Final Report

Employment Demand Forecast and Needs Analysis

The Economics of Land Use

Prepared for:

City of Reno

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Table of Contents

List of Figures

1. INTRODUCTION AND POLICY RECOMMENDATIONS

Project Overview and Tasks

In order to inform the development of *ReImagine Reno*, the City of Reno's Master Plan update, an economic analysis was completed. The purpose of the analysis is to provide the technical analysis needed to inform the development of policies and strategies for the Master Plan. The goal of the analysis is to identify future economic opportunities for the City, estimate the impact on demand for new development and land for the City, and identify economic needs the City can address through the Master Plan. This document provides the summary of the technical analysis completed, the feedback gained from stakeholders and the policy directions that will inform the economic components of the Master Plan.

Summary of Findings

1. ***Reno has strong economic assets that can generate future economic activity in the City.***

   Reno and the Region have economic assets that can generate significant economic opportunities over the next 20 years. The City's location within the western United States makes it well situated for the regional distribution of goods. The City's proximity to California and the Bay Area is an asset that can be used to attract activity. Additionally, Nevada's low tax and regulatory environment is attractive to businesses along the west coast and could be a major asset for attracting businesses testing new technologies. The decision of Tesla to locate its battery manufacturing plant in Storey County will generate additional economic activity and has already provided national exposure for the Northern Nevada region. Lastly, the City's quality of life, with close proximity to open space and natural amenities such as Lake Tahoe, and the relatively lower cost of living compared to coastal cities, can help attract a skilled workforce.

2. ***The Region (Washoe and Storey Counties) and Reno have experienced strong employment growth in the past five years that is helping to diversify the area's economic base. However, employment growth in the Region has largely been in industries that pay wages at or slightly above the average wage within Reno.***

   The Region has grown by 26,500 jobs since 2010 and is now recovering quickly from the national economic recession of 2008 and 2009. However, the Region has not returned to the employment levels in 2007, and has lost approximately 35,000 jobs from 2007 to 2011. Growth in logistics, manufacturing, and business support industries coupled with the decline in gaming related employment are diversifying the economic base away from a primarily gaming/tourism orientation. The employment growth in the Region has been in logistics and manufacturing industries that have average wages equivalent to or slightly higher than the City's current average wage of approximately $45,000 annually. Growth in business support industries has primarily occurred in the temporary help services sub-industry. This sub-industry experienced the largest amount of job growth since 2010 and includes call centers and seasonal workers at distribution centers. Wages for this sub-industry are well below the City's average at approximately $29,000 annually.

3. The community indicated through the Phase 1 Master Plan survey that Reno should be identified as a technology hub and a university town, but neither current employment growth nor the built environment reinforces these identities.

The current economic growth in the Region is largely within industries that drive industrial development and largely are not related to technology development. Employment trends within knowledge based industries such as information, and professional, scientific and technical services, have not been as robust as the more industrial oriented industries. The information industry overall lost employment since 2010 and professional services has grown at a slower rate than the Region as a whole. However, there have been gains (an increase of approximately 700 jobs in Washoe County from 2010 to 2015) in scientific, technical and engineering services, and information jobs related to computer and internet sub-industry, which indicates activity within certain technology related sectors. The City lacks modern office spaces and urban mixed-use office environments that are desired by employers in these industries. The University of Nevada-Reno plans to extend its campus south of I-80 into the downtown core in an effort to create a walkable, mixed use area to attract students and interest. To attract workers in knowledge sectors with wages above the regional average, the City should support this effort as it can help provide a geographic center to both desired identities for the community.

4. Employment forecasts for the Region and the City vary and do not seem to account for the potential opportunities related to the Tesla Gigafactory and other recent major employers coming to the Region.

EPS evaluated historic trends and forecasts completed by the State Demographer and Woods and Poole. While the forecasts show overall job growth, they do not estimate significant changes in employment within the Region. The EPIC Study completed by the Economic Development Authority for Western Nevada (EDAWN) provides 5-year (2015 through 2019) estimates for job growth that assume an annual growth rate of 2.7 percent in Washoe County and 43.6 percent in Storey County. The EPIC Study growth rates for both counties are higher than the forecasts completed by the State Demographer and Woods and Poole, and significantly higher in the case of Storey County.

5. The Baseline Forecast results in a future economy in Reno that is the same as today.

EPS developed a baseline economic forecast utilizing the TMPRA Consensus Forecast, State of Nevada, and Woods and Poole forecasts. This Baseline Forecast produces a relatively similar mixture of employment by industry for the Region. As a result, the economic make-up of the community generates development demand matching trends seen over the past 15 years. As well, the future economic opportunities result in similar wage levels for workers in the Region.

6. Recent employment trends illustrate that growth in some industries, including the manufacturing and transportation and warehousing industries, is outpacing the economic forecasts.

Recent employment trends within manufacturing, transportation and warehousing, construction, and administrative services indicate these industries are growing substantially faster than the economic forecasts are estimating. As a result, EPS developed a Recent Trends Forecast to assess the impact on the City's land supply if these trends continue. The Recent Trends Forecast includes anticipated employment at the Tesla Gigafactory in Storey

County and estimates 123,000 new jobs in the Region (Washoe and Storey Counties) by 2035, which is 34,000 jobs more than the Baseline Forecast estimate of 89,000.

7. The City may have a shortage of industrial land to meet demand if recent employment trends continue and the barriers to development for industrial lands around the Reno-Stead Airport are not addressed.

The Recent Trends Forecast estimates annual demand of industrial land in the City of Reno to be 111 acres per year. At this rate, the City's approximately 4,000 acres of industrial land capacity would represent a 36 year supply. Sixty percent of the industrial land capacity is under control of the Reno-Tahoe Airport Authority (RTAA) and surrounds the Reno-Stead Airport. These lands lack infrastructure to be development ready and are only currently offered through land leases that are not as attractive as for-sale land to developers or prospective businesses. If this land cannot be utilized, the City will face a lack of attractive sites to capture industrial development. The City does however have an ample supply of land for commercial uses under both the Recent Trends and Baseline Forecasts.

8. The current Reno Master Plan does not have an economic element. As well, the City lacks clear definition of its desired economic geography, which creates issues when lands designated for certain employment uses are sought for other uses.

The update of the Master Plan provides the City with the opportunity to develop its economic development goals and policies, and identify desired employment uses as well as where these types of employment uses should be directed within the City. The Master Plan can also be used by the City to provide a plan for how to support regional economic development efforts and any local objectives that are needed to supplement EDAWN's efforts. In order to inform the economic element of the Master Plan these three key policy questions need to be addressed.

- How should the City play an active role in shaping employment growth?
- Should the City support the retention and expansion of lands currently designated for industrial uses by?
- Should the City consider converting other land use designations to industrial or mixed-employment to expand options?

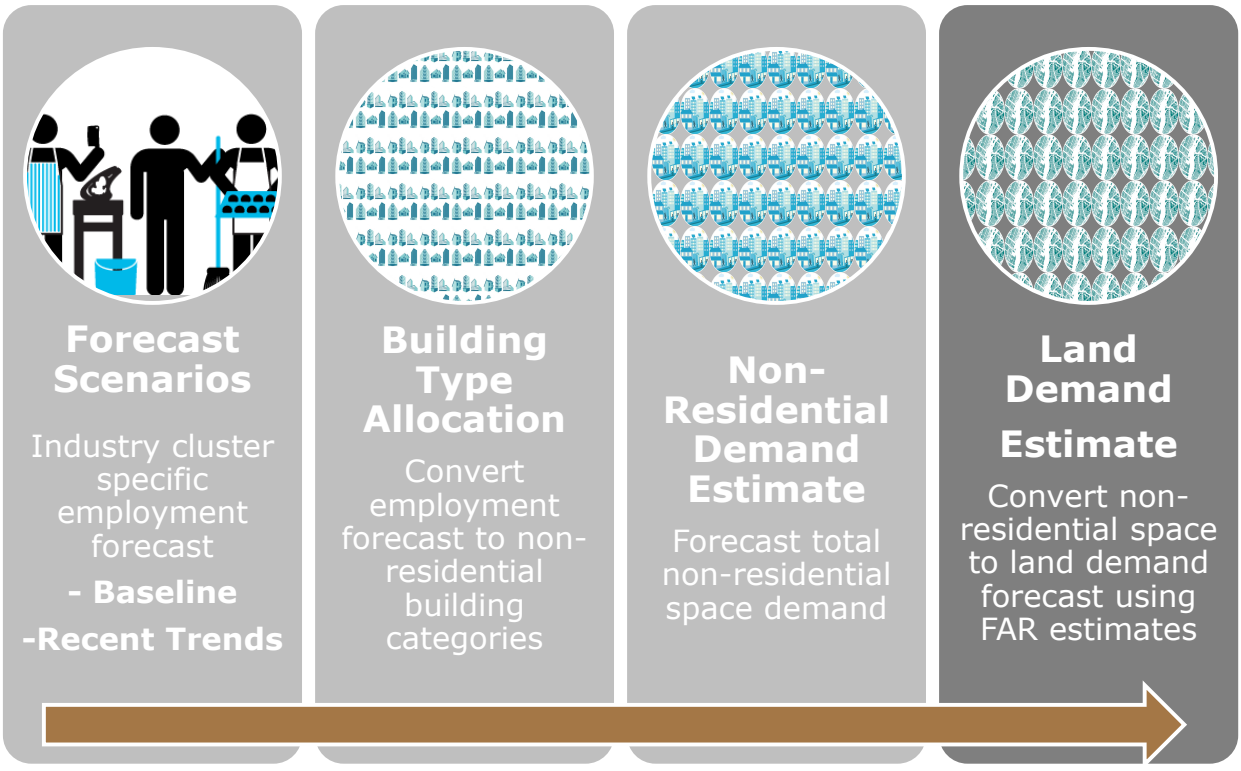
2. EMPLOYMENT FORECAST METHODOLOGY

This chapter provides a summary of the methodology used to create the employment forecast and land demand estimates completed for the Master Plan update. The Region and citywide opportunities for economic growth are assessed to estimate employment related development demand for Reno and to identify implications of growth and policy directions, both positive and negative, that will need to be addressed.

Methodology

An employment based land demand model was created to estimate the demand for new development and land for non-residential uses. Future demand for both buildings and land are estimated for the next 20 years within the Region (defined for this study as Washoe and Storey Counties) and the City of Reno. A summary of the process used to estimate future demand is provided below in **Figure 1**.

Figure 1
Land Demand Forecast Process



Employment Forecast

The change in employment for Washoe and Storey Counties over the next 20 years is estimated using historic employment trends, the Washoe County Consensus Forecast, and forecasts developed by Woods & Poole and the State Demographer. Employment changes for the 21 two-digit North American Industry Classification System (NAICS) categories are estimated based on these data inputs. The model was built to allow testing of economic scenarios (i.e. growth in industries that is not forecasted currently) to assess the impact of emerging opportunities.

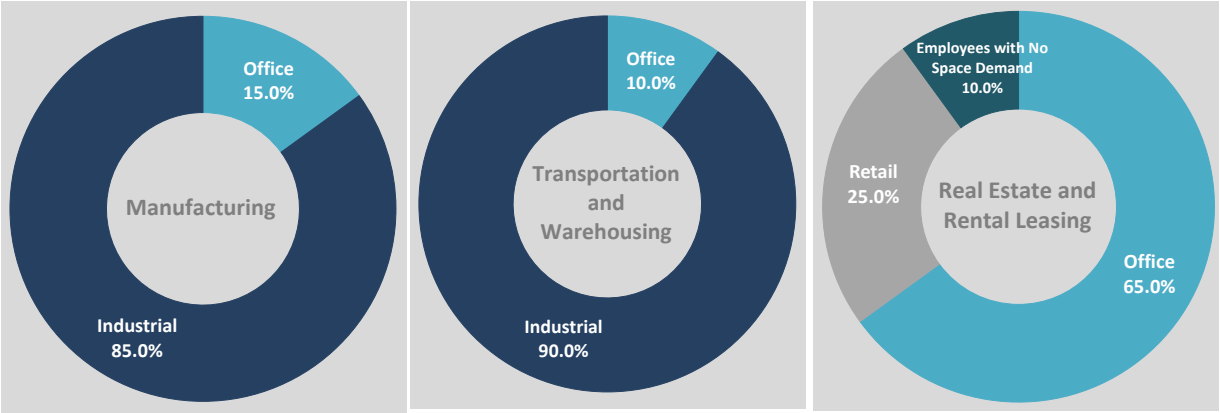
A baseline economic forecast was created using existing forecasts to compare to an alternative scenario that considers the continuation of recent employment trends. Generally for Washoe County, the growth rates by industry largely follow the Woods and Poole forecast with a few exceptions. For Storey County, the State Demographer's estimates are followed mostly. The Consensus Forecast is used as a control guide for total employment in Washoe County and ensures the baseline forecast mirrors the regional planning estimates.

Figure 2
Forecast Inputs

Employment Allocation by Use and Building Type

For each of the 21 NAICS two-digit industries, employment is allocated within six categories based on corresponding land uses. The six land use categories are; office, industrial, retail trade, accommodation and food service, education, and no space demand. The purpose is to estimate the percent of jobs by industry that will drive demand for building space. For many industries, there are jobs that will not generate demand for building space; therefore the no use category is created. The construction industry is a good example of an industry where a lot of jobs do not create demand for new development as these jobs do not have a set location. An example allocation of jobs in an industry by use is provided below in **Figure 3**. The allocation by use is based on existing development patterns and employment locations in Reno, national industry averages and norms, and input from stakeholder interviews.

Figure 3
Employment Allocation Examples



The total number of future employees by land use is then translated to building type (office, industrial, retail, accommodation and food service, and education).

Building Type Allocation

Various building types are used to estimate demand for development at varying scales and density and the corresponding land demand associated with these building types. Generally, the model provides an estimate of space for five types of development, shown below:

- Office
- Industrial
- Retail
- Accommodation and Food Service
- Education

Within each of these broad development types there are additional sub-categories. Sub-categories are defined by varying levels of development density and square feet of building space required for each employee. Specific development types and their corresponding assumptions are summarized below.

Office

Office development is generally defined by medium to high intensity development that can be located in urban and suburban settings. This type of development is generally occupied by businesses geared toward professional services. Potential tenants can range from a large number of small businesses to large corporate users typically occupying multiple floors or buildings.

Suburban or Campus Office (Office: Type A)

Low density office development is generally located in a suburban setting and is characterized by lower densities and fewer employees per square foot of building area. In addition, this type of development often requires higher parking ratios. This development type is assumed to have approximately **300** building square feet per employee and a floor area ratio (FAR) of **0.25**.

Mid-Rise / High-Rise Office (Office: Type B)

Mid- and high-rise office developments are typically located in urban areas and are characterized by higher densities and a larger number of employees per square foot of building area. Generally, these types of buildings are not required to provide all parking onsite and have varying levels of structured parking. This development type is assumed to have approximately **250** building square feet per employee and a floor area ratio (FAR) of **1.0**.

Industrial

Industrial development is characterized by relatively low density single-story development that is located outside of urban areas and in suburban or rural areas. Industrial development is typically occupied by a range of users that include large scale manufacturing users as well as smaller scale production and design tenants.

Large Scale or Heavy Industrial (Industrial: Type A)

Large scale or heavy industrial development is typically located on the edges of the city and/or near major transportation routes due to space requirements and to minimize the impact on surrounding uses. Users can range from large manufacturing companies to large warehouses and distribution centers. This development type is assumed to have approximately **1,500** building square feet per employee and a floor area ratio (FAR) of **0.15**.

Small Scale or Light Industrial (Industrial: Type B)

Small scale or light industrial is typically less capital-intensive than heavy industry and more employment intensive. Tenants may include small scale manufacturers, professional services companies that need warehouse or lab space, and even service oriented business that prefer open floor plans. This development type is assumed to have approximately **500** building square feet per employee and a floor area ratio (FAR) of **0.50**.

Retail

Retail development is generally situated around areas with relatively high densities or high traffic volumes. Development types typically range from small to large format users.

Large Format Retail (Retail: Type A)

Large format retailers are generally defined by "big-box" stores and their ancillary space located in and around urban areas. These retail spaces are typical auto-oriented and require parking within the development. This development type is assumed to have approximately **400** building square feet per employee and a floor area ratio (FAR) of **0.15**.

Small Format Retail (Retail: Type B)

Smaller format retailers are either anchored or unanchored retail spaces found in more urban, walkable locations. These retail spaces are in areas where on-street parking and use of alternative modes allow for lower parking requirements on site. This development type is assumed to have approximately **400** building square feet per employee and a floor area ratio (FAR) of **0.60**.

Accommodation and Food Service

Accommodation and food service development types are grouped together due to their classification in the North American Industry Classification System (NAICS). These types of developments include both lodging and hotel developments as well as restaurants and bars.

Accommodation (Accom. and FS: Type A)

Accommodation oriented development typically includes hotels, room and boarding, and other lodging oriented businesses, such as hotel casinos. Developments are located in both urban and suburban or rural areas. This development type is assumed to have approximately **750** building square feet per employee and a floor area ratio (FAR) of **1.25**.

Food Service (Accom. and FS: Type B)

Food service development types include restaurants, drinking places, and other food service oriented business. This development type is assumed to have approximately **500** building square feet per employee and a floor area ratio (FAR) of **0.30**.

Education

Education development includes elementary and secondary school, colleges, technical and trade schools, and other education oriented institutions.

General Education (Education: Type A)

Education oriented development is assumed to have approximately **1,000** building square feet per employee and a floor area ratio (FAR) of **0.50**.

Summary of Employment Allocation and Density Assumptions

The assumptions are used to 1) allocate jobs to each building type, 2) estimate demand for new building square feet based on employee per square foot averages, and 3) estimate demand for land based on density assumptions (floor area ratio or FAR) are shown in **Figure 4.** These assumptions were developed based on existing conditions within the Region and national industry standards. Building inventory data for each land use, obtained from CoStar, was used to identify the building types and the densities associated with each type. National industry standards developed and refined by EPS were used to estimate employees per square foot by building type. These assumptions were adjusted to better mirror conditions in Reno, by matching the existing distribution of employment in the Region to the inventory of non-residential space.

Figure 4
Square Feet per Employee and Development Density Assumptions

Description	Employee Distribution			Building Square Feet per Employee		Floor Area Ratio (FAR)	
	Type A	Type B	Total	Type A	Type B	Type A	Type B
Office	60%	40%	100.0%	300	250	0.25	1.00
Industrial	50%	50%	100.0%	1,500	500	0.20	0.50
Retail Trade	75%	25%	100.0%	400	400	0.15	0.60
Accom. and Food Services	50%	50%	100.0%	750	500	1.25	0.30
Education	100%	0%	100.0%	1,000	1,000	0.50	0.50

Source: Economic & Planning Systems
H:\163020-Reno Master Plan Update Phase 2\Models\[163020-Emp-Space Forecast-Baseline Forecast 08-10-2016.xlsm]I-Square Feet per Employee-FAR

Regional Capture and Competition

The employment forecast model was constructed to estimate growth in the Region (Washoe and Storey Counties). Many of the employment opportunities for the Region could result in jobs not located within the City of Reno. The Region is expected to grow for a variety of reasons and much of the employment growth could occur outside of the city. The amount and type of development that the city can capture is dependent on the land use plan that is developed within the Master Plan.

To estimate the demand for employment and the corresponding development demand for the City of Reno, capture rates were developed based on the current capture of development space from Washoe and Storey Counties broken out by specific land use. Estimates of existing land use for office, industrial, retail, and hospitality were used to provide assumptions regarding current capture rates in the City of Reno and are summarized below.

- **Office** – The City of Reno accounts for approximately 90 percent of the office space in the Region. Since 2007, Reno has captured 87 percent of the increase in office space in the regional inventory of space. Therefore, the office capture rate for the model is set at 90 percent of new demand.
- **Industrial** – The City of Reno accounts for 50 percent of the industrial space in the Region. Since 2007, Reno has captured 36 percent of the new industrial development in the Region. The capture rate used in the model is 50 percent to match the total capture of space within Reno, but the recent development trends illustrate that new development is occurring more often outside of the city.
- **Retail Trade** – The City of Reno accounts for 72 percent of the retail space in the Region. Since 2007, Reno has captured 36 percent of the new retail development, which is half of the total inventory capture rate. This low capture rate is largely due to the city only capturing 17 percent of retail development in 2008 when 1.2 million square feet were added to the Region. Since 2009, the capture rate for the city has been 60 percent. The capture rate within the model is set at 70 percent to match the capture rate of the total inventory.
- **Accommodation and Food Service** – The capture rate for accommodation and food service development is set at 75 percent matching with historic capture rates in employment.
- **Education** – The capture rate for education development demand is 53 percent based on current capture of the two-county total population.

3. ECONOMIC DRIVERS AND DEMAND FACTORS

This section provides a summary of the economic drivers present in Reno and the larger Region, the recent employment trends by industry in the Region, and the existing employment forecasts for the Region. Economic drivers in the Region were assessed to determine potential economic opportunities and identify potential Master Plan policies. The assessment of recent employment trends is also used to estimate the impact recent trends may have in the Region compared to existing employment forecasts.

Economic Drivers

The economic drivers that will likely lead to future economic opportunities are described below. These drivers were identified through analysis of the economic base and from interviews with stakeholders. A variety of stakeholders were interviewed including regional economic development agencies and entities, industrial developers and brokers, business development and support agencies, businesses within emerging industries, and education institutions.

Reno Attributes

Interviews with stakeholders provided insight into Reno and the Region's attributes that are attractive to businesses and workers. The three attributes most often identified include Reno's central location, Nevada's regulation and tax policies, and Reno's quality of life.

Central Location

Reno is centrally located within the western United States and is within approximately 500 miles of several larger western U.S. metro areas including San Francisco, San Jose, Portland, Boise, Las Vegas, Salt Lake City and Los Angeles. This central location makes Reno an ideal location for distribution of retail goods via truck transportation. The recent growth of e-commerce has increased interest in Reno as a location for distribution centers. Traditionally, retailers largely based distribution locations on where to best locate these centers in order to serve actual store locations. This approach is changing for some traditional retailers. An example of this is Urban Outfitters locating a distribution center in the Reno area, but without a local store. E-commerce only retailers make their decisions on how to distribute based on population centers. Amazon has also recently built a fulfillment center in Reno.

Reno's proximity to California and the Bay Area was also cited by many as an advantage for the Region. The proximity to the economic activity occurring in the Bay Area has the potential to create economic activity and interest in Reno.

Regulation and Tax Environment

The low tax and less stringent regulatory environment in Nevada and Reno were also cited as attractive attributes for the Region. The cost of doing businesses is relatively low in Nevada, particularly compared to California. Local developers interviewed cited examples of manufacturers, especially companies started in west coast states, that are choosing to locate in Reno due to the lower cost of business comparatively to their initial place of business. Natural food manufacturing companies locating in Reno are an example of this trend.

Quality of Life

The quality of life in Reno was also cited as major economic strength for Reno. Proximity to Lake Tahoe and outdoor amenities have always been a major component of the tourism related activities in Reno. However, the quality of life for residents has started to become apparent to new residents and businesses. As one business owner who recently moved to Reno said "Reno is cool but you just didn't know it". The lower cost of living and affordability of housing relative to coastal cities was cited as an attractive attribute. The service oriented workforce, with many workers with experience in retail, accommodations and gaming, is attractive to businesses that require a service oriented workforce, such as call-centers.

Despite the overall desirability expressed, there are negative attributes that hamper the perception of Reno related to quality of life. The City's reputation as a gaming town has been a negative to prospective residents and businesses. As the economic base has diversified over the past 15 years in Reno, the Region has begun to overcome this reputation, according to local economic development officials. Lastly, the current state of the City's downtown area was cited as a negative. The negative perception of downtown was cited as not having an impact on the more industrial based economic opportunities but is a major factor in the attraction of an educated and skilled workforce.

Tesla

In September of 2014, electric car maker Tesla announced it would build its "Gigafactory" lithium ion battery manufacturing center in the Reno area. The factory, which recently opened, is located in the Tahoe-Reno Industrial Center (TRI Center) in Storey County, just east of the Washoe County border. The total potential size of the factory is up to 10 million square feet. According to the State of Nevada's Governor's Office of Economic Development (GOED) impact analysis completed in 2014, the factory will be home to 6,500 jobs. The jobs will be a mixture of assemblers, operators, engineers, supervisors, administrators, and executives. The number of jobs and estimated hourly wage are shown in **Figure 5**. The average hourly wage is expected to be $26.16, which equates to an estimate annual wage of $54,405.

Figure 5
Tesla Estimated Job Mix

Description	# of Jobs	Hourly Wage	Estimated Annual Wage
Production Associates	4,550	$22.79	$47,403
Material Handlers	200	$22.79	$47,403
Equipment Technicians	460	$27.88	$57,990
Quality Technicians	360	$27.88	$57,990
Engineers and Senior Sta	930	$41.83	$87,006
Total/Average	**6,500**	**$26.16**	**$54,405**

Source: Governor's Office of Economic Development

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The project is planned to be completed in four phases, with 700 jobs in the first phase, 1,000 jobs in phase 2, 3,000 jobs in phase 3, and 1,800 jobs in phase 4. The Governor's report cites a four-year project time period, but it is unclear how quickly the factory will reach the full employment estimate.

Overall the project is estimated by GOED to be, in total, a $17.8 billion investment over a 20-year period. The project is estimated to create 9,000 direct jobs, as well as 4,700 indirect jobs during the construction period. GOED projected the project could increase regional GDP by an estimated 26 percent. The jobs created are estimated to generate an increase of 49,000 people in the Region with an estimate 96 percent of new workforce households estimated to live in Washoe/Story Counties and 4 percent in Lyon County, according to the Governor's report.

The estimates of the impact analysis consider the fact that, at its current state, Reno has a limited number of suppliers to support larger growth. However, given the scale and influence of Tesla, it is reasonable to assume that it will attract more suppliers and support services in the future, once the factory is established. The Governors' report cited a similar investment by BMW in South Carolina as an example of the impact the project could have.

The impact of Tesla has yet to be measurable as the factory is just starting to open. The announcement by Tesla and the construction of the factory was cited by stakeholders interviewed as being impactful. The impact, so far, has been mainly in increased exposure nationally, which has attracted interest. The factory presents the opportunity for Reno to try to leverage interest and economic spin-off from the companies and workers that may be attracted by Tesla.

University of Nevada-Reno

The University of Nevada, Reno (UNR) has an enrollment of approximately 20,000 students. The enrollment is expected to grow by another 2,000 students over the next few years. The reputation of UNR is a major driver of interest in the Region. Having a major university is an indicator of an educated workforce. UNR's 2015 Master Plan identified a plan to expand its campus south of I-80 into the downtown area of Reno with the goal of creating a vibrant, mixed use area that can catalyze development in downtown. The move would serve to increase the vibrancy and walkability of the campus in an effort to attract students and generate more economic spin-off opportunities.

Other long term plans include expanding research facilities and the School of Medicine, expansion of engineering research facilities, and enhancing aesthetic and pedestrian amenities on campus.

UNR has the potential to play an even bigger role in the Reno economy than it does currently. UNR can function as a pipeline of workers to serve emerging industries in Reno. The University can also generate economic activity through research and development activities that can support and foster emerging industries. Alignment of UNR's educational offerings and Reno's target industries should be a major focus along with its efforts to expand into downtown. UNR's Master Plan provides a good direction for the school and the City should support the implementation of the plan as much as possible.

Employment Trends and Forecasts

An analysis and summary of citywide employment and development trends was completed as part of Phase 1 of the Master Plan update and are provided in the Community Profile. Additional analysis was needed to support the demand forecast. Specifically, analysis of certain industries within the Region that are growing and the location of various industries and land uses was needed to inform the development of capture estimates for the portion of regional growth locating in Reno.

Recent Regional Employment Trends

The employment trends for the Reno-Sparks MSA show that the Region is growing in employment, especially in the past four years. Employment in the MSA increased by 26,500 jobs from 2010 to April of 2016, which equates to an annual rate of 2.2 percent as shown in **Figure 6**. The U.S. Bureau of Labor Statistics provides monthly estimates of employment, hours, and earnings for states and metro areas through its Current Employment Statistics database. This data set provides the most current employment data for the Region. Employment data, within this data series, is provided at the supersector and sometimes two digit NAICS industry level when sufficient data is available. Supersectors are aggregations of two-digit NAICS industries into 11 supersectors under two types: goods-producing industries and service-providing industries. The economic supersectors that are growing the most include professional and business services, transportation and utilities, and construction. Supersectors that lost employment include other services, information, wholesale trade and mining and logging.

Figure 6
Reno-Sparks MSA Employment, 2010-2016

Supersector	2010	2011	2012	2013	2014	2015	2016	Change 2010-2016 Total #	Ann. #	Ann. %
Goods-Producing	20,100	19,700	20,100	21,600	23,800	25,200	26,100	6,000	1,000	4.4%
Service-Providing	170,500	169,400	169,200	172,100	177,200	183,400	191,000	20,500	3,417	1.9%
Total	**190,600**	**189,100**	**189,300**	**193,700**	**201,000**	**208,600**	**217,100**	**26,500**	**4,417**	**2.2%**
Mining & Logging	300	300	300	300	200	200	200	-100	-17	-6.5%
Construction	8,600	8,200	8,400	9,300	10,900	12,200	13,300	4,700	783	7.5%
Manufacturing	11,200	11,200	11,400	12,000	12,700	12,800	12,600	1,400	233	2.0%
Trade, Transportation, and Utilities										
Wholesale Trade	8,900	8,700	8,700	8,800	8,900	9,100	8,800	-100	-17	-0.2%
Retail Trade	21,100	20,900	20,500	21,100	21,500	22,400	23,600	2,500	417	1.9%
Transportation & Utilities	11,700	11,900	12,800	12,900	14,400	15,500	16,800	5,100	850	6.2%
Information	2,400	2,200	2,000	2,000	2,100	2,000	1,900	-500	-83	-3.8%
Financial Activities	8,900	8,800	9,000	9,400	9,400	9,800	10,300	1,400	233	2.5%
Professional & Business Services	24,200	24,100	24,900	25,800	26,800	27,700	30,600	6,400	1,067	4.0%
Education & Health Services	22,000	22,200	22,100	22,500	23,500	24,500	25,300	3,300	550	2.4%
Leisure and Hospitality	34,000	34,800	33,900	34,400	35,000	36,300	36,700	2,700	450	1.3%
Other Services	6,800	6,100	6,100	5,900	6,100	6,100	6,100	-700	-117	-1.8%
Government	30,500	29,700	29,200	29,300	29,500	30,000	30,900	400	67	0.2%
Total	**190,600**	**189,100**	**189,300**	**193,700**	**201,000**	**208,600**	**217,100**	**26,500**	**4,417**	**2.2%**

Note: Data through April of 2016

Source: BLS Current Employment Statistics; Economic & Planning Systems

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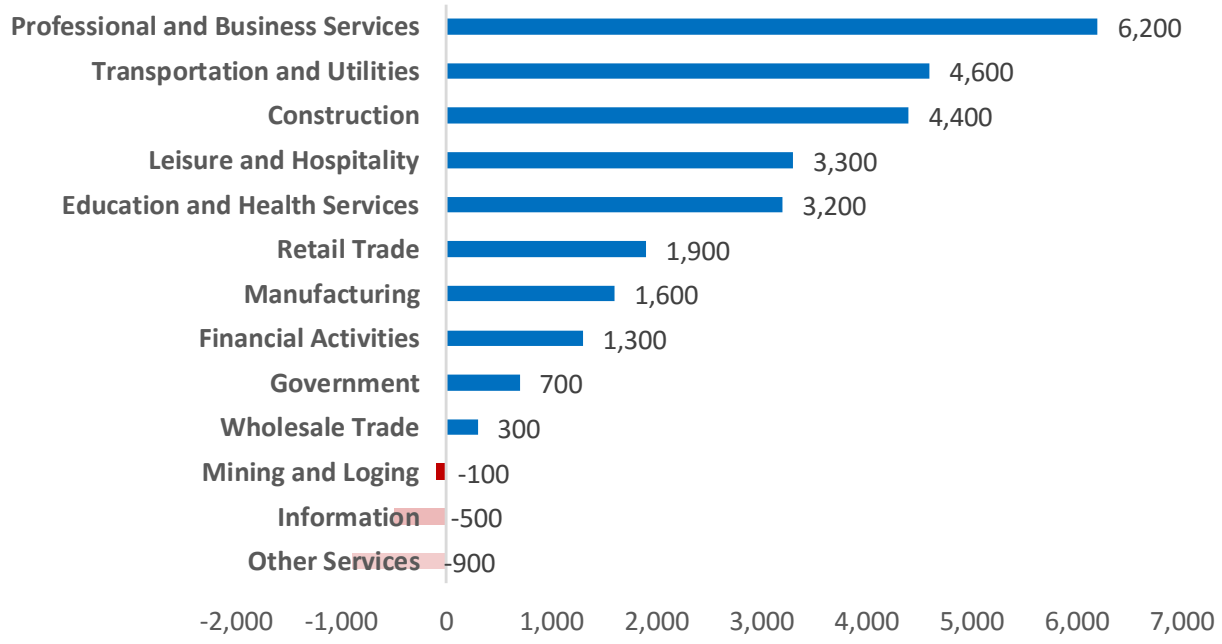
Figure 7
Reno-Sparks MSA Change in Employment, 2010-2016



Industries with Potential to Drive Economic Growth

Industries identified as growing in Reno were analyzed to gauge how much potential growth could vary from the Baseline Forecasts.

Industrial Based Sectors

Reno has always been a good location for distribution of goods and sectors related to logistics and manufacturing have been growing in Reno. Industry sectors related to logistics include wholesale trade and transportation and warehousing. Manufacturing jobs were split between advanced manufacturing and other manufacturing based on 3 digit NAICS industries to approximate industries within advanced manufacturing within Washoe County. These industries were assessed to understand how they have been growing since the economic recession to see how they are performing compared to the existing economic forecasts. For each of these sectors, the total jobs, new jobs from 2010 to 2015, annual rate of growth, percent of jobs in the Region within Washoe County, and the average annual wage are shown in **Figure 8**. A summary of analysis of these sectors is also provided below. The wages in these sectors are equivalent or slightly higher than the average annual wage for the Region of approximately $45,000, with the exception of industries in advanced manufacturing.

Figure 8
Industrial Based Sector Performance in Washoe County, 2010 to 2015

Sector	Total Jobs 2015	New Jobs 2010 to 2015	Ann. Avg. Rate of Growth	% of Regional Jobs in Washoe	Average Annual Wage
Manufacturing - Advanced[1]	6,551	-59	-0.2%	94%	$78,890
Manufacturing - Other	5,276	1,228	5.4%	94%	$41,981
Logistics - Wholesale Trade	8,968	165	0.4%	99%	$58,032
Logistics - Transportation and Warehousing	12,803	2,254	3.9%	82%	$47,866

1 - Advanced Manufacturing includes these 3 digit NAICS Industries: 324,325,331,332,333,334,335,336,339

Note - 2015 is from Quarter 2

Source: Bureau of Labor Statistics QCEW; Economic & Planning Systems

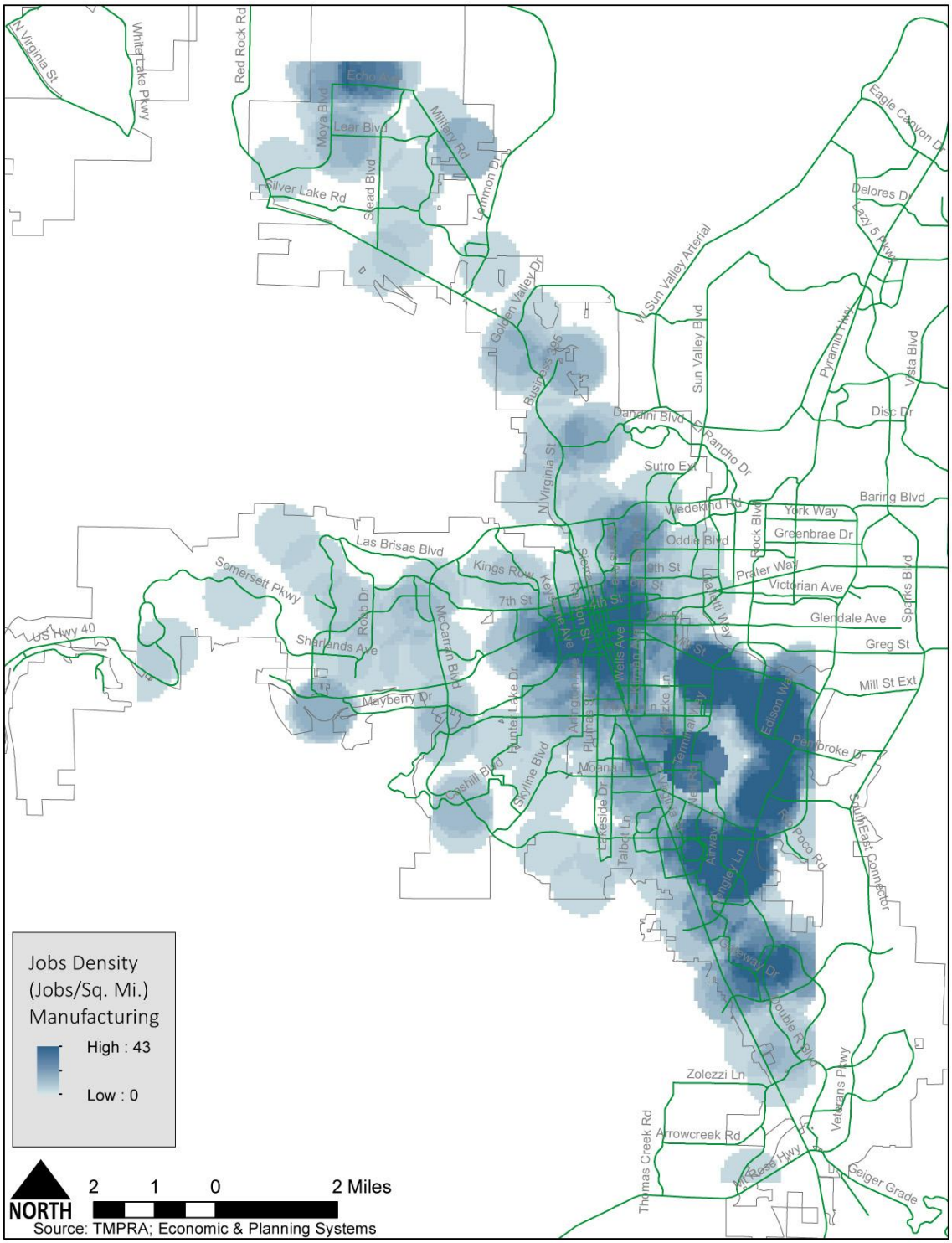
Manufacturing

The manufacturing industry is growing in the Region with an increase of 1,400 jobs since 2010 and annual rate of growth of 2.0 percent. The growth of manufacturing is spread among several sub-industry categories. From the two-county region, Washoe County captured 94 percent of the manufacturing employment growth between 2010 and 2015.

The manufacturing sub-industries were grouped at the three digit NAICS among categories generally considered to be advanced manufacturing and others (based on similar definition developed by the Brookings Institute in 2015 for a study entitled *America's Advanced Industries: what are they, where they are, and why they matter*). Within Washoe County, advanced manufacturing industries experienced no growth since 2010 while the other categories grew by 5 percent annually. Food manufacturing had the largest gains in employment in recent years.

The concentrations of manufacturing jobs within the city are shown in **Figure 9**. The significant manufacturing employment clusters are near the Reno-Tahoe Airport, in and around downtown, and in the South Meadows. However, two of the largest employers in the manufacturing industry are located in the North Valleys near the Reno-Stead Airport.

Figure 9
Manufacturing Employment Density



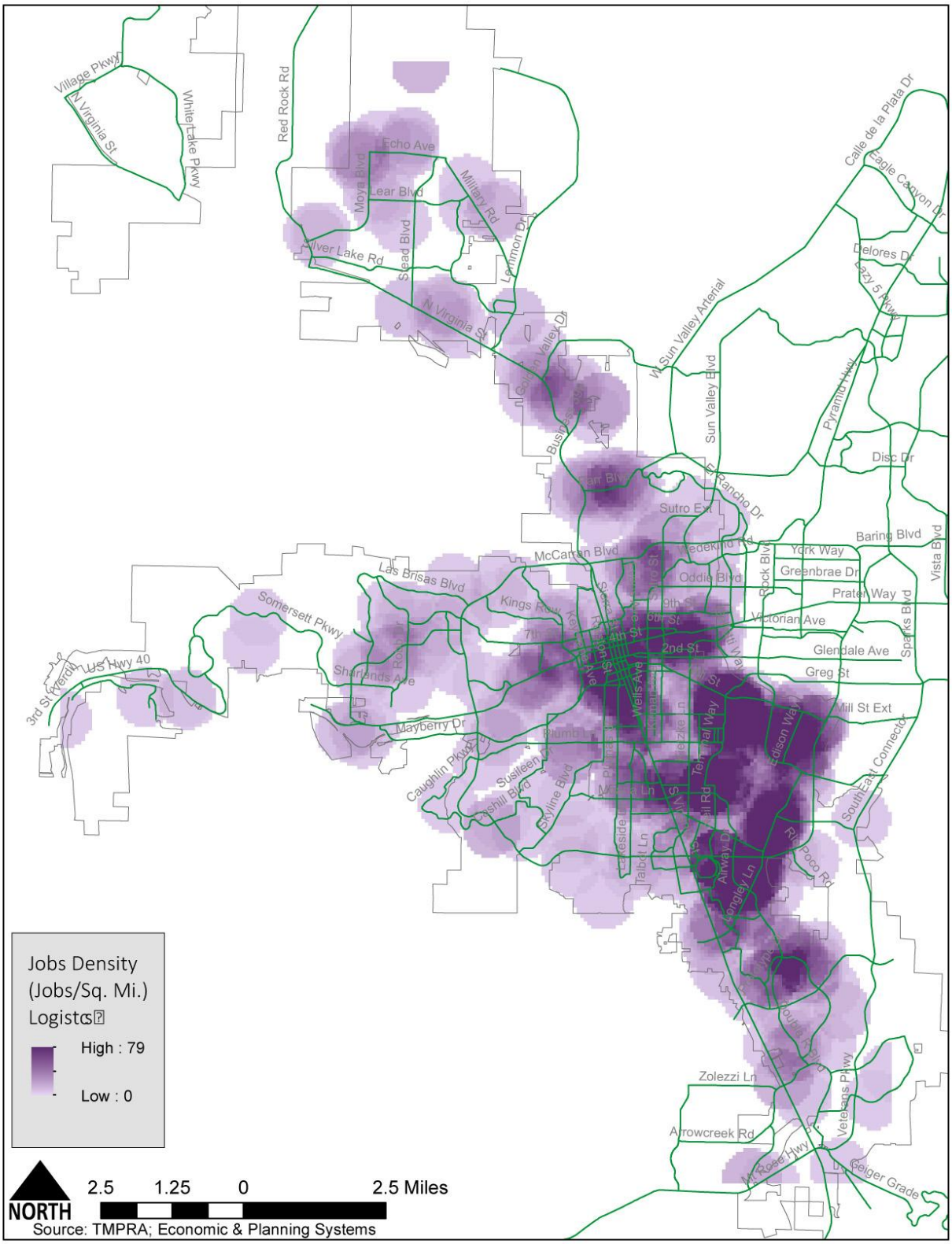
Logistics

The logistics industries include wholesale trade and transportation and warehousing industries. Wholesale trade in the Region decreased in employment by an estimated 100 jobs between 2010 and 2016. Employment within the transportation and utilities sector, which includes the transportation and warehousing industry, increased at the fastest rate (6.2 percent annually) since 2010 in the Region, which equates to an increase of 5,100 jobs (19 percent of total job growth.

Reno is well located for distribution of goods throughout the western U.S. with relatively equal distance and access to major coastal cities and larger communities in the Rocky Mountain west. The majority of growth in recent years has been in general freight trucking and general warehousing and storage, however the Region is attractive for wholesaling activities of major retailers (both traditional and internet based). The growth in employment in wholesale trade and transportation and warehousing has been split between Washoe and Storey Counties. Based on county-specific employment data from 2010 to 2015, Washoe County has captured 99 percent of wholesale trade employment and 82 percent of transportation and warehousing employment in the Region.

Employment in the wholesale trade and transportation and warehousing industries are located primarily around the Reno-Tahoe Airport. There are also concentrations in and east of downtown and in the South Meadows. There is an emerging concentration within the North Valley's including a large distribution center for JCPenney, as shown in **Figure 10**.

Figure 10
Logistics Employment Density



Knowledge Based Sectors

The recent employment trends in more knowledge based industries that more typically locate in office space were analyzed to see how they may vary from the economic forecasts. The industries included in this analysis include finance and insurance, information, and professional services – which includes professional, scientific, and technical services – and administrative and waste services. Metrics measuring the performance of these industries since 2010 in Washoe County are shown in **Figure 11**. The wages within these sectors are significantly higher than the average wage for the Region, with the exception of administrative and waste services.

Figure 11
Knowledge Based Sector Performance, 2010 to 2015

Sector	Total Jobs 2015	New Jobs 2010 to 2015	Ann. Avg. Rate of Growth	Average Annual Wage
Finance and Insurance	5,783	239	0.8%	$102,024
Information - Technology	2,007	-358	-3.2%	$54,808
Business Services - Professional, Scientific, Technical	10,015	551	1.1%	$77,584
Business Services - Administrative and Waste Services	14,885	4,217	6.9%	$29,276

Note - 2015 is from Quarter 2

Source: Bureau of Labor Statistics QCEW; Economic & Planning Systems

Information

Businesses and jobs within the information sector, specifically information technology, are growing and highly sought after nationally. Employment in the information sector in the Region has decreased steadily since 2010 with a loss of an estimated 500 jobs. Employment in this sector is located primarily in Washoe County. Jobs losses have been in the more traditional information sectors including print media and television related industries. Computer and internet related information sub-industries have been growing quickly but have a small base, accounting for at most 20 percent of information jobs in the Region.

Professional and Business Services

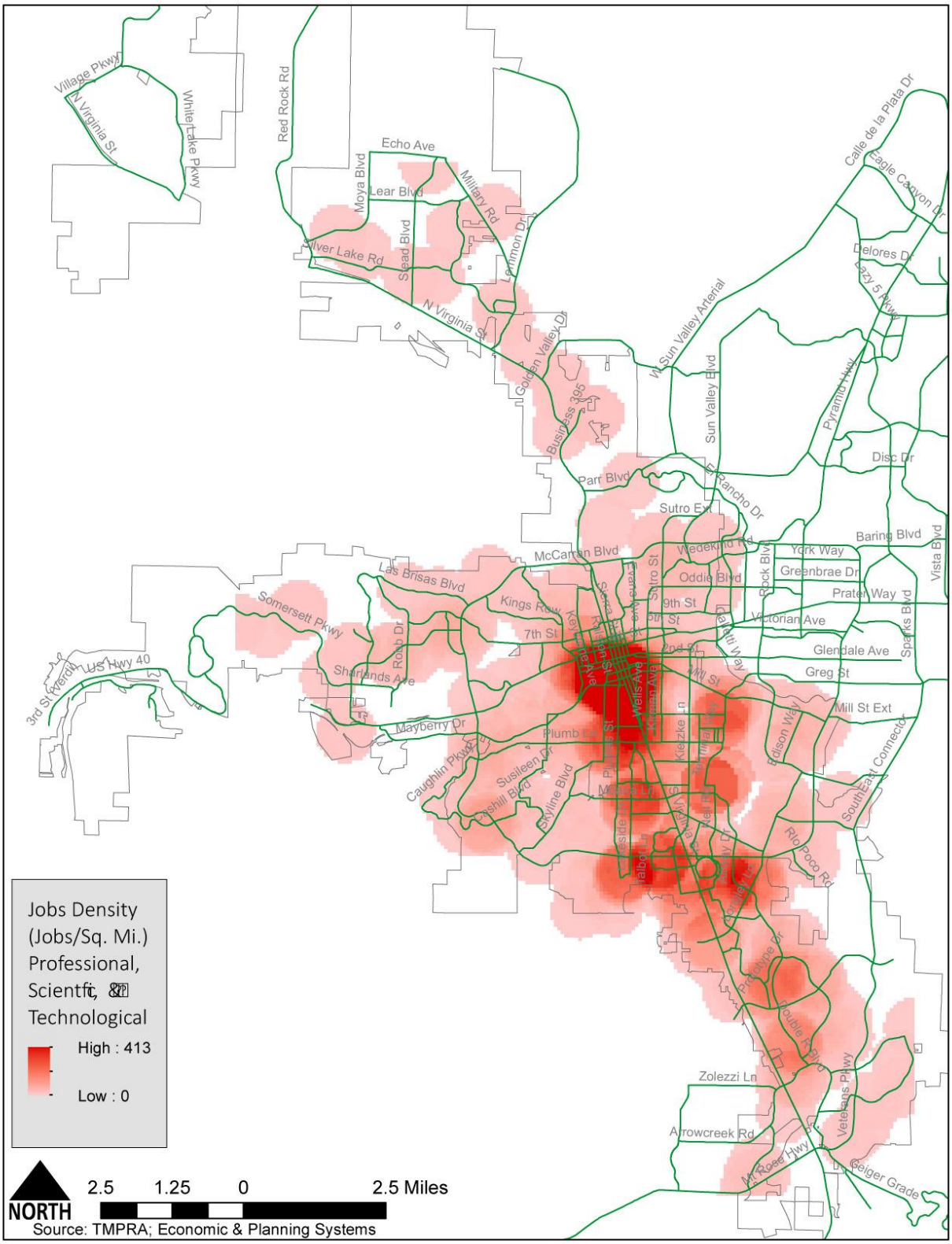
Employment within the professional and business services supersector grew by the largest number of jobs (6,400 jobs) of all supersectors in the Region between 2010 and 2015. The majority of job gains (5,900 jobs) in this supersector were in the administrative support and waste services industry, which grew at an annual rate of 7.2 percent. Almost all of the jobs gains in this industry were in administrative jobs and business support jobs in Washoe County and not waste services. The largest job growth occurred in the temporary help services sub-industry, which includes call centers and seasonal workers at distribution centers. Call center operators find Reno an attractive location due to the lower cost of doing business and a workforce that is service oriented. The flat growth in wholesale trade may be attributed to these companies using temporary worker services to hire part-time and seasonal workers. It is likely that wholesale trade is growing at similar rates to the transportation and warehousing but the growth is within hiring through temporary agencies.

The professional, scientific, and technical service industry is the other industry (with administrative support and waste services) in the professional and business services supersector. Employment within the professional, scientific, and technical services industry increased by approximately 500 jobs since 2010, growing at an annual rate of 0.6 percent. Within Washoe County, the industry

grew at an annual rate of 1.1 percent between 2010 and 2015 and accounted for the vast majority of job growth in this industry in the Region. Businesses within this industry include legal services, accounting, architectural and engineering services, scientific and technical consulting, advertising and public relations, and scientific research and development. Employment gains within this industry were primarily (approximately 90 percent) within the scientific, technical and engineering related sub-industries. Employment growth within the legal, accounting, advertising and public relations, and other services sub-industries was minimal.

Concentrations of professional services jobs are located within downtown and south along the Virginia Street corridor and near the Reno-Tahoe Airport, as shown in **Figure 12**.

Figure 12
Professional Services Employment Density



Service Sectors

Lastly, the performance of the service oriented sectors was measured to assess its performance relative to the economic forecasts. These industries include accommodations and food service, and retail trade. The gaming industry falls within these categories. Retail trade grew in the Region at an annual rate of 1.9 percent from 2010 to 2015. The rate of growth for retail trade matches with population and housing growth and will likely continue to be strongly correlated in the future.

Casinos and Tourism

The leisure and hospitality supersector accounts for 17 percent of all jobs in the Region and is the largest supersector. Employment in this supersector has grown by 2,700 jobs in the Region since 2010. All of the jobs gains have been in the food services and drinking places sub-industry that grew by 3,200 jobs during this period (an annual rate of growth of 3.8 percent), which means employment decreased in the other sub-industries (accommodations and casino hotels) by 500 jobs.

Growth Forecasts Findings

Employment forecasts completed for the Region and the City vary regarding the potential employment opportunities related to the Tesla Gigafactory and other recent major employers coming to the Region. A baseline economic forecast was completed for the model and relied on historic trends and forecasts completed by the State Demographer (with and without Tesla) and Woods and Poole. The forecast does not estimate a significant change in the industry mix within the Region, and estimates total job growth and annual rate of 1.6 percent annually.

Alternatively, the EPIC Study completed by EDAWN provides 5-year (2015 through 2019) estimates for total job growth and projects employment to increase by 2.7 percent per year in Washoe County and 43.6 percent per year in Storey County. The EPIC Study forecast does not provide industry specific forecasts. The growth rate in Storey County assumes significant growth associated with Tesla-driven economic expansion.

Figure 13 shows the average annual rate of growth for each industry within Washoe County and Storey County for several time periods. First, the historic rates of growth for each industry from 2000 to 2015 and 2010 to 2015 are shown. Second, the rates of growth for 2015 to 2025 and 2025 to 2035 from the Woods and Poole forecasts are shown. Lastly, the rates of growth for 2015 to 2025 and 2025 to 2033 for the State Demographer's forecasts are shown. The State Demographer's forecasts include the impacts associated with and without the development of the Tesla plant. While the development of the Tesla plant has a relatively minor impact on Washoe County (between 2015 and 2025, total annual employment growth increases from 1.8 percent to 1.9 percent), the impact on Storey County is significant. Between 2015 and 2025, the total annual employment growth rate increases from 1.8 percent to 5.9 percent, which is primarily driven by a significant increase in the number of manufacturing jobs.

The industry specific forecasts provided by Woods and Poole for Washoe and Storey Counties do not seem to be influenced by recent growth in some industries and do not include any estimates for the impact of Tesla. The State Demographer also produced forecasts for both Storey and Washoe County by industry, one that does not consider the impact of Tesla and one that does

estimate the change in employment by industry due to Tesla. However, both of the State Demographer's forecasts do not seem to account for recent growth in transportation and warehousing, construction, manufacturing, and administrative serves within Washoe and Storey Counties, which has been significantly higher than forecast (at least in the short term).

Figure 13
Historic and Forecast Growth Rates by Industry, Washoe and Storey Counties

	Historic (BLS)		W&P Forecast		State Demographer (without Tesla)		State Demographer (with Tesla)	
Description	2000-2015	2010-2015	2015-2025	2025-2035	2015-2025	2025-2033	2015-2025	2025-2033
Washoe								
Agriculture, Forestry, Fishing and Hunting	-3.5%	0.3%	0.7%	0.6%	-1.2%	-2.9%	-1.2%	-3.0%
Mining, Quarrying, and Oil and Gas Extraction	-6.8%	-9.2%	1.2%	1.2%	-0.4%	-3.0%	-0.3%	-3.0%
Utilities	15.0%	-1.6%	0.8%	0.5%	-1.2%	-2.5%	-1.0%	-2.5%
Construction	-1.2%	5.6%	2.2%	1.1%	4.3%	1.4%	5.0%	1.3%
Manufacturing	-0.8%	2.1%	1.0%	0.6%	-0.1%	-0.3%	-0.2%	-0.4%
Wholesale Trade	-1.3%	0.1%	1.7%	1.3%	1.6%	1.3%	1.8%	1.2%
Retail Trade	0.4%	0.9%	1.7%	1.4%	1.3%	0.1%	1.5%	0.1%
Transportation and Warehousing	1.5%	3.4%	1.3%	1.2%	2.4%	2.0%	2.4%	2.0%
Information	-4.0%	-3.5%	1.5%	1.5%	0.7%	-0.1%	0.7%	-0.2%
Finance and Insurance	-0.4%	0.9%	1.7%	1.1%	1.3%	0.8%	1.4%	0.8%
Real Estate and Rental and Leasing	-0.6%	1.7%	1.0%	0.9%	1.2%	0.6%	1.4%	0.6%
Professional, Scientific and Technical Services	1.9%	1.4%	1.3%	1.3%	2.5%	1.7%	2.5%	1.6%
Management of Companies and Enterprises	0.4%	-3.1%	0.5%	0.5%	0.9%	0.3%	0.9%	0.3%
Admin. and Support and Waste Mgmt. and Rem. Serv.	1.9%	4.9%	1.4%	1.1%	1.9%	1.6%	2.0%	1.6%
Educational Services	4.6%	2.0%	3.2%	2.9%	1.7%	1.0%	1.8%	1.0%
Health Care and Social Assistance	2.6%	1.6%	1.3%	1.1%	2.1%	1.2%	2.2%	1.2%
Arts, Entertainment, and Recreation	-0.6%	-0.3%	1.6%	1.3%	2.0%	1.5%	2.1%	1.5%
Accommodation and Food Services	-1.2%	1.5%	1.3%	0.9%	1.6%	0.7%	1.7%	0.7%
Other Services, except Public Administration	1.3%	0.3%	1.3%	1.3%	1.7%	0.6%	1.8%	0.6%
Public Administration	1.3%	-2.1%	N/A	N/A	N/A	N/A	N/A	N/A
Unclassified	---	1.6%	N/A	N/A	N/A	N/A	N/A	N/A
Total	**0.3%**	**1.5%**	**1.4%**	**1.1%**	**1.8%**	**1.0%**	**1.9%**	**0.9%**
Storey								
Agriculture, Forestry, Fishing and Hunting	N/A	D	0.8%	0.7%	-0.6%	-2.8%	-1.3%	-4.1%
Mining, Quarrying, and Oil and Gas Extraction	N/A	D	0.6%	0.6%	-1.2%	-3.6%	-1.1%	-3.5%
Utilities	N/A	D	1.7%	1.5%	0.7%	0.2%	2.5%	-0.3%
Construction	N/A	13%	2.9%	1.8%	4.0%	0.9%	-14.1%	1.9%
Manufacturing	N/A	17%	1.7%	1.3%	2.1%	1.3%	18.8%	0.1%
Wholesale Trade	N/A	D	1.6%	1.3%	0.9%	1.1%	5.8%	0.1%
Retail Trade	N/A	D	2.8%	2.5%	0.2%	-0.3%	-2.3%	-2.9%
Transportation and Warehousing	N/A	17%	2.5%	2.4%	2.0%	1.7%	2.0%	1.8%
Information	N/A	D	1.7%	2.4%	0.0%	-2.3%	1.6%	-1.9%
Finance and Insurance	N/A	D	2.8%	2.2%	-0.2%	-0.4%	-1.5%	-0.8%
Real Estate and Rental and Leasing	N/A	D	2.5%	2.5%	0.7%	0.4%	2.3%	0.7%
Professional, Scientific and Technical Services	N/A	D	1.7%	1.7%	2.9%	2.2%	1.9%	0.9%
Management of Companies and Enterprises	N/A	D	---	---	1.0%	0.0%	1.0%	0.0%
Admin. and Support and Waste Mgmt. and Rem. Serv.	N/A	D	0.9%	0.7%	1.4%	1.2%	2.5%	0.7%
Educational Services	N/A	D	3.0%	2.5%	0.7%	0.0%	2.0%	0.0%
Health Care and Social Assistance	N/A	D	1.0%	1.7%	2.3%	0.9%	1.9%	0.9%
Arts, Entertainment, and Recreation	N/A	-5%	2.0%	1.7%	2.0%	1.2%	2.3%	1.2%
Accommodation and Food Services	N/A	5%	1.1%	0.6%	0.8%	0.3%	1.4%	0.5%
Other Services, except Public Administration	N/A	-7%	1.0%	0.9%	2.8%	1.9%	2.5%	1.8%
Public Administration	N/A	D	N/A	N/A	N/A	N/A	N/A	N/A
Unclassified	N/A	D	N/A	N/A	N/A	N/A	N/A	N/A
Total	**12.5%**	**13.0%**	**2.2%**	**1.9%**	**1.8%**	**1.2%**	**5.9%**	**0.6%**

Source: Bureau of Labor Statistics; Woods & Poole; Nevada State Demographer's Office; Economic & Planning Systems

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4. ECONOMIC NEEDS AND GAPS ANALYSIS

An economic gaps and needs assessment was completed to identify potential economic policies for the Master Plan. This chapter provides a summary of this assessment. The assessment includes three components. First an estimate of demand for jobs and the resulting development space demand is provided for two scenarios. Second, a comparison of estimated demand to the land capacity in the city is summarized. Lastly, key plan policy choices are identified.

Future Employment Land Demand

The forecast for future demand for development and land was completed for the Region (Washoe and Storey Counties). The policy decisions the City makes can have large implications on the amount of development in the city and where new development occurs. A significant portion of the future economic growth that can occur in Reno is likely to occur in the Region regardless if it is accommodated in the City of Reno or not. The policy and investment decisions the City makes will impact the capture of new development within the city. Furthermore, growth forecasts for the Region are likely not estimating the impact of emerging economic opportunities or the impact of a potential shift in the economic development efforts of the Region and the City.

Growth Scenarios

To consider the implications of future economic opportunities and policy decisions made by the City, two scenarios were developed to estimate future demand and guide land use decisions. The scenarios being analyzed include:

- **Baseline Forecast** – The Baseline Forecast is based on the TMPRA Consensus forecast. The forecast uses the Consensus Forecast as a guide for the control total for total employment growth in Washoe County. Industry specific forecast growth rates are based largely on forecasts completed by Woods & Poole, a secondary employment data and forecast provider. The Nevada State Demographer's forecast for Washoe County is also used. In some cases, historic trend data is used when the rates in both forecasts were significantly lower than historic rates. TMRPA uses the Woods & Poole forecast as one of its inputs in the Consensus Forecast. The growth forecasts by industry for Storey County largely follow the State Demographer's forecast, but also use Woods & Poole and historic trends where appropriate.
- **Recent Trends** – This scenario analyzes what the future demand will be for employment in the Region if future growth matches recent growth trends and reflects the impacts of new entrants to the market. Increased attraction and creation of businesses and employment related to manufacturing (including Tesla), wholesale trade and transportation and warehousing were estimated to reflect the recent growth in these industries. The Region has experienced significant increases in employment in manufacturing and logistics related industries, which is building on its historic strength in these industries and the superior location attributes of Reno for truck transportation.

  The scenario assumes a doubling of annual growth rates within the baseline scenario for the three major sectors; manufacturing, wholesale trade, and transportation and warehousing to match recent trends and to include the employment forecast at the Tesla factory. Adjustments

to other industries were made to better reflect current trends or were assumed to increase due to the activity generated by the increase in manufacturing and logistics jobs. The purpose of the scenario is to understand the impacts on demand for non-residential development, specifically industrial space, within the Region and Reno if growth occurs at a pace matching current rates, which are higher than the existing forecasts. This scenario is a high growth scenario that is an alternative to the Baseline Forecast, which appears to be estimating a smaller amount of employment growth than is currently happening.

Demand for commercial and industrial space by type within the City of Reno is estimated based on the assumptions outlined in previous sections of this report. Specific industry level forecasts, which are based on 2-digit NAICS classifications, are forecasted over a 20 year period and allocated to unique development types. These development types are used to provide an estimate of total space and land demand in Washoe and Storey Counties. The capture of development within the City of Reno was estimated based on existing capture rates.

Estimated Employment Demand

The comparison of growth rates for each industry between the two forecasts are shown in **Figure 14**. The Baseline Forecast largely follows the Woods & Poole forecast for Washoe County and the State Demographer's forecast for Storey County. The Recent Trends Forecast modifies the Baseline Forecast to account mainly for increased activity in manufacturing and logistics industries, and includes the full buildout of Tesla over the first 10 year period including a modest increase in economic activity induced by Tesla. The growth rates for manufacturing, wholesale trade, and transportation and warehousing were adjusted up to match the annual jobs being produced in the Region in the past three to five years and the resulting annual growth rate associated with those jobs.

Figure 14
Forecast Growth Rates, 2015-2035

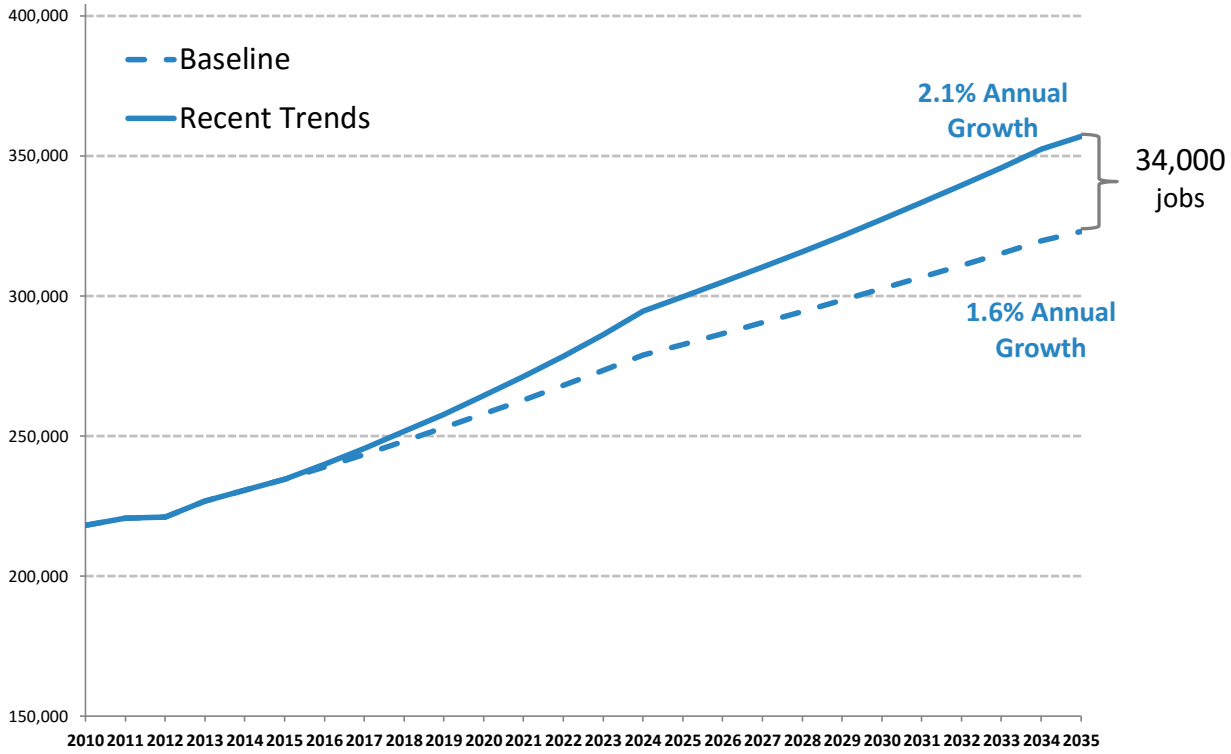
Description	2015	Baseline Forecast: Ann. Growth Rate (2015-2025)	Baseline Forecast: 2025	Baseline Forecast: Ann. Growth Rate (2026-2035)	Baseline Forecast: 2035	Baseline Forecast: Total Jobs (2015-2035)	Recent Trends Forecast: Ann. Growth Rate (2015-2025)	Recent Trends Forecast: 2025	Recent Trends Forecast: Ann. Growth Rate (2026-2035)	Recent Trends Forecast: 2035	Recent Trends Forecast: Total Jobs (2015-2035)
Washoe and Storey Counties											
Agriculture, Forestry, Fishing and Hunting	732	0.7%	783	0.6%	829	97	0.7%	783	0.6%	829	97
Mining, Quarrying, and Oil and Gas Extraction	2,270	0.0%	2,270	0.0%	2,280	10	0.0%	2,270	0.0%	2,280	10
Utilities	536	0.7%	577	0.5%	605	69	0.7%	577	0.5%	605	69
Construction	13,935	4.1%	20,792	2.1%	25,680	11,745	4.2%	20,980	2.2%	26,022	12,087
Manufacturing	13,452	1.9%	16,306	1.4%	18,658	5,206	5.9%	23,954	3.6%	34,215	20,763
Wholesale Trade	10,177	1.6%	11,945	1.2%	13,490	3,313	2.5%	13,062	1.9%	15,763	5,586
Retail Trade	27,347	1.6%	32,169	1.4%	36,915	9,568	1.7%	32,428	1.5%	37,549	10,202
Transportation and Warehousing	14,454	1.7%	17,138	2.0%	20,852	6,398	5.2%	24,103	3.8%	35,059	20,605
Information	2,820	1.4%	3,246	0.7%	3,480	660	1.4%	3,244	0.7%	3,478	658
Finance and Insurance	14,991	1.6%	17,560	1.0%	19,457	4,466	1.6%	17,560	1.0%	19,457	4,466
Real Estate and Rental and Leasing	15,403	1.0%	16,932	0.9%	18,531	3,128	1.0%	16,932	0.9%	18,531	3,128
Professional, Scientific and Technical Services	17,288	1.5%	20,045	1.3%	22,840	5,552	1.7%	20,419	1.4%	23,458	6,170
Management of Companies and Enterprises	3,172	0.5%	3,348	0.4%	3,500	328	0.5%	3,348	0.4%	3,500	328
Administrative and Support and Waste Services	18,167	4.6%	28,363	1.9%	34,111	15,944	4.6%	28,363	1.9%	34,111	15,944
Educational Services	3,083	2.4%	3,923	2.8%	5,170	2,087	2.4%	3,923	2.8%	5,170	2,087
Health Care and Social Assistance	24,112	1.2%	27,282	1.0%	30,252	6,140	1.5%	28,019	1.0%	31,070	6,958
Arts, Entertainment, and Recreation	8,516	1.6%	9,970	1.3%	11,298	2,782	1.6%	9,970	1.3%	11,298	2,782
Accommodation and Food Services	31,429	1.3%	35,612	0.9%	38,790	7,361	1.3%	35,612	0.9%	38,790	7,361
Other Services, except Public Administration	12,578	1.3%	14,358	1.3%	16,288	3,710	1.3%	14,358	1.3%	16,288	3,710
Total	**234,462**	**1.9%**	**282,616**	**1.3%**	**323,027**	**88,565**	**2.5%**	**299,903**	**1.8%**	**357,473**	**123,011**

Source: Economic & Planning Systems

H:\163020-Reno Master Plan Update Phase 2\Models\[163020-Model Summary Tables and Charts.xlsm]Growth Rates Comparison-

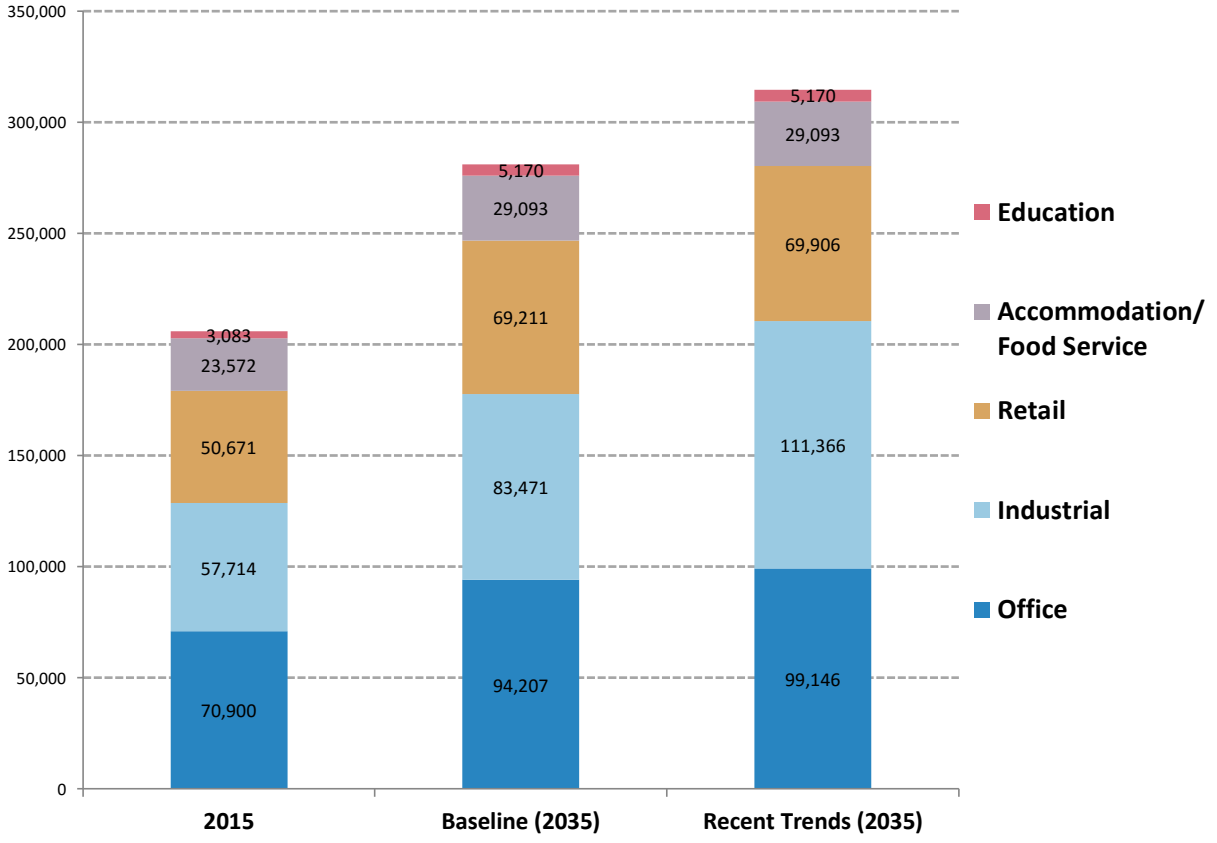
The Baseline Forecast results in the addition of 88,500 jobs to the Region over the next 20 years, which is annual growth rate of 1.6 percent. This rate of growth is in line with the Woods & Poole and State Demographer's existing forecasts and the Consensus Forecast. The Recent Trends Forecast estimates an annual growth rate of 2.1 percent annually between 2015 and 2035. The Recent Trends Forecast estimates an additional 34,000 jobs in the Region by 2035 (total of 123,000 new jobs), as shown in **Figure 15**.

Figure 15
Baseline Forecast vs. Recent Trends Forecasts, Total Employment, 2015 to 2035



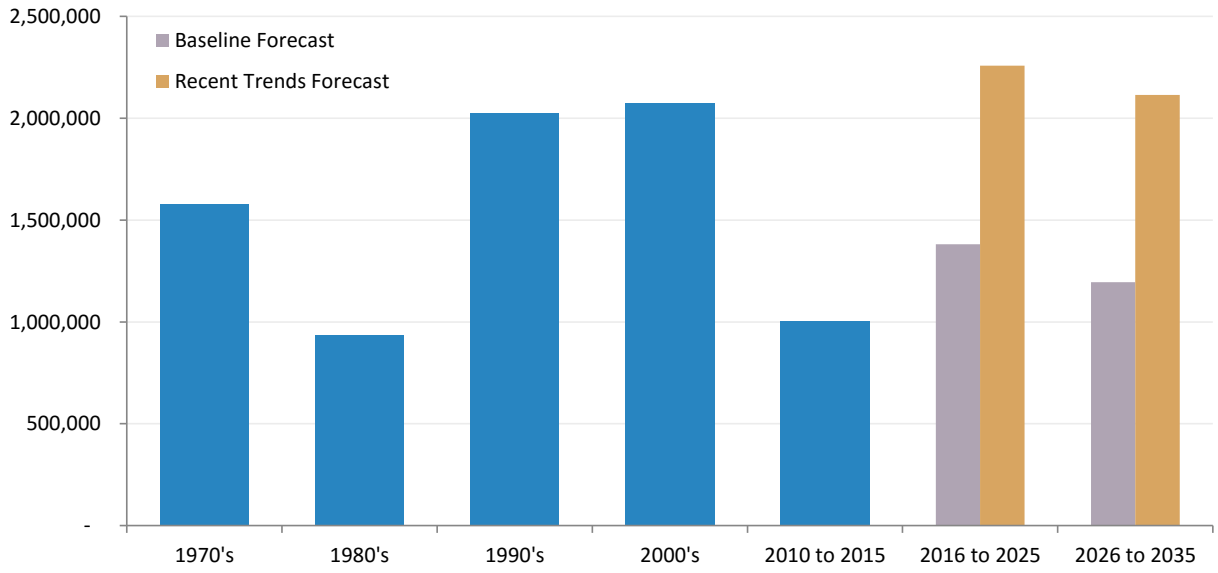
The estimated new jobs by industry were allocated to uses and building types using the methodology described previously in Section 2. The number of jobs per use type in 2015 and for both forecasts is shown in **Figure 16**. Both forecasts estimate an increase in the proportion of jobs located in industrial space within the Region.

Figure 16
Forecast of Jobs by Use, 2015 to 2035



The two forecasts produce annual demand for industrial space that bracket the yearly averages found in the Region from 1970 to 2015. The annual average amount of industrial building space (square feet) built per decade is shown in **Figure 17**. This chart shows the historic averages with the forecasts annual averages from 2016 to 2025 and 2026 to 2035 from both forecasts. The Baseline Forecast matches the averages (approximately 1 million square feet annually) in periods with low industrial development (1980's and 2010 to 2015). The Recent Trends Forecast matches the annual averages (approximately 2 million square feet annually) found in the periods with high growth in industrial (1990's and 2000's). The development of industrial space dropped off greatly from 2009 to 2013 when the Region developed an average of under 200,000 square feet annually. There was 1.3 million square feet of space added in 2014 and 3.6 million square feet in 2015, as the employment growth has filled vacant spaces and generated demand for new buildings. Note that **Figure 17** does not include the Tesla Gigafactory within the annual averages forecast for the Recent Trends Forecast.

Figure 17
Annual Average Industrial Square Feet Built in the Region by decade, 1970-2035

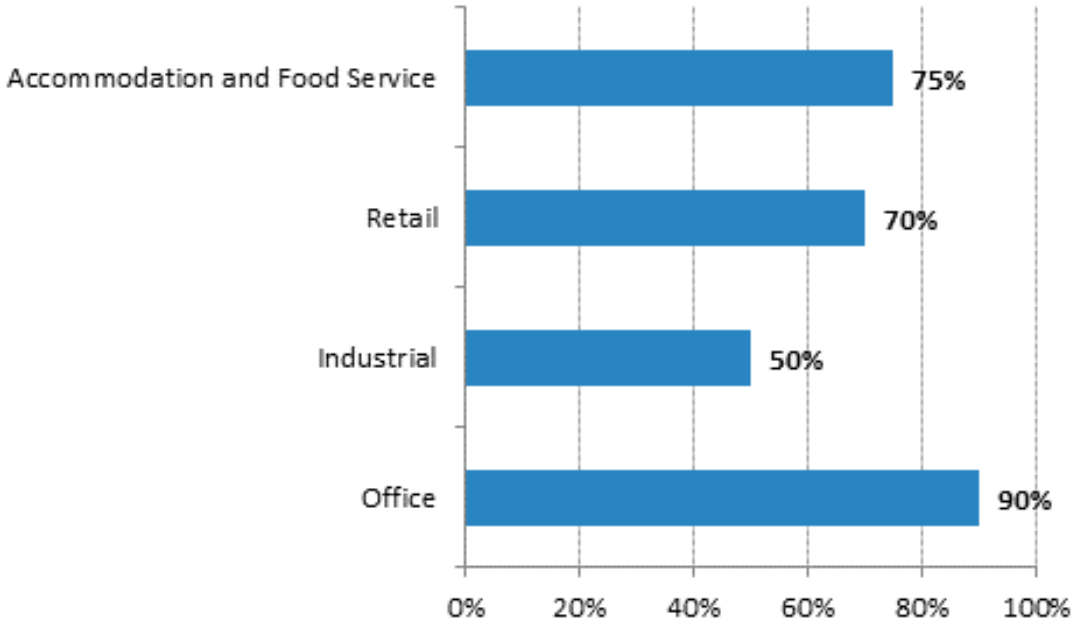


Reno Capture

To estimate demand for new non-residential development in the city, the jobs forecasts by industry were allocated to land use types (as described in Section 2) then building types to estimate demand for new development square feet. A capture rate for the City of Reno was then applied to estimate demand in Reno.

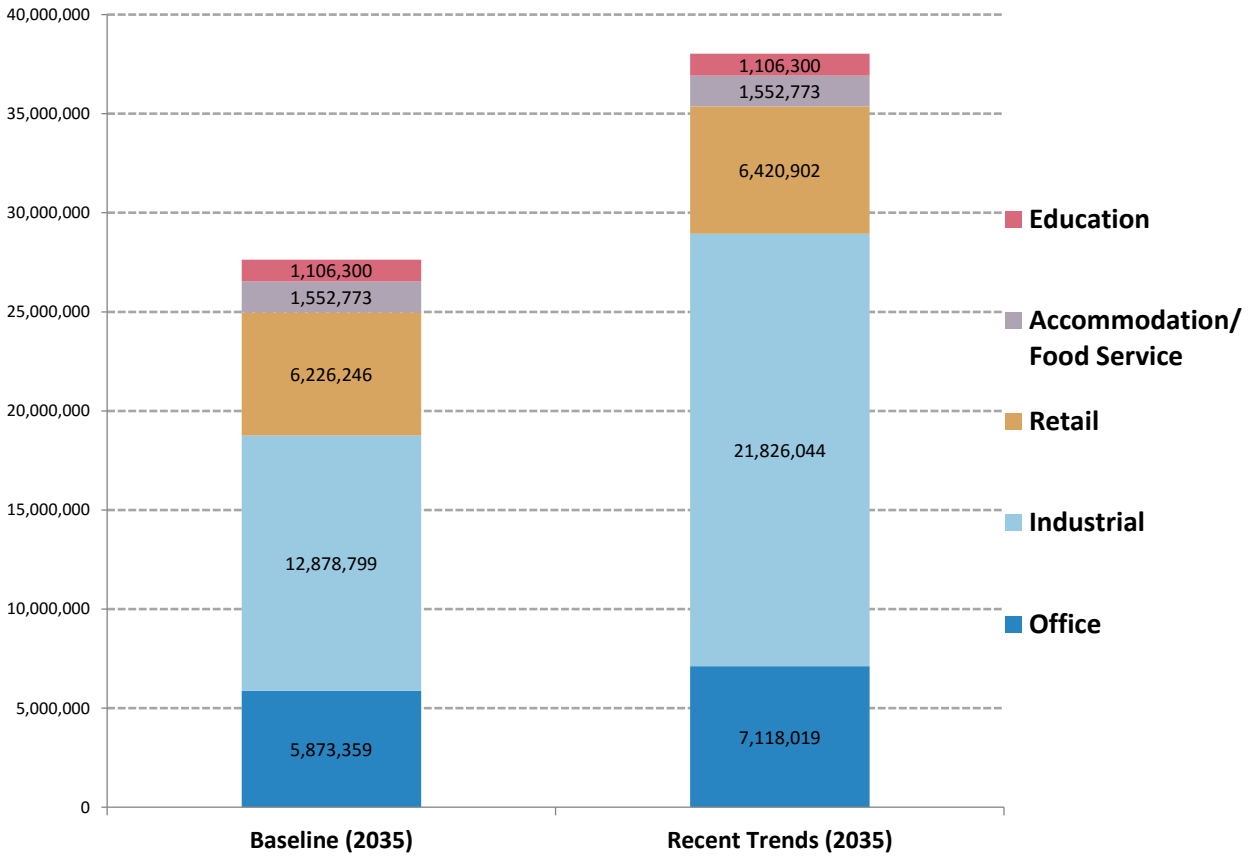
The capture of employment and development within Reno can be impacted greatly by the Master Plan and the policies the City creates. For the purposes of this study, the existing total capture rates of the City of Reno of regional total building square feet for each use was used. These capture rates are shown in **Figure 18** and their derivation was explained earlier in Section 2. The model estimates Reno will continue to capture new development at historic rates in order to compare potential demand to the supply of land in the city.

Figure 18
Estimated Percent Capture of New Development in Reno by Use, 2015 to 2035



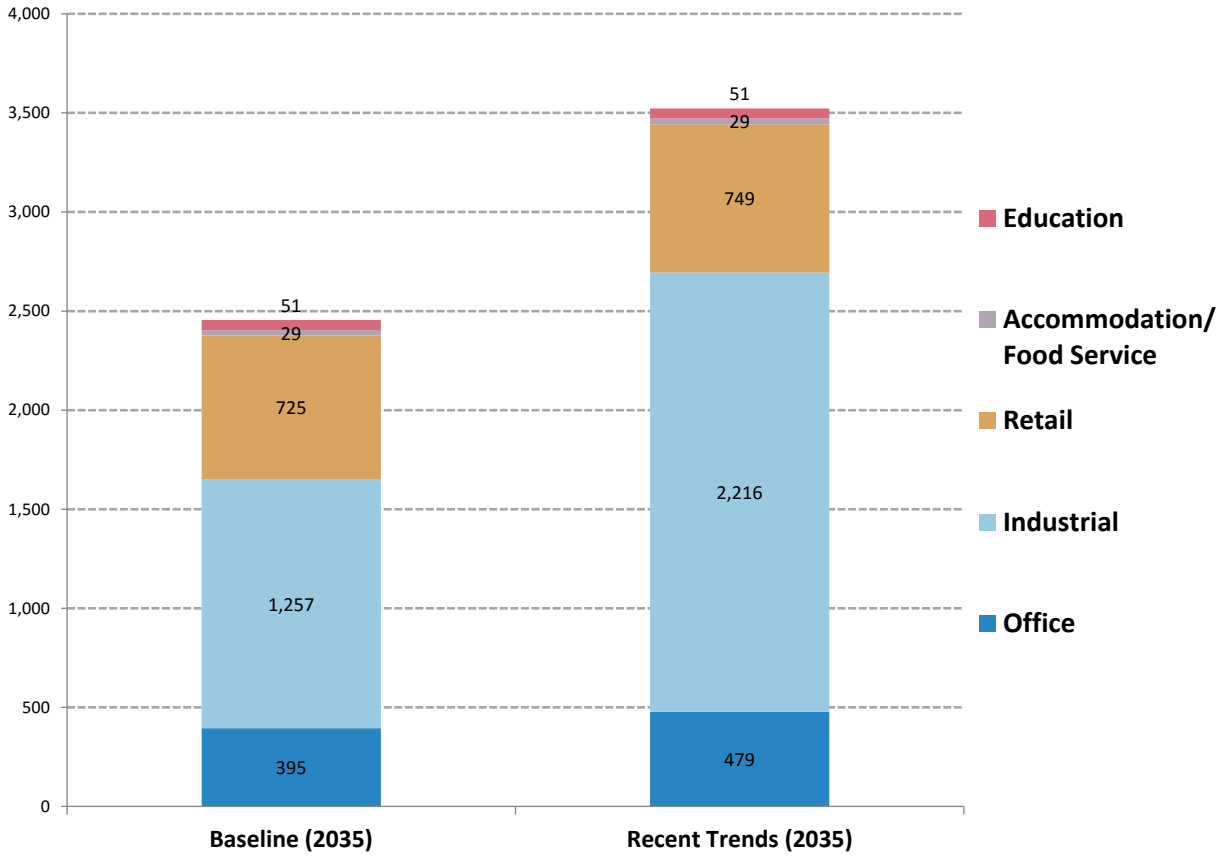
Using the capture rates above, the demand for non-residential building square feet was estimated for the City of Reno. The Baseline Forecast results in demand for approximately 28 million square feet of development, as shown in **Figure 19**. The Recent Trends Forecast results in demand for approximately 38 million square feet of development space. The Recent Trends Forecast estimates a slightly higher amount of retail (200,000 square feet) and office space (1.2 million square feet) than the Baseline Forecast. However, the Recent Trends Forecast estimates total demand for industrial space to be 22 million square feet over 20 years, which is almost double the Baseline Forecast.

Figure 19
Demand for New Square Feet of Development in Reno by Forecast, 2015 to 2035



The density assumptions described previously in **Figure 4** were used to translate demand for building square feet into demand for acres. The Baseline Forecast estimate demand for 2,455 acres of land for development from 2015 to 2035, as shown in **Figure 20**. The demand for land in the Recent Trends Forecast is 3,522 acres.

Figure 20
Demand for Acres of Land in Reno by Forecast, 2015 to 2035

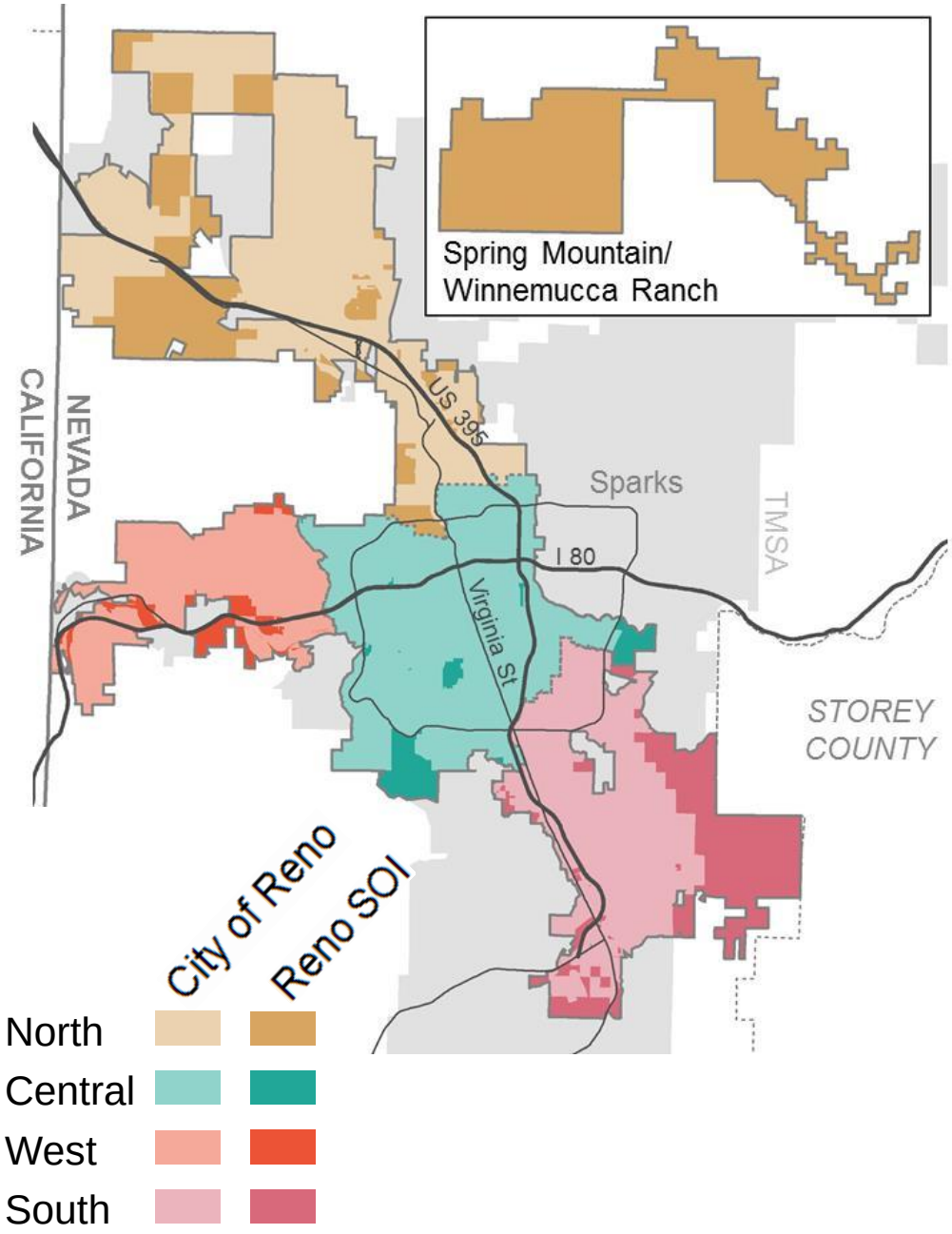


Land Capacity Compared to Future Demand

Land Capacity

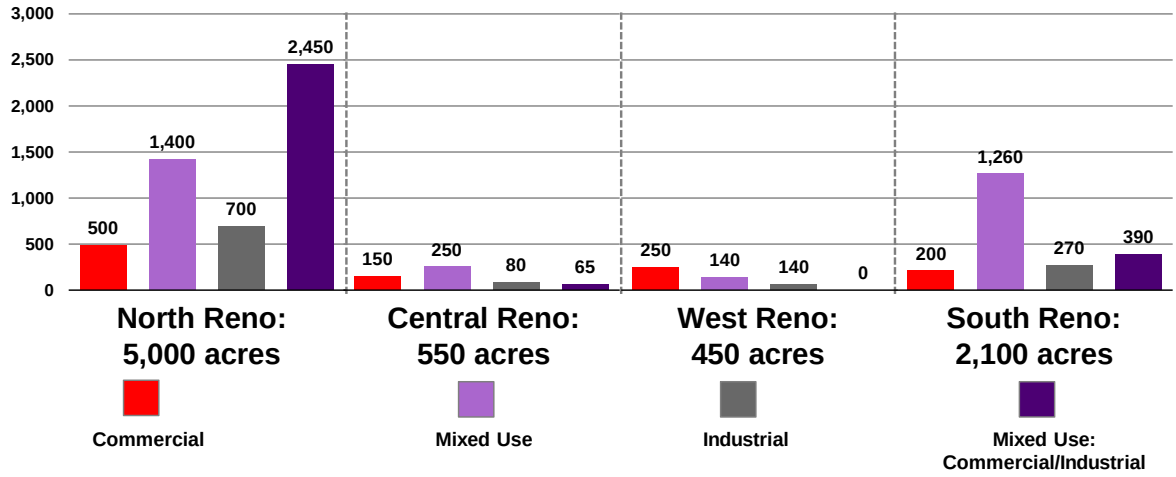
The estimated capacity of developable land was estimated by Clarion Associates using data from TMPRA. The capacity of land was estimated citywide and within four quadrants of the city shown in **Figure 21**. The capacity includes land within the City of Reno and its Sphere of Influence (SOI).

Figure 21
City of Reno Quadrants



The number of acres of land capacity by use within each quadrant is shown in **Figure 22**. The capacity numbers are based on vacant and potential redevelopment parcels within the city using zoning, development plans, and/or historic density patterns to estimate the capacity for each parcel. There are 8,200 acres of non-residential land capacity in the city and its sphere of influence. Sixty-two percent of the capacity is within the North Reno quadrant, including 77 percent of the industrial and mixed use: commercial/industrial capacity.

Figure 22
Reno Non-Residential Land Capacity



**Zoning type categorizations are derived from TMRPA*

Source: TMRPA; Clarion Associates

Demand vs. Supply

Estimated demand for acres annually by land use was compared to the total land supply (capacity) to estimate the number of years of supply within the City of Reno. The number of years of supply is a gauge for the adequacy of the land supply within the city by use. Under the Baseline Forecast, there is annual demand for 123 acres of land for commercial and industrial uses, which equates to a 67 year supply of land within the City's current city limits and sphere of influence, as shown in **Figure 23**. The supply within commercial and mixed-use areas (office and retail uses) is 4,200 acres and annual demand is 60 acres per year, which is a 70 year supply. The annual demand for industrial land is 63 acres per year compared to a supply of approximately 4,000 acres, which is a 63 year supply of land.

Under the Recent Trends scenario, there is a 47 year supply of land for commercial and industrial uses. The annual demand for developed land is estimated to be 176 acres per year. The annual demand for industrial uses is 111 acres, which is significantly higher than the Baseline Forecast estimate of 63 acres per year. The increase in demand for industrial land in the Recent Trends Forecast results in a 36 year supply of land for industrial uses.

Figure 23
Reno Demand for Non-Residential Acres versus Supply

Employment Type	Expected Annual Demand (in acres)	Total Land Supply (in acres)	Years of Supply (annual demand/supply)
Baseline Forecast (2035)			
Commercial and Mixed Use	60	4,200	70
Industrial*	63	4,000	63
Total	***123***	***8,200***	***67***
Recent Trends (2035)			
Commercial and Mixed Use	65	4,200	65
Industrial*	111	4,000	36
Total	***176***	***8,200***	***47***

**Industrial supply assumes mixed use areas zoned for commercial & industrial uses develop as industrial uses.*

Based on the comparison of land demand to land supply, the City of Reno appears to have a more than adequate supply of land for commercial uses within both scenarios. Under the Baseline Forecast, the supply of industrial land appears to be adequate in aggregate. However, the supply within the Recent Trends Forecast for industrial may be a concern as this amount of land may not provide for adequate market flexibility due to availability, infrastructure, and access issues for some of these sites, which may actually result in reduced capacity.

The supply of industrial land within Washoe County and Reno was examined extensively three years ago. The TMRPA commissioned a study in 2013 to determine if the Truckee Meadows Region has an adequate supply of development-ready land for new industrial development. The study found a supply of 2,800 acres of land zoned for industrial uses that is considered to have the most development potential. The study measured the suitability of these sites for development and found that only 420 acres of the 2,800 acres were served adequately by industrial scale infrastructure and/or had only moderate constraints to development. Within that study, the comparison of supply and demand indicated that the TMRPA service area has an ample supply of total land for industrial development but lacks development ready sites for large users (20 acres or more) and the lack of sites was likely to push interested developers and businesses to Storey County within the TRI Center.

A large portion of the industrial land capacity (2,400 acres, 60 percent) is within the control of the Reno-Tahoe Airport Authority (RTAA) and is surrounding the Reno-Stead Airport, which currently lacks the infrastructure needed to serve potential users. The land controlled by the RTAA is currently only being offered for development under a long-term land lease. The requirement of a land lease was cited by industrial developers and brokers (interviewed as part of the Master Plan process) as a major barrier to development and makes these lands less attractive to potential developers and businesses. It is unclear if the land lease requirement is a barrier that could be overcome as land supply decreases or if infrastructure to serve these sites is provided. Considering the sizeable amount of land that is controlled by the RTAA, if this land is not developable within the market, then the City's land supply for industrial is inadequate to meet demand. The RTAA sites are also among the larger sites within Reno's capacity for industrial uses. Given the lack of larger sites within Washoe County, these sites represent the major opportunity sites for larger users and/or coordinated industrial parks.

Another factor that could limit the supply of industrial land is the adjacency of residential uses. Within the North Valley's there currently is a mixture of residential and industrial uses. A significant portion of the supply for industrial within the North Valleys is on sites that are next to planned or existing residential uses or are within mixed use designated areas that could allow for residential. Residential uses next to industrial sites may make these sites unattractive to developers/businesses and could also lead to residents asking for changes to land use designations or advocating for development projects to be rejected due to negative impacts industrial uses (odors, sounds, and truck traffic) can have on neighborhoods.

Key Policy Choices Findings

The Master Plan update will require the City of Reno staff, elected officials and citizens to consider key policy questions to determine the policies needed to achieve the vision and goals identified. These key policy questions or key choices will have a major impact on the direction of the Master Plan and future land use plan. Below are the employment related questions/choices and the findings the economic analysis has produced to help inform these questions.

How should the City play an active role in shaping employment growth?

Currently, the City of Reno provides funding to the Economic Development Authority for Western Nevada (EDAWN) to provide economic development services focused on attracting and growing primary employers. As well, the Chamber of Commerce of Reno, Sparks, Northern Nevada (the Chamber) provides business networking, community information, and business resources to the businesses within Reno. The current economic development structure in the Region was a result of the consolidation of several separate entities that used to be involved in economic development for Reno and elsewhere in northern Nevada. The consolidation was a positive step for the Region and now provides a single agency (EDAWN) for economic development efforts.

However, the consolidation does not mean that the City of Reno cannot or shouldn't play an active role in economic development. EDAWN's 2015 strategic plan has five main focuses:

- Attraction: Attraction of quality primary jobs
- Retention: Preparing and helping companies with change
- Entrepreneurship: Mentoring, supporting and attracting entrepreneurs in and to the Region
- Community: Branding Reno-Sparks and revitalizing downtown Reno
- Workforce: Coordinating the Region to meet employer's workforce needs

The City can support these focus areas in many ways and the Master Plan can play major role in that support. The Master Plan can develop a land use plan that identifies and prioritizes areas for employment uses. EDAWN's efforts are focused on attracting businesses within advanced manufacturing, technology and data centers, logistics and e-commerce, back office and business support services, and aerospace and defense. Many of the businesses that fit within these categories likely will locate in industrial spaces or buildings with large footprints, thus planning for a developable and attractive supply of industrial land would support these efforts.

The Master Plan can also work to identify ways to make improvements to create a more modern work environment. This can be achieved through investments in infrastructure and amenities that are attractive to businesses, investing in revitalizing the City's existing business parks, and planning for employment areas that match current trends and demands of specific industry segments.

Many cities also focus on investing in amenities that increase the livability/quality of the life within their cities as a way to not only attract new businesses but also workers. Traditional economic development theory held that workers will locate to available jobs, therefore, economic development activities were focused primarily on attracting companies. The availability of a job is no longer the main driving factor for people's decisions. Americans are moving less, a trend that has been occurring for several decades. When they do move, more often people make decisions based on the community they want to live in. The quality of life appears to be equal, if not more

important, than a specific job. As a result, employers are locating where their target workforce resides or wants to be. This is happening on both the national and regional level. Companies are choosing to locate or relocate in cities that have workers they want and near similar companies. On a local and regional level, a companies' location is being driven by where employees want to live and recreate. Investment in the quality of neighborhoods and communities within the city should be a major component to its economic development efforts, and a role the City of Reno can take an active and leading role in.

A major component to this approach should be the revitalization of downtown. Downtown areas serve as the central gathering point for the community and also are often the reflection of the community at large to outsiders. Downtown likely serves as the main image of Reno to visitors and prospective new residents and businesses. This image can have a lasting impact on prospective residents and businesses. Mixed-use areas, such as downtown Reno, are more often the preferred location for businesses in more knowledge based industries, as these areas are attractive to their workforce, centrally located, and often located next to similar/like-minded businesses/workers. The live-work-play environment helps foster the vibrancy of areas like this, however the over-abundance of one element, in Reno's case the play element, can negatively impact the quality of the residential and business environments.

The current Master Plan does not have an economic element. The City lacks clear definition of its desired economic geography, which creates issues when lands designated for certain employment uses are sought for other uses. The lack of a clear economic strategy at the local level can create an uncertain environment for businesses and the development community. As well, the future land use plan needs to provide guidance in the application of a regional strategy for economic development or clear direction on the City's priorities relative to regional efforts and more localized opportunities. The Master Plan can provide more specificity in land use categories and policies to clearly define what's desired where based on a preferred mix of employment uses and provide policy support for what the City is actively seeking.

The following key policy questions are related to choices within the future land use plan map. The approaches the City could take to address these questions are dependent on what Reno wants its economic development strategy and priorities to be. The development of a framework strategy or priorities for the City should be a major component of the Master Plan policy development and related outreach. The Phase I survey found that residents desired the City be known as a technology hub and a university town. These community desires provided the initial direction for the economic development goals and policies.

Should the City support the retention and expansion of lands currently designated for industrial uses?

The comparison of demand to supply for industrial land found that the City may have a lack of supply for industrial land, especially if recent trends continue. As well, a significant amount of industrial land at the Reno-Stead Airport needs infrastructure improvements to make it development ready. To ensure the City is competitive in capturing these industrial uses the City could take a proactive approach. The City could prioritize infrastructure investments at the Reno-Stead Airport or other locations to maximize Reno capture in this industrial investment cycle. The City could also identify additional sites that may have infrastructure and are development ready but are designated for other uses. The City could also try to protect its existing sites by increasing standards and requirements related to incompatible uses adjacent to existing industrial lands.

Should the City consider converting other land use designations to industrial or mixed-employment to expand options?

The regional center and TOD corridor approach in the current Master Plan and the Truckee Meadows Regional Plans designates a significant amount of land for mixed-use in areas that are attractive to both industrial and commercial uses. To protect desirable areas for employment the City could consider shifting mixed-use areas to industrial or mixed-employment designations. The City could also identify residential areas that are attractive for employment uses. Seventy-one percent of the potential industrial land capacity is within mixed-use industrial/commercial areas. Some of these lands could be switched into industrial to preserve industrial potential.