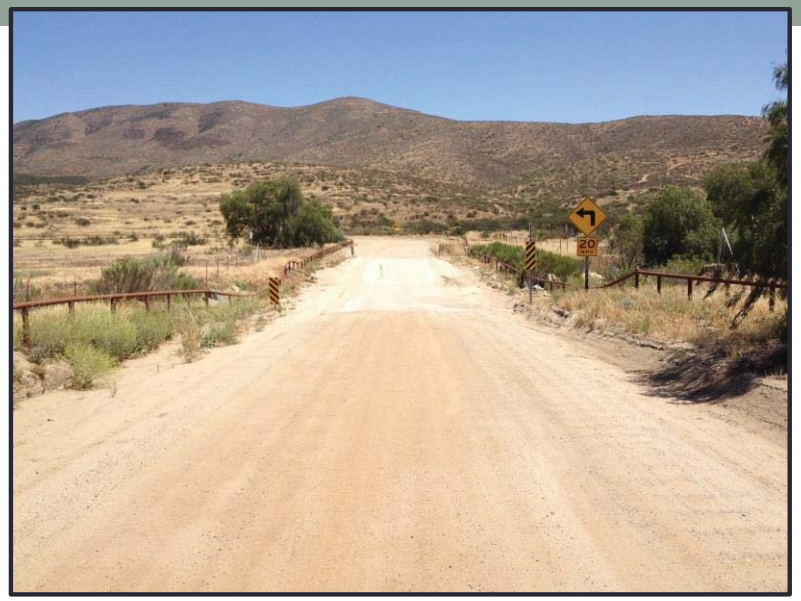
APPENDIX A

Photograph Log

PHOTOGRAPH LOG

Land Exchange Alternative

Photograph 1. Photograph shows existing condition of Proctor Valley Road just east of Agua Vista Drive and Northwoods Drive intersection. Jamul Mountain range is visible in the background.



Photograph 2. View of fuel types and terrain outside of the southern boundary of the Project Area. Arizona crossing borders northern edge of Upper Otay Reservoir.

Photograph 3. Photograph depicts fuel types (short, non-native grasses in foreground; coastal sage scrub-rolling hills; and chamise chaparral-Jamul Mtn. slopes) used for Fire Run #1 adjacent to southern and eastern edge of South Village.

Photograph 4. SDG&E power line easement traverses along northern edge of South Village from east to west.

Photograph 5. Disturbed coastal sage scrub and non-native grasslands are present in preserve land between South Village and Central Village.

Photograph 6. View of fuel types in the eastern and central portions of property abutting Central Village site. Majority of site is Diegan coastal sage scrub and chamise chaparral. Both fuel types were modeled in fire run #2.

Photograph 7. Close-up view of chamise chaparral and sage scrub fuel types just east of Central Village site.

Photograph 8. View of San Miguel Mountain (upper, left- side of photograph) and relatively flat terrain adjacent to Central Village and southern portion of North Village.

Photograph 9. Photograph depicts chamise chaparral fuels at base of mountain range and coastal sage scrub on slopes. These fuel types just west and outside Project Area were modeled for fire run #4.

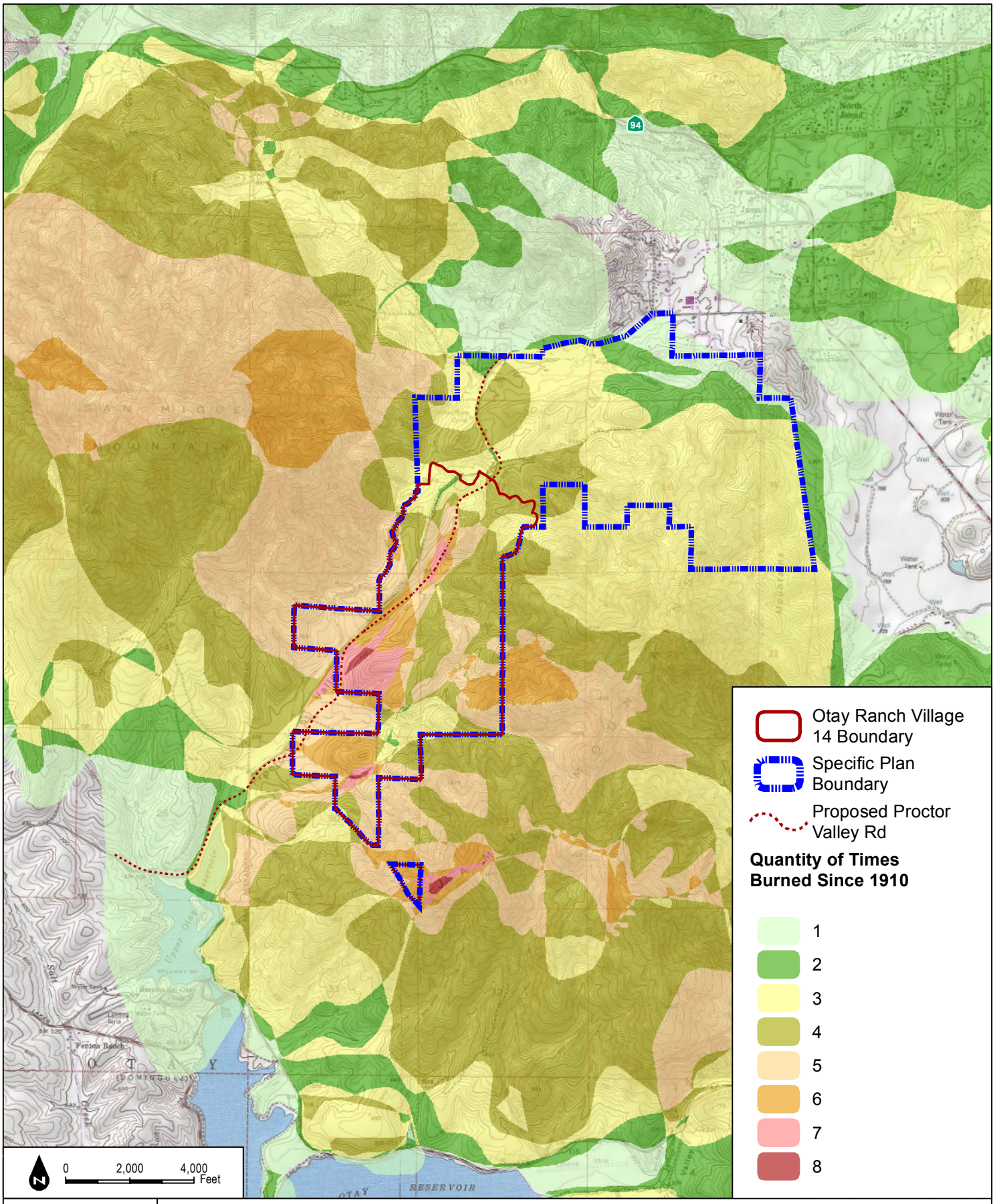
Photograph 10. View of fuel types in the northeastern portion of property. Majority of site is coastal sage scrub with patches of non-native grasslands and chamise shrubs.

Photograph11. Close-up of view of fuel types described in photograph 10. This photograph depicts the Project Area where fire run #3 was conducted.

Photograph 12. Looking north along Proctor Valley Road towards the community of Jamul. This portion of road will be improved to DPW standards.

APPENDIX B

Fire History Exhibit



DUDEK

SOURCE: CalFire FRAP 2014; Hunsaker 2015

Appendix B

Fire History

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative

APPENDIX C

Fire Service Availability Form

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - FIRE
ZONING DIVISION

Please type or use pen

GDCI Proctor Valley, LP (619) 267-4904
Owner's Name Phone

2245 San Diego Ave, Suite 223
Owner's Mailing Address Street

San Diego CA 92110
City State Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____

F

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION **TO BE COMPLETED BY APPLICANT**

A.
- [x] Major Subdivision (TM)
- [ ] Minor Subdivision (TPM)
- [x] Boundary Adjustment
- [ ] Rezone (Reclassification) from_____to_____zone.
- [ ] Major Use Permit (MUP), purpose:_____
- [ ] Time Extension...Case No._____
- [ ] Expired Map...Case No._____
- [x] Other General Plan Amendments
- [x] Specific Plan or Specific Plan Amendment
- [ ] Certificate of Compliance:_____

B.
- [x] Residential . . . . . Total number of dwelling units 1,119
- [x] Commercial . . . . . Gross floor area 10,000 square feet
- [ ] Industrial . . . . . Gross floor area_____
- [ ] Other . . . . . Gross floor area_____

C. Total Project acreage 1283 Total lots 995 Smallest proposed lot .09 acrs

Assessor's Parcel Number(s)
(Add extra if necessary)

SEE ATTACHED	

Thomas Guide. Page 1292 Grid C7

12800 Proctor Valley Road, Chula Vista, CA
Project address Street

Jamul Dulzura/Otay Subregion 91914
Community Planning Area/Subregion Zip

OWNER/APPLICANT AGREES TO COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: _____, CEO & MANAGER Date: 10/20/2016

Address: 2245 San Diego Ave, Suite 223, San Diego, CA 92110 Phone: 619 267-4904

(On completion of above, present to the district that provides fire protection to complete Section 2 and 3 below.)

SECTION 2: FACILITY AVAILABILITY **TO BE COMPLETED BY DISTRICT**

District Name: San Diego County Fire Authority

Indicate the location and distance of the primary fire station that will serve the proposed project:
New fire station to be located within the development

A.
- [x] Project is in the District and eligible for service.
- [ ] Project is not in the District but is within its Sphere of Influence boundary, owner must apply for annexation.
- [ ] Project is not in the District and not within its Sphere of Influence boundary.
- [ ] Project is not located entirely within the District and a potential boundary issue exists with the _____ District.

B. [ ] Based on the capacity and capability of the District's existing and planned facilities, fire protection facilities are currently adequate or will be adequate to serve the proposed project. The expected emergency travel time to the proposed project is _____ minutes.
- [x] Fire protection facilities are not expected to be adequate to serve the proposed development within the next five years.

C.
- [x] District conditions are attached. Number of sheets attached: 3
- [ ] District will submit conditions at a later date.

SECTION 3. FUELBREAK REQUIREMENTS

Note: The fuelbreak requirements prescribed by the fire district for the proposed project do not authorize any clearing prior to project approval by Planning & Development Services.

- [x] Within the proposed project 100 feet of clearing will be required around all structures.
- [ ] The proposed project is located in a hazardous wildland fire area, and additional fuelbreak requirements may apply. Environmental mitigation requirements should be coordinated with the fire district to ensure that these requirements will not pose fire hazards.

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature	*Print Name and Title*	*Phone*	*Date*
	JAMES PINE, DFM	858.495.5434	10/21/16

On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

Otay Ranch Proctor Valley Village 14 and Preserve
APNs By Ownership

Village 14

1. 598-070-09
2. 598-070-07
3. 598-010-02
4. 598-020-04
5. 598-020-06
6. 598-021-02
7. 597-140-05

Planning Areas 16/19

1. 597-020-10
2. 597-140-04
3. 597-020-06
4. 597-190-23
5. 597-150-13
6. 597-150-03
7. 597-150-12
8. 597-150-07
9. 597-150-08

HERMAN REDDICK
PROGRAM MANAGER
(858) 974-5999
FAX (858) 467-9662

County of San Diego

Public Safety Group
San Diego County Fire Authority
5510 Overland Ave, Suite 250, San Diego, CA 92123-1239
www.sdcountyfire.org

SUSAN QUASARANO
PROGRAM COORDINATOR
(858) 974-5924
FAX (858) 467-9662

October 21, 2016

GDCI Proctor Valley, LP
2245 San Diego Ave., Suite 223
San Diego, CA 92110

Ref: **Project Facility Availability Form (399F)**
Multiple APNs
Otay Ranch Villages 14,16,19 – Conditions

Following are the County Fire Marshal's Office comments in response to a request for a Project Facility Availability Form, and are preliminary in nature.

FIRE & EMERGENCY SERVICES - Availability

The density and location of the project will necessitate a new fire station to be provided within the project. The project will be conditioned to provide the funding for the construction, equipping and the ongoing operations and maintenance of the new fire station.

FIRE ACCESS ROADWAYS - Road design

1. Fire access roadways are required from building pads to a public way. The fire access roadway (including driveways) shall be extended to within 150 feet of acceptable fire fighter/hoseline access to all ground level exterior portions of proposed buildings.

2. Proposed on-site roadways will be required to meet DPW Public or Private Road Standards and designed to support the imposed load of fire apparatus (not less than 75,000 lbs.).

3. Due to the density of the project, on street parking shall be provided on both sides of the street to ensure that the minimum clear width of 24 feet is maintained at all times.

4. Cul-de-sacs shall have a paved radius of 42 feet to allow for on street parking within the cul-de-sac.

5. Any gates or other obstructions which could delay or otherwise impede emergency response are prohibited unless approved by the County Fire

Marshal and meet Department of Public Works Design Standards 17, 18 or 19, as well as the County Consolidated Fire Code.

6. Traffic calming devices (including, but not limited to, speed bumps, speed humps, speed control dips, etc.) shall be prohibited unless approved by the County Fire Marshal.

7. A vertical clearance of not less than 13 feet 6 inches shall be maintained.

8. No construction involving combustible materials on the subject property can take place until fire access roads are installed and fully meet code requirements. (Exception: If prearranged with the fire authority having jurisdiction, asphalt paving may be installed with the exception of the final lift, which may be postponed until just before building final if desired for roadway cosmetic purposes.)

FUEL MODIFICATION ZONES

1. The fuel modification zones around development areas shall be designed as to eliminate the presence of pockets, islands and peninsulas of unmanaged, combustible vegetation.

2. A fuel modification zone of not less than 100-foot is required around all structures, in accordance with the specifications of the County Consolidated Fire Code. Additional clearance may be required after review and acceptance of a fire protection plan (discussed below).

3. The fuel modification zone must be established and maintained by thinning, clearing away or modifying combustible vegetation within the zone. The fuel modification zone may be re-planted with either approved irrigated, fire-resistant planting material or approved non-irrigated, drought-tolerant, fire-resistant plant material. Re-planting with approved plant material may be required for erosion control.

   EXCEPTIONS:

   a) Single specimens of trees, ornamental shrubbery or similar plants used as ground covers, provided that they do not form a means of rapidly transmitting fire from the native growth to any structure.
   b) Grass and other vegetation located more than 50 feet from buildings or structures and less than 18 inches in height above the ground need not be removed where necessary to stabilize the soil and prevent erosion.

3. This does not authorize clearing beyond property line.

FIRE PROTECTION – Fire Protection Plan

A Fire Protection Plan, prepared by a PDS-approved consultant, shall be provided and be formatted per the County of San Diego Guidelines for Determining

Significance and Report Format and Content Requirements—Wildland Fire and Fire Protection.

FIRE PROTECTION – Automatic fire sprinklers

All structures shall be equipped with automatic fire sprinklers designed and installed to applicable NFPA and County of San Diego standards.

WATER SUPPLY—Fire hydrants and water mains

1. Fire hydrants shall be installed at intersections, at the beginning radius of cul-de-sacs and every 300 feet of fire apparatus access roadways.

2. The fire flow capacity for the water main serving the hydrants shall be a minimum of 2,500 gallons per minute.

3. Fire hydrants are be identified by a reflectorized blue marker, with a minimum dimension of 3 inches, in the center of the travel lane adjacent the water source, or by other methods approved by the fire code official.

IGNITION-RESISTIVE CONSTRUCTION (informational only)

At the time of building plan review, the Fire Marshal will check for fire code compliance with the County Consolidated Fire Code, County Building Codes, and other applicable standards. Plans will be reviewed for elements including (but not limited to):

- Class A roofing
- Non-combustible exterior walls
- Dual pane/tempered glazing
- Vent restrictions
- Eaves enclosed, not vented
- Smoke alarms
- Spark arresters
- Deck restrictions

Please call or email me if you have any questions or need clarification – (858) 495-5434 or James.Pine@sdcounty.ca.gov.

Best regards,

James Pine, Deputy Fire Marshal
San Diego County Fire Authority
Public Safety Group

APPENDIX D

Water Service Availability Form

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - WATER
ZONING DIVISION

Please type or use pen

GDCI Proctor Valley, LP — 619-267-4904
Owner's Name — Phone

c/o Jackson Pendo Development Company, 2245 San Diego Ave, Suite 223
Owner's Mailing Address — Street

San Diego — CA — 92110
City — State — Zip

ORG_____ **W**
ACCT_____
ACT_____
TASK_____
DATE_____ AMT $_____
DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- [x] Major Subdivision (TM)
- [ ] Minor Subdivision (TPM)
- [x] Boundary Adjustment
- [ ] Rezone (Reclassification) from_____ to _____ zone.
- [ ] Major Use Permit (MUP), purpose:_____
- [ ] Time Extension...Case No._____
- [ ] Expired Map...Case No._____
- [x] Other General Plan Amendments
- [x] Specific Plan or Specific Plan Amendment
- [ ] Certificate of Compliance:_____

B.
- [x] Residential . . . . . Total number of dwelling units 1,119
- [x] Commercial. . . . . Gross floor area 7,500 square feet
- [ ] Industrial . . . . . Gross floor area_____
- [x] Other . . . . . Gross floor area 9.7 acre school, 2.3 acre fire station, parks

C. [x] Total Project acreage 1,283.5 Total number of lots 895

D. Is the project proposing the use of groundwater? [ ] Yes [x] No
Is the project proposing the use of reclaimed water? [ ] Yes [x] No

Assessor's Parcel Number(s)
(Add extra if necessary)

SEE ATTACHED	

Thomas Guide Page 1292 Grid C7

12800 Proctor Valley Road, Chula Vista, CA
Project address — Street

Jamul Dulzura/Otay Subregion — 91914
Community Planning Area/Subregion — Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature:_____, CEO of MANAGER Date: 10/19/2016

Address: 2245 San Diego Ave, Suite 223, San Diego, CA 92110 Phone: (619) 267-4904

(On completion of above, present to the district that provides water protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: OTAY WATER DISTRICT Service area WATER ID 22

A.
- [ ] Project is in the district.
- [x] Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
- [ ] Project is not in the district and is not within its Sphere of Influence boundary.
- [ ] The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. [x] Facilities to serve the project [x] ARE [ ] ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached_____. (Number of sheets)

- [ ] Project will not be served for the following reason(s):_____

C.
- [x] **District conditions are attached. Number of sheets attached:**_____
- [ ] **District has specific water reclamation conditions which are attached. Number of sheets attached:**_____
- [ ] **District will submit conditions at a later date.**

D. [ ] **How far will the pipeline(s) have to be extended to serve the project?**_____

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature: TRomero Print Name Tanya Romero

Print Title Permit Technician Phone (619) 470-2241 Date 10/25/16

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT
On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

PDS-399W (Rev. 09/21/2012)

THIS APPROVAL OF AVAILABILITY IS SUBJECT TO ALL OTAY WATER DISTRICT REQUIREMENTS IN EFFECT AT THE TIME OF APPLICATION FOR SERVICE.

...Dedicated to Community Service
2554 SWEETWATER SPRINGS BOULEVARD, SPRING VALLEY, CALIFORNIA 91978-2004
TELEPHONE: 670-2222, AREA CODE 619 www.otaywater.gov

Sent via USPS and email to:
rcameron@jacksonpendo.com

October 31, 2016

Project No.: D0956-090248
Activity: 3111

Rob Cameron
GDCI Proctor Valley, LP
c/o Jackson Pendo Development
2245 San Diego Avenue, Suite 223
San Diego, CA 92110

Subject: Project Facility Availability – Water
The Proctor Valley Village 14 Preserve Specific Plan and Planning Areas 16/19;
12800 Proctor Valley Road Chula Vista, CA

Dear Mr. Cameron:

This letter supersedes the previously written dated April 6, 2016. The Otay Water District (District) has the capacity to serve the Otay Ranch Village 14 (Project). As provided to the District, the Project consists of sixteen (16) parcels and nine hundred ninety-five (995) lots totaling approximately 1,283.5 total acreage.

As per Section 62.01 of the District's Code of Ordinances, "To provide for future line extensions, pipelines installed within public streets must be constructed to the subdivision boundary and pipelines not installed within a public street must be installed in a District easement or right-of-way and must extend across the frontage of the parcel or parcels to be served."

The District has no objection to this Project. The developer will be required to submit both a water demand study and a Water Supply Assessment and Verification report (WSA&V). The water study must be reviewed and approved by the District before the County of San Diego submits the request for a WSA&V report to the District. The developer should meet with the District early in the entitlement process to discuss the schedule, report submittal requirements, and to set up a deposit account to cover staff time. The developer will also be required to submit a Sub-Area Master Plan and a calculation of water demands prior to the commencement of the Project. An agreement between the developer and the District will be needed for the design and construction of water system improvements including transmission pipelines, reservoirs and pump stations required to support this development. In addition, the developer will be required to annex parcels into an improvement district for water service.

The developer will be required to submit improvement plans for District approval and extend the water main to front all properties in question. If service laterals do not exist for the Project, the applicant must pay to have the District install them.

Prior to the purchase of any meter(s), irrigation plans must be: (1) designed to District Water Agency Standards for reclaimed standards/specifications and (2) submitted to the District and the County Department of Environmental Health (DEH) for plan check and approval. The developer must contact the District for further requirements.

When a customer requests water service on a parcel of land with potable water irrigated landscape equal to 5,000 square-feet or more, a separate meter will be required for irrigation purposes on the site. Each service must have an approved reduced pressure principle backflow prevention device (R/P).

Fire service plans must be designed to Water Agencies' Standards. Each service must have an R/P purchased and installed by the developer after District review and approval. The developer should contact the Project's fire agency for any fire protection requirements and determine early on how the fire protection requirements can be met from the existing pressure zone.

The fire service line will not be allowed to be connected to any buildings; the line will be intended for fire services purposes only. Failure to comply with this request will result in violation of the District's Code of Ordinances and will be subject to penalties determined by the District. Water furnished for fire hydrant or fire sprinkler service shall be used only for fire protection purposes and shall be connected to a District water main. Where service is provided for a fire hydrant or fire sprinkler service on privately owned land, the service shall be provided by the District at the property line of land to be served

Water availability is subject to all District requirements in effect at the time and you are strongly encouraged to adopt water conservation measures throughout the development.

The District's Engineering Public Services Division can be contacted at (619) 670-2241 or visit the website at www.otaywater.gov/engineering for further requirements regarding inspection services, water main extensions, service laterals, backflow devices, meter costs. Also, visit the website at www.otaywater.gov/code-of-ordinances for sections pertaining to the Project and any other conditions that may have arisen since this letter was written for this Project.

Returned herewith are the documents you forwarded with your review request.

Sincerely,
OTAY WATER DISTRICT

Dan Martin, P.E.
Engineering Manager

DM:mlc

Enclosure: Documents submitted with review request

cc: County Of San Diego, Planning & Development Services – Zoning Counter (w/o enclosures)

Otay Ranch Proctor Valley Village 14 and Preserve
APNs By Ownership

Village 14

1. 598-070-09
2. 598-070-07
3. 598-010-02
4. 598-020-04
5. 598-020-06
6. 598-021-02
7. 597-140-05

Planning Areas 16/19

1. 597-020-10
2. 597-140-04
3. 597-020-06
4. 597-190-23
5. 597-150-13
6. 597-150-03
7. 597-150-12
8. 597-150-07
9. 597-150-08

COPY

...Dedicated to Community Service
2554 SWEETWATER SPRINGS BOULEVARD, SPRING VALLEY, CALIFORNIA 91978-2004
TELEPHONE: 670-2222, AREA CODE 619 www.otaywater.gov

Sent via USPS and email to:
rcameron@jacksonpendo.com

April 6, 2016

Project No.: D0956-090248
Activity: 3111

Rob Cameron
GDCI Proctor Valley, LP
c/o Jackson Pendo Development
2245 San Diego Avenue, Suite 223
San Diego, CA 92110

Subject: Project Facility Availability – Water
The Proctor Valley Village 14 Preserve Specific Plan and Planning Areas 16/19;
12800 Proctor Valley Road Chula Vista, CA

Dear Mr. Cameron:

The Otay Water District (District) has the capacity to serve the Otay Ranch Village 14 (Project). As provided to the District, the Project consists of thirty (30) parcels (approximately 2,347 total acreage).

As per Section 62.01 of the District's Code of Ordinances (enclosed), "To provide for future line extensions, pipelines installed within public streets must be constructed to the subdivision boundary and pipelines not installed within a public street must be installed in a District easement or right-of-way and must extend across the frontage of the parcel or parcels to be served."

The District has no objection to this Project. The developer will be required to submit both a water demand study and a Water Supply Assessment and Verification report (WSA&V). The water study must be reviewed and approved by the District before the County of San Diego submits the request for a WSA&V report to the District. The developer should meet with the District early in the entitlement process to discuss the schedule, report submittal requirements, and to set up a deposit account to cover staff time. The developer will also be required to submit a Sub-Area Master Plan and a calculation of water demands prior to the commencement of the Project. An agreement between the developer and the District will be needed for the design and construction of water system improvement including transmission pipelines, reservoirs and pump stations required to support this development. In addition, the developer will be required to annex parcels into an improvement district. The developer will be required to submit improvement plans for District approval and extend the water main to front all properties in question. If service laterals do not exist for the Project, the applicant must pay to have the District install them.

Prior to the purchase of any meter(s), irrigation plans must be: (1) designed to District Water Agency Standards for reclaimed standards/specifications and (2) submitted to the District and the County Department of Environmental Health (DEH) for plan check and approval. The developer must contact the District for further requirements.

When a customer requests water service on a parcel of land with potable water irrigated landscape equal to 5,000 square-feet or more, a separate meter will be required for irrigation purposes on the site.

Each service must have an approved reduced pressure principle backflow prevention device (R/P) purchased and installed by the developer. The fire service line will not be allowed to be connected to any buildings; the line will be intended for fire services purposes only. Failure to comply with this request will result in violation of the District's Code of Ordinances and will be subject to penalties determined by the District. Water furnished for fire hydrant or fire sprinkler service shall be used only for fire protection purposes and shall be connected to a District water main. Where service is provided for fire hydrant or fire sprinkler service on privately-owned land, the service shall be provided by the District at the property line of land to be served. The developer should contact the Project's fire agency for any fire protection requirements.

Water availability is subject to all District requirements in effect at the time and you are strongly encouraged to adopt water conservation measures throughout the development.

The District's Engineering Public Services Division can be contacted at (619) 670-2241 or visit the website at www.otaywater.gov for further requirements regarding inspection services, water main extensions, service laterals, backflow devices, meter costs, and any other conditions that may have arisen since this letter was written for this Project.

Also, returned herewith are the documents you forwarded with your review request.

Sincerely,
OTAY WATER DISTRICT

Dan Martin, P.E.
Engineering Manager

DM:mlc

Enclosures: Location Map
Code of Ordinances (Sections 9, 23, 25, 26, 27, 28, 36, 38, 39, 40, 60, 62)
Documents submitted with review request

COPY

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - WATER
ZONING DIVISION

Please type or use pen

GDCI Proctor Valley, LP — 619-267-4904
Owner's Name — Phone

c/o Jackson Pendo Development 2245 San Diego Ave, Suite 223
Owner's Mailing Address — Street

San Diego — CA — 92110
City — State — Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE_____
AMT $_____

W

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- [x] Major Subdivision (TM)
- [x] Specific Plan or Specific Plan Amendment
- [ ] Minor Subdivision (TPM)
- [ ] Certificate of Compliance:_____
- [x] Boundary Adjustment
- [x] Rezone (Reclassification) from S80/S88/RR to S80/others zone.
- [ ] Major Use Permit (MUP), purpose:_____
- [ ] Time Extension...Case No._____
- [ ] Expired Map...Case No._____
- [x] Other General Plan Amendments

B.
- [x] Residential . . . . . Total number of dwelling units 1,530
- [x] Commercial. . . . . Gross floor area 15,000 sqaure feet
- [ ] Industrial . . . . . Gross floor area_____
- [x] Other . . . . . Gross floor area 8.6 acre school, 2.3 acre fire, parks

C. [x] Total Project acreage 2,347 Total number of lots 1,316

D. Is the project proposing the use of groundwater? [ ] Yes [x] No
Is the project proposing the use of reclaimed water? [ ] Yes [x] No

Assessor's Parcel Number(s)
(Add extra if necessary)

SEE ATTACHED	

Thomas Guide Page 1292 Grid C7

12800 Proctor Valley Road, Chula Vista, CA
Project address — Street

Jamul Dulzurra/Otay Subregion — 91914
Community Planning Area/Subregion — Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] AGENT OF MANAGER Date: 3/25/16

Address: 2245 San Diego Ave, Suite 223, San Diego, CA 92110 Phone: (619) 267-4904

(On completion of above, present to the district that provides water protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: OTAY WATER DISTRICT Service area Water ID 22

A.
- [ ] Project is in the district.
- [x] Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
- [ ] Project is not in the district and is not within its Sphere of Influence boundary.
- [ ] The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. [x] Facilities to serve the project [x] ARE [ ] ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached_____. (Number of sheets)

- [ ] Project will not be served for the following reason(s):_____

C.
- [x] District conditions are attached. Number of sheets attached:_____
- [ ] District has specific water reclamation conditions which are attached. Number of sheets attached:_____
- [ ] District will submit conditions at a later date.

D. [ ] How far will the pipeline(s) have to be extended to serve the project?_____

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature: [signature] Print Name Tanya Romero

Print Title PERMIT TECHNICIAN Phone 619) 670-2241 Date 4/5/16

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT
On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

PDS-399W (Rev. 09/21/2012)

THIS APPROVAL OF AVAILABILITY IS SUBJECT TO ALL OTAY WATER DISTRICT REQUIREMENTS IN EFFECT AT THE TIME OF APPLICATION FOR SERVICE

APPENDIX E

Fire Behavior Modeling Input Data

APPENDIX E
Fire Behavior Modeling Summary
Land Exchange Alternative

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 three 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 this fire protection plan (FPP) in order to evaluate potential fire behavior for the 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 weather 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), and fireline intensity (BTU/feet/second). The following provides a description of the input variables used in processing the BehavePlus models for the 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 on and adjacent to the site were classified into the aforementioned numeric fuel models. Vegetation types were derived from vegetation mapping data (Dudek 2015) for the project site. The site and off site vegetation is dominated primarily by Diegan coastal sage scrub (Fuel Model SCAL 18), chamise chaparral (Fuel Model Sh5), and short grasses (Fuel Model 1). Modeled areas include the non-native grasslands within and south of the project site. Coastal sage scrub and chamise chaparral occur on the slopes to the north, east, and west of the site. A total of four model

runs was completed for the Project area. These sites were selected based on the strong likelihood of fire approaching from these directions during an on-shore weather pattern (Model Runs 1 and 4) and during a Santa Ana wind-driven fire event (Model Runs 2 and 3).

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 were measured around the perimeter of the Propose Project site from U.S. Geological Survey (USGS) topographic maps and current topography that was flown by Dudek.

Weather Analysis

In order to evaluate specific weather variables for the Project area, data from the San Miguel Remote Automated Weather Station (RAWS) was analyzed. The San Miguel RAWS is the closest RAWS, located approximately 3.2 miles due northwest of the Project site, in a similar inland position and estimated to include consistent weather conditions as the Project area. The location and available data range for the San Miguel station is:

- San Miguel RAWS
    - Latitude: 32.68611
    - Longitude: -116.97833
    - Elevation: 425 feet
    - Data years: 2002 to 2010

Utilizing the FireFamily Plus v. 4.0.2 (FireFamily Plus 2008) software package, data from the San Miguel RAWS was processed and analyzed to determine 50th (typical) and 97th (extreme) percentile wind and fuel moisture conditions to be used in the fire behavior modeling efforts conducted for the Project area. Wind speed values derived from RAWS data represent 20-foot wind speeds. As such, a wind adjustment factor of 0.4 was utilized to account for vertical differences in wind speed from the 20-foot recording height to mid-flame height prior to BehavePlus modeling efforts. Standard RAWS setup places the anemometer at 20 feet above ground, while wind affecting surface fire spread is that found at mid-flame height. A conservative wind adjustment factor of 0.4 indicates a fuel bed that is unsheltered from the wind with a fuel bed depth roughly 3.0 feet. It should be noted that mid-flame wind speeds may be only 10% of the wind speeds recorded or predicted at 20 feet. Fuel moisture information derived from FireFamily Plus was directly inputted into the BehavePlus runs. Two separate wind

scenarios were analyzed and incorporated into the BehavePlus model: summer fire (50th percentile values from June 1 to August 31) with 8 mph on-shore winds, and fall fire (97th percentile values from September 1 to November 30) with 30 to 50 mph winds. The use of 50 mph winds in modeling efforts is intended to represent wind gusts rather than sustained maximum wind speeds (30-40 mph). The maximum RAWS wind speed for the San Miguel RAWS during the 97th percentile weather period (September 1 to November 30) was 20 mph, which represents a 10-minute average wind speed, not the maximum gust speed. As BehavePlus presents a static representation of fire behavior, the inclusion of gust speed is appropriate to evaluate worst-case fire behavior outputs. Table 2 summarizes the weather and wind input variables used for all fire behavior modeling conducted for this FPP.

Table 2
BehavePlus Fire Behavior Model Variables

Variable	Summer Weather (Onshore Flow) 50th Percentile	Peak Weather (Offshore Flow) 97th Percentile
Fire Modelling Scenarios	1 and 4	2 and 3
Fuel Model(s)	1, Sh5, SCAL 18	Sh5,SCAL 18
1h Moisture	8%	2%
10h Moisture	10%	3%
100h Moisture	15%	7%
Live Herbaceous Moisture	90%	60%
Live Woody Moisture	122%	92%
20-ft Wind Speed	8 mph	30-40 mph (50 mph gusts)
Wind Adjustment Factor (BehavePlus)	0.4	0.4
Slope Steepness	5-40%	5-20%

Fire Modeling Scenarios

Focused fire behavior modeling utilizing BehavePlus 5.0.5 was conducted for the Project. Based on slope and fuel conditions, four different fire scenarios were evaluated for the project site, including:

- **Scenario 1:** 50th percentile weather with on-shore wind and a summer fire burning in grassland with sparse sage scrub and chamise chaparral shrub cover along the southern edge of the Project site. This area is relatively flat (5% slope) to moderately slope (20%), with potential ignition sources along adjacent residential areas, a transmission line, or off-road recreational vehicles. 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 chamise chaparral and coastal sage scrub shrub cover in rugged terrain along the eastern

edge of the Project site. This area is moderately steep (20% slope), with potential ignition sources from off-road vehicles, or from a larger fire burning westward over the Jamul Mountains that could have started near SR-94 or Otay Lakes Road to the east. Fire in this area would be moving downhill toward the proposed Project.

- **Scenario 3:** 97th percentile weather with off-shore wind and a fall fire burning in chamise chaparral and coastal sage scrub shrub cover in gentle terrain along the northern portion of the Project site. This area is rolling hills with roughly 10% slopes. Potential ignition sources could be adjacent residential areas in Jamul or off-road vehicle activity. Fire in this area would be moving downhill toward the proposed Project.
- **Scenario 4:** 50th percentile weather with on-shore wind and a summer fire burning in chamise and sage scrub shrub cover along the western edge of the project site. This area is steep (up to 40% slope), with potential ignition sources from a transmission line or a wildfire that originates in the San Diego National Wildlife Refuge to the west of the Land Exchange Alternative site. Fire in this area would be moving downhill toward the proposed Project.

FIRE BEHAVIOR MODELING EFFORT

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior within and adjacent to proposed fuel modification zones for the Land Exchange Alternative site. Four focused analyses were completed, each assuming worst-case fire weather conditions for a fire approaching the project site from the northeast, east, west, and south. Three 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), and fireline intensity (BTU/feet/second). 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 2004). . 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 1983). The information in Table 3 presents an interpretation of these fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Table 4. Identification of modeling run locations is presented graphically in Figure 5 of the FPP.

Based on the BehavePlus analysis, worst-case fire behavior is expected in sage scrub fuels along the northeastern edge of proposed project development (Scenario 2) during a strong wind-driven fire event (97th percentile weather). Under this scenario, maximum modeled flame lengths reach 34.4 feet, fireline intensities reach 12,386 BTU/feet/second, and spread rates reach 4.4 mph.

Table 3
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 4
BehavePlus Fire Behavior Modeling Results

Model Run	Fuel Model(s)	Flame Length (feet)	Fireline Intensity (Btu/ft/s)	Surface Rate of Spread (mph)	Spotting Distance (miles)
1	1, Sh5,SCAL18	2.6 to 10.7	47 to 984	0.21 to 0.42 (<1.0)	0.3
2	Sh5, SCAL 18	25.5 to 30.6 (34.2)	6,648 to 9,655 (12,229)	1.2 to 3.3 (4.4)	1.6 (2.0)
3	Sh5, SCAL 18	26.0 to 30.9 (34.4)	6,781 to 9,529 (12,386)	1.2 to 3.4 (4.4)	1.6 (2.0)
4	Sh5, SCAL 18	7.6 to 9.2	462 to 706	0.15 to 0.21 (<1.0)	0.2

Note:

* Parentheses represents modeling results for 50 mph wind gusts.

** It should be noted that the results presented in Table 4 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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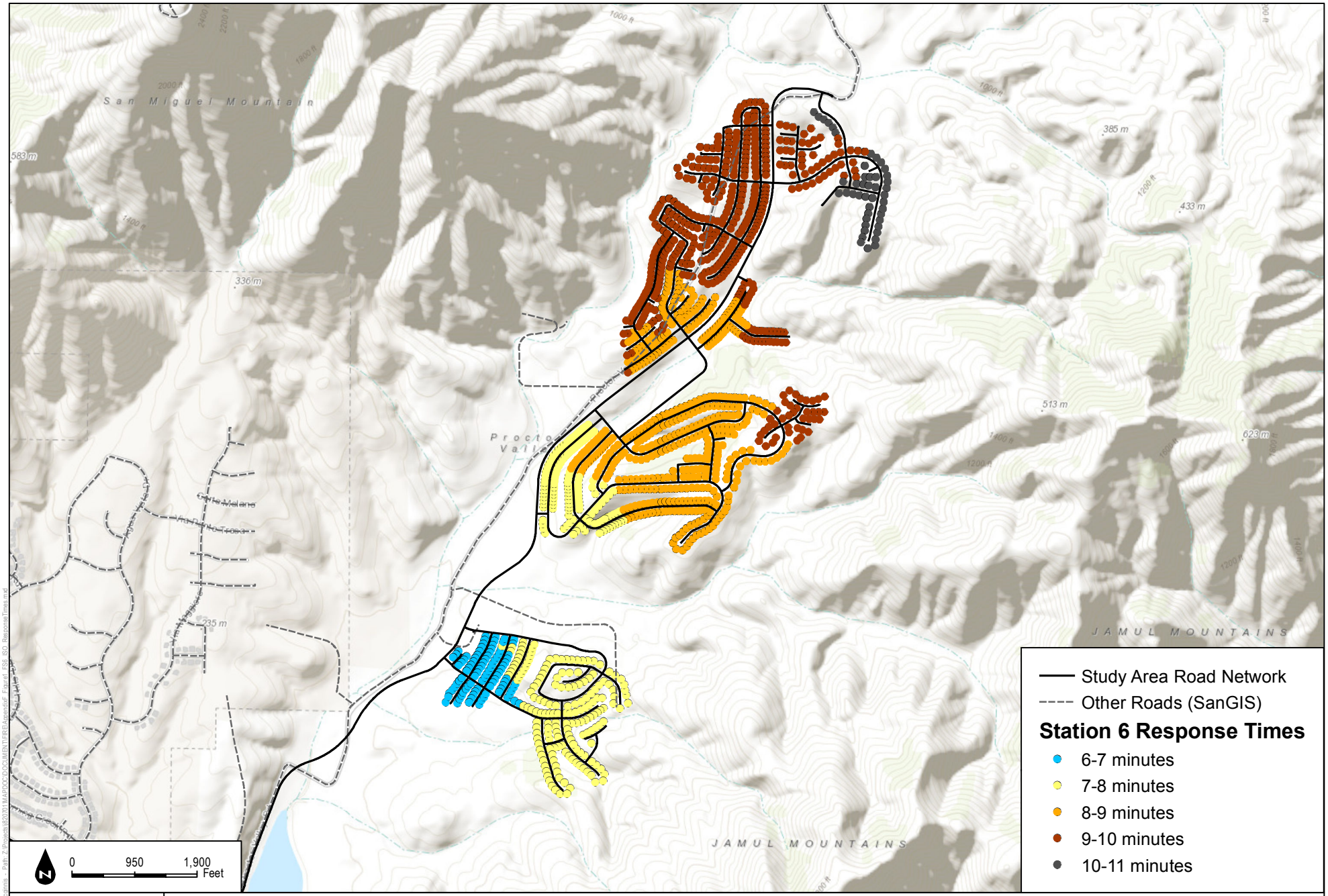
APPENDICES F1–F4

Fire Department Travel Time Analysis



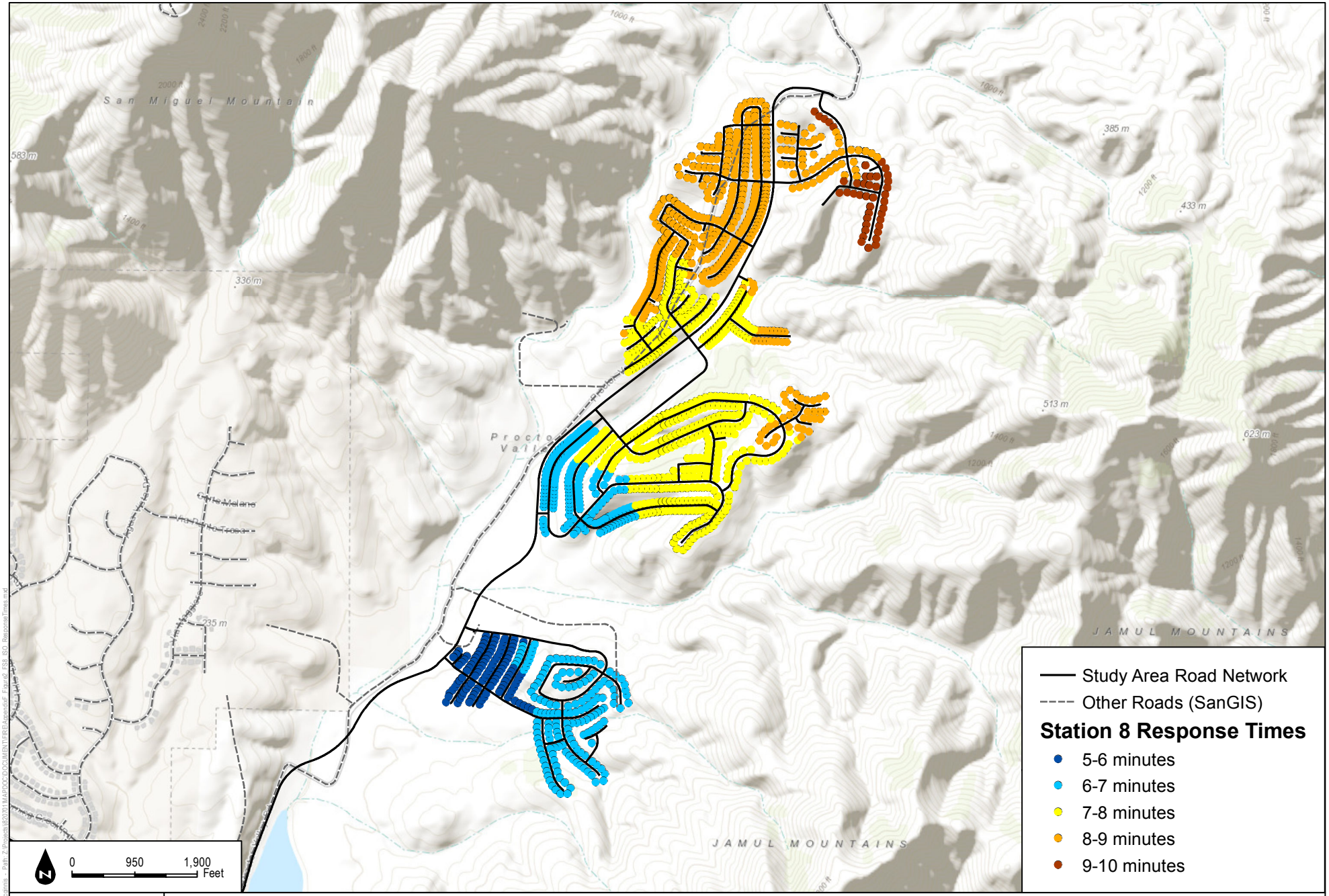
DUDEK

SOURCE: ESRI 2015; SANGIS 2015; Hunsaker 2015

APPENDIX F-1

Fire Station 6 - ISO Response Analysis

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative



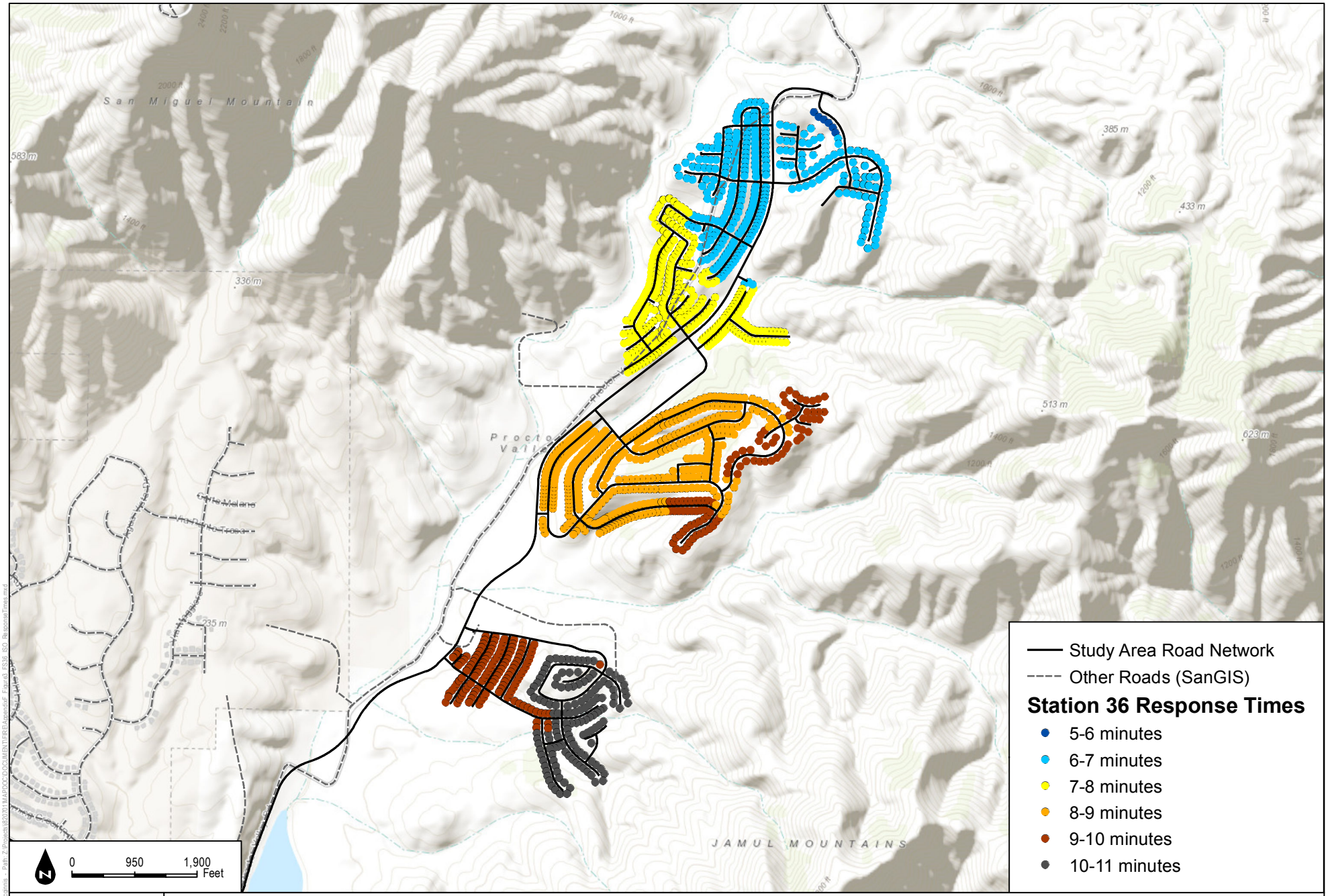
DUDEK

SOURCE: ESRI 2015; SANGIS 2015; Hunsaker 2015

APPENDIX F-2

Fire Station 8 - ISO Response Analysis

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative



SOURCE: ESRI 2015; SANGIS 2015; Hunsaker 2015

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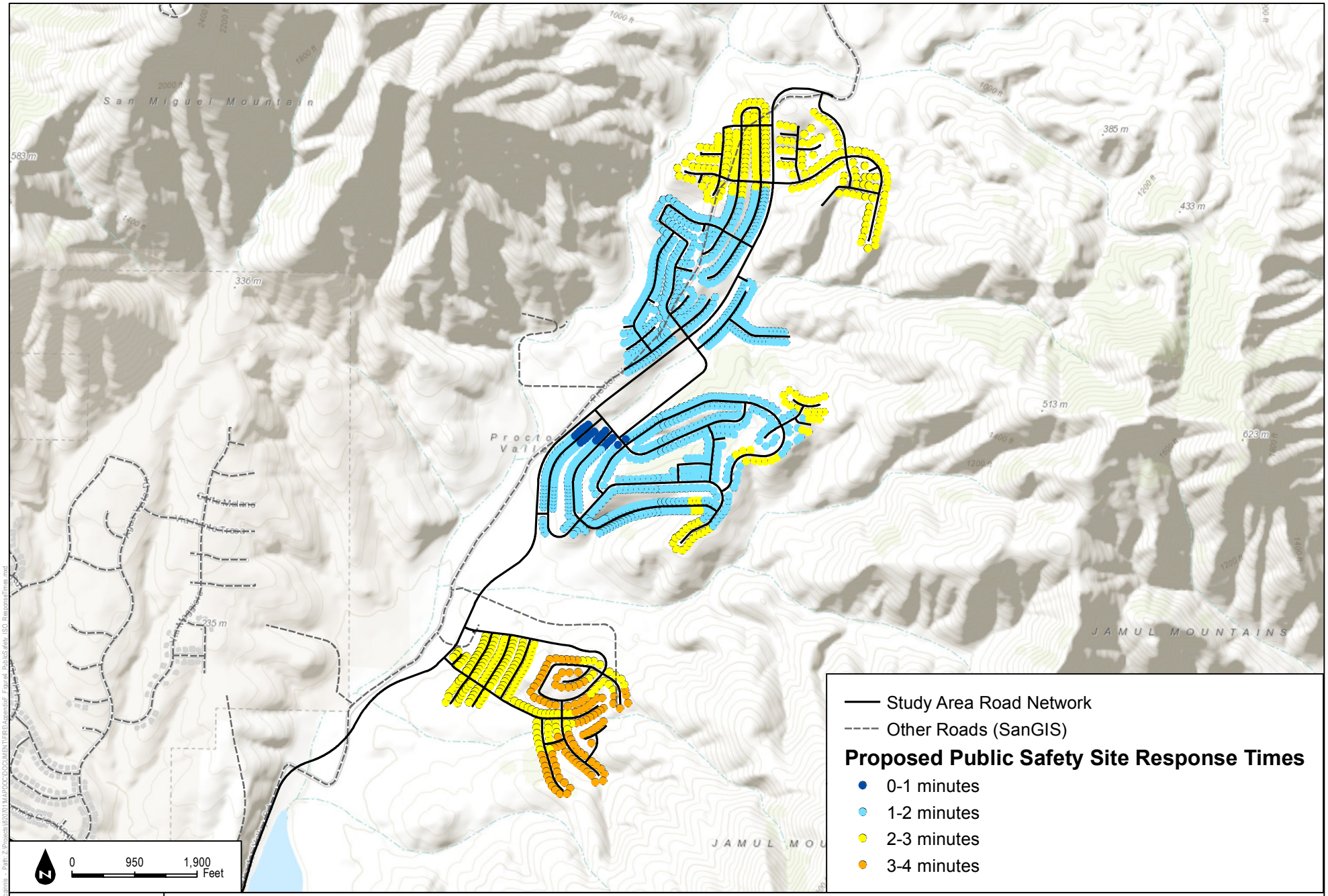
APPENDIX F-3

Fire Station 36 - ISO Response Analysis

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative



SOURCE: ESRI 2015; SANGIS 2015; Hunsaker 2015

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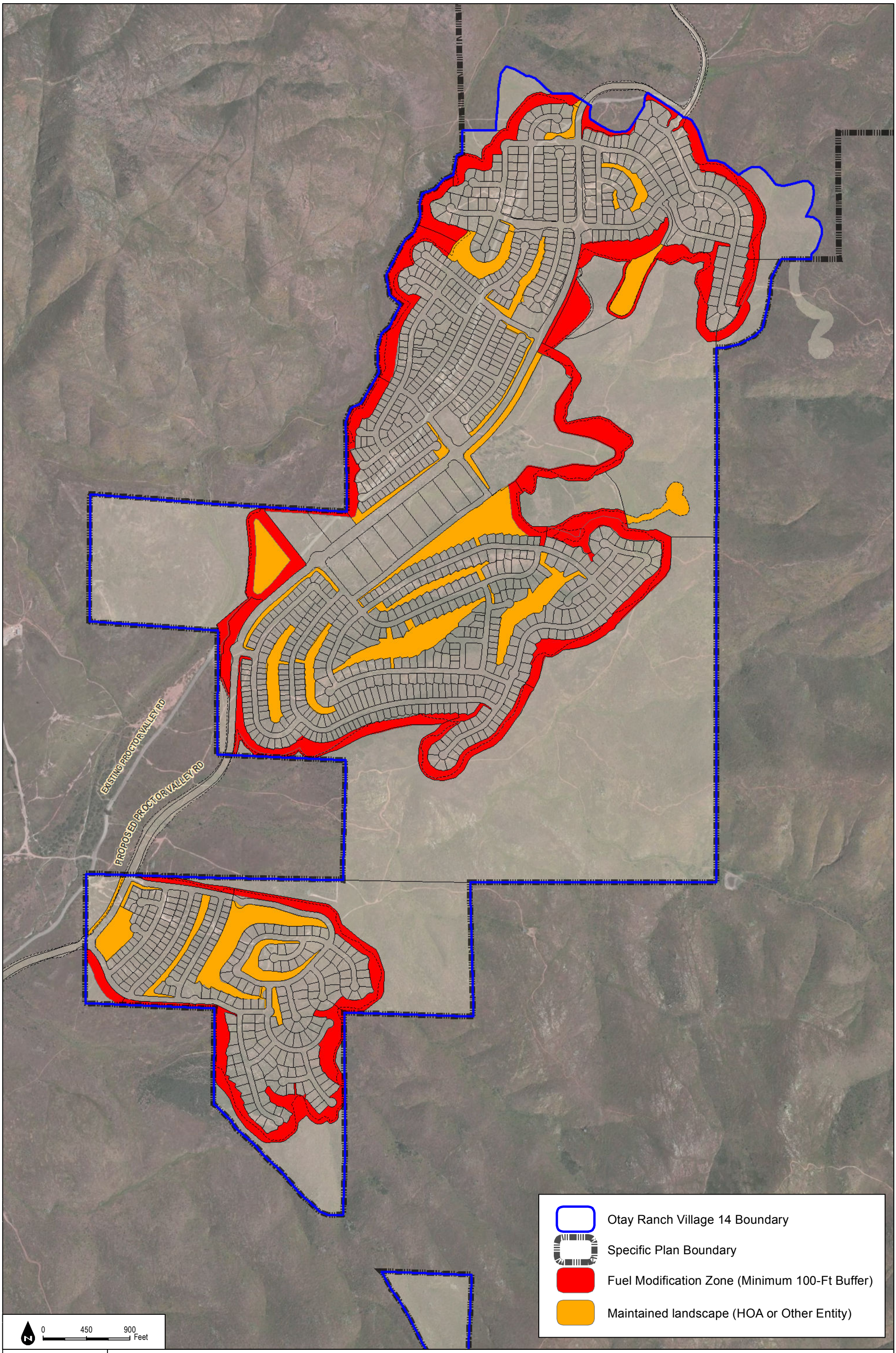
APPENDIX F-4

Proposed Public Safety Site - ISO Response Analysis

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative

APPENDIX G

Fuel Modification Zone Exhibit



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SOURCE: Hunsaker & Associates 2016

APPENDIX G

Fuel Modification Zone

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative

APPENDIX H

Land Exchange Alternative Plant Palette

APPENDIX H
Land Exchange Alternative Plant Palette

Botanical Name	Common Name	Climate Zone
TREES		
Acer		
platanoides	Norway Maple	M
rubrum	Red Maple	M
saccharinum	Silver Maple	M
saccarum	Sugar Maple	M
macrophyllum	Big Leaf Maple	C/ (R)
Agonis flexuosa	Peppermint Tree	
Alnus rhombifolia	White Alder	C/I/M (R)
Arbutus unedo	Strawberry Tree	All zones
Archontophoenix cunninghamiana	King Palm	C
Arctostaphylos spp.**	Manzanita	C/I/D
Brachychiton acerifolius	Australian Flame Tree	
Brachychiton populneus	Bottle Tree	
Brahea armata	Blue Hesper Palm	C/D
Brahea edulis	Guadalupe Palm	C/D
Callistemon citrinus Compacta	Dwarf Lemon Bottlebrush	
Ceratonia siliqua	Carob	C/I/D
Cerdidium floridum	Blue Palo Verde	D
Cercis occidentalis**	Western Redbud	C/I/M
Chamaerops humillis	Mediterranean Fan Palm	
Cornus nuttallii	Mountain Dogwood	I/M
Cornus stolonifera	Redtwig Dogwood	I/M
Cupressus semperv irens Strica	Italian Cypress	
Cycas revoluta	Sago Palm	
Eriobotrya		C/I/D
Eriobotrya japonica	Loquat	C
Erythrina caffra	Kaffirboom Coral Tree	I/M
Ficus robiginosa	Rustyleaf Fig	

Botanical Name	Common Name	Climate Zone
Geijera parviflora	Australian Willow	
Gingko biloba "Fairmount"	Fairmount Maidenhair Tree	I/D/M
Gleditisia triacanthos	Honey Locust	
Juglans		I
californica	California Walnut	C/I
hindsii	California Black Walnut	I/D/M
Koelreuteria paniculata	Golden Rain Tree	
Lagerstroemia indica	Crape Myrtle	I
Laurus nobils	Sweet Bay	
Ligustrum japonicum	Japanese	
'Texanum'	Privet	
Ligustrum lucidum	Glossy Privet	C/I/M
Liquidambar styraciflua	Sweet Gum	I
Liriodendron tulipifera	Tulip Tree	
Lyonothamnus floribundus		C
ssp. Asplenifolius	Fernleaf Catalina Ironwood	C/I/D
Melaleuca spp.	Melaleuca	C/I
Metrosideros exelsus	New Zealand Christmas Tree	
Olea europea Wilsoni	Fruitless Olive Tree	
Parkinsonia aculeate	Mexican Palo Verde	
Phoenix canariensis Phoenix	Canary Island Date Palm	
dactylifera	Phoenix Date Palm	
Phoenix reclinata	Senegal Date Palm	
Phoneix roebelenii	Pigmy Date Palm	
Pistacia	Chinese Pistache	
chinensis	Pistachio Nut	C/I/D
vera	Pistachio Nut	I
Pittosporum		
phillyraeoides	Willow Pittosporum	C/I/D
viridiflorum	Cape Pittosporum	C/I
Platanus		
acerifolia	London Plane Tree	All zones
racemosa**	California Sycamore	C/I/M
Podocarpus gracilior	Fern Pine	
Populus		
alba	White Poplar	D/M
fremontii**	Western Cottonwood	I
trichocarpa	Black Cottonwood	I/M
Prunus		
xblireiana	Flowering Plum	M
caroliniana	Carolina Laurel Cherry	C
ilicifolia**	Hollyleaf Cherry	C
lyonii**	Catalina Cherry	C

Botanical Name	Common Name	Climate Zone
serrulata 'Kwanzan'	Flowering Cherry	M
yedoensis 'Akebono'	Akebono Flowering Cherry	M
Quercus		
agrifolia**	Coast Live Oak	C/I
engelmannii	Engelmann Oak	I
** suber	Cork Oak	C/I/D
Rhus		
lancea**	African Sumac	C/I/D
Salix spp.**	Willow	All zones (R)
Sapium		
sebiferum	Chinese Tallow Tree	
Stenocarpus		
sinuatus	Firewheel Tree	
Tipuana tipu	Tipu Trees	
Tristania conferta	Brisbane Box	C/I
Ulmus		
parvifolia	Chinese Elm	I/D
pumila	Siberian Elm	C/M
Umbellularia californica**	California Bay Laurel	C/I

Botanical Name	Common Name	Climate Zone
SHRUBS		
Aloe species	Aloe	
Agapanthus africanus	Lily-of-the-Nile	
Agave		
americana	Century Plant	D
attenuata	Century Plant	D
deserti	Century Plant	
shawi**	Shawis Century Plant	D
Amorpha fruticosa**	False Indigobush	I
Arbutus		
menziesii**	Madrone	C/I
Arctostaphylos spp.**	Manzanita	C/I/D
Archtostapylos Emerald Carpet	Emerald Carpet Manzanita	
Artemisia douglasiana	Mugwort	
Atriplex**		
canescens	Hoary Saltbush	I

Botanical Name	Common Name	Climate Zone
lentiformis	Quail Saltbush	D
Baccharis**		
glutinosa	Mule Fat	C/I
pilularis	Coyote Bush	C/I/D
Bougainvillea spp.	Bougainvillea	
Buxus microphylla 'Green Beauty'	Dwarf Boxwood	
Carissa grandiflora	Natal Plum	C/I
Carissa macrocarpa Green Carpet	Prostrate Natal Plum	
Ceanothus spp.**	California Lilac	C/I/M
Cistus spp.	Rockrose	C/I/D
Cneoridium dumosum**	Bushrue	C
Comarostaphylis**		
diversifolia	Summer Holly	C
Convolvulus cneorum	Bush Morning Glory	C/I/M
Cotoneaster lacteus	Parnys Red Clusterberry	
Dalea		
orcuttii	Orcutt's Delea	D
spinosa**	Smoke Tree	I/D
Dianela spp.	Flax Lily	
Dietes		
bicolor	Fortnight Lily	
Disctus		
Rivers	Royal Trumpet Vine	
Distictus		
buccinatoria	Blood-Red Trumpet Vine	
Echium		
fastuosum	Pride of Madeira	C/I/M
Elaeagnus		
pungens	Silverberry	C/I
Encelia**		D/I
californica	Coast Sunflower	
farinose	White Brittlebush	
Epilobium californicum	California Fushcia	
Eriobotrya		C/I
deflexa	Bronze Loquat	
Eriophyllum		C/I
confertiflorum**	Golden Yarrow	C

Botanical Name	Common Name	Climate Zone
staechadifolium	Lizard Tail	C/I
Escallonia spp.	Escallonia	C/I/D
Feijoa sellowiana	Pineapple Guava	
Euryops pectinatus	Shrub Daisy	D
Fouqueria splendens	Ocotillo	I/M
Fremontodendron**		I
californicum	Flannelbush	
mexicanum	Southern Flannelbush	C
Galvezia		C
juncea	Baja Bush-Snapdragon	
speciosa	Island Bush-Snapdragon	C/I
Garrya		I/M
elliptica	Coast Silktassel	
flavescens**	Ashy Silktassel	
Heteromeles arbutifolia**	Ashy Silktassel	I/M
	Toyon	C/I/M
Isocoma menziesii	Goldenbush	
Lantana spp.	Lantana	C/I/D
Lotus scoparius	Deerweed	C/I
Mahonia spp.	Barberry	C/I/M
Malacothamnus clementinus	San Clemente Island Bush Mallow	C
fasciculatus**	Mesa Bushmallow	C/I
Melaleuca spp.	Melaleuca	C/I/D
Mimulus aurianticus	Pink Wisp Grass	
Mimulus spp.**	Monkeyflower	C/I (R)
Muhlenbergia caillaris	Pacifica Saltbush	
Myoporum pacificum	No Common Name	
Myoporum parvifolium	Myrtle	
Putah Creek Myrtus species	Heavenly Bamboo	
Nandina domestica		

Botanical Name	Common Name	Climate Zone
Nolina	Parry's Nolina	
parryi	Wolf's Bear Grass	I
parryi ssp. wolfii	Rye Puffs	D
Pennisetum		
spatheolatum		
	Flax	
Phormium species	Photinia	
Photinia spp.		All Zones
Pittosporum	Karo	
crassifolium	Queensland Pittosporum	CI/I
rhombifolium	Wheeler's Dwarf	C/I
tobira 'Wheeleri'	Victorian Box	C/I/D
undulatum	Cape Pittosporum	C/I
viridiflorum	Cape Plumbago	C/I
Plumbago auriculata		C/I/D
Prunus	Carolina Laurel Cherry	
caroliniana	Hollyleaf Cherry	C
ilicifolia**	Catalina Cherry	C
lyonii**	Pomegranate Firethorn	C
Puncia granatum		C/I/D
Pyracantha spp.	Scrub Oak	All Zones
Quercus		
dumosa**	Italian Blackthorn	C/I
Rhamus	Coffeeberry	
alaternus	Rhaphiolepis	C/I
californica**	India Hawthorn	C/I/M
Rhaphiolepis spp.		C/I/D
Rhaphiolepis indica	Lemonade Berry	
	Pink-Flowering Sumac	
Rhus	Sugarbush squawbush	
integrifolia**		C/I
laurina lentii	Evergreen Currant	C/D
ovata**	Fuschia-Flowering Gooseberry	I/M I
trilobata**	Matilija Poppy	
Ribes		C/I
viburnifolium	California Wild Rose	C/I/D
speciosum**	Baja California Wild Rose	I
Romneya coulteri		
Rosa		C/I
californica**		C/I
minutifolia		

Botanical Name	Common Name	Climate Zone
Salvia spp.**		
Salvia mellifera	Honey Sage	
Sambucus spp.**		
Strelitzia nicolia	Giant Bird of Paradise	
Strelitzia reginae	Bird of Paradise	
Symphoricarpos mollis**	Sage	All Zones
Syringa vulgaris	Elderberry	C/I/M
Tecomaria capensis	Creeping Snowberry	C/I
Teucrium fruticans	Lilac	M
Toxicodendron**	Cape Honeysuckle	C/I/D
diversilobum	Bush Germander	C/I
Trachelospermum jasminoides	Star Jasmine	
Trachycarpus fortunei	Windmill Palm	
Verbena species	Verbena	
Verbena lilacina	Lilac Verbena	I/M
Xylosma congestum	Shiny Xylosma	C C/I
Yucca**	Mojave Yucca	
schidigera	Foothill Yucca	D
whipplei	Cardboard	I
Zamia furfuraccea	Palm	

Botanical Name	Common Name	Climate Zone
GROUNDCOVERS		
Achillea**	Yarrow	All Zones
Agapanthus Rancho White	White Lily-of-the-Nile	
Aptenia cordifolia	Apteria	C
Arctostaphylos spp.**	Manzanita	C/I/D
Baccharis** pilularis	Coyote Bush	C/I/D
Carex spp.	Sedge	
Ceanothus spp.**	California Lilac	C/I/M
Cerastium tomentosum	Snow-in-Summer	All Zones
Coprosma kirkii	Creeping Coprosma	C/I/D

Botanical Name	Common Name	Climate Zone
Cotoneaster spp.	Redberry	All Zones
Cotoneaster dammeri	Bearberry	
Lowfast	Cotoneaster	
Dichelostemma capitatum	Wild-Hyacinth	
Distichlis spicata	Salt Grass	
Drosanthemum hispidum	Rosea Ice Plant	C/I
Dudleya		
brittonii	Brittonis Chalk Dudleya	C
edulis	Lady's Fingers	
pulverulenta**	Chalk Dudleya	C/I
virens	Island Live Fore-ever	C
Eschscholzia californica**	California Poppy	All Zones
Euonymus fortunei		
'Carrierei'	Glossy Winter Creeper	M
'Coloratus'	Purple-Leaf Winter Creeper	M
Ferocactus viridescens**	Coast Barrel Cactus	C
Gaillardia grandiflora	Blanket Flower	All Zones
Gazania spp.	Gazania	C/I
Helianthemum spp.**	Sunrose	All Zones
Lantana spp.	Lantana	
Lasthenia		C/I/D
californica**	Common Goldfields	I
glabrata	Coastal Goldfields	C
Lavandula angustifolia	English Lavender	
Layia platyglossa	Tips Miniature	
Lupinus spp.**	Lupine	C/I/M
Marathon 2e	Dwarf Tall Fescue	
Paspalum vaginatum 'Aloha'	Seashore Paspalum	
Myoporum spp.	Myoporum	C/I
Nassella pulchra	Needle Grass	
Pyracantha spp.	Firethorn	All zones
Rosmarinus officinalis	Rosemary	C/I/D
Santolina		
chamaecyparissus	Lavender Cotton	All Zones
virens	Santolina	All Zones
Trifolium frageriferum	O'Connor's Legume	C/I
Verbena		
rigida	Verbena	All Zones

Botanical Name	Common Name	Climate Zone
Viguiera laciniata**	San Diego Sunflower	C/I
Vinca minor	Dwarf Periwinkle	M

Botanical Name	Common Name	Climate Zone
VINES		
Antigonon leptopus	San Miguel Coral Vine	C/I
Distictis buccinatoria	Blood-Red Trumpet Vine	C/I/D
Keckiella cordifolia**	Heart-Leaved Penstemon	C/I
Lonicera japonica 'Halliana'	Hall's Honeysuckle	All Zones
Lonicera subspicata**	Chaparral Honeysuckle	C/I
Solanum jasminoides	Potato Vine	C/I/D

Botanical Name	Common Name	Climate Zone
PERENNIALS		
Coreopsis gigantean	Giant Coreopsis	C
Coreopsis grandiflora	Coreopsis	All Zones
Coreopsis maritime	Sea Dahlia	C
Coreopsis verticillata	Coreopsis	C/I
Heuchera maxima	Island Coral Bells	C/I
Iris douglasiana**	Douglas Iris	C/M
Iva hayesiana**	Poverty Weed	C/I
Kniphofia uvaria	Red-Hot Poker	C/M
Lavandula spp.	Lavender	All Zones
Limonium californicum	Coastal Statice	C
Limonium californicum var. mexicanum	Sea Lavender	C/I
Oenothera spp. perezii	Primrose	C/I/M
Penstemon spp.**	Penstemon	C/I/D
Satureja douglasii	Yerba Buena	C/I
Sisyrinchium bellum	Blue-Eyed Grass	C/I
Sisyrinchium californicum	Golden-Eyed Grass	C
Solanum xantii	Purple Nightshade	C/I
Zauschneria** californica	California Fuschia Hoary	C/I
Zauschneria** cana	California Fuschia	C/I

Botanical Name	Common Name	Climate Zone
'Catalina'	Catalina Fuschia	C/I

Botanical Name	Common Name	Climate Zone
ANNUALS		
Lupinus spp.**	Lupine	C/I/M

APPENDIX I

Prohibited Plant List

UNDESIRABLE 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

References: Gordon, H. White, T.C. 1994. Ecological Guide to Southern California Chaparral Plant Series. Cleveland National Forest.

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County of Los Angeles Fire Department. 1998. Fuel Modification Plan Guidelines. Appendix I, Undesirable Plant List, and Appendix II, Undesirable Plant List.

APPENDIX J

Ignition Resistance Construction Requirements
(CBC Chapter 7A)

APPENDIX J
Ignition Resistant Construction Requirements

As of the date of this fire protection plan, the following are the requirements for ignition resistant construction for the Land Exchange Alternative, including requirements under Chapter 7A of the California Building Code (CBC). In addition, exterior building construction including roofs, eaves, exterior walls, doors, windows, decks, and other attachments must meet the most current CBC Chapter 7A ignition resistance requirements at the time of building permit application.

1. All structures will be built with a Class A roof assembly, including a Class A roof covering. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.
2. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be fire stopped with approved materials or have one layer of minimum 72 pound mineral-surfaced non-perforated cap sheet complying with ASTM D 3909 installed over the combustible decking. However, openings on barrel tiles or similar roof coverings, must be fire stopped (bird stopped) with approved materials to prevent the accumulation of debris, bird nests, etc. between the tiles and decking material.
3. When provided, exposed valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch-wide underlayment consisting of one layer of minimum 72 pound mineral-surfaced non-perforated cap sheet complying with ASTM D 3909 running the full length of the valley.
4. All rain gutters, down spouts and gutter hardware shall be constructed from metal or other non-combustible material to prevent wildfire ignition along eave assemblies.
5. All chimney, flue or stovepipe openings attached to a fireplace, stove, or other solid or liquid fuel burning equipment or device shall be equipped with an approved spark arrester. An approved spark arrester is defined as a device intended to prevent sparks from escaping into the atmosphere and constructed of nonflammable materials, having a 12-gauge minimum thicknesses with openings no greater than ½ inch, or other alternative material the Fontana Fire Protection District determines to provide equal or better protection. It shall be installed to be visible for the purposes of inspection and maintenance.
6. The exterior surface materials shall be non-combustible, including hard or ignition resistant, such as stucco. In all construction, exterior walls shall extend from the top of the foundation to the roof and terminate at 2-inch nominal solid blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.
7. All eaves, fascias, and soffits will be enclosed (boxed) with non-combustible materials. This shall apply to the entire perimeter of each structure. Eaves of heavy timber construction are not required to be enclosed as long as attic venting is not installed in the

eaves. For the purposes of this section, heavy timber construction shall consist of a minimum of 4"x 6" rafter tails.

8. Paper-faced insulation shall be prohibited in attics or ventilated spaces.
9. Automatic interior fire sprinklers for single-family residences shall be installed according to the National Fire Protection Association (NFPA) 13D 2013 edition - *Standard for the Installation of Sprinkler Systems in One and Two-family Homes and Manufactured Homes*.
10. Roof vents, dormer vents, gable vents, foundation ventilation openings, ventilation openings in vertical walls, or other similar ventilation openings shall be louvered and covered with 1/8-inch, noncombustible, corrosion-resistant metal mesh or other approved material that offers equivalent protection. Turbine attic vents shall be prohibited.
    - Specialized vents with baffle systems or other methods to catch burning embers, such as Brandguard (www.brandguardvents.com) or approved equivalent shall be considered by the San Diego County Fire Authority and Building Official for all structure vents on all homes/garages in the Proposed Project.
11. Attic or foundation ventilation louvers or ventilation openings in vertical walls shall not exceed 144 square inches per opening and shall be covered with 1/8" inch mesh corrosion-resistant metal screen or other approved material that offers equivalent protection. Ventilation louvers and openings may be incorporated as part of access assemblies.
12. No attic ventilation openings or ventilation louvers shall be permitted in soffits, in eave overhangs, between rafters at eaves, or in other overhanging areas.
13. All fences and gate assemblies (fences, gates, and fence posts) attached or within five feet of a structure shall be of non-combustible material or pressure-treated exterior fire-retardant wood.
14. All projections (exterior balconies, decks, patio covers, unenclosed roofs and floors, and similar architectural appendages and projections) or structures less than five feet from a building shall be of non-combustible material, one-hour fire resistive construction on the underside, heavy timber construction, pressure-treated exterior fire- retardant wood or ignition resistant construction. When such appendages and projections are attached to exterior fire- resistive walls, they shall be constructed to maintain same fire-resistant standards as the exterior walls of the structure.
15. Accessory structures attached to buildings with habitable spaces and projections shall be in accordance with Chapter 7A of the CBC.

16. Detached accessory structures located less than 50 feet from a building containing habitable space shall be constructed in accordance with Chapter 7A of the CBC.
    - **Exception:** Accessory structures less than 120 square feet in floor area located at least 30 feet from a building containing a habitable space.
17. Exterior doors shall be approved non-combustible construction, solid core wood and shall conform to the performance requirements of standard SFM 12-7A-1 or shall be of approved noncombustible construction, or solid core wood having stiles and rails not less than 1⅜ inches thick with interior field panel thickness no less than 1¼ inches thick, or shall have a fire-resistance rating of not less than 20 minutes when tested according to National Fire Protection Association (NFPA) 252.
18. All glass or other transparent, translucent or opaque glazing materials, that is used in exterior windows, including skylights, or exterior glazed door assemblies shall be constructed of multipane glazing with one tempered pane meeting the requirements of Section 2406 (2013 CBC) Safety Glazing. .
19. Vinyl window assemblies are deemed acceptable if the windows have the following characteristics:
    - Frame and sash are comprised of vinyl material with welded corners
    - Metal reinforcements in the interlock area
    - Glazed with insulating glass, annealed or tempered (one layer of which must be tempered glass).
    - Frame and sash profiles are certified in AAMA Lineal Certification Program.
    - Certified and labeled to ANSI/AAMA/NWWDA 101/LS2-97 for Structural Requirements.

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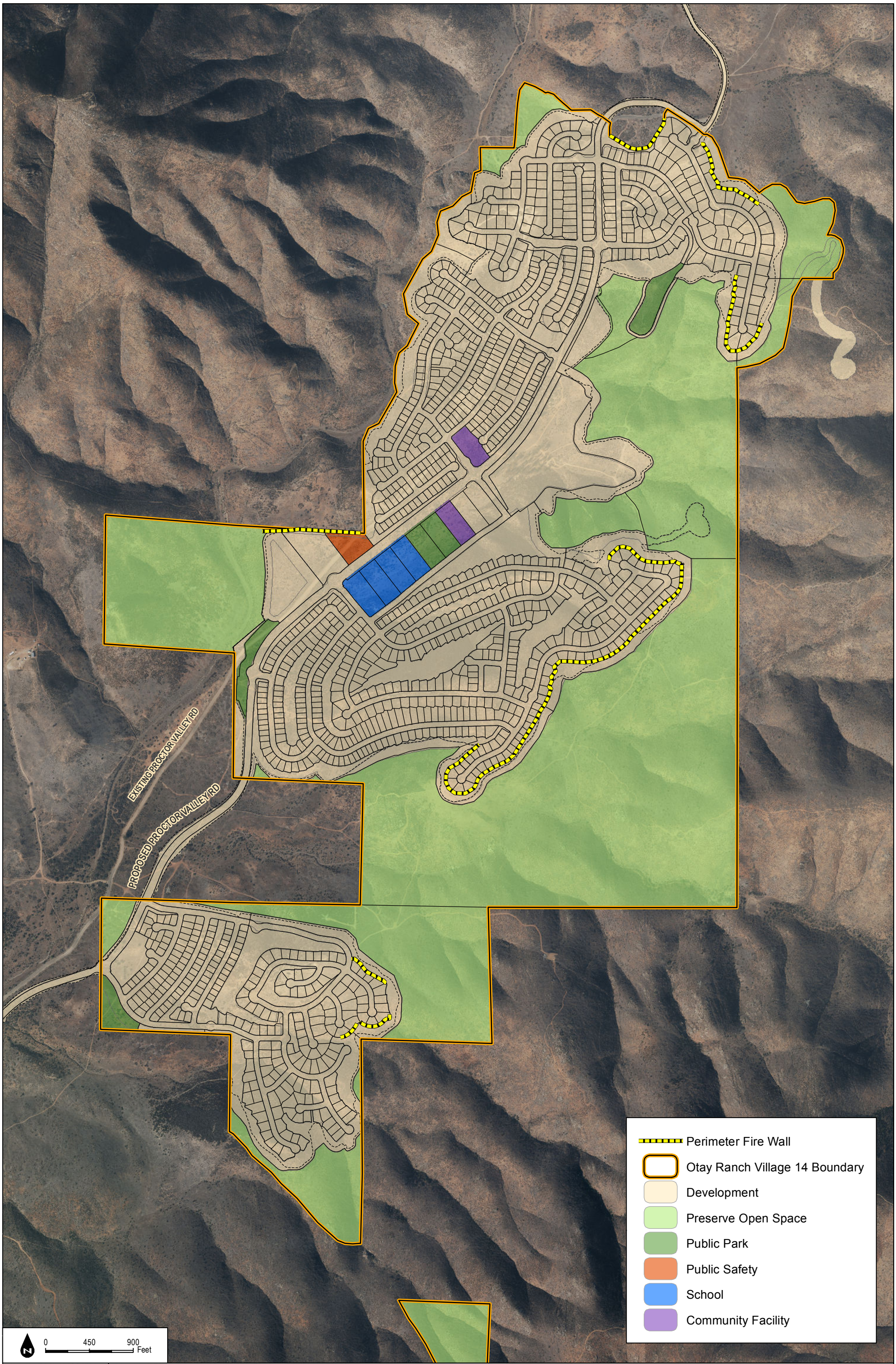
APPENDIX K

Fire Wall Plan



DUDEK

SOURCE: CalFire FRAP 2014; Hunsaker 2015

APPENDIX K

Perimeter Fire Walls

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange EIR Alternative