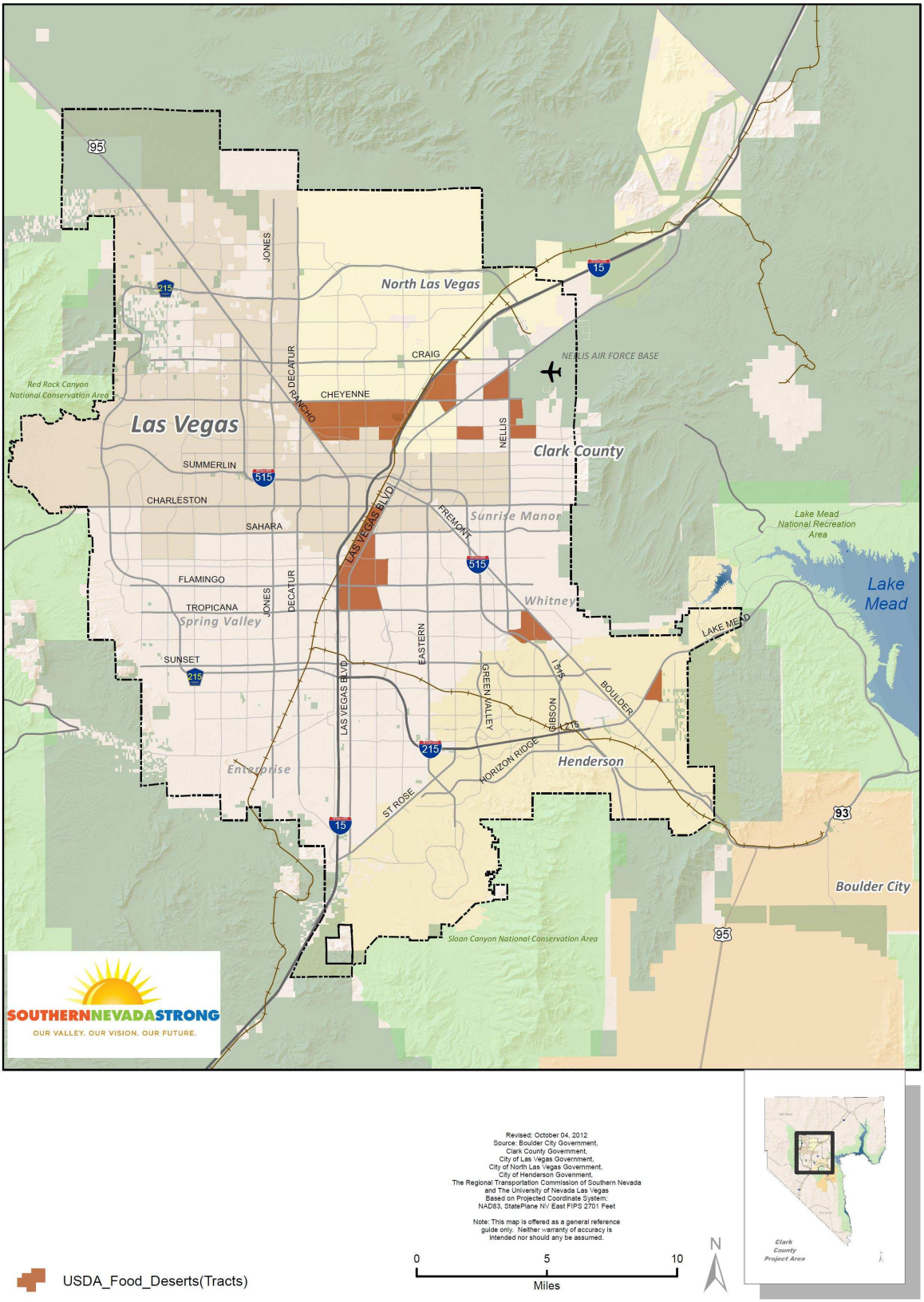
Table 36: Age Adjusted Mortality Rates, 2009

Location	Age Adjusted Mortality Rate per 100,000 People
Nevada	**789.6**
Utah	699.0
Colorado	677.8
New Mexico	748.0
Arizona	688.9
Idaho	744.9
US	740.0

National Vital Statistics Report, 2012

There are 16 food deserts in Clark County. The USDA qualifies a food desert as a census tract in which at least 33 percent of the population or a minimum of 500 people live more than 1 mile from a supermarket or large grocery store. There are 10 census tracts in the Las Vegas urban area that meet the criteria for a food desert (see Figure 34) and 16 tracts in all of Clark County (USDA ERS, 2012b). It is a national goal to eliminate all food deserts by 2017, as lack of access to healthy food contributes to a poor diet, obesity, and other related chronic diseases such as heart disease and diabetes. Efforts to meet this goal have been made through the Fresh Food Financing program. They include tax credits to supermarket projects in food deserts and USDA loans and grants to programs which increase access to locally produced food, such as farmers markets (USDA, 2012).

Figure 34: Food Deserts, 2012



Source: USDA ERS (2012b)

Convenience and fast food outlets are more accessible than grocery stores in the region. There are a total of 289 grocery stores, supermarkets, and club stores in Clark County which equates to 0.148 stores per 1,000 residents; there are 593 convenience stores or 0.303 stores per 1,000 residents, and 1,089 fast food outlets or 0.58 outlets per 1,000 residents (USDA ERS, 2012). Of all restaurants in Clark County, 59 percent are classified as fast food by the North American Industrial Classification System. This is much higher than the national benchmark of 25 percent. Though these numbers are similar to other counties in the Mountain West (see Table 37) it is concerning that there are twice as many conveniences stores and nearly four times as many fast food outlets than there are grocery stores. When people have access to grocery stores they are less likely to be overweight, but when they have better access to convenience stores they are more likely to be overweight (Morland, Roux, & Wing, 2006).

Table 37: Food Outlets per 1,000 Individuals, 2012

	Clark County, NV per 1,000	Maricopa County, AZ per 1,000	Salt Lake County, UT per 1,000
Grocery, supermarkets, & club stores	0.148	0.158	0.159
Convenience stores	0.303	0.257	0.278
Fast food outlets	0.580	0.564	0.524

Source: USDA ERS (2012)

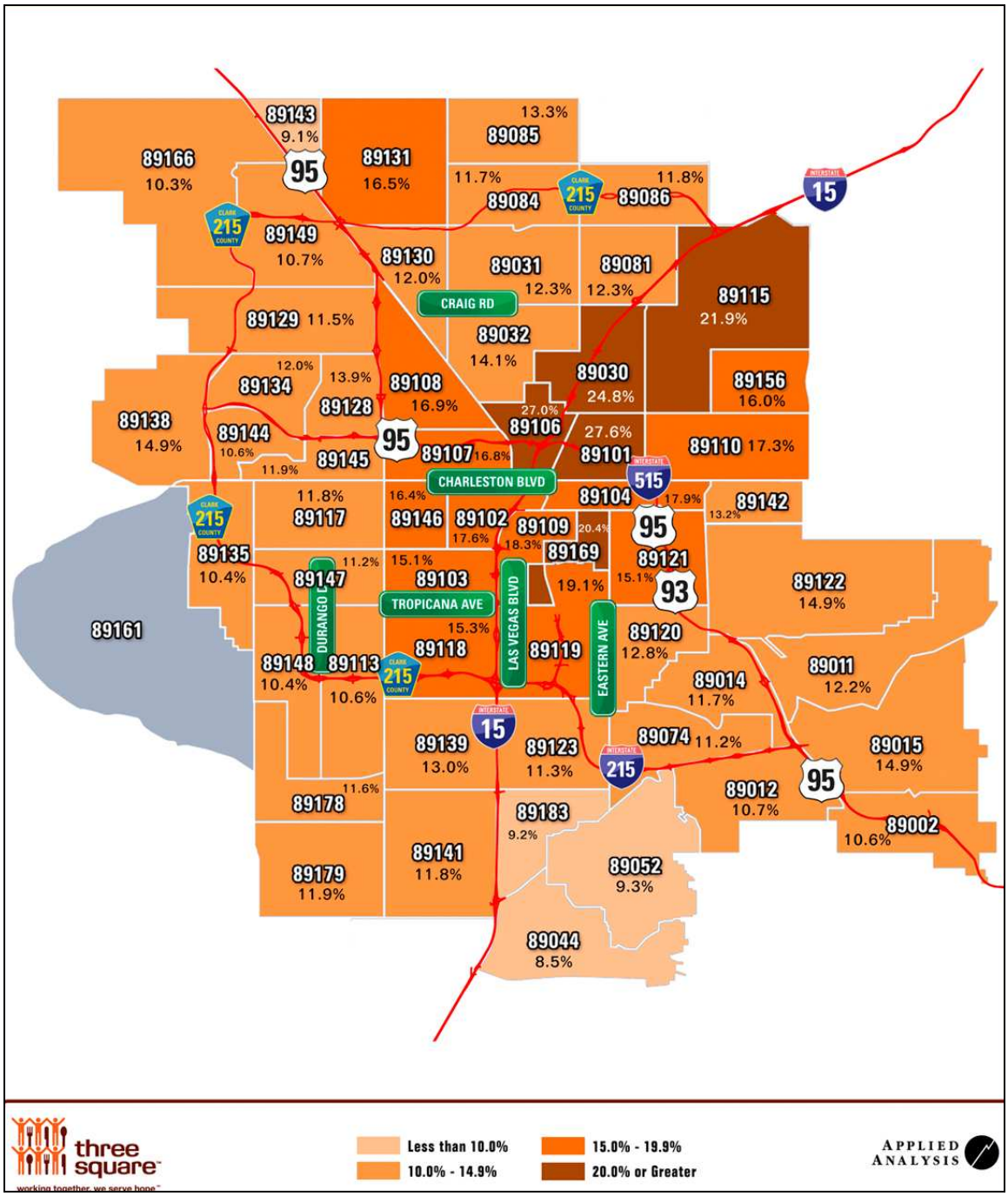
The number of food insecure households in Clark County is higher than the national average and other Mountain West Counties. Food insecurity is defined as lack of access, at times, to enough food for a healthy and active life for all household members (Feeding America, 2012). In Clark County 17.5 percent of households are food insecure. This is higher than the national average and of other Mountain West Counties (see Table 38) (Feeding America, 2012; USDA ERS, 2012c). Figure 35 shows the percentage of the population which is food insecure by zip code. Food insecurity is a concern because it is linked to numerous negative health effects such as increased body mass index (BMI), poorer self reported health status and lower mental health scores (Stuff et al., 2004; Olson, 1999).

Table 38: Households with Food Insecurity, 2011

	Percent of Households
Clark County, NV	17.5%
Denver County, CO	17.1%
Maricopa County, AZ	16.1%
Salt Lake County, UT	14.9%
Nation	14.9%

Source: USDA ERS (2012c); Feeding America (2012)

Figure 35: Food Insecurity by Zip Code, 2011



Three Square (2011)

The number of food insecure children in Clark County is higher than the national average and other Mountain West Counties. Households with children experience food insecurity at a significantly higher rate than the population (Feeding America, 2012b). 26.9 percent of children in Clark County are food insecure (Feeding America, 2012). Table 39 contrasts the percent of food insecure children in Clark County to the nation and other mountain west counties. Further, 55 percent of children in Clark County School District are enrolled in free and reduced price meal programs based on family income (Three Square, 2012). Food insecurity is a particularly serious issue for children, as it can pose long term health effects. Research has found that food insecurity impacts cognitive development, and is associated with negative academic and psychosocial outcomes (Feeding America, 2012b; Alaimo, Olson, Frongillo, 2001).

Table 39: Percent of Food Insecure Children, 2010

	Percent Food Insecure
Clark County, NV	26.9%
Denver County, CO	25.6%
Maricopa County, AZ	24.8%
Salt Lake County, UT	19.6%
Nation	21.6%

Source: Feeding America (2012)

Violent Crime. In 2009, Clark County ranked 1st of Nevada Counties for violent crimes (786.1 /100,000) and second for property crimes (3,059.2 /100,000 population) (Nevada State Office of Rural Health, 2011). Clark County remains above the national violent crime rate in 2009 which was 429.4 / 100,000 and parity with that national property crime rate was 3,036 / 100,000 (US Department of Justice, 2009)

6.3 PARKS & RECREATION FACILITIES

The region has fewer park acres per capita than the nationally recommended level. Southern Nevada has 4,946 park acres of regional and local parks located in four jurisdictions (excluding federal and state lands). The overall average is 2.6 park acres per 1,000 residents. The National Recreation and Parks Association recommends 10 park acres per 1,000 residents. The goals adopted by Clark County and the cities of Las Vegas and North Las Vegas is 2.5 acres per 1,000 residents and the city of Henderson's goal is 5.5 acres per 1,000. The current amount of park acres per 1,000 residents by jurisdiction is 1.93 acres for the county, 3.2 acres for the city of Las Vegas, 3.7 acres for the city of North Las Vegas, and 2.9 acres for the city of Henderson. Each jurisdiction in the region is responsible for maintaining and operating the parks within its limits. A study examining all park acres in Clark County found that census tracts with

larger populations are more likely to have a park and high income census tracts are more likely to have a greater amount of park acres (Coughenour & Pharr, in press).

Southern Nevada contains over 4 million acres of federal and state lands, which offer a variety of recreation opportunities. The region's network of parks, open space recreation areas is one of its strongest assets. Most of these areas are state or federally owned. Lake Mead National Recreation area is the fifth most visited national park with 7 million visitors each year and offers water recreation, fishing, boating, cycling, camping and hiking. A total of 587,000 acres of the recreation area is within Clark County (NPS, 2012). The Desert National Wildlife Range (DNWR) is the largest wildlife refuge in the lower 48 states, encompassing 6 mountain ranges and expanding 50 miles wide and 59 miles north. The DNWR includes 493,000 acres within Clark County. The primary purpose is to protect the desert bighorn sheep, though the area offers hiking, bird and nature viewing, and hunting. Spring Mountain National Recreational Area (Mount Charleston), which is part of the Humboldt-Toiyabe National Forest includes 252,518 acres within Clark County. The Spring Mountains offer seasonal snow capped mountains for snow recreation, hiking, hunting, camping, rock climbing, biking, and bird and nature viewing (USDA, 2012d). Red Rock National Conservation, draws more than one million visitors each year. It has 195,819 acres which offer hiking trails, rock climbing, horseback riding, biking, picnic areas, nature observing and a visitor center with exhibit rooms and a book store (Bureau of Land Management (BLM), 2012).In addition, there are over 2.5 million additional acres of federal lands in Clark County which are utilized by residents for recreational purposes.

Clark County has numerous state parks as well. The 42,059 acre Valley of Fire State Park is Nevada's oldest state park. In addition to hiking, camping, and a visitor's center, it contains areas of petrified wood and 3,000 year old Indian petroglyphs (Department of Conservation and Natural Resources, 2012). The 2,336 acre Big Bend of the Colorado State Park is on the shores of the Colorado River in the Southern tip of Clark County and offers water recreation, fishing, boating, camping and hiking (Department of Conservation and Natural Resources, 2012). Spring Mountain Ranch State Park contains 520 acres and features a historical ranch house, an outdoor theatre, natural springs, hiking, and nature viewing. The Old Las Vegas Mormon Fort is a state park and sits on 3 acres which houses an adobe fort built by the first permanent non-native settlers, Mormon missionaries. The site is within downtown Las Vegas and contains a visitor's center depicting the history of the site and historic artifacts (Department of Conservation and Natural Resources, 2012). Table 40 shows the number of acres by type for parks and open space in Clark County.

Table 40: Public Parks and Open Space Acreage, 2012

Park Type	Total Park Acreage
National Park	1,528,337
State Park	44,918
Regional Park (50 acres or more)	96,477
Community Park (13 to 50 acres)	1,297
Neighborhood park (2 to 12 acres)	1,038
Pocket Parks (less than 2 acres)	22
Additional BLM acres	2,704,181
Total Acreage	4,376,270
Acres of Park and Open Space Per Capita	2.2

*BLM = Bureau of Land Management

Source: City of Henderson (2012); City of Las Vegas (2012); City of North Las Vegas (2012); Clark County (2012); SNRPC (2006); Department of Conservation and Natural Resources (2012); USDA (2012d), NPS (2012); BLM (2012)

The region has 179 miles of off road, multiuse trails, combined. The City of Henderson has a total of 66 miles of multi-use trails, Las Vegas has 45 miles of multi-use trails, Clark County has 39 miles of developed trails and 20 miles in development, North Las Vegas has 29 miles of developed trails and has an additional 10 miles under construction (anticipated completion winter 2013). The amount of total trail miles in Southern Nevada is comparable or greater than similar mountain west cities such as Phoenix, AZ which reports 200 miles of urban trails (City of Phoenix, 2012) and Denver, CO which reports about 80 miles or urban trails (City of Denver, 2012). One study examined the number of trail heads in the region and found that low income areas have access to fewer urban trails when compared to high income areas (Coughenour, in press).

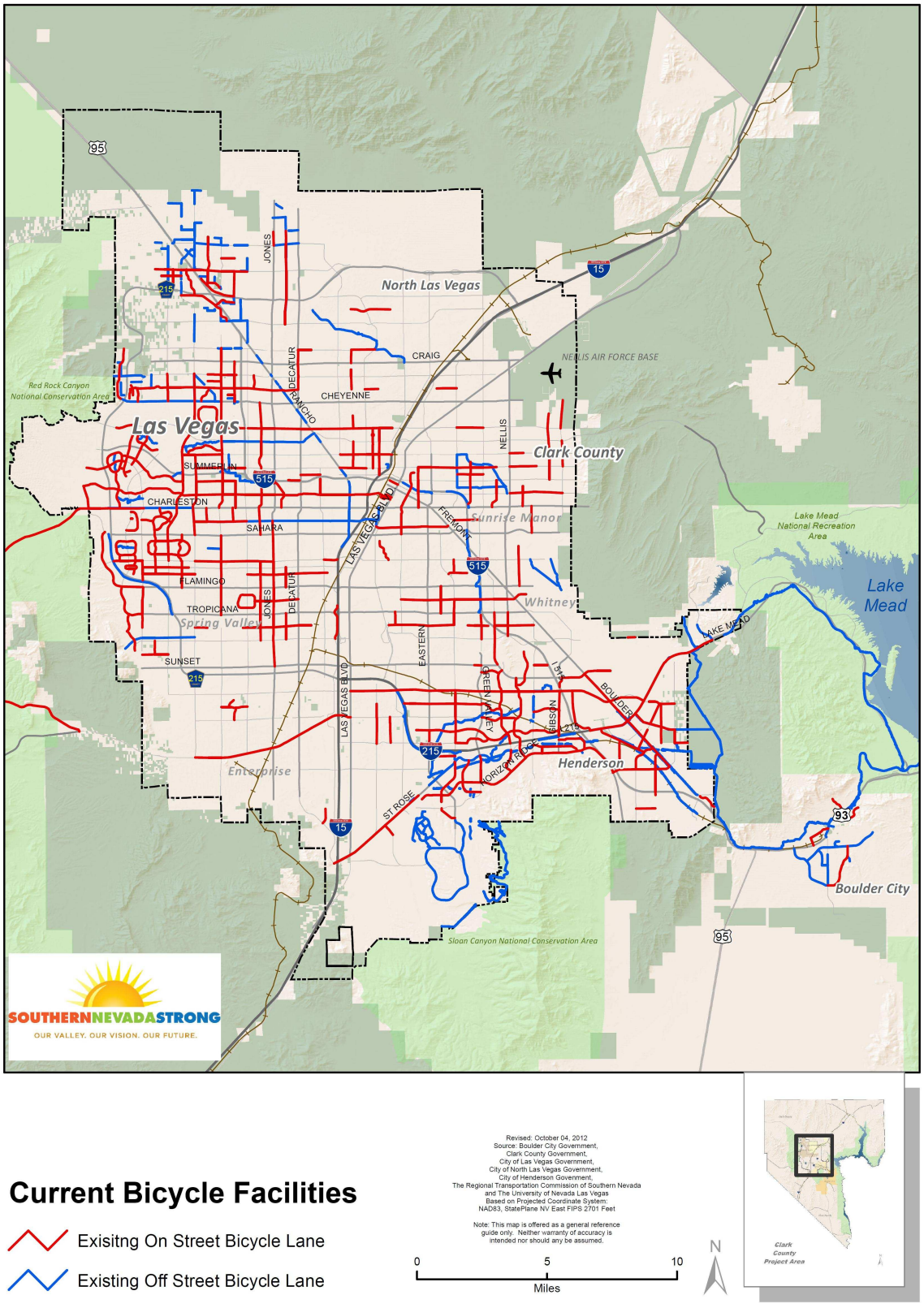
Table 41: Urban Trail Mileage, 2012

Urban Trail Systems	Total Mileage
Las Vegas	179
Phoenix	200
Denver	80

Source: City of Las Vegas (2012), City of Henderson (2012), City of North Las Vegas (2012), Clark County (2012), City of Phoenix (2012), City of Denver (2012).

There are 180 miles of bike lanes, 100 miles of bike paths, and 80 miles of bike routes throughout the region. Bike lanes are defined as a portion of the roadway which is separated from vehicular traffic by marked pavement. Bike paths are shared use paths which are physically separated from vehicular traffic by open space or a physical barrier, and a bike route is a shared roadway which is designated by signage as a preferred route for bike use (see Figure 36).

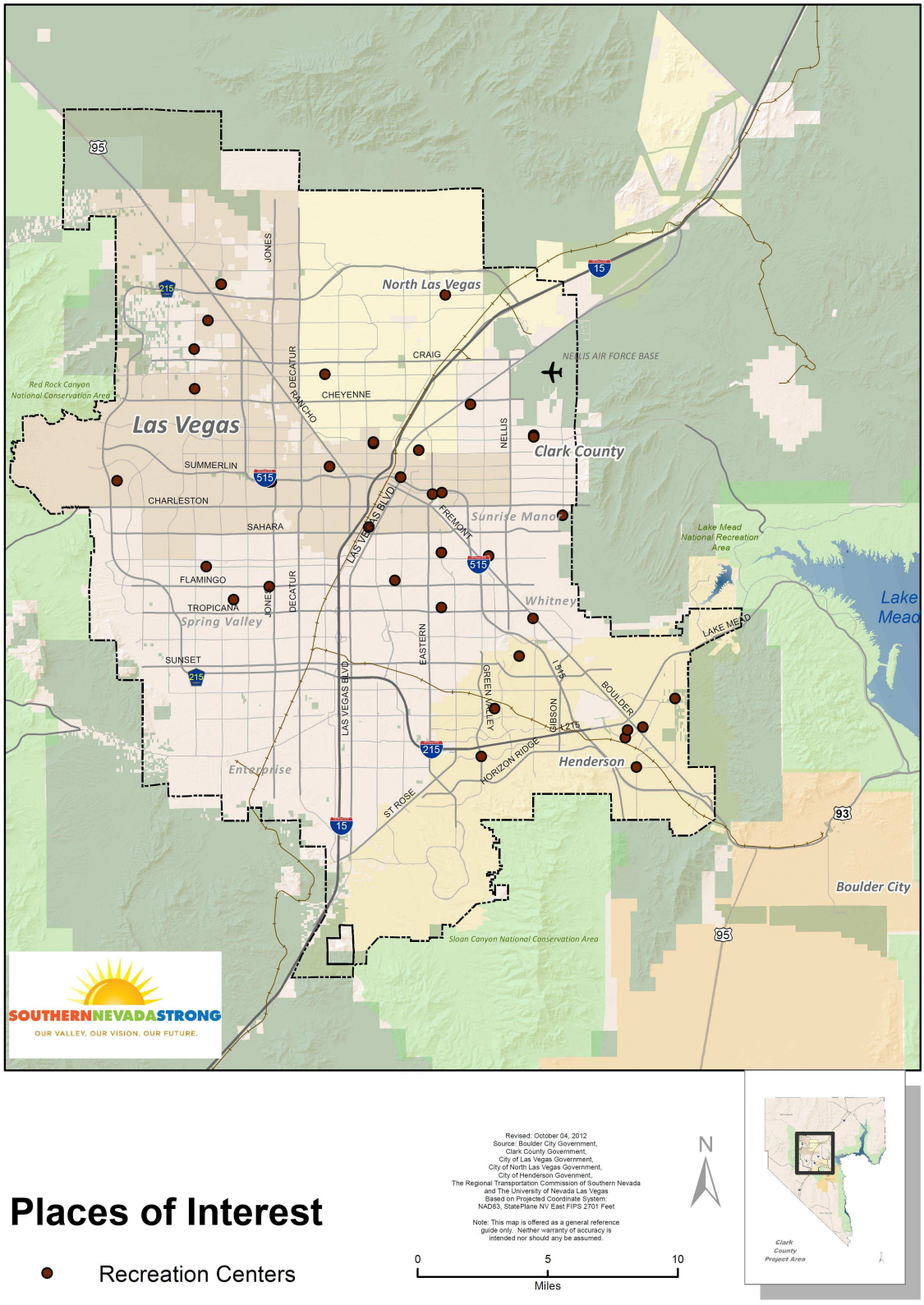
Figure 36: Bicycle Network



Source: RTC of Southern NV (2012)

There are a total of 41 recreational facilities in Clark County. The City of Henderson has 8 recreational facilities, including 1 senior center; Las Vegas has 15 recreational facilities, including 7 senior centers; Clark County has 13 recreational facilities, including one senior center, and North Las Vegas offers 3 recreational facilities. And Boulder City has 1 recreation center and 1 swimming pool complex.

Figure 37: Recreational Facilities



Source: Clark County, Cities of Henderson, Las Vegas, North Las Vegas (2012)

6.4 EDUCATION

Clark County ranks last in per pupil spending in Nevada. In 2009, Clark County School District ranked 17th out of 17 Nevada counties in per pupil public expenditures on education with $8,246 spent per pupil. The average US per pupil expenditures was $10,297 (National Center for Educational Statistics, 2012).

Table 42: Public Expenditures on Education per Pupil, 2009

	Dollars per Pupil
Esmeralda County	$29,984
Eureka County	$28,550
Storey County	$14,639
Pershing County	$14,027
Lincoln County	$13,820
Mineral County	$13,551
White Pine County	$11,420
Nye County	$10,672
Humbolt County	$9,998
Lander County	$9,769
Elko County	$9,641
Douglas County	$9,506
Churchill County	$9,153
Lyon County	$9,092
Carson County	$8,812
Washoe County	$8,458
Clark County	**$8,246**

Source: Source: Nevada Office of Rural Health (2011)

Clark County has one of the highest pupil to teacher ratios in the nation. Clark County School District experienced budget cuts due to the economic recession. Cuts have resulted in increased pupil/teacher ratios. Compared to the 100 largest school districts in the US, Clark County School District has the thirteenth highest median pupil/teacher ratios (National Center for Educational Statistics, 2010).

Table 43: Top National Pupil/teacher Ratio's by School District, 2010

School District	Pupil/Teacher Ratio
Granite District, UT	22.8
Alpine District, UT	22.7
Jordan District, UT	22.2
Garden Grove Unified, CA	21.8
Capistrano Unified, CA	21.7
Davis District, UT	21.6
Corona Norco Unified, CA	20.8
Santa Ana Unified, CA	20.4
Prince Wm County Public Schools, VA	19.4
Elk Grove Unified, CA	19
Chesterfield County Public Schools, VA	18.8
Columbus City, OH	18.7
Clark County School District, NV	**18.6**
Washoe County School District, NV	18.6
San Bernardino City Unified, CA	18.5

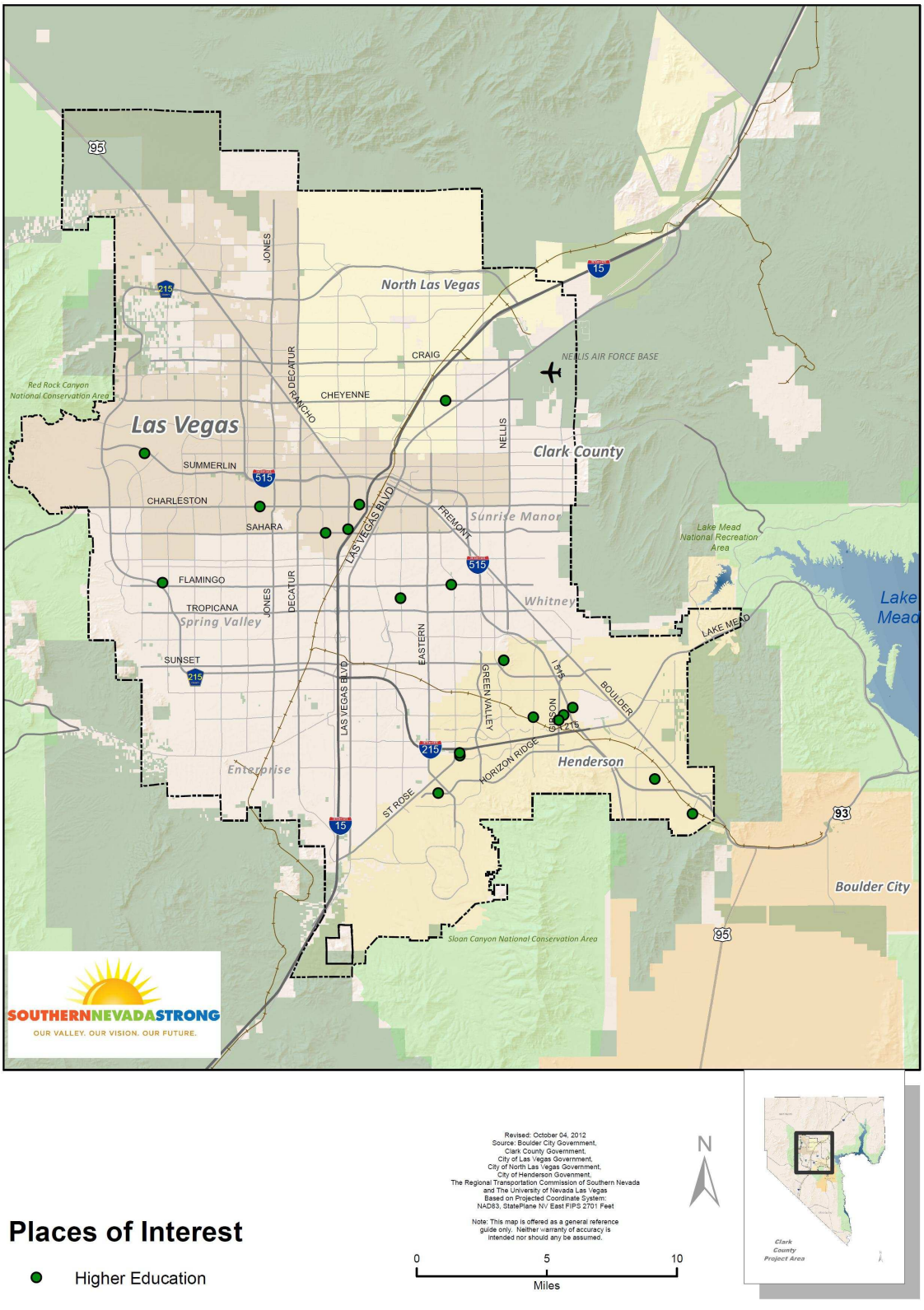
Source: National Center for Educational Statistics (2010)

The majority of Clark County School District (CCSD) funding is generated from local school support taxes. CCSD funding is generated from 3 sources: locally generated funding (local school support tax and property/mining tax), state obligated revenues, and 'outside' revenue. Clark County School District typically receives 48 percent of its State-guaranteed funding from a local school support tax and nearly 13 percent from property/mining taxes, with the State making up the remaining 39 percent of its guaranteed basic support level (FY 2008 figures) (The Nevada Plan for School Finance, 2011). The additional 'outside' revenues are generated from specifically generated local school funding revenue sources (property/mining tax, a governmental services tax, franchise fees, unrestricted federal revenues, and interest and other local revenues dedicated to education). Monies are then distributed to each school on a per pupil basis (Nevada State Department of Education, 2009).

The region has nine public and private universities or colleges. The largest institution by enrollment is the College of Southern Nevada (CSN) with 40,000 students. CSN has three campuses throughout the region and offers mostly 2 year degrees as well as 3 bachelor degrees. The University of Nevada, Las Vegas (UNLV) is the second largest institution, a public university with 22,100 undergraduate students and 5,400 graduate and professional students. UNLV also has the only Law School in NV, William S. Boyd School of Law, and the only dental school (DDS or DMD degree), the School of Dental Medicine. Other public institutions include Nevada State College. Private institutions of higher education include Touro University, National University, Roseman University of Health Sciences, DeVry University, International Academy of Design and Technology, and a branch campus of the University of Phoenix (Clark County, 2012). The University of Phoenix has two campuses in Southern Nevada. Figure 38 shows the location of each.

There are six career and technical institutions in Southern Nevada. These include Anthem Institute and Pima Medical Institute, both offer career focused training in the healthcare field, Kaplan College which offers training in the healthcare field and criminal justice, Everest College which offers training in the healthcare field, business, and paralegal, ITT Technical Institute which offers training in information and electronic technology, drafting, business, and criminal justice, and Le Cordon Bleu College of Culinary Arts (Clark County, 2012; Anthem Institute, 2012; Pima Medical Institute, 2012; Everest College, 2012; Kaplan College, 2012; ITT Technical Institute, 2012). Figure 38 shows the location of each.

Figure 38: Universities, Colleges, Career and Technical Institution Locations

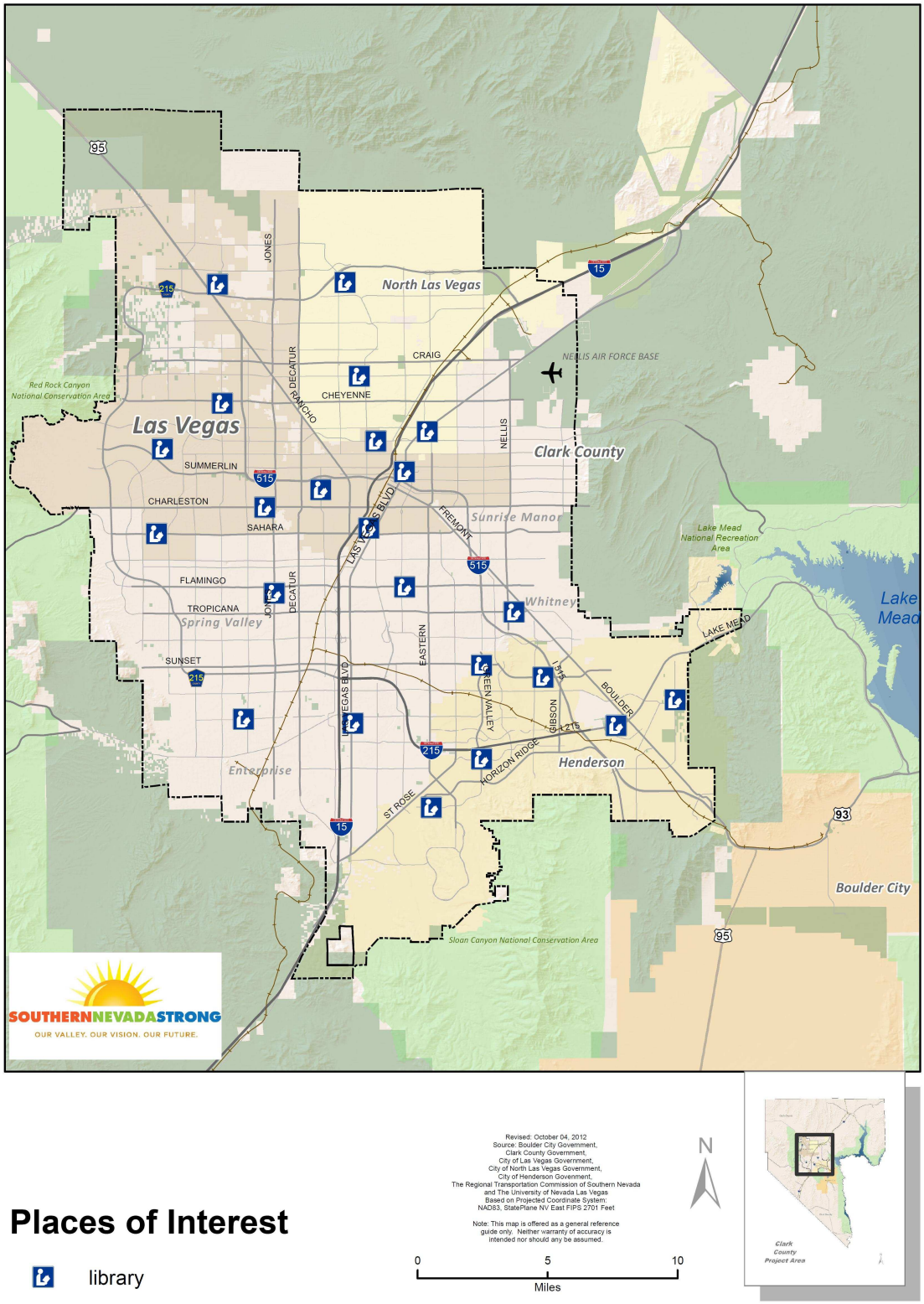


Source: City of Henderson (2012)

6.5 LIBRARIES

There are a total of 24 libraries throughout Southern Nevada. Libraries provide important resources to the community including free access to books and information resources as well as technology that supports work, school, and recreational activities. According to the Las Vegas-Clark County Library District, there are 14 libraries in Las Vegas and urban unincorporated Clark County. In Henderson, Henderson Libraries operates six libraries and in North Las Vegas, the North Las Vegas Library District operates three libraries. In addition, there is a non-circulating library at the Springs Preserve which allows visitors to access materials while on site. Figure 39 shows the distribution of libraries in the region.

Figure 39: Library Locations



Source: Las Vegas-Clark County Library District, Henderson Libraries, North Las Vegas Library District (2012)

CHAPTER 7 – DEVELOPMENT PATTERNS

Findings Summary

LAND USE

- The region has a significant amount of vacant land.
- Residential uses are found on 36 percent of the region's land.

ZONING

- The region lacks consistent zoning tools that allow mixed use developments.

GROWTH AREAS

- Urban growth expansion is contained by large federal land holdings.

DENSITY

- The region is the 5th most densely developed urban area in the country.
- Southern Nevada is a dense but auto-oriented urban area.

Key Findings

7.1 LAND USE

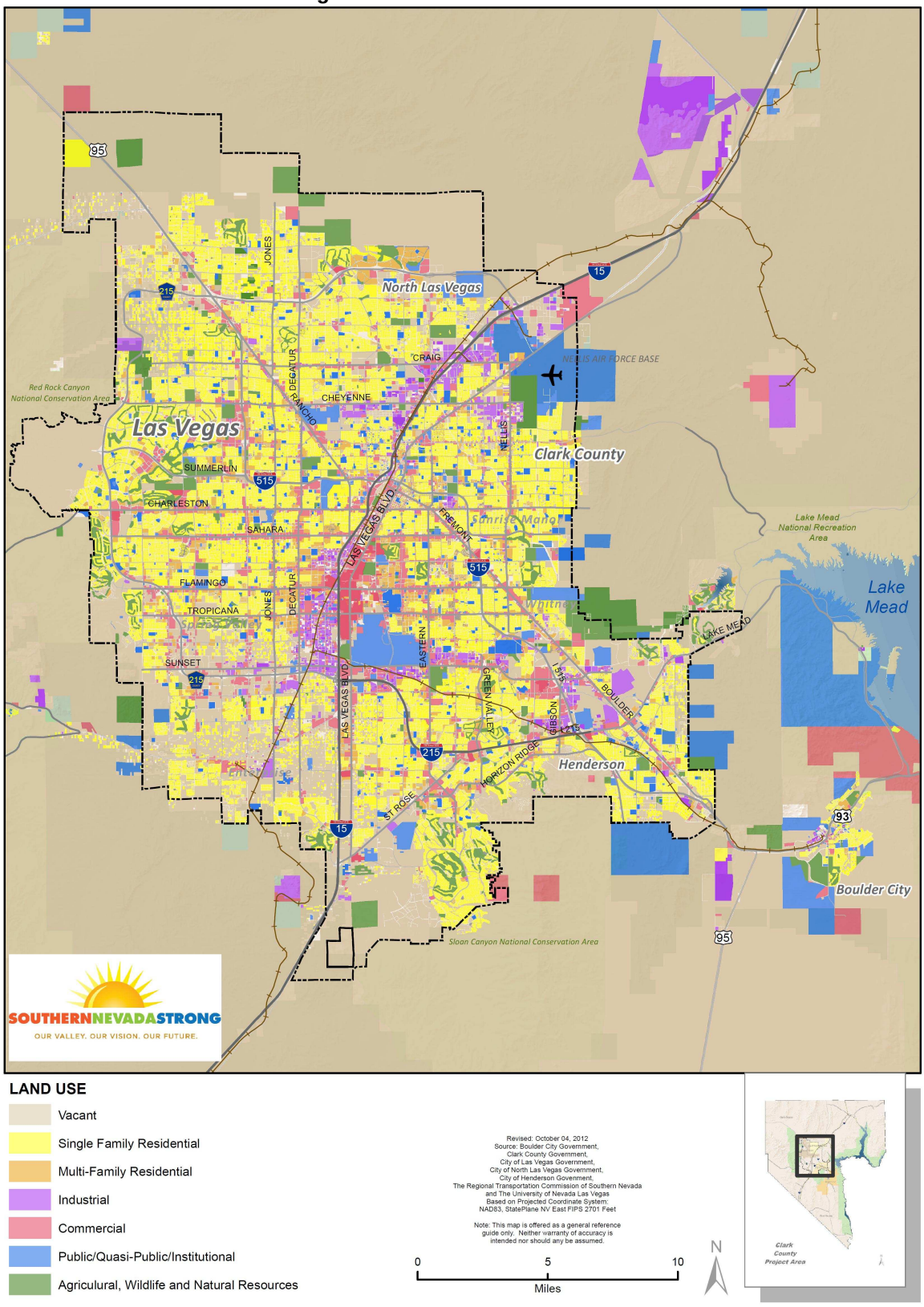
The region has a significant amount of vacant land. According to the SNRPC's regional land use database (GILIS), vacant land covers 37.8 percent of the region's land area within the BLM disposal boundary (see Table 44). Residential uses are found on 36 percent of the region's land. 30.6 percent is dedicated to single-family residential and 5.6 percent is multi-family residential (see Figure 40). Commercial (11.2 percent), Public/Quasi-Public/Institutional (22.1) which includes government and nonprofit uses like parks and public facilities, and Industrial (3.3 percent) uses constitute other major land uses.

Table 44: Regional Land Use Area, within the BLM disposal boundary, by Type

Land Use Type	Acres	Percent of Total
Vacant	104,673	37.8%
Single Family Residential	84,679	30.6%
Multi Family Residential	15,122	5.5%
Industrial	9,148	3.3%
Commercial	31,138	11.2%
Public/Quasi-Public/Institutional	30,650	11.1%
Agricultural, Wildlife and Natural Resources	1,595	0.6%
Total	277,005	100.0%

Source: Southern Nevada Regional Planning Coalition (2010)

Figure 40: Generalized Land Use



Source: Southern Nevada Regional Planning Coalition

7.2 ZONING

The region lacks consistent zoning tools that allow mixed use developments. Provisions for creating small lot residential developments exist but are inconsistently implemented across the region (see Table 45). This affects urban development patterns and induces growth away from existing neighborhoods. As a result, the region has been unsuccessful at fulfilling the potential for mixed use development: neighborhoods that blend a mix of housing sizes, safe pedestrian walk areas, and shops and restaurants within a few blocks' walk. Until the zoning for mixed use is corrected, development will be unable to capitalize on the transit investments that can enable the sustainable development provided in other metro areas.

Effective mixed-use regulations play a key role in developing desirable neighborhoods. For example, establishing a maximum setback from a street and/or property line enables the creation of safe pedestrian walking areas in front of buildings that face the street. In contrast, typical development allows large parking lots to isolate buildings from one another. In addition, proximity to transit can allow building occupants to travel without the use of a car and developers to construct fewer expensive parking spaces per unit. Development incentives, such as parking reductions (lower construction costs) or density increases (more saleable units), can encourage developers to construct mixed use developments and increase the supply available to meet market demand.

Table 45: Variation in Mixed Use Zoning Regulations

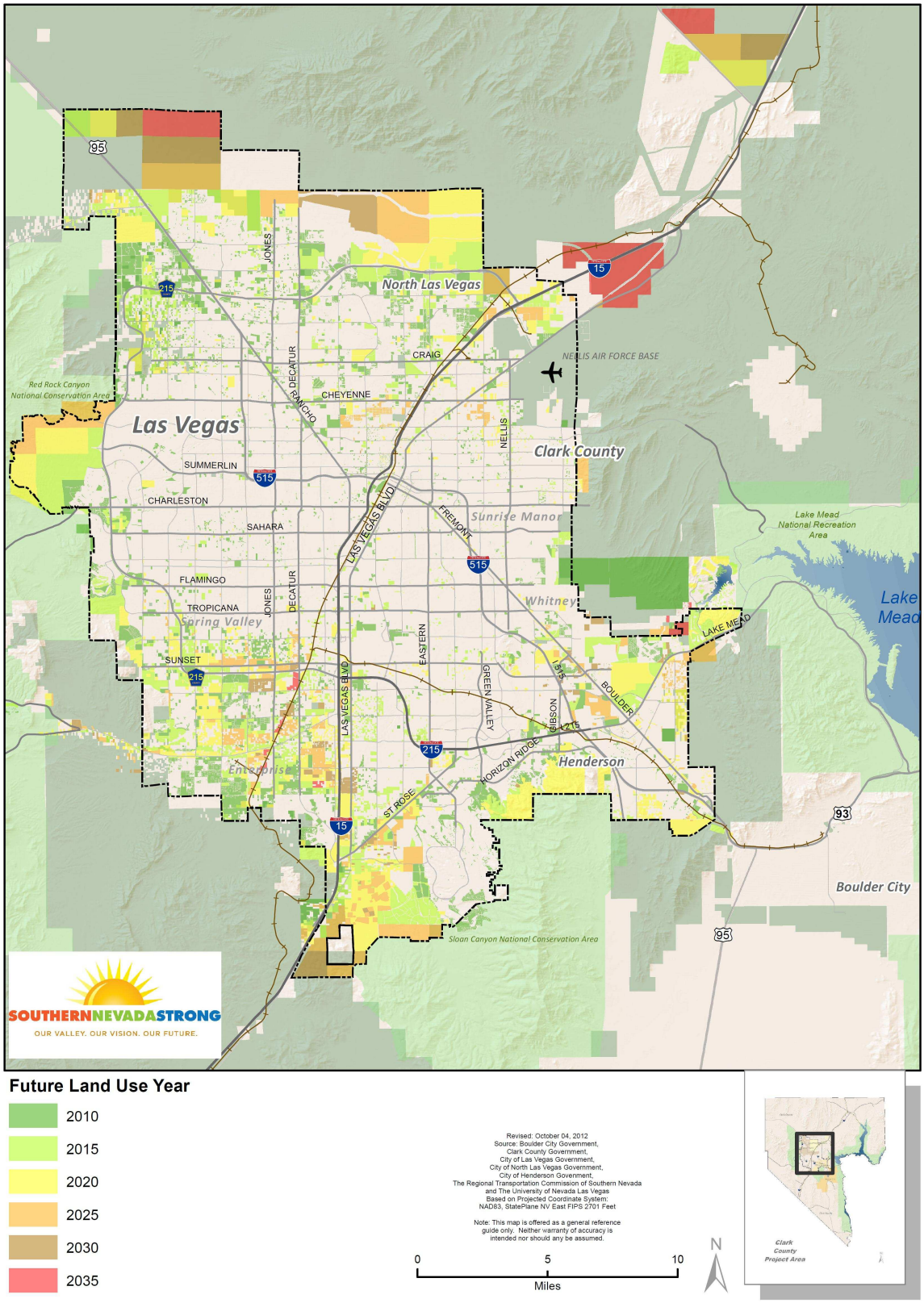
	Clark County	City of Henderson	City of Las Vegas	City of North Las Vegas	City of Denver, CO
Density Requirements	Yes	Yes	Yes	As approved	No
Height Requirements	Yes	Yes	No	Yes	Yes
Proximity to Transit Requirements	No	No	No	Option to fulfill requirement	No
Maximum Setback Requirements	No	Yes	Yes	No	Yes
Development Incentives	Yes	No	No	No	No

Sources: Clark County, City of Henderson, City of Las Vegas, City of North Las Vegas, City of Denver, CO.

7.3 GROWTH AREAS

Urban growth expansion is contained by large federal land holdings. Within Clark County, 90 percent of the land is administered by six Federal agencies: Bureau of Land Management (BLM), National Park Service, US Fish and Wildlife, USDA Forest Service, Bureau of Reclamation, and the US Air Force (including Nellis Air Force Base and Nellis Air Force Range. The Federal Land Policy and Management Act authorizes the Federal government to sell or exchange land. Land that is suitable for sale or exchange is identified as suitable for disposal within an area designated as BLM's disposal boundary. Land must be nominated by a local government, who upon receiving interest from a developer will nominate the number of acres and parcels based on interest from the developers. This process results in large metropolitan developments where large developers dictate growth patterns and few small developers can afford infrastructure on a per acre basis. Once auctioned, these lands are available for private development. Though the region does not have an official urban growth boundary, some argue that the disposal boundary serves as such.

Figure 41: Projected Growth Areas, 2010



Source: RTC Land Use Forecast (2010)

7.4 DENSITY

The Las Vegas urban area is the 5th most densely developed urban area in the country. The US Census estimate of urban density is calculated by dividing the population of the metropolitan statistical area by the total land area. These figures include vacant areas which lower the overall values, but are nationally comparable.

According to the Census, the densest urban areas with a population greater than 1,000,000 in population were Los Angeles, San Francisco, San Jose, New York and Las Vegas (see Table 46).

Table 46: Comparison of Urban Density

Urban Area	Population	Land Area (square miles)	Density (people per square mile)
Las Vegas	1,886,011	417	4,525
Salt Lake City	1,021,243	278	3,675
Denver	2,374,203	668	3,554
Phoenix	3,629,114	1147	3,165

Source: U.S. Census (2010)

The region has a greater share of its population living in the urban areas than other Mountain West metro areas. An urban area comprises a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core (Census, 2010). According to the 2010 Census (see Table 47), 97 percent of the region's population lives within the urbanized area. This is a greater share than Denver (93 percent), Salt Lake City (91 percent) and Phoenix (87 percent).

Table 47: Urbanized Populations, 2010

	Urban Population	MSA Population	Pct Urbanized
Las Vegas	1,886,011	1,951,269	97%
Salt Lake City	1,021,243	1,124,197	91%
Denver	2,374,203	2,543,482	93%
Phoenix	3,629,114	4,192,887	87%

Source: US Census (2010)

The region is a dense, yet auto-oriented urban area. The region's high density is partly due to the federally imposed urban growth boundary (BLM disposal boundary) which prevents it from developing Atlanta-like sprawl.

However, with no built form that promotes walkability and transit use, Las Vegas is dense but without urban purpose. Part of this is due to the master planned community dominance which segregates retail from residential development by gates and large block walls (Lang and LeFurgy, 2004) and the scale of boulevards which are high-speed multi-lane surface streets that discourage walkability.

CHAPTER 8 – INFRASTRUCTURE

Findings Summary

WATER AND SEWER FACILITIES

- The region has sufficient water resources available or in development to meet future demands through 2060
- Southern Nevada has additional capacity for wastewater treatment, as the region currently uses 72 percent of total existing capacity.

BROADBAND SERVICE

- Broadband coverage is extensive, with 99.9% of the population has access.

ENERGY

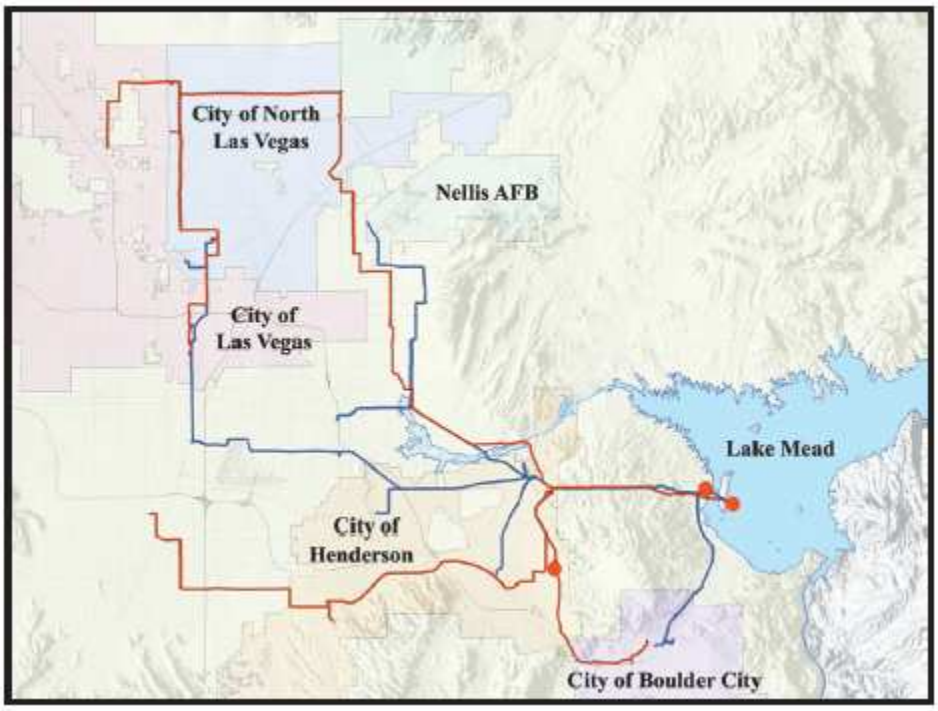
- Energy consumption and cost per household is slightly lower than the national average.

Key Findings

8.1 WATER AND SEWER FACILITIES

The region has sufficient capacity for the treatment and delivery of water. The water treatment and delivery capacity is currently 900 million gallons per day. There are two water treatment facilities in Southern Nevada (see Figure 42). The Alfred Merritt Smith Water Treatment Facility is located in Boulder City and has the capacity to treat and deliver 600 million gallons of water per day. The River Mountains Water Treatment Facility is located in Henderson and has the capacity to treat and deliver 300 million gallons per day, with the ability to expand to 600 million gallons per day.

Figure 42: Regional Water Treatment and Delivery System



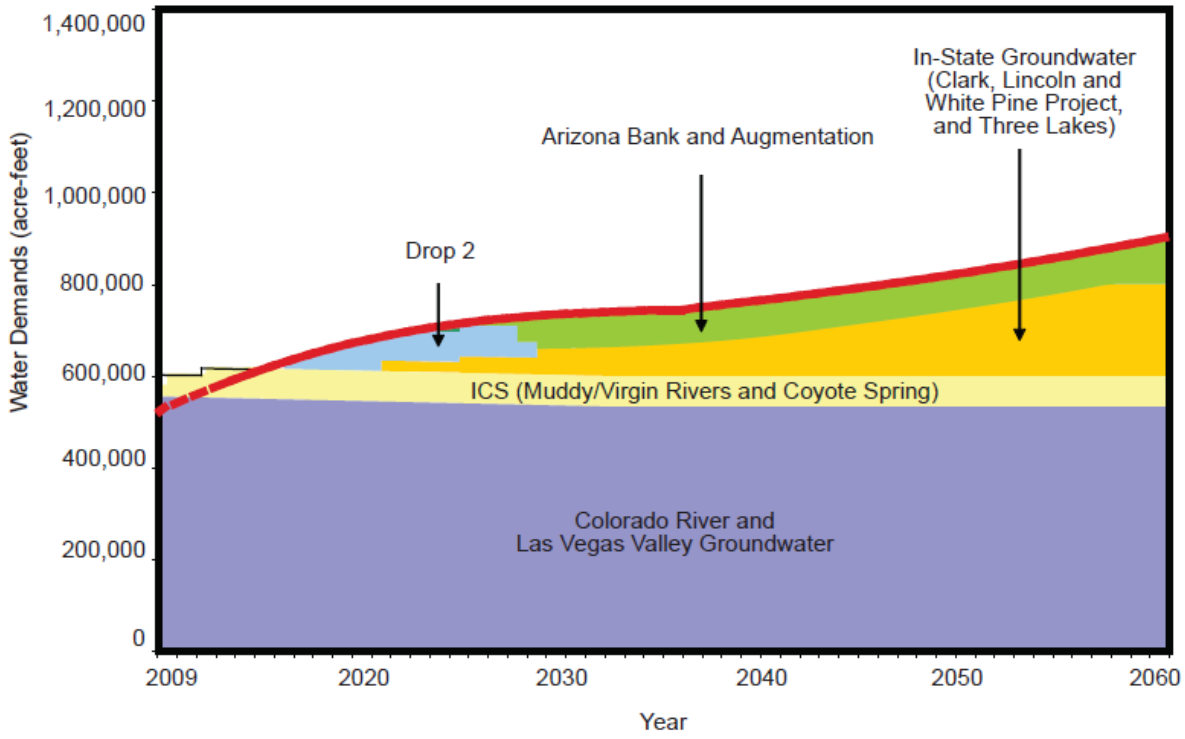
Source: SNWA WRP (2009)

There are three potable water providers in the region. The Southern Nevada Water Authority (SNWA) is responsible for treatment, delivery, acquisition, and management of long term water resources. The SNWA is a cooperative agreement among seven agencies in Southern Nevada, Big Bend Water District, the cities of Boulder City, Henderson, Las Vegas, North Las Vegas, Clark County Water Reclamation district, and Las Vegas Valley Water District. In Southern Nevada there are three potable water providers, the City of Henderson, North Las Vegas, and the Las Vegas Valley Water District. The City of Henderson provides water to its residents, the city of North Las Vegas provides water to its residents, adjacent portions of Las Vegas and unincorporated Clark County, and the Las Vegas Valley Water District provide water to Las Vegas and portions of unincorporated Clark County (SNWA WRP, 2009).

Southern Nevada currently operates at 30 percent of potable water system capacity. The system has a capacity of 900 million gallons per day and currently the yearly average amount used is 300 million gallons per day. Southern Nevada's per capita water consumption is about 133 gallons per capita per day when factoring in residential uses, businesses, resorts, schools, parks, and streetscapes (after accounting for the capture and reuse of indoor water). Residential use independently is about 75 gallons per capita per day (SNWA, 2012).

The region has sufficient water resources available or in development to meet future demands until 2060. To keep up with demand until 2060, current and in development resources include Nevada's basic apportionment of the Colorado River, Las Vegas Valley ground water rights, continued conservation efforts, development of intentionally created surpluses (ICS) of water, development of in state ground water and non-Colorado River sources. Projected demand, current and future water resources are depicted in Figure 43.

Figure 43: Projected Water Demands, Current and Future Resources



Source: SNWA Water Resource Plan (2009)

Southern Nevada has an additional capacity for wastewater treatment, as the region currently uses 72 percent of total existing capacity: There are four wastewater agencies in the region. The cities of Las Vegas, Henderson, and North Las Vegas provide wastewater service to their residents, and the Clark County Water Reclamation District provides wastewater service to unincorporated Clark County. Southern Nevada has 28 percent of regional capacity remaining. See Table 48 for jurisdictional breakdowns.

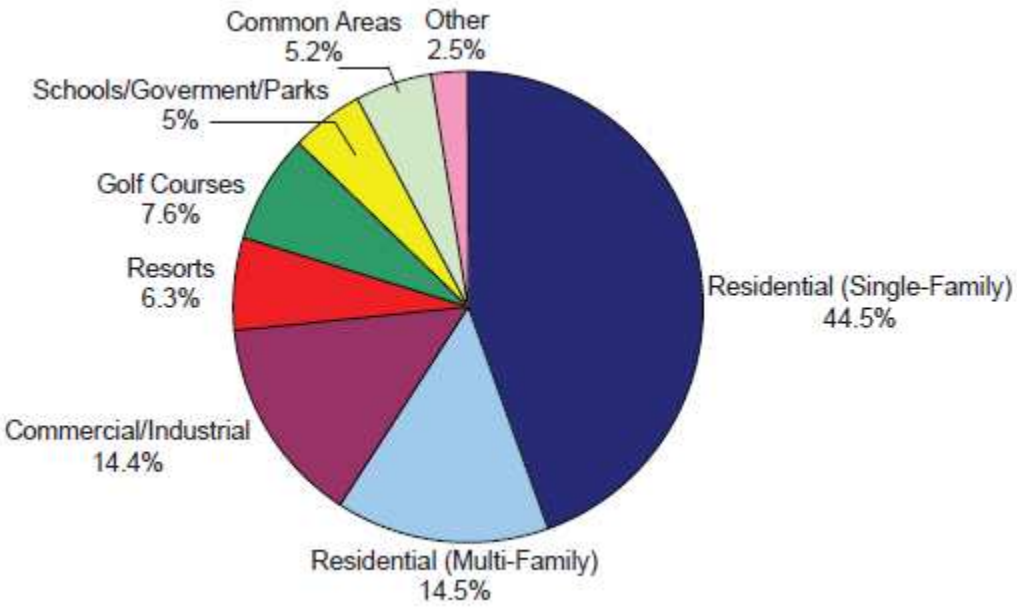
Table 48: Regional Wastewater Capacity

Jurisdiction	System Capacity (in millions of gallons per day [MGD])	Amount Currently Being Used (MGD)	Percent of Capacity Currently Being Used	Amount Remaining (MGD)	Percent of Capacity Remaining
Clark County	150	95	63%	55	37%
Henderson	40	22	55%	18	45%
Las Vegas	66	52	79%	14	21%
North Las Vegas	25	17	68%	8	32%
Regional Total	281	186	66%	95	34%

Source: Clark County Water Reclamation District (2012); City of Henderson (2012); Clark County Water Reclamation District (2012)

The region has achieved substantial reductions in water use through conservation. As shown in Figure 44, residents account for 59% of water use. Most of this water is used consumptively for outdoor landscaping. Thus, conservation efforts are best directed toward management of outdoor water use. Since its creation in 1991, the SNWA has introduced a number of conservation efforts and programs. City and County governments have adopted a number of codes, regulations, and incetives aimed at water conservation and they are described in Table 49. These efforts have been effective and resulted in significant reductions of water use. Between 2002 and 2008, consumptive water use decreased by 21 billion gallons annually, from 350 gallons per capita per day to 250 gallons per capita per day. SNWA and member agencies hope to continue conservation and have set a goal to reduce water use to 199 gallons per capta per day by 2035 (SNWA WRP, 2009).

Figure 44: Municipal Metered Water Use by Sector, 2007



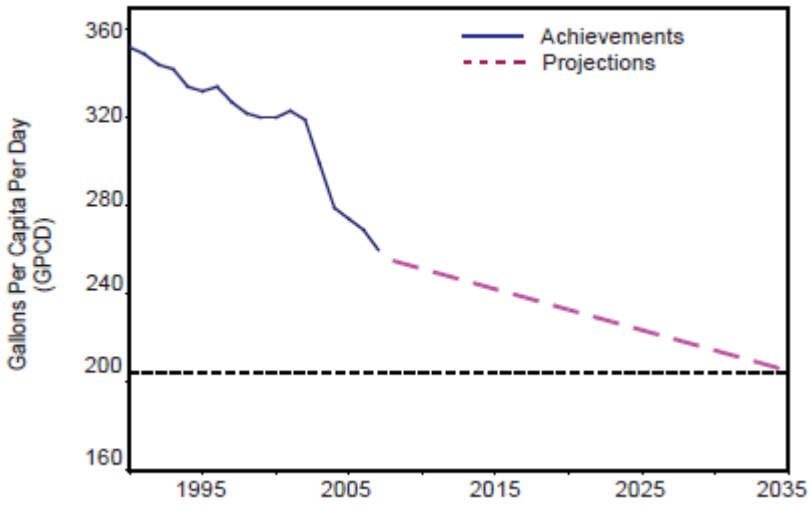
Source: SNWA Water Resource Plan (2009)

Table 49: Water Conservation Codes, Regulations, and Incentive Programs

Codes and regulations	"Water smart" incentive programs
Restrictions on watering landscape during the hottest times of the day in summer months	Rebates for residential and commercial properties to convert to water-efficient landscaping
Regulations mandating commercial vehicle washes to capture water so it can be treated and reused	Rebates of up to half the cost of replacing inefficient irrigation controllers to “smart” irrigation controllers
Prohibition of turf installation in new residential front yards and limitations of 50 percent coverage for turf in back yards	Rebates for business customers retrofitting existing equipment for approved water efficient technologies
Limiting commercial misting systems to only summer months	Rebates of up to half the cost of a pool cover
Budgeting of golf course water allotment	Water smart car wash incentives encouraging residents to use smart water car washes over home washing
Barring water waste including water runoff into streets and non-compliance with lawn watering schedules	Partnerships with landscaping contractors whose projects meet specific criteria to conserve water
Tiered rate charges which increase as rate of use increases	Certification of new homes as water smart, ensuring they can save as much as 75,000 gallons/year
	Partnership with local restaurants to only serve water upon request

Source: SNWA Water Resource Plan (2009)

Figure 45: Reductions in Water Use from Conservation



Source: SNWA Water Resource Plan (2009)

8.2 BROADBAND SERVICE

Southern Nevada has excellent broadband coverage. According to the National Telecommunications and Infrastructure Administration (NTIA), 99.3 percent of residents have access to DSL and cable, and 99.9 percent have access to wireless technologies. Through a national initiative, the NTIA and Federal Communications Commission created a database of broadband availability across the United States. Data is collected twice a year in the availability, speed, and location of broadband services, as well as the broadband services that community institutions including schools, libraries and hospitals use.

8.3 ENERGY

Average energy consumption and cost per household in Nevada is slightly lower than the national average. According to the U.S. Energy Information Administration (EIA) Residential Energy Consumption Survey (RECS) of 2009, Nevada's per household energy consumption was 85.4 MBTUs, slightly lower than the U.S. average of 89.6 MBTUs. When compared to the total average of all western states, NV is slightly higher in energy consumption. Table 50 compares NV's household energy consumption to other western states. Cost of energy per household in NV is $1,805 per

year, slightly lower than the U.S. average of $2,024. NV energy costs are higher than the average of all western states. See Table 50 for energy costs per year of other western states (EIA RECS, 2009).

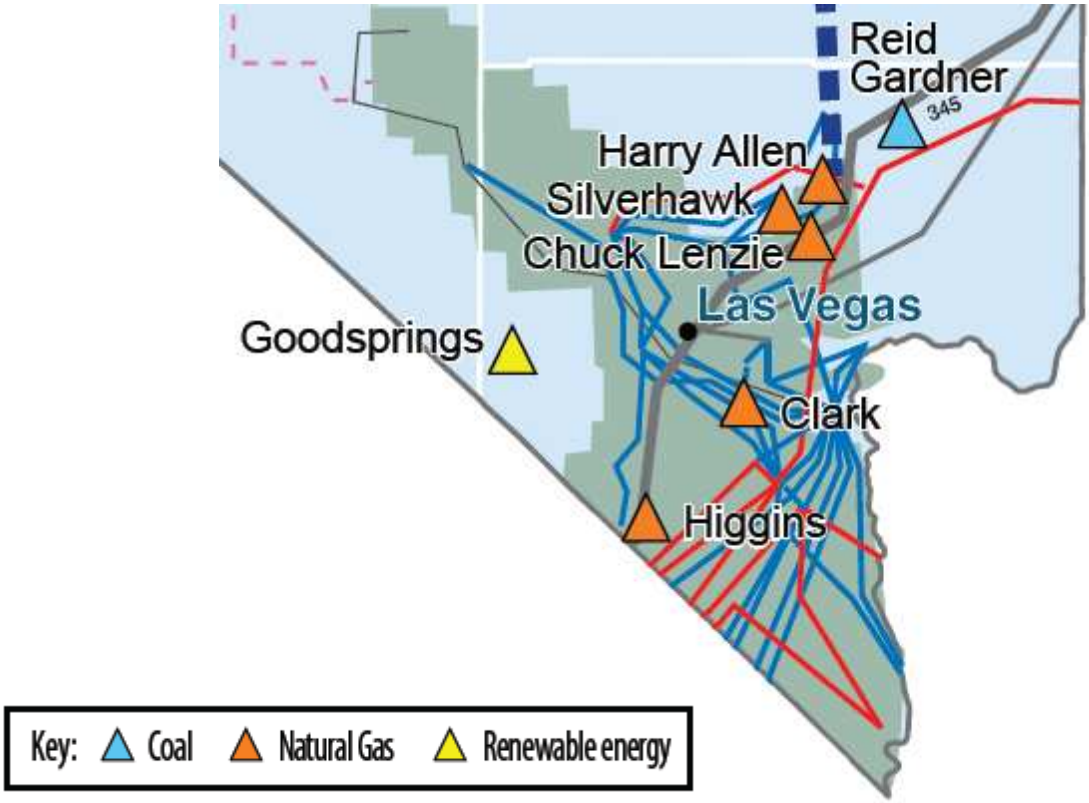
Table 50: Energy Consumption and Expenditures, 2009

	NV/NM	National	Western states	CO	AZ	CA	UT, ID, MT,WY
Average household energy consumption in MBTUs	85.4	89.6	73.0	102.8	66.0	61.6	105.0
Average household energy expenditures in 2009	$1,805	$2,024	$1,570	$1,555	$1,961	$1,423	$1,649

Source: EIA RECS (2009)

Nevada generates the majority of its electricity from natural gas. NV generates 67 percent of its electricity from natural gas; this is significantly greater than the national average of 24 percent (EIA, 2012). The second most common source of electricity in NV is coal at 20 percent. This figure is lower than the national average of 45 percent (EIA, 2012).

Figure 46: NV Energy Owned Generating Plants



Source: NV Energy (2012)

The region has two energy utilities that service the metro area. Electricity is provided by NV Energy, the largest energy supplier in NV. Southwest gas provides natural gas service.

CHAPTER 9 – ECONOMY

Findings Summary

ECONOMIC PERFORMANCE & EMPLOYMENT

- The region experienced economic losses during the Great Recession.
- In Southern Nevada, peer regions and in the US, workers with lower levels of education experienced higher levels of unemployment.
- Unemployment rates in the region exceeded national and peer region unemployment rates between 2008 and 2012.

WORKER CHARACTERISTICS

- The total number of people in the labor force in the region was larger in 2010 compared to 2000 with a peak in 2007 and a decline 2008 through 2010.
- Southern Nevada's working age population is slightly older than the peer regions, but not the nation.
- The region's working age population have lower levels of educational attainment compared to peer regions.

INDUSTRY STRUCTURE

- The majority (82%) of businesses are small business with less than 10 employees.
- Ten of the fifteen largest employers in Clark County are privately owned casinos.
- Construction; leisure and hospitality; trade, transportation and utilities; and professional and business service sectors experienced the greatest job loss during the recession.
- The Education and Health Services sectors did not experience a decrease in the number of employees during the recession.
- With the economic recession, Clark County experienced a decrease in the tourism sector; however, activity in this sector increased in 2011 compared to 2010.

RESEARCH & DEVELOPMENT

- Nevada and Clark County lag other states and the nation in innovation and R&D activity

OCCUPATIONAL GROWTH & SKILL REQUIREMENTS

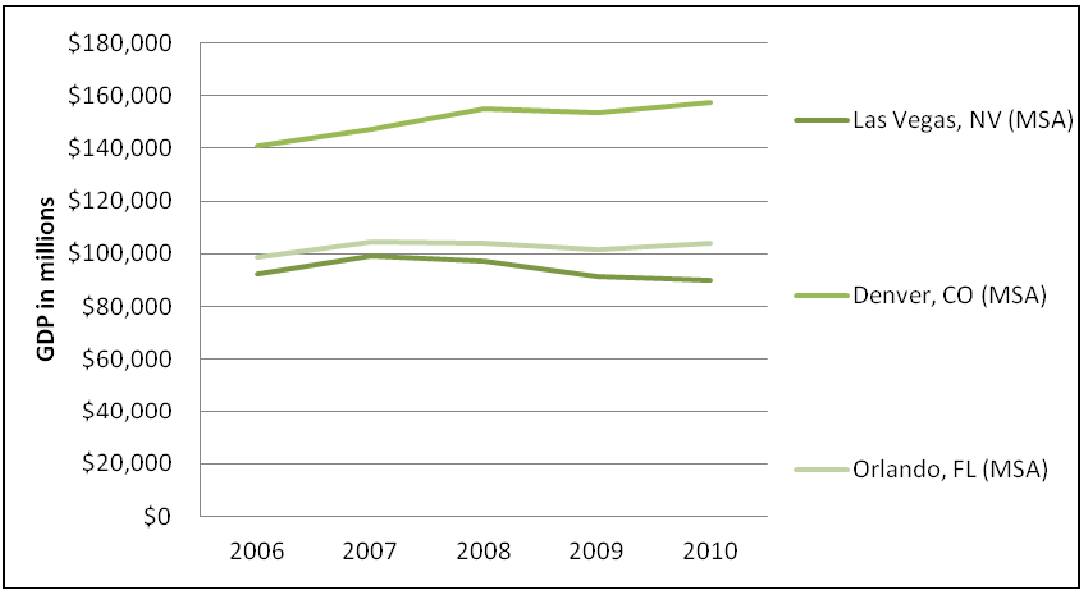
- All occupational categories are projected to have positive growth between 2010 and 2020 with a combined growth projection of 11.4% during the decade.
- Occupations requiring only on-the-job training or a high school diploma account for more than 80 percent if the region's jobs

Key Findings

9.1 ECONOMIC PERFORMANCE

The region experienced economic losses during the recent recession. In 2010, the gross domestic product of Las Vegas MSA was $89.8 billion, making it the 33rd –largest US metropolitan area in terms of total economic output. Like the rest of the nation, the regional economy has begun growing again, but growth rates have not yet recovered to its 2007 level (in constant dollars) (see Figure 47). In the second quarter of 2012, Las Vegas MSA gross product is 11.0 percent less than the peak in 2007 (Brookings Mountain West, 2012). In this same quarter, Salt Lake is 6.7 percent and Denver is 2.2 percent above their peaks and Phoenix is 5.8 percent below its peak.

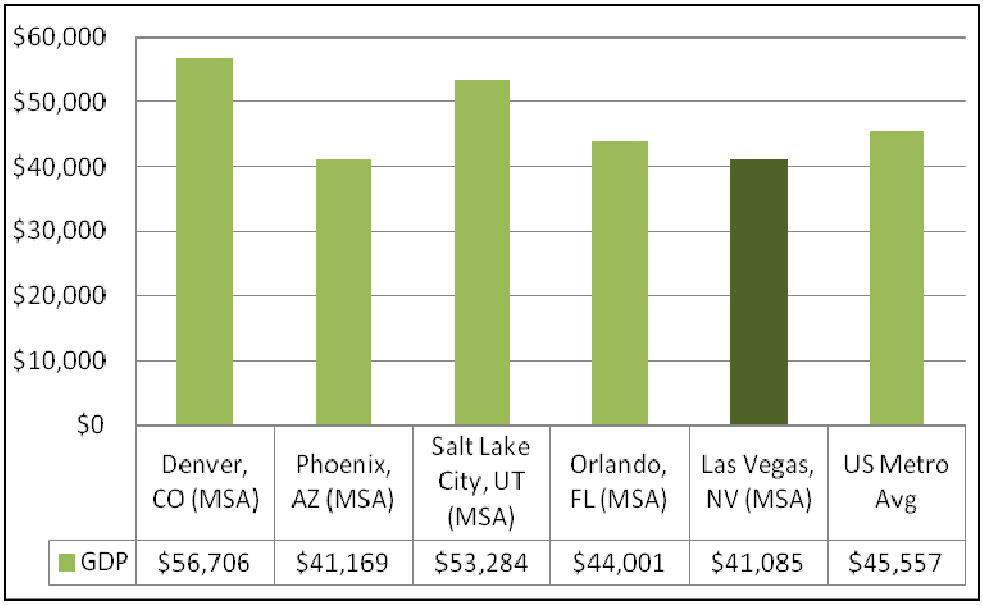
Figure 47: GDP by Metro Area, 2006-2010



Source: US Bureau of Economic Analysis,2006 - 2010

When compared to other metro areas (see Figure 48), the regional economy does not perform as well. In 2010, per capita GDP was 10 percent below the national average for metro areas and below all four peer regions.

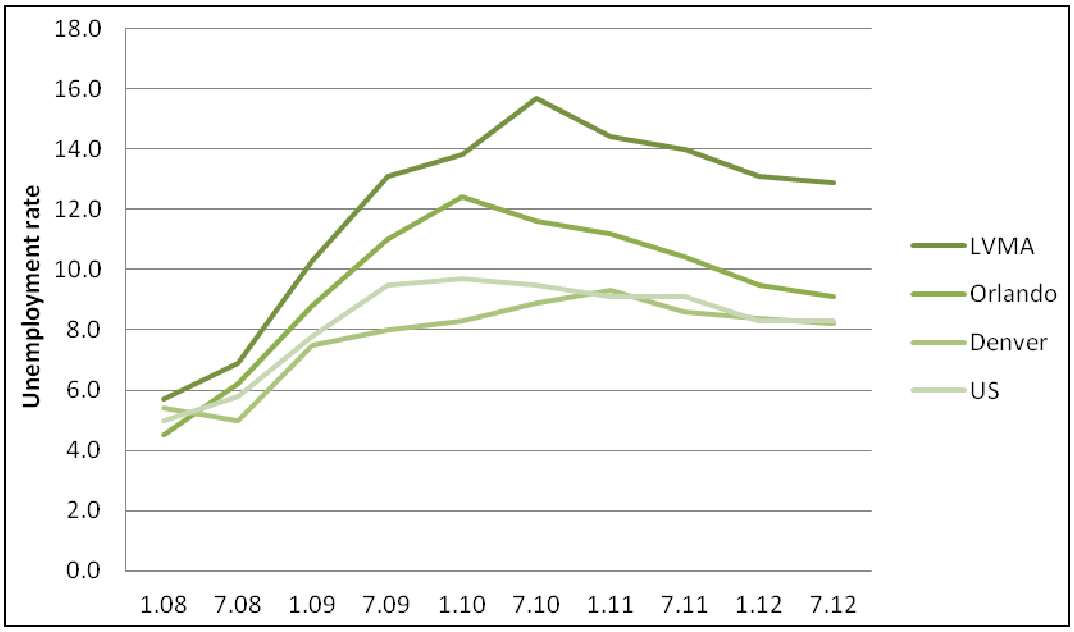
Figure 48: 2010 Per Capita GDP by Metro Area



Source: US Bureau of Economic Analysis, 2010

Unemployment rates in the region exceeded national and peer region unemployment rates between 2008 and 2012. Southern Nevada was hit hard during the economic recession that started in 2008. Nevada had the highest state unemployment rates of any state between 2008 and 1st quarter 2012 (US Bureau of Labor Statistics, 2012). High unemployment rates and slow economic recovery can be linked to the region's heavy reliance on consumption-based industry sectors (construction, tourism and gaming, retail) which are disproportionately impacted by swings in the economy (The Brookings Institute, 2011).

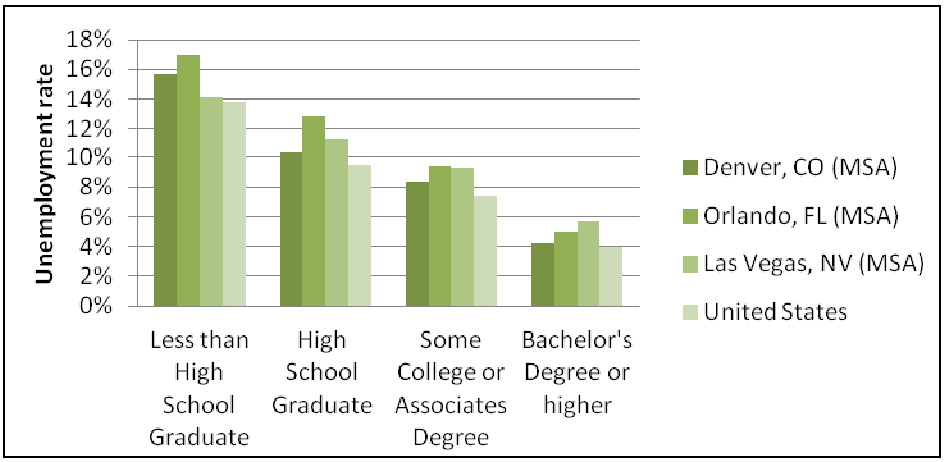
Figure 49: Unemployment Rates, January 2008 – July 2012



Source: US Census Bureau, American Community Survey 3-Year Estimate (2008-2010)

In Southern Nevada, peer regions and in the US, workers with lower levels of education experienced higher levels of unemployment. Between 2008-2010, people with less than a high school degree experienced an unemployment rate of 14.1 percent in Southern Nevada while people with a Bachelor's degree or higher had an unemployment rate of 5.7 percent (Figure 50). This was consistent with unemployment rates by educational attainment in Orlando, Denver and the US (American Community Survey 3-Year Estimate 2008-2010). In addition, for those with a Bachelor's degree, the rate of unemployment is higher in Southern Nevada than peer regions, making the returns for education lower relative to the other regions.

Figure 50: Unemployment by Educational Attainment, 2008-2010

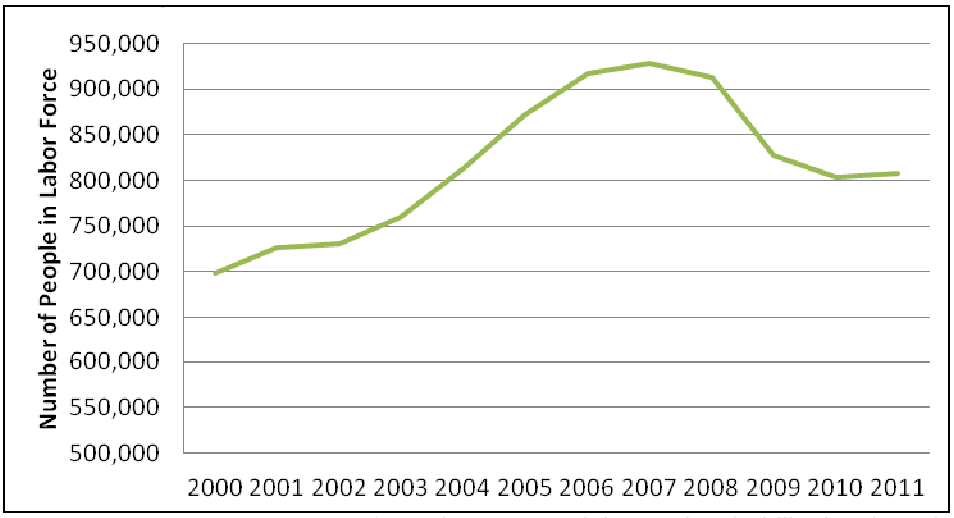


Source: US Census Bureau, American Community Survey 3-Year Estimate (2008-2010)

9.2 WORKER CHARACTERISTICS

The total number of people in the labor force in the region was larger in 2010 compared to 2000, with a peak in the labor force in 2007 and a decline in 2008-2010. The total number of people in the labor force in Southern Nevada grew substantially between 2000 and 2007 to a height of 928,000 people in 2007. In 2009 and 2010, the labor force declined to 826,900 and 803,600, in 2009 and 2010 respectively, concurrent with the economic recession in the US. However, compared to 2000, there were over 100,000 more people in the labor force in 2010.

Figure 51: Labor Force for All Industries



Source: Department of Employment Training and Rehabilitation (2012)

The region's working age population is slightly older than peer regions but not the nation. People in the 55 to 64 age group are expected to retire over the next decade. The percent of people in this age group is higher (16.3 percent) than in peer regions; however lower than in the nation (18.4 percent).

Table 51: Working Age Population by Age

Age Brackets	Las Vegas	Denver	Orlando
16 to 19 years	8.1%	6.4%	9.2%
20 to 24 years	9.9%	11.4%	13.2%
25-44 years	45.4%	50.3%	43.4%
45 to 54 years	20.3%	17.5%	20.2%
55 to 64 years	16.3%	14.5%	13.9%

Source: US Census Bureau, American Community Survey 3-Year Estimate (2008-2010)

Working age people have lower levels of educational attainment compared to peer regions. The region has a higher number of working age people with a high school degree or less. In addition, the region has fewer working age people with a Bachelor's degree or graduate/professional degree compared to peer regions. This could be due to the low education requirements of many of the major occupations in the region's primary industry, gaming & hospitality (see Table 52).

Table 52: Educational Attainment of Working Age People, 2008-2010

	Denver, CO (MSA)	**Las Vegas, NV (MSA)**	Phoenix, AZ (MSA)	Salt Lake City, UT (MSA)	Tucson, AZ (MSA)	Orlando, FL (MSA)
Less than high school grad	11%	**16.5%**	14.5%	10.8%	13.2%	13%
High school graduate	22.3%	**29.9%**	24.3%	24.6%	23.6%	29.5%
Some college, no degree	21.7%	**24.8%**	25.0%	25.8%	25.6%	20.6%
Associate's degree	7.3%	**7.2%**	8.1%	8.6%	8.0%	9.6%
Bachelor's degree	24.5%	**14.5%**	18.2%	19.9%	17.6%	18.7%
Graduate or professional	13.1%	**7.2%**	9.9%	10.4%	12.0%	8.6%

Source: US Census Bureau, American Community Survey 3-Year Estimate (2008-2010)

9.3 INDUSTRY STRUCTURE

Ten of the fifteen largest employers in Clark County are privately owned casinos. The remaining top five large employers are either local or state government and include: Clark County School District, Clark County, University of Nevada Las Vegas, Las Vegas Metropolitan Policy and University Medical Center (see Table 53). It is also important to note that in total, casinos provide less than 7 percent of all employment in the region.

Table 53: Top 15 Largest Employers in Clark County, 2012

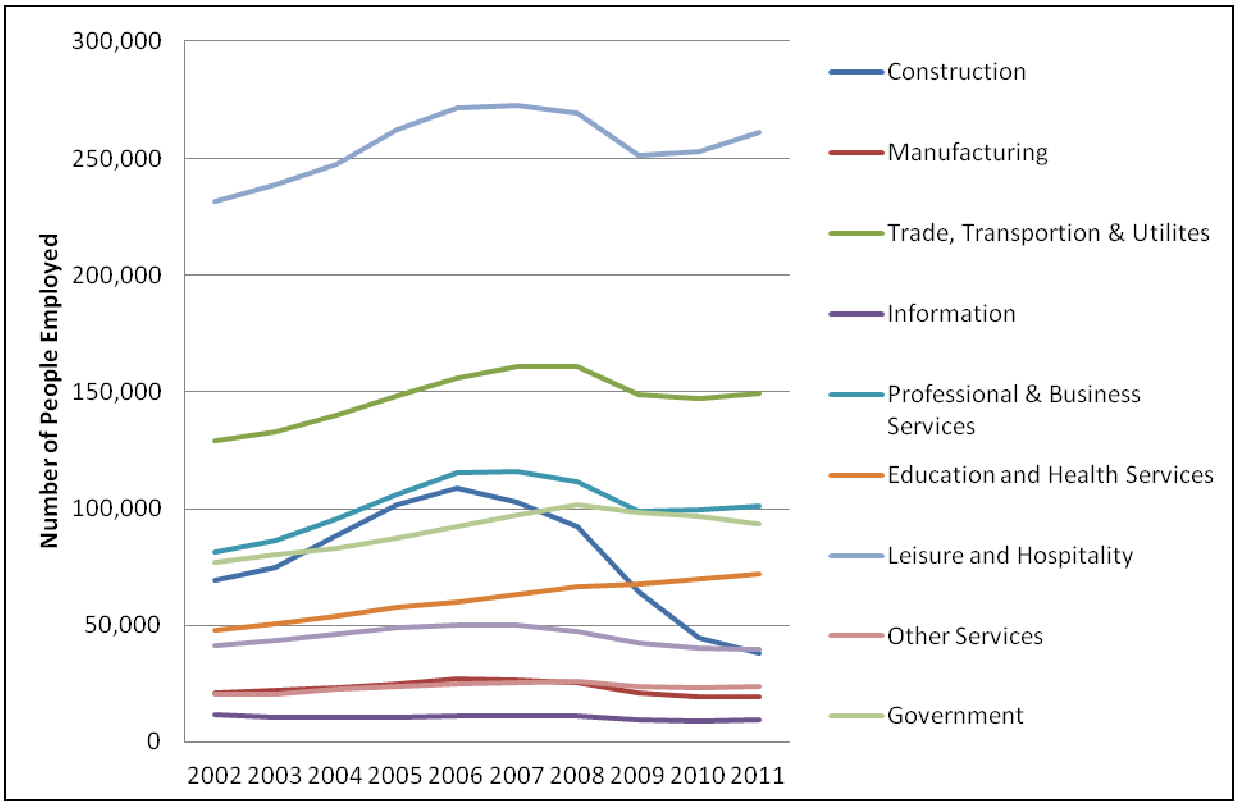
Company	Employment	Activity
Clark County School District	30,000 to 39,999 employees	Elementary and Secondary
Clark County	7,500 to 7,999 employees	Executive and Legislative
Wynn Las Vegas	7,500 to 7,999 employees	Casino/Hotel
Bellagio	7,500 to 7,999 employees	Casino/Hotel
MGM Grand	7,500 to 7,999 employees	Casino/Hotel
Aria Report & Casino	6,500 to 6,999 employees	Casino/Hotel
Mandalay Bay Resort and Casino	6,500 to 6,999 employees	Casino/Hotel
University of Nevada, Las Vegas	5,500 to 5,999 employees	Colleges and Universities
Las Vegas Metropolitan Police	5,000 to 5,499 employees	Police Protection
Caesar's Palace	5,000 to 5,499 employees	Casino/Hotel
The Venetian Casino Resort	4,000 to 4,499 employees	Casino/Hotel
Mirage Casino-Hotel	4,000 to 4,499 employees	Casino/Hotel
University Medical Center	3,500-3,999 employees	Hospital
Cosmopolitan of Las Vegas	3,500-3,999 employees	Casino/Hotel
Palazzo Casino Resort	3,500-3,999 employees	Casino/Hotel

Source: Department of Employment Training and Rehabilitation, 2012

Construction; leisure and hospitality; trade, transportation and utilities; and professional and business service sectors experienced the greatest job loss during the recession. As shown in Figure 52, each of the sectors with the exception of construction has experienced a leveling off or slight recovery in 2010-2011. The greatest recovery is seen in the leisure and hospitality sector. The government and construction sectors continued to lose employees in 2010-2011.

The Education and Health Services Sector did not experience a decrease in the number of employees during the recession. The Education and Health Services Sector added 8400 jobs between 2007 and 2011 and grew steadily throughout the recession (Department of Employment Training and Rehabilitation, 2012).

Figure 52: Employment Trends, 2002-2011



Source: Department of Employment Training and Rehabilitation (2012)

Table 54 shows employment trends by North American Industry Classification System (NAICS) codes in Southern Nevada from 2010 to 2011 (US Census. Local Employment Dynamics, 2012). Employment sectors with the largest growth during this year (2010-2011) were: Amusement, Gambling, and Recreation Industries (41 percent), Accommodation (24 percent), Hospitals (25 percent), Transit and Ground Passenger Transportation (23 percent), and Personal and Laundry Services (16 percent). Employment sectors with the largest decline during this period included: Specialty Trade Contractors (-26 percent), Ambulatory Health Care Services (-7 percent), Merchant

Wholesalers, Nondurable Goods (-6 percent), General Merchandise Stores (-6 percent), Motor Vehicle and Parts Dealers (-6 percent) and Social Assistance (-5 percent).

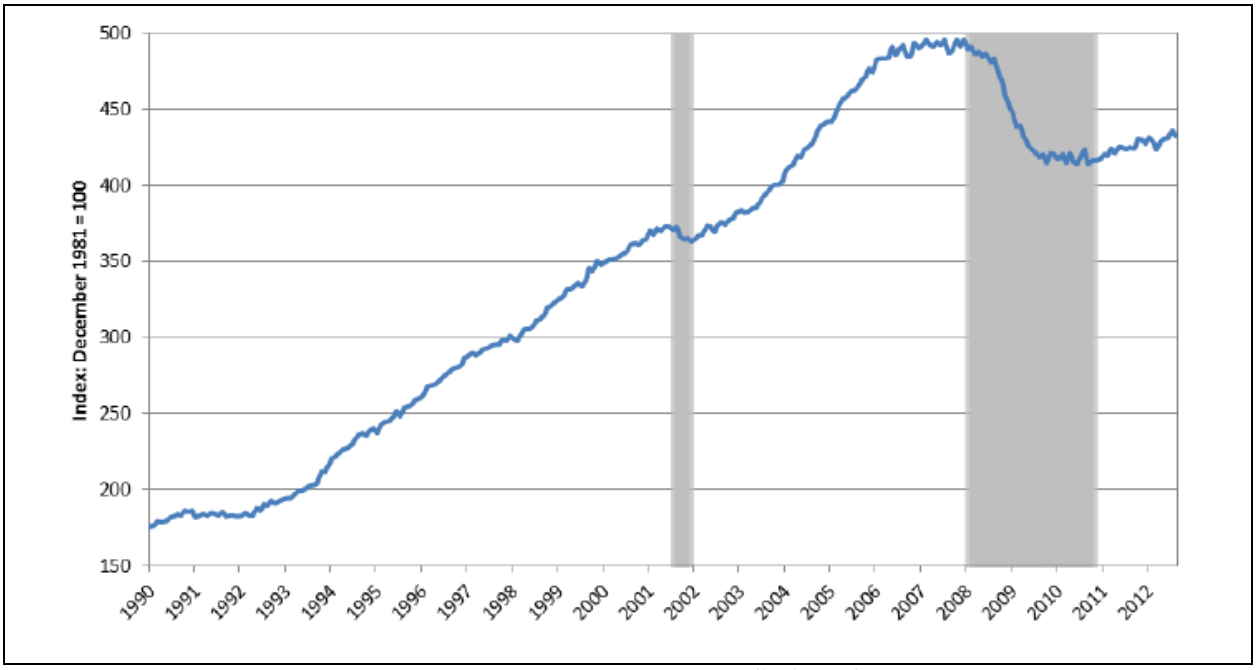
Table 54: Employment Trends by NAICS Codes, 2010 to 2011

		Average Quarterly Employment (2010Q4 - 2011Q3)	Hiring Growth - # of new employees (2010Q3 - 2011Q3)	Hiring Growth (%) (2010Q3 - 2011Q3)
	All NAICS subsectors	709,582	2,514	4.48
1	721 Accommodation	166,019	2,070	24.36
2	722 Food Services and Drinking Places	73,788	584	7.07
3	561 Administrative and Support Services	52,858	332	5.66
4	541 Professional, Scientific, and Technical Services	34,622	-10	-0.39
5	621 Ambulatory Health Care Services	31,014	-171	-7.08
6	238 Specialty Trade Contractors	25,575	-629	-25.90
7	452 General Merchandise Stores	18,825	-87	-5.84
8	448 Clothing and Clothing Accessories Stores	17,122	-30	-1.40
9	622 Hospitals	15,748	175	25.42
10	551 Management of Companies and Enterprises	15,221	-87	-8.08
11	445 Food and Beverage Stores	14,256	-19	-1.83
12	522 Credit Intermediation and Related Activities	13,743	80	9.10
13	485 Transit and Ground Passenger Transportation	12,558	245	23.04
14	531 Real Estate	12,479	50	4.43
15	624 Social Assistance	11,500	-60	-5.47
16	713 Amusement, Gambling, and Recreation Industries	11,292	445	41.80
17	812 Personal and Laundry Services	9,594	183	16.22
18	423 Merchant Wholesalers, Durable Goods	9,413	-8	-1.27
19	441 Motor Vehicle and Parts Dealers	8,917	-42	-5.63
20	424 Merchant Wholesalers, Nondurable Goods	7,212	-26	-6.00

Source: US Census. Local Employment Dynamics (2012)

In Nevada, Tourism, Gaming and Entertainment accounts for more than 350,000 jobs and 24 percent of state employment (Brookings, 2011). With the economic recession, Clark County experienced a decrease in the Tourism Index as measured by UNLV's Center for Business and Economic Research (CBER) and shown in Figure 53 (Kennelly, 2012). CBER's Tourism Index takes into account gaming revenues, McCarran airport passenger travel, hotel/motel room occupancy and related measures.

Figure 53: Tourism Index, 1990 – 2012



Source: CBER, Kennelly (2012)

The Tourism, Gaming and Entertainment Sector probably will not see a boom similar to the 2001-2007 cycle (Brookings, 2011); however, activity in this area increased in 2011 compared to 2010 (Table 55) (Las Vegas Convention and Visitors Authority, 2012).

Table 55: Visitor Statistics, 2011

Visitor Statistics	2011	% Change from 2010 to 2011
Visitor Volume	38,928,708	4.30%
Occupancy Rate	84%	3.40%
Average Daily Room Rate	105	10.70%
Total Room Nights	45,654,165	5.30%
Total En/Deplaned Passengers	41,479,814	4.30%
Gaming Revenue	9,222,906,000	3.50%
Room Tax / LVCVA's Portion	194,329,584	18.60%

Source: Las Vegas Convention and Visitors Authority, 2012

9.4 RESEARCH & DEVELOPMENT

Nevada and Clark County lag other states and the nation of innovation and R&D activity (Brookings, 2011). Per capita, "federal R&D spending in Nevada is less than one-third the national average and stands at $115 per person, but the state receives higher than average R&D funding from the Department of Energy and Environmental Protection Agency" (Brookings, 2011). Compared to other universities and colleges, the University of Nevada, Reno ranks 126th and the University of Nevada, Las Vegas (UNLV) ranks 191st in terms of R&D expenditures. Between 2008 and 2009, UNLV experienced a decline in R&D expenditures of 22.9 percent (National Science Foundation, 2010).

Table 56: Research and Development Expenditures at University of Nevada, 2010

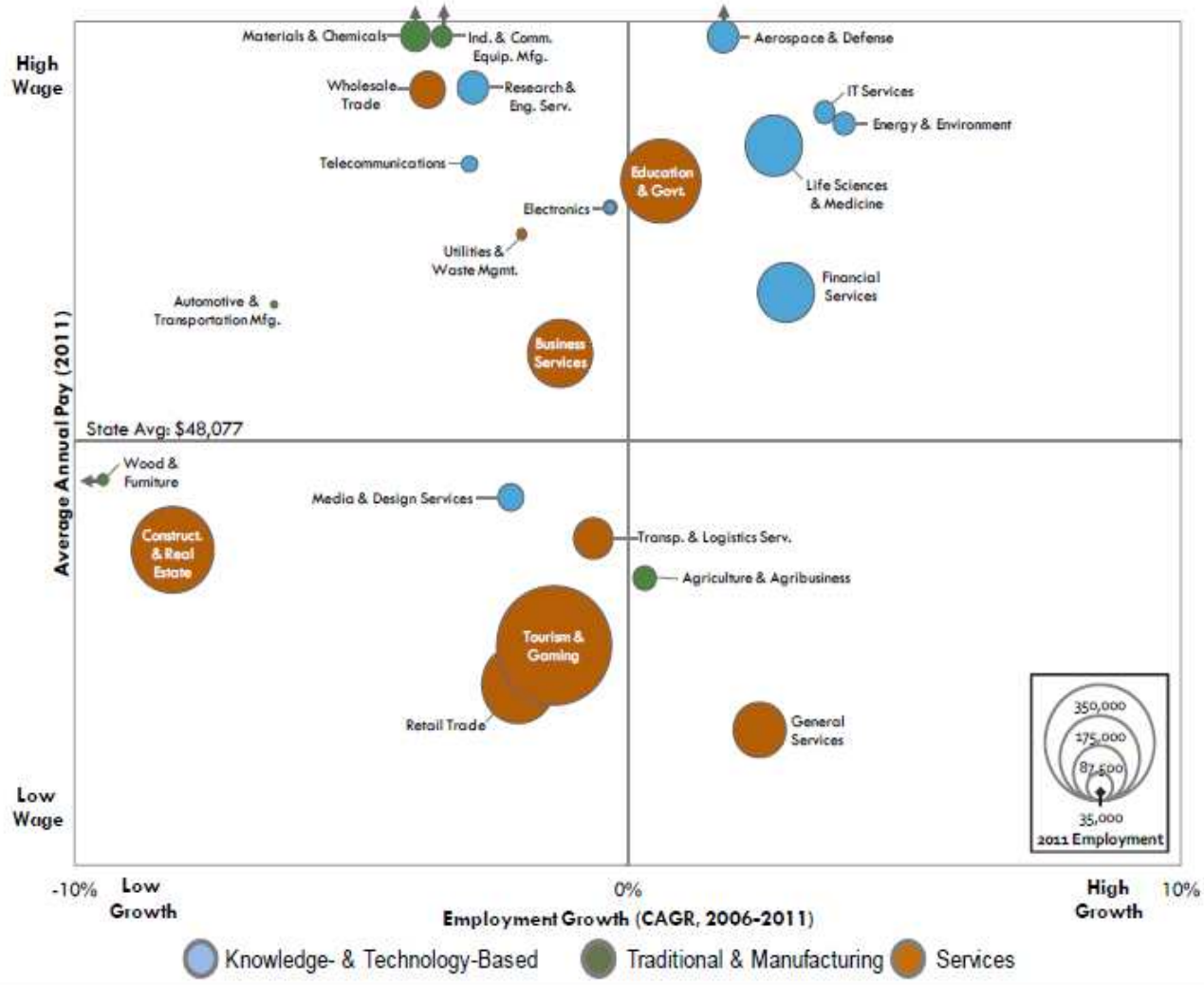
Rank	Institution	2002	2003	2004	2005	2006	2007	2008	2009	% Change FY08-FY09**	Avg. Annual % Change FY02-FY09^
126	U. NV, Reno	66,721	80,553	83,552	95,579	98,917	95,809	102,073	106,378	4.22%	8.49%
191	U. NV, Las Vegas	30,527	42,205	45,429	48,343	57,031	56,034	50,775	39,148	-22.90%	4.03%

Source: National Science Foundation (2010)

9.5 INDUSTRY CLUSTERS & ECONOMIC DEVELOPMENT POTENTIAL

Nevada is dominated by service based sectors which provided slow to no growth during the recession. These sectors include tourism and gaming, construction and real estate and retail trade. Sectors which have the strongest growth potential and pay higher wages are in knowledge and technology sectors and include financial services, life sciences and medicine, aerospace and defense, IT services, and energy and environment. Figure 54 displays an overview of Nevada Industries in the second quarter of 2011 (Brookings, 2011). It is important to note that 2006-2011 reflects the period from the top to the bottom of the recession, and the growth figures reflect those industries that outperformed during the recession as opposed to normal growth in the region.

Figure 54: Overview of Nevada Industries, 2011



How to Interpret the Industries Bubble Chart

- The size of each industry's "bubble" represents the employment size for that cluster in Q2 2011.
- The color of the bubble represents the supersector categorization of each industry: *knowledge- and technology-based industries* (blue), *traditional and manufacturing industries* (green), and *service industries* (orange).
- The horizontal axis represents employment growth expressed as a compound annual growth rate (CAGR) from 2006 to 2011. Industries falling to the right of the midpoint have a positive employment growth rate, and industries falling to the left of the midpoint have a negative employment growth rate.
- The vertical axis represents average annual pay in Q2 2011. Industries falling above the midpoint have an average annual pay that is greater than the overall average for Nevada ($48,077), and those falling below the midpoint have average annual pay levels falling below the state average.
- Thus, the industries that fall in the first quadrant (upper right-hand side) are higher-wage/higher-growth (e.g., Medicine and Life Sciences, Financial Services), and the industries that fall in the third quadrant (lower left-hand side) are lower-wage/negative-growth (e.g., Construction and Real Estate, Retail Trade).

Source: Brookings (2011)

9.6 OCCUPATIONAL GROWTH & SKILL REQUIREMENTS

Occupations requiring only on-the-job training or a high school diploma account for more than 80 percent if the region's jobs. In Southern Nevada, 38.2 percent of occupations require less than a high school diploma and 43.1 percent require a high school diploma or equivalent (Table 57). Jobs requiring some college to a doctoral/professional degree account for 18.6 percent employment.

Table 57: Educational Requirements of Occupations in Southern Nevada, 2012

Educational Requirement	Number of Employment Opportunities	%
Less than high school	306,733	38.2%
High school diploma or equivalent	346,366	43.1%
Postsecondary non-degree award		
Some college, no degree	26,887	3.3%
Associate's degree	35,450	4.4%
Bachelor's degree	68,720	8.6%
Master's degree	5,161	0.6%
Doctoral or professional degree	13,760	1.7%

Source: Department of Employment Training and Rehabilitation (2012)

All broad category occupational categories are projected to have positive growth between 2010 and 2020 with a combined growth projection of 11.4 percent during the decade. Table 58 shows projected job growth in Southern Nevada from 2010 to 2020 (Department of Employment Training and Rehabilitation, 2012). All broad category occupations combined are projected to have an 11.4 percent growth during this decade; however, several sectors are anticipated to continue to decline. The top three occupations with the highest projected growth include construction and extraction (2.4 percent), healthcare support (1.6 percent), and healthcare practitioners and technical (1.5 percent).

Table 58: Employment Projections by Broad Category Occupational Category, 2010-2020

Occupation/Title	2010 Employment	Percent of All Occupations-Year 2010	2020 Employment	Percent of All Occupations-Year 2020	2010-2020 Percent Change	Average Annual Growth Rate	Annual Cumulative Growth Rate
Management	38,844	4.6%	41,471	4.4%	6.8%	0.7%	0.7%
Business and Financial Operations	26,723	3.2%	30,838	3.3%	15.4%	1.5%	1.4%
Computer and Mathematical	10,115	1.2%	11,620	1.2%	14.9%	1.5%	1.4%
Architecture and Engineering	8,582	1.0%	9,369	1.0%	9.2%	0.9%	0.9%
Life, Physical, and Social Science	2,940	0.3%	3,271	0.3%	11.3%	1.1%	1.1%
Community and Social Services	8,470	1.0%	9,226	1.0%	8.9%	0.9%	0.9%
Legal	6,202	0.7%	6,608	0.7%	6.5%	0.7%	0.6%
Education, Training, and Library	31,753	3.8%	34,079	3.6%	7.3%	0.7%	0.7%
Arts, Design, Entertainment, Sports, and Media	15,265	1.8%	16,882	1.8%	10.6%	1.1%	1.0%
Healthcare Practitioners and Technical	33,459	4.0%	38,927	4.1%	16.3%	1.6%	1.5%
Healthcare Support	17,333	2.1%	20,410	2.2%	17.8%	1.8%	1.6%
Food Preparation and Serving Related	127,013	15.1%	142,995	15.2%	12.6%	1.3%	1.2%
Building and Grounds Cleaning and Maintenance	56,282	6.7%	61,501	6.6%	9.3%	0.9%	0.9%
Personal Care and Service	58,224	6.9%	66,895	7.1%	14.9%	1.5%	1.4%
Sales and Related	91,333	10.8%	98,776	10.5%	8.1%	0.8%	0.8%
Farming, Fishing, and Forestry	329	0.0%	349	0.0%	6.1%	0.6%	0.6%
Construction and Extraction	43,182	5.1%	54,438	5.8%	26.1%	2.6%	2.3%
Installation, Maintenance, and Repair	28,886	3.4%	32,997	3.5%	14.2%	1.4%	1.3%
Production	21,680	2.6%	23,943	2.6%	10.4%	1.0%	1.0%
Transportation and Material Moving	55,753	6.6%	62,411	6.7%	11.9%	1.2%	1.1%
Total All Occupations	842,544	100.0%	938,273	100.0%	11.4%	1.1%	1.1%

Source: Department of Employment Training and Rehabilitation (2012)

In addition to broad category projections, DETR also provides detailed category (North American Industry Classification System) NAICS occupation projections for 2012 through 2020. Table 59 shows the top 20 fastest growing occupations, those with the greatest change in the number of employees in 2020 compared to 2012. With the exception of registered nurse, all other occupations typically require less than a high school diploma or a high school diploma (or equivalent). This indicates that based on the current economic make-up and growth projections, the region's economy and labor force will look the same in 2020 as it does today.

Table 59: Projected Fastest-Growing Occupation Changes, 2012-2020

NAICS Code	Occupation Title	Change in Employment 2012-2020	2010-2020 Percent Change	Average Annual Growth Rate	Typical Education Needed for Entry
353021	Combined Food Preparation and Serving Workers, Including Fas	3,462	19.2%	1.9%	Less than high school
353031	Waiters and Waitresses	2,735	11.1%	1.1%	Less than high school
393011	Gaming Dealers	2,490	16.5%	1.6%	High school diploma or equivalent
412031	Retail Salespersons	2,276	9.0%	0.9%	Less than high school
372012	Maids and Housekeeping Cleaners	2,031	12.5%	1.3%	Less than high school
352014	Cooks, Restaurant	1,968	18.9%	1.9%	Less than high school
291111	Registered Nurses	1,706	17.3%	1.7%	Associate's degree
439061	Office Clerks, General	1,595	10.3%	1.0%	High school diploma or equivalent
434051	Customer Service Representatives	1,516	17.8%	1.8%	High school diploma or equivalent
339032	Security Guards	1,483	11.3%	1.1%	High school diploma or equivalent
537062	Laborers and Freight, Stock, and Material Movers, Hand	1,394	14.6%	1.5%	Less than high school
399021	Personal and Home Care Aides	1,342	38.9%	3.9%	Less than high school
472031	Carpenters	1,174	19.2%	1.9%	High school diploma or equivalent
372011	Janitors and Cleaners, Except Maids and Housekeeping Cleaner	1,167	6.1%	0.6%	Less than high school
533041	Taxi Drivers and Chauffeurs	1,162	12.6%	1.3%	Less than high school
353011	Bartenders	1,103	13.2%	1.3%	Less than high school
412011	Cashiers	997	6.2%	0.6%	Less than high school
472061	Construction Laborers	944	25.1%	2.5%	Less than high school
433031	Bookkeeping, Accounting, and Auditing Clerks	914	11.1%	1.1%	High school diploma or equivalent
414012	Sales Representatives, Wholesale and Manufacturing, Except T	902	18.6%	1.9%	High school diploma or equivalent

Source: Department of Employment Training and Rehabilitation, 2012

Table 60 shows the detailed category NAICS occupation projections for 2012 through 2020 for the top 20 occupations with the greatest projected decrease in the number of employees in 2020 compared to 2012 (Department of Employment Training and Rehabilitation, 2012). The majority of these occupations typically require a high school diploma (or equivalent) with the exception of Architectural and Civil Drafters, which requires an Associate's degree.

Table 60: Projected Fastest-Declining Occupation Changes, 2012-2020

NAICS Code	Occupation Title	Projected Change in Employment 2012-2020	Projected 2010-2020 Percent Change	Projected Average Annual Growth Rate	Typical Education Needed for Entry
536021	Parking Lot Attendants	-566	-22.6%	-2.3%	Short-term on-the-job training
432011	Switchboard Operators, Including Answering Service	-369	-26.1%	-2.6%	High school diploma or equivalent
433041	Gaming Cage Workers	-260	-14.3%	-1.4%	High school diploma or equivalent
412012	Gaming Change Persons and Booth Cashiers	-247	-13.7%	-1.4%	High school diploma or equivalent
435053	Postal Service Mail Sorters, Processors, and Processing Mach	-198	-40.3%	-4.0%	High school diploma or equivalent
434071	File Clerks	-101	-13.2%	-1.3%	High school diploma or equivalent
533022	Bus Drivers, School	-96	-8.9%	-0.9%	High school diploma or equivalent
419099	All Other Sales And Related Workers	-88	-7.6%	-0.8%	High school diploma or equivalent
339091	Crossing Guards	-81	-12.6%	-1.3%	High school diploma or equivalent
435051	Postal Service Clerks	-78	-39.9%	-4.0%	High school diploma or equivalent
433071	Tellers	-69	-2.2%	-0.2%	High school diploma or equivalent
391012	Slot Key Persons	-51	-10.4%	-1.0%	High school diploma or equivalent
434131	Loan Interviewers and Clerks	-43	-7.2%	-0.7%	High school diploma or equivalent
119051	Food Service Managers	-42	-2.0%	-0.2%	High school diploma or equivalent
371011	First-Line Supervisors/Managers of Housekeeping and Janitor	-39	-1.7%	-0.2%	High school diploma or equivalent
359099	Food Preparation and Serving Related Workers, All Other	-31	-1.6%	-0.2%	Less than high school
439011	Computer Operators	-26	-12.0%	-1.2%	High school diploma or equivalent
519151	Photographic Process Workers and Processing Machine Operators	-22	-10.3%	-1.0%	High school diploma or equivalent
173011	Architectural and Civil Drafters	-19	-5.5%	-0.6%	Associate's degree
439022	Word Processors and Typists	-17	-13.2%	-1.3%	High school diploma or equivalent

Source: Department of Employment Training and Rehabilitation (2012)

CHAPTER 10 – REFERENCES:

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