STRATEGIC ANALYSIS OF SOUTHERN NEVADA'S ECONOMY: POTENTIAL LAND CONSTRAINTS ON ECONOMIC GROWTH & DEVELOPMENT

MAY 2016

Prepared for:

NAIOP
COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION
SOUTHERN NEVADA CHAPTER

WITH SUPPORT FROM:

NEVADA CONTRACTORS ASSOCIATION
ONE INDUSTRY. ONE VOICE

SIOR SOUTHERN NEVADA CHAPTER

CCIM Southern Nevada CCIM Chapter

PREPARED BY:

THEODORE ROOSEVELT INSTITUTE

DR. ALAN SCHLOTTMANN
EXECUTIVE DIRECTOR

May 31, 2016

Mike Shohet, President
NAIOP-Southern Nevada
c/o Jones Lang LaSalle
302 E. Carson Street, #310
Las Vegas, NV 89101

Re: STRATEGIC ANALYSIS OF SOUTHERN NEVADA'S ECONOMY:
POTENTIAL LAND CONSTRAINTS ON ECONOMIC GROWTH AND DEVELOPMENT

Dear Mike:

Theodore Roosevelt Institute ("TRI") under the direction of Dr. Alan Schlottmann is pleased to submit the referenced Study to NAIOP-Southern Nevada ("NAIOP") to provide regional economic analysis relative to the Study.

TRI's Study is based on a set of generally acceptable regional economic and commercial/industrial real estate technical analyses and data. The Study is comprised of the following components:

Executive Summary

Section I: Introduction

Section II: Southern Nevada Current Employment & Economic Trends

Section III: Current Commercial Market Overview

Section IV: Emerging Issues for Southern Nevada

Section V: Land Inventory Considerations for Future Growth

Section VI: Employment Growth and Employment Lands Analysis

Section VII: Negative Impacts on Regional Growth and Income

Section VIII: Recommendations

Standard Assumptions

This work scope was performed according to the *"Standard Assumptions & Limiting Conditions"* detailed in the attachment to this letter.

Use & Nature of Report & Methodologies

The distribution of the Study is limited to NAIOP. If NAIOP intends to reproduce and distribute the Study and report, it must be reproduced in its entirety.

All ideas, developments, computer models, methodologies, innovations, inventions and copyrightable work, which TRI conceived and were used during the period of the Study, and which either (a) are within the scope of TRI's businesses or investigations, or (b) are supported by the use of materials, facilities or information paid for or provided by TRI are the exclusive property of TRI. In this regard, NAIOP agrees to credit TRI for its work.

The results of TRI's services under this engagement are the property of NAIOP. Copies of all TRI written documents which describe or relate to the services performed pursuant to this consulting assignment are the property of NAIOP and will be provided upon request. However, NAIOP will not provide TRI's Inventions and Works to any third party or use the same for the benefit of any third party, except with the prior written consent of TRI.

The Study is in the form of a narrative presentation, along with any appropriate tables, graphs and maps. TRI is not responsible for statements or interpretations made by NAIOP relating to the Study.

If you have any questions, please do not hesitate to contact us at your convenience by phone at 702-860-7947 or by email at Alan.Schlottmann@gmail.com.

Regards,

TRI LLC

TRI LLC

Attachment

ATTACHMENT
STANDARD ASSUMPTIONS & LIMITING CONDITIONS

1. TRI prepared this high-level Study using third-party information collected by TRI, as well as our internal econometric models and databases, as they relate to the Clark County economy.

2. NAIOP is responsible for representations about its plans and expectations, and for disclosure of significant information that might affect the ultimate realization of the analyses.

3. The results of TRI's analyses will apply only to the effective date of the Study. The success of NAIOP's plans will be affected by many related and unrelated economic conditions within a local, regional, national and/or world context. We assume no liability for an unforeseen change in the economy. Accordingly, we have no responsibility to update the Study for events and circumstances occurring after the date of the Study.

4. The Study is based on historical and projected economic and fiscal benchmark information. Thus, variations in the future could be material and have an impact on the Study conclusions. Even if the Study's hypothetical assumptions were to occur, there will usually be differences between the estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. These could include major changes in economic and market conditions; disasters; significant increases or decreases in mortgage interest rates and/or terms or availability of financing altogether; property assessment and/or major revisions in current state and/or federal tax or regulatory laws.

5. If the Study is reproduced by NAIOP, it must be reproduced in its entirety. NAIOP agreed, subject to the limitations of Chapter 41 of NRS, to indemnify TRI, its partners, principals and employees, and hold them harmless from and against any and all liabilities or obligations (including, but not limited to, attorney's fees) that arise directly from the TRI's services that are the subject of this consulting agreement, except to the extent that TRI's conduct was grossly negligent or fraudulent, and that such conduct was the proximate cause of any injury for which TRI is sought to be held liable

6. TRI makes no representation or warranty as to the accuracy or completeness of the third party information contained in the Study, and shall have no liability for any representations (expressed or implied) contained in, or for any omissions from, our materials.

7. The working papers for this consulting assignment will be retained in TRI files and will be made available for your reference. We will be available to support the analyses, as required.

8. Any regional economic development plans were assumed to be implemented by competent management, and that site ownership will be in responsible hands. The Study assumed both responsible ownership and competent management unless noted otherwise. Any variance from this assumption could have significant effects on econmic developement.

9. Unless otherwise stated in the Study, no effort has been made to determine the possible effect, if any, of future Federal, State or local legislation, including any environmental or ecological matters or interpretations thereof.

   TRI did not perform an audit, review or examination, or any other attest function (as defined by the AICPA) regarding any of the third-party historical market, industry and economic benchmarks or any other information used or included in the Study. Therefore, TRI will not express any opinion or any other form of assurance with regard to the same, in the context of the Study.

STRATEGIC ANALYSIS OF SOUTHERN NEVADA'S ECONOMY: POTENTIAL LAND CONSTRAINTS ON ECONOMIC GROWTH & DEVELOPMENT

MAY 2016

Prepared for:

NAIOP
COMMERCIAL REAL ESTATE DEVELOPMENT ASSOCIATION
SOUTHERN NEVADA CHAPTER

WITH SUPPORT FROM:

NEVADA CONTRACTORS ASSOCIATION
ONE INDUSTRY. ONE VOICE

SIOR
SOUTHERN NEVADA CHAPTER

CCIM
Southern Nevada
CCIM Chapter

PREPARED BY:

THEODORE ROOSEVELT INSTITUTE

DR. ALAN SCHLOTTMANN
EXECUTIVE DIRECTOR

May 31, 2016

Mike Shohet, President
NAIOP-Southern Nevada
c/o Jones Lang LaSalle
302 E. Carson Street, #310
Las Vegas, NV 89101

Re: STRATEGIC ANALYSIS OF SOUTHERN NEVADA'S ECONOMY:
POTENTIAL LAND CONSTRAINTS ON ECONOMIC GROWTH AND DEVELOPMENT

Dear Mike:

Theodore Roosevelt Institute ("TRI") under the direction of Dr. Alan Schlottmann is pleased to submit the referenced Study to NAIOP-Southern Nevada ("NAIOP") to provide regional economic analysis relative to the Study.

TRI's Study is based on a set of generally acceptable regional economic and commercial/industrial real estate technical analyses and data. The Study is comprised of the following components:

Executive Summary

Section I: Introduction

Section II: Southern Nevada Current Employment & Economic Trends

Section III: Current Commercial Market Overview

Section IV: Emerging Issues for Southern Nevada

Section V: Land Inventory Considerations for Future Growth

Section VI: Employment Growth and Employment Lands Analysis

Section VII: Negative Impacts on Regional Growth and Income

Section VIII: Recommendations

Standard Assumptions

This work scope was performed according to the *"Standard Assumptions & Limiting Conditions"* detailed in the attachment to this letter.

Use & Nature of Report & Methodologies

The distribution of the Study is limited to NAIOP. If NAIOP intends to reproduce and distribute the Study and report, it must be reproduced in its entirety.

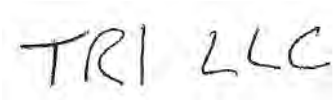
All ideas, developments, computer models, methodologies, innovations, inventions and copyrightable work, which TRI conceived and were used during the period of the Study, and which either (a) are within the scope of TRI's businesses or investigations, or (b) are supported by the use of materials, facilities or information paid for or provided by TRI are the exclusive property of TRI. In this regard, NAIOP agrees to credit TRI for its work.

The results of TRI's services under this engagement are the property of NAIOP. Copies of all TRI written documents which describe or relate to the services performed pursuant to this consulting assignment are the property of NAIOP and will be provided upon request. However, NAIOP will not provide TRI's Inventions and Works to any third party or use the same for the benefit of any third party, except with the prior written consent of TRI.

The Study is in the form of a narrative presentation, along with any appropriate tables, graphs and maps. TRI is not responsible for statements or interpretations made by NAIOP relating to the Study.

If you have any questions, please do not hesitate to contact us at your convenience by phone at 702-860-7947 or by email at Alan.Schlottmann@gmail.com.

Regards,



TRI LLC

Attachment

ATTACHMENT
STANDARD ASSUMPTIONS & LIMITING CONDITIONS

1. TRI prepared this high-level Study using third-party information collected by TRI, as well as our internal econometric models and databases, as they relate to the Clark County economy.

2. NAIOP is responsible for representations about its plans and expectations, and for disclosure of significant information that might affect the ultimate realization of the analyses.

3. The results of TRI's analyses will apply only to the effective date of the Study. The success of NAIOP's plans will be affected by many related and unrelated economic conditions within a local, regional, national and/or world context. We assume no liability for an unforeseen change in the economy. Accordingly, we have no responsibility to update the Study for events and circumstances occurring after the date of the Study.

4. The Study is based on historical and projected economic and fiscal benchmark information. Thus, variations in the future could be material and have an impact on the Study conclusions. Even if the Study's hypothetical assumptions were to occur, there will usually be differences between the estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. These could include major changes in economic and market conditions; disasters; significant increases or decreases in mortgage interest rates and/or terms or availability of financing altogether; property assessment and/or major revisions in current state and/or federal tax or regulatory laws.

5. If the Study is reproduced by NAIOP, it must be reproduced in its entirety. NAIOP agreed, subject to the limitations of Chapter 41 of NRS, to indemnify TRI, its partners, principals and employees, and hold them harmless from and against any and all liabilities or obligations (including, but not limited to, attorney's fees) that arise directly from the TRI's services that are the subject of this consulting agreement, except to the extent that TRI's conduct was grossly negligent or fraudulent, and that such conduct was the proximate cause of any injury for which TRI is sought to be held liable

6. TRI makes no representation or warranty as to the accuracy or completeness of the third party information contained in the Study, and shall have no liability for any representations (expressed or implied) contained in, or for any omissions from, our materials.

7. The working papers for this consulting assignment will be retained in TRI files and will be made available for your reference. We will be available to support the analyses, as required.

8. Any regional economic development plans were assumed to be implemented by competent management, and that site ownership will be in responsible hands. The Study assumed both responsible ownership and competent management unless noted otherwise. Any variance from this assumption could have significant effects on econmic developement.

9. Unless otherwise stated in the Study, no effort has been made to determine the possible effect, if any, of future Federal, State or local legislation, including any environmental or ecological matters or interpretations thereof.

   TRI did not perform an audit, review or examination, or any other attest function (as defined by the AICPA) regarding any of the third-party historical market, industry and economic benchmarks or any other information used or included in the Study. Therefore, TRI will not express any opinion or any other form of assurance with regard to the same, in the context of the Study.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The Theodore Roosevelt Institute ("TRI") was retained by a consortia comprised of NAIOP-Southern Nevada, the **N**evada Contractors Association, SIOR Southern Nevada Chapter and Southern Nevada CCIM to review a report prepared by the U. S. Bureau of Land Management ("BLM"). The BLM report is titled *"Draft Resource Management Plan Management/Environmental Impact Statement"* ("the RMP") for potential implications on the economic growth and development of Southern Nevada ("Clark County"). Released in 2014, the RMP is the key tool the BLM uses to manage resources and to designate uses on public lands.

The impact of land use on economic growth and development is a complex issue that covers several interrelated factors. These factors include fundamental land availability as the most obvious factor, but also consist of the distribution of parcel sizes for commercial (industrial, office and retail) development, the impact on economic growth and diversification via Nevada's targeted industries and the intra-regional location of available land and regional goods movement including congestion issues in a regional economy dependent on truck movement. Each of these factors is discussed in this report as they relate to Southern Nevada.

The report herein reviews the four alternatives outlined in the RMP, including the BLM preferred alternative.

Based on this review, in our opinion, an analysis of land use impacts on Southern Nevada's current and future economic growth and development is lacking in the proposed RMP. Both economic growth and development of Nevada's targeted industries are keys to improving the quality of lives of residents in Southern Nevada through increased employment opportunities, economic diversification and, potentially, higher wages and incomes. A thorough analysis of land use and possible constraints on the region's economic vitality are essential for any proposed resource management plan.

Therefore:

- The BLM should seek further community input on the inter-relationship between land use planning and its impact on the economic growth and development of Southern Nevada. The factors discussed in this report assert that land use planning can and will play a major role in the success (or failure) of Southern Nevada's long run economic growth and development.

- The State of Nevada's economic development efforts and plans toward targeted industries is the major effort to diversify the economy of Southern Nevada and to create new employment clusters of related businesses. This topic needs further analysis in the final RMP.

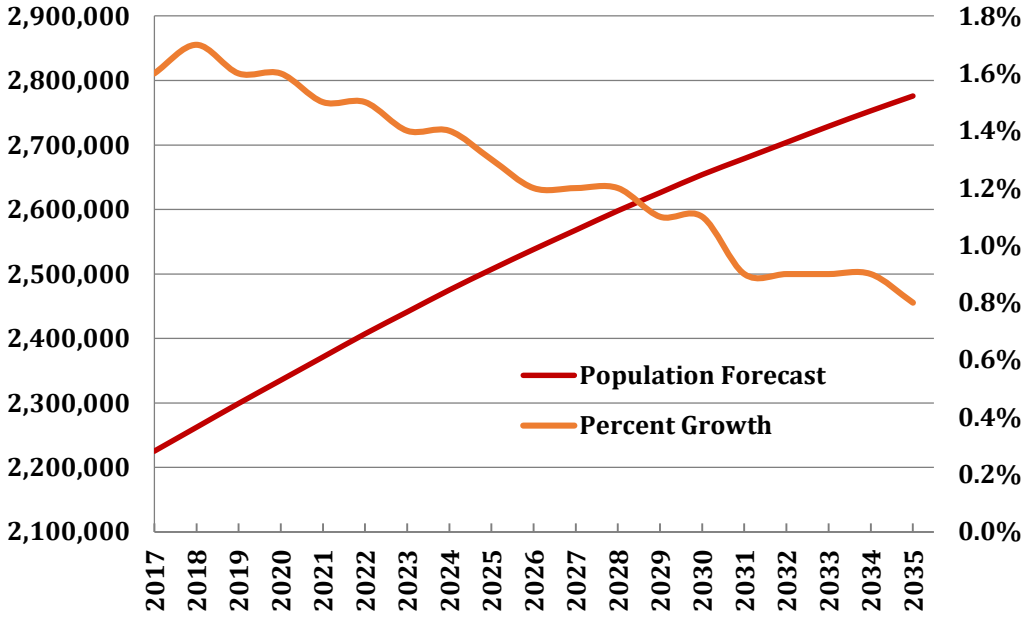
- Based upon both our current and prior work for a decade on the competitive positon of land and associated constraints in Southern Nevada, our opinion is that Southern Nevada's economic growth and development could face a regional competitive cost disadvantage. In this regard, the role of land management needs additional discussion and community input in formulating the final RMP.

- BLM land use proposals can significantly affect the competitive position of Southern Nevada through regional goods movement. These impacts have also been documented in our current and prior work; and they require further analysis and community input in the final RMP.

These conclusions are supported by an analysis of six topics as summarized below.

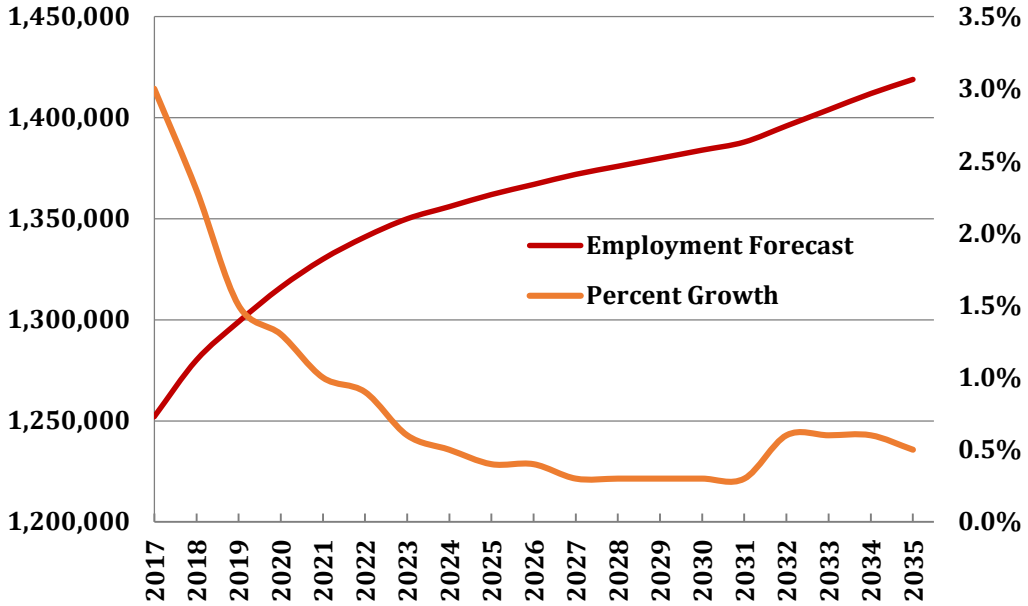
- The region's population, employment and economy (see Figures ES-1 to ES-3) are expected to grow faster than the national average through the forecast period (2017-2035) included in this report. However, this will require that Southern Nevada has the needed amount of developable commercial land to accommodate the anticipated growth of the economy.

Figure ES-1: CBER Population Forecast & Growth Rate (2017-2035)



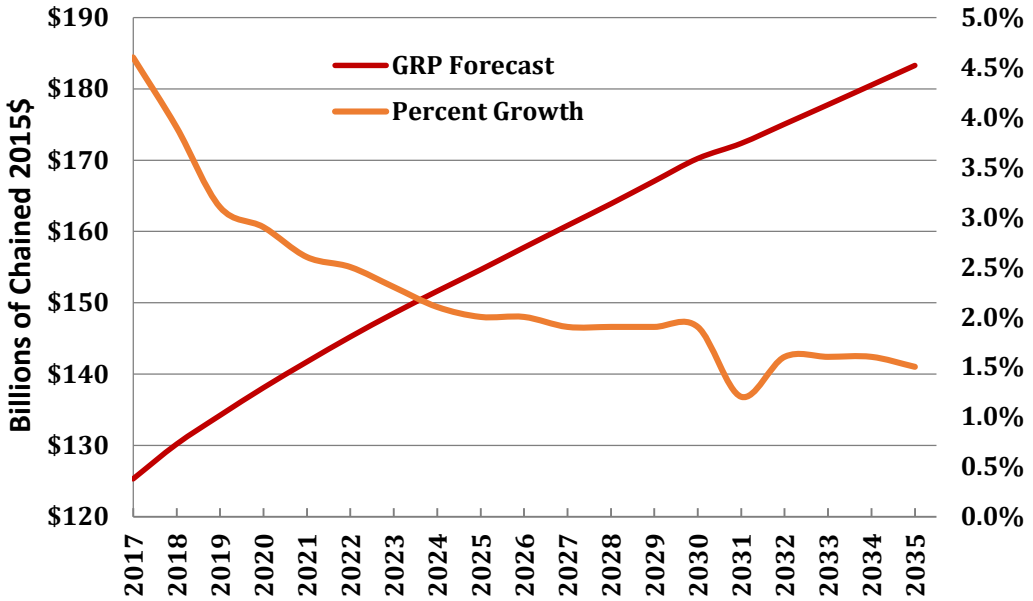
Source: UNLV-CBER.

Figure ES-2: CBER Employment & Growth Rate Forecast (2017-2035)



Source: UNLV-CBER.

Figure ES-3: CBER Gross Regional Product Forecast & Growth Rate (2017-2035)



Source: UNLV-CBER.

- As an illustration of land availability, the Las Vegas MSA industrial market is one of the smallest industrial markets of nine selected and competitive Western U.S. "Market Areas," especially on a per capita basis (see Table ES-1). When the associated land needs required for commercial space are also recognized, the role of land availability to accommodate high quality economic growth needs further consideration.

Table ES-1: MA Industrial Inventory (Q4, 2015), Population (2015) & SF/Capita (2015)

Market Area	Total Inventory (SF)	Population	SF/Capita
Reno-Sparks	77,748,447	450,890	172
Salt Lake City	135,300,000	1,170,266	116
Inland Empire	462,307,200	4,489,159	103
Los Angeles	893,624,000	10,170,292	88
Sacramento	179,617,064	2,274,194	79
Denver	220,331,210	2,812,732	78
Phoenix	287,773,232	4,574,531	63
Orange County	181,251,300	3,169,776	57
Las Vegas	**111,135,731**	**2,114,801**	**53**

Sources: Colliers, Newmark Grubb Acres ("NGA"), RCG/Lied, US Census.

- The role of regional goods movement, and associated warehousing and regional distribution activities, is often both overlooked and underappreciated in economic development. One of the most pressing issues confronting the Southern Nevada economy, aside from potential

employment land scarcity, is limited freight capacity. The final RMP needs to include an explicit recognition that freight capacity (and warehousing and distribution) ties into the issue of lands for employment opportunities. Trucking, the primary method for goods movement in Southern Nevada, is a direct input for regional producers; it contributes to the regional economy's advantages and disadvantages relative to other market areas (see Table ES-2).

RTC, for example, has recently completed its major plan (2015) for regional goods movement. Successful regional goods movement requires both suitable land for development not only in total acreage available but also in competitive locations in Southern Nevada.

Table ES-2: Total Flows To, From & Within the Las Vegas MSA, by Mode (2012)

Mode	K-Tons	Percent of Total	$ Millions	Percent of Total
Truck	79,516	87.90%	$68,052	77.80%
Rail	2,965	3.30%	$726	0.80%
Air (include truck-air)	108	0.10%	$1,968	2.30%
Multiple modes & mail*	2,347	2.60%	$13,090	15.00%
Pipeline	5,294	5.90%	$2,429	2.80%
Other and unknown	212	0.20%	$1,193	1.40%
Total	**90,442**	**100.00%**	**$87,457**	**100.00%**

Source: RTC of Southern Nevada.

These observations are reinforced by current and projected RTC forecasts of serious congestion along I-15 for north-south traffic flow. The projected forecasts of even higher usage of the existing north-south interstate and volume capacity constraints are very concerning.

For example, the RMP needs to analyze potential location impacts on the APEX area and land availability in the southern portion of Clark County along I-15 compared to the regions that compete with Southern Nevada.

- Based on an inventory of available land suitable for current commercial development, Southern Nevada is, in our opinion, constrained. The analysis includes the number of developable 70+ acre parcels within Clark County.

Of these lands, just 9,177 acres are located in 13 "top employment opportunity areas ["EOAs"]" identified (see Table ES-3) in the LVGEA Employments Lands Report[1], and this figure includes a much higher figure for APEX than the 2,300 acres of APEX Holdings. A lower short-term available land acreage estimate for the 13 EOAs is in the range of 4,700 acres. For comparison, the Tahoe Reno Industrial Center ("TRIC") in the Reno-Sparks area, home of the Tesla Gigafactory, contains 30,000 acres of developable commercial land all on its own.

Table ES-3: 13 Top EOAs in Clark County (2015)

#	Area Name	Ownership Type	Acreage
1	Golden Triangle Industrial Park	Private	76
2	Northgate Distribution Center	Private	125
3	Eastgate & Auto Show Dr.	Private	113
4	Anne & Sloan	Private	111
5	Mendenhall Legacy Ltd Partnership	Private	149
6	Speedway / Northeast Industrial Area	Private	900+
7	Emrani parcels	Private	71
8	South LTA Site	Public	359
9	UNLV Tech Park	Public	110
10	St. Rose & Executive Airport	Private	103
11	Wirrulla Hayward	Private	109
12	PJ & CB LLC	Private	136
13	APEX / Mountain View Industrial Park	Private	6,814
Total			**9,177**

Source: LVGEA.

There are few large assemblages (1,000 acres or more) available in Southern Nevada. In fact, in the Las Vegas Valley, including all parcels in the region, there is just one – two, if APEX, which is just outside the Valley, is included. These two sites make up about 8,100 acres of developable commercial land.

Factoring in the required space of developing and growing the regional economy with the Nevada Governor's Office of Economic Development ("GOED") recommended new-targeted industries further exacerbates the land scarcity issue. Growing acreage limitations puts a constraint on the size of new industries that Southern Nevada could successfully attract and accommodate. This critical issue requires further analysis in the final RMP.

[1] For the full report, visit https://www.lvgea.org/wp-content/uploads/2016/03/2016-1-13-Employment-Lands-Report-F-Rev.compressed.pdf.

- Based on an analysis of employment forecasts for Southern Nevada, and estimating the land requirements associated with these employment forecasts, we have determined that Southern Nevada may very well find itself at a severe competitive disadvantage in the future; this needs further recognition and discussion.

The total "Expected Growth" below suggests that Southern Nevada would need at least 12,700 acres of employment land space to meet forecasted employment growth in 2034 (see Table ES-4). This also assumes that the required land is in appropriate locations (such as, for example, north-south along I-15).

Table ES-4: New Demanded Total Acreage Forecast (2014-2034)

Target Industry	Slower Growth	Expected Growth
1. Healthcare	1,749	2,186
2. IT	829	1,036
3. Finance	753	942
4. Industrial & Manufacturing	269	336
5. Logistics & Operations	601	751
6. Clean Energy	96	120
7. Defense & Unmanned Aerial Systems	65	81
Target Industries Total	**4,361**	**5,451**
All Industries Total (Acres)	**10,193**	**12,741**

Source: GOED.

The major assumption inherent in these forecasts is that growth inputs and underlying conditions will be available. However, that is not necessarily a given. As noted herein and its various sources, the number of large parcels available for development for Southern Nevada's targeted industries may not be able to absorb the projected growth. For example, the total acreage of the 13 top employment opportunity areas in the Las Vegas Valley discussed in this report adds up to only approximately 4,700 acres available for development within in the next three to five years, with only three of these areas having acreage that exceeds 150 acres. Even the higher figure for these 13 top employment areas of 9,177 acres available makes a strong assumption that APEX is always the appropriate location, and includes a much higher acreage figure for APEX than the 2,300 acres owned by APEX Holdings.

- Based on the issues discussed in this report, the impacts of a regional cost disadvantages for future economic development in Southern Nevada have been estimated.

What is often not recognized is that any cost disadvantage relates, not only to the more obvious direct effect of the disadvantage, but also to indirect impacts on suppliers, households and new business

formation. Thus, the total impacts are not a simple measurement, but the cumulative effects of a series of economic interactions between the business sector, consumers and households.

For example, most forecasts of economic growth for Southern Nevada assume that "normal" underlying conditions will prevail in terms of attracting new industries, expanding existing industries, and success with development of Nevada's targeted industries. If underlying conditions necessary for economic growth and development change in a negative way, then the assumed pattern of future growth will also be negatively affected.

The economic vitality of Southern Nevada is the major mechanism to improve the lives of families, households and workers though enhanced employment opportunities and potentially higher wages and incomes. As shown below, a competitive cost disadvantage for Southern Nevada can severely interfere with these goals.

As documented in our past work and discussed herein, Southern Nevada faces stiff competition from other areas of the country for location of business and associated gains in employment. Land use constraints can negatively affect and increase not only the direct cost of land (and its availability) but also result in a higher cost of regional goods movements that increase the total cost structure of Southern Nevada.

Given our research on the competitive positon of land and other constraints in Southern Nevada, estimates in our opinion suggest a potential regional competitive cost disadvantage of three percent to five percent for Southern Nevada forecasts over the next twenty years.

These disadvantages refer to increased input and other related costs compared to the base-case, which is what the costs would otherwise be. The base-cases for the three indicators [population, employment and gross regional product ("GRP")] are the CBER estimates shown above, created using the basic REMI model that TRI utilized. In essence, it relates to the cost of doing business in Southern Nevada. For example, if the regional disadvantages would increase 3 percent, it would be 3 percent more expensive to operate in the region. The base-cases on population, employment and gross regional product assume no constraints on land availability.

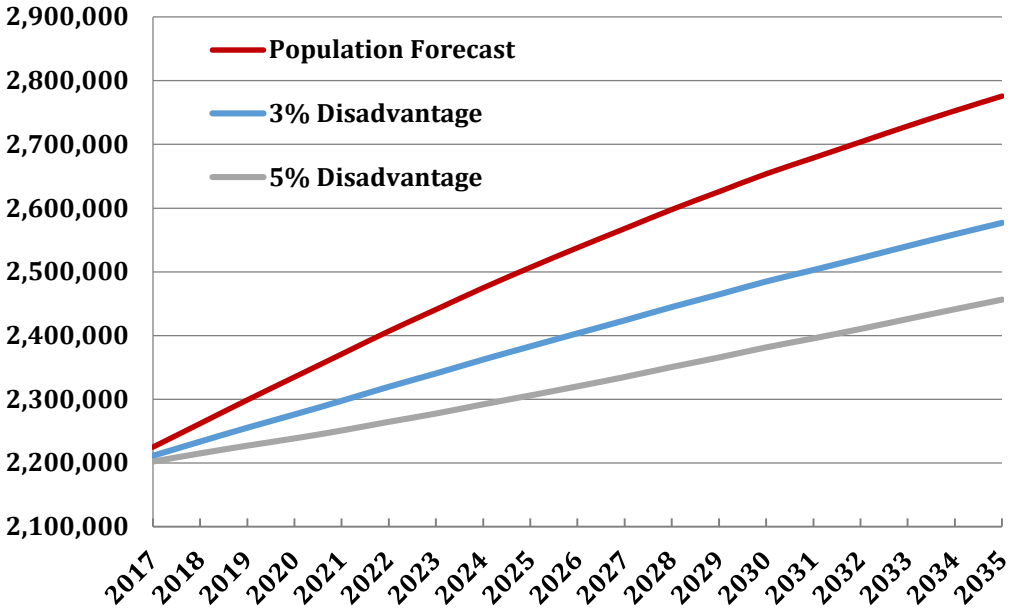
At first glance, a competitive cost disadvantage of three percent to five percent appears to be small rather than dramatic. However, the impacts of these regional cost disadvantages are actually quite significant.

This is due to the critical interactions within economic forecasting models for Southern Nevada between the consumer sector, business sector and suppliers. Using the results from the REMI model, Figures ES-4 to ES-6 below present the forecast results regarding population, employment and GRP growth under the base-case and the disadvantaged cases.

- For the three percent cost disadvantage, compared to the base-cases, forecasted population could be reduced by as much as 7.2 percent in 2035, employment by 8.2 percent and GRP by 9.0 percent.

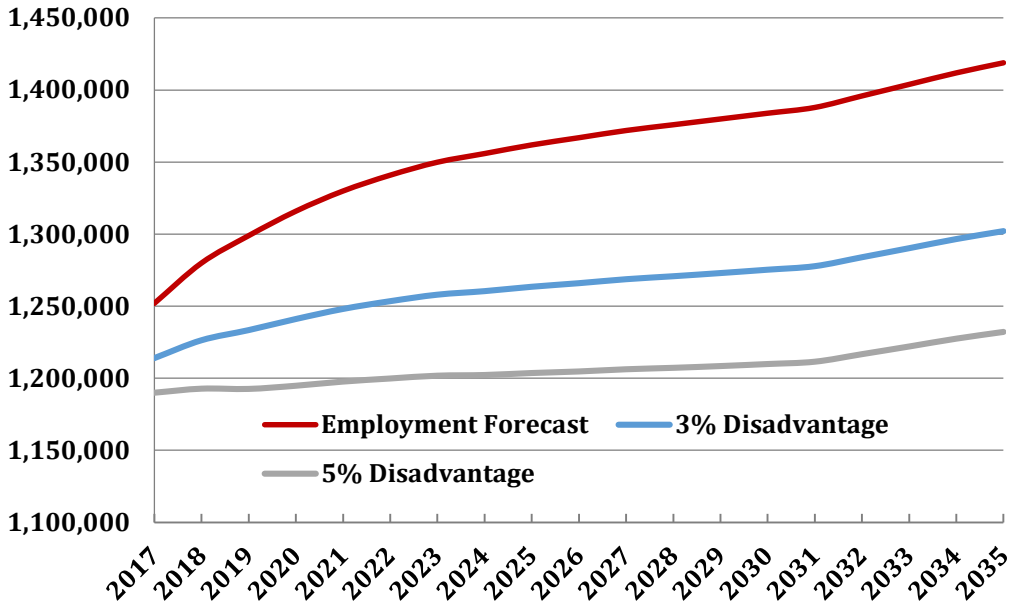
- For the five percent cost disadvantage, forecasted population could be severely affected by declining 11.5 percent in 2035, forecasted employment by 13.2 percent and GRP by 14.3 percent.

Figure ES-4: Effects of a Cost Disadvantage on Southern Nevada Population (2017-2035)



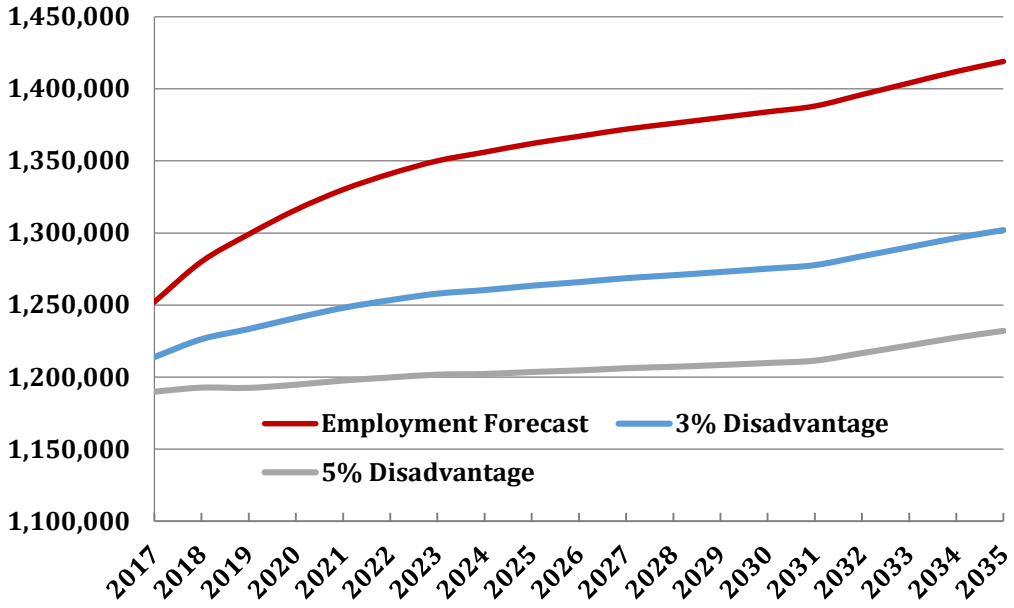
Source: UNLV-CBER, Theodore Roosevelt Institute.

Figure ES-5: Effects of Cost Disadvantage on Southern Nevada Employment (2017-2035)



Source: UNLV-CBER, Theodore Roosevelt Institute.

Figure ES-6: Effects of Cost Disadvantage on Southern Nevada GRP (2017-2035)



Source: UNLV-CBER, Theodore Roosevelt Institute.

Forecasts (and simulations) of the economy are, of course, illustrative in nature rather than based on precise numbers. However, they can reveal the unintended consequences of changes to the regional economy. Any proposed RMP requires in our opinion careful and detailed assessment of potential limitations on future employment opportunities for Southern Nevada households and potential negative

impacts on the future growth of the Southern Nevada economy. Potential land constraints could create cost disadvantages that could decrease the quality of life in the region by contributing to higher costs and prices and eliminating new and potentially higher paying jobs.

Policymakers should consider these consequences in formulating future plans. These simulations lead to a strong recommendation that the proposed RMP consider the economic growth and development of Southern Nevada in the planning process. This will require additional input and consultation with the community regarding Southern Nevada's future economic development and economic sustainability.

I. INTRODUCTION

In this report, the TRI considers how the RMP proposed by the BLM could affect future economic growth in Southern Nevada. Our report borrows heavily from previous work on the Southern Nevada economy and its developable land assets. The sources most heavily referenced herein were prepared by RCG Economics ("RCG"), UNLV's Center for Business and Economic Research ("CBER"), the Governor's Office of Economic Development ("GOED"), the Regional Transportation Commission of Southern Nevada ("RTC"), the Las Vegas Global Economic Alliance ("LVGEA") and the UNLV Lied Institute of Real Estate Studies ("Lied").

The impacts of land use on regional economic growth and development represent a complex set of factors that are actually interrelated and jointly can have important interaction effects. Thus, this report addresses a set of individual factors that, jointly, can result in a significant competitive cost disadvantage to Southern Nevada.

Model simulations of small regional cost disadvantages (such as three percent and five percent) result in significant negative impacts on forecasted (or assumed) growth in the population, employment and economic output of Southern Nevada.

For example, the findings in this report are land policies that impede either access or expansion of lands for employment opportunities and supporting activities (or both) could reduce economic output (gross regional product) in Southern Nevada by as much as 14 percent by 2035.

The fundamental recommendation of this report is that the final RMP needs to analyze suggested changes in land use for impacts on Southern Nevada's economic growth and development. This analysis will require additional input on both current constraints on economic development as well as potential future constraints from the Southern Nevada community working in economic development.

Such additional analysis is critical given the impetus to develop the State of Nevada's targeted industries in Southern Nevada. For example, the development of interrelated firms in business clusters is often associated with larger parcels.

This report summarizes a set of factors related to land use and economic development within six sections of the report (Section II through Section VII). Each of these sections will be summarized in turn.

An overview of both the current state of the Southern Nevada economy and forecasts until 2035 are presented in Section II. As shown, significant growth (above the national average) is expected for the Southern Nevada economy through 2035. These forecasts assume that required underlying conditions to support such growth, such as an adequate amount of developable land, are present.

A presentation of conditions in the current commercial market is discussed in Section III. This includes an analysis of both current regional supply, as well as the Southern Nevada commercial market. As noted, compared to other regional markets that often compete with Southern Nevada, our current supply of industrial space and land is limited.

A set of issues that affect both the future economic development of Southern Nevada and land use patterns are discussed in Section IV. These issues include regional goods movements, Nevada's targeted industries and other factors.

Land inventory considerations relevant to any proposed RMP are presented in Section V. It is very significant that the available inventory in Southern Nevada of parcels 70 acres or more is limited. This potential constraint needs to be explicitly recognized in the final RMP. A visual overview of the current draft RMP is presented with detail on several areas within Clark County. Particular attention is given to the BLM preferred alternative (Alternative 3).

Section VI estimates the amount of land needed to accommodate forecasted employees, by target industry and growth scenario, for Southern Nevada. As noted in this report and its various sources, the number of large parcels available for development for the region's targeted industries may not be able to absorb the projected growth. If new land policies limit growth potential – whether by reducing available land or impeding infrastructure development – Southern Nevada may find itself at a severe competitive disadvantage.

Potential negative impacts on regional growth and income in Southern Nevada are analyzed in Section VII. The two scenarios presented do not involve severe cost differential percentages. However, the cumulative impacts of small cost disadvantages result in major negative regional impacts on population and employment.

II. SOUTHERN NEVADA CURRENT EMPLOYMENT & ECONOMIC TRENDS

Before proceeding with the analysis herein, it is necessary to outline recent trends in the Southern Nevada economy. These include population, employment and other indicators, such as taxable sales and tourism.

Also included are CBER forecasts for population, employment and gross regional product ("GRP") for Southern Nevada[2]. They predict rates of growth for the region over a forecast period extending out to 2050. However, concerning the forecast, we focus on the data from 2017 to 2035.

These data are reviewed to help describe the state of the Clark County economy at the end of 2015 and to understand what can be expected in the future. This will allow us to explore the future employment land[3] needs necessary to accommodate the coming growth.

The data show that the Southern Nevada economy has largely recovered from the Great Recession and is once again starting to expand. The region's economy is expected grow faster than the national average through the forecast period. However, this will require that Clark County have the required amount of developable commercial lands to accommodate the growth of the economy.

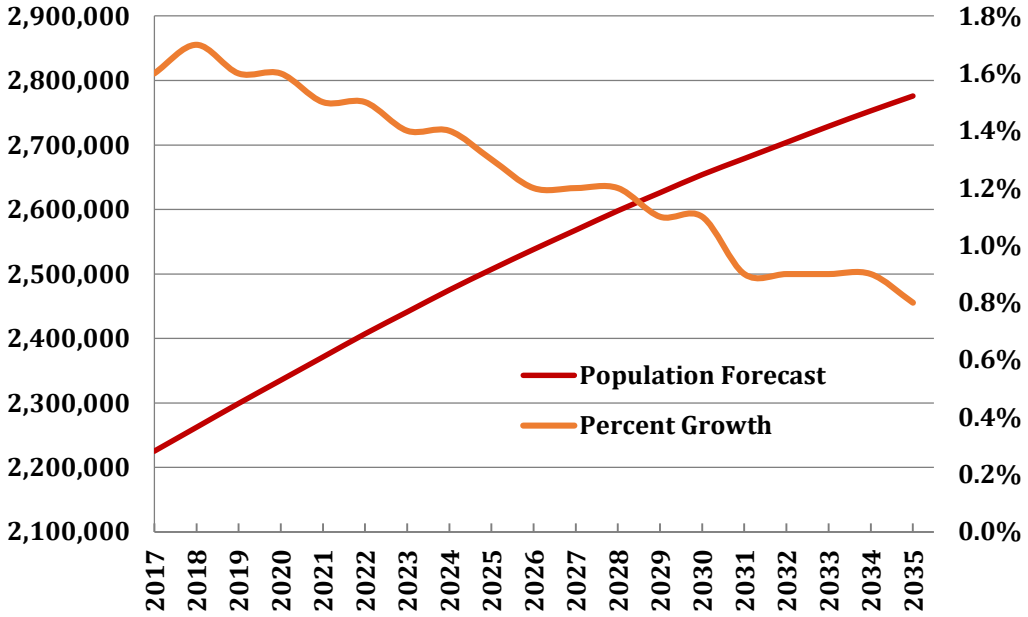
A. Current & Future Population Trends

Population growth in Southern Nevada has been steady since 2012. According to the Clark County Department of Comprehensive Planning, the county's population grew by 2.2 percent in 2015, and at an average of 2.2 percent since 2012. This was down from an average of 5.5 percent between 1981 and 2007. CBER expects that annual population growth will range from 0.8 to 1.8 through 2035. The period of highest growth is forecasted to be 2016 with 2.1 percent growth.

In the short-term, the CBER population forecast predicts moderate growth in Southern Nevada, with that growth eventually slowing down over the years near the end of the forecasted period (Figure II-1).

[2] Population Forecasts: Long-Term Projections for Clark County, Nevada 2015-2050: 2015
http://cber.unlv.edu/publications.html
[3] Employment lands refer to lands made available to industrial and office buildings.

Figure II-1: CBER Population Forecast & Growth Rate (2017-2035)



Source: UNLV-CBER.

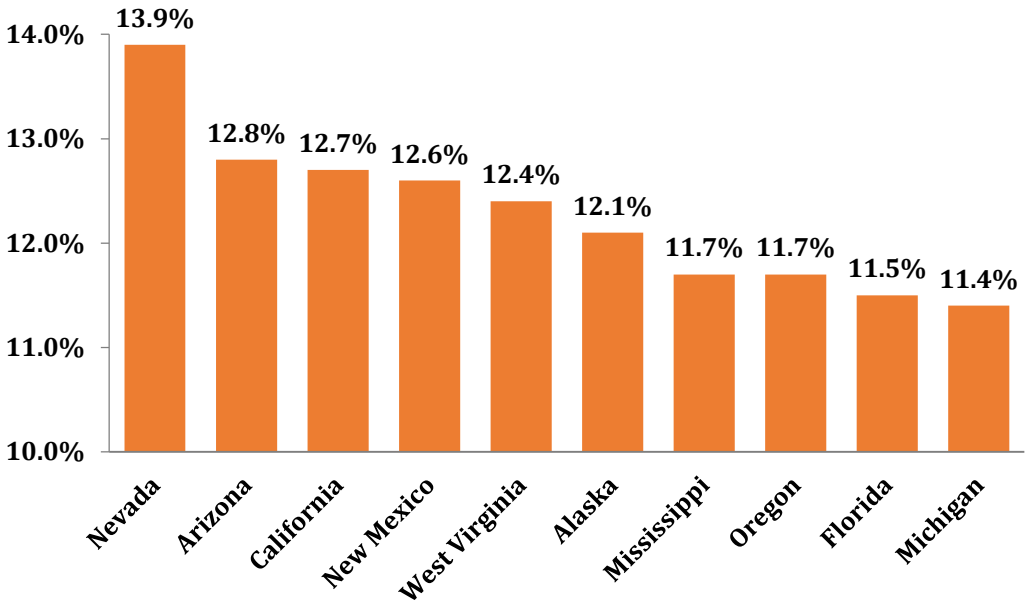
By 2030, annual population growth rate is projected to fall to 1.1 percent, reaching 0.8 percent in 2035, slightly above the projected long-term national population growth rate of 0.5 percent. However, CBER 2015 Southern Nevada Economic Outlook[4] estimates that population growth will not be the main driver of Southern Nevada's economic growth as it was over the last 30 years.

B. Current Employment Trends

Nevada's quarterly "headline" unemployment rate of 6.9 percent in Q4, 2015 was the highest in the U.S., tied with West Virginia and the District of Columbia. The U-6 rate, which includes forced part-time and discouraged workers, averaged 13.9 percent in Nevada for 2015. This means that in 2015, Nevada had the highest U-6 rate in the country; 1.1 points higher than next-worst state, Arizona (see Figure II-2). Nevada's U-6 rate was 0.1 points higher than even the 13.8 percent posted in Los Angeles. This statistic is only collected at the statewide level (exceptions being Los Angeles and New York City).

[4] For more, see http://cber.unlv.edu/publications/EconomicOutlook-2015.pdf.

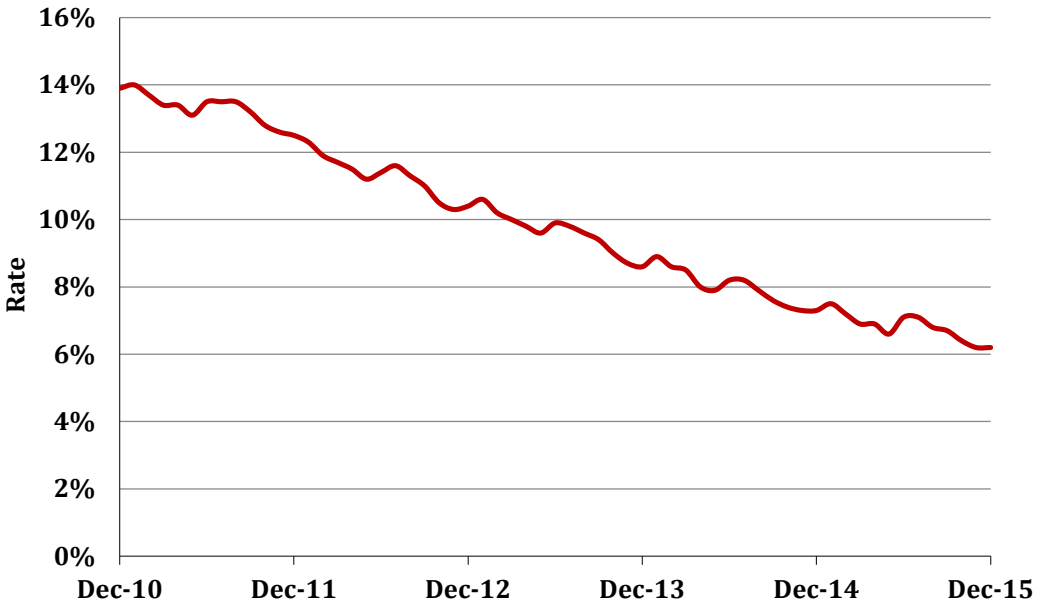
Figure II-2: Ten Worst States for U-6 Unemployment Rate (2015)



Source: U.S. Bureau of Labor Statistics.

The non-seasonally adjusted headline unemployment rate in Southern Nevada decreased to 6.2 percent in December 2015, 1.1 percentage-points below December 2014's unemployment rate of 7.3 percent (Figure II-3).

Figure II-3: Clark County "Headline" Unemployment Rate (12/2010-12/2015)



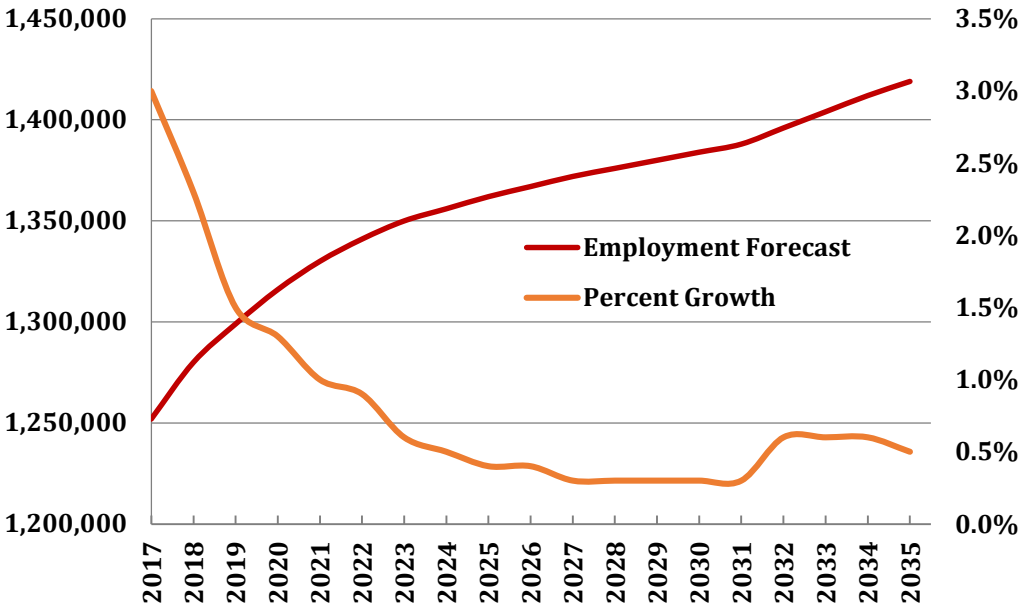
Source: Nevada Department of Employment, Training and Rehabilitation ("DETR").

From December 2014 to December 2015, the Clark County economy added 21,900 jobs with total establishment-based employment[5] growing from 906,100 to 928,000 over the period.

Eight of the 11 major private industry groups experienced positive employment growth in December 2015, compared to December 2014. The highest growth was in Education & Health Services (+6,900 jobs), Construction (+5,600 jobs), Trade, Transportation and Utilities (+5,000 jobs) and Professional & Business Services (+4,300 jobs). Government jobs increased as well (+2,200 jobs). Smaller growth occurred in Manufacturing (+400 jobs), Other Services (+200 jobs) and Information (+100). Employment did not change in the Financial Activities sector. Jobs were lost in the Natural Resources (-100 jobs) and Leisure & Hospitality (-2,700 jobs) sectors.

These numbers generally point to an upward growth trend across a broad set of sectors. The CBER employment forecast predicts continued economic growth for Southern Nevada well through 2035. The Las Vegas MSA economy should add an additional 36,000 jobs in 2016, representing a 3.1 percent increase in employment over 2015 (see Figure II-4). CBER expects employment growth to peak at 3.1 percent in 2016 and then eventually stabilize at about 0.5 percent by 2035.

Figure II-4: CBER Employment & Growth Rate Forecast (2017-2035)

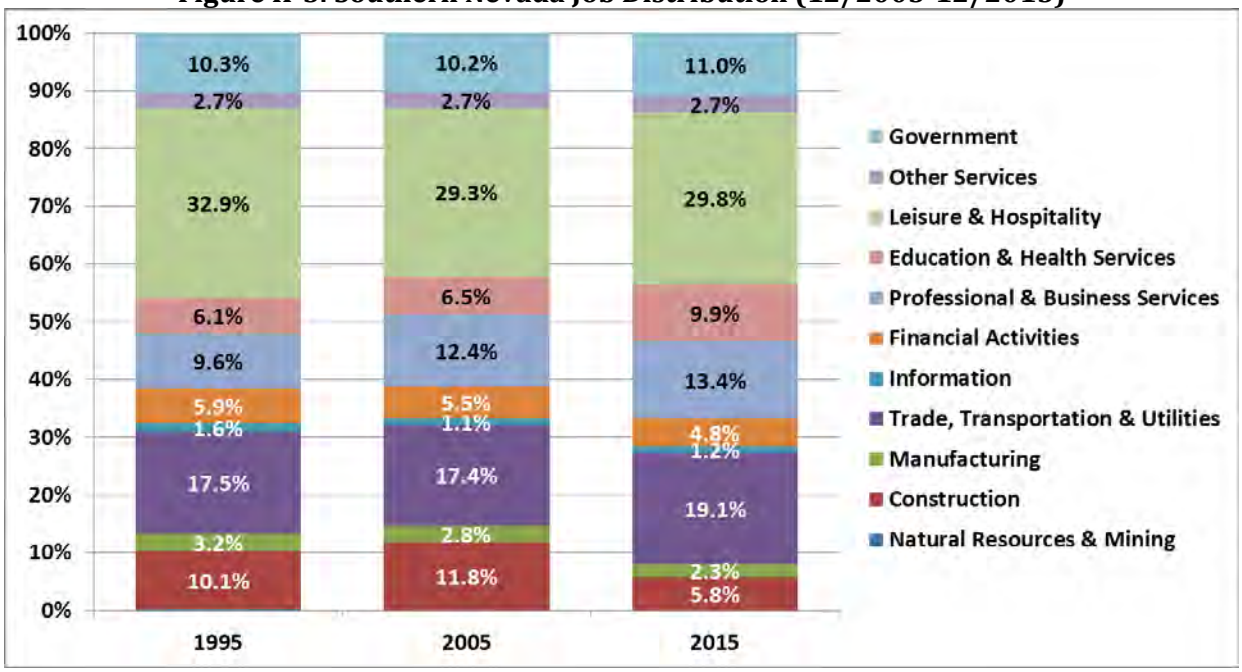


Source: UNLV-CBER.

[5] The Bureau of Labor Statistics defined establishment-based employment as nonfarm payroll jobs.

GOED has made increasing job diversity a priority. Figures II-5 and II-6 below show changes in job diversity in Southern Nevada. Southern Nevada has experienced some improvement over the last 10 years. Most of the improvement is due to job growth in two sectors: Education & Health Services and Trade, Transportation & Utilities. Due to Southern Nevada's popularity as a retirement destination, as well as the aging of the population, healthcare jobs have ballooned since the Great Recession. In fact, this sector was the only one that did not experience any job losses during the recession. Trade, Transportation & Utilities has also grown significantly, thanks in part to the growing trend of e-commerce, in addition to Las Vegas' proximity to Southern California.

Figure II-5: Southern Nevada Job Distribution (12/2005-12/2015)



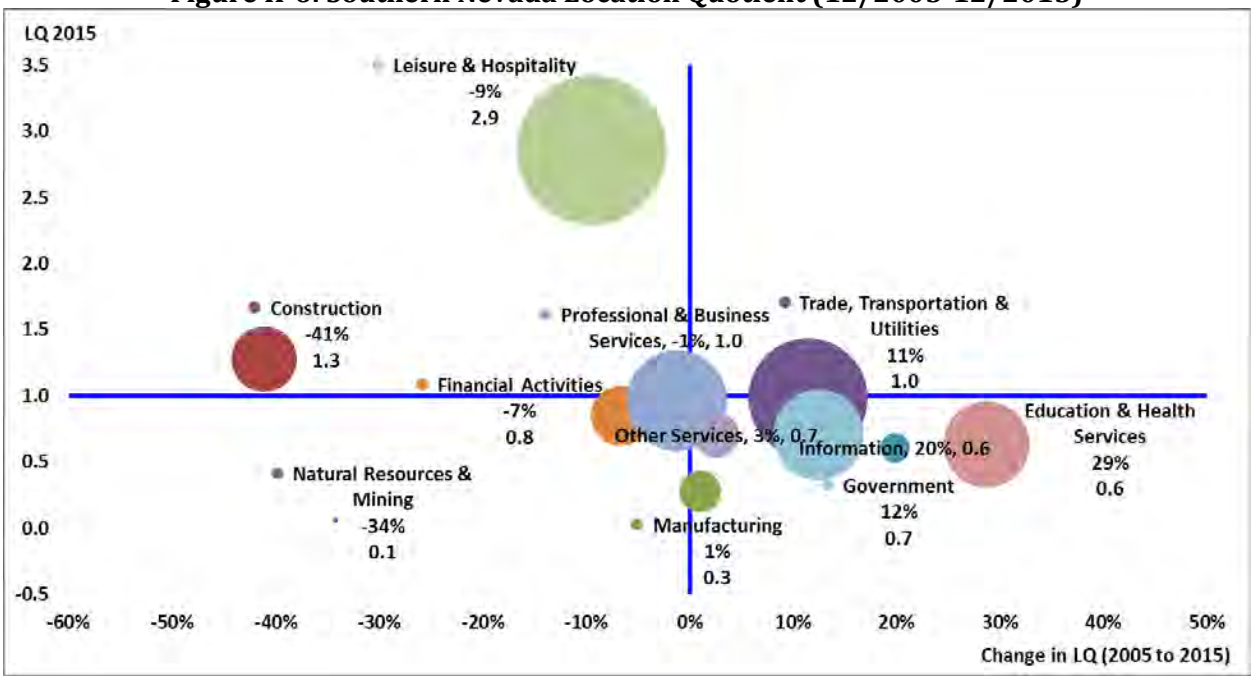
Source: DETR.

The location quotient, on the vertical axis, compares the relative size of the employment sectors in Southern Nevada to the relative size of the employment sectors for the nation. For example, the fraction that Leisure & Hospitality sector jobs make up in Southern Nevada is 2.9 times larger than that fraction on the national scale. Having very high, or very low, location quotients is a sign of a lack of diversity.

Ideally, location quotients should be close to 1.0, with exceptions for sectors with competitive advantages – such as, Leisure & Hospitality in Southern Nevada. The size of the bubbles in Figure II-6 signifies the number of jobs in that industry. On the horizontal axis is the percent change in location quotient. Using Education & Health Services as an example, one sees that the location quotient is just 0.6. This means that this sector, which includes private schools, but overwhelmingly consists of healthcare jobs, makes up

just 60 percent of the fraction of the economy that it does on the national level. However, in the last 10 years, Education & Health Services has increased its share of the economy by 29 percent. This is good news, because the closer it gets to 1.0, the better for economic diversity in Southern Nevada.

Figure II-6: Southern Nevada Location Quotient (12/2005-12/2015)



Sources: U.S. Bureau of Labor Statistics, DETR.

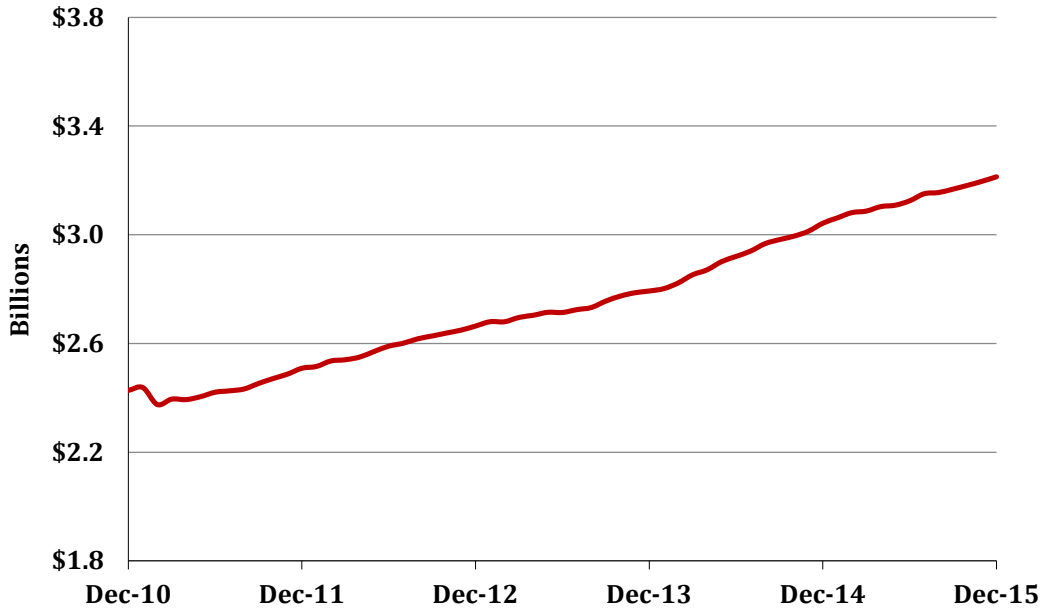
C. Other Economic Indicators

Statewide taxable retail sales for December 2015 ($5.12 billion) represented a 5.3 percent increase from December 2014, as reported by the Nevada Department of Taxation, and marked the first time that monthly taxable sales had ever broken $5 billion.

Total sales were up in 10 of Nevada's 17 counties compared to end-of-year 2014, showing strong growth in Nevada's most populous counties, Clark County (5.5 percent) and Washoe County (9.0 percent).

As stated, Clark County posted a 5.5 percent rise in taxable sales on a year-over-year basis (see Figure II-7). Taxable sales in Clark County increased by $198.4 million in that period and accounted for 74.2 percent of the state's total taxable sales in December 2015.

Figure II-7: Clark County 12MMA* Taxable Retail Sales (12/2010-12/2015)

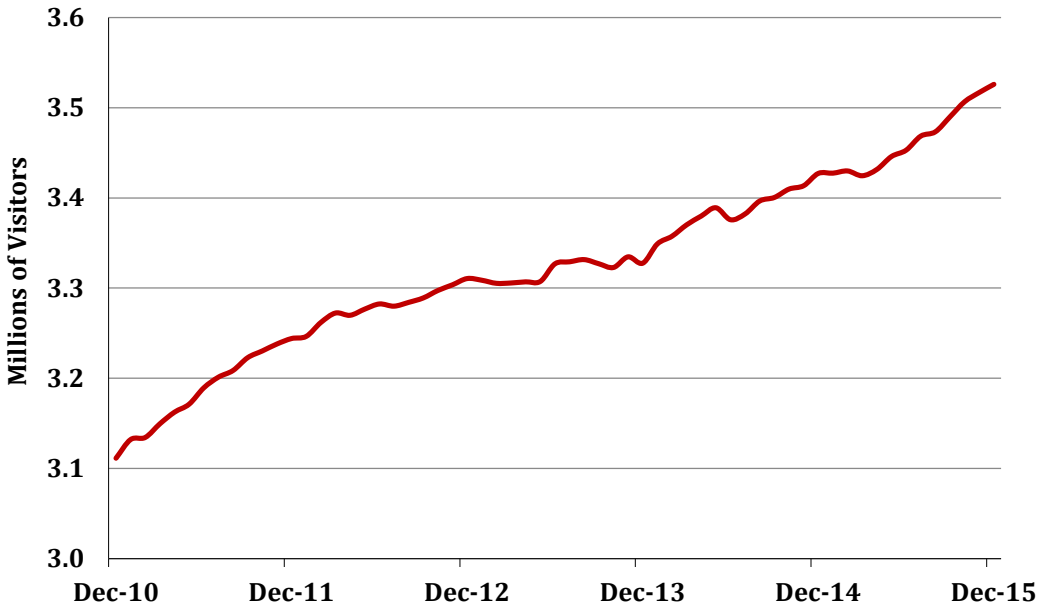


*Note: Figure shows 12-month moving average ("12MMA").
Source: Nevada Department of Taxation.

Taxable retail sales are also showing strong growth across sectors. There was strong taxable sales growth in Clark County for Agriculture & Forestry (+97.1 percent), Utilities (+45.0 percent) and Transportation & Warehousing (+41.8 percent). Taxable sales saw less growth in Professional Business & Services (+28.8 percent), Health Care & Social Assistance (+19.9 percent), Manufacturing (+17.9 percent), Financial Services (+12.1 percent), Other Services (+12.0 percent), Construction (+11.7 percent), Retail (+4.5 percent), Leisure & Hospitality (+4.1 percent), Wholesale (+2.1 percent) and Natural Resources (+0.2 percent). Taxable sales dropped in Educational Services (-2.1 percent), Government (-14.8 percent) and Information (-20.3 percent). This shows strong growth, again, across sectors, especially among the private sectors.

The Las Vegas Convention and Visitors Authority ("LVCVA") reported that visitor volume increased in December 2015 by 3.5 percent compared to December 2014 (see Figure II-8). Visitor volume totaled 41.1 million in 2014 and increased to 42.3 million in 2015, a rise of 2.9 percent. Visitation to Southern Nevada continues to increase at a robust clip.

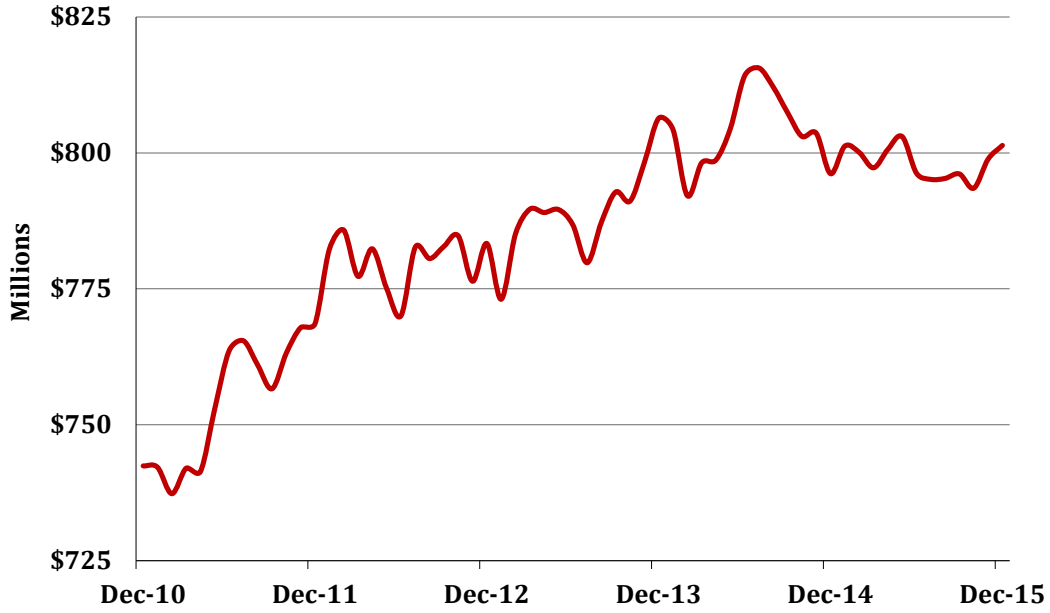
Figure II-8: Las Vegas Valley 12MMA* Visitor Volume (12/2010-12/2015)



*Note: Figure shows 12-month moving average ("12MMA").
Source: Las Vegas Convention and Visitors Authority.

Gaming revenue in Clark County for December 2015 totaled $864.3 million, an increase of 3.7 percent compared to December 2014 (see Figure II-9). December's 12-month average for gaming revenue in Clark County shows gaming revenue up 0.7 percent for 2015, significantly slower growth. Recovery in gaming revenue has persistently lagged behind visitor volume. This likely reflects a long-term, and possibly, permanent shift in preferences away from gaming and toward other types of entertainment.

Figure II-9: Clark County 12MMA* Gaming Revenue (12/2010-12/2015)

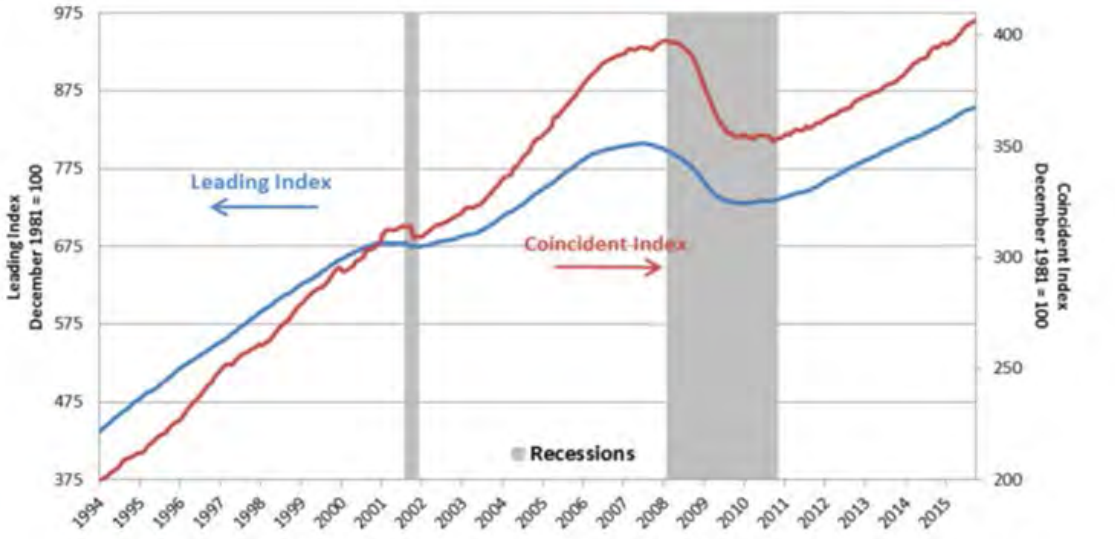


*Note: Figure shows 12-month moving average ("12MMA").
Source: Nevada Gaming Control Board.

CBER's Southern Nevada Coincident Index – representing the current state of the Southern Nevada economy – increased by 2.9 percent on a year-over-year basis in December 2015 (see Figure II-10). This indicates that the economy continues to improve at a rate moderately higher than population growth.

The Leading Index – which looks four to six months in advance – increased by 3.1 percent in December 2015 over December 2014. This suggests that the economy will continue to improve through 2016.

Figure II-10: CBER Southern Nevada Coincident & Leading Indices (1994-2015)

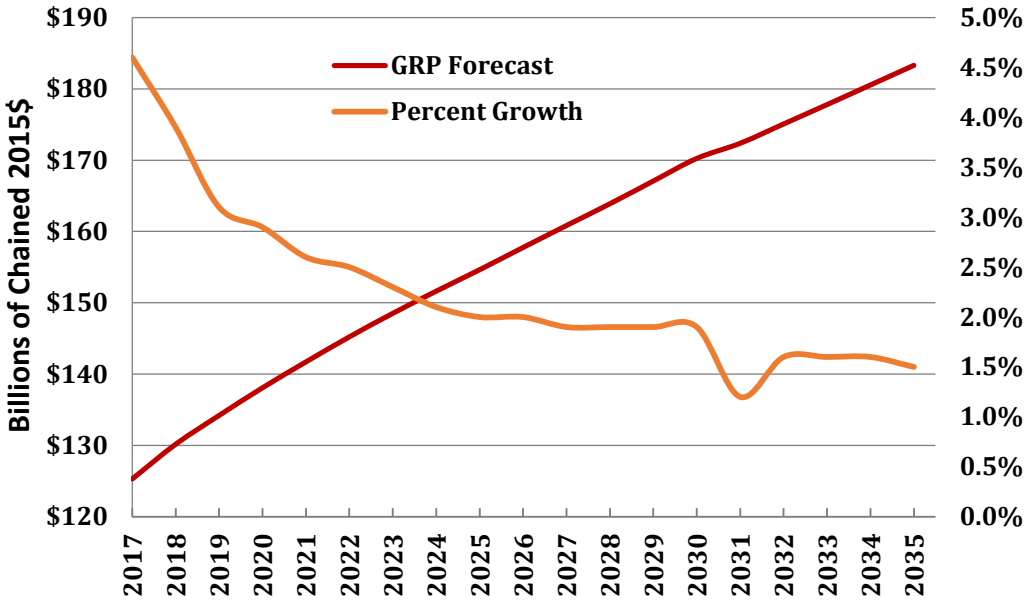


Source: UNLV-CBER.

A more direct measurement of the regional economy is its gross regional product ("GRP"). It is the dollar value of all final goods and services for sale in a regional economy. It reflects the output of a local economy, while avoiding double-counting initial and intermediate goods up the supply chain.

Forecasted growth in the Clark County GRP, shown in Figure II-11, moves with regional employment growth. Growth in GRP is forecasted to be 4.6 percent in 2016 and 2017. GRP growth should settle in around 1.5 percent per year in 2035 as Southern Nevada's population growth slows.

Figure II-11: CBER Gross Regional Product Forecast & Growth Rate (2017-2035)



Source: UNLV-CBER.

III. CURRENT COMMERCIAL MARKET OVERVIEW

The improving economic conditions experienced between 2013 and 2015 injected confidence and helped stabilize the Valley's commercial markets. Now, the economy in 2016 is illustrating that the speculative developments in the pipeline as of Q4, 2015 are justified. New developments are overwhelmingly coming in the industrial sector, which tends to require more space than office.

Jobs in industrial space-using industries, representing 17 percent of all private jobs in Clark County at the end of Q4, 2015, increased 7.3 percent to 137,200 jobs in December 2015, compared to December 2014. Industrial sector job growth has grown at least two percent year-over-year since August 2012, facilitating improvement in the unemployment rate. The Construction sector (+5,600 jobs) and the Transportation and Warehousing sector (+3,100 jobs) have shown the greatest gains since December 2014.

The Valley's total industrial vacancy rate[6] increased to 4.7 percent in Q4, up from 4.4 percent in Q3, 2015 and down from 6.5 percent in Q4, 2014. The industrial market is now well below the generally accepted 10 percent stabilized vacancy rate. Vacancy levels have notably improved since Q3, 2012, when the rate peaked at 13.8 percent. The return of the Valley's industrial market has been quite dramatic, to the point that supply shortages are common for certain types of space, especially large units – those over 100,000 square feet ("sf"). In response, there are a number of new projects in the works.

The growth of e-commerce along with multi-channel (Internet, mobile, bricks-and-mortar) selling by traditional and non-traditional retailers is becoming the long-term driver of the demand for industrial space in Southern Nevada, just as it has in other parts of the U.S. Additionally, Southern Nevada's location, adjacent to Southern California, will make it an important regional warehouse-distribution-fulfillment enclave.

The possible approval of legalized recreational marijuana, via ballot initiative in the November 2016 election, will have a potentially significant impact on the demand for warehousing and product manufacturing space in the region. There is also a growing hope that Southern Nevada can be a player in advanced manufacturing, especially in the renewable energy, robotics and water management industries. The addition of Faraday Future to the region's employment landscape makes these hopes feasible.

[6] Direct vacant space and sublease vacant space divided by total inventory.

A. Regional Supply

The Las Vegas MSA industrial market is in a unique position. It is one of the smallest industrial markets of nine selected Western U.S. "Market Areas" ("MA", see Table III-1), especially on a per capita basis. Las Vegas' vacancy rate of 4.7 percent at the end of Q4, 2015 places it below the average of all nine market areas (5.8 percent).

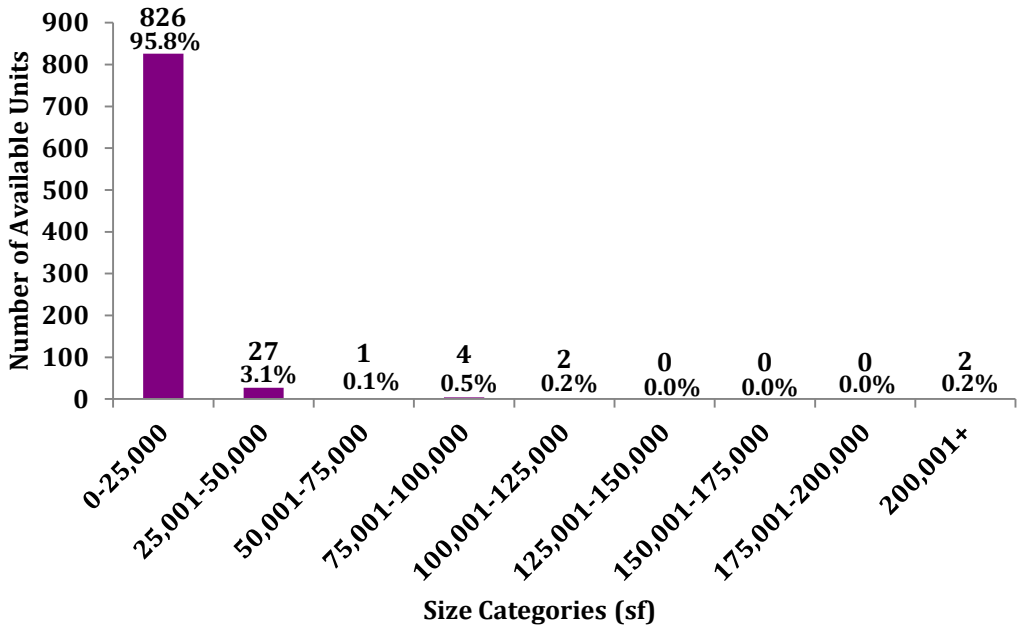
Table III-1: MA Industrial Inventory (Q4, 2015), Population (2015) & SF/Capita (2015)

Market Area	Total Inventory (SF)	Population	SF/Capita
Reno-Sparks	77,748,447	450,890	172
Salt Lake City	135,346,082	1,170,266	116
Inland Empire	462,307,200	4,489,159	103
Los Angeles	894,023,400	10,170,292	88
Sacramento	179,617,064	2,274,194	79
Denver	220,331,210	2,812,732	78
Phoenix	287,773,232	4,574,531	63
Orange County	191,241,073	3,169,776	57
Las Vegas	**111,135,731**	**2,114,801**	**53**

Sources: Colliers, Newmark Grubb Acres ("NGA"), RCG/UNLV-Lied, U.S. Census.

In addition to the lack of inventory and available space, another problem in Southern Nevada concerns the quality of the available space. The current demand in the industrial market is for Warehouse/Distribution units larger than 100,000 sf (see Figure III-1). The majority of available space in Las Vegas is in small to mid-size units. Projects under construction are trying meet demand, but cannot keep up.

Figure III-1: Distribution of Available Industrial Units, by Size (Q4, 2015)



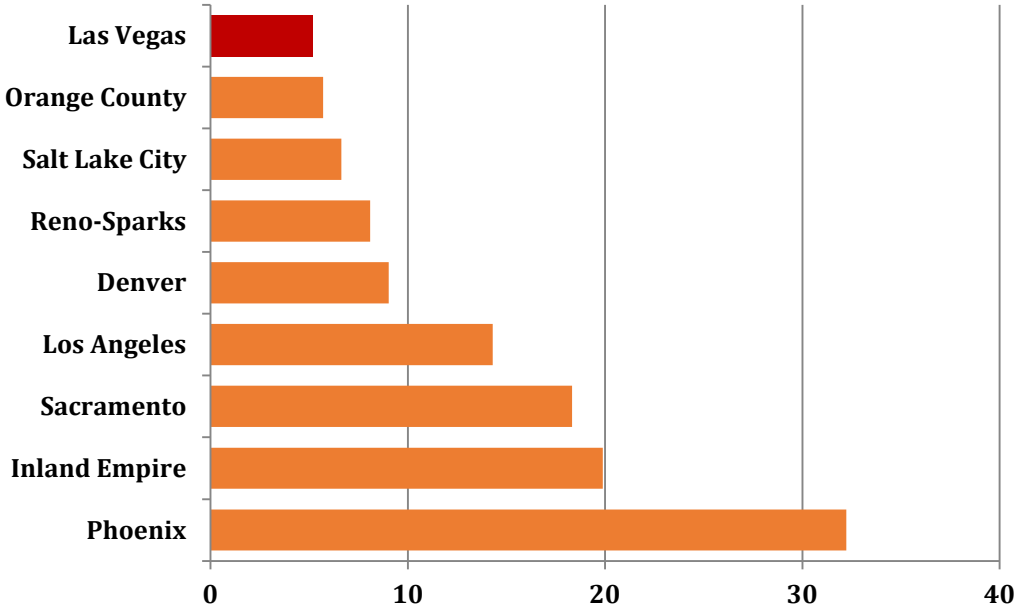
Source: RCG/UNLV-Lied.

As of Q4, 2015, there were only four available units larger than 100,000 sf, while there were over 800 available units between 0 and 25,000 sf. Though there might be strong market demand for these large-sized buildings, getting new supply to market is difficult. The perceived lender risk associated with financing and constructing large, speculative industrial buildings appears to be a barrier. This is why many of the buildings in development over 100,000 sf are build-to-suit projects.

Demand for large industrial spaces is not limited to Las Vegas. A review of various industrial market reports for the other eight MAs indicates that industrial market demand is trending toward large buildings in these areas, as well. It appears that new trends in retail, such as e-commerce, and other developments in logistics and technology are enabling businesses to consolidate operations into fewer large buildings.

However, while Las Vegas is suffering an industrial space shortage, other regions maintain greater vacancy levels (see Figure III-2). In Q4, 2015, Las Vegas had 5.2 million sf of vacant industrial space. This was the absolute lowest of the selected MAs.

Figure III-2: Selected Metros Industrial Market Vacant Inventory (Million SF) (Q4, 2015)



Sources: RCG/UNLV-Lied, Colliers, NGA.

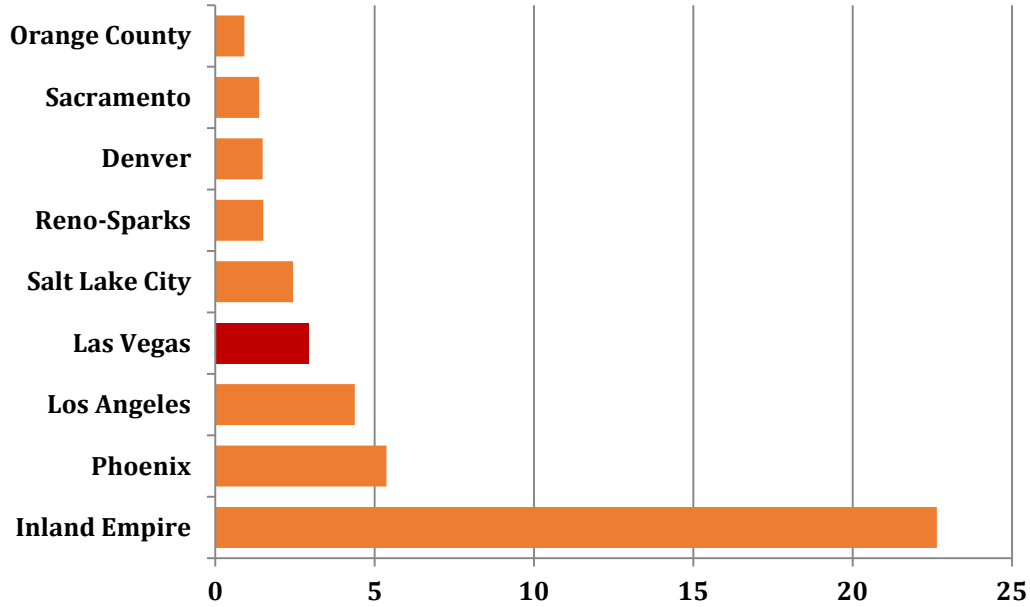
Compounding the industrial space scarcity problem, Las Vegas has some geographic setbacks, as well. The economic center of the western half of the American Southwest is inarguably Southern California. However, some other regional areas, like Orange County and Inland Empire, enjoy much closer proximity to Los Angeles. As long as Las Vegas is relatively geographically isolated from larger distribution channels, "big box" demand within the area will lag behind the other more accessible MAs. Economic development and transportation authorities in Southern Nevada should focus their efforts to improving the connections to Southern California.

That said, while Southern Nevada's geography is a hindrance to a certain extent, it is better placed compared to a region like the Phoenix MA. The Las Vegas MA is significantly closer to Los Angeles than Phoenix (~270 miles compared to ~420 miles). Furthermore, Las Vegas is connected to the Los Angeles area via Interstate 15, which also connects to San Diego and Salt Lake City, whereas Phoenix connects to Los Angeles MA via Interstate 10, with that freeway's nearest major eastern connection being the relatively small market of El Paso, another 430 miles away. However, even with such an advantage, Las Vegas' lack of desirable Warehouse/Distribution space puts it in a precarious position compared to other cities that have an abundance of such space, like Phoenix.

As part of this competition for industrial space, regions race to get new space to market. In 2015, there were 2.9 million sf of industrial space added to the Las Vegas industrial market (see Figure III-3). This

amount places Las Vegas in the upper half of the distribution, relative to the other MAs. However, that figure is still almost only half of Phoenix's completions and pales in comparison to Inland Empire's 22.6 million sf in completions in 2015.

Figure III-3: Selected Metros Industrial Market Completions (Million sf) (Q4, 2015)

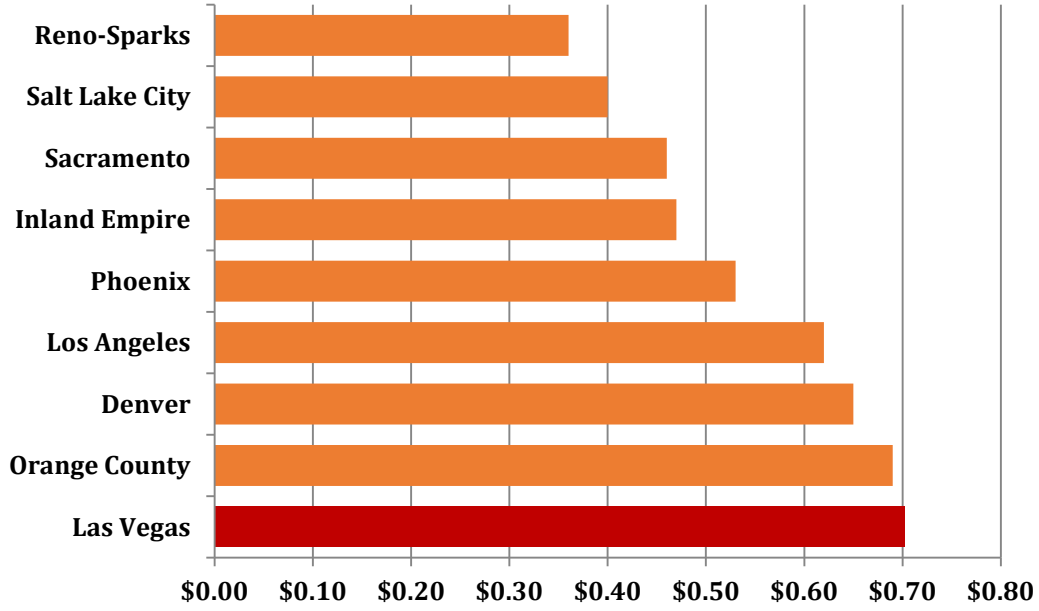


Sources: RCG/UNLV-Lied, Colliers, NGA.

However, in spite of these completions, there are signs that Southern Nevada is even now suffering from structural problems in its industrial markets. Figure III-4 shows that the Las Vegas area is already at a competitive disadvantage in terms of inputs and other costs. This is reflected in the region's high industrial land prices. In fact, of the selected cities, Southern Nevada has the highest industrial space rents per square foot.

Table III-2 shows more in-depth information on the market areas discussed.

Figure III-4: Selected Metros Industrial Asking Rents (Q4, 2015)



Sources: RCG/UNLV-Lied, Colliers, NGA.

Table III-2: Market Area Comparison Matrix (Q4, 2015)

		EXISTING PROPERTIES		VACANCY	NET ABSORPTION		NEW SUPPLY			AVG. RENT
Market Area	BLDG TYPE/SIZE	BLDGS	TOTAL INVENTORY (SF)	TOTAL (%)	Q4, 2015 NET ABS. (SF)	4-QTR NET ABS. (SF)	Q4, 2015 COMPLET.(SF)	4-QTR COMPLET.(SF)	Q4, 2015 UNDER CON.(SF)	$PSF/MO (NNN)
Las Vegas	WAREHOUSE/DISTRIBUTION	552	49,338,833	3.7%	680,583	3,698,867	938,684	2,834,587	1,456,376	$ 0.51
Source: RCG Economics	LIGHT INDUSTRIAL	2,436	30,137,286	3.6%	-107,280	436,713	20,000	99,502	190,000	$ 0.71
	LIGHT DISTRIBUTION	513	17,687,824	4.9%	91,725	662,032	0	0	0	$ 0.64
	INCUBATOR	348	8,086,023	8.7%	-37,821	-80,708	0	0	0	$ 0.77
	R&D/FLEX	363	5,885,765	12.2%	20,659	76,899	0	0	0	$ 0.94
	Market Total	**4,212**	**111,135,731**	**4.7%**	**647,866**	**4,793,803**	**958,684**	**2,934,089**	**1,646,376**	**$ 0.70**
Reno/Sparks	Industrial	1,349	77,748,447	10.4%	379,022	647,114	0	n/a	3,434,772	$ 0.36
Source: Colliers	**Market Total**	**1,349**	**77,748,447**	**10.4%**	**379,022**	**647,114**	**0**	**n/a**	**3,434,772**	**$ 0.36**
Pheonix	General Industrial	n/a	67,476,241	12.4%	1,285,794	3,742,580	567,397	2,236,339	1,418,294	$ 0.44
Source: Colliers	Warehouse	n/a	125,719,122	9.4%	394,955	1,370,381	90,437	1,800,149	914,596	$ 0.51
	Manufacturing	n/a	56,730,092	12.8%	273,754	692,273	0	1,017,420	744,591	$ 0.45
	Service Ctr/Showroom	n/a	10,378,727	4.1%	66,544	107,894	44,000	58,940	98,442	$ 0.62
	Flex	n/a	27,469,050	15.1%	557,437	749,029	0	260,200	374,140	$ 0.98
	Market Total	**n/a**	**287,773,232**	**11.2%**	**2,578,484**	**6,662,157**	**701,834**	**5,373,048**	**3,550,063**	**$ 0.53**
Denver	Indutrial	4,311	199,242,868	3.4%	-745,570	729,044	162,959	1,389,674	2,606,384	$ 0.59
	Flex	560	21,088,342	10.4%	132,931	404,613	0	95,922	0	$ 0.87
Source: Colliers	**Market Total**	**4,871**	**220,331,210**	**4.1%**	**-612,639**	**1,133,657**	**162,959**	**1,485,596**	**2,606,384**	**$ 0.65**
Sacramento	Industrial	5,533	159,097,670	9.5%	-90,533	2,007,449	409,249	1,375,188	284,697	$ 0.39
Source: Colliers	Flex	984	20,519,394	15.7%	52,520	391,307	0	0	0	$ 0.80
	Market Total	**6,517**	**179,617,064**	**10.2%**	**-38,013**	**2,398,756**	**409,249**	**1,375,188**	**284,697**	**$ 0.46**
Salt Lake City	Manufacturing	n/a	26,708,508	4.7%	n/a	n/a	n/a	0	n/a	$ 0.29
Source: NGA	General Purpose Warehouse	n/a	35,932,306	2.6%	n/a	n/a	n/a	0	n/a	$ 0.43
	Bulk Distribution Warehouse	n/a	33,601,136	9.1%	n/a	n/a	n/a	1,935,865	n/a	$ 0.37
	Medium Distribution Warehouse	n/a	11,263,017	3.9%	n/a	n/a	n/a	379,080	n/a	$ 0.39
	Special Purpose	n/a	19,752,494	2.3%	n/a	n/a	n/a	0	n/a	$ 0.39
	Flex	n/a	8,088,621	4.0%	n/a	n/a	n/a	126,259	n/a	$ 0.46
	Market Total	**n/a**	**135,346,082**	**4.9%**	**n/a**	**1,305,291**	**846,183**	**2,441,204**	**1,865,449**	**$ 0.39**
Los Angeles*	10,000 - 19,999	8,876	123,432,400	0.8%	65,200	-260,700	31,500	n/a	0	$ 0.78
Source: Colliers	20,000 - 39,999	5,988	163,424,300	1.1%	99,100	473,400	83,000	n/a	240,000	$ 0.71
	40,000 - 69,999	2,922	149,632,700	1.5%	529,300	1,649,000	52,400	n/a	330,100	$ 0.65
	70,000 - 99,999	1,069	87,817,700	2.0%	242,900	1,559,800	225,200	n/a	172,000	$ 0.62
	100,000- 249,999	1,510	220,022,500	2.6%	55,000	2,189,800	443,500	n/a	618,100	$ 0.61
	250,000 - 499,999	304	97,410,100	1.1%	-47,900	2,993,300	0	n/a	1,261,600	$ 0.61
	500,000+	66	52,283,700	1.3%	495,700	-6,400	0	n/a	525,400	$ 0.48
	Market Total	**20,735**	**894,023,400**	**1.6%**	**1,439,300**	**8,598,200**	**835,600**	**n/a**	**3,147,200**	**$ 0.62**
Orange County	1 - 9,999	1,421	9,989,763	1.1%	34,000	51,600	0	n/a	0	$ 0.96
Source: Colliers	10,000 - 39,999	4,105	75,447,682	1.5%	68,800	417,500	60,100	n/a	50,800	$ 0.86
	40,000 - 69,999	547	28,052,383	2.2%	-9,780	447,820	108,900	n/a	0	$ 0.67
	70,000 - 99,999	205	16,492,822	2.8%	-40,060	591,975	0	n/a	0	$ 0.69
	100,000 +	319	61,258,423	5.2%	342,000	185,500	339,300	n/a	625,200	$ 0.64
	Market Total	**6,597**	**191,241,073**	**2.9%**	**394,960**	**1,694,395**	**508,300**	**n/a**	**676,000**	**$ 0.70**
Inland Empire	10,000 - 19,999	2,056	28,188,500	0.8%	42,500	-22,100	0	n/a	25,400	$ 0.69
Source: Colliers	20,000 - 39,999	1,298	35,824,800	1.2%	-68,600	-233,800	25,000	n/a	122,300	$ 0.59
	40,000 - 69,999	741	37,700,100	1.9%	-49,600	-256,300	89,700	n/a	614,000	$ 0.54
	70,000 - 99,999	295	24,311,500	1.4%	159,800	960,000	0	n/a	263,600	$ 0.49
	100,000 - 249,999	591	87,284,900	3.4%	415,500	1,594,500	0	n/a	1,770,500	$ 0.47
	250,000 - 499,999	291	100,371,300	6.0%	-203,700	3,007,600	1,260,800	n/a	3,183,100	$ 0.42
	500,000 +	200	148,626,100	6.2%	4,242,900	14,702,700	4,485,400	n/a	11,534,600	$ 0.33
	Market Total	**5,472**	**462,307,200**	**4.3%**	**4,538,800**	**19,752,600**	**5,860,900**	**n/a**	**17,513,500**	**$ 0.47**

*Note: Los Angeles based on calculated values from its five submarkets.
Sources: RCG/UNLV-Lied, Colliers, NGA.

B. The Southern Nevada Commercial Real Estate Market

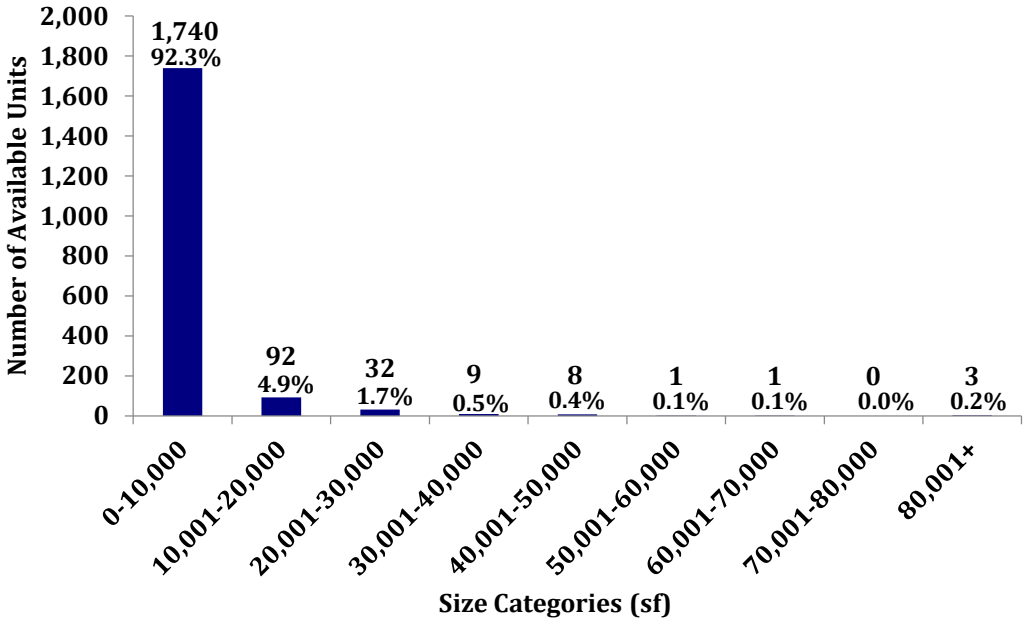
In support of the above discussion regarding Southern Nevada, some brief end-of-year trends and information on the speculative office and industrial markets are provided below. This information has been obtained from the year-end (Q4, 2015) RCG-Lied Institute Quarterly Commercial Survey, as well as from discussions with members of Southern Nevada's commercial real estate community.

Office Market Overview

Of the Las Vegas Valley's three commercial markets (Industrial, Office and Retail), the multi-tenant, speculative office market is the most directly dependent on job growth. Southern Nevada office-using jobs had seen 57 months of YOY employment increases with at least two percent monthly growth in the 58-month period ending December 2014. This growth started to whittle down the high vacancy rates that have stymied the Valley's Office market over the past near-decade.

Like the Industrial market, a potential economic development and growth challenge continues to face the region in the form of a lack of available contiguous office space of 40,001 sf or more. At the end of Q4, there were only 13 units of space in this size range (see Figure III-5). Furthermore, the available spaces often do not meet the requirements of firms in the market for office space.

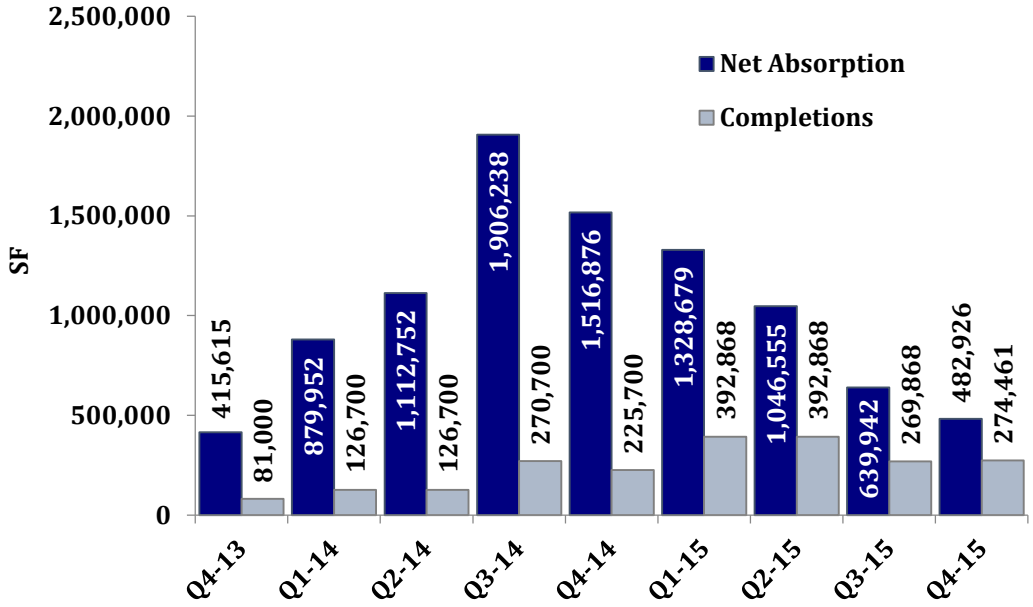
Figure III-5: Spec Office Distribution of Office Available Units, by Size (Q4, 2015)



Source: RCG/UNLV-Lied.

Valley-wide year-over-year net absorption in Q4, 2015 was positive for the 16th straight quarter, totaling 482,900 sf compared to Q4, 2014, when 1,516,900 sf were absorbed (see Figure III-6). This is a good indication that the office market is recovering, though may be slowing down.

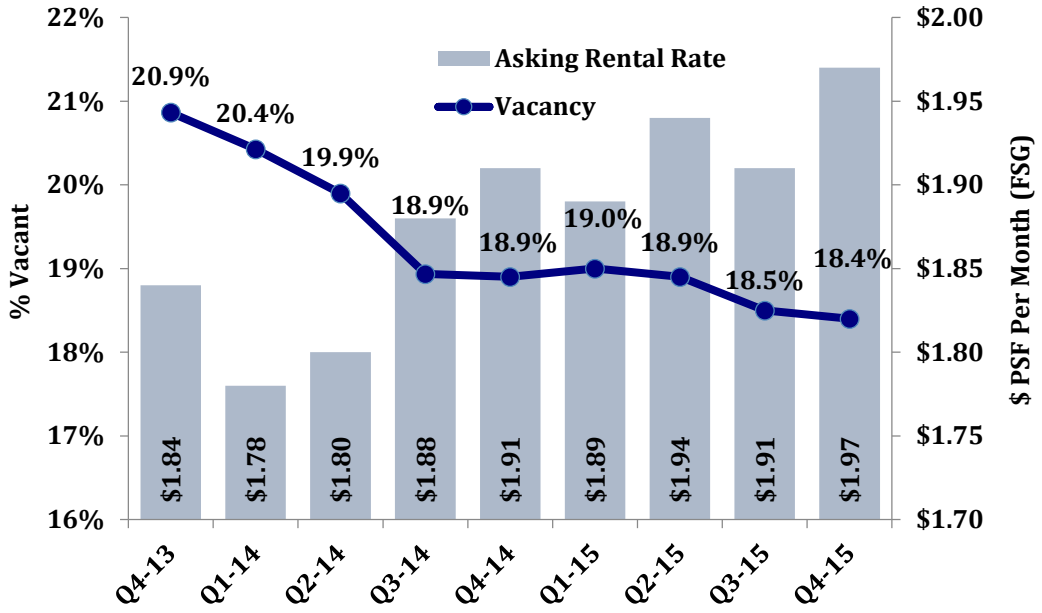
Figure III-6: Spec Office 4-Qtr Rolling Net Absorption vs. Completions (Q4, 2013-Q4, 2015)



Source: RCG/UNLV-Lied.

The reluctance of many commercial lenders to provide financing at terms that make sense to many developers continues in the aftermath of the Great Recession. Stubbornly high Valley-wide vacancy rates and low rents (see Figure III-7) are driving this behavior. These conditions are due to overbuilding during the "boom years" that have resulted in excess office space that remains unoccupied, even with all-time highs in office-using jobs in Clark County.

Figure III-7: Spec Office Historical Vacancy vs. Monthly Asking Rent (Q4, 2013-Q4, 2015)



Source: RCG/UNLV-Lied.

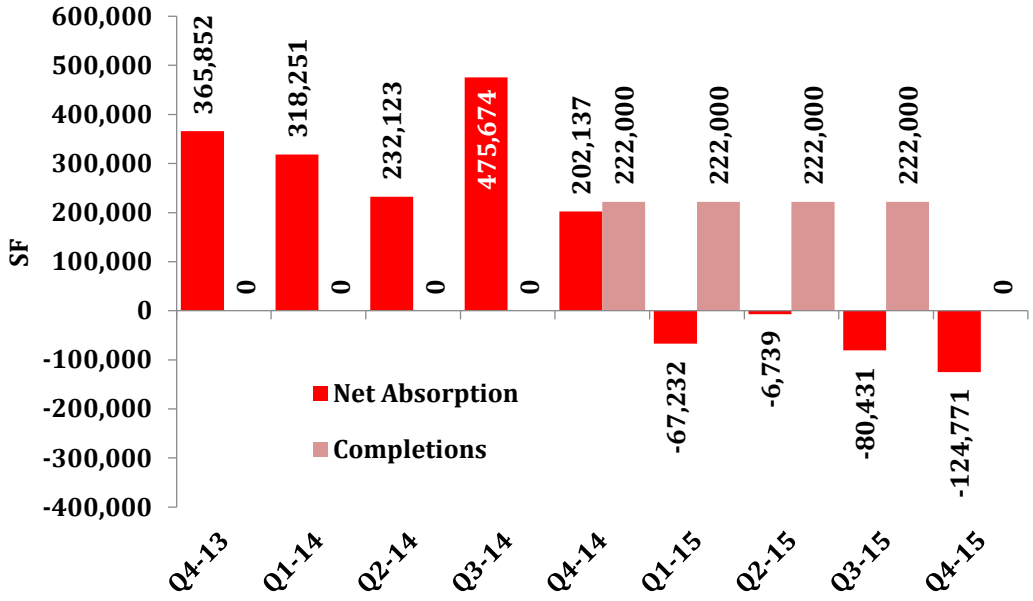
Retail Market Overview

Of the Las Vegas Valley's three commercial markets (Industrial, Office and Retail), the Anchored Retail market is the most directly dependent on population growth. Southern Nevada retail jobs had seen 48 straight months of YOY employment increases with at least two percent monthly growth in the period ending December 2014.

However, despite this growth and record high retail sales figures, the anchored retail market is failing to show improving vacancy rates. This is in large part due to the success of Industrial Warehouse/Distribution. The rise of Warehouse/Distribution reflects the success of online retailers, such as Amazon, in eliminating the need for physical retail stores. Fulfillment centers are replacing large swathes of the Retail market, especially middle-income retail.

Valley-wide YOY net absorption in Q4, 2015 was negative for the fourth straight quarter at -124,800 sf compared to Q4, 2014, when +202,100 sf were absorbed (see Figure III-8). The retail market appears to have leveled off at around 10 percent vacant.

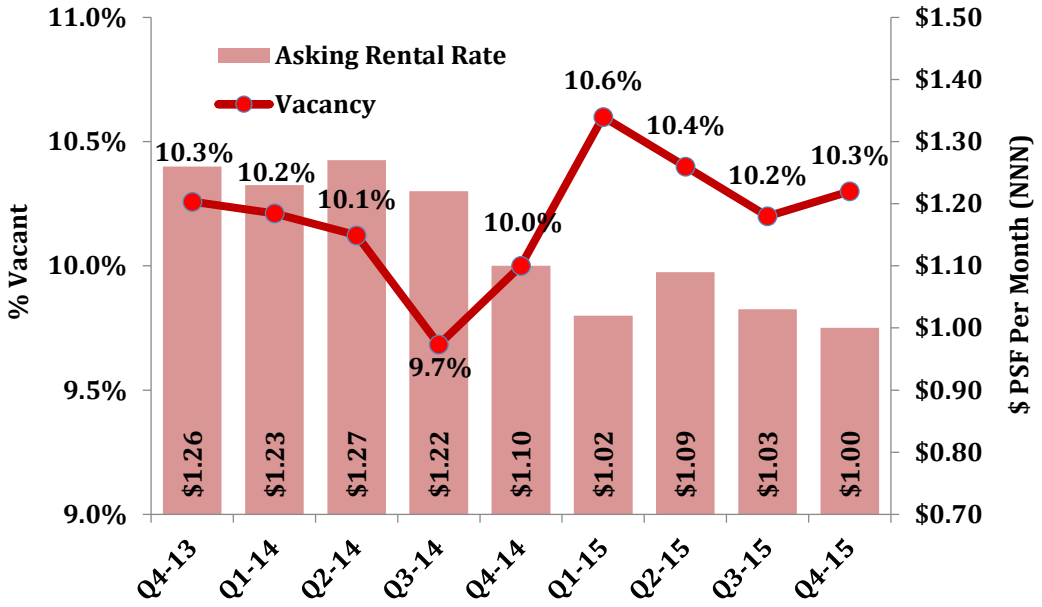
Figure III-8: Anch. Retail 4-Qtr Rolling Net Absorption vs. Completions (Q4, 2013-Q4, 2015)



Source: RCG/UNLV-Lied.

New Anchored Retail completions have trailed far behind Industrial and Office completions. The vacancy rate's inability to remain under 10 percent is hindering the market. In addition, asking rents continue to fall and in Q4 reached the $1.00 mark (see Figure III-9). These trends, along with quality concerns in the market, are driving this stagnation in Anchored Retail.

Figure III-9: Anch. Retail Historical Vacancy vs. Monthly Asking Rent (Q4, 2013-Q4, 2015)

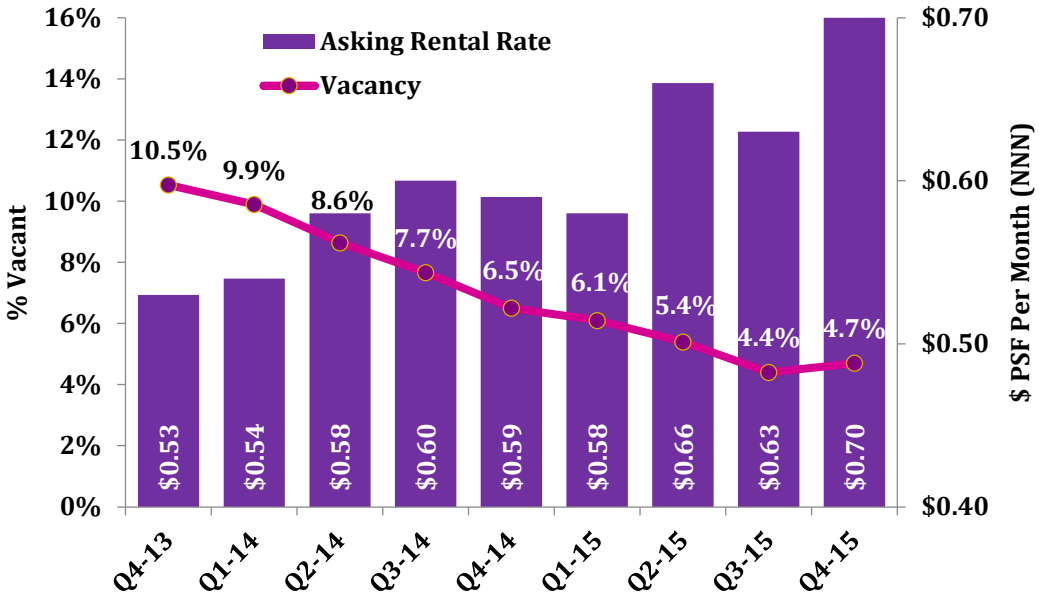


Source: RCG/UNLV-Lied.

Industrial Market Summary

The Industrial market vacancy rate was 4.7 percent in Q4, 2015 (see Figure III-10). The last time Southern Nevada had an industrial vacancy rate this low was in Q2, 2007. Local businesses continue to expand as attention from out-of-state firms on Southern Nevada intensifies.

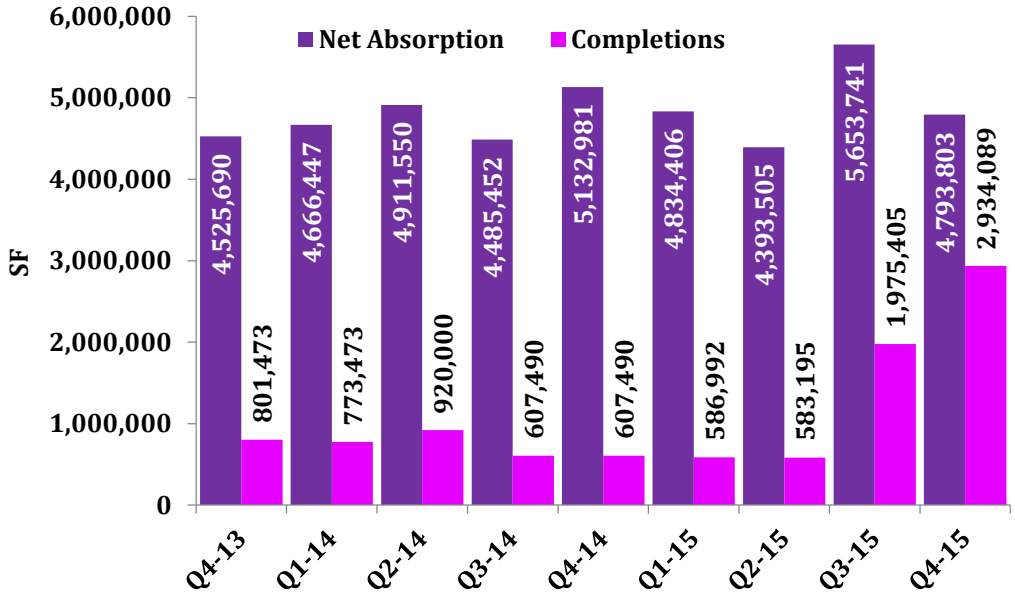
Figure III-10: Industrial Historical Vacancy vs. Monthly Asking Rent (Q4, 2013-Q4, 2015)



Source: RCG/UNLV-Lied.

The Valley's Industrial market has seen a remarkable turnaround since the end of the Great Recession. In 2015, the industrial market absorbed 4.8 million sf of space (see Figure III-11). However, as discussed, the region is now facing some of the same challenges it weathered during the boom period just prior to the advent of the Great Recession, namely an industrial space shortage. This shortage will likely pose significant economic development and growth challenges. Addressing these challenges is critical.

Figure III-11: Industrial 4-Qtr Rolling Net Absorption vs. Completions (Q4, 2013-Q4, 2015)



Source: RCG/UNLV-Lied.

IV. EMERGING ISSUES FOR SOUTHERN NEVADA

A. Regional Goods Movement

One of the most pressing issues confronting the Southern Nevada economy, aside from employment land scarcity, is limited freight capacity. How does freight capacity tie into the employment lands problem? Trucking, the primary method for goods movement in Southern Nevada (see Table IV-1), is a direct input for regional producers and it contributes to the regional economy's advantages and disadvantages relative to other market areas. Industries rely on the timely delivery of goods required to support their operations, safe and reliable transportation for their employees and visitors, and the distribution of their products to their customers. The availability of vacant lands in Clark County may be directly related to maintaining and expanding the infrastructure necessary to foster efficient goods movement, and, therefore, economic growth.

Table IV-1: Total Flows To, From and Within the Las Vegas MSA, by Mode (2012)

Mode	K-Tons	Percent of Total	$ Millions	Percent of Total
Truck	79,516	87.90%	$68,052	77.80%
Rail	2,965	3.30%	$726	0.80%
Air (include truck-air)	108	0.10%	$1,968	2.30%
Multiple modes & mail*	2,347	2.60%	$13,090	15.00%
Pipeline	5,294	5.90%	$2,429	2.80%
Other and unknown	212	0.20%	$1,193	1.40%
Total	**90,442**	**100.00%**	**$87,457**	**100.00%**

*FAF3 and the Commodity Flow Survey use Multiple Modes and Mail rather than intermodal to represent commodities that move by more than one mode. Intermodal typically refers to containerized cargo that moves between ship and surface modes, or between truck and rail. Repeated efforts to identify containerized cargo in the Commodity Flow Survey have proved unsuccessful. Shipments reported as Multiple Modes can include anything from containerized cargo to coal, which move from mine to railhead by truck and rail to harbor. The Mail component recognizes that shippers who use parcel delivery services typically do not know what modes were involved after the shipment was picked up (Federal Highway Administration [FHWA]).

Source: RTC of Southern Nevada.

GOED, the Brookings Institute and SRI International identified[7] the Logistics and Operations sector as one of the key components in the state's economic growth efforts. This sector includes transportation and freight movement. They found that goods movement is vital to the economic growth of the state.

According to ICF Consulting[8], improved freight transportation systems reduce costs for manufacturing, delivery of goods and services, and support faster, more reliable transportation. A strong logistics sector can increase the efficiency of other industry sectors, reducing operations costs and make the state and the region more attractive to new and expanding businesses.

Southern Nevada is currently constrained by such patterns of development. For example, truck movement along Las Vegas roads tend to be concentrated in certain areas, putting undue stress on those routes (see Figure IV-1). Truck drivers highly favor traveling on freeways, even if it means traveling several miles out of their way[9]. However, Project Neon[10], which wraps up in 2019, should help alleviate this issue.

Rail is another method of freight movement in Southern Nevada (see Figure IV-2). High-value goods are typically not shipped by rail due to the longer timeframe associated with transport. However, by volume, rail constitutes 3.3 percent of all shipments. Those shipments include bulk commodities such as chemicals, waste/scrap, clay/concrete/glass, non-metallic minerals and some metallic ores, some of which are likely to come from industrial and mining companies.

Another important means for shipping is by air. For this, Southern Nevada has the Air Cargo Center at McCarran International Airport. From here, trucks supply goods to and from the area. The airport has no rail connection.

Lastly, pipelines are a low-cost modal option that can carry commodities such as natural gas, petroleum and bio-fuels.

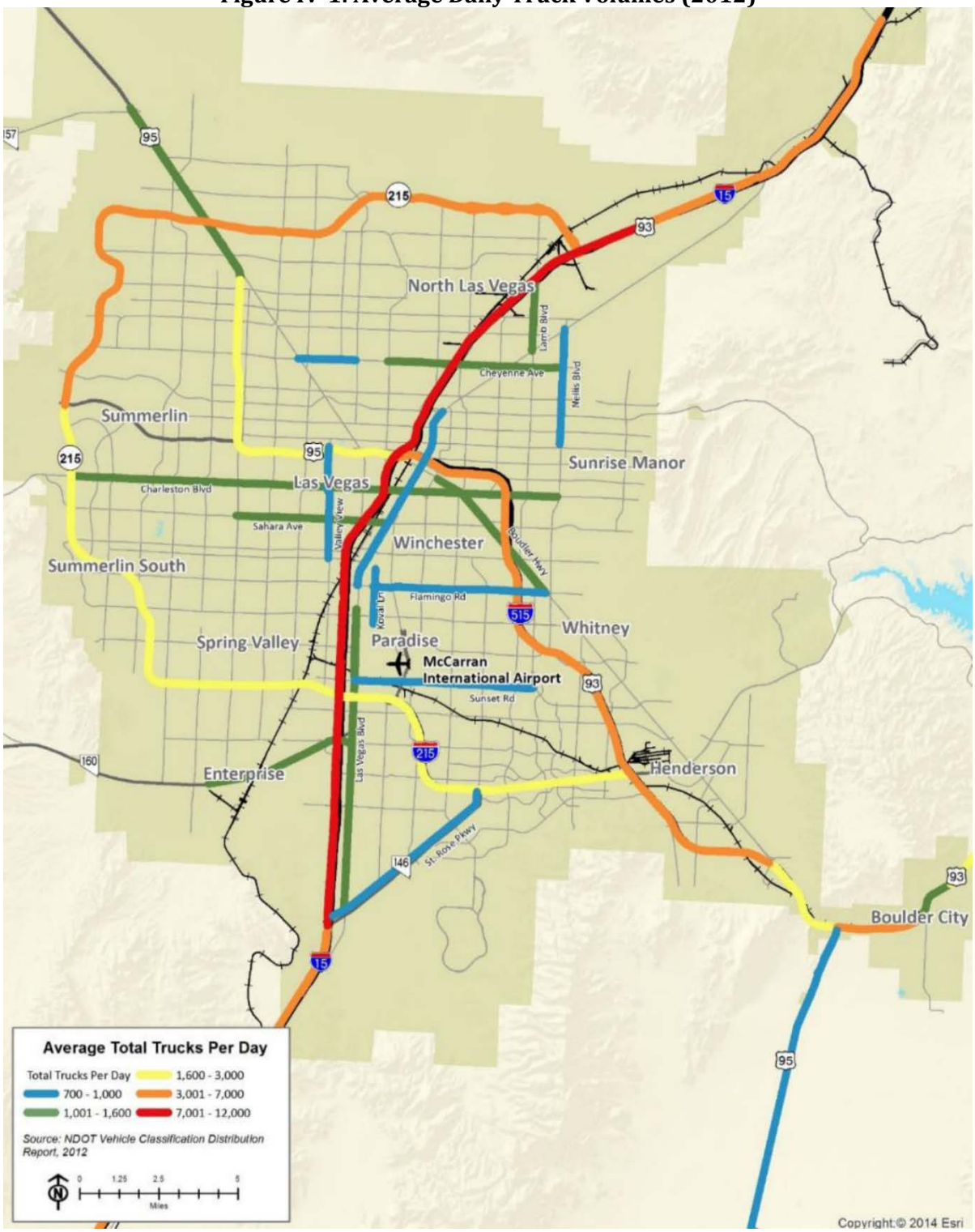
However, while the means of transportation are fundamental to efficient goods movement, the Warehousing/Distribution facilities form the backbone of the logistics system. These facilities accept

[7] See Unify, Regionalize, Diversify: An Economic Development Agenda for Nevada. http://nvsos.gov/Modules/ShowDocument.aspx?documentid=2141.
[8] http://www.ops.fhwa.dot.gov/freight/documents/freightstory_12902.pdf
[9] For more details, see Southern Nevada Regional Goods Movement Master Plan. http://www.rtcsnv.com/wp-content/uploads/2012/06/SoNVGoodsMovement_FinalReport_WithAppx.pdf
[10] For more, see http://www.reviewjournal.com/news/traffic-transportation/details-massive-project-neon-unveiled

freight shipments, break them down and distribute them to their final destinations. Here lies the most direct link between goods movement and employment lands.

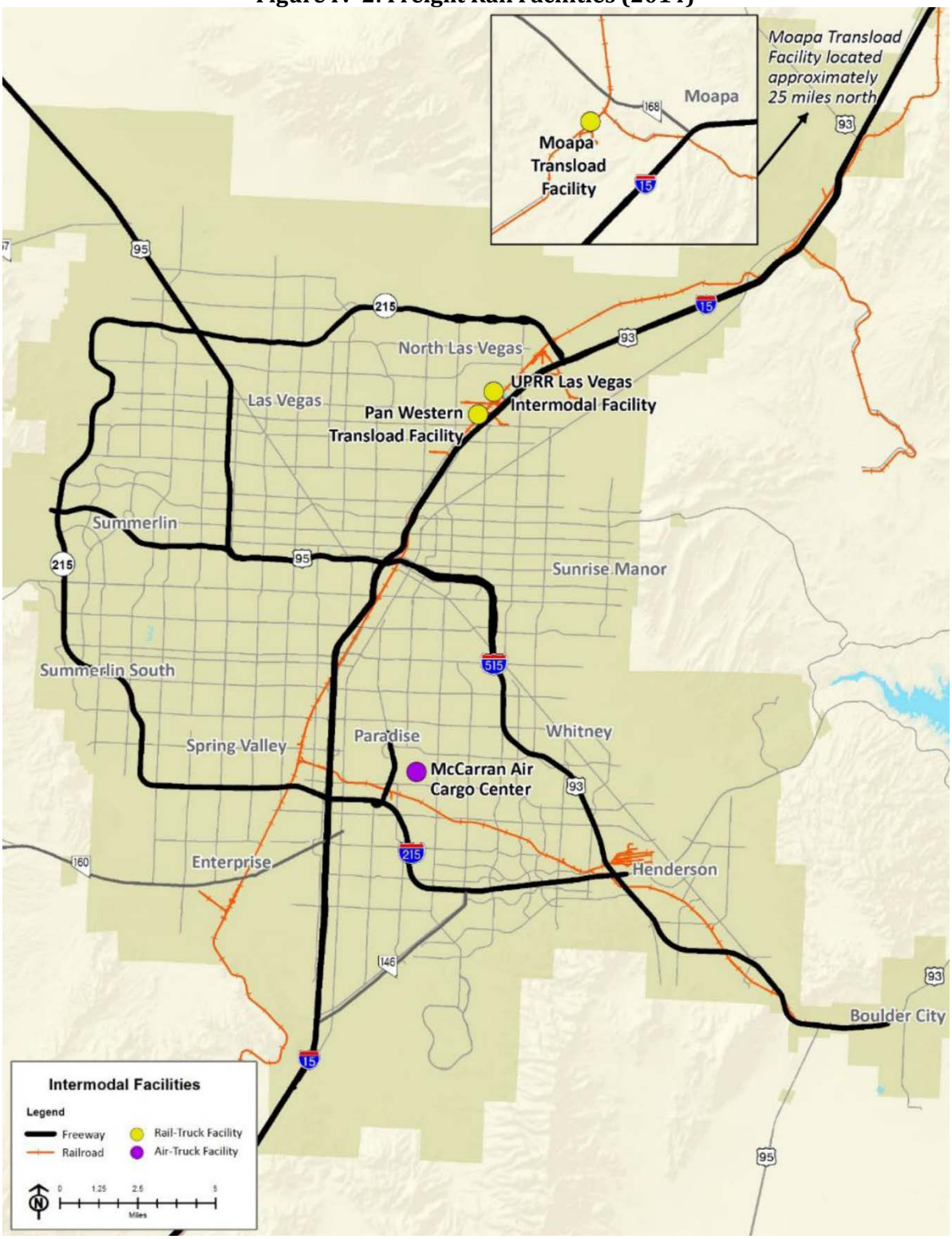
Figure IV-3 shows the total square footage of warehousing space in the Las Vegas metropolitan area by zip code. As the figure shows, many of the zip codes with the highest concentrations of warehousing are also near lands for possible reorganization by the BLM.

Figure IV-1: Average Daily Truck Volumes (2012)



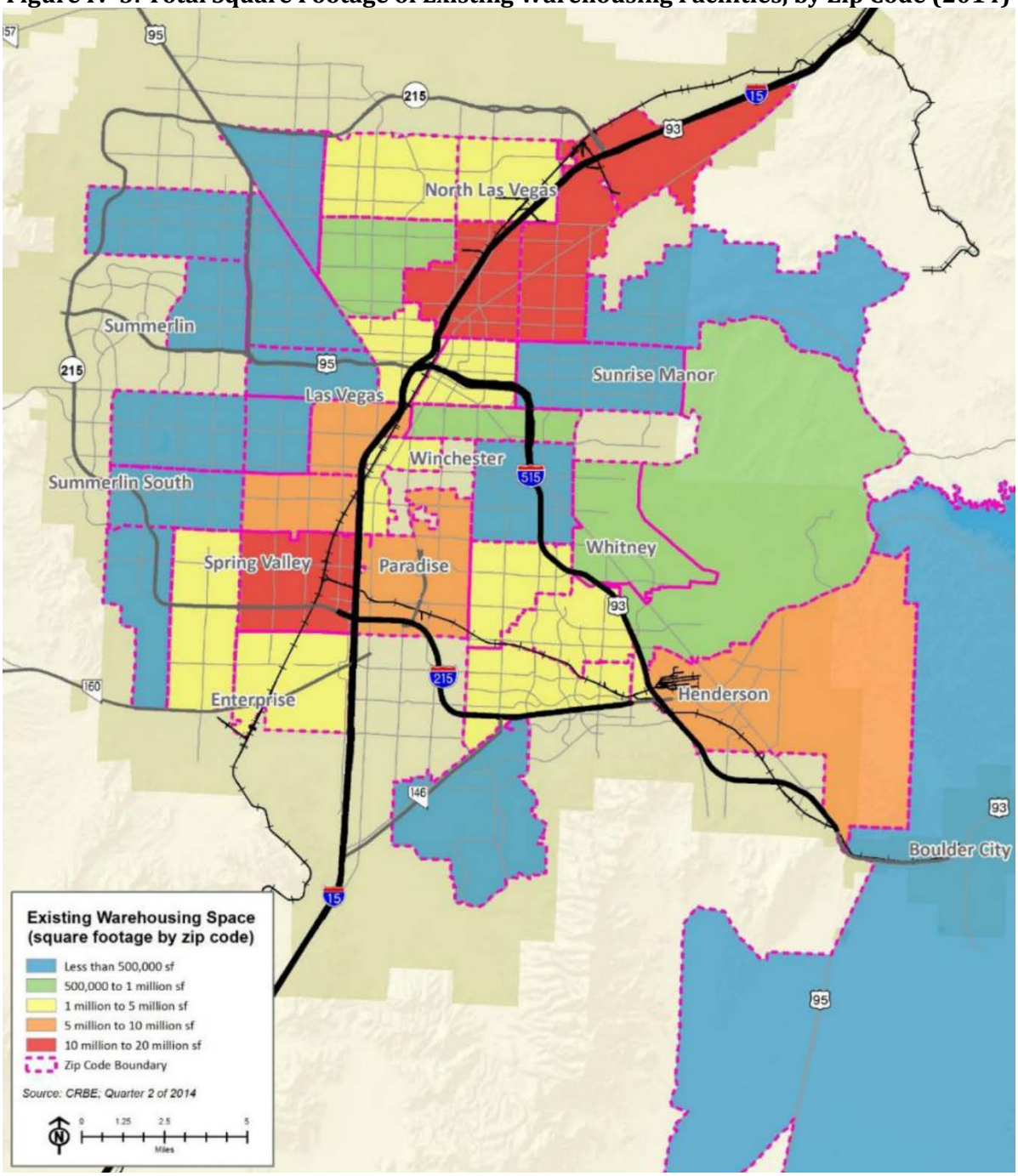
Source: RTC of Southern Nevada.

Figure IV-2: Freight Rail Facilities (2014)



Source: RTC of Southern Nevada.

Figure IV-3: Total Square Footage of Existing Warehousing Facilities, by Zip Code (2014)



Source: RTC of Southern Nevada.

Any actions that have the potential to hurt the efficiency of goods movement could increase congestion and increase the cost of doing business in Southern Nevada.

According to the RTC report, congestion resulting in unreliable trip times and missed deliveries can have major business implications, causing a ripple effect that adds costs at every link up the supply chain.

Predictable, consistent transportation is integral to the ability of businesses to capitalize on economic and competitive advantages.

As an example, the Washington State Department of Transportation[11] surveyed freight-dependent industries in the State of Washington to determine how they would respond if congestion on the interstate and highway systems increased by 20 percent. Those firms' responses:

- 56 percent would pass the costs onto consumers
- 19 percent would absorb the costs
- 16 percent would change their operations or routing
- 6 percent would be forced to close their business
- 3 percent would relocate

Economic theory tells us that those firms' responses would be some combination of these actions.

The Transportation Research Board of the National Academies provides a rule of thumb table below (see Table IV-2) for the cost of regional transportation interruptions.

Southern Nevada's relatively high cost for industrial land signals that various factors, including goods movement, already disadvantage the region. Contributing further to those disadvantages via transportation interruptions, due to land use changes, could significantly harm the prospects of future economic growth in the region, as elaborated upon in Section VII.

[11] For a link to the study, see http://www.wsdot.wa.gov/NR/rdonlyres/0DA2A843-8BC3-41B7-A0F3-C72A610BEA90/0/EconomicImpactCongestion.pdf.

Table IV-2: Economic Impact Rules of Thumb – Default Values (2012)

Direct Transport Costs (per mile, hour)	Truck	Class I RR	Short Line RR	Inland Waterway/Barge
Per ton-mile	$0.07	$0.03	$0.04	$0.01
Per ton-hour	$2.63	$0.52	$1.07	$0.06
Per vehicle-mile	$1.39	$1.90	$4.07	$14.55
Per vehicle-hour	$59.03	$39.56	$101.70	$87.30
Inventory Costs (per ton-hour)	Truck	Class I RR	Short Line RR	Inland Waterway/Barge
High-value manufacturing	$1.05	$0.22	$0.45	NA
Low-to moderate-value manufacturing	$0.92	$0.19	$0.38	NA
Low-value bulk commodities	$0.74	$0.14	$0.29	$0.02
Perishable agricultural	$1.19	$0.23	$0.47	NA
Regional Economic Impacts	**Total Output (Millions)**	**Total Employment (job years, 000s)**	**Total Wage Earnings (Millions)**	**Total GDP (Millions)**
Direct Output Reductions (per $ million direct output loss, 2009$)				
Manufacturing	$1.89	9.1	$0.42	$0.75
Services	$1.59	12.6	$0.51	$0.92
Retail and wholesale	$1.47	13.1	$0.49	$0.92
Agricultural, natural resources	$1.69	9.8	$0.41	$0.86
Higher Freight Transport and Inventory Costs (per $ million transport cost increase, 2009$)				
Manufacturing	$1.27	4.3	40.33	$0.50
Services	$1.24	10.5	$0.58	$0.71
Retail and wholesale	$1.14	8.7	$0.50	$0.77
Agricultural, natural resources	$1.19	8.2	$0.48	$0.60
Direct Facility Impacts (per 1,000 TEU per day of impact)	**Total Output (Millions)**	**Total Employment (job years, 000s)**	**Total Wage Earnings (Millions)**	**Total GDP (Millions)**
Ocean port	$412,600	$670	$107,200	$162,400

Notes:
NA = not applicable
TEU = twenty-foot equivalent unit

Source: Transportation Research Board of the National Academies.

B. Nevada's Targeted Industries

The Governor's Office of Economic Development has formulated a collection of seven "target industries" to help diversify the economy in Nevada[12] (see Table IV-3). Policymakers determined that this was necessary, in part, to reduce the state's overreliance on the gaming and hospitality industries following the collapse of the Nevada economy during the Great Recession. In response to this need, the state legislature passed the Economic Development Bill (AB 449), which Gov. Brian Sandoval signed into law on June 17, 2011. These target industries are central to the state's diversification and recovery efforts.

[12] For more information regarding the seven target industries, see Unify, Regionalize, Diversify: An Economic Development Agenda for Nevada. http://nvsos.gov/Modules/ShowDocument.aspx?documentid=2141.

Table IV-3: GOED Target Industries

1. Tourism, Gaming, and Entertainment	4. Clean Energy
- Nevada as the U.S. online gaming center (should Congress move to legalize it)	- Renewable component manufacturing
- Las Vegas as the intellectual capital of global gaming	- Expanding transmission capacity
- Gaming manufacturing	- Advancing and internationalizing geothermal development
- Diversifying into niche tourism markets	- Energy efficiency upgrading
- Retirees and second home owners	
- Film and media	
2. Health and Medical Services	**5. Mining, Materials, and Manufacturing**
- Surgical specialties	- Expanding participation in upstream mining activities
- Geriatrics and related services	- Medium-value mineral supply chain development
- Disaggregation of medical service delivery, creating new opportunities for middle-skill jobs	- Manufacture of advanced composite materials
- Leveraging a strong medical/health sector to build other emerging industries	- Organizing and marketing of manufacturing base
3. Business IT Ecosystems	**6. Logistics and Operations**
- Call centers/customer service and back office/BPO/shared services	- Warehousing and distribution
- E-commerce operations/headquarters	- Advanced logistics
- Data centers	- Air cargo
- Cloud computing/high-performance computing	- Integrated manufacturing-distribution, assembly manufacturing, and food processing operations
- Cyber security	- Freight transportation (ground and rail)
7. Aerospace and Defense	
- Unmanned Aerial Vehicle (UAV) supply, assembly, and testing	
- Maintenance, Repair, and Overhaul (MRO) of aircraft systems	

Source: Nevada GOED.

In order for these efforts to pay off, Southern Nevada must have the means to accommodate new prospective firms looking to settle in the region. One of the most fundamental means to diversification is the land to house such firms.

One trait that firms in the seven target industries tend to share is that they often require very large facilities on very large footprints; so Southern Nevada needs to hold on to as much employment land as possible to attract such firms.

C. Other Issues

Two other possible issues should be discussed:

- Utility rights-of-way and
- Local land use plans and zoning

Harking back to conversations with the Southern Nevada Water Authority ("SNWA"), there are no major concerns with short-term planned right-of-way. However, the BLM should be wary of the potential impacts of any proposed changes to long-term planned right-of-ways. These do not appear to have been taken into account in the proposed RMP.

For example, the SNWA has only planned for a potentially necessary 24-inch water main to the south of the Ivanpah area. However, it is unclear whether this water main would be adequate if future development exceeds current expectations or whether further expanding capacity would be required.

The second potential issue deals with local land use plans and zoning. Conversations with the BLM suggest no obvious short-term impacts involving Clark County and other local governments. Even so, long-term issues could arise depending on how well Southern Nevada jurisdictions' land use plans align with the GOED's target industries.

Southern Nevada Zoning Codes and GOED Target Opportunities Economic Development strategies in Southern Nevada require collaboration between various public and private sector entities. To realize the benefits of these industries to the region, it is important to have compatibility between the land use policies/regulations of the several Southern Nevada jurisdictions and the target industries' needs[13].

[13] See Appendix B of LVGEA report, https://www.lvgea.org/wp-content/uploads/2016/03/2016-1-13-Employment-Lands-Report-F-Rev.compressed.pdf.

V. LAND INVENTORY CONSIDERATIONS FOR FUTURE GROWTH

As is well known to policymakers, business leaders and many residents of Clark County, most land in Nevada, as well as in Clark County, is owned and managed by the federal government. Some of this land is set aside for future use. Growth in the Las Vegas area is dependent on land acquisitions from the BLM. These acquisitions are made at auctions that currently occur about twice a year. Long-term growth in Clark County hinges on the continued availability of these developable future lands. However, the availability of developable land is quite limited, given federal policies. This could become an issue, as a possible future land shortage could cripple potential growth of Southern Nevada. This section discusses available lands for future growth.

A. Current Land Availabilities

This section of the report is based on analyses in the LVGEA Employment Lands Report[14] prepared by RCG in 2015. The purpose of the LVGEA report was to develop a high-level analysis of the availability of developable employment land in Southern Nevada. The analysis identified the number of developable 70+ acre parcels within Clark County.

The report includes data on land suitable for commercial use in Southern Nevada from a variety of sources, including Clark County, the cities within the county, SNWA and NV Energy, among others. The analysis found over 7,000 available parcels in the county. Of these, only 190 were vacant and at least 70 acres in size. However, not all of these were suitable for commercial development. After determining which sites would be appropriate for commercial usage, only 33 parcels and assemblages remained, in addition to the Boulder City Test Range and Desert Rock Test Range, which are meant for Unmanned Aircraft Systems ("UAS") firms. Of these 33, 20 are privately-owned, while the other 13 are government-owned (see Table V-1).

Additionally, two properties in the Boulder City area are not included in this list. This is because they have only more recently become potentially available for use. The first is 149 acres of land adjacent to the Boulder City Municipal Airport. The second is a 512-acre assemblage, also near Boulder City, at the intersection of the future Interstate 11 and US-95.

[14] For the full report and methodology, visit https://www.lvgea.org/wp-content/uploads/2016/03/2016-1-13-Employment-Lands-Report-F-Rev.compressed.pdf.

Table V-1: Developable Parcels of 70+ Acres in Clark County (2015)

#	Area Name	Ownership Type	Acreage	Top EOA	Exurban
1	Golden Triangle Industrial Park	Private	76	Y	N
2	Northgate Distribution Center	Private	125	Y	N
3	Eastgate & Auto Show Dr.	Private	113	Y	N
4	Anne & Sloan	Private	111	Y	N
5	Mendenhall Legacy Ltd Partnership	Private	149	Y	N
6	Speedway / Northeast Industrial Area	Private	900+	Y	N
7	Emrani parcels	Private	71	Y	N
8	South LTA Site	Public	359	Y	N
9	UNLV Tech Park	Public	110	Y	N
10	St. Rose & Executive Airport	Private	103	Y	N
11	Wirrulla Hayward	Private	109	Y	N
12	PJ & CB LLC	Private	136	Y	N
13	Airport Development Lands	Public	165	N	N
14	I-11/US 95 Interchange Development Lands	Public	511	N	N
15	Landwell/ Basic Environmental	Private	224	N	N
16	Mesquite Technology and Commerce Center	Public & Private	720	N	Y
17	Nellis Airforce Base	Public	800	N	N
18	North 640	Public	585	N	N
19	Warm Springs parcels	Private	64	N	N
20	I-15 NW of Centennial Pkwy	Private	73	N	N
21	Open Land Near CC Gun Range	Public	639	N	N
22	Wiesner Way & Russell Rd	Public	116	N	N
23	S. Durango & I-215	Private	71	N	N
24	Las Vegas Paving Co. Facility	Private	72	N	N
25	S. Jones & Eerie Ave.	Private	160	N	N
26	APEX / Mountain View Industrial Park	Private	6,814	Y	N
27	Hollywood Blvd, N of Auto Auction & Nat. Guard Armory	Public	1,313	N	N
28	Decatur Blvd & Iron Mountain Rd	Public	324	N	N
29	N. Las Vegas Airport Lands	Public	152	N	N
30	Blue Diamond Falls	Private	71	N	N
31	Ivanpah	Public	6,000	N	Y
32	Southland	Public	9,000	N	Y
33	Mojave Generating Station	Private	2,000	N	Y
Total			**32,236**	**9,177**	**17,720**
Note: UAS Test Ranges not included					

Source: LVGEA.

Altogether, these lands only amount to about 32,200 acres. Of these lands, just 9,177 acres are in the identified top 13 employment opportunity areas. For comparison, the Tahoe Reno Industrial Center ("TRIC")[15] in the Reno-Sparks area, home of the Tesla Gigafactory, contains 30,000 acres of developable commercial land all on its own – about as much as for all Clark County.

Two additional sites that must be mentioned as alternative future sites for development are the recent BLM land transfers in the Tule Springs Land Bill Job Creation Zone and the UNLV North Campus. The Tule Springs Land Bill provides the City of Las Vegas with 660 acres and the City of North Las Vegas with 645 acres to create "job creation zones." It also provides the County with 10,240 acres of new land in the northeastern part of the Valley, near Sunrise Mountain, for several uses. UNLV also received 1,886 acres. However, neither site is planned, as of this writing, to allow for industrial development. Still, given the relatively long-run nature of these types of parcels, things may change. Nevertheless, the possible inclusion of part of these new lands would not sufficiently remedy Clark County's employment land deficiency.

The 33 areas singled out in the LVGEA analysis were further organized into a list of "top employment opportunity areas ('EOA')." There were 13 EOAs in the Las Vegas Valley and six in surrounding parts of Clark County (see Table V-1 above). These "top" sites were classified using a number of variables, including:

- Proximity to Transportation
- Proximity to Industry Clusters
- Development Feasibility
- Regional Competitiveness
- Parcel Size & Ownership
- Utility Services

There are few large assemblages of 1,000 acres or more available in Southern Nevada. In fact, in the Las Vegas Valley, there is just one – two, if APEX, which is just outside the Valley, is included. These two sites make up about 8,100 acres of developable commercial land.

[15] For more information on the Tahoe Reno Industrial Center, visit http://tahoereno.com/.

The effect of so little available land could blunt both short- and long-term economic growth in Southern Nevada. For example, the site of Tesla's Gigafactory in the Reno-Sparks area is about 1,000 acres. Tesla has also expanded this site by purchasing an additional 1,800 acres adjacent to the site. There are few sites in Southern Nevada that could accommodate such a facility.

This lack of space may not only impede future growth, but is also having a tangible and diminishing impact on the Southern Nevada economy today. One of Clark County's homegrown firms, Switch, is running into space issues that is forcing it to send jobs north to the Reno-Sparks area. A well-known data center operation based in Las Vegas, Switch has built, or is planning, about 2.4 million sf of data center space in 12 buildings in Clark County. However, the company is looking to expand and is having trouble doing so in Southern Nevada. There is not enough available space with the necessary infrastructure to build a data center of the size that Switch requires. Therefore, they began expanding their operations into Northern Nevada, starting with a single new facility at TRIC.

Switch's first large-scale data center in the Reno area will include 1.2 million sf of space. That single facility will equate to *half* of the space they have built out in Clark County in 12 facilities. Furthermore, due to the ample space ready and available in TRIC, Switch plans to build another 5.3 million sf of data center space on top of the first 1.2 million sf, as of this writing. Las Vegas has already missed out on tripling industrial space at a homegrown company due to its lack of developable space. This example plainly demonstrates how the lack of employment lands will affect growth in Southern Nevada, and how losing potential employment lands to federal land policy could compound that effect on the economy. Moreover, as Southern Nevada accounts for approximately 75 percent of the population and economy of Nevada, policies that limit the growth of Clark County also significantly limit the growth of the state.

Factoring in the space that clustering firms would require further exacerbates the land scarcity issue. The limited space puts a hard limit on the size of new industries Southern Nevada could accommodate.

Furthermore, in the intervening months since the LVGEA report's release, Faraday Future has announced that they would be locating their automobile manufacturing facility at the APEX site in North Las Vegas, on the outskirts of the Valley. Faraday Future has already purchased 900 acres at APEX. In addition to Faraday Future, various companies will cluster around the plant, taking up more space. While the Faraday Future plant may be a big win for Southern Nevada, it also significantly reduces available developable lands in the region.

However, there are "exurban" sites in Clark County that potentially provide room for future economic growth and development. These lands are less likely to accommodate short-term growth in Southern Nevada, but they could have a significant effect in the long-term. Currently, most of these sites and areas lack adequate utility, road and other infrastructure services, and some also have challenging locational attributes. These issues will require significant investments of time and money to address.

While the exurban sites could potentially be a good future resource, successfully wooing even one large project today, or in the intermediate future, would absorb a significant share of Clark County developable commercial land inventory, impeding the region's continued growth and development thereafter.

B. New BLM Proposed Resource Management Plan: Land Alternatives

The proposed RMP is a result of the land-use planning process that is the key tool the BLM uses to manage resources and to designate uses on public lands. The focus of this section is on detailing the alternatives that exist as part of the extensive BLM study.

However, policymakers must be kept keenly aware that any changes to BLM land policy in Southern Nevada could have large impacts on future long-run growth and development. With this in mind, the BLM's recent land policy proposals should be more carefully examined. Below follows a discussion of these alternatives and their effects on available lands in Clark County, as well as their potential short- and long-term effects on the regional economy.

As noted above, available land for large parcel development associated with Nevada's targeted industries, as well as "normal" growth trends is surprisingly limited. With population and employment in Southern Nevada forecasted to grow substantially, and to do so at a rate above the national average, it would be prudent to proceed cautiously with any changes to current land policy.

This section of the report is organized as follows. First, a summary overview of the proposed RMP to update its RMP is presented. As noted, primary reference for this section is the comprehensive and extensive study by BLM titled *"Draft Resource Management Plan Management/Environmental Impact Statement*[16]*."* That study also includes an exhaustive set of appendices (Appendices A through Q).

[16] For the full report, see https://eplanning.blm.gov/epl-front-office/projects/lup/2900/49585/53970/default.jsp?projectName=RMP+Revision+for+the+Las+Vegas+and+Pahrump+field+offices&projectDisplayName=RMP+Revision+for+the+Las+Vegas+and+Pahrump+field+offices.

Then, a more detailed discussion of the RMP is centered on what has been chosen as the BLM preferred option, known as "Alternative 3". These sections are visually organized around a set of nine maps as outlined below.[17]

The BLM has proposed four land use alternatives. Although our major interest is with the BLM preferred alternative (Alternative 3), it is necessary to provide a summary discussion of each alternative.

As stated by the BLM, "In January 2010, the BLM Southern Nevada District Office, Las Vegas and Pahrump Field Offices, published a Notice of Intent in the Federal Register initiating a planning process to revise the 1998 Las Vegas RMP". Of the four alternatives released in the Fall of 2014, BLM chose Alternative 3 as their preferred choice, which will be discussed in more detail below. Overall, there are two important points to be aware of regarding the RMP:

- The land-use planning process is the key tool the BLM uses to manage resources and to designate uses on public lands, and
- The estimate is that the RMP would be in effect for about 20 years.

A detailed description of the four alternatives ("Alternative 1-Alternative 4") is provided by the BLM in the study. From our perspective, we would describe the alternatives in a summary manner as follows:

The RMP indicates that Alternative 1 is the no action alternative, in that land use patterns would remain the same as the 1998 RMP. Alternative 2 emphasizes the protection of the planning area's natural resources while allowing commodity uses. Alternative 3 provides opportunities to use and develop resources within the planning area while still ensuring resource protection. Alternative 4 emphasizes opportunities to use and develop resources within the planning area to include defense department requests.

It is easiest to understand the implications of the RMP visually with a set of maps. The following language describes the supporting maps included herein and outlines the major issues that underlie each of the alternatives.

First, for reference, the map titled "Existing Las Vegas Valley Land Status" (see Figure V-1) represents the current and existing land use plan that underlies the current development process in Southern Nevada.

[17] We gratefully acknowledge the assistance of the Southern Nevada Water Authority.

It is difficult to compare disposal acres across potential alternatives because Areas of Critical Environmental Concern ("ACEC") and habitat designations affect the alternatives differently. These areas across alternatives are shown visually on the map titled "BLM Draft RMP ACECS (Fall 2014)" (see Figure V-2). We will return to this map in discussing the BLM preferred Alternative 3 below.

ACECs are managed to protect the relevant and important values of the area, and actions that lead to the irreparable damage of relevant and important values of the ACECs are not permitted. The BLM is required to protect areas for the desert tortoise per the Revised Recovery Plan for the Mojave Population of the Desert Tortoise (USFWS 2011).

Based upon our understanding and research, it appears that a summary of major points associated with this map are as follows:

- Coyote Springs - Acreage stays the same (51,527 acres) under all alternatives
- Rainbow Gardens – All alternatives appear to reduce the size of the ACEC from 38,764 acres to 35,353 acres
- River Mountains – All alternatives reduce the size of the ACEC from 11,029 acres to 6,697 acres
- Arden Historic Sites – A contiguous new ACEC of Bird Spring Valley, discussed below
- Keyhole Canyon – Alternatives 2 and 3 increase area in size from 240 acres to 639 acres. In Alternative 4, it remains the same as the original plan
- Paiute-Eldorado Valley – Alternatives 2 and 3 increase it in size from 323,710 acres to 347,633 acres. Alternative 4 increases it to 338,769 acre
- Ivanpah (environmental area) – Acres remain the same (31,857 acres)
- Bird Spring Valley – A new ACEC. Alternative 2 creates 78,959 acres of protected space Alternative 3 creates 26,987 acres. This ACEC is not proposed in Alternative 4
- Jean Lake – A new ACEC. Alternatives 2 and 3 provide for 11,606 acres; Alternative 4 provides for 9,138 acres

In addition, there are various wilderness designations (for example, "Wilderness Study Areas" and "Lands with Wilderness Characteristics"). With respect to wilderness designations, as shown in the map titled "BLM Draft RMP Wilderness Characteristics (Fall 2014)" (see Figure V-3), the BLM appears to propose to keep the same status of all the wilderness areas identified in the 1998 RMP. The draft RMP also identifies Wilderness Study Areas, Instant Study Areas and Lands with Wilderness Characteristics.

There are no Wilderness Study Areas or Instant Study Areas within the extent of the map created, but there are Lands with Wilderness Characteristics.

The Lands with Wilderness Characteristics that were added to the 1998 RMP/Draft RMP in Alternatives 2-4 are listed below:

New Lands with Wilderness Characteristics:

- Alternative 2: 242,214 acres
- Alternative 3: 36,033 acres
- Alternative 4: 29,810 acres

Muddy Mountains – Additional area added includes:

- Alternative 2: 36,671 acres
- Alternative 3: 819 acres
- Alternative 4: 0 acres

McCullough Mountains – Additional area added includes:

- Alternative 2: 53,396 acres
- Alternative 3: 0 acres
- Alternative 4: 0 acres

South McCullough Addition – Additional area added includes:

- Alternative 2: 13,039 acres
- Alternative 3: 0 acres
- Alternative 4: 0 acres

RMP Preferred Alternative 3: Development Implications

This section consists of a discussion of the BLM preferred Alternative 3 at a regional level and for smaller subareas of particular interest. A set of maps, which visually display the relevant issues, support this discussion.

First, the Alternative 3 map titled "BLM Draft RMP Alternative 3 (Fall 2014)" is attached (see Figure V-4). This map, as shown, includes the new ACEC areas under Alternative 3.

In addition, the map immediately following provides a comparison with all alternatives added with an emphasis on the draft RMP disposal boundaries, titled "BLM Draft RMP Disposal Boundaries (Fall 2014)". This second map of the disposal boundaries for ease of use does not add in the ACEC areas (see Figure V-5).

As noted, comparison of disposal acres across alternatives is difficult, because ACEC and habitat designations affect the alternatives differently. It is more instructive to look at the changes in specific areas. The following is a set of more interesting observations:

- Apex – This area stays the same across all alternatives – 4,795 acres
- Army National Guard – Alternative 4 identifies 3,012 acres for the Army National Guard. This is, of course, not available for private use.
- City of Las Vegas – Alternatives 3 and 4 identify 2,525 new acres
- Ivanpah Airport Environs Overlay District – Alternatives 2-4 identify the same 14,454 acres
- Mesquite-Bunkerville – Alternative 1 is the existing 5,979 acres. Alternative 2 decreases that to 1,047 acres. Alternative 3 increases it to 15,287 acres and Alternative 4 increases it to 15,244 acres
- Moapa-Glendale – Alternative 1 is the existing 28,631 acres, Alternative 2 decreases to 726 acres, Alternative 3 decreases to 12,278 acres, and Alternative 4 decreases to 12,278 acres
- Sloan Hills – Alternatives 2-4 increase the protected area from 0 to 796 acres
- Upper Las Vegas Wash Study Area – All alternatives include disposal of 2,654 acres of private future development
- Alternative 4 includes the Las Vegas Speedway Community Pit once mining operations have ceased

There are three parcels identified for disposal in Alternative 4 that include rail line (just south of Apex and near Sloan). These parcels are not included in Alternative 3. There are no other conflicting land uses on these parcels, and the slopes are negligible on all of them.

Thus, in terms of the extensive BLM planning that led to the two expanded alternatives (Alternative 3 and Alternative 4), four subareas stand out for further discussion. Each will be discussed in turn.

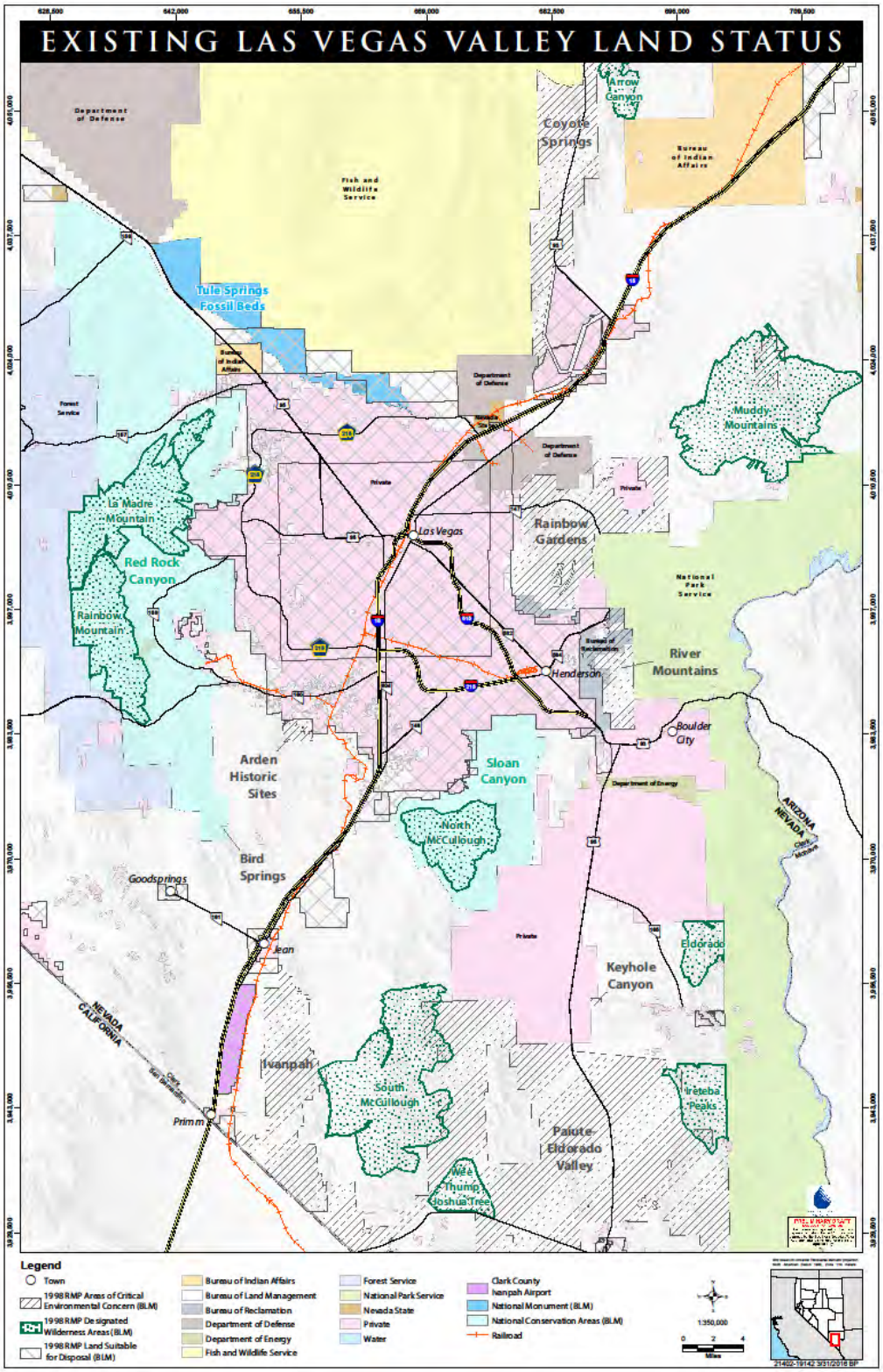
As noted, the Ivanpah Airport Environs Overlay District remains as currently identified. A map of this area is included below (see Figure V-6). Indeed, in our opinion, the focus and conclusions of the 2008 NAIOP study on this area remains valid.

A major affected subarea lies northeast of North Las Vegas along I-15, as shown in "BLM Draft RMP NLV Disposal Boundaries Acreage (Fall 2014)" (see Figure V-7). Alternative 3 adds 1,590 acres of protected space, where the bordering 1,271 acres was considered under Alternative 4 (a total of 2,861 acres).

The total of 2,525 acres studied under Alternative 3 and Alternative 4 for the City of Las Vegas lie primarily in the northwest area of the Las Vegas Valley. A detailed map of the area near Tule Springs Fossil Beds and Red Rock Canyon is shown on "BLM Draft Disposal Boundary NW Area (Fall 2014)" (see Figure V-8).

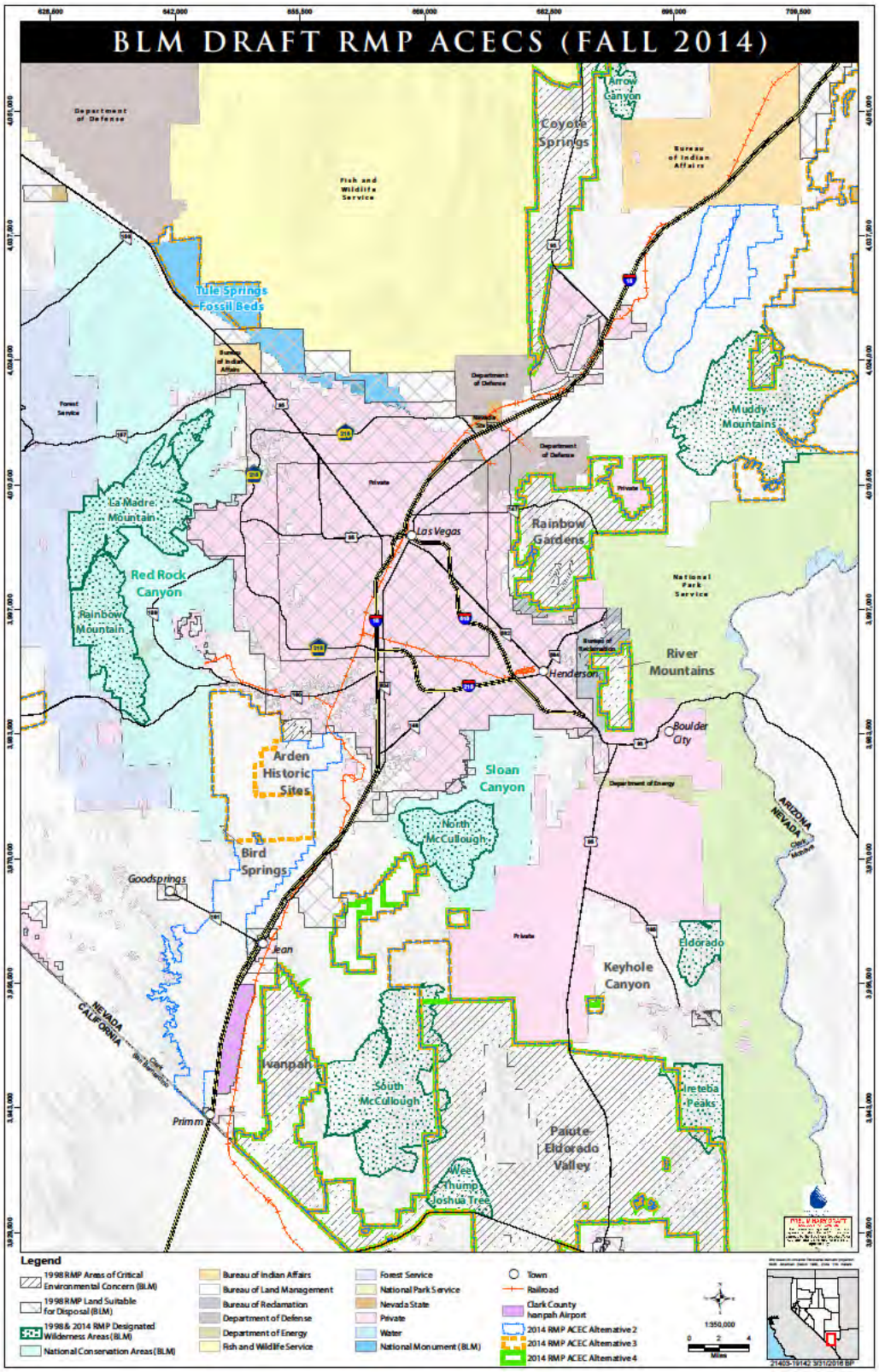
Finally, it is important to note that Alternative 3, with respect to Sloan Hills toward the south along Interstate 15, includes 796 acres in total acreage for private development. See the map below titled "BLM Draft Disposal Boundaries Sloan Hills (Fall 2014)" (see Figure V-9). The additional acreage under Alternative 4 in the three separate "rectangles" is exclusively for the Army National Guard.

Figure V-1: Existing Las Vegas Land Status (2014)



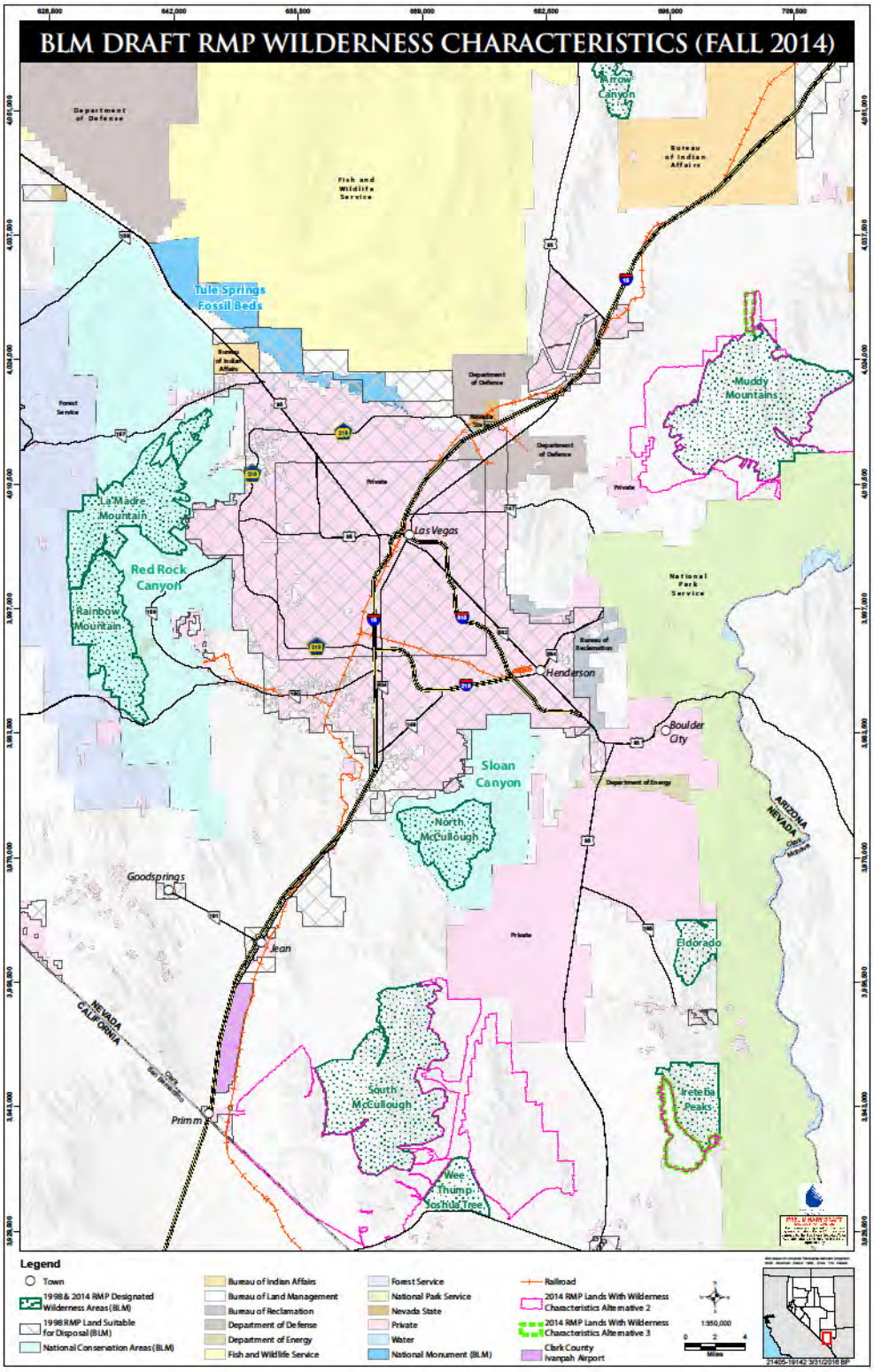
Source: U.S. BLM.

Figure V-2: BLM Draft RMP ACECs (2014)



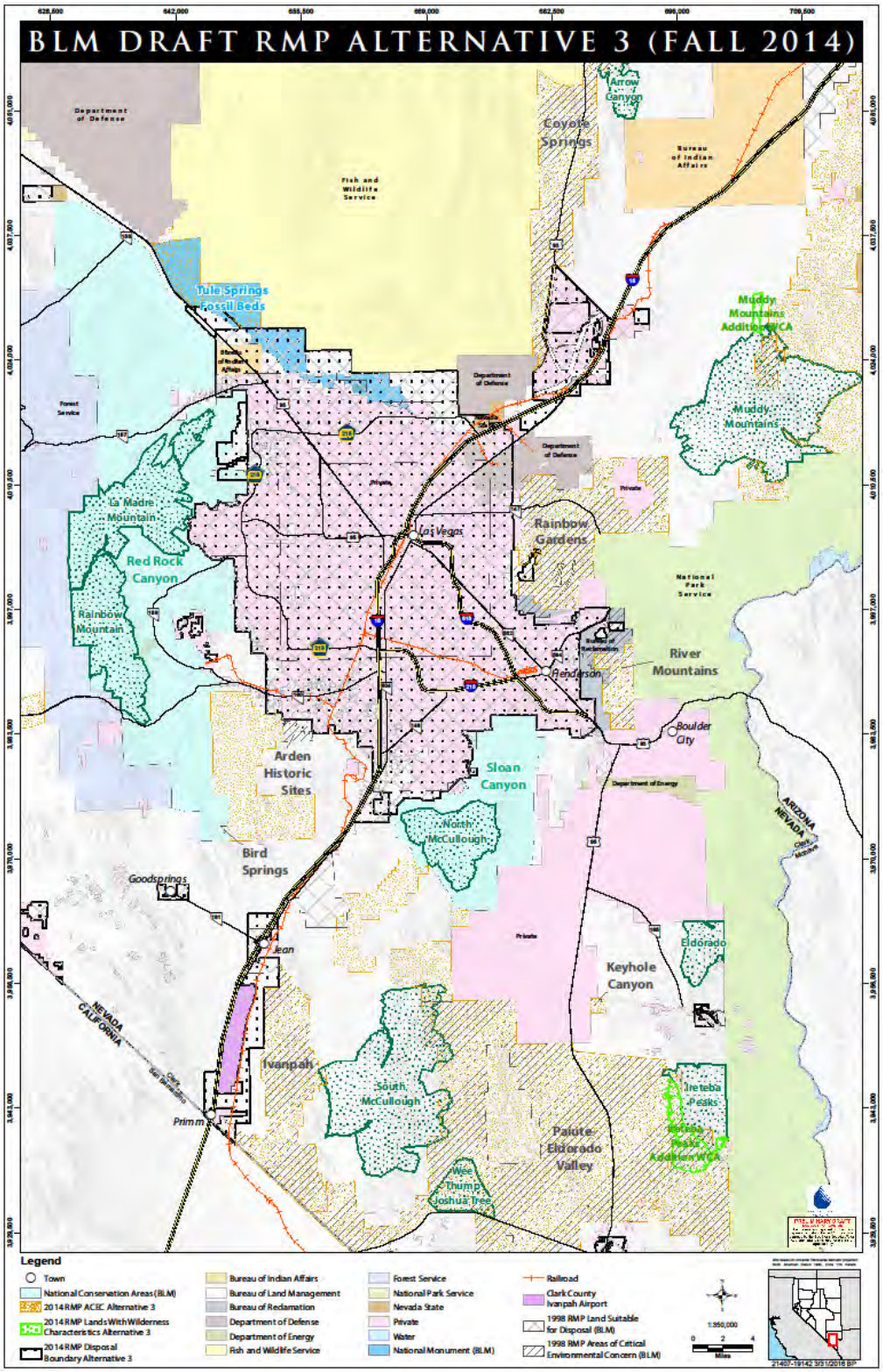
Source: U.S. BLM.

Figure V-3: BLM Draft RMP Wilderness Characteristics (2014)



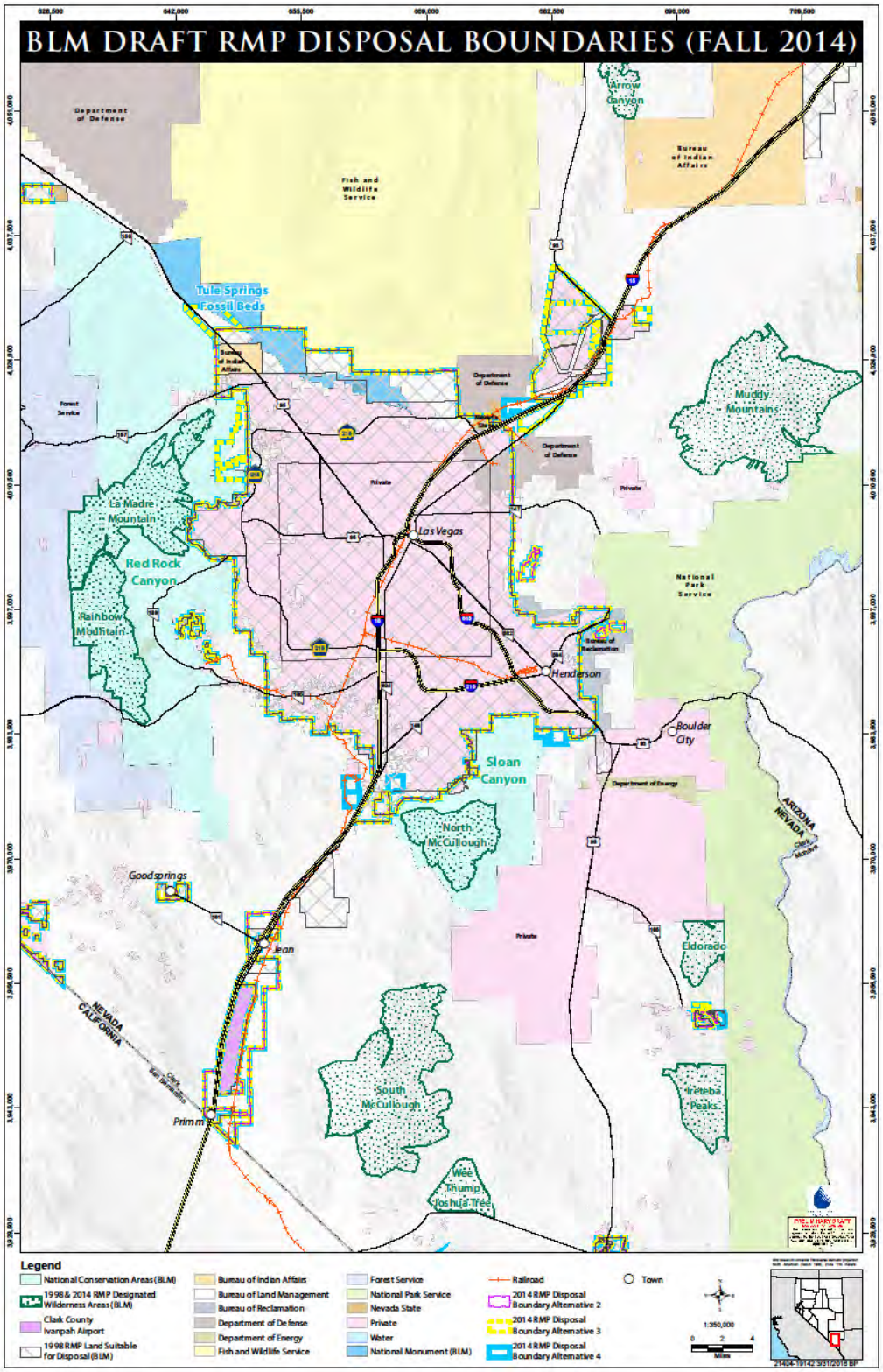
Source: U.S. BLM.

Figure V-4: BLM Draft RMP Alternative 3 (2014)



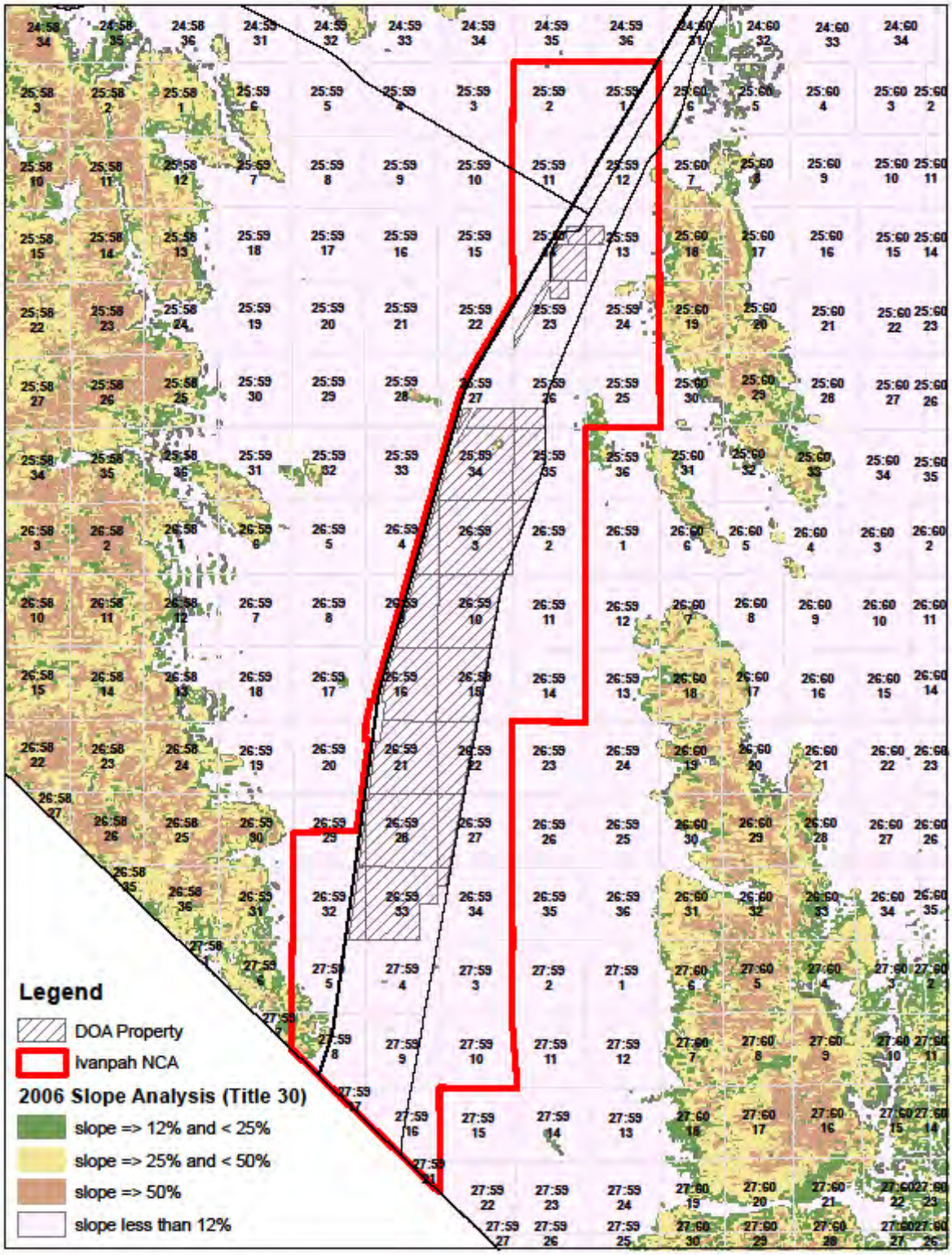
Source: U.S. BLM.

Figure V-5: BLM Draft RMP Disposal Boundaries (2014)



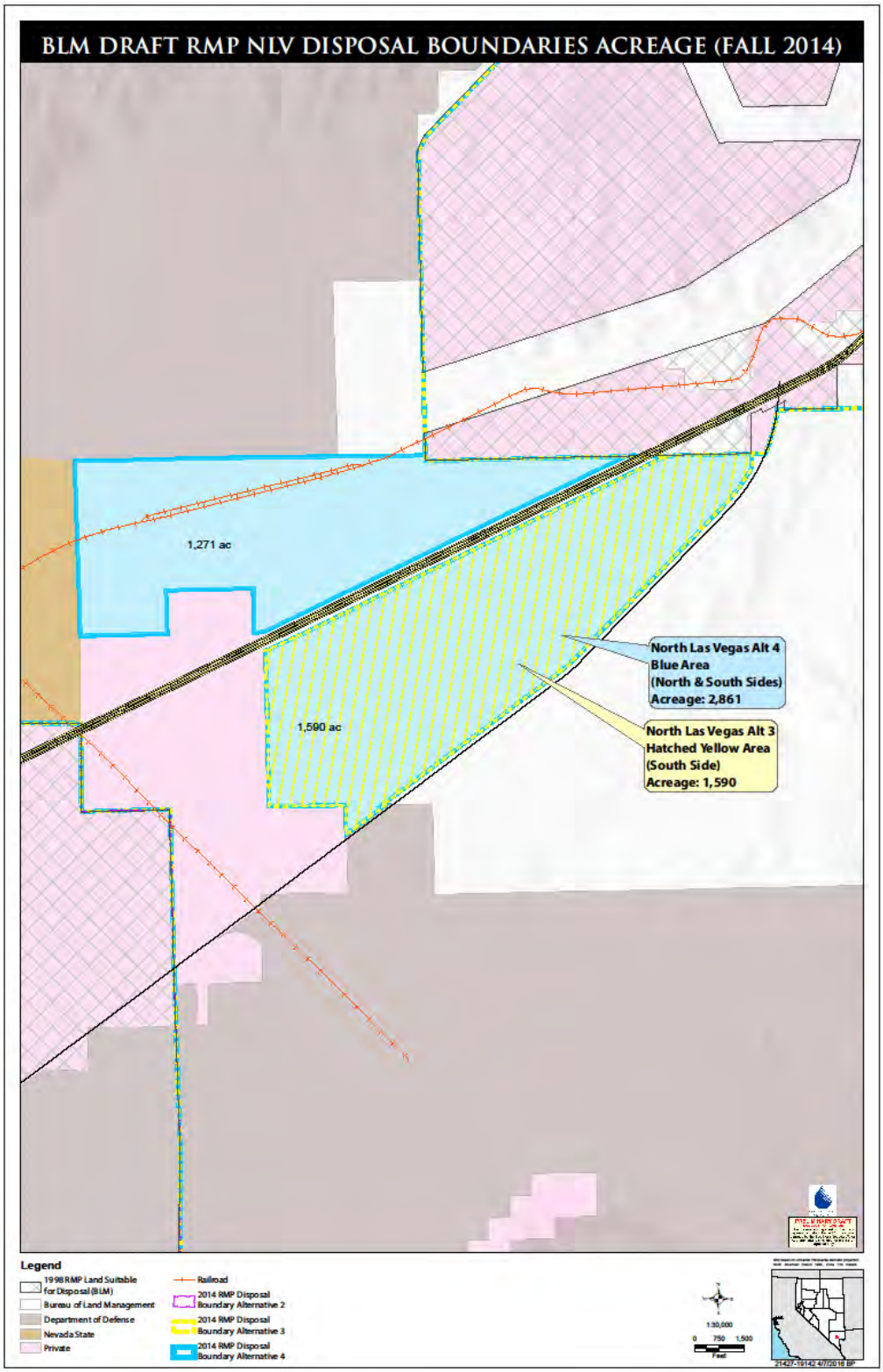
Source: U.S. BLM.

Figure V-6: Ivanpah Map (2014)



Source: U.S. BLM.

Figure V-7: BLM Draft RMP North Las Vegas Disposal Boundaries (2014)

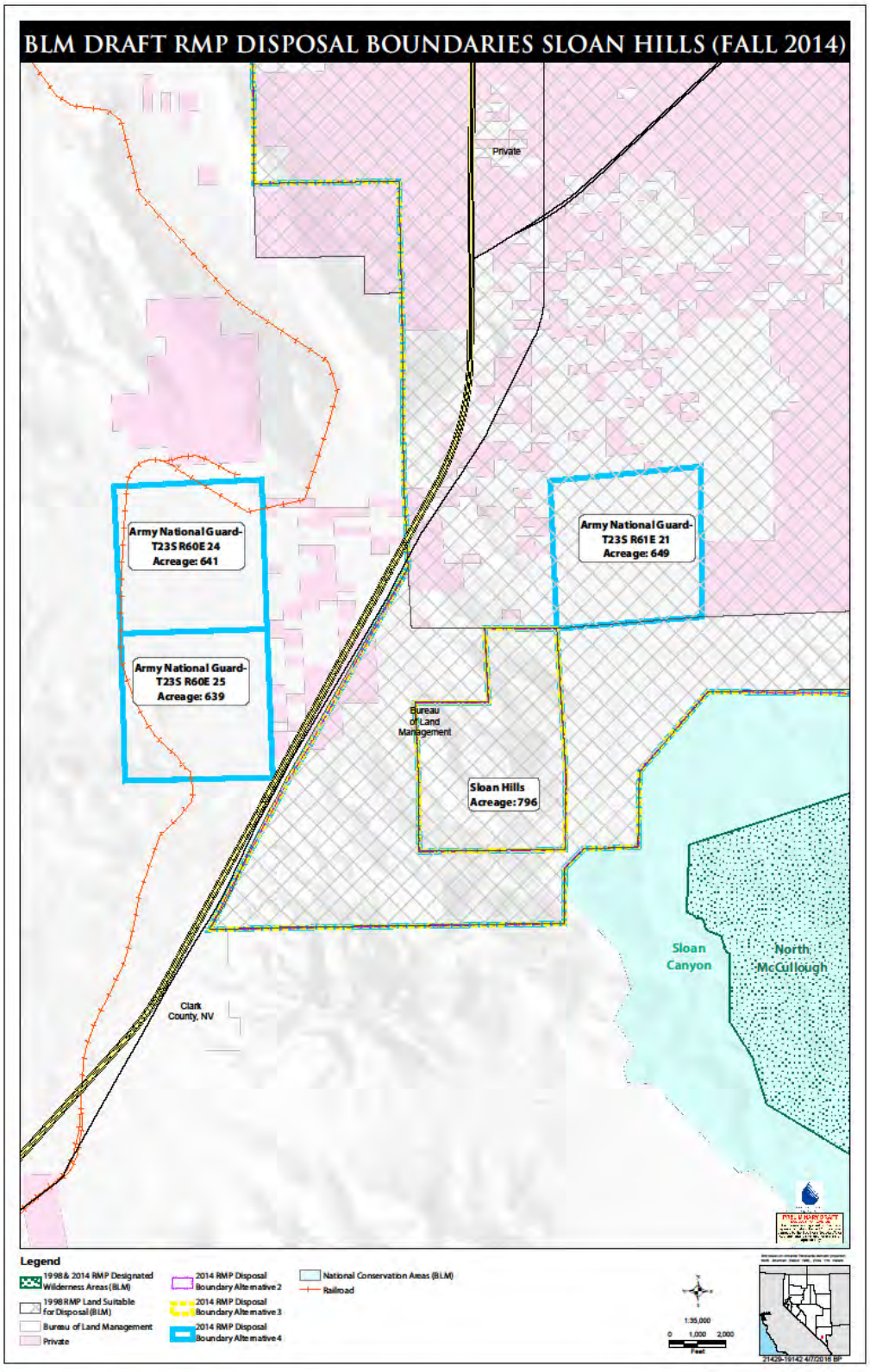


Source: U.S. BLM.

Figure V-8: BLM Draft RMP Northwest Clark County Disposal Boundaries (2014)

Source: U.S. BLM.

Figure V-9: BLM Draft RMP Sloan Hills Disposal Boundaries (2014)



Source: U.S. BLM.

VI. EMPLOYMENT GROWTH AND EMPLOYMENT LAND ANALYSIS

Next, we examine the estimates prepared for Southern Nevada Strong ("SNS" (footnote 17)) to look at the potential future demand trends in Clark County. The estimates are concerned with employment for industrial and office jobs.

The study estimated the amount of land needed to accommodate forecasted employees, by target industry and growth scenario, using overall floor area ratios[18] ("FAR") for the two land use categories. The following two FARs are estimated:

- Commercial: 0.42
- Industrial: 0.41

These FARs help determine how much land would be required to accommodate the employment forecasts.

After applying the building sf per employee ratio to the FAR, as well as applying additional adjustments to account for roads and utilities and a standard market vacancy rate adjustment, the study reported a total employee-to-land ratio[19]:

- Office: 53.2 employees/acre
- Industrial: 12.9 employees/acre

In order to produce the land use estimates, an employment forecast is necessary. GOED provided the jobs forecast used to calculate land demand. The forecast derived from the Economic Modeling Specialists International ("EMSI") model[20], a widely used source for economic data.

[18] A FAR is defined herein as the total square feet of a building divided by the total square feet of the parcel the building is sitting on. This accounts for things like landscaping and parking requirements.
[19] For the methodology, see http://www.rcg1.com/wp-content/uploads/2015/03/So-Nv-Emp-Land-Analysis-Final-Rpt-2015-3-25-.pdf.
[20] For more information on EMSI, visit http://www.economicmodeling.com/. Based upon discussions with GOED on possible successful project development and latest data, the forecasts below are updated (classified) from the original SNS.

The SNS study used the forecast to produce multiple growth scenarios. Table VI-1 provides two scenarios: slower growth and expected growth. Expected Growth shows a conservative level of job growth by 2034. The Slower Growth scenario provides estimates that are more pessimistic.

Table VI-1: Employment Growth Scenarios (2014-2034)

Target Industry	Slower Growth	Expected Growth
1. Healthcare	32,274	40,343
2. IT	17,157	21,446
3. Finance	30,346	37,932
4. Industrial & Manufacturing	3,901	4,876
5. Logistics & Operations	11,718	14,647
6. Clean Energy	1,676	2,095
7. Defense & Unmanned Aerial Systems	1,196	1,495
Target Industry Emp. Change	98,268	122,834
All Industries Total Employment Change	**229,714**	**287,143**

Source: EMSI, UNLV-CBER, DETR.

A. Land Use Forecasts

Applying the employee-to-land ratios to the job estimates above, the study estimated the land potentially demanded for new office land in Clark County by 2034 (see Table VI-2). This table illustrates the land demand for all seven GOED target industries. The totals for the Expected Growth scenario suggest that Southern Nevada will need 1,320 acres of employment lands to satisfy the needs of office firms in just the target industries by 2034. To accommodate the demand for all firms, the region would require almost 3,100 acres of land.

Table VI-2: New Demanded Office Acreage Forecast (2014-2034)

Target Industry	Slower Growth	Expected Growth
1. Healthcare	244.6	305.8
2. IT	162.5	203.2
3. Finance	517.5	646.9
4. Industrial & Manufacturing	11.1	13.9
5. Logistics & Operations	99.9	124.9
6. Clean Energy	11.1	13.9
7. Defense & Unmanned Aerial Systems	9.1	11.3
Target Industries Total	1,056	1,320
All Industries Total (Acres)	**2,468**	**3,085**

Source: Southern Nevada Strong, EMSI.

The SNS report used the same process to calculate forecasted need for industrial lands. The results are reported in Table VI-3. According to the table, if Southern Nevada achieves Expected Growth, the seven target industries would potentially need approximately 4,100 acres, or about 165 acres of land per year, by 2034 to meet the demand of firms in the targeted industries. All firms in the region would need a total of nearly 9,700 acres of space by 2034.

Table VI-3: New Demanded Industrial Acreage Forecast (2014-2034)

Target Industry	Slower Growth	Expected Growth
1. Healthcare	1,504.1	1,880.1
2. IT	666.3	832.9
3. Finance	235.7	294.6
4. Industrial & Manufacturing	257.6	321.9
5. Logistics & Operations	500.6	625.7
6. Clean Energy	84.6	105.7
7. Defense & Unmanned Aerial Systems	55.7	69.7
Target Industries Total	3,305	4,131
All Industries Total (Acres)	**7,725**	**9,656**

Source: Southern Nevada Strong.

Table VI-4 provides the sum of office and industrial land needs by 2034. The total Expected Growth suggests that Southern Nevada would need at least 12,700 acres of employment land space to meet forecasted employment growth in 2034.

Table VI-4: New Demanded Total Acreage Forecast (2014-2034)

Target Industry	Slower Growth	Expected Growth
8. Healthcare	1,749	2,186
9. IT	829	1,036
10. Finance	753	942
11. Industrial & Manufacturing	269	336
12. Logistics & Operations	601	751
13. Clean Energy	96	120
14. Defense & Unmanned Aerial Systems	65	81
Target Industries Total	4,361	5,451
All Industries Total (Acres)	**10,193**	**12,741**

Source: Southern Nevada Strong.

B. Barriers to Growth

These are significant figures. Looking back at employment lands availability in Southern Nevada in Section V, we see that there are about 32,200 acres of total space available. Of that space, about 14,500 acres are located in, or adjacent, to the Las Vegas Valley, while about 17,700 are in the surrounding exurban areas of Clark County. Of the total space, just 9,177 acres were considered "top" EOAs, the most desirable sites due to their locations and existing infrastructure. It is important to note that these figures include a much higher acreage figure for APEX than the 2,300 acres owned by APEX Holding Assuming that even the Slower Growth scenario plays out, about 10,200 acres of new land would be required.

However, not all of the Valley's employment growth will occur on vacant land. Many of the region's existing businesses, as well as some new businesses, especially in the office sector due to its lingering high vacancy rate, may expand and hire workers using the existing inventory of space. Therefore, these expansions will not necessarily require the construction of new office space. However, the SNS analysis did not include firms made up of fewer than 50 workers. Therefore, it is within reason to assume that these smaller firms could occupy space comparable to the quantity of current vacancies.

These growth figures are not perfect. According to the SNS report, there are reasons to believe that they could be too high, and reasons that they could be too low. They are only intended to offer a realistic estimate for job growth and land needs, and these estimates show that there is legitimate cause for concern regarding land availability in Southern Nevada.

With that said, the major assumption inherent to these forecasts is that the inputs for growth will be available. However, that is not a given. As noted in this report, and its various sources, the number of large parcels available for development for Southern Nevada's targeted industries may not be able to absorb the projected growth. For example, the total acreage of the 13 employment opportunity areas in the Las Vegas Valley, identified in the LVGEA report, add up to only approximately 4,700 acres currently ready for development and only three of these have acreage that exceeds 150 acres. Even the higher figure for these 13 top employment areas of 9,177 acres available makes a strong assumption that APEX is always the appropriate location and includes a much higher acreage figure for APEX than the 2,300 acres owned by APEX Holding.

If new land policies limit growth potential – whether by reducing available land or impeding infrastructure development – Southern Nevada may find itself at a severe competitive disadvantage. As such, it is recommended that the BLM carefully consider the long-run implications of its policy proposals.

VII. NEGATIVE IMPACTS ON REGIONAL GROWTH AND INCOME

This report has presented information on and discussed the state of land availability in Southern Nevada. As shown, large parcels for major economic development are limited in the context of both normal growth trends, as well as for Nevada's recommended targeted industries for the region. Future economic development, through these targeted industries along with "normal" growth, needs to be considered within the context of any future land management plan.

Concern over the competitive position of Southern Nevada about economic diversification has been a research concern in our work since 2008.[21] The issue of land availability and its potentially negative impacts on economic development in Southern Nevada is a valid issue and reason for concern in the proposed RMP.

The purpose of this chapter is to illustrate the negative implications of a potentially higher regional cost structure on patterns of regional economic growth and development.

As shown below, the potential negative impacts on Southern Nevada stemming from a regional cost disadvantage are severe and significantly harm the rate of employment, and ultimately, economic growth in our community. *Specifically, the cumulative impacts of what may initially appear to be small cost disadvantages actually result in major negative regional economic impacts.*

It is critical to realize that traditional forecasts of growth in our economy rely on "normal" access to markets, development opportunities, delivered prices, distribution times and other inputs. A major goal of economic development is the creation of business clusters (concentrations of linked companies and their suppliers) around Nevada's seven targeted industries. It is difficult to foster this desired economic development goal unless these basic criteria for success are met.[22]

[21] For example, see NAIOP (2008) "A Strategic Analysis of Southern Nevada's Economy: Implications of Industrial Land Constraints on Growth and Income", Theodore Roosevelt Institute.
[22] A summary of fundamental criteria related to land availability in Southern Nevada, and how these issues affect regional growth are contained in NAIOP (2008) op.cit.

A. Model Approach

Forecasts (and simulations) of the economy are, of course, illustrative in nature rather than based on precise numbers. However, they can reveal the unintended consequences of changes to the economy for policymakers to consider in formulating future plans.

Based upon the issues discussed in this report, what would be the impacts of a regional cost disadvantage for future economic development?

What is often not recognized is that any cost disadvantage relates, not only to the more obvious direct effect of the disadvantage, but also to indirect impacts on suppliers, households and new business formation. Thus, the total impacts are not a simple measurement, but the cumulative impacts of a series of economic interactions between the business sector, consumers and households.[23]

Specifically, what are the impacts of these cost disadvantages on the critical regional dimensions of employment and population? How do results change from an assumed base-case where Southern Nevada mirrors the national economy?

Based upon both our current and prior work on the competitive positon of land and associated constraints in Southern Nevada, our opinion is that long-run economic growth and development could face a regional competitive cost disadvantage. Specifically, this could be in our view within a conservative range of potential cost disadvantages of three percent to five percent.[24]

At first glance, these figures appear to be small rather than dramatic. However, as shown below, this is actually not the case.

In order to model these effects, TRI used the integrated multisector Regional Economic Model, Inc modeling system, often referred to simply as "REMI".[25] The REMI model is used extensively in Southern Nevada as the basis for population projections and growth forecasts. The system's approach in the model allows the "equilibrium" of a specific single sector issue to be explored, as opposed to taking a simple

[23] It is often difficult to model the "equilibrium" of such a system as opposed to taking a simple snapshot of a single sector.
[24] We wish to acknowledge the assistance of both the Nevada Trucking Association (NTA) and NAIOP in our work.
[25] The REMI model is explained in detail with illustrations and papers from conferences, etc. at http://www.remi.com/. Helpful input from modelers at REMI and Nevada Department of Taxation are acknowledged.

snapshot of a single sector. The inter-sector interaction allows the program to capture the full impacts of individual changes within the regional economy. The forecast period presented below is for the period 2017-2035.

B. Results

Presented below are the results on population, employment and gross regional product of the potential business cost disadvantages to the Southern Nevada economy. These disadvantages are modeled as three percent and five percent cost increases to the region's base levels. The base-cases of the three indicators (population, employment and gross regional product) are the CBER estimates, created using the same basic REMI model.

These disadvantages refer to increased input and other related costs compared to the base-case, which is what the costs would otherwise be. In essence, it relates to the cost of doing business in Southern Nevada. For example, if the regional disadvantages go up by three percent, it would be three percent more expensive to operate in the region. The base-cases on the three indicators assume no constraints on land availability.

In the extreme, severe constraints on developable land in useful locations would, of course, simply not allow major projects (such as, for example, a "Tesla"-type facility in Southern Nevada) to occur. The illustrative results presented here implicitly assume that such a worst-case scenario will not happen.

As noted above, the two scenarios presented below do not involve severe percentages (10 percent or greater). However, the cumulative impacts of small cost disadvantages result in major negative regional impacts on population and employment. These, in turn, will have an impact on the future size of the region's economic output.

Representative results of the simulations are applied to the population projections and employment forecasts presented earlier in this report for the period 2017 to 2035.[26] The results are presented in the figures below. The major implications of the results for economic development of Southern Nevada can be summarized as follows (see Figures VII-1 to VII-3):

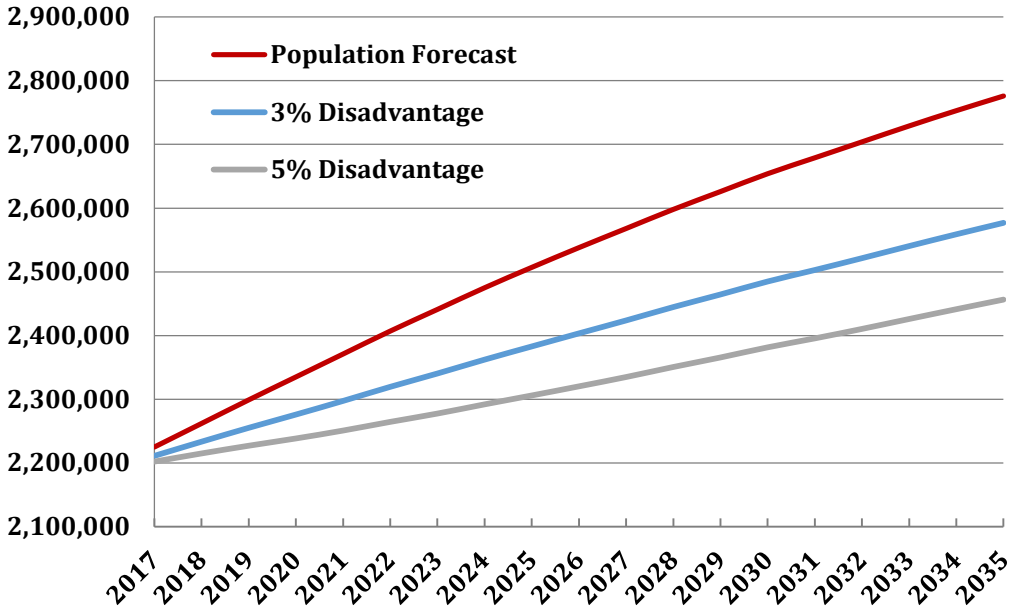
[26] A similar approach appears in NAIOP (2008) op. cit. The percentage changes from our modeling are applied to the forecast above for illustrative purposes.

- For the three percent cost disadvantage, compared to the base-cases, forecasted population could be reduced by 7.2 percent in 2035, employment by 8.2 percent and GRP by 9.0 percent.

- For the five percent cost disadvantage, forecasted population could be reduced by 11.5 percent in 2035, forecasted employment by 13.2 percent and GRP by 14.3 percent.

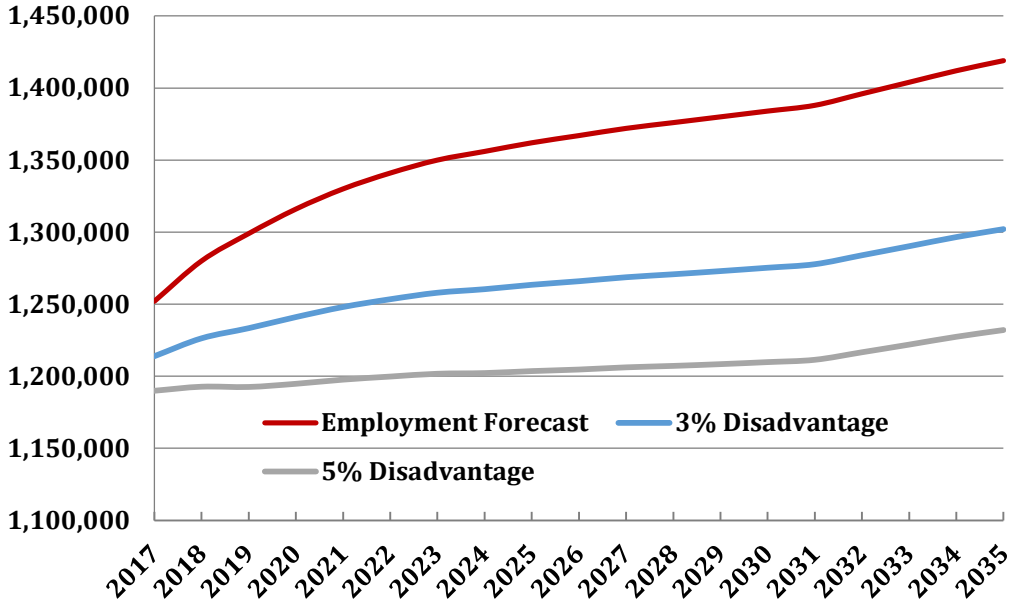
Although we do not claim far-sighted precision, the results do suggest an important observation: Any future resource management plan for Southern Nevada needs to be carefully crafted in conjunction with the stated goals of future economic development and land use planning by local and state governments. This process should involve thoughtful input from elements of the community involved with economic development.

Figure VII-1: Effects of Cost Disadvantage on Southern Nevada Population (2017-2035)



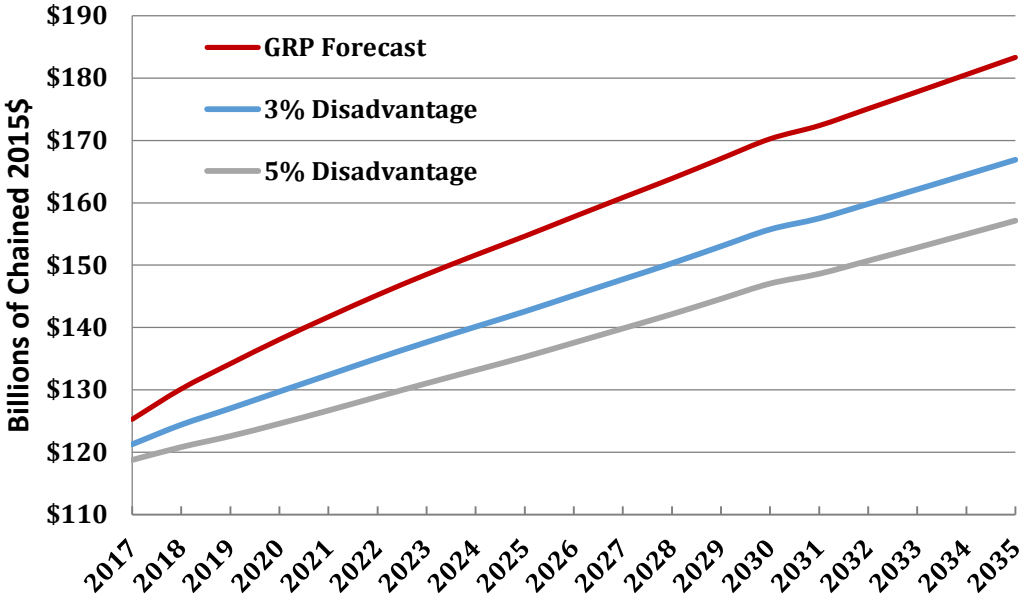
Source: UNLV-CBER, TRI.

Figure VII-2: Effects of Cost Disadvantage on Southern Nevada Employment (2017-2035)



Source: UNLV-CBER, TRI.

Figure VII-3: Effects of Cost Disadvantages on Southern Nevada GRP (2017-2035)



Source: UNLV-CBER, TRI.

VIII. RECOMMENDATIONS

Previous research shows that other metro areas around the U.S have used several strategies regarding employment lands to achieve economic growth[27]. These strategies include preserving the developable vacant land, as well as fully utilizing existing buildings and projects to optimize economic growth.

Southern Nevada is already at a competitive disadvantage compared to other markets in the region. The Las Vegas MSA's relatively high lease rate per square foot of employment land reflects its limited space and inputs. Further restricting the already limited developable lands available in Southern Nevada could have unintended consequences for the local economy. The modeling simulations presented in this report demonstrate that for a region even small increases (of three percent and five percent) in input costs could have outsized effects in the future and limit economic growth. These consequences need to be recognized particularly for economic development of Nevada's targeted industries in Southern Nevada.

In our opinion, the RMP, as currently proposed, does not adequately address land use impacts on Southern Nevada's long-run economic growth and development.

Therefore:

- BLM should seek further community input on the inter-relationships between land use planning and its impacts on the economic growth and development of Southern Nevada. The factors discussed in this report document that land use planning can play a major role in the success (or failure) of Southern Nevada's long run economic growth and development.

- In our opinion, further discussion and community input is required in the final RMP regarding land use impacts on Nevada's targeted industries. The economic development effort towards targeted industries is the major effort to both diversify the economy of Southern Nevada and to create new employment clusters of related businesses. This topic needs further analysis in the final RMP.

- Based upon both our current and prior work on the competitive positon of land and associated constraints in Southern Nevada, our opinion is that Southern Nevada's economic growth and development could face a growing regional competitive cost disadvantage over the long-term. In

[27] http://www.rcg1.com/wp-content/uploads/2015/03/So-Nv-Emp-Land-Analysis-Final-Rpt-2015-3-25-.pdf

this regard, the role of land management needs additional discussion and community input in formulating the final RMP.

- BLM land use proposals need to recognize that land use patterns and mixes can significantly affect the competitive position of Southern Nevada if, for example, a healthy jobs/housing balance is not maintained because there is a lack of employment land. These impacts have been documented in our current and prior work and require further analysis and community input so that the RMP's effects are more fully understood.

###