Financial Advisory
Gaming & Hospitality
Public Policy Research
Real Estate Advisory
Regional & Urban Economics

Feasibility & Land Study for Interstate 15, Stateline to Sloan Interchange

Prepared for:

An Employee Owned Company
CA Group, Inc

Prepared By:

RCG economics

September 2023

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September 15, 2023

Chad Anson
CA Group, Inc.
2785 South Rainbow Boulevard
Las Vegas, NV 89146-4008

Re: Feasibility Study for Interstate 15 (I-15) Stateline to Sloan Interchange ("the Study")

Dear Mr. Anson:

RCG Economics LLC ("RCG") is pleased to submit the above referenced Study to CA Group, Inc ("the Client"), providing the regional economic and real estate advisory services and analyses specified in our scope of work.

RCG developed an analysis and estimates/forecasts of the employment, population, household formation, commercial and residential Land Use development patterns, including the supply of developable land in the southern portion of I-15 in Nevada ("the Study Area") from "Stateline to Sloan Interchange." The Study covered four distinct "Project-Sites" included in the "Clark County-City of Henderson Joint Land Use Planning Study," the "Ivanpah Southern Nevada Supplemental Airport Site," the "Ivanpah Airport Compatibility Land" area, and other vacant land located within one mile of the I-15 Corridor from Stateline to Sloan.

The worsening land shortage in the Southern Nevada area poses significant challenges to the economic competitiveness, resilience and the quality of life of its residents within the region. Because of the Study Area's proximity to the Clark County urban core ("the Las Vegas Valley"), and availability of undeveloped land in the Study Area, future land use development within the Study Area is imminent. This future development will have an impact on the traffic needs of the I-15 Corridor. Understanding how the Study Area may develop is vital to preparing transportation infrastructure. The Study's results may foster proactive planning and engineering feasibility in order to provide reliable travel along the I-15 for Southern Nevada's residents and visitors alike.

Finally, the Study was prepared under the assumptions listed in the attachment to this letter.

If you have any questions, please do not hesitate to contact us at your convenience by phone at 702-967-3188 ext. 101 or by email.

Regards,

RCG Economics LLC

RCG Economics LLC
Attachment

Attachment
Standard Assumptions & Limiting Conditions

1. RCG prepared the Study deliverables from third-party information collected by RCG, as well as our internal economic, land and demographic models, databases and sources.

2. The results of RCG's analyses apply only to the effective date of the Study deliverables. The success of the Nevada Department of Transportation's and the Client's plans for the region will be affected by many related and unrelated economic and real estate market conditions within a local, regional, national and/or world context. We assume no liability for an unforeseen change in the local, regional or national economies. Accordingly, we have no responsibility to update the Study deliverables for events and circumstances occurring after the date of our Study deliverables.

3. Our deliverables are based on historical and current regional economic and developable land benchmark information. Thus, variations in the future could be material and have an impact on the Study conclusions. Even if our 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; and/or terms or availability of financing altogether; and/or major revisions in current state and/or federal tax or regulatory laws.

4. If our Study deliverables are reproduced by the Client, they must be reproduced in their entirety.

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

6. Shawn J. McCoy, as subconsultant to RCG is acting as his own agent and not as an agent of the University of Nevada-Las Vegas. UNLV is not involved with this research or responsible for its conduct.

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

8. The socio-economic and land absorption estimates in our Study may not be used in conjunction with any other report(s). The conclusions stated in our Study will be based on the existing and hypothetical land use plans developed by the public, and may not be separated into parts. The analysis has been prepared solely for the purpose, function and parties so identified herein.

9. It has been assumed that the identified vacant land parcels RCG analyzed have no encroachments, easements or trespasses, unless noted within the Study. RCG has not made its own survey of the selected parcels' acreages, and no responsibility is assumed in connection with any matter that may be disclosed by a proper survey. The parcel data in our Report comes from publicly available data that RCG assumes to be accurate. If a subsequent survey should reflect differing land areas and/or frontages, RCG reserves the right to change the final version of the Study, at the expense of the Clients.

10. All maps, plats, site plans or photographs that are incorporated into the Study are for illustrative purposes only, to assist the reader in visualizing our research, but are not guaranteed to be exact.

11. The ultimate development of the land parcels analyzed in our Study will be assumed to be implemented by competent management and that their ownership will be in responsible hands. The quality of management can

have a direct effect on feasibility of development projects. The Study assumes both responsible ownership and competent management unless noted otherwise. Any variance from this assumption could have a significant effect on the developability of the parcels.

12. The Study assumes that there are no hidden or unapparent conditions relating to the analyzed parcels' soil or subsoil that render them more or less developable. No responsibility is assumed for such conditions, or for engineering that might be required to discover such factors.

13. The existence of potentially hazardous material to the parcels identified in the Study, such as the presence of asbestos, lead paint, toxic waste, underground tanks and/or any other prohibited material or chemical, which may or may not be present on or in the selected parcel acreages, has not been evaluated by RCG. The existence of these potentially hazardous materials may have a significant effect on the development to the parcels evaluated. The Client or other relevant third parties are urged to retain an expert in this field, if desired. The Study assumes that the parcels' acreages are "clean" and free of any of these adverse conditions unless RCG is notified to the contrary in writing.

14. Unless otherwise stated in our Study deliverables, 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.

15. RCG has not performed an audit, review or examination or any other attest function (as defined by the AICPA) regarding any of the third-party parcel and economic benchmarks or demographic information used or included in the Study deliverables. Therefore, RCG does not express any opinion or any other form of assurance with regard to the same, in the context of our Study deliverables.

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Feasibility Study for Interstate 15 (I-15) Stateline to Sloan Interchange

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I. EXECUTIVE SUMMARY

A. Introduction

I-15 is the single most important tourism and freight corridor essential to Southern Nevada's economy. It is also the primary access route between Southern California and Southern Nevada (also referred to herein as Clark County, the Las Vegas MSA or the metro area). The southern portion of I-15 in Nevada ("the Study Area") from "Stateline to Sloan Interchange," see Figure III-1, is located just outside of the Las Vegas Valley ("the Valley") traversing primarily undeveloped land. In recent years, this area has gained interest for future development and redevelopment from private real estate developers as well as public planning authorities.

The lack of available employment land within the Valley (i.e., Clark County's urban core) has encouraged developers to look for employment and residential land opportunities outside of the urban area. For example, the recent purchase of Terrible' s Hotel and Casino property in Jean, Nevada by a development company with plans to convert the land to an industrial/business park demonstrates that this trend will continue for the foreseeable future. These developments and trends have the potential to change the travel patterns along this portion of the I-15 Corridor (the geographic area along I-15 South from Stateline Milepost 0.0 to Sloan Interchange Milepost 26).

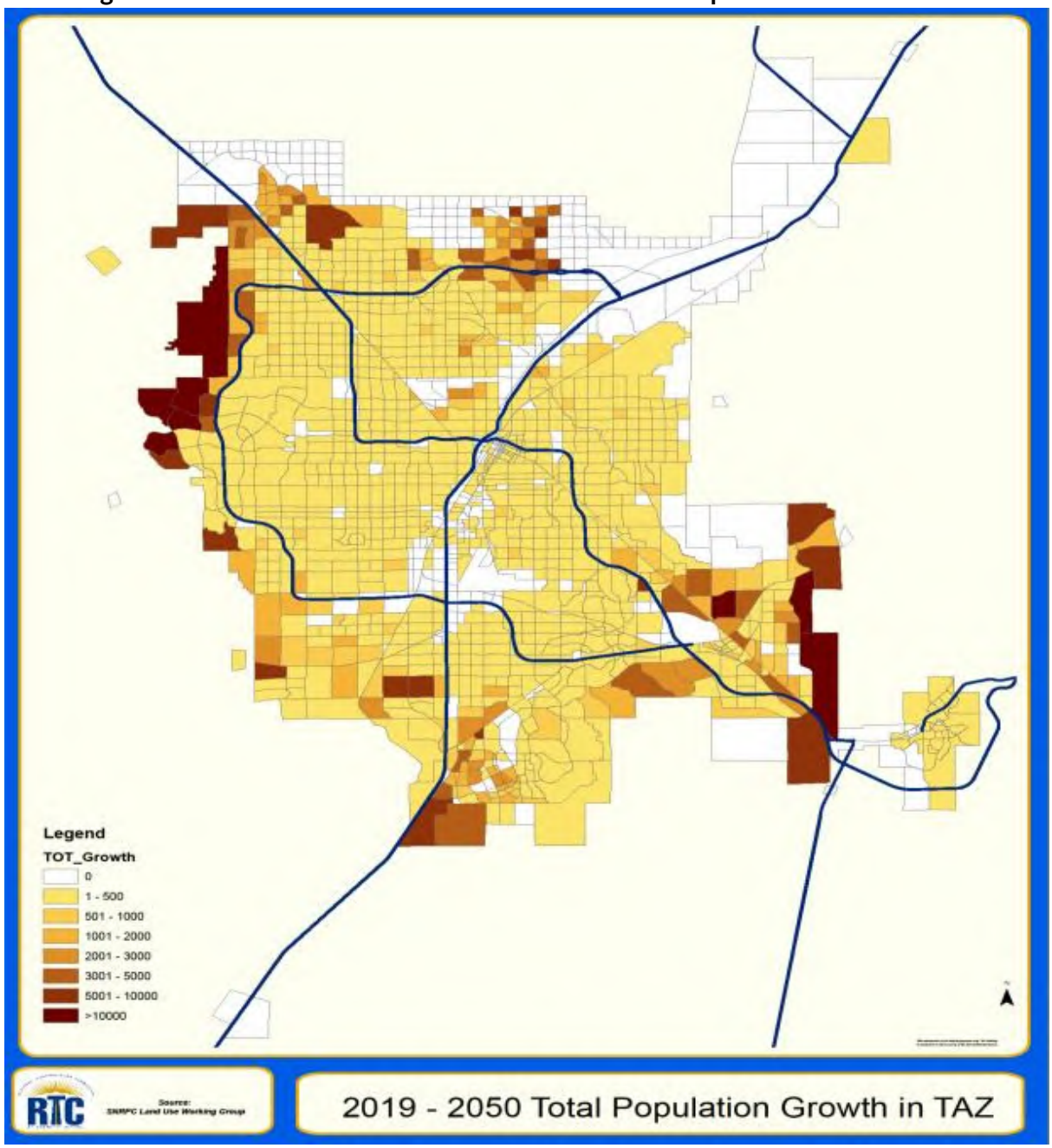
The Regional Transportation Commission of Southern Nevada ("RTC") has also identified the development potential of the Clark County. The RTC frequently develops forecasts for regional travel conditions, and it estimates future transportation system demands, based on current and future socioeconomic data as well as current and future land use development patterns. In their July 2020 *Planning Variable Development and Methodology* report[1], the RTC provided forecasts of employment and population growth in Clark County through 2050.

While the RTC's forecasts are applicable for Southern Nevada, the agency allocates this growth to specific geographic zones referred to as Traffic Analysis Zones (TAZs). The RTC identified those TAZs that are expected to experience the largest population growth to lie on the southern, western, and eastern edges of the Las Vegas MSA.

Figure I-1 below illustrates the RTC's latest projections of absolute population growth between 2019 and 2050, by TAZ.

[1] https://assets.RTC'snv.com/wp-content/uploads/sites/4/2021/06/30140210/Appendix-D-Regional-Forecasts-Planning-Variables.pdf

Figure I-1: RTC of Southern Nevada 2019-2050 Total Population Growth in TAZ



Source: Regional Transportation Commission of Southern Nevada

Demand for land to be developed in the Study Area is also expected to increase due to the fact that the Harry Reid International Airport could reach its full capacity by 2030 with no room for further expansion at its current location/site.[2] The Clark County Department of Aviation projects the airport to reach its

[2] https://lasvegasweekly.com/news/2023/mar/23/las-vegas-airport-prepare-to-keep-breaking-records/

capacity (63 to 65 million passengers) by then.[3] Accordingly, in order to facilitate this growth, additional land to service a supplemental airport will be needed in the not too distant future. As a result, the new Southern Nevada Supplemental Airport ("SNSA") is being planned just south of Jean, Nevada, east of I-15. Jean is located 26 miles from the Valley's core and 13 miles from the Nevada-California border. Figure I-2 shows the SNSA location in relation to Las Vegas, I-15, and the state border.

Figure I-2: Southern Nevada Supplemental Airport Location

Source: Clark County Department of Aviation[4]

Furthermore, the construction of the Brightline West High-Speed Rail[5] (see Figure I-3) between Las Vegas, Victorville and Los Angeles is expected to alter current travel patterns by potentially shifting traffic from personal vehicles to railway use. Brightline West estimates that the rail system could potential remove up

[3] https://www.reviewjournal.com/business/tourism/as-harry-reid-airport-grows-so-does-the-need-for-another-airport-2723758/
[4] https://news3lv.com/news/local/clear-need-for-las-vegas-supplemental-airport-as-harry-reid-sets-new-record
[5] https://www.brightlinewest.com/

to three million cars from the I-15 on an annual basis.[6] The high-speed railway is planned to run along the median on I-15 from the Nevada-California border into the Valley.

[6] https://www.reviewjournal.com/local/traffic/brightline-west-agrees-to-build-wildlife-crossings-along-i-15-2729698/#:~:text=Brightline%20estimates%20that%20the%20completed,year%2C%20and%20create%2035%2C000%20jobs.

Figure I-3: Proposed Brightline West System Map

Source: Brightline West

In addition to these considerations, demand for both employment and residential land is projected to be 30,986 acres within the Study Area, including areas to the east and west of I-15 and adjacent to the Henderson City limit demarcated by the Clark County-City of Henderson *Joint Land Use Planning Study* ("JLUS")[7].

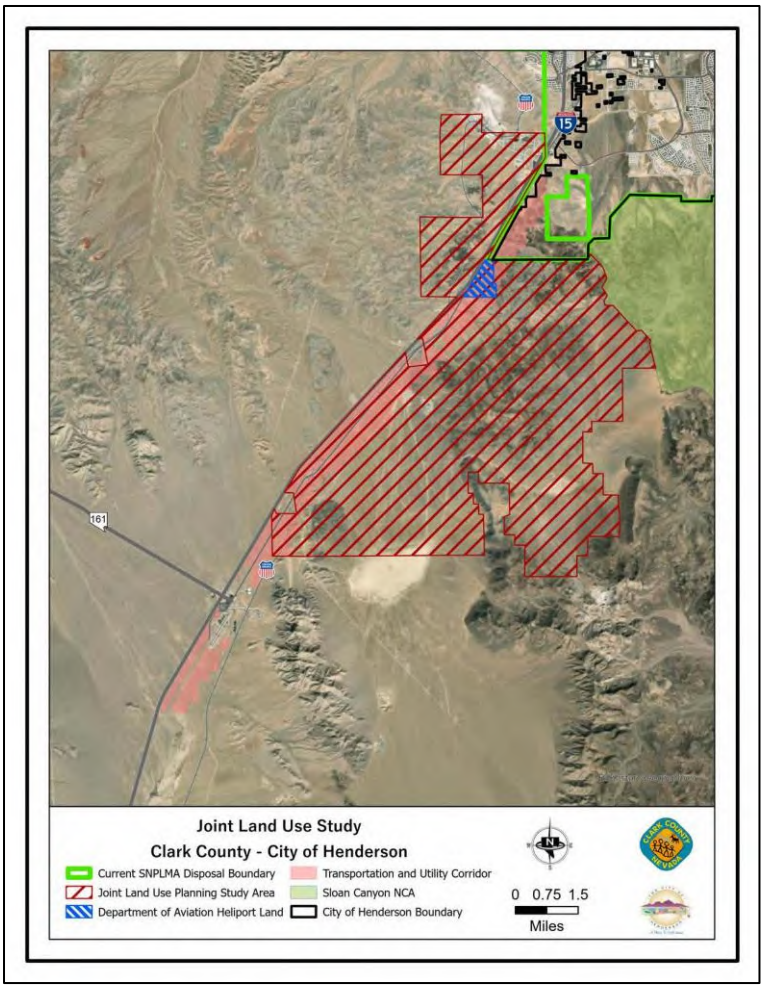
According to the Clark County website, "The purpose of the Joint Land Use Planning Study (JLUS) is to provide a blueprint for future growth in a strategic portion of southern Clark County."[8] The description continues "the project team's objectives are to align the study goals with the priorities of Clark County and the City of Henderson; seek robust public and stakeholder input; educate participants about the opportunities, benefits and tradeoffs associated with planned development of the study area; and gain consensus on final recommendations."[9]

JLUS, which was initiated in July of 2022 and slated to be finalized and presented for adoption in September of 2023, details land use plans to establish a blueprint for future growth in southern Clark County. These plans entail the segmentation of land use across several categories (retail/hospitality/

[7] Joint Land Use Study - Clark County and City of Henderson (clarkcountynv.gov)
[8] Ibid
[9] Ibid

entertainment, traditional mixed use, residential, employment mixed use, and open space buffers). Figure I-3 below shows the JLUS area in detail.

Figure I-4 Map of Clark County-City of Henderson Joint Land Use Planning Study



B. Purpose and Need

Given the relative proximity of the Study Area to the Valley, future land use development is imminent in the area. This said, the magnitude by which growth is anticipated to occur over time is currently unclear since it will depend on the growth and evolutions of Southern Nevada over time and the success of regional economic development efforts.

Understanding how the Study Area may develop is vital to preparing the region's transportation infrastructure. The RTCs TAZs help facilitate and guide transportation planning for traffic engineers and authorities. The majority of the Study Area, however, is not accounted for in the RTC's current TAZ boundaries. Despite this, the future traffic demand in the Study Area will continue beyond where the current TAZ boundaries are. In order to conduct traffic planning analyses for future traffic demand

scenarios, employment, population, and household projections are needed for the Study Area. Accordingly, the purpose of RCG's study is to: (a) describe the current economic and demographic make-up of the Study Area and (b) forecast how the area is expected to change and evolve between 2023 and 2050 with a special emphasis on:

1. Employment
2. Population
3. Household formation
4. The amount and rate of nonresidential and residential land use development
5. The supply of developable land

Forecasts of these metrics are needed to foster proactive public and private planning as well as engineering feasibility evaluations to help make sound strategic transportation infrastructure investment decisions with the goal of improving access and providing safe and reliable goods and people movements along the I-15 for Southern Nevada's residents, visitors, and travelers alike.

II. MAJOR FINDINGS

As a result of its research, data collection and analysis, RCG has developed the following major report conclusions and findings:

- Employment in Clark County is projected to grow from 1,302,707 employees in 2023 to 1,877,391 employees in 2050 (a 44 percent increase), potentially requiring 22,063 acres of land planned for employment use.

- Clark County's population is also forecasted to increase from 2,369,997 to 3,373,635 persons by 2050 (a 42 percent increase), which RCG estimates will require 13,672 acres of land to be developed to accommodate this growth.

- In the Study Area, employment is anticipated to rise from 2,217 employees to 220,795 employees in 2050 absorbing 8,392 acres of presently undeveloped land suitable for nonresidential development. See Section IV. Results in this report for a more detailed explanation why RCG is forecasting a change this large.

- Population in the Study Area is projected to grow from 1,086 to 28,944 persons in 2050 resulting in an additional 10,680 households[10] being created. These households are forecasted to absorb 2,937 acres of presently undeveloped land suitable for residential uses.

- The inclusion of undeveloped land suitable in the JLUS area (9,947 acres) for future employment uses represents 38 percent of the total inventory of undeveloped land suitable for employment use in Clark County.

- If vacant land planned for employment uses in the Study Area were to be excluded from future development, RCG estimates that this would result in a projected shortage of 5,857 employment acres by 2050, which will be needed to support projected employment levels.

- RCG anticipates these 5,857 employment acres to be most likely developed within the JLUS Project-Site due to its proximity to the Valley and the fact that progress is being made in the current land use planning process.

[10] As used within this study, a household equates to an occupied housing unit.

- According to the most aggressive growth estimates, demand for employment land within the Study Area may exceed the JLUS Project-Site's supply. In this case, an additional 1,300 acres of developed lands within the Study Area may be needed to accommodate this excess demand.

- The lands surrounding the proposed SNSA airport within the Study Area could be developed to meet this demand. However, RCG is unable to say with certainty when or to what extent due to unknown factors including SNSA development timelines, Federal agency agreements, and environment study results.

- Without the inclusion of developable lands in the Study Area, Clark County will face barriers that may decrease the region's ability to facilitate further employment and population growth, and economic development.

III. STATEMENT OF METHODOLOGY/KEY ASSUMPTION

This section details RCG's methodology and key assumptions used in three analyses conducted in this study. Specifically, the three sections are titled:

A. Residential and Employment Land Inventory

B. Future Land Use and Economic Development Forecast

C. Demographic Analysis and Forecast

A. Residential and Employment Land Inventory

The purpose of the land inventory analysis was to estimate the availability of developable land acreage, by land use class, in the Study Area. Vacant land status, alone, is a necessary but insufficient condition to determine developability. Instead, developability is also a function of (but not limited to), topography, zoning, and geography. Accordingly, RCG's methodological approach is two-pronged:

First, parcels were categorized and filtered, based on topography/slope, ownership, and geographic region deemed relevant for development (see below for an explanation of the methodology supporting each). Second, after applying these filters, RCG aggregated developed and undeveloped acreage by land use classification.

Our empirical analysis utilized geo-spatial data describing parcel boundaries in Clark County. RCG focused its analysis on parcels located within four distinct geographic Project-Sites of the Study Area. The following Project Sites are included herein:

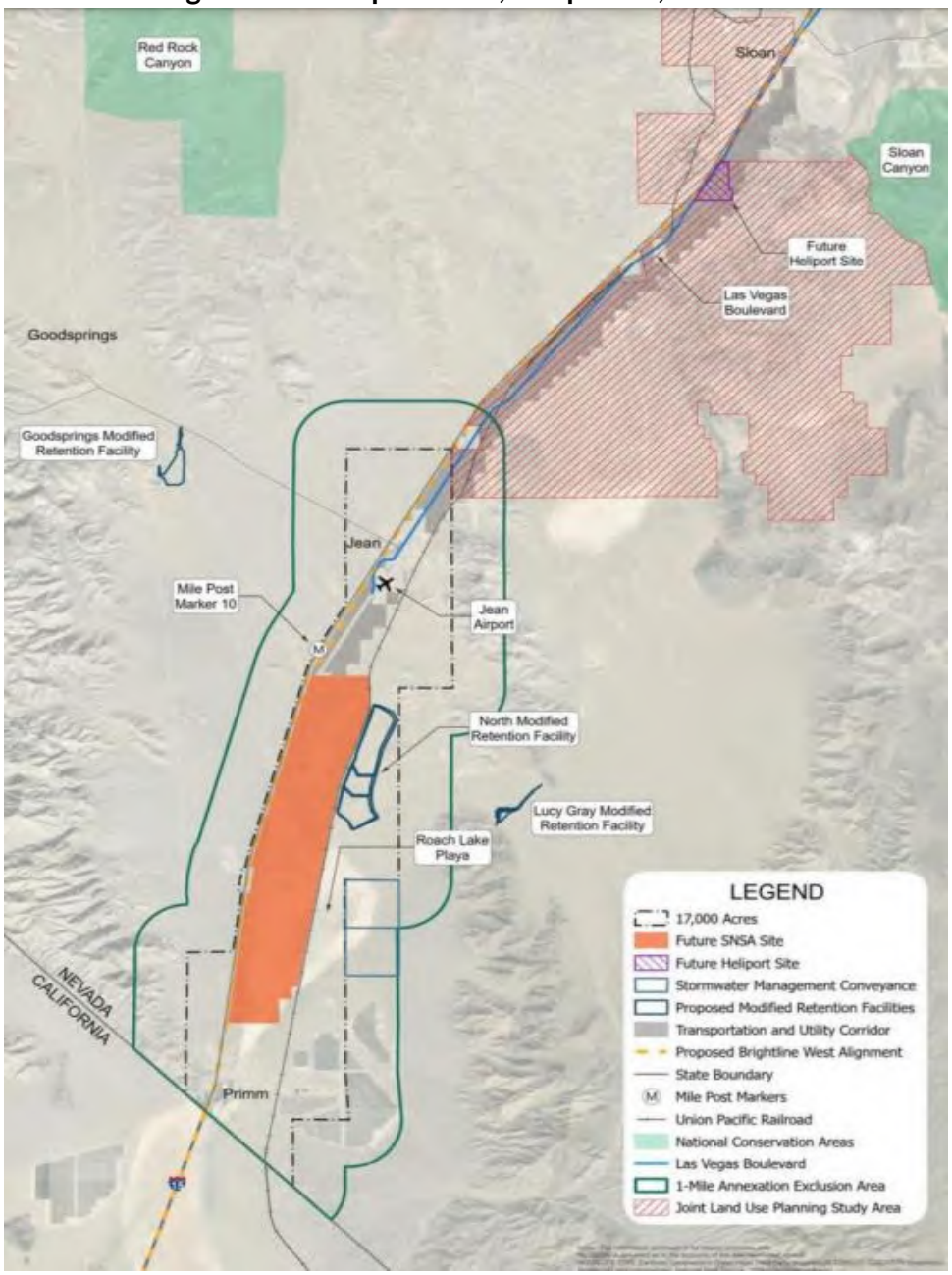
Project-Sites in the Study Area

1. The Ivanpah Southern Nevada Supplemental Airport Site ("**Ivanpah SNSA**")
2. An additional ~17,000 acres of airport compatibility land buffering Ivanpah SNSA ("**Ivanpah AC**")
3. Clark County-City of Henderson Joint Land Use Planning Study Project-Site ("**JLUS**")
4. All remaining land located within one-mile of the section of the I-15 Corridor spanning the Sloan interchange and the CA-NV border. ("**I-15 Corridor**")

Development in the Ivanpah area is limited by federal government land ownership. Six thousand acres were expressly set aside for construction and operation of the SNSA by the Ivanpah Valley Airport Public Lands Transfer Act of 2000. Development of this area is contingent on the actual construction of the SNSA by the Clark County Department of Aviation. Additionally, the 2002 Clark County Conservation of Public Land and Natural Resources Act allowed the County to further acquire an additional 17,000 acres for airport

compatible land uses[11], subject to obtaining all necessary environmental approvals (e.g., "Ivanpah AC"). Figure III-1 below shows a map of the Future SNSA site, the 17,000 acres identified for development, and the JLUS area.

Figure III-1: Ivanpah SNSA, Ivanpah AC, and JLUS

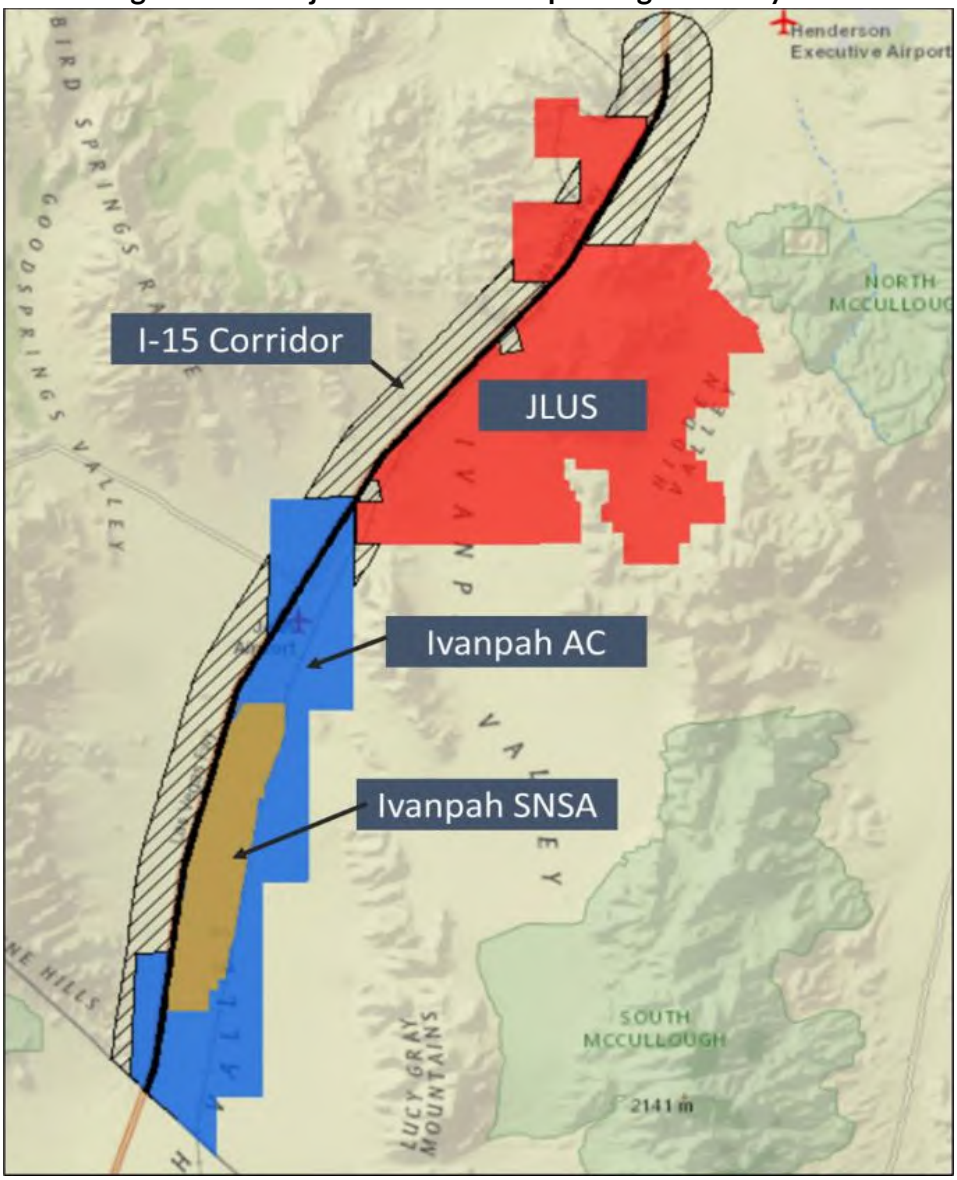


Source: Clark County Department of Aviation[12]

[11] https://files.clarkcountynv.gov/clarknv/Comprehensive%20Planning/Title%2030/Chapters/3048.pdf
[12] https://www.leg.state.nv.us/App/NELIS/REL/82nd2023/ExhibitDocument/OpenExhibitDocument?exhibitId=69340&fileDownloadName=0510_SB19_jacobs.j_pres.pdf

The Ivanpah area is separate from the JLUS area and has no overlapping land areas. All remaining land within a one-mile buffer of the I-15 Corridor, but located outside the geographic extent of Ivanpah and JLUS, is classified as part of the "I-15 Corridor." These four distinct areas are visually shown in Figure III-2, below.

Figure III-2: Project-Site Extents Spanning the Study Area



Source: RCG, City of Henderson, Clark County Department of Aviation

Using data describing the slope of the terrain provided courtesy of the U.S. Geological Survey, we computed the average slope of each parcel throughout the Study Area (inclusive of JLUS, Ivanpah AC, Ivanpah SNSA, and I-15 Corridor Project-Sites). We then combined data from the Assessor's parcel maps

with Clark County's secured tax roll to identify the owner of each parcel as well as each parcel's development status. This process is commonly referred to as a "crosswalk" because it helps link two separate datasets together using a common link between the two, in this case each parcel's unique APN.

Federally owned parcels located in the I-15 Corridor but not located within the urban or rural disposal boundary[13] were dropped. The disposal boundary is a geographic boundary established by the *Southern Nevada Public Land Management Act of 1998*. This boundary designates lands that are currently federally owned but can be sold by the Bureau of Land Management. RCG removed federally-owned lands beyond the BLM Disposal Boundary ("DB") because these lands are not subject to sale through the SNPLMA. As a result, they are unlikely to be released for development by the federal government without legislative changes. The Study assumes that all federal lands within the DB will be made available as needed, assuming these lands also pass proper environmental safeguard standards.

Finally, RCG determined the current zoning of each parcel by spatially cross-referencing each parcel with Clark County's and the City of Henderson's zoning maps.

In Table III-1 below, we aggregate developed and undeveloped acreages, by Project-Site and land use classification. Aggregate developed and undeveloped acreage is presented in column 2 and 3, respectively. Undeveloped acreage in column 3 is based on the parcels in each Project-Site (JLUS, Ivanpah SNSA, Ivanpah AC, and I-15 Corridor). In contrast, we computed undeveloped acreage in column 5 after removing parcels with an average slope greater than seven percent (the industry standard slope for developing nonresidential real estate projects, especially industrial). Column 6 replicates column 5 replacing the seven percent threshold with a 12 percent threshold (the industry standard slope for developable residential lands.)

[13] See here for further details:
https://www.clarkcountynv.gov/government/departments/environment_and_sustainability/snedca_faqs/index.php

Table III-1: Developed and Undeveloped Acreage by Land Use Class and Project-Site

(1) Project-Site / Zoning	(2) Developed Acreage	(3) Undeveloped Acreage	(4) Total Acreage	*(5) Undeveloped Acreage After Parcel Filtering (Slope <7%)*	*(6) Undeveloped Acreage After Parcel Filtering (Slope <12%)*
JLUS					
Employment Mixed Use	685	11,930	12,616	9,293	11,215
Open Space	225	8,424	8,650	1,236	1,458
Residential	0	3,577	3,577	3,042	3,559
Buffer	0	2,118	2,118	2,088	2,092
Retail/Hospitality/Ent.	10	630	641	567	630
Traditional Mixed Use	0	894	894	389	873
Subtotal	**921**	**27,574**	**28,494**	**16,615**	**19,828**
Ivanpah SNSA					
P-F	0.00	5,835	5,835	5,835	5,835
Subtotal	**0.00**	**5,835**	**5,835**	**5,835**	**5,835**
Ivanpah AC					
C-1	5	0	5	0	0
C-2	57	6	63	4	6
H-1	297	100	397	100	100
H-2	0	371	371	363	367
M-1	58	3	61	3	3
M-2	143	0	143	0	0
M-D	0	40	40	40	40
P-F	317	15	331	15	15
R-T	13	0	13	0	0
R-U	2,409	12,524	14,933	11,485	12,415
U-V	25	0	25	0	0
Subtotal	**3,324**	**13,059**	**16,383**	**12,009**	**12,947**
I-15 Corridor					
C-1	0	3	3	3	3
C-2	111	43	154	43	43
CT	83	31	113	31	31
H-1	135	84	219	84	84
H-2	44	312	356	266	312
M-1	42	0	42	0	0
MR	0	327	327	327	327
NO ZONING	138	2,583	2,722	1,286	1,663
P-F	5	43	48	0	37
R-2	283	1	285	1	1

(1) Project-Site / Zoning	(2) Developed Acreage	(3) Undeveloped Acreage	(4) Total Acreage	*(5) Undeveloped Acreage After Parcel Filtering (Slope <7%)*	*(6) Undeveloped Acreage After Parcel Filtering (Slope <12%)*
R-3	16	0	16	0	0
R-4	0	26	26	26	26
R-5	7	0	7	0	0
R-E	227	273	500	59	62
R-T	2	9	12	9	9
R-U	103	422	526	209	247
RH-24	16	0	16	0	0
RUD	0	0	0	0	0
Subtotal	**1,213**	**4,159**	**5,372**	**2,345**	**2,845**
Total	**5,457**	**50,627**	**56,085**	**36,806**	**41,456**

Table III-2 below presents this information in a different manner. Rather than providing the acreage sizes, Table III-2 presents the percent distribution (shares) of the land within each zoning category or use type, by each Project-Site and by row. Every column adds up to 100 percent. For example, 13 percent of the current Developed Acreage within the Study Area is located in the JLUS Project-Site classified for Employment Mixed Use. Similarly, 51 percent of the Total Acreage available in the Study Area is located within the JLUS Project-Site, as seen in column 3 Subtotal row under JLUS. This percentage breakdown is helpful in correctly considering the available lands within the Study area located within each Project-Site.

Table III-2: Distribution of Acreage by Land Use Class and Project-Site

(1) Project-Site / Zoning	(2) Developed Acreage	(3) Undeveloped Acreage	(4) Total Acreage	*(5) Undeveloped Acreage After Parcel Filtering (Slope <7%)*	*(6) Undeveloped Acreage After Parcel Filtering (Slope <12%)*
JLUS					
Employment Mixed-Use	13%	24%	22%	25%	27%
Open Space	4%	17%	15%	3%	4%
Residential	0%	7%	6%	8%	9%
Buffer	0%	4%	4%	6%	5%
Retail/Hospitality/Ent.	0%	1%	1%	2%	2%
Traditional Mixed-Use	0%	2%	2%	1%	2%
Subtotal	**17%**	**54%**	**51%**	**45%**	**48%**
Ivanpah SNSA					
P-F	0%	12%	10%	16%	14%
Subtotal	**0%**	**12%**	**10%**	**16%**	**14%**
Ivanpah AC					
C-1	0%	0%	0%	0%	0%
C-2	1%	0%	0%	0%	0%
H-1	5%	0%	1%	0%	0%
H-2	0%	1%	1%	1%	1%
M-1	1%	0%	0%	0%	0%
M-2	3%	0%	0%	0%	0%
M-D	0%	0%	0%	0%	0%
P-F	6%	0%	1%	0%	0%
R-T	0%	0%	0%	0%	0%
R-U	44%	25%	27%	31%	30%
U-V	0%	0%	0%	0%	0%
Subtotal	**61%**	**26%**	**29%**	**33%**	**31%**
I-15 Corridor					
C-1	0%	0%	0%	0%	0%
C-2	2%	0%	0%	0%	0%
CT	2%	0%	0%	0%	0%
H-1	2%	0%	0%	0%	0%
H-2	1%	1%	1%	1%	1%
M-1	1%	0%	0%	0%	0%
MR	0%	1%	1%	1%	1%
NO ZONING	3%	5%	5%	3%	4%
P-F	0%	0%	0%	0%	0%
R-2	5%	0%	1%	0%	0%

(1) Project-Site / Zoning	(2) Developed Acreage	(3) Undeveloped Acreage	(4) Total Acreage	*(5) Undeveloped Acreage After Parcel Filtering (Slope <7%)*	*(6) Undeveloped Acreage After Parcel Filtering (Slope <12%)*
R-3	0%	0%	0%	0%	0%
R-4	0%	0%	0%	0%	0%
R-5	0%	0%	0%	0%	0%
R-E	4%	1%	1%	0%	0%
R-T	0%	0%	0%	0%	0%
R-U	2%	1%	1%	1%	1%
RH-24	0%	0%	0%	0%	0%
RUD	0%	0%	0%	0%	0%
Subtotal	**22%**	**8%**	**10%**	**6%**	**7%**
Percentage of Study Area Acreage	**100%**	**100%**	**100%**	**100%**	**100%**

B. Future Land Use and Economic Development

This section reviews RCG's methodology for comparing forecasted job and population growth with the potential demand for land (which we interact with available supply) to estimate:

- The amount of land developed in 2050 for each land use class
- 2050 employment
- 2050 population

In this Study, population growth is considered a function of employment growth. The number of available jobs directly influences the size of the population in a region. Employment-driven land demand is generally a primary reason for in-migration to the regions because jobs give new residents a reason to move while also helping keep current residents from "not leaving." For households to exist within a region, jobs must be available. A housing market cannot be completely based on demand by retirees or those wealthy enough to live without working.

These socio-economic projections used herein reflect economic conditions that might reasonably be expected for the Study Area, given projected zoning changes under the JLUS, and forecasts of the demand for land potentially required for residential and non-residential (or "employment") uses.

RCG used data from Woods & Poole Economics ("WPE"), the University of Nevada, Las Vegas' Center for Business and Economic Research (CBER), as well as previous RCG analyses and research in estimating population and employment within Clark County in this Study. WPE is a highly-respected forecaster of economic data and CBER provides forecasts for population and employment growth given localized

insights and expectations. Rather than relying on one source of economic forecasts, RCG combined and contrasted the different sources to develop a broad picture of potential economic and population growth outcomes for the Clark County area. The purpose of this section is to understand how job growth in various industries is projected to drive the demand for employment land in Clark County. Employment land demand, in turn, interacts with supply to determine the equilibrium stock of developed (or "absorbed") land. Additionally, this job growth will largely drive population growth within Clark County as new jobs provide economic opportunity for new residents and existing residents alike.

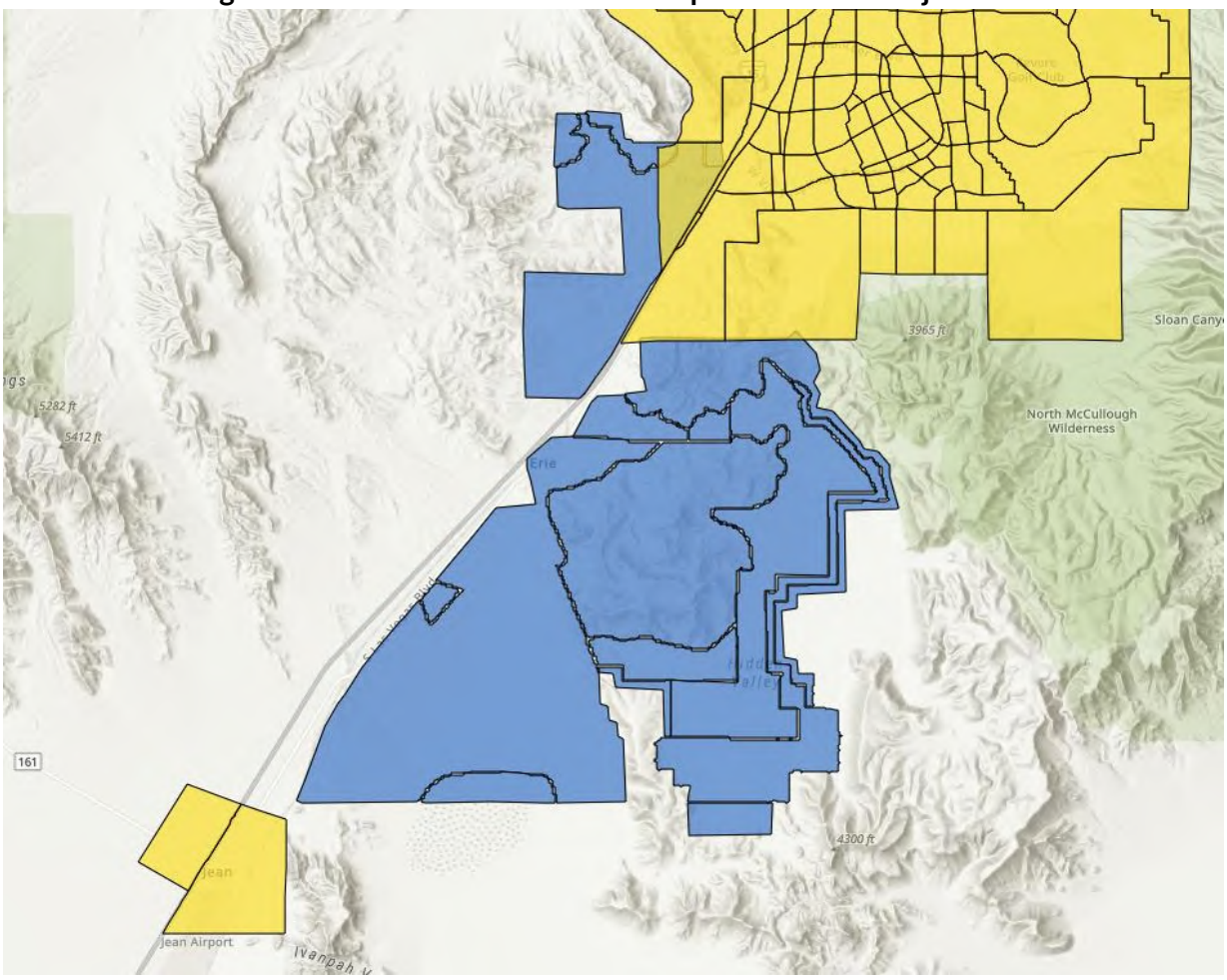
For clarity, the demand for employment land was initially computed at the County-level; land absorption was then estimated in the Study Area using "fair-share analysis". This approach assumes that the share of land inventory estimated to be developed at the County-level potentially absorbed in the Study Area is proportional to the share of County-level vacant land supply located in the Study Area.

Fair share analysis is a generally accepted method used to evaluate the potential demand for new development within a specific geographic area. The idea is to determine whether there is enough demand in the market to support new development, given the existing competition; in this case undeveloped employment lands (see below for a further explanation for the analysis method).

RCG determined fair-share analysis was the most appropriate analytical approach in the Study to estimate land demand, employment, population, and absorption within the Study Area for a few key reasons. Data on population and employment for the Study Area is limited due to the relative degree of economic inactivity. Traditional sources of this data, such as the RTC's planning variables by TAZ, are unavailable because the JLUS area lies mostly outside the current RTC TAZ boundaries. Figure III-3 below shows the bounds of the current TAZ areas in yellow and the proposed JLUS development area in blue. As can be seen in the figure, while a small portion of the northern JLUS site west of the I-15 is captured by existing TAZ boundaries, the vast majority of the JLUS Project-Site geography is outside the TAZ bounds. This means that geo-specific forecasts for this area are lacking. [14]

[14] While fair share analysis used herein is our preferred methodology, RCG also chose to provide the results of an alternative analysis for consideration. Appendix A provides a "Robustness Check" on this analysis by conducting a Residual Demand Analysis rather than a fair share analysis. In our Residual Demand Analysis, we treat the undeveloped lands within the Study Area as inferior lands compared with the available undeveloped lands within the Las Vegas Valley. This means that we have assumed that all lands in the Valley will be developed prior to wide-spread development in the Study Area. The results of this analysis support the results of our fair share analysis results are within reason. More details can be found in the Appendix.

Figure III-3: RTC TAZ Boundaries Compared to JLUS Project-Site



Source: RCG, Regional Transportation Commission of Southern Nevada, City of Henderson JLUS Working Group, ESRI

The lack of data noted in the previous paragraph is inadequate to allow for robust conclusions regarding 2050 economic conditions in the Study Area. Instead, RCG's data sources that do provide County-level mor MSA data are seen as industry-standard sources for economic forecasts and are widely used for estimates of future regional growth. If trusted forecasts of the projected growth in employment and population specific to the Study Area were available, RCG would not need to conduct a fair-share analysis using regional forecasts. However, as noted, population and employment forecasts are not available at that the Study Area level.

Because of lack of data for the Study Area, RCG determined the most appropriate approach was to rely on County-level forecasts. Additionally, land use classifications in the JLUS Project-Site are subject to change (due to a combination of market demands or public planning changes). Such changes in land use will alter the trajectory of economic development in the Study Area. Any future changes would then cause deviations between currently forecasted trends and actual future market in the Study Area.

The June 2023 JLUS draft plan qualitatively matches current development trends in Southern Nevada. RCG anticipates development patterns in the Study Area to follow the larger regional trends. In other words, RCG assumes that JLUS will develop in a way that is similar to what is happening at the county-level, unless land-use plans are at odds with what the overall market demands.

It is important to note that towards the end of RCGs analysis a new JLUS was drafted by the JLUS stakeholders (see August 2023 JLUS Draft in Appendix). Any proposed changes to the land use plan that increase the share of residential land and decrease the share of employment land would alter the results of the Study. As noted previously, lands used for employment/economic purposes are generally a main source of in-migration to a region because they give new residents a reason to relocate, while also helping keep current residents from "leaving." While the August update to the JLUS land use plan allocates more land for residential uses, there is a chance that, due to the projected shortage of available employment lands at the MSA-level (see RCG 2023 and Appendix C)[15], the JLUS land use plan may be revised again to account for actual employment land demand by as early as 2030. Ultimately, each land use type within JLUS will depend on market demand. Accordingly, RCG's current estimates should be viewed as conservative regarding how county-level employment and population growth will create land demand in the region.

RCG operationalized employment and population forecasts in a series of steps. First, RCG relied on forecasts from WPE and CBER for job growth between 2023 and 2050. Then, RCG converted the number of new jobs, by industry, to derive the demand for employment land to accommodate those jobs. To do this, RCG relied on the U.S. Energy Information Administration's[16] data on mean square feet per employee by industry. Finally, after converting employment forecasts to square feet of built space and translating these values to acres, RCG applied floor area ratios ("FARs"), by building type, to estimate the number of acres needed to accommodate the forecasted job growth at the County-level.

These statistics form the basis for our estimates of the amount of County-level employment land demanded in 2050. Given the ratio of the supply of undeveloped employment land in the Study Area to the supply undeveloped acreage at the County-level, we used a fair-share analysis to estimate the amount of acreage estimated to be absorbed by employment uses in the Study Area through 2050.
Fair-share analysis as used herein works in a straightforward way:

- **Define the Market Area**: Identify the geographical area where the majority of demand is likely to come from. In this case, RCG evaluated the demand for undeveloped employment and residential lands as a result of projected employment growth in Clark County as a whole.

[15] https://rcgecon.com/wp-content/uploads/2023/06/2023-5-23-GOED-So.-NV-Land-Study-Final-1.pdf
[16] U.S. Energy Information Administration, Office of Energy Consumption and Efficiency Statistics, December 2016

- **Measure Total Demand:** Estimate the total demand for a particular type of real estate (such as employment lands) within that area. In this case, the demand for employment lands is a function of the forecasted job growth at the County-level during the Study Period (2023-2050).

- **Measure Existing Supply**: The existing supply is then measured, which means looking at all the similar types of land already available in the market area. For example, if the new development is a shopping mall, the existing supply would include all other shopping malls and retail spaces. In Study, the supply of undeveloped lands in the Clark County area as identified in RCG 2023.[17]

- **Calculate Fair Share**: The "fair share" is the portion of the market demand that the new development could reasonably expect to capture, based in this case on its size relative to the total undeveloped lands in the area.

- **Compare Fair Share to Project Size**: Finally, the fair share is compared to the size of the proposed development. If the fair share is significantly larger than the size of the new development, it is a good sign that the market can support it. If the fair share is smaller, it could indicate that the market is already saturated, and the new development might struggle to find enough customers or tenants.

Next, we re-introduced our measures of average acres per employee needed to accommodate forecasted employment trends in order to obtain estimated employment levels in the Study Area. These findings describe the anticipated degree of economic activity in the Study Area expressed in terms of employment levels and the amount of land developed for employment land uses.

We then applied the current ratio of developed residential acreage to developed employment acreage ("DRA/DEA") in the Las Vegas MSA, which RCG found to be 0.35 developed residential acres for everyone developed employment acre since 2013 in zip codes adjacent to the I-15. These metrics were used then to forecast the amount of acreage and housing units potentially needed for residential and traditional mixed-uses. By doing this, RCG performed a "demand-driven" analysis. Given the expected growth of the workforce in Clark County, RCG projected the amount of employment acres likely to be needed to accommodate the growth of the workforce. This growth will then drive population growth and the overall demand for housing in the Las Vegas MSA and the Study Area.

To reflect current development trends in the region, the DRA/DEA ratio is computed in several steps:

[17] https://rcgecon.com/wp-content/uploads/2023/06/2023-5-23-GOED-So.-NV-Land-Study-Final-1.pdf

- First, RCG identified the universe of developed parcels in Clark County constructed between 2013 and 2023.
- RCG then segmented parcels into residential and employment use categories.
- RCG flagged parcels located in zip codes adjacent to the I-15 (but excluding those in the Study Area) and then aggregated developed residential and developed nonresidential acreage to compute the DRA/DEA ratio.
- RCG calculated this ratio to be equal to .35. Of note, the ratio of undeveloped residential land to undeveloped employment land in the JLUS area (under the initial land use plan dated June 2023) is equal to .304. This suggests that the co-evolution of residential and non-residential development we are currently observing in zip codes adjacent to the I-15 is qualitatively similar to the demarcation of land uses in the JLUS.

Table III-3 below provides a consolidated view of the variables or assumptions used within our analysis. These are also included in subsequent tables whenever they are used in relevant calculations and results.

Table III-3: Relevant Analysis Variables and Assumptions

Description	Value	Source
a. Developed Residential Acres / Developed Commercial Acres Ratio	0.35	RCG, Clark County Assessor
b. Square Feet per Employee[18] (Weighted Average)	866 sf	U.S. Energy Information Administration
c. Floor Area Ratio for Buildings	0.53	U.S. Energy Information Administration
d. Land Acreage / Employee (line b. x line c.)	0.038	RCG, Calculation
e. Mixed Use Ratio (% Dedicated to Employment)[19]	10%	RCG Assumption
f. Residential Units/Acre[20]	3.5	City of North Las Vegas
g. Persons per household	2.71	U.S. Census

[18] U.S. Energy Information Administration, Office of Energy Consumption and Efficiency Statistics, December 2016
[19] Specific estimates for the local region were unavailable and according to Clark County Land Use Goals and Policies Mixed Use Developments ("MUD") do not have a minimum or maximum amount allocated to employment use. RCG has chosen 10% in order to provide conservative estimates of employment demand at the area and to increase the amount available for residential.
[20] https://www.cityofnorthlasvegas.com/business/economic-development?locale=en, Residential Low = 3.5, Residential Suburban = 8, Residential Medium = 14 https://www.reviewjournal.com/business/las-vegas-neighborhoods-are-gaining-more-elbow-room/

C. Demographic Analysis and Forecast

To provide the Demographic Analysis and Forecast for the Study, as noted, RCG relied on various data sources including WPE, UNLV's Center for Economic and Business Research, ESRI, and the U.S. Census to identify historical, current, and future population demographics across Clark County. Because the Study Area is primarily undeveloped, future estimates of how the area will be developed are unavailable from public sources. However, following the methods used herein for land demand and development, RCG expects the Study Area to follow Clark County trends regarding socio-economic metrics such as household income, employment-by-industry, home prices and other housing market indicators. RCG then combined the results from the population and employment forecasts for the JLUS Study Area with these County-level demographic trends to arrive at estimates for how and when the Study Area will develop and reach build-out.

IV. RESULTS

This section provides the results of RCGs Future Land Use and Economic Development Forecast, our Employment and Population Forecast, and our Demographic Analysis for the Study Area over the Study Period.

A. Future Land Use and Economic Development Forecast

RCG forecasted Clark County job growth to estimate the associated demand for employment land. To account for unforeseen factors between 2023 and 2030, RCG utilized forecasts from Woods & Poole as well as CBER, as previously noted, to develop three scenarios for employment land demand. These three scenarios are displayed in Table IV-1.

One note on the employment forecast methodology and results provided below. The Clark County employment forecasts used herein are exclusive of the Accommodation and Food Services sector. Employment from this sector is excluded from the Clark County estimates in order to maintain a conservative estimate of the employment demand. This does not imply that RCG is assuming there will not be future Accommodation or Food Services sector employment in the Study Area. Rather, excluding this sector from the Clark County estimates is an attempt to offer conservative forecasts of employment. As seen in Table IV-2 and Table IV-6 below we expect Accommodation and Food Services to account for a share of developed employment lands and a share of overall employment in the Study Area by 2050.

Scenario – 2 “Mid-estimates” indicates that Clark County could experience a growth of 574,684 jobs between 2023 and 2050. These new jobs are projected to require 22,063 acres of land for nonresidential (office and retail), industrial, and institutional (police, fire, government services) uses. What remains in question is the share of the aggregate amount of employment land demand at the County-level that will occur in the Study Area. We again used a fair-share analysis to develop this estimate shown in Table IV-1.

Table IV-1: Employment Land Forecast, Clark County, 2023 – 2050*

(A) Employment Forecasts: Clark County			
	Scenario - 1 (Low)	**Scenario - 2 (Mid)**	**Scenario - 3 (High)**
Clark County Employment (2023)	1,237,864	1,302,707	1,367,550
Cark County Employment (2050)	1,612,660	1,877,391	2,142,121
Clark County (2050) Employment Growth	**374,796**	**574,684**	**774,571**

(B) Population Forecasts: Clark County			
Clark County Population (2023)	2,366,074	2,369,997	2,373,920
Cark County Population (2050)	3,014,410	3,373,635	3,732,859
Clark County (2050) Population Growth	**648,336**	**1,003,638**	**1,358,939**

(C) Job Growth and Employment Land Demand Forecast: Clark County			
Building Sq. Ft. / Employee (weighted avg.)	866	866	866
Additional Square Ft. of Buildings Needed (2050)	324,573,336	497,675,911	670,778,486
Additional Acres needed for Buildings Only (2050)	7,626	11,694	15,761
Floor Area Ratio for Buildings	0.53	0.53	0.53
Acres of Land Demanded for Employment Use (2050)	**14,389**	**22,063**	**29,737**

**Note: These employment forecasts are exclusive of the Accommodation and Food Services sector. Source: Woods & Poole Economics, University of Nevada, Las Vegas CBER, and RCG.*

Looking at the estimate of County-level employment land potentially demanded by 2050 (22,063 acres under the Mid-scenario), we expect much of the initial demand for parcels in the Study Area to be from parcels situated in the JLUS Project-Site given its relative proximity to core of the Las Vegas Valley and the City of Henderson. While there exists vacant land suitable for residential and nonresidential development spanning the I-15 Corridor across the Study Area, including within the Ivanpah SNSA and AC Project-Sites, in general, we anticipate parcels in the JLUS area to be developed prior to developers seeking out land closer to Stateline. We also expect this based on multiple factors, including proximity to the Valley core (development tends to occur near existing population and employment centers), the existence of an adopted land use plan, access to utilities including water infrastructure, and the degree.

When allocating the demand for employment land at the County-level to the Study Area, we: (a) focused on the share of County-level demand projected to be absorbed in the JLUS Project-Site and (b) identified residual land demand (if any) that exceeded the supply of developable land in said area. RCG expects residual demand to spillover to remaining undeveloped parcels within the Study Area along the I-15, but located outside the JLUS bounds.

RCG determined that using land use shares from the current supply of developable acreage in the Study Area (over 56,000 acres) was inappropriate. Given the forecasting window of 2023 to 2050 we expect that

conducting the fair-share analysis using the entire Study Area would potentially overstate the amount of projected developed acreage. Put simply, this would assume that parcels further away from the Valley (such as those closer to the California-Nevada border) would attract overall demand for employment land equally to parcels located within the Valley. Given the Study Area is largely undeveloped, this assumption is unrealistic to the extent that the initial wave of interest we would expect to see from developers would likely focus (on average) on parcels located in or closer to the Valley core.

While there are over 56,000 acres of available land within the Study Area, RCG limited its analysis to focusing on the fair-share of the 28,000 acres of land in the JLUS Project-Site. Because of this, our results offer a conservative estimate of the demand that can potentially be captured by the lands in the Study Area along the I-15 under various employment and residential growth forecasting scenarios in 2050. By considering three forecast scenarios (Low, Mid and High) we anticipate the range of our employment projections to reasonably capture or reflect scenarios that may occur if demand for residential and employment land develops uniformly in the Study Area.

Our empirical analysis also required an estimate of the supply of undeveloped employment acreage in Clark County, net of undeveloped employment acreage in the Study Area. Using aggregate data for Clark County, RCG (2023) determined that, exclusive of land in the Study Area, approximately 16,206 acres of undeveloped employment lands in Southern Nevada remain as of 2023[21]. In line with our methodology, we assumed 10 percent of the region's mixed-use acreage to support nonresidential uses. As a result, RCG computed the share of undeveloped, employment land acreage at the County-level belonging to the JLUS Project-Site to be 38 percent. We used this share to allocate the amount of forecasted acreage demand for employment uses in 2050 at the County-level. The result was then used to estimate the amount of land acreage demanded for employment uses in the JLUS Project-Site.

As demonstrated in Table IV-2, the Mid scenario suggests an aggregate demand of 22,063 (line a.) acres of land for employment uses. As stated previously, out of the total amount of undeveloped employment land at the County-level, approximately 38 percent is located in the JLUS Project-Site (line b.). This allows RCG to estimate 8,392 (.38 x 22,063) acres of employment land demand in the JLUS Project-Site (line d.). Multiplying by the 2013-2023 ratio of developed residential-to-developed employment land acreage (line c.) suggests an associated demand of 2,937 (.35 x 8,392) acres of land for residential use (line e.).

Commercial use encompasses acreage associated with employment mixed-use, retail/hospitality /entertainment, as well as nonresidential acreage associated with traditional mixed-use was determined by

[21] See RCG 2023 https://rcgecon.com/wp-content/uploads/2023/06/2023-5-23-GOED-So.-NV-Land-Study-Final-1.pdf

applying a mixed-use share of 10 percent. Accordingly, we assumed that the amount of acreage absorbed within each of these categories is proportional to the amount of undeveloped acreage within each category.

Estimating the amount of acreage within the mixed-use category developed for Employment Mixed Use, Retail/Hospitality/Entertainment and Commercial uses was done using a combination of ratios we refer as "land use attribution shares" in the table below.

To estimate this mixed-use category acreage, the following shares were applied to the projected amount of land acreage demanded for employment use:

- 0.38 for the fair share of land in JLUS
- 0.35 for the number of residential acres per nonresidential acre
- 0.10 for the amount of mixed use dedicated to non-residential/employment lands.

Table IV-2: Employment Land Demand Forecast, Joint Land Use Study Area, 2050

	Scenario - 1 ("Low")	Scenario - 2 ("Mid")	Scenario - 3 ("High")
a. Land Demanded for Employment Use (2050): Clark County, NV	14,389	22,063	29,737
b. JLUS Employment Land Attribution Share	0.38	0.38	0.38
c. (2013-2023) Dev. Residential / Dev. Employment Ratio	0.35	0.35	0.35
d. Land Demanded for Employment Use (2050): JLUS (line a. x line b.)	5,473	8,392	11,310
e. Land Demanded for Residential Use (2050): JLUS (line b. x line c.)	1,915	2,937	3,959

Land Use Classification	Developable Acres	Land Use Attribution Share	Acres Demanded (2050)	Acres Demanded (2050)	Acres Demanded (2050)
Employment Use					
Mixed Use	9,293	0.934	5,113	7,840	10,567
Retail/Hospitality/ Entertainment	566	0.057	312	478	644
Mixed-Use (Commercial)	87	0.009	48	74	99
Subtotal	**9,947**	**1.000**	**5,473**	**8,392**	**11,310**
Residential Use					
Residential	3,559	0.819	1,569	2,406	3,243
Traditional Mixed-Use (Residential)	785	0.181	346	531	716
Subtotal	**4,345**	**1.000**	**1,915**	**2,937**	**3,959**
Open Space					
Residential/Open Space Buffer	2,087	n/a	0	0	0
Open Space	1,236	n/a	0	0	0
Subtotal	**3,324**	**n/a**	**0**	**0**	**0**
Total	**17,616**		**7,388**	**11,329**	**15,269**
Average Annual Acres Demanded over 25 Years	**—**	—	**296**	**453**	**610**

Source: RCG. These forecasts assume that 10 percent of acreage allocated for traditional mixed use is used to support nonresidential use and a ratio of developed residential to developed nonresidential land equal to .35 (see text for details). Developable acreage for employment use employs a seven percent filter on parcel slope while developable acreage for residential use employs a 12 percent filter.

Referring again to Scenario-2 ("Mid") estimates, of the 8,392 acres of land potentially demanded for employment uses in 2050, we project a demand for:

(1) 7,840 acres for employment mixed-use;
(2) 478 acres for retail/hospitality/entertainment; and
(3) 74 acres of land for areas zoned for traditional-mixed use for nonresidential purposes.

In all cases except one, forecasted land demand does not exceed available land supply. Scenario-3 (High growth scenario) suggests a potential demand for 11,310 acres of employment land (for which only 9,947 will be available in the JLUS Project-Site in 2050, given the initial June 2023 Land Use plan.

See Appendix B for the differences in alternative proposed Land Use Plans). Scenario-3 represents the most aggressive estimates of projected employment growth. Given that we only found evidence of potential residual demand (demand that is more than what is available within the JLUS Project-Site) in this (and only this) scenario, we conclude with a higher degree of confidence that model inferences drawn from our mid-estimates are plausible.

B. Employment and Population Forecast

In the previous section we forecasted land demand. Here, we compare land demand with land supply to project land absorption, by land use. For employment lands, given the estimates of developed acreage, we applied RCG's estimates of employees/acre (26.05) to develop employment changes. For residential land, we scaled our calculations of developed residential acreage using RCG's estimates of persons/acre (9.49) to forecast population changes. RCG's estimates of persons/acre are based on the 2020 U.S. Census estimates of persons per housing unit (2.71) and a conservative assumption of 3.5 housing units per developed acre (9.49 = 2.71 x 3.5). We present these findings in Table IV-3.

In the previous section RCG estimated a need for 8,392 acres of land for employment uses by 2050. Given an available supply of 9,947 acres, RCG expects demand to meet supply and translate into the absorption of 8,392 acres of employment land by 2050 equating to a projected County-level employment increase of 218,578 workers.

RCG projects a demand for 2,937 acres of residential land, under the assumption of 3.5 units per acre and 2.71 persons per unit. This suggests a County-level population increase of approximately 27,858 persons by 2050.

It should be noted that this analysis allowed RCG to forecast aggregate *changes* in employment and population for the MSA for the Study Period. To forecast 2050 employment and population *levels* we also had to contrast these changes with current (e.g., 2023) levels.

Table IV-3: Land Absorption, Population & Employment
Forecasted Changes, Joint Land Use Study Area, 2050

	Scenario - 1 ("Low")		Scenario - 2 ("Mid")		Scenario - 3 ("High")	
Employment Use	Acres Developed (2050)	Employees	Acres Developed (2050)	Employees	Acres Developed (2050)	Employees
Employment Mixed Use	5,113	133,179	7,840	204,207	9,293	242,062
Retail/Hospitality/ Entertainment	312	8,121	478	12,452	567	14,760
Traditional Mixed-Use (Commercial)	48	1,252	74	1,919	87	2,275
Estimated 2050 Employment	**5,473**	**142,551**	**8,392**	**218,578**	**9,947**	**259,097**
Residential Use	Acres Developed (2050)	Persons	Acres Developed (2050)	Persons	Acres Developed (2050)	Persons
Residential	1,569	14,882	2,406	22,819	3,243	30,756
Traditional Mixed-Use (Residential)	346	3,286	531	5,039	716	6,792
Estimated 2050 Population	**1,915**	**18,168**	**2,937**	**27,858**	**3,959**	**37,548**

Source: RCG.

While we have focused our analysis on estimating land use changes in the JLUS area, we believe our forecasted changes represent conservative estimates to the changes that will potentially occur along the I-15 Corridor within the Study Area through 2050.[22] As such, we can contrast current (e.g., 2023) population and employment counts in the Study Area with projected changes in the JLUS area to forecast future (e.g., 2050) Study Area economic conditions.

In Table IV-4, we identify a 2023 population of 1,086 in transportation zones south of the Sloan interchange. 2023 employment and population statistics for the Study Area are derived from the RTC's 2020 planning variables dataset[23].

Per our Mid-scenario results presented in Table IV-3, we project a population increase of 27,858 by 2050 suggesting a resulting population of 28,944 (1,086 + 27,858). Employment levels are also presented in Table IV-4. Employment is projected to increase from 2,217 workers in 2023 to 220,795 by 2050 and consuming approximately 8,392 acres of land during the Study Period.

[22] If additional lands within the Study Area (specifically the Ivanpah SNSA and Ivanpah AC Project-Sites) become available in a similar timing to JLUS Project-Site, it is possible a portion of the demand we estimate to go to JLUS would flow to these other Project-Sites. However, we are unable to say with certainty where that would happen due to many unknown factors including SNSA development timelines, Federal agency agreements, and environment study results.
[23] 2023 Study Area planning variables are based on transportation analysis zones: 1117, 1197, 1120, 1202, 1546, 1566, 1567, 1219, 1592, 1593, 1594, 1600, and 2506 which span the I-15 Corridor between the Sloan interchange, through Jean and Primm to Stateline.

At the County-level (and net of the land in the Study Area) RCG identified 16,206 acres of undeveloped employment land in 2023 of which 13,672 acres are forecasted to be absorbed by 2050 to support regional employment increase of 356,106 workers.

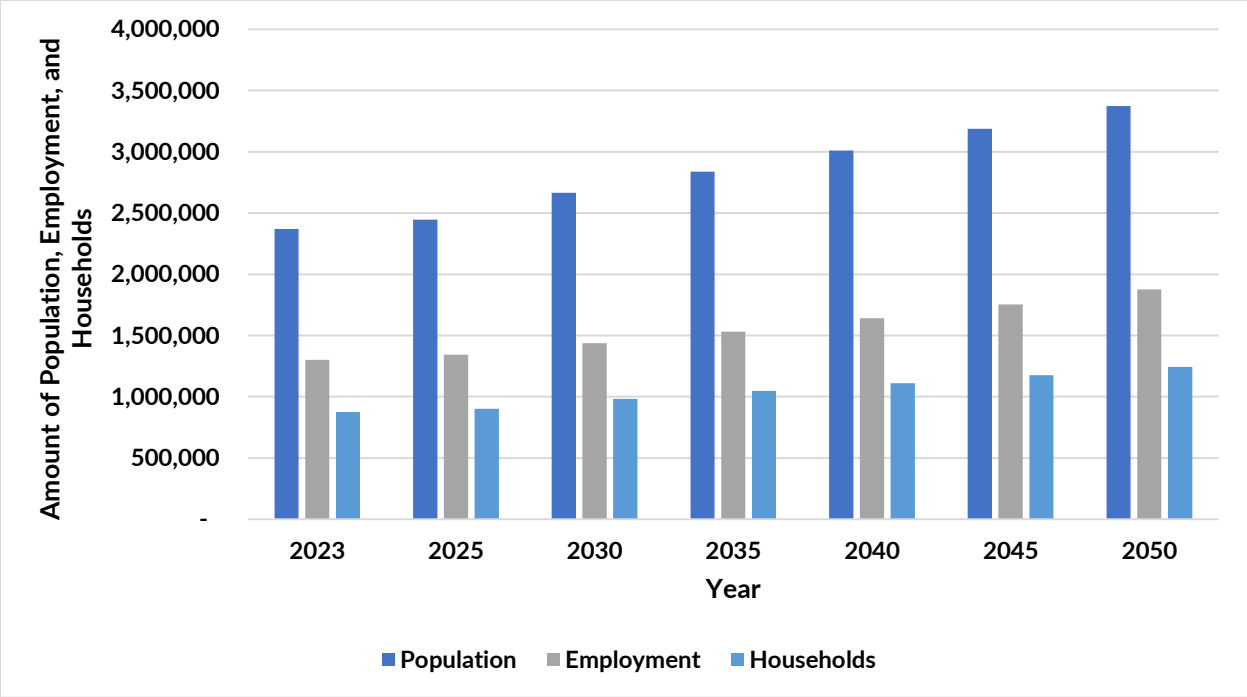
Table IV-4: Population and Employment Forecasts: 2050

	Scenario - 2 "Mid"		
	2023	2050	Change
Employment			
Clark County, NV (Net of Study Area)	1,300,490	1,656,596	356,106
+Study Area	2,217	220,795	218,578
=Clark County, NV	**1,302,707**	**1,877,391**	**574,684**
Population			
Clark County, NV (Net of Study Area)	2,368,911	3,344,691	975,780
+Study Area	1,086	28,944	27,858
=Clark County, NV	**2,369,997**	**3,373,635**	**1,003,638**
Households			
Clark County, NV (Net of Study Area)	874,137	1,234,203	360,066
+Study Area	401	10,680	10,280
=Clark County, NV	**874,538**	**1,244,884**	**370,346**
Undeveloped Employment Land Acres			
Clark County, NV (Net of Study Area)	16,206	2,534	-13,672
+Study Area	9,947	1,556	-8,392
=Clark County, NV	**26,153**	**4,090**	**-22,063**

Source: RCG, RTC. Study Area 2023 baseline values are based on RTC estimates for TAZ's 1117, 1197, 1120, 1202, 1546, 1566, 1567, 1219, 1592, 1593, 1594, 1600, and 2506 which span the I-15 Corridor between the Sloan interchange, through Jean and Primm to Stateline. In line with RCG's methodology, estimates for 2050 changes in the Study Area region are based on projected increases in employment at the JLUS area.

Figure IV-1 provides a visual representation of the forecasted growth in population, employment, and households for Clark County (inclusive of Study Area) from 2023-2050.

Figure IV-1: Population, Employment, and Households Forecast for Clark County 2023-2050



Source: RCG

In the section that follows, we more carefully examine the socio-economic and demographic composition of Clark County and Study Area.

C. Demographic Analysis

The purpose of this section is to evaluate existing and future demographic trends in Clark County/Las Vegas MSA and the resulting implications for the Study Area. These patterns and trends potentially exert a major influence on future residential and nonresidential travel demands across the I-15 Corridor.

Table IV-5 below provides an overview of the Demographic Profile of the Las Vegas MSA from 2000 to 2050. As noted previously, the area's population is projected to grow to 3,373,635 (Table IV-1 Mid-Scenario). This growth represents a 142-percent increase over a 50-year period from 2000-2050, which represents a 1.78 percent Compound Annual Growth Rate (CAGR). Households are forecasted to experience a similar increase of 140 percent over that same period, while the size of households is estimated to increase slightly (from 2.69 to 2.71).

The Las Vegas MSA is also expected to see significant shifts in the distribution of "Households by Income." Median Income is projected to increase to $77,273 (68 percent increase from 2000) and the share of

households earning over $75,000 is forecasted to grow by over 30 percentage points, demonstrating a significant rise in the wealth of County residents. RCG anticipates the Study Area to grow in similar fashion to the rest of the Las Vegas MSA area, with some differences based on the types of employment opportunities and residential choices that becomes available over time.

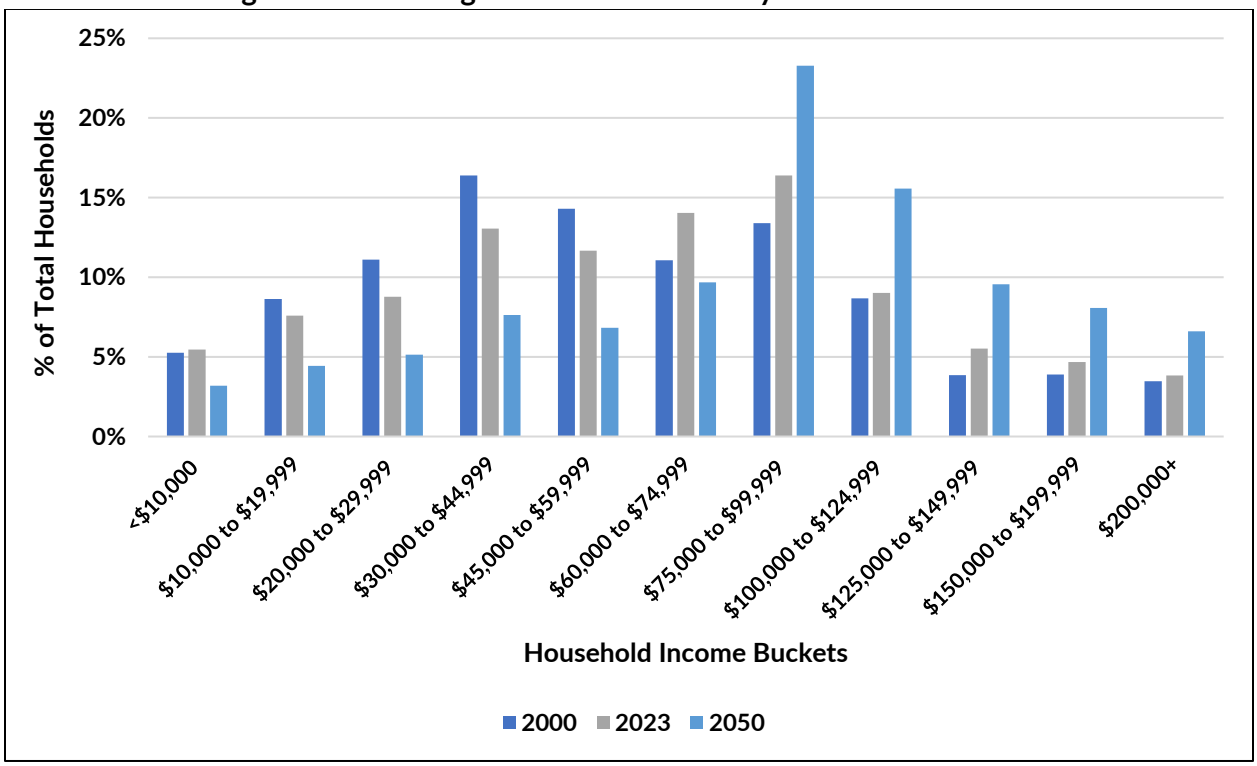
Table IV-5: Las Vegas MSA Demographic Profile Over Time

	2000	2023	2050	2000-2050 % Change
Population				
Total Population	1,393,909	2,369,997	3,373,635	+142%
Population 16+ in Labor Force	733,490	1,183,350	1,484,930	+102%
Labor Force Participation Rate	65%	63.0%	60%	-5 ppt
Households				
Total Households	518,326	874,538	1,244,884	+140%
Average Household Size	2.69	2.71	2.71	+0.02
Income				
<$10,000	5%	5%	3%	-2 ppt
$10,000 to $19,999	9%	8%	4%	-4 ppt
$20,000 to $29,999	11%	9%	5%	-6 ppt
$30,000 to $44,999	16%	13%	8%	-9 ppt
$45,000 to $59,999	14%	12%	7%	-7 ppt
$60,000 to $74,999	11%	14%	10%	-1 ppt
$75,000 to $99,999	13%	16%	23%	+10 ppt
$100,000 to $124,999	9%	9%	16%	+7 ppt
$125,000 to $149,999	4%	6%	10%	+6 ppt
$150,000 to $199,999	4%	5%	8%	+4 ppt
$200,000+	3%	4%	7%	+3 ppt
Median Household Income	$45,758	$65,264	$77,273	+68%

Source: Esri, Woods & Poole, UNLV Center for Business and Economic Research, U.S. Bureau of Labor Statistics, and RCG

Figure IV-2 provides a graphical overview of the change in Households by Income over time in the Las Vegas MSA. The largest increases are expected to come in the $75,000 to $99,999, $100,000 to $124,999, and $125,000 to $149,999 income buckets. Accordingly, the $30,000 to $44,999 and $45,000 to $59,999 income buckets are expected to decrease by the largest shares.

Figure IV-2: Las Vegas MSA Households by Income Distribution



Source: ESRI

In addition to general demographics, RCG also conducted an Employment Analysis to evaluate the existing and future job market trends in the Study Area. These patterns and trends potentially exert a significant influence on future nonresidential travel demands in the Study Area.

As mentioned earlier in Table IV-4, employment within the Study Area is projected to increase to 220,795 by 2050. Table IV-6 provides estimates on how the share of employment, by sector, is forecasted to change between 2023 and 2050 at the County-level. The share of employment in these sectors is used to provide an estimate of the forecasted employment in these industries in the Study Area.

Note, because the actual future amount of development and economic activity in the Study Area is unknown at this time, any additional attempt to provide more micro-level forecasts would be too speculative. Because of this, RCG expects the Study Area will grow at the same rate and in the same industries as the rest of the Las Vegas MSA/Clark County. These results will likely vary based on the types of employment opportunities that become available over time.

Table IV-6: 2023 & 2050 Study Area Employment, Share by Industry, Mid-Scenario

	2023 % of Total	2050 % of Total	2050 Study Area Employment Estimate
Agriculture, Forestry, Fishing & Hunting	0.1%	0.1%	110
Mining, Quarrying, & Oil & Gas Extraction	0.0%	0.0%	0
Utilities	0.2%	0.1%	287
Construction	6.2%	4.8%	10,545
Manufacturing	2.1%	2.1%	4,676
Wholesale Trade	2.1%	1.8%	3,924
Retail Trade	9.3%	9.2%	20,223
Transportation & Warehousing	7.4%	8.6%	19,004
Information	1.1%	0.8%	1,747
Finance & Insurance	5.4%	5.1%	11,253
Real Estate & Rental & Leasing	5.9%	6.4%	14,101
Professional, Scientific, & Technical Services	5.8%	5.9%	13,114
Management of Companies & Enterprises	2.0%	2.3%	5,157
Administrative & Support & Waste Management & Remediation Services	7.9%	8.8%	19,539
Educational Services	1.3%	2.7%	5,912
Health Care & Social Assistance	8.6%	10.7%	23,558
Arts, Entertainment, & Recreation	3.2%	3.4%	7,499
Accommodation & Food Services	18.7%	18.3%	40,446
Other Services (except Public Administration)	5.0%	5.0%	11,004
Government	7.7%	3.9%	8,694
Total	100%	100%	220,795

Source: Woods & Poole, UNLV Center for Business Economic Research, and RCG

Evaluating the Study Area's future economic activity also requires an "Economic-Base" analysis. A region's Economic-Base is made up of the industries and sectors that export goods or services to other regions (or in some cases, like Leisure & Hospitality, attract outside revenues to be spent within the region). These industries attract new income and wealth into the local economy. This contrasts with non-base industries, which primarily serve the local market and simply circulate existing money within the region.

The Economic-Base is crucial for the growth and development of a region. It often determines the overall economic health, employment levels, and prospects of an area. A strong and diverse Economic-Base can make a region more resilient during economic downturns, while a weak or overly specialized Economic-Base can make a region vulnerable to economic and financial shocks.

In this regard, Location Quotients ("LQ") are a valuable tool for regional economists to use to understand which sectors are stars, mature, transforming, or emerging, based on the growth in employment within an industry as well as the industry's share of overall regional employment. The U.S. Bureau of Labor Statistics

explains, "[i]f an LQ is equal to 1, then the industry has the same share of its area employment as it does in the nation. An LQ greater than 1 indicates an industry with a greater share of the local area employment than is the case nationwide. For example, Las Vegas will have an LQ greater than 1 in the Leisure and Hospitality industry because this industry makes up a larger share of the Las Vegas employment total than it does for the nation as a whole."[24]

As shown in Table IV-7 below, the Las Vegas MSA has an advantage in multiple sectors including Construction, Professional & Business Services, and Leisure & Hospitality, each have LQs > 1.

Table IV-7: Las Vegas MSA Economic-Base 2012 - 2022

Sector	Change in LQ 2012-22	LQ	Jobs (in 1,000s)
Construction	29.4%	1.44	82.6
Manufacturing	16.0%	0.32	30.3
Trade, Transportation & Utilities	1.8%	0.99	205.3
Information	-4.4%	0.61	13.6
Financial Activities	0.2%	0.89	58.4
Professional and Business Services	8.8%	1.04	173.5
Education and Health Services	12.8%	0.68	123.6
Leisure and Hospitality	-18.1%	2.50	298.4
Other Services	3.2%	0.75	31.8
Government	-2.4%	0.66	108.6

Source: Bureau of Labor Statistics & Dallas Federal Reserve

Examining the LQs for the Las Vegas MSA provides insight into the area's economic trends over the past 10 years. The two sectors with the highest employment are Leisure & Hospitality (298.4K jobs) and Trade, Transportation & Utilities (205.3K jobs). The Las Vegas MSA's economy is highly dependent on these two industries. However, the Las Vegas MSA's economy is depending less on Leisure & Hospitality in 2022 than in 2012, which is seen by the 18 percent decrease in that sector's LQ from 2012-2022.

Only two other sectors have seen their LQs decrease over this period: Information, and Government, both which have LQs less than 1 meaning they represent a lower share of the local economy than the national average. The sector with the fastest growing LQ over this time is Construction. Construction's LQ has

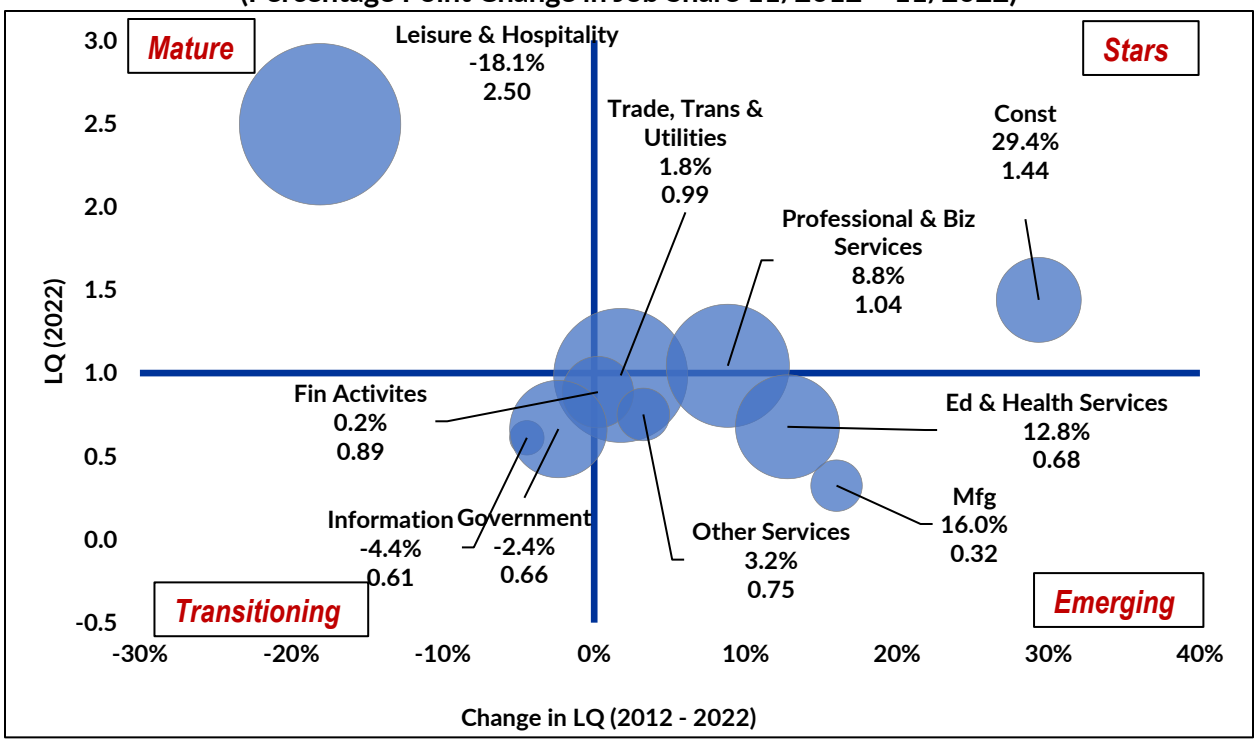
[24] https://www.bls.gov/cew/about-data/location-quotients-explained.htm

increased by 29.4 percent since 2012 and currently sites at 1.44, meaning it represents a higher share of employment in the Las Vegas MSA than the national average.

Figure IV-3 below provides a visual overview of the LQs for the Las Vegas MSA. The size of each "bubble" is representative of the total employment in an industry; the X-axis is the growth rate of employment in an industry and the Y-axis shows the LQ. Industries in the top right quadrant are considered "Stars." These industries are more concentrated in the region than the national average, and they are growing. Industries in this area of the chart help the overall economy stand out competitively, and there is growing demand for their products or services. Manufacturing and Trade, Transportation & Utilities are in the "Emerging" range. With these two industries seeing employment growth and representing an increasingly larger share of the local economy, we can expect to see demand for employment lands (including nonresidential space continue to increase throughout the a

It is important to note that Leisure & Hospitality (Las Vegas' most significant economic sector) still represents a significant competitive advantage, but has been declining over the past decade, demonstrating further the increased market demand for developable lands needed for other industries as they emerge.

Figure IV-3: Las Vegas MSA Location Quotient
(Percentage Point Change in Job Share 11/2012 – 11/2022)



Source: Bureau of Labor Statistics & Dallas Federal Reserve

RCG also conducted an overview of the Housing Market Indicators and Trends for the Las Vegas MSA market area. This overview is intended to provide current and projected residential and nonresidential development metrics. It must be noted that RCG's analysis is not designed to be a comprehensive evaluation of the market support for specific development projects, highest-and-best-use analysis of individual areas.

Due to the unpredictable nature of the Housing and Commercial Market, RCG was only able to obtain forecasts of housing characteristics until 2028 for Residential Housing. Due to the limitations of these forecasts, RCG assumes, for the purposes of this analysis, that the trends in forecasts for 2028 will continue through 2050. The results of this analysis can be found below in Table IV-8. There are a few important indicators that are expected to change over the next five years, which will likely continue through 2050. Of note, the most significant forecasted changes include: the share of Owner-Occupied Housing Units is projected to increase from 48.6 percent in 2010 to 54.3 percent in 2028 and the percentage of houses valued $400,000 and above is forecasted to increase by 11.7 ppt from 45.3 percent to 57 percent.

Table IV-8: Las Vegas MSA Housing Market Indicators (2010, 2023, 2050)

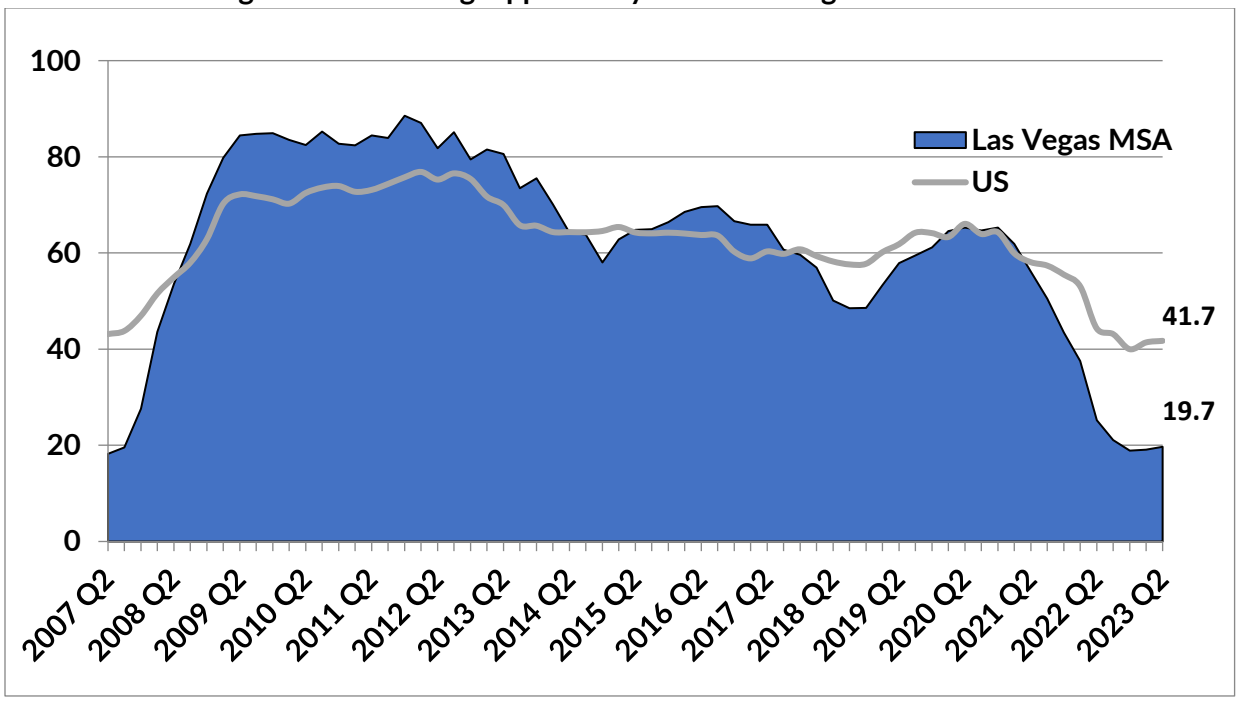
	2010	2023	2050
Total Housing Units	840,343	952,508	1,244,884
Owner Occupied Housing Units %	48.6%	53.1%	54.3%
Renter Occupied Housing Units %	36.6%	40.1%	39.5%
Vacant Housing Units %	14.9%	6.8%	6.2%
Median Home Value	$167,000	$385,000	$426,000
Per Capita Income	$27,422	$36,155	$42,643
Owner-Occupied Housing Units by Value			
<$50,000	5.3%	3.3%	1.8%
$50,000 - $99,999	17.3%	1.3%	0.6%
$100,000 - $149,999	20.3%	2.1%	0.5%
$150,000 - $199,999	17.2%	2.8%	0.4%
$200,000 - $249,999	14.0%	4.9%	1.4%
$250,000 - $299,999	10.0%	9.2%	6.5%
$300,000 - $399,999	8.0%	31.0%	31.8%
$400,000 - $499,999	3.6%	20.7%	26.5%
$500,000 - $749,999	2.0%	17.2%	22.9%
$750,000 - $999,999	1.0%	4.1%	4.6%
$1,000,000-$1,499,999	1.3%	1.8%	1.8%
$1,500,000-$1,999,999	0.0%	0.8%	0.7%
$2,000,000+	0.0%	0.8%	0.5%

Source: RCG, ESRI, U.S. Census

It is important to note that as the value of housing in the area is expected to increase, the most effective way to ensure that residents are able to afford these increased housing values is through access to high paying jobs. This is a key consideration as housing affordability within the Las Vegas MSA area continues to decrease as housing prices continue to trend upward. Figure IV-4 provides an overview of the trend in the NAHB/Wells Fargo Housing Opportunity Index (HOI).

The HOI for a given area is defined as the % of homes sold in that area that would have been affordable to a family earning the local median income, based on standard mortgage underwriting criteria. Therefore, there are really two major components — income and housing cost. As the Figure shows, since 2007, the HOI in both the Las Vegas MSA and the U.S. has been declining. However, the Las Vegas MSA is declining at a faster pace than the U.S. overall. As of 2023 Q2, the HOI for the Las Vegas MSA is at a 16-year low (the lowest in this data set is April 2007 with an index of 18.24). There are two variables that need attention to help the Index improve: housing costs need to decrease and/or median wages need to increase at a higher rate relative to housing costs.

Figure IV-4 Housing Opportunity Index: Las Vegas MSA & USA



Source: NAHB/Wells Fargo

In addition to the Housing Market Trends for the Southern Nevada area, RCG conducted a survey of other relevant recent real estate development metrics comprising the Office, Retail, Industrial, and Multifamily

Real Estate Markets. Table IV-9 provides the 2023-Q2 Real Estate market indicators for the Las Vegas MSA as presented by Colliers and Avison Young. Retail and Industrial are currently experiencing low Vacancy Rates (4.1 percent and 1.6 percent, respectively). These low vacancy rates point to a potential structural issue related to the current availability of land, especially in the industrial sector. Office Vacancy is high compared to the other employment sectors, but this is unsurprising as Office Vacancy rates across the nation have been relatively high following the COVID-19 pandemic.

Table IV-9: Las Vegas MSA Real Estate Market Indicators Q2-2023

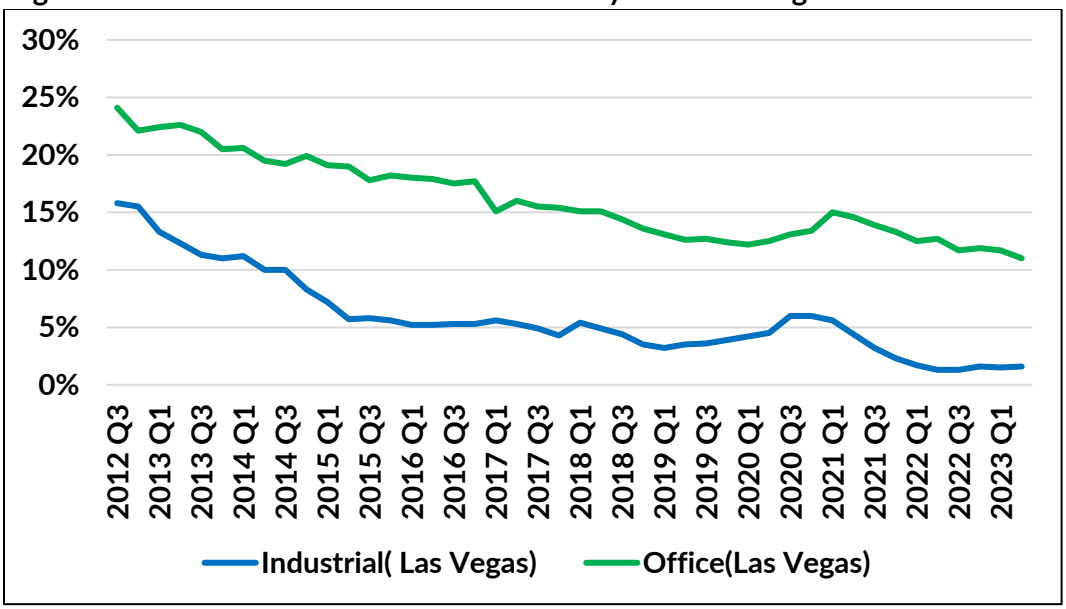
Real Estate Product Type	Las Vegas MSA
Office	
Absorption (in thousands of SF)	315.6
Vacancy	11.00%
Inventory (in Millions of SF)	46.7
Monthly Rents (FSG)	$2.50/SF
Retail	
Absorption (in thousands of SF)	127.3
Vacancy	4.10%
Inventory (in Millions of SF)	71.7
Monthly Rents (NNN)	$1.69/SF
Industrial	
Absorption (in Millions of SF)	3.1
Vacancy	1.60%
Inventory (in Millions of SF)	159
Monthly Rents (NNN)	$1.22/SF
Multifamily	
Absorption (In Thousands of Units)	1.006
Vacancy	6.76%
Inventory (In Thousands of Units)	227.3
Monthly Rents	$1.60/SF

Sources: Colliers (for Office, Retail, and Industrial)[25], Avison Young (for multifamily)[26]

Figure IV-5 below provides a longer historical trend of Industrial and Office Vacancy Rates for the Las Vegas MSA from 2012-2023. As can be seen below, Vacancy Rates have been trending downward in both categories over time. This continued downward trend highlights that the Las Vegas MSA has grown over time, however, low vacancy rates tend to point to underlying issues with available supply. If Vacancy rates get too low (generally less than 3 percent) then rents will likely be pushed higher.

[25] https://www.colliers.com/en/research/las-vegas/las-vegas-lvqr-market-research-report-q2-2023
[26] https://www.avisonyoung.us/documents/92338/193504975/Las+Vegas+Multifamily+Market+Report+Q2+2023.pdf/2a429960-9f56-b581-49af-16d29255844a?t=1691618066891

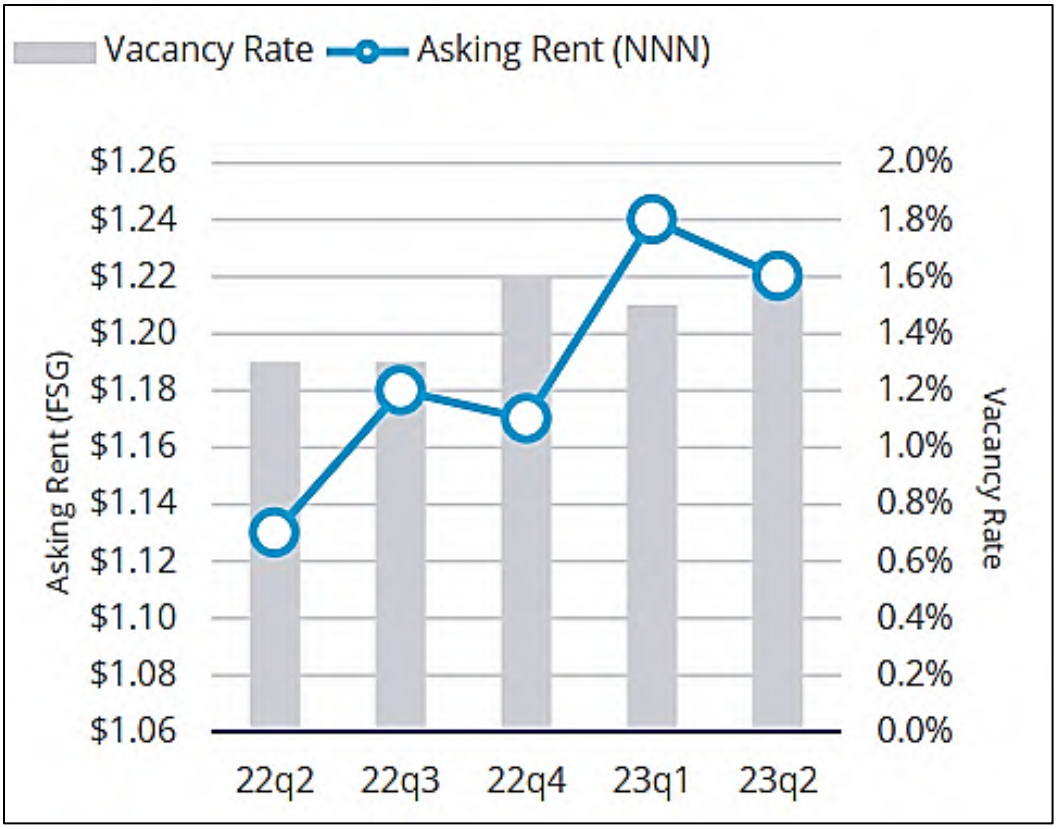
Figure IV-5: Industrial & Office Market Vacancy Rates Las Vegas MSA 2012-2023



Source: Colliers International

Evidence of the impact of this supply constraint is found in the increasing rents for industrial properties shown below in Figure IV-6. As reported by Colliers International, average rents have grown eight percent on a year-over-year basis for industrial properties. Additional insights on the state of the Office, Retail, and Multifamily markets, including a map of the available developable employment lands parcels within the Las Vegas MSA, can be found in the Appendix.

Figure IV-6: Industrial Market Vacancy vs Rents Las Vegas MSA 2022Q2 – 2023Q2



Source: Colliers International

V. CONCLUSION

The I-15 Corridor is likely to experience significant demographic and economic changes due to the anticipated growth of Clark County between 2023 and 2050. At the County-level, employment is projected to grow from 1,302,707 to 1,877,391 in 2050 (an increase of 44 percent). This growth will potentially require 22,063 acres of land for employment uses in the County. Additionally, the population of Clark County is forecasted to grow from 2,369,997 to 3,373,635 persons or by 42 percent between 2033 and 2050.

The supply of developable land throughout the more urbanized portion of Clark County is projected to be significantly constrained by 2030. The lack of available employment land in the Las Vegas Valley has incentivized developers and end-users to look for development opportunities outside of the Valley. Given this, the land in the Study Area is being prioritized by public officials for potential future development. The City of Henderson and multiple stakeholders have begun the process of developing land use plans for a portion of the Study Area closest to the Valley identified as the JLUS area. The inclusion of undeveloped land suitable for employment uses in the JLUS area (9,947 acres) represents 38 percent of the total stock of undeveloped land suitable for employment uses in Clark County. Additionally, under current proposals the JLUS area has over 4,300 acres of developable residential lands to provide residential housing within the area.

As noted previously, Study Area employment is projected to grow from 2,217 employees in 2023 to 220,795 employees in 2050 (a growth of over 2,000 percent for the Study Period), requiring 8,392 acres of presently undeveloped land that are suitable for nonresidential uses. Additionally, the population of the Study Area is projected to grow from 1,086 in 2023 to 28,944 persons in 2050 resulting in an additional 10,680 (also over 2,000-percent growth) households requiring 2,937 acres of presently undeveloped land suitable for residential uses.

VI. GLOSSARY OF TERMS

Acres over seven-percent slope: The number of acres of a parcel in which the average grade is over seven percent, the industry standard slope for developing nonresidential real estate projects, especially industrial, as calculated by the U.S. Geological Survey.

Acres over 12-percent slope: The number of acres of a parcel in which the average grade is over 12 percent, the industry standard slope for developable residential lands, as calculated by the U.S. Geological Survey.

Airport Compatible Land Uses: Airport-compatible land uses are defined as those uses that can coexist with a nearby airport without constraining the safe and efficient operation of the airport or exposing residents living or working nearby to potential negative environmental or safety impacts (FAA).[27] These uses are determined by local governments. Clark County's matrix of airport compatible land uses can be found in Chapter 30.48-4: Zoning Overlay Districts within the Comprehensive Planning manual.[28]

Average slope: The average grade of a parcel, as a percent, as calculated by the U.S. Geological Survey.

Nonresidential: In the context of the Study, lands, projects, etc. referring to all types of commercial and institutional land uses.

Rural Disposal Boundary ("DB"): The boundary within which the U.S. Bureau of Land Management may sell off lands under the Southern Nevada Public Land Management Act of 1998, specifically in rural designated areas.

Employment land: Employment land is defined herein as parcels that are most suited for private and public employment lands including: commercial, industrial development, and institutional/public uses.

Fair share Analysis: A method used in real estate market feasibility studies to assess whether there is sufficient demand in a specific market area to support a new development. The analysis calculates the 'fair share' of market demand that a proposed project could reasonably expect to capture, considering factors like existing competition and market conditions. In the study, the fair share of the Study Area is determined by the relative share of the JLUS Project-Sites undeveloped lands compared to the total available supply of undeveloped lands within the broader Clark County. The percentage is determined by taking the total

[27] https://www.faa.gov/documentLibrary/media/Advisory_Circular/150_5190_4b_Land_Use_Compatibility.pdf
[28] https://files.clarkcountynv.gov/clarknv/Comprehensive%20Planning/Title%2030/Chapters/3048.pdf

available supply of undeveloped lands in Clark County and then adding the area of the JLUS Project-Site to create a new total stock of developable lands. Once this is obtained then JLUS Project-Site undeveloped lands is divided by the total stock of developable lands to obtain the percentage JLUS lands represent.

Geographic Information Systems ("GIS"): "A geographic information system is a framework for gathering, managing, and analyzing data. Rooted in the science of geography, GIS integrates many types of data. It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes." (*Environmental Systems Research Institute-ESRI*)

Las Vegas Valley: The urban portion of Clark County. Generally, lands within the DB.

Ownership: The party that owns a parcel according to the Clark County Assessor.

Parcel: A legal subdivision of real property. "The Assessor's Parcel Number ("APN") is a unique number assigned by the Assessor to each parcel of land in Clark County." (*Clark County Assessor*)

Scenarios: Three scenarios were discussed in the Study relative to cost employment growth projections from 2023-2050 of the Las Vegas Valley.

Southern Nevada Public Land Management Act of 1998 ("SNPLMA"): "An act to provide for the orderly disposal of certain Federal lands in Clark County, Nevada, and to provide for the acquisition of environmentally sensitive lands in the State of Nevada." (*Public Law 105-263*)

Study Area: Geographic area covering the land along I-15 South from Stateline Milepost 0.0 to Sloan Interchange Milepost 26.

Study Period: This period refers to the forecast horizon for the Base-Case and the three and five percent cost disadvantage scenarios, 2023 – 2050.

Zoning: "Zoning refers to municipal or local laws or regulations that dictate how real property can and cannot be used in certain geographic areas." (*Investopedia*)

VII. APPENDIX A: FAIR-SHARE ANALYSIS ROBUSTNESS CHECK

The results presented in our analysis herein are based on fair-share analysis. This approach derives demand weights for subregions (e.g., Clark County vs. the JLUS Area) from the relative proportion of undevelopable land within each distinct subregion. Implicit in this framework is the idea that undeveloped parcels in each subregion are viewed as close substitutes, meaning that demand for each should be relatively similar despite the differences in geographical proximity to the Valley. Quantifying the degree of "parcel substitutability" in a dynamic setting is both conceptually and empirically challenging. Specifically, we are unable to forecast credible inferences on developers' preferences for land in the future.

To address this challenge, we performed a robustness check[29] which forecasts Study Area economic conditions using a residual demand framework. In this analysis, we assume that demand for land extends to the JLUS Project-Site when (and only when) the supply of developable land elsewhere in Clark County has been largely absorbed, NV is absorbed. This alternative approach assumes that undeveloped parcels in the JLUS Project-Site are not close substitutes for undeveloped parcels closer to the Valley. To the extent that, in reality, the degree of substitutability rests somewhere between these two extremes; forecasted economic conditions in the Study Area using the residual demand approach provides an additional lens for conceptualizing and estimating lower-bound growth scenarios.

For this analysis, RCG contrasted Scenario – 2 "Mid" projections using fair-share attribution and the residual demand approach in Table VII-1 below to draw attention to projected changes in employment and population derived from each approach. Mid-estimates using our leading methodology generated an additional 218,578 employees in the Study Area compared to the residual demand approach, which forecasts an additional 152,564 employees. Coincidentally, Scenario-1 "Low" estimates using fair-share allocation equated to an additional 142,551 jobs.

In a similar vein, Mid-estimates for population using the fair-share approach suggests an additional 27,858 persons contrasted with Mid-estimates using the residual demand approach, which forecasts an additional 19,445 persons. Scenario-1 "Low" population projections, using fair-share attribution, suggested an additional 18,168 persons.

The main takeaway of this robustness check is that lower-bound (e.g., Scenario-1) forecasts in the Study, using the fair-share analysis, are qualitatively similar to lower-bound estimates derived from the residual demand approach within a margin of approximately six percent. This increases confidence that the range of

[29] A robustness check is an additional analysis that helps identify any weaknesses or shortcomings in the preferred analysis. Robustness checks are important tools to help provide clarity on the potential accuracy of analyses.

results established by Scenario-1, Scenario-2 and Scenario-3 provide appropriate lower and upper bound estimates on projected economic activity.

Table VII-1: Residual Demand Analysis Robustness Check

	Scenario - 2 "Mid" Fair-Share Attribution			Scenario-2 "Mid" Residual Demand Approach	
	2023	2050	Change	2050	Change
Employment					
Clark County, NV (Net of Study Area)	1,300,490	1,656,596	356,106	1,722,610	422,120
+Study Area	2,217	220,795	**218,578**	154,781	**152,564**
=Clark County, NV	1,302,707	1,877,391	574,684	1,877,391	574,684
Population					
Clark County, NV (Net of Study Area)	2,368,911	3,344,691	975,780	3,353,104	984,193
+Study Area	1,086	28,944	**27,858**	20,531	**19,445**
=Clark County, NV	2,369,997	3,373,635	1,003,638	3,373,635	1,003,638
Households					
Clark County, NV (Net of Study Area)	874,137	1,234,203	360,066	1237307.92	363,171
+Study Area	401	10,680	**10,280**	7575.84718	**7,175**
=Clark County, NV	874,538	1,244,884	370,346	1,244,884	370,346
Undeveloped Employment Land Acres					
Clark County, NV (Net of Study Area)	16,206	2,534	-13,672	0	-16,206
+Study Area	9,947	1,556	**-8,392**	4,090	**-5,857**
=Clark County, NV	26,153	4,090	-22,063	4,090	-22,063

VIII. APPENDIX B: JLUS LAND USE PLANS AND DEVELOPMENT TYPES

Figure VIII-1 Initial Land Use Plans Used for RCG Analysis June 2023

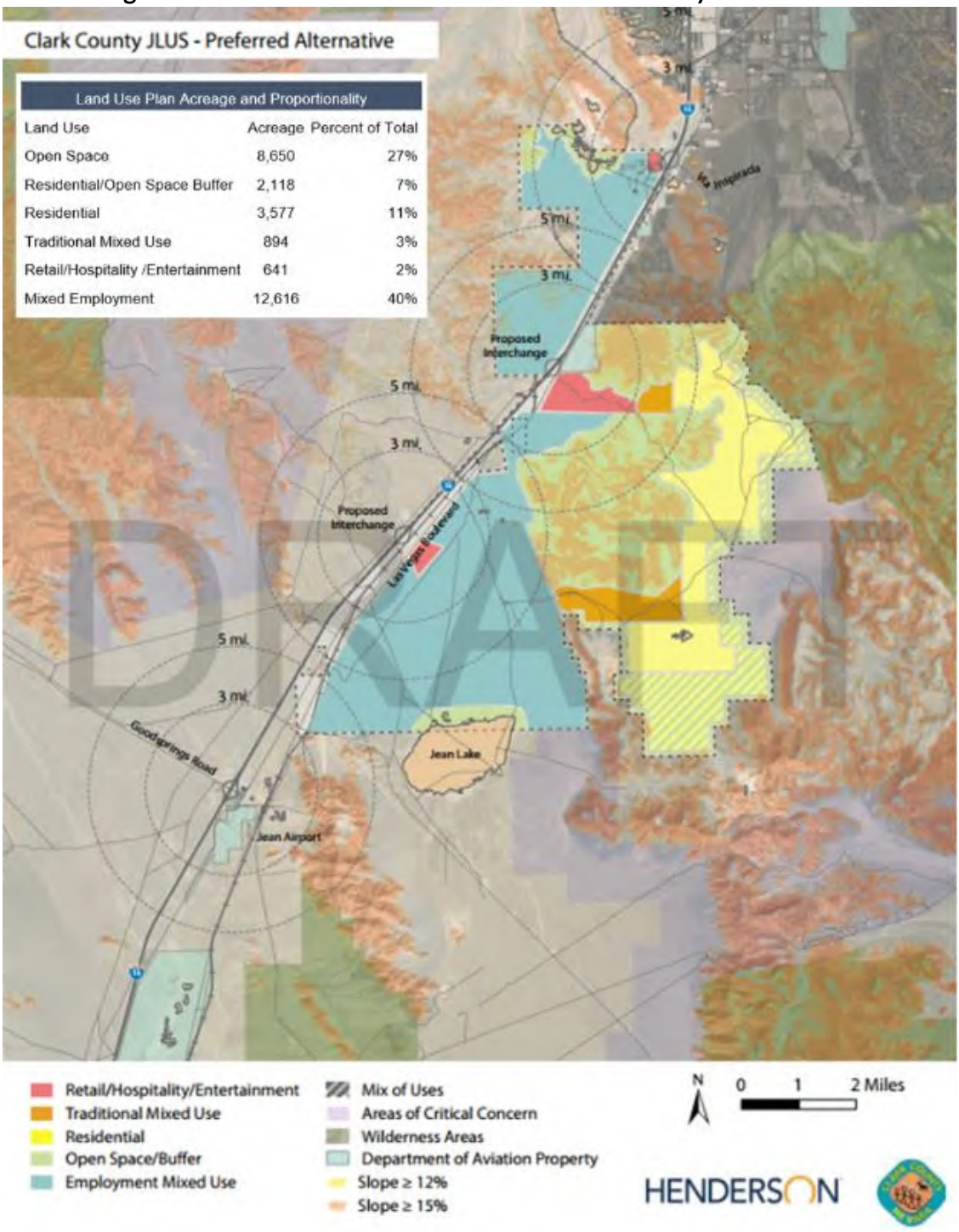


Figure VIII-2 JLUS Land Use Plans updated August 2023

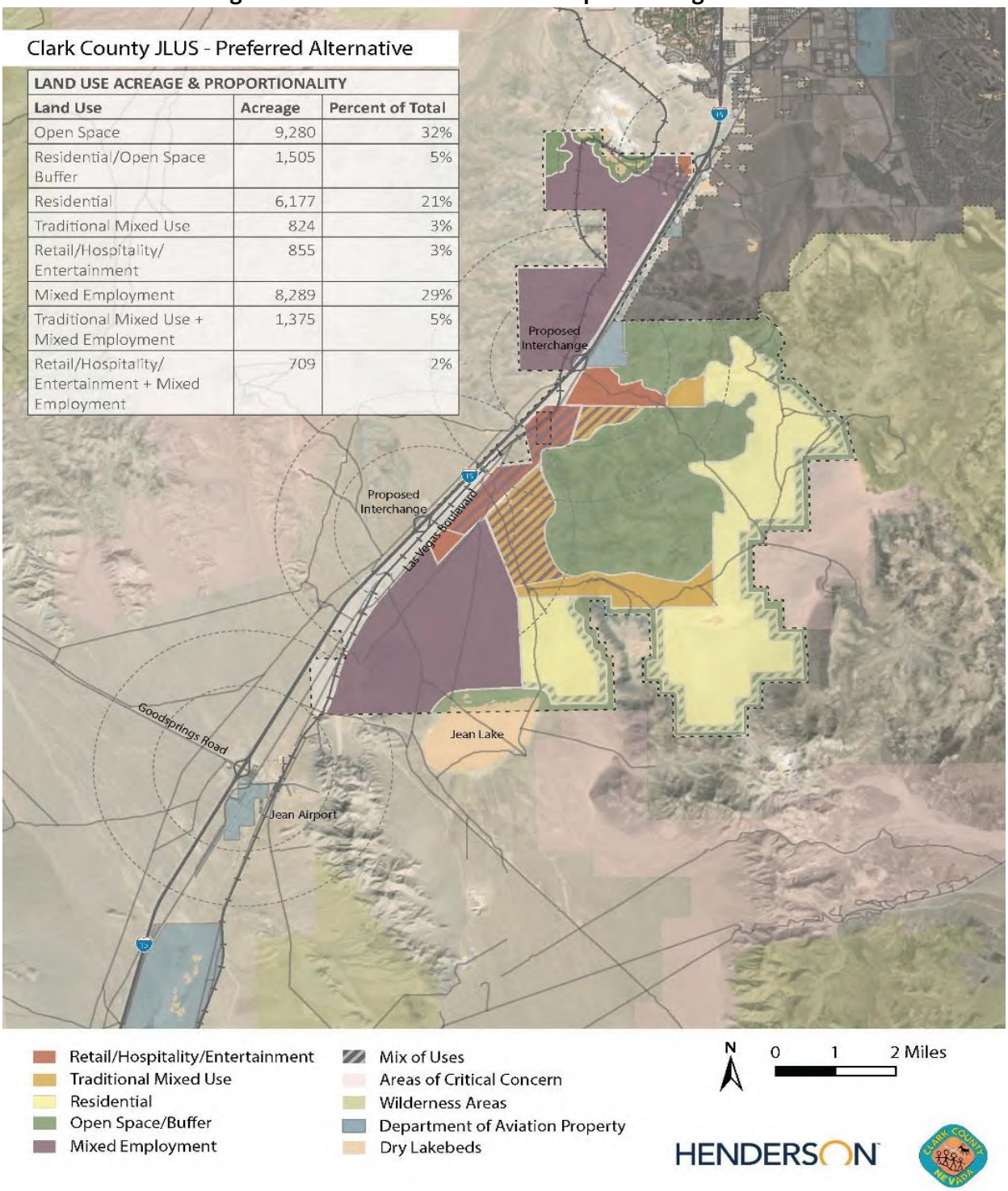
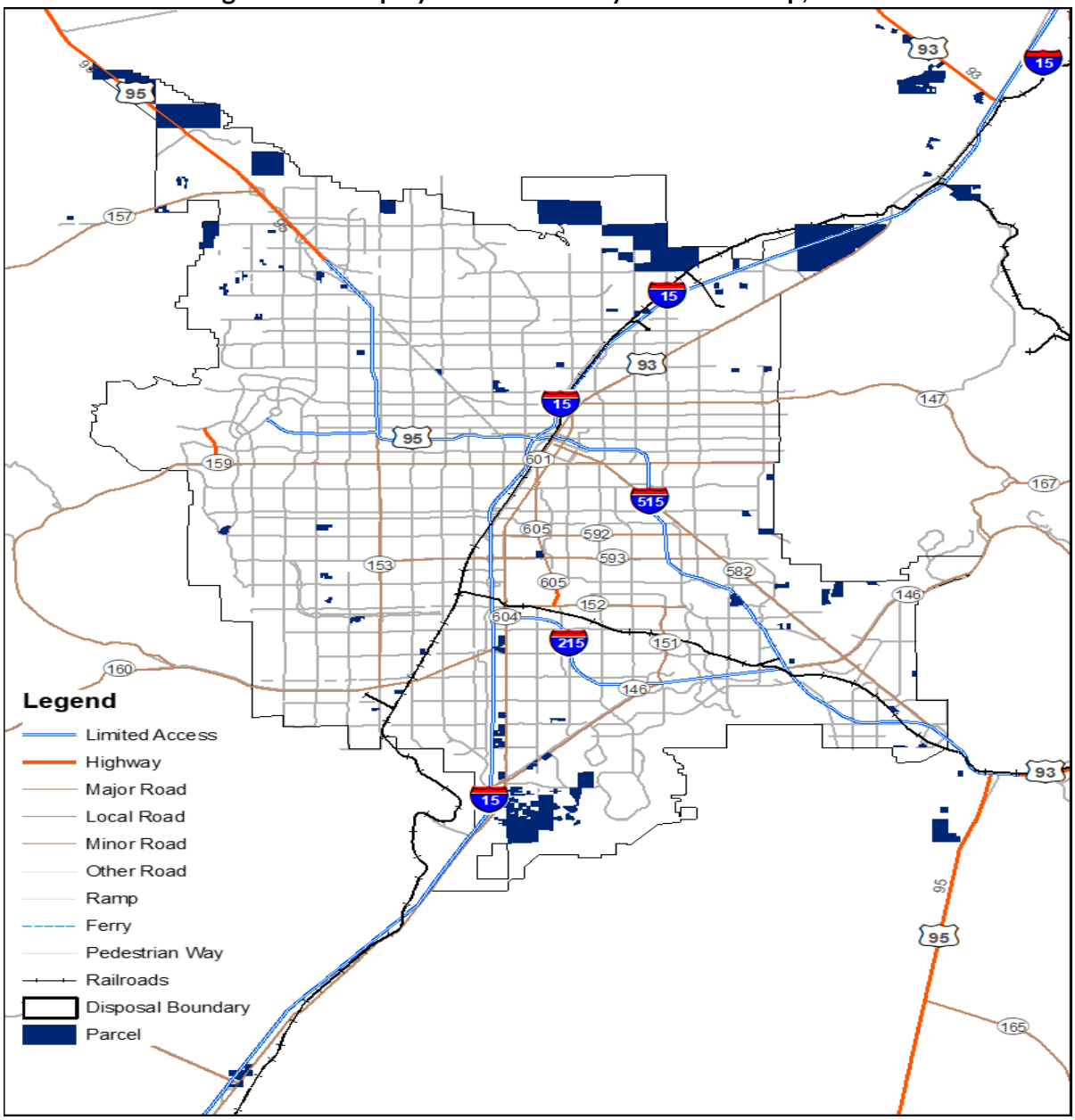


Figure VIII-3: Examples of Non-Residential Development Types for the JLUS area August 2023

Figure VIII-4: Examples of Residential Development Types for the JLUS area August 2023

IX. APPENDIX C: LAS VEGAS MSA REAL ESTATE MAPS AND FIGURES

Figure IX-1: Employment Land Analysis Parcels Map, 2023

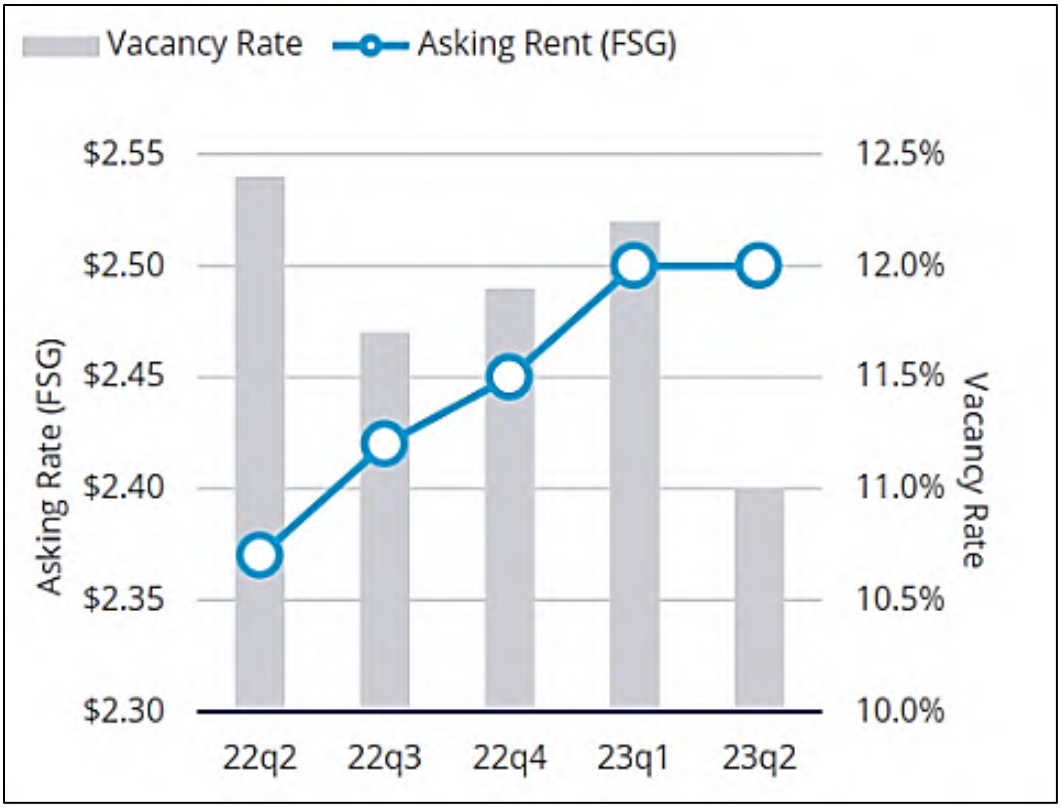


Sources: RCG, Assessor

Figure VIII-1 presents a visual mapping of the available Employment Land Parcels in the Las Vegas MSA as identified by RCG.[30] This map excludes the Ivanpah SNSA, Ivanpah AC, JLUS, and most of the I-15 Corridor parcels studied within this report. Included in this map, however, are some parcels by Primm, NV.

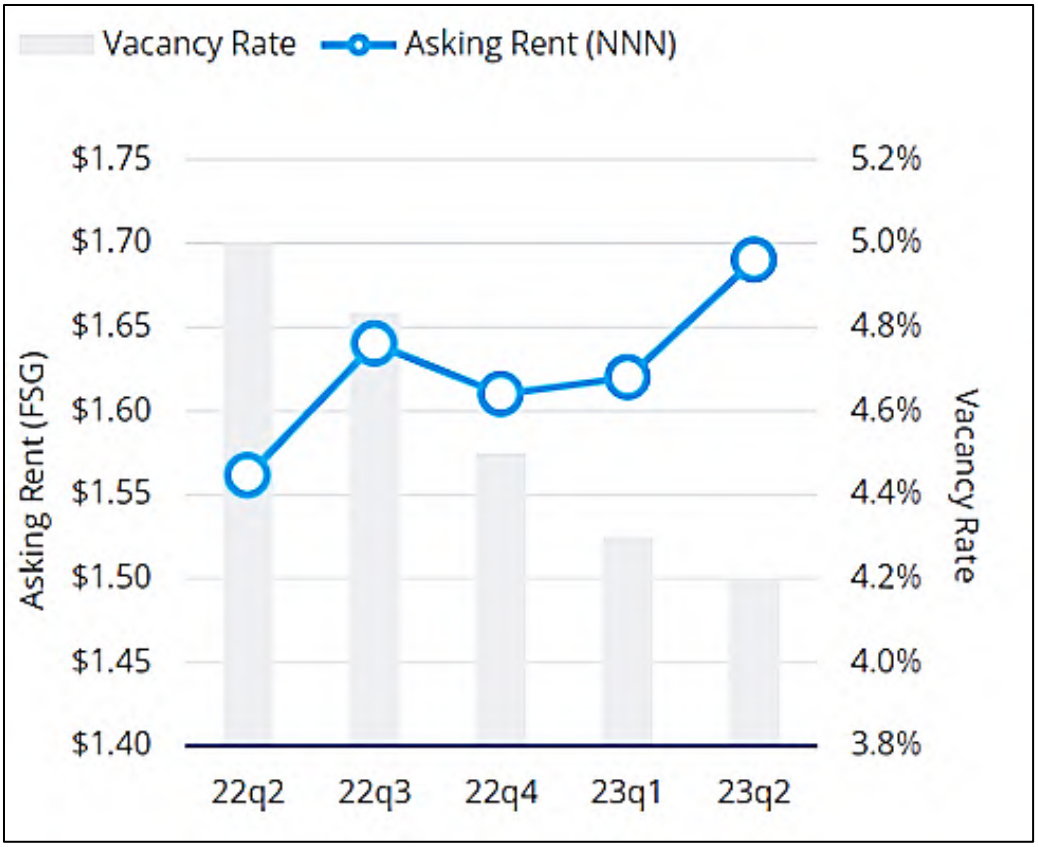
[30] https://rcgecon.com/wp-content/uploads/2023/06/2023-5-23-GOED-So.-NV-Land-Study-Final-1.pdf

Figure IX-2: Office Market Vacancy vs Rents Las Vegas MSA 2022Q2 – 2023Q2



Source: Colliers International

Figure IX-3: Retail Market Vacancy vs Rents Las Vegas MSA 2022Q2 – 2023Q2



Source: Colliers International

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