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NORTHERN NEVADA VACANT LAND ANALYSIS: INVENTORY & IMPLICATIONS FOR ECONOMIC GROWTH & DEVELOPMENT

Prepared for:



December 2021

Prepared By:

 **RCG**economics

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December 8, 2021

Mr. Mike Kazmierski
President and CEO
EDAWN
401 Ryland Street, Suite 101
Reno, NV 89502

Re: *Northern Nevada Vacant Land Analysis ("the Study")*

Dear Mr. Kazmierski:

RCG Economics LLC ("RCG") is pleased to submit the above referenced Study, providing the regional economic and real estate advisory services and analyses specified in our engagement letter.

RCG developed a high-level analysis and estimate of the current supply of developable land in the EDAWN Services Area ("the Study Area"), including parts of the Reno-Sparks MSA, the TRIC area of Storey County, the City of Fernley and the Northern Nevada Industrial Center. This land is needed to support the continued economic development, resiliency and growth of the Study Area and surrounding region. A worsening land shortage in the Study Area poses significant challenges to the economic competitiveness of Northern Nevada and the quality of life of its residents.

In accordance with the Scope of Work, our report includes the following components:

1. A definition of the Study Area and a census block-based map prepared with the assistance of the Truckee Meadows Regional Planning Agency
2. Identification of the remaining vacant and developable non-federal land for commercial (office, industrial and retail) and residential uses
3. A forecast of the timeframe for the full absorption of the land identified in #2 based on general density standards as well official population, housing and employment forecasts
4. An estimate of the reduction in potential economic activity, jobs and earnings that will occur from the base-case (unconstrained) forecast scenario discussed in #3 related to land shortages and two hypothetical percent estimates of "cost disadvantages" due to the shortage
5. A projection of reduced property and sales tax revenue collections resulting from estimated land shortages
6. A workforce housing analysis comparing median housing prices to median household income that provides context to the growing scarcity of developable land to meet housing needs

Finally, the Study was prepared under the assumptions list 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
Attachment



Attachment
Standard Assumptions & Limiting Conditions

1. RCG will prepare 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 EDAWN and the other sponsors of the Study (“the Clients”) are responsible for representations about their plans and expectations and for disclosure of significant information that might affect the ultimate realization of the analyses results.
3. The results of RCG’s analyses will apply only to the effective date of the Study deliverables. The success of the Clients’ plans 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.
4. Our deliverables will be 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.
5. If our Study deliverables are reproduced by the Clients, they must be reproduced in their entirety.
6. RCG will make 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.
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 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 will be prepared solely for the purpose, function and parties so identified in this assignment letter.
9. It will be assumed that the identified vacant land parcels RCG will analyze have no encroachments, easements or trespasses, unless noted within the Study. RCG will not make a 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 will come from publicly available data that RCG assumes are accurate. If a subsequent survey should reflect a 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 will be 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 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 will assume 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 will assume that there are no hidden or unapparent conditions relating to the analyzed parcels' soil or subsoil that will 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, will not be evaluated by RCG. The existence of these potentially hazardous materials may have a significant effect on the development to the parcels that will be evaluated. The Clients or other relevant third parties are urged to retain an expert in this field, if desired. The Study will assume 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 will be 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. We will not perform 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 will 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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I. ACKNOWLEDGEMENTS

NORTHERN NEVADA VACANT LAND ANALYSIS

RCG would like to acknowledge the efforts of the Truckee Meadows Regional Planning Agency in this undertaking. The TMRPA has vast knowledge on the region's land use and development patterns and provided much of the Study's initial legwork. They furnished RCG with various data on Northern Nevada parcels, without which RCG could not have completed this analysis. In particular, RCG would especially like to thank Jeremy Smith, Director of Regional Planning at TMRPA.

RCG would also like to thank the sponsors of this Study:



II. STUDY PURPOSE & NEED

NORTHERN NEVADA VACANT LAND ANALYSIS

This report (“the Study”) presents the major findings and methodologies employed in RCG Economics’ (“RCG”) residential and nonresidential lands analysis for the Economic Development Authority of Western Nevada (“EDAWN”), who commissioned the Study. The Study’s detailed results are also presented in the accompanying slide deck.

The Study’s main purpose is to analyze the issue of land scarcity within EDAWN’s Services Area (“the Study Area” or “the Region”). The Study is designed to determine whether there are short and long-term developable land constraints that could negatively affect the Region’s economic resilience going forward. The Study is based on three main analyses: 1) an estimate of the supply of developable residential and “nonresidential” land (industrial, office and retail) in the Study Area, 2) a forecast of the timeframe for absorption of that land and 3) the use of two scenarios to estimate the long-term costs to the economy of the Study Area due to developable land constraints using the IMPLAN economic model.¹

The Study has been designed to support the goals of a variety of stakeholders in Northern Nevada, including in alphabetical order:

Associated Builders and Contractors of Nevada
Barrett Resources
Cashell Enterprises
City of Reno
City of Sparks
Dermody Properties
EDAWN
Greenstreet Development
Hawco Properties
Lepori Construction
LP Insurance
NAIOP-Northern Nevada
Nevada Builders Alliance
Newlands Development Company

Northern Nevada Renewable Resources, LLC
NV Energy
Reno-Sparks Association of Realtors
S3 Development Company
SB Strategic Consulting, Inc.
StoneGate
Storey County
Symbio Development
Truckee Meadows Regional Planning Agency (“TMRPA”)
Truckee Meadows Business Coalition
Washoe County
Western Nevada Supply

These stakeholders and Study sponsors have an interest in the supply of developable lands to support growth and provide necessary services.

As this Study will show, developable and appropriate vacant land resources required to support the Northern Nevada economy over the long-term are limited, particularly for residential, office and retail

¹ IMPLAN is a widely recognized “input-output” economic model (which closely follows the U.S. Bureau of Economic Analysis), RCG performed an economic benefits analysis (“EBA”) to identify the potential effect on Nevada’s economy from the construction and ongoing operation of the Project. In use since 1979, IMPLAN uses multifaceted economic formulas to describe how the outputs of one industry turn into the inputs of other industries, and conversely.

NORTHERN NEVADA VACANT LAND ANALYSIS

purposes. Additionally, pending federal land policies and legislation could negatively affect the health and vitality of Northern Nevada's residents and businesses if their economic impacts are not fully understood and appreciated. Therefore, under the direction of EDawn, RCG conducted a comprehensive analysis of the Study Area's available nonresidential and residential land supply and the potential economic impacts to the region should future land supply constraints limit its economic and community development potential. Instrumental to this process was the invaluable help of TMRPA.

III. GLOSSARY OF TERMS

Acres under seven percent slope: The number of acres of a parcel in which the average grade is under seven percent, as calculated by the TMRPA.

Assessed value: Pursuant to Nevada Statute 361.225, the assessed value is 35 percent of the taxable value of land. “The Taxable Value of your land is the Assessor’s estimate of its full cash value, taking into account its location, zoning, actual use, etc.” (*Washoe County Assessor*)

Average slope: The average grade of a parcel, as a percent, as calculated by TMRPA.

Base-case: A scenario that assumes that there are no land constraints affecting the Study Area’s continued economic growth.

Nonresidential: In the context of the Study, “nonresidential” lands, projects, etc. refer to industrial, office and retail.

Community: The jurisdiction, municipality or township in which a parcel is located.

Cost Disadvantage: The increased cost burdens to businesses and their suppliers modeled as a decline in contributions to economic output/spending. In the context of the Study, these disadvantages are estimated for industrial land-using businesses only. The cost disadvantages herein are relative to the unconstrained base-case where the Study Area’s economy is not affected by land constraints.

Disposal Boundary (“DB”): The boundary within which the Bureau of Land Management may sell off lands.

Earnings: The sum of Employee Compensation (wages and benefits) and Proprietor Income.”² (*IMPLAN*)

Employment Land: Employment land is defined herein as parcels that are most suited for private sector, nonresidential development.

Employment/Jobs: A job in IMPLAN equals the annual average of monthly jobs in that industry; this is the same definition used by the Bureau of Labor Statistics and the Bureau of Economic Analysis (“BEA”). Jobs in IMPLAN are jobs supported, not Full-Time Equivalent (FTE). (*IMPLAN*).

² RCG prefers the term “earnings” to “labor income,” the term used by IMPLAN for a combination of employee compensation and proprietor income. Employee compensation is the total payroll cost of the employee paid by the employer. This includes wages and salary, all benefits (health, retirement, etc.) and employer-paid payroll taxes (social security, unemployment, etc.). Proprietor Income consists of payments received by self-employed individuals and unincorporated business owners.

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*)

Gross Product: As Gross Domestic Product, it is “a comprehensive measure of U.S. economic activity. GDP is the value of the goods and services produced in the United States. The growth rate of GDP is the most popular indicator of the nation's overall economic health.” (*Bureau of Economic Analysis*) Gross product, however, can be applied as measure of economic activity to any geographic area. At the state level, it is often referred to as “Gross State Product,” or GSP.

Ownership: The party that owns a parcel according to the county assessor.

Output/Gross Output: “Principally, a measure of an industry's sales or receipts. These statistics capture an industry's sales to consumers and other final users (found in GDP), as well as sales to other industries (intermediate inputs not counted in GDP). They reflect the full value of the supply chain by including the business-to-business spending necessary to produce goods and services and deliver them to final consumers.” (*Bureau of Economic Analysis*)

Parcel: A legal subdivision of real property. The Assessor's Parcel Number (“APN”) is “a specific series of numbers, in lieu of a full legal description, which identifies or represents a parcel for assessment purposes.”
(*Washoe County Assessor*)

Scenarios: Three scenarios were discussed in the Study relative to cost “disadvantages” to the Clark County economy resulting from a potential land shortage in the region. A base-case that assumes no land constraints and unrestricted economic growth, a three percent cost disadvantage to firms and a five percent cost disadvantage to firms.

Study Area: EDAWN’s regional jurisdiction. The TMRPA was of great assistance to RCG in identifying which census block groups are located within EDAWN’s jurisdiction.

Study Period: This period refers to the forecast horizon for the base-case and the three and five percent cost disadvantage scenarios, 2021 – 2050.

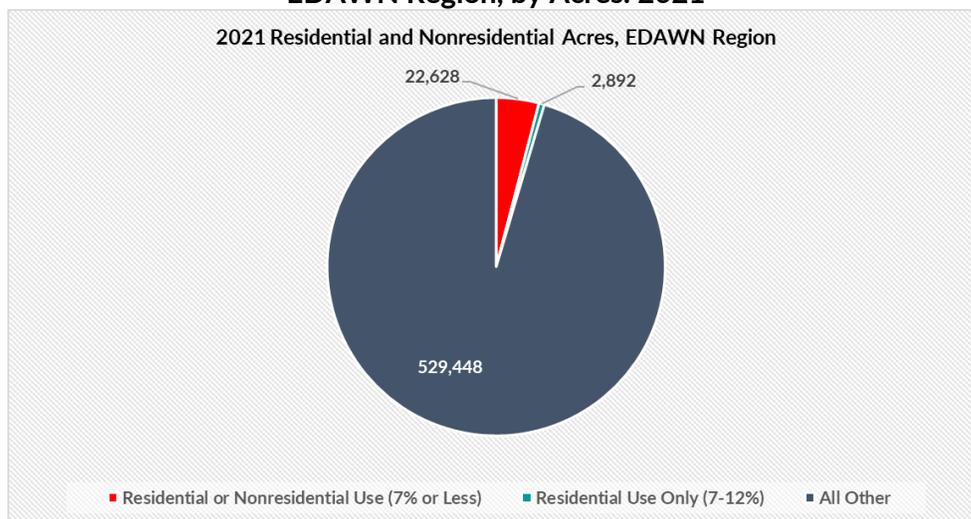
Zoning: “Zoning refers to municipal or local laws or regulations that dictate how real property can and cannot be used in certain geographic areas.” (*Investopedia*)

IV. EXECUTIVE SUMMARY: RECOMMENDATIONS & MAJOR FINDINGS

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

- Nevada’s Congressional delegation should pursue changes to federal law, as the Truckee Meadows Public Lands Management Act aims to do, to expand Northern Nevada’s public land disposal boundary.³
- Northern Nevada developers, especially residential, will face challenges in finding desirable parcels to accommodate projects by 2027 if nothing is done to expand regional access to lands, or sooner if the BLM fails to release lands as needed.
- There are roughly 25,500 gross acres remaining of developable residential and nonresidential land (in parcels 20 acres or more) in the Study Area, with approximately 9,700 of those acres having an “above average” rating (see Section V for a discussion of RCG’s rating system). These 25,500 acres represent a fraction of the total acreage in the Region that is not vacant, not usable, too steep, etc. (see Figures IV-1 and IV-2).⁴

Figure IV-1: Residential and Nonresidential Lands, Non-Federally-Owned Parcel Inventory, EDAWN Region, by Acres: 2021



Source: TMRPA

- To meet the needs of the expected residential and nonresidential growth by 2050, the region is projected to require approximately 24,300 developable acres as follows:

³ www.landsbill.org/

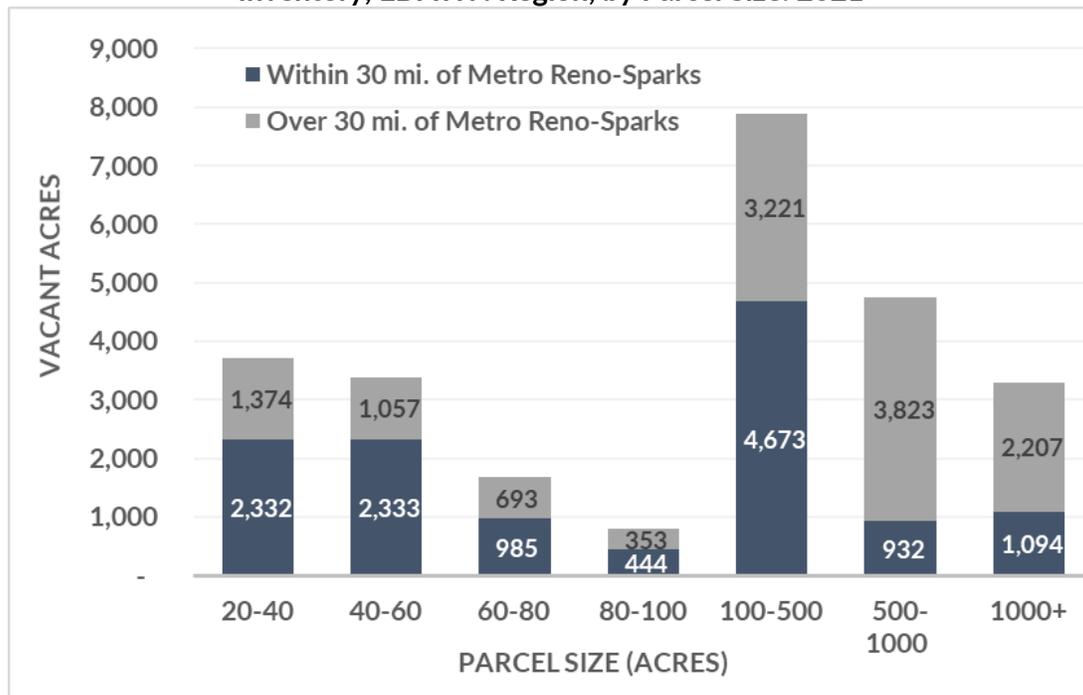
⁴ Also, it is important to note that while the red “slice” of vacant acres below could accommodate either residential or nonresidential development, the parcels containing those acres have current zoning; RCG’s analysis herein does not presume that the parcels could be rezoned.

- 20,700 acres of developable residential land,
 - 2,100 acres of developable industrial land, and
 - 1,500 acres of developable office & retail land
- Therefore, based on the estimated 9,700 acres of more-desirable lands available, demand for those acres would exceed supply by 14,600 acres; barring an increase in more-desirable land, that demand would have to be met using the 15,800 acres of less-desirable land remaining.
 - Based on current job growth trends, RCG projects that the Region will absorb the most desirable development parcels as follows (according to their current zoning; see Section VI):
 - Residential: 2027
 - Industrial: 2041
 - Office/Retail: 2022
 - The number of parcels to accommodate large-scale development in the near- and medium-terms is limited and will likely face supply constraints sooner than smaller parcels, especially since most of the larger parcels are 30 or more miles from Metro Reno-Sparks (see Figure IV-2, Figure IV-3 and Table IV-1 below).⁵
 - Non federally-owned parcels: 53 parcels of 100 acres or more account for approximately 16,000 of the 25,500 vacant acres currently available for residential and nonresidential development.
 - Privately-owned parcels: 51 parcels of 100 acres or more compared to 239 parcels in the 20 to 100-acre range
 - State or municipally-owned parcels: 2 parcels of 100 acres or more compared to 7 parcels in the 20 to 100-acre range

Note: Over 60,000 acres of land in the Tahoe-Reno Industrial Center are owned by Blockchains, LLC (under the name Mass Land Acquisition, LLC). However, because RCG's criteria for incorporating parcels includes, for example, a standard that at least 50 percent of the parcel must be developable (12 percent slope or less; see Section V), the Blockchains parcels are included in the 529,488 acres above but not in the count of vacant, available parcels or developable acres (i.e., they are rather mountainous parcels). Additionally, due to the difficulty and speculative nature of identifying which and when parcels could potentially be assembled into larger developable parcels, we have taken a conservative approach in our analysis.

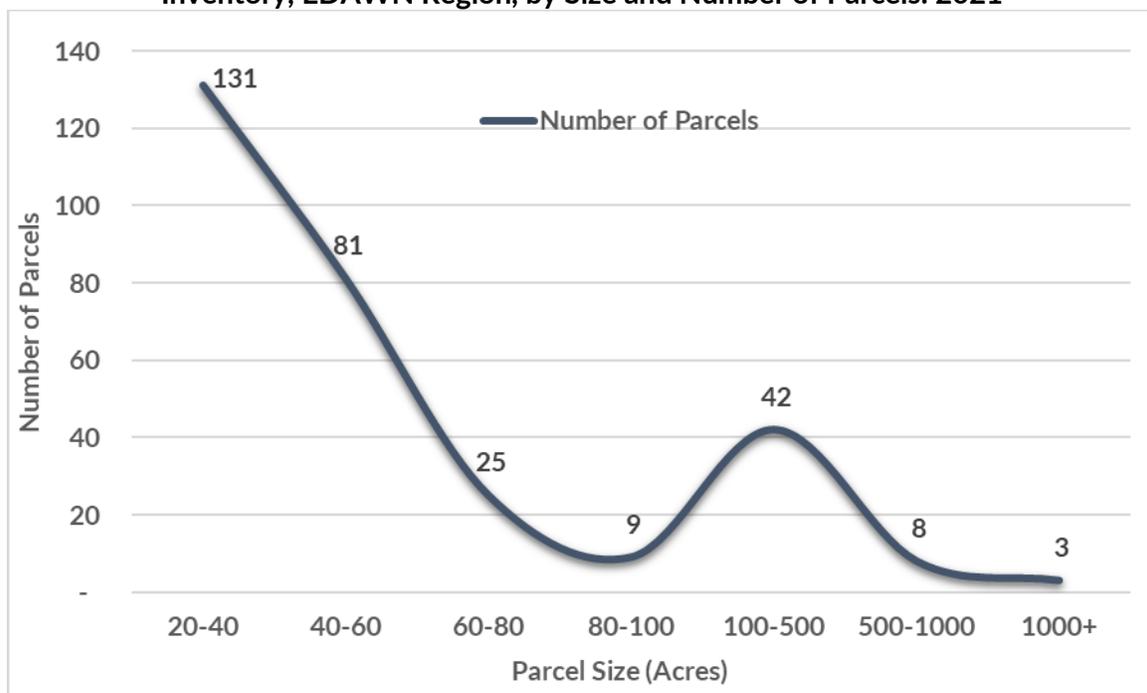
⁵ For the purposes of this Report, distance from Metro Reno-Sparks means from the I-80/I-580 interchange. Employment at a distance of 30+ miles will require a commute of 30 or more minutes for many workers living in the Metro area.

Figure IV-2: Residential and Nonresidential Vacant Lands, Non-Federally-Owned Parcel Inventory, EDAWN Region, by Parcel Size: 2021



Source: TMRPA

Figure IV-3: Residential and Nonresidential Vacant Lands, Non-Federally-Owned Parcel Inventory, EDAWN Region, by Size and Number of Parcels: 2021



Source: TMRPA

Table IV-1: Residential and Nonresidential Vacant Lands, Non-Federally-Owned Parcel Inventory, EDAWN Region, 100- to 500-Acre Parcels: 2021

County	Number of Parcels	Acres
Washoe	19	4,212
Storey	6	1,076
Lyon	17	3,336
Total	42	8,624

Source: TMRPA

- Failing to ensure an adequate supply of developable land in the region could lead to a 15 – 24 percent reduction in the growth of the Study Area’s gross regional product. Annual economic growth would drop from two percent in the “base-case” (no land constraints) to one percent in a three-percent disadvantage scenario and 0.3 percent in a five-percent disadvantage scenario (see RCG’s growth scenario analysis in Section VI of this Report).

Note: Because the Study Area covers portions but not all of three counties (Washoe, Storey and Lyon), it was not feasible to calculate economic and fiscal costs of land constraints in IMPLAN for the Study Area specifically. Therefore, RCG selected Washoe County as a proxy for the Study Area for the purposes of the IMPLAN calculations. The rationale for doing so is as follows:

- According to the BEA, the real gross domestic product (“GDP”) of Washoe County comprises 88 percent of the total GDP of the three counties.
- According to the Nevada Department of Employment, Training and Rehabilitation, Washoe County’s labor force comprises 91 percent of the labor force of the three counties.
- According to the U.S. Census Bureau, 88 percent of the population of the three counties resides in Washoe County.
- The majority of the acres in the Study Area are contained in Washoe County.
- RCG’s projection of land absorption in the Study Area is based on Woods & Poole Economics’ (“WPE”) forecast of job growth in the Reno-Sparks Metropolitan Statistical Area (“MSA”); the majority of the acres in the MSA are contained in Washoe County.

V. STATEMENT OF METHODOLOGY/ KEY ASSUMPTIONS

This section describes in detail RCG’s methodology and the key assumptions included in the Study’s three analytical sections. Specifically, the three sections are titled:

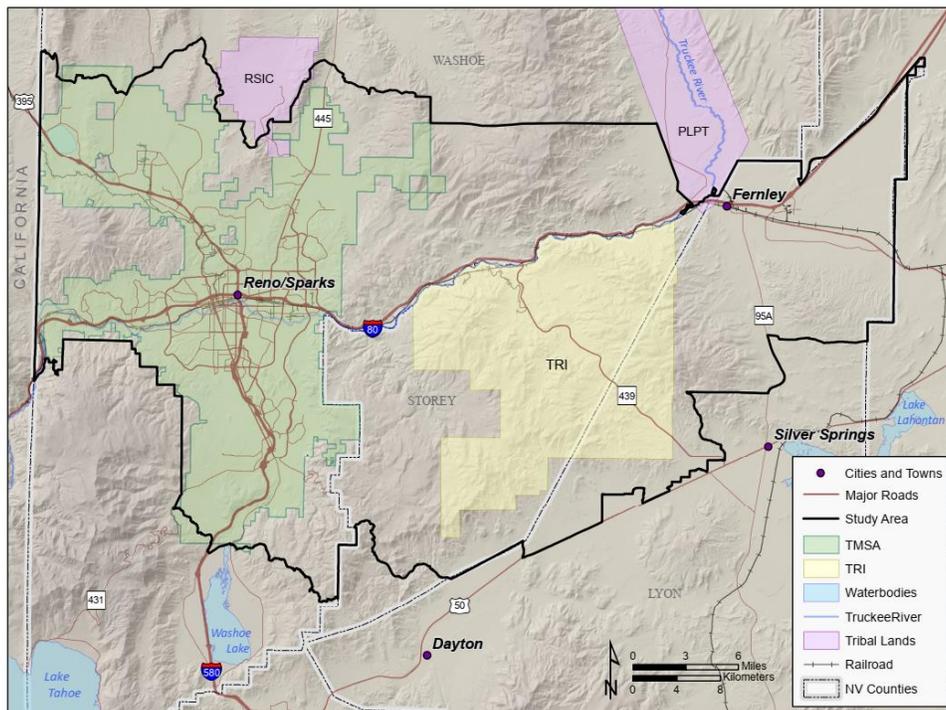
- Employment and Residential Land Inventory
- Land Supply & Economic Development
- Economic Costs of Land Constraints

A. Employment and Residential Land Inventory

The purpose of this Report is to estimate the availability of relevant developable land in Northern Nevada, within the Study Area, over the coming years and to rank parcels contained within that jurisdiction according to various factors. RCG applied a series of filters to produce a list of parcels best suited to accommodate residential and nonresidential development in the Study Area. Due to data limitations and complexities, the final list is not necessarily a complete list of every potentially developable parcel in the region, but it should contain nearly all qualifying vacant land parcels. Below, RCG discusses the methods that produced this final list.

Using a map provided by EDawn as a guide, RCG worked with TMRPA to develop a Study Area map based on U.S. census block groups in order to focus the Study on the parcels within EDawn’s service area. Figure V-1 displays the resulting map, with the Study Area outlined in black.

Figure V-1: The Study Area/EDawn Services Area

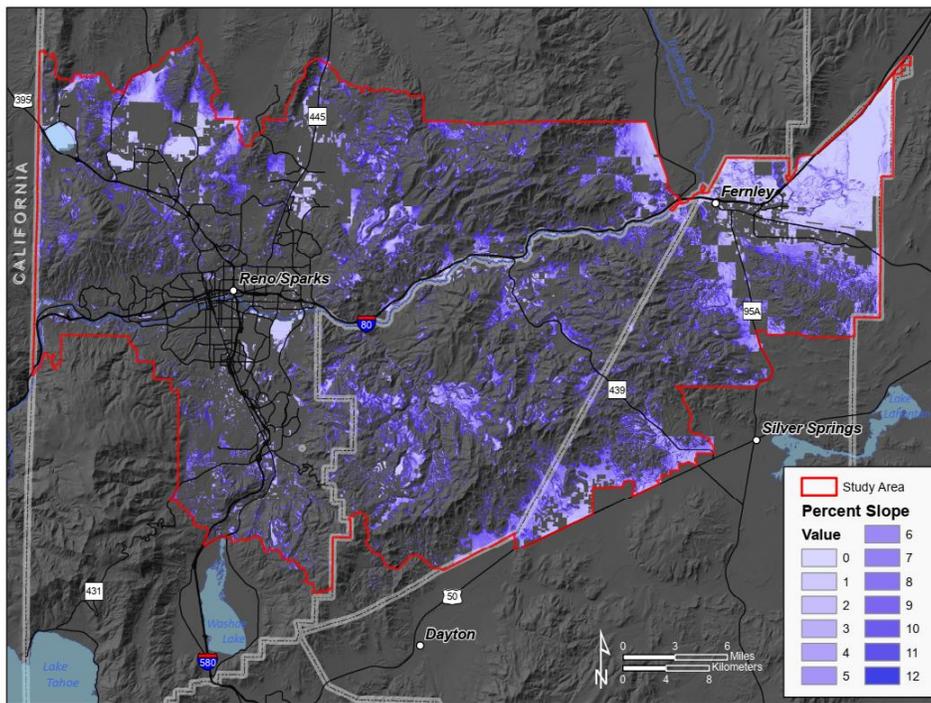


Sources: TMRPA, EDawn

As the purpose of this Study was to analyze developable parcels, RCG identified and removed parcels—with the help of TMRPA—with more than minor improvements, leaving only developable, vacant parcels remaining. RCG has also excluded parcels with land use codes (“LUC”) indicating agricultural use, except for parcels within the boundaries of the Tahoe-Reno Industrial Center or Northern Nevada Industrial Center. Furthermore, RCG has not made assumptions regarding the possibilities of parcel rezoning for alternate uses (e.g., from residential to commercial, from commercial to industrial, from vacant—unknown to industrial). For example, there are parcels included in the 25,500 total developable acres that have an LUC indicating they are vacant with unknown zoning—as designated by the county where they are located; these parcels have not, however, been included in the total developable acres for residential, commercial, or industrial use, since it is not known for which of these purposes the parcels are useable, practically speaking.

RCG then applied parcel slope data provided by TMRPA—the percentage of each parcel with less than seven percent slope and with less than 12 percent slope—to calculate the vacant acreage developable for nonresidential and residential purposes, respectively. Parcels with slopes steeper than seven percent are difficult to develop for nonresidential projects, while residential development can occur on parcels with slopes up to 12 percent, with development becoming more difficult thereafter. Figure V-2 displays the location of acres in the Study Area having a slope of 12 percent or less.

Figure V-2: Parcels with Slope of 12 Percent or Less in the Study Area: 2021



Source: TMRPA

RCG also applied a filter to remove parcels smaller than 20 acres or whose developable acres (12 percent slope or less) are less than half of their total acres; in other words, a 20-acre parcel with only nine developable acres would be excluded. In RCG's work on the [Southern Nevada Industrial Land Analysis](#), a working group of NAIOP members determined that the Study's focus should be on larger parcels due to the difficulty and speculative nature of the assemblage process—amassing multiple parcels into a developable larger parcel.⁶ Furthermore, it is not readily apparent which parcels are adjacent given the numbering conventions used by the county assessors' offices. Therefore, similar to the Southern Nevada study, there may be opportunities to assemble two or more parcels in the Study Area which, together, sum to 20 or more developable acres, which have been excluded herein because it would be too speculative to include them.

RCG then excluded any parcel owned by the federal government or that is designated as Native American tribal land. While use of these lands for development may be negotiable, it was RCG's task to calculate vacant land that could be developed without such negotiations. The Study assumes that all federal lands within the DB will be made available as needed, and assuming the proper environmental safeguards.

The next filter removed irregularly shaped parcels that would not be suitable for development. To measure this attribute, RCG calculated the ratio of a parcel's area to its perimeter. On a spectrum, a circle has the smallest ratio, with rectangular- and trapezoid-shaped parcels in the middle, and irregularly-shaped parcels at the high end of the spectrum.⁷ The more jagged and irregular a shape becomes, the more its perimeter grows relative to its area. RCG was able to identify irregularly-shaped parcels using this criteria and exclude them.⁸

The final filter removed parcels that were located more than one mile from their nearest road access. This one-mile standard came from the Southern Nevada Industrial Land Study's working group. To filter by this criterion, TMRPA provided RCG with data on the minimum distance from parcels to interstates, highways and arterial roads.

After all the filters were applied, RCG produced a ranking of the final 299 parcels in the data set. Across 10 ranking criteria, each parcel was awarded either zero, one or two points, for a total possible score of 20. Table V-1 below displays the ranking criteria and corresponding points.

⁶ The speculative nature includes matching willing buyers with willing sellers of adjacent parcels that have developable acres.

⁷ math.stackexchange.com/questions/389339/among-all-shapes-with-the-same-area-a-circle-has-the-shortest-perimeter

⁸ The threshold for removal from the data set was informed using percentiles. Over 98 percent of the ratios were less than or equal to 0.2, so parcels having a greater than 0.2 ratio of parcel perimeter to parcel area were excluded.

Table V-1: Parcel Ranking Criteria with Corresponding Points

Ranking Criteria	0 Points	1 Point	2 Points
Zoning	Other/Unknown	Office/Retail	Industrial/Residential
Average Slope	Greater than 3.5%	N/A	Less than or equal to 3.5%
Owner	Federal Gov't (not counted)	State/Municipal	Privately-Owned
Acres Over 7% Slope Residential/ Nonresidential	Greater than 2 Acres	0.5 - 2 Acres	Less than or equal to 0.5 Acres
Acres Over 12% Slope- Residential	Greater than 2 Acres	0.5 - 2 Acres	Less than or equal to 0.5 Acres
Assessed Value Per Acre	Greater than \$100,000	\$50,000 - \$100,000	Less than or equal to \$50,000
Distance to interstate	Greater than 5,280 feet	1,320 - 5,280 feet	Less than or equal to 1,320 feet
Distance to highway	Greater than 2,640 feet	250 - 2,640 feet	Less than or equal to 250 feet
Distance to railroad	Greater than 5,280 feet	250 - 5,280 feet	Less than or equal to 250 feet
Distance from Metro Reno-Sparks (I-80/I-580 Interchange)	Greater than 30 miles	N/A	Less than 30 miles

Source: RCG

Based on total scores, parcels were sorted into the following four tiers:

- Tier 1: 16 - 20 points (most desirable)
- Tier 2: 11 - 15 points
- Tier 3: 6 - 10 points
- Tier 4: 0 - 5 points (least desirable)

As displayed in Table V-1, the first ranking criterion was land use. Parcels zoned for industrial or residential uses were given two points. Parcels zoned for other commercial uses (office, retail, etc.) were awarded one point. All other zoning categories, including those indicated as “Unknown,” were awarded no points. RCG used this rating system because of anticipated and needed growth in the Study Area—in households and industrial employment centers, respectively. And because other commercial real estate demand (e.g.,

office, retail, etc.) can at least partially be met through infill development, which is not the case with industrial needs. At the core of this demand, is the need for the Study Area to enhance its economic resiliency and diversification over the long-term.

The second ranking criterion was based on a parcel's average slope. An informal survey of a group of NAIOP members for RCG's [Southern Nevada Industrial Land Analysis](#) suggested that parcels with a slope of less than four percent would be easiest to develop. Because the data set includes only parcels with an average slope of seven percent, RCG divided this slope in half to come up with a split at 3.5 percent—close to four percent. Parcels with an average grade of less than or equal to 3.5 percent were awarded two points, otherwise they received no points.

The third ranking metric concerned ownership. Parcels owned by the federal government received no points. Those owned by municipalities received one point and parcels owned by private parties received two points. Public lands, if developable at all, typically take longer to purchase and, consequently, to develop than privately owned lands because of significantly greater regulatory and legal requirements/restrictions.

Fourth, parcels were graded on the amount of land that has more than a seven percent and 12 percent slope, respectively. Many parcels with an average slope of less than 12 percent contain some share of land with a slope of greater than 12 percent, and the same is true of parcels with an average slope of less than seven percent. Accordingly, RCG calculated how many acres of each parcel exceed seven and 12 percent, respectively, and assigned each parcel a score based on those acres. Parcels with less than 0.5 acres of land over each threshold received two points. Parcels with 0.5 to two acres of land over the threshold received one point. Parcels with more than two acres over each threshold received no points (see Table V-1).

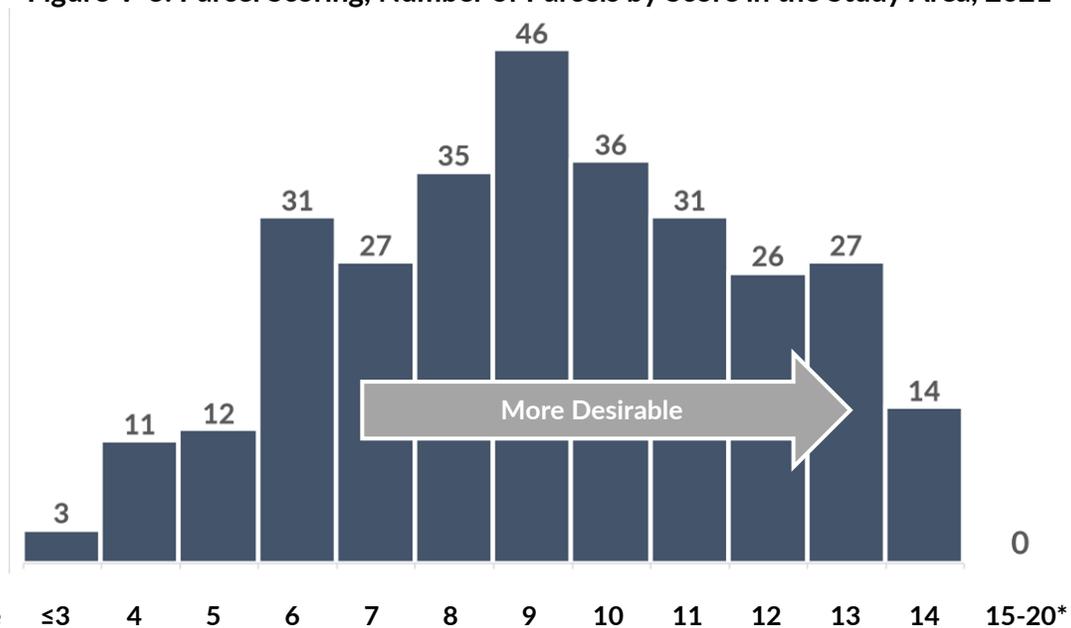
The fifth ranking measure was assessed value per acre, based on Assessor data. Parcels with an assessed value of less than or equal to \$50,000 per acres were awarded two points. Assessments per acre of \$50,000 to \$100,000 were given one point and values greater than \$100,000 per acre were given no points. RCG used this same methodology in evaluating parcels in the Southern Nevada Industrial Land Analysis.

Three ranking metrics were based on distance from transportation infrastructure. RCG again used clusters in the data to guide in finding cutoffs for the scoring ranges. Clusters nearest the infrastructure type received two points. The remaining parcels were generally split in half into the remaining two groups. Parcels less than one-quarter miles from an interstate were awarded two points. From one-quarter mile to

one mile received one point. Parcels more than one mile from an interstate received no points. In terms of distance from a highway, parcels received two, one and zero points if they were less than or equal to 250 feet away, 250 feet to one-half mile away and more than half a mile away, respectively. Distance from a railroad was graded as: less than 250 feet (two points), 250 feet to one mile (one point) and more than one mile (no points).

The final criteria awarded points based on distance from Metropolitan Reno-Sparks (the I-80/I-580 interchange, specifically). Based on feedback from EDAWN that a commuting distance of more than 30 miles from Reno-Sparks would make a location less desirable, parcels within this 30-mile radius were awarded two points. Figure V-3 below displays the scores for the 299 parcels.

Figure V-3: Parcel Scoring, Number of Parcels by Score in the Study Area, 2021

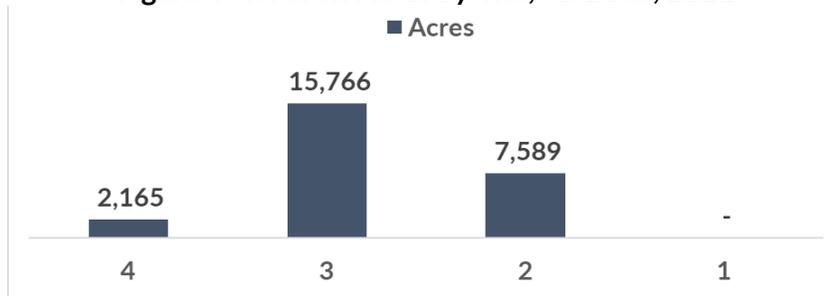


*Note: No parcels received a score of 15 or better.

Sources: TMRPA, RCG

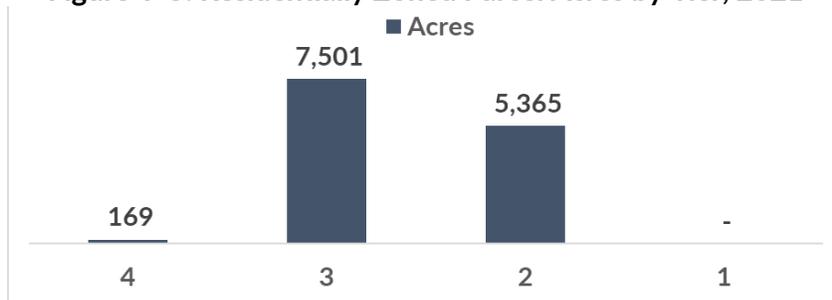
RCG then used the total points to rank the parcels in four tiers. The results for all LUCs are presented in Figure V-4 below, while Figures V-5 through V-7 display the results for residential, industrial and other commercial tiers. As indicated in the figures, there are currently no Tier 1 parcels in the Study Area. The most desirable parcels received a score of 14 points, shy of the Tier 1 threshold by two points. It is important to note that **the number of acres for the three LUC categories do not sum to the totals in Figure V-4**; this is because Figure V-4 includes parcels currently zoned “Vacant – Unknown/Other,” while Figures V-5 through V-7 do not include those parcels because their potential use is currently unknown.

Figure V-4: Parcel Acres by Tier, All LUCs, 2021



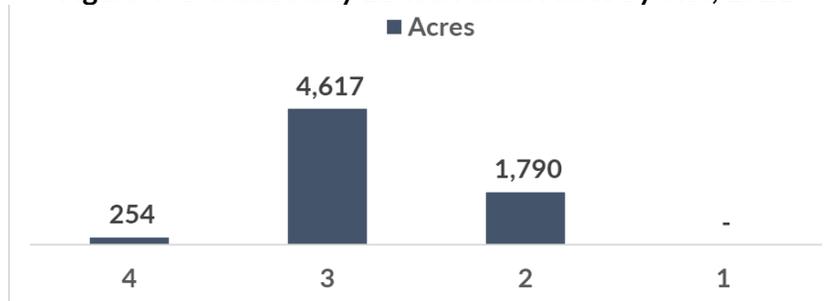
Sources: TMRPA, RCG

Figure V-5: Residentially Zoned Parcel Acres by Tier, 2021



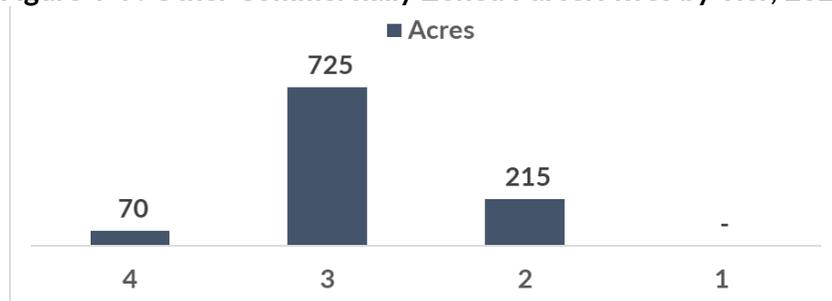
Sources: TMRPA, RCG

Figure V-6: Industrially Zoned Parcel Acres by Tier, 2021



Sources: TMRPA, RCG

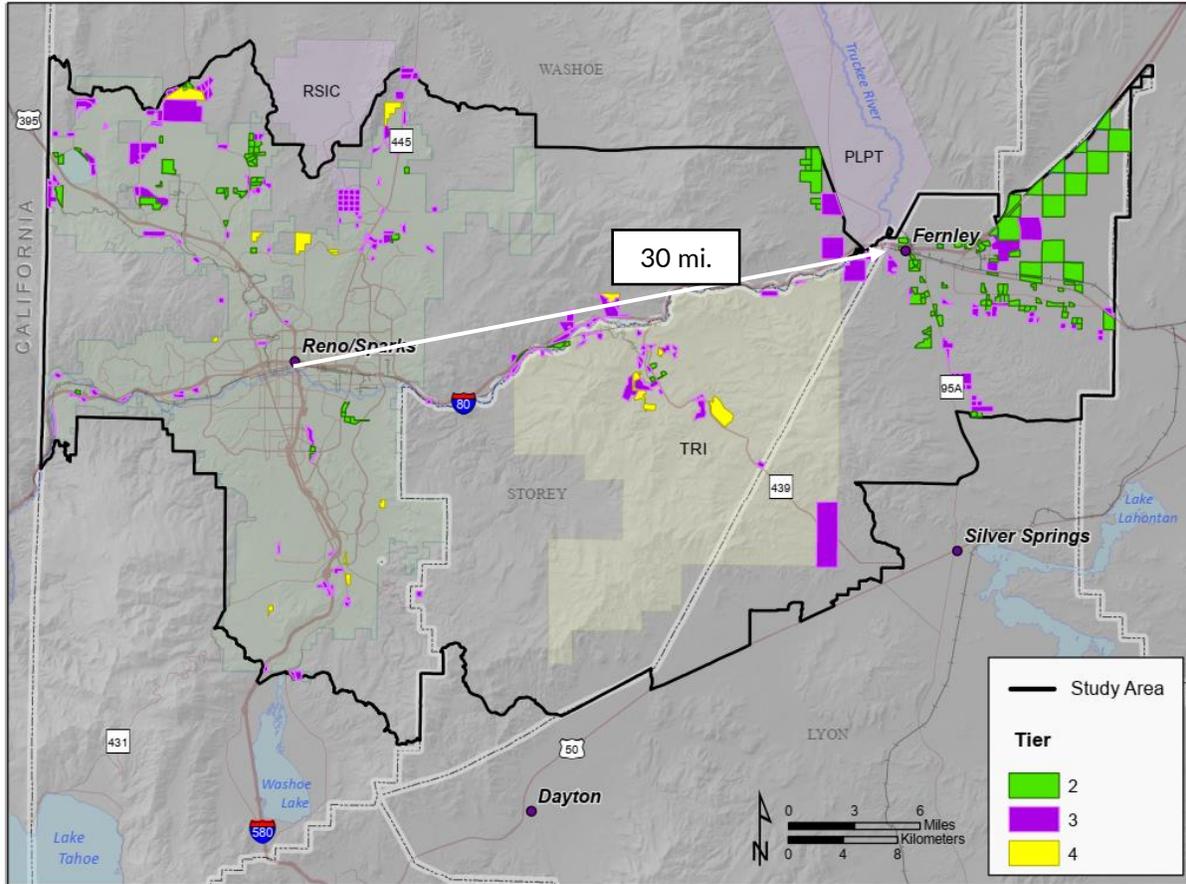
Figure V-7: Other Commercially Zoned Parcel Acres by Tier, 2021



Sources: TMRPA, RCG

Figure V-5 below displays the location of the parcels by tier (color-coded) as well as the 30-mile radius from Metro Reno-Sparks.

Figure V-8: Study Area with Parcels and 30-mile Radius from Metro Reno-Sparks, 2021



Sources: TMRPA, RCG

B. Land Supply & Economic Development

This section compares the Study Area’s expected household and job growth to the supply of developable land in the area. RCG used socio-economic forecasts from WPE that assess the current and future demand-supply balance/imbalance in land resources. WPE is a highly respected and widely used forecaster of national, regional, state and local demographic and economic data.⁹

First, using WPE’s projections for household growth between 2021 and 2050, RCG divided the projected households in the Reno-Sparks MSA by a household density factor of 3.8 units per acre to ultimately arrive at the number of acres of residential land that will be needed each year. RCG selected the 3.8 housing density factor from the “Truckee Meadows Housing Study” completed for the Truckee Meadows

⁹ www.woodsandpoole.com/

Service Area (“TMSA”)¹⁰; the boundary of the TMSA is indicated in green in Figure V-1. Since the EDAWN Services Area includes more unincorporated lands (with a greater number of acres per unit) than the TMSA, RCG’s estimate of acreage needed for residential development in the Region should be viewed as conservative.

Second, using WPE’s forecast for job growth between 2021 and 2050 by industry, RCG sorted the industry sectors into two categories: industrial and other commercial (office, retail, etc.). To calculate the projected absorption of land for each category, RCG used employment density factors and floor area ratios (“FAR”) from a “Jobs-Housing Nexus Study” prepared for the City of San Diego.¹¹ Table V-2 displays the industry sectors, employment densities and FARs used to estimate the required number of acres to accommodate the job forecasts for industrial sectors.

Table V-2: Industrial Subsectors with Employment Densities and FAR

Industry Sector	Employment Density*	FAR ⁸
UTILITIES EMPLOYMENT	500	0.35
CONSTRUCTION EMPLOYMENT	500	0.35
MANUFACTURING EMPLOYMENT	500	0.35
WHOLESALE TRADE EMPLOYMENT	1,000	0.35
TRANSPORTATION and WAREHOUSING EMPLOYMENT	2,000	0.35

*Note: Employment Density is measured in square feet per employee.

Sources: WPE, Keyser Marston Associates

Multiplying the forecasted growth in jobs by the employment density and then dividing by the FAR provides the square feet of land required to support those jobs, which can then be converted to acres. For example, WPE projected manufacturing jobs for the MSA in 2022 is 28,000; at an employment density of 500 sf per employee and an FAR of 0.35, this equates to approximately 918 acres needed to accommodate the structures to support those manufacturing jobs.

Similarly, Table V-3 displays the industry sectors, employment densities and FARs used to estimate the required number of acres to accommodate the job forecasts for the non-industrial, commercial sectors.

¹⁰ “Truckee Meadows Housing Study: Appendices,” ECONorthwest, July 2017, p. B-26; Washoe County Assessor

¹¹ “Jobs-Housing Nexus Study,” Keyser Marston Associates, Inc., August 2013. Employment density means, “the number of square feet of building area per employee.” Floor Area Ratio is the percentage of a lot’s acreage that is covered by the building/structure, i.e., an FAR of 0.35 means that, on average, the buildings/structures for these sectors cover just over one-third of the acreage of the lot/parcel.

Table V-3: Non-Industrial, Commercial Subsectors with Employment Densities and FAR

Industry Sector	Employment Density*	FAR ¹²
RETAIL TRADE EMPLOYMENT	350	0.3
INFORMATION EMPLOYMENT	250	0.4
FINANCE and INSURANCE EMPLOYMENT	250	0.4
REAL ESTATE and RENTAL and LEASE EMPLOYMENT	250	0.4
PROFESSIONAL and TECHNICAL SERVICES EMPLOYMENT	250	0.4
MANAGEMENT of COMPANIES and ENTERPRISES EMPLOYMENT	250	0.4
ADMINISTRATIVE and WASTE SERVICES EMPLOYMENT	250	0.4
EDUCATIONAL SERVICES EMPLOYMENT	250	0.4
HEALTH CARE and SOCIAL ASSISTANCE EMPLOYMENT	250	0.4
ARTS, ENTERTAINMENT and RECREATION EMPLOYMENT	250	0.4
ACCOMMODATION and FOOD SERVICES EMPLOYMENT	500	0.4
OTHER SERVICES, EXCEPT PUBLIC ADMINISTRATION EMPLOYMENT	250	0.4
FEDERAL CIVILIAN GOVERNMENT EMPLOYMENT	250	0.4
FEDERAL MILITARY EMPLOYMENT	250	0.4
STATE and LOCAL GOVERNMENT EMPLOYMENT	250	0.4

*Note: Employment Density is measured in square feet per employee.

Sources: WPE, Keyser Marston Associates

C. Economic & Fiscal Costs of Land Constraints

This section discusses the methodology used to estimate the economic costs of land constraints in the industrial sectors in the Study Area to the Region’s economy. As in its Southern Nevada Industrial Land Analysis, RCG assumed three growth scenarios: an unconstrained base-case scenario, a three percent cost disadvantage and a five percent cost disadvantage. Also, like the Southern Nevada report, RCG used a forecast horizon in the Study that does not necessarily coincide with the years that would show negative effects due to land constraints. Instead, the purpose was to show that relatively small costs from land constraints could have relatively large effects on future economic growth.

The data sources used for this analysis were IMPLAN and WPE. IMPLAN (IMPact Analysis for PLANning) is a widely accepted economic input-output model in use since 1979.¹³ The model accounts (categories) closely follow the accounting conventions used in the “Input-Output Study of the U.S. Economy” by the U.S. Bureau of Economic Analysis. IMPLAN uses multifaceted economic formulas to describe how the outputs of one industry turn into the inputs of other industries, and conversely. This association is generally called the “multiplier or domino effect.” It reflects how variations in one industry can influence other industries. In other words, multipliers calculate the “ripple effect” of economic activity on direct

¹² The FAR of 0.4 is for a “Garden Office” of roughly three stories. See “Jobs-Housing Nexus Study,” Keyser Marston Associates, Inc., August 2013.

¹³ www.implan.com/

output/spending, employment and earnings. Like other econometric models, input-output models have drawbacks. In the case of IMPLAN, labor and capital are used in static ratios. As explained in Section IV, the IMPLAN model used in the Study was specific to Washoe County for a variety of reasons.

RCG used IMPLAN to estimate the annual costs of the economic cost disadvantages resulting from potential land constraints. Because IMPLAN is not capable of estimating changes in population, RCG did not include that metric in the analysis. Furthermore, the following analysis does not consider the “substitution effect” of land constraints, whereby—in an environment of land scarcity—spending on real estate development (residential and otherwise) activities that would have occurred is substituted with spending on non-real estate goods and services in the economy.

As mentioned, the first step in this analysis was to establish estimates for 2019 for the Region. These came from IMPLAN, which, in turn, bases its estimates on data from the Bureau of Economic Analysis’ annual National Income and Product Accounts tables. Second, RCG developed the base-case forecast using growth rates from WPE for each of the four metrics.

The next part of the analysis was to estimate the magnitude of the annual economic disadvantages. For this, RCG again relied on IMPLAN. IMPLAN can measure various benefits of sectors’ economic contributions. These impacts are direct, indirect and induced.

The concept of a direct benefit is relatively straightforward. However, the concepts of indirect and induced benefits, while critically important in assessing the totality of sectors’ economic contributions, are often misunderstood in economic analysis. Fundamentally, these secondary and tertiary benefits are based on an extension of the direct expenditures/spending associated with a group of sectors. Each type of benefit is briefly summarized below:

- **Direct benefits** are due to consumer spending at businesses; the jobs created to support those firms; and the earnings (employee compensation, proprietor income and benefits paid) in a region.
- **Indirect benefits** are the local purchases of goods and services resulting from the initial direct spending at a business. For example, a food manufacturer’s spending on raw meats and vegetables, rent, utilities and the like will cause its suppliers to replenish inventories, etc. These sales are counted as an indirect economic benefit.
- **Induced benefits** are the output, employment and earnings growth generated by the employees of a firm and its local suppliers as they consume goods and services in the regional economy. Put another way, induced benefits are benefits from earnings spent by direct and indirect employees.

For example, an employee works for a food manufacturer. Some portion of his or her personal income will be spent locally, will cycle through the Region and will be exchanged among local merchants, thus, inducing additional new spending (retail, food, gas, etc.) and employment in the Region.

The sum of these benefits provides the total contributions of a sector or group of sectors. Therefore, to estimate the effects on the Region's economy from a three and five percent cost disadvantage to industrial sectors (including manufacturing), RCG modeled three and five percent reductions to the economic contributions of these sectors in the IMPLAN model (see Table V-4 and V-5).

Table V-4: Annual Economic Contributions of the Region's Industrial Land-Using Firms under a 3% Cost Disadvantage Scenario: 2021

Impact Type	Employment	Earnings	Gross Product	Spending/Output
Direct	-1,919	-\$107,766,890	-\$192,237,514	-\$421,339,239
Indirect	-541	-\$34,951,755	-\$54,487,727	-\$92,378,270
Induced	-452	-\$23,351,808	-\$48,495,786	-\$77,696,079
Total Benefits	-2,912	-\$166,070,453	-\$295,221,028	-\$591,413,589
Multipliers	1.52	1.54	1.54	1.40

Note: Employment includes full- and part-time jobs and are jobs supported/not supported rather than jobs created/lost (measured in person-years).

Sources: RCG, IMPLAN

Table V-5: Annual Economic Contributions of the Region’s Industrial Land-Using Firms under a 5% Cost Disadvantage Scenario: 2021

Impact Type	Employment	Earnings	Gross Product	Spending/Output
Direct	-3,199	-\$179,611,483	-\$320,395,857	-\$702,232,066
Indirect	-901	-\$58,252,925	-\$90,812,879	-\$153,963,783
Induced	-753	-\$38,919,681	-\$80,826,310	-\$129,493,466
Total	-4,853	-\$276,784,089	-\$492,035,046	-\$985,689,314
Multipliers	1.43	1.54	1.56	1.53

Note: Employment includes full- and part-time jobs and are jobs supported/not supported rather than jobs created/lost (measured in person-years).

Sources: RCG, IMPLAN

The sum of the direct, indirect and induced contributions for all four metrics provided the total annual contributions of the industrial land-using sectors to the Region’s economy under the two cost disadvantage scenarios. The model’s results for economic output/spending, earnings and gross product are in 2021 dollars. The employment forecasts herein are presented in total employment (includes both full-time and part-time jobs).

Foregone Real Property and Sales & Use Tax Revenue

Additionally, the economic costs of land constraints will be compounded by the resulting loss of potential property and sales tax revenue collections that would otherwise accrue to the county and local governments. In accordance with the scope of work and given the complexity of the Nevada tax system (as of 2021), RCG limited this tax analysis to developing estimates of potentially lost revenues from two types of taxes resulting from land constraints as described herein. Furthermore, RCG’s forecasts do not account for any future changes in Nevada tax laws. Accordingly, actual tax revenues foregone may differ somewhat from the forecasts developed herein.

Specifically, RCG estimated the lost revenues apportioned to local governments/agencies from:

1. Property Taxes generated from the development of vacant developable lands in the Study Area, including improvements on those lands
2. Retail Sales & Use Tax revenue on economic output/spending

As noted, RCG’s methodology estimated annual tax revenues potentially lost based on current and existing tax rates. RCG used information provided by third party sources (such as the Bureau of Economic Analysis), results from the IMPLAN calculations in subsection C. above, and local tax laws to derive

estimates of potential tax revenues foregone in the two cost disadvantage scenarios described above (see Tables V-4 and V-5).¹⁴

Assumptions: Real Property and Sales & Use Tax

The projections of annually recurring Real Property Tax and Sales & Use Tax revenues affected by land scarcity are presented in Table V-6 below.

For Real Property Tax, the following assumptions and calculations were used in this analysis:

- *Assessed Value of Land:* The assessed value of parcels was obtained from TMRPA. The assessed value is 35 percent of the taxable value.
- *Real Property Tax Revenues:* The real property tax revenues in the base case were calculated by taking the Fiscal Year (“FY”) 2021-2022 property tax rates for Washoe, Storey and Lyon multiplied by the Assessed Value Totals for the parcels in those jurisdictions.
- *Real Property Tax Reductions:* IMPLAN’s projections for the three and five-percent cost disadvantage scenarios include estimates for Real Property Tax collections at the state and county levels. RCG applied these estimates to reduce Real Property Tax collections beginning in FY2031, the year the Region is projected to run out of vacant, developable land for commercial, non-industrial uses.

For Sales & Use Tax, the following assumptions and calculations were made in this analysis:

- *Direct Output (\$):* \$421 million and \$702 million annual direct spending lost/foregone under the 3% and 5% cost disadvantage scenarios, respectively (estimated using IMPLAN).
- *Indirect and Induced Output (\$):* \$170 million and \$283 million annual indirect and induced spending lost/foregone under the three and five percent cost disadvantage scenarios, respectively (estimated using IMPLAN).
- *Taxable Share of Spending (%):* RCG estimated the taxable sales’ share of business and personal spending at 29 percent, based on Washoe County’s Taxable Retail Sales as a share of its gross regional product. This percentage is a general and reasonable estimate and is not meant to be an exact representation of the Sales & Use Tax applicable spending in the economy. The Sales &

¹⁴ Note: Because the output/spending estimates from IMPLAN are for Washoe County, the foregone Sales & Use Tax estimates on that output/spending are also Washoe County-specific. See Section IV. for RCG’s rationale of using Washoe County in IMPLAN as a proxy for the Study Area.

Use tax system in Nevada is quite complex with numerous exemptions and abatements. Accordingly, the data used herein are subject to these limitations and are meant only to reflect general spending trends.

- *Total Estimated Sales Tax Revenue (\$)*: The estimated total sales tax revenue foregone from operations-generated spending is calculated by multiplying the value of total output/spending by the sales tax rate.

Foregone tax revenues for public entities (state and local) in the Region resulting from the reduction in total spending (direct, indirect and induced) in the two cost disadvantage scenarios are projected as follows:

- Lost Real Property Taxes for public entities in the Region between \$7.2 million and \$11.9 million, annually, from FY2022 to FY2036¹⁵
- Lost Sales & Use Tax revenue for public entities in the Region between **\$155 million and \$248 million, annually**, from FY2022 to FY2036

Note: All tax revenues calculated in the Study are nominal; they are not inflation-adjusted values.

¹⁵ Cost disadvantages are estimated to begin reducing property tax collections beginning in FY 2031, when the Region runs out of vacant, developable land for commercial, non-industrial uses.

VI. RESULTS

A. Overview

This section summarizes the Study’s major findings from the report sections. As noted above, this report focuses on the major findings of our vacant land market analysis for the Study Area. Therefore, the focus herein is on the results described in this report’s three most impactful sections as listed below. RCG also discusses some of the most critical issues facing the region in the future as it attempts to optimize its long-term economic sustainability. Other important findings from our research are available in the companion “slide deck” RCG has prepared as part of this project.

- Vacant Land Inventory
- Land Supply & Economic Development
- Economic Costs of Land Constraints

B. Vacant Land Inventory

RCG found 25,500 remaining acres in 299 parcels of potentially developable residential and nonresidential land in the Study Area (see Table 3). This is land that could be potentially used for the development of private residential and nonresidential projects but may not be necessarily used as such. These parcels do not include federally-owned parcels.

Table VI-1: Vacant Land Analysis Parcels, by Rank, 2021

Tier	# of Parcels	Acres	% of Total Acres
1	0	0	0%
2	98	7,589	30%
3	175	15,766	62%
4	26	2,165	8%
Total	299	25,520	

Sources: TMRPA

Of the 299 parcels that were ranked above, one third are in Tier 2, 59 percent are in Tier 3 and nine percent are in Tier 4. Table V-1 provided the ranking criteria and scoring methodology.

C. Land Supply & Economic Development

In this section, RCG forecasted job growth in the Study Area to estimate the associated demand for residential and employment land (industrial and other commercial). This was necessary to develop and estimate whether the available land supply discussed above may be able to support economic development and growth in the Study Area.

As RCG found in its 2020 Southern Nevada land study, on a gross acreage basis, there may exist sufficient vacant land to accommodate the region’s economic growth over the next several years, but it is the

availability of land thereafter and the developability of the land in general that is in question. Our estimates show that the Study Area will potentially see a growth of 29,000 industrial-related jobs between 2021 and 2050 and 312,000 other commercial (office, retail, etc.) during that period. These new jobs would require approximately 3,600 acres of land (see Table VI-2).

Table VI-2: Study Area Job Growth & Land Demand, 2021 - 2050

Description	Industrial Sectors	Other Commercial Sectors	Total
Job Growth	29,000	312,000	341,000
Land Demand (ac.)	2,100	1,500	3,600
Current Land Supply (ac.) ¹⁶	6,700	1,000	7,700
Remaining Vacant Acres	4,600	-500	4,100

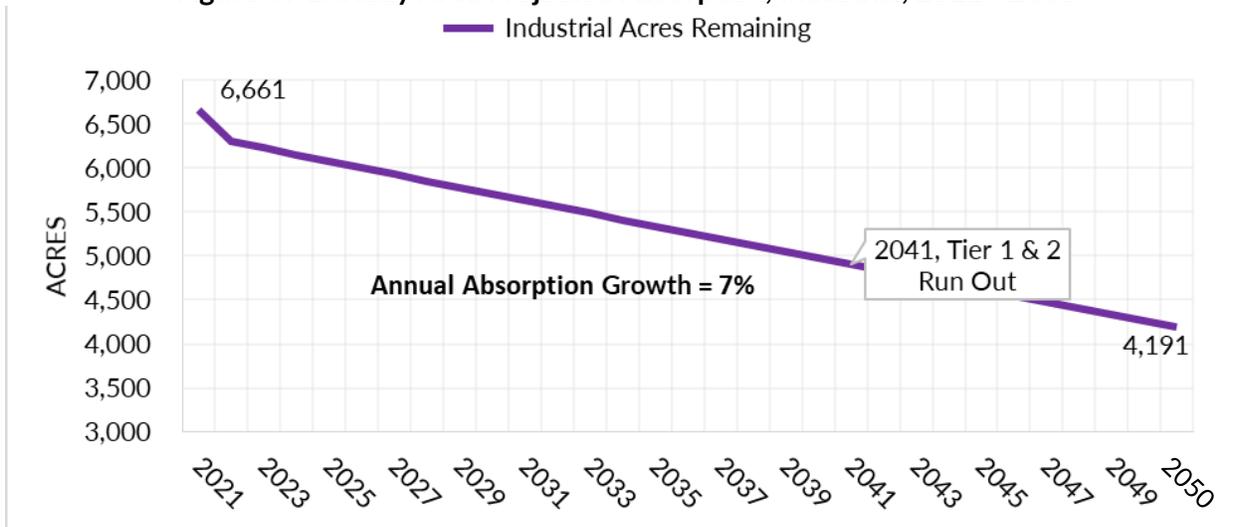
Sources: WPE, RCG, Keyser Marston Associates

With an estimated demand for 3,600 acres and a supply of approximately 7,700 acres, the cursory implication is that there is enough land to meet the needs of the Region’s economy for the foreseeable future.

However, as noted in Section IV, not all parcels in the Study Area’s current inventory are rated highly for development (aka useability), based on the ranking system employed. When looking at lands in Tiers 1 and 2 only, there are **a mere 1,800 acres of industrial land available and only 215 acres of other commercial land available**. Thus, when looking at Tier 1 and Tier 2 lands only (and there are no Tier 1 lands), by 2050 there is a potential deficit of 300 acres of industrial land a deficit of almost 1,300 acres of other commercial land. As indicated in Figures VI-1 and VI-2, the more desirable employment land for industrial will be depleted by 2041. After that, the Region’s economy and business community would have to rely on less desirable Tier 3 and Tier 4 land or redevelopment for future economic development and growth.

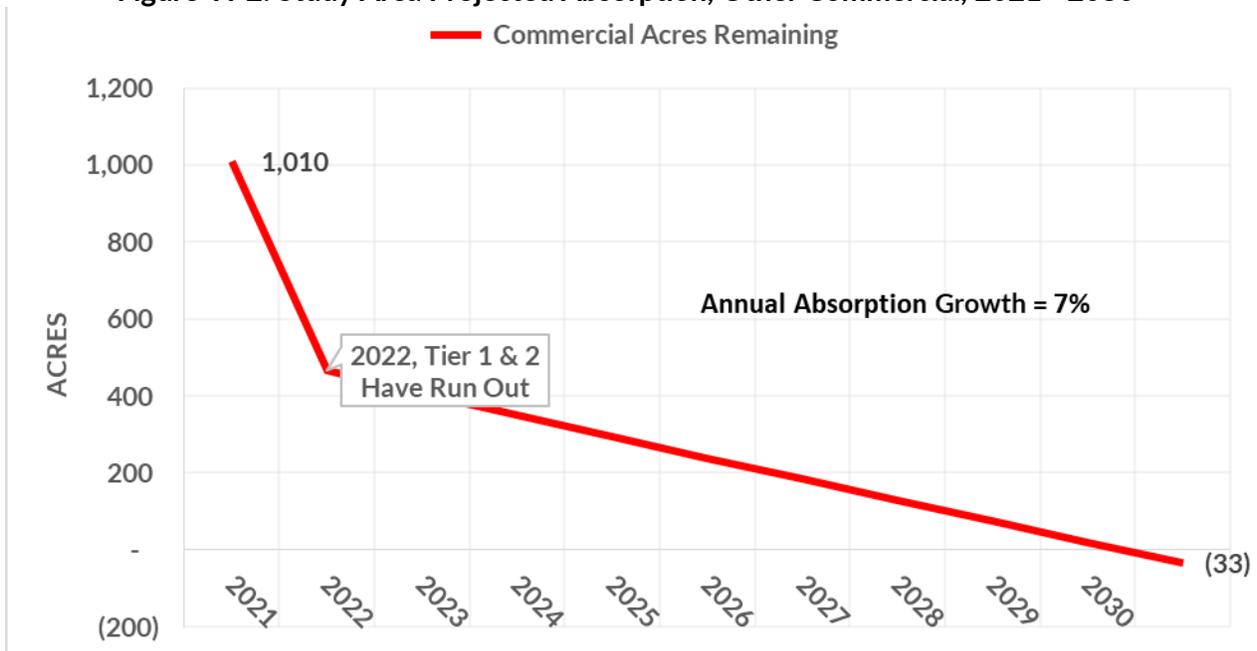
¹⁶ The current land supply retains current zoning (i.e., current LUC). This means, for example, that acres currently zoned “Vacant – Other/Unknown” are not counted.

Figure VI-1: Study Area Projected Absorption, Industrial, 2021 - 2050



Sources: WPE, TMRPA, RCG

Figure VI-2: Study Area Projected Absorption, Other Commercial, 2021 - 2030



Sources: WPE, TMRPA, RCG

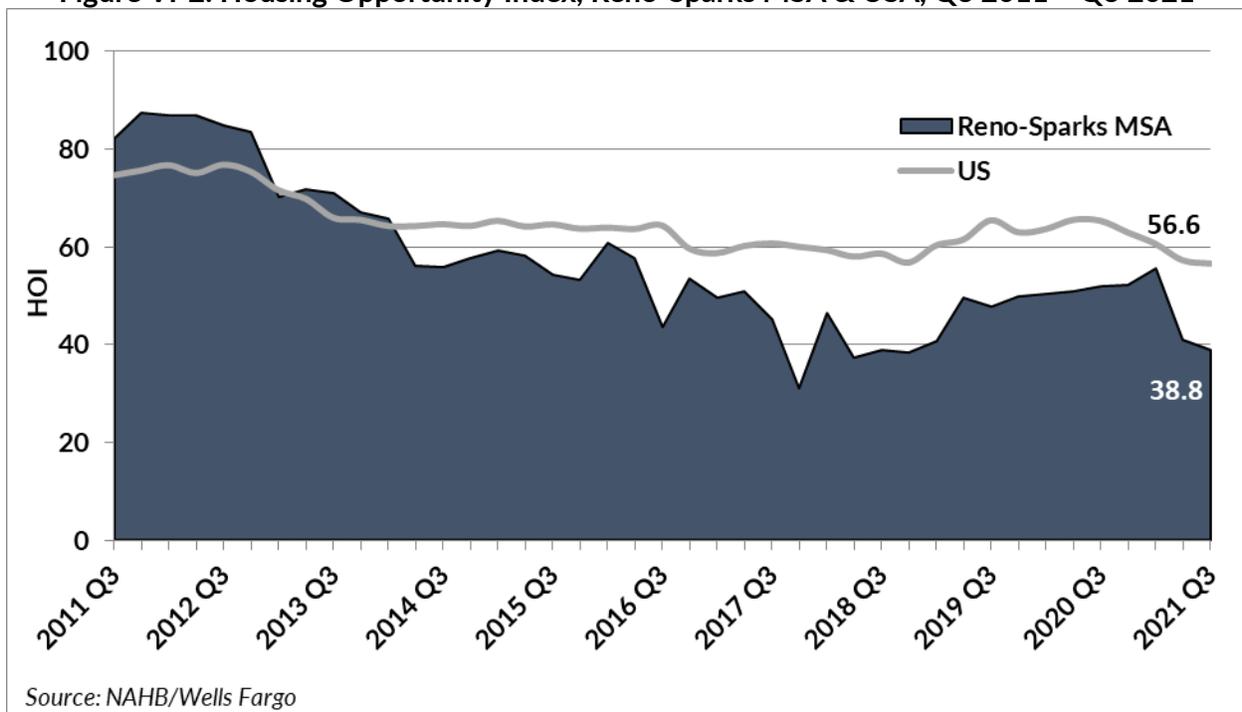
Using land/parcels less suited to nonresidential development could introduce cost disadvantages compared to much better-suited Tier 1 and 2 lands. As RCG shows in the following section, these cost disadvantages can have significant effects on the Study Area’s economic growth potential.

Additionally, the availability of the right-sized parcels for larger scale development poses a potential problem. The number of large parcels in the Study Area is dwindling. For example, there are only 87 parcels with 60+ acres of developable land (nonresidential or residential) in the Study Area that are not federally owned. State and municipal governments own three of those. There are only 53 parcels that are 100 acres or more, and state and municipal governments own two of them. The shortage of large and potentially developable parcels in the region will pose a significant challenge to future economic sustainability and growth.

D. Land Supply & Housing

To support projected job growth the Region will require additional housing for workers. With dwindling land available for residential development, the cost of workforce housing will increase, resulting in rising prices for that housing—prices that are already out of reach for many residents of the Study Area. The NAHB/Wells Fargo Housing Opportunity Index (“HOI”) for a given area is “defined as the share 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.”¹⁷ Figure VI-3 compares the HOI for the Reno-Sparks MSA to the index for the U.S.

Figure VI-2: Housing Opportunity Index, Reno-Sparks MSA & USA, Q3 2011 – Q3 2021



¹⁷ NAHB is the National Association of Homebuilders. <https://www.nahb.org/news-and-economics/housing-economics/indices/housing-opportunity-index>

The median family income in the MSA rose to \$83,800 while the HOI fell to 38.8, meaning that just short of 39 percent of homes sold in the MSA in Q3 2021 were affordable to a household earning that median income. “NAHB assumes that a family can afford to spend 28 percent of its gross income on housing; this is a conventional assumption in the lending industry. That share of median income is then divided by twelve to arrive at a monthly figure.”¹⁸ Thus, a family with the median income in Q3 2021 would earn \$6,983 per month and could afford to spend \$1,955 per month on housing. On a 30-year fixed rate mortgage at 3.1 percent interest (U.S. weekly average as of 11/24/2021, www.freddiemac.com/pmms/), a loan for 90 percent of the sales price (i.e., a 10-percent down payment) would enable this family to afford homes priced at \$508,000 or less.

The Reno-Sparks HOI of 38.8 means that under 40 percent of homes in the MSA sold for \$508,000 or less in Q3 2021. In September 2021, the median price for an existing single-family home in Reno-Sparks remained at a record-high of \$530,000, according to the Reno/Sparks Association of Realtors.¹⁹ Table VI-3 displays the ranking of the MSA in the Western Region compared to other MSAs and metro areas.

Table VI-3: Housing Affordability Ranking, Nationally and Regionally, West Region, Q3 2021

Metro Area (West Region)	HOI	Median Family Income (\$000s)	Affordability Rank (Nationally)	Affordability Rank (Regionally)
Sierra Vista-Douglas, AZ	92.9	66.9	3	1
Fairbanks, AK	92.4	92.5	4	2
Anchorage, AK	80.1	104.3	48	3
Great Falls, MT	68.9	64.9	104	4
Albuquerque, NM	65.8	67.5	121	5
Yuma, AZ	64.9	51.4	125	6
Tucson, AZ	64.8	68.6	126	7
Ogden-Clearfield, UT	63.9	90.9	128	8
Pueblo, CO	60.4	61.4	137	9
Fort Collins, CO	56.8	95.9	149	10
Pocatello, ID	56.5	65.2	150	11
Greeley, CO	55.2	89.7	154	12
Lake Havasu City-Kingman, AZ	54.2	55.7	155	13
Denver-Aurora-Lakewood, CO	53.7	104.8	158	14
Spokane-Spokane Valley, WA	53.3	77.1	161	15
Salt Lake City, UT	53.0	92.9	163	16
Las Vegas-Henderson-Paradise, NV	51.5	72.4	168	17
Phoenix-Mesa-Scottsdale, AZ	51.2	79.0	169	18
Bremerton-Silverdale, WA	49.8	94.1	172	19

¹⁸ <https://www.nahb.org/news-and-economics/housing-economics/indices/housing-opportunity-index>

¹⁹ <https://www.rgj.com/story/news/money/business/2021/10/13/reno-sparks-housing-market-real-estate-median-home-price-steady/8428836002/>

Metro Area (West Region)	HOI	Median Family Income (\$000s)	Affordability Rank (Nationally)	Affordability Rank (Regionally)
Colorado Springs, CO	49.6	82.4	173	20
Chico, CA	49.2	68.4	174	21
Redding, CA	48.5	69.5	176	22
Hanford-Corcoran, CA	47.3	65.8	178	23
Olympia-Tumwater, WA	47.3	90.2	178	23
Santa Fe, NM	46.8	73.0	181	25
Boulder, CO	46.6	116.9	182	26
Medford, OR	46.6	73.1	182	26
Bakersfield, CA	44.6	59.7	186	28
Carson City, NV	44.3	75.8	187	29
Albany, OR	44.2	67.2	188	30
Portland-Vancouver-Hillsboro, OR-WA	43.5	96.9	189	31
Provo-Orem, UT	42.3	83.7	191	32
Mount Vernon-Anacortes, WA	41.8	83.2	193	33
Urban Honolulu, HI	40.6	106	195	34
Visalia-Porterville, CA	40.4	57.9	196	35
El Centro, CA	40.0	56.2	197	36
Flagstaff, AZ	39.9	76.8	198	37
Reno-Sparks, NV	38.8	83.8	201	38
Prescott, AZ	37.3	63.8	202	39
Eugene, OR	36.6	71.2	203	40
Tacoma-Lakewood, WA	35.8	91.1	204	41
Bellingham, WA	34.5	79.1	205	42
Fresno, CA	33.8	62.8	206	43
Merced, CA	33.4	66.4	207	44
St. George, UT	32.5	69.6	209	45
Vallejo-Fairfield, CA	31.8	99.3	210	46
Sacramento--Roseville--Arden-Arcade, CA	31.7	91.1	211	47
Seattle-Bellevue-Everett, WA	31.5	115.7	212	48
Salem, OR	31.2	70.7	213	49
Yuba City, CA	30.7	66.8	214	50

Source: NAHB/Wells Fargo

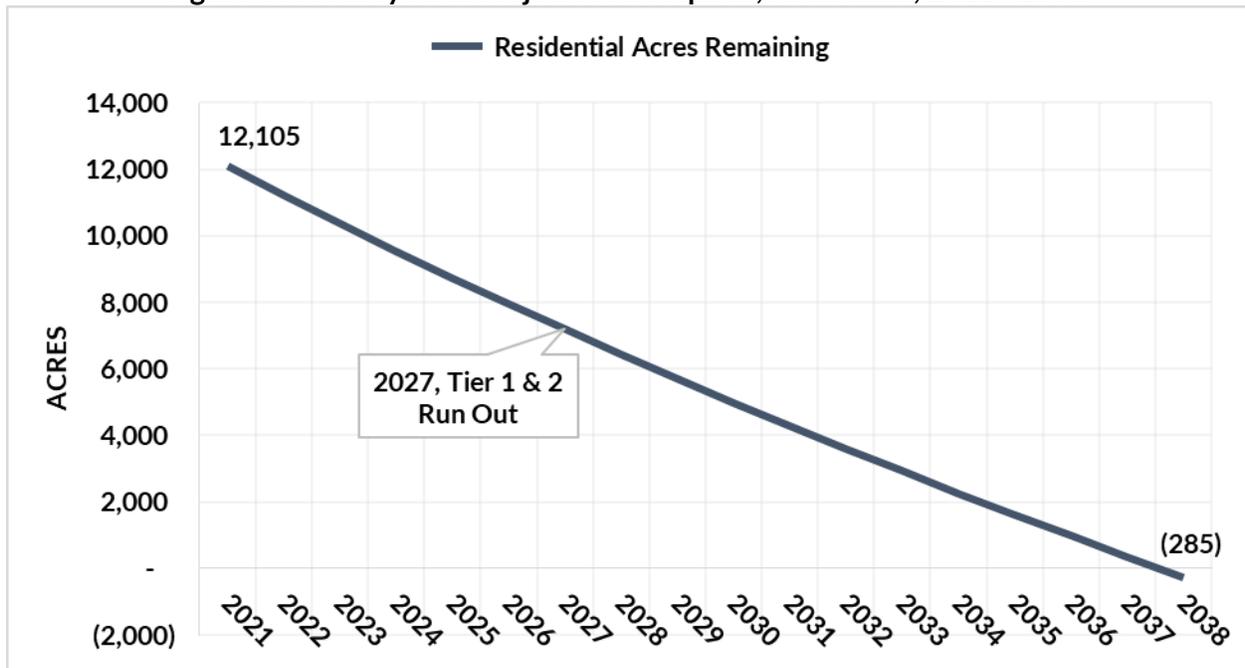
As for the residential rental market, demand for rental units is being driven by the scarcity of homes for sale. Currently, many would-be homeowners are being forced to rent as owners of existing homes are hesitant to relocate, which is holding apartment vacancy at record lows nationwide.²⁰ According to a recent report from Apartment Guide, Reno ranks in the top 10 cities nationwide for year-over-year

²⁰ <https://www.marcusmillichap.com/research/research-brief/2021/11/research-brief-november-housing>

average rent increases. Compared to 2020, average rents in Reno have increased 35 percent for one-bedroom units, now topping \$1,800 per month. For two-bedroom units, average rents have increased 36.5 percent year-over-year, averaging \$2,245 in October 2021—above the \$1,955 monthly housing payment that a family earning the median income could afford at the 28 percent of gross income standard.²¹

At the current rate of absorption, RCG anticipates that the Region will run out of vacant residential acres for development by 2038, but **the more desirable Tier 1 & 2 parcels will likely be absorbed by 2027** (see Figure VI-3).

Figure VI-3: Study Area Projected Absorption, Residential, 2021 - 2038



Sources: WPE, TMRPA, RCG

E. The Economic Cost of Land Constraints: EDAWN Services Area

RCG found that the effects on the local economy resulting from possible land constraints are significant and increase over time. RCG fashioned its model after the one used in the 2020 Southern Nevada report, with the same three economic growth scenarios. As noted above, one scenario provided a “base-case” of growth that assumed no future land constraints in the Region.

Two other scenarios modeled growth under land constraints that produced three percent and five percent cost disadvantages affecting employment land-using sectors. There may be an expectation that such

²¹ <https://www.apartmentguide.com/blog/apartment-guide-annual-rent-report/>

disadvantages are minor, but their effects compound over time and have major long-term consequences for economic growth in the Region.

The methodology used by RCG in the Study assumes that all dollar results are in 2021 dollars. Employment results in our model are measured in total jobs (full-time and part-time jobs). The results relative to total and average changes in the economy are summarized as follows:

Economic Output Impact

Base-case: Average annual growth rate = 2.0% or \$17.5 billion, reaching \$72 billion in 2035

3% cost disadvantage: Average annual growth rate = 0.8%

Growth reduction/dampening by 2035: \$12.3 billion or by 17%

5% cost disadvantage: Average annual growth = 0.0%

Growth dampening over Study Period: \$19.3 billion or by 27%

Job Impact

Base-case: Average annual growth rate = 1.2% or 56,000 jobs, reaching 365,000 jobs in 2035

3% cost disadvantage: Average annual growth rate = 0.2%

Growth dampening by 2035: 52,600 jobs or by 14%

5% cost disadvantage: Average annual **job decline** = -0.4%

Growth reduction by 2035: 83,600 jobs or by 23%

Earnings Impact

Base-case: Average annual growth rate = 2.0% or \$5.9 billion, reaching \$24.6 billion in 2035

3% cost disadvantage: Average annual earnings growth = 1.0%

Growth dampening by 2035: \$3.5 billion or by 14%

5% cost disadvantage: Average annual earnings growth = 0.4%

Growth dampening by 2035: \$5.5 billion or by 22%

Gross Regional Product Impact

Base-case: Average annual growth rate = 2.0% or \$10.1 billion, reaching \$42 billion in 2035

3% cost disadvantage: average annual growth = 1.0%.

Growth dampening by 2035 = \$6.2 billion or by 15%

5% scenario disadvantage: annual growth = 0.3%

Growth reduction by 2035 = \$9.8 billion or by 24%

F. Obstacles to Growth

Relative to these findings, there are certain issues that could act as obstacles to economic development and growth in the EDawn Services Area. As discussed above, if the federal government does not release lands in the future by not disposing of properly located, sized land in the path of urban development, the Region would likely face cost disadvantages that would dampen economic growth relative to expected growth.

House Bill H.R. 1484, introduced in 2015, proposed an initial transfer of 7.3 million acres of BLM land to the state, half of which lies along the Truckee River between Sparks and Wendover. The resolution, however, died when that legislative session ended.²² Between April and July of 2016, Washoe County, the City of Reno and City of Sparks approved letters of resolution to support the creation of a lands bill to address population growth occurring in Washoe County.

The three entities have been working regionally to create a new proposal based on much of the feedback and concerns voiced by residents and stakeholders in the previous process. The “Truckee Meadows Public Lands Management Act” would give local governments a voice in where land is sold and developed to guide sustainable and supportable growth. It would allow for federally-owned land to be sold and developed to support better infill and closer proximity to current infrastructure in the Region.²³

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²² www.nevadabusiness.com/2017/03/nevada-land-priorities-for-today-in-planning-for-tomorrow/

²³ landsbill.org/



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