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Requested By

SPARKS CITY

Washoe County Recorder

Lawrence R. Burtness - Recorder

Fee: \$231.00 RPTT: \$0.00

Page 1 of 215

APN: (Not required
Per NRS 111.312.1)

When recorded, mail to
City of Sparks
P.O. Box 857
Sparks, Nevada 89432-0857
ATTN: Community Development Dep't



(Space above for recorder's use only)

NOTICE OF ADOPTION OF DEVELOPMENT PLAN
(NRS Chapter 278A)

Name of Development: Copper Canyon
Name of Plan: Copper Canyon Final Development Handbook
City No. PCN16004
Date of Approval March 28, 2016

NOTICE IS HEREBY GIVEN that on the above indicated date, the City Council of the City of Sparks, Nevada, gave final approval to the above described amendment to the development plan for the above named development, whose legal description is attached as **Exhibit A**.

Pursuant to NRS 278A.570 (2) after this plan is recorded, all zoning and subdivision regulations applicable to the property described in Exhibit A cease to apply and are replaced with the plan attached as **Exhibit B** hereto.

A table of approvals and amendments to the Plan is set forth below.

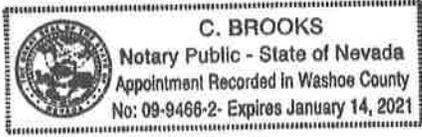
Dated this 28th day of February, 2017

City of Sparks, Nevada

By Teresa Gardner 
Teresa Gardner, City Clerk

State of Nevada)
) Acknowledgement in representative capacity
 County of Washoe) (NRS 240.1665)

This instrument was acknowledged before me on 2-28-17
 By TERESA GARDNER as City Clerk of Sparks, Nevada



C Brooks
 Notary Public

Table of Approvals and Amendments

City File #	Item Approved	Approval Date	Recorded in Official Records of Washoe County
PCN02066	Copper Canyon Development Handbook	10/24/2005	12/13/2005
PCN06107	Amendment to the handbook	10/13/2008	11/14/2008
PCN16004	Amendment to the handbook	3/28/2016	Recorded herewith

Exhibit A

**LEGAL DESCRIPTION
COPPER CANYON**

A parcel situate within the SE 1/4 of Section 36, Township 20 North, Range 20 East, MDM, and portions of Sections 1 and 12, Township 19 North, Range 20 East, MDM, City of Sparks, Washoe County, Nevada and being more particularly described as follows:

BEGINNING at the East quarter corner of said Section 36, being marked by a 5/8" rebar, thence along the East line of the SE1/4 of said Section 36 South 00°36'57" West a distance of 2640.85 feet to the southeast corner of said Section 36, also being the northeast corner of said Section 1;
thence along the East line of the NE1/4 of said Section 1 South 00°44'58" West a distance of 2649.05 feet to the East quarter corner of said Section 1;
thence along the East line of the SE1/4 of said Section 1 South 00°44'06" West a distance of 2643.49 feet to the southeast corner of said Section 1, also being the northeast corner of said Section 12;
thence along the east line of the NE1/4 of said Section 12 South 00°33'26" West a distance of 2641.09 feet to the East quarter corner of said Section 12 ;
thence along the East line of the SE1/4 of said Section 12 South 00°41'16" West a distance of 2646.67 feet to the southeast corner of said Section 12;
thence along the South line of said Section 12 North 88°37'55" West a distance of 1325.94 feet to the southwest corner of the SE1/4 of the SE1/4 of said Section 12;
thence along the East line of the SE1/4 of the SE1/4 of said Section 12 North 00°41'48" East a distance of 1323.08 feet to the southeast corner of the NW1/4 of the SE1/4 of said Section 12;
thence along the south line of the NW1/4 of the SE1/4 of said Section 12 North 88°38'34" West a distance of 1325.73 feet to the southwest corner of the NE1/4 of the SE1/4 of said Section 12;
thence along the south line of the NE1/4 of the SW1/4 of said Section 12 North 88°38'00" West a distance of 1127.00 feet to the northerly right-of-way line of Interstate Highway 80;
thence along said line from a tangent which bears North 62°36'01" West, along a circular curve to the left with a radius of 5254.00 feet and a central angle of 1°32'23" an arc length of 141.19 feet;
thence continuing along said line North 64°08'23" West a distance of 1226.74 feet;
thence continuing along said line North 64°57'45" West a distance of 294.76 feet to the West line of the SW1/4 of said Section 12;
thence along said line North 01°08'59" East a distance of 634.63 feet to the West quarter corner of said Section 12;
thence along the West line of the SW1/4 of the NW1/4 of said Section 12 North 00°25'53" East a distance of 1317.77 feet to the northwest corner of the SW1/4 of the NW1/4 of said Section 12;
thence along the West line of the NW1/4 of the NW1/4 of said Section 12 North 00°15'43" East a distance of 1311.70 feet to the northwest corner of said Section 12, also being the southwest corner of said Section 1;

thence along the west line of the SW1/4 quarter of said Section 1 North $00^{\circ}47'15''$ East a distance of 2665.77 feet to the West quarter corner of said Section 1;
thence along the West line of the NW1/4 of said Section 1 North $00^{\circ}44'53''$ East a distance of 311.20 feet to the southerly right-of-way line of Prater Way;
thence along said line North $62^{\circ}43'22''$ East a distance of 244.37 feet;
thence continuing along said line along a tangent circular curve to the left with a radius of 229.71 feet and a central angle of $16^{\circ}00'57''$ an arc length of 64.21 feet to the southwest corner of Lot 21 of Sunset View Rancho Estates, Subdivision Tract Map 1386, File Number 289084, filed in the Official Records of Washoe County, Nevada on June 6, 1973;
thence along the exterior boundary line of said Tract Map 1386 with a non-tangent line South $43^{\circ}17'35''$ East a distance of 280.00 feet;
thence continuing along said line North $33^{\circ}46'36''$ East a distance of 437.34 feet to the southeast corner of Lot 19 of said Tract Map 1386, also being the southwest corner of Lot 1 of Sunset View Rancho Estates, Unit No. 2, Subdivision Tract Map 1603, File Number 427840, filed in the Official Records of Washoe County, Nevada on September 28, 1976;
thence along the exterior boundary line of said Tract Map 1603 South $89^{\circ}16'38''$ East a distance of 360.00 feet;
thence continuing along said line North $54^{\circ}28'25''$ East a distance of 130.00 feet;
thence leaving said line and proceeding along the southerly line of the parcel described by Deed recorded in the Official Records of Washoe County, Nevada on September 2, 1992 as Document Number 1602433 and the southerly line of the parcel described by Deed recorded in the Official Records of Washoe County, Nevada on March 9, 1994 as Document Number 1773416 North $88^{\circ}41'15''$ East a distance of 179.03 feet;
thence along the easterly line said parcel North $04^{\circ}49'17''$ West a distance of 237.76 feet to the southerly line of Lot 5 of said Tract Map 1603;
thence along the exterior boundary line of said Tract Map 1603 North $61^{\circ}13'49''$ East a distance of 276.01 feet;
thence continuing along said line from a tangent which bears North $25^{\circ}42'25''$ East, along a circular curve to the left with a radius of 75.00 feet and a central angle of $60^{\circ}00'00''$ an arc length of 78.54 feet;
thence along a tangent circular curve to the right with a radius of 125.00 feet and a central angle of $35^{\circ}00'00''$ an arc length of 76.36 feet;
thence North $00^{\circ}42'25''$ East a distance of 128.71 feet;
thence along a tangent circular curve to the left with a radius of 92.42 feet and a central angle of $32^{\circ}07'00''$ an arc length of 51.81 feet;
thence with a non-tangent line North $58^{\circ}35'25''$ East a distance of 50.00 feet;
thence from a tangent which bears South $31^{\circ}24'35''$ East, along a circular curve to the right with a radius of 142.42 feet and a central angle of $32^{\circ}7'00''$ an arc length of 79.83 feet;
thence South $00^{\circ}42'25''$ West a distance of 128.71 feet;
thence along a tangent circular curve to the left with a radius of 75.00 feet and a central angle of $35^{\circ}00'00''$ an arc length of 45.81 feet;

thence along a tangent circular curve to the right with a radius of 125.00 feet and a central angle of $26^{\circ}52'36''$ an arc length of 58.64 feet;
thence with a non-tangent line North $82^{\circ}35'01''$ East a distance of 165.84 feet;
thence North $54^{\circ}28'25''$ East a distance of 528.00 feet;
thence North $15^{\circ}25'28''$ West a distance of 547.50 feet;
thence South $55^{\circ}07'25''$ West a distance of 312.43 feet;
thence North $29^{\circ}07'41''$ West a distance of 50.25 feet;
thence North $55^{\circ}07'25''$ East a distance of 307.40 feet;
thence North $24^{\circ}17'39''$ West a distance of 601.06 feet to the northeast corner of Lot 14 of said Tract Map 1603, being on the North line of the NW1/4 of said Section 1;
thence leaving the exterior boundary line of said Tract Map 1603 and proceeding along the North line of the NW1/4 of said Section 1 South $89^{\circ}09'02''$ East a distance of 870.74 feet to the North quarter corner of said Section 1, also being the South quarter corner of said Section 36;
thence along the West line of the SE1/4 of said Section 36 North $00^{\circ}35'35''$ East a distance of 2642.02 feet to the center of said Section 36;
thence along the North line of the SE1/4 of said Section 36 South $89^{\circ}17'52''$ East a distance of 2645.59 feet to the Point of Beginning.

TOGETHER WITH Parcel 1 of Parcel Map No. 3649, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on May 30, 2000, as File No. 2450998.

TOGETHER WITH Parcel 2 of Parcel Map No. 3649, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on May 30, 2000, as File No. 2450998.

TOGETHER WITH Parcel 3 of Parcel Map No. 3649, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on May 30, 2000, as File No. 2450998.

TOGETHER WITH all that certain parcel situate within a portion of the SE 1/4 of Section 2 and a portion of the NE 1/4 of Section 11, Township 19 North, Range 20 East, Mount Diablo Meridian, City of Sparks, Washoe County, Nevada, and being a portion of Parcel 1 of Parcel Map 2685, File No. 1654578 in the Official Records of Washoe County, Nevada, being more particularly described as follows:

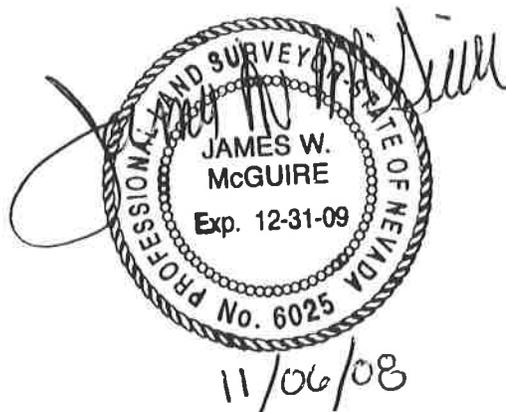
BEGINNING at the Northeast corner of said Section 11, being marked with a 5/8" rebar with cap stamped "PLS 6306", thence along the Easterly line of said Section 11, South $00^{\circ}15'43''$ West a distance of 1311.70 feet;
thence North $89^{\circ}23'40''$ West a distance of 1103.05 feet to a point on the Easterly right-of-way line of Salomon Circle;
thence along said Easterly right-of-way line, from a tangent which bears North $17^{\circ}16'01''$ West, along a circular curve to the left with a radius of 1435.00 feet and a central angle of $02^{\circ}32'23''$ an arc length of 63.61 feet;

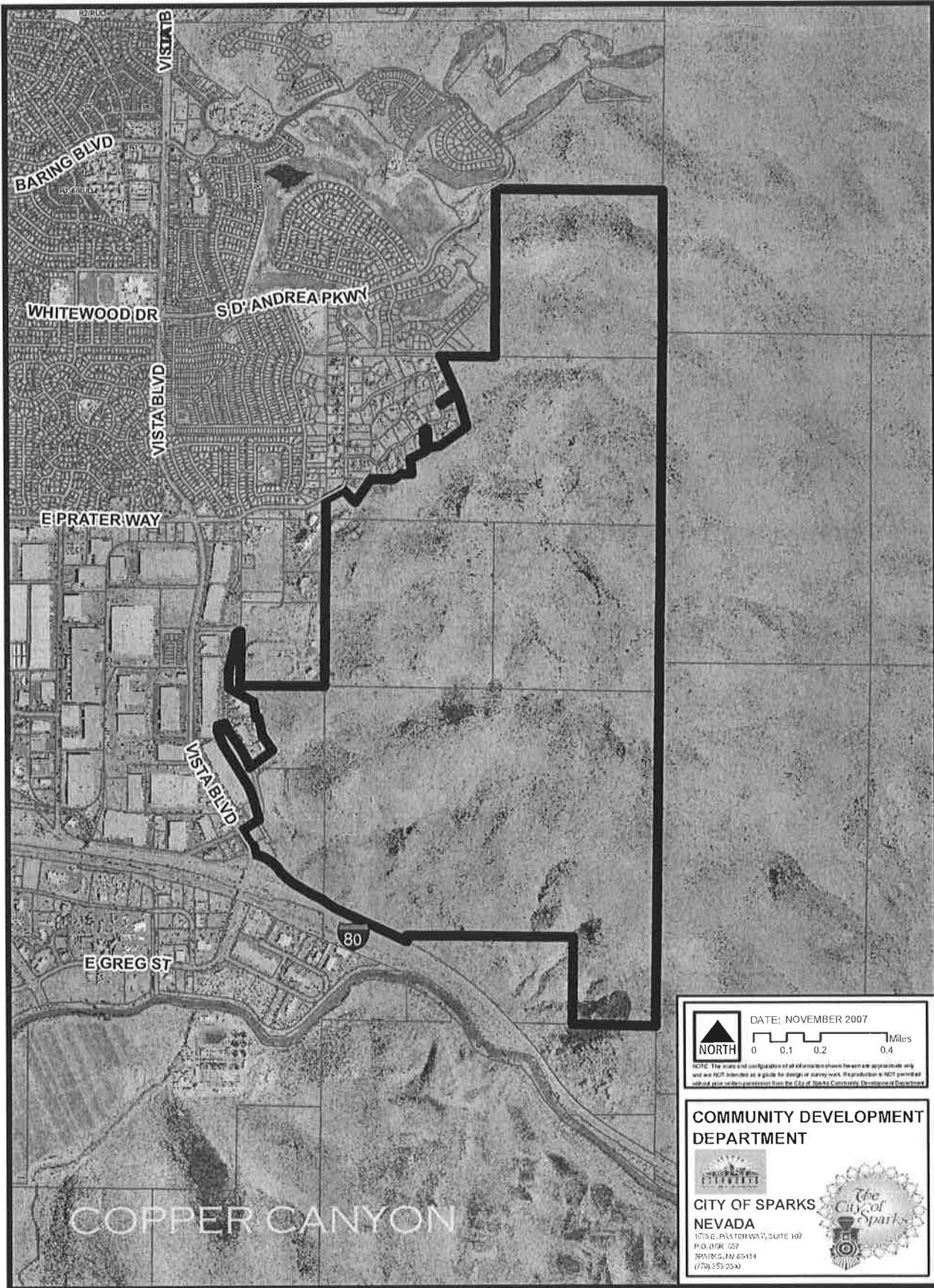
thence leaving said Easterly right-of-way line North 52°28'32" East a distance of 377.70 feet;
thence North 32°48'11" West a distance of 275.80 feet;
thence North 11°50'48" West a distance of 293.22 feet;
thence North 88°03'53" West a distance of 51.48 feet;
thence North 06°19'57" West a distance of 87.91 feet;
thence North 04°45'37" West a distance of 71.93 feet;
thence North 10°38'57" West a distance of 84.79 feet;
thence North 59°46'16" West a distance of 459.71 feet to the above mentioned Easterly right-of-way line of Salomon Circle;
thence along said Easterly right-of-way line North 01°56'09" East a distance of 245.35 feet to the beginning of a curve;
thence continuing along said Easterly right-of-way line, along a tangent circular curve to the right with a radius of 665.00 feet and a central angle of 11°55'01" an arc length of 138.31 feet;
thence North 13°51'10" East a distance of 322.88 feet to the beginning of a curve;
thence along a tangent circular curve to the left with a radius of 735.00 feet and a central angle of 10°11'13" an arc length of 130.68 feet to a point of reverse curvature;
thence leaving the above mentioned Easterly right-of-way line, along a tangent circular curve to the right with a radius of 80.00 feet and a central angle of 84°20'58", an arc length of 117.77 feet to a point on the Southerly right-of-way line of Loop Road;
thence leaving said Southerly right-of-way line with a non-tangent line South 00°46'31" West a distance of 859.78 feet;
thence South 88°57'15" East a distance of 1329.61 feet to the Point of Beginning.

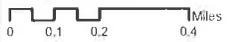
TOGETHER WITH Parcel E of Parcel Map No. 3787 for VISTA DISTRIBUTION CENTER, INC., according to the map thereof, filed in the office of the Washoe County Recorder, State of Nevada, on June 27, 2001, as Document No. 2567848.

Basis of Bearings: Nevada State Plane Coordinate System, West Zone (NAD 83/94)

Description Prepared By:
James W. McGuire, P.L.S. 6025
Summit Engineering Corp.
5405 Mae Anne Ave.
Reno, NV 89523






 DATE: NOVEMBER 2007

 Miles
NOTE: The scale and configuration of all dimensions shown hereon are approximate only and are NOT intended as a guide for design or survey work. The production is NOT protected without prior written permission from the City of Sparks Community Development Department.

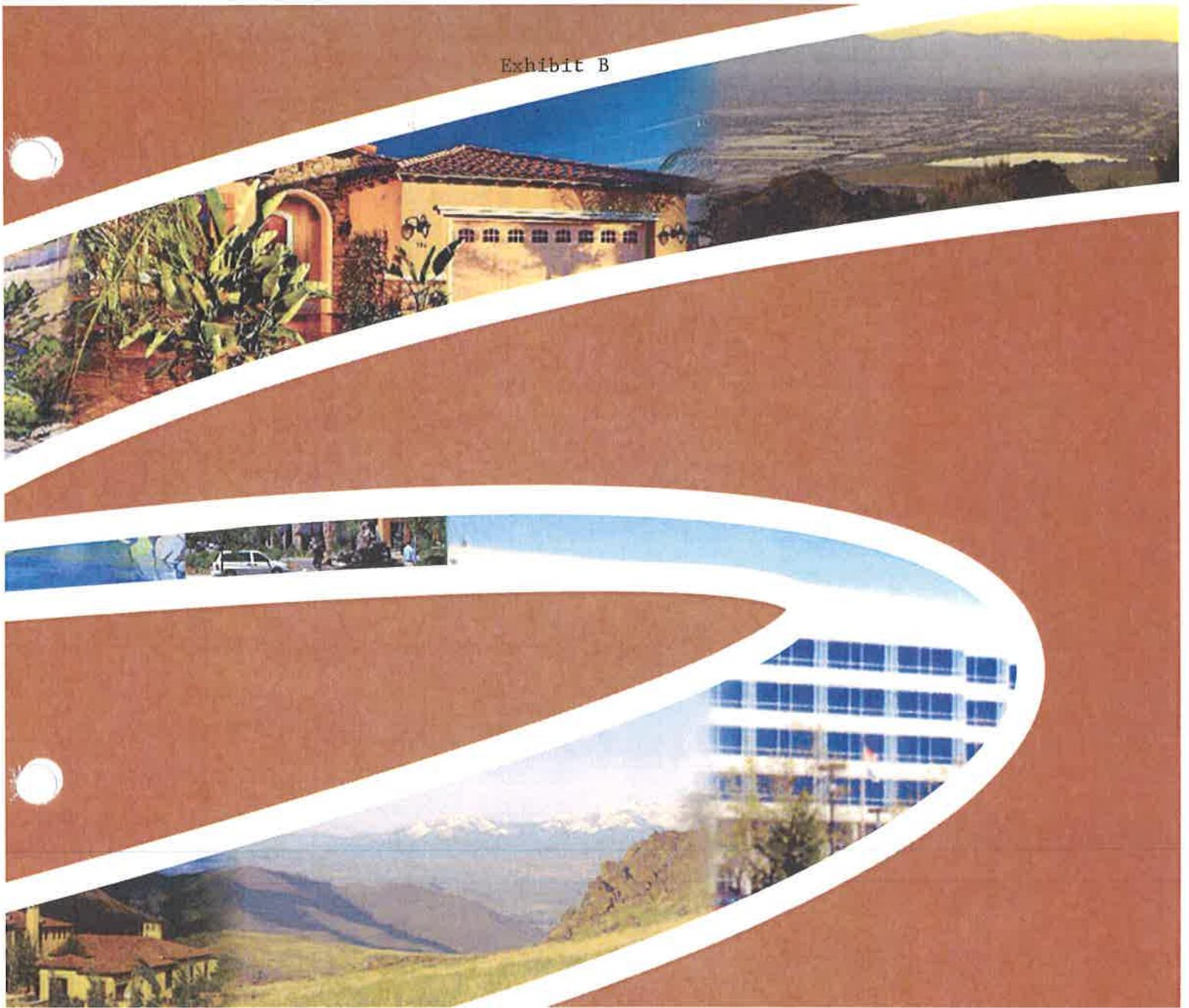
COMMUNITY DEVELOPMENT DEPARTMENT

CITY OF SPARKS
 NEVADA
 1575 E. PRATER WAY, SUITE 107
 P.O. BOX 257
 SPARKS, NV 89431
 (775) 351-2340



Exhibit B

Exhibit B



COPPER

COMMERCE & TECHNOLOGY PARK



CANYON

MASTER PLANNED COMMUNITY

FINAL DEVELOPMENT HANDBOOK

SEPTEMBER 2008 • SPARKS, NEVADA

Copper Canyon Project Team

Project Developer

D. B. Zwirn & Co.
745 5th Avenue, 18th Floor
New York, New York 10151
(646) 822-7426

Civil Engineering and Planning

Mid-Valley Engineering
Reno, Nevada

Sewer and Hydrology Engineering

Quad Knopf
Reno, Nevada
Summit Engineering
Reno, Nevada
Hunter Creek Engineering
Reno, Nevada

Traffic Engineering

Solaegui Engineers
Sparks, Nevada

Fiscal Impact Analysis

Meridian Business Advisors
Reno, Nevada

Environmental Analysis

Huffman & Carpenter, Inc.
Reno, Nevada

Geotechnical Engineering

Kleinfelder
Reno, Nevada

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Chapter 1

PROJECT DESCRIPTION

1.1 STATEMENT OF PURPOSE

This Development Handbook provides land use, public services and facilities, requirements and design standards that shall guide the development and specific plans of the Copper Canyon Commerce and Technology Park. The fundamental purpose of the Copper Canyon Commerce and Technology Park (“plan area or project area”) is to attract and retain high quality businesses in the City of Sparks. The purpose of the Copper Canyon Master Planned Community is to provide quality housing opportunities for the business parks owners and employees. The plan shall provide a campus environment for e-commerce, business/professional offices, venture-capital firms, general retail, hotels, restaurants, tourist commercial uses, finance, headquarters offices, accessory high technology component assembly, and medical and scientific research and development. The plan shall also include complementary housing such as estate lots, view lots, townhomes, condominiums, apartments and senior housing.

The Commerce and Technology Park is specifically designed to attract technology companies that shall manufacture technological products within the park. Manufacturing and assembly of components and/or products is specifically intended in this park. The primary function of the buildings in this park shall be to provide space for high value investment in equipment and building improvements to support high value production of goods and services. The park is not intended to provide warehouse or distribution space; buildings constructed for the sole purpose of storing and/or distributing goods shall not be permitted. Short term storage of finished products and materials and components used in manufacturing shall be permitted in not more than 20% of the gross floor area of commerce and technological buildings.

Recreation facilities, a range of housing types, a business hotel including non-restricted gaming, restaurants, a village commercial center and general retail are also included in the plan.

The coordination of mixed uses shall create and sustain a high quality business environment. Information based businesses, e-commerce and manufacturers of high tech products are not dependent on traditional location criteria, such as rail or truck transportation and other infrastructure. The leaders of such businesses can choose a location based on quality of life criteria. Likewise, skilled employees in high demand have the option to select an employer and location based on quality of life issues. For many information based and high technology based businesses the availability of highly skilled employees is an essential criteria for business location. Therefore, an important consideration for these employers is the overall quality of the business park environment and the quality of life found within the community for themselves and their employees.

A successful high quality business park must provide an attractive setting and the amenities associated with an active lifestyle for the employees. Natural beauty, cultural, social and recreation opportunities in the Truckee Meadows region inherently offer the setting for an active lifestyle. This plan provides a business park environment specifically tailored to the needs of the employers and employees of information and high technology based companies.

- The location of the commerce and technology park provides a unique setting amid open hills with views to the Truckee Meadows and the east flank of the Sierra Nevada.
- The project area encompasses ±1,308 acres. The plan commits approximately 65 percent of the site (847 acres) to permanent open space.
- The project name, "Copper Canyon" was suggested by one of the dominant natural land forms, an attractive, deep canyon that crosses the project area.
- The comprehensive plan includes recreation and social and leisure amenities targeted to the anticipated work force. This includes:
 - a sports club that provides a wide range of indoor and outdoor sports facilities;
 - a village center that provides shops, restaurants, clubs and a small town square;
 - access to extensive open space; and
 - hotels targeted to business and recreation.
- The plan includes a variety of housing types targeted to the anticipated work force.
- The plan shall provide state of the art communications and other infrastructure to support information based and high technology companies.

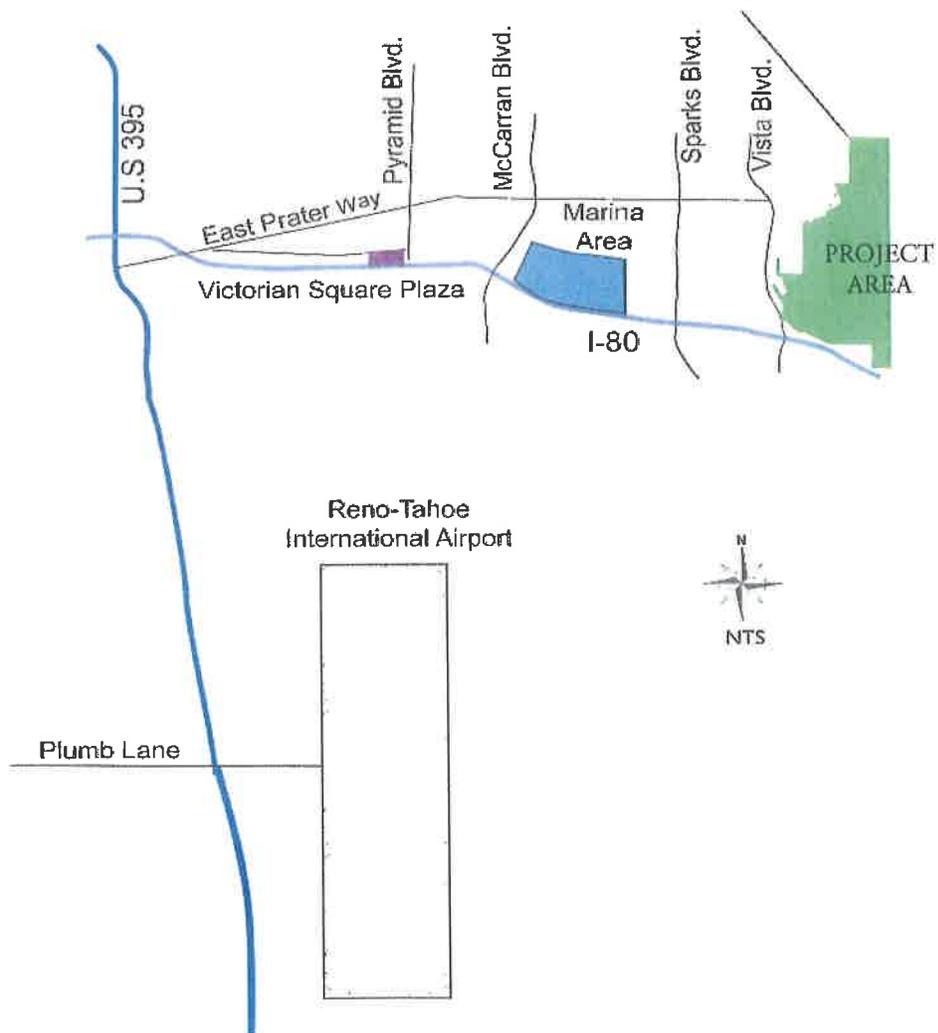
1.2 PROJECT LOCATION

Copper Canyon is located in Sparks within a portion of Section 36, Township 20 North, Range 20 East and Sections 1 and 12, Township 19 North, and Range 20 East, M.D.B. & M, and Section 2 and 11, Township 19 North, and Range 20 East. Copper Canyon encompasses ten parcels, APN 030-022-02, 030-022-15, 037-300-02, 037-300-04, 037-310-01, 037-272-34, 037-293-09, 10, 11 and 037-331-08. The project site is located just north of I-80 near the Vista Boulevard interchange. It is approximately 1.5 miles east of the Marina Area and approximately 3 miles east of Victorian Square Plaza. The Reno-Tahoe International Airport is located approximately 10 minutes away via I-80 and US Highway 395 as shown in Figure 1-1.

Figure 1-2 (see page 1-4) illustrates the local area and the master planned land uses adjacent to the project area. To

the west, the project abuts the existing industrial and warehouse uses along Vista Boulevard and Salomon Circle. The south edge of the project site abuts I-80 for approximately one half mile. The east side of the project abuts private, undeveloped land and Federal land managed by the Bureau of Land Management. To the north and west lie the D'Andrea golf course and residential community, the Sunset Rancho View Estates residential subdivision, Gandolfo Arena and Northern Nevada Medical Center. The primary access points to Copper Canyon shall occur at intersections along Vista Boulevard at Brierley Way and Loop Road.

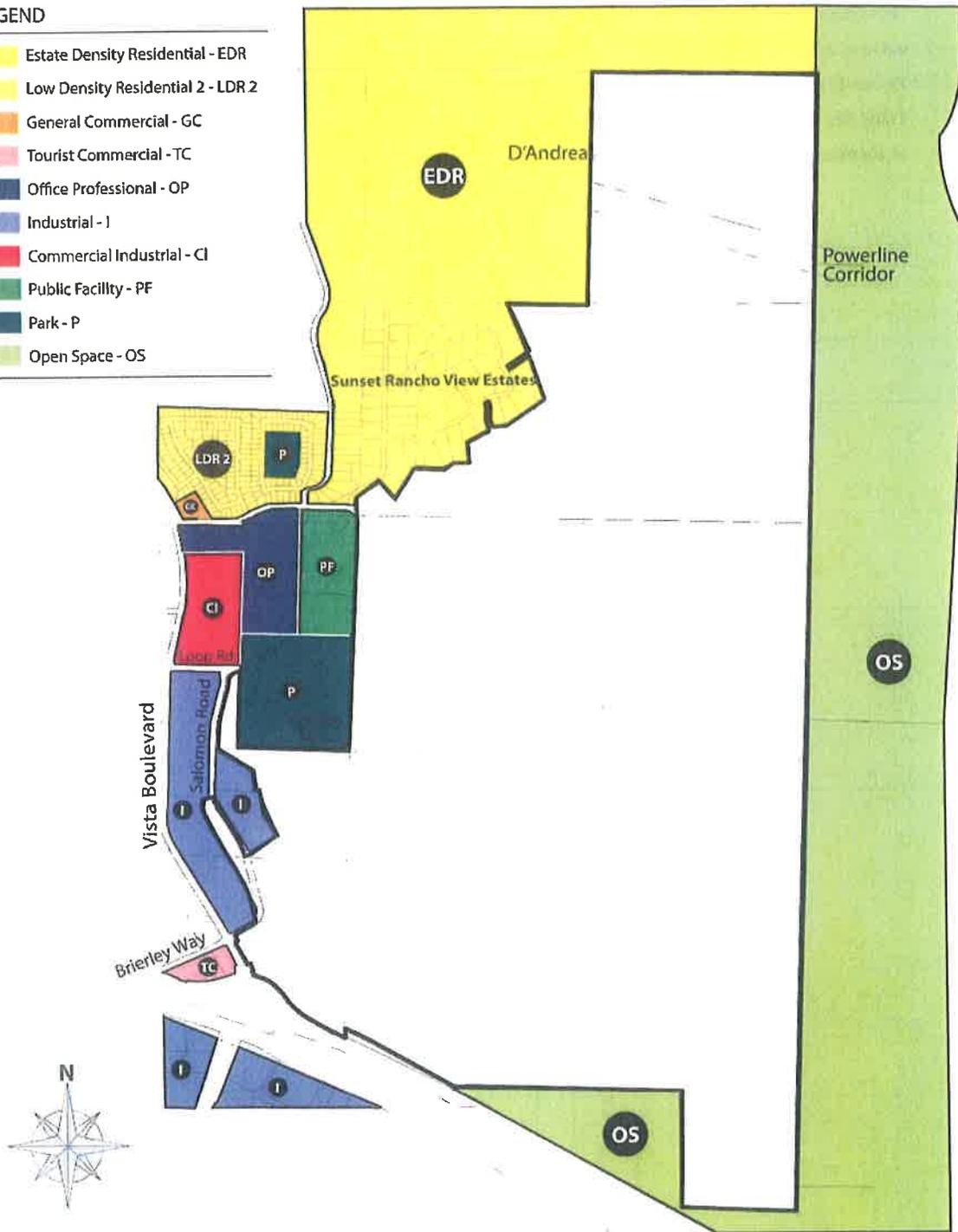
**COPPER CANYON
COMMERCE & TECHNOLOGY PARK**



**FIGURE 1-1
REGIONAL LOCATION MAP**

LEGEND

- Estate Density Residential - EDR
- Low Density Residential 2 - LDR 2
- General Commercial - GC
- Tourist Commercial - TC
- Office Professional - OP
- Industrial - I
- Commercial Industrial - CI
- Public Facility - PF
- Park - P
- Open Space - OS



**FIGURE 1-2
LOCAL AREA AND SURROUNDING CONDITIONS MAP**

1.3 PROJECT GOALS

- **GOAL 1:** Establish a prime location for commerce and technology in the Truckee Meadows region.
- **GOAL 2:** Expand the revenue base for the City of Sparks by creating high value buildings and improvements that contribute the city taxes.
- **GOAL 3:** Preserve and enhance the natural amenities and wildlife resources by restoring the native vegetation in the project area and providing life sustaining improvements to the landscape, such as wildlife watering stations. Careful selection of plant materials in the landscape around buildings and in the open space areas shall add food and shelter that support native wildlife. The plan shall select these plant materials and the wildlife habitat support measures to expand the diversity of native species living in the area.
- **GOAL 4:** Facilitate a life-style that incorporates skilled technical and professional employment with opportunities for housing, shopping, leisure, socializing, recreation, and access to open space within the plan area.
- **GOAL 5:** Achieve a high standard of development that is responsive to the natural forces and characteristics of the site.
- **GOAL 6:** Provide a variety of housing types suitable for a wide range of households.
- **GOAL 7:** Provide a sports club that shall provide recreation opportunities for area residents and businesses.
- **GOAL 8:** Provide an attractive gateway for the east entry to Sparks along I-80 and retain the attractive views to the hillside and major ridges for the community.
- **GOAL 9:** Reduce the existing storm water flows from the east to the developed industrial and commercial areas along Vista Boulevard.

1.4 DESCRIPTION OF APPLICATION REQUESTS

CURRENT APPLICATIONS

Development of the existing land use shall require approval by the City of Sparks. The property is located within the City of Sparks. The following entitlements have been approved by the City of Sparks as outlined below, and

include: Annexation pursuant to NRS 268.670; A Master Plan Amendment to Estate Density Residential (EDR), Low Density Residential (LDR), Low-Medium Density Residential (LMDR), Medium Density Residential (MDR), High Density Residential (HDR), Tourist Commercial (TC), Business Park (BP), Open Space (OS), Public Facility (PF), and Mixed Use (MX); Zone change to New Urban District (NUD); and Planned Development Review, including hillside development.

- **ANNEXATION**

Prior to annexation, a portion of the project area was contiguous to the City boundary, and located within the City of Sparks Sphere of Influence (SOI) as shown in Figure 1-3. The project was annexed to the city pursuant to NRS 268.670. Areas in any sphere of influence of the City must be considered for annexation within 7 years of adoption of the sphere of influence boundary. The City shall not consider the annexation of any area that is not within the designated sphere of influence and is not included in its program of annexation.

The Sunset Rancho View Estates subdivision is currently within the City of Sparks SOI, but is approximately 80 acres in total area. Consequently, annexation of Copper Canyon to the City of Sparks shall not result in creation of an unincorporated island of 40 acres or less. Ultimately, and irrespective of the approval of Copper Canyon project, state law requires that this unincorporated area shall ultimately be annexed to the City.

- **MASTER PLAN AMENDMENT**

A portion of the project site was previously within the City of Sparks Master Plan SOI and was designated "Open Space/Rural Reserve." The other portion of the project was located within the City of Sparks and was designated General Commercial and Industrial in the 1992 Sparks Master Plan. The project site is currently master planned Estate Density Residential (EDR), Low Density Residential (LDR), Low-Medium Density Residential (LMDR), Medium Density Residential (MDR), High Density Residential (HDR), Tourist Commercial (TC), Business Park (BP), Open Space (OS), Public Facility (PF), and Mixed Use (MX).

- **ZONE CHANGE TO NEW URBAN DISTRICT (NUD)**

The project site is currently zoned New Urban District (NUD), General Commercial and Industrial. This shall allow a mixed use development that includes features of residential, commercial, office and tourist commercial uses. The land use designations and the specific standards, including standards for development on slopes, that shall regulate development in this planned development area are specified in Sections 1.6.1-1.6.4 inclusive and 3.4 Land Use Designations, and are reviewed through the Planned Development Review. The Planned Development Review is the establishment of the specific standards for the development of the project site. The design standards are minimum standards and higher standards of development are acceptable. Where the land use designation in Section 3.4 is silent on a specific topic the standards in the Sparks Municipal Code (SMC) shall apply. Section 3.4 includes reference to the SMC land use designation that corresponds to each of the land use categories used in the project area.

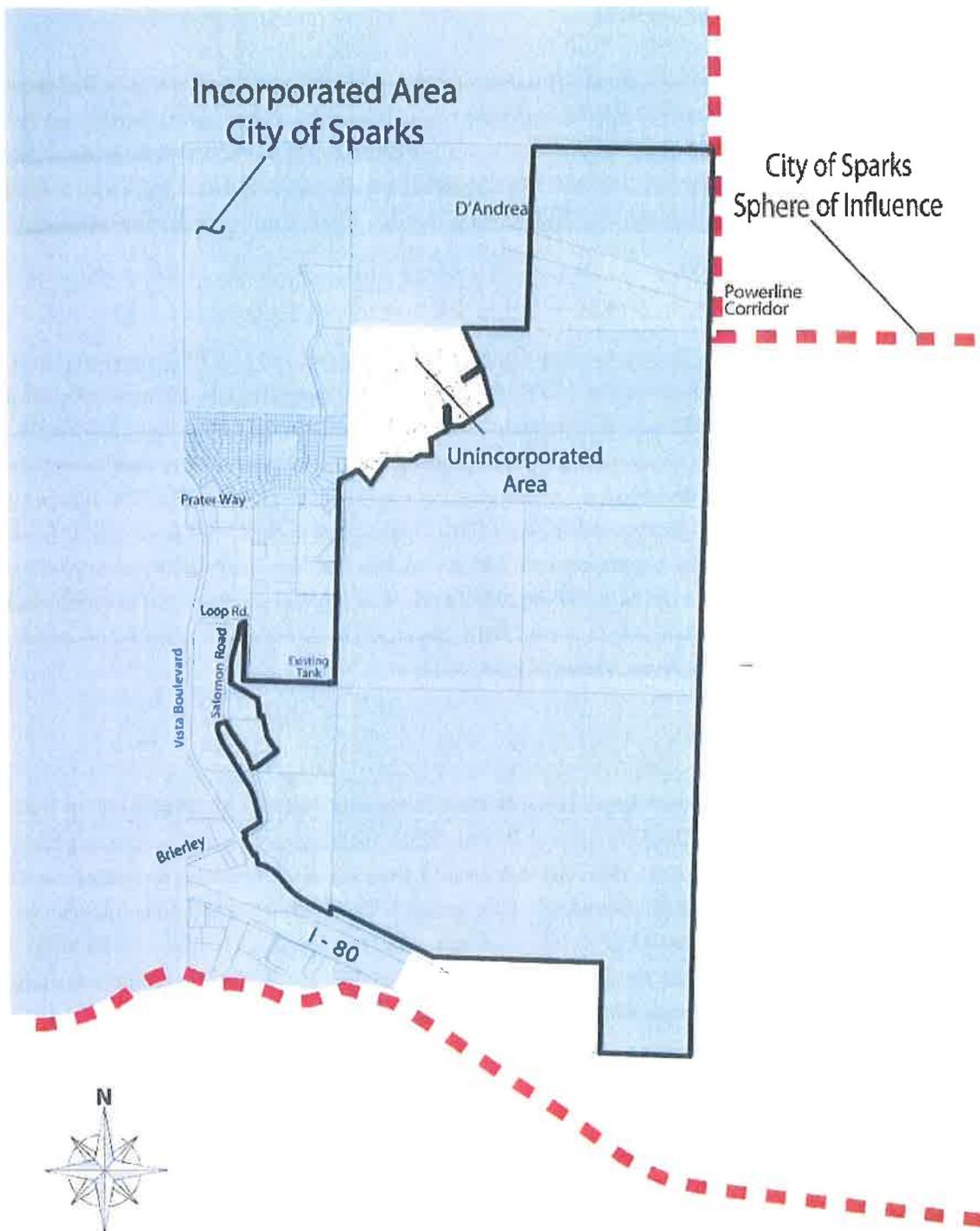


FIGURE 1-3
CITY OF SPARKS & SPHERE OF INFLUENCE BOUNDARIES

Source: Truckee Meadows Regional Plan Map 2 Community Boundaries

- **HILLSIDE DEVELOPMENT**

Table 1-3 (see page 1-22) demonstrates that the preliminary grading plan and development of the project will comply with SMC 20.99 (Hillside Development). This section of SMC allows a maximum disturbance of 514.7 acres. With each Tentative Map, the City of Sparks will be provided with a cumulative, running total of the area disturbed. Per SMC 20.99 "Specified maximum disturbed areas can be used as thresholds which can only be exceeded after demonstration that the additional grading provides a better solution."

REGIONAL PLAN

The project was reviewed by Truckee Meadows Regional Planning Commission (TMRPC) for conformance with the 2002 Truckee Meadows Regional Plan (TMRP) and as a project of regional significance on October 25, 2004. Under the policies of the TMRP and the criteria listed in Nevada Revised Statutes (NRS), the Copper Canyon plan is also designated as a project of regional significance. TMRPC found the project to be in conformance with the Regional Plan and approved the project as a project of regional significance on October 25, 2004. The project site is located within the Truckee Meadows Service Area (TMSA) as outlined in the TMRP, dated May 2002. Figure 1-4 shows the project boundary with respect to the TMSA boundary. The property contains constrained slopes (i.e. greater than 30%) as identified on Map 3 of the 2002 TMRP. However, the property is not included within the Development Constraints Area on Map 2 of the TMRP. The project promotes TMRP policy 1.2.16, which states that an emerging employment center is to occur in east Sparks.

ADMINISTRATION

Development within the Copper Canyon Master Planned Community shall maintain compliance with the SMC and City of Sparks Design Standards Manual (DSM). When the Copper Canyon Development Handbook (Development Handbook) is silent, the DSM shall apply. If there is a conflict between the two documents the Development Handbook shall take precedence. Each project will be reviewed by the Administrator who shall determine compliance with the standards contained within the Development Handbook or the DSM if the Development Handbook is silent. Any proposed change other than those specifically allowed by this Development Handbook shall require an amendment to the Development Handbook.

APPEAL PROCESS

When the developer is dissatisfied with the decision of the Administrator, the developer can appeal to the Planning Commission. An appeal request must be submitted to the City within ten (10) days of receipt of the letter of decision from the Administrator or his appointee. The decision of the Planning Commission may also be appealed to the City Council. An appeal of a decision made by the Planning Commission must be submitted to the City within ten (10) days of the public hearing. All appeals must be submitted to the City Clerk's Office.

CONSTRUCTION HOURS

Construction hours are to be limited to 7 am – 7 pm Monday-Friday, and 9 am – 5 pm Saturday, with no construction allowed on Sunday. Exceptions may be allowed for large concrete pours with the approval of the Engineering Manager.

FUTURE APPLICATIONS

- **PARCEL MAP, TENTATIVE MAP AND FINAL MAP APPROVAL**

Following approval of the final planned development, the developer(s) shall complete phased final plans for grading, sewer, stormwater, water, utilities and street. The division of developable sites as shown in the Development Handbook shall comply with the methods for parcel maps, tentative subdivision maps and final maps as provided in NRS 278 and SMC Titles 17 and 20. As discussed in the Architectural Reviews

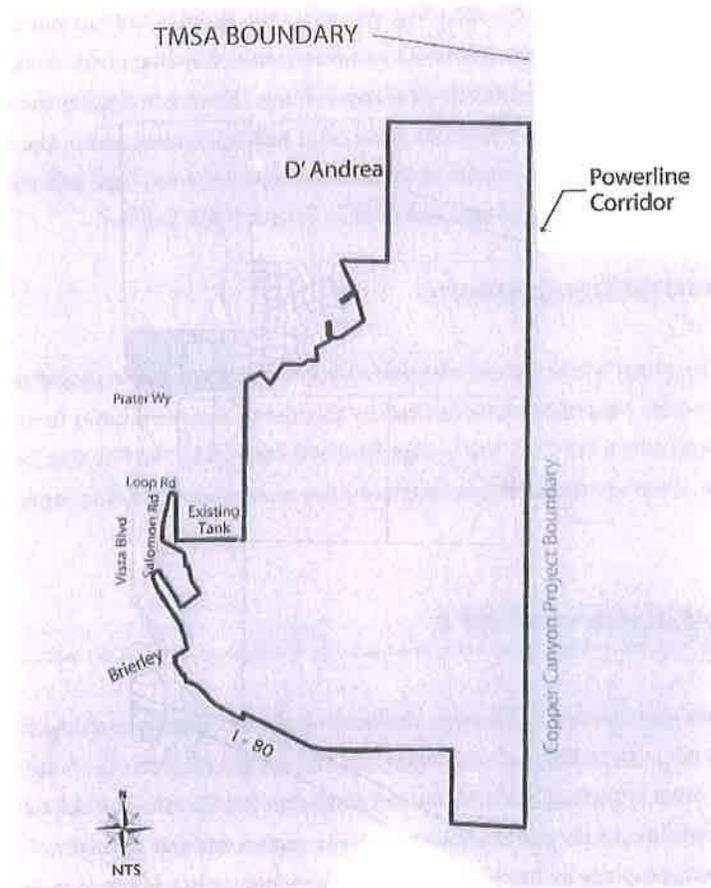


FIGURE 1-4
EXISTING REGIONAL PLAN DESIGNATIONS

section below, proposed homes in the single family subdivision shall be reviewed and approved by the Master Developer for compliance with standards prior to submittal to the City for building permit for an individual lot as prescribed in Section 1.8 of this Development Handbook. As a condition of approval, all residential developers shall be required to disclose, with the sale of any property the potential for any students to be located outside of the closest available school site.

- **SITE PLAN REVIEW**

The Site Plan Review process, for compliance with this Development Handbook, shall apply to applications for development of townhomes, executive apartments, apartments, hotel/casino, sports club, individual office/business professional and commercial buildings, and any additions or accessory buildings to these uses.

- **SPECIAL USE PERMIT (SUP)**

A SUP shall be required for the conditional uses in each land use category in section 3 of the Development Handbook as well as for exceeding the maximum height limits set out in section 3. SUPs shall also be required for the electric substation and stormwater recycling plant. A SUP will also be required for the water storage tanks and associated pump stations. In order to simplify the review process, water tanks and pump stations that lie within the same APN will be bundled within the same development application. Design standards that require the tank to be screened from view and other standards applicable to the wastewater recycling plant are described in Section 3.4.1 Utilities.

- **ARCHITECTURAL REVIEWS**

All new structures or exterior remodels within the Copper Canyon project shall be submitted for review and approval of the proposed architecture by the Master Developer prior to submittal for architectural review for conformance to the City's Design Standards Manual by the Planning Commission as a general business item. These approvals shall be obtained prior to submittal of a building permit for any structure.

1.5 PROJECT CONCEPT

The project area encompasses 1,308 acres. Approximately 200 developable acres shall be available for commerce, technology, retail, commercial and other uses that support the project. The land uses in the project support the working and leisure lifestyle of the residents and employees but the uses shall be accessible and available to all. The housing opportunities in the project area range from apartments and townhomes to large executive estates. The intent is to enable people to live within walking distance of their place of employment, but also to be within walking distance of extensive open space and supporting recreational and commercial facilities. The mix of housing types shall provide a range of housing prices in the project area to accommodate a range of household types. Table 1-1 summarizes the planned land use.

TABLE 1-1 - LAND USE SUMMARY

LAND USE	MAXIMUM DWELLING UNITS	ACRES	Approximate UNITS/ACRE	% OF LAND AREA
Residential				
Single Family	1,048	162	7*	12.4
High Density Residential	1,061	62	17*	4.7
Business Park		141		10.8
Mixed Use Commercial		33		2.5
Hotel/Casino (200 rooms)		16		1.2
Common Area/Open Space		847		64.8
R-O-W		42		3.2
Public Facility/Community Use		5		0.3
TOTAL	2,109	1,308		100.0
*Approximate Average Density				

Figure 1-5A is a Master Plan Land Use Map reflecting the site's current master plan land use designations. Figure 1-5B (see page 1-13) is a generalized land use map of the project site by land use categories further described in Section 3.4. Figure 1-6 (see page 1-14) is a conceptual pad layout showing the pad number designations used to reference specific conditions throughout this Development Handbook.

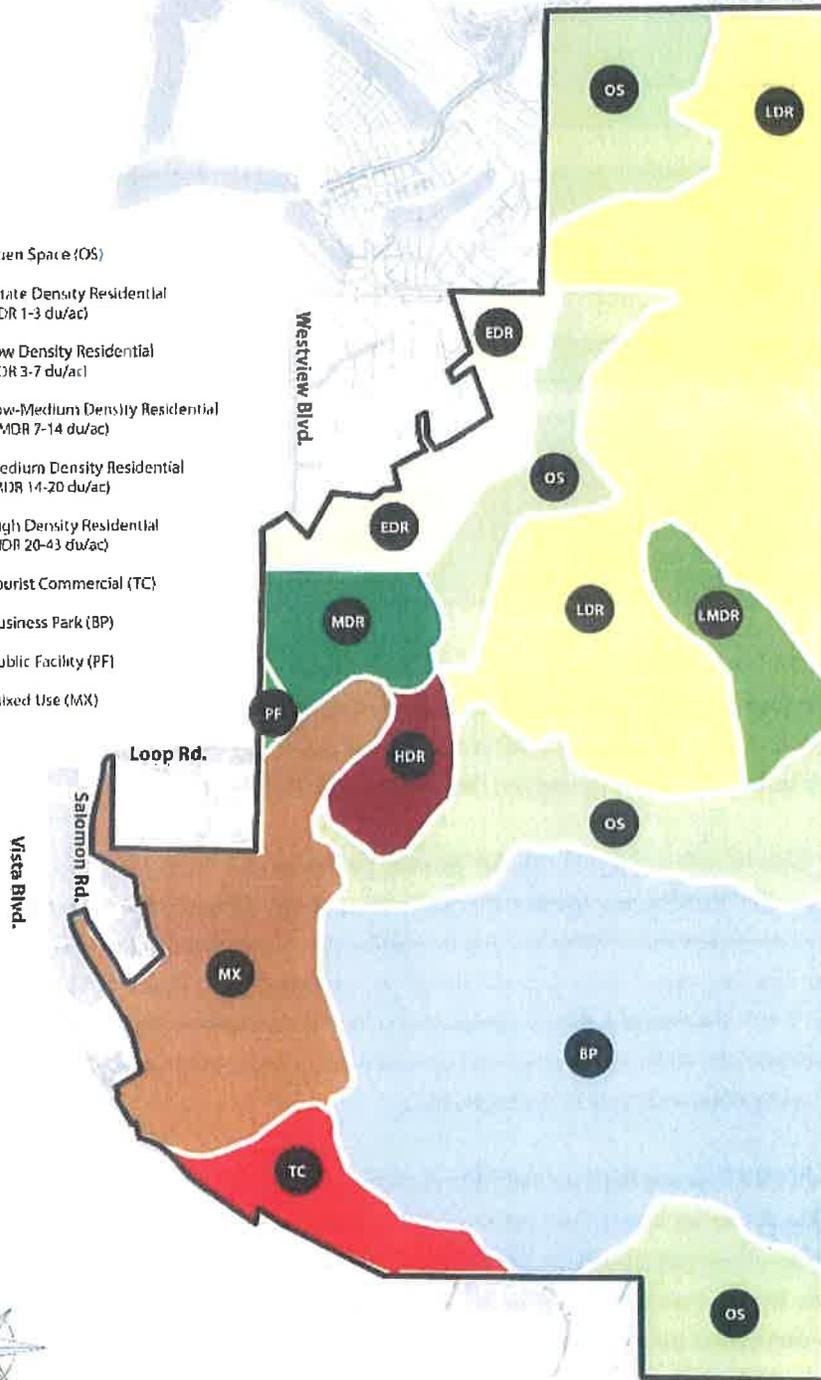
Copper Canyon encourages facilities that enhance the leisure and recreation opportunities for all the residents of Sparks. The hotel/casino, sports club, restaurant sites and village center form the highest concentration of activity in the project and may become popular destinations for residents and visitors to the region. It is here that residents shall find leisure, recreation and socializing, as illustrated in Figure 1-7 (see page 1-15) and Figure 1-8 (see page 1-15) that illustrate the village concept for Pad 4. As shown in Figure 1-5B (see page 1-13), the village center, sports club, residential development, general retail, offices and hotels may be located within the mixed use designation to allow walking between the buildings.

A casino with a large gaming floor and table games may be developed within the Tourist Commercial portion of the project. A gaming license from the State of Nevada Gaming Board and the City of Sparks is required prior to initiation of any gaming activity. A casino by definition (NRS 463 and NRS 464) includes 16 or more slot machines. The reference to "gaming" or "casino" in this plan reflects the fact that a component of gaming is found in many commercial and tourist oriented enterprises in Nevada.

Recreational opportunities may be located throughout the plan area, but are intended to be concentrated in the sports club. The club shall also include retail shops and restaurants catering to sports enthusiasts as well as space for sports medicine clinics and training facilities. Offices related to medicine or professional services may be included

LEGEND

- Open Space (OS)
- Estate Density Residential (EDR 1-3 du/ac)
- Low Density Residential (LDR 3-7 du/ac)
- Low-Medium Density Residential (LMDR 7-14 du/ac)
- Medium Density Residential (MDR 14-20 du/ac)
- High Density Residential (HDR 20-43 du/ac)
- Tourist Commercial (TC)
- Business Park (BP)
- Public Facility (PF)
- Mixed Use (MX)



**FIGURE 1-5A
SPARKS MASTER PLAN LAND USE MAP**

LEGEND

-  **Open Space (OS)**
847 acres
-  **Residential Single Family**
152 acres
-  **Residential High Density - 62 acres**
Townhomes / Condominiums
Apartment
Senior Housing
-  **Business Park**
141 acres
-  **Mixed Use - 33 acres**
Sports / Racquet Club
Commercial
Retail / Restaurants
Garden / Office
Hotel
-  **Tourist Commercial**
16 acres
-  **Public Facility / Community Use**
5 acres

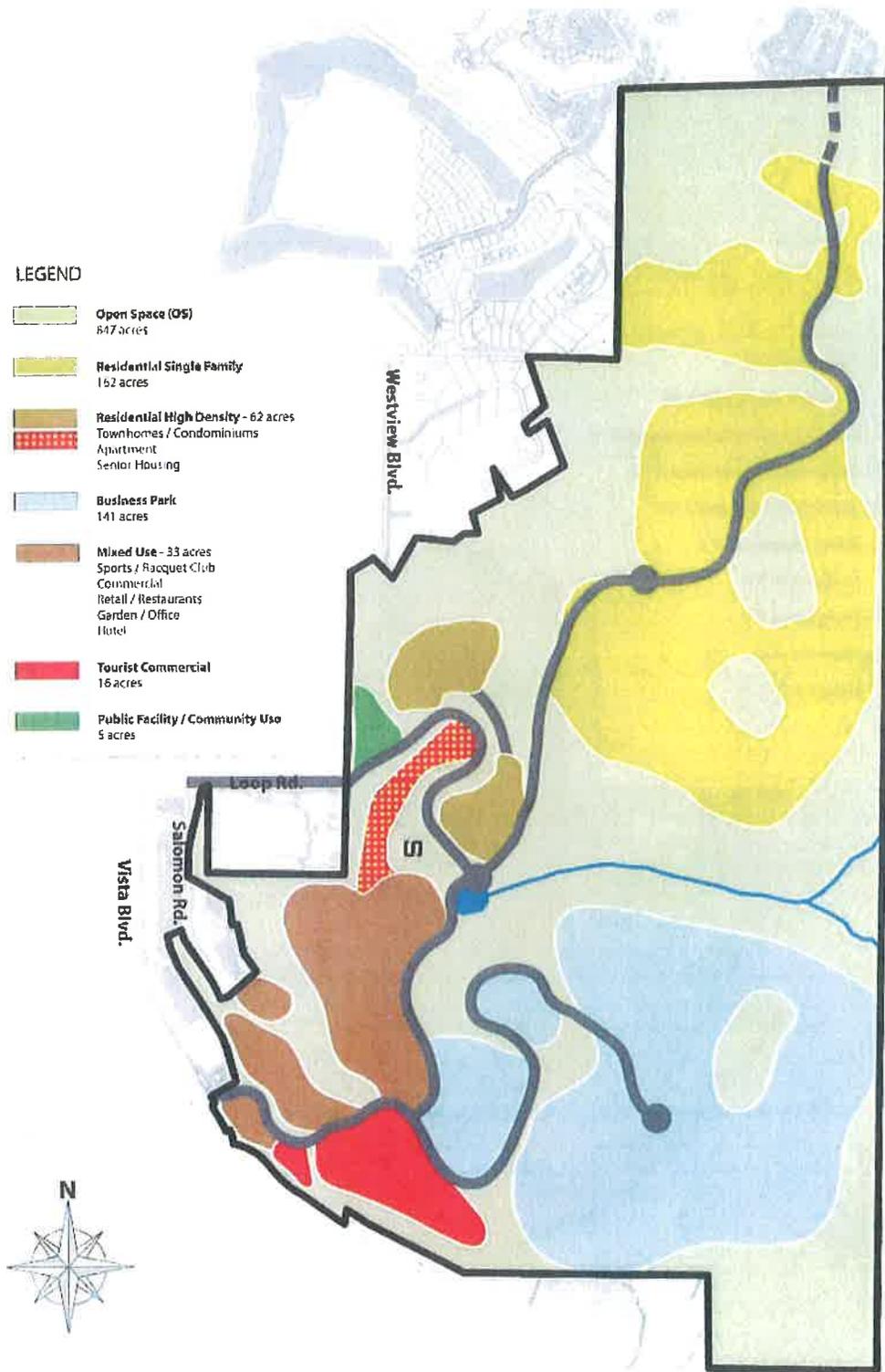
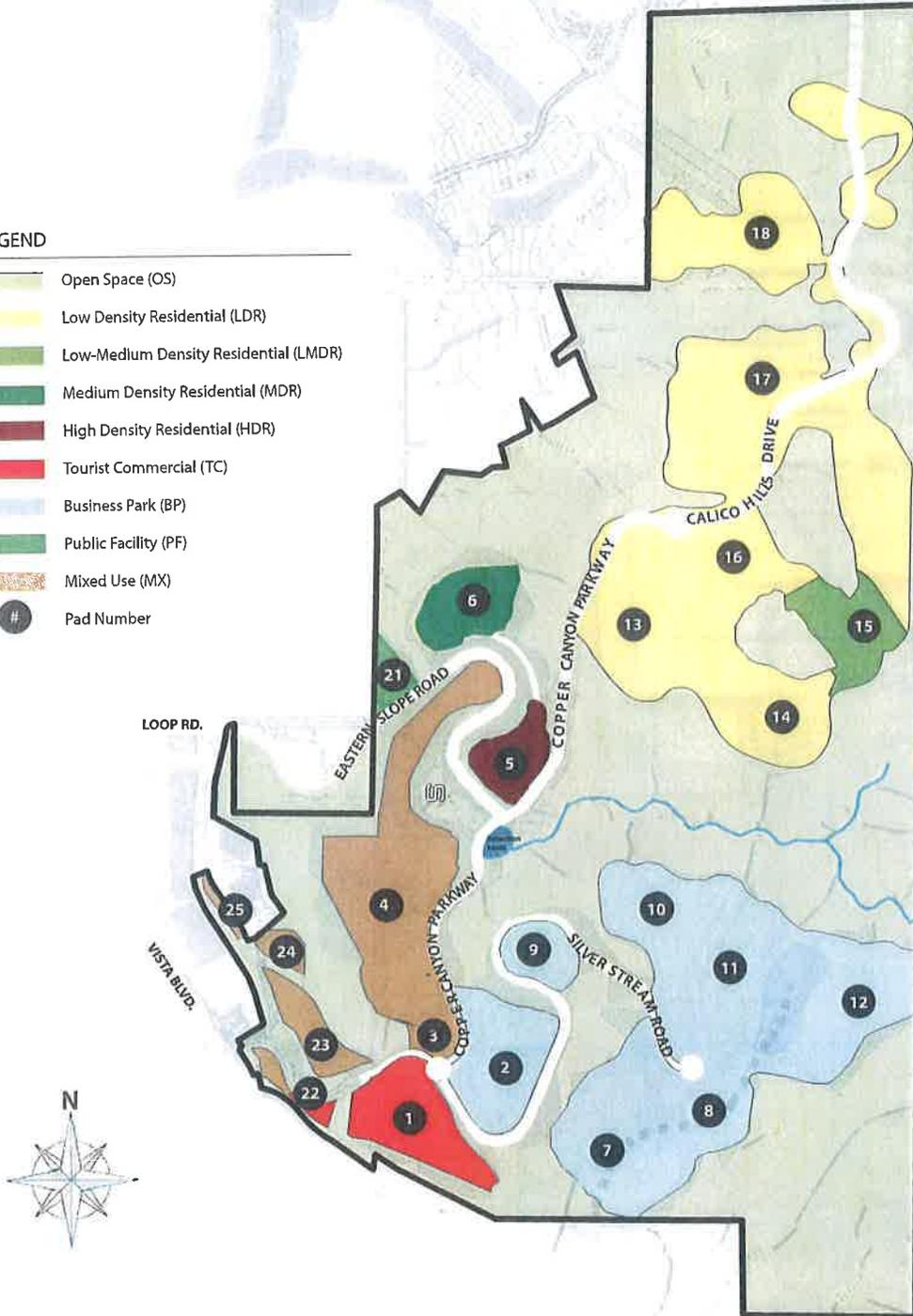


FIGURE 1-5B
GENERALIZED LAND USE MAP

LEGEND

- Open Space (OS)
- Low Density Residential (LDR)
- Low-Medlum Density Residential (LMDR)
- Medium Density Residential (MDR)
- High Density Residential (HDR)
- Tourist Commercial (TC)
- Business Park (BP)
- Public Facility (PF)
- Mixed Use (MX)
- Pad Number



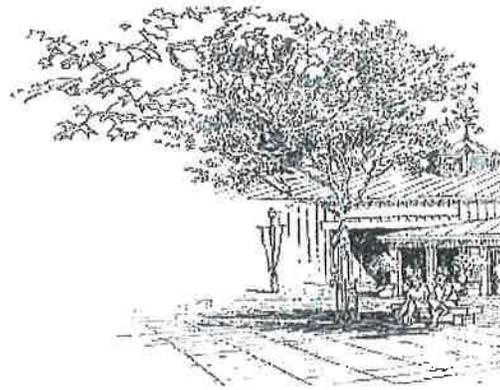
**FIGURE 1-6
PAD NUMBER DESIGNATIONS**

in the sports club. Refer to Section 3.4 for a detailed description of the sports club and Table 3-1 (see pages 3-12 & 3-13) for permitted land uses.

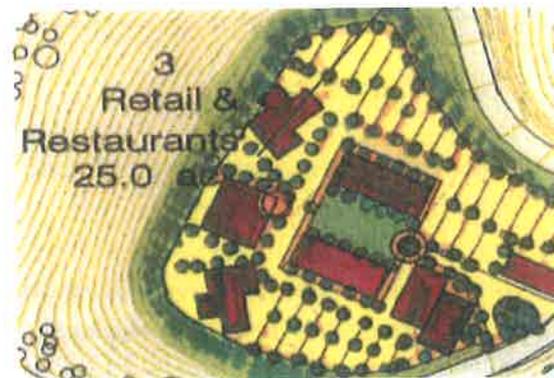
The village commercial center shall be the focus of dining, shopping and social activity. The center shall be accessible from Copper Canyon Parkway as pedestrian trails and sidewalks extend throughout the project. These areas shall be designed for uses such as informal recreation, leisure gatherings and special events, such as seasonal celebrations or music fairs to promote social interaction and sense of community. An artist's conceptual sketch of a pedestrian plaza in the center is shown in Figure 1-9. Refer to Section 3.4 for a detailed description of the village center and Table 3-1 (see pages 3-12 & 3-13) for permitted land uses.

The project area is comprised of hilly terrain and plateaus highly visible from Sparks and the community to the west. As described in Section 1.6.2 Grading, Section 1.6.4 Significant Ridgelines and Views, and 3.7. Grading and Hillside Development, the project includes very specific standards to minimize the visual impact of developing roads and building sites. In order to minimize the visual impact and to conform to the natural terrain, the project shall consist of separate terraces that naturally step up the hills from Vista Boulevard.

The terraces may include a mix of land use types, such as office, restaurants and commercial uses appropriate to the location and size of the terrace. Some terraces may have a single use, such as an office. The larger terraces shall be broken down to smaller interconnected interior terraces to separate buildings and parking areas. The intent of these design requirements is to contour grade all terraces and avoid large flat building pad sites.



**FIGURE 1-7
SEATING IN THE VILLAGE CENTER**



**FIGURE 1-8
CONCEPTUAL VILLAGE CENTER PLAN**



**FIGURE 1-9
CONCEPTUAL ILLUSTRATION OF VILLAGE
CENTER PLAZA**

Most of the project area shall be left as common area between the terraces, comprised of disturbed and undisturbed areas. In selected locations, such as naturally occurring swales and in the open space between terraces, native plant materials shall be used to restore the natural appearance and enhance wildlife habitat on the site. The native plant materials shall transition to more formal plant materials around the buildings. The intent is to re-introduce selected native plant materials and wildlife in the areas visible from the buildings and thereby enhance the sense of relationship to the site for residents, visitors and employees. A discussion of the proposed plant revegetation wildlife habitat enhancement program is included in Section 1.6.7 Vegetation and Wildlife and Section 3.5.1 Landscape in Common Areas. Pedestrian trails and sidewalks shall extend through the open space areas to connect the developed areas and provide access to the extensive open space in the public lands to the east. The pedestrian trail system is described in Section 2.1.5

1.6 SITE ANALYSIS

1.6.1 TOPOGRAPHY

The project site elevation relief ranges from 4,400 feet in elevation near I-80 and Vista Boulevard to nearly 5,400 feet in the northern portion of the site.

The topographic map is derived from conventional aerial photography and photogrammetry. The final design of the individual development pads may be supplemented with field surveys as needed. The topographic map is sufficient for master planning purposes. Autodesk Land Development Desktop 2005 software was used in the analysis and preparation of this Development Handbook. The software produced the visual analysis, topographic maps and cross section diagrams in this section.

Figure 1-10 is a topographic map of the existing, undisturbed project site that shows the elevation contours at 20 foot intervals and a computer generated image of the existing terrain. The site is comprised of canyons and plateaus sloping to the west. The major canyon running east to west near the center of the project area is the inspiration for the project name, Copper Canyon. The terrain controls the extent and location of potential development in the project area.

1.6.2 GRADING

The grading concept is to create and develop a series of plateaus by expanding the existing plateaus that follow the natural landform. The plateaus shall step up the hill in a progression of small development areas separated by common area. Within each plateau, smaller terraces shall be constructed for individual building pads and parking areas. Roads linking the plateaus shall be located at the back of the plateau so they are hidden by the buildings and grading where feasible. Contour grading may create additional plateaus and enlarge some of the existing plateaus to accommodate development sites. Grading operations must stay within allowed disturbance areas.

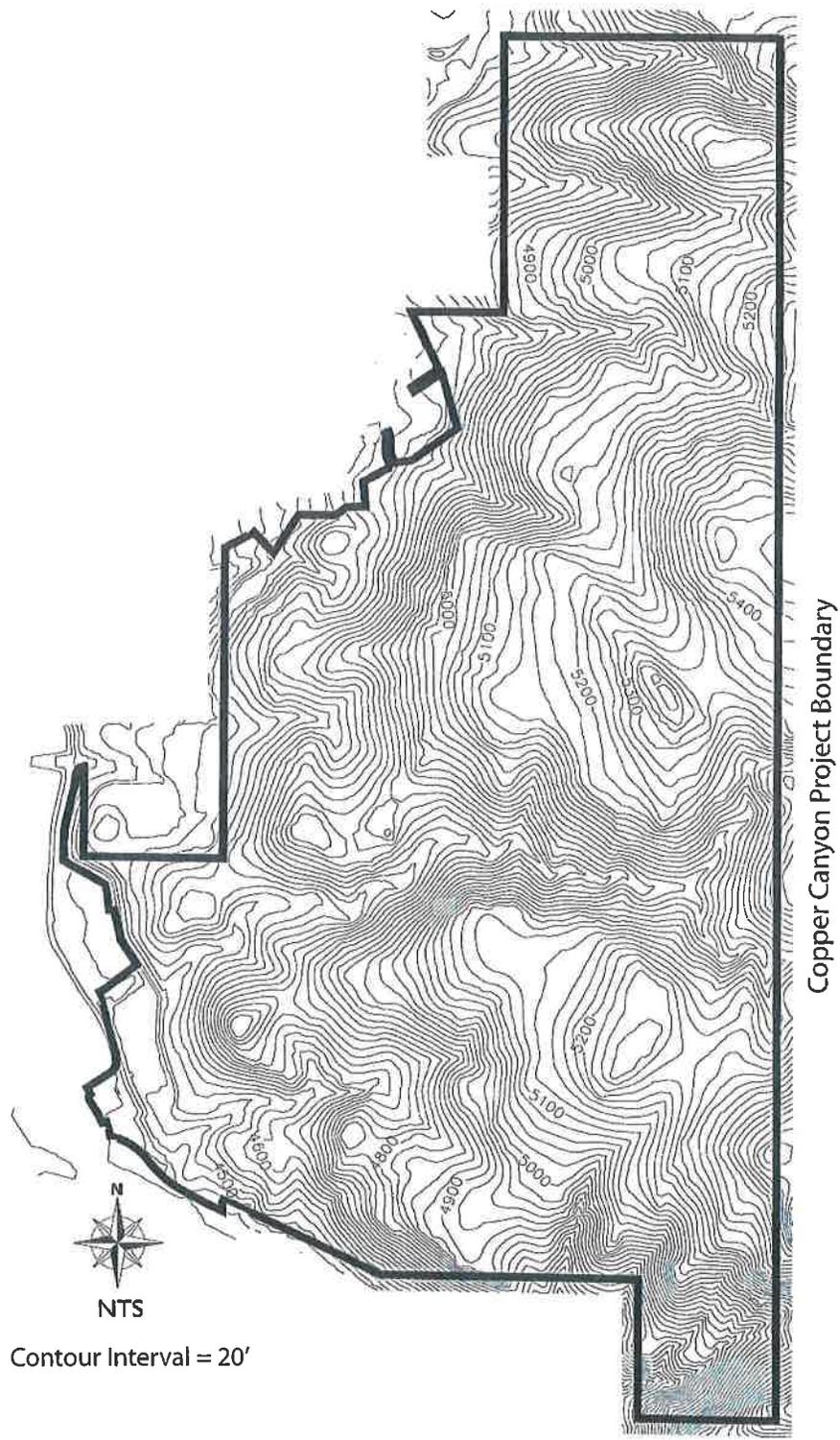


FIGURE 1-10
TOPOGRAPHIC MAP OF THE PROJECT SITE

Individual terraces shall be designed to accommodate office, research and development, and high technology component assembly and single family residential as well as the support land uses. The larger existing and created plateaus shall be contour graded to provide a series of smaller plateaus for individual homes, buildings and small parking areas, interconnected with roads ramping up from one plateau to another. Figure 1-11 illustrates the conceptual grading of the plateaus into smaller terraces.

Figure 1-12 illustrates the conceptual grading plan and indicates cut and fill areas for the entire project area. Conceptually, approximately 11.6 million cubic yards will be cut, 11.0 million cubic yards will be fill, 1.5 million yards will be for aggregates and topsoil and 1.5 million yards will be to accommodate shrinkage due to compaction or to export to other projects in the vicinity. These estimates are approximate and shall be refined in the final grading design for each phase of the project. This amount may increase or decrease depending on the site design of individual plateaus and roadway design criteria specified by the City of Sparks and RTC. The earthwork quantities vary significantly by the depth and terracing of each pad. For example, a one foot adjustment in depth over approximately 60 acres results in a 100,000 cubic yard difference in the total amount of earth moved on site. The final design of each development area shall seek to minimize the actual cut and fill on each plateau, reducing the amount of cut and fill over the entire site. This is accomplished by raising or lowering each of the smaller terraces within the larger plateaus and altering the front and back slope of each terrace to add or remove material.

Table 1-2 (see page 1-20) provides a summary of the preliminary cut and fill analysis for the site. The conceptual grading plan and the individual plateau grading plans as summarized in Table 1-2 (see page 1-20) would produce approximately a net of 3.0 million cubic yards including 1.5 million yards for aggregates and topsoil and 1.5 million yards to accommodate shrinkage due to compaction or to export to other projects in the vicinity. The materials shall be used for aggregate production for construction, fill materials for roads and off-site fill.

For the purposes of estimating the total grading over the entire project, each area in the conceptual grading plan (Figure 1-12) has an average gradient of five (5) percent. A five (5) percent average slope ensures that there shall be adequate material on each development site to allow creation of the small terraces stepping across the area. The



**FIGURE 1-11
CONCEPTUAL DEVELOPMENT TERRACES**

design of each terrace depends on the size and configuration of the buildings and parking areas. Such detail is beyond the scope of this handbook and must be addressed in the site plan review approval of each individual development area and its final grading plans. Mass grading of plateaus outside of the phasing plan other than grading required for development of

LEGEND

- Cut**
depths vary
- Fill**
depths vary

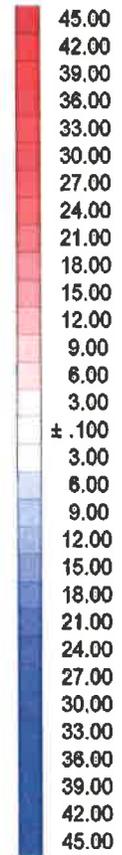
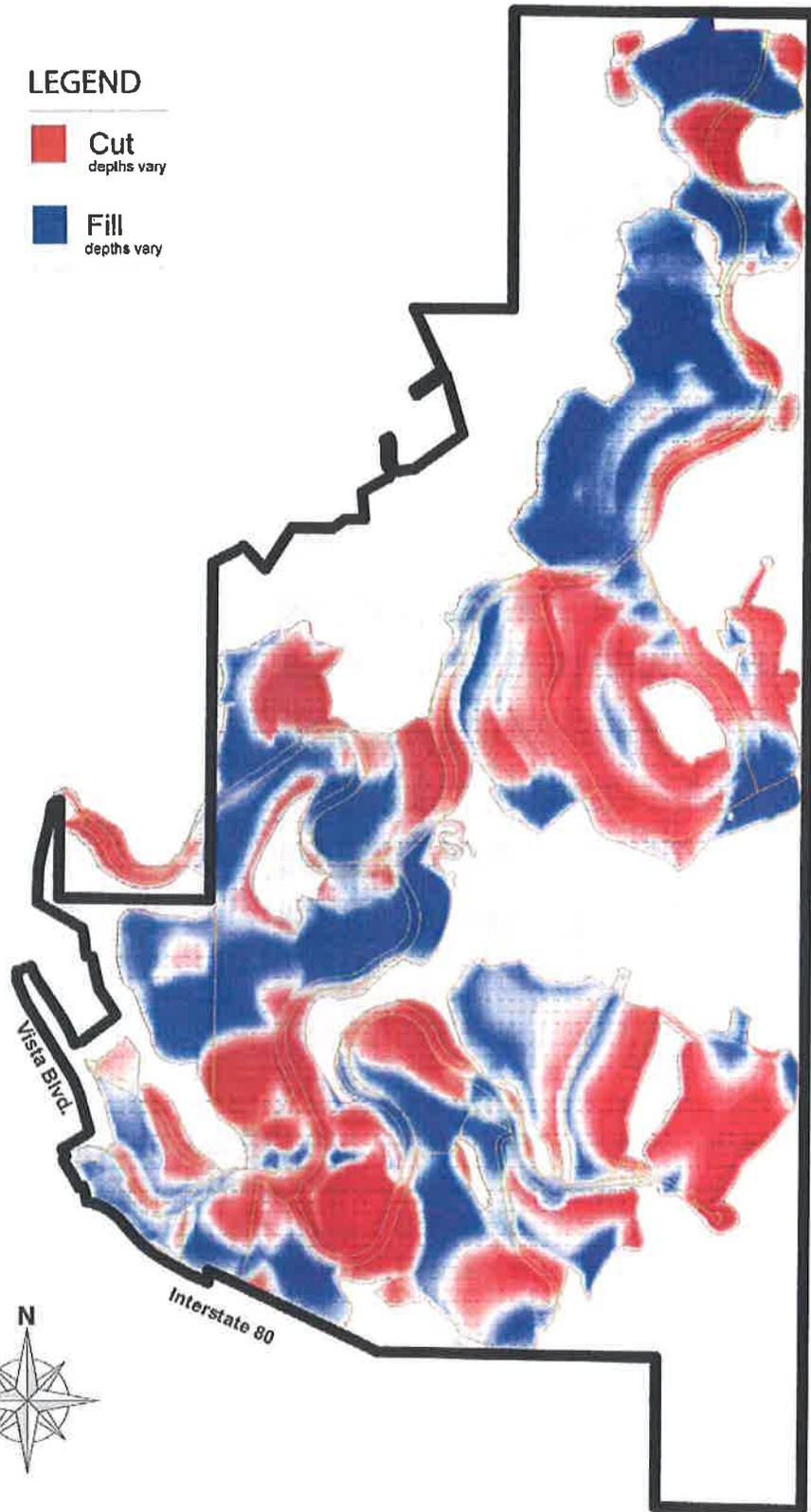


FIGURE 1-12
CONCEPTUAL GRADING PLAN

**TABLE 1-2
PRELIMINARY SUMMARY OF CUT AND FILL CALCULATION**

Site Balance/Mass Grading/Internal Pad Grading – Includes Aggregate Requirements & Off-Site Hauling				
Pad No.	Cut (cy)	Fill (cy)	Cut Depth Per Pad (ft)	Fill Depth Per Pad (ft)
			Average	Average
1	493,800	174,300	22	8
2	555,700	82,400	24	4
3	102,000	23,300	25	6
4A	150,000	85,400	8	5
4B	713,500	998,000	17	24
5	94,000	249,800	6	16
6, 21	338,700	209,000	18	11
7	680,200	210,600	19	6
8	57,800	146,200	5	12
9	144,900	9,300	20	1
10	133,500	81,400	4	3
11	256,500	82,200	14	4
12	534,800	197,200	14	5
13	218,800	142,800	8	5
14	418,800	268,900	12	7
15	510,400	34,100	22	1
16	948,000	493,900	9	10
17	280,900	685,800	5	13
18	948,100	647,400	15	11
22, 23, 24, 25	275,900	288,300	11	9
Roads	3,475,200	3,010,100	Varies	Varies
On-Site Gravel/Topsoil		1,450,000		
Shrink/Export		1,500,000		
Total (Approximate)	11,601,500	11,070,900		

aggregates, staging of development, construction of essential streets, landscaping, hydrologic basins, sewer, water, or drainage improvements is not permitted. Grading shall be phased to allow infrastructure to be constructed based on site plan review approval of each individual development area, in general conformance with Figure 1-18A (see page 1-31) as dictated by infrastructure, grading and phases. Where required to balance cut and fill on site it is permissible to expand the grading phase.

The final grading plan for the entire project area shall occur in phases over a period of years. Grading of development plateaus shall generally conform to the phasing plan as described in Section 1.7 Project Phasing. However, the development phasing plan and the grading phasing plan will not precisely coincide because of the need to construct basic hydrologic and backbone infrastructure improvements with the grading. All grading phasing is subject to change based on market conditions and sales of development areas and to the approval of the Engineering Manager and Administrator. The final grading plan shall be refined and modified as required to meet the needs of

the individual buildings, parking, streets and ramps that serve each plateau. The primary concerns are to ensure that the cumulative effect of development of each plateau does not create a visual impact on the city and that the movement of material in each phase of development is approximately balanced.

The project area is subject to the grading development standards in SMC Chapter 20.99 (Hillside Development). This standard establishes six slope categories as shown in Table 1-3, and requires that the area disturbed by grading does not exceed a maximum percentage of the area, unless it is demonstrated "that the additional grading provides a better solution." The area in each of the slope categories is derived from elevation data generated by aerial topography. Autodesk Land Development Desktop 2005 software was used to identify the amount of land in each slope category as required in SMC 20.99. Figure 1-13 (see page 1-23) shows existing slope conditions in the six slope categories.

In accordance with SMC 20.99.040 it is anticipated that final engineering will provide for improved analysis and detailed solutions but may impact the disturbed area. Anticipated improvements include maintaining road grades to a maximum of ten percent (10%), which allows for quicker emergency access yet lowers overall pad elevations. The grading operation required to construct the dam created pad areas that allowed residential areas to be relocated, thereby opening additional pad area for business park development. Additionally the dam footprint will likely cover over 10 acres, yet provide a regional solution to the historical flooding of the Vista area. Grading for construction of the three water tanks, which provide regional service, will also impact this calculation. The Preliminary "Cut Slope Stability Study" prepared by Kleinfelder, June 22, 2006, identified competent rock slopes that are anticipated to remain stable with slopes in excess of 2:1, locations and catchment details are discussed in the report and key construction points are presented in section 3.7. The anticipated use of stabilized slopes, strategically placed retaining walls and key landscaping treatments, will mimic the existing slopes and help to further reduce the impact of development on the open space areas by providing visual relief and minimizing developed area. Rock slope analyses are required prior to approval of slopes without benches.

Out of the approximately 1,257 undisturbed acres in the total project site shown in Table 1-3, SMC Section 20.99.040(b)(4) allows for disturbance of 514.7 acres. SMC 20.99.040(b)(5) also states, "Specified maximum disturbed areas can be used as thresholds which can only be exceeded after demonstration that the additional grading provides a better solution." The project proposes to disturb approximately 564.8 acres when allowances for additional grading for the engineered solutions are credited. 847 acres or approximately 65% of the project site will remain as open space. This will provide approximately 221 acres of additional open space than required by SMC and the Truckee Meadows Regional Plan. The road alignments typically adhere to a maximum eight percent (8%) grade except where approved by the Engineering Manager. The road alignments and grades control entry onto developed pads and affect the final earthwork quantities.

Regarding SMC Section 20.99.040(B)(5), the design features provided in this Design Handbook for the Copper Canyon Planned Development to mitigate the proposed grading include contour grading and additional building setbacks as described in Section 1.6.4. In addition, Section 3.5.2 provides standards for landscaping the perimeter

TABLE 1-3 - EXISTING SLOPE CONDITIONS (EXCLUDING PREVIOUSLY DISTURBED AREAS)

Slope Category	Existing Acres	% of Plan Area	Maximum Disturbed Area Per SMC 20.99	Disturbed Acres Allowed Per SMC 20.99
0-10%	75.6	6.0%	Unlimited	75.6
10-15%	111.3	8.9%	75% of Category	83.5
15-20%	153.0	12.2%	67% of Category	102.5
20-25%	163	13.0%	50% of Category	81.5
25-30%	160.2	12.7%	33% of Category	52.9
30% and more	593.5	47.2%	20% of Category	118.7
Total	1,256.6	100%		514.7

The total proposed disturbance is 564.8 acres.

of all plateaus and the face of all finished grades in a manner to stabilize them and make them blend with the natural terrain. Section 3.6.2 also provides standards for the use of rock walls on stabilized slopes. The project geotechnical engineer, with the concurrence of the Engineering Manager, will determine the integrity of all slopes within the project.

1.6.3 EROSION AND SEDIMENTATION CONTROL

Section 3.7, Grading and Hillside Development provides standards for fugitive dust erosion and sediment control. The project area shall utilize cost-effective urban runoff controls, including Best Management Practices (BMP's) to limit urban pollutants from entering the water courses and control erosion of disturbed soils per Nevada State Conservation Commission and Department of Conservation and Natural Resources and Division of Environmental Protection (NDEP).

1.6.4 SIGNIFICANT RIDGELINES AND VIEWS

The project area provides exceptional panoramic views to the Sierra Nevada and the Truckee Meadows. Homes, buildings and public spaces within the project area shall be located to take advantage of these views, as well as the Pah Rah Range Mountains east of the project area.

RANGE	BEGIN	END	AREA, AC	PERCENT
■	0%	10%	75.6	6.0%
■	10%	15%	111.3	8.9%
■	15%	20%	153.0	12.2%
■	20%	25%	163.0	13.0%
■	25%	30%	160.2	12.7%
■	30%	>30%	593.5	47.2%
			TOTAL AREA = 1256.6±	

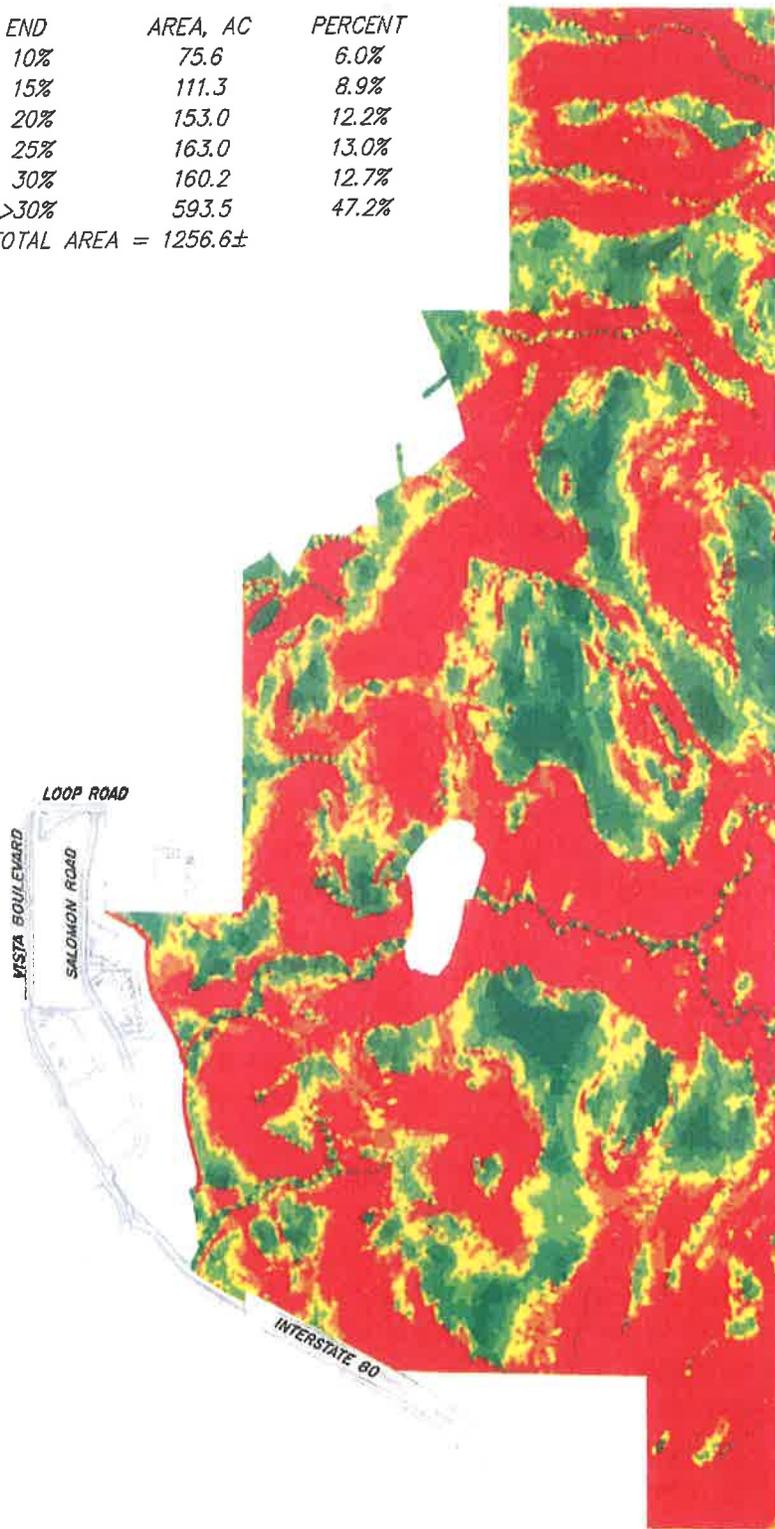


FIGURE 1-13
ANALYSIS OF SLOPE BY CATEGORY

The project area is visible from much of Sparks and the surrounding community. One area studied in depth is the Significant Hilltops and Ridgelines identified in the Sparks Master Plan. Figure 1-14 identifies the two significant ridgeline conditions identified in the project site. The plateaus proposed for development are located so that buildings shall not stand out above the ridgeline of the Pah Rah Range to the east. Figure 1-14 also shows that all proposed development plateaus are lower than the terrain immediately to the east and the primary ridgeline. The buildings on the proposed plateaus shall not project above the ridgeline.



**FIGURE 1-14
RIDGELINE TO THE EAST OF THE PROJECT AREA
AND SIGNIFICANT RIDGELINES IDENTIFIED IN THE
SPARKS MASTER PLAN**

The line of sight to much of the development proposed in the project area is obscured by the natural land form and the plateaus. The western edge of the plateaus themselves act to screen the proposed development above and behind them.

Figure 1-15 illustrates the line of site from one-half mile, one mile and two miles away from the site. This figure does not apply to pads 1, 3, 4, and 22-25 as shown on Figure 1-6 (see page 1-14) as these pads are effectively retail pads that will rely on the exposure for activity. The edge of the marina is approximately two miles from the highest development plateau. The effectiveness of the berm and grading standards depends on the location and elevation of the viewer. The further the distance away, the building mass decreases relative to the surrounding hillside. At long distances (two miles or more, the edge of Marina Lake) the angle of view is lower and the berm and grading shall be less effective. However, at distances less than two miles the view angle increases significantly and the berm is much more effective. Within a short distance all of a two story building shall be obscured. The floor of the valley is approximately 700 feet lower than the highest plateaus in the project area. A building 14 feet high shall be obscured by a six-foot high berm at the edge of a development terrace if viewed from approximately two miles away at the edge of the Marina Lake. A building 20 feet high shall be obscured by a 6 foot high berm at the edge of a development terrace if viewed from approximately one mile away. A building 32 feet high shall be obscured by a six-foot high berm at the edge of a development terrace if viewed from Vista Boulevard approximately one-half mile away. Indeed at Vista Boulevard much of the site is obscured by the low hills just east of the street and no buildings shall be visible.

The natural screening effect of the plateaus or terraces is enhanced by specific design standards in Section 3.7 Grading and Hillside Development. These standards require that a berm be located at the perimeter of the plateau above any downslope condition. The buildings must be set back a minimum of 80 feet from the edge of the plateau.

1.6.5 CLIMATE EFFECTS

Development on this project site will be subject to the climate effects typical of the Reno/Sparks area. However, the elevation above the valley floor and the west orientation will significantly increase the effects of snow, wind, and sun on buildings, public spaces, walkways and roads.

The location and design of all developed areas must provide shelter from wind and sun by providing covered walkways and windscreens in exposed locations. Building entries must be oriented and designed to avoid exposing pedestrians to strong winds and inclement weather. Roads and parking areas must be designed and oriented to minimize the effects of snow and ice.

The project site provides exceptional opportunities to incorporate natural heating and cooling. Buildings should be oriented and designed to take advantage of cooling breezes, and to make use of the excellent southwest and west orientation for solar heating. The high number of clear, sunny days and the orientation provide excellent conditions to incorporate solar heating and cooling features in the buildings and to make the outdoor plazas, walkways and other pedestrian areas very pleasant and attractive. Design standards for including such features are described in Section 3.8.1.

1.6.6 HYDROLOGY

The project area drains to the west and south. Storm water from east of the project boundary drains through the project area in natural channels and discharges through developed and undeveloped land along Vista Boulevard. A small portion of project area flows to the southwest and discharges directly onto Nevada Department of Transportation (NDOT) right-

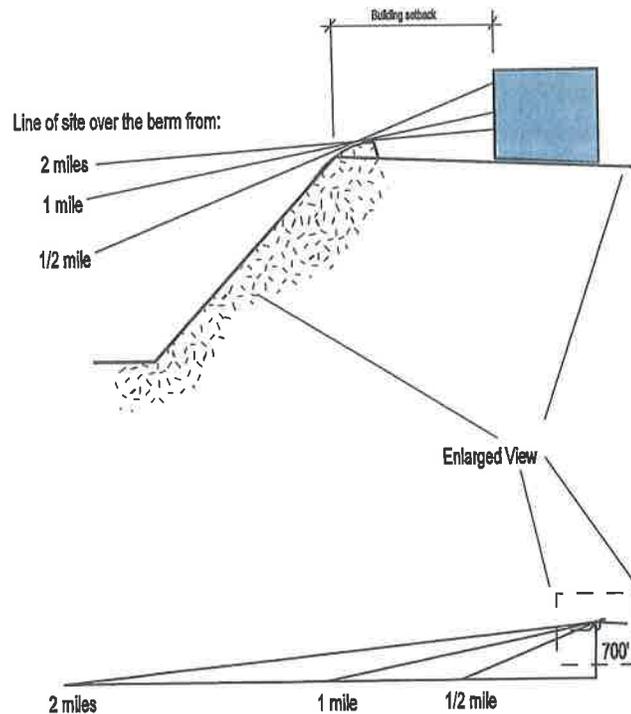


FIGURE 1-15
VISUAL EFFECT OF THE BUILDING SETBACK STANDARDS

of-way. Existing 24-inch culverts carry the flow under I-80 and over the railroad tracks where it is discharged directly into the Truckee River. Figure 1-16 shows the direction of flow in thirty-seven (37) sub watersheds within and adjacent to the project area. These watersheds were identified and mapped for the purposes of hydrologic analysis on this project.

The project site is entirely out of the minimum 100-year base elevation in the area of 4,392 feet. On-site flooding is not a factor in the design of the project. Existing flooding to the west along Vista Boulevard is a concern that shall be partially mitigated by improvements proposed in this plan.

The largest watershed flows from the east through the drainage identified in the plan as Copper Canyon. This canyon is located near the center of the project area and roughly divides it into north and south areas. Flows from this watershed discharge from a natural channel at the west edge of the project area down an existing cut slope on the adjacent UPS property then sheet flow out to Vista Boulevard. The flow concentrates at a low point in Vista Boulevard and continues westerly into the existing commercial development. Flows are collected in an undersized storm drain that often floods the western industrial area along Vista Blvd. A high point in Vista Boulevard splits the west bound flows; the northerly flow going to the drainage along Prater Way and the southerly flows going to the Vista Boulevard storm drainage system.

Construction of a large detention basin (dam) within the project area shall be designed to substantially mitigate the existing flooding conditions downstream of the project area. The dam is located within the lower reach of Copper Canyon and shall provide detention of the storm water. The dam will be designed to contain the Probable Maximum Precipitation (PMP) storm. The outlet of the dam will be designed to reduce the peak discharge from a 100 year storm event. This regional facility, in combination with the on site detention facilities, will reduce the flows from the Copper Canyon watershed to approximately 35 cfs. Detailed design and locations of on site facilities will be provided in the Master Hydrology report and updated with reports developed in support of each improvement plan submittal. This shall significantly reduce the flooding problem currently experienced on Vista Boulevard.

The dam shall be created by the fill constructed from Copper Canyon Parkway and Eastern Slope and the sports club/apartment area (pads 2, 5 and 6 on Figure 1-6, page 1-14). The dam shall extend east up Copper Canyon. The floor of the dam shall be dry most of the time.

1.6.7 VEGETATION AND WILDLIFE

The vegetation of the project site consists of those typical of a sagebrush steppe, which is an environment dominated by grasses and low shrubs. These grass species include Crested Wheatgrass, Cheatgrass, Great Basin Wild Rye, Indian Ricegrass, and Needle Grass. Shrubs include several species of Sagebrush, Rabbit Brush, Horse Brush, and Antelope Bush. Wildflowers found on the project site include Wild Onion and Blazing Star. The vegetation typically found along the ephemeral drainages of the project site include Bull and Russian Thistles, Tumble Mustard, Kochia, Sego and Mariposa Lilies, and Creeping Wild Rye. (A more extensive list of project site vegetation can be found in the referenced Huffman & Carpenter, Inc., report of May 2000.)

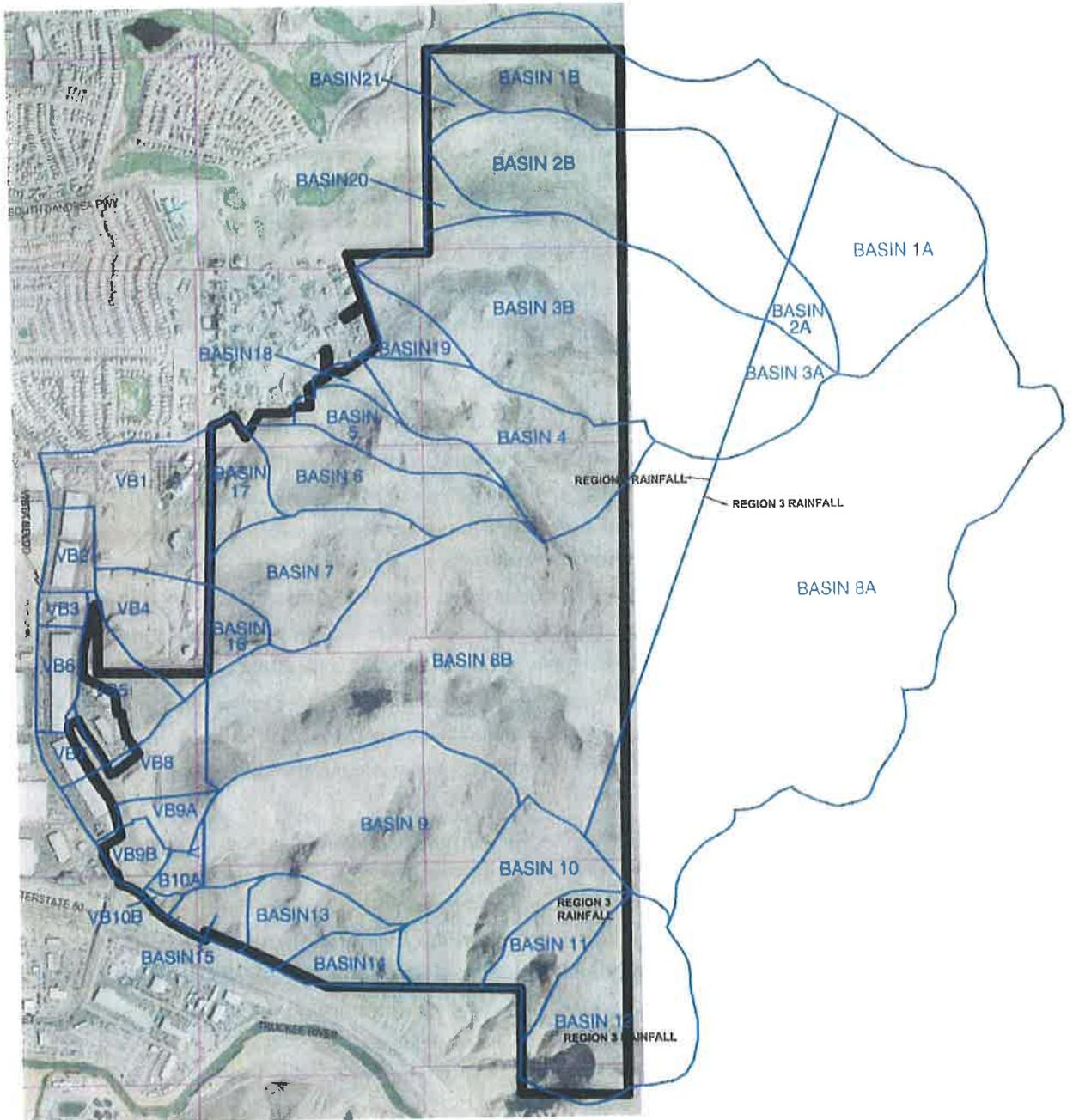


FIGURE I-16
HYDROLOGIC BASINS

The sagebrush steppe also provides habitat for a variety of wildlife species. These species have developed adaptive physiological and behavioral attributes to survive in this difficult environment. Some species remain hidden underground during hot daylight hours, dry spells, and cold winters. Some aestivate (a state of sluggishness) during the summer drought. Many species obtain all their needed water from their food. The wildlife species likely to inhabit or visit the project site include chukar, quail, jackrabbit, antelope, deer, coyote, ground squirrel, snakes and lizards.

The plan shall enhance the native plant and animal habitat by increasing the incidence of native plant materials that provide food, shelter and reproductive environments for native species. The goal is to establish a more diverse ecology within the project area based on the native plant and animal species that historically occupied this area. The primary method of wildland enhancement shall involve a program of regenerating plant species selected for their ability to prosper in this environment and to form links in an ecological chain. The selected plants shall need to compete well against the invasive non-native plants, such as cheatgrass, and to fill a niche for food or shelter for a desired animal specie.

Full restoration of the native ecology is not practical. The project area is too small and the effects of invasive plants are too great to plan for a fully restored environment. The intent is to re-introduce, or enhance the survival of native species that shall enhance the quality of the project area. The goal is to have a sustainable balance of plants and animals that are compatible with the site and with the other plants and animals. The plant revegetation program shall identify a target list of plants and animals selected for their support in a sustainable environment amongst the developed portions of the project. Target species shall include small animals and birds that are compatible with development and occupation of portions of the site. The revegetation plan shall include a combination of native and native compatible, non-invasive species which will be planted on site. Native grasses, wildflowers, shrubs and trees shall be planted in the common areas where moisture, slopes, soils and exposure are suitable. Both native and native compatible, non-invasive species shall be planted in the landscaped areas. Specific improvements proposed to revegetate and restore some of the native plant and animal regime are described in Section 3.5.1, Landscaping in Common Areas.

The planned development design shall include a detailed revegetation plan for areas of the common area which are disturbed from construction practices. The plant revegetation program shall initially involve sites adjacent to the development plateaus and selected sites that suit specific purposes. For example, the natural swales that drain the plateaus shall be planted with aspen, or other tree species that benefit from availability of water. The intent is to create an environment similar to that found in the wild, mountainous areas of Nevada where strands of deciduous trees extend down the drainage corridors. Native shrubs and grasses shall be planted in the canyons and around the developed areas to reclaim these areas from the non-native cheatgrass.

In addition to the planting program, the management of the common areas shall include wildlife enhancements. This shall include providing suitable animal watering features, such as "guzzlers" and year-round watering holes. It shall also include selecting plant materials for food or shelter to encourage specific animals to move into the area. It shall also include constructing shelters or other physical enhancements for wildlife. Shelters shall include raptor stands, bat shelters and other simple structures.

The wildlife management and plant re-vegetation program shall encompass all of the common area. The common area land shall be owned and managed by the Copper Canyon Property Owners Association (CCPOA), described in Section 1.8.

1.6.8 WETLANDS

A thorough site investigation of the project area by Huffinan and Carpenter, Inc. in April 2000 identified a total of 2.2 acres of wetland that conforms to the definition of waters of the United States. However, the US Army Corps of Engineers issued a letter dated October 13, 2005, attached as Appendix A, delisting those Waters of the United States previously determined to be Jurisdictional Waters. Therefore, no Jurisdictional Waters of the United States are located with the boundaries of the project.

The Floor of the canyon shall be retained by the CCPOA as private open space, but open to the public.

1.6.9 CULTURAL RESOURCES

The Nevada State Historic Preservation Office (SHPO) states that no known cultural resources are located within the project area, (Palmer, November 23, 1999). In order to determine the archaeological sensitivity of the project area, the SHPO contracted the Nevada State Museum for a review of the statewide archaeological inventory. The project area has not been inventoried for cultural resources and no regionally significant sites have been identified. Several larger blocks in the Pah Rah Range north of the project area have been subject to cultural resources inventories in the recent past. The results of these inventories indicate that the area is not sensitive for regionally significant archaeological resources. The SHPO would not recommend a cultural resources inventory of the project area.

If buried or previously unidentified resources are located during project activities, all work in the vicinity shall cease and the SHPO shall be contacted for additional consultation.

1.6.10 UTILITIES

Figure 1-17 shows the location of the two major, east-west aligned, 120 kV and 345 kV electric utility corridors that traverse the north portion of the project area. The northerly utility corridor is 140 feet wide and the southerly corridor is 100 feet wide. The two lines are parallel and nearly contiguous, but a small gap separates them. Nonetheless, the two lines function as a single wide corridor that precludes development of any structures in accordance with the 2007 Truckee Meadows Regional Plan, Policy 3.2.3. Roads, private yards and open space occupy the project area in the corridor. The power line transmission towers are about 1,000 feet apart and the

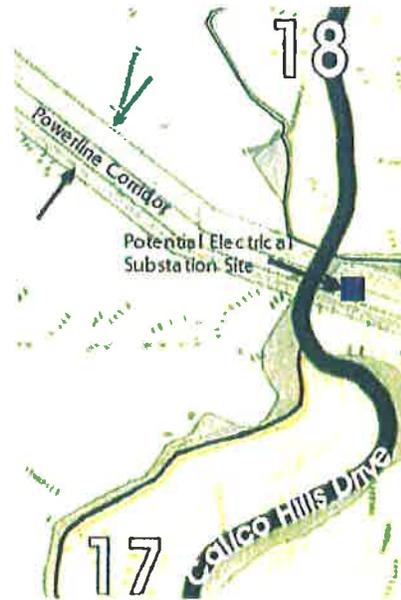


FIGURE 1-17
LOCATION OF POWER LINE
CORRIDOR AND PROPOSED
SUBSTATION

power lines are about 240 feet apart. This electric utility corridor is designated as a major corridor in the Regional Utility Corridor Report and land use adjacent to the corridor is subject to setbacks delineated in this report. The rear or side yard setbacks for pads abutting the power line corridor in pads 17 and 18 shall be adjusted to conform to acceptable separation distance from the utility corridor per Policy 2.3.6.5 of the Final Draft Regional Utility Corridor Report. The tentative map for any lots abutting this corridor shall designate the required setback. In addition to any setback requirement for the utility corridor, residential lots shall comply with all other setbacks established in the Sparks Municipal Code.

An electric substation is proposed as part of the project to provide a clean supply of electric energy to the commerce and technology uses in the project area. The proposed substation shall be subject to review and approval through the City's Special Use Permit process for compliance with the Copper Canyon Planned Development Standards and City's Standards.

1.7 PROJECT PHASING

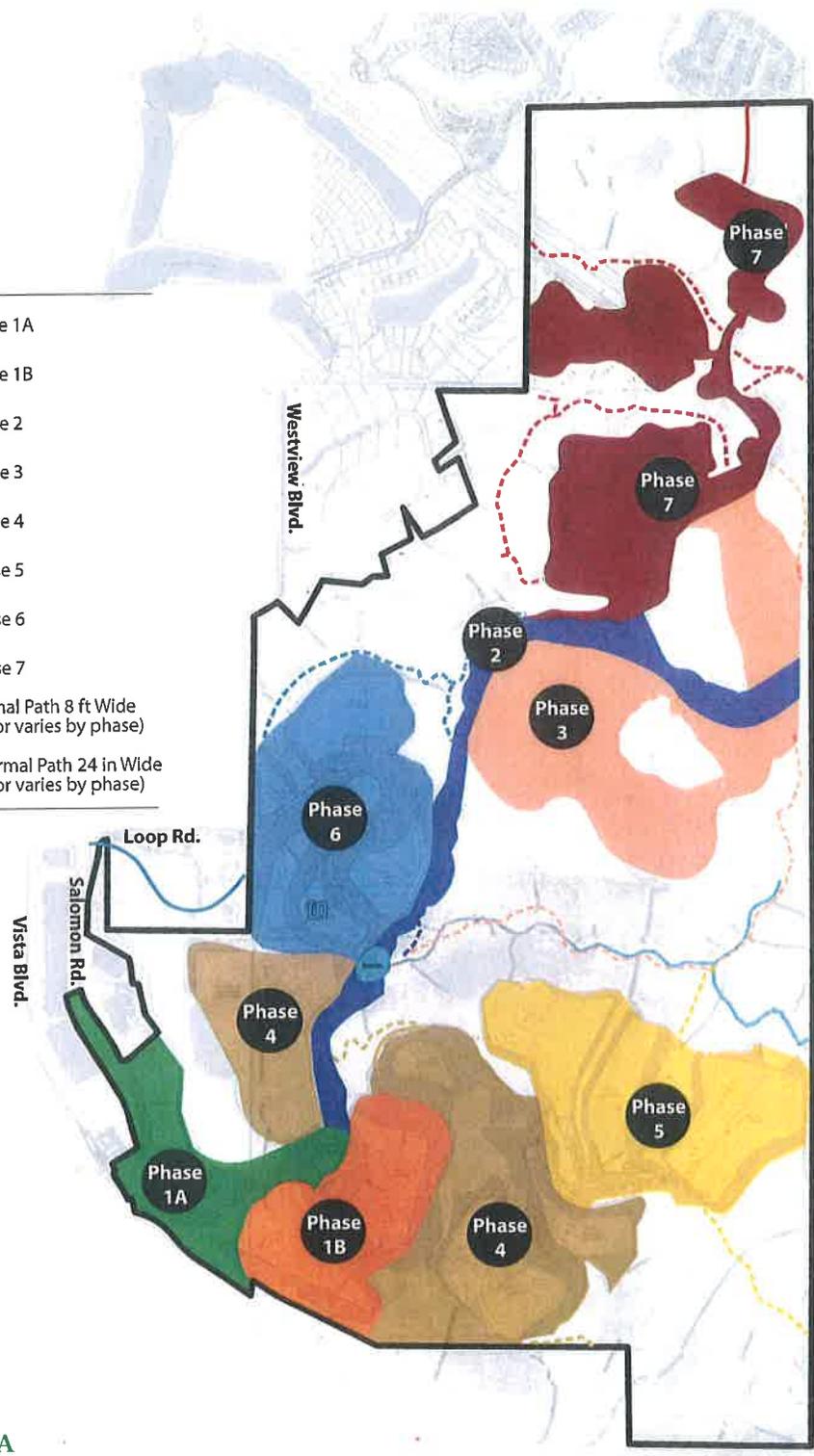
The project shall develop over a period of years in response to market demand for the office space, the hotel/casino and the residential uses. The development shall occur in the phasing units shown in Figure 1-18A. The sequence of development is determined by the need to construct backbone infrastructure, including roads, sewer, water and drainage in a logical sequence. Figure 1-18A demonstrates the phasing plan with which the necessary infrastructure including landscaping, revegetation, accompanying amenities and rough pad preparation shall be constructed. The Phase 1 - Infrastructure Plan (Figure 1-18B, page 1-32) identifies the initial development areas that will be provided by the Master Developer with the initial project construction. This shall include infrastructure such as water, gas, electrical, sewer, storm drainage and access. Completed earthmoving for the pads may occur on a different phasing schedule and will be based upon final design and submitted to the City of Sparks per the process defined in the Development Handbook. Actual vertical building construction will occur on each pad area based on the end users' construction schedule. These infrastructure commitments shall be considered satisfied upon the approval and bonding of the improvement plans.

The phasing plan indicates the construction of street improvements to access the development plateaus. The plateaus will be developed concurrent with the road and other infrastructure extensions. The core area of the project shall develop in discrete increments that provide a complete road system. A complete road system is comprised of a loop or short road extensions that provide access to individual building sites while maintaining traffic safety and emergency access and egress.

The location of the hotel and sports club and village commercial use near the west edge of the project area do not imply that they shall be the early components of the plan constructed. Indeed, these uses shall be developed on a schedule dictated in part by the demand for these facilities from the entire region and from the demand from the new employees in the park. The estimated phasing of development is summarized in Table 1-4 (see page 1-33).

LEGEND

- Phase 1A
- Phase 1B
- Phase 2
- Phase 3
- Phase 4
- Phase 5
- Phase 6
- Phase 7
- Formal Path 8 ft Wide
(color varies by phase)
- Informal Path 24 in Wide
(color varies by phase)



**FIGURE 1-18A
PROJECT PHASING**

LEGEND

- Commercial
- Residential

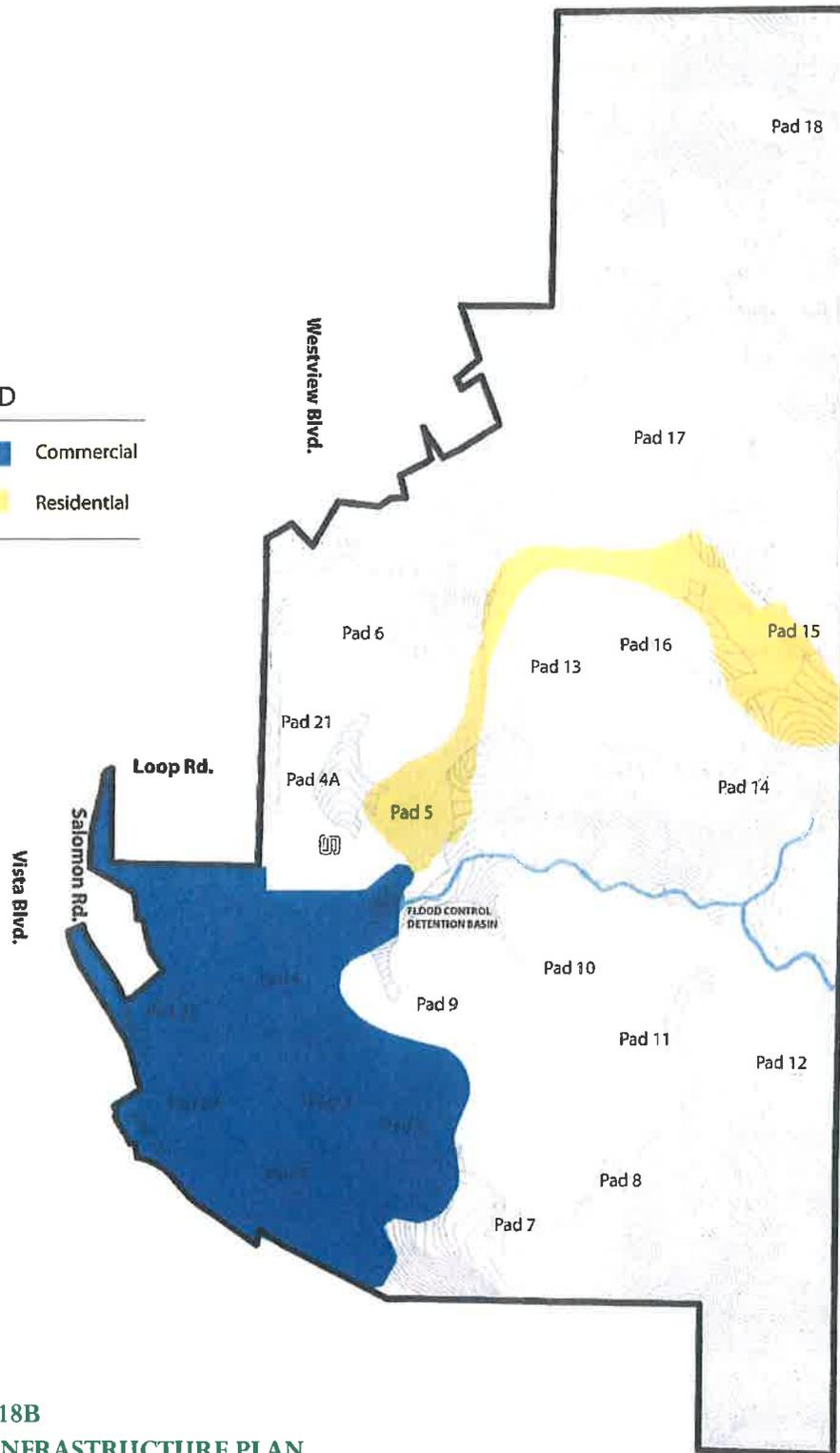


FIGURE 1-18B
PHASE 1- INFRASTRUCTURE PLAN

Salomon Circle will provide access to the project site.

No construction of residential use can occur until suitable fire access is provided to the approval of the Fire Chief.

The grading of the project shall occur over a period of years, and shall be logically phased depending on market conditions. Phasing must be implemented so that fiscal impacts remain positive for the City at all times; however, the actual pace of development and phasing shall be determined by construction conditions of the site and by the market demand for space.

TABLE 1-4 - ESTIMATED PHASING OF DEVELOPMENT

Phase	Pads	Land Use	Acres	% of Land Area
1A	3, 22, 23, 24, 25	Mixed-Use, Commercial, Retail-Restaurants, Office	33.4	2.6%
1B	1, 2	Tourist Commercial, Business Park	28.2	2.2%
2	15, 16 (portion)	Water Tanks, Main Water Line	Minimal grading for infrastructure	
3	13, 14, 15, 16 (portion)	Single Family	104.7	8%
4	4 (portion) 7, 8, 9	Mixed-Use, Business Park	65.2	5%
5	10, 11, 12	Business Park	63.4	4.8%
6	4 (portion) 5, 6, 21	High Density Residential Public Facility	66.5	5.1%
7	17, 18	Single Family	57.0	4.4%
All	All	Street Right of Way	42	3.2%
Total			460.4	35.3

* All phases include roadway, infrastructure, landscape, rough pad preparation and amenity improvements.

1.8 DESIGN REVIEW COMMITTEE AND PROPERTY OWNERS ASSOCIATION

The project applicant shall establish an organization for the purpose of maintaining the landscape corridors, private parks and open space and operating a transportation system management office (see Section 2.1.3) and a design review committee. The Copper Canyon Property Owners Association (CCPOA) shall be comprised of the property owners in the project area, including the project applicant. Participation in the CCPOA shall be mandatory as provided in the terms of the sale agreement and/or lease agreement for every development parcel created in the project area. The CCPOA shall have the obligation for the maintenance of landscape corridors in the public right-of-way and the private parks and open space. In order to facilitate maintenance of these improvements an operations and maintenance manual, covering all necessary equipment, schedules and procedures shall be developed, by phase, for the CCPOA and recorded with the Codes, Covenants and Restrictions (CC&R's). Furthermore, the CCPOA shall form and maintain the operations of the Master Developer, which shall include members chosen by the Master Developer. The duties and obligations of the Master Developer shall include review and approval of project development applications as described in Section 1.9 of this Development Handbook. CC&R's will be developed by the Master Developer for the residential master planned community component.

1.9 PLANNING PROCESS

This Development Handbook shall be used in conjunction with all applicable City ordinances, maps and special use permit conditions of approval, as well as any other applicable requirements. The required submittals to the City of Sparks shall be per Sparks Municipal Code (SMC) and Nevada Revised Statutes (NRS). Unless expressly provided for, where the Development Handbook Standards are in conflict with the Sparks Municipal Code Requirements, the stricter of the two documents shall apply.

A development agreement between the City of Sparks and the project applicant shall specify the phasing and funding of improvements required to serve the proposed land uses. Funding methods may utilize Special Assessment Districts (SAD).

Subdivision of land within Copper Canyon shall be via parcel maps, tentative maps and final maps per NRS and SMC. Site plan review permits are required for non-residential buildings, townhomes and executive apartments and shall include conceptual building elevations approved by the Master Developer. Final subdivisions, non-residential building elevations and site plans shall be reviewed and approved by the Master Developer and Planning Commission as general business agenda items.

Applications for Design Review approval shall be submitted to the Master Developer along with the applicable application fee prior to application to the City for any entitlement (Special Use Permit, Site Plan Review and

Building/Sign permits). The applicant shall request a Conceptual Review with the Master Developer of preliminary plans to determine if the proposed design is consistent with the Copper Canyon design intent. Design Review and Approval shall consist of the following steps:

1. Conceptual Design Review

In order to save the applicant unnecessary costs associated with design, upon request the Master Developer shall review a conceptual design for compliance with the standards prior to a preliminary Design Review of project.

2. Preliminary Design Review

The applicant shall submit the materials shown in the Project Submittal Checklist to the Master Developer. The Master Developer shall review and approve or disapprove the design, or recommend changes based on the project's compliance with the standards. The following list is the submittal requirements to the Master Developer. Submittals to the City of Sparks shall be per City requirements in effect at the time.

For non-residential uses, the following material is required for a Preliminary Design Review Submittal to the City of Sparks with Master Developer approval:

- **Location Map** - Indicating location of property within the development, assessor's parcel number and name, address and telephone and fax number for both the owner and project designer/design team.
- **Site/Grading Plan** - 1" = 40' minimum scale, showing property lines, dimensions, setback requirements and existing topography. Indicate proposed grading and drainage, including finish contours. Show proposed driveways and structures with grade elevations.
- **Preliminary Landscape Plan** - 1" = 40' minimum scale. Showing all proposed plant material, plant size, ground cover, finish grading, hardscape, retaining walls, fence design and locations, landscape calculations and other information as required per Title 20 of the Sparks Municipal Code.
- **Preliminary Irrigation Plan** - 1" = 40' minimum scale. Showing irrigation information as required per Sparks Municipal Code Title 20.
- **Conceptual Floor Plans** - 1/4" = 1' scale preferred. Include plans for all levels.
- **Calculation of Square Footage.**
- **Conceptual Roof Plan** - Show roof pitch and direction.
- **Exterior Elevations** - Show all elevations with existing and finished grades clearly indicated. Note all exterior materials (including roof material), roof slopes and heights above finish grade.
- **Material Samples Board** - Provide actual samples of all primary exterior materials and paint colors applied to the actual exterior materials.
- **Signs** - Showing dimensions, material, colors, lighting and location.

The following is required for submittal to the City of Sparks for review of residential tentative maps with Master Developer approval:

- **Tentative Map** - Lotting plan per Sparks Municipal Code and the Nevada Revised Statutes.
- **Location Map** - Indicating location of property within the development, assessor's parcel number, and name, address, telephone and fax number for both the owner and project designer/design team.
- **Site/Grading Plan** - 1" = 40' minimum scale, showing property lines, dimensions and existing topography. Indicate proposed grading and drainage, including finish contours. Show proposed driveways and building pads with grade elevations.
- **Preliminary Landscape Plan** - 1" = 40' minimum scale. Showing conceptual design and plant list, including proposed plant names, specific plant material and sizes, at time of planting and street trees per the Development Handbook Standards. Accompanied by Master Developer approval stamp or signed Master Developer approval letter.
- **Conceptual Building Elevations** - A Master Developer approved set of conceptual building elevations are required illustrating how the proposed development complies with the architectural standards as listed in the Development Handbook.
- **Setback Map** - 1" = 40' minimum scale. Showing the street layout(s), driveway locations, lot dimensions, proposed building/structure locations and the required building setbacks per the approved Development Handbook. Accompanied with a Master Developer stamp of approval or signed Master Developer approval letter.

3. City Review

A letter or stamped plans from the Master Developer approving the conceptual and preliminary designs shall be attached to all plans to be reviewed by the City of Sparks.

1.9.1 PLAN AMENDMENT

Any amendments to this Handbook and/or standards shall follow application reviewing procedures as outlined in Sparks Municipal Code Sections 20.18.040 and 20.18.070 including being reviewed in a public hearing before the Planning Commission and City Council. Any proposed change other than those specifically allowed by this handbook shall require an amendment to the Copper Canyon Development Handbook.

1.9.2 MINOR DEVIATIONS

The Administrator may permit minor deviations to the project. The proposed minor deviations shall only be permitted for building setbacks, lot widths and depths and lot characteristics as established in this Handbook for Copper Canyon and shall not be allowed to vary from the established standards by more than 10%. The only other administrative variation allowed other than the 10% minor deviation is that the administrator shall be allowed,

upon consultation from the Engineering Manager or the Engineering Manager's designee, to adjust the location and acreage of the project building pads based on the best available information, provided that new information meets design criteria and public safety criteria accepted by the City of Sparks and RTC providing building pad relocation and development resulting in less disturbed area/less grading and less visual impacts than the original building pad location and development would have required. In order to document and track the disturbed area, a disturbed area exhibit shall be developed in cooperation with staff. This exhibit shall be monitored by subsequent updates on each Tentative Map submittal.

The applicant for the minor deviations shall submit the proposed minor deviations to the Master Developer for review and approval prior to submittal to the Administrator. The submittal to the Administrator shall include a letter describing the proposed deviations, a letter of approval or stamped plans indicating the approval of the Master Developer and a complete set of dimensional plans illustrating the deviations and potential effect on surrounding properties. The applicant must provide written consent of the owner of any property that would be affected by the minor deviation.

1.9.3 APPLICABILITY

Development within Copper Canyon is controlled and restricted by this Development Handbook as well as all applicable government codes and regulations. This Development Handbook provides guidance for the orderly development of Copper Canyon as presented while assuring that the desired level of quality is achieved. The CCPOA and City of Sparks shall enforce all standards presented in this Development Handbook.

1.10 FISCAL IMPACT ANALYSIS

The effect on the financial stability of the City of Sparks and the City's ability to provide public services in the project area, as well as the entire city is analyzed in the technical study "Copper Canyon Commerce and Technology Park Fiscal Impact Analysis" dated April 2003 and the Copper Canyon Parkway Fiscal Impact Analysis dated August 2006. While many public sector revenues shall be impacted by the proposed development, only two are estimated in this analysis - real property tax and sales tax revenue.

The revenue estimate is compared to the public sector costs generated by the project, specifically public safety, and public works, to determine the magnitude of the revenue surplus, deficit, or revenue neutral position for each government agency. Please refer to these two technical studies for in depth fiscal impact analysis.

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Chapter 2

INFRASTRUCTURE & PUBLIC SERVICES

Development of the proposed land uses shall require new infrastructure and public services in the project area.

2.1 ACCESS & CIRCULATION

The Copper Canyon circulation system includes streets, parking, pedestrian and bicycle path systems and support for public transit. Figure 2-1, the Circulation Master Plan, illustrates the primary circulation elements. The primary circulation system goal is to provide an attractive, convenient and efficient network for visitors, employees and residents to live and work within the project area.

2.1.1 STREETS

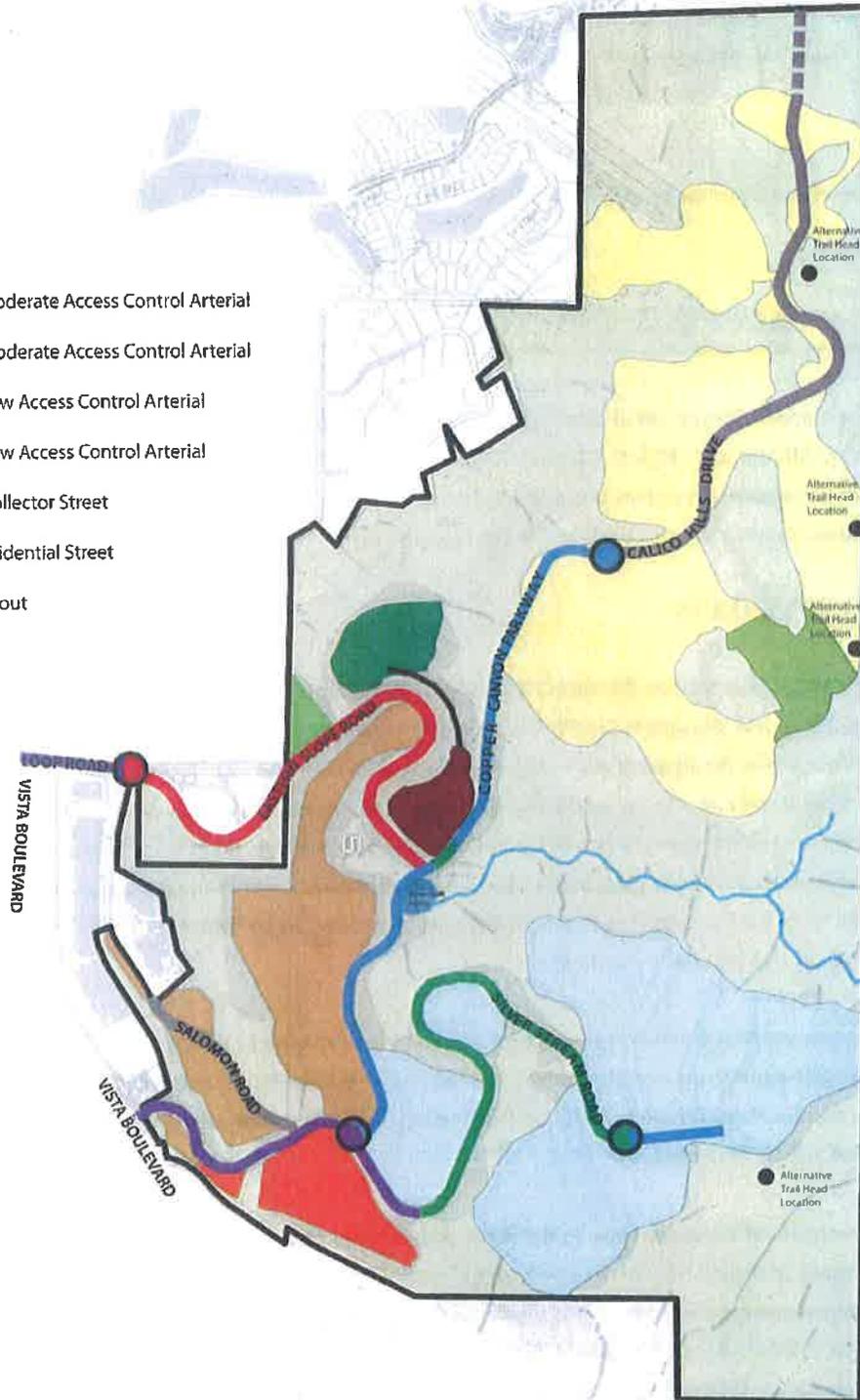
The project area is accessible from I-80 via Vista Boulevard, identified as a high access control arterial street in the 2030 Regional Transportation Plan but recently requested by the City of Sparks to be lowered to medium access control due to the signalization of Brierley Way and Vista Boulevard. The west boundary of the project is adjacent to Vista Boulevard. As shown on Figure 2-1 the major streets in the project area are extensions of the major east-west streets to the west of Vista Boulevard. Brierley Way extends east of Vista Boulevard and will be called Copper Canyon Parkway in the project area. Loop Road shall extend east of the existing terminus at Gandolfo Arena and shall be called Eastern Slope in the project area. Copper Canyon Parkway shall be the primary point of entry for residents and business traffic from I-80.

The primary streets within the project area are connected to form a looped circulation network that allows drivers to select alternate routes into the project area and return to Vista Boulevard. The primary streets shown in Figure 2-1 are Eastern Slope (extension of Loop Road), Copper Canyon Parkway (extension of Brierley Way), Silver Stream Road and Calico Hills Drive.

A route out of the project area to the north shall be provided by Copper Canyon Parkway and Calico Hills Drive, as shown in Figure 2-1. At the north edge of the project area Calico Hills Drive is planned to connect to a planned residential street currently shown within the D'Andrea planned development. This connection shall provide a direct north-south route between the D'Andrea and Copper Canyon project areas. The route primarily serves single-family residential areas and is not intended or designed to accommodate traffic from the higher intensity commerce and technology park land uses to the south.

LEGEND

-  4 Lane Moderate Access Control Arterial
-  2 Lane Moderate Access Control Arterial
-  4 Lane Low Access Control Arterial
-  2 Lane Low Access Control Arterial
-  2 Lane Collector Street
-  Local Residential Street
-  Roundabout



**FIGURE 2-1
CIRCULATION MASTER PLAN**

The roundabout located between the residential uses and the commerce and technology land uses, shown in Figure 2-1, shall be designed to permit unobstructed residential traffic flow. The change in land use is marked by:

- entry statements and markers
- signs

Specific objectives for the street system include:

- Increase the regional road system.
- Channel traffic to the highest intensity activity areas in the center of the Plan Area and minimize conflicts with existing land use.
- Minimize impacts on existing major streets.
- Provide easy access to and exit from parking.
- Provide an aesthetic and visually distinctive parkway or promenade streetscape on the major roads.
- Incorporate a pedestrian system with landscape corridors along the streets.
- Provide a corridor for the backbone drainage system.

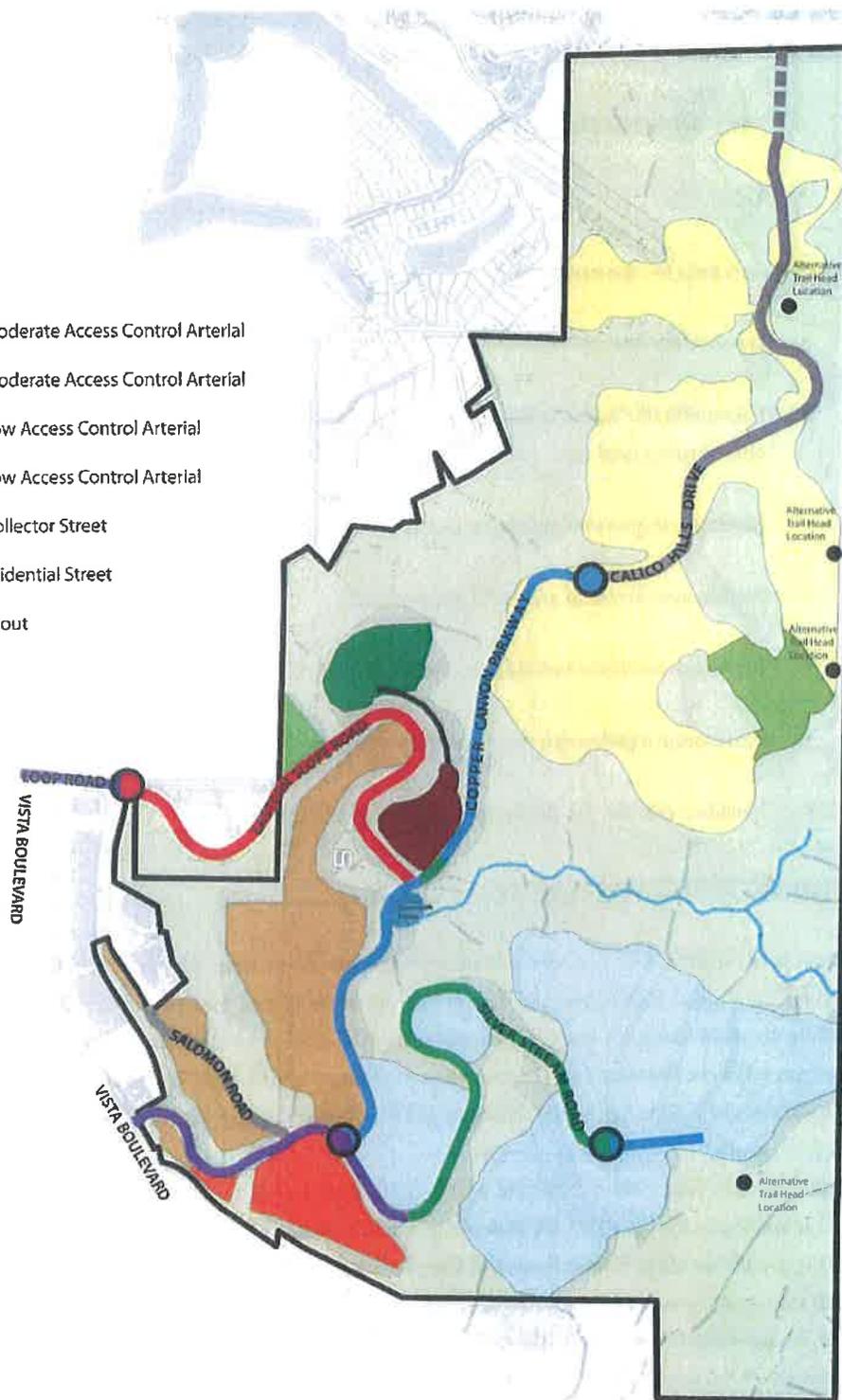
PRIMARY STREET CROSS SECTIONS

Private roads shall be built to City standards and privately maintained. City streets, collector and arterial level streets in the RTC Capital Improvements Program shall be designed and constructed to RTC standards. The street cross sections are the minimum street improvement standards and shall be installed per the approved sections or reduced to the approval of the Engineering Manager with input from the Fire Chief. Figure 2-2 illustrates the three classifications of streets by jurisdiction, including those that shall be incorporated in the RTC Capital Improvements Program.

Figures 2-3 (see page 2-5) and 2-4 (see page 2-5) illustrate a typical four and two lane arterial. Figure 2-3 (see page 2-5) is applied on Copper Canyon Parkway to the intersection with Silver Stream Road while Figure 2-4 (see page 2-5) is applied on Silver Stream Road and Copper Canyon Parkway above the intersection with Silver Stream Road. Both sections are conventional arterials with center medians. A 25 foot wide landscape corridor including public utility (P.U.E.), public improvement (P.I.E.) and snow storage easements is located back of the curb on each side of the street, except where the slope would require a large cut or fill to accommodate the sidewalk and landscaping as shown in the figures. In those instances where sidewalks adjacent to the street are eliminated, the developer shall install an alternative pedestrian access route to the approval of the Engineering Manager. Maintenance of the landscape corridors along all collector and arterial streets shall be the responsibility of the CCPOA. No parking shall be allowed on arterial streets.

LEGEND

-  4 Lane Moderate Access Control Arterial
-  2 Lane Moderate Access Control Arterial
-  4 Lane Low Access Control Arterial
-  2 Lane Low Access Control Arterial
-  2 Lane Collector Street
-  Local Residential Street
-  Roundabout



**FIGURE 2-2
CLASSIFICATION OF ROADS**

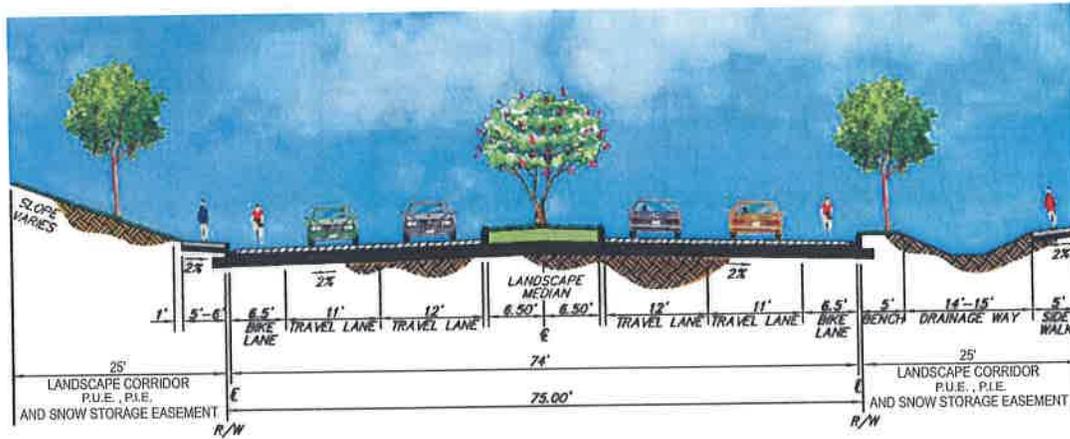


FIGURE 2-3
TYPICAL FOUR LANE ARTERIAL (MODERATE & LOW ACCESS CONTROL)

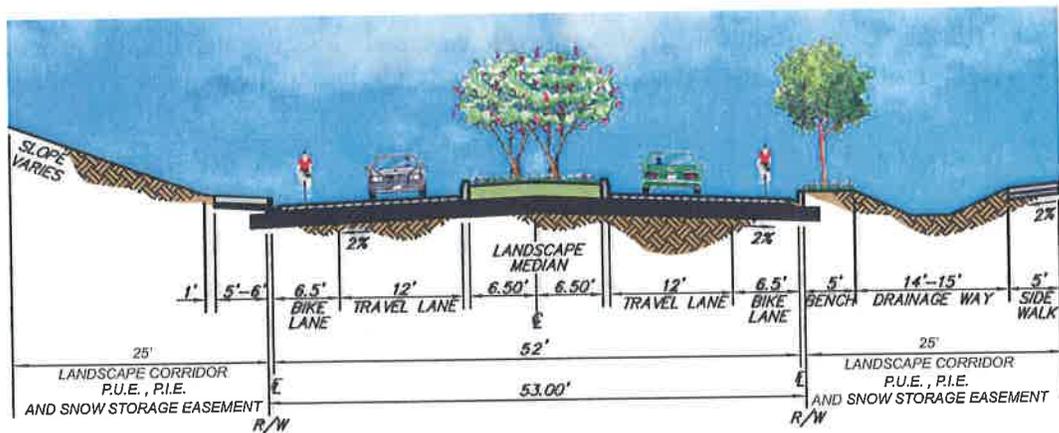
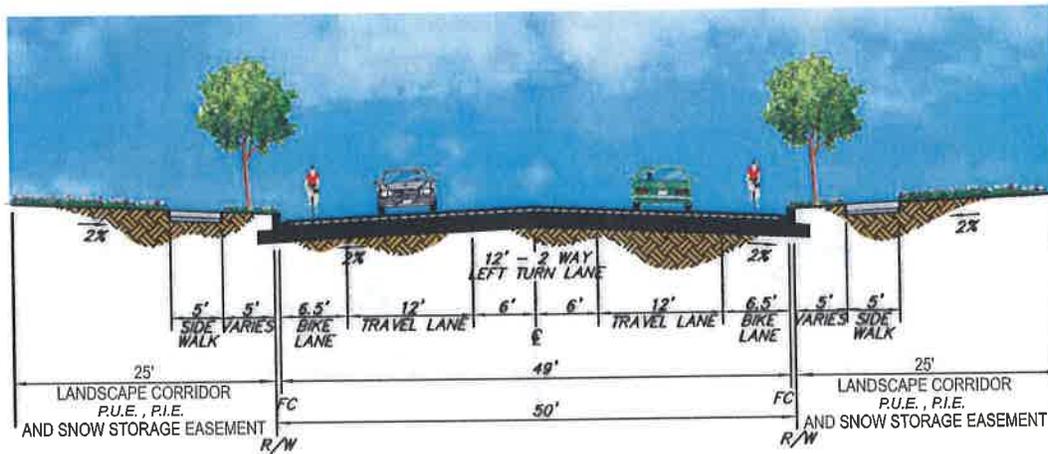


FIGURE 2-4
TYPICAL TWO LANE ARTERIAL (MODERATE & LOW ACCESS CONTROL)



**FIGURE 2-5
TYPICAL TWO LANE COLLECTOR STREET**

Figure 2-5 illustrates a typical two lane collector street. As shown in Figure 2-1 (see page 2-2), this street section is applied to Calico Hills Road. No parking shall be allowed on a collector streets. A 25 foot wide landscape corridor measured at the back of the curb is typical. The landscape corridor may be modified to allow 30 feet on one side and 22 feet on the other where a drainage way is part of the 30-foot wide landscape corridor.

Figure 2-6 illustrates a typical residential street used in the single family residential areas. As an alternative, the standard 50 foot right-of-way section used and currently approved by the City of Sparks, may also be used. Shown in Figure 2-1 (see page 2-2), the street sections referenced above will be applied for all local residential streets.

GATED RESIDENTIAL AREAS

Gated residential areas are not prohibited, but are not identified in the plan. A gated area shall provide a private residential street as illustrated in Figure 2-6, unless a reduced street width is specifically approved in the tentative map review and approval process. The apartments and residential development may use gated private driveways. The entry access of the gated streets or driveways shall be to the approval of the Engineering Manager, Fire Chief and Police Chief and shall include an “escape” circle. Advanced detection systems for the gates and vehicles shall be provided by the developer. The gate operating system shall be required to provide non-delayed entrance by the Fire Department, Police Department and other emergency access vehicles. The gate operating system shall open using a “click 2 enter” or other system as approved by the Sparks Fire Department. The “click 2 enter” device shall be compatible with equipment used by the City of Sparks Public Works Department, Traffic Division. A keypad entry system shall be provided to the approval of the Police Chief. The entry system shall also include a manual entry system which allows entry in the event of power loss or power failure. The combined entry systems for all proposed gated streets shall be reviewed and approved by the Engineering Manager, Fire Chief and Police Chief prior to submittal to the City for a grading and/or building permit for the development proposing to utilize gated streets.

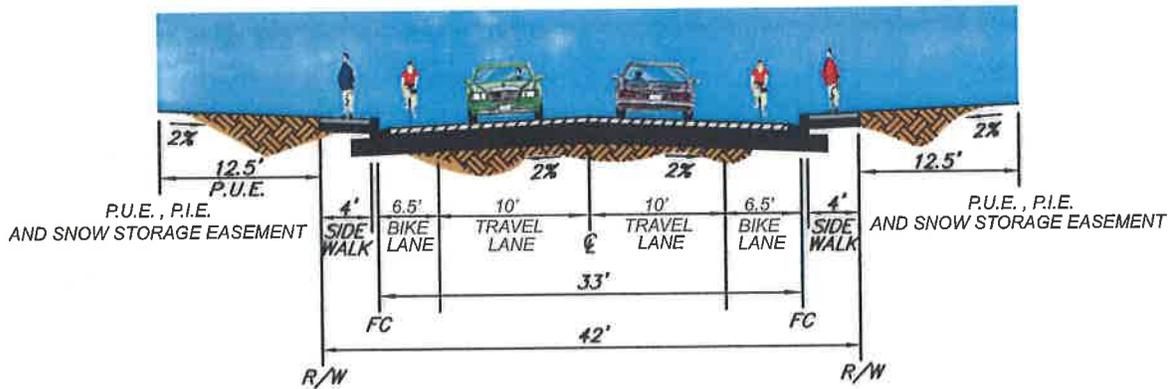


FIGURE 2-6
TYPICAL LOCAL RESIDENTIAL STREET

STREET LANDSCAPE

Figure 2-7 illustrates the cross section of a drainage way included in the street landscape corridor. The landscape corridors shall be within the public right-of-way, but shall be maintained by the CCPOA. The formation and obligations of the CCPOA is described in Section 1.8 of this Development Handbook.

Detailed landscape standards, including street lighting for all street conditions are included in Section 3.5.3 Major Street Landscaping.

2.1.2 TRAFFIC ANALYSIS

Solaegui Engineers, Ltd. analyzed the impact of the proposed land plan on the traffic at the key intersections in the vicinity of the project. Solaegui Engineers, Ltd, performed a traffic analysis update on February 19, 2007, Appendix B and provided street improvement recommendations for the project. The areas of study and recommendations are shown in Figure 2-8, Figure 2-9 (see page 2-9), Figure 2-9A (see page 2-10) and Figure 2-9B (see page 2-11).

- For 2012 and 2030 traffic volumes, the signalized Vista Boulevard/Eastern Slope Road (Loop Road) intersection will need to be improved to contain dual left turn lanes, one through lane and one right turn lane at the east approach; one left turn lane and one shared through-right turn lane at the west approach; one left turn lane, two through lanes and one shared through-right turn lane at the north approach;

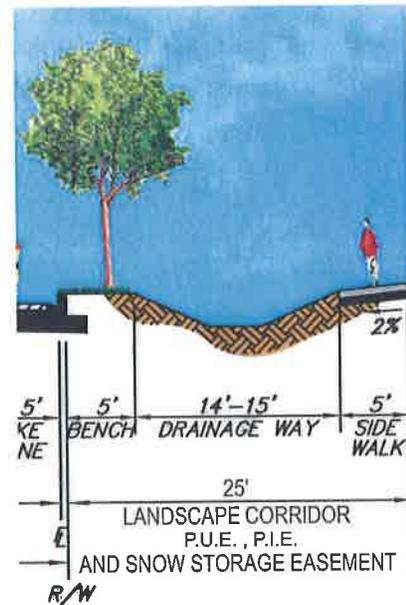


FIGURE 2-7
CONCEPTUAL ILLUSTRATION OF DRAINAGE WAY IN STREET SIDE LANDSCAPE CORRIDOR

and one left turn lane, three through lanes and one right turn lane at the south approach.

- In order to serve 2012 traffic volumes as a roundabout intersection, the Eastern Slope Road/Salomon Circle intersection will need to contain one lane at each approach from which all movements are made.
- In order to serve 2012 and 2030 traffic volumes, the Vista Boulevard/Brierley Way-Copper Canyon Parkway intersection will need to be improved to contain one left turn lane, three through lanes and one right turn lane at the north and south approaches ; dual left turn lanes, one through lane and one right turn lane at the east approach; and one left turn lane, one through lane and one right turn lane at the west approach.
- To accommodate 2012 traffic volumes for the Vista Boulevard/Eastern Slope Road intersection, the east leg dual left turn storage length of 175 feet per lane and the north leg storage length of 350 feet; an east leg dual left turn storage length of 250 feet per lane; a north leg storage length of 400 feet is need for the 2030 traffic volumes.
- For 2012 traffic volumes at the Vista Boulevard/Brierley Way-Copper Canyon Parkway intersection, an east leg dual left turn storage length of 350 feet per land and a north leg storage length of 225 feet are needed; an east leg dual left turn storage length of 250 feet per lane and a north leg storage length of 325 feet are needed for the 2030 traffic volumes.
- The high "T" intersection at Solomon Road and Copper Canyon Parkway shall contain one through lane and one right turn lane at the east approach; one left turn lane, one through lane and one right turn lane at the west approach; one left turn lane and one right turn lane at the north approach; and one right turn



FIGURE 2-8
LOCATION OF INTERSECTIONS EXAMINED IN PREPARATION OF THE PROJECT



LEGEND

- 4 LANE MODERATE ACCESS CONTROL ARTERIAL
- 2 LANE MODERATE ACCESS CONTROL ARTERIAL
- 4 LANE LOW ACCESS CONTROL ARTERIAL
- 2 LANE LOW ACCESS CONTROL ARTERIAL
- 2 LANE COLLECTOR

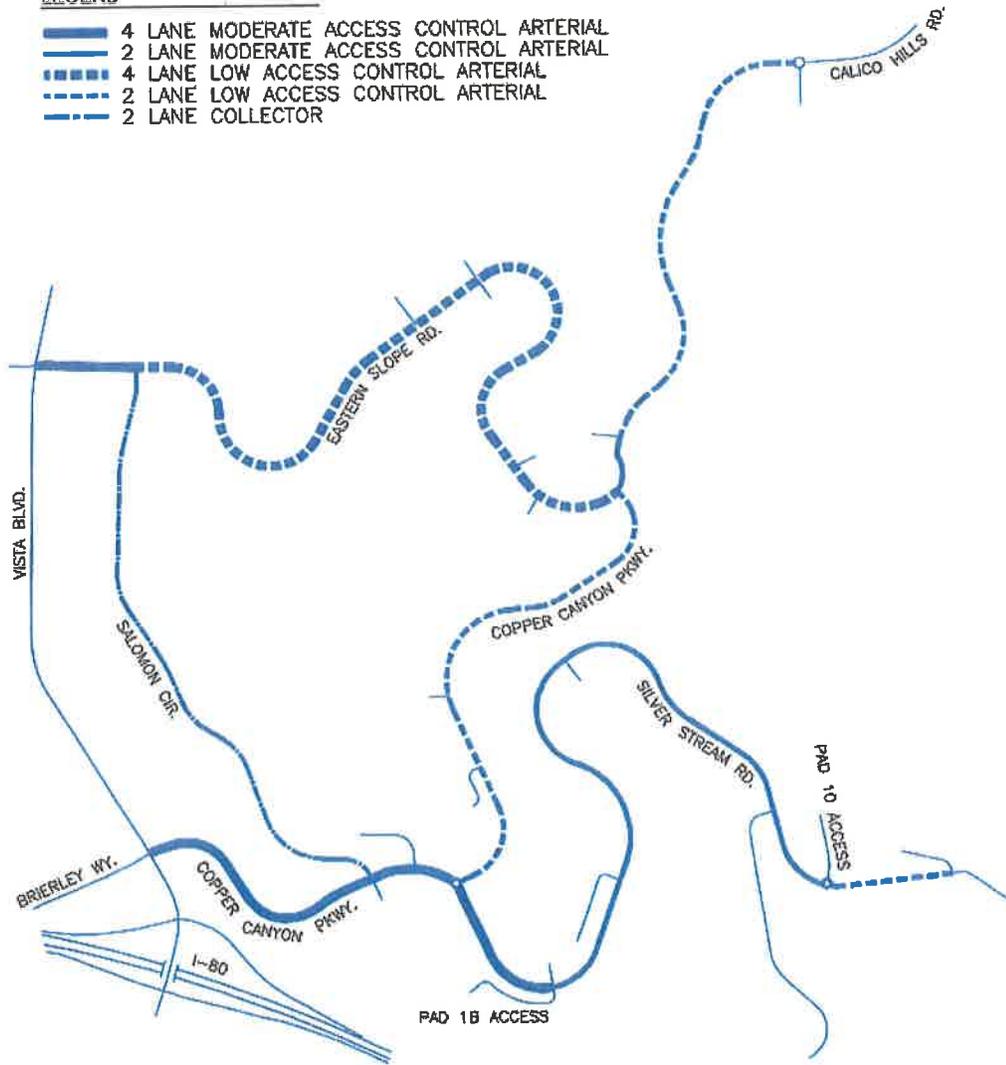


FIGURE 2-9
VISTA/COPPER CANYON COMMERCE & TECH PARK SITE REGIONAL
ROADWAY IMPROVEMENTS



LEGEND

- (TS)** TRAFFIC SIGNAL
- (RB)** ROUNDABOUT
- (SC)** STOP CONTROL (SIDE STREET)
- └─┘** 100' EXCLUSIVE TURN LANE W/STORAGE LENGTH
- *215'** DECELERATION LENGTH INCLUDING 100' STORAGE AT SIGNALS

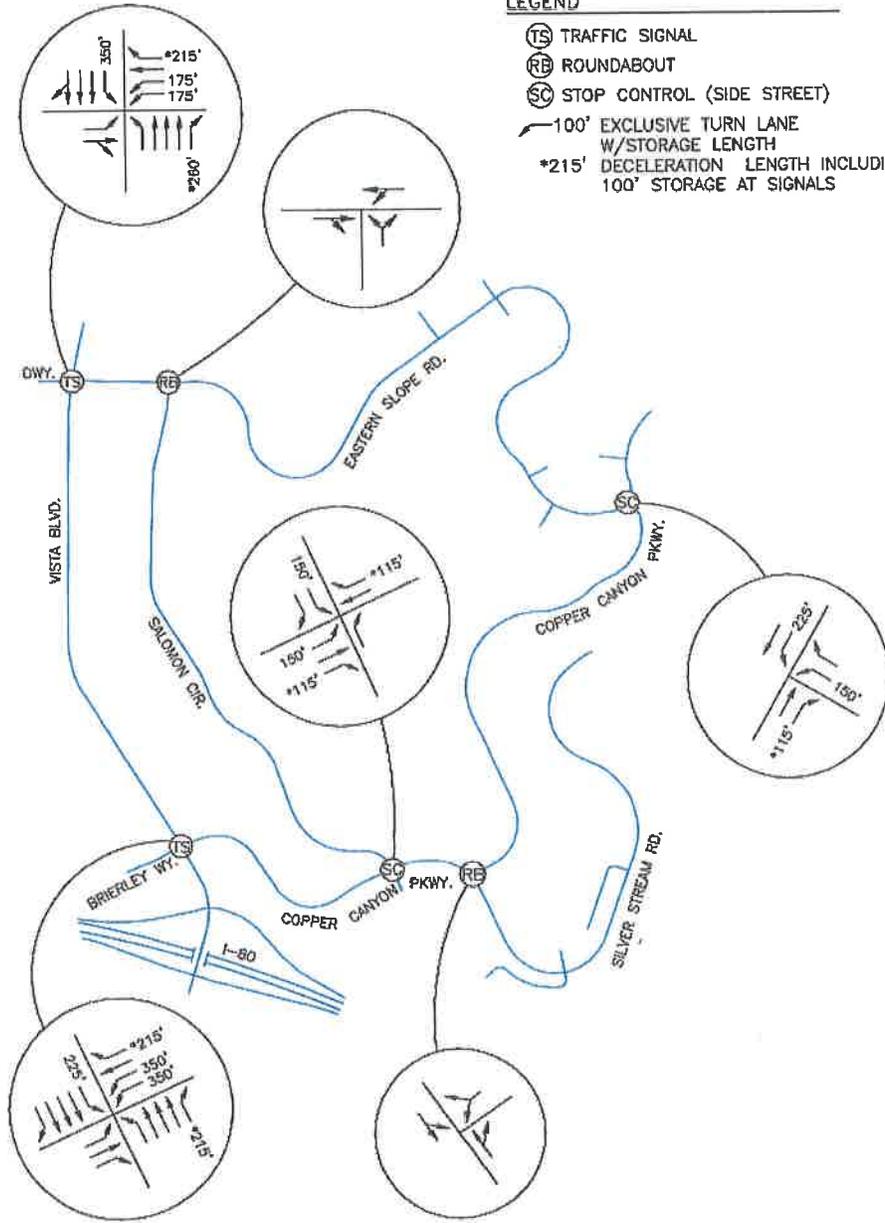


FIGURE 2-9A
VISTA/COPPER CANYON COMMERCE & TECH PARK 2012 INTERSECTION
IMPROVEMENTS

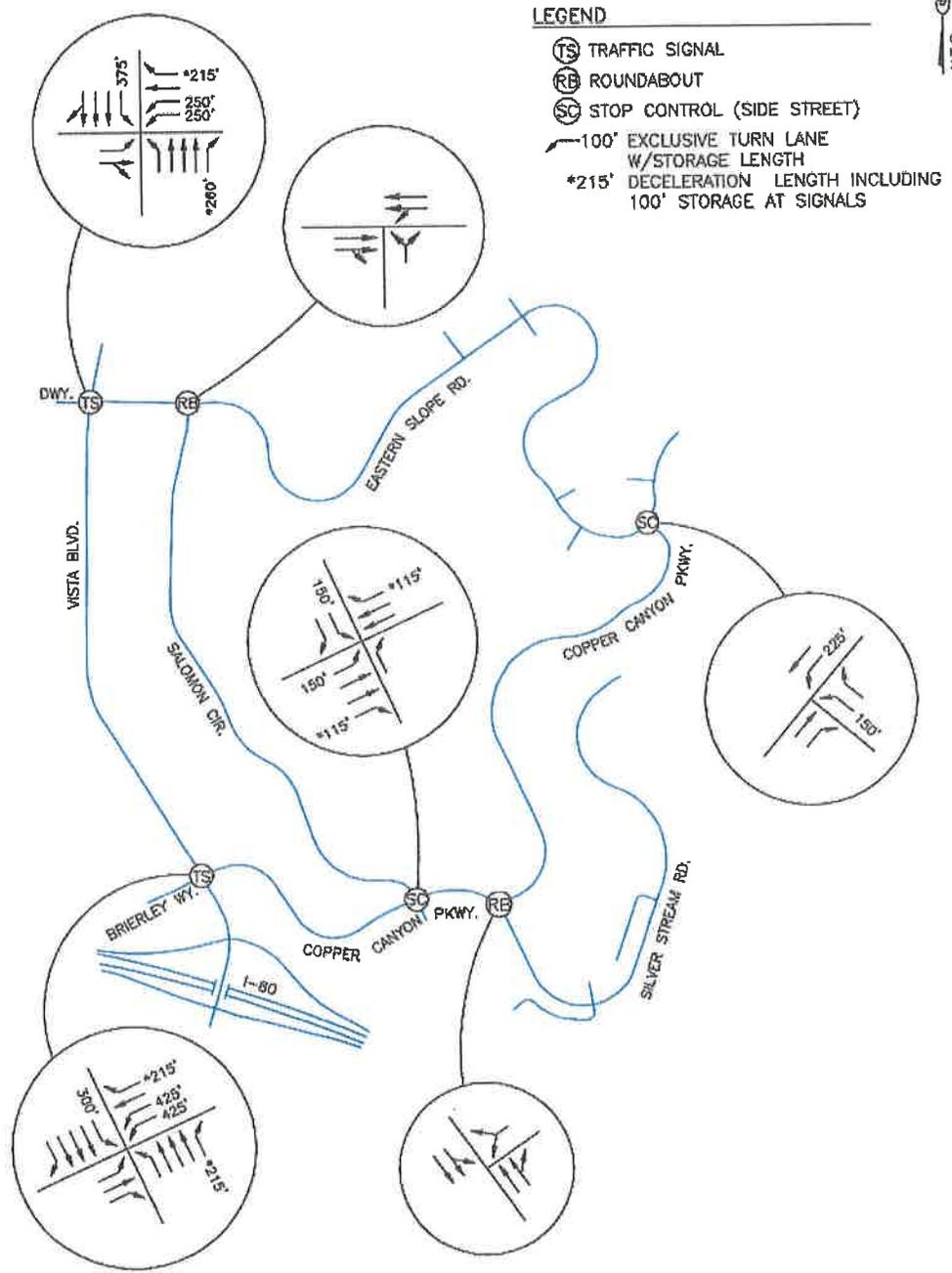


FIGURE 2-9B
VISTA/COPPER CANYON COMMERCE & TECH PARK 2030 INTERSECTION
IMPROVEMENTS

lane at the south approach to serve the 2012 traffic volumes.

- The high “T” intersection shall contain two through lanes and one right turn lane at the east approach; one left turn lane, two through lanes and one right turn lane at the west approach; one left turn lane and one right turn lane at the north approach; and one right turn lane at the south approach to serve the 2030 traffic volumes.
- In order to serve 2030 traffic volumes, the Eastern Slope Road/Salomon Circle intersection will need to be a roundabout intersection containing two approach lanes at the Eastern Slope Road east and west approaches and one approach lane at the Salomon Circle south approach with one shared left turn-through lane and one through lane at the east approach, one through lane and one shared through-right turn lane at the west approach, and one shared left turn –right turn lane at the south approach.

Primary access from Interstate 80 to the project will be provided by Vista Boulevard. To address traffic impacts resulting from the project the following commitments have been made for the project:

- Prior to the 241st final inspection for pads 13 through 18, the applicant agrees to provide \$50,000 to implement the environmental study necessary prior to any improvements being initiated at the interchange.
- Prior to the 241st final inspection for pads 13 through 18, the applicant agrees to provide \$500,000 to the City of Sparks for Regional Road Impact Fees (RRIF) creditable improvements to the east-bound off-ramp to the Vista Boulevard/Interstate 80 Interchange.
- With the first phase of construction for the non-residential pads, the applicant agrees to provide for the widening of the east side of the Vista Boulevard from the I-80 west-bound off-ramp to the Brierley Way/Copper Canyon Parkway to the final improvement width.

2.1.3 EMPLOYEE TRIP REDUCTION PROGRAM

The Employee Trip Reduction Program (ETRP) includes methods that facilitate alternative modes of transportation and methods that reduce traffic volumes during peak commute hours. Typical ETRP methods include ridesharing, flexible hours of operation that facilitate off-peak commuting and support for public transit.

The types of businesses anticipated in the project area inherently support the flexible work schedule. Workers in the high tech businesses, particularly in research and development activities, have a reputation of working non-standard hours. The supporting land uses in this project area, such as the sports club, with indoor activities available 24 hours a day, and the neighborhood commercial center, are intended to operate virtually around the clock for the benefit of the workers who may work extended non-standard hours. This flexibility shall naturally contribute to spreading the commute hours over a longer period than would occur with conventional office or industrial uses that operate on a fixed schedule.

The CCPOA established in Section 1.8 of this Handbook shall provide a Transportation Coordinator to work with the employers in the project area. The role of the Transportation Coordinator is to work with the employers in the area to establish flexible work schedules, a ridesharing program, distribution of information on public transit schedules and routing, and other methods that reduce reliance on single occupant vehicles during peak commute hours. Additionally employers meeting the minimum employee threshold established by the RTC shall coordinate with the RTC to ensure cooperation on regional alternative transportation programs.

Through the terms of the land sales or lease agreements, all employers shall be required to be members of the CCPOA and to cooperate with the Transportation Coordinator by assigning an in-house liaison and by distributing information on rideshare, transit and other travel alternatives.

The plan shall include an intranet system operated and maintained by the CCPOA that provides information to all buildings in the project area. This system shall be used to provide information on public transit schedules and rideshare opportunities that shall facilitate the ETRP.

2.1.4 TRAFFIC MANAGEMENT AND INFORMATION ROADS OR “IROADS”

The intranet information system shall also provide current traffic conditions on intersections adjoining with Vista Boulevard and other potential congestion areas in the vicinity of the project area along with other metering devices. The concept is to provide current traffic information to individuals while they are in their cars and in their place of business before they get in their cars. With timely information drivers shall be able to make decisions about the best route before they become engaged in the congested area. Workers in their offices shall be able to determine whether to leave the office or to wait until the congestion has diminished. This information shall have the effect of distributing traffic, both in location and in time, as individuals decide which route to take and when to go, metering traffic flows.

The system shall be implemented by placing traffic sensors in the streets or installing above grade telemetry sensors within the major entry areas of the project and in the major intersections in the project vicinity. The information shall be conveyed to all buildings in the project area through a web site operated by the CCPOA.

The CCPOA shall also install and maintain a system that links the traffic sensors with electronic sign boards that will provide traffic information to drivers within the project area. The message boards shall be a maximum of 6 feet tall and shall include reader boards and/or real-time indicators of the capacity of selected roads and intersections at the perimeter of the project area. Figure 2-10 provides a conceptual illustration of the electronic message board.

Traffic studies have shown that with the information on current conditions drivers shall then select the best available route and thereby improve the distribution of traffic. Such distribution occurs in conventional traffic situations as drivers learn over time which routes are most likely to be congested at a given time and set of conditions. The advantage of the proposed system is that the decisions can be made on the basis of actual conditions rather than learned behavior. The result will be a much more effective adjustment of the traffic flow. Because the message

boards will indicate current conditions in real time the traffic flow will be moderated by the decisions of drivers to select one route over another.

The information system may also control signalization to enable the streets to function more efficiently by adjusting the timing and sequence of the traffic signals. Computer controlled traffic signals will receive information on the volume of traffic from the sensors in the streets at locations approaching the signal. The signals shall be programmed to adjust the duration and sequence of light changes in coordination with other signals to slow or accelerate the flow of traffic through an intersection. The system shall provide an interaction between the traffic signals operations and the actions of drivers informed by the intranet. The street system shall be capable of responding to different traffic conditions in real time. The “informed streets or iroads” shall have the capability of changing the traffic flow pattern through adjusting the rate of flow and adjusting the behavior of drivers by providing current traffic information. The technology exists to implement this system. The backbone wire management system will be implemented with the first phase of development of Copper Canyon subject to the review and approval of the “iroads” system by the Engineering Manager with input from the Regional Transportation Commission staff. The system will be operational concurrent with traffic demands projected at approximately 70 percent development estimated to occur in Phase 5.

All ITS improvements will be implemented in accordance with the ITS Consultant & the Engineering Manager. The location of all ITS improvements will be to the approval of the Engineering Manager.

2.1.5 PEDESTRIAN PATHS AND BIKEWAYS

The pedestrian and bicycle circulation network is comprised of sidewalks and bike lanes within the street right-of-ways, informal paths through the private open space and common areas. The fundamental goals of the pedestrian and bicycle circulation network are:

- Safe and convenient pedestrian access to all developed areas within the project area;
- Pedestrian access to public transit, residential areas and to bike and pedestrian systems and destinations outside the project area;



FIGURE 2-10
CONCEPTUAL ILLUSTRATION OF ELECTRONIC TRAFFIC MESSAGE BOARD

- Enhanced recreation opportunities, such as jogging trails;
- An attractive environment that is a notable amenity and functional complement to the project area land uses;
- If the path/trail is in the public right-of-way or functions as the public sidewalk, then the path/trail shall be concrete and have a minimum width of 4 feet;
- If the path/trail functions as a multi-use trail, it shall be a minimum of 8 feet in width and surfaced with material acceptable to the Parks & Recreation Director; and
- If the path/trail is privately maintained and does not function as the public sidewalk, then it can be asphalt or other material as approved by the Engineering Manager, Parks & Recreation Director and the Administrator.

INFORMAL PEDESTRIAN (HIKING) PATHS

Informal pedestrian paths shall be constructed through the private open space areas to provide connections between development pads, controlled access to the private open space for area residents, and links to the public lands to the east of the project area as shown in Figure 2-14 (see page 2-17). Additionally, access to the trail system shall be provided at strategic locations within each neighborhood. The trails shall be hand constructed and shall be approximately 24-inches wide and unpaved. The informal trails will be installed and maintained by the CCPOA. Trail use may be limited to pedestrian traffic at the discretion of the CCPOA to avoid over use, erosion or other conditions detrimental to the preservation of the open space areas. The use of the trails shall be limited to hikers and mountain bike riders and are not intended for two riders to pass. As with any informal open space trail, hikers or cyclists may be required to step off the trail to allow another to pass. A cross-section of a typical informal trail is shown in Figure 2-11.

COPPER CANYON TRAIL

The Copper Canyon Trail shall extend from the floor of the canyon to the east edge of the project area. The trail is within private land and the intent is to create a recreation trail with several points of access and views of the canyon and the mountains to the west. A conceptual illustration of the trail is shown in Figure 2-12. The trail shall be 24" wide and cut from natural material subject to the approval of the Parks & Recreation Director, Engineering Manager and Administrator prior to approval of the improvement plans for the project. The multi-use trail shall be constructed of concrete to the approval of the Parks and Recreation Director and is shown in Figure 2-13. Small, unpaved pedestrian rest areas with a bench shall be provided at several points along the path.

The primary pedestrian and bike trail system is shown in Figure 2-14 (see page 2-17). The alignments for the unimproved (informal) pedestrian paths are conceptual and subject to final design by the CCPOA in the field and approval of the Parks & Recreation Director, all informal trails are to be maintained by the CCPOA. Alignments for the formal trails are anticipated to parallel the main streets.

2.1.6 ACCESS FOR SERVICE AND EMERGENCY TRAFFIC

The public use of many portions of the project area creates a potential need for emergency services. The circulation system provides convenient access to the entire project area for service, delivery and emergency vehicles. As described in this Development Handbook Section 2.9.3 Fire, the project area circulation plan provides three points of access from the west and one from the north which is a road of regional significance. These access routes are intended to ensure quick response by off-road capable emergency services and alternative routes of egress in the event of an emergency.

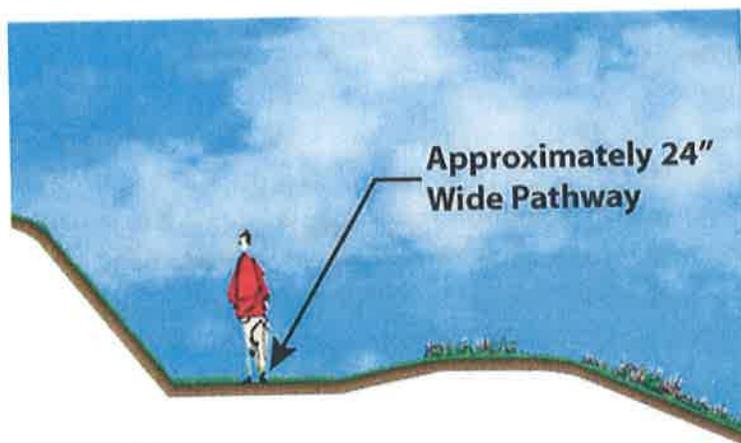


FIGURE 2-11
INFORMAL PATH IN OPEN SPACE

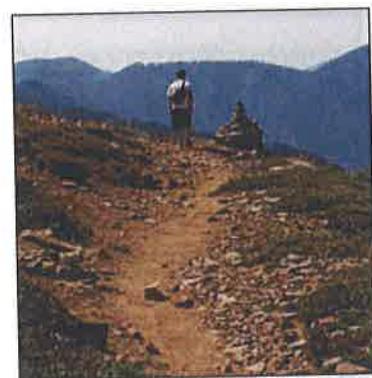


FIGURE 2-12
COPPER CANYON
INFORMAL TRAIL

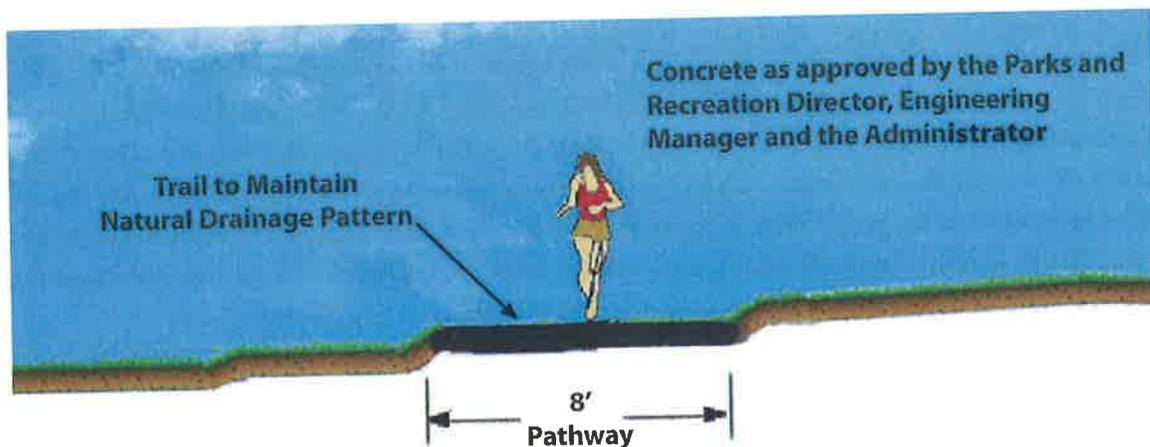
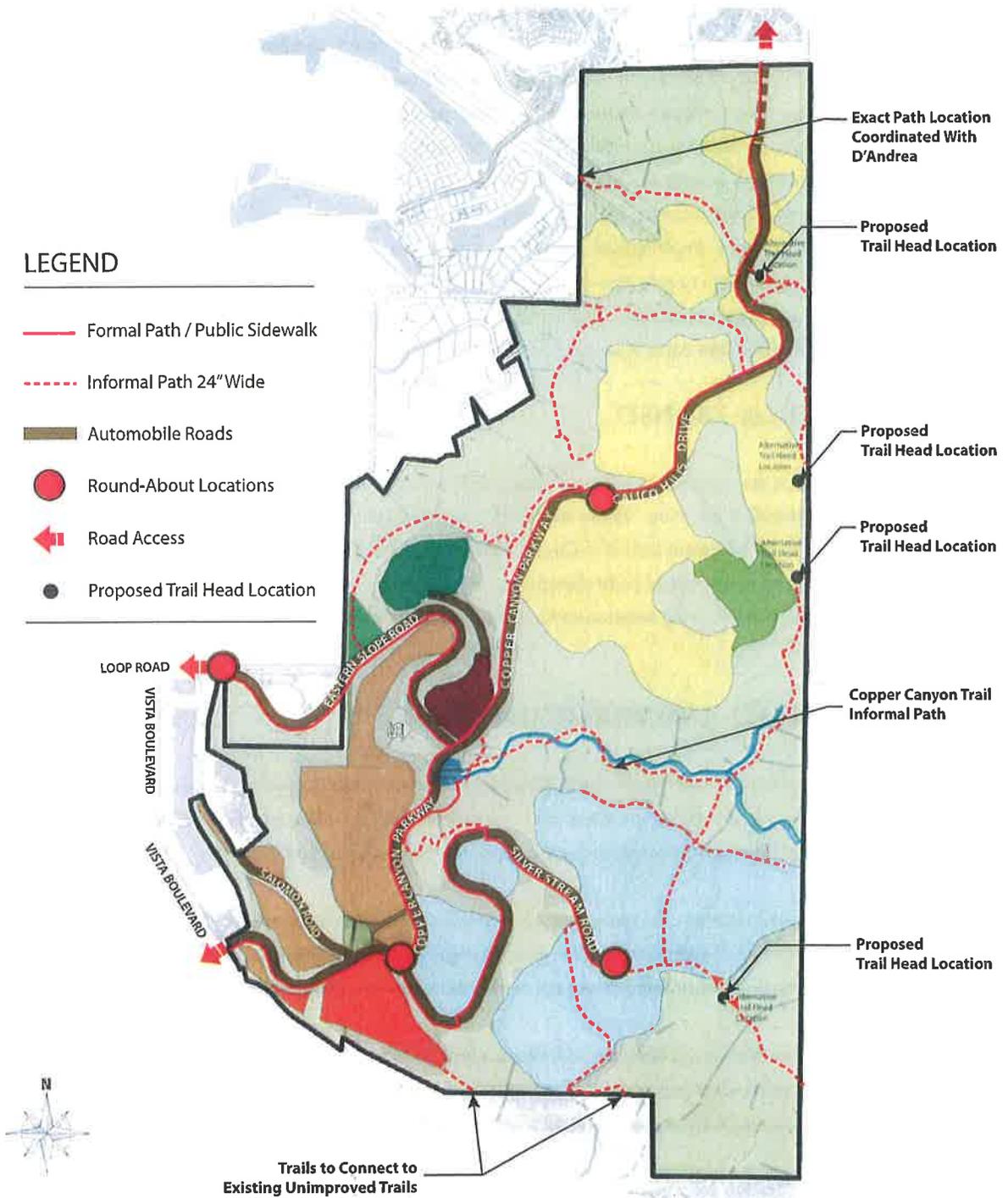


FIGURE 2-13
FORMAL TRAIL TYPICAL CROSS SECTION

LEGEND

- Formal Path / Public Sidewalk
- - - Informal Path 24" Wide
- Automobile Roads
- Round-About Locations
- ◄ Road Access
- Proposed Trail Head Location



**FIGURE 2-14
PEDESTRIAN PATH MASTER PLAN**

Emergency access to the public lands to the east of the project shall be provided at the trail heads. Alternative locations for the trail heads are shown in Figures 2-1 (see page 2-2) and 2-12 (see page 2-16). One location shall be selected in the subdivision review, although more than one location may ultimately be used as access to the public lands. The preferred location of trail-head access is near the water storage tank locations so that the number of roads in the open space can be minimized. The detailed locations and gradients of the street relative to the adjacent open space shall be determined in the final design of individual subdivisions and development plateaus in collaboration with Bureau of Land Management. The access shall be consistent with the proposed Southern Washoe County Urban Interface Plan Amendment and Environmental Assessment (BLM, August 2000). Each trailhead shall provide a simple lighted, gravel parking lot accessed from water tank maintenance roads. The parking area shall be large enough to accommodate 10 cars or trucks. The access to the public lands will be provided directly via a path from each parking area. This access is intended for pedestrian and bicycle use. See also Section 3.5.1 Landscaping In Common Areas (Category 1), Pedestrian Trails.

2.1.7 PUBLIC TRANSIT

The street routes are designed to allow RTC to extend a public transit route into the project area. One primary route is envisioned in the plan. The route would follow Eastern Slope to the intersection with Copper Canyon Parkway then to Silver Stream and on to Copper Canyon Parkway exiting the project area on Brierley Way and Vista Boulevard. These routes would be bi-directional. Final determination of the public transit routes as well as the locations of bus pads and stop locations within the project shall be coordinated with the Regional Transportation Commission.

2.1.8 PRIVATE AND PUBLIC HELIPORT

The modern helicopter is one of the most versatile transportation vehicles known to man. The helicopters ability to operate from minimal real estate has given it the capability of providing a wide variety of important services to any community which integrates the helicopter into its local transportation system.

In addition to their service in the transportation of people, helicopters have proven to be useful in disaster relief, air ambulance services, police departments and moving high value assets. Companies use helicopters as an invaluable part of an in-house transportation system to connect the office with various plants, job sites and the local airport.

The most effective way for a community to realize the benefits of helicopter services is by developing or permitting the development of places where helicopters can land and takeoff. While heliports can be large and elaborate, most are not. In many situations, a wind sock on a grass area with clear approaches is sufficient to provide an effective and safe heliport.

The optimum location for a heliport is in close proximity to the desired origination and/or destination of the potential users. Light industrial, commercial and business operations in urban locations are demand generators for helicopter services. Heliport sites may be adjacent to a river, railroad, freeway or a highway, all of which offer the potential for multi-functional land usage. These locations also have the advantage of relatively unobstructed

airspace as shown in Figure 2-15.

The Federal Aviation Administration has published Advisory Circular 150/5390-2A, which is a technical document to help engineers, architects and city planners design, locate and build effective heliports. Heliport identification beacons are recommended, with guidance found in Advisory Circular 150/5345-12. Heliport designs within the Copper Canyon project with allowable uses shall follow the applicable FAA design guidelines.



FIGURE 2-15
CONCEPTUAL HELIPORT

2.2 WATER

According to TMWA's December 6, 2006 memorandum, the project site has been annexed to TMWA's retail water service territory. Building pads 22, 23, 24 and 25 will utilize the 12-inch main addition connecting to the existing 12-inch gravity (low-pressure main) within Salomon Court and Brierley Way. A 6-inch regulating station may be required to support the gravity zone services during fire conditions or non-typical operating conditions and is planned to be located at elevation $\pm 4,538$ feet at the south end of the project site. The proposed services within Salomon Court with pad elevations in excess of 4,485-feet will require service from the proposed Copper Canyon water system. A 10-inch main addition will be connected to a higher pressure zone from the Copper Canyon water system. As a secondary/emergency supply source this main would have a check valve connection to the 12-inch gravity zone main within Salomon Court.

This development will require new major water facilities be constructed for service including at least four new booster pump-stations, three new water storage tanks, at least ten pressure reducing stations and two to three connections to the D'Andrea development to the north. Connection will be required at Vista Blvd. and Salomon Circle for the primary supply to the project. A connection is planned to the D'Andrea #4 pump zone at pad 18 in Copper Canyon. The tank sites shall be reviewed and approved through the cooperative efforts of TMWA and the City of Sparks through the Special Use Permit process required for above ground utility structures. Pump station #1 is planned to be located east of Vista Blvd. near Salomon Court at about 4,440 feet in elevation. Pump Station #2 is planned to be located at the northwest portion of the project on pad 5B at 4,850 feet in elevation. Pump station #3 is planned to be located at the northeast portion of the project east of pad 13 at 5,260 feet in elevation. Pump Station #4 is planned to be located at the southwest portion of the project west of pad 9 at 4,850 feet in elevation. Tank #1 is planned to be located at the east end of the project, north of pad 15 at 5,350 feet in elevation. Tank #2 is planned to be located at the east end of the project east of pad 16 at 5,470 feet in elevation. Tank #3 is planned to be located at the south end of the project south of pad 12 at 5,280 feet in elevation. The tanks shall be constructed of steel or concrete and may be partially buried or screened with landscape improvements if required to screen from view. Water shall be delivered to lower elevations through a series of pressure reduction stations

and a distribution system located in the streets. The storage tanks shall provide capacity for the D'Andrea Planned Development to the north.

PROPOSED FACILITIES

The future backbone water distribution system shall include a 12-inch line in the future Copper Canyon Parkway (Brierley Way extension) and in Eastern Slope (extension of Loop Road). The water lines shall be extended into the areas closest to Eastern Slope in conjunction with the construction of the primary road system. This will provide a loop system that connects with the existing water line in Vista Boulevard. As development proceeds up the hill, the project shall construct pump stations to increase the pressure. In the later phases of the project the proposed tanks shall be constructed within the project area as described above. The water distribution system shall be balanced with pressure reducers to provide sufficient pressure throughout the project site for domestic service and fire sprinkler systems.

2.3 ELECTRICITY

Sierra Pacific Power Company (SPPCo) shall provide electric power to the project site. Subject to a special use permit, an electric power substation may be located in the project site adjacent to the power line corridor in the north part of the plan as shown in Figure 1-17 (see page 1-29). The purpose of the substation is to ensure that there is constant, clean electric power available for the commercial and high tech users in the project.

The project may include a redundant electrical system consisting of generators or other technology per the regional master plan to ensure that the electrical supply is uninterrupted in the business park.

2.4 NATURAL GAS

Sierra Pacific Power Company (SPPCo) will provide natural gas to the project site.

2.5 SEWER

There are no existing sewage facilities in the plan area. Flows generated in the project will flow in a westerly direction into existing distribution lines and ultimately to the Sparks Interceptor. The entire project site shall collect sewage in four defined zones as shown in Figure 2-16 (see page 2-22). The preliminary sewerage study is subject to review and approval by the Engineering Manager and the subsequent development projects within the

Copper Canyon project site shall be required to submit final sewerage studies to support the preliminary sewerage study to the approval of the Engineering Manager.

Existing lines that may be used to convey flows to the west include:

- **Brierley Way 8-inch main:** This sewer main starts on the west side of Vista Boulevard and continues down Brierley Way. Current flows in this line are so low they are unmeasurable. Capacity in the line is available, however, additional capacity shall be required to accept build out, and a new main will be constructed in Brierley Way.
- **Lillard Drive 8" main:** This sewer main starts on Lillard Drive and proceeds north to the Boxington Trunk line. Capacity in the line is available. However, since a large portion of the sewage generated within the project will take this route to the interceptor, this line will require upgrading in size.
- **Boxington 24" trunk line:** This line starts from Vista Boulevard and runs west through several parcels to the Sparks Boulevard Interceptor. Sufficient capacity is available in this line to convey sewage from Zone 2 of the Copper Canyon project.
- **East Prater Way lines:** This line starts at the intersection of East Prater Way and Petes Way and proceeds westerly to the intersection with Dolce Drive where it increases in size to 10". The 10" line then proceeds westerly where it connects to the Vista-Prater sewer interceptor near the intersection of East Prater Way and Vista Boulevard.

PROPOSED FACILITIES

Each zone shall outfall to the existing sewer facilities to the west.

- **Zone 1** will collect sewage from pads 1, 2, 3, portion of 4, 7, 8, 9, 10, 11, 12 and 22. The collection system will be constructed of 8" mains, 10" trucks, force mains, and a sewer lift station. The sewer will exit the project at the intersection of Copper Canyon Parkway and Brierley Way.

Peak sewage discharge from Zone 1 is estimated to be 1.051 mgd (0.884 mgd for trunk mains).

- **Zone 2** will collect sewage from pads 23, 24, and 25. The collection system will be constructed of 8" mains. The sewer will exit the site at a proposed realignment of Salomon Circle.

Peak discharge from Zone 2 is estimated to be 0.100 mgd.

- **Zone 3** will collect sewage from a portion of pad 4, 5, 6, 13, 14, 15, 16, 18 and 21. The collection system will be constructed of 8" mains and 10" trunk mains. The sewer will exit the site at a proposed extension of Loop Road.

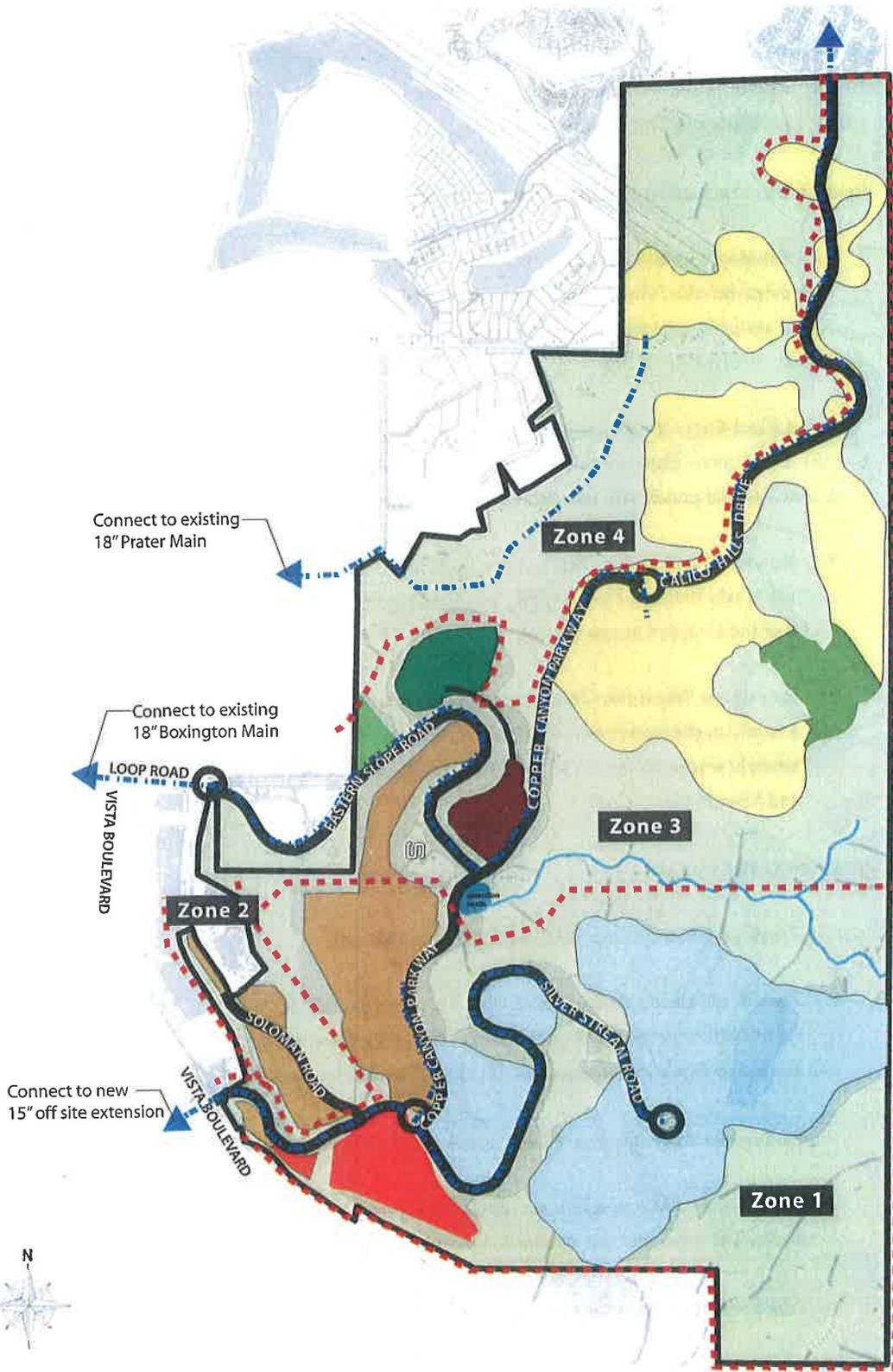


FIGURE 2-16
SEWER SERVICE ZONES

Peak discharge from Zone 3 is estimated to be 0.897 mgd (0.641 mgd for trunk mains).

- **Zone 4** will collect sewage from pad 17. The collection system will route sewage to the existing sewer main in East Prater. Sewer flows will exit the project boundary on East Prater Way east of the Northern Nevada Medical Center.

2.6 STORMWATER MANAGEMENT

The existing storm water flow conditions have been modeled into thirty-seven (37) watershed areas with a combined off-site and on-site area totaling 2,400 acres as shown in Figure 2-17. Off-site drainage areas to the east of the project site convey flows in natural channels through the project site and discharge to developed and non-developed land to Vista Boulevard. Significant flooding occurs in the area west of Vista Boulevard due to an existing undersized storm drainage system discharging to the North Truckee Drain and then out to the Truckee River.

The preliminary stormwater management study is subject to review and approval by the Engineering Manager and the subsequent development projects within the Copper Canyon project site shall be required to submit a final stormwater management study to support the preliminary drainage study that meets the approval of the Engineering Manager.

PROPOSED FACILITIES

All proposed stormwater management facilities shall be analyzed and designed in accordance with the City's Hydrologic Criteria and Drainage Design Manual, (latest edition).

The Copper Canyon Plan provides mitigation to existing flooding conditions as follows.

The dam will be designed to contain the Probable Maximum Precipitation (PMP) storm. The outlet of the dam will be designed to reduce the peak discharge from a 100 year storm event. This regional facility, in combination with the on site detention facilities, will reduce the flows from the Copper Canyon watershed to approximately 35 cfs. Detailed design and locations of on site facilities will be provided in the Master Hydrology report and updated with reports developed in support of each improvement plan submittal.

The grading of the project site would route as much storm run-off as possible to the dam. This shall reduce the drainage leaving the site to far below the pre-development levels.

The development of Copper Canyon Commerce and Technology Park will significantly alter the existing drainage patterns experienced within and adjacent to the project site. The initial ground contouring will create "superpads" connected by the backbone drainage system. The individual pads shall be fine graded to sheet drain to the proposed

LEGEND

 Detention Basin

1-21 Watershed Area

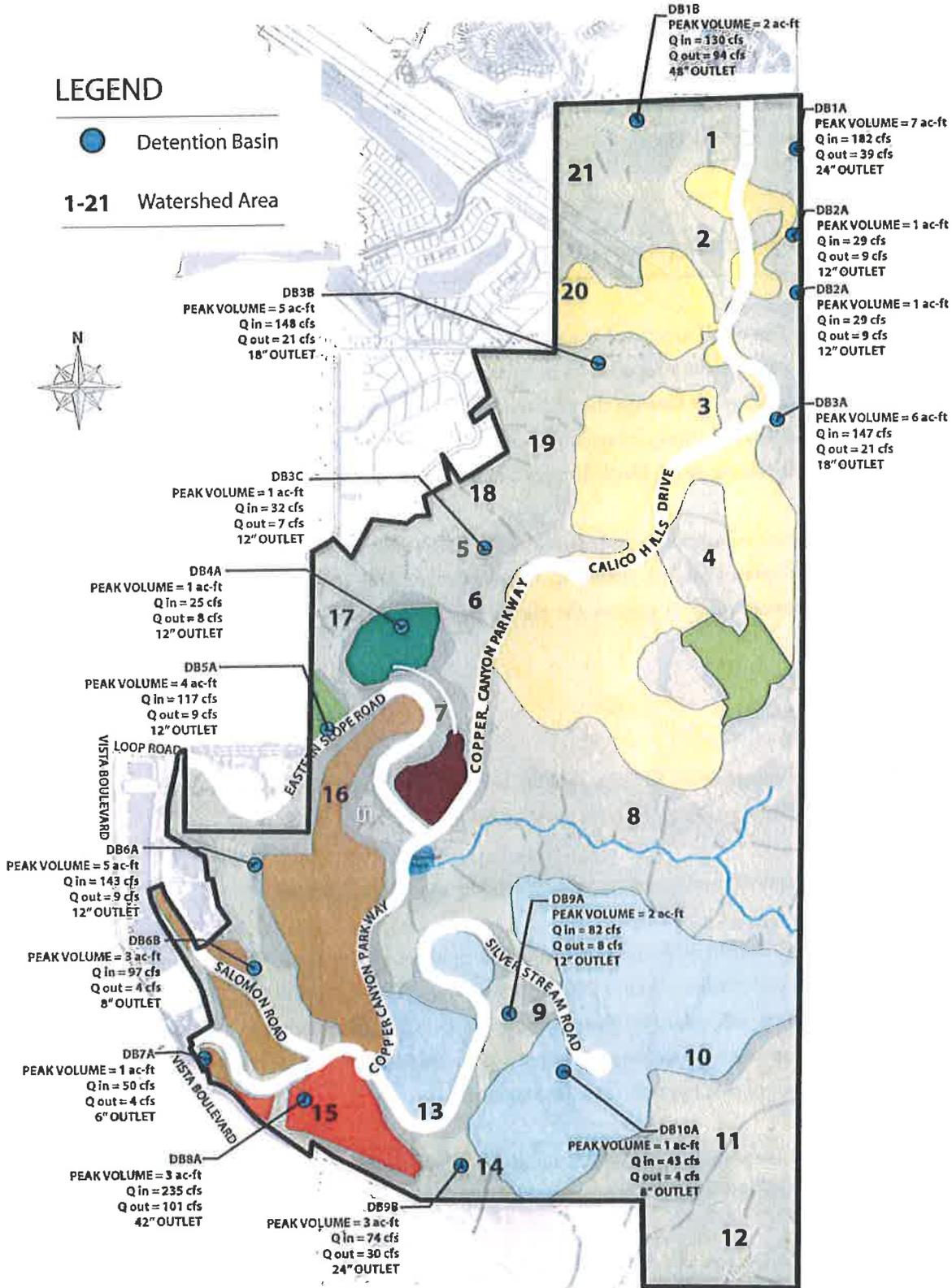


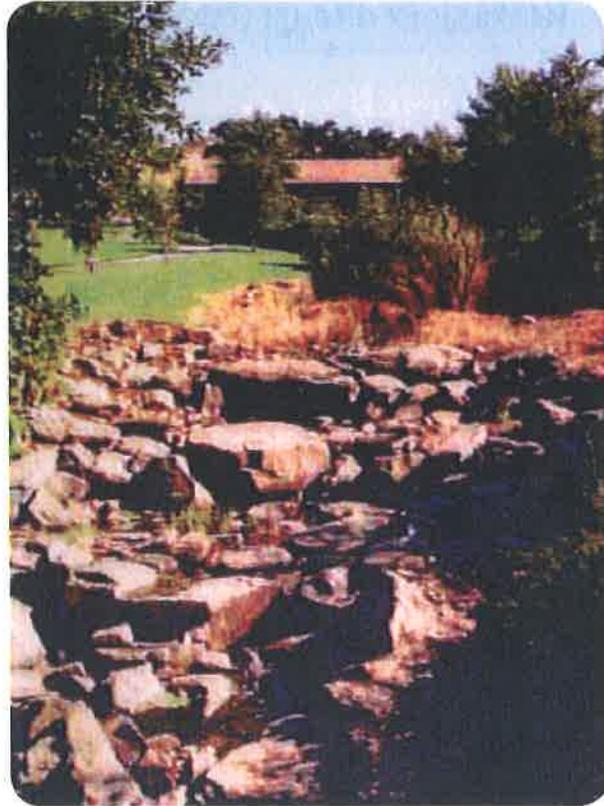
FIGURE 2-17
DETENTION BASIN

drainage basins. This design shall be completed in the planned development grading plans. Street drainage patterns shall be in accordance with standard City of Sparks practices and subject to review and approval of the Engineering Manager. Channels shall be designed to appear as natural as possible and be incorporated in corridors along the major streets, as illustrated in Figure 2-18. Walkways and pedestrian paths may run adjacent as long as they are above the five year flow elevation.

The primary flow channel in the canyon above the proposed dam site including the many contributory channels shall be left in their natural condition.

The portion of the project area north of pad 17 is designated as common area and residential use. The change in runoff due to the residential development is minimal because the existing site has a high runoff coefficient due to the rocky surface. Figure 2-17 shows the location of drainage basins proposed along the east edge of the residential development to reduce the flow to pre-development flows.

Drainage basins shall be constructed to facilitate all developed flows to undeveloped, or lower flows.



**FIGURE 2-18
NATURALIZED DRAINAGE IN A
LANDSCAPED CORRIDOR**

2.7 TELEPHONE/CABLE TELEVISION/WIRELESS COMMUNICATION

Telephone and cable service to the project site will be provided by a local service provider, in addition to state-of-the-art telecommunications including DSL and fiber optic services to the project. The telecommunications infrastructure shall be designed to support voice and data services utilizing twisted copper pair technology, cable and fiber optic infrastructure for inter-building connectivity. A switching facility shall be located on site providing dual points of access to the site. It is the intent of the project developers to ensure that businesses have access to the best available business support technology. This includes wireless communication systems subject to compliance with the City of Sparks Wireless Telecommunications Ordinance.

2.8 REFUSE COLLECTION

Waste Management will provide refuse collection to the project site. The location, sizing and aesthetic treatment of the refuse enclosures shall be subject to the standards listed in the design standards to the approval of Waste Management and the Administrator.

2.9 PUBLIC FACILITIES/SERVICES

2.9.1 SCHOOLS

Washoe County School District is responsible for acquisition and development of school sites. The project area is within the service area of Marvin Moss Elementary School, Mendive Middle School and Reed High School. Each of these schools is at or near capacity. Planned residential use in the plan area has the potential to generate a sufficient number of school age children to impact the local schools. The actual number of students will depend on the type of dwelling units and the characteristics of the households. For example, the apartments shall be designed to appeal to the workers in the project area and may attract a significant percentage of single person households. For planning purposes, the total number of dwelling units is assumed to have the typical number of students as calculated by the Washoe County School District. The District formula assumes the average household includes 2.5 persons. The project area includes a maximum of 2,109 dwelling units.

PROPOSED FACILITIES

No schools are proposed in the project area because the estimated student population alone does not support the construction of a new school and the project is not well located to serve the other students that would be drawn from a larger area. The Washoe County School District will evaluate the capacity of existing schools to accommodate new student enrollment generated by this project. As shown in Figure 1-18A (see page 1-31), Project Phasing, development of the residential component of the plan will occur over a period of five years. At full build-out, the rate of development will provide the District time to plan for and accommodate the growth in student enrollment.

Neither Washoe County School District nor the City of Sparks can assure that children residing in the residential elements of the project will attend the closest school in the area. Residential developers shall disclose to future property owners the potential for students to be located in schools other than the closest school.

2.9.2 POLICE

Copper Canyon is included in the Sparks Police Department service area. The business park uses and the type of

residential use proposed will not generate a high level of demand, but there will be an additional demand on police services. The local calls will divert police resources and spread the police resources over a larger geographical area. The demand for police services will be balanced in part by the substantial revenues to the City generated by the land uses in the project. The balance of costs for police services and revenues generated in the project area are addressed in the fiscal analysis. The business park uses and the hotel shall provide private security throughout much of the project area and certain business park users may develop high security buildings.

2.9.3 FIRE

EXISTING CONDITIONS

The City of Sparks Fire Department currently operates five fire stations throughout the City. Station No. 3 on East Greg Street provides first response to that portion of the City south of I-80 and the area surrounding the Vista Boulevard interchange at I-80. Station No. 3 would provide the first response to the project area. Fire Station No. 3 may be relocated prior to or during construction of the Copper Canyon project. If Fire Station No. 3 is moved, then a new assessment of the response route shall be required to be completed by the project developer and the Fire Department to the approval of the Fire Chief. The project developer shall coordinate with the Traffic Division of the City's Public Works Department regarding the installation of the Opticom devices for those traffic signals lacking the devices along the Fire Department's response time routes from both Fire Stations No. 2 and No. 3.

The project developer shall ensure that the traffic signal at the intersections of Breirley Way and Vista Boulevard contains an Opticom device compatible with existing City of Sparks devices. As shown in Figure 2-19, portions of the project area are within a 6 minute response time from Station No. 3. This response area complies with the standard level of service throughout the city. Other portions of the project are located outside the 6 minute response time boundary.

PROPOSED FACILITIES

Development of the project will not require a new fire station within the plan area. However, CCPOA and the Master Developer shall participate along with the Sparks Fire Department in the development of a Fire Department Master Plan for service provision through participating in an ad hoc committee. The Master Developer shall contribute their proportional cost of the development of the plan at the time of the committee's creation. The purpose of this master plan for fire service provision will be to provide more rapid response to the new growth areas east of Vista Boulevard, including the D'Andrea project and projects to the northeast of D'Andrea, as well as Copper Canyon. One alternative to be considered by the Department is to relocate Station No. 3 north of I-80 in the vicinity of Sparks Boulevard and East Prater Way or Vista Boulevard and East Prater Way. There are several factors that will influence this decision by the Department, including improved service areas, access south of I-80 in the event of an earthquake that destroys the I-80 over-crossings, and costs.

In the long term development of the east side of the city, it is imperative that there be a north-south street for

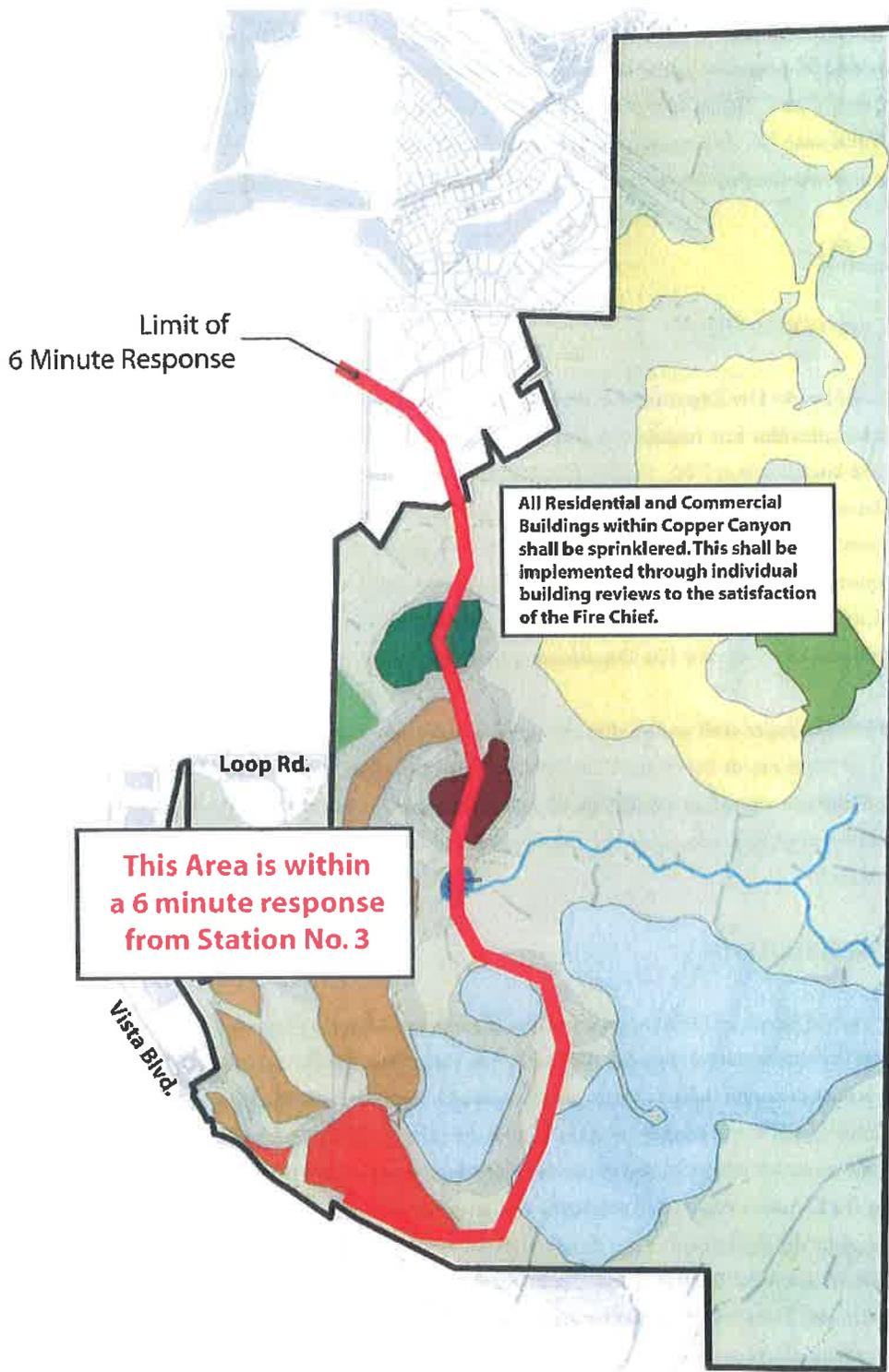


FIGURE 2-19
FIRE SERVICE RESPONSE AREA

emergency access along the east side of the project. This street is of regional significance. This is accomplished with the Calico Hills Road and Copper Canyon Parkway link that shall provide direct access from the project area to a street in the D'Andrea project to the north. The road is nearly level through the north end of the project area and shall provide excellent access if a fire station is developed as proposed in the D'Andrea Plan or in the Copper Canyon Plan. If the D'Andrea fire station site is not used, the north-south road shall still provide excellent access as an alternate site on the east side of the city. Calico Hills Road shall incorporate turn-out areas to allow emergency vehicles to pull out or around for every 700 foot segment of the roadway from the Copper Canyon Parkway/Calico Hills round about to pad 18 to the approval of the Fire Chief and Engineering Manager.

Copper Canyon shall enhance fire safety within the project area by requiring that all buildings be sprinklered. All non-residential buildings shall have an NFPA 13 fire sprinkler system installed that is locally monitored to the satisfaction of the Fire Chief. This shall be implemented through individual building review by the Master Developer and the City Code Enforcement. In addition, all developed areas shall be surrounded by a wildlands/urban interface zone (described in the Design Standards Section 3.5.2) which includes a fire safe landscape strip surrounding the developed areas that will slow wildfires approaching the buildings.

2.9.4 PARKS

EXISTING CONDITIONS

The City Parks and Recreation Department operates parks throughout the City. The City's equestrian facility (Gandolfo Arena) is adjacent to the plan area. The project street system and land use shall have no effect on Gandolfo Arena.

PROPOSED FACILITIES

All facilities shall be privately owned, maintained and managed, but shall be accessible to the public. The area within the canyon shall provide a trail connecting to the open space and the BLM land to the east. An informal trail head with limited parking shall be provided in the vicinity of the water tanks to provide access for hikers and cyclists. Small trail side rest areas including a bench shall be located throughout the canyon. Lateral connecting trails to the nearby building sites shall be included.

POCKET PARKS

The Copper Canyon Master Planned Community will feature privately owned pocket parks in each Single Family residential area. There will be a minimum of 6 parks. All residences shall be within 1/2 mile of a pocket park. Each pocket park shall be a minimum of 10,000 square feet. Pocket parks will be maintained by a lighting and landscape maintenance district or the CCPOA. Pocket parks will be incorporated into the Copper Canyon Master Planned Community to provide intimate, passive recreation areas that will meet the needs of the residents. Typically, these parks will feature amenities that cater to the residents within close proximity and will feature small scale amenities

designed with the residents in mind. Pocket parks are meant to be gathering places for neighborhood residents and at the same time will provide three amenities that may include but is not limited to tot lots, benches, shade structures, picnic tables and possibly public art sculptures or gardens to the approval of the administrator.

Chapter 3

DESIGN STANDARDS

3.1 COMPLIANCE WITH CITY OF SPARKS DESIGN STANDARDS MANUAL

Development within the Copper Canyon Master Planned Community shall maintain compliance with the SMC and DSM. When the Handbook is silent, SMC and the DSM shall apply. If there is a conflict between the two documents the Handbook shall take precedence. Each project will be reviewed by the Administrator who shall determine compliance with the standards contained within the Handbook or DSM if the Handbook is silent. The appeal process for this Development Handbook is discussed under “Appeal Process” on page 1-8.

3.2 INTRODUCTION

The purpose of these standards is to ensure that the proposed development is compatible with the natural character of the site, sensitive to the view from the community and is of the highest quality and character.

THE NATURAL CHARACTER OF THE SITE

The essential character of the site is defined by the hills that rise sharply from the valley floor. As shown in Figure 3-1, the hills form the backdrop for the City of Sparks and the surrounding community on the east side of the Truckee Meadows. Because these hills are highly visible from the surrounding community, they are an important feature of the community character. The hills rise to low saddles and plateaus then rise again to the ridgeline of the Pah Rah Mountain Range, two to three miles to the east of the plan area. The plateaus provide opportunities to develop a commerce and technology park and residential sites with exceptional views to the west. Low, sharply rising knobs dominate the view near Vista Boulevard, but diminish in scale relative to the higher ridges when viewed from a distance. A large white “S” sign (as shown in Figure 3-2,) (see page 3-3) representing Sparks High School is highly visible on one of these knobs overlooking the City. There will be no modification or relocation of the “S”, which will remain within the open space area maintained by the CCPOA. The CCPOA will maintain the “S” in perpetuity to include painting at least once a year.

Rock outcrops occur over much of the landscape. Some are small, local features but others are large dominant

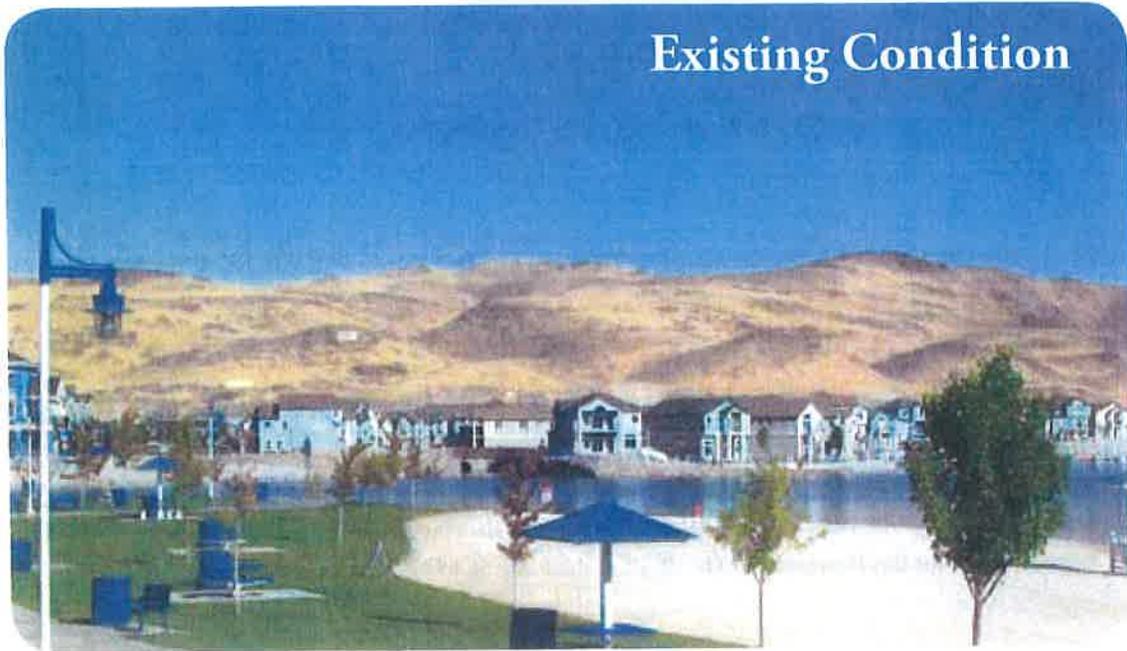


FIGURE 3-1
PANORAMIC VIEW OF THE HILLS TO THE EAST OF THE PROJECT AREA

forms visible at a distance. Large rock outcrops dominate the brow of some but not all of the major ridges. Some ridgelines are rounded and grass covered. A prominent rock outcrop, shown in Figure 3-3 overlooking Interstate 80 at the south end of the site forms a natural gateway into Truckee Meadows from the east. This outcrop is part of a significant ridgeline that extends north and includes one of the highest points on the site. The ridgeline is protected in the project area by locating development to the east, behind the ridgeline and increasing the minimum building setback to 120 feet. Refer to Section 1.6.4 Scenic Ridgelines and Views and Section 3.7 Grading and Hillside Development.

A large canyon runs east to west across the site and roughly divides the site into north and south major sub-areas. The canyon is an attractive natural setting with ephemeral water flow. The floor of the canyon is an attractive setting that invites walking, picnics and other informal, passive recreation. Large rock outcrops define the south rim of the canyon. Although the view into much of the canyon is obscured by the low hills on the edge of the plan area, the rock covered south rim is visible from miles to the west.

Figure 3-4 illustrates that the hills are devoid of large trees and are covered with short grasses and shrubs. This lack of large vegetation tends to accentuate the form of the hills and emphasize the open vistas to and from the site.

The native vegetation and the rock outcrops create a light, natural color palette encompassing muted colors such as rust, dark brown, caramel, copper, cream, buff and grey. The change in light on the site depending on the time of day and the weather has a significant effect on the overall color range and can significantly change the appearance of the hills. In order to visually blend development with the hills, these design standards require that buildings use the natural color palette or complementary colors.



**FIGURE 3-2
VIEW OF THE SPARKS "S"**



**FIGURE 3-3
PROTECTED RIDGE AT SOUTH END OF PROJECT
AREA**

In addition to the land form, vegetation and natural color, the characteristics of the site are defined by the natural forces at work on the site. These include sun, wind, water and precipitation. Because the site is located at the edge of the valley and oriented to the west, it is exposed to high levels of sun exposure, wind and precipitation. These forces are stronger than found in flatter, less exposed settings and will inherently affect the buildings and outdoor spaces constructed on site. The site and building standards in this plan require development to take advantage of these forces to guide the form of outdoor space and buildings.



FIGURE 3-4
TYPICAL CHARACTER OF THE NATIVE HILLSIDES

In summary, the natural character of this site includes exposure to unusually strong natural forces of sun, wind and rain; a muted natural color palette that requires equally muted architectural colors; and hill forms that offer expansive views to the west, but are highly visible and therefore sensitive settings for new development.

3.3 DESIGN CHARACTER

The design of Copper Canyon derives from two essential characteristics of the plan. First, are the natural features of the site. The natural forces of sun, wind, snow and rain and the essential natural setting will guide the design of individual structures and the developed spaces between them.

The second essential characteristic of the project is the type of land use proposed. The function of the buildings and public spaces shall determine the form of the built environment. The primary intended use, technology and commerce, shall include companies that are engaged in highly technological activities. At a minimum, such activities require state-of-the-art communications and environmental controls.

The buildings and outdoor spaces shall be designed to remind the occupants of the powerful natural forces surrounding them while they explore, develop and assemble the tools and products of future technologies.

The design guidelines establish a design character that responds to the character and use of this site rather than simply adapt a historic architectural style. This is accomplished through establishing design principles and performance criteria that shall lead to the creation of a building style and form suited to this site. The specific characteristics of the design character are drawn from these principles.

1. **High quality and aesthetically superior design is essential.** All developed areas shall incorporate architectural style, landscape, signs, lighting, circulation, and street furniture to produce environments that are pleasing in form, scale, texture, color and variety. Signs, lighting and street furniture will be consistent and establish an identity for Copper Canyon.
2. **Views of the natural hillsides shall be protected.** Development shall be restricted with increased setback limits on the major ridge lines identified in the City of Sparks Master Plan (1992) and Development on Slopes, Hilltops and Ridges Ordinance. The development shall meld into the natural hillside. All structures shall use colors that complement the natural hillsides. Solar reflection, particularly in the late afternoon, shall be minimized by use of low reflective glazing and by selective placement of windows to reduce the reflective angle toward the west. Building location and massing shall conform to the natural hill form through terracing of the development pads. These are the bulk of your pads highly visible from below except for pads 1, 3, 4 and 22-25. Non-residential buildings as depicted in Figure 3-1 (see page 3-2) shall be set back from the edge of terraces, which shall be sloped to screen parking areas and the lower portions of buildings. Very limited exceptions shall be allowed to establish views to the west from within the development. Exceptions may include tall elements on key buildings within a building group, such as a clock tower and special use buildings, such as the sports club subject to review and approval through the Site Plan Review process with the City of Sparks after receipt of written review and approval by the Master Developer.
3. **Middle and distant views from the site are emphasized.** Buildings shall provide views to the mountains and to the City in the middle distance. Short range views to the industrial and warehouse buildings shall be screened by land form contouring and landscaping at building sites.
4. **Development shall respond to the natural environment.** Energy conservation shall be implemented through building and landscape designs and orientations compatible with the climatic conditions. Building entries and approaches, plazas and other public spaces, walkways and parking areas shall shelter pedestrians from sun and wind. Integrate the built-environment and open space to enhance living and working spaces.
5. **Pedestrian access is enhanced.** The development shall be pedestrian-friendly to encourage people to walk while on site. All building groups shall be accessible from a walkway that connects throughout the developed areas. Off-street pathways between building complexes shall provide at least one trail or walkway segment that is lighted and visible from a street. Low level lighting or indirect lighting shall be used to light path ways to minimize visibility from the lower plateaus and the valley.
6. **Details and building articulations are important.** The buildings shall incorporate detailing where it is discernible by pedestrians and motorists viewing the buildings from typical locations. Pedestrian scale features such as porticos, arbors and promenades are particularly important. Small landscape features such as seating areas, plazas and small groves shall be incorporated in the site design to provide interest and help

guide pedestrians to the primary entries. Overall, the buildings must provide articulation and a pattern of windows, roofline breaks, reveals and trim to establish a pleasing form and texture when viewed from a distance of one-quarter to one-half mile. Beyond this distance the specific articulation and detail of a building is not discernible, however, articulation and detail will be perceived as a pattern or texture to the building that will be more attractive than a simple, flat surface.

7. **Recreation and sports are major components of the project area.** Sports facilities shall be a major center of activity. Small recreation facilities shall be integrated in the development area to provide opportunities for informal recreation. Trail heads, directional signs and other features will enhance the recreation opportunities in the open space on site and in the surrounding public lands.
8. **Water shall be used as specialized features.** Recycled water shall be used in the developed areas for features such as a fountain, pool, waterfall or small watercourse. The developer shall work with the Nevada Division of Wildlife to determine the desirability and feasibility of providing a water source for wildlife.

3.4 LAND USE DESIGNATIONS

RESIDENTIAL

Residential Single Family (LDR, LMDR)

Single family homes will be located in the northern portion of the plan area. These areas provide dramatic views to the west and north. The residential parcel sizes and housing types are compatible with the adjacent D'Andrea and the Sunset Rancho View Estates residential neighborhoods. Calico Hills Road shall connect north to the estate residential area to the D'Andrea project. The neighborhood streets shall provide access to the open space/common area as required in Section 2.1.6 Access for Service and Emergency Traffic and provide a looped system for emergency access.

Residential Medium to High Density (MDR, HDR)

Townhomes may be located north of the business park along Calico Hills Drive or within pad 4 adjacent to apartments and commercial uses. The units shall have a density range of 7 to 43 dwelling units per acre. Dwelling units in this density range typically include attached unit types; however, detached units on small lots may also occur. Dwelling units may be located at the edge of the plateau constructed for this use, but shall not be allowed to extend over the edge of the plateau or step down the slope.

Dwellings may have common walls and be clustered around a common green. The townhomes shall be located on both public and private streets dependent upon the need for direct circulation between the commerce and technology park uses and the D'Andrea project to the north. The dwellings shall include garages in single and

group configurations. Small private yards and courtyards shall be attached to each dwelling unit. All common areas shall be landscaped and maintained by a home owners association.

Apartments may be located near core activities, including the sports club, Village Center and hotel. The units shall have an average density of approximately 16.0 dwelling units per acre. Dwelling units in this density range are conventional apartment buildings and may be two or three stories in height. The intent is to provide easy access to the activity center and still provide a connection to the natural character of the project area. In accordance with the DSM, the apartment projects shall include recreation facilities, such as a clubhouse building and a play area, that includes equipment for children. Apartment buildings may be clustered around a common green or landscaped area. The apartments shall be located on private driveways with limited access points to the adjacent streets. One covered carport parking space shall be provided for each unit. Small private patios or courtyards shall be attached to each dwelling unit.

BUSINESS PARK (BP)

The purpose of the Office/Business Professional/ Technology Component Assembly land use is to provide unique sites that provide development and expansion opportunities for technology based companies that have high value products. The goal for this land use is to attract those companies that require a skilled, high salary work force. The type of uses planned for this designation include conventional office buildings, laboratories, research and development facilities and assembly of high technology components. The land use does not accommodate manufacturing of low value, bulk products, provide storage, distribution warehousing or outdoor operations including outdoor storage. Figure 3-5 demonstrates buildings that are typical of the corporate office environment planned for Copper Canyon. These sample buildings are indicative of the scale and quality of buildings anticipated in the project.

Each site shall offer unique views and a distinct presence in the park. The business park may attract both primary users and supporting uses. Primary users shall be required to terrace parking and buildings with the natural contours of the site in order to minimize the visual impact. Refer to Section 1.6.2 Grading for a discussion of grading concepts relative to the size of development plateaus.

The primary users within the Business Park may include regional offices, high technology component assembly or research and development operations. These uses will typically be high end and will attract a skilled workforce. The supporting users shall provide services to the primary users, other businesses within the community and the public at large. The business park sites shall be developed as planned developments that incorporate a common design, theme, landscape and signs program to ensure a sense of place, continuity of appearance and efficient circulation.

A limited amount of service commercial and retail activities may be permitted for the convenience of the employees within the area. The goal is to provide a mix of basic services in close proximity to employees to reduce the need for vehicle trips outside of the project area. The limited service uses may include restaurants, banks, day care, personal services such as hair care and shoe repair, specialty retail and similar uses. Such uses shall not account for more than ten percent (10%) of the total gross floor area of each building in order to reduce the need for large, heavy



**FIGURE 3-5
ILLUSTRATION OF TYPICAL OFFICE AND RESEARCH DEVELOPMENT BUILDINGS**

delivery vehicles to service and supply those commercial areas. Convenience services within the office land use shall be distributed within the area to be easily accessible by employees. These uses shall have primary access within the business-professional building complexes, but may have secondary access from the exterior and shall not be constructed as freestanding structures.

MIXED USE (MX)

The mixed use designation shall allow multi-family uses along with a combination of commercial, office and retail/restaurant facilities as outlined in this section of the Development Handbook in the subheadings that follow. Some anticipated uses include a sports/racquet club, garden office, retail, restaurant, hotel, townhome/condominiums and apartments (see Section 3.8.3 for residential development standards). The objective of this designation is to provide a mix of residential and non-residential land uses to create a vibrant center for Copper Canyon Master Planned Community while allowing flexibility in locating compatible land use activities that complement each other.

Sports Club

The sports club is planned as a comprehensive commercial recreation facility that includes a wide range of active sports, retail and sports-themed leisure facilities. The intent is to provide year-round active sport facilities for use by the residents of the Truckee Meadows region and the employees of the commerce and technology park. The facility may provide a limited range of services on a 24-hour basis.

The active sports facilities in the club may include such activities as: soccer, basketball, indoor/outdoor swimming, tennis and other court sports such as racquetball, weight training, indoor jogging track and roller blading. The sports facilities may also include lighted outdoor uses such as tennis, pool activities and basketball based on demand and limited by neighborhood lighting standards.

Virtually any sporting activity may be included in the sports club. The mix of uses may change over time as the individual sports rise or fall in popularity.

The sports club building can include a restaurant or food courts, retail space, other leisure space such as a sports bar and locker rooms and sports training facilities associated with sports medicine activities.

In addition to the primary building, the sports club may include one or more satellite buildings. These buildings will serve the sports medicine, retail and restaurant/leisure activities envisioned for the sports club. The sports club, hotel, and village commercial center comprise a core of high activity public uses.

Restaurants

Restaurants are envisioned as the primary use on one or more of the pads. However, a restaurant can be located on many of the pads in conjunction with the office, retail, hotel and sports club uses. Conversely, the office uses may occupy the restaurant areas and the uses can be mixed in some buildings. Figure 3-6 provides illustration of outdoor dining settings. Although the restaurant land use is intended to accommodate year-round facilities, outdoor dining is anticipated to be a common feature in the restaurant areas and the mixed use areas such as the village center. Outdoor dining creates animation and visual interest and allows people the opportunity to interact. It is anticipated that outdoor dining will include a variety of choices for people within the Copper Canyon Master Planned Community. All outdoor dining will be required to follow City standards.

Village Commercial

The Village Commercial site shall serve as a primary focal and activity center for the community's residents. This commercial site is intended to include uses such as retail shops, office, hotels, services and restaurants. The quantity and mix of shops and services shall serve the convenience shopping needs of the residents and employees in the plan area. The center may also be utilized for limited office uses associated with personal or professional services. The Village Commercial is distinguished from other commercial sites by the neighborhood oriented focus and by including a small park that serves as the town square. Buildings are arranged around the park to enable views into the park and views through the village center. Buildings shall be located adjacent to the town square so that restaurants

or other social settings can overlook the recreation or cultural events occurring in the park. Buildings shall also be located to provide views to the west. The buildings and the park are designed to allow pedestrian access and a seamless visual interface between the commercial uses and the park. Openings between buildings and extension of pedestrian streetscape to the turf-ed open areas of the park are required unless physically constrained from accomplishing these connections.

As shown in Figure 3-7, the buildings located along the west side of the village shall be angled to provide a more interesting edge condition and to encourage a master plan design for the site that avoids the typical L-shaped building layout. The 200 unit high density complex in this area shall also pay special attention to edge conditions and view corridors to create a unique and complementary addition to the Village Commercial concept.

TOURIST COMMERCIAL (TC)

The hotels are planned primarily to serve business travelers through the use of conventional meeting rooms, conference facilities, restaurants and other visitor support facilities. Informal recreation, such as walking trails shall be included on the hotel grounds and shall connect to the other walking trails in the project, as illustrated in Figure 3-8 (see page 3-14). The hotels shall provide rooms catering to business travelers with state-of-the-art communications capability in each guest room, a meeting and work area in each room, small meeting or conference rooms, teleconferencing capability, clerical and report processing capabilities, state-of-the-art presentation equipment in the meeting rooms and business oriented concierge services to assist business travelers. The hotels will also provide restaurants and lounges. Figure 3-9 (see page 3-14) shows examples of hotel casinos that have design characteristics anticipated in the project.

A hotel/casino may be developed in this planning area. The casino may also provide indoor/outdoor entertainment

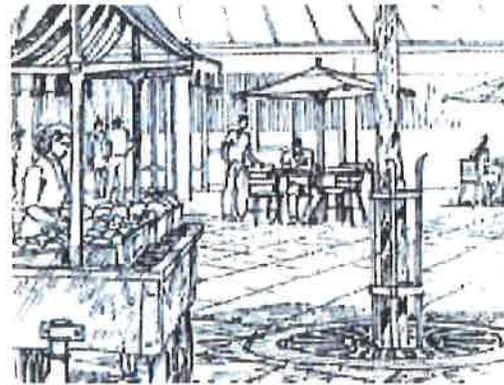


FIGURE 3-6
CONCEPTUAL ILLUSTRATION
OF RESTAURANTS

venues. The architecture and location of any buildings would be reviewed by the Master Developer and the City of Sparks to ensure compatibility with the overall theming.

PUBLIC FACILITIES (PF)

The Public Facility uses allow for community serving facilities that promote gathering and activity. Typical uses include community gardens, community recreation centers, houses of worship and utilities.

OPEN SPACE (OS)

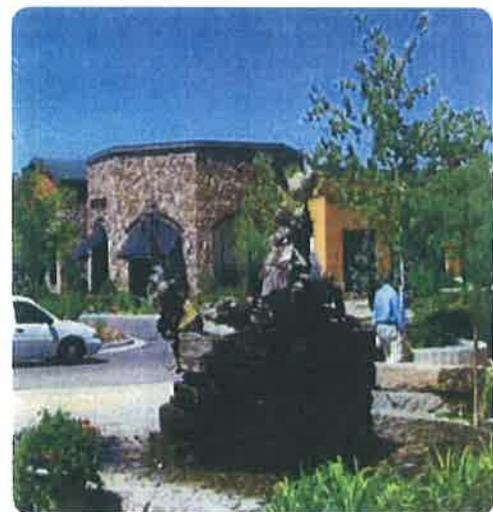
Open Space uses allow for pedestrian and bicycle trails, protection of native slopes, drainage facilities, passive uses and natural terrain. These may include landscaping and erosion protection for regional utilities and required infrastructure.

PERMITTED AND CONDITIONAL LAND USES:

Permitted uses, uses requiring a Special Use Permit and Site Plan Review requirements within the Development Plan, are provided in the Land Use Table, Table 3-1. This table organizes potential uses presented in the development plan. The following symbols are used in the table.

- (P) Permitted by right within the development plan
- (S) Special Use Permit required
- (R) Site Plan Review
- (A) Ancillary Use – Uses only allowed when permitted uses are present for a particular land use (not to exceed ten percent (10%) gross floor area)
- () Not permitted with the Development Plan (Empty Cell)

Uses not listed are not allowed. Parking and Density standards are shown in Tables 3-2, 3-3 and 3-3A respectively (see pages 3-70 thru 3-73).



**FIGURE 3-7
CONCEPTUAL RESTAURANTS AND
SHOPS OF THE VILLAGE CENTER**

TABLE 3-1 LAND USE TABLE

Land Use Designations	Tourist Commercial (TC)	Mixed Use (MX)	Business Park (BP)	Public Facility/Community Use (PF)	Residential Single Family (LDR, LMDR)	Residential High Density (MDR, HDR)	Open Space (OS)
<i>Including but not limited to the following uses:</i>							
Above Ground Utilities (such as: Water Tanks, Water Pump Stations > 6 ft. height)	S	S	S	S	S	S	S
Active Adult Community						P	
Apartments		P				P	
Banks, Financial Institutions		P	A				
Bar	P	P	A				
Children's Playhouse (as permitted under SMC)					P		
Clubhouse, Cabana (or similar structure to serve as common recreation area)		P				P	
Cluster Homes w/ common driveway		P				P	
Common Secure Recreation Vehicle, Boat Storage (for use by residents and tenants)						A	
Condominiums		P				P	
Conference Facilities	P						
Day Care, Child Care	One caregiver	P	P	A	P	P	
	Two or more caregivers	S	P	S		S	
Drive-Through Restaurants (Pads 22-25 only)	S	S					
Drugstore, Pharmacy	P	P	A				
Duplexes		P				P	
Enclosed Storage Directly Associated with: assembly high technology components with project area, but may not exceed 35% of total gross floor area within any building; warehousing of materials or products not directly associated with the primary activity of the building is prohibited.			A				
Entertainment Venue-Indoor	P	P					
Entertainment Venue-Outdoor	S	S					
Food Court, Convenience Markets, Specialty Stores	P	P	A				
Food Preparation, Cafeteria			A				
Gaming, Nonrestricted	S						
High Technology Component Production, Assembly (such as: software, packaging, testing, repair, devices, system parts) (no outdoor storage)			P				
Home Occupations	R	R	R		P	P	
Hotels (<200 rooms = SPR)	R	R	R				
Hotels (> 200 rooms = SUP)	S	S	S				
House of Worship	S	S		S			
Laboratories & Research Facilities			P				
Live-Work Units		P					
Medical, Dental, Veterinary Office		P	P				

Land Use Designations	Tourist Commercial (TC)	Mixed Use (MX)	Business Park (BP)	Public Facility/Community Use (PF)	Residential Single Family (LDR, LMDR)	Residential High Density (MDR, HDR)	Open Space (OS)
Model Home Complex (Per SMC)		P			P	P	
Office	P	P	P				
Parking Structures (associated with all offices & facilities)	P	P	P	P			
Personal Services (such as: hair care, shoe repair, salon spa, laundry, copy center)	P	P	A				
Professional, Regional, General, Corporate Offices (such as: attorneys, engineers, architects, planners, accountants, insurance, venture capital)	A	P	P				
Public & Private Heliport	S		S				
Public Uses (example uses: parks, public schools, hospitals, public buildings, golf courses)				P			
Restaurants	P	P	A				
Retail	P	P	A				
Single Family Attached		P			P	P	
Single Family Detached					P	P	
Sports/Athletic/Health Club/Gymnasium >3000 sf SUP (example activities: soccer, court sports, swimming, weight training)		S	A				
Sports/Athletic/Health Club/Gymnasium < 3000 sf SPR (example activities: soccer, court sports, swimming, weight training)		P	A				
Temporary Construction Trailers, Yards (Per SMC)	P	P	P	P	P	P	P
Temporary Earthwork Facilities (such as: crushing, screening, hauling)	R	R	R	R	R	R	R
Temporary Sales Office (Per SMC)	P	P	P	P	P	P	
Townhomes		P				P	
Senior Housing, Rest or Group Homes						S	
Vocational, Private Schools, Training Facilities		S	S	S			
Gas Station		P					

3.4.1 UTILITIES

Development of Copper Canyon shall require installation of both permanent and temporary utilities to provide services. As an example, the distribution of electricity may require a substation to be located in the north end of the project area along the power line corridor, as shown in Figure 3-10.

In addition, based upon TMWA requirements, several water storage tanks shall be located at the upper elevations of the plan. There are several possible locations for the tanks. The tanks may be located on the public land to the east of the project area. Wherever the water storage tanks are located, they shall be screened from view by a combination of methods; these include creating a depression in the hillside to partially bury the tanks, constructing an earth berm around the tanks and/or landscape and/or camouflage with natural tone paints. The specific combination of screening methods shall depend on the location of the site and the surrounding terrain. The screening method shall be part of the consideration of approval of the Special Use Permit required for the construction of the tanks. A specific design for the tanks that illustrates the effectiveness of the proposed screening method shall be required as a part of the application for the Special Use Permit.

Other utilities may be constructed on the project site to provide additional services or a temporary component of the site development and construction process. Such temporary or potential future uses are not specifically included in the plan and no sites are identified because they are not specifically proposed in the long term use of the site. If proposed in the future, such uses would be subject to a Special Use Permit. One possible use has been considered, but is not specifically located in the plan and may never be proposed. This includes:

- The recycled water may be stored in a future tank and pumped to locations on the project to provide irrigation for the common area landscape. The recycled water produced by this facility is of a quality that allows irrigation in public access common areas.

The utilities on site also include the dam and the power substation. These are discussed elsewhere in this Development Handbook.



**FIGURE 3-8
JOGGING TRAIL ON HOTEL
GROUNDS**



**FIGURE 3-9
HOTEL CONCEPTUAL
ILLUSTRATIONS**

3.5 LANDSCAPE

The project area shall use two distinct landscape areas, undisturbed common area and improved common areas. Disturbance will be minimized, but those areas disturbed will be subject to the plant revegetation program described in Section 3.5.1 to re-establish elements of the native plant and wildlife environment.

The second major landscape area is in the common areas along streets and at major entries and intersections. Landscape in these locations provides identity for the entire project area. Standard landscape trees, groundcover treatments, lighting, directional and entry signage and walls will establish the identity of the area. The intent is to establish the design framework for the overall project, but allow the individual character of each business to be expressed in their signs and landscape within their entries and developed areas.

LANDSCAPE SETTING

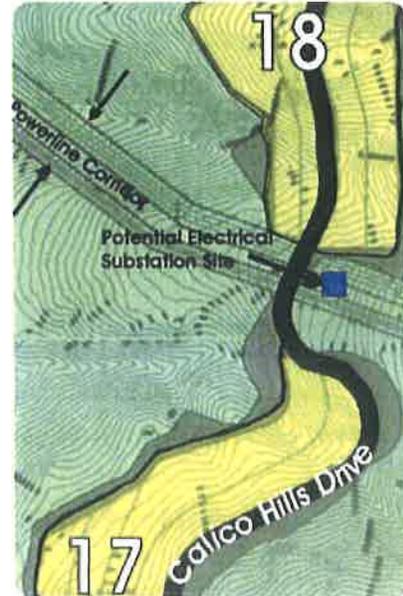
The project site is typical of the hills and Pah Rah Range east of Sparks. The hills have no trees and are covered with short grasses and shrubs. Rock outcroppings are common. Open water is rare. The land is exposed to the sun, wind and rain. Copper Canyon, shown in Figure 3-11, is typical of the natural setting, but the canyon walls and intermittent stream channel in the canyon floor are special features that shall be included in a natural park.

The landscape for the project area is designed to reflect the manmade technology in a setting characterized by strong natural forces and features. A key design objective is to make the manmade features, including landscape, signs and architecture, appear distinctly manmade, but an extension of the natural environment.

The typical landscape design shall apply:

- limiting intense landscape to small areas that appear as natural features;
- use of trees, shrubs and groundcover that complement the color and form of the native vegetation;
- providing a transition zone between the formal landscape and the natural setting; and
- merging high technology, manmade design elements with natural features.

There are three primary categories of landscape in the project area.



**FIGURE 3-10
LOCATION OF ELECTRIC
SUBSTATION**



FIGURE 3-11
VIEW OF THE EXISTING CONDITIONS AT COPPER CANYON

- **Category 1** includes a large area which shall be left undisturbed and in its existing condition.
- **Category 2** includes the special landscaped areas within the common area and the transitional zones between the formal landscape areas and the open space. In the transitional zones, the formal landscape shall transition to the undisturbed natural environment. The transition zone includes the landscape corridor along major streets and the area around buildings. The Wildfire Protection Landscape and the Landscape Adjacent to Natural Open Space Areas described in Section 3.5.1 Landscape In and Adjacent to Common Areas are in Category 2.
- **Category 3** includes the formal landscape around buildings and in parts of the common area. The landscape shall include small areas of irrigated plantings at project entries, at major intersections and other spot locations where a visual point of interest is appropriate to enhance a building setting or view. These landscaped areas should complement rather than clash with the native setting. The intent is to reflect the natural vegetation patterns found in this environment by using native compatible plants that require minimal irrigation.

Figure 3-12 (see page 3-18) shows the general location of application for each of the landscape categories.

LANDSCAPE INSTALLATION AND MAINTENANCE

All common areas, including pedestrian easements, streetscapes, open space, trails and detention basins shall be installed by the project developer/applicant and shall be maintained by the CCPOA established in Section 1.8 of this Handbook. Landscape around individual buildings and in the parking areas in developed plateaus shall be installed and maintained by the property owner in a manner consistent with these standards.

LANDSCAPE STANDARDS APPLICABLE TO ALL SETTINGS IN THE PROJECT AREA

The landscape standards for the Copper Canyon Plan Area incorporate and are supplemental to, the resource efficient landscape principles and standards established in Sparks Municipal Code Chapter 20.32, Resource Efficient Landscaping.

GENERAL PLANTING STANDARDS

- Plant species shall be tolerant of the environment in which they are grown with consideration to salinity, alkalinity, soil/water characteristics, soil physical properties, drainage and propensity to flooding, water tables and any other influential factor.
- Plant material shall be complementary in color, size and form to the existing on site vegetation.
- Except in limited, developed areas where a lush, high density appearance is desired, plants that can survive on low to moderate amounts of irrigation shall be used.
- Plants used for screening shall provide effective year-round foliage or branch structure.
- Plant species that produce objectionable fruit drop shall not be located adjacent to paved areas.
- All landscaped areas shall be maintained in a neat and attractive manner at all times. Minimum requirements include replacing dead or dying plant materials, mowing, watering and general clean-up.
- Plants shall be grouped with those that have similar growth and water requirements.
- In informal areas, a variety of sizes shall be planted to provide a more natural appearance.
- Use of plants for micro-climate control shall be encouraged around buildings and parking areas.
 - Deciduous trees to shade the south and west sides of buildings, parking lots and streets.
 - Evergreen trees for windbreaks.
 - Turf for cooling around intensively used areas.
- All graded slopes, except areas of exposed rock, shall be revegetated. This includes the residential lots by the homeowner of these lots.
- Areas of rock mulch without other landscape elements may be utilized only in areas where no other solution is feasible and is the subject of review and approval of the Engineering Manager and Administrator prior to issuance of a grading permit.

LEGEND

- Category 1 includes the open space.
A Portion of this area will be left undisturbed in the existing condition, or revegetated to a natural condition.
- Category 2 includes the special landscaped areas within the open space area, and the transitional zones between the formal landscape areas and the open space
- Category 3 includes the formal landscaping around buildings, homes and in parts of the common area.
- Tree Planting Areas
- Category 3 Roadway Landscape Corridor



**FIGURE 3-12
LOCATION OF APPLICATION OF LANDSCAPE CATEGORIES**

WATER FEATURES

Open water is rare in this arid climate and water features shall be used sparingly for special visual effects and to create special environmental effects. Pools, grottoes and falls, such as the examples shown in Figure 3-13, may be incorporated in the formal landscape at the project entries, major intersections and development plateau entries and around buildings. Landscape corridors and entry features may include dry water features, such as a naturalized channel or pool. These elements may be linked together as part of the on-site drainage system and may include small pools or falls. Permanent pools or falls may be included in landscape feature areas at major entries or around buildings. If such features are used, then they shall use recirculated water and shall not be part of the storm water drainage system.

3.5.1 LANDSCAPE IN COMMON AREAS (CATEGORY 1)

A portion of the existing vegetation shall be left undisturbed throughout the common areas. Plantings in the canyons, swales and selected areas along the face of slopes shall include native plants to enhance the habitat for local and migratory wildlife. Native grasses, wildflowers and shrubs shall be planted in these selected areas where the moisture, slope, soils and exposure are suitable. The Master Developer will utilize a local/regional expert in the creation of a revegetation plan for the project.

Section 1.6.7 Vegetation and Wildlife describes the overall plan for the enhancement of the native vegetation.

Trees shall be planted in the drainage and canyon open space areas of the site indicated in Figure 3-12. These plantings may include quaking aspen, choke cherries and several species of pine. The purpose is to provide a visual amenity with seasonal changing of colors and to provide a shaded corridor for a pedestrian path. Irrigation for trees may include controlled surface run-off from the developed pad areas up-hill from the corridors. Where developed area run-off is used for this purpose, the run-off shall be carefully controlled to avoid erosion and contamination with heavy metals, oils and other pollutants. This shall be controlled through construction of settling basins, sand and natural filtration systems upstream of any release to natural slope areas.

WILDLIFE HABITAT ENHANCEMENT

A major benefit of re-establishing the native plant regime is to induce the native species in the area to re-inhabit the



FIGURE 3-13
CONCEPTUAL ILLUSTRATION OF SMALL
LANDSCAPE WATER FEATURE

common area. The natural setting is an amenity that will add to the aesthetic quality of the project area. Wildlife present or expected to visit the project site includes deer, antelope, sagebrush grouse, chukar, quail, and local and migratory songbirds. Shrubs to be planted for enhancement of the sagebrush grassland habitat include various species of Sagebrush, Bitterbrush, Greasewood, Rabbit Brush, Hopsage, Winterfat, Serviceberry, Phlox and Wild Rose. Wildflowers and other specialized vegetation to attract migratory songbirds shall include Indian Paintbrush, Prairie Lupine, Mules Ear, Daisy and Stonecrop.

Special wildlife management strategies shall be included in the development and management of the plan area by the CCPOA to encourage current and former inhabitants to repopulate the area. Among the species targeted by this program are bats and larger mammals, including deer. The wildlife management strategy shall include a minimum of four (4) of the following measures:

- In order to attract bats and encourage them to remain and raise offspring, seasonal bat houses may be built on the project site.
- A year-round water source that will not freeze may be provided for ground dwelling and songbirds.
- When the trees reach maturity, horned and grey owls are expected to return to the project site. Poles with platforms may be built for bird habitat in these areas until the trees mature.
- Copper Canyon developers shall work with the Nevada Department of Wildlife (NDOW) to build a water guzzler on the adjacent Bureau of Land Management (BLM) property. This guzzler will provide drinking water for deer, antelope, chukar and quail. This location will have the added advantage of keeping some of the larger game animals and wild horses away from the main business park by providing water at the boundary of the property.
- Any wire fencing used to prevent cattle from entering the project site shall have a bare, bottom-strand so that animals will not become caught while crossing under the fence.

PEDESTRIAN TRAILS

Trails are informal paths that run through the common areas on developed plateaus to link the commercial, business park, recreational facilities and residential uses. The trails are intended to provide convenient pedestrian access from one use area to another. The trails within the plan area shall be linked to other trails in the adjacent public land, as well as developed trails in the D'Andrea projects and surrounding community.

- Trailheads shall be provided, where needed, with signs to identify trails and to provide directions to users.
- A trailhead for access to the BLM lands to the east shall be located at the eastern terminus of Copper Canyon Parkway. A turn around with a minimum 45' radius shall be provided to allow emergency vehicle

maneuvering. A gravel parking lot shall be provided east of Copper Canyon Parkway and the intersection with Calico Hills Drive. The location and design of the parking area shall be directed by the Engineering Manager, Parks & Recreation Director and Administrator.

- Where feasible the trails through common area shall follow the natural grade.
- Trails cut through natural, undisturbed terrain shall minimize removal of vegetation and grading as required to provide a smooth, safe traveling surface.
- Formal trails within Copper Canyon shall be 8-feet wide and concrete, or other material approved by the Engineering Manager, Parks & Recreation Director and Administrator. The trail construction method shall be subject to review and approval by the Parks and Recreation Director, Engineering Manager and Administrator where located in the Copper Canyon Open Space areas. These trails are not substitutes for providing pedestrian access by removing concrete sidewalks adjacent to public rights-of-way unless approved by the Parks and Recreation Director, Engineering Manager and Administrator. The intent is to provide a surface that shall support pedestrian and bicycle traffic. Where the path crosses a drainage swale a low wooden, steel or concrete structure shall be used. Figure 2-13 (see page 2-16) shows a conceptual illustration of the pedestrian and bike trail that parallels the arterial roads. Informal trails in the common area shall be hand-constructed earth paths as described in Section 2.1.5

3.5.2 LANDSCAPE ADJACENT TO NATURAL OPEN SPACE AREAS (CATEGORY 2)

Category 2 landscape includes the transition area around buildings and landscape corridors. The formal, on-site landscape shall gradually transition to the natural habitat. Projects adjacent to open space shall be designed to protect the integrity and function of the open space area.

The following general policies apply to landscape adjacent to natural open space areas:

- Landscape adjacent to the natural open space areas, including drainage swales and grasslands, shall require erosion and water quality control techniques to avoid run-off into the open space area. Of particular concern is run-off carrying herbicides, pesticides, fertilizers and eroded soils. Such control measures shall be integrated with the overall landscape design.
- Landscape materials in planting areas adjacent to the open space areas shall be non-invasive species compatible with the natural habitat of the preserve areas.
- Low earthen berms not more than 24-inches in height and/or shallow swales may be used to separate and delineate the natural open space from the formal urban landscape in order to maintain the security and privacy of the adjacent land use.

- The project developer, CCPOA and City shall take whatever steps are necessary to prohibit the disposal of lawn clippings, rubbish, or any other foreign material in open space areas.
- Where permitted by individual site development plans, tree-planting pockets abutting the setback area shall be developed between adjoining buildings or clusters of buildings or at “dead spaces” occurring within individual site development plans. The tree planting pockets are intended to introduce a rhythm of intermittent tree groves along the freeway edge.

WILDFIRE PROTECTION LANDSCAPE

All properties abutting open space areas shall comply with “defensible space” guidelines as adopted by the City of Sparks Fire Department. “Defensible space” is that area between a building and an oncoming wild land fire where the vegetation has been modified to reduce the wildfire threat and which provides an opportunity for fire fighters to safely defend the building. Landscape maintenance is a key element in overall good defensible space programs for buildings in wild land areas.

Nevada Law requires clearing of all flammable vegetation a minimum of 30-feet around homes and other structures. An increase in slope requires an increase in separation between the main structures and any flammable landscape. The property owner shall modify wild land fire intensity and behavior through landscape plans that include patterns of fire resistive vegetation and safe zones created by stone walls, patios, swimming pools, decks and driveway or roadway areas. The intent is to establish islands of plant groups that effectively break the continuity of flammable vegetation to modify fire behavior and slow the spread of fire.

Additionally cut and fill slopes shall have a ten (10) foot accessible area between the top of slope and the rear yard fence of single family residential units. This area shall be maintained by the CCPOA and kept accessible at all times. Pedestrian access for this area shall be provided by a ten (10) foot wide path and spaced to the approval of Sparks Fire Department.

Figure 3-14 (see page 3-24) illustrates the following standards that apply to landscape within a minimum of 50 feet of buildings. The standards shall extend out into the open space as necessary to assure creation of a fire safe area around all buildings.

- Use of lower growing herbaceous plants that can be kept green during the fire season.
- Use of lower growing deciduous shrubs.
- No un-irrigated coniferous shrubs.
- Deciduous shrubs and trees need to be kept green during the fire season and free of dead wood, ladder fuels and situated such that adjacent wild land vegetation cannot convey a fire.

The Master Developer shall review and approve, in conjunction with Sparks Fire Prevention Division and Administrator, the landscape design, installation of the approved landscape and maintenance of the approved landscape for all buildings or building complexes abutting permanent common area. Easements for the landscape areas shall be placed on final maps and the CCPOA shall be responsible for the the maintenance. This is to ensure that patterns of fire resistive vegetation, safe zones of hardscape material and building materials that are fire resistant are utilized to minimize loss during wildfires.

3.5.3 MAJOR STREET LANDSCAPE (CATEGORY 3)

Category 3 landscape includes the landscape corridors along the major streets. Major street landscape, or “streetscape” includes the primary and secondary street trees, accent trees and other plant materials. Streetscape also includes pedestrian and special street paving, site furnishings, lighting, signs, walls and fences. These elements will strengthen the project identity by establishing a cohesive look and creating design focal points.

The streetscape elements within the more intensively developed areas, including major project entries, village and business park entries, parkways and the village center shall be formal designs that relate to the architecture of the buildings. Figure 3-15 (see page 3-25) illustrates the formal landscape such as found along the street adjacent to a business park, office, commercial or multi-family residential use.

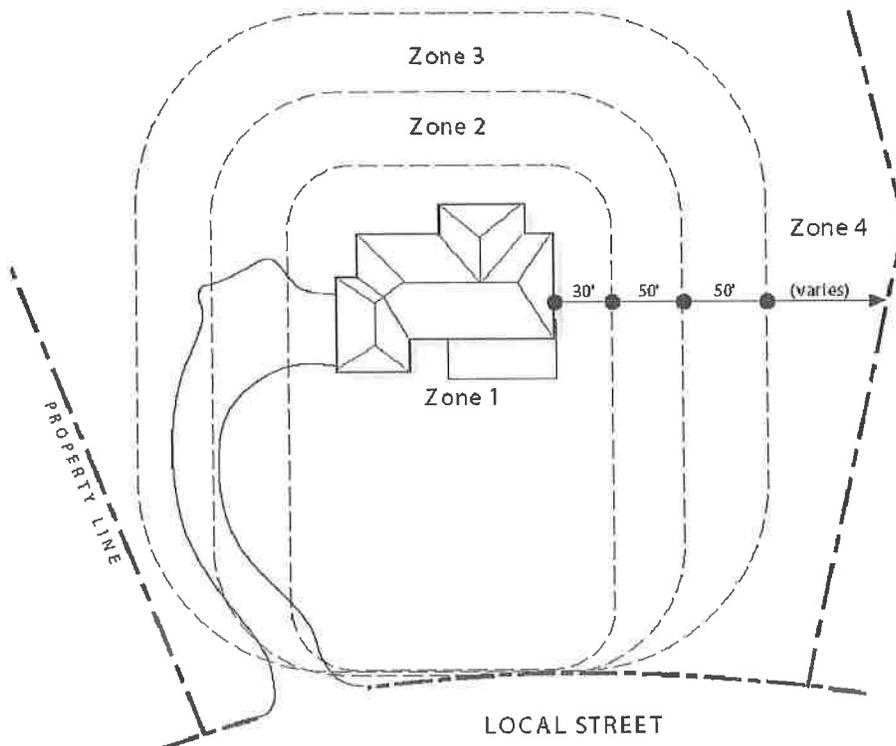
Streetscapes along the residential streets and adjacent to common area corridors shall be less formal and shall relate to the natural environment. The intent is to provide a landscape edge along streets that is compatible with the adjacent natural landscape. Where the street abuts common area, the landscape shall include trees and groundcover compatible with the adjacent common area. An example of informal landscape is shown in Figure 3-16 (see page 3-26). The areas adjacent to the commercial, high density residential and office uses shall take on a more formal look compatible with the on-site landscape and buildings as illustrated in Figure 3-17 (see page 3-26).

A master landscape plan shall be prepared for all major streets, entries and open space and shall be submitted with each final map application. The master landscape plan shall be subject to approval by the Administrator, the Parks and Recreation Director and the Master Developer. The ownership and maintenance responsibilities for all landscaping, including landscaping within public street right of way shall be by the CCPOA or lighting and landscape maintenance district. Easements for the landscape area shall be placed on all final maps.

GENERAL STREETSCAPE STANDARDS

All streetscape shall conform to the following standards.

- Streetscape shall be installed as a part of roadway construction to provide a continuous landscape along streets.
- Sight distance at individual intersections and driveways shall be in accordance with applicable ASSHTO



ZONE 1

“Cultivated Traditional Landscape”

- Irrigated trees, shrubs, lawns, flower gardens.
- No Trees over roof or near chimney.
- Built-in firebreaks (driveways, walks).

ZONE 2

“Transitional Landscape”

- Irrigation may be necessary.
- Low growing succulents and groundcovers.
- Native trees pruned, grasses mowed, shrubs are under 24”.

ZONE 3

“Enhanced/Natural Landscape”

- Planted, deep-rooted native vegetation interspersed with fire resistant groundcovers.
- Annual grasses mowed.
- Flammable dead fuels removed.

“Native Landscape”

- No added plants.
- Native plants thinned, pruned, removed so canopies do not touch.
- Flammable species removed.
- Properly spaced vegetation.

**FIGURE 3-14
FIRE SAFE LANDSCAPE BOUNDARIES AROUND BUILDINGS**

standards. Intersection design shall consider the location of fences, signs, landscape, parking zones and other sight obstructions to assure that the sight distance standard is maintained after development of the surrounding property.

- Visibility triangles that establish the sight distance shall be maintained at all intersections per AASHTO standards. No trees shall be placed within the visibility triangles.
- Maintenance of all landscape within the common areas for the parkways, boulevards and collector streets shall be the responsibility of the CCPOA as established in Section 1.8 of this Handbook.
- Cluster trees in common areas near pads.
- Connecting roads may be void of trees to prevent line of sight conflicts.

The primary trees, accent trees and shrubs used in the project shall be selected from species lists as approved by the Administrator.

PRIMARY TREES

Primary street trees create rhythm and soften the visual environment. The trees provide shade for bikeways and sidewalks to make these environments more comfortable in warm weather and encourage people to walk or bicycle. In addition, these same deciduous trees will lose their leaves in the fall and winter months allowing sunlight to penetrate the areas below.

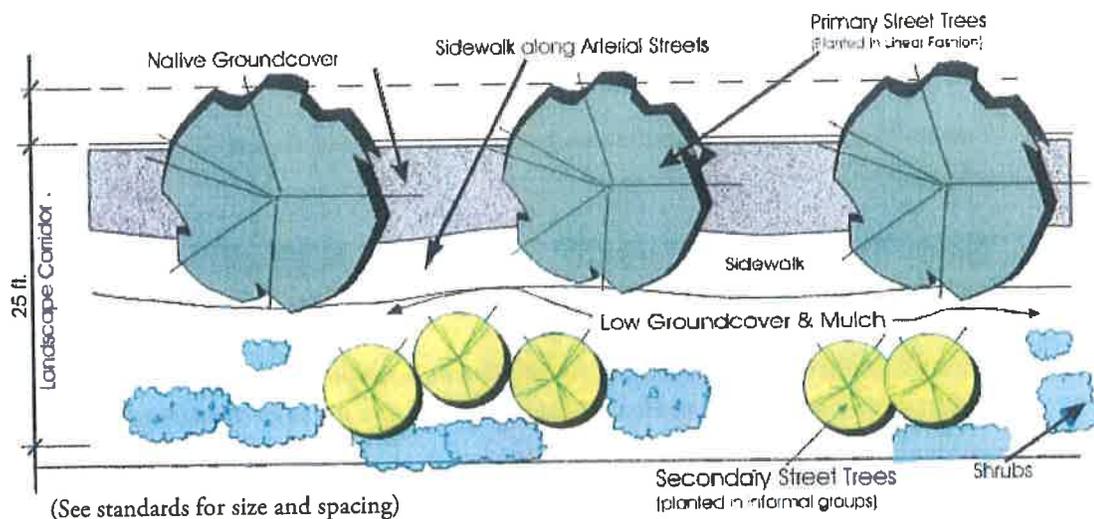


FIGURE 3-15
DESIGN CONCEPT FOR CATEGORY 3 FORMAL LANDSCAPE AREAS



FIGURE 3-16
EXAMPLE OF INFORMAL LANDSCAPE



FIGURE 3-17
EXAMPLE OF FORMAL LANDSCAPE

- The master landscape plan shall select the tree species for Copper Canyon Parkway, Silver Stream Road, Eastern Slope and Calico Hills Drive. Tree species may be repeated throughout the project. Different cultivars of the same species may be used on a single street.
- Street tree requirements shall be equal to that of 30' on center but may be clustered.
- 50% of deciduous primary street trees shall have a caliper of 2" and 50% of deciduous primary street trees shall have a caliper of 3".
- Evergreen trees shall consist of the following height mix at the time of planting: 50% at 6' height, 20% at 8' height and 20% at 10' height (measured from finished grade to tree apex).
- Primary street trees shall be 80 to 90 percent of the street trees planted along the parkway.
- Trees shall be planted at sufficient distance from both the curb and the sidewalk to accommodate their ultimate growth.
- Trees shall be planted with consideration for the shadow that may be cast on the street during snow or ice conditions. The intent is to avoid creating a permanently shaded location.
- On collector streets fronting common areas or adjacent to properties not within the Copper Canyon development, landscape shall include a random pattern of native species to complement and enhance the existing plant community.
- The arterial street median shall have a minimum planting bed width of 8 feet and shall include a perimeter-working zone for maintenance personal safety.

- Within the median, primary street trees shall be planted at a density equal to approximately 50' on center.

ACCENT TREES

Accent trees are used to emphasize the sense of arrival, add a sense of enclosure to a space and establish the importance of the area.

- Accent trees shall be 10 to 20 percent of the street trees planted along the parkway.
- Accent trees shall contrast and complement street trees and shall provide seasonal interest such as flowering and/or fall color.
- Accent trees shall be planted equal to that of 50' on center but may be clustered as appropriate to the ultimate growth habit of the tree species and shall have a minimum caliper of one and a half (1-1/2) inches or larger D.B.H. (diameter at breast height) at the time of planting. Accent tree sizing should correlate to the primary tree height.

SHRUBS/GRASSES

Shrubs/grasses shall serve as visual barriers to man-made elements, including fences and walls, retaining walls and utility equipment.

- A minimum of 6 shrubs per tree shall be required.
- Placement shall not obstruct important pedestrian or vehicular sightlines.
- Shrubs/grasses shall be selected according to size, color, texture and seasonal interest. Native species, including sagebrush shall be included in the plant palette.
- A minimum of 60% of the shrubs/grasses installed shall be 5 gallon size or larger.

GROUNDCOVERS

The primary function of groundcover is to soften the visual environment in form and color. Groundcovers also provide weed control, moisture retention in the soil, erosion control and moderate temperature for plant roots. The following standards shall apply.

- Use of lawn shall be limited and used in areas to accent entries, intersections and complement adjacent to formal landscape adjacent to buildings. Use of alternative living ground cover, stone or mulch material in all other landscape and planter strips is subject to the approval of the Master Developer, Engineering

Manager and Administrator, prior to the approval of improvement plans and issuance of grading and/or building permit.

- Groundcover selection shall take into consideration the overall pedestrian use of the area. If the area is intended for active pedestrian use, such as in the parks and pedestrian corridors, then lawn type groundcovers shall be used. Use of stone or mulch is preferred to reduce maintenance and irrigation. These may include bark, stone and cobble stones. Mulch shall be layered a minimum of four inches over a weed barrier fabric on the finish grade. A maximum of 10% of the material may be inert.

EARTH BERMS, MOUNDS AND SLOPES

Earth berms and mounds are permitted within landscape corridors to control surface run-off and to provide visual interest.

- Slopes within the landscape corridors shall not exceed 3:1 without the approval of the Engineering Manager.
- No slopes greater than 3:1 are allowed on residential lots.
- "Rip Rap" shall not be allowed as a stabilizing treatment on slopes 2:1 or greater. Slopes exceeding 2:1 may be treated with fabrics or other treatments as approved by the Geotechnical Engineer and Engineering Manager.
- Slopes that exceed 2:1 shall only be permitted with the approval of the Geotechnical Engineer with the concurrence of the Engineering Manager. Excavated or "cut" slopes that exceed 2:1 and are primarily comprised of native rock, do not require a living groundcover or mulch.
- Berms shall be used to screen automobiles where the parking area is above the adjacent street, as shown in Figure 3-18.

IRRIGATION

Irrigation of planting areas is regulated by SMC Section 20.32.090 (M). In addition, the following standards apply:

- All plants shall be grouped into zones according to their water requirements, with one valve per zone to minimize over watering, as identified on all landscape plans.
- All developed areas shall have automatic irrigation systems.
- Drip irrigation shall be used except in turf areas and mass plantings of ground cover. See also Section 3.5.2 (Urban/Wild land Interface Zone) regarding spray irrigation at the perimeter of developed areas.
- Spray heads shall be used for the turf areas and solid masses of ground cover. All spray heads shall be low

precipitation rate heads.

- Irrigation design shall provide head-to-head spray coverage to all areas to be irrigated, except where bubblers or acceptable drip lines are used and shall account for prevailing winds.
- Backflow preventers in landscapes shall be located near the user's connection at a distance practical for safety concerns. Backflow preventers shall be screened from obvious views for aesthetic reasons. Backflow preventers in privately maintained landscapes shall be located away from obvious views and substantially screened. Insulated covers shall be required for all back flow preventers and all irrigation lines shall include drains.

3.6 STREETScape ELEMENTS

The streetscape elements are the improvements in the common areas along streets except the living landscape. The streetscape includes:

- hardscape surfaces (sidewalks)
- street furniture (benches and trash receptacles)
- decorative paving on private property
- public art
- walls, screens and fences
- project entry features
- project signs and directional signs

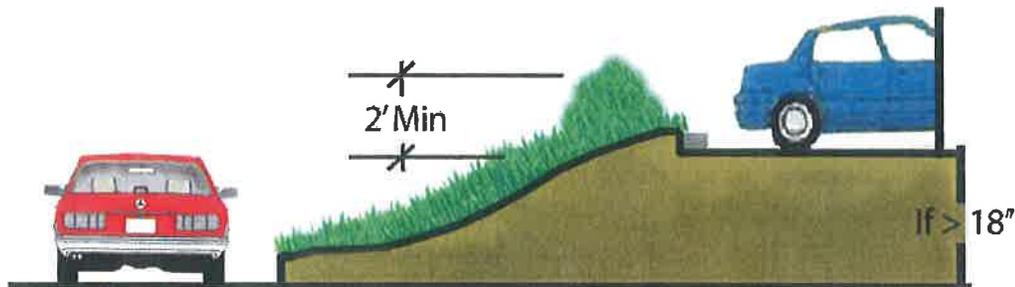


FIGURE 3-18
PARKING AREA SCREENING

- street, landscape and pedestrian lighting

The theme for all of the streetscape elements is high technology in a high desert setting. Copper Canyon is intended to be the home of high technology set in the beauty of the high desert overlooking Truckee Meadows and the Sierra Nevada. The developed areas of Copper Canyon should provide a visual reminder of the technology in the businesses on-site and the natural features, including the open hillsides, vegetation, sun, wind and rain. Manmade objects should be clearly manmade and should reflect the technology occurring in the surrounding buildings.

The theme of high technology in a high desert setting shall be expressed in the manmade elements of the site in the following manner:

- Rustic elements that appear rough-hewn are not appropriate.
- The manmade elements shall relate to the natural setting by incorporating rock outcrops or other natural elements in the design. An example would be a smooth monolithic form rising from a rock outcropping, as though it grew out of the natural landscape.
- The streetscape elements shall have simple forms in subtle contrast with the relatively complex rock forms and natural landscape.
- Metal, stone, concrete, terra cotta, glazed tile and plaster are acceptable materials. Wood may have a limited role, but is not suitable for most purposes due to the harsh environmental conditions of the site. Light colored concrete, plaster or stucco shall be a dominant, but not exclusive material.
- Plastics and other manufactured materials may be considered for limited purposes where they satisfy the characteristics desired in the streetscape.
- Colors of the manmade elements shall be complementary to the natural colors in the project area. This shall include grays, brown, cream, caramel and muted greens, blues and warm colors such as mauve. The color palette available in the natural setting includes a broad range of hues but few bright, saturated colors. The manmade features shall relate to the natural setting in selection of colors.
- The Copper Canyon logo shall be incorporated in monuments, walls and streetscape features within the common areas owned and operated by the CCPOA and in the landscape corridors along the major streets.
- All signage and monumentation within the ROW shall be designed and constructed in accordance with the SMC and the MUTCD. Installation is to conform to AASHTO spacing requirements.

One objective of the streetscape is to establish a sense of place and design quality for the project. This is accomplished by using the same materials and/or forms in similar fashion throughout the project area. It is also accomplished

by using the same design element, such as the Copper Canyon logo in a consistent fashion throughout the project. This distinct form will help establish project identity and be used in project entries, on directional signs and monument signs. The final design of the feature shall be determined in the final landscape and streetscape design submitted with the final subdivision map, Special Use Permit or Site Plan Review Permit applications for the proposed developments within the project. These features shall include the following characteristics as illustrated in Figure 3-19:

- A major element constructed of smooth or lightly textured concrete. Stonework may be incorporated in the sign, particularly at the base. On sloping areas, the landmark should project out from the slope.
- The concrete shall be a light beige or sand color.
- A horizontal form with the length approximately two to three times the height.
- Where used as a monument for directional signage or to identify a specific use or area the feature shall project out perpendicular to the slope or in relation to the street front.
- The Copper Canyon logo shall be integrated into the feature with separate materials or as an imprint in the concrete.
- The logo shall typically be constructed of metal and front lighted, although acrylic, glass or other durable translucent material may be used subject to the approval of the Master Developer and Administrator. Figure 3-20 (see page 3-33) illustrates typical coloration of the logo.
- The name "Copper Canyon" shall be included on both sides of the feature. The lettering shall be in a font specified in the final landscape and streetscape design submitted with the planned development for the project. The height of the letters shall not be more than one-quarter the height of the entry feature. A permissible alternative is to imprint the letters in the concrete as an integral part of the feature.

3.6.1 HARDSCAPE (SIDEWALKS, CROSSWALKS AND PLAZAS)

The hardscape including sidewalks, crosswalks and plazas not only provide a continuous pedestrian circulation network, they can also be a visual design element that helps tie the entire project together and identify special locations in the plan. The utilitarian function of the sidewalks is seen in the variety of paved sidewalks and paved paths in the landscape corridors and open space trails. The special design features are seen at crosswalks, in the sidewalks adjacent to the major activity centers and in the public plazas.

- Sidewalks in the landscape corridors adjacent to streets shall be constructed of concrete per SMC.
- All sidewalks shall adhere to the guidelines established by the Americans with Disabilities Act (ADA) where applicable.

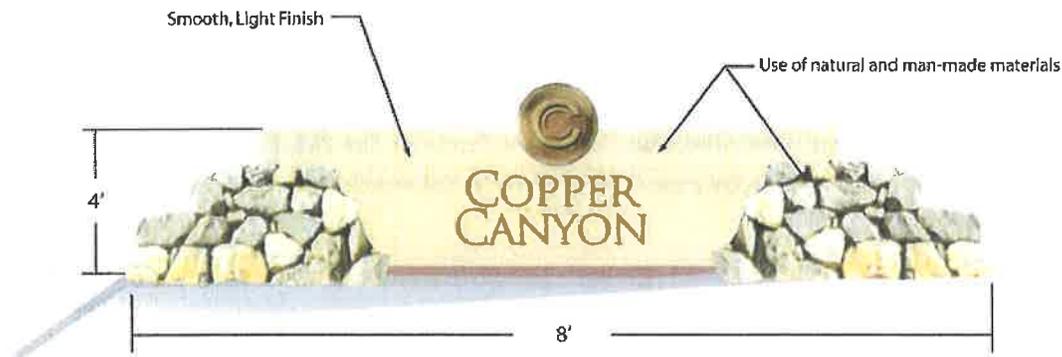


FIGURE 3-19
CONCEPTUAL ILLUSTRATION OF ENTRY FEATURE

- Trails in Copper Canyon may be constructed of concrete, asphalt or decomposed granite with durable edge treatment as appropriate to the environmental setting and purpose of that portion of the trail depending on the conditions to the approval of the Parks and Recreation Director, Engineering Manager and Administrator (refer to Section 3.5.1 - Pedestrian Trails).
- Trails in open space may be constructed of compacted decomposed granite or stabilized soil depending on the conditions and subject to the approval of the Parks and Recreation Director, Engineering Manager and Administrator (refer to Section 3.5.1 - Pedestrian Trails). Formal trails shall be 8 feet wide subject to the review and approval of the Parks & Recreation Director, Engineering Manager and Administrator. Informal trails in the undeveloped hillside areas will be single track, 24 inches wide, bare earth trails designed solely for recreational use subject to the review and approval of the Parks & Recreation Director, Engineering Manager and Administrator.
- Major streets adjacent to the high activity land uses (hotel/casino, sports club, apartments and village center) shall feature a 25 foot wide landscaped corridor on both sides of the street provided this can be accommodated considering the steep terrain and native materials in some areas.
- The sidewalks between the village center, sports club, senior housing, apartments, town homes and hotel shall be designed to encourage walking. The sidewalks shall:
 - be well lit with pedestrian scale lighting; (refer to Section 3.6.3)
 - be set back from the curb where feasible; and
 - provide benches outside of the primary pedestrian traffic flow.
- At major entries to individual parcels in the business park, commercial areas, sports club and multi-family areas, the crosswalk shall be clearly marked and may be paved with durable materials such as stone



FIGURE 3-20
COPPER CANYON LOGO

pavers or comparable material if outside of the public ROW. The crosswalk must be able to withstand temperature differentials, heavy traffic and snow removal. Stamped or textured concrete is not acceptable unless color is integral to the concrete. The crosswalk shall be 10 feet wide. Where the street includes a center median, the crosswalk shall provide a secure rest island at the median. This is accomplished by placing bollards on both sides of the median area spaced wide enough apart to allow a person in a wheelchair to safely pass through.

The continuity and convenience of the pedestrian system is important to encourage residents and workers to walk when feasible, rather than drive their car. The hilly topography of the site is inherently a disincentive to walk. Therefore, it is important to provide safe, direct convenient walkways to all parts of the project area. Simple design considerations, such as ensuring that there is a direct route from a building's primary entrance to the nearest sidewalk along a major street may determine whether people ever choose to walk in that area as shown in Figure 3-21 (see page 3-35) and 3-23 (see page 3-37).

- All non-residential buildings shall include a minimum of two sidewalks from the primary entry of each building to the sidewalk along the nearest major street. Where the sidewalk passes through a parking lot, the sidewalk shall be protected from the vehicles by placement of bollards along both sides of the sidewalk, or by a separated path protected by landscape and trees.
- Pedestrian paths in parking areas shall be well lit with pedestrian scale lighting.
- Where a bus or shuttle transit stop is provided, the sidewalk from the major building shall be designed in cooperation with RTC.

3.6.2 WALLS AND FENCES

Walls and fences shall not be common in Copper Canyon because the land uses in the project area are typically separated by common area that serves to separate and buffer land use. Walls and fences will be used to provide security and screening under any of these, or a combination of these five conditions:

- Where a land use must be screened from adjacent traffic.

- Where the wall is an integral element of a project entry.
- Where security is required at single-family residences and commercial or business park buildings.
- Where trash enclosures or utility services must be screened from public view.
- Where walls are used to stabilize slopes or reduce earthwork and reduce disturbed areas.

The locations where walls and fences may be used on the major roads are shown in Figure 3-23 (see page 3-37).

GENERAL STANDARDS FOR FENCES AND WALLS

- Fencing adjacent to common area around residential parcels and parcels in the business park shall be an open style.
- Privacy fences in the residential areas between residences shall use a solid wood fence or wall.
- All fences and walls shall be approved by the Master Developer and the City either in improvement plans for perimeter walls or building permits for individual buildings, or final maps.
- Wood retaining walls are not permitted.
- Fences and walls shall be attractive from both sides.

WALLS ALONG MAJOR STREETS

- The intent is to have the landscape, rather than walls, be the dominant visual element in the corridor. Therefore, rockery walls shall be used only where a land use directly abuts a major street and requires screening, or where the wall is integral to the project entry. The walls will eventually be a background element screened by the landscape materials as shown in Figure 3-24 (see page 3-38). Signature or logo elements that are cast or otherwise incorporated in the stone face may be included within pilasters at road entries into projects.
- The top of rockery walls shall run horizontally.
- Pilasters or columns in masonry walls shall be used at each side of vehicular entrances and pedestrian walkway entrances and at each angle point (change in direction) to enhance wall aesthetics.
- Pilasters and columns shall be constructed of materials complementary to the rockery wall. Acceptable materials include masonry block, brick, stone, cobble and stucco finish and may include embellishments such as logos or abstract designs incorporated in the column or pilaster design. Such embellishments

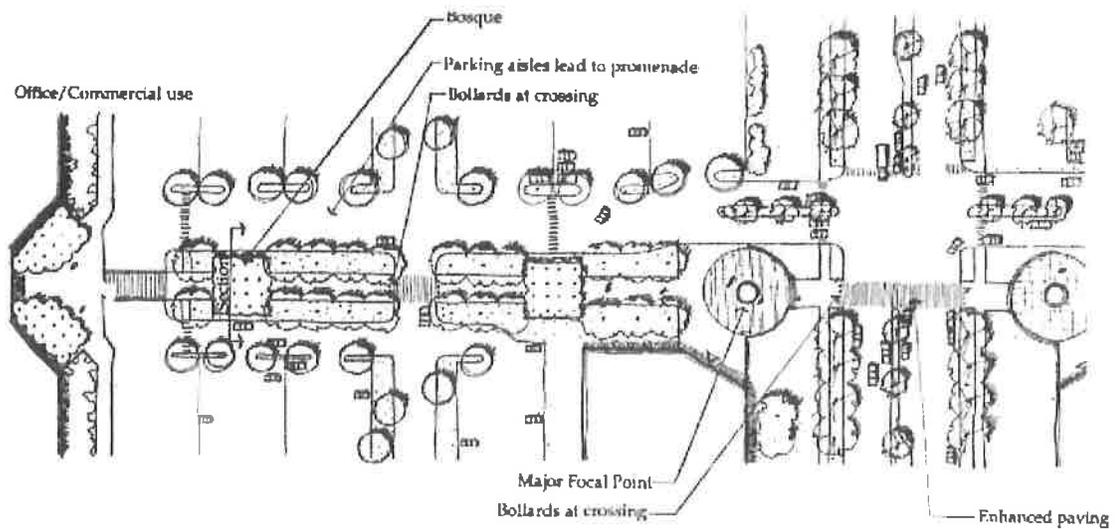


FIGURE 3-21
SEPARATE PEDESTRIAN WALKWAY CONNECTING PRIMARY BUILDING ENTRY TO STREET

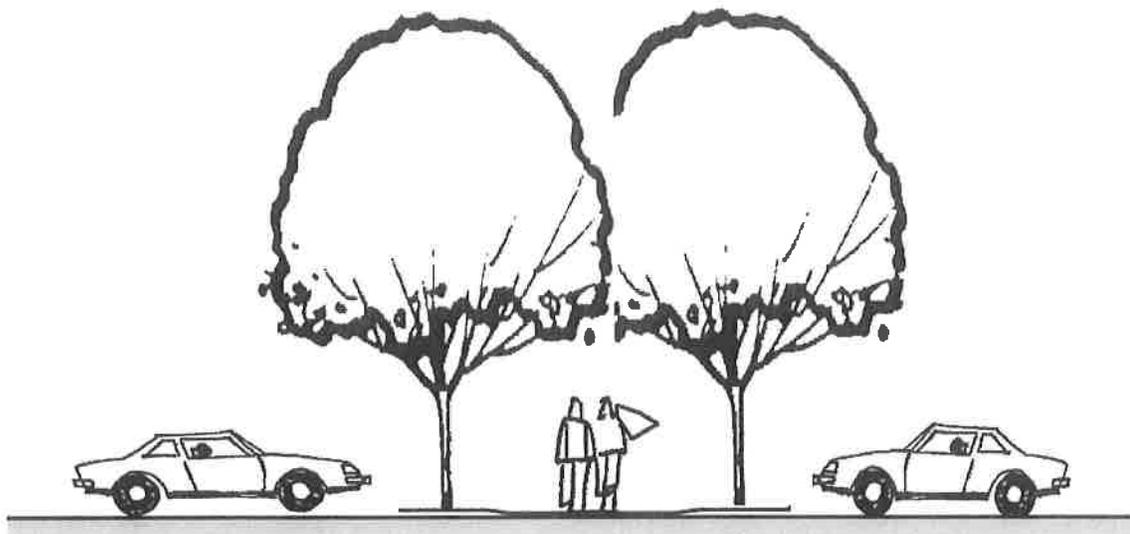


FIGURE 3-22
CONCEPTUAL CROSS SECTION OF SEPARATED PEDESTRIAN WALKWAY IN PARKING AREAS

must show at least two inches of the column around all edges of the embellishment. Embellishments shall be constructed of materials and colors compatible with the design of the column or pilaster and shall be clearly an integral element in the column design.

- Pilasters and columns shall have sufficient bulk and dimensions to appear in proportion to the height and mass of the rockery wall. Pilasters and columns shall not be less than 18-inches in any dimension at the base and may be circular or square.
- Adequate sight distances shall be maintained along roadways and intersections according to City of Sparks code and accepted engineering practices. Engineering shall be provided with the final map and/or building permit approval.
- Fences/walls shall not exceed six feet in height, except where practical to accommodate a grade change. The maximum height at grade changes is 8ft. Pilasters shall not exceed ten (10) feet in height except where wall height is increased to accommodate grade change.
- Wooden fences shall step, rather than slope, to accommodate grade changes. The top of a wood fence shall be of uniform height and shall avoid a sloping top-plate. Undulations of the bottom of the fence to conform to site grading are permissible.
- Fences and walls shall not abut sidewalks. A minimum six-foot landscaped separation is required between sidewalks and fences or walls. In steep areas where the separation is impractical because extensive grading would be required to accommodate the road and sidewalk, the wall shall be eliminated.
- All masonry walls shall receive an overcoat of anti-graffiti treatment/preparation.
- Wall heights will be evaluated relating to shading of roadways during winter months to minimize non or slow melting patches of snow or ice on the south side of roadways in the Design Guidelines that will be submitted to and approved by the City of Sparks.

RESIDENTIAL FENCES

Residential fences are used only in the single-family neighborhoods and in the townhomes.

- Prior to approval of the final map for each of the residential areas, the Master Developer shall approve the design of all fences and walls that will be used in common areas or along public streets within the entire residential area. The design shall include the primary material and pattern of the fence, the color of the fence, supports, columns or pilasters and details.
- The color or stain of the fence shall be the same in each of the residential areas.

LEGEND

- Typical Open Fence Location
- ◆ Major Entry Feature
- ◇ Secondary or Neighborhood Entry Feature

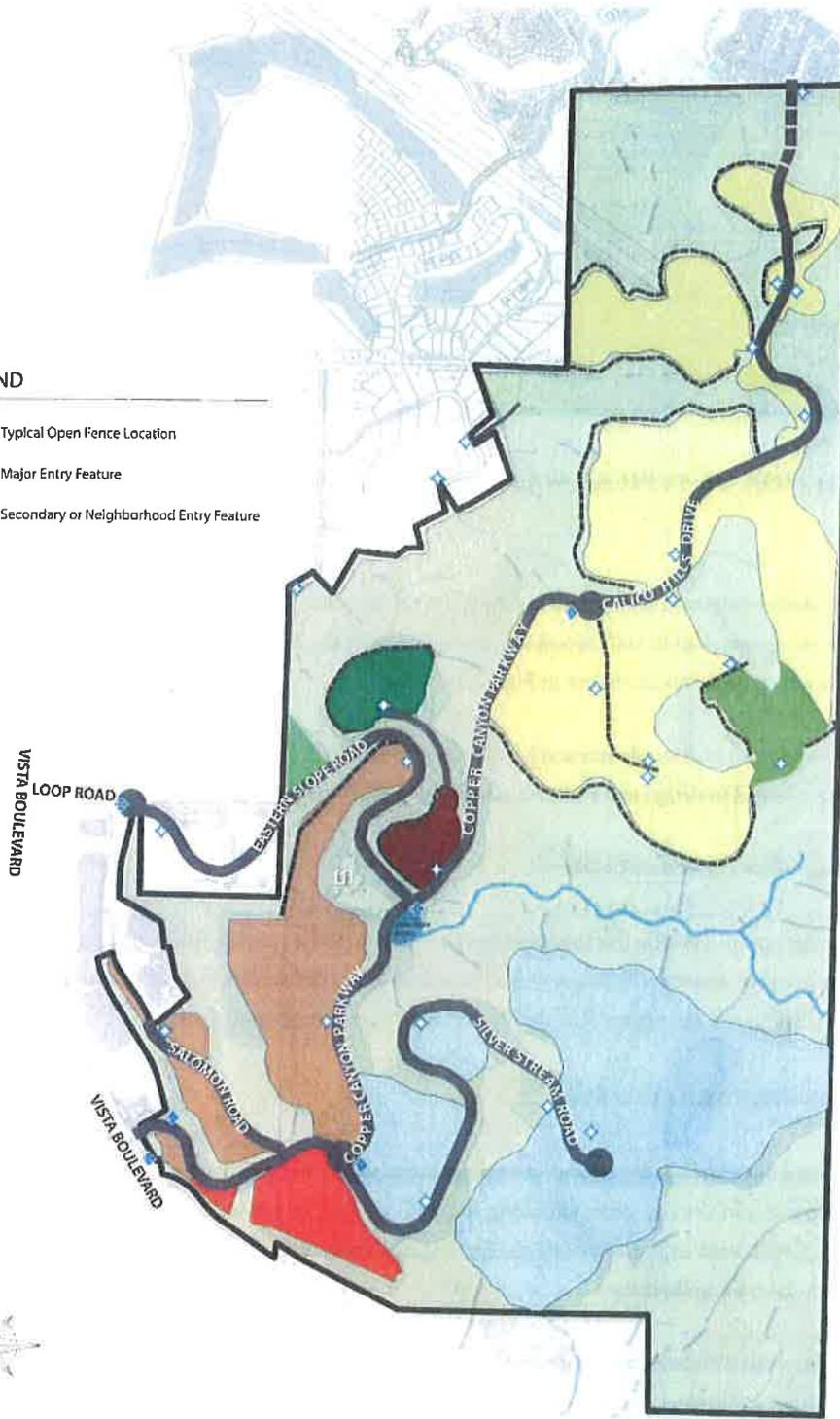


FIGURE 3-23
PERMISSIBLE LOCATIONS OF WALLS AND FENCES IN COMMON AREAS AND ALONG STREETS

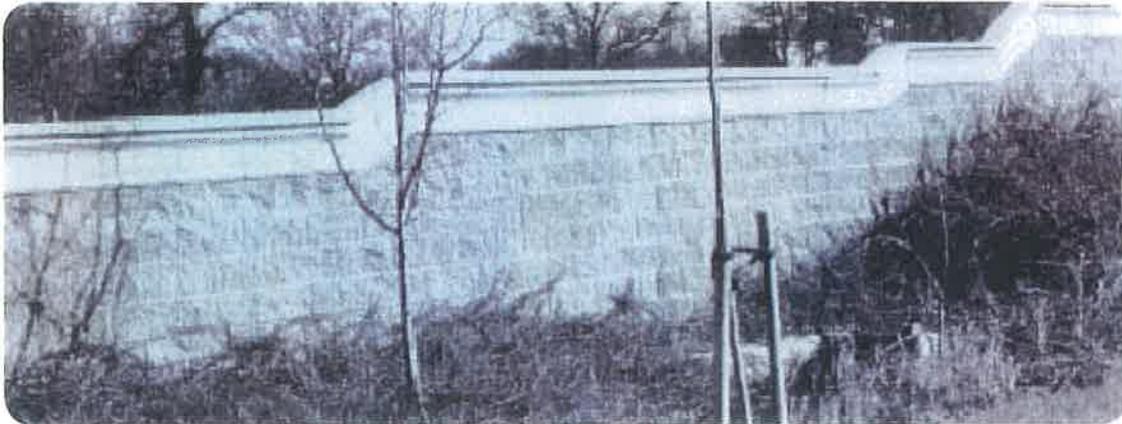


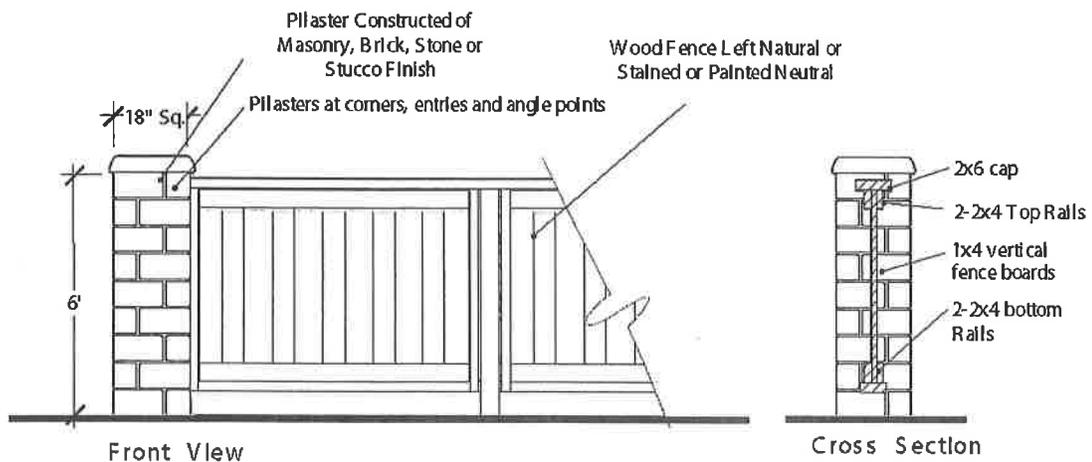
FIGURE 3-24
ILLUSTRATION OF TYPICAL MASONRY WALL IN RESIDENTIAL AREA

- Rear and/or side yard fences that screen views of rear yards and provide privacy for residents adjacent to collector streets shall be solid wood or masonry. A typical wood fence with pilasters, such as would be used along collector streets, is shown in Figure 3-25.
- Fence supports, such as pilasters and posts shall be in scale with the purpose and context of the fence. They shall be coordinated in design and materials complementary to the primary building material and architecture.
- No chain-link fences shall be allowed.
- Open wrought iron style fencing, as shown in Figure 3-26 (see page 3-40), shall be used in rear or side yards that abut common area. Opaque wood fencing or walls shall be used only where needed for safety, security and/or privacy to the approval of the Master Developer and Administrator.

ROCK WALLS ON STABILIZED SLOPES

Rockery walls used in stepped pads complement the setting of the project area as shown in Figure 3-27 (see page 3-40). Natural rock outcrops in the site, especially along the walls of Copper Canyon, are a dominant visual feature of the project. Rockery walls used to accommodate changes in slope and as elements of the landscape provide a strong visual connection with the existing conditions.

- Rockery walls shall be permitted on stabilized slopes adjacent to roads and in development pad areas where there is a change in terrain along the street edge and in parking areas and building sites.
- The walls shall be constructed of on site rock materials that match in color the rock outcrops on the project site. Typically, these colors range from buff to dark brown and rust. Granitic rocks that tend to bright black or white



**FIGURE 3-25
TYPICAL ENHANCED WOOD FENCE WITH PILASTERS**

colors are not compatible.

- Rock walls over three feet in height shall be engineered by a geotechnical engineer. The maximum height of all rockery walls shall be limited to six (6) feet in height from the finished grade. All walls shall be designed in accordance with the latest City of Sparks standards to the satisfaction of the Engineering Manager.
- Rock walls shall follow the terrain and meander relative to the edge of streets or parking areas. Variable setbacks and variable heights will add to the natural look of the walls and make them appear to be a part of the natural setting.
- Rockery walls shall be reviewed and approved by the City that includes the geotechnical engineer's report.

INTERIOR SECURITY WALLS AND FENCES

- Commercial/Office fences and walls shall be permitted only where they are an architectural element attached to the building. The wall shall coordinate with the styling, detailing, materials and colors of the associated architecture and is subject to the approval of the Administrator and the Master Developer.
- All perimeter fences shall be an open style, as shown in Figure 3-26.

UTILITY, LOADING DOCK AND REFUSE STORAGE SCREENING

Screening is a form of fence or wall used in the commercial or business park settings to ensure that the less attractive

utilitarian areas are not readily visible from public use areas. All screening is to be in accordance with the DSM. Limited loading and unloading hours (from 10pm-7am) to prevent interference with traffic and pedestrians.

- Transformers, terminal boxes, meters, fire risers, backflow preventers and other similar facilities shall be screened to the extent practicable, while still maintaining minimum clear areas around the equipment as required by the utilities and state law.
- Service areas shall be located to minimize visual impacts from pedestrian corridors and adjacent streets. Exterior storage shall be confined to portions of the site least visible from public view.
- No outside, unscreened storage is permitted. Loading, service, equipment and refuse enclosure areas shall be fully screened by a combination of fencing, masonry walls, grade separation and/or dense landscape, as illustrated in Figure 3-28.
- Full screening means that the service or enclosure area shall not be directly visible from six feet above any ground or ground floor elevations at a distance closer than 500 feet. Screen heights shall be a maximum of six feet high.
- All refuse storage areas shall be constructed and contained to eliminate odors, insects and rodents, dust or other potential nuisances, as shown in Figure 3-29 (see page 3-42) to the approval of the Administrator and the refuse disposal service provider. Trash containers shall have a secure cover where they are visible from adjacent properties or buildings. All trash enclosures shall receive an overcoat of anti-graffiti treatment/preparation.
- All refuse storage areas shall be self-contained to prevent spillage or leaching of liquids or other materials into underlying soils and designed to contain all refuse deposited between collections.



FIGURE 3-26
TYPICAL OPEN STYLE FENCE



FIGURE 3-27 TYPICAL ROCKERY WALL

- The electric substation shall have a solid fence or wall with a minimum 10 ft. wide landscaping buffer outside of wall or fence.

SCREENING OF EXTERIOR MECHANICAL AND ELECTRICAL EQUIPMENT

- Any equipment, whether on the roof, side of building, or ground, shall be screened from adjacent streets. The method of screening shall be architecturally integrated in terms of material, color, shape and size. The screening design shall blend with the building design. Where individual equipment is provided, a continuous screen is required.
- Mechanical equipment, satellite dishes, antennas and other similar structures shall be ground-mounted where feasible. If not ground-mounted, such equipment shall be generally screened from the view of streets, adjacent properties and areas open to the general public through the use of decorative parapet walls, roof wells, or other means incorporated as an integral part of building design.
- All noise generating mechanical devices shall be of low emission design and/or located and screened with noise reduction barriers so that the potential noise nuisance to abutting properties is minimized.
- All screens, fencing and retaining walls shall be compatible in material, color and texture with related buildings.

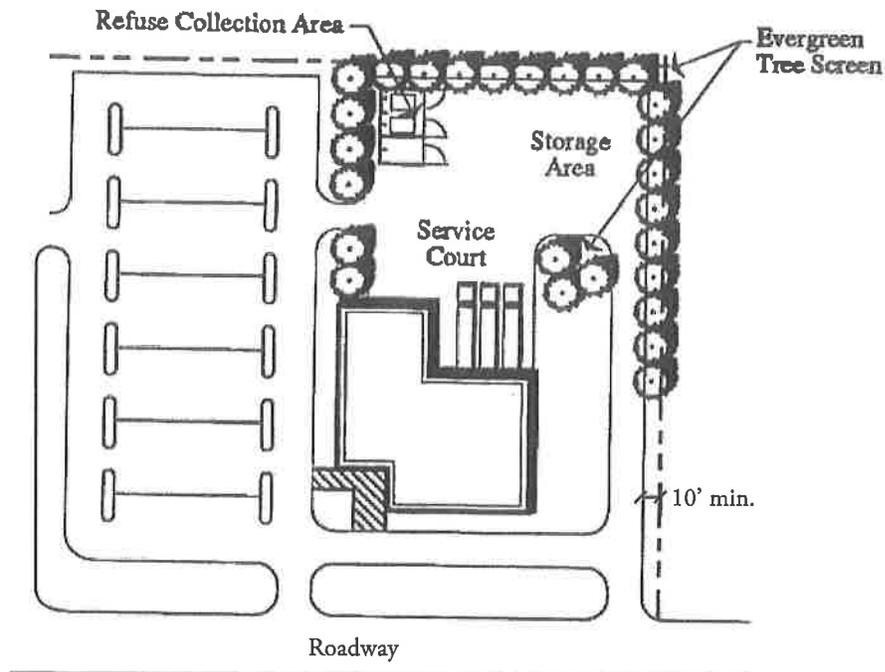


FIGURE 3-28
SERVICE AREAS SCREENED FROM STREET

- All rooftop utility and mechanical equipment shall be screened by the building elements rather than an open lattice enclosure. The parapet profiles shall equal the height of adjacent rooftop equipment. All mechanical and utility equipment shall be painted in colors compatible with the color of the roof.
- If located near the edge of the building, all mechanical screens and penthouse structures are to be integrated with the facade of the building. Screens shall be continuous and solid (no picket fences permitted). Roof "hats" are not permitted. Variations in roof height and profile shall be used to conceal mechanical equipment.



FIGURE 3-29
TYPICAL REFUSE COLLECTION AREA IN COMMERCIAL AND OFFICE/RESEARCH AND DEVELOPMENT AREAS

3.6.3 LIGHTING

Lighting is an exceptionally important consideration in the project area because of the potential visual impact. Bright lighting within the project will be clearly visible from the west and will unnecessarily change the visual character of the Sparks community at night. Therefore, it is essential that the lighting in all aspects of the project, especially street lighting, exterior building and landscape lighting be designed to avoid light spillage and glare that will be visible from the valley.

Within the project, area lighting shall be used for visual effect in the landscape and among buildings to provide an attractive nighttime setting. The uses in Copper Canyon, especially the business park, hotel and village commercial area, will operate during the evening and nighttime. The lighting shall be designed to enhance the experience and to encourage people to visit these places throughout the evening hours.

GENERAL LIGHT STANDARDS

All exterior lighting shall comply with the following standards.

- A street lighting master plan shall be approved by the Engineering Manager prior to approval of any development of the individual development pads or parcels within the planned development. Streetlights shall comply with the City's street lighting standards and provide safe illumination of roadways while minimizing glare. At minimum, streetlights shall be located at all intersections, pedestrian crossings, bus stops and traffic circles. All streetlights shall be consistent throughout the Copper Canyon project. The scale and spacing of the streetlights shall reflect the street hierarchy. Through a Street Light Maintenance Agreement between the Master Developer and the City, there shall be provisions for adequate maintenance and replacement when necessary.
- An area lighting plan that includes all exterior building lighting, parking area lighting and landscape lighting shall be approved by the Master Developer, the Fire Marshal, the Police Chief and the Administrator through the Site Plan Review Permit process prior to issuance of a building permit for each building on each development pad except the single family dwellings.
- All lighting shall be low level and focused on the task. Fixture scale and illumination levels shall be consistent with the specific use.
- Lighting shall employ cut-off fixture, refractors, or housing shields to eliminate lighting spillover onto adjacent properties.
- Project lighting shall not create glare for project occupants or neighboring properties.
- The design of exterior lighting shall, in all cases, consider the long-term energy demand of the lighting program.
- At the time of building permit a photometric plan shall be submitted with all non-residential development and shall demonstrate zero foot candles at property lines.

LIGHTING DESIGN STYLE

The lighting fixtures throughout the project area shall reflect the high technology function of the business park. This is expressed in designs that use clean, sculpted lines and hard finish materials. Typical examples of the lighting poles, standards and fixtures acceptable in the project are shown in Figure 3-30 (see page 3-45). The specific lighting standard for each use in the streetscape and common area shall be specified in the lighting master plan approved by the Master Developer and Administrator. The lighting fixture design style shall meet the following criteria:

- Poles and standards shall be constructed of metal, composites, or concrete and may include stone columns or bases. Wood is not an appropriate material for lighting poles, standards or armatures.
- Poles and standards shall have clean lines and shall be a cylindrical form, although stone columns or bases may be rectangular or square. Variations such as tapering and fluting shall be permitted.
- Lighting hoods and shades shall be a simple cylindrical form. Variations such as tapering, asymmetrical cones and other designs that may mimic forms in nature are acceptable.
- All exterior light poles, standards and fixtures shall be a muted, dark color that reflects the colors that occur in the natural landscape, such as mauve, sage, deep blue and purple, semi-gloss or matte black finishes are acceptable.

LANDSCAPE LIGHTING

- Landscape lighting shall be used to create mood and to accent focal points in the landscape corridor along streets and in the development pads.
- Up lighting and indirect accent lighting where the light source is hidden is required.
- Landscape lighting may be used to highlight natural features such as rock outcrops or the floor of the Copper Canyon Park to highlight the natural amenities and make the common areas more usable at night.
- Landscape lighting shall be soft, unobtrusive and shall be directed and/or shielded to prevent glare.
- Landscape lighting shall avoid creating shadow areas that would create unsafe conditions along pathways, around buildings or in parking areas.
- Strings of multiple, small white lights shall be used in the village center and in the landscape corridor.

STREET LIGHTS

- Color balanced lighting with cutoff-style fixtures shall be used on major arterial streets, collector streets in non-residential areas, in parking areas and along public sidewalks adjacent to arterial streets to improve energy efficiency and reduce glare impacts.
- A single design shall be used on all street light poles, standards and fixtures throughout the project consistent with the design standards provided in this section.
- Street lights shall comply with City's street lighting standards and provide safe illumination of roadways minimizing glare. At a minimum, streetlights shall be located at all intersections, pedestrian crossings, bus stops and traffic circles. The streetlights shall be carefully located to minimize visibility from outside the

project and still provide traffic safety. Streetlights within the Public Right-of-Way shall be in accordance with a street light survey that shall be provided for approval by the Engineering Manager. The intent is to provide light where it is needed for traffic safety rather than adhere to a uniform standards spacing that clearly define a roadway alignment when viewed from a distance at night.

- A development agreement for a lighting district shall be required prior to the submittal of the first final map and/or public improvement plans. The agreement shall be established such that the lights shall be in accordance with Sierra Pacific Power Co. standards, maintained by SPPCo and the maintenance shall be paid for by the district. In addition, the agreement shall specify that a supply of lights shall be available at all times for immediate replacement. The agreement or other acceptable alternative shall be approved by the Engineering Manager.

PEDESTRIAN LIGHTS

- Lighting shall be used in parking areas and in pedestrian areas to encourage evening use.
- Lighted bollards or pedestrian scale pole lights (10-14 foot height) as shown in the typical example in Figure 3-30, shall be used in pedestrian areas.
- Pedestrian lighting shall reflect the level of activity intended for the specific area.

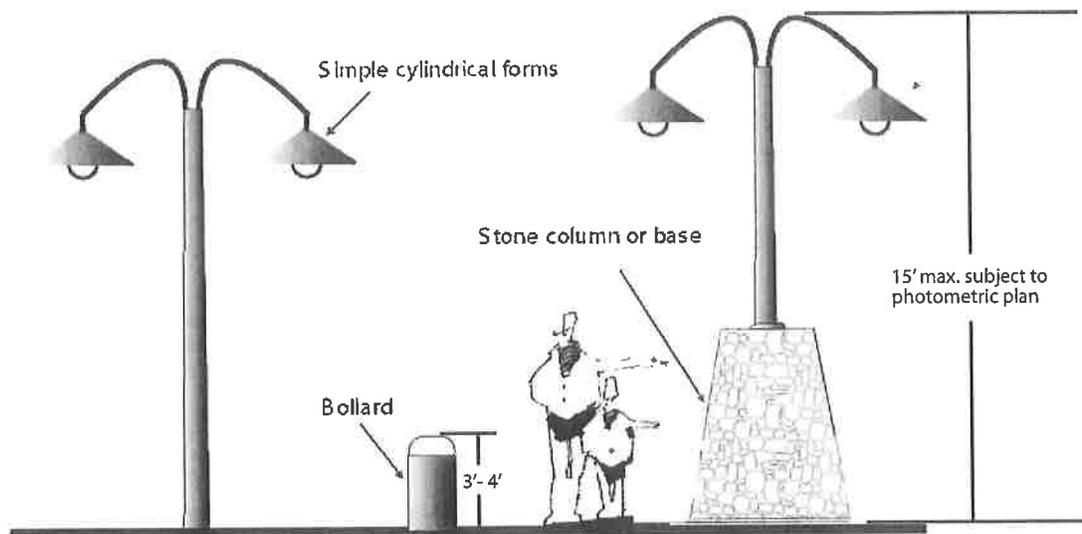


FIGURE 3-30
TYPICAL CONCEPTUAL LIGHTING POLES, STANDARDS AND FIXTURES

High light levels with proper shielding are appropriate in intensive use areas such as the hotel and village center. Low light levels are appropriate in common areas such as the pedestrian trail in Copper Canyon Park. Where little or no light shall be provided in adjacent areas, such as the common area, transitional lighting shall be used to prevent shadowed areas at the interface between lit and unlit areas. The intent is to preclude areas where someone in hiding could not be seen.

- Bollard lights along pathways shall generally be located on a single side of the path rather than staggered on both sides of the path.

NON RESIDENTIAL LIGHTING STANDARDS

- The creative use of exterior lighting to enhance the architecture of commercial buildings and grounds is acceptable, but flashing, pulsating, bright lights that will be visible from I-80 and from the west are prohibited.
- Decorative building lighting shall be used to clarify pedestrian routes and highlight building entries.
- Architectural lighting shall accent and animate the building in addition to providing functional lighting for safety.
- Service area lighting shall be contained within the service area boundaries and enclosure walls to minimize light "spill-over" outside of service areas.
- Lighting fixtures shall be located to reduce shadow or interference from trees and other objects in the landscape.
- Parking lot light standards shall be hooded or shielded to direct light downward to the parking surface shall not exceed 20 ft. in height. Light spilling out of the parking area is prohibited.

RESIDENTIAL LIGHTING STANDARDS

- Exterior fixtures mounted on buildings shall be no higher than the line of the first story eave or, where no eave exists, no higher than 12 feet above the adjacent finished grade.
- High intensity discharge lighting is not permitted in residential areas.
- Building lights shall be shielded to prevent light spillage onto adjacent property or streets.

3.6.4 STREET FURNITURE AND PUBLIC ART

STREET FURNITURE WITHIN COMMON AREAS

Street furniture includes benches, trash receptacles, drinking fountains, bollards, transit shelters, shade structures or kiosks and other design elements within public common areas. These elements enhance the usability of the common areas, but they also help establish the design quality and sense of place for the project area.

All street furniture shall comply with the following standards.

- A street furniture master plan for all major streets and common areas owned and maintained by the CCPOA shall be defined within the Design Guidelines that will be submitted to and approved by the City of Sparks.
- A local area street furniture plan shall be approved by the Master Developer and the Administrator prior to issuance of a building permit for the first building on each development pad.
- Street furniture shall be:
 - Constructed of materials compatible with the lighting standards. This shall include metal, composites, or concrete. Wood is not an acceptable material for the street furniture except in small garden or sheltered areas associated with specific building settings such as the village commercial or hotel.
 - Designed to discourage vandalism and skateboard riding.
 - Located to facilitate maintenance.
 - Located to coordinate with adjacent paving, architecture, landscape, and other amenities.
- Benches and trash receptacles shall be provided at trailheads, bus waiting areas, within the major and collector street right-of-way and along pedestrian routes.
- Site furnishings located within the projects entries, village center, commercial and office areas and residential villages shall feature a higher level of detailing and style subject to review and approval of the Master Developer and the City of Sparks. All site furnishings shall be maintained by the CCPOA other than those located within individual development pads.
- Furnishings used in common areas and recreation areas shall feature simple design styles to complement the landscape, subject to the approval of the Administrator and the Master Developer.
- Public transit shelters shall be located along Vista Boulevard and along Eastern Slope, Silver Stream, Copper Canyon Parkway and other streets as determined by RTC. The transit shelters shall be a simple design utilizing cylindrical elements. The color of the shelter shall match that of the street light poles.

PUBLIC ARTWORK

Although not required the Copper Canyon Master Planned Community may provide art such as sculptures, murals, water elements, carvings, frescoes, mosaics and mobiles which will be included in the site landscape in the village center, hotel, village commercial and business park. The following concepts for public artwork are the standards as organized by objective and will be further defined in the Design Guidelines package that will be submitted to and approved by the City of Sparks. The theme for all art for Copper Canyon is manmade elements acted on by the natural forces on the site. The art shall in some manner reflect, be responsive to or be driven by natural forces on site. The natural forces include wind, sun, water, earth and reflected light. Any manner of response to the natural forces is acceptable. The art may be static or kinetic. Thus, the art may change color under different light conditions, may expand and contract with temperature changes, or may be kinetic forms that move with wind or water, heat gain, or the passing of the sun. Movement may be created by shadows or reflected light. Forms may change shape, or color, or expand and contract in response to natural changes in temperature, or humidity.

The art may have a function, such as indicating the temperature or time, but may also serve only to display graceful movement or color. The artwork shall relate strongly to the architecture of the adjacent buildings and may actually be an extension of the building.

The major concentration of art work shall be located in the major activity areas, such as the sports club, the Village center and the hotel/casino. But art may be located anywhere in the landscape corridors along the streets, at major entries and project entries and within the landscape of the individual development areas.

Outdoor artwork shall:

- be located to be visible to the public,
- relate in terms of form and concept with the architecture and environment of the subject site, and
- be durable against vandalism and weather and not require excessive maintenance.

3.6.5 SIGNS

Copper Canyon shall adopt a uniform sign program that controls signage in the common area (landscape corridors and open space) in the project. The standards are organized by specific issues or objectives as described below. Table 3-4 (see page 3-74) illustrates applicable sign standards for each of the land use categories within the development.

The standards shall be enforced by the CCPOA. The sign program shall include:

- entry signs at the major project entry to the project, as shown in Figure 3-31 (see page 3-50);

- entry signs in individual residential and commerce and technology development areas, as shown in Figure 3-32 (see page 3-51);
- pedestrian signs;
- electronic traffic message boards; and
- permanent directional signs.

GENERAL SIGN STANDARDS

- The following signs are prohibited in addition to those prohibited by the SMC:
 - Any revolving beacon, flashing and/or rotating sign, any sign with intermittent lighting (with the exception of flashing school crossing signs or temporary construction or other safety signs).
 - Any sign, which extends above the roofline or parapet, whichever is higher.
 - Signs shall not obstruct the visibility of traffic or public signs, or traffic control devices. Signs shall not interfere with traffic visibility triangles.
 - Special community events and election related signs shall be permitted as by SMC.
 - Signs and sign structures shall be maintained at all times in good repair, with supports and fastenings free from deterioration, rust or loosening. Signs shall be designed to withstand wind loads in the area in which they are located.
 - Signs shall be a fully integrated and cohesive part of the landscape and shall coordinate with the style and design detail of the adjacent hardscape and architecture.
 - The Copper Canyon logo shall be used on all Copper Canyon Community signs, except for street/traffic safety signs.
 - Signs shall not be permitted in the ROW unless stated in SMC.

SIGN LIGHTING

- Sign lighting shall be unobtrusive and shall relate to the design and character of the sign.
- Sign lighting shall be shaded, shielded, or directed to prevent the light from adversely affecting surrounding or facing properties or adversely affecting safe vision of pedestrians or operations of moving vehicles.
- Recessed lights shall have rock guards to prevent injury to pedestrians touching hot glass and to minimize vandalism. For directional light cut off and glare control, half shields shall be used on above grade fixtures where adjacent land uses or motorists could be affected.

- Internally lighted signs are prohibited, except in village commercial and edge lighting where the light is transmitted through the translucent material is acceptable.

VEHICLE DIRECTIONAL SIGNS

Vehicular signs include street signs, traffic signs and directional signs that control vehicular traffic and/or are intended to be viewed from a vehicle. The vehicular signs are particularly important in Copper Canyon because the land uses inherently attract visitors who may be unfamiliar with the area.

The parameters for common area directional signs shall be:

- The lettering shall be a simple, easily read, sans serif font, such as Helvetica, Arial, or Enviro.
- The lettering shall be a light color on a dark background. The background color shall be compatible with the color selected for the common area street furniture.
- The lettering shall be accompanied by a simple directional arrow for directional signs in the landscape common area and in the development pad areas.
- All public street/traffic safety signs shall comply with City of Sparks and MUTCD standards and shall be installed per the "Standard Details for Public Works Construction" Book in conjunction with the "Standard Specifications for Public Works Construction" (Orange Book).
- Non-standard vehicular signs shall comply with the Uniform Graphics System to be developed with approval of Engineering Manager.

Figure 3-36 (see page 3-55) shows a conceptual illustration of a vehicular direction sign.

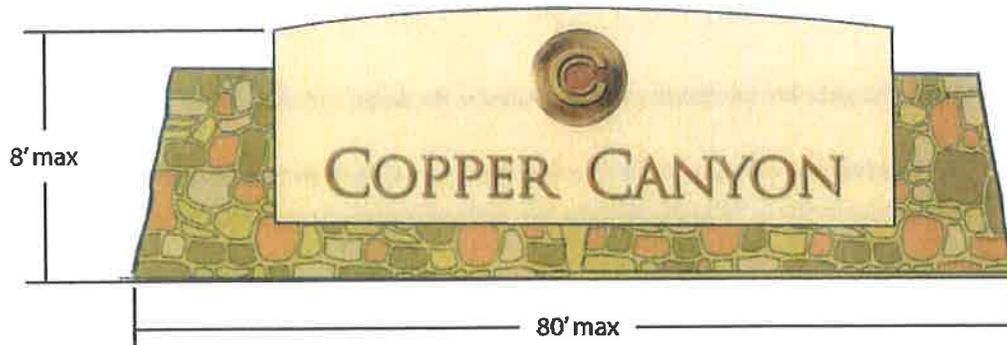


FIGURE 3-31
CONCEPTUAL ILLUSTRATION OF MAJOR ENTRY FEATURE

PEDESTRIAN SIGNS

Pedestrian directional and identification signs shall be used extensively throughout the core of the plan area to guide visitors to the Village center, the sports club, senior housing, apartments, townhomes and the hotel. Pedestrian sign materials shall be small versions of the vehicle directional signs. Pedestrian signs include trail guide signs at the perimeter of the project leading to the public land to the east.

Figure 3-37 (see page 3-56) shows a conceptual illustration of pedestrian scale signs that may be located within Copper Canyon and will be maintained by the CCPOA.

COMMERCIAL AND BUSINESS PARK SIGNS

Commercial signs are those used to identify and locate commercial, business and office areas. An example of commercial and business park signs is shown in Figure 3-32, the individual development project entry. The following standards apply to all signs on commercial or business park sites.

- Building signs shall be integrated into building architecture and composed of materials compatible with the materials of the building. The colors and materials of signs shall complement the associated buildings to which they refer, subject to the approval of the Administrator and the Master Developer.
- Standard cabinet construction (canned) signs which utilize plastic components are prohibited.
- Signs shall comply with SMC 20.56 (Signs).
- The light from any source intended to illuminate a sign shall be shaded, shielded, or directed so that light intensity or brightness does not adversely affect surrounding properties, nor adversely affect safe vision of pedestrians or operations of vehicles moving on public streets, driveways or parking areas.

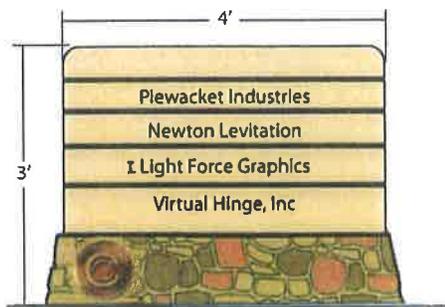


FIGURE 3-32
CONCEPTUAL ILLUSTRATION OF
MULTI-TENANT ENTRY MONUMENT

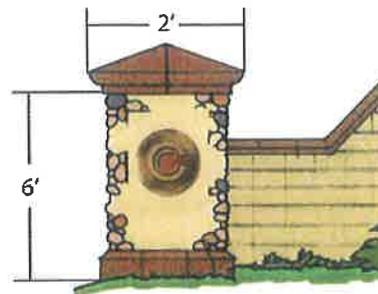


FIGURE 3-33
CONCEPTUAL ILLUSTRATION OF
RESIDENTIAL AREA ENTRY MONUMENT

BUILDER PROJECT SIGNS IN THE RESIDENTIAL AREAS

This section applies where there are multiple builders or developers within the residential areas. Each builder or developer may provide a sign for their property in compliance with the following standards.

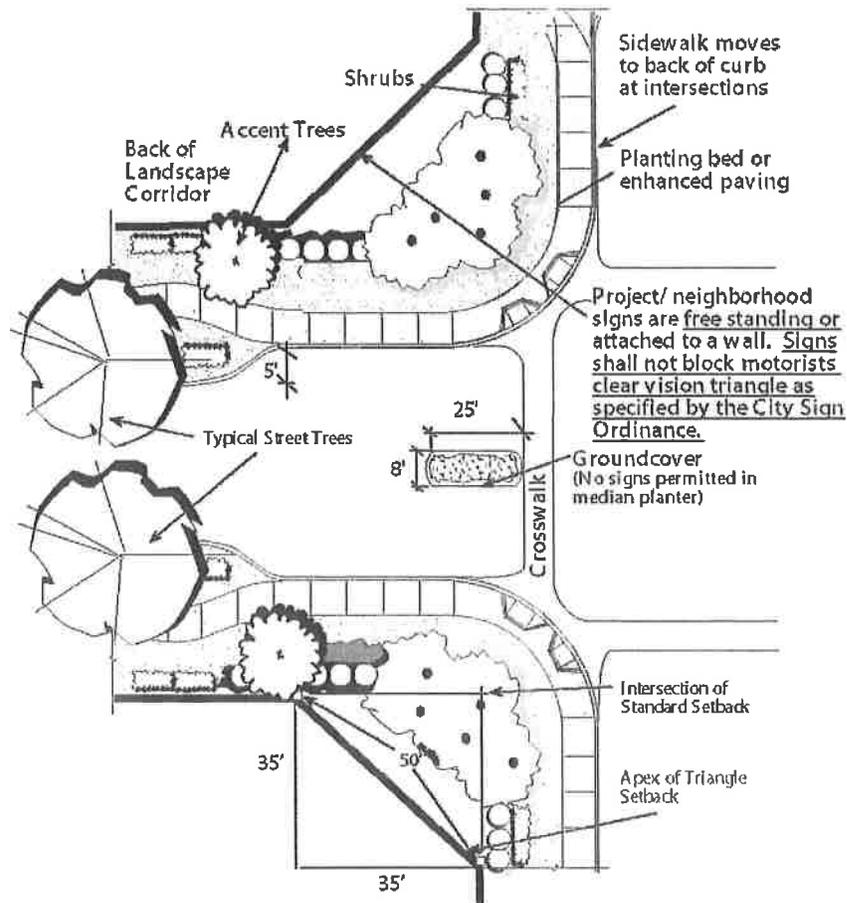
- Permanent builder project entry signs shall be monument type signs that identify the builder village name.
- Builder project signs are subject to the approval of the Administrator and the Master Developer.
- Signs shall be smaller than the Community and Project entry signs.
- Temporary sales or directional signs are allowed to direct traffic to project and community facilities during construction and sales in compliance with City of Sparks code. All temporary sales/directional signs shall be located on private property. Permission must be obtained from property owner, or Master Developer and Administrator if located in common areas. The design of all the temporary sales/directional signs shall be reviewed and approved by Master Developer and Administrator.

MAJOR PROJECT ENTRIES

The major entries to the plan area provide a distinct gateway and sense of arrival for Copper Canyon. The entries establish a first impression and the goal is to provide a sense of quality and design excellence for the entire project. The two major project entries occur at the point where the major streets enter the west boundary of the project area. These entry features shall be located approximately 1,200 feet east of the major street intersections with Vista Boulevard.

The specific design of the major entries shall be approved by the Master Developer and the Administrator concurrent with the landscape master plan. The major entries shall include the following elements.

- A wall shall form the major element of the entry and shall be located on a rockery wall base. The concrete wall shall be colored to match the walls in the adjacent landscape corridor and shall have a smooth or lightly textured finish.
- The name "Copper Canyon" shall be prominently displayed with the logo on the wall. The name shall be constructed of solid metal, raised letters or other alternative approved by the Master Developer and the Administrator. The metal letters shall be a copper color, or a color that complements the basic color of the entry feature. The height of the letters shall be approved with final design.
- The sign shall have low level, front lighting located where the lighting fixture is not visible from the street or adjacent sidewalks.



**FIGURE 3-34
PLACEMENT OF PROJECT ENTRY FEATURE**

- In the foreground of the wall, the entrance feature design shall include accent trees, a small fountain element or sculptural element and special lighting effects that highlight the landscape and project name. These elements may be located on a raised planting area, or may be located on ground level that slopes to the back of sidewalk.

Figure 3-31 (see page 3-50) shows a conceptual illustration of a typical entry monument that incorporates these design features. The final design of the entry monument shall depend on the specific placement of the entry because of the slope of the adjacent terrain, the surrounding rock formations and the configuration of the street or intersection nearest the entry.

SECONDARY PROJECT ENTRIES

Each of the residential neighborhoods including the single-family residential area and the executive townhouses



FIGURE 3-35
CONCEPTUAL ILLUSTRATION OF BRIDGE CROSSING DRAINAGE CORRIDOR

and apartments and each business park development terrace shall provide a secondary entry feature that identifies the name of business park area or residential village.

All secondary project entries shall comply with the following standards.

- The business park and residential entries shall use key elements that identify it as part of the “Copper Canyon” These elements include:
 - A wall constructed of the same material used in the major project entries.
 - The Copper Canyon logo.
 - A rockery wall base.
 - Accent trees that include the same species used in the major project entries.
 - The entry feature shall include the company name and/or logo and a street address clearly visible from the street.
 - All sign locations shall be indirectly lighted; light sources are to be screened or shielded from vehicular traffic and nearby homes.
 - Final design and letter style shall be subject to the approval of the Administrator and Master Developer during the planned development review process.

- Project entrances are to be constructed by the developer of the subdivision, business park or commercial area in which they are located.
- All landscape elements and walls shall be located so that clear views for traffic safety shall be maintained.
- Deciduous canopy trees shall be sized having a minimum caliper of two (2) inches at the time of planting measured D.B.H (diameter at breast height).
- Deciduous accent trees shall have a minimum caliper of one and one-half (1-1/2) inches at the planting measured D.B.H (diameter at breast height).
- Evergreen trees shall consist of the following height mix at the time of planting: 60% at 6' height, 20% at 8' height and 20% at 10' height (measured from finished grade to tree apex).
- A minimum of 50% of the shrubs installed shall be 5 gallon size or larger

Figure 3-32 (see page 3-51) shows a conceptual illustration of an entry feature at an office, component assembly or research and development site with multiple tenants. Figure 3-33 (see page 3-51) shows a conceptual illustration of a neighborhood entry at a residential area. This type of monument shall be appropriate at all residential areas, including the apartments, townhomes and single-family neighborhoods. The residential monuments should be more upright than horizontal and should not exceed six (6) feet in height. This form suggests a more pedestrian scale development than the large, horizontal form used at the major project entries.

Figure 3-34 (see page 3-53) illustrates the corner landscape and placement of the project entry features at the entry to a development area.

BRIDGE ENTRIES

The backbone drainage channel adjacent to the street shall require construction of a bridge entry at several locations along Silver Stream, Copper Canyon Parkway and Calico Hills Drive. The channel shall be designed as an amenity and shall have the appearance of a natural stream, as shown in Figure 3-35. The bridge crossings are the entry feature to individual development sites.

The bridges shall typically be two lane driveways and may include a median element.

The bridges are structures that may require mid-span support,



FIGURE 3-36
CONCEPTUAL ILLUSTRATION OF
VEHICULAR DIRECTIONAL SIGN



FIGURE 3-37
CONCEPTUAL ILLUSTRATION OF PEDESTRIAN DIRECTIONAL SIGNS

typically constructed as a concrete box culvert with armored abutments. The intent is to provide a visual amenity; therefore, the bridges shall include rock finishes, painted rails, lighting and other design features compatible with the landscape character of the street and the adjacent buildings. Maintenance of the bridge entries shall be the responsibility of the CCPOA and will be spelled out in the Design Guidelines, Development Agreement and CC&Rs.

3.6.6 ROUNDABOUTS

Roundabouts shall be located at three (3) major on-site intersections: Copper Canyon Parkway/Calico Hills Drive, Salomon Circle/Loop Road and Copper Canyon Parkway/Silver Stream Road, as shown in Figure 2-1 on page 2-2. A roundabout shall also be located near the terminus of Silver Stream Road. The roundabouts shall serve as design focal points and shall help smooth traffic flow within the most active area of the plan.

- Landscape within the roundabout shall complement the architecture and features in the roundabout and are subject to review and approval by the Engineering Manager and Administrator.
- Deciduous trees shall be intermixed to provide visual interest through seasonal color, texture and form to the project.
- The roundabout shall be designed to discourage pedestrians from accessing the center of the roundabout.
- The developer shall be required to submit design guidelines and traffic studies to support the specific design of roundabouts at these locations. Additional information shall be provided as required by the Engineering Manager.
- The guidelines, studies and related information shall be submitted for review and approval by the Engineering Manager and the RTC prior to final design.

- The landscape within the Copper Canyon project's roundabouts shall be maintained by a lighting and landscape maintenance district or the CCPOA. Common area /open space parcels may be created to the satisfaction of the City Surveyor.

3.7 GRADING AND HILLSIDE DEVELOPMENT

Grading and development of the hillsides is one of the most critical considerations in the development and use of the Copper Canyon Plan Area. The hillside is highly visible from many locations in the valley to the west. A fundamental objective of the development is to blend into the hillsides. Otrusive and unattractive cuts, or of placing masses of buildings that will stand out in stark contrast to the natural hillside shall be avoided. Hillside development review materials, cross sections and maps shall be submitted with each Site Plan Review for non-residential villages or each residential pad tentative map submittal where applicable, as required by SMC 20.99 and the DSM. The designated protected ridgelines shall remain undisturbed per the ordinance. The effect of the application of the standards set forth in this section is described in Section 1.6.2 and Section 1.6.4.

The Copper Canyon plan is based on a thorough analysis of the site to ensure the project properly relates to the slope conditions described in Section 1.6.2, Grading. The development is focused where the graded topography complements the natural topography. The fundamental design standards for hillside grading include:

- The site grading is specifically designed to create separate terraces or plateaus to optimize the view potential, while maintaining the significant ridgelines.
- Building pads shall be designed so that no structure is silhouetted above the ridges.
- The terraces shall be graded to drain away from the edge and a slight raised edge or berm shall be left in place to screen the view from the valley below.
- Landforms shall be altered in a fashion that achieves "natural" results as opposed to engineered slopes.
- The composition of landform, buildings and landscape is such that when the project is completed, there shall be no artificial cut and fill slopes that make the project seem out of character with its surroundings.

The essential grading standard is that the roads and building sites shall not appear as scars across the landscape when viewed from the valley. Figure 3-38 illustrates the minimum standards for contour grading (not applicable to pads 1, 3, 4 and 22-25). Contour grading requires that:

- A graded slope that exceeds thirty-three and one-third percent (3:1) and over three (3) feet in height shall have a solution presented that stabilizes the slope and minimizes scarring.

- All 2:1 slopes shall be revegetated in accord with existing natural conditions. The Master Developer will utilize a local / regional expert in the creation of a revegetation plan for the project.
- Only 3:1, or less, slopes shall be allowed on residential lots.
- The top of all finish slopes shall transition into a plateau or the existing slope without a clear break between the existing and finish grades.
- The sides of all finish slopes shall transition into the existing slope without a clear break between the existing and finish grades.
- With the exception of residential development, each plateau shall include a berm or raised edge along the down slope perimeter to visually screen the first floor and parking of each building from the valley below.
- With the exception of residential development, the perimeter of each plateau shall be graded to provide a natural transition from the natural slope below the plateau. A rounded vertical slope shall provide the natural transition. The radius of the rounded vertical slope shall be not less than one-half the vertical distance of the finish slope. The top of the rounded vertical slope shall form a berm along the perimeter of the plateau. The berm shall be not less than 6 feet above the finish grade on the plateau adjacent to the berm.
- Plateaus shall be graded a minimum of one half percent toward the interior of the plateau to provide positive drainage away from the natural slope edge and to help visually screen the buildings from the valley below.
- Roads shall be hidden from view from the valley floor by locating them to the rear of the plateaus where feasible.
- The grading shall result in an “undulating, naturalistic” appearance through the use of both varied slope gradients and curvilinear contours.

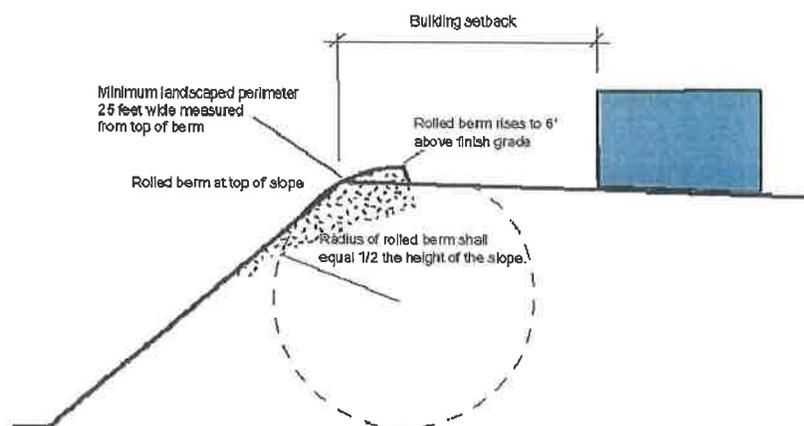


FIGURE 3-38
GRADING AT THE EDGE OF A PLATEAU TO SCREEN BUILDINGS AND PARKING

- Maximum height for each bench shall be 20 ft.
- Significant slopes shall retain naturalistic contours.
- All graded slopes shall be revegetated with native plant materials.
- The location of any stock piling of material generated during the grading of a site within the project shall be clearly illustrated on the grading permit plans and requires the review and approval of the Engineering Manager and Administrator prior to the issuance of the grading permit.
- All cut and fill slopes exceeding six (6) feet can only be located in common areas, and will be maintained by the CCPOA.
- All artificial slopes shall comply with Chapter 2 of the DSM.
- Use of rock walls is acceptable provided that the height of the rockery walls do not exceed six (6) feet in height, the rock material is compatible in color with the natural slope and the walls are carefully blended and merged into the natural slope. Any use of walls, including walls higher than six (6) feet, must be approved by the Master Developer, the geotechnical engineer, the Administrator and Engineering Manager.
- The Engineering Manager shall review and approve all preliminary, intermediate and final geotechnical reports.
- All slope cuts and stabilization methods shall be in compliance with the geotechnical report and to the approval of the Engineering Manager.
- All catchment designs and construction shall be in compliance with the geotechnical report and to the approval of the Engineering Manager.
- Maximum cut and fill heights shall be designed and constructed in accordance with the geotechnical engineer's recommendations and to the approval of the Engineering Manager.
- The CC&Rs shall state that the CCPOA is responsible for the maintenance of the open space within the project.

EROSION AND SEDIMENTATION CONTROL

The project area shall utilize cost-effective urban runoff controls, including Best Management Practices (BMP's) to limit urban pollutants from entering the watercourses and control erosion of disturbed soils.

BMP's shall include, but are not be limited to:

Temporary BMP's during construction:

- All disturbed sites shall be winterized for erosion control.
- Utilize techniques for stabilizing soil and preventing wind and water erosion, which may include hydro-mulching, wood chip mulch, netting, straw mulch, gravel mulch (suited to vehicle paths) and tacking agents.
- Use straw bale barriers, filter berms, filter inlets, or siltation berms to slow, filter, or stop sediments carried by runoff.

Permanent BMP's:

- Provide slope stabilization structures, such as retaining walls and slope terraces in areas where the steepness or stability of cut slopes could result in slumping or slides.
- Require runoff collection features, such as detention basins, grassy swales and catch basins, to detain and infiltrate runoff.
- Maintain erosion control measures:
 - Repair damage caused by concentrated surface water runoff immediately to eliminate the spread of small gullies.
 - Reseed or replant areas of inadequate plant establishment.
 - Regularly inspect slopes and landscaped areas for wet areas caused by leaking sprinkler systems and drainpipes; repair shall be performed as needed.
 - Monitor irrigation rates in order to avoid runoff and insure irrigation water does not cause erosion or excessive water use. Over watering is prohibited.

3.8 ARCHITECTURAL DESIGN STANDARDS

The architectural design standards for Copper Canyon shall comply with the DSM and create a built environment with a distinct identity that expresses integration of manmade structures with the natural environment. The design standards will be further defined in a Design Guidelines package submitted to and approved by the City of Sparks. These standards provide the City of Sparks and Copper Canyon residents and property owners with assurance that this community shall develop with a high level of quality and character. Quality development will attract quality users and tenants. Although the definition of quality image varies with individual aesthetics, there are features commonly accepted as indicators of a quality project.

The architectural design of individual buildings implements the vision of the architect and the needs and preferences of the building owner and tenants. Therefore, the design standards cannot and should not dictate a specific design style

or period to mimic. Design standards that specify the use of standardized materials or forms throughout the entire project are not appropriate. Nonetheless, the design standards should establish design principles that can be applied in the design of individual buildings. The application of these principles shall produce architecture that reflects the individual needs and character of the building owners, but incorporates common characteristics as well. The common characteristics shall create a sense of overall consistency and common identity throughout the project area.

The key defining principles of the architecture include:

- Colors that complement the colors in the natural setting.
- Articulated building elevations.
- Dispersed building forms that avoid large building mass.
- Distinct primary building entries.
- Building forms that respond to the climate.
- Building forms that shelter pedestrians.
- Safe, well defined pedestrian pathways between buildings and between buildings and parking areas.
- Small, terraced building and parking pads.
- Encourage use of green design and green building.

3.8.1 BUSINESS PARK ARCHITECTURAL DESIGN STANDARDS

The standards are organized by specific issues or objectives as described below. Each objective is supported by one or more standards, but many standards tend to support more than one objective. Standards will be further defined in the Design Guidelines package submitted to and approved by the City of Sparks.

BUILDING COLOR

- The color of exterior finishes shall incorporate the palette of the natural setting. This includes warm colors such as mauve, sage, grays, brown, creme, caramel, purple and cool colors such as muted greens and blues. The primary concerns with color are that buildings shall not stand out from the landscape and be highly visible from great distances. It is for this reason that the color palette of the native plants and soils is preferred and that stark white buildings are prohibited.
- Bright colors and primary colors are acceptable as accent colors applied in limited areas, particularly in the

village center, sports club and hotel areas.

- Building surfaces painted stark white are prohibited.

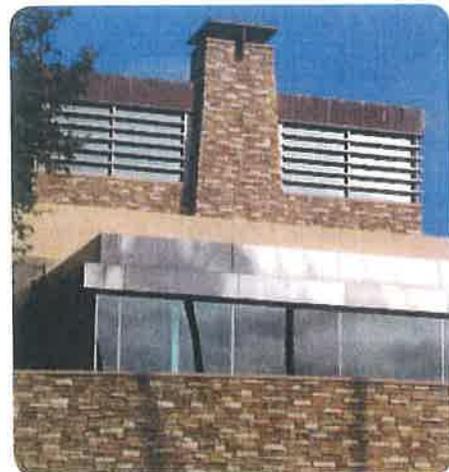
BUILDING MATERIALS

- Exterior materials shall convey permanence and substance. The appropriate exterior materials include masonry, plaster, stucco, stone and decorative treatments in concrete.
- Untextured, untreated concrete slab tilt-up buildings lacking detail and appreciable architectural style and form are prohibited.
- Artificial materials meant to represent a natural material, such as wood, are generally discouraged but may be used subject to approval by the City.
- Highly reflective glazing (doors and windows) and highly reflective finishes on walls are prohibited.
- Roof flashing, rain gutters, down spouts and vents shall use materials and colors that complement the overall architecture of each structure.

BUILDING FORM AND MASSING

The massing and form of buildings will affect the view of the project area from the west. A solid line of building facades will appear more obtrusive than a variable massing that includes varying setbacks, open space between buildings and various building heights interspersed with the tree canopy in parking and landscape areas.

- Parapet firewalls, when required for building separation, shall be treated as an integral part of building design and shall not appear as unrelated visual elements. Please see Figure 3-39.
- Where the rear or side of a non-residential building abuts a public thoroughfare or common area, such elevations shall be treated with the same materials, colors and details as the primary frontage.
- Textured material(s) and/or architectural details shall be used to articulate the surface of walls. Please see Figure 3-40.



**FIGURE 3-39
PARAPET WALL**

- All primary building and project entries shall be well defined by architectural forms, materials, colors and landscape that establish a sense of entry.
- Buildings visible from Interstate 80 and the valley to the west shall visually blend with the hillside by complementing the natural landscape form and color.
- Doors and windows shall be consistent in design and located to present a unified appearance to the elevation.
- Architectural treatments, details and materials shall be consistent among individual buildings in multi-family and multi-tenant non-residential projects.



**FIGURE 3-40
WALL WITH TEXTURED
MATERIAL**

- Walls shall be articulated with small, well-defined sections, architectural detailing, color and composition of facade elements.
- Skylights may be designed as an integral part of the building architecture and relate to the building's overall design.
- Natural light and external night lighting shall be used to enhance and articulate the buildings without glare directed off-site.

ORIENTATION TO WATER

Water is intended to be an unusual visual element that provides a specific focal point and emphasis to special areas within the project. Buildings shall be oriented to provide views or direct pedestrian connections to water features throughout the site. Refer to Section 3.5 for a discussion of water features in the developed portion of the project.

ENERGY AND CLIMATIC CONSIDERATIONS

Wind, snow, rain and sun are the dominant climatic considerations on the site. The project site benefits from substantial exposure to the sun throughout much of the year. This resource should be incorporated in the design of buildings and the pedestrian spaces around them. The sun can help make outdoor spaces more pleasant and useful during more months of the year, yet these same spaces must be sheltered from the sun in the warm months.

- Passive solar design is encouraged whenever possible. Design of buildings shall consider energy-efficient concepts such as natural heating and/or cooling, sun and wind exposure and orientation and other solar energy opportunities.

- Solar collectors, if used, shall be oriented away from public view or designed as an integral element of the roof structure.
- Buildings adjoining public spaces, such as along a pedestrian promenade, shall be designed to provide sun to primary gathering areas in the winter.
- Sun shade structures such as building overhangs, verandas, trellises and porticos shall be incorporated in the design of all buildings at the primary entry and pedestrian approaches to all non-residential and multi-family residential buildings.
- The placement of buildings and plazas shall take wind direction into consideration to avoid creating a wind tunnel effect in pedestrian areas.
- Plazas and other pedestrian areas shall consider the sun location and angle during the cold months to ensure that such locations receive the sun exposure that minimizes cold, icy surfaces.
- Life-cycle costs of buildings shall be considered in all commercial, office, business professional and technology component assembly buildings.
- Use of wind and thermal mass to heat and cool structures and public spaces shall be considered in the design of all buildings.

PEDESTRIAN SPACES AROUND AND BETWEEN BUILDINGS

Because Copper Canyon includes many land uses such as open space and a trail system that invite people to be outside for various activities, the design of outdoor spaces should shelter pedestrians. The pedestrian experience shall be enhanced by integrating walkways, plazas and terraces with the buildings.

- Each individual development area is required to have landscape. The landscape will be established as part of the design guidelines that will be submitted to and approved by the City of Sparks. The CCPOA shall allow the area to be aggregated to allow for informal private park areas adjacent to the buildings.
- The ground floor adjacent to pedestrian areas shall include windows, trellises, wall articulation, wainscot, arcades, changes in materials, or other features to ensure visual diversity and pedestrian scale. Architectural detailing of walls at ground level shall be integrated with the landscape to ensure an appropriate transition of the building and the ground plane.
- Entry ways shall be clearly defined and integrated with building and landscape design. The use of distinctive architectural elements and materials to denote prominent entrances is required. Please see Figure 3-41.
- Pedestrian plazas shall include landscaping, seating, drinking fountains and points of interest such as water

elements or art sculptures.

- All public use buildings shall provide access to the common area pedestrian circulation system, that is, sidewalks along the primary streets and paths in open space adjacent to the buildings.
- All land uses shall be designed to facilitate pedestrian connections to adjacent uses and access to the area-wide trail system.
- Pedestrian walkways shall provide access from sidewalks into projects separate from major vehicular driveways and circulation as described in Section 3.5.1 Landscape in Open Space Areas and Figure 3-13 (see page 3-19), and in Section 3.6.1 Hardscape (Sidewalks, Crosswalks and Plazas) and Figure 3-21 (see page 3-35). Connections between private and public pathways shall be the responsibility of the project developer.
- Office, technology component assembly, commercial and business-professional land uses shall include bike racks for employees to promote walking and cycling to work. Bike parking shall be provided in highly visible areas.



**FIGURE 3-41
INTEGRATED ENTRY**

SECURITY

- Locate potential crime risk uses in highly visible and well-lit areas.
- Maximize the visibility of parking area entrances from adjacent uses and public streets.
- Maximize opportunities for surveillance of structures and pedestrian activity areas. Heavy landscape near structures and on the perimeter of parking areas shall be restricted to maintain view corridors.
- Provide adequate site and parking lot decorative lighting.
- Defensible space design principles shall be incorporated into commercial, office, tourist commercial and multi-family residential projects.

ORIENTATION TO PARKING AND VEHICLE ACCESS

- The physical relationship between parking areas and the buildings they serve must be attractive and convenient.
- Large surface area parking lots are to be avoided in favor of smaller, terraced parking areas or structured parking.

- Loading facilities shall be designed as an integral part of the building, which they serve and shall be located in the most inconspicuous manner possible. No loading facility, including incidental parking and maneuvering areas, shall extend into any required minimum setback areas.
- Truck service drives are discouraged behind the Village Center and prohibited in any pedestrian setback zones. If service drives are included behind retail buildings, they shall be screened from the park by a wall and/or landscaped berm.
- Public access driveways shall be separated from service entries for the delivery of merchandise.

3.8.2 VILLAGE CENTER COMMERCIAL DESIGN STANDARDS

The Village Center is intended as a very active center of social, leisure and recreational activities, as well as convenience and specialty shopping and services. The center is envisioned as a pedestrian village where a cluster of buildings provides comfortable, attractive spaces to shop, relax and socialize. The heart of the village center will be the Plaza Park that includes both paved areas and a large turf area, or commons. The park emulates the public commons or town greens found in many older communities. It is a modern adaptation of a traditional form that serves as the community living room. This area shall serve as a small urban-style park with space for informal recreation (such as throwing a football, volleyball) and small events such as a wine tasting or art fair.

Buildings shall be oriented to the plaza to provide places for outdoor dining and shopping. Buildings shall also be oriented to the views to the west. Small plazas between buildings and connecting pedestrian walks shall connect all parts of the village center together. The small plazas shall also include space for informal seating and outdoor dining and shopping.

- Parking shall be provided on the perimeter of the site, or in structures, so that at grade parking is not a dominant visual element in the center.
- Within the Village Commercial Center, buildings are to have unifying design characteristics. The characteristics shall include the following elements:
 - The dominant exterior finish material, including roofing, shall be plaster or lightly textured stucco.
 - The color palette shall include light beige, creme, or similar color with complementary colors used to accent walls, archways and other architectural features.
 - Tile and terra cotta elements shall be used as color accents.
 - Pedestrian walks may be covered with permanent structures, such as breezeways, porticos and verandas.
 - Small planting areas shall be located adjacent to terraces and plazas that shall accommodate canopy trees. Please see Figure 3-7 on page 3-11.
 - Decorative flags and windsocks, umbrellas and fabric awnings shall be used to provide shade and

color in the common areas.

- Arches shall be a common architectural element in building doorways, windows and covered walks.
 - Clerestory windows shall be used above major storefront windows in retail buildings.
 - Commercial and public service offices shall open toward a landscaped common area, such as a plaza or terrace.
 - The paved surfaces shall incorporate decorative elements. These decorative elements may include the use of enhanced materials or treatments such as stamped concrete, stained or integral colors, scored patterns, special finishes including exposed aggregate or sandblasted surfaces, pavers and tile inserts.
- A 20' wide promenade shall connect to the Plaza Park to a small plaza overlooking the valley.
 - Loading and unloading shall be conducted from 10 pm to 7 am to prevent interference with traffic and pedestrians (see Figure 3-28 on page 3-41).
 - Trash enclosures shall be screened from public ROW's and primary building facades and shall have locked tops. Screening shall incorporate decorative elements (see Figure 3-29 on page 3-42).
 - The Village Center shall incorporate continuously linked terraces or pedestrian walkways of at least 15 feet in width extending between all buildings. Such terrace feature shall provide an opportunity to tie into the perimeter pathway system and to orient retail/food uses towards the perimeter views. The terrace shall incorporate pedestrian elements such as tables, benches, artwork, planter pots and/or special hardscape design. To provide shade in the summer, deciduous shade trees shall be planted approximately 25 feet on center along the length of the required pedestrian zone. These trees shall be placed at least 15 feet away from the face of any building wall.
 - Buildings surrounding the Plaza Park and extending around the Village Center perimeter shall be oriented with windows and public entries overlooking the Plaza Park and the valley.
 - Building elevations shall incorporate the same architectural elements on the sides and rear of the building as used on the front.

The Plaza Park is to be designed as an integral part of the master plan for the Village Commercial Center and will be further defined in the Design Guideline package submitted to and approved by the City of Sparks.

- The Plaza Park shall incorporate:
 - Paving design that is consistent with and/ or complementary to the design established for the Village Center;
 - Planters, paving patterns, bollards, site furniture or other design features to direct pedestrians to

crosswalks at Silver Stream Road and the Copper Canyon Park beyond;

- Thematic lighting compatible with that used along the Village Center to supplement standard street lighting and promote evening access to and use of the Village Center;
- The Plaza Park shall be developed concurrently with the directly adjacent commercial development;
- The developer of the Village Commercial Center shall be responsible for financing, construction and maintenance of the Plaza Park;

3.8.3 RESIDENTIAL MEDIUM TO HIGH DENSITY DESIGN STANDARDS

- Separate vehicular and pedestrian circulation systems shall be provided within multiple family projects which minimize auto and pedestrian conflicts.
- Common open space areas shall be planned with specific functions in mind. Such areas shall be more than just “left-over” spaces after building design.
- Open space areas shall be connected with on-site pedestrian circulation systems. Common areas shall be readily accessible from all buildings.
- Open space areas shall be used to preserve existing natural features where appropriate.
- Residential high density units adjacent to open space shall visually incorporate such open space in the project design by including view corridors from the interior of the project.
- Parking areas adjacent to parks and open space shall not exceed fifty percent (50%) of the common boundary frontage.
- Private open space shall be directly accessible from adjacent units and shall consider wind and sun as factors of orientation and design.
- Private open space (patio/balcony) will comply with the DSM.
- Washer/dryer hookups will be provided in accordance with the DSM.
- All Residential High Density projects shall comply with DSM standards.

3.8.4 RESIDENTIAL SINGLE-FAMILY DESIGN STANDARDS

The standards and concepts below are organized by specific issues or objectives and shall comply with the DSM for single family residential development.

- Circulation systems (both motorized and non-motorized) shall be planned within single family projects with the pedestrian in mind, systems will be established to minimize auto and pedestrian conflicts.
- Common open space and pocket park areas shall be planned for passive and active recreation uses. These open space areas are integral to the design of the single family projects.
- Open space and pocket park areas shall be connected by a pedestrian system and all open spaces are to be linked for greater accessibility.
- Open space areas shall be designed in their form and function to preserve existing natural features where appropriate.
- Pocket Park design standards are as follows:
 - Minimum of 6 parks.
 - 10,000 sf minimum in size
 - Maintained by lighting / landscape district or the CCPOA.
 - Privately owned by the CCPOA.
 - Contain amenities including but not limited to tot lots, benches, shade structures, picnic tables and possibly public art, sculptures and gardens.
 - All single family residences shall have a pocket park within 1/2 mile.

TABLE 3-2 PARKING TABLE

PARKING	
Residential Uses	
Single Family Residence	1 off-street parking space shall be provided per BR
Model Home Complex	7 spaces minimum
Apartments/Condominiums	1.5 per efficiency, studio or 1 BR 1 Off-street parking space per BR
Townhomes	1 Off-street parking space per BR or max, 2.5 spaces per DU if common parking space is provided
Active Adult	1 Off-street parking space per BR or max, 2.5 spaces per DU if common parking space is provided
Senior Housing	0.5 per BR, (+) 1 per employee during largest shift
Rest Homes	0.25 per BR, (+) 1 per employee during largest shift
Group Homes	0.75 per BR, (+) 1 per employee during largest shift
Non-Residential Uses	
Bar	1 per 100 sq ft of floor area including service area
Restaurant	1 per 100 sq ft of floor area including service area
Personal Services	1 per 150 sq ft of net leasable floor area
Medical, Dental, Veterinary Office	1 per 175 sq ft of net leasable floor area
Sports Club	1 per 200 sq ft of building area
Professional Offices	1 per 250 sq ft of net leasable floor area
Retail & Service	1 per 250 sq ft of net leasable floor area
Day Care, Childcare Facility	1 per 8 children, + 1 per employee
High Technology	1 per 1,000 sq ft of assembly / manufacturing area
Casino	1 per 100 sq ft of gaming floor area
Hotel, Motel	1 per room if < than 50 rooms, 0.8 per room if > 50 rooms, plus parking for restaurants, bars, meeting rooms or other associated uses
Entertainment Venue	1 per 100 sq ft of floor area or 1 per 4 seats

Key:

Parking, stall dimensions and layout per SMC.

BR = bedroom

DU = dwelling unit

SUP = Special Use Permit

TABLE 3-3 NON-RESIDENTIAL SETBACKS & DENSITY

Land Use Designations	Tourist Commercial (TC)	Mixed Use (MX)	Business Park (BP)	Public Facility/Community Use (PF)
Comments	H		G	
Set-Back				
Front-Yard	none	15 ft	15 ft	20 ft
Side-Yard	none	0 ft to Property Line 15 ft to ROW	5 & 10 ft	10 ft
Exterior-Side Yard	none	15 ft	none	10 ft
Rear-Yard	none	20 ft	10 ft	10 ft
Garage	N/A	20 ft	N/A	N/A
Commercial Lot Characteristics				
Building Separation (Min)	40 ft	Per IBC	40 ft	Per IBC
Building Height (Max)	150 ft	80 ft	80 ft	35 ft
Lot Coverage (Max)	50%	40%	N/A	50%
Floor Area Ratlon (Min)	N/A	N/A	1.25	N/A
Landscaping (Min)	10% of development area of improved site	20% of development area of improved site	20% of development area of improved site	20% of development area of improved site

FAR = Floor Area Ratio

TABLE 3-3A RESIDENTIAL HIGH DENSITY SETBACKS

LAND USE DESIGNATIONS	Residential High Density Attached (MDR, HDR)	Residential High Density Detached (MDR, HDR)	Residential Single Family (LDR, LMDR)
Comments	B/E/F	B/E/F	A/B/C/D/E
Lot Width (Min)	20 ft	35 ft	See Comment C/D
Lot Frontage (Min)	20 ft	35 ft	15 ft
Lot Size	1,000 sf	1,000 sf	4,500 sf - 1 AC
Front Yard	10 ft	10 ft	15 ft
Side Yard	0 ft between units	5 ft	7.5 ft
Minimum Distance from Property Line			
1 story	0 ft	N/A	N/A
2 stories	15 ft	N/A	N/A
3 stories	20 ft	N/A	N/A
4 stories	25 ft	N/A	N/A
Minimum Distance Between Structures	Per IBC	Per IBC	15 ft
Corner-Side Yard	10 ft	10 ft	15 ft
Rear-Yard	15 ft	15 ft	20 ft
Garage/Carport	18 ft	18 ft	20 ft
Residential Lot Characteristics			
Building Separation (Min)	Per IBC	Per IBC	Per IBC
Building Height (Max)	45 ft	45 ft	30 ft
Lot Coverage (Max)	50%	50%	40%
Rear Yard (Min)	400 sf	350 sf	20 ft
Residential Landscaping			
Recreational Area	100 sf/unit	100 sf/unit	N/A
Area Requirements (Min) (Development area of improved site)	20%	20%	Front Yard

SETBACK AND DENSITY COMMENTS

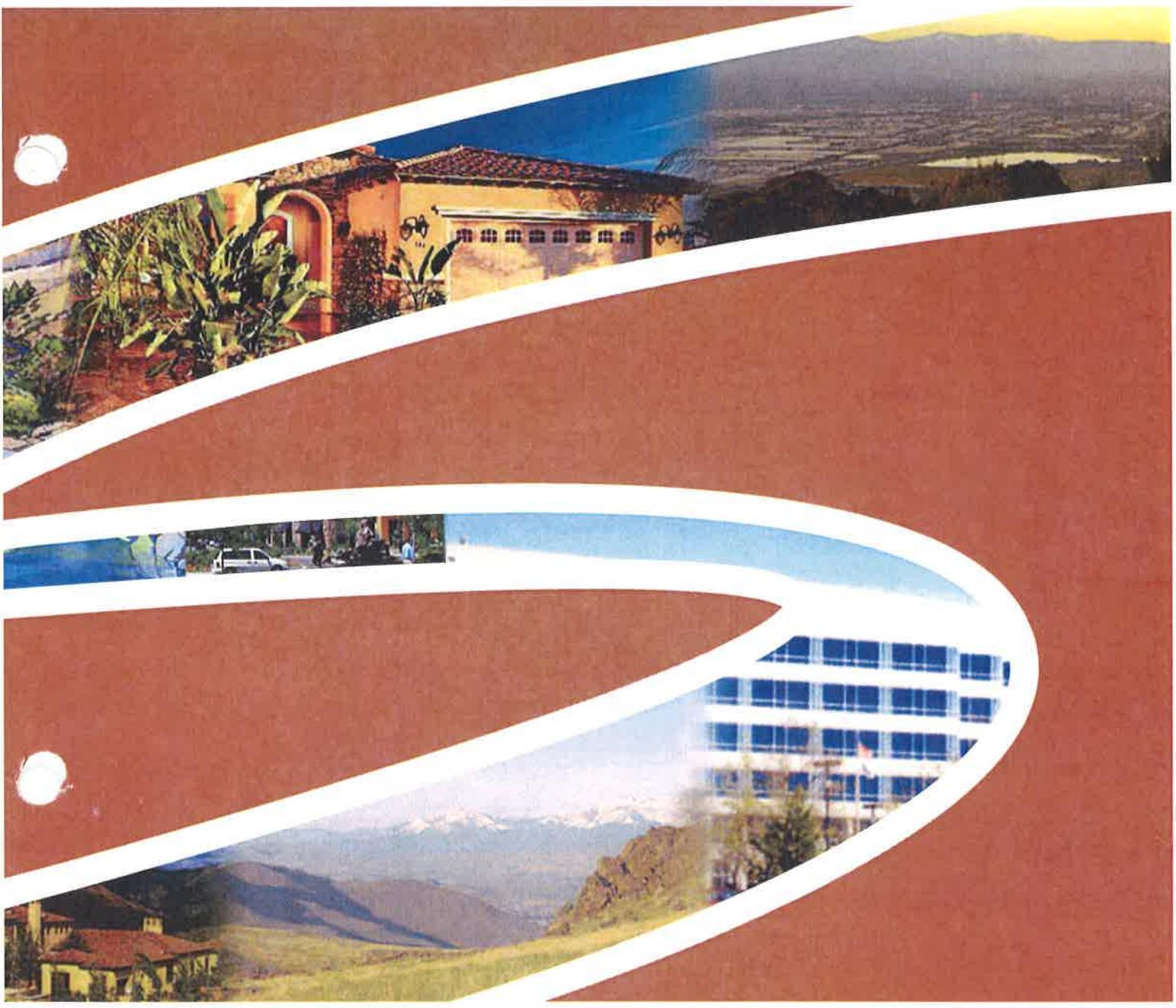
- A) **Projections into Required Setbacks:** Cornices, canopies, eaves, chimneys or similar architectural features may extend a maximum of 2 ft into a required setback and are not to exceed 5% of facade with architectural feature.
- B) **Screened vehicle storage:** recreational vehicle, boat or trailer storage is allowed, but must be located in the rear yard & screened by a solid fence 6 ft in height. Pickup trucks with campers or vans that serve as primary transportation are exempted from this provision.
- C) **Minimum lot width** (4,500-6,000sf min lots) = 45 ft width (average) & 35 ft frontage (minimum).
- D) **Minimum lot width** = 1 acre minimum lot size; 100 ft width (average) & 35 ft frontage (minimum); building limitations proposed on any lot located adjacent to the western property line of 24890 Westview Blvd. (APN 030-192-01) building height shall be limited to a max of 1 story.
- E) Minimum 20 ft setback from edge of open space areas for a primary structure, accessory structures may be 10 feet from the edge of open space/property line and shall be consistent in materials and color to the primary structure.
- F) Front yard setback to curb 15 ft on terraced pads; minimum rear yard 400 sq ft.
- G) Any standards not addressed above shall comply with SMC for PO.
- H) Any standards not addressed above shall comply with SMC for TC.

NOTES

- Anywhere the project design restricts fire truck access, the units beyond allowable distance as determined by City of Sparks Fire Department, these units shall have an NFPA 13 fire sprinkler system installed that is locally monitored to the satisfaction of the Fire Chief.
- Any standards not addressed above shall comply with SMC for R3 & R5.
- Setbacks may vary from those listed in SMC for R3 due to building constraints found on terraced pads.
- Projection into required setbacks: cornices, canopies, eaves, chimneys or similar architectural features may extend a maximum of 2 ft into a required front or rear yard setback and are not to exceed 25% of façade with architectural feature.
- Builder shall provide front yard landscaping in single family residential areas.

TABLE 3-4 SIGN STANDARDS

SIGNS	
Residential Uses	
EDR	R1
LDR	R1
LMDR	R1
MDR	R5
HDR	R5
Non-Residential Uses	
TC	TC
BP	C1
MX	C1
PF	PF
MDR	PO
HDR	PO



COPPER  CANYON
COMMERCE & TECHNOLOGY PARK MASTER PLANNED COMMUNITY

APPENDIX

SEPTEMBER 2008 • SPARKS, NEVADA

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

October 13, 2005

Regulatory Branch (200025084)

Michael Barnes
5050 Vista Boulevard, Suite 103
Sparks, Nevada 89436-2845

Dear Mr. Barnes:

This concerns your proposed Copper Canyon Commercial And Housing Devevelopment project. The project is located in Sections 1, 12, & 36, Township 20, 19 North, Range 20 East, MDB&M, Washoe County, Nevada.

Based on the information you have provided, we have determined work there are no waters of the United States on your property. Therefore, a Department of the Army Permit is not required for this work.

Please refer to Corps identification number 200025084 in any correspondence concerning this project. If you have any questions, please contact Richard Gebhart, Reno Regulatory Office, 300 Booth Street, Room 2103, Reno, Nevada 89509-1361, email richard.a.gebhart@usace.army.mil, or telephone 775-784-5307. You may also use our website: www.spk.usace.army.mil/regulatory.html.

Sincerely,

ORIGINAL SIGNED

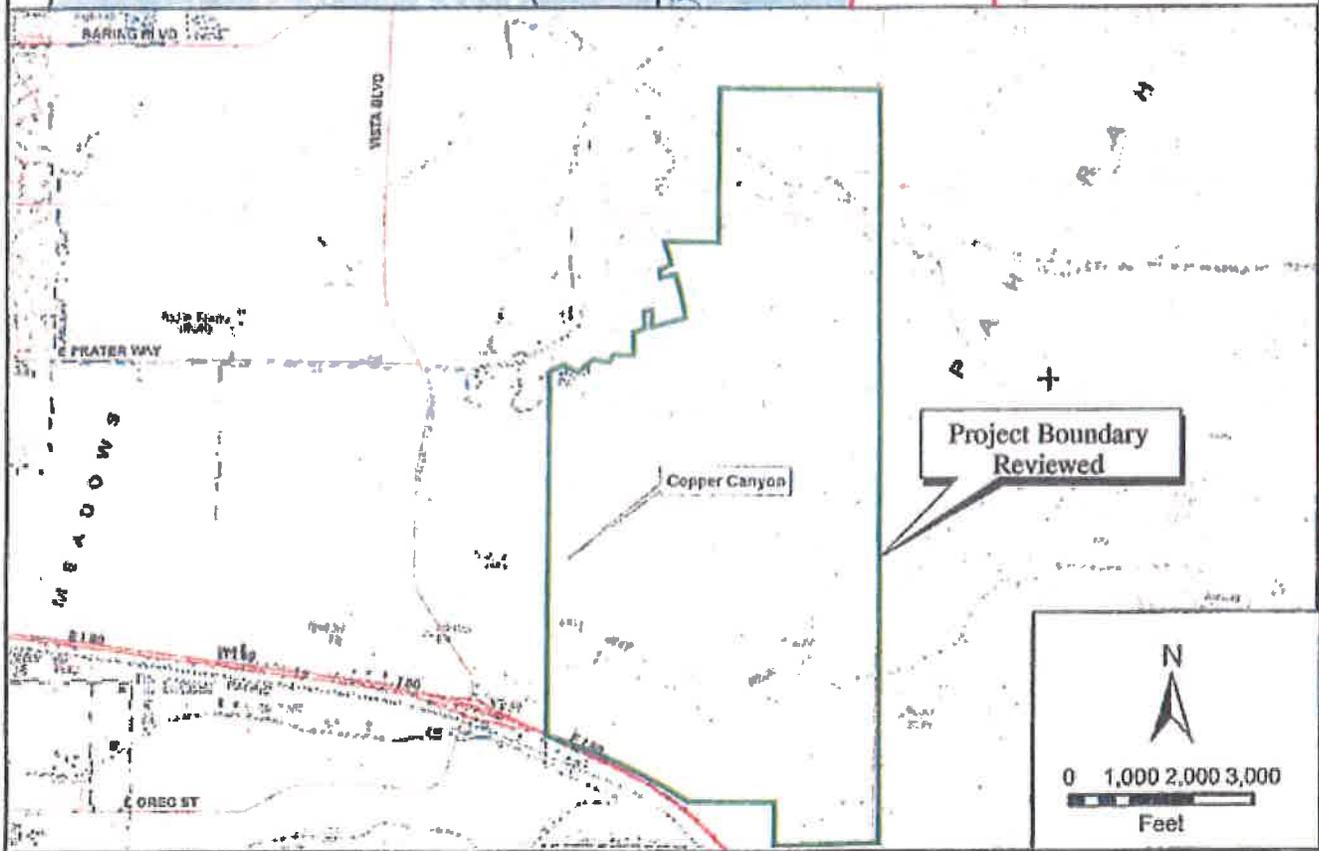
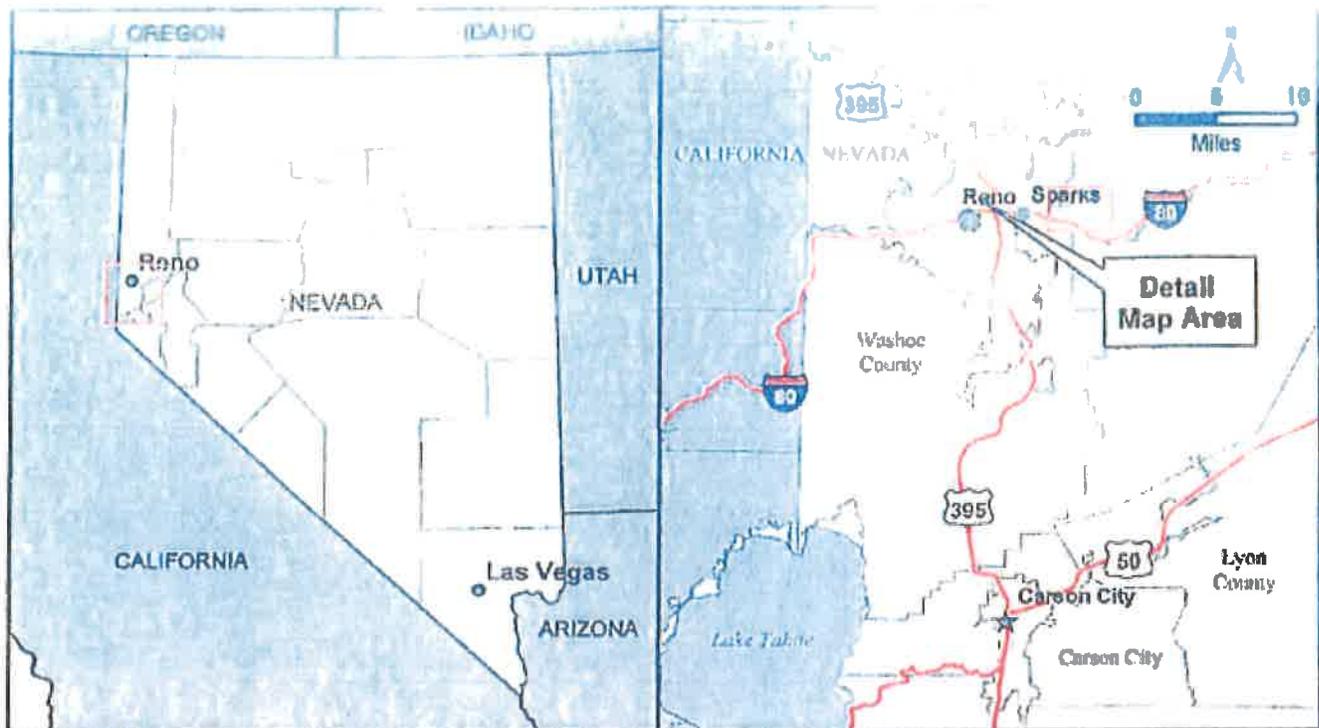
Michael S. Jewell
Chief, Central California/Nevada
Section

Enclosure

Copy Furnished with Enclosure:

Glen Gentry, Nevada Division of Environmental Protection, Bureau of Water Quality
Planning, 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701-5249
Debra Lemke, Huffman and Carpenter, Inc., 500 Damonte ranch Parkway, Suite 929,
Reno, Nevada 89521-5911

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Drawing Provided by Agent

Project Vicinity Maps

Copper Canyon Development
 Copper Canyon Project Site
 October 2005
 Corps Number: 200025084
 Sheet 1 of 1 of Enclosure 1

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SOLAEGUI
ENGINEERS

February 19, 2007

Ms. Janelle Thomas, P.E.
City of Sparks
1675 E. Prater Way
Sparks, Nevada 89432-0857

RE: Traffic Analysis Update, Copper Canyon – Vista Property

Dear Janelle:

This letter provides updated traffic analysis for the referenced project as a result of an increase of 50 condominium dwelling units. The condominiums have increased from a total of 150 to 200 dwelling units. The project site is located east of Vista Boulevard and north of I-80. The project site is shown on attached Figure 1. The previous traffic analysis of the project site was presented in the report, "Vista Property Traffic Analysis," dated September, 2006. This letter presents updated trip generation, distribution and assignment; intersection capacity analysis of the Vista Boulevard intersections with Brierley Way-Copper Canyon Parkway and Eastern Slope Road (Loop Road) and Salomon Circle intersections with Eastern Slope Road and Copper Canyon Parkway; left turn storage review; site plan review and discussion of Intelligent Transportation Systems (ITS) recommendations.

Proposed Land Uses

The developers of the Vista Property project are also developing the Copper Canyon Technology & Commerce Park to the west, which includes single family and multi-family dwelling units, a hotel, a business park, restaurants, retail and recreation facilities. The Vista Property project will now include the construction of a 130-room hotel, 200 dwelling units of condominiums, 79,750 square feet of general office and 77,350 square feet of retail land use. The hotel is located in the southeast corner of the project site, the condominiums are located in the northeast corner of the project site, and the retail/office buildings are located along Salomon Circle and the south side of Copper Canyon Parkway. The condominiums will be adjacent to a mixed use of general office, retail, multi-family dwellings and recreational facilities in the Copper Canyon Technology & Commerce Park.

Existing and Proposed Roadways and Intersections

With project construction, Salomon Circle east of the Vista Boulevard/Brierley Way intersection will be renamed Copper Canyon Parkway, and Loop Road east of Vista Boulevard will be renamed Eastern Slope Road. Salomon Circle will be extended south to intersect Copper Canyon Parkway, thereby linking Eastern Slope Road and Copper Canyon Parkway. Access to the hotel will be from Copper Canyon Parkway. Access to the retail and office land uses will be from Copper Canyon Parkway and Salomon Circle. Access to the condominiums will be through the Copper Canyon Commerce & Technology Park via Eastern Slope Road and/or Copper Canyon Parkway. The key study area roadways and intersections analyzed in this traffic report are described as follows:

Vista Boulevard is a five-lane roadway with two lanes in each direction and a center two-way left turn lane between Brierley Way and Prater Way. The speed limit is posted for 40 miles per hour. Roadway improvements generally include curb and gutter with sidewalk in some areas. Vista Boulevard is a four-lane roadway with two lanes in each direction south of Brierley Way. The speed limit is posted for 35 miles per hour. Roadway improvements include raised center medians with protected left turn pockets, and a mix of curb, gutter and sidewalk, curb and gutter, and graded shoulders.

Salomon Circle is currently a discontinuous roadway with one lane in each direction. The north segment ends approximately 2,200 feet south of Loop Road and the south segment ends approximately 300 feet east of Vista Boulevard opposite Brierley Way. The speed limit is not posted. Roadway improvements include curb and gutter with sidewalk in some locations.

Brierley Way is a two-lane roadway with one lane in each direction west of Vista Boulevard. The speed limit is posted for 25 miles per hour. Roadway improvements include curb and gutter, and sidewalk at the intersection with Vista Boulevard.

Loop Road (Eastern Slope Road) is currently a wide two-lane roadway with one lane in each direction east of Vista Boulevard. The speed limit is posted for 25 miles per hour. Roadway improvements include curb and gutter. East of Salomon Circle, the roadway becomes a dirt road with a gated access to Horseman's Park/Gandolfo Arena. West of Vista Boulevard, the roadway is a warehouse driveway. Eastern Slope Road will be extended and realigned east of Salomon Circle.

The Vista Boulevard/Loop Road (Eastern Slope Road) intersection is currently an unsignalized intersection with stop sign control on the Loop Road east approach and driveway west approach. The north and south approaches each contain one left turn lane, one through lane and one shared through-right turn lane. The east and west approaches each contain one lane from which all movements are made.

The Vista Boulevard/Brierley Way intersection is currently a traffic signal controlled intersection with protected left turn phasing at the north and south approaches. The north and south approaches each contain one left turn lane, one through lane and one shared through-right turn lane. The west approach contains one shared left turn-through lane and one right turn lane. The east approach

contains one left turn lane and one shared through-right turn lane.

The Loop Road (Eastern Slope Road)/Salomon Circle intersection is currently an uncontrolled intersection. The east Loop Road west approach and Salomon Circle south approach each contain one lane from which all movements are made. Also, the south approach contains a raised center median.

The Copper Canyon Parkway/Salomon Circle intersection currently does not exist. It is anticipated that ultimately the intersection will be a four-leg intersection with the south leg serving a pad for the Copper Canyon Commerce and Technology Park.

Trip Generation

In order to assess the magnitude of traffic impacts of the proposed development on the key roadways and intersections, trip generation rates and peak hours had to be determined. Trip generation rates were obtained from the Seventh Edition of *ITE Trip Generation* for Land Use 230: Residential Condominium/Townhouse, Land Use 310: Hotel, Land Use 710: General Office Building and Land Use 814: Specialty Retail Center. The trip generation worksheets are attached to this letter.

Trips generated by the project were calculated for peak hours between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic.

Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour traffic volumes generated by the updated project, and a comparison with the trip generation of the previous study.

TABLE 1
TRIP GENERATION

LAND USE	ADT	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
UPDATED PROJECT							
Condominiums							
200 Dwelling Units	1,172	14	74	88	70	34	104
Hotel							
130 Rooms	1,062	44	29	73	40	36	76
General Office							
79,750 Square Feet	878	108	15	123	20	99	119
Specialty Retail							
77,350 Square Feet	<u>3,428</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>92</u>	<u>118</u>	<u>210</u>
Total Trip Generation	6,540	166	118	284	222	287	509
ORIGINAL VISTA PROPERTY STUDY							
Condominiums							
150 Dwelling Units	879	11	56	67	53	26	79
Hotel							
130 Rooms	1,062	44	29	73	40	36	76
General Office							
79,750 Square Feet	878	108	15	123	20	99	119
Specialty Retail							
77,350 Square Feet	<u>3,428</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>92</u>	<u>118</u>	<u>210</u>
Total Trip Generation	6,247	163	100	263	205	279	484
COMPARISON	+293	+3	+18	+21	+17	+8	+25

As shown in Table 1, the project is anticipated to generate a total of 6,540 average daily trips with 284 trips occurring during the AM peak hour and 509 trips during the PM peak hour. The table shows an increase in the new proposed project trips over the previous traffic analysis of 293 average daily trips, 21 trips during the AM peak hour and 25 trips during the PM peak hour.

Trip Distribution and Assignment

The distribution of external project trips to the key intersections was based on the directions of approach shown on attached Figure 1. Project trips were subsequently assigned to the key intersections based on these directions of approach. An internal capture of 7% was taken for the condominiums which are adjacent to the mixed use of retail, office and recreational facilities. Attached Figure 2 shows the project peak hour trip assignment during the AM and PM peak hours for the updated project development.

Projected Traffic Volumes

The traffic volumes in the original study were based on the Regional Transportation Commission's (RTC) 2012 and 2030 base peak hour volumes at the Vista Boulevard intersections with Brierley Way and Loop Road obtained from the Vista Corridor Study. The condominiums were not included in RTC's model data. The 2012 and 2030 base peak hour volumes were adjusted for site conditions as discussed in the original study, including the manual addition of the condominium trips to the 2012 and 2030 base peak hour volumes. Consequently, the increased trips generated by the 50 additional condominium dwelling units were added to the 2012 and 2030 peak hour traffic volumes shown in the original study to obtain the updated 2012 and 2030 peak hour traffic volumes. Attached Figures 3 and 4 respectively show the updated 2012 and 2030 traffic volumes during the AM and PM peak hours at the key intersections.

Capacity Analysis

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual* (2000) for signalized and unsignalized intersections. SIDRA software was used to analyze roundabout intersections. The result of capacity analysis is a "level of service" rating, where a letter grade "A" through "F," which corresponds to progressively worsening operation, is assigned to the intersection.

The "level of service" for stop controlled intersections is defined in terms of computed control delay for each minor movement but is not defined for the intersection as a whole. The unsignalized intersection "level of service" criteria are shown in Table 2.

TABLE 2
LOS CRITERIA FOR UNSIGNALIZED INTERSECTIONS

<u>LEVEL OF SERVICE</u>	<u>DELAY RANGE (SEC/VEH)</u>
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

The "level of service" for signalized intersections is stated in terms of the average control delay per vehicle for a peak 15-minute analysis period. The "level of service" criteria for roundabout intersections are the same as for signalized intersections. The signalized and roundabout intersection "level of service" criteria are shown in Table 3.

TABLE 3
LOS CRITERIA FOR SIGNALIZED AND ROUNDABOUT INTERSECTIONS

<u>LEVEL OF SERVICE</u>	<u>CONTROL DELAY PER VEHICLE (SEC)</u>
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

A summary of "level of service" (LOS) operation for the key intersections in this study is shown in Table 4. The intersection capacity worksheets are attached.

TABLE 4
INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS

<u>INTERSECTION</u>	YEAR 2012		YEAR 2030	
	<u>AM</u>	<u>PM</u>	<u>AM</u>	<u>PM</u>
Vista/Eastern Slope (Loop) Signalized Intersection Delay	B19.8	C22.8	C24.2	C29.6
Eastern Slope (Loop)/Salomon Unsignalized				
WB Left	A7.7	A8.9	N/A	N/A
NB Left	B14.1	E40.0	N/A	N/A
NB Right	A8.9	B12.5	N/A	N/A
Roundabout				
West Approach	A4.3	A3.7	A4.7	A3.7
South Approach	A9.0	B13.5	A8.1	B13.1
East Approach	A1.7	A2.4	A1.6	A2.5
Intersection Delay	A2.8	A5.0	A2.8	A4.6
Vista/Brierley-Copper Canyon Intersection Delay	C27.5	C28.1	C32.6	C33.8
Copper Canyon/Salomon Unsignalized High "T"				
EB Left	A8.6	A9.8	A8.6	B11.3
NB Right	A8.4	A8.7	A8.4	A8.7
SB Left	C17.1	C22.4	C18.9	D35.0
SB Right	B11.3	B14.6	B10.2	B12.6

Vista Boulevard/Eastern Slope Road (Loop Road)

In the original traffic study, it was recommended that a traffic signal be installed at the Vista Boulevard/Loop Road intersection when warranted to serve the existing traffic volumes. Consequently, the Vista Boulevard/Eastern Slope Road intersection was analyzed as a signalized intersection with protected left turn phasing at all approaches for the 2012 and 2030 traffic volumes. As in the original study, the intersection was analyzed with dual left turn lanes, one through lane and one right turn lane at the Eastern Slope Road east approach; one left turn lane and one shared through-right turn lane at the driveway west approach; one left turn, two through lanes and one shared through-right turn lane at the north approach; and one left turn lane, three through lanes and one right turn lane at the Vista Boulevard south approach. For the 2012 traffic volumes,

the intersection is expected to operate at level of service B and C with a delay of 19.8 and 22.8 seconds per vehicle during the AM and PM peak hours, respectively. For the 2030 traffic volumes, the intersection is expected to operate at level of service C with a delay of 24.2 and 29.6 seconds per vehicle during the AM and PM peak hours, respectively.

As in the original study for the 2012 and 2030 traffic volumes, the signalized Vista Boulevard/Eastern Boulevard intersection will need to be improved to contain dual left turn lanes, one through lane and one right turn lane at the east approach; one left turn lane and one shared through-right turn lane at the west approach; one left turn lane, two through lanes and one shared through-right turn lane at the north approach; and one left turn lane, three through lanes and one right turn lane at the south approach. RTC's *2030 Transportation Plan* indicates that Vista Boulevard will be widened to eight lanes between I-80 and Prater Way by fiscal year 2012.

Eastern Slope Road (Loop Road)/Salomon Circle

The Eastern Slope Road/Salomon Circle intersection was analyzed as an unsignalized intersection with stop sign control on the Salomon Circle south approach for the 2012 traffic volumes. As in the original study for the 2012 traffic volumes, the intersection was analyzed with one left turn lane and one through lane at the east approach, one through lane and one right turn lane at the west approach, and one left turn lane and one right turn lane at the south approach. For the 2012 traffic volumes, the critical intersection movements are expected to operate at level of service B or better during the AM and PM peak hours with the exception of the northbound left turn movement which operates at level of service E during the PM peak hour.

As indicated in the original study, a roundabout is needed to serve the 2030 traffic volumes. As in the original study, the intersection was analyzed as a roundabout intersection for the 2012 and 2030 traffic volumes. As a roundabout intersection, the intersection approaches will operate at level of service B or better during the AM and PM peak hours for the 2012 and 2030 traffic volumes. In order to serve 2012 traffic volumes as a roundabout intersection, the Eastern Slope Road/Salomon Circle intersection will need to contain one lane at each approach from which all movements are made. In order to serve 2030 traffic volumes, the Eastern Slope Road/Salomon Circle intersection will need to be a roundabout intersection containing two approach lanes at the Eastern Slope Road east and west approaches and one approach lane at the Salomon Circle south approach with one shared left turn-through lane and one through lane at the east approach, one through lane and one shared through-right turn lane at the west approach, and one shared left turn-right turn lane at the south approach.

Vista Boulevard/Brierley Way-Copper Canyon Parkway

The Vista Boulevard/Brierley Way-Copper Canyon Parkway intersection was analyzed as a signalized intersection with protected left turn phasing at all approaches for the 2012 and 2030 traffic volumes. As in the original study, the intersection was analyzed with one left turn lane, three

through lanes and one right turn lane at the north and south approaches; dual left turn lanes, one through lane and one right turn lane at the east approach; and one left turn lane, one through lane and one right turn lane at the west approach for the 2012 and 2030 traffic volumes.

For 2012 traffic volumes, the intersection is expected to operate at level of service C with a delay of 27.1 and 28.1 seconds per vehicle, respectively. For 2030 traffic volumes, the intersection is expected to operate at level of service C with a delay of 32.6 and 33.8 seconds per vehicle, respectively. In order to serve 2012 and 2030 traffic volumes, the Vista Boulevard/Brierley Way-Copper Canyon Parkway intersection will need to be improved to contain one left turn lane, three through lanes and one right turn lane at the north and south approaches; dual left turn lanes, one through lane and one right turn lane at the east approach; and one left turn lane, one through lane and one right turn lane at the west approach. RTC's *2030 Transportation Plan* indicates that Vista Boulevard will be widened to eight lanes by fiscal year 2012.

Copper Canyon Parkway/Salomon Circle

As indicated in the original study that in order to serve 2012 and 2030 traffic volumes, the Copper Canyon Parkway/Salomon Circle intersection needs to be a high "T" intersection. Consequently, the Copper Canyon Parkway/Salomon Circle intersection was analyzed as an unsignalized high "T" intersection at the Salomon Circle north approach with stop sign control on the north approach and driveway south approach for the 2012 and 2030 traffic volumes. As in the original study for the 2012 traffic volumes, the high "T" intersection was analyzed with one through lane and one right turn lane at the east approach; one left turn lane, one through lane and one right turn lane at the west approach; one left turn lane and one right turn lane at the north approach; and one right turn lane at the south approach. For the 2012 traffic volumes, the critical intersection movements are expected to operate at level of service C or better during the AM and PM peak hours. As in the original study, the high "T" intersection will need to contain one through lane and one right turn lane at the east approach; one left turn lane, one through lane and one right turn lane at the west approach; one left turn lane and one right turn lane at the north approach; and one right turn lane at the south approach to serve the 2012 traffic volumes.

As in the original study for the 2030 traffic volumes, the high "T" intersection was analyzed with two through lanes and one right turn lane at the east approach; one left turn lane, two through lanes and one right turn lane at the west approach; one left turn lane and one right turn lane at the north approach; and one right turn lane at the south approach. For the 2030 traffic volumes, the critical intersection movements are expected to operate at level of service C or better during the AM and PM peak hours with the exception of the southbound left turn movement which operates at level of service D during the PM peak hour for the 2030 traffic volumes. As in the original study, the high "T" intersection will need to contain two through lanes and one right turn lane at the east approach; one left turn lane, two through lanes and one right turn lane at the west approach; one left turn lane and one right turn lane at the north approach; and one right turn lane at the south approach to serve the 2030 traffic volumes.

Left Turn Storage

Left turn storage was reviewed at the key intersections for the 2012 and 2030 traffic volumes. The left turn storage lengths at the unsignalized Copper Canyon Parkway/Salomon Circle intersection remain unchanged at 150 feet at the north and west legs for both the 2012 and 2030 traffic volumes.

Left turn storage requirements were reviewed at the east and north legs of the Vista Boulevard intersections with Eastern Slope Road (Loop Road) and Brierley Way-Copper Canyon Parkway based on the Poisson Method for signalized intersections with a 95% confidence level and 120-second cycle length for the 2012 and 2030 traffic volumes. For the Vista Boulevard/Eastern Slope Road intersection, the east leg dual left turn storage length of 175 feet per lane and the north leg storage length of 350 feet remain unchanged for the 2012 traffic volumes; the east leg dual left turn storage length of 250 feet per lane remains unchanged and the north leg storage length of 400 feet is needed for the 2030 traffic volumes.

For the Vista Boulevard/Brierley Way-Copper Canyon Parkway intersection, the east leg dual left turn storage length of 350 feet per lane and the north leg storage length of 225 feet remain unchanged for the 2012 traffic volumes; the east leg dual left turn storage length of 250 feet per lane remains unchanged and the north leg storage length of 325 feet is needed for the 2030 traffic volumes.

Site Plan Review

A copy of the tentative map plan for the Vista Property/Copper Canyon Commerce & Technology Park development is attached with this letter submittal. The condominiums of the Vista Property are located in area TM6 and the remainder of the Vista Property development is located in area TM7 of the tentative map plan. Access for the condominiums will be through TM5, which has access on the west side of Copper Canyon Parkway. Copper Canyon Parkway intersects Eastern Slope Road to the north. The tentative map plan shows that the Eastern Slope Road/Copper Canyon Parkway unsignalized "T" intersection has been realigned such that Eastern Slope Road is the major roadway and Copper Canyon Parkway is the minor intersecting roadway.

Intelligent Transportation Systems (ITS)

The Intelligent Transportation System (ITS) is a traffic management system which improves transportation safety and mobility through the use of wired and wireless communications information and electronics technology. ITS measures can relieve congestion and improve safety and roadway operation.

The Vista Property and Copper Canyon Commerce & Technology Park projects are substantial developments east of Vista Boulevard. Copper Canyon Parkway and Eastern Slope Road are the major access roads to the project site. The two main concerns are traffic congestion on Copper Canyon Parkway and safety due to the slopes and curves within the project site.

At the time of the initial project approval, ITS measures were anticipated in order to divert traffic from Copper Canyon Parkway to Eastern Slope Road. After the latest RTC model data was completed, it was established that most of the traffic diversion attributes of the ITS system are not needed. The Copper Canyon Parkway street segments and Vista Boulevard intersection can serve the traffic tributary to them without diverting trips. The RTC model uses locally calibrated trip generation volumes. In our opinion, these lower RTC trip generation volumes are the primary reason that the egress trip diversion is not necessary.

Though not an ITS solution, the realignment of the Eastern Slope Road/Copper Canyon Parkway intersection with Eastern Slope Road as the main roadway facilitates the use of Eastern Slope Road as the major access for the residential areas, reduce congestion on Copper Canyon Parkway, and accomplish the desired traffic diversion operation. Additionally, Eastern Slope Road will be a four-lane road from Copper Canyon Parkway to Vista Boulevard while Copper Canyon Parkway will be a two-lane roadway for a distance south of the diversion point. This will further make Eastern Slope Road more attractive and relieve congestion on Copper Canyon Parkway.

An ITS electronic information system is proposed with signs at strategic locations. This ITS system will provide advanced warning information including weather related road conditions and the need for reduced speeds. Road temperatures and vehicle speeds will be sensed in order to provide speed control as well as operate traffic control devices such as signs and dynamic message signs to warn motorists of roadway problems to enhance safety and mobility.

Findings

The key intersections continue to operate at the same levels of service with no increase or slight increases in delay for the 2012 and 2030 traffic volumes. The recommended lane improvements of the key intersections remain unchanged from the original study for the 2012 and 2030 conditions.

The left turn storage length increases from 350 to 400 feet at the north approach of the Vista Boulevard/Eastern Slope Road (Loop Road) intersection and 300 to 325 feet at the north approach of the Vista Boulevard/Brierley Way-Copper Canyon Parkway intersection for the 2030 traffic volumes. The north approaches of the Vista Boulevard intersections with Eastern Slope Road and Brierley Way-Copper Canyon Parkway contain a center two-way left turn lane, which is adequate to serve project traffic. All other left turn storage lengths remain unchanged for the 2012 and 2030 traffic volumes.

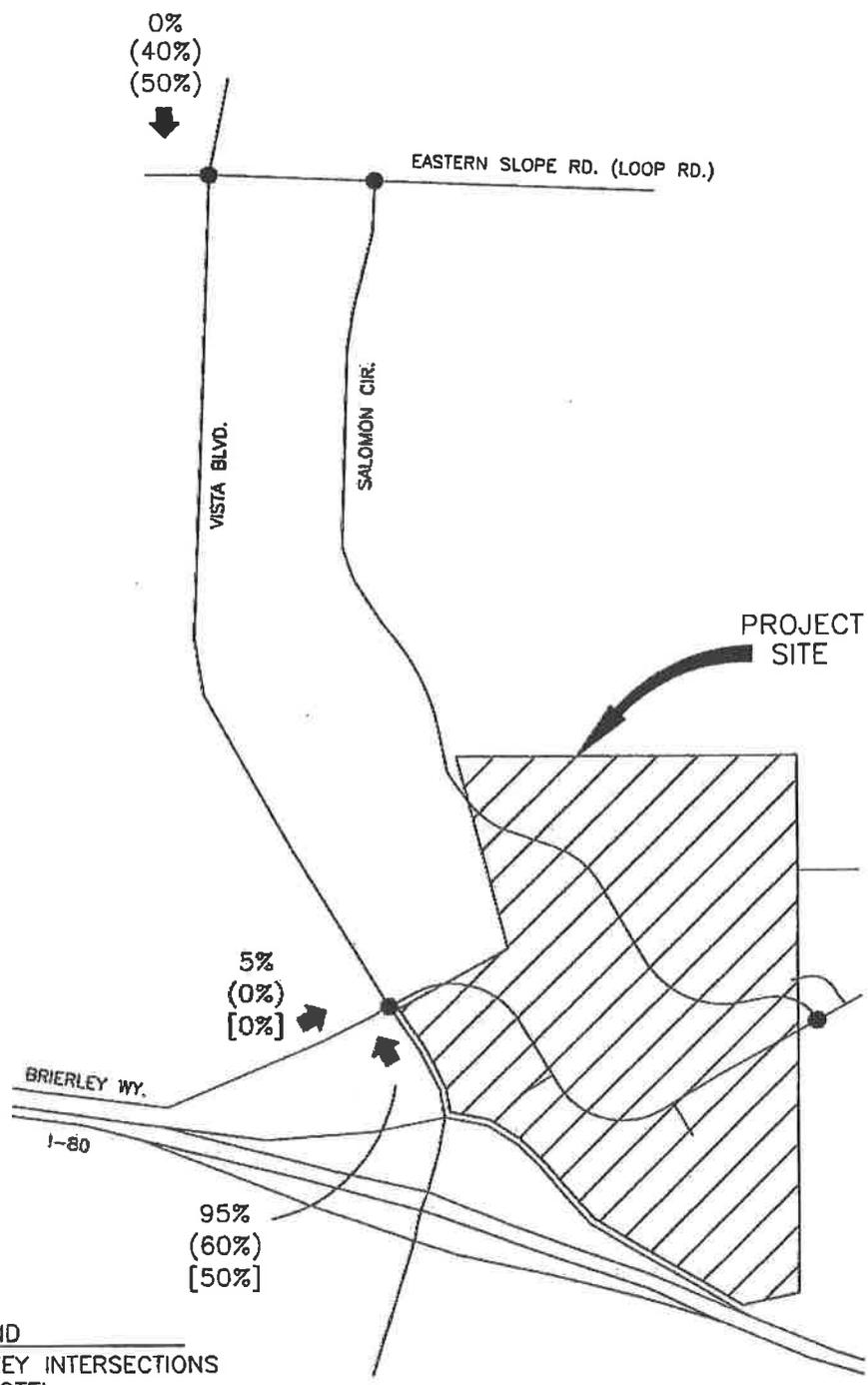
The proposed ITS electronic information system will enhance safety and traffic flow through advance warning information provided from sensing devices of roadway temperatures and vehicle speeds.

We trust that this information will meet your requirements. Please call if you have any questions or comments.



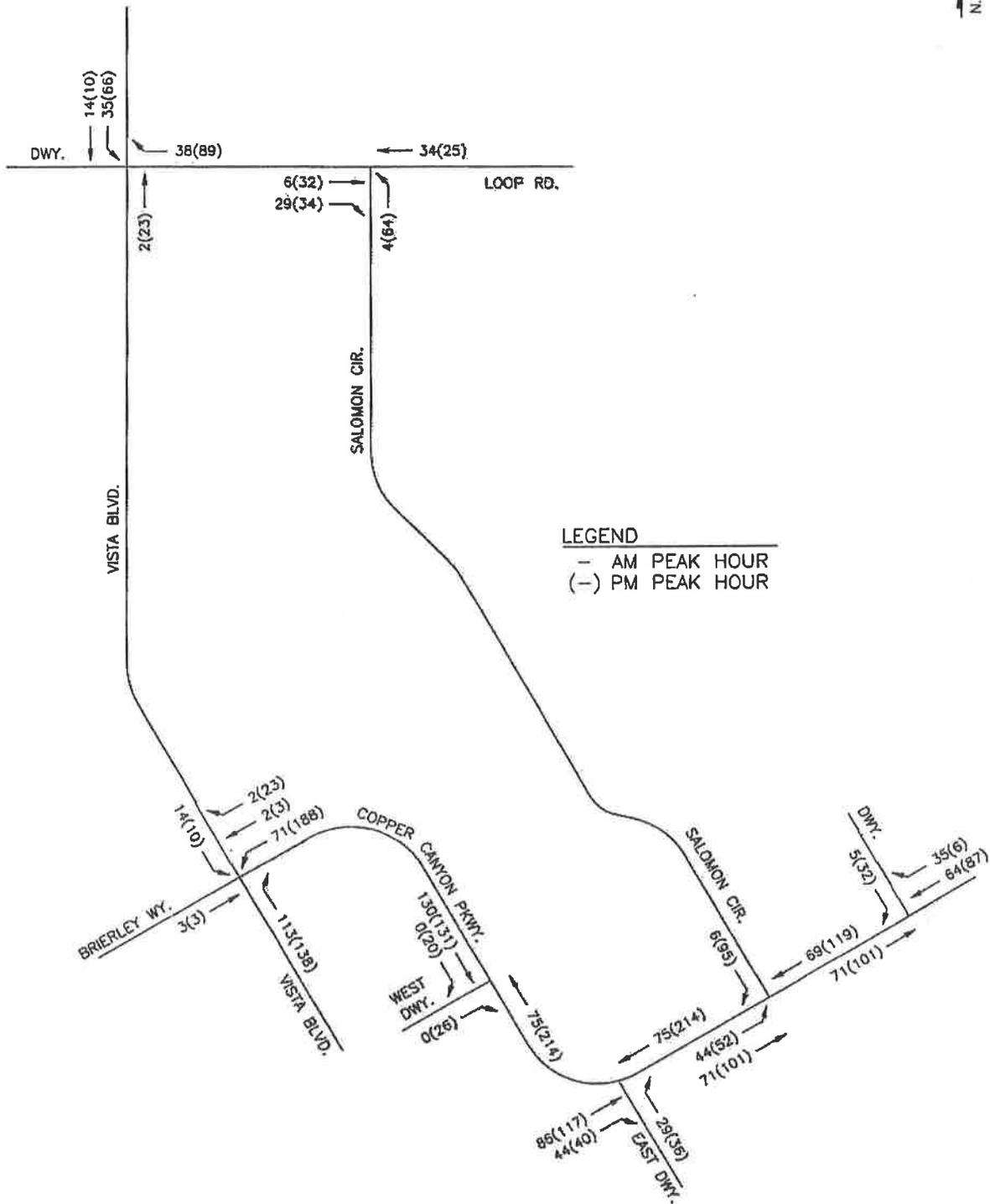
Enclosures

cc: Thomas Stoller, SunCal Copper Canyon Development
Engr 4/Word/Letters/Sparks/Vista Property Update.doc

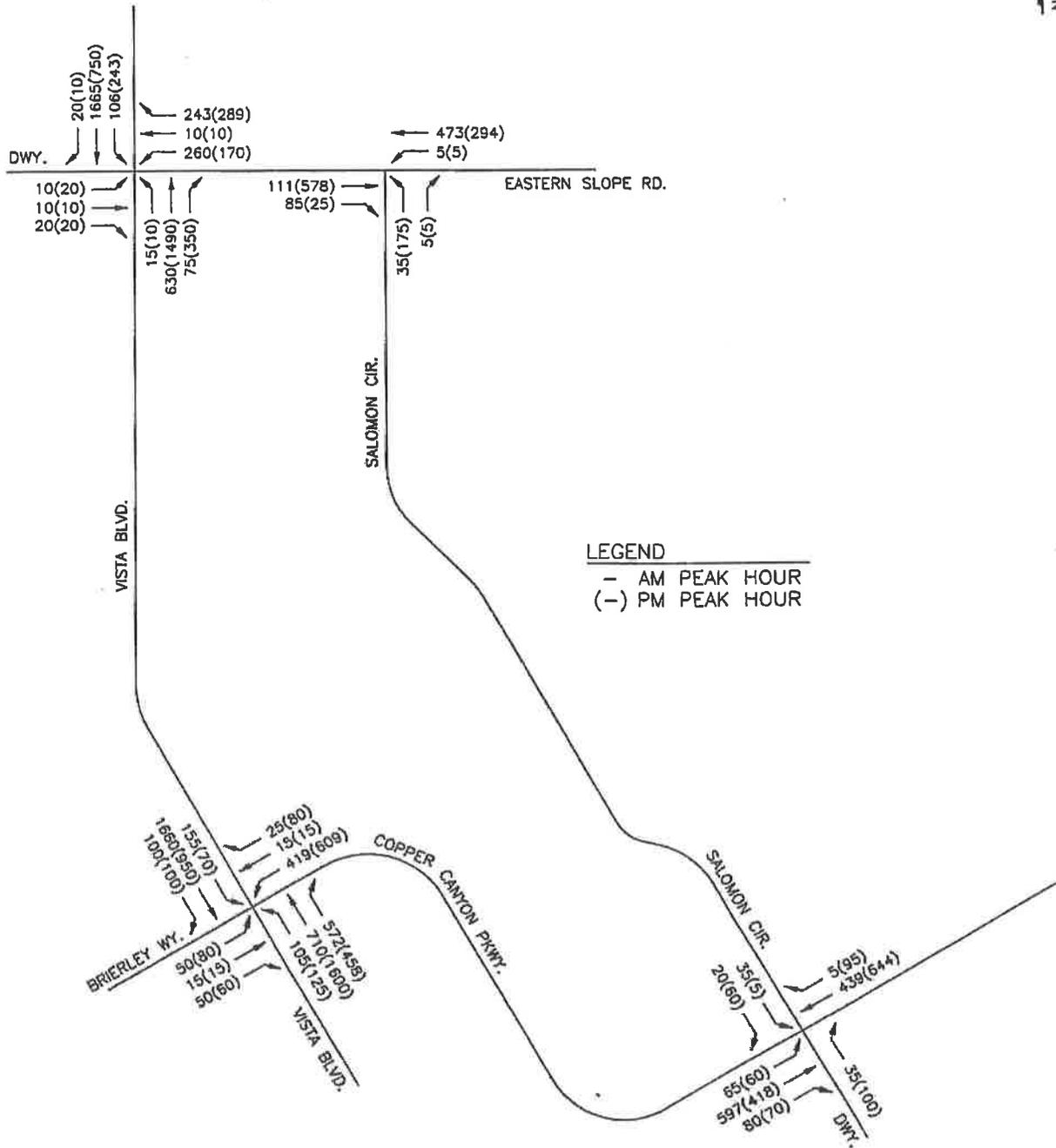


- LEGEND**
- KEY INTERSECTIONS
 - HOTEL
 - (-) COMMERCIAL
 - [-] CONDOMINIUMS

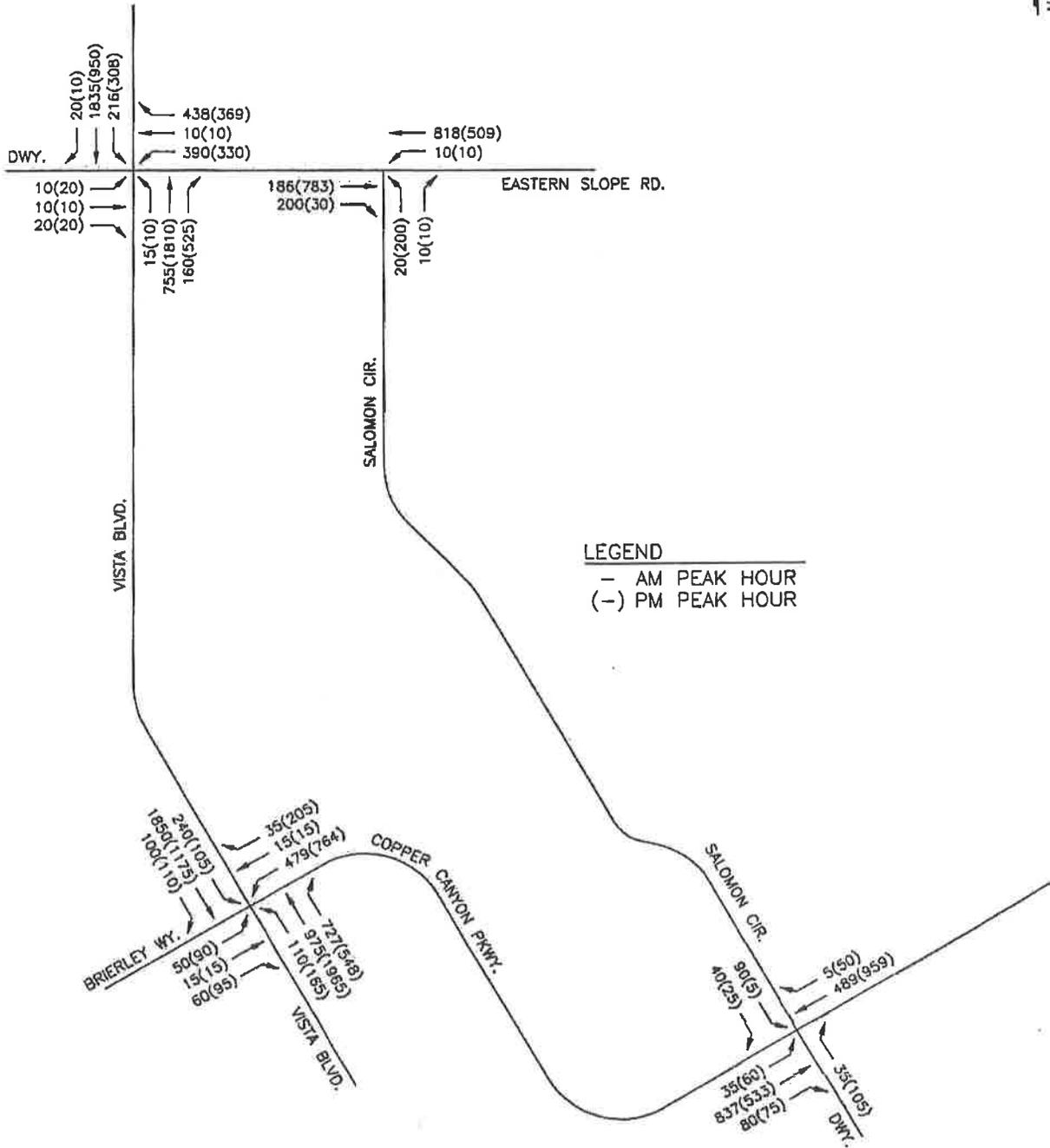
VISTA PROPERTY UPDATE
DIRECTIONS OF APPROACH
FIGURE 1



VISTA PROPERTY UPDATE
 PROJECT PEAK HOUR TRIP ASSIGNMENT
 FIGURE 2



VISTA PROPERTY UPDATE
 2012 PEAK HOUR TRAFFIC VOLUMES
 FIGURE 3



VISTA PROPERTY UPDATE
 2030 PEAK HOUR TRAFFIC VOLUMES
 FIGURE 4

Vista Property Update
 Summary of Average Vehicle Trip Generation
 For 200 Dwelling Units of Residential Condominium / Townhouse
 February 13, 2007

	24 Hour Two-Way Volume	7-9 AM Pk Hour		4-6 PM Pk Hour	
		Enter	Exit	Enter	Exit
Average Weekday	1172	14	74	70	34

	24 hour Two-Way Volume	Peak Hour	
		Enter	Exit
Saturday	1134	50	44
Sunday	968	44	46

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

Vista Property Update
 Summary of Average Vehicle Trip Generation
 For 130 Rooms of Hotel
 February 13, 2007

	24 Hour Two-Way Volume	7-9 AM Pk Hour		4-6 PM Pk Hour	
		Enter	Exit	Enter	Exit
Average Weekday	1062	44	29	40	36

	24 hour Two-Way Volume	Peak Hour	
		Enter	Exit
Saturday	1065	52	42
Sunday	774	34	39

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

Vista Property Update
 Summary of Average Vehicle Trip Generation
 For 79.75 Th.Gr.Sq.Ft. of General Office Building
 February 13, 2007

	24 Hour Two-Way Volume	7-9 AM Pk Hour		4-6 PM Pk Hour	
		Enter	Exit	Enter	Exit
Average Weekday	878	108	15	20	99

	24 hour Two-Way Volume	Peak Hour	
		Enter	Exit
Saturday	189	18	15
Sunday	78	6	5

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

Vista Property Update
 Summary of Average Vehicle Trip Generation
 For 77.35 T.G.L.A. of Specialty Retail Center
 February 13, 2007

	24 Hour Two-Way Volume	7-9 AM Pk Hour		4-6 PM Pk Hour	
		Enter	Exit	Enter	Exit
Average Weekday	3428	0	0	92	118

	24 hour Two-Way Volume	Peak Hour	
		Enter	Exit
Saturday	3252	0	0
Sunday	1580	0	0

Note: A zero indicates no data available.
 Source: Institute of Transportation Engineers
 Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: AM Peak Hour
 Project ID: Vista Property Update
 E/W St: Eastern Slope Road

Inter.: Vista & Eastern Slope
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2012
 N/S St: Vista Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	2	1	1	1	3	1	1	3	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	10	10	20	260	10	243	15	630	75	106	1665	20
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			5			60			18			5

Duration 0.25 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds		X	
WB Left	A	A			SB Left	A	A	
Thru		A	A		Thru		A	A
Right		A	A		Right		A	A
Peds		X	X		Peds			X
NB Right					EB Right			
SB Right					WB Right	A	A	
Green	6.0	10.0	5.0			3.0	9.0	37.0
Yellow	4.0	0.0	4.0			4.0	0.0	4.0
All Red	1.0	0.0	1.0			1.0	0.0	1.0

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	118	1770	0.09	0.07	39.8	D		
TR	94	1697	0.29	0.06	42.5	D	41.7	D
Westbound								
L	802	3437	0.35	0.23	29.1	C		
T	311	1863	0.04	0.17	31.5	C	24.7	C
R	651	1583	0.31	0.41	18.1	B		
Northbound								
L	59	1770	0.27	0.03	44.9	D		
T	2086	5074	0.33	0.41	18.1	B	18.5	B
R	651	1583	0.10	0.41	16.3	B		
Southbound								
L	334	1770	0.34	0.19	32.3	C		
TR	2590	5067	0.71	0.51	17.7	B	18.6	B

Intersection Delay = 19.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: PM Peak Hour
 Project ID: Vista Property Update
 E/W St: Eastern Slope Road

Inter.: Vista & Eastern Slope
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2012
 N/S St: Vista Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	2	1	1	1	3	1	1	3	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	20	10	20	170	10	289	10	1490	350	243	750	10
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			5			72			62			2

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds		X	
WB Left	A	A			SB Left	A	A	
Thru		A	A		Thru		A	A
Right		A	A		Right		A	A
Peds		X	X		Peds		X	
NB Right	A	A			EB Right			
SB Right					WB Right	A	A	
Green	6.0	8.0	6.0		5.0	10.0	60.0	
Yellow	4.0	0.0	4.0		4.0	0.0	4.0	
All Red	1.0	0.0	1.0		1.0	0.0	1.0	

Cycle Length: 115.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	92	1770	0.24	0.05	53.7	D		
TR	88	1693	0.32	0.05	54.6	D	54.2	D
Westbound								
L	568	3437	0.33	0.17	42.7	D		
T	227	1863	0.05	0.12	44.7	D	36.0	D
R	537	1583	0.45	0.34	30.2	C		
Northbound								
L	77	1770	0.14	0.04	53.8	D		
T	2647	5074	0.63	0.52	20.0	B	17.8	B
R	1156	1583	0.28	0.73	5.4	A		
Southbound								
L	308	1770	0.88	0.17	69.8	E		
TR	3084	5066	0.27	0.61	10.6	B	25.0	C

Intersection Delay = 22.8 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: AM Peak Hour
 Project ID: Vista Property Update
 E/W St: Eastern Slope Road

Inter.: Vista & Eastern Slope
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2030
 N/S St: Vista Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	2	1	1	1	3	1	1	3	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	10	10	20	390	10	438	15	755	160	216	1835	20
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			5			109			40			5

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds		X	
WB Left		A	A		SB Left	A	A	
Thru			A	A	Thru		A	A
Right			A	A	Right		A	A
Peds		X	X		Peds			X
NB Right					EB Right			
SB Right					WB Right	A	A	
Green		3.0	14.0	5.0		6.0	18.0	29.0
Yellow		4.0	0.0	4.0		4.0	0.0	4.0
All Red		1.0	0.0	1.0		1.0	0.0	1.0

Cycle Length: 95.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	56	1770	0.20	0.03	46.5	D		
TR	89	1697	0.30	0.05	45.2	D	45.6	D
Westbound								
L	796	3437	0.53	0.23	32.7	C		
T	373	1863	0.03	0.20	30.6	C	23.5	C
R	883	1583	0.41	0.56	12.3	B		
Northbound								
L	112	1770	0.14	0.06	42.7	D		
T	1549	5074	0.53	0.31	27.7	C	27.6	C
R	483	1583	0.27	0.31	25.3	C		
Southbound								
L	540	1770	0.44	0.31	27.0	C		
TR	2507	5068	0.80	0.49	22.1	C	22.6	C

Intersection Delay = 24.2 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: PM Peak Hour
 Project ID: Vista Property Update
 E/W St: Eastern Slope Road

Inter.: Vista & Eastern Slope
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2030
 N/S St: Vista Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	2	1	1	1	3	1	1	3	0
LGConfig	L	TR		L	T	R	L	T	R	L	TR	
Volume	20	10	20	330	10	369	10	1810	525	308	950	10
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			5			92			131			2

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds		X	
WB Left	A	A			SB Left	A	A	
Thru		A	A		Thru		A	A
Right		A	A		Right		A	A
Peds		X	X		Peds			X
NB Right					EB Right			
SB Right					WB Right	A	A	
Green	3.0	13.0	5.0		5.0	12.0	42.0	
Yellow	4.0	0.0	4.0		4.0	0.0	4.0	
All Red	1.0	0.0	1.0		1.0	0.0	1.0	

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	53	1770	0.42	0.03	52.8	D		
TR	85	1697	0.32	0.05	48.0	D	50.2	D
Westbound								
L	722	3437	0.50	0.21	35.4	D		
T	335	1863	0.03	0.18	33.9	C	28.0	C
R	712	1583	0.42	0.45	19.1	B		
Northbound								
L	89	1770	0.12	0.05	46.0	D		
T	2131	5074	0.92	0.42	34.8	C	33.2	C
R	665	1583	0.64	0.42	25.2	C		
Southbound								
L	389	1770	0.86	0.22	55.1	E		
TR	2737	5068	0.38	0.54	13.4	B	23.5	C

Intersection Delay = 29.6 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: DAL
 Agency/Co.: Solaegui Engineers
 Date Performed: 2/14/2007
 Analysis Time Period: AM Peak Hour
 Intersection: Eastern Slope & Salomon
 Jurisdiction: City of Sparks
 Units: U. S. Customary
 Analysis Year: 2012
 Project ID: Vista Property Update
 East/West Street: Eastern Slope Road (Loop Road)
 North/South Street: Salomon Circle
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		111	85	5	473		
Peak-Hour Factor, PHF		0.92	0.92	0.92	0.92		
Hourly Flow Rate, HFR		120	92	5	514		
Percent Heavy Vehicles		--	--	2	--	--	
Median Type/Storage		Raised curb			/ 0		
RT Channelized?		No					
Lanes		1	1		1	1	
Configuration		T	R		L	T	
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		35		5			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		38		5			
Percent Heavy Vehicles		2		2			
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/ /		
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound				
			1	4	7	8	9	10	11	12
Lane Config		L		L		R				
v (vph)		5		38		5				
C(m) (vph)		1358		435		931				
v/c		0.00		0.09		0.01				
95% queue length		0.01		0.29		0.02				
Control Delay		7.7		14.1		8.9				
LOS		A		B		A				
Approach Delay						13.5				
Approach LOS						B				

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: DAL
 Agency/Co.: Solaegui Engineers
 Date Performed: 2/14/2007
 Analysis Time Period: PM Peak Hour
 Intersection: Eastern Slope & Salomon
 Jurisdiction: City of Sparks
 Units: U. S. Customary
 Analysis Year: 2012
 Project ID: Vista Property Update
 East/West Street: Eastern Slope Road (Loop Road)
 North/South Street: Salomon Circle
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R	
Volume		578	25		5	294		
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92		
Hourly Flow Rate, HFR		628	27		5	319		
Percent Heavy Vehicles		--	--		2	--	--	
Median Type/Storage	TWLTL				/ 0			
RT Channelized?			No					
Lanes		1	1		1	1		
Configuration		T	R		L	T		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		175		5			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		190		5			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes		1		1			
Configuration		L		R			

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			7 L	8 L	9 R	10 L	11 T	12 R
Lane Config			L	L	R			
v (vph)		5	190		5			
C(m) (vph)		932	284		483			
v/c		0.01	0.67		0.01			
95% queue length		0.02	4.41		0.03			
Control Delay		8.9	40.0		12.5			
LOS		A	E		B			
Approach Delay					39.3			
Approach LOS					E			

Solaegui Engineers
 Solaegui Engineers Registered User No. M0278
 Licence Type: Professional, Single Computer

Time and Date of Analysis 4:04 PM, Feb 13, 2007

Filename: C:\aaSIDRA Projects\Vista Property Update\eaas-a12.OUT

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:

aaTraffic SIDRA US Highway Capacity Manual (2000) Version

RUN INFORMATION

* Basic Parameters:
 Intersection Type: Roundabout
 Driving on the right-hand side of the road
 Input data specified in US units
 Default Values File No. 11
 Peak flow period (for performance): 15 minutes
 Unit time (for volumes): 60 minutes (Total Flow Period)
 Delay definition: Control delay
 Geometric delay included
 HCM Delay and Queue Models option selected
 Level of Service based on: Delay (HCM method)
 Queue definition: Back of queue, 95th Percentile

Geometric delay is less than 2 seconds for some movements. The negotiation speed may be too high or the approach and exit speeds may be too low for given geometric design (e.g. for a large roundabout). Check Tables D.0, D.1 and D.4 for geometric delay data including negotiation speeds. If necessary, specify appropriate values of approach and exit speeds (RIDES Approach Data screen), and negotiation radius or negotiation speed data (RIDES Extra Data - Geometric Delay data screen).

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table R.1 - ROUNDABOUT GAP ACCEPTANCE PARAMETERS

Turn	Lane No.	Lane Type	Circ/Exit Flow (pcu/h)	Intra-Bunch Headway (s)	Prop. Bunched Vehicles	Critical Gap (s)	Follow Up Headway (s)
West: Eastern Slope Road							
Thru	1	Dominant	5	2.00	0.007	3.28	1.80
Right	1	Dominant	5	2.00	0.007	3.28	1.80
South: Salomon Circle							
Left	1	Dominant	121	2.00	0.154	5.02	2.82
Right	1	Dominant	121	2.00	0.154	5.02	2.82
East: Eastern Slope Road							
Left	1	Dominant	37	2.00	0.050	3.31	1.83
Thru	1	Dominant	37	2.00	0.050	3.31	1.83

Eastern Slope Road (Loop Road) & Salomon Circle

AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	A
Worst movement Level of Service	=	A
Average intersection delay (s)	=	2.8
Largest average movement delay (s)	=	9.0
Largest back of queue, 95% (ft)	=	42
Performance Index	=	9.98
Degree of saturation (highest)	=	0.267
Practical Spare Capacity (lowest)	=	219 %
Total vehicle capacity, all lanes (veh/h)	=	4984
Total vehicle flow (veh/h)	=	760
Total person flow (pers/h)	=	912
Total vehicle delay (veh-h/h)	=	0.60
Total person delay (pers-h/h)	=	0.72
Total effective vehicle stops (veh/h)	=	408
Total effective person stops (pers/h)	=	489
Total vehicle travel (veh-mi/h)	=	211.1
Total cost (\$/h)	=	83.64
Total fuel (ga/h)	=	7.9
Total CO2 (kg/h)	=	74.99

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (ft)	Perf. Index	Aver. Speed (mph)
912	0.267		0.72	2.8	0.097	0.54		9.98	29.7

Queue values in this table are 95% back of queue (feet).

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue (ft)	Short Lane (ft)
West: Eastern Slope Road									
1	TR	12	213	1979	0.108	4.3	0.39	0.6	15
South: Salomon Circle									
1	LR	32	43	1115	0.039	9.0	0.58	0.2	5
East: Eastern Slope Road									
1	LT	22	504	1891	0.266	1.7	0.19	1.6	42

AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

Mov No.	Mov Typ	Dem Flow (veh/h)	Total Cap. (veh/h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	95% Back of Queue (veh)	Perf. Index
West: Eastern Slope Road									
12	TR	213	1979	100	0.108	4.3	0.77	0.6	3.40
South: Salomon Circle									
32	LR	43	1115	100	0.039	9.0	1.16	0.2	0.82
East: Eastern Slope Road									
22	LT	504	1891	100	0.267*	1.7	0.38	1.6	5.76

* Maximum degree of saturation

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (ft)	Shrt Lane (ft)
	L	T	R	Tot							
West: Eastern Slope Road											
1	TR	120	93	213	2			0.108	4.3	15	
		0	120	93	213	2		0.108	4.3	15	
South: Salomon Circle											
1	LR	37		6	43	5		0.039	9.0	5	
		37	0	6	43	5		0.039	9.0	5	
East: Eastern Slope Road											
1	LT	6	498		504	2		0.266	1.7	42	
		6	498	0	504	2		0.266	1.7	42	
ALL VEHICLES		Total Flow		% HV		Max X		Aver. Delay		Max Queue	
		760		2		0.267		2.8		42	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Queue values in this table are 95% back of queue (feet).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastern Slope Road						
12	TR	213	1979	0.108	4.3	A
		213	1979	0.108	4.3	A
South: Salomon Circle						
32	LR	43	1115	0.039	9.0	A
		43	1115	0.039	9.0	A
East: Eastern Slope Road						
22	LT	504	1891	0.267*	1.7	A
		504	1891	0.267	1.7	A
ALL VEHICLES:		760	4984	0.267	2.8	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

Solaegui Engineers
 Solaegui Engineers Registered User No. M0278
 Licence Type: Professional, Single Computer

Time and Date of Analysis 4:07 PM, Feb 13, 2007

Filename: C:\aaSIDRA Projects\Vista Property Update\easa-pl2.OUT

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:

aaTraffic SIDRA US Highway Capacity Manual (2000) Version

RUN INFORMATION

* Basic Parameters:
 Intersection Type: Roundabout
 Driving on the right-hand side of the road
 Input data specified in US units
 Default Values File No. 11
 Peak flow period (for performance): 15 minutes
 Unit time (for volumes): 60 minutes (Total Flow Period)
 Delay definition: Control delay
 Geometric delay included
 HCM Delay and Queue Models option selected
 Level of Service based on: Delay (HCM method)
 Queue definition: Back of queue, 95th Percentile

Geometric delay is less than 2 seconds for some movements. The negotiation speed may be too high or the approach and exit speeds may be too low for given geometric design (e.g. for a large roundabout). Check Tables D.0, D.1 and D.4 for geometric delay data including negotiation speeds. If necessary, specify appropriate values of approach and exit speeds (RIDES Approach Data screen), and negotiation radius or negotiation speed data (RIDES Extra Data - Geometric Delay data screen).

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table R.1 - ROUNDABOUT GAP ACCEPTANCE PARAMETERS

Turn	Lane No.	Lane Type	Circ/Exit Flow (pcu/h)	Intra-Bunch Headway (s)	Prop. Bunched Vehicles	Critical Gap (s)	Follow Up Headway (s)
West: Eastern Slope Road							
Thru	1	Dominant	5	2.00	0.007	3.28	1.80
Right	1	Dominant	5	2.00	0.007	3.28	1.80
South: Salomon Circle							
Left	1	Dominant	628	2.00	0.582	4.38	2.70
Right	1	Dominant	628	2.00	0.582	4.38	2.70
East: Eastern Slope Road							
Left	1	Dominant	184	2.00	0.226	4.18	2.38
Thru	1	Dominant	184	2.00	0.226	4.18	2.38

Eastern Slope Road (Loop Road) & Salomon Circle

PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	A
Worst movement Level of Service	=	B
Average intersection delay (s)	=	5.0
Largest average movement delay (s)	=	13.5
Largest back of queue, 95% (ft)	=	55
Performance Index	=	18.93
Degree of saturation (highest)	=	0.335
Practical Spare Capacity (lowest)	=	154 %
Total vehicle capacity, all lanes (veh/h)	=	3961
Total vehicle flow (veh/h)	=	1163
Total person flow (pers/h)	=	1396
Total vehicle delay (veh-h/h)	=	1.60
Total person delay (pers-h/h)	=	1.93
Total effective vehicle stops (veh/h)	=	928
Total effective person stops (pers/h)	=	1114
Total vehicle travel (veh-mi/h)	=	376.7
Total cost (\$/h)	=	145.24
Total fuel (ga/h)	=	14.1
Total CO2 (kg/h)	=	133.56

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (ft)	Perf. Index	Aver. Speed (mph)
1396	0.335		1.93	5.0	0.213	0.80		18.93	30.5

Queue values in this table are 95% back of queue (feet).

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue (ft)	Short Lane (ft)
West: Eastern Slope Road									
1	TR	12	657	1961	0.335	3.7	0.34	2.2	55
South: Salomon Circle									
1	LR	32	191	758	0.252	13.5	0.80	1.7	44
East: Eastern Slope Road									
1	LT	22	315	1242	0.254	2.4	0.28	1.6	39

Eastern Slope Road (Loop Road) & Salomon Circle

PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

Mov No.	Mov Typ	Dem Flow (veh/h)	Total Cap. (veh/h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	95% Back of Queue (veh)	Perf. Index
West: Eastern Slope Road									
12	TR	657	1961	100	0.335*	3.7	0.68	2.2	10.18
South: Salomon Circle									
32	LR	191	758	100	0.252	13.5	1.59	1.7	4.61
East: Eastern Slope Road									
22	LT	315	1242	100	0.254	2.4	0.56	1.6	4.14

* Maximum degree of saturation

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs)		Deg Sat x	Aver. Delay (sec)	Longest Queue (ft)	Shrt Lane (ft)
	L	T	R	Tot			1st	2nd				
West: Eastern Slope Road												
1	TR	629	28	657	2				0.335	3.7	55	
		0	629	28	657	2			0.335	3.7	55	
South: Salomon Circle												
1	LR	185		6	191	3			0.252	13.5	44	
		185	0	6	191	3			0.252	13.5	44	
East: Eastern Slope Road												
1	LT	6	309		315	2			0.254	2.4	39	
		6	309	0	315	2			0.254	2.4	39	
ALL VEHICLES												
		Total Flow		% HV		Max X		Aver. Delay		Max Queue		
		1163		2		0.335		5.0		55		

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Queue values in this table are 95% back of queue (feet).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2012 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastern Slope Road						
12	TR	657	1961	0.335*	3.7	A
		657	1961	0.335	3.7	A
South: Salomon Circle						
32	LR	191	758	0.252	13.5	B
		191	758	0.252	13.5	B
East: Eastern Slope Road						
22	LT	315	1242	0.254	2.4	A
		315	1242	0.254	2.4	A
ALL VEHICLES:		1163	3961	0.335	5.0	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	A
Worst movement Level of Service	=	A
Average intersection delay (s)	=	2.8
Largest average movement delay (s)	=	8.1
Largest back of queue, 95% (ft)	=	38
Performance Index	=	17.45
Degree of saturation (highest)	=	0.249
Practical Spare Capacity (lowest)	=	242 %
Total vehicle capacity, all lanes (veh/h)	=	8105
Total vehicle flow (veh/h)	=	1324
Total person flow (pers/h)	=	1589
Total vehicle delay (veh-h/h)	=	1.02
Total person delay (pers-h/h)	=	1.22
Total effective vehicle stops (veh/h)	=	704
Total effective person stops (pers/h)	=	845
Total vehicle travel (veh-mi/h)	=	373.7
Total cost (\$/h)	=	146.44
Total fuel (ga/h)	=	13.9
Total CO2 (kg/h)	=	131.61

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (ft)	Perf. Index	Aver. Speed (mph)
INTERSECTION (persons):									
1589	0.249		1.22	2.8	0.079	0.53		17.45	30.2

Queue values in this table are 95% back of queue (feet).

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue (ft)	Short Lane (ft)
West: Eastern Slope Road									
1 T	12	188	1606	0.117	3.7	0.33	0.6	16	
2 TR	12	231	1973	0.117	5.6	0.47	0.6	16	
South: Salomon Circle									
1 LR	32	33	1019	0.032	8.1	0.55	0.2	4	
East: Eastern Slope Road									
1 LT	22	391	1572	0.249	1.8	0.20	1.5	38	

2 T 22 481 1934 0.249 1.5 0.18 1.5 38

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

Mov No.	Mov Typ	Dem Flow (veh/h)	Total Cap. (veh/h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	95% Back of Queue (veh)	Perf. Index
West: Eastern Slope Road									
12	TR	419	3579	100	0.117	4.7	0.82	0.6	6.88
South: Salomon Circle									
32	LR	33	1019	100	0.032	8.1	1.10	0.2	0.61
East: Eastern Slope Road									
22	LT	872	3506	100	0.249*	1.6	0.37	1.5	9.96

* Maximum degree of saturation

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (ft)	Shrt Lane (ft)		
	L	T	R	Tot									
West: Eastern Slope Road													
1	T	188		188	2			0.117	3.7	16			
2	TR	14	217	231	2			0.117	5.6	16			
		0	202	217	419	2		0.117	4.7	16			
South: Salomon Circle													
1	LR	22		11	33	6		0.032	8.1	4			
		22	0	11	33	6		0.032	8.1	4			
East: Eastern Slope Road													
1	LT	11	380	391	2			0.249	1.8	38			
2	T		481	481	2			0.249	1.5	38			
		11	861	0	872	2		0.249	1.6	38			
ALL VEHICLES													
		Total Flow		1324	% HV	2	Max X		0.249	Aver. Delay	2.8	Max Queue	38

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Queue values in this table are 95% back of queue (feet).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Eastern Slope Road (Loop Road) & Salomon Circle
 AM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastern Slope Road						
12	TR	419	3579	0.117	4.7	A
		419	3579	0.117	4.7	A
South: Salomon Circle						
32	LR	33	1019	0.032	8.1	A
		33	1019	0.032	8.1	A
East: Eastern Slope Road						
22	LT	872	3506	0.249*	1.6	A
		872	3506	0.249	1.6	A
ALL VEHICLES:		1324	8105	0.249	2.8	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

Solaegui Engineers
 Solaegui Engineers Registered User No. M0278
 Licence Type: Professional, Single Computer

Time and Date of Analysis 4:10 PM, Feb 13, 2007

Filename: C:\aaSIDRA Projects\Vista Property Update\easa-p30.OUT

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:

aaTraffic SIDRA US Highway Capacity Manual (2000) Version

RUN INFORMATION

* Basic Parameters:

Intersection Type: Roundabout
 Driving on the right-hand side of the road
 Input data specified in US units
 Default Values File No. 11
 Peak flow period (for performance): 15 minutes
 Unit time (for volumes): 60 minutes (Total Flow Period)
 Delay definition: Control delay
 Geometric delay included
 HCM Delay and Queue Models option selected
 Level of Service based on: Delay (HCM method)
 Queue definition: Back of queue, 95th Percentile

Geometric delay is less than 2 seconds for some movements. The negotiation speed may be too high or the approach and exit speeds may be too low for given geometric design (e.g. for a large roundabout). Check Tables D.0, D.1 and D.4 for geometric delay data including negotiation speeds. If necessary, specify appropriate values of approach and exit speeds (RIDES Approach Data screen), and negotiation radius or negotiation speed data (RIDES Extra Data - Geometric Delay data screen).

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table R.1 - ROUNDABOUT GAP ACCEPTANCE PARAMETERS

Turn	Lane No.	Lane Type	Circ/Exit Flow (pcu/h)	Intra-Bunch Headway (s)	Prop. Bunched Vehicles	Critical Gap (s)	Follow Up Headway (s)
West: Eastern Slope Road							
Thru	1	Subdominant	11	2.00	0.015	4.02	2.21
	2	Dominant	11	2.00	0.015	3.28	1.81
Right	2	Dominant	11	2.00	0.015	3.28	1.81
South: Salomon Circle							
Left	1	Dominant	851	1.24	0.520	4.10	2.65
Right	1	Dominant	851	1.24	0.520	4.10	2.65
East: Eastern Slope Road							
Left	1	Subdominant	211	2.00	0.254	4.33	2.47
Thru	1	Subdominant	211	2.00	0.254	4.33	2.47
	2	Dominant	211	2.00	0.254	3.91	2.23

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.3 - INTERSECTION PARAMETERS

Intersection Level of Service	=	A
Worst movement Level of Service	=	B
Average intersection delay (s)	=	4.6
Largest average movement delay (s)	=	13.1
Largest back of queue, 95% (ft)	=	43
Performance Index	=	26.36
Degree of saturation (highest)	=	0.304
Practical Spare Capacity (lowest)	=	179 %
Total vehicle capacity, all lanes (veh/h)	=	6735
Total vehicle flow (veh/h)	=	1652
Total person flow (pers/h)	=	1982
Total vehicle delay (veh-h/h)	=	2.10
Total person delay (pers-h/h)	=	2.52
Total effective vehicle stops (veh/h)	=	1300
Total effective person stops (pers/h)	=	1560
Total vehicle travel (veh-mi/h)	=	526.2
Total cost (\$/h)	=	202.76
Total fuel (ga/h)	=	19.8
Total CO2 (kg/h)	=	187.08

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.6 - INTERSECTION PERFORMANCE

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (ft)	Perf. Index	Aver. Speed (mph)
INTERSECTION (persons):									
1982	0.304		2.52	4.6	0.224	0.79		26.36	30.4

Queue values in this table are 95% back of queue (feet).

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.7 - LANE PERFORMANCE

Lane No.	Mov No.	Dem Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue 95% Back (vehs)	Queue (ft)	Short Lane (ft)
West: Eastern Slope Road									
1	T	12	397	1588	0.250	3.7	0.33	1.5	38
2	TR	12	487	1952	0.250	3.8	0.34	1.5	38
South: Salomon Circle									
1	LR	32	221	726	0.305	13.1	0.86	1.7	43
East: Eastern Slope Road									
1	LT	22	257	1161	0.222	2.8	0.31	1.3	34

2 T 22 290 1308 0.222 2.3 0.27 1.3 34

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.10 - MOVEMENT CAPACITY AND PERFORMANCE SUMMARY

Mov No.	Mov Typ	Dem Flow (veh/h)	Total Cap. (veh/h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	95% Back of Queue (veh)	Perf. Index
West: Eastern Slope Road									
12	TR	884	3540	100	0.250	3.7	0.68	1.5	13.72
South: Salomon Circle									
32	LR	221	726	100	0.304*	13.1	1.73	1.7	5.38
East: Eastern Slope Road									
22	LT	547	2469	100	0.222	2.5	0.58	1.3	7.26

* Maximum degree of saturation

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.14 - SUMMARY OF INPUT AND OUTPUT DATA

Lane No.	Demand Flow (veh/h)				%HV	Adj. Basic Satf.	Eff Grn (secs) 1st 2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (ft)	Shrt Lane (ft)
	L	T	R	Tot							
West: Eastern Slope Road											
1	T	397		397	2			0.250	3.7	38	
2	TR	454	33	487	2			0.250	3.8	38	
		0	851	33	884	2		0.250	3.7	38	
South: Salomon Circle											
1	LR	210		11	221	2		0.305	13.1	43	
		210	0	11	221	2		0.305	13.1	43	
East: Eastern Slope Road											
1	LT	11	246		257	2		0.222	2.8	34	
2	T		290		290	2		0.222	2.3	34	
		11	536	0	547	2		0.222	2.5	34	
ALL VEHICLES											
		Total Flow		%		Max X		Aver. Delay		Max Queue	
		1652		2		0.304		4.6		43	

Total flow period = 60 minutes. Peak flow period = 15 minutes.

Queue values in this table are 95% back of queue (feet).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Eastern Slope Road (Loop Road) & Salomon Circle
 PM Peak Hour - 2030 Traffic Volumes
 Intersection ID:
 Roundabout

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS
West: Eastern Slope Road						
12	TR	884	3540	0.250	3.7	A
		884	3540	0.250	3.7	A
South: Salomon Circle						
32	LR	221	726	0.304*	13.1	B
		221	726	0.304	13.1	B
East: Eastern Slope Road						
22	LT	547	2469	0.222	2.5	A
		547	2469	0.222	2.5	A
ALL VEHICLES:		1652	6735	0.304	4.6	A

Level of Service calculations are based on average control delay including geometric delay (HCM criteria), independent of the current delay definition used. For the criteria, refer to the "Level of Service" topic in the aaSIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

--- End of aaSIDRA Output ---

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: AM Peak Hour
 Project ID: Vista Property
 E/W St: Brierley Wy-Copper Canyon Pkwy

Inter.: Vista & Brierley-Copper Canyon
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2012

N/S St: Vista Boulevard

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	50	15	50	419	15	25	105	710	572	155	1660	100
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			12			6			143			25

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A	A	
Thru			A		Thru	A	A	
Right			A		Right	A	A	
Peds					Peds			
WB Left	A	A			SB Left	A		
Thru		A	A		Thru		A	
Right		A	A		Right		A	
Peds					Peds			
NB Right	A	A			EB Right	A	A	
SB Right	A				WB Right			
Green	10.0	7.0	3.0		16.0	1.0	58.0	
Yellow	4.0	4.0	4.0		4.0	0.0	4.0	
All Red	1.0	1.0	1.0		1.0	0.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	148	1770	0.36	0.08	53.5	D		
T	47	1863	0.34	0.03	61.8	E	47.8	D
R	396	1583	0.10	0.25	34.8	C		
Westbound								
L	630	3437	0.72	0.18	50.2	D		
T	233	1863	0.07	0.13	46.5	D	49.9	D
R	198	1583	0.11	0.13	46.8	D		
Northbound								
L	325	1770	0.35	0.18	43.4	D		
T	2495	5074	0.31	0.49	18.4	B	16.6	B
R	1134	1583	0.41	0.72	7.1	A		
Southbound								
L	236	1770	0.71	0.13	59.4	E		
T	2452	5074	0.74	0.48	26.0	C	28.1	C
R	963	1583	0.09	0.61	9.7	A		

Intersection Delay = 27.5 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: PM Peak Hour
 Project ID: Vista Property Update
 E/W St: Brierley Wy-Copper Canyon Pkwy

Inter.: Vista & Brierley-Copper Canyon
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2012

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	80	15	60	609	15	80	125	1600	458	70	950	100
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			15			20			114			25

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A	A	
Thru			A		Thru	A	A	
Right			A		Right	A	A	
Peds					Peds		X	
WB Left	A	A			SB Left	A		
Thru		A	A		Thru		A	
Right		A	A		Right		A	
Peds					Peds		X	
NB Right	A	A			EB Right	A	A	
SB Right	A				WB Right			
Green	13.0	9.0	3.0		10.0	1.0	59.0	
Yellow	4.0	4.0	4.0		4.0	0.0	4.0	
All Red	1.0	1.0	1.0		1.0	0.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	192	1770	0.45	0.11	51.9	D		
T	47	1863	0.34	0.03	61.8	E	49.0	D
R	317	1583	0.15	0.20	39.9	D		
Westbound								
L	773	3437	0.86	0.22	54.0	D		
T	264	1863	0.06	0.14	44.7	D	53.2	D
R	224	1583	0.29	0.14	46.8	D		
Northbound								
L	236	1770	0.58	0.13	52.3	D		
T	2537	5074	0.69	0.50	23.6	C	22.1	C
R	1214	1583	0.31	0.77	4.4	A		
Southbound								
L	148	1770	0.51	0.08	55.7	E		
T	2495	5074	0.41	0.49	19.6	B	21.1	C
R	1016	1583	0.08	0.64	8.2	A		

Intersection Delay = 28.1 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: AM Peak Hour
 Project ID: Vista Property
 E/W St: Brierley Wy-Copper Canyon Pkwy N/S St: Vista Boulevard

Inter.: Vista & Brierley-Copper Canyon
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2030

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	50	15	60	479	15	35	110	975	727	240	1850	100
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			15			8			181			25

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A	A		SB Left	A	A	
Thru			A	A	Thru		A	A
Right			A	A	Right		A	A
Peds					Peds			
NB Right					EB Right	A		
SB Right					WB Right		A	
Green		11.0	7.0	7.0		13.0	6.0	46.0
Yellow		4.0	0.0	4.0		4.0	0.0	4.0
All Red		1.0	0.0	1.0		1.0	0.0	1.0

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	177	1770	0.31	0.10	46.9	D		
T	119	1863	0.13	0.06	49.2	D	41.9	D
R	360	1583	0.14	0.23	34.1	C		
Westbound								
L	719	3437	0.72	0.21	44.2	D		
T	237	1863	0.07	0.13	42.4	D	43.8	D
R	288	1583	0.10	0.18	37.7	D		
Northbound								
L	209	1770	0.57	0.12	49.7	D		
T	2122	5074	0.50	0.42	23.7	C	32.5	C
R	662	1583	0.90	0.42	44.6	D		
Southbound								
L	386	1770	0.68	0.22	44.1	D		
T	2399	5074	0.84	0.47	28.1	C	29.5	C
R	748	1583	0.11	0.47	16.2	B		

Intersection Delay = 32.6 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: DAL
 Agency: Solaegui Engineers
 Date: 2/14/2007
 Period: PM Peak Hour
 Project ID: Vista Property Update
 E/W St: Brierley Wy-Copper Canyon Pkwy N/S St: Vista Boulevard

Inter.: Vista & Brierley-Copper Canyon
 Area Type: All other areas
 Jurisd: City of Sparks
 Year : 2030

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	2	1	1	1	3	1	1	3	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	90	15	95	764	15	205	165	1965	548	105	1175	110
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			23			51			137			27

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A	A	
Thru			A		Thru	A	A	
Right			A		Right	A	A	
Peds		X	X		Peds		X	
WB Left	A	A			SB Left	A		
Thru		A	A		Thru		A	
Right		A	A		Right		A	
Peds		X	X		Peds		X	
NB Right	A	A			EB Right	A		
SB Right					WB Right			
Green	11.0	12.0	4.0		11.0	6.0	46.0	
Yellow	4.0	0.0	4.0		4.0	0.0	4.0	
All Red	1.0	0.0	1.0		1.0	0.0	1.0	

Cycle Length: 110.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	177	1770	0.55	0.10	50.9	D		
T	68	1863	0.24	0.04	53.3	D	46.4	D
R	288	1583	0.27	0.18	39.2	D		
Westbound								
L	875	3437	0.95	0.25	59.4	E		
T	271	1863	0.06	0.15	40.6	D	58.5	E
R	230	1583	0.73	0.15	55.8	E		
Northbound								
L	354	1770	0.51	0.20	40.3	D		
T	2399	5074	0.89	0.47	31.0	C	27.3	C
R	1223	1583	0.37	0.77	4.1	A		
Southbound								
L	177	1770	0.64	0.10	55.4	E		
T	2122	5074	0.60	0.42	25.4	C	27.3	C
R	662	1583	0.14	0.42	19.8	B		

Intersection Delay = 33.8 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: DAL
 Agency/Co.: Solaegui Engineers
 Date Performed: 2/14/2007
 Analysis Time Period: AM Peak Hour
 Intersection: Copper Canyon & Salomon
 Jurisdiction: City of Sparks
 Units: U. S. Customary
 Analysis Year: 2012 with High "T"
 Project ID: Vista Property Update
 East/West Street: Copper Canyon Parkway
 North/South Street: Salomon Circle
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R	
Volume		65	0	80		439	5	
Peak-Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		70	0	86		477	5	
Percent Heavy Vehicles		2	--	--		--	--	
Median Type/Storage		Raised curb				/ 0		
RT Channelized?				No			No	
Lanes		1	1	1		1	1	
Configuration		L	T	R		T	R	
Upstream Signal?			No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume				35	35		
Peak Hour Factor, PHF				0.92	0.92		0.92
Hourly Flow Rate, HFR				38	38		21
Percent Heavy Vehicles				2	2		2
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes				1	1	1	
Configuration				R	L	R	

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			4 7	8	9 R	10 L	11	12 R
Lane Config	L							
v (vph)	70				38	38	21	
C(m) (vph)	1081				1085	336	588	
v/c	0.06				0.04	0.11	0.04	
95% queue length	0.21				0.11	0.38	0.11	
Control Delay	8.6				8.4	17.1	11.3	
LOS	A				A	C	B	
Approach Delay				8.4			15.0+	
Approach LOS				A			C	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: DAL
 Agency/Co.: Solaegui Engineers
 Date Performed: 2/14/2007
 Analysis Time Period: PM Peak Hour
 Intersection: Copper Canyon & Salomon
 Jurisdiction: City of Sparks
 Units: U. S. Customary
 Analysis Year: 2012 with High "T"
 Project ID: Vista Property Update
 East/West Street: Copper Canyon Parkway
 North/South Street: Salomon Circle
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound				Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R	
Volume	60	0	70		644	95	
Peak-Hour Factor, PHF	0.92	0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR	65	0	76		699	103	
Percent Heavy Vehicles	2	--	--		--	--	
Median Type/Storage	Raised curb			/ 0			
RT Channelized?			No			No	
Lanes	1	1	1		1	1	
Configuration	L	T	R		T	R	
Upstream Signal?		No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume			100	5		
Peak Hour Factor, PHF			0.92	0.92		0.92
Hourly Flow Rate, HFR			108	5		65
Percent Heavy Vehicles			2	2		2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		/
Lanes			1	1	1	
Configuration			R	L	R	

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	L				R	L		R
v (vph)	65				108	5		65
C(m) (vph)	822				1085	212		440
v/c	0.08				0.10	0.02		0.15
95% queue length	0.26				0.33	0.07		0.51
Control Delay	9.8				8.7	22.4		14.6
LOS	A				A	C		B
Approach Delay				8.7			15.2	
Approach LOS				A			C	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: DAL
 Agency/Co.: Solaegui Engineers
 Date Performed: 2/14/2007
 Analysis Time Period: AM Peak Hour
 Intersection: Copper Canyon & Salomon
 Jurisdiction: City of Sparks
 Units: U. S. Customary
 Analysis Year: 2030 with High "T"
 Project ID: Vista Property Update
 East/West Street: Copper Canyon Parkway
 North/South Street: Salomon Circle
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R	
Volume		35	0	80		489	5	
Peak-Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		38	0	86		531	5	
Percent Heavy Vehicles		2	--	--		--	--	
Median Type/Storage		Raised curb				/ 0		
RT Channelized?		No				No		
Lanes		1	2	1		2	1	
Configuration		L	T	R		T	R	
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume				35			40
Peak Hour Factor, PHF				0.92	0.92		0.92
Hourly Flow Rate, HFR				38	97		43
Percent Heavy Vehicles				2	2		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes				1		1	1
Configuration				R		L	R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Config	L				R		L	R
v (vph)	38				38		97	43
C(m) (vph)	1028				1084		356	738
v/c	0.04				0.04		0.27	0.06
95% queue length	0.12				0.11		1.09	0.19
Control Delay	8.6				8.4		18.9	10.2
LOS	A				A		C	B
Approach Delay				8.4				16.2
Approach LOS				A				C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: DAL
 Agency/Co.: Solaegui Engineers
 Date Performed: 2/14/2007
 Analysis Time Period: PM Peak Hour
 Intersection: Copper Canyon & Salomon
 Jurisdiction: City of Sparks
 Units: U. S. Customary
 Analysis Year: 2030 with High "T"
 Project ID: Vista Property Update
 East/West Street: Copper Canyon Parkway
 North/South Street: Salomon Circle
 Intersection Orientation: EW

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound				Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R	
Volume		60	0	75		959	50	
Peak-Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		65	0	81		1042	54	
Percent Heavy Vehicles		2	--	--		--	--	
Median Type/Storage		Raised curb				/ 0		
RT Channelized?								
Lanes		No			No			
Configuration		1 L	2 T	1 R		2 T	1 R	
Upstream Signal?		No			No			

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume				105	5		25
Peak Hour Factor, PHF				0.92	0.92		0.92
Hourly Flow Rate, HFR				114	5		27
Percent Heavy Vehicles				2	2		2
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		/
Lanes				1 R		1 L	1 R
Configuration							

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			4	7	8	9	10	11
Lane Config	1 L				R	L		R
v (vph)	65				114	5		27
C(m) (vph)	633				1084	125		500
v/c	0.10				0.11	0.04		0.05
95% queue length	0.34				0.35	0.12		0.17
Control Delay	11.3				8.7	35.0-		12.6
LOS	B				A	D		B
Approach Delay				8.7			16.1	
Approach LOS				A			C	