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MEMORANDUM

To:	Dan Fairbanks, Planning Director, March Joint Powers Authority
From:	Nicole Cobleigh, Dudek
Subject:	West Campus Upper Plateau Project Final EIR – Minor Corrections
Date:	June 5, 2024
Attachment(s):	1. Individual Responses to Comments Table 2. Comment Letter I-831 3. Comment Letter I-950 4. Comment Letter RI-145 5. Comment Letter RI-216 6. Appendix Q. Fire Protection Plan

Dudek provided March Joint Powers Authority (March JPA) with the West Campus Upper Plateau Project Final Environmental Impact Report (EIR) in May 2024. Upon publishing the Final EIR, non-substantive corrections, including both insertions and deletions, should be incorporated into the Final EIR. As such, Dudek is providing this memorandum and the accompanying attachments documenting these non-substantive corrections.

Chapter 9. Responses to Comments on Draft EIR

Page 9.5-1 through 9.5-22

The following comments are identified as “Not Used” in Chapter 9, Responses to Comments on the Draft EIR. These comment letters were duplicates, and therefore not used or responded to. These comment letters should have been omitted from the table at the beginning of Section 9.5, Individual Responses to Comments.

- I-5
- I-91
- I-143
- I-144
- I-200
- I-203
- I-374
- I-379
- I-381

- I-449
- I-586
- I-884
- I-888
- I-889
- I-917

Additionally, the table failed to identify the commenter for Comment Letter I-930. The commenter should be identified as Mike McCarthy. **Attachment 1** includes the corrected Individual Responses to Comments table.

Comment Letter I-831

The bracketing for Comment Letter I-831 identifies 12 comments; Response I-831 identifies 13 responses to comments. **Attachment 2** includes a re-bracketed version of Comment Letter I-831 identifying 13 comments.

Comment Letter I-950

The bracketed Comment Letter I-950 was not included prior to Response I-950. **Attachment 3** includes Comment Letter I-950.

Chapter 10. Responses to Comments on the Recirculated Draft EIR

Comment Letter RI-145

The bracketed Comment Letter RI-145 was not included prior to Response RI-145. **Attachment 4** includes Comment Letter RI-145.

Comment Letter RI-216

A printing error occurred with Comment Letter RI-216 where approximately half of the page was blank. **Attachment 5** includes Comment Letter RI-216 in its entirety.

Appendix Q. Fire Protection Plan

The Fire Protection Plan included in Appendix Q of the Final EIR includes the incorrect site plan in Figure 3. Additionally, the appendices to the Fire Protection Plan were inadvertently left out. However, the appendices remain unchanged from the Fire Protection Plan included in the Draft EIR and available to the public on the March JPA website. **Attachment 6** includes an updated version of Appendix Q with the corrected site plan in Figure 3 and all appendices inserted.

Attachment 1

Individual Responses to Comments Table

Comment Letter	Name	Date
Individuals		
I-1	Mary Ann Ruiz	1/9/2023
I-2	Jen Larratt Smith	1/10/2023
I-3	Jen Larratt Smith	1/10/2023
I-4	Jen Larratt Smith	1/10/2023
~~I-5~~	~~Jen Larratt Smith~~	~~1/10/2023~~
I-6	Jen Larratt Smith	1/10/2023
I-7	Mike McCarthy	1/10/2023
I-8	Mike McCarthy	1/10/2023
I-9	Robert Walker	1/10/2023
I-10	Jerry Shearer Jr.	1/14/2023
I-11	Jerry Shearer Jr.	1/30/2023
I-12	Jerry Shearer Jr.	2/5/2023
I-13	Mary Viafora	2/6/2023
I-14	Fernando Sosa Jr.	2/6/2023
I-15	David Divani	2/6/2023
I-16	Christian Craddock	2/6/2023
I-17	Victoria Belova	2/6/2023
I-18	Susan Nipper	2/6/2023
I-19	Rick Lloyd	2/6/2023
I-20	Ana Ramirez	2/6/2023
I-21	Carlos Lliguin	2/6/2023
I-22	Anthony Scimia Jr.	2/6/2023
I-23	Bobby Robinette	2/7/2023
I-24	Berenice Dixon	2/7/2023
I-25	Ajay Shah	2/7/2023
I-26	Abigail Banning	2/7/2023
I-27	Aaron Bushong	2/7/2023
I-28	John Hagmann	2/7/2023
I-29	Jean Aklufi	2/7/2023
I-30	Joseph Aklufi	2/7/2023
I-31	Jodi Mullarky	2/7/2023
I-32	Jerry Shearer Jr.	2/7/2023
I-33	Jason Gonsman	2/7/2023
I-34	Janice Oien	2/7/2023
I-35	Lenora Mitchell	2/7/2023
I-36	Kristy Doty	2/7/2023
I-37	Karen Bartell	2/7/2023
I-38	Juan Garcia	2/7/2023
I-39	Josie Sosa	2/7/2023
I-40	John and Mary Viafora	2/7/2023
I-41	John Hathaway	2/7/2023
I-42	Christine Heinemann	2/7/2023
I-43	Chris Hannon	2/7/2023
I-44	Chad Smith	2/7/2023
I-45	Brian Wardle	2/7/2023
I-46	Gerardo Arenas	2/7/2023
I-47	George Harvilla	2/7/2023
I-48	Eunhee Kim	2/7/2023
I-49	Elizabeth Wexler	2/7/2023
I-50	Elisa Estrella-Hahn	2/7/2023

Comment Letter	Name	Date
Individuals		
I-51	Denette Lemons	2/7/2023
I-52	Melissa Suarez	2/7/2023
I-53	Viviane Baerenklau	2/7/2023
I-54	Veronica Juarez	2/7/2023
I-55	Kelley Page	2/7/2023
I-56	Susana Balmer	2/7/2023
I-57	Sara Amend	2/7/2023
I-58	Richard Stadler	2/7/2023
I-59	Peter Pettis	2/7/2023
I-60	Nicole-Lynn Bernas	2/7/2023
I-61	Nancy Magi	2/7/2023
I-62	Michele Muehls	2/7/2023
I-63	Melody Clark	2/7/2023
I-64	Matt Silveous	2/7/2023
I-65	Shaan Saigol	2/7/2023
I-66	Sergio Salazar	2/7/2023
I-67	Steve Balmer	2/8/2023
I-68	Mike McCarthy	2/8/2023
I-69	Linda Tingley	2/10/2023
I-70	Sylvia Melgoza	2/17/2023
I-71	Matt Silveous	2/21/2023
I-72	Matt Silveous	2/21/2023
I-73	Matt Silveous	2/21/2023
I-74	Karrie Brusselback	2/21/2023
I-75	Karrie Brusselback	2/21/2023
I-76	Karrie Brusselback	2/21/2023
I-77	Juan Garcia	2/21/2023
I-78	John Viafora	2/21/2023
I-79	John Viafora	2/21/2023
I-80	John Viafora	2/21/2023
I-81	John Viafora	2/21/2023
I-82	John Viafora	2/21/2023
I-83	John Viafora	2/21/2023
I-84	John Viafora	2/21/2023
I-85	John McCalley	2/21/2023
I-86	Gayle DiCarlantonio	2/21/2023
I-87	Erin Conlisk	2/21/2023
I-88	Erin Lehman	2/21/2023
I-89	Erin Lehman	2/21/2023
I-90	Frank Erdodi	2/21/2023
~~I-91~~	~~Frank Erdodi~~	~~2/21/2023~~
I-92	Melissa Suarez	2/21/2023
I-93	Melissa Suarez	2/21/2023
I-94	Melissa Suarez	2/21/2023
I-95	Melissa Suarez	2/21/2023
I-96	Melissa Suarez	2/21/2023
I-97	Molly Brooke Becker	2/21/2023
I-98	Molly Brooke Becker	2/21/2023
I-100	David Doty	2/22/2023
I-101	David Doty	2/22/2023

Comment Letter	Name	Date
Individuals		
I-102	Kristy Doty	2/22/2023
I-103	Kristine Doty	2/22/2023
I-104	Kristy Doty	2/22/2023
I-105	Kristy Doty	2/22/2023
I-106	Kristy Doty	2/22/2023
I-107	Kristy Doty	2/22/2023
I-108	Kristy Doty	2/22/2023
I-109	Kristine Doty	2/22/2023
I-110	Mark Calhoun	2/22/2023
I-111	Mark Calhoun	2/22/2023
I-112	Mark Calhoun	2/22/2023
I-113	Mark Calhoun	2/22/2023
I-114	Mark Calhoun	2/22/2023
I-115	Mark Calhoun	2/22/2023
I-116	Mark Calhoun	2/22/2023
I-117	Beth West	2/22/2023
I-118	DJ Weems	2/22/2023
I-119	DJ Weems	2/22/2023
I-120	DJ Weems	2/22/2023
I-121	DJ Weems	2/22/2023
I-122	DJ Weems	2/22/2023
I-123	DJ Weems	2/22/2023
I-124	DJ Weems	2/22/2023
I-99	David Doty	2/22/2023
I-125	David Doty	2/23/2023
I-126	David Doty	2/23/2023
I-127	David Doty	2/23/2023
I-128	David Doty	2/23/2023
I-129	Kristy Doty	2/23/2023
I-130	Kristy Doty	2/23/2023
I-131	K Doty	2/23/2023
I-132	Kristy Doty	2/23/2023
I-133	Nicolette Rohr	2/23/2023
I-134	Richard Stadler	2/23/2023
I-135	Richard Stadler	2/23/2023
I-136	Tom Parkinson	2/23/2023
I-137	Crystal McCreary	2/24/2023
I-138	Crystal McCreary	2/24/2023
I-139	Crystal McCreary	2/24/2023
I-140	Crystal McCreary	2/24/2023
I-141	Crystal McCreary	2/24/2023
I-142	Crystal McCreary	2/24/2023
~~I-143~~	~~Crystal McCreary~~	~~2/24/2023~~
~~I-144~~	~~Crystal McCreary~~	~~2/24/2023~~
I-145	Crystal McCreary	2/24/2023
I-146	Crystal McCreary	2/24/2023
I-147	Natalie Gravitt	2/24/2023
I-148	Nicolette Rohr	2/24/2023
I-149	Nicolette Rohr	2/24/2023
I-150	Nicolette Rohr	2/24/2023

Comment Letter	Name	Date
Individuals		
I-151	Nicolette Rohr	2/24/2023
I-152	Ana Ramirez	2/25/2023
I-153	Ana Ramirez	2/25/2023
I-154	Ana Ramirez	2/25/2023
I-155	Ana Ramirez	2/25/2023
I-156	Ana Ramirez	2/25/2023
I-157	Ana Ramirez	2/25/2023
I-158	Ana Ramirez	2/25/2023
I-159	Mary Viafora	2/25/2023
I-160	Vicki Broach	2/25/2023
I-161	Araceli Anaya	2/26/2023
I-162	George Harvilla	2/26/2023
I-163	Kristy Doty	2/26/2023
I-164	K Doty	2/26/2023
I-165	Mohsen Lesani	2/26/2023
I-166	Ronald Peters	2/26/2023
I-167	Amisha Shah	2/27/2023
I-168	Amisha Shah	2/27/2023
I-169	Amisha Shah	2/27/2023
I-170	Ajay Shah	2/27/2023
I-171	Ajay Shah	2/27/2023
I-172	Ajay Shah	2/27/2023
I-173	Ajay Shah	2/27/2023
I-174	Andrea Wood	2/27/2023
I-175	Beverly Arias	2/27/2023
I-176	Beverly Arias	2/27/2023
I-177	Belle Chang	2/27/2023
I-178	Belle Chang	2/27/2023
I-179	Benjamin Fernandez	2/27/2023
I-180	Benjamin Fernandez	2/27/2023
I-181	Benjamin Fernandez	2/27/2023
I-182	Benjamin Fernandez	2/27/2023
I-183	Benjamin Fernandez	2/27/2023
I-184	Benjamin Fernandez	2/27/2023
I-185	Benjamin Fernandez	2/27/2023
I-186	Brian Wardle	2/27/2023
I-187	Christian Clark	2/27/2023
I-188	Chad Smith	2/27/2023
I-189	Chad Smith	2/27/2023
I-190	Chad Smith	2/27/2023
I-191	Chad Smith	2/27/2023
I-192	Chad Smith	2/27/2023
I-193	Chad Smith	2/27/2023
I-194	Chad Smith	2/27/2023
I-195	chrisr3685@yahoo.com	2/27/2023
I-196	chrisr3685@yahoo.com	2/27/2023
I-197	chrisr3685@yahoo.com	2/27/2023
I-198	chrisr3685@yahoo.com	2/27/2023
I-199	chrisr3685@yahoo.com	2/27/2023
~~I-200~~	~~chrisr3685@yahoo.com~~	~~2/27/2023~~

Comment Letter	Name	Date
Individuals		
I-201	chrisr3685@yahoo.com	2/27/2023
I-202	chrisr3685@yahoo.com	2/27/2023
~~I-203~~	~~chrisr3685@yahoo.com~~	~~2/27/2023~~
I-204	Denise Carlson	2/27/2023
I-205	David Denarola	2/27/2023
I-206	David Denarola	2/27/2023
I-207	Denette Lemons	2/27/2023
I-208	Denette Lemons	2/27/2023
I-209	Denette Lemons	2/27/2023
I-210	Denette Lemons	2/27/2023
I-211	Denette Lemons	2/27/2023
I-212	Donna Stephenson	2/27/2023
I-213	Eunhee Kim	2/27/2023
I-214	Eunhee Kim	2/27/2023
I-215	Eunhee Kim	2/27/2023
I-216	Eunhee Kim	2/27/2023
I-217	Eunhee Kim	2/27/2023
I-218	Eunhee Kim	2/27/2023
I-219	Eunhee Kim	2/27/2023
I-220	Fernando Sosa Jr.	2/27/2023
I-221	Fernando Sosa Jr.	2/27/2023
I-222	Fernando Sosa Jr.	2/27/2023
I-223	Fernando Sosa Jr.	2/27/2023
I-224	Fernando Sosa Jr.	2/27/2023
I-225	Fernando Sosa Jr.	2/27/2023
I-226	Fernando Sosa Jr.	2/27/2023
I-227	Felicia Valencia	2/27/2023
I-228	Gayle DiCarlantonio	2/27/2023
I-229	Gette Kell	2/27/2023
I-230	Joseph Aklufi	2/27/2023
I-231	Joseph Aklufi	2/27/2023
I-232	Joseph Aklufi	2/27/2023
I-233	Joseph Aklufi	2/27/2023
I-234	Joseph Aklufi	2/27/2023
I-235	Joseph Aklufi	2/27/2023
I-236	Joseph Aklufi	2/27/2023
I-237	John W. Hagmann	2/27/2023
I-238	John W. Hagmann	2/27/2023
I-239	John W. Hagmann	2/27/2023
I-240	John W. Hagmann	2/27/2023
I-241	Janet Oien	2/27/2023
I-242	Janet Oien	2/27/2023
I-243	Janet Oien	2/27/2023
I-244	Janet Oien	2/27/2023
I-245	Janet Oien	2/27/2023
I-246	Janet Oien	2/27/2023
I-247	Janet Oien	2/27/2023
I-248	Josie Sosa	2/27/2023
I-249	Josie Sosa	2/27/2023
I-250	Josie Sosa	2/27/2023

Comment Letter	Name	Date
Individuals		
I-251	Josie Sosa	2/27/2023
I-252	Josie Sosa	2/27/2023
I-253	Josie Sosa	2/27/2023
I-254	Josie Sosa	2/27/2023
I-255	Joy Weimer	2/27/2023
I-256	Joy Weimer	2/27/2023
I-257	Joy Weimer	2/27/2023
I-258	Joy Weimer	2/27/2023
I-259	Kathleen Jump	2/27/2023
I-260	Kathleen Jump	2/27/2023
I-261	Kathleen Jump	2/27/2023
I-262	Kathleen Jump	2/27/2023
I-263	Kathleen Jump	2/27/2023
I-264	Kathleen Jump	2/27/2023
I-265	Kathleen Jump	2/27/2023
I-266	Suzanee Page	2/27/2023
I-267	Suzanee Page	2/27/2023
I-268	Suzanee Page	2/27/2023
I-269	Suzanee Page	2/27/2023
I-270	Suzanee Page	2/27/2023
I-271	Suzanee Page	2/27/2023
I-272	Suzanee Page	2/27/2023
I-273	Kathleen Renick	2/27/2023
I-274	Kathleen Renick	2/27/2023
I-275	Leroy Ward	2/27/2023
I-276	Michael Dearman	2/27/2023
I-277	Michael Dearman	2/27/2023
I-278	Michael Dearman	2/27/2023
I-279	Michael Dearman	2/27/2023
I-280	Michael Dearman	2/27/2023
I-281	Maria Rodriguez	2/27/2023
I-282	Maria Rodriguez	2/27/2023
I-283	Maria Rodriguez	2/27/2023
I-284	Michele Stewart	2/27/2023
I-285	Michele Stewart	2/27/2023
I-286	Nancy Gutierrez	2/27/2023
I-287	Q’Vinc Asberry	2/27/2023
I-288	Q’Vinc Asberry	2/27/2023
I-289	Q’Vinc Asberry	2/27/2023
I-290	Q’Vinc Asberry	2/27/2023
I-291	Q’Vinc Asberry	2/27/2023
I-292	Q’Vinc Asberry	2/27/2023
I-293	Q’Vinc Asberry	2/27/2023
I-294	Richard Arvizu	2/27/2023
I-295	Richard Arvizu	2/27/2023
I-296	Richard Arvizu	2/27/2023
I-297	Richard Arvizu	2/27/2023
I-298	Richard Arvizu	2/27/2023
I-299	Richard Arvizu	2/27/2023
I-300	Richard Arvizu	2/27/2023

Comment Letter	Name	Date
Individuals		
I-301	Richard Arvizu	2/27/2023
I-302	Roger Reaney	2/27/2023
I-303	Roger Reaney	2/27/2023
I-304	Shannon Dadlez	2/27/2023
I-305	Shannon Dadlez	2/27/2023
I-306	Sean Walsh	2/27/2023
I-307	Sean Walsh	2/27/2023
I-308	Sean Walsh	2/27/2023
I-309	Tanya Ayon	2/27/2023
I-310	Tony Harkness	2/27/2023
I-311	Tony Harkness	2/27/2023
I-312	Tony Harkness	2/27/2023
I-313	Tony Harkness	2/27/2023
I-314	Tony Harkness	2/27/2023
I-315	Tony Harkness	2/27/2023
I-316	Tom and Brenda Parkinson	2/27/2023
I-317	Tom and Brenda Parkinson	2/27/2023
I-318	Tom and Brenda Parkinson	2/27/2023
I-319	Tom and Brenda Parkinson	2/27/2023
I-320	Tom and Brenda Parkinson	2/27/2023
I-321	Ying Shen	2/27/2023
I-322	amaharris12@gmail.com	2/28/2023
I-323	amaharris12@gmail.com	2/28/2023
I-324	amaharris12@gmail.com	2/28/2023
I-325	amaharris12@gmail.com	2/28/2023
I-326	amaharris12@gmail.com	2/28/2023
I-327	amaharris12@gmail.com	2/28/2023
I-328	Ann and Dolores Marchand	2/28/2023
I-329	Ann and Dolores Marchand	2/28/2023
I-330	Ann and Dolores Marchand	2/28/2023
I-331	Ann and Dolores Marchand	2/28/2023
I-332	Ann and Dolores Marchand	2/28/2023
I-333	Ann and Dolores Marchand	2/28/2023
I-334	Ann and Dolores Marchand	2/28/2023
I-335	Ann and Dolores Marchand	2/28/2023
I-336	Jennifer Zamora	2/28/2023
I-337	Jennifer Zamora	2/28/2023
I-338	Jennifer Zamora	2/28/2023
I-339	Jennifer Zamora	2/28/2023
I-340	Jennifer Zamora	2/28/2023
I-341	Jennifer Zamora	2/28/2023
I-342	Jennifer Zamora	2/28/2023
I-343	Jennifer Zamora	2/28/2023
I-344	Karen Bartell	2/28/2023
I-345	Karen Bartell	2/28/2023
I-346	Karen Bartell	2/28/2023
I-347	Karen Bartell	2/28/2023
I-348	Karen Bartell	2/28/2023
I-349	Karen Bartell	2/28/2023
I-350	Karen Bartell	2/28/2023

Comment Letter	Name	Date
Individuals		
I-351	Kevin Carney	2/28/2023
I-352	Kevin Carney	2/28/2023
I-353	K Doty	2/28/2023
I-354	Kevin Heinemann	2/28/2023
I-355	Luis Rodriguez	2/28/2023
I-356	Luis Rodriguez	2/28/2023
I-357	Luis Rodriguez	2/28/2023
I-358	Luis Rodriguez	2/28/2023
I-359	Luis Rodriguez	2/28/2023
I-360	Luis Rodriguez	2/28/2023
I-361	Luis Rodriguez	2/28/2023
I-362	Melissa Zimmerman	2/28/2023
I-363	Nicole Bernas	2/28/2023
I-364	Nancy Magi	2/28/2023
I-365	Rachel Lathan	2/28/2023
I-366	Rachel Lathan	2/28/2023
I-367	Susan Fahrney	2/28/2023
I-368	Tinka Friend	2/28/2023
I-369	Tinka Friend	2/28/2023
I-370	William Schenck	2/28/2023
I-371	Berenice Dixon	2/28/2023
I-372	Berenice Dixon	2/28/2023
I-373	Berenice Dixon	2/28/2023
~~I-374~~	~~Berenice Dixon~~	~~2/28/2023~~
I-375	Tom and Brenda Parkinson	2/28/2023
I-376	Dahlia Subaran	2/28/2023
I-377	Drew Ward	2/28/2023
I-378	Drew Ward	2/28/2023
~~I-379~~	~~Drew Ward~~	~~2/28/2023~~
I-380	Drew Ward	2/28/2023
~~I-381~~	~~Drew Ward~~	~~2/28/2023~~
I-382	Drew Ward	2/28/2023
I-383	Drew Ward	2/28/2023
I-384	Drew Ward	2/28/2023
I-385	Drew Ward	2/28/2023
I-386	Francine Carbajal	2/28/2023
I-387	Francine Carbajal	2/28/2023
I-388	Francine Carbajal	2/28/2023
I-389	Francine Carbajal	2/28/2023
I-390	Gisela and Nelson Cuellar	2/28/2023
I-391	Gabriella Zlaket	2/28/2023
I-392	Gabriella Zlaket	2/28/2023
I-393	Alejandra Joseph	3/1/2023
I-394	Bobby Robinette	3/1/2023
I-395	Bobby Robinette	3/1/2023
I-396	Bobby Robinette	3/1/2023
I-397	Bobby Robinette	3/1/2023
I-398	Bobby Robinette	3/1/2023
I-399	Bobby Robinette	3/1/2023
I-400	Bobby Robinette	3/1/2023

Comment Letter	Name	Date
Individuals		
I-401	Cynthia Spring-Pearson	3/1/2023
I-402	Cynthia Spring-Pearson	3/1/2023
I-403	Cynthia Spring-Pearson	3/1/2023
I-404	Cynthia Spring-Pearson	3/1/2023
I-405	Cynthia Spring-Pearson	3/1/2023
I-406	Cynthia Spring-Pearson	3/1/2023
I-407	Cynthia Spring-Pearson	3/1/2023
I-408	Erin Swinfard	3/1/2023
I-409	Jennifer Hernandez	3/1/2023
I-410	Julie Weatherford	3/1/2023
I-411	Kristine Doty	3/1/2023
I-412	K Doty	3/1/2023
I-413	Kristy Doty	3/1/2023
I-414	K Doty	3/1/2023
I-415	Leslie Tamppari	3/1/2023
I-416	Lori Nelson	3/1/2023
I-417	Lori Nelson	3/1/2023
I-418	Maria Estabrooks	3/1/2023
I-419	Maria Estabrooks	3/1/2023
I-420	Maria Estabrooks	3/1/2023
I-421	Maria Estabrooks	3/1/2023
I-422	Maria Estabrooks	3/1/2023
I-423	Maria Estabrooks	3/1/2023
I-424	Maria Estabrooks	3/1/2023
I-425	Nancy Ward	3/1/2023
I-426	Remedios Santos	3/1/2023
I-427	Rosenberg Alfaro	3/1/2023
I-428	Senanu Spring-Pearson	3/1/2023
I-429	Senanu Spring-Pearson	3/1/2023
I-430	Senanu Spring-Pearson	3/1/2023
I-431	Senanu Spring-Pearson	3/1/2023
I-432	Senanu Spring-Pearson	3/1/2023
I-433	Senanu Spring-Pearson	3/1/2023
I-434	Senanu Spring-Pearson	3/1/2023
I-435	Carlos Lliguin	3/2/2023
I-436	Carlos Lliguin	3/2/2023
I-437	Carlos Lliguin	3/2/2023
I-438	Carlos Lliguin	3/2/2023
I-439	Carlos Lliguin	3/2/2023
I-440	Carolyn Rasmussen	3/2/2023
I-441	Chyee Wang	3/2/2023
I-442	Chyee Wang	3/2/2023
I-443	Ginette Lillibridge	3/2/2023
I-444	Ginette Lillibridge	3/2/2023
I-445	Kristin Fyfe	3/2/2023
I-446	Kristin Fyfe	3/2/2023
I-447	Kristin Fyfe	3/2/2023
I-448	Kristin Fyfe	3/2/2023
~~I-449~~	~~Kristin Fyfe~~	~~3/2/2023~~
I-450	Kristin Fyfe	3/2/2023

Comment Letter	Name	Date
Individuals		
I-451	Kristin Fyfe	3/2/2023
I-452	Peter Pettis	3/2/2023
I-453	Peter Pettis	3/2/2023
I-454	Peter Pettis	3/2/2023
I-455	Peter Pettis	3/2/2023
I-456	Peter Pettis	3/2/2023
I-457	Peter Pettis	3/2/2023
I-458	Peter Pettis	3/2/2023
I-459	Susan Nipper	3/2/2023
I-460	Aaron Bushong	3/3/2023
I-461	Aaron Bushong	3/3/2023
I-462	Aaron Bushong	3/3/2023
I-463	Aaron Bushong	3/3/2023
I-464	Aaron Bushong	3/3/2023
I-465	Aaron Bushong	3/3/2023
I-466	Aaron Bushong	3/3/2023
I-469	Annabelle Porter	3/3/2023
I-470	Annabelle Porter	3/3/2023
I-471	Annabelle Porter	3/3/2023
I-472	Annabelle Porter	3/3/2023
I-473	Annabelle Porter	3/3/2023
I-474	Annabelle Porter	3/3/2023
I-475	Annabelle Porter	3/3/2023
I-476	Ofelia Bobadilla	3/3/2023
I-467	Aaron Bushong	3/4/2023
I-468	Aaron Bushong	3/4/2023
I-477	Chris Shearer	3/4/2023
I-478	Chris Shearer	3/4/2023
I-479	Constance King	3/4/2023
I-480	Don Morris	3/4/2023
I-481	Don Morris	3/4/2023
I-482	Don Morris	3/4/2023
I-483	Don Morris	3/4/2023
I-484	Don Morris	3/4/2023
I-485	Don Morris	3/4/2023
I-486	Don Morris	3/4/2023
I-487	Don Morris	3/4/2023
I-488	Leo Bobadilla	3/4/2023
I-489	Lynn and Paul Larsen	3/4/2023
I-490	Amy Litt	3/5/2023
I-491	Amy Litt	3/5/2023
I-492	Amy Litt	3/5/2023
I-493	Amy Litt	3/5/2023
I-494	Anthony Scimia Jr.	3/5/2023
I-495	Barbara Kerr	3/5/2023
I-496	Ben Murphy	3/5/2023
I-497	Christopher Gate	3/5/2023
I-498	Christopher Gate	3/5/2023
I-499	Christopher Gate	3/5/2023
I-500	Christopher Gate	3/5/2023

Comment Letter	Name	Date
Individuals		
I-501	Christopher Gate	3/5/2023
I-502	Christine Heinemann	3/5/2023
I-503	Christine Heinemann	3/5/2023
I-504	David Divani	3/5/2023
I-505	Danela Jimenez	3/5/2023
I-506	Danela Jimenez	3/5/2023
I-507	Dr. Christian Craddock	3/5/2023
I-508	Dr. Christian Craddock	3/5/2023
I-509	Elise Estrella-Hahn	3/5/2023
I-510	Elise Estrella-Hahn	3/5/2023
I-511	Elise Estrella-Hahn	3/5/2023
I-512	Elise Estrella-Hahn	3/5/2023
I-513	Elise Estrella-Hahn	3/5/2023
I-514	Elise Estrella-Hahn	3/5/2023
I-515	Elise Estrella-Hahn	3/5/2023
I-516	Gayle DiCarlantonio	3/5/2023
I-517	George Harvilla	3/5/2023
I-518	George Harvilla	3/5/2023
I-519	George Harvilla	3/5/2023
I-520	George Harvilla	3/5/2023
I-521	George Harvilla	3/5/2023
I-522	George Harvilla	3/5/2023
I-523	Members of the League of Women Voters - SW Unit	3/5/2023
I-524	Greg Russell	3/5/2023
I-525	Greg Russell	3/5/2023
I-526	Greg Russell	3/5/2023
I-527	Georgia Renne	3/5/2023
I-528	Greg Renne	3/5/2023
I-529	John and Mary Viafora	3/5/2023
I-530	Joan Donahue	3/5/2023
I-531	Janice Oien	3/5/2023
I-532	Jean Aklufi	3/5/2023
I-533	Jean Aklufi	3/5/2023
I-534	Joe Aklufi	3/5/2023
I-535	Joe Aklufi	3/5/2023
I-536	Joe Aklufi	3/5/2023
I-537	Joe Aklufi	3/5/2023
I-538	Joe Aklufi	3/5/2023
I-539	Joe Aklufi	3/5/2023
I-540	Joe Aklufi	3/5/2023
I-541	Lisa Norris	3/5/2023
I-542	Mary Harris	3/5/2023
I-543	Mary Harris	3/5/2023
I-544	Milo Rivera	3/5/2023
I-545	Melissa Walker	3/5/2023
I-546	Robert Creed	3/5/2023
I-547	Robert Creed	3/5/2023
I-548	Ryan Joseph	3/5/2023
I-549	Ryan Joseph	3/5/2023
I-550	Ryan Joseph	3/5/2023

Comment Letter	Name	Date
Individuals		
I-551	Ryan Joseph	3/5/2023
I-552	Ryan Joseph	3/5/2023
I-553	Ryan Joseph	3/5/2023
I-554	Ryan Joseph	3/5/2023
I-555	Sara Amend	3/5/2023
I-556	Sara Amend	3/5/2023
I-557	Sara Amend	3/5/2023
I-558	Susan Nipper	3/5/2023
I-559	Shayn Sowers	3/5/2023
I-560	Tia Ballesteros	3/5/2023
I-561	Tia Ballesteros	3/5/2023
I-562	Tia Ballesteros	3/5/2023
I-563	Tia Ballesteros	3/5/2023
I-564	Tia Ballesteros	3/5/2023
I-565	Tia Ballesteros	3/5/2023
I-566	Tia Ballesteros	3/5/2023
I-567	Anthony Musumba	3/5/2023
I-568	Anthony Musumba	3/5/2023
I-569	Armendina Leyva	3/6/2023
I-570	Adolfo Saldana	3/6/2023
I-571	Beverly Arias	3/6/2023
I-572	Beverly Arias	3/6/2023
I-573	Beverly Arias	3/6/2023
I-574	Beverly Arias	3/6/2023
I-575	Beverly Arias	3/6/2023
I-576	Brady Goodson	3/6/2023
I-577	Brady Goodson	3/6/2023
I-578	Christine Martin	3/6/2023
I-579	Christine Martin	3/6/2023
I-580	Felix and Felicia Valencia	3/6/2023
I-581	Felix and Felicia Valencia	3/6/2023
I-582	Felix and Felicia Valencia	3/6/2023
I-583	Felix and Felicia Valencia	3/6/2023
I-584	Felix and Felicia Valencia	3/6/2023
I-585	Felix and Felicia Valencia	3/6/2023
~~I-586~~	~~Felix and Felicia Valencia~~	~~3/6/2023~~
I-587	Jason Gonsman	3/6/2023
I-588	Jason Gonsman	3/6/2023
I-589	Jason Gonsman	3/6/2023
I-590	Ken Renne	3/6/2023
I-591	Leo Bobadilla	3/6/2023
I-592	Larry Iest	3/6/2023
I-593	Lenora Mitchell	3/6/2023
I-594	Linda Tingley	3/6/2023
I-595	Milo Rivera	3/6/2023
I-596	Maria Rodriguez	3/6/2023
I-597	Maria Rodriguez	3/6/2023
I-598	Maria Rodriguez	3/6/2023
I-599	Maria Rodriguez	3/6/2023
I-600	Tim Martin	3/6/2023

Comment Letter	Name	Date
Individuals		
I-601	Tim Martin	3/6/2023
I-602	Christine Martin	3/7/2023
I-603	Gayle DiCarlantonio	3/7/2023
I-604	Jeremy Goldman	3/7/2023
I-605	Jenna Pontious	3/7/2023
I-606	Jenna Pontious	3/7/2023
I-607	Jenna Pontious	3/7/2023
I-608	Linda Tingley	3/7/2023
I-609	Mark and Jennifer Sullivan	3/7/2023
I-610	Mark and Jennifer Sullivan	3/7/2023
I-611	Mark and Jennifer Sullivan	3/7/2023
I-612	Mark and Jennifer Sullivan	3/7/2023
I-613	Mark and Jennifer Sullivan	3/7/2023
I-614	Mark and Jennifer Sullivan	3/7/2023
I-615	Mark and Jennifer Sullivan	3/7/2023
I-616	Mark and Jennifer Sullivan	3/7/2023
I-617	Mark and Jennifer Sullivan	3/7/2023
I-618	Mark and Jennifer Sullivan	3/7/2023
I-619	Mark and Jennifer Sullivan	3/7/2023
I-620	Michele Muehls	3/7/2023
I-621	Michele Muehls	3/7/2023
I-622	Michele Muehls	3/7/2023
I-623	Michele Muehls	3/7/2023
I-624	Michele Muehls	3/7/2023
I-625	Michele Muehls	3/7/2023
I-626	Milo Rivera	3/7/2023
I-627	Milo Rivera	3/7/2023
I-628	Michelle Singleton	3/7/2023
I-629	Michelle Singleton	3/7/2023
I-630	Michelle Singleton	3/7/2023
I-631	Michelle Singleton	3/7/2023
I-632	Michelle Singleton	3/7/2023
I-633	Michelle Singleton	3/7/2023
I-634	Michelle Singleton	3/7/2023
I-635	Michael Wilson	3/7/2023
I-636	Rod Deluhery	3/7/2023
I-637	Rosario Garcia	3/7/2023
I-638	Rosario Garcia	3/7/2023
I-639	Rosario Garcia	3/7/2023
I-640	Rosario Garcia	3/7/2023
I-641	Rosario Garcia	3/7/2023
I-642	Rosario Garcia	3/7/2023
I-643	Richard Stalder	3/7/2023
I-644	Stephanie Jimenez	3/7/2023
I-645	Stephanie Jimenez	3/7/2023
I-646	Stephanie Jimenez	3/7/2023
I-647	Stephanie Jimenez	3/7/2023
I-648	Stephanie Jimenez	3/7/2023
I-649	Stephanie Jimenez	3/7/2023
I-650	Stephanie Jimenez	3/7/2023

Comment Letter	Name	Date
Individuals		
I-651	Tim Martin	3/7/2023
I-652	Tom Parkinson	3/7/2023
I-653	Aaron Bushong	3/8/2023
I-654	Avery Cintura	3/8/2023
I-655	Christine Martin	3/8/2023
I-656	Christine Martin	3/8/2023
I-657	Greg Garnier	3/8/2023
I-658	John Lyell	3/8/2023
I-659	John Lyell	3/8/2023
I-660	John Lyell	3/8/2023
I-661	Kristy Doty	3/8/2023
I-662	Kristy Doty	3/8/2023
I-663	Kristy Doty	3/8/2023
I-664	Kristy Doty	3/8/2023
I-665	Kristy Doty	3/8/2023
I-666	Kristy Doty	3/8/2023
I-667	Lisa Everson	3/8/2023
I-668	Lenora Mitchell	3/8/2023
I-669	Linda Tingly	3/8/2023
I-670	Linda Tingly	3/8/2023
I-671	Linda Tingly	3/8/2023
I-672	Linlin Zhao	3/8/2023
I-673	Melody Clark	3/8/2023
I-674	Milo Rivera	3/8/2023
I-675	Steve Huddleston	3/8/2023
I-676	Shaan Saigol	3/8/2023
I-677	Sarah Williams	3/8/2023
I-678	Tim Martin	3/8/2023
I-679	Tim Martin	3/8/2023
I-680	Victoria Belova	3/8/2023
I-681	Yueqiu Zhou	3/8/2023
I-682	Ann and Dolores Marchand	3/9/2023
I-683	Anza Akram	3/9/2023
I-684	Anza Akram	3/9/2023
I-685	Abigail Banning	3/9/2023
I-686	Abigail Banning	3/9/2023
I-687	Abigail Banning	3/9/2023
I-688	Abigail Banning	3/9/2023
I-689	Abigail Banning	3/9/2023
I-690	Abigail Banning	3/9/2023
I-691	Abigail Banning	3/9/2023
I-692	Abigail Banning	3/9/2023
I-693	Aldofo Jimenez	3/9/2023
I-694	Amber Peaslee	3/9/2023
I-695	Amber Peaslee	3/9/2023
I-696	Amber Peaslee	3/9/2023
I-697	Amber Peaslee	3/9/2023
I-698	Amber Peaslee	3/9/2023
I-699	Amber Peaslee	3/9/2023
I-700	Amber Peaslee	3/9/2023

Comment Letter	Name	Date
Individuals		
I-701	Amber Peaslee	3/9/2023
I-702	Ana Ramirez	3/9/2023
I-703	Anthony Scimia Jr.	3/9/2023
I-704	Ajay Shah	3/9/2023
I-705	Andrea Wood	3/9/2023
I-706	Aaron Bushong	3/9/2023
I-707	Aaron Bushong	3/9/2023
I-708	Allison Bushong	3/9/2023
I-709	Allison Bushong	3/9/2023
I-710	Allison Bushong	3/9/2023
I-711	Allison Bushong	3/9/2023
I-712	Allison Bushong	3/9/2023
I-713	Allison Bushong	3/9/2023
I-714	Allison Bushong	3/9/2023
I-715	Allison Bushong	3/9/2023
I-716	Allison Bushong	3/9/2023
I-717	Allison Bushong	3/9/2023
I-718	Allison Bushong	3/9/2023
I-719	Allison Bushong	3/9/2023
I-720	Amisha Shah	3/9/2023
I-721	Bobby Robinette	3/9/2023
I-722	Brian Wardle	3/9/2023
I-723	Candy Blokland	3/9/2023
I-724	Chris Hannon	3/9/2023
I-725	Cynthia Jessen	3/9/2023
I-726	Cynthia Jessen	3/9/2023
I-727	Cynthia Jessen	3/9/2023
I-728	Cynthia Jessen	3/9/2023
I-729	Cynthia Jessen	3/9/2023
I-730	Cynthia Jessen	3/9/2023
I-731	Cynthia Jessen	3/9/2023
I-732	Cynthia Jessen	3/9/2023
I-733	Christine Martin	3/9/2023
I-734	Christine Martin	3/9/2023
I-735	Christine Martin	3/9/2023
I-736	Christine Martin	3/9/2023
I-737	Clay Muehls	3/9/2023
I-738	Clay Muehls	3/9/2023
I-739	Clay Muehls	3/9/2023
I-740	Clay Muehls	3/9/2023
I-741	Clay Muehls	3/9/2023
I-742	Clay Muehls	3/9/2023
I-743	Clay Muehls	3/9/2023
I-744	Corinne Perez	3/9/2023
I-745	Corinne Perez	3/9/2023
I-746	Chad Smith	3/9/2023
I-747	Duffy Atkinson	3/9/2023
I-748	David Doty	3/9/2023
I-749	David Doty	3/9/2023
I-750	David Doty	3/9/2023

Comment Letter	Name	Date
Individuals		
I-751	David Doty	3/9/2023
I-752	David Doty	3/9/2023
I-753	David Doty	3/9/2023
I-754	David Doty	3/9/2023
I-755	Denette Lemons	3/9/2023
I-756	Dolores Reyna	3/9/2023
I-757	David Reznick, Ph.D.	3/9/2023
I-758	Eileen Bloom	3/9/2023
I-759	Elisa Estrella-Hahn	3/9/2023
I-760	Esmeralda Montes	3/9/2023
I-761	Esmeralda Montes	3/9/2023
I-762	Esmeralda Montes	3/9/2023
I-763	Felix and Felicia Valencia	3/9/2023
I-764	Fera Momtaz	3/9/2023
I-765	Freddie Quintana	3/9/2023
I-766	Freddie Quintana	3/9/2023
I-767	Freddie Quintana	3/9/2023
I-768	Freddie Quintana	3/9/2023
I-769	Freddie Quintana	3/9/2023
I-770	Freddie Quintana	3/9/2023
I-771	Freddie Quintana	3/9/2023
I-772	Freddie Quintana	3/9/2023
I-773	Fernando Sosa Jr.	3/9/2023
I-774	Gayle DiCarlantonio	3/9/2023
I-775	Honey Bernas	3/9/2023
I-776	Ira and Rajean Long	3/9/2023
I-777	John and Mary Viafora	3/9/2023
I-778	Jean Aklufi	3/9/2023
I-779	Justin Dillon	3/9/2023
I-780	Juan Garcia	3/9/2023
I-781	Jason Gonsman	3/9/2023
I-782	Justin Grigg	3/9/2023
I-783	John W. Hagmann	3/9/2023
I-784	Janice Oien	3/9/2023
I-785	Kevin Shearer	3/9/2023
I-786	Brenda Shearer	3/9/2023
I-787	Christopher Shearer	3/9/2023
I-788	Jerry Shearer	3/9/2023
I-789	Jen Larratt-Smith	3/9/2023
I-790	Jen Larratt-Smith	3/9/2023
I-791	Josie Sosa	3/9/2023
I-792	Joseph Aklufi	3/9/2023
I-793	Karen Baker	3/9/2023
I-794	Kaelan Barrios	3/9/2023
I-795	Kevin Carney	3/9/2023
I-796	Kristine Doty	3/9/2023
I-797	Kyle Warsinski	3/9/2023
I-798	Kyle Warsinski	3/9/2023
I-799	Leslie Bushong	3/9/2023
I-800	Leslie Bushong	3/9/2023

Comment Letter	Name	Date
Individuals		
I-801	Leslie Bushong	3/9/2023
I-802	Leslie Bushong	3/9/2023
I-803	Leslie Bushong	3/9/2023
I-804	Leslie Bushong	3/9/2023
I-805	Leslie Bushong	3/9/2023
I-806	Leslie Bushong	3/9/2023
I-807	Leslie Bushong	3/9/2023
I-808	Leslie Bushong	3/9/2023
I-809	Leslie Bushong	3/9/2023
I-810	Leslie Bushong	3/9/2023
I-811	Linda TinglyRivera	3/9/2023
I-812	Linda TinglyRivera	3/9/2023
I-813	Linda TinglyRivera	3/9/2023
I-814	Linda TinglyRivera	3/9/2023
I-815	Linda TinglyRivera	3/9/2023
I-816	Linda TinglyRivera	3/9/2023
I-817	Lin Zhao	3/9/2023
I-818	Mary Harris	3/9/2023
I-819	Mark Jessen	3/9/2023
I-820	Mark Jessen	3/9/2023
I-821	Mark Jessen	3/9/2023
I-822	Mark Jessen	3/9/2023
I-823	Mark Jessen	3/9/2023
I-824	Mark Jessen	3/9/2023
I-825	Mark Jessen	3/9/2023
I-826	Mark Jessen	3/9/2023
I-827	Michael McCarthy	3/9/2023
I-828	Michael McCarthy	3/9/2023
I-829	Michael McCarthy	3/9/2023
I-830	Michael McCarthy	3/9/2023
I-831	Michael McCarthy	3/9/2023
I-832	Michael McCarthy	3/9/2023
I-833	Michael McCarthy	3/9/2023
I-834	Michael McCarthy	3/9/2023
I-835	Michael McCarthy	3/9/2023
I-836	Michael McCarthy	3/9/2023
I-837	Michele Muehls	3/9/2023
I-838	Milo Rivera	3/9/2023
I-839	Milo Rivera	3/9/2023
I-840	Milo Rivera	3/9/2023
I-841	Matt Silveous	3/9/2023
I-842	Michelle Singleton	3/9/2023
I-843	Melissa Suarez	3/9/2023
I-844	Mary Viafora	3/9/2023
I-845	Nicole Bernas	3/9/2023
I-846	Nicolette Rohr	3/9/2023
I-847	Pete Pettis	3/9/2023
I-848	Rick Lloyd	3/9/2023
I-849	Raquel Ortiz	3/9/2023
I-850	Ronald Peters	3/9/2023

Comment Letter	Name	Date
Individuals		
I-851	Ronald Peters	3/9/2023
I-852	Ronald Peters	3/9/2023
I-853	Ronald Peters	3/9/2023
I-854	Ronald Peters	3/9/2023
I-855	Ronald Peters	3/9/2023
I-856	Ronald Peters	3/9/2023
I-857	Rita Schneider	3/9/2023
I-858	Rita Schneider	3/9/2023
I-859	Rita Schneider	3/9/2023
I-860	Sara Amend	3/9/2023
I-861	Susana Balmer	3/9/2023
I-862	Ken and Susan Nipper	3/9/2023
I-863	Suzanne Page	3/9/2023
I-864	Sally Quintana	3/9/2023
I-865	Sally Quintana	3/9/2023
I-866	Sally Quintana	3/9/2023
I-867	Sally Quintana	3/9/2023
I-868	Sally Quintana	3/9/2023
I-869	Sally Quintana	3/9/2023
I-870	Sally Quintana	3/9/2023
I-871	Sally Quintana	3/9/2023
I-872	Tia Ballestros	3/9/2023
I-873	Tim Martin	3/9/2023
I-874	Tim Martin	3/9/2023
I-875	Tim Martin	3/9/2023
I-876	Tom Schneider	3/9/2023
I-877	Veronica Juarez	3/9/2023
I-878	Yolanda Elias	3/9/2023
I-879	Abdallah Karim	3/10/2023
I-880	Abdallah Karim	3/10/2023
I-881	Abdallah Karim	3/10/2023
I-882	Abdallah Karim	3/10/2023
I-883	Abdallah Karim	3/10/2023
~~I-884~~	~~Abdallah Karim~~	~~3/10/2023~~
I-885	Abdallah Karim	3/10/2023
I-886	Abdallah Karim	3/10/2023
I-887	Abdallah Karim	3/10/2023
~~I-888~~	~~Abdallah Karim~~	~~3/10/2023~~
~~I-889~~	~~Abdallah Karim~~	~~3/10/2023~~
I-890	Andrew Larratt-Smith	3/10/2023
I-891	Andy Melendrez	3/10/2023
I-892	Alice Musumba	3/10/2023
I-893	Andrew Silva	3/10/2023
I-894	Andrew Silva	3/10/2023
I-895	Andrew Silva	3/10/2023
I-896	Andrew Silva	3/10/2023
I-897	Andrew Silva	3/10/2023
I-898	Andrew Silva	3/10/2023
I-899	Andrew Silva	3/10/2023
I-900	Andrew Silva	3/10/2023

Comment Letter	Name	Date
Individuals		
I-901	Betty A. Anderson	3/10/2023
I-902	Brian Wardle	3/10/2023
I-903	Brian Wardle	3/10/2023
I-904	Cindy Chiek	3/10/2023
I-905	Cindy Chiek	3/10/2023
I-906	Cindy Chiek	3/10/2023
I-907	Cindy Chiek	3/10/2023
I-908	Cindy Chiek	3/10/2023
I-909	Collete Lee	3/10/2023
I-910	Carlos Lliguin	3/10/2023
I-911	Christopher Nielsen	3/10/2023
I-912	Christopher Nielsen	3/10/2023
I-913	Christopher Nielsen	3/10/2023
I-914	Clarissa Rodriguez	3/10/2023
I-915	Carolina R	3/10/2023
I-916	David A. Rose III	3/10/2023
~~I-917~~	~~David A. Rose III~~	~~3/10/2023~~
I-918	Debbie Walsh	3/10/2023
I-919	Eunhee Kim	3/10/2023
I-920	Gayle DiCarlantonio	3/10/2023
I-921	Greg Renne	3/10/2023
I-922	Honey Bernas	3/10/2023
I-923	Kyle Warsinski	3/10/2023
I-924	Lewis Allen	3/10/2023
I-925	Lisa Everson	3/10/2023
I-926	M. Clark	3/10/2023
I-927	Mason Deluhery	3/10/2023
I-928	Magie Lacambra	3/10/2023
I-929	Magie Lacambra	3/10/2023
I-930	Mike McCarthy	3/10/2023
I-931	Nicole Bernas	3/10/2023
I-932	Nicole Bernas	3/10/2023
I-933	Nicole Bernas	3/10/2023
I-934	Nicole Bernas	3/10/2023
I-935	Nicole Bernas	3/10/2023
I-936	Owen Turner	3/10/2023
I-937	Pete Elliot	3/10/2023
I-938	Pete Elliot	3/10/2023
I-939	Pete Elliot	3/10/2023
I-940	Pete Elliot	3/10/2023
I-941	Pete Elliot	3/10/2023
I-942	Pete Elliot	3/10/2023
I-943	Pete Elliot	3/10/2023
I-944	Pete Elliot	3/10/2023
I-945	Patricia Reynolds	3/10/2023
I-946	Rattana Chiek	3/10/2023
I-947	Rattana Chiek	3/10/2023
I-948	Rattana Chiek	3/10/2023
I-949	Rosamonde Cook, Ph.D.	3/10/2023
I-950	Rosamonde Cook, Ph.D.	3/10/2023

Comment Letter	Name	Date
Individuals		
I-951	Rosamonde Cook, Ph.D.	3/10/2023
I-952	Rosamonde Cook, Ph.D.	3/10/2023
I-953	Rosamonde Cook, Ph.D.	3/10/2023
I-954	Rosie Russell	3/10/2023
I-955	Robert Walker	3/10/2023
I-956	Steve Huddleston	3/10/2023
I-957	Shann Saigol	3/10/2023
I-958	Tuesday Morgan	3/10/2023
I-959	Veronica Juarez	3/10/2023
I-960	Veronica Juarez	3/10/2023
I-961	Veronica Juarez	3/10/2023
I-962	Veronica Juarez	3/10/2023
I-963	Veronica Juarez	3/10/2023
I-964	Veronica Juarez	3/10/2023
I-965	Veronica Juarez	3/10/2023
I-966	Yvonne Turner	3/10/2023

Attachment 2

Comment Letter I-831

Comment Letter I-831

From: Michael McCarthy <MikeM@radicalresearch.llc>
Sent: Thursday, March 9, 2023 8:19 AM
To: Dan Fairbanks
Cc: Jennifer Larratt-Smith
Subject: RE: Public comment on record for the West Campus Upper Plateau Project, Environmental Impact Report, State Clearinghouse No. 2021110304
Attachments: Transportation.pdf

Dear Mr. Fairbanks,

Thank you for the opportunity to provide comments on the March Joint Powers Authority (MJPA) Draft Environmental Impact Report (EIR) on the West Campus Upper Plateau Project (the Project).

Attached please find a comment on the Transportation section of the draft EIR. I-831.1

Please email me to confirm receipt of this public comment.

Sincerely,

Mike McCarthy
Riverside Neighbors Opposing Warehouses
92508

R-NOW

March 9, 2023

Mr. Dan Fairbanks, AICP
Planning Director
March Joint Powers Authority (March JPA)
14205 Meridian Parkway, Suite 140
Riverside, CA 92518

RE: Public comment on record for the West Campus Upper Plateau Project, Environmental Impact Report, State Clearinghouse No. 2021110304

Dear Mr. Fairbanks:

Thank you for the opportunity to provide comments on the March Joint Powers Authority (MJPA) Draft Environmental Impact Report (EIR) on the West Campus Upper Plateau Project (the Project). The Project would site over 4.7 million square feet of total warehouse space surrounded on three sides by residential neighborhoods located within the City of Riverside and County of Riverside. The Project's warehouses are sited within 500 feet of residents, a proposed park, and reserved passive recreation areas; it is less than a quarter mile from a preschool and the entire project is sited within a 1,500-foot range of residential homes. I-831.2

The draft EIR Transportation analysis (section 4.15 and Appendix N) fails to adequately evaluate the regional impacts transportation of the proposed project and omits tens of millions of square feet of present and probably warehouse development along the I-215 and SR-60 corridors. The I-215 freeway is already one an incredibly overloaded route jam-packed with trucks that bottle-neck at the 215-60 interchange for 6+ hours a day; the additional trucks and passenger vehicle trips from the Project will significantly exacerbate that problem. However, the project didn't evaluate the 215/60 corridor or vehicle traffic and capacity along the 215 freeway, which is inconsistent with both WRCOG and County of Riverside guidance as well as the stated geographic scope of the transportation cumulative impacts analysis in Table 4-1. As a result, the project's transportation analysis is insufficient for evaluation and disclosure under CEQA and should be redone in full consultation with CalTrans to appropriately model the freeway impacts along the 215/60 interchange of the cumulative considerable warehouse traffic on that key piece of infrastructure. I-831.3

Additionally, the transportation element of this project is inconsistent with the Final Reuse Plan (1996) and General Plan (1999) circulation elements. Both of these documents indicate that the connection of Barton Road from Camino Del Sol through to Grove Community was not considered. Moreover, Cactus Avenue in the General Plan goes no further west than Camino Del Oro – this plan increases the proximity of this major roadway to residents. I-831.4

Finally, the project makes a number of flawed baseline assumptions in generating trip rates, bases its traffic estimates on a collection day two days after a major holiday, and provides nonsensical estimates of traffic that are physically and mathematically impossible. I-831.5

Regional Traffic Analysis

In Table 4-1, the geographic scope of the Transportation Analysis is defined as 'Regional'. On p. 4.15-8, that regional definition is scoped as a '15-mile service area' from the Project site and displayed in I-831.6

Attachment B. However, the Cumulative Impacts project table in Table 4-2 definitely does not include all cumulatively considerable warehouse projects within 15 miles of the project, and certainly excludes regionally significant projects such as the 40 million square foot World Logistics Center and the 9.5 million square foot Stoneridge commerce center, both of which are less than 10 miles from the Project site and both of which will influence regional traffic patterns. In addition the project omitted nearby warehouses that are planned or approved including projects in Moreno Valley (Edgemont Commerce Center, Moreno Valley Business Center, Compass Danbe Centerpointe, PAMA business park, Heacock Commerce Center), Mead Valley (Majestic Freeway, Seaton and Cajalco, Rider and Patterson, Placentia Logistics, Harvill and Rider, and Harvill Business Center) and Perris (First March Logistics, Duke Warehouse Project, Phelan Warehouse, Operon HKI, OLC3 warehouse, Ramona Indian Warehouse, Perris Valley Commerce Center, and the Ramona Gateway). **Figure 1** shows a regional warehouse map with a 15-mile project zone circle.

Each of the warehouses mentioned above are along the 215/60 corridor and truck traffic and passenger vehicles will all cumulatively add to existing traffic on the 215 Freeway. Additional large warehouse complexes along the SR-60 include the planned Beaumont Pointe[1] and Legacy Highlands Phase II[2] projects, which are cumulatively about 25 million additional square feet and are likely to generate significant truck and passenger traffic along SR-60.

I-831.6 Cont.

I personally commute to Claremont from the Mission Grove neighborhood, and despite the 215 Alessandro freeway entrance being less than 3 miles from my house, it is ALWAYS faster to take Alessandro to Canyon Crest and enter the 215/60 freeway from Martin Luther King Blvd adjacent to UC Riverside rather than go through the 215/60 interchange. Similarly, when I want to go to Curry and Kebab[3] in the Canyon Springs shopping center on Day Street right next to the 215-60 interchange, I always take surface streets (Sycamore Canyon to Box Springs) because it is faster and the interchange is a complete disaster.

What use is the 215 freeway if a route with a one-lane surface street (Canyon Crest Dr.) with multiple traffic lights is a guaranteed faster route 100% of the time? It is absurd that City of Riverside residents can't use the primary freeway entrance nearest their home because it is infinitely slower than taking a one-lane surface street during any daytime commuting hour.

[1] https://www.beaumontca.gov/DocumentCenter/View/36613/Beaumont-Pointe-NOP_Final
[2] https://files.ceqanet.opr.ca.gov/280623-1/attachment/O_vgRblVruZnv-yM9ZGU1ArKJ-8b9C8BJSEK0KnfheASr5YDGNBpXjAodi5WIdQWee9KW_OeLEfL3x-X0
[3] The best local Indian restaurant – highly recommended by Mike

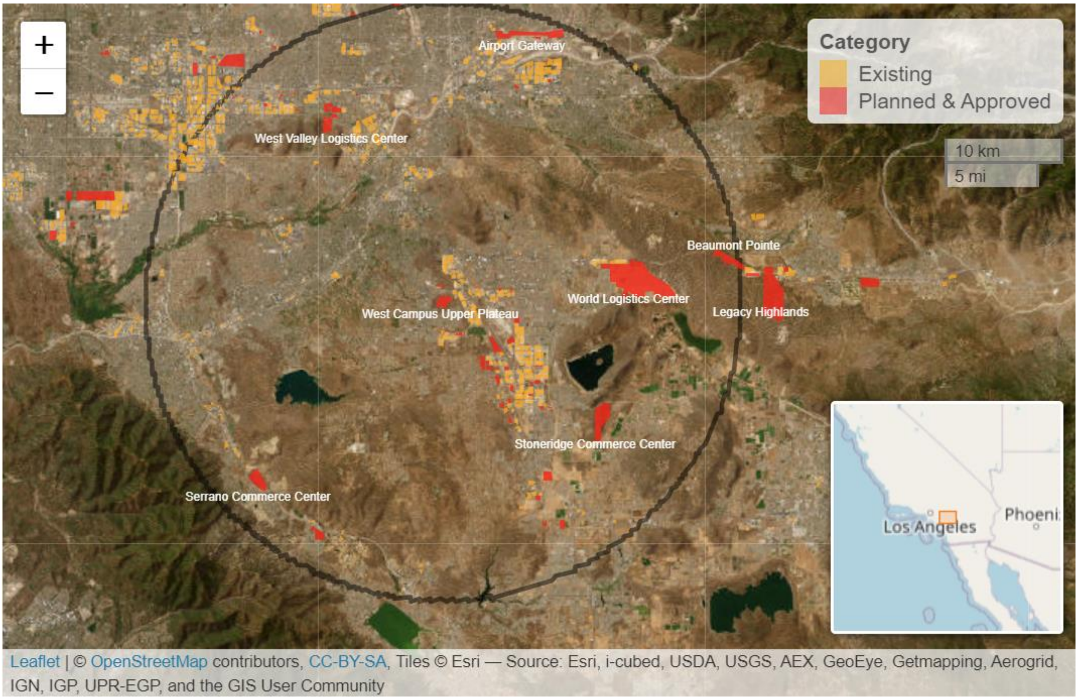

Figure 1. Map of project area with a 15-mile buffer for the regional transportation analysis that shows existing warehouses in orange and planned/approved warehouse plans in red. Projects that are approximately 5 million square feet or larger are labeled.

I-831.6 Cont.

Therefore, I ask that

1) the March JPA justify how a regional traffic analysis with a defined (Appendix N – Attachment B) 15-mile service area can exclude the primary freeway (I-215) and primary freeway interchange (215/60) from its analysis of transportation impacts.
2) the March JPA justify its failure to consult with CalTrans on a project that will add significant traffic to the 215 Freeway (~20,000 passenger trips, ~2,000 truck trips, per Appendix N, Exhibits 4 & 5) and is less than 1 mile from the 215 freeway, in contravention of WRCOG and County of Riverside guidance? "*For projects within one mile of a state highway, or any project that may add traffic on the state highway, the Engineer shall also coordinate with Caltrans.*" (WRCOG 2020, County of Riverside 2020)[4]
3) the March JPA justify its exclusion of more than 60 million square feet of planned and approve new warehouses that are within the 15-mile service area from the cumulative impacts project list.
4) the March JPA justify its exclusion of March JPA commercial cargo flights from this analysis of transportation impacts – this project, in cumulatively considerable effect with the 60 millions square feet of planned and approved warehouses in the 15 mile service area, is likely to induce additional commercial cargo operations out of the March ARB inland port. Those are not

[4] https://www.fehrandpeers.com/wp-content/uploads/2019/12/WRCOG-SB743-Document-Package.pdf

included in the transportation modeling, but need to be included in the transportation, air quality and noise sections as part of the cumulative impact of this project on the local community. I-831.6 Cont.

5) Justify the Cumulative Effects on VMT in the context of the more than 50,000 jobs projected to be created within the 15-mile service area and the less than 11,000 unemployed residents currently available to work given the 3.7% unemployment rate in December 2022. There are no workers for these jobs locally.

Project Transportation Plan is not Consistent with General Plan

The General Plan (1999) and Final Reuse Plan (1996) displayed maps indicating the likely circulation routes considered as part of the initial EIR and planning process. **Figure 4.15-2** in the Draft EIR shows the March JPA General Plan Circulation Element Roadway Classification, reproduced below for reference. In it, Cactus Avenue is clearly seen as a major arterial roadway, but it ends prior to the Weapons Storage Area of the West Campus Upper Plateau where it goes into a minor arterial loop. Barton Street is clearly shown in the map, going from Orange Terrace Road past Van Buren. Barton St. is also shown as an intersection with Alessandro Blvd. However, Barton Street does not connect in the March JPA General Plan. Thus, the proposed plan to connect Barton Street as shown in **Exhibit 1-1** from Appendix N is inconsistent with the March JPA General Plan. Additionally, we note that the Cactus Avenue extension to the proposed Airman Drive is also inconsistent with the General Plan – Cactus Avenue extends no further than Camino Del Oro in the General Plan. Finally, there is no connection between Brown St. and Cactus Avenue. As such, it appears that the entire proposed circulation element is inconsistent with the existing general plan. I-831.7

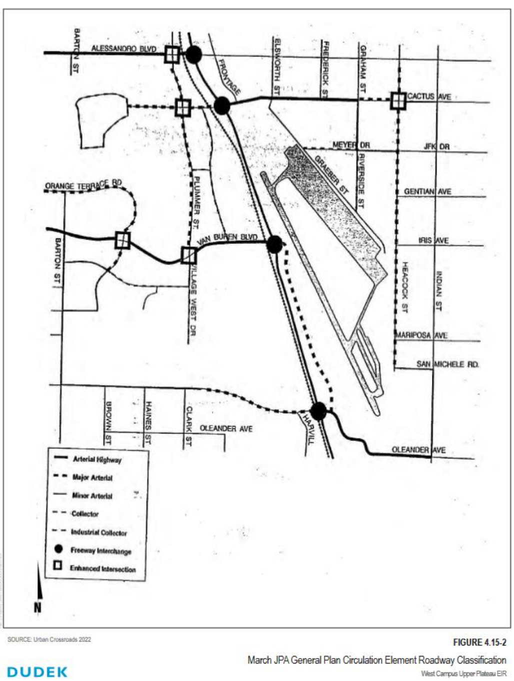

Figure 4.15-2 (left) and Appendix N – Exhibit 1-1 (right) from the Draft EIR.

CEQA Guidelines state that an EIR must discuss inconsistencies between the proposed project and any provision of the General Plan. These inconsistencies have not been discussed or identified in the EIR and thus must be addressed, potentially with a modification to the March JPA General Plan.

Therefore, we ask that the March JPA justify and explain how this project is consistent with the March JPA General Plan circulation element. Also, we note that this violates TRA-1 (conflict with a program plan, ordinance or policy addressing the circulation system) and creates a significant and unavoidable impact. Threshold TRA-1 is not addressed as inconsistent within the EIR because the basic circulation conflicts were overlooked or ignored by the Project applicant and March JPA. I-831.7 Cont.

Trip Generation Rates and Estimated Buildings Use

The Project Trip Generation Rates used in Table 4.15-1 use extremely liberal assumptions about the truck trip generation rates and the allocation of office/warehouse space in the business park and mixed-use land-use categories.

The South Coast Air Quality Management District Rule 2305 – warehouse indirect source rule – requires warehouse operators to collect and report truck trip rates. Under 2305(d)1(C) – the weighted average truck trip rates are defined as

WTTR = Weighted Truck Trip Rate, where:
Warehouses >200,000 = 0.95 trips/tsf/day
Warehouses >100,000 = 0.67 trips/tsf/day
Cold Storage Warehouses = 2.17 trips/tsf/day

Where tsf = thousand square feet. I-831.8

Using the SCAQMD WTTR rates instead of truck trip generation rates from the ITE and WSP yields a near doubling of truck trip estimates. The basic business-park and mixed-use warehouses of ~100,000 square feet are nearly identical to the SCAQMD rates (0.57 vs. 0.67). High-cube fulfillment center warehouses greater than 200,000 square feet have a very low truck trip generation rate from ITE Trip Generation Model and WRCOG's truck trip survey (0.379 vs. 0.95). Similarly, the cold storage warehouse indicate extreme differences in truck trip generation rates (0.75 vs. 2.17). The weighted truck trip rates would generate nearly double the number of daily truck trips as the default rates selected by the March JPA and project applicant.

Table 1. Contrasting the truck-trip rates from SCAQMD vs. the Project ITE based truck trip rates.

	Warehousing	High-cube fulfillment center	Cold storage	Total
total trip rate	12.44	2.129	2.12	
passenger trip rate	11.87	1.75	1.37	
Truck rate per TSF (Project)	**0.57**	**0.379**	**0.75**	
Rule 2305 truck rate per TSF	**0.67**	**0.95**	**2.17**	
Difference in truck rate	**0.1**	**0.571**	**1.42**	
Cumulative warehouse sq.ft.	1763168	2617000	500000	4880168
Current truck trips	1005	992	375	2372
Extra daily truck trips	**176**	**1494**	**710**	**2381**

I-831.8 Cont.

Using the SCAQMD Rule 2305 weighted truck trip rates results in a more than doubling of truck trips for the project. That would seem to suggest that the default truck trip rates from ITE and WRCOG are likely to be underestimates of true truck trip rates.

Secondarily, and of far less overall importance, the mix of business-park to office use in the project is not realistic. Approved, constructed, and planned Warehouses in the March JPA South Campus have universally had office space occupying less than 10% of total building floor space while warehouse is greater than 90% (see e.g., buildings E, F, G, H, I, 1, 2, and 3). Given that those warehouses are recently built/approved/constructed and are approved by the same agency, it seems reasonable to use those warehouse/office ratios, rather than default ITE ratios that drastically overestimate the amount of office space in modern warehouses.

I-831.9

If the ratio switched to follow a 90:10 ratio instead of a 70:30 ratio as used in Table 4.15-1, then the number of passenger car trips basically stays the same (20226 daily trips vs 20696 trips), but the timing of the trips going from office trips to warehouse trips shifts the timing to afternoon peak hours, exacerbating the evening peak hour trip. Importantly, the shift to a more appropriate warehouse ratio increases the number of estimated truck trips by 28% adding another 200 daily truck trips based on the 0.57 truck trip ratio.

I-831.10

Thus, I ask the March JPA to

1) Justify using such low truck trip generation rates based on the speculative nature of the warehouse occupants rather than the default truck trip rates in SCAQMD Rule 2305 to conservatively estimate truck trips
2) Justify using a ratio of 70:30 warehouse: office space for mixed-use and business park land-uses given the last 10 warehouse projects approved by the March JPA warehouse:office ratios.

I-831.10 Cont.

Non-Physical and Mathematically Impossible Modeled Traffic Volumes

Appendix N provides many exhibits indicating the increased increment of traffic volumes at various intersections near the project because of modeled project and cumulative impact traffic volumes. However, the modeled traffic volumes include many examples of impossible results.

Starting with Appendix N – Exhibit 3-17 – Existing (2021) Weekday Traffic Volumes. Existing ADT volumes were reportedly based on 'factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach volume + Exit volume) x 10.20 = Leg Volume"

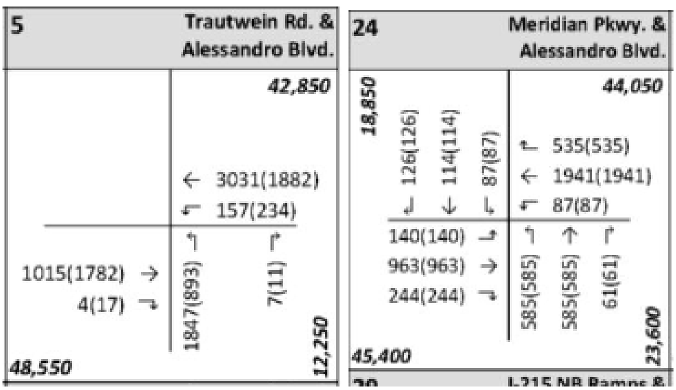

Exhibit 3-17 from Appendix N.

However, the basic numbers don't add up in many of the intersections in Exhibit 3-17. For example, Trautwein Rd. & Alessandro Blvd. has three ADT, (Peak AM, Peak PM) values as 42,850, (3,031, 1,882) - (top right), 48,550 (1,015, 1782) (bottom left) and 12,250 (1,847, 893) (bottom right). As you may notice, if you multiply the peak afternoon value (1782) by 24 hours, you get a value of 42,786, which is less than the average daily traffic value of 48,550. The math just doesn't work to reproduce the average daily traffic given that daily average is greater than the peak X 24.

Similarly, Meridian Blvd. and Alessandro Blvd. show that the average peak AM and PM rates in the bottom-left are 963+140+244 = 1347. Multiplying the peak 1,347 hour by 24 hours yields 32,238 daily trips, which is more than 25% lower than the average volume of 45,400 reported on the figure.

I am confused why these numbers don't add up for the <u>EXISTING</u> traffic volumes. It appears that the base traffic volumes were entered incorrectly or in the wrong directions for the lane of traffic. Given the mathematically inconsistent existing traffic volumes, it is very clear that starting with a garbage input will result in a garbage output and that the predicted volumes will simply compound the errors.

I-831.11

Another obvious example of a physical impossibly modeling result is seen in Exhibit 4-3, which is the Project Only Weekday Traffic Volumes. We note for completeness that multiple traffic volumes exhibit the same kinds of daily peak vs. average volumes that lead to mathematically nonsensical results. More importantly, there are physically nonsensical results. In the Barton St. and Grove Community Dr. intersection, traffic is projected to occur at 4 different direction. However, Barton St. and Grove Community Dr. is a 3-way intersection. This result is nonsensical as a project level impact.

I-831.11 Cont.

Exhibit 4-3 from Appendix N and a map of the 3-way intersection modeled as a 4-way intersection.

Thus, I ask the March JPA to

1) Justify existing project traffic counts that have average daily traffic volumes greater than peak daily traffic volumes times 24 hours.
2) Justify modeling four-way traffic at a three-way intersection
3) Given that the modeling has basic input and non-physical entries in the results section, how can it credibly project the traffic volumes in the future given that the basic results are unreliable?
4) Please revise traffic results to identify why intersections were incorrectly modeled mathematically and physically

JPA #21-02 & #17-06 – Adopted WRCOG Good Neighbor Guidelines

JPA Ordinance #21-02 is the March JPA General Plan Truck Route Map which explicitly includes the WRCOG Good Neighbor Guidelines. In it, the March JPA states in the first paragraph on p.2;

> *Whereas, this Ordinance seeks to implement objectives of the '<u>Good Neighbor Guidelines for Siting New and/or Modified Warehouse/Distribution Facilities</u>' distributed and promoted by the Western Riverside Council of Governments.*

I-831.12

The WRCOG document is very clear (even in its title) that the #1 objective of the document is the appropriate **siting of new warehouse facilities.** The Truck Route Ordinance JPA #17-06 and the subsequent Ordinance JPA #21-02 **must consider the end point of truck routes at warehouses** to implement objectives of the Good Neighbor Guidelines for Siting New and/or modified Warehouse/Distribution Facilities.'

In this particular site plan, the end point of the truck routes are at 20 speculative warehouses with docking bays as close as 500 feet from adjacent residential homes. This site plan failed to consider and implement the objectives of the "Good Neighbor Guidelines for Siting New Warehouses" as adopted in JPA Ordinance #21-02 and #17-06. Those guidelines clearly recommend (1) Creating a buffer zone of at least 300 meters (~1,000 feet) …between warehouse[s] and sensitive receptors. (2) Establish[ing] a diesel minimization plan that 'establishes long-term goal for facility to eliminate diesel emissions at the facility', and (3) Establishing a public outreach program and conduct[ing] periodic community meetings to address issues from neighbors."

Therefore, the Project will conflict with Threshold TRA-1 (conflict with existing ordinance addressing the circulation system) and cause a significant, unavoidable impact. I-831.12 Cont.

I ask that the March JPA

1) Justify failing to follow its own adopted ordinance #17-06 and #21-02 regarding the siting of new warehouse facilities when considering its transportation plan.
2) Remove all warehouses/loading docks and circulation routes located within 1,000 feet of residential zoning to comply with its own adopted ordinance.

Jobs Estimate and VMT/Employee Automation sensitivity

Table 4.15-3 provides employees estimates and refers to Appendix O as the source of the estimates. However, Appendix O refers to the March JPA as the source of the estimates and provides no indication that the jobs estimate per acre are justified in any way.

Given that a jobs estimate is a requirement to calculate the estimated VMT/employee, it is important to disclose a reproducible or citable methodology for providing a jobs estimates.

In Table 4.15-5, project VMT is estimated at 58,874 miles for home-to-work based trips for employees. It estimates the VMT/employee as 24.12 based on a non-retail employment value of 2,340, with no citable methodology for the buildout year 2045 employee rate.

However, there are a large number of studies and articles indicating that warehouse jobs are extremely automatable and that autonomous vehicles (trucks and delivery) are likely to be added to the roads in the near-future, certainly at rates worth considering. The seminal work on this is 'The Future of Employment' by Frey and Osborne[5]. Automation of warehouse work is mentioned in many articles, with industry leaders such as Amazon being cited as investing large sums in automating these jobs.[6] I-831.13

We believe that it is important to consider VMT/employee based on a sensitivity analysis of the possible automation of jobs that are core to the types of land-use being considered.

The following types of goods movement jobs are considered extremely susceptible to automation[7].

- Driver/Sales workers – 98%
- Locomotive engineers – 96%

[5] https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf
[6] https://www.wsj.com/story/amazon-takes-steps-toward-warehouse-automation-14b7131d

[7] https://mfgriffin.shinyapps.io/Shiny/

- Conveyor operators – 93%
- Industrial Truck and Tractor Operators – 93%
- Laborers and Freight Stock, and Material Movers – 85%
- Heavy and Tractor-Trail Truck Drivers – 79%
- Tank Car, Truck, and ship loaders – 72%
- Light Truck or Delivery Services Drivers – 69%
- Packers and Packagers, Hand – 38%

I-831.13 Cont.

As one can see, almost all the key job categories in the goods movement industry are likely to be extremely susceptible to job automation. Even if only 33% of those categories actually get automated, it would still result in an enormous decrease in the number of jobs in the 2045 buildout year. Of key importance to warehouse jobs, the delivery of goods by people may be automated (heavy trucks and delivery trucks). This would result in VMT/employee estimates that would go explode – autonomous vehicles will create VMT with no employment.

Therefore, I ask that the March JPA

1) Justify its base jobs numbers on a per acre or citable basis.
2) Justify not performing a sensitivity analysis on the jobs estimates based on future automation of standard warehouse job categories.
3) Justify that the VMT/Employee are going to remain less than 25 miles per employee threshold of significance level in a more automated future with autonomous vehicles and trucks.

Sincerely,

Mike McCarthy, PhD
Riverside Neighbors Opposing Warehouses

R-NOW

Attachment 3

Comment Letter I-950

From: Rose Cook <RRaeCook@outlook.com>
Sent: Friday, March 10, 2023 3:34 PM
To: Dan Fairbanks
Subject: West Campus Upper Plateau, Environmental Impact Report, State Clearinghouse No. 2021110304

Dear Mr. Fairbanks:

Thank you for the opportunity to provide comments on the March Joint Powers Authority (MJPA) Draft Environmental Impact Report (EIR) on the West Campus Upper Plateau Project (the Project). The Project would site over 4.7 million square feet of total warehouse space surrounded on three sides by residential neighborhoods located within the City of Riverside and County of Riverside. The Project's warehouses are sited within 500 feet of residents, a proposed park, and reserved passive recreation areas; it is less than a quarter mile from a preschool and the entire project is sited within a 1,500-foot range of residential homes. The draft EIR does not properly analyze the Project's land use, air quality, traffic, health risk assessment, hazards and hazardous materials, biological resources, geology and soils, greenhouse gas emissions, and population and housing sections. It also fails to consider or provide non-industrial alternatives to the Project as consistently requested by the community.

The justification for this widely opposed project appears to be the creation of 2,600 jobs. How did the applicant identify this number? On what was it based? There is no analysis that I can find to justify this assertion. Please provide any analysis that you may have.

Sent from Mail for Windows

Attachment 4
Comment Letter RI-145

From: Heinrich Paul Pastor <heinrichpaulpastor@gmail.com>
Sent: Sunday, January 14, 2024 1:34 AM
To: Dan Fairbanks
Subject: Public comment for the West Campus Upper Plateau Project, Recirculated Draft Environmental Impact Report, State Clearinghouse No. 2021110304

Dear Mr. Fairbanks,

As a community member, I am disappointed in the Recirculated Draft Environmental Impact Report (REIR) as it did not make meaningful substantive changes to the West Campus Upper Plateau (SCH 2021110304), a highly unpopular and environmentally detrimental project.

The addition of an Environmental Justice (EJ) policy and your justifications for how the project fits are clearly an empty ritual meant to check a box. Your EJ policy is the “cart before the horse", as it ought to have been drafted years ago, not at the same time as an in-process project which you are trying to push through before sunsetting in July 2025.

I ask that you submit thet EJ element to a full CEQA process and that you implement a warehouse moratorium until the process is complete. Only after you’ve completed that process should you evaluate if the current project plan meets its standard.

It is telling that you propose no substantive changes in the REIR yet claim that the new EJ policy, which you developed without community input, miraculously fits the existing plan. For the past two years, you have never considered non-industrial alternatives and refused a Community Advisory Board in spite of persistent requests, thousands of signatures, and thousands of emails. Your claims to value “civic engagement”.

Blessings,

Paul Pastor
Riverisde CA

Attachment 5

Comment Letter RI-216

Comment Letter RI-216

From: KC <kc45caliber@gmail.com>
Sent: Wednesday, January 24, 2024 7:50 AM
To: Dan Fairbanks
Subject: Public comment for the West Campus Upper Plateau Project, Recirculated Draft Environmental Impact Report, State Clearinghouse No. 2021110304

Dear Mr. Fairbanks,

As a community member, I am disappointed in the Recirculated Draft Environmental Impact Report (REIR) as it did not make meaningful substantive changes to the West Campus Upper Plateau (SCH 2021110304), a highly unpopular and environmentally detrimental project.

The addition of an Environmental Justice (EJ) policy and your justifications for how the project fits are clearly an empty ritual meant to check a box. Your EJ policy is the "cart before the horse", as it ought to have been drafted years ago, not at the same time as an in-process project which you are trying to push through before sunsetting in July 2025.

I ask that you submit thet EJ element to a full CEQA process and that you implement a warehouse moratorium until the process is complete. Only after you've completed that process should you evaluate if the current project plan meets its standard. RI-216.1

It is telling that you propose no substantive changes in the REIR yet claim that the new EJ policy, which you developed without community input, miraculously fits the existing plan. For the past two years, you have never considered non-industrial alternatives and refused a Community Advisory Board in spite of persistent requests, thousands of signatures, and thousands of emails. Your claims to value "civic engagement" in your EJ policy rings hollow.

The Sycamore trails and parks have offered so much good to myself and others alike as these types of natural areas are far and few these days. We wouldn't want to see more destruction of the little bit of untouched land left as this will likely continue to be a slippery slope continuing the process of more warehouses taking over open community land. Please choose the peoples wishes over the money. As there is no going back once warehouses are erected on this land. RI-216.2

As the community has asked continually for over a year, please consider alternative, non-industrial uses for the West Campus Upper Plateau. RI-216.3

Sincerely,

Casey Welch

of Riverside 92501

Attachment 6

Appendix Q. Fire Protection Plan

~~DRAFT~~FINAL

Fire Protection Plan

West Campus Upper Plateau

JANUARY ~~2022~~2024

Prepared for:

MARCH JPA
14205 Meridian Parkway, Suite 140
Riverside, California 92518
Contact: Dan Fairbanks, Planning Director

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024

Michael Huff
Discipline Director, Urban Forestry + Fire Protection

Printed on 30% post-consumer recycled material.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AMSL	Above Mean Sea Level
APN	Assessor's Parcel Number
BTU	British Thermal Unit
CAL FIRE	California Department of Forestry and Fire Protection
CBC	California Building Code
CFC	California Fire Code
CFPP	Construction Fire Prevention Plan
FAHJ	Fire Authority Having Jurisdiction
FMZ	Fuel Modification Zone
FPP	Fire Protection Plan
FRA	Federal Responsibility Area
FRAP	Fire and Resource Assessment Program
GIS	Geographic Information Systems
I-215	Interstate 215
ISO	Insurance Service Office
RCFD	Riverside County Fire Department
MARB	March Air Reserve Base
March JPA	March Joint Powers Authority
MPH	miles per hour
NFPA	National Fire Protection Association
Project	Upper West Campus Plateau Project
~~SCVWA~~SRA	~~Santa Clarita Valley Water Agency~~State Responsibility Area
USGS	United States Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
WMWD	Western Municipal Water District
WRCC	Western Regional Climate Center
WUI	Wildland Urban Interface

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Executive Summary

This Fire Protection Plan (FPP) has been prepared for the Upper West Campus Plateau Project (Project), which proposes the development of a ring of seven Business Park parcels, three Mixed Use parcels, three Industrial parcel, and two Public Facilities parcels, and an open space area. The Project site located in unincorporated, Riverside County, California within March Joint Powers Authority (March JPA).

The Project site is currently undeveloped and is located in the western portion of the March JPA planning area, west of the current terminus at Cactus Avenue, to the east and south of the Mission Grove neighborhood, and to the north of the Orangecrest neighborhood. The Project site ~~comprises~~is comprised of approximately 818 acres within the March JPA planning area, located approximately half a mile west of Interstate (I) 215. The proposed development will be situated on multiple parcels, which include Assessor Parcel Numbers (APN's): 276-120-001, 276-170-007, 294-020-001, 297-080-003, 297-080-004, 297-090-001, 297-090-002/-003/-004/-007/-008/-009, and 297-100-093. The Conservation Area is located within the following 19 Assessor's Parcel Numbers: 276-120-001, 276-170-007, 294-020-001/-002, 294-040-031/-038, 297-080-002/-003/-004/-005, 297-090-002/-003/-004/-005/-006/-007/-008/-009, and 297-110-036. Primary access to the Project site is via Cactus Avenue.

The Project site is not within an area designated as a Fire Hazard Severity Zone (FHSZ) by the Riverside County General Plan Safety Element or California Department of Forestry and Fire Protection (CAL FIRE) (CAL FIRE 2007, Riverside County 2021). Although the Project site is not designated as a FHSZ, it is approximate to areas designated by the County of Riverside as Wildland Urban Interface (WUI) (Riverside County 2021) and areas designated as FHSZ (CAL FIRE 2007). Fire hazard and WUI designations are based on topography, vegetation, and weather, amongst other factors. that specific fire protection features that minimize structure vulnerability. Although the Project site is not specifically designated as a FHSZ or WUI, given the proximity to areas identified as FHSZ and WUI, this FPP recommends the incorporation of Chapter 7A of the California Building Code (CBC) and provisions for maintained fuel modification zones, amongst others to provide a redundant layering of protection for the Project and surrounding communities.

The Project site is currently undeveloped, and predominantly comprised of non-native grasslands, disturbed habitat and urban/developed land cover (i.e., roads and structures). There are several small areas of native upland vegetation within the Project site, including flat-topped buckwheat, Encelia scrub, and Riversidian sage scrub. While there are no large stands of riparian vegetation communities within the Project site, there are small stands of southern riparian forest, southern willow scrub, and mulefat scrub on the Project site. Site elevations range from 1,765 feet above mean sea level (amsl) in the central portion to 1,645 feet amsl in the northeast portion of the site. The Project area, like all of Southern California and Riverside County, is subject to seasonal weather conditions that can heighten the likelihood of fire ignition and spread, and, considering the site's terrain and vegetation, may result in a fast-moving and intense wildfire.

The FPP evaluates and identifies the potential fire risk associated with the Project's land uses and identifies recommendations for water supply, fuel modification and defensible space, access, building ignition and fire resistance, and fire protection systems, among other pertinent fire protection criteria. The purpose of this FPP is to generate and memorialize the fire safety requirements and standards of the RCFD along with Project-specific measures based on the Project site, its intended use, and its fire environment.

Fire service would be provided by the RCFD; however, the closest existing responding stations to the Project site would be from the City of Riverside Fire Department (RFD). Additionally, a new Meridian Fire Station on a 2.12-acre site located at the northeast corner of Meridian Parkway and Opportunity Way will become the closest fire station providing fast emergency response. The Project population and number of calculated emergency calls were evaluated for their potential to impact RFD's response capabilities from its nearest existing stations. The addition of fewer than 181 calls per year to Station 11's 1,955 call volume is considered insignificant. The closest existing RFD fire station's response timestime conforms to internal response time standards for all structures within the Project site.

As determined during the analysis of the Project site and its fire environment, in its current condition, the site may include characteristics that, under favorable weather conditions, could have the potential to facilitate fire spread. Under extreme conditions, wind-driven wildfires from the northeast are likely tomay cast burning embers onto the property. Once the Project is built, the onsite fire potential will be lower than its current condition due to the conversion of ignitable fuels to ignition resistant landscapes and fire safety requirements that will be implemented. The proposed structures would be built using applicable ignition-resistant materials and construction methods pursuant to the most recent County Fire and Building Codes (Chapter 7-A – focusing on structure ignition resistance from flame impingement and flying embers infor wildland urban interface (WUI) areasdesignated as high fire hazard areas),, which are the locally amended 20192022 California Fire Code and 20192022 California Building Code as amended according to Riverside County Ordinance No. 787.10. This would be complemented by:

- Ignition resistant landscapes,
- Perimeter fuel modification zone,
- Improved water availability, capacity, and delivery system,
- Project area firefighting resources,
- Fire department access throughout the developed areas,
- Monitored defensible space/fuel modification,
- Interior, automatic fire sprinkler systems in all structures,
- Monitored interior sprinklers in applicable structures,
- Fire response travel times based on County response guidelines, and
- Other components that would provide properly equipped and maintained structures with a high level of fire ignition resistance.

Post-wildfire save and loss assessments of saves and losses have revealed specifics of how structures and landscapes can be constructed and maintained to minimize their vulnerability to wildfire. Among the findings were: how

- How construction materials and methods protect homes, how;
- How fire and embers contributed to ignition of structures, what;
- What effects fuel modification had on structure ignition, the;
- The benefits of fast firefighter response,; and how
- How much (and how reliable) water wasis available,

These and other site-specific features were critically important to structure survivability. Following these findings over the last 20 years and continuing on an ongoing basis, the Fire and Building codes are revised, appropriately.

Riverside County now containshas adopted some of the most restrictive codes for building within WUI areas that focus on preventing structure ignition from heat, flame, and burning embers.

Fire risk analysis conducted for the Project resulted in the determination that wildfire has occurred and will likely occur near the Project area again, but the Project would provide ignition-resistant landscapes (drought-tolerant and low-fuel-volume plants) and ignition-resistant structures, andalong with defensible space with the implementation of specified fire safety measuresas defined in this FPP. Based on modeling and analysis of the Project area to assess its unique fire risk and fire behavior, it was determined that the Riverside County standard of 100-foot-wide fuel modification zones (FMZs) would help considerably to set the Project's structures back from on- and off-siteadjacent fuels. Where the Project is unable to meet the full 100-foot FMZ, there will be enhanced construction features, such as a 6-foot heat deflecting wall tall fire walls constructed of concrete masonry units (CMUs) or other non-combustible materials approved by RCFD between onsite structures and unmaintained open space. The Project's FMZs for the Project would be maintained in perpetuity by the Owner or, Property Manager, or similarly responsible entity.

This FPP provides a detailed analysis of the Project, the potential risk from wildfire risk, and potential impacts on the RCFD, as well as analysis on meeting or exceeding the requirements of Riverside County requirements. Further, this FPP provides requirements, recommendations, and measures to reduce the risk and potential impacts to acceptable levels.

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~~, as determined by the RCFD.~~

1 Introduction

The Fire Protection Plan (FPP) has been prepared for the proposed West Campus Upper Plateau (Project) in unincorporated Riverside County, California within the March Joint Powers Authority (March JPA). The purpose of the FPP is to evaluate the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those risks to a level consistent with County of Riverside (County) thresholds. Additionally, this FPP establishes and memorialize the fire safety requirements of the Fire Authority Having Jurisdiction (FAHJ), which is the Riverside County Fire Department (RCFD). Requirements and recommendations detailed in the FPP are based on Project site-specific characteristics, applicable code requirements, and input from the Project's applicant, planners, engineers, and architects, as well as the FAHJ.

As part of the assessment, the FPP has considered the fire risk presented by the Project site including the property location and its topography, geology, surrounding combustible vegetation (fuel types), climatic conditions, fire history, and the proposed land use. The FPP addresses: water supply, access, structural ignitability, ~~and~~ ignition resistive building features, fire protection systems, ~~and~~ equipment, impacts to existing emergency services, defensible space, and vegetation management. The FPP also identifies fuel modification zones and recommends the types and methods of treatment that, when implemented and maintained, are designed to protect the Project's built assets~~.~~ and population. The FPP also recommends measures that the developer/builders will take to reduce the probability of structural and vegetation ignition.

The Project is located within the boundaries of the RCFD and thus the FPP addresses RCFD's response capabilities and response travel time within the Project area, along with projected funding for facility improvements and fire service maintenance.

The following tasks were performed ~~toward~~during completion of this FPP:

- Gather site-specific climate, terrain, and fuel data;
- Collect site photographs[1];
- Process and analyze the data using the latest geographic information system (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 the design of proposed infrastructure;
- Analyze the existing emergency response capabilities;
- Assess the risk associated with the Project site;
- Evaluate nearby firefighting and emergency medical response resources; and
- Prepare the FPP detailing how fire risk will be mitigated through a system of fuel modification, structural ignition resistance enhancements, and fire protection delivery system upgrades.

[1] Field observations were used to augment existing digital site data in generating the fire behavior models and formulating the recommendations presented in the FPP. Refer to Appendix A, Representative Site Photographs, for site photographs of existing site conditions.

1.1 Applicable Codes and Existing Regulations

The FPP demonstrates that the West Campus Upper Plateau Project will comply with applicable portions of Riverside County Fire Department Fire Prevention Standards and County Ordinances No. 460 and No. 787-8. .10. The Project will also be consistent with the 20192022 California Building Code (CBC), Chapter 7A; 20192022 edition of the California Fire Code (CFC), Chapter 49; and the 20182021 edition of the International Fire Code (IFC) as adopted and amended by RCFD. Additionally, RCFD references Fire Prevention Standards for informational purposes in clarifying and interpreting provisions of the CFC, National Fire Protection Association (NFPA) and California Public Resources Code (PRC). Chapter 7A of the CBC focuses primarily on preventing ember penetration into buildings, a leading cause of structure loss from wildfires. Additionally, based on the mitigation measures in the West Campus Upper Plateau Project EIR and Project design features, including this FPP, the Project is consistent with the October 2022 California Office of the Attorney General's "Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act.

Chapter 7A ofAppropriately, based on the CBC addresses structural ignition resistancearea's urbanization and reducing ember penetration into structures, a leading cause of structure loss from wildfires (California Building Standards Commission 2019). Theminimal unmaintained open space areas, the Project site is not within an area designated as a Fire Hazard Severity Zone (FHSZ) by the Riverside County General Plan Safety Element or California Department of Forestry and Fire Protection (CAL FIRE) (CAL FIRE 2007, CAL FIRE 2022, Riverside County 2021). It is designatedThe Project site, formerly identified as a Federal Responsibility Area (FRA) by CAL FIRE (CAL FIRE 2007)., was reclassified in a recent update of the Riverside County General Plan Safety Element as March Joint Powers Authority with no FHSZ designation. As the lands have been reclassified, the Project site would be considered within a State Responsibility Area, as the Project site is under Riverside County jurisdiction.

Fire hazard designations are based on topography, vegetation, and weather, among other factors with more hazardous sites, including steep terrain, unmaintained fuels/vegetation, and WUI locations. Projects situated in a High Fire Hazard Severity Zone (FHSZ) require fire hazard analysis and the application of fire protection measures to create ignition-resistant structures and defensible communities within these WUI locations. Although the Project site is not designated as a High FHSZ or Very High FHSZ, it is approximate to areas designated by the County of Riverside as Wildland Urban Interface (WUI) (Riverside County 2021, CAL FIRE 2019) and areas designated as High FHSZ and Very High FHSZ by CAL FIRE (CAL FIRE 2007), as depicted in Figures 1 and 2a through 2c.

Therefore, while not required by code, the Project would meet code requirements for building in high fire hazard areas. These codes have been developed through decades of wildfire structure save and loss evaluations to determine the causes of building losses and saves during wildfires. The resulting fire codes now focus on mitigating former structural vulnerabilities through construction techniques and materials so that the buildings are resistant to ignitions from direct flames, heat, and embers, as indicated in the 20192022 California Building Code (Chapter 7-A, Section 701A Scope, Purpose, and Application) (California Building Standards Commission 20192022).

1.2 Project Summary

1.2.1 Location

The Project site comprisesis approximately 818 acres within the March JPA planning area, located approximately half a mile west of Interstate (I) 215. Of the approximately 818-acre area, 370 acres would be for the Development Area, 3 acres would be for an existing public facility, and 445 acres would be for the Conservation Area.215 (I-215). More specifically, the Project site is in the western portion of the March JPA planning area, west of Cactus Avenue's current terminus, to the east and south of the Mission Grove neighborhood, and to the north of the Orangecrest neighborhood in the City of Riverside, California (Figure 3-1, Project Location). The Development Area would include the extensions of Cactus Avenue, Brown Street, and Barton Street. The latitude and longitude of the approximate center of the Project site is 33.906375″ north and −117.305077″ west. The Project site is in Township 3 South, Range 4 West, including Sections 15, 16, 17, 20, 21, 22 within the Riverside East 7.5-minute quadrangle, as mapped by the U.S. Geological Survey. The Development Area is located within the following 13 Assessor's Parcel Numbers: 276-120-001, 276-170-007, 294-020-001, 297-080-003, 297-080-004, 297-090-001, 297-090-002/-003/-004/-007/-008/-009, and 297-100-093. The Conservation Area is located within the following 19 Assessor's Parcel Numbers: 276-120-001, 276-170-007, 294-020-001/-002, 294-040-031/-038, 297-080-002/-003/-004/-005, 297-090-002/-003/-004/-005/-006/-007/-008/-009, and 297-110-036.

1.2.2 Project Description

The Upper West Campus Plateau Project includes the redevelopment of the former March AFB munitions bunkers. The Project would include the construction of a ring of seven Business Park parcels, three Mixed Use parcels, three Industrial parcels, and two Public Facilities parcels, and an open space area. The four Business Park parcels to the north would be a total of 34.50 acres, the Business Park parcel to the east would be 9.38 acres, and the two Business Park parcels to the south would total 22.47 acres. Similar to all other Specific Plans in the March JPA planning area, the three Mixed Use parcels would include a variety of land uses but would not include the development of residential units. The three Mixed Use parcels would be 10.77 acres, 26.60 acres, and 5.45 acres and would be located along the west side, just east of the Barton Street extension, and along the southeast corner of the Development Area. The three Industrial parcels, which would be located in the project center and eastern project area, would be 58.21 acres, 59.55 acres, and 27.58 acres. The two Public Facility parcels would consist of a 2.12-acre Western Municipal Water District (WMWD) sewer lift station to be developed along the east side of the Development Area just south of Cactus Avenue and a 1.41-acre utility facility to be developed southeast of the Western Municipal Water District (WMWD) facility.

The three open space areas would consist of a larger open space area and two smaller open space areas. The larger open space area would be 50.00 acres and would consist of trails for recreational users. The larger open space area would be located directly east of the Barton Street extension and just south of the park area. Two small parking areas would be located on the eastern edge of the larger open space area to provide access for park users. The first smaller open space area would be approximately 11.98 acres and would be located directly north of the four Business Park parcels. The second smaller open space area would be 2.48 acres and would be located south of Bunker Hill Drive, between one of the Mixed Use parcels and the two Business Park parcels, as well as along the southern perimeter of the proposed Development Area from Barton Street to Cactus Avenue. The open space parcels would provide a further buffer for the Conservation Area.

The small recreation park area would be approximately 10.00 acres and would be located west of Barton Street and directly north of the larger open space area. The small recreation park area would include park amenities such as a playground, picnic area, and exercise stations.

The Project would also include the extension of Cactus Avenue from its existing western terminus to intersect with Barton Street, which will be extended from Alessandro Boulevard to the north to connect to Barton Drive to the south. Regarding the existing roadway network within the munitions storage area, buildout of the Project would also include the construction of Arclight Drive, Airman Drive, Bunker Hill Drive, and Linebacker Drive (Figure 3, Project Site Plan).

Per Figure 3, the Project consists of two components, pursuant to, and consistent with the Center for Biological Diversity Settlement Agreement: 1) the Development Area (the Specific Plan Area, herein referred to as the Development Area), and 2) the Conservation Easement. Additionally, the existing Eastern Municipal Water District water tank located north of the Development Area would be assigned a General Plan land use designation of Public Facilities; no physical changes to this water tank would occur. The Development Area would be comprised of 65.32 acres of Business Park land use, 143.31 acres of Industrial land use, 42.22 acres of Mixed-Use land use, 2.84 acres of Public Facilities land use, 78.00 acres of Parks, Recreation and Open Space land use, and 37.91 acres of Circulation land use. The Conservation Easement would be 445.43 acres.

1.2.3 Current Land Use

Existing development within the Project site consists of a water tower, an existing public facility, paved and dirt access roads, and 16 bunkers that were previously used for munitions storage by the Air Force prior to March AFB's realignment in 1993. All of the bunkers are currently used by Pyro Spectaculars for the storage of fireworks. While the Development Area encompasses existing development and previously disturbed land, the Conservation Area primarily consists of open space and undeveloped land.

The Project site is surrounded by residential uses to the north, west, and south; the Meridian West industrial project, located within the March JPA planning area, to the east; and two new industrial buildings built by Exeter, located in Riverside County, to the east and north. The residential uses to the north and west are part of the Mission Grove neighborhood in the City of Riverside. The residential uses to the south are part of the Orangecrest neighborhood in the City of Riverside. The closest schools to the Project site, Benjamin Franklin Elementary School and Amelia Earhart Middle School, are located south of the Project site in the Orangecrest neighborhood. The Benjamin Franklin Elementary School is located approximately 0.8 miles south of the Project site and the Amelia Earhart Middle School is located approximately 1 mile south of the Project site.

The parcels immediately to the east of the Project site are designated as Business Park (BP) and Industrial (IND). The parcels immediately to the north, west, and south of the Project site are not part of the March JPA planning area. The nearest residential area is located approximately 300 feet north of the Development Area, which is described in greater detail in Section 1.3.2.

The Project site is currently undeveloped, and predominantly comprised of non-native grasslands, disturbed habitat and urban/developed land cover (i.e., roads and structures). There are several small areas of native upland vegetation within the Project site, including flat-topped buckwheat, Encelia scrub, and Riversidian sage scrub. While there are no large stands of riparian vegetation communities within the Project site, there are small stands of southern riparian forest, southern willow scrub, and mulefat scrub on the Project site. Site elevations range from 1,765 feet above mean sea level (amslAMSL) in the central portion to 1,645 feet amslAMSL in the northeast portion of the site.

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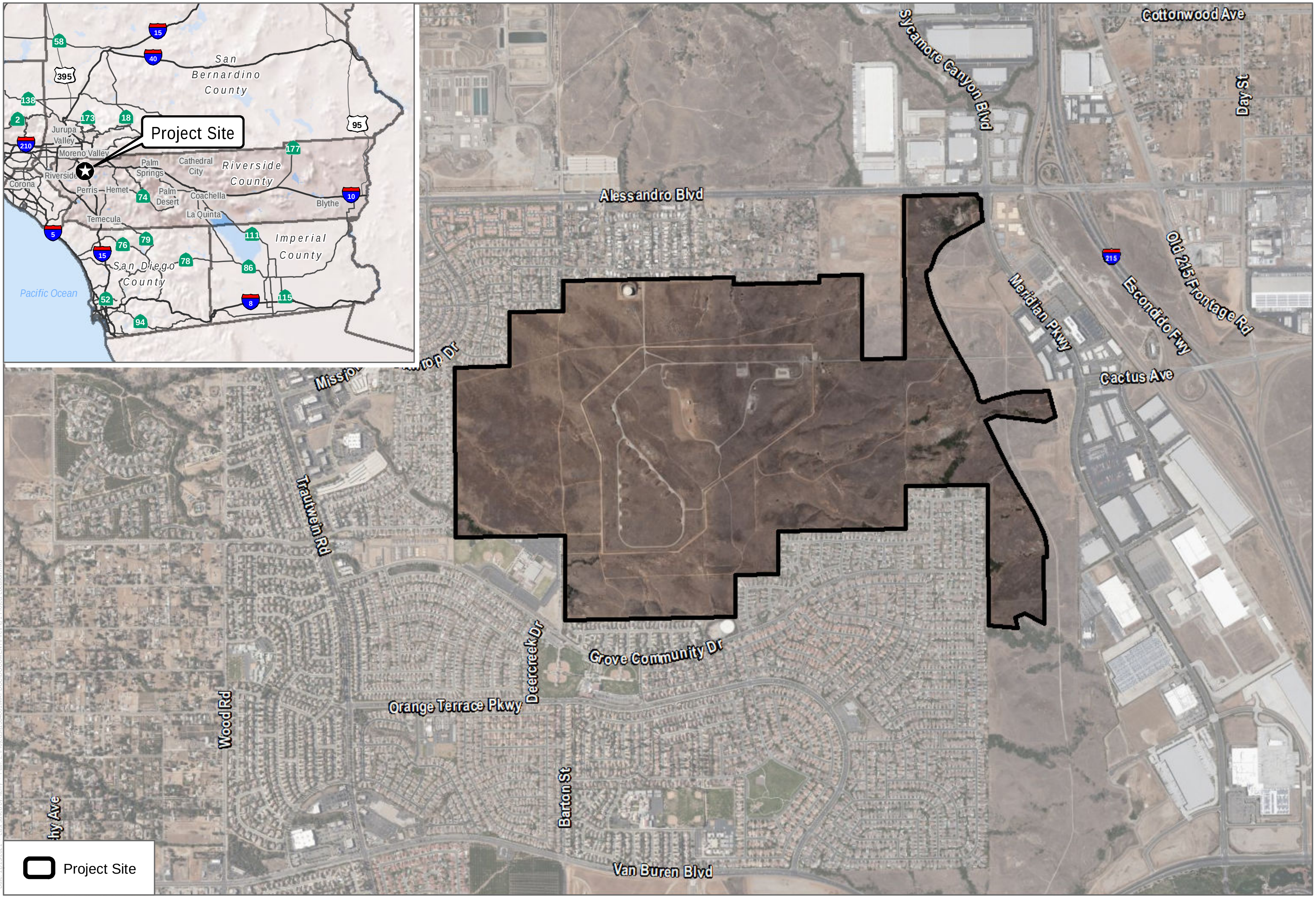

SOURCE: Bing Maps 2021

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Fire Protection Plan for West Campus Upper Plateau Project

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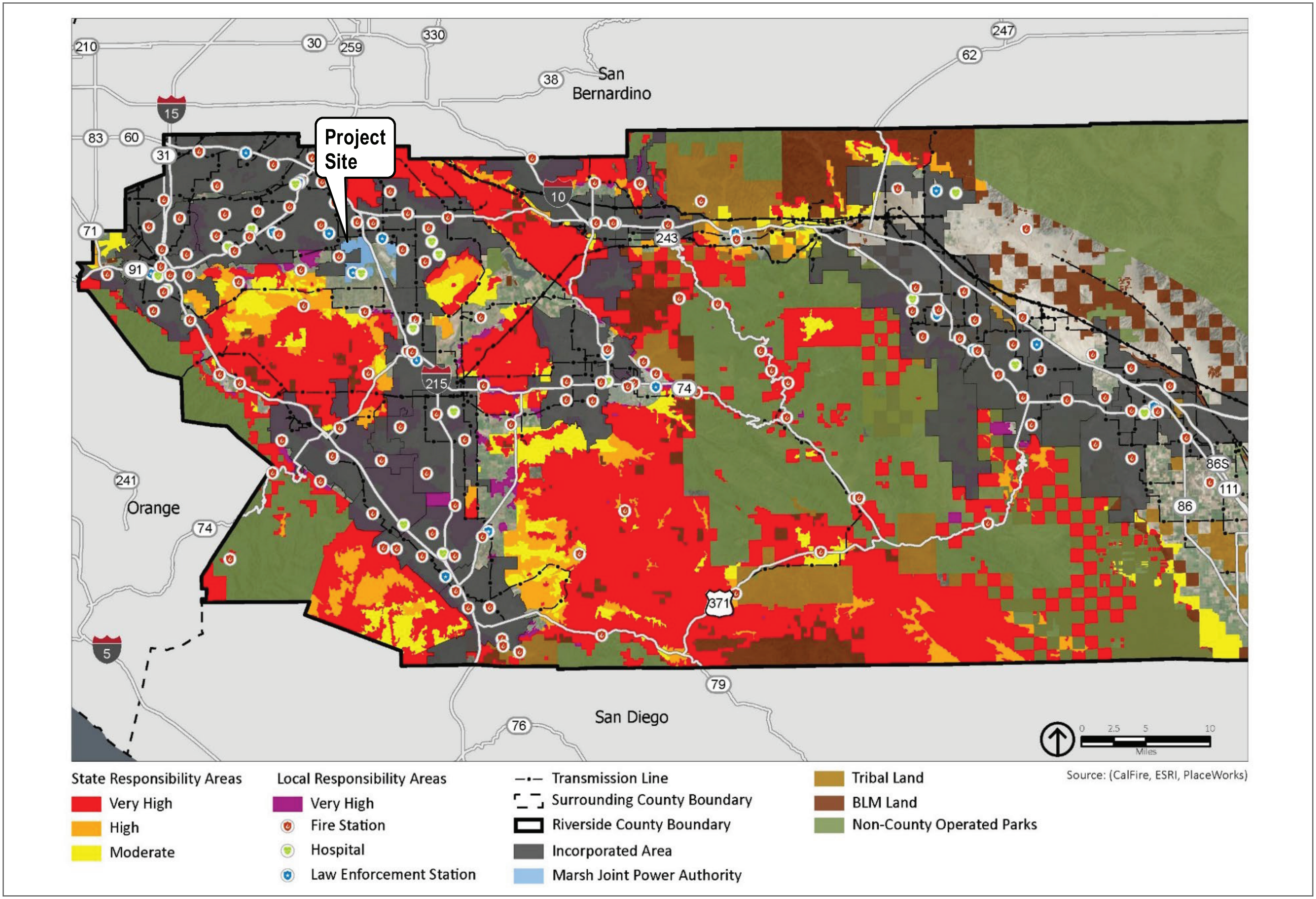

SOURCE: County of Riverside 2021

DUDEK

FIGURE 2a

Fire Hazard Severity Zone – Riverside County

Fire Protection Plan for West Campus Upper Plateau Project

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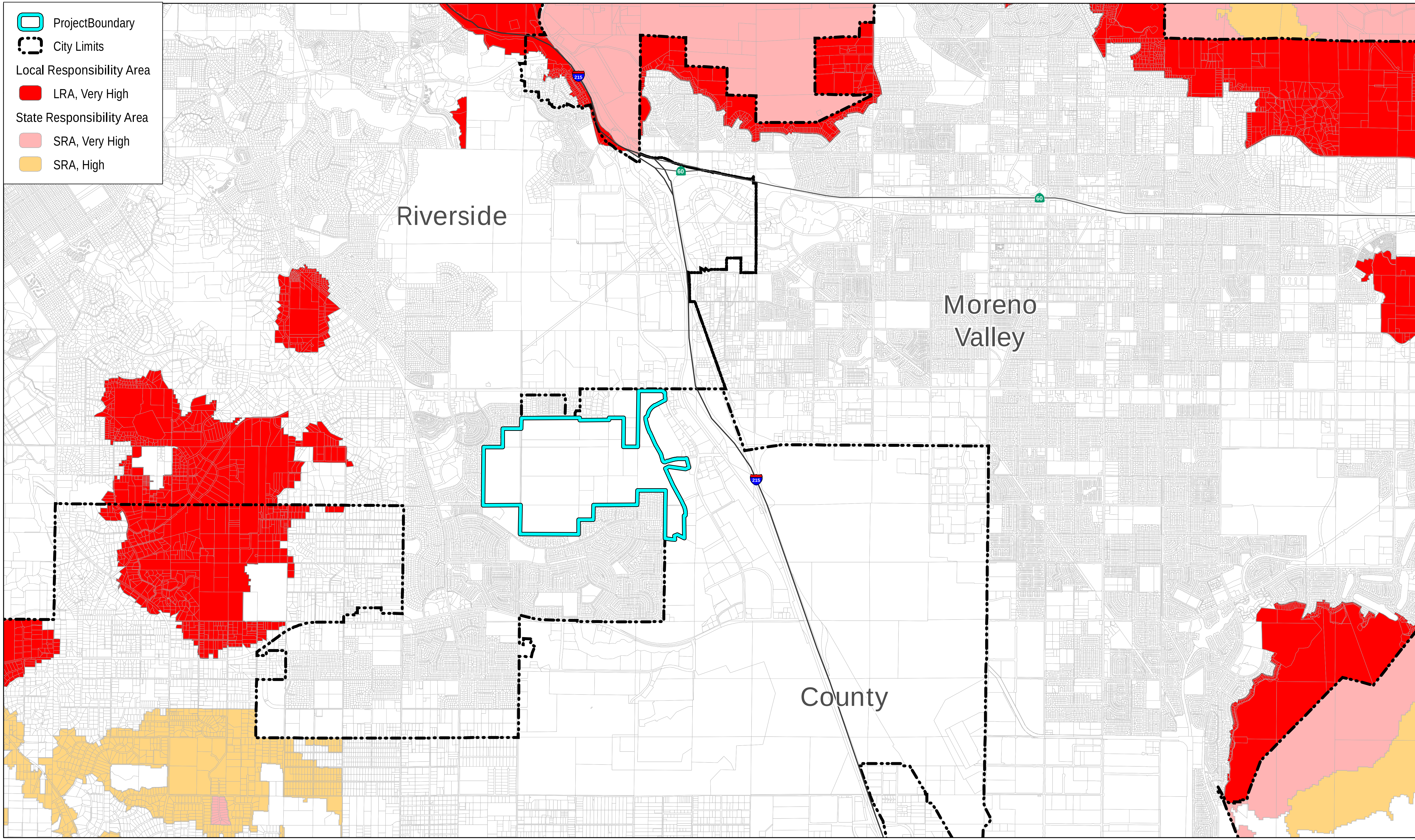

SOURCE: PARCELS- RIVERSIDE COUNTY GIS; FIRE DATA- CALFIRE

DUDEK 0 2,000 4,000 Feet

FIGURE 2b
Fire Hazard Severity Zones - CAL FIRE
Fire Protection Plan for West Campus Upper Plateau Project

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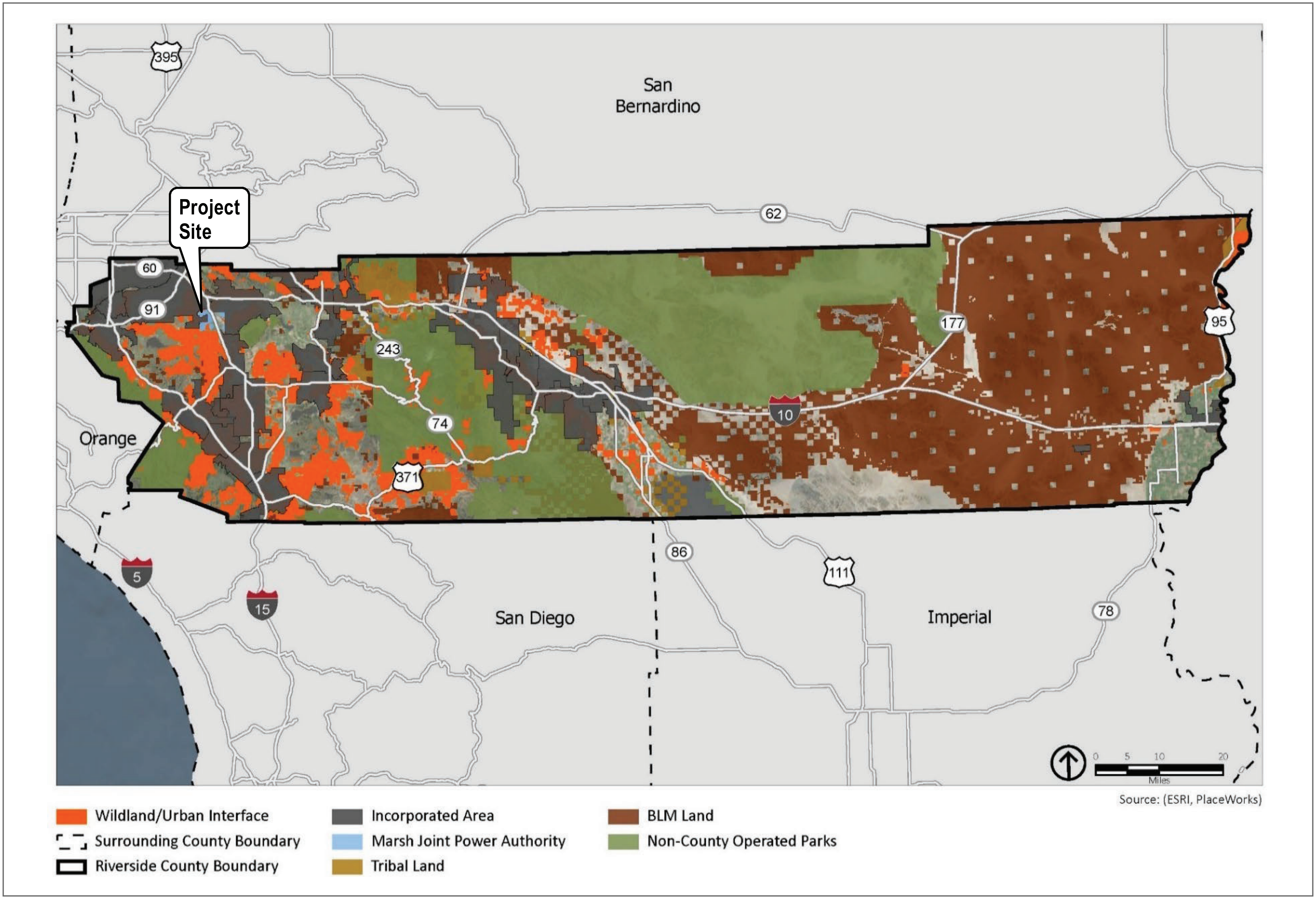

SOURCE: County of Riverside 2021

DUDEK

FIGURE 2c

Wildland Urban Interface – Riverside County

Fire Protection Plan for West Campus Upper Plateau Project

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SOURCE: RGA 2022

DUDEK 0 500 1,000 Feet

FIGURE 3

Site Plan

Fire Protection Plan for West Campus Upper Plateau Project

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2 Project Site Risk Analysis

2.1 Environmental Setting and Field Assessment

After review of available digital Study Area information, including topography, vegetation types, fire history, and the Project's Development Footprint, a Dudek Fire Protection Planner conducted a Project site evaluation on November 16, 2021, in order to confirm/acquire Project 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 Planner 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 included:

- Topography evaluation;
- Vegetation/fuel assessments;
- Photograph documentation of the existing condition;
- Confirmation/verification of hazard assumptions;
- Off-site, adjacent property fuel and topography conditions;
- Surrounding land use confirmations;
- Necessary fire behavior modeling data collection;
- Ingress/egress documentation;
- Nearby Fire Station reconnaissance.

Study Area photographs were collected (refer to Appendix A, *Representative Site Photographs*), and fuel conditions were mapped using aerial images. Field observations were utilized to augment existing site data in generating the fire behavior models and formulating the requirements and recommendations detailed in the FPP.

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 the fire environment are topography, vegetation (fuels), and climate. 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 to the structure(s), application of known ignition resistive building materials and methods, and suitable infrastructure for firefighting purposes. Understanding the existing wildland vegetation and urban fuel conditions on and adjacent to the site is necessary to understand the potential for fire within and around the Project site.

The following sections discuss the characteristics of the Project area and the surrounding region. The intent of evaluating conditions at a macro-scale provides a better understanding of the regional fire environment, which is not constrained by property boundary delineations.

2.2.1 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower spread down-slope. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape can result in especially intense fire behavior. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind.

The topography of the Project site consists of low rolling hills, with undulating topography. Site elevations range from 1,765 feet above mean sea level (~~amsl~~AMSL) in the central portion to 1,645 feet ~~amsl~~AMSL in the northeast portion of the site. Drainage is generally from the elevated central portion of the site to the perimeters, through natural drainage features incised into the rolling hills.

Topographic features that may ~~present a~~facilitate fire spread ~~facilitator~~ are ~~the~~ slope and canyon alignments, which do not occur on site, but in the region may serve to funnel or channel winds, thus increasing their velocity and potential for influencing wildfire behavior. From a regional perspective, the alignment of tributary canyons and dominant ridges is conducive to channeling and funneling wind, thereby increasing the potential for more extreme wildfire behavior in the region.

2.2.2 Climate

The Project site, like much of Southern California, is influenced by the Pacific Ocean and a seasonal, migratory subtropical high-pressure cell known as the "Pacific High." 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. The average high temperature for the Project area is approximately 79.5°F, with an average temperature in the summer and early fall months (June-September) of 91.6°F. July and August are typically considered the hottest months of the year. The area is considered to be a semi-arid climate. Annual precipitation typically averages approximately 10 inches annually with the wettest months being January and February (Western Regional Climate Center, 2021).

From a regional perspective, the fire risk in southern California can be divided into three distinct "seasons" (Nichols et al. 2011, Baltar et al 2014). The first season, the most active season and ~~covering~~occurring during the summer months, extends from late May to late September. This is followed by an intense fall season characterized by fewer but larger fires. This season begins in late September and continues until early November. The remaining months, November to late May ~~cover~~occur during the mostly dormant, winter season. Mensing et al. (1999) and Keeley and Zedler (2009) found that large fires in the region consistently occur at the end of wet periods and the beginning of droughts. Typically, the highest fire danger in southern California coincides with Santa Ana winds. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis near the end of fire season during late summer and early fall. They are dry, warm winds that flow from the higher desert elevations in the east through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Localized wind patterns on the Project site are strongly affected by both regional and local topography.

2.2.3 Vegetation

The Project site is currently undeveloped, and predominantly comprised of non-native grasslands, disturbed habitat and urban/developed land cover (i.e., roads and structures). There are several small areas of native upland vegetation within the Project site, including flat-topped buckwheat, Encelia scrub, and Riversidian sage scrub. While there are no large stands of riparian vegetation communities within the Project site, there are small stands of southern riparian forest, southern willow scrub, and mulefat scrub on the Project site. The vegetation cover types were assigned a corresponding fuel model for use during site fire behavior modeling. Section 3.0 describes the fire modeling conducted for the Project area.

Extensive vegetation type mapping is useful for fire planning because it enables each vegetation community to be assigned a fuel model, which is used ~~in a software program~~ to predict fire behavior characteristics, as discussed in Section 3.1, Fire Behavior Modeling. The Project site surface conditions generally consist of unimproved earthen terrain, with mostly low-load native grasses and grass-shrub vegetation communities. The area proposed for development and within the Project grading limits will be converted to ignition resistant landscapes, roads, structures, and landscaped vegetation following Project completion. Vegetative fuels within proposed fuel modification zones will be removed or structurally modified as a result of development, altering their current structure and species composition, irrigation and maintenance levels, resulting in a perimeter wildfire buffer.

Post-development vegetation composition proximate to the Project footprint is expected to be significantly different than current conditions. Following build-out, irrigated and thinned landscape vegetation associated with fuel modification zones (FMZ) A and B would be located in the immediate area surrounding the Project Site, extending up to 100 horizontal feet from each of the structures. Typical FMZ is 100 feet wide; however, the southern and southeastern portions of the Project site may not meet the full 100-foot FMZ. Structures adjacent to this area will receive code-exceeding, structural ignition resistive enhancements. Native and naturalized vegetation occurring within FMZ Zone C is not expected to be irrigated, although overall fuel volumes will be reduced by removing dead and dying plants, non-natives, and highly flammable species, ~~and~~along with thinning the remaining plants so they would not readily facilitate ~~the~~fire spread ~~of fire on an ongoing basis. The provided~~. To comply with RCFD requirements, the designated FMZ areas along with the site-wide landscaped areas, will be maintained on an ongoing ~~basis in order to comply with RCFD requirements.~~.

2.2.3.1 Vegetative Fuel Dynamics

The vegetation characteristics described above are used to model fire behavior, discussed in Section 3.0 of this FPP. Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species ~~have~~express 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, non-native grass-dominated plant communities become seasonally prone to ignition and produce lower intensity, higher spread rate fires. In comparison, sage scrub can produce higher heat intensity and higher flame lengths under strong, dry wind patterns, but does not typically ignite or spread as quickly as light, flashy grass fuels.

As described, vegetation plays a significant role in fire behavior, and is an important component of fire behavior models discussed in the 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~~re-initiates its succession ~~again~~process. 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, or grading) 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 fuel modification zones on-site. The Project's FMZs will consist of irrigated and maintained landscapes as well as thinned native fuel zones 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. Conditions adjacent to the Project's footprint (outside the fuel modification zones), where the wildfire threat will exist post-development, are classified as low to moderate fuel loads.

The vegetation described above translates to fuel models used for fire behavior modeling, discussed in Chapter 3 of this FPP. Variations in vegetative cover type and species composition have a direct effect on fire behavior. For example, California sagebrush scrub can produce higher heat intensity and higher flame lengths under strong, dry wind patterns, but does not typically ignite or spread as quickly as light, flashy grass fuels. The corresponding fuel models for each of these vegetation types are designed to capture these differences. Vegetation distribution throughout the Project site varies by location and topography. Areas, where the Project's Development Footprint is located, are primarily surrounded by low flame length producing grasslands.

As described, vegetation plays a significant role in fire behavior, and is an important component of the fire behavior models discussed in the 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, and fire exclusion tends to convert grasslands to shrublands over time as shrubs sprout back or establish and are not disturbed by repeated fires. In general, biomass and associated fuel loading will increase over time, assuming that disturbance (e.g., fire) 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 FMZs for the Project site. The FMZs 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.

2.2.4 Fire History

Fire history is an important component of a site-specific FPP. Fire history data provides valuable information regarding fire spread, fire frequency, ignition sources, and vegetation/fuel mosaics across a given landscape. 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 Project site, and how a fire may spread.

Fire history represented in the FPP uses the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP) database. FRAP summarizes fire perimeter data dating to the late 1800s, but which is incomplete due to the fact that it only includes fires over 10 acres in size and has incomplete perimeter data, especially for the first half of the 20th century (Syphard and Keeley 2016). However, the data does provide a summary of recorded fires and can be used to show whether large fires have occurred in the Project area, which indicates whether they may be possible in the future.

According to available data from the CAL FIRE in the FRAP database, thirty-nine (39) fires have burned within 5 miles of the Project site since the beginning of the historical fire data record (CAL FIRE 2021). Recorded wildfires within 5 miles range from approximately 40 acres to approximately 5,277 acres (1960 Unnamed Fire) and the average fire size is approximately 1,197 acres. The 2017 Opera Fire (approximately ~~1458~~1,458 acres) and 2017 Blaine Fire (approximately 159~~.2~~ acres) are the most recent fires within a 5 -mile radius of the Project site. No fires have burned on the Project site. RCFD may have data regarding smaller fires (less than 10 acres) that have occurred on-site that have not been included herein. Fire history for the general vicinity of the Project site is illustrated in Appendix B, Fire History Map.

Based on an analysis of the fire history data set, specifically, the years in which the fires burned, the average interval between wildfires within 5 miles of the Project site was calculated to be less than one with intervals ranging between 0 (multiple fires in the same year) to 10 years. Based on the analysis, it is expected that there will be wildland fires within 5 miles of the Project site at least every 10 years, and on average every two years, as observed in the fire history record. Based on fire history, wildfire risk for the Project site is associated primarily with a Santa Ana wind-driven wildfire burning or spotting on-site from the north or east, although a fire approaching from the south during more typical on-shore weather patterns is possible.

2.2.5 Fire Protection Features' Beneficial Effect on Wildfire Ignition Risk Reduction

Each of the fire protection features provided as part of the code requirements or customized for this Project are based on the FPP's evaluation ~~work to protect the Project site, its structures and their occupants from wildfires.~~results. These features also have a similar positive impact on the minimization of the potential for wildfire ignitions caused by the Project and its employees and visitors~~.~~ to spread off-site into preserved areas by providing:

~~As mentioned previously, the ignition resistant landscapes and structures and the numerous specific requirements would minimize the ability for an on site fire to spread to off site fuels, as follows:~~

1. **Ignition resistant, planned and maintained landscape** – all Project site landscaping of common areas and fuel modification zones will be subject to strict plant types that are lower ignition plants with those closest to structures requiring irrigation to maintain high plant moistures which equates to difficult ignition. These areas are closest to structures, where ignitions would be expected to be highest, but will be prevented through these ongoing maintenance efforts.
2. **Fuel Modification Zone** – the FMZ, which would be 100 feet includes specifically selected plant species, very low fuel densities (only 30% retention of native plants in outer zones and irrigated inner zones), and ongoing maintenance, resulting in a wide buffer between the developed areas and the off-site native fuels.
3. **Annual FMZ inspections** – the developer will have a contracted, 3rd party, RCFD-approved FMZ inspector perform two inspections per year to ensure that FMZs are maintained in a condition that is consistent to the County's and FPP's requirements and would provide a benefit of a wide barrier separating wildland fuels from on-site ignitions.
4. **Ignition resistant structures** – all structures will be built to the Chapter 7A (CBC) ignition resistant requirements that have been developed and codified as a direct result of after fire save and loss assessments. These measures result in structures that are designed, built and maintained to withstand fire and embers associated with wildfires. It must be noted that the wide FMZs would not result in wildfire directly next to these structures. Structures can be built in the HFHSZs and WUI areas when they are part of an overall approach that contemplates wildfire and provides design features that address the related risk. A structure within a HFHSZ that is built to these specifications can be at lower risk than an older structure in a non-fire hazard severity zone. The ignition resistance of on-site structures would result in a low incidence of structural fires, further minimizing potential for Project-related wildfires.

5. **Interior fire sprinklers –** commercial sprinklers are designed to provide additional time for occupants to escape the structures. Sprinklers in commercial structures are also designed to provide structural protection. The common benefit of fire sprinklers is that they are very successful at assisting responding firefighters by either extinguishing a structural fire or at least, containing the fire to the room of origin and delaying flash over. This benefit also reduces the potential for an open space vegetation ignition by minimizing the possibility for structure fires to grow large and uncontrollable, resulting in embers that are blown into wildland areas. This is not the case with older existing structures in the area that do not include interior sprinklers.
6. **Fire access roads** – roads provide access for firefighting apparatus. Project roads provide code-consistent access throughout the community. Better access to wildland areas may result in faster wildfire response and continuation of the fire agencies' successful control of wildfires at small sizes.
7. **Water –** providing firefighting water throughout the Project with fire hydrants accessible by fire engines is a critical component of both structural and vegetation fires. The Project provides firefighting water volume, availability, and sustained pressures to the satisfaction of RCFD. Water accessibility helps firefighters control structural fires and helps protect structures from and extinguish wildfires.

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3 Anticipated Fire Behavior

3.1 Fire Behavior Modeling

Following field data collection efforts and available data analysis, fire behavior modeling was conducted to document the type and intensity of ~~the fire~~fires that would be expected adjacent to the Project site given characteristic features such as topography, vegetation, and weather. Dudek utilized BehavePlus software package version 6 (Andrews, Bevins, and Seli 2008) to analyze potential fire behavior[2].

3.2 Fire Behavior Modeling Analysis

An analysis was conducted to evaluate fire behavior variables and to objectively predict flame lengths, intensities, and spread rates for five modeling scenarios, including two summer, onshore weather condition (northwest and west/southwest from the Project site) and three extreme fall, offshore weather condition (east, northeast, and south of the Project site~~).~~) scenarios. These fire scenarios incorporated observed fuel types representing the dominant vegetation ~~representative of~~on the site and adjacent land~~, in addition to~~ along with site slope gradients, wind, and fuel moisture values. Modeling scenario locations were selected to better understand different fire behavior that may be experienced on or adjacent to the Project site.

Vegetation types, which were derived from the site field assessment ~~for the Project site~~, were classified into ~~a~~ fuel models. Fuel models are selected by their vegetation ~~type~~characteristics, fuel stratum most likely to carry the fire, and depth and compactness of the fuels. Fire behavior modeling was conducted for vegetative types that are both on and adjacent to the proposed development as these are the fuels that would potentially be available to fire. Fuel models were also assigned to illustrate post-Project ~~fire behavior~~landscape changes. Fuel models were selected from Standard Fire Behavior Fuel Models: ~~a~~A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (Scott and Burgan 2005).

Based on the site visit and the anticipated pre- and post- Project vegetation conditions, three different fuel models were used in the fire behavior modeling effort to represent the current vegetation conditions throughout the Project site and one additional fuel model was used to depict a fire post construction, as presented herein. Fuel model attributes are summarized in Table 1. Modeled areas include short/sparse to low-load grasses (Gr1 and Gr2) throughout the project site, intermixed with low load grass/shrubs communities (Gs1). For modeling the post-development condition, fuel model assignments were re-classified to FM8 representing an irrigated landscape and Gs2 representing 50% thinning grass landscape up to 100 feet from the structures.

Table 1. Fuel Models Used for Fire Behavior Modeling

Fuel Model	Description	Location of Fuel Models	Fuel Bed Depth (Feet)
Existing Conditions			
Gr1	Short, sparse, dry climate grasses	Fuel type exists throughout the entire project site.	1.0 ft.

[2] A discussion of fire behavior modeling is presented in Appendix C, Fire Behavior Modeling.

Table 1. Fuel Models Used for Fire Behavior Modeling

Fuel Model	Description	Location of Fuel Models	Fuel Bed Depth (Feet)
Gr2	Low load, dry climate grasses	Fuel type exists throughout the entire project site; Fuel type will represent post development 50% thinning zone.	>2.0 ft.
Gs1	Low Load, dry climate grass-shrub	Fuel type intermixed throughout the project site.	<3.0 ft.
FM8	Short needle litter	Fuel type representing post development fully irrigated setback and irrigated zones	<1.0 ft.
Post-Development Conditions			
FM8	Irrigated Landscape	Fuel type will occur post development within Zone B - Irrigated zone.	<1.0 ft.
Gs1	Low Load, Dry Climate Grass-Shrub	Fuel type will occur post development within Zone B - Irrigated zone.	<2.0 ft.
Gs2	Moderate load, Dry Climate Grass-Shrub	Fuel type throughout and adjacent to the Project boundary; also will occur post development within Zone C - 50% thinning zone.	<3.0 ft.

Table 2 summarizes the weather and wind input variables used in the BehavePlus modeling process.

Table 2. Fuel Moisture and Wind Inputs

Model Variable	Summer Weather Condition (50th Percentile)	Peak Fall Weather Condition (97th Percentile)
Fuel Models	FM8, Gr1, Gr2, and Gs1	FM8, Gr1, Gr2, and Gs1
1 hr. Moisture	5%	1%
10 hr. Moisture	6%	4%
100 hr. Moisture	12%	6%
Live Herbaceous Moisture	45%	30%
Live Woody Moisture	95%	60%
20-foot Wind Speed (mph)	14 mph (sustained winds)	17 mph (sustained winds); wind gusts of 50 mph
Wind Directions from north (degrees)	260 and 300	45, 100 and 180
Wind adjustment factor	0.4	0.4
Slope (uphill)	4 to 5%	5 to 7%

3.3 Fire Behavior Modeling Results

The results of fire behavior modeling analysis for pre- and post-Project conditions are presented in Tables 3 and ~~Table~~ 4, respectively. Identification of modeling run (fire scenarios) locations is presented graphically in Figure 4, BehavePlus Fire Behavior Analysis.

Table 1: Existing Fuel Model Characteristics

Fuel Model	Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, sparse, dry climate grasses	Fuel type exists throughout the entire project site.	1.0 ft.
Gr2	Low load, dry climate grasses	Fuel type exists throughout the entire project site; Fuel type will represent post development 50% thinning zone.	>2.0 ft.
Gs1	Low Load, dry climate grass-shrub	Fuel type intermixed throughout the project site.	<3.0 ft.
FM8	Short needle litter	Fuel type representing post development fully irrigated setback and irrigated zones	<1.0 ft.

Table 3: RAWS BehavePlus Fire Behavior Model Results – Existing Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)[5]	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles)[6]
Scenario 1: 5% slope, Summer, On-shore Winds from the northwest (Current conditions)				
Sparse load grasses (Gr1)	2.1	0.2	28	0.1
Low load grasses (Gr2)	5.8	0.7	258	0.2
Low load grass-shrubs (Gs1)	3.9	0.3	111	0.2
Scenario 2: 7% slope, Fall, Offshore, Extreme Fall Winds from the northeast (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.1 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	873 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	7.0 (14.0)	0.7 (3.0)	385 (1,763)	0.3 (1.1)
Scenario 3: 5% slope, Fall, Offshore, Extreme Fall Winds from the east (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.2 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	870 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	6.9 (14.0)	0.7 (3.0)	384 (1,763)	0.3 (1.1)
Scenario 4: 6% slope, Fall, Offshore, Extreme Fall Winds from the south (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.2 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	867 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	7.0 (14.0)	0.6 (3.0)	383 (1,763)	0.3 (1.1)
Scenario 5: 4% slope, Summer, Onshore Winds from the southwest (Current conditions)				
Sparse load grasses (Gr1)	2.1	0.2	28	0.1
Low load grasses (Gr2)	6.3	0.9	311	0.3
Low load grass-shrubs (Gs1)	4.3	0.3	133	0.2

Table 4: RAWS BehavePlus Fire Behavior Model Results – Post Project Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)[7]	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles)[8]
Scenario 1: 5% slope, Summer, On-shore Winds from the northwest (Current conditions)				
FMZ Zone A and B (FM8)	1.3	0.0	9	0.1
FMZ Zone C (Gr2)	5.8	0.7	258	0.2
Scenario 2: 7% slope, Fall, Offshore, Extreme Fall Winds from the northeast (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	873 (3,037)	0.4 (1.3)
Scenario 3: 5% slope, Fall, Offshore, Extreme Fall Winds from the east (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	870 (3,037)	0.4 (1.3)
Scenario 4: 6% slope, Fall, Offshore, Extreme Fall Winds from the south (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	867 (3,037)	0.4 (1.3)
Scenario 5: 4% slope, Summer, Onshore Winds from the southwest (Current conditions)				
FMZ Zone A and B (FM8)	1.4	0.0	11	0.1
FMZ Zone C (Gr2)	6.3	0.9	311	0.3

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SOURCE: AERIAL- BING MAPPING SERVICE

DUDEK

0 250 500 1,000 Feet

FIGURE 4

BehavePlus Fire Modeling Analysis Map

WCUP - West Campus Upper Plateau Fire Protection Plan Project

As presented, in the Fire Behavior Analysis (Appendix C), wildfire behavior on the Project site is expected expected to be primarily of low to moderate intensity throughout the non-maintained surface grasses and grass-shrub dominated fuels throughout the entire Project site. As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the Proposed Project site. Five focused analyses were completed for both the existing project site conditions and the post project conditions, each assuming worst-case fire weather conditions for a fire approaching the project site from the northwest, southwest, east, south, and southwest. The results of the modeling effort included anticipated values for surface fires (flame length (feet), rate of spread (mph), fireline intensity (Btu/ft/s), and 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. Three fire modeling scenario locations were selected to better understand the different fire behavior that may be experienced on or adjacent the site based on slope and fuel conditions; these three fire scenarios are explained in more detail below:

- **Scenario 1:** A summer, on-shore fire (50th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the northwestern portion of the Project site. The terrain is flat (approximately 5% slope) with potential ignition sources from a carvehicle or single-family residential structure fire north/west of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.
- **Scenario 2:** A fall, off-shore fire (97th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the northeastern portion of the Project site. The terrain is flat (approximately 7% slope) with potential ignition sources from a carvehicle or structure fire north/east of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.
- **Scenario 3:** A fall, off-shore fire (97th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the eastern portion of the Project site. The terrain is flat (approximately 5% slope) with potential ignition sources from a carvehicle or structure fire east of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.
- **Scenario 4:** A fall, off-shore fire (97th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the southern portion of the Project site. The terrain is flat (approximately 6% slope) with potential ignition sources from a carvehicle or structure fire south of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.

- **Scenario 5:** A summer, on-shore fire (50th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the southwestern portion of the Project site. The terrain is flat (approximately 5% slope) with potential ignition sources from a carvehicle or structure fire south/west of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.

The results presented in Tables 3 and 4 depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. 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.

3.3.1 Existing Conditions

Based on the BehavePlus analysis (Table 4), post development3), fire behavior is expected in irrigated and replanted with plants that are acceptable with the Riverside County Fire Department (RCFD) (Zone A and Zone B – FM8), as well in a thinned area of the existing site fuels is expected to be low to moderate flame lengths and intensities. Existing grasses and shrubs (Zone C – Gr2) under peak weather conditions (represented by Fall Weather, Scenario 3). Under such conditions, expected surface flame length is expected to be significantly lower in the areas where fuel modification occurs, with produce flames lengths reaching approximately 18 feet with wind speeds of 50+ mph. Under this scenario, fireline intensities reach 3,037 BTU/feet/second with relatively slow spread rates of 6.2 mph and could have a spotting distance up to 1.3 miles away. Therefore, the 100-foot Fuel Modification Zone (FMZ) proposed for the West Campus Upper Plateau Project is approximately 5-times the flame length of the worst -case fire scenario under peak weather conditions and would provide adequate defensible space to augmentbuffer the Project from a wildfire approaching the Project's perimeter of the Project site.

Table 3. RAWS BehavePlus Fire Behavior Modeling Results – Existing Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)[31]	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles) [42]
Scenario 1: 5% slope, Summer, On-shore Winds from the northwest (Current conditions)				
Sparse load grasses (Gr1)	2.1	0.2	28	0.1
Low load grasses (Gr2)	5.8	0.7	258	0.2
Low load grass-shrubs (Gs1)	3.9	0.3	111	0.2
Scenario 2: 7% slope, Fall, Offshore, Extreme Fall Winds from the northeast (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.1 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	873 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	7.0 (14.0)	0.7 (3.0)	385 (1,763)	0.3 (1.1)

[3] mph = miles per hour
[4] Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph.

Table 3. RAWS BehavePlus Fire Behavior Modeling Results – Existing Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)31	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles) 42
Scenario 3: 5% slope, Fall, Offshore, Extreme Fall Winds from the east (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.2 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	870 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	6.9 (14.0)	0.7 (3.0)	384 (1,763)	0.3 (1.1)
Scenario 4: 6% slope, Fall, Offshore, Extreme Fall Winds from the south (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.2 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	867 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	7.0 (14.0)	0.6 (3.0)	383 (1,763)	0.3 (1.1)
Scenario 5: 4% slope, Summer, Onshore Winds from the southwest (Current conditions)				
Sparse load grasses (Gr1)	2.1	0.2	28	0.1
Low load grasses (Gr2)	6.3	0.9	311	0.3
Low load grass-shrubs (Gs1)	4.3	0.3	133	0.2

Notes:
1 MPH=miles per hour.
2 Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph.

3.3.2 Post-Development Conditions

As previously mentioned, Dudek conducted modeling of the Project site for post-fuel modification zones. Typical fuel modification includes establishment of minimum 100-foot wide FMZ consisting of a noncombustible 5 feet wide zone (Zone A), a 25 foot wide, irrigated zone (Zone B) and a 70-foot-wide thinning zone (Zone C) on the periphery of the project site, beginning at the structure. For modeling the post-FMZ treatment condition, the fuel model assignment for non-native grasslands was re-classified according to the specific fuels management (e.g., irrigated, fire resistive landscaping and 50% thinning) treatment.

Based on the BehavePlus analysis summarized in Table 4, post development fire behavior is expected to be reduced in irrigated and replanted withzones where plants that are acceptable with the Riverside County Fire Department (RCFD) (Zone A and Zone B – FM8), as well in a thinned area) will be utilized and ongoing maintenance of the existing grasses and shrubs (Zone C – Gr2) under peak weather conditions (represented by Fall Weather, Scenario 3).would occur. Under suchextreme weather conditions, expected surface flame length is expected to be significantly lower in the areas where fuel modification occurs, with flames lengths reaching approximately 18 feet with wind speeds of 50+ mph. Under this scenario, fireline intensities reach 3,037 BTU/feet/second with relatively slow spread rates of 6.2 mph and could have a spotting distance up to 1.3 miles away. Therefore, the 100-foot Fuel Modification Zone (FMZ) proposed for the West Campus Upper Plateau Project is up to approximately 5-times the flame length of the worst-case fire scenario under peak weather conditions and would provide adequate defensible space to augment a wildfire approaching the perimeter of the Project site.

Table 4. RAWS BehavePlus Fire Behavior Modeling Results – Post-Project Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)[5][1]	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles) [6][2]
Scenario 1: 5% slope, Summer, On-shore Winds from the northwest (Current conditions)				
FMZ Zone A and B (FM8)	1.3	0.0	9	0.1
FMZ Zone C (Gr2)	5.8	0.7	258	0.2
Scenario 2: 7% slope, Fall, Offshore, Extreme Fall Winds from the northeast (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	873 (3,037)	0.4 (1.3)
Scenario 3: 5% slope, Fall, Offshore, Extreme Fall Winds from the east (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	870 (3,037)	0.4 (1.3)
Scenario 4: 6% slope, Fall, Offshore, Extreme Fall Winds from the south (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	867 (3,037)	0.4 (1.3)
Scenario 5: 4% slope, Summer, Onshore Winds from the southwest (Current conditions)				
FMZ Zone A and B (FM8)	1.4	0.0	11	0.1
FMZ Zone C (Gr2)	6.3	0.9	311	0.3

Notes:
[1] MPH=miles per hour
[2] Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph

Surface Fire:

- **Flame Length (feet):** The flame length 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.
- **Fireline Intensity (Btu/ft/s):** Fireline intensity is the heat energy release per unit time from a one-foot--wide section of the fuel bed extending from the front to the rear of the flaming zone. Fireline intensity is a function of rate of spread and heat per unit area and is directly related to flame length. Fireline intensity and the flame length are related to the heat felt by a person standing next to the flames.
- **Surface Rate of Spread (mph):** Surface rate of spread is the "speed" the fire travels through the surface fuels. Surface fuels include the litter, grass, brush and other dead and live vegetation within about 6 feet of the ground.

[5] mph = miles per hour
[6] Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 45 mph.

The information in Table 5 presents an interpretation of the outputs for five fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Tables 3 and 4. Identification of modeling run locations is presented graphically in Figure 4 of this FPP.

Table 5. 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.

3.4 Project Area Fire Risk Assessment

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 grasslands and shrublands, like those found on and adjacent to the Project site. 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 expanding into WUI areas, and the regions' fire history, it can be anticipated that periodic wildfires may start on, burn onto, or spot into the Project site. The most common type of fire anticipated in the vicinity of the Project area is a wind-driven fire from the east/southeast, moving through the grasslands and scrub on the and around the Project site.

With the conversion of the landscape to ignition-resistant development, wildfires may still encroach upon and drop embers on the Project site but would not be expected to burn through the site or produce sustainable spot fires due to the lack of available fuels. Studies indicate that even with older developments that lacked the fire protections provided inby the Project, wildfires declined steadily over time (Syphard, et. al., 2007 and 2013) and further, the acreage burned remained relatively constant, even though the number of ignitions temporarily increased. This is due to the conversion of landscapes to ignition resistant, maintained areas, more humans monitoring areas resulting in early fire detection and discouragement of arson, and fast response from the fire suppression resources that are located within these developing areas.

Therefore, it will be important that the latest fire protection technologies, developed through intensive research and real-world wildfire observations and findings by fire professionals, for both ignition resistant construction and for creating defensible space in the ever-expanding WUI areas are implemented and enforced. The Project, once developed, would not facilitate wildfire spread and would reduce projected flame lengths to levels that would be manageable by firefighting resources for protecting the Project site's structures, especially given the ignition resistance of the structures and the planned ongoing maintenance of the entire site landscape and FMZs. The Project will implement the latest fire protection measures, including fuel modification along the perimeter edges of the development. In addition, the 100-foot FMZ forprovided for the majority of the Project site would be approximately 5.5 times wider than the longest calculated flame length conditions for portions of the proposed developed area that abut grassland communities (reference Table 4).

Given the climatic, vegetative, topographic characteristics, and local fire history of the area, the Project Site, once developed, is determined to be subject to periodic wildfires that may start on, burn toward, or spot onto the site. The potential for off-site wildfire encroaching on, or showering embers on the site is considered moderate, but the risk of ignition from such encroachments or ember showers is considered low based on the type of ignition resistant landscapes and construction and fire protection features that will be provided for the structures.

While it is true that humans are the cause of most fires in California, there is no data available that links increases in wildfires with the development of ignition-resistant communities.projects that are placed in areas where significant urbanization already exists. The Project will include a robust fire protection system, as detailed in the Project's FPP. This same robust fire protection system provides protections from on-site fire spreading to off-site vegetation. Accidental fires within the landscapeProject's landscapes or structures in the Project will have limited ability to spread. The landscape throughout the Project and on its perimeter will be highly maintained and much of it irrigated, which further reduces its ignition potential. Structures will be highly ignition resistant on the exterior and the interiors will be protected with automatic sprinkler systems, which have a very high success rate for confiningcontaining fires or, if not extinguishing them.

Figure 3.4 BehavePlus Fire Behavior .1 Analysis Mapof Wildfire Risk from Adding New Population

Humans (i.e., human related activities or human created features, services, or processes) are responsible for the majority of California wildfires (Syphard et al. 2007, 2008; Romero-Calcerrada et al. 2008). Certain human activities result in sparks, flames, or heat that may ignite vegetative fuels without proper prevention measures in place. These ignitions predominantly occur as accidents, but may also be purposeful, such as in the case of arson. Roadways are a particularly high source for wildfire ignitions due to high usage and vehicle caused fires (catalytic converter failure, overheated brakes, dragging chains, tossed cigarette, and others) (Romero-Calcerrada et al 2008)). In Southern California, the population living at, working in, or traveling through the wildland urban interface is vast and provides a significant opportunity for ignitions every day. However, it is a relatively rare event when a wildfire occurs, and an even rarer event when a wildfire escapes initial containment efforts. Approximately 90 to 95 percent of wildfires are controlled below 10 acres (CAL FIRE 2019; Santa Barbara County Fire Department 2019).

Research indicates that the type of dense, clustered and full landscape conversion projects, like the Upper West Campus, are not associated with increased vegetation ignitions. Syphard and Keeley (2015) summarize all wildfire ignitions included in the CAL FIRE Fire and Resource Assessment Program (FRAP) database – dating back over 100 years. For example, they found that in San Diego County, which is similar to most of southern California, equipment-caused fires were by far the most numerous, and these also accounted for most of the area burned, followed closely by the area burned by power line fires. Ignitions classified as equipment caused frequently resulted from exhaust or sparks from power saws or other equipment with gas or electrical motors, such as lawn mowers, trimmers or tractors and associated with lower density housing. Ignitions were more likely to occur close to roads and structures, and at intermediate structure densities.

As figures 5 through 7 illustrate, project building density directly influences susceptibility to fire because in higher density developments, there is one interface (the community perimeter) with the wildlands whereas lower density development creates more structural exposure to wildlands, less or no ongoing landscape maintenance (an intermix rather than interface), and consequently more difficulty for limited fire resources to protect well-spaced structures. The intermix includes housing amongst the unmaintained fuels whereas the proposed project converts all fuels within the footprint and provides a wide, managed fuel modification zone separating homes from unmaintained fuel and creating a condition that makes defense easier. Syphard and Keeley go on to state that "The WUI, where housing density is low to intermediate is an apparent influence in most ignition maps "further enforcing the conclusion that lower density development poses a higher ignition risk than higher density development." They also state that "Development of low-density, exurban housing may also lead to more homes being destroyed by fire" (Syphard et al. 2013). A wildland urban interface already exists in the area adjacent to the Project, dominated by older, more fire-vulnerable structures, constructed before stringent fire code requirements were imposed on residential development, with varying levels of maintained fuel modification buffers. As discussed in detail throughout this FPP, the Project is an ignition resistant business center designed to include professionally managed and maintained fire protection components, modern fire code compliant safety features and specific measures provided where ignitions are most likely to occur (such as roadways). Therefore, the development of the Project would not be expected to materially increase the risk of vegetation ignitions.

Figure 5. Example higher density development that is ignition resistant and excludes readily ignitable vegetative fuels throughout and provides a perimeter fuel modification zone. This type of new development requires fewer fire resources to defend and can minimize the likelihood of on-site fires spreading off-site.

Figure 6. Example of moderate density development. Structures are located on larger properties and include varying levels of ignition resistance and landscape / fuel modification provision and maintenance. This type of development results in a higher wildland exposure level for all homes and does not provide the same buffers from wildfire encroaching onto the site, or starting at a structure and moving into the wildlands as a higher density project.

Figure 7. Example of "lower density" development where structures are interspersed amongst wildland fuels, are of varying ages, and include varying levels of fuel modification zone setbacks. Homes are exposed on most or all sides by flammable vegetation and properties rely solely on owners for maintenance, are often far distances from the nearest fire station, and have minimal buffer from on-site fire spreading to wildlands.

Moreover, frequent fires and lower density housing growth may lead to the expansion of highly flammable exotic grasses that can further increase the probability of ignitions (Keeley et al. 2012). This is not the case with the proposed project as the landscapes are managed and maintained to remove exotic fuels that may establish over time.

As discussed above, research indicates that it is less likely for higher density developments to be impacted by wildfires than lower density developments. The same protections that starve wildfire of fuels and minimize or prevent wildfire from transitioning into a higher density development like the Project's also serve to minimize or prevent on-site fires from transitioning into the wildlands. Further, the requirement that all structures will include interior fire sprinklers that are structure protection rated, significantly reduces the likelihood that a building fire spreads to the point of flashover, where a structure will burn beyond control and produce embers. Interior sprinklers are very efficient, keeping fires to the room of origin, or extinguishing the fire before the responding firefighters arrive. Similarly, the irrigated fuel modification zones are positioned throughout the development areas as well as the first zones on the perimeter of the project and masonry walls adjacent the conserved open space. Irrigated zones include plants with high internal moisture and spacing between plants and plant groups that 1) make it difficult to ignite and 2) make it difficult for fire to spread plant to plant.

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4 Emergency Response Service

4.1 Emergency Response Fire Facilities

The Project site is located within RCFD response area; however, the closest fire station to the Project site is the City of Riverside Fire Department (RFD) Station 11, as depicted in Figure 58. There are mutual aid agreements in place with neighboring fire agencies and typically includeso that the closest unit is dispatched, regardless of jurisdiction. These interdependencies thatoften exist among the region's fire protection agencies for structural and medical responses, which are primarily associated with the peripheral "edges" of each agency's boundary. Table 46, Closest Responding Fire Stations Summary, presents a summary of the location, equipment, staffing levels, maximum travel distance, and travel time for the three closest, existing RCFD, RFD and Moreno Valley Fire Department (MVFD) stations responding to the Project site. Travel distances are derived from Google roadRoad data while travel times are calculated applying the nationally recognized Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard formula (T=0.65 + 1.7 D, where T= time and D = distance). The ISO response travel time formula discounts speed for intersections, vehicle deceleration and acceleration, and does not include turnout time. The following sections analyze the Project in terms of current RCFD Fire Service capabilities and resources to provide Fire Protection and Emergency Services. The planned Meridian Fire Station at the northeast corner of Meridian Parkway and Opportunity Way was evaluated in the 2010 Final Subsequent EIR for the Meridian Specific Plan Amendment (SP-5) (March JPA 2010) and subject to the 2010 SP-5 Mitigation Monitoring and Reporting Program (Appendix T). This station will be the closest station to the Project and result in faster response than the already fast response provided by existing stations.

Table 6. Closest Responding Stations Summary

Station	Location	Equipment	Staffing*	Maximum Travel Distance**	Travel time**
RFD Station 11	19595 Orange Terrace Pkwy, Riverside	Engine 11	One captain, one engineer, one firefighter and one firefighter/paramedic	2.2 miles	4 minutes, 23 seconds
RFD Station 13	6490 Sycamore Canyon Boulevard, Riverside	Truck 13	One captain, one engineer, one firefighter and one firefighter/paramedic	2.8 miles	5 minutes, 25 seconds
MVFD Station 6	22250 Eucalyptus Ave, Moreno Valley	Engine 6	3-person Engine	3.4 miles	6 minutes, 26 seconds
RCFD/MVFD Station 65	15111 Indian Street, Moreno Valley	Engine	3-person Engine	4.5 miles	8 minutes, 18 seconds

*Notes:
* Staffing levels from 2016 Riverside County Fire Department Tri Data Report or RFD website (https://www.riversideca.gov/fire/about-contact/stations)
** Assumes travel distance and time to the closest Project site entrance

RFD Station 11 is staffed 24/7 with career firefighters, would provide initial response, and is located at 19595 Orange Terrace Parkway in Riverside. RFD Station 11 has one Engine Truck staffed with four firefighter personnel. RFD Station 11 will be capable of responding within 4 minutes and 23 seconds., which equates to roughly a 6 minute 23 second response time. Secondary response would be provided from RFD Station 13, which is located at 6490 Sycamore Canyon Boulevard in Riverside and can respond within 5 minutes and 25 seconds. RFD Station 13 has one Quint Truck staffed with four firefighter personnel. MVFD Station 6 has a 3-person Engine and would also be able to respond to the Project site in 6 minutes and 26 seconds.

Within the area's emergency services system, fire and emergency medical services are also provided by other fire departments. Generally, each agency is responsible for structural fire protection and wildland fire protection within their area of responsibility. However, mutual aid agreements enable non-lead fire agencies to respond to fire emergencies outside their district boundaries. In the Project area, fire agencies cooperate under a statewide master mutual aid agreement for wildland fires.

On March 7, 2017, the Riverside County Board of Supervisors (Board) received and filed RCFD's "Alternative Staffing Model Recommendation." The Alternative Staffing Model Recommendation was fiscally driven and developed by RCFD due to funding difficulties to retain 3-person engine companies. The RCFD FY 17-18 Service Alternatives report, dated March 7, 2017, recommends the following response times based on four Board Approved Land Use Classifications as described in Table 7:.

Table 7. Land Use Classification Information with Staffing/Time Response Standards

Land Classification	Population Density	Fire Staffing Characteristics	Response Time
HEAVY URBAN	>700 per square mile	Land use includes large commercial and industrial complexes, large business parks, high-rise and wide rise community centers and high-density residential dwelling units of 10 to 20 units per acre.	5:00 minutes, 90% of the time
URBAN	>500 per square mile	Land use includes large commercial and industrial complexes, large business parks, high-rise and wide rise community centers and high-density residential dwelling units of 8 to 20 units per acre.	6:30 minutes, 90% of the time
RURAL	100 to 500 per square mile	Light industrial zones, small community centers and residential dwelling unit density of 2 to 8 units per acre.	10:30 minutes, 90% of the time
OUTLYING	<100 per square mile	Areas of rural mountain and desert, agricultural uses, small scale commercial, industrial and manufacturing, service commercial, medium industrial and low density residential dwelling units; 1 dwelling unit per acre to 1 dwelling unit per 5 acres.	17:30 minutes, 90% of the time

Source: Riverside County Fire Department FY 17-18 Service Alternatives. March 7, 2017.

Based on the Project area's inclusion of large commercial and industrial complexes, it is assumed that the Project may be classified as "Heavy Urban," with a 5.0-minute first-in fire engine response time. As previously mentioned, response to the Project site from the closest existing Fire Station (RFD Station 11) would achieve under a 5-minute travel time to the entrance of the Project, refer to Table 6.with a 6 minute 23 second response time. This response time is considered to be adequate given the Project's fire safety features, including full NFPA 13 fire sprinklers, per code and the flexibility allowed by the response time 90 percent achievement rate. The Project may not adversely impact the overall goal achievement due to the low number of calls (discussed below) that are projected.

According to the RCFD 2016 TriData Report[7], units should travel to calls within the defined response time goal for the appropriate population density classification 90 percent of the time. As noted in the report, RCFD Station 65 was in compliance of meeting the defined response time 82.8%. Additionally, areas that have fewer units available or are farther from neighboring stations are more impacted than others by an increase in emergency calls. They have greater workload sensitivity– as the workload increases their ability to meet the demand decreases. RFD Stations 11 and 13 are considered to have a moderate sensitivity workload with the capacity for more workload.

4.2 Estimated Calls and Demand for Service

The following estimated annual emergency call volume generated by the Project (Commercial-Industrial products) is based upon per capita data for 20172020 from RCFD calls within their jurisdiction[8].

- Total population served by: 46,712208,838 (as of 2015, RCFD 2016 TriData Report2020, City of Moreno Valley – nearest comparable population)
- Total annual calls: 3,22519,975. Per capita call generation: 0.07096
- Total annual fire calls, including structure, vegetation, vehicle fires, and other fire calls (2.604% of total calls): 84803. Per capita call generation: 0.002004
- Total annual Emergency Medical Services (7576% of total calls): 2,42915,190. Per capita call generation: 0.052073
- Total other calls (Rescue, Traffic Collisions, Hazardous Materials, Public Service, etc.; 22.120% of total calls): 7123,982. Per capita call generation: 0.015019

Using the data above, the estimated annual emergency call volume for the Project site was calculated. Per the Project's Environmental Impact Report, the total maximum estimated total population of the Project site, is projected to be 2,600 persons. Based on this population estimate, the calculated call volumes by type of call are provided in Table 68.

Table 8. Calculated Call Volume (Conceptual Based on 2,600 Persons)

Type of Call	Per Capita Call Generation Factor	Number of Estimated Annual Calls
Total Other Calls	0.015019	3949
Total Fires	0.002004	611
Total EMS Calls	0.052073	136190
Total Calls	0.07096	181250

As mentioned, the new industrial/commercial development will increase the call volume at a rate of a conservatively calculated (the actual number of calls may be lower than this estimate) up to 181250 calls per year (3.5 calls per week or 1421 calls per month). or 0.7 calls per day). RFD Fire Station 11 emergency response in 2021 totaled 1,955 calls per year, or 5.35 calls per day. Station 13 emergency responses in 2021 totaled

7 Riverside County Fire Department, Operational, Standards of Cover, and Contract Fee Analysis, March 2016, TriData LLCCAL FIRE 2020 Annual Report

8 2017 Riverside County Fire Department Annual Report and City of Beaumont Incidents for fiscal year 2017, Page 14 City of Moreno Valley Comprehensive Financial Report 2020, page i

3,296 calls per year (1,955 and 1,341 respectivelycalls per year[9]),, or 5.36 and 3.67 calls per day per station respectively. The level of service demand for the Project raises overall call volume but is not anticipated to impact the existing fire stations to a point that they cannot meet the demand. For perspective, five calls per day are typical in an urban or suburban area. A busy fire station company would be one with 10 to 15 or more calls per day. When the Project site is built out, Fire RFD Station 11 could potentially respond to an additional 35 calls per week on average, although the number will likely be lower than that based on the conservative nature of the population and calls per capita data used in this estimate.

9 Email communication with Brian Guzzetta, Training Captain, City of Riverside Fire Department

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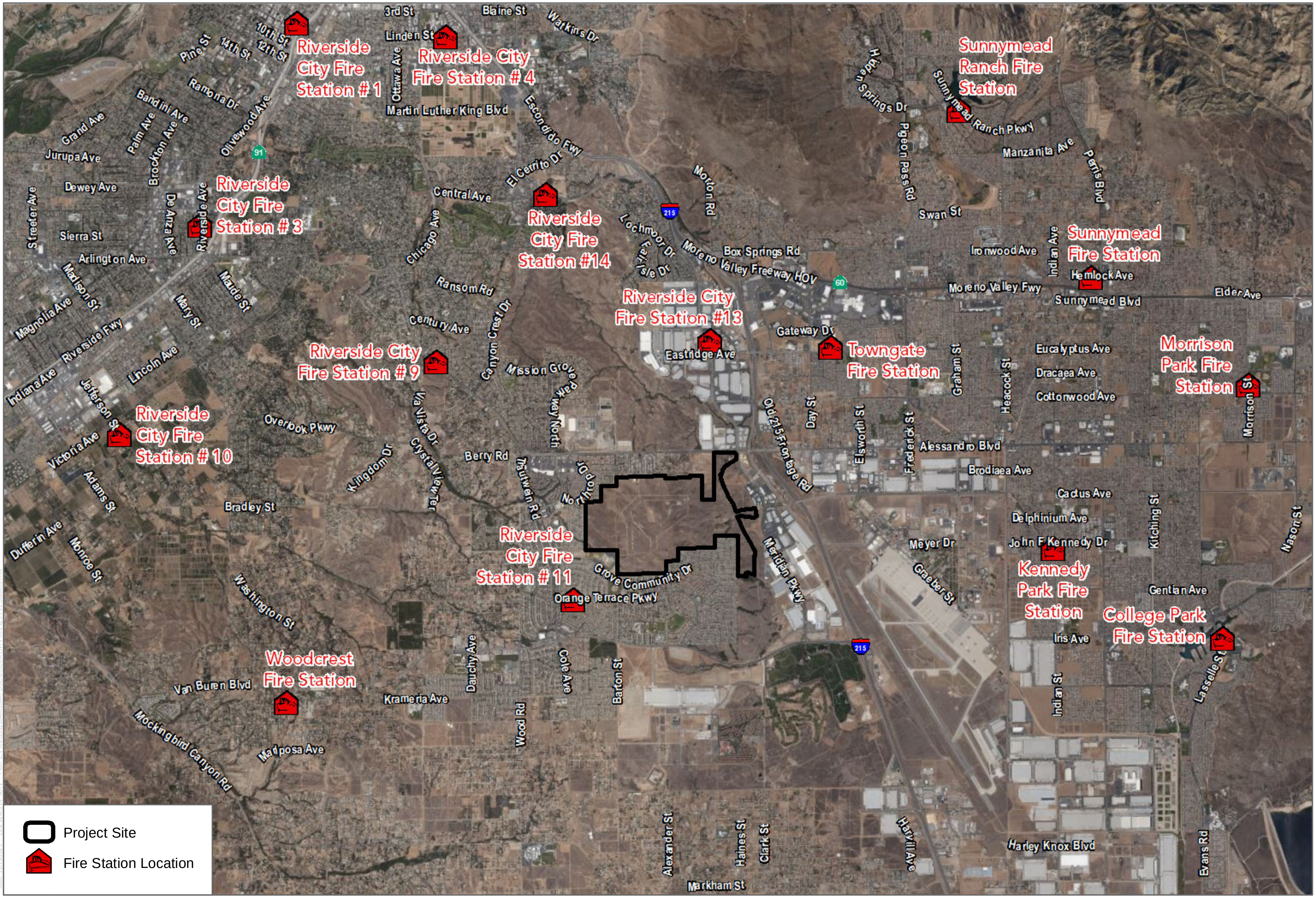

SOURCE: Bing Maps 2021; County of Riverside GIS data

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FIGURE 8

Fire Station Locations

Fire Protection Plan for West Campus Upper Plateau Project

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5 Buildings, Infrastructure and Defensible Space

The RCFD Fire Code and ~~2019~~2022 CFC and ~~2019~~2022 CBC adopted by reference (with several modifications with the adoption of Riverside County Ordinance 787.10) governs the building, infrastructure, and defensible space requirements detailed in this FPP. Although the Project is not required to comply with codes governing development within areas designated as High FHSZ, Very High FHSZs, and/or WUI, the Project will meet these codes (e.g. Chapter 7A) at the time the Project is submitted to the building and fire department for review and approval, or will provide alternative materials and/or methods, if warranted. The following summaries highlight important fire protection features.

A response map update, including roads and fire hydrant locations, in a format compatible with current RCFD mapping shall be provided to RCFD.

5.1 Fire Apparatus Access

5.1.1 Access Roads

The Project would involve the construction of new structures, roadways, and would generate new trips to and from the Project site. Project site access, including road widths and connectivity, will comply with the requirements of the County's Road Standards and Specifications (Ordinance 461~~).~~) and Fire Department Access Requirements for Commercial & Residential Development, Guideline OFM-01A. Additionally, an adequate water supply and approved paved access roadways shall be installed prior to any combustibles being brought onsite and will include:

- Primary access to the Project site is provided via Cactus Avenue on the eastern Project site boundary. Secondary access would be provided via Barton Street on the northwestern corner of the Project site.
- Internal circulation is comprised of a loop roadway system that connects both the primary and secondary access points. All interior circulation roads include all roadways that are considered common or primary roadways for traffic flow through the Project site and for fire department access serving all proposed lots. Any dead-end streets serving new structures that are longer than 150 feet will have approved provisions for fire apparatus turnaround.
- All roads comply with access road standards of not less than 24 feet, unobstructed width and are capable of supporting an imposed load of at least 75,000 pounds.
- Interior circulation streets and parking lot roadways that are considered roadways for traffic flow through the Project site will meet fire department access requirements when serving the proposed structures.
- Typical, interior Project roads, including collector and local roads, will be constructed to minimum 24-foot, unobstructed widths and shall be improved with aggregate cement or asphalt paving materials.
- Private or public streets that provide fire apparatus access to buildings three stories or more in height shall be improved to 30 feet unobstructed width.
- Private and public streets for each phase shall meet all Project approved fire code requirements, paving, and fuel management prior to combustible materials being brought to the Project site.

- Vertical clearance of vegetation (lowest-hanging tree limbs), along roadways will be maintained at clearances of 13 feet, 6 inches to allow fire apparatus passage.
- Cul-de-sacs and fire apparatus turnarounds will meet requirements and RCFD Fire Prevention Standards.
- Any roads that have traffic lights shall have approved traffic pre-emption devices (Opticom) compatible with devices on the Fire Apparatus.
- 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.
- 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.
- Access roads shall be usable by fire apparatus to the approval of RCFD prior to lumber drop onsite. Developer will provide information illustrating the new roads, in a format acceptable to the RCFD for updating of Fire Department response maps.

5.1.2 Dead-End Roads

- Each planning area varies in the number of ingress/egress roads or streets. Dead end streets no longer than 350 feet shall have approved provisions for fire apparatus turnaround or cul-de-sac. Cul-de-sac streets may exceed 350 feet, but not ~~600 feet in length with provisions for appropriate mitigations to the approval of the Fire Marshal or Fire Chief.~~ 800 feet in length in Moderate FHSZ.
- Fire apparatus turnarounds to include turning radius of a minimum ~~45~~26 feet~~,~~ measured to inside edge of improved width and 45 feet outside turning radius (RCFD Fire Prevention Standard).

5.1.3 Gates

Gates on private roads are permitted, but subject to Fire Code requirements and standards, including:

- Gates shall be equipped with conforming sensors for detecting emergency vehicle "opticom" strobe lights from any direction of approach, if required.
- All entrance gates will be equipped with a key switch, which overrides all command functions and opens the gate.
- Gate activation devices will be equipped with a battery backup or manual mechanical disconnect in case of power failure.
- Further, gates will be:
  - Minimum ~~20~~24 feet wide of clearance for one-way traffic when fully open at entrance.
  - Minimum of two feet wider than road width at exit.
  - Constructed from non-combustible or exterior fire-rated treated wood 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 or a vehicle (including a vehicle detection loop).

5.1.4 Driveways

Any structure that is 150 feet or more from a common street in the development shall have a paved fire apparatus access road meeting the following specifications:

- Grades 1514% or less with surfacing and sub-base consistent with Riverside CFCFire Department Access Requirements for Commercial & Residential Development, Guideline OFM-01A.

5.1.5 Premise Identification

Identification of roads and structures will comply with RCFD Fire Prevention Standards, as follows:

- All commercial/industrial structures required to be identified by street address numbers at the structure. Numbers to be minimum eight24 inches high with one1/2-inch stroke, visible from the street. Numbers will contrast with background and shall be electrically illuminated during the hours of darkness where building setbacks exceed 100140 feet from the street or would otherwise be obstructed; numbers shall be displayed at the property entrance monument. Numbers will contrast with background.
- Multiple structures located off common driveways or roadways will include posting addresses on structures and on the entrance to individual driveway/road or at the entrance to the common driveway/ road for faster emergency response.
- Proposed private and public streets within the development will be named, with the proper signage installed at intersections to satisfaction of the Department of Public Works.
- Streets will have street names posted on non-combustible street signposts; letters/numbers will be per RCFD standards.
- Temporary street signs shall be installed on all street corners within the Project prior to the placing of combustible materials on-site. Permanent signs shall be installed prior to occupancy of buildings.

5.1.6 On-going Infrastructure Maintenance

Project Owner/Property Management Company shall be responsible for long term funding and maintenance of internal private roads.

5.1.7 Pre-Construction Requirements

It is the recommendation of this FPP, prior to bringing lumber or combustible materials onto the Project site, improvements within the active development area shall be in place, including utilities, operable fire hydrants, an approved, temporary roadway surface, and construction phase fuel modification zones established. These features will be approved by the fire department or their designee prior to combustibles being brought on-site.

5.2 Ignition Resistant Construction and Fire Protection

All new structures within the Project site will be constructed to Fire Code standards. Each of the proposed buildings will comply with the enhanced ignition-resistant construction standards of the 20192022 CBC (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. Appendix D provides a summary of the requirements for ignition resistant construction.

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

5.3 Infrastructure and Fire Protection Systems Requirements

5.3.1 Water Supply

Water service for Project site will be provided by Western Municipal Water District (WMWD). All water storage and hydrant locations, mains, and water pressures would be designed to fully comply with Riverside County Fire Code Fire Flow Requirements.

The Project will be consistent with County Fire Code Section 8.32.050 and California Fire Code Section 9034904.2.1 for fire flow and fire hydrant requirements within a HFHSZ. These internal waterlines will also supply sufficient fire flows and pressure to meet the demands for required onsite fire hydrants and interior fire sprinkler systems for all structures. Water supply must meet a 2-hour fire flow requirement of 2,500 gpm, which must be over and above the daily maximum water requirements for this development. Water utilities will be connected prior to any construction.

5.3.2 Fire Hydrants

Fire Hydrants shall be located along fire access roadways and adjacent to each structure, as determined by the RCFD Fire Marshal and current fire code requirements to meet operational needs. Fire Hydrants will be consistent with applicable Design Standards.

5.3.3 Automatic Fire Sprinkler Systems

All structures, of any occupancy type, will be protected by an automatic, internal fire sprinkler system. Fire sprinklers systems shall be in accordance with RCFD, and National Fire Protection Association (NFPA) Standards 13. Fire sprinkler plans for each structure will be submitted and reviewed by RCFD for compliance with the applicable fire and life safety regulations, codes, and ordinances as well as the RCFD Fire Prevention Standards for fire protection systems.

5.4 Defensible Space and Vegetation Management

5.4.1 Defensible Space and Fuel Modification Zone (FMZ) Requirements

An important component of a fire protection system for the Project is the provision for fire-resistant landscapes and modified vegetation buffers. FMZs are designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the perimeter of the exposed structures outward toward areas of open space.

Perimeter structures will be located adjacent to FMZ areas that separate the Project from naturally vegetated open space areas surrounding the Project site's Development Footprint. Based on the modeled extreme weather flame lengths for the Project site, wildfire flame lengths are projected to be approximately between 1.32.0 to 18 feet high in areas of Development Footprint-adjacent grassland fuels. The fire behavior modeling system used to predict these flame lengths was not intended to determine sufficient FMZ widths, but it does provide the average predicted length of the flames, which is a key element for determining "defensible space" distances for providing firefighters with room to work and minimizing structure ignition. For the Project site the FMZ widths between the naturally vegetated open space areas and structures are proposed to be 100 feet (where achievable), approximately 5.5 times the modeled flame lengths based on the fuel type represented adjacent to the Development Footprint. The FMZs will be constructed from the structure outwards towards undeveloped areas.

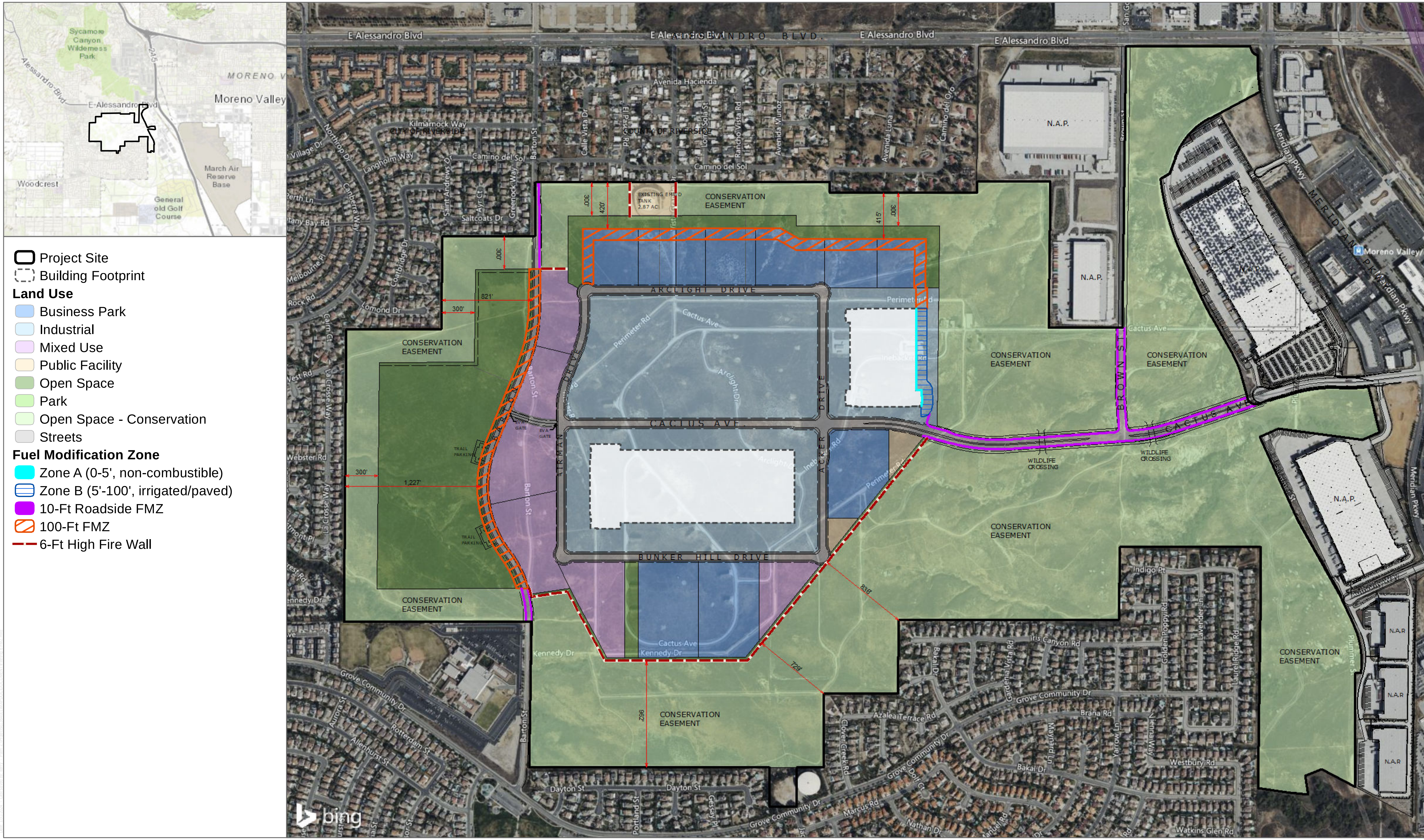
Figure 69 illustrates the FMZ Plan proposed for the Upper West Campus Plateau Project site, including a minimum 5-foot--wide non-combustible Zone A, a 25- to 95-foot wide irrigated Zone B, -and up to a 70-foot wide thinning Zone C. Additionally, there are Zone B equivalent areas, which include hardscape and landscape that provides equivalent function as a typical Zone B. The Zone B equivalent areas typically include roads, sidewalks and related landscape within the developed portions of the property. A fire access road extending from a minimum of 20-feet from the edge of any public or private roadway with 2010-feet of horizontal clearance on each side and 20-feet of vertical clearance is included as well. Additionally, to mitigate for the reduced FMZ in the southern and southeastern portions of the Project site, where the FMZ is less potentially less than than 100 feet, there will be enhanced construction features, such as ana 6-foot heat deflectingfire wall constructed of concrete masonry units (CMUs) or other RCFD approved non-combustible materials between on-site structures and unmaintained open space.

Although FMZs are very important for setting back structures from adjacent unmaintained fuels, the highest concern is considered to be from firebrands or embers as a principal ignition factor. on this site. To that end, the Project site, based on its location and ember potential, is recommended to include the latest ignition and ember resistant construction materials and methods for roof assemblies, walls, vents, windows, and appendages, as mandated for fire hazard severity zones by the RCFD and County's Fire and Building Codes (e.g., Chapter 7A).

Riverside County Fuel Modification Zone Standards

An FMZ is a strip of land where combustible vegetation has been removed and/or modified and partially or completely replaced with more adequately spaced, drought-tolerant, fire-resistant plants in order to provide a reasonable level of protection to structures from wildland fire. The purpose of the section is to document RCFD's standards and make them available for reference. However, we are proposing a site-specific fuel modification zone program with additional measures that are consistent with the intent of the standards. Riverside County Fire Code (Chapter 8.32) is consistent with the 2019 California Fire Code (Section 4907 — Defensible Space), Government Code 51175 – 51189, and Public Resources Code 4291, which require that fuel modification zones be provided around every building that is designed primarily for human habitation or use within a HFHSZ.

A typical landscape/fuel modification installation per the County's Fire Code consists of a 30-foot-wide Zone A and a 70-foot--wide Zone B for a total of 100—-feet in width. However, the Project will consist of a 5-foot--wide non-combustible Zone A, 25- to 95-foot wide irrigated Zone B or equivalent and up to a 70-foot wide thinning Zone C. A



SOURCE: AERIAL-BING MAPPING SERVICE; DEVELOPMENT- RGA 2022

DUDEK

0 405 810 Feet

FIGURE 9

Fuel Modification Plan

Fire Protection Plan for West Campus Upper Plateau Project

The Fuel Modification Plan herein and all subsequent Fuel Modification Plans prepared for the Development Area shall be reviewed and approved by the RCFD for consistency with defensible space and fire safety guidelines. Figure 6 conceptually9 displays conceptual FMZs for the Project site.

To ensure long-term identification and maintenance, a fuel modification area shall be identified by a permanent zone marker meeting the approval of RCFD. All markers will be located along the perimeter of the fuel modification area at a minimum of 500-feet apart or at any direction change of the fuel modification zone boundary. FMZs will be maintained on at least an annual basis or more often as needed to maintain the fuel modification buffer function.

An on-site inspection will be conducted by the RCFD upon completion of landscape install before a certificate of occupancy being granted by the County's building code official.

Project Fuel Modification Zone Treatments

Zone A: Non-Combustible Zone

Zone A extends 5-feet from buildings and structures.

The ember-resistant zone is currently not required by law, but science has proven it to be the most important of all the defensible space zones. This zone includes the area under and around all attached decks and requires the most stringent wildfire fuel reduction. The ember-resistant zone is designed to keep fire or embers from igniting materials that can spread the fire to your home.Project buildings. The following provides guidance for this zone, which may change based on the regulation developed by the Board of Forestry and Fire Protection.

- Use hardscape like gravel, pavers, concrete and other noncombustible mulch materials. No combustible bark or mulch.
- Remove all dead and dying weeds, grass, plants, shrubs, trees, branches and vegetative debris (leaves, needles, cones, bark, etc.); Check yourroofs, gutters, decks, porches, stairways, etc.
- Remove all branches within 10 feet of any chimney or stovepipe outlet
- Limit plants in this area to low growing, nonwoody, properly watered and maintained plants
- Limit combustible items (outdoor furniture, planters, etc.) on top of decks
- Relocate firewood and lumber to Zone 2B.
- Replace combustible fencing, gates, and arbors attach to the homestructures with noncombustible alternatives.
- Consider relocating garbage and recycling containers outside this zone.
- Consider relocating boats, RVs, vehicles and other combustible items outside this zone.

Zone B: Paved/Irrigated Zone

Zone B extends up to 100 feet from buildings and structures.

- Remove all dead plants, grass and weeds (vegetation).
- Remove dead or dry leaves and pine needles from your yardlandscaping, roof and rain gutters.

- Remove branches that hang over your roof and keep dead branches 10 feet away from your chimneyrooves.
- Trim trees regularly to keep branches a minimum of 10 feet from other trees.
- Relocate wood piles to Zone 2B.
- Remove or prune flammable plants and shrubs near windows.
- Remove vegetation and items that could catch fire from around and under decks, balconies and stairs.
- Create a separation between trees, shrubs and items that could catch fire, such as patio furniture, wood piles, swing sets, etc.

Zone C: Thinning Zone

Zone C extends from Zone B up to 100 feet from buildings and structures

- Cut or mow annual grass down to a maximum height of 4 inches.
- Create horizontal space between shrubs and trees. (See diagramFigure 10)
- Create vertical space between grass, shrubs and trees. (See diagramFigure 10)
- Remove fallen leaves, needles, twigs, bark, cones, and small branches. However, they may be permitted to a depth of 3 inches.
- All exposed wood piles must have a minimum of 10 feet of clearance, down to bare mineral soil, in all directions.

Fire Access Road Zone

Extends a minimum of 2010 feet from the edge of any public or private roadway that may be used as access for fire-fighting apparatus or resources adjacent to open space. Clear and remove flammable growth for a minimum of 2010 feet on each side of the access roads. Additional clearance beyond 2010 feet may be required upon inspection.

1. Required clearance extends a minimum of 2010 feet from the edge of any public or private roadway as well as an unobstructed vertical clearance of 20-feet.
2. Landscaping and native plants shall be appropriately spaced and maintained.
3. Trees found in Appendix ED can be planted, if they are far enough from structures and Fire Department accesses, and do not overhang any structures or access at maturity.

Roadside fuel modification for the Project consists of maintaining ornamental landscapes, including trees, clear of dead and dying plant materials. Roadside fuel modification shall be maintained by the Project.

Pre-Construction Requirements

- Perimeter fuel modification areas must be implemented and approved by the RCFD before combustible materials are brought on site.
- Existing flammable vegetation shall be reduced by 50% on vacant lots upon commencement of construction.
- Dead fuel, ladder fuel (fuel which can spread fire from the ground to trees), and downed fuel shall be removed, and trees/shrubs shall be properly limbed, pruned, and spaced per the plan.

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 combustible) or chemical (volatile chemicals increase flammability or combustion characteristics). The plants included in the FMZ Undesirable Plan List (refer to Appendix ED) are unacceptable from a fire safety standpoint and shall not be planted or allowed to establish opportunistically within the FMZs or landscape areas.

Figure 10. FMZ Spacing

Vertical and Horizontal Spacing Requirements for Planting Installation in Fuel Modification Zones

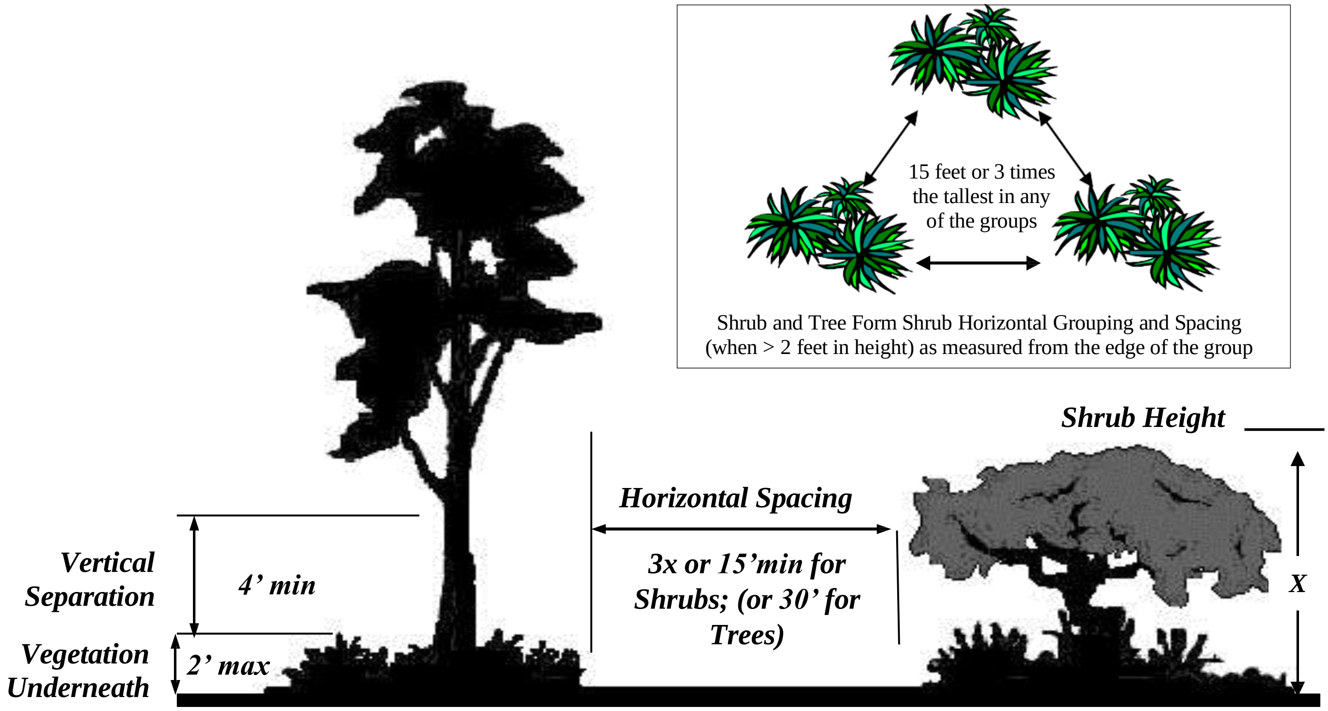


FIGURE 10

Requirements for Planting Installation in Fuel Modification Zones

5.4.2 Vegetation Management Maintenance

Vegetation management, i.e., assessment of the fuel modification zone and fuel modification area's condition and removal of dead and dying and undesirable species; as well as thinning as necessary to maintain specified plant spacing and fuel densities, shall be completed annually by May 1 of each year unless precipitation conditions warrant a later completion date, and more often as needed for fire safety, as determined by the RCFD. The vegetation management will be funded by the Project and shall be conducted by their contractor(s). The Project shall be responsible for all vegetation management throughout the development, in compliance with the Project FPP that is consistent with requirements.

The permanent fuel maintenance zones required for the Project will be maintained by the applicant during construction, and by the owner of each pad or a Property Management Association, which will be responsible for vegetation management once the Project is built out and the adjacent areas are developed. The Owner or Property Management Company will be responsible for streetscape and vegetation management in perpetuity.

On-going/as-needed fuel modification maintenance during the interim period while the Project is built out and adjacent parcels are developed, which may be one or more years, will include necessary measures for consistency with the FPP, including:

- Regular Maintenance of dedicated Open Space.
- Removal or thinning of undesirable combustible vegetation and replacement of dead or dying landscaping.
- Maintaining ground cover at a height not to exceed 18 inches. Annual grasses and weeds shall be maintained at a height not to exceed three inches.
- Removing accumulated plant litter and dead wood. Debris and trimmings produced by thinning and pruning should be removed from the Project site or chipped and evenly dispersed in the same area to a maximum depth of ~~four~~ 4 inches.
- Maintaining manual and automatic irrigation systems for operational integrity and programming. Effectiveness should be regularly evaluated to avoid over or under-watering.
- Complying with these FPP requirements on a year-round basis. Annual inspections are conducted following the natural drying of grasses and fine fuels, between the months of May and June, depending on precipitation during the winter and spring months.

5.4.3 Environmentally Sensitive Areas/Open Space

There should not be a need to modify the FMZ as it is planned to meet the fuel management needs of the Project site and comply with the fire code. However, if unforeseen circumstances were to arise that require hazard reduction within an area considered environmentally sensitive or part of the area designated Open Space Conservation, it may require approval from the County and the appropriate resource agencies (California Department of Fish and Game, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers) prior to any vegetation management activities occurring within those areas.

5.4.4 Prohibited Plants

Certain plants are considered prohibited 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 ED) are unacceptable from a fire safety standpoint and will not be planted on the Project site or allowed to establish opportunistically within fuel modification zones or landscaped areas.

5.4.5 Construction Phase Vegetation Management

Vegetation management requirements shall be implemented at commencement and throughout the construction phase. Vegetation management for the Project area shall be performed pursuant to the FPP and RCFD requirements 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. Combustible materials will not be brought on-site without prior fire department approval.

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 installed underground for fire safety purposes. Temporary construction power lines may be allowed in areas that have been cleared of combustible vegetation.
- 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.

Figure 6 Fuel Modification Zones Map

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6 Alternative Materials and Methods

As previously mentioned, due to the constraints within the southern and southeastern portions of the Project site, the full recommended FMZ may not be achievable, depending on the final location of structures. As such, this FPP incorporates the use of a heat-deflecting wall that will be positioned along the exposed boundary of the Development Area where the full FMZ is not achievable. This additional fire protection measure is customized for the Project site based on the analysis results and focus on providing functional equivalency as a 100 feet wide fuel modification zone adjacent to open space areas. Additionally, based on fire behavior analysis, fuels within the open space areas are not expected to pose a significant threat to Project structures.

Research has indicated that the closer a fire is to a structure, the higher the level of heat exposure (Cohen 2000). However, studies indicate that given certain assumptions (e.g., 10 meters of low fuel landscape, no open windows), wildfire does not spread to homes unless the fuel and heat requirements (of the home) are sufficient for ignition and continued combustion (Cohen 1995, Alexander et al. 1998). Construction materials and methods can prevent or minimize ignitions. Similar case studies indicate that with nonflammable roofs and vegetation modification from 10–18 meters (roughly 32–60 feet) in southern California fires, 85–95% of the homes survived (Howard et al. 1973, Foote and Gilless 1996). Similarly, San Diego County after fire assessments indicate strongly that the building codes are working in preventing home loss: of 15,000 structures within the 2003 fire perimeter, 17% (1,050) were damaged or destroyed. However, of the 400 structures built to the 2001 codes (the most recent at the time), only 4% (16) were damaged or destroyed. Further, of the 8,300 homes that were within the 2007 fire perimeter, 17% were damaged or destroyed. A much smaller percentage (3%) of the 789 homes that were built to 2001 codes were impacted and an even smaller percentage (2%) of the 1,218 structures built to the 2004 Codes were impacted (IBHS 2008). Damage to the structures built to the latest codes is likely from flammable landscape plantings or objects next to structures or open windows or doors (Hunter 2008).

Obstacles, including non-combustible walls can block or deflect all or part of the radiation and heat, thus making narrower fuel modification distances possible. Fire behavior modeling conducted for the Project indicates that fires in the open space area would result in roughly 10-foot flame lengths under summer conditions. Extreme conditions may result in longer flame lengths approaching 18 feet.

As indicated in this report, the FMZs and additional fire protection measures proposed for the Project provides an equivalent wildfire buffer for structures adjacent to open space land where the full FMZ is not achievable. These recommendations are based on a variety of analysis criteria including predicted flame length, fire intensity (Btu), Project site topography and vegetation, extreme and typical weather, position of structures on pads, position of roadways, adjacent fuels, fire history, current vs. proposed land use, neighboring communities relative to the Project, and type of construction. The fire intensity research conducted by Cohen (1995), Cohen and Butler (1996), and Cohen and Saveland (1997) and Tran et al. (1992) supports the fuel modification alternative proposed for the Project.

6.1 Additional Structural Protection Measures

The following additional measures will be implemented to “mitigate” potential structure fire exposure related to the reduced FMZs in the southern and southeastern portions of the Project site. These measures are customized for the Project site, its unique topographical and vegetative conditions, and focus on providing functional equivalency as a full fuel modification zone. As detailed in Section 5.6, the FMZ for the Project would include a minimum 5-foot non-combustible zone, up to 95-foot--wide irrigated zone or equivalent, and up to a 70-foot-wide thinning zone. In order to provide compensating structural protection in the absence of a 100-foot wide FMZ, and in addition to the structures being built to the latest ignition resistant codes, structures in the southern and southeastern portions of the Project site that are unable to achieve the full 100-foot FMZ will also include the following features for additional fire prevention, protection, and suppression:

1. Windows will be upgraded on the preserved vegetation side of the structures subject to FMZ less than 100 feet to include dual pane, both panes tempered, exceeding the code requirement.
2. Minimum 1-hour fire rated exterior walls and doors (including roll up doors); one layer of 5/8-inch type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing, from the foundation to the roof, for all exterior walls of each building facing the open space areas.
3. The vents will be ember-resistant for (recommend BrandGuard, O'Hagin, or similar vents). All vents used for this Project will be approved by RCFD.
4. A 6-foot heat deflectingtall fire wall will be constructed of concrete masonry units (CMUs) or other non-combustible materials with RCFD approval between on-site structures and unmaintained open space.
5. Annually hire a 3rd party inspector to evaluate FMZ areas site wide to confirm they meet the requirements of this FPP and RCFD.

Implementation of these additional fire protection features would justify a reduced FMZ. The information provided herein supports the ability of the proposed structures and FMZs to withstand the predicted short duration, low to moderate intensity wildfire, and ember shower that would be expected from a wildfire burning in the vicinity of the Project site or within the Project site's landscape.

7 Wildfire Education Program

The business owners of the Upper West Campus Specific Plan Project will be provided a proactive educational component disclosing the potential wildfire risk and this report's requirements. This educational information provided by the Owner or Property Management must include maintaining the landscape and structural components according to the appropriate standards and embracing a "Ready, Set, Go" stance on evacuation. All educational materials should be reviewed and approved by RCFD.

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8 Conclusion

The requirements and recommendations set forth in this FPP meet fire safety, building design ~~elements~~element, infrastructure, fuel management/modification, and landscaping recommendations of codes governing development in High and Very High FHSZ and WUI. The recommendations provided in the FPP have also been designed specifically for the proposed construction of structures within areas designated as FHSZ and/or WUI. When properly implemented on an ongoing basis, the fire protection strategies proposed in this FPP should significantly reduce the potential fire threat to vegetation on the community and its structures, as well as assist RCFD in responding to emergencies within the Project site. The fire protection system provided for the Project site includes a redundant layering of code-compliant, fire-resistant construction materials and methods that have been shown through post-fire damage assessments to reduce the risk of structural ignition. Additionally, modern infrastructure would be provided, and all structures are required to include interior, automatic fire sprinklers consistent with the County's regulatory standards. Further, the proposed fuel modification for structures adjacent to the open space areas would provide a buffer between fuels in the open space and structures within the Project site. ~~Note that this is a conceptual plan, which provides enough detail for RCFD approval. Detailed plans, such as improvement plans and building permits, demonstrating compliance with the concepts in the FPP and with County Fire Code requirements, would be submitted to RCFD at the time they are developed. This FPP also provides specific fuel modification requirements for the two proposed structures, which will also be approved along with the sitewide conceptual recommendations.~~

The requirements and recommendations provided in this FPP have been designed specifically for the Project. This analysis and its fire protection justifications are supported by fire science research, results from previous wildfire incidents, and fire agencies that have approved these concepts. The Project design features, asphalt roads and parking stalls, and a fully irrigated landscape, would provide a level of safety equal to a 100-foot wide FMZ.

Ultimately, it is the intent of this FPP to guide the fire protection efforts for the Project in a comprehensive manner. Implementation of the measures detailed in this FPP will reduce the risk of wildfire at the Project site and will improve the ability of firefighters to fight fires on the properties and protect property and neighboring resources, irrespective of the cause or location of ignition.

It must be noted that during extreme fire conditions, there are no guarantees that a given structure will not burn. Precautions and minimizing actions identified in this report are designed to reduce the likelihood that fire will impinge upon the Project's assets or threaten its visitors. Additionally, there are no guarantees that fire will not occur in the area or that fire will not damage property or cause harm to persons or their property. Implementation of the required enhanced construction features provided by the applicable codes and the fuel modification requirements provided in this FPP will reduce the Project site's vulnerability to wildfire. It will also help accomplish the goal of this FPP to assist firefighters in their efforts to defend structures.

It is recommended that the Upper West Campus Plateau Project maintain 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. The Project is not to be considered a shelter-in-place development. However, the fire agencies and/or law enforcement officials may, during an emergency, as they would for any new development providing the layers of fire protection as the Project, determine that it is safer to temporarily refuge employees or visitors on the Project site. When an evacuation is ordered, it will occur according to pre-established evacuation decision points 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.

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10 References

Anderson, Hal E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service Gen. Tech. Report INT-122. Intermountain Forest and Range Experiment Station, Ogden, UT. http://www.fs.fed.us/rm/pubs_int/int_gtr122.pdf

Andrews, P.L. 1980. Testing the fire behavior model. In Proceedings 6th conference on fire and forest meteorology. April 22–24, 1980. Seattle, WA: Society of American Foresters. Pp. 70–77.

Andrews, Patricia L.; Collin D. Bevins; and Robert C. Seli. 2008. BehavePlus fire modeling system, version 3.0: User's Guide. Gen. Tech. Rep. RMRS-GTR-106 Ogden, Utah: Department of Agriculture, Forest Service, Rocky Mountain Research Station. 132p.

Baltar, M., J.E. Keeley, and F. P. Schoenberg. 2014. County-level Analysis of the Impact of Temperature and Population Increases on California Wildfire Data. Environmetrics 25; 397-405.

Brown, J.K. 1972. Field test of a rate-of-fire-spread model in slash fuels. USDA Forest Service Res. Pap. Int-116. 24 p.

Brown, J.K. 1982. Fuel and fire behavior prediction in big sagebrush. USDA Forest Service Res. Pap. INT-290. 10p.

Bushey, C.L. 1985. Comparison of observed and predicted fire behavior in the sagebrush/ bunchgrass vegetation-type. In J.N. Long (ed.), Fire management: The challenge of protection and use: Proceedings of a symposium. Society of American Foresters. Logan, UT. April 17–19, 1985. Pp. 187–201.

California Building Standards Commission. 2019. California Building Standards Code (California Code of Regulations, Title 24). Published July 1, 2019; effective January 1, 2020. http://www.bsc.ca.gov/Codes.aspx.

CAL FIRE. 2018. Fire and Resource Assessment Program. California Department of Forestry and Fire. Website access via http://frap.cdf.ca.gov/data/frapgismaps/select.asp?theme=5.

Cohen, Jack D. 1995. Structure ignition assessment model (SIAM). In: Weise, D.R.; Martin, R.E., technical coordinators. Proceedings of the Biswell symposium: fire issues and solutions in urban interface and wildland ecosystems. 1994 February 15¬17; Walnut Creek, CA. Gen. Tech. Rep. PSW-GTR-158. Albany, California: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 85–92

Cohen, J.D. 2000. Preventing disaster: home ignitability in the wildland-urban interface. Journal of Forestry 98(3): 15–21.

Cohen, J.D. and Butler, B.W. [In press]. 1996. Modeling potential ignitions from flame radiation exposure with implications for wildland/urban interface fire management. In: Proceedings of the 13th conference on fire and forest meteorology. October 27–31; Lorne, Victoria, Australia. Fairfield, Washington: International Association of Wildland Fire.

Cohen, J.D. and Saveland, J. 1997. Structure Ignition Assessment Can Help Reduce Fire Damages in the W-UI. Fire Management Notes 57(4): 19–23.

FireFamily Plus. 2008. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 124 p http://www.firelab.org/project/firefamilyplus.

FRAP (Fire and Resource Assessment Program). 2007. Fire Hazard severity Zones in SRA. Adopted by California Department of Forestry and Fire Protection on November 7, 2007. Accessed August 2021. https://frap.fire.ca.gov

Grabner, K., J. Dwyer, and B. Cutter. 1994. "Validation of Behave Fire Behavior Predictions in Oak Savannas Using Five Fuel Models." Proceedings from 11th Central Hardwood Forest Conference. 14 p.

Grabner, K.W. 1996. "Validation of BEHAVE fire behavior predictions in established oak savannas." M.S. thesis. University of Missouri, Columbia.

Grabner, K.W., J.P. Dwyer, and B.E. Cutter. 2001. "Fuel model selection for BEHAVE in Midwestern oak savannas." Northern Journal of Applied Forestry. 18: 74–80.

Keeley, J.E. 2005. Fire history of the San Francisco East Bay region and implications for landscape patterns. International Journal of Wildland Fire 14:285-296. http://www.werc.usgs.gov/seki/pdfs/K2005_East%20Bay%20Fire%20History_IJWF.pdf

Keeley, J.E. 2006. Fire Management impacts on invasive plants in the Western United States. Conservation Biology 20:375-384.

Keeley, J.E. and CJ Fotheringham. 2001. Historic Fire Regime in Southern California Shrublands. Conservation Biology, Pages 1536-1548, Volume 15, No. 6.

Keeley, J.E., and P.H. Zedler. 2009. "Large, High-Intensity Fire Events in Southern California Shrublands: Debunking the Fine-Grain Age Patch Model." Ecological Applications 19:69–94.

Keeley, J.E. and S.C. Keeley. 1984. Post fire recovery of California coastal sage scrub. The American Midland Naturalist 111:105-117.

Linn, R. 2003. "Using Computer Simulations to Study Complex Fire Behavior." Los Alamos National Laboratory, MS D401. Los Alamos, NM.

McCreary, D.D. 2004. Fire in California's Oak Woodlands. University of California Cooperative Extension. Integrated Hardwood Range Management Program. 8 pp.

Mensing, S.A., J. Michaelsen, and R. Byrne. 1999. "A 560-Year Record of Santa Ana Fires Reconstructed from Charcoal Deposited in the Santa Barbara Basin, California." Quaternary Research 51:295–305.

Moritz, M.A. 2003. Spatiotemporal analysis of controls on shrubland fire regimes: age dependency and fire hazard. Ecology. 84(2):351-361. http://nature.berkeley.edu/moritzlab/docs/Moritz_2003_Ecology.pdf

Nichols, K., F.P. Schoenberg, J. Keeley, and D. Diez. 2011. "The Application of Prototype Point Processes for the Summary and Description of California Wildfires." Journal of Time Series Analysis 32(4): 420–429.

Pavlik, Bruce M. Muick, Pamela C. Johnson, Sharon G. and Popper Marjorie. 1991. Oaks of California. Cachuma Press, Los Olivos, CA. Remote Automated Weather Stations (RAWS). 2007.

Romero-Calcerrada R, Novillo CJ, Millington JDA, Gomez-Jimenez I (2008) GIS analysis of spatial patterns of human-caused wildfire ignition risk in the SW of Madrid (Central Spain). Landscape Ecology 23, 341–354. doi:10.1007/S10980-008-9190-2

Rothermel, R.C. 1983. How to predict the spread and intensity of forest and range fires. GTR INT-143. Ogden, Utah: USDA Forest Service Intermountain Research Station.161.

Rothermel, R.C., and G.C. Rinehart. 1983. Field Procedures for Verification and Adjustment of Fire Behavior Predictions. Res. Pap. INT-142. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 25 p.

Rothermel, Richard C. 1991. Predicting behavior and size of crown fires in the northern Rocky Mountains. Research Paper INT-438. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

Scott, Joe H. and Robert E. Burgan. 2005. Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.

Schroeder, M.J. and C.C. Buck. 1970. Fire weather – A guide for application of meteorological information to forest fire control operation. USDA Forest Service Agricultural Handbook 36D.

Syphard, Alexander D, Volker C Radeloff, Jon E. Keeley, Todd J. Hawbaker, Murray K. Clayton, Susan I. Stewart, Roger B. Hammer. 2007. Human Influence on California Fire Regimes. Ecological Applications. https://doi.org/10.1890/06-1128.1

Syphard, Alexander D, Jon E Keeley, and Teresa J. Brennan. 2011. Comparing the role of fuel breaks across southern California national forests. Forest Ecology and Management 261 (2011) 2038–2048.

Syphard AD, Bar Massada A, Butsic V, Keeley JE (2013) Land use planning and wildfire:development policies influence future probability of housing loss. PLoS ONE 8(8), e71708. doi:10.1371/JOURNAL. PONE.0071708Syphard AD, Keeley JE. 2016. Historical reconstructions of California wildfires vary by data source. International Journal of Wildland Fire 25, 1221–1227. doi:10.1071/WF16050

Syphard, Alexandra D. and Jon E. Keeley. 2015. Location, timing and extent of wildfire vary by cause of ignition. International Journal of Wildland Fire. 11 pp.

Weise, D.R. and J. Regelbrugge. 1997. Recent chaparral fuel modeling efforts. Prescribed Fire and Effects Research Unit, Riverside Fire Laboratory, Pacific Southwest Research Station. 5p.

Weise, D.R. and J. Regelbrugge. 1997. Recent chaparral fuel modeling efforts. Prescribed Fire and Effects Research Unit, Riverside Fire Laboratory, Pacific Southwest Research Station. 5p.

WRCC, 2021. Period of Record Monthly Climate Summary, Riverside, California (047470). Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7470

Wright, H.E. and M.L. Heinselman. 1973. The ecological role of fire in natural conifer forests of western and northern North America; Introduction. *Quaternary Research* 3:317-328.

Appendix A
Photograph Log

Photograph 1. View of an existing dirt access road and the low-lying grass-shrub vegetation along the rear yards of the existing single-family residential community to the north of the Project site. Photograph taken facing east standing just inside of the Vista Grande Drive paved road terminus.

Photograph 2. View of the existing Vista Grande Dr. dirt road access road and the low-lying grass-shrub vegetation in the northern portion of the Project site (open space-conservation and open space areas). Photograph taken facing south standing just inside of the Vista Grande Drive paved road terminus.

Photograph 3. View of an existing on-site public facility (water tank) located at the terminus of Vista Grande Drive. Photograph taken facing southwest standing just inside of the Vista Grande Drive paved road terminus.

Photograph 4. View looking north towards the existing single-family residential community to the north of the Project site. Photograph taken facing north standing just inside of the Vista Grande Drive paved road terminus. Note the gate marks the end of the paved portion of Vista Grande Drive.

Photograph 5. View of the on-site Vista Grande Dr. dirt road access road and the low-lying grass-shrub vegetation located in the northern portion of the Project site (open space-conservation and open space areas). Photograph taken facing south/southeast standing along the Vista Grande Drive dirt access road.

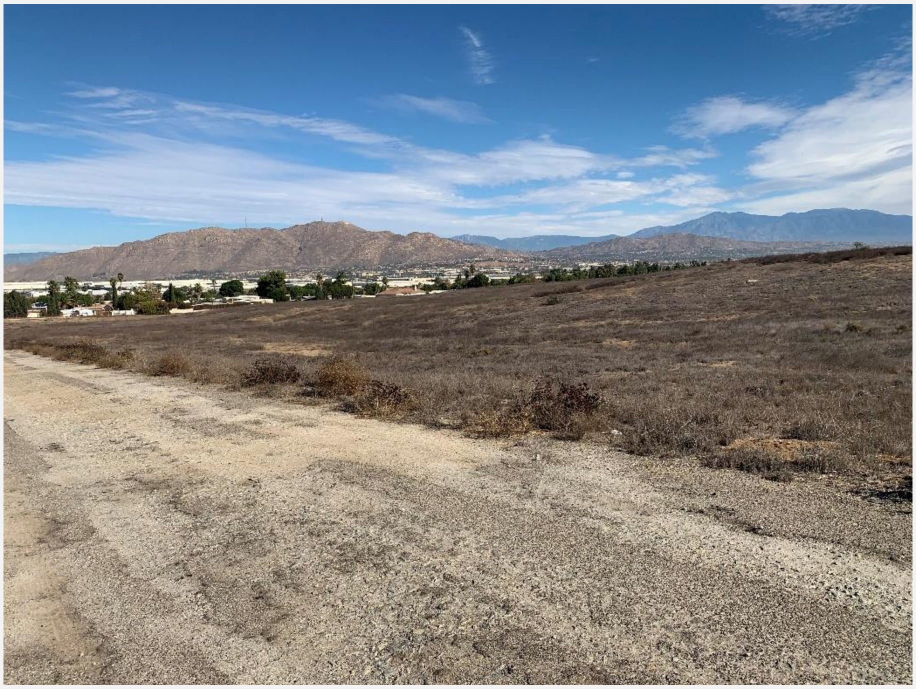
Photograph 6. Photograph example of the low-lying grass-shrub vegetation that is located throughout the entire Project site (represented as Gr1 – short, sparse dry-climate grass, Gr2 – low load dry climate grasses, and Gs1 – low load grass-shrub). Specific image taken in the northern portion of the Project site.

Photograph 7. View of the on-site low-lying grass-shrub vegetation located in the northern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing south/southeast standing along the Vista Grande Drive dirt access road.

Photograph 8. View of the on-site Vista Grande Drive dirt access road and low-lying grass-shrub vegetation located in the northern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing south/southwest standing along the Vista Grande Drive dirt access road.

Photograph 9. View of the on-site low-lying grass-shrub vegetation located in the northwestern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing west standing along the dirt access road just outside of the retired AFB fenced facilities area.

Photograph 10. View of the on-site low-lying grass-shrub vegetation located in the northwestern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing northwest standing along the dirt access road just outside of the retired AFB fenced facilities area.



Photograph 11. View of the on-site low-lying grass-shrub vegetation located in the northern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing north/northeast standing along the Vista Grande Drive dirt access road.

Photograph 12. View of the on-site low-lying grass-shrub vegetation located in the northwestern portion of the Project site, just outside of the fenced AFB facility (proposed business park area). Photograph taken facing west/northwest standing along the dirt access road just outside of the retried AFB fenced facilities area.

Photograph 13. View of the on-site low-lying grass-shrub vegetation located in the northwestern portion of the Project site, looking east towards the Vista Grande Drive access road (proposed business park area). Photograph taken facing east standing along the dirt access road just outside of the retired AFB fenced facilities area.

Photograph 14. View of the on-site low-lying grass-shrub vegetation located in the northwestern portion of the Project site, looking west towards the western property boundary. Photograph taken facing west standing along the dirt access road just outside of the retired AFB fenced facilities area.

Photograph 15. View of the on-site low-lying grass-shrub vegetation located in the northeastern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing northeast standing along the dirt access road just outside of the retired AFB fenced facilities area.

Photograph 16. View of the on-site low-lying grass-shrub vegetation located in the northeastern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing north standing along the dirt access road just outside of the retired AFB fenced facilities area.

Photograph 17. View of the on-site low-lying grass-shrub vegetation located in the northern portion of the Project site, just outside of the fenced retired AFB facility (proposed business park area). Photograph taken facing north looking at the existing Vista Grande Drive entrance standing along the dirt access road just outside of the retired AFB fenced facilities area.

Photograph 18. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation located along the proposed Arclight Drive road. Photograph taken facing east standing at corner of Airman Drive and Arclight Drive.

Photograph 19. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation located along the proposed Arclight Drive road. Photograph taken facing southeast standing along Arclight Drive in the center of the site.

Photograph 20. Photograph taken inside the fenced retired AFB facilities area of existing structures and the on-site low-lying grass-shrub vegetation located south of Arclight Drive. Photograph taken facing southeast standing along Arclight Drive.

Photograph 21. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation located in the northeastern portion of the project site, just north of Arclight Drive. Photograph taken facing northwest.

Photograph 22. Photograph taken inside the fenced retired AFB facilities area of existing structures located at the eastern end of Arclight Drive. Photograph taken facing east standing along proposed Arclight Drive.

Photograph 23. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation located in the eastern portion of the project site, just south of proposed Arclight Drive. Photograph taken facing south standing along proposed Arclight Drive.

Photograph 24. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation and existing Linebacker Drive located in the eastern portion of the project site. Photograph taken facing southeast standing at the intersection of the existing Arclight Drive and Linebacker Road.

Photograph 25. Photograph taken inside the fenced retired AFB facilities area of existing structures located at the eastern end of Arclight Drive. Photograph taken facing east/southeast.

Photograph 26. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation located in the eastern/northeastern portion of the project site (proposed Industrial area). Photograph taken facing northeast.

Photograph 27. Photograph taken inside the fenced retired AFB facilities area of the on-site low-lying grass-shrub vegetation located in the eastern/northeastern portion of the project site (proposed Industrial area). Photograph taken facing west.

Photograph 28. Photograph taken inside the fenced retired AFB facilities area of existing structures and the low-lying grass-shrub vegetation located in the center of the Project site. Photograph taken facing north standing along the existing Linebacker Road.

Photograph 29. Photograph taken inside the fenced retired AFB facilities area of existing structures located along the east side of the existing Linebacker Road. Photograph taken facing south standing along the existing Linebacker Road.

Photograph 30. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the southern portion of the Project site. Photograph taken facing south/southwest towards the southern open space-conservation area.

Photograph 31. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the southern portion of the Project site. Photograph taken facing west along the southern AFB fenced area.

Photograph 32. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the southern portion of the Project site. Photograph taken facing south/southwest towards the southern open space-conservation area.

Photograph 33. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the southern portion of the Project site. Photograph taken facing north standing at the intersection of the existing Airman Drive and Cactus Circle East.

Photograph 34. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the southern portion of the Project site. Photograph taken facing south/southwest towards the southern open space-conservation area.

Photograph 35. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the western portion of the Project site. Photograph taken facing west.

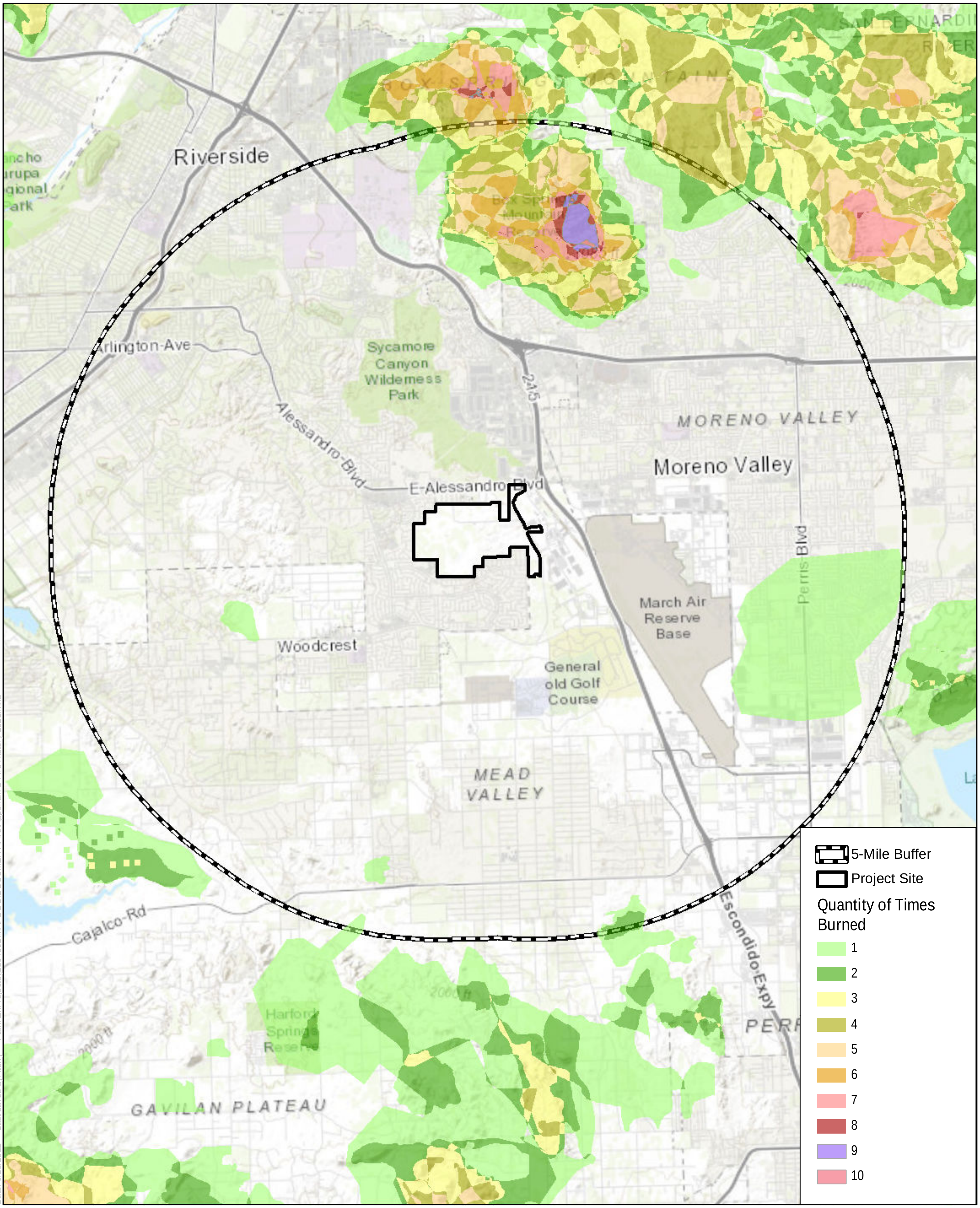
Photograph 36. View of an existing dirt access road and the low-lying grass-shrub vegetation along the rear yards of the existing single-family residential community to the north of the Project site. Photograph taken facing east.

Photograph 37. Photograph taken inside the fenced retired AFB facilities area of low-lying grass-shrub vegetation located in the western portion of the Project site. Photograph taken facing west.

Photograph 38. Photograph taken of the open space vegetation located along the northern side E. Alessandro Blvd.

Photograph 39. Photograph of the existing dirt road access road along the single-family homes north of the project site and the low-lying grass-shrub vegetation in the northeastern portion of the Project site (open space-conservation and open space areas). Photograph taken facing west.

Appendix B
Fire History



SOURCE: BASE MAP- ESRI MAPPING SERVICE; FIRE DATA-CALFIRE 2021

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APPENDIX B

Fire History Map

Fire Protection Plan for West Campus Upper Plateau Project

Appendix C
Fire Behavior Analysis

1 BehavePlus Fire Behavior Modeling History

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 6.0, 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 conducted on this site includes a relatively high-level of detail and analysis which results in reasonably accurate representations of how wildfire may move through available fuels on and adjacent the property. 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, this analysis incorporated predominant fuel characteristics, slope percentages, and representative fuel models observed on site. The BehavePlus fire behavior modeling system was used to analyze anticipated fire behavior within and adjacent to key areas just outside of the proposed lots. 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/defensible space 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[1] and the five custom fuel models developed for Southern California[2]. 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[3] 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:

- Grass — Models GR1 through GR9
- Grass-shrub — Models GS1 through GS4
- Shrub — Models SH1 through SH9

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1 Anderson, Hal E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. USDA Forest Service Gen. Tech. Report INT-122. Intermountain Forest and Range Experiment Station, Ogden, UT.

2 Weise, D.R. and J. Regelbrugge. 1997. Recent chaparral fuel modeling efforts. Prescribed Fire and Effects Research Unit, Riverside Fire Laboratory, Pacific Southwest Research Station. 5p.

3 Scott, Joe H. and Robert E. Burgan. 2005. Standard fire behavior fuel models: a comprehensive set for use with Rothermel's surface fire spread model. Gen. Tech. Rep. RMRS-GTR-153. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 72 p.

- 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 West Campus Upper Plateau Project (Proposed Project) 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.

2 Fuel Models

Dudek utilized the BehavePlus software package to analyze fire behavior potential for the Proposed Project site in Riverside County. As is customary for this type of analysis, five scenarios were evaluated, including two summer, onshore weather condition (northwest and southwest of the Project Site) and three extreme fall, offshore weather condition (northeast, east, and south of the Project Site). The Project site is located on the former March Air Force Base (AFB) munitions bunker in the western portion of the March JPA planning area. The Project site is surrounded by single-family residential homes to the north, south, and west and commercial buildings to the east. With that said, fuels and terrain within and adjacent to the Project development area could produce flying embers that may affect the project, but defenses have been built into the structures to prevent ember penetration and to extinguish fires that may result from ember penetration. It is the fuels directly adjacent to and within fuel modification zones 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. 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.

2.1 Vegetation (Fuels)

To support the fire behavior modeling efforts conducted for this FPP, the different vegetation types observed within the project areas and adjacent to the developed portion of the project site were classified into the aforementioned numeric fuel models. As is customary for this type of analysis, the terrain and fuels within the project areas and adjacent to the developed portion of the project site 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 Project site is located on the former March AFB munitions bunker in the western portion of the March JPA planning area. The Project site surface conditions generally consist of unimproved earthen terrain, with mostly low-load native grasses and grass-shrub vegetation communities. Vegetation types were derived from a site visit that was conducted on November 16, 2021 by a Dudek Fire Protection Planner. Based on the site visit and the anticipated pre- and post- Project vegetation conditions, three different fuel models were used in the fire behavior modeling effort to represent the current vegetation conditions throughout the Project site and one additional fuel model was used to depict a fire post construction, as presented herein. Fuel model attributes are summarized in Table 1. Modeled areas include short/sparse to low-load grasses (Gr1 and Gr2) throughout the project site, intermixed with low load grass/shrubs communities (Gs1). For modeling the post-development condition, fuel model assignments were re-classified to FM8 representing an irrigated landscape and Gs2 representing 50% thinning grass landscape up to 100 feet from the structures.

Table 1: Existing Fuel Model Characteristics

Fuel Model	Description	Location	Fuel Bed Depth (Feet)
Gr1	Short, sparse, dry climate grasses	Fuel type exists throughout the entire project site.	1.0 ft.
Gr2	Low load, dry climate grasses	Fuel type exists throughout the entire project site; Fuel type will represent post development 50% thinning zone.	>2.0 ft.
Gs1	Low Load, dry climate grass-shrub	Fuel type intermixed throughout the project site.	<3.0 ft.
FM8	Short needle litter	Fuel type representing post development fully irrigated setback and irrigated zones	<1.0 ft.

2.2 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. The site is mostly flat with slopes approximately 4 to 7% throughout measured around the perimeter of the proposed project site from U.S. Geological Survey (USGS) topographic maps.

2.3 Weather

Historical weather data for the Riverside County region was utilized in determining appropriate fire behavior modeling inputs for the Proposed Project area fire behavior evaluations. To evaluate different scenarios, data from both the 50th and 97th percentile moisture values were derived from Remote Automated Weather Station (RAWS) and utilized in the fire behavior modeling efforts conducted in support of this report. Weather data sets from the Clark RAWS[4] were utilized in the fire modeling runs.

RAWS fuel moisture and wind speed data were processed utilizing the Fire Family Plus software package to determine atypical (97th percentile) and typical (50th percentile) weather conditions. Data from the RAWS was evaluated from August 1 through November 30 for each year between 2000 and 2021 (extent of available data record) for 97th percentile weather conditions and from June 1 through September 30 for each year between 2000 and 2021 for 50th percentile weather conditions.

Following analysis in Fire Family Plus, fuel moisture information was incorporated into the Initial Fuel Moisture file used as an input in BehavePlus. Wind speed data resulting from the Fire Family Plus analysis was also

4 https://wrcc.dri.edu/cgi-bin/rawMAIN.pl?caCCLK
Latitude: 33.856239 Longitude: -117.273220; Elevation: 1,720 ft.)

determined. Initial wind direction and wind speed values for the two BehavePlus runs were manually entered during the data input phase. The input wind speed and direction is roughly an average surface wind at 20 feet above the vegetation over the analysis area. Table 2 summarizes the wind and weather input variables used in the Fire BehavePlus modeling efforts.

Table 2: Variables Used for Fire Behavior Modeling

Model Variable	Summer Weather (50th Percentile)	Peak Weather (97th Percentile)
Fuel Models	FM8, Gr1, Gr2, and Gs1	FM8, Gr1, Gr2, and Gs1
1 h fuel moisture	5%	1%
10 h fuel moisture	6%	4%
100 h fuel moisture	12%	6%
Live herbaceous moisture	45%	30%
Live woody moisture	95%	60%
20 ft. wind speed	14 mph (sustained winds)	17 mph (sustained winds); wind gusts of 50 mph
Wind Directions from north (degrees)	260 and 300	45, 100 and 180
Wind adjustment factor	0.4	0.4
Slope (uphill)	4 to 5%	5 to 7%

3 Fire Behavior Modeling Efforts

As mentioned, the BehavePlus fire behavior modeling software package was utilized in evaluating anticipated fire behavior adjacent to the Proposed Project site. Five focused analyses were completed for both the existing project site conditions and the post project conditions, each assuming worst-case fire weather conditions for a fire approaching the project site from the northwest, southwest, east, south, and southwest. The results of the modeling effort included anticipated values for surface fires (flame length (feet), rate of spread (mph), fireline intensity (Btu/ft/s), and 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. Three fire modeling scenario locations were selected to better understand the different fire behavior that may be experienced on or adjacent the site based on slope and fuel conditions; these three fire scenarios are explained in more detail below:

Fire Scenario Locations and Descriptions:

- **Scenario 1:** A summer, on-shore fire (50th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the northwestern portion of the Project site. The terrain is flat (approximately 5% slope) with potential ignition sources from a car or single-family residential structure fire north/west of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.

- **Scenario 2:** A fall, off-shore fire (97th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the northeastern portion of the Project site. The terrain is flat (approximately 7% slope) with potential ignition sources from a car or structure fire north/east of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.
- **Scenario 3:** A fall, off-shore fire (97th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the eastern portion of the Project site. The terrain is flat (approximately 5% slope) with potential ignition sources from a car or structure fire east of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.
- **Scenario 4:** A fall, off-shore fire (97th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the southern portion of the Project site. The terrain is flat (approximately 6% slope) with potential ignition sources from a car or structure fire south of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.
- **Scenario 5:** A summer, on-shore fire (50th percentile weather condition) burning in sparse to low-load grasses and grass-shrub dominated vegetation in the southwestern portion of the Project site. The terrain is flat (approximately 5% slope) with potential ignition sources from a car or structure fire south/west of the property. This type of fire would typically spread relatively slow within the project area before reaching the developed portion of the Project site.

4 Fire Behavior Modeling Results

The results presented in Tables 3 and 4 depict values based on inputs to the BehavePlus software and are not intended to capture changing fire behavior as it moves across a landscape. Changes in slope, weather, or pockets of different fuel types are not accounted for in this analysis. For planning purposes, the averaged worst-case fire behavior is the most useful information for conservative fuel modification design. 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.

Based on the BehavePlus analysis, wildfire behavior on the Project site is expected to be primarily of low to moderate intensity throughout the non-maintained surface grasses and grass-shrub dominated fuels throughout the entire Project site. Worst-case fire behavior is expected in untreated, surface grass-/grass-shrubs vegetation under peak weather conditions (represented by Fall Weather, Scenario 3). The fire is anticipated to be a wind-driven fire from the east/southeast during the fall. Under such conditions, expected surface flame length is expected to be significantly lower in the areas where fuel modification occurs, with flames lengths reaching approximately 18 feet with wind speeds of 50+ mph. Under this scenario, fireline intensities reach 3,037 BTU/feet/second with moderate spread rates of 6.2 mph and could have a spotting distance up to 1.5 miles away.

Fires burning from the southwest/northwest and pushed by ocean breezes typically exhibit less severe fire behavior due to lower wind speeds and higher humidity. Under typical onshore weather conditions, a low-load grass/grass-shrub vegetation fire could have flame lengths between approximately 2 feet and 6 feet in height and spread rates between 0.2 and 0.7 mph. Spotting distances, where airborne embers can ignite new fires downwind of the initial fire, range from 0.1 to 0.3 miles.

Based on the BehavePlus analysis (Table 4), post development fire behavior is expected in irrigated and replanted with plants that are acceptable with the Riverside County Fire Department (RCFD) (Zone A and Zone B – FM8), as well in a thinned area of the existing grasses and shrubs (Zone C – Gr2) under peak weather conditions (represented by Fall Weather, Scenario 3). Under such conditions, expected surface flame length is expected to be significantly lower in the areas where fuel modification occurs, with flames lengths reaching approximately 18 feet with wind speeds of 50+ mph. Under this scenario, fireline intensities reach 3,037 BTU/feet/second with relatively slow spread rates of 6.2 mph and could have a spotting distance up to 1.3 miles away. Therefore, the 100-foot Fuel Modification Zone (FMZ) proposed for the West Campus Upper Plateau Project is approximately 5-times the flame length of the worst case fire scenario under peak weather conditions and would provide adequate defensible space to augment a wildfire approaching the perimeter of the Project site.

Table 3: RAWS BehavePlus Fire Behavior Model Results – Existing Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)[5]	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles)[6]
Scenario 1: 5% slope, Summer, On-shore Winds from the northwest (Current conditions)				
Sparse load grasses (Gr1)	2.1	0.2	28	0.1
Low load grasses (Gr2)	5.8	0.7	258	0.2
Low load grass-shrubs (Gs1)	3.9	0.3	111	0.2
Scenario 2: 7% slope, Fall, Offshore, Extreme Fall Winds from the northeast (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.1 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	873 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	7.0 (14.0)	0.7 (3.0)	385 (1,763)	0.3 (1.1)
Scenario 3: 5% slope, Fall, Offshore, Extreme Fall Winds from the east (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.2 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	870 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	6.9 (14.0)	0.7 (3.0)	384 (1,763)	0.3 (1.1)
Scenario 4: 6% slope, Fall, Offshore, Extreme Fall Winds from the south (Current conditions)				
Sparse load grasses (Gr1)	4.0 (4.0)	0.7 (0.7)	115 (115)	0.2 (0.5)
Low load grasses (Gr2)	10.1 (18.0)	1.8 (6.2)	867 (3,037)	0.4 (1.3)
Low load grass-shrubs (Gs1)	7.0 (14.0)	0.6 (3.0)	383 (1,763)	0.3 (1.1)
Scenario 5: 4% slope, Summer, Onshore Winds from the southwest (Current conditions)				
Sparse load grasses (Gr1)	2.1	0.2	28	0.1
Low load grasses (Gr2)	6.3	0.9	311	0.3
Low load grass-shrubs (Gs1)	4.3	0.3	133	0.2

[5] mph = miles per hour

[6] Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 50 mph.

Table 4: RAWS BehavePlus Fire Behavior Model Results – Post Project Conditions

Fire Scenario	Flame Length (feet)	Spread Rate (mph)[7]	Fireline Intensity (Btu/ft./sec)	Spot Fire (Miles)[8]
Scenario 1: 5% slope, Summer, On-shore Winds from the northwest (Current conditions)				
FMZ Zone A and B (FM8)	1.3	0.0	9	0.1
FMZ Zone C (Gr2)	5.8	0.7	258	0.2
Scenario 2: 7% slope, Fall, Offshore, Extreme Fall Winds from the northeast (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	873 (3,037)	0.4 (1.3)
Scenario 3: 5% slope, Fall, Offshore, Extreme Fall Winds from the east (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	870 (3,037)	0.4 (1.3)
Scenario 4: 6% slope, Fall, Offshore, Extreme Fall Winds from the south (Current conditions)				
FMZ Zone A and B (FM8)	2.0 (3.0)	0.1 (0.2)	25 (62)	0.1 (0.4)
FMZ Zone C (Gr2)	10.1 (18.0)	1.8 (6.2)	867 (3,037)	0.4 (1.3)
Scenario 5: 4% slope, Summer, Onshore Winds from the southwest (Current conditions)				
FMZ Zone A and B (FM8)	1.4	0.0	11	0.1
FMZ Zone C (Gr2)	6.3	0.9	311	0.3

The following describes the fire behavior variables (Heisch and Andrews 2010) as presented in Tables 3 and 4:

Surface Fire:

- Flame Length (feet): The flame length 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.
- Fireline Intensity (Btu/ft/s): Fireline intensity is the heat energy release per unit time from a one-foot wide section of the fuel bed extending from the front to the rear of the flaming zone. Fireline intensity is a function of rate of spread and heat per unit area, and is directly related to flame length. Fireline intensity and the flame length are related to the heat felt by a person standing next to the flames.
- Surface Rate of Spread (mph): Surface rate of spread is the "speed" the fire travels through the surface fuels. Surface fuels include the litter, grass, brush and other dead and live vegetation within about 6 feet of the ground.

The information in Table 5 presents an interpretation of the outputs for five fire behavior variables as related to fire suppression efforts. The results of fire behavior modeling efforts are presented in Tables 3 and 4. Identification of modeling run locations is presented graphically in Figure 4 of the FPP.

[7] mph = miles per hour
[8] Spotting distance from a wind driven surface fire; it should be noted that the wind mph in parenthesis represent peak gusts of 45 mph.

Table 5: 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.

Appendix ~~E~~D

Prohibited and Suggested Plant Lists

Botanical Name	Common Name	Comment*
Trees		
Abies species	Fir	F
Agonis juniperina	Juniper Myrtle	F
Casuarina cunninghamiana	River She-Oak	F
Chamaecyparis species (numerous)	False Cypress	F
Cryptomeria japonica	Japanese Cryptomeria	F
Cupressocyparis leylandii	Leyland Cypress	F
Cupressus species *(C. fobesii, C. glabra, C. sempervirens,)*	Cypress (Tecate, Arizona, Italian, others)	F
Eucalyptus species (numerous)	Eucalyptus	F, I
Juniperus species (numerous)	Juniper	F
Lithocarpus densiflorus	Tan Oak	F
Melaleuca species *(M. linariifolia, M. nesophila, M. quinquenervia)*	Melaleuca (Flaxleaf, Pink, Cajeput Tree)	F, I
Picea (numerous)	Spruce	F
Palm species (numerous)	Palm	F, I
Pinus species *(P. brutia, P. canariensis, P. b. eldarica, P. halepensis, P. pinea, P. radiata, numerous others)*	Pine (Calabrian, Canary Island, Mondell, Aleppo, Italian Stone, Monterey)	F
Platycladus orientalis	Oriental arborvitae	F
Pseudotsuga menziesii	Douglas Fir	F
Tamarix species *(T. africana, T. aphylla, T. chinensis, T. parviflora)*	Tamarix (Tamarisk, Athel Tree, Salt Cedar, Tamarisk)	F, I
Taxodium species *(T. ascendens, T. distichum, T. mucronatum)*	Cypress (Pond, Bald, Monarch, Montezuma)	F
Taxus species *(T. baccata, T. brevifolia, T. cuspidata)*	Yew (English, Western, Japanese)	F
Thuja species *(T. occidentalis, T. plicata)*	Arborvitae/Red Cedar	F
Groundcovers, Shrubs & Vines		
Acacia species	Acacia	F, I
Adenostoma fasciculatum	Chamise	F
Adenostoma sparsifolium	Red Shanks	F
Agropyron repens	Quackgrass	F, I
Anthemis cotula	Mayweed	F, I
Arctostaphylos species	Manzanita	F
Arundo donax	Giant Reed	F, I
Artemisia species *(A. abrotanium, A. absinthium, A. californica, A. caucasica, A. dracunculus, A. tridentata, A. pynocephala)*	Sagebrush (Southernwood, Wormwood, California, Silver, True tarragon, Big, Sandhill)	F
Atriplex species (numerous)	Saltbush	F, I
Avena fatua	Wild Oat	F
Baccharis pilularis	Coyote Bush	F
Bambusa species	Bamboo	F, I
Bougainvillea species	Bougainvillea	F, I
Brassica species *(B. campestris, B. nigra, B. rapa)*	Mustard (Field, Black, Yellow)	F, I

Botanical Name	Common Name	Comment*
Bromus rubens	Foxtail, Red brome	F, I
Castanopsis chrysophylla	Giant Chinquapin	F
Cardaria draba	Hoary Cress	I
Cirsium vulgare	Wild Artichoke	F,I
Conyza bonariensis	Horseweed	F
Coprosma pumila	Prostrate Coprosma	F
Cortaderia selloana	Pampas Grass	F, I
Cytisus scoparius	Scotch Broom	F, I
Eriogonum species *(E. fasciculatum)*	Buckwheat (California)	F
Fremontodendron species	Flannel Bush	F
Heterotheca grandiflora	Telegraph Plant	F
Hordeum leporinum	Wild barley	F, I
Juniperus species	Juniper	F
Lactuca serriola	Prickly Lettuce	I
Larrea tridentata	Creosote bush	F
Lolium multiflorum	Ryegrass	F, I
Lonicera japonica	Japanese Honeysuckle	F
Mimulus aurantiacus	Sticky Monkeyflower	F
Miscanthus species	Eulalie Grass	F
Muhlenbergia species	Deer Grass	F
Nicotiana species *(N. bigelovii, N. glauca)*	Tobacco (Indian, Tree)	F, I
Pennisetum setaceum	Fountain Grass	F, I
Perovskia atroplicifolia	Russian Sage	F
Phoradendron species	Mistletoe	F
Pickeringia montana	Chaparral Pea	F
Rhus (R. diversiloba, R. laurina, R. lentii)	Sumac (Poison oak, Laurel, Pink Flowering)	F
Ricinus communis	Castor Bean	F, I
Rhus Lentii	Pink Flowering Sumac	F
Salvia species (numerous)	Sage	F, I
Salsola australis	Russian Thistle	F, I
Solanum Xantii	Purple Nightshade (toxic)	I
Silybum marianum	Milk Thistle	F, I
Thuja species	Arborvitae	F
Urtica urens	Burning Nettle	F

*F = flammable, I = Invasive

Notes:

1. Plants on this list that are considered invasive are a partial list of commonly found plants. There are many other plants considered invasive that should not be planted in a fuel modification zone and they can be found on The California Invasive Plant Council's Website www.cal-ipc.org/ip/inventory/index.php. Other plants not considered invasive at this time may be determined to be invasive after further study.
2. For the purpose of using this list as a guide in selecting plant material, it is stipulated that all plant material will burn under various conditions.
3. The absence of a particular plant, shrub, groundcover, or tree, from this list does not necessarily mean it is fire resistive.
4. All vegetation used in Fuel Modification Zones and elsewhere in this development shall be subject to approval of the Fire Code Official.
5. Landscape architects may submit proposals for use of certain vegetation on a project specific basis. They shall also submit justifications as to the fire resistivity of the proposed vegetation.

SUGGESTED PLANT LIST FOR A DEFENSIBLE SPACE

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)
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
Brahea		
armata	Blue Hesper Palm	C/D
edulis	Guadalupe Palm	C/D
Ceratonia siliqua	Carob	C/I/D
Cerdidium floridum	Blue Palo Verde	D
Cercis occidentalis**	Western Redbud	C/I/M
Cornus		
nuttallii	Mountain Dogwood	I/M
stolonifera	Redtwig Dogwood	I/M
Eriobotrya		C/I/D
japonica	Loquat	C
Erythrina caffra	Kaffirboom Coral Tree	I/M
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
Lagerstroemia indica	Crape Myrtle	I
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
Parkinsonia aculeate	Mexican Palo Verde	
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
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
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)
Tristania conferta	Brisbane Box	C/I
Ulmus		
parvifolia	Chinese Elm	I/D
pumila	Siberian Elm	C/M
Umbellularia californica**	California Bay Laurel	C/I

SHRUBS		
Agave	Century Plant	D
americana	Century Plant	D
deserti	Shawis Century Plant	D
shawi**		
Amorpha fruticosa**	False Indigobush	I
Arbutus		
menziesii**	Madrone	C/I
Arctostaphylos spp.**	Manzanita	C/I/D
Atriplex**		
canescens	Hoary Saltbush	I
lentiformis	Quail Saltbush	D
Baccharis**		
glutinosa	Mule Fat	C/I
pilularis	Coyote Bush	C/I/D
Carissa grandiflora	Natal Plum	C/I
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
Dalea		
orcuttii	Orcutt's Delea	D
spinosa**	Smoke Tree	I/D
Elaeagnus		
pungens	Silverberry	C/I/M
Encelia**		
californica	Coast Sunflower	C/I
farinose	White Brittlebush	D/I
Eriobotrya		
deflexa	Bronze Loquat	C/I
Eriophyllum		
confertiflorum**	Golden Yarrow	C/I
staechadifolium	Lizard Tail	C
Escallonia spp.	Escallonia	C/I
Feijoa sellowiana	Pineapple Guava	C/I/D
Fouqueria splendens	Ocotillo	D
Fremontodendron**		
californicum	Flannelbush	I/M
mexicanum	Southern Flannelbush	I
Galvezia		
juncea	Baja Bush-Snapdragon	C
speciosa	Island Bush-Snapdragon	C
Garrya		
elliptica	Coast Silktassel	C/I
flavescens**	Ashy Silktassel	I/M

Heteromeles arbutifolia**	Ashy Silktassel	I/M
Lantana spp.	Toyon	C/I/M
Lotus scoparius	Lantana	C/I/D
Mahonia spp.	Deerweed	C/I
	Barberry	C/I/M
Malacothamnus		
clementinus		
	San Clemente Island Bush Mallow	C
fasciculatus**		
	Mesa Bushmallow	C/I
Melaleuca spp.		
Mimulus spp.**	Melaleuca	C/I/D
Nolina	Monkeyflower	C/I (R)
parryi		
parryi ssp. wolfii	Parry’s Nolina	I
Photinia spp.	Wolf’s Bear Grass	D
Pittosporum	Photinia	All Zones
crassifolium		
rhombifolium		CI/I
tobira ‘Wheeleri’	Queensland Pittosporum	C/I
undulatum	Wheeler’s Dwarf	C/I/D
viridiflorum	Victorian Box	C/I
Plumbago auriculata	Cape Pittosporum	C/I
Prunus	Cape Plumbago	C/I/D
caroliniana		
ilicifolia**	Carolina Laurel Cherry	C
lyonii**	Hollyleaf Cherry	C
Puncia granatum	Catalina Cherry	C
Pyracantha spp.	Pomegranate	C/I/D
Quercus	Firethorn	All Zones
dumosa**		
Rhamus	Scrub Oak	C/I
alaternus		
californica**	Italian Blackthorn	C/I
Rhaphiolepis spp.	Coffeeberry	C/I/M
Rhus	Rhaphiolepis	C/I/D
integrifolia**		
laurina	Lemonade Berry	C/I
lentii	Laurel Sumac	C/I
ovata**	Pink-Flowering Sumac	C/D
trilobata**	Sugarbush	I/M
Ribes	squawbush	I
viburnifolium		
speciosum**	Evergreen Currant	C/I
Romneya coulteri	Fuschia-Flowering Gooseberry	C/I/D
Rosa	Matilija Poppy	I
californica**		
minutifolia		

Salvia spp.**	California Wild Rose	C/I
Sambucus spp.**	Baja California Wild Rose	C/I
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
Verbena		
lilacina	Poison Oak	I/M
Xylosma congestum		
Yucca**	Lilac Verbena	C
schidigera	Shiny Xylosma	C/I
whipplei		
	Mojave Yucca	D
	Foothill Yucca	I

GROUNDCOVERS		
Achillea**	Yarrow	All Zones
Aptenia cordifolia	Apteria	C
Arctostaphylos spp.**	Manzanita	C/I/D
Baccharis**		
pilularis	Coyote Bush	C/I/D
Ceanothus spp.**	California Lilac	C/I/M
Cerastium tomentosum	Snow-in-Summer	All Zones
Coprosma kirkii	Creeping Coprosma	C/I/D
Cotoneaster spp.	Redberry	All Zones
Drosanthemum hispidum	Rosea Ice Plant	C/I
Dudleya		
brittonii	Brittonis Chalk Dudleya	C
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	C/I/D
Lasthenia		
californica**	Common Goldfields	I
glabrata	Coastal Goldfields	C
Lupinus spp.**	Lupine	C/I/M
Myoporum spp.	Myoporum	C/I
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
Viguiera laciniata**	San Diego Sunflower	C/I
Vinca		
minor	Dwarf Periwinkle	M

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
subspicata**	Chaparral Honeysuckle	C/I
Solanum		
jasminoides	Potato Vine	C/I/D

PERENNIALS		
Coreopsis		
gigantean	Giant Coreopsis	C
grandiflora	Coreopsis	All Zones
maritime	Sea Dahlia	C
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		
var. mexicanum	Coastal Statice	C
perezii	Sea Lavender	C/I
Oenothera spp.	Primrose	C/I/M
Penstemon spp.**	Penstemon	C/I/D
Satureja douglasii	Yerba Buena	C/I
Sisyrinchium		
bellum	Blue-Eyed Grass	C/I
californicum	Golden-Eyed Grass	C
Solanum		
xantii	Purple Nightshade	C/I
Zauschneria**		
californica	California Fuschia	C/I
cana	Hoary California Fuschia	C/I
'Catalina'	Catalina Fuschia	C/I

ANNUALS		
Lupinus spp.**	Lupine	C/I/M