

Community Health Indicators in Southern Nevada

Courtney Coughenour, Ph.D. Faculty in Residence,
University of Nevada, Las Vegas.
(702) 895-4278. Courtney.Coughenour@unlv.edu

Jennifer Pharr, Ph.D., Assistant Professor,
University of Nevada, Las Vegas.

Shawn Gerstenberger, Ph.D. Interim Dean,
University of Nevada, Las Vegas.

Abstract

Community design and access to services are essential components of healthy and sustainable communities. The purpose of this manuscript is to evaluate Southern Nevada with respect to community design and access, including both positive and negative traits, and to suggest realistic changes that could be made to improve these conditions. The region's network of parks and open space recreation areas is one of its strongest assets. Clark County enjoys over 42 million acres of federal and state lands which offer a large variety of recreational opportunities. The region has an extensive trail system, with a total of 179 miles of off road and multiuse trails, as well as over 300 miles of biking infrastructure. There are 39 recreational facilities and 24 libraries throughout the region. There are, however, fewer park acres per capita than the nationally recommended level and disparate access to those parks for low income census tracts. Southern Nevada has some significant issues related to food access, with 16 food deserts in Clark County and over 17% of the population, and 26.9% of children, experiencing food insecurity. There are a total of 289 grocery stores, supermarkets, and club stores, 593 convenience stores, and 1,089 fast food outlets (USDA ERS, 2012). Of all restaurants in Clark County, 59% are classified as fast food. In 2012 Nevada ranked second in the nation for violent crimes and Clark County ranked third within the state. Based on the existing conditions, a number of goals and strategies aimed at creating a healthy and sustainable community were developed as part of the *Southern Nevada Regional Plan for Sustainable Development* (SNvRPSD); a single, integrated and consolidated plan that will promote and guide

sustainable regional development in Southern Nevada over the next 20 years.

Introduction

Community design is an essential component to a healthy and sustainable community. The way in which a community is designed influences whether or not individuals have access to goods and services necessary for both physical and emotional health. A community which contains an adequate amount of grocery stores results in access to fresh fruits and vegetables and foods necessary for healthy eating; a community designed with infrastructure to support active transportation such as biking and walking results in fewer vehicle miles traveled, improved air quality, increased minutes of physical activity and decreased body weight (Frank et al., 2006). Communities which offer parks and open space not only provide opportunity for physical activity, they increase social cohesion and feelings of comfort and attachment to the area (Dines & Cattell, 2006; DeHaan, 2005). Crime rates within the community can impact health directly through personal injury and indirectly through poor mental health and wellbeing. There are a significant number of connections between community design and health. Creating a healthy community is vital to the sustainability of Southern Nevada.

The purpose of this manuscript is to describe the existing conditions relating to a healthy community design in Southern Nevada. These data on existing conditions were used by members of the Southern Nevada Strong team to set goals and priorities for future development of the region. The overall goal of the Southern Nevada Strong project was to develop the *Southern Nevada Regional Plan for Sustainable Development* (SNvRPSD); a single, integrated and consolidated plan that will promote and guide sustainable regional development in Southern Nevada over the next 20 years.

Methods

In order to develop goals and strategies for a healthy and sustainable community, numerous data sources were queried to determine the existing conditions of Southern Nevada. Data sources for food access and security included the United States Department of Agriculture (USDA) Economic

Research Service (ERS) 2012, Feeding America 2012, and Three Square 2011. Parks and recreation data were obtained from the City of Las Vegas, North Las Vegas, Henderson, Clark County, and the Cities of Phoenix and Denver, The Regional Transportation Commission of Southern Nevada (RTC), National Park Service, Department of Conservation and Natural Resources, and the Bureau of Land Management. Crime statistics were obtained from the Federal Bureau of Investigation (FBI) 2012 and the Nevada State Office of Rural Health 2013. Land use data were obtained from the U.S. Census Bureau 2012, walkscore.com, Brookings Institution, and research conducted at the University of Nevada, Las Vegas. The Mountain West Metropolitan Areas of Denver, CO and Phoenix, AZ were used to make comparisons.

Results

1.1 Food access

Access to grocery stores which provide healthy food options such as fresh fruits and vegetables are essential to public health. 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 1) and 16 tracts in all of Clark County which are designated as food deserts (USDA ERS, 2012). It is a national goal of First Lady Michelle Obama's *Let's Move* Campaign to eliminate all food deserts by 2017, as lack of access to healthy food contributes to a poor diet, obesity, and other chronic diseases such as heart disease and diabetes. Efforts to meet this goal have been made through the Healthy Food Financing Initiative, a \$400 million federal initiative aimed at increasing access to healthy foods in both urban and rural areas. Such efforts include tax credits to supermarkets which locate in food deserts, grants or low cost loans to equip corner stores or mobile vendors to partner with

local growers, and assistance for healthy food vendors to develop strategies to remain profitable over time (U.S. Department of Health and Human Services, 2011).

Lack of access to healthy foods makes it difficult for individuals and families to eat a healthy diet. In Clark County there are twice as many convenience stores and nearly four times as many fast food outlets than there are grocery stores (see Table 1). There are a total of 289 grocery stores, supermarkets, and club stores, 593 convenience stores, and 1,089 fast food outlets (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 1) it is concerning, as access to grocery stores have been associated with a lower prevalence of overweight and obesity and healthier diets, while access to convenience stores and fast food outlets have been associated with increased weight and obesity (Larson, Story, & Nelson, 2009; Morland, Roux, & Wing, 2006; Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007).

Table 1
Food outlets per 1,000 individuals, 2012

	Clark Co, NV per 1,000	Maricopa Co, AZ per 1,000	Salt Lake Co, 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)

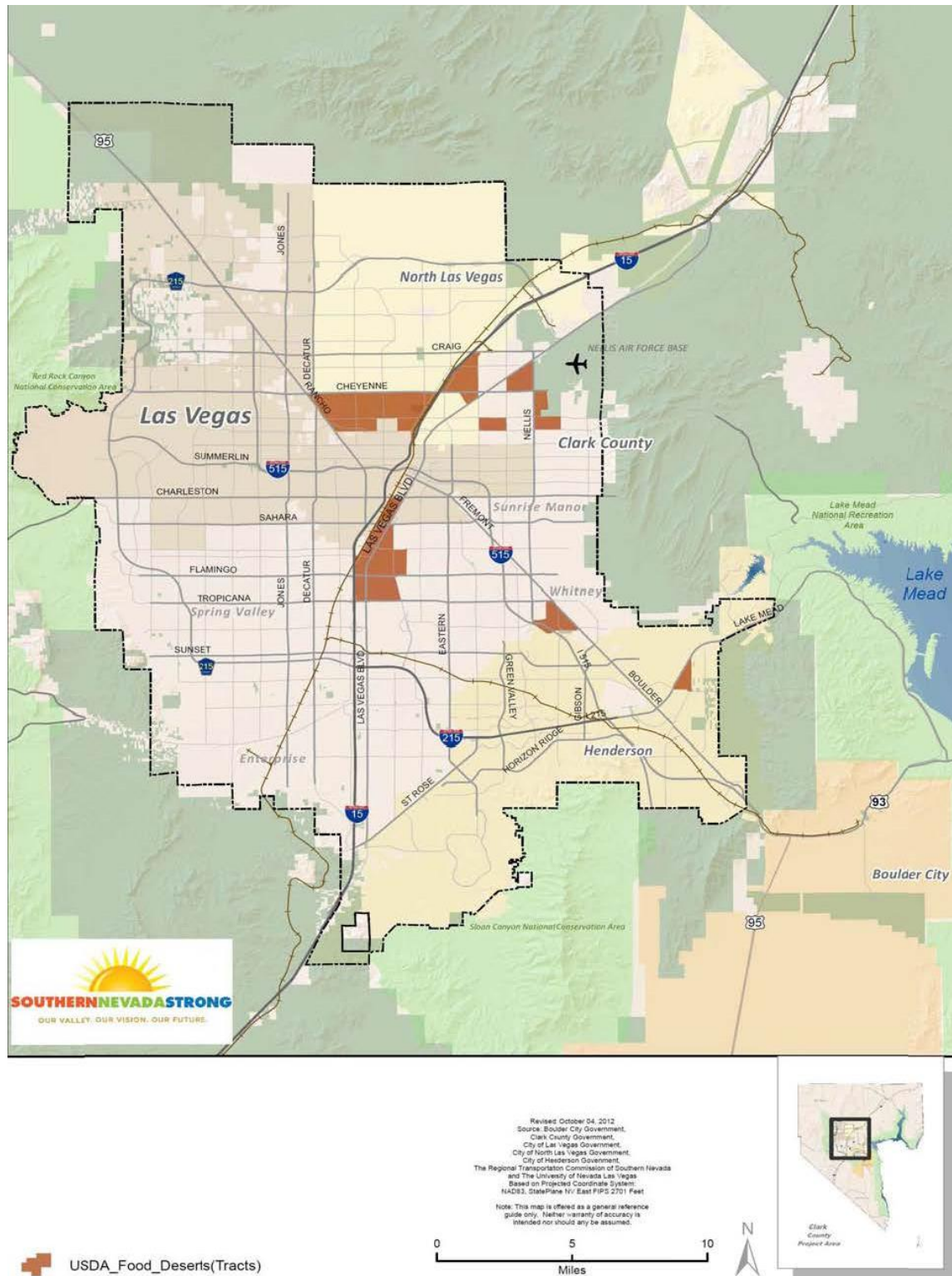


Figure 1. Food deserts in the Las Vegas metropolitan area, 2012 (USDA ERS, 2012b)

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 2)

Table 2

Percentage of 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%
National Average	14.9%

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

(Feeding America, 2012; USDA ERS, 2012c). Figure 2 shows the percentage of the population which is food insecure by zip code. Five zip codes in the Las Vegas metropolitan area have food insecurity rates of 20 percent or greater. 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 (Olson, 1999; Stuff et al., 2004).

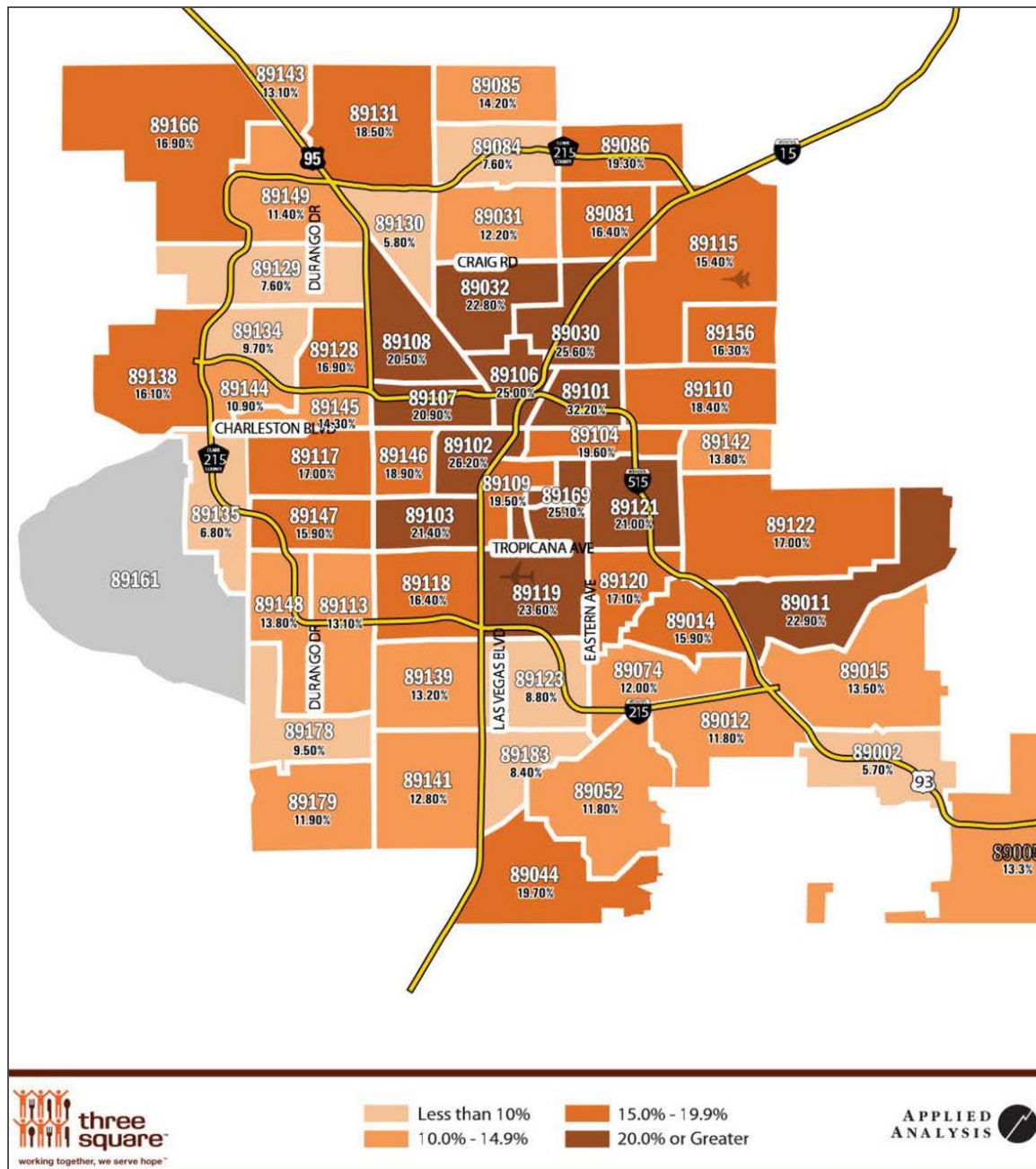


Figure 21. Food insecurity by zip code in Las Vegas metropolitan area, 2012 (Three Square, 2013)

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 national average (Feeding America, 2012b). Twenty-seven percent of children in Clark County are food insecure (Feeding America, 2012). Table 3 contrasts the percentage 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 (Alaimo, Olson, Frongillo, 2001; Feeding America, 2012b).

Table 3

Percentage of children with food insecurity, 2012

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

Source: Feeding America (2012)

1.2 Crime rates

Safety is one of the most basic foundational elements of health. Crime can impact health directly through personal injury and indirectly through poor mental health and wellbeing. Violent crime has been associated numerous health outcomes including all-cause mortality, coronary heart disease, preterm birth and low birth rate (Lorenc et al., 2012). Ensuring a safe environment is a critical step in promoting a healthy, sustainable community.

Violent crime rates are high in Nevada and Clark County. Nevada ranked second in the nation for violent crimes in 2012 with a rate of 607.6 per 100,000 individuals (Federal Bureau of Investigation, 2012). In 2011, Clark County ranked third of Nevada counties for violent crimes with 679.9 per 100,000 individuals and was ranked number one for property crimes with 2,817.5 per 100,000 individuals (Nevada State Office of Rural Health, 2013). Clark County remains above the 2012 national violent crime rate which was 386.9 per 100,000 individuals and at parity with the national property crime rate of 2,859.2 per 100,000 individuals (Federal Bureau of Investigation, 2012).

1.3 Parks and recreation facilities

Adequate access to parks is an important component of a healthy community. Previous studies have found that people who lived within one mile of a park were four times as likely to visit the park once per week as those who lived further away (Cohen et al., 2007). Children and adolescents who have adequate access to neighborhood parks also attain more minutes of physical activity (Roemmich et al.,

2006; Cohen et al., 2006). Parks serve a purpose in the social vitality of communities. Studies have found that use of parks results in higher social cohesion and feelings of comfort, as well as increased attachment to areas (Dines & Cattell, 2006; DeHaan, 2005).

The region has fewer park acres per capita than the nationally recommended level. Southern Nevada has 4,946 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 recommend 10 park acres per 1,000 residents. The standards adopted by Clark County and the cities of Las Vegas and North Las Vegas are 2.5 acres per 1,000 residents and the city of Henderson's standard 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.

Parks are not distributed equitably in Southern Nevada. 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, 2012). This is an issue of concern, as low income populations are at greater risk for physical inactivity and the related health consequences.

Southern Nevada contains over 42 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, camping and hiking. A total of 587,000 acres of the recreation area is within Clark County (NPS, 2012). The Desert National Wildlife Range is the largest wildlife refuge in the lower 48 states and is located 25 miles north of Las Vegas. It encompasses 6 mountain ranges and 1.6 million acres of the Mohave Desert. The primary purpose of the range is to protect the desert bighorn sheep, though the area offers hiking, bird and nature viewing, and

hunting. There are 493,000 acres located within Clark County. Spring Mountain National Recreational Area (Mount Charleston) is part of the Humboldt-Toiyabe National Forest. The Spring Mountains offer seasonal snow recreation, hiking, hunting, camping, rock climbing, biking, and bird and nature viewing (USDA, 2012b). There are 252,518 acres located within Clark County. Red Rock National Conservation Area 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 visitor center with exhibit rooms and a book store (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. 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 4 shows the number of acres by type for parks and open space in Clark County

Clark County has an extensive trail system, with a total of 179 miles of off road and 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 of urban trails (City of Denver, 2012).

Trails play a critical role in a healthy community. Research has found that access to trails is associated with greater amounts of physical activity (Starnes et al., 2011). However, there is a disparity in access to trails in the region. One study examined the number of trail heads in the Las Vegas Metropolitan area and found that low income areas have access to fewer urban trails when compared to high income areas (Coughenour, 2012b).

Table 4

Parks and open space acreage in Clark County, 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

Sources: 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)

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 3). Throughout Southern Nevada there are 180 miles of bike lanes, 100 miles of bike paths, and 80 miles of bike routes. Numerous studies have found that investment in bicycle infrastructure results in an increase in bicycling rates. In a review of 14 studies, nearly all cities that invested in infrastructure changes saw an increase in rates of cycling (Pucher, Dill, &

Handy, 2010). Cities who have invested heavily in bicycle infrastructure have higher than average rates of bicycle commuting (Dill & Carr, 2003).

Adequate access to recreational centers can play an important role in a healthy community; research has shown that access to recreational facilities is associated with increased physical activity levels in both adolescent and adult populations (Norman et al., 2006; Hoehner, Ramierz, Elliott, Handy, & Brownson, 2005). There are a total of 39 municipal recreational facilities in the region. The City of Henderson has 8, including 1 senior center; Las Vegas has 15, including 7 senior centers; Clark County has 13, including one senior center, and North Las Vegas offers 3 recreational facilities. See *figure 4* for a map of existing facilities.

Table 5
Urban Trail Mileage in Clark County and other mountain west areas, 2012

	Total Mileage
Clark County	179
Phoenix	200
Denver	80

Sources: 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).

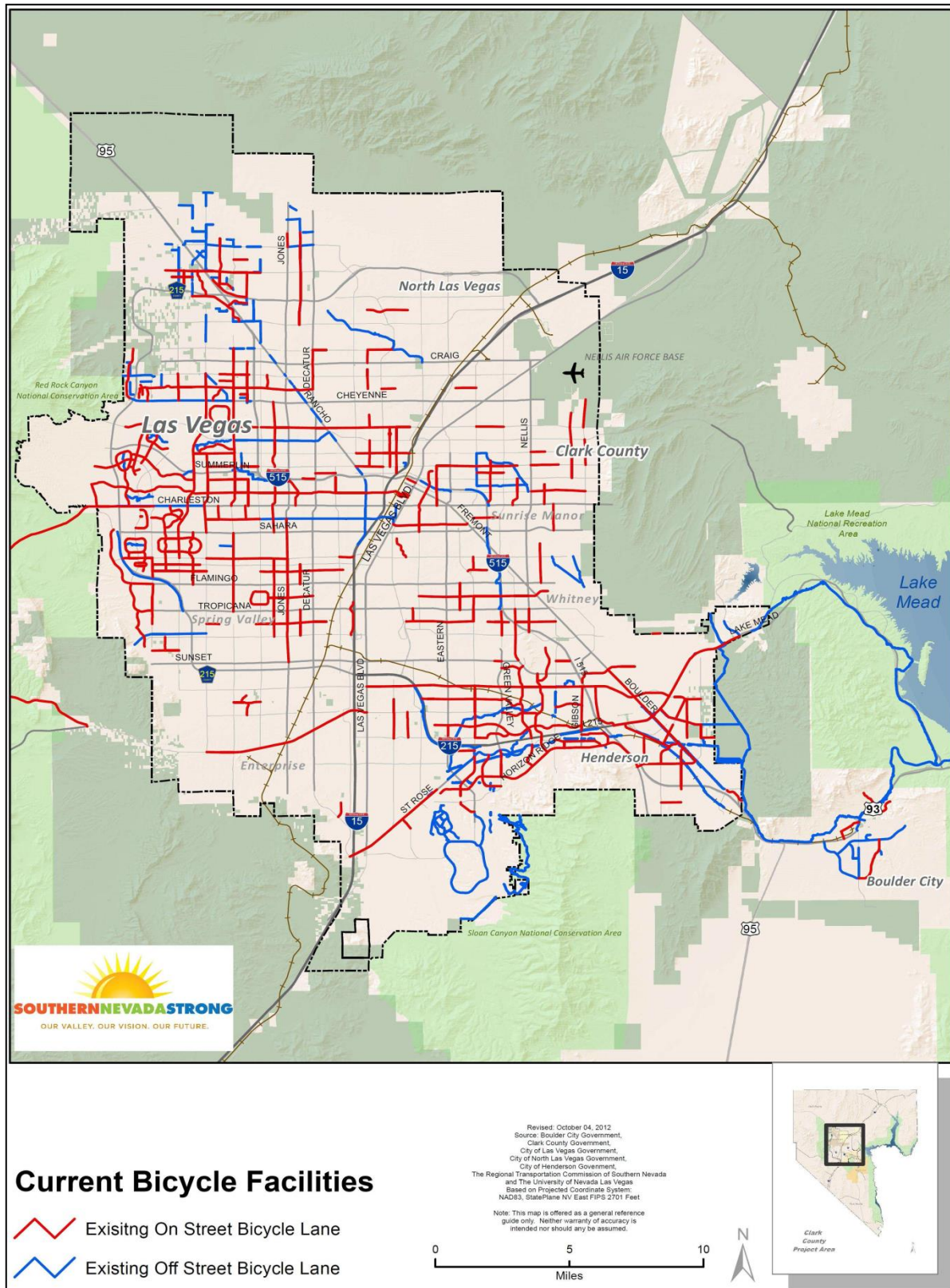


Figure 3. Existing bicycle lanes in Southern NV, 2012 (RTC of Southern NV, 2012)

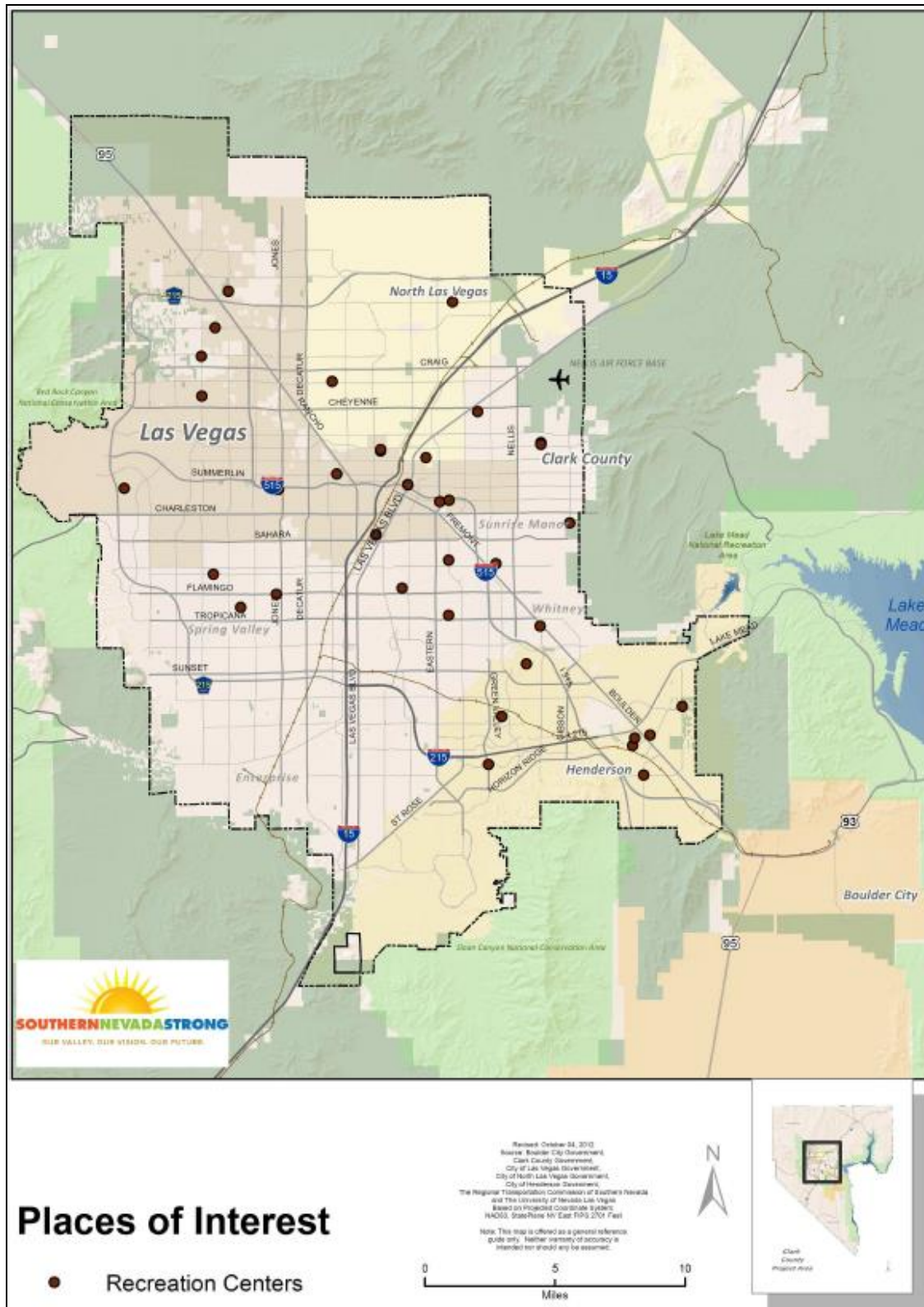


Figure 4. Recreational facilities in Southern NV, 2012 (Clark County, Cities of Henderson, Las Vegas, North Las Vegas, 2012)

Libraries offer a variety of resources such as free access to the internet, technology training, software and resources to help create resumes, find employment, and library staff that are available to help patrons fill out employment materials (American Library Association, 2013). Access to such services can aid in literacy, job access and preparedness, and build community (Cuban & Cuban, 2007). There are a total of 24 libraries throughout Southern Nevada. According to the Las Vegas-Clark County Library District, there are 14 libraries in Las Vegas and urban unincorporated Clark County. Henderson operates six libraries and 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 5* shows the distribution of libraries throughout the Las Vegas Metropolitan area.

1.4 Urban design

The Las Vegas Metropolitan area has an auto-oriented urban design. It is renowned for its urban sprawl, or leap frog pattern of development. Sprawl can be defined in a number of ways; in essence it is a combination of land use patterns and population growth, and is dependent on the dispersion of both throughout the urban area. However, in terms of density (population per square mile), LVMA is ranked the 10th most densely populated urban area, and 5th most dense of urban areas with a population over one million (US Census Bureau, 2012). Lang (2002) measured the density of the 50 largest metropolitan areas in the United States. Las Vegas had some of the highest built urban densities, ranking 14th out of 50. To put this in perspective, Las Vegas is denser than Portland, OR, which ranked 30th, and Nashville, TN, which ranked 50. The city's high densities are due, in part, to the undevelopable federal land which surrounds the metropolitan area. This undevelopable land is referred to as the Burton-Santini Square and prevents the region from developing Atlanta-like sprawl. Additionally, the arid climate naturally lends itself to small lot sizes, which results in an increase in density per square mile. 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 & LeFurgy, 2007) and the scale of boulevards which are high-speed multi-lane surface streets that discourage walkability. Sprawl has a number of negative health effects. Urban sprawl is correlated with an increased amount of vehicle miles traveled, which is associated with increased air pollution (Frumkin, 2009). Sprawl has been shown to correlate with decreased pedestrian safety, with the most sprawling counties having four times the average of traffic fatality rates (Ewing, Schieber, & Zegeer, 2003). Studies have found that the most dangerous road types were those with high speeds and multiple lanes which lack sidewalks, have long distances between crosswalks, and are lined with commercial establishments; all features which are typical of sprawl (Frumkin, 2009; Hanzlick et al., 1999).

Despite reliance on personal automobiles, the region is ranked in the bottom 15 metropolitan areas (out of 100 metropolitan areas measured) in vehicle miles traveled (VMT) per capita because of its compact urban form (Puentes & Tomer, 2008). The high employment concentration and centrality of business along the Strip play a central role in the amount of VMT (Leck, 2006).

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 (see Table 6). Walkscore.com is a free web source which measures the walkability 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-dependent because a few amenities are located within walking distance. Whereas, a score between 50 and 69 is considered somewhat walkable because some amenities are located within walking distance.

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).

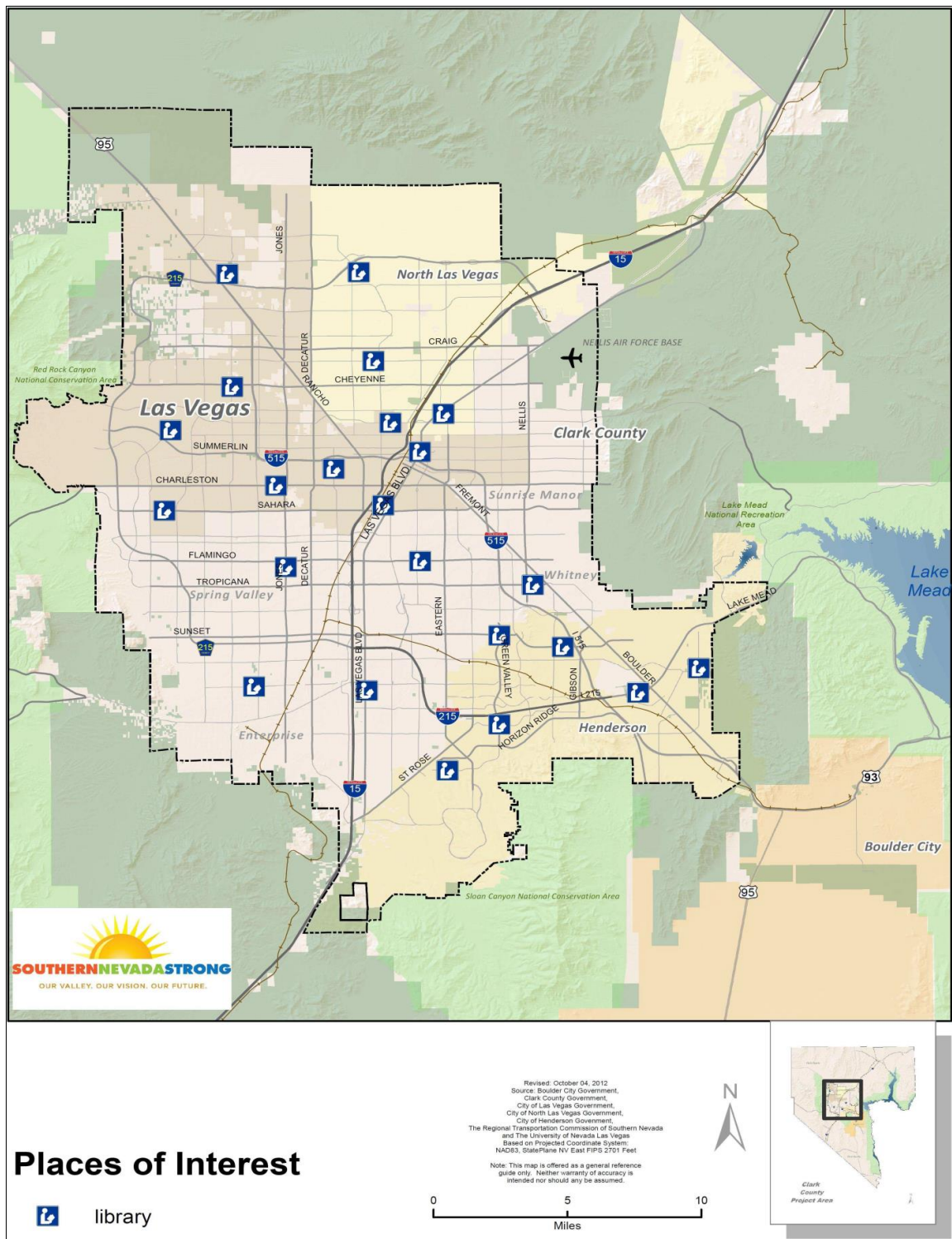


Figure 5. Libraries in Southern NV, 2012 (Las Vegas-Clark County Library District, Henderson Libraries, North Las Vegas Library District, 2012)

Table 6

Walkscores by place, 2012

	Walkscore (Out of 100)	Walkability rating
Las Vegas	43	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
Salt Lake City, UT	58	somewhat walkable
Denver, CO	60	somewhat walkable

Source: Walkscore.com (2012)

Low income neighborhoods are significantly more walkable than high income neighborhoods in the Las Vegas Metro area, a finding which differs from many other urban areas. In a stratified random sample of twelve neighborhoods, those with a median household income of less \$42,000 were significantly more walkable neighborhood than those with a median household income greater than \$70,000 (Coughenour, 2012). This is significant, as low income populations are more vulnerable to chronic diseases, and walkable neighborhoods have been associated with lower obesity prevalence, more minutes of physical activity, and increased active transport (Frank et al., 2006). However, it is important to note that while this walkability index takes into account urban form and the ease at which one can travel on foot from one destination to the next, it does not take into account any environmental features which make the walking

experience pleasant (ie: trees and amenities). Additionally, the conflicting finding that low income neighborhoods are more walkable in Las Vegas may be due, in part, to the sprawling, auto-oriented design which has resulted in many high income residential developments to be located far from the city center.

The Las Vegas metropolitan area 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 (Ernst, 2011). The urban area was designed to accommodate the automobile. As a consequence, the urban form 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 (Ernst, 2011).

Discussion

Southern Nevada faces some significant challenges in the area of food access. There are a significant amount of food deserts and convenience stores and fast food outlets outnumber grocery stores two to one and nearly four to one, respectively. Policies which promote the development of healthy food outlets such as grocery stores, farmers markets, and community gardens would be beneficial for increasing access to healthy foods. Food insecurity is also a substantial concern, as Clark County experiences a larger percentage of both households and children with food insecurity compared to other mountain west metropolitan areas. Efforts to reduce food insecurity are a necessity for the health and sustainability of the region.

The region has fewer park acres per capita than the recommended level and also faces inequitable distribution of both parks and trail systems. Efforts to increase access would improve public health and sustainability. Efforts to increase urban form which promotes walking and increases pedestrian safety are critically needed, as much of

the region is considered auto-dependent and experiences high pedestrian crash rates. Policies which are aimed at increasing safety, such as those at the end of this document, would also be beneficial for the region, as Clark County ranked higher than the national average for violent crime rates.

As part of Southern Nevada Strong Sustainable Communities Planning Grant project, six task groups made up of subject matter experts were formed. Subject matter experts came from the public, non-profit and private sectors from across the valley. The task groups included: Healthy Communities, Economic Development and Education, Transportation, Housing, the Environment and Public Engagement and Equity. The Healthy Communities group used the above information as well as their experience and expertise to identify goals to be included in the *Southern Nevada Regional Plan for Sustainable Development* (SNvRPSD). The SNvRPSD will be a single, integrated and consolidated plan that will promote and guide sustainable regional development in Southern Nevada over the next 20 years. Goals and strategies formulated to address healthy communities in Southern Nevada included:

Goal 1. Stabilize and strengthen existing neighborhoods through placemaking improvements.

Objective 1.1. *Increase neighborhood engagement.*

- Working with local jurisdiction code enforcement and outreach coordinators, develop neighborhood outreach plans to address community issues and provide resources for homeowner investments.
- Continue to reach out to key landowners and developers to gain support for the preferred land use map and to coordinate redevelopment of key sites.
- Foster new relationships between neighborhood leaders and businesses to identify incentives for businesses to support neighborhood identity and commitment.

Objective 1.2. *Develop housing and employment in mixed-use transit-oriented neighborhoods near job centers, schools, and other services.*

- Adopt regional goals and standards that aim to reduce transportation costs and provide increased mobility in neighborhoods to every day amenities such as grocery stores, offices, and schools.
- Develop a toolkit, in collaboration with area economic development and real estate organizations and other institutions, that supports mixed-use development.
- Identify opportunities to implement applicable incentives, including tax credits and other programs to support catalytic mixed-use projects.
- Partner with local healthcare and educational institutions to encourage the development of attractive, high quality housing and supporting businesses and services that support and are supported by higher education, medical, or hospital districts.
- Encourage common licensing and development policies among local governments.

Objective 1.3. *Initiate redevelopment activities along transit corridors that enhance ridership, promote livability, and develop community character.*

- Identify and fund infrastructure investments that enable and support increased housing and employment density along key transit corridors.
- Provide technical assistance to local jurisdictions, such as model zoning overlays, for transit-oriented development.
- Work with local governments and redevelopment agencies to acquire key parcels for transit-oriented development.
- Increase or develop incentives on land use (e.g., FAR increases, parking reductions, etc.) to attract more compact development and allow the efficient movement of pedestrians, bicyclists, buses and motor vehicles within, to and through the area.
- Revise and adopt minimum parking standards.

Goal 2. Support access to healthcare, healthy food, parks, and community services.

Objective 2.1. *Research emerging issues and develop partnerships to improve access to affordable and healthy food options.*

- To advance the priorities of *Food Security in Nevada*, *Nevada's Plan for Action*, support in-depth research on existing or emerging food deserts within Clark County.
- Support and coordinate with organizations working to increase access to healthy food options, including Southern Nevada Health District, Southern Nevada Food Council and the School of Community Health Sciences at UNLV to identify underserved areas that could support healthy food outlets, urban agriculture, community gardens, and farmer's markets.
- Promote healthy food options and make sure Supplemental Nutritional Program (SNAP) benefits are available in areas with concentrations of fast food outlets.

Objective 2.2. *Develop policies that prioritize access to parks, open space, recreational facilities, and opportunities for physical exercise.*

- Identify vacant or underutilized land within low-income, at-risk, or underserved communities that can be "re-purposed" for public spaces.
- Develop an action plan to increase park accessibility for areas that are underserved.
- Promote a development pattern that provides direct pedestrian-friendly connections to parks and open space between low-income, at-risk, or underserved communities.
- Encourage adoption of ordinance/code changes to ensure developments dedicate open space or pay impact fee to a regional parks and open space fund.
- Provide superior access to the Valley's natural environment (Red Rock, Mt. Charleston, Lake Mead, Floyd Lamb Park, Craig Ranch, and parks) that includes welcome centers that are accessible to all Southern Nevadans.
- Support Outside Las Vegas's efforts to maintain trails and provide education on existing trails in the region.
- Develop and adopt uniform design and maintenance standards for trails and bike lanes.

Goal 3. Develop a modern transit system that is integrated with vibrant neighborhood and

employment centers better connecting people to their destinations.

Objective 3.1. *Work with the Regional Transportation Commission and other partners to develop a comprehensive transit master plan, which focuses on enhanced services that supplement existing routes.*

- Leverage recently completed transit infrastructure projects as a foundation to develop a comprehensive transit master plan.
- Incorporate land use, multimodal transportation and air quality planning considerations into future updates of the Regional Transportation Plan (RTP) multi-modal.
- Develop implementation criteria by which future corridors will be prioritized including: potential ridership, economic development/Transit Oriented Development (TOD) potential, proximity to jobs, housing, and education, enhanced quality of life, and integration with the bike and pedestrian network.
- Working with the Las Vegas Global Convention and Visitors Authority, consider multimodal connections to the airport and other destinations, potentially using the Maryland Parkway as a fixed or light rail corridor.
- Identify lines that would have increased frequency, limited stops, express, bus rapid transit (BRT), and light rail services.
- Designate a baseline transit network and set of operating standards that can serve as the foundation of the transit system.
- Improve the rider experience by locating stops away from adjacent travel lanes, offering robust lighting, and making other site considerations that maximize visibility and safety.
- Coordinate with relevant agencies to pursue interstate regional passenger rail service.

Objective 3.2. *Support safe neighborhood connections in marginalized communities.*

- Analyze the feasibility of transit stations with bicycle and pedestrian infrastructure provisions adjacent to existing and future mixed-income developments.
- Consider partnerships between the RTC and private developers to create park & ride

facilities in outlying areas that could provide access to express transit services and reduce travel time.

- Ensure that transit amenities are supported by ADA/PROWAG compliant pedestrian facilities, universal design, and adequate directional signage.
- Revise and develop bus stop/station design standards based on passenger volumes, locations, and other characteristics
- Reduce the dependence on paratransit through facility enhancements and education about the transit system for people with disabilities or limited mobility.

Objective 3.3. *Support the Regional Transportation Commission to secure funding for the expansion, operation and maintenance of transit systems and routes.*

- Pursue funding opportunities for system completion, right-of-way acquisition, and implementation through federal, state, and local sources.
- Research legislative changes needed to mitigate a 'pro-road' funding bias in order to shift toward enhancing transit services, bike and pedestrian improvements, including allowing new gas taxes to go toward funding other modal improvements.

Objective 3.4. *Integrate future land use planning with existing and future transportation improvements.*

- Coordinate with the RTC to evaluate frequent service transit corridors for potential designation as transit oriented development areas.
- Pursue an analysis of the economic benefits of transit to highlight the importance of fixed transit lines in economic development and redevelopment.
- Consider using space/land dedications or impact fees for transit amenities that support employment centers, such as multi-modal centers, transit centers, bike lanes, etc.
- Tailor parking requirements to encourage more concentrated development in mixed-use

areas, reflect actual demand, and increase development feasibility.

- Require interim sidewalks along incomplete roadways, when feasible.

Goal 4. Connect and enhance bike and pedestrian facilities throughout the region.

Objective 4.1. *Implement policies and design concepts that encourage safety and ease of movement for pedestrians and cyclists.*

- Work with the RTC to implement a regional system of fully multi-modal interconnected arterial and local streets, pathways and bikeways that are integrated with public transit in order to increase mode share.
- Pursue a pedestrian safety study to identify priority locations with high pedestrian-vehicle conflicts to focus retrofit plans, conduct an incident management analysis, and define crash hot spots.
- Develop a regionally-shared traffic safety database.
- Work with local bike groups and transportation advocates to update the RTC's multi-modal transportation plan and identify strategies to increase safety and make walking and bicycling more viable as primary transportation modes.
- Establish an off-street bicycle parking policy, which considers security, placement, quality of facilities, and provision of signs directing bicyclists to the parking facilities.

Objective 4.2. *Increase funding strategies for investments in the bicycle and pedestrian network.*

- In coordination with school district, support Safe Routes to Schools and identify funding sources for all aspects of Safe Routes to Schools Programs.
- Develop financial or regulatory incentives for development projects that include multimodal transportation infrastructure in low-income communities.
- Consider alternative funding sources to implement the vision, such as redirecting SNPLMA funds from conservation efforts in northern Nevada to transit improvements such as light rail in Southern Nevada.

- Coordinate with and continue to support the Outside Las Vegas Foundation and the Regional Open Space and Trails Working Group to integrate priorities into local ordinances and/or comprehensive plans and support the development and funding of the trails system and supporting programs.
- Continue to implement the RTC's public education campaign on multi-modal transportation and pursue a campaign on the region's transportation vision.
- Promote educational opportunities to the local engineering and planning community on the role of design and land use in pedestrian safety, such as an educational event about how to repurpose right of way and design streets and streetscapes as amenities.
- Celebrate accomplishments through special events and community outreach activities (e.g., cyclovias, family rides, etc.).

Goal 5. Develop a safe, efficient road network that supports all transportation modes.

Objective 5.1. *Establish a road network with improved and acceptable local and regional connectivity and traffic congestion levels.*

- Evaluate planned transportation infrastructure to reflect the land use vision.
- Revise and adopt regional and local design standards to include multi-modal street design, safety, and improved access management.
- Pursue a regional policy change to require a justification for any speed limit higher than 35MPH.
- Consider the potential impacts of the development of the I-11 corridor, currently being studied by the Arizona and Nevada Departments of Transportation.

Objective 5.2. *Overhaul design standards to support multiple modes and support healthy lifestyles.*

- Working with local stakeholders, support more stringent criteria to justify roadway capacity expansion and ensure that any capacity expansions accommodate viable multi-modal transportation options.

- Ensure that all traffic studies provide a justification for roadway capacity and speed limit.
- Consider a regional review of RTC's TIP and local road CIPs to justify project need.
- Promote "Complete Streets" cross section revisions whenever corridor reconstruction or reconfiguration occurs. Activities could include removing block walls, increasing sidewalk and bike lane widths, reducing curb cuts, and limiting driveways.
- Develop a road diet/retrofit plan for road networks in Southern Nevada to improve connectivity and access for multiple modes, starting with areas identified through the pedestrian safety study.
- Develop neighborhood and regional connectivity ratios/standards.
- Encourage the development of design standards and land use policies that require investments in low-income or at-risk communities to include the basic attributes such as sidewalks, adequate lighting, street trees, and other strategies to create walkable communities.

These goals and strategies will be included in the Regional Plan which is the final deliverable to HUD for the planning grant. The next step after completing the planning grant will be to apply for the HUD Sustainable Community Implementation Grant to implement the goal and strategies outlined above. Only entities that received the planning grant can apply for the implementation grant and the awarded amounts are projected to be fifty to one-hundred million dollars.

Acknowledgements

We would like to acknowledge the many people involved in the creation of the *Southern Nevada Existing Conditions Report*:

Stephanie Garcia-Vause, AICP, Southern Nevada Strong Project Director, Director of Community Development and Services City of Henderson
 Sean Robertson, AICP Principal Planner, City of Henderson, Southern Nevada Strong Project Team
 Lisa Corrado, Southern Nevada Strong Project Manager

Richard Rojas, AICP, City Planner, City of Henderson & Southern Nevada Strong Project Team

Daniel Fazekas, City Planner, City of Henderson & Southern Nevada Strong Project Team
 Andrew Powell, Senior Planner, City of Henderson
 Jason Rogers, AICP, Planner, City of Henderson & Southern Nevada Strong Project Team
 Andrew Roether, Planner, City of Henderson & Southern Nevada Strong Project Team
 Brittany Murphy, Southern Nevada Strong Public Information Specialist
 Robert Lang, Ph.D., Executive Director, The Lincy Institute and Director, Brookings Mountain West, UNLV
 Tom Piechota, Ph.D., Interim Vice President for Research and Dean of the Graduate College
 Division of Research and Graduate Studies
 Jon Wardlaw, AICP, Planning Manager, Clark County
 Philip Banea, AICP, Principal Planner, RTC of Southern Nevada
 Marco Velotta, Planner, City of Las Vegas
 James Marshall, Senior Planner, City of Las Vegas
 Richard Wassmuth, Analyst, City of Las Vegas
 Deborah Williams, Manager, Southern Nevada Health District
 Chris Drury, Analyst, Applied Analysis
 Marya Shegog, Ph.D., Director of Health Programs, The Lincy Institute, UNLV
 Patricia Rowley, Manager, Southern Nevada Health District

Financial Disclosure

The work that provided the basis for this publication was supported by funding under an award with the U.S. Department of Housing and Urban Development. The substance and findings of the work are dedicated to the public. The author and publisher are solely responsible for the accuracy of the statements and interpretations contained in this publication. Such interpretations do not necessarily reflect the views of the Government. This research was funded in part by the US Department of Housing and Urban Development Sustainable Communities Regional Planning Grant, #FR-5500-N-30FA.

References

- Alaimo, K., Olson, C., & Frongillo, E. (2001). Food insufficiency and American school-aged children's cognitive, academic, and psychosocial development. *Pediatrics*, 108(1), 44-53.
- American Library Association. (2013). *American Libraries: The state of America's libraries*. Chicago, IL: American Library Association.
- Bureau of Land Management (BLM). (2012). Welcome to Red Rock Canyon national conservation area. Retrieved October 17, 2012 from http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/blm_special_areas/red_rock_nca.html
- City of Denver. (2012). Parks and Recreation: Trail mileage. Retrieved August 30, 2012 from <http://www.denvergov.org/parksandrecreation/Home/Parks/WalkingandJoggingTrails/tabid/432299/Default.aspx>
- City of Henderson. (2012). Parks and Recreation Department, Park locations and amenities.
- City of Las Vegas. (2012). Parks and Recreation Department, Park listings.
- City of North Las Vegas. (2012). Parks and Recreation Department, Parks trails and amenities brochure.
- City of Phoenix. (2012). Parks and Recreation: Park and trail locations. Retrieved August 30, 2012 from <http://phoenix.gov/parks/trails/locations/index.html>
- Clark County, NV. Parks and Recreation Department, Park locator, 2012.
- Cohen, D., Ashwood, J., Scott, M., Overton, A., Evenson, K., Staten, L., Porter, D., McKenzie, T., Catellier, D. (2006). Public parks and physical activity among adolescent girls. *Pediatrics*. 2006;118.
- Cohen, D., McKenzie, T., Sehgal, A., Williamson, S., Golinelli, A., Lurie, N. (2007). Contribution of Public Parks to Physical Activity. *American Journal of Public Health*, 97(3), 509-514.
- Coughenour, C. (2012b). Examining access to trails in high and low income regions of the Las Vegas metropolitan area. Presented at the

- Nevada Public Health Association Conference, October 2012, Las Vegas, NV.
- Coughenour, C. & Pharr, J. Is there a disparity in park access in Clark County, NV. Presented at the Nevada Public Health Association Conference, October 2012, Las Vegas, NV.
- Coughenour, C. An examination of access to walkable neighborhoods in the Las Vegas Metropolitan area. Presented at the Nevada Public Health Association Conference, October 2012, Las Vegas, NV.
- Cuban, S. & Cuban, L. (2007). *Partners in literacy: Schools and libraries building communities through technology*. Teachers College Press: New York.
- De Haan, H. (2005). Social and material appropriation of neighborhood space: collective space and resistance in a Dutch urban community. Conference Proceedings, *Doing, Thinking, Feeling Home: the Mental Geography of Residential Environments*, International Conference, Delft, 14–15 October 2005. Delft University of Technology, OTB, Delft.
- Department of Conservation and Natural Resources. (2012). The Big Bend in the Colorado State Park. Retrieved November 1, 2012 from <http://parks.nv.gov/parks/big-bend-of-the-colorado-state-recreation-area/>
- Department of Conservation and Natural Resources. (2012). The Old Las Vegas Mormon Fort. Retrieved November 1, 2012 from <http://parks.nv.gov/parks/old-las-vegas-mormon-fort/>
- Department of Conservation and Natural Resources. (2012). Valley of Fire State Park. Retrieved November 1, 2012 from <http://parks.nv.gov/parks/valley-of-fire-state-park/>
- Dill, J. & Carr, T. (2003). Bicycle commuting and facilities in major U.S. cities: if you build them, commuters will use them. *Transportation research Record*, 1828, 116-123.
- Dines, N., Cattell, V. (2006). *Public Spaces, Social Relations and Well-being*. The Policy Press, Bristol.
- Ernst, M. (2011). *Dangerous by design 2011. Transportation for America*.
- Ewing, R., Schieber, R., & Zegeer, C. (2003). Urban sprawl as a risk factor in motor vehicle occupant and pedestrian fatalities. *Research and Practice*, 93(9)
- Federal Bureau of Investigation, (2012). Crime in the United States, 2012. Retrieved November 15, 2013 from <http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/offenses-known-to-law-enforcement/state-totals>
- Feeding America. (2012). Map the meal gap: Food insecurity in your county. Retrieved September 17, 2012 from <http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap.aspx>
- Feeding America. (2012b). Map the meal gap: Food insecurity Summary. Retrieved September 17, 2012 from <http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap/~media/Files/a-map-2010/2010-MMG-Child-Executive-Summary-FINAL.ashx>
- Frank, L., Sallis, J., Conway, T., Chapman, J., Saelens, B., & Bachman, W. (2006). Many pathways from land use to health: Associations between neighborhood walkability and active transportation, body mass index, and air quality. *Journal of American Planning Association*, 72(1)
- Frumkin, H. (2009). Urban sprawl and public health. In H. Hynes, & R. Lopez (Eds.), *Urban health* (pp. 144-167). Sudbury, MA: Jones and Bartlett Publishers.
- Hanzlick, R., McGowan, D., Havlak, J., Bishop, M., Bennet, H., Rawlins, R., & et al. (1999). Pedestrian fatalities - Cobb, DeKalb, Fulton, and Gwinnett counties, Georgia. *MMWR Morbidity and Mortality Weekly Report*, 48, 601-605.

- Hoehner, C., Ramierz, L., Elliott, M., Handy, S., Brownson, R. (2005). Perceived and objective environmental measures and physical activity among urban adults. *American Journal of Preventive Medicine*, 28(2), 105-116.
- Lang, R. & LeFurgy. (2007). *Boomburbs: the rise of America's accidental cities*. Brookings Institution Press: Washington, DC.
- Lang, R. (2002). *Metropolitan growth counties*. Fannie Mae Foundation.
- Larson, N., Story, M., Nelson, M. (2009). Neighborhood environments: Disparities in access to healthy foods in the US. *American Journal of Preventive Medicine*, 36(1), 74-81.
- Las Vegas-Clark County Library District. (2012).
- Leck, E. (2006). The impact of urban form on travel behavior: A metaanalysis. *Berkeley Planning Journal*, 19, 37-58
- Leyden, K. M. (2003). Social capital and the built environment: The importance of walkable neighborhoods. *American Journal of Public Health*, 93(9), 1546-1551.
- Lorenc, T., Clayton, S., Neary, D., Whitehead, M., Petticrew, M., Thomson, H., Cummins, S., Sowden, A., Renton, A. (2012). Crime, fear of environment, and mental health and wellbeing: Mapping review of theories and causal pathways. *Health & Place*, 18(4), 757-765.
- Lund, H. (2003). Testing the claims of new urbanism: Local access, pedestrian travel, and neighboring behaviors. *Journal of the American Planning Association*, 69(4), 414-429.
- Morland, K., Roux, A., & Wing, S. (2006). Supermarkets, other food stores, and obesity: The atherosclerosis risk in communities study. *American Journal of Preventive Medicine*, 30(4), 333-339.
- National Park Service. (2012). *National Parks, Nevada*. Retrieved September 1, 2012 from <http://www.nps.gov/state/nv/index.htm>
- Nevada State Office of Rural Health. (2013). *Nevada Rural and Frontier Health Data Book*.
- Norman, G., Nutter, S., Ryan, S., Sallis, J., Calfas, K., Patrick, K. (2006). Community design and access to recreational facilities as correlates of adolescent physical activity and body mass index. *Journal of Physical Activity and Health*, 3(S1), s118-s128.
- Olson, C. (1999). Nutrition and health outcomes associated with food insecurity and hunger. *Journal of Nutrition*, 129(2S).
- Powell, L., Auld, C., Chaloupka, F., O'Malley, P., Johnston, L. (2007). Associations between access to food stores and adolescent body mass index. *American Journal of Preventive Medicine*, 33(4), S301-S307.
- Pucher, J., Dill, J., & Handy, S. (2010). Infrastructure, programs, and policies to increase bicycling: An international review. *Journal of Preventive Medicine*, 50(s).
- Puentes, R. & Tomer, A. (2008). *The Road...Less traveled: An analysis of vehicle miles traveled trends in the U.S. Metropolitan Policy Program at Brookings; Metropolitan Infrastructure initiative series*.
- Regional Transportation Commission of Southern Nevada (RTC). *Southern Nevada bike map*. Retrieved August 30, 2012 from <http://www.rtcnv.com/wp-content/uploads/2012/03/BikeMapBrochureSept2011.pdf>
- Roemmich, J., Epstein, L., Raja, S., Yin, L., Robinson, J., Winiewicz, D. (2006). Association of access to parks and recreational facilities with the physical activity of young children. *Preventive Medicine*, 43(6), 437-41.
- Springs Preserve Library. (2012). *Library*. Retrieved October 16, 2012 from <http://www.springspreserve.org/education/library.html>
- Starnes, H., Troped, P., Klenosky, D., Doehring, A. (2011). Trails and physical activity: A review. *Journal of Physical Activity and Health*, 8, 1160-1174.
- Stuff, J., Casey, P., Szeto, K., Gossett, J., Robbins, J., Simpson, P., Connell, C., & Bogle, M. (2004). Household food insecurity is associated

with adult health status. *Journal of Nutrition*, 134(9), 2330-2335.

- Three Square. (2013). Food Insecurity Map. Retrieved January 9, 2014 from http://www.threesquare.org/images/stories/Food_Insecurity_2013map.pdf
- U.S. Census Bureau. (2012). 2010 Census urban area facts. Retrieved September 4, 2012 from <http://www.census.gov/geo/www/ua/uafacts.html>
- U.S. Department of Agriculture (USDA). (2012b). Spring Mountain National Recreation Area. Retrieved November 1, 2012 from <http://www.fs.usda.gov/>
- U.S. Department of Agriculture Economic Research Service. (2012). Food Environment Atlas, Retrieved September 1, 2012 from <http://www.ers.usda.gov/data-products/food-environment-atlas.aspx>
- U.S. Department of Health and Human Services. (2011). CED Data: Healthy food financing initiative. Retrieved September from <http://www.acf.hhs.gov/programs/ocs/resource/healthy-food-financing-initiative-0>