Abstract
This manuscript is the first of a series written for the Nevada Journal of Public Health. The series is result of research conducted for the Southern Nevada Strong, Sustainable Communities Grant. During Year One of the planning process, we created a Southern Nevada Existing Conditions Report. This report highlighted where the region stood on key metrics including: demographics and population projections, access to healthcare and health outcomes, healthy community, housing, environment, economy and education. For this special issue of the Nevada Journal of Public Health, the report was separated into seven articles related to each of these metrics. The articles will present public health professionals with the current conditions in the seven areas for Southern Nevada and make comparisons to Mountain West peer metropolitan areas. The purpose of this introduction article is to describe the methodology and rationale used to create the initial report. It will also provide the criteria used to select our peer regions and a general description of the study area. Lastly, this article includes short synopses of the key findings from each of the seven supportive manuscripts and provides some recommendations for public health professionals in Nevada. It is our hope that the work of bringing together this series will benefit the greater public health community in Nevada.

Introduction
Background
Southern Nevada Strong is a collaborative regional effort working to build a foundation for long-term economic success and community livelihood by better integrating: transportation, housing and job opportunities throughout Southern Nevada. However, the requirements for this project included a comprehensive collection of data to evaluate the current conditions of Southern Nevada with regards to demographics and population projections, access to healthcare and health outcomes, healthy community, housing, environment, economy and education. This project is funded by a 3.5 million dollar grant from the US Department of Housing and Urban Development. These funds provide the resources to conduct the in-depth research and community engagement efforts to analyze issues facing our community and propose collaborative solutions. Southern Nevada Strong project partners include: the Southern Nevada Regional Planning Coalition (SNRPC), City of Henderson, City of Las Vegas, City of North Las Vegas, Boulder City, Clark County, Regional Transportation Commission, UNLV, Southern Nevada Regional Housing Authority, Southern Nevada Water Authority, Clark County School District, Southern Nevada Health District and the Conservation District of Southern Nevada.

The goal of the federal Sustainable Communities grant program is to help communities and regions improve their economic competitiveness through better integration of housing with employment and transportation. Additional foci of the grant include an assessment of the impact of housing and transportation on public health, access to health care and creating healthy, sustainable communities. Twenty-nine regions across the US have received grant funding for similar efforts. Southern Nevada Strong is a three year planning initiative. Year One primarily focused on research and identifying our community issues, Year Two focusing on public outreach and input gathering, and Year Three on drafting the regional plan.

During Year One of the planning process, we created a Southern Nevada Existing Conditions Report. This report highlights where the region currently stands on key metrics such as education, the environment, housing, health and healthcare, economic development and population projections. By identifying our existing conditions we can better understand/extrapolate where we need to make improvements and advance our strengths. The goal of
the report was to inform the broader efforts of Southern Nevada Strong and to provide regional data for stakeholders in the community.

Southern Nevada Region

The Southern Nevada region is defined as the urban area outlined in Figure 1. The region is served by Interstate 15, which connects to the Southern California metropolitan area to the southwest and the Salt Lake City metropolitan area to the northeast. US Highway 93 connects the region to the Phoenix metropolitan area to the southeast and Reno metro area to the north.

Methods

One county and four cities form the Southern Nevada region: Clark County, Las Vegas, Henderson, North Las Vegas and Boulder City. 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 of the data in the special edition articles that follow used the MSA as the geographic reference. Some data used the Census defined urban area boundary, which is most closely aligned with the Bureau of Land Management (BLM) disposal boundary. In an effort to provide as much detail as possible, most maps used the Southern Nevada urban area map. Because Clark County, Las Vegas Metropolitan Area and Southern Nevada are the same geographic area, they are used interchangeably throughout the manuscript and are referred to as ‘the region’.
Figure 1: Southern Nevada Region

Regional, state, and national data sources were utilized for data collection to complete the Existing Conditions Report. Southern Nevada was compared to peer regions. Throughout, the Mountain West Metropolitan Areas of Albuquerque, NM; Boise, IA; Colorado Springs, CO; Denver, CO; Ogden, UT; Phoenix, AZ; Provo-Orem, UT; Salt Lake City, UT and Tucson, AZ were used. Mountain West areas 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, 2011). Between 2000 and 2010, Nevada and Arizona were the top two fastest growing states in terms of percent population growth in the nation despite economic slowdown (Teixeira,
2012). If data were not available at the Metropolitan Area level, then county data were utilized when available. For the Economy section, Orlando was included as a peer region because it has economic characteristics similar to Las Vegas in terms of tourism.

For this special issue of the Nevada Journal of Public Health, the report was separated into seven articles related to the demographics, access to healthcare and health outcomes, healthy community, housing, environment, health and community services, economy and education. Each article identifies our strengths, our opportunity as well as areas that can be significantly improved. Although each article provides detailed data, the purpose of this introduction article is to describe the methodology and rationale used to create this report. It will also provide the criteria used to select our peer regions and a general description of the study area. Lastly, this article includes short synopses of the key findings from each of the seven supportive manuscripts and provides some recommendations that public health professionals could to address in Nevada.

Results

Demographics

Southern Nevada experienced an average annual growth rate of 5.2 percent from 2000-2007 and a slow (1.5 percent) to negative (-3.42 percent) growth rate from 2008-2011 (US Census, 2012). While population growth is projected to be positive in Southern Nevada from 2014-2025, the rate of growth will be slower than in the past decade (CBER, 2012). The Hispanic population, as a percentage of the total population, is projected to surpass the White population around 2030 (CBER, 2012). Southern Nevada had aged as 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 (CBER, 2012).

Residents had 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) (US Census Bureau, American Community Survey [ACS] 2006-2010). Also, compared to peer regions, Southern Nevada had a lower percentage of residents with a Bachelor’s degree or graduate/professional degree (US Census ACS, 2006-2010). Nevada’s high school 2009 graduation rates were the lowest in the nation, 56.3 percent, compared to a national average of 75.5 percent (US Department of Education, 2012). Additionally, Clark County School District graduation rates were lowest for Hispanic (59.8 percent) and Black students (57.6 percent), who make up a majority of the student population at 55 percent of the total students (Nevada Department of Education, 2012).

Housing

The majority of the region’s housing units were built after 1990. Between 2006 and 2012, the median home values have decreased 60.4 percent (CBER-LIED, 2011). In 2012, the majority of mortgage holders held negative equity in their homes (Haughwout, Peach, & Tracy, 2010; Shaulis, Fairchild & Borchardl, 2012). The region had a high rate of vacant units and low rate of owner occupancy when compared to the nation (US Census ACS, 2006-2010). At the same time, median rental rates were higher than the national average (US Census ACS, 2006-2010). Based on percent of income, housing costs were unaffordable for half of renters and half of owners (US Census ACS, 2006-2010). In 2011, over 9,000 residents in the Las Vegas MSA were homeless (Department of Housing and Urban Development [HUD], 2012).

Transportation

The majority of residents commuted to work alone and owned a vehicle; however, carpool and transit use was greater than the national average (US Census ACS, 2010). Although the region has not invested in commuter rail or light rail, it has invested in Bus Rapid Transit. Eighty-six percent of residents live within ¾ mile of a transit stop (Brooking Institute, 2011). Compared to 2000, 2010 commuters spent more hours in traffic delays and freeway congestion increased by 35 percent (Texas Transportation Institute, 2011). Transportation costs are unaffordable for the average household in
Southern Nevada and the combined housing and transportation costs are also unaffordable (H + T Affordability Index, 2012). The region has poor connectivity and a lower walkscore than other Mountain West metropolitan areas (Walkscore.com, 2012). Southern Nevada was ranked as the 6th most dangerous metropolitan area for pedestrians in 2011 (Transportation for American, 2011).

**Environment**

Southern Nevada is located in one of the most arid regions of North America. Since annual rainfall averages less than four inches per year, Southern Nevada depends upon the Colorado River for its water supply (Southern Nevada Water Authority [SNWA], 2012). The quality and quantity of the water from the Colorado River is critically important for the residents of Southern Nevada. In 2012, Southern Nevada water did not exceed the maximum contaminant level set by the EPA for any substances (SNWA, 2012). Governmental agencies throughout the region coordinate their watershed management programs to minimize the vulnerability risk to Lake Mead. However, US Geologic Survey analysis concluded that water flows to the area will be 5% to 20% lower by 2050, and water conservation will continue to be an area of focus for the region (US Department of the Interior, Bureau of Reclamation, 2012).

Air quality is another important determinant of population health. Between 2008 and 2010, the region had 24 days in which the ozone levels were considered dangerous and 2 days in which the particulate pollution (PM 2.5) were considered dangerous (American Lung Association, 2012). Criteria pollutants have declined consistently in the region since the mid 1990’s. In the mid 1970’s, carbon monoxide (CO) levels peaked which resulted in the region being designated a CO nonattainment area in 1978 by the EPA. Because of this Clark County and Nevada adopted new clean air measures. Southern Nevada has not had an exceedance of the CO air quality standard since 1998 (Environmental Protection Agency [EPS], 2012).

As mentioned previously, the region’s climate is characterized as a desert climate, arid and warm. Additionally, 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 and are considered to be ‘heat islands’ (City of Las Vegas, 2010). Heat islands can be mitigated by using cooler building materials and vegetation.

**Health and Community Services**

Clark County has a low physician to population ratio compared to other counties in Nevada and in the US. In 2012, the primary care physician to population ratio in the region was 1:1.244 while the national benchmark for this ratio is 1:631 (County Health Rankings, 2012). Access to primary care physicians as well as access to health insurance is an issue for Southern Nevadans. In 2009, 24.9 percent of residents under age 65 had no health insurance, while 18.1 percent under 19 had no insurance (US Census ACS, 2008-2010). These were the highest rates of uninsured in the Mountain West and among the highest in the nation. 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) (U.S. Census Bureau Small Area Health Insurance Estimates, 2009).

Southern Nevada fared worse than other Mountain West Metropolitan areas in health indicators and preventative care. 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, 22.1 percent of residents smoked cigarettes 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). 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 (CDC, BRFSS, SMART 2010, 2005).

The Black population had a higher mortality rate than other race/ethnicities in Clark County
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) (US Department of Justice, 2009).

Food insecurity is another important issue in the region. In 2012, the number of food insecure households in Southern Nevada was higher than the national average and other Mountain West Counties. The number of food insecure children in the region was higher than the national average and other Mountain West Counties. There are several food deserts or areas in which people has a difficult time accessing fresh fruits and vegetables in Southern Nevada. Additionally, 59 percent of all restaurants in Clark County were classified as fast food by the North American Industrial Classification System which was higher than the national benchmark of 25 percent (Feeding America, 2012; USDA ERS, 2012c).

**Economy**

The region’s economy was hit hard between 2008 and 2012. Unemployment rates in the region exceeded national unemployment rates as well as unemployment rate in peer regions of the Mountain West during this time period (US Census ACS 2008-2010). 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 from 2008 through 2010.

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 (Department of Employment Training and Rehabilitation, 2012). With the economic recession, Clark County experienced a decrease in the tourism sector; however, activity in this sector increased in 2011 compared to 2010. All North American Industry Classification System (NAICS) or Standard Industrial Classification (SIC) system occupational categories are projected to have positive growth between 2010 and 2020 with a combined growth projection of 11.4% during the decade (US Census. Local Employment Dynamics, 2012).

The region’s working age population has a lower level of educational attainment compared to peer regions. This might be because 38.2% of occupations require less than a high school diploma and 43.1% require a high school diploma or equivalent in the region (US Census ACS, 2008-2010).

**Discussion**

Based on the results of the data analysis, the authors made recommendations for future public health initiatives in Southern Nevada. These recommendations include:

- Improved access to healthcare and health insurance with a focus on preventive care. Southern Nevada has lowest rate of health insurance coverage and access to healthcare in the nation. Multiple efforts will be needed to improve access to healthcare and health insurance which could include: expansion of the health care workforce, expansion of Medicaid or locating a medical school in Southern Nevada.
- Improved access to fresh fruits and vegetables in areas of low accessibility. Areas of town were identified as food deserts or places with limited to no access to fresh fruits and vegetables. Efforts are needed to improve access in these areas as well as work to reduce food insecurity among vulnerable populations in the community. Efforts might include policies to encourage grocery stores to locate in these areas, support of local grocers, farmers markets, community gardens, and improved transit access to food.
- Improved walkability and pedestrian safety. Southern Nevada has poor walkability scores and is a dangerous place to be a pedestrian. Efforts are needed to improve the walkability of our community. Southern Nevada residents should be able to safely walk for leisure, exercise or utilitarian purposes.
- Improve Public Health programs to meet the needs of the Hispanic and elderly populations.

Over the next twenty years, the Hispanic population and the elderly population are projected to have the greatest growth in Southern Nevada. There will be
majority, minority population by 2030. Public health programs will be necessary to meet the unique needs of these two segments of the population. The region will need culturally competent health care providers and an increase in geriatric care.

- Economic development with a focus on the health care sector.

Currently, there are not enough employment opportunities in the health care sector to meet the health care needs of the community. Development of this sector could help with economic diversification as well as improved access to health care. Over the next decade, the 65 and older population is projected to grow at a faster rate than any other age group. This age group traditionally utilizes a larger share of health care services than younger age groups warranting a need to grow the health care sector.

- Sustained air and water quality.

Air and water quality in Southern Nevada were meeting federal air and water standards at the time of the Existing Conditions Report. However, there have been times in the history of Southern Nevada that this was not the case. Efforts are needed to maintain air and water quality at high levels in the region.

- Continued focus on water conservation.

Projection models show a decline in water flow to the region over the next several decades. As the region becomes drier, water conservation efforts will become increasingly more important for the sustainability of the region.

- Environmental efforts to reduce heat islands.

Heat islands have been identified along the Las Vegas strip and downtown. Building materials are available to reduce heat absorption and heat island affects. Builders in the community should be encouraged to mitigate heat island through the use of trees and vegetation, green roofs, cool roofs and cool pavement.

Conclusion

The Southern Nevada Strong workgroups will bring forward community-based recommendations for creating a sustainable community based on data in the Existing Conditions report and community engagement efforts. As we worked to compile the Existing Conditions report, we were often asked by stakeholders in the community if the information and data were going to be available. Because of these requests, the articles featured in this special edition of the Nevada Journal of Public health are intended to serve as valuable references for public health professionals in the region. To that end, the reference sections for each article include the URL’s to data bases used. It is our hope that the work of bringing together these articles will benefit the greater public health community in Nevada.

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Andrew Powell, Senior Planner, City of Henderson & Southern Nevada Strong Project Team
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