The Junipers Project
Environmental Impact Report
SCH No. 2018041032 - Project No. 586670

Appendix K3

Asbestos and Lead-Based Paint Investigation

February 2020

HILLMANN
CONSULTING

May 21, 2018

Mr. Max Frank
Carmel Land LLC
1334 Parkview Avenue, Suite 100
Manhattan Beach, California 90266

RE: Asbestos and Lead-Based Paint Investigation
14455 Pensaquitos Drive
San Diego, California 90266
Former Golf Course and Tennis Courts
Hillmann Project #: C3-7144

Dear Mr. Frank:

Hillmann Consulting, LLC (Hillmann) was retained by 33North Development Group. (client) to conduct an asbestos and lead-based paint investigation at the above referenced location.

On April 25, 2018, an investigation of the above-referenced location was performed by Mr. Stephen Bartlett, a State of California Certified Site Surveillance Technician (CSST #17-6112) and a State of California Department of Public Health (CDPH) Certified Lead Sampling Technician (#29973), under the direction of Mr. Ryan Terwilliger, a State of California Certified Asbestos Consultant (CAC #11-4776) and CDPH Certified Lead Inspector/Risk Assessor (CLIA #22479) of Hillmann Consulting, LLC. The investigation was performed in order to identify potential asbestos-containing materials and lead-based paint that may be found at the former golf course and tennis courts located at 14455 Pensaquitos Drive.

Asbestos Containing Material (ACM) Investigation

Intrusive methods were utilized during the inspection of the premises for suspect ACM. However, suspect materials may exist within the inspected areas of the Property building that were not accessible during the inspection. Such areas typically include, but may not necessarily be limited to, wall cavities, crawl spaces, and ceiling plenums.

A total of nineteen (19) samples of suspect materials were collected from the former maintenance building and the shed in tennis court area (with 29 layers broken out) and analyzed, per Appendix A, Subpart F, 40 CFR Part 763, Section 1 via Polarized Light Microscopy (PLM), by LA Testing Lab Services located in Huntington Beach, CA. LA Testing is an American Industrial Hygiene Association (AIHA), Environmental Microbiology Laboratory Accreditation Program (EMLAP), and National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

Sampled materials included:

- Vinyl floor tile and associated mastic, roofing materials, penetration mastic, ceiling tiles, plaster, and joint compound.

The results of bulk sample analysis indicate that asbestos-containing materials **are** present in the following materials:

Table I
Positive ACM Sample Location Table

Sample & Location	Description	Quantity (Approximate)	Asbestos Content by PLM
A-4, A-5, A-6 / Former Maintenance Shed Roof	**Penetration Mastic, Black**	**30 Ln Ft**	**5% Chrysotile**
A-16, A-17 / Tennis Courts Equipment Shed Roof	**Roofing Material**	**10 SF**	**5% Chrysotile**

If any previously unidentified suspect asbestos-containing materials are encountered during activities that may disturb ACM, all work must stop. The unidentified materials should either be sampled or must be assumed to contain asbestos.

Lead-Based Paint (LBP) Investigation

Currently, the State of California, HUD, and the Environmental Protection Agency (EPA) define lead-based paint as paint or other surface coating with lead content equal to or greater than 1.0 milligram per square centimeter (mg/cm^2) of surface area (via XRF instrumentation) or greater than or equal to 0.5% by weight, 5000 ppm, or 5000 mg/kg. A summary of the findings and recommendations of this report are included below. This summary alone does not constitute the complete screening report

The LBP Inspection was performed through paint chip sampling in general conformance with the 1995 HUD Guidelines for the evaluation and control of LBP hazards in housing (1997 revised Chapter 7 of the HUD guidelines). The subject areas were visually inspected and suspect LBP samples were collected and analyzed by LA Testing, in Huntington Beach, California, using Flame Atomic Absorption Spectrometry (AAS), following EPA Method SW846 3050/7000B.

The purpose of the survey was to identify, sample, analyze and quantify any suspect LBP from the former golf and tennis courts at 14455 Pensaquitos Drive.

Sampled materials included:

- Door frames, doors, walls, floors, and ceilings

Ten (10) samples of suspect lead-based paint (LBP) were collected and included **no** positive LBP:

The results of samples analyzed indicate that lead-based paint was **not** present.

In compliance with Title 17, CCR, Division 1, Chapter 8 and 24 CFR Subtitle A, Part 35.55, Hillmann filed the 8552 Form as required to notify the California Department of Public Health (CDPH) the findings of the LBP Inspection conducted on the Site. A copy of the 8552 form is included in the appendices.

If suspect LBP is discovered during servicing or maintenance related work for which there are no sample documentation/results, Hillmann recommends pursuing one of the following alternatives: (1) Sample and analyze the discovered suspect material(s) to determine whether they contain LBP or, (2) quantify and remove on a unit cost basis.

Conclusion

The results of the asbestos and lead-based paint investigation indicated that ACM **was** identified and LBP was **not** identified at the above referenced structures.

Asbestos-Containing Material

Sample & Location	Description	Quantity (Approximate)	Asbestos Content by PLM
A-4, A-5, A-6 / Former Maintenance Shed Roof	**Penetration Mastic, Black**	**30 Ln Ft**	**5% Chrysotile**
A-16, A-17 / Tennis Courts Equipment Shed Roof	**Roofing Material**	**10 SF**	**5% Chrysotile**

Based on the findings of the asbestos survey, Hillmann offers the following recommendations:

- Analytical results returned that **asbestos was detected** in the samples that were collected indicated in Table 1. The ACM listed in Table 1 is non-friable and in good condition. Before any renovation can take place, the removal of asbestos-containing materials must include consulting services (design and monitoring), and the removal should be performed by a California licensed asbestos abatement contractor and according to all federal, state and local laws governing asbestos.

- If additional impacted suspect **ACBM** or **ACCM** are discovered during renovations, servicing or maintenance related work for which there are no sample documentation/results, Hillmann recommends pursuing one of the following alternatives: Sample and analyze the discovered suspect material(s) to determine whether it contains asbestos; or assume the material(s) to be asbestos-containing materials, quantify and remove on a unit cost basis.

- A copy of this report must be present on-site during any renovation or demolition activities affecting the sampled materials.

This report should be maintained as a permanent maintenance record for the Property.

Please feel free to contact our office at (714) 634-9500, should you have any questions or concerns.

Sincerely,

HILLMANN CONSULTING, LLC

Ryan Terwilliger
West Coast Operations Manager
CAC – 11-4776

Stephen Bartlett
Environmental Scientist
CSST- 17-6112

Attachments: Lab Results

LA Testing

5431 Industrial Drive Huntington Beach, CA 92649

Tel/Fax: (714) 828-4999 / (714) 828-4944

http://www.LATesting.com / gardengrovelab@latesting.com

LA Testing Order: 331809458
Customer ID: HILL50
Customer PO:
Project ID:

Attention: Stephen Bartlett
Hillmann Consulting, LLC
1600 Route 22 East
Union, NJ 07083

Phone: (908) 688-7800
Fax:
Received Date: 04/25/2018 3:20 PM
Analysis Date: 04/30/2018
Collected Date: 04/25/2018

Project: C3-7144 33 North Development 14455 Penasquitos Drive

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-01-Shingle 1 *331809458-0001*	Roof Maintenance shed roof - roofing core, black	White/Black/Green Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-01-Shingle 2 *331809458-0001A*	Roof Maintenance shed roof - roofing core, black	Brown/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-02-Shingle 1 *331809458-0002*	Roof Maintenance shed roof - roofing core, black	White/Black/Green Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-02-Shingle 2 *331809458-0002A*	Roof Maintenance shed roof - roofing core, black	Brown/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-03-Shingle 1 *331809458-0003*	Roof Maintenance shed roof - roofing core, black	White/Black/Green Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-03-Shingle 2 *331809458-0003A*	Roof Maintenance shed roof - roofing core, black	Brown/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-04 *331809458-0004*	Roof Maintenance shed roof - penetration mastic, black	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
A-05 *331809458-0005*	Roof Maintenance shed roof - penetration mastic, black	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
A-06 *331809458-0006*	Roof Maintenance shed roof - penetration mastic, black	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
A-07-Floor Tile *331809458-0007*	Office maintenance shed office - 12x12 vinyl floor tile, paper pattern	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-07-Adhesive *331809458-0007A*	Office maintenance shed office - 12x12 vinyl floor tile, paper pattern	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-08-Floor Tile *331809458-0008*	Office maintenance shed office - 12x12 vinyl floor tile, paper pattern	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-08-Adhesive *331809458-0008A*	Office maintenance shed office - 12x12 vinyl floor tile, paper pattern	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-09-Floor Tile *331809458-0009*	Office maintenance shed office - 12x12 vinyl floor tile, paper pattern	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 04/30/2018 13:38:16

LA Testing

5431 Industrial Drive Huntington Beach, CA 92649

Tel/Fax: (714) 828-4999 / (714) 828-4944

http://www.LATesting.com / gardengrovelab@latesting.com

LA Testing Order:	331809458
Customer ID:	HILL50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
A-09-Adhesive *331809458-0009A*	Office maintenance shed office - 12x12 vinyl floor tile, paper pattern	Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-10-Joint Compound *331809458-0010* *Drywall not found in sample*	Office maintenance shed office - drywall + jc composite	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-11 *331809458-0011* *Drywall not found in sample*	Office maintenance shed office - drywall + jc composite	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-12 *331809458-0012* *Drywall not found in sample*	Office maintenance shed office - drywall + jc composite	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-13 *331809458-0013*	Office maintenance shed office - 2x4 ct	Gray/White Fibrous Heterogeneous	40% Cellulose 10% Min. Wool	30% Perlite 20% Non-fibrous (Other)	None Detected
A-14 *331809458-0014*	Office maintenance shed office - 2x4 ct	Gray/White Fibrous Heterogeneous	40% Cellulose 10% Min. Wool	30% Perlite 20% Non-fibrous (Other)	None Detected
A-15 *331809458-0015*	Office maintenance shed office - 2x4 ct	Gray/White Fibrous Heterogeneous	40% Cellulose 10% Min. Wool	30% Perlite 20% Non-fibrous (Other)	None Detected
A-16-Shingle *331809458-0016*	Roof tennis courts shed - roofing core	White/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-16-Felt *331809458-0016A*	Roof tennis courts shed - roofing core	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
A-16-Mastic *331809458-0016B*	Roof tennis courts shed - roofing core	Black Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
A-17-Shingle *331809458-0017*	Tennis courts shed - roofing core	White/Black Fibrous Heterogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
A-17-Felt *331809458-0017A*	Tennis courts shed - roofing core	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
A-17-Mastic *331809458-0017B*	Tennis courts shed - roofing core	Black Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
A-18 *331809458-0018*	Floor tennis courts - caulking, white	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
A-19 *331809458-0019*	caulking, white	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 04/30/2018 13:38:16

LA Testing

5431 Industrial Drive Huntington Beach, CA 92649

Tel/Fax: (714) 828-4999 / (714) 828-4944

http://www.LATesting.com / gardengrovelab@latesting.com

LA Testing Order:	331809458
Customer ID:	HILL50
Customer PO:	
Project ID:	

Analyst(s)

Christopher Miranda (29)

Michael DeCavallas, Laboratory Manager
or Other Approved Signatory

Initial report from: 04/30/2018 13:38:16

LA Testing
5431 Industrial Drive, Huntington Beach, CA 92649
Phone/Fax: (714) 828-4999 / (714) 828-4944
http://www.LATesting.com gardengrovelab@latesting.com

LA Testing Order: 331809481
CustomerID: HILL65
CustomerPO:
ProjectID:

Attn: **Ryan Terwilliger**
Hillmann Consulting
1745 West Orangewood Avenue
Suite 110
Orange, CA 92868

Phone: (714) 634-9500
Fax:
Received: 04/25/18 3:20 PM
Collected:

Project: **C3-7144**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*RDL*	*Lead Concentration*
B-1		4/26/2018	0.010 % wt	0.018 % wt
331809481-0001	Site: Maintenace shed ext wall, green, intact, wood			
B-2		4/26/2018	0.043 % wt	<0.043 % wt
331809481-0002	Site: Maintenace shed int wall, beige, intact, wood			
B-3		4/26/2018	0.041 % wt	<0.041 % wt
331809481-0003	Site: Maintenace shed int wall, beige, intact, wood			
B-4		4/26/2018	0.061 % wt	<0.061 % wt
331809481-0004	Site: Maintenace shed int wall, white, intact, wood			
B-5		4/26/2018	0.021 % wt	<0.021 % wt
331809481-0005	Site: Maintenace shed int wall, brown, intact, wood			
B-6		4/26/2018	0.010 % wt	<0.010 % wt
331809481-0006	Site: Tennis court light poles, brown, intact, metal			
B-7		4/26/2018	0.036 % wt	<0.036 % wt
331809481-0007	Site: Tennis court shed, green, intact, wood			
B-8		4/26/2018	0.10 % wt	<0.10 % wt
331809481-0008	Site: Tennis court shed, white, intact, wood			
B-9		4/26/2018	0.049 % wt	<0.049 % wt
331809481-0009	Site: Tennis court floor, red, intact, concrete			
B-10		4/26/2018	0.014 % wt	<0.014 % wt
331809481-0010	Site: Tennis court floor, green, intact, concrete			

Michael Chapman

Michael Chapman, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by LA Testing Huntington Beach, CA AIHA-LAP, LLC--ELLAP Accredited #101650, CA ELAP 1406

Initial report from 04/26/2018 17:06:24

331809458#

HILLMANN CONSULTING

BULK SAMPLE IDENTIFICATION FORM
PLM COC, Version 3.3

DATE: 4/25/18

JOB#: C3-7144

Environmental Consulting & Lab Services, 1600 Route 22 East, Union, NJ 07083
(908) 688-7800 Fax (908) 686-2636 email: Sbartlett @hillmanngroup.com

☐ POSITIVE STOP ON ALL HOMOG. SAMPLES

TAT for PLM - 3-6hrs 8-12hrs 24hrs 48hrs (72hrs) 5-7day
TAT for TEM - 3-6hrs 8-12hrs 24hrs 48hrs 72hrs 5-7day
TAT for SOF-V - 1wk 2wk _____

CLIENT: 33North Development

LOCATION: 14455 Pensaquitos Drive

LAB Instructions: •ANALYZE ALL NOBS AS INDICATED BY "/" VIA TEM IF NEGATIVE VIA PLM. POSITIVE STOP ON TEM ONLY
•ANALYZE BOTTOM / INNER LAYERS FIRST AS INDICATED BY "BL" – IF POSITIVE THEN STOP ANALYSIS OF OTHER LAYERS

Homg. ID	Sample # / Lab #	Floor/Room	Location Description	Material Description / Color	Quantity in SOW?	Cond Friable?	NOB	Time Sample Collected	Lab Results
	A-01	Roof	Maintenance shed roof	Roofing Core, black					
	A-02	↓	↓	↓					
	A-03	↓	↓	↓					
	A-04	↓	↓	Penetration mastic, black					
	A-05	↓	↓	↓					
	A-06	↓	↓	↓					
	A-07	Office	Maintenance shed office	Vinyl 12x12 floor tile, paper pattern					
	A-08	↓	↓	↓					
	A-09	↓	↓	↓					
	A-10	↓	↓	Drywall + JC Composite					

CHAIN OF CUSTODY

	SAMPLED BY:	TRANSPORTED BY:	RECEIVED BY:	ANALYZED BY:	
Print	Stephen Bartlett		(FED) Ofon 4/25 3:20PM		Spaces Occupied?
Sign	Stephen Bartlett				Spaces Operating?
Date	4/25/18				Access Issues?

Material Codes

AP=acoustical plaster, **BC**=brown coat, **BF**=base flashing, **BUR**=built-up roofing, **CB**=cove base, **CBM**=cove base mastic, **CF**=curb flashing, **CFT**=ceramic floor tile, **CM**=carpet mastic, **CPM**=carpet padding mastic, **CPT**=carpet tile mastic, **CT**=ceiling tile, **CTM**=CT mastic, **CWT**=ceramic wall tile, **FP**=fireproofing, **JC**=joint compound, **JT**=joint tape, **LC**=leveling compound, **PL**=plaster, **PP**=pitch pocket, **PPW**=parapet wall flashing, **RFP**=re-inforced fiberglass panel, **SP**=soundproofing, **TP**=tar paper, **VB**=vapor barrier, **VCT**=vinyl floor tile, **VCTM**=VCT mastic, **VSF**=vinyl sheet flooring, **WB**=wallboard, **WPA**=wall paper adhesive, **PI** = pipe insulation, **PFI** = pipe fitting insulation, **FG** = fiberglass line **ALL OTHER DESCRIPTIONS MUST BE WRITTEN OUT**

OrderID: 331809458

331809458#

HILLMANN CONSULTING

BULK SAMPLE IDENTIFICATION FORM
PLM COC, Version 3.3

DATE: 4/25/18

JOB#: C3-7144

Environmental Consulting & Lab Services, 1600 Route 22 East, Union, NJ 07083
(908) 688-7800 Fax (908) 686-2636 **email:** **@hillmanngroup.com**

☐ **POSITIVE STOP ON ALL HOMOG. SAMPLES**

TAT for PLM - 3-6hrs 8-12hrs 24hrs 48hrs (72hrs) 5-7day
TAT for TEM - 3-6hrs 8-12hrs 24hrs 48hrs 72hrs 5-7day
TAT for SOF-V - 1wk 2wk _____

CLIENT: 33North Development

LOCATION: 14455 Pensaquitos Drive

LAB Instructions: •ANALYZE ALL NOBS AS INDICATED BY "/" VIA TEM IF NEGATIVE VIA PLM. POSITIVE STOP ON TEM ONLY
•ANALYZE BOTTOM / INNER LAYERS FIRST AS INDICATED BY "BL" – IF POSITIVE THEN STOP ANALYSIS OF OTHER LAYERS

Homg. ID	Sample # / Lab #	Floor/Room	Location Description	Material Description / Color	Quantity in SOW?	Cond Friable?	NOB	Time Sample Collected	Lab Results
	A-11	Office	Maintenance shed office	Drywall + JC composite					
	A-12	↓	↓	↓					
	A-13	↓	↓	2x4 CT					
	A-14	↓	↓	↓					
	A-15	↓	↓	↓					
	A-16	Roof	Tennis courts shed	Roofing Core					
	A-17	↓	↓	↓					
	A-18	Floor	Tennis courts	Caulking, white					
	A-19	↓	↓	↓					
	A-20	↓	↓	↓					

CHAIN OF CUSTODY

	SAMPLED BY:	TRANSPORTED BY:	RECEIVED BY:	ANALYZED BY:
Print	Stephen Bartlett			
Sign	Stephen Bartlett			
Date	4/25/18			

Spaces Occupied?
Spaces Operating?
Access Issues?

Material Codes

AP=acoustical plaster, **BC**=brown coat, **BF**=base flashing, **BUR**=built-up roofing, **CB**=cove base, **CBM**=cove base mastic, **CF**=curb flashing, **CFT**=ceramic floor tile, **CM**=carpet mastic, **CPM**=carpet padding mastic, **CPT**=carpet tile mastic, **CT**=ceiling tile, **CTM**=CT mastic, **CWT**=ceramic wall tile, **FP**=fireproofing, **JC**=joint compound, **JT**=joint tape, **LC**=leveling compound, **PL**=plaster, **PP**=pitch pocket, **PPW**=parapet wall flashing, **RFP**=re-inforced fiberglass panel, **SP**=soundproofing, **TP**=tar paper, **VB**=vapor barrier, **VCT**=vinyl floor tile, **VCTM**=VCT mastic, **VSF**=vinyl sheet flooring, **WB**=wallboard, **WPA**=wall paper adhesive, **PI** = pipe insulation, **PFI** = pipe fitting insulation, **FG** = fiberglass line **ALL OTHER DESCRIPTIONS MUST BE WRITTEN OUT**

OrderID: 331809458

OrderID: 331809481

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*:

#331809481

LATESTING
520 MISSION STREET
SOUTH PASADENA, CA
91030
PHONE: (800) 303-0047
FAX: (323)-254-9982

Company: Hillmann Consulting LLC	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 1745 W. Orangewood Avenue, Suite 110	
City: Orange **State/Province:** CA	**Zip/Postal Code:** **Country:**
Report To (Name): Ryan Terwilliger	**Telephone #:**
Email Address: rterwilliger@hillmanngroup.com	**Fax #:** **Purchase Order:**
Project Name/Number: C3-7144	**Please Provide Results:** ☐ Fax ☐ Email
U.S. State Samples Taken: CA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour | ☐ 6 Hour | ☐ 24 Hour | ☐ 48 Hour | ☒ 72 Hour | ☐ 96 Hour | ☐ 1 Week | ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☒ % by wt. ☐ mg/cm² ☐ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Stephen Bartlett **Signature of Sampler:** Stephen Bartlett

Sample #	Location	Volume/Area	Date/Time Sampled
B-1	Maintenance shed Ext. Wall, Green, Intact, Wood		
B-2	Maintenance Shed int. wall, beige, intact, wood		
B-3	Maintenance shed int. wall, beige, intact, wood		
B-4	Maintenance Shed int. wall, white, intact, wood		
B-5	Maintenance shed Ext., brown, intact, wood		

Client Sample #'s 1 - 10 **Total # of Samples:**

Relinquished (Client):		**Date:**		**Time:**	
Received (Lab):	Glen (WI)	**Date:**	4/25	**Time:**	3:20PM

Comments: cc Kristine Savona ksavona@hillmanngroup.com on all reports/invoices

OrderID: 331809481

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only)*: #331809481

LATESTING
520 MISSION STREET
SOUTH PASADENA, CA
91030
PHONE: (800) 303-0047
FAX: (323)-254-9982

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
B-6	Tennis court light Poles, ~~rust~~, Intact, ~~Bad~~ metal		
B-7	Tennis Court Shed, green, Intact, Wood		
B-8	Tennis Court Shed, white, Intact, Wood		
B-9	Tennis court Floor, Red, intact, concrete		
B-10	Tennis Court Floor, green, intact, concrete		

Comments/Special Instructions:

Page 2 of 2 pages

The Junipers Project
Environmental Impact Report

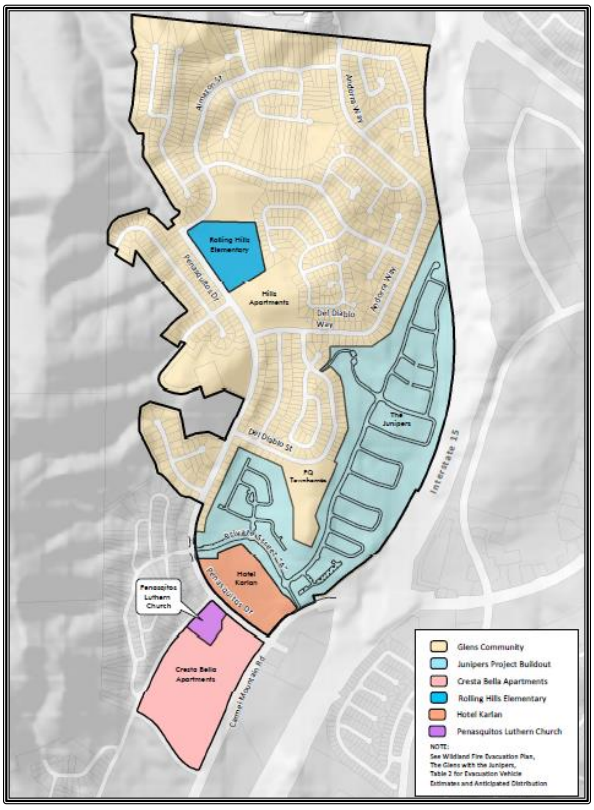
SCH No. 2018041032 - Project No. 586670

Appendix K4

Wildland Fire Evacuation Plan

February 2020

CONCEPTUAL WILDLAND FIRE EVACUATION PLAN
for
THE GLENS WITH THE JUNIPERS



Prepared for:

Glens with Junipers Community

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024

JULY 2019

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APPENDICES

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TABLES

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1 QUICK REFERENCE - WILDLAND FIRE PREPAREDNESS

The Quick Reference Guide provides helpful tips and educational resources so residents are prepared in the event of a wildland fire evacuation.

Figures 1 and 1A highlight the combined Glens and Junipers communities' interior roads along with primary ingress/egress points and primary evacuation roads and major traffic corridors leading to off-site areas. The Junipers also plans to improve evacuation from the area by enhancing a currently unreliable fire access route at the north of the Glens community. Proposed for this road is bollard removal, enhanced brush management, resurfaced pavement and installation of an automatic gate which can be remotely opened by the fire department to improve its availability and reliability for fire department access or during emergency evacuations. Figure 1B illustrates the primary ingress/egress route (Peñasquitos Drive), the Junipers' provided ingress and emergency egress to Carmel Mountain Road, the emergency ingress/egress to/from Del Diablo Street, and the Fire Department controlled emergency Fire Access (which can also be dedicated to resident egress by fire and law enforcement) between Andorra Way and Corte Raposo.

The available and potential evacuation routes for the residents and guests of the combined Glens and Junipers communities are detailed in Section 4[1]. Know your available routes, stay informed and follow directions provided by credible sources. Do not rely on navigation apps that may inadvertently lead you toward an approaching fire.

1.1 Nearest Medical Facilities

Palomar Medical Center Poway
15615 Pomerado Road
Poway, California 92064

Directions:
Carmel Mountain Road east
Right on Bernardo Heights Parkway
Right on Pomerado Road
Hospital on left

Palomar Medical Center Escondido
2185 Citracado Parkway
Escondido, California 92029

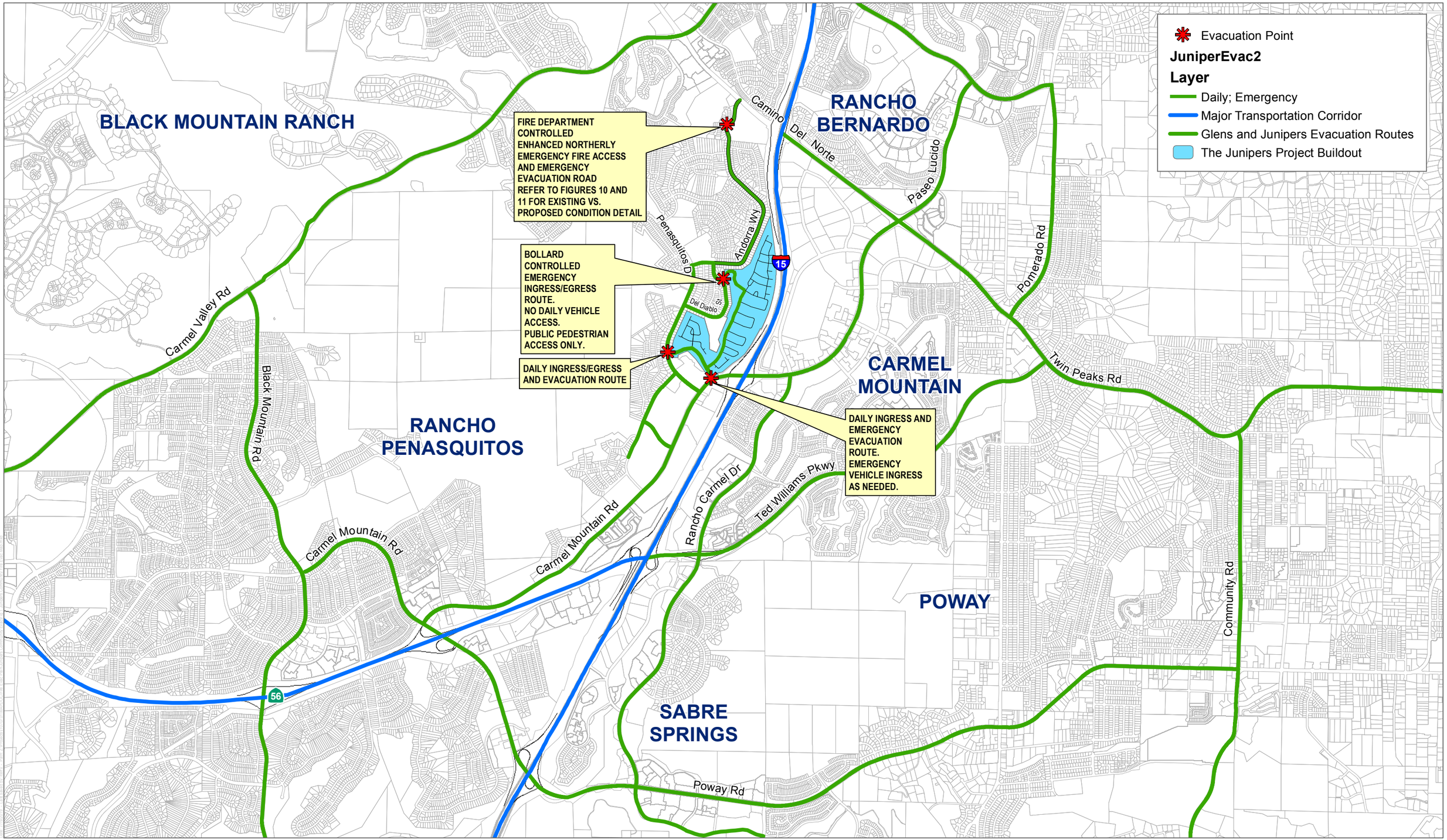
Directions:
Carmel Mountain Road east
I-15 North
Exit SR 78 West
Exit Nordahl Road/Auto Park Way
Right on Citracado Parkway
Hospital on right

[1] Directions of travel and use of routes noted here will be controlled by Emergency Personnel in the event of a wildfire based upon location of emergency and conditions such as weather, fire movement, and evacuation conditions.

See also Local Urgent Care facilities:

Sharp Rees-Stealy Urgent Care
16889 West Bernardo Drive
San Diego, California 92127

Scripps Clinic Rancho Bernardo
15004 Innovation Drive
San Diego, California 92128



SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 1,250 2,500 Feet

FIGURE 1

The Junipers Community Fire Evacuation Map

Wildland Fire Evacuation Plan for The Glens with The Junipers

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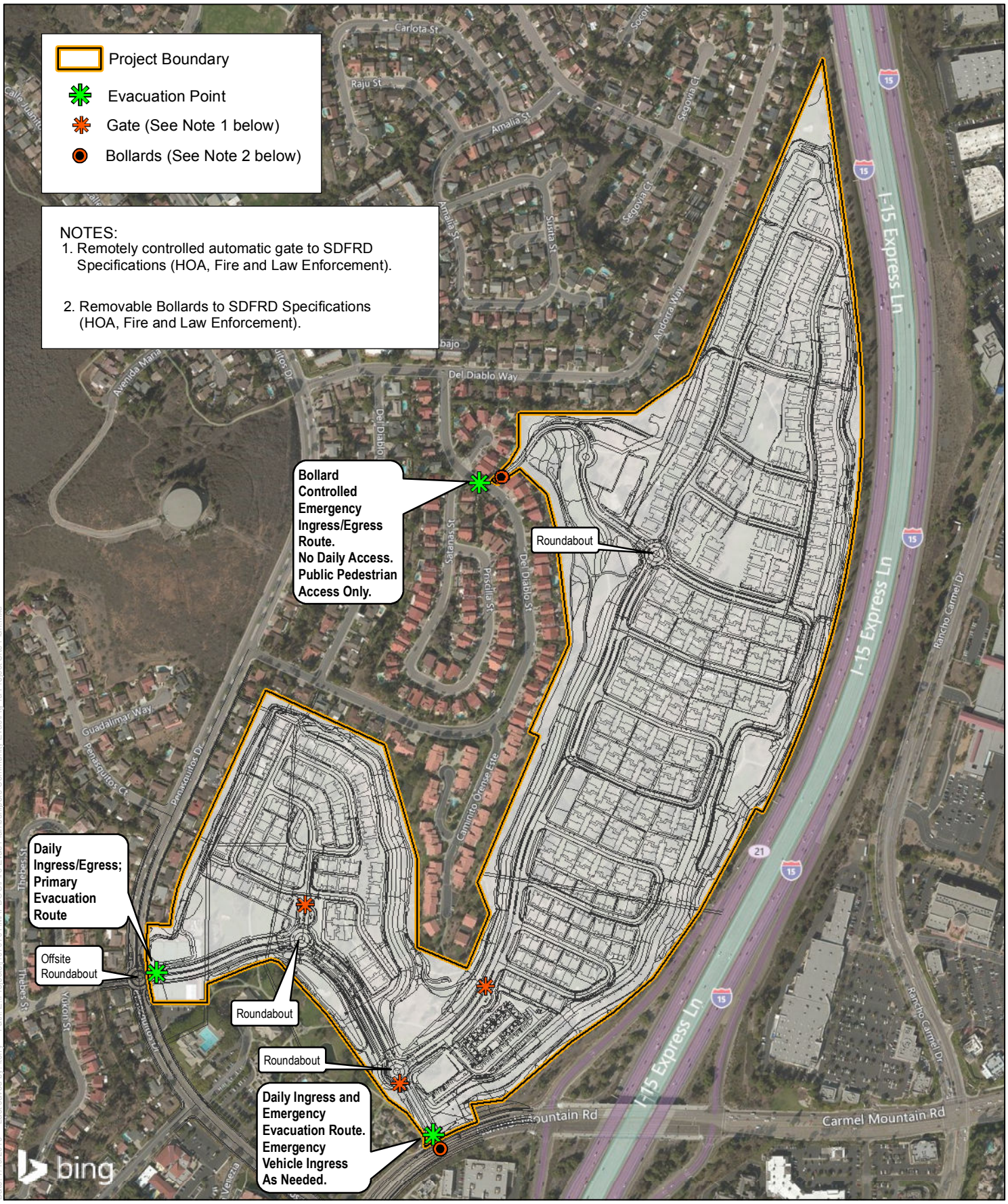

SOURCE: AERIAL- BING MAPPING SERVICE

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0 275 550 Feet

FIGURE 1A

Project Site Plan

Wildland Fire Evacuation Plan for the Junipers Project

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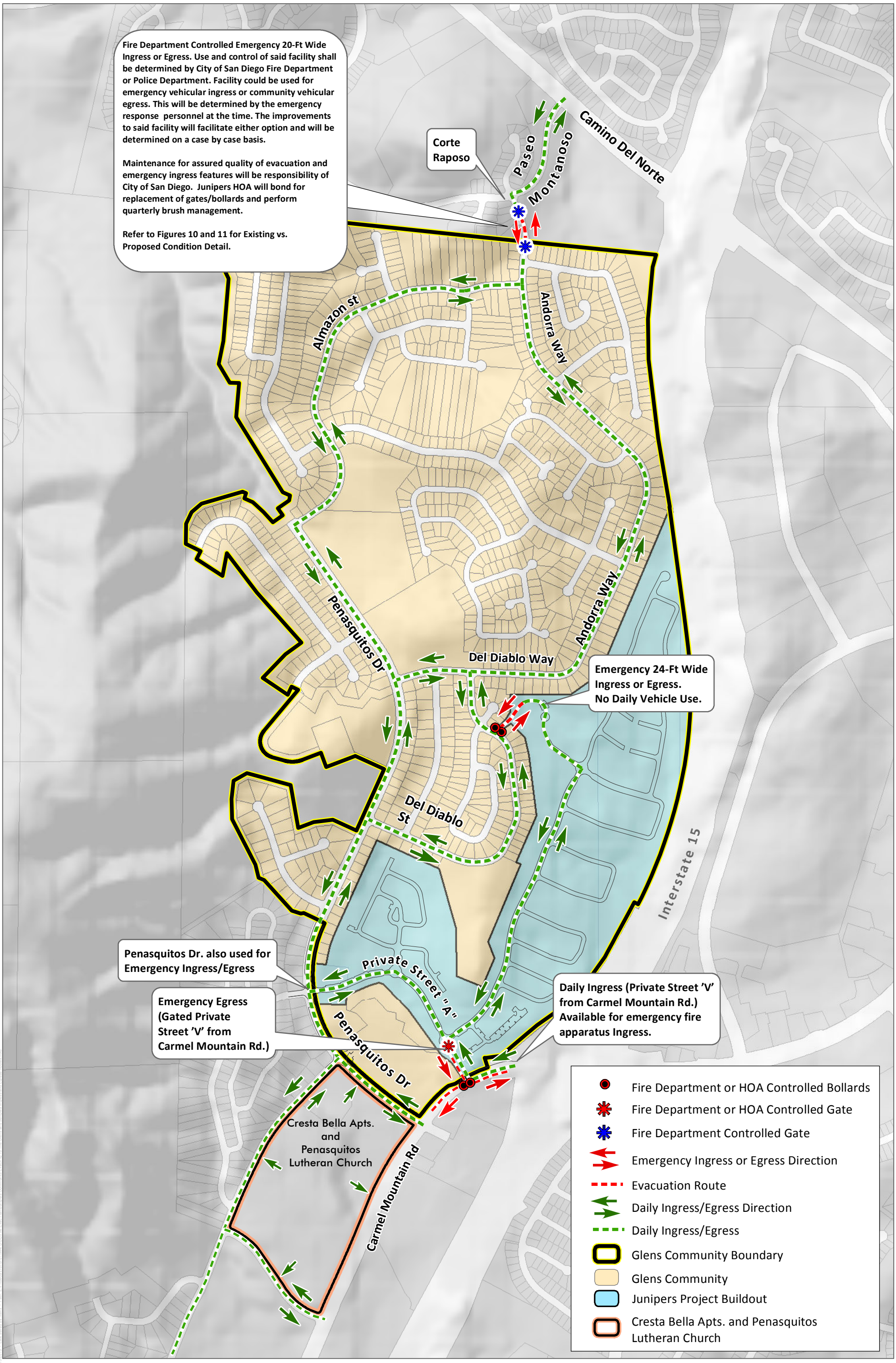

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 350 700 Feet

FIGURE 1B

The Glens and Junipers Ingress and Egress Routes

Wildland Fire Evacuation Plan for The Glens with The Junipers

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1.2 Register to Receive Emergency Alerts

The City of San Diego (City) utilizes Alert San Diego for its Community Emergency Notification System. Alert San Diego is a countywide standard system that is managed as a regional asset by the County of San Diego Office of Emergency Services. In the event of a wildfire within the City limits, the Incident Commander (IC) or other City departments will contact the Police Department Communications Division. The police department's communications center has the responsibility to request activation of the Alert San Diego system and release an emergency notification (San Diego 2010) to affected population. Therefore, the Glens community residents are strongly advised to register their land lines, mobile phone numbers and email addresses with Reverse 9-1-1, Alert San Diego system (http://www.readysandiego.org/AlertSanDiego/) in order to receive emergency evacuation instructions. The Glens community is part of the greater San Diego media market and the media outlets will also be a good source of information, via television and radio, on overall emergency situation and how residents should respond. In addition, the San Diego Emergency Alert System (EAS) is county-wide and broadcasts emergency information via two radio stations KOGO AM 600 and KLSD AM 1360. Social media provides another outlet for news:

- https://twitter.com/cityofsandiego
- CityTV is another news sources available during an emergency and can be found online (http://granicus.sandiego.gov/MediaPlayer.php?publish_id=1648) or:
- Channel 24 - Cox Communications
- Channel 24 - Time Warner Cable
- Channel 99 - AT&T

1.3 Get Involved in Community Readiness

Glens' residents are encouraged to form a volunteer Neighborhood Emergency Response Team with Community Emergency Response Team (CERT) experience (https://www.sandiego.gov/fire/services/cert). The Junipers community HOA will organize annual evacuation public outreach for anyone interested in the Glens community, engage directly with organizations such as Fire Safe Council of San Diego County, as well as maintain a fire safe page on the community Web page, including this Emergency Evacuation Plan and links to important citizen preparedness information. This information will be made available to all Glens residents.

This evacuation plan is prepared specifically for the Glens Community with the addition of the Junipers project and focuses on wildland fire evacuations, although many of the concepts and protocols will be applicable to other emergency situations. Ultimately, this plan should be used by the Glens and Junipers residents for awareness of evacuation approaches during wildfires and other

similar emergencies. It is important for the residents to understand the importance of being prepared, so if/when the time comes where evacuation is necessary, they will be able to calmly implement their evacuation plan. Some actions the community residents can do in advance include:

- Follow the "Ready, Set, Go!" model developed for wildfire evacuations.
  - Create an escape plan from the residence, as well as an escape route once outside of the home.
  - Know your available routes, stay informed and follow directions provided by credible sources.
  - Do not rely on navigation apps that may inadvertently lead you toward an approaching fire.
  - Create a car emergency kit, including cell phone charger, flashlight, jumper cables, water, and food.
  - Gather important paperwork, including birth and marriage certificates, account documents, passports, Social Security cards, and any other important family photos or irreplaceable items and documents.
  - As time allows, make sure to secure your home by locking all doors and windows, and unplugging electrical equipment, such as appliances and electronics.

Sample emergency preparedness resources available to the Glens and Junipers residents are provided in Appendix A (Resident "Ready, Set, Go!" Wildland Fire Action Plan) and Appendices B-1 through B-4 (Family Disaster Checklists and Communications Plans), and residents are encouraged to become familiar with the concepts detailed at the following Websites:

1. "Ready, Set, Go!" Personal Action plan

   https://www.fire.lacounty.gov/wp-content/uploads/2014/02/RSG-Booklet.pdf
2. Red Cross Emergency Planning:

   http://www.redcross.org/get-help/how-to-prepare-for-emergencies/make-a-plan
3. Hazardous Materials Emergency Preparedness:

   https://www.ready.gov/hazardous-materials-incidents
4. Building a disaster kit:

   http://www.redcross.org/get-help/prepare-for-emergencies/be-red-cross-ready/get-a-kit
5. Making a Plan Checklist:

   https://www.ready.gov/make-a-plan

6. Family Communication Plan:

   https://www.fema.gov/media-library-data/1440449346150-1ff18127345615d8b7e1effb4752b668/Family_Comm_Plan_508_20150820.pdf

1.4 Evacuation Plan Purpose and Limitations

Wildfire and other emergencies are often dynamic events and the need for evacuations are typically determined by on-scene first responders or by a collaboration between first responders and designated emergency response teams, including Office of Emergency Services and the Incident Command (IC) established for larger emergency events. As such, and consistent with all emergency evacuation plans, this Emergency Evacuation Plan is to be considered a tool that supports existing pre-plans and provides for residents who are familiar with the evacuation protocol, but is subservient to emergency event-specific directives provided by agencies managing the event.

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2 BACKGROUND

This Glens (with the Junipers) Community Wildland Fire Evacuation Plan was prepared based on the City's Emergency Operations Procedures (San Diego 2010), County of San Diego Emergency Operations Procedures (EOP), the Unified San Diego County Emergency Services Organization and County of San Diego Operational Area Emergency Operations Plan (EOP) – Evacuation Annex.

To establish a framework for implementing well-coordinated evacuations, the City, like most California emergency operations agencies, has adopted evacuation procedures in accordance with the State of California's Standardized Emergency Management System (SEMS) and the National Incident Command System (NIMS). Large-scale evacuations are complex, multi-jurisdictional efforts that require coordination between many agencies and organizations. Emergency services and other public safety organizations play key roles in ensuring that an evacuation is effective, efficient, and safe.

Evacuation is a process by which people are moved from a place where there is immediate or anticipated danger, to a safer place, and offered temporary shelter facilities. When the threat passes, evacuees are able to return to their normal activities, or to make suitable alternative arrangements.

Evacuation during a wildfire is not necessarily directed by the fire agency, except in specific areas where fire personnel may enact evacuations on-scene. The City's Police Department or Fire-Rescue Department have primary responsibility for emergency evacuations. These agencies work closely within the Unified IC System, with the City's Emergency Operations Center (EOC) and County OES. To that end, the San Diego Fire-Rescue Department (SDFRD), Police Department, Public Works, Planning, Emergency Services Departments, and California Department of Transportation (Caltrans), amongst others, have worked as part of a Pre-Fire Mitigation Task Force to address wildland fire evacuation planning for City of San Diego.

Every evacuation scenario will include some level of unique challenges, constraints, and fluid conditions that require interpretation, fast decision making, and alternatives. For example, one roadway incident that results in blockage of evacuating vehicles may require short-term or long-term changes to the evacuation process. Risk is considered high when evacuees are evacuating late, and fire encroachment is imminent. This hypothetical scenario highlights the importance of continuing to train responding agencies, model various scenarios, educate the public, provide contingency plans, and take a very conservative approach to evacuation decision timelines.

Equally as important, the evacuation procedures should be regularly updated with lessons learned from actual evacuation events, as they were following the 2003, 2007, and 2014 San Diego County fires. The authors of this Emergency Evacuation Plan recommend that occasional updates are

provided, especially following lessons learned from actual incidents, as new technologies become available that would aid in the evacuation process, and as changing landscapes and development patterns occur within and adjacent the Project Area that may impact how evacuation is accomplished. At the time of this plan's preparation, there is no encompassing emergency evacuation plan available for the northern San Diego region. This Glens Community Wildland Fire Evacuation Plan is consistent with the City evacuation planning standards and can be integrated into a regional evacuation plan and other pre-plans when and if the area officials and stakeholders (CAL FIRE, SDFRD, OES, San Diego Sheriff's Department, SDCFA, and others) complete one.

As demonstrated during large and localized evacuations occurring throughout San Diego County and the City over the last 15 years, an important component to successful evacuation is early assessment of the situation and early notification via managed evacuation declarations. The City utilizes early warning and informational programs to help meet these important factors. Among the methods available to citizens for emergency information are radio, television, social media/internet, neighborhood City patrol car and aerial public address notifications, and Reverse 9-1-1 or Alert San Diego. The County of San Diego, in partnership with Blackboard Connect Inc., instituted this regional notification system that is able to send telephone notifications to residents and businesses within San Diego County impacted by, or in danger of being impacted by, an emergency or disaster. This system, called AlertSanDiego, is used by emergency response personnel to notify homes and businesses at risk with information on the event and/or actions (such as evacuation, shelter in place, gas leak, missing person, etc.) they are advised to implement. The system utilizes the region's 9-1-1 database, provided by the local telephone company(ies), and thus is able to contact landline telephones whether listed or unlisted. It is TTY/TDD capable.

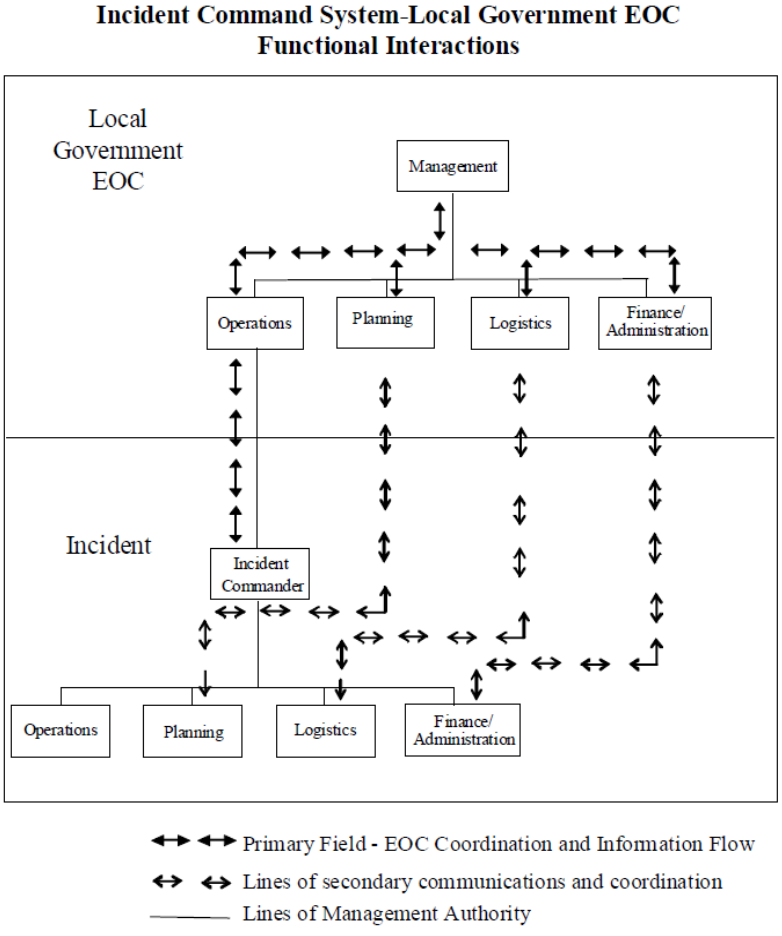
Because the system uses the 9-1-1 database, only landline numbers are in the system. If you have a Voice over IP (VoIP) or cellular telephone and would like to be notified over that device, or if you would like an email notification, you must register those telephone numbers and/or email address for use by the system to receive voice, text, and email messages.

3 SAN DIEGO CITY EVACUATION PLANNING SUMMARY

This Wildland Fire Evacuation Plan incorporates concepts and protocols practiced throughout the City and San Diego County. The City's Emergency Operations Procedures follows basic protocols set forth in the City's Operation Area Emergency Operations Plan and the California Master Mutual Aid Agreement, which dictate who is responsible for an evacuation effort and how regional resources will be requested and coordinated.

First responders are responsible for determining initial protective actions before Emergency Operations Centers (EOCs) and emergency management personnel have an opportunity to convene and gain situational awareness. Initial protective actions are shared/communicated to local EOCs and necessary support agencies as soon as possible to ensure an effective, coordinated evacuation. Figure 2 summarizes the functional interactions of local government EOC under the Incident Command System.

Figure 2. Incident Command System Local Government EOC Functional Interactions



During an evacuation effort, the designated City Evacuation Coordinator is the Police Chief, who is also the Law Enforcement Coordinator, although several official City positions are allowed to declare evacuations. The Evacuation Coordinator will be assisted by other law enforcement and support agencies. Law enforcement agencies, highway/road/street departments, and public and private transportation providers will conduct evacuation operations. Procurement, regulation, and allocation of resources will be accomplished by those designated. Evacuation operations will be conducted by the following agencies:

- City Police Department
- San Diego Fire and Rescue Department
- American Red Cross
- San Diego Humane Society
- San Diego County Department of Animal Services
- Department of Planning and Development Services
- Department of Environmental Services
- Department of Public Works
- Other City, County and state agencies, as needed
- The following overview contains information from the San Diego County Evacuation Annex and is consistent with the City's Emergency Operations Plan (EOP). A complete copy of the EOC can be downloaded here: https://www.sandiegocounty.gov/content/sdc/oes/emergency_management/oes_jl_oparea.html.

3.1 Evacuation Objectives

The overall objectives of emergency evacuation operations and notifications for the City of San Diego are to:

- Expedite the movement of persons from hazardous areas;
- Institute access control measures to prevent unauthorized persons from entering vacated, or partially vacated areas;
- Provide for evacuation to appropriate transportation points, evacuation points, and shelters;
- Provide adequate means of transportation for persons with disabilities, the elderly, other persons with access and functional needs, and persons without vehicles;
- Provide for the procurement, allocation, and use of necessary transportation and law enforcement resources by means of mutual aid or other agreements;

- Control evacuation traffic;
- Account for the needs of individuals with household pets and service animals prior to, during, and following a major disaster or emergency;
- Provide initial notification, ongoing, and re-entry communications to the public through the EOC; and
- Assure the safe re-entry of the evacuated persons.

The San Diego Police Department (SDPD) is the lead agency for evacuations of areas within the City, including the Glens and The Junipers community. The SDPD, as part of a Unified Command, assesses and evaluates the need for evacuations, and orders evacuations according to established procedures. Additionally, as part of the Unified Command, the SDPD identifies available and appropriate evacuation routes and coordinate evacuation traffic management with the California Department of Transportation (Caltrans), the California Highway Patrol (CHP), the San Diego County Sheriff's Department (SDSD), other supporting agencies, and jurisdictions.

The decision to evacuate an area is not made lightly and there is a significant impact to public safety and the economy. The following process describes how emergency evacuation decisions are coordinated, allowing emergency managers and other supporting response organizations to make collaborative decisions.

3.2 Evacuation Coordination Process

1. If the emergency only impacts the City, the decision to evacuate will be made at the local jurisdiction level with regional collaboration considerations.
   a. Based on the information gathered, local jurisdictions will generally make the determination on whether to evacuate communities as the need arises, on a case-by-case scenario basis.
   b. The decision to evacuate will depend entirely upon the nature, scope, and severity of the emergency; the number of people affected; and what actions are necessary to protect the public.
   c. Local jurisdictions may activate their Emergency Operations Center (EOC) and conduct evacuations according to procedures outline in their Emergency Operations Plan (EOP).
   d. The EOC may make recommendations on whether a community should evacuate and may help coordinate the evacuation effort.
   e. The Evacuation Annex is automatically activated when an incident occurs requiring an evacuation effort that impacts two or more jurisdictions.

f. The EOC will coordinate with fire, law enforcement, public health, and other relevant support agencies to obtain recommendations on protective actions.

g. The EOC will coordinate with jurisdictional emergency management personnel and other public safety personnel. The Policy Group within the EOC will coordinate with other officials from jurisdictions within the City's Operational Area (OA) to identify command decisions, including:

   i. Gaining regional situational awareness

   ii. Determining response status

   iii. Reviewing status of initial protective actions

   iv. Considering additional protective actions

   v. Evaluating public information needs

   vi. Determining next steps

   vii. Establishing a regular time to share updates

h. The EOC will coordinate emergency public information to citizens in accordance with established procedures.

i. The EOC may support coordinating the evacuation response according to the EOP, including:

   i. Providing transportation for those who need assistance

   ii. Provide support for people with disabilities and other access and functional needs

   iii. Coordinate and communicate with the private sector, community groups, and faith based organizations to utilize their services and resources available to support the response

   iv. Providing shelter for evacuees

3.3 Evacuation Response Operations

An evacuation of any area requires significant coordination among numerous public, private, and community/non-profit organizations. Wildfire evacuations will typically allow time for responders to conduct evacuation notification in advance of an immediate threat to life safety; giving residents time to gather belongings and make arrangements for evacuation. On the other hand, other threats, including wildfires igniting nearby, may occur with little or no notice and certain evacuation response operations will not be feasible (for example, establishing contra flow requires between 24 to 72 hours to be implemented; a no-notice event will not allow for contra flow to be established). Evacuation assistance of specific segments of the population may also not be feasible.

3.3.1 Evacuation Points and Shelters

When the SDPD or Incident Command (IC) implements an evacuation order, they coordinate with the responding fire and rescue agency, the EOC, and others to decide on locations to use as a Temporary Evacuation Point (TEP). The City's Police Department Communications Division will utilize the Alert San Diego system to direct evacuees to the established TEPs or shelters. These evacuation points will serve as temporary safe zones for evacuees and will provide basic needs such as food, water, and restrooms. Possible shelters and assembly areas that can provide at least short-term refuge and that would be designated by emergency managers during an evacuation include (Figure 3):

- Rancho Bernardo High School
- San Diego Fire and Rescue Department Fire Station 42
- Carmel Mountain Plaza

Other refuge sites are available within urbanized areas of Poway, Rancho Bernardo, Carmel Mountain Ranch, Mira Mesa, and developed communities primarily to the north, south, and east of The Glens and Junipers Communities.

If there are residents unable to evacuate or in need of transportation assistance to get to a TEP or shelter, the SDPD or IC may establish transportation points to collect and transport people without transportation resources to evacuation points. These transportation points should be large, well-known sites such as shopping centers, libraries, and schools. Transportation should be accessible to all populations, including people with disabilities and other access and functional needs.

3.3.2 Pet Evacuations

The Pets Evacuation and Transportation Standards Act of 2006 amends the Stafford Act, and requires evacuation plans to take into account the needs of individuals with household pets and service animals, prior to, during, and following a major disaster or emergency.

The San Diego County Department of Animal Services (DAS) has plans in place to transport and shelter pets in a disaster under Annex O of the OA EOP, including the Animal Control Mutual Aid Agreement. Animal Control Officers, the San Diego Humane Society, and private animal care shelters will assist in the rescue, transport, and sheltering of small and large animals. In addition, potential volunteer resources and private groups are identified and tracked in WebEOC by the County. Only non-emergency resources and personnel, such as public and private animal services agencies, will be used to rescue and transport animals during an evacuation effort.

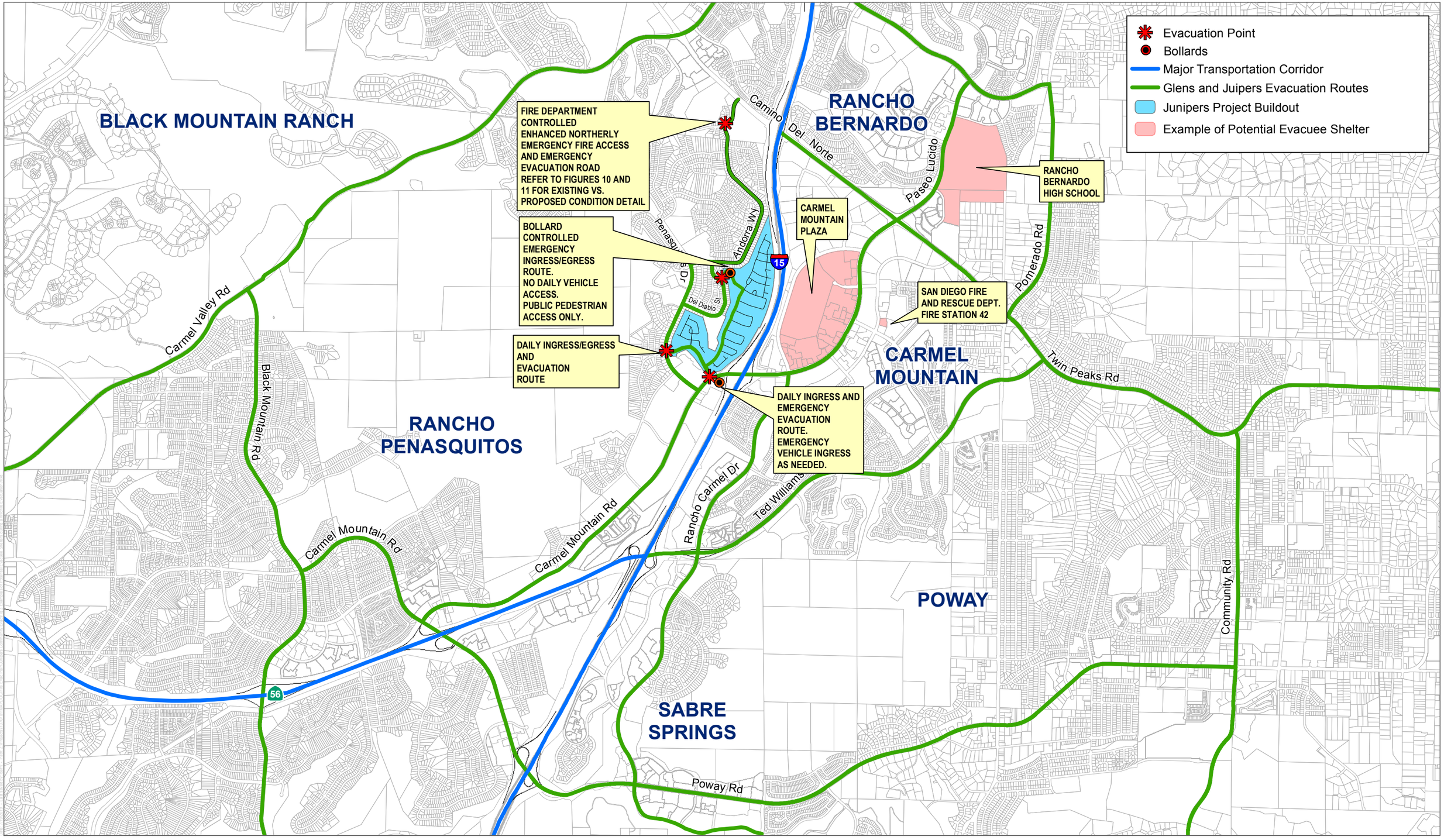
In most cases, DAS and the OA EOC will coordinate and attempt to co-locate animal shelters with people shelters.

3.3.3 Shelter-in-Place (County EOC Discussion)

As stated in the County EOC, sheltering-in-place is the practice of going or remaining indoors during or following an emergency event. This procedure is recommended if there is little time for the public to react to an incident and it is safer for the public to stay indoors for a short time rather than travel outdoors. Sheltering-in-place also has many advantages because it can be implemented immediately, allowing people to remain in their familiar surroundings, and providing individuals with everyday necessities such as telephone, radio, television, food, and clothing. However, the amount of time people can stay sheltered-in-place is dependent upon availability of food, water, medical care, utilities, and access to accurate and reliable information.

The decision on whether to evacuate or shelter-in-place is carefully considered with the timing and nature of the incident (San Diego County 2014). Sheltering-in-place is the preferred method of protection for people that are not directly impacted or in the direct path of a hazard. This will reduce congestion and transportation demand on the major transportation routes for those that have been directed to evacuate by police or fire personnel. The Glens includes homes built in the 1970's and are in varying states of ignition resistance. Unlike most new master planned communities that incorporate ignition resistant construction and provide defensibility throughout (like the Junipers will), responding fire and law enforcement personnel may not be able to direct residents to temporarily refuge in their homes at The Glens Community except for residents of the Junipers. Homes that are not built to the ignition resistant standards can be retrofitted to increase their ability to withstand wildfire and ember storms by focusing on roofs, windows, walls, vents, appendages and defensible space. Attention to these components of a home's fire protection system is recommended for existing Glens homeowners.

Options when evacuation is not considered feasible that may be available to responding fire and law enforcement personnel may include temporary refuge/sheltering on site where residents are instructed to remain in their homes while firefighters perform their structure protection function if it is considered unsafe to evacuate. This approach is consistent with San Diego County's (San Diego County 2014) Evacuation approach which states "*Due to the nature of the threats requiring an evacuation, there may be insufficient time to perform an early evacuation of the area and shelter-in-place instructions may need to be provided.*" The greater Glens community does not currently include attributes that would allow a community wide sheltering in place option, due primarily to the older construction methods and codes that guided construction at the time the homes were built. The structures in The Junipers Community, including the proposed homes and the proposed community building, would apply the ignition resistant building codes codified in Chapter 7A of the California Building Code, would be ignition resistant, defensible and designed to require minimal firefighting resources for protection, which enables this contingency option when it is considered safer than evacuation



SOURCE: BASEMAP-SANGIS, 2017

DUDEK 0 1,250 2,500 Feet

FIGURE 3

Examples of Potential Evacuee Shelters during a Wildfire Evacuation

Wildland Fire Evacuation Plan for The Glens with The Junipers

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4 THE GLENS WITH THE JUNIPERS COMMUNITY EVACUATION ROAD NETWORK

As evidenced by mass evacuations during the 2007 Witch Fire along with other San Diego County evacuations, even with roadways that are designed to the code requirements, it may not be possible, or even the best response, to move large numbers of persons at the same time as part of a mass-evacuation. Road infrastructure throughout the United States, and including San Diego County, is not designed to accommodate a short-notice, mass evacuation. The need for evacuation plans, pre-planning, and tiered or targeted and staggered evacuations becomes very important for improving evacuation effectiveness. Among the most important factors for successful evacuations in urban settings is control of intersections downstream of the evacuation area. If intersections are controlled by law enforcement, barricades, signal control, and other means, potential backups and slowed evacuations can be minimized. Multiple evacuation points enable more evacuees the ability to evacuate with less impact on roadways.

Fire Conditions

Wildfire emergencies that would be most likely to include an evacuation of the Glens with the Junipers community would be either a large wildfire approaching from the Black Mountain Open Space Park, which is west, northwest, and southwest of the Glens Community or a large wildfire approaching from the north/northeast with potential to spot into the Glens or the adjacent Black Mountain Open Space Park. Large wildfires are often wind driven and occur during declared Red Flag Warning days where low humidity and high winds facilitate fire ignition and spread.

If a fire starts in the Black Mountain Open Space Park and is fanned by Santa Ana winds out of the northeast, the fire would likely tend to blow away from the Glens toward the southwest, west or south (Figure 4), potentially encroaching on Glens' residences that directly abut the open space. Local winds may result in fire that burns toward the Glens, but terrain (hillsides that slope down toward the Glens) does not support aggressive runs at the community, much of which is separated from the open space by developed areas. An early evacuation of the area may occur several or more hours prior to actual threatening conditions at the Glens, depending on conditions and fire spread projections.

Fires occurring on typical (non-extreme) fire weather days, when humidity is higher and winds are not as high or gusty, have been very successfully controlled at small sizes within minutes of ignition and would not typically trigger a need to evacuate the Glens Community. Partial evacuation of some neighborhoods could be an option in these cases, particularly those homes that are closest to the native fuels in the Black Mountain Open Space Park, such as homes west of Peñasquitos Drive and those north and west of Almazon Street.

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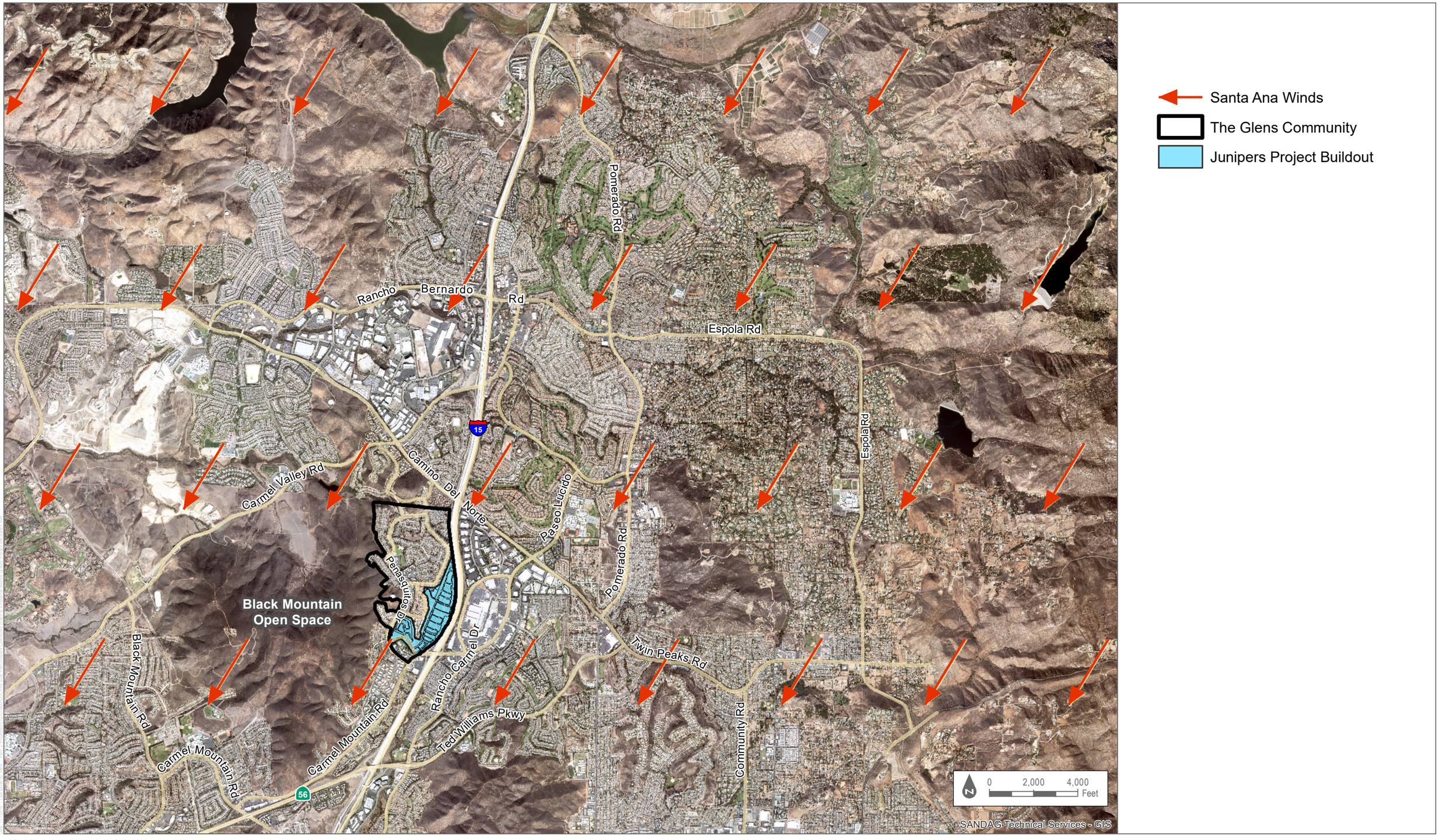

SOURCE: AERIAL-SANDAG IMAGERY 2017

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FIGURE 4

Potential Wildfire Spread in Black Mountain Ranch

Wildland Fire Evacuation Plan for The Glens with The Junipers

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Road Network and Evacuation Routes[2]

The current Glens community without the Junipers Project follows the evacuation route identified below.

- Currently, the only viable evacuation route is Peñasquitos Drive to the south. Peñasquitos Drive, the Glens' primary ingress/egress, provides access to other primary evacuation routes (i.e., Carmel Mountain Road) that intersect with I-15 and SR-56 on-ramps.
- In the northeast portion of the Glens, Andorra Way connects to Corte Raposo via an emergency fire access route.
- According to SDFRD (meeting with Chief Doug Perry on June 28, 2019), this route is a dedicated emergency vehicle access which would be available for fire apparatus ingress OR for resident evacuation/egress during an emergency, as directed by the SDFRD. However, the Andorra Way connection to Corte Raposo is currently inaccessible and unreliable as confirmed by SDFRD. Access to Camino Del Norte and I-15 are facilitated via this route..

Figure 5, Evacuation to the south (and west) and Emergency Vehicle Ingress via Peñasquitos Drive – This is the primary Glens ingress/egress road and connects with Carmel Mountain Road, which offers travel options to the east into Carmel Mountain Ranch and Poway, as well as connecting to Interstate 15 (I-15). I-15 provides multiple travel options to the north towards Rancho Bernardo and Escondido or to the south towards Mira Mesa. Additionally, Carmel Mountain Road offers travel options to the south/southwest into Rancho Peñasquitos, eventually connecting to State Route (SR) 56 (Ted Williams Parkway). SR 56 also provides travel options to the west/northwest towards the Torrey Highlands, eventually connecting to I-5. Figure 5A illustrates the Junipers entrance connection with Peñasquitos Drive.

Likely neighborhoods using this evacuation route include: Glens single family homes, Hills Apartments, portion of Cresta Bella project, Rolling Hills Elementary, and the Karlan Hotel.

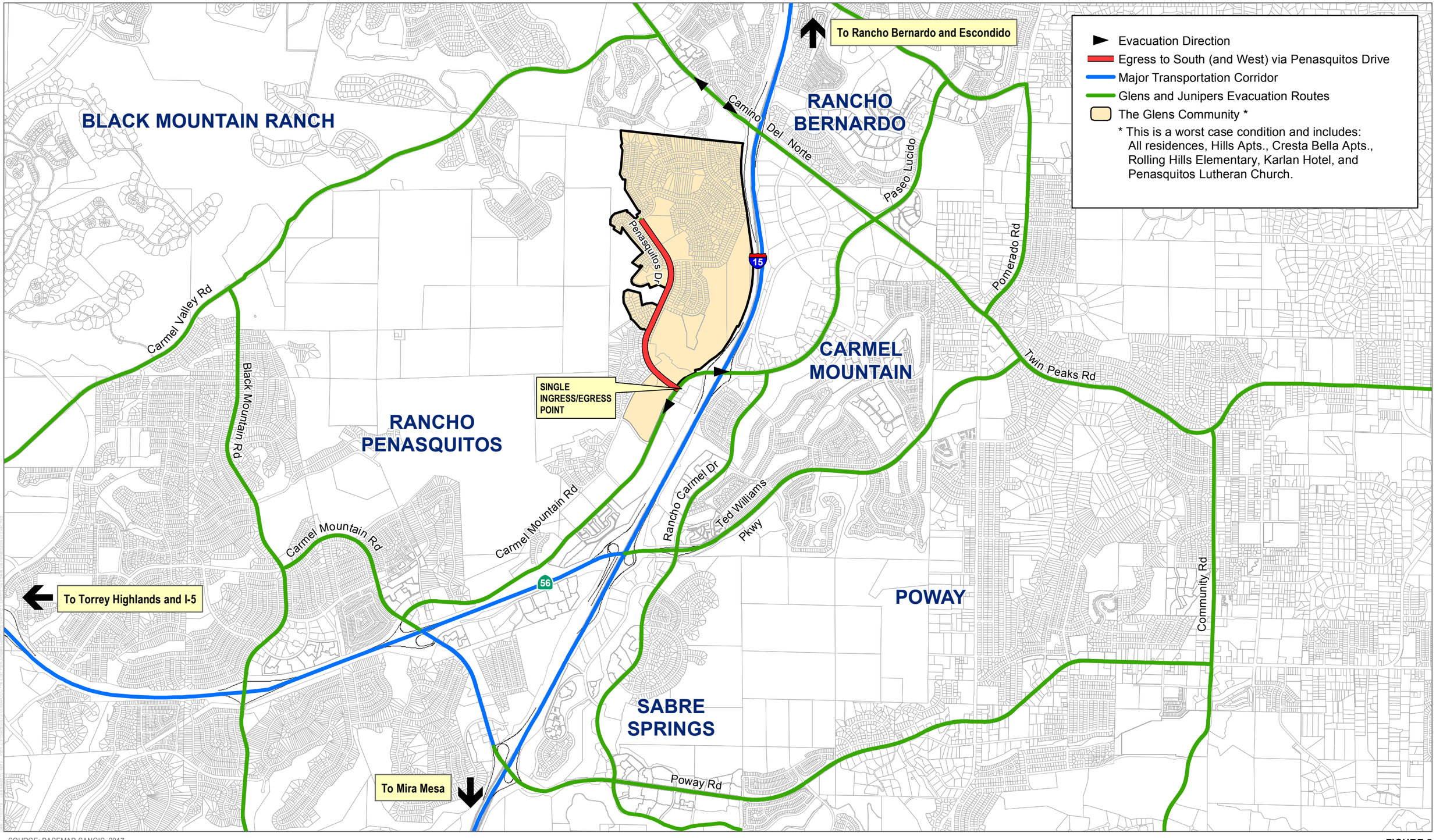
Figures 6 and 7, Southeast Junipers Project Evacuation Route and Emergency Vehicle Ingress (proposed Private Driveway "V") to the south onto Carmel Mountain Road – This secondary evacuation route provides direct access from the Junipers to Carmel Mountain Road which travels to the east into Poway or south/southwest into Rancho Peñasquitos, eventually connecting to SR 56. Emergency personnel would be required to manage the intersection to move vehicles onto the eastbound lanes. Responding emergency personnel could utilize this route for ingress into the

[2] Figure 13 provides a map of the evacuation plan study area, which includes the Glens (all single family detached units, Hills Apartments, Peñasquitos Townhomes, Rolling Hills Elementary, The Karlan Hotel, Cresta Bella Apartments and the Lutheran Church, along with the Junipers community.

Junipers in some emergency scenarios. SR 56 provides travel options to the west/northwest towards the Torrey Highlands, eventually connecting to I-5. This additional evacuation route would be available to residents from the Glens community during an emergency and would include a rolled curb median with flexible (drivable) bollards, enabling law enforcement-controlled evacuation to the east or west along Carmel Mountain Road (see Figure 7). This additional emergency evacuation route and emergency vehicle ingress provides an important alternative to the entire Glens community should Peñasquitos Drive become congested or impassable during a wildfire (refer to Table 4 in Section 4.2.1). The gate on the egress lane would be openable by the SDFRD and the HOA.

Likely neighborhoods using this evacuation route are the Junipers and east-central portions of the Glens.

Figure 8, Evacuation via Del Diablo Street – This is an emergency ingress/egress only road that will have bollards at the Del Diablo Street end and connect The Junipers with Del Diablo Street within the existing Glens community. Del Diablo Street connects to Del Diablo Way then to Peñasquitos Drive which offers evacuation to the south. This route could also be available to Glens residents to evacuate through the Junipers. Evacuation to the north via Andorra Way's enhanced emergency evacuation point (see 3 below) could also be available from this Junipers evacuation route. The bollards on this route would be removable by the SDFRD and the HOA.



SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 1,250 2,500 Feet

FIGURE 5

Existing Condition Southerly Evacuation via Penasquitos Drive Fire Evacuation Map

Wildland Fire Evacuation Plan for The Glens with The Junipers

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SOURCE: BASEMAP-SANGIS, 2017

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FIGURE 5A

Junipers Entrance Connection with Penasquitos Drive

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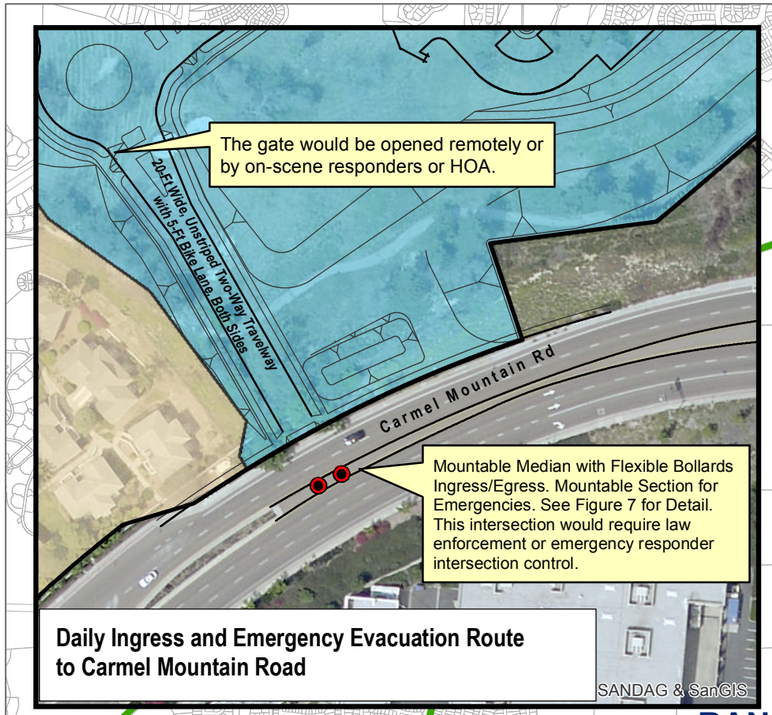

SOURCE: BASEMAP-SANGIS, 2017

DUDEK 0 1,250 2,500 Feet

FIGURE 6

Glens with the Junipers Southerly Evacuation via Penasquitos Drive and Emergency Evacuation Route to Carmel Mountain Road Fire Evacutaion Map

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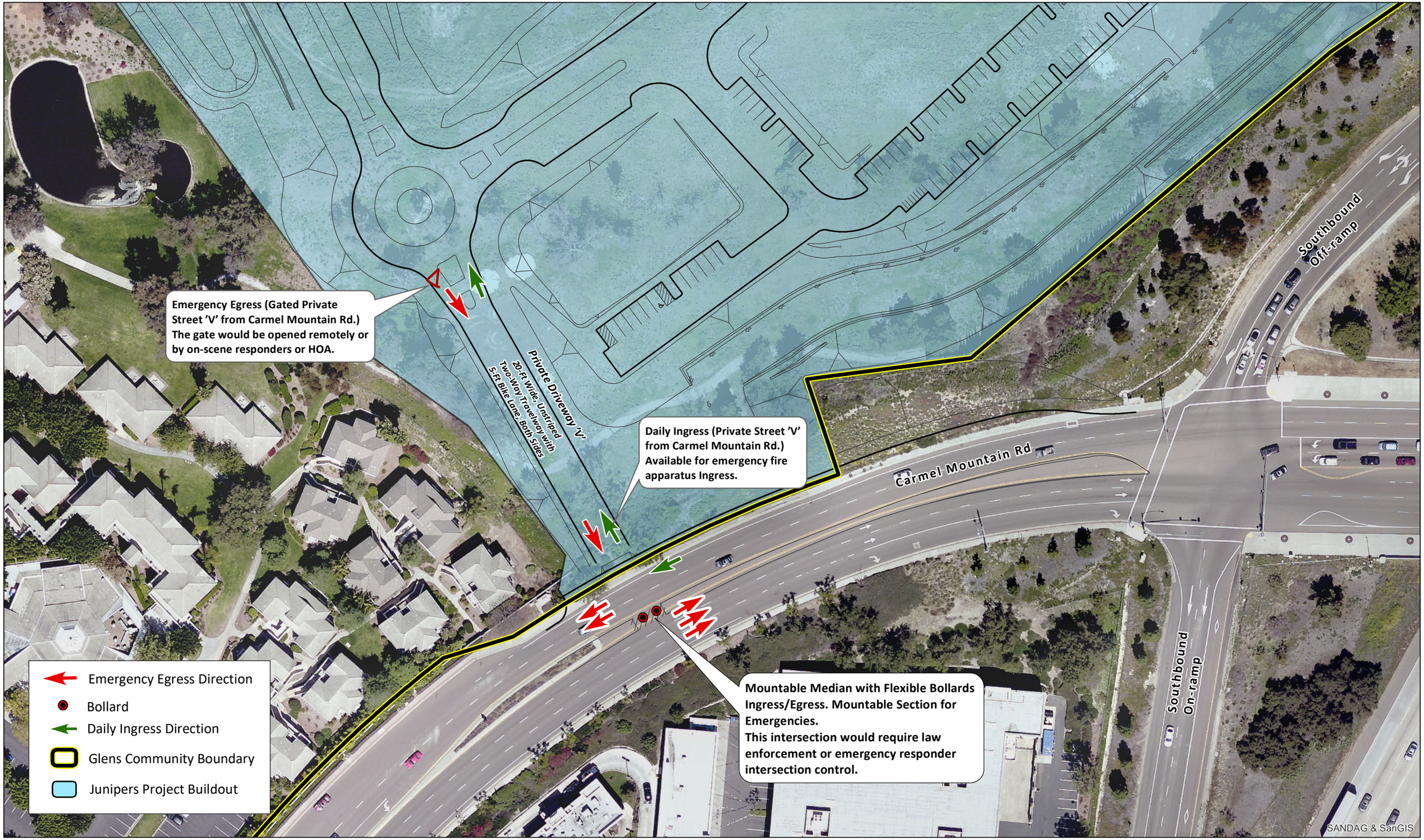

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 35 70 Feet

FIGURE 7

Southeast Roundabout

Wildland Fire Evacuation Plan for The Glens with The Junipers

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Fire Department Controlled Emergency 20-Ft Wide Ingress or Egress. Use and control of said facility shall be determined by City of San Diego Fire Department or Police Department. Facility could be used for emergency vehicular ingress or community vehicular egress. This will be determined by the emergency response personnel at the time. The improvements to said facility will facilitate either option and will be determined on a case by case basis.

Maintenance for assured quality of evacuation and emergency ingress features will be responsibility of City of San Diego. Junipers HOA will bond for replacement of gates/bollards and perform quarterly brush management.

Refer to Figures 10 and 11 for Existing vs. Proposed Condition Detail.

Existing 40-Ft Wide Two-Way Travelway

Camino Del Norte

Paseo Montanoso

Corte Raposo, 30-Ft Wide Two-Way Travelway

The gates would be opened remotely or by on-scene responders or HOA.

Andorra Way

Interstate 15

EMERGENCY INGRESS/EGRESS (BOLLARDED ROUTE TO DEL DIABLO ST. FROM JUNIPERS PROJECT

Private Street-1P

24-Ft Wide Travelway

Emergency 24-Ft Wide Ingress or Egress. No Daily Vehicle Use.

Removable Bollards to SDFRD Specifications (HOA, Fire and Law Enforcement)

40-Ft Wide, Two-way Travelway

Del Diablo St

SANDAG & SanGIS

Andorra Way

40-Ft Wide Two-Way Travelway

Del Diablo Way

See Inset Above

Penasquitos Dr

Two-Way Travelway

40-Ft Wide

Del Diablo St

Fire Department or HOA Controlled Bollards

Fire Department Controlled Gate

Emergency Ingress or Egress Direction

Evacuation Route

Daily Ingress/Egress Direction

Daily Ingress/Egress

Glens Community Boundary

Glens Community

Junipers Project Buildout

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 200 400 Feet

FIGURE 8

Del Diablo Street Ingress/Egress from the Junipers

Wildland Fire Evacuation Plan for The Glens with The Junipers

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Likely neighborhoods using this evacuation route are the extreme northwestern portions of The Junipers Community and potentially northerly Glens residents evacuating to the south.

Figures 9, 10 and 10A, Northerly Evacuation Point Enhancement Provided by Junipers Project (Details discussed in Section 4.2) - Evacuation to the north on Andorra Way to Camino Del Norte or Bernardo Center Drive – As depicted in Figures 9, 10 and 10A, this emergency access road would be available if SDFRD determined evacuation via this route was necessary. It is also available for emergency vehicle ingress. The existing road is proposed for enhancement in the Junipers EIR by removal of inoperable bollards, replacement with an automatic, remotely opening gate to SDFRD requirements, resurfacing this road to carry the imposed load of fire apparatus (75,000 pounds), and ongoing brush management. The road will be 20 feet wide and capable of supporting two 10 foot travel lanes. Del Diablo Street connects to Del Diablo Way/Andorra Way to the north, which connects to Corte Raposo, which connects to Paseo Montanoso and then to Camino Del Norte. Use and control of said facility shall be determined by City of San Diego Fire Department or Police Department. Facility could be used for emergency vehicular ingress or community vehicular egress. This will be determined by the emergency response personnel at the time. The improvements to said facility will facilitate either option and will be determined on a case by case basis.

Likely neighborhoods using this evacuation route could be the northerly half of the Glens, all of the Glens, or none of the Glens, depending on the wildfire/emergency scenario. Currently, there is no northern evacuation route. All Glens' residents are forced to evacuate to the south.

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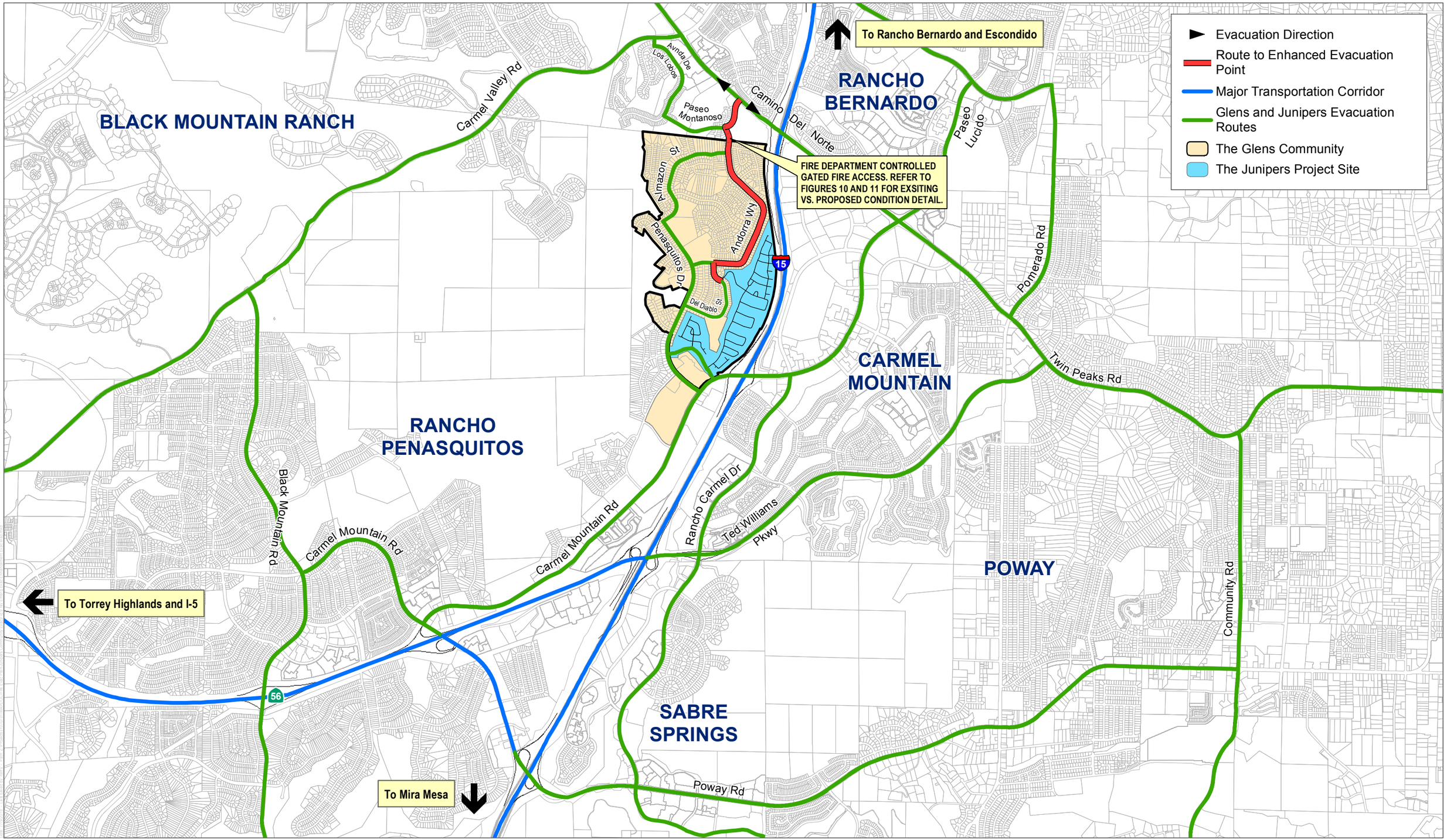

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 1,250 2,500 Feet

FIGURE 9

Northerly Emergency Evacuation Route Fire Evacuation Map

Wildland Fire Evacuation Plan for The Glens with The Junipers

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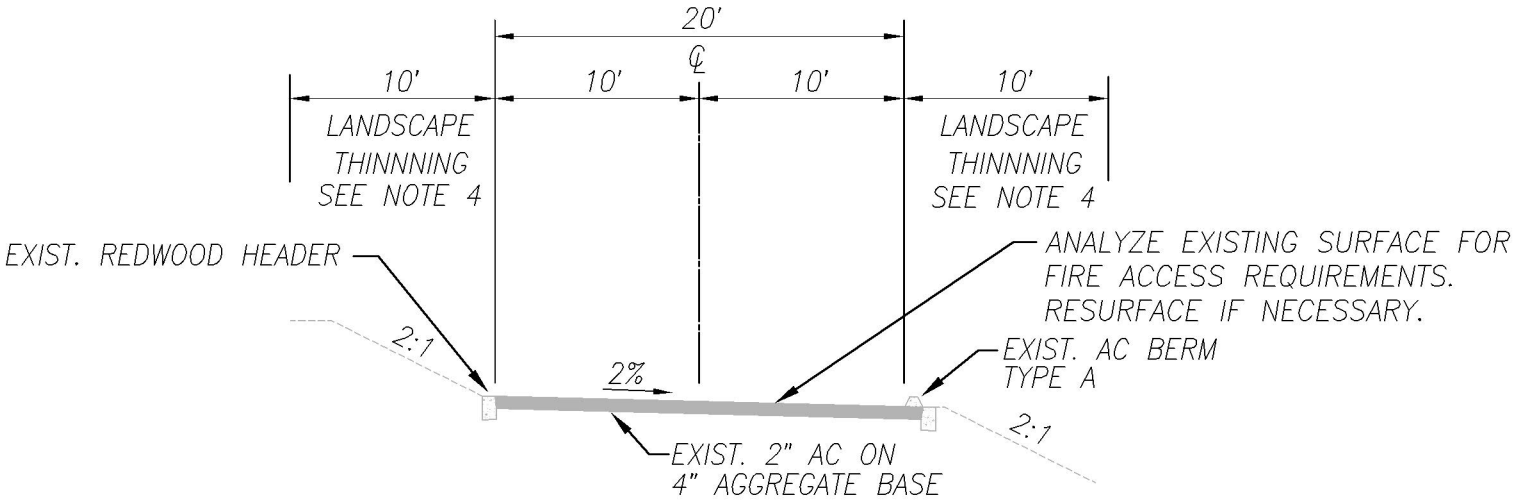

PROPOSED EMERGENCY ACCESS ROAD

NOT TO SCALE

NOTES

1. PARCEL "A" – MAP NO. 6982
   - PARCEL 6 OF FIDELITY TITLE (989–30014972)
   - NO HOA INTEREST
2. ANDORRA WAY – RIGHT OF WAY
   - RESERVED ON MAP NO. 8352 AND ACCEPTED AS ROW FOR PUBLIC STREET PER RESOLUTION 267496 ADOPTED 1/20/1987.
   - NO HOA INTEREST
3. PEDESTRIAN AND NON–MOTORIZED VEHICULAR RIGHT OF WAY
   - PARCEL 4 OF FIDELITY TITLE (989–30014972)
   - SEWER & WATER EASEMENT GRANTED IN LOCATION OF ROW 2/11/1987
   - PEDESTRIAN AND NON–MOTORIZED VEHICULAR RIGHT OF WAY DEDICATED AND ACCEPTED ON MAP NO. 11829 FILED 6/3/1987
   - UPON VACATION, ROW WOULD LIKELY REVERT TO LOT 1 OF MAP 11829 (APN 313–580–01, JACQUELINE B. TA AND JAMES PHAM)
   - NO HOA INTEREST
   - "EMERGENCY ACCESS RD" PER CITY OF SAN DIEGO DWG. NO. 23588–6–D.
   - **PROPOSED ENTITLEMENTS**
     - JUNIPERS HOA TO BOND FOR REPLACEMENT OF GATES
     - JUNIPERS HOA TO PERFORM QUARTERLY BRUSH MANAGEMENT OF AREA.
4. LANDSCAPE THINNING AREA WITHIN LOT 1 – MAP NO. 11712
   - LANDSCAPE THINNING AREA CROSSES OVER BUILDING RESTRICTED AND DRAINAGE EASEMENTS GRANTED TO THE CITY OF SAN DIEGO PER MAP NO. 11712 AND AN EASEMENT TO SDG&E RECORDED 9/29/1967 AS FILE NO. 149737 SHOWN ON MAP NO. 11712.
   - NO HOA INTEREST
5. ADDITIONAL NOTES
   - JUNIPERS HOA WILL PERFORM BRUSH MANAGEMENT IN IDENTIFIED ROAD–SIDE ZONES WIT THE IMPROVEMENTS TO FIRE ACCESS ROAD.
   - RECURRING MAINTENANCE WILL BE CITY RESPONSIBILITY ON LOT 1 (MAP NO. 117172). THE JUNIPERS HOA WILL PROVIDE THE MAINTENANCE IF THE OTHER ENTITIES FAIL TO PERFORM.
   - SAN DIEGO FIRE AND RESCUE DEPARTMENT AND/OR SAN DIEGO POLICE DEPARTMENT CONTROLS THESE GATES DURING EMERGENCIES.

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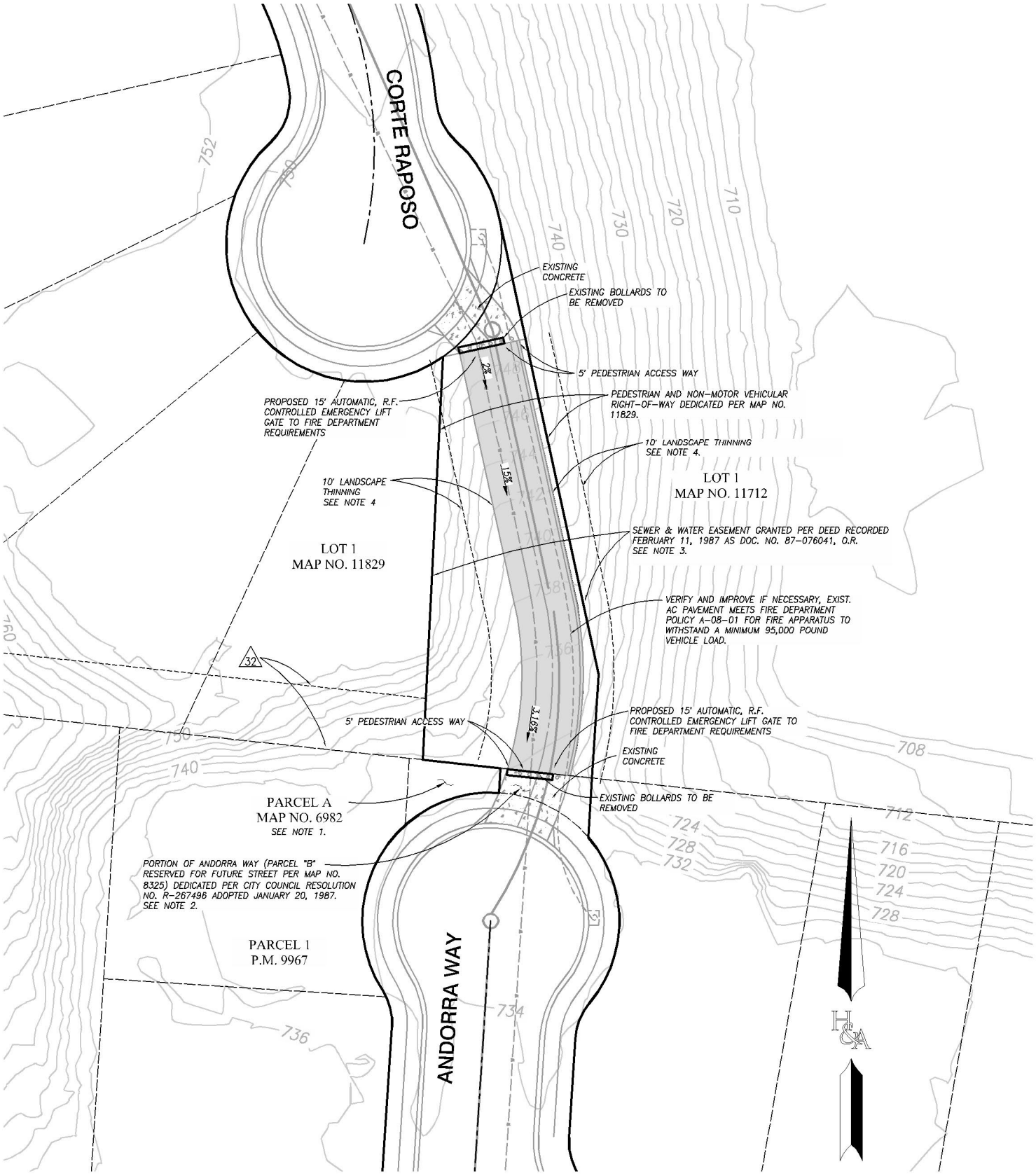

32 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT: IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: UTILITIES, INGRESS AND EGRESS RECORDING DATE: SEPTEMBER 29, 1967
RECORDING NO: 149737 OF OFFICIAL RECORDS AFFECTS: PORTIONS OF THE LAND, THE EXACT LOCATION OF WHICH CAN BE DETERMINED BY EXAMINATION OF THE ABOVE-MENTIONED INSTRUMENT, WHICH CONTAINS A COMPLETE LEGAL DESCRIPTION OF THE AFFECTED PORTIONS OF SAID LAND.

ANDORRA WAY DETAIL

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Evacuation Alternatives

If a wildfire ignited closer to the Glens Community during weather that facilitates fire spread, where multiple hours are not available for evacuation and placing residents on the roads could expose them to wildfire, an alternative evacuation approach would need to be explored. It is preferred to evacuate long before a wildfire is near, and in fact, history indicates that most human fatalities from wildfires are due to late evacuations when they are overtaken on roads. Therefore, it is prudent to consider a contingency option. For example, if a wildfire is anticipated to encroach upon the community or Peñasquitos Drive in a timeframe that is shorter than would be required to evacuate all residents, then evacuations could be significantly impacted. The Junipers project creates this contingency option in two ways:

1. The Junipers establishes a new emergency evacuation route through the project to the southeast (Private Driveway "V"), providing direct access to Carmel Mountain Road. This improves the existing condition where evacuees from the Glens would have to rely solely on Peñasquitos Drive (previously referenced Figure 5)
2. The Junipers is proposing an off-site project "feature" which offers a significant Glens evacuation improvement by enhancing the northerly emergency fire access road between Andorra Way and Paseo Corte Raposo to allow for reliable fire apparatus ingress or fire department controlled emergency resident evacuation. EIR Proposed enhancements include: removing the inoperable bollards, providing an automatic, remote opening gate meeting SDFRD requirements, and resurfacing the road (previously referenced Figures 9 and 10) and providing ongoing fuel modification and gate maintenance. Figure 11 provides a comparison between the existing condition and the proposed enhancements. These off-site enhancements as part of the Junipers project will benefit all current and future residents. This road, with the proposed upgrades and enhancements, would enable managed evacuation to the north for Glens' and Junipers' residents as an augmenting or alternative to Peñasquitos Drive and the Junipers' new emergency evacuation route (Street V) to Carmel Mountain Road (refer to Tables 2 through 4 in Section 4.2.1). Use and control of said facility shall be determined by City of San Diego Fire Department or Police Department. Facility could be used for emergency vehicular ingress or community vehicular egress. This will be determined by the emergency response personnel at the time. The improvements to said facility will facilitate either option and will be determined on a case by case basis.

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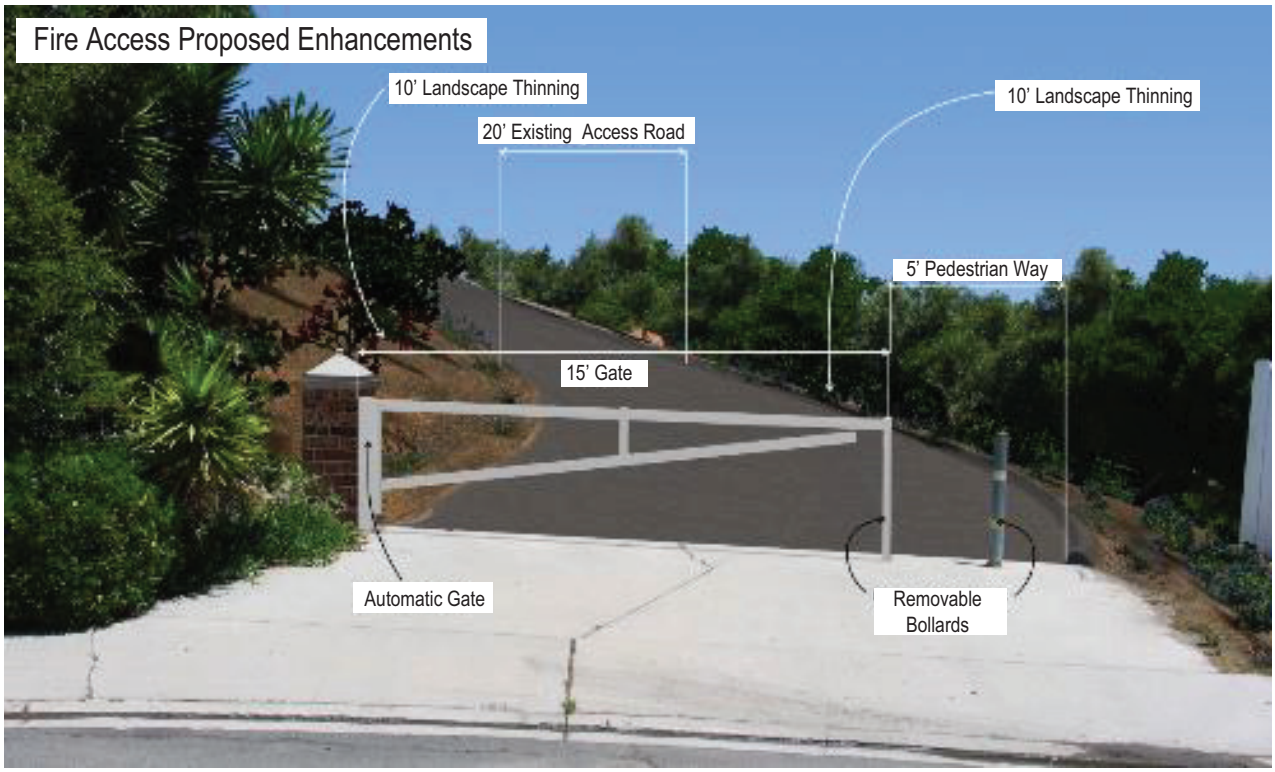

FIGURE 11

Comparison of Fire Access Road between Andorra Way and Corte Reposo
Existing Condition vs Proposed Enhancements

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Another important aspect of successful evacuation is a managed and phased evacuation declaration. Evacuating in phases, based on vulnerability, location, or other factors, enables the subsequent traffic surges on major roadway to be smoothed over a longer time frame and can be planned to result in traffic levels that flow better than when mass evacuations include large evacuation areas at the same time. This plan defers to Law Enforcement and OES to appropriately phase evacuations and to consider the vulnerability of communities when making decisions.

The community's primary evacuation routes are accessed through a series of internal neighborhood roadways. Based on the existing road network once off site, the community can evacuate to the north, south, east and west depending on the nature of the emergency, as depicted in previously referenced Figures 5 through 10.

During an emergency evacuation from The Glens community, the primary and secondary roadways throughout the Glens and proposed Junipers communities may be providing citizen evacuation while responding emergency vehicles are inbound. Because the roadways are all designed to meet or exceed San Diego Fire Code and City Public Works requirements, unobstructed travel lanes consistent with code requirements, adequate parking, 26-foot inside radius, grade maximums, signals at intersections, and roadside fuel modification zones, potential conflicts that reduce the roadway efficiency for smooth evacuations are minimized.

4.1 Evacuation Route Determination

Fire and law enforcement officials will typically identify evacuation points before evacuation routes are announced to the public. Evacuation routes are determined based on the location and extent of the incident and include as many pre-designated transportation routes as possible.

4.1.1 Northern Fire Access Road

The existing condition (pre-Junipers project) includes an aged, bollarded access between the Andorra Way and Corte Raposo cul-de-sacs. SDFRD indicated (June 28,2019 meeting) that this road was legally provided as a dedicated fire access road, which allows for fire apparatus ingress into the Glens OR for resident evacuation from the Glens, however the route is currently NOT reliable access due to cemented bollards, an aged road surface, and overgrown vegetation. With the Junipers project, the road would be resurfaced and tested to support 75,000 pound fire apparatus; bollards would be removed and replaced with reliable, automatic gates to the SDFRD specifications, and roadside fuels would be provided brush management. As previously mentioned, use and control of this fire access road will be determined by City of San Diego Fire Department or Police Department. The fire access road could be used for emergency vehicular ingress or community vehicular egress. This will be determined by the emergency response personnel at the time. The improvements to said facility will facilitate either option and will be determined on a

case by case basis. The automatic gates would be equipped to be manually opened by the Fire Department or Law Enforcement in case of unanticipated gate motor failure.

Northern Fire Access Maintenance

Maintenance is an important component for the long term reliability of the northern fire access route. Appendix C includes Emergency Fire Access Road details including property ownership, which facilitates ongoing Junipers HOA vegetation maintenance activities along the emergency Fire Access Road. Maintenance obligations will be as follows:

City of San Diego:

- Maintenance of access road and brush
- Maintenance of gate

Junipers HOA:

- Financial reserve for repair of access road and gate
- Quarterly brush management

4.2 Roadway Capacities and Evacuation Time Estimates

Roadway capacity represents the calculated number of vehicles that can reasonably be accommodated on a road. Roadway capacity is typically measured in vehicles per hour and can fluctuate based on the number of available lanes, demand surges, number of traffic signals, construction activity, accidents, and obstructions as well as positively by traffic control measures. The conditions for existing and planned roads are provided in Table 1. These response time estimates consider the incorporation of roundabouts along Peñasquitos Drive at the Project entrance (Janal) and within the Junipers Project. Per Federal Highway Administration Publication No. FHWA-14-098:

- Roundabouts are designed for safety and efficiency of all users and can actually improve response times by eliminating/minimizing stops and delays.
- Roundabouts are safer than intersections, even when signals are fitted with preemption devices.
- Emergency vehicles slow down to pass through intersections similarly to slowing down to proceed through a roundabout.
- Roundabouts accommodate larger vehicles and often include rolled curbs and truck aprons for rear wheels

Each roadway classification has a different capacity based on level of service, with freeways and highways having the highest capacities. Based on traffic engineer estimates (City of San Diego Circulation Element) and using the City's Average Daily Traffic data as the baseline, and a conservative discounting of capacity, roads that would be the most likely available to the Glen's residents and their hourly capacities are presented in Table 1.

Table 1
The Existing Glens Community Roadway and Freeway Estimated Vehicle Capacities

Roadway	Segment	Estimated Roadway and Freeway Capacity*				
		East	*West*	*North*	*South*	*Total*
Interstate I-15[2]	North and south of Carmel Mountain Road			10,000	10,000	20,000
State Route 56	West of I-15	4,000	4,000			8,000
Carmel Mountain Road	East of I-15	3,000	3,000			6,000
Carmel Mountain Road	West of I-15	3,000	2,000			5,000
Peñasquitos Drive	Almazon Road to Carmel Mountain Road			1,000	1,000	2,000
Black Mountain Road	Carmel Mountain Road South or north to Carmel Valley Road			2,000	2,000	4,000
Carmel Valley Road/Bernardo Center Drive	Black Mountain Road to Camino Del Norte			2,000	2,000	4,000
Camino Del Norte	Bernardo Center Drive to I-15	3,000	3,000			6,000
Paseo Montanoso	Corte Raposo to Camino Del Norte			500	500	1,000
Almazon Street	Andorra Way to Peñasquitos Dr.			500	500	1,000
Del Diablo Street	Del Diablo Way to PeñasquitosDr.			500	500	1,000
Del Diablo Way/Andorra Way	Peñasquitos Dr to Paseo Montanoso (with connection)			500	500	1,000

1 Estimated vehicle traffic per hour estimates are based on City of San Diego's Circulation Element capacity table (Circulation Element Table 2-Roadway Classifications, Levels of Service and Average Daily Traffic. The City's capacity table indicates the daily capacities for Circulation Element roadways. The max capacity is measured based on these numbers. For example, a 4-lane road at 40,000 daily capacity, 10,000 capacity per lane per day, Assumes 10% occurs at peak time = 1,000 per lane per direction = 2,000 hourly max capacity in each direction at Level C service, without traffic signals.

2 Does not include HOV lanes (based on 5 travel lanes in each direction at 10% during peak time)

3 The residential collector roads that are calculated as having lower capacity are assumed to be capable of relocating more than the calculated vehicles per hour during an emergency. For example, two lane collectors such as Peñasquitos Drive, Paseo Monanoso, Almazon, and Del Diablo are assumed to be capable of flowing at least 8 to 9 vehicles per minute, or 500 vehicles per hour with traffic controls.

Note: The vehicle capacity estimates utilized for this evacuation plan are based on available information and are discounted for various assumed traffic related slowing. This evacuation plan assumes that law enforcement personnel are controlling downstream intersections to maintain traffic flow out of the area. If traffic flow is not maintained, then the estimated evacuation times would be expected to increase, potentially substantially, as is the case in any urban area.

Using these averages, the length of time it will take for an area to evacuate can be estimated by dividing the population by the average vehicle occupancy and then dividing by the roadway capacity (Figure 12). Table 2 provides a summary of the calculated number of evacuating vehicles and assumptions for the Glens with the Junipers populations. The populations include:

- Single family residences – 1,214
- Hills Apt units – 224
- Penasquitos Townhomes – 67
- Cresta Bella Apt units – 360
- Rolling Hills Elementary 460 students and staff
- Karlan Hotel – 174 rooms
- Lutheran Church – up to 400 service attendees

Figure 13 provides a color coordinated land use map depicting the locations of each population included in the evacuation calculations.

Figure 12 Evacuation Time Calculation

$$\text{Evacuation Time} = \frac{\left(\frac{\text{Evacuation Population}}{\text{Average Vehicle Occupancy}}\right)}{\text{Roadway Capacity}}$$

The Glens community is estimated to include 3.05 persons per dwelling unit (Point2 Homes/Onboard Informatics 2018), which equals approximately 4,590 persons, The Junipers is projected to include 1.7 persons per dwelling unit, which totals 911 persons[3]. The combined population for the Glens with the Junipers would be 5,501 persons. During an evacuation, it is calculated that an average of 2 persons per vehicle would evacuate, resulting in up to 2,750 vehicles potentially evacuating in a major incident that required full evacuation of the Glens (with the Junipers). However, to continue this plan's conservative approach, the evacuation travel time calculation is based on every residence evacuating two vehicles. This results in up to 3,010 vehicles generated from the Glens' residential units and 1,072 vehicles from the Junipers', totaling up to 4,082 vehicles.

[3] Pursuant to the density factor of 3.0 persons per household unit based on the Demographic and Socio Economic Estimates for the RPCP from SANDAG (SANDAG 2018a), the project would increase the area's population by up to 1,608 persons. The project is a multi-family, age-restricted development, however, and therefore a factor of 1.7 persons per household is more appropriate, based on the American Housing Survey (American Association of Retired Persons [AARP], 2011). Therefore, the population for the project's 536 housing units is estimated to be 911 persons.

The population calculation includes the Cresta Bella Apartments (360 units and 720 vehicles) and non-residential land uses of the Karlan Hotel (174 rooms 200 vehicles), the Rolling Hills Elementary School (10 busses and 20 vehicles), and the Lutheran Church (200 vehicles), increases the worst case population to 6,599 persons and number of evacuating vehicles (including the Glens and the Junipers) to 5,232, as depicted in Table 2.

The number would likely be lower, as some families would likely drive in one vehicle versus in multiple vehicles and depending on the time of day, many of these vehicles may already be off-site, such as if a fire occurred during typical work hours.

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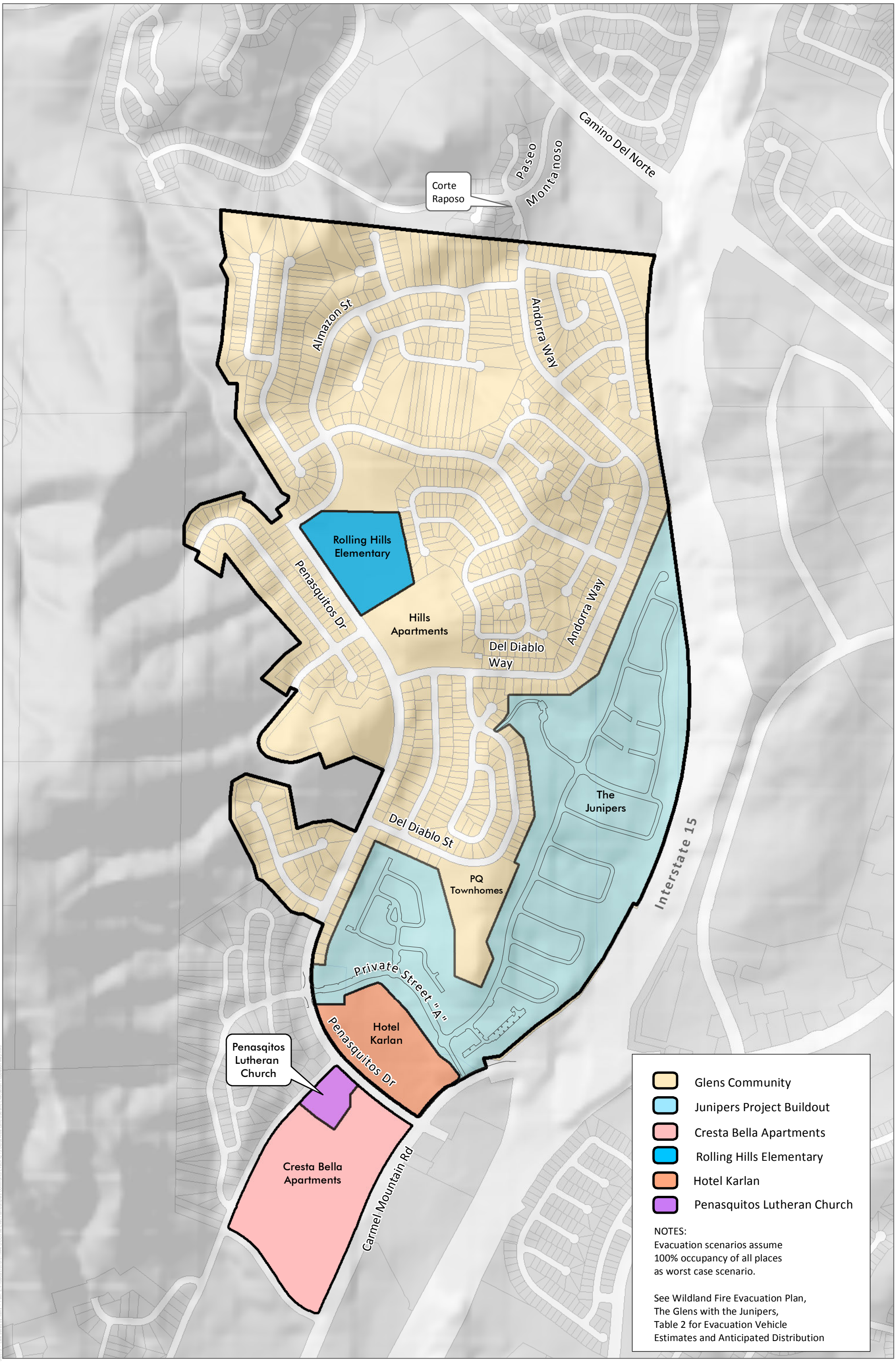

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 350 700 Feet

FIGURE 13

Study Area Land Use and Evacuation Population Map

Wildland Fire Evacuation Plan for The Glens with The Junipers

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Table 2
Evacuation Vehicle Estimates and Anticipated Distribution Assuming 100 Percent Occupancy (Worst Case Condition)

	Glens Community[1]	Junipers Community	Cresta Bella Apartments	Rolling Hills Elementary	Hotel Karlan	Peñasquitos Lutheran Church	Combined
Dwelling Units (residences)	1,505	536	360 units	N/A	174 rooms	N/A	2,575
Persons per Unit	3.05	1.7	3.05	N/A	2	N/A	N/A
Calculated Population	4,590	911	1,098	475	400	400	7,874
Vehicles per Unit	2	2	2	10 Busses and 20 staff vehicles	1	2 persons per vehicle	Varies
Worst Case Number of Vehicles Evacuating	3,010	1,072	720	30	200	200	5,232

1 Glens Community includes all single family dwellings, Hills Apartments, and Penasquitos Townhomes
2 The population/unit assumption for senior communities is 1.7. However, the assumption that 2 vehicles/unit would evacuate is used consistent with this study's conservative approach.
3 Rolling Hills Elementary Disaster Plan 2018-2019 indicates no students will be released on site and all will be bussed to Rancho Bernardo High School. Parents are instructed to not drive to the elementary campus. Busses will be allowed in to pick up the students.
4 Hotel Karlan total vehicles includes full occupancy with one vehicle per room and staff vehicles

Therefore, the potential amount of time needed to evacuate the Glens (expanded population including Hills and Cresta Bella Apartments, Peñasquitos Townhomes, Rolling Hills Elementary, Hotel Karlan, and Lutheran Church), with The Junipers based on the existing and planned roadway improvements, was calculated based on the following factors: (1) the internal roadway capacities, (2) available evacuation routes on Peñasquitos Drive and its connector roads, the new southeastern Junipers Community evacuation road to Carmel Mountain Road, and the enhanced northerly emergency evacuation point between Andorra way and Corte Raposo. Depending on the scenario, it is estimated that 1) the existing condition would require all traffic to utilize Peñasquitos Drive, 2) with the Junipers and its emergency evacuation route to Carmel Mountain Road, up to 50% of the traffic from the Glens and Junipers could be directed to use this route while approximately 50% utilizes Peñasquitos Drive, and 3) when the northerly emergency evacuation route is updated with gates and enhanced surface, roughly 1/3 of the Glens' and Junipers' communities could be directed by emergency managers to use each of the three available routes. These roads are assumed in an emergency to be able to flow up to 500 vehicles per hour, which is approximately 8 vehicles per minute.

Understanding the speed vehicles would travel to support 500 vehicles per hour provides additional supporting context. If the average vehicle is approximately 16 feet long, and allowing

approximately 5 feet between vehicles (21 total feet per vehicle), an average travel speed of approximately 2 mph would enable 500 vehicles to pass a given point every hour. This is calculated by the following:

- 500 vehicles per hour = 8 vehicles per minute = 1 vehicle every 7.2 seconds
- 2 mph = 2.94 feet per second (1 mph = 1.47 feet per second)

Therefore, at 2.94 feet/second x 7.2 seconds = 21.2 feet. Each vehicle (16 feet + 5 feet = 21 feet) is allotted 7.2 seconds to pass a given point. In order for 500 vehicles to pass that given point, a speed of 2 mph is necessary. The average human walking speed is around 3 mph.

Therefore, the following travel time and evacuation estimates are not reliant on unrealistic vehicle speeds in order to achieve the use of 500 vehicles per hour capacity. It is likely that more than 500 vehicles per hour would be possible with law enforcement traffic control. A commonly used capacity is 1,330 vehicles per lane, but this study evaluates the estimated travel time in a very conservative manner at 500 vehicles per hour.

Based on the factors and assumptions previously detailed regarding neighborhood evacuation routes, and incorporating standard pre-evacuation timeframes and the evacuation route estimates detailed in Table 3, it is estimated that the existing condition would see all evacuating traffic evacuate via Peñasquitos Drive, consistent with the 2007 Witch Creek Fire evacuation. With the construction of Private Street V to Carmel Mountain Road, this analysis considers that all of the Junipers and a portion of the existing Glens community utilize this new egress route, reducing the reliance on Peñasquitos Drive alone by one-half. With the Andorra Way enhancement to the north, and assuming the emergency allows evacuation in that direction and emergency managers direct residents to evacuate via this route, it would allow a portion of the Glens' northerly neighborhoods to evacuate via this option, further reducing reliance on Peñasquitos Drive and reducing overall evacuation times.

Table 3
Evacuation Route Usage and Time Estimates

	Existing Condition (Peñasquitos Drive)		**With Junipers (emergency evacuation to Carmel Mountain Road)**		**With Junipers and enhanced northerly emergency evacuation point via Andorra Way**	
	Percent of Vehicles	*Total Vehicles*	*Percent of Vehicles*	*Total Vehicles*	*Percent of Vehicles*	*Total Vehicles*
Peñasquitos Drive	100%	4,160	50%	2,616	33%	1,744
Emergency Evacuation Route to Carmel Mountain Road	Not Available	0	50%	2,616	33%	1,744

Table 3
Evacuation Route Usage and Time Estimates

	Existing Condition (Peñasquitos Drive)		With Junipers (emergency evacuation to Carmel Mountain Road)		With Junipers and enhanced northerly emergency evacuation point via Andorra Way	
	Percent of Vehicles	*Total Vehicles*	*Percent of Vehicles*	*Total Vehicles*	*Percent of Vehicles*	*Total Vehicles*
Andorra Way to Corte Raposo via Enhanced Emergency Evac Route	Not Available	0	Not Available	0	33%	1,744
Total	**100%**	**4,160**	**100%**	**5,232**	**100%**	**5,232**

4.2.1 Evacuation Time Discussion

Based on the preceding assumptions and the travel time formula, the evacuation travel time estimates for the existing condition and the Junipers scenario are summarized in Table 4. The Glens Community refers to all single family homes and Peñasquitos Townhomes along with the Hills and Cresta Bella Apartments, Rolling Hills Elementary, Hotel Karlan and the Lutheran Church.

Table 4
The Glens and Junipers Evacuation Travel Timeframes*

Scenario	Exits	Vehicles/Exit	Minimum Road Capacity (vehicles per hour)	Estimated Evacuation Travel Timeframe***
Existing Glens Community with Peñasquitos Drive (Figure 14)	1	4,160	500	8.3 hours
Glens Community with Junipers and new emergency evacuation road onto CMR (Figure 15)	2	2,616	500	5.2 hours
Glens Community with Junipers and northerly emergency evacuation route (Figure 16)	3	1,744	500	3.5 hours

* Includes "wheels rolling" where all persons have left their home. Does not include notification, mobilization and travel out of the area
** Scenario 1 (Existing Glens Community) includes all residential, Peñasquitos Townhomes plus Cresta Bella Apartments, Rolling Hills Elementary, The Karlan Hotel and the Lutheran Church. Scenarios 2 and 3 include all of these plus the Junipers' vehicles.
*** Estimated evacuation travel timeframe is calculated by dividing the number of vehicles at 100% occupancy using each evacuation route by the route's lowest vehicle capacity)

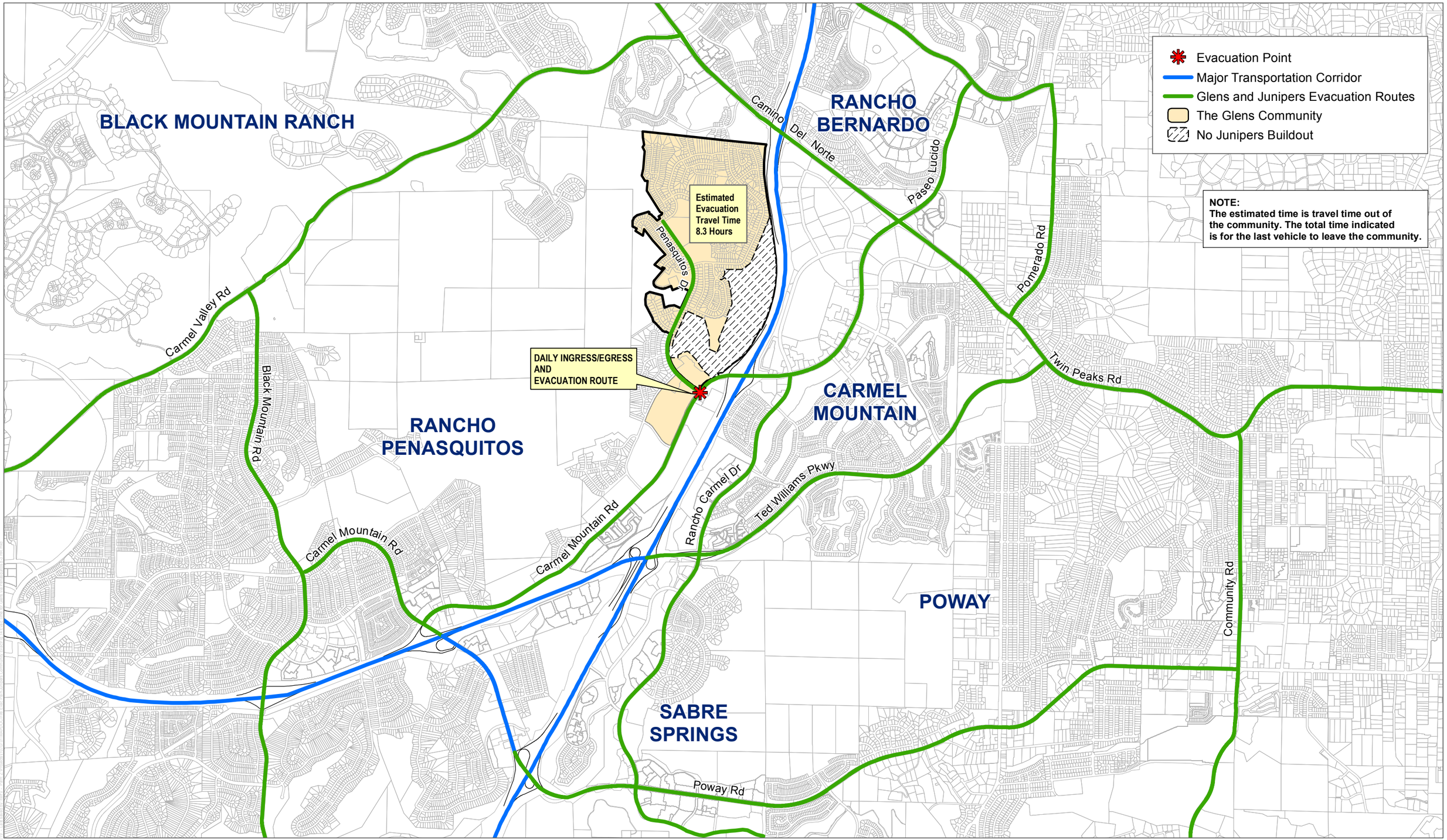
This evacuation scenario results in a worst-case calculated 8.3 hours travel time to fully evacuate the existing Glens population. With the Junipers Project, adding the southerly ingress/emergency egress onto Carmel Mountain Road results in a significant travel time reduction to 5.2 hours. With the

enhanced emergency fire access between Andorra Way and Corte Raposo for fire department controlled evacuation, another significant reduction in calculated travel time to 3.5 hours is realized.

Despite increasing the number of vehicles evacuating the community, the inclusion of the Junipers offers a potential reduction in the overall evacuation time for the greater Glens Community due to the additional exit provided to Carmel Mountain Road. Additionally, with an enhanced northerly emergency fire access route from Andorra Way to Corte Raposo, the evacuation travel time is reduced significantly further should this route be utilized by SDFRD.

Figures 14 through 16 illustrate the evacuation scenarios in Tables 3 and 4.

This travel time calculation is very conservative in both the number of vehicles evacuating and the number of vehicles per hour that can be accommodated. However, the evaluation is provided to indicate that additional means of egress have significant positive impacts on overall Glens' evacuations. The Junipers Project plans to provide one additional ingress/egress route to the south as well as fund the improvements to the emergency access between Andorra Way and Corte Raposo to make it a reliable route that can provide fire department ingress and/or resident egress should it be determined necessary by SDRFD.



SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 1,250 2,500 Feet

FIGURE 14

Evacuation Time for The Glens via Penasquitos Drive

Wildland Fire Evacuation Plan for The Glens with The Junipers

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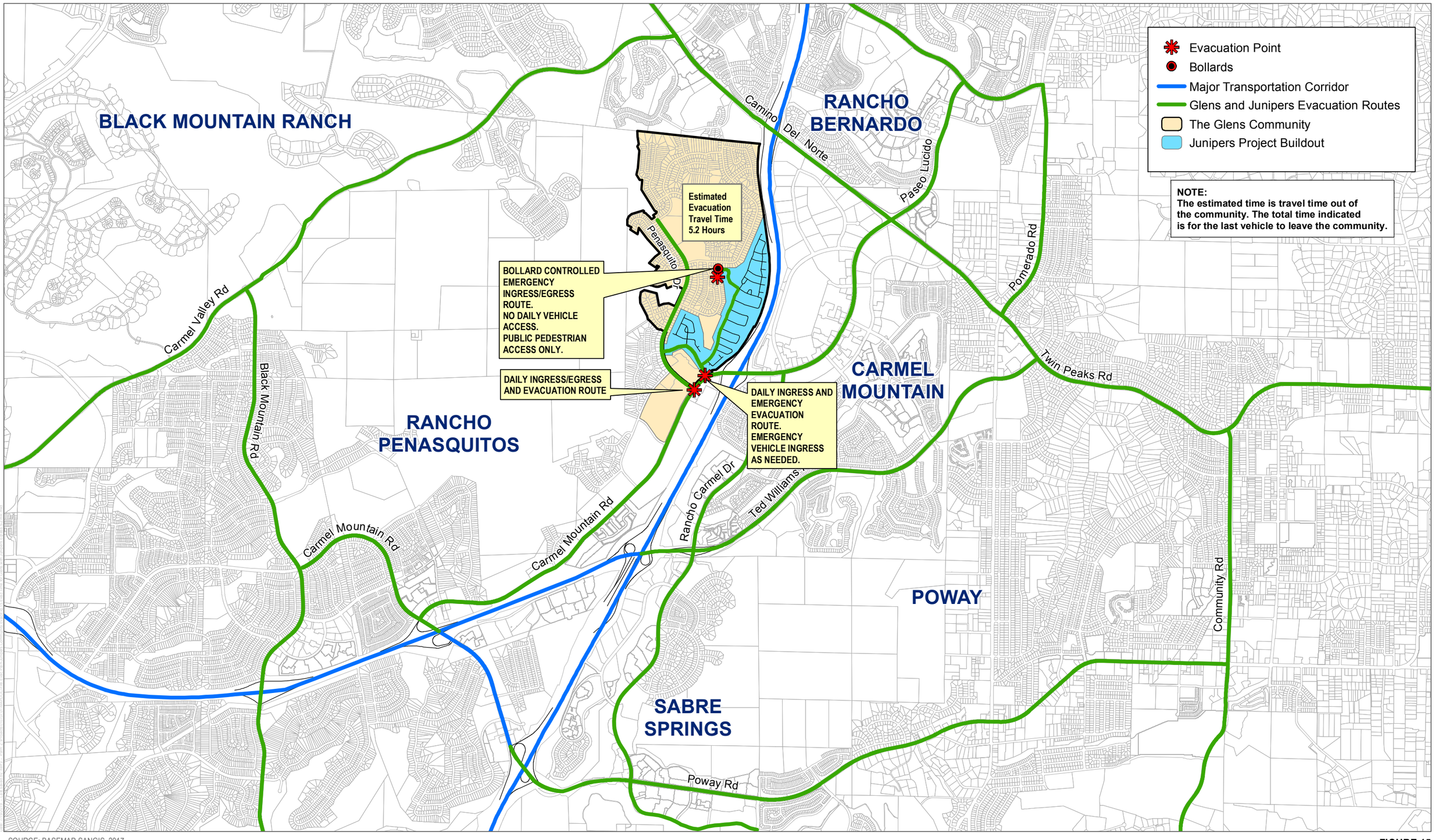

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 1,250 2,500 Feet

FIGURE 15

Evacuation Time for The Glens with the Junipers Emergency Evacuation Route to Carmel Mountain Road

Wildland Fire Evacuation Plan for The Glens with The Junipers

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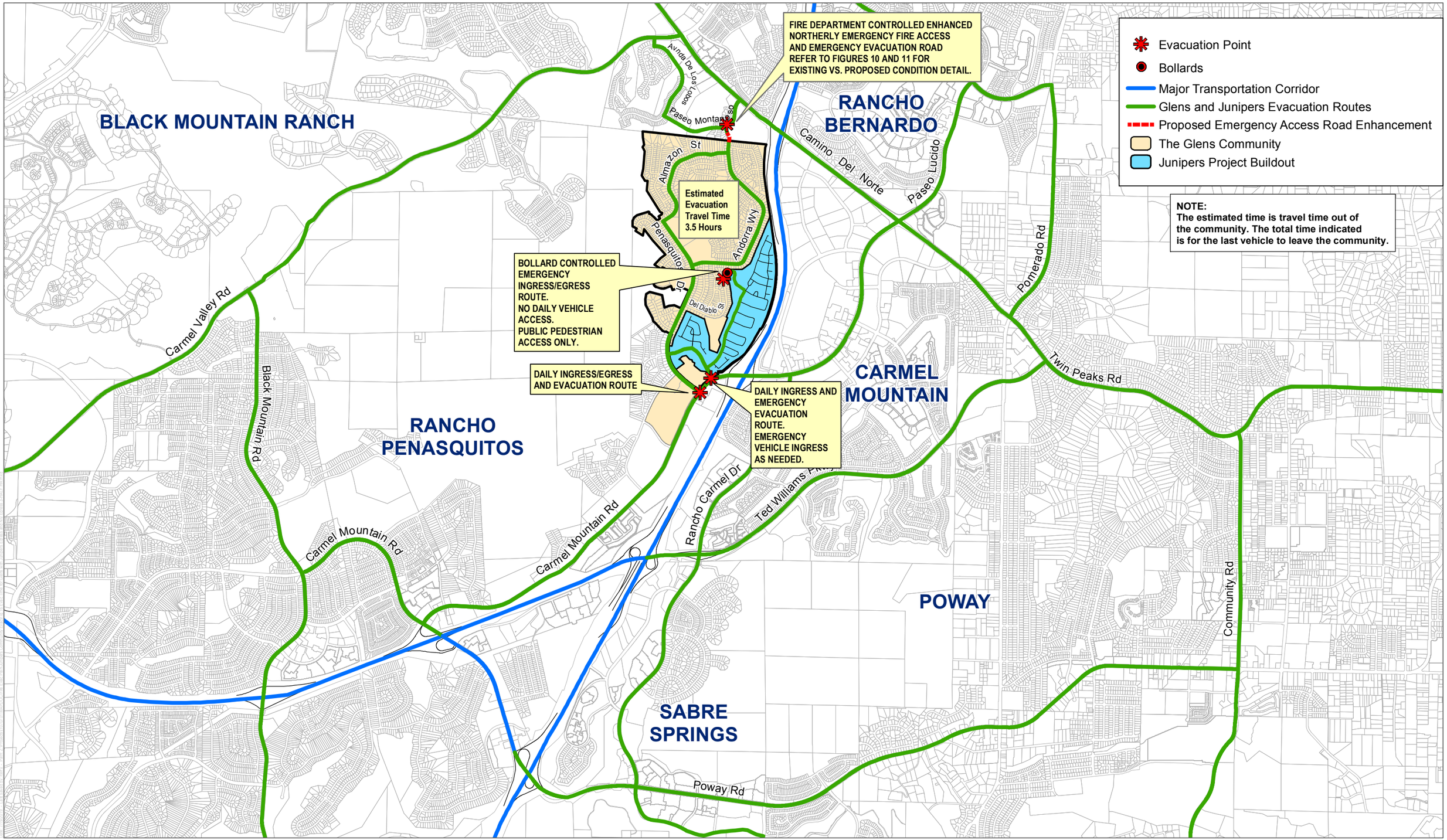

SOURCE: BASEMAP-SANGIS, 2017

DUDEK 0 1,250 2,500 Feet

FIGURE 16

Evacuation Time for the Glens with the Junipers Emergency Evacuation Road to Carmel Mountain Road and Enhanced Northerly Fire Access/Evacuation Route

Wildland Fire Evacuation Plan for The Glens with The Junipers

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4.3 Evacuation Triggers

As identified in this evacuation plan, in case of wildfire, the preferred plan is early evacuation following the principles of "Ready, Set, Go." A conservative approach to evacuations off-site and out of the area is prudent if wildfire may threaten the Glens. As indicated in the 2003, 2007, 2010, 2014, and 2017 fires in San Diego County, along with numerous other large wildfires in southern California over the last decade, early notification and evacuation of residents is an effective means of limiting loss of life. Evacuation planning for wildfires in north San Diego is incident based, but uses Reverse 911 evacuation zones and is executed by law enforcement agencies. Evacuations of specific areas are based on fire behavior (spread rates), area vulnerability, and road conditions.

The status of evacuation decision making, i.e., trigger thresholds, methods, and management has been fine-tuned over the last decade from real-world implementation and evaluation of successes and failures. It is reasonable to assume, based on past examples, that the wildfire evacuation triggers in San Diego are conservative in nature and would typically enable evacuation of threatened areas well before a fire encroaches. However, this evacuation plan provides a contingency plan for the Glens for the rare event that there is not enough time for an off-site evacuation. This contingency plan is discussed in greater detail in the following sections.

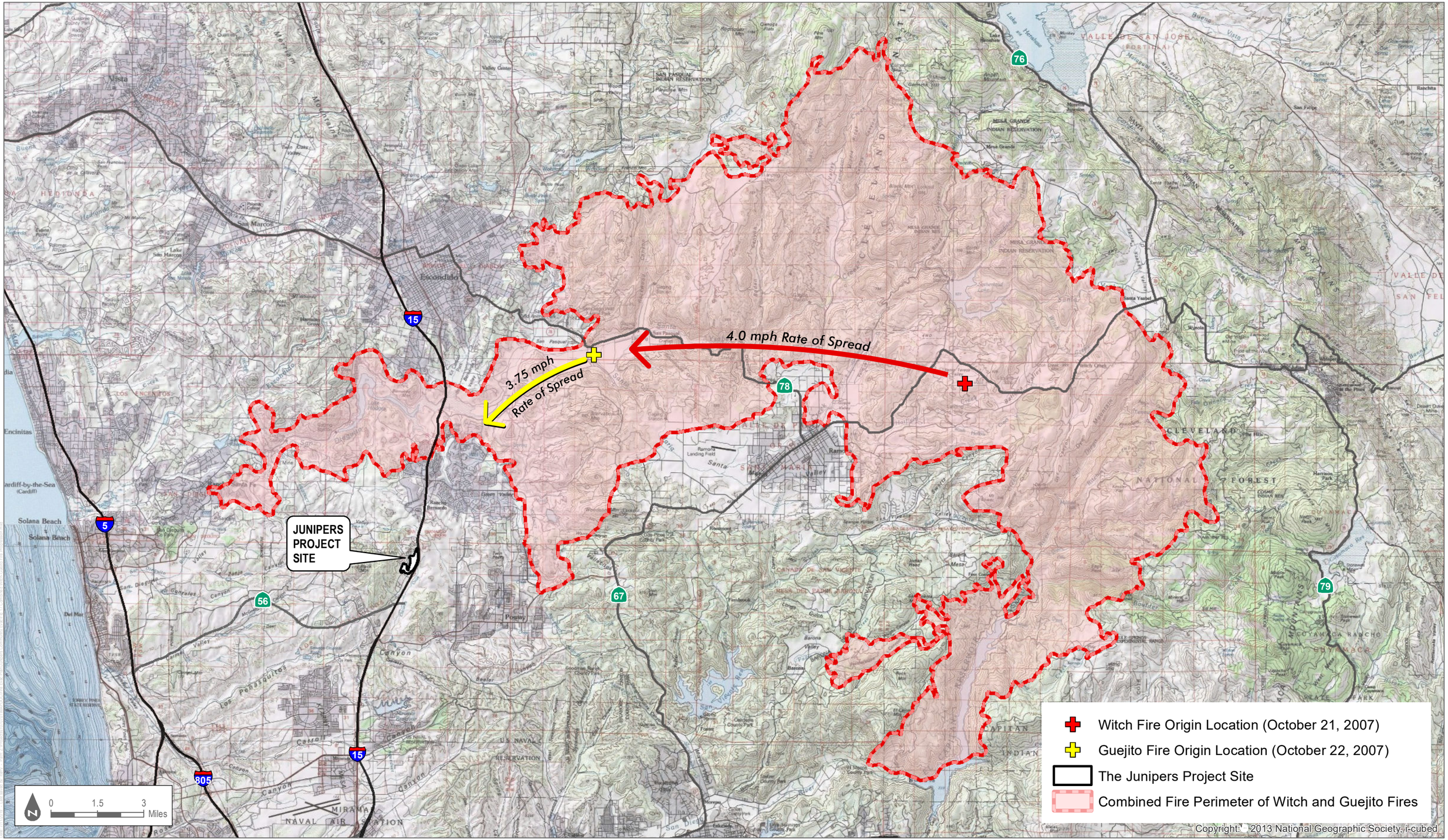
4.3.1 Evacuation Trigger Thresholds

Based on Dudek's review of fire behavior, fire spread rates, fire progression and spotting occurrence during the 2007 Witch Fire (Figure 17) and confirmed by BehavePlus and FlamMap fire behavior modeling, and given the estimated timing required to evacuate the Glens, the recommended trigger for considering an evacuation at the Glens is:

1. **Red Flag Warning Period** (low humidity and high wind): whenever there is an "active wildfire" burning within the open space areas inside the "GREEN" threshold perimeter on Figure 18, or when ordered to evacuate by fire or law officials, whichever occurs first, the Glens residents will be considered for evacuation by Incident managers and law enforcement. If wildfire burns into the area bounded by the "RED" threshold perimeter on Figure 18, evacuations will be re-evaluated and may include a decision to cease evacuations if already occurring in favor of temporary sheltering in properly fitted structures (Junipers). *NOTE: Green perimeter is up to 15 miles from project site and based on 2007 Witch Fire progression, enables up to several hours until fire arrival in the Glens vicinity.*
2. **Non-Red Flag Warning Period** (higher humidity and typical winds): whenever there is an active wildfire burning within the "GREEN" threshold perimeter on Figure 19, or when ordered to evacuate by fire or law enforcement officials, the Glens residents will be

considered for evacuation by Incident managers. If wildfire burns into the area bounded by the "RED" threshold perimeter on Figure 19, evacuations will be re-evaluated and may include a decision to cease evacuations if already occurring in favor of temporary sheltering in site structures. *NOTE: Green perimeter is up to 3 miles from project site and based on fire behavior modeling, enables up to several hours until fire arrival in the Glens vicinity.*

Winds associated with extreme weather can carry airborne embers miles ahead of the active fire front, igniting new fires that exponentially accelerate the fire spread rate and proportionally cut down the available time for evacuation. Conversely, fires occurring during the low fire season, when fuel moisture is higher and it is less likely to experience Santa Ana conditions, wildfires are less frequent and typically burn fewer acres (CAL FIRE 2013).



SOURCE: CALFIRE 2016; SANGIS 2016

FIGURE 17

Combined Witch and Guejito Fire Progression

Wildland Fire Evacuation Plan for The Glens with The Junipers

DUDEK

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SOURCE: AERIAL-SANDAG IMAGERY 2014

DUDEK 0 1.5 3 Miles

FIGURE 18
Extreme Fire Weather Potential Evacuation Decision Trigger Threshold
Wildland Fire Evacuation Plan for The Glens with The Junipers

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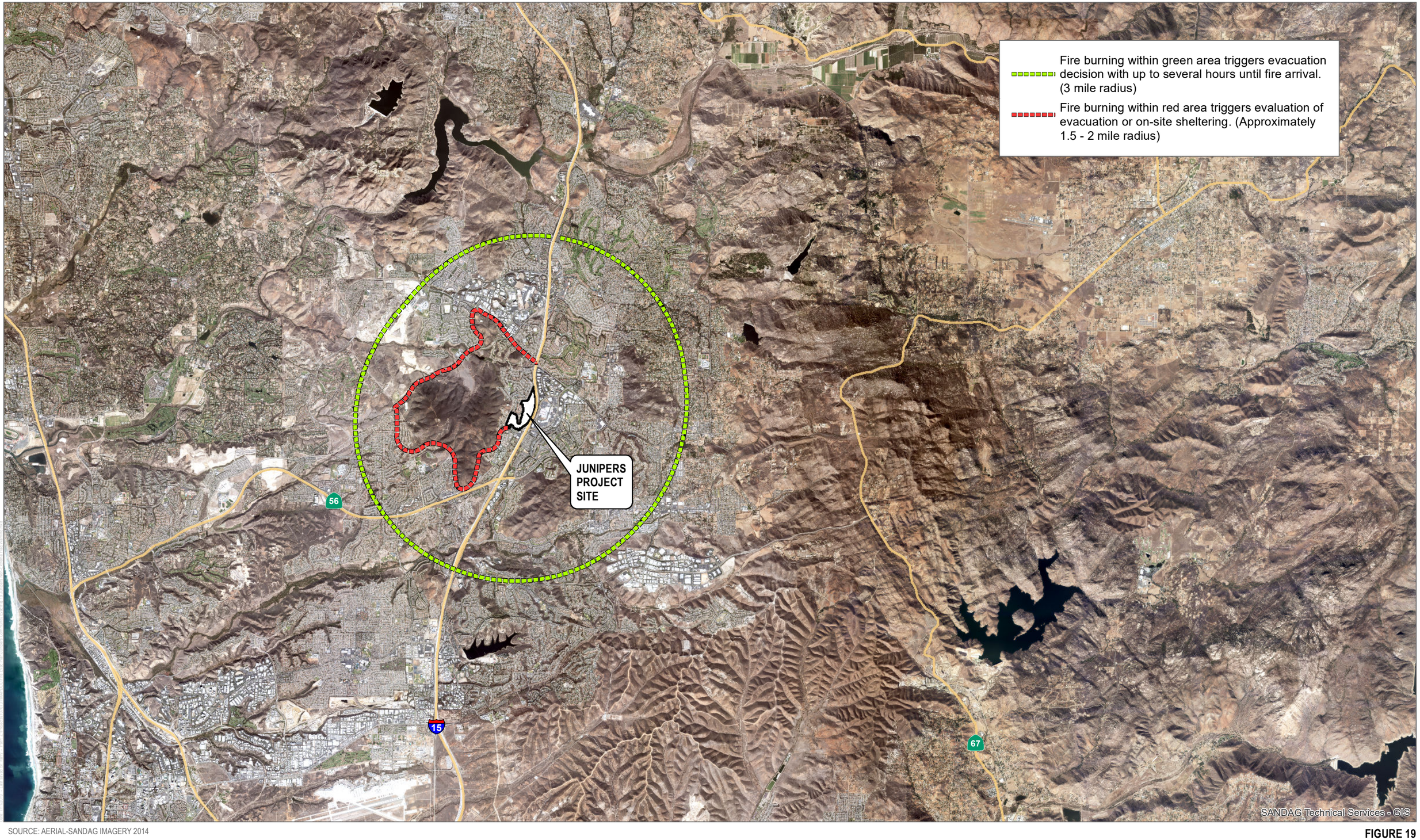

SOURCE: AERIAL-SANDAG IMAGERY 2014

DUDEK

0 1.5 3 Miles

FIGURE 19

Non-Extreme Fire Weather Potential Evacuation Decision Trigger Threshold

Wildland Fire Evacuation Plan for The Glens with The Junipers

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5 THE GLENS WITH THE JUNIPERS RESIDENT WILDFIRE/ EVACUATION AWARENESS

The Junipers Community HOA should be active in its outreach to its residents regarding fire safety and general evacuation procedures. There are aspects of fire safety and evacuation that require a significant level of awareness by the residents and emergency services in order to reduce and/or avoid problems with an effective evacuation. Mitigating potential impediments to successful evacuations requires focused and repeated information through a strong educational outreach program. The Junipers Community HOA should engage residents and coordinate with local fire agencies for fire safety awareness through a variety of methods and provide opportunities for the Glens residents to opt in to this outreach.

This evacuation plan will be accessible on the HOA website. Annual reminder notices will be provided to each homeowner encouraging them to review the plan and be familiar with community evacuation protocols. The HOA will coordinate with local fire agencies to hold an annual fire safety and evacuation preparedness informational meeting. The meeting will be attended by representatives of appropriate fire agencies and important fire and evacuation information reviewed. One focus of these meetings and of the HOA's annual message will be on the importance of each resident to prepare and be familiar with their own "Ready, Set, Go!" evacuation plan. The "Ready, Set, Go!" program is defined at http://www.readysandiego.org/Resources/wildfire_preparedness_guide.pdf, and information about preparing an individual Action Plan is provided in Appendix A of this document.

The focus of the "Ready, Set, Go!" program is on public awareness and preparedness, especially for those living in the wildland-urban interface (WUI) areas. The program is designed to incorporate the local fire protection agency as part of the training and education process in order to ensure that evacuation preparedness information is disseminated to those subject to the potential impact from a wildfire. There are three components to the program:

"READY" – Preparing for the Fire Threat: Take personal responsibility and prepare long before the threat of a wildfire so you and your home are ready when a wildfire occurs. Create defensible space by clearing brush away from your home as detailed in The Junipers FPP (Dudek 2018). Use only fire-resistant landscaping and maintain the ignition resistance of your home. Assemble emergency supplies and belongings in a safe spot. Confirm you are registered for Reverse 911, AlertSanDiego, and Community alert system. Make sure all residents residing within the home understand the plan, procedures and escape routes.

"SET" – Situational Awareness When a Fire Starts: If a wildfire occurs and there is potential for it to threaten The Glens with the Junipers Community, pack your vehicle with your emergency items. Stay aware of the latest news from local media and your local fire department for updated information on the fire. If you are uncomfortable, leave the area.

"GO!" – Leave Early! Following your Action Plan provides you with knowledge of the situation and how you will approach evacuation. Leaving early, well before a wildfire is threatening your community, provides you with the least delay and results in a situation where, if a majority of neighbors also leave early, firefighters are now able to better maneuver, protect and defend structures, evacuate other residents who couldn't leave early, and focus on citizen safety.

"READY SET GO!" is predicated on the fact that being unprepared and attempting to flee an impending fire late (such as when the fire is physically close to your community) is dangerous and exacerbates an already confusing situation. This Glens Wildland Fire Evacuation Plan provides key information that can be integrated into the individual Action Plans, including the best available routes for them to use in the event of an emergency evacuation.

Situation awareness requires a reliable information source. One of the most effective public notification methods is Reverse 911. The San Diego OES operates the reverse 911 notification system that provides a recorded message over land line telephone systems relating to evacuation notices. In addition, OES operates a program known as "Alert San Diego" that has the capability to send emergency notifications over both land lines as well as to cell phones and via text messages. It is up to individual residents to register their cell phones for "Alert San Diego." The registration of cell phones can be done on line at www.ReadySanDiego.com. In addition, the San Diego Emergency Alert System (EAS) is county-wide and broadcasts emergency information via two radio stations KOGO AM 600 and KLSD AM 1360.

As part of The Junipers resident fire awareness and evacuation readiness program, which will be available to Glens' residents who opt in, information will be delivered in a variety of methods. The HOA will be responsible for providing access to the Project's Fire Protection Plan and this Wildland Fire Evacuation Plan, including materials from the "Ready, Set, Go!" Program.

As part of the approval of The Junipers Project, it shall be binding on the HOA to actively participate as a partner with the SDFRD to assist with the coordination and distribution of fire safety information they develop to the greater Glens with the Junipers Community.

6 THE GLENS WITH THE JUNIPERS COMMUNITY EVACUATION PROCEDURES

6.1 Relocation/Evacuation

It is estimated that the minimum amount of time needed to move The Glens population to urbanized and/or designated evacuation areas may require up to 3.5 hours or more under varying constraints that may occur during an evacuation. This does not include additional allowances for the time needed to detect and report a fire, for fire response and on-site intelligence, for phone, patrols, and aerial based notifications, and for notifying special needs citizens.

Wolshon and Marchive (2007) simulated traffic flow conditions in the wildland urban interface (WUI) under a range of evacuation notice lead times and housing densities. To safely evacuate more people, they recommended that emergency managers (1) provide more lead time to evacuees and (2) control traffic levels during evacuations so that fewer vehicles are trying to exit at the same time.

Wildfire emergency response procedures will vary depending on the type of wildfire and the available time in which decision makers (IC, SDFRD, CAL FIRE, SDSD, and/or County Office of Emergency Management) can assess the situation and determine the best course of action. Based on the Glens with the Junipers, its road network, and the related fire environment, the primary type of evacuation envisioned is an orderly, pre-planned evacuation process where people are evacuated from The Glens with the Junipers community to more urban areas further from an encroaching wildfire (likely to urban areas south (and west) or north well before fire threatens. This type of evacuation must include a conservative approach to evacuating, i.e., when ignitions occur and weather is such that fires may spread rapidly, evacuations should be triggered on a conservative threshold that includes time allowances for unforeseen, but possible, events that would slow the evacuation process.

Evacuation is considered by many to offer the highest level of life protection to the public, but it can result in evacuees being placed in harm's way if the time available for evacuation is insufficient (Cova et al. 2011). An example of this type of evacuation, which is highly undesirable from a public safety perspective, is an evacuation that occurs when fire ignites close to vulnerable communities. This type of situation is inherently dangerous because there is generally a higher threat to persons who are in a vehicle on a road when fire is burning in the immediate area than in a well-defended, ignition resistant home. Conditions may become so poor, that the vehicle drives off the road or crashes into another vehicle, and flames and heat overcome the occupants. A vehicle offers little shelter from a wildfire if the vehicle is situated near burning vegetation or catches fire itself. This type of evacuation must be considered a very undesirable situation by law and fire officials in all but the rarest situations where late evacuation may be safer than seeking temporary

refuge in a structure (such as when there are no nearby structures, the structure(s) is/are already on fire, or when there is no other form of refuge). This would be possible within the Junipers structures, but the greater Glens structures, as previously discussed, are less desirable due to their higher vulnerability to ignition.

The third potential type of evacuation is a hybrid of the first two. In cases where evacuation is in process and changing conditions result in a situation that is considered unsafe to continue evacuation, it may be advisable to direct evacuees to pre-planned temporary refuge locations, including their own home if it is ignition resistant and defensible, such as those at The Junipers. As with the second type of evacuation discussed above, this situation is considered highly undesirable, but the evacuation pre-planning must consider these potential scenarios and prepare decision makers at the IC level and at the field level for enacting a contingency to evacuation when conditions dictate.

Indications from past fires and related evacuations, in San Diego County and throughout Southern California, which have experienced increasingly more frequent and larger fires, are that evacuations are largely successful, even with a generally unprepared populace. It then stands to reason that an informed and prepared populace would minimize the potential evacuation issues and related risk to levels considered acceptable from a community perspective.

Evacuation orders or notifications are often triggered based on established and pre-determined model buffers, which are based on topography, fuel, moisture content of the fuels and wind direction. Evacuations are initiated when a wildfire reaches or crosses one of these pre-determined buffers. Evacuations can also be very fluid. The IC, law enforcement and OES would jointly enact evacuations based on fire behavior.

6.2 The Glens with the Junipers Community Evacuation Baseline

For purposes of this Wildland Fire Evacuation Plan, the first and most logical choice for all of the residents and guests within the boundaries of The Glens with the Junipers' Community is to adhere to the principals and practices of the "Ready, Set, Go!" Program previously mentioned in this document. As part of this program, it is important that each household develop a plan that is clearly understood by all family members and participates in the educational and training programs sponsored by The Junipers HOA and the SDFRD. In addition, it is imperative that the "Ready, Set, Go!" program information be reviewed on a routine basis along with the accompanying maps illustrating evacuation routes, temporary evacuation points and pre-identified evacuation points. It must be kept in mind that conditions may arise that will dictate a different evacuation route than the normal roads used on a daily basis.

Residents are urged to evacuate as soon as they are notified to do so or earlier if they feel uncomfortable. Directions on evacuation routes will be provided in most cases, but when not provided, The Glens' and Junipers' community residents will proceed according to known available routes away from the encroaching fire as detailed in Section 1 of this report. Residents are cautioned not to rely on navigation aid apps which may inadvertently lead them toward an oncoming fire. Depending on the type of emergency and the resulting evacuation, it could take as long as three hours or more to complete a Glens with the Junipers community-wide evacuation, based on road capacities and competing use of the roads by residents from other areas.

Note: this evacuation plan will require adjustment and continued coordination by The Junipers HOA and/or developer and Fire/Law enforcement agencies during each of the construction phases. With each phase, the evacuation routes may be subject to changes with the addition of both primary and secondary evacuation routes.

6.3 Civilian and Firefighter Evacuation Contingency

As of this document's preparation, no community in California has been directed to shelter-in-place during a wildland fire. Even the communities in Rancho Santa Fe, California, which are designed and touted as shelter in place communities, were evacuated during the 2007 Witch Creek Fire. This is not to say that people have not successfully sheltered-in-place during wildfire, where there are numerous examples of people sheltering in their homes, in hardened structures, in community buildings, in swimming pools, and in cleared or ignition resistant landscape open air areas. The preference will always be early evacuation following the "Ready, Set, Go!" model, but there exists the potential for unforeseen civilian evacuation issues, and having a contingency plan will provide direction in these situations that may result in saved lives.

Potential problems during wildfire evacuation from The Glens Community include:

- Fires that prevent safe passage along planned evacuation routes (Peñasquitos Drive) improved by Junipers project which allows portal onto Carmel Mountain Road through the Junipers Project and opens up a northerly route of discharge via Andorra way improvements (previously referenced Figures 9 and 10)
- Inadequate time to safely evacuate
- Fire evacuations during rush hour traffic or when large events are occurring
- Blocked traffic due to accidents or fallen tree(s) or power pole(s)
- The need to move individuals who are unable to evacuate

It is recommended that local law enforcement and fire agencies conduct concerted pre-planning efforts focusing on evacuation contingency planning for civilian populations when it is considered safer to temporary seek a safer refuge than evacuation. The Junipers' structures would allow for the possibility of temporary sheltering while the Glens' structures would not typically be considered ignition resistant and therefore, not appropriate for temporary refuge.

6.3.1 Safety Zones

The International Fire Service Training Association (IFTSA; Fundamentals of Wildland Fire Fighting, 3rd Edition) defines Safety Zones as areas mostly devoid of fuel, which are large enough to assure that flames and/or dangerous levels of radiant heat will not reach the personnel occupying them. Areas of bare ground, burned over areas, paved areas, and bodies of water can all be used as safety zones. The size of the area needed for a safety zone is determined by fuel types, its location on slopes and its relation to topographic features (chutes and saddles) as well as observed fire behavior. Safety zones should never be located in topographic saddles, chutes or gullies. High winds, steep slopes or heavy fuel loads may increase the area needed for a Safety Zone.

The National Wildland Fire Coordinating Groups (NWFCG), Glossary of Wildland Fire Terminology provides the following definitions for Safety Zone and Escape routes:

> *Safety Zone*. An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuelbreaks; they are greatly enlarged areas, which can be used with relative safety by firefighters and their equipment in the event of blowup in the vicinity.

According to NWFCG, Safety Zone(s):

- Must be survivable without a fire shelter
- Can include moving back into a clean burn
- May take advantage of natural features (rock areas, water, meadows)
- Can include Constructed sites (clear-cuts, roads, helispots)
- Are scouted for size and hazards
- Consider the topographic location (larger if upslope)
- Should be larger if downwind

- Should not include heavy fuels
- May need to be adjusted based on site specific fire behavior

The definition for a safety zone includes provisions for separation distance between the firefighter and the flames of at least four times the maximum continuous flame height. Distance separation is the radius from the center of the safety zone to the nearest fuels. For example, considering worst-case 34-foot tall flame lengths that may be possible in open space near this site (Dudek 2017), then a 136 feet separation would be required, and potentially more if there were site-specific features that would result in more aggressive fire behavior. The calculated 34 foot tall flame lengths are not directly adjacent this site and are longer than the fire behavior modeling results for fuels on and directly adjacent the Project's developed area.

Safety zones are not readily available within the Glens Community, but the Rolling Hills Elementary School offers the best possibility for a safety zone for firefighter use. The Junipers Community will include the ability for firefighters to seek safety zones within the ignition resistant landscapes, but identification of other potential safety zones will require additional focused study by SDFRD and other fire and law enforcement agencies.

6.3.2 Temporary Firefighter Refuge Areas

Firescope California (Firefighting Resources of Southern California Organized for Potential Emergencies) was formed by legislative action to form a partnership between all facets of local, rural, and metropolitan fire departments, CAL FIRE and federal fire agencies. Firescope defines a contingency plan when it is not possible to retreat to a safety zone. This contingency includes establishment of firefighter temporary refuge areas (TRAs), which are defined as:

> A preplanned area where firefighters can immediately take refuge for temporary shelter and short-term relief without using a fire shelter in the event that emergency egress to an established Safety Zone is compromised.

Examples of a TRA may include the lee side of a structure, inside of a structure, large lawn or parking areas, or cab of fire engine, amongst others. Differences between a TRA and a Safety Zone is that TRA's are closer to the immediate firefighting area, are considered a contingency to being able to get to a Safety Zone, do not include a requirement for a large area set back four times the flame lengths of adjacent fuels, and cannot be feasibly pre-planned until firefighters arrive on-scene and size up the situation.

Firescope appropriately notes that although Safety Zones and viable Escape Routes shall always be identified in the WUI environment, they may not be immediately available should the fire behavior increase unexpectedly. Often a TRA is more accessible in the WUI environment. A TRA

will provide temporary shelter and short-term relief from an approaching fire without the use of a fire shelter and allow the responders to develop an alternate plan to safely survive the increase in fire behavior.

TRAs are pre-planned areas (planned shortly after firefighters arrive on scene) where firefighters may take refuge and temporary shelter for short-term thermal relief, without using a fire shelter in the event that escape routes to an established safety zone are compromised. The major difference between a TRA and a safety zone is that a TRA requires another planned tactical action, i.e., TRAs cannot be considered the final action, but must include self-defense and a move out of the area when the fire threat subsides. A TRA should be available and identified on site at a defended structure. TRAs are NOT a substitute for a Safety Zone. TRA pre-planning is difficult, at best because they are very site and fire behavior specific. For The Glens Community, TRAs would likely include navigating into any of the Juniper neighborhoods within the more densely developed areas where firefighters would be separated from the unmaintained wildland fuels by wide areas including site-wide fuel modification zones maintained landscapes, ignition resistant residences, and wide roads that offer numerous opportunities for TRA.

The entire developed portions of The Junipers neighborhoods, but especially the interior areas of neighborhoods, are considered TRAs. This is an important concept because it offers last-resort, temporary refuge of firefighters, and in a worst-case condition, residents. This approach would be consistent with Firescope California (2013), which indicates that firefighters must determine if a safe evacuation is appropriate and if not, to identify safe refuge for those who cannot be evacuated, including civilians.

Each of the site's residences that can be considered for TRA include the following features:

- Ignition Resistant Construction
- Annual inspections by 3rd party fuel modification zone inspectors
- Wide roadways with fire hydrants
- Maintained landscapes and roadside fuel modification
- Ember resistant vents
- Interior fire sprinklers

Because there is the possibility that evacuation of the Glens and Junipers may be less safe than temporarily refuging on site, such as during a fast-moving, wind driven fire that ignites nearby, including temporary refuge within some properly designed, constructed and maintained residences, on site is considered a contingency plan for The Glens Community. This concept

is considered a component of the "Ready, Set, Go!" model as it provides a broader level of "readiness" should the ability to execute an early evacuation be negated by fire, road congestion, or other unforeseen issues. Note: this approach would be considered a last-resort contingency during wildfire with the primary focus being on early evacuation. The decision for evacuation or temporarily refuging on site will be made by responding law enforcement and/or fire personnel.

6.4 Social Aspects of Wildfire Evacuation

Orderly movement of people is the result of planning, training, education, and awareness, all of which are promoted in San Diego County. Evacuation has been the standard term used for emergency movement of people and implies imminent or threatening danger. The term in this Wildland Fire Evacuation Plan, and under the "Ready, Set, Go!" concept, indicates that there is a perceived threat to persons and movement out of the area is necessary, but will occur according to a pre-planned and practiced protocol, reducing the potential for panic.

Citizen reactions may vary during an evacuation event, although several studies indicate that orderly movement during wildfire and other emergencies is not typically unmanageable. Evacuation can be made even less problematic through diligent public education and emergency personnel training and familiarity. Social science research literature indicates that reactions to warnings follow certain behavior patterns that are defined by people's perceptions (Aguirre 1994; Drabek 1991; Fitzpatrick and Mileti 1994; Gordon 2006; Collins 2004) and are not unpredictable. In summary, warnings received from credible sources by people who are aware (or have been made aware) of the potential risk, have the effect of an orderly decision process that typically results in successful evacuation. This success is heightened when evacuations are not foreign to residents (Quarantelli and Dynes 1977; Lindell and Perry 2004) as will occur within the Glens and Junipers Area. Further, in all but the rarest circumstances, evacuees will be receiving information from credible sources during an evacuation. It would be anticipated that law enforcement and/or fire personnel would be on site to help direct traffic and would be viewed by evacuees as knowledgeable and credible. The importance of training these personnel cannot be understated and annual education and training regarding fire safety and evacuation events will be essential for successful future evacuations.

6.4.1 Evacuation of Special Populations

Vogt (1990 and 1991) defines special populations as those groups of people who, because of their special situations or needs, require different planning strategies from those of the general population. Special needs populations include those in institutions or special facilities, those with disabilities in homes, those who need care, children, and others who

cannot provide for their own evacuation if necessitated. The special needs population is concentrated in facilities, but is also widespread in terms of facility locations and those who live in residences. Special needs populations in The Glens with the Junipers Community include the hearing or visually impaired, foreign speaking, visitors passing through the area, temporary visitors such as day workers, and the non-ambulatory confined to residences either temporarily or permanently.

Tourists and temporary visitors may not have knowledge of the area's fire hazard, they may not know how to react in a fire emergency, and they may not understand what they are being told to do. Conversely, this segment of the population would typically be easier to evacuate quickly as they have no possessions or pets they would need to prepare. They can get in their cars and be directed out of the area.

6.4.2 Animal Evacuations

Animal evacuations present a host of challenges that may affect the overall successful movement of people and their possessions out of harm's way. For example, livestock owners do not always have the means to load and trailer their livestock out of the area. Further, most wildfire evacuation relief shelters or commercial lodging facilities do not allow people to bring in pets or other animals. Sorensen and Vogt (2006) indicate that an issue receiving increasing attention is what evacuees do with pets or other animals such as livestock when they leave their homes and whether having pets or animals impacts their decision to evacuate.

Neither the Glens nor the Junipers accommodate livestock on-site. Household pets are a common occurrence.

6.4.3 Re-Entry Procedures

An important component of evacuations is the citizen re-entry process. Guidance and procedures to ensure a coordinated, safe, and orderly re-entry into impacted communities following an incident is provided in the County of San Diego Re-Entry Protocol.

Re-entry will be initiated by the IC/Unified Command of the Incident Management Team, with the support of the Director of Emergency Services, the OA EOC Director, and the Operations Section Chief at the OA EOC. In most cases, the OA EOC will remain activated until full re-entry is complete. In the event that the OA EOC has been deactivated, the IC or the Liaison Officer of the Incident Management Team will initiate re-entry procedures.

The IC will designate a Re-Entry Coordinator and the Operations Section Chief of the OA EOC will coordinate with and support the re-entry coordinator. The Re-Entry Coordinator is responsible for coordinating the re-entry procedures with all involved agencies and ensuring effective communication.

The impacted areas must be thoroughly investigated to ensure it is safe for residents to return and normal operations have been restored.

The public will be notified of the re-entry status through the notification measures previously mentioned in this annex, including SDCountyEmergency.com, SDEmergency App for smart phones, emergency broadcast radio, television, press releases, informational phone lines such as 2-1-1, community briefings, and informational updates at shelters.

Once evacuees are permitted to return, it is important that procedures are established to properly identify residents and critical support personnel, as well as ensure the legitimacy of contractors, insurance adjustors, and other personnel. Re-entry points should be staffed by law enforcement personnel.

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7 LIMITATIONS

This Wildland Fire Evacuation Plan has been developed based on City of San Diego wildfire and evacuation standards and the San Diego City and County Evacuation Annexes and is specifically intended as a guide for evacuations for The Glens with the Junipers Community. This plan provides basic evacuation information that will familiarize The Glens with the Junipers Community residents with the evacuation route options that may be available to them during an emergency. However, because emergencies requiring evacuation have many variables and must be evaluated on a case-by-case basis, real-time law enforcement and fire personnel/agencies' decision-making and direction during an emergency requiring evacuation would supersede this plan.

This plan analyzes the Glens' evacuation times currently and with the Junipers, including with the enhanced fire department controlled emergency Fire Access to the north improved and made reliably available during emergencies requiring evacuation. The estimated evacuation times are based on several assumptions as detailed in this plan. However, actual evacuation times may be faster or slower than the estimates, depending on the type of emergency, the extent of the evacuation, the time of day, and other factors. A Glens and Junipers collective, Community–wide evacuation would include congested roads in its existing condition that are improved, but still congested, with the Junipers project. Congested roads are normal in any urban setting when a mass evacuation is declared unless it is managed and evacuation areas are staggered to reduce the potential traffic surges that can significantly impact evacuations. Therefore, even though the additional evacuation road to the southeast through the Junipers project improves the evacuation process substantially from the existing Glens configuration, there would likely still be congestion and delays.

This Wildland Fire Evacuation Plan promotes the "Ready, Set, Go!" model, adopted by County OES, CAL FIRE, and many fire agencies statewide, including SDCFA. The goal is to raise agency and citizen awareness of potential evacuation issues and get a majority of the public "Ready" by taking a proactive stance on preparedness, training drills, visitor education, and evacuation planning efforts. The Glens and Juniper Communities' populace will be "Set" by closely monitoring the situation whenever fire weather occurs and/or when wildland fire occurs, and elevating pre-planned protocol activities and situation awareness. Lastly, officials will implement the plan and mandate that populations "Go" by executing pre-planned evacuation procedures in a conservative manner, i.e., evacuation will occur based on conservative decision points, as proposed in this evacuation plan or when directed by fire and law enforcement personnel, whichever is more conservative. The preferred alternative will always be early evacuation. However, there may be instances when evacuation is not possible, is not considered safe, or is not an option based on changing conditions. For example, should a fire occur and make evacuation from the Project Area

ill advised, a contingency plan for residents should be available. This contingency would include moving people to pre-designated TRAs until it is safe to evacuate or the threat has been mitigated.

Ultimately, it is the intent of this Wildland Fire Evacuation Plan to guide the implementation of evacuation procedures such that the process of evacuating people from the Glens and Junipers is facilitated in an efficient manner and according to a pre-defined evacuation protocol as well as providing a contingency option of temporarily refuging (for the Junipers), if evacuation is considered less safe. The Glens and Junipers Community residents will be aware of this evacuation plan as the Junipers' HOA will post it on its Website and provide reminders to residents on at least an annual basis. This educational outreach will result in a populace that understands the potential for evacuations and the routes and options that may be presented to them.

During extreme fire weather conditions, there are no guarantees that a given structure will not burn or that evacuations will be successful all of the time. Wildfires may occur in the area that could damage property or harm persons. However, successful implementation of the procedures outlined in this Wildland Fire Evacuation Plan will provide for an informed populace regarding evacuations.

This Wildland Fire Evacuation Plan does not provide a guarantee that all persons will be safe at all times because of the procedures discussed. There are many variables that may influence overall safety. This Plan provides a summary for implementation of standard evacuation protocols, suggested roadway enhancements, and public outreach, which should result in reduced wildfire related risk and hazard. Even then, fire can compromise the procedures through various, unpredictable ways. The goal is to reduce the likelihood that the system is compromised through implementation of the elements of this Plan and regular occurring program maintenance and updates.

It is recommended that the evacuation process is carried out with a conservative approach to fire safety. This approach must include establishing and maintaining The Glens Community fuel modification landscape on a property by property basis, infrastructural, and ignition resistant construction components (retrofitting as possible) according to the appropriate standards and embracing a "Ready, Set, Go!" stance on evacuation. Accordingly, evacuation of the wildfire areas should occur according to pre-established evacuation decision points, or as soon as they receive notice to evacuate, which may vary depending on many environmental and other factors. Fire is a dynamic and somewhat unpredictable occurrence and it is important for anyone living at the wildland-urban interface to educate themselves on practices that will improve safety.

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APPENDIX A

"Ready, Set, Go!"
Resident Wildland Fire Action Guide

READY, SET, GO!

YOUR PERSONAL WILDLAND FIRE ACTION GUIDE

SAN DIEGO FIRE RESCUE EST. 1889

READY, SET, GO!

READY, SET, GO!

Wildland Fire Action Guide

Saving Lives and Property
through Advance Planning

Fire seaon is a year-round reality in our region, requiring firefighters and residents to be on heightened alert for the threat of wildland fire.

With our many canyons, San Diego has hundreds of linear miles of Wildland Urban Interface (WUI). Each year, wildland fires consume hundreds of homes in the WUI. Studies show that as many as 80 percent of those homes could have been saved if their owners had followed a few simple fire-safe practices. In addition, wildland fire-related deaths occur because people wait too long to leave their home.

The San Diego Fire-Rescue Department takes every precaution to help protect you and your property from wildland fire. However, the reality is that in a major wildland fire event, there will simply not be enough fire resources or firefighters to defend every home.

Successfully preparing for a wildland fire enables you to take personal responsibility for protecting yourself, your family and your property. In this Action Guide, we hope to provide the tips and tools you need to prepare; to know what to do when a fire starts; and to leave early.

The Ready, Set, Go! Program works in complementary and collaborative fashion with the Firewise® Communities Program and other wildland fire public education efforts.

Fire has always been a natural occurrence in Southern California. Our hills and canyons burned periodically long before we built homes here. Wildland fire, fueled by a build-up of dry vegetation and driven by seasonal Santa Ana winds, are extremely dangerous and difficult to control. Many homes have been built and landscaped without fully understanding what a fire can do and few families are adequately prepared for a quick evacuation.

It is not a question of **if** but **when** the next major wildland fire will occur. Advance planning and preparation are our best defense. We hope you find the tips in the following pages helpful and take them to heart.

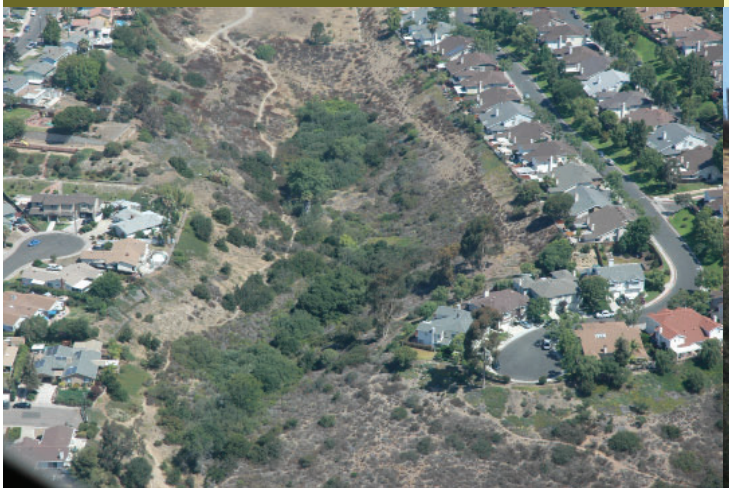
Brian Fennessy, Fire Chief
San Diego Fire-Rescue Department

INSIDE

This publication was produced by the San Diego Fire-Rescue Department in a cooperative effort with the International Association of Fire Chiefs. The national RSG! Program is managed by the International Association of Fire Chiefs , funded by the United States Department of Agriculture Forest Service, the United States Department of the Interior, with partner support from the United States Fire Administration, Firewise Communities Program and the Insurance Institute for Business and Home Safety. For more information on the RSG! Program, please visit www.wildlandfireRSG.org.

Living in the Wildland Urban Interface and the Ember Zone

Ready, Set, Go! begins with a house that firefighters can defend



Defensible Space Works!

If you live next to a naturally vegetated area, often called the Wildland Urban Interface, provide firefighters with 100 feet of defensible space to protect your home. The buffer zone you create by removing weeds, brush and thinning vegetation helps keep the fire away from your home and reduces the risk from flying embers. Firewise Communities and the Fire-Rescue Department's brush management guidelines provide valuable guidance on property enhancements.

A home within one mile of a natural area is in the Ember Zone. Wind-driven embers can attack your home. You and your home must be prepared well before a fire occurs. Ember fires can destroy homes or neighborhoods far from the actual flame front of the wildland fire.

What is Defensible Space?

Defensible space is the required space between a structure and the wildland area that, under normal conditions, creates a sufficient buffer to slow or halt the spread of wildland fire to a structure. It protects the home from igniting due to direct flame or radiant heat. Defensible space is essential for structure survivability during wildland fire conditions. For more information about defensible space zones and preparedness techniques within each, visit the San Diego Fire-Rescue website at http://www.sandiego.gov/fire/services/brush

ZONE ONE

Zone One typically extends 35 feet from your home.

- Must be permanently irrigated to maintain succulent growth.
- Is primarily low-growing plant material, with the exception of trees. Plants shall be low-fuel and fire-resistive.
- Trim tree canopies regularly to remove dead wood and keep branches a minimum of 10 feet from structures, chimney outlets and other trees.
- Remove leaf litter (dry leaves/pine needles) from yard, roof and rain gutters.
- Relocate woodpiles and other combustible materials into Zone Two.
- Remove combustible material and vegetation from around and under decks.
- Remove or prune vegetation near windows.
- Remove “ladder fuels” (low-level vegetation that would allow the fire to spread from the ground to the tree canopy). Create a separation between low-level vegetation and tree branches by reducing the height of the vegetation and/or trimming low branches.

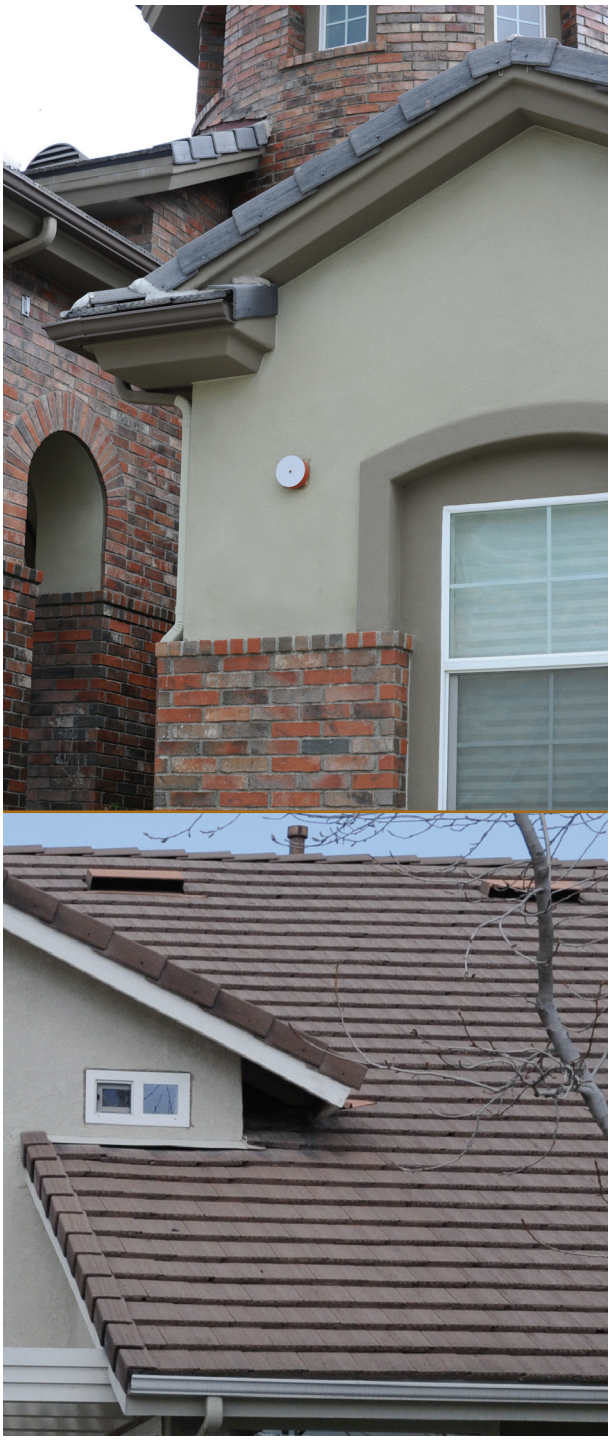
ZONE TWO

Zone Two typically extends 35 to 100 feet from your home.

- Minimize the chance of fire jumping from plant to plant by removing dead material and removing or thinning vegetation seasonally. The minimum spacing between vegetation is three times the dimension of the plant.
- There should be no permanent irrigation in Zone Two.
- Remove “ladder fuels.”
- Cut or mow annual grass down to a maximum height of 2 inches.
- Trim tree canopies regularly to keep branches a minimum of 10 feet from other trees.
- Retain a canopy coverage of 50%.

What is a Hardened Home?

Construction materials and the quality of the defensible space surrounding a home are what gives it the best chance to survive a wildland fire. Embers from a wildland fire can find the weak link in your home's fire protection scheme and gain the upper hand because of a small, overlooked or seemingly inconsequential factor. However, there are measures you can take to safeguard your home from wildland fire. While you may not be able to accomplish all the measures listed below, each will increase your home's, and possibly your family's, safety and survival during a wildland fire.



ROOFS

Roofs are the most vulnerable surface where embers land because they can lodge and start a fire. Roof valleys, open ends of barrel tiles and rain gutters are all points of entry.

EAVES

Embers can gather under open eaves and ignite exposed wood or other combustible material.

VENTS

Embers can enter the attic or other concealed spaces through vents and ignite combustible materials. Vents in eaves and cornices are particularly vulnerable, as are any unscreened vents.

WALLS

Combustible siding or other combustible or overlapping materials provide surfaces or crevices for embers to nestle and ignite.

WINDOWS and DOORS

Embers can enter through open windows and gaps in doors, including garage doors. Plants or combustible storage near windows can ignite from embers and generate heat that can break windows and/or melt combustible frames.

BALCONIES and DECKS

Embers can collect in or on combustible surfaces or the undersides of decks and balconies, ignite the material and enter the home through walls or windows.

To harden your home further, consider protecting your home with a residential fire sprinkler system. In addition to extinguishing a fire started by an ember that enters your home, it also protects you and your family year-round from any fire that may start in your home.

Tour a Wildland Fire Prepared Home

Home Site and Yard: Ensure you have at least a 100-foot radius of defensible space (thinned vegetation) around your home.

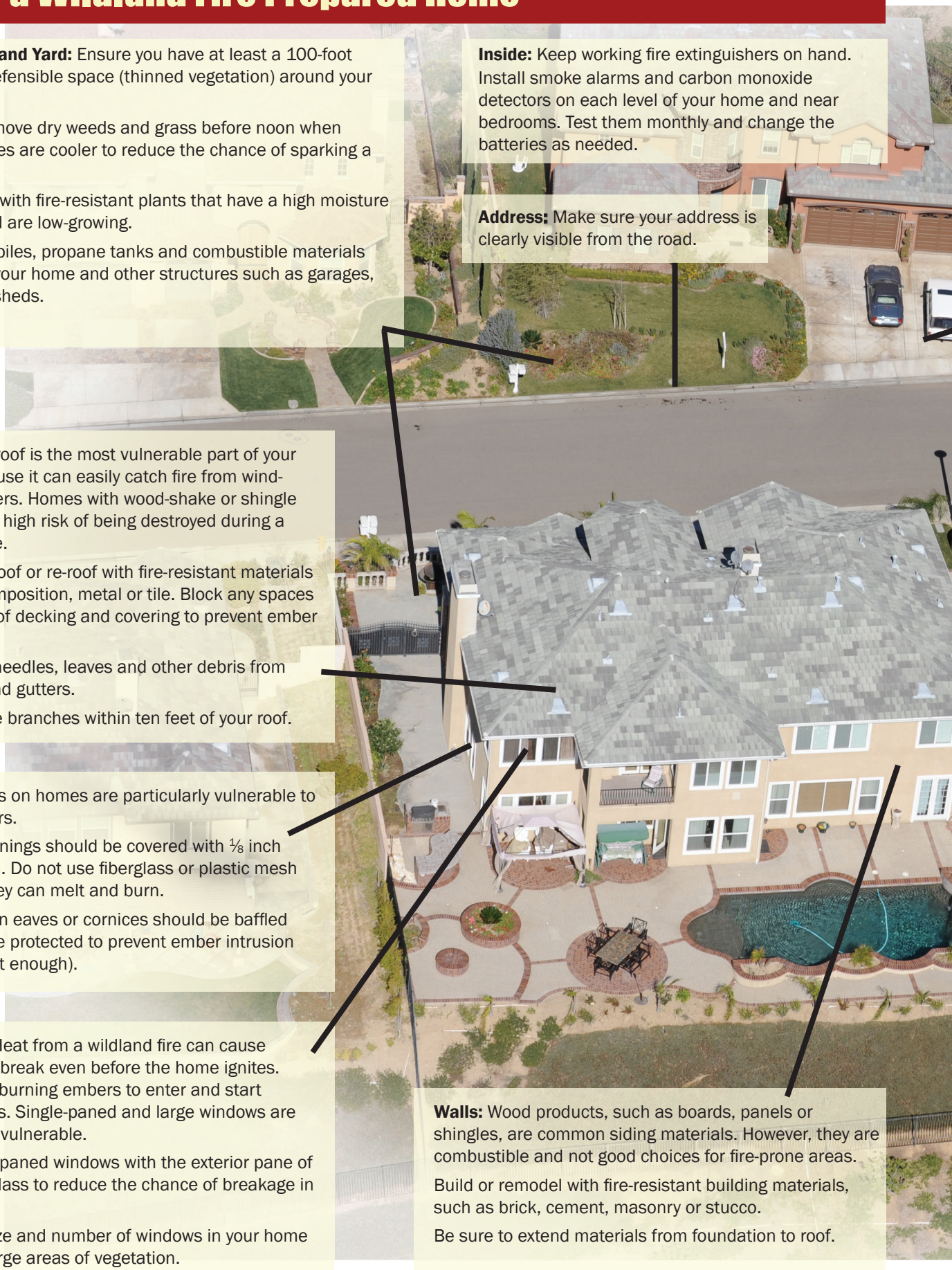
Cut and remove dry weeds and grass before noon when temperatures are cooler to reduce the chance of sparking a fire.

Landscape with fire-resistant plants that have a high moisture content and are low-growing.

Keep woodpiles, propane tanks and combustible materials away from your home and other structures such as garages, barns and sheds.

Inside: Keep working fire extinguishers on hand. Install smoke alarms and carbon monoxide detectors on each level of your home and near bedrooms. Test them monthly and change the batteries as needed.

Address: Make sure your address is clearly visible from the road.



Roof: Your roof is the most vulnerable part of your home because it can easily catch fire from wind-blown embers. Homes with wood-shake or shingle roofs are at high risk of being destroyed during a wildland fire.

Build your roof or re-roof with fire-resistant materials such as composition, metal or tile. Block any spaces between roof decking and covering to prevent ember intrusion.

Clear pine needles, leaves and other debris from your roof and gutters.

Cut any tree branches within ten feet of your roof.

Vents: Vents on homes are particularly vulnerable to flying embers.

All vent openings should be covered with ⅛ inch metal mesh. Do not use fiberglass or plastic mesh because they can melt and burn.

Attic vents in eaves or cornices should be baffled or otherwise protected to prevent ember intrusion (mesh is not enough).

Windows: Heat from a wildland fire can cause windows to break even before the home ignites. This allows burning embers to enter and start internal fires. Single-paned and large windows are particularly vulnerable.

Install dual-paned windows with the exterior pane of tempered glass to reduce the chance of breakage in a fire.

Limit the size and number of windows in your home that face large areas of vegetation.

Walls: Wood products, such as boards, panels or shingles, are common siding materials. However, they are combustible and not good choices for fire-prone areas.

Build or remodel with fire-resistant building materials, such as brick, cement, masonry or stucco.

Be sure to extend materials from foundation to roof.

Garage: Have a fire extinguisher and tools such as a shovel, rake, bucket and hoe available for fire emergencies.

Install a solid door with self-closing hinges between living areas and the garage. Install weather stripping around and under door to prevent ember intrusion.

Store all combustibles and flammable liquids away from ignition sources.

Driveways and Access Roads: Driveways should be designed to allow fire and emergency vehicles and equipment to reach your house.

Access roads should have a minimum 10-foot clearance on either side of the traveled section of the roadway and should allow for two-way traffic.

Ensure that all gates open inward and are wide enough to accommodate emergency equipment.

Trim trees and shrubs overhanging the road to a minimum of 15½ feet to allow emergency vehicles to pass.

Non-Combustible Fencing: Make sure to use non-combustible fencing to protect your home during a wildland fire.

Non-Combustible Boxed In Eaves: Box in eaves with non-combustible materials to prevent accumulation of embers.

Raingutters: Screen or enclose rain gutters to prevent accumulation of plant debris.

Water Supply: Have multiple garden hoses that are long enough to reach any area of your home and other structures on your property.

If you have a pool or well, consider a pump.

Deck/Patio Cover: Use heavy timber or non-flammable construction material for decks.

Enclose the underside of balconies and decks with fire-resistant materials to prevent embers from blowing underneath.

Keep your deck clear of combustible items, such as baskets, dried flower arrangements and other debris.

If built after 1989, the decking surface must be ignition resistant if it is within 10 feet of the home.

Chimney: Cover your chimney and stovepipe outlets with a non-flammable screen of ¼ inch wire mesh or smaller to prevent embers from escaping and igniting a fire.

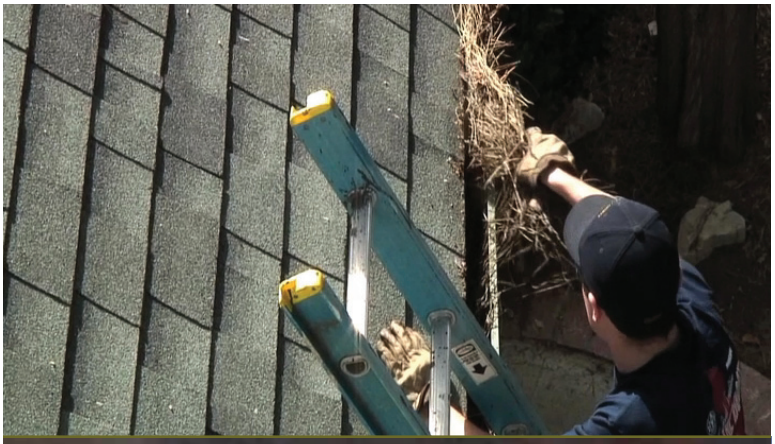
Make sure that your chimney is at least 10 feet away from any tree branches.

READY, SET, GO!

Create Your Own Action Guide

Now that you've done everything you can to protect your house, its time to prepare your family. Your **Wildland Fire Action Guide** must be prepared well in advance of a fire. Include *all* members of your household. Use these checklists to help you gain a situational awareness of the threat and to prepare your Wildland Fire Action Guide. For more information on property and home preparedness before a fire threat, review the preparedness checklist on the Firewise Communities website, www.firewise.org

Ready – Preparing for the Fire Threat



- ☐ Create a **Family Disaster Plan** that includes meeting locations and communication plans. Rehearse it regularly. Include in your plan the evacuation of pets and large animals such as horses.
- ☐ Have fire extinguishers on hand and train your family how to use them.
- ☐ Ensure that your family knows where your gas, electric and water main shut-off controls are located and how to use them.
- ☐ Plan and practice several different evacuation routes.
- ☐ Designate an emergency meeting location outside the fire hazard area.
- ☐ Assemble an emergency supply kit as recommended by the American Red Cross. Keep an extra kit in your vehicle.
- ☐ Appoint an out-of-area friend or relative as a point of contact so you can communicate with family members.
- ☐ Maintain a list of emergency contact numbers in your cell phone, posted near your landline phone and in your emergency supply kit.
- ☐ Have a portable radio or scanner so you can stay updated on the fire.

Set – Situational Awareness when a Fire Starts

- ☐ Evacuate as soon as you are set!
- ☐ Alert family and neighbors.
- ☐ Dress in appropriate clothing (i.e. clothing made from natural fibers, such as cotton, and work boots). Have goggles and a dry bandana or particle mask handy.
- ☐ Ensure that you have your emergency supply kit on hand that includes all necessary items, such as a battery powered radio, spare batteries, emergency contact numbers, and ample drinking water.
- ☐ Stay tuned to your TV or local radio stations for updates, or check the Fire-Rescue Department web site www.sandiego.gov/fire, Facebook page and Twitter feed.
- ☐ Remain close to your house, drink plenty of water and keep an eye on your family and pets until you are ready to leave.

INSIDE CHECKLIST, IF TIME ALLOWS

- ☐ Close all windows and doors, but leave them unlocked.
- ☐ Remove flammable window shades and curtains and close metal shutters.
- ☐ Move furniture to the center of the room, away from windows and doors.
- ☐ Turn off pilot lights and air conditioning.
- ☐ Leave your lights on so firefighters can see your house and other structures under smoky conditions.

OUTSIDE CHECKLIST, IF TIME ALLOWS

- ☐ Bring combustible items from the exterior of the house inside (items such as patio furniture, children's toys, door mats, etc.) or place them in the pool, if you have one.
- ☐ Turn off propane tanks and gas at the meter.
- ☐ Don't leave sprinklers on or water running - they can waste critical water pressure.
- ☐ Leave exterior lights on.
- ☐ Back your car into the driveway to facilitate a quick departure. Shut doors and roll up windows.
- ☐ Have a ladder available.
- ☐ Cover attic and ground vents with pre-cut plywood or commercial covers.

IF YOU ARE TRAPPED: SURVIVAL TIPS

- ☐ Remain inside your home until the fire passes.
- ☐ Shelter away from outside walls.
- ☐ Bring garden hoses inside the house so embers don't destroy them.
- ☐ Patrol inside your home for spot fires and extinguish any you find.
- ☐ Wear long sleeves and long pants made of natural fibers such as cotton.
- ☐ Stay hydrated.
- ☐ Ensure you can exit the home if it catches fire (remember if it is hot inside the house, it is four to five times hotter outside).
- ☐ Fill sinks and tubs for an emergency water supply.
- ☐ Place wet towels under doors to keep smoke and embers out.
- ☐ After the fire has passed, check your home and roof. Extinguish any fires, sparks or embers.
- ☐ Check inside the attic for hidden embers.
- ☐ If there are fires that you cannot extinguish with a small amount of water or in a short period of time, call 9-1-1.

Go – Leave Early

By leaving early, you give your family the best chance of surviving a wildland fire. You also help firefighters by keeping roads clear of congestion, enabling them to move more freely and do their job in a safer environment.

WHEN TO LEAVE

Leave early enough to avoid being caught in fire, smoke or road congestion. Don't wait to be told by authorities to leave. In an intense wildland fire, they may not have time to knock on every door. If you are advised to leave by local authorities, don't hesitate!

WHERE TO GO

Leave to a predetermined location. It should be a low-risk area, such as a well-prepared neighbor or relative's house, a Red Cross shelter or evacuation center, motel, etc.

HOW TO GET THERE

Have several travel routes in case one route is blocked by the fire or by emergency vehicles and equipment. Choose an escape route away from the fire.

WHAT TO TAKE

Take your prepared emergency supply kit containing your family and pet's necessary items.

EMERGENCY SUPPLIES

The American Red Cross recommends every family have an emergency supply kit assembled long before a wildland fire or other emergency occurs. Use the checklist below to help assemble yours. For more information on emergency supplies, visit the American Red Cross Web site at www.redcross.org.

- ☐ Three-day supply of water (one gallon per person per day).
- ☐ Non-perishable food for all family members and pets (three-day supply).
- ☐ First aid kit.
- ☐ Flashlight, battery-powered radio, and extra batteries.
- ☐ An extra set of car keys, credit cards and cash or traveler's checks.
- ☐ Sanitation supplies.
- ☐ Extra eyeglasses or contact lenses.
- ☐ Important family documents and contact numbers.
- ☐ Map marked with evacuation routes.
- ☐ Prescriptions or special medications.
- ☐ Family photos, valuable and other irreplaceable items that are easy to carry.
- ☐ Personal computers, hard drives, disks and flash drivers.
- ☐ Chargers for electronic communication devices.

Note: Keep a pair of old shoes and a flashlight handy in case of a sudden evacuation at night.

Write up your Wildland Fire Action Guide and post it in a location where every member of your family can see it. Rehearse it with your family.

My Personal Wildland Fire Action Guide

During High Fire Danger days in your area, monitor your local media for information and be ready to implement your plan. Hot, dry and windy conditions create the perfect environment for a wildland fire.

Important Phone Numbers:

Out-of-Area Contact: _____ Phone: _____

Work: _____ _____ _____

School: _____ _____ _____

Other: _____ _____ _____

Evacuation Routes: _____

_____

_____

Meeting Location: _____

_____

Location of Emergency Supply Kit: _____

_____

Notes: _____

_____

_____

READY, SET, GO!™

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www.sandiego.gov/fire

READY, SET, GO!

Safety Checklist
Tips To Improve Family and Property Survival During A Wildland Fire

Home	Yes	No
1. Does your home have a metal, composition, tile or other non-combustible roof with capped ends and covered fascia?	☐	☐
2. Are the rain gutters and roof free of leaves, needles and branches?	☐	☐
3. Are all vent openings screened with 1/8 inch mesh metal screen?	☐	☐
4. Are approved spark arrestors on chimneys?	☐	☐
5. Does the house have non-combustible siding material?	☐	☐
6. Are the eaves "boxed in" and the decks enclosed?	☐	☐
7. Are the windows double-paned or tempered glass?	☐	☐
8. Are decks, porches and similar areas made of non-combustible material and are they free of easily combustible material?	☐	☐
9. Is all firewood at least 30 feet from the house?	☐	☐

Defensible Space	Yes	No
1. Has dead vegetation been removed from the defensible space zones around your home? (Consider adding distance due to slope of property.)	☐	☐
2. Is the required separation between shrubs maintained?	☐	☐
3. Have ladder fuels been removed?	☐	☐
4. Is there a clean and green area extending at least 35 feet from the house?	☐	☐
5. Is there a non-combustible area within five feet of the house?	☐	☐
6. Is the required separation between trees and crowns maintained?	☐	☐

Emergency Access	Yes	No
1. Is the home address plainly legible and visible from the street?	☐	☐
2. Are trees and shrubs overhanging the street trimmed to 15½ feet?	☐	☐
3. If your home has a long driveway, does it have a suitable turnaround area?	☐	☐

Ready, Set, Go!
www.wildlandfireRSG.org
www.sandiego.gov/fire

FEMA
SAN DIEGO FIRE RESCUE FOUNDATION
Insurance Institute for Business & Home Safety

APPENDIX B-1

Emergency Supply List

Additional Items to Consider Adding to an Emergency Supply Kit:

- ❑ **Prescription medications and glasses**
- ❑ **Infant formula and diapers**
- ❑ **Pet food and extra water for your pet**
- ❑ **Important family documents such as copies of insurance policies, identification and bank account records in a waterproof, portable container**
- ❑ **Cash or traveler's checks and change**
- ❑ **Emergency reference material such as a first aid book or information from www.ready.gov**
- ❑ **Sleeping bag or warm blanket for each person. Consider additional bedding if you live in a cold-weather climate.**
- ❑ **Complete change of clothing including a long sleeved shirt, long pants and sturdy shoes. Consider additional clothing if you live in a cold-weather climate.**
- ❑ **Household chlorine bleach and medicine dropper** – When diluted nine parts water to one part bleach, bleach can be used as a disinfectant. Or in an emergency, you can use it to treat water by using 16 drops of regular household liquid bleach per gallon of water. Do not use scented, color safe or bleaches with added cleaners.
- ❑ **Fire Extinguisher**
- ❑ **Matches in a waterproof container**
- ❑ **Feminine supplies and personal hygiene items**
- ❑ **Mess kits, paper cups, plates and plastic utensils, paper towels**
- ❑ **Paper and pencil**
- ❑ **Books, games, puzzles or other activities for children**

Ready

Prepare. Plan. Stay Informed.®

Emergency Supply List

FEMA

www.ready.gov

Recommended Items to Include in a Basic Emergency Supply Kit:

- **Water, one gallon of water per person per day for at least three days, for drinking and sanitation**
- **Food, at least a three-day supply of non-perishable food**
- **Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert and extra batteries for both**
- **Flashlight and extra batteries**
- **First aid kit**
- **Whistle to signal for help**
- **Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place**
- **Moist towelettes, garbage bags and plastic ties for personal sanitation**
- **Wrench or pliers to turn off utilities**
- **Can opener for food (if kit contains canned food)**
- **Local maps**

Through its *Ready* Campaign, the Federal Emergency Management Agency educates and empowers Americans to take some simple steps to prepare for and respond to potential emergencies, including natural disasters and terrorist attacks. *Ready* asks individuals to do three key things: get an emergency supply kit, make a family emergency plan, and be informed about the different types of emergencies that could occur and their appropriate responses.

All Americans should have some basic supplies on hand in order to survive for at least three days if an emergency occurs. Following is a listing of some basic items that every emergency supply kit should include. However, it is important that individuals review this list and consider where they live and the unique needs of their family in order to create an emergency supply kit that will meet these needs. Individuals should also consider having at least two emergency supply kits, one full kit at home and smaller portable kits in their workplace, vehicle or other places they spend time.

Ready FEMA

Federal Emergency Management Agency
Washington, DC 20472

APPENDIX B-2

Family Emergency Communication Plan Kit

BE SMART. TAKE PART. CREATE YOUR FAMILY EMERGENCY COMMUNICATION PLAN

Join with others to prepare for emergencies and participate in America's PrepareAthon! | ready.gov/prepare

Creating your *Family Emergency Communication Plan* starts with one simple question: "What if?"

"What if something happens and I'm not with my family?" "Will I be able to reach them?" "How will I know they are safe?" "How can I let them know I'm OK?" During a disaster, you will need to send and receive information from your family.

Communication networks, such as mobile phones and computers, could be unreliable during disasters, and electricity could be disrupted. Planning in advance will help ensure that all the members of your household—including children and people with disabilities and others with access and functional needs, as well as outside caregivers—know how to reach each other and where to meet up in an emergency. Planning starts with three easy steps:

1. COLLECT.

Create a paper copy of the contact information for your family and other important people/offices, such as medical facilities, doctors, schools, or service providers.

2. SHARE.

Make sure everyone carries a copy in his or her backpack, purse, or wallet. If you complete your *Family Emergency Communication Plan* online at ready.gov/make-a-plan, you can print it onto a wallet-sized card. You should also post a copy in a central location in your home, such as your refrigerator or family bulletin board.

3. PRACTICE.

Have regular household meetings to review and practice your plan.

TEXT IS BEST!

If you are using a mobile phone, a text message may get through when a phone call will not. This is because a text message requires far less bandwidth than a phone call. Text messages may also save and then send automatically as soon as capacity becomes available.

The following sections will guide you through the process to create and practice your *Family Emergency Communication Plan*.

HOUSEHOLD INFORMATION

Write down phone numbers and email addresses for everyone in your household. Having this important information written down will help you reconnect with others in case you don't have your mobile device or computer with you or if the battery runs down. If you have a household member(s) who is Deaf or hard of hearing, or who has a speech disability and uses traditional or video relay service (VRS), include information on how to connect through relay services on a landline phone, mobile device, or computer.

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Because a disaster can strike during school or work hours, you need to know their emergency response plans and how to stay informed. Discuss these plans with children, and let them know who could pick them up in an emergency. Make sure your household members with phones are signed up for alerts and warnings from their school, workplace, and/or local government. To find out more about how to sign up, see *Be Smart. Know Your Alerts and Warnings* at http://1.usa.gov/1BDloze. For children without mobile phones, make sure they know to follow instructions from a responsible adult, such as a teacher or principal.

OUT-OF-TOWN CONTACT

It is also important to identify someone outside of your community or State who can act as a central point of contact to help your household reconnect. In a disaster, it may be easier to make a long-distance phone call than to call across town because local phone lines can be jammed.

EMERGENCY MEETING PLACES

Decide on safe, familiar places where your family can go for protection or to reunite. Make sure these locations are accessible for household members with disabilities or access and functional needs. If you have pets or service animals, think about animal-friendly locations. Identify the following places:

- ☐ *Indoor*: If you live in an area where tornadoes, hurricanes, or other high-wind storms can happen, make sure everyone knows where to go for protection. This could be a small, interior, windowless room, such as a closet or bathroom, on the lowest level of a sturdy building, or a tornado safe room or storm shelter.
- ☐ *In your neighborhood*: This is a place in your neighborhood where your household members will meet if there is a fire or other emergency and you need to leave your home. The meeting place could be a big tree, a mailbox at the end of the driveway, or a neighbor's house.
- ☐ *Outside of your neighborhood*: This is a place where your family will meet if a disaster happens when you're not at home and you can't get back to your home. This could be a library, community center, house of worship, or family friend's home.

- [ ] *Outside of your town or city*: Having an out-of-town meeting place can help you reunite if a disaster happens and:
    - You cannot get home or to your out-of-neighborhood meeting place; or
    - Your family is not together and your community is instructed to evacuate the area.

    This meeting place could be the home of a relative or family friend. Make sure everyone knows the address of the meeting place and discuss ways you would get there.

OTHER IMPORTANT NUMBERS AND INFORMATION

You should also write down phone numbers for emergency services, utilities, service providers, medical providers, veterinarians, insurance companies, and other services.

SHARE

MAKE SURE EVERYONE HAS THE INFORMATION

- [ ] Make copies of your *Family Emergency Communication Plan* for each member of the household to carry in his or her wallet, backpack, or purse. Post a copy in a central place at home. Regularly check to make sure your household members are carrying their plan with them.
- [ ] Enter household and emergency contact information into all household members' mobile phones or devices.
- [ ] Store at least one emergency contact under the name "In Case of Emergency" or "ICE" for all mobile phones and devices. This will help someone identify your emergency contact if needed. Inform your emergency contact of any medical issues or other requirements you may have.
- [ ] Create a group list on all mobile phones and devices of the people you would need to communicate with if there was an emergency or disaster.
- [ ] Make sure all household members and your out-of-town contact know how to text if they have a mobile phone or device, or know alternative ways to communicate if they are unable to text.
- [ ] Read *Be Smart. Know Your Alerts and Warnings* at http://1.usa.gov/1BDloze and sign up to receive emergency information.

NOW IT'S TIME TO PRACTICE!

Once you have completed your *Family Emergency Communication Plan*, made copies for all the members of your household, and discussed it, it's time to practice!

Here are some ideas for practicing your plan:

- [ ] Practice texting and calling. Have each person practice sending a text message or calling your out-of-town contact and sending a group text to your mobile phone group list.
- [ ] Discuss what information you should send by text. You will want to let others know you are safe and where you are. Short messages like "I'm OK. At library" are good.

- [ ] Talk about who will be the lead person to send out information about the designated meeting place for the household.
- [ ] Practice gathering all household members at your indoor and neighborhood emergency meeting places. Talk about how each person would get to the identified out-of-neighborhood and out-of-town meeting places. Discuss all modes of transportation, such as public transportation, rail, and para-transit for all family members, including people with disabilities and others with access and functional needs.
- [ ] Regularly have conversations with household members and friends about the plan, such as whom and how to text or call, and where to go.
- [ ] To show why it's important to keep phone numbers written down, challenge your household members to recite important phone numbers from memory—now ask them to think about doing this in the event of an emergency.
- [ ] Make sure everyone, including children, knows how and when to call 911 for help. You should only call 911 when there is a life-threatening emergency.
- [ ] Review, update, and practice your *Family Emergency Communication Plan* at least once a year, or whenever any of your information changes.

To help start the conversation or remind your family why you are taking steps to prepare and practice, you may want to watch the 4-minute video, *It Started Like Any Other Day*, about families who have experienced disaster, at www.youtube.com/watch?v=w_omgt3MEBs. Click on the closed captioning (CC) icon on the lower right to turn on the captioning.

After you practice, talk about how it went. What worked well? What can be improved? What information, if any, needs to be updated? If you make updates, remember to print new copies of the plan for everyone.

OTHER IMPORTANT TIPS FOR COMMUNICATING IN DISASTERS[1]

- [ ] Text is best when using a mobile phone, but if you make a phone call, keep it brief and convey only vital information to emergency personnel and/or family or household members. This will minimize network congestion, free up space on the network for emergency communications, and conserve battery power. Wait 10 seconds before redialing a number. If you redial too quickly, the data from the handset to the cell sites do not have enough time to clear before you've re-sent the same data. This contributes to a clogged network.
- [ ] Conserve your mobile phone battery by reducing the brightness of your screen, placing your phone in airplane mode, and closing apps you do not need. Limit watching videos and playing video games to help reduce network congestion.
- [ ] Keep charged batteries, a car phone charger, and a solar charger available for backup power for your mobile phone, teletypewriters (TTYs), amplified phones, and caption phones. If you charge your phone in your car, be sure the car is in a well-ventilated area (e.g., not in a closed garage) to avoid life-threatening carbon monoxide poisoning.

[1] Federal Communications Commission, Public Safety and Homeland Security Bureau. (n.d.) *Tips for communicating in an emergency.* Retrieved from http://transition.fcc.gov/pshs/emergency-information/tips.html

- [ ] If driving, do not text, read texts, or make a call without a hands-free device.
- [ ] Maintain a household landline and analog phone (with battery backup if it has a cordless receiver) that can be used when mobile phone service is unavailable. Those who are Deaf or hard of hearing, or who have speech disabilities and use devices and services that depend on digital technology (e.g., VRS, Internet Protocol [IP] Relay, or captioning) should have an analog phone (e.g., TTY, amplified phone, or caption phone) with battery backup in case Internet or mobile service is down.
- [ ] If you evacuate and have a call-forwarding feature on your home phone, forward your home phone number to your mobile phone number.
- [ ] Use the Internet to communicate by email, Twitter, Facebook, and other social media networks. These communication channels allow you to share information quickly with a widespread audience or to find out if loved ones are OK. The Internet can also be used for telephone calls through Voice over Internet Protocol. For those who are Deaf or hard of hearing, or who have speech disabilities, you can make calls through your IP Relay provider.
- [ ] If you do not have a mobile phone, keep a prepaid phone card to use if needed during or after a disaster.
- [ ] Use a pay phone if available. It may have less congestion because these phones don't rely on electricity or mobile networks. In some public places, you may be able to find a TTY that can be used by those who are Deaf or hard of hearing, or who have speech disabilities.

America's PrepareAthon! is a grassroots campaign for action to get more people prepared for emergencies. Make your actions count at ready.gov/prepare.

The reader recognizes that the Federal Government provides links and informational data on various disaster preparedness resources and events and does not endorse any non-Federal events, entities, organizations, services, or products.

10 WAYS TO PARTICIPATE IN AMERICA'S PrepareAthon!℠

FAMILY EMERGENCY COMMUNICATION PLAN

HOUSEHOLD INFORMATION

Home #: .....
Address:.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

Name: ..... Mobile #: .....
Other # or social media: .....
Email: .....
Important medical or other information: .....
.....

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

SCHOOL, CHILDCARE, CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address:.....
Emergency/Hotline #: .....
Website: .....
Emergency Plan/Pick-Up: .....

IN CASE OF EMERGENCY (ICE) CONTACT

Name: ..... Mobile #: .....
Home #: .....Email: .....
Address: .....

OUT-OF-TOWN CONTACT

Name: ..... Mobile #: .....
Home #: .....Email: .....
Address: .....

EMERGENCY MEETING PLACES

Indoor: .....
Instructions: .....
Neighborhood: .....
Instructions: .....

Out-of-Neighborhood: .....
Address:.....
Instructions: .....

Out-of-Town: .....
Address:.....
Instructions: .....

IMPORTANT NUMBERS OR INFORMATION

Police: ..... Dial 911 or #: .....
Fire: ..... Dial 911 or #: .....
Poison Control: .....#: .....
Doctor: .....#: .....
Doctor: .....#: .....
Pediatrician: .....#: .....
Dentist: .....#: .....
Hospital/Clinic: .....#: .....
Pharmacy: .....#: .....
Medical Insurance: .....#: .....
Policy #: .....
Medical Insurance: .....#: .....
Policy #: .....
Homeowner/Rental Insurance: .....
#: .....
Policy #: .....
Flood Insurance: .....#: .....
Policy #: .....
Veterinarian: .....#: .....
Kennel: .....#: .....
Electric Company: .....#: .....
Gas Company: .....#: .....
Water Company: .....#: .....
Alternate/Accessible Transportation: .....
#: .....
Other: .....#: .....
Other: .....#: .....
Other: .....#: .....

APPENDIX B-3

Family Emergency Communication Plan Cards

AMERICA'S PrepareAthon!
BE SMART. TAKE PART. PREPARE.

Ready

Write your family's name above

Family Emergency Communication Plan

IN CASE OF EMERGENCY (ICE) CONTACT

Name: ..... Mobile #: .....
Home #: ..... Email: .....
Address: .....

OUT-OF-TOWN CONTACT

Name: ..... Mobile #: .....
Home #: ..... Email: .....
Address: .....

FOLD HERE

HOUSEHOLD INFORMATION

Home #: .....
Address: .....

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information: .....

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information .....

FOLD HERE

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information: .....

Name: ..... Mobile #: .....
Other # or social media: ..... Email: .....
Important medical or other information: .....

FOLD HERE

SCHOOL, CHILDCARE , CAREGIVER, AND WORKPLACE EMERGENCY PLANS

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

FOLD HERE

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

Name: .....
Address: .....
Emergency/Hotline #: ..... Website: .....
Emergency Plan/Pick-Up: .....

EMERGENCY MEETING PLACES

Indoor: .....
Instructions: .....
.....

Neighborhood: .....
Instructions: .....
.....

Out-of-Neighborhood: .....
Address: .....
Instructions: .....
.....

Out-of-Town: .....
Address: .....
Instructions: .....
.....

IMPORTANT NUMBERS OR INFORMATION

Police: ..... Dial 911 or #: .....
Fire: ..... Dial 911 or #: .....
Poison Control: ..... #: .....
Doctor: ..... #: .....
Doctor: ..... #: .....
Pediatrician: ..... #: .....
Dentist: ..... #: .....
Medical Insurance: ..... #: .....
Policy #: .....
Medical Insurance: ..... #: .....
Policy #: .....
Hospital/Clinic: ..... #: .....

Pharmacy: ..... #: .....
Homeowner/Rental Insurance: ..... #: .....
Policy #: .....
Flood Insurance: ..... #: .....
Policy #: .....
Veterinarian: ..... #: .....
Kennel: ..... #: .....
Electric Company: ..... #: .....
Gas Company: ..... #: .....
Water Company: ..... #: .....
Alternate/Accessible Transportation: ..... #: .....
Other: .....
Other: .....

APPENDIX B-4

Sample Family Disaster Plan

American Red Cross

Family Disaster Plan

Family Last Name(s) or Household Address: **Date:**

Family Member/Household Contact Info (If needed, additional space is provided in #10 below):

Name	Home Phone	Cell Phone	Email:

Pet(s) Info:

Name:	Type:	Color:	Registration #:

Plan of Action

1. The disasters most likely to affect our household are:

2. What are the escape routes from our home?

3. If separated during an emergency, what is our meeting place near our home?

4. If we cannot return home or are asked to evacuate, what is our meeting place outside of our neighborhood?

_____

What is our route to get there and an alternate route, if the first route is impassible?

_____

_____

5. In the event our household is separated or unable to communicate with each other, our emergency contact outside of our immediate area is:

Name	Home Phone	Cell Phone	Email:

After a disaster, let your friends and family know you are okay by registering at "Safe and Well" at https://safeandwell.communityos.org/cms// or by calling 1-800-733-2767. You can also give them a call, send a quick text or update your status on social networking sites.

6. If at school/daycare, our child(ren) will be evacuated to:

Child's Name:	Evacuation Site (address and contact info):

7. Our plan for people in our household with a disability or special need is:

Person's Name:	Plan:

8. During certain emergencies local authorities may direct us to "shelter in place" in our home. An accessible, safe room where we can go, seal windows, vents and doors and listen to emergency broadcasts for instructions, is:

_____

9. Family Member Responsibilities in the Event of a Disaster

Task	Description	Family Member Responsible
Disaster Kit*	Stock the disaster kit and take it if evacuation is necessary. Include items you might want to take to an evacuation shelter. Remember to include medications and eye glasses.	
Be informed	Maintain access to NOAA or local radio, TV, email or text alerts for important and current information about disasters.	
Family Medical Information	Make sure the household medical information is taken with us if evacuation is necessary.	
Financial Information	Obtain copies of bank statements and cash in the event ATMs and credit cards do not work due to power outages. Bring copies of utility bills as proof of residence in applying for assistance.	
Pet Information	Evacuate our pet(s), keep a phone list of pet-friendly motels and animal shelters, and assemble and take the pet disaster kit.	
Sharing and Maintaining the Plan	Share the completed plan with those who need to know. Meet with household members every 6 months or as needs change to update household plan.	

**What supplies and records should go in your disaster kit? Visit www.redcross.org*

10. Other information, if not able to be included above.

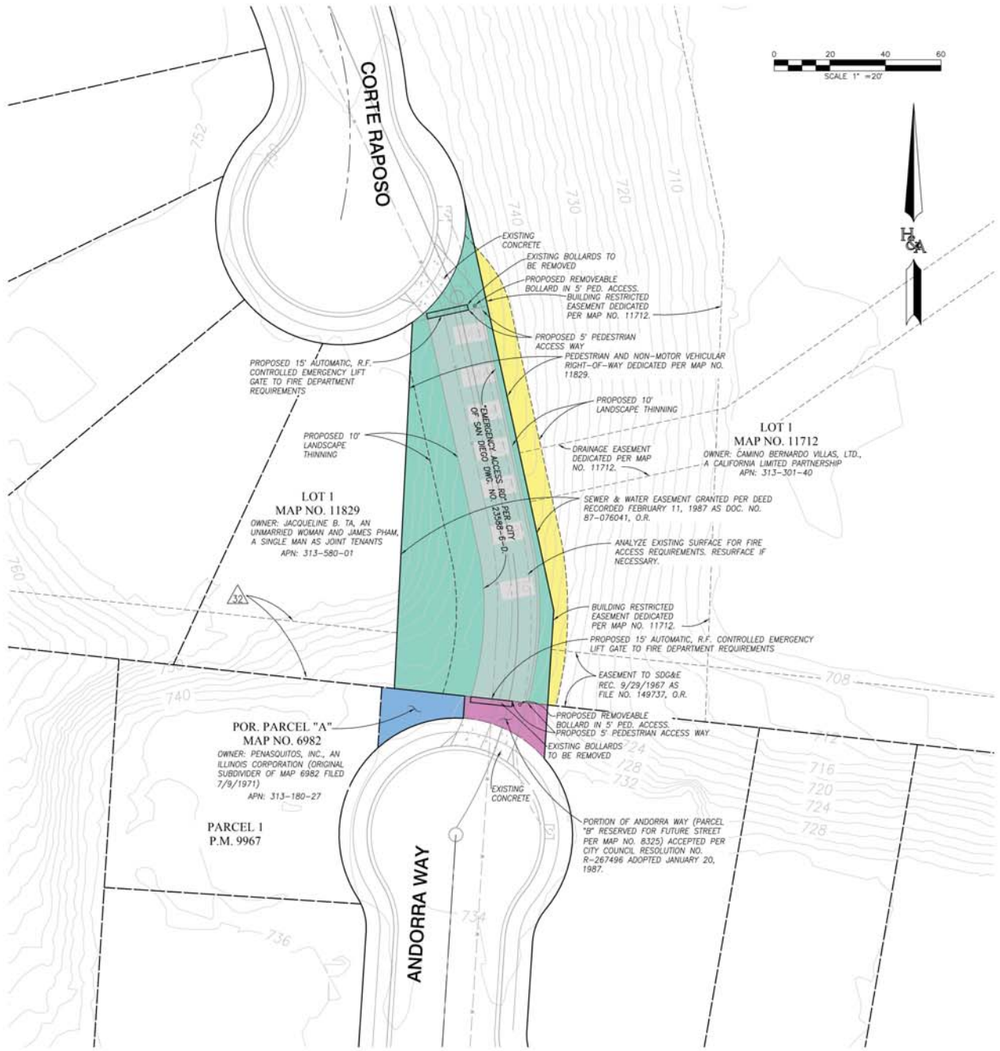
Congratulations on completing your family disaster plan! Please tell others: "We've made a family disaster plan and you can, too, with help from the American Red Cross."

Get the facts about what you should do if an emergency or disaster occurs at www.redcross.org

APPENDIX C

Emergency Fire Access Road between Andorra Way and Corte Raposo – Details and Land Ownership

THE JUNIPERS
ANDORRA WAY DETAIL



32 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT: IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: UTILITIES, INGRESS AND EGRESS RECORDING DATE: SEPTEMBER 29, 1967
RECORDING NO: 149737 OF OFFICIAL RECORDS AFFECTS: PORTIONS OF THE LAND, THE EXACT LOCATION OF WHICH CAN BE DETERMINED BY EXAMINATION OF THE ABOVE-MENTIONED INSTRUMENT, WHICH CONTAINS A COMPLETE LEGAL DESCRIPTION OF THE AFFECTED PORTIONS OF SAID LAND.

LEGEND

PARCEL "A" – MAP NO. 6982
- PARCEL 6 OF FIDELITY TITLE (989-30014972)
- NO HOA INTEREST

ANDORRA WAY – RIGHT OF WAY
- RESERVED ON MAP NO. 8352 AND ACCEPTED AS ROW FOR PUBLIC STREET PER RESOLUTION 267496 ADOPTED 1/20/1987.
- NO HOA INTEREST

PEDESTRIAN AND NON-MOTORIZED VEHICULAR RIGHT OF WAY
- PARCEL 4 OF FIDELITY TITLE (989-30014972)
- SEWER & WATER EASEMENT GRANTED IN LOCATION OF ROW 2/11/1987
- PEDESTRIAN AND NON-MOTORIZED VEHICULAR RIGHT OF WAY DEDICATED AND ACCEPTED ON MAP NO. 11829 FILED 6/3/1987
- UPON VACATION, ROW WOULD LIKELY REVERT TO LOT 1 OF MAP 11829 (APN 313-580-01, JACQUELINE B. TA AND JAMES PHAM)
- NO HOA INTEREST
- "EMERGENCY ACCESS RD" PER CITY OF SAN DIEGO DWG. NO. 23588-6-D.
- **PROPOSED ENTITLEMENTS**
  - JUNIPERS HOA TO BOND FOR REPLACEMENT OF GATES
  - JUNIPERS HOA TO PERFORM QUARTERLY BRUSH MANAGEMENT OF AREA.

LANDSCAPE THINNING AREA WITHIN LOT 1 – MAP NO. 11712
- LANDSCAPE THINNING AREA CROSSES OVER BUILDING RESTRICTED AND DRAINAGE EASEMENTS GRANTED TO THE CITY OF SAN DIEGO PER MAP NO. 11712 AND AN EASEMENT TO SDG&E RECORDED 9/29/1967 AS FILE NO. 149737 SHOWN ON MAP NO. 11712.
- NO HOA INTEREST

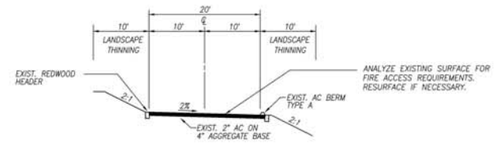
AREA	EXISTING IMPROVEMENTS	IMPACTS (SQFT)	ITEMS TO BE REMOVED	NEW IMPROVEMENTS
	PAVED ACCESS, BOLLARDS, LANDSCAPE, DRIVEWAY	4915	BOLLARDS, PROPOSED LANDSCAPE THINNING	15' AUTOMATIC GATE, PAVEMENT OVERLAY
	DRIVEWAY	135	BOLLARDS	15' AUTOMATIC GATE
	LANDSCAPE	0		
	LANDSCAPE	1146	PROPOSED LANDSCAPE THINNING	

NOTES:

THE JUIPERS PROJECT WILL BE RESPONSIBLE FOR BRUCH MANAGEMENT AND GATE MAINTENANCE ON THE CITY OWNED PARCELS.

BRUSH MANAGEMENT ON THE YELLOW AREA WILL BE EITHER THE JUNIPERS HOA OR HOA OWNING THE LAND.

A SIGN WILL BE PLACED AT EACH CULDESAC DENOTING "EMERGENCY ACCESS AND EGRESS ONLY. SUBJECT TO CONTROL OF SAN DIEGO FIRE DEPARTMENT."



PROPOSED EMERGENCY ACCESS ROAD

NOT TO SCALE

HUNSAKER & ASSOCIATES SAN DIEGO, INC

PLANNING 9707 Wagles Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 · FX(858)558-1414

R:\12861\&Map\Exhibits\EX Andorra Way Detail.dwg [] 2019-07-02 17:53:13[] W.O. 2167-0154

The Junipers Project
Environmental Impact Report
SCH No. 2018041032 - Project No. 586670

Appendix K5

Fire Protection Plan

February 2020

THE JUNIPERS
FIRE PROTECTION PLAN

Prepared for:

Carmel Land LLC
16465 Via Esprillo, Suite 150
San Diego, California 92127

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Project Manager: Michael Huff, Senior Fire Protection Planner

JULY 2019

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EXECUTIVE SUMMARY

This Fire Protection Plan (FPP) has been prepared for the Junipers residential community (Project) in west-central San Diego County. This FPP evaluates and identifies the potential fire risk associated with the proposed Project's land uses and identifies requirements for water supply, fuel modification and defensible space, access, building ignition and fire resistance, fire protection systems, and wildfire emergency pre-planning, among other pertinent fire protection criteria. The purpose of this plan is to generate and memorialize the fire safety requirements of the San Diego Fire-Rescue Department (SDFRD) along with project-specific measures based on the site, its intended use, and its fire environment.

This document provides analysis of the site's fire environment and its potential impact on the proposed project as well as the project's potential impact on the existing SDFRD fire protection service. This document will be incorporated as a technical appendix of the project's Environmental Impact Report. Requirements and recommendations herein are based on site-specific fire environment analysis and proposed project characteristics and incorporate input from SDFRD, area fire planning documents, site risk analysis, and standard principles of fire protection planning.

As described in this FPP, the project will meet or exceed all applicable Code requirements. The recommendations and conditions provided herein are also consistent with the lessons learned from After Fire Action Reports from numerous fires occurring over the last 20 years, including the 2003, 2007, and 2010 San Diego County Fires.

As determined during the analysis of this site and its fire environment, the Junipers Project site, in its current condition, as an abandoned golf course, is considered to include characteristics that, under favorable conditions, have the potential to facilitate fire spread. Under extreme conditions, wildfires on the site as is could burn erratically and aggressively and result in significant ember production. **Once the Project is built, the Junipers Project on-site fire potential will be lower than its current condition due to conversion of vegetative fuels to managed landscapes and ignition resistant structures.**

It is important to note that the fire safety requirements that will be implemented on this site, include: ignition resistant construction standards; minimum requirements for water supply; fire apparatus access; fuel modification and defensible spaces; interior fire sprinklers; and 5 minute or less fire response travel times. These Project Features are integrated into code requirements and internal SDFRD guidelines which are based upon the results of post-fire assessments, similar to the After Action Reports that are now prepared after large fire events. When it became clear that specifics of how homes were built, how fire and embers ignited homes, what effects fuel

modification had on structure ignition, how fast firefighters could respond, and how much (and how reliable) water was available, the Fire and Building codes were revised appropriately. SDFRD and San Diego County now boast some of the most restrictive codes for building within Wildland-urban interface[1] (WUI) areas that focus on preventing structure ignition from heat, flame, and burning embers.

The developed portion of this property is proposed for improvements that include construction of up to 536 residential dwelling units. The entire site has been designed with fire protection as a key objective. The site improvements are designed to facilitate emergency apparatus and personnel access throughout the site. On-site driveway and road improvements with fire engine turnouts and turnarounds provide access to within 150 feet of all sides of every building. Water availability and flow will be consistent with SDFRD requirements including fire flow and hydrant distribution. These features along with the ignition resistance of all buildings, interior sprinklers, and pre-planning, training, and awareness will collectively assist responding firefighters through prevention, protection and suppression capabilities.

As detailed in this FPP, the Project site's fire protection system will include a redundant layering of protection methods that have proven to reduce overall fire risk. The requirements and recommendations included herein are performance based and site specific based on the Project's unique characteristics rather than a prescriptive, one-size-fits-all approach. The fire protection system is designed to reduce the wildfire risk on the site, to minimize risks associated with typical uses, and aid the responding firefighters during an emergency. No singular measure is intended to be relied upon for the site's fire protection, but rather, a system of fire protection measures, methods, and features combine to result in enhanced fire safety, reduced fire potential, and a prepared community.

Based on the results of this FPP's analysis and findings, the following FPP implementation measures will be provided by the Juniper's Project as part of the proposed development plan. These measures are discussed in more detail throughout this FPP.

1. Preparation of a Construction Fire Prevention Plan detailing the important construction phase restrictions and fire safety requirements that will be implemented to reduce risk of ignitions and pre-plans for responding to an unlikely ignition.
2. Project buildings will be constructed of ignition resistant construction materials based on the latest Building and Fire Codes.

[1] The wildland-urban interface is land that stands between the undeveloped, natural land and developed, urban areas. https://www.insuranceopedia.com/definition.

3. Drought-tolerant and fire resistive landscaping per City of San Diego landscape guidelines will be provided throughout the residential development.
4. Fire apparatus access roads will be provided throughout the community and will vary in width and configuration, but will all provide at least the minimum required unobstructed travel lanes, lengths, turnouts, turnarounds, and clearances.
5. Water capacity and delivery provide for a reliable water source for operations and during emergencies requiring extended fire flow.
6. Project-specific and larger neighborhood evacuation plans have been prepared and would be part of the Project and community outreach and ongoing education.
7. The Community HOA will include an outreach and educational role to coordinate with SDFRD and the local Fire Safe Council, oversee landscape committee enforcement of fire safe landscaping, ensure fire safety measures detailed in this FPP have been implemented, educate residents on and prepare community-wide "Ready, Set, Go!" plans.

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1 INTRODUCTION

This Fire Protection Plan (FPP) has been prepared for the Junipers Project. The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. Additionally, this plan generates and memorializes the fire safety requirements of the Fire Authority Having Jurisdiction (FAHJ), which is the San Diego Fire-Rescue Department (SDFRD). Requirements and recommendations are based on site-specific Project characteristics and incorporate input from the Project applicant and the FAHJ.

As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary), structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect one or more at-risk communities and essential infrastructures. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the area addressed by the plan.

The following tasks were performed toward completion of this plan:

- Gather site specific climate, terrain, and fuel data;
- Process and analyze the data using the latest GIS technology;
- Predict fire behavior using scientifically based fire behavior models, comparisons with actual wildfires in similar terrain and fuels, and experienced judgment;
- Analyze and guide design of proposed infrastructure;
- Analyze the existing emergency response capabilities;
- Assess the risk associated with the proposed Project and compare those with the current, undeveloped Project site;
- Prepare this FPP detailing how fire risk will be mitigated through a system of fuel modification, structural ignition resistance enhancements, and fire protection delivery system upgrades; and
- Collect site photographs.

Field observations were utilized to augment existing digital site data in generating the fire behavior models and formulating the recommendations presented in this FPP. Refer to Appendix A for site photographs of existing site conditions.

1.1 Applicable Codes/Existing Regulations

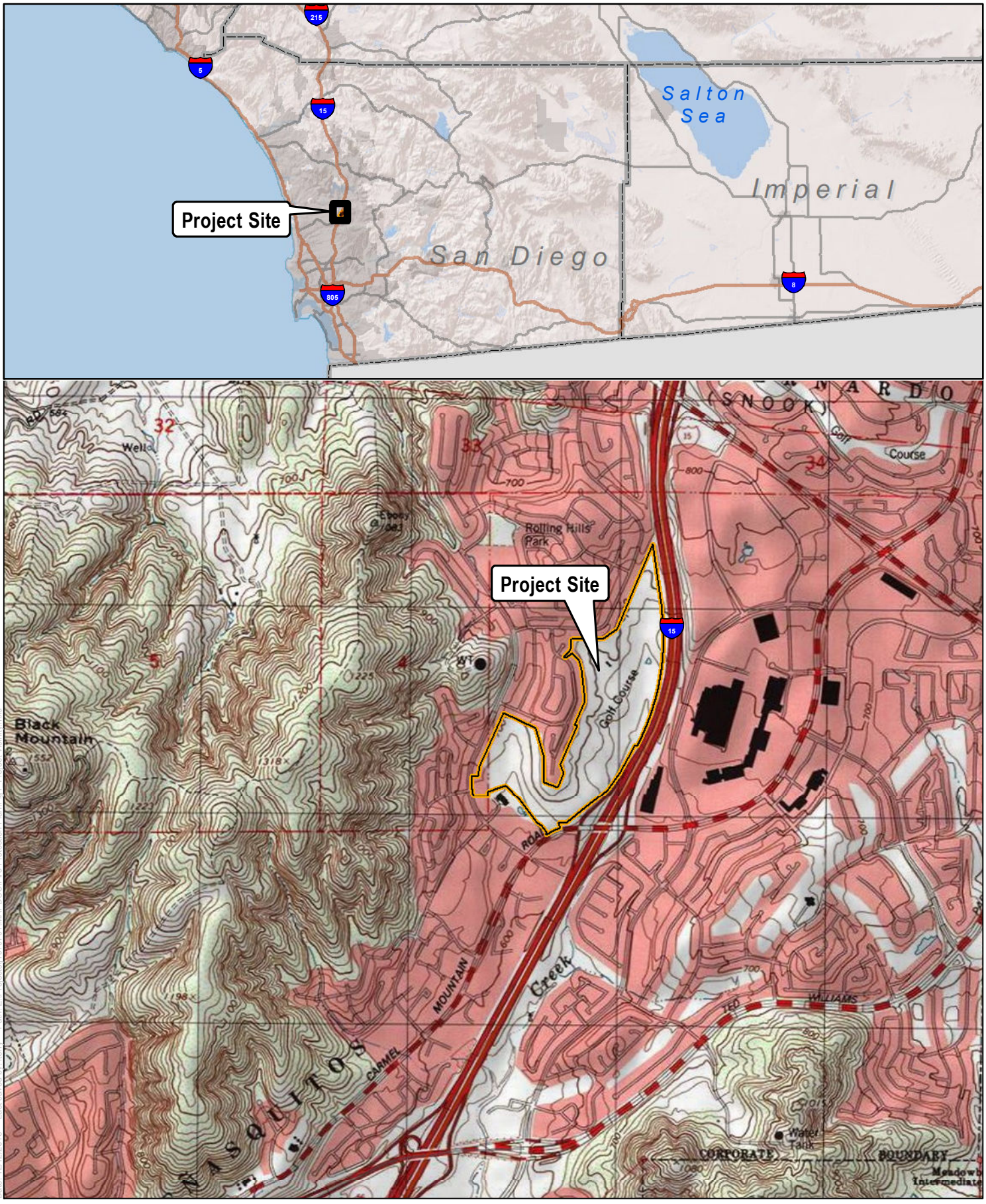
This FPP demonstrates that the Junipers Project will be in compliance with applicable portions of Section 142.0412 of the San Diego Municipal Code (Brush Management) and the 2016 California Fire Code. The Project will also be consistent with the latest edition of the California Building Code, Chapter 7A, and the latest edition of the California Fire Code, Chapter 49, as adopted by San Diego County. Chapter 7A of the California Building Code focuses primarily on preventing ember penetration into homes, a leading cause of structure loss from wildfires. Thus, it is an important component of the requirements of this FPP given the Project's location partially within an area statutorily designated a Very High Fire Hazard Severity Zone (VHFHSZ) by California Department of Forestry and Fire Protection (CAL FIRE) and City of San Diego. Fire hazard designations are based on topography, vegetation, and weather, amongst other factors with more hazardous sites including steep terrain, unmaintained fuels/vegetation, and wildland-urban interface (WUI) locations. However, none of these conditions are found on the Junipers Project. As described in this FPP, the Project will meet or exceed all applicable Code requirements at the time of building permit application.

1.2 Junipers Project Summary

1.2.1 Location

The Junipers Project is approximately 112 acres located within the City of San Diego's Rancho Penasquitos community (Figure 1, Project Location). The Project is a former golf course (now abandoned) surrounded by a variety of urbanized land uses including residential, commercial/retail, and freeway. The Project site is directly west of Interstate 15 (I-15), east of Penasquitos Drive, north of Carmel Mountain Road, and south of Camino Del Norte. The City of Poway is approximately 1 mile east of the site, Escondido is approximately 7 miles north, and Rancho Santa Fe is approximately 5 miles west. The Project lies within Township 14 south, Range 2 west in Sections 3 and 4 of the Poway, U.S. Geographical Survey 7.5-minute quadrangle. Figure 2 provides the Project's site plan including roads and access points.

The Project site is located on the following Assessor Parcel Numbers: 313-011-6, 313-011-7, 313-011-10, and 313-060-01.



SOURCE: USGS 7.5 Minute Series, Poway Quadrangle

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FIGURE 1

Project Location

The Junipers Fire Protection Plan

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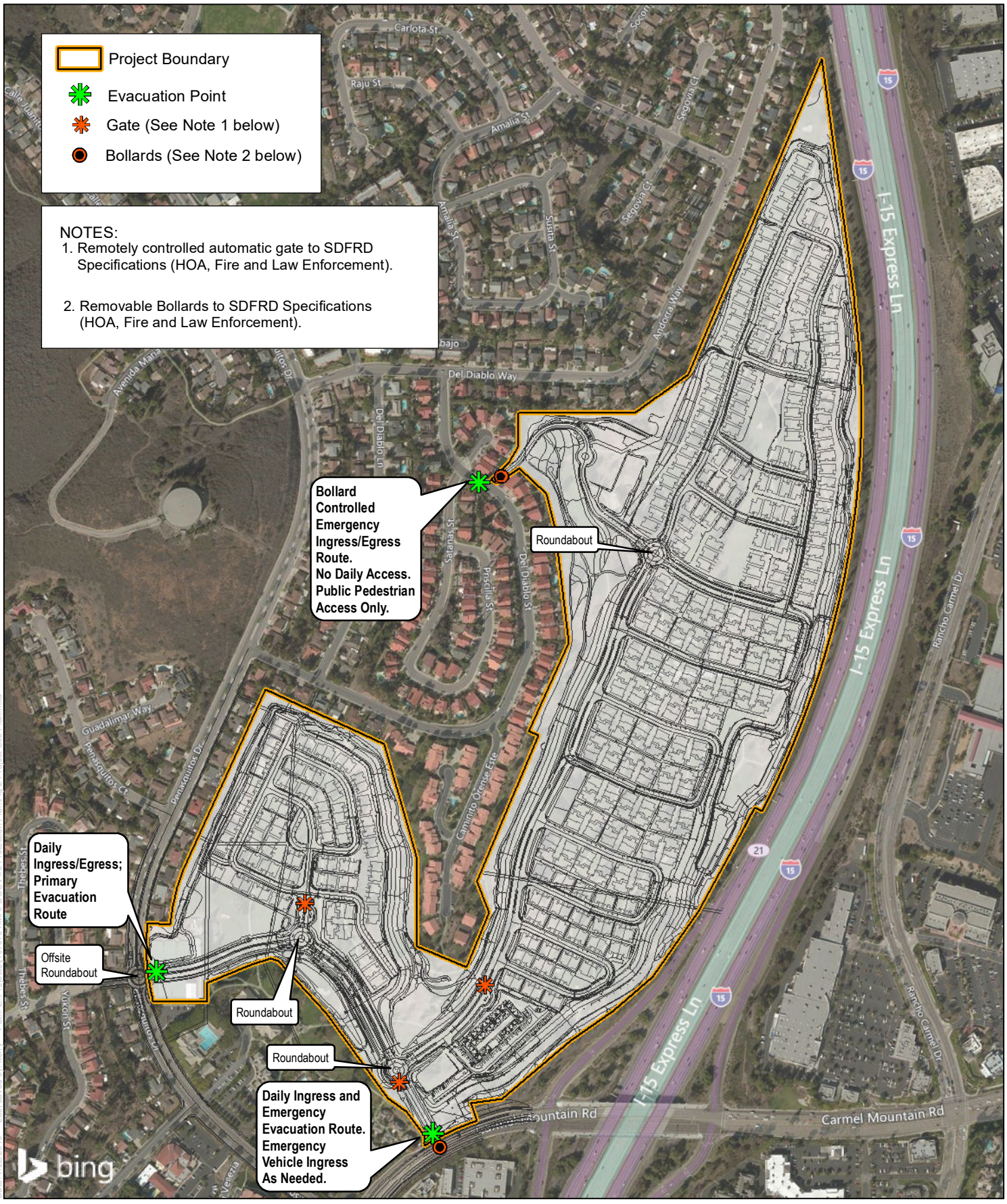

SOURCE: AERIAL- BING MAPPING SERVICE

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FIGURE 2

Project Site Plan

The Junipers Fire Protection Plan

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1.2.2 Project Description

The proposed Project includes the development of up to 536 single family residences, including detached, clusters, apartments, and duplex units. The Project proposes the construction of public streets and associated infrastructure, including, sewer, storm drains, and water quality/hydro modification basins. The following points highlight the Junipers Project attributes related to fire protection:

- Wildland-urban interface does not occur directly adjacent to the Junipers Site;
- The nearest wildland fuels occur to the west in Black Mountain Open Space Park;
- Urbanization has converted large expanses of native fuels to less flammable landscapes to in all directions around the site;
- Fire history indicates wildfires have occurred in the vicinity of the Project several times, including a 40,247-acre fire that burned through the site in 1943;
- Potential risk from wildfire based on natural, unmaintained fuels is not associated with this site.

Typical SDFRD 100 feet of BMZ is not required for the Junipers site as there is no adjacent wildland fuels. The Junipers will provide defensible space throughout the Project, particularly along the I-15 frontage. As a Project feature, open space lots have been zoned along the entire Project perimeter. This ensures that there is sufficient space between proposed Project development and the abutting neighboring residential development as a precautionary fire presentation feature. The Junipers Project proposes development of a residential community, composed of 455 market rate units (133 Single-Family Dwelling Lots, 186 6-Plex Units, and 136 duplex units) and 81 affordable units, totaling 536 units. The community will be age-qualified, 55 and over. Figure 2 depicts the general lot layout within the Project boundary.

1.2.2.1 Additional Amenities

In addition to the residential areas, there will be a community/ neighborhood park with amenities such as open lawn areas, multi-use courts, picnic areas, children's play areas, recreation facility, and pools, would also be present throughout each of the different planning areas to compliment the community trails and open space.

The Project will include an extensive trail system including multiuse pathways and trails through the community. Trails would include existing dirt trails; paved utility access ways; and new soft-surface trails.

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2 PROPOSED PROJECT SITE RISK ANALYSIS

2.1 Field Assessment

Dudek conducted a field assessment of the Project site on October 18, 2017, in order to confirm/acquire site information, document existing site conditions, and to determine potential actions for addressing the protection of the Project's structures. While on site, Dudek's Fire Planners assessed the area's topography, natural vegetation and fuel loading, surrounding land use and general susceptibility to wildfire. Among the field tasks that were completed are:

- Vegetation estimates and mapping refinements
- Fuel load analysis
- Topographic features documentation
- Photograph documentation
- Confirmation/verification of hazard assumptions
- Ingress/egress documentation.
- Nearby Fire Station reconnaissance

Field observations were utilized to augment existing site data in generating the fire behavior models and formulating the recommendations detailed in this report.

2.2 Site Characteristics and Fire Environment

Fire environments are dynamic systems and include many types of environmental factors and site characteristics. Fires can occur in any environment where conditions are conducive to ignition and fire movement. Areas of naturally vegetated open space are typically comprised of conditions that may be favorable to wildfire spread. The three major components of fire environment are vegetation (fuels), climate and topography. The state of each of these components and their interactions with each other determines the potential characteristics and behavior of a fire at any given moment. It is important to note that wildland fire may transition to urban fire if structures are receptive to ignition. Structure ignition depends on a variety of factors and can be prevented through a layered system of protective features including fire resistive landscapes directly adjacent the structure(s), application of known ignition resistive materials and methods, and suitable infrastructure for firefighting purposes. Understanding the existing wildland vegetation and urban fuel conditions on and adjacent the site is necessary to understand the potential for fire within and around the Junipers Project.

2.2.1 Topography

The Junipers Project site is situated east of Black Mountain Open Space Park, a chain of low mountains generally trending north–south with a variety of east–west trending ridgelines and scattered peaks. The Project site is gently to moderately sloped from west to east with flatter areas found on the southwestern corner of the Project. Elevations on the site range from 630 feet above mean sea level (AMSL) in the eastern portion of the Project to roughly 780 feet AMSL in the west-central portion of the property. The property was previously designed, graded, and used as a golf course and the land retains the managed topography.

2.2.2 Existing/Vicinity Land Use

The Project area is currently disturbed, but largely undeveloped. The Project site is abandoned former golf course overgrown with Russian thistle (*Salsola* ssp.), non-native grasses and other invasive weeds. Various species of ornamental trees are scattered along the golf course greens. The property owner currently cuts the weeds and grasses to provide a 100- to 200- foot wide fuel break adjacent to existing residential developments. Additionally, cart paths, dirt roads and trails provide access throughout the Project site. The surrounding land uses (all directions) include developed property including residential development, Elementary School, recreational facility, major freeway (Interstate 15 to the east), Carmel Mountain Road (arterial road to the south), commercial/retail buildings, and Black Mountain Open Space Park to the west beyond the Glens housing development.

2.2.3 Vegetation (Fuels)

The Junipers property supports a variety of vegetation types, none of which are native California habitats. These vegetation communities/land cover types are listed in Table 1 and shown on Figure 3, Vegetation Map. In summary, non-native uplands vegetation communities and land covers present within the Project site included developed land, disturbed habitat and ornamental vegetation. A small area has been classified as herbaceous wetlands. The vegetation includes remnants of the golf course landscaping with scattered trees. Dudek arborists performed a field survey and recorded 1,286 trees on the Project site (Dudek 2018). The 1,286 trees consist of 35 individual trees species and are believed to be part of the original golf course landscape. Most of the trees were found to be in poor health and structural condition, which is considered typical of un-maintained landscapes, and are proposed for removal. Existing site vegetation could support ignitions and fire spread from the I-15 toward existing Glens residences. Maintenance is provided to minimize this possibility. The photographs in Appendix A display the fuels on the property.

SOURCE: AERIAL- BING MAPPING SERVICE; VEGETATION-HELIX 2016

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FIGURE 3

Vegetation Communities/Land Cover Map

The Junipers Fire Protection Plan

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Table 1
Vegetation Communities and Land Cover Types

Vegetation Community / Land Cover Type	Project Site Vegetation Acreage
Concrete-line drainage	0.003
Developed Land	9.055
Disturbed Habitat	85.293
Herbaceous wetland	0.031
Ornamental	19.560
Total	**114.0**

The site's vegetation fire risk is primarily determined by Project-adjacent vegetation within Black Mountain Open Space Park. The growth of vegetation types/fuel models is influenced by aspect (orientation), soil constituents, soil depth, soil moisture, and weather. Off-site fuels within Black Mountain Open Space Park were evaluated for wildfire behavior as they are the nearest wildland fuels that would be subject to wildfire. The primary vegetation types that are found in the park are the chaparral and coastal sage scrub plant communities. The chaparral community occurs on north and east facing slopes of the park. The most common plants found in the chaparral are Lemonade berry (*Rhus integrifolia*), coffeeberry (*Rhamnus californica*), chamise ((*Adenostoma fasciculatum*), manzanita (*Arctostaphylos* ssp.), laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), and California lilac (*Ceanothus* ssp.). The coastal sage scrub plant community is not as dense and is found on the dryer south and west facing slopes of the park. This plant community consists of white sage (*Salvia apiana*), black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), and California buckwheat (*Eriogonum fasciculatum*). These vegetation communities correspond to designated fuel models (pre-determined vegetation type, densities, and structural characteristics) for fire behavior modeling purposes. Dudek has classified each of the cover types off-site into fuel models, as discussed further below.

2.2.4 Vegetation Dynamics

Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (bark thickness, leaf size, branching patterns), and overall fuel loading. For example, native shrub species that compose chaparral communities are considered to be less likely to ignite, but would exhibit higher potential hazard (higher intensity heat and flame length) than grass dominated plant communities (fast moving, but lower intensity) if ignition occurred. The corresponding fuel models for each of these vegetation types are

designed to capture these differences. Additionally, vegetative cover influences fire suppression efforts through its effect on fire behavior. For example, while fires burning in grasslands may exhibit lower flame lengths and heat outputs than those burning in native shrub habitats, fire spread rates in grasslands are often more rapid.

As described, vegetation plays a significant role in fire behavior, and is an important component to the fire behavior models discussed in this report. A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes disrupts plant succession, setting plant communities to an earlier state where less fuel is present for a period of time as the plant community begins its succession again. In summary, high frequency fires tend to convert shrublands to grasslands or maintain grasslands, while fire exclusion tends to convert grasslands to shrublands, over time. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (fire, grazing) or fuel reduction efforts are not diligently implemented. It is possible to alter successional pathways for varying plant communities through manual alteration. This concept is a key component in the overall establishment and maintenance of the proposed on site landscaping. This site will consist of irrigated and maintained landscapes that will be subject to regular "disturbance" in the form of maintenance and will not be allowed to accumulate excessive biomass over time, which results in reduced fire ignition, spread rates, and intensity. This is in stark contrast to the non-irrigated combustable condition of the current sute conditon

Conditions remote from the Project's footprint (within the Black Mountain Open Space Park), where the wildfire threat will exist post-development, are classified as medium to heavy fuel loads due to the dominance of chaparral and coastal sage scrub fuel beds.

2.2.5 Climate

Most of San Diego County, including the Project area, are influenced by the Pacific Ocean and are frequently under the influence of a seasonal, migratory subtropical high pressure cell known as the "Pacific High" (WRCC 2015a). Wet winters and dry summers with mild seasonal changes characterize the Southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather, winter storms, or dry, easterly Santa Ana winds (WRCC 2015a). The average high temperature for the Project area is approximately 75.9°F, with average highs in the summer and early fall months (July–October) reaching 88.2°F. The average precipitation for the area is approximately 16.2 inches per year, with the majority of rainfall concentrated in the months of December (2.7 inches), January (3.2 inches), February (3.1 inches), and March (2.7 inches), while smaller amounts of rain are experienced during the other months of the year (WRCC 2015b).

The prevailing wind pattern is from the west (on-shore), but the presence of the Pacific Ocean causes a diurnal wind pattern known as the land/sea breeze system. During the day, winds are from the west–southwest (sea) and at night winds are from the northeast (land), averaging 2 miles per hour (mph). During the summer season, the diurnal winds may average slightly higher (approximately 16 mph) than the winds during the winter season due to greater pressure gradient forces. Surface winds can also be influenced locally by topography and slope variations. The highest wind velocities are associated with downslope, canyon, and Santa Ana winds.

The Project area's climate has a large influence on the fire risk as drying vegetation during the summer months becomes fuel available to advancing flames should an ignition be realized. Typically the highest fire danger is produced by the high-pressure systems that occur in the Great Basin, which result in the Santa Ana winds of Southern California. Sustained wind speeds recorded during recent major fires in San Diego County exceeded 30 mph and may exceed 50 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis during late summer and early fall. Santa Ana winds are warm and dry winds that flow from the higher desert elevations in the north through the mountain passes and canyons. When present, these winds significantly increase the fire risk throughout much of Southern California, including at the Project site (Figure 4). As they converge through the canyons, their velocities increase. Consequently, peak velocities are highest at the mouths of canyons and dissipate as they spread across valley floors. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger.

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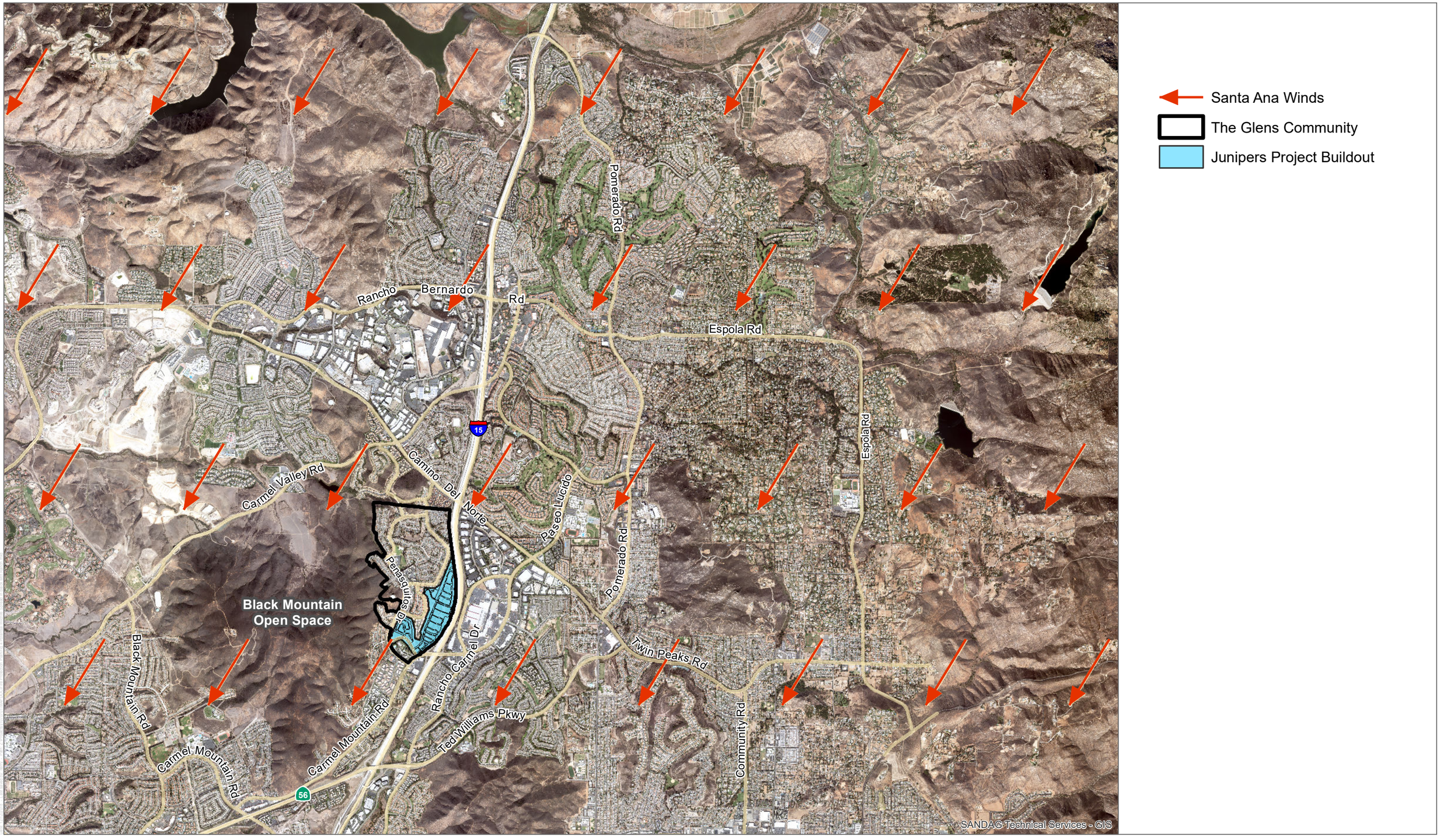

SOURCE: AERIAL-SANDAG IMAGERY 2017

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0 2,000 4,000 Feet

FIGURE 4

Junipers Vicinity Fire Spread and Wind Influence from Extreme Fire Weather Events

The Junipers Fire Protection Plan

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2.2.6 Fire History

Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. Fire frequency, behavior, and ignition sources are important for fire response and planning purposes. One important use for this information is as a tool for pre-planning. It is advantageous to know which areas may have burned recently and, therefore, may provide a tactical defense position, what type of fire burned on the site, and how a fire may spread. Figure 5 – the Junipers Vicinity Fire History exhibit, presents a graphical view of the Project area's recorded fire history. As presented in the exhibit, there have been approximately 54 fires recorded since 1910 by CAL FIRE in their FRAP database (FRAP 2015) [2] in the direct vicinity of the Project site. These fires, occurring in 1910, 1913, 1919, 1938,1943, 1944, 1945, 1950, 1958, 1967, 1968, 1970, 1971, 1973, 1974, 1978, 1979, 1980, 1981, 1983, 1984, 1986, 1987, 1988, 1989, 1990, 1993, 1997, 1998, 2000, 2003, 2017, and 2014 burned within 5 miles of the Project Site. One wildfire (1943 Fire; 40,247 acres) in the historical record burned onto the Juniper property. The most notable fire is the 2007 Witch Fire, which burned roughly 2 miles north of the Juniper Project site. The San Diego Fire Department (SDFRD) may have data regarding smaller fires (less than 10 acres) that have occurred near the site that are not included in CAL FIRE's dataset.

[2] Based on polygon GIS data from CAL FIRE's Fire and Resource Assessment Program (FRAP), which includes data from CAL FIRE, USDA Forest Service Region 5, BLM, NPS, Contract Counties and other agencies. The data set is a comprehensive fire perimeter GIS layer for public and private lands throughout the state and covers fires 10 acres and greater between 1878–2016.

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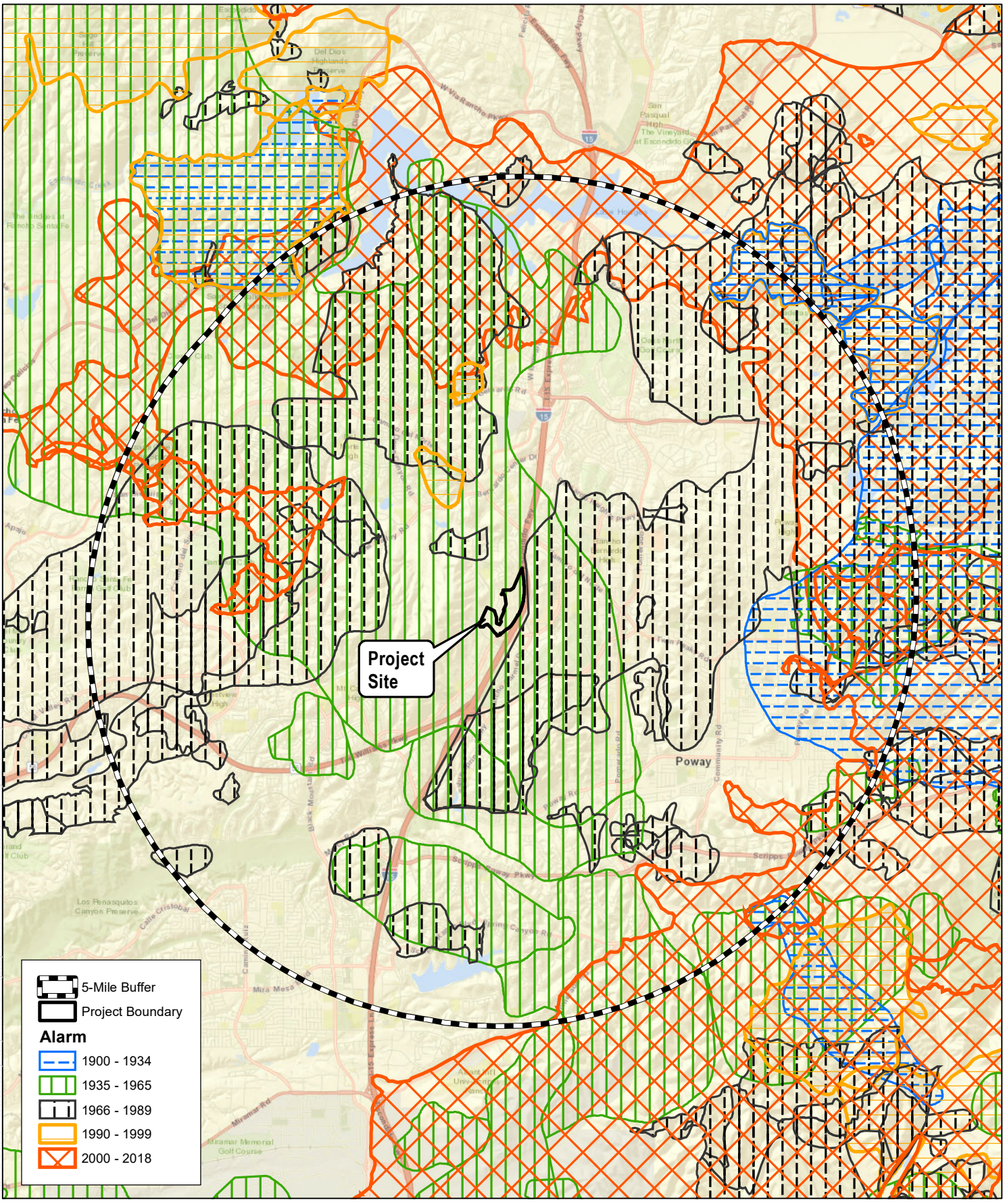

SOURCE: AERIAL- BING MAPPING SERVICE; FIRE DATA-CALFIRE 2017

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FIGURE 5

Fire History Map

The Junipers Fire Protection Plan

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3 DETERMINATION OF PROJECT EFFECTS

FPPs provide an evaluation of the adverse environmental effects a proposed Project may have from wildland fire. The FPP must provide mitigation for identified impacts to ensure that development projects do not unnecessarily expose people or structures to a significant loss, injury or death involving wildland fires. Significance is determined by answering the following guidelines:

Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The wildland fire risk in the vicinity of the Project site has been analyzed and it has been determined that wildfires may occur in wildland areas that are within 1/10 of a mile from a small portion of the Project, but would not be significantly increased in frequency, duration, or size with the construction of the Project. In fact, the existing site includes numerous potential fire issues including unmaintained vegetation. All of the on-site vegetation will be converted to lower flammability uses including ignition resistant buildings and drought-tolerant, fire resistive landscapes. **The Project would include conversion of fuels to maintained urban development with designated ignition resistant landscaping. As such, the entire site will be converted from readily ignited flashy fuels (weeds and grasses) to ignition resistant structures and landscape.**

The types of potential ignition sources that currently exist in the area include vehicle and roadway, electrical transmission line, and machinery associated with agricultural operations and off-site residential neighborhoods. The Project would introduce potential ignition sources, but would also include conversion of ignitable fuels to lower flammability landscape and include better access throughout the site, managed and maintained landscapes, more eyes and ears on the ground, and generally a reduction in the receptiveness of the area's landscape to ignition.

Fires from off site would not have continuous fuels across this site and would, therefore, be expected to burn around and/or over the site via spotting. Burning vegetation embers may land on Project structures, but are not likely to result in ignition based on ember decay rates and the types of non-combustible and ignition resistant materials that will be used on site.

The Project would comply with the strictest applicable fire and building codes and would include a layered fire protection system designed to current ignition resistant building codes and inclusive of site-specific measures that will result in a Project that is less susceptible to wildfire than surrounding landscapes and existing residential developments and that would facilitate fire fighter and medical aid response.

Would the project result in inadequate emergency access?

Fire access is provided throughout the Project and is consistent with the General Plan, San Diego Municipal Code, Chapter 5, Article 5. Fire apparatus access throughout the development will include roads that meet the code requirements for width, grade, clearance, turnouts, and turnarounds. Fire access on the Project site will be improved from its current condition, as will resident evacuation with the addition of Street "V", which provides access to Carmel Mountain Road, including to the east, and with the planned improvements of a bollarded emergency evacuation road to Del Diablo Street and also enhancement of the existing bollarded fire access to the north between Andora Way and Corte Raposo. Therefore, the Project's access is considered consistent with code requirements and improved from existing conditions.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for fire protection?

As detailed in Section 5, The Project is projected to add a conservatively estimated 105 calls per year to the SDFRD's existing call load, which considers higher call volumes associated with older age groups. The primary response (first due) would be provided by Station 42, which averaged 1,584 calls in 2016, or roughly 4.3 calls per day. The addition of 105 calls/year (0.29 calls/day) to a station that currently responds to 4.3 daily calls is considered insignificant and the station's capacity to respond to the additional calls is available, as analyzed in Section 5.1.2 of this FPP. The anticipated 4.6 calls per day is below what would be considered a busy station. For perspective, urban fire stations that respond to five calls per day are considered average and 10 calls per day would be considered a busy station while a suburban station that responds to roughly 8 to 10 calls per day can be considered busy (Hunt 2013).

Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The Project will be served by San Diego Public Utilities Department - Water and sufficient water supplies will be available to serve the Project from existing entitlements and resources. The pressures in the development will remain above 20 psi at 2,500 gallons per minute when meeting the fire requirements for the SDFRD. The measures described in the responses to these significance questions are provided more detail in the following sections.

4 ANTICIPATED FIRE BEHAVIOR MODELING

4.1 Fire Behavior Modeling

Following field data collection efforts and available data analysis, fire behavior modeling was conducted to document the type and intensity of fire that would be expected adjacent to the Proposed Project given characteristic site features such as topography, vegetation, and weather. The BehavePlus 5.0.5., fire behavior modeling software package was utilized to analyze fire behavior for the wildland fuels along the eastern edge (along I-15) of the property and on the east facing slopes of Black Mountain, which are remote from the western edge of the property. Results are provided below and a more detailed presentation of the BehavePlus analysis, including fuel moisture and weather input variables, is provided in Appendix B.

4.2 BehavePlus Fire Behavior Modeling Effort

Fuel Models are simply tools to help fire experts realistically estimate fire behavior for a vegetation type. Fuel models are selected by their vegetation type; fuel stratum most likely to carry the fire; and depth and compactness of the fuels. Fire behavior modeling was conducted for vegetative types that surround the proposed development. The vegetation types are represented primarily by three fuel models as shown in Table 2. Other fuel models may exist, but not at quantities that significantly influence fire behavior in and around the proposed development. Fuel models were selected from *Standard Fire Behavior Fuel Models: a Comprehensive Set for Use with Rothermel's Surface Fire Spread Model* (Scott and Burgan 2005).

Table 2
Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, Sparse, Dry Climate Grass	More prevalent on east side of property along I-15 corridor intermixed with ice plant.	<1.0 ft.
SCAL 18	Sagebrush/buckwheat	Fuel type is concentrated on the dryer south and west facing slopes of the Black Mountain Open Space Park.	3.0 ft.
Sh5	High Load Dry Climate Shrub	Fuel type is found on the north and east side of Black Mountain	8.0 ft.

4.3 Fire Behavior Modeling Results

Fire Behavior results derived from the BehavePlus modeling efforts are presented in Table 3 and in Figure 6. Four focused analyses (fire scenarios) were completed, each assuming worst-case

fire weather conditions for a fire approaching the Project site from the west or east. The adjacent areas were modeled as a Fuel Model Gr4 (Moderate Load grasslands fuel bed) and Fuel Model Sh5 (Chaparral/coastal sage scrub fuel bed). This detailed analysis compared fire behavior outside the proposed development with outputs including flame length (feet), rate of spread (mph), fireline intensity (BTU/ft/s), and spotting distance (miles).

Table 3
BehavePlus Fire Behavior Modeling Results

Fire Scenario	Flame Length (feet)	Spread Rate (mph)	Fireline Intensity (Btu/ft/s)	Spot Fire (miles)
Scenario 1: grass-ice plant fuels on east facing slope, 8% upslope, Peak weather				
Sparse Grass (Gr1)	3.1	0.5	67	0.3
Scenario 2: grass-ice plant fuels on east facing slope, 4% upslope, Peak weather				
Sparse Grass (Gr1)	3.1	0.5	67	0.3
Scenario 3: Mixed chaparral and sage scrub fuels on north/south facing slopes, 25%-30%% downslope; Summer weather				
Chaparral (Sh5)	23.2	2.0	5,296	0.6
Coastal Sage Scrub (SCAL 18)	24.7	1.0	6,060	0.7
Scenario 4: Mixed chaparral and sage scrub and chaparral on north/south facing slopes, 15%-30% downslope; Summer weather				
Chaparral (Sh5)	23.5	2.1	5,403	0.6
Coastal Sage Scrub (SCAL 18)	25.0	1.1	6,205	0.7

Based on the results of BehavePlus analysis, wildfires with the most fire intensity will occur during on-shore, wind patterns (summer weather conditions) and are expected to be of moderate severity with flames lengths of 23 to 25 feet and moderate spread rates (approximately 2.0 mph) downslope towards the Glens Community adjacent to the Proposed Project site. In contrast, a fire approaching the Project from the east under Santa Ana winds and burning in grass-ice plant fuels would produce approximately 3-foot flame lengths, fireline intensities under 67 Btu/ft/s, and spread rate of less than 1.0 mph. Even though grass fires can typically ignite or spread quickly, the grass fuel bed within the Caltrans ROW is routinely cut in height to reduce their fire potential. Spotting distances, where airborne embers can ignite new fires downwind of the initial fire, are approximately 0.3 mile (peak weather) and 2.0 miles (summer, on-shore breeze).

It should be noted that the results presented in Table 3 depict values based on inputs to the BehavePlus software package. Minute site changes are not accounted for in this analysis. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns. However, given the site's fire environment discussed previously, the model appears to capture the essence of potential wildfire behavior.

BehavePlus Fire Behavior Inputs

Model Variable	Summer Weather Condition	Peak Weather Condition
Fuel Models	Sh5, SCAL 18	Gr1
1 h fuel moisture	3%	2%
10 h fuel moisture	6%	3%
100 h fuel moisture	8%	5%
Live herbaceous moisture	60%	30%
Live woody moisture	90%	50%
20 ft. wind speed	19 mph	41 mph
Wind direction	225 degrees	45 degrees
Wind adjustment factor (BehavePlus)	0.6	0.4

BehavePlus Fire Behavior Modeling Results

Fire Scenario	Flame Length (feet)	Spread Rate (mph)	Fireline Intensity (Btu/ft/s)	Spot Fire (miles)
Scenario 1: grass-ice plant fuels on east facing slope, 8% upslope, Peak weather				
Sparse Grass (Gr1)	3.1	0.5	67	0.3
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Chaparral (Sh5)	23.2	2.0	5,296	0.6
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Scenario 4: Mixed chaparral & sage scrub & chaparral on north/south facing slopes, 15%-30% downslope; Summer weather				
Chaparral (Sh5)	23.5	2.1	5,403	0.6
Coastal Sage Scrub (SCAL 18)	25.0	1.1	6,205	0.7

SOURCE: AERIAL- BING MAPPING SERVICE

DUDEK

0 500 1,000 Feet

FIGURE 6

BehavePlus Fire Behavior Modeling

The Junipers Fire Protection Plan

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4.4 Project Area Fire Assessment

Large wildfires have occurred within five miles of the Junipers Project site in recorded history. **However, the Proposed Project Site, once developed, would not facilitate wildfire spread, especially given the ignition resistance of the structures and planned landscape.**

The closest wildland fuels are located to the west of the Project in the Black Mountain Open Space Park. The terrain slopes up and away from the developed areas west of the Preserve. Additionally, extreme fire weather typically includes Santa Ana winds, which would tend to blow wildfire away from the developed areas of the Glens and the planned Junipers communities.

Wildfire during a typical weather day where an on-shore wind from the west occurs would not behave as aggressively due to the lower wind speeds, higher humidity, and higher fuel moistures. This type of fire, or a wildfire burning to the east/northeast (Twin Peaks or beyond), could result in embers that are blown onto and over the Junipers Project.

Wildland fires are a common natural hazard in most of southern California with a long and extensive history. Southern California landscapes include a diverse range of plant communities, including vast tracts of shrublands. However, these fuel types are not found on the Junipers site nor would they occur following development. Wildfire in this Mediterranean-type ecosystem ultimately affects the structure and functions of vegetation communities (Keeley 1984) and will continue to have a substantial and recurring role (Keeley and Fotheringham 2003). Supporting this are the facts that 1) native landscapes, from forest to grasslands, become highly flammable each fall and 2) the climate of southern California has been characterized by fire climatologists as the worst fire climate in the United States (Keeley 2004) with high winds (Santa Ana) occurring during autumn after a six-month drought period each year. Based on this research, the anticipated growing population of north County WUI areas, and the regions fire history, it can be anticipated that large wildfires will occur in the open space areas of San Diego County, with the Black Mountain Open Space Park and Twin Peaks, being no exception. However, as described, wildfires in these areas would have limited impact on the Junipers ignition resistant residences and landscape.

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5 EMERGENCY RESPONSE AND SERVICE

5.1 Fire Facilities

The Project is located within the SDFRD jurisdictional response area. SDFRD currently operates 41 active Fire Stations, four of which are analyzed herein due to their proximity to the Junipers Project. Table 4 provides a summary of the SDFRD fire and emergency medical delivery system for Fire Stations 33, 40, 42 and 44.

Table 4
SDFRD Fire and Emergency Medical Response to the Junipers

Fire Station	Address	Staffing	Apparatus
33	16966 Bernardo Center Drive San Diego, CA 92128	4 person engine crew; Paramedic ambulance crew	One Type I, one Type III, one Paramedic ambulance
40	13393 Salmon River Road San Diego, CA 92128	4 person engine crew with Paramedic	One Type I engine, one Type III engine, one Truck, one Light and Air, one Paramedic
42	12119 World Trade Drive San Diego, CA 92128	4 person engine crew	One Engine
44	10011 Black Mountain Road San Diego, CA 92108	4 person engine crew; BC	One Type I and one Truck; one Battalion Unit

The closest station is FS 42 located at 12119 World Trade Drive which includes one engine staffed with three fire fighters 24-hours per day/seven days per week. FS 40, located at 13393 Salmon River Road, is the next closest station and staffs a minimum of three fire fighters 24-hours per day/seven days per week and houses an engine, a brush engine, a ladder truck a light and air unit and a Paramedic. Station 44 is the next closest SDFRD station and is located at 10011 Black Mountain Road. The station staffs three on-duty, 24-hours per day and houses a fire engine, a ladder truck, and a Battalion Chief unit. Station 33 is located at 16966 Bernardo Center Drive and houses a fire engine, a brush engine and a Paramedic.

5.1.2 Estimated Calls and Demand for Service from the Project

As presented in Table 5, using 2016 call volume data (SDFRD WebSite: https://www.sandiego.gov/fire/about/firestations), Stations 33, 40, 42 and 44, the four closest stations, ran 2,988, 2,059, 1,584 and 2,219 calls in 2016, averaging 8.2, 5.6, 4.3 and 6.1 calls per day, respectively.

Table 5
SDFRD Call Volume Totals for CY 2016

Response within IA	*Engine 33*	*Engine 40*	*Engine 42*	*Engine 44*
Medical Aid	2,593	1,692	1,315	1,802
Fire	162	130	101	165
Hazardous Material Response	192	204	148	213
Rescue	27	17	12	24
Public Assists/Others	14	16	8	15
Annual Total Response	**2,988**	**2,059**	**1,584**	**2,219**
Total Calls Per Day	**8.2**	**5.6**	**4.3**	**6.1**

Note.
* An additional Carmel Mountain Ranch Fire Station is planned and funded. The station would be located at Carmel Valley Road and Winecreek Road. This station would be approximately 3.75 miles from the Project's primary entrance.

The estimated incident call volume at buildout from the Junipers Project is based on a conservative estimate of the maximum potential number of persons on site at any given time (considered a "worst case" scenario). The Project includes up to 536 residential units, a total population of up to 911 people was calculated for the "worst case" scenario based on an average unit occupancy of 1.7 (adjusted down based on the Project's age restriction)[3].

The per capita call volume for SDFRD was calculated for 2016 based on a population of 1,337,000 people that generated 154,263 calls. The resulting per capita call volume is 0.115. Applying this per capita call volume to the Junipers estimated maximum population of 911 people, the estimated call volume generation is up to 105 calls per year (roughly 0.29 calls per day), 85% of which (131 per year) are expected to be medical-related calls.

Medical calls are the largest component of the SDFRD's call volume, as is typical with most fire agencies. Typical fire departments, especially urban fire department's call volume, includes 80% or more medical related responses. Although elderly persons may utilize emergency services at higher rates (Blanda 2005), it is assumed that those over 85, which have the highest usage would no longer be living independently within the Junipers housing. Those over 65, which are higher than younger persons, could account for higher call volumes, but the increase is not considered to be substantially higher than the conservative estimate of 105 calls. The utilized per capita call volume utilizes City-wide call volumes and is considered appropriate for application at this site

[3] Pursuant to the density factor of 3.0 persons per household unit based on the Demographic and Socio Economic Estimates for the RPCP from SANDAG (SANDAG 2018a) the project would increase the area's population by up to 1,608 persons. The project is a multi-family, age-restricted development, however, and therefore a factor of 1.7 persons per household is more appropriate, based on the American Housing Survey (American Association of Retired Persons [AARP], 2011). Therefore, the population for the project's 536 housing units is estimated to be 911 persons.

because it includes dense urban city center call volumes, which are also much higher than in suburban neighborhoods. The resulting estimated increase in calls is considered negligible and therefore, no adjustment to the call volume calculations is deemed necessary.

5.2 Response Capability Impact Assessment

The available firefighting and emergency medical resources in the vicinity of the Project site include an assortment of fire apparatus and equipment considered fully capable of responding to the type of fires potentially occurring within and adjacent the Project.

The Junipers Project includes up to 536 new homes and service level requirements. The community is conservatively projected to add up to 105 calls per year (2 calls per week), mostly medical, to SDFRD's response totals. The addition of less than 0.29 calls per day is not considered a significant impact. For perspective, Station 42 ran 4.3 calls per day. A busy urban fire station would run 10 or more calls per day. An average station runs about 5 calls per day.

5.3 Emergency Response Travel Time Coverage

In addition to evaluating the call volume generated by the Project and its potential for impacts on SDFRD, Dudek also conducted a travel time coverage analysis in order to determine if the Project would meet SDFRD's response goal of first-due fire unit arriving within 7 minutes 30 seconds, 90% of the time. The 7 minute 30 seconds total response goal (90% of the time) includes dispatch and turnout time. The travel time goal is five minutes and is defined as when the engine's wheels roll to arriving at the site. The City does not currently meet this standard for most stations, but has strategic plans to close gaps through construction of additional fire stations. The average response times[4] of these stations to all calls within their first-in response areas are as follows:

- Station 33: 9 minutes 2 seconds
- Station 40: 8 minutes 24 seconds
- Station 42: 8 minutes 5 seconds
- Station 44: 8 minutes 23 seconds

The Junipers Project would be primarily serviced by existing Fire Station 42, located 1.48 miles from the Project's primary entrance. The estimated distance to the furthest point in the Project would be an additional 1.08 miles, totaling 2.56 miles. Because Station 42 is a four person engine company (4

4 Source: San Diego Fire-Rescue Department Standards of Response Cover Review. Citygate. February 22, 2017

firefighters), and the City follows the Occupational Safety and Health Administration two-in and two-out standard, the weight of the initial response is considered sufficient.

Dudek conducted emergency response analysis from existing fire stations to the Project to determine potential response coverage. The modeling utilized standard ISO response formula and input variables. Emergency travel time for first arriving engines from each station are provided in Table 6. In addition, and not evaluated, SDFRD has automatic aid partnerships with surrounding fire agencies that will send their closest units into the City if the City's units are committed or not as close as other emergencies. These additional response resources are not analyzed in this FPP, but would include City of Poway Fire Department and Rancho Santa Fe Fire Protection District.

In summary, initial fire response for the improved portions of the Juniper Project area would be provided by SDFRD's Station 42, due to its proximity that enables travel time response within 3 minutes 10 seconds to the Project's entrance and within five minutes travel to all improved areas. This response travel time is consistent with the City's current goal.

Table 6
The Junipers SDFRD Emergency Response Analysis*

San Diego Fire Department Station No.	Total Mileage to Junipers (Primary Entrance/Furthest Structure)	Estimated Response Travel Time	Travel Time to Furthest Structure
		First Arriving	*First Arriving*
33	4.20/5.28	7'47"	9'38"
40	3.93/5.01	7'19"	9'10"
42	1.48/2.56	3'10"	5'0"
44	6.85/7.93	12'17"	14'8"

Note:
* Table 6 presents results of response travel time utilized the ISO formula (T=0.65+1.7D) that discounts speed to account for slowing along the response route whereas.

As indicated in Table 6, the first arriving engine from Station 42 achieves a 3 minutes 10 seconds" travel time to the Project entrance. Up to an additional 1 minute 50 seconds would be required to respond to the most distant structure from the entrance. However, all of the site's structures can be responded to within five minutes travel, conforming to the response goal of 7 minutes 30 seconds, 90% of the time (5 minutes travel + dispatch + turnout).

These response time estimates consider the incorporation of roundabouts at Penasquitos Drive and the Project entrance (Janal) and within the Junipers Project. Per Federal Highway Administration Publication No. FHWA-14-098:

- Roundabouts are designed for safety and efficiency of all users and can actually improve response times by eliminating/minimizing stops and delays.
- Roundabouts are safer than intersections, even when signals are fitted with preemption devices.
- Emergency vehicles slow down to pass through intersections similarly to slowing down to proceed through a roundabout.
- Roundabouts accommodate larger vehicles and often include rolled curbs and truck aprons for rear wheels

5.4 Impacts and Mitigation

5.4.1 Fire Response

In general, FPPs review if a project is in a high fire hazard severity zone or WUI, and the ramifications of such location. As noted throughout this FPP and shown on previously referenced Figure 1, the Junipers project is separated from open space by the existing Glens development and Penasquitos Drive. This issue, therefore, does not apply to the project, and no WUI-related impact would occur. The project is within ember cast from wildland fuels, and appropriate ember resistance has been designed into the Junipers building requirements.

The Junipers Project includes 536 new single- and multi-family housing units and up to 911 people (536 units x 1.7 people per unit). Service level requirements are not impacted by the Project based on the additional resources that would be available with the Project along with the existing call volume. The requirements described in this FPP are intended to aid fire-fighting personnel and minimize the demand placed on the existing emergency service system.

Cumulative impacts from this type of project can cause fire response service decline and must be analyzed for each project. The Junipers Project represents an incremental increase in service demand due to the number of new structures and people living in or using the community. Based on the calculations presented in the preceding sections, and the estimated calls per day generated by the Project, The Proposed Project is anticipated to have a low impact on the response capability of the existing SDFRD Fire Stations, particularly Station 42 which would be the first due engine.

The potential impacts to the firefighting and response resources and to the residents residing within this area are considered insignificant with respect to wildland fire. The Project's inclusion of the most recent fire safety codes and a layered fire protection system, designed to reduce demands placed on the fire responders while minimizing exposure of humans to potentially harmful fire environments, will result in wildfire exposure levels that are below the significant threshold. The fact that most of the Project site has not been placed in a high or very high fire hazard severity zone indicates that SDFRD and CAL FIRE agree that the fuels and terrain present lower risk of wildfire.

Features which are required and are therefore typically not considered mitigation, but that are relatively new Code requirements and play a critical role in minimizing structure ignition are; ignition resistant construction including roofs, walls and decks, vent restrictions to exclude ember penetration, interior fire sprinklers, windows (dual pane/tempered), and fuel reduction areas. Although fire agencies do not provide "credit" for these features since they are required in the code, they do provide measureable safety improvements when used and are in the Code because they are so effective. Among other features that provide fire protection to the Proposed Project are:

1. Specialized firefighting apparatus within the SDFRD fleet for wildland and structure fires along with highly trained firefighters;
2. Customized fire resistive landscaping throughout the site that will be managed and maintained throughout the year; Highly restrictive Fire and Building Codes for both residential and commercial/industrial buildings; and
3. Robust mutual and automatic aid agreements that provide a large arsenal of firefighters, and ground- and aerial- based firefighting apparatus.

6 FIRE SAFETY REQUIREMENTS – INFRASTRUCTURE, BUILDING IGNITION RESISTANCE, AND DEFENSIBLE SPACE

6.1 Roads

6.1.1 Access Roads

Project Area access, including road widths and connectivity, will comply with the requirements of the SDFRD FPB Policy A-14-1 and the CFC Section 503. The Project's on-site roads will be private. Primary access to the Project is off Penasquitos Drive. Emergency egress is provided directly from/to Carmel Mountain Road via Private Driveway "V". An emergency only access route is also provided to Del Diablo Street. Previously referenced Figure 2 illustrates the Junipers access points. Figures 7, 8 and 8A illustrate Private Driveway "V" and the emergency fire access road (which can be designated for resident evacuation from the Glens by the Fire Department) connecting Andorra Way and Corte Raposo configurations, respectively.

- All fire access and vehicle roadways will be of asphaltic concrete or approved alternative and designed and maintained to support the imposed loads of fire apparatus (not less than 75,000 pounds) that may respond, including Type I, II, and III engines, ladder trucks, and ambulances. Proposed Development Footprint roads will meet City of San Diego Department of Public Works' (DPW) Street Design Standards. Access roads will be at a minimum provided first layer of pavement prior to combustible construction occurring.
- Road grades shall not exceed 12 percent for asphalt and 15 percent for concrete.
- Any dead end roads longer than 150 feet will have approved provisions for fire apparatus turnaround. Fire apparatus turnarounds will include a turning radius of a minimum 50 feet (CGC Section 503.2.7), measured to the inside edge of improved width.
- Roadways and/or driveways will provide fire department access to within 150 feet of all portions of the exterior walls of the first floor of each structure.
- Vertical clearance of vegetation along roadways will be maintained at 13 feet, 6 inches.
- Roundabouts are proposed along Penasquitos Drive at Janal and at three locations within the Juniper Project.
- Fire access roads for each phase will meet Proposed Project approved fire code requirements and/or mitigated exceptions for maximum allowable dead-end distance, paving, and fuel management prior to combustibles being brought to the development area.

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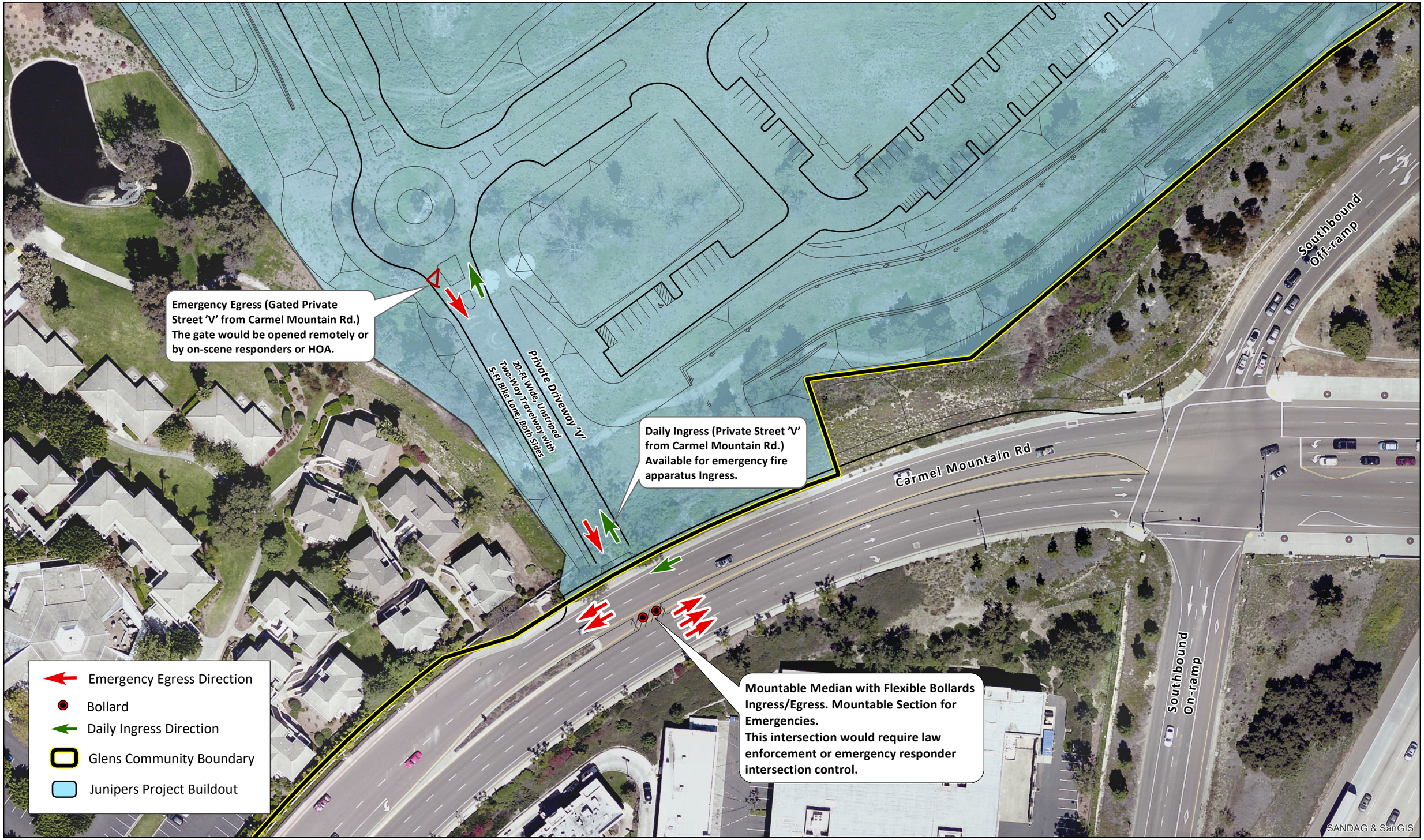

SOURCE: BASEMAP-SANGIS, 2017

DUDEK

0 35 70 Feet

FIGURE 7

Southeast Roundabout

The Junipers Fire Protection Plan

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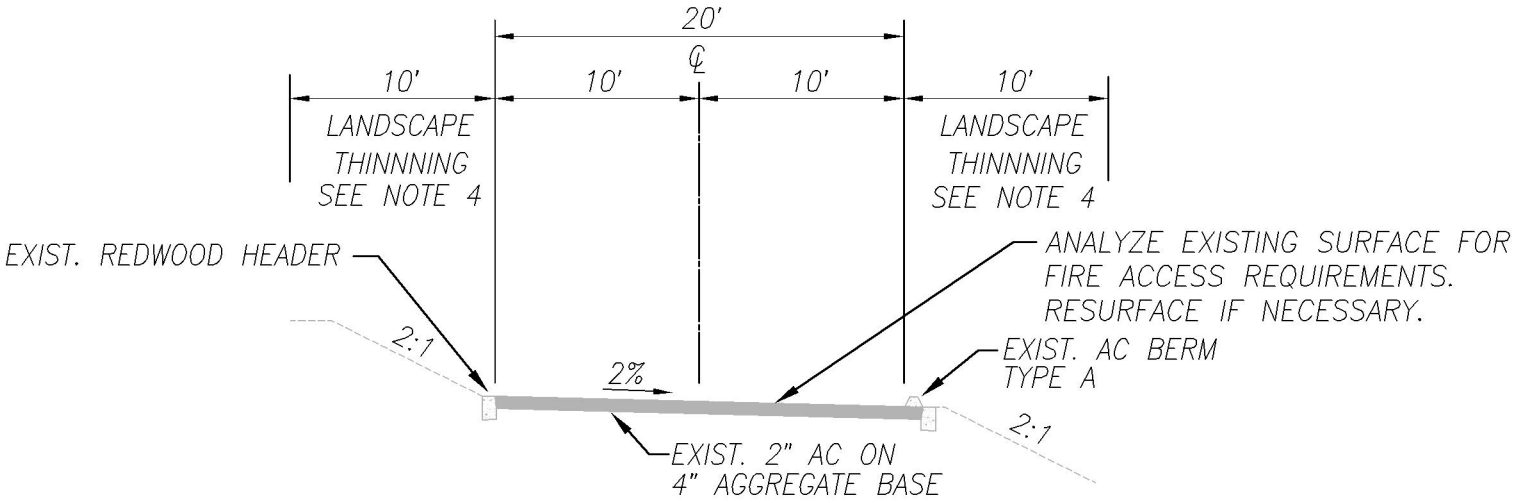

PROPOSED EMERGENCY ACCESS ROAD

NOT TO SCALE

NOTES

1. PARCEL "A" – MAP NO. 6982
   - PARCEL 6 OF FIDELITY TITLE (989–30014972)
   - NO HOA INTEREST
2. ANDORRA WAY – RIGHT OF WAY
   - RESERVED ON MAP NO. 8352 AND ACCEPTED AS ROW FOR PUBLIC STREET PER RESOLUTION 267496 ADOPTED 1/20/1987.
   - NO HOA INTEREST
3. PEDESTRIAN AND NON–MOTORIZED VEHICULAR RIGHT OF WAY
   - PARCEL 4 OF FIDELITY TITLE (989–30014972)
   - SEWER & WATER EASEMENT GRANTED IN LOCATION OF ROW 2/11/1987
   - PEDESTRIAN AND NON–MOTORIZED VEHICULAR RIGHT OF WAY DEDICATED AND ACCEPTED ON MAP NO. 11829 FILED 6/3/1987
   - UPON VACATION, ROW WOULD LIKELY REVERT TO LOT 1 OF MAP 11829 (APN 313–580–01, JACQUELINE B. TA AND JAMES PHAM)
   - NO HOA INTEREST
   - "EMERGENCY ACCESS RD" PER CITY OF SAN DIEGO DWG. NO. 23588–6–D.
   - **PROPOSED ENTITLEMENTS**
     - JUNIPERS HOA TO BOND FOR REPLACEMENT OF GATES
     - JUNIPERS HOA TO PERFORM QUARTERLY BRUSH MANAGEMENT OF AREA.
4. LANDSCAPE THINNING AREA WITHIN LOT 1 – MAP NO. 11712
   - LANDSCAPE THINNING AREA CROSSES OVER BUILDING RESTRICTED AND DRAINAGE EASEMENTS GRANTED TO THE CITY OF SAN DIEGO PER MAP NO. 11712 AND AN EASEMENT TO SDG&E RECORDED 9/29/1967 AS FILE NO. 149737 SHOWN ON MAP NO. 11712.
   - NO HOA INTEREST
5. ADDITIONAL NOTES
   - JUNIPERS HOA WILL PERFORM BRUSH MANAGEMENT IN IDENTIFIED ROAD–SIDE ZONES WIT THE IMPROVEMENTS TO FIRE ACCESS ROAD.
   - RECURRING MAINTENANCE WILL BE CITY RESPONSIBILITY ON LOT 1 (MAP NO. 117172). THE JUNIPERS HOA WILL PROVIDE THE MAINTENANCE IF THE OTHER ENTITIES FAIL TO PERFORM.
   - SAN DIEGO FIRE AND RESCUE DEPARTMENT AND/OR SAN DIEGO POLICE DEPARTMENT CONTROLS THESE GATES DURING EMERGENCIES.

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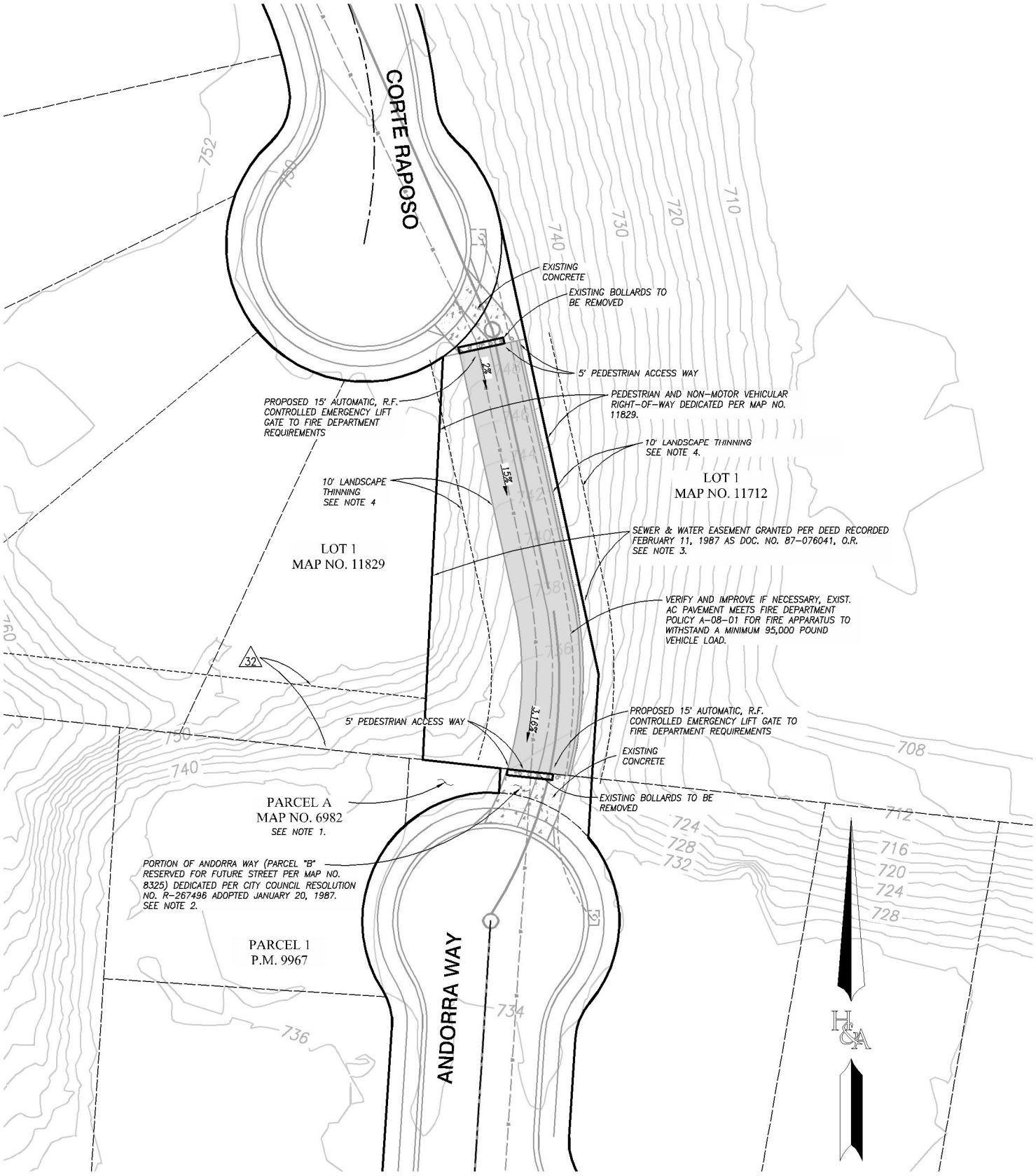

32 EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS SET FORTH IN A DOCUMENT: IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
PURPOSE: UTILITIES, INGRESS AND EGRESS RECORDING DATE: SEPTEMBER 29, 1967
RECORDING NO: 149737 OF OFFICIAL RECORDS AFFECTS: PORTIONS OF THE LAND, THE EXACT LOCATION OF WHICH CAN BE DETERMINED BY EXAMINATION OF THE ABOVE-MENTIONED INSTRUMENT, WHICH CONTAINS A COMPLETE LEGAL DESCRIPTION OF THE AFFECTED PORTIONS OF SAID LAND.

ANDORRA WAY DETAIL

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Street parking will be provided on one or both sides of residential collector streets, depending on the location within the Project Area. Parking will be assumed to be 6 to 8 feet in width. Where road widths do not accommodate parking, restrictions will apply, per the DPW Road Modification, and the streets will be posted with signs stating "No Parking; Fire Lane." Street sections are to be reviewed and approved by the City DPW and the City Fire Marshal.

- Roads with a median or center divider will have at least 14 feet unobstructed width on both sides of the center median or divider. Emergency fire truck access points will be provided through the center divider at 1,000-foot intervals, where road segment length allows.
- Developer will provide information illustrating the new roads, in a format acceptable to the SDFRD, to update the SDFRD maps.

6.1.2 Secondary Access

- The Project provides secondary access (Private Driveway "V") from Carmel Mountain Road. Emergency egress is also provided in the southern Project extents onto Carmel Mountain Road from (Private Driveway "V"), and another emergency only route occurs in the northwest portion of the project discharging directly to Del Diablo Street.
- Figure 2, the Project Site Plan, indicates Proposed Project road circulation and secondary access. Secondary access can be achieved from Carmel Mountain Road and off Del Diablo Street. Private Driveway "V" connects to Carmel Mountain Road and rolled curb median with flexible bollards would be provided to enable emergency managers to direct traffic to the east during an emergency evacuation (previously referenced Figure 8). The location of these entrances satisfies the need for secondary access.
- The longest dead-end road (cul-de-sac) allowed by the CFC and CCR Title 14 varies by phase and lot size minimums. Maximum dead end road length in Junipers Project is 800 feet. No dead-end cul-de-sac lengths in these areas will exceed 800 feet.
- Cul-de-sac bulbs are required on dead-end roads in residential areas where roadways serve more than two residences. Cul-de-sacs will be provided with a paved radius of 42 feet to allow for street parking within the cul-de-sac.
- Roadway design features (e.g., speed bumps, humps, speed control dips, planters, and fountains) that could interfere with emergency apparatus response speeds and required unobstructed access road widths will not be installed or allowed to remain on roadways. Traffic Calming features (i.e., raised intersections, intersection neck downs, roundabouts and parallel bay parking with landscape pop-outs) are proposed and may be allowed, subject to approval by the City DPW and Fire Marshal.

6.2 Gates

Access gates proposed for the Proposed Project will comply with SDFRD codes and public roads will not be gated. Gates are located within the Project as illustrated in previously referenced Figure 2. Gates will comply with SDFRD standards for electric gates and will not represent a dead end road condition that jeopardizes the dead end road length requirements for this Proposed Project.

- Access gates are to be equipped with a KNOX key switch, which overrides all command functions and opens the gate. All proposed gates will be equipped with sensors for detecting emergency vehicle "Opticom" strobe lights and/or sirens from any direction of approach. Strobe detection and key switches will be provided on the interior and exterior of gates. Gates will automatically open when any vehicle approaches via vehicle detection loops.
- Switches may be dual keyed for SDFRD and Law Enforcement access.
- Gate activation devices will be equipped with a battery backup or manual mechanical disconnect in case of power failure.
- Further, gates will be:
    - Wider than the roadway;
    - Inclusive of area lighting;
    - Constructed from non-combustible materials;
    - Inclusive of provisions for manual operation from both sides, if power fails. Gates will have the capability of manual activation from the development side, via contact by a person or a vehicle (including a vehicle detection loop);
    - Located 30 feet from any intersecting road; and
    - Operable by activation with fire truck radio.

6.3 Driveways

Any structure that is 150 feet or more from a common road in the Development Footprint will have a paved driveway meeting the following specifications:

- Grades less than 15% with surfacing and sub-base consistent with the City of San Diego Parking Design Manual.
- Driveways serving two houses or fewer will be 16 feet wide unobstructed with a fire apparatus turnaround. Driveways serving more than two houses will be 24 feet wide unobstructed.

- Driveways in excess of 150 feet will be provided hammerhead turnarounds to City Code.
- Driveway gates to comply with Section 6.3.2, above.

Identification of roads and structures will comply with CFC, Section 96.1.505, as follows:

- All structures will be identified by street address numbers at the structure. Numbers will be 4 inches in height, 0.5-inch stroke, and located 6 to 8 feet above grade. Addresses on non-residential buildings will be 6 inches high with 0.5-inch stroke. Address numbers will contrast with background.
- Multiple structures located off common driveways will include posting addresses on structures, on the entrance to individual driveways, and at the entrance to the common driveway for faster emergency response.
- Structures 100 feet or more from a roadway will include numbers at the entrance to the driveway.
- Proposed roads within the Proposed Project development will be named, with the proper signage installed at intersections to the satisfaction of the SDFRD and the DPW.
- Streets will have street names posted on non-combustible street signposts. Letters/numbers will be 4 inches high, reflective, on a 6-inch-high backing. Signage will be 7 feet above grade. There will be street signs at the entrances to the development, all intersections, and elsewhere as needed subject to approval of the Fire Chief.
- Access roads to private lots to be completed and paved prior to lumber drop and prior to the occurrence of combustible construction.

6.4 Structures

6.4.1 Ignition-Resistant Structural Requirements

This section outlines ignition-resistant construction (for all structures) that will exceed the requirements of the SDFRD Fire Code. The following construction practices respond to the requirements of the CBC Chapter 7A “Materials and Construction Methods for Exterior Wildfire Exposure” and the CFC, Chapter 49 “Requirement for Wildland-Urban Interface Areas”.

While these standards will provide a high level of protection to structures in this development, there is no guarantee of assurance that compliance with these standards will prevent damage or destruction of structures by fire in all cases.

All new structures will be constructed to ignition resistant standards. Each of the proposed buildings will comply with the enhanced ignition-resistant construction standards of the latest CBC Code (Chapter 7A). These requirements address roofs, eaves, exterior walls, vents, appendages, windows, and doors and result in hardened structures that have been proven to perform at high levels (resist ignition) during the typically short duration of exposure to burning vegetation from wildfires.

6.4.2 Additional Requirements and Recommendations Based on Occupancy Type

Clubhouses or other structures will comply with occupancy requirements of the SDFRD Fire and Building Codes.

6.5 Fire Protection Systems

6.5.1 Water

The Project will be served by City of San Diego Public Utilities Department: Water. Sufficient water supplies will be available to serve the Project from existing entitlements and resources. The static water pressure will remain above 20 psi at 2,500 gallons per minute when meeting the fire requirements for the SDFRD.

6.5.2 Fire Hydrants

Hydrants shall be located along fire access roadways as determined by the SDFRD Fire Marshal to meet operational needs, at intersections, at the beginning radius of cul-de-sacs, and at a code not further apart than 600 feet (on-center) spacing of fire access roadways, pursuant to the City of San Diego Fire Code. Fire hydrants shall be fully operable before combustible materials are brought on site. Hydrants will be consistent with City of San Diego Design Standards (Policy FS-0410) as follows:

- ***Required installations.*** The location, type and number of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on the public or private street, or on the site of the premises to be protected or both. Fire hydrants shall be accessible to the fire department apparatus by roads meeting the requirements of section 503 of the CFC. Fire service laterals, valves, backflow preventers, and meters will be installed on site as required by the SDFRD. All fire department connections shall be installed in accordance with mounting requirements as specified by the SDRFD Fire Marshal.

- ***Location of fire hydrants.*** Hydrants will be in place and serviceable prior to delivery of combustible materials to the site. Fire hydrants shall be located according to engineering standards and as required by the fire code official using the following criteria and taking into consideration departmental operational needs. Hydrants within Project neighborhoods shall be 600 feet apart. Fire engines shall travel no further than 300 feet in any direction to reach a hydrant. Prior to the issuance of building permits, the applicant shall submit to SDRFD plans demonstrating a water system capable of handling the fire flow requirements.
- ***Fire hydrant construction and configuration***. All fire hydrants shall be of bronze construction, including all internal parts except seats. Alternative materials may be used if approved by SDFRD's Fire Marshal and City of San Diego Public Utilities Department. The stems shall be designed and installed in a manner that will ensure that they will not be projected outward from the main body by internal water pressure due to disassembly. The number and size of fire hydrant outlets shall be at a minimum two 4-inch ports and one, 2 1/2-inch port, except R-3. Hydrants protecting R-3 occupancies can have two 2 ½ ports and one 4-inch port.
- ***Signing of water sources and fire department connections***. Fire hydrants shall be identified by a reflectorized blue marker and fire department connections shall be identified by a reflectorized green marker, with a minimum dimension of 3 inches, in the center of the travel lane adjacent the water source. Crash posts will be provided where needed in on-site areas where vehicles could strike fire hydrants and will be consistent with Section 312 of the CFC.
- ***Vegetation Clearance***. A three-foot clear space (free of ornamental landscaping and retaining walls) shall be maintained around the circumference of all fire hydrants.

6.5.3 Fire Sprinklers

All structures will be provided interior fire sprinklers. Automatic internal fire sprinklers shall be in accordance with National Fire Protection Association (NFPA) 13 or 13-D and City of San Diego installation requirements as appropriate. Actual system design is subject to final building design and the occupancy types in the structure.

6.5.4 Smoke Alarm Systems

All residential units shall have electric-powered, hard-wired smoke detectors and fire alarm systems in compliance with SDFRD Fire Code. Hard-wired smoke alarms are to be equipped with battery backup.

6.6 Defensible Space/Fuel Modification Zones

6.6.1 Zones and Permitted Vegetation

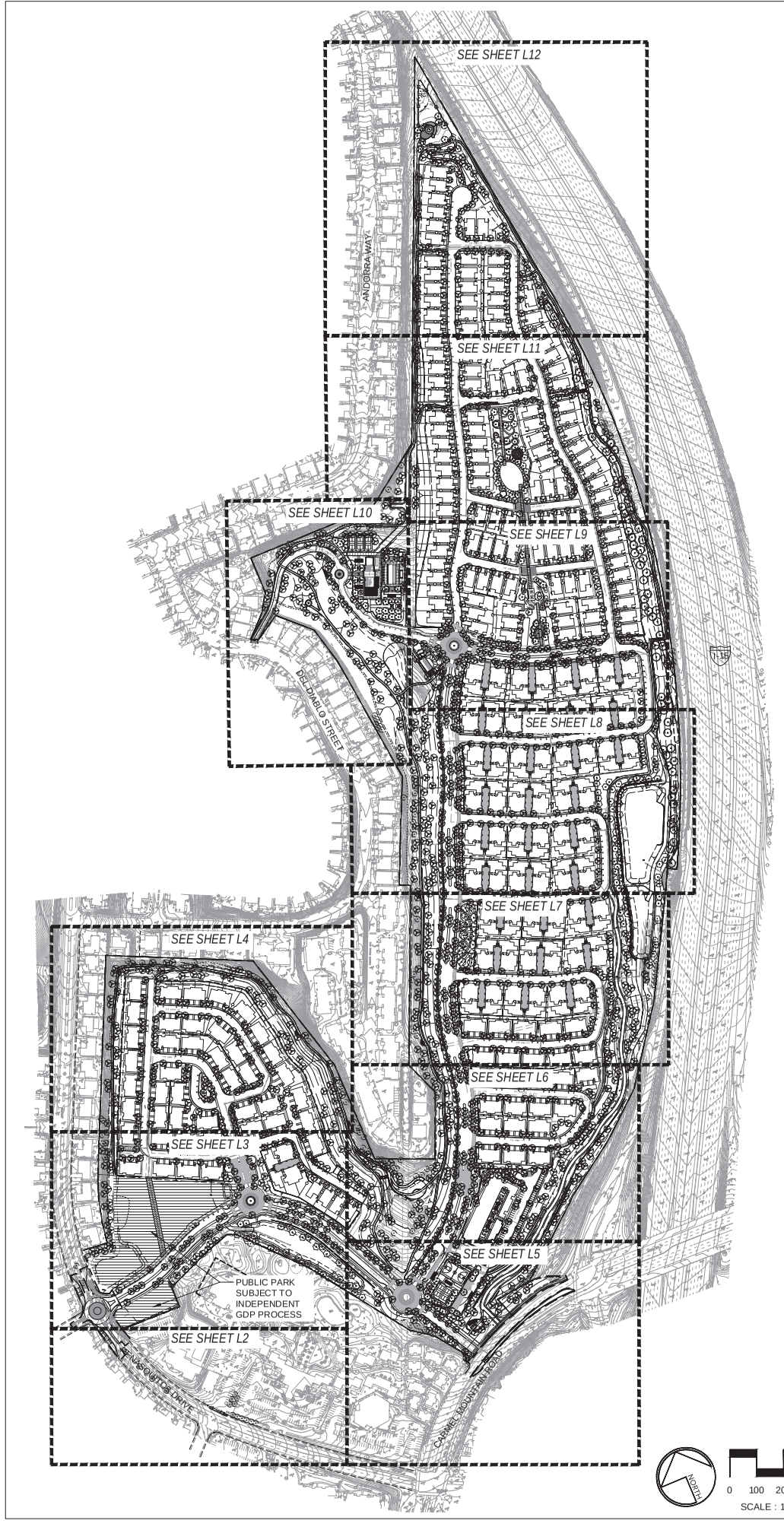
As indicated in preceding sections of this FPP, an important component of a fire protection system is the brush management areas. Brush Management Zones (BMZ) are designed to gradually reduce fire intensity and flame lengths from advancing fire by placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of all structures and adjacent open space areas. Therefore, these modified fuel areas are an important part of the fire protection system designed for this site. However, the Junipers is not directly adjacent wildland fuels, so formal BMZs are not required. Nonetheless, the Project will include fire resistive landscaping in the site-wide landscaping as an additional fire protection measure because it is within the ember zone of off-site wildland areas.

6.6.2 Brush Management Zone Requirements

Brush Management Zones are not required on this site. However, the Project will provide site-wide firesafe landscaping using the principles of BMZs. The Project would hire a qualified SDFRD-approved 3rd party inspector to provide inspections annually, as detailed in the following sections.

6.6.2.1 Fire Resistive Landscaping

All developed landscape areas internal to the Project will incorporate fire safe concepts meeting the intent of the City's Brush Management policy. All site landscaping is recommended to be planted with drought-tolerant, less flammable plants from the Proposed Project Landscape Plan (Figure 9), which was prepared by Schmidt Design Group, Inc. Plant species selection will be sensitive to the Prohibited Plant List in Appendix C, which does allow some use of these species with restrictions on densities and proximity to nearest structures. Automatic irrigation systems will be installed in landscaped area to maintain hydrated plants without over-watering, allowing for run-off, or attracting nuisance pests.



CONCEPT PLANT SCHEDULE

CONCEPTUAL MITIGATION AREA *
-

BIORETENTION - TREES
ALNUS RHOMBIFOLIA / WHITE ALDER - 40' H X 30' W
CERCIS OCCIDENTALIS / WESTERN REDBUD - 15' H X 15' W
PLATANUS RACEMOSA / CALIFORNIA SYCAMORE - 40' H X 40' W
POPULUS FREMONTII / WESTERN COTTONWOOD - 35' H X 35' W
SALIX GOODINGII / GOODING'S WILLOW - 25' H X 25' W

STREETSCAPE - TREES
ACACIA STENOPHYLLA / SHOESTRING ACACIA - 25' H X 20' W **
ARBUTUS X `MARINA` / MARINA STRAWBERRY TREE - 40' H X 30' W
CASSIA LEPTOPHYLLA / GOLD MEDALLION TREE - 25' H X 20' W
CINNAMOMUM CAMPHORA / CAMPHOR TREE - 40' H X 40' W **
CUPANIOPSIS ANACARDIOIDES / CARROT WOOD
JACARANDA MIMOSIFOLIA / JACARANDA - 30' H X 25' W
PLATANUS RACEMOSA / CALIFORNIA SYCAMORE - 40' H X 40' W
PROSOPIS CHILENSIS / THORNLESS CHILEAN MESQUITE - 30' H X 30'
QUERCUS AGRIFOLIA / COAST LIVE OAK - 40' H X 30' W
QUERCUS SUBER / CORK OAK - 40' H X 30' W
TABEBUIA IMPETIGINOSA / PINK TRUMPET TREE - 25' H X 20' W
TIPUANA TIPU / TIPU TREE - 25' H X 25' W

ENHANCED GARDENESQUE - TREES
ARBUTUS X `MARINA` / MARINA STRAWBERRY TREE - 40' H X 30' W
CASSIA LEPTOPHYLLA / GOLD MEDALLION TREE - 25' H X 20' W
CERCIS OCCIDENTALIS / WESTERN REDBUD - 15' H X 15' W
DRACAENA DRACO / DRAGON TREE - 20' H X 20' W
LAGERSTROEMIA INDICA / CREPE MYRTLE - 25' H X 20' W
LYONOTHAMNUS FLORIBUNDUS / CATALINA IRONWOOD - 30' H X 20' W
METROSIDEROS EXCELSA / NEW ZEALAND CHRISTMAS TREE - 25' H X 15'
OLEA EUROPAEA / EUROPEAN OLIVE - 20' H X 20' W
PROSOPIS CHILENSIS / THORNLESS CHILEAN MESQUITE - 30' H X 30'
RHUS LANCEA / AFRICAN SUMAC - 25' H X 25' W
TABEBUIA IMPETIGINOSA / PINK TRUMPET TREE - 25' H X 20' W
TIPUANA TIPU / TIPU TREE - 25' H X 25' W

LOOP TRAIL/ OPEN SPACE - TREES
ARBUTUS X `MARINA` / MARINA STRAWBERRY TREE - 40' H X 30' W
CERCIS OCCIDENTALIS / WESTERN REDBUD - 15' H X 15' W
CHILOPSIS LINEARIS / DESERT WILLOW - 20' H X 15' W
PINUS CANARIENSIS / CANARY ISLAND PINE - 60' H X 30' W
PINUS ELDARICA / AFGHAN PINE - 45' H X 30' W **
PINUS TORREYANA / TORREY PINE - 30' H X 30' W **
PLATANUS RACEMOSA / CALIFORNIA SYCAMORE - 40' H X 40' W
POPULUS FREMONTII / WESTERN COTTONWOOD - 35' H X 35' W
PROSOPIS CHILENSIS / THORNLESS CHILEAN MESQUITE - 30' H X 30'
QUERCUS AGRIFOLIA / COAST LIVE OAK - 40` H X 30' W
QUERCUS ENGLEMANNII / ENGELMANN OAK - 40' H X 30' W
QUERCUS ILEX / HOLLY OAK - 40' H X 30' W
QUERCUS SUBER / CORK OAK - 40' H X 30' W
RHUS LANCEA / AFRICAN SUMAC - 30' H X 25' W

SPECIMEN ACCENT - TREES
CINNAMOMUM CAMPHORA / CAMPHOR TREE - 40' H X 40' W **
QUERCUS AGRIFOLIA / COAST LIVE OAK - 40' H X 30' W
QUERCUS SUBER / CORK OAK - 40' H X 30' W

ACCENT TREES
ARBUTUS X `MARINA` / ARBUTUS STANDARD
BAUHINIA PURPUREA VARIEGATA / PURPLE ORCHID TREE
CASSIA LEPTOPHYLLA / GOLD MEDALLION TREE
CERCIS OCCIDENTALIS / WESTERN REDBUD
LAGERSTROEMIA INDICA / CRAPE MYRTLE
TABEBUIA IMPETIGINOSA / PINK TRUMPET TREE
TIPUANA TIPU / TIPU TREE

SMALL ACCCENT - TREES
CERCIS OCCIDENTALIS / WESTERN REDBUD - 15' H X 15' W
LAGERSTROEMIA INDICA / CRAPE MYRTLE - 25' H X 20' W
OLEA EUROPAEA / EUROPEAN OLIVE - 20' H X 20' W
RHUS LANCEA / AFRICAN SUMAC - 25' H X 25' W

EXISTING TREE
TO REMAIN
-

SHRUBS AND GROUNDCOVER

CONCEPTUAL MITIGATION AREA - SHRUBS/ GROUNDCOVER
BACCHARIS SCRUB PLANT PALETTE
MULE FAT SCRUB PLANT PALETTE
SOUTHERN WILLOW SCRUB PLANT PALETTE

BIORETENTION - SHRUBS/ GROUNDCOVER
CAREX SPP. / SEDGE - 1' H X 1' W
CHONDROPETALUM TECTORUM / SMALL CAPE RUSH - 2' H X 2' W
ELYMUS TRITICOIDES / BEARDLESS WILD RYE - 1' H X 2' W
IVA HAYESIANA / SAN DIEGO MARSH ELDER - 2' H X 3' W
JUNCUS SPP. / RUSH - 1' H X 1' W
LEYMUS CONDENSATUS `CANYON PRINCE` / NATIVE BLUE RYE - 2' H X 3' W
MAHONIA REPENS / CREEPING MAHONIA - 2' H X 3' W
MUHLENBERGIA RIGENS / DEER GRASS - 3' H X 3' W **

LOOP TRAIL/ OPEN SPACE - SHRUBS/ GROUNDCOVER
ACHILLEA MILLEFOLIUM / COMMON YARROW - 2' H X 2' W
AGAVE SPP. / AGAVE - 4' H X 4' W
ARTEMISIA CALIFORNICA / CALIFORNIA SAGEBRUSH - 3' H X 3' W
BACCHARIS SPP. / COYOTE BRUSH - 1' H X 3' W
CAREX PRAEGRACILIS / SLENDER SEDGE
DENDROMECON RIGIDA / BUSH POPPY - 6' H X 6' W
ENCELIA CALIFORNICA / CALIFORNIA BRITTLEBUSH - 3' H X 3' W
ERIOGONUM FASCICULATUM / CALIFORNIA BUCKWHEAT - 2' H X 3' W
FICUS PUMILA / CREEPING FIG - VINE
FREMONTODENDRON CALIFORNICUM / CALIFORNIA FLANNEL BUSH - 5' H X 10' W
GALVEZIA SPECIOSA / ISLAND BUSH SNAPDRAGON - 3' H X 3' W
HESPEROYUCCA SPP. / YUCCA - 2' H X 3' W
HETEROMELES ARBUTIFOLIA / TOYON - 5' H X 6' W
IVA HAYESIANA / SAN DIEGO MARSH ELDER - 2' H X 3' W
LEYMUS CONDENSATUS `CANYON PRINCE` / NATIVE BLUE RYE - 2' H X 3' W
LUPINUS SPP. / LUPINE - 3' H X 3' W
MAHONIA REPENS / CREEPING MAHONIA - 2' H X 3' W
MUHLENBERGIA RIGENS / DEER GRASS - 3' H X 3' W **
MYOPORUM PARVIFOLIUM / TRAILING MYOPORUM - <1' H X SPREADING
OPUNTIA SPP. / PRICKLY PEAR - 5' H X SPREADING
PENSTEMON SPP. / PENSTEMON - 2' H X 3' W
PRUNUS ILICIFOLIA LYONII / CATALINA CHERRY - 20' H X 20' W
RHAMNUS CALIFORNICA `EVE CASE` / CALIFORNIA COFFEEBERRY - 6' H X 6' W
RHUS INTEGRIFOLIA / LEMONADE BERRY - 6' H X 10' W
SALVIA SPP. / SALVIA - 3' H X 4' W
SPOROBOLUS AIROIDES / ALKALI DROPSEED - 2' H X 2' W
VIBURNUM SUSPENSUM / SANDANKWA VIBURNUM - 8' H X 5' W
VIGUIERA LACINIATA / SAN DIEGO COUNTY VIGUIERA - 2' H X 3' W

STREETSCAPE - SHRUBS/ GROUNDCOVER
AGAVE SPP. / AGAVE - 4' H X 4' W
ALOE SPP. / ALOE - 2' H X 2' W
BACCHARIS PILULARIS `PIGEON POINT` / COYOTE BRUSH - 1' H X 3' W
BOUTELOUA GRACILIS / BLUE GRAMA - 2' H X 2' W
BULBINE FRUTESCENS / STALKED BULBINE - 2' H X 3' W
CISTUS X PURPUREUS / ORCHID ROCKROSE - 4' H X 5' W
DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS - 2' H X 2' W
DIANELLA TASMANICA `VARIEGATA` / FLAX LILY - 2' H X 3' W
DIETES SPP. / FORTNIGHT LILY - 3' H X 4' W
FESTUCA CALIFORNICA / CALIFORNIA FESCUE - 1' H X 2' W
FICUS PUMILA / CREEPING FIG - VINE
GREVILLEA SPP. / GREVILLEA - 3' H X 5' W
LANTANA SPP. / LANTANA - 2' H X SPREADING
LAVANDULA SPP. / LAVENDER - 2' H X 3' W
LEYMUS CONDENSATUS `CANYON PRINCE` / NATIVE BLUE RYE - 2' H X 3' W
LIRIOPE SPP. / LILY TURF - 1' H X 1' W
LOMANDRA LONGIFOLIA `BREEZE` / DWARF MAT RUSH - 2' H X 3' W
MAHONIA REPENS / CREEPING MAHONIA - 2' H X 3' W
MUHLENBERGIA SPP. / MUHLY GRASS - 3' H X 3' W**
MYOPORUM PARVIFOLIUM / MYOPORUM - <1' H X SPREADING
PHILODENDRON XANADU / XANADU PHILODENDRON - 3' H X 3' W
PHORMIUM SPP. / NEW ZEALAND FLAX - 4' H X 4' W
PITTOSPORUM SPP. / PITTOSPORUM - 10' H X 8' W
RHAMNUS CALIFORNICA `EVE CASE` / CALIFORNIA COFFEEBERRY - 6' H X 6' W
SALVIA SPP. / SALVIA - 3' H X 4' W
SESLERIA AUTUMNALIS / AUTUMN MOOR GRASS - 2' H X 2' W
WESTRINGIA FRUTICOSA / COAST ROSEMARY - 5' H X 8' W

ENHANCED GARDENESQUE - SHRUBS/ GROUNDCOVER
AGAVE SPP. / AGAVE - 4' H X 4' W
ALOE SPP. / ALOE - 2' H X 2' W
BOUGAINVILLEA SPP. / BOUGAINVILLEA - VINE
BOUTELOUA GRACILIS / BLUE GRAMA - 2' H X 2' W
BULBINE FRUTESCENS / STALKED BULBINE - 2' H X 3' W
CISTUS X PURPUREUS / ORCHID ROCKROSE - 4' H X 5' W
DESCHAMPSIA CESPITOSA / TUFTED HAIR GRASS - 2' H X 2' W
DIANELLA TASMANICA `VARIEGATA` / FLAX LILY - 2' H X 3' W
DIETES SPP. / FORTNIGHT LILY - 3' H X 4' W
GREVILLEA SPP. / GREVILLEA - 3' H X 5' W
LANTANA SPP. / LANTANA - 2' H X SPREADING
LAVANDULA SPP. / LAVENDER - 2' H X 3' W
LEYMUS CONDENSATUS `CANYON PRINCE` / NATIVE BLUE RYE - 2' H X 3' W
LIGUSTRUM JAPONICUM / JAPANESE PRIVET - 8' H X 6' W
LIRIOPE SPP. / LILY TURF - 1' H X 1' W
LOMANDRA LONGIFOLIA `BREEZE` / DWARF MAT RUSH - 2' H X 3' W
PENSTEMON SPP. / PENSTEMON - 2' W X 3' H
PHILODENDRON XANADU / XANADU PHILODENDRON - 3' H X 3' W
PHORMIUM SPP. / NEW ZEALAND FLAX - 4' H X 4' W
PITTOSPORUM SPP. / PITTOSPORUM - 10' H X 8' W
RHAMNUS CALIFORNICA `EVE CASE` / CALIFORNIA COFFEEBERRY - 6' H X 6' W
RHAPHIOLEPIS UMBELLATA / YEDDA HAWTHORN - 4' H X 5' W
SALVIA SPP. / SALVIA - 3' H X 4' W
SENECIO MANDRALISCAE / BLUE FINGER - 1' H X SPREADING
SESLERIA AUTUMNALIS / AUTUMN MOOR GRASS - 2' H X 2' W
SPOROBOLUS AIROIDES / ALKALI DROPSEED - 2' H X 2' W
WESTRINGIA FRUTICOSA / COAST ROSEMARY - 5' H X 8' W

TURF RECREATION AREA
CYNODON DACTYLON `BULLSEYE` / BULLSEYE BERMUDA GRASS - SOD
TURF TO BE (100%) SOD

AGRICULTURAL USE AREA - FRUITS AND VEGETABLES

* SEE PROJECT FINAL MITIGATION PLAN FOR ON-SITE PLANTING SPECIFICATIONS (TIMING, SPECIES, AND SIZE) WITHIN MITIGATION AREA.

** SPECIES SHALL NOT BE LOCATED WITHIN 50' OF STRUCTURES.

GENERAL NOTES

TREE SIZES: 1-GALLON CONTAINER STOCK (MITIGATION AREA), 15-GALLON (15%), 24" BOX (60%), 36" BOX (20%), 48" BOX (5%). MINIMUM TREE SIZE (OUTSIDE MITIGATION AREA) TO BE 15-GALLON.

SHRUB AND GROUNDCOVER SIZES: SEED (MITIGATION AREA ONLY), 5 GALLON (30%), 1 GALLON (70%)

REVEGETATION AND EROSION CONTROL

1. ALL AREAS TO BE DISTURBED ARE 100' OR GREATER AWAY FROM NATIVE OR NATURALIZED VEGETATION.
2. REVEGETATION OF DISTURBED SLOPES WILL CONSIST OF PLANTS FROM THE PROPOSED PLANT LIST ON THIS SHEET WITHIN 90 DAYS OF THE COMPLETION OF THE PROJECT.

BRUSH MANAGEMENT

BRUSH MANAGEMENT PLAN IS NOT REQUIRED FOR THIS PROJECT AS ALL AREAS WITHIN 100' OF THE BUILDINGS SHALL BE PERMANENTLY MAINTAINED AND IRRIGATED, AND NOT NATURALIZED. THE LANDSCAPE DESIGN WILL, HOWEVER, INCORPORATE FIRE-PREVENTION AND DEFENSIBLE SPACE MEASURES BY PLANTING LOW-FUEL PLANT SPECIES AT APPROPRIATE DENSITIES TO REDUCE THE FUEL AVAILABLE TO BURN.

MAINTENANCE NOTES

UPON COMPLETION OF PROJECT, THE MAJOR ENTRIES, AMENITY SPACES AND INTERIOR PARKWAYS AND SLOPES, INCLUDING THE RIGHT-OF-WAY TO BE MAINTAINED BY HOME OWNERS ASSOCIATION. ALL REQUIRED LANDSCAPE SHALL BE MAINTAINED CONSISTENT WITH THE LANDSCAPE STANDARDS IN A DISEASE, FREE, AND LITTER FREE CONDITION AT ALL TIMES. PRIVATE REAR AND SIDE YARDS TO BE PRIVATELY MAINTAINED BY HOMEOWNERS. SEVERE PRUNING OR "TOPPING" OF TREES IS NOT PERMITTED. PUBLIC PARK TO BE MAINTAINED BY CITY OF SAN DIEGO.

LANDSCAPE DEVELOPMENT SUMMARY CALCULATIONS

LANDSCAPE AREA: 2,012,198 SF

DESIGN STATEMENT

THE LANDSCAPE DESIGN COMPLIMENTS THE MODERN AGRARIAN ARCHITECTURAL STYLING OF THE COMMUNITY WHILE PROVIDING A SERIES OF OPEN SPACE AMENITIES TO SERVE THE RECREATIONAL NEEDS OF THE RESIDENTS. THE LANDSCAPE EVOLVES FROM A RUSTIC AND NATURALIZED AESTHETIC AT THE PROJECT EDGES TO A DROUGHT TOLERANT GARDENESQUE STYLING IN THE COMMUNITY'S CENTRAL GREEN SPACES. A SOCIAL LOOP TRAIL AND PUBLIC NEIGHBORHOOD PARK ARE ALSO PROVIDED TO SERVE RESIDENTS AND THE GREATER RANCHO PENASQUITOS COMMUNITY. A CONCEPTUAL MITIGATION AREA RUNS ALONG THE NORTH EASTERN EDGE OF THE SITE TO SUPPORT RIPARIAN HABITAT CREATION.

THE PLANT PALETTE IS COMPOSED OF DURABLE AND LOW WATER USE/DROUGHT TOLERANT PLANTS WHICH ARE EASILY MAINTAINED. THE PALETTE IS COMPOSED OF A DIVERSE RANGE OF TEXTURAL AND FLOWERING SPECIES REFLECTIVE OF THE RUSTIC MODERN AGRARIAN ARCHITECTURE. ADDITIONAL SPECIES ARE INCLUDED IN THE PALETTE WHICH DRAW REFERENCE TO THE SURROUNDING RANCHO PENASQUITOS COMMUNITY. TREES, SHRUBS, AND VINES ARE PROPOSED TO SOFTEN ARCHITECTURAL FACADES AND SITE WALLS. TREES WILL ALSO BE USED TO CREATE SHADE AND SCALE THROUGHOUT THE COMMUNITY, INCLUDING AT THE VARIOUS AMENITY SPACES AND SOCIAL LOOP TRAIL.

THE LANDSCAPE TREATMENT ADJACENT TO INTERSTATE 15 UTILIZES PLANT SPECIES INCLUDING VERTICAL EVERGREEN AND DECIDUOUS SCREENING TREES, SMALLER ACCENT SCREENING TREES AND A RANGE OF LARGE SHRUB SPECIES. TREE SPECIES ARE SPACED IN A MANNER THAT ALLOW FOR DISTANT VIEWS OF THE BLACK MOUNTAIN OPEN SPACE WHILE SCREENING THE PROJECT FOREGROUND. THE UNDERSTORY WILL BE ARRANGED IN DENSE, ORGANIC, AND NATURALISTIC MASSES TO SERVE AS A VISUAL SCREEN WHILE CREATING A SOFT EDGE ALONG THE EDGE OF THE INTERSTATE. THIS WILL BE ACCOMPLISHED UTILIZING A PLANT PALETTE CONSISTING OF THE TREE AND SCREENING SPECIES IDENTIFIED IN THE LOOP TRAIL/ OPEN SPACE PLANT PALETTES. IN ADDITION, HABITAT MITIGATION IS INCLUDED ALONG A PORTION OF THE PROJECT ADJACENT TO THE INTERSTATE. THIS MITIGATION AREA INCLUDES SOUTHERN WILLOW SCRUB AND MULE FAT SCRUB HABITATS THAT WILL PROVIDE ADDITIONAL SCREENING OF THE PROJECT AS THE HABITAT MATURES.

WATER-EFFICIENT LANDSCAPE DESIGN

PLANTING DESIGN INTENT

1. THE PLANTING DESIGN SHALL UTILIZE A VARIETY OF MEDITERRANEAN-STYLE, NATIVE, DROUGHT-TOLERANT, AND LOW-FUEL PLANT SPECIES TO CREATE LAYERS OF COLOR AND TEXTURE TO COMPLEMENT THE ARCHITECTURE AND SETTING.
2. PLANT SPECIES SHALL BE SELECTED BASED ON LOCAL CLIMATE SUITABILITY, DISEASE AND PEST RESISTANCE, AND WATER USE AS LISTED IN THE STATE OF CALIFORNIA'S MODEL WATER EFFICIENT LANDSCAPE ORDINANCE PLANT LIST, WUCOLS IV.
3. TURF/LAWN SHALL NOT EXCEED 10% OF THE LANDSCAPE AREA. TURF SPECIES SHALL BE A FESCUE-BLEND TURF GRASS TO MINIMIZE WATER CONSUMPTION.
4. NO PLANT CONSIDERED INVASIVE IN THE REGION AS LISTED BY THE CAL-IPC OR IN THE SAN DIEGO LANDSCAPE STANDARDS SHALL BE USED.
5. THE PLANTING DESIGN SHALL ALLOW FOR THE PLANTS TO REACH THEIR NATURAL, FULL-GROWN SIZE TO ELIMINATE THE NEED FOR EXCESSIVE PRUNING OR HEDGING.
6. PLANTS SHALL BE GROUPED IN HYDROZONES BASED ON WATER USE AND EXPOSURE.
7. TREE LOCATIONS SHALL BE DESIGNED FOR MAXIMUM AESTHETIC EFFECTS AND PASSIVE SOLAR BENEFITS, CREATING SUMMER SHADE AND WINTER SUN EXPOSURE.
8. ALL PLANTING AREAS SHALL RECEIVE A 3-INCH LAYER OF MULCH.
9. STREET TREES SHALL BE 24" BOX SIZE.

LANDSCAPE CONSTRUCTION NOTES

1. PROVIDE THE MINIMUM TREE SEPARATION DISTANCES FROM UTILITY TO TREE:
   - TRAFFIC SIGNAL (STOP SIGN): 20'
   - UNDERGROUND UTILITY LINE (EXCEPT SEWER): 5'
   - SEWER LINE: 10'
   - ABOVE GROUND UTILITY STRUCTURE: 10'
   - DRIVEWAY ENTRIES: 10'
   - INTERSECTIONS: 25'
2. VISIBILITY AREAS LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE KEPT CLEAR OF ANY OBJECTS EXCEEDING 36-INCHES IN HEIGHT, AND PLANT MATERIAL EXCEEDING 24-INCHES IN HEIGHT.
3. NO TREES OR SHRUBS EXCEEDING 3-FEET IN HEIGHT AT MATURITY SHALL BE INSTALLED WITHIN 10' OF ANY SEWER AND 5' OF ANY WATER FACILITIES.
4. ALL TREES WITHIN 5'-0" OF PAVING SHALL HAVE 24" DEEP ROOT BARRIERS.
5. IF ANY REQUIRED LANDSCAPE (INCLUDING EXISTING OR NEW PLANTINGS, HARDSCAPE, LANDSCAPE FEATURES, ETC.) INDICATED ON THE APPROVED CONSTRUCTION DOCUMENTS IS DAMAGED OR REMOVED DURING DEMOLITION OR CONSTRUCTION, THE OWNER SHALL REPAIR AND/OR REPLACE IN KIND AND EQUIVALENT SIZE PER THE APPROVED DOCUMENTS TO THE SATISFACTION OF THE DEVELOPMENT SERVICES DEPARTMENT WITHIN 30 DAYS OF DAMAGE OR FINAL INSPECTION.
6. STABILIZED DECOMPOSED GRANITE SHALL BE USED IN ALL WALKWAYS AND PEDESTRIAN AREAS DESIGNATED AS D.G.. STABILIZED DG IS COMPACTED TO 95% COMPACTION AND STABILIZED WITH A BINDING POLYMER TO CREATE A FIRM AND STABLE SURFACE.
7. SEE CIVIL PLANS, SHEET C23, FOR ADDITIONAL EASEMENT INFORMATION.

PREPARED BY
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THE JUNIPERS
SAN DIEGO, CA

OVERALL SITE PLAN AND LANDSCAPE NOTES

JOB NO.	18-307
SCALE	AS SHOWN
DATE	07-12-2019
SHEET NO.	L1

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6.6.3 Other Vegetation Management

6.6.3.1 Water Detention Basin (if applicable)

Fire-safe vegetation management is recommended within the basin on a yearly basis in accordance with the City's weed abatement standards and in compliance with the following guidelines.

- Groundcovers or shrubs included in the basin shall be low-growing with a maximum height at maturity of 36 inches. Single tree specimens or groupings of two to three trees per grouping of fire resistive trees or tree form shrubs may exceed this limitation if they are located to reduce the chance of transmitting fire from vegetation to habitable structures and if the vertical distance between the lowest branches of the large, trees or tree form shrubs and the tops of adjacent plants are three times the height of the adjacent plants to reduce the spread of fire through ladder fueling.
- The water detention basin area will be irrigated and maintained.
- Grasses must be thinned and maintained
- This area shall be maintained annually free of dying and dead vegetation.
- Trees adjacent to the basin's access road shall be maintained at a vertical clearance of 13.5 feet for access into the interior of the basin.

6.6.3.2 Trail Vegetation Management and Response Facilitation

- A 10-foot vegetation modification zone is required on both sides of trails and paths on the perimeter of the property. This 10 foot zone requires removal of invasive, flammable species.
- Invasive grasses must be kept mowed to 4 inches or less.
- Certain trees may be planted if they are not prohibited in this plan.
- Trees will be properly spaced and maintained with no direct path from understory to tree canopy.
- The trails system will be managed and maintained by the HOA.
- The applicant will be required to submit digital mapping that can be incorporated into the SDFRD's Response Map books, as well as appropriate trail marking/signage that correlate with SDFRD Map books. The map updates will be provided in a format compatible with current department mapping services. The Project will be charged a reasonable fee for updating all response maps. At a minimum, the map updates shall be provided in PDF or a CAD format approved by the FAHJ.

6.6.3.3 Central Green Spaces, Ball Fields, Park

Fire-safe vegetation management is recommended within green spaces, park, and open space areas in compliance with the guidelines in this plan.

- Green spaces, park, and open space areas will be installed by the developer/builder, and managed and maintained by the respective HOAs, master HOA, or facilities maintenance fee depending on how that entity is established.
- Flammable vegetation must be removed and prohibited.
- Grasses must be thinned and maintained annually.
- Types and spacing of trees, plants, and shrubs to comply with the criteria in this plan.
- Plant materials included in the Prohibited Plant List (Appendix I) are prohibited in this area.
- Areas shall be maintained free of downed and dead vegetation.
- Trees to be properly limbed and spaced and not of a prohibited type (identified in this plan).

6.6.3.4 Pre-Construction Structure Locations

- Vegetation management on structure locations will not be required until construction begins, unless it is located within the fuel modification zone of a structure under construction or completed.
- Prior to issuance of a permit for any construction, grading, trenching, or installation of fences, the outermost 50 feet of each structure location (pad) is to be maintained as a Vegetation Management Zone. This entails removal of vegetation as needed.
- The remainder of the Vegetation Management Zones required for the particular lot shall be installed and maintained prior to combustible materials being brought onto any lot under construction.
- Existing flammable vegetation shall be reduced by 100% on vacant lots upon commencement of construction.
- Dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuel shall be removed and trees/shrubs shall be properly limbed, pruned, and spaced per this plan.

6.6.4 Undesirable Plants

Certain plants are considered to be undesirable in the landscape due to characteristics that make them highly flammable. These characteristics can be physical (structure promotes ignition or combustion) or chemical (volatile chemicals increase flammability or combustion characteristics). The plants included in the Prohibited Plant List (Appendix C) will only be allowed in locations as directed by Appendix C, including no closer than 50 feet from the nearest structure.

6.6.5 Site Wide Area Vegetation Maintenance

All fuel modification area vegetation management shall occur as-needed for fire safety, compliance with the BMZ requirements detailed in this report, and as determined by the SDFRD. The Project Homeowners Association (HOA) shall be responsible for all vegetation management within the water basin and Zone 1 common areas throughout the Project site, in compliance with the requirements detailed herein and SDFRD requirements. The HOA shall be responsible for ensuring long-term funding and ongoing compliance with all provisions of this report. The homeowners are responsible for ongoing Zone 1 maintenance requirements in rear yards, from the structure to the rear property line or wall/fence. All homeowners will sign acknowledgement of maintenance requirements and the HOA will include language in the CC&R's outlining these restrictions. The HOA will be responsible for enforcing the landscape annually and will retain a qualified WUI BMZ inspector who will assess the BMZs and prepare a report for submittal to the SDFRD.

6.6.6 Annual Landscape Compliance Inspection

The Junipers HOA(s) shall obtain an annual landscape inspection and report from a qualified SDFRD-approved 3rd-party inspector in September of each year certifying that landscape management activities throughout the Project site have been performed pursuant to this FPP. This inspection report and certification of compliance with the FPP shall be provided to SDFRD annually by October 1st.

6.6.7 Construction Phase Vegetation Management

Vegetation management requirements shall be implemented at commencement and throughout the construction phase. Vegetation management shall be performed pursuant to the FAHJ on all building locations prior to the start of work and prior to any import of combustible construction materials. Adequate fuel breaks shall be created around all grading, site work, and other construction activities in areas where there is flammable vegetation.

In addition to the requirements outlined above, the Project will comply with the following important risk-reducing vegetation management guidelines:

- All new power lines shall be underground for fire safety during high wind conditions or during fires on a right-of-way that can expose aboveground power lines. Temporary construction power lines may be allowed in areas that have been cleared of combustible vegetation.
- A construction fire prevention plan shall be prepared to minimize the likelihood of ignitions and pre-plan the site's fire prevention, protection and response plan.
- Caution must be used not to cause erosion or ground (including slope) instability or water runoff due to vegetation removal, vegetation management, maintenance, landscaping, or irrigation. No uprooting of treated plants is necessary.

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7 EVACUATION PLAN

An evacuation plan has been prepared for the Glens with the Junipers Project that indicates how the Project will evacuate during a wildfire emergency. The evacuation plan has been prepared in coordination with SDFRD Emergency Operations planning documents such that it does not conflict with existing evacuation and operational pre-plans.

Early evacuation for any type of wildfire emergency at the Glens is the preferred method of providing for resident safety, consistent with the SDFRD's current approach for evacuation. As such, the Juniper's Homeowner's Association will formally adopt, practice, and implement a "Ready, Set, Go!" (International Fire Chiefs Association 2013) approach to site evacuation to be distributed to the greater Glens community. The "Ready, Set, Go!" concept is widely known and encouraged by the state of California and most fire agencies, including SDFRD. Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing potential for errors, maintaining the site's fire protection systems, and implementing a conservative (evacuate as early as possible) approach to evacuation and site uses during periods of fire weather extremes.

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8 HOMEOWNER'S ASSOCIATION WILDFIRE EDUCATION PROGRAM

The residents of the Junipers Project will be provided a proactive educational component disclosing the potential wildfire risk and this report's requirements. The Project's Evacuation Plan will also be provided to each residence and regular outreach will be conducted by the HOA regarding evacuation and fire safety. This educational information must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go" stance on evacuation.

Resident Registration for Emergency Notifications

It is important to note that all residents are strongly encouraged to register for AlertSan Diego at http://www.readysandiego.org/alertsandiego/. The County of San Diego, in partnership with Blackboard Connect Inc., instituted this regional notification system that is able to send telephone notifications to residents and businesses within San Diego County impacted by, or in danger of being impacted by, an emergency or disaster. This system, called AlertSanDiego, is used by emergency response personnel to notify homes and businesses at risk with information on the event and/or actions (such as evacuation, shelter in place, gas leak, missing person, etc.) they are advised to implement. The system utilizes the region's 9-1-1 database, provided by the local telephone company(ies), and thus is able to contact landline telephones whether listed or unlisted. It is TTY/TDD capable.

Because the system uses the 9-1-1 database, only landline numbers are in the system. If you have a Voice over IP (VoIP) or cellular telephone and would like to be notified over that device, or if you would like an email notification, you must register those telephone numbers and/or email address for use by the system to receive voice, text, and email messages.

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9 CONCLUSION

This FPP has been prepared for the Junipers Project. It is submitted in compliance with SDFRD's Fire Code. The recommendations in this document meet fire safety, building design elements, infrastructure, fuel management/modification, and landscaping recommendations of the applicable City codes and SDFRD policies. The recommendations provided in this FPP have been designed specifically for the proposed construction of structures within the vicinity of a fire hazard severity zone on the Junipers Project site. The Project site's fire protection system includes a redundant layering of protection materials, measures, and methods that have been shown through post-fire damage assessments to reduce risk.

Ignition resistant landscaping would occur throughout the site. Fuel modification is not required on the Project's perimeter as there are no wildland fuels directly adjacent the proposed residences. The site's landscaping will be maintained throughout each year and an inspection will be funded by the HOA to ensure compliance with this FPP and fire safe plant palettes, planting densities and spacing. The site's susceptibility to wildfire ignitions would be reduced post-project compared to its current condition.

The site improvements are designed to facilitate emergency apparatus and personnel access to all portions of the site. Roads and driveways meeting the code width standards and including fire engine turnouts and turnarounds provide access to within 150 feet of all sides of every building. Water availability and flow via the San Diego Municipal Water District will be consistent with SDFRD requirements including fire flow and hydrant distribution. These features along with the ignition resistance of all buildings, the interior sprinklers, and the pre-planning, training and awareness will assist responding firefighters through prevention, protection and suppression capabilities.

Ultimately, it is the intent of this FPP to recommend the construction of structures that are defensible from wildfire and, in turn, do not represent significant threat of ignition source for adjacent communities. During extreme fire conditions, there are no guarantees that a given structure will not burn. Fire safety measures identified in this report are designed to reduce the likelihood that fire would impinge upon the proposed structures. Wildfires may occur in the area that could damage property or harm persons. However, implementation of the recommendations in this FPP will substantially reduce the risk associated with this Project's wildfire hazard vicinity location.

This FPP does not provide a guarantee that all residents and visitors will be safe at all times because of the advanced fire protection features it requires. There are many variables that may influence overall safety. This FPP provides requirements and recommendations for

implementation of the latest fire protection features that have proven to result in reduced wildfire related risk and hazard. Even then, fire can compromise the fire protection features through various, unpredictable ways. The goal is to reduce the likelihood that the system is compromised through implementation of the elements of this FPP and a regular occurring maintenance program.

It is recommended that the Junipers community maintains a conservative approach to fire safety. This approach must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go!" stance on evacuation. This Project is not labeled a shelter in place community. However, the fire agencies and/or law enforcement officials may, during an emergency, as they would for any new community provided the layers of fire protection as the Junipers, determine that it is safer to temporarily refuge residents on the site than to evacuate. When an evacuation is ordered, it will occur according to pre-established evacuation decision points (as detailed in the Evacuation Plan), or as soon as notice to evacuate is received, which may vary depending on many environmental and other factors. Fire is a dynamic and somewhat unpredictable occurrence and it is important for anyone living at the WUI to educate themselves on practices that will improve safety.

The goal of the fire protection features, both required and those offered above and beyond the Codes, provided for the Junipers residential project is to provide the structures with the ability to survive a wildland fire with little intervention of firefighting forces. Preventing ignition to structures results in reduction of the exposure of firefighters and residents to hazards that threaten personal safety. It will also reduce property damage and losses. Mitigating ignition hazards and fire spread potential reduces the threat to structures and can help the fire department optimize the deployment of personnel and apparatus during a wildfire. The analysis in this Fire Protection Plan provides support and justifications for acceptance of a reduced brush management zone for this Project based on the site specific fire environment.

10 LIMITATIONS

This Fire Protection Plan does not provide guarantee that residents and visitors will be safe at all times because of the fire protection features it requires. There are many variables that may influence overall safety. This report provides requirements and recommendations for implementation of the latest fire protection features that have proven to result in reduced wildfire related risk and hazard.

For maximum benefit, the developer, contractors, engineers, and architects are responsible for proper implementation of the concepts and requirements set forth in this report. Homeowners are responsible to maintain their structures and lots as required by this report, the applicable Fire Code and the SDFRD.

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APPENDIX A

Photograph Log

Appendix A – The Junipers Project

Representative Site Photographs

1. Panoramic view of the east edge (red arrow) of project site, located along west side of Interstate 15. The grass-ice plant covered Caltrans ROW presents as the fire hazard along this edge of the property. This fuel type was modeled in BehavePlus scenarios #1 & #2.

2. Photograph shows Coastal sage scrub fuel type and fuel loading (red arrow) found on south and west facing slopes of Black Mountain Open Space Park. This Project-adjacent fuel type was modeled in BehavePlus scenarios #3 & #4.

3. Photograph shows chaparral fuel type and fuel loading (red arrow) found on north and east facing slopes of the Park. This Project-adjacent fuel type was also modeled in BehavePlus scenarios #3 & #4.

Photographs were taken on October 18, 2017

Appendix A – The Junipers Project

Representative Site Photographs

4. View of grasses, weeds, and ornamental trees growing throughout the project site that use to be a part of the golf fairways.

5. Another view facing southwest of vegetation types on the site, none of which are native California habitats.

6. View facing southeast of vegetation, including ornamental trees, grasses, and weeds, on the site.

7. Photograph showing one of many dirt roads throughout the project site.

Photographs were taken on October 18, 2017

Appendix A – The Junipers Project

Representative Site Photographs

8. Photograph showing abandoned fairway that is being mowed for 200-foot wide fuel modification zone along west edge of property and adjacent to residential community.

9. Photograph showing another view of fuel modification being conducted along west edge of property.

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Photographs were taken on October 18, 2017

APPENDIX B

Fire Behavior Modeling for the Junipers Project

APPENDIX B
Fire Behavior Modeling
The Junipers Project

BEHAVEPLUS FIRE BEHAVIOR MODELING

Fire behavior modeling has been used by researchers for approximately 50+ years to predict how a fire will move through a given landscape (Linn 2003). The models have had varied complexities and applications throughout the years. One model has become the most widely used as the industry standard for predicting fire behavior on a given landscape. That model, known as "BEHAVE", was developed by the U. S. Government (USDA Forest Service, Rocky Mountain Research Station) and has been in use since 1984. Since that time, it has undergone continued research, improvements, and refinement. The current version, BehavePlus 5.0.5, includes the latest updates incorporating years of research and testing. Numerous studies have been completed testing the validity of the fire behavior models' ability to predict fire behavior given site specific inputs. One of the most successful ways the model has been improved has been through post-wildfire modeling (Brown 1972, Lawson 1972, Sneeuwjagt and Frandsen 1977, Andrews 1980, Brown 1982, Rothermel and Rinehart 1983, Bushey 1985, McAlpine and Xanthopoulos 1989, Grabner, et. al. 1994, Marsden-Smedley and Catchpole 1995, Grabner 1996, Alexander 1998, Grabner et al. 2001, Arca et al. 2005). In this type of study, Behave is used to model fire behavior based on pre-fire conditions in an area that recently burned. Real-world fire behavior, documented during the wildfire, can then be compared to the prediction results of Behave and refinements to the fuel models incorporated, retested, and so on.

Fire behavior modeling includes a high level of analysis and information detail to arrive at reasonably accurate representations of how wildfire would move through available fuels on a given site. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. To objectively predict flame lengths, spread rates, and fireline intensities, the BehavePlus 5.0.5 fire behavior modeling system was applied using predominant fuel characteristics, slope percentages, and two representative fuel models observed on site.

Predicting wildland fire behavior is not an exact science. As such, the movement of a fire will likely never be fully predictable, especially considering the variations in weather and the limits of weather forecasting. Nevertheless, practiced and experienced judgment, coupled with a validated fire behavior modeling system, results in useful and accurate fire prevention planning information.

To be used effectively, the basic assumptions and limitations of BehavePlus must be understood.

- First, it must be realized that the fire model describes fire behavior only in the flaming front. The primary driving force in the predictive calculations is dead fuels less than one-quarter inch in diameter. These are the fine fuels that carry fire. Fuels greater than one inch have little effect while fuels greater than three inches have no effect on fire behavior.

- Second, the model bases calculations and descriptions on a wildfire spreading through surface fuels that are within six feet of the ground and contiguous to the ground. Surface fuels are often classified as grass, brush, litter, or slash.
- Third, the software assumes that weather and topography are uniform. However, because wildfires almost always burn under non-uniform conditions, length of projection period and choice of fuel model must be carefully considered to obtain useful predictions.
- Fourth, the BehavePlus fire behavior computer modeling system was not intended for determining sufficient fuel modification zone widths. However, it does provide the average length of the flames, which is a key element for determining "defensible space" distances for minimizing structure ignition.

Although BehavePlus has some limitations, it can still provide valuable fire behavior predictions which can be used as a tool in the decision-making process. In order to make reliable estimates of fire behavior, one must understand the relationship of fuels to the fire environment and be able to recognize the variations in these fuels. Natural fuels are made up of the various components of vegetation, both live and dead, that occur on a site. The type and quantity will depend upon the soil, climate, geographic features, and the fire history of the site. The major fuel groups of grass, shrub, trees, and slash are defined by their constituent types and quantities of litter and duff layers, dead woody material, grasses and forbs, shrubs, regeneration, and trees. Fire behavior can be predicted largely by analyzing the characteristics of these fuels. Fire behavior is affected by seven principal fuel characteristics: fuel loading, size and shape, compactness, horizontal continuity, vertical arrangement, moisture content, and chemical properties.

The seven fuel characteristics help define the 13 standard fire behavior fuel models (Anderson 1982) and the five custom fuel models developed for Southern California (Weise 1997). According to the model classifications, fuel models used in BehavePlus have been classified into four groups, based upon fuel loading (tons/acre), fuel height, and surface to volume ratio. Observation of the fuels in the field (on site) determines which fuel models should be applied in BehavePlus. The following describes the distribution of fuel models among general vegetation types for the standard 13 fuel models and the custom Southern California fuel models:

- Grasses Fuel Models 1 through 3
- Brush Fuel Models 4 through 7, SCAL 14 through 18
- Timber Fuel Models 8 through 10
- Logging Slash Fuel Models 11 through 13

In addition, the aforementioned fuel characteristics were utilized in the recent development of 40 new fire behavior fuel models (Scott and Burgan 2005) developed for use in BehavePlus modeling efforts. These new models attempt to improve the accuracy of the standard 13 fuel models outside of severe fire season conditions, and to allow for the simulation of fuel treatment prescriptions. The following describes the distribution of fuel models among general vegetation types for the new 40 fuel models:

- Non-Burnable Models NB1, NB2, NB3, NB8, NB9
- Grass Models GR1 through GR9
- Grass-shrub Models GS1 through GS4
- Shrub Models SH1 through SH9
- Timber-understory Models TU1 through TU5
- Timber litter Models TL1 through TL9
- Slash blowdown Models SB1 through SB4

BehavePlus software was used in the development of the Juniper Project (Proposed Project) Fire Protection Plan (FPP) in order to evaluate potential fire behavior for the Proposed Project site. Existing site conditions were evaluated, and local weather data was incorporated into the BehavePlus modeling runs.

BEHAVEPLUS FUEL MODEL INPUTS

Dudek utilized BehavePlus software to evaluate fire behavior potential for the project site. Four fire scenarios were evaluated, including two summer, onshore weather conditions and two more extreme fall, offshore weather conditions. BehavePlus software requires site-specific variables for surface fire spread analysis, including fuel type, fuel moisture, wind speed, and slope data. The output variables used in this analysis include flame length (feet), rate of spread (feet/minute), fireline intensity (BTU/feet/second), and spotting distance (miles). The following provides a description of the input variables used in processing the BehavePlus models for the Proposed Project site. In addition, data sources are cited and any assumptions made during the modeling process are described.

Vegetation/Fuel Models

To support the fire behavior modeling efforts conducted for this FPP, the different vegetation types observed adjacent to the site were classified into the aforementioned numeric fuel models. Dudek analyzed fire behavior for the fuels along the eastern edge (along I-15) of the property and on the east facing slopes of Black Mountain, which are remote from the western edge of the property. As is customary for this type of analysis, the terrain and fuels directly adjacent to the

property are used for determining flame lengths and fire spread. It is these fuels that would have the potential to affect the project's structures from a radiant and convective heat perspective as well as from direct flame impingement. The short, sparse grasses and ice plant along I-15 right-of-way are considered adjacent to the structures in the development. However, the chaparral-coastal sage scrub fuel beds to the west of the Proposed Project site are separated by the Glens development. All fuels and terrain beyond that distance can produce flying embers that may affect the project, but defenses have been built into the structures to prevent ember penetration. Table 1 provides a description of the three fuel models observed in the vicinity of the site that were subsequently used in the analysis for this project. Modeled areas include the non-native grasslands (Fuel Model Gr1) to the east of the project site. Coastal sage scrub (SCAL 18) and chaparral (Sh5) occur on the east facing slopes on Black Mountain to the west of the site. A total of four fire modeling scenarios were completed for the Project area. These sites were selected based on the strong likelihood of fire approaching from these directions during a Santa Ana wind-driven fire event (fire scenarios 1 and 2) and an on-shore weather pattern (fire scenarios 3 and 4).

Table 1
Existing Fuel Model Characteristics

Fuel Model Assignment	Vegetation Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, Sparse Dry Climate Grass	More prevalent on east side of property along I-15 corridor intermixed with ice plant.	<1.0 ft.
SCAL 18	Sagebrush/buckwheat	Fuel type is concentrated on the dryer south and west facing slopes of the Black Mountain Open Space Park.	3.0 ft.
Sh5	High Load Dry Climate Shrub	Fuel type is found on the north and east side of Black Mountain.	8.0 ft.

Topography

Slope is a measure of angle in degrees from horizontal and can be presented in units of degrees or percent. Slope is important in fire behavior analysis as it affects the exposure of fuel beds. Additionally, fire burning uphill spreads faster than those burning on flat terrain or downhill as uphill vegetation is pre-heated and dried in advance of the flaming front, resulting in faster ignition rates. Slope values ranging from 4% to 30% were measured around the perimeter of the proposed project site from U.S. Geological Survey (USGS) topographic maps.

Weather Analysis

The County of San Diego, Department of Planning and Land Use (County of San Diego 2010) developed guidelines to identify acceptable fire behavior modeling weather inputs for fire conditions during summer months and Santa Ana fire weather patterns. The County analyzed and processed fire weather from Remote Automated Weather Stations (RAWS) between April 15 to December 31 in order to represent the general limits of the fire season. Data provided by the County's analysis included temperature, relative humidity, and sustained wind speed and is categorized by weather zone, including Maritime, Coastal, Transitional, Interior, and Desert.

As identified in the County's guidelines, Dudek utilized the Fine Dead Fuel Moisture (FDFM) tool within BehavePlus (v. 5.0.5) fire behavior modeling software package to determine potential fuel moisture values to be input into the BehavePlus runs. The temperature, relative humidity, and wind speed data for the Transitional (County of San Diego 2010) weather zone were utilized for this FPP based on the project's location. Reference fuel moistures were calculated in the FDFM tool and were based on site-specific topographic data inputs. Table 2 summarizes the FDFM inputs and the resulting fine dead fuel moisture values.

Table 2
BehavePlus Fine Dead Fuel Moisture Calculation

Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
Dry Bulb Temperature	90 -109 deg. F	90 -109 deg. F
Relative Humidity	10 - 14 %	5 -9 %
Reference Fuel Moisture	2 %	1 %
Month	May June July	May June July
Time of Day	12:00 - 13:59	12:00 - 13:59
Elevation Difference	Level (within 1,000 ft.)	Level (within 1,000 ft.)
Slope	30% +	30% +
Aspect	East	East
Fuel Shading	Exposed (< and > 50% shading)	Exposed (< and > 50% shading)
Fuel Moisture Correction	1 %	1 %
Fine Dead Fuel Moisture	3 %	2 %

The weather variables presented in Table 3 are based on the calculated FDFM (Table 2) and the wind speed values identified in the County of San Diego standards.

Table 3
Weather Variables From County of San Diego Standards

Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
1h Moisture	3%	2%
10h Moisture	6%	3%
100h Moisture	8%	5%
Live Herbaceous Moisture	60%	30%
Live Woody Moisture	90%	50%
20-foot Wind Speed	19 mph	41 mph

mph = miles per hour

In addition to the analyzing weather conditions using the County of San Diego's guidelines, an analysis of weather and fuel moisture variables using RAWS data was conducted to determine potential worst-case weather conditions under Summer and Peak scenarios. Data was retrieved from the Camp Elliott RAWS, which is located approximately 9 miles to the south of the project site. The following summarizes the location and available data ranges for the Camp Elliott RAWS:

- Latitude: 32.85917
- Longitude: -117.1056
- Elevation: 539 feet
- Data years: 2007–2016.

The Camp Elliott RAWS data was processed with the FireFamily Plus v. 4.1.0 (FireFamily Plus 2008) software package to determine Summer (50th percentile) and Peak (97th percentile) weather conditions Table 4 summarizes the 50th and 97th percentile weather values derived from the Camp Elliott RAWS data analysis.

Table 4
Weather Variables From Camp Elliott RAWS Analysis

Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
1h Moisture	8%	2%
10h Moisture	9%	3%
100h Moisture	16%	9%
Live Herbaceous Moisture	-*	-*
Live Woody Moisture	109%	59%
20-foot Wind Speed	4 mph	17 mph

* **Note:** Live Herbaceous Moisture values for 50th and 97th percentile weather scenarios were less than 30% and are therefore considered completely cured and accounted for in the dead fuel component of the fuel models.

To conservatively analyze potential fire behavior for the site, the weather variables derived from the County of San Diego standards were used in the fire behavior modeling efforts conducted in support of this FPP as they presented lower fuel moisture values and higher wind speed values. These variables used in the Fire Behavior Modeling are presented in Table 5.

Table 5
Variables Used for Fire Behavior Modeling Efforts

Variable	Summer Weather Condition	Peak Weather Condition (offshore/Santa Ana Condition)
Fuel Models	Sh5, SCAL 18	Gr1
1h Moisture	3%	2%
10h Moisture	6%	3%
100h Moisture	8%	5%
Live Herbaceous Moisture	60%	30%
Live Woody Moisture	90%	50%
20-foot Wind Speed (upslope/downslope)	19 mph	41 mph
Wind Direction	225°	45°
Wind Adjustment Factor (BehavePlus)	0.6	0.4

Fire Modeling Scenarios

Based on slope and fuel conditions, four different fire scenarios were evaluated for the project site, including:

- **Scenario 1:** 97th percentile weather with off-shore wind and a fall fire burning in short, sparse grasses intermixed with ice plant along the eastern edge of the project site. The terrain is relatively flat (8% slope) with potential ignition sources from vehicles travelling on I-15. Fire in this area would be moving slightly uphill toward the Proposed Project.
- **Scenario 2:** 97th percentile weather with off-shore wind and a fall fire burning in short, sparse grasses intermixed with ice plant in gentle terrain (4% slope) along the southeastern edge of the project site. Potential ignition sources could be from vehicles travelling on I-15. Fire in this area would be moving slightly uphill toward the Proposed Project.
- **Scenario 3:** 50th percentile weather with on-shore wind and a summer fire burning in chaparral and sage scrub shrub cover adjacent to the southwestern edge of the project site. This area is steep (up to 30% slope) with potential ignition sources from a wildfire that originates in the Black Mountain Open Space Park to the west of the Proposed Project. Fire in this area would be moving downhill toward the Glens Development before reaching the project site.

- **Scenario 4:** 50th percentile weather with on-shore wind and a summer fire burning in chaparral and sage scrub shrub cover adjacent to the western edge of the project site. This area is moderately steep (15%) to very steep (30% slope) with potential ignition sources from a wildfire that originates in the Black Mountain Open Space Park to the west of the Proposed Project. Fire in this area would be moving downhill toward the Glens Development before reaching the project site.

Fire Behavior Modeling Effort

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the Proposed Project site. Four focused analyses were completed, each assuming worst-case fire weather conditions for a fire approaching the project site from the west and east. Four fire behavior variables were selected as outputs from the BehavePlus analysis conducted for the project site, and include flame length (feet), rate of spread (mph), fireline intensity (BTU/feet/second), and surface fire spotting distance (miles). The aforementioned fire behavior variables are an important component in understanding fire risk and fire agency response capabilities. Flame length, the length of the flame of a spreading surface fire within the flaming front, is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews, Bevins, and Seli 2008). Fireline intensity is a measure of heat output from the flaming front, and also affects the potential for a surface fire to transition to a crown fire. Fire spread rate represents the speed at which the fire progresses through surface fuels and is another important variable in initial attack and fire suppression efforts (Rothermel and Rinehart 1983). Spotting distance is the distance a firebrand or ember can travel down wind and ignite receptive fuel beds. The information in Table 6 presents an interpretation of the outputs for two fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Table 7. Identification of modeling run locations is presented graphically in Figure 5 of the FPP.

As presented in Table 7, wildfire behavior in non-treated chaparral and Coastal sage scrub, presented as a Fuel Models SH5 and SCAL18, respectively, represent the most extreme conditions, varying with different wind speeds. In this case, flame lengths can be expected to reach up to approximately 23 to 25 feet with 19 mph sustained wind speeds. Spread rates range from 1.1 mph to 2.2 mph. Spotting distances, where airborne embers can ignite new fires downwind of the initial fire, range from less than 1.0 mile. Whereas, a grass fire, which was modeled under an off-shore breeze, has a flame length of 3.1 feet with a low rate of spread of less than 1 mph. Spotting distances are approximately 0.3 mile.

Table 6
Fire Suppression Interpretation

Flame Length (ft)	Fireline Intensity (Btu/ft/s)	Interpretations
Under 4 feet	Under 100 BTU/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 to 8 feet	100-500 BTU/ft/s	Fires are too intense for direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8 to 11 feet	500-1000 BTU/ft/s	Fires may present serious control problems -- torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11 feet	Over 1000 BTU/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at head of fire are ineffective.

Table 7
BehavePlus Fire Behavior Modeling Results

Fire Scenario	Flame Length (feet)	Spread Rate (mph)	Fireline Intensity (Btu/ft/s)	Spot Fire (miles)
Scenario 1: grass-ice plant fuels on east facing slope, 8% upslope, Peak weather				
Sparse Grass (Gr1)	3.1	0.5	67	0.3
Scenario 2: grass-ice plant fuels on east facing slope, 4% upslope, Peak weather				
Sparse Grass (Gr1)	3.1	0.5	67	0.3
Scenario 3: Mixed chaparral & sage scrub fuels on north/south facing slopes, 25%-30%% downslope; Summer weather				
Chaparral (Sh5)	23.2	2.0	5,296	0.6
Coastal Sage Scrub (SCAL 18)	24.7	1.0	6,060	0.7
Scenario 4: Mixed chaparral & sage scrub & chaparral on north/south facing slopes, 15%-30% downslope; Summer weather				
Chaparral (Sh5)	23.5	2.1	5,403	0.6
Coastal Sage Scrub (SCAL 18)	25.0	1.1	6,205	0.7

Note:

** It should be noted that the results presented in Table 7 depict values based on inputs to the BehavePlus software. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. Further, this modeling analysis assumes a correlation between the project site vegetation and fuel model characteristics. Model results should be used as a basis for planning only, as actual fire behavior for a given location will be affected by many factors, including unique weather patterns, small-scale topographic variations, or changing vegetation patterns.

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APPENDIX C

Prohibited Plant List

PROHIBITED PLANT LIST

The following species are highly flammable and should be avoided when planting within the first 50 feet adjacent to a structure. The plants listed below are more susceptible to burning, due to rough or peeling bark, production of large amounts of litter, vegetation that contains oils, resin, wax, or pitch, large amounts of dead material in the plant, or plantings with a high dead to live fuel ratio. Many of these species, if existing on the property and adequately maintained (pruning, thinning, irrigation, litter removal, and weeding), may remain as long as the potential for spreading a fire has been reduced or eliminated.

BOTANICAL NAME	COMMON NAME
Abies species	Fir Trees
Acacia species	Acacia (trees, shrubs, groundcovers)
*Adenostoma sparsifolium***	Red Shanks
*Adenostoma fasciculatum***	Chamise
Agonis juniperina	Juniper Myrtle
Araucaria species	Monkey Puzzle, Norfolk Island Pine
*Artemesia californica***	California Sagebrush
Bambusa species	Bamboo
Cedrus species	Cedar
Chamaecyparis species	False Cypress
Coprosma pumila	Prostrate Coprosma
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
*Cupressus forbesii***	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Dodonea viscosa	Hopseed Bush
*Eriogonum fasciculatum***	Common Buckwheat
Eucalyptus species	Eucalyptus
*Heterotheca grandiflora***	Telegraph Plant
Juniperus species	Junipers
Larix species	Larch
Lonicera japonica	Japanese Honeysuckle
Miscanthus species	Eulalia Grass
*Muehlenbergia species***	Deer Grass
Palmae species	Palms
Picea species	Spruce Trees
*Pickeringia Montana***	Chaparral Pea
Pinus species	Pines
Podocarpus species	Fern Pine
Pseudotsuga menziesii	Douglas Fir
Rosmarinus species	Rosemary
*Salvia mellifera***	Black Sage
Taxodium species	Cypress
Taxus species	Yew
Thuja species	Arborvitae
Tsuga species	Hemlock
*Urtica urens***	Burning Nettle

** San Diego County native species

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