Lower Lagoon Valley Policy Plan Implementation Project

FINAL Planned Development and Design Guidelines

Vacaville, CA

November, 2014

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1.0 INTRODUCTION

1.1 INTRODUCTION

This document serves as the Planned Development (PD) document for the Lower Lagoon Valley Policy Plan Implementation (LLV) project, located on Interstate-80 (I-80) in the southwestern corner of the City of Vacaville (see Figure 1.1: Vicinity Map). This is the final version of a draft document the Vacaville City Council previously approved. This document also includes the Design Guidelines for LLV (see Chapters 5 and 6).

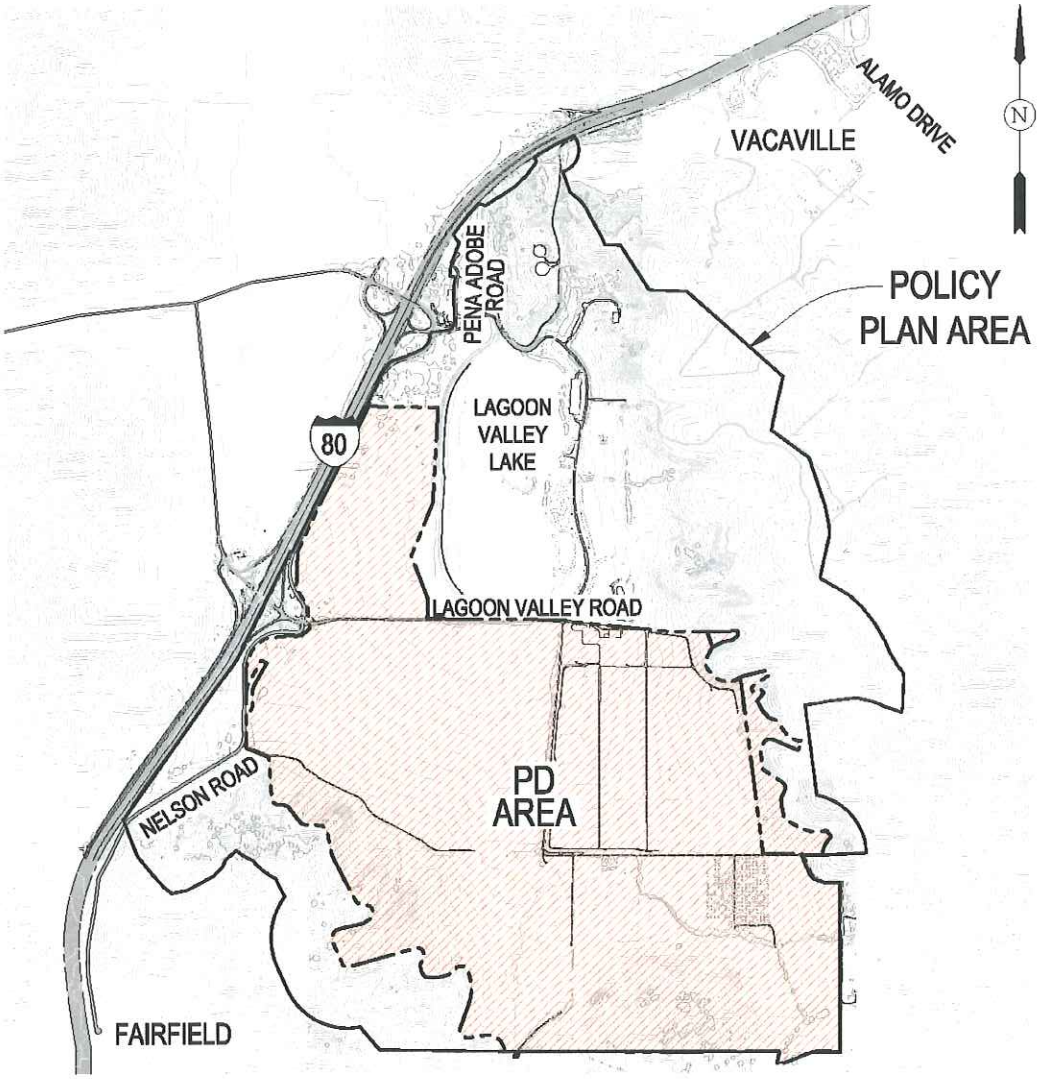


Figure 1.1: Vicinity Map

This document implements the LLV Policy Plan and Vesting Tentative Map (VTM) by integrating housing, recreation, employment, and commercial opportunities into a quality living environment, while considering visual amenities inherent in the valley and balancing physical and environmentally factors.

The development plan for the approximately 868-acre PD area proposes a mix of uses (see Table 2.1: PD Land Use Program and Figure 1.2: LLV Conceptual Site Plan) including the following:

- A Business Village and Town Center on approximately 60 acres, providing opportunity for over 2,000 new jobs within approximately 700,000 square feet of commercial space and approximately 50,000-square feet of local/neighborhood retail commercial uses;
- An approximate 323-acre, 1,025-home residential area with a variety of housing types, organized in three Villages integrated with a championship golf course with clubhouse and recreational amenities.
- Approximately 458 acres of open space and recreational uses including a golf course, neighborhood and linear parks, and riparian and hillside open space.
- Approximately 23 acres of public uses and roadways including an approximately 1.5-acre fire station site.

1.2 ORGANIZATION OF THE PD DOCUMENT

The PD implements the Policy Plan, VTM, and Conditions of Approval, and is organized as follows:

Chapter 1: Introduction summarizes the PD document, general conditions and sequence of events leading up to the PD.

Chapter 2: Land Use identifies land use goals, and describes the land use patterns and associated development concepts for mixed-use, residential, open space, and public uses.

Chapter 3: Circulation describes the circulation network and identifies the design standards and components required to accommodate efficient access and movement of vehicles, pedestrians, bicyclists, and equestrians in and around LLV.

Chapter 4: Resources, Open Space, and Recreation describes the planning area's natural and cultural resources, and recreation and open space features of the project including those relating to resource protection and public recreational use.

Figure 1.2: LLV Conceptual Site Plan

Chapter 5: Landscape Design Guidelines provides design concepts, policies and objectives, and detailed development guidelines for parks, trails, and landscape areas proposed for LLV.

Chapter 6: Village Design Guidelines provides design concepts, policies and objectives, and detailed development guidelines for land uses and products proposed for LLV in satisfaction of the Project Conditions of Approval.

1.3 VISION AND DESIGN CONCEPTS

The LLV Policy Plan Implementation Project is intended to set a community design standard for Vacaville. This executive housing community is designed for a mix of income and age groups and protects sensitive site features of the valley. LLV will be developed in a manner that is compatible with the nature and semi-rural setting, with a built form that respects and is enhanced by the area's natural and open space resources. Villages are designed to respond to the landform of the valley, protect and capture views, and create soft edges along open spaces. The following concepts guide the standards and guidelines of this document:

- Provide a mix of housing opportunities and configurations, focusing on creating quality streetscapes, an enhanced the sense of community, and considerate building forms and edge conditions.
- Foster connectivity and pedestrian activity through the location of land uses, Village design, and integration of trails and sidewalks.
- Integrate recreational amenities to connect people to healthy outdoor living spaces, walking trails, and active amenities.
- Develop a Business Village that is pedestrian-friendly and human scaled in an amenitized environment to offer a quality working environment and business climate in close proximity to homes and services.
- Design neighborhoods, open spaces, water systems, and stormwater management to conserve resources, respect the natural land forms, and preserve the quality of surrounding open spaces.
- Amenitized the community with an 18-hole golf course as a recreational feature and significant stormwater resource opportunity. Crafting of the golf course will embrace the utilization of natural wildlife habitat restoration in non-play areas.
- All proposals should be substantially consistent with the Vacaville General Plan and LLV Policy Plan.

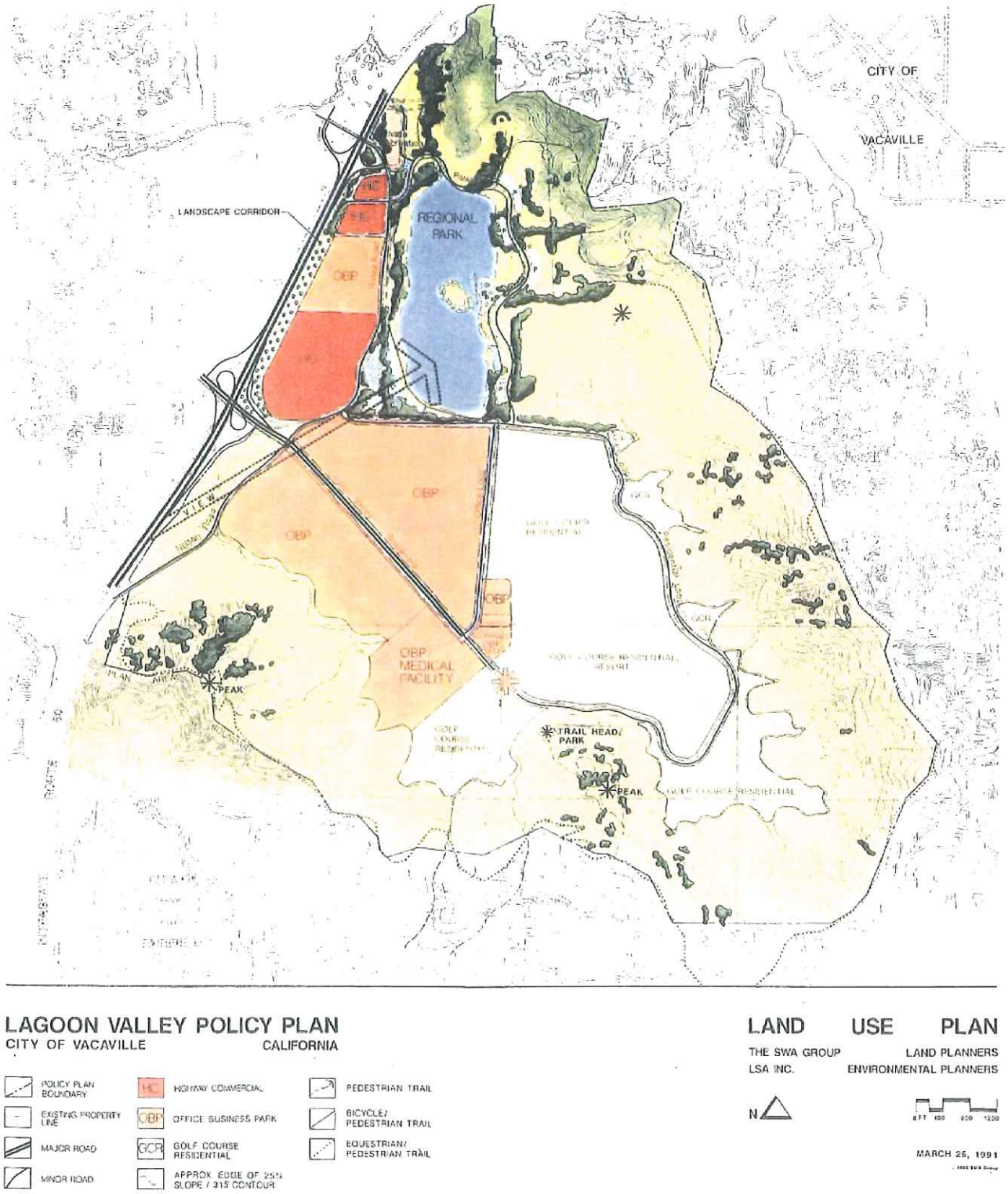


Figure 1.3: 1990 Lower Lagoon Valley Policy Plan (Amended 1991)

1.4 RELATIONSHIP TO THE 1990 POLICY PLAN AND 2005 VESTING TENTATIVE MAP

The LLV Policy Plan (originally adopted in 1990 and updated in 1991; see Figure 1.3) provides a framework to guide future land use and development decisions in the PD area. The Policy Plan is consistent with, and functions as an implementation tool of the City's General Plan in three ways:

- Acts as a statement of planning policy that refines the General Plan policies applicable to a certain planning area,
- Regulates land use, and
- Brings together detailed policies and regulations into a focused development program.

The Policy Plan requires that the PD facilitate development of a mix of compatible land uses including a business park of regional significance and "upper-end" housing. Policy 2.3-I8 contains the following requirements to implement this goal:

a. High standards of community design shall be established, addressing building design and landscaping, streetscape character and public amenities.

b. Ridges, and slopes of 25 percent and greater on the perimeter of the developed areas, shall remain undeveloped in order to maintain agricultural grazing areas, protect the public health and safety and to provide for community separation and open space, except that a limited area of golf course development with minimized grading may be permitted.

c. Business Park and General Commercial developments of high quality, conforming to design criteria intended to protect view corridors, and the open space feel of the valley. Design standards shall be established for building size, material, design, site coverage and placement, street design and landscaping, and public amenities.

d. A permanent view corridor from eastbound I-80 will be established to allow unobstructed views of Lagoon Valley Lake and the hills that provide a backdrop for the lake.

e. On the valley floor, the sense of open space shall be preserved. Development shall be set back from I-80 beyond a 100-foot landscape buffer. Development shall not completely obstruct views of the surrounding hills.

f. The Business Park and Commercial development shall be designed to accommodate employee-service commercial uses.

g. Development shall enhance the recreational potential of the area.

h. Residential development shall be limited to 730 homes (see Section 1.5 for details on total unit development consistency with this

requirement) and be integrated with a golf course. There shall also be a recreation complex.

i. Detention of floodwater shall provide for all lost floodwater storage and incremental increases in runoff, and total retention shall reduce downstream flows during peak-storm conditions to not more than 90 percent of existing conditions.

j. A financing mechanism for all public facility improvements shall be established concurrently with development.

This PD implements the Policy Plan including the requirements of Policy 2.3-18 and establishes development standards for the individual planned land uses. These detailed standards are based upon the general standards contained within the Policy Plan. As anticipated by the Policy Plan, the PD standards allow flexibility and variety, creative building design, and address unique site conditions and land use relationships.

The City of Vacaville deemed the LLV Vesting Tentative Map (VTM) application complete in early 2005. A VTM vests in the applicant the right to proceed with development pursuant to the standards in effect as of the date the approving entity deems the application for the vesting tentative complete (Cal. Gov. Code § 66498.1).

The VTM implements the 1990 Policy Plan by providing for specific subdivision layouts and improvements, as well as other development terms. Multiple phased final maps filed pursuant to the VTM, and development and construction of the project pursuant to those final maps, must substantially comply with the VTM (Cal. Gov. Code §§ 66473, 66474.1; V.M.C. § 14.11.154.010). If the final map substantially complies with the VTM, the City's approval of the final map is ministerial and required.

Pursuant to VMC section 14.11.154.010, "(t)he final map shall substantially conform to the approved tentative map. The Director has the authority to determine if the final map is consistent with the approved tentative map, including all of the conditions of approval." Substantial compliance with the approved VTM means that the final map is overall consistent with the layout, design, and intent of the VTM, and that the subdivider has generally complied with the conditions of the VTM applicable to that final map, as the Director has interpreted and applied those conditions.

The standards in this PD and the associated Design Guidelines (Chapters 5 and 6 of this document) are intended to substantially comply with the VTM, and therefore development pursuant to this PD and the Design Guidelines is deemed to substantially comply with the VTM.

1.5 PROJECT BACKGROUND

The City of Vacaville adopted a Policy Plan for the LLV area on December 18, 1990 (the "1990 Policy Plan"). The City amended the 1990 Policy Plan on March 26, 1991. Under the VMC, a policy plan is similar to a specific plan as California law describes such an item (see VMC § 14.09.112.040). Also in 1990, the City approved a 20-year Development Agreement for the commercial portion of the development under the 1990 Policy Plan (the "1990 Development Agreement"), and certified an Environmental Impact Report (EIR) in conjunction with these actions. The 1990 Development Agreement expired by its terms and is not a part of the current project.

This Policy Plan included an executive housing residential community with approximately 730 homes comprising a diverse mix of housing types and neighborhoods, a job-creating Business Village, a championship golf course, and additional open space. The residential portion of the project was planned as three distinct clustered "Villages."

In 2004, the City approved a Specific Plan and Development Agreement, and certified an Environmental Impact Report (the "2004 EIR") for a substantially new project consisting of 1,325 homes and approximately 1,000,000 square feet of commercial space. In response to litigation and a potential referendum, the City rescinded the approval of the new Specific Plan and the Development Agreement.

In 2005, relying again on the 1990 Policy Plan, and on an Addendum to the 2004 EIR, the City granted this Planned Development (PD) approval for a reduced project that includes 1,025 homes and 750,000 square feet of commercial and office space. The housing program represents an increase of approximately 40 percent over the 730 homes approved as part of the 1990 LLV Policy Plan (Implementing Policy 2.3-I8.h), as permitted through a density bonus allowed under the State Density Bonus Law (Cal. Gov. Code § 65915). To qualify for the density bonus, the PD incorporates 100 senior age-qualified homes, resulting in a 20 percent mandatory bonus from the City. Additional provisions by the developer, including 75 affordable homes, dedications of land for open space and wildlife habitat preservation, and construction of a fire station and other public amenities, supports the enhanced density bonus of approximately 40 percent for a total of 1,025 homes.

Assuming a total of 1,025 residential homes, approximately 22.6 percent of the homes were planned as 10,000 square foot lots or larger. A series of pedestrian/bicycle paths were planned to connect the residential neighborhoods with the surrounding open space and other project areas. The proposal provided for up to 700,000 square feet of office space in the Business Village, and up to 50,000 square feet of neighborhood-serving retail uses in a Town Center.

Between 1991 and 2013, development of the LLV area did not proceed due to economic and other market-driven factors. The remainder of this PD finalizes the January 2005 Draft PD and Design Guidelines. This document maintains consistency with the 1990 Policy Plan and the 2005 VTM, with various refinements to reflect the current conditions of Vacaville, the LLV area, and the market.

1.6 PLANNING SUBAREAS

The PD Subareas (Figure 1.4: PD Subarea Map) correspond to those defined by the Policy Plan. Some adjustments to the Policy Plan subareas are included in this PD to accommodate the revised development area locations and facilitate better planning of roadway alignments and land uses. As shown by Figure 1.1: Vicinity Map, the PD Area does not include the entire Policy Plan Area. Portions of the Policy Plan area that are not addressed by this PD and Design Guidelines include the approximately 17.5-acre former church site located immediately north of Subarea 1A, Lagoon Valley Park (Subarea 6A), and the open space that frames the PD Area to the south and east (Subarea 6B).

1.6.1 Subarea 1A, Open Space-Wetland Mitigation Area

This approximately 70-acre subarea, located north of Lagoon Valley Road, will be dedicated to the City of Vacaville for use as wetland mitigation area, viewshed preservation. Subarea 1A is identified as "Open Space (City Park)" in Figure 1.4; as a public property this subarea is not discussed further in this PD.

1.6.2 Subarea 2, Golf Course

This subarea is the proposed championship golf course on approximately 227 acres, contiguous to the three Villages. It includes a high quality Clubhouse Complex and recreation area with a pool and recreational amenities on approximately 5 acres, as well as approximately 70 acres for riparian zone, water and wildlife habitat features. Subarea 2 is identified as "Golf" in Figure 1.4.

1.6.3 Subarea 3, Village 1

This subarea is the Village 1 Mixed Use area, bounded by Lagoon Valley Road on the north and the proposed golf course (Subarea 2) on the west, south, and east. Subarea 3A includes a Town Center with retail and affordable housing units, a Business Village, a Village Green, a planned public park, and a 1.5-acre fire station. Subarea 3B consists of approximately 31 acres of alley-served housing including affordable and market rate units. Subareas 3A and 3B are identified as "Village 1" in Figure 1.4.

1.6.4 Subarea 4, Village 2 and Village 3

This subarea is proposed for development as a golf-oriented residential community, with high quality residential neighborhoods with a variety of open space amenities. The subarea is divided into three distinct residential villages. Subarea 4A is identified as Village 2 and includes a range of housing types. Subarea 4C is identified as Village 3 and may include the following housing types: senior age-qualified cluster homes, townhouses, various single-family conventional homes, and custom lots. Subarea 4B is the approximately 22.4-acre Community Homes area, which is not included in this PD and is subject to future PD amendments and design approvals. Subarea 4B allows up to 10 custom home lots. Subarea 4A is identified as "Village 2" and Subarea 4C is identified as "Village 3" in Figure 1.4.

1.6.5 Subarea 5A, Open Space

This subarea will contain a man-made landform extension of one of the hillside ridges that extends in a northeast direction. Within this subarea is an approximately 1.62-acre privately owned parcel and a pumping facility (approximately 0.13 acres) operated by the Solano Irrigation District. Subarea 5A is identified as "Open Space" in Figure 1.4 as an irrigation district property. This subarea is not discussed further in the PD.

1.6.6 Subarea 6C, Hillside Open Space

Subarea 6C consists of publicly owned hillside open space in the south-central portion of the PD area. Concurrently with recordation of the Master Parcel Map, the Developer and City agree to complete an open space land exchange, to which the City shall convey to Developer fee title to approximately 49 acres of land for the golf course. In exchange the Developer will dedicate approximately 60+ acres to the City for open space. Subarea 6C is identified as "Open Space" in Figure 1.4 as public property. This subarea is not discussed further in this PD.

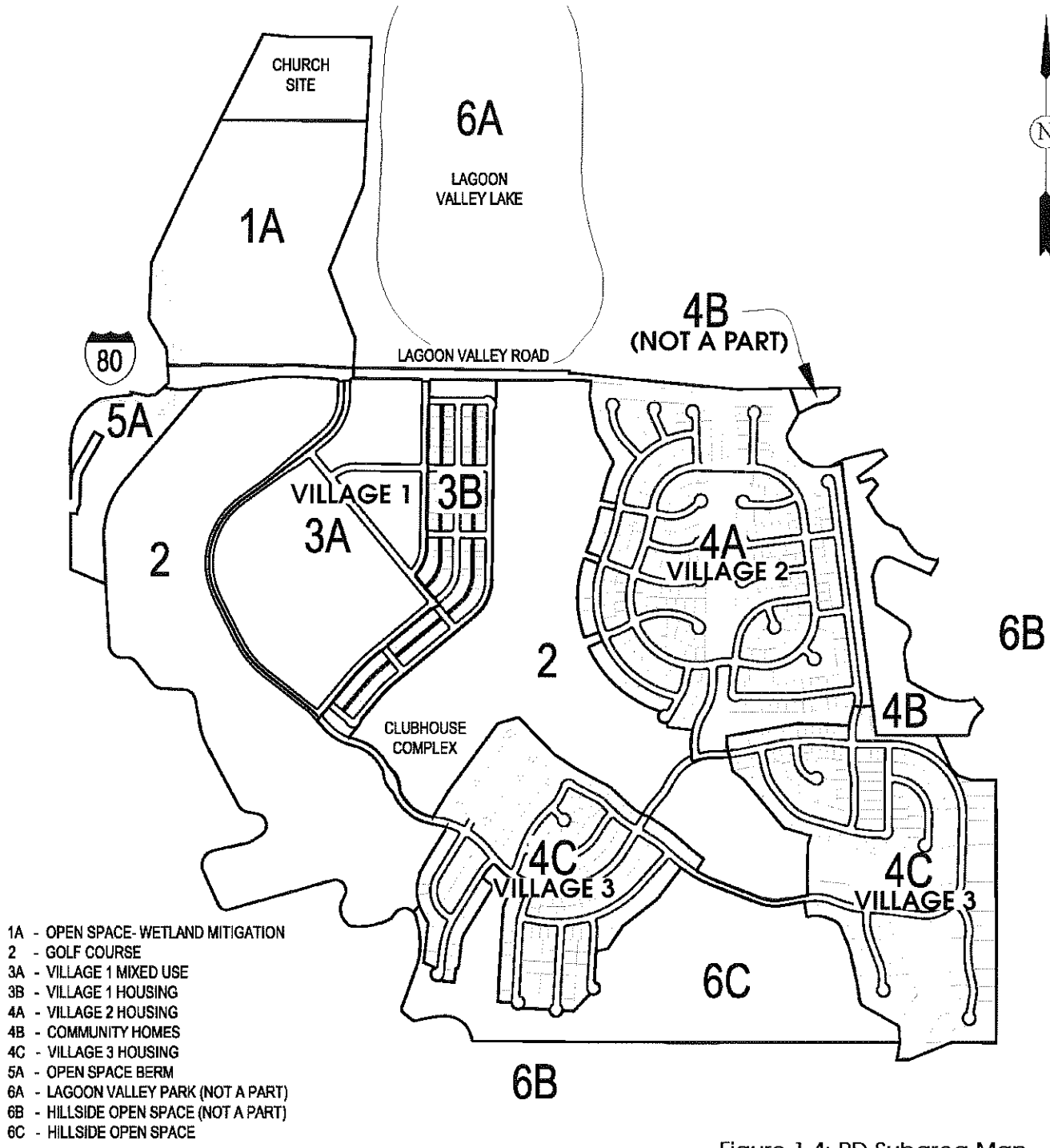


Figure 1.4: PD Subarea Map

1.7 AUTHORITY AND APPLICABILITY

This PD and Design Guidelines shall be the regulating document for LLV based on the authority vested in the City of Vacaville by the State of California, including the State Constitution, the Planning and Zoning Law (Government Code sections 65000, et seq.), the Subdivision Map Act (Government Code sections 66410, et seq.), and the California Health and Safety Code. This PD applies to all land uses, activities, structures, subdivisions, and development within LLV. The VMC grants the Community Development Director authority and discretion to interpret and implement this PD.

In the event of a conflict between this PD and Design Guidelines and any other approval or condition of approval, this PD and Design Guidelines shall control, provided, however, that the Community Development Director (the "Director") shall be the final decision maker in the event of a conflict. Among the other approvals for the project, the later approval shall control the earlier approval in the event of a conflict. Section 14.09.119.020.A.2 of the Vacaville Municipal Code provides that, "(t)he Director is authorized to approve, approve with conditions, or deny an application for any modification." Accordingly, the Director has authority to act on behalf of the City to carry out the purposes of and act in accordance with this PD and Design Guidelines, including, but not limited to, approving minor adjustments or variations that may occur and be necessary in the implementation of this PD and Design Guidelines and in carrying out the project.

1.8 HOW TO USE THIS DOCUMENT

This document creates a framework for design and development that will happen over many years. To aid in understanding the practical application of the requirements, conceptual figures and renderings are included to show the intent of various requirements and provisions. These conceptual figures, renderings, and photographic images should not be interpreted as requiring a specific mix, use or type of development or the specific style of design elements. Rather, they are simply a prototypical depiction of possible arrangements of conforming development.

2.0 LAND USE AND POLICY

2.1 INTRODUCTION

This PD establishes the location and program for three Villages and a championship golf course with a mix of land uses, within a framework of open space uses (see Table 2.1: PD Land Use Program, Figure 2.1: PD Land Use Plan, and Figure 1.2: LLV Conceptual Illustrative Site Plan). This chapter describes planning concepts and parameters for each of the Village components and lists policies to guide development, all of which arise from and implement the Policy Plan and VTM.

2.2 LAND USE PROGRAM

As discussed in Chapter 1, Figure 2.1: PD Land Use Plan does not cover the entire Policy Plan area. The Land Use Plan provides for a golf course community with three residential Villages and a Mixed-Use Village, with a Town Center and a Business Village, parks and open space. Maximum development is described in Table 2.1: PD Land Use Program. The land use program is designed to be consistent with the following policies:

Policy 2-1 Create a village framework that allows for diverse lifestyles while offering opportunities to enjoy a strong sense of community.

Policy 2-2 Ensure compatibility between the Lower Lagoon Valley residential and business park/village uses and the Lagoon Valley Park.

Policy 2-3 Create suitable transitions between Lower Lagoon Valley land uses and surrounding rural residential areas or open space areas.

Table 2.1: PD Land Use Program							
LAND USE	Acres (approx).	Units (approx).	Square Ft. (approx).	Business	Residential	Open Space	Other
				Acres (approx).			
MIXED USE VILLAGE 1							
Business Village*	50		700,000	50			
Town Center	10	51	50,000	10			
Fire Station	2						2
Village Green	8					8	
Housing	32	164			32		
Landscape Buffers	3					3	
Private Streets	4						4
Village 1 Subtotal:	109	215	750,000	60	32	11	6
RESIDENTIAL VILLAGE 2							
Housing	117	330			117		
Linear Park/Tot Lot	16					16	
Landscape Buffer	4					4	
Village 2 Subtotal:	136	330	0	0	117	19	
RESIDENTIAL VILLAGE 3							
Housing	154	470			154		
Riparian Zone/Open Space	23					23	
Tot lots	1					1	
Village 3 Subtotal:	178	470	0	0	154	24	
OPEN SPACE AND GOLF COURSE							
Wetland Mitigation**	70					70	
Open Space/Riparian/Other	105					105	
Golf Course***	226		32,750			226	
OS and Recreation Subtotal:	401	0	32,750	0	0	401	
PUBLIC STREETS							
Toscana Avenue	6						6
Lagoon Valley Road	9						9
Rivera Road**	0						0
Nelson Road	1						1
Collector Roadways (Village 1)	7						7
Public Streets Subtotal:	22						22
SUBTOTALS	846	1015	782,750	60	303	455	28
Community Homes****	22	10			22		
APPROXIMATE SUBTOTALS:	868	1025	782,750	60	325	455	28
Church Site (Not A Part)	18						
APPROXIMATE GRAND TOTALS:	885	1025	782,750	60	325	455	28

* Includes 54.2 gross acres (to centerline of adj. roads)

** Wetland Mitigation acreage includes public right-of-way for Rivera Road

*** The Clubhouse Complex includes indoor/outdoor facilities of approximately of 24,250 square feet including 16,500 square feet for offices, pro shop, meeting rooms, locker rooms, storage, and restaurant; 500 square feet for a fitness center; 7,250 square feet for cart storage, and 8,500 square feet for a maintenance facility (square footage approximate).

**** Subject to PD amendment and approval of specific design

NOTE: Due to rounding numbers do not add up

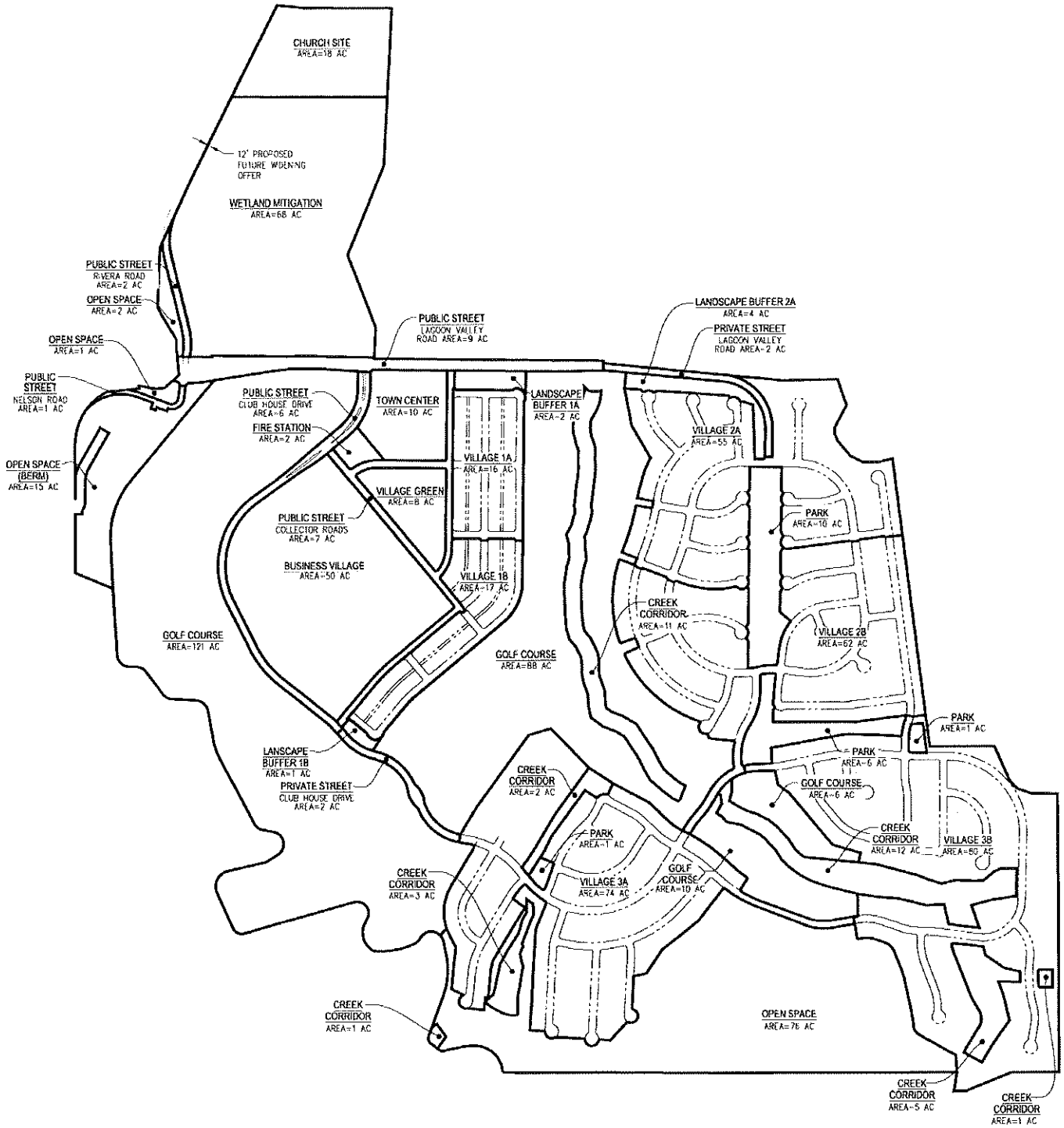


Figure 2.1: PD Land Use Plan

(All Acreages Approximate)

2.3 RESIDENTIAL ELEMENT

This PD proposes a diverse housing program, with a maximum development of 1,025 dwelling units (see Table 2.2: PD Residential Products). Residential development within LLV shall implement the requirements of the Policy Plan and Vesting Tentative Map, which call for a "golf course-residential community" with a variety of housing densities, sensitive building siting that minimizes grading, subdued colors and materials to harmonize with the natural setting, high standards of architectural and landscape design, and other requirements for setbacks, building height, and site development. This PD implements the Policy Plan and Vesting Tentative Map requirements through the provisions, standards, and criteria contained herein.

Figure 2.2: Conceptual Residential Site Plan

Village 1 - Village 1 housing consists of smaller-lot, alley-served homes within a traditional grid of streets oriented to the Town Center and Village Green. A continuous multi-purpose trail surrounds Village 1 and provides public access to off-site trails.

Village 2 - Village 2 contains a mix of single-family detached lots with lower density and executive-sized homes. The residential lots feature golf course frontage, adjacency to natural hillsides, and quiet neighborhood opportunities within open-ended culs-de-sac promoting neighborhood access to open spaces. This Village also includes pedestrian connections to a linear park with a tot lot and a loop road with parkways, sidewalks, and landscaping.

Village 3 - Village 3 housing consists of age-qualified homes and executive- to estate-sized residential development opportunities within a framework of streets and trails. This Village also features an open space network, including riparian areas, trail connections, and two tot lots. In addition to providing the City of Vacaville with higher-quality, executive residential opportunities, housing within this Village provides a low-density transition to existing rural and open space conditions.

Table 2.2: PD Residential Products

Lot Size	Count (approx.)	Percent
VILLAGE ONE		
50 x 100 (Alley-served)	164	16%
Town Center Residential	51	5%
Totals	215	21%
VILLAGE TWO		
60' x 100'	50	5%
70' x 100'	116	11%
80' x 100'	60	6%
100 x 100*	104	10%
Totals	330	32%
VILLAGE THREE		
Age-Qualified**	100	10%
60' x 100'	96	9%
70' x 100'	81	8%
80' x 100'	83	8%
100 x 100*	63	6%
Custom*	47	5%
Totals	470	46%
Lagoon Valley Subtotal	1,015	99%
Community Homes*	10	1%
LAGOON VALLEY TOTAL	1,025	100 %
*Lots > 10,000 SF	224	22%

** Locations of age restricted lots are subject to market demands and locations may be adjusted to provide greater variety of age restricted products.

2.3.1 Residential Policies:

Figure 2.2: Conceptual Illustrative Residential Site Plan, shows an illustrative site plan for the residential Villages, and addresses the street patterns, lot patterns, and mix of lot sizes for the three Villages. See Table 2.2 for approximate unit count and product mix within LLV.

This plan demonstrates consistency with the following policies:

Policy 2-4 The number of units permitted in each of the Villages shall fall within ± 10 percent of the stated target provided that the total number of units does not exceed 1,025.

Policy 2-5 The target number for any one Village development area may be adjusted up or down by ± 10 percent provided that a corresponding adjustment is made in another Village development area and the diversity and range of housing types and lot sizes required by Policy 2.2-2.8 is maintained. It is the responsibility of the Master Developer and new owners to agree upon the adjustments prior to submitting a final map for any of the development areas.

Policy 2-6 Within the residential developments, approximately 224 lots will be 10,000 square feet or larger, with a minimum width of 80 feet. In addition, approximately 4 percent of the total number of residential lots will be custom homes, including approximately 47 lots sold to and developed by individual builders.

2.3.2 Permitted Golf Course-Residential Community Uses

Permitted uses in the Golf Course-Residential Community area shall be as follows:

(a) Single family dwellings;

(b) Multi-family dwellings, with a maximum of 8 units per building;

(c) Golf courses;

(d) Home occupations in accord with Chapter 14.09.120 of the VMC.

(e) Swimming pools, in accord with Section 14.09.074.160 of the VMC.

(f) Temporary subdivision sales office;

(g) Secondary living units in accordance with provisions of Chapter 14.09.122 of the VMC.

(h) Family day care homes, small and large, in accordance with State law (Cal. H&S. Code §1597.30-1597.621) and the provisions of Chapter 14.09.121 of the VMC.

(i) Temporary accessory use of public and private schools by churches and other nonprofit community organizations, provided such use is not a permanent meeting place of such organizations, and takes place within existing buildings;

(j) Accessory uses and structures, located on the same site, to a permitted use in accordance with Section 14.09.074.140 of the VMC and this PD.

(k) Private common open space and landscaping areas including greenbelts, trails, tot lots, pocket parks, and other such amenities.

(l) Golf Course Clubhouse Complex, including appurtenant facilities such as pro shop, restaurants, large event space(s), and other recreational facilities such as swimming pools, fitness club, or other outdoor recreation facilities;

(m) A Community Center building in proximity to the Clubhouse Complex, to be used for community purposes by the residents within the adjoining residential villages upon buildout of the community.

Golf Course-Residential Conditional Uses

The following uses are subject to the issuance of a use permit, in accordance with the provisions of Chapter 14.09.110 of the VMC:

(a) Public cultural and service uses including: playgrounds, community centers, libraries, museums, art galleries;

(b) Public, charter, and private elementary schools, junior high schools, high schools, and colleges, private nonprofit schools and colleges;

(c) Places of assembly for religious or non-profit use;

(d) Public utility and public service buildings and structures, including communications equipment buildings, pumping stations, drainageways, and storage tanks found by the city planning commission to be necessary for the public health, safety, or welfare;

(e) Day care centers in accordance with Chapter 14.02.016 of the VMC;

(f) Community care facilities, in accordance with Chapter 14.02.016 of the VMC; and

(g) Uses the Planning Director finds consistent with the intent of this PD.

2.3.3 Residential Development Standards

The following lot type development standards shall apply to all residential development within LLV in conjunction with the guidelines of this chapter. In meeting the design criteria of these guidelines, it may not be possible to achieve the maximum building envelope as defined by the development standards on all lots. All standards are intended to ensure consistency of residential development with the Policy Plan, PD, and VTM.

Tables 2.3 and 2.4 present development standards by lot type and village. In addition, all development shall meet Policy 2-4 fire protection standards and setbacks.

Policy 2-7 There should be a wide range of product types incorporated into the residential development, including townhouses, alley-loaded product, and variety of detached single family product types on lots ranging from 5,000 sq. feet to large custom lots.

Policy 2-8 Create a diversity and range of housing product and lot sizes within the residential villages, including variation in product widths and massing to provide a varying setback impression.

Policy 2-9 On the valley floor, the sense of open space shall be preserved and residential development shall be set back from I-80 by at least 1,700 feet. Development shall not completely obstruct views of the surrounding hills.

Policy 2-10 The permanent fire protection standards, at a minimum, will include:

(a) Emergency vehicle ingress/egress routes and procedures,

(b) Use of non-combustible construction materials for exteriors of structures and fencing adjoining the open space areas,

(c) Setback requirements for structures adjoining the open space areas,

(d) Fire break standards, including managed vegetation buffer zones with fire resistive landscaping between the developed and open space areas, and

(e) Long term maintenance programs for the developed/open space interface.

Table 2.3: Single-Family Development Standards

LOT TYPE	ALLEY-SERVED	6,000 SF	7,000 SF	8,000 SF	10,000 SF	CUSTOM*
Village Location	**Village 1**	**Village 2 & 3**				**Village 3**
LOT CHARACTERISTICS						
Lot Type	Alley-served	Conventional				Custom
Density Range	5-7 du/ac.	3-5 du/ac.	2-4 du/ac.	<4 du/ac.	<4 du/ac.	<3 du/ac.
Minimum Lot Size	4,500 sf	5,500 sf	6,500 sf	7,500 sf	9,500 sf	10,000 sf
Standard Lot Width	50'	60'	70'	80'	100'	N/A
Minimum Lot Width	40'	50'	60'	70'	90'	N/A
Corner Width	45'	55'	65'	75'	95'	N/A
Minimum Lot Depth	90'					N/A
Maximum Height	35' Building height shall be measured vertically from the average elevation of the surface of the ground covered by the structure to the highest point of the structure, or to the wall coping of a flat roof, to the deck line of a mansard roof, or the mean height between eaves and ridges for a hip, gable, or gambrel roof.					
Maximum Lot Coverage	0.63	0.5		0.46		
Garage Standard	20' x 20' 2-car garage min.; max. 2-car facing alley	22' x 22' 2-car garage min.; max. 2-car facing street		22' x 22' 2-car garage min.; 3-car wide garages max		
	Additional spaces in tandem or turn-in configurations permitted					
MINIMUM SETBACKS						
Front Yard, to Living	15'; 10' for a max. 50% of units (3' min. offset from adjoining lots required)	15'		20'		
Front Yard, to Porch	10'			15'		
	Setback shall be measured from the PL to the outermost edge of the unenclosed porch, including any eave, overhang, railing, decking, or other architectural element of the porch.					
Front Yard, to Garage	N/A	20'				
Front Yard, Swing-in Garage	N/A	10'		15'		
Side Yard*	3'to 5'; 10' aggregate				5' min.; 20' aggregate	
	Side yard setbacks may vary from lot to lot provided the aggregate side yard setback on any single lot is equal to (or greater than) 10 feet, and building separation meets CBC requirements. No structure or portion of a structure shall be closer than 3 feet to any property line.					
Corner Side Yard, Living	5'	10'				20'
	Placement of structures on corner lots shall comply with the Sight Distance Criteria provided in VMC Section 14.09.139.05.					
Corner Side Yard, Porch	5'					10'
Corner Side Yard, Garage Door	18'					
Corner Side Yard, Swing-in Garage	10'					15'
Rear Yard*	N/A	15' min.; 20' average depth			20' living; 10' single-story garage element	20'
Alley PL	8' living; 3' or 18'+ garage	N/A				
PROJECTION ENCROACHMENT						
Permitted for any overhanging architectural features (such as sills, cornices, eaves, and similar cantilevered without posts, and fireplace/chimney features) and may extend into the required setback as identified below; see Side Yard for building separation requirements.						
Front / Rear Yard	6'					
Side / Corner Side Yard	Permitted; min. 3' separation required from any PL					
FENCES						
Height Rear / Side Yard	6'; Adjacent to side street at least 3' of landscape shall be provided between street and fence					
Front	3'					

*Refer to Section 5.3.4 Fire Buffer Requirements for additional standards.

Table 2.4: Multi-family Development Standards

Village Location	Village 1	Village 3
LOT CHARACTERISTICS		
	These standards only apply to stand-alone residential townhomes. Units developed as mixed-use (living units above commercial), units shall conform to the development standards of the commercial development.	
Lot Type	Townhomes / Mixed-Flats	Detached or attached age-qualified homes
Maximum Units	51	100; (8 units/building max.)
Density Range	N/A	
Maximum Height	50'	35'
Max Lot Coverage	.63	0.53
Required Unit Parking*	Mixed Use - Flats: 1 covered space/unit Townhomes: 2-car garage/unit tandem garages permitted	2-car garage/unit
Guest Parking	1 space / 5 units; Guest parking may be provided by on-street parking within the Town Center and/or along collector streets adjacent to the residential parcel(s)	1 space per 10 units
Parking Stall Size	One-car garage: 11' x 20' Two-car garage: 20' x 20' Parking Space: 9' x 18' with a 2' overhang	
MINIMUM SETBACKS		
Front to Street PL	15' to living; 8' to porch or courtyard	10' to living; 6' to porch or courtyard
	Garages or parking shall take access from interior circulation; garage access from PD level streets (any street shown in Figure 2.2) is prohibited.	
Side to Street PL	10'	10' to living; 5' to porch or courtyard
Interior PL	0'; 10' to any non-residential use	3' min.; 10' aggregate
Building to Uncovered Parking	10'	
Building Separation	10' side to side; 30' garage to garage; 20' front to front or front to side	
OTHER STANDARDS		
Permitted Encroachments	None permitted	2' front and side yards
Required Guest Parking	1 space per 5 units	
Required Private Outdoor Space	200 sf/unit, 10' minimum dimension	

*The Community Development Director may reduce the required number of parking spaces by up to 20 percent for a mixed-use development based on the proportion of office, retail, restaurant space, and opportunities for shared joint-use parking. In approving a reduction, the Community Development Director should consider the following findings:

(a) The reduction will not result in a safety hazard or any other condition inconsistent with the objectives of the zoning ordinance;

(b) The site development includes two or more uses sharing a joint parking facility; and

(c) The proposed uses would generate differing peak parking demands.

Accessory Structures

Accessory structures, on-site structures which are incidental to the use of the principal habitable structure such as gazebos, outdoor kitchens, and cabanas, shall be designed to be consistent with the character and quality of LLV. All accessory structures, builder or home owner installed, shall be regulated by Table 2.5, Accessory Structure Development Standards. Detached garages and second dwelling units are permitted as accessory structures subject to these standards.

Table 2.5: Accessory Structure Development Standards*

Village Location	All
Lot Characteristics	
Minimum Building Separation	8 feet from primary structure
Maximum Height	35 feet or equal to the height of the primary structure, whichever is less
Minimum Setbacks (General)	
Front Yard	15 feet
Side Yard / Rear Yard	3 feet
Corner Side Yard	10 feet
Alley	5 feet
Significant Edge Condition	10 feet
Minimum Setbacks (Patio Cover)	
Front Yard	10 feet
Side Yard	Same as primary structure
Rear Yard	10 feet
Corner Side Yard	5 feet
Alley	3 feet
Significant Edge Condition	10 feet

The design, installation, and maintenance of the structure shall be subject to all applicable building codes, and State and Local laws and regulations. Accessory structures shall be compatible with the design of the primary structure, shall be subordinate in scale and appearance, and shall make use of similar materials and design elements that match the architecture of the primary structure.

*Refer to Section 5.3.4 Fire Buffer Requirements for additional standards.

2.3.4 Fire Buffer Requirements

There shall be a 100-foot fire buffer area of non-combustible defensible space between residential buildings that are adjacent to open lands where there wildfire is a threat. These fire buffer areas are established as shown on Figure 2-3: Fire Buffer Diagram. The 100-foot fire buffer zone may include a 24-foot wide fire access road (20-foot roadway, 4-foot v-ditch) and an irrigated 38-foot wide zone (irrigated zones could be separated). See Figure 2.4: Conceptual Fire Buffer Cross Sections for options. The non-combustible defensible space shall include fire resistive, irrigated low growth vegetation and shall be regularly maintained.

Figure 2.3: Fire Buffer Diagram

Enhanced Wildfire Building Requirements

All buildings adjacent to the fire buffer area shall be constructed to VMC 14.20.290.160 Residential Construction Standards adjacent to open lands (Class A roof, non-combustible siding, enclosed, wrapped or boxed-in non-combustible eaves, attic and underfloor openings protected with 1/8-inch wire screens). These buildings shall also meet California Building Code Chapter 7A Materials and Construction Methods for Exterior Wildfire Exposure.

Accessory structures (decks, awnings, patio covers, and sheds) within these areas shall be at least 10 feet from the property line.

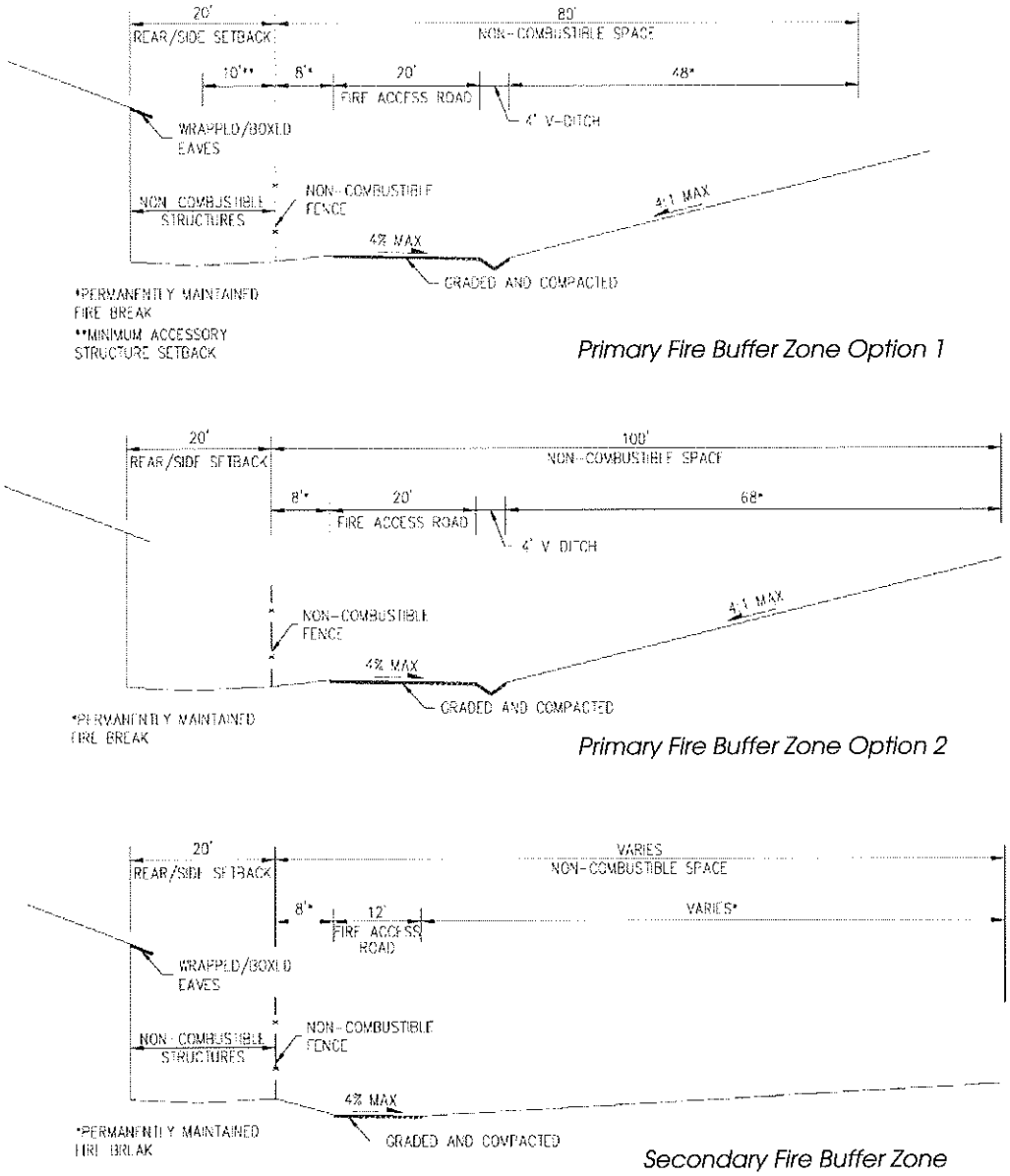


Figure 2.4: Conceptual Fire Buffer Cross Sections

2.4 BUSINESS VILLAGE

This section describes a program for the development of a variety of professional office, retail, and business opportunities. The commercial land use component consists of an approximately 50-acre "Business Village" with a total of approximately 700,000 square feet of office and supporting commercial uses and an approximately 10-acre mixed-use Town Center within Village 1 with approximately 50,000 square feet of neighborhood-serving retail and service uses envisioned to consist of structures from one to three stories in height. The plan features consideration for view preservation to surrounding hillsides.

The primary purpose of the Business Village is to create jobs within the PD area. Figure 2.5: Conceptual Business Village Site Plan presents a conceptual site plan for the Business Village. This area will be subject to additional design submittals and review. All development within the Business Village shall meet the following policies:

Policy 2-11 Establish Business Village and commercial development of the highest quality, conforming to design criteria intended to preserve the open space feel of the valley. Design standards shall be established for building size, material, and design, site coverage and placement, street design and landscaping, and public amenities.

2.4.1 Business Village Permitted Uses:

The following uses are permitted within the Business Village:

(a) Administrative, professional, financial, corporate and other business office uses, including but not limited to professional services such as banks or other financial offices, employment agencies, advertising agencies, escrow and real estate companies, insurance companies, travel agencies, offices for accountants, attorneys, photographers, or artists;

(b) Biotechnical uses primarily engaged in research activities; research and development activities;

(c) Engineering; computer, scientific and electronics and design, software design, and computer services;

(d) Design professionals, including but not limited to the following: engineers, geotechnical engineers, architects, landscape architects, land planners, interior designers, and surveyors;

(e) Colleges, universities and professional schools; business and technical schools; continuing education uses;

(f) Churches, other religious institutions, and membership organization facilities;

(g) Incidental commercial uses and services for employees and business including but not limited to food and beverage dispensing and sales, child care, branch banks, artists, and graphic supplies and goods, printers, photo related services, and equipment testing and laboratories. Such uses must be integral with the building and comply with a overall theme sign program; and

Business Village Conditional Uses

The following uses are subject to the issuance of a use permit, in accordance with the provisions of Chapter 14.09.110 of the VMC:

(a) Public utility buildings;

(b) Park and Ride lots;

(c) Any other related uses which the Community Development Director deems consistent with the purpose of the PD which will not impair the present or potential uses of adjacent properties; and

(d) Clubhouse Complex.

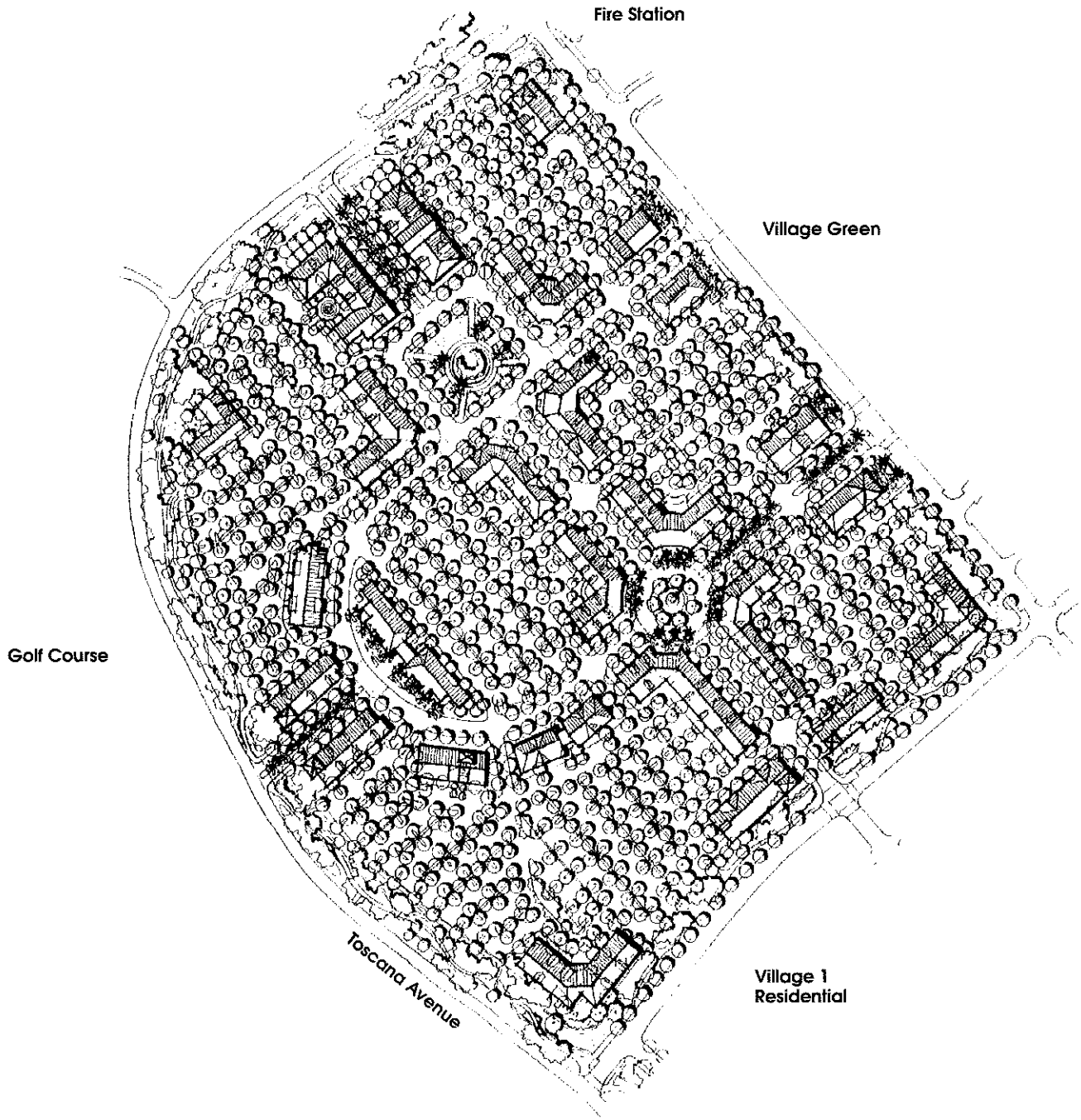


Figure 2.5: Conceptual Business Village Site Plan

2.4.2 Development Standards

Table 2.6, Business Village Development Standard provides the minimum and maximum standards and setbacks related to all development within the Business Village. In addition, the following standards apply to the Business Village unless otherwise noted. All standards are intended to ensure consistency of Business Village development with the Policy Plan and VTM.

Parking shall be provided in the Business Village parcels accordance with VMC Chapter 14.09.128, Off-Street Parking, except as listed in Table 2.6.

> **Policy 2-12** Buildings within the Business Village will be a mixture of 1, 2, or 3 stories with a maximum height of 57 ft. to the highest point of the building.

FAR

The maximum Floor Area Ratio (FAR) is listed in Table 2.6 and calculated on gross acres that are measured to the centerlines of adjacent streets. Other design factors may result in reduced development intensity below the FAR on any given property. Achievement of the maximum allowed FAR on an individual site will be a function of design review requirements such as the required setbacks, parking standards, landscaping requirements, and height limits.

An exception to the maximum FAR may be allowed by the Community Development Director to encourage the inclusion of parking structures within the Business Village development. In approving an exception, the Community Development Director must make the following findings:

(a) The roadway network has adequate capacity to handle the proposed use and other reasonably anticipated development in accordance with the City's General Plan and Zoning Ordinance;

(b) The on-site and off-site utility infrastructure, including water, sewer and stormwater drainage, can provide adequate services for the PD area uses;

(c) The proposed building massing is compatible with the surrounding development.

Table 2.6 Business Village Development Standards

BUSINESS VILLAGE STANDARDS	
Minimum Site Area	5 acres; Community Development Director may allow a reduction of 2 acres where provisions for shared ingress/egress, parking, landscaping other site improvements permit the smaller parcel(s) to meet the intent of this PD. Public facilities are not subject to a minimum site area.
Maximum Building Size	60,000 sf; See Single Use Building Square Footage Modification 2nd/3rd floors limited to a max of 20,000 sf each
Maximum FAR	0.40
Building Height	57 feet, 3 stories
BUSINESS VILLAGE MIN. SETBACKS	
Toscana Avenue	75 feet
Residential/ Village Green Edges	50 feet
Building to ROW	20 feet
Parking to Any Street	10 feet landscaped
Building Separation	0 feet or 15 feet
Setback exceptions, subject to Community Development Director review and approval, will be considered along internal property lines for shared driveways, shared parking, improved landscape design, or similar opportunities that contribute to a more attractive setting. Setbacks are measured from face of curb to building.	
BUSINESS VILLAGE PARKING STANDARDS	
Commercial Uses	5 spaces/1,000 sf
Parking Stall Size	9' x 18' with a 2' overhang
The Community Development Director may reduce the required number of parking spaces by up to 20 percent for a mixed-use development based on the proportion of office, retail, restaurant space, and opportunities for shared joint-use parking. In approving a reduction, the Community Development Director should consider the following findings: (a) The reduction will not result in a safety hazard or any other condition inconsistent with the objectives of the zoning ordinance; (b) The site development includes two or more uses sharing a joint parking facility; and (c) The proposed uses would generate differing peak parking demands.	
40% of the Parking spaces may be compact for lots with less than 100 stalls.	

Single-Use Building Square Footage Modification

The Community Development Director may allow up to a 50 percent increase above the maximum square footage standard for a building that is designed for a single user provided that the size and location of the building adheres to the rest of the provisions of the PD.

2.5 TOWN CENTER

The retail-oriented Town Center may also include residential uses above the ground level and stand alone residential. All development within the Town Center shall meet the following policies:

Policy 2-13 Develop the Town Center as a pedestrian-friendly, mixed-use center, including neighborhood-serving commercial with office and residential uses on the upper floors or in adjacent buildings.

Policy 2-14 Approximately 50,000 square feet shall be devoted to neighborhood-serving retail and service uses in order to contribute to the identity and character of the outlying residential areas and to reduce daily vehicle trips. The square footage shall be clustered together into the Town Center as shown in Figure 2.6: Conceptual Town Center Site Plan.

Policy 2-15 Provide neighborhood commercial services in the Town Center to serve the needs of employees, residents, and park users.

Policy 2-16 To the extent feasible, institutional uses, churches, public or private schools and public buildings, should follow the design characteristics of the adjoining residential or business village.

2.5.1 Town Center Permitted Uses

Town Center complex may contain neighborhood serving retail commercial uses, including the following:

(a) Neighborhood services such as restaurants, specialty foods, child care, artist/graphic supplies, printing, photography, overnight postal services, retail U.S. post office, take-out food, dry clean drop off, bookstores, galleries, clothing, grocery, optometry, fitness center or other pedestrian-oriented or supportive services as determined by the Community Development Director;

(b) Office uses are permitted on the upper floors of the retail buildings within the Town Center and the office square footage will be included in the overall square footage for the Business Village;

(c) Up to 51 multi-family units or mixed-use residential flats on the upper floors and may be mixed with retail and service uses or in stand alone buildings.

(d) Community Center up to 3500 square feet of the retail buildings.

Town Center Conditional Uses

The following uses are subject to the issuance of a use permit, in accordance with the provisions of Chapter 14.09.110 of the VMC:

(a) Public utility buildings;

(b) Park and Ride lots;

(c) Any other related uses which the Community Development Director deems consistent with the purpose of the PD which will not impair the present or potential uses of adjacent properties.

2.5.2 Development Standards

See Table 2.7, Town Center Development Standards, for minimum and maximum standards and setbacks related to all development within the Town Center. In addition, the following standards apply to the Town Center unless otherwise noted. All standards are intended to ensure consistency of Town Center development with the Policy Plan and VTM.

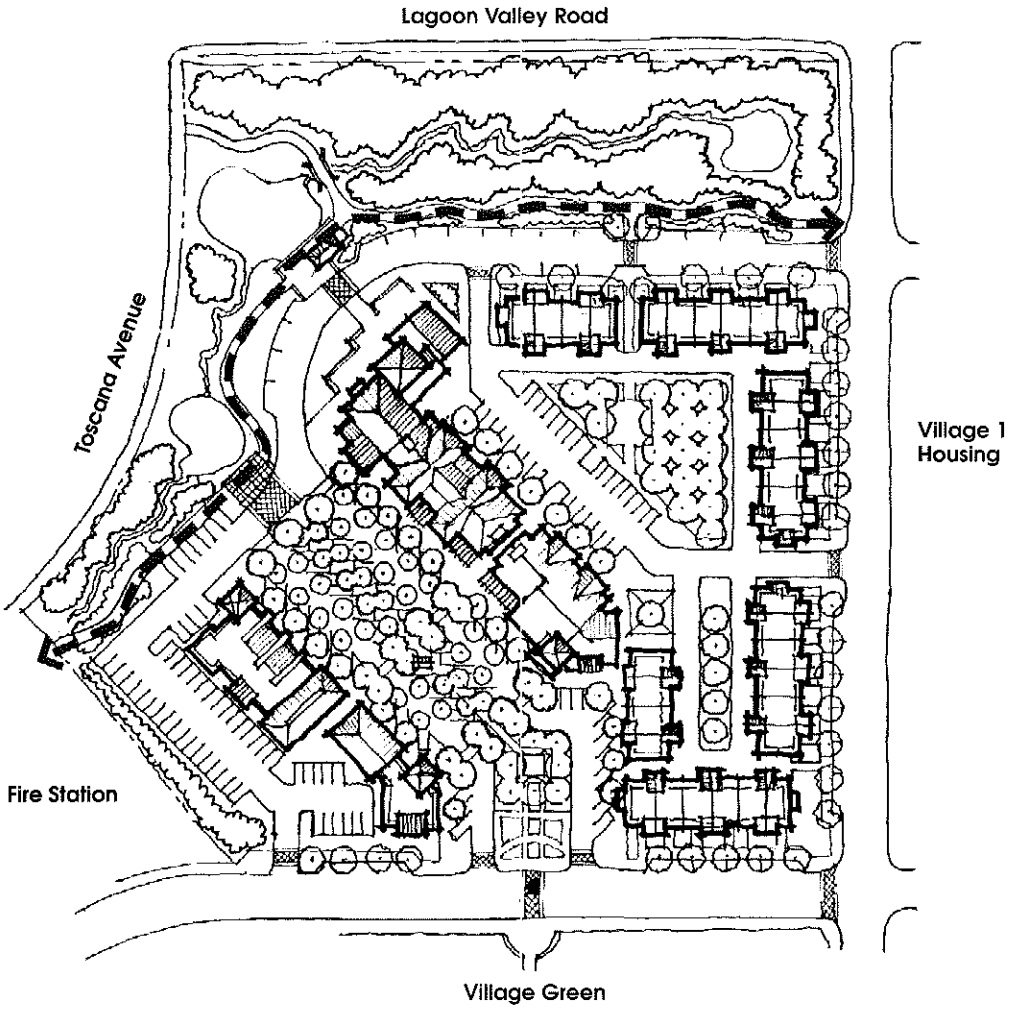


Figure 2.6: Conceptual Town Center Site Plan

Parking shall be provided in the Town Center parcels accordance with VMC Chapter 14.09.128, Off-Street Parking, except as listed in Table 2.7.

FAR

The maximum Floor Area Ratio (FAR) is listed in Table 2.7 and calculated on gross acres that are measured to the centerlines of adjacent streets. Other design factors may result in reduced development intensity below the FAR on any given property. Achievement of the maximum allowed FAR on an individual site will be a function of design review requirements such as the required setbacks, parking standards, landscaping requirements, and height limits.

An exception to the maximum FAR may be allowed by the Community Development Director to encourage the inclusion of parking structures within the Business Village development. In approving an exception, the Community Development Director must make the following findings:

(a) The roadway network has adequate capacity to handle the proposed use and other reasonably anticipated development in accordance with the City's General Plan and Zoning Ordinance;

(b) The on-site and off-site utility infrastructure, including water, sewer and stormwater drainage, can provide adequate services for the PD area uses;

(c) The proposed building massing is compatible with the surrounding development.

Residential in Town Center

Residential units within the Town Center are subject to the development standards of Table 6.7 and the following design criteria.

(a) The design of the Town Center residential units shall be consistent with the architectural character of the Town Center buildings.

(b) Separate entrances shall be required for residential and commercial uses when occupying the same structure. (This does not preclude secondary interior access between commercial and residential uses, in addition to the required separate accesses, provided that residential access to or through commercial uses avoids unsafe commercial areas.)

Table 2.7 Town Center Development Standards

TOWN CENTER STANDARDS	
Maximum FAR	0.30
TOWN CENTER MIN. SETBACKS	
Building Height	57 feet or 3 stories
Lagoon Valley Road	150 feet
Toscana Avenue	75 feet
Residential Edges	30 feet
Building to PD Level Street (any street shown in Figure 2.2)	20 feet
Parking to Any Street	6 feet landscaped
Building Separation	0 feet or 15 feet ±

Setback exceptions, subject to Community Development Director review and approval, will be considered along internal property lines or private roads for shared driveways, shared parking, improved landscape design, or similar opportunities that contribute to a more attractive setting.
Setbacks are measured from face of curb to building.

TOWN CENTER PARKING STANDARDS	
Commercial Uses	5 spaces/1,000 sf
Residential (Any form of residential or live/work units)	1 covered space per unit
Parking Stall Size	9' x 18' with a 2' overhang

The Community Development Director may reduce the required number of parking spaces by up to 20 percent for a mixed-use development based on the proportion of office, retail, restaurant space, and opportunities for shared joint-use parking. In approving a reduction, the Community Development Director should consider the following findings:

(a) The reduction will not result in a safety hazard or any other condition inconsistent with the objectives of the zoning ordinance;
(b) The site development includes two or more uses sharing a joint parking facility; and
(c) The proposed uses would generate differing peak parking demands.

40% of the Parking spaces may be compact for lots with less than 100 stalls.

2.6 GOLF COURSE

The golf course is envisioned to provide a specialized recreational amenity that features an 18-hole championship course with practice facility, and a Clubhouse Complex that includes golf facilities and Village recreation facilities. See Figure 2.7 for conceptual golf course layout.

Policy 2-17 Uses within the Golf Course will be limited to an 18-hole championship golf course with amenities. The golf course is expected to include a practice facility and a Clubhouse Complex. The Clubhouse Complex includes indoor/outdoor facilities of approximately of 24,250 square feet including 16,500 square feet for offices, pro shop, meeting rooms, locker rooms, storage, and restaurant; 500 square feet for a fitness center; 7,250 square feet for cart storage, and 8,500 square feet for a maintenance facility (square footage approximate).

The square footage may include/indoor facilities or "outdoor" rooms. These facilities may be sited as one complex or located away from each other.

Policy 2-18 The design of the Clubhouse Complex shall be consistent with the pedestrian and Village character of the adjoining residential areas.

Figure 2.7: Conceptual Golf Course Layout

Policy 2-19 Adjacent to the Clubhouse Complex, additional recreational components such as a private fitness center, pool, and other recreational amenities shall be permitted and may be made available to the residential community in LLV.

Policy 2-20 The proposed golf course may include use of up to approximately 49 acres of the adjoining City-owned public open space (Subarea 6C see Vesting Tentative Map for location of this area). This is equivalent to the amount of acreage permitted under the existing 1990 LLV Policy Plan. The exact number of acres and their locations will be determined by the Director of Community Development and will be incorporated into the Conditions of Approval of the Vesting Tentative Map In conjunction with this action, the Master Developer will dedicate an additional 60+ acres of hillside and open space to the City.

Policy 2-21 The use of the City-owned land will be conveyed to the Master Developer.

Policy 2-22 The Master Developer will, either by deed restriction or by easement, restrict the area devoted to the golf course (excluding the clubhouse and adjoining recreational amenities) to use as a golf course. Additionally, if the golf course is not developed, then the area shall be developed as open space and habitat area, including a network of trails, and provide for the maintenance of this area as part of one of the service districts.

Note: The Clubhouse Complex design is conceptual and will be refined when development occurs.

Figure 2.8: Conceptual Clubhouse Complex

Chapter 4: Resources, Open Space, and Recreation provides details on the overall design intent, construction, and maintenance strategies. Figures 2.7 and 2.8 provide illustrative concepts of the golf course and Clubhouse Complex; and Chapter 5 and 6 provides additional guidelines for the Clubhouse Complex.

2.6.1 Golf Course Not Constructed

The Championship golf course is a key recreational element for the PD area that not only visually provides a sense of open space but also is an important aspect of the storm water management plan with its many water features. In the event that the golf course is not constructed as a result of the Master Developer not being able to obtain the necessary State and Federal environmental permits then the following alternative use of Subarea 2 shall occur:

(a) Except for the clubhouse and recreational complex area, the Subarea shall be dedicated, without compensation, to the City as open space;

(b) The area shall be improved as a wildlife habitat area with walking and bicycle trails. In addition to the trails, the area shall be improved with a restored creek and a series of ponds to accommodate a drainage system that shall be in accordance with the City's Lake Management Plan and this PD;

(c) The maintenance of this open space area shall be paid for and included in one of the Area Maintenance Service Districts noted in the VTM application; and

(d) Fire protection measures shall be required in relation to open lands adjacent to commercial and residential property. These measures shall be reviewed and approved by the Fire Marshal.

2.7 FIRE STATION

A fire station is planned for a 1.5-acre site in Village 1. Development shall be consistent with the guidelines provided in Chapter 6 of this document.

2.8 RECREATION AND OPEN SPACE

The LLV Villages have been designed in context with open space and a recreation system of public and private uses. The planning and design for this cohesive open space network integrates the natural and cultural features of the valley into a comprehensive whole with residential living. Chapter 4: Resources, Open Space, and Recreation provides further details on these integrated open spaces. See Figure 2.9 for the conceptual open space network plan.

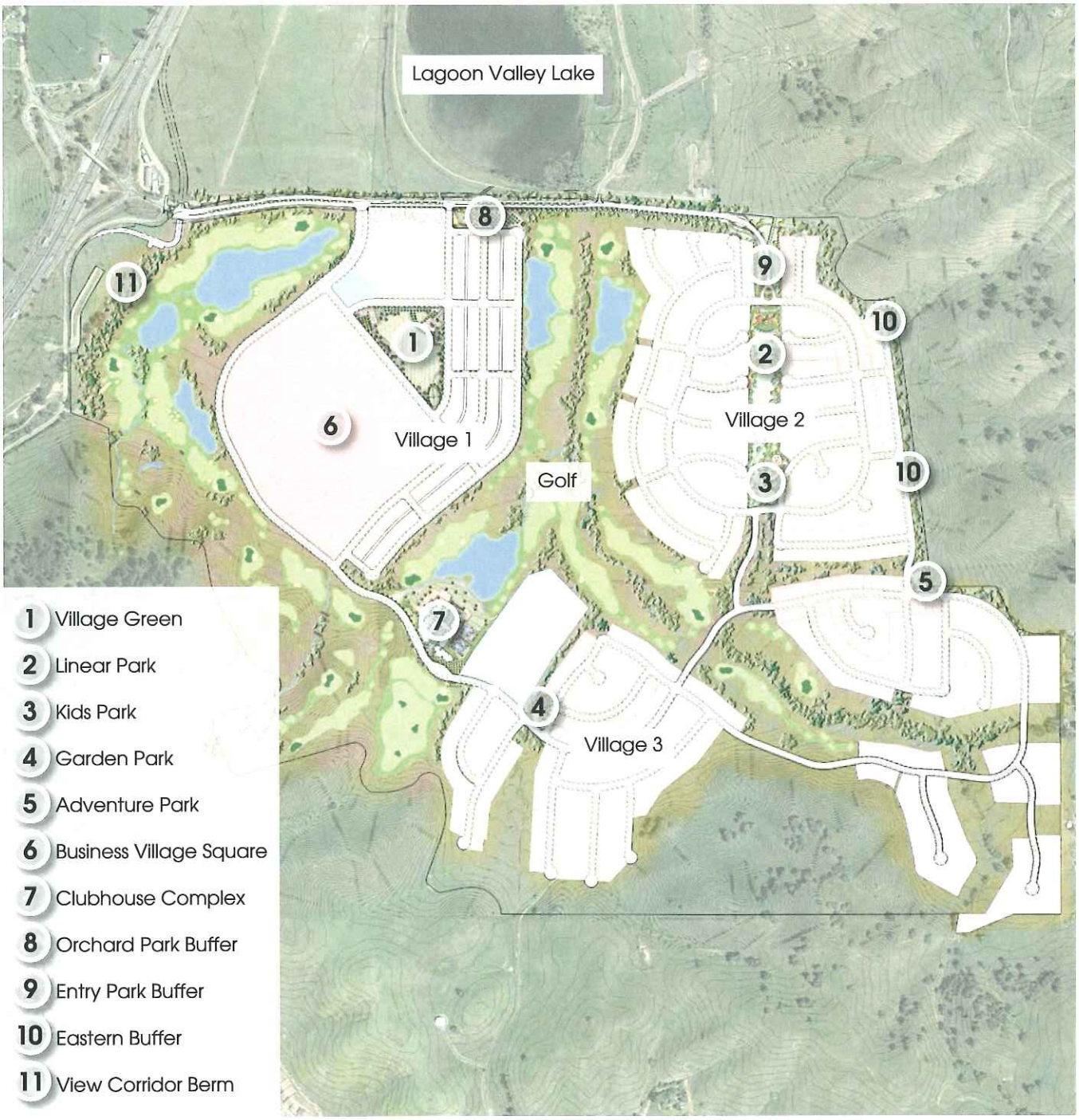


Figure 2.9 Conceptual Open Space Network Plan

The View Corridor encompasses an approximately 825-foot wide corridor that runs from south of the Lagoon Valley Road interchange northeast towards the lake and hills. The purpose of the View Corridor is to maintain views of the lake, park, and hills for motorists driving eastbound on I-80 while minimizing the visual impact of the proposed improvements for LLV, implementing the following policy:

Policy 2-23 A permanent view corridor will be established to protect the view of Lagoon Valley Lake and the hills that provide a backdrop for the lake.

Within the approximately 825-foot wide view corridor, no buildings will be allowed, and no parking is planned. Plant materials will include large informal groupings of high canopy trees planted intermittently so as to not completely obscure the view. See Figure 2.10 for view corridor location.

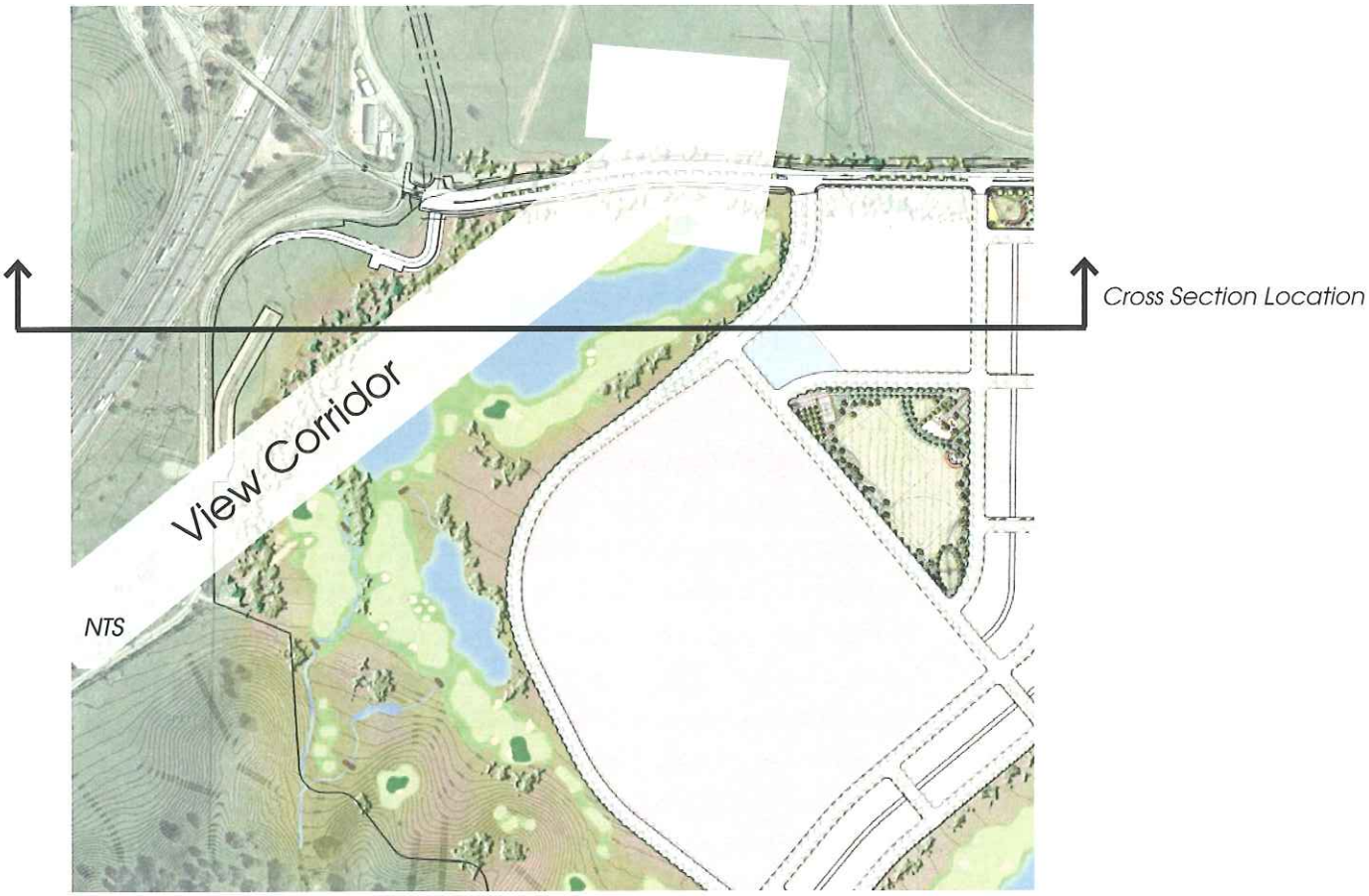


Figure 2.10: View Corridor Location

Figure 2.11: View Corridor Cross Section

Additionally, a landscaped berm will be constructed between I-80 and the golf course and residential Villages. The berm will be designed as a natural landscape feature that will not obscure views of the lake or hills but will improve the views into the valley. It will also screen views of I-80 from the golf and residential villages.

To further protect this significant view corridor, development within Village 1 is set back from I-80 a minimum of 1,700 feet.

2.9 DESIGN REVIEW

All buildings and site planning shall substantially conform to this PD and Design Guidelines. The final design of these facilities is subject to City review and approval as set forth in Condition of Approval #9. Design review shall be limited to a consideration of the consistency between: 1) the proposal, and 2) this PD and Design Guidelines, and all other project approvals. The Community Development Director or designee shall be the decision-maker in all design review matters for the project, provided the particular request does not seek to modify this PD and Design Guidelines, and is otherwise substantially consistent with all approvals for the project and applicable law. Proposed modifications to this PD and Design Guidelines, or proposals inconsistent with this PD and Design Guidelines or other approvals for the project, shall be reviewed and decided upon by the Planning Commission. The Planning Commission may take action on a request or referral without holding a public hearing (see V.M.C. 14.09.072.01 (Table)).

2.9.1 Design Review Board

There is a clear commitment to design quality throughout LLV. To ensure that this standard prevails over the lifetime of the project, a LLV Design Review Board (Board) is required for administration of development within LLV. During the initial build out the Board members will include representatives of the Master Developer, including at least one qualified design professional. With the formation of the Homeowner's Association, the Master Developer will include a Design Review process to assure community consistency for future homeowners improvements within the visible areas. The Board will be responsible for review of all design concept proposals, and permit applications for projects within the Lagoon Valley Villages. This review and approval should generally occur prior to the City's review of the projects to ensure their consistency with the PD and Design Guidelines. The Board shall not have the authority to approve or deny proposals for development; rather its role shall be advisory.

3.0 CIRCULATION

3.1 VEHICULAR STREET NETWORK

This section describes the proposed roadway system for the PD area. The following policies are from the Policy Plan to guide the circulation network.

Policy 3-1 Pedestrian, bicycle, transit, and street systems should be integrated into the design of residential neighborhoods, to provide safe and convenient connections to key destinations within LLV and the larger community.

Policy 3-2 The types of land uses and the intensity of their development shall not generate traffic volumes that exceed the capacity (LOS D) of the existing over-crossings at Lagoon Valley Road & I-80 and Pena Adobe Road & I-80. Interchange improvements, such as improvements to the on and off-ramps to these interchanges and installation of appropriate traffic controls, may be required and are the responsibility of the Master Developer and are funded through a payment equivalent to the City's Traffic Mitigation Fees as further set forth in the project Conditions of Approval and the Obligation Agreement. These interchanges will be added to the City's Annual Infrastructure Review program.

Policy 3-3 The public road rights-of-way and street improvements for Lagoon Valley Road, from I-80 to the secondary access driveway into Lagoon Valley Park, will be dedicated to the City of Vacaville as public streets, as shown in Figures 3.2 and 3.3 (Lagoon Valley Road).

Policy 3-4 The private streets within the PD area need to be designed and constructed to meet the City's standards and criteria for private streets, except that street widths, cross-sections, and traffic calming design criteria shall substantially conform to the dimensions described by the Vesting Tentative Map and this PD.

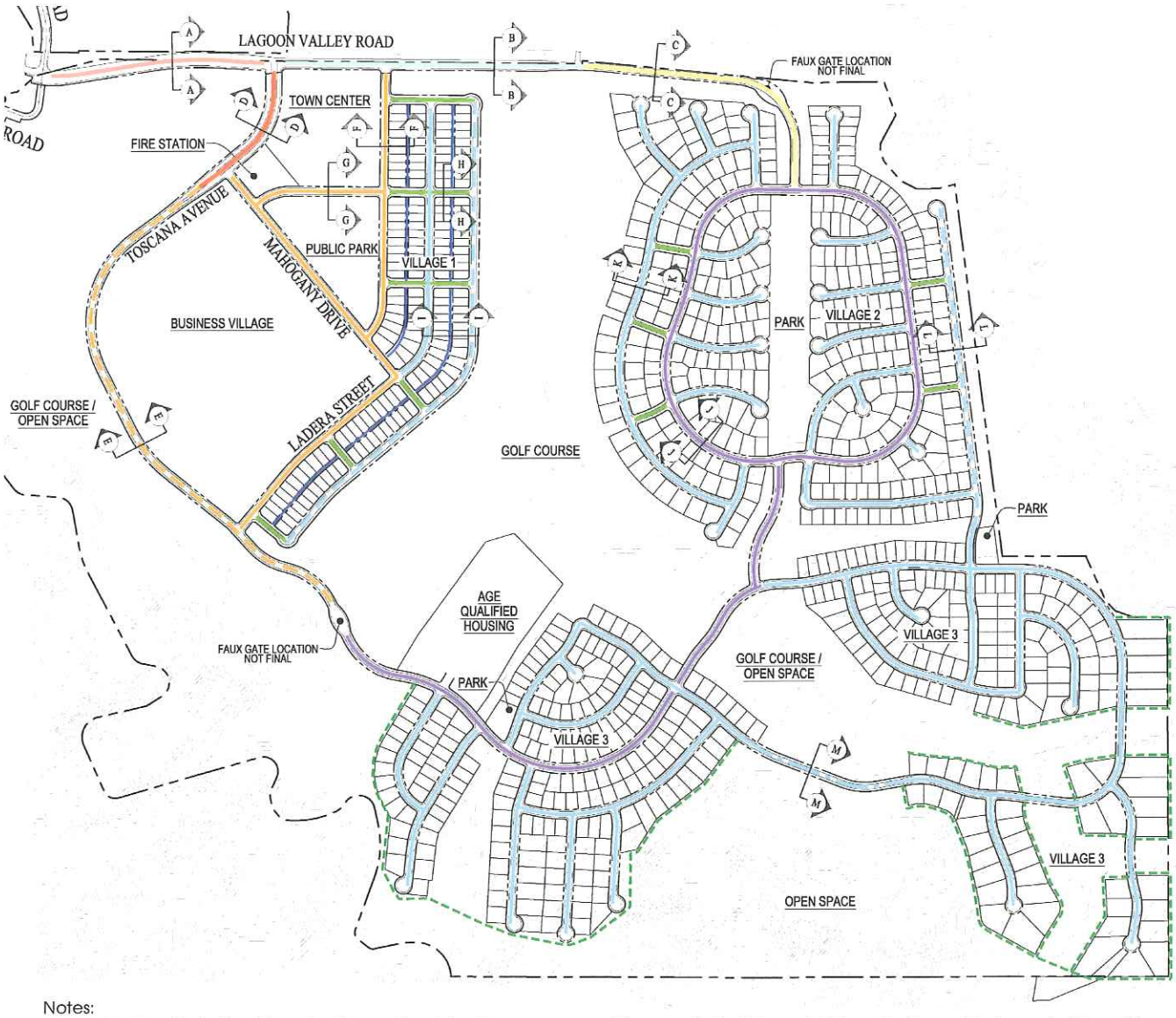
Policy 3-5 Developers shall incorporate feasible traffic calming measures into the roadway systems for LLV. These measures will be determined as part of the tentative map review process for each Village Given the importance of the roadway system to maintaining and enhancing the character of the LLV, special attention shall be given to the design of traffic calming devices that enhance the visual character of the travel corridor (such as landscaped islands, allées of street trees, corner bulb-outs, four and three-way stop corners, and lower speed limits).

Policy 3-6 Design of each residential neighborhood shall ensure that there are designated and safe pedestrian and bicycle routes between the neighborhood and parks that serve the LLV area.

Policy 3-7 The developers of Village 3 shall provide access to parcel 0167-030-040.

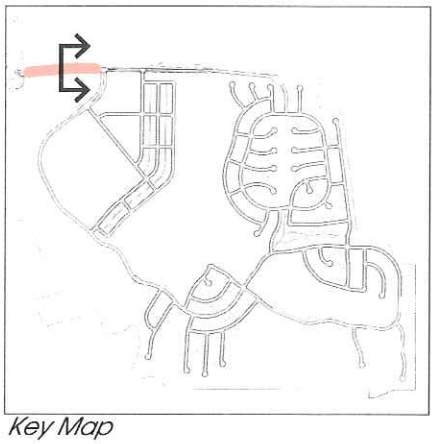
Policy 3-8 Contribute to citywide trail and pathway systems, as well as streets, by extending these public rights-of-way through Lower Lagoon Valley.

The Street Network Key Plan (Figure 3.1) serves as a location diagram for the applicable street segments found in Figures 3.2 - 3.15. The street sections are general in nature and are meant to depict a typical configuration. They are not intended to address every design aspect as that level of detail will be provided with the improvement plans for the individual neighborhood. Chapter 5: Landscape Design Guidelines contains further information on treatment of areas outside of street rights-of-way; also see the VTM.



Notes:
1. See Vesting Tentative Map for Rivera Road Section.

Figure 3.1: Street Circulation Network Key Plan



Key Map

Lagoon Valley Road (Interchange to Toscana Avenue Section A-A)

The main entry road into LLV will have four lanes with a 16-foot median. Both sides of the entry road will have a 10-foot wide multi-use trail separated from the roadway by a minimum 10-foot planting strip. The trail will meander to fit the natural topography of the adjacent areas. Parking is not allowed on this segment of street.

This segment will be constructed to City standards and dedicated as a public street. Parking is not allowed on this segment of street.

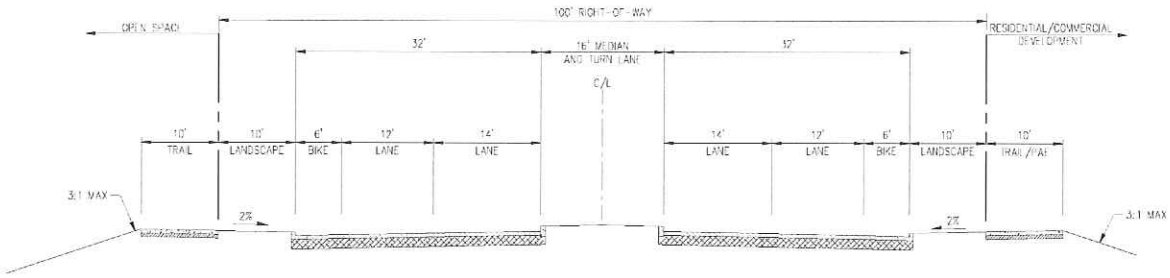
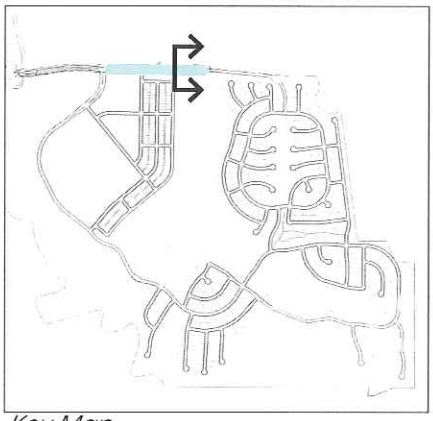


Figure 3.2: Lagoon Valley Road (Interchange to Toscana Avenue Section A-A)



Key Map

Lagoon Valley Road (Toscana Avenue to Lagoon Valley Park Entry Section B-B)

This segment of Lagoon Valley Road will be similar to that shown in Figure 3.2; however, east of the Toscana Avenue intersection, the roadway will have one travel lane in each direction and a 22-foot slope/landscape area on the north side (against Lagoon Valley Park), for a total 88-foot right-of-way. Where adjacent to Village 1 housing, the road will abut a 150-foot wide landscape buffer. 10-foot wide multi-use trails will be provided on either side of the road where they connect to the other multi-use trail segments, and the trails will be separated by a minimum 10-foot planting strip and will meander along with the topography.

This segment will also be constructed to City standards and dedicated as a public street. Parking is not allowed on this segment of street.

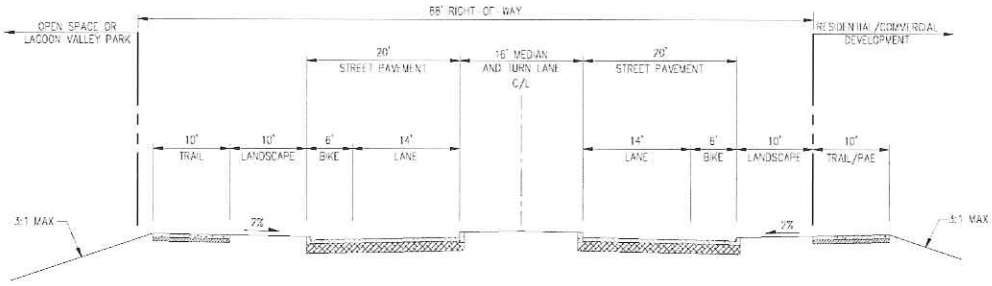
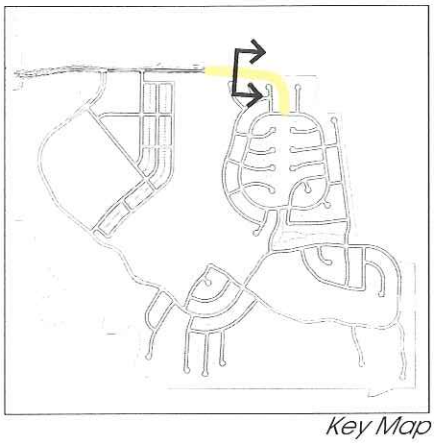


Figure 3.3: Lagoon Valley Road (Toscana Avenue to Lagoon Valley Park Entry Section B-B)

Lagoon Valley Road (Lagoon Valley Park Entry to Village Circle Section C-C)

This segment of Lagoon Valley Road will have 2 lanes with a planting strip on both sides of the street. The north and south sides of the entry road will have a 10-foot wide multi-use trail separated from the roadway by a minimum 10-foot planting strip. The northern trail segment will diverge from the roadway prior to the Village 2 entrance and will meander towards the eastern hillside. Where adjacent to Village 2 housing, the road will abut a landscape buffer of approximately 50 feet in width.



Key Map

Parking is not allowed on this segment of street.

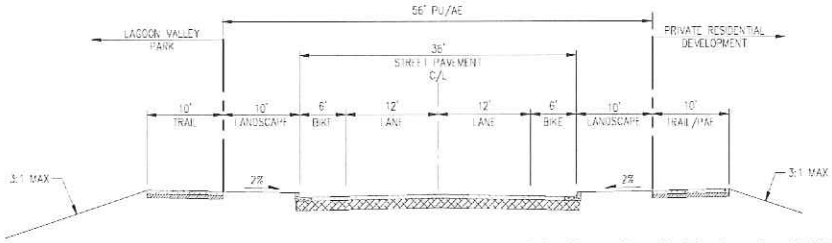
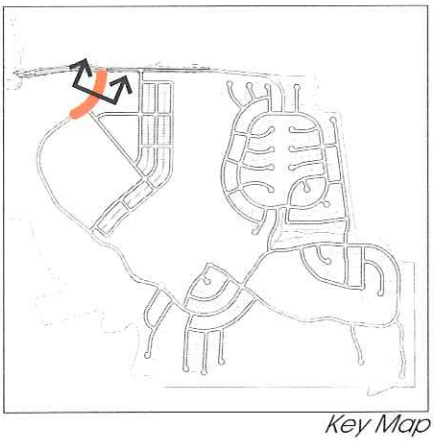


Figure 3.4: Lagoon Valley Road (Lagoon Valley Park Entry to Village Circle Section C-C)

Toscana Avenue (Lagoon Valley Road to Mahogany Drive Section D-D)

Toscana Avenue provides access to Village 3, the golf course, and the Clubhouse Complex. The highest volume, 4-lane segment from Lagoon Valley Road to Mahogany Drive (at the fire station site) will have a 16-foot median and turn lane in the center of a 100-foot right-of-way. Beyond Mahogany Drive the street will transition to 2-lanes. The transition from 4 to 2 lanes will occur in such a way to accommodate the necessary turning movements and lane configurations at the intersection.



Key Map

The landscaping on the west side of the street will integrate with the golf course and the east side of the street will have a planting strip. Sidewalks will be omitted on the west side but the eastern side will have a 10-foot wide multi-use trail outside of the right of way but within an easement. The trail will be separated a minimum of 10 feet from the roadway by a berm and/or landscaping.

This segment will also be constructed to City standards and dedicated as a public street. No parking is allowed on this segment of Toscana Avenue.

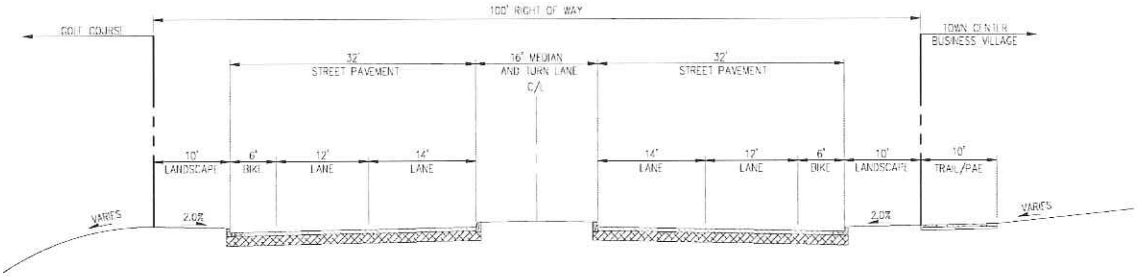
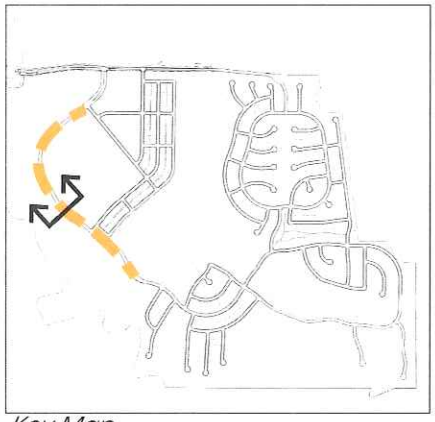


Figure 3.5: Toscana Avenue (Lagoon Valley Road to Mahogany Drive Section D-D)



Key Map

Toscana Avenue (Mahogany Drive to Clubhouse Complex Section E-E)

South of Mahogany Drive, Toscana Avenue will transition to a 2-lane roadway with curb and gutter. This segment of road will be posted for 25 MPH for traffic calming. The eastern side of the road will have a 10-foot wide multi-use trail separated from the roadway by a minimum 12-foot planting strip. Sidewalks on the west side will be omitted.

The segment from Mahogany Way to Ladera Street along the east and south side of the Business Village will be constructed to City standards and dedicated as a public street. After the Business Village, Toscana Avenue will transition to a private street. The faux gate will likely be located just beyond the Clubhouse Complex driveway(s) and will psychologically signify the transition from public to private amenities. No parking is allowed on this segment of Toscana Avenue.

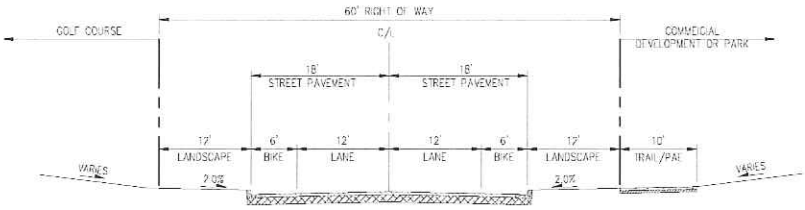
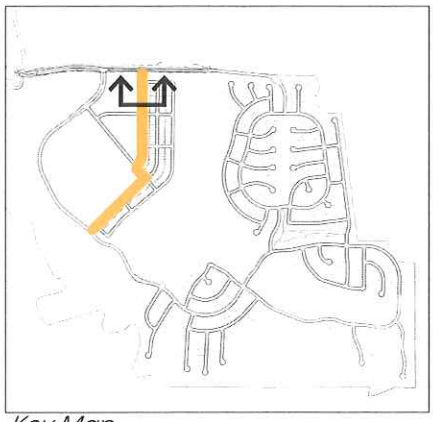


Figure 3.6: Toscana Avenue (Mahogany Drive to Clubhouse Complex Section E-E)



Key Map

Public Collector Street (Sections F-F and G-G)

The main roadways through the Town Center and Business Village portions of Village 1 will have 2 travel lanes with an 8-foot shoulder on both sides for parking or breakdown area. Both sides of the road will have a 5-foot wide sidewalk separated from the street by a 6.5-foot wide planting strip. In some cases, the sidewalk and planting strips are located outside of the right of way.

These streets will be constructed to City Standards and dedicated as public streets.

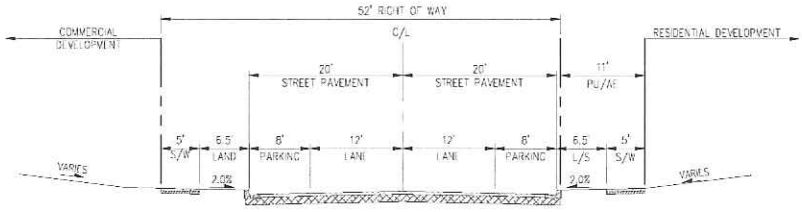


Figure 3.7: Public Collector Street (Section F-F)

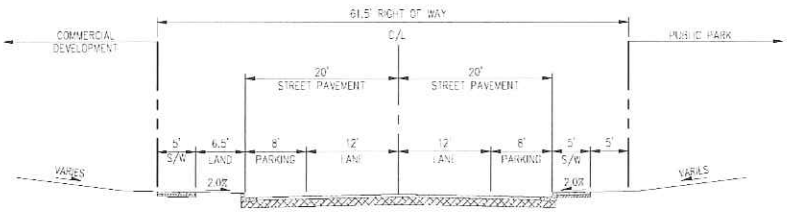
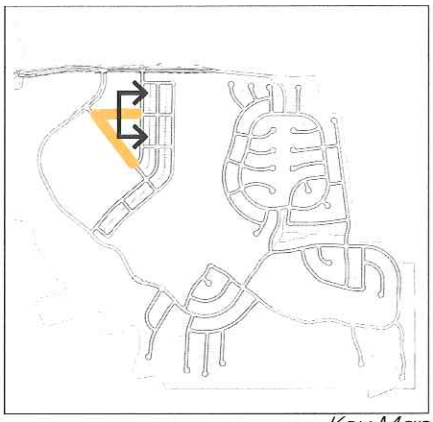


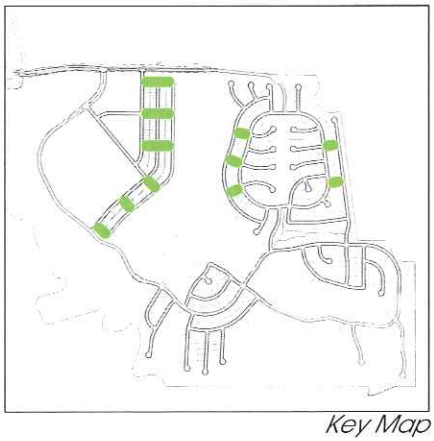
Figure 3.8: Public Collector Street (Section G-G)



Key Map

Unloaded Residential Street (Villages 1 and 2, Section H-H)

There are several locations in Village 1 and 2 where a short roadway connects typical residential streets but has only side yards adjacent to it. To prevent long-term parking and provide ample space with an open feeling, the right of way width will remain the same as a typical residential street but parking lanes will be omitted on the segments. Five-foot wide sidewalks will be provided on both sides of the street separated from the street by a 6-foot wide parkway strip. An additional 5 feet of landscaping will be provided behind the sidewalk.



Key Map

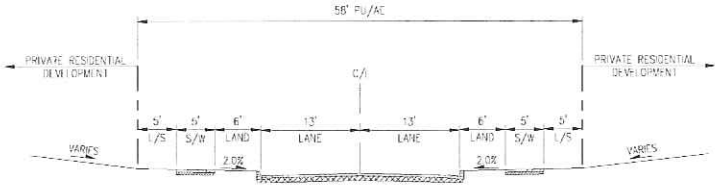
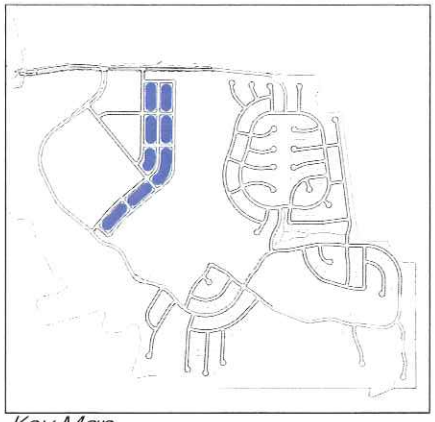


Figure 3.9: Unloaded Residential Street (Villages 1 and 2, Section H-H)



Key Map

Alleys (Section I-I)

Village 1 will include smaller housing products with porches and front doors facing the streets and alleys to the rear. This will create a pedestrian friendly "eyes-on-the-street" streetscape with vehicular access to garages, as well as trash collection, from the alleys. The alleys are designed with 20 feet of pavement. A minimum of 3-feet behind the curb on each side will be reserved for street side landscaping and trash can staging on pick-up days.

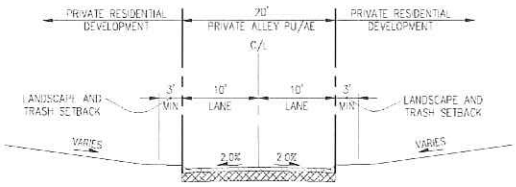
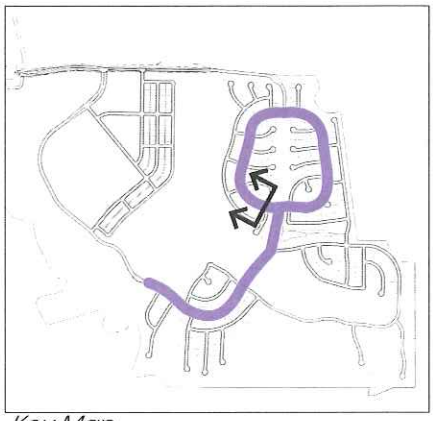


Figure 3.10: Alleys (Section I-I)



Key Map

Village Loop and Toscana Avenue (Villages 2 and 3, Section J-J)

The Village Loop is the central organizing element of Village 2 roadways. To reinforce the importance of this loop street, it will have wider sidewalks and wider planting strips than other streets in Village 2. This loop road cross section will be continued along Toscana Avenue, which connects from the faux gate at the Clubhouse Complex to Village 2 to provide connectivity and flow between the two areas. The road may be narrowed for short segments at creek crossings to limit habitat impact.

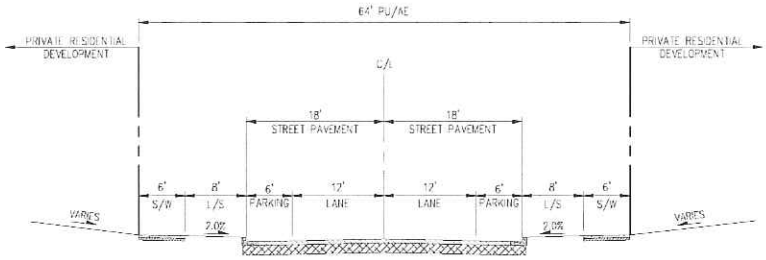
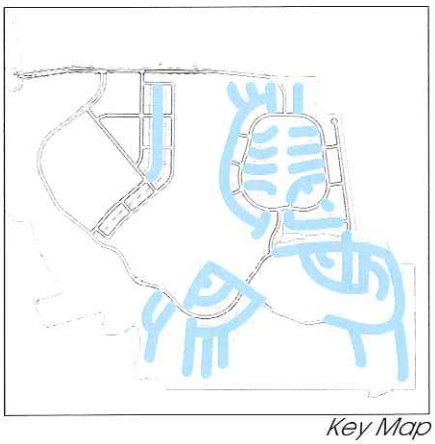


Figure 3.11: Village Loop and Toscana Avenue (Villages 2 and 3, Section J-J)

Typical Residential Street (Section K-K)

The most common residentially scaled Lagoon Valley street provides a "grid" circulation system in the neighborhoods. All streets will have standard curbs, gutters, and two 12-foot travel lanes. In all areas stop signs will be strategically located, especially around the Village Green, to promote traffic calming. Sidewalks are provided on both sides of the street separated from the street by a 6-foot wide planting strip.



Key Map

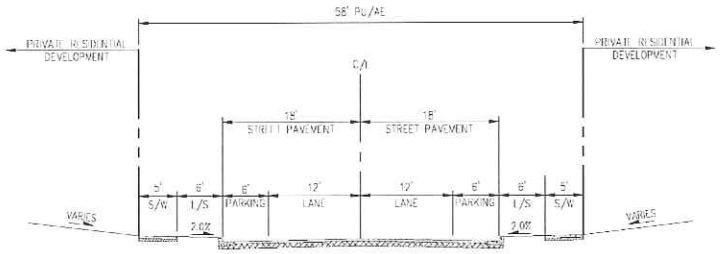
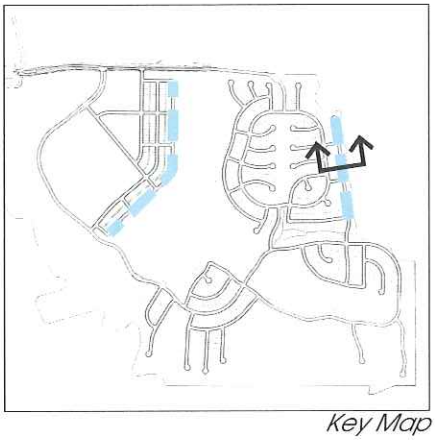


Figure 3.12: Typical Residential Street (Section K-K)

Typical Residential Street (Section L-L)

One street in each Village abuts either golf or open space and has homes only on one side. For that stretch parking will be omitted on the non-house side and the pavement width will be reduced. Where a multi-use trail is adjacent to a residential street, the sidewalk will be omitted on that side and the trail will be separated from the street by a minimum 7-foot wide planting strip.



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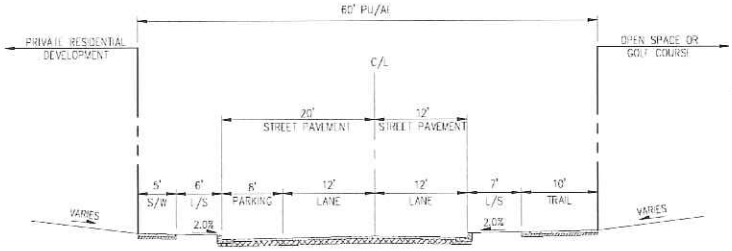
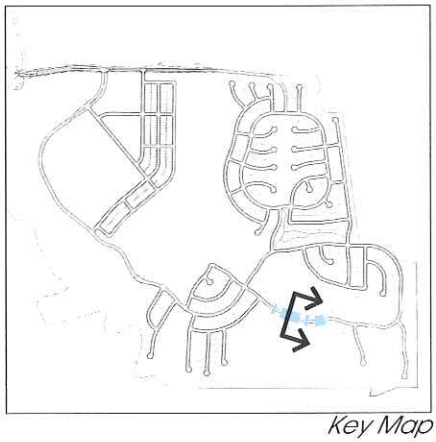


Figure 3.13: Typical Residential Street (Section L-L)

Typical Residential Street (Section M-M)

On several stretches in the custom home area of Village 3, there are no homes adjacent to the street. Thus, parking will be omitted on both sides.



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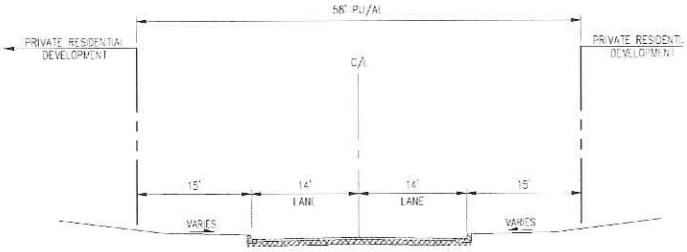


Figure 3.14: Typical Residential Street (Section M-M)

Cul-de-sacs (Villages 2 and 3)

The typical cul-de-sac cross section will match other residential streets and the bulb will be designed for emergency and fire access as well as residential access and aesthetics. With a few exceptions, cul-de-sac will be designed to provide view corridors and access to the open space, golf course, and hillside trail system. The cul-de-sac will have the City of Vacaville standard 43-foot radius, and the sidewalk will be made monolithic around bulb to avoid small planted areas where landscaping wouldn't thrive. Sidewalks may be omitted on the two cul-de-sacs serving the Village 3 custom lots to provide a more informal, estate feel.

3.1.1 Fire Access

Designated emergency evacuation routes for getting residents and workers out of the valley in the event of a major emergency situation include using Lagoon Valley Park's roadway located along the eastern side of the lake. This roadway is accessible from a gated, service entry off of Lagoon Valley Road. North Pass Trail, an existing paved trail along the eastern edge of Butcher Hill could also function as an evacuation route for passenger-type vehicles.

Fire and emergency access to the LLV area will be accommodated by the main entrances to the site at the I-80/Lagoon Valley and I-80/Cherry Glen interchanges. Similar to the evacuation routes, the existing paved North Pass Trail will serve an emergency vehicle access road from the LLV area and through Lagoon Valley Park. Within the development, fire access will be accommodated on all of the public/private streets. In addition, in Village 3, emergency vehicle access roads will be provided along the southern edge of the residential development where residential units back up to the hillside open space. The roads will be a minimum of 12 feet wide, and access gates will be provided at strategic locations across open space v-ditches to allow fire vehicles into the hillside.

Key Map

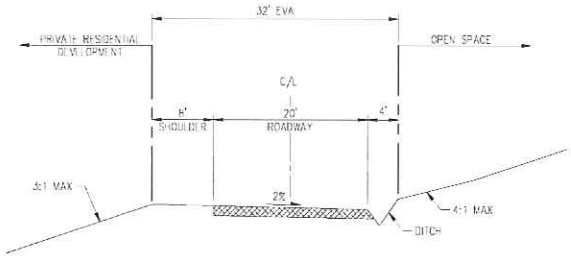


Figure 3.15: Fire Access Lane

The Village 2 interface with the open space is highlighted by a single loaded road that will provide multiple points along the eastern edge of the project for fire personnel to access the hillside. The natural drainage corridors in Village 3 will incorporate access roads and pathways to the extent allowed by the resource agency permits. The final emergency vehicle access road locations and cross sections will be coordinated with the Fire Marshall during the subdivision designs.

3.2 NON-VEHICULAR CIRCULATION NETWORK

The LLV non-vehicular circulation network is consistent with the following policies:

Policy 3-9 Develop a comprehensive and connected bikeway, pedestrian, and equestrian system that allows enjoyment of the scenic LLV, connects the area's parks and open space, and promotes use of alternatives to the automobile.

Policy 3-10 Establish a convenient, multi-use, all-weather network of trails, including bike lanes, to link planning area parks, recreation facilities, employment centers, and major open space areas to each other and to the surrounding community as depicted in Figure 3.16: Non-Vehicular Circulation.

Policy 3-11 Establish a bicycle circulation system that helps to serve the non-motorized transportation and recreational needs of the public in LLV. It shall extend from the City Park and I-80 to the residential and business village development areas and connect the City's existing bicycle circulation system.

Policy 3-12 Provide convenient bicycle parking at key destinations in the PD area, especially the Business Village, Town Center, and recreation areas.

Policy 3-13 All trail corridor rights-of-way and improvements along private streets or across private common open space will be owned by the Community Association or the Business Village Association, and will be maintained by those associations.

Policy 3-14 The PD shall incorporate a network of trails/pathways that connect the existing Lagoon Valley City Park to the City-owned open space hillsides to the east and south of the PD area. Trails/paths shall be incorporated into the development approvals as subdivisions of the land occur.

The non-vehicular circulation network planned for LLV, as shown in Figure 3.16: Non-Vehicular Circulation Diagram includes both off-street and on-street systems of sidewalks and trails and is intended to provide a safe, enjoyable system for pedestrian and bike travel. The system links the residential and mixed-used villages to each other and to other destinations such as tot lots, linear parks, golf course, and the hillside and open space system.

The non-vehicular system will comply with state and federal requirements for barrier-free accessibility to the greatest extent possible. The system will provide interest and variety through selection and placement of plant materials, highlighting important views or screening less desirable ones.

3.2.1 Bike Lanes

As described in the Vehicular Street Network Section on-street bike lanes are being provided on Lagoon Valley Road and Toscana Avenue. Bicyclists will share the road with vehicles in other parts of the development.

3.2.2 Multi-Use Trail

Multi-use trails encircle Village 1, parallel to Lagoon Valley Road from Nelson Road to the Village Loop in Village 2, linking the new neighborhoods to the surrounding open space, Ranchotel, and the Lagoon Lake Park.

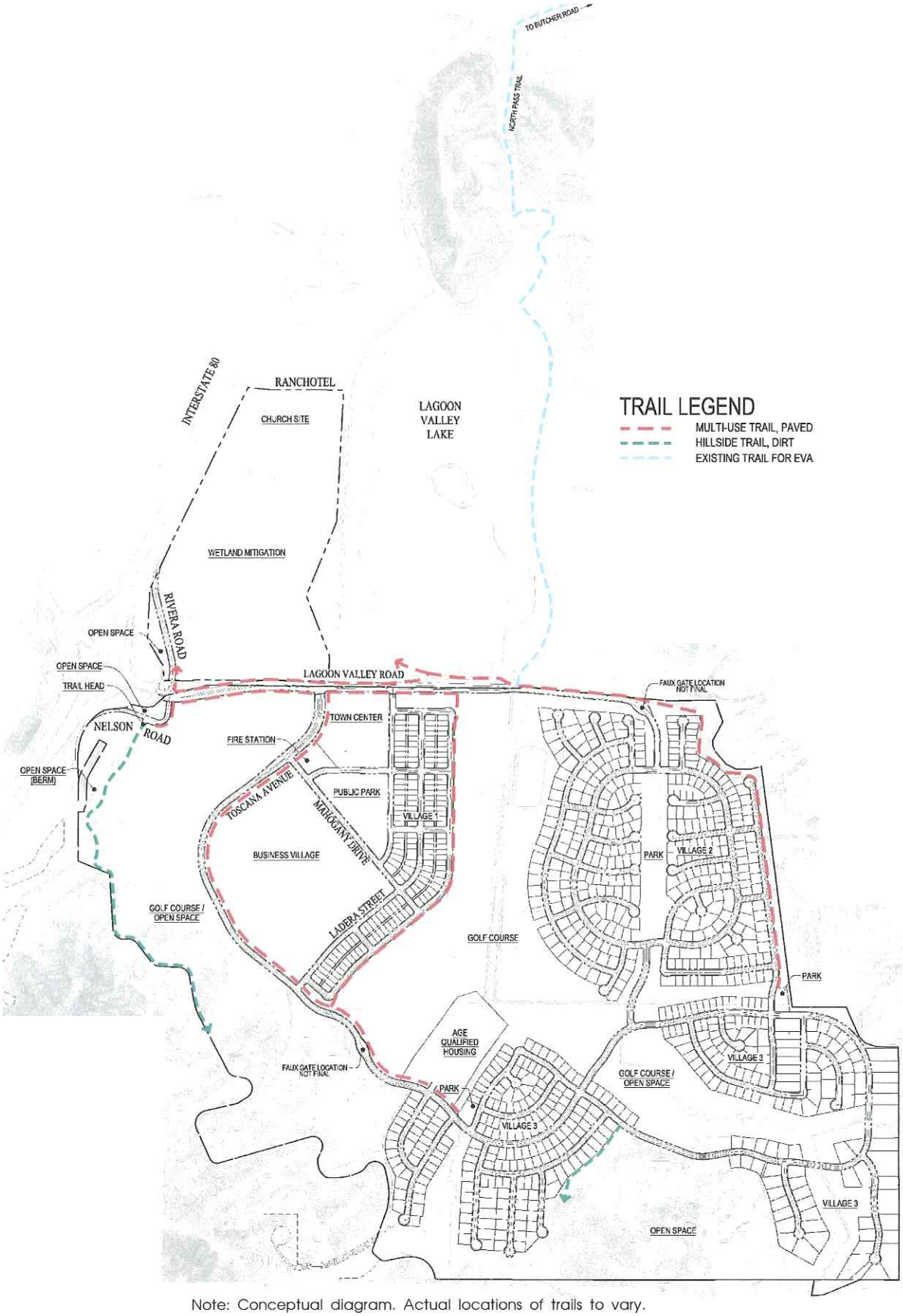
The multi-use trail will typically be 10 feet wide and may be composed of soft and hard materials appropriate for the different users. Where trails are also required to serve as emergency vehicle access roads, they will be a minimum 12 foot wide all-weather-surfaced and alignments will be coordinated with the Fire Chief.

3.2.3 Hillside Trails

Approximately 5 miles of natural, soft material public trails are planned for the eastern and southern hills. The project will construct one of these trails from the Nelson Road Trail Head along the sight berm and to the property line in the southwestern hills. A second trail from Village 3 into the south-central open space will also be provided. The exact location and alignment of these two soft, natural trails will be determined as the mass grading and neighborhood village plans are developed. The City of Vacaville will construct the remainder of the trails and will maintain the entire Hillside Trail network as part of its overall Parks and Recreation program.

3.2.4 Trail Heads

Multiple connections to the hillside trail system from the residential villages will be provided. A formal trailhead will be located along the south side of Nelson Road (see Figure 3.16 for trail head at Nelson Road, where a small parking lot will be provided for public parking).



Note: Conceptual diagram. Actual locations of trails to vary.

Figure 3.16: Non-Vehicular Circulation Diagram

3.3 TRANSPORTATION SYSTEM MANAGEMENT (TSM)

TSM programs could include strategies such as on-site distribution of transit information and passes, provision of shuttle service to transit hubs and transfer centers, participation in regional ridesharing services, preferential parking for vanpools, carpools and bicycles, park-and-ride lots and staggered work hours. TSM strategies will be proposed as part of more detailed design submittals for Village 1.

Policy 3-15 The City will work with the developers of the Business Village to create TSM programs for all employment centers with 50 or more employees to help reduce the overall number of trips generated by these employment centers.

4.0 Resources, Open Space & Recreation

The LLV development is compatible with the area's natural, semi-rural setting and consistent with the Policy Plan and VTM. The resources, recreation, and open space management system is a network of many types of spaces with a variety of public and private uses ranging from natural riparian zones and hillsides to manicured play fields, parks, and a golf course. The planning and design for this comprehensive open space network integrates both the natural and the cultural requirements into a comprehensive whole. See Figure 2.7: Conceptual Open Space Network Plan for the major open space elements. Chapter 5 Landscape Design Guidelines provides further information including conceptual drawings, landscape transitions, streetscape design, and more detailed information on planting concepts.

The Policy Plan is the over arching guiding document for LLV. The Policy Plan includes a number of policies that are discussed throughout this Chapter which also guide development with the resource areas.

Policy 4-1: To protect and enhance existing biological resources in the LLV.

Policy 4-2 To provide for development that is not only compatible with the nature and semi-rural setting, but whose built form respects and is enhanced by the area's natural and open space resources.

4.1 RESOURCES

This section describes the resources found in the LLV area.

4.1 Waters of the United States and Wetlands

LSA submitted a preliminary delineation map for the LLV Policy Plan Implementation Project Site on November 17, 2006, and the U.S. Army Corps of Engineers (Corps) verified that delineation map on December 11, 2006. The acreages are summarized in Table 4.1 below. This table also provides a summary of the acreage of impacts to waters of the United States that will result from the implementation of the proposed LLV Implementation Project.

Table 4.1: Summary of Potential Jurisdictional Areas*

Feature	Square Feet	Total Acres	Impact Acres
Stream/Tributaries	765,540 (86,280 LF)	17.57	4.88 (30,030 LF)
Seasonal Wetlands	546,242	12.54	0.76
Ponds	153,270	3.52	3.07
TOTAL	1,465,052	33.63	8.71

*Based on 2006 Corps confirmed map

All modifications to potential wetlands and other waters, including filling of drainage swales seasonal wetlands, and creek crossings, shall be authorized in the permits obtained for the proposed project from the Corps, California Department of Fish and Wildlife (Department), and Regional Water Quality Control Board (RWQCB) (collectively resource agencies).

Policy 4-3 Mitigation for loss of existing wetlands shall be provided at a minimum replacement ratio that is greater than 1:1 and shall create or restore wetlands with equivalent or higher habitat value. Wetland replacement habitat shall be created on-site. Replacement wetlands will be consolidated in larger preserved areas to the degree possible thereby improving the value of the currently scattered wetlands that occur across the Implementation Plan Area.

Policy 4-4 Performance criteria, maintenance and long-term management responsibilities, monitoring requirements, contingency measures, and funding are specified in the Final Mitigation and Monitoring Plan. Monitoring shall be provided for a minimum of five years and continue until the performance criteria are met.

Policy 4-5 Site preparation and revegetation procedures, an implementation schedule, and funding sources to ensure long-term management of the overall wetland mitigation plan are specified in the Final Mitigation and Monitoring Plan.

4.1.2 Special-Status Plants

Habitat for special-status species has been accurately identified and avoided by proposed development to the extent feasible as determined through the resource agency review process. Surveys for special-status plants and animals have been performed to determine whether special status plant and animal species occur within the proposed footprint of development. When appropriate, the scope of specific surveys were coordinated with the resource agencies including the U.S. Fish and Wildlife Service (the Service). The resource agencies were provided with reports for their review the adequacy of the survey efforts, and as necessary to approve the recommended mitigation measures that were incorporated into resource agency permits.

In 2012 and 2013, surveys were conducted in the Policy Plan Area for the State and Federal listed California tiger salamander (*Ambystoma californiense*) using Service and Department Survey Protocols. Both breeding pool and wintering migration surveys were conducted. The surveys confirmed the absence of California tiger salamanders on the project site.

In the spring and summer of 2013, Monk & Associates, Inc. (M&A) completed focused surveys for special-status (rare, threatened, or endangered) plants in suitable habitats within the proposed development envelope of the Lagoon Valley property located in the City of Vacaville, California. Surveys focused on native and naturalized plant communities within the development envelope, hereinafter referred to as the "survey area." These focused surveys brought the protocol level special-status plant surveys conducted by LSA Associates on the property in 2005 up to date to satisfy the EIR mitigation requirement for rare plant preconstruction surveys and as required by the Department Lake or Streambed Alteration Agreement (1600-2012-0198-R3).

- One special-status plant, pappose tarplant (*Centromadia parryi ssp. parryi*) was identified on-site during the 2013 surveys. This plant was previously identified on-site by LSA. Pappose tarplant is a California Native Plant Society (CNPS) Rank 1B.2 species. Pappose tarplant has no special state or federal status. A Rare Plant Mitigation and Monitoring Plan was prepared by M&A and submitted to the Department for review and written approval, as required by the Lake or Streambed Alteration Agreement (1600-2012-0198-R3) and the City's adopted Mitigation Monitoring Plan.
- There are no suitable vernal pool habitats on the project site that would provide suitable habitat for special-status vernal pool Crustaceans.

- Preconstruction surveys shall be conducted for western burrowing owls in all proposed disturbance areas, extending a minimum distance of 300 feet outside the limits of grading and construction.
    - Conduct each survey 30 days before any grading or other habitat modifications. Confirmation surveys on presence or absence of western burrowing owl shall be required through wintering and nesting season surveys to ensure the project will not result in the take of western burrowing owls. Due to the presence of trees and possible use by tree-nesting raptors, surveys in development areas shall also determine whether any nests occur in trees within 300 feet of proposed development if grading or other habitat modifications are proposed during the breeding season of tree nesting raptors (from March 1 through August 15).
    - If an active raptor nest is encountered, monitor known active nests within 300 feet of development activity, by a qualified biologist. If any special-status species are encountered, disturbance to habitat shall be avoided to the extent feasible. Where disturbance and loss of habitat cannot be completely avoided detailed habitat protection, replacement, and restoration plan shall be prepared and implemented by qualified biological specialist. Plans shall meet with the approval of jurisdictional agencies and the City.
    - Prohibit construction activities within the designated protection buffer zones until the project biologist determines that breeding was unsuccessful, that the young have fledged from the nest, or that relocation plan has been implemented successfully per the guidelines provided by the Department.
    - Prohibit construction activities within the designated protection buffer zones, including removal of any nest tree or burrow, until the wildlife biologist submits written confirmation on the status of nesting activity to the City Planning Division.

4.1.3 Plant Communities and Other Habitats

Three distinct upland plant communities characterize the project area: non-native annual grassland, oak savanna, and riparian woodland; and four wetland plant communities are present: freshwater marsh, wetlands/seeps, intermittent drainages, and stock ponds. In addition, anthropogenic and agricultural plant communities occur within the project area. Of these, non-native annual grassland is the dominant community on the project site.

Non-Native Annual Grassland

Prior to the settlement of Europeans in California, the California landscape was dominated by native, perennial bunchgrasses. When the Europeans settled in California, they brought a variety of Mediterranean grass and forb species for use as crops or ornamentals, or inadvertently in the fur and digestive systems of livestock. Land use changes, such as domestic animal grazing, has resulted in highly palatable native plants being reduced or eliminated. Introduced species tolerant of grazing pressure, particularly annual grasses of Eurasian ancestry, have displaced the native grasses, creating a new kind of grassland community. Grasslands within the project site have been grazed by a variety of livestock over the past century and provide an example of how cattle grazing can greatly change the vegetative composition of the landscape.

Non-native annual grassland is the dominant plant community on the project site, where it is present as a distinct community and as an understory in the oak savanna. This community is typically dominated by introduced grasses such as wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), medusa-head (*Taeniatherum caput-medusae*), and Italian wildrye (*Lolium multiflorum*). In the most disturbed portions of the site, ruderal forbs (broad-leaved plants) such as starthistles (*Centaurea solstitialis, C. calcitrapa*), prickly ox-tongue (*Helminthotheca echioides*), and rose clover (*Trifolium hirtum*) constitute a large portion of the vegetative cover. In grazed areas, especially in the southern portion of the project site, purple vetch (*Vicia benghalensis*) provides up to 50 percent cover in the grassland during the spring. Some native plants occur in this community, especially in the oak savanna. Native species observed include narrow-leaved mule's-ear (*Wyethia angustifolia*), California buttercup (*Ranunculus californicus*), sanicle (*Sanicula bipinnata*), and yarrow (*Achillea millefolium*).

Oak Savanna

Oak savanna is a characteristic vegetational cover in the foothills of California. This plant community occurs at elevations from 30 to 5,000 feet where summers are warm and dry and winters are mild. Oak savanna is a transitional plant community between the grasslands of the hot dry valleys and the montane forests of moist cool uplands. Oak savanna is dominated by oaks (*Quercus sp.*). The most common woodland type consists of scattered trees and shrubs with an understory of grasses and forbs. The shrubs, often species that also occur in chaparral or coastal scrub communities, may grow both under and between the trees (Holland & Keil 1995).

Oak savanna is present on the hillsides and ridges in the southern portion of the project site and in Lagoon Valley Park. Valley oak *(Quercus lobata)* is the dominant species in drainages, but interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), and California buckeye (*Aesculus californica*) also occur in varying densities. Typically, oak savanna cover is limited to the northern steeper drainages found on the southern end of the project site. At the southwestern corner of the project site extending westward, there is oak woodland that characterizes the Vaca Mountains located immediately west of the site. Blue oaks are dominant in the Vaca Mountains area. Over the flatter terrain of the project site there is almost a complete absence of woodland community except in association with the larger drainages (see Riparian Woodland below). The shrub layer is poorly developed as a result of grazing, but poison oak (*Toxicodendron diversilobum*), plum (*Prunus sp.*), which has become naturalized in the area, and other species provide shrub cover in places. The herbaceous cover consists primarily of non-native grasses and forbs, although some native forbs are also present (see Non-native Grassland, above).

Riparian Woodland

Riparian woodlands are diverse habitats, supporting numerous plant species that can include trees, shrubs, vines, and annual and perennial herbs. This variety of plants provides a complex vegetative structure, which in turn supports a diversity of wildlife species. Poorly represented riparian woodland is associated with some of the creeks and drainages within the LLV Policy Plan Area. On the project site, only portions of Drainage F and Drainage G (see Figure 4.1) have a solid tree canopy that would be considered riparian.

Valley oak is the dominant tree where riparian canopy occurs over drainages, whereas willows (*Salix spp.*) and Fremont cottonwood (*Populus fremontii*) grow far less frequently and sporadically along the primary drainage that traverses the project site. Several non-native orchard trees, including English walnut (*Juglans regia*), almond tree (*Prunus dulcis*), and edible fig (*Ficus carica*), are also present in the riparian corridor associated with Drainage F and Drainage G. Remnant orchards remain alongside Drainage G. While a riparian shrub layer is absent from most drainages, Drainage F has a shrub layer comprised of Himalayan blackberry (*Rubus discolor*) and poison oak. Perennial and annual herbaceous species present along the drainages include mugwort (*Artemisia douglasiana*), rushes (*Juncus spp.*) and sedges (*Carex spp.*), in addition to species associated with the non-native grassland mentioned above.

Emergent Wetland (Freshwater Marsh)

This plant community consists of emergent species, (i.e., species that are rooted under water, but whose foliage extends above the surface of the water). Most of the marsh vegetation is associated with Lagoon Valley Lake. Freshwater marsh vegetation also occurs sporadically (in small stands) in several intermittent drainages on the project site. Cattails (*Typha latifolia, T. angustifolia*), tule (*Scirpus acutus ssp. occidentalis*), and bulrushes (*Scirpus robustus, S. tuberosus*) are dominant species, but other species such as umbrella sedge (*Cyperus eragrostis*), rushes, common spikeweed (*Eleocharis macrostachya*), and broad-leaved peppergrass (*Lepidium latifolium*) are also present.

Seasonal Wetlands (Intermittent Drainage)

Seasonal wetlands are habitats that may appear dry in the summer and fall months, but following the first winter rains become inundated and hold water for a period of several weeks to months at a time. Seasonal wetlands are able to hold water for long duration typically due to the presence of impervious soils and/or confining topography such as topographic low areas. Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic (absence of free oxygen) conditions within the upper part of the soil profile. Owing to soils with high clay content or that otherwise are mostly or partially impervious, any time depressional topography occurs or is created through man's activities, such areas often trap seasonal rainfall over short to long durations of the winter and spring. Such areas eventually are dominated by seasonal wetland plants and otherwise persist as seasonal wetlands.

Many small, shallow depressions are distributed throughout the valley floor, primarily at the base of the hills in the southern portion of the project site. The origins of these basins are mostly incidental to human agricultural and grading activities on the project site. Hydrophytic species observed in seasonal wetlands on the project site include grasses such as Mediterranean barley (*Hordeum marinum ssp. gussoneanum*), rabbit's-foot grass (*Polypogon monspeliensis*), and Italian wildrye; and wetland forbs that include loose-strife (*Lythrum hyssopifolium*), curly dock (*Rumex crispus*), fiddle dock (*Rumex pulcher*), and penny-royal (*Mentha pulegium*). Stands of rushes are present in some of the wetlands.

Stock Ponds

One functioning stock pond occurs in the southern portion of the project site, and two functioning stock ponds occur in open space south of the project site. The duration and depth of inundation in these ponds is similar in that all three are dry in the mid- to late summer months. Two of the small stands are vegetated with rabbit's-foot grass, prickle grass (*Crypsis schoenoides*), and scattered cattails around the edges. One pond in the open space south of the project site also has a broken red willow (*Salix laevigata*) tree canopy on the north edge of the pond. Otherwise, none of the ponds support emergent vegetation, except for the sparsely occurring cattails.

Tributaries and Ditches

Most of the tributaries and man-made ditches within the project site are ephemeral and all drain to Lagoon Valley Lake or the bypass channel on the west side of this lake. These tributaries collect and carry high volumes of storm water for relatively short periods during the winter storm events and then subsequently dry relatively rapidly. Accordingly, most of these tributaries do not support riparian communities with the exception of Drainage F and G, as discussed above.

Developed Areas – Orchards

The project site has a long history of disturbance by ranching, agriculture, and other anthropogenic activities. Hines Nursery occupied approximately 189 acres of the project site from the mid 1970's until early 2008. Prior to the establishment of the Hines Nursery in 1977, prune orchards covered much of the Hines Nursery site and adjacent areas, extending southward to Drainage G. The nursery site was abandoned in 2010, however there were numerous large buildings, green houses, and the site otherwise consists of hard-packed, gravel areas. The field west of Lagoon Valley Lake contains the abandoned Vacaville Gliderport. Several trees are present in the gliderport area, including blue gum (*Eucalyptus globulus*), Peruvian pepper tree (*Schinus molle*), California fan palm (*Washingtonia filifera*), and date palm (*Phoenix dactylifera*). A few native species such as coyote brush and valley oak are also scattered throughout this area. An abandoned walnut orchard and residential building foundations are present between Drainage G and Lagoon Valley Road, in the southeastern portion of the project site. Ornamental plantings around the residential area include pine trees (*Pinus sp.*) and oleander (*Nerium oleander*). In addition, the portion of the project site south of Lagoon Valley Road was used in the 1940s and 1950s as cropland that supported potato farming.

4.2 ENVIRONMENTAL PERMITTING

The following environmental permits/authorizations have been obtained for the proposed project:

4.2.1 U.S. Army Corps of Engineers (Corps)

Since the proposed project will result in impacts to waters of the United States regulated pursuant to Section 404 of the Clean Water Act, an Individual Permit Application was filed with the Corps on June 7, 2006 (Corps File No. 200300760). The Individual Permit has not been authorized for the proposed project at this time. All issues have been resolved to the Corps' satisfaction, but the preparation of the Decision Document, NEPA compliance considerations, and final issuance of the Individual Permit has delayed issuance of the permit.

4.2.2 U.S. Fish and Wildlife Service (the Service)

The Service issued a Biological Opinion for the proposed project on June 29, 2012 (08ESMF00-2012-F-0404-1).

4.2.3 California Department of Fish and Wildlife (the Department)

The Department issued the Final Lake or Streambed Alteration Agreement for the proposed project on October 19, 2012 (1600-2012-0198-R3).

4.2.4 Regional Water Quality Control Board (RWQCB)

The RWQCB issued a Water Quality Certification for the proposed project on November 28, 2012.

4.2.5 City of Vacaville

The City of Vacaville certified an Environmental Impact Report (EIR) for the LLV Specific Plan in February 2004. The State Clearinghouse number is 2003032063. A Notice of Determination (NOD) was filed for this EIR on June 24, 2004.
The Specific Plan was a larger version of the Proposed Project, which was ultimately withdrawn in favor of the Proposed Project. When the City approved the Proposed Project in February 2005, it relied on the certified EIR and an Addendum that further evaluated the Proposed Project. The City filed a Notice of Determination for the Proposed Project in February 2005. The California Court of Appeal upheld the 2005 environmental evaluation and the California Supreme Court declined to reconsider the Court of Appeal's decision.

4.3 ENVIRONMENTAL MITIGATION REQUIREMENTS

The following conditions and mitigation measures are required per the City's adopted Mitigation Monitoring Plan - LLV Policy Plan Implementation Project as conditions of the environmental approval of the Project.

4.3.1 Mitigation

In addition, all wetlands and Waters of the U.S. in the Policy Plan Area including the off-site infrastructure improvements shall be avoided to the extent feasible. Avoidance, of Wetlands and Waters of the U.S. shall be accomplished through the following

(a) The project applicant shall design the final project to retain the maximum amount of existing wetlands and establish minimum 25 to 50 foot buffers around all sides of these features. In addition, the final project design shall not cause significant changes to the pre-project hydrology, water quality or water quantity in any wetland that is to be retained on site.

(b) A Wetland Mitigation and Monitoring Plan was prepared, submitted and approved by the Corps, the Department, RWQCB, and the City.

(c) The project applicant or its agent shall acquire all appropriate wetland permits prior to construction of the project. These permits include a Section 404 Dredge and Fill Permit from the Corp, a Section 401 Water Quality Certification from the RWQCB, and Section 1601 Streambed Alteration Agreement from the Department.

(d) The permits required above shall be obtained prior to the issuance of grading permits by the City.

(e) All biological surveys work required by the City's adopted Mitigation Monitoring Plan or the permits and authorizations obtained for the proposed project, shall be performed prior to approval of a Final Map for the project.

(f) Elderberry transplantation and mitigation will be implemented as required by the Biological Opinion for the project (08ESMF00-2012-F-0404-1).

(g) The project shall be designed to avoid disturbance to riparian habitat and the drainages that support the habitat. Since disturbance to riparian vegetation is unavoidable, a Riparian Habitat Mitigation Plan was prepared to address the loss of existing riparian vegetation by establishing replacement riparian vegetation. The Riparian Habitat Mitigation Plan was submitted to the resource agencies and the City for review and approval. The Riparian Habitat Mitigation Plan was approved by the Department, per the Final Lake or Streambed Alteration Agreement (1600-2012-0198-R3).

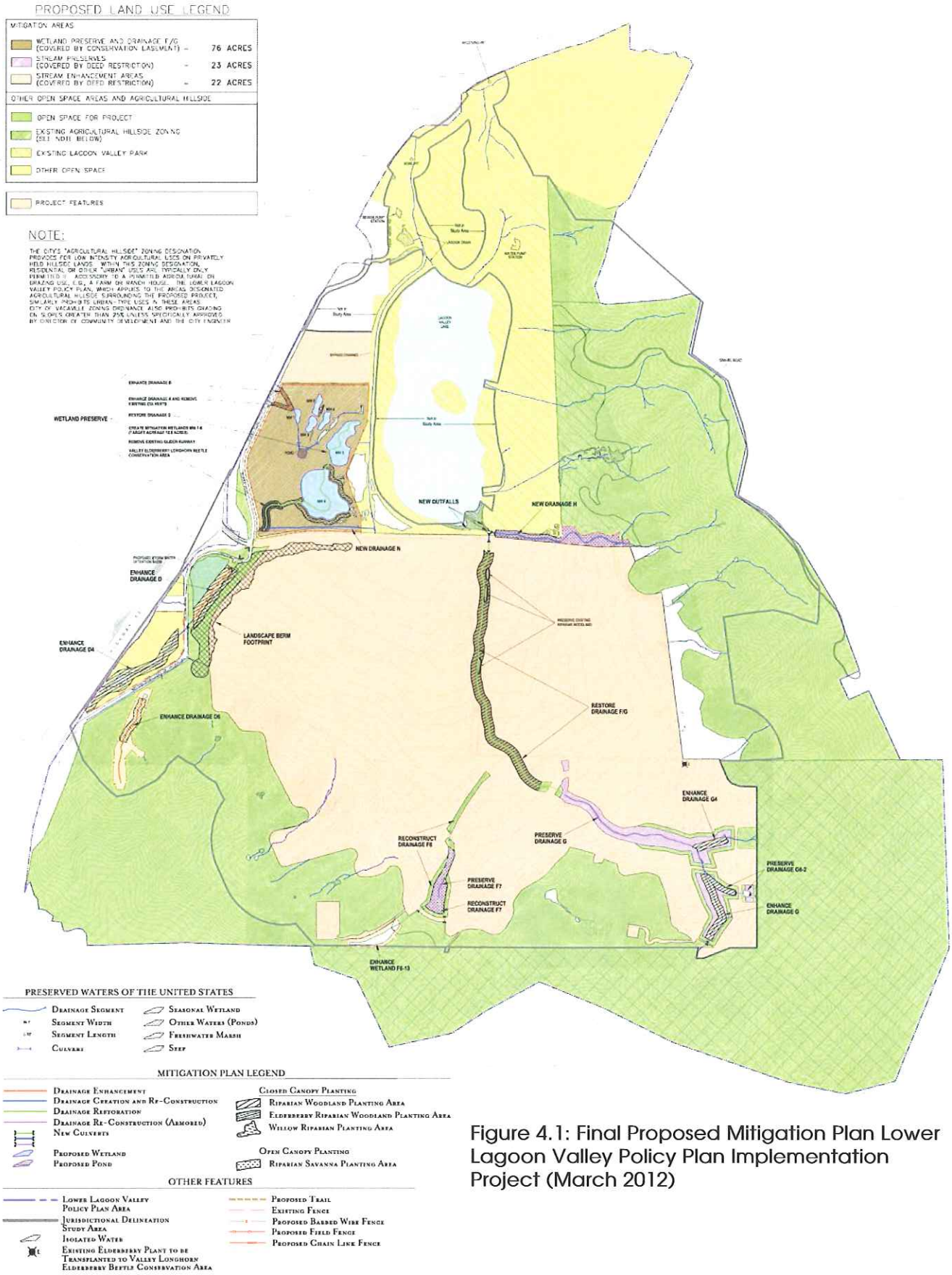


Figure 4.1: Final Proposed Mitigation Plan Lower Lagoon Valley Policy Plan Implementation Project (March 2012)

Removal of 190 native riparian trees and 12 non-native riparian trees by the project will be mitigated by planting 1,292 native riparian trees along the riparian planting corridors within the designated mitigation areas.

All native riparian trees will be mitigated at greater than a 3:1 (replacement to impacts) mitigation ratio. Currently, the project proposed to implement a 6.7:1 mitigation ratio (1,280 native riparian trees planted for 190 native riparian trees removed). In addition, 12 native riparian trees will be planted to replace the 12 non-native riparian trees removed (1:1 mitigation ratio). Lastly, 1,196 shrubs will be planted along the riparian planting corridors within designated setbacks and other resource agency required mitigation preserves.

In order to minimize disturbance to wildlife habitat, new development shall protect and restore native vegetation and sensitive habitat features such as creeks and wetlands that are determined to provide suitable habitat for special status plants and animals. Development setbacks and buffers will be consistent with the final permits as approved by the Department. The Golf Course design shall incorporate landscape design features intended to enhance wildlife movement/habitat corridors. Where stream crossings are required, bridges or oversized culverts shall be used to minimize disturbance to wildlife movement.

The LLV development will also implement the following Policy Plan policies, which will result in additional mitigation:

Policy 4-6 If any special-status species are encountered, disturbance to habitat shall be avoided to the extent feasible. Where disturbance and loss of habitat cannot be completely avoided detailed habitat protection, replacement, and restoration plan shall be prepared and implemented by qualified biological specialist. Plans shall meet with the approval of jurisdictional agencies and the City.

Policy 4-7 Pre-construction raptor surveys shall be conducted by qualified wildlife biologist in the project area before initiation of any development activities in order to determine the presence or absence of active raptor nests.

Policy 4-8 Graded slopes which are to remain undeveloped and without landscape improvements shall be reseeded with a native hydroseed mix. Graded slopes shall be recontoured and shall be designed to replicate existing slope appearances on adjacent lands.

Policy 4-9 Oaks and other native trees shall be preserved and protected to the maximum extent feasible, with adequate replacement provided where tree removal is unavoidable. Tree surveys of existing trees on the project site were conducted in 2005 and 2008 that mapped all trees by species and size on the project site (Meserve 2005, Osterling 2005, and Osterling 2008). Additional tree surveys are being performed in 2014 to identify all trees with trunk diameters of six inches or greater (measured at a height of four feet above grade) throughout the project site. Individual native trees shall be preserved to the greatest extent practicable.

Policy 4-10 The proposed project shall comply with the City's tree protection guidelines to minimize the potential for damage to significant vegetation resulting from the proposed development and construction activities.

Policy 4-11 Before any land alterations or construction begin, install temporary fencing along the outermost edge of the dripline of each tree or group of trees to be retained/preserved in the vicinity of grading in order to avoid compacting the root zone and mechanical damage to trunks and limbs.

Policy 4-12 Prohibit trenching within the tree dripline and install any utility to located within the dripline by boring or drilling through the soil.

Policy 4-13 Prohibit storage of construction equipment, materials, and stockpiled soils within the tree dripline.

Policy 4-14 Where removal of trees is determined to be unavoidable, a tree replacement program has been prepared to provide for replacement of native trees. The proposed tree replacement plan has been approved, per the Final Lake or Streambed Alteration Agreement (1600-2012-0198-R3).

4.3.2 Long-Term Management Plan

A Long Term Management Plan (LTMP) was prepared for the approximate 121 acres of dedicated mitigation lands that will contain preserved, enhanced, and restored wetlands, stream channels, and riparian habitat in the LLV Implantation Project site boundaries. These features are being preserved, restored, and constructed as mitigation for proposed impacts to jurisdictional waters associated with the proposed project.

The Mitigation Areas will be preserved via Conservation Easements (Wetland Preserve and Restored Drainage F/G) or Deed Restrictions (Stream Enhancement and Preserve Areas). The Applicant also proposes enhancement and creation of 20,130 linear feet of drainages in these areas. As compensatory mitigation for Project impacts to riparian resources, the Applicant proposes planting 1,292 trees and 1,196 shrubs in created and restored riparian areas in LLV. The riparian plantings include a designated approximately 1.27-acre Valley Elderberry Longhorn Beetle (VELB) mitigation area.

Riparian planting monitoring will be conducted in the planted mitigation areas that occur adjacent to and alongside created and restored mitigation channels for a period of ten years to document survival of the mitigation plantings, as required per the Final Lake or Streambed Alteration Agreement (1600-2012-0198-R3).

The Mitigation Areas consist of a Wetland Preserve, Restored Drainage F/G and Stream Enhancement and Preserve Areas totaling 121 acres, as listed in Table 4.2.

Table 4.2: Mitigation Areas

Mitigation Areas	Size (acres)
CONSERVATION EASEMENT AREAS	
Wetland Preserve	64.6 acres
Restored Drainage F/G	11.3 acres
STREAM ENHANCEMENT AND PRESERVE AREAS	
Enhanced Drainage D4	5.7 acres
Enhanced Drainage D6	5.8 acres
Enhanced Drainage D	3.6 acres
Enhanced Wetland F6-13	2.8 acres
Enhanced Drainages F6 and F7	2.9 acres
Enhanced Drainage G and G6-2	5.9 acres
Preserved Drainage G and Enhanced Drainage G4	12.5 acres
Preserved New Drainage H	5.6 acres
TOTAL MITIGATION AREAS	120.7 ACRES

4.4 CULTURAL RESOURCES

Archival research and field reconnaissance conducted as part of the 1990 Certified EIR for the existing Lagoon Valley Policy Plan and as part of the Final EIR and Addendum for this PD indicates that a number of prehistoric sites exist within the PD Area. Preservation of archaeological and historic resources, whenever feasible, is recommended with this Plan. The preservation and enhancement of these resources can contribute to the creation of a unique sense of place by acknowledging the area's history.

Policy 4-15 Preserve LLV's heritage as embodied in the area's history and cultural resources.

Policy 4-16 Avoidance of buried cultural resources shall be emphasized during the planning for utility corridors.

Policy 4-17 The Master Developers shall incorporate design elements, such as signage or other monument markers, into the project that call attention to the historical elements of the valley. This may also include the naming of streets, parks (consistent with City Policy), plazas or other features after the families that have lived in the valley.

4.5 GOLF COURSE

The Lagoon Valley Golf Course (LVGC) provides a specialized recreational amenity for LLV. The golf course is designed as an 18-hole course with associated clubhouse and practice facility (see Figure 4.2: Golf Course Layout). The golf course contributes an important visual open space that serves to define the three villages. In addition, the course improves storm water management, provides for increased wildlife habitat and biodiversity and provides an opportunity to re-establish native California grasslands that have all but disappeared.

Policy 4-18 The design of the golf course shall accommodate the inclusion of preserved wildlife habitat along existing creek areas and provide a wildlife corridor to the surrounding open space areas. In addition, water features or ponds shall be interspersed throughout the golf course and shall also be designed to be used for stormwater detention for project-generated runoff and to provide water quality treatment.

Policy 4-19 The residential homes and other uses adjoining the golf course will be protected through a combination of course layout and tree plantings.

Policy 4-20 The golf course will incorporate wildlife corridors and habitat areas within its boundaries. The Master Developer shall design and construct the golf course such that it is eligible for certification by Audubon International under their Audubon Cooperative Sanctuary Program. Under this program, the golf course will complete projects in Environmental Planning, Wildlife and Habitat Management, Chemical Use Reduction and Safety, Water Conservation, Water Quality Management, and Outreach and Education utilizing information from Audubon International to develop a sustainability and management plan that will fit Lagoon Valley's unique setting, and goals.

4.5.1 Golf Course Character and Intent

The golf course design utilizes a variety of concepts to create a course that sets a standard for environmental sustainability. The course will be traditional in nature and will meander through a restored native grassland savannah. A major feature of the course is the integration of approximately 16 acres of water

Figure 4.2: Conceptual Golf Course Layout

features providing approximately 70 acre-feet of storage. These features will function as strategic values for the course, but will also improve water quality by providing detention, retention, acting as wet pond filters, and reducing siltation. The features and streams will allow for the reuse of rainfall.

The course will also utilize landforms and native grasslands to provide buffers for both the golfers and the adjacent uses.

The other major feature will be a significant earthen berm along the west side of the course. This berm will protect the views from I-80 and be integrated into the west side of the fifth and sixth holes as plateaus and noses.

4.5.2 Golf Course Design

The golf course design not only complies with the current standards of the game, but creates a fun, playable course through the use of strategic design principles that provide interest and challenge for players of all abilities.
The envelope for the course at Lagoon Valley meets or exceeds minimum guidelines and the covenants and restrictions for the development dictates a minimum setback from the golf course boundary to the residential structures. In combination, these standards ensure there will be minimum impact on residents that live adjacent to the golf course.

The golf course will be maintained to be environmentally sensitive and utilize current Best Management Practices that, when coupled with the water quality features, should improve the water quality of Lagoon Valley Lake. The grasses selected for the course will be the best adapted to the local environment and will allow a high level of maintenance with minimal chemical usage.

4.5.3 Sustainability

The design goal of the golf course is to develop the best golf course possible while respecting the ecological balance of the valley. Because Lagoon Valley has been mainly agricultural in nature, the design efforts have focused on water quality and re-establishment of native grassland species.

When designing a golf course, utilizing what nature has provided is both environmentally and economically wise. Emphasizing the existing characteristics of the site will help retain natural resources, and allow for efficient maintenance of the course. It is important to achieve a design that carefully balances environmental factors, playability and aesthetics.

Native and/or naturalized vegetation will be retained or replanted when appropriate in areas that are not in play. In playing areas, designers will select grasses that are best adapted to the local environmental conditions to provide the necessary characteristics of playability yet permit the use of environmentally sustainable maintenance techniques. There will be opportunities to restore or enhance environmentally sensitive areas throughout the golf course area. The golf course will establish buffer zones and create un-maintained or low-maintenance areas within the site to restore or enhance the existing habitat areas.

Emphasis will be placed upon the design of irrigation, drainage and retention systems that provide for efficient use of Solano Irrigation District (SID) non-potable water and the protection of water quality. Drainage and stormwater retention systems will, when possible, be incorporated in the design as features of the course to help provide for both the short and long term irrigation needs of the maintained turf and the natural areas of the course.

Buffer zones or other protective measures will be maintained and/or created to protect high quality surface water resources or environmentally sensitive areas. The design and placement of buffer zones will vary based on the water quality classifications of the surface waters being incorporated into the course.

The course will be designed with sustainable maintenance in mind. The design will incorporate integrated plant management and resource conservation strategies that are environmentally responsible, and efficient. Integrated plant management includes least toxic integrated pest management practices and emphasizes plant nutrition and overall plant health.

The following features will be integrated into the golf course design to produce sustainable maintenance and resource conservation:

- Selection of improved and appropriate turfgrasses
- Computer controlled irrigation
- Irrigation pump station with variable frequency drive (VFD) motors
- Limited movement of soil
- Cart path system
- Multiple teeing areas
- Course routing to avoid primary environmental features and reduce earthwork
- Surface water to be carried in constructed creeks and drainage swales

The design of the course will enhance and protect special environmental resource areas and when present, improve or revive previously degraded areas within the site through the use of plants that are well adapted to the region. The design will seek opportunities to create and/or preserve habitat areas that enhance the area's ecosystem.

The successful development of a modern golf course must address playability, environmental protection, safety and financial issues. The planning, design, construction and maintenance of the golf course will adhere to the principles of "Environmental Principles for Golf Courses in the United States" developed by the United States Golf Association (USGA). Decisions regarding the golf course siting, design, construction and maintenance have been guided by the desire to achieve these goals.

4.5.4 Creation and Maintenance of Habitat

Much of the planned habitat creation will be in the form of wetlands. This will be accomplished by establishing "plant shelves" under the surface of the lake features of varying depths appropriate for the establishment of wetland plant communities. These wetlands will not only act as water quality filters but as wildlife habitat for a wide variety of aquatic species and waterfowl.

These areas will require minimal maintenance, but when necessary it will usually be accomplished by hand methods such as thinning and cutting. Should silt removal be necessary it will be accomplished by the use of trackhoe type equipment. Where possible, forebays will be created within the pond system to minimize the area of siltation.

The golf course shall be designed to incorporate wildlife corridors and habitat areas within its boundaries.

4.5.5 Audubon Designation

The golf course will participate in the Audubon Cooperative Sanctuary Program. Under this program, the golf course will complete projects in Environmental Planning, Wildlife and Habitat Management, Chemical Use Reduction and Safety, Water Conservation, Water Quality Management, and Outreach and Education utilizing information from Audubon International to develop a sustainability and management plan that will fit Lagoon Valley's unique setting, and goals.

4.5.6 Grading

A vast majority of the course is laid out in areas where the slopes are significantly less than 25 percent.

In general, the terrain adjacent to the foothills consists of ridges that extend to the north into Lagoon Valley with the 25 percent or greater slopes usually found on the sides of these ridges. In order to minimize the impact on these slopes the course has been routed perpendicular to the ridges. This technique allows the ridge to be cut from the top down to produce a sufficient area for the landing area or feature.

These techniques could result in the uphill slope of the ridge exceeding 25 percent but probably not greater than 3:1. Any slope greater than 25 percent will be stabilized with erosion control material immediately after excavation is complete and will be solid sodded with turf type grasses as soon as irrigation is available. See Figure 4.3 for approximate locations of these areas. Grading will comply with the provisions in Section 4.6, Grading.

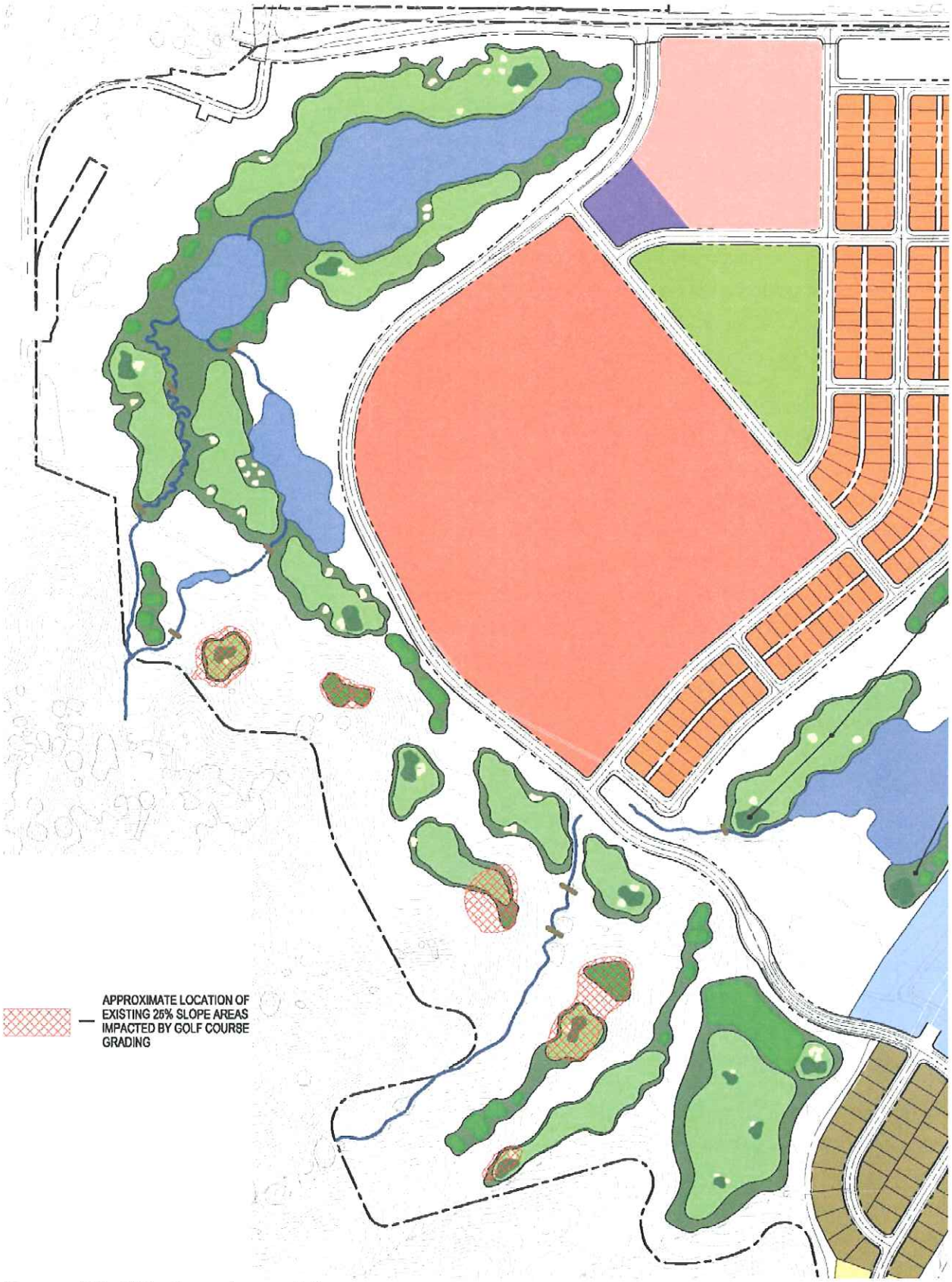


Figure 4.3: 25% Slope Impact Area

4.5.7 Construction

The golf course will develop and implement strategies to effectively control sediment, minimize the loss of topsoil, protect water resources, and reduce disruption to wildlife, plant species and designated environmental resource areas during construction. The loss of soil is a major concern during golf course construction. The erosion control plan will document the strategy to be used for this project to protect soil, water and wildlife resources during the construction process. Healthy turfgrass cover upon completion of the grow-in period reduces this risk significantly.

A cart path system is proposed to reduce wear patterns in high traffic turfgrass areas. Use of cart paths during periods of turfgrass stress reduces the loss of turf due to compaction. Cart paths also reduce the intensity of fertilizer and pest management programs.

Construction and turf establishment will be scheduled to allow for the most efficient progress of the work while optimizing environmental conservation and resource management.

4.3.8 Maintenance

The maintenance of the course will incorporate integrated plant management and resource conservation strategies that are environmentally responsible, and efficient. Integrated plant management includes least toxic integrated pest management practices and emphasizes plant nutrition and overall plant health.

Key features providing environmental protection for the golf course include:

- Potential environmental risk factors have been identified and will be mitigated to the extent feasible.
- The course will be designed with sustainable maintenance as a key goal.
- Environmental protection will be monitored during construction, grow-in and maintenance of the golf course.
- Integrated Plant Management will be used to prevent and minimize the impact of weeds, diseases and insects.
- Damage thresholds for pest injury will be monitored and Least Toxic Controls will be used to address pest problems.
- Nutrient and Irrigation Budgets will be established to protect surface and groundwater from contamination.

The course will employ the principles of Integrated Plant Management (IPM), a system that relies on a combination of common sense practices of preventing and controlling pests (e.g., weeds, diseases, insects) in which monitoring is utilized to identify pests, damage thresholds are considered, all possible management options are evaluated and selected control(s) are implemented. IPM involves a series of steps in the decision-making process:

- Through regular monitoring and record keeping, identify the pest problem, analyze the conditions causing it, and determine the damage threshold level below which the pest can be tolerated. Damage thresholds will be established for each specific pest problem for greens, tees, fairways, roughs and buffer areas. These thresholds will be used to identify the point at which Least Toxic Control Methods will be implemented.
- Devise ways to change conditions to prevent or discourage recurrence of the problem. Examples include: utilizing improved (e.g., drought resistant, pest resistant) turfgrass varieties, modifying microclimate conditions, or changing cultural practice management programs. Turfgrasses will be selected for their suitability of use for golf courses within the Northern California region. Improved varieties of bentgrass adapted to the climate will be selected for their heat tolerance and disease resistance.
- Turfgrass Cultural Practices will be the basis for minimizing the impact of golf course maintenance on the environment. The turfgrass cultural practices proposed for the maintenance of the golf course integrate mowing, aerification, irrigation, vertical mowing, spiking and topdressing to minimize the use of fertilizers and chemical pest controls.
- If damage thresholds are met, select the combination of control strategies to suppress the pest populations with minimal environmental impact, to avoid surpassing threshold limits. Control measures include biological, cultural, physical, mechanical, and least toxic chemical methods. Biological control methods must be environmentally sound and should be properly screened and tested before implementation. A hierarchy of agronomic, cultural, biological, mechanical and least toxic chemical controls is planned for the golf course.
- Non-chemical control measures will focus on practices such as the introduction of natural pest enemies (e.g., parasites and predators), utilizing syringing techniques, improving air movement, soil aerification techniques, and mechanical traps. The selection of least toxic chemical control strategies will be utilized only when other strategies are inadequate.
- The potential impact of chemical pesticides on water quality will be determined by evaluating six processes that influence the fate of products applied to golf courses.

- Solubility: The extent to which a chemical will dissolve in water is usually a good indicator of its mobility within a soil. Solubility must also be adjusted for a chemical's tendency to adhere to soils.
- Sorption: The potential for a chemical to leach or runoff is very dependent on the interaction of the pesticide with soil particles and organic matter. Factors that contribute to the sorption of the chemicals to soil particles include chemical and physical properties of the product; soil type and depth; nature of soil solution. Soils with greater amounts of silt, clay and organic matter will bind chemicals tightly.
- Microbial & Chemical Degradation: Chemicals are decomposed by soil microorganisms into one or more new compounds that behave differently in the environment. Chemical degradation is similar to microbial degradation except that chemical reactions such as hydrolysis and oxidation decompose the pesticides.
- Microbial and chemical degradation is best measured by the amount of time required for 50 percent of the original pesticide to breakdown into other products. Half-life values should be used as guidelines rather than absolute values.
- Volatilization & Evaporation: Volatilization is the process by which chemicals transform from a solid or liquid state into a gas. Volatilization loss increases with temperature and wind speed. Loss can be minimized by timing chemical applications during periods of lower temperature and wind. Irrigation immediately after application decreases the loss of highly volatile chemicals. Volatilization is measured in units of vapor pressure.
- Plant Uptake: Plants can absorb chemicals directly through leaves or indirectly through root uptake. Turfgrasses with higher rates of transpiration and well developed, functioning root systems can reduce the leaching potential of pesticides.
- The golf course will evaluate the appropriate use of least toxic chemical pesticides for course maintenance using the processes described above. All least toxic chemical and nutrient products when applied will be applied appropriately and safely.

4.5.9 Water Usage

The golf course will use native, naturalized, or specialized drought-tolerant plant materials wherever possible. For areas in play (greens, tees, roughs and fairways), the golf course will use plant materials and turf grasses that are well adapted to local environmental conditions; can be efficiently managed; and provide the desired playing characteristics.

The golf course will plan irrigation patterns and/or program irrigation control systems to meet the needs of the plant materials in order to minimize over-watering. The best available technologies that provide highly efficient water usage will be utilized. The system will be regularly inspected for leaks and monitored for water usage.

Watering of the course will be done at appropriate times to reduce evaporation and reduce the potential for disease. The irrigation system will be designed with an 8 hour operating window to provide maximum opportunity to irrigate during the night when temperatures and winds are lower.

The golf course will work closely with the SID to manage non-potable water use effectively to prevent unnecessary depletion of local water resources. Irrigation will be scheduled to provide 80 percent of the loss due to evapotranspiration and an irrigation budget will be established for the course and monitored by the golf course Superintendent.

4.5.10 Water Quality Protection

The golf course will use nutrient products and employ other practices to help protect water quality. Strategies include:

- Use of slow-release fertilizers
- Selected organic products, and/or fertigation
- Integrated Pest Management (IPM)
- Use of buffer zones
- Selection of Least Toxic Controls for pest management
- Curative instead of preventative pest controls.

The golf course will test and monitor soil conditions regularly and modify practices accordingly. Nutrient products and time applications will be chosen to meet, not exceed, the needs of the turfgrass. Applications of fertilizers at rates higher than those recommended by soil tests or those estimates based on realistic growth requirements increases the risk of off-site nutrient movement by surface runoff or leaching. Soil tests will be taken to determine the need for specific nutrient requirements.

Fertilizers will be selected based upon their ability to release nutrients at a rate matching the ability of the turfgrass to absorb these nutrients. Slow release nitrogen sources will be utilized for the majority of fertilizer applications. If fast release fertilizer is used, care will be taken to protect water resources by timing applications to avoid major rainfall events, proper placement of material, and proper rates of application. Fertilizer applications will be made frequently in efficient amounts to protect the water quality.

Nutrient budgets will be established and will be evaluated and adjusted annually based on the maturity and response of the turfgrass.

All plant protectant products will only be applied by or under the supervision of a trained, licensed applicator or as dictated by law.

The golf course will maintain excellence in the continuing education of applicators (including state licensing, professional association training and IPM certification). Training for non-English speaking applicators will be provided in the worker's native language.

The golf course will inform golfers and guests about golf course least toxic chemical applications. Common methods include permanent signs on the first and tenth tee boxes and/or notices posted in golf shops and locker rooms and wherever appropriate on the golf course.

4.5.11 Management Zones

The golf course will be managed by dividing the course into areas that will be maintained using similar agronomic practices. The entire golf course will be treated as a high-risk site. The golf course superintendent will continually customize the management plan to protect water resources and native wildlife and habitat.

The goal of establishing Management Zones is to focus awareness of the golf course maintenance staff on the need for environmental protection in the daily maintenance of the golf course. The planned Management Zones are:

- Greens
- Tees
- Fairways
- Roughs
- Buffers
- Native Areas

4.5.12 Waste Management

Grass clippings and other organic materials will be left in place whenever agronomically feasible. If clippings are removed, they will be composted and, if possible, recycled.

Chemical rinsate will be disposed in a manner that will not increase the potential for point or non-point source pollution. Methods include rinsate recycling or "spraying out" diluted compound in previously untreated areas. No spraying out will take place within 150 feet of buffer zones or habitat areas.

Chemical packaging will be disposed of according to label directions (e.g., triple rinsing, recycling or returning to manufacturer).

Other waste products, such as used motor oil, electric batteries and unused solvents, will be recycled or disposed of according to the law and available community disposal techniques.

The golf course will seek to reduce waste by purchasing products that minimize unnecessary packaging.

4.5.13 Facility Operations

The golf course will conduct maintenance assessments in order to develop and implement an overall policy and/or long-range plan that reflect or expands upon the principles described above.

- Maintain ongoing records to measure and document progress toward environmental improvement.
- The environmentally responsible practices adopted for the maintenance of the golf course will extend to all areas of the overall facility grounds.
- The golf course will adopt practices and technologies that conserve natural resources, including water and energy.
- The golf course will develop and initiate comprehensive programs for recycling, reuse and waste reduction.
- The golf course will properly store and dispose of solvents, cleaning materials, paints and other potentially hazardous substances.
- The golf course will take active steps to educate golfers, neighbors and the general public about their environmental policies and practices, including signage regarding environmentally protected or sensitive areas.
- The grasses selected for the course will be the best adapted to the local environment and will allow a high level of maintenance with minimal chemical usage.

The result of the on-going maintenance assessment will be a golf course that is maintained to very high standards, yet one that utilizes Best Management Practices to protect the environment.

4.6 GRADING

Grading at LLV will be consistent with the following policies:

Policy 4-21 To create a land use pattern that ensures public health, safety and welfare.

Policy 4-22 Design all structures and utilities with adequate consideration for site-specific subsurface materials. This policy would apply to all utility corridors extending services throughout and to the PD areas. Seismic hazard potential for each location and each type of development is to be considered through the design process for development and utility projects.

Policy 4-23 In order to comply with all applicable and appropriate seismic design provisions of the Uniform Building Code, development within the PD area shall be designed to conform to current standards for development within Seismic Zone 4, in accordance with the California Building Code

Policy 4-24 In general, development within the PD area shall not require grading in areas of greater than 25 percent slope, consistent with the City's General Plan and subject to specific area policies regarding golf course development, utility construction, trails, and landslide repair. An exception may be made for a limited area of golf course development based upon a more detailed design layout. In order to protect native and non-native grasslands and reduce erosion potential, residential development should not occur on hillside slopes of 25 percent or greater in the eastern area of Subarea 4B.

Policy 4-25 Development within the PD area shall include protection for all development areas from landslide hazard. Development standards shall incorporate provisions for adequate investigation and repair of landslides potentially affecting areas to be developed with occupied structures or facilities that may involve large concentrations of people. Landslide repair/ protection may extend beyond development areas into publicly owned open space lands. Landslide repair areas shall be subject to a monitoring policy that will provide for routine investigation and inspection of repair areas to monitor hazards and shall incorporate a methodology for implementing remedial repairs;

Policy 4-26 Geologic and geotechnical engineering investigations shall precede formulation of development plans in proposed hillside development areas, and project design shall incorporate detailed slope stability measures to be monitored during subsequent grading. This policy shall apply to construction of utility facilities placed in publicly owned lands.

Policy 4-27 Development sites adjacent to slide hazard areas shall be required to incorporate mitigation procedures to repair/correct slide hazards prior to occupancy of structures, including funding for maintenance and repair requirements.

Policy 4-28 Development within the PD area shall require investigation and remediation of any land use hazards as described above, prior to occupancy of affected residential structures.

Policy 4-29 Environmental site assessments shall be prepared as part of all utility corridor projects.

Policy 4-30 A detailed erosion and sedimentation control plan submitted with the Tentative Map shall be reviewed for adequacy by the City Engineer, and plan compliance shall be made a condition of approval for the tentative map and all individual development projects within the area covered by the plan.

Policy 4-31 For the Project Master Tentative Map the erosion and sedimentation control plan is for protection of areas that are mass graded and for the associated hillside cuts and does not need to be at the construction level detail that will be needed for the subsequent tentative subdivision maps.

Grading within the PD Area shall comply with Division 14.19 of the VMC. Grading within hillside areas shall be done according to City guidelines and ordinance. Measures for protecting existing trees, native vegetation, rock outcroppings, and other natural features should be indicated on grading plans. In addition, grading related to hillside development shall be subject to the following standards:

- Grading on slopes of 25 percent or greater shall be prohibited unless specifically approved by the Director of Community Development and the City Engineer.
- The grading design shall use rounded or contoured graded slopes to provide a more naturalized appearance to graded areas.

- Cut or fill slopes should be designed to blend into the existing slope. The top and toe of slopes should be rounded to provide a smooth transition between grade changes. Large cut and fill slopes should be contoured to create a natural appearance and to provide swales for clustering vegetation.
- Generally, a 3:1 slope or less should be utilized for cut or fill slopes if it will not result in excessive grading or will not disrupt natural site features. A steeper slope is acceptable where it will conform to the natural terrain, will not be highly visible, and will comply with engineering standards.
- Terracing shall be considered as an alternative to the use of tall or prominent retaining walls, particularly in highly visible areas on hillsides.
- If retaining walls are unavoidable, their height and length shall be minimized and screened with appropriate landscaping. Retaining walls shall incorporate design elements of other architectural or natural features of the project, including the use of native rock or a natural-looking texture or veneer. Walls should be buffered with landscaping.
- The height of retaining walls is limited to 5 feet unless approved by the City. The use of multiple-terraced, lower retaining structures is strongly preferred. Terraced, parallel walls retaining walls shall be separated by at least 5 feet, unless approved by the City, and include appropriate landscaping. A minimum separation of 15-foot is required for a third wall.
- Retaining walls shall be used to minimize the height of cut and fill slopes. The design, height, and appearance of the retaining walls shall conform to the standards established by the City.
- Erosion control planting should be provided on disturbed slopes. Jute netting or another acceptable erosion control measure should be placed on slopes steeper than 2:1 slope.
- Cut and fill slopes may be required to be landscaped and irrigated. The plans for the landscaping and irrigation of all required landscaped areas shall be subject to the approval of the Director of Community Development.
- Drainage ditches shall be made of concrete, unless specifically authorized by the City Engineer or the Director of Public Works, and shall conform to the standards established by the appropriate official.
- Fire access roads and firebreaks shall conform to the standards approved by the Fire Chief.