4 CUMULATIVE EFFECTS ANALYSIS

4.1 INTRODUCTION TO THE CUMULATIVE EFFECTS ANALYSIS

This section presents an analysis of the cumulative impacts of the proposed CalVTP considered together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the California Environmental Quality Act Guidelines (State CEQA Guidelines). The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such past, present, and probable future projects are cumulatively significant; and second, to determine whether the CalVTP's incremental contribution to any such cumulatively significant impacts would be "cumulatively considerable" (and therefore significant). (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], and Section 15064[h]; and *Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal. App. 4th 98, 120.)

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects (the "list approach") or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach"). Because of the large geographic scale of the CalVTP and the broad range of activities that can affect vegetation, this analysis uses the plan approach.

4.1.1 Geographic Scope

Impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 treated acres annually that are located within the approximately 20.3-million-acre treatable landscape. The treatable landscape spans across the state of California. The broad geographic scope of potential impacts from the CalVTP means that many other past, present, and reasonably foreseeable future activities may interact to result in cumulative impacts.

The proposed CalVTP does not include the construction of any new or expanded structures or built facilities, and physical activities would be limited to the vegetation treatment types and treatment activities described in Chapter 2, "Program Description," within the treatable landscape. Related projects considered in the cumulative analysis include other activities conducted by CAL FIRE; plans, projects, and activities that would affect the same resources as the CalVTP in similar ways; and activities conducted by other entities outside of the SRA (within the FRA and LRA) that would affect the same resources as the CalVTP in similar ways. The geographic scope for cumulative impact analysis varies depending on the environmental resource topic and is identified in each of the resource sections below.

4.1.2 Timeframe

The timeframe of past, present, and probable future activities was determined as follows:

- Past Activities. Past projects/activities include those occurring prior to January 30, 2019 (the time that the EIR's Notice of Publication was published). The influence of past activities is reflected in the baseline, which, pursuant to CEQA, reflects "existing conditions" at the time of the NOP [State CEQA Guidelines Section 15125[a]]). A brief historical context discussing land use changes within the state is also included below to further describe past activities. Acreages for past vegetation treatment activities are provided from 2004 through 2018, which represent the years for which complete data are available.

- **Present Activities**. Projects/activities are that are either under construction, have been approved for construction and operation, or are ongoing as of January 30, 2019 through the time of the PEIR process.
- **Reasonably Foreseeable, Probable Future Activities**. Reasonably foreseeable future activities include a summary of reasonably foreseeable activities from regional planning documents within the state. In addition, population projections through 2060 were also considered as the reasonably foreseeable planning horizon because this is the timeframe for which California Department of Finance (DOF) currently has projections.

4.2 EXISTING CONDITIONS CONTEXT INCLUDING PAST ACTIVITES

Lands within the state have been shaped by past and ongoing land uses and other activities that have influenced environmental conditions. This section provides a brief summary of these past and ongoing land uses and activities that have contributed to (and continue to contribute to) cumulative effects. Other historic land uses producing related or cumulative effects such as large surface area disturbance, vegetation removal, noise, air pollution, greenhouse gas (GHG) emissions, degradation of water quality, and the use of hazardous materials are included in this section. These land uses include historic agricultural operations, resource extraction activities, development, large-scale infrastructure, and large-scale transportation projects. Residential and commercial development are briefly described herein and are described further under Section 4.3.12 "General and Specific Plans." The population projections presented in Section 12, "Land Use Planning, Population and Housing" are also considered as part of the cumulative context for development.

Land conversion in the state includes the conversion of natural lands to farmland and the subsequent conversion of farmland to urban and rural residential uses. Agricultural lands in the state represent an altered landscape that retains little resemblance to the historical (pre-European settlement) condition. Formerly consisting of extensive grasslands, wetlands, broad riparian systems, and oak woodlands, the conversion to agriculture has removed a large portion of these natural communities. In addition, the land disturbances associated with farming have contributed to sedimentation of waterways, increases in water demand, and use of fertilizers and pesticides, degradation of water quality, and may have contributed (directly and indirectly) to species mortality. Similarly, grazing has altered or degraded habitat conditions for many species through conversion of some natural habitats to grassland and savannah, adverse effects on water quality, and promoting conditions for non-native plant species. However, appropriately managed grazing and rangeland can be compatible with the habitat needs many plant and wildlife species.

Resource extraction has contributed to cumulative effects throughout the state including habitat loss and degradation, hazards and hazardous waste contamination, air quality and GHG emissions, noise, traffic, erosion, sedimentation, altered hydrology, and degradation of water quality. The California gold rush and the resulting extensive immigration of miners and use of hydraulic mining have had lasting cumulative effects on the water quality and biological resources of the state.

Urban development has also resulted in direct and indirect effects related to habitat loss, air quality and GHG emissions, degradation of water quality, increased runoff, noise, traffic, and increased water demand and energy consumption. Urban development in the state has been accompanied by the development of infrastructure and transportation projects to support these land uses including water supply development, dams, underground and overhead utilities, and roadways which have similar effects as those described above for urbanization.

Past fire suppression and vegetation management activities are described further below (e.g., Section 4.3.1).

4.3 RELATED PROJECTS AND PLANS

Because the CalVTP is statewide, various plans, projects, and activities that occur throughout the state are considered in the cumulative analysis because they affect environmental conditions on a statewide basis.

Recognizing that a broad range of activities can affect vegetation, the CalVTP cumulative effects analysis focuses on those past, present, and probable future activities that have effects similar to those of the proposed CalVTP, including those within and outside the treatable landscape that affect the same resources as the CalVTP.

Related past, present, and reasonably foreseeable probable future activities, projects, and plans considered for the CalVTP cumulative effects analysis include the following, each of which is described in the sections that follow. Each of the plans, projects, and activities considered below includes a discussion of past, present, and reasonably foreseeable activities as applicable.

- implementation of historic fire suppression practices, particularly coupled with an absence of vegetation treatment in some wildland areas;
- treatments conducted under CAL FIRE's Chaparral Management Program (CMP), now known, in part, as the Vegetation Management Program (VMP);
- treatments conducted under CAL FIRE's California Forest Improvement Program (CFIP);
- vegetation treatment activities implemented by agencies other than CAL FIRE;
- timber harvesting;
- implementation of vegetation management practices consistent with Public Resources Code (PRC) 4291 – Defensible Space;
- ongoing management of CAL FIRE demonstration forests;
- implementation of Executive Order (EO) B-42-17 and other actions to address tree mortality in California;
- implementation of EO N-05-19 to address immediate, medium and long-term actions to help prevent destructive wildfires including 35 priority projects for fuel reduction;
- California 2030 Natural and Working Lands Climate Change Implementation Plan;
- implementation of collaborative efforts to address forest health and resilience at the landscape level pursuant to the recommendations of the California Forest Carbon Plan;
- development directed by general plans and specific plans of local agencies;
- regional habitat conservation directed by approved habitat conservation plans and natural community conservation plans; and
- land management practices governed by State agency land use plans.

4.3.1 Past Fire Suppression Practices

Fire is a primary driving force that has shaped California's ecosystems for millennia, recurring at varying intervals in virtually all vegetation types. It is estimated that approximately 4.5 million acres burned annually prior to Euro-American settlement, although there was significant variability in pre-settlement fire regimes across vegetation types and regions (Board and CAL FIRE 2018).

As described in Section 3.17, "Wildfire," the legacy land management practice of fire suppression has led to a buildup of forest fuels and an increase in the occurrence and threat of large, severe fires (Westerling et al. 2006). With the expansion of the WUI and the threat that large, severe, intense wildfires pose, fire suppression remains one of the primary management techniques for more than 95 percent of wildfires in the U.S. (Schoennagel et al. 2017). Current fire suppression practices and other land management practices have resulted in a marked change in natural fire regimes related to land management practices and fire suppression. By excluding and suppressing wildfire, many ecosystems have become degraded, damaged, or destroyed and native fire-adapted plant communities have been replaced with invasive or non-native species. The disruption of fire regimes within ecosystems leads to changes in plant composition and structure, hydrologic processes, resistance to pests, and alters fire behavior and smoke impacts. These changes have created conditions across California that, in concert with climate change and expanding development, are manifesting themselves in the form of increased wildland fire impacts, with ecological, economic, and human consequences (Board and CAL FIRE 2018).

4.3.2 CAL FIRE Vegetation Management Program

The VMP is a cost-sharing program that focuses on the use of prescribed burning, manual, and mechanical treatments for reducing wildland fire fuel hazards and other resource management issues on SRA lands. The VMP does not include the use of herbicides or mechanical mastication or treatments on forested lands (tree fuel type). Implementation of VMP projects is at the discretion of each CAL FIRE Administrative Unit. The projects undertaken through the VMP are contained within the Unit's Fire Management Plan and are considered to be of high fire prevention value to the unit. Vegetation management through CAL FIRE's VMP has been limited, averaging approximately 7,000 acres treated annually over the past 14 years (Table 4-1), with an average project size of 260 acres. As described in Chapter 2, "Program Description," some of the tabulated data for this period is incomplete, so the 7,000-acre average during this period may be an underestimate. Vegetation management projects funded by CAL FIRE under the VMP occur on an ongoing basis. CAL FIRE participates in these as funding and staff time allows.

Over a 14-year period (2004 through 2018) CAL FIRE has implemented vegetation management projects on approximately 97,000 acres of land through the VMP (Table 4-1). The prescribed burning acreages presented in Table 4-1 include federal, state, and local acreages. The state acreages for prescribed burning may overlap with treatment acreages reported under the VMP.

Table 4-1 Summary of Past and Present Cumulative Projects (acres)

Year	CAL FIRE VMP	Prescribed Burning	CAL FIRE CFIP	Timber Harvesting		Federal Mechanical Treatments (outside SRA)	Total
				Federal	CAL FIRE		
2004	4,322	27,633	15,649	64,160	229,658	52,610	394,032
2005	8,377	64,305	23,592	46,252	164,520	51,596	358,642
2006	9,965	87,882	7,659	49,226	145,854	51,367	351,953
2007	6,980	39,728	4,091	39,835	151,552	55,668	297,854
2008	8,949	49,761	13,338	37,023	124,387	43,996	277,454
2009	4,295	44,808	6,704	29,748	119,594	36,150	241,299
2010	6,053	27,469	6,693	23,675	113,015	38,216	215,121
2011	8,067	35,120	0[1]	27,168	123,230	40,318	233,904
2012	7,786	16,482	0[1]	27,505	131,873	48,699	232,346
2013	3,246	22,021	779	29,521	128,238	37,825	221,630
2014	701	13,033	1,676	26,444	142,942	27,733	212,529
2015	2,652	27,555	1,331	24,565	97,843	34,718	188,664
2016	6,029	10,095	2,408	30,956	110,302	32,271	192,061
2017	9,203	37,066	2,719	29,470	93,083	24,081	195,622
2018	10,443	59,850	2,589	29,285	36,212	27,021	165,400
Total	97,068	562,808	89,228	514,833	1,912,303	602,269	3,778,511

Notes: [1]Although no fuel reduction acreage was recorded, expenditures within the CFIP program did occur.

Upon certification, this PEIR will provide CEQA compliance for implementing CAL FIRE's VMP, along with the VMP EIR. Therefore, the wildfire risk reduction components of the VMP would be encompassed by the CalVTP going forward, and acres treated under the VMP for wildfire risk reduction are encompassed in the 250,000 acres projected to be treated annually under the CalVTP. It is estimated that treatment acreages in 2020 would be consistent with current CAL FIRE acreage goals of 25,000 acres of prescribed burning and 20,000 acres of other treatment activities statewide, for a total of 45,000 acres. It is assumed that the acres treated annually under the CalVTP would increase each year until reaching 250,000 acres per year in 2024.

4.3.3 CAL FIRE California Forest Improvement Program

CAL FIRE also funds vegetation management projects under its CFIP. These projects can involve a range of activities including site preparation, tree planting, commercial thinning, fuel reduction, and land conservation activities for improving fish and wildlife habitat. CFIP projects tend to be small in size, averaging approximately 40 acres per project. Vegetation management activities funded by CAL FIRE under the CFIP occur on an ongoing basis. Over a 14-year period (2004 through 2018) CAL FIRE has implemented vegetation management projects on approximately 89,000 acres of land through the CFIP (Table 4-1).

Proposition 40, the California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act of 2002, provided funding for CAL FIRE to enter into cost-share agreements with private landowners to perform wildfire risk reduction projects designed to reduce fuel that poses a threat to watershed resources and water quality. Projects were conducted in 15 Sierra Nevada counties: Butte, Plumas, Sierra, Yuba, Nevada, Placer, El Dorado, Amador, Alpine, Calaveras, Tuolumne, Madera, Mariposa, Fresno, and Tulare. The Proposition 40 fuels reduction program ended on March 31, 2014, due to lack of continued funding. Acreages of treatment from these projects are included with the CFIP treatment acreages in Table 4-1.

The CFIP would continue into the future independent of the CalVTP, and it is anticipated that approximately 6,500 acres would continue to be treated under this program each year based on the average annual treatment acreage that has occurred over the past 14 years.

4.3.4 Vegetation and Fuels Treatment Programs Implemented by Agencies Other than CAL FIRE

Federal agencies conduct vegetation management projects on federal lands that are similar to the treatment types and activities proposed under the CalVTP. As USDA Forest Service and other federal agencies implement the National Fire Plan and Healthy Forests Restoration Act, a substantial increase in fuel reduction projects and related activities have occurred in recent years. The implementation of these programs has culminated in *The National Cohesive Wildland Fire Management Strategy* (USDA and DOI 2014). This strategy provides a framework for federal land management agencies to work collaboratively among all stakeholders and across all landscapes, using the best available science to make meaningful progress towards three goals: resilient landscapes, fire adapted communities, and safe and effective wildfire response. Federal agencies report vegetation treatment projects through the National Fire Plan Operations and Reporting System. The annual acreage treated by federal agencies outside the SRA is summarized in Error! Reference source not found..

Through the implementation of the National Fire Plan and the Healthy Forests Restoration Act of 2003, federal agencies have been instructed to increase actions to reduce the risks of severe and wildfire on public lands. Their goals and objectives are largely consistent with the CalVTP; to utilize vegetation management as a tool to protect life, property, and natural resources from wildfire.

Vegetation treatments by various non-CAL FIRE agencies (e.g., other state, regional, and local agencies) are also occurring within the SRA and treatable landscape. Vegetation treatments similar to those that would be implemented under the proposed CalVTP are currently being implemented by agencies that own or manage lands within the SRA such as California Department of Fish and Wildlife (CDFW), California State Parks (CSP), University of California, California State University, counties, water and irrigation districts, conservation districts, park and open space districts, and flood control districts.

In addition to vegetation treatments conducted by federal agencies, vegetation treatments are also being conducted by local agencies, non-profits, and other organizations in the LRA. Because these treatments are implemented by many different agencies and organizations, total treatment acreages are not available for the LRA; however, acreages of treatments occurring in the LRA are at least partially reflected in the acreages provided for prescribed burning within the state and defensible space acreages that occur in the LRA.

Updated yearly, Fire Management Plans/Strategic Fire Plans (Unit Fire Plans) identify wildfire protection areas, initial attack success, assets and infrastructure at risk, pre-fire management strategies, and accountability within their Unit's geographical boundaries. The Unit Fire Plan identifies strategic areas for pre-fire planning and fuel treatment as defined by the people who live and work locally. Local Fire Safe Councils and other nonprofits may also decide to develop Community Wildfire Protection Plans (CWPPs). A CWPP helps a community use collaborative, coordinated community planning to refine its priorities for the protection of life, property, and critical infrastructure in the WUI and discuss land, watershed, and vegetation management options. It is required to have three components: 1) collaboration, 2) prioritized fuel reduction, and 3) treatment of structural ignitability. Many Unit Plans function as CWPPs or can assist as a baseline plan to establish the assets at risk, community vulnerabilities, and protection priorities. Fire Safe Councils are important partners in implementing vegetation treatments because they help identify areas of high value and high risk in communities and can assist in finding funding and in-kind support for vegetation management.

In the future, vegetation treatments in the FRA, SRA, and LRA would continue independent of the CalVTP, and the average annual acreage treated in the FRA, SRA, and LRA is expected to increase in response to Executive Order B-52-18, which requires the California Natural Resources Agency in coordination with the Board, CAL FIRE, and federal, state, and local agencies to increase the pace and scale of fire fuel treatments within the state to 500,000 acres per year to reduce wildfire risk. Of this 500,000-acre treatment target, approximately 250,000 acres per year would be treated under the CalVTP; it is anticipated the remaining 250,000 acres would be treated in the FRA, SRA, and LRA. In addition, approval of the proposed CalVTP would facilitate a substantial increase in the pace and scale of treatments in the SRA by non-CAL FIRE agencies.

4.3.5 Timber Harvesting

Both commercial timber harvesting and fuel reduction projects result in the removal of vegetation cover and some degree of site disturbance. Commercial timber harvesting is typically a more intensive form of vegetation management than fire fuel treatments. Even-aged management systems, such as clearcutting, can result in nearly complete removal of vegetation from a site. Timber harvesting that involves thinning or selective harvesting results in partial canopy removal, generally with less site disturbance, less erosion potential, and a lower potential for other immediate water quality effects (Stednick 2010).

More than 500,000 acres of timber harvesting was conducted by federal agencies and more than 1.9 million acres of timber harvesting was conducted by CAL FIRE between 2004 and 2018 (Table 4-1). In addition to the geographic distribution, the amount of timber harvesting also varies from year to year, but the average annual rate of timber harvesting can be estimated at approximately 173,000 acres per year.

Timber harvesting on non-federal lands in California are subject to various permitting mechanisms (Timber Harvest Plans, Nonindustrial Timber Management Plans, Emergencies and Exemptions) under the Forest Practice Rules with CAL FIRE as the lead agency. Many permits allow multiple years to complete the harvesting operations, and, in rare cases, expire with no operations occurring. All projects that have been permitted, but have not yet expired or otherwise been completed, are considered to be current projects.

Timber harvesting would continue into the future independent of the CalVTP, and it is anticipated that approximately 173,000 acres would be treated/harvested each year based on the average annual treatment acreage that has occurred over the past 14 years.

4.3.6 Public Resources Code 4291 – Defensible Space

PRC Section 4291 directs the creation and maintenance of 100 feet of defensible space around all buildings and structures on non-federal SRA lands, non-federal forest-covered lands, brush, and grass-covered lands, or any land that is covered with flammable material. The exact number of acres treated under PRC Section 4291 is variable from year to year; however, some assumptions about acreages can be made knowing that more than 700,000 habitable structures were billed for the Fire Prevention Fee in the SRA in recent years. Assuming no overlapping defensible

space, no property boundary restrictions, and a median habitable structure footprint of 2,100 square feet (U.S. Census 2010) in a perfect square, each habitable structure under the identified assumptions would treat approximate 1 acre or about 700,000 acres of vegetation statewide. However, many structures do not have such large footprints or are on parcels less than 1 acre in size, and many 100-foot zones overlap between parcels/homes. Therefore, it can be assumed that the vegetation modified under PRC Section 4291 is less than 700,000 acres per year. Some of this is new vegetation clearing as homes are developed, but the majority is continued maintenance of defensible space.

It is assumed that the acreage treated for defensible space will continue to be maintained into the future independent of the CalVTP. It is also expected that there would be an increase in the defensible space acreage treated over time as the number of habitable structures in the SRA increases. Table 3.12-3 in Section 3.12, "Land Use and Planning, Population and Housing," shows that the majority of counties in California, including those in the treatable landscape for the proposed CalVTP, are expected to experience population growth, and associated expansion of development, by 2060 (DOF 2018).

4.3.7 CAL FIRE Demonstration Forests

CAL FIRE operates eight Demonstration State Forests encompassing a total of 71,000 acres. The forests represent the most common forest types in the state. These forests grow approximately 75 million board feet yearly and harvest an average of 30 million board feet of timber each year, enough to build 3,000 single-family homes. Revenue from these harvests fund a variety of CAL FIRE's Resource Management Programs. In addition, these forests provide research and demonstration projects on forest management, while providing public recreation opportunities, fish and wildlife habitat, and watershed protection.

The 71,000 acres of Demonstration State Forests is expected to continue to be managed for demonstration projects in the future independent of the CalVTP.

4.3.8 Executive Order B-42-17 (Tree Mortality)

More than 100 million trees have died in California since 2010 and more continue to die from drought that has weakened the trees and left millions of acres of forestland highly susceptible to insect attacks. The drought stress is exacerbated in forests with too many trees competing for limited resources, especially water. On October 30, 2015, Governor Brown issued an emergency proclamation and established the California Tree Mortality Task Force. On September 1, 2017, Governor Brown issued EO B-42-17 to bolster the State's response to this unprecedented tree die-off through further expediting removal of millions of dead and dying trees across the state, by allowing Licensed Timber Operators to perform tree removal that previously required a tree service contractor's license.

There is an estimated 21.1 million acres within California that have been identified by the Tree Mortality Task Force as high hazard zones, which are areas in the greatest need of dead tree removal due to severe tree mortality levels (Tree Mortality Task Force 2017). It is expected that removal of dead trees within the 21.1 million acres identified will continue in the future independent from CalVTP; however, there is the potential for CalVTP treatments to occur in areas identified as a high priority for dead tree removal and contribute to achieving the directives of the EO by removing dead and dying trees.

4.3.9 EO N-05-19

On January 9, 2019, Governor Newsom issued EO N-05-19, directing CAL FIRE to recommend immediate, medium and long-term actions to help prevent destructive wildfires. With an emphasis on taking immediate actions to protect vulnerable populations, and recognizing a backlog in fuels management, the EO called for a strategic approach to focus actions on California's most vulnerable communities to realize the greatest returns on reducing risk to life and property in the most fire-prone areas of the state.

Governor Newsom also proclaimed a State of Emergency on March 22, 2019, related to protecting the state's most vulnerable communities from wildfire. Under this proclamation, Governor Newsom provides time-saving waivers of administrative and regulatory requirements to protect public safety and allow for action to be taken to begin to systematically address community vulnerability and wildfire fuel buildup through the rapid deployment of forest management resources. Thirty-five priority projects that were identified in response to EO N-05-19 were identified by geographic areas with populations that are particularly at risk during natural disasters. This proclamation directs CAL FIRE to immediately move forward with implementation of these priority projects. These 35 projects would include fuel reduction treatments on approximately 95,800 acres. CAL FIRE requested input from regulatory agencies, and will employ a set of best management practices designed to identify and avoid sensitive natural and archaeological resources; however, these projects are exempt from CEQA.

4.3.10 California 2030 Natural and Working Lands Climate Change Implementation Plan

California's natural and working lands cover more than 90 percent of California and include rangeland, forests, woodlands, wetlands and coastal areas, grasslands, shrubland, farmland, riparian areas, and urban green space. With their potential to sequester carbon, reduce GHG emissions, and increase the capacity for California to withstand inevitable climate impacts, these lands are also a critical component of California's integrated climate change strategy. Under the *California 2030 Natural and Working Lands Climate Change Implementation Plan* (Implementation Plan) the State will strive to increase the acres of cultivated lands and rangelands under State-funded soil conservation practices by two to five times, double the rate of State-funded forest management or restoration efforts, and triple the rate of State-funded oak woodland and riparian restoration. Annual treatment acreage goals for the Implementation Plan include 23,800-73,300 acres of prescribed burning, 59,000-73,000 acres of thinning, 49,800-58,800 acres of less intensive forest management, 23,500-25,300 acres of understory trimming, 9,100-19,600 acres of riparian restoration, 3,100-6,100 acres of oak woodland restoration, 8,100 acres of meadow restoration, and 2,100-4,200 acres of prescribed grazing (CalEPA et al. 2019). These treatments acreages would be on non-federal land, specifically within the LRA and SRA, and would, therefore, include some of the treatment acreage targeted by the proposed CalVTP.

4.3.11 California Forest Carbon Plan

Through the *California Forest Carbon Plan* and other collaborative work in local, regional, and state-wide initiatives, the Forest Climate Action Team (a consortium of 19 federal, state, and local agencies) aims to develop and implement plans to improve the health and resilience of California's forests, increase their carbon storage potential, and minimize their atmospheric emissions of GHG and black carbon. While the Forest Carbon Plan primarily targets carbon storage and emissions, it also emphasizes improving and safeguarding interrelated ecosystem services and benefits, as well as social and economic considerations.

The Forest Carbon Plan considers opportunities to reverse these recent and historic adverse trends and return California's forests to a more resilient and reliable long-term carbon sink, rather than a GHG and black carbon emission source. The goals of the Forest Carbon Plan include the following:

- Significantly increase the pace and scale of forest and watershed improvements on nonfederal forest lands through incentives and other mechanisms.
- Support federal goals and actions to improve forest and watershed health and resiliency.
- Prevent forest land conversions through easements and acquisitions, as well as land use planning.
- Innovate solutions for wood products and biomass utilization to support ongoing forest management activities.
- Support key research, data management, and accountability needs.
- Protect and enhance the carbon sequestration potential and related benefits of urban forests.

To achieve these goals, the Forest Carbon Plan identifies the following actions:

- By 2020, increase the rate of forest restoration and fuels treatment, including prescribed fire, from the recent average of 17,500 acre/year to 35,000 acres/year.
- By 2030, further increase the rate of forest restoration and fuels treatment to 60,000 acres/year.
- By 2030, increase the area reforested annually by 25 percent above the current level.
- By 2025, expand areas of high priority habitat by 5 percent above current levels, as provided.
- By 2030, lead efforts to restore 10,000 acres of mountain meadow habitat in key locations (Forest Climate Action Team 2018).

These treatments acreages would be throughout California within FRA, SRA, and LRA, and would therefore include some of the treatment acreage targeted by the proposed CalVTP.

4.3.12 General Plans and Specific Plans

Population is projected to continue to increase throughout the state. As shown in Table 3.12-3 in Section 3.12, "Land Use and Planning, Population and Housing," the majority of counties in California are expected to experience population growth by 2060 (DOF 2018). In California, land use development needed to provide for housing, employment, and other needs of a growing population is primarily guided by city and county general plans and specific plans.

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. The general plan addresses a broad range of topics, including at a minimum land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area.

California Government Code Section 65450 gives cities and counties the authority to prepare specific plans for the systematic implementation of general plans. Specific plans are comprehensive planning and zoning documents for a defined geographic region of the corresponding general plan.

Wildfire is typically addressed in the safety elements of general plans and California Government Code Section 65302.5 gives the Board the regulatory authority to evaluate General Plan Safety Elements for their land use policies in SRA and Very High Fire Hazard Severity Zones (VHFHSZs), as well as methods and strategies for wildland fire risk reduction and prevention in those areas. The CAL FIRE Land Use Planning Program engages with city and county planning and development departments to improve comprehensive fire hazard planning through general plan safety elements and other plans. Local governments are responsible for local land use decisions and planning, including permitting structures to be built in the SRA or LRA VHFHSZs. The most recent assessment of the WUI shows that as of 2010, there were about 3 million housing units in FHSZs that are at risk from wildland fire (Board and CAL FIRE 2018). A large proportion of the houses within FHSZs are in the southern portion of the state. The five counties with the most housing units in FHSZ are all in southern California and contain about half of all statewide housing units in FHSZ. However, with 37 counties that have more than 10,000 housing units in FHSZs, this is a statewide issue. Risk of wildfire is most acute in the WUI, where housing losses have increased significantly during the past three decades (Stephens et al. 2009). This problem is expected to grow; modeling scenarios suggest that housing within the highest wildfire hazard severity zone (i.e., very high) will increase from 640,000 to 1.2 million units by the year 2050 (Mann et al. 2014).

4.3.13 Habitat Conservation Plans and Natural Communities Conservation Plans

A habitat conservation plan (HCP) is a long-term agreement between U.S. Fish and Wildlife Service (USFWS) and an applicant (private landowner or non-federal land manager) under Section 10 of the Federal Endangered Species Act (ESA) that allows for the incidental take of federally-listed species and their habitats. It describes the anticipated effects of the proposed taking; how those impacts will be minimized or mitigated; and how the HCP implementation is to be funded. HCPs can apply to both listed and non-listed species, including those that are candidates or have been proposed for listing. HCPs may cover large areas or a single project. Many of the large-scale, multispecies HCPs are habitat-based plans that allow development to occur in certain areas, while setting up a coordinated system of protected land reserves that provide a coordinated, landscape-level conservation strategy.

California has implemented its own voluntary multispecies regional approach to wildlife habitat conservation. The California Natural Communities Conservation Planning Act (NCCPA), administered by CDFW, allows for the incidental take of species listed under the California Endangered Species Act (CESA) and their habitats. Within California, joint NCCPs and HCPs are common, because they cover species listed under ESA and CESA and both USFWS and CDFW participate in the review and permitting process.

An NCCP provides regional protection for plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The NCCP standard goes beyond mitigating for the effects of development to providing for the conservation and management of covered species and habitats in the state. The NCCP approach or similar regional multispecies approaches to conservation planning are essential to conserve habitats and ecosystems at a scale necessary to ensure long-term survival of species.

There are more than 150 HCPs (USFWS 2018), and 14 NCCPs approved in California, and others in various stages of planning. More than 7 million acres covering a wide diversity of natural community types throughout California are covered by approved or pending conservation plans (CDFW 2018).

4.3.14 State Agency Land Use Plans

There are 18 state agencies that own land within the treatable landscape, with the primary state landowners being CSP and CDFW. Lands owned by these agencies are managed through various land use plans including CSP general plans and CDFW land management plans.

General Plans prepared for individual CSP units direct the long-range development and management of a park by providing broad policy and program guidance. CSP manages 280 park units throughout the state. CSP General Plans consist of elements that define the proposed land uses, facilities, concessions, operation of the unit, any environmental impacts, management of resources, and serve as a guide for the future development, management, and operation of the unit (PRC Section 5002.2[a]). Park Unit General Plans also consider regional planning influences. The purpose and requirements for these General Plans and the process for their preparation are outlined in CSP's Planning Handbook (CSP 2010). The General Plan is the primary management document for a unit, defining a framework for resource stewardship, interpretation, facilities, visitor use, and operations. General Plans define an ultimate purpose, vision, and intent for unit management through goal statements, guidelines, and broad objectives, but do not define specific objectives, methodologies, designs, and timelines on how and when to accomplish these goals (PRC Section 5002.2).

CDFW manages wildlife areas, ecological reserves, and wildlands specifically for the benefit of wildlife and important habitats. In total, CDFW manages 749 properties throughout the state. These lands represent or support a cross section of California's diversity of animals, plants, habitat types, and ecosystems. The management of CDFW lands are governed by land management plans, which are prepared to provide an inventory of fish, wildlife, and native plant habitats within the unit; guide management of habitats, species, and programs to achieve CDFW's mission; guide appropriate public uses for that unit; provide an overview of the property's operation, maintenance, and personnel requirements; and comply with state and federal statutes and regulations.

4.4 IMPACT ANALYSIS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the CalVTP, together with related past, present, and reasonably foreseeable probable future activities, projects, and plans within the state, for each of the environmental issue areas evaluated in Chapter 3 of this PEIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources would be significant and more severe than those caused by the proposed project alone.

For purposes of this PEIR, the incremental effect of the project would be cumulatively considerable, and thus significant in and of itself, if the cumulative effect of related activities (past, current, and probable future activities), together with the effect of the proposed project, are significant, and the incremental contribution of the project to these effects is substantial enough to be considered cumulatively considerable and thus significant in and of itself.

Such an outcome can occur in one of two ways. First, the cumulative effect of related activities (past, current, and probable future activities) without the project is not significant, but the incremental effect of the project, when added to the cumulative effect of the related projects, is substantial enough to result in a new cumulatively significant impact. Or second, the cumulative effect of related activities (past, current, and probable future activities) is already significant and the addition of the effect of the project is substantial enough to make the project's contribution cumulatively considerable and thus significant in and of itself.

This cumulative analysis employs a multi-step approach: (i) assesses whether the project, together with past, present, and probable future projects, will cause significant cumulative impacts, (ii) identify the project's contribution, without mitigation, to existing/anticipated (without the project) cumulative effects, (iii) determine whether, even with mitigation, the project's incremental contribution would be cumulatively considerable, (iv) if the answer is yes, to identify any additional potentially feasible mitigation that may be available, and (v) to identify the impact significance conclusion after implementation of all (project-specific and any additional) potentially feasible mitigation.

4.4.1 Aesthetics and Visual Resources

The geographic scope of the aesthetic and visual resource cumulative impact analysis is the treatable landscape and surrounding areas with public views of the treatable landscape. For the purposes of this analysis, the cumulative analysis would generally be based on the viewshed of the treatable landscape, which may vary in distance, as determined by surrounding topography and landscape features that may limit visibility.

As discussed in Section 4.3, "Related Project and Plans," above, there are several similar past, present, and reasonably foreseeable projects that have affected and likely will affect vegetation, and thus aesthetics and visual resources, within and surrounding the treatable landscape. Examples of related projects and plans that could combine to result in significant cumulative impacts are past land management practices that emphasize fire suppression, implementation of CAL FIRE's VMP, timber harvesting, and vegetation and fuels treatment programs implemented outside of the SRA.

Some of the other past, present, and reasonably foreseeable projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities, would result in a significant cumulative visual resources impact, because some types of forest management projects can create lasting visible changes on the landscape, such as with commercial timber harvest. Consequently, the cumulative visual impact of harvest and treatment activities would be significant to the extent they are visible from public viewpoints.

Vegetation treatment programs implemented for CalVTP would create temporary visual impacts during implementation but would create less-than-considerable contributions to cumulative impact conditions, in part because of their temporary nature and implementation of SPRs. As described in Impact AES-1, varying degrees of temporary degradation of public views would result during active implementation of treatment activities under the proposed CalVTP. However, because of the temporary and intermittent nature of treatment activities, and implementation of SPRs requiring staging of all treatment-related materials, including vehicles, vegetation treatment debris, and equipment, outside of public viewsheds (SPR AES-2); and preparation of and adherence to a Smoke Management Plan (SMP) (SPR AQ-2) and a Burn Plan (SPR AQ-3), which describe the conditions under which prescribed burning can occur to reduce the generation and visibility of smoke; short-term degradation would not be substantial and the CalVTP's contribution to short-term visual impacts from implementation of treatment activities would not be cumulatively considerable.

As described in Impact AES-2, long-term effects to aesthetics would occur from implementing WUI fuel reduction, ecological restoration, and shaded fuel break treatment types in the treatable landscape. Impacts would primarily result from prescribed burning in the grass fuel type, as ecological restoration would result in beneficial impacts to views and visual quality, and WUI fuel reduction would not be significantly noticeable because vegetation would remain and could aid in the visual transition from wildlands to urban environment. Because regeneration of grasses would be occurring at various stages post burning, the visual effects of burning would be temporary, and large expanses of blackened landscape would likely not be visible simultaneously. Furthermore, wildfire and prescribed burning currently occur within the treatable landscape, and SPR AD-4 and SPR REC-1 would be incorporated into prescribed burning treatments to minimize viewer exposure by notifying the public before burning. Therefore, long-term degradation would not be substantial and the CalVTP's contribution to long-term visual impacts from implementation of treatment activities would not be cumulatively considerable.

Implementation of non-shaded fuel breaks would contribute considerably to cumulative visual impacts. Non-shaded fuel breaks remove all vegetation, which could lead to a long-term adverse change in the landscape by resulting in a contrasting linear element in an otherwise natural environment. As described in Impact AES-3, implementing Mitigation Measure AES-3 may reduce the visual impact as it requires a visual reconnaissance of proposed treatment areas to observe the surrounding landscape and determine if public viewing locations, including heavily trafficked scenic vistas, recreation areas and trails, and state scenic highways, have views of the proposed treatment area. If none are identified, the non-shaded fuel break would be implemented without additional visual mitigation. If the project proponent identifies public viewing points, including scenic vistas, recreation areas and trails, and state scenic highways with lengthy views (i.e., more than a few seconds) of a proposed non-shaded fuel break treatment area, the project proponent would modify the location of the fuel break to reduce its visibility from public viewpoints while achieving the wildfire risk reduction objectives of the fuel break, if feasible. If other feasible locations do not exist that would reduce impacts to public viewers and achieve the intended wildfire risk reduction requirements of the fuel break, the project proponent would also evaluate if implementing a shaded fuel break rather than a non-shaded fuel break would be feasible. Because of the strategic nature of non-shaded fuel break siting, it may be infeasible to relocate a non-shaded fuel break to avoid public visibility and still maintain its wildfire risk reduction purpose. Further, converting a planned non-shaded fuel break to a shaded fuel break may be infeasible because a shaded fuel break would not achieve the objectives of the fuel break. If Mitigation Measure AES-3 would not resolve the visual impact, the CalVTP's contribution to this impact would be cumulatively considerable. Therefore, the CalVTP's contribution to a cumulative visual impact would remain cumulatively considerable.

4.4.2 Agriculture and Forestry Resources

The geographic scope for agricultural and forestry resources is the treatable landscape. The scale and type of development within California is typically regulated by cities and counties through adopted long-range plans and zoning ordinances. However, population growth has contributed to the development of forest and farmland with urban uses. On average, about 40,000 acres of agricultural land is converted to a non-agricultural use in California. (American Farmland Trust 2009). In addition, urbanization and development activities in rural areas result in the conversion of forest land to residential land uses and/or supporting land uses. Population growth and development have resulted in an existing cumulative impact with respect to agricultural and forestry resources.

Implementation of the CalVTP would consist of vegetation treatment activities that would modify portions of the treatable landscape and would not involve the development of residential communities or other similar types of development or induce substantial population growth. As discussed in Impact AG-1, the CalVTP would not result in the loss of forest land or conversion of forest land to a non-forest use. Although, treatment activities would alter forest land through vegetation removal, the activities would be temporary and once complete the area would remain undeveloped. Therefore, the proposed CalVTP's contribution to the loss of forest land or conversion of forest land to a non-forest use, **would not be cumulatively considerable**.

4.4.3 Air Quality

The geographic scope for air quality is air basins within the treatable landscape. Treatment activities implemented under the CalVTP would generate emissions of criteria air pollutants, toxic air contaminants (TACs), and odors.

Future levels of emissions from cumulative projects would be a function of the type and scale of the projects under construction and operation, including those described in Section 4.3, "Related Projects and Plans." Projected increases in population in California would increase traffic and associated emissions. Existing emissions have resulted in an existing significant cumulative effect on air quality in multiple air basins in California, specifically within those counties that are not in attainment of national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS). The attainment status for every criteria air pollutant with respect to the NAAQS and CAAQS in every county in California is summarized in Table 3.4-4 in Section 3.4, "Air Quality." Cumulative development and future population growth would continue to contribute to air pollutant emissions.

Implementing the CalVTP would result in an increase in emissions of criteria air pollutants and precursors generated by treatment activities, including mechanical and manual treatments, prescribed herbivory, herbicide application, and prescribed burning. Emissions associated with these treatments would include exhaust generated by off-road equipment, machine-powered hand tools, and helicopters; exhaust from on-road vehicle trips associated with worker commutes and transport of equipment, as well as the hauling and processing of biomass; fugitive dust emissions generated by ground disturbance activities and vehicle travel on unpaved roads, including respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$); and smoke generated by the combustion of vegetation during prescribed burning.

As discussed under Impact AQ-1, treatment activities would generate levels of criteria air pollutants and precursors, particularly oxides of nitrogen (NO_X), reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$, that would exceed the mass emission–based significance thresholds in one or more air districts. Implementation of Mitigation Measure AQ-1 would require project proponents to implement emission reduction techniques where feasible, which would reduce emissions generated during treatment activities. However, the levels of criteria air pollutants and precursors emitted by treatment activities could still exceed the mass emissions thresholds recommended by local air districts, and therefore, the CalVTP's contribution to the nonattainment status of criteria air pollutants in some air basins in California would be cumulatively considerable. However, this measure would not reduce mass emissions of criteria air pollutants and precursors to less than the mass emission significance thresholds established by air districts with jurisdiction in the treatable landscape. Therefore, the CalVTP's contribution to the nonattainment status of criteria air pollutants in some or all air basins in California **would remain cumulatively considerable**. Additionally, implementation of Mitigation Measure AQ-1 would not reduce localized concentrations of criteria air pollutants from fugitive dust and smoke emissions to less than the NAAQS and CAAQS. Therefore, the CalVTP's contribution to localized exceedances of the NAAQS and CAAQS would be cumulatively considerable.

TACs are pollutants of localized concern. The emissions of multiple TACs by sources, including diesel particulate matter exhaust (diesel PM), is considered to be a cumulative impact to air quality in locations where receptors are exposed to high concentrations of TACs over the long term. As discussed under Impact AQ-2, treatment activities implemented under the Cal VTP would result in diesel PM emitted by diesel-powered on-road vehicles and off-road equipment, but the resulting levels of health risk exposure would not result in an incremental increase in cancer risk greater than 10 in 1 million or a Hazard Index greater than 1.0 at any receptors. Therefore, the CalVTP's contribution

to TAC health risks **would not be cumulatively considerable**. The same is also true regarding the potential for exposure to fugitive dust containing naturally occurring asbestos, as discussed under Impact AQ-3.

However, TACs contained in smoke generated by prescribed burns, which are discussed under Impact AQ-4, could expose receptors to an acute, short-term health risk with a Hazard Index greater than 1.0; the CalVTP's contribution to health risks from TAC exposure **would be cumulatively considerable**.

Impacts associated with odor exposure are not inherently cumulative. It is unlikely that odors generated by treatment activities would combine with odors generated by other cumulative projects**.** As discussed under Impact AQ-5, diesel PM generated by equipment used for treatment activities would not expose a substantial number of people to objectionable odors, and; therefore, the CalVTP's contribution to health risks **would not be cumulatively considerable**.

As discussed under Impact AQ-6, odors contained in smoke generated by prescribed burning could be considered objectionable and could expose a substantial number of people, thereby resulting in a cumulatively considerable contribution to odors. Feasible measures are not available to further prevent people from being exposed to odiferous smoke. Therefore, the CalVTP's contribution to odors from smoke exposure **would be cumulatively considerable**.

4.4.4 Archeological, Historic, and Tribal Cultural Resources

The geographic scope for the analysis of cumulative impacts to historical resources, unique archaeological resources, tribal cultural resources, and human remains is the state of California.

Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base. The loss of any one archaeological site could affect the scientific value of others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on a single project or parcel boundary.

The historic lands of California tribal peoples have been affected by development since the arrival of Sir Francis Drake of England in 1579 and quickly grew with the establishment of 21 missions from San Diego to Sonoma between 1769 and 1821. Development of tribal lands continued with the discovery of gold, followed by California's admission to statehood in 1850, the agricultural boom in the late 1800s through the 1930s, and the post-World War II population growth. Similarly, historical resources throughout California have been affected by suburban sprawl, downtown redevelopment projects, and transportation projects. These activities have resulted in an existing significant adverse cumulative effect on historical resources, unique archaeological resources, TCRs, and human remains. Cumulative development and related vegetation treatment projects and programs described in Section 4.3 will continue in the foreseeable future to contribute to the disturbance of cultural resources.

Vegetation treatment activities could damage historical resources, unique archaeological resources, tribal cultural resources, or human remains. The CalVTP, in combination with other related projects and plans throughout the state, could contribute to ongoing substantial adverse changes in the significance of these resources. SPRs would avoid or minimize impacts to any known or resources. SPR CUL-1 requires a recent records search, and SPR CUL-2 requires consultation with Native American tribes. SPR CUL-3 requires pre-field research and SPR CUL-4 requires an archaeological survey of the treatment area and preparation of a survey report. SPR CUL-5 requires avoidance or protection of any known resources, and SPR CUL-6 requires the avoidance of known historical resources and the avoidance of built-environment structures that have not yet been evaluated for historical significance. Conducting record searches, contacting Native American groups, conducting pre-field research and cultural resource surveys, and avoiding known resources will avoid or minimize the risk of disturbance, damage, or destruction of these resources by identifying, avoiding or protecting these sensitive resources from damage that could be caused by treatment activities. SPR CUL-7 requires worker awareness training and that treatment activities be halted if any unknown cultural resources are discovered. Conducting worker awareness training would avoid or minimize the risk of disturbance, damage, or destruction of subsurface resources by training workers on how to identify resources that

could be otherwise inadvertently be damaged by treatment activities and halting work. In addition, compliance with California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097 would require that treatment and disposition of human remains occurs in a manner consistent with State guidelines and California Native American Heritage Commission guidance and impacts would be avoided or minimized. Therefore, the CalVTP's contribution to a significant cumulative impact related to known unique archaeological resources, subsurface historical resources, or built historical resources, or human remains **would not be cumulatively considerable**.

In regard to inadvertent discovery of an unknown unique archaeological or subsurface historical resource, implementation of Mitigation Measure CUL-2 would protect in place, record, or otherwise treat the discovered resource appropriately to reduce the CalVTP's contribution. However, given the large geographic extent of the treatable landscape, the wide variety in resource types and significance, the potential extent of damage during inadvertent excavation, it is uncertain whether this measure would avoid a substantial adverse change in the significance of a unique archaeological or subsurface historical resource. Although SPRs would require every reasonable effort to identify and protect resources, there could be some rare instances where inadvertent damage of unknown resources may be extensive and a substantial adverse change in the significance of the resource may not be fully mitigated. Therefore, the CalVTP's contribution to a cumulative impact related to unknown unique archaeological or subsurface historical resources **would be cumulatively considerable**, and this impact would be significant and unavoidable. No additional mitigation, beyond that identified in Section 3.5, "Archaeological, Historical, and Tribal Cultural Resources," is available to reduce the CalVTP's contribution to cumulative degradation of unique archaeological or subsurface historical resource.

Implementation of Mitigation Measure CUL-3 would further reduce impacts to tribal cultural resources because it would require completion of tribal consultation and identification of measures to protect any identified resource to avoid a substantial adverse change to its significance. The Board anticipates that through implementation of SPRs, mitigation measures, and completion of the tribal consultation process, all impacts to tribal cultural resources would be reduced to a less-than-significant level. However, given that tribal consultation is ongoing, the large geographic extent of the treatable landscape, and the wide variety in resource types and significance, it cannot be known at this time whether measures developed during consultation would adequately avoid a substantial adverse change in the significance of a tribal cultural resource. Therefore, the CalVTP's contribution to a cumulative impact related to tribal cultural resources **would be cumulatively considerable**, and this impact would be significant and unavoidable. The Board has incorporated all feasible measures that can be identified during ongoing consultation into the SPRs and measures identified above.

4.4.5 Biological Resources

The geographic scope for the biological resources cumulative analysis is the treatable landscape, as well as adjacent migration and movement corridors (e.g., rivers, streams, riparian corridors, the Pacific flyway for migratory birds, deer migration routes) that are connected to the treatable landscape. Additionally, although not geographically defined for this analysis, the cumulative context conceptually includes regions of the Pacific Ocean essential for anadromous special-status fish that migrate to and from rivers and streams in the treatable landscape (e.g., steelhead, Chinook salmon, coho salmon). Due to the treatable landscape's expansive area, the geographic scope also includes the full geographic ranges of the special-status species and sensitive natural communities that occur within the treatable landscape. This is because impacts to special-status species and species habitat within the treatable landscape could have population-wide effects that extend beyond the treatable landscape. Because many sensitive natural communities have a very limited number of known occurrences across the state, impacts within the treatable landscape could contribute to a loss of these unique vegetation types statewide.

As discussed above in Section 4.3, "Related Project and Plans," several similar past, present, and reasonably foreseeable projects have and likely will result in impacts to special-status plants, special-status wildlife, common wildlife (e.g., native nesting birds), sensitive natural communities, riparian habitat, oak woodlands, chaparral and coastal sage scrub, state or federally protected wetlands, wildlife movement corridors, and wildlife nurseries. These projects include past fire suppression activities that have been widespread, other vegetation management efforts

(e.g., CAL FIRE VMP, EO N-05-19, vegetation treatments implemented by local agencies outside of the SRA), decades of timber harvest, recreation and transportation projects, maintenance activities, and urban development as guided by city and county general plans and specific plans. While many of these projects would be discretionary and subject to environmental review under CEQA and would implement mitigation measures to reduce or compensate for adverse effects on sensitive natural resources, some projects have not been subject to CEQA review and have potentially resulted in adverse effects on these resources without compensation. In addition to these projects, agricultural conversion, herbicide and insecticide use, resource extraction, wildfire, drought, climate anomalies, nitrogen deposition (from air pollution), invasive species, and disease (pathogens) are contributing to the decline of many sensitive natural communities and sensitive habitats across the state and within the treatable landscape. Loss of habitat, including sensitive natural communities and sensitive habitats, from livestock grazing and conversion to rangeland has generally not been subject to CEQA review and has been largely unmitigated.

The 35 priority projects identified under EO N-05-19 would include treatment of approximately 95,000 acres across 35 priority projects. Due to the emergency nature of these projects, they would be exempt from CEQA review. CAL FIRE would identify and avoid sensitive natural resources through database (CNDDB) searches, presence of trained crews (e.g., RPFs) onsite to identify natural resources not included in the CNDDB, and consultation with CDFW, State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards, including implementation of best management practices developed by CDFW. These measures would reduce but not fully mitigate the likelihood of adverse effects on sensitive natural resources.

For the reasons discussed above, the existing cumulative impacts of these projects, activities, and disruptions to ecosystem and biophysical processes (e.g., climate change, invasive species invasions) on special-status species, sensitive natural communities and habitats, and wildlife movement corridors and nursery sites are considered significant.

As analyzed and described in Section 3.6, "Biological Resources," implementation of treatment activities under the proposed CalVTP would result in several direct and indirect impacts related to the disturbance or loss of special-status plants, special-status wildlife and wildlife habitat, common wildlife, riparian habitat, sensitive natural communities, state or federally protected wetlands, wildlife movement corridors, and wildlife nurseries (See section 3.6, "Biological Resources"). SPRs will be implemented as part of the proposed CalVTP to minimize, avoid, and monitor potential adverse effects, many of which were developed specifically to protect biological resources. Implementation of these SPRs would reduce the likelihood and magnitude of many potential adverse effects on biological resources; however, impacts would not be avoided entirely. Some residual impacts to biological resources after implementation of SPRs, in combination with other past, present, and reasonably foreseeable projects that have resulted or would result in similar impacts would contribute to the significant cumulative effects on these biological resources if left unmitigated.

The following discusses residual cumulative impacts for each biological resource addressed in this PEIR in consideration of the relevant mitigation measures included in Section 3.6, "Biological Resources," which would be implemented in addition to the SPRs.

SPECIAL-STATUS PLANTS

Treatment activities under the proposed CalVTP would result in ground disturbance, vegetation removal, and modification of habitat, which could result in direct and indirect loss of special-status plants and or modification of their habitat. Even with implementation of the SPRs described previously, this would contribute to significant cumulative impacts. However, implementation of Mitigation Measures BIO-1a, BIO-1b, and BIO-1c would reduce the proposed CalVTP's contribution to this impact, because they would require project proponents to identify and avoid special-status plant occurrences to the extent feasible and provide compensation if avoidance is not feasible. Thus, with implementation of these SPRs and mitigation measures, implementation of the CalVTP is not expected to substantially reduce the abundance or viability of special-status plant populations. The CalVTP's contribution to significant cumulative impacts to special-status plants would not be cumulatively considerable.

SPECIAL-STATUS WILDLIFE

Treatment activities under the proposed CalVTP would result in ground disturbance; vegetation removal; modification of habitat; and the use of heavy machinery, vehicles, and large crews, which could result in the disturbance or direct loss of special-status wildlife. Large-scale loss of wildlife habitat function could also occur as a result of treatment activities, especially prescribed burning and mechanical treatment activities. Several special-status wildlife species have been adversely affected as a result of historic and ongoing habitat loss across their range, which in some cases has been a contributing factor in their listing under ESA or CESA. Other special-status wildlife species have extremely limited ranges or narrow habitat requirements; thus, loss of habitat function within the range of these species could result in the narrowing of exclusion of the species from its range. This would contribute to significant cumulative impacts. Mitigation Measures BIO-2a, BIO-2b, BIO-2c, BIO-2d, BIO-2e, BIO-2f, BIO-2g, BIO-2h would reduce these direct and indirect impacts to less-than-significant levels for all special-status wildlife other than bumble bees because protective actions including implementation of no-disturbance buffers, avoidance of sensitive period of the species' life history, requirements for retention of essential wildlife habitat features (e.g., tree snags, woody debris, elderberry shrubs, host plants for butterflies listed under ESA, habitat for insects and other terrestrial invertebrates), compensation for unavoidable loss of special-status wildlife species or habitat function, and measures to avoid disease transmission between domestic livestock and special-status ungulates would reduce the potential impacts of injury, mortality, or other disturbance on individual animals and habitat. These mitigation measures would substantially reduce the CalVTP's contribution to cumulative impacts to special-status wildlife and wildlife habitat, except for bumble bees. Therefore, the CalVTP's contribution would not be cumulatively considerable.

Due to evidence of widespread population declines, the endangered or critically endangered status assigned by the International Union for Conservation of Nature, and extensive public comments, the California Fish and Game Commission voted in June 2019 to accept a petition to list four bumble bee species (Crotch bumble bee, Franklin's bumble bee, Suckley cuckoo bumble bee, and western bumble bee) for protection under CESA. The factors that pose a threat to the survival of these special-status bumble bees include habitat loss or modification due to agriculture, development, high-intensity fire, fire suppression, and herbicide use; disease; and climate change (Xerces Society et al. 2018). Vegetation treatment under the proposed CalVTP would remove floral resources for special-status bumble bees and prescribed burning, soil disturbance, or use of heavy equipment could kill individuals or crush or disturb overwintering or nesting colonies. This contribution to ongoing loss of individuals and degradation of habitat would be cumulatively considerable. Mitigation Measure BIO-2g would reduce potential impacts on special-status bumble bees by requiring avoidance of prescribed burning and herbicide treatment within the flight season and retention of suitable habitat in the range of these species or compensation for unavoidable loss of special-status bumble bees or habitat function. As described in Section 3.6 "Biological Resources", these species have not yet been well studied and nesting and overwintering colonies are difficult to detect. With the current state of the science and limited knowledge of the species' life history and behaviors, if underground colonies cannot be detected, they cannot be avoided and, it is possible that populations of these species would be reduced below self-sustaining levels, and treatment activities could substantially reduce the number or restrict the range of species. Therefore, despite implementation of mitigation, the CalVTP's contribution to impacts to special-status bees would remain cumulatively considerable.

SENSITIVE NATURAL COMMUNITIES, RIPARIAN HABITAT, OAK WOODLAND, AND CHAPARRAL/COASTAL SAGE SCRUB

Treatment activities under the proposed CalVTP could adversely affect sensitive natural communities, riparian habitat, and oak woodlands, if they are present within the treatment areas and are subject to treatment activities such as prescribed burning, vegetation removal, or ground disturbance. These activities could result in loss or degradation of these sensitive habitats, which would contribute to significant cumulative impacts. Implementation of Mitigation Measures BIO-3a, BIO-3b, and BIO-3c would reduce the CalVTP's contribution to this significant cumulative impact on sensitive natural communities, riparian habitat, and oak woodlands because they would require project proponents to minimize vegetation removal within sensitive natural communities and oak woodlands, to the degree feasible; compensate for unavoidable losses of sensitive natural communities, oak woodlands, and riparian habitat; and design treatments to restore the natural fire regime or condition class of affected sensitive natural communities

and oak woodlands and return vegetation composition and structure to their natural condition. In addition, SPR BIO-5 would avoid type conversion in chaparral and coastal sage scrub. Thus, with implementation of these mitigation measures, the contributions of the proposed CalVTP to existing significant cumulative effects on these habitats **would not be cumulatively considerable**.

WETLANDS

Implementation of the proposed CalVTP could adversely affect state or federally protected wetlands if treatment activities (e.g., vegetation removal, ground disturbance, use of heavy machinery) occur within or adjacent to these habitats, particularly if these features have not been previously identified. This would contribute to significant cumulative impacts. Implementation of Mitigation Measure BIO-4 would substantially reduce the CalVTP's potential contribution to this significant cumulative impact because it would require delineation of the boundaries of state and federally protected wetlands; implementation of a buffer around the wetland where activities are restricted so that no inadvertent damage or destruction to wetland habits would occur during treatment activities; and that prescribed burns are designed to avoid loss of wetland functions and values. Thus, after implementation of these SPRs and Mitigation Measure BIO-4, the CalVTP's contribution to significant cumulative impacts on state and federally protected wetlands **would not be cumulatively considerable**.

WILDLIFE MOVEMENT CORRIDORS AND NURSERY SITES

Treatment activities under the proposed CalVTP could directly and indirectly adversely affect wildlife movement corridors and nursery sites if treatment activities occur within or adjacent to these areas. This would contribute to significant cumulative impacts. Implementation of relevant SPRs (i.e., SPR BIO-1, BIO-4, BIO-5, BIO-10, BIO-11, HYD-1, HYD-4) substantially reduces the CalVTP's contribution to the significant cumulative impact to wildlife movement corridors because they require actions to prevent degradation of aquatic and riparian corridors, and installation of wildlife-friendly fencing to avoid entanglement during wildlife movement. In addition to implementation of SPRs, implementation of Mitigation Measure BIO-5 would reduce the CalVTP's contribution to the significant cumulative impact to wildlife nursery sites because it would require retention of nursery sites identified by implementation of SPR BIO-10 and establishment of no-disturbance buffers around these sites to prevent disturbance. Thus, after implementation relevant SPRs and Mitigation Measure BIO-5, the CalVTP's contribution to significant cumulative impacts to wildlife movement corridors and nursery sites **would not be cumulatively considerable**.

COMMON NATIVE WILDLIFE

Implementation of the proposed CalVTP could adversely affect common native mammal, bird, reptile, amphibian, and invertebrate species by directly removing or disturbing active dens, nests, or other breeding sites, kill or injure individuals, or temporarily reduce breeding productivity of these species. Although treatments would be implemented within relatively small proportions of the extensive ranges of common species and suitable habitat would remain available to these species across the broader landscape surrounding treatment areas, this would contribute to significant cumulative impacts to the extent they exist for common wildlife. Implementation of relevant SPRs (i.e., SPR BIO-1, BIO-2, BIO-3, BIO-4, BIO-5) substantially reduces the CalVTP's contribution to this significant cumulative impact because they require retention of important high-quality habitats that would benefit common species. Thus, after implementation of these SPRs, the CalVTP's contribution to significant cumulative impacts to common wildlife **would not be cumulatively considerable**.

4.4.6 Geology, Soils, Paleontology, and Mineral Resources

The geographic scope within which cumulative impacts related to geology and soils for the CalVTP is all areas where vegetation could be treated in California's geomorphic provinces, which are described in the Environmental Setting of Section 3.7, "Geology, Soils, Paleontology, and Mineral Resources."

Implementation of treatments under the CalVTP may have the potential to result in soil erosion and slope instability. Other vegetation management programs and projects implemented by CAL FIRE or others listed above in Section 4.3 also have the potential to result in erosion and slope stability. However, under the CalVTP, potentially significant geology and soils effects would be avoided and minimized through the implementation of SPRs. Other vegetation management programs within the state would also be required to implement similar measures. Additionally, cumulative impacts associated with erosion and landslide related to wildfire are more significant in areas not managed with vegetation treatment programs.

As described in Section 3.7, "Geology, Soils, Paleontology, and Mineral Resources," the CalVTP would avoid significant adverse effects to geology and soil resources through the incorporation of SPRs that protect against erosion and landslide by: limiting mechanical equipment during heavy precipitation (SPR GEO-1); limit use of high ground pressure vehicles (SPR GEO-2); stabilize disturbed soil areas (SPR GEO-3); inspection for potential erosion (SPR GEO-4); draining stormwater via water breaks (SPR GEO-5); minimizing burn pile size (SPR GEO-6); minimizing erosion on steep slopes (SPR GEO-7); and evaluating steep slope areas (SPR GEO-8). In addition, air quality SPRs further reduce geology and soils impacts by requiring careful planning of prescribed fire to avoid severe burns (SPR AQ-3), and wetting unpaved, dirt roads (SPR AQ-4). With implementation of relevant SPRs, the CalVTP's contribution to cumulative geology and soil impacts in California's geomorphic provinces would not be cumulatively considerable.

4.4.7 Greenhouse Gas Emissions

The quantity of GHGs in the atmosphere that ultimately result in climate change is enormous and, as described in Section 3.8.2, "Physical Scientific Basis of Greenhouse Gas and Climate Change," has resulted in climate change, which is a cumulatively significant impact. Because climate change is a global phenomenon, the cumulative context of this impact is all past, present, and reasonably foreseeable projects in the world, including GHG emission sources and carbon sinks. No single project alone would measurably contribute to an incremental change in the global average temperature, or to global, local, or microclimates and, from the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative. The analysis under Impact GHG-1 and Impact GHG-2 in Section 3.8, "Greenhouse Gas Emissions" therefore reflect cumulative significance determinations that are cross-referenced herein.

4.4.8 Energy Resources

Treatment activities under the CalVTP would be implemented across up to 250,000 acres annually within the treatable landscape; this is the geographic scope for cumulative impact analysis of energy resources. This broad geographic scope means that many other past, present, and reasonably foreseeable future activities may interact to result in cumulative impacts. Energy consumption under the CalVTP would occur in the form of petroleum fuel combustion. Under existing conditions, projects of similar nature of the CalVTP include land management programs and projects, which would consume energy to implement these projects and plans during operation of on- and off-road vehicles, equipment, and machinery as well as from electricity and natural gas combustion for projects with such demand. Energy consumption from these activities could cause environmental impacts from wasteful, inefficient, or unnecessary use of energy.

For reasons similar to those discussed in Section 3.9, "Energy Resources," cumulative energy impacts are less than significant. As discussed in Section 3.9, "Energy Resources," the proposed CalVTP would not produce additional electricity or natural gas demand that would trigger additional infrastructure. The language of this criterion is derived from language in the Warren Alquist-Priolo Act and pertains to the environmental impacts from project's that produce substantial additional energy demand to warrant the construction of additional energy infrastructure or power plants.

Implementation of the CalVTP would increase fuel consumption in line with an increase in the pace and scale of vegetation treatment within the treatable landscape. The total gallons of fuel that would be required to implement treatment activities under the CalVTP is speculative. However, a primary objective of the CalVTP is to reduce wildfire risk, which requires substantial and inefficient energy consumption during response (e.g., operation of fire engines,

automobile and aerial travel throughout the state). Implementation of treatment activities under the CalVTP combined with other similar programs and plans would improve the efficiency of energy consumption during of such events through improved planning. Also, as previously mentioned, the "wasteful, inefficient, and unnecessary use of energy" is interpreted to pertain specific to grid-sourced energy demand, which the project would not contribute to. Therefore, the CalVTP's contribution to energy impacts from the wasteful, inefficient, and unnecessary use of energy would not be cumulatively considerable.

4.4.9 Hazardous Materials, Public Health and Safety

The geographic scope for the hazardous materials and public health and safety cumulative impact analysis is the treatable landscape and surrounding areas. For the purposes of this analysis, that would be generally areas within 0.5 mile of the treatable landscape because that is a reasonable maximum distance from which hazardous materials overlap could occur and combine to create a cumulatively significant impact. As discussed in Section 4.3, "Related Projects and Plans," above, there are several similar past, present, and reasonably foreseeable projects that have and could result in similar impacts related to hazardous materials and public health and safety within and surrounding the treatable landscape. Examples of related projects and plans that could combine to result in significant cumulative impacts are implementation of CAL FIRE's CMP and VMP, timber harvesting, and vegetation and fuels treatment programs implemented outside of the SRA.

The other past, present, and reasonably foreseeable projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities would not result in a significant cumulative health hazard or cumulative hazard to the environment from the use of household hazardous materials because other projects, such as other vegetation treatment activities, urban development directed by local agencies, and others would also have to comply with all of the state and federal laws regulating the transport, storage, use, and disposal and hazardous materials. As described in Impact HAZ-1, treatment activities proposed under the CalVTP would require the use of various types of equipment and vehicles, which need fuels, oils, and lubricants to operate. The use, transport, storage, and disposal of household hazardous materials would be required under the CalVTP, which could result in an accidental upset or health hazard if released into the environment. SPR HAZ-1 would be implemented during future CalVTP projects and requires that all equipment be properly maintained per manufacturer's specifications and requires inspection of all equipment for leaks prior to the start of a project and every day until the project is complete; any equipment found leaking is required to be promptly removed from a given project site. Furthermore, project proponents would adhere to the federal and state laws that regulate the use, transport, storage, and disposal of hazardous materials, including the California Hazardous Waste Control Act (HWCA), California Department of Toxic Substances Control (DTSC's) Unified Program, and Occupational Safety and Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA) regulations. Although implementation of the CalVTP would increase the pace and scale of treatments and thus increase the use of household hazardous materials in the treatable landscape, no new or more severe significant hazards would be created from implementation of the CalVTP. Therefore, the CalVTP's contribution to short-term visual impacts from implementation of treatment activities would not be cumulatively considerable.

The other past, present, and reasonably foreseeable projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities would not result in a significant cumulative health hazard or cumulative impact to the environment from the use of herbicides because of the strict registration process of pesticides in California by the California Department of Pesticide Regulation (DPR) and numerous regulations controlling the storage, use, and disposal of pesticides (e.g., by EPA, DTSC, DPR and others). As described in Impact HAZ-2, herbicide application associated with the CalVTP would require increased transportation, use, storage, and disposal of various herbicides, which could result in risks related to human exposure when applied in areas in close proximity to the public. Under normal conditions, compliance with relevant laws, regulations, and herbicide label instructions, along with proper personal protective equipment (PPE), would prevent significant risks related to human exposure to herbicides. However, potentially adverse effects could occur if a large spill were to occur or should spraying from equipment on vehicles occur in close proximity to public areas. Several SPRs have been incorporated into the program to minimize the potential for significant health risks (SPR HAZ-5 through HAZ-9). These SPRs require project proponents to prepare a Spill Prevention and Response Plan (SPRP) prior to beginning herbicide

treatment activities to provide protection to onsite workers, the public, and the environment from accidental leaks or spills of herbicides, adjuvants, or other potential contaminants (SPR HAZ-5); comply with all herbicide application regulations to protect the safety of workers and the public during the transport, use, storage, and disposal of herbicides (SPR HAZ-6); triple rinse herbicide containers with clean water at an approved site and dispose of rinsate per 3 CCR Section 6684 and dispose of all herbicides following label requirements and waste disposal regulations to avoid direct contamination to a water body or watershed (SPR HAZ-7); employ techniques during herbicide application to minimize drift (SPR HAZ-8); and include signage indicating that herbicide application is occurring or has occurred where members of the public could be present within 500 feet of areas receiving herbicide treatments (SPR HAZ-9). Therefore, with the incorporation of SPRs to protect public health and safety from herbicide use, the CalVTP's contribution to cumulative impacts related to herbicide use would not be cumulatively considerable.

The other past, present, and reasonably foreseeable projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities, would not result in significant cumulative impacts related to risks from disturbance to known hazardous material sites because the other projects are implementing the same types of treatment activities as the proposed CalVTP and would be implemented in undeveloped areas that have a low probability of containing hazardous materials sites, and those projects occurring in more developed areas where hazardous materials sites could be present, such as development directed by general plans, any hazardous materials would need to be identified and remediated prior to breaking ground. Furthermore, impacts associated with hazardous materials sites are project-specific and highly localized; thus, the potential for cumulative impacts in these undeveloped areas are even less likely to occur. As described in Impact HAZ-3, soil disturbance through mechanical treatments and the prescribed burning have the potential to expose workers and the public to risks associated with existing hazardous materials if present within a treatment site. Mitigation Measure HAZ-3 requires, if a potential for hazardous waste is identified within a treatment site, that project proponents will review DTSC's Cortese List to determine whether a known hazardous waste site is present within the boundary of a treatment site, and prohibit prescribed burning or soil disturbing treatment activities within 100 feet of its boundaries. Because any hazardous waste sites that could be affected by treatment activities would be identified and avoided, no related risks associated with the disturbance of a hazardous waste site to the public or environment would occur. Therefore, the CalVTP's contribution to impacts associated with known hazardous materials sites from implementation of treatment activities would not be cumulatively considerable.

4.4.10 Hydrology and Water Quality

The geographic scope within which cumulative impacts related to hydrology and water quality for the CalVTP are California's hydrologic regions and groundwater basins, which are described in the Environmental Setting of Section 3.11, "Hydrology and Water Quality."

Water quality in California has been strongly influenced by land use and development. Intensive development in urban watersheds has modified local hydrology and generated urban pollutant loads in surface waters and groundwater basins. Historic mining, industrial, and agricultural uses have also contributed to the degradation of surface and groundwater throughout the state. In addition to the direct discharge of pollutants from these land uses, some surface and groundwater resources have been diverted or drawn down below historic levels resulting in reduced flow volumes and declining aquifer levels. In 2016, the SWRCB's assessment of waterbody pollutants found over 2,600 impaired waterbodies throughout the state (SWRCB 2017). A variety of contaminants have also been found in California's groundwater (DWR 1998) and approximately 4 percent of groundwater basins are in critical overdraft (DWR 2016). These conditions have created an existing adverse cumulative condition for hydrology and water quality within the state.

As described in Section 3.11, "Hydrology and Water Quality," the CalVTP would avoid significant adverse effects to water quality and hydrology through the incorporation of SPRs that protect water quality by: minimizing erosion; prohibiting the use of heavy equipment, non-aquatic herbicide formulations, or prescribed herbivory near watercourses; requiring careful planning of prescribed burning to avoid severe burns; and requiring ground disturbing activities to maintain pre-disturbance drainage features and conditions. Therefore, with implementation of

relevant SPRs, the CalVTP's contribution to cumulative water quality impacts in California's hydrologic regions and groundwater basins would not be cumulatively considerable.

4.4.11 Land Use and Planning, Population and Housing

LAND USE AND PLANNING

The geographic scope for the land use and planning cumulative analysis is the treatable landscape. As described in Impact LU-1, implementation of CalVTP would include treatment activities that would occur on lands owned by various types of owners, including private, state, local agency, and non-profit organizations among other types of organizations, that are subject to applicable land use plans, such as general plans for state parks, Land Management Plans for CDFW wildlife areas and ecological reserves, and general plans for local jurisdictions. The analysis determined that CalVTP would not cause a significant environmental impact related to a conflict with a land use plan, policy, or regulation because projects on state lands would be designed in coordination with the state agency and consistent with its land management plan (e.g., general plans, land management plan); treatment activities in the Coastal Zone would implement applicable measures to avoid or reduce potential impacts or inconsistencies, as applicable, to obtain a coastal development permit in compliance with the Coastal Act; and, although CAL FIRE is not required to comply with local jurisdiction policies and regulations, all treatment activities would implement SPR AD-3, which would require project proponents to design and implement treatment activities in a manner that would be consistent with applicable local plans (e.g., general plans), policies, and ordinances to the extent the project is subject to them. Because implementation of treatment activities under CalVTP would be designed to comply with state management plans, Coastal Act requirements, and local jurisdiction policies and regulations, per SPR AD-3, the CalVTP would not combine with other past, present, and planned future projects identified in Section 4.3, "Related Projects and Plans," to cause a significant cumulative environmental impact related to a conflict with a land use plan, policy, or regulation.

Because individual projects are required to be assessed for their potential to conflict with land use plans, policies, or regulations and mitigate any potential impacts, as necessary, there is not an existing significant cumulative impact related to conflicts with land use plans, policies, and regulations that are developed for the purpose of avoiding or mitigating an environmental effect. State agencies, including the proponents of some of the cumulative projects, are not generally required to comply with local plans, policies, or regulations; however, state agencies may choose to coordinate with local agencies to address potential inconsistencies of the project with local plans, policies, or regulations. As described above, later activities under CalVTP would implement SPR AD-3 to design and implement treatment activities in a manner that would be consistent with applicable local plans (e.g., general plans), policies, and ordinances to the extent the treatment activity is subject to them; thus, the CalVTP's contribution to conflicts with a land use plans, policies, or regulations would not be cumulatively considerable.

POPULATION AND HOUSING

The geographic scope for the population and employment cumulative analysis is the treatable landscape and surrounding areas. As described in Impact LU-2, implementation of CalVTP would increase employment demand that would be dispersed within the state but the increase in employment demand would not induce substantial unplanned population growth in any one area to cause a need for new housing, roads, or infrastructure. Some of the projects, programs, and regulatory requirements described in Section 4.3, "Related Projects and Plans," would result in demand for employees with similar types of skills as those needed for implementation of CalVTP, including the CFIP, compliance with PRC Section 4291 for defensible space around structures, vegetation and fuels treatment programs implemented outside the SRA, EO B-42-17 that addresses tree mortality, *California 2030 Natural and Working Lands Climate Change Implementation Plan*, and *California Forest Carbon Plan*. Vegetation and fuels treatments under some of these programs could overlap with those implemented with CalVTP, including EO B-42-17, *California 2030 Natural and Working Lands Climate Change Implementation Plan*, and *California Forest Carbon Plan*, and thus, employment demand associated with these plans would overlap with those of CalVTP. Because timber harvesting is anticipated to continue at generally the existing rate and there would not likely be an expansion of CAL FIRE Demonstration State Forests, these activities would

not be anticipated to generate substantial employment demand, if any. The CFIP, compliance with PRC Section 4291 for defensible space around structures, and, in particular, vegetation and fuels treatment programs implemented outside the SRA would help achieve the goal of implementing vegetation treatments on 500,000 acres per year in California expressed in EO B-52-18 by implementing vegetation treatments on 250,000 acres per year in addition to the CalVTP goal of treating 250,000 acres per year. The cumulative projects that contribute to implementation of vegetation treatment goals identified in EO B-52-18 could result in an increase in employment demand at a similar scale and with some overlapping geographic distribution as that described for CalVTP under Impact LU-2.

As described in Section 3.12.2, "Regulatory Setting," the California Department of Housing and Community Development develops regional housing needs assessments for each county, Councils of Government (COGs) allocate funding for housing to each jurisdiction within their region, and cities and counties prepare general plan housing elements to plan for projected housing needs. As a result of these activities, cities, counties, COGs, and the state regularly engage in long-term planning to address future population growth and housing demand and there is not an existing significant cumulative impact related to unplanned substantial population growth.

The combination of employment demand for CalVTP and these cumulative projects would not be a cumulative substantial increase that would exceed planned population growth throughout the state or result in cumulative growth in some areas that would result in the need for new housing, roads, or infrastructure. For these reasons, the CalVTP's contribution to inducement of substantial population growth would not be cumulatively considerable.

4.4.12 Noise

The geographic scope of the cumulative noise analysis covers the entirety of the treatable landscape. The CalVTP would not create a long term (operational) source of vehicular trips or result in the operation of any permanent stationary noise-generating equipment; and thus, is not expected to result in any permanent increase in ambient noise levels. Therefore, cumulative noise impacts would be limited to short-term ambient noise increases during implementation of vegetation treatment activities.

As discussed in Section 4.3, "Related Project and Plans," above, there are several similar past, present, and reasonably foreseeable projects that have affected and likely will affect vegetation, and noise exposure, within and surrounding the treatable landscape. For a cumulative effect to occur, vegetation treatment activities under the CalVTP would have to occur simultaneously with and near other noise sources, such as other vegetation treatment and management activities, timber harvesting, implementation of plans and policies related to forest health, regional habitat conservation, state land management practices, and construction projects related to development. It is not anticipated that temporary noise generated by vegetation treatment activities under the CalVTP and noise related to non-CalVTP projects would simultaneously impact the same noise-sensitive receptors because the size of the treatable landscape and duration of vegetation treatment activities would make it highly unlikely that two such projects would occur simultaneously and in close vicinity to one another. Moreover, SPR NOI-1 would restrict vegetation treatment activities to less sensitive daytime hours in accordance with local requirements. Cities and counties in California typically restrict construction-noise to particular daytime hours and if the local, applicable jurisdiction does not have a noise ordinance or policy restricting the time-of-day when noise-generating construction activity can occur, then SPR NOI-1 would limit heavy equipment use to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday and federal holidays. Additionally, many jurisdictions in California provide noise exemptions for construction activities that occur during specifically defined daytime hours. However, because the other past, present, and planned future projects identified in Section 4.3, "Related Projects and Plans," are not subject to the SPRs of CalVTP, they could on their own result in a significant cumulative impact related to temporary short-term noise. Therefore, other past, present, and planned future projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities could result in a significant cumulative related to temporary short-term noise.

As discussed in Section 3.13, "Noise," qualifying treatment projects under the CalVTP would integrate several SPRs into treatment design to avoid and minimize noise impacts. These include complying with local policies and ordinances related to noise to the extent the project is subject to them (SPR AD-3), proper notification of any

potential nearby sensitive receptors (SPR NOI-6), and locating construction activities and staging areas as far as possible from sensitive receptors (SPR NOI-4). With implementation of SPRs, exposure to and generation of noise during vegetation treatment would be avoided or minimized and any temporary increase above ambient conditions would not be considered substantial. Therefore, the CalVTP's contribution to any significant cumulative impact related to temporary short-term noise **would not be cumulatively considerable**.

4.4.13 Recreation

The geographic scope of the cumulative impact analysis for recreation encompasses the public recreational areas within the treatable landscape. As discussed in Section 3.12, "Land Use and Planning, Population and Housing," the population of California as a whole and of counties within the treatable landscape is projected to increase during the period in which CalVTP would be implemented. Planned population growth, and local regulation of associated development within the jurisdictional boundaries of incorporated cities and unincorporated areas prevent the occurrence of an existing cumulative recreation impact by implementing adopted General Plans that include a policy framework which guides development, designates appropriate areas for development, and guides the preservation of public open space consistent with Government Code Section 65560.

Implementation of the CalVTP would treat vegetation within the treatable landscape and would not involve the development of residential communities or similar types of development or induce substantial population growth in an area that would require the construction of or expansion of recreational facilities. However, depending on the location of the treatment area, proposed treatment activities may temporarily restrict public access to surrounding areas for safety reasons or cause nuisance impacts related to dust, aesthetics, and traffic; this would disrupt the recreation experience. As discussed in Impact REC-1, implementation of SPRs would minimize disruptions to recreational users by storing equipment outside of public viewsheds, whenever possible (SPR AES-2), minimizing smoke dispersion (SPR AQ-6), suspending ground disturbing treatment activities when there is visible dust (SPR AQ-4), notifying users of temporary closures of public recreation areas (SPR REC-1), and minimizing the ingress/egress of heavy equipment along public roadways (SPR TRAN-1). Therefore, CalVTP's contribution to disruption of recreational resources **would not be cumulatively considerable**.

4.4.14 Transportation

The geographic scope of the cumulative transportation analysis covers the entirety of the treatable landscape and the surrounding roadway network used to access individual vegetation treatment sites. The CalVTP would not result in the generation of operational vehicular trips to the same location over the long term, and thus, would not result in permanent traffic operations impacts on a roadway or highway. Therefore, cumulative transportation impacts would be associated with short-term transportation effects that would occur during the implementation of vegetation treatments.

As discussed in Section 4.3, "Related Project and Plans," above, there are several similar past, present, and reasonably foreseeable projects that have affected and likely will affect vegetation, and the transportation network, within and surrounding the treatable landscape. For a cumulative effect to occur, vegetation treatments under the CalVTP would have to take place simultaneously with and near other projects that could potentially result in transportation effects, such as other vegetation treatment and management activities, timber harvesting, implementation of plans and policies related to forest health, regional habitat conservation, State land management practices, and construction projects related to development. It is not anticipated that temporary traffic generated by treatment activities under the CalVTP and traffic related to non-CalVTP projects would simultaneously affect the same roadway facilities because the size of the treatable landscape and the duration of treatment activities would make it highly unlikely that two such projects would occur simultaneously and in proximity to one another.

Moreover, SPR TRAN-1 requires project proponents to monitor prescribed burning operations and the associated smoke dispersion. During any such prescribed burns, traffic control operations would be implemented in the event burning activities begin to affect traffic safety along any roadways. SPR TRAN-1 also requires that the project

proponent work with the agency(ies) with jurisdiction over affected roadways to prepare a Traffic Management Plan (TMP) prior to initiating treatment activities if traffic generated would result in obstructions, hazards, or delays exceeding applicable jurisdictional standards along access routes for individual treatment activities. The TMP will require implementation of measures to avoid and minimize traffic obstructions, prolonged roadway closures, and the degradation of traffic operations (i.e., level of service) along affected roadway facilities, as needed. However, because the other past, present, and planned future projects identified in Section 4.3, "Related Projects and Plans," are not subject to the SPRs of the CalVTP, they could on their own result in a significant cumulative impact related to temporary traffic operations and transportation hazards. Therefore, other past, present, and planned future projects identified in Section 4.3, "Related Projects and Plans," combined with the CalVTP could result in significant cumulative related temporary traffic operations and transportation hazards.

As discussed in Section 3.15, "Transportation," qualifying treatment activities under the CalVTP would integrate several SPRs into treatment design to avoid and minimize transportation impacts. These include complying with local policies and ordinances related to transportation to the extent the project is subject to them, and implementing TMPs to promote safe and efficient traffic movement during treatment activities. The SPR related to TMPs (i.e., SPR TRAN-1) would require that potential traffic operations and transportation hazards impacts would be avoided and/or minimized. Thus, with implementation of SPRs, temporary traffic operations and the potential for transportation hazards during treatment activities would be minimized or avoided would not be considered substantial. Therefore, the CalVTP's contribution to a significant cumulative impact related to temporary traffic operations or substantially increasing transportation hazards **would not be cumulatively considerable**.

The analysis in Impact TRAN-3 addresses vehicle miles travelled (VMT) annually from the whole of the CalVTP, and thus is inherently cumulative and reflects a cumulative significance determination. Implementation of the CalVTP could potentially result in a net increase in VMT and a significant cumulative impact related to VMT. Additionally, as stated under Impact TRAN-3, there is no additional feasible mitigation to address the potential increases in VMT generated under the CalVTP. Therefore, the CalVTP's contribution to a significant cumulative impact related to VMT **would be cumulatively considerable**, in spite of the recognition that a net VMT reduction could be reasonably expected to occur in the long term and individual vegetation treatments would likely be less than significant pursuant to the thresholds identified in OPR's Technical Advisory on Evaluating Transportation Impacts, which would reduce the CalVTP's contribution to cumulative impacts.

4.4.15 Public Services, Utilities and Service Systems

The geographic scope of the cumulative impact analysis for public services, utilities, and service systems is the treatable landscape. As discussed in Section 3.12, "Land Use and Planning, Population and Housing," the population of California as a whole and of counties within the treatable landscape is projected to increase during the period in which CalVTP would be implemented. Planned population growth, and local regulation of associated development within the jurisdictional boundaries of incorporated cities and unincorporated areas prevent the occurrence of an existing cumulative public services, utilities, and service system impacts by implementing adopted General Plans that include a policy framework which ensures adequate capacity exists to support proposed development.

There would be no impact to public services from the proposed CalVTP; therefore, it would not contribute to cumulative impacts and is not discussed further. Implementation of the CalVTP would consist of vegetation treatment activities that would modify portions of the treatable landscape and would not involve the development of residential communities or other similar types of development or induce substantial population growth. As discussed in Impact UTIL-1, a minimal amount of water would be required for fire suppression during prescribed burning activities and for dust control during vegetation removal within non-shaded fuel breaks. Depending on the location of the treatment activity, water would be supplied via nearby fire hydrants. Within remote or undeveloped areas, CAL FIRE, or the project proponent, would transport water to the treatment area via fire trucks. Because treatment activities would be implemented over a large geographic area, the pressure on local water providers would be dispersed. Therefore, the CalVTP's contribution to water supply impacts **would not be cumulatively considerable**.

As discussed in Impact UTIL-2, the volume of solid organic waste transported offsite to existing biomass power plants, wood product processing facilities, and/or composting facilities for processing could exceed existing infrastructure capacity. Although, additional infrastructure and market demand for the processing of organic materials is expected to increase in the near future, it is too speculative to assume that this expansion of infrastructure capacity would occur consistent with the increase in pace and scale of vegetation treatments under the CalVTP. Therefore, the CalVTP's contribution of additional solid organic waste to facilities without adequate capacity to process it **would be cumulatively considerable**. As explained in Impact UTIL-2, no feasible mitigation exists to reduce this impact that does not conflict with the purpose of the CalVTP to reduce wildfire risk in compliance with mandates to increase the pace and scale of vegetation treatments.

As discussed in Impact UTIL-3, implementation of the CalVTP would divert solid organic waste generated from treatment activities from solid waste facilities to biomass power plants, wood product processing facility, and/or composting for processing. This would decrease the amount of waste transported to solid waste facilities consistent with AB 939 and SB 1383. Therefore, the CalVTP's contribution to increases in solid waste **would not be cumulatively considerable**.

4.4.16 Wildfire

The geographic scope for the wildfire cumulative impact analysis is the treatable landscape and immediately adjacent areas because impacts related to wildfire (i.e., uncontrolled spread of wildfire or post-fire flooding or landslides) are location specific and only projects within or immediately adjacent to CalVTP treatment areas could combine to result in cumulative wildfire impacts. As discussed in Section 4.3, "Related Project and Plans," above, there are several similar past, present, and reasonably foreseeable projects that have and likely will use internal combustion engines within wildlands, which have the potential to create sparks and subsequent fire, and employ prescribed burning within and surrounding the treatable landscape. Examples of related projects and plans that could combine to result in significant cumulative impacts are implementation of CAL FIRE's CMP and VMP, implementation of projects under the CFIP, timber harvesting, implementation of defensible space per PRC 4291, and adjacent vegetation and fuels treatment programs implemented outside of the SRA.

The other past, present, and reasonably foreseeable projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities could result in a significant cumulative impact related to the uncontrolled spread of fire as both the frequency and severity of wildfires in California are increasing (refer to Chapter 1, "Introduction," and Section 3.17, "Wildfire," for a description of current wildfire trends). As described in Impact WIL-1, CalVTP treatment activities could result in temporary risks associated with fire from prescribed burning, as well as from the use of vehicles and heavy machinery in the treatable landscape as each can increase the risk of an accidental wildfire ignition. Several SPRs would be implemented to reduce the risk of fire from treatment activities including requiring that mechanized hand tools have federal- or state-approved spark arresters (SPR HAZ-2), which prevent the emissions of flammable debris. Vegetation treatment crews would carry one fire extinguisher per chainsaw and one long-handle shovel and one axe or Pulaski consistent with PRC Section 4428 (SPR HAZ-3), to quickly respond to an ignition should one occur. Additionally, smoking would only be permitted in designated smoking areas with barren or cleared mineral soil to at least 3 feet in diameter (SPR HAZ-4), which would help to minimize the risk of accidental wildfire ignition. Therefore, it is unlikely that the presence and use of vehicles and equipment needed to implement the treatment activities would substantially exacerbate fire risk resulting in the uncontrolled spread of wildfire. In addition, given all of the preparation (e.g., of a SMP and Burn Plan), ongoing monitoring and maintenance, and safety protocols, prescribed burning would not substantially exacerbate fire risk or result in the uncontrolled spread of wildfire. In the long term, as one of the primary purposes of the CalVTP, implementation of the treatment activities would reduce wildfire risk. Fuel reduction activities in the WUI would consist of strategic removal of vegetation to prevent or slow the spread of wildfire between structures and wildlands and vice versa. Fuel breaks would create zones of vegetation removal and ongoing maintenance, to help passively interrupt the path of a fire or slow its progress and to support fire suppression by providing responders with a staging area and access to remote locations for fire control actions. Ecological restoration would focus on restoring ecosystem processes, conditions, and resiliency by modifying uncharacteristic wildland fuel conditions to reflect

historic vegetative composition, structure, and habitat values. Therefore, to the extent the treatments reduce wildfire risk, implementation of the CalVTP would have a beneficial effect related to wildfire over the long-term and would not exacerbate fire risk. Overall, the CalVTP, in combination with other vegetation treatment plans and projects identified in Section 4.3, "Related Projects and Plans," would combine to reduce the risk of uncontrolled wildfire throughout the state. Therefore, the CalVTP's contribution to exacerbating fire risk from implementation of treatment activities **would not be cumulatively considerable**.

The other past, present, and reasonably foreseeable projects identified in Section 4.3, "Related Projects and Plans," combined with the proposed CalVTP activities could result in a significant cumulative impact related to flooding or landslides as evidenced by the significant debris flows and landslides that have occurred in California in recent years, such as the large landslide in Big Sur in May 2017 and the debris flow in Montecito in January 2018. As described in Impact WIL-2, the proposed CalVTP does not include new housing nor would it result in substantial unplanned population growth. Therefore, it would not expose people or structures to substantial risks related to post-wildfire flooding or landslides. Although prescribed burning is proposed under the CalVTP, it would be low severity and retain significant vegetation, thereby maintaining stability of the burned area. In addition, SPRs would be incorporated into qualifying CalVTP projects to help stabilize disturbed soil that is created from treatments to prevent erosion (SPR GEO-3), require inspection of treatment areas prior to the rainy season and after the first large rainfall event for evidence of erosion (SPR GEO-4), install stormwater drainage features via water breaks to reduce stormwater runoff from implementing fuel breaks (SPR GEO-5), minimize soil burn severity during prescribed burns which would help to retain vegetation to stabilize the soil (SPR AQ-3), and require that a registered professional forester or licensed geologist evaluate treatment areas for potential issues with instability and modify treatments to account for instability issues (SPR GEO-9). Therefore, prescribed burning under the CalVTP would not expose people or structures to substantial risks from post-prescribed burning landslides or flooding, and the CalVTP's contribution to impacts related to post-fire flooding or landslides from implementation of treatment activities **would not be cumulatively considerable**.

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