AN ANALYSIS OF OPTIONS FOR GAINING THE BENEFITS OF GROWTH WITHOUT TRAFFIC, TAX & WILDFIRE IMPACTS

Prepared at the Request of WASHOE-RENO SMART GROWTH ALLIANCE

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SUMMARY
This analysis was initially commissioned by residents of the Silver Knolls area of Washoe County. The 2,000 plus area residents were deeply concerned about the proposed Silver Hills project and two previously, but unbuilt, Red Rock Road corridor projects – Evans Ranch and Silver Star Ranch. The three project sites are shown in the map to the right.

Area residents were not opposed to Silver Hills and the other projects provided that their quality of life would not be jeopardized. In fact, Silver Hills had previously been approved for 680 housing units after a long process of collaboration between the developer and community.

The community became deeply concerned when the development company, Lifestyle Homes, proposed increasing the number of housing units by nearly three-fold to 1,872. We engaged Community & Environmental Defense Services (CEDS) to help us resolve our concerns. We selected CEDS because of their reputation for finding win-win solutions to development-related issues and our hope that the developer would again engage in a cooperative process.

The community sent a letter drafted by CEDS to the developer on May 20, 2019 requesting an opportunity to meet. This letter will be found at the end of this analysis in Attached A. On June 6th, CEDS president Richard Klein spoke with attorney Garrett Gordon who is representing Lifestyle Homes.

Though the discussion seemed productive, neither Mr. Gordon or his client had followed up on a promised to set a time to meet. Because of this we asked CEDS to prepare this analysis of options for gaining the benefits of growth like Silver Hills and the other Red Rock corridor projects with causing an undue impact to our quality of life.

Our clients asked CEDS to focus on three primary concerns: Red Rock Road traffic, impacts of growth on taxes, and wildfire. The reasons for focusing on these three issues is provided in the following summaries. Unfortunately, it appears that our portion of the Red Rock Road corridor is fundamentally unsuited to the 9,000 plus housing units, the 27,000 additional residents, and 80,000 additional vehicle trips resulting from Silver Hills and the other two projects. The summaries contain recommendations for resolving all three concerns. The first action requires denying the rezoning needed to triple the number of Silver Hills housing units.
TRAFFIC
The 2,000 current residents of the Silver Knolls portion of the Red Rock Road corridor are deeply concerned about Silver Hills plus two other proposed development projects – Evans Ranch and Silver Star. Among their concerns is that the 80,000 vehicles trips/day generated by the three projects will cause severe congestion on Red Rock Road even if it is widened to four lanes. Red Rock Road corridor residents will experience considerable delay. It is also likely that the health and safety of these residents will be placed in jeopardy by air pollution. And as documented in the wildfire portion of this report, Red Rock Road is the primary means for residents to escape this and other potential disasters. In other words, allowing all three projects to be built could make evacuation near impossible even after Red Rock Road is widened to four lanes. The Washoe Board of County Commissioners should deny Silver Hills rezoning and require that traffic studies account for impact of not just a specific project but all other approved but unbuilt projects that would add traffic to the same roads. The North Valleys Multimodal Transportation Study must be revised to address the traffic from all projects proposed for the Red Rock Road corridor.

HIGHER TAXES
In general, the further development is from population centers, like Reno, the greater the cost to provide public services like roads, water, sewer, schools, libraries, police, fire and ambulance. Development outside existing population centers like Reno is termed Sprawl or Greenfield growth. The cost to taxpayers to provide public services is much higher for Sprawl. Silver Hills and two other approved, but unbuilt Red Rock Road corridor projects (Evans Ranch and Silver Star) are Sprawl projects necessitating very expensive public service improvements which will be borne in part by all Washoe County taxpayers. To minimize sprawl induced tax increases, the Washoe Board of County Commissioners should adopt policies that guide growth to infill/Smart growth areas. This shift in policy should begin with upholding the Planning Commission to deny the rezoning needed to develop Silver Hills with 1,872 housing units.

WILDFIRE
The number of Nevada wildfires has increased several fold since 2001 and are predicted to increase substantially in the future. While Washoe County building codes do reduce the potential for loss of property and lives, recent research has shown that these measures alone are insufficient to protect homes placed in areas with a high risk of wildfire, like the Red Rock Road corridor. Researchers believe the best way to protect public safety and property is by guiding growth to Infill/Smart Growth areas with a low- to moderate-wildfire risk and ample evacuation routes. The Washoe County Commissioners should follow the lead of other U.S. jurisdictions and adopt policies discouraging residential growth in areas with a high wildfire risk. The Commissioners should begin by upholding the Washoe Planning Commission decision to deny the rezoning needed to build 1,872 new homes on the Silver Hills site, which is in a wildfire high-risk area and served with a single evacuation route – Red Rock Road - likely to become severely congested even during non-emergency times.
**SILVER HILLS, OTHER SPRAWL PROJECTS & TRAFFIC**

**SUMMARY: SPRAWL PROJECTS & TRAFFIC**

The 2,000 current residents of the Silver Knolls portion of the Red Rock Road corridor are deeply concerned about Silver Hills plus two other proposed development projects – Evans Ranch and Silver Star. Among their concerns is that the 80,000 vehicles trips/day generated by the three projects will cause severe congestion on Red Rock Road even if it is widened to four lanes. Red Rock Road corridor residents will experience considerable delay. It is also likely that the health and safety of these residents will be placed in jeopardy by air pollution. And as documented in the wildfire portion of this report, Red Rock Road is the primary means for residents to escape this and other potential disasters. In other words, allowing all three projects to be built could make evacuation near impossible even after Red Rock Road is widened to four lanes. The Washoe Board of County Commissioners should deny Silver Hills rezoning and require that traffic studies account for impact of not just a specific project but all other approved but unbuilt projects that would add traffic to the same roads. The North Valleys Multimodal Transportation Study must be revised to address the traffic from all projects proposed for the Red Rock Road corridor.

**RED ROCK ROAD**

As shown below, Red Rock Road is presently two lanes in the Silver Knolls vicinity. As also shown below, the only access to numerous homes is directly off Red Rock Road. These homeowners already experience difficulty turning onto Red Rock Road from their driveways. Note also that the distance between homes on the east and west side of Red Rock Road is limited.

According to the Regional Transportation Commission of Washoe County Travel Demand Model Red Rock Road\(^1\) serves as the primary access for 736 homes located north of Silver Lake. The Travel Demand Model indicates that this portion of Red Rock Road may already be operating at a congestion Level of Service (LOS) of "C" to "D". The *North Valleys Multimodal Transportation Study* calls for an LOS of "D" or better on Red Rock Road.\(^2\)

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\(^{1}\) See: [https://rtcwashoe.maps.arcgis.com/apps/webappviewer/index.html?id=2e4d916f21494c50b682db01e909cbf3](https://rtcwashoe.maps.arcgis.com/apps/webappviewer/index.html?id=2e4d916f21494c50b682db01e909cbf3)

As congestion increases on Red Rock Road the nearly 2,000 residents north of Silver Lake may become increasingly isolated from fire, ambulance and other emergency services. Increasing congestion also places these 2,000 souls at greater risk when wild fire and other crises necessitate evacuation. And then there's the daily frustration of having to spend ever greater periods stuck in traffic.

**RED ROCK ROAD AS A FOUR-LANE ROAD**

Table A, in the *North Valleys Multimodal Transportation Study*, calls for widening Red Rock Road to four lanes. The aerial photo to the right is from the Washoe Regional Mapping System. The aerial shows a portion of Red Rock Road north of Silver Lake. Note that the distance between the property lines east and west of Red Rock Road is a mere 80-feet.

It is unclear to Silver Knolls residents and other area homeowners how a four-lane highway would physically fit in a right-of-way this narrow. Their questions include:

- Will adding two lanes require destroying homes?
- Would it become impossible to turn onto Red Rock Road from driveways?

Furthermore, as explained in the next section of this letter, six or more lanes may be needed to accommodate Silver Hills and other anticipated growth in the Red Rock Road corridor.

**RED ROCK ROAD TRAFFIC VOLUME & CONGESTION**

The table on the next page presents a preliminary analysis prepared by CEDS. The analysis compares the potential impact of Silver Hills and other anticipated growth on Red Rock Road traffic volume and congestion. The Level of Service estimate in the CEDS table is based on criteria presented in Table 2-4, to the right, which appears on page 2-11, of the North Valleys Multimodal Transportation Study.

Red Rock Road is classified as an Arterial-Moderate Access Control. The RTC Traffic Demand Model indicates that 2020 daily traffic volume on Red Rock Road north of Silver Lake will be 7,342. According to Table 2-4 the two-lane, arterial-moderate access control Red Rock Road is operating at Level of Service "C".

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3 See: https://gis.washoecounty.us/wrms
# CEDS Preliminary Analysis of Red Rock Road at Osage Road Congestion & Future Traffic Volume

<table>
<thead>
<tr>
<th>SCENARIO</th>
<th>LAND USE</th>
<th>UNITS</th>
<th>DAILY TRIPS/UNIT</th>
<th>TRAFFIC VOLUME</th>
<th>LEVEL OF SERVICE WITH 4-LANES</th>
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<td>Townhomes</td>
<td>x</td>
<td>5.49</td>
<td>2,471</td>
<td>90,210</td>
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</table>

1. The year 2020 estimate was obtained from the Traffic Demand Model developed by the Regional Transportation Commission of Washoe County, Nevada at [https://zetawashoe.maps.arcgis.com/apps/webappviewer/index.html?id=2e4d16f2149e55c86882f01e905cbf3](https://zetawashoe.maps.arcgis.com/apps/webappviewer/index.html?id=2e4d16f2149e55c86882f01e905cbf3).
3. Silver Knolls area residents believe it may be possible to build as many as 780 homes on the Silver Hills without excessively harming their quality of life.
5. On page 21, of the Silver Hills Fiscal Impact Analysis, it is stated that Silver Star Ranch is proposed as 1600 single-family detached homes. The fiscal analysis appears in the Silver Hills Master Plan Amendment & Specific Plan document, dated 5-15-2019.
7. Trips per unit were obtained from Trip Generation, 10th Edition, by the Institute of Transportation Engineers (ITE) at: [https://www.ite.org/technical-resources/topics/trip-and-parking-generation/trip-generation-10th-edition-formats/](https://www.ite.org/technical-resources/topics/trip-and-parking-generation/trip-generation-10th-edition-formats/).
8. According to the North Valleys Multimodal Transportation Study (in link below), dated February 20, 2017, Red Rock Road is classified as a Medium Access Control Arterial (page 2-1), slated to be widened to 4 lanes (page 3), and would drop to a Level of Service "D" at greater than 32,000 trips per day, LOS "E" at greater than 35,200 trips/day, and LOS "F" at greater than 36,000 trips/day (page 2-11). At a Level of Service "D", no rush hour traffic moves at about half the average speed of non-rush hour traffic and cut-through traffic on adjoining neighborhood streets begins to rise. The existing two-lane road would drop from Level of Service "C" to "D" at 6,000 trips/day (page 2-11). [https://www.washoe.com/mnum-comprehensive-plan/north-valleys-regional-transportation-study/](https://www.washoe.com/mnum-comprehensive-plan/north-valleys-regional-transportation-study/).
The preliminary analysis indicates that while traffic from Silver Hills alone would maintain a Level of Service of “C” on a four-lane Red Rock Road, the applicant's Traffic Analysis failed to consider the impact of other development proposed for this corridor.

Figure 2, to the left, appears on page 20, of the Silver Hills Fiscal Impact Analysis, which is part of the Silver Hills Master Plan Amendment & Specific Plan document.⁴

Figure 2, shows three residential projects in the Red Rock Road corridor north of Silver Lake:

- #7 Silver Hills 1,872 housing units,
- #2 Silver Star Ranch 1,600 housing units, and
- #1 Evans Ranch 5,679 housing units.

Note that both Silver Star Ranch and the Evans Ranch are located north of the Silver Hills site. The CEDS table on the preceding page shows that in addition to the 17,297 daily trips from Silver Hills, these other two proposals would add another 14,784 and 50,787 daily trips respectively. All three projects would raise Red Rock Road traffic volume to 90,210 trips per day.

The impact of these other Red Rock Road corridor projects does not appear to be addressed in the applicant's Traffic Analysis. According to North Valleys Multimodal Transportation Study Table 2-4, Red Rock Road would need to become a six-lane Freeway to maintain the standard of an LOS of “D” or better with a daily traffic volume of 90,210.

**HEALTH, NOISE & PROPERTY VALUE IMPACTS**

The Union of Concerned Scientists Vehicles, Air Pollution, and Human Health webpage⁵ notes:

“Nearly half of all Americans—an estimated 150 million—live in areas that don’t meet federal air quality standards. Passenger vehicles and heavy-duty trucks are a major source of this pollution, which includes ozone, particulate matter, and other smog-forming emissions. The health risks of air pollution are extremely serious. Poor air quality increases respiratory ailments like asthma and bronchitis, heightens the

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risk of life-threatening conditions like cancer, and burdens our health care system with substantial medical costs. Particulate matter is singlehandedly responsible for up to 30,000 premature deaths each year.”

Table 1-1, on page 4, of the *California Air Quality and Land Use Handbook: A Community Health Perspective* recommends that homes should be a minimum of 500 feet from rural roads carrying more than 50,000 vehicles per day (vpd). Following is an excerpt from the Handbook providing the basis for this recommendation:

"The combination of the children’s health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation."

The CEDS table on page 4 of this letter shows that Silver Hills alone would raise Red Rock Road traffic volume much closer to the 50,000 vpd threshold. Silver Hills plus Silver Star Ranch and Evans Ranch would raise traffic volume to 90,210 trips/day, well beyond 50,000 vpd threshold. The children residing in numerous homes would be within 500 feet and therefore exposed to the unhealthy emissions of Red Rock Road traffic.

The illustration to the right shows that as traffic volume increases so does road noise. With Silver Hills alone, Red Rock Road traffic volume would triple and then the Evans and Silver Star Ranch projects would cause a 12-fold increase. Highway noise can adversely affect the health of those residing in area homes as well as the value of their property.  

**SUMMARY OF SILVER HILLS TRAFFIC RELATED CONCERNS**

Following is a summary of the preceding concerns which are shared by many of the 2,000 Washoe County residents potentially impacted by Silver Hills, Silver Star Ranch and the Evans Ranch traffic impacts:

1. Red Rock Road congestion has already reached the point where area residents experience considerable delay,
2. Even with a four-lane Red Rock Road, the traffic generated by Silver Hills plus Silver Star Ranch and Evans Ranch will cause congestion to reach the most severe Level of Service rating of "F" or grid lock,
3. This severe congestion will jeopardize public safety by delaying emergency service vehicles and impeding evacuations should disasters such as wildfire make this necessary,
4. Silver Hills alone will push traffic volume halfway to the 50,000-vehicle per day threshold where the health of children residing within 500 feet of Red Rock Road will be threatened. If the Silver Star Ranch and Evans Ranch projects are built then traffic volume could exceed 90,000 vehicles per day,
5. Red Rock Road would need to be converted to a six-lane freeway to accommodate the traffic from Silver Hills, Silver Star Ranch and the Evans Ranch.

6. Numerous homes front onto Red Rock Road. The Washoe County residents living in these homes presently have difficulty exiting their driveway at rush-hour. By tripling Red Rock Road traffic volume, Silver Hills will make entering traffic flow from these homes more difficult and dangerous. When combined with Silver Star Ranch and the Evans Ranch traffic, turns may become impossible during rush-hour.

7. It is unclear how Red Rock Road could be widened to four-lanes without necessitating the demolition of homes or, at the very least, subjecting nearby residents to excessive traffic noise, vibration, air pollution, adverse health effects, and loss of property value.

The applicant's July 2018 Silver Hills Traffic Analysis and the May 2029 Supplemental Traffic Letter failed to address the concerns listed above.

The Washoe Board of County Commissioners should require that traffic studies account for impact of not just a specific project but all other approved but unbuilt projects that would add traffic to the same roads. The North Valleys Multimodal Transportation Study must be revised to address the traffic from all projects proposed for the Red Rock Road corridor.
SILVER HILLS, OTHER SPRAWL PROJECTS & HIGHER TAXES

SUMMARY: SPRAWL PROJECTS & HIGHER TAXES
In general, the further development is from population centers, like Reno, the greater the cost to provide public services like roads, water, sewer, schools, libraries, police, fire and ambulance. Development outside existing population centers like Reno is termed Sprawl or Greenfield growth. The cost to taxpayers to provide public services is much higher for Sprawl. Silver Hills and two other approved, but unbuilt Red Rock Road corridor projects (Evans Ranch and Silver Star) are Sprawl projects necessitating very expensive public service improvements which will be borne in part by all Washoe County taxpayers. To minimize sprawl induced tax increases, the Washoe Board of County Commissioners should adopt policies that guide growth to infill/Smart growth areas. This shift in policy should begin with upholding the Planning Commission to deny the rezoning needed to develop Silver Hills with 1,872 housing units.

APPROVED SPRAWL GROWTH IN THE WASHOE-RENO AREA
The green and blue areas in the map to the right are development projects which are approved and either unbuilt or partially so. Three projects in the northwest corner will be used to illustrate the fiscal impacts of sprawl: Evans Ranch, Silver Hills, and Silver Star Ranch. Note that all three projects are a considerable distance from Reno and in mostly vacant, undeveloped areas far from retail and transit services. These three projects would create more than 9,000 units housing 21,000 people and adding 80,000 vehicle trips/day to area roads.

REIMAGINE RENO COSTS OF GROWTH ANALYSIS
As part of the Reimagine Reno master plan process, an analysis was conducted of the relative costs of infill (Smart) vs. greenfield (Sprawl) growth. The results were presented in a memo headed Fiscal Impact Findings and Analysis Methodology. These two growth patterns were distinguished as follows in the memo:

Infill (Smart Growth)

“Infill can generally be defined as development or redevelopment of vacant, abandoned, or underutilized sites located within an existing and/or developed municipal context. A primary

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8 The Reimagine Reno master plan is available online at: https://www.reimaginereno.us/
9 This report appears as Appendix A, in the Reimagine Reno Community Profile Report posted at: http://www.reno.gov/Home/ShowDocument?id=56924
characteristic of such a site is the presence of water, sewer, communications, or road, etc. infrastructure internal to the site that are relatively (though not always or completely) sufficient to meet the needs of the proposed development. Other characteristics may be more contextual, such as proximity to other residential areas, services, civic amenities and attractions, and employment centers.”

**Greenfield (Sprawl Growth)**

“Greenfield development, by contrast, is characteristically the development of open land or existing agricultural land on the urban periphery that does not contain water, sewer, communications, or road infrastructure internal to the site. As well, regional infrastructure is relatively insufficient to meet the demands of the proposed development. Under these conditions, utility connections, such as mainline water and sewer lines need to be extended into the site, roads and rights-of-way need to be provided, and other infrastructure needs to be developed.”

All three Red Rock Road Corridor projects meet the Greenfield (Sprawl) definition. Red Rock Road must be widened from the existing two lanes to at least four as described in the traffic congestion section of this document. The widening of Red Rock Road is estimated to cost of $40.7 million.\(^{10}\) The impact fees paid by the developers of the three Red Rock corridor greenfield projects – Evans Ranch, Silver Hills and Silver Star – will cover about half the cost of the widening.\(^{11}\)

Following are the major findings presented in the *Reimage Reno Fiscal Impact Findings and Analysis Methodology* memo:

- “Water and sewer costs associated with greenfield development are 20 to 50 percent higher than water and sewer costs associated with infill development,
- Road costs associated with infill come with a cost savings ranging from 12 to 25 percent lower than greenfield development, whereas other sources put the magnitude of difference between costs in multiples of 3 to 5,
- With regard to fire service, the North (Red Rock Corridor) and West subareas have 25 to 30 percent higher costs per person served than the citywide average, and therefore generate greater negative fiscal impacts than other subareas. This is due to the spread out and sparsely populated nature of portions of these subareas, which means less calls for service are generated but stations still need to be fully staffed. The roadway network in these areas also has a large impact on costs. The more disconnected and circuitous the roadway network the

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\(^{10}\) See Table A, in the North Valleys Multimodal Transportation Study available online at: [https://www.rtcwashoe.com/tnv/corridor-plan/north-valleys-regional-transportation-study/](https://www.rtcwashoe.com/tnv/corridor-plan/north-valleys-regional-transportation-study/)

\(^{11}\) According to the table headed RRIF Capital Improvement Costs on pdf page 8 of the March 28, 2019 Regional Road Impact Fee Technical Advisory Committee agenda document, the Total RTP (Regional Transportation Plan) 2017-2026 Capital Improvement Costs is $2,063,650,000. Of these costs the table indicates that $970,250,000 or 47% is Regional Road Impact Fee (RRIF) eligible. It is assumed this means the other 53% of Capital Improvement Costs are covered by other revenue sources. The March 28th document is posted at: [https://www.rtcwashoe.com/meetings/regional-road-impact-fee-technical-advisory-committee-3-2/](https://www.rtcwashoe.com/meetings/regional-road-impact-fee-technical-advisory-committee-3-2/)
smaller the response district a fire station can have in order to maintain desired response
times.

These findings indicate that greenfield growth, like Silver Hills and the other two Red Rock corridor
projects, cost substantially more than infill development for roads and water-sewer.

While increased population may reduce per person fire service costs, the benefit would be greater if
the population increase occurred in Infill/Smart Growth areas. Furthermore, in *Evidence for the effect
of homes on wildfire suppression costs*, researchers noted that building more homes in areas prone to
wildfire can increase fire suppression costs.\(^\text{12}\)

**COSTS OF SPRAWL VS. SMART GROWTH NATIONWIDE**

An extensive review of studies of the fiscal impacts of sprawl (greenfield) vs. smart (infill) growth
was provided in *Analysis of Public Policies That Unintentionally Encourage and Subsidize Urban Sprawl* by the
Global Commission on the Economy and Climate.\(^\text{13}\) Sprawl and smart growth was defined as:

*Sprawl* refers to dispersed, segregated (single-use), automobile-oriented, urban-fringe development. The
alternative, called *smart growth* in this report, involves more compact, mixed, multi-modal [bus, transit,
walking-biking, and cars] development.\(^\text{14}\)

The definition of Smart Growth is essentially the same as that for Infill given in the *Fiscal Impact
Findings and Analysis Methodology* memo. The definition would need to be expanded with greater
access to bus and other transit services as well as sidewalks, bike lanes and other facilities which
reduce the need to use a car to get around.

The Global Commission on the Economy and Climate\(^\text{15}\) distinguished between smart growth and
five categories of a Sprawl Index. The Index ranged from 1, the least costly and sprawling to 5, the
most sprawling and costly. The Sprawl Index was based on four factors: density (people and jobs
per square mile), mix (combination of homes, jobs and services), roadway connectivity, (density of
road network connections) and centricty (the portion of jobs in major centers). The Sprawl Index
was computed for 221 U.S. metropolitan areas and 994 counties. The costs of smart vs. sprawl
growth was assessed for these 1,216 U.S. areas. The results of the assessment is summarized in
Table 11 which appears on the next page.

Table 11 expresses costs in terms of dollars taxpayers must spend to accommodate sprawl, vehicle
operation costs, vehicle caused injuries, public health benefits from walking-cycling, and climate-
changing greenhouse gas emissions.

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\(^{13}\) This report is available online at: [https://newclimateeconomy.report/workingpapers/workingpaper/analysis-of-public-policies-that-unintentionally-encourage-and-subsidize-urban-sprawl-2/](https://newclimateeconomy.report/workingpapers/workingpaper/analysis-of-public-policies-that-unintentionally-encourage-and-subsidize-urban-sprawl-2/)


Note that all costs in Table 11 are lowest with Smart (infill) Growth and highest with Sprawl (greenfield) growth. Silver Hills and the other two Red Rock Corridor projects are Sprawl (greenfield) and are probably closer to Sprawl Index 5 than 1.

**GETTING GROWTH BENEFITS WITHOUT HIGHER TAXES**

To minimize sprawl induced tax increases, the Washoe Board of County Commissioners should adopt policies that guide growth to Infill/Smart growth areas, beginning with upholding the Planning Commission decision to deny the rezoning needed to develop Silver Hills with 1,872 housing units.

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**Table 11**

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<th>Units</th>
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<td>Smarter Growth</td>
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<tr>
<td>Vehicle internal costs</td>
<td>Annual $/capita</td>
<td>17%</td>
<td>$4,603</td>
<td>$5,840</td>
<td>$6,723</td>
<td>$7,835</td>
<td>$10,144</td>
</tr>
<tr>
<td>Vehicle external costs</td>
<td>Annual $/capita</td>
<td>17%</td>
<td>$3,082</td>
<td>$3,911</td>
<td>$4,502</td>
<td>$5,246</td>
<td>$6,793</td>
</tr>
<tr>
<td>Active transport</td>
<td>Annual walk-bike km/ca.</td>
<td>20%</td>
<td>360</td>
<td>300</td>
<td>250</td>
<td>200</td>
<td>160</td>
</tr>
<tr>
<td>Active transport benefit</td>
<td>$/km walked/biked</td>
<td>28%</td>
<td>$1.00</td>
<td>-$360</td>
<td>-$300</td>
<td>-$250</td>
<td>-$200</td>
</tr>
<tr>
<td>Traffic fatalities</td>
<td>Deaths/100,000 pop.</td>
<td>28%</td>
<td>4.3</td>
<td>5.9</td>
<td>8.2</td>
<td>10.5</td>
<td>13.4</td>
</tr>
</tbody>
</table>

**Total Per Capita Costs**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal costs</td>
<td>$4,414</td>
<td>$5,739</td>
<td>$6,683</td>
<td>$7,866</td>
<td>$10,239</td>
<td></td>
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<tr>
<td>Incremental internal costs</td>
<td>$0</td>
<td>$1,316</td>
<td>$2,270</td>
<td>$3,453</td>
<td>$5,825</td>
<td></td>
</tr>
<tr>
<td>External costs</td>
<td>$4,615</td>
<td>$5,614</td>
<td>$6,394</td>
<td>$7,328</td>
<td>$9,082</td>
<td></td>
</tr>
<tr>
<td>Incremental external costs</td>
<td>$0</td>
<td>$999</td>
<td>$1,779</td>
<td>$2,713</td>
<td>$4,467</td>
<td></td>
</tr>
<tr>
<td>Total costs</td>
<td>$9,028</td>
<td>$11,343</td>
<td>$13,077</td>
<td>$15,194</td>
<td>$19,321</td>
<td></td>
</tr>
<tr>
<td>Total incremental costs</td>
<td>$0</td>
<td>$2,315</td>
<td>$4,049</td>
<td>$6,165</td>
<td>$10,293</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** (http://www.vpt.org/Sprawl_Cost.xls)

This table summarizes sprawl costs analysis. It indicates how various costs change between smart growth and sprawl. For example, governments spend, on average, about $1,482 on public services that are affected by development patterns, ranging from a low of $1,201 in Smart Growth locations and up to $1,794 in the most sprawled locations. Smart growth also increases active transport which provides health benefits, since the spreadsheet measures costs these are indicated by negative values.
SUMMARY: SPRAWL PROJECTS & WILDFIRE

The number of Nevada wildfires has increased several fold since 2001 and are predicted to increase substantially in the future. While Washoe County building codes do reduce the potential for loss of property and lives, recent research has shown that these measures alone are insufficient to protect homes placed in areas with a high risk of wildfire, like the Red Rock Road corridor. Researchers believe the best way to protect public safety and property is by guiding growth to Infill/Smart Growth areas with a low- to moderate-wildfire risk and ample evacuation routes. The Washoe County Commissioners should follow the lead of other U.S. jurisdictions and adopt policies discouraging residential growth in areas with a high wildfire risk. The Commissioners should begin by upholding the Washoe Planning Commission decision to deny the rezoning needed to build 1,872 new homes on the Silver Hills site, which is in a wildfire high-risk area and served with a single evacuation route – Red Rock Road - likely to become severely congested even during non-emergency times.

NEVADA WILDFIRES INCREASING

The following graph shows that Nevada fires have increased dramatically over the past 17 years.16

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16 This graph is from a 2019 World Resources Institute paper California Made Headlines, but 5 Other U.S. States Also Broke Wildfire Records in 2018, posted at: https://www.wri.org/blog/2019/03/california-made-headlines-5-other-us-states-also-broke-wildfire-records-2018
The Sierra Nevada Research Institute predicts:  

Over the next two decades, as many as 11 states are predicted to see the average annual area burned increase by 500 percent, according to a recent study. That would mean a small fire, say 100 acres, becomes, on average, a 600-acre fire, with Idaho, Montana, New Mexico, and Nevada expected to increase 700 percent in burn size.

In summary, wildfires have increased dramatically and could become much worse in the future.

**WASHOE COUNTY WILDFIRE HIGH RISK AREAS**

The following map shows the risk of wildfire in the Washoe-Reno region. Note that while much of the region has a relatively low fire risk, some areas are at high to very high wildfire risk. One of these areas is the Red Rock corridor where Silver Hills and two other projects – Evans Ranch and Silver Star – would add another 9,000 housing units and 21,000 people.

![Wildfire Map](image)

**SPRAWL INCREASES WILDFIRE RISK**

In the 2013 scientific paper *Land Use Planning and Wildfire: Development Policies Influence Future Probability of Housing Loss*[^18], the authors concluded:

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[^18]: This paper is available online at: [https://www.semanticscholar.org/paper/Land-Use-Planning-and-Wildfire%3A-Development-Future-Syphard-Massada/a9272cf282160cc3810f5d1972032735bb31efdb](https://www.semanticscholar.org/paper/Land-Use-Planning-and-Wildfire%3A-Development-Future-Syphard-Massada/a9272cf282160cc3810f5d1972032735bb31efdb)
Increasing numbers of homes are being destroyed by wildfire in the wildland-urban interface. With projections of climate change and housing growth potentially exacerbating the threat of wildfire to homes and property, effective fire-risk reduction alternatives are needed as part of a comprehensive fire management plan. Land use planning represents a shift in traditional thinking from trying to eliminate wildfires, or even increasing resilience to them, toward avoiding exposure to them through the informed placement of new residential structures.

For land use planning to be effective, it needs to be based on solid understanding of where and how to locate and arrange new homes. We simulated three scenarios of future residential development and projected landscape-level wildfire risk to residential structures in a rapidly urbanizing, fire-prone region in southern California. We based all future development on an econometric subdivision model, but we varied the emphasis of subdivision decision-making based on three broad and common growth types: infill, expansion, and leapfrog.

Simulation results showed that decision-making based on these growth types, when applied locally for subdivision of individual parcels, produced substantial landscape-level differences in pattern, location, and extent of development. These differences in development, in turn, affected the area and proportion of structures at risk from burning in wildfires.

Scenarios with lower housing density and larger numbers of small, isolated clusters of development, i.e., resulting from leapfrog development, were generally predicted to have the highest predicted fire risk to the largest proportion of structures in the study area, and infill development was predicted to have the lowest risk.

These results suggest that land use planning should be considered an important component to fire risk management and that consistently applied policies based on residential pattern may provide substantial benefits for future risk reduction.

The gist of this research is that: 1) an increasing number of homes are being destroyed by wildfire, 2) the loss is likely to accelerate in the future, and 3) discouraging leapfrog clusters of new homes into wildfire-prone areas is essential to preventing loss of property and lives. The leapfrog growth described in the paper is the same as the Sprawl/Greenfield growth described elsewhere in this document.

The map to the right shows that the three proposed, but unbuilt Red Rock Corridor projects are in an area with a high risk of wildfire: Evans Ranch, Silver Hills, and Silver Star. All three projects meet the definition of leapfrog or Sprawl/Greenfield growth in the context of the research cited above. In other
words, the projects reflect the type of growth which may make the 9,000 homes and 21,000 future residents excessively vulnerable to loss of life and property due to wildfire.

**COUPLING WILDLAND URBAN INTERFACE CODE WITH LAND USE PLANNING**

In 2013, Washoe County adopted the *Wildland Urban Interface Code (WUI) Guide: Building Construction Requirements.* While these requirements certainly reduce the potential for loss of life and property due to wildfire, recent research has shown that they must be coupled with curtailing the construction of new homes in areas at high risk of wildfire.

In *The role of defensible space for residential structure protection during wildfires,* researchers noted:

> The best long-term solution will involve a suite of prevention measures that include defensible space as well as building design approach, community education and **proactive land use planning that limits exposure to fire.**

> Localized subdivision decisions emphasizing infill-type development patterns may significantly reduce fire risk in the future...

In a 2018 letter to the San Diego County Board of Supervisors, Dr. Tiffany Yap, a staff scientist with the Center for Biological Diversity, wrote:

> However, simply stating that the structures are built to fire code does not guarantee that fire threat will be reduced. Proper maintenance and upkeep of the structures themselves as well as the immediate surroundings (e.g., removing leaf litter from gutters and roofing; removing flammable materials like wood fences, overhanging tree branches, or trash cans away from the home) are required to reduce the chances of the structures burning. In addition, external sprinklers with an independent water source would reduce flammability of structures, yet none of the proposed developments include this feature on their structures. And while these fire-resistant structural features are important for fire safety and homeowners should be properly informed, the focus should be on retrofitting existing homes and structures in or near high fire-prone areas with these features, **not putting these features on new homes that should not be placed in high fire-prone areas in the first place.**

**MORE PEOPLE LIVING IN HIGH RISK AREAS MEANS MORE WILDFIRES**

In the 2017 scientific paper *Human-started wildfires expand the fire niche across the United States,* the researchers documented that 84% of all wildfires are started by people. By adding 21,000 people to the three sprawl projects proposed for the Red Rock Road corridor high wildfire risk area the likelihood of wildfires increases dramatically.

**RED ROCK CORRIDOR EVACUATION ROUTES SEVERELY CONSTRAINED**

Information was presented in the Traffic Congestion & Public Health-Safety section of this document showing that the proposed widening of Red Rock Road to four lane will be insufficient to prevent severe congestion. Since Red Rock Road will be the primary evacuation route during a

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19 The WUI Guide is available online at: https://www.washoecounty.us/building/Files/Files/2012%20WUI%20CODE%20GUIDE_rev%2011-25-13.pdf

20 This paper is available at: http://www.californiachaparral.com/images/Syphard_et_al_Defensible_Space_2014.pdf

21 This paper is available online at: https://www.pnas.org/content/114/11/2946.short
wildfire or other disaster, up to 21,000 future residents plus 2,000 existing residents could be trapped.

**GUIDE NEW HOMES TO INFILL AREAS WITH LOW-MODERATE FIRE RISK**
The map on page 9 shows a number of Infill/Smart Growth areas with a low- to moderate wildfire risk and ample evacuation options. Residential growth in these areas should be encouraged and discouraged in areas with a high or extreme fire risk with poor evacuation routes. The Washoe Commissioners should consider following the lead of other western counties by adopting a policy discouraging development in high risk areas. An example would be *San Diego County General Plan* Guiding Principle 5, which reads:

> New development should be located and designed to protect life and property from these and similar hazards. In high risk areas, development should be prohibited or restricted in type and/or density. In other areas, structures, properties, infrastructure, and other improvements should be designed to mitigate potential risks from these hazards.

In the meantime, the County Commissioners should uphold the decision by the Washoe Planning Commission to deny the rezoning needed to build 1,872 new housing units on the Silver Hills site.

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22 The San Diego County General Plan is available online at: [https://www.sandiegocounty.gov/pds/generalplan.html](https://www.sandiegocounty.gov/pds/generalplan.html)
ATTACHMENT A: MAY 20, 2019 LETTER TO THE SILVER HILLS DEVELOPER REQUESTING AN OPPORTUNITY TO MEET TO DISCUSS & RESOLVE CONCERNS
May 20, 2019

Mr. Bob Lissner
Lifestyle Homes TND, LLC
4790 Caughlin Parkway, #519
Reno, Nevada  89519

RE: Silver Hills & Preserving Silver Knolls Quality of Life

Dear Mr. Lissner:

We are assisting Silver Knolls area residents with concerns regarding the Silver Hills project. It appears there are a number of options for finding equitable solutions that resolve our clients concerns while allowing extensive development of the Silver Hills site.

WE ARE OPEN TO MORE THAN 680 RESIDENTIAL UNITS

Many of our clients participated in the ten-year negotiations that resulted in the March 16, 2009 development agreement for 680 residential units on the 782-acre site. The February 14, 2019 Silver Hills Specific Plan and Suburban Character Management Area document calls for 1,654 units on the same 782-acre site. This is an increase in density of 2.4-times.

Our clients are deeply concerned that this tremendous increase in density has been proposed without the same in-depth discussions which resulted in the 2009 agreement. Frankly, though, there are aspects of the 2019 proposal which our clients find superior to the development depicted in the 2009 agreement. For example, the buffers, height limit, and housing density proposed for Silver Hills East (see map to right) is more compatible with the homes that adjoin this portion of the site, though suggestions for increasing compatibility are offered in this letter.

Finding Equitable Solutions to Gain Growth Benefits While Enhancing Quality of Life
We believe it is possible to slightly increase the number of units beyond the previously approved 680 units without causing excessive harm to our quality of life. We are open to again renewing discussions provided you temporarily withdraw your request that Washoe County consider creating a new Silver Hills Suburban Character Management Area for the Silver Hills Specific Plan area.

QUALITY OF LIFE CONCERNS
Following are the specific quality of life issues of concern to our clients. The 2019 Silver Hills Specific Plan and Suburban Character Management Area document did not fully address these concerns:

- Traffic congestion on main roads and timing of lane additions relative to growth phasing;
- Increased cut-thru traffic on neighborhood streets if main road congestion rises,
- Possibility that existing homes would be required to connect to public water-sewer and the associated costs,
- Effect of Silver Hills project on property valuation and property taxes,
- Stormwater and flood effects,
- School capacity and overcrowding,
- Over crowding of park and recreation facilities,
- Fire, ambulance, police and emergency services response times,
- Loss of views,
- Overwhelming retail services and long check-out lines,
- Increased use of mosquito control agents, then drift into nearby homes, and livestock effects,
- Increased trespass onto neighboring properties,
- Inadequacy of the road impact fees from the Silver Hills development to fund the widening of Red Rock Road (shortfall of $3.5-4.5 million) and who will end up paying for any shortfall,
- Increased fire risk due to the high density of proposed new homes contributing to a much higher fire load and the decrease in the available emergency service resources the new development will take from Silver Knolls, and
- Where to store/dispose of 300+ million gallons of sewer effluent annually without a detrimental effect on domestic wells and neighborhood health.

Again, we believe all of the issues listed above can be resolved through in-depth discussions such as those that led to the 2009 agreement. Following is an example of how a specific concern of area residents can be resolved.

GABRIEL FAMILY LAND ENHANCED COMPATIBILITY EXAMPLE
The Gabriel family owns the 80-acre parcel (086-250-01) located north of proposed Silver Hills East (see map on next page). The family home is situated just north of a ridge overlooking Silver Hills East. The Gabriels are planning to add several homes for military veterans, some of whom
may suffer from Post Traumatic Stress Disorder (PTSD). Additionally, the Gabriels plan to expand equestrian facilities and other amenities for their veteran guests.

The Gabriel family is concerned that Silver Hills East may detract from the peace and sense of solitude essential to helping veterans cope with the PTSD they suffer due to their service to our country. Specifically, Silver Hills may cause a loss of the scenic views presently enjoyed from the Gabriel home and other nearby portions of the 80-acre parcel. Additionally, the Gabriels are concerned that locating homes in close proximity may bring back the trespass issues they endured three years ago after purchasing their land.

Following are our initial thoughts on ways that these potential effects to Gabriel lands could be resolved without causing an undue loss of Silver Hills development potential.

1. A landscaped earth berm could be constructed within the 50-foot buffer along the Silver Hills side of the common boundary with the Gabriel family land.
2. The berm could be designed to obscure Silver Hills homes and other structures from being seen from the Gabriel home and other locations on Gabriel land where veteran homes are envisioned. Given that a ridge line runs along a good portion of the common boundary and the land slopes somewhat steeply to the immediate south, it may not be necessary to have an overly long or high landscaped berm.

3. A fence, such as one of six-foot high chain link, would be placed atop the berm and hidden within the landscaping to minimize trespass.

4. Other steps that would further preserve the tranquility of the Gabriel family land and veterans refuge could include:
   a. Locating a portion of the Open Space Regulatory Zone along the common border with the Gabriel family land, and/or
   b. Locating the following features referenced in Section 1.3, of the Silver Hills Specific Plan, along the common border:

      "It is planned to incorporate numerous evergreen plantings along with unique landscape and open space treatments that may include fruit orchards, gardens, ponds, and natural open spaces that accentuate the views, natural terrain, and site features."

      Of course the Gabriel family is open to any other approach which achieves their goal of preserving their land as a sanctuary for veterans. It is our hope that you will work with us to find solutions, such as those listed above for the Gabriel land, to the other quality of life concerns presented on page two. It is also our hope that we can find a balance which preserves Silver Knolls quality of life while minimizing Silver Hills development constraints.

**CLOSING**

I will call in a few days to answer any questions you may have regarding this request. In the meantime I can be reached at 410-654-3021 or Rklein@ceds.org.

Sincerely,

[Signature]

Richard D. Klein

cc: Ms. Lily Gabriel, Gabriel Family Trust Lands  
Russell Earle, Silver Knolls Community Organization
Honorable Jeanne Herman, Board of County Commissioners
Mojra Hauenstein, Director, Washoe County Department of Planning and Zoning
Roger Pelham, Washoe County Department of Planning and Zoning