

Sugarloaf Ranch Estates

Master Plan & Regulatory Zone Amendment Application

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Project Requests

This application is for a **Master Plan Amendment** and **Regulatory Zoning Amendment** to:

- A) Change the land use designation from a mix of Industrial, Commercial, and Open Space to **Suburban Residential** in the Spanish Springs Area Plan (SSAP).
- B) Change the current zoning from a mix of Industrial, Commercial, and Open Space to **Medium Density Suburban**.

Project Location

Sugarloaf Ranch Estates is located ¼ mile east of the Pyramid Highway across the street from the Village Green business park. It will be accessed from Calle De La Plata which connects to the Pyramid Highway. The project site includes one parcel, APN 534-562-07 and consists of 39.84± acres, as shown in Figure 1 (below).

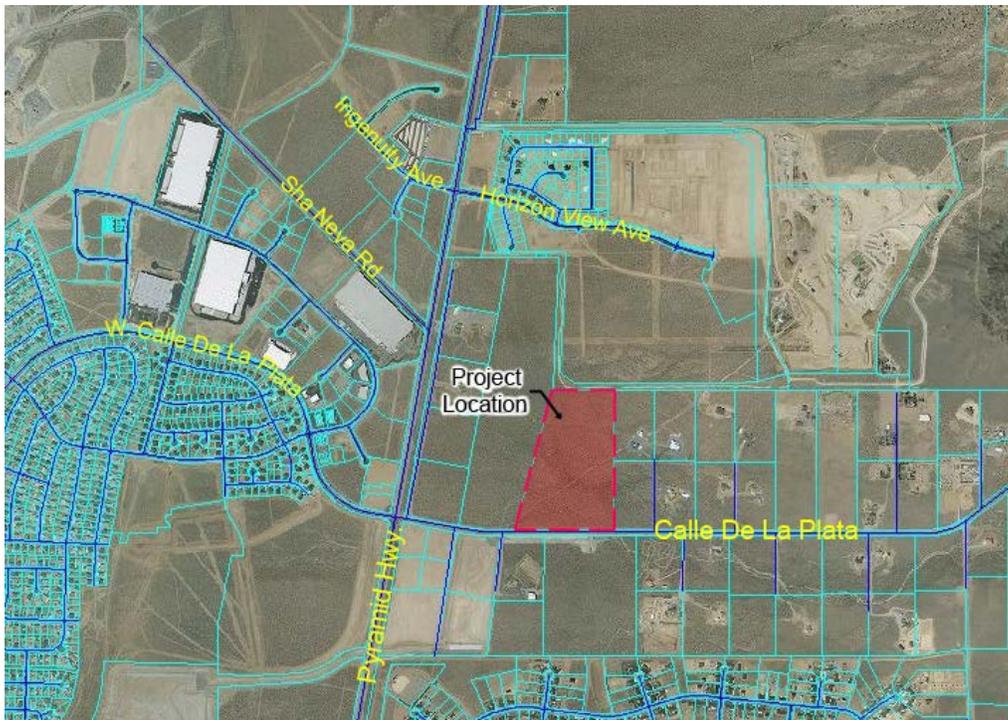


Figure 1 – Vicinity Map

Character Management Plan

This application does not change the character management vision in the SSAP. The proposed project request's an allowed use in the Character Management Area and is consistent with the policies set forth in the Vision and Character Management goals.

Spanish Springs Area Plan Compliance

The Spanish Springs area contains a mix of residential and non-residential land uses. The proposed master plan amendment and regulatory zone amendment request a Suburban Residential land use with a MDS zoning allowing up to three dwelling units per acre. The SSAP character statement envisions “a distinct suburban core – concentrated along Pyramid Highway.” “This suburban core includes a mix of non-residential uses together with residential densities of up to three dwelling units per acre.” The proposed project fits the character statement as it is near the Pyramid Highway corridor and the adjacent neighboring properties to the north of the site share the requested land use designation.

The Introduction statement of the Spanish Springs Area Plan (SSAP), states that “through cooperation with the Washoe County Board of County Commissioners and the Washoe County Planning Commission, the Spanish Springs community will maintain and apply objective standards and criteria that serve to manage growth and development in Spanish Springs in a manner that:

- Respects the rural heritage of the area by encouraging a rustic appearance and preserving scenic quality;
- Respects private property rights;
- Provides a range of low density housing;
- Provides open space and recreation opportunities;
- provides local services and employment opportunities; and
- ensures that growth is kept in balance with resources and infrastructure.”

This **Master Plan Amendment** and **Regulatory Zone Amendment** supports the applicable statements. See Figures 2 and 3 on the following pages that show existing and proposed land use designations.

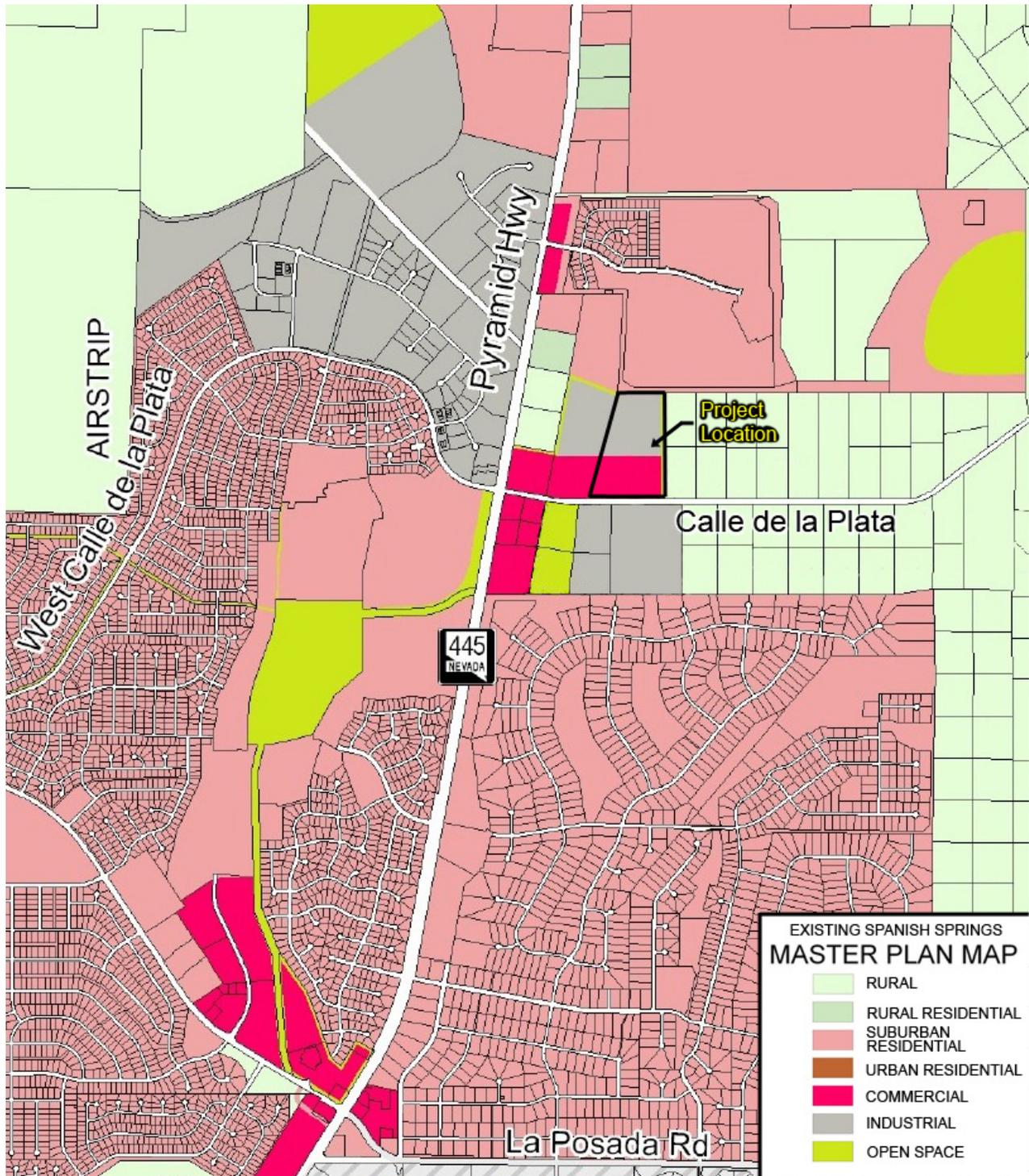


Figure 2 – Existing Land Use Designations

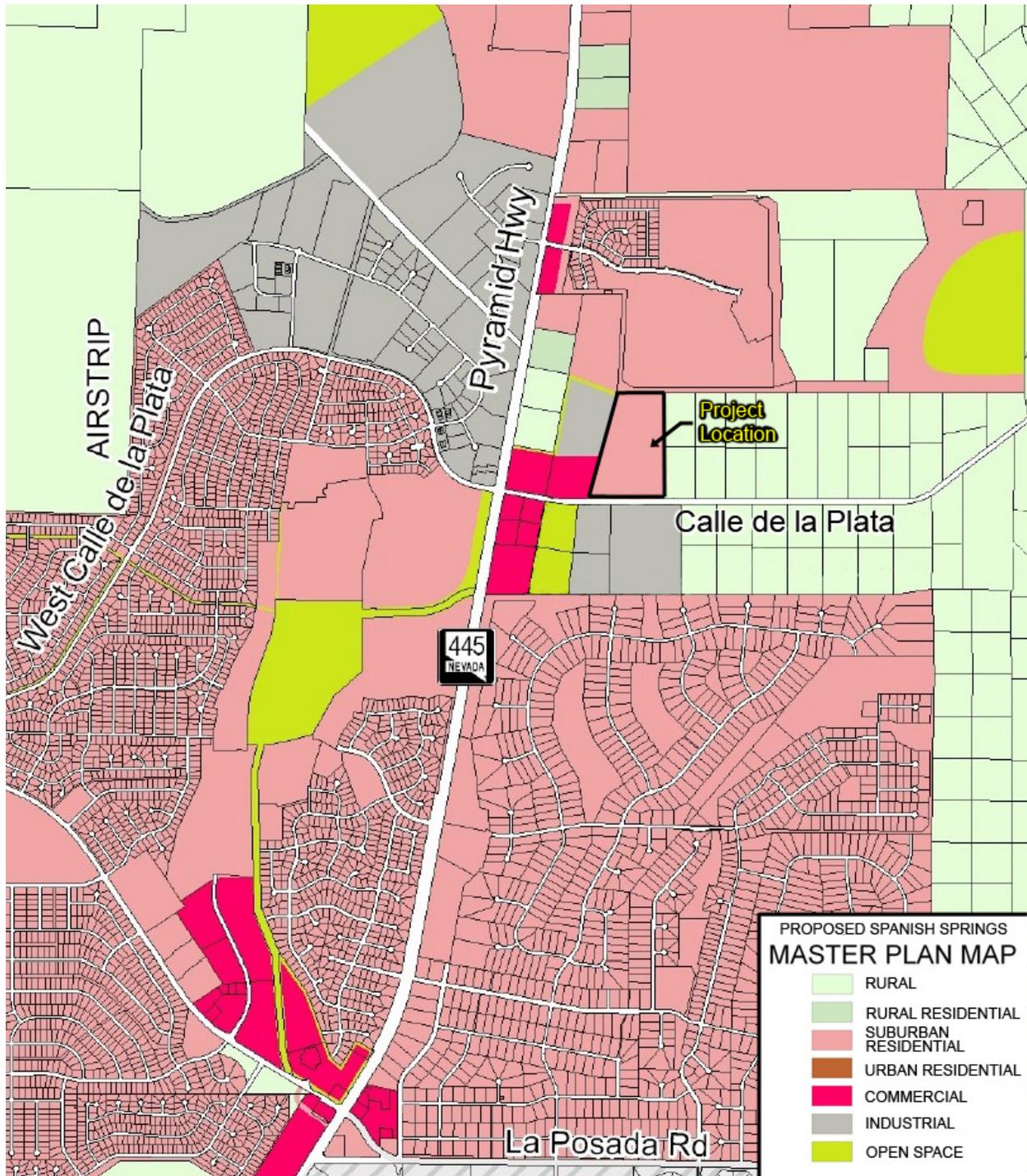


Figure 3 – Proposed Land Use Designations

Key Planning Issues

The followings points are to identify the key issues to be addressed with staff and public review to approve this request:

- Land Use Compatibility – Surrounding land uses include Suburban Residential to the north, Rural Residential to the east, Industrial and Rural Residential to the south and Industrial and Commercial to the west. It is our understanding that the westerly neighbors are proposing a similar MPA and RZA as the Sugarloaf Ranch Estates project at this time. The proposed land use change is compatible with the surrounding land uses. Open space will be provided around the project and within it to assist with property transitions.

- Land Use Intensity – The property is within the Suburban Character Management Area (SCMA). The proposed amendment will result in an intensification of residential land use capacity. The intensification is within the allowed 1,500 units of growth allocated to the SCMA. (to be verified by staff). The proposed amendment will result in a decrease in traffic which is managed as shown in the traffic report. There is mitigation proposed and adequate capacity in the regional road system to support this change. Adequate public facilities are established or planned for to support the request. Physical separation is adequately established from existing residential and surrounding uses.

Flood Control

The North Spanish Springs Detention Facility was constructed to alleviate flooding concerns west of Pyramid Lake Highway. (See Figure 4). Although the proposed project can benefit from this facility the southerly portion of the property is located in a FEMA designated flood zone AO with a 1 foot depth. Drainage facilities will need to be constructed to contain the flood water and the corresponding CLOMR and LOMR will need to be completed to remove the property from the flood zone. It is anticipated that these storm flows will be directed to the North Spanish Springs Detention Facility. On-site storm water improvements will be designed to current County standards

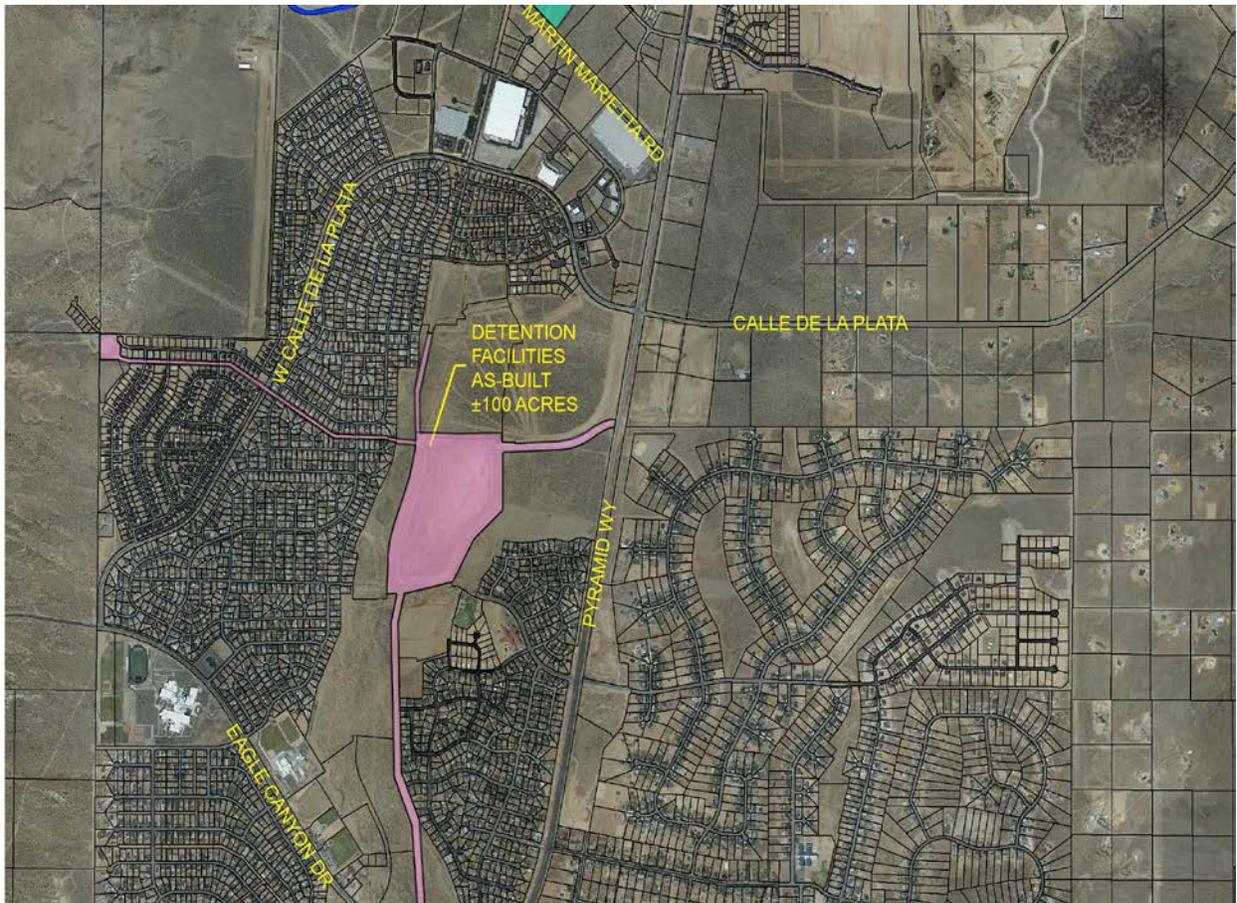


Figure 4 – Spanish Springs Area Plan – Flood Control

Spanish Springs Area Plan – Plan Maintenance

The Spanish Springs Area Plan establishes a Plan Maintenance section (Goal 17) that includes goals and policies related to plan amendments. Each of the policies is listed below and addressed in **bold face** type.

Goal Seventeen: Amendments to the Spanish Springs Area Plan will be for the purpose of further implementing the Vision and Character Statement, or to respond to new or changing circumstances. Amendments must conform to the Spanish Springs Vision and Character Statement. Amendments will be reviewed against a set of criteria and thresholds that are measures of the impact on, or progress toward, the Vision and Character Statement.

The land use change request considers the character statement adopted in the Area Plan and helps in providing a portion of the mixed land use desired and housing consistent with the Area Plan.

SS.17.1 In order for the Washoe County Planning Commission to recommend the approval of ANY amendment to the Spanish Springs Area Plan, the following findings must be made:

- a. The amendment will further implement and preserve the Vision and Character Statement.

The request preserves the vision by maintaining a permitted regulatory zoning in the character management plan and by providing housing consistent with the area plan.

- b. The amendment conforms to all applicable policies of the Spanish Springs Area Plan and the Washoe County Comprehensive Plan.

An analysis of all applicable policies contained within the SSAP and Master Plan are included within this report.

- c. The amendment will not conflict with the public's health, safety, or welfare.

The project will be designed addressing impacts to surrounding properties. The design will include buffering from adjacent properties to the east, north, and west by providing open space.

SS.17.2 In order for the Washoe County Planning Commission to recommend approval of any amendment involving a change of land use, the following findings must be made:

- a. A feasibility study has been conducted, commissioned and paid for by the applicant, relative to municipal water, sewer, and storm water that clearly identifies the improvements likely to be required to support the intensification, and those improvements have been determined to be in substantial compliance with all applicable existing facilities and resource plans for Spanish Springs by the Department of Water Resources. The Department of Water Resources will establish and maintain the standards and methodologies for these feasibility studies.

A feasibility report has been completed for this site for a previously submitted project and paid for by the owner. The proposed project will yield a much lower density and the suggested improvements in the previous study are still applicable. An update to the previous feasibility study is included in this application. Existing sewer and water lines are located west of Pyramid Highway, as well as other locations to the west. Development in the area include the Spanish Springs flood control facilities, the Spanish Springs Business Park, and residential development to the north including the Donovan Ranch, Pebble Creek, and the proposed Harris Ranch have occurred. As a result of these changes, there have been infrastructure extensions in the area. For storm water, the flood control project completed south of Calle de la Plata will benefit this site.

- b. A traffic analysis has been conducted that clearly identifies the impact to the adopted level of service within the (unincorporated) Spanish Springs Hydrographic Basin and the improvements likely to be required to maintain/achieve the adopted levels of service. This finding may be waived by the Department of Public Works may request any information it deems necessary to make this determination.

Traffic works has prepared a traffic impact analysis for this application. The report outlines overall impacts, as well as recommended improvements, access restrictions, etc. A copy of the study is included in this application.

- c. For commercial and industrial land use intensifications, the overall percentage of commercial and industrial regulatory zone acreage will not exceed 9.86 percent of the Suburban Character Management Area.

The land use change proposes to reduce the Industrial and Commercial capacity in the area.

- d. For residential land use intensifications, the potential increase in residential units will not exceed Washoe County's policy growth level for the Spanish Springs Area Plan, as established in Policy SS.1.2.

The proposed increase in residential units falls within the number allowed in Policy SS.1.2.

- e. If the proposed intensification will result in a drop below the established policy level of service for transportation (as established by the Regional Transportation Commission and Washoe County) within the Spanish Springs Hydrographic Basin, the necessary improvements required to maintain the established level of service are scheduled in either the Washoe County Capital Improvements Program or Regional Transportation Improvement Program within three years of approval of the intensification. For impacts to regional roads, this finding may be waived by the Washoe County Planning Commission upon written request from the Regional Transportation Commission.

A traffic impact analysis is included in this report. The proposed change of land use has a significant reduction in trip generation compared to the existing use. The project will pay regional road impact fees at the time of building permit to further address project impacts.

- f. If roadways impacted by the proposed intensification are currently operating below adopted levels of service, the intensification will not require infrastructure improvements beyond those articulated in Washoe County are Regional transportation plans and the necessary improvements are scheduled for either the Washoe County Capital Improvements Program or Regional Transportation Improvement Program within three years of approval of the intensification.

The traffic impact analysis provides details of planned improvements to the surrounding roadway network. The report provides recommendations related to the use and discusses the timing of the subject improvements to be completed either by the developer or Washoe County/RTC.

- g. Washoe County will work to ensure that the long range plans of facilities providers for transportation, water resources, schools, and parks reflect the policy growth level established in Policy SS.1.2.

The request will not generate a minor increase in population as discussed in Policy SS.1.2.

- h. If the proposed intensification results in existing facilities exceeding design capacity and compromises the Washoe County School District's ability to implement the neighborhood school philosophy for elementary facilities, then there must be a capital improvement plan or rezoning plan in place that would enable the District to absorb the additional enrollment. This finding may be waived by the Washoe County Planning Commission upon request of the Washoe County Board of Trustees.

The amendment request will have some impact upon schools in the Spanish Springs valley. WCSD will need to forecast impacts on the schools zoned for the site.

- i. Any existing development in the Spanish Springs planning area, the Sun Valley planning area, the Warm Springs planning area, or the City of Sparks, which is subject to the conditions of a special use permit will not experience undue hardship in the ability to continue to comply with the conditions of the special use permit or otherwise to continue operation of its permitted activities.

Not applicable. A special use permit is not being requested.

SS.17.3 For proposals to establish or intensify commercial land uses, a market analysis has been conducted that clearly established a community trade area, provides convincing evidence

of a need to increase the inventory of community-serving commercial land use opportunities, and demonstrates no negative impact on the qualitative jobs/housing balance in the Spanish Springs planning area (i.e. the relationship between anticipated employment types/wages and housing costs).

Not applicable. The project requests a change of land use to residential, not commercial uses. A market analysis is not required.

- SS.17.4 For any amendment that proposes to alter the Spanish Springs Vision or Character Statement, the Department of Community Development has conducted a series of neighborhood visioning workshops with the Spanish Springs Citizens Advisory Board (CAB), and the results of that process, including any CAB and staff recommendations, have been included and discussed in the staff analysis of the proposed amendment.

There is no change proposed to the Vision or Character Statement within the Area Plan. We expect the project will work within the adopted vision and character statements. As part of the Comprehensive Plan Amendment request, two meetings with the CAB will provide the venue for citizens to have an opportunity for review and comment.

- SS.17.5 For any amendment that proposes to expand the Suburban Character Management Area into the Rural Character Management Area and/or to revise the Character Statement, the Department of Community Development has conducted a series of community visioning workshops with the Spanish Springs Citizens Advisory Board (CAB), and the results of that process, including any CAB and staff recommendations, have been included and discussed in the staff analysis of the proposed amendment; and a proposed land use change accompanies the boundary change proposal, and the land use proposal meets all of the applicable policies of the Spanish Springs Area Plan.

Not applicable.

- SS.17.6. As a non-municipal airport, the Spanish Springs Airport (SSA) is an existing use as of the adoption of the plan. The legal and future use of SSA shall be determined through an amendment of the plan depending on the resolution of all code enforcement violations prior to 2005.

Not applicable.

- SS.17.7 The Department of Community Development will provide the Planning Commission with a status report on the implementation of this plan no later than 18 month from the date of adoption.

Not applicable.

Planning Policy Analysis

The policies addressed above apply to plan maintenance and proposed amendments. There are other policies contained within the Area Plan and Master Plan. Some of these policies pertain to this request and are discussed in general below.

In terms of public services and response times, the site meets or exceeds all standards contained in the Comprehensive Plan. Sheriff patrols already exist in the area based on the development of surrounding residential, commercial, and industrial uses. The site will be served within a five minute response time from the Fire Station located on La Posada Drive south of the project. The project will connect with municipal water and sewer services.

The amendment request does not conflict with any goal or policy contained within the Area Plan and the analysis shows the project complies with the amendment guidelines. The project will not result in negative impacts to cultural or scenic resources, parks, schools, trails, etc.

Since completion of the regional flood control project, policies SS.10.1 through SS.10.3 of the Area Plan are implemented. This is a significant change in the area by eliminating the flood issues associated with this part of the valley.

A request to change land use must consider the Land Use policies contained within the Comprehensive Plan.

Policy LUT.1.4 encourages residential development within walking distance to retail/commercial uses.

Policy LUT. 4.1 & 4.3 provide opportunities for a variety of land uses, facilities and services that serve present and future population and encourage suburban developments to provide a mix of residential densities and housing types in close proximity to retail/commercial.

Policy LUT.14.4 encourages walking trails and connectivity to adjacent developments.

The proposed amendment will not create any undue demands or hardships upon existing public services such as fire and police protection, consistent with policy POP.1.6.

DEVELOPMENT APPLICATION



Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Development staff at 775.328.3600.

| | | | |
|--|-----------------|---|-----------------|
| Project Information | | Staff Assigned Case No.: _____ | |
| Project Name: | | | |
| Project Description: | | | |
| Project Address: 370 Calle De La Plata | | | |
| Project Area (acres or square feet): 39.84 acres | | | |
| Project Location (with point of reference to major cross streets AND area locator): | | | |
| Assessor's Parcel No.(s): | Parcel Acreage: | Assessor's Parcel No(s): | Parcel Acreage: |
| 534-562-07 | 39.84 | | |
| Section(s)/Township/Range: | | | |
| Indicate any previous Washoe County approvals associated with this application: | | | |
| Case No.(s). | | | |
| Applicant Information (attach additional sheets if necessary) | | | |
| Property Owner: | | Professional Consultant: | |
| Name: | | Name: | |
| Address: | | Address: | |
| Zip: | | Zip: | |
| Phone: Fax: | | Phone: Fax: | |
| Email: | | Email: | |
| Cell: Other: | | Cell: Other: | |
| Contact Person: | | Contact Person: | |
| Applicant/Developer: | | Other Persons to be Contacted: | |
| Name: | | Name: | |
| Address: | | Address: | |
| Zip: | | Zip: | |
| Phone: Fax: | | Phone: Fax: | |
| Email: | | Email: | |
| Cell: Other: | | Cell: Other: | |
| Contact Person: | | Contact Person: | |
| For Office Use Only | | | |
| Date Received: Initial: | | Planning Area: | |
| County Commission District: | | Master Plan Designation(s): | |
| CAB(s): | | Regulatory Zoning(s): | |

Property Owner Affidavit

Applicant Name: SUGERLOAF PEAK LLC member James House

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
COUNTY OF WASHOE)

SUGERLOAF PEAK LLC member James House
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Development.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 46-5608971

Printed Name SUGERLOAF PEAK LLC By member JAMES HOUSE

Signed [Signature]

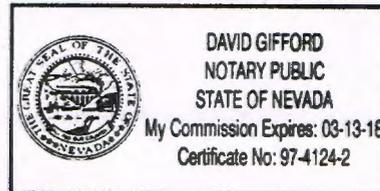
Address 2777 NORTH TOWNNE LN
RENO NV 89519

Subscribed and sworn to before me this 14TH day of September, 2015.

[Signature]
Notary Public in and for said county and state

My commission expires: 3-13-18

(Notary Stamp)



*Owner refers to the following: (Please mark appropriate box.)

- Owner
- Corporate Officer/Partner (Provide copy of recorded document indicating authority to sign.)
- Power of Attorney (Provide copy of Power of Attorney.)
- Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- Property Agent (Provide copy of record document indicating authority to sign.)
- Letter from Government Agency with Stewardship

Master Plan Amendment Supplemental Information

(All required information may be separately attached)

Chapter 110 of the Washoe County Code is commonly known as the Development Code. Specific references to Master Plan amendments may be found in Article 820, Amendment of Master Plan.

The Washoe County Master Plan describes how the physical character of the County exists today and is planned for the future. The plan is adopted by the community and contains information, policies and a series of land use maps. The Master Plan provides the essential framework for creating a healthy community system and helps guide decisions about growth and development in the County. The following are general types of requests the County receives to amend the Master Plan. Please identify which type of amendment you are requesting:

| |
|---|
| <input checked="" type="checkbox"/> A request to change a master plan designation(s) from the adopted master plan and/or area plan maps |
| <input type="checkbox"/> A request to add, amend, modify or delete any of the adopted policies found in the elements of the Master Plan |
| <input type="checkbox"/> A request to add, amend, modify or delete any of the adopted policies in the area plans |
| <input type="checkbox"/> A request to add, amend, modify or delete specific language found in the area plans |
| <input type="checkbox"/> Other (please identify): |

Please complete this questionnaire to ensure consistent review of your request to amend the Washoe County Master Plan. Staff will review the application to determine if the amendment request is in conformance with the policies and language within the elements and area plans of the Master Plan or if the information provided supports a change to the plan. Please provide a brief explanation to all questions.

1. What is the Master Plan amendment being requested at this time?

| |
|---|
| A request for: 1. A Master Plan change of the land use designation from a mix of Industrial, Commercial, and Open Space to Suburban Residential in the Spanish Springs Area Plan (SSAP). |
|---|

2. What conditions have changed and/or new studies have occurred since the adoption of the Washoe County Master Plan that supports the need for the amendment request?

The subject property was zoned commercial/industrial prior to the latest Master Plan update in February of 2015. There is currently more of a demand for residential housing than for commercial development in this area. The site is well suited for residential use and will result in fewer vehicle trips than a commercial use and provides a transition from the commercial/industrial zoning to the west to the rural zoning to the east. There is other vacant commercial zoning nearby to respond to future demands for commercial development.

3. Please provide the following specific information.
 a. What is the location (address or distance and direction from nearest intersection)? Please attach a legal description.

The location is 370 Calle De La Plata in the Spanish Springs Valley. The parcel is about ¼ miles east of the intersection with the Pyramid Highway. It is APN 534-562-07. A legal description is attached in the Preliminary Title Report which is part of this application.

- b. Please list the following (attach additional sheet if necessary):

| APN of Parcel | Master Plan Designation | Existing Acres | Proposed Master Plan Designation | Proposed Acres |
|---------------|-------------------------|----------------|----------------------------------|----------------|
| 534-562-07 | Industrial | 20 acres | Suburban Residential | 20 acres |
| " | Commercial | 17.84 acres | Suburban Residential | 17.84 acres |
| " | Open Space | 1.99 acres | Suburban Residential | 1.99 acres |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

c. What are the adopted land use designations of adjacent parcels?

| | |
|-------|--------------------------------|
| North | Suburban Residential |
| South | Rural Residential & Industrial |
| East | Rural Residential |
| West | Commercial / Industrial |

4. Describe the existing conditions and uses located at the site or in the vicinity (i.e. vacant land, roadways, buildings, etc.):

The existing condition is vacant land that has direct access from Calle De La Plata. There are no buildings on the site. Calle De Le Plata is a planned arterial street in the regional road network. There will be two direct access points proposed to that street because there is about ¼ mile frontage along it.

5. Describe the natural resources associated with the site under consideration. Your description should include resource characteristics such as water bodies, vegetation, topography, minerals, soils and wildlife habitat.

The site is considered flat in grade as it is located at the north end of the Spanish Springs Valley. There are no bodies of water on the site. A small portion of the site is located within a flood zone. The vegetation is typical northern Nevada scrub with moderate sagebrush cover. There are no minerals that we know of at this time. Also, there is no wildlife habitat on the property.

6. Describe whether any of the following natural resources or systems are related to the proposed amendment:

- a. Is property located in the 100-year floodplain? (If yes, please attach documentation of the extent of the floodplain and any proposed floodplain map revisions in compliance with Washoe County Development Code, Article 416, Flood Hazards, and consultation with the Washoe County Department of Public Works.)

| | |
|---|-----------------------------|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
|---|-----------------------------|

Explanation:

| |
|--|
| A small portion of the site is located in the AO Flood Zone which means it is subject to the flooding in a 100 year event. FEMA maps show flooding up to 1' for this part of the site. |
|--|

- b. Does property contain wetlands? (If yes, please attach a preliminary delineation map and describe the impact the proposal will have on the wetlands. Impacts to the wetlands may require a permit issued from the U.S. Army Corps of Engineers.)

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

Explanation:

| |
|------------------------------------|
| There are no wetlands on the site. |
|------------------------------------|

- c. Does property contain slopes or hillsides in excess of 15 percent and/or significant ridgelines? (If yes, please note the slope analysis requirements contained in Article 424, Hillside Development of the Washoe County Development Code.)

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

Explanation:

| |
|---|
| There are no slopes or hillsides or significant ridgelines on the site. The average slope across the site is approximately 3 percent. |
|---|

- d. Does property contain geologic hazards such as active faults; hillside or mountainous areas; is subject to avalanches, landslides, or flash floods; is near a stream or riparian area such as the Truckee River, and/or an area of groundwater recharge?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

Explanation:

| |
|---|
| <p>There are no active faults on the site. Nor are there any hillside or mountainous areas given the flat nature of the site and larger valley area. It is not subject to flash flooding as it is not near a stream or riparian area. It is located near the Spanish Springs wash (per FEMA) and within the limits of the AO 100 year flood zone.</p> |
|---|

- e. Does property contain prime farmland; is within a wildfire hazard area, geothermal or mining area, and/or wildlife mitigation route?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

Explanation:

| |
|--|
| <p>There is no prime farmland, wildfire hazard potential given the northern Nevada scrub vegetative cover and no trees, no geothermal sources, and no wildlife migration routes on the site.</p> |
|--|

7. Please describe whether any archaeological, historic, cultural, or scenic resources are in the vicinity or associated with the proposed amendment:

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

Explanation:

| |
|--|
| <p>There are no archaeological, historic, cultural, or scenic resources on the site or in the immediate vicinity of the proposed amendment area.</p> |
|--|

8. Do you own sufficient water rights to accommodate the proposed amendment? (Amendment requests in some groundwater hydrographic basins [e.g. Cold Springs, Warm Springs, etc.] require proof of water rights be submitted with applications. Please provide copies of all water rights documents, including chain of title to the original water right holder.)

| | |
|---|-----------------------------|
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
|---|-----------------------------|

If yes, please identify the following quantities and documentation numbers relative to the water rights:

| | | | |
|--------------------|-------|--------------------|------|
| a. Permit # | 71998 | acre-feet per year | 47.0 |
| b. Certificate # | | acre-feet per year | |
| c. Surface Claim # | | acre-feet per year | |
| d. Other # | | acre-feet per year | |

- e. Please attach a copy(s) of the water rights title (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

| |
|------------------------------|
| Water rights title attached. |
|------------------------------|

- f. If the proposed amendment involves an intensification of land use, please identify how sufficient water rights will be available to serve the additional development.

| |
|---|
| Additional water rights will be purchased from the water purveyor at time of development if required. |
|---|

9. Please describe the source and timing of the water facilities necessary to serve the amendment:

a. System Type:

| | | |
|--|-----------|------|
| <input type="checkbox"/> Individual wells | | |
| <input type="checkbox"/> Private water | Provider: | |
| <input checked="" type="checkbox"/> Public water | Provider: | TMWA |

b. Available:

| | | | |
|---|------------------------------------|------------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Now | <input type="checkbox"/> 1-3 years | <input type="checkbox"/> 3-5 years | <input type="checkbox"/> 5+ years |
|---|------------------------------------|------------------------------------|-----------------------------------|

c. Washoe County Capital Improvements Program project?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

d. If a public facility is proposed and is currently not listed in the Washoe County Capital Improvements Program and not available, please describe the funding mechanism for ensuring availability of water service:

| |
|---|
| <p>The Truckee Meadows Water Authority is the municipal provider of community potable water service for this property. The area is not listed in the CIP for any public facility improvements. Therefore, the water service to the site will be privately funded with development of the project. Water service is available on the west side of Pyramid Highway and in the vicinity of the project. It will be connected to the site when a project is proposed.</p> |
|---|

10. What is the nature and timing of sewer services necessary to accommodate the proposed amendment?

a. System Type:

| | | |
|---|-----------|-------------------------|
| <input type="checkbox"/> Individual septic | | |
| <input checked="" type="checkbox"/> Public system | Provider: | Washoe County Utilities |

b. Available:

| | | | |
|---|------------------------------------|------------------------------------|-----------------------------------|
| <input checked="" type="checkbox"/> Now | <input type="checkbox"/> 1-3 years | <input type="checkbox"/> 3-5 years | <input type="checkbox"/> 5+ years |
|---|------------------------------------|------------------------------------|-----------------------------------|

c. Washoe County Capital Improvements Program project?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

- d. If a public facility is proposed and is currently not listed in the Washoe County Capital Improvements Program and not available, please describe the funding mechanism for ensuring availability of sewer service. If a private system is proposed, please describe the system and the recommended location(s) for the proposed facility.

Washoe County Department of Water Resources is the municipal provider of community sewer service for this property. The area is not listed in the CIP for any public facility sewer improvements. The sewer service to the site will be privately funded with development of the project at a future date when a project is proposed. It is currently located on the west side of Pyramid Highway.

11. Please identify the street names and highways near the proposed amendment that will carry traffic to the regional freeway system.

Calle De La Plata – This is the planned arterial street that fronts the project and provides 2 means of direct access. It connects to the Pyramid Highway.

Pyramid Highway is the primary north/south route into the rest of the region and provides a direct connection to McCarran Blvd, an Expressway, and the I-80 freeway.

12. Will the proposed amendment impact existing or planned transportation systems? (If yes, a traffic report will be required. See attached Traffic Impact Report Guidelines.)

Yes No

13. Community Services (provided and nearest facility):

| | | |
|-------------------------|---|--|
| a. Fire Station | Truckee Meadows Fire Station #17 (La Posada & Rockwell) | |
| b. Health Care Facility | Renown Medical Group (Los Altos Parkway & Pyramid Hwy) | |
| c. Elementary School | Spanish Springs ES (100 Marilyn Mae Ave) | |
| d. Middle School | Shaw MS (600 Eagle Canyon Road) | |
| e. High School | Spanish Springs HS (1065 Eagle Canyon road) | |
| f. Parks | Sugarloaf Peak Park (on Calle De La Plata east of site) | |
| g. Library | Spanish Springs Library (7110A Pyramid Highway) | |
| h. Citifare Bus Stop | None in the immediate area | |

4. Describe how the proposed amendment fosters, promotes or complies with the policies of the adopted area plans and elements of the Washoe County Master Plan:

a. Population Element:

This proposed amendment appears to be neutral with respect to population policies and the population element. The population policies are geared at Washoe County staff keeping a running total of population growth and assuring there is a balance of land use needs with population growth. This proposed amendment will increase the amount of housing in the Spanish Springs Valley but is within the 1,500 units of growth allocated to the Suburban Character Management Area.

b. Conservation Element:

The proposed amendment is positive with respect to many of the Conservation policies and framework. The impact on natural resources from this type of change is favorable when the conditions produce little or no impact on topography, trees, vegetative cover, view sheds and scenic corridors, wetlands, wildlife habitat, etc. The proposed amendment will create housing in the north end of the Spanish Springs Valley will that may help to reduce traffic flow into the Truckee Meadows.

c. Housing Element:

The Housing Element is primarily focused on providing affordable housing which is further encouraged in higher density and mixed use developments however, Goal 7 within the housing element is to promote home ownership opportunities and to promote home ownership as a community asset which applies to diversity of housing types. In addition, one of the underlying NRS requirements of the housing policy is an analysis of the characteristics of the land that is suitable for residential development including a determination of whether the existing infrastructure is sufficient to sustain the current needs and projected growth of the community. With respect to these goals and policies, the subject property is suited for residential development and is being proposed at a density that is appropriate as a transition in consideration of the adjacent properties.

d. Land Use and Transportation Element:

The proposed amendment will promote Land Use and Transportation policies LUT 1.4, 3.1, 3.2, 3.3, 4.1, 4.3 and 14.4. The Suburban Character Management Area (SCMA) is identified as the area for increased density and the proposed amendment promotes LUT goals 3.1- 3.3 as responsible growth in the SCMA. The site is physically well suited for residential use because of its gentle topography and access to an arterial roadway and is in close proximity to retail /commercial land uses to facilitate both walking and cycling (LUT 1.4) and to diversify the housing mix in the area (LUT 4.3). The site has the opportunity for interconnected trails for pedestrian uses (LUT 14.4). With respect to employment and residential balance, the amendment will provide housing to support business park and industrial employment in the Spanish Springs Valley. This should have a positive impact on reverse commute and capturing some vehicle trips to the valley.

e. Public Services and Facilities Element:

The proposed amendment will promote policies of the public services and facilities element where applicable. The basic policy framework for the public services and facilities plan of the Spanish Springs Area Plan is to provide for community water and sewer for those areas with the Suburban Character Management Area (SCMA). This property falls within the SCMA and in an area where public services either exist or are planned for development.

f. Adopted area plan(s):

Spanish Springs Area Plan.

15. If the area plan includes a Plan Maintenance component, address all policies and attach all studies and analysis required by the Plan Maintenance criteria.

The Plan Maintenance component is discussed in the body of the application.

Projects of Regional Significance Information – for Regulatory Zone Amendments

Nevada Revised Statutes 278.026 defines “Projects of Regional Significance”. Regulatory Zone amendment requests for properties within the jurisdiction of the Truckee Meadows Regional Planning Commission (TMRPC) must respond to the following questions. A “Yes” answer to any of the following questions may result in the application being referred first to the Truckee Meadows Regional Planning Agency for submission as a project of regional significance. Applicants should consult with County or Regional Planning staff if uncertain about the meaning or applicability of these questions.

1. Will the full development potential of the Regulatory Zone amendment increase employment by not less than 938 employees?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

2. Will the full development potential of the Regulatory Zone amendment increase housing by 625 or more units?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

3. Will the full development potential of the Regulatory Zone amendment increase hotel accommodations by 625 or more rooms?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

4. Will the full development potential of the Regulatory Zone amendment increase sewage by 187,500 gallons or more per day?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

5. Will the full development potential of the Regulatory Zone amendment increase water usage by 625 acre-feet or more per year?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

6. Will the full development potential of the Regulatory Zone amendment increase traffic by 6,250 or more average daily trips?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

7. Will the full development potential of the Regulatory Zone amendment increase the student population from kindergarten to 12th grade by 325 students or more?

| | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|------------------------------|--|

Applicant Comments

This page can be used by the applicant to support the regulatory zone amendment request and should address, at a minimum, how one or more of the findings for an amendment are satisfied. (Please refer to Article 820 of the Washoe County Development Code for the list of Findings.)

1. Consistency with Master Plan: Is the proposed amendment in substantial compliance with the policies and action programs of the Master Plan?

The proposed amendment is in substantial compliance with the action programs and policies of the Master Plan as outlined in the analysis section of the application.

2. Response to Changed Conditions: Does the proposed amendment respond to changed conditions or further studies that have occurred since the Master Plan was adopted by the Board of County Commissioners and does the requested amendment represent a more desirable utilization of land?

The proposed amendment responds to a demand for residential housing in the area. The timing and location of public services and facilities is also influencing a more desirable utilization of the land from commercial to residential. There is available vacant commercial land in the vicinity to meet current and future commercial development demands.

3. Desired Pattern of Growth: Does the proposed amendment promote the desired pattern for the orderly physical growth of the County and guide development of the County based on the projected population growth with the least amount of natural resource impairment and the efficient expenditure of funds for public services?

The proposed amendment responds to the desired pattern of growth by transitioning from commercial and industrial land uses to rural land uses.

Regulatory Zone Amendment Supplemental Information

(All required information may be separately attached)

Chapter 110 of the Washoe County Code is commonly known as the Development Code. Specific references to Regulatory Zone amendments may be found in Article 821, Amendment of Regulatory Zone.

Please complete this questionnaire to ensure consistent review of your request to amend the Washoe County Zoning Map. Please provide a brief explanation to all questions answered in the affirmative.

1. Please describe the Regulatory Zone amendment request:

2. List the Following information regarding the property subject to the Regulatory Zone Amendment.

- a. What is the location (address, assessor's parcel number or distance and direction from nearest intersection)?

b. Please list the following (attach additional sheet if necessary):

| APN of Parcel | Master Plan Designation | Current Zoning | Existing Acres | Proposed Zoning | Proposed Acres |
|---------------|-------------------------|----------------|----------------|-----------------|----------------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. What are the regulatory zone designations of adjacent parcels?

| | Zoning | Use (residential, vacant, commercial, etc.) |
|-------|--------|---|
| North | | |
| South | | |
| East | | |
| West | | |

3. Describe the existing conditions and uses located at the site or in the vicinity (i.e. vacant land, roadways, easements, buildings, etc.):

4. Describe the natural resources associated with the site under consideration. Your description should include resource characteristics such as water bodies, vegetation, topography, minerals, soils and wildlife habitat.

| |
|--|
| |
|--|

5. Does the property contain development constraints such as floodplain or floodways, wetlands, slopes or hillsides in excess of 15%, geologic hazards such as active faults, significant hydrologic resources or major drainages or prime farmland?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

Explanation:

| |
|--|
| |
|--|

6. Please describe whether any archaeological, historic, cultural, or scenic resources are in the vicinity or associated with the proposed amendment:

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

Explanation:

| |
|--|
| |
|--|

7. Do you own sufficient water rights to accommodate the proposed amendment? (Amendment requests in some groundwater hydrographic basins [e.g. Cold Springs, Warm Springs, etc.] require proof of water rights be submitted with applications. Please provide copies of all water rights documents, including chain of title to the original water right holder.)

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

If yes, please identify the following quantities and documentation numbers relative to the water rights:

| | | | |
|--------------------|--|--------------------|--|
| a. Permit # | | acre-feet per year | |
| b. Certificate # | | acre-feet per year | |
| c. Surface Claim # | | acre-feet per year | |
| d. Other # | | acre-feet per year | |

- e. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

- f. If the proposed amendment involves an intensification of land use, please identify how sufficient water rights will be available to serve the additional development.

8. Please describe the source and timing of the water facilities necessary to serve the amendment:

a. System Type:

| | | |
|---|-----------|--|
| <input type="checkbox"/> Individual wells | | |
| <input type="checkbox"/> Private water | Provider: | |
| <input type="checkbox"/> Public water | Provider: | |

b. Available:

| | | | |
|------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Now | <input type="checkbox"/> 1-3 years | <input type="checkbox"/> 3-5 years | <input type="checkbox"/> 5+ years |
|------------------------------|------------------------------------|------------------------------------|-----------------------------------|

c. Is this part of a Washoe County Capital Improvements Program project?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

d. If a public facility is proposed and is currently not listed in the Washoe County Capital Improvements Program and not available, please describe the funding mechanism for ensuring availability of water service:

| |
|--|
| |
|--|

9. What is the nature and timing of sewer services necessary to accommodate the proposed amendment?

a. System Type:

| | | |
|--|-----------|--|
| <input type="checkbox"/> Individual septic | | |
| <input type="checkbox"/> Public system | Provider: | |

b. Available:

| | | | |
|------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Now | <input type="checkbox"/> 1-3 years | <input type="checkbox"/> 3-5 years | <input type="checkbox"/> 5+ years |
|------------------------------|------------------------------------|------------------------------------|-----------------------------------|

c. Is this part of a Washoe County Capital Improvements Program project?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

- d. If a public facility is proposed and is currently not listed in the Washoe County Capital Improvements Program and not available, please describe the funding mechanism for ensuring availability of sewer service. If a private system is proposed, please describe the system and the recommended location(s) for the proposed facility.

10. Please identify the street names and highways near the proposed amendment that will carry traffic to the regional freeway system.

11. Will the proposed amendment impact existing or planned transportation systems? (If yes, a traffic report will be required. See attached Traffic Impact Report Guidelines.)

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

12. Community Services (provided and nearest facility):

| | |
|-------------------------|--|
| a. Fire Station | |
| b. Health Care Facility | |
| c. Elementary School | |
| d. Middle School | |
| e. High School | |
| f. Parks | |
| g. Library | |
| h. Citifare Bus Stop | |

Projects of Regional Significance Information – for Regulatory Zone Amendments

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|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

2. Will the full development potential of the Regulatory Zone amendment increase housing by 625 or more units?

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|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

3. Will the full development potential of the Regulatory Zone amendment increase hotel accommodations by 625 or more rooms?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

4. Will the full development potential of the Regulatory Zone amendment increase sewage by 187,500 gallons or more per day?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

5. Will the full development potential of the Regulatory Zone amendment increase water usage by 625 acre-feet or more per year?

| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

6. Will the full development potential of the Regulatory Zone amendment increase traffic by 6,250 or more average daily trips?

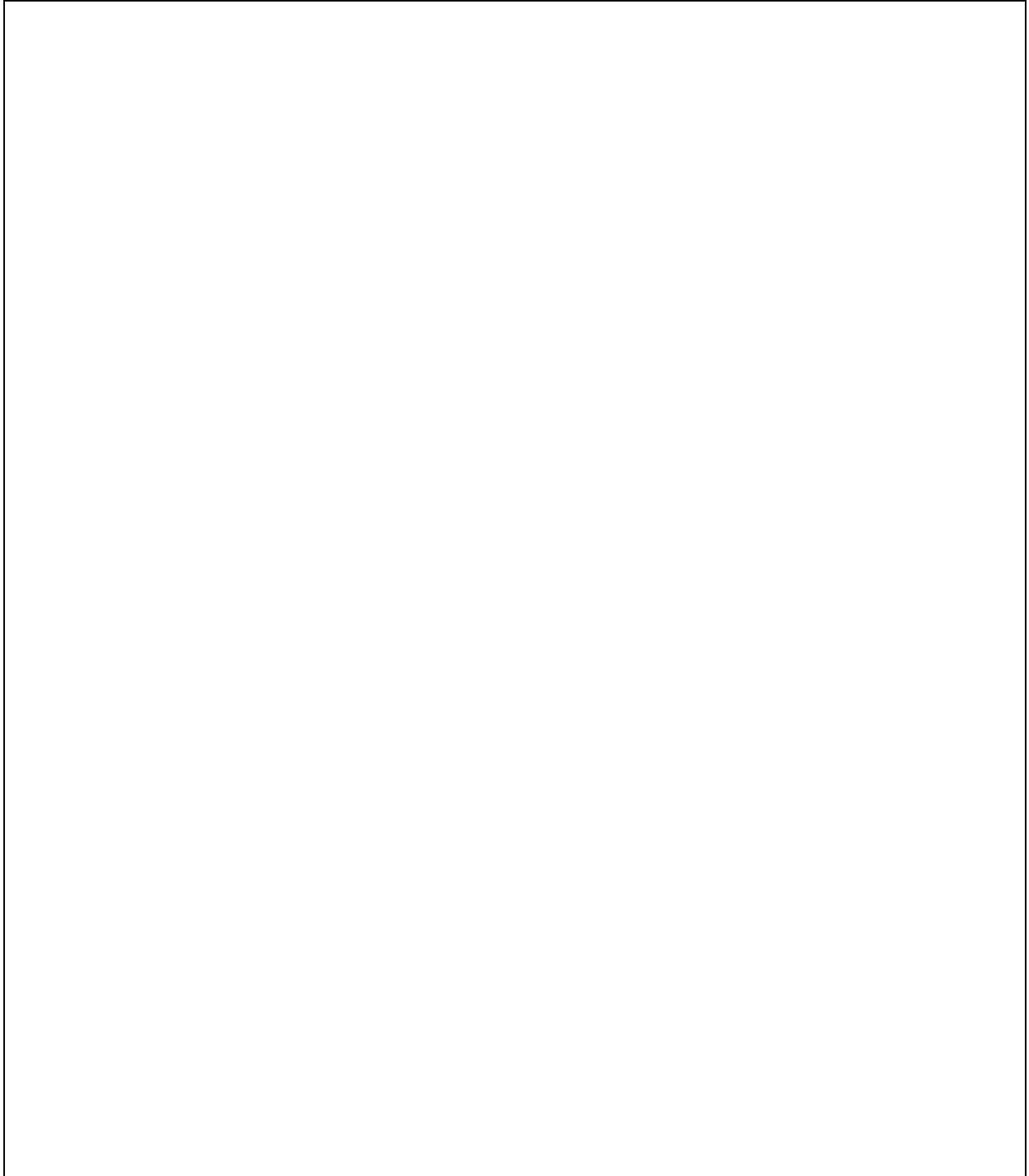
| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

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| | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

Applicant Comments

This page can be used by the applicant to support the regulatory zone amendment request and should address, at a minimum, how one or more of the findings for an amendment are satisfied. (Please refer to Article 821 of the Washoe County Development Code for the list of Findings.)

A large, empty rectangular box with a thin black border, intended for the applicant to provide comments supporting the regulatory zone amendment request. The box occupies most of the page below the introductory text.

PROPERTY TAX INFORMATION





[Tax Search](#)

[Payment Cart](#)

Account Detail

[← Back to Search Results](#)

[Change of Address](#)

[Print this Page](#)

Washoe County Parcel Information

| Parcel ID | Status | Last Update |
|-----------|--------|----------------------|
| 53456207 | Active | 9/12/2015 2:11:46 AM |

Current Owner:
SUGARLOAF PEAK LLC

2777 NORTHTOWNE LN OFC
RENO, NV 89512

Taxing District
4000

SITUS:
370 CALLE DE LA PLATA
WCTY NV

Geo CD:

Legal Description

Section 23 Lot 24 1 0 1 Township 21 Range 20 SubdivisionName _UNSPECIFIED

Tax Bill (Click on desired tax year for due dates and further details)

| Tax Year | Net Tax | Total Paid | Penalty/Fees | Interest | Balance Due |
|----------------------|----------|------------|--------------|----------|-------------|
| 2015 | \$680.44 | \$170.11 | \$0.00 | \$0.00 | \$510.33 |
| 2014 | \$680.46 | \$680.46 | \$0.00 | \$0.00 | \$0.00 |
| 2013 | \$680.44 | \$680.44 | \$0.00 | \$0.00 | \$0.00 |
| 2012 | \$850.58 | \$850.59 | \$0.00 | \$0.00 | \$0.00 |
| 2011 | \$899.14 | \$899.14 | \$0.00 | \$0.00 | \$0.00 |
| Total | | | | | \$510.33 |

Pay Online

Payments will be applied to the oldest charge first.

Select a payment option:

- Total Due \$510.33
- Oldest Due \$170.11
- Partial

[ADD TO CART](#)

\$0.00

Pay By Check

AMOUNT ABOVE WILL POPULATE AFTER PAYMENT TYPE IS SELECTED

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

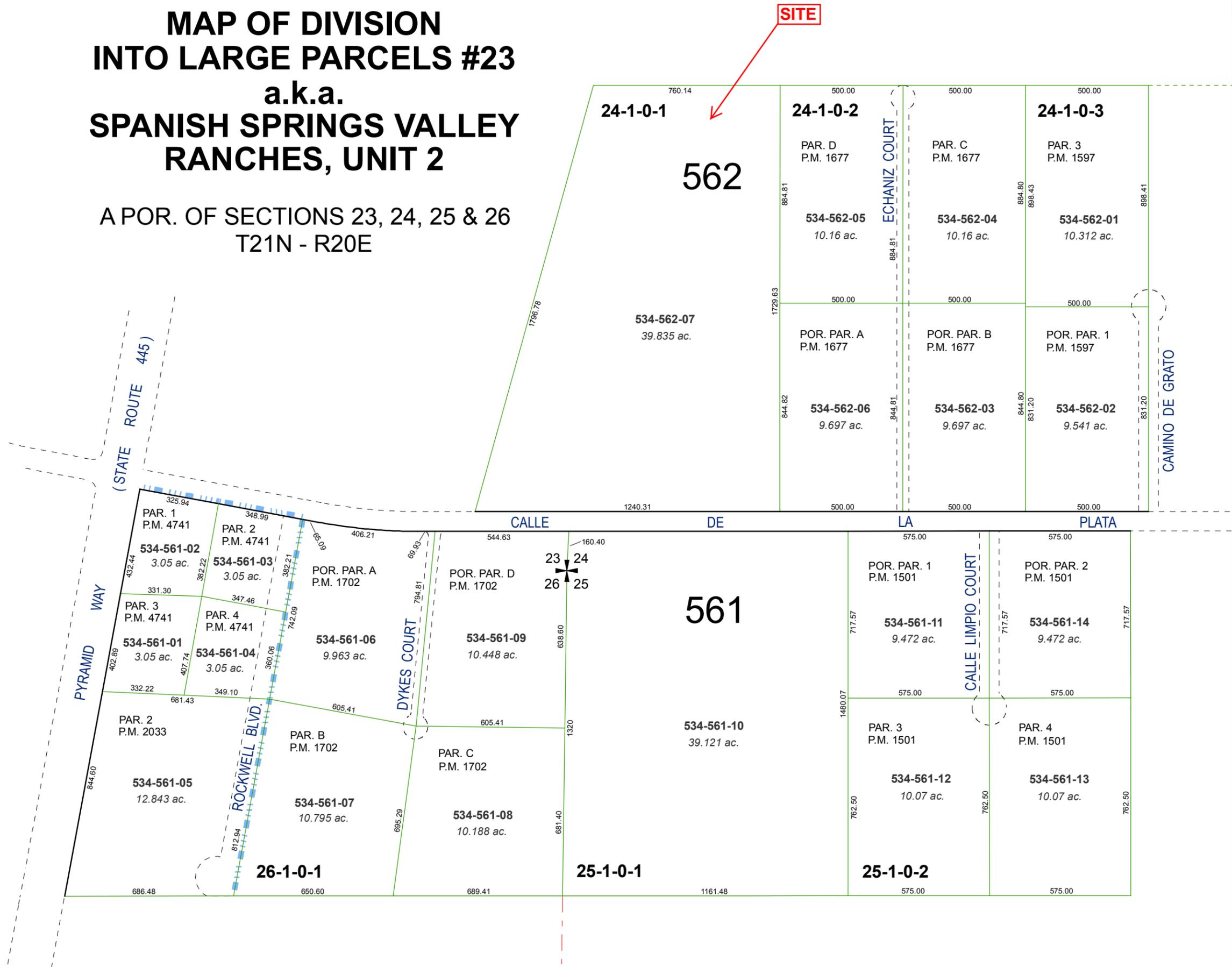
Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

ASSESSOR'S MAP



MAP OF DIVISION INTO LARGE PARCELS #23 a.k.a. SPANISH SPRINGS VALLEY RANCHES, UNIT 2

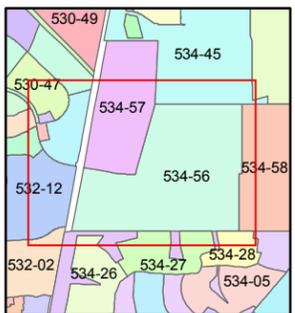
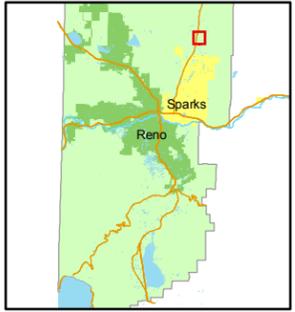
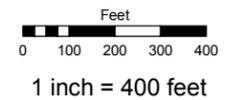
A POR. OF SECTIONS 23, 24, 25 & 26
T21N - R20E



Assessor's Map Number
534-56

STATE OF NEVADA
WASHOE COUNTY
ASSESSOR'S OFFICE
Joshua G. Wilson, Assessor

1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231



created by: KSB 1/25/11
last updated: _____
area previously shown on map(s)
076-40

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

WATER RIGHTS



Balances for Permit Number: 71998

Status: Permitted

| <u>Will Serve # or Credit</u> | <u>Project Name</u> | <u>Project Types</u> | <u>Duty</u> | <u>Claim #</u> | <u>Date</u> |
|--|---|----------------------|-------------|----------------|-------------|
| CREDIT | Future Development | | -10.575 | 88/88a | 9/15/2009 |
| Spanish Springs lot 534-562-07 | | | | | |
| Assignment | South Reno Investors, LLC to James B. House Trustee of the James B. House, Living Trust | | -36.425 | 88/88a | 9/15/2009 |
| Total uncommitted Af for House, James B., trustee of the J | | | -47.0000 | | |

Housing Resources Company, L.C. 55%, Gateway Company, L.C. 45%

| | | | | | |
|--|-------------------------------|------------------|---------|--|-------|
| CREDIT | Mountaingate Ph. 2A-3 16 lots | | -1.04 | | ##### |
| 2013-034 | Mountaingate Ph. 2A-3 | 16 lots TMWA 11% | 0 | | ##### |
| Interim Creek Exchange TMWA 11% - Meter Retrofit review fee of \$17,375 deposited in separate account for future when WACO and TMWA combined | | | | | |
| Total uncommitted Af for Housing Resources Company, L. | | | -1.0400 | | |

Ryder Homes of Nevada, Inc.

| | | | | | |
|--|--|-------------|---------|--------|-----------|
| CREDIT | Future Development | | -31.434 | 88/88a | 7/20/2005 |
| Assignment | Ryder Homes of Nevada, Inc to South Reno Investors, LLC | | 31.434 | 88/88a | 7/20/2005 |
| CREDIT | Future Deveoplement | Subdivision | -4.991 | 88/88a | 2/21/2008 |
| ASSIGNMENT | Ryder Homes of Nevada, Inc. to South Reno Investors, LLC | Subdivision | 4.991 | 88/88a | 2/21/2008 |
| Total uncommitted Af for Ryder Homes of Nevada, Inc. | | | 0.0000 | | |

South Reno Investors, LLC

| | | | | | |
|--|---|-------------|---------|--------|-----------|
| Assignment | Ryder Homes of Nevada, Inc to South Reno Investors, LLC | | -31.434 | 88/88a | 7/20/2005 |
| ASSIGNMENT | Ryder Homes of Nevada, Inc. to South Reno Investors, LLC | Subdivision | -4.991 | 88/88a | 2/21/2008 |
| Assignment | South Reno Investors, LLC to James B. House Trustee of the James B. House, Living Trust | | 36.425 | 88/88a | 9/15/2009 |
| Total uncommitted Af for South Reno Investors, LLC | | | 0.0000 | | |

Village at ArrowCreek Parkway, LLC

| | | | | | | |
|----------------|----------------------------------|----------------------|----|-------|--------|-----------|
| 2013-010 | Village at Arrowcreek Apartments | Commercial | RF | 9.79 | 88/88a | 4/30/2013 |
| 208 apartments | | | | | | |
| 2013-010 | Village at Arrowcreek Apartments | WC 58% Drought Yield | | 18.89 | 88/88a | 4/30/2013 |
| 208 apartments | | | | | | |

#####

| <u>Will Serve # or Credit</u> | <u>Project Name</u> | <u>Project Types</u> | <u>Duty</u> | <u>Claim #</u> | <u>Date</u> |
|-----------------------------------|----------------------------------|----------------------|-------------|----------------|-------------|
| 2013-010 208 apartments | Village at Arrowcreek Apartments | Commercial | 26.09 | 88/88a | 4/30/2013 |
| CREDIT | Future Development | | -54.77 | 88/88a | ##### |

Total uncommitted Af for Village at ArrowCreek Parkway, L

Total WC dedicated, uncommitted duty: 71998 -48.0400

NO. 71998

APPLICATION FOR PERMISSION TO CHANGE POINT OF DIVERSION, MANNER OF USE AND PLACE OF USE OF THE PUBLIC WATERS OF THE STATE OF NEVADA HERETOFORE APPROPRIATED

Date of filing in State Engineer's Office DEC 09 2004

Returned to applicant for correction _____

Corrected application filed _____

Map filed DEC 09 2004

The applicant **RYDER HOMES OF NEVADA, INC.** makes application for permission to change the **POINT OF DIVERSION PLACE OF USE AND MANNER OF USE OF A PORTION** of water heretofore appropriated under **Claims #88 and 88a** of the Truckee River Decree, said decree entered in the District Court of The United States for Nevada in that certain action entitled, "The United States of America, Plaintiff, vs. Orr Water Ditch Company, et al., Defendants," in Equity Docket No. A-3.

1. The source of water is **TRUCKEE RIVER**
2. The amount of water to be changed **1.02 CFS NOT TO EXCEED 190.17 ACRE FEET ANNUALLY**
3. The water to be used for **MUNICIPAL**
4. The water heretofore permitted for **AS DECREED**
5. The water is to be diverted at the following point **SEE EXHIBIT "A" ATTACHED HERETO AND MAP SUPPORTING APPLICATION 71534 ON FILE WITH THE STATE ENGINEER.**
6. The existing permitted point of diversion is located within **NE¼ SW¼ OF SECTION 31, T.19N., R.18E., M.D.B.&M. OR AT A POINT FROM WHICH THE SOUTHEAST CORNER OF SAID SECTION 31 BEARS S. 62° 04' E. A DISTANCE OF 3195.00 FEET (STEAMBOAT CANAL).**
7. Proposed place of use **SEE EXHIBIT "B" ATTACHED HERETO AND MAP SUPPORTING APPLICATION 71534 ON FILE WITH THE NEVADA STATE ENGINEER.**
8. Existing place of use **SECTION 20, T.18N., R.20E., M.D.B.&M**
SW¼ SE¼ - 12.37 ACRES
NW¼ SE¼ - 0.06 SEE MAP TR-018
NE¼ SW¼ - 14.175
SE¼ SW¼ - 20.88 TOTAL: 47.485
9. Use will be from **JANUARY 1 to DECEMBER 31** of each year.
10. Use was permitted from **AS DECREED**
11. Description of proposed works **WATER WILL BE DIVERTED BY EXISTING TMWA AND/OR WASHOE COUNTY FACILITIES, TREATED AND PLACED INTO EXISTING DISTRIBUTION SYSTEMS OF TMWA AND/OR WASHOE COUNTY.**
12. Estimated cost of works **EXISTING**
13. Estimated time required to construct works **EXISTING**

14. Estimated time required to complete the application of water to beneficial use **TEN YEARS**

15. Remarks:

By **ROBERT E. FIRTH**
s/ **Robert E. Firth**
360 E. RIVERVIEW CIRCLE
RENO, NV 89509

Compared gkl/sc lb/gkl

Protested _____

APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit to change the point of diversion, manner of use and place of use of a portion of the waters of the Truckee River as heretofore granted under Claim 88/88a, Truckee River Final Decree is issued subject to the terms and conditions imposed in said decree and with the understanding that no other rights on the source will be affected by the change proposed herein. A suitable measuring device must be installed and accurate measurements of water placed to beneficial use must be kept.

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal and local agencies.

(CONTINUED ON PAGE 3)

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 1.024 cubic feet per second, **but not to exceed 190.17 acre-feet as decreed**

Work must be prosecuted with reasonable diligence and be completed on or before:

N/A

Proof of completion of work shall be filed on or before:

N/A

Water must be placed to beneficial use on or before:

May 6, 2015

Proof of the application of water to beneficial use shall be filed on or before:

June 6, 2015

Map in support of proof of beneficial use shall be filed on or before:

N/A

IN TESTIMONY WHEREOF, I, HUGH RICCI, P.E.,

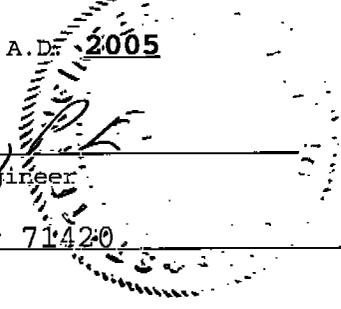
State Engineer of Nevada, have hereunto set

my hand and the seal of my office,

this 6th day of May A.D. 2005



State Engineer



Completion of work filed November 12, 2004 under 71420

Proof of beneficial use filed _____

Cultural map filed N/A

Certificate No. _____ Issued _____

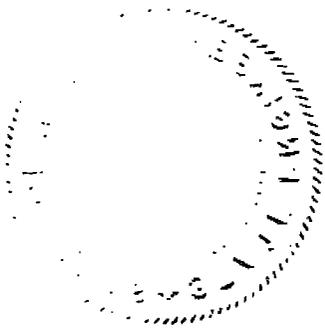


EXHIBIT "A"

The following describes the multiple points of diversion for Truckee Meadows Water Authority Water Treatment Plants and Washoe County Hidden Valley Induction Well #4, which are shown on the map accompanying Application No. 71534 on file with the State of Nevada, Division of Water Resources, more particularly described as follows:

STEAMBOAT CANAL (HUNTER CREEK RESERVOIR):

The existing point of diversion is situate within the Northeast one-quarter of the Southwest one-quarter (NE $\frac{1}{4}$ SW $\frac{1}{4}$) of Section 31, T.19N., R.18E., M.D.B.&M., Washoe County, Nevada, from said point of diversion, the Southeast corner of said Section 31 bears South 62°04' East, a distance of 3,195.00 feet.

HIGHLAND DITCH (HIGHLAND RESERVOIR):

The existing point of diversion is situate within the Southwest one-quarter of the Southeast one-quarter (SW $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 9, T.19N., R.18E., M.D.B.&M., Washoe County, Nevada, from said point of diversion, the Southeast corner of said Section 9 bears South 75°16' East, a distance of 1,650.00 feet.

IDLEWILD TREATMENT PLANT:

The existing point of diversion is situate within the Southeast one-quarter of the Southeast one-quarter (SE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 10, T.19N., R.19E., M.D.B.&M., Washoe County, Nevada, from said point of diversion, the Southeast corner of said Section 10 bears South 69°57'58" East, a distance of 842.34 feet.

NORTH TRUCKEE DITCH (GLENDALE TREATMENT PLANT):

The existing point of diversion is situate within the Southwest one-quarter of the Northeast one-quarter (SW $\frac{1}{4}$ NE $\frac{1}{4}$) of Section 7, T.19N., R.20E., M.D.B.&M., Washoe County, Nevada, from said point of diversion, the Northeast corner of said Section 7 bears North 39°28' East, a distance of 3,015.00 feet.

ORR DITCH PUMP STATION (CHALK BLUFF TREATMENT PLANT):

The point of diversion is situate within the Northeast one-quarter of the Southeast one-quarter (NE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 17, T.19N., R.19E., M.D.B.&M., Washoe County, Nevada, from said point of diversion the Northeast corner of said Section 17 bears North 15°39'36" East, a distance of 3,264.77 feet.

ORR DITCH (CHALK BLUFF TREATMENT PLANT):

The point of diversion is situate within the Northeast one-quarter of the Southwest one-quarter (NE $\frac{1}{4}$ SW $\frac{1}{4}$) of Section 17, T.19N., R.19E., M.D.B.&M., Washoe County, Nevada, from said point of diversion the Southwest corner of said Section 17 bears South 44°40' West, a distance of 3,211.00 feet.

WASHOE COUNTY (HIDDEN VALLEY INDUCTION WELL #4)

The point of diversion is situate within the West one-half of the Northwest one-quarter (W $\frac{1}{2}$ NW $\frac{1}{4}$) of Section 16 T.19N., R.20E., M.D.B.&M., Washoe County, Nevada from said point of diversion the West one-quarter corner of Section 21, T.19N., R.20E., M.D.B.&M. bears South 09°54'07"W a distance of 6929.94 feet.

"B"
EXHIBIT "A"
PROPOSED PLACE OF USE

| <u>DIVISION</u> | <u>SECTION</u> | <u>T-N</u> | <u>R-E</u> | |
|-----------------|----------------|------------|------------|-----------|
| ALL | 1-5 | 18 | 18 | M.D.B.&M. |
| E ½ | 6 & 7 | 18 | 18 | M.D.B.&M. |
| ALL | 8-17 | 18 | 18 | M.D.B.&M. |
| E ½ | 18 & 19 | 18 | 18 | M.D.B.&M. |
| ALL | 20-29 | 18 | 18 | M.D.B.&M. |
| E ½ | 30 & 31 | 18 | 18 | M.D.B.&M. |
| ALL | 32-36 | 18 | 18 | M.D.B.&M. |
| ALL | 1-5 | 19 | 18 | M.D.B.&M. |
| E ½ | 6 & 7 | 19 | 18 | M.D.B.&M. |
| ALL | 8-17 | 19 | 18 | M.D.B.&M. |
| E ½ | 18 & 19 | 19 | 18 | M.D.B.&M. |
| ALL | 20-29 | 19 | 18 | M.D.B.&M. |
| E ½ | 30 & 31 | 19 | 18 | M.D.B.&M. |
| ALL | 32-36 | 19 | 18 | M.D.B.&M. |
| ALL | 1-5 | 20 | 18 | M.D.B.&M. |
| E ½ | 6 & 7 | 20 | 18 | M.D.B.&M. |
| ALL | 8-17 | 20 | 18 | M.D.B.&M. |
| E ½ | 18 & 19 | 20 | 18 | M.D.B.&M. |
| ALL | 20-29 | 20 | 18 | M.D.B.&M. |
| E ½ | 30 & 31 | 20 | 18 | M.D.B.&M. |
| ALL | 32-36 | 20 | 18 | M.D.B.&M. |
| ALL | 1-5 | 21 | 18 | M.D.B.&M. |
| E ½ | 6 & 7 | 21 | 18 | M.D.B.&M. |
| ALL | 8-17 | 21 | 18 | M.D.B.&M. |
| E ½ | 18 & 19 | 21 | 18 | M.D.B.&M. |
| ALL | 20-29 | 21 | 18 | M.D.B.&M. |
| E ½ | 30 & 31 | 21 | 18 | M.D.B.&M. |
| ALL | 32-36 | 21 | 18 | M.D.B.&M. |
| ALL | 1-36 | 17 | 19 | M.D.B.&M. |
| ALL | 1-36 | 18 | 19 | M.D.B.&M. |
| ALL | 1-36 | 19 | 19 | M.D.B.&M. |
| ALL | 1-36 | 20 | 19 | M.D.B.&M. |
| ALL | 1-36 | 21 | 19 | M.D.B.&M. |

| <u>DIVISION</u> | <u>SECTION</u> | <u>T-N</u> | <u>R-E</u> | |
|-----------------|----------------|------------|------------|-----------|
| ALL | 5 & 6 | 16 | 20 | M.D.B.&M. |
| ALL | 1-36 | 17 | 20 | M.D.B.&M. |
| ALL | 2-35 | 18 | 20 | M.D.B.&M. |
| W ½ | 36 | 18 | 20 | M.D.B.&M. |
| ALL | 1-12 | 19 | 20 | M.D.B.&M. |
| ALL | 14-23 | 19 | 20 | M.D.B.&M. |
| ALL | 26-35 | 19 | 20 | M.D.B.&M. |
| ALL | 1-36 | 20 | 20 | M.D.B.&M. |
| ALL | 1-36 | 21 | 20 | M.D.B.&M. |
| ALL | 1-36 | 20 | 21 | M.D.B.&M. |
| ALL | 1-36 | 21 | 21 | M.D.B.&M. |

See supporting map accompanying application 71534.

TRAFFIC STUDY



TRAFFIC IMPACT STUDY UPDATE

FOR

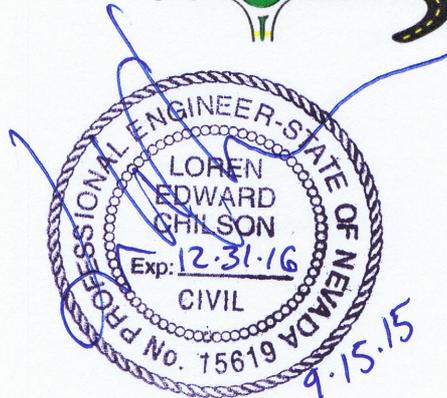
Sugarloaf Ranch Estates

September 15, 2015

PREPARED FOR:

Sugarloaf Peak LLC

PREPARED BY:



YOUR QUESTIONS ANSWERED QUICKLY

Why did you perform this study?

This report presents the findings of a Traffic Impact Study Update completed for the proposed land use change on an approximately 40 acre property known as Sugarloaf Ranch Estates, located in Spanish Springs, NV. This report is intended to update the previous *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012*.

What does the project consist of?

The land use and quantities are proposed to change from 360 multi-family units in the previous study to 119 single-family housing units.

How much traffic will the project generate?

The proposed project is anticipated to generate 1,139 total daily trips, 89 total AM peak hour trips (22 inbound and 67 outbound), and 120 total PM peak hour trips (72 inbound and 48 outbound). These trip generation estimates are approximately 45% to 50% lower than the traffic generation of the previously contemplated 360 unit multi-family project.

Are there any traffic impacts?

The Pyramid Highway/Calle de la Plata intersection operates at LOS “F” with or without the addition of the project traffic. The project adds traffic to this intersection and exacerbates the LOS “F” conditions.

With the RTP planned improvements, the intersection is anticipated to operate at acceptable LOS conditions in 2030.

What are the recommendations?

We recommend installing a traffic signal at the Pyramid Highway/Calle de la Plata intersection. The Spanish Springs Area Plan recognizes that a traffic signal is needed at this intersection to address the current situation.

The subject intersection operates at LOS “F” and meets MUTCD traffic signal warrants even without the addition of the project traffic. Hence, we recommend that the project apply for RRIF Waivers/Offset and construct the signal as an offset to its impact fees. Under the Existing Plus Project scenario, the existing lane configurations are shown to provide acceptable LOS with the traffic signal.

LIST OF FIGURES

1. Study Area
2. Existing Traffic Volumes
3. Trip Assignment
4. Existing Plus Project Traffic Volumes
5. 2030 Trip Assignment
6. 2030 Background Traffic Volumes
7. 2030 Plus Project Traffic Volumes

LIST OF APPENDICES

- A. Existing Conditions LOS Calculations
- B. Trip Generation Calculations
- C. Existing Plus Project LOS Calculations
- D. 2030 Plus Project LOS Calculations
- E. 2012 Traffic Study Report

INTRODUCTION

This report presents the findings of a Traffic Impact Study Update completed for the proposed land use change on an approximately 40 acre property known as Sugarloaf Ranch Estates, located in Spanish Springs, NV. This report is intended to update the previously approved *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012*. This study assesses the potential traffic impacts at the Pyramid Highway/Calle de la Plata intersection and at the access locations on Calle de la Plata associated with the proposed project. This traffic impact study has been prepared to document existing traffic conditions, quantify traffic volumes generated by the proposed project, identify potential impacts, document findings, and make recommendations to mitigate impacts, if any are found.

The updated land use consists of 119 single-family units (as opposed to 360 multi-family units in the previous traffic study).

Study Area and Evaluated Scenarios

The project location and the study intersections are shown in **Figure 1**. The following study intersections were analyzed:

- Pyramid Highway/Calle de la Plata
- Calle de la Plata/Driveway A
- Calle de la Plata/Driveway B

This study includes analysis of both the weekday AM and PM peak hours as these are the periods of time in which peak traffic conditions are anticipated to occur. The analysis scenarios include:

- Existing Conditions
- Existing Plus Project Conditions
- 2030 Background Conditions
- 2030 Plus Project Conditions

Analysis Methodology

This update utilizes the same analysis methodology used in the previous study. Please refer to *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012 (Appendix E)*.

Level of Service Policy

The 2035 Regional Transportation Plan (2035 RTP) establishes level of service criteria for regional roadway facilities in Washoe County, the City of Reno, and City of Sparks. The current Level of Service policy is:

- “All regional roadway facilities projected to carry less than 27,000 ADT at the latest RTP horizon – LOS D or better.”
- “All regional roadway facilities projected to carry 27,000 ADT or more at the latest RTP horizon – LOS E or better.”
- “All intersections shall be designed to provide a level of service consistent with maintaining the policy level of service of the intersecting roadways”.

NDOT maintains a policy of LOS D or better on their facilities. Since Pyramid Highway is an NDOT facility and ADT on Calle de la Plata is anticipated to be less than 27,000 vehicles per day, LOS “D” is the LOS criteria for this study.

EXISTING TRANSPORTATION FACILITIES

Transportation facilities near the study area essentially remain unchanged compared to the previous approved study. Please refer to *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012* for a description of existing conditions.

EXISTING CONDITIONS

Existing Traffic Volumes

Existing traffic volumes at the study intersections were determined by new collecting turning movement counts during the AM and PM peak periods. The counts were conducted on September 10, 2015, an average mid-week day. The existing peak hour intersection traffic volumes and lane configurations are shown on **Figure 2** attached.

Existing Intersection Level of Service

Level of service calculations were performed using the existing traffic volumes, lane configurations, and traffic controls. The results are presented in **Table 1** and the calculation sheets are provided in **Appendix A**, attached.

Table 1: Existing Conditions Intersection Level of Service Summary

| Intersection | Worst Approach | AM Peak | | PM Peak | |
|-------------------------------|----------------|---------|-------|---------|-------|
| | | LOS | Delay | LOS | Delay |
| Pyramid Hwy/Calle de la Plata | Westbound | F | >100 | F | 53.6 |

As shown in **Table 1**, the Pyramid Highway/Calle de la Plata intersection (worst approach) currently operates at LOS “F” during both the AM and PM peak hour. The project driveway intersections do not exist at this time.

Existing Roadway Level of Service

Since the peak hour volumes at the study intersections were found to be consistent with the 2012 study, the prior road segment analysis is deemed valid. Please refer to *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012* for existing conditions road segment analysis. Based on the prior findings, the study roadway segments function at acceptable LOS.

Signal Warrant Analysis

A preliminary Signal Warrant Analysis was performed to determine whether or not a traffic signal would be warranted at the Pyramid Highway/Calle de la Plata intersection under existing conditions. The warrant analysis was completed based on nationally accepted standards outlined in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD). The Warrant 2 – Four-Hour Vehicular Volume and Warrant 3 - Peak Hour signal warrants were analyzed based on the existing traffic volumes.

Warrant 2, Four-Hour Vehicular Volume

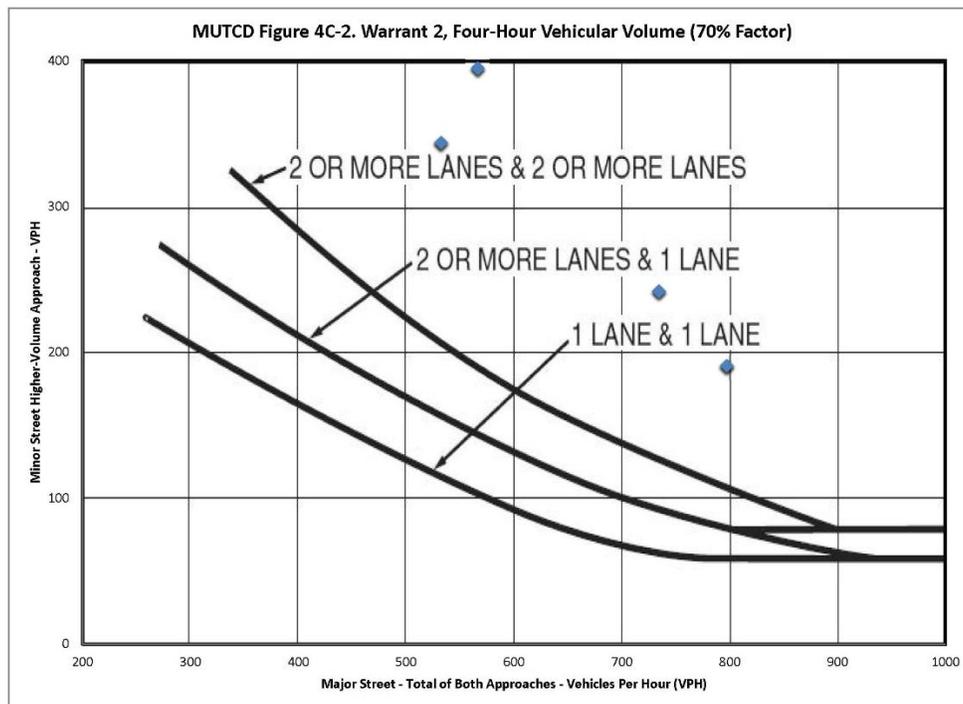


Exhibit 1. Warrant 2 Summary

This warrant requires that the traffic volumes for four hours of the day fall above the appropriate curve (2 or more lanes & 1 or more lanes) in **Exhibit 1**. Using Figure 4C-2 of the MUTCD, we plotted the points for major/minor street traffic. As shown in **Exhibit 1**, multiple hours fall above the curve (2 or more lanes & 1 or more lanes). Hence, Warrant 2 is met.

Warrant 3, Peak Hour

Warrant 3 has two criteria, Criteria A and Criteria B.

Criteria A has three parts. Part 1 requires stopped time delay on one leg of the minor street to be at least four (4) vehicle-hours. Using the traffic volumes and delay values calculated using the AM Peak, the average of 395.2 seconds per vehicle was multiplied by the 100 vehicles (worst approach) and divided by 3600 sec/hour to obtain the total delay which is 10.97 hours. Part 1 is met. The volume on minor street approach is more than 150 vehicles per hour. Part 2 is met. The total entering volume serviced during the same hour exceeds 800 vehicles per hour. Part 3 is met. Hence, Criteria A is met.

Criteria B was evaluated by plotting the points for major and minor street traffic using MUTCD Figure 4C-4. Since only one point would need to fall above the curve, Criteria B is met.

Since both Criteria A and Criteria B are met, Warrant 3 is met.

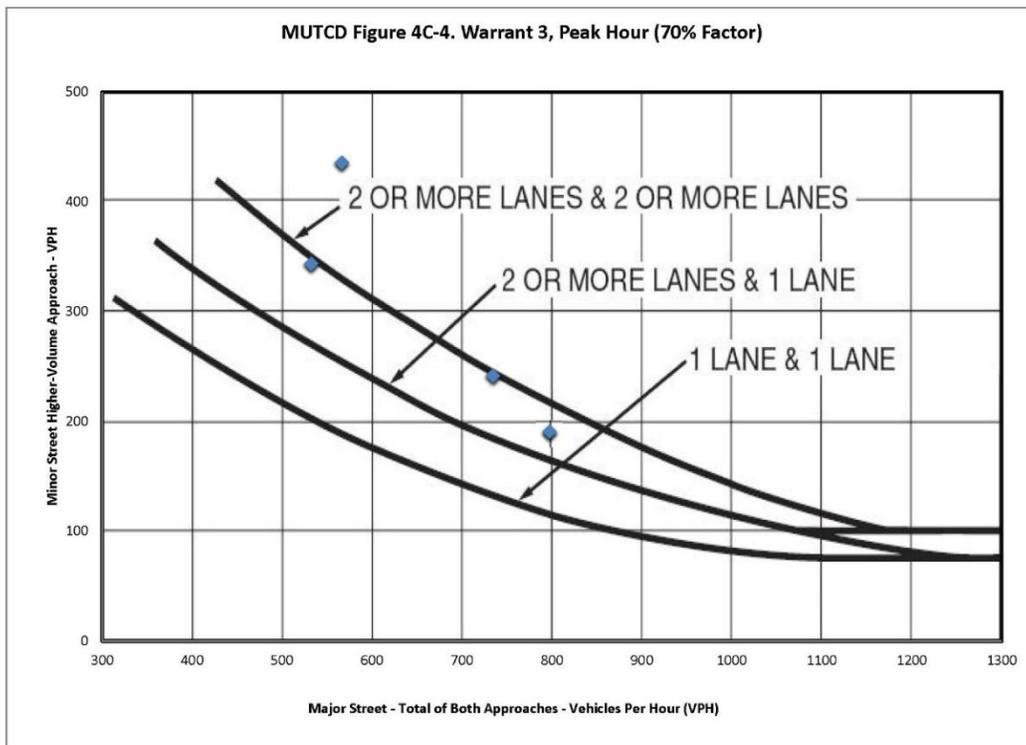


Exhibit 2. Warrant 3 Summary

Since the traffic volumes meet both Warrants 2 and 3, a traffic signal is warranted at the Pyramid Highway/Calle de la Plata intersection.

PROJECT GENERATED TRAFFIC

Project Description

The proposed project consists of 119 single-family units, as opposed to 360 multi-family units in the previous traffic study. The project location is shown in **Figure 1**.

Project Access

The project proposes two access driveways on Calle de la Plata. Both the driveways are proposed to be side-street STOP controlled with single-lane approaches.

Trip Generation

Trip generation rates for the proposed project were obtained using the *Trip Generation Manual, 8th Edition*, published by the Institute of Transportation Engineers.

Table 2 provides the Daily, AM Peak Hour, and PM Peak Hour trip generation calculations for the proposed project based on the ITE Trip Generation Manual. Detailed calculations of the trip generation estimates are provided in **Appendix B**.

Table 2: Trip Generation Estimates

| ITE Land Use (#) | Size (units) | Daily | AM Peak Hour (Total Trips) | | | PM Peak Hour (Total Trips) | | |
|-----------------------------|--------------|-------|----------------------------|----|-----|----------------------------|----|-----|
| | | | Total | In | Out | Total | In | Out |
| Single Family Housing (210) | 119 | 1,139 | 89 | 22 | 67 | 120 | 72 | 48 |
| TOTAL | | 1,139 | 89 | 22 | 67 | 120 | 72 | 48 |

As shown in **Table 2**, applying the ITE Trip Generation Manual trip rates, the proposed project is anticipated to generate 1,139 total daily trips, 89 total AM peak hour trips (22 inbound and 67 outbound), and 120 total PM peak hour trips (72 inbound and 48 outbound).

These trip generation estimates are approximately 45% to 50% lower than the previous 360 unit multi-family project.

Trip Distribution and Assignment

This analysis utilizes the same trip distribution and trip assignment developed in the previous study. Please refer to *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012*.

EXISTING PLUS PROJECT CONDITIONS

Traffic Volumes

Existing plus project traffic volumes were developed by adding the project generated trips (**Figure 3**) to the existing traffic volumes (**Figure 2**) and are shown on **Figure 4**, attached. The “Plus Project” condition Peak Hour Factors (PHF) and travel patterns were assumed to remain the same as existing conditions.

Intersection Level of Service Analysis

Table 3 presents the level of service analysis summary for “Plus Project” scenario. Detailed calculation sheets are provided in **Appendix C**, attached.

Table 3: Existing Plus Project Intersection Level of Service Summary

| Intersection | Worst Approach/Control | Existing | | | | Existing Plus Project | | | |
|-------------------------------|------------------------|----------|-------|---------|-------|-----------------------|-------|---------|-------|
| | | AM Peak | | PM Peak | | AM Peak | | PM Peak | |
| | | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay |
| Pyramid Hwy/Calle de la Plata | WB | F | >100 | F | 53.6 | F | >100 | F | 96.5 |
| Pyramid Hwy/Calle de la Plata | Signalized | NA | NA | NA | NA | B | 15.2 | A | 9.2 |
| Calle de la Plata/Dwy A | SB | NA | NA | NA | NA | A | 9.2 | A | 8.7 |
| Calle de la Plata/Dwy B | SB | NA | NA | NA | NA | A | 9.0 | A | 8.8 |

As shown in **Table 3**, the Pyramid Hwy/Calle de la Plata intersection continues to operate at LOS “F” with the addition of the project traffic, during both the AM and PM peak hours. The project driveways would operate at LOS “A” during both the peak hours, with the addition of the project traffic.

With a traffic signal, the Pyramid Hwy/Calle de la Plata intersection would operate at LOS “A/B” with the existing lane configurations.

Roadway Level of Service Analysis

Table 4 shows the Existing Plus Project conditions roadway LOS.

Table 4: Existing Plus Project Roadway Level of Service Summary

| Roadway Segment | Functional Classification | # Lanes | Existing | | Existing Plus Project | |
|-----------------------------------|------------------------------|---------|----------|-----|-----------------------|-----|
| | | | ADT | LOS | ADT | LOS |
| Pyramid Hwy N/O Calle de la Plata | High Access Control Arterial | 2 | 4,400 | B | 4,515 | B |
| Pyramid Hwy S/O Calle de la Plata | | 2 | 10,000 | C | 10,918 | C |
| Calle de la Plata E/O Pyramid Hwy | Low Access Control Collector | 2 | 1,340 | C | 1,397 | C |
| Calle de la Plata W/O Pyramid Hwy | | 4 | 5,480 | C | 5,538 | C |

As shown in **Table 4**, the study roadway segments are anticipated to operate at acceptable LOS conditions with the addition of the project traffic.

Signal Warrant Analysis

The Four-Hour Vehicular Volume and Peak Hour signal warrants are met under existing conditions at the Pyramid Highway/Calle de la Plata intersection. Therefore, with the addition of project traffic, these warrants are also satisfied under Existing Plus Project Conditions. A traffic signal is recommended at this location.

2030 BACKGROUND CONDITIONS

The 2030 Background Conditions remain unchanged from the prior study. Please refer to *Village at the Peak Traffic Impact Study – Sugarloaf Peak Property, May 2012*. The report is attached in **Appendix E**.

Note that a traffic signal is assumed in the 2030 Background Conditions scenario based on the improvements outlined in the 2035 RTP and the prior study. The 2030 background traffic volumes and long-term lane configurations are shown in **Figure 6**.

2030 PLUS PROJECT CONDITIONS

Traffic Volumes

Year 2030 plus project traffic volumes were developed by adding the project generated trips to the 2030 background traffic volumes. The 2030 plus project traffic volumes and long-term lane configurations are shown in **Figure 7**.

Intersection Level of Service Analysis

Table 5 presents the level of service analysis summary for “2030 Plus Project” scenario. Detailed calculation sheets are provided in **Appendix D**, attached.

Table 5: 2030 Plus Project Intersection Level of Service Summary

| Intersection | Intersection Control | AM Peak | | PM Peak | |
|-------------------------------|----------------------|---------|-------|---------|-------|
| | | LOS | Delay | LOS | Delay |
| Pyramid Hwy/Calle de la Plata | Signal | C | 28.4 | D | 46.1 |
| Calle de la Plata/Dwy A | TWSC | B | 10.7 | C | 15.1 |
| Calle de la Plata/Dwy B | TWSC | B | 11.9 | C | 15.8 |

As shown in **Table 5**, all the study intersections are anticipated to operate at acceptable LOS conditions under 2030 Plus Project conditions. This scenario includes a traffic signal at the Pyramid Highway/Calle de la Plata intersection and a variety of improvements outlined in the 2035 RTP.

Roadway Level of Service Analysis

Table 6 shows the 2030 Plus Project conditions roadway LOS. The planned roadway segments are anticipated to operate at LOS “C” with and without the addition of the project traffic.

Table 6: 2030 Plus Project Roadway Level of Service Summary

| Roadway Segment | Functional Classification | # Lanes | 2030 | | 2030 Plus Project | |
|-----------------------------------|---------------------------|---------|--------|-----|-------------------|-----|
| | | | ADT | LOS | ADT | LOS |
| Pyramid Hwy N/O Calle de la Plata | High Access | 4 | 26,010 | C | 26,240 | C |
| Pyramid Hwy S/O Calle de la Plata | Control Arterial | 6 | 47,190 | C | 47,879 | C |
| Calle de la Plata E/O Pyramid hwy | Low Access | 2 | 3,930 | C | 4,102 | C |
| Calle de la Plata W/O Pyramid hwy | Control Collector | 4 | 10,730 | C | 10,787 | C |

CONCLUSIONS & RECOMMENDATIONS

The following is a list of our key findings and recommendations:

- The land use density has been reduced from 360 multi-family units to 119 single family units.
- The new land use generates approximately 45% to 50% fewer trips compared to the previous project.
- The Pyramid Highway/Calle de la Plata intersection currently operates at LOS “F” during both the AM and PM peak hours.
- The Pyramid Highway/Calle de la Plata intersection will continue to operate at LOS “F” with the addition of the project traffic (with increased side street delays).
- Existing peak hour traffic volumes at the Pyramid Highway/Calle de la Plata intersection meet the Four-Hour Vehicular Volume and Peak Hour signal warrants per MUTCD guidelines. These warrants are met with or without the addition of the project traffic.
- We recommend installing a traffic signal at the Pyramid Highway/Calle de la Plata intersection to improve the LOS as it operates at LOS “F” and meets MUTCD signal warrants even without the addition of the project traffic. The Spanish Springs Area Plan recognizes that a traffic signal is needed at this intersection to address the current situation.
- Adequate roadway and intersection improvements are planned within the Regional Transportation Plan to accommodate the future regional growth in the project area.
- The study intersections and roadway segments are anticipated to operate at acceptable LOS conditions in the year 2030.
- We recommend the project enter into a Regional Road Impact Fee (RRIF) offset/waiver agreement with Washoe County and the Regional Transportation Commission for construction of a traffic signal at the Pyramid Highway/Calle de la Plata intersection. The existing lane configuration is shown to provide acceptable LOS conditions with a signal in place. If a signal is constructed prior to this project (by others) and an offset/waiver is not feasible, the applicant’s mitigation responsibility will be payment of the standard traffic impact fees.

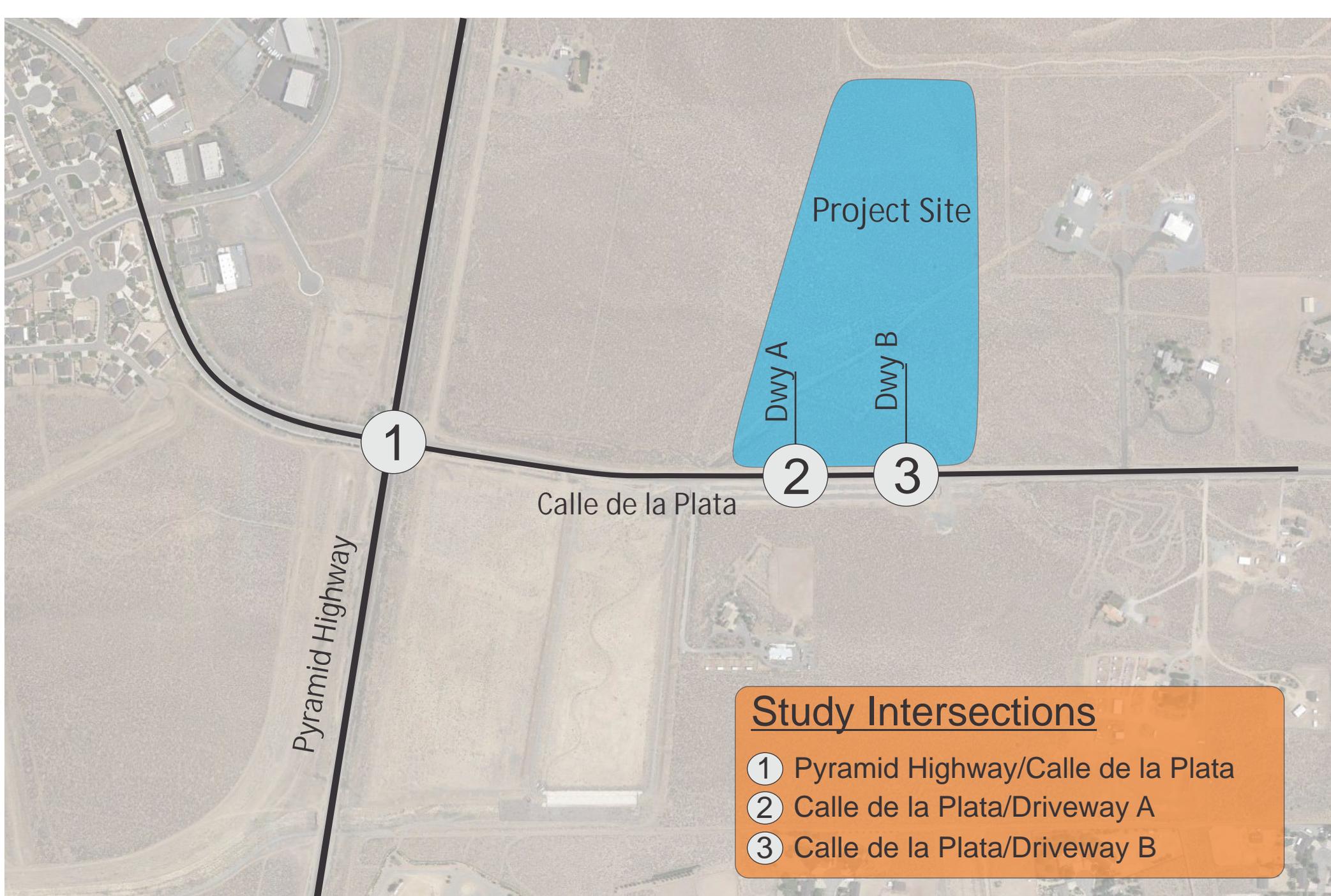
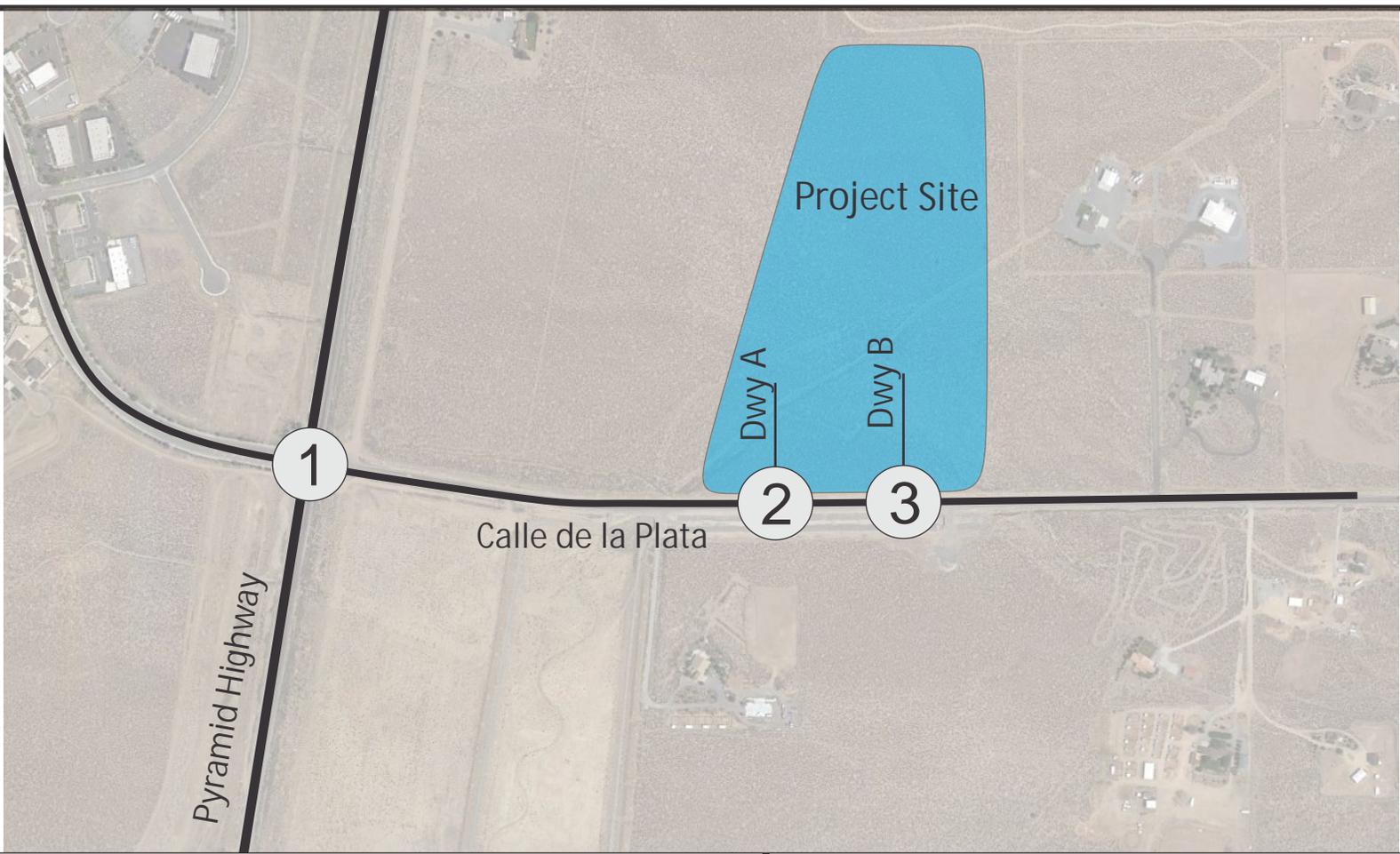


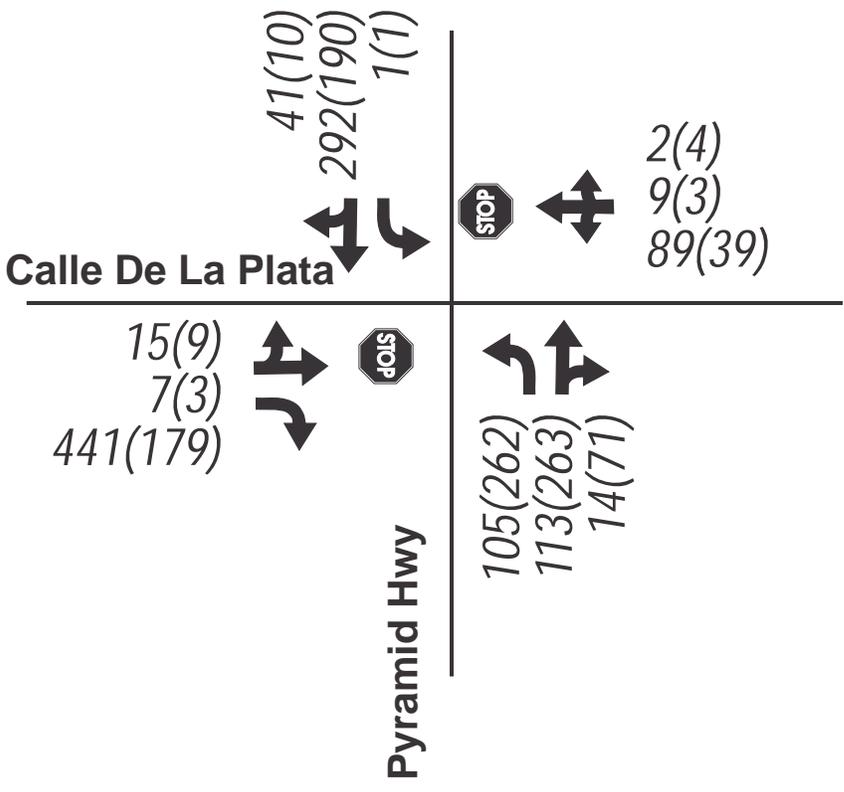
Figure 1

Sugarloaf Ranch Estates
Traffic Impact Study Update

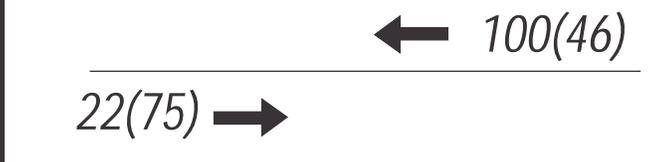
Study Area



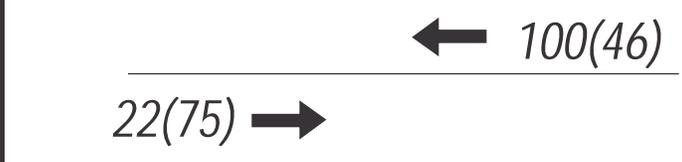
① Pyramid Hwy/Calle de la Plata



② Calle de la Plata/Dwy A



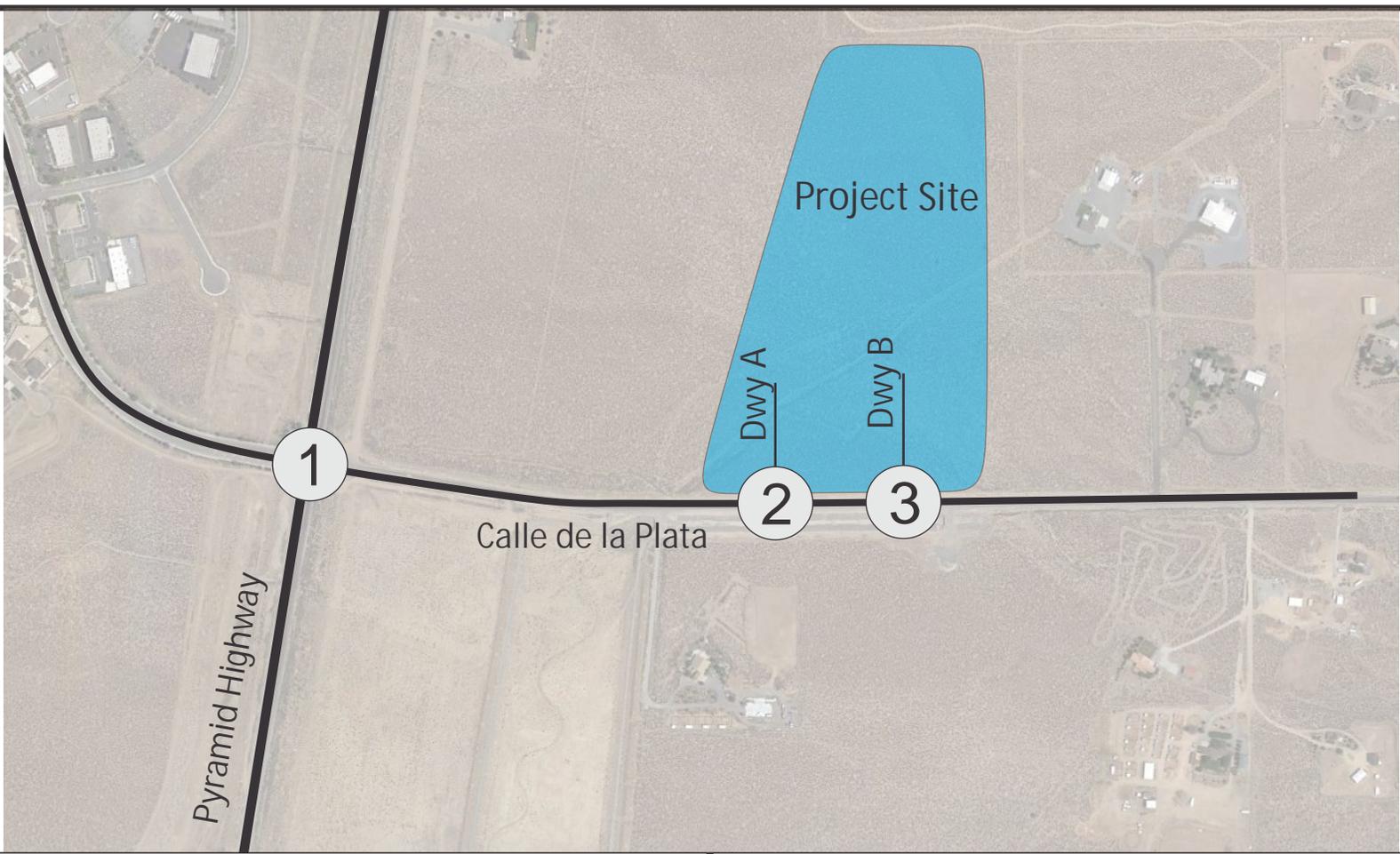
③ Calle de la Plata/Dwy B



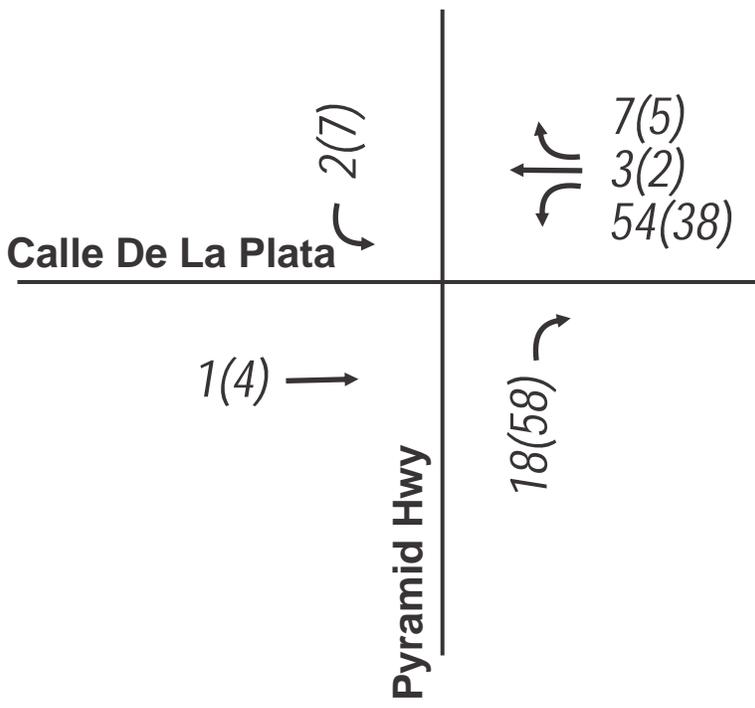
LEGEND
 AM(PM) - Peak Hour Traffic Volumes
 ← - Lane Configuration STOP - STOP Sign



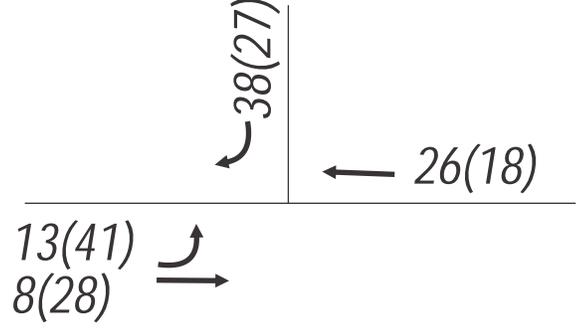
Figure 2
 Sugarloaf Ranch Estates
 Traffic Impact Study Update
Existing Traffic Volumes



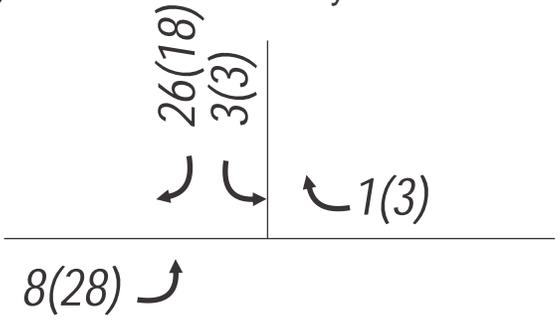
① Pyramid Hwy/Calle de la Plata



② Calle de la Plata/Dwy A



③ Calle de la Plata/Dwy B



LEGEND

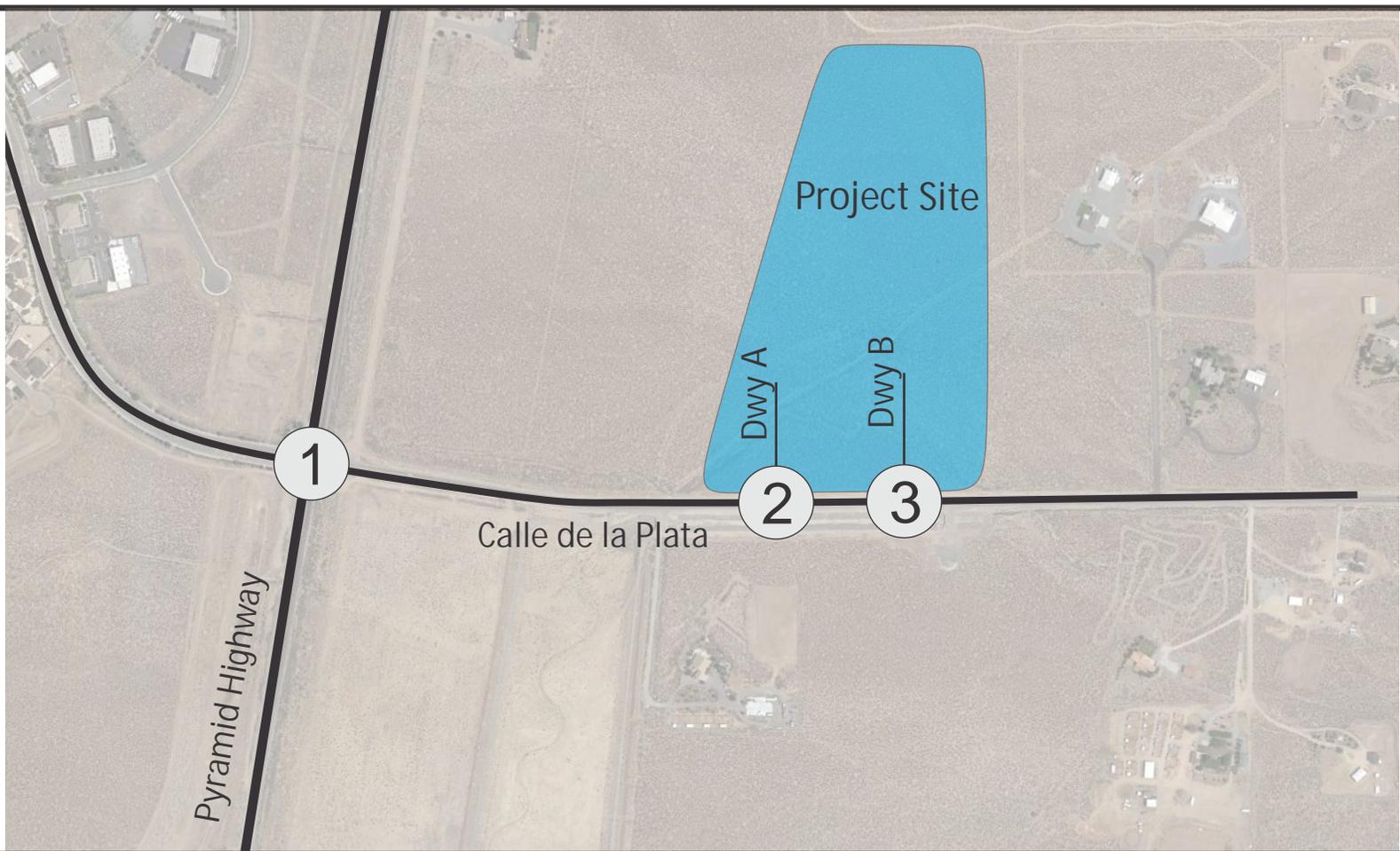
AM(PM) - Project Trips



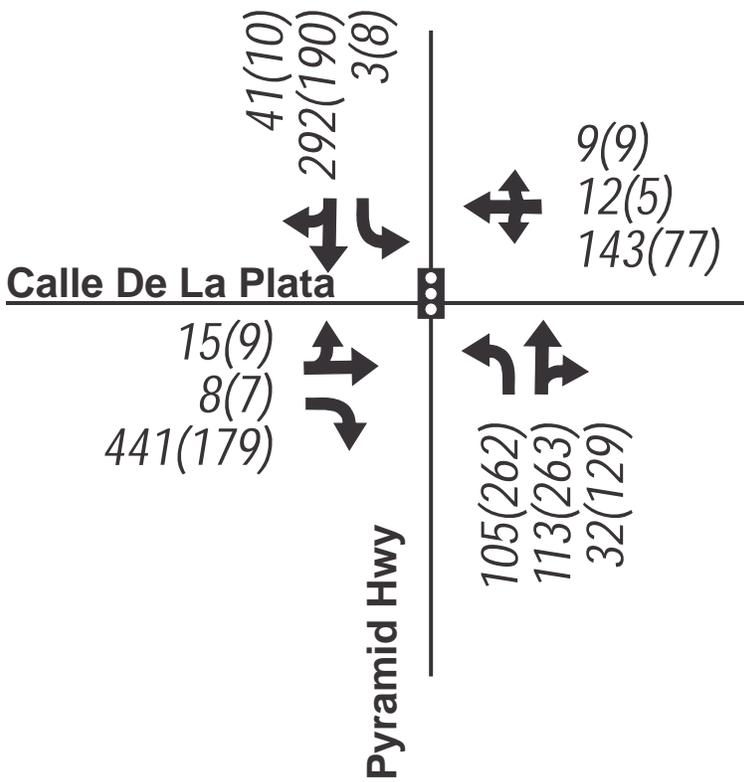
Figure 3

Sugarloaf Ranch Estates
Traffic Impact Study Update

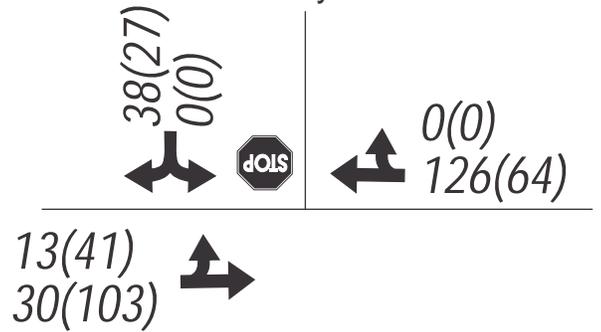
Trip Assignment



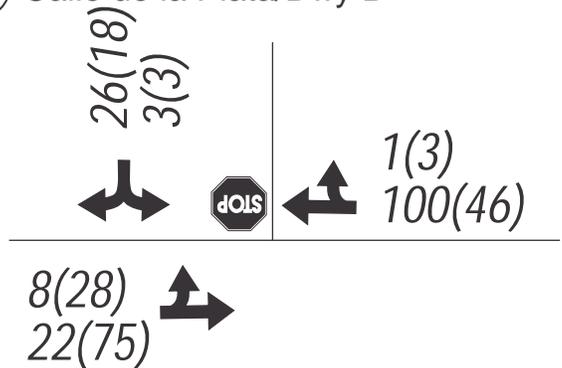
1 Pyramid Hwy/Calle de la Plata



2 Calle de la Plata/Dwy A



3 Calle de la Plata/Dwy B



LEGEND

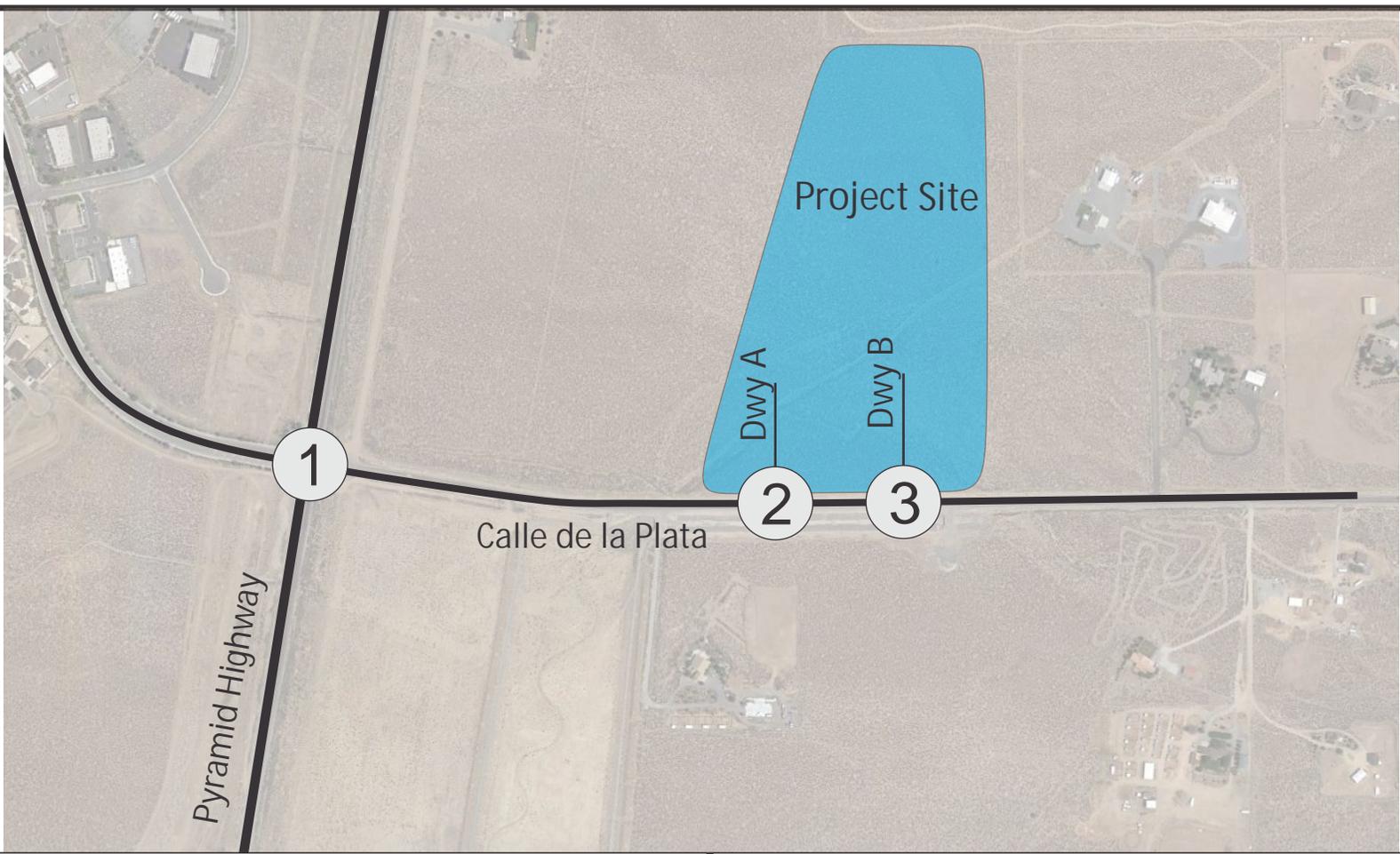
- AM(PM) - Peak Hour Traffic Volumes
- Traffic Signal
- Lane Configuration
- STOP - STOP Sign



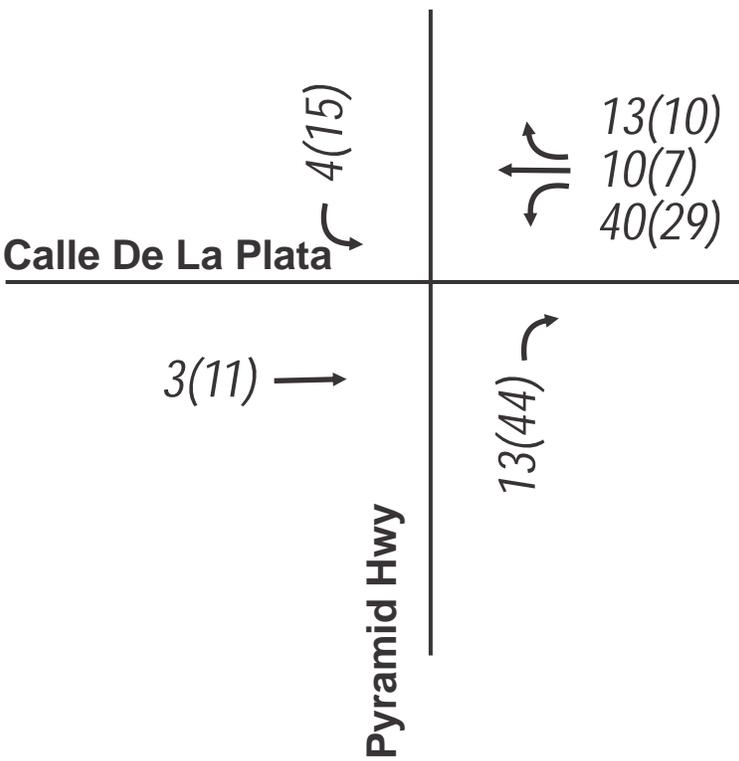
Figure 4

Sugarloaf Ranch Estates
Traffic Impact Study Update

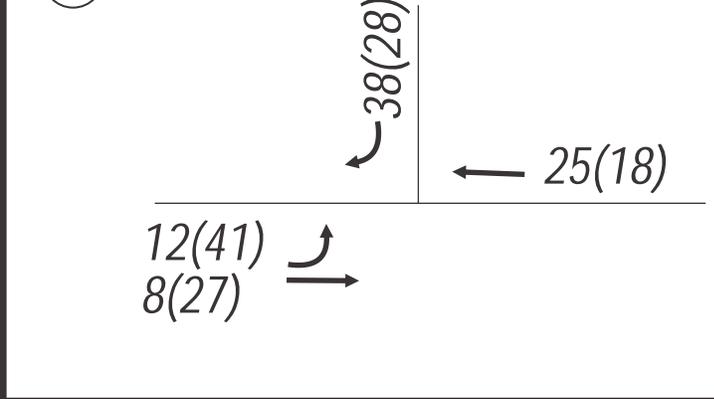
Existing Plus Project Traffic Volumes



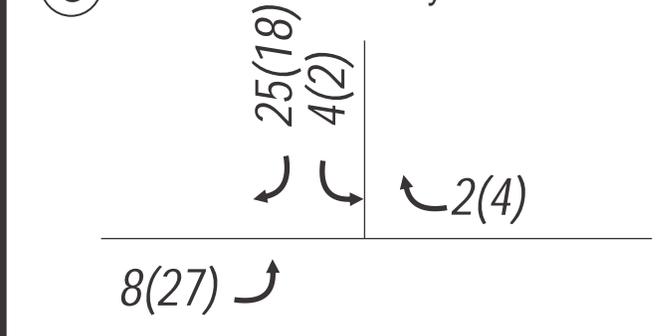
① Pyramid Hwy/Calle de la Plata



② Calle de la Plata/Dwy A



③ Calle de la Plata/Dwy B



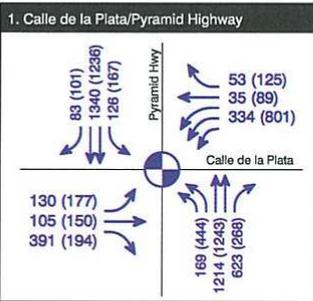
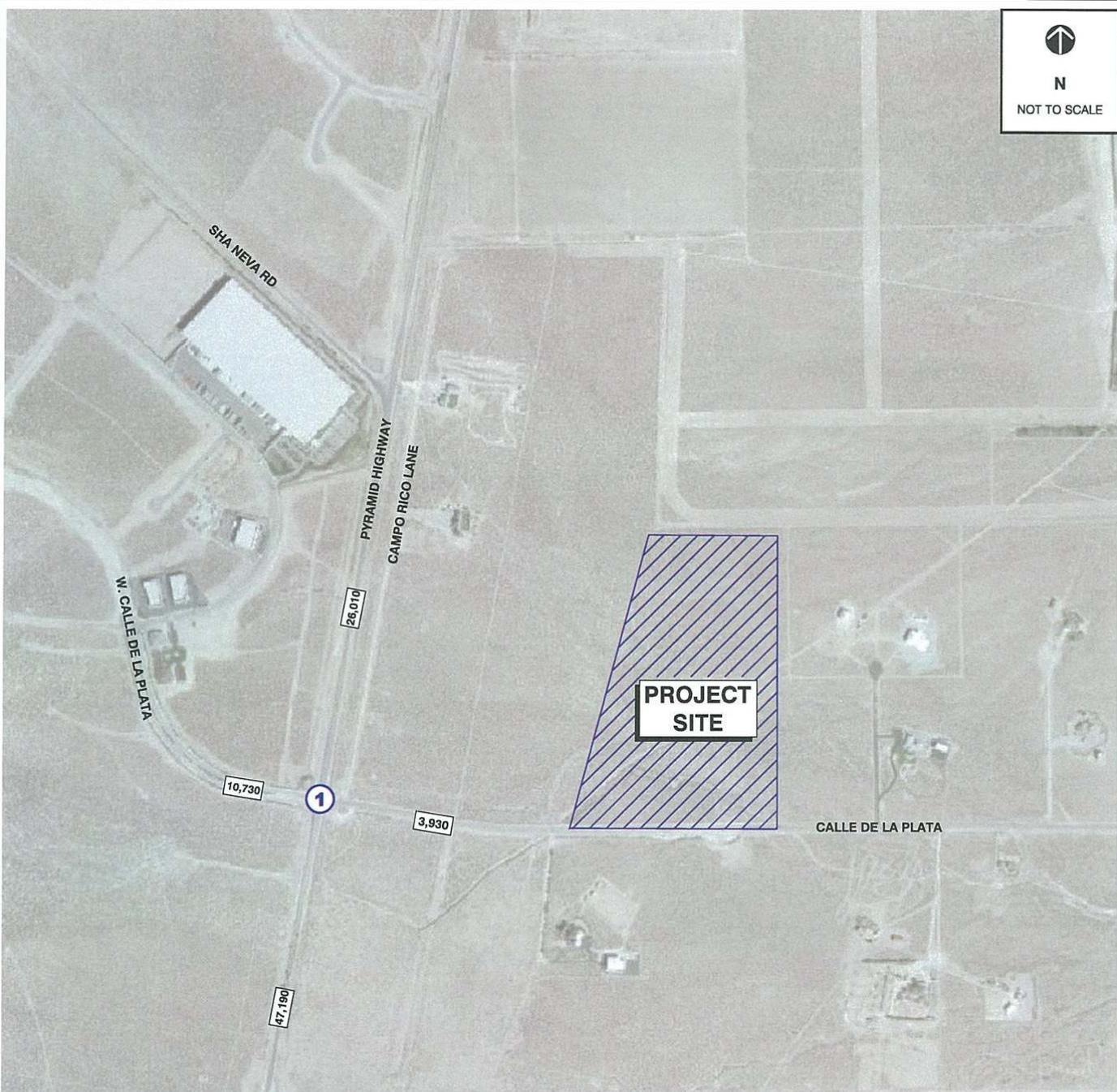
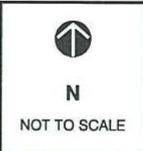
LEGEND

AM(PM) - Project Trips



Figure 5

Sugarloaf Ranch Estates
Traffic Impact Study Update
2030 Trip Assignment



LEGEND

Traffic Volumes:

- AM (PM) [Symbol] - Lane Configuration
- AM (PM) [Symbol] - Lane Configuration
- AM (PM) [Symbol] - Lane Configuration
- [1,340] - Daily Traffic Volume
- ① - Study Intersection
- ⊥ - Stop Sign

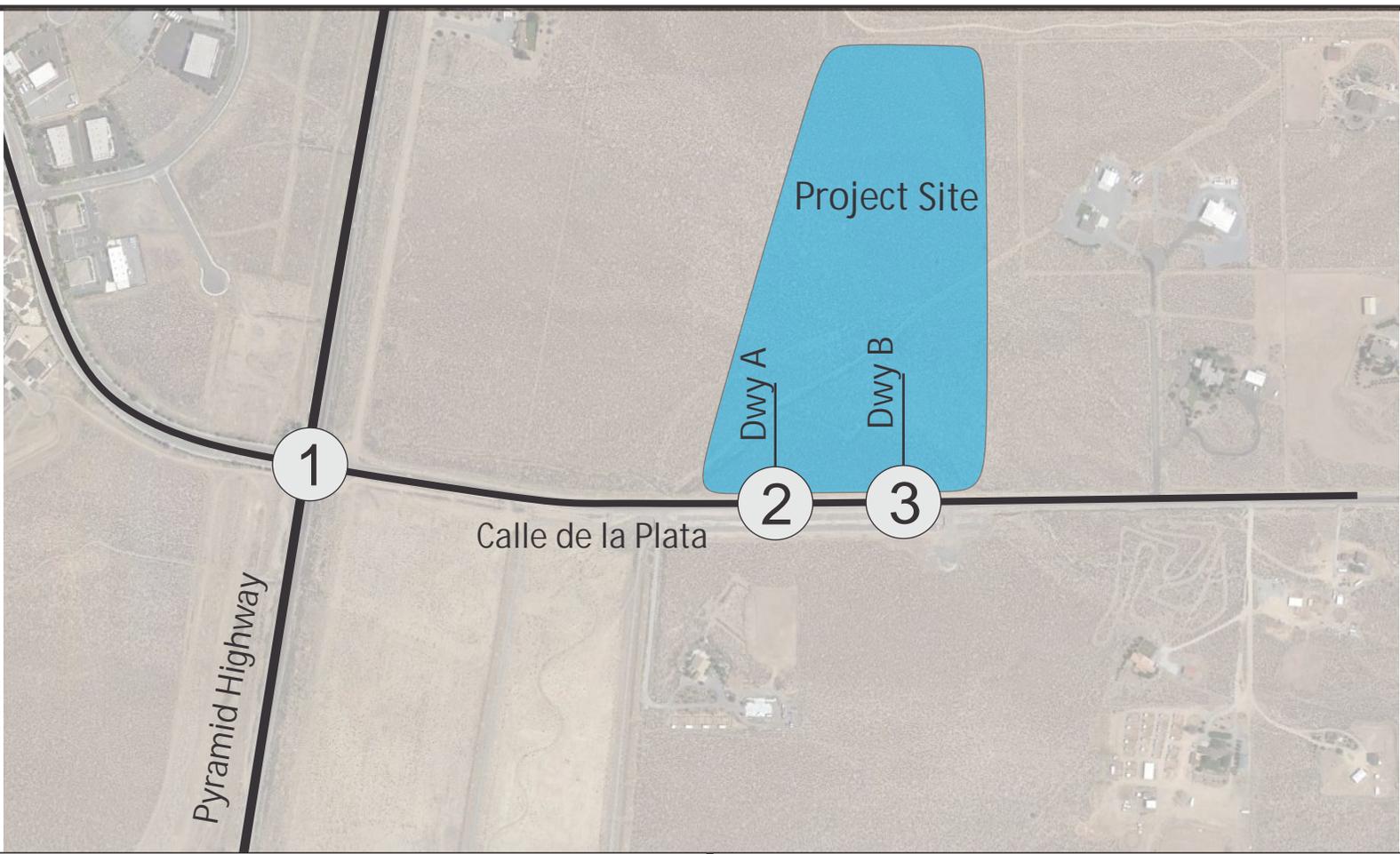


**Village at the Peak TIS - Sugarloaf Peak Property
2030 Background Traffic Volumes,
Lane Configurations, and Traffic Control**

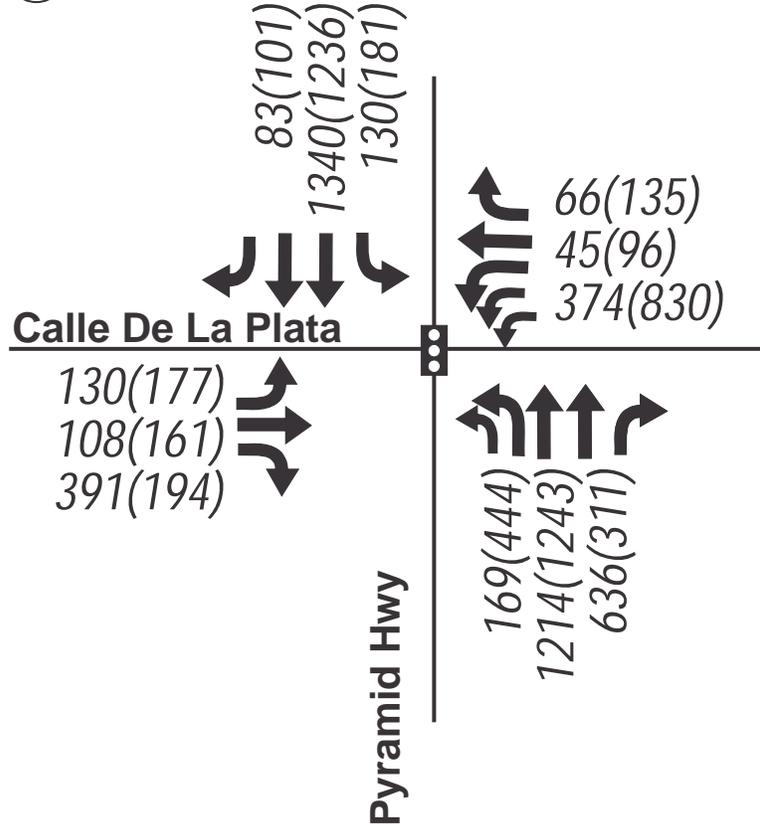


Figure 6

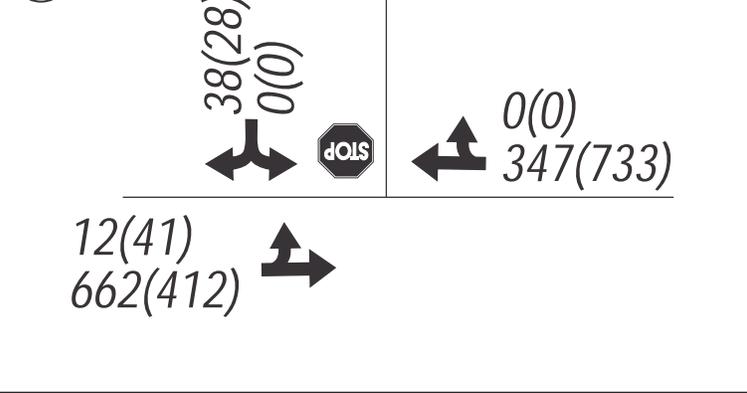
Sugarloaf Ranch Estates
Traffic Impact Study Update
2030 Background Traffic Volumes



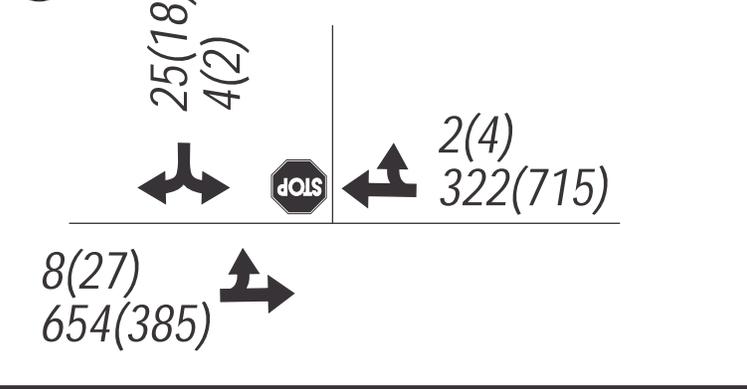
① Pyramid Hwy/Calle de la Plata



② Calle de la Plata/Dwy A



③ Calle de la Plata/Dwy B



LEGEND
 AM(PM) - Peak Hour Traffic Volumes
 [Traffic Signal Icon] - Traffic Signal
 [Lane Configuration Icon] - Lane Configuration
 [STOP Sign Icon] - STOP Sign



Figure 7
 Sugarloaf Ranch Estates
 Traffic Impact Study Update
2030 Plus Project Traffic Volumes

APPENDIX A

Existing Conditions LOS Calculations

HCM 2010 TWSC
 3: Pyramid Hwy & Calle De La Plata

9/11/2015

Intersection

Int Delay, s/veh 46

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 15 | 7 | 441 | 89 | 9 | 2 | 105 | 113 | 14 | 1 | 292 | 41 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None |
| Storage Length | - | - | 0 | - | - | - | 260 | - | - | 170 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 18 | 8 | 519 | 105 | 11 | 2 | 124 | 133 | 16 | 1 | 344 | 48 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|-------|--------|-------|-------|--------|---|---|--------|---|---|
| Conflicting Flow All | 765 | 766 | 368 | 762 | 782 | 141 | 392 | 0 | 0 | 149 | 0 | 0 |
| Stage 1 | 370 | 370 | - | 388 | 388 | - | - | - | - | - | - | - |
| Stage 2 | 395 | 396 | - | 374 | 394 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 321 | 334 | 680 | 323 | 327 | 910 | 1172 | - | - | 1439 | - | - |
| Stage 1 | 652 | 622 | - | 638 | 611 | - | - | - | - | - | - | - |
| Stage 2 | 632 | 606 | - | 649 | 607 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | | | | | |
| Mov Cap-1 Maneuver | 286 | 298 | 680 | ~ 69 | 292 | 910 | 1172 | - | - | 1439 | - | - |
| Mov Cap-2 Maneuver | 286 | 298 | - | ~ 69 | 292 | - | - | - | - | - | - | - |
| Stage 1 | 583 | 622 | - | 570 | 546 | - | - | - | - | - | - | - |
| Stage 2 | 553 | 542 | - | 152 | 607 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|----------|-----|----|
| HCM Control Delay, s | 24.9 | \$ 395.2 | 3.8 | 0 |
| HCM LOS | C | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|----------|-------|-----|-----|
| Capacity (veh/h) | 1172 | - | - | 290 | 680 | 76 | 1439 | - | - |
| HCM Lane V/C Ratio | 0.105 | - | - | 0.089 | 0.763 | 1.548 | 0.001 | - | - |
| HCM Control Delay (s) | 8.4 | - | - | 18.6 | 25.2 | \$ 395.2 | 7.5 | - | - |
| HCM Lane LOS | A | - | - | C | D | F | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 0.3 | 7.1 | 9.7 | 0 | - | - |

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 TWSC
3: Pyramid Hwy & Calle De La Plata

9/11/2015

Intersection

Int Delay, s/veh 6.7

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 9 | 3 | 179 | 39 | 3 | 4 | 262 | 263 | 71 | 1 | 190 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None |
| Storage Length | - | - | 0 | - | - | - | 260 | - | - | 170 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 10 | 3 | 199 | 43 | 3 | 4 | 291 | 292 | 79 | 1 | 211 | 11 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|-------|--------|-------|-------|--------|---|---|--------|---|---|
| Conflicting Flow All | 1137 | 1172 | 217 | 1135 | 1138 | 332 | 222 | 0 | 0 | 371 | 0 | 0 |
| Stage 1 | 219 | 219 | - | 914 | 914 | - | - | - | - | - | - | - |
| Stage 2 | 918 | 953 | - | 221 | 224 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 180 | 193 | 825 | 180 | 202 | 712 | 1353 | - | - | 1193 | - | - |
| Stage 1 | 786 | 724 | - | 329 | 353 | - | - | - | - | - | - | - |
| Stage 2 | 327 | 339 | - | 784 | 720 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | | | | | |
| Mov Cap-1 Maneuver | 147 | 151 | 825 | 112 | 158 | 712 | 1353 | - | - | 1193 | - | - |
| Mov Cap-2 Maneuver | 147 | 151 | - | 112 | 158 | - | - | - | - | - | - | - |
| Stage 1 | 617 | 723 | - | 258 | 277 | - | - | - | - | - | - | - |
| Stage 2 | 252 | 266 | - | 592 | 719 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|------|-----|----|
| HCM Control Delay, s | 12 | 53.6 | 3.7 | 0 |
| HCM LOS | B | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-------|-----|-----|
| Capacity (veh/h) | 1353 | - | - | 148 | 825 | 123 | 1193 | - | - |
| HCM Lane V/C Ratio | 0.215 | - | - | 0.09 | 0.241 | 0.416 | 0.001 | - | - |
| HCM Control Delay (s) | 8.4 | - | - | 31.7 | 10.7 | 53.6 | 8 | - | - |
| HCM Lane LOS | A | - | - | D | B | F | A | - | - |
| HCM 95th %tile Q(veh) | 0.8 | - | - | 0.3 | 0.9 | 1.8 | 0 | - | - |

APPENDIX B

Trip Generation Calculations

Weekday Average Daily Trip Generation Calculations

| Land Use | | | Total Trips | | | | | | Pass-By | | | Net New Trips | | | | |
|-----------------------|----------|-------|-------------|-----------|------|-------|-------|-----|---------|-----------|-------|---------------|-----|-------|-----|-----|
| Land Use | Variable | | ITE LU Code | Trip Rate | % In | % Out | Total | In | Out | % of Ext. | Total | In | Out | Total | In | Out |
| Single Family Housing | 119.00 | Units | 210 | 9.57 | 50% | 50% | 1139 | 570 | 569 | 0% | 0 | 0 | 0 | 1139 | 570 | 569 |
| | | | | | | | | | | | | | | | | |
| Total | | | | | | | 1139 | 570 | 569 | 0% | 0 | 0 | 0 | 1139 | 570 | 569 |

Weekday AM Peak Hour Trip Generation Calculations

| Land Use | | | Total Trips | | | | | | Pass-By | | | Net New | | | | |
|-----------------------|----------|-------|-------------|-----------|------|-------|-------|----|---------|-----------|-------|---------|-----|-------|----|-----|
| Land Use | Variable | | ITE LU Code | Trip Rate | % In | % Out | Total | In | Out | % of Ext. | Total | In | Out | Total | In | Out |
| Single Family Housing | 119.00 | Units | 210 | 0.75 | 25% | 75% | 89 | 22 | 67 | 0% | 0 | 0 | 0 | 89 | 22 | 67 |
| | | | | | | | | | | | | | | | | |
| Total | | | | | | | 89 | 22 | 67 | 0% | 0 | 0 | 0 | 89 | 22 | 67 |

Weekday PM Peak Hour Trip Generation Calculations

| Land Use | | | Total Trips | | | | | | | Pass-By | | | Net New | | | |
|-----------------------|----------|-------|-------------|-----------|------|-------|-------|----|-----|-----------|-------|----|---------|-------|----|-----|
| Land Use | Variable | | ITE LU Code | Trip Rate | % In | % Out | Total | In | Out | % of Ext. | Total | In | Out | Total | In | Out |
| Single Family Housing | 119.00 | Units | 210 | 1.01 | 60% | 40% | 120 | 72 | 48 | 0% | 0 | 0 | 0 | 120 | 72 | 48 |
| | | | | | | | | | | | | | | | | |
| Total | | | | | | | 120 | 72 | 48 | 0% | 0 | 0 | 0 | 120 | 72 | 48 |

APPENDIX C

Existing Plus Project LOS Calculations

HCM 2010 TWSC
1: Pyramid Hwy & Calle De La Plata

9/14/2015

Intersection

Int Delay, s/veh 122.7

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 15 | 8 | 441 | 143 | 12 | 9 | 105 | 113 | 32 | 3 | 292 | 41 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None |
| Storage Length | - | - | 0 | - | - | - | 260 | - | - | 170 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 18 | 9 | 519 | 168 | 14 | 11 | 124 | 133 | 38 | 4 | 344 | 48 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|-------|--------|-------|-------|--------|---|---|--------|---|---|
| Conflicting Flow All | 786 | 793 | 368 | 778 | 798 | 152 | 392 | 0 | 0 | 171 | 0 | 0 |
| Stage 1 | 375 | 375 | - | 399 | 399 | - | - | - | - | - | - | - |
| Stage 2 | 411 | 418 | - | 379 | 399 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 311 | 322 | 680 | 315 | 320 | 897 | 1172 | - | - | 1412 | - | - |
| Stage 1 | 648 | 619 | - | 629 | 604 | - | - | - | - | - | - | - |
| Stage 2 | 620 | 592 | - | 645 | 604 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | | | | | |
| Mov Cap-1 Maneuver | 271 | 287 | 680 | ~ 67 | 285 | 897 | 1172 | - | - | 1412 | - | - |
| Mov Cap-2 Maneuver | 271 | 287 | - | ~ 67 | 285 | - | - | - | - | - | - | - |
| Stage 1 | 579 | 617 | - | 562 | 540 | - | - | - | - | - | - | - |
| Stage 2 | 534 | 529 | - | ~ 150 | 602 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|--------|-----|-----|
| HCM Control Delay, s | 24.9 | \$ 832 | 3.5 | 0.1 |
| HCM LOS | C | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|--------|-------|-----|-----|
| Capacity (veh/h) | 1172 | - | - | 276 | 680 | 75 | 1412 | - | - |
| HCM Lane V/C Ratio | 0.105 | - | - | 0.098 | 0.763 | 2.573 | 0.002 | - | - |
| HCM Control Delay (s) | 8.4 | - | - | 19.5 | 25.2 | \$ 832 | 7.6 | - | - |
| HCM Lane LOS | A | - | - | C | D | F | A | - | - |
| HCM 95th %tile Q(veh) | 0.4 | - | - | 0.3 | 7.1 | 18.6 | 0 | - | - |

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 2.2

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 13 | 30 | 126 | 0 | 0 | 38 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 15 | 35 | 148 | 0 | 0 | 45 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 148 | 0 | 148 |
| Stage 1 | - | - | 148 |
| Stage 2 | - | - | 66 |
| Critical Hdwy | 4.11 | - | 6.21 |
| Critical Hdwy Stg 1 | - | - | 5.41 |
| Critical Hdwy Stg 2 | - | - | 5.41 |
| Follow-up Hdwy | 2.209 | - | 3.309 |
| Pot Cap-1 Maneuver | 1440 | - | 901 |
| Stage 1 | - | - | 882 |
| Stage 2 | - | - | 959 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1440 | - | 901 |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | 882 |
| Stage 2 | - | - | 948 |

| Approach | EB | WB | SB |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 2.3 | 0 | 9.2 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1440 | - | - | - | 901 |
| HCM Lane V/C Ratio | 0.011 | - | - | - | 0.05 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.2 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

Intersection

Int Delay, s/veh 2

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 8 | 22 | 100 | 1 | 3 | 26 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 85 | 85 | 85 | 85 | 85 | 85 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 9 | 26 | 118 | 1 | 4 | 31 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 119 | 0 | 163 |
| Stage 1 | - | - | 118 |
| Stage 2 | - | - | 45 |
| Critical Hdwy | 4.11 | - | 6.41 |
| Critical Hdwy Stg 1 | - | - | 5.41 |
| Critical Hdwy Stg 2 | - | - | 5.41 |
| Follow-up Hdwy | 2.209 | - | 3.509 |
| Pot Cap-1 Maneuver | 1475 | - | 830 |
| Stage 1 | - | - | 910 |
| Stage 2 | - | - | 980 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1475 | - | 825 |
| Mov Cap-2 Maneuver | - | - | 825 |
| Stage 1 | - | - | 910 |
| Stage 2 | - | - | 974 |

| Approach | EB | WB | SB |
|----------------------|----|----|----|
| HCM Control Delay, s | 2 | 0 | 9 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1475 | - | - | - | 924 |
| HCM Lane V/C Ratio | 0.006 | - | - | - | 0.037 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

HCM 2010 TWSC
 1: Pyramid Hwy & Calle De La Plata

9/14/2015

Intersection

Int Delay, s/veh 11.8

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 9 | 7 | 179 | 77 | 5 | 9 | 232 | 263 | 129 | 8 | 190 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None |
| Storage Length | - | - | 0 | - | - | - | 260 | - | - | 170 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 10 | 8 | 199 | 86 | 6 | 10 | 258 | 292 | 143 | 9 | 211 | 11 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|----------------------|--------|-------|-------|--------|-------|-------|--------|---|---|--------|---|---|
| Conflicting Flow All | 1121 | 1185 | 217 | 1117 | 1119 | 364 | 222 | 0 | 0 | 436 | 0 | 0 |
| Stage 1 | 234 | 234 | - | 879 | 879 | - | - | - | - | - | - | - |
| Stage 2 | 887 | 951 | - | 238 | 240 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 184 | 190 | 825 | 185 | 208 | 683 | 1353 | - | - | 1129 | - | - |
| Stage 1 | 771 | 713 | - | 344 | 367 | - | - | - | - | - | - | - |
| Stage 2 | 340 | 340 | - | 768 | 709 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | | | | | |
| Mov Cap-1 Maneuver | 150 | 153 | 825 | 115 | 167 | 683 | 1353 | - | - | 1129 | - | - |
| Mov Cap-2 Maneuver | 150 | 153 | - | 115 | 167 | - | - | - | - | - | - | - |
| Stage 1 | 624 | 707 | - | 278 | 297 | - | - | - | - | - | - | - |
| Stage 2 | 266 | 275 | - | 572 | 703 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 12.4 | 96.5 | 3.1 | 0.3 |
| HCM LOS | B | F | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-------|-----|-----|
| Capacity (veh/h) | 1353 | - | - | 151 | 825 | 128 | 1129 | - | - |
| HCM Lane V/C Ratio | 0.191 | - | - | 0.118 | 0.241 | 0.79 | 0.008 | - | - |
| HCM Control Delay (s) | 8.3 | - | - | 32 | 10.7 | 96.5 | 8.2 | - | - |
| HCM Lane LOS | A | - | - | D | B | F | A | - | - |
| HCM 95th %tile Q(veh) | 0.7 | - | - | 0.4 | 0.9 | 4.7 | 0 | - | - |

Intersection

Int Delay, s/veh 2.3

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 41 | 103 | 64 | 0 | 0 | 27 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 46 | 114 | 71 | 0 | 0 | 30 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 71 | 0 | 71 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | 4.11 | - | 6.21 |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | 2.209 | - | 3.309 |
| Pot Cap-1 Maneuver | 1536 | - | 994 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1536 | - | 994 |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | EB | WB | SB |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 2.1 | 0 | 8.7 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|------|-----|-----|-----|-------|
| Capacity (veh/h) | 1536 | - | - | - | 994 |
| HCM Lane V/C Ratio | 0.03 | - | - | - | 0.03 |
| HCM Control Delay (s) | 7.4 | 0 | - | - | 8.7 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.1 |

Intersection

Int Delay, s/veh 2.3

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 28 | 75 | 46 | 3 | 3 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 31 | 83 | 51 | 3 | 3 | 20 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 54 | 0 | 199 |
| Stage 1 | - | - | 53 |
| Stage 2 | - | - | 146 |
| Critical Hdwy | 4.11 | - | 6.41 |
| Critical Hdwy Stg 1 | - | - | 5.41 |
| Critical Hdwy Stg 2 | - | - | 5.41 |
| Follow-up Hdwy | 2.209 | - | 3.509 |
| Pot Cap-1 Maneuver | 1558 | - | 792 |
| Stage 1 | - | - | 972 |
| Stage 2 | - | - | 884 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1558 | - | 775 |
| Mov Cap-2 Maneuver | - | - | 775 |
| Stage 1 | - | - | 972 |
| Stage 2 | - | - | 865 |

| Approach | EB | WB | SB |
|----------------------|----|----|-----|
| HCM Control Delay, s | 2 | 0 | 8.8 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|------|-----|-----|-----|-------|
| Capacity (veh/h) | 1558 | - | - | - | 974 |
| HCM Lane V/C Ratio | 0.02 | - | - | - | 0.024 |
| HCM Control Delay (s) | 7.4 | 0 | - | - | 8.8 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.1 |

HCM 2010 Signalized Intersection Summary
 1: Pyramid Hwy & Calle De La Plata

9/14/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Volume (veh/h) | 15 | 8 | 441 | 143 | 12 | 9 | 105 | 113 | 32 | 3 | 292 | 41 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1881 | 1881 | 1900 | 1881 | 1900 | 1881 | 1881 | 1900 | 1881 | 1881 | 1900 |
| Adj Flow Rate, veh/h | 18 | 9 | 519 | 168 | 14 | 11 | 124 | 133 | 38 | 4 | 344 | 48 |
| Adj No. of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 520 | 239 | 637 | 449 | 37 | 22 | 374 | 514 | 147 | 512 | 483 | 67 |
| Arrive On Green | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.07 | 0.37 | 0.37 | 0.00 | 0.30 | 0.30 |
| Sat Flow, veh/h | 1014 | 598 | 1599 | 801 | 92 | 54 | 1792 | 1408 | 402 | 1792 | 1616 | 225 |
| Grp Volume(v), veh/h | 27 | 0 | 519 | 193 | 0 | 0 | 124 | 0 | 171 | 4 | 0 | 392 |
| Grp Sat Flow(s),veh/h/ln | 1613 | 0 | 1599 | 947 | 0 | 0 | 1792 | 0 | 1810 | 1792 | 0 | 1841 |
| Q Serve(g_s), s | 0.0 | 0.0 | 14.9 | 7.4 | 0.0 | 0.0 | 2.3 | 0.0 | 3.4 | 0.1 | 0.0 | 9.8 |
| Cycle Q Clear(g_c), s | 0.5 | 0.0 | 14.9 | 7.9 | 0.0 | 0.0 | 2.3 | 0.0 | 3.4 | 0.1 | 0.0 | 9.8 |
| Prop In Lane | 0.67 | | 1.00 | 0.87 | | 0.06 | 1.00 | | 0.22 | 1.00 | | 0.12 |
| Lane Grp Cap(c), veh/h | 759 | 0 | 637 | 508 | 0 | 0 | 374 | 0 | 661 | 512 | 0 | 551 |
| V/C Ratio(X) | 0.04 | 0.00 | 0.81 | 0.38 | 0.00 | 0.00 | 0.33 | 0.00 | 0.26 | 0.01 | 0.00 | 0.71 |
| Avail Cap(c_a), veh/h | 1184 | 0 | 1082 | 769 | 0 | 0 | 457 | 0 | 1365 | 643 | 0 | 1318 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 9.5 | 0.0 | 13.8 | 11.7 | 0.0 | 0.0 | 11.5 | 0.0 | 11.5 | 12.6 | 0.0 | 16.1 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 2.6 | 0.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.2 | 0.0 | 0.0 | 1.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 7.0 | 2.1 | 0.0 | 0.0 | 1.2 | 0.0 | 1.7 | 0.0 | 0.0 | 5.2 |
| LnGrp Delay(d),s/veh | 9.5 | 0.0 | 16.4 | 12.1 | 0.0 | 0.0 | 12.0 | 0.0 | 11.7 | 12.6 | 0.0 | 17.9 |
| LnGrp LOS | A | | B | B | | | B | | B | B | | B |
| Approach Vol, veh/h | | 546 | | | 193 | | | 295 | | | 396 | |
| Approach Delay, s/veh | | 16.1 | | | 12.1 | | | 11.8 | | | 17.8 | |
| Approach LOS | | B | | | B | | | B | | | B | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 4.2 | 22.9 | | 24.6 | 7.6 | 19.5 | | 24.6 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | 4.0 | 39.0 | | 35.0 | 6.0 | 37.0 | | 35.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.1 | 5.4 | | 16.9 | 4.3 | 11.8 | | 9.9 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.9 | | 3.7 | 0.0 | 3.7 | | 4.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 15.2 | | | | | | | | | |
| HCM 2010 LOS | | | B | | | | | | | | | |

HCM 2010 Signalized Intersection Summary

1: Pyramid Hwy & Calle De La Plata

9/14/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  | |  | |  |  | |  |  | |
| Volume (veh/h) | 9 | 7 | 179 | 77 | 5 | 9 | 232 | 263 | 129 | 8 | 190 | 10 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1881 | 1881 | 1900 | 1881 | 1900 | 1881 | 1881 | 1900 | 1881 | 1881 | 1900 |
| Adj Flow Rate, veh/h | 10 | 8 | 199 | 86 | 6 | 10 | 258 | 292 | 143 | 9 | 211 | 11 |
| Adj No. of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 319 | 198 | 318 | 413 | 34 | 25 | 684 | 475 | 233 | 448 | 475 | 25 |
| Arrive On Green | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.14 | 0.40 | 0.40 | 0.01 | 0.27 | 0.27 |
| Sat Flow, veh/h | 679 | 998 | 1599 | 982 | 171 | 125 | 1792 | 1194 | 585 | 1792 | 1772 | 92 |
| Grp Volume(v), veh/h | 18 | 0 | 199 | 102 | 0 | 0 | 258 | 0 | 435 | 9 | 0 | 222 |
| Grp Sat Flow(s),veh/h/ln | 1677 | 0 | 1599 | 1278 | 0 | 0 | 1792 | 0 | 1778 | 1792 | 0 | 1865 |
| Q Serve(g_s), s | 0.0 | 0.0 | 3.5 | 1.6 | 0.0 | 0.0 | 2.7 | 0.0 | 5.9 | 0.1 | 0.0 | 3.0 |
| Cycle Q Clear(g_c), s | 0.2 | 0.0 | 3.5 | 2.0 | 0.0 | 0.0 | 2.7 | 0.0 | 5.9 | 0.1 | 0.0 | 3.0 |
| Prop In Lane | 0.56 | | 1.00 | 0.84 | | 0.10 | 1.00 | | 0.33 | 1.00 | | 0.05 |
| Lane Grp Cap(c), veh/h | 517 | 0 | 318 | 471 | 0 | 0 | 684 | 0 | 708 | 448 | 0 | 500 |
| V/C Ratio(X) | 0.03 | 0.00 | 0.63 | 0.22 | 0.00 | 0.00 | 0.38 | 0.00 | 0.61 | 0.02 | 0.00 | 0.44 |
| Avail Cap(c_a), veh/h | 1033 | 0 | 839 | 876 | 0 | 0 | 785 | 0 | 1049 | 666 | 0 | 978 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 9.9 | 0.0 | 11.2 | 10.5 | 0.0 | 0.0 | 5.5 | 0.0 | 7.3 | 8.1 | 0.0 | 9.3 |
| Incr Delay (d2), s/veh | 0.0 | 0.0 | 2.0 | 0.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.9 | 0.0 | 0.0 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.1 | 0.0 | 1.7 | 0.8 | 0.0 | 0.0 | 1.3 | 0.0 | 3.1 | 0.1 | 0.0 | 1.6 |
| LnGrp Delay(d),s/veh | 9.9 | 0.0 | 13.2 | 10.8 | 0.0 | 0.0 | 5.8 | 0.0 | 8.2 | 8.1 | 0.0 | 9.9 |
| LnGrp LOS | A | | B | B | | | A | | A | A | | A |
| Approach Vol, veh/h | | 217 | | | 102 | | | 693 | | | 231 | |
| Approach Delay, s/veh | | 12.9 | | | 10.8 | | | 7.3 | | | 9.8 | |
| Approach LOS | | B | | | B | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 4.3 | 16.1 | | 10.1 | 8.3 | 12.2 | | 10.1 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | 4.0 | 18.0 | | 16.0 | 6.0 | 16.0 | | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 2.1 | 7.9 | | 5.5 | 4.7 | 5.0 | | 4.0 | | | | |
| Green Ext Time (p_c), s | 0.0 | 3.0 | | 1.0 | 0.1 | 3.2 | | 1.1 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 9.0 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

APPENDIX D
2030 Plus Project LOS Calculations

HCM 2010 Signalized Intersection Summary
 1: Pyramid Hwy & Calle De La Plata

9/14/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (veh/h) | 130 | 108 | 391 | 374 | 45 | 66 | 169 | 1214 | 637 | 131 | 1340 | 83 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 141 | 117 | 0 | 407 | 49 | 72 | 184 | 1320 | 692 | 142 | 1457 | 90 |
| Adj No. of Lanes | 1 | 1 | 1 | 3 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 181 | 190 | 161 | 505 | 187 | 159 | 231 | 1547 | 692 | 179 | 1666 | 745 |
| Arrive On Green | 0.10 | 0.10 | 0.00 | 0.10 | 0.10 | 0.10 | 0.07 | 0.43 | 0.43 | 0.10 | 0.47 | 0.47 |
| Sat Flow, veh/h | 1792 | 1881 | 1599 | 5052 | 1881 | 1599 | 3476 | 3574 | 1599 | 1792 | 3574 | 1599 |
| Grp Volume(v), veh/h | 141 | 117 | 0 | 407 | 49 | 72 | 184 | 1320 | 692 | 142 | 1457 | 90 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 1881 | 1599 | 1684 | 1881 | 1599 | 1738 | 1787 | 1599 | 1792 | 1787 | 1599 |
| Q Serve(g_s), s | 4.6 | 3.6 | 0.0 | 4.7 | 1.4 | 2.5 | 3.1 | 19.9 | 26.0 | 4.7 | 22.1 | 1.9 |
| Cycle Q Clear(g_c), s | 4.6 | 3.6 | 0.0 | 4.7 | 1.4 | 2.5 | 3.1 | 19.9 | 26.0 | 4.7 | 22.1 | 1.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 181 | 190 | 161 | 505 | 187 | 159 | 231 | 1547 | 692 | 179 | 1666 | 745 |
| V/C Ratio(X) | 0.78 | 0.62 | 0.00 | 0.81 | 0.26 | 0.45 | 0.79 | 0.85 | 1.00 | 0.79 | 0.87 | 0.12 |
| Avail Cap(c_a), veh/h | 298 | 345 | 293 | 505 | 219 | 186 | 231 | 1547 | 692 | 179 | 1666 | 745 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 26.3 | 25.9 | 0.0 | 26.5 | 25.0 | 25.5 | 27.6 | 15.3 | 17.0 | 26.4 | 14.4 | 9.1 |
| Incr Delay (d2), s/veh | 7.0 | 3.2 | 0.0 | 9.3 | 0.7 | 2.0 | 17.2 | 4.8 | 34.1 | 21.2 | 5.5 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.6 | 2.0 | 0.0 | 2.6 | 0.8 | 1.2 | 2.1 | 10.8 | 17.9 | 3.3 | 12.0 | 0.8 |
| LnGrp Delay(d),s/veh | 33.4 | 29.1 | 0.0 | 35.8 | 25.7 | 27.5 | 44.9 | 20.2 | 51.2 | 47.7 | 19.9 | 9.1 |
| LnGrp LOS | C | C | | D | C | C | D | C | D | D | B | A |
| Approach Vol, veh/h | | 258 | | | 528 | | | 2196 | | | 1689 | |
| Approach Delay, s/veh | | 31.4 | | | 33.7 | | | 32.0 | | | 21.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 10.0 | 30.0 | 10.0 | 10.1 | 8.0 | 32.0 | 10.1 | 10.0 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| Max Green Setting (Gmax), s | 6.0 | 26.0 | 6.0 | 11.0 | 4.0 | 28.0 | 10.0 | 7.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 6.7 | 28.0 | 6.7 | 5.6 | 5.1 | 24.1 | 6.6 | 4.5 | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 3.9 | 0.1 | 0.3 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 28.4 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Intersection

Int Delay, s/veh 0.4

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 12 | 662 | 347 | 0 | 0 | 38 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 13 | 720 | 377 | 0 | 0 | 41 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 377 | 0 | 1123 |
| Stage 1 | - | - | 377 |
| Stage 2 | - | - | 746 |
| Critical Hdwy | 4.11 | - | 6.41 |
| Critical Hdwy Stg 1 | - | - | 5.41 |
| Critical Hdwy Stg 2 | - | - | 5.41 |
| Follow-up Hdwy | 2.209 | - | 3.509 |
| Pot Cap-1 Maneuver | 1187 | - | 672 |
| Stage 1 | - | - | 696 |
| Stage 2 | - | - | 471 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1187 | - | 672 |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | 696 |
| Stage 2 | - | - | 463 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.1 | 0 | 10.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1187 | - | - | - | 672 |
| HCM Lane V/C Ratio | 0.011 | - | - | - | 0.061 |
| HCM Control Delay (s) | 8.1 | 0 | - | - | 10.7 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

Intersection

Int Delay, s/veh 0.4

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 8 | 654 | 322 | 2 | 4 | 25 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 9 | 711 | 350 | 2 | 4 | 27 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 352 | 0 | 1079 |
| Stage 1 | - | - | 351 |
| Stage 2 | - | - | 728 |
| Critical Hdwy | 4.11 | - | 6.41 |
| Critical Hdwy Stg 1 | - | - | 5.41 |
| Critical Hdwy Stg 2 | - | - | 5.41 |
| Follow-up Hdwy | 2.209 | - | 3.509 |
| Pot Cap-1 Maneuver | 1212 | - | 243 |
| Stage 1 | - | - | 715 |
| Stage 2 | - | - | 480 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1212 | - | 240 |
| Mov Cap-2 Maneuver | - | - | 240 |
| Stage 1 | - | - | 715 |
| Stage 2 | - | - | 474 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.1 | 0 | 11.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1212 | - | - | - | 551 |
| HCM Lane V/C Ratio | 0.007 | - | - | - | 0.057 |
| HCM Control Delay (s) | 8 | 0 | - | - | 11.9 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.2 |

HCM 2010 Signalized Intersection Summary
 1: Pyramid Hwy & Calle De La Plata

9/14/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (veh/h) | 177 | 161 | 194 | 830 | 96 | 135 | 444 | 1243 | 311 | 182 | 1236 | 101 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 | 1881 |
| Adj Flow Rate, veh/h | 192 | 175 | 0 | 902 | 104 | 147 | 483 | 1351 | 338 | 198 | 1343 | 110 |
| Adj No. of Lanes | 1 | 1 | 1 | 3 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cap, veh/h | 227 | 188 | 160 | 954 | 305 | 259 | 502 | 1469 | 657 | 219 | 1390 | 622 |
| Arrive On Green | 0.13 | 0.10 | 0.00 | 0.19 | 0.16 | 0.16 | 0.14 | 0.41 | 0.41 | 0.12 | 0.39 | 0.39 |
| Sat Flow, veh/h | 1792 | 1881 | 1599 | 5052 | 1881 | 1599 | 3476 | 3574 | 1599 | 1792 | 3574 | 1599 |
| Grp Volume(v), veh/h | 192 | 175 | 0 | 902 | 104 | 147 | 483 | 1351 | 338 | 198 | 1343 | 110 |
| Grp Sat Flow(s),veh/h/ln | 1792 | 1881 | 1599 | 1684 | 1881 | 1599 | 1738 | 1787 | 1599 | 1792 | 1787 | 1599 |
| Q Serve(g_s), s | 9.4 | 8.3 | 0.0 | 15.9 | 4.4 | 7.6 | 12.4 | 32.2 | 14.2 | 9.8 | 33.1 | 4.1 |
| Cycle Q Clear(g_c), s | 9.4 | 8.3 | 0.0 | 15.9 | 4.4 | 7.6 | 12.4 | 32.2 | 14.2 | 9.8 | 33.1 | 4.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 227 | 188 | 160 | 954 | 305 | 259 | 502 | 1469 | 657 | 219 | 1390 | 622 |
| V/C Ratio(X) | 0.84 | 0.93 | 0.00 | 0.95 | 0.34 | 0.57 | 0.96 | 0.92 | 0.51 | 0.90 | 0.97 | 0.18 |
| Avail Cap(c_a), veh/h | 259 | 188 | 160 | 954 | 305 | 259 | 502 | 1469 | 657 | 219 | 1390 | 622 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 38.4 | 40.2 | 0.0 | 36.0 | 33.4 | 34.8 | 38.3 | 25.1 | 19.8 | 39.0 | 26.9 | 18.0 |
| Incr Delay (d2), s/veh | 19.9 | 46.1 | 0.0 | 17.4 | 0.7 | 2.9 | 30.6 | 9.6 | 0.7 | 36.0 | 16.7 | 0.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 5.9 | 6.7 | 0.0 | 8.9 | 2.3 | 3.6 | 8.1 | 17.7 | 6.3 | 7.0 | 19.5 | 1.8 |
| LnGrp Delay(d),s/veh | 58.4 | 86.3 | 0.0 | 53.5 | 34.1 | 37.7 | 68.9 | 34.7 | 20.5 | 74.9 | 43.6 | 18.2 |
| LnGrp LOS | E | F | | D | C | D | E | C | C | E | D | B |
| Approach Vol, veh/h | | 367 | | | 1153 | | | 2172 | | | 1651 | |
| Approach Delay, s/veh | | 71.7 | | | 49.7 | | | 40.1 | | | 45.7 | |
| Approach LOS | | E | | | D | | | D | | | D | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 15.0 | 41.0 | 21.0 | 13.0 | 17.0 | 39.0 | 15.4 | 18.6 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| Max Green Setting (Gmax), s | 11.0 | 37.0 | 17.0 | 9.0 | 13.0 | 35.0 | 13.0 | 13.0 | | | | |
| Max Q Clear Time (g_c+I1), s | 11.8 | 34.2 | 17.9 | 10.3 | 14.4 | 35.1 | 11.4 | 9.6 | | | | |
| Green Ext Time (p_c), s | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.7 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 46.1 | | | | | | | | | |
| HCM 2010 LOS | | | D | | | | | | | | | |

Intersection

Int Delay, s/veh 0.7

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 41 | 412 | 733 | 0 | 0 | 28 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 45 | 448 | 797 | 0 | 0 | 30 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 797 | 0 | 797 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | 4.11 | - | 6.21 |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | 2.209 | - | 3.309 |
| Pot Cap-1 Maneuver | 829 | - | 388 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 829 | - | 388 |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.9 | 0 | 15.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 829 | - | - | - | 388 |
| HCM Lane V/C Ratio | 0.054 | - | - | - | 0.078 |
| HCM Control Delay (s) | 9.6 | 0 | - | - | 15.1 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - | 0.3 |

Intersection

Int Delay, s/veh 0.5

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 27 | 385 | 715 | 4 | 2 | 18 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 29 | 418 | 777 | 4 | 2 | 20 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 782 | 0 | 1256 |
| Stage 1 | - | - | 779 |
| Stage 2 | - | - | 477 |
| Critical Hdwy | 4.11 | - | 6.41 |
| Critical Hdwy Stg 1 | - | - | 5.41 |
| Critical Hdwy Stg 2 | - | - | 5.41 |
| Follow-up Hdwy | 2.209 | - | 3.509 |
| Pot Cap-1 Maneuver | 840 | - | 190 |
| Stage 1 | - | - | 454 |
| Stage 2 | - | - | 626 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 840 | - | 181 |
| Mov Cap-2 Maneuver | - | - | 181 |
| Stage 1 | - | - | 454 |
| Stage 2 | - | - | 598 |

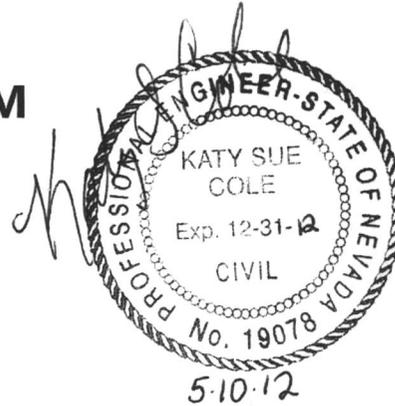
| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.6 | 0 | 15.8 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 840 | - | - | - | 355 |
| HCM Lane V/C Ratio | 0.035 | - | - | - | 0.061 |
| HCM Control Delay (s) | 9.4 | 0 | - | - | 15.8 |
| HCM Lane LOS | A | A | - | - | C |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 |

APPENDIX E
2012 Traffic Study Report

FEHR & PEERS

MEMORANDUM



Date: May 10, 2012
To: Mr. Jim House, Sugarload Peak LLC
Ms. Sandra Waltman, Sugarloaf Peak LLC
cc: Mr. John Krmpotic, KLS Planning and Design Group
From: Katy Cole, P.E., Fehr & Peers
Marissa Harned, P.E., Fehr & Peers
Subject: **Village at the Peak Traffic Impact Study – Sugarloaf Peak Property**

NV12-0499

This technical memorandum provides a summary of the data collection and traffic analysis performed for the Sugarloaf Peak property north of Calle de la Plata and east of Pyramid Highway (shown on attached **Figure 1**).

SUMMARY OF CONCLUSIONS

The following provides a summary of findings based on the analysis presented in this report:

- The proposed zoning (Specific Plan, conforming to High Density Suburban standards for up to 360 multi-family units) would generate significantly less traffic (more than 5,000 less daily trips) than the property built-out under the existing zoning.
- The Pyramid Highway/Calle de la Plata intersection currently operates at an unacceptable level of service F during the AM and PM peak hours. Based on existing traffic volumes, the intersection meets Peak Hour and Four-Hour Vehicle Volume traffic signal warrant criteria. The Spanish Springs Area Plan recognizes that a traffic signal is needed at the intersection to address the current situation.
- Build out of multi-family residential on the project site will increase delay at the Pyramid Highway/Calle de la Plata intersection. If a traffic signal is not installed at the Pyramid Highway/Calle de la Plata intersection prior to construction of the project, the project



Note that since the traffic signal is necessary to accommodate existing traffic volumes, the project should not be fully financially responsible for the improvements, and should only be responsible for a fair share based on the traffic volumes generated at the intersection by the project site.

- The Regional Transportation Commission's (RTC) *Regional Transportation Plan* (RTP) includes future regional roadway improvements to increase capacity on Pyramid Highway in the project vicinity. The *RTP* specifically indicates the following improvements:
 - Pyramid Highway – Widen from two lanes to four lanes, from Egyptian Drive to Calle de la Plata by 2018
 - Pyramid Highway – Widen from two lanes to four lanes, from Calle de la Plata to Winnemucca Ranch Road by 2030
 - Pyramid Highway – Widen from four lanes to six lanes, from Egyptian Drive to Calle de la Plata by 2030
- The 2030 analysis demonstrates adequate regional roadway improvements are planned to accommodate regional growth, approved but not yet constructed projects near the Pyramid Highway/Calle de la Plata intersection, and the proposed project

INTRODUCTION

PROJECT DESCRIPTION

The Sugarloaf Peak property is 39.8 acres and has the following zoning: 17.7 acres Neighborhood Commercial, 20 acres Industrial, and 2 acres Open Space. The proposed project would change the current zoning to Specific Plan, which would conform to High Density Suburban zoning standards. High Density Suburban would allow up to 9 multi-family units per acre for a total of 360 multi-family residential units.



STUDY INTERSECTIONS AND ROADWAY SEGMENTS

The following intersections were analyzed during the AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hours:

- Pyramid Highway/Calle de la Plata
- Calle de la Plata/Project Driveway 1
- Calle de la Plata/Project Driveway 2

Daily traffic volume data was analyzed for the following roadway segments:

- Pyramid Highway north of Calle de la Plata
- Pyramid Highway south of Calle de la Plata
- Calle de la Plata west of Pyramid Highway
- Calle de la Plata east of Pyramid Highway

ANALYSIS SCENARIOS

The following scenarios were analyzed with corresponding traffic volumes and roadway network configurations:

- Existing Conditions – Peak hour intersection and daily roadway segment level of service analysis was performed based on intersection turning movement volumes and roadway segment volumes collected in April 2012, and Nevada Department of Transportation (NDOT) traffic volume data collected in 2010.
- Existing Plus Project Conditions – Project generated traffic volumes (based on 360 multi-family units) were added to existing traffic volumes, and peak hour intersection and daily roadway segment level of service analysis was performed.
- 2030 Background Conditions - 2030 background conditions traffic volumes were developed based on the Regional Transportation Commission's (RTC) regional travel demand model and trip generation volumes from planned/approved projects in the area. Peak hour intersection and daily roadway segment level of service analysis was performed.



- 2030 Background Plus Project Conditions – Project generated traffic volumes were added to 2030 background traffic volumes, and peak hour intersection and daily roadway segment level of service analysis was performed.

ANALYSIS METHODOLOGY

Transportation engineers and planners commonly use the term level of service (LOS) to measure and describe the operational status of the local roadway network. An intersection or roadway segment's level of service can range from LOS A (indicating free-flow traffic conditions with little or no delay), to LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

The analysis methods presented in the Transportation Research Board's *Highway Capacity Manual 2000 (HCM 2000)* were used to calculate level of service for signalized and unsignalized intersections.

Signalized Intersections

Signalized intersections were analyzed using the methodology contained in Chapter 16 of the *HCM 2000*. This methodology determines the level of service by comparing the average control delay for all vehicles approaching the intersection to the delay thresholds shown in **Table 1**.

Unsignalized Intersections

Unsignalized (side street stop controlled) intersection level of service calculations were conducted using the methods contained in Chapter 17 of the *HCM 2000*. The level of service rating is based on the average control delay expressed in seconds per vehicle. At side street stop controlled intersections, the control delay (and LOS) is calculated for each controlled movement, the left-turn movement from the major street, and for the entire intersection. For controlled approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. **Table 1** presents the thresholds for unsignalized intersections.



| TABLE 1 INTERSECTION LEVEL OF SERVICE DEFINITIONS | | | |
|--|--|--|--|
| Level of Service | Description | Signalized Intersections (Average Control Delay) ¹ | Unsignalized Intersections (Average Control Delay) ² |
| A | Represents free flow. Individual users are virtually unaffected by others in the traffic stream. | ≤ 10 | ≤10 |
| B | Stable flow, but the presence of other users in the traffic stream begins to be noticeable. | > 10 to 20 | > 10 to 15 |
| C | Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream. | > 20 to 35 | > 15 to 25 |
| D | Represents high-density, but stable flow. | > 35 to 55 | > 25 to 35 |
| E | Represents operating conditions at or near the capacity level. | > 55 to 80 | > 35 to 50 |
| F | Represents forced or breakdown flow. | > 80 | > 50 |

Sources:
¹ HCM 2000, Chapter 16, Signalized Intersections. Values shown are in seconds/vehicle.
² HCM 2000, Chapter 17, Unsignalized Intersections. Values shown are in seconds/vehicle.

Roadway Segments

Table 2 provides roadway segment level of service standards as presented in the Regional Transportation Commission's (RTC) *Regional Transportation Plan (RTP)*. Roadway segment level of service is determined by comparing average daily traffic (ADT) volumes to the thresholds presented in the table.



| TABLE 2 AVERAGE DAILY TRAFFIC LEVEL OF SERVICE THRESHOLDS BY FACILITY | | | | | |
|--|---|--------|--------|--------|--------|
| Facility Type | Maximum Daily Service Flow Rate (For Given LOS) | | | | |
| Number of Lanes | LOS A | LOS B | LOS C | LOS D | LOS E |
| Arterial - High Access Control (HAC) | | | | | |
| 2 | n/a | 9,400 | 17,300 | 19,200 | 20,300 |
| 4 | n/a | 20,400 | 36,100 | 38,400 | 40,600 |
| 6 | n/a | 31,600 | 54,700 | 57,600 | 60,900 |
| 8 | n/a | 42,500 | 73,200 | 76,800 | 81,300 |
| Arterial - Moderate Access Control (MAC) | | | | | |
| 2 | n/a | 5,500 | 14,800 | 17,500 | 18,600 |
| 4 | n/a | 12,000 | 32,200 | 35,200 | 36,900 |
| 6 | n/a | 18,800 | 49,600 | 52,900 | 55,400 |
| 8 | n/a | 25,600 | 66,800 | 70,600 | 73,900 |
| Arterial/Collector - Low Access Control (LAC) | | | | | |
| 2 | n/a | n/a | 6,900 | 13,400 | 15,100 |
| 4 | n/a | n/a | 15,700 | 28,400 | 30,200 |
| 6 | n/a | n/a | 24,800 | 43,100 | 45,400 |
| 8 | n/a | n/a | 34,000 | 57,600 | 60,600 |

Source: Table 3-4 Average Daily Traffic Level of Service Thresholds By Facility Type for Roadway Planning, Washoe County *Regional Transportation Plan, 2008*

Level of Service Standards

The RTC has established level of service criteria for regionally significant roadways and intersections in the *RTP*. The *RTP* level of service standards for regional roadways and intersections are as follows:

- LOS D or better – All regional roadway facilities projected to carry less than 27,000 ADT at the latest RTP horizon
- LOS E or better – All regional roadway facilities projected to carry 27,000 or more ADT at the latest RTP horizon
- LOS F – Plumas Street from Plumb Lane to California Avenue
 Rock Boulevard from Glendale Avenue to Victorian Avenue
 South Virginia Street from Kietzke Lane to South McCarran Boulevard
 Sun Valley Boulevard from 2nd Avenue to 5th Avenue
 I-80 Ramps/North Virginia Street Intersection



All intersections shall be designed to provide a level of service consistent with maintaining the policy level of service of the intersecting corridors.

NDOT maintains a policy of LOS D or better on their facilities.

Since Pyramid Highway is an NDOT facility and is expected to carry less than 27,000 ADT, LOS D or better was used as the standard for this analysis (i.e. LOS A, B, C, or D are considered acceptable operations and LOS E or F are considered unacceptable operations).

EXISTING CONDITIONS

ROADWAY SYSTEM

Pyramid Highway is a north-south NDOT facility that runs from Interstate 80 (I-80) in the south to Pyramid Lake in the north. Pyramid Highway is a two-lane roadway with posted speed limits of 55-65 mph in the vicinity of the project. The *RTP* classifies Pyramid Highway as a High Access Control (HAC) Arterial south of Calle de la Plata and a Moderate Access Control (MAC) Arterial north of Calle de la Plata.

Calle de la Plata is a four-lane roadway west of Pyramid Highway and a two-lane roadway east of Pyramid Highway. The *RTP* classifies Calle de la Plata as a Low Access Control (LAC) Collector west of Pyramid Highway.

EXISTING TRAFFIC VOLUMES AND LEVEL OF SERVICE

Intersections

Intersection turning movement counts were collected at the Pyramid Highway/Calle de la Plata intersection during the weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods in April 2012. The existing volumes are shown on **Figure 2** and the raw data is provided in **Attachment 1**. Synchro computer software, which utilizes *HCM 2000* methodology was used to analyze the level of service at the study intersection. **Table 3** shows the level of service results, and the detailed calculation worksheets are provided in the **Attachment 2**.



| TABLE 3 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE RESULTS | | | | | |
|--|---------------------------|--------------------|-------|--------------------|-------|
| Intersection | Control Type ¹ | AM Peak Hour | | PM Peak Hour | |
| | | Delay ² | LOS | Delay ² | LOS |
| Pyramid Highway/Calle de la Plata | SSSC | 17 (>50) | C (F) | 7 (>50) | A (F) |
| Notes: ¹ SSSC = Side Street Stop Control ² Delay is reported in seconds per vehicle for the overall intersection (worst movement) for unsignalized intersections. Bold indicates unacceptable operations. Source: Fehr & Peers, 2012 | | | | | |

As shown in Table 3, the side street approach of the Pyramid Highway/Calle de la Plata intersection (westbound Calle de la Plata) operates at LOS F during the AM and PM peak hours. The overall intersection operates at LOS C during the AM peak hour and LOS A during the PM peak hour.

Roadway Segments

Daily roadway segment traffic volumes were collected on Calle de la Plata in April 2012 using machine counting equipment. Traffic volume data on Pyramid Highway was obtained from the NDOT *Annual Traffic Report* (2010). Daily traffic volumes were compared to the RTC's Average Daily Traffic Roadway Level of Service Thresholds (shown in Table 2 of this report) to determine existing roadway segment level of service. The results are shown in **Table 4**.

| TABLE 4 EXISTING CONDITIONS ROADWAY SEGMENT CAPACITY RESULTS | | | | | |
|--|----------------------------|--|-------|------------------------------|-----|
| Roadway | Location | Functional Classification ¹ | Lanes | Daily Two-Way Traffic Volume | LOS |
| Pyramid Highway | South of Calle de la Plata | HAC Arterial | 2 | 10,000 | C |
| Pyramid Highway | North of Calle de la Plata | MAC Arterial | 2 | 4,400 | B |
| Calle de la Plata | West of Pyramid Highway | LAC Collector | 4 | 5,480 | C |
| Calle de la Plata | East of Pyramid Highway | LAC Collector | 2 | 1,340 | C |
| Notes: ¹ LAC = Low Access Control, MAC = Moderate Access Control, HAC = High Access Control Source: Fehr & Peers, 2012 | | | | | |



As shown in Table 4, Pyramid Highway and Calle de la Plata currently operate at LOS C or better, which is considered acceptable operations based on Washoe County and NDOT standards.

HISTORICAL TRAFFIC VOLUMES

NDOT's Annual Traffic Report provides Annual Average Daily Traffic (AADT) volumes on Pyramid Highway north of Calle de la Plata from 2002 to 2010. This data was used to determine historical traffic volume growth in the project vicinity. Traffic volume data on Pyramid Highway south of Calle de la Plata has only been collected since 2008 and does not provide significant historical data. Table 5 shows the historical traffic volumes and associated annual growth rate on Pyramid Highway near the project site.

| Roadway | Location | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Annual Growth Rate ¹ |
|-----------------|----------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------------------|
| Pyramid Highway | North of Calle de la Plata | - | 3,500 | 3,795 | 4,420 | 4,650 | 5,050 | 4,900 | 4,500 | 4,400 | 4,400 | 2.9% |

Notes: ¹ Exponential Annual Growth Rate shown.
 Source: Fehr & Peers, 2012

Table 5 shows that traffic volumes on Pyramid Highway north of Calle de la Plata have fluctuated over the last eight years, peaking in 2006 and decreasing each year since. The overall annual growth rate from 2002 to 2010 is 2.9% per year.

TRAFFIC SIGNAL WARRANT ANALYSIS

The *Manual on Uniform Traffic Control Devices (MUTCD)* provides analysis criteria for determining if a traffic signal is warranted at an intersection. The Peak Hour Vehicle Volume and Four-Hour Vehicle Volume signal warrants were analyzed for the Pyramid Highway/Calle de la Plata intersection to determine if a traffic signal is warranted based on existing traffic volumes. **Exhibits 1A and 1B** show the Peak Hour Vehicle Volume signal warrant results.



Exhibit 1A: Peak Hour Vehicle Volume Signal Warrant

AM Peak Hour

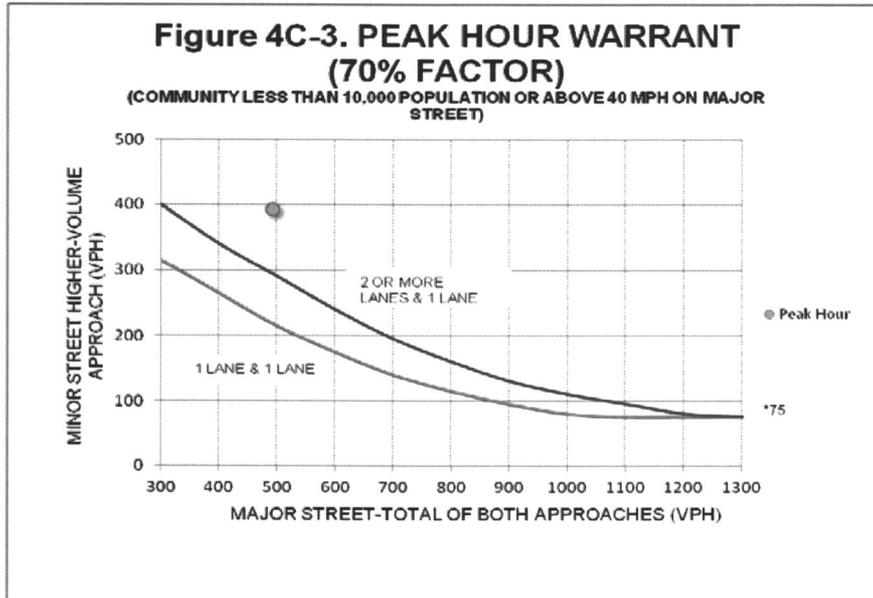
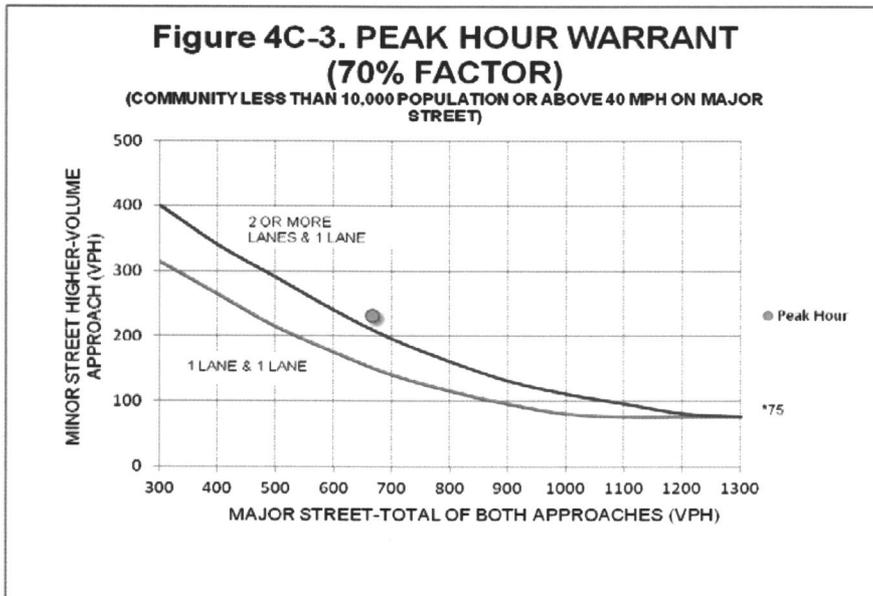


Exhibit 1B: Peak Hour Vehicle Volume Signal Warrant

PM Peak Hour

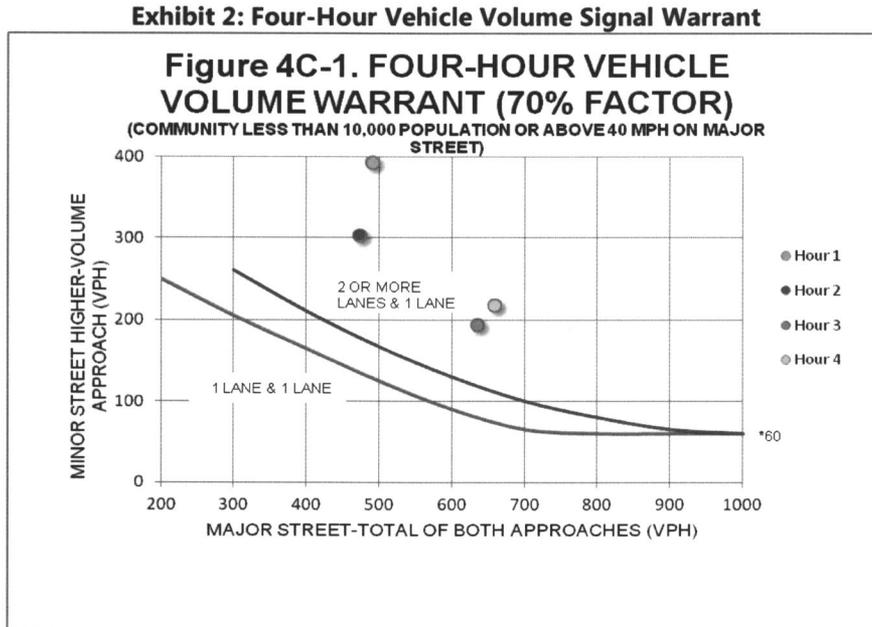


Source: MUTCD, Federal Highway Administration, 2009; Fehr & Peer, 2012



Based on the AM and PM peak hour traffic volumes at the Pyramid Highway/Calle de la Plata intersection, a traffic signal is warranted.

Exhibit 2 shows the Four-Hour Vehicle Volume signal warrant results.



Source: MUTCD, Federal Highway Administration, 2009; Fehr & Peer, 2012

Based on the traffic volumes during four hours of an average day at the Pyramid Highway/Calle de la Plata intersection, a traffic signal is warranted.

PROJECT CONDITIONS

PROJECT DESCRIPTION

The proposed project would change the current Neighborhood Commercial, Industrial, and Open Space zoning to High Density Suburban zoning. High Density Suburban zoning allows up to 9 units per acre for a total 360 multi-family dwelling units. The project will have two access driveways on Calle de la Plata.



TRIP GENERATION

Trips were generated for the proposed project based on average trip generation rates in the Institute of Transportation Engineers' (ITE) *Trip Generation, 8th Edition*. The trip generation rates for ITE Code 220 – Apartment, were used to estimate the trip generation for site because they are the highest multi-family residential rates. Using the highest rates provides flexibility as the project moves forward. For example, a for-sale condo or townhouse would generate less traffic than an apartment; therefore, 360 condos or townhouses would have a lesser effect on transportation conditions than the apartments analyzed in this report. The estimated trip generation is summarized in **Table 6**. A detailed trip generation spreadsheet is provided in **Attachment 3**.

| Land Use | ITE Code | Size ¹ | Daily | AM Peak Hour | | | PM Peak Hour | | |
|--|----------|-------------------|--------------|--------------|-----|------------|--------------|-----|------------|
| | | | Trips | In | Out | Total | In | Out | Total |
| Multi-Family Residential (Apartment) | 220 | 360 du | 2,394 | 37 | 147 | 184 | 145 | 78 | 223 |
| Total Trips | | | 2,394 | 37 | 147 | 184 | 145 | 78 | 223 |
| Notes: ¹ du = dwelling units Source: Fehr and Peers 2012 | | | | | | | | | |

The project will generate approximately 2,400 daily trips, 185 AM peak hour trips, and 225 PM peak hour trips.

Existing Zoning

The Sugarloaf Peak property is currently zoned as approximately 20 acres of Industrial, 17 acres of Neighborhood Commercial, and 2 acres of Open Space. Trip generation estimates were calculated for these zoning designations assuming floor area ratios of approximately 20% and 30% for comparative purposes. This equates to approximately 175,000 – 260,000 square feet of Industrial and approximately 150,000 – 230,000 square feet of Neighborhood Commercial space. **Table 7** shows the trip generation estimates for the existing zoning, and compares it to the trip generation of the proposed project.



| TABLE 7 EXISTING ZONING TRIP GENERATION ESTIMATE | | | | | | | | | |
|--|----------|-------------------|---------------|--------------|-------|------------|--------------|-----|--------------|
| Land Use | ITE Code | Size ¹ | Daily | AM Peak Hour | | | PM Peak Hour | | |
| | | | Trips | In | Out | Total | In | Out | Total |
| 20% Floor Area Ratio | | | | | | | | | |
| NC (Shopping Center) | 820 | 150 ksf | 6,441 | 91 | 59 | 150 | 275 | 285 | 560 |
| I (General Light Industrial) | 110 | 175 ksf | 1,220 | 142 | 19 | 161 | 20 | 150 | 170 |
| Total Trips | | | 7,661 | 233 | 78 | 311 | 295 | 435 | 730 |
| Proposed Project Trips | | | 2,394 | 37 | 147 | 184 | 145 | 78 | 223 |
| Trip Difference | | | 5,267 | 196 | (-69) | 127 | 150 | 357 | 507 |
| 30% Floor Area Ratio | | | | | | | | | |
| NC (Shopping Center) | 820 | 230 ksf | 9,876 | 140 | 90 | 230 | 420 | 438 | 858 |
| I (General Light Industrial) | 110 | 260 ksf | 1,812 | 210 | 29 | 239 | 30 | 222 | 252 |
| Total Trips | | | 11,688 | 350 | 119 | 469 | 450 | 660 | 1,110 |
| Proposed Project Trips | | | 2,394 | 37 | 147 | 184 | 145 | 78 | 223 |
| Trip Difference | | | 9,294 | 313 | (-28) | 285 | 305 | 582 | 887 |
| Notes: ¹ ksf = 1,000 square feet Source: Fehr and Peers 2012 | | | | | | | | | |

As shown in Table 7, the proposed project (multi-family residential) will generate less traffic than the existing zoning land uses (Industrial and Neighborhood Commercial). If the existing zoning were constructed with a 20% floor area ratio, the property would generate approximately 5,300 more daily trips, 125 more AM peak hour trips, and 500 more PM peak hour trips than the proposed project.

TRIP DISTRIBUTION AND ASSIGNMENT

Existing Plus Project Trip Distribution

Project generated trips were distributed to the surrounding roadway network and study intersections based on existing travel patterns and the location of the project site relative to existing, complimentary land uses. The following trip distribution percentages were used in the existing plus project conditions analysis:

- 10% to/from the north on Pyramid Highway
- 80% to/from the south on Pyramid Highway



- 5% to/from the west on Calle de la Plata
- 5% to/from the east on Calle de la Plata

The project trip distribution and assignment for the existing plus project conditions analysis is shown on **Figure 3**.

2030 Plus Project Trip Distribution

There are a number of planned development projects in the study area that will include land uses that attract residential-based trips (i.e. commercial, industrial). These projects are expected to be constructed by 2030 and will therefore change the directional distribution of the project generated trips. The following trip distribution percentages were used in the 2030 plus project conditions analysis:

- 20% to/from the north on Pyramid Highway
- 60% to/from the south on Pyramid Highway
- 15% to/from the west on Calle de la Plata
- 5% to/from the east on Calle de la Plata

The project trip distribution and assignment for the existing plus project conditions analysis is shown on **Figure 6**.

EXISTING PLUS PROJECT CONDITIONS

EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LEVEL OF SERVICE

Vehicle trips generated by the proposed project were distributed to the surrounding roadway network and added to the existing traffic volumes for existing plus project conditions analysis.

Intersections

Table 8 presents the existing plus project conditions intersection level of service results. The intersection level of service Synchro printouts are provided in **Attachment 2**. **Figure 4** shows the existing plus project traffic volumes and lane configurations at the study intersections.



**TABLE 8
 EXISTING PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE RESULTS**

| Intersection | Control Type ¹ | Existing | | | | Existing Plus Project | | | |
|---------------------------------------|---------------------------|--------------------|-------|--------------------|-------|-----------------------|-------|--------------------|-------|
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | Delay ² | LOS | Delay ² | LOS | Delay ² | LOS | Delay ² | LOS |
| Pyramid Highway/ Calle de la Plata | SSSC | 17 (>50) | C (F) | 7 (>50) | A (F) | >50 (>50) | F (F) | 30 (>50) | D (F) |
| Calle de la Plata/ Driveway A | SSSC | NA | NA | NA | NA | 4 (10) | A (A) | 4 (9) | A (A) |
| Calle de la Plata/ Driveway B | SSSC | NA | NA | NA | NA | 3 (9) | A (A) | 3 (9) | A (A) |

Notes: ¹ SSSC = Side Street Stop Control
² Delay is reported in seconds per vehicle for the overall intersection (worst movement) for unsignalized intersections.
Bold indicates unacceptable operations.
 NA = Not Applicable
 Source: Fehr & Peers, 2012

As shown in Table 6, the overall Pyramid Highway/Calle de la Plata intersection will degrade from LOS C to LOS F during AM peak hour with the project. During the PM peak hour, the side street approach (westbound Calle de la Plata) will operate at LOS F and the overall intersection will operate at LOS D. The project driveway intersections are expected to operate at LOS A during the AM and PM peak hours.

If a traffic signal is installed, the Pyramid Highway/Calle de la Plata intersection will operate at LOS C during the AM and PM peak hours.

Roadway Segments

Table 9 presents the existing plus project conditions daily roadway segment level of service results. **Figure 4** shows the existing plus project daily traffic volumes on the study roadway segments.



| TABLE 9 EXISTING PLUS PROJECT CONDITIONS ROADWAY SEGMENT CAPACITY RESULTS | | | | | | | |
|--|----------------------------|--|-------|------------------------------|-----|------------------------------|-----|
| Roadway | Location | Functional Classification ¹ | Lanes | Existing | | Existing Plus Project | |
| | | | | Daily Two-Way Traffic Volume | LOS | Daily Two-Way Traffic Volume | LOS |
| Pyramid Highway | South of Calle de la Plata | HAC Arterial | 2 | 10,000 | C | 11,920 | C |
| Pyramid Highway | North of Calle de la Plata | MAC Arterial | 2 | 4,400 | B | 4,640 | B |
| Calle de la Plata | West of Pyramid Highway | LAC Collector | 4 | 5,480 | C | 5,600 | C |
| Calle de la Plata | East of Pyramid Highway | LAC Collector | 2 | 1,340 | C | 3,620 | C |

Notes: ¹ LAC = Low Access Control, MAC = Moderate Access Control, HAC = High Access Control
 Source: Fehr & Peers, 2012

As shown in Table 9, the study roadway segments will continue to operate at LOS C or better with the addition of project generated traffic.

TRAFFIC SIGNAL WARRANT ANALYSIS

Exhibits 1A, 1B, and 2 show the existing conditions Peak Hour Vehicle Volume and Four-Hour Vehicle Volume signal warrant analysis results for the Pyramid Highway/Calle de la Plata intersection. Both warrants are met based on existing traffic volumes; therefore, existing plus project conditions signal warrant analyses were not performed as the project will add more traffic to the intersection, and increase the need for a traffic signal at the intersection.

2030 BACKGROUND CONDITIONS

2030 background conditions analysis includes roadway network and intersection improvements listed in the *RTP*, as well as traffic volume increases from regional growth and planned/approved projects in the area.



2030 BACKGROUND TRAFFIC VOLUMES

Regional Travel Demand Model

The 2030 background traffic volumes were developed based on RTC's regional travel demand model. The model includes regional growth based on planned/approved project in the area.

Based on direction from Washoe County staff, the RTC's regional travel demand model was used to prepare 2030 traffic forecasts for Pyramid Highway and Calle de la Plata. The model includes regional growth based on planned/approved projects in the area. The available model years are the 2008 base year and the 2030 forecast year. The difference method was used to correct inconsistencies in the base year model outputs when compared to existing traffic volumes. This correction uses the existing count data as the basis for the forecast volumes by adding the incremental difference in the model volumes between the 2008 base year and 2030 forecast year to determine the adjusted 2030 background volumes.

It should be noted that the traffic volumes at the Pyramid Highway/Calle de la Plata intersection increase by approximately five percent per year based on the travel demand model. This is considered an aggressive growth rate; therefore, the 2030 analysis should be considered conservative. In addition, the RTC is currently in the process of updating the regional travel demand model. The general consensus on the current travel demand model is that it predicts very aggressive and potentially unachievable growth rates region wide. The updated model will take a new view at future growth and provide a more realistic picture of future traffic conditions.

The regional travel demand model output and difference method calculations are provided in **Attachment 4**.

Planned/Approved Projects

There are three planned/approved development projects in the study area that were not fully accounted for in the 2030 model volumes. Trip generation and traffic volume information from their corresponding traffic studies were used to develop the final 2030 background traffic volumes. These projects include:

- *Frear Comprehensive Plan Amendment Traffic Analysis (also known as Village Green Commercial Center)* (Solaegui Engineers, 2008)



- Located at two sites south of Calle de la Plata and east of Pyramid Highway, this project includes commercial space, gas station with convenience market, drive-thru pharmacy, restaurant, car wash, and industrial space.
- Net New Trip Generation: Daily – 15,889, AM Peak – 1,116, PM Peak - 1,502
- *Campo Rico Business Center Traffic Analysis* (Solaegui Engineers, 2008)
 - Located north of Calle de la Plata along Pyramid Highway, this project includes an industrial park, residential dwelling units, and commercial space.
 - Net New Trip Generation: Daily - 13,608, AM Peak - 1,088, PM Peak - 1,423
- *Calle de la Plata/Pyramid Highway Retail Project Traffic Impact Study* (Fehr & Peers, 2007)
 - Located on the northeast corner of the Pyramid Highway/Calle de la Plata intersection, this project includes a fitness center, restaurants, commercial space, and a gas station with convenience market and car wash.
 - Net New Trip Generation: Daily – 2,941, AM Peak - 150, PM Peak - 291

ROADWAY NETWORK AND INTERSECTION IMPROVEMENTS BY OTHERS

The *RTP* lists regional roadway improvements to be completed by 2018 and 2030 including:

- Widen Pyramid Highway from Egyptian Drive to Calle de la Plata from two lanes to four lanes by 2018
- Widen Pyramid Highway from Calle de la Plata to Winnemucca Ranch Road from two lanes to four lanes by 2030
- Widen Pyramid Highway from Egyptian Drive to Calle de la Plata from four lanes to six lanes by 2030

These improvements were included in the 2030 background conditions analysis.

The Pyramid Highway/Calle de la Plata intersection meets the Peak Hour and Four-Hour Vehicle Volumes signal warrants (MUTCD) based on existing traffic volumes. In addition, the traffic analyses for the three planned/approved projects listed above all discuss the need for a traffic signal at the Pyramid Highway/Calle de la Plata intersection, as well as the Spanish Springs Area Plan. Therefore, under 2030 conditions, the study intersection was analyzed with a traffic signal.

The necessary intersection lane configurations, including left and right-turn pockets, were determined based on the 2030 background conditions AM and PM peak hour analysis. It is



reasonable to assume that these improvements would be constructed with the RTP planned widening of Pyramid Highway and Calle de la Plata.

Figure 5 shows the 2030 background traffic volumes and the assumed intersection lane configurations.

2030 LEVEL OF SERVICE

Intersections

Table 10 shows the 2030 background conditions intersection level of service results, and the detailed calculation worksheets are provided in **Attachment 2**.

| TABLE 10 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE RESULTS | | | | | |
|--|---------------------------------|--------------------------|------------|--------------------------|------------|
| Intersection | Control Type¹ | AM Peak Hour | | PM Peak Hour | |
| | | Delay² | LOS | Delay² | LOS |
| Pyramid Highway/Calle de la Plata | Signal | 26 | C | 43 | D |
| Notes: ¹ SSSC = Side Street Stop Control ² Delay is reported in seconds per vehicle for the overall intersection (worst movement) for unsignalized intersections. Bold indicates unacceptable operations. Source: Fehr & Peers, 2012 | | | | | |

As shown in Table 10, the Pyramid Highway/Calle de la Plata will operate at LOS D or better during the AM and PM peak hours with the 2030 background traffic volumes and proposed intersection lane configurations.

Roadway Segments

The 2030 daily roadway segment level of service results are shown in **Table 11**.



| TABLE 11 2030 BACKGROUND CONDITIONS ROADWAY SEGMENT CAPACITY RESULTS | | | | | |
|---|----------------------------|--|--------------|-------------------------------------|------------|
| Roadway | Location | Functional Classification¹ | Lanes | Daily Two-Way Traffic Volume | LOS |
| Pyramid Highway | South of Calle de la Plata | HAC Arterial | 6 | 47,190 | C |
| Pyramid Highway | North of Calle de la Plata | MAC Arterial | 4 | 26,010 | C |
| Calle de la Plata | West of Pyramid Highway | LAC Collector | 4 | 10,730 | C |
| Calle de la Plata | East of Pyramid Highway | LAC Collector | 2 | 3,930 | C |

Notes: ¹ LAC = Low Access Control, MAC = Moderate Access Control, HAC = High Access Control
 Source: Fehr & Peers, 2012

As shown in Table 11, Pyramid Highway and Calle de la Plata currently will operate at LOS C with 2030 traffic volumes and proposed roadway improvements.

2030 PLUS PROJECT CONDITIONS

2030 PLUS PROJECT TRAFFIC VOLUMES AND LEVEL OF SERVICE

Vehicle trips generated by the proposed project were distributed to the surrounding roadway network and added to the 2030 background traffic volumes for 2030 plus project conditions analysis.

Intersections

Table 12 presents the 2030 plus project conditions intersection level of service results, and the detailed calculation worksheets are provided in **Attachment 2**. **Figure 7** shows the 2030 plus project traffic volumes and lane configurations at the study intersections.



| TABLE 12 2030 PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE RESULTS | | | | | | | | | |
|---|---------------------------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|--------------------------|------------|
| Intersection | Control Type¹ | 2030 Background | | | | 2030 Plus Project | | | |
| | | AM Peak Hour | | PM Peak Hour | | AM Peak Hour | | PM Peak Hour | |
| | | Delay² | LOS | Delay² | LOS | Delay² | LOS | Delay² | LOS |
| Pyramid Highway/ Calle de la Plata | Signal | 26 | C | 43 | D | 27 | C | 48 | D |
| Calle de la Plata/ Driveway 1 | SSSC | NA | NA | NA | NA | 2 (11) | A (B) | 2 (13) | A (B) |
| Calle de la Plata/ Driveway 2 | SSSC | NA | NA | NA | NA | 1 (10) | A (B) | 1 (12) | A (B) |
| Notes: ¹ SSSC = Side Street Stop Control ² Delay is reported in seconds per vehicle for the overall intersection (worst movement) for unsignalized intersections. Bold indicates unacceptable operations. NA = Not Applicable Source: Fehr & Peers, 2012 | | | | | | | | | |

As shown in Table 12, the Pyramid Highway/Calle de la Plata will operate at LOS D during the AM and PM peak hours with the 2030 plus project traffic volumes and proposed intersection lane configurations. The project driveway intersections are expected to operate at acceptable levels of service during the AM and PM peak hours.

Roadway Segments

Table 13 presents the 2030 plus project conditions daily roadway segment level of service results. **Figure 7** shows the 2030 plus project daily traffic volumes on the study roadway segments.



| TABLE 13 2030 PLUS PROJECT CONDITIONS ROADWAY SEGMENT CAPACITY RESULTS | | | | | | | |
|---|----------------------------|--|-------|------------------------------|-----|------------------------------|-----|
| Roadway | Location | Functional Classification ¹ | Lanes | 2030 Background | | 2030 Plus Project | |
| | | | | Daily Two-Way Traffic Volume | LOS | Daily Two-Way Traffic Volume | LOS |
| Pyramid Highway | South of Calle de la Plata | HAC Arterial | 6 | 47,190 | C | 48,630 | C |
| Pyramid Highway | North of Calle de la Plata | MAC Arterial | 4 | 26,010 | C | 26,490 | C |
| Calle de la Plata | West of Pyramid Highway | LAC Collector | 4 | 10,730 | C | 11,090 | C |
| Calle de la Plata | East of Pyramid Highway | LAC Collector | 2 | 3,930 | C | 6,200 | C |

Notes: ¹ LAC = Low Access Control, MAC = Moderate Access Control, HAC = High Access Control
 Source: Fehr & Peers, 2012

As shown in Table 13, the study roadway segments will operate at LOS C with and without the addition of project generated traffic.

CONCLUSIONS AND RECOMMENDATIONS

The Pyramid Highway/Calle de la Plata intersection currently operates at LOS F during the AM and PM peak hours. Based on existing traffic volumes, the intersection meets Peak Hour and Four-Hour Vehicle Volume signal warrant criteria. The Spanish Springs Area Plan recognizes that a traffic signal is needed at the intersection to address the current situation.

The proposed project will increase delay at the Pyramid Highway/Calle de la Plata intersection, and degrade the overall intersection level of service from LOS C to LOS F during the AM peak hour. If a traffic signal is not installed at the Pyramid Highway/Calle de la Plata intersection prior to construction of the project, the project should construct the traffic signal to accommodate project generated traffic volumes. Note that since the traffic signal is necessary to accommodate existing traffic volumes, the project should not be fully financially responsible for the improvements, and should only be responsible for a fair share based on the traffic volumes generated at the intersection by the project site.



The *RTP* includes future regional roadway improvements to increase capacity on Pyramid Highway in the project vicinity. The *RTP* specifically indicates the following improvements:

- Pyramid Highway – Widen from two lanes to four lanes, from Egyptian Drive to Calle de la Plata by 2018
- Pyramid Highway – Widen from two lanes to four lanes, from Calle de la Plata to Winnemucca Ranch Road by 2030
- Pyramid Highway – Widen from four lanes to six lanes, from Egyptian Drive to Calle de la Plata by 2030

The *RTP* does not include recommendations for specific intersection improvements, recognizing that the specific intersection configurations should be determined at the time when the corridor is improved and actual turning movements are known. The *RTP* projects listed above assume that intersection upgrades will be accomplished with the widenings.

It is important to note that this analysis is conservative and comprehensive with regard to 2030 future traffic volumes because it assumes that, in addition to high background traffic growth (up to 5% per year at the Pyramid Highway/Calle de la Plata intersection), the following projects will be built out:

- Village Green Commercial Center (southeast corner of Pyramid Highway/Calle de la Plata intersection)
- Campo Rico Business Center (north of Calle de la Plata along Pyramid Highway)
- Calle de la Plata Retail Project (northwest corner of Pyramid Highway/Calle de la Plata intersection)

In addition, the proposed project would generate significantly less traffic than the property built-out under the existing zoning.

The 2030 analysis demonstrates adequate regional roadway improvements are planned to accommodate regional growth, approved but not yet constructed projects near the Pyramid Highway/Calle de la Plata intersection, and the proposed project.

FEASIBILITY STUDY





August 28th, 2015

Mr. Garrett Gordon, Partner
 Lewis Roca Rothgerber, LLP
 50 West Liberty Street, Suite 410
 Reno, NV 89501

**Re: 370 Calle De La Plata, APN 534-562-07
 Infrastructure Feasibility Study Update**

Dear Garrett:

Axion Engineering has reviewed the Infrastructure Feasibility Study prepared by Wood Rodgers for the project know as Village at the Peak previously proposed for the above listed property and have found that the study is applicable to the currently proposed single family residential project. It is our understanding that the proposed residential project will consist of 119 single family residential units rather than 360 multi-family units originally planned for.

The following items however should be updated to reflect the single family residential project:

SANITARY SEWER

The single family residential project will generate approximately two thirds less sewage flow than the multi-family project. Using the Washoe County Department of Water Resources design criteria the revised peak daily flow is as follows:

| Land Use | Acreage | Residential Unit Count | Flow per Unit | Average Daily Flow | Peaking Factor | Peak Daily Flow (gpd) |
|-------------------|--------------|------------------------|---------------|--------------------|----------------|-----------------------|
| Residential (MDS) | 39.83 | 119 | 270 gpd/unit | 32,130 gpd | 3 | 96,390 |
| Total | 39.83 | | | | | 96,390 |

TMWA WATER RIGHTS

Project Site: 39.83+/- Acres

Medium Density Suburban – 3 dwelling units per acre

- $39.83 * 3 \text{ DU/Acre} = 119.49 \text{ units}$
- 119 units assumed to be approximately 8,000 sf each
- Landscape (estimated) = 2.0 AFY
- Per TMWA Rule 7:
 - $1 \div (1.1 + (10,000/\text{Lot Size})) =$
 - $1 \div (1.1 + (10,000/8,000)) = 0.4255 \text{ per unit}$
 - $0.4255 * 119 = \underline{50.64 \text{ AFY}}$

Total Residential Water Rights – 50.64 + 2 = 52.64

- Total Water Rights if Surface rights are used:

$$52.64 * 1.11 = 58.43 \text{ AFY}$$

Axion Engineering thanks you for the opportunity to submit this proposal and looks forward to working with you toward the successful completion of the Quivera Lane project.

Sincerely,
Axion Engineering, LLC

Gary Guzelis
Gary K. Guzelis, P.E.

Village at the Peak

Prepared for:

Sugarloaf Peak, LLC

Prepared by:



WOOD RODGERS

DEVELOPING INNOVATIVE DESIGN SOLUTIONS

5440 Reno Corporate Drive

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August 2014

jn: 2572

INFRASTRUCTURE FEASIBILITY STUDY

PURPOSE

The purpose of this feasibility study is to fulfill the requirements of the Washoe County Spanish Springs Area Plan (Area Plan) with respect to a Master Plan Amendment to land use. Specifically, this report will address issues as outlined in the Spanish Springs Area Plan for intensification and as shown below:

A feasibility study (has) been conducted, commissioned and paid for by the applicant, relative to municipal water, sewer and storm water that clearly identifies (1) the improvements likely to be required to support the intensification, and (2) those improvements have been determined to be in substantial compliance with all applicable existing facilities and resource plans for Spanish Springs by the Department of Water Resources. The Department of Water Resources will establish and maintain the standards and methodologies for these feasibility studies.

PROJECT LOCATION

The project area is located northeast of the intersection of Calle de la Plata and Pyramid Lake Highway in Unincorporated Washoe County. The project encompasses one parcel (APN 534-562-07, consisting of 39.83±) owned by Sugarloaf Peak LLC. Please reference to location maps included in the main application packet.

PROJECT DESCRIPTION

The parcel to be intensified is currently a combination of 20 acres of Industrial (I), 17.84 acres of Commercial (C) and 1.99 acres of Open Space (OS) according to the Master Plan. The proposed intensification will call for all 39.83± acres to be Suburban Residential to allow for multi-family development. The Donovan Ranch subdivision (MDS) is north of the site, GR is east of the site, Commercial (C) and Industrial (I) are west of the site, and the Village Green Business Park (BP), NC and OS are south of the site. Subheadings of this report will cover various issues regarding the intensification including sanitary sewer, domestic water and effluent water, existing and required infrastructure, onsite and offsite storm drainage issues, FEMA flood zone information, and dry utilities including gas, electric, etc. Please reference to applicable maps within the body of the main application packet for zoning, intensity, etc.

DOMESTIC WATER

The domestic water system within the area is under the jurisdiction of the Washoe County Department of Water Resources (WCDWR). Domestic wells in the area and wholesale water purchase from the Truckee Meadows Water Authority (TMWA) provide water to the WCDWR system. The following outlines possibilities with respect to domestic water service for the property in the ultimate build out condition. Although the following represent possibilities for service and storage in the area, a “Discovery” will be necessary through WCDWR to determine the full extent of necessary improvements/upgrades to the existing system, if any, and possible necessity of two-way service to the site so that lines brought to the site are not radial (dead-end):

Service

- A 12” water line exists parallel to the west side of Pyramid Highway approximately 1,715 feet west of the northwest corner of the subject property. Issues with this line include the need for a private easement from the owners of APN 534-571-01 and 04, encroachment permit and jack and bore with respect to Pyramid Highway NDOT right of way, and capacity in the existing 12” line to service the site.
- A 16” water line exists at the intersection of El Caballo Trail and Calle de la Plata east of the site. This line is a second line to the Spring Creek Northeast water storage tank. Construction of this connection could be completed within the Right-of-Way of Calle de la Plata outside of the existing pavement limits, but requires approximately 2,500 lineal feet of water line to be constructed.

Storage

- The 2 million gallon (MG) Spring Creek Northeast water storage tank is located approximately 1 mile from the subject property in the eastern portion of the Donovan Ranch project.

Please reference to **Figure 1** for locations of potential connection points for domestic water.

SANITARY SEWER

Sanitary Sewer exists to the north and west of the subject property. The sanitary sewer system within the area is under the jurisdiction of Washoe County Department of Water Resources (WCDWR). The following outlines possibilities with respect to sewerage of the property in the ultimate buildout condition:

- Option 1 is to utilize the existing sanitary sewer line in the southwest cul-de-sac of the Donovan Ranch development. This line services approximately 390 residential units of Donovan Ranch and ultimately is a 10" line which runs north parallel to Pyramid Highway to the existing Pebble Creek lift station. The 10" line and the lift station and subsequent force main would need to be analyzed for the additional sewage flow that would be placed in to it due to development of the subject property. This option would require approximately 2,300 lineal feet of offsite sanitary sewer to the site, and a private easement from the owners of 534-571-01. Additionally, the cul-de-sac right of way and the northern property boundary of the subject property is separated by private property owned by Washoe County which would require an easement from Washoe County.
- Option 2 is to construct approximately 2,500 lineal feet of sanitary sewer west on Calle de la Plata (jack and bore would be required under Pyramid Highway as it is a Nevada Department of Transportation (NDOT) right of way) to an existing 8" line approximately 900 feet west of Pyramid Highway in West Calle de la Plata. Again this line would need to be analyzed for the additional sewage flow that would be placed in to it due to development of the subject property. As the alignment would utilize existing Washoe County and NDOT rights of way, encroachment permits would be required, but no private easements.
- Option 3 would be to utilize both Option 1 and Option 2 should greater capacity be needed.

Total Sanitary Sewer outflow from the proposed intensification is as follows (residential unit count for project is 360 multi-family units):

| Land Use | Acreage (acres) | Residential Unit Count | Average Daily Flow | Average Daily Flow (gpd) | Peaking Factor | Peak Daily Flow (gpd) |
|-------------------|-----------------|------------------------|--------------------|--------------------------|----------------|-----------------------|
| Residential (HDS) | 39.83 | 360 | 270 gpd/unit | 97,200 | 3 | 291,600 |
| Total | 39.83 | | | 97,200 | | 291,600 |

* Flow rates per WCDWR Draft Sewer Design Standards. Please reference to the **Appendix**.

Please reference to **Figure 1** for locations of potential connection points for sanitary sewer.

For purposes of comparison, an 8" sanitary sewer line at the minimum slope of 0.5% at 75% capacity (minimum slope and maximum capacity per WCDWR standards) can accommodate approximately 545,500 gallons per day (gpd). A 10" sanitary sewer line at the minimum slope of 0.33% at 75% capacity can accommodate approximately 803,000 gpd. It should also be noted that the sanitary sewer within the area is under jurisdiction of WCDWR. However, sanitary sewer from this area feed south into the City of Sparks system and ultimately feeds to the Truckee Meadows Water Reclamation Facility (TMWRF). Through an interlocal agreement with the City of Sparks, WCDWR applies a reduction factor to the sewer connection fee of 75%, bringing the fee from \$5,400 per residential unit to \$4,050. A connection fee in the amount of \$5,618 per residential unit is then required to be paid to the benefit of the City of Sparks for use of their system. As it appears that the proposed intensification will not increase the total unit amount within the Area Plan, the total unit count with this intensification should fall within the agreement parameters.

DRY UTILITIES

NV Energy currently has electrical and gas mains running parallel to the west side of Pyramid Highway servicing properties to the north. In order to gage whether or not additional infrastructure would be necessary to service the subject property, a discovery would need to be performed by NV Energy, but is not anticipated.

Please reference to **Figure 1** for locations of potential connection points for dry utilities.

RECLAIMED WATER

Should Reclaimed Water be used for irrigation within the future development of the site, infrastructure under the jurisdiction of the City of Sparks exists within Calle de la Plata west of Pyramid Highway.

Please reference to **Figure 1** for locations of potential connection points for Reclaimed Water.

FEMA FLOOD ZONE MITIGATION/STORM DRAINAGE

FEMA Flood Zone Mitigation

The North Spanish Springs Detention Facility (NSSDF) and associated appurtenances, including a sedimentation basin, were constructed in the late 2000's to alleviate flooding concerns west of Pyramid Lake Highway. The sedimentation basin and channel are just south of the site, and channelize water from the Griffith Canyon drainage (Spanish Springs wash) east of the site. FEMA flood zone maps have been updated to account for the detention facility. However, a FEMA designated Flood Zone AO with a Depth of 1 foot still inundates portions of the southern portion of the site (reference to **Figure 2** for potential necessary drainage facilities, detention and reference the **Appendix** for FEMA information). It is anticipated that a trapezoidal channel will need to be constructed along the eastern perimeter of the site to channelize the flood flows west along the north side of Calle de la Plata, and a culvert will be constructed under Calle de la Plata to convey flows to existing channel along the south side of Calle de la Plata and ultimately the sedimentation basin. At the time of final design for the site, a Conditional Letter of Map Revision (CLOMR) should be prepared and submitted to FEMA for approval. After construction of the facilities a Letter of Map Revision (LOMR) should be prepared and submitted to FEMA for approval, and the area of Zone AO can then be removed from the site.

Storm Drainage

The portion of the site described previously naturally drains to the southwest for eventual outflow south and west. The remaining portion of the site naturally drains to the northwest for eventual outflow to the Boneyard Flat area. Final design of the site should include a trapezoidal channel that will cut off existing flows from the east and carry them to the northwest corner of the site. As the site is designed and developed, it is anticipated that storm drainage facilities onsite will drain to the channel and to the northwest. As increases in peak flows and volumes from storm drainage will need to be mitigated to the existing condition, a detention/retention basin is anticipated at the northwest corner of the site. Flows will then be released as per the existing condition to the adjacent parcel to the west (APN 534-571-01) either via sheet flow or in conjunction with the property owner in a channel to the north and west across said parcel.

**TMWA WATER RIGHTS - METHODOLOGY FOR CALCULATING DEMAND AND WATER RESOURCES
REQUIREMENTS – WATER RIGHTS SUBJECT TO TMWA RULE 7**

Project Site: 39.83± Acres

Suburban Residential – Total Unit Count – 360 Multi-Family Units

- 360 multi-family units – 0.12 AFY/per unit = $360 \times 0.12 = 43.2$ AFY
- Landscape (estimated) = 9.0 AFY
- **TOTAL WATER RIGHTS RESIDENTIAL AREA**
= $43.2 + 9.0 = 52.2$ AFY

TOTAL WATER RIGHTS WITH 1.11 TRUCKEE RIVER RIGHTS MULTIPLIER

- $52.2 \times 1.11 = 57.9$ AFY

* See Appendix for TMWA Rule 7 excerpts.

** Should reclaimed water be used for irrigation purposes, applicable landscaping water rights would not be required. However, City of Sparks' reclaimed rights may need to be secured.

CONCLUSION

In conclusion, the findings included in this Infrastructure Feasibility Report support the requirements of the Area with respect to a Master Plan Amendments, specifically, *(1) the improvements likely to be required to support the intensification, and (2) those improvements have been determined to be in substantial compliance with all applicable existing facilities and resource plans for Spanish Springs by the Department of Water Resources.*

APPENDIX

(WATER/SEWER/RECLAIMED WATER/DRY UTILITIES EXHIBIT)

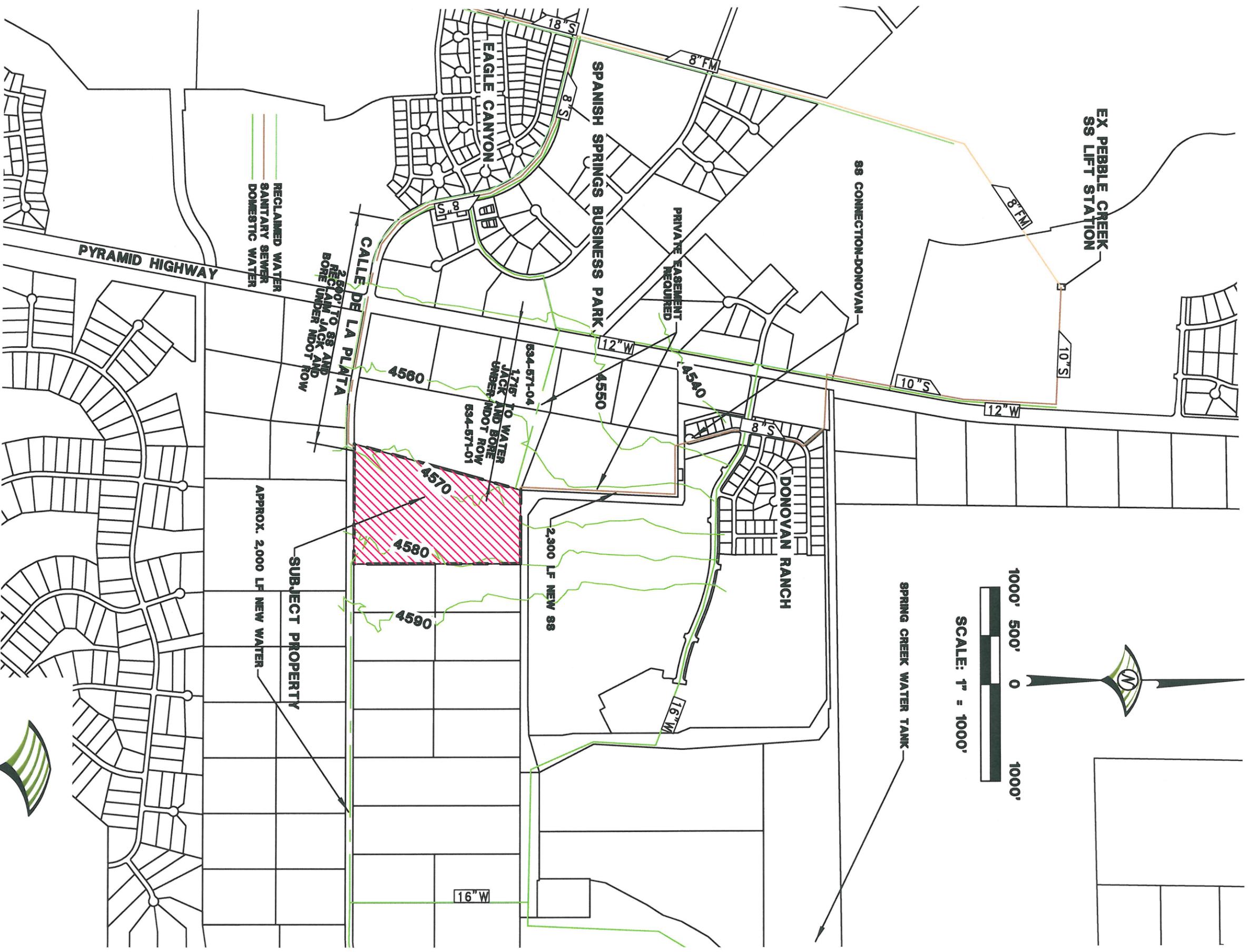
FIGURE 1

VILLAGE AT THE PEAK MASTER PLAN AMENDMENT INFRASTRUCTURE FEASIBILITY STUDY

WASHOE COUNTY

NEVADA

AUGUST 2014



* NV ENERGY GAS AND ELECTRIC EXISTS ADJACENT
TO THE WEST SIDE OF PYRAMID
HIGHWAY WEST OF THE SITE



WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS
5440 Reno Corporate Drive Reno, NV 89511
Tel 775.823.4068 Fax 775.823.4066

(FEMA/STORM DRAINAGE EXHIBIT)

FIGURE 2

VILLAGE AT THE PEAK MASTER PLAN AMENDMENT
INFRASTRUCTURE FEASIBILITY STUDY

WASHOE COUNTY

NEVADA

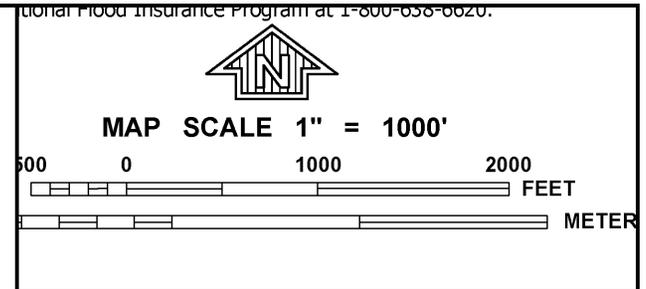
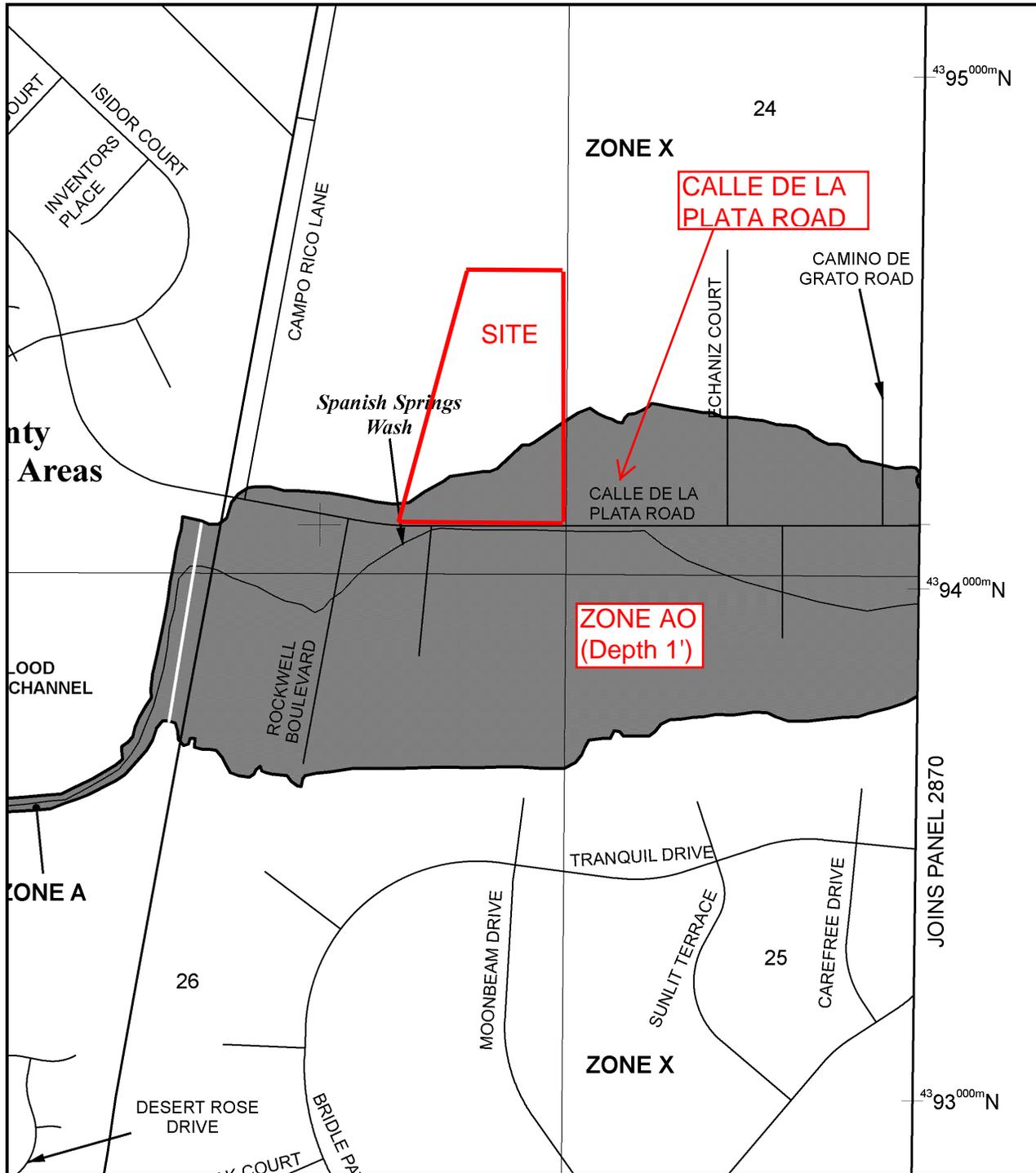
AUGUST 2014



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Reno, NV 89511 Fax 775.823.4066

FEMA FLOOD MAP





PANEL 2865G

FIRM
FLOOD INSURANCE RATE MAP

**WASHOE COUNTY,
NEVADA
AND INCORPORATED AREAS**

PANEL 2865 OF 3475
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|-----------------|--------|-------|--------|
| SPARKS, CITY OF | 320021 | 2865 | G |
| WASHOE COUNTY | 320019 | 2865 | G |

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
32031C2865G

MAP REVISED
MARCH 16, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov