Demographic & Economic Forecast for four Sub-State Regions in Nevada

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• Four Sub-State Regions in Nevada
  ✓ Demographic Trends & Forecast
  ✓ Labor Market Analysis & Forecast

• Las Vegas-Henderson-Paradise Metro (Clark County)
  ✓ Real Estate Market Analysis (Clark County)
  ✓ Mapping for Demographic Analysis (Clark County)

• Summary of Analysis

• Questions
2 Major Metropolitan Areas in NV
- **Southern NV**: LV-Henderson
- **Northern NV**: Carson City-Reno

Mining Counties:
- 8 Counties specialized in Mining

Rural Counties:
- 5 Counties

### Sub-State Region vs. County

<table>
<thead>
<tr>
<th>Sub-State Region</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern NV</td>
<td>Clark</td>
</tr>
<tr>
<td>Northern NV</td>
<td>Storey</td>
</tr>
<tr>
<td>Northern NV</td>
<td>Washoe</td>
</tr>
<tr>
<td>Northern NV</td>
<td>Carson City</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>Elko</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>Esmeralda</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>Eureka</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>Humboldt</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>Lander</td>
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<tr>
<td>Mining Counties</td>
<td>Nye</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>Pershing</td>
</tr>
<tr>
<td>Mining Counties</td>
<td>White Pine</td>
</tr>
<tr>
<td>Rural Counties</td>
<td>Churchill</td>
</tr>
<tr>
<td>Rural Counties</td>
<td>Douglas</td>
</tr>
<tr>
<td>Rural Counties</td>
<td>Lincoln</td>
</tr>
<tr>
<td>Rural Counties</td>
<td>Lyon</td>
</tr>
<tr>
<td>Rural Counties</td>
<td>Mineral</td>
</tr>
</tbody>
</table>
Two Major Metros in Nevada

- **Tourism Industry in Southern Nevada**
  - Largest Metro in Nevada
    - Las Vegas-Henderson-Paradise Metropolitan Statistical Area (Clark County)
    - Highly specialized in
      - ‘Leisure & Hospitality’ & ‘Construction’ industries
  - Approximately 73% of total population & jobs in Nevada (2015)

- **State Capital in Northern Nevada**
  - Two Metros:
    - Reno-Sparks MSA & Carson City MSA
    - Highly specialized in
  - Approximately 18% of total population & 19% of total jobs in Nevada (2015)
Two Non-Metro Regions in Nevada

- **Mining Counties in Nevada**
  - 8 Counties highly specialized in Mining industry
    - At least 10 times more specialized in Mining compared to US Avg.
    - More than 25% of TNF jobs in Mining or
    - More than 1,000 Mining jobs
  - Population share decreased from 7.2% in 1990 to 4.8% in 2015
  - TNF job share decreased from at 7.4% in 1990 to 4.5% in 2015

- **Rural Counties in Nevada**
  - 5 rural Counties: Four in Northern Nevada and one in Southern Nevada
  - Non-metro & Not specialized in Mining
  - Population share decreased from 6.3% in 1990 to 4.7% in 2015
  - TNF job share decreased from at 6.1% in 1990 to 4.6% in 2015
Population Growth of Nevada (1990-2050)

- USA
- California
- Arizona
- Utah
- Nevada

- 1.2 million in 1990
- 2.6 million in 2007
- 2.8 million in 2016
- 4.0 million in 2036
- 4.8 million in 2050
Fast Population Growth in Nevada

• Fastest Population Growth Prior to Great Recession
  — Nevada: fastest population growth (217.4%) from 1990 to 2008
  — Much faster than US Avg. at 121.8% & CA Avg. at 122.2%
  — Faster than regional competitors: 170.5% in Arizona & 153.8% in Utah

• After Great Recession, growth continues
  — But, at much slower annual growth rates

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>1.22%</td>
<td>0.90%</td>
<td>0.82%</td>
<td>0.93%</td>
<td>0.75%</td>
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<tr>
<td>California</td>
<td>1.24%</td>
<td>1.00%</td>
<td>0.98%</td>
<td>0.98%</td>
<td>0.76%</td>
</tr>
<tr>
<td>Arizona</td>
<td>3.97%</td>
<td>1.32%</td>
<td>1.40%</td>
<td>1.77%</td>
<td>1.51%</td>
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<tr>
<td>Utah</td>
<td>2.94%</td>
<td>2.27%</td>
<td>1.53%</td>
<td>1.58%</td>
<td>1.35%</td>
</tr>
<tr>
<td>Nevada</td>
<td>6.65%</td>
<td>1.31%</td>
<td>1.38%</td>
<td>1.68%</td>
<td>1.41%</td>
</tr>
</tbody>
</table>

— No longer leading regional population growth, lagging behind
  - Utah (2008-16): ‘during recession’ & ‘after recession recovery’ periods
  - Arizona (2008-50) continues to growth faster than Nevada
Population Growth of Sub-State Regions in Nevada (1990-2050)

- **USA**: 3.6 million in 2050
- **Nevada**: 1.9 million in 2007
- **Southern NV**: 2.1 million in 2016
- **Northern NV**:
- **Mining NV**:
- **Rural NV**:

- **1990**: 820,000
- **2007**: 1.9 million
- **2016**: 2.1 million
- **2036**: 3.0 million
- **2050**: 3.6 million
Population Growth among Sub-State Regions

• Fastest Population Growth Prior to Great Recession in
  — Southern NV: fastest population growth (247.0%) from 1990 to 2008
  — Followed by Rural NV with 4.38% and Northern NV at 3.30%

• Sluggish Population Growth during Great Recession in Mining NV & Rural NV

• After Great Recession, growth continues
  — But, at much slower annual growth rates

— Southern NV still leads population growth, but growth gaps expect to decrease
— After 2036, population growth expects to stabilize
Grayer Nevada led by Southern Nevada (2010-50)
Aging Trend in Nevada

• Median Age in Nevada higher than US Avg. by 2040
  — Prior to 1990s: Nevada was older than US Avg.
  — After 1990s and until recently: Nevada slightly younger than US Avg.
  — Speed of aging in Nevada for the next 3 decades estimated to be faster

• Historically, Aging in Nevada led by Non-metro Regions
  — Especially, rapidly aging in Rural Nevada (1970-1990)
  — Fastest again in Mining Nevada (1990-2010)
  — Mining Nevada counties will get younger from 2030 to 2050, especially in
    ▪ Eureka, Humboldt and Lander
    ▪ Possibly explained by expanded labor demand from Mining industry

• Contrasting Aging Patterns between Two Metro Regions (2010-50)
  — Northern Nevada: slower aging pattern compared to state Avg.
  — Southern Nevada: much faster aging compared to state Avg.
  ➔ Aging for the next decades led by Southern Nevada from 2010 to 2050
Hispanic Pop. Growth of Nevada (1990-2050)

- 127,000 in 1990
- 512,000 in 2007
- 831,000 in 2016
- 1.4 million in 2036
- 1.7 million in 2050
Hispanic Pop. Growth of Sub-State Regions in Nevada (1990-2050)

- USA
- Nevada
- Southern NV
- Northern NV
- Mining NV
- Rural NV

86,000 in 1990
517,000 in 2007
658,000 in 2016
1.0 million in 2036
1.3 million in 2050
Skyrocketing Growth of Hispanics in Nevada

- **Fastest Growth of Hispanic Population in Region (1990-2016)**
  - Avg. growth of Hispanic in US: 257.3% (1990~2016)
  - Growth in Nevada: 650.7% (831,000 Hispanics, 2016)
  - Nevada’s Hispanic population growth much faster than Utah, Arizona & California

- **Forecast for Hispanic Growth (2016-2050)**
  - Continue to maintain rapid growth in Nevada
  - Second fastest in the region: Utah reducing gap with Nevada

- **Growth of Hispanic among 4 Sub-State Regions**
  - Led by Southern Nevada, followed by Northern Nevada & Rural Nevada
  - Mining Nevada with similar growth pattern for US

- **Overall Population Growth in Nevada & in Southern Nevada**
  - Led by skyrocketing growth of population
    - Brownier Nevada
Employment Growth in Nevada (1990-2050)

- USA: 756,000 in 1990
- California: 1.65 million in 2007
- Arizona: 1.68 million in 2016
- Nevada: 2.39 million in 2036
- Nevada: 2.90 million in 2050
Total Employment Growth in Nevada

• Employment Growth Trend Prior to Great Recession (1990-2007)
  — Nevada’s growth is the fastest: 218.8%
  — Higher than close neighbors: Arizona (184.5%) & Utah (178.3%)
  — Much faster than US Avg. (127.3%) & California (122.6%)

• Huge Job Losses in Nevada during Great Recession (2007-2010)
  — 10.2% of losses over 3-year period in Nevada, followed by 8.2% in Arizona
  — Much worse than US avg. (3.8%), Utah (3.7%) & California (5.9%)

• After Recession, Job Recovery & Further Growth in Nevada (2010-2050)
  — But, at much slower annual growth rates

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<tbody>
<tr>
<td>USA</td>
<td>1.77%</td>
<td>-1.27%</td>
<td>1.81%</td>
<td>1.38%</td>
<td>1.05%</td>
</tr>
<tr>
<td>California</td>
<td>1.47%</td>
<td>-1.96%</td>
<td>2.51%</td>
<td>1.49%</td>
<td>1.15%</td>
</tr>
<tr>
<td>Arizona</td>
<td>4.97%</td>
<td>-2.73%</td>
<td>2.09%</td>
<td>2.03%</td>
<td>1.62%</td>
</tr>
<tr>
<td>Utah</td>
<td>4.61%</td>
<td>-1.23%</td>
<td>2.54%</td>
<td>1.80%</td>
<td>1.43%</td>
</tr>
<tr>
<td>Nevada</td>
<td>6.99%</td>
<td>-3.41%</td>
<td>2.25%</td>
<td>1.99%</td>
<td>1.54%</td>
</tr>
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Employment Growth of Sub-State Regions in Nevada (1990-2050)

- USA
- Nevada
- Southern NV
- Northern NV
- Mining NV
- Rural NV

- 452,000 in 1990
- 1.17 million in 2007
- 1.22 million in 2016
- 1.77 million in 2036
- 2.18 million in 2050
Total Employment Growth among Sub-State Regions

- **Employment Growth Trend Prior to Great Recession (1990-2007)**
  - Fastest Southern Nevada’s growth (259.4%) leading statewide growth
  - Much Higher than Rural NV (169.8%) & Northern NV (164.0%)
  - Mining NV (128.2%) suffered from sluggish job growth

- **Huge Job Losses in Nevada Metros during Great Recession (2007-2010)**
  - 14.0% of losses over 3-year period Northern NV & Southern NV (9.8%)
  - Job losses in non-Metro are less severe: Mining NV (4.5%) & Rural NV (5.9%)

- **After Recession, Job Recovery & Further Growth in Nevada (2010-2050)**
  - But, at much slower annual growth rates

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<td>1.05%</td>
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<td>-3.41%</td>
<td>2.25%</td>
<td>1.99%</td>
<td>1.54%</td>
</tr>
<tr>
<td>Southern NV</td>
<td>9.38%</td>
<td>-3.27%</td>
<td>2.54%</td>
<td>2.14%</td>
<td>1.66%</td>
</tr>
<tr>
<td>Northern NV</td>
<td>3.76%</td>
<td>-4.68%</td>
<td>1.71%</td>
<td>1.60%</td>
<td>1.15%</td>
</tr>
<tr>
<td>Mining NV</td>
<td>1.66%</td>
<td>-1.52%</td>
<td>1.71%</td>
<td>1.80%</td>
<td>1.48%</td>
</tr>
<tr>
<td>Rural NV</td>
<td>4.10%</td>
<td>-1.98%</td>
<td>0.71%</td>
<td>1.49%</td>
<td>1.17%</td>
</tr>
</tbody>
</table>
Specialized Industries in Nevada

• Southern Nevada Region
  — Leisure & Hospitality:
    • Las Vegas-Henderson-Paradise Metropolitan Statistical Area (Clark County)
  — Construction:
    • ‘Leisure & Hospitality’ & ‘Construction’ industries
  — Approximately 73% of total population & jobs in Nevada (2015)

• Northern Nevada Region
  — Trade, Transportation & Utilities:
    • Reno-Sparks MSA & Carson City MSA
  — Government:
  — Leisure & Hospitality:
  — Construction:
Real Estate Market Demand Analysis

• Las Vegas Metro in Southwest Mega Region
  — Fastest growing mega region in the US
  — Three Metros in Southwest

• Private Land Ownership in Southwest (2010)

<table>
<thead>
<tr>
<th>Megapolitan Area</th>
<th>Total Area (SQ Miles)</th>
<th>Estimate of Privately-Owned, Accessible (SQ Miles)</th>
<th>Share of Privately-Owned, Accessible Land (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern California</td>
<td>49,051</td>
<td>25,330</td>
<td>51.6%</td>
</tr>
<tr>
<td>Las Vegas</td>
<td>41,798</td>
<td>6,847</td>
<td>16.4%</td>
</tr>
<tr>
<td>Sun Corridor</td>
<td>31,885</td>
<td>8,187</td>
<td>25.7%</td>
</tr>
<tr>
<td>Total</td>
<td>122,733</td>
<td>40,365</td>
<td>32.9%</td>
</tr>
</tbody>
</table>

(Source: US Dept. of Interior)

— Only 16.4% of accessible land in Las Vegas Metro owned by private
  • 51.6% for Southern California
  • 25.7% for Sun Corridor (Phoenix & Tucson Metros)
Real Estate Market Demand Analysis

• Southwest Mega Region Housing Development Summary (2010-2026)

<table>
<thead>
<tr>
<th>Megapolitan Area</th>
<th>Units Supported 2010</th>
<th>Growth-Related Units, 2010-26</th>
<th>Units Replaced 2010-26</th>
<th>Total Units Built 2010-26</th>
<th>Percent of Units 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern California</td>
<td>8,043</td>
<td>1,570</td>
<td>669</td>
<td>2,239</td>
<td>27.8%</td>
</tr>
<tr>
<td>Las Vegas</td>
<td>1,000</td>
<td>412</td>
<td>152</td>
<td>564</td>
<td>56.4%</td>
</tr>
<tr>
<td>Sun Corridor</td>
<td>2,377</td>
<td>731</td>
<td>307</td>
<td>1,037</td>
<td>43.6%</td>
</tr>
<tr>
<td>Total</td>
<td>11,420</td>
<td>2,713</td>
<td>1,127</td>
<td>3,840</td>
<td>33.6%</td>
</tr>
</tbody>
</table>

(source: Nelson & Lang, 2011)

— Rapidly growing housing demands from 2010 to 2026 in Las Vegas

• Southwest Mega Region Space-Occupying Job Growth (2016-2026)

<table>
<thead>
<tr>
<th>Megapolitan Area</th>
<th>2016</th>
<th>2021 (est.)</th>
<th>2026 (est.)</th>
<th>Change 2016-21</th>
<th>Change 2016-26</th>
<th>Percent Change 2016-21</th>
<th>Percent Change 2016-26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Cal.</td>
<td>12,731</td>
<td>13,760</td>
<td>14,805</td>
<td>1,029</td>
<td>2,074</td>
<td>8.1%</td>
<td>16.3%</td>
</tr>
<tr>
<td>Las Vegas</td>
<td>1,303</td>
<td>1,445</td>
<td>1,595</td>
<td>142</td>
<td>292</td>
<td>10.9%</td>
<td>22.4%</td>
</tr>
<tr>
<td>Sun Corridor</td>
<td>2,957</td>
<td>3,265</td>
<td>3,588</td>
<td>309</td>
<td>631</td>
<td>10.4%</td>
<td>21.3%</td>
</tr>
<tr>
<td>Total</td>
<td>16,991</td>
<td>18,471</td>
<td>19,988</td>
<td>1,480</td>
<td>2,997</td>
<td>8.7%</td>
<td>17.6%</td>
</tr>
</tbody>
</table>

Las Vegas MSA*        | 1,152 | 1,276       | 1,406       | 124            | 254            | 10.8%                  | 22.1%                  |

*Las Vegas MSA is a single county area (Clark Co.) that consists the core part of Las Vegas Megapolitan Area.

— Space-occupying job growth for next 10-year period: 22.1% for Southern Nevada
Major Nonresidential Development Trend

- If Las Vegas MSA has same vacancy rate as Southwest Region (2016-2026)

<table>
<thead>
<tr>
<th>Type of Use</th>
<th>2016</th>
<th>2021 (est.)</th>
<th>2026 (est.)</th>
<th>5-Year Growth (2016-21)</th>
<th>5-Year Growth (2021-26)</th>
<th>10-Year Growth (2016-26)</th>
<th>5-Year % Growth (2016-21)</th>
<th>5-Year % Growth (2021-26)</th>
<th>10-Year % Growth (2016-26)</th>
<th>Vacancy Rate (2016)</th>
<th>Vacancy Rate (2021 &amp; 2026)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>119,988</td>
<td>128,584</td>
<td>133,474</td>
<td>8,596</td>
<td>4,890</td>
<td>13,486</td>
<td>7.2%</td>
<td>3.8%</td>
<td>11.2%</td>
<td>6.7%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Office</td>
<td>43,873</td>
<td>48,376</td>
<td>53,531</td>
<td>4,504</td>
<td>5,155</td>
<td>9,658</td>
<td>10.3%</td>
<td>10.7%</td>
<td>22.0%</td>
<td>18.4%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Retail</td>
<td>59,723</td>
<td>65,388</td>
<td>72,044</td>
<td>5,665</td>
<td>6,656</td>
<td>12,321</td>
<td>9.5%</td>
<td>10.2%</td>
<td>20.6%</td>
<td>10.6%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Medical</td>
<td>7,199</td>
<td>8,144</td>
<td>9,201</td>
<td>945</td>
<td>1,057</td>
<td>2,002</td>
<td>13.1%</td>
<td>13.0%</td>
<td>27.8%</td>
<td>17.3%</td>
<td>17.3%</td>
</tr>
<tr>
<td>Total*</td>
<td>230,783</td>
<td>250,493</td>
<td>268,250</td>
<td>19,710</td>
<td>17,757</td>
<td>37,467</td>
<td>8.5%</td>
<td>7.1%</td>
<td>16.2%</td>
<td>10.2%</td>
<td>10.4%</td>
</tr>
</tbody>
</table>

* Total does not include hotel space. (source: CBRE Market View Report, 2015 and 2016)

- 16.2% of growth in space demand
- Medical, Office and Retail with over 20% growth from 2016 to 2026

- If Las Vegas MSA holds constant vacancy rate of 2015 (2016-2026)

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<th>10-Year Growth (2016-26)</th>
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<th>5-Year % Growth (2021-26)</th>
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<td>119,988</td>
<td>127,036</td>
<td>131,867</td>
<td>7,048</td>
<td>4,831</td>
<td>11,879</td>
<td>5.9%</td>
<td>3.8%</td>
<td>9.9%</td>
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<td>5,191</td>
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- 15.7% of growth in space demand
Spatial Analysis for Socioeconomic Trend

• Mapping Spatial Distribution of Socioeconomic Variables
  — Scale of Analysis
    ▪ Spatial scale: Urbanized Areas within Clark County at Census Tract Level
  — Data Source:
    ▪ American Community Survey of U.S. Census
    ▪ UNLV Center for Business & Economic Research
  — Variables
    ▪ Household Size
    ▪ Age & Race
    ▪ Education Attainment
    ▪ Income Distribution
    ▪ Commuting Pattern
Spatial Distribution of Median Age

• Concentration of Younger Cohorts
  — Younger population concentrated in northeastern part of CC, mainly Sunrise and North Las Vegas
  — Older mainly in Boulder City, Henderson and Summerlin
Spatial Distribution of Elderly Population

• Concentration of Older Cohorts

Share of Population > 62 Yrs Old (2012)
Spatial Distribution of Race

• Concentration of Hispanic Population
  – African American: from 9.2% to 10.5% (2000, 2012)
  – Hispanic: 22.2% to 29.5% (2000, 2012)
Spatial Distribution of Race

- Concentration of African American Population

Share of Black Population (2012)
Spatial Distribution of Education Attainment

• Concentration of Education Attainment
  — Northeast: Low attainment ➔ 1 in 3 did not complete high school
  — Anthem, Green Valley, & Summerlin: high attainment
    ➔ 1 in 3 has at least BA college college
Spatial Distribution of Unemployment

- High in Northeast, City of North Las Vegas & Downtown
Spatial Distribution of Poverty

- High in Northeast, City of North Las Vegas & Downtown
Spatial Distribution of Poverty

- Population with no Health Insurance
Summary of Analysis (1)

• **Population Growth in Nevada Continues**
  - At a much slower pattern in Nevada than 1990s and 2000s
  - Southern Nevada continues to lead the growth for the next two decades
  - After 2040, population growth will stabilize

• **Demographic Shift in Nevada**
  - National trend on ‘Grayer’ and ‘Brownier’
  - More noticeable in Nevada, mainly led by Southern Nevada

• **Four Sub-State Regions’s Population Growth**
  - Diversified in terms of industrial structures
  - Southern Nevada leads growth, but all regions show faster growth than US

• **Employment Growth**
  - Similar pattern with population growth
  - Mining Nevada will have faster job growth than all other sub-state regions
Summary of Analysis (2)

• Real Estate Market in Southern Nevada
  — Shortage of space supply facing
    ▪ Increasing housing demand
    ▪ Fast growth of space-occupying industries
  — Approximately, 16% of growth in demand estimated
    ▪ Medical, Office and Retail spaces
    ▪ Additional space needed with growing manufacturing in two metros

• Spatial Analysis of Socioeconomic Trend
  — Spatio-temporal analysis to describe change in spatial distribution
  — Demographic and economic variables
  — Census Tract level analysis clearly indicate hotspots within a metro
  — Policy implications can be developed and discussed
Question and Discussion

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