DISCUSSION MEMORANDUM

From: Robert M. Hertzberg

To: Santa Barbara County Local Agency Formation Commission ("LAFCO"):

Santa Barbara County Members:

Joan Hartmann, Chair, Santa Barbara County Supervisor, Third District

Das Williams, Santa Barbara County Supervisor, First District

Bob Nelson, Santa Barbara County Supervisor, Fourth District

City Members:

Alice Patino, Mayor, City of Santa Maria

Jenelle Osborne, Mayor, City of Lompoc

Special District Members:

Jay Freeman, Vice-Chair, Isla Vista Community Services District

Craig Geyer, Mosquito and Vector Management District

Cynthia Allen, Vandenberg Village Community Services District

Public Members:

Shane Stark

Jim Richardson

Date: January 30, 2023

Re: City of Lompoc Bailey Avenue Sphere of Influence (SOI) Proposal

I. Introduction – My Conditional Role.

As the public record will show, last month, I completed my term in the California Senate. There, among other roles, I served as the Majority Leader and the Chair of the Committees on Natural Resources & Water and Governance & Finance, the latter of which is responsible for legislation regarding local government revenue mechanisms, taxes and land use.

Prior to serving in the Senate, I was in the private sector for 12 years, where I focused on global renewable energy and clean technology startups, continuing a longstanding personal commitment to environmental conservation and justice. Before that, relevant here, as Speaker of the California Assembly, I led a multi-year, multi-million-dollar effort to reform the state LAFCO law, resulting in the passage of the Knox Cortese Hertzberg Act of 2000.

When I was contacted for help with the City of Lompoc's (City) application to expand its Sphere of Influence, I told the City and the property owners that I would not get involved and put my reputation on the line unless I was convinced the City's application is consistent not only with the Knox Cortese Hertzberg Act, but with other relevant policies my colleagues in the Legislature and I worked hard to advance over the last 20 years. As I will discuss further below, these relevant

policies address the state's housing crisis, environmental justice, building sustainable communities and social and economic equity.

Over the last month, I have had the opportunity to conduct a detailed review of the record of the City's proposed expansion of its Sphere of Influence to the identified Bailey Avenue properties, the City's environmental documentation and analysis, and relevant legal authorities. I am writing this memorandum to share my thoughts with you because, in my judgment, the City's Sphere of Influence application is consistent with the Knox Cortese Hertzberg Act and strikes an appropriate balance among important competing policy objectives.

In addition, my independent analysis has demonstrated to my satisfaction that the City has acted in good faith and met its obligations under the Knox Cortese Hertzberg Act and Santa Barbara LAFCO requirements. This was another critical consideration for me in my decision whether to write this memorandum in support of the City's Sphere of Influence application.

Based on my review of the record, I also believe the points raised by opponents of the proposal are the same ones that have been raised for the last 25 years, since the original application for the annexation of these properties was introduced in 1998. These points focus on the loss of agricultural lands to the exclusion of other policy considerations. While that issue is unquestionably of vital importance, the Knox Cortese Hertzberg Act of 2000 was intended to provide LAFCOs with broad quasi-legislative authority to balance all the relevant state and local policy issues with the ultimate purpose of promoting the efficient and orderly growth of the boundaries of local agencies. (See, Gov't Code, §§ 56001, 56301, 56668.) As I will discuss, state policymaking that has occurred since 2000 has brought these policy issues into stark focus.

Moreover, because all that is before you is a Sphere of Influence application, your approval will not determine the future use of this property, it will only enable such consideration in the future. Given the manner in which the City's proposal promotes various critical policy objectives I will lay out below, I strongly believe that, on balance, approval at this time is warranted.

II. California is in a Historic Housing Crisis the City has Not Been Able to Address.

a. California's Historic Housing Crisis.

California is facing an unprecedented housing crisis. Based on exhaustive Legislative factfinding, as of 2018, the Housing Accountability Act states:

> California has a housing supply and affordability crisis of historic proportions. The consequences of failing to effectively and aggressively confront this crisis are hurting millions of Californians, robbing future generations of the chance to call California home, stifling economic opportunities for workers and businesses, worsening poverty and homelessness, and undermining the state's environmental and climate objectives.
>
> (Gov't Code, § 65589.5(a)(2).)

In response, the Legislature has adopted numerous laws in the last five years to facilitate the construction of new housing as a top policy priority. In 2021, Attorney General Bonta launched a Housing Strike Force to engage in a multi-faceted effort to address the crisis. (**Att. A**, AG clips.) Despite these efforts, the state will continue to fall short of its housing needs unless steps are taken at the local level to ensure that new housing is built. Attorney General Bonta noted in August 2022 that "[a]ccording to the California Department of Housing and Community Development, California will need an estimated 2.5 million new homes by 2030 in order to meet housing demand. Yet on average, only 100,000 new homes are built in California each year." (**Att. A**.)

b. Infill Housing is Not Being Produced in Lompoc.

The opponents of the City's proposal assert that the City can meet its housing development needs with infill development, only. However, meeting housing goals through infill development has been the general approach in the City for many years. (See, e.g., **Att. B**.)

Put bluntly, an infill-only approach has comprehensively failed to produce new housing. The City produced **43** housing units in 2021, **8** in 2020, **3** per year in 2018 and 2019, **4** in 2017, and **zero** in 2016, **with zero affordable housing units produced in this six-year period**. (**Att. C**, at p. 20, 2021 General Plan Annual Report.) The City fell a total of 346 housing units short of its 527-unit Regional Housing Needs Allocation (RHNA) goal between 2014-2021. (***Ibid***.)

For its upcoming 6th Cycle Housing Element, which must be submitted to the state for certification in February 2023, the City's RHNA goal will be **2,396** new units over the next 8-years, including **886** affordable housing units. **(Att. D,** at p. 11, 12/6/22 Housing Element Update.) In the eight years between 2014 and 2021, the City produced a total of **181** housing units, **24** of which were affordable. (**Att. C**, at p. 20, General Plan Annual Report.) The City's Community Development Director confirmed to me that only **26** new units were permitted in 2022.

It has been pointed out that the City has recently identified infill sites that could theoretically accommodate the required new housing. (**Att. D**, at p. 6.) But that is no proof housing will be built. The City's 2014 5th Cycle Housing Element identified a similar scope of underutilized infill sites, but the City only realized 35 percent of its 5th Cycle housing target, a target that is more than four times lower than its 2,336-unit 6th Cycle target for the next 8 years. (**Att. E**; **Att. C**, at p. 20.)

As found by the Legislature, the ongoing failure to produce sufficient housing stifles economic growth, drives up the cost of housing, worsens inequality and homelessness, and hampers the ability to address environmental issues. (Gov't Code, § 65589.5.) To address the City's stagnant housing production amid a statewide housing crisis, the City should be permitted to develop an annexation proposal to present to the Commission on properties that: (1) already contain housing infrastructure, and (2) are all owned by partnership groups that include housing developers actively seeking to build housing.

III. Environmental Justice for Lompoc Students and Residents Should be Considered.

c. Farming Pesticides Pose Serious Health Risks to Nearby Residents and Children.

It is well documented that intensive agricultural production relies on the application of pesticides with chemicals that can endanger nearby communities through windborne "pesticide drift." (**Att. F**, CPR, The Dangers of Pesticide Exposure, April 2021.) Studies have also shown that children are particularly susceptible to negative health effects from pesticide exposures. (***Ibid.***; Att G, at p. 1, CDPH, Agricultural Pesticide Use Near Public Schools in California, April 2014.)

Bailey Avenue Plot B, the Bodger Ranch, is located immediately adjacent to Miguelito Elementary School. (**Att. H**, Map.) Plot A, the Bailey Property, is located within one-quarter mile of Clarence Ruth Elementary School. (***Ibid.***) While the use of pesticides at farms like the Bodger Ranch are limited by, among other things, 2018 state regulations that address the emerging issue of the dangers of pesticide use near schools, farms in the area are still allowed to and must, as a business necessity, use pesticides, particularly for intensive farming operations. (3 California Code of Regulations, §§ 6690 – 6692; see, e.g., **Att. I** [Bodger Ranch 2022 pesticide info].) Moreover, any reduced productivity of these agricultural properties that have resulted from efforts to protect students is another factor the Commission should consider in evaluating the City's proposal.

d. The Citizens of Lompoc Suffer Negative Health Effects from Pesticides.

Lompoc citizens have been negatively impacted by the widespread use of agricultural pesticides. One Health Hazard Assessment revealed increased rates of respiratory disease in the City, including an 85 percent greater rate of bronchitis and asthma than in other coastal areas, a 37 percent greater rate of sinusitis, and greater risks of respiratory ailments in infants. (**Att. J**.) The Office of Environmental Health Hazard Assessment's (OEHHA) CalEnviroScreen data indicates that the census tract immediately adjacent to Bailey Avenue, which includes Clarence Ruth Elementary School, has 2,505 residents and a pesticide exposure rating of 87, meaning it has greater exposure to pesticides than 87 percent of the census tracts in California based on the reported use of 132 hazardous pesticides in the near vicinity of the tract in 2017-2019. (**Att. K**.)

e. Environmental Justice Considerations Should Inform the Decision Whether to Maintain Agricultural Uses Close to Majority Latino Elementary Schools.

With the passage of SB 115 and SB 89 in 1999 and in 2000 when I was Speaker, California was among the first states to codify the principles of Environmental Justice into law. The state defines Environmental Justice as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov't Code, § 65040.12(e).) To this end, per 2016 statute SB 1000, the City will adopt its first Environmental Justice Element into its General Plan in 2023.

Lompoc has one of the highest percentages of Latino residents and students in the County. (Att. L, North SBC ACS Data.) Generally, Latino children in the state are "46% more likely than White children to attend schools with any pesticides of concern applied nearby and 91% more

likely than White children to attend schools in the highest quartile of use." (**Att. G**, p. 38, CDPH.) The CDPH's April 2014 analysis found that Latinos "were the only racial/ethnic group whose representation increased as pesticide use increased." (***Ibid.***) Miguelito Middle School students are 68 percent Latino, and 68 percent qualify as low income. (**Att. M**.) At Clarence Ruth Elementary, 86 percent of students are Latino, and 80 percent qualify as low income. (**Att. N**.)

Maintaining prime agricultural land can no longer be the only environmental policy consideration for LAFCOs where they are adjacent to sensitive uses, particularly elementary schools given younger children's greater vulnerability to pesticide exposures. Under the principles of Environmental Justice, the concern should be heightened substantially where, as is the case here, such decisions would have a disproportionate effect on Latino communities and children, the group that has historically borne the brunt of negative health impacts from pesticide drift.

Approving the City's Sphere of Influence application will allow it to address these issues in a future annexation proposal. Notably, that future proposal would analyze its consistency with the City's pending Environmental Justice General Plan Element and analyze the environmental impacts associated with pesticide exposures and other environmental factors under the California Environmental Quality Act (CEQA). Such efforts would ensure the Commission is fully informed about these critical issues in rendering a final annexation decision, when that time comes.

IV. Sustainable Communities' Principles Support Developing New Housing at the Bailey Avenue Properties to Promote Efficient Economic and Housing Growth.

a. The Sustainable Communities Strategy Promotes Co-Locating Jobs and Housing to Foster Sustainable Economic Growth.

In 2008, Senator Steinberg authored SB 375, which aligned Regional Transportation Planning with the Sustainable Communities Strategy to achieve multiple crucial policy goals: (1) reducing vehicle miles traveled (VMTs) and the state's contribution to greenhouse gas (GHG) emissions, (2) providing people better access to jobs and housing opportunities, and (3) encouraging orderly growth and development. (See, SB 375, Chapter 728, Stats. 2008.) Though its natural focus is on infill development, the Sustainable Communities Strategy generally promotes land use patterns that place housing near jobs and transit. As stated in 2050 Connected, SBCAG's current RTP-SCS, "[w]here people live, work, and play, and how they travel between the locations of those activities, now and in the future, are at the heart of a Regional Transportation Plan and Sustainable Communities Strategy." (SBCAG, 2050 Connected RTP-SCS, at p. 1.)

b. The City's Sphere of Influence Proposal Co-Locates New Housing with Future Jobs That are Critical to the Region's "Space Base" Economy.

The Bailey Avenue properties' location at the west end of the City is a mere six miles from the likely future Space Port gate at Vandenberg Space Force Base (VSFB), closer than any infill location in the City. (**Att. O**.) After many years of effort by a variety of stakeholders, the south end of VSFB is now just beginning to realize its potential as a technology hub rich with high quality jobs, in particular in the growing private space industry. Most notably, the south end of VSFB is

now the home of Space X's innovative reusable rocket program, which plans to significantly ramp up launch activities over the next ten years, planning up to 83 launches in 2029, alone. (Att. P.)

REACH, a collaborative effort among Santa Barbara County, the United States Space Force, the Governor's Office of Business and Economic Development, Cal Poly and Deloitte has led the charge with laying the groundwork for the effective implementation of VSFB as a future international hub of the public and private space industry. (Atts. Q, R.) REACH estimates that such efforts could produce $6 billion dollars in economic activity for the Central Coast and produce 16,000 new high-quality jobs at VSFB over the next 10 years. (Atts. S, T.) I spoke to the co-author of the 2021 REACH study, and he informed me that its future employment projections are conservative; he anticipates *more than* 16,000 new jobs in the next decade.

However, such economic growth is not a certainty. Having lived through the Base Realignment and Closure (BRAC) process that eliminated hundreds of U.S. military facilities, I witnessed several California communities struggle bitterly following base closures. The opportunities at VSFB are truly remarkable but, as REACH has recognized, realizing that opportunity requires not just planning but execution. VSFB is competing with facilities, particularly in Florida and Texas, for the companies and public and private investment that will build the space industry, states with far fewer barriers to the construction of new housing and infrastructure.

Objective 3.4 of REACH's 2021 Commercial Space Master Plan calls for the production of new housing and infrastructure to support the future growth of VSFB as the key cog in the region's economy. (Att. R, p. 3.) The City's Bailey Avenue Sphere of Influence proposal is thus not sprawl for sprawl's sake. Rather, it proposes building new housing *closer* to the critical south gate of VSFB than other locations where housing now exists or is proposed. It thus promotes Sustainable Communities principles by locating new housing close to new jobs, reducing VMT and GHG emissions relative to other locations in the City and County while providing the new housing needed to facilitate the region's most important engine for future economic growth.

In addition, under CEQA, the City's future annexation proposal will have to analyze the proposal's consistency with SBCAG's RTP-SCS, its GHG emissions and the manner in which those emissions would be reduced though project components, design or mitigation. Again, approving the Sphere of Influence expansion would only facilitate the development of analysis and information with a full annexation proposal that will come back to the Commission.

V. Granting the Application Would Provide Social and Economic Justice to Lompoc.

The state's interest in supporting social and economic justice is paramount, particularly where issues of racial and economic inequality are concerned. When compared to other cities and designated areas in North County, Lompoc has the lowest median household income, the lowest median home values, the highest percentage of persons in poverty, and the second highest percentage of Latino citizens. (See Att. L, North SBC ACS Data.) As discussed above, housing production in the City has also stagnated. (Att. C, at p. 20.) Even more concerning, the City's

population numbers have also stagnated as compared to other cities in North County. (**Att. T**, p. 18.) In 2021, the Census Bureau reported that the City's population actually shrank. (**Att. U**.)

Vandenberg Village, an unincorporated community near the northern gate of VSFB with a majority white population, however, has seen double digit population growth and new housing in the last ten years, with median home values now 20 percent higher than Lompoc's. (**Atts. L, U**.) Without the ability to grow, add new housing stock, increase its tax base, and bring in new jobs, denying the City's ability to consider a possible future expansion will ultimately facilitate an increase of the economic divide between places like Vandenberg Village and Lompoc.

Moreover, the City's Sphere of Influence proposal is supported by certain organized labor groups because many of the high-paying jobs coming to VSFB will be union jobs, and they want their future members to have nearby, quality housing. Younger Lompoc citizens entering the workforce should also be able to benefit from these labor groups' local hire and apprenticeship programs focused on underserved communities and minority hiring without being forced to find housing elsewhere. Lompoc should not be denied the same opportunity to grow and fully realize the benefits of VSFB's bright future that other North County cities and communities will enjoy.

VI. Conclusion.

As intended by the drafters, the Knox Cortese Hertzberg Act provides LACFOs broad legislative authority to consider the wide-ranging policy considerations and real-world implications of the critical decisions entrusted to you. (See, Gov't Code, §§ 56001, 56301, 56668.) I believe that, as set forth above, multiple relevant policy objectives advanced by the state in the last 20 years militate heavily toward allowing the City to expand its Sphere of Influence to include the Bailey Avenue properties, notwithstanding their designation as prime agricultural land.

Importantly, this decision would not allow farmland to be replaced with housing. Rather, it would merely allow the City to develop a detailed annexation proposal with environmental analysis to tee up the key issues for the Commission's consideration at a future date.

I believe, after 25 years, now is the time to let the City move forward with that effort.

ATTACHMENT A

ROB BONTA
Attorney General

Attorney General Bonta Urges Court to Expedite Review of CEQA Lawsuit Jeopardizing New Affordable Housing Project in Livermore

Press Release / *Attorney General Bonta Urges Court to Expedite Review of CEQ…*

Tuesday, August 9, 2022

Contact: (916) 210-6000, agpressoffice@doj.ca.gov

OAKLAND – California Attorney General Rob Bonta today filed an amicus brief in *Save Livermore Downtown v. City of Livermore* in support of the City of Livermore's request for dismissal or expedited review of an appeal challenging its approval of a 130-unit affordable housing project under the California Environmental Quality Act (CEQA). A trial court flatly rejected Save Livermore Downtown's claims and dismissed the lawsuit. Now, the continued delay caused by this litigation threatens to jeopardize the project's funding. As California confronts a severe housing shortfall, Attorney General Bonta argues that CEQA must not be allowed to thwart the construction of necessary affordable housing or the statutory processes intended to streamline these projects.

"Timing is critical for affordable housing projects, which often rely on time-sensitive funding sources like tax credits to finance development," **said Attorney General Bonta.** "The project at issue in this case would bring desperately needed affordable housing to the City of Livermore, and I commend the City for its efforts to address the housing needs of its community. Our state is continuing to face a housing shortage and affordability crisis of epic proportions. CEQA plays a critical role in protecting the environment and public health here in California. We won't stand by when it is used to thwart new development, rather than to protect Californians and our environment. Expedited review of this case will be key to allowing this development to proceed without further delay."

Six months ago, a trial court rejected all of Save Livermore Downtown's claims and imposed a $500,000 bond obligation based on the lawsuit's lack of merit. Despite this finding, the group appealed. By dragging out the litigation, Save Livermore Downtown has jeopardized the project's financing and potentially put the entire viability of the project at risk.

Today's brief in support of the City of Livermore pushes back against this abuse of CEQA to unduly delay a much-needed housing project. According to the California Department of Housing and Community Development, California will need an estimated 2.5 million new homes by 2030 in order to meet housing demand. Yet on average only 100,000 new homes are built in California each year. Infill development — the development of vacant or underutilized plots in existing urban areas — is critical for local governments to address the housing crisis and meet state housing goals. The City of Livermore carefully followed a planning process that comports with both the letter and spirit of state law. Attorney General Bonta urges the court to expedite judicial review of the appeal to the fullest extent possible, arguing that the mere filing of an appeal in a CEQA case must not be permitted to stall or block critical projects.

Attorney General Bonta is committed to advancing housing access, affordability, and equity in California, including protecting and promoting tenants' rights. In November, Attorney General Bonta announced the creation of the Housing Strike Force and launched a Housing Portal on DOJ's website with resources and information for California homeowners and tenants. The Housing Strike Force encourages Californians to send complaints or tips related to housing to housing@doj.ca.gov. To find a free legal aid attorney in your area, visit https://lawhelpca.org.

A copy of the brief can be found here.

# # #

ROB BONTA
Attorney General

Attorney General Bonta Launches Housing Strike Force, Announces Convening of Tenant Roundtables Across the State

Press Release / *Attorney General Bonta Launches Housing Strike Force, Announ…*

Wednesday, November 3, 2021

Contact: (916) 210-6000, agpressoffice@doj.ca.gov

Launches Housing Portal with resources and information for California homeowners and tenants

OAKLAND – California Attorney General Rob Bonta today announced the creation of a Housing Strike Force within the California Department of Justice (DOJ) and the convening of a series of tenant roundtables across the state. Attorney General Bonta today also launched a Housing Portal on DOJ's website with resources and information for California homeowners and tenants. Together, the Housing Strike Force, roundtables, and Housing Portal are part of DOJ's new effort to advance housing access, affordability, and equity in California. DOJ's Housing Strike Force will draw on the expertise of attorneys from the

Land Use and Conservation Section, the Consumer Protection Section, the Civil Rights Enforcement Section, and the Environment Section's Bureau of Environmental Justice to address the housing crisis and to alleviate its effects.

"California is facing a housing shortage and affordability crisis of epic proportion," **said Attorney General Rob Bonta.** "Every day, millions of Californians worry about keeping a roof over their head, and there are too many across this state who lack housing altogether. Our Housing Strike Force, along with the tenant roundtables and Housing Portal, will allow DOJ to ramp up our efforts to tackle this crisis and advance housing access, affordability, and equity across California. This is a top priority and a fight we won't back down from. As Attorney General, I am committed to using all the tools my office has available to advance Californians' fundamental right to housing."

"California has a once-in-a-generation opportunity to address its housing crisis thanks to the historic $22 billion housing and homelessness investments in this year's budget. But it'll only work if local governments do their part to zone and permit new housing," **said Governor Gavin Newsom.** "The Attorney General's emphasis on holding cities and counties accountable for fair housing, equity and housing production is an important component to the state's efforts to tackle the affordability crisis and create greater opportunities for all Californians to have an affordable place to call home."

"Passing strong housing laws is only the first step. To tackle our severe housing shortage, those laws must be consistently and vigorously enforced," **said California State Senator Scott Wiener, Chair of the Senate Housing Committee.** "I applaud Attorney General Bonta's commitment to strong enforcement of California's housing laws."

Over the last four decades, housing needs have significantly outpaced housing production in California. Housing costs have skyrocketed, making it harder for Californians to keep a roof over their heads. Despite significant effort, California

continues to host a disproportionate share of people experiencing homelessness in the United States, with an estimated 150,000 Californians sleeping in shelters, in their cars, or on the street. California's 17 million renters spend a significant portion of their paychecks on rent, with an estimated 700,000 Californians at risk of eviction. High home purchase costs — the median price of a single-family home in California is more than $800,000 — have led to the lowest homeownership rates since the 1940s. Due to decades of systemic racism, these challenges have continuously and disproportionately impacted communities of color. For example, almost half of Black households in California spend more than 30% of their income on housing, compared with only a third of white households.

DOJ's Housing Strike Force will take an innovative and intersectional approach to addressing the housing crisis, focusing on tenant protections, housing availability and environmental sustainability, housing affordability, and equitable and fair housing opportunity for tenants and owners. Specifically, the Strike Force will work to address the shortage and affordability crisis by:

- Enforcing state housing and development laws in the Attorney General's independent capacity and on behalf of DOJ's client agencies. Earlier this year, the Governor signed AB 215 enhancing the Attorney General's concurrent role in enforcing state housing laws;
- Enforcing tenant rights, mortgage servicing, and other consumer protection laws;
- Issuing consumer alerts advising tenants and homeowners on their protections under state and federal law;
- Issuing guidance letters to local governments on state housing laws;
- Defending state housing and tenant protection laws from legal challenges; and
- Advocating with the state legislature, federal agencies, and other state agencies to advance a right to housing.

The Attorney General's tenant roundtables and Housing Portal will also inform and serve as a repository for the Housing Strike Force's priorities and work. In the coming months, Attorney General Bonta will travel across the state to meet with tenant groups and identify opportunities for the Housing Strike Force to leverage the tools of the Office of the Attorney General to protect California's tenants. The Housing Portal, launched today, will give Californians the tools they need to avail themselves of protections under state and federal law. As the Housing Strike Force mobilizes, the Portal will also be updated to include information on the Housing Strike Force's priorities, enforcement efforts, and roadmaps for citizen involvement. The Housing Strike Force encourages Californians to send complaints or tips related to housing to housing@doj.ca.gov. Information on legal aid in your area is available at https://lawhelpca.org.

Attorney General Bonta is committed to advancing housing access, affordability, and equity. Following the expiration of the statewide eviction moratorium on October 1, Attorney General Bonta issued a consumer alert, and accompanying video, reminding California's tenants and homeowners of their rights and protections under California law. The Attorney General also successfully defended the constitutionality and statewide applicability of the California Housing Accountability Act (HAA). The HAA protects housing availability and affordability by imposing limits on the ability of cities to reject proposals for housing developments that otherwise satisfy general plan and zoning requirements. Attorney General Bonta supported Assemblymember David Chiu's AB 215, which solidifies the commitment to enforce state laws designed to address the housing shortage crisis.

# # #

ATTACHMENT B

Santa Maria Sun / News

The following articles were printed from Santa Maria Sun [santamariasun.com] - Volume 20, Issue 12
Share:

Cities push back on proposed changes that would make it difficult to annex farmland

BY ZAC EZZONE

Cities in Santa Barbara County could have a harder time annexing farmland to grow their boundaries if the Santa Barbara Local Agency Formation Commission (LAFCO) implements a few proposed policy changes. One of the changes would require the development of prime agricultural land to be mitigated with an equal amount of land preserved.

The city of Lompoc hasn't annexed land and expanded its boundary since 1999, which has stifled the number of new homes built in the city. Although the city is working on annexing two parcels of land on its west side, its ability to do so would be affected by these changes. Aside from Lompoc's 2019-21 biennial budget, this inability to grow is City Manager Jim Throop's biggest concern.

"This is what I would consider one of the top priorities, if not the top priority—pushing the budget aside—for the city because so much of what we need to do and want to do hinges on our ability to expand our boundaries," Throop said.

LIMITING EXPANSION

Proposed countywide changes would make it more difficult for Lompoc to annex farmland and expand the city's boundary.

FILE PHOTO BY CAMILLIA LANHAM

In California, local jurisdictions that want to annex land and expand their boundaries must go through a process with their county's LAFCO. The Santa Barbara LAFCO is proposing to change these policies to encourage conservation of open-space areas and agricultural land.

Of the proposed changes, Throop said the most significant is the measure requiring the development of prime agricultural land to be mitigated because it would be costly to the landowner. For example, if the owner of a 10-acre farm wants their property to be annexed into a city, the landowner must preserve 10 acres of land elsewhere through various means.

To mitigate, an applicant could purchase a parcel of land for preservation, or an applicant could pay in-lieu fees to fully fund the acquisition and dedication of land, according to the Santa Barbara LAFCO. Throop noted that the proposed policy also leaves a vague option open for the applicant and annexing city to agree to other mitigation options.

The cost of this mitigation could deter some landowners from choosing to be annexed into a city, Throop said. According to a map of county farmlands created by the California Department of Conservation, much of Lompoc is surrounded by prime agricultural land, which would make mitigation necessary in most annexation scenarios.

Additionally, with the exception of a few vacant lots, most of the city is built out, which leaves annexation as the city's only option for opening up space for housing and businesses.

As the number of rocket launches from Vandenberg Air Force Base has increased, businesses have expressed interest in opening facilities in the city to store and maintain rockets, but the city doesn't have the space available.

"Without being able to push out, we cannot pull in those types of businesses that would be a huge benefit to this community because those are the types of jobs—they aren't retail, they aren't $12 an hour—they would be much, much better paying," Throop said.

The city of Santa Maria is in a similar situation, minus the rockets.

Most of the city north of Betteravia Road is surrounded by prime agricultural land, and there are few vacant lots remaining in the city. This leaves little room for the additional 30,000 residents the Santa Barbara County Association of Governments estimates will move to the city over the next 20 years.

Santa Maria is preparing to embark on a three-year study to update its general plan, which will look at different options to accommodate this projected growth. But before seeing the data, aerial photos of the city show there isn't much room left, Community Development Director Chuen Ng said.

"There's a thought that future housing could be within the city's existing corridors, and there may be a combination of infill and expansion," Ng said. "I'm skeptical that the existing areas could accommodate 30,000 persons or 10,000 housing units."

While Santa Maria and Lompoc officials have expressed concern over these changes, LAFCO Executive Officer Paul Hood said the policies are consistent with similar ones used by commissions in neighboring San Luis Obispo and Ventura counties.

The commission requested LAFCO staff review its policies on agricultural land and open spaces after receiving a letter from the Environmental Defense Center in April 2018 and after reviewing a report from the California Association of LAFCOs in May 2018.

During a subsequent meeting in October 2018, LAFCO staff recommended that the commission examine its existing policies and consider revisions. The October meeting's staff report cites Lompoc's attempt to annex two parcels of land totaling almost 150 acres near Bailey Avenue as the reason this consideration is necessary.

"In light of a current proposal involving the … annexation of prime agricultural lands west of the city of Lompoc, it is timely for the commission to review and pontifically revise its agricultural and open-space policies," the staff report states.

In late March 2019, LAFCO sent a letter to all cities within the county and to the county itself requesting comments on the proposed changes by May 15. Lompoc and Santa Maria replied with letters that raised objections to all of the potential changes.

Hood said he will present the feedback to LAFCO at the commission's June 6 meeting in Santa Maria. There is no set date for when the commission will vote on the proposed changes.

Over the last two decades, Throop said that Lompoc has found it difficult to work with LAFCO to annex land. If these changes are approved, it could make this process even more arduous, he said.

"We're down here just trying to make ends meet, and by not being able to expand and grow, it's going to be extremely hard for the city to pull itself out of the situation it's in," Throop said.

Reach Staff Writer Zac Ezzone at zezzone@santamariasun.com.

Share:

Nature Nights

Nov 11, 2022 to Mar 19, 2023

San Luis Obispo Botanical Garden
San Luis Obispo, CA

Get Tickets

2023 Point San Luis Lighthouse Tour

Jan 1, 2023 to Dec 31, 2023

Point San Luis Lighthouse
Avila Beach, CA

Get Tickets

Sip of SLO

Jan 5, 2023 to Jul 1, 2023

Central Coast Brewing Co.
San Luis Obispo, CA

Get Reservations

Friday Hoppy Hour!

Jan 6, 2023 to Jul 1, 2023

Central Coast Brewing Co.
San Luis Obispo, CA

Get Reservations

The Red Velvet Cake War

Jan 13, 2023 to Jan 29, 2023

Santa Maria Civic Theatre
Santa Maria, CA

Get Tickets

Your New Vibe: Intention, Manifestation, Action

Jan 27, 2023 from 4:00 PM to 6:00 PM

Vibe Health Lounge
San Luis Obispo, CA

Get Tickets

Anomaly House Presents Studio 110: An Evening of Disco-Infused House Music on Vinyl

Jan 27, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

SLOFunny Comedy Show

Jan 28, 2023 from 6:30 PM to 10:30 PM

Veterans Memorial Building
Morro Bay, CA

Get Tickets

GrrlGore Productions Presents HEXENGHUL, DISRUPTED EUPHORIA, SINSATION, and PENTACAUSTIC Live in Concert

Jan 28, 2023 at 7:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Pilates / Hike to the Lighthouse

Jan 29, 2023 from 9:00 AM to 1:30 PM

Point San Luis Lighthouse
Avila Beach, CA

Get Tickets

SLOFunny Comedy Gym

Jan 29, 2023 at 5:30 PM

Niffy's Merrimaker
Baywood-Los Osos, CA

Get tickets

Americana Night: GAS STATION SUSHI w/ Special Guests THE JOHNNY COME LATELIES

Feb 3, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

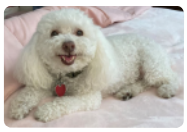
Pilates / Shuttle to the Lighthouse

Feb 4, 2023 at 9:00 AM to Feb 18, 2023 at 11:30 PM

Point San Luis Lighthouse
Avila Beach, CA

Get Tickets

Cupid Paws Doggie Parade



Feb 4, 2023 from 11:00 AM to 12:00 PM

Front Street
Avila Beach, CA

Get Tickets

SPACED OUT BEATS w/ DJs Frank the Tank and Joe Rock

Feb 4, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Full Moon Ceremony & Shamanic Water Ritual

Feb 5, 2023 from 5:00 PM to 7:00 PM

9th limb Yoga, 845 Napa Ave
Morro Bay, CA

Get Tickets

Anomaly House Presents "The Gearworx" (Hard EDM, Goth, Darkwave, Industrial, and More!)

Feb 8, 2023 at 7:00 PM

110 W Ocean Ave
Lompoc, CA

Get tickets

Shakti: Embodying the Goddess

Feb 9, 2023 from 5:15 PM to 7:00 PM

9th limb Yoga, 845 Napa Ave
Morro Bay, CA

Get Tickets

9th Annual Southern Exposure Garagiste Wine Festival

Feb 10, 2023 to Feb 11, 2023

Solvang Veterans Memorial Hall
Solvang, CA

Get Tickets

Stand-Up Comedy, Hosted by Justin Bournonville

Feb 10, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

The Dunes Center docent-led Huell Howser Memorial Nature Walk at Oso Flaco Lake

Feb 11, 2023 from 9:00 AM to 12:00 PM

Oso Flaco Lake
Arroyo Grande, CA

Get Reservations

We Found Love: Drag Show - 6pm

Feb 11, 2023 at 6:00 PM

Flower City Ballroom
Lompoc, CA

Get tickets

We Found Love: Drag Show - 9pm

Feb 11, 2023 at 9:00 PM

Flower City Ballroom
Lompoc, CA

Get tickets

Whimsical Woodwinds

Feb 12, 2023 at 5:30 PM

Cass Winery
Paso Robles, CA

Get Tickets

The Psychic

Feb 17, 2023 at 7:00 PM to Mar 12, 2023 at 8:00 PM

St Peter's by the Sea Episcopal Church Hall
Morro Bay, CA

Get Tickets

RIVAL CULTS and NEW CLEMENTINE Live in Concert

Feb 17, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Yoga / Shuttle to the Lighthouse

Feb 18, 2023 from 9:00 AM to 12:00 PM

Point San Luis Lighthouse
Avila Beach, CA

Get Tickets

THE ONLY OCEAN, GOODGRIEF, and RADIATION INVASION Live in Concert

Feb 18, 2023 at 6:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Ernie Watts - Bill Cunliffe Duo

Feb 18, 2023 from 7:30 PM to 9:30 PM

Mt. Carmel Lutheran Church
San Luis Obispo, CA

Get Tickets

Michael Nowak and Friends present Schubert's "Trout" Quintet

Feb 19, 2023 at 3:00 PM

Trinity United Methodist Church
Los Osos, California

Get Tickets

Barrel Room Concert: Monterey County Line

Feb 19, 2023 from 4:00 PM to 6:00 PM

Cass Winery
Paso Robles, CA

Get tickets

Baller Pass

Feb 23, 2023 at 12:00 PM to Feb 27, 2023 at 12:00 PM

San Luis Obispo
San Luis Obispo, CA

Get Passes

Marvelous Mayhem

Feb 23, 2023 at 7:00 PM

Firestone Walker Taproom
Paso Robles, CA

Get Tickets

Provocative Banter

Feb 23, 2023 at 7:30 PM

Mr. Ricks
Avila Beach, CA

Get Tickets

Evening Laughs

Feb 23, 2023 at 8:00 PM

Odd Fellows Lodge
San Luis Obispo, CA

Get Tickets

Delectable Absurdities

Feb 24, 2023 at 7:00 PM

The Mark
San Luis Obispo, CA

Get Tickets

LA MARCHA SOUND Live in Concert

Feb 24, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Pure Stand-Up

Feb 24, 2023 at 8:00 PM

Luna Red
San Luis Obispo, CA

Get Tickets

Silly Saison

Feb 24, 2023 at 8:30 PM

Libertine Brewing Company
San Luis Obispo, CA

Get Tickets

Battle of the Sexes

Feb 24, 2023 at 9:00 PM

The Mark
San Luis Obispo, CA

Get Tickets

90 Minute Abs

Feb 24, 2023 at 9:30 PM

Milestone Tavern
San Luis Obispo, CA

Get Tickets

Poisoned

Feb 24, 2023 at 11:00 PM

Luna Red
San Luis Obispo, CA

Get Tickets

FREEDOM HEARTSONG, CATOK, and THE BAND CARTER Live in Concert

Feb 25, 2023 at 4:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Orcutt Children's Arts Foundation Gala

Feb 25, 2023 at 5:00 PM

Radisson Hotel Santa Maria
Santa Maria, CA

Get tickets

SLOcase

Feb 25, 2023 at 5:00 PM

The Mark
San Luis Obispo, CA

Get Tickets

Delectable Absurdities

Feb 25, 2023 at 7:00 PM

The Mark
San Luis Obispo, CA

Get Tickets

Pure Stand-Up

Feb 25, 2023 at 8:00 PM

Luna Red
San Luis Obispo, CA

Get Tickets

Silly Saison

Feb 25, 2023 at 8:30 PM

Libertine Brewing Company
San Luis Obispo, CA

Get Tickets

Battle of the Sexes

Feb 25, 2023 at 9:00 PM

The Mark
San Luis Obispo, CA

Get Tickets

90 Minute Abs

Feb 25, 2023 at 9:30 PM

Milestone Tavern
San Luis Obispo, CA

Get Tickets

Only the Nasty Survive

Feb 25, 2023 at 10:00 PM

SLO Brew Rock
San Luis Obispo, CA

Get Tickets

Poisoned

Feb 25, 2023 at 11:00 PM

Luna Red
San Luis Obispo, CA

Get Tickets

Accessibility Training

Feb 28, 2023 from 8:00 AM to 4:00 PM

Pavilion on the Lake
Atascadero, CA

Get Tickets

Disabled Access & Code Changes Forum

Mar 1, 2023

Pavilion on the Lake
Atascadero, CA

Get Tickets

46 West Wine Safari Weekend!

Mar 4, 2023 at 11:00 AM to Mar 5, 2023

HWY 46
Paso Robles, CA

Get Tickets

Pilates / Kayak to the Lighthouse

Mar 5, 2023 from 10:00 AM to 1:30 PM

Point San Luis Lighthouse
Avila Beach, CA

Get Tickets

Crafty Women Tastings & Tour

Mar 11, 2023 at 11:00 AM

The Hub
San Luis Obispo, CA

Get Reservations

Singing Her Story

Mar 12, 2023 at 3:00 PM

United Methodist Church
San Luis Obispo, CA

Get Tickets

Harmonious Harp

Mar 12, 2023 at 5:30 PM

Cass Winery
Paso Robles, CA

Get Tickets

Vocal Arts Ensemble Spring and Summer 2023 Season (10% DISCOUNT for 3 or more tickets!)

Mar 16, 2023 to Jun 4, 2023

Get tickets

Folk Music of The World

Mar 16, 2023 at 7:00 PM

Trilogy at Monarch Dunes
Nipomo, CA

Get tickets

Folk Music of The World

Mar 18, 2023 at 3:00 PM

United Methodist Children Center
San Luis Obispo, CA

Get tickets

Yoga / Kayak to the Lighthouse

Mar 19, 2023 from 10:00 AM to 1:30 PM

Point San Luis Lighthouse
Avila Beach, CA

Get Tickets

Folk Music of The World

Mar 19, 2023 at 3:00 PM

Harold J. Miossi Cultural and Performing Arts Center (CPAC) at Cuesta College
San Luis Obispo, CA

Get tickets

Barrel Room Concert: RUN 4 COVER

Mar 19, 2023 from 4:00 PM to 6:00 PM

Cass Winery Barrel Room Event Center
Paso Robles, CA

Get Tickets

Kalos-Scottish & Traditional Music Trio

Mar 26, 2023 at 3:00 PM

Old Santa Rosa Chapel
Cambria, CA

Get Tickets

Kalos-Scottish & Traditional Music Trio

Mar 26, 2023 at 7:00 PM

Old Santa Rosa Chapel
Cambria, CA

Get tickets

Co-Creation Project VI

Apr 2, 2023 at 4:00 PM

Harold J. Miossi Cultural and Performing Arts Center (CPAC) at Cuesta College
San Luis Obispo, California

Get Tickets

The Guadalupe-Nipomo Dunes Center Docent-led Bird & Nature Walk at Oso Flaco Lake with John Deacon

Apr 15, 2023 from 8:00 AM to 10:00 AM

Oso Flaco Lake

Get Tickets

METALACHI Live in Concert

Apr 22, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

KNEE DEEP Live in Concert

Apr 29, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Duo Carbe & Durand of Incendio

Apr 30, 2023 from 3:00 PM to 5:15 PM

Old Santa Rosa Chapel
Cambria, CA

Get Tickets

Jerrod Niemann at Rava Wines

May 20, 2023 at 7:30 PM

Rava Wines
Paso Robles, CA

Get Tickets

THE MIGHTY CASH CATS Live in Concert

May 20, 2023 at 8:00 PM

Flower city ballroom
Lompoc, CA

Get tickets

Baroque Jubilation

May 28, 2023 at 3:00 PM

Mission San Miguel Arcángel
San Miguel, CA

Get Tickets

Vocal Arts Summer Concert

Jun 1, 2023 at 7:00 PM

Trilogy at Monarch Dunes
Nipomo, CA

Get Tickets

Summer Concert: Vocal Arts Ensemble at the Mission

Jun 3, 2023 from 3:00 PM to 5:00 PM

Mission San Luis Obispo de Tolosa 1772
San Luis Obispo, CA

Get Tickets

Vocal Arts Summer Concert

Jun 4, 2023 at 3:00 PM

Harold J. Miossi Cultural and Performing Arts Center (CPAC) at Cuesta College
San Luis Obispo, CA

Get Tickets

ATTACHMENT C

City of LOMPOC

2021 General Plan Annual Report

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Community Development Department – Planning Division

Our Mission Statement

The mission of the Planning Division is to foster the orderly growth and protect the quality of life of the community. We will accomplish this by utilizing the best available planning techniques and resources to implement the City's long-range plans and to perform design and environmental review of development proposals. We will perform our planning duties in a manner that reflects the City Council's direction and maintains the ethical standards promoted by the American Planning Association and the American Institute of Certified Planners.

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Acknowledgments

City Council Members
Jenelle Osborne, Mayor
Jeremy Ball, Mayor Pro-Tempore
Dirk Starbuck
Gilda Cordova
Victor Vega

Dean Albro, City Manager

Planning Commission Members
Federico Cioni, Chair
Edwin Braxton, Vice Chair
Brianna Gonzales
Dan Badertscher
Augusto Caudillo

Steve Bridge (Former Commissioner)
Sasha Keller (Former Commissioner)

The 2021 General Plan Annual Report was prepared by the Community Development Department/Planning Division for review by the Planning Commission and acceptance by the City Council.

The Planning Division assumes the lead for staff work involving the General Plan. However, all City departments and divisions are involved in General Plan implementation and have contributed to the 2021 General Plan Annual Report.

Project Managers
Christie Alarcon, Community Development Department Director
Brian Halvorson, Planning Manager

Staff Contributors
Christie Alarcon, Community Development Director
Charles Berry, Utilities Director
Eric Hagen, Building Official
Dena Paschke, Fire Marshal
Joseph Mariani, Police Chief
Craig Dierling, City Engineer/Assistant Public Works Director
Dirk Ishiwata, Facilities, Fleet & Park Maintenance Manager
Mario Guerrero, Recreation Manager
Ricard Gracyk, Wireless Service Manager
Sean O'Neil, Urban Forestry Manager
Dorin Marrs, Wastewater Collection Supervisor
Jose Valdez, Senior Water Distribution Operator
Richard Fernbaugh, Aviation Transportation Administrator
Dave Campo, Electrical Estimator
Keith Quinlan, Solid Waste Superintendent
Cherridah Weigel, Development Services Assistant II
Chanel Ovalle, Community Development Program Manager

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Table of Contents

Tables

Appendix

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Introduction

Government Code subsection 65400(a)(2) requires that the City file an annual report addressing the status of the General Plan and progress made toward implementation of its goals, policies, and programs, including progress in meeting its share of regional housing needs and efforts to remove governmental constraints to the maintenance, improvement, and development of housing. The annual report requires presentation to the City Council for review and acceptance. A copy of the annual report is required by and provided to the Office of Planning and Research (OPR) and the Department of Housing and Community Development (HCD) by April 1 of each year.

This annual report covers the calendar year of January 1, 2021, to December 31, 2021.

Acceptance Date

The 2021 Annual General Plan Progress Report was reviewed and accepted by the Planning Commission on March 9, 2022, and by the City Council on March 15, 2022.

Planning Division

"The Legislature finds and declares that California's land is an exhaustible resource, not just a commodity, and is essential to the economy, environment and general well-being of the people of California. It is the policy of the state and the intent of the Legislature to protect California's land resource, to ensure its preservation and use in ways which are economically and socially desirable in an attempt to improve the quality of life in California." Government Code section 65030.

To this end, the Planning Division plans for and promotes reasonable, productive, and safe long-term uses of land, which fosters economic and environmental prosperity.

Planning Division Activities

Planning Division activities include preparing and administering the City's General Plan and Zoning Ordinance, processing amendments, conducting environmental review, preparing specific plans, reviewing subdivisions and various development proposals, informing the public of the City's land use policies and development ordinances, processing annexation requests, and providing demographic and census information.

Some of the highlights of this year's accomplishments include:

- Approval of two large Cannabis cultivation projects (Organic Liberty and Mustang)
- Conducted public workshops and draft concept plans for Streetscape Multi-Modal Improvement Plan (funded by SB 1 and administered by the California Department of Transportation Sustainable Communities Planning Grant)
- Coordinated with LAFCO and Santa Barbara County for the ongoing processing and coordination of the Bailey Avenue Sphere of Influence Amendment/Annexation application
- Completed the annual Housing Unit Survey to the State Department of Finance
- Prepared the Planning Commission Annual Report to City Council
- Council approval of Subdivision Code Text amendments to streamline permitting requirements for Lot Line Adjustments
- Adopted the City's first Safe Parking Program
- Zoning code text amendments to Chapter 17.324 (Inclusionary Housing) to allow residential developments located inside the Old Town Redevelopment Project Amendment No. 2 area to meet inclusionary housing requirements with alternative methods of compliance considered by the review authority, including, but not limited to payment of housing in-lieu fees and off-site construction of affordable units
- Zoning Code Text and Architectural Review Guidelines amendments streamlining permitting requirements for mobile vendors and small housing projects
- Approval of the River Terrace gated residential project with 257 residential condominium units (106 detached single family residences, 76 residential duplexes, and 75 townhomes)
- Façade improvement approval for two new stores (formerly Vons), including Aldi's (grocery) and Boot Barn (retail western ware)
- Two drive-thru coffee shops approved (Dutch Bros and Human Bean) on HWY 1
- Adopted CEQA thresholds of significance (Vehicle Miles Traveled) as required by Senate Bill 743 to assess and analyze project related transportation impacts

Highlights of this year's accomplishments (Con't)

- Participated in Regional Planning meetings with SBCAG and received notification from the Department of Housing and Community Development for the 6th Cycle Regional Housing Needs Allocation (RHNA)
- Approved 8 licenses for new Cannabis businesses (2 retail dispensaries, 1 manufacturing, 3 distribution, 1 processing, and 1 delivery)
- Implemented ArcGIS Storymaps to improve the display and presentation of current development projects on the City's Planning Division website

Planning Commission Activities & Development Applications Processed

The Planning Commission has authority over planning and zoning matters as set forth by City and State law. The Planning Commission makes recommendations to the City Council regarding general plan amendments, zone changes, planned developments, and amendments to the Zoning and Subdivision Ordinances. The Commission may approve, conditionally approve, or deny applications for Tentative Subdivision maps, Development Plans, architectural plans, Conditional Use Permits, and variances. The latter items are reviewed by the City Council only on appeal. The Commission also performs review of environmental documents in accordance with the California Environmental Quality Act (CEQA) in conjunction with review of applications.

The Planning Division provides staff support to the Planning Commission. Routine tasks include the scheduling of meetings, preparing agendas, posting hearing notices, preparing staff reports and recommendations, and preparing minutes. During the 2021 annual report period, the Planning Commission held a total of 9 regular/special scheduled public meetings.

Planning Division staff provides environmental review as required under CEQA and land use analysis, and prepares staff reports for the Planning Commission and City Council.

During the 2021 annual reporting period, the Planning Commission reviewed the following applications:

- Conditional Use Permits – 2
- Development Plan Reviews – 6
- Map Applications
    - Parcel Maps – 1
    - Tentative Maps - 1
    - Time Extensions – 1
- Permit Amendments – 2
- General Plan Conformity Determinations – 2
- Zoning Code Text Amendments – 4
- Presentations to the Planning Commission – 2
- Planning Commission Annual Report – 1
- General Plan Annual Progress Report – 1

A complete list and map of all current development projects and associated pending applications are found on the City's Planning Division webpage at:

https://www.cityoflompoc.com/government/departments/economic-community-development/planning-division/planning-documents-and-maps/-folder-112

General Plan Updates

Each element of the General Plan was completed according to the General Plan Guidelines developed and adopted by the Governor's Office of Planning and Research (OPR). The City's General Plan was updated as shown in Table 1 below. The last major update was conducted in two phases. Phase one included the Environmental Impact Report (EIR) along with the Land Use, Circulation, and Housing Elements. Phase two included Conservation and Open Space, Parks and Recreation, Urban Design, Noise, Safety and Public Services. An optional Economic Development Element was adopted in 2015. The Housing Element for the 2014-2022 Housing Cycle was adopted by the City Council on February 3, 2015 and submitted to the State Department of Housing and Community Development (HCD) on March 13, 2015. After review, HCD required additional clarifications within the document, and the City revised the Housing Element accordingly. On December 15, 2015, the City Council adopted an Addendum to the Negative Declaration and the revised 2015 Housing Element for the 2014-2022 Housing Cycle. The adopted Housing Element was forwarded to HCD on December 17, 2015 and was accepted by HCD on December 29, 2015. The City is in the preliminary stages for conducting updates to the Land Use Element, Circulation Element, Housing Element, Safety Element, Economic Development Element, and the development of a new Environmental Justice Element. These updates will be ongoing in 2022 and are expected to be completed in 2023.

TABLE 1 – GENERAL PLAN ELEMENTS & PENDING UPDATES

Element	Date of Adoption or Major Update	Comment
Land Use	November 29, 2013	Revised October 16, 2018 and December 17, 2019 Pending Update in 2023
Circulation	November 29, 2013	Revised June 16, 2015 and December 17, 2019 Pending Update in 2023
Housing	December 15, 2015	Pending Update in 2023
Parks and Recreation	September 23, 2014	N/A
Public Services	September 23, 2014	N/A
Urban Design	September 23, 2014	N/A
Conservation / Open Space	September 23, 2014	Pending Update in 2023
Noise	September 23, 2014	N/A
Safety	September 23, 2014	Pending Update in 2023
Economic Development	August 18, 2015	Pending Update in 2023

Land Use Element

The **Land Use Element** of a General Plan identifies the proposed general distribution and intensity of uses of land designated for housing, business, industry, open space, natural resources, public facilities, waste disposal sites, and other categories earmarked for public and private uses.

Adoption:	November 19, 2013
Revised:	July 19, 2016 – amended the Land Use Element Map for a parcel (previously in the County) to Low Density Residential
Revised:	October 16, 2018 – amended the Land Use Element Map for a parcel to General Commercial
Revised:	December 17, 2019 – amended the Land Use Element Map for a parcel to Mixed Use and various parcels to General Commercial (GC), and text/map amendments in order to conform to the updated zoning ordinance
Next Update:	Various updates anticipated to be completed by 2023

Circulation Element

The **Circulation Element** identifies the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities.

Adoption:	November 19, 2013
Revised:	June 16, 2015 – amended the Bikeways Map
Revised:	December 17, 2019 – text amendments removing references to the Old Town Specific Plan that was deleted as part of the updated zoning ordinance
Next Update:	Various updates anticipated to be completed by 2023

Parks and Recreation Element

The **Parks and Recreation Element** addresses the provision of parks and recreational facilities. Included in the City's Parks and Recreation Element are parks and recreational uses to which open space land can be devoted.

Adoption: September 23, 2014

The Beattie Park playground (shown below) was completed during this reporting period and includes a sensory wave climber accessible to children with disabilities, along with sensory panels, a roller slide and spiral tower slides. Lompoc's newest playground is considered to be the largest inclusive playground in Santa Barbara County.

Public Services Element

The **Public Services Element** addresses the provision of municipal services to City residents. Included in the City's Public Services Element are the City's electrical system, wild land and urban fire hazards, library facilities and services, fire and police services, public buildings and facilities, schools, sewer system, solid waste disposal system, storm drainage system, and the City's water system.

Adoption: September 23, 2014

Urban Design Element

The **Urban Design Element** guides the visual aspects of the built environment to create a city identity and a sense of place. The Urban Design Element encompasses general physical aspects of the community such as architecture, landscaping, roadways, landmarks, open spaces and views, and the overall image of the City in relationship to its surroundings.

Adoption:	September 23, 2014

Conservation / Open Space Element

The **Conservation / Open Space Element** provides direction regarding the conservation, development, and utilization of natural resources.

Adoption:	September 23, 2014

Noise Element

The **Noise Element** identifies and appraises noise problems in the community. A future amendment to the noise element is pending.

Adoption:	September 23, 2014

Safety Element

The **Safety Element** establishes policies and programs to protect the community from risks associated with seismic, geologic, flood, and wildfire hazards.

Adoption:	September 23, 2014
Next Update:	Various updates anticipated to be completed by 2023

Economic Development Element

The **Economic Development Element** is an optional element that addresses the economic health of the City and establishes goals and policies that encourage economic growth while also maintaining and improving the quality of life in the community. The City included this element for the first time in the 2030 General Plan update.

Adoption:	August 18, 2015
Next Update:	Various updates anticipated to be completed by 2023

Housing Element

The **Housing Element** identifies and analyzes existing and projected housing needs and includes a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation, improvement, and development of housing. The housing element is required to identify adequate sites for housing, including rental housing, factory-built housing, and mobile homes, and to make adequate provisions for the existing and projected needs of all economic segments of the community.

Adoption:	December 15, 2015
HCD Compliance Date:	December 29, 2015
Next Update:	Legal updates required by February 15, 2023

On June 18, 2013, the City received the Regional Housing Needs Allocation (RHNA) for the 2015 to 2022 5th housing cycle. A revised Housing Element was prepared and received by the State in February 2015. After review, the Department of Housing and Community Development (HCD) required additional clarifications within the document, and the Housing Element was revised accordingly and reviewed by the Planning Commission and recommended for adoption on November 18, 2015, with subsequent adoption received on December 15, 2015 by the City Council and HCD accepted the document on December 29, 2015.

Regional Housing Needs Allocation (RHNA)

In accordance with Government Code section 65584, the Santa Barbara County Association of Governments (SBCAG) adopted the 5th Cycle RHNA Plan in July 2013.

For the eight and three-quarter year period of the plan (January 1, 2014 – September 30, 2022), the City of Lompoc was allocated 525 households in the RHNA Plan. Table 2 provides the housing need allocation for the City, classified by income level, as identified in the RHNA Plan.

With the annexation of the Summit View Homes Development, the City accepted an additional two (2) units. Of these two units, one unit would be the very low income category and another unit would be the low income category. This is reflected in Table 2 below.

TABLE 2 – CITY OF LOMPOC RHNA BY INCOME LEVELS 2014-2022

Total Number of Units	Very-Low Income	Low-Income	Moderate Income	Above-Moderate Income
527*	127	85	95	220

Source: (SBCAG RHNA Allocations, 2014-2022 – July 2013)

**With the annexation of the Summit View Homes Development in 2016, the City accepted an additional two (2) units.*

Table 3 below provides the 2021 maximum household income limits for Santa Barbara County as determined by the California Department of Housing and Community Development and derived from the U.S. Department of Housing and Urban Development. Although household incomes vary considerably throughout Santa Barbara County, the City is required to use countywide California Department of Housing and Community Development income limits to evaluate housing affordability.

TABLE 3 – 2021 SANTA BARBARA COUNTY MAXIMUM HOUSEHOLD INCOME LIMITS

Number of Persons in Household		1	2	3	4	5	6	7	8
Santa Barbara County Area Median Income: $90,100	Acutely Low	9450	10800	12150	13500	14600	15650	16750	17800
	Extremely Low	26250	30000	33750	37450	40450	43450	46450	49450
	Very Low Income	43750	50000	56250	62450	67450	72450	77450	82450
	Low Income	70050	80050	90050	100050	108100	116100	124100	132100
	Median Income	63050	72100	81100	**90100**	97300	104500	111700	118950
	Moderate Income	75650	86500	97300	108100	116750	125400	134050	142700

Source: California Department of Housing and Community Development (Based on the median family income of $90,100 for Santa Barbara County)

State law requires the annual report to include progress in meeting its share of regional housing needs while monitoring the effectiveness of the implementation programs of the General Plan Housing Element. Table 4 provides a summary tabulation of Lompoc's regional fair share allocation (5th cycle) within the RHNA and the City's overall progress in meeting its share of the projected regional housing needs for various income levels. To date, approximately 34% (181/527 units) of the City's RHNA as set forth in the RHNA Plan has been fulfilled.

TABLE 4 – REGIONAL HOUSING NEEDS ALLOCATION PROGRESS													
PERMITTED UNITS ISSED BY AFFORDABILITY													
Income Level		**RHNA Allocation by Income Level**	**Year 2014**	**Year 2015**	**Year 2016**	**Year 2017**	**Year 2018**	**Year 2019**	**Year 2020**	**Year 2021**	**Year 2022**	**Total Units to Date (All Years)**	**Total Remaining RHNA by Income Level**
Very Low	Deed Restricted	127	2	19	--	--	--	--	--	--		21	106
	Non-deed Restricted		--	--	--	--	--	--	--	--		--	
Low	Deed Restricted	85	2	1	--	--	--	--	--	--		3	82
	Non-deed Restricted		--	--	--	--	--	--	--	--		--	
Moderate	Deed Restricted	95	--	--	--	--	--	--	--	--		--	53
	Non-deed Restricted		--	42	--	--	--	--	--	--		42	
Above Moderate		220	54	--	--	4	3**	3	8***	43****		115	105
Total RHNA by COG. Enter allocation number:		527*	58	62	0	4	3	3	8	43		181	
Total Units with Certificate of Occupancy:													
Remaining Need for RHNA Period:													346

*In 2016, with the annexation of the Summit View Homes Development, the City accepted an additional two (2) units.
**In 2018, there is a net gain of three (3) housing unit since five (5) were constructed and two (2) were lost via demolition.
*** In 2020, 3 of the 8 housing units constructed were ADU's, **** In 2021, 11 of the 43 housing units constructed were ADU's

Preparation of Future Housing Element Updates

In preparation of the next RHNA cycle, staff attended meetings on February 4, 2021 and March 4, 2021 with SBCAG to discuss, participate, and provide final input on the 6th RHNA cycle (June 2023 to February 2031). On August 13, 2021, HCD approved the Final 6th cycle RHNA Plan. Based on this approval, Lompoc must plan for 2,248 new housing units (more than 4 times the number of units that were allocated under the 5th cycle) at various income levels (Very-Low, Low, Moderate, and Above Moderate).

In order to prepare for the 6th cycle allocations, staff completed a Request for Proposal in November/2021 to begin the update process for the Housing Element which began in February/2022 and must be completed by February 15, 2023. The next annual report will provide a status on this update as well as other General Plan Element technical updates which have been programmed concurrently with the Housing Element Update.

Environmental Justice Considerations

To date, the City of Lompoc does not have a separate element to address Environmental Justice considerations. That being said, the City is currently under contract with a Planning Consultant firm who is in the process of developing this element consistent with State Law requirements. Anticipated adoption of this new element is early to mid-2023.

Density Bonuses Granted

Pursuant to Government Code Section 65400(L), relating to density bonuses granted during the reporting period and in accordance with Government Code Section 65915, the following activity in the City related to Density Bonuses has occurred:

Number of applications received	Number of applications approved	Data from a sample of projects
0	0	N/A

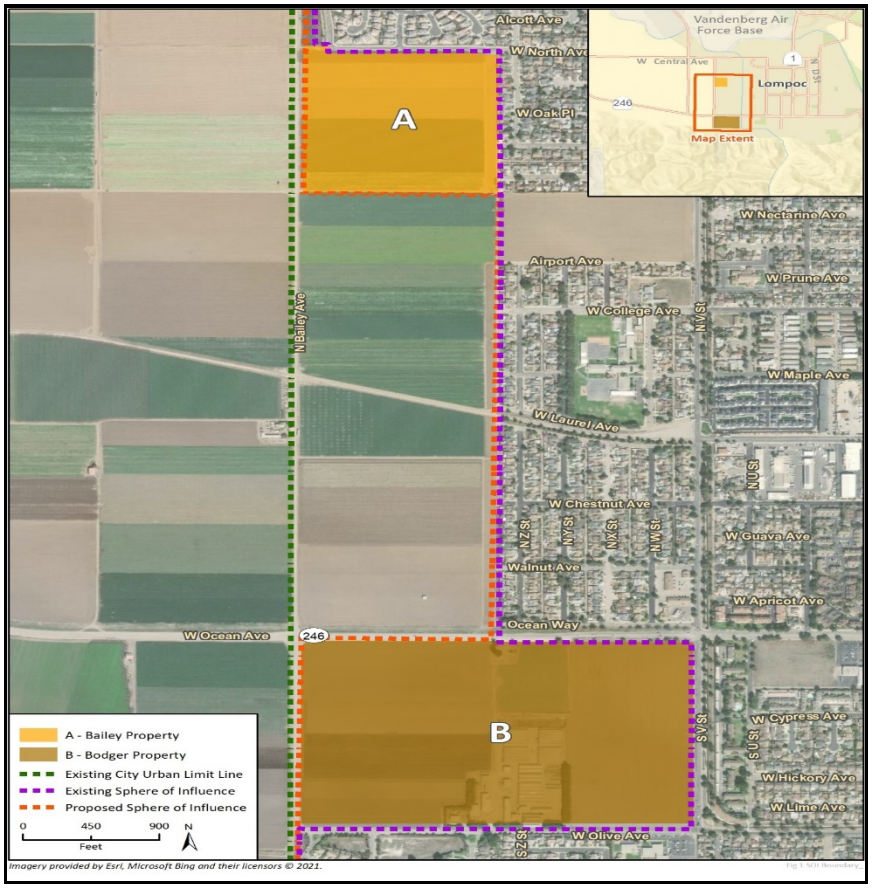
Sites Owned by the City that have been sold, leased or disposed

Pursuant to Government Code Section 65400.1, and in accordance with the City of Lompoc 2030 General Plan Housing Element (Appendix B Land Inventory), sites that are owned by the City and included in their land inventory pursuant to Section 65583.2, no property/sites have been sold, leased, or otherwise disposed of during this reporting period.

Sphere of Influence Boundary Amendments and Annexations

No changes were made to the Sphere of Influence boundary and no Annexations were completed in 2021. On July 18, 2017, the City Council with a vote 4-1, directed Staff to proceed with an application for the adjustment to the City's Sphere of Influence for properties located along the Bailey Avenue Corridor (shown in areas A and B in map below) and accepted Addendum No. 3 to a previously Certified Environmental Impact Report and approval to commence the Annexation Process with the Santa Barbara Local Agency Formation Committee (LAFCO). On July 26, 2018, the City submitted an SOI Adjustment and Annexation application to LAFCO for the Bailey Avenue area.

In 2021, the City continued processing said application and had associated meetings with LAFCO. In consultation with LAFCO and the City Attorney's office, the application will be separated and only a Sphere of Influence Adjustment will be processed and submitted to LAFCO in 2022. As part of this application, a new environmental addendum was completed in 2021 and will be submitted concurrently with the Sphere of Influence Adjustment application.



General Plan and Zoning Map Amendments

No General Plan Amendments were completed during this reporting period but minor amendments to the Zoning Code were initiated by the Planning Commission in 2020 and approved by the City Council on February 16, 2021 for Zoning Code Text Amendments relating to Permit Requirements for Certain Restaurant Alcohol Service, Regulations on Mobile and Sidewalk Vendors and Small Housing Development Projects (6 or less units), Outdoor Storage Height Regulations, Bicycle Parking for Certain Multi-Family Housing Developments, Street Side Yard Setback Fence Height, Temporary Sign Regulations, and Minor Changes to Code Terminology. In addition, amendments to Chapter 17.324 of the Zoning Code (Inclusionary Housing) were approved by the Council on November 2, 2021 to allow alternative methods of compliance for projects in the Old Town Redevelopment Project, Amendment No. 2 Area.

Specific Plans

There were no Specific Plans approved in 2020 but amendments to the previously approved Burton Ranch Specific Plan were submitted June 26, 2020 and staff coordination continued with this application in 2021.

Affordable Housing Development Progress

Lompoc made progress with its affordable housing objectives, utilizing CDBG, HOME, State HOME funds, and Lompoc Affordable Housing Trust Funds (LAHTF).

First-Time Homebuyer Program

The City of Lompoc Homebuyer Assistance Program (LHAP) is a program of the City of Lompoc, to expand homeownership opportunities in the community of Lompoc. The program helps bridge the homeownership affordability gap for local residents by providing 30-year deferred payment loans up to $65,000 per household to assist first-time lower-income homebuyers in purchasing a home in the City. Funds can be used for down payment costs for households who earn up to 120% of the Area Median Income (AMI), adjusted for household size. The loans have no current interest or principal payments, accrue 3% simple interest annually and are repaid upon sale, transfer or refinancing of the home or at the end of the loan term. Qualified applicants may also be eligible for a closing cost grant up to $7,500. Funding for the program has been provided through the City of Lompoc.

The program removes financial barriers to the dream of homeownership by lowering home acquisition and carrying costs. The program enables qualified families to purchase a home that provides a stable residence that strengthens the family, the neighborhood and the community.

The program has assisted a total of fifty-six (56) first time homebuyer households purchase homes in Lompoc. Twelve (12) of the fifty-six (56) first time homebuyers' households purchased Lompoc homes in FY 2020.

The Lompoc City Council approved $550,000 in Housing Trust Funds to the FY 2021-23 Program Budget.

Elderly and Disabled

Mobile home Emergency Repair Grant Program / Emergency Repair Grant (MERG/ERG)

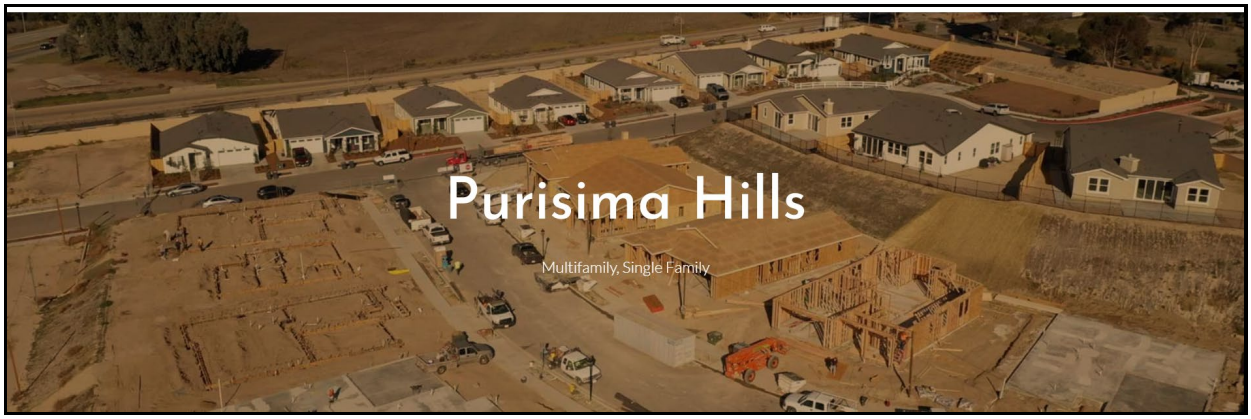
The Mobile home Emergency Repair Grant Program (MERG) addresses the emergency housing rehabilitation needs of owners of mobile homes and single-family homes. Many of the City's mobile home residents are elderly and/or disabled persons. Catholic Charities administers MERG by providing emergency repair grants and checking on the wellbeing of house-bound persons. As a MERG requirement, all households assisted must be low-income.

In FY 2020-21, CDBG funds in the amount of $49,090 were expended to provide grants to nine (9) low-income households for emergency repairs to their properties.

The City of Lompoc annually renews a contract and $50,000 will be awarded to the Catholic Charities for the MERG Program for FY 2021-22.

New Construction / Units in Process

No affordable housing units were under construction during this period. The Summit View Homes (Purisima Hills) project located at the northeastern corner of Purisima Road and Harris Grade Road, was under construction for 44 single family homes. Although the developer paid in-lieu fees, 4 units were required to be affordable. Construction of the project began in 2019 and units were still in process during this reporting period with a total of thirty (30) single family homes finaled in 2021 and the development completed in 2022.



Assistance Programs

Section 8 Housing Choice Voucher Program (HCV)

Through the Section 8 Housing Choice Voucher (HCV) Program, the Housing Authority of the County of Santa Barbara (HACSB) provides rental subsidy payments directly to private landlords on behalf of eligible low-income tenants. Families issued an HCV can be assisted in a rental unit that meets HUD-established housing quality standards (HQS) and rent comparability guidelines. The family's share of rent is generally 30% to 40% of a family's monthly-adjusted gross income for rent and utilities.

The Section 8 HCV Program administered by the HACSB currently provides rental assistance to 3,268 households in Santa Barbara County (excluding the City of Santa Barbara). It is estimated that 875, or 26.7% percent, of these households reside within the City of Lompoc.

Tenant-Based Rental Assistance Program (TBRA)

In May 2019, Lompoc City Council approved $114,801 of City of Lompoc County of Santa Barbara HOME Consortium Funds for a Tenant Based Rental Assistance (TBRA) Program to be administer in cooperation with the Housing Authority of the County of Santa Barbara. The program provides direct financial assistance of rental security deposits and utility deposits to low-income tenants in the City of Lompoc. This funding addresses one of the greatest obstacles to housing for low-income families. This is the only form of security deposit assistance available to Lompoc renters. As of June 2021, the program assisted 60 households 23 of which were homeless.

Housing Authority of the County of Santa Barbara (HACSB)

The HACSB Administrative Office is located in Lompoc at 815 West Ocean Avenue. The HACSB administers the Section 8 Voucher and Public Housing Program throughout the County, except for the City of Santa Barbara. There are a total of 3,249 Section 8 Housing Choice Vouchers with 997 or 30.7% residing in the City of Lompoc, with an additional 231 Project Based Section 8 Vouchers and 113 previous Public Housing have been converted to Project Based Rental Assistance (Multi-Family). There are nine traditional public housing units in the City of Lompoc. In addition to the public housing units, HACSB and its affiliate partner Surf Development Company, manages 451 rental units which were either acquired or developed using low-income housing tax credits, housing revenue bonds, or other financing. Of the units, 39 or 9.68% are reserved for persons who were homeless at time of lease-up.

An additional 125 units, or 31.02%, are reserved for elderly and/or disabled households. An additional 15-one bedroom units for homeless veterans are to be developed by HACSB at 1401 East Cypress Avenue (behind the Cypress Court Senior Apartments) which were approved on October 9, 2019 by the Planning Commission. To date, this project has not been built but is currently in the Building plan check phase.

Homelessness & Transitional Housing

During FY 2020-21, the City worked to address the transitional housing needs of homeless individuals and families in the Lompoc Valley. The following agencies provided service and shelter resources:

Bridge House Homeless Shelter

The City of Lompoc supports the Bridge House Shelter owned by the County of Santa Barbara and operated by Good Samaritan Shelter. The Bridge House is located at 2025 Sweeney Road and contains a 90-day emergency shelter with 90-beds for homeless women, children and men. The program provides meals, clothing, access to proper hygiene, referrals, and on site case management. Mental health and physical health screening services are provided on-site by the County Public Health Department. According to the 2020-21 CAPER, 218 persons received shelter and services at the Bridge House and the City of Lompoc allocated $15,000 of CDBG funds to the program. The City will also allocate an additional $15,000 of CDBG funding for FY 2021-22. Good Samaritan Shelter also completed placement of 18 pallet homes (as shown below) with electricity that will house up to an additional 36 chronically homeless individuals in 2020-21.

Good Samaritan Shelter Pallet Homes

Marks House Family Transitional Shelter

The Marks House is located at 203 North N Street (as shown below) and is an attractive Craftsman-style home in one of Lompoc's residential areas.

Based on information contained in the 2020-21 CAPER, the Marks House has the capacity to provide up to 19 transitional beds for six (6) homeless families and is estimated to provide transitional housing for 100 clients with approximately 2,000 bed-nights of shelter per year. Good Samaritan Shelter also completed the construction of two Accessory Dwelling Units (ADU's) on the property to house two additional chronically homeless families in 2020-21.

Completed Accessory Dwelling Units at Marks House

Domestic Violence Shelters

Domestic Violence Solutions (DVS) provides emergency shelter and counseling for battered women, children and men with support groups and services provided in both English and Spanish. DVS also provides Teen Services programs to provide domestic violence prevention workshops in local schools. The Lompoc DVS Shelter has capacity for 12 persons.

Safe Parking Program

A Minor Use Permit was approved by the Community Development Department Director on July 1, 2021 which allowed the City's first Safe Parking Program to be operated and managed by New Beginnings Counseling Center located at 428 North I Street. At this location, New Beginnings' Safe Parking Program provides 10 overnight parking spaces (operating between the hours of 7pm and 7am every day) to individuals and families living in their vehicle. The Safe Parking Program also provides ongoing case management, support services and connects the chronically homeless to shelters and services that will get them off the streets and into safer environments. To date, fourteen clients are enrolled and being served in this program.

Other Housing Activities

Fair Housing

In FY 2020-21, the City allocated a grant to the Legal Aid Foundation of Santa Barbara County to provide emergency legal services for $13,000. Legal assistance is provided free to low-income persons and senior citizens in the following areas of law: family law, domestic violence, landlord/tenant law, civil rights, and restraining orders. A total of 6 unduplicated households were assisted in legal issues and fair housing cases.

The City of Lompoc annually renews the contract and $13,000 will be awarded to the Legal Aid Foundation to provide fair housing services in the City for FY 2021-22. Services offered include: educating the public in Fair Housing practices and laws, community outreach, mediation and reconciliation and fair housing referrals to HUD and DFEH by agency staff. Program services and information is offered in English and Spanish. Legal Aid Foundation of Santa Barbara County maintains an office in Lompoc located at 604 East Ocean Avenue, Suite B, Lompoc, (805) 736-6582, and is open to the public during the hours of 9:00 a.m. to 4:00 p.m., Monday through Thursday.

Code Enforcement

As of July 1, 2019, the Code Enforcement Division was eliminated but replaced with a "Citizen Concern" Form that is managed by the Community Development Department. To date, the City is actively recruiting for this staff deficiency and anticipates additional code enforcement staffing in the next Annual report. In the interim, the Citizen Concern form is used to report a code enforcement violation or concern within the City of Lompoc and is sent to the appropriate City Departments for attention. Complaints are addressed on a priority level basis, with emergency, life and safety items receiving priority. Since the creation of the Citizen Concern Form, a total of 267 submissions were received. Response times to the submitted forms vary according to the number of complaints and degree of safety of such complaints. Non-emergency health or safety concerns may be directed to the Lompoc Police Department or Lompoc Fire Department.

Intergovernmental & Interagency Coordination Efforts

Collaborative Planning with Military Lands and Facilities

The Planning Division works with the Vandenberg Space Force Base (VSFB) Community Planner on a consistent basis in order to keep lines of communication open regarding future planning needs, long range plans, and upcoming planning meetings.

In addition, all planning entitlement projects must fill out the California Military Land Use Compatibility Analyst (CMLUCA) form which allows a determination regarding whether a project has the potential to affect areas important to military readiness. Gov. Code sections 65352, 65404, 65940, and 65944 (amended by Senate Bill 1462, Kuehl 2004) requires local planning agencies to notify the military whenever a proposed development project or general plan amendment meets one or more of the following conditions:

- Is located within 1,000 feet of a military installation;
- Is located within special use airspace, or
- Is located beneath a low-level flight path

Furthermore, if a private applicant proposes a development project, or a city or county proposes a general plan amendment or update, the form determines whether a project meets any of the above threshold criteria. The form and program then generates a report with a map that indicates whether a copy of a project application or proposed action must be sent to the appropriate branch of the military by the local planning agency.

Military Installation Sustainability Program & Department of Defense

The City of Lompoc and VSFB have long enjoyed a symbiotic relationship. As the national Western Range Space Force launch facility, (VSFB) anticipates increased activity as the private commercial space sector expands. This launch mission expansion brings challenges for the Base and the City as they work together in planning for their closely related futures. In response, in 2021 Lompoc has initiated a planning effort funded by the Department of Defense (DOD), Office of Local Defense Community Cooperation (OLDCC), under its Military Installation Sustainability (MIS) grant program. The City's hybrid program approach combines the requirements of two closely related MIS grant categories and Installation Resilience and Compatible Use. Lompoc's cooperative planning process with Vandenberg SFB is taking into consideration the interests of surrounding communities, Santa Barbara County and State and Federal agencies, as well as the private space launch sector and other interested organizations. Its goals are to protect and preserve military readiness and defense capabilities while supporting community economic stability and success. A steering committee of stakeholders has been formed to support grant objectives such as:

- Identify and respond cooperatively to mutual environmental vulnerabilities such as climate change, drought and wildfires

- Promote community development that is supportive of and not in conflict with installation training, testing, and operational missions

- Promote and provide options for positive compatible uses between Vandenberg Space Force Base, the City of Lompoc, surrounding communities, businesses and landowners
- Increase public awareness of the military's mission and contribution to the regional economy

Environmental Protection Agency (EPA) Building Blocks Technical Assistance

Communities around the country are seeking tools to help them achieve their desired development goals, improve quality of life, and become more economically and environmentally sustainable. In response to this demand, EPA developed the Building Blocks for Sustainable Communities Program in 2011. Building Blocks for Sustainable Communities provides quick, targeted technical assistance to selected communities such as the City of Lompoc using tools that are designed to address a variety of challenges in many different local contexts. The purpose of delivering these tools is to stimulate a discussion about growth and development and strengthen local capacity to implement sustainable approaches.

Technical assistance is delivered by EPA staff and EPA-hired consultant teams. Each technical assistance project includes:

- Public engagement through a series of meetings and possible workshops.
- Direct consultation with relevant decision-makers and potential partners.
- A memo outlining specific next steps generated during the workshop that the community could take to achieve its goals.

The City of Lompoc is working with EPA to receive the above technical assistance and will continue to do so in order to meet development goals and implementation measures that are contained within the City's 2030 General Plan.

Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) and Mitigation Advisory Committee (MAC)

The County of Santa Barbara is updating its Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). The purpose of the update is to improve disaster preparedness and reduce or eliminate risks to community, life, and property. The update includes coordination within the County and 8 local cities, as well as 6 special districts (Cachuma Operations and Maintenance Board, Carpinteria Valley Water District, Montecito Fire Protection District, Montecito Water District, Goleta Water District, and the Santa Maria Valley Water Conservation District) and the results of this plan will be incorporated into the City's update to the General Plan Safety Element. The City of Lompoc has participated in this effort including the Mitigation Advisory Committee (MAC) where the City and County Flood Control are planning a Hazard Assessment study for flood vulnerabilities present at Riverbend Park.

Consultation with Native American Tribes

The City coordinates projects and environmental review with the local Santa Ynez Band of Chumash Indians in accordance with Assembly Bill 52. Upon request from the tribe, City staff meets and discusses projects with the tribe and incorporates necessary comments and mitigations into project approvals in order to identify, protect, preserve, and mitigate impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code, pursuant to Chapter 905 of the Statutes of 2004.

Grants in Progress

The City has received three Planning grants and is actively working on the completion of three grants. The grants include:

- **Senate Bill 1**: Administered through Caltrans District 5 (Sustainable Communities Grant) for the planning of a Streetscape Multi-Modal Improvement Plan. During this reporting period, the City's consultant completed extensive public outreach and drafted conceptual improvement plans proposed along Highway 1 and Highway 246. Public hearings at the Planning Commission and City Council are scheduled for early 2022.

- **Senate Bill 2:** Administered by the Department of Housing and Community Development (HCD) and is intended for the preparation, adoption, and implementation of plans that streamline housing approvals and accelerate housing production. Funds from this grant will assist the City in updating the General Plan Housing Element that is currently in process.

- **Local Early Action Planning (LEAP):** Administered by HCD is to be used for technical assistance, preparation, and adoption of planning documents and process improvements to accelerate housing production and facilitate compliance to implement the 6th cycle of the Regional Housing Needs Allocation. Funds from this grant will also assist the City in updating the General Plan Housing Element that is currently in process.

- **Regional Early Action Planning (REAP):** Administered by the Association of Monterey Bay Governments (AMBAG) this grant is also to be used for technical assistance, preparation, and adoption of planning documents and process improvements to accelerate housing production and facilitate compliance to implement the 6th cycle of the Regional Housing Needs Allocation. Funds from this grant will also assist the City in updating the General Plan Housing Element that is currently in process.

General Plan Implementation

The City's progress in accomplishing implementation measures set forth in the 2030 General Plan are shown in the attached Appendix.

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ATTACHMENT D

ENVISION LOMPOC
Housing Element & Technical General Plan Update

Housing Element Update

City Council Hearing December 6, 2022

ENVISION LOMPOC

Housing Element & Technical General Plan Update

Site Inventory Process and Requirements

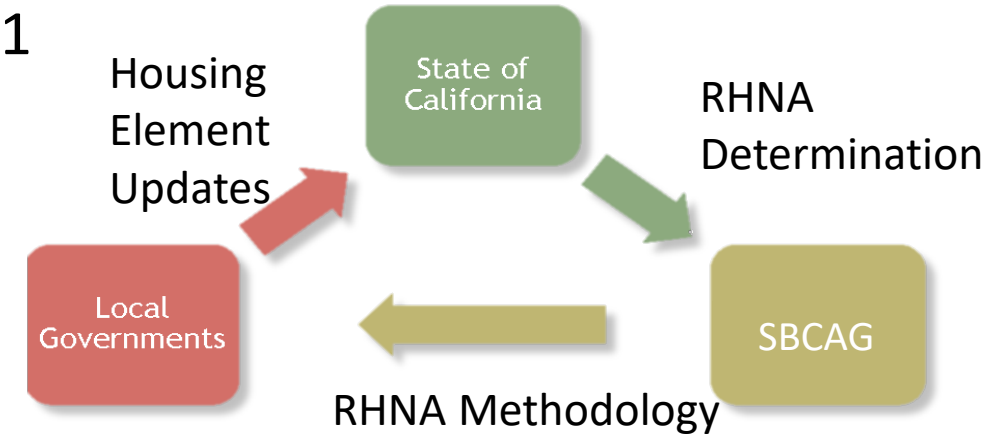
Housing Element Basics

Key Sections of the Housing Element

- Needs and Housing Constraints Assessment
- **Housing Sites Inventory**
- Affirmatively Furthering Fair Housing
- Policy Document

Site Inventory and RHNA

- The site inventory is a required component of the Housing Element used to identify specific sites to meet the Regional Housing Needs Allocation (RHNA) allocation
- RHNA is the representation of the future housing needs for all income levels in the city for the next eight years
- Prepared by Santa Barbara County Association of Governments (SBCAG)
- 6th cycle: February 15, 2023 – February 15, 2031



RHNA Allocation

Cycle	Lower		Moderate	Above Moderate	Total RHNA
	Very Low	Low			
6th	166	262	311	1,509	2,248
With 20% Buffer	199	314	373	1,509	2,396

Note: Buffer is not required for above moderate units

Site Inventory Process

How can the site inventory meeting the RHNA allocation?

- Housing projects under review or approved through Planning and expected to be built during the planning period
- ADU trends
- City-owned sites with housing in line with City goals
- Identified residentially zoned vacant sites or non-vacant sites with redevelopment potential
- Identified sites that would be rezoned to permit residential uses or higher density

Site Identification Requirements

When identifying sites we need to consider:

- Environmental constraints (flooding, slope instability, hazards, or erosion)
- Redevelopment trends of similar sites
- Implementation of incentives for redevelopment
- If sites are aligned with goals of furthering fair housing

Lower Income Site Selection Characteristics

- Sites used to meet the lower income RHNA can only be met on sites with:
  - Default density = 20 du/ac
  - Sites > 0.5 acre but < 10.0 acres

Sites Identification Process

Site Selection Characteristics:

- Vacant sites zoned for residential uses
- Sites with limited or no existing housing units
- Underutilized sites
  - Sites with large parking areas
  - Sites with additional buildout potential
- Sites with redevelopment potential
  - Need to show redevelopment trends or implement new incentives to promote redevelopment

Draft Sites Inventory Summary

	Lower	Moderate	Above Moderate	Total
ADU Trends	0	0	66	66
Approved and Pending Projects	52	23	563	638
Underutilized Sites	474	350	886	1,710
Total	**526**	**373**	**1,515**	**2,414**
RHNA plus buffer	513	373	1,509	2,396

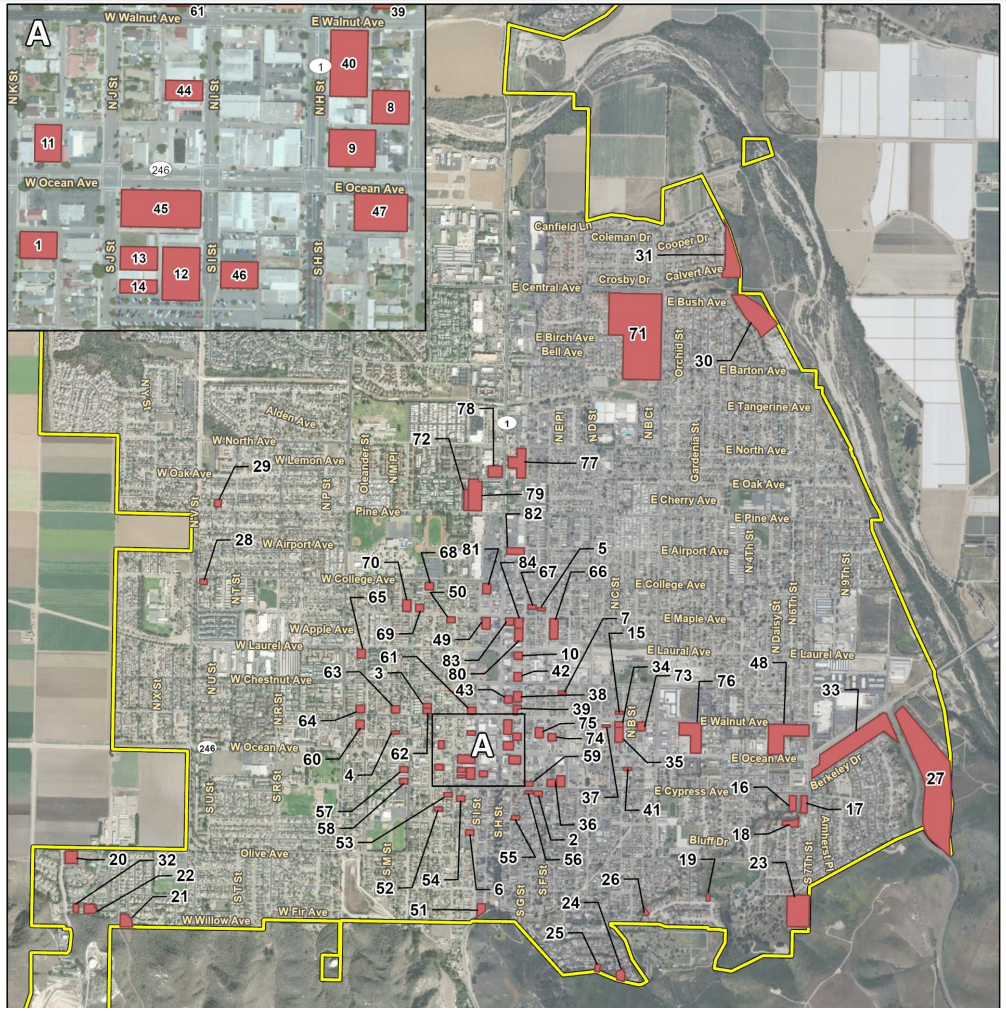
Note: Buffer is not required for above moderate units

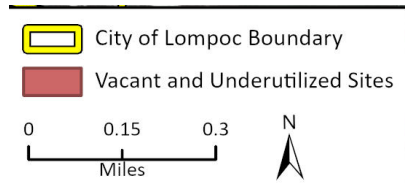
Draft Sites Inventory Summary

ENVISION LOMPOC
Housing Element & Technical General Plan Update

Site Considerations

- Including sites does not require their development or redevelopment of housing
- They demonstrate the City has adequate land and zoning to accommodate its housing need
- Incentives need to be implemented to promote redevelopment of sites where trends don't yet exist





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ENVISION LOMPOC
Housing Element & Technical General Plan Update

Additional Site Inventory Considerations

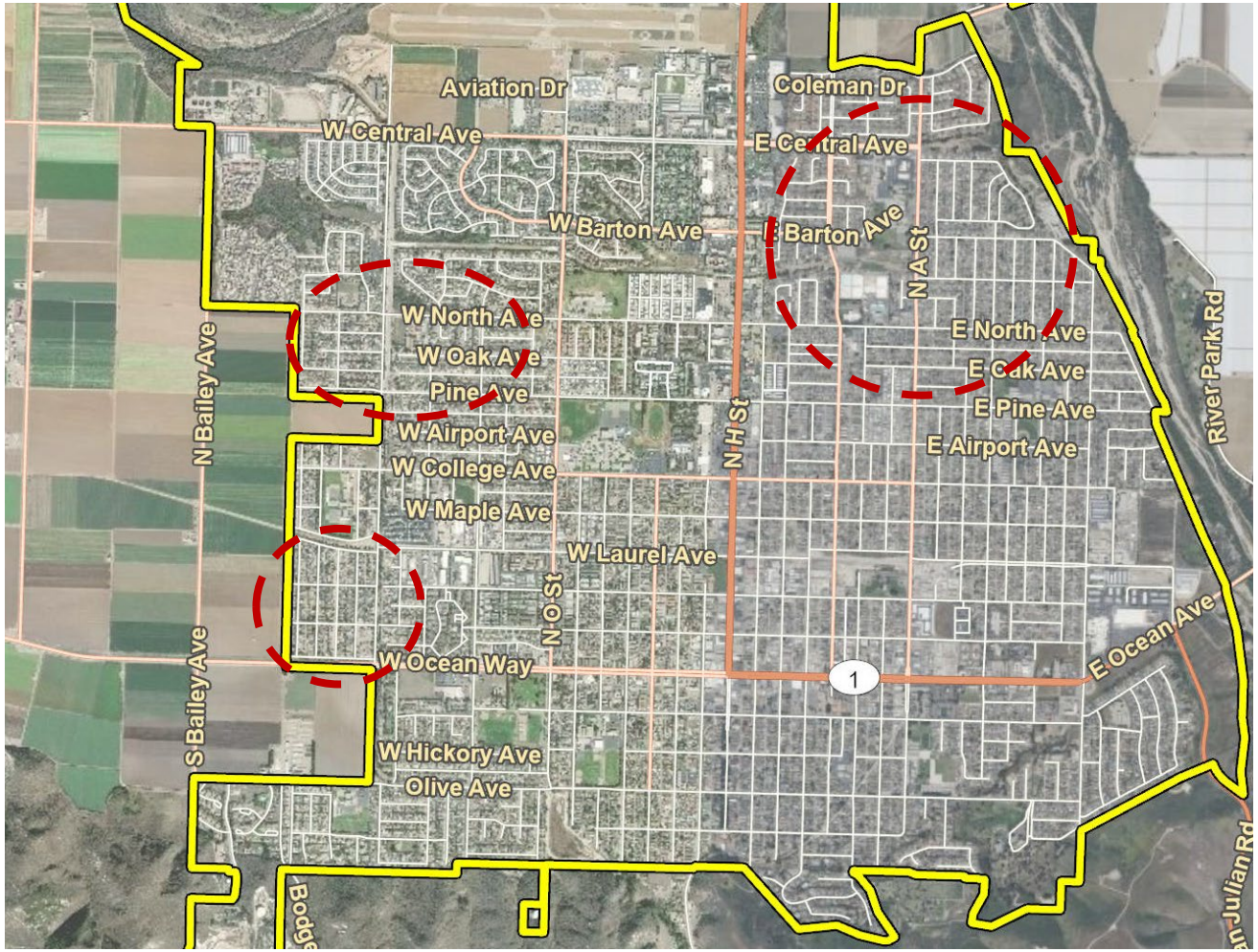
Incentives for Redevelopment

1. Mixed use redevelopment incentive overlay
   - Allowable increase in FAR/height/density if a certain amount of the building is dedicated to housing
   - Additional building area developed exclusively with housing
   - Restrictions on sites adjacent to low-density neighborhoods
2. Streamlining for certain mixed use and residential projects
   - Implement objective design standards and ministerial review process

Missing Middle Overlay

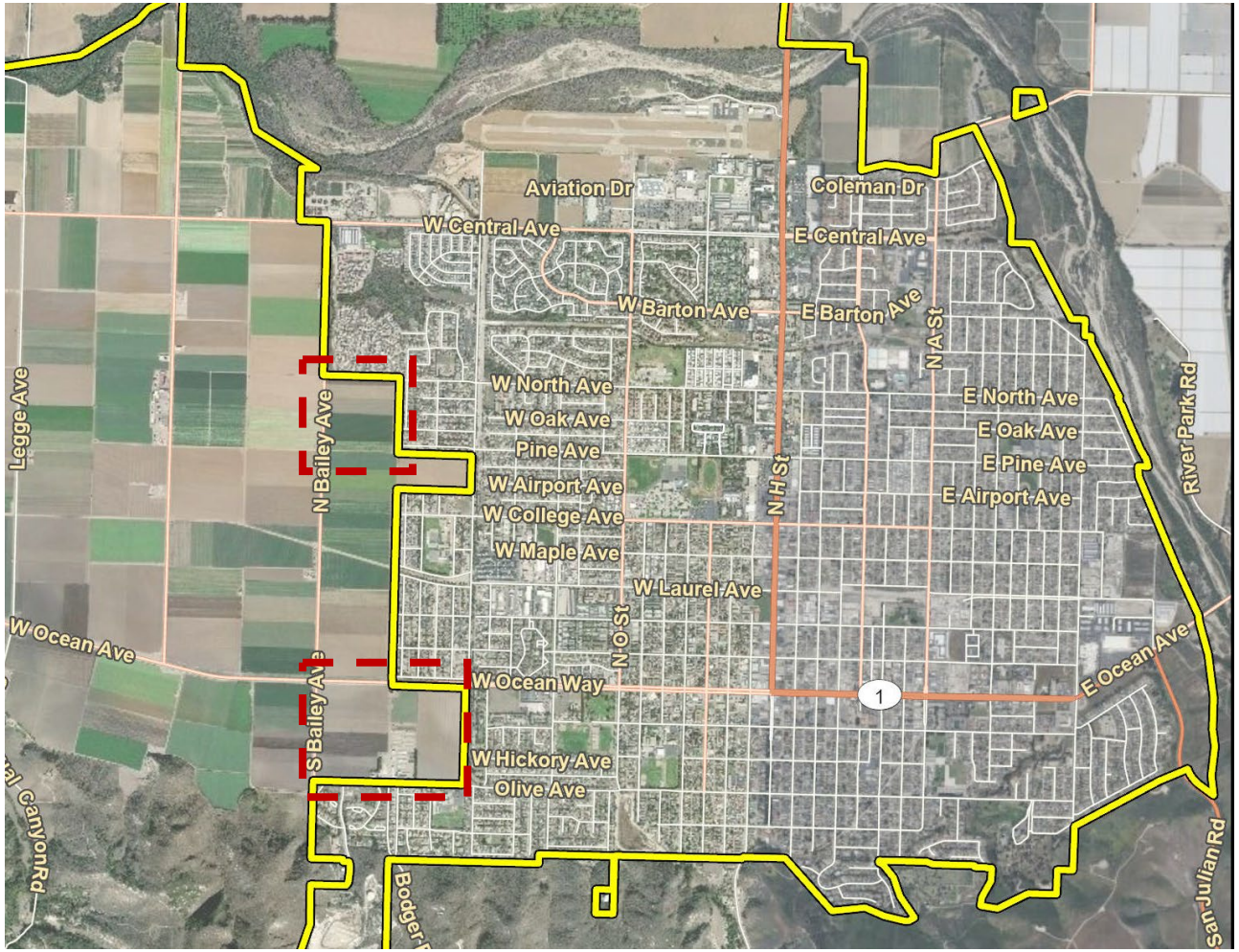
Missing Middle Characteristics:

- Small footprint buildings with more, smaller units
- Single-family home characteristics
- Integrated single-family neighborhoods
- Fewer required off-street parking spaces



Bailey Avenue Sphere of Influence Amendment

- Identified during Workshop 1 as an option for housing
- City is working to extend sphere of influence
- The City can promote housing in these areas as a part of the update but can't be official sites used in the inventory



Planning Commission Hearing (11/9/22)

ENVISION LOMPOC
Housing Element & Technical General Plan Update

- Clarification on application of “RHNA plus buffer” and if it applies to the “Above Moderate” income level
  - Buffer only required for lower income units
- Ensure Goals/Policies/Implementation Measures are updated to remove any references or direction that is not relevant and/or current
- Recommended that the updated Circulation Element consider impacts on traffic related to the Pale Blue Dot Space Center proposal at Ken Adam Park
- Recommended looking at larger portions of land to be considered for future Annexation

ENVISION LOMPOC

Housing Element & Technical General Plan Update

Next Steps on the Housing Element and General Plan

Housing Element
Next Steps and Timeline

- Complete draft Housing Element (December 2022)
- Public review and public hearings on draft Housing Element (January 2023)
- Submit draft Housing Element to HCD for 90-day State review (January 2023)
- Revisions based on State comments (March 2023)
- Adoption hearings (March/April 2023)
- Submit to HCD for 60-day certification review (April 2023)

General Plan
Next Steps and Timeline

- Draft Circulation Element (January 2023)
- Draft Safety Element (January 2023)
  - Ongoing Evacuation Analysis as required by State law
- Technical edits to remaining Elements (ongoing)

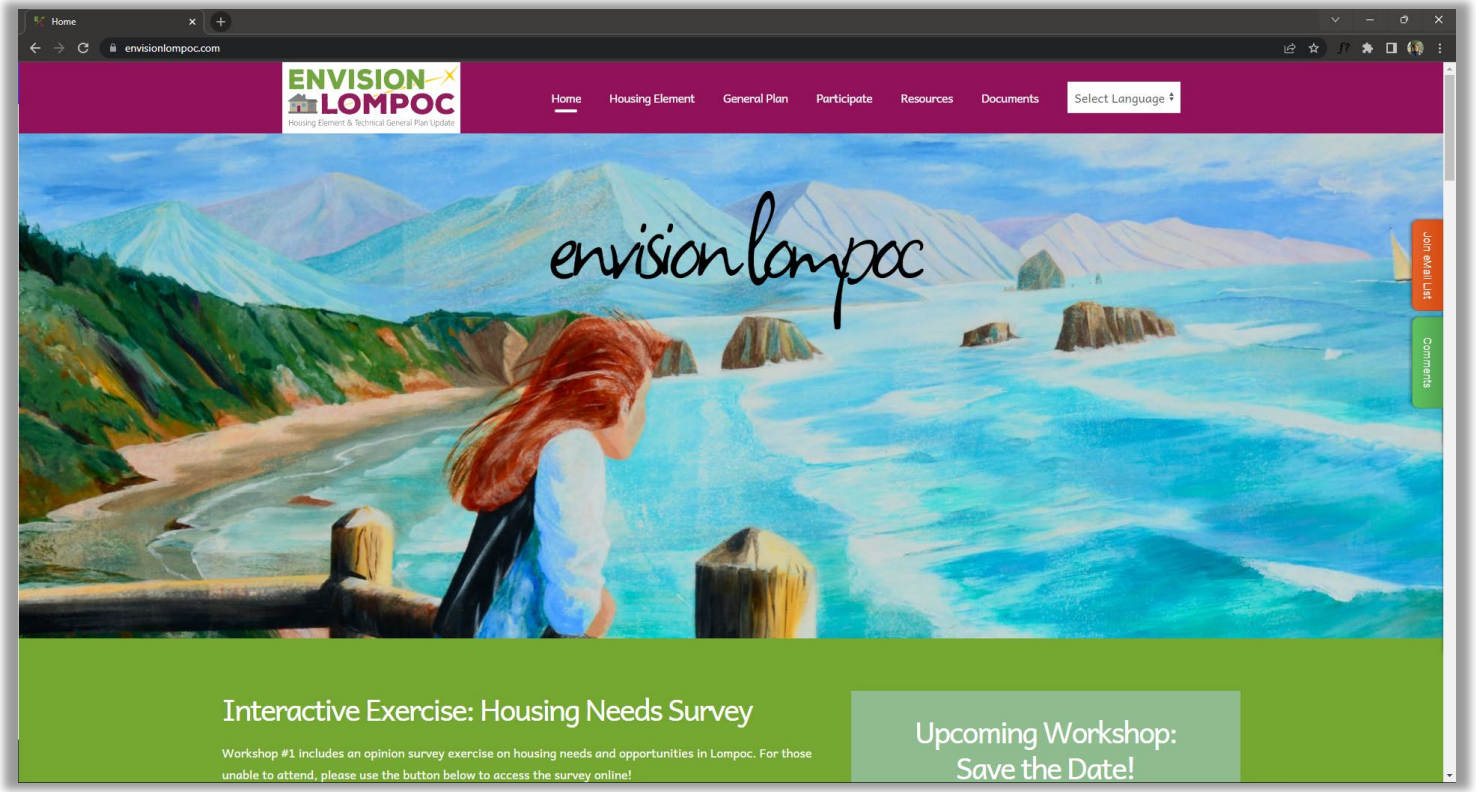
General Plan
Next Steps and Timeline

- Draft Environmental Justice Element (March 2023)
  - Will identify goals, policies, and programs that address health, equity, and environmental justice priorities.
  - Some of the topics the Element will cover include but are not limited too:
    - Reduction in air pollution exposure
    - Food Access
    - Civic Engagement
    - Safe and Sanitary Housing
    - Access to Public Facilities and Services
    - Employment Properties
- Upcoming January Workshops

Project website

envisionlompoc.com

- Upcoming events
- Information
- Documents
- Email list sign-up
- Send us your comments!



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ATTACHMENT E

A Component of the General Plan

HOUSING ELEMENT UPDATE

Planning Horizon: 2014 to 2022

City Hall
100 Civic Center Plaza
Lompoc, California

FINAL

Housing Element Update for the:

CITY OF LOMPOC

Encompassing:

- Housing Plan
- Community Profile
- Needs Assessment
- Housing Constraints
- Miscellaneous Topics

Prepared By:

Rincon Consultants, Inc.
1530 Monterey Street, Suite D
San Luis Obispo, CA 93401

Date Prepared:

September 2014

TABLE OF CONTENTS

TABLE OF CONTENTS

PAGE

SECTION V: Miscellaneous Topics

LIST OF TABLES

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

TABLE OF CONTENTS

LIST OF APPENDICES

8.5 H Street Corridor Infill

Policies 3.2 and 3.4 of the Land Use Element expressly encourage development of vacant and underutilized properties along the H Street Corridor under a mixed-use overlay. These policies and associated overlay standards provide for an intensification of land use that equals or exceeds the maximum 21.8 du/ac density currently allowed within all land use designations. Utilizing a maximum floor area ratio of 0.75 and dwelling size of 700 square feet, in combination with a development intensity factor of 54% that corresponds to existing MU (Mixed Use) Zone District, the resulting assessment of development potential of the H Street Corridor Infill overlay is displayed in **Table H-52**. In summary, an additional 148 high density units are forecast by application of the H Street Corridor Infill Overlay. As noted, this figure is highly conservative compared to the hypothetical maximum of 333 units that the new mixed use designation could otherwise accommodate.

Table H-52 H Street Infill		Vacant	Under-utilized	Entitled	Developed	Unavailable	Grand Total
C2 (0.75 FAR)	No. of Parcels	20					20
	Acres of Land	13					13
	Existing Dwellings						
	Maximum Potential	333					333
	Forecasted Units	148					148

Source: Assessor Parcel Data Base, County of Santa Barbara, 2007. Land Use Inventory, GIS Data and Current Project Lists, City of Lompoc, 2008.
Notes: See Table H-46.

8.6 Site Suitability

8.6.1 Small Sites

As noted in Appendix B, 44 of the 49 high density vacant land inventory (including H Street Infill sites) consists of parcels under one acre in size. Often times, the nature and conditions associated with small parcels render the provision of

affordable housing infeasible. However, on closer examination, Appendix B also shows that small parcels comprise the overwhelming majority of high density residential property that is either developed or entitled (defined in **Table H-52A** as "Utilized"). As shown in **Table H-52A**, the actual built density of small and large "utilized" parcels is identical. This evidences that small parcels can be developed to same level of intensity as those which exceed one acre in size. In forecasting the development of vacant high density parcels, a lower density factor is utilized (12 du/acre vs. 17.5 du/acre). The result is a very conservative estimate of development potential as opposed to overstating capacity for purposes of RHNA.

Table H-52A Small Sites Suitability		Small Parcels		Large Parcels		Total	
		Vacant	Utilized	Vacant	Utilized	Vacant	Utilized
High Density Residential Inventory	No. of Parcels	44	1,201	5	19	49	1,220
	Acres of Land	10.51	174	8.87	78	19.29	252
	Forecasted Units	126		104		230	
	Developed Units		3,038		1,365		4,403
	Density Units/Acre	12	17.5	12	17.5	12	17.5

Source: Assessor Parcel Data Base, County of Santa Barbara, 2007. Land Use Inventory, GIS Data and Current Project Lists, City of Lompoc, 2008.

Notes:

1. Small Parcels are defined as those under one acre in size. Large Parcels are defined as those equal or greater than one acre in size. Utilized consists of parcels that are either Developed or Entitled per Tables H-48 and H-53.
2. See Appendix B for a detailed listing of parcels.

8.6.2 Underutilized Sites

As defined in **Table H-45**, Underutilized Parcels: (i) are those having an improvement value of less than 50% of the mean improvement value of all developed properties within the each respective zone; and (ii) exclude parcels that are "Entitled." As individually categorized in Appendix B-2 and collectively summarized in Table H-52B, the inventory of underutilized sites with a high density land use designation encompasses 95 separate parcels spread among 14 land use categories totaling 28 acres.

The overwhelming major of these sites consist of vacant land, parking lots and single family units located on property zoned for high density residential use which account for 86% of the development forecast. While valuation may be seen as an arbitrary benchmark, it serves as good filter for identifying properties that are ripe for intensification. This is evidenced in **Table H-52C**; specifically, the properties and corresponding photos appearing in this table have been selected as representative of the typical level of existing development for each land use category of underutilized parcels. In similar fashion to that described for small sites, the estimated development potential of underutilized land is highly conservative; a forecast of 263 dwellings compared to a maximum allowable of 650.

Table H-52B Inventory of Underutilized Sites	No. of Parcels	Acres of Land	Existing Dwellings	Maximum Allowable	Forecast Potential
Attached Residential	3	0.95	8	22	4
Auto Repair & Service	2	0.72	0	17	8
Automobile (Sales Only)	1	0.32	0	8	4
Developable Vacant Land	6	1.57	5	38	17
Miscellaneous Retail	1	0.20	0	5	2
Multi-Family Residential	8	2.09	45	50	-6
Private Parking	21	3.98	0	98	49
Public Parking	1	0.48	0	11	5
Public Recreation Centers	1	0.24	0	6	4
Religious Facilities	1	0.19	0	5	2
Services	1	0.24	0	6	3
Single Family Residential	43	12.25	51	286	160
Trailer Park	1	3.44	90	76	0
Vacant Structures	5	0.89	0	22	11
Total	95	27.57	199	650	263

Source: Assessor Parcel Data Base, County of Santa Barbara, 2007. Land Use Inventory, GIS Data and Current Project Lists, City of Lompoc, 2008.
Notes: See Table H-45 for a definition of terms and Appendix B for a detailed listing parcels.

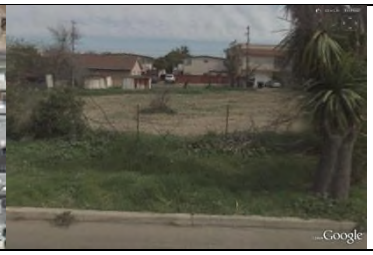
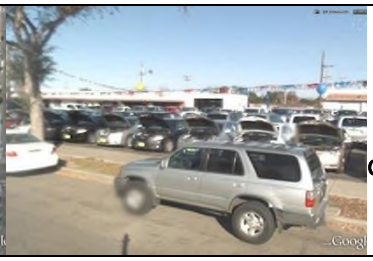
Table H-52C Development Characteristics of Underutilized Sites			
Attached Residential			
APN 8514113			**Improvement to Value Ratio: 30%** **Comments:** Large contiguous vacant land on which a small structure is located.
Automobile Repair and Service			
APN 8502104			**Improvement to Value Ratio: 4%** **Comments:** Small structure on a lot with readably moveable rolling stock.
Automobile (Sales Only)			
APN 8512309			**Improvement to Value Ratio: 4%** **Comments:** Small structure on a lot with readably moveable rolling stock.
Developable Vacant Land			
APN 8517108			**Improvement to Value Ratio: 13%** **Comments:** Large contiguous vacant land on which a small assessor structure is located.
Miscellaneous Retail			
APN 8512318			**Improvement to Value Ratio: 26%** **Comments:** Prominent corner lot with limited building lot coverage and blighted site conditions.

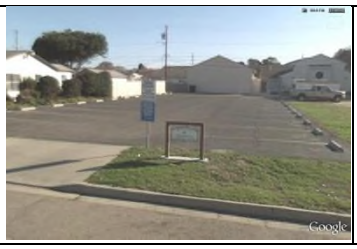
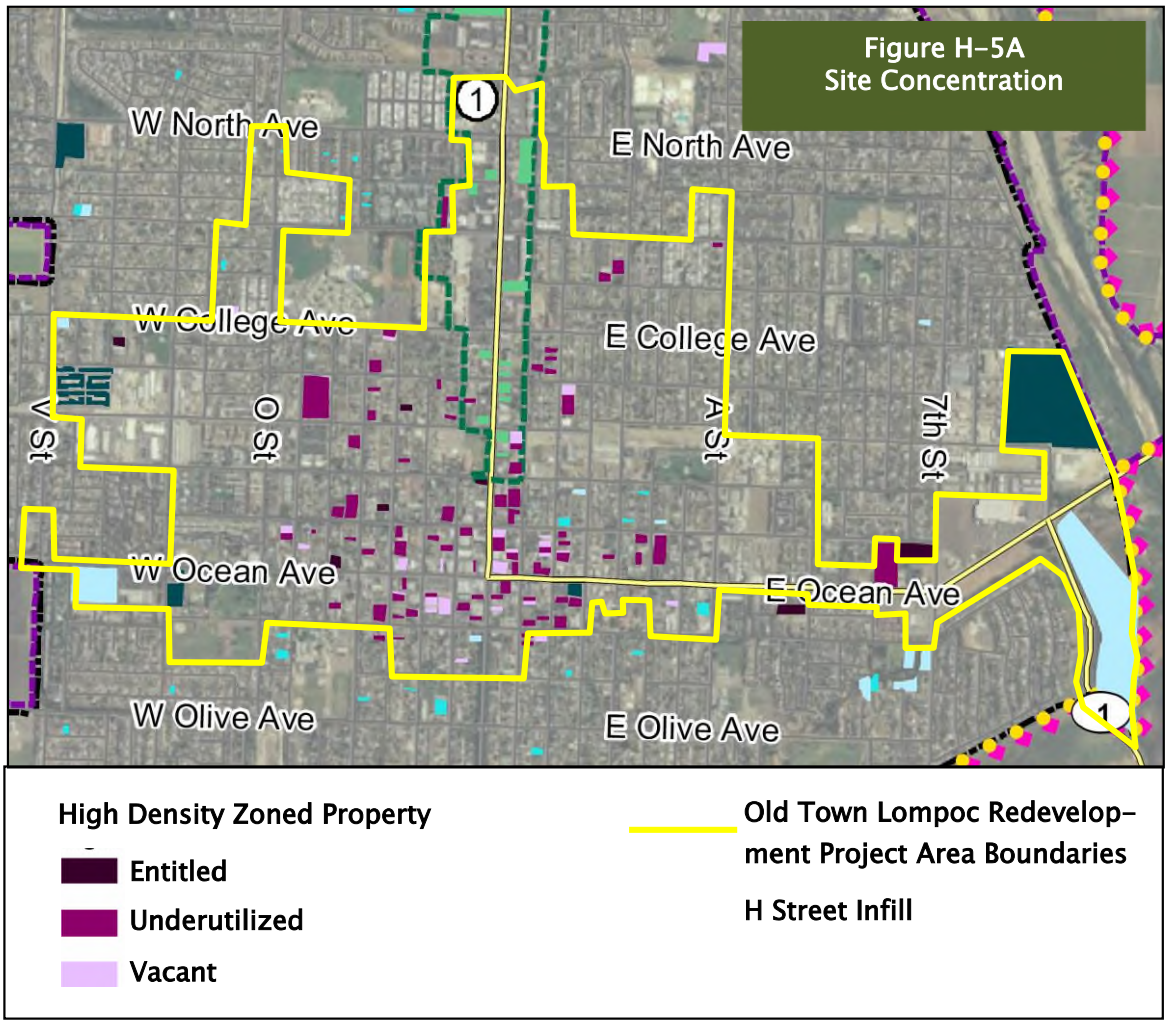
Table H-52C Development Characteristics of Underutilized Sites			
Multi-Family Residential			
APN 9102221			**Improvement to Value Ratio:** 29% **Comments:** Single family dwelling on a large lot surrounded by multi-family uses.
Private Parking			
APN 88517109			**Improvement to Value Ratio:** 13% **Comments:** Paved private parking lot with limited/occasional use.
Public Parking			
APN 8512221			**Improvement to Value Ratio:** 2% **Comments:** Unimproved public parking lot with limited/occasional use.
Public Recreation Centers			
APN 8919101			**Improvement to Value Ratio:** 19% **Comments:** Prominent corner lot with limited building lot coverage.
Religious Facilities			
APN 8513301			**Improvement to Value Ratio:** 26% **Comments:** Prominent corner lot with limited building lot coverage and blighted site conditions.

Table H-52C
Development Characteristics of Underutilized Sites

Services			
APN 8512207			**Improvement to Value Ratio: 17%** **Comments:** Prominent corner lot with limited building lot coverage.
Single Family Residential			
APN 8719310			**Improvement to Value Ratio: 24%** **Comments:** Single family dwelling on a large lot with contiguous vacant land fronting a major street.
Trailer Park			
APN 8922204			**Improvement to Value Ratio: 31%** **Comments:** Blighted trailer park, but not in included in the site inventory due the presence of existing dwellings.
Vacant Structures			
APN 9110316			**Improvement to Value Ratio: 6%** **Comments:** Large lot with abandoned accessory structure and contiguous vacant land fronting a major street.

Source: Assessor Parcel Data Base, County of Santa Barbara, 2007. Land Use Inventory, GIS Data and Current Project Lists, City of Lompoc, 2008. Google Earth, 2009.



8.6.3 Environmental Constraints

Updating the Housing Element for the current planning horizon is part of a broader review and revision of the City's entire General Plan. An Environmental Impact Report ("EIR") has been prepared to assess the physical ramifications of contemplated actions. Under the EIR, four potential environmental constraints have been identified that have relevance to the infill, mixed-use and intensification policies of the Housing Element: (i) impacts to historic buildings within the downtown core; (ii) the presence of hazardous materials from prior development; (iii) hydrology and drainage constraints that arise from recently adopted stormwater management policies; and (iv) land use compatibility between infill residential and nearby commercial and industrial uses. These factors are not evaluated on a parcel-specific basis; rather, the EIR is pro-

ATTACHMENT F

CPR
Californians For Pesticide Reform

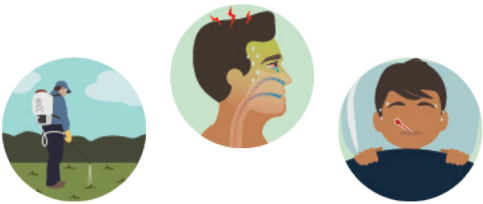
April 2021

The Dangers of Pesticide Exposure

A Community Response Guide for the California Coast

The Dangers of Pesticide Drift

Pesticides are chemicals that kill weeds, insects, and other pests.



Pesticides are designed to kill. Exposure to pesticides can make you sick right away and/or can be harmful to your long-term health. Pesticides are especially harmful to children.

Pesticide drift may be visible as a cloud of spray or dust, or you may notice an unpleasant smell or taste. You may even feel droplets. Pesticides can harm your health even if you don't see, feel, taste or smell them.

Symptoms of Pesticide Exposure

Different pesticides cause different reactions. But if you've been exposed to pesticides, you may feel:

eye, nose or throat irritation, difficulty breathing

nausea, vomiting

skin irritation, rash

dizziness, tremors, muscle weakness

headaches

blurred vision, eye irritation

stomach aches, diarrhea

excessive sweating, fever

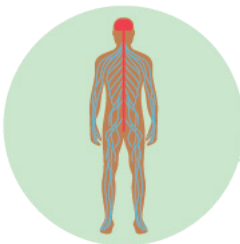
Maybe it's not the flu?

Symptoms of pesticide exposure are often dismissed as colds, flu, diabetes, pregnancy, allergies, or hangovers. If you feel any of the above symptoms, especially if they appear quickly, think about where and when you may have been exposed to pesticides and see a doctor.

Long-Term Health Risks

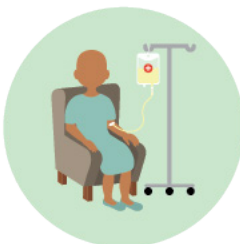
Some effects take months or years to show up, such as

birth defects



nervous system problems

reproductive harm



cancer

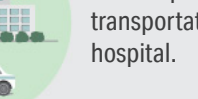
Pesticide Drift Is Illegal!

Report all pesticide drift, whether you are sick or not.
See p.8

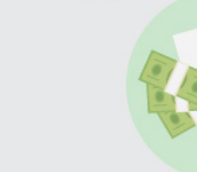
By law, your County Agricultural Commissioner must tell you what pesticide was applied and must investigate.

Farmworkers have these rights when they are exposed to pesticides at work:

Your employer must provide transportation to the doctor or hospital.



Your employer must pay for your medical care.

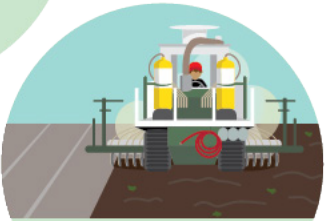


You cannot be fired for reporting drift or seeking medical attention.

How Are Pesticides Applied?

Sprays down toward the ground

Ground Boom Sprayer



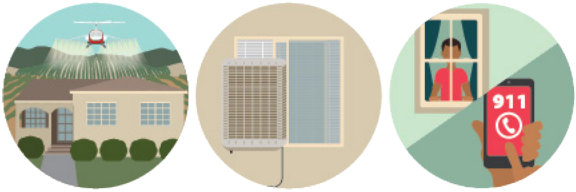
Soil Fumigation

Aerial Application

Ground Air-blast Applicator

Sprays up and out

What to Do If You Are Exposed to Pesticides



At home: Turn off your swamp cooler. Close the windows. If possible, carefully leave the area immediately. Call 911 if you are too sick to drive.

At work:

— Tell your supervisor immediately!
— Ask your supervisor what pesticide you were exposed to, and ask to be taken to a doctor.
— Tell your doctor the name of the pesticide, and ask them to report it.

Wherever you are exposed:

— Record everything and report it! See p. 8
— Change your clothes and shower with soap and warm water.
— If your clothes were hit, put them in a paper bag inside a plastic bag for possible testing.

See a Doctor Immediately If You Feel Any Symptoms of Pesticide Poisoning!

Tell the doctor what happened and what pesticides were involved.

Who will pay your medical bill?
If you were exposed at work, workers' compensation insurance is required to pay. If you were not at work, the applicator or farmer may have to pay anything not covered by insurance.

Make sure your doctor reports the illness, as required by law.* Follow up with the County Ag Commissioner.

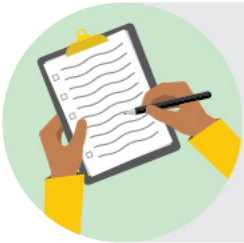
*By law, physicians must report suspected pesticide illnesses within 24 hours: **https://oehha.ca.gov/pesticides/pesticide-illness-surveillance-pesticide-illness-reporting**

Always Report Pesticide Drift!
How to Report:

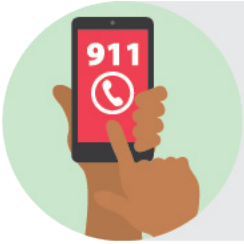
Call the County Agricultural Commissioner (see p. 12 for contact numbers). It's their job to take your report and investigate.

CASPIR Mobile app

Download the CASPIR app from the California Department of Pesticide Regulation. You can use the app to report location and details, or send a video report. The state will notify your Ag Commissioner.



Write everything down! See p. 9-10



If you are seriously ill, call 911.

Record Everything!

Don't worry if you don't know all the answers, just record as much as you can. Keep any photos or videos, and make copies of the form for others to fill out, if needed. You can also submit photos or a video report on the CASPIR app, which maps where the drift happened.

Recording Form for Pesticide Exposure

1. Your name:_____

2. Date of pesticide exposure:_____ (month/day/year) **Time:**_____am/pm

3. The exposure happened while: ❑ **Working** ❑ **Driving** ❑ **At Home**

❑ **At School** ❑ **Other**_____

4. Location of exposure: (Be specific! Address, intersection, part of highway, school name, field block, residence, name of farm labor contractor or grower if known, etc.)

_____

_____

5. Weather conditions at time of exposure: ❑ **No Wind**

❑ **Wind:** From what direction?_____How Strong? Light / Medium / Strong

❑ **Fog** ❑ **Other**_____

6. Did you feel, smell or taste anything at the time of exposure? ❑ **No** ❑ **Yes**

If yes, what did it feel, smell or taste like? _____

_____

7. What pesticide(s)? (if known)_____

8. Describe the exposure: (What were you doing? Was it a gas, a spray, from a helicopter, etc.?)_____

_____

_____

9. Did you see the pesticide being applied? If so, describe how (helicopter, tractor, sprayer, etc.) and estimate how far away it was. _____

_____

_____

10. Who was exposed? Write the names and contact information of all people you know were exposed. Continue on the back or on another page if you need more space.

Name _____ **Contact Info** _____

Name _____ **Contact Info** _____

Name _____ **Contact Info** _____

11. What symptoms did you and others experience?

	Me	Others (who?)		Me	Others (who?)
Dizziness	❑	❑	Onset of asthma attack	❑	❑
Headache	❑	❑	Tingling or numbness of skin or mouth	❑	❑
Burning eyes	❑	❑	Chemical taste in your mouth, sore throat	❑	❑
Stomach ache/ nausea	❑	❑	Difficulty breathing or shortness of breath	❑	❑
Diarrhea	❑	❑	Disorientation or confusion	❑	❑
Vomiting	❑	❑	Allergy-like reaction (sneezing & runny, itchy nose)	❑	❑
Fainting	❑	❑			
Rash/Irritation	❑	❑			

Follow up!

If you were exposed at work, did you tell your supervisor? ❑ **Yes** ❑ **No**

Did you save clothes that might have been contaminated in a bag? ❑ **Yes** ❑ **No**

Remember to report drift and exposure to the County Agricultural Commissioner immediately. Call community support groups if you need help! (see page 14.)

Who I called **Date & time of call** **What did they say?**

_____

_____

_____

Filing a Report with the County or State

Report pesticide drift to your County Ag Commissioner. It's their job to investigate. Ask the Agricultural Commissioner to:

- Investigate the drift

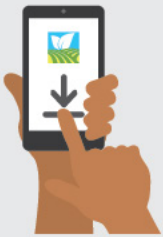
- Tell you what pesticides were involved

- Test your clothes for pesticide residues

- Provide you with a report

To report pesticide drift, download the Department of Pesticide Regulation's CASPIR app on your mobile device. You can file a report anonymously, provide the exact location of the incident, and upload photos and videos.

CASPIR
Mobile app



County	Agricultural Commissioner Phone Number
Monterey	(831) 759-7325
San Diego	(858) 694-2739
San Luis Obispo	(805) 781-5910
Santa Barbara	(805) 681-5600
Santa Cruz	(831) 763-8080
Sonoma	(707) 565-2371
Ventura	(805) 388-4222

If the County Agricultural Commissioner does not respond to your request, call the California Department of Pesticide Regulation and ask for enforcement.

State of California Department of Pesticide Regulation Offices

Sacramento Headquarters	(916) 324-4100
Central Regional Office, Fresno	(559) 297-3511
Northern Regional Office	(916) 603-7703
Southern Regional Office	(714) 279-7690

For Farmworkers Exposed to Pesticide Drift in the Field or at Home

CRLA

California Rural Legal Assistance, Inc.

Oxnard	(805) 486-1068
Salinas	(831) 757-5221
San Luis Obispo	(805) 544-7997
Santa Maria	(805) 922-4564
Santa Rosa	(707) 528-9941
Vista	(760) 966-0511
Watsonville	(831) 724-2253

United Farm Workers of America

UFW Foundation Worker's Rights Call Center
(877) 881-8281

United Farm Workers of America Headquarters
(661) 823-6105

Pesticide Information Online
www.pesticideinfo.org
Search this website for information about pesticide use in California and health effects of specific pesticides.

You Are Not Alone

For help reporting drift, to get involved, or if you have questions, these organizations are here for you.

Californians for Pesticide Reform
(Statewide)
(510) 788-9025

California Rural Legal Assistance Foundation
(Statewide)
(916) 446-7904 ext.110

Central Coast Alliance United for a Sustainable Economoy (CAUSE)
(Ventura and Santa Barbara)
(805) 658-0810

Centro Binacional para el Desarrollo Indígena Oaxaqueño (CBDIO)
(Monterey and Santa Cruz)
(Spanish, Mixteco, Zapoteco, Tlapaneco, and Triqui spoken)
(831) 585-3411

Lideres Campesinas
(Statewide)
(805) 486-7776

931 E Market St., Salinas, CA 93905

Safe Ag Safe Schools
(Monterey and Santa Cruz)
(831) 204-6163

Sonoma SASS
(Sonoma)
(707) 634-4660

About CPR

Californians for Pesticide Reform (CPR) is a statewide coalition of more than 190 organizations, founded in 1996 to fundamentally shift the way pesticides are used in California. CPR's mission is to protect public health, improve environmental quality and expand a sustainable and just agriculture system by building a diverse movement across California to change statewide and local pesticide policies and practices.

Californians for Pesticide Reform
2029 University Ave, #200
Berkeley, CA 94704-1015
www.PesticideReform.org

ATTACHMENT G

Agricultural Pesticide Use Near Public Schools in California

California Environmental Health Tracking Program

April 2014

CDPH

CALIFORNIA ENVIRONMENTAL HEALTH TRACKING PROGRAM

PUBLIC HEALTH INSTITUTE

Agricultural Pesticide Use Near Public Schools in California

California Environmental Health Tracking Program

April 2014

CDPH

CALIFORNIA ENVIRONMENTAL HEALTH TRACKING PROGRAM

PUBLIC HEALTH INSTITUTE

The California Environmental Health Tracking Program is a collaboration of the California Department of Public Health and the Public Health Institute, funded by the Centers for Disease Control and Prevention (CDC). This report is supported by Cooperative Agreement Number 5U38EH000953-02 from the CDC. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC, outside organizations, or external reviewers.

Contents

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Asa Bradman, PhD Center for Environmental Research and Children's Health, School of Public Health, University of California, Berkeley

Robert Spear, PhD School of Public Health, Environmental Health Sciences, University of California, Berkeley

California Conference of Local Health Officers

California Agricultural Commissioners and Sealers Association

California Department of Education

California Department of Food and Agriculture

California Environmental Protection Agency

California Environmental Protection Agency, Department of Pesticide Regulation

California Environmental Protection Agency, Office of Environmental Health Hazard Assessment

California Farm Bureau Federation

Californians for Pesticide Reform

CEHTP Tracking Implementation Advisory Group

Center for Environmental Health

Pesticide Action Network

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[2] California Environmental Health Tracking Program
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Executive Summary

California agriculture produces nearly half of all fruits and vegetables grown in the Unites States. These foods are essential components of a healthful diet and help promote public health here and throughout the country. However, agricultural production frequently relies on the application of pesticides that, under some circumstances, can be hazardous to human health. Compared with adults, children are more susceptible to the effects of pesticide exposure. Because of the potential public health risks to children, we examined the use of selected agricultural pesticides near public schools in the top 15 counties by agricultural pesticide use in California for 2010. Our goals were to improve the methodology for the ongoing surveillance of agricultural pesticides to understand pesticide use patterns and provide information that can be used to assess and inform efforts to minimize potential pesticide exposures among schoolchildren.

In 1990, California established the Pesticide Use Reporting (PUR) program, a world-class system administered by the California Department of Pesticide Regulation (CDPR) to collect and disseminate data on pesticide use. For this study, we utilized the most accurate data available from PUR and other sources to estimate pesticide applications within ¼ mile of school property boundaries. The pesticides included in this study were selected for their public health relevance and categorized based on their known health effects or regulatory status. The six categories of pesticides considered are carcinogens, reproductive and developmental toxicants, cholinesterase inhibitors, toxic air contaminants, fumigants, and priority pesticides for assessment and monitoring. These chemicals, many of which are of regulatory interest in California, are considered in this report to be **pesticides of public health concern**.

For this study, we assessed 2,511 public schools, attended by over 1.4 million students, in the 15 counties with the highest total reported agricultural pesticide use in 2010. We linked geographic school data to over 2.3 million pesticide use records. We found:

- **Most schools did not have any pesticides of public health concern applied nearby.** In 2010, the majority of schools in this study (64% or 1,612 schools) did not have any pesticides of public health concern applied within ¼ mile. For the remaining 36% of schools, pesticide use within ¼ mile ranged from 0.01–28,979 lb.
- **A small percentage of schools had many pounds of pesticides of public health concern applied nearby.**
  - The top 5% of schools with any pesticide use nearby (45 schools attended by over 35,000 students) had amounts of pesticides applied within ¼ mile ranging from 2,635–28,979 lb.
  - The top 25% of schools with any use nearby (226 schools attended by over 118,000 students) had at least 319 lb of pesticides applied within ¼ mile.
- **Pesticide use near schools varied among counties.**
  - Fresno County had the highest number of schools (131) with any pesticides applied nearby, whereas Tulare County had the highest percentage of its schools (63.4%) with any pesticides applied nearby.
  - Ventura County had the highest number of schools (12) and the highest number of students (13,045) in the top 5% of schools. Monterey County had the highest percentage of its schools (8%) and highest percentage of its students (13%) in the top 5% of schools.
- **Hispanic children were more likely to attend schools near the highest use of pesticides of public health concern.** Hispanic children were 46% more likely than White children to attend schools with any pesticides of concern applied nearby and 91% more likely than White children to attend schools in the highest quartile of use.

- **Household income did not consistently differ for children attending schools with the highest use of pesticides of public health concern, compared to schools with no use nearby.** However, differences existed within some individual counties.
- **An estimated 538,912 lb of pesticides of public health concern were applied within ¼ mile of public schools in the 15 counties in 2010.** Of the top 10 pesticides of public health concern used near schools, by pounds applied:
  - The top three pesticides of public health concern were chloropicrin, 1,3-dichloropropene, and methyl bromide.
  - Six are designated by CDPR as "restricted materials," which require special permits and are eligible for additional regulation at the local level.
  - Eight have a chemical persistence (measured as half-life in soil) of more than a week. Only one (chloropicrin) has a chemical persistence of less than 24 hours.
- **Of the pesticides used near schools, many belonged to multiple categories, and use by categories differed.**
  - Of the six categories of pesticides assessed, priority pesticides for assessment and monitoring were used near the most schools (33.8%), while fumigants were used near the fewest schools (12.7%). However, both had similar ranges of use, from zero to over 27,000 lb applied within ¼ mile of a school.
  - Priority pesticides for assessment and monitoring had the greatest poundage (523,566 lb) applied within ¼ mile of all schools, while cholinesterase inhibitors had the lowest (37,455 lb).

This study methodology does not attempt to measure schoolchildren's exposures to pesticides and, therefore, study results cannot be used to predict possible health impacts. Additional information would be needed regarding chemical decay, transport, and routes of exposure, all of which are beyond the scope of this report. However, the study methodology and results can help guide current and future pesticide monitoring and exposure assessment efforts — such as air monitoring, soil sampling, and biomonitoring — as well as epidemiologic studies.

We also hope the study methodology and results will be used by school officials, local environmental and public health officials, county agricultural commissioners, pesticide regulators, exposure assessment scientists, and others to inform policies that may impact public health, such as school-siting decisions and pesticide application permitting regulations.

Overall, we found that the data and technology exist to accurately and efficiently assess pesticide use near potentially sensitive populations with a high degree of geographic resolution. However, some relevant data are not collected and disseminated in a standardized manner throughout California.

In conducting this study, the researchers found a need for:

- Routine and standardized collection, digitization, and reporting of data on agricultural field locations of each pesticide use permit, which could then be made publicly accessible via the PUR system in a format convenient for Geographic Information Systems
- An accurate, complete, and publicly accessible database on pesticides applied on school properties
- An accurate, complete, and publicly accessible database of school property boundaries in California
- Ongoing surveillance of the use of pesticides of public health concern near schools and other potentially sensitive locations, in order to understand trends and usage patterns

Introduction

Agriculture in California

Agriculture is a major industry in California and plays a vital role in the state's economy and the nation's food supply. According to the U.S. Department of Agriculture, California is the largest producer and exporter of agricultural products in the U.S.[1] California farmers produce nearly half of all U.S.-grown fruits, nuts, and vegetables, greatly benefiting public health statewide and nationally. In 2010, California was the leading state in cash farm receipts, with $37.5 billion in revenue. The state accounted for 16% of national crop receipts and 7% of U.S. revenue from livestock products.[2]

In 2007, California accounted for 23% of all agricultural pesticides used in the U.S.[3,4] In 2010, over 160 million pounds were applied in California.[5]

What are Pesticides?

A **pesticide** is any substance used to kill or repel insects (insecticides), weeds (herbicides), rodents/small mammals (rodenticides), mold (fungicides), bacteria, or viruses. Pesticides are used in many settings, including agricultural fields, forests, recreational areas such as parks and golf courses, landscaping, and commercial and private buildings.

This report is focused on pesticides used in agricultural production in California in 2010. Pesticide use can vary greatly over time, as new pesticides are introduced and old pesticides are phased out, agricultural methods change, and pest populations shift. Because agricultural pesticides are dispersed in an outdoor environment, they are subject to variable conditions that may affect their transport, persistence, and chemical decomposition in the environment. More information about pesticides is available from the California Department of Pesticide Regulation (CDPR).[6]

Pesticides and Children

Compared with adults who do not work in agricultural settings, children are more likely to be exposed to pesticides and more susceptible to the health effects of pesticides.[7,8,9] Reasons for this increased susceptibility include:

- **Behavior** Certain childhood behaviors — such as spending more time outdoors, playing on the ground, and putting objects in their mouths — can increase children's risk for pesticide exposure.
- **Physiological development** Children's bodies are still maturing, so their physiology undergoes rapid changes, leaving them vulnerable to interruptions or delays in key developmental milestones.
- **Body size** Relative to their weight, children eat, drink, and breathe more than adults, increasing their exposure on a per pound basis.

The Need for Better Information

Over the past decades, California has experienced substantial growth and the extension of the agricultural-urban interface. Many suburban communities are built on past agricultural lands and are located close to agricultural fields where pesticides are applied.[10] Within these communities, many schools have been built close to this interface. Although the use of pesticides near a location does not mean that individuals are exposed, ongoing use may increase the probability of exposure. It is important to develop sound information on the

location, types, and quantities of pesticides applied near schools and other locations of human activity.

Purpose of the Report

Using new datasets that accurately identify boundaries of school properties, combined with datasets on statewide agricultural pesticide use and the locations of agricultural fields, the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health (CDPH) and the Public Health Institute (PHI) estimated the location and amount of pesticides of public health concern applied near public schools in the 15 counties in California with the highest agricultural pesticide use for 2010, the most recent year for which statewide data were available at the time of the study.

California has some of the most stringent policies in the nation for restricting the use of agricultural pesticides near schools. However, these policies are primarily intended to prevent risks of acute pesticide exposure, not risks of chronic pesticide exposure.* Although many pesticide applications are conducted before and after ordinary school hours, many agricultural pesticides or their byproducts may remain in the environment after they are applied. This chemical persistence can have implications for chronic exposure risks and delayed or chronic health outcomes.

This study aims to demonstrate an improved methodology for the ongoing surveillance of agricultural pesticides to understand pesticide use patterns and to provide information to those who strive to improve children's health in their community by:

- Quantifying the amount of pesticides of public health concern used in agricultural applications near public schools
- Describing the populations that attend schools near the most intensive agricultural pesticide use and investigate whether they differ from populations attending other schools

The California Environmental Health Tracking Program

The California Environmental Health Tracking Program (CEHTP) works to improve public health by delivering science-based information on the trends and distributions of diseases and environmental threats. CEHTP integrates environmental and health data to provide the information needed to improve the health of a community. To accomplish this, CEHTP has three core goals:

- Advance technology infrastructure
- Improve the availability and utility of environmental public health data and information
- Inform policies, practices, and other public health actions

CEHTP also conducts surveillance on other environmental hazards such as traffic, air pollution, and water pollution, as well as surveillance on health outcomes known or suspected to be associated with environmental hazards.[11]

For more information on CEHTP, visit www.CEHTP.org. Visit www.cdc.gov/ephtracking to learn about the National Environmental Public Health Tracking Program and other initiatives throughout the nation.

While the results of the study can be used to inform future exposure and health studies, **this assessment does not measure pesticide exposure in schoolchildren nor does it attempt to predict health outcomes.**

* Chronic exposure refers to repeated exposure over a long period of time, even in very small amounts.

Rather, the methodology used in this study could support ongoing surveillance of agricultural pesticide use near sensitive populations and could be expanded statewide. The methodology could also be used to guide further investigations (e.g., hazard assessments such as air monitoring and soil or dust sampling) and to inform the development of epidemiologic research studies. This report also provides new information that might be useful to pesticide regulators, school developers, and other decision-makers.

Regulating Agricultural Pesticide Use Near Schools

Certain pesticides can be especially hazardous to human health and the environment. California law requires that CDPR place special regulatory controls on these "restricted materials," which are typically determined based on their active ingredients, concentration, container size, or designated use as described on the labeling (see Appendix 1: Restricted Materials Requirements). Only CDPR can designate a pesticide as a restricted material.

Use of restricted materials is limited by law to trained individuals. Users must apply for site-specific permits from their county agricultural commissioners (CACs), noting any sensitive locations nearby, such as schools. CACs evaluate each application and may require additional conditions before granting the permit — such as buffer zones (forbidding use within a specified distance of a location), time restrictions, or a combination of both — for applications near sensitive locations. Permit conditions vary by county, which may reflect local use conditions and other factors. Once the permit is obtained, applicators must notify their CAC at least 24 hours in advance of using the restricted material. CACs can also require a permit for a non-restricted material if the application would present an "undue hazard."

Establishing restrictions on agricultural pesticide use near school properties is one way in which counties can reduce the potential for exposure among schoolchildren and school workers. Current school pesticide restrictions (from September 2013) for the 15 counties are summarized in Appendix 2: School Pesticide Restrictions by County. As shown in Appendix 2, restricted materials are commonly subjected to additional regulations near school properties, and each county currently restricts some pesticide applications (the listed restrictions do not necessarily reflect restrictions in place in 2010, the year of this study). The information provided in Appendix 2 may not be comprehensive, and individual CACs should be contacted for further details about their school pesticides restrictions and other related policies.

This study does not assess the impact of school pesticide restrictions on pesticide applications near schools. However, with improved data, future studies specifically designed to assess the efficacy of these restrictions could adapt the study methodology. Many of the pesticides assessed in this study are not considered restricted materials. For this report, restricted material classification by CDPR has been noted only for the highest use pesticides. CDPR should be contacted for further details on restricted materials and related regulations.

Pesticide Use Inside School Properties

In addition to agricultural applications, pesticides are also used in homes, workplaces, child care centers, and on school properties to control pests such as insects, rodents, and invasive plants. Records for pesticide use in schools are not readily available or complete at the statewide level. Pesticides used in school buildings and on school grounds may be applied by licensed contractors or by school maintenance staff. However, only pesticides applied by licensed contractors are required to be reported to CDPR, and only specific pesticides must be reported.[12] Therefore, routine pesticide use by school maintenance crews and/or use of certain pesticides may go undocumented. Although the use of pesticides in schools is of potential public health concern, the lack of data makes it difficult to conduct a comprehensive and meaningful analysis. See Appendix 3: Existing Policies Related to Pesticides and Schools for more details on reporting requirements for pesticides used on school grounds. More information on CDPR's Integrated Pest Management Program (IPM) can be found online at http://apps.cdpr.ca.gov/schoolipm/main.cfm.

CDPR Air Monitoring Network

In 2011, the California Department of Pesticide Regulation implemented an air monitoring program in three communities. There were 226 communities eligible for inclusion, and the three communities were chosen based on local and regional pesticide use, demographic data, and the availability of health and exposure data. A total of 34 pesticides and 5 breakdown products were selected to be monitored at the air monitoring site within each community.

One 24-hour sample was collected each week at each of the three monitoring sites, and sampling days were randomly selected and varied by week. Of 5,676 analyses produced from February to December 2011, only 3% (173) contained quantifiable concentrations. Based on results from the three sites, CDPR found a low health risk to people near the monitoring sites in these communities. Air monitoring will last for at least two years.

For more information, please visit www.cdpr.ca.gov/docs/emon/airinit/air_network.htm

Methods

The key steps for this study included identifying a subset of counties with high pesticide use, creating groupings of pesticides likely to be hazardous to children's health, and linking together geographically-enhanced pesticide use reports with geographically-enhanced school location data.

Step 1: County Selection

The CDPR Pesticide Use Reporting (PUR) program was established in 1990 to provide "more realistic and comprehensive pesticide use data."[13] The PUR program is recognized as the most comprehensive in the world. For this study, data from the 2010 PUR were obtained for all 58 counties in California. Counties were ranked by agricultural pesticide use (by pounds of active ingredients applied; active ingredients are the chemicals in pesticides designed to kill, control, or repel pests).[14] The top 25% of counties (15 out of 58) with the greatest pesticide usage were selected for the analysis (Figure 1 and Table 1). These 15 counties accounted for nearly 85% of all agricultural pesticides applied (by pounds of active ingredients) in California in 2010.

Step 2: Pesticide Selection

The pesticides considered in this study were selected for their public health relevance and categorized based on known health effects or regulatory status. In total, 635 active ingredients were deemed eligible for the study. In 2010, 815 distinct active ingredients were used in agricultural pesticide applications in California, and 201 of these were active ingredients on the study list. In this subgroup of 201 active ingredients, 144 were applied within ¼ mile of a public school

Figure 1. Locations of counties with highest agricultural pesticide use in 2010

located within one of the 15 counties. These pesticides belong to one or more of the pesticide categories listed in Table 2. A complete list of the 144 active ingredients used near public schools is shown in Appendix 4.

Table 1. Pounds of active ingredients applied for agricultural use in the top 15 counties, 2010

County	Pounds applied (2010)
Fresno	27,777,500
Kern	21,454,117
Tulare	8,867,756
San Joaquin	8,687,822
Madera	8,582,823
Monterey	8,203,711
Merced	7,180,641
Ventura	6,495,235
Kings	6,105,752
Stanislaus	5,072,403
Imperial	4,163,596
Santa Barbara	4,109,958
Sacramento	3,291,915
San Luis Obispo	2,570,651
Yolo	2,496,139

Step 3: Data Enhancement

Enhancing School Boundary Data

This study considered agricultural pesticide use near public schools for the 15 selected counties. Currently, statewide data for school location are reported as addresses and geocoded points (latitude and longitude locations). This provides little useful information about the actual boundaries of school properties. Additionally, the reported geocoded points are often erroneous, likely due to errors in geocoding or address reporting, or misreporting of administrative offices as school locations. CEHTP took the following steps to improve the accuracy and resolution of the school location data:

- **Obtain data** Data for public school locations in California were downloaded from the California Department of Education (CDE) in November 2011.[15]
- **Geocode addresses** The CEHTP Geocoding Service was used to increase the completeness of geocoded locations, as some schools in the CDE data did not have this information.[16] Geocoding is the process of finding the geographic coordinates of a location, such as an address. More information on geocoding can be found at www.cehtp.org/p/geocoding.
- **Visual verification** The geocoded points of school locations were then imported into ArcGIS and overlaid with county assessors' parcel data.[17] The geocoded points were used to determine the general location of the schools. Google Street View, as well as basemap and satellite imagery from Google and Bing, were then used to verify the existence and boundaries of school properties.
- **Finalize school boundaries** Parcel data were assigned to each school to serve as the school boundary. If parcel data were misaligned with the school boundary based on satellite imagery, the parcel was redrawn before assigning the school boundary.

Table 2. Pesticide categories and methodology used to select active ingredients for each category*

Pesticide category	Description and selection criteria
Carcinogens	For this study, carcinogens include: (1) active ingredients in the CDPR database that are "Known," "Probable," or "Likely" to be carcinogenic in humans, based on evaluations by the Health Effects Division of the United States Environmental Protection Agency (U.S. EPA) Office of Pesticide Programs (i.e., U.S. EPA Category A, B1, or B2); and (2) chemicals "known to the State of California to cause cancer" under Proposition 65.[18,19] There are differing weights of evidence for specific chemicals that summarize our confidence that they, in fact, can cause cancer in humans. For this reason, our list includes "Likely" or "Probable" carcinogens, for which the evidence is relatively strong for their cancer-causing potential. Other chemicals are considered suspected or possible carcinogens based on animal studies, but these chemicals were not included in this category.
Reproductive and Developmental Toxicants	Reproductive and developmental toxicants were selected from CDPR's list of pesticide active ingredients that have been identified through Proposition 65 as chemicals "known to the State of California to cause reproductive or developmental toxicity."[20]
Cholinesterase Inhibitors	These chemicals inhibit acetylcholinesterase or plasma cholinesterase enzymes (which are essential for regulating nerve cell activity), either as part of their primary toxicological mechanism of action, or as a secondary effect, as shown in one or more experimental studies. Inhibition of these enzymes can lead to an overstimulation of nerve receptors and possibly lead to longer-term neurological deficits.[21] Sources from U.S. EPA, CDPR, or the World Health Organization (WHO) provided the basis for inclusion on this list.[22,23,24, 25,26]
Toxic Air Contaminants	The compounds on this list are chemicals in the CDPR database that are also listed as California Toxic Air Contaminants (TACs) or U.S. EPA Hazardous Air Pollutants (HAPs). Additional information on the prioritization and identification of TACs and HAPs is available from the California Air Resources Board (www.arb.ca.gov/toxics/background.htm) and the U.S. EPA (www.epa.gov/ttn/atw/index.html).
Fumigants	The compounds on this list are chemicals used as agricultural fumigants that have been identified by CDPR or U.S. EPA as volatile substances or substances which degrade to volatile active substances.[27]
Priority Pesticides for Assessment and Monitoring	These pesticides are: • Active ingredients (and compounds that break down into these active ingredients) identified as high priority chemicals for risk assessment on the CDPR priority risk assessment list (July 2011). These chemicals will undergo, or are currently in process of undergoing, a formal risk assessment by CDPR. Each has been identified by an expert committee as high priority for risk assessment due to concerns about health effects in safety studies that may include carcinogenicity, genotoxicity, reproductive and developmental effects, neurotoxicity, or other chronic adverse effects.[28] • Active ingredients from the CDPR database that are on the CDPR air monitoring list (Feb 2011). These chemicals are currently monitored by CDPR in the air in selected locations because of concerns about potential exposures due to off-target drift.[29] • Active ingredients of high use in California (top 100 by pounds applied, 2010) that are categorized by the European Commission Directorate General for Health and Consumers[30] as carcinogens, mutagens, reproductive toxicants, or sensitizers and are not already listed in this study's other pesticide categories.

* Pesticide active ingredients may belong to one or more categories.

The analysis focuses on public schools, grades K-12. We excluded data for schools coded as adult schools, licensed preschools, or private schools. If a school was coded as closed, merged, or pending, it was also excluded from the analysis. We also excluded 347 schools that did not have any enrollment data; upon further inspection, many of these appeared to be non-K-12 schools or administrative offices that had been miscoded. The final geographic school data used in this report include 2,511 schools and 2,338 unique school boundaries. There are fewer boundaries than schools because some properties contain more than one school, such as an elementary school and a middle school.

Increasing the Resolution of Pesticide Use Reporting Data

CDPR's PUR data contain records of agricultural pesticide applications in California. Pesticide applicators must submit reports to the CACs, who then submit the data to CDPR. The records include information about the date of application, type and amount of active ingredient applied, and type of crop. PUR data also include information about where the application occurred, such as county, township, range, Public Land Survey (PLS) section, and field. CDPR, however, does not regularly collect, maintain, or distribute electronic Geographic Information System (GIS) data with better spatial resolution than the PLS section, an area of roughly one square mile. Therefore, using PUR data alone, it is impossible to know where pesticides were applied within a given square-mile section.

By linking the PUR data with other GIS datasets, CEHTP has been able to spatially refine the 2010 PUR data to geographic areas more likely to represent where pesticides were actually applied. The process is described in more detail below.

- **Primary refinement method** Through collaboration with CACs, CEHTP was able to obtain and utilize CAC agricultural field location GIS data. Of the 15 counties considered in this study, 14 provided GIS data that included pesticide use permit numbers and/or field identifiers, which could then be used to link to and refine the PUR data to the field-level (or ranch-level, for Monterey County). The remaining county (Tulare) did not have a pesticide permit GIS database at the time of the study.

  CDPR does not provide CAC GIS data with its PUR data. Furthermore, counties are not legally mandated to collect GIS data on the locations of agricultural fields. Thus, the completeness of CAC GIS data and the ability to link them to the PUR data varies by county. This refinement method provides the greatest spatial resolution possible.

- **Secondary refinement method** For PUR records that could not be refined using CAC GIS data, a secondary refinement method was used. The Department of Water Resources (DWR) has historically conducted land use surveys in one to six counties per year.[31] Tulare County, the only county in the study for which no CAC GIS data were available at the time of the study, was last surveyed in 2007. Geared towards enumerating agricultural land uses, the DWR land use maps provide individual parcels identified by agricultural crop, as well as parcels for other non-agricultural land uses, like native vegetation and urban areas. By linking DWR land use maps with crop identification information from the PUR records, pesticide applications were matched to more refined geographic locations within a PLS section.

  Following methods developed by Rull and Ritz, if multiple fields with the same crop code are co-located within a PLS section, then the related application from the PUR database was apportioned among those fields.[32] Matching PUR crop codes to DWR crop codes employed the following hierarchy of steps:

  – In the first pass of the hierarchy, records having codes for crops/sites that are unlikely to change between years, such as orchards, were matched one-to-one between PUR records and DWR land use observations within a section.

  – In the second step, PUR and DWR crop codes were matched on all crop/site types that are more likely to rotate or change between years, such as truck and field crops (generally, truck crops are vegetables; field crops are non-pasture, non-grain crops such as cotton, safflower, and sugar beets).

– For the remaining unmatched PUR records, the third pass matched the record with any agricultural crop/site in the PLS section.

Though the DWR land use spatial refinement method has better resolution than refinement using the PLS section, due to the inexact nature of the method, PUR records matched to DWR parcels in any given step may include additional field areas outside the true geographic location of a given pesticide application. PUR records matched in the first step are more likely to reflect the true geography of the pesticide application than those matched in the second and third steps.

When CAC or DWR data were not available or could not be matched to a PUR record, no spatial enhancement was possible, and the methodology defaulted to the geography of the PLS section (as shown in the section *Data Linkage Statistics*, this occurred for only 1% of pesticide applications across all 15 counties).

Step 4: Data Linkage

Once the school boundary and PUR data were refined, the datasets were linked by geographic area to determine what kinds and how many pounds of pesticides were applied near public schools. The linkage process is described in detail below.

- **Create final school polygons** A ¼-mile radius was drawn around each school boundary, creating a school polygon that included the actual school property plus a ¼-mile distance around the school boundary. The ¼-mile distance was chosen to capture agricultural activity near the school, as it provides a reasonable "drift" distance in the absence of more rigorous microclimatic modeling and because ¼ mile is a common distance used for pesticide permitting regulations near schools.
- **Link school polygon with PUR data** The resulting school polygon was overlaid with the spatial results of the final PUR datasets, described in Step 3 above.
- **Apportionment** If the school polygon overlapped an area where pesticides were applied, the amount of chemical applied within the school polygon was calculated by apportionment based on the amount of overlap between the school polygon and the area where pesticides were used (area weighted average). The apportionment assumes that pesticides were applied evenly across an entire application area.

Only pesticides included in the categories previously described in Step 2 were quantified and reported. Pesticides applied at any time of the day were included in the analysis (see *Time of Application and Pathways of Exposure* on page 13 for more details). When assessing poundage for an individual school, pesticides used within ¼ mile of the school property were included, regardless of whether those pesticides were also used within ¼ mile of another school. However, when reporting total pounds applied for a pesticide or pesticide category, pesticide applications were not double-counted when school boundaries overlapped.

Data Linkage Statistics

Overall, across the 15 counties, the PUR enhancement and data linkage processes were successful.

- CAC GIS data were used to geographically refine 80% of all PUR records that were linked to schools.
- DWR land use survey data were used to geographically refine 19% of the PUR records.
- Only 1% of PUR records could not be geographically refined. These applications were apportioned to PLS sections, the lowest geographic resolution possible in this methodology.

The ability to geographically refine the PUR records varied by county (Table 3). When examining pesticide use by poundage applied (Table 4), the results across the 15 counties were similar to linkage results as reported by number of records. Overall, the majority of PUR records used in this study were captured at a very high spatial resolution.

Table 3. Number (and percent) of PUR records linked to schools by various geographic refinement methods

County	CAC GIS Data N (%)		DWR Land Use Surveys N (%)		PLS Section N (%)		All Records N (%)	
Fresno	4,925	(85.8)	740	(12.9)	78	(1.4)	5,743	(100.0)
Imperial	305	(79.8)	77	(20.2)	0		382	(100.0)
Kern	2,108	(99.4)	0		12	(0.6)	2,120	(100.0)
Kings	416	(45.2)	471	(51.2)	33	(3.6)	920	(100.0)
Madera	788	(95.6)	35	(4.2)	1	(0.1)	824	(100.0)
Merced	1,341	(62.7)	790	(36.9)	9	(0.4)	2,140	(100.0)
Monterey	15,517	(82.4)	3,112	(16.5)	201	(1.1)	18,830	(100.0)
Sacramento	138	(73.4)	33	(17.6)	17	(9.0)	188	(100.0)
San Joaquin	3,460	(91.0)	231	(6.1)	110	(2.9)	3,801	(100.0)
San Luis Obispo	4,351	(93.8)	290	(6.2)	0		4,641	(100.0)
Santa Barbara	10,249	(84.6)	1,803	(14.9)	66	(0.5)	12,118	(100.0)
Stanislaus	7,602	(91.5)	677	(8.1)	32	(0.4)	8,311	(100.0)
Tulare	3	(0.1)	5,924	(99.7)	16	(0.3)	5,943	(100.0)
Ventura	9,378	(97.3)	211	(2.2)	46	(0.5)	9,635	(100.0)
Yolo	362	(87.4)	11	(2.7)	41	(9.9)	414	(100.0)
All 15 Counties	60,943	(80.2)	14,405	(19.0)	662	(0.9)	76,010	(100.0)

Table 4. Absolute (and percentage of) PUR poundage linked to schools by various geographic refinement methods

County	CAC GIS Data N (%)		DWR Land Use Surveys N (%)		PLS Section N (%)		Total Poundage N (%)	
Fresno	16,410	(56.5)	4,359	(15.0)	8,271	(28.5)	29,041	(100.0)
Imperial	1,985	(89.0)	246	(11.0)	0		2,231	(100.0)
Kern	20,965	(100.0)	0		0		20,966	(100.0)
Kings	1,682	(35.0)	1,471	(30.6)	1,649	(34.3)	4,802	(100.0)
Madera	7,527	(98.4)	125	(1.6)	0		7,652	(100.0)
Merced	34,509	(78.7)	9,329	(21.3)	6	(0.0)	43,844	(100.0)
Monterey	92,987	(70.8)	38,374	(29.2)	57	(0.0)	131,418	(100.0)
Sacramento	1,089	(94.0)	69	(6.0)	0		1,158	(100.0)
San Joaquin	21,438	(92.6)	874	(3.8)	851	(3.7)	23,163	(100.0)
San Luis Obispo	1,272	(93.6)	87	(6.4)	0		1,359	(100.0)
Santa Barbara	57,823	(93.7)	3,845	(6.2)	34	(0.1)	61,702	(100.0)
Stanislaus	27,006	(82.7)	5,644	(17.3)	12	(0.0)	32,662	(100.0)
Tulare	0		33,628	(100.0)	8	(0.0)	33,636	(100.0)
Ventura	132,694	(94.4)	3,039	(2.2)	4,792	(3.4)	140,525	(100.0)
Yolo	4,702	(99.6)	20	(0.4)	0		4,723	(100.0)
All 15 Counties	422,089	(78.3)	101,110	(18.8)	15,682	(2.9)	538,881	(100.0)

Step 5: Analysis

Pesticide Use

Because the majority of schools had no pesticide use within ¼ mile, while relatively few schools had very large amounts of pesticides applied within ¼ mile, we report the data in quartiles for schools with any use within ¼ mile to better highlight those schools at the upper end of the distribution. Reporting county averages, for example, would effectively conceal those schools with large amounts of pesticide use within ¼ mile.

To report pesticide use near schools, the values for each school (i.e., pounds of pesticides applied within ¼ mile of that school) were first aggregated across the 15 counties assessed. Schools with no pesticide use within ¼ mile — 64% of all schools — were then excluded. The remaining schools were divided into quartiles based on the pounds of pesticides applied within ¼ mile of their boundaries, and quartile breakpoints were determined. Schools were then assigned to a quartile for reporting.

The top 10 pesticides by poundage used within ¼ mile of schools are reported for each pesticide category. Because the ¼-mile distance established around schools could overlap when schools were in close proximity to one another, an additional linkage was performed with all geocoded schools represented as a single polygon to avoid double-counting pesticide applications. Many pesticides appear in multiple categorical lists (see Appendix 4) and may be of public health concern from multiple perspectives, but values are not double-counted when reporting poundage for all pesticides assessed.

Demographic Analysis

Using demographic data to describe populations at risk is a routine function of public health, and it is an integral step in preventing health disparities that result from social, economic, and environmental disadvantages.[33]

Table 5. Number of schools included in demographic analysis, by data source

	2010 enrollment dataset	2010 FRPM dataset	2011 enrollment dataset	2011 FRPM dataset	No records available	Total number of schools
Total enrollment analysis	2,424	17	70	0	0	2,511
Race/ ethnicity analysis	2,424	0	86	0	1	2,510
FRPM analysis	0	2,328	0	170	13	2,498

In order to understand who attended schools nearest to pesticide use, we examined the total number of enrolled students, their racial/ethnic distribution, and the percentage of students eligible to participate in the Free and Reduced Price Meals Program (FRPM), which was used as a proxy for family socioeconomic status.

To estimate total number of students enrolled in public schools during 2010, we employed a tiered approach, using multiple datasets in order to compensate for missing data. Records from the 2010 CDE enrollment dataset were first used to determine student enrollment.[34] If a school was missing enrollment data in the 2010 CDE enrollment dataset, we then used records from the 2010 FRPM dataset. If data for that school were also missing from the 2010 FRPM dataset, we then used records from the 2011 enrollment dataset. Similarly, we employed a tiered approach for examining racial/ethnic distribution (2010 enrollment data, followed by 2011 enrollment data) and for FRPM eligibility (2010 FRPM data, followed by 2011 FRPM data). See Table 5 for more information.

These demographic data were merged with the linkage results for school boundaries and pesticide use to describe the demographics of the student populations in schools where pesticides were applied within ¼ mile.

Limitations

This study methodology has several limitations. It assumes that pesticides are applied evenly across a field. The study does not account for pesticide application modifications that may have been made in observance of local pesticide regulations in place in 2010. Therefore, if an application in some portion of a field did not occur because it fell within a school buffer zone during a restricted time period as established by CACs, this would not be accounted for in our methodology. Also, the completeness of CAC GIS data and the ability to link them to PUR data varies by county; therefore, the potential for erroneous attribution of pesticide applications to field locations may vary by county.

This study does not attempt to estimate and cannot be used to infer actual exposure. The methodology does not account for factors related to exposure, such as meteorology, wind patterns, potential drift, or chemical persistence. Routes of exposure were not assessed, and for the reasons stated above, pinpoint precision of pesticide use near students is not possible. Despite these limitations, this study describes agricultural pesticide use near schools in California in much greater detail and with higher geographic resolution than would have previously been possible, and it provides a framework to plan future studies and evaluate potential exposures.

Time of Application and Pathways of Exposure

Agricultural pesticide applicators typically do not perform applications near schools during school hours; in some areas, county regulations forbid it. CACs set important restrictions regarding the use of many pesticides near sensitive locations, such as schools, to protect public health. All 15 counties assessed in this study currently have some level of restriction on pesticide use near schools (see Appendix 2).

While current restrictions may not be applicable for 2010, the year of this study, it is likely that some applications included in this study did not occur when school was in session or while children were present. However, this study was not limited to applications that occurred when schools were in session for a variety of reasons.

- **Use of school properties when school is not in session:** According to CDE, school grounds are often occupied when school is not in session. Children and adults are often at school before and after class for extracurricular activities. Many sports events occur on weekends on school athletic fields, and some schools are used for activities during summer months.
- **Potential for pesticides to drift onto school property:** Pesticides that are applied at night or in the early morning may drift to school property and persist for hours or much longer. According to CDPR, although the goal of all pesticide applications is that pesticides reach their target and remain there, scientists recognize that "almost every pesticide application produces some amount of drift", even though it may not be harmful or illegal.[35]
- **Potential for pesticides with high chemical persistence to result in exposures:** Some pesticides can take weeks or months to degrade in the environment, and there is a higher risk of exposure for pesticides that do not break down quickly. While the inhalation of pesticides through drift is a potential pathway for exposure during or shortly after an application, other routes of exposure (including skin contact and hand-to-mouth contact) also can occur after airborne chemicals have deposited onto surfaces (e.g., playground equipment). In such cases, the environmental persistence is a major factor in the likelihood of exposure. The rate of breakdown of the parent chemical into degradation products — some toxic and some not — varies by chemical, with half-lives ranging from a few hours to several months. Soil and environmental conditions, including pH, water content, and exposure to sunlight and rain, all affect the rate of breakdown once residual pesticides have drifted and deposited onto surfaces.

Because of public health concern about possible low-level exposures and chronic health outcomes, this study did not limit the assessment by time of day, day of the week, or season.

Summary Findings for All Pesticide Categories

We assessed 2,511 schools, attended by 1,457,230 students, from the top 15 counties by agricultural pesticide use in California for 2010.

Table 6 shows the range of pesticide poundage by category. Some chemicals belong to more than one category; these applications are not double-counted when reporting quartiles of usage by pounds (see Appendix 4 for pounds of pesticides applied, by active ingredient).

- Many schools (64%) did not have any pesticide use within ¼ mile. For the remaining schools, the pounds of pesticides, per school, applied within ¼ mile ranged from less than 0.01 lb to over 28,000 lb.
- Pesticide use near schools also varied among the six pesticide categories. For example, 33.8% of the schools had applications of priority pesticides for assessment and monitoring nearby, while 12.7% had fumigants applied nearby.
- Of the six categories, priority pesticides for assessment and monitoring had the highest poundage (523,566 lb) applied within ¼ mile of all schools in the 15 counties, while cholinesterase inhibitors had the lowest (37,455 lb).

Table 6. Range of pounds of pesticides applied within ¼ mile of schools, 2010

Pesticide category	Lowest poundage of pesticides applied near a school	Largest poundage of pesticides applied near a school	Number (%) of schools with no use within ¼ mile		Number (%) of schools with use within ¼ mile		Total pounds applied within ¼ mile of all schools in the 15 counties
Carcinogens	<0.01	18,082	1,828	(72.8)	683	(27.2)	228,019
Reproductive and Developmental Toxicants	<0.01	18,092	1,833	(73.0)	678	(27.0)	149,279
Cholinesterase Inhibitors	<0.01	1,345	1,873	(74.6)	638	(25.4)	37,455
Toxic Air Contaminants	<0.01	28,448	1,859	(74.0)	652	(26.0)	454,202
Fumigants	<0.01	27,038	2,192	(87.3)	319	(12.7)	428,834
Priority Pesticides for Assessment and Monitoring	<0.01	28,920	1,662	(66.2)	849	(33.8)	523,566
All Pesticides Assessed	**<0.01**	**28,979**	**1,612**	**(64.2)**	**899**	**(35.8)**	**538,912***

* Some chemicals belong to multiple categories, but were not double-counted, so the sum of the total pounds applied for each category does not match the total pounds applied for the All Pesticides category.

Table 7 lists the top 10 pesticides with the highest application (by pound) within ¼ mile of a public school.

- Each of these compounds is classified as a priority pesticide for assessment and monitoring. Each compound listed is on CDPR's complete risk assessment list and/or it is currently being monitored by CDPR in the air in selected locations.
- Of these compounds, six are considered restricted materials by CDPR, including each of the top five compounds. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.
- The chemical persistence of these compounds is also shown and will vary depending on soil and climatic conditions.* Of the 10 pesticides, only one (chloropicrin) has a chemical persistence (measured as half-life in soil) less than 24 hours; most have a chemical persistence greater than a week.

Fumigants are prominent in many of the categories assessed in this report and comprise the top five pesticides applied, illustrating their higher rate of usage on a pounds per acre basis. Because they are more prone to drift, special application restrictions are placed on fumigant use; yet fumigants can still pose a hazard potential. In order to better view the relative contributions of non-fumigant pesticides, it may be of interest in future reports to exclude fumigants from the other categories to more readily assess the hazard potential of non-fumigants.

Table 7. Top 10 pesticide active ingredients, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material	Chemical persistence†	Pesticide category‡
1	Chloropicrin	150,285	Yes	Low: 4-day half-life in soil, 8 hours in air[36]	PRIOR, TAC, FUM
2	1,3-Dichloropropene	136,241	Yes	Moderate to high: 69 days[37]	PRIOR, TAC, FUM, CARC
3	Methyl bromide	85,112	Yes	Moderate: 50 days[38]	PRIOR, TAC, FUM, REP/DEV
4	Metam-sodium	37,920	Yes	Low to moderate: 7–14 days[39]	PRIOR, TAC, FUM, CARC, REP/DEV
5	Potassium n-methyldithiocarbamate	19,141	Yes	Low to moderate: 7–14 days[40]	PRIOR, TAC, FUM, CARC, REP/DEV
6	Captan	8,790	No	Moderate: 20 days[41]	PRIOR, TAC, CARC
7	Pendimethalin	8,198	No	Moderate: 40 days[42]	PRIOR
8	Chlorpyrifos	7,769	No	High: 60–120 days[43]	PRIOR, CHOIN
9	Paraquat dichloride	6,543	Yes	Highly persistent: 1,000 days[44]	PRIOR
10	Malathion	6,322	No	Low to moderate: 3–7 days[45]	PRIOR, CHOIN

† Classification of chemical persistence as "low", "moderate", "high", or "highly persistent" based on the U.S. EPA PBT Final Rule (40 CFR 372, 1999) (www.epa.gov/fedrgstr/EPA-WASTE/1999/October/Day-29/f28169.htm) and the related PBT profiler criteria (www.pbtprofiler.net/criteria.asp). Variable soil and climate conditions influence chemical persistence. Unless otherwise noted, the classification is based on the compound's reported half-life in soil.

‡ PRIOR=priority pesticides for assessment and monitoring; TAC=toxic air contaminants; FUM=fumigants; CARC=carcinogens; REP/DEV=reproductive and developmental toxicants; CHOIN=cholinesterase inhibitors

* Soil half-life has been used to provide a qualitative indication of relative persistence of the pesticides in this report. However, soil half-life is only one way to characterize the environmental fate and persistence of a chemical, and a range of environmental factors (sunlight exposure, soil moisture, soil pH, etc) will influence the rate at which the chemical degrades.

Appendix 4 lists the estimated pounds of pesticides applied for every active ingredient used near schools. See Appendix 5 for the top 10 pesticides applied near schools within each county.

Table 8 lists the percent and number of schools with no pesticide use within ¼ mile of the school property boundary, the percent and number of schools with any pesticide use within ¼ mile, and the percent and number of schools by quartile based on pounds of pesticides applied within ¼ mile. Quartiles were calculated after excluding schools with no pesticides applied within ¼ mile.

- Of the 2,511 schools assessed in this study, 1,612 (64.2%) had no pesticides of public health concern applied within ¼ mile.
- Tulare County had the highest percentage of schools with any pesticides applied within ¼ mile (63.4%), and Fresno County had the most schools (131).
- Sacramento County had the lowest percentage of schools with any pesticide applied within ¼ mile (8.0%), and Kings County had the fewest schools (18).

Table 8. Schools (percent and number) by pounds of pesticides applied within ¼ mile, by county, 2010

County	Schools with no use nearby % (N)	Schools with any use nearby % (N)	Schools in the 1st quartile* (0.01–<8 lb) % (N)	Schools in the 2nd quartile* (8–<64 lb) % (N)	Schools in the 3rd quartile* (64–<319 lb) % (N)	Schools in the 4th quartile* (319–28,979 lb) % (N)	Total number of schools
Fresno	61.1 (206)	38.9 (131)	6.5 (22)	9.8 (33)	11.0 (37)	11.6 (39)	337
Imperial	69.6 (48)	30.4 (21)	7.2 (5)	13.0 (9)	7.2 (5)	2.9 (2)	69
Kern	80.4 (209)	19.6 (51)	2.3 (6)	8.1 (21)	5.4 (14)	3.8 (10)	260
Kings	71.0 (44)	29.0 (18)	4.8 (3)	6.5 (4)	11.3 (7)	6.5 (4)	62
Madera	57.5 (46)	42.5 (34)	16.3 (13)	11.3 (9)	11.3 (9)	3.8 (3)	80
Merced	38.8 (40)	61.2 (63)	9.7 (10)	17.5 (18)	16.5 (17)	17.5 (18)	103
Monterey	53.3 (73)	46.7 (64)	10.2 (14)	5.8 (8)	9.5 (13)	21.2 (29)	137
Sacramento	92.0 (347)	8.0 (30)	5.0 (19)	1.9 (7)	0.5 (2)	0.5 (2)	377
San Joaquin	52.5 (117)	47.5 (106)	17.9 (40)	10.3 (23)	10.8 (24)	8.5 (19)	223
San Luis Obispo	70.7 (58)	29.3 (24)	9.8 (8)	14.6 (12)	3.7 (3)	1.2 (1)	82
Santa Barbara	54.6 (65)	45.4 (54)	16.8 (20)	13.4 (16)	3.4 (4)	11.8 (14)	119
Stanislaus	48.6 (89)	51.4 (94)	11.5 (21)	8.2 (15)	15.3 (28)	16.4 (30)	183
Tulare	36.6 (71)	63.4 (123)	9.3 (18)	18.6 (36)	24.7 (48)	10.8 (21)	194
Ventura	69.7 (154)	30.3 (67)	8.6 (19)	4.5 (10)	3.2 (7)	14.0 (31)	221
Yolo	70.3 (45)	29.7 (19)	9.4 (6)	6.3 (4)	9.4 (6)	4.7 (3)	64
All 15 Counties	64.2 (1,612)	35.8 (899)	8.9 (224)	9.0 (225)	8.9 (224)	9.0 (226)	2,511

* Calculations of quartiles exclude schools with no use of pesticides of public health concern within ¼ mile.

Table 9 lists the percent and number of schools and students in the highest (4th) quartile based on pounds of pesticides applied, per school, within ¼ mile (excluding schools with no pesticides applied nearby). The pounds of pesticides applied for the top quartile ranged from 319–28,979 lb. For the top quartile by poundage:

- There were 226 schools in the 15 counties, attended by 118,864 students.
- Monterey County had the highest percentage of schools (21.2%) in the top quartile, while Fresno County had the highest number of schools (39) in the top quartile.
- Sacramento County had the lowest percentage of schools (0.5%), and San Luis Obispo had the fewest schools (1).
- Monterey County had the highest percentage of students (25.1%) in the top quartile, while Ventura County had the highest number of students (21,193).
- Sacramento County had the lowest percentage of students (0.1%) and lowest number of students (202).

Table 9. Schools and enrolled students (percent and number) in the top quartile* by pounds (319–28,979 lb) of pesticides applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	11.6	(39)	9.0	(17,790)	337	197,283
Imperial	2.9	(2)	2.3	(863)	69	37,343
Kern	3.8	(10)	3.7	(6,437)	260	173,336
Kings	6.5	(4)	8.1	(2,267)	62	27,856
Madera	3.8	(3)	3.5	(1,047)	80	29,993
Merced	17.5	(18)	17.8	(9,873)	103	55,345
Monterey	21.2	(29)	25.1	(18,525)	137	73,876
Sacramento	0.5	(2)	0.1	(202)	377	239,666
San Joaquin	8.5	(19)	7.0	(9,520)	223	136,803
San Luis Obispo	1.2	(1)	0.9	(298)	82	34,282
Santa Barbara	11.8	(14)	13.7	(9,036)	119	65,842
Stanislaus	16.4	(30)	12.1	(12,725)	183	105,176
Tulare	10.8	(21)	8.8	(8,587)	194	97,621
Ventura	14.0	(31)	13.9	(21,193)	221	152,703
Yolo	4.7	(3)	1.7	(501)	64	30,105
All 15 Counties	9.0	(226)	8.2	(118,864)	2,511	1,457,230

* Calculations of quartiles exclude schools with no use of pesticides of public health concern within ¼ mile.

Table 10 lists the percent and number of schools and students in the top 5% of schools, based on pounds of pesticides applied per school within ¼ mile (excluding schools with no pesticides applied nearby). The pounds of pesticides applied near schools in the top 5% ranged from 2,635–28,979 lb. For the top 5% of schools by poundage:

- There were 45 schools in the 15 counties, attended by 35,358 students.
- Monterey County had the largest percentage of schools (8%) in the top 5%, while Ventura County had the largest number of schools (12).
- Monterey County had the largest proportion of students (13%) attending schools in the top 5%, while Ventura County had the largest number of students (13,045).
- Imperial, Kings, Sacramento, San Luis Obispo, and Yolo counties had no schools in the top 5%.

Table 10. Schools and enrolled students (percent and number) in the top 5%* of schools by pounds (2,635–28,979 lb) of pesticides applied within ¼ mile, by county, 2010

County	Schools in the top 5% % (N)		Students in the top 5% % (N)		Total number of schools	Total number of students
Fresno	0.3	(1)	0.2	(355)	337	197,283
Imperial	0.0	(0)	0.0	(0)	69	37,343
Kern	0.8	(2)	0.7	(1,237)	260	173,336
Kings	0.0	(0)	0.0	(0)	62	27,856
Madera	1.3	(1)	0.7	(203)	80	29,993
Merced	3.9	(4)	4.0	(2,220)	103	55,345
Monterey	8.0	(11)	13.3	(9,820)	137	73,876
Sacramento	0.0	(0)	0.0	(0)	377	239,666
San Joaquin	0.4	(1)	0.3	(443)	223	136,803
San Luis Obispo	0.0	(0)	0.0	(0)	82	34,282
Santa Barbara	5.0	(6)	7.4	(4,890)	119	65,842
Stanislaus	2.2	(4)	1.5	(1,548)	183	105,176
Tulare	1.5	(3)	1.6	(1,597)	194	97,621
Ventura	5.4	(12)	8.5	(13,045)	221	152,703
Yolo	0.0	(0)	0.0	(0)	64	30,105
All 15 Counties	1.8	(45)	2.4	(35,358)	2,511	1,457,230

* Calculations exclude schools with no use of pesticides of public health concern within ¼ mile.

Demographic Analysis

To better understand the demographics of student populations attending public schools near the most agricultural pesticide use, data for student race/ethnicity and a proxy for student family income (eligibility for FRPM) were obtained from CDE. Information regarding eligibility scales for FRPM is available from CDE.[46]

Race/Ethnicity

The race/ethnicity distribution of the public school student population by county can be found in Table 11.

Student population by race/ethnicity is reported by pesticide use within ¼ mile of schools in Table 12. Student demographics are reported for those schools with no pesticide use within ¼ mile, schools with any pesticide use within ¼ mile, and schools within the highest quartile of pesticide use (by poundage within ¼ mile of schools). The demographic breakdown of all public schools (grades K-12) in California is also shown.

While Hispanic children made up 54.1% of the population for all public schools in the 15 counties, they comprised 61.3% of the population for schools with any pesticide use within ¼ mile of the school boundary, and 67.7% of the population for schools in the highest quartile of pesticide use. Hispanics were the only racial/eth-

Table 11. Students (percent and number) enrolled in public schools, by race/ethnicity and county, 2010

County	Hispanic % (N)	White % (N)	Asian/Pacific Islander % (N)	African American % (N)	Other % (N)	Total Number*
Fresno	60.2 (118,714)	20.7 (40,754)	10.9 (21,607)	6.0 (11,933)	2.2 (4,347)	197,355
Imperial	89.1 (33,258)	7.1 (2,634)	1.0 (358)	1.1 (416)	1.8 (677)	37,343
Kern	61.0 (105,750)	25.9 (44,934)	4.0 (6,874)	6.0 (10,412)	3.1 (5,371)	173,341
Kings	62.6 (17,445)	25.4 (7,077)	4.0 (1,123)	5.2 (1,458)	2.7 (753)	27,856
Madera	68.2 (20,454)	24.9 (7,458)	1.5 (447)	2.2 (665)	3.2 (969)	29,993
Merced	66.4 (36,771)	20.0 (11,081)	7.9 (4,369)	3.6 (2,011)	2.0 (1,117)	55,349
Monterey	74.1 (54,764)	15.7 (11,574)	5.0 (3,680)	2.1 (1,533)	3.1 (2,321)	73,872
Sacramento	27.8 (66,734)	35.7 (85,479)	17.3 (41,362)	13.9 (33,268)	5.4 (12,823)	239,666
San Joaquin	47.1 (64,391)	23.8 (32,555)	16.7 (22,899)	9.3 (12,656)	3.1 (4,302)	136,803
San Luis Obispo	34.5 (11,839)	57.5 (19,710)	3.1 (1,048)	1.4 (478)	3.5 (1,207)	34,282
Santa Barbara	64.4 (42,408)	26.6 (17,522)	3.4 (2,250)	1.5 (1,014)	4.0 (2,648)	65,842
Stanislaus	53.9 (56,658)	33.4 (35,090)	6.0 (6,269)	3.4 (3,555)	3.4 (3,607)	105,179
Tulare	71.4 (70,719)	20.5 (20,307)	3.3 (3,239)	1.8 (1,744)	3.0 (2,982)	98,991
Ventura	49.6 (75,777)	38.4 (58,689)	6.7 (10,256)	2.5 (3,890)	2.7 (4,091)	152,703
Yolo	44.5 (13,394)	38.9 (11,718)	10.4 (3,134)	2.9 (865)	3.3 (994)	30,105
All 15 Counties	54.1 (789,076)	27.9 (406,582)	8.8 (128,915)	5.9 (85,898)	3.3 (48,209)	1,458,680

* Race/ethnicity data from 2011 were used for schools missing data from 2010. Therefore, the total number of students for each county (denominator) is different from other tables in this report (see Table 5).

nic group whose representation in the student population increased as pounds of pesticides used near schools increased. In the 15 counties assessed, Hispanic children were 46% more likely than White children to attend schools with any use of pesticides within ¼ mile, compared to children attending schools with no pesticide use within ¼ mile. This difference was more pronounced with increased pesticide use, as Hispanic children were 91% more likely than White children to attend a school in the top quartile of pesticide usage, when compared to children attending schools with no pesticide use nearby. The corresponding odds ratios are reported in Appendix 6.

Table 12. Students (percent and number) enrolled in public schools by race/ethnicity, 2010

	Students in schools with no pesticide use within ¼ mile % (N)		Students in schools with any pesticides used within ¼ mile % (N)		Students in schools in highest quartile of pesticide use (319–28,979 lb) % (N)		All students in schools assessed in the 15 counties* % (N)		All students in public schools in California % (N)	
African American	7.1	(68,141)	3.5	(17,757)	2.7	(3,168)	5.9	(85,898)	6.7	(416,098)
Asian/Pacific Islander	9.5	(90,616)	7.6	(38,299)	6.6	(7,892)	8.8	(128,915)	11.7	(724,335)
Hispanic	50.3	(479,175)	61.3	(309,901)	67.7	(80,742)	54.1	(789,076)	51.4	(3,197,384)
Other	3.5	(33,584)	2.9	(14,625)	2.2	(2,679)	3.3	(48,209)	3.6	(223,587)
White	29.6	(282,023)	24.7	(124,559)	20.8	(24,849)	27.9	(406,582)	26.6	(1,655,598)
Total	100.0	(953,539)	100.0	(505,141)	100.0	(119,330)	100.0	(1,458,680)	100.0	(6,217,002)

* Race/ethnicity data from 2011 were used for schools missing data from 2010. Therefore, the total number of students (denominator) for each county is different from other tables in this report (see Table 5).

Eligibility for Free and Reduced Price Meals

Household income data were not available for students. However, data on student eligibility for FRPM were available from CDE and served as a proxy for household income (Table 13). Eligibility for FRPM is based on household income and household size. Student eligibility is reported for schools with no pesticide use within ¼ mile, schools within ¼ mile of any pesticide use, and schools within the highest quartile of pesticide use (by poundage within ¼ mile of schools).

As shown in Table 13, we found no difference overall in schools with no pesticide use (59.4%), with any pesticide use (59.4%), and in the top quartile of pesticide use (59.4%) for student population eligible for FRPM. By comparison, 57.7% of all public school students in California were eligible for FRPM in 2010.

However, differences were seen within individual counties. For example, the student populations in the highest quartile of use for Kings, San Joaquin, and San Luis Obispo counties had markedly lower eligibility for FRPM (or higher income) compared to schools with no pesticides used within ¼ mile. The student populations in the highest quartile of use for Sacramento and Santa Barbara counties had notably higher eligibility for FRPM (or lower income) compared to schools with no pesticides used within ¼ mile.

Table 13. FRPM-eligible students (percent and number) enrolled in public schools by county, 2010

County	FRPM-eligible students in schools with no pesticide use within ¼ mile % (N)		FRPM-eligible students in schools with any pesticides used within ¼ mile % (N)		FRPM-eligible students in schools in highest quartile of pesticide use (319 – 28,979 lb) % (N)		FRPM-eligible students in all public schools* % (N)	
Fresno	72.6	(87,031)	65.3	(46,522)	61.8	(10,532)	69.9	(133,553)
Imperial	66.1	(17,921)	77.0	(7,419)	79.2	(689)	69.0	(25,340)
Kern	63.6	(85,515)	62.7	(22,533)	54.6	(3,436)	63.4	(108,048)
Kings	68.7	(12,298)	45.6	(4,203)	32.4	(736)	60.8	(16,501)
Madera	65.9	(8,143)	81.5	(13,734)	79.3	(866)	74.9	(21,877)
Merced	72.3	(15,828)	73.0	(23,623)	77.8	(7,572)	72.7	(39,451)
Monterey	62.6	(23,360)	64.7	(22,794)	58.5	(10,746)	63.6	(46,154)
Sacramento	56.2	(116,323)	37.6	(9,754)	77.2	(152)	54.2	(126,077)
San Joaquin	55.6	(37,138)	43.6	(29,095)	37.7	(3,584)	49.6	(66,233)
San Luis Obispo	45.1	(10,699)	37.3	(3,720)	24.7	(74)	42.8	(14,419)
Santa Barbara	56.7	(20,739)	61.7	(17,219)	80.2	(7,141)	58.9	(37,958)
Stanislaus	66.1	(34,847)	56.3	(27,510)	58.0	(7,588)	61.4	(62,357)
Tulare	66.0	(28,997)	76.9	(40,394)	73.2	(6,239)	71.9	(69,391)
Ventura	40.1	(42,953)	46.6	(20,265)	49.4	(10,451)	42.0	(63,218)
Yolo	48.9	(10,243)	56.0	(4,697)	45.1	(269)	51.0	(14,940)
All 15 Counties†	59.4	(552,035)	59.4	(293,482)	59.4	(70,075)	59.4	(845,517)

* FRPM data from 2011 were used for schools missing data from 2010. Therefore, the total number of students (denominator) for each county is different from other tables in this report (see Table 5).

† The percentages are not averages of the individual counties; they were calculated by comparing the number of FRPM-eligible students with the total number of students within that category. The percentages displayed for the four categories are correct and are merely an artifact of the data.

Carcinogens

What are Carcinogens?

Carcinogens are chemicals or physical agents (such as ionizing radiation) that can cause cancer. Cancer is the general name of a large group of diseases characterized by cells that grow out of control and have the potential to spread to other parts of the body. If left untreated, many forms of cancer lead to serious illness and death. The majority of cancers take years, or even decades, to develop.

Use of Carcinogens Near Public Schools

Table 14 lists the 10 carcinogens with the highest use (by pounds applied) within ¼ mile of a public school. Of these compounds, three are designated as restricted materials. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.

Table 14. Top 10 pesticide active ingredients classified as carcinogens, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material
1	1,3-Dichloropropene	136,241	Yes
2	Metam-sodium*	37,920	Yes
3	Potassium n-methyldithiocarbamate*	19,141	Yes
4	Captan	8,790	No
5	Chlorothalonil	5,975	No
6	Maneb	5,497	No
7	Mancozeb	3,627	No
8	Iprodione	2,414	No
9	Diuron	2,191	No
10	Propargite	1,964	No

* Metam-sodium and potassium n-methyldithiocarbamate both generate MITC soon after application. MITC is not listed under Proposition 65, but metam-sodium and potassium n-methyldithiocarbamate are, and thus are included in the analysis. MITC has not been subjected to a complete set of carcinogenicity tests.

Table 15 shows the distributions of schools and students by county for the highest quartile (top 25%) of carcinogenic pesticide use in 2010. Quartiles were calculated after excluding schools (1,828) that had no carcinogenic pesticides applied within ¼ mile.

For pesticide active ingredients listed as carcinogens, the range of pounds applied within ¼ mile for highest quartile of schools was 143–18,082 lb.

- Monterey County had the highest percentage of schools (16.8%) in the highest quartile, while Stanislaus County had the highest number of schools (28) in the highest quartile.
- Sacramento County had the lowest percentage of schools (0.8%) in the highest quartile, while Imperial, San Luis Obispo, and Yolo counties had the fewest number of schools (1) in the highest quartile.
- Monterey County had the highest percentage of students (19.5%) in the highest quartile, while Ventura County had the highest number of students (17,023).
- Sacramento County had the lowest percentage (0.1%) and fewest number (209) of students in the highest quartile.

Among all 15 counties, 6.8% of schools (170) and 6.5% of students (94,673) fell within the highest quartile.

Table 15. Schools and enrolled students (percent and number) in the top quartile* of schools by pounds (143–18,082 lb) of carcinogenic pesticide applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	5.9	(20)	4.0	(7,971)	337	197,283
Imperial	1.4	(1)	1.0	(373)	69	37,343
Kern	3.1	(8)	3.4	(5,940)	260	173,336
Kings	6.5	(4)	8.1	(2,267)	62	27,856
Madera	2.5	(2)	1.2	(352)	80	29,993
Merced	16.5	(17)	15.3	(8,446)	103	55,345
Monterey	16.8	(23)	19.5	(14,432)	137	73,876
Sacramento	0.8	(3)	0.1	(209)	377	239,666
San Joaquin	5.8	(13)	5.8	(7,897)	223	136,803
San Luis Obispo	1.2	(1)	0.9	(298)	82	34,282
Santa Barbara	11.8	(14)	13.7	(9,036)	119	65,842
Stanislaus	15.3	(28)	13.1	(13,729)	183	105,176
Tulare	7.2	(14)	6.5	(6,357)	194	97,621
Ventura	9.5	(21)	11.1	(17,023)	221	152,703
Yolo	1.6	(1)	1.1	(343)	64	30,105
All 15 Counties	6.8	(170)	6.5	(94,673)	2,511	1,457,230

*Calculations of quartiles exclude schools with no use of pesticides classified as carcinogens within ¼ mile.

Reproductive and Developmental Toxicants

What are Reproductive and Developmental Toxicants?

Reproductive toxicants are chemical, physical, or biological agents that may impact the reproductive health of women or men, or hinder the ability of couples to have healthy children. A specific reproductive toxicant may affect male or female reproductive organs in a transient or irreversible manner. These hazards may result in infertility or miscarriage. The effect of low dose exposures to reproductive toxicants on the future fecundity of developing children is not known.[47]

Developmental toxicants affect children's ability to develop normally and at a normal pace during pregnancy, infancy, and early childhood. These hazards may result in growth retardation and birth defects.

Use of Reproductive and Developmental Toxicants Near Public Schools

Table 16 lists the 10 reproductive and developmental toxicants with the highest use (by pounds applied) within ¼ mile of a public school. Of these compounds, five are designated as restricted materials by CDPR. Special permits are required for application of restricted materi-

Table 16. Top 10 pesticide active ingredients classified as reproductive and developmental toxicants, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material
1	Methyl bromide	85,112	Yes
2	Metam-sodium	37,920	Yes
3	Potassium n-methyldithiocarbamate	19,141	Yes
4	Propargite	1,964	No
5	Oxydemeton-methyl	1,173	Yes
6	Carbaryl	1,007	Yes
7	Thiophanate-methyl	658	No
8	Linuron	528	No
9	Myclobutanil	485	No
10	EPTC	371	No

als, and counties may further restrict use by location or time.

Table 17 shows the distributions of schools and students by county for the highest quartile (top 25%) of use in 2010 for pesticides classified as reproductive and developmental toxicants. Quartiles were calculated after excluding schools (1,833) that had no pesticides classified as reproductive and developmental toxicants applied within ¼ mile.

For pesticide active ingredients listed as reproductive and developmental toxicants, the range of pounds applied within ¼ mile for the highest quartile of schools was 34–18,092 lb.

- Monterey County had the highest percentage of schools (19.0%) in the highest quartile, and Ventura County had the highest number of schools (28) in the highest quartile.
- Sacramento County had the lowest percentage of schools (1.1%) in the highest quartile, while San Luis Obispo County had the fewest number of schools (1) in the highest quartile.
- Monterey County had the highest percentage of students (22.1%) in the highest quartile, while Ventura County had the highest number of students (20,433).
- Sacramento County had the lowest percentage of students (0.3%) in the highest quartile, and Yolo County had the fewest number of students (403) in the highest quartile.

Among all 15 counties, 6.8% of schools (171) and 6.1% of students (89,414) fell within the highest quartile.

Table 17. Schools and enrolled students (percent and number) in the top quartile* of schools by pounds (34–18,092 lb) of reproductive and developmental toxicant pesticides applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	5.9	(20)	3.7	(7,321)	337	197,283
Imperial	2.9	(2)	1.5	(545)	69	37,343
Kern	4.6	(12)	4.2	(7,337)	260	173,336
Kings	4.8	(3)	2.8	(767)	62	27,856
Madera	3.8	(3)	3.4	(1,011)	80	29,993
Merced	13.6	(14)	10.0	(5,560)	103	55,345
Monterey	19.0	(26)	22.1	(16,361)	137	73,876
Sacramento	1.1	(4)	0.3	(731)	377	239,666
San Joaquin	7.6	(17)	5.4	(7,379)	223	136,803
San Luis Obispo	1.2	(1)	1.7	(584)	82	34,282
Santa Barbara	10.1	(12)	10.7	(7,036)	119	65,842
Stanislaus	7.7	(14)	7.7	(8,100)	183	105,176
Tulare	6.7	(13)	6.0	(5,846)	194	97,621
Ventura	12.7	(28)	13.4	(20,433)	221	152,703
Yolo	3.1	(2)	1.3	(403)	64	30,105
All 15 Counties	6.8	(171)	6.1	(89,414)	2,511	1,457,230

*Calculations of quartiles exclude schools with no use of pesticides classified as reproductive and developmental toxicants within ¼ mile.

Cholinesterase Inhibitors

What are Cholinesterase Inhibitors?

Cholinesterase inhibitors are chemicals that block the normal breakdown of an important chemical in the body — acetylcholine — that regulates nerve cell activity. This can lead to an overstimulation of nerve receptors and possibly lead to longer-term neurological deficits.[48]

Use of Cholinesterase Inhibitors Near Public Schools

Table 18 lists the 10 cholinesterase inhibitors with the highest use (by pounds applied) within ¼ mile of a public school. Of these compounds, two are designated as restricted materials by CDPR. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.

Table 18. Top 10 pesticide active ingredients classified as cholinesterase inhibitors, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material
1	Chlorpyrifos	7,769	No
2	Malathion	6,322	No
3	Diazinon	1,785	No
4	Bensulide	1,718	No
5	Methomyl	1,539	Yes
6	Acephate	1,493	No
7	Naled	1,352	No
8	Propamocarb hydrochloride*	1,321	No
9	Dimethoate	1,259	No
10	Oxydemeton-methyl	1,173	Yes

* This pesticide has been shown to exhibit weak cholinesterase-inhibiting activities in vitro or in animals and to cause nervous system pathology in one or more studies. However, cholinesterase inhibition is not its primary toxicological mode of action.

Table 19 shows the distributions of schools and students by county for the highest quartile (top 25%) of use in 2010 for pesticides classified as cholinesterase inhibitors. Quartiles were calculated after excluding schools (1,873) that had no pesticides classified as cholinesterase inhibitors applied within ¼ mile.

For pesticide active ingredients listed as cholinesterase inhibitors, the range of pounds applied within ¼ mile for the highest quartile of schools was 63–1,345 lb.

- Monterey County had the highest percentage of schools (24.8%) and the highest number of schools (34) in the highest quartile.
- Sacramento County had the lowest percentage of schools (0.5%) in the highest quartile, while Imperial County and Madera County had the fewest number of schools (1) in the highest quartile.
- Monterey County had the highest percentage of students (28.5%) and the highest number of students (21,079) in the highest quartile.
- Sacramento County had the lowest percentage of students (0.1%) in the highest quartile, while Imperial County had the lowest number of students (172) in the highest quartile.

Among all 15 counties, 6.3% of schools (159) and 5.4% of students (78,135) fell within the highest quartile.

Table 19. Schools and enrolled students (percent and number) in the top quartile* of schools by pounds (63-1,354 lb) of cholinesterase inhibitor pesticides applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	6.2	(21)	3.6	(7,131)	337	197,283
Imperial	1.4	(1)	0.5	(172)	69	37,343
Kern	3.5	(9)	2.0	(3,499)	260	173,336
Kings	6.5	(4)	7.4	(2,069)	62	27,856
Madera	1.3	(1)	1.8	(529)	80	29,993
Merced	3.9	(4)	8.1	(4,483)	103	55,345
Monterey	24.8	(34)	28.5	(21,079)	137	73,876
Sacramento	0.5	(2)	0.1	(202)	377	239,666
San Joaquin	4.0	(9)	2.1	(2,903)	223	136,803
San Luis Obispo	2.4	(2)	7.2	(2,470)	82	34,282
Santa Barbara	9.2	(11)	12.0	(7,908)	119	65,842
Stanislaus	7.1	(13)	3.2	(3,395)	183	105,176
Tulare	16.5	(32)	12.9	(12,618)	194	97,621
Ventura	6.3	(14)	6.1	(9,271)	221	152,703
Yolo	3.1	(2)	1.3	(406)	64	30,105
All 15 Counties	6.3	(159)	5.4	(78,135)	2,511	1,457,230

*Calculations of quartiles exclude schools with no use of pesticides classified as cholinesterase inhibitors within ¼ mile.

Toxic Air Contaminants

What are Toxic Air Contaminants?

Chemicals classified as Toxic Air Contaminants (TACs) and Hazardous Air Pollutants (HAPs) are known to cause or contribute to an increase in mortality or an increase in cancer or other serious illness, or may otherwise present a potential hazard to human health.[49] Other serious health impacts may include cancer, birth defects, adverse reproductive outcomes, or effects on the immune, nervous, or respiratory systems.[50] The primary concern with TACs and HAPs is to reduce inhalation exposures. However, some of these toxic air pollutants can also deposit onto soils or surface waters, where they can come into contact with humans, be taken up by plants, or be ingested by animals and concentrated up through the food chain.

Assembly Bill 1807 enables the California Air Resources Board to identify and control air toxics through consideration of "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community." The law was later amended in 1993 to adopt all U.S. Hazardous Air Pollutants as TACs. For implementing the law for pesticides, CDPR must determine, through public and Scientific Review

Table 20. Top 10 pesticide active ingredients classified as toxic air contaminants, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material
1	Chloropicrin	150,285	Yes
2	1,3-Dichloropropene	136,241	Yes
3	Methyl bromide	85,112	Yes
4	Metam-sodium	37,920	Yes
5	Potassium n-methyldithiocarbamate	19,141	Yes
6	Captan	8,790	No
7	Maneb	5,497	No
8	Mancozeb	3,627	No
9	2,4-D, dimethylamine salt	2,054	No
10	Naled*	1,352	No

* Dichlorvos, a metabolite of naled, is a toxic air contaminant and a hazardous air pollutant.

Panel review, the levels of human exposure in the environment (ambient air) and estimate the potential human health risk from those exposures.[51]

Use of Toxic Air Contaminants Near Public Schools

Table 20 lists the 10 toxic air contaminants with the highest use (by pounds applied) within ¼ mile of a public school. Of these compounds, five are designated as restricted materials by CDPR. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.

Table 21 shows the distributions of schools and students by county for the highest quartile (top 25%) of use in 2010 for pesticides classified as toxic air contaminants. Quartiles were calculated after excluding schools (1,859) that had no pesticides classified as toxic air contaminants applied within ¼ mile.

For pesticide active ingredients listed as toxic air contaminants, the range of pounds applied within ¼ mile for the highest quartile of schools was 240–28,448 lb.

- Merced County had the highest percentage of schools (14.6%) in the highest quartile, and Ventura County had the highest number of schools (29) in the highest quartile.
- Sacramento County had the lowest percentage of schools (0.5%) in the highest quartile,

Table 21. Schools and enrolled students (percent and number) in the top quartile* of schools by pounds (240-28,448 lb) of toxic air contaminant pesticides applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	6.8	(23)	4.9	(9,629)	337	197,283
Imperial	1.4	(1)	1.0	(373)	69	37,343
Kern	3.5	(9)	3.6	(6,170)	260	173,336
Kings	6.5	(4)	8.1	(2,267)	62	27,856
Madera	1.3	(1)	0.7	(203)	80	29,993
Merced	14.6	(15)	14.7	(8,156)	103	55,345
Monterey	12.4	(17)	18.0	(13,314)	137	73,876
Sacramento	0.5	(2)	0.1	(202)	377	239,666
San Joaquin	5.4	(12)	5.2	(7,154)	223	136,803
San Luis Obispo	1.2	(1)	0.9	(298)	82	34,282
Santa Barbara	10.9	(13)	12.5	(8,247)	119	65,842
Stanislaus	11.5	(21)	10.1	(10,575)	183	105,176
Tulare	6.7	(13)	5.8	(5,633)	194	97,621
Ventura	13.1	(29)	13.3	(20,268)	221	152,703
Yolo	3.1	(2)	1.3	(403)	64	30,105
All 15 Counties	6.5	(163)	6.4	(92,892)	2,511	1,457,230

*Calculations of quartiles exclude schools with no use of pesticides classified as toxic air contaminants within ¼ mile.

while Imperial, Madera, and San Luis Obispo counties had the fewest number of schools (1) in the highest quartile.

- Monterey County had the highest percentage of students (18.0%) in the highest quartile, and Ventura County had the highest number of students (20,268) in the highest quartile.
- Sacramento County had the lowest percentage of students (0.1%) and the lowest number of students (202) in the highest quartile.

Among all 15 counties, 6.5% of schools (163) and 6.4% of students (92,892) fell within the highest quartile.

Fumigants

What are Fumigants?

Fumigants are pesticides used in gaseous form. They account for about 20% of all agricultural pesticides used in California. These chemicals are potent toxicants against insects or other invertebrate animal pests. The fumigants most often used include chemicals that are reproductive or developmental toxicants, toxic air contaminants, and chemicals classified as carcinogens. Many fumigants and some of their breakdown products are also irritating to the eyes and the respiratory tract. Because fumigants are gaseous, there is a high potential for measurable amounts to distribute into the air and drift away from their original application site. Pesticide drift into areas where people can be exposed is of potential public health concern and is therefore an area of active research and monitoring.[52] CDPR develops and implements the nation's strictest regulatory requirements to control the impacts of fumigants as both volatile organic compounds and toxic air contaminants.[53]

Use of Fumigants Near Public Schools

Table 22 lists the fumigants with the highest use (by pounds applied) within ¼ mile of a public school. Only eight pesticides classified as fumigants were measured within ¼ mile of all pub-

Table 22. Nine pesticide active ingredients classified as fumigants, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material
1	Chloropicrin	150,285	Yes
2	1,3-Dichloropropene	136,241	Yes
3	Methyl bromide	85,112	Yes
4	Metam-sodium	37,920	Yes
5	Potassium n-methyldithiocarbamate	19,141	Yes
6	Aluminum phosphide	120	Yes
7	Sodium tetrathiocarbonate	15	Yes
8	Oxythioquinox	<.01*	No

* Because the linkage is based on area weighted averages, apportioning a small fraction of an application may occur because the ¼ mile area around a school boundary could, for example, only very slightly intersect with a field, resulting in a very small measurement of pounds applied.

lic schools assessed. Of these eight compounds, seven are designated as restricted materials by CDPR. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.

Table 23 shows the distributions of schools and students by county for the highest quartile (top 25%) of use in 2010 for pesticides classified as fumigants. Quartiles were calculated after excluding schools (2,188) that had no pesticides classified as fumigants applied within ¼ mile.

For pesticide active ingredients listed as fumigants, the range of pounds applied within ¼ mile for the highest quartile of schools was 1,071–27,038 lb.

- Monterey County had the highest percentage of schools (10.9%) in the highest quartile, and Ventura County had the highest number of schools (19) in the highest quartile.
- Imperial, Sacramento, and San Luis Obispo counties did not have any schools within the highest quartile.
- Monterey County had the highest percentage of students (16.4%) in the highest quartile, and Ventura County had the highest number of students (17,311) in the highest quartile.
- Imperial, Sacramento, and San Luis Obispo counties did not have any students within the highest quartile.

Among all 15 counties, 3.2% of schools (81) and 3.6% of students (52,671) fell within the highest quartile.

Table 23. Schools and enrolled students (percent and number) in the top quartile* of schools by pounds (1,071–27,038 lb) of fumigant pesticides applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	0.9	(3)	0.5	(955)	337	197,283
Imperial	0.0	(0)	0.0	(0)	69	37,343
Kern	2.3	(6)	1.6	(2,713)	260	173,336
Kings	1.6	(1)	2.1	(584)	62	27,856
Madera	1.3	(1)	0.7	(203)	80	29,993
Merced	8.7	(9)	5.5	(3,023)	103	55,345
Monterey	10.9	(15)	16.4	(12,112)	137	73,876
Sacramento	0.0	(0)	0.0	(0)	377	239,666
San Joaquin	1.8	(4)	1.8	(2,468)	223	136,803
San Luis Obispo	0.0	(0)	0.0	(0)	82	34,282
Santa Barbara	5.0	(6)	7.4	(4,890)	119	65,842
Stanislaus	5.5	(10)	5.5	(5,800)	183	105,176
Tulare	2.6	(5)	2.3	(2,209)	194	97,621
Ventura	8.6	(19)	11.3	(17,311)	221	152,703
Yolo	3.1	(2)	1.3	(403)	64	30,105
All 15 Counties	3.2	(81)	3.6	(52,671)	2,511	1,457,230

*Calculations of quartiles exclude schools with no use of pesticides classified as fumigants within ¼ mile.

Priority Pesticides for Assessment and Monitoring

What are Priority Pesticides for Assessment and Monitoring?

Priority pesticides for assessment and monitoring are chemicals that — due to evolving understanding of their toxicological properties, exposure pathways, health effects and/or their increasing use — have been identified by CDPR as priorities for additional risk assessment or monitoring.[54,55] Also included in this category are chemicals of high use in California which have been identified as carcinogens, mutagens, reproductive toxicants, or sensitizers by the European Commission Directorate General for Health and Consumers[56], but were not already listed in this study's other pesticide categories. These chemicals may be, but are not necessarily, new to California and have been evaluated previously. All pesticides registered for use in California must first undergo risk assessment by the U.S. EPA. CDPR scientists may identify possible adverse health effects when they review toxicology data, which can trigger a risk assessment before a decision is made to register a product.[57]

Table 24. Top 10 active ingredients classified as priority pesticides for assessment and monitoring, by pounds applied within ¼ mile of schools in the 15 counties assessed, 2010

	Name	Total pounds applied	Restricted material
1	Chloropicrin	150,285	Yes
2	1,3-Dichloropropene	136,241	Yes
3	Methyl bromide	85,112	Yes
4	Metam-sodium	37,920	Yes
5	Potassium n-methyldithiocarbamate	19,141	Yes
6	Captan	8,790	No
7	Pendimethalin	8,198	No
8	Chlorpyrifos	7,769	No
9	Paraquat dichloride	6,543	Yes
10	Malathion	6,322	No

Use of Priority Pesticides for Assessment and Monitoring Near Public Schools

Table 24 lists the 10 priority pesticides for assessment and monitoring with the highest use (by pounds applied) within ¼ mile of a public school. Of these compounds, six are designated as restricted materials by CDPR. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.

Table 25 shows the distributions of schools and students by county for the highest quartile (top 25%) of use in 2010 for pesticides classified as priority pesticides for assessment and monitoring. Quartiles were calculated after excluding schools (1,662) that had no priority pesticides for assessment and monitoring applied within ¼ mile.

For priority pesticides for assessment and monitoring, the range of pounds applied within ¼ mile for the quartile of schools was 308–28,920 lb.

- Monterey County had the highest percentage of schools (19.0%) in the highest quartile, and Fresno County had the highest number of schools (35) in the highest quartile.
- Sacramento County had the lowest percentage of schools (0.5%) in the highest quartile, while San Luis Obispo County had the fewest number of schools (1) in the highest quartile.

Table 25. Schools and enrolled students (percent and number) in the top quartile* of schools by pounds (308–28,920 lb) of priority pesticides for assessment and monitoring applied within ¼ mile, by county, 2010

County	Schools in the top quartile % (N)		Students in the top quartile % (N)		Total number of schools	Total number of students
Fresno	10.4	(35)	8.4	(16,609)	337	197,283
Imperial	2.9	(2)	2.3	(863)	69	37,343
Kern	3.8	(10)	3.7	(6,437)	260	173,336
Kings	6.5	(4)	8.1	(2,267)	62	27,856
Madera	3.8	(3)	3.5	(1,047)	80	29,993
Merced	17.5	(18)	17.8	(9,873)	103	55,345
Monterey	19.0	(26)	24.7	(18,250)	137	73,876
Sacramento	0.5	(2)	0.1	(202)	377	239,666
San Joaquin	6.7	(15)	6.4	(8,712)	223	136,803
San Luis Obispo	1.2	(1)	0.9	(298)	82	34,282
Santa Barbara	10.9	(13)	12.9	(8,504)	119	65,842
Stanislaus	14.8	(27)	11.1	(11,640)	183	105,176
Tulare	10.3	(20)	8.3	(8,145)	194	97,621
Ventura	14.0	(31)	13.9	(21,193)	221	152,703
Yolo	4.7	(3)	1.7	(501)	64	30,105
All 15 Counties	8.4	(210)	7.9	(114,541)	2,511	1,457,230

*Calculations of quartiles exclude schools with no use of priority pesticides for assessment and monitoring within ¼ mile.

- Monterey County had the highest percentage of students (24.7%) in the highest quartile, and Ventura County had the highest number of students (21,193) in the highest quartile.
- Sacramento County had the lowest percentage of students (0.1%) and the lowest number of students (202) in the highest quartile.

Among all 15 counties, 8.4% of schools (210) and 7.9% of students (114,541) fell within the highest quartile.

Discussion

Key Findings

In this study of 2,511 public schools in the top 15 counties by agricultural pesticide use in California, we found that 36% (899) of schools had applications of pesticides of public health concern (i.e., those with potential to cause adverse health effects) within ¼ mile of the school boundary. These pesticides included carcinogens, reproductive and developmental toxicants, cholinesterase inhibitors, toxic air contaminants, fumigants, and priority pesticides for assessment and monitoring. We additionally found that there were 226 schools in the top quartile of poundage (calculated after excluding schools with no pesticides applied nearby) for all pesticides studied, representing over 118,000 students. The amounts of pesticides applied in the top quartile ranged from 319–28,979 lb.

Pesticides of public health concern applied near schools were not applied equally among the 15 counties analyzed. Of the counties assessed, Ventura and Monterey counties frequently had the most pesticide use near schools, based on different metrics.

Counties with the most pesticides of public health concern used near public schools, 2010

	Top county by number of schools in the top quartile of use*	Top county by percentage of its schools in the top quartile of use*	Top county by number of students attending schools in the top quartile of use*	Top county by percentage of its students attending schools in the top quartile of use*
Carcinogens	Stanislaus (28)	Monterey (16.8%)	Ventura (17,023)	Monterey (19.5%)
Reproductive and Developmental Toxicants	Ventura (28)	Monterey (19.0%)	Ventura (20,433)	Monterey (22.1%)
Cholinesterase Inhibitors	Monterey (34)	Monterey (24.8%)	Monterey (21,079)	Monterey (28.5%)
Toxic Air Contaminants	Ventura (29)	Merced (14.6%)	Ventura (20,268)	Monterey (18.0%)
Fumigants	Ventura (19)	Monterey (10.9%)	Ventura (17,311)	Monterey (16.4%)
Priority Pesticides for Monitoring and Assessment	Fresno (35)	Monterey (19.0%)	Ventura (21,193)	Monterey (24.7%)
All pesticides (all categories)	Fresno (39)	Monterey (21.2%)	Ventura (21,193)	Monterey (25.1%)

*Calculations of quartiles exclude schools with no use of pesticides within ¼ mile.

The pesticides examined in this study were ranked by pounds applied within ¼ mile of a school boundary. The top three pesticides of public health concern used near schools were chloropicrin, 1,3-dichloropropene, and methyl bromide; classifications that the three had in common were toxic air contaminants, fumigants, and priority pesticides for assessment and monitoring. Of the top 10 pesticides used near schools, six are listed by CDPR as restricted materials, which require special permits and are eligible for additional regulation at the local level. Additionally, eight of the top 10 pesticides have a chemical persistence (measured as half-life in soil) of more than a week. Only one (chloropicrin) has a half-life of less than 24 hours.

Of the six categories of pesticides assessed, priority pesticides for assessment and monitoring were used near the most schools (33.8%) and fumigants were used near the fewest schools (12.7%). However, both of these pesticide categories had similar ranges of use, from zero to over 27,000 lb applied within ¼ mile of a school. Priority pesticides for assessment and monitoring had the greatest poundage (523,566 lb) applied within ¼ mile of all schools in the 15 counties, while cholinesterase inhibitors had the lowest (37,455 lb). Many pesticides included in the study belong to more than one category; therefore the categories are not mutually exclusive.

Hispanics were the only racial/ethnic group whose representation increased as pesticide use increased. While Hispanic children made up 54.1% of the population in the public schools in the 15 counties, they comprised 50.3% of the population in schools with no pesticide use within ¼ mile, 61.3% of the population in schools with any pesticide use within ¼ mile, and 67.7% of the population in schools in the highest quartile of pesticide use. In the 15 counties, Hispanic children were 46% more likely than White children to attend schools with any pesticides of concern applied nearby and 91% more likely than White children to attend schools in the highest quartile of pesticide use.

Finally, there was no overall difference in household income levels between students that attended schools with no pesticides applied nearby, compared to those who attended schools with any pesticides applied nearby and those who attended schools in the top quartile of pesticide use. However, differences in household income level were apparent within individual counties. In some cases, student populations attending schools in the top quartile of pesticide use had higher household incomes as compared to students in the same county attending schools with no pesticide use nearby; in other cases, the reverse situation was observed.

Utility and Limitations of Study Methodology

The methodology used in this study has several features that may be applied in future efforts. For the first time, highly accurate field location data were linked with agricultural pesticide application data to assess pesticide use near sensitive populations in multiple counties across California. School boundary data were also vastly improved in relation to past efforts, using parcel-level data and satellite imagery to resolve inaccuracies in school geographic data. We were able to systematically and accurately link over 2.3 million PUR records for the 15 counties using state-of-the-art GIS spatial linkage tools. Taken together, these technological improvements greatly enhance the utility of existing public data on pesticide use.

There were also several limitations to the study methodology. Although we were able to use highly accurate field location data for 80% of all pesticide applications, the remaining application locations were estimated primarily using less geographically specific survey data from DWR, which allow us to link crop and land use data to the PUR. These survey data are not collected every year.

Some pesticides included in this study are designated as restricted materials and may have had time and/or distance restrictions on their use near schools during 2010. However, we did not limit our study

to applications that occurred when schools were in session for several reasons, including (1) the use of school properties by children and adults before and after classes, on weekends, and during the summer; (2) the potential for pesticides applied at night or in the early morning to drift onto school property; and (3) the potential for pesticides with high chemical persistence to result in exposures. Furthermore, the methodology assumed uniform application of pesticides in the field in which it was applied. This would not account for situations where any portion of the field overlapping the ¼-mile boundary of the school was not treated, for example in compliance with a distance restriction.

Finally, in investigating potential data sources for this study, CDPH contacted CDPR and obtained a preliminary dataset of (non-agricultural) pesticides used in schools in the 15 counties as required by the Healthy Schools Act (more information on policies related to pesticides and schools can be found in Appendix 3). However, we were unable to obtain information on the completeness of the dataset or any evaluation data on the compliance by schools in submitting the annual School Site Pesticide Use Reporting forms to the CACs. Additionally, since schools are not required to report non-restricted pesticide applications by school staff, we concluded that we could not adequately evaluate the quality and representativeness of the data on pesticides used on school properties, and therefore could not present summary data on these compounds in this report. These data would be important to understand the total potential for pesticide exposure among children in school settings.

Future Directions

This report provides information on the patterns of use for pesticides of public health concern applied near public schools in California's top 15 counties by agricultural pesticide use. The study methodology and results could be used to:

- Target and expand pesticide monitoring and exposure assessment efforts, such as air monitoring, soil sampling on school properties, or biomonitoring studies (measurement of pesticides in biological samples, such as blood or urine) of schoolchildren
- Inform epidemiological studies that examine the relationship between pesticide use and health effects
- Understand what kinds of pesticides are being applied near schools, which in turn may inform future decision-making around school siting, pesticide permitting regulations, or other policies with the potential to affect public health

This study does not determine if schoolchildren were actually exposed in these areas. We did not evaluate whether pesticides applied were transported by air, soil, water, or other media to a location where children could come into contact with them. Pesticide transport is influenced by a number of factors, including application method and meteorology. Furthermore, we did not assess potential exposure routes (such as skin contact or inhalation). An assessment of exposure pathways is beyond the scope of this study, though the study methodology and report results may be informative for designing future assessments.

This study demonstrates that ongoing annual statewide surveillance studies could be performed to assess trends in agricultural pesticide use near schools, if standardized datasets of field-level pesticide data and geographically accurate school boundaries are made available.

In conducting this study, we have identified the need for:

- Routine and standardized collection, digitization, and reporting of data on agricultural field locations of each pesticide use permit, which could then be made publicly accessible via the PUR system in a format convenient for Geographic Information Systems
- An accurate, complete, and publicly accessible statewide database on all pesticides applied on school properties, including those pesticides applied by school maintenance staff

- **An accurate, complete, and publicly accessible database of school property boundaries in California**
- **Ongoing surveillance of the use of pesticides of public health concern near schools and other sensitive populations and land uses (e.g., women of reproductive age and childcare centers, respectively) in order to understand trends and usage patterns**

Conclusions

California's agricultural production and related activities greatly contribute to the state's economy and employment. Many state and local agencies, non-governmental organizations, farmers, and community members must work together to maintain a vibrant agricultural economy and a healthy and prosperous population. The state's Division of Occupational Health and Safety, Department of Food and Agriculture, Department of Pesticide Regulation, and Department of Public Health, along with the county agricultural commissioners, are all committed to achieving this standard.

The California Environmental Health Tracking Program, housed in the California Department of Public Health in partnership with the Public Health Institute and funded by the Centers for Disease Control and Prevention, conducts surveillance on statewide environmental health hazards. CDPH carries out essential public health activities such as monitoring the health status of Californians to identify and investigate health problems, hazards, and disparities within communities and throughout the state. This study is in line with CEHTP's goal to improve existing public data resources and to increase the utility of the data for the surveillance of environmental hazards and the protection of public health.

This study demonstrated that the data are available — though not yet collected and disseminated in a standardized manner throughout California — to accurately assess the use of pesticides near sensitive populations, such as schoolchildren. This study found that most public schools in the 15 counties did not have pesticides of public health concern applied nearby. However, a small percentage of schools had many pounds of these pesticides applied nearby, and pesticide use near schools varied by county. We also found that Hispanic students were overrepresented in schools with more pesticide use nearby compared to other ethnic/racial groups.

We hope that the information in this report and the assessment methods presented will be used by school officials, county agricultural commissioners, pesticide regulators, exposure assessment scientists, and others in their current and future efforts to better understand sensitive populations' proximity to applications of pesticides of public health concern. This information may be useful for informing pesticide monitoring and exposure assessment efforts — such as air monitoring, soil sampling, or biomonitoring — and epidemiologic research studies. Finally, state and local officials can use this information to better evaluate and tailor policies and activities to minimize potential pesticide exposures near schools.

Acronyms

CAC	California Agricultural Commissioner
CDE	California Department of Education
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CEHTP	California Environmental Health Tracking Program
DWR	California Department of Water Resources
FRPM	Free and Reduced Price Meal Program
GIS	Geographic Information System
HAP	Hazardous Air Pollutant
IPM	Integrated Pest Management
PHI	Public Health Institute
PLS	Public Land Survey
PUR	Pesticide Use Reporting
TAC	Toxic Air Contaminant
U.S. EPA	United States Environmental Protection Agency
WHO	World Health Organization

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Appendix 1: Restricted Materials Requirements

More information on restricted materials is available from the California Department of Pesticide Regulation at www.cdpr.ca.gov/docs/enforce/permitting.htm and www.cdpr.ca.gov/docs/enforce/dpr-enf-013a.pdf, last accessed October 1, 2013.

CALIFORNIA RESTRICTED MATERIALS REQUIREMENTS

A **FEDERAL RESTRICTED USE PESTICIDES**
(Included by reference as California Restricted Materials)
PESTICIDES DISPLAYING THE STATEMENT SHOWN HERE > > >
OR A SIMILAR STATEMENT ON THE PRODUCT CONTAINER

RESTRICTED USE PESTICIDE
DUE TO (reason for restricted use classification)
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

PRODUCTS BEARING THE "PHYSICALLY PRESENT" STATEMENT ON THE LABEL ARE REQUIRED TO HAVE A CERTIFIED APPLICATOR PHYSICALLY PRESENT AT THE USE SITE.

B **CALIFORNIA RESTRICTED MATERIALS**

TRADE NAMES ARE INCLUDED IN THE INTEREST OF SIMPLICITY; OTHER PRODUCTS WITH THE SAME COMPOUND AS AN ACTIVE INGREDIENT ARE ALSO SUBJECT TO THE PERMIT REQUIREMENTS. REFER TO TITLE 3, CALIFORNIA CODE OF REGULATIONS (3 CCR) SECTION 6400.

Acrolein, when labeled for use as an aquatic herbicide
Aldicarb (Temik)
All dust (except those products containing only exempt pesticides)**
Aluminum phosphide (Phostoxin)
Any pesticide containing active ingredients listed under section 6800(a), when labeled for agricultural, outdoor institutional, or outdoor industrial use[1]
Any pesticide pursuant to section 18 of FIFRA (Emergency exemption)
4-Amino pyridine (Avitrol)
Azinphos-methyl (Guthion)
Calcium cyanide
Carbaryl (Sevin)**
Carbofuran (Furadan)
Chloropicrin
3-Chloro-p-toluidine hydrochloride (Starlicide)
Dazomet (Basamid), when labeled for production of agricultural plant commodities
Dicamba (Banvel)*
2,4-dichlorophenoxyacetic acid (2,4-D)*
2,4-dichlorophenoxybutyric acid (2,4-DB)*
2,4-dichlorophenoxypropionic acid (2,4-DP)*
1,3-dichloropropene (Telone II)
Disulfoton (Di-Syston)**
Endosulfan (Thiodan)**
Ethoprop (Mocap), when labeled for turf use
Fenamiphos (Nemacur)
Lindane**
Magnesium phosphide
Metam sodium, when labeled for the production of agricultural plant commodities
Methamidophos (Monitor)
Methidathion (Supracide)
Methomyl (Lannate)**
Methyl bromide
2-methyl-4-chlorophenoxyacetic acid (MCPA)*
Methyl iodide
Methyl isothiocyanate (MITC), when labeled for the production of agricultural plant commodities
Mevinphos (Phosdrin)
~~Molinate (Ordram)~~[2]
Oxydemeton-methyl (Metasystox-R)
Paraquat (Gramoxone)
Parathion-methyl
Phorate (Thimet)
Phosphine gas
Potassium n-methyldithiocarbamate (metam-potassium), when labeled for the production of agricultural plant commodities
Propanil (3,4-dichloropropionanilide)
Sodium cyanide
Sodium fluoroacetate (compound 1080)
Sodium tetrathiocarbonate (Enzone)
Strychnine**
Sulfotepp
Sulfuryl fluoride
Thiobencarb (Bolero)
Tribufos (DEF, Folex)
Tributyltin, organotin, or a tri-organotin compound formulated as an antifouling paint, coating, or compound and labeled for the control of fouling organisms in an aquatic environment
Zinc phosphide**

EXCEPTIONS FROM RESTRICTION

**Products labeled only for home, structural, industrial, institutional, or public agency vector control district uses

- Carbaryl formulated as a bait
- Fly bait containing 1% or less Methomyl
- Use on livestock or poultry
- Diluted, ready-to-use solution of certain restricted herbicides
- One quart or less of a product containing certain restricted herbicide in a liquid formulation
- 2,4-D products labeled only for use as a plant growth regulator
- One gallon or less of a product containing the following percentages of restricted herbicide in a liquid formulation:
  - 15% or less Dicamba
  - 15% or less MCPA
  - 15% or less 2,4-D
  - 15% or less 2,4-DB, OR
  - 15% or less 2,4-DP
- 50 pounds or less of a certain restricted herbicide (Phenoxy and Dicamba) containing 10% or less of active ingredient prepared for use without further dilution
- One pound or less of a product containing certain restricted herbicide (Phenoxy and Dicamba) in a dry formulation

APPLICATORS WHO HAVE MET THE CERTIFICATION REQUIREMENTS FOR RESTRICTED MATERIALS PURSUANT TO FOOD AND AGRICULTURAL CODE §14015

CERTIFIED COMMERCIAL APPLICATORS
(PERSONS OTHER THAN PRIVATE APPLICATORS USING RESTRICTED PESTICIDES)

- Journeyman Pilots
- Qualified Applicator Licensees
- Qualified Applicator Certificate Holders
- Structural Pest Control Field Representatives
- Structural Pest Control Operators
- Vector Control Technicians

A PESTICIDES ONLY IN "A" ABOVE -- NO PERMIT REQUIRED
B PESTICIDES ONLY IN "B" ABOVE -- PERMIT REQUIRED; EXCEPTIONS APPLY

CERTIFIED PRIVATE APPLICATORS
(GROWERS, NURSERYMEN, AND OTHERS USING RESTRICTED PESTICIDES TO PRODUCE AGRICULTURAL COMMODITIES)

- Private Applicator Certificate Holders

A PESTICIDES ONLY IN "A" ABOVE -- NO PERMIT REQUIRED
B PESTICIDES ONLY IN "B" ABOVE -- PERMIT REQUIRED; EXCEPTIONS APPLY

EXCEPTIONS FROM PERMIT REQUIREMENT

[1] PESTICIDES LISTED UNDER 3 CCR SECTION 6800(a) (POTENTIAL TO POLLUTE GROUND WATER):
NO PERMIT REQUIRED FOR CERTIFIED APPLICATORS USING THESE MATERIALS OUTSIDE OF A GROUND WATER PROTECTION AREA.
Atrazine Bentazon (Basagran®) Bromacil Diuron Norflurazon Prometon Simazine

[2] U.S. EPA issued *Molinate; Product Cancellation Order and Amendment to Terminate Uses* which indicated the stop use date of August 31, 2009. Molinate (Ordram) will be deleted from this listing after the regulation change occurs.

STATE OF CALIFORNIA
DPR-ENF-013A (REV. 1-11) PAGE 1

DEPARTMENT OF PESTICIDE REGULATION
ENFORCEMENT BRANCH

Appendix 2: School Pesticide Restrictions, by County

California law allows the California Department of Pesticide Regulation (CDPR) to classify certain pesticides as restricted materials. County Agricultural Commissioners (CACs) issue permits for the use of restricted materials, which can only be applied by trained individuals. CACs may further limit the application of restricted materials to specific times and places. These conditions are typically applied to mitigate risks based on local or site-specific needs, including sensitive sites such as schools. These conditions are enforceable under state law. More information on the restricted materials permitting process is available at www.cdpr.ca.gov/docs/dept/factshts/permitting.pdf.

The following table includes pesticide restrictions as of September 2013 related to schools for the 15 counties in this study. The table was provided by the 15 CACs. These restrictions may not be comprehensive, and additional specific conditions are likely applied on a case-by-case or county-by-county basis.

While this table provides an overview, in order to fully assess and interpret the pesticide restrictions, it is necessary to communicate with one's CAC. **This table does not necessarily indicate the policies in place during 2010, the focus year of this study.**

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
Fresno	School in session or school grounds occupied	All pesticides	All methods	⅛ mile		
	During the regular and summer school session	Pesticides with worker safety interval greater than 48 hours	All methods	⅛ mile		
Imperial	No application within 12 hours of when school or daycare is in session or grounds are occupied	CA restricted materials only	Air	¼ mile		Notification is voluntary and arranged between the school and grower or applicator.
	No application when school or daycare is in session or grounds are occupied	CA restricted materials only	Ground	½ mile		Notification is voluntary and arranged between the school and grower or applicator.
		CA restricted materials only	Air	1 mile		Notification is voluntary and arranged between the school and grower or applicator.
	School **not** in session or children **not** present for at least 36 hours following the fumigation	Fumigants: CA Restricted only	Fumigations require signing specific county use permit conditions.	½ mile as with any CA restricted material	Fumigants containing 1,3-D cannot be applied within 100 feet of a structure that will be occupied during the application and within 6 days following the application. Sprinkler applications of Metam products are prohibited countywide.	Notifications of use are based on label requirements. Notification for uses outside label requirements and County Conditions of Use Restrictions is voluntary and arranged between the school and grower or applicator.
Kern	School in session or during school sponsored activities when children are present.	Restricted materials	All applications	¼ mile		24 hour NOI to the CAC
		Restricted materials	Applications on school grounds		No applications allowed	24 hour NOI to the CAC
Kings	School in session or due to be in session within 24 hours	Restricted materials	Aerial	¼ mile	No pesticide application by ground or air shall be made or continued if: • There is any reasonable hazard of drift to nontarget property • There is any reasonable hazard of drift to persons not involved with the application	

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
Kings, cont.	School in session	Restricted cotton defoliant materials	Aerial	¼ to ½ mile		
			Ground	⅛ to ½ mile		
	School out for 24 hours	Restricted cotton defoliant materials	Aerial and ground	⅛ mile		
Madera	School in session or children present	CA restricted materials only	Ground	500 ft	Some exceptions for spot spraying and vertebrate control (below ground) Confirmed approval of NOI	Grower/applicator voluntarily work with individual school on application timing
			Air	¼ mile	Confirmed approval of NOI	Grower/applicator voluntarily work with individual school on application timing
		CA restricted fumigants	Fumigation	Minimum ⅛ mile if label BZ is <300 ft Minimum ¼ mile if label BZ is >300 ft	Applications of straight Chloropicrin or in combination with 1,3-D (>2%): 96 hour NOI; maximum rate 175 lbs/ac w/in ¼ mile; 10 acre maximum/24 hrs w/in ¼ mile; tarp required if w/in ¼ mile (except for replants <1acre) Fumigants per label and more restrictive permit conditions on a case-by-case basis Confirmed approval of NOI	Grower/applicator voluntarily work with individual school on application timing.
	School **not** in session or children **not** present	CA restricted materials only	Ground	Label restrictions (if present) apply	More restrictive permit conditions on a case-by-case basis Confirmed approval of NOI	N/A
			Air	Label restrictions (if present) apply	More restrictive permit conditions on a case-by-case basis Confirmed approval of NOI	N/A
	School **not** in session or children **not** present for minimum 36 hours following the fumigation	CA restricted fumigants	Fumigation	Based on label and determined by application method, tarp type (if applicable) and rate per acre	Fumigants containing only 1,3-D cannot be applied w/in minimum 100 ft of a structure that will be occupied w/in 7 days following the application Applications of straight Chloropicrin or in combination with 1,3-D (>2%): w/TIF tarp minimum 60 ft buffer; minimum 100 ft buffer for all other applications (except for replants & raised tarp nursery both <1 ac, other specific sites on a case-by-case basis) Confirmed approval of NOI	N/A

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
Merced	May be prohibited when school is in session or due to be in session or when grounds are occupied	Restricted materials	Aerial	¼ mile		Applications may not commence until the notice of intent is verbally authorized by the CAC.
			Ground air-blast	⅛ mile		Applications may not commence until the notice of intent is verbally authorized by the CAC.
		Fumigants	Ground	Buffer restrictions for all fumigant labels apply	All label restrictions apply for hard to evacuate facilities	Notification requirements for all fumigant label restrictions apply for hard to evacuate facilities
		Chloropicrin	Ground	¼ mile	Rate per acre cannot exceed 175 lbs a.i. within ¼ mile	Maximum of 10 acres per 24 hours may be treated and tarped except for tree and vine replants less than 1 contiguous acre
Monterey	During school hours and 1 hour before or after school hours	CA restricted materials only	Ground	500 ft	Individual permits may contain conditions that are more restrictive.	Notification is voluntary and arranged between the school and the adjacent grower.
		All pesticides	Ground	500 ft	Long-established practice (20+ years) for growers and applicators to leave a 500 ft buffer zone between target field and school property whenever any pesticide is applied.	Notification is voluntary and arranged between the school and the adjacent grower
	At all times	CA restricted materials only	Air – fixed wing	1,000 ft	Individual permits may contain conditions that are more restrictive.	Notification is voluntary and arranged between the school and the adjacent grower.
			Air – helicopter	120 ft	When application is between 120 and 600 feet of a school pest control business must have a person stationed on the ground between the treatment site and the school in two-way radio communication with pilot. Individual permits may contain conditions that are more restrictive.	Notification is voluntary and arranged between the school and the adjacent grower
	During school hours or when children are present or when either will occur within 36 hours following the end of the application	CA restricted fumigants	Fumigation	No application w/in ⅛ mile if label BZ is <300 ft No application w/in ¼ mile if label BZ is >300 ft	Individual permits may contain conditions that are more restrictive.	Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size. If field is within ¼ mile of school must notify Pajaro Valley School District or North Monterey County School District 5 days prior to fumigation

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
Monterey, cont.	School **not** in session or children **not** present	CA restricted materials only	Ground	Label restrictions (if present) apply	Individual permits may contain conditions that are more restrictive.	N/A
	School **not** in session or children **not** present for at least 36 hours following the fumigation	CA restricted fumigants	Fumigants	Based on label and determined by application method, tarp type and rate per acre	Application of fumigants containing 1,3-D cannot be applied w/in 100ft of a structure that will be occupied w/in 7 days following the application.	Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size.
Sacramento	While children are present	Restricted materials			No applications adjacent to schools	Permits are restricted by case by case conditions.
		Non-restricted Materials	Ground or air	Buffers Recommended	Recommended to be applied when children are not present.	
	When school is **not** in session	Non-restricted materials	Aerial	Buffers Recommended	Applications are flown in a pattern parallel to the school property and none are allowed adjacent to the school.	
			Ground	Buffers Recommended		
		Fumigants	Ground		All Label Restrictions apply for hard to evacuate facilities	Notification requirements for all fumigant label restrictions apply for hard to evacuate facilities
San Joaquin	School in session or school sponsored event	CA restricted materials only	Ground	660 ft	Does not apply to: vertebrate pest control, back pack applications, equipment where nozzles pointing down AND wind direction is moving away from school site	Notification is voluntary
			Air	660 ft		Notification is voluntary
		CA restricted fumigants	Fumigation	No application w/in ⅛ mile if label BZ is <300 ft No application w/in ¼ mile if label BZ is >300 ft		Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size. Grower is required to contact and work with the individual schools on application timing.
	School **not** in session, **no** school sponsored event	CA restricted materials only	Ground	Label restrictions apply		N/A

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
San Joaquin, cont.	School **not** in session, **no** school sponsored event	CA restricted materials only	Air	Label restrictions apply		N/A
	School **not** in session or children **not** present for at least 36 hours following the fumigation	CA restricted fumigants	Fumigation	Based on label and determined by application method, tarp type and rate per acre	Application of fumigants containing 1,3-D cannot be applied w/in 100ft of a structure that will be occupied w/in 7 days following the application.	Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size.
San Luis Obispo	School in session or children present	CA restricted materials only	Spray and dust by ground	500 ft	Exceptions may be made for spot treatments.	Notification may be required between the school and the adjacent grower.
			Spray and dust by air	½ mi (2640 ft)		Notification may be required between the school and the adjacent grower.
		CA restricted fumigants	Fumigation	No application w/in ⅛ mile if label BZ is <300 ft No application w/in ¼ mile if label BZ is >300 ft	During application and buffer zone duration	The Certified Applicator is required to contact and work with the individual schools on application timing.
		General use non-restricted pesticides	All		Additional mitigations may be recommended including; BZ, air flow away, timing etc.	Grower may voluntarily notify the adjacent school.
Santa Barbara	School in session or children present	CA restricted materials only	Ground	500 ft		Notification is voluntary and arranged between the school and the adjacent grower.
			Air	750 ft		Notification is voluntary and arranged between the school and the adjacent grower.
		CA restricted fumigants	Fumigation	No application w/in ⅛ mile if label BZ is <300 ft No application w/in ¼ mile if label BZ is >300 ft		Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size. Grower is required to contact and work with the individual schools on application timing.

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
Santa Barbara, cont.	School **not** in session or children **not** present	CA restricted materials only	Ground	Label restrictions (if present) apply		N/A
			Air	200 ft		N/A
	School **not** in session or children **not** present for at least 36 hours following the fumigation	CA restricted fumigants	Fumigants	Based on label and determined by application method, tarp type and rate per acre	Application of fumigants containing 1,3-D cannot be applied w/in 100ft of a structure that will be occupied w/in 7 days following the application. Sprinkler application of Metam products are prohibited countywide.	Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size.
Stanislaus	School in session or during school sponsored activities when children are present.	Restricted materials	All applications	¼ mile		24 hour NOI to CAC. 48 hour NOI for Penncap applications.
	School **not** in session or children **not** present for at least 36 hours following the fumigation	CA restricted fumigants	Fumigants	Based on label and determined by application method, tarp type and rate per acre	Application of fumigants containing 1,3-D cannot be applied w/in 100ft of a structure that will be occupied w/ in 7 days following the application. Chloropicrin over 2% applications: rate cannot exceed 175 lbs. a.i. per acre within ¼ mile. Maximum of 10 acres per 24 hours may be treated within ¼ mile. Applications within ¼ mile must be tarped. Additional restrictions may apply based on the evaluation of the site.	Label requires notification at least 7 days in advance of schools that fall w/in sliding scale on the fumigant label based upon the BZ size.
Tulare	School in session	Restricted material	Aerial	¼ mile		24 hour NOI to the CAC
Ventura	School in session	CA restricted materials	All applications	¼ mile	Follow recommendations contained in the "Farming Near Schools. A Community-based Approach to Protecting Children" publication.	
		Chlorpyrifos	Foliar applications only	Use within 300 ft	Requires a permit. Cannot be used in any portion of the block adjacent to a school between 6:00a.m. – 6:00 p.m. ("Adjacent" means: shares at least a common boundary with a school, the block is located across the street from a school or the block is less than 300 ft. from a school with no other crop or structure between the block and the school.) Applicators must be certified.	48 hours NOI to CAC.

County	Pesticide Application Restrictions	Restrictions Apply to	Application Type	Buffer Zone	Additional Conditions	School Notified
Ventura, cont.	School **not** in session	CA restricted materials	All applications	Use within 300 ft	Follow recommendations contained in the "Farming Near Schools. A Community-based Approach to Protecting Children" publication.	Contact school to determine appropriate time of application to avoid school activities. This information shall be included in the NOI. This does not apply to vertebrate pest control.
		Chlorpyrifos	Foliar applications only	No use between 6:00 am and 6:00 pm	Requires a permit. Applicators must be certified.	48 hour NOI to CAC
Yolo	At any time	Restricted use pesticides only Industry follows school conditions for non-restricted also.	Air	¼ mile		Notification is voluntary and arranged between the school and the adjacent grower
	School in session	Restricted use pesticides only Industry follows school conditions for non-restricted also.	Ground	¼ mile except fumigants which have additional requirements and restriction.		Notification is voluntary and arranged between the school and the adjacent grower

Appendix 3: Existing Policies Related to Pesticides and Schools

Many state and federal policies related to pesticides and health are in place to protect the health of farmworkers, communities, and sensitive populations near agricultural production. It is beyond the scope of this report to provide a full review of all policies, regulations, and their history, but below is a brief review of major policies.

Agricultural Pesticide Use Near Schools in California

Many California counties have policies that restrict pesticide use near schools. In 2002, Assembly Bill (AB) 947 (Jackson) was signed into law by Governor Gray Davis. This bill authorizes the agricultural commissioners to apply special restrictions on certain pesticides with respect to the timing, notification, and method of application near schools. The restrictions vary on a county-by-county basis by pesticide; there is no statewide regulation establishing uniform restriction zones near schools. The bill allows the Director of Pesticide Regulation to disapprove restrictions within 30 days of their submission. AB 1721 (Swanson), which would prohibit certain types of pesticides from being applied within ¼ or ½ mile from a school boundary, was referred to the Assembly Committee on Agriculture with no further action in 2010.

Pesticides Applied on School Grounds

Pesticides are also applied within school grounds (buildings and outdoor spaces) by school personnel and licensed applicators. In January 2001, the Healthy Schools Act of 2000 (AB 2260) enacted right-to-know requirements for pesticide use on school grounds, including notification, posting, and recordkeeping. The law also put into code CDPR's existing school integrated pest management (IPM) program and newer, more detailed pesticide use reporting.

Under AB 2260 a school designee is required to give parents and staff annual written notification about pesticide products expected to be used at a school that year. Each school must keep records of almost all applications for four years after the application occurred. Products used as self-contained baits or traps; gels or pastes used as crack-and-crevice treatments; pesticides exempted from regulation by the U.S. EPA; and antimicrobial pesticides, including sanitizers and disinfectants, are not required to be recorded.

Applications made by school personnel are not required to be reported to the county agricultural commissioner, except when a restricted material is applied. Pest control businesses contracted by schools must submit two reports regarding application of pesticides on school properties:

1. The Monthly Summary Pesticide Use Report, submitted to the county agricultural commissioner, includes pesticides used at schools
2. The School Site Pesticide Use Reporting form, required to be submitted to the county agricultural commissioner annually

The Healthy Schools Act contains no specific enforcement authority for these requirements.

More information about the Healthy Schools Act is available at apps.cdpr.ca.gov/schoolipm/school_ipm_law/main.cfm.

Appendix 4: Estimated Pounds of Pesticide Active Ingredients Applied Within ¼ Mile of a School, by Active Ingredient

Of the 635 chemicals considered in this study, 144 were applied within ¼ mile of a school in the 15 counties assessed. Many of these chemicals belong to multiple pesticide categories, as indicated by checkmarks in the list below. Of the 144 chemicals, 82 are priority pesticides for assessment and monitoring (PRIOR), 40 are toxic air contaminants (TAC), 8 are fumigants (FUM), 35 are carcinogens (CARC), 27 are reproductive and developmental contaminants (REP/DEV), and 38 are cholinesterase inhibitors (CHOIN). Summing the total pounds applied for each pesticide category will not match the total pounds applied for the All Pesticides (ALL) category (as in Table 6 on page 15 of this report) because of the fact that some chemicals belong to several categories. A complete list of the pesticide active ingredients considered for this study is available at www.cehtp.org/projects/ehss01/pesticides_and_schools/chem_list.xlsx.

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
	Total pounds applied (by category)	523,566	454,202	428,834	228,019	149,279	69,426	538,912
00136	Chloropicrin	•	•	•				150,285
00573	1,3-Dichloropropene	•	•	•	•			136,241
00385	Methyl bromide	•	•	•		•		85,112
00616	Metam-sodium	•	•	•	•	•		37,920
00970	Potassium n-methyldithiocarbamate	•	•	•	•	•		19,141
00104	Captan	•	•		•			8,790
01929	Pendimethalin	•						8,198
00253	Chlorpyrifos	•					•	7,769
01601	Paraquat dichloride	•						6,543
00367	Malathion	•					•	6,322
00677	Chlorothalonil	•			•			5,975
00369	Maneb		•		•			5,497

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
00629	Ziram	•						4,507
00211	Mancozeb	•	•		•			3,627
03946	Glufosinate-ammonium	•						3,371
01973	Oxyfluorfen	•						3,091
01868	Oryzalin	•						2,690
02081	Iprodione	•			•			2,414
00531	Simazine	•						2,366
00231	Diuron	•			•			2,191
00806	2,4-D, dimethylamine salt		•					2,054
00445	Propargite	•			•	•		1,964
00198	Diazinon	•					•	1,785
00070	Bensulide	•					•	1,718
00383	Methomyl						•	1,539
01685	Acephate	•					•	1,493
00418	Naled	•	•				•	1,352
04022	Propamocarb hydrochloride						•	1,321
00216	Dimethoate	•					•	1,259
00179	Chlorthal-dimethyl	•						1,190
02008	Permethrin	•			•			1,174
00382	Oxydemeton-methyl	•				•	•	1,173
04000	Cyprodinil	•						1,124
01626	Ethephon						•	1,074
05759	Pyraclostrobin	•						1,058

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
00335	Phosmet	•					•	1,038
00597	Trifluralin	•	•					1,035
00105	Carbaryl	•	•		•	•	•	1,007
02238	Hydrogen cyanamide	•						961
05133	S-metolachlor	•						858
00694	Propyzamide	•						786
01696	Thiophanate-methyl	•			•	•		658
00361	Linuron	•				•		528
02245	Myclobutanil					•		485
01138	2,4-D, triethylamine salt		•					434
00575	Aldicarb	•					•	431
01689	Methidathion	•	•				•	398
05858	Spiromesifen	•						371
00264	EPTC	•				•	•	371
05802	Flumioxazin	•						353
00394	Methyl parathion	•	•				•	341
01910	Oxamyl						•	335
00516	Cycloate					•	•	268
03850	Tebuconazole	•						248
01598	Coconut diethanolamide				•			236
02297	Lambda-cyhalothrin	•						232
02019	Norflurazon	•						217
00111	Formetanate hydrochloride						•	210

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
00834	Bromoxynil octanoate	•				•		207
02303	Hexythiazox				•			204
90104	Captan, other related		•		•			198
00587	Thiabendazole				•			192
05331	Indoxacarb	•						187
05857	Spirodiclofen	•			•			185
05451	Kresoxim-methyl				•			182
00276	Ethylene glycol		•					163
00636	2,4-D	•	•					144
02254	Abamectin					•		135
00810	2,4-D, isopropyl ester		•					130
00484	Aluminum phosphide		•	•				120
05036	Bromoxynil heptanoate	•				•		115
05754	Novaluron	•						108
05007	Diglycolamine salt of 3,6-dichloro-o-anisic acid	•						104
05886	Flonicamid	•						84
00007	Daminozide	•			•			79
00375	Methiocarb	•					•	76
03905	Fenbuconazole	•						74
05232	Pymetrozine				•			65
00346	Dicofol	•						64
03832	Oxytetracycline, calcium complex					•		62
00263	EPN						•	62

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
01933	Thiobencarb						•	61
02223	Cyfluthrin	•						61
00259	Endosulfan	•	•					59
05057	Dicamba, sodium salt	•						54
05598	Thiamethoxam	•						47
05983	Metconazole	•						45
00849	Dicamba, dimethylamine salt	•						44
03834	Streptomycin sulfate					•		43
05955	Spirotetramat	•						38
05815	Fluazifop-p-butyl					•		34
00503	Propanil	•						26
00230	Disulfoton						•	23
05878	Famoxadone	•						23
00678	Alachlor				•			22
00464	PCNB	•	•		•			22
00478	Phorate						•	20
01582	Ethylene glycol monomethyl ether		•			•		18
02118	Acrylic acid		•					18
02017	Oxadiazon	•			•	•		18
90394	Methyl parathion, other related		•				•	18
00805	2,4-D, diethanolamine salt		•					16
02273	Sodium tetrathiocarbonate	•	•	•				15
00089	2-Butoxyethanol		•					14

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
01622	2,4-D, 2-ethylhexyl ester		•					14
02195	Tau-fluvalinate					•		13
00314	Azinphos-methyl						•	11
01697	Methamidophos						•	7
00658	Manganese sulfate		•					5
05939	Tetraconazole				•			5
00675	Phenmedipham						•	5
00459	Parathion		•				•	5
00034	MSMA				•			4
01857	Fenamiphos	•					•	3
00802	2,4-D, butoxyethanol ester		•					3
04020	Emamectin benzoate	•						3
00480	Mevinphos						•	2
01748	Desmedipham						•	2
02505	Diethylene glycol monoethyl ether		•			•		2
05865	Pyraflufen-ethyl				•			2
02171	Cypermethrin	•						2
00404	Ethoprop				•		•	2
02202	Thiodicarb				•		•	2
00200	Dicamba	•						2
90480	Mevinphos, other related						•	2
00223	Dioctyl phthalate		•		•	•		1
00626	Zinc phosphide		•					1

Chemical Code	Name	Category						Pounds applied
		PRIOR	TAC	FUM	CARC	REP/DEV	CHOIN	ALL
00176	Calcium cyanide		•					1
01275	2,4-D, propyl ester		•					1
00238	Dinoseb					•		1
02133	Triadimefon	•				•		<1
02143	Chlorsulfuron					•		<1
00580	Terrazole				•			<1
90459	Parathion, other related						•	<1
02129	Vinclozolin	•			•	•		<1
00190	S,S,S-tributyl phosphorotrithioate	•	•		•		•	<1
05457	Tralkoxydim	•						<1
05020	2,4-DB acid		•					<1
05763	Milbemectin	•						<1
03995	Fipronil	•						<1
00410	Oxythioquinox			•	•	•		<1
02218	Acifluorfen, sodium salt				•			<1
05885	Trifloxysulfuron-sodium	•						<1
00622	Xylene		•					<1

Appendix 5: Top 10 Pesticide Active Ingredients by Pounds Applied Near Public Schools, by County, for All Pesticides Assessed

The following tables show the top 10 pesticide active ingredients of public health concern applied, by pounds, within ¼ mile of schools in each of the 15 counties included in this study. The chemical name, pounds applied, restricted material status, and pesticide category are included in each table. Special permits are required for application of restricted materials, and counties may further restrict use by location or time.

Table A5.1. Top 10 pesticide active ingredients, by pounds applied, in Fresno County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	7,723	Yes	PRIOR, TAC, FUM, CARC
Ziram	3,095	No	PRIOR
Methyl bromide	2,050	Yes	PRIOR, TAC, FUM, REP/DEV
Pendimethalin	2,026	No	PRIOR
Metam-sodium	1,852	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Chlorpyrifos	1,127	No	PRIOR, CHOIN
Paraquat dichloride	1,057	Yes	PRIOR
Chloropicrin	992	Yes	PRIOR, TAC, FUM
Glufosinate-ammonium	708	No	PRIOR
Iprodione	684	No	PRIOR, CARC

Table A5.2. Top 10 pesticide active ingredients, by pounds applied, in Imperial County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Metam-sodium	1,041	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Pendimethalin	384	No	PRIOR
Chlorpyrifos	124	No	PRIOR, CHOIN
Permethrin	123	No	PRIOR, CARC
Trifluralin	84	No	PRIOR, TAC
Propargite	61	No	PRIOR, CARC, REP/DEV
Dimethoate	51	No	PRIOR, CHOIN
Malathion	47	No	PRIOR, CHOIN
Bromoxynil octanoate	45	No	PRIOR, REP/DEV
EPTC	36	No	PRIOR, REP/DEV, CHOIN

Table A5.3. Top 10 pesticide active ingredients, by pounds applied, in Kern County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	6,859	Yes	PRIOR, TAC, FUM, CARC
Metam-sodium	2,804	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Potassium n-methyldithiocarbamate	2,655	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Methyl bromide	1,078	Yes	PRIOR, TAC, FUM, REP/DEV
Chlorpyrifos	971	No	PRIOR, CHOIN
Pendimethalin	935	No	PRIOR
Paraquat dichloride	915	Yes	PRIOR
Glufosinate-ammonium	507	No	PRIOR
Diuron	438	No	PRIOR, CARC
Chlorothalonil	420	No	PRIOR, CARC

Table A5.4. Top 10 pesticide active ingredients, by pounds applied, in Kings County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	3,137	Yes	PRIOR, TAC, FUM, CARC
Pendimethalin	234	No	PRIOR
Chlorpyrifos	213	No	PRIOR, CHOIN
Ethephon	156	No	CHOIN
Propargite	137	No	PRIOR, CARC, REP/DEV
Paraquat dichloride	118	Yes	PRIOR
Glufosinate-ammonium	118	No	PRIOR
Aldicarb	91	Yes	PRIOR, CHOIN
Trifluralin	84	No	PRIOR, TAC
Hydrogen cyanamide	82	No	PRIOR

Table A5.5. Top 10 pesticide active ingredients, by pounds applied, in Madera County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	4,421	Yes	PRIOR, TAC, FUM, CARC
Hydrogen cyanamide	454	No	PRIOR
Glufosinate-ammonium	384	No	PRIOR
Pendimethalin	339	No	PRIOR
Oryzalin	291	No	PRIOR
Oxyfluorfen	216	No	PRIOR
Propargite	193	No	PRIOR, CARC, REP/DEV
Chlorothalonil	164	No	PRIOR, CARC
Simazine	157	No	PRIOR
Iprodione	143	No	PRIOR, CARC

Table A5.6. Top 10 pesticide active ingredients, by pounds applied, in Merced County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	22,665	Yes	PRIOR, TAC, FUM, CARC
Potassium n-methyldithiocarbamate	7,123	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Metam-sodium	4,555	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Methyl bromide	3,102	Yes	PRIOR, TAC, FUM, REP/DEV
Chloropicrin	2,070	Yes	PRIOR, TAC, FUM
Paraquat dichloride	859	Yes	PRIOR
Pendimethalin	497	No	PRIOR
Aldicarb	268	Yes	PRIOR, CHOIN
2,4-D, dimethylamine salt	243	Yes	TAC
Glufosinate-ammonium	200	No	PRIOR

Table A5.7. Top 10 pesticide active ingredients, by pounds applied, in Monterey County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Chloropicrin	53,860	Yes	PRIOR, TAC, FUM
Methyl bromide	33,542	Yes	PRIOR, TAC, FUM, REP/DEV
1,3-Dichloropropene	25,555	Yes	PRIOR, TAC, FUM, CARC
Maneb	3,235	No	TAC, CARC
Malathion	2,112	No	PRIOR, CHOIN
Captan	1,533	No	PRIOR, TAC, CARC
Methomyl	1,105	Yes	CHOIN
Oxydemeton-methyl	1,028	Yes	PRIOR, REP/DEV, CHOIN
Diazinon	888	No	PRIOR, CHOIN
Chlorthal-dimethyl	768	No	PRIOR

Table A5.8. Top 10 pesticide active ingredients, by pounds applied, in Sacramento County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Mancozeb	567	No	PRIOR, TAC, CARC
Carbaryl	155	Yes	PRIOR, TAC, CARC, REP/DEV, CHOIN
2,4-D, dimethylamine salt	90	Yes	TAC
Paraquat dichloride	89	Yes	PRIOR
Trifluralin	60	No	PRIOR, TAC
Oxytetracycline, calcium complex	45	No	REP/DEV
Streptomycin sulfate	26	No	REP/DEV
Norflurazon	21	No	PRIOR
Thiophanate-methyl	19	No	PRIOR, CARC, REP/DEV
Captan	18	No	PRIOR, TAC, CARC

Table A5.9. Top 10 pesticide active ingredients, by pounds applied, in San Joaquin County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Chloropicrin	5,341	Yes	PRIOR, TAC, FUM
1,3-Dichloropropene	4,438	Yes	PRIOR, TAC, FUM, CARC
Metam-sodium	1,990	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Chlorothalonil	1,592	No	PRIOR, CARC
Methyl bromide	1,231	Yes	PRIOR, TAC, FUM, REP/DEV
Mancozeb	973	No	PRIOR, TAC, CARC
Potassium n-methyldithiocarbamate	886	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Pendimethalin	733	No	PRIOR
Malathion	645	No	PRIOR, CHOIN
Paraquat dichloride	633	Yes	PRIOR

Table A5.10. Top 10 pesticide active ingredients, by pounds applied, in San Luis Obispo County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Chloropicrin	285	Yes	PRIOR, TAC, FUM
1,3-Dichloropropene	169	Yes	PRIOR, TAC, FUM, CARC
Maneb	110	No	TAC, CARC
Oxyfluorfen	108	No	PRIOR
Malathion	88	No	PRIOR, CHOIN
Chlorthal-dimethyl	84	No	PRIOR
Chlorpyrifos	65	No	PRIOR, CHOIN
Bensulide	62	No	PRIOR, CHOIN
Glufosinate-ammonium	44	No	PRIOR
2,4-D, dimethylamine salt	43	Yes	TAC

Table A5.11. Top 10 pesticide active ingredients, by pounds applied, in Santa Barbara County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Metam-sodium	18,652	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Chloropicrin	15,591	Yes	PRIOR, TAC, FUM
Methyl bromide	15,371	Yes	PRIOR, TAC, FUM, REP/DEV
Malathion	2,415	No	PRIOR, CHOIN
1,3-Dichloropropene	2,036	Yes	PRIOR, TAC, FUM, CARC
Captan	1,588	No	PRIOR, TAC, CARC
Maneb	1,547	No	TAC, CARC
Propamocarb hydrochloride	464	No	CHOIN
Acephate	380	No	PRIOR, CHOIN
Propyzamide	379	No	PRIOR

Table A5.12. Top 10 pesticide active ingredients, by pounds applied, in Stanislaus County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	20,972	Yes	PRIOR, TAC, FUM, CARC
Potassium n-methyldithiocarbamate	2,126	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Chlorothalonil	1,490	No	PRIOR, CARC
Pendimethalin	1,172	No	PRIOR
Paraquat dichloride	929	Yes	PRIOR
Chlorpyrifos	866	No	PRIOR, CHOIN
Metam-sodium	668	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Glufosinate-ammonium	473	No	PRIOR
Oxyfluorfen	437	No	PRIOR
Iprodione	434	No	PRIOR, CARC

Table A5.13. Top 10 pesticide active ingredients, by pounds applied, in Tulare County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
1,3-Dichloropropene	17,275	Yes	PRIOR, TAC, FUM, CARC
Methyl bromide	2,310	Yes	PRIOR, TAC, FUM, REP/DEV
Chlorpyrifos	1,881	No	PRIOR, CHOIN
Pendimethalin	1,269	No	PRIOR
Diuron	1,186	No	PRIOR, CARC
Simazine	1,087	No	PRIOR
Paraquat dichloride	1,067	Yes	PRIOR
Ziram	756	No	PRIOR
Carbaryl	642	Yes	PRIOR, TAC, CARC, REP/DEV, CHOIN
Chloropicrin	605	Yes	PRIOR, TAC, FUM

Table A5.14. Top 10 pesticide active ingredients, by pounds applied, in Ventura County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Chloropicrin	71,453	Yes	PRIOR, TAC, FUM
Methyl bromide	24,986	Yes	PRIOR, TAC, FUM, REP/DEV
1,3-Dichloropropene	20,989	Yes	PRIOR, TAC, FUM, CARC
Metam-sodium	6,301	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Captan	5,450	No	PRIOR, TAC, CARC
Potassium n-methyldithiocarbamate	3,524	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Chlorothalonil	1,393	No	PRIOR, CARC
Mancozeb	856	No	PRIOR, TAC, CARC
Chlorpyrifos	746	No	PRIOR, CHOIN
Bensulide	618	No	PRIOR, CHOIN

Table A5.15. Top 10 pesticide active ingredients, by pounds applied, in Yolo County, 2010

Name	Pounds applied	Restricted material	Pesticide Category
Potassium n-methyldithiocarbamate	1,661	Yes	PRIOR, TAC, FUM, CARC, REP/DEV
Methyl bromide	1,219	Yes	PRIOR, TAC, FUM, REP/DEV
Pendimethalin	466	No	PRIOR
S-metolachlor	263	No	PRIOR
Oryzalin	173	No	PRIOR
Chlorothalonil	122	No	PRIOR, CARC
Malathion	118	No	PRIOR, CHOIN
Chlorpyrifos	103	No	PRIOR, CHOIN
Mancozeb	98	No	PRIOR, TAC, CARC
Oxyfluorfen	79	No	PRIOR

Appendix 6: Comparison of Students Attending Schools with No Pesticide Use, Any Pesticide Use, and the Highest Pesticide Use Within ¼ Mile, by Race/Ethnicity

The odds ratio (OR) is calculated as a measure of effect size, describing the strength of association between two binary variables. The odds ratio describes the odds of an event happening for one group compared to the odds of the same event happening for another group.

An odds ratio of greater than one means that the characteristic of interest (in this case, race/ethnicity of students) may increase the risk of an event occurring (attending a school with pesticide use nearby), and an odds ratio of less than one means that the characteristic of interest may reduce the risk of the event occurring.

We calculated all odds ratios using White students as the reference group. Therefore, for White students, OR=1. Table A6.1 and A6.2 display the odds ratios comparing students attending schools with any pesticide use (A6.1) and in the highest quartile of use (A6.2) to students attending schools with no pesticide use nearby.

Table A6.1. The odds of students of different race/ethnicity attending schools with pesticide use within ¼ mile compared to white students

Race/ethnicity	Odds ratio	Lower limit†	Upper limit†
White	1.00*		
Hispanic	1.46	1.45	1.48
African American	0.59	0.58	0.60
Asian Pacific Islander	0.96	0.94	0.97
Other	0.99	0.97	1.01

* reference
† 95% Confidence Interval

Table A6.2. The odds of students of different race/ethnicity attending schools in the top 25% of pesticide use within ¼ mile compared to white students

Race/ethnicity	Odds ratio	Lower limit†	Upper limit†
White	1.00*		
Hispanic	1.91	1.88	1.94
African American	0.53	0.51	0.55
Asian Pacific Islander	0.99	0.96	1.01
Other	0.91	0.87	0.94

* reference
† 95% Confidence Interval

CALIFORNIA
ENVIRONMENTAL
HEALTH TRACKING
PROGRAM

www.cehtp.org/p/pesticides_and_schools

ATTACHMENT H

Figure 1 Project Location and Sphere of Influence Boundaries

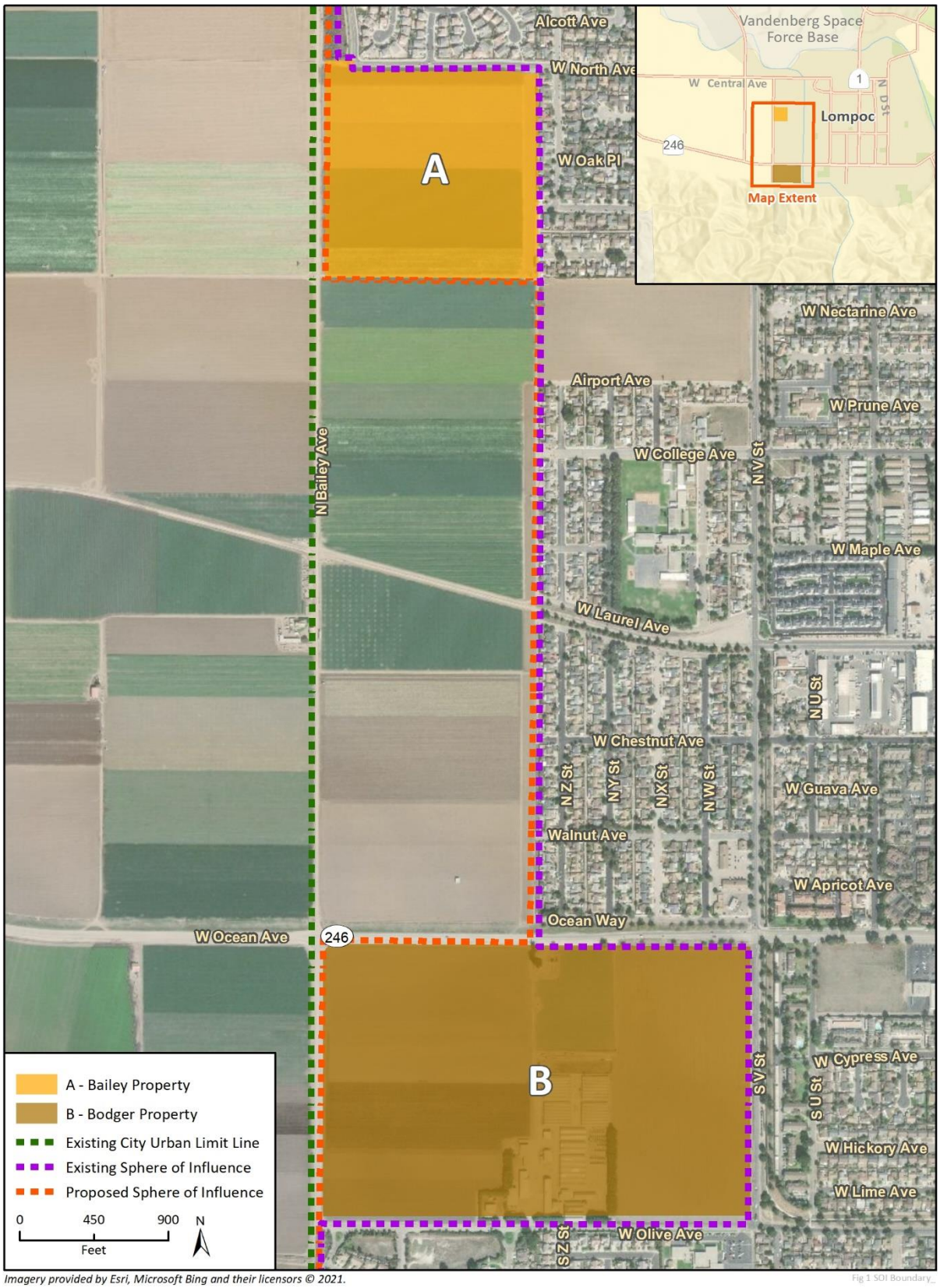

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Fig 1 SOI Boundary_

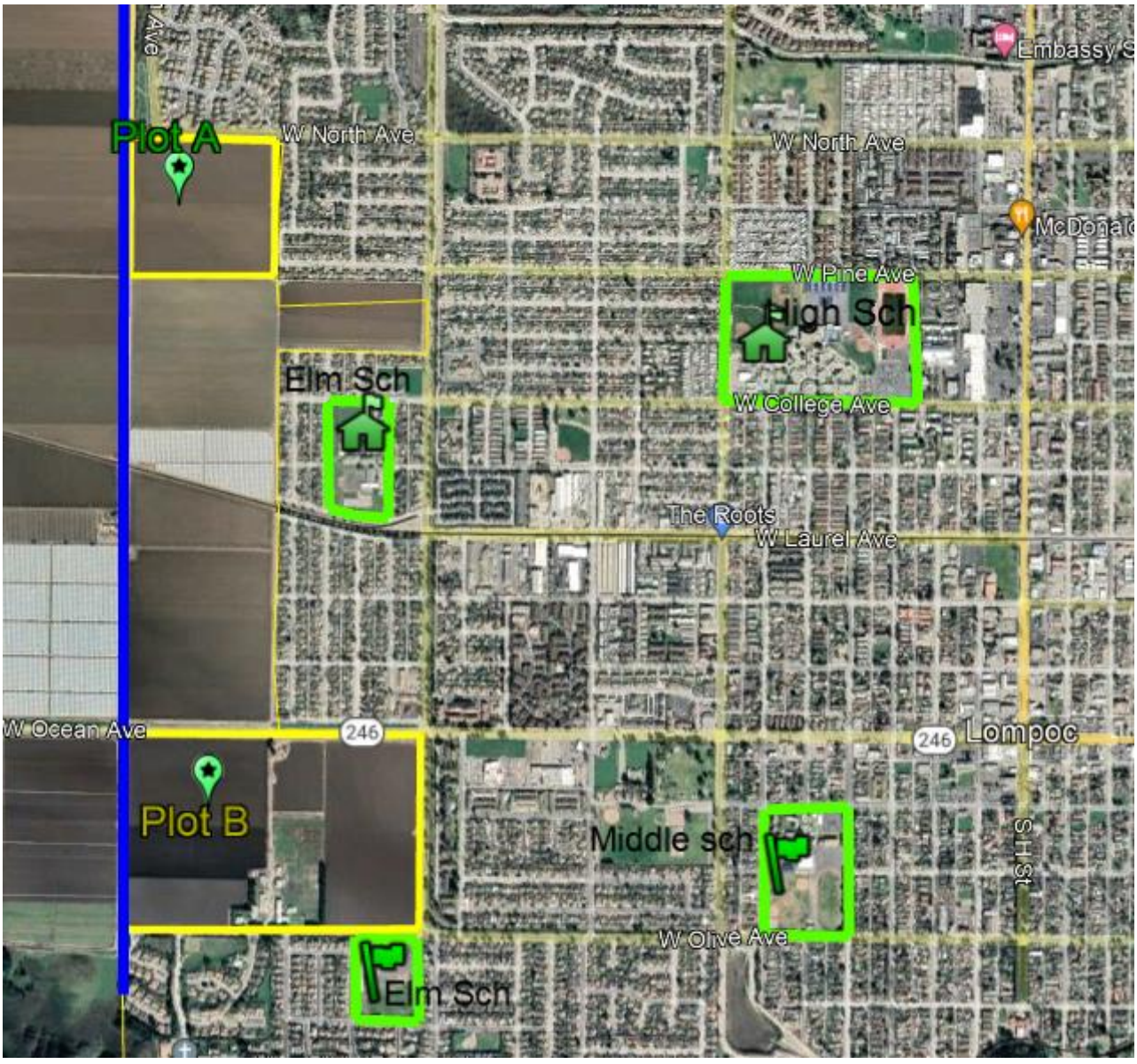
Data for Schools in Proximity

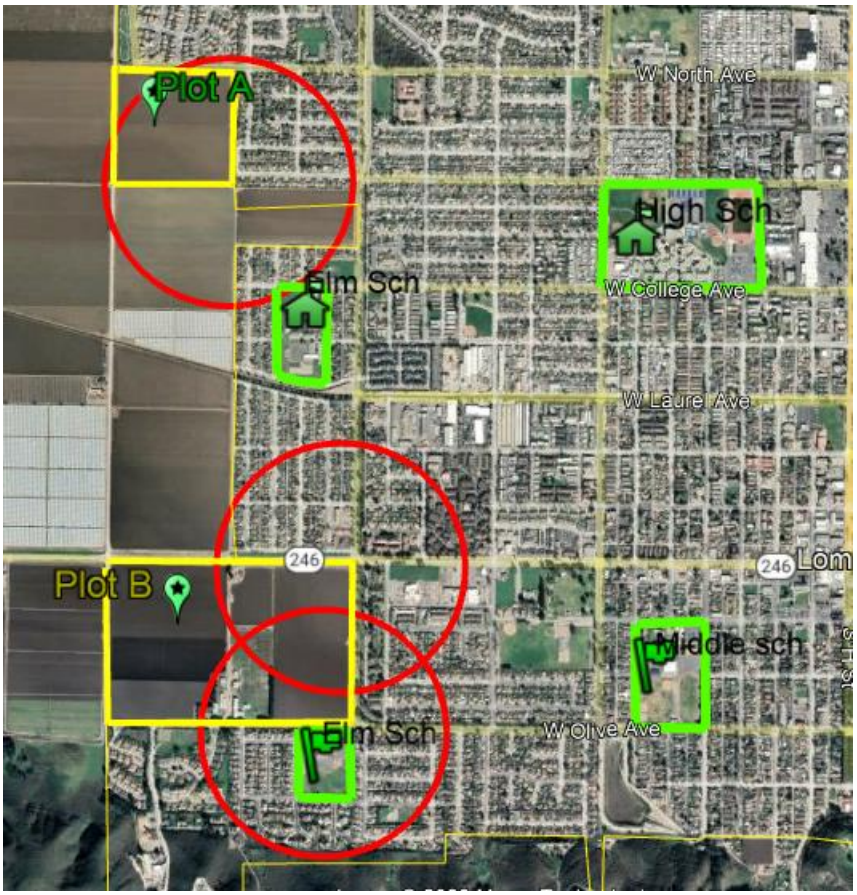
Miguelito Elementary
1600 West Olive Avenue, Lompoc CA 93436-6312
Phone: (805) 742-2440
Grade Levels: K-6
Total Enrollment: 594
Ethnic Diversity Index: 36
English learners: 107

Clarence Ruth Elementary
Address 501 North W Street, Lompoc CA 93436-5006
Phone (805) 742-2500
Grade Span K-6
Total Enrollment 450
Ethnic Diversity Index: 15
English learners: 294

Lompoc Valley Middle
234 South N Street, Lompoc CA 93436
Phone: (805) 742-2600
Grade Levels: 7-8
Total Enrollment: 857
Ethnic Diversity Index: 25
English learners: 198

Lompoc High
515 West College Avenue, Lompoc CA 93436-4401
Phone: (805) 742-3000
High School
Total Enrollment: 1,725
Ethnic Diversity Index: 26
English learners: 307


Plot A
W North Ave
W North Ave
Embassy S
McDonald
W Pine Ave
High Sch
Elm Sch
W College Ave
The Roots
W Laurel Ave
W Ocean Ave
246
246
Lompoc
Plot B
Middle sch
S H St
W Olive Ave
Elm Sch


Plot A
W North Ave
High Sch
Elm Scn
W College Ave
W Laurel Ave
246
Plot B
246
Lom
Middle sch
Elm Sch
W Olive Ave


W North Ave
Plot A
W Cherry Ave
Bailey Ave
W Airport Ave
Elm Sch

ATTACHMENT I

Chemical Use on Bodger Home Ranch 2022

Date	Acres Treated	Block Acres	Ranch	Pages	Crop
2/3/2022	8	31	41-EAST	14-16	Cilantro
3/2/2022	8	31	41-EAST	17-19	Cilantro
3/7/2022	8	31	41-EAST	18-22	Cilantro
3/15/2022	5	31	41-EAST	26-28	Cilantro
3/15/2022	3	5.75	41-CENTRAL	23-25	Cilantro
3/22/2022	2.7	5.75	41-CENTRAL	29-31	Cilantro
5/3/2022	10	45	41-WEST	32-34	Broccoli
6/8/2022	8.1	45	41-WEST	47	Broccoli
6/10/2022	10	45	41-WEST	48-50	Broccoli
6/16/2022	6.15	45	41-WEST	51-53	Broccoli
7/2/2022	10	45	41-WEST	58	Broccoli
7/8/2022	8.25	45	41-WEST	35-38	Broccoli
7/8/2022	6	45	41-WEST	61-	Broccoli
7/16/2022	10.57	45	41-WEST	54-57	Broccoli
7/28/2022	8.25	45	41-WEST	42-44	Broccoli
7/28/2022	5.4	45	41-WEST	59-60	Broccoli
8/9/2022	24.22	45	41-WEST	39-41	Broccoli
8/9/2022	24.22	45	41-WEST	45-46	Broccoli
10/7/2022	5	45	41-WEST	8-9	Cauliflower
10/11/2022	5	45	41-WEST	11-13	Cauliflower
11/15/2022	15.65	45	41-WEST	3-5	Cauliflower
11/15/2022	5.6	45	41-WEST	6-7; 10	Cauliflower
11/15/2022	5.2	45	41-WEST	1	Cauliflower

41-EAST is Bodger Home East Ranch [nearest to Miguelito School]
41-WEST is Bodger Home West Ranch is furthest from Miguelito School
41-CENTRAL is Bodger Home Central Ranch. This is only 5 acres and is in between the West and East Ra

2022

CHEMICAL/FERTILIZER APPLICATION CARD

DATE: 11-15-22	FIELD: CA-42	CROP: Calif.	
RANCH: 41	BLOCK 1C	TREATED ACRES: 5.2	
START TIME: 7:00	Coastal Growers	TEMPERATURE: LOW (MED) HIGH	
END TIME: 9:30		WIND SPEED: LOW (MED) HIGH	

FERTILIZERS

15-8-4 ~~0~~	GAL	AN20	GAL
UN32	GAL	CAN17	GAL
ACADIAN BLEND	GAL/PNT/OZ	CATS (11-0-0-2)	GAL
OTHER: ~~11-52-0~~ 256	GAL/OZ/LBS	OTHER: ~~11-52-0~~ 256	GAL/OZ/LBS

PESTICIDES

CHEMICAL/ACTIVE INGREDIENT	AMT/AC	RE-ENTRY/HARVEST	PEST	TOTAL AMOUNT
ASANA XL/ESFENVELERATE *EPA #352-515*	9 OZ/AC	12 HRS/3 DAYS	BAGRADA	OZ/LBS/GAL
BASAGRAN T/O *EPA #769-112*	32OZ/AC	48HRS/30 DAYS	WEEDS	60 (OZ/GAL/LBS)
BELAY/CLOTHIANIDIN *EPA #59639-150*	12 OZ/AC	12 HRS/21 DAYS	MAGGOTS	OZ/LBS
BUG-N-SLUGGO *EPA #67702-24-AA-70051*	22-24 LBS/ AC	4 HRS/ 0 DAYS	EARWIGS	OZ/GAL/LBS
CONTANS WG/CONIOTHYRIUM MINITANS *EPA #264-1174*	96 OZ/AC	4 HRS/4 HRS	SCLEROTINIA	OZ/LBS
CREDIT 41 EXTRA/GLYPHOSATE *EPA #71368-20*	64 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
DOUBLE NICKEL/AMYLOLIQUEFACIENS *EPA #70051-108*	16 OZ/AC	4 HRS	RHIZOCTONIA	OZ/LBS
ENDURA/PYRIDINECARBOXAMIDE *EPA #7969-197*	9 OZ/AC	12 HRS/14 DAYS	PIN ROT	OZ/LBS
GLYSTAR PLUS/GLYPHOSATE *EPA #42750-61*	128 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
KERB SC/PRONAMIDE *EPA #62719-578*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
LOROX DF/LINURON *EPA #61842-23*	2 LBS/AC	8 DAYS/67 DAYS	WEEDS	OZ/LBS/GAL
MUSTANG/ ZETA-CYPERMETHRIN *EPA #279-3126*	4 OZ/AC	12 HRS/1 DAY	APHID	OZ/LBS
QUADRIS/AZOXYSTROBIN *EPA #100-1098*	16 OZ/AC	4 HRS	PIN ROT	OZ/LBS/GAL
WARRIOR II/LAMBDA CYHALOTHRIN *EPA #100-1295*	1.92 OZ/AC	24 HRS/1 DAY	ARMYWORM	OZ
WILLOWOOD 4 SC/IMIDACLOPRID *EPA #87290-71*	12 OZ/AC	12 HRS/21 DAYS	APHIDS	OZ/LBS/GAL
WATERMAXX	0.5 GAL/AC			OZ/LBS/GAL
SONALAN HFP *EPA #10163-356*	64 OZ/AC	24HRS/ 0 DAYS	EARWIGS	OZ/LBS/GAL
OTHER: Midash. Forte	12 oz /AC	12 HRS/21 days	Aphid	60 (OZ/LBS/GAL)
OTHER:				OZ/LBS/GAL

EQUIPMENT USED: ☐ JD6310 ☐ JD6200 ☒ HESSTON OTHER:

METHOD: ☐ GROUND ☐ BED TOP ☐ CHEMIGATE ☐ INJECT/SIDEDRESS

COMMENTS:

OPERATOR: Antonio Nuñez

RECOMMENDED BY: MH

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7709470 ACRES COMPLETED: 15.65

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1C/D/E GROWER: Bob Campbell Ranches DATE: 11/15/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Spray Aide	36 floz	NO. OF TREES	CAPACITY
Acephate	3 Lb	W.O. ACRES	PRESSURE
Proclaim	14.4oz	PEST TREATED	NURSE RIG NO.
XenTari	6 Lb	DISEASE	CAPACITY
Dyne-Amic	36 floz	SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	7:30		11			21			31		
2	7:40		12			22			32		
3	8:00		13			23			33		
4	8:10		14			24			34		
5	8:20		15			25			35		
6			16			26			36		
7	PM		17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Block Ranch 41 Plot 1E Cauliflower		Crops	Other
	North		
	South		
	East		
	West		

*** ALWAYS READ AND FOLLOW LABEL DIRECTIONS ***

** In addition, adhere to all State and local regulations governing the use of these products **

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		1.47 Ga
UPI Acephate 97UP (70506-8) (97.00% - Acephate (o, S-Dimethyl Acetylphosp)	Caution	Cauliflower	Aphid, Green Peach	1 Lb / A		250.4 Oz
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Cauliflower	Moth, Diamondback	4.8 Oz / A		75.12 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Cauliflower	Armyworm	2 Lb / A		500.8 Oz
Helena Dyne-Amic (5905-50071)	Warning	Not Applicable	Na	12 Floz / 100ga		1.47 Ga

Product Use Recommendation

67501 - 7709470 **(Rec No. 7709470)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-11-15**	Expire Date **2023-11-15**		PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **CAULIFLOWER**	Preplant **No**	Method **Ground**	Proposed **15.65 Acres**	Treated **15.65 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1- West Home 40 acres	45 ACRES	15.65 ACRES	15.65 ACRES		

		Crops	Other
Block Ranch 41 Plot 1C Cauliflower	North		
	South		
	East		
	West		

		Crops	Other
Block Ranch 41 Plot 1D Cauliflower	North		
	South		
	East		
	West		

		Crops	Other
Block Ranch 41 Plot 1E Cauliflower	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** *** In addition, adhere to all State and local regulations governing the use of these products *** ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		1.47 Ga
UPI Acephate 97UP (70506-8) (97.00% - Acephate (o, S-Dimethyl Acetylphosp)	Caution	Cauliflower	Aphid, Green Peach	1 Lb / A		250.4 Oz
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Cauliflower	Moth, Diamondback	4.8 Oz / A		75.12 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Cauliflower	Armyworm	2 Lb / A		500.8 Oz
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		1.47 Ga

Pre-Harvest Interval : 14 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Do Not Feed/Graze Treated Area -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --

California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a

Product Use Report

Sent

58174-12855851

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**
Permit No.	Site ID					Organic	Planted Area	
4203003	**410001**					**No**	**45 Acres**	
Location	Block ID					Pre-Plant Application		
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1C Cauliflower, Ranch 41 Plot 1D Cauliflower, Ranch 41 Plot 1E Cauliflower**					**No**		

Date/Time Started	Treated Area	Commodity	Comments
2022-11-15 19:30:00 Date/Time Completed **2022-11-15 20:20:00**	**15.65 Acres**	**CAULIFLOWER** **13008-00**	**Ranch 41** **Plot 1C/D/E Cauliflower** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Do Not Feed/Graze Treated Area -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --** **Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check**

			for bees at https://beewhere.calagpermits.org/ **By using BeeWhere for their bee check Applicators (PCOs or Growers) can access registered beekeeper information within 1 mile of the application. Agrian Inc. and BeeWhere make no representation or warranty as to the accuracy or completeness of the information provided or that all products that may be toxic to bees are labeled to identify affects on bees. Users of this database must verify the results identified and read and follow the pesticide label affixed to the product container before use of the product. User waives any claim against BeeWhere and/or Agrian Inc. pertaining to the accuracy or completeness of the information provided by the Cal Ag Permits website or this BeeWhere program.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° **Mph**	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	1.47 Ga	0.09 Ga/A	100 Ga
	UPI Acephate 97UP (70506-8) (97.00% - Acephate (o, S-Dimethyl Acetylphosp)	250.4 Oz	1 Lb/A	100 Ga
	Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	75.12 Oz	4.8 Oz/A	100 Ga
	Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	500.8 Oz	2 Lb/A	100 Ga
	Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	1.47 Ga	0.09 Ga/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
24 Hours	**14 Days**	**Coastal Growers Supply**

Converted From REC-7709470

Created 2022-11-16 11:36:41

Shared With - Coastal Grower Supply - Santa Maria,Jack Alamillo

2022

A

CHEMICAL/FERTILIZER APPLICATION CARD

DATE: 11-15-22	FIELD: CA-43	CROP: Coli F	
RANCH: 41	BLOCK 1D	TREATED ACRES: 5.6	
START TIME: 9:30	Coastal Growers	TEMPERATURE: LOW (MED) HIGH	
END TIME: 12:30		WIND SPEED: LOW (MED) HIGH	

FERTILIZERS

15-8-4	GAL	AN20	GAL
UN32	GAL	CAN17	GAL
ACADIAN BLEND	GAL/PNT/OZ	CATS	GAL
OTHER: ~~11-0-22 263~~	GAL/OZ/LBS	OTHER: (11-0-02) 263	GAL/OZ/LBS

PESTICIDES

CHEMICAL/ACTIVE INGREDIENT	AMT/AC	RE-ENTRY/HARVEST	PEST	TOTAL AMOUNT
ASANA XL/ESFENVELERATE EPA #352-515	9 OZ/AC	12 HRS/3 DAYS	BAGRADA	OZ/LBS/GAL
BASAGRAN T/0 EPA #769-112	32OZ/AC	48HRS/30 DAYS	WEEDS	OZ/GAL/LBS
BELAY/CLOTHIANIDIN EPA #59639-150	12 OZ/AC	12 HRS/21 DAYS	MAGGOTS	66 (OZ)/LBS
BUG-N-SLUGGO EPA #67702-24-AA-70051	22-24 LBS/ AC	4 HRS/ 0 DAYS	EARWIGS	OZ/GAL/LBS
CONTANS WG/CONIOTHYRIUM MINITANS EPA #264-1174	96 OZ/AC	4 HRS/4 HRS	SCLEROTINIA	OZ/LBS
CREDIT 41 EXTRA/GLYPHOSATE EPA #71368-20	64 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
DOUBLE NICKEL/AMYLOLIQUEFACIENS EPA #70051-108	16 OZ/AC	4 HRS	RHIZOCTONIA	OZ/LBS
ENDURA/PYRIDINECARBOXAMIDE EPA #7969-197	9 OZ/AC	12 HRS/14 DAYS	PIN ROT	OZ/LBS
GLYSTAR PLUS/GLYPHOSATE EPA #42750-61	128 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
KERB SC/PRONAMIDE EPA #62719-578	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
LOROX DF/LINURON EPA #61842-23	2 LBS/AC	8 DAYS/67 DAYS	WEEDS	OZ/LBS/GAL
MUSTANG/ ZETA-CYPERMETHRIN EPA #279-3126	4 OZ/AC	12 HRS/1 DAY	APHID	OZ/LBS
QUADRIS/AZOXYSTROBIN EPA #100-1098	16 OZ/AC	4 HRS	PIN ROT	OZ/LBS/GAL
WARRIOR II/LAMBDA CYHALOTHRIN EPA #100-1295	1.92 OZ/AC	24 HRS/1 DAY	ARMYWORM	OZ
WILLOWOOD 4 SC/IMIDACLOPRID EPA #87290-71	12 OZ/AC	12 HRS/21 DAYS	APHIDS	OZ/LBS/GAL
WATERMAXX	0.5 GAL/AC			OZ/LBS/GAL
SONALAN HFP EPA #10163-356	64 OZ/AC	24HRS/ 0 DAYS	EARWIGS	OZ/LBS/GAL
OTHER: Midash Forte	12 OZ/AC	12 HRS/21 days	Aphid	66 (OZ)/LBS/GAL
OTHER:				OZ/LBS/GAL

EQUIPMENT USED: ☐ JD6310	☐ JD6200	☒ HESSTON	OTHER:	
METHOD: ☐ GROUND	☐ BED TOP	☐ CHEMIGATE	☐ INJECT/SIDEDRESS	
COMMENTS:				

OPERATOR: Antonio Nuñez

RECOMMENDED BY: JMH

(R)

Coastal Growers Supply, Inc.

APPLI[illegible] CHART

WORK ORDER NUMBER: 7660934 ACRES COMPLETED: 5

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1D GROWER: Bob Campbell Ranches DATE: 10/08/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
GoalTender	48floz	NO. OF TREES	CAPACITY
		W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME PM
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
01	11:10		11			21			31		
2	11:23		12			22			32		
3	PM		13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Cauliflower	Carpetweed (preemergence)	16 Floz / A		0.63 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1D Cauliflower

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7660934 **(Rec No. 7660934)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-10-07**		Expire Date **2023-10-07**	PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **CAULIFLOWER**	Preplant **Yes**	Method **Ground**	Proposed **5 Acres**	Treated **5 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	5 ACRES	5 ACRES		

		Crops	Other
Block Ranch 41 Plot 1D Cauliflower	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** *** In addition, adhere to all State and local regulations governing the use of these products *** ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Cauliflower	Carpetweed (preemergence)	16 Floz / A		0.63 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

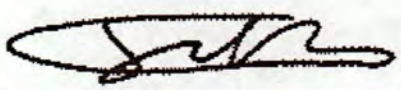
Advisor Comments:

Ranch 41

Plot 1D Cauliflower

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature : 

Date : 2022-10-07

Product Use Report

Unsent

58174-12770781

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Organic	Planted Area
4203003	**410001**	**No**	**45 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1D Cauliflower**	**Yes**

Date/Time Started	Treated Area	Commodity	Comments
2022-10-08 23:10:00 Date/Time Completed **2022-10-08 23:25:00**	**5 Acres**	**CAULIFLOWER** **13008-00**	**Ranch 41** **Plot 1D Cauliflower** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	0.63 Ga	16 Floz/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
24 Hours	**0 Days**	**Coastal Growers Supply**

2022

CHEMICAL/FERTILIZER APPLICATION CARD

E A

DATE: 11-15-22	FIELD: CA-44	CROP: Calif
RANCH: 41	BLOCK 1E	TREATED ACRES: 5.6
START TIME: 12:30	Coastal Growers	TEMPERATURE: LOW (MED) HIGH
END TIME: 3:00		WIND SPEED: LOW (MED) HIGH

FERTILIZERS

15-8-4	GAL	AN20	GAL
UN32	GAL	CAN17	GAL
ACADIAN BLEND	GAL/PNT/OZ	CATS	GAL
OTHER: ~~HOS 8-3-20~~	GAL/OZ/LBS	OTHER: (11-0-0-2) 28	(GAL)/OZ/LBS

PESTICIDES

CHEMICAL/ACTIVE INGREDIENT	AMT/AC	RE-ENTRY/HARVEST	PEST	TOTAL AMOUNT
ASANA XL/ESFENVELERATE *EPA #352-515*	9 OZ/AC	12 HRS/3 DAYS	BAGRADA	OZ/LBS/GAL
BASAGRAN T/0 *EPA #769-112*	32OZ/AC	48HRS/30 DAYS	WEEDS	OZ/GAL/LBS
BELAY/CLOTHIANIDIN *EPA #59639-150*	12 OZ/AC	12 HRS/21 DAYS	MAGGOTS	66 (OZ)/LBS
BUG-N-SLUGGO *EPA #67702-24-AA-70051*	22-24 LBS/ AC	4 HRS/ 0 DAYS	EARWIGS	OZ/GAL/LBS
CONTANS WG/CONIOTHYRIUM MINITANS *EPA #264-1174*	96 OZ/AC	4 HRS/4 HRS	SCLEROTINIA	OZ/LBS
CREDIT 41 EXTRA/GLYPHOSATE *EPA #71368-20*	64 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
DOUBLE NICKEL/AMYLOLIQUEFACIENS *EPA #70051-108*	16 OZ/AC	4 HRS	RHIZOCTONIA	OZ/LBS
ENDURA/PYRIDINECARBOXAMIDE *EPA #7969-197*	9 OZ/AC	12 HRS/14 DAYS	PIN ROT	OZ/LBS
GLYSTAR PLUS/GLYPHOSATE *EPA #42750-61*	128 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
KERB SC/PRONAMIDE *EPA #62719-578*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
LOROX DF/LINURON *EPA #61842-23*	2 LBS/AC	8 DAYS/67 DAYS	WEEDS	OZ/LBS/GAL
MUSTANG/ ZETA-CYPERMETHRIN *EPA #279-3126*	4 OZ/AC	12 HRS/1 DAY	APHID	OZ/LBS
QUADRIS/AZOXYSTROBIN *EPA #100-1098*	16 OZ/AC	4 HRS	PIN ROT	OZ/LBS/GAL
WARRIOR II/LAMBDA CYHALOTHRIN *EPA #100-1295*	1.92 OZ/AC	24 HRS/1 DAY	ARMYWORM	OZ
WILLOWOOD 4 SC/IMIDACLOPRID *EPA #87290-71*	12 OZ/AC	12 HRS/21 DAYS	APHIDS	OZ/LBS/GAL
WATERMAXX	0.5 GAL/AC			OZ/LBS/GAL
SONALAN HFP *EPA #10163-356*	64 OZ/AC	24HRS/ 0 DAYS	EARWIGS	OZ/LBS/GAL
OTHER: Midash / Forte	12 oz/Ac	12 HRS /21 days	Aphid	G6 (OZ)/LBS/GAL
OTHER:				OZ/LBS/GAL

EQUIPMENT USED: ☒ JD6310 ☐ JD6200 ☒ HESSTON OTHER:

METHOD: ☐ GROUND ☐ BED TOP ☐ CHEMIGATE ☒ INJECT/SIDEDRESS

COMMENTS: [redacted]

OPERATOR: Antonio Nunez

RECOMMENDED BY: MH

(M)

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7664356 ACRES COMPLETED: 5

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE 100

LOCATION: R41 PIE GROWER: Bob Campbell Ranches DATE: 10/11/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
GoalTender	48floz	NO. OF TREES	CAPACITY
		W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

PM

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	1:30		11			21			31		
2	1:40		12			22			32		
3	PM		13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Cauliflower	Carpetweed (preemergence)	16 Floz / A		0.63 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1E Cauliflower

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7664356 **(Rec No. 7664356)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-10-11**	Expire Date **2023-10-11**		PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **CAULIFLOWER**	Preplant **Yes**	Method **Ground**	Proposed **5 Acres**	Treated **5 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	5 ACRES	5 ACRES		

		Crops	Other
Block Ranch 41 Plot 1E Cauliflower	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** *** In addition, adhere to all State and local regulations governing the use of these products *** ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Cauliflower	Carpetweed (preemergence)	16 Floz / A		0.63 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1E Cauliflower

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature : 

Date : 2022-10-11

Product Use Report

Unsent

58174-12777190

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Organic	Planted Area
4203003	**410001**	**No**	**45 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1E Cauliflower**	**Yes**

Date/Time Started	Treated Area	Commodity	Comments
2022-10-11 23:30:00 Date/Time Completed **2022-10-11 23:40:00**	**5 Acres**	**CAULIFLOWER** **13008-00**	**Ranch 41** **Plot 1E Cauliflower** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	0.63 Ga	16 Floz/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
24 Hours	**0 Days**	**Coastal Growers Supply**

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7140129 ACRES COMPLETED: 8

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P3 GROWER: Bob Campbell Ranches DATE: 2/25/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Caparol	144floz	NO. OF TREES	CAPACITY
Lorox	2.25Lb	W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
	Pm
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	5:15		11			21			31		
2	5:20		12			22			32		
3	5:45	1/2	13			23			33		
4	PM		14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	0.75 Lb / A		96 Oz
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		96 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3 Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7140129 **(Rec No. 7140129)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**	Proposed Date / Timing **2022-02-23**	Expire Date **2023-02-23**	PCA & License **Jack Alamillo 136801**
	Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**

County	Site Commodity	Preplant	Method	Proposed	Treated	Tank Vol	No. Tanks	Spray Vol
Santa Barbara	**CILANTRO**	**No**	**Ground**	**8 Acres**	**8 Acres**			**100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410003 32,07N,34W S	BODGER HOME RANCH 41 Blk3-	31 ACRES	8 ACRES	8 ACRES		

		Crops	Other
Block Ranch 41 Plot 3 Cilantro	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		3 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		96 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3 Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature :

Date : 2022-02-21

Product Use Report

Sent

58174-11902031

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410003**	**31 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk3-	**Ranch 41 Plot 3 Cilantro**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-02-25 17:15:00 Date/Time Completed **2022-02-25 17:45:00**	**8 Acres**	**CILANTRO** **13501-00**	**Ranch 41** **Plot 3 Cilantro** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing - - California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	3 Ga	3 Pt/A	100 Ga
	Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23)	96 Oz	0.75 Lb/A	100 Ga

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7154579 ACRES COMPLETED: 8

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P3B GROWER: Bob Campbell Ranches DATE: 3/02/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Caparol	144 fl oz	NO. OF TREES	CAPACITY
Lorox	2.25 Lb	W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION TIME PM.

- MATERIAL, OUT-IN
- MOVING TO AND FROM JOB
- SET-UP TIME
- BREAKDOWN TIME
- ACTUAL APPLICATION
- TOTAL HOURS
- ACRES PER LOAD 3

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	5:40		11			21			31		
2	6:15		12			22			32		
3	6:40		13			23			33		
4	PM		14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS / HOURS

COMPUTATIONS

Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		3 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		96 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3B Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7154579 **(Rec No. 7154579)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-03-02**		Expire Date **2023-03-02**	PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **CILANTRO**	Preplant **No**	Method **Ground**	Proposed **8 Acres**	Treated **8 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410003 32,07N,34W S	BODGER HOME RANCH 41 Blk3-	31 ACRES	8 ACRES	8 ACRES		

		Crops	Other
Block Ranch 41 Plot 3B Cilantro	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		3 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		96 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3B Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature :

Date : 2022-03-02

Product Use Report

Sent

58174-11911697

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410003**	**31 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk3-	**Ranch 41 Plot 3B Cilantro**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-03-02 17:40:00 Date/Time Completed **2022-03-02 18:40:00**	**8 Acres**	**CILANTRO** **13501-00**	**Ranch 41** **Plot 3B Cilantro** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing - -** **California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	3 Ga	3 Pt/A	100 Ga
	Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23)	96 Oz	0.75 Lb/A	100 Ga

Coastal Growers Supply, Inc.

Cilantro.

APPLICATION CHART

WORK ORDER NUMBER: 7159296 ACRES COMPLETED: 8

TYPE OF EQUIPMENT: ground GALLONS PER ACRE 100

LOCATION: Ranch 41 plot 3C GROWER: Bob Campbell. DATE: 3/07/23

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Caparol.	144 floz.	NO. OF TREES	CAPACITY
Lorox.	2.25 LB	W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD	3

8 am.

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	9:00		11			21			31		
2	9:10		12			22			32		
3	9:15		13			23			33		
4	PM		14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Caparol 4L (100-620-ZB) (44.40% - Prometryn)						
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		96 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Fish; Aquatic Organisms

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3C Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7159296 **(Rec No. 7159296)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**	Proposed Date / Timing **2022-03-07**	Expire Date **2023-03-07**	PCA & License **Jack Alamillo 136801**
	Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**

County	Site Commodity	Preplant	Method	Proposed	Treated	Tank Vol	No. Tanks	Spray Vol
Santa Barbara	**CILANTRO**	**No**	**Ground**	**8 Acres**	**8 Acres**			**100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410003 32,07N,34W S	BODGER HOME RANCH 41 Blk3-	31 ACRES	8 ACRES	8 ACRES		

		Crops	Other
Block Ranch 41 Plot 3C Cilantro	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		3 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		96 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Fish; Aquatic Organisms

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3C Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature :

Date : 2022-03-04

Product Use Report

Sent

58174-11923123

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410003**	**31 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk3-	**Ranch 41 Plot 3C Cilantro**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-03-07 21:00:00 Date/Time Completed **2022-03-07 21:15:00**	**8 Acres**	**CILANTRO** **13501-00**	**Ranch 41** **Plot 3C Cilantro** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing - -** **California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	3 Ga	3 Pt/A	100 Ga
	Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23)	96 Oz	0.75 Lb/A	100 Ga

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7174029 ACRES COMPLETED: 3

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE 100

LOCATION: R41 P2A GROWER: Bob Campbell Ranches DATE: 3/15/23

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Caparol	144floz	NO. OF TREES	CAPACITY
Lorox	2.25Lb	W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY

SPEEDOMETER: ENDING / BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	1:00		11			21			31		
2	AM		12			22			32		
3			13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		1.13 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		36 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 2A Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7174029 **(Rec No. 7174029)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-03-14**		Expire Date **2023-03-14**	PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **CILANTRO**	Preplant **No**	Method **Ground**	Proposed **3 Acres**	Treated **3 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410002 32,07N,34W S	BODGER HOME RANCH 41 Blk2-	5.75 ACRES	3 ACRES	3 ACRES		

		Crops	Other
Block Ranch 41 Plot 2A Cilantro	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		1.13 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		36 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 2A Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature :

Date : 2022-03-14

Product Use Report

Sent

58174-11945013

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410002**	**5.75 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk2-	**Ranch 41 Plot 2A Cilantro**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-03-15 00:50:00 Date/Time Completed **2022-03-15 01:00:00**	**3 Acres**	**CILANTRO** **13501-00**	**Ranch 41** **Plot 2A Cilantro** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing - -** **California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	1.13 Ga	3 Pt/A	100 Ga
	Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23)	36 Oz	0.75 Lb/A	100 Ga

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7174027 ACRES COMPLETED: 5

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE 100

LOCATION: R41 P3D GROWER: Bob Campbell Ranches DATE: 3/15/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Caparol	144floz	NO. OF TREES	CAPACITY
Lorox	2.25Lb	W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY

SPEEDOMETER: ENDING / BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	AM
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	1:30		11			21			31		
2	2:00		12			22			32		
3	AM		13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS / HOURS

COMPUTATIONS

Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		1.88 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		60 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3D Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7174027 **(Rec No. 7174027)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-03-14**	Expire Date **2023-03-14**		PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **CILANTRO**	Preplant **No**	Method **Ground**	Proposed **5 Acres**	Treated **5 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410003 32,07N,34W S	BODGER HOME RANCH 41 Blk3-	31 ACRES	5 ACRES	5 ACRES		

		Crops	Other
Block Ranch 41 Plot 3D Cilantro	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		1.88 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		60 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Organisms; Aquatic Invertebrates; Fish

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 3D Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature :

Date : 2022-03-14

Product Use Report

Sent

58174-11944967

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410003**	**31 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk3-	**Ranch 41 Plot 3D Cilantro**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-03-15 01:30:00 Date/Time Completed **2022-03-15 02:00:00**	**5 Acres**	**CILANTRO** **13501-00**	**Ranch 41** **Plot 3D Cilantro** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing - -** **California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	1.88 Ga	3 Pt/A	100 Ga
	Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23)	60 Oz	0.75 Lb/A	100 Ga

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7191369 ACRES COMPLETED: 2.7

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P2B GROWER: Bob Campbell Ranches DATE: 3/22/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Caparol	129.3floz	NO. OF TREES	CAPACITY
Lorox	2.03Lb	W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 2.7	

Pm

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	11:50		11			21			31		
2	PM		12			22			32		
3			13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		1.01 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		32.4 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Fish; Aquatic Organisms

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 2B Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7191369 **(Rec No. 7191369)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**	Proposed Date / Timing **2022-03-22**	Expire Date **2023-03-22**	PCA & License **Jack Alamillo 136801**	
	Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**	

County	Site Commodity	Preplant	Method	Proposed	Treated	Tank Vol	No. Tanks	Spray Vol
Santa Barbara	**CILANTRO**	**No**	**Ground**	**2.7 Acres**	**2.7 Acres**			**100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410002 32,07N,34W S	BODGER HOME RANCH 41 Blk2-	5.75 ACRES	2.7 ACRES	2.7 ACRES		

		Crops	Other
Block Ranch 41 Plot 2B Cilantro	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	Caution	Cilantro	Malva	3 Pt / A		1.01 Ga
Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23) (50.00% - Linuron)	Caution	Cilantro	Carpetweed (preemergence)	0.75 Lb / A		32.4 Oz

Pre-Harvest Interval : 30 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Fish; Aquatic Organisms

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 2B Cilantro

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature :

Date : 2022-03-22

Product Use Report

Sent

58174-11964180

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410002**	**5.75 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk2-	**Ranch 41 Plot 2B Cilantro**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-03-22 23:40:00 Date/Time Completed **2022-03-22 23:50:00**	**2.7 Acres**	**CILANTRO** **13501-00**	**Ranch 41** **Plot 2B Cilantro** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Fish -- See Label Regarding Feeding/Grazing - -** **California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Syngenta Caparol 4L (100-620-ZB) (44.40% - Prometryn)	1.01 Ga	3 Pt/A	100 Ga
	Tessenderlo Kerley, Inc. (NovaSource) Lorox DF (61842-23)	32.4 Oz	0.75 Lb/A	100 Ga

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7374459 ACRES COMPLETED: 8

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1A GROWER: Bob Campbell Ranches DATE: 5/03/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
GoalTender	30 floz	NO. OF TREES	CAPACITY
		W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION — **TIME** PM

MATERIAL, OUT-IN

MOVING TO AND FROM JOB

SET-UP TIME

BREAKDOWN TIME

ACTUAL APPLICATION

TOTAL HOURS

ACRES PER LOAD 3

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	9-00		11			21			31		
2	9-10		12			22			32		
3	9:25	1/2	13			23			33		
4	PM		14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS — HOURS

COMPUTATIONS

GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Broccoli	Pigweed, Redroot (preemergence)	10 Floz / A		0.78 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1A Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7374459 **(Rec No. 7374459)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-06-03**		Expire Date **2023-06-03**	PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **BROCCOLI**	Preplant **Yes**	Method **Ground**	Proposed **10 Acres**	Treated **10 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	10 ACRES	10 ACRES		

		Crops	Other
Block Ranch 41 Plot 1A Broccoli	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Broccoli	Pigweed, Redroot (preemergence)	10 Floz / A		0.78 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1A Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature : 

Date : 2022-06-02

Product Use Report

Sent

58174-12253580

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410001**	**45 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1A Broccoli**	**Yes**

Date/Time Started	Treated Area	Commodity	Comments
2022-06-03 21:00:00 Date/Time Completed **2022-06-03 21:25:00**	**10 Acres**	**BROCCOLI** **13005-00**	**Ranch 41** **Plot 1A Broccoli** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift – See Label Regarding Feeding/Grazing – California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	0.78 Ga	10 Floz/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
24 Hours	**0 Days**	**Coastal Growers Supply**

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7462340 ACRES COMPLETED: 8.25

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE 100

LOCATION: R41 P1A GROWER: Bob Campbell Ranches DATE: 7/08/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Spray Aide	36floz	NO. OF TREES	CAPACITY
Proclaim	14.4oz	W.O. ACRES	PRESSURE
XenTari	3Lb	PEST TREATED	NURSE RIG NO.
Dibrom	48floz	DISEASE	CAPACITY
Dyne-Amic	36floz	SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
	PM
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	530		11			21			31		
2	700		12			22			32		
3	710		13			23			33		
4			14			24			34		
5	PM		15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		0.77 Ga
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Broccoli	Moth, Diamondback	4.8 Oz / A		39.6 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Moth, Diamondback	1 Lb / A		132 Oz
Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	Danger	Broccoli	Caterpillar, Diamondback	1 Pt / A		1.03 Ga
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		0.77 Ga

Pre-Harvest Interval : 7 Days

Re-Entry Interval : 48 Hours

Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/

Product Use Recommendation

67501 - 7462340 **(Rec No. 7462340)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-07-07**		Expire Date **2023-07-07**	PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **BROCCOLI**	Preplant **No**	Method **Ground**	Proposed **8.25 Acres**	Treated **8.25 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	8.25 ACRES	8.25 ACRES		

		Crops	Other
Block Ranch 41 Plot 1A Broccoli	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		0.77 Ga
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Broccoli	Moth, Diamondback	4.8 Oz / A		39.6 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Moth, Diamondback	1 Lb / A		132 Oz
Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	Danger	Broccoli	Caterpillar, Diamondback	1 Pt / A		1.03 Ga
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		0.77 Ga

Pre-Harvest Interval : 7 Days

Re-Entry Interval : 48 Hours

Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/

By using BeeWhere for their bee check Applicators (PCOs or Growers) can access registered beekeeper information within 1 mile of the application. Agrian Inc. and BeeWhere make no representation or warranty as to the accuracy or completeness of the information provided or that all products that may be toxic to bees are labeled to identify affects on bees. Users of this database must verify the results identified and read and follow the pesticide label affixed to the product container before use of the product. User waives any claim against BeeWhere and/or Agrian Inc. pertaining to the accuracy or completeness of the information provided by the Cal Ag Permits website or this BeeWhere program.

Species Toxic To: Aquatic Invertebrates; Bees; Fish; Wildlife; Green Lacewing; Predatory Mites; Aquatic Organisms; Birds; Mammals

Product Use Report

Sent

58174-12414077

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**
Permit No. **4203003**	Site ID **410001**					Organic **No**	Planted Area **45 Acres**	
Location **BODGER HOME RANCH 41 Blk1-**		Block ID **Ranch 41 Plot 1A Broccoli**					Pre-Plant Application **No**	
Date/Time Started **2022-07-08 18:30:00** Date/Time Completed **2022-07-08 19:10:00**		Treated Area **8.25 Acres**					Commodity **BROCCOLI 13005-00**	Comments

Ranch 41

Plot 1A Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

| Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --

California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

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for bees at
https://beewhere.calagpermits.org/

By using BeeWhere for their bee check Applicators (PCOs or Growers) can access registered beekeeper information within 1 mile of the application. Agrian Inc. and BeeWhere make no representation or warranty as to the accuracy or completeness of the information provided or that all products that may be toxic to bees are labeled to identify affects on bees. Users of this database must verify the results identified and read and follow the pesticide label affixed to the product container before use of the product. User waives any claim against BeeWhere and/or Agrian Inc. pertaining to the accuracy or completeness of the information provided by the Cal Ag Permits website or this BeeWhere program.

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	0.78 Ga	0.09 Ga/A	100 Ga
	Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	39.6 Oz	4.8 Oz/A	100 Ga
	Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	132 Oz	1 Lb/A	100 Ga
	Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	1.03 Ga	1 Pt/A	100 Ga
	Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	0.78 Ga	0.09 Ga/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
48 Hours	**7 Days**	**Coastal Growers Supply**

Converted From REC-7462340

Created 2022-07-11 10:16:58

Shared With - Coastal Grower Supply - Santa Maria,Jack Alamillo

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7551095 ACRES COMPLETED: 24.22

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1ABC GROWER: Rob Campbell Ranches DATE: 8/9/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Spray Aide	36floz	NO. OF TREES	CAPACITY
Sequoia	9floz	W.O. ACRES	PRESSURE
Silencer	11.4floz	PEST TREATED	NURSE RIG NO.
XenTari	6Lb	DISEASE	CAPACITY
Dyne-Amic	36floz	SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	8:30		11			21			31		
2	8:40		12			22			32		
3	8:40		13			23			33		
4	8:50		14			24			34		
5	9:10		15			25			35		
6	9:20		16			26			36		
7	9:30		17			27			37		
8	9:40		18			28			38		
9	PM		19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

		Crops	Other
Block Ranch 41 Plot 1C Broccoli	North		
	South		
	East		
	West		

*** ALWAYS READ AND FOLLOW LABEL DIRECTIONS ***

** In addition, adhere to all State and local regulations governing the use of these products **

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		2.27 Ga
SUP Corteva Agriscience Sequoia CA (62719-728) (21.80% - Sulfoxaflor)	Caution	Broccoli	Lygus	3 Floz / A		0.57 Ga
MANA Silencer VXN (66222-223-ZB) (12.70% - Lambda-Cyhalothrin)	Caution	Broccoli	Aphid	3.8 Floz / A		0.72 Ga
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Armyworm	2 Lb / A		775.04 Oz
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		2.27 Ga

Pre-Harvest Interval : 3 Days

Re-Entry Interval : 24 Hours

Product Use Recommendation

67501 - 7551095 **(Rec No. 7551095)**
This Rec supersedes Agrian Rec No. 7551083

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**	Proposed Date / Timing **2022-08-09**	Expire Date **2023-08-09**	PCA & License **Jack Alamillo 136801**		
	Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		

County	Site Commodity	Preplant	Method	Proposed	Treated	Tank Vol	No. Tanks	Spray Vol
Santa Barbara	**BROCCOLI**	**No**	**Ground**	**24.22 Acres**	**24.22 Acres**			**100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	24.22 ACRES	24.22 ACRES		

		Crops	Other
Block Ranch 41 Plot 1A Broccoli	North		
	South		
	East		
	West		

		Crops	Other
Block Ranch 41 Plot 1B Broccoli	North		
	South		
	East		
	West		

		Crops	Other
Block Ranch 41 Plot 1C Broccoli	North		
	South		
	East		
	West		

* * * **ALWAYS READ AND FOLLOW LABEL DIRECTIONS** * * *

* * In addition, adhere to all State and local regulations governing the use of these products * *

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		2.27 Ga
SUP Corteva Agriscience Sequoia CA (62719-728) (21.80% - Sulfoxaflor)	Caution	Broccoli	Lygus	3 Floz / A		0.57 Ga
MANA Silencer VXN (66222-223-ZB) (12.70% - Lambda-Cyhalothrin)	Caution	Broccoli	Aphid	3.8 Floz / A		0.72 Ga
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Armyworm	2 Lb / A		775.04 Oz
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		2.27 Ga

Pre-Harvest Interval : 3 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- Toxic To Bees -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- Supplemental Label Required -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

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Product Use Report

Sent

58174-12558960

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**
Permit No. **4203003**	Site ID **410001**					Organic **No**	Planted Area **45 Acres**	
Location **BODGER HOME RANCH 41 Blk1-**		Block ID **Ranch 41 Plot 1A Broccoli, Ranch 41 Plot 1B Broccoli, Ranch 41 Plot 1C Broccoli**					Pre-Plant Application **No**	
Date/Time Started **2022-08-09 20:20:00** Date/Time Completed **2022-08-09 21:40:00**	Treated Area **24.22 Acres**						Commodity **BROCCOLI** **13005-00**	Comments **Ranch 41** **Plot 1A,B,C Broccoli** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Bees -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- Supplemental Label Required -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --** **Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/**

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7524326 ACRES COMPLETED: 8.25

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1A GROWER: Bob Campbell Ranches DATE: 7/28/22

MATERIAL	PER ACRE OR TANK
Spray Aide	36 floz
Movento	15 floz
Proclaim	14.4 oz
XenTari	3 Lb
Dibrom	48 floz
Dyne-Amic	36 floz

CROP OR TREE	SPRAY RIG NO.
NO. OF TREES	CAPACITY
W.O. ACRES	PRESSURE
PEST TREATED	NURSE RIG NO.
DISEASE	CAPACITY

SPEEDOMETER

ENDING	BEGINNING

OPERATION — TIME Pm

MATERIAL, OUT-IN

MOVING TO AND FROM JOB

SET-UP TIME

BREAKDOWN TIME

ACTUAL APPLICATION

TOTAL HOURS

ACRES PER LOAD 3

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	6:20		11			21			31		
2	6:30		12			22			32		
3	6:40		13			23			33		
4	AM		14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS — HOURS

COMPUTATIONS

Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		0.77 Ga
Bayer CropScience Movento (264-1050) (22.40% - Spirotetramat)	Caution	Broccoli	Aphid	5 Floz / A		0.32 Ga
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Broccoli	Moth, Diamondback	4.8 Oz / A		39.6 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Moth, Diamondback	1 Lb / A		132 Oz
Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	Danger	Broccoli	Caterpillar, Diamondback	1 Pt / A		1.03 Ga
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		0.77 Ga

Pre-Harvest Interval : 7 Days

Re-Entry Interval : 48 Hours

Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Product Use Recommendation

67501 - 7524326 **(Rec No. 7524326)**
This Rec supersedes Agrian Rec No. 7524314

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**	Proposed Date / Timing **2022-07-28**	Expire Date **2023-07-28**	PCA & License **Jack Alamillo 136801**	
	Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**	

County	Site Commodity	Preplant	Method	Proposed	Treated	Tank Vol	No. Tanks	Spray Vol
Santa Barbara	**BROCCOLI**	**No**	**Ground**	**8.25 Acres**	**8.25 Acres**			**100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	8.25 ACRES	8.25 ACRES		

		Crops	Other
Block Ranch 41 Plot 1A **Broccoli**	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

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Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
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Re-Entry Interval : 48 Hours

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Product Use Report

Sent

58174-12510845

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	No	32	07N	34W	S	Ground	Bob Campbell Ranches	Coastal Growers Supply 2261 Evora Way Santa Maria 93455 Applicator ID: 32334
Permit No. 4203003	Site ID 410001					Organic No	Planted Area 45 Acres	
Location BODGER HOME RANCH 41 Blk1-		Block ID Ranch 41 Plot 1A Broccoli					Pre-Plant Application No	
Date/Time Started 2022-07-28 18:20:00 Date/Time Completed 2022-07-28 18:40:00		Treated Area 8.25 Acres					Commodity BROCCOLI 13005-00	Comments

Ranch 41

Plot 1A Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

| Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --

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Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7551095 ACRES COMPLETED: 24.22

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE 100

LOCATION: R41 P1ABC GROWER: Rob Campbell Ranches DATE: 8/9/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Spray Aide	36floz	NO. OF TREES	CAPACITY
Sequoia	9floz	W.O. ACRES	PRESSURE
Silencer	11.4floz	PEST TREATED	NURSE RIG NO.
XenTari	6Lb	DISEASE	CAPACITY
Dyne-Amic	36floz	SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	8:20		11			21			31		
2	8:30		12			22			32		
3	8:40		13			23			33		
4	8:50		14			24			34		
5	9:10		15			25			35		
6	9:20		16			26			36		
7	9:30		17			27			37		
8	9:40		18			28			38		
9	PM		19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

		Crops	Other
Block Ranch 41 Plot 1C Broccoli	North		
	South		
	East		
	West		

*** **ALWAYS READ AND FOLLOW LABEL DIRECTIONS** ***

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I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		2.27 Ga
SUP Corteva Agriscience Sequoia CA (62719-728) (21.80% - Sulfoxaflor)	Caution	Broccoli	Lygus	3 Floz / A		0.57 Ga
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Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		2.27 Ga

Pre-Harvest Interval : 3 Days

Re-Entry Interval : 24 Hours

Product Use Report

Sent

58174-12558960

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Organic	Planted Area
4203003	**410001**	**No**	**45 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1A Broccoli, Ranch 41 Plot 1B Broccoli, Ranch 41 Plot 1C Broccoli**	**No**

Date/Time Started	Treated Area	Commodity	Comments
2022-08-09 20:20:00 Date/Time Completed **2022-08-09 21:40:00**	**24.22 Acres**	**BROCCOLI** **13005-00**	**Ranch 41** **Plot 1A,B,C Broccoli** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- Toxic To Bees -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- Supplemental Label Required -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --** **Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/**

2022BR23

A ✓

CHEMICAL/FERTILIZER APPLICATION CARD

DATE: 6-28-22	FIELD: BR-23	CROP: Broccoli
RANCH: 41	BLOCK 1A	TREATED ACRES: 8.1
START TIME: 12:00		TEMPERATURE: LOW MED HIGH
END TIME: 4:00		WIND SPEED: LOW MED HIGH

FERTILIZERS

15-8-4	GAL		AN20	GAL	
UN32	GAL		CAN17	GAL	
ACADIAN BLEND	GAL/PNT/OZ		CATS	GAL	

OTHER: (11-0-3) 398 GAL/PNT/OZ

PESTICIDES

CHEMICAL/ACTIVE INGREDIENT	AMT/AC	RE-ENTRY/HARVEST	PEST	TOTAL AMOUNT
ASANA XL/ESFENVELERATE *EPA #352-515*	9 OZ/AC	12 HRS/3 DAYS	BAGRADA	OZ/LBS/GAL
BELAY/CLOTHIANIDIN *EPA #59639-150*	12 OZ/AC	12 HRS/21 DAYS	MAGGOTS	96 (OZ)/LBS ✓
CONTANS WG/CONIOTHYRIUM MINITANS *EPA #264-1174*	96 OZ/AC	4 HRS/4 HRS	SCLEROTINIA	OZ/LBS
CREDIT 41 EXTRA/GLYPHOSATE *EPA #71368-20*	64 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
DOUBLE NICKEL/AMYLOLIQUEFACIENS *EPA #70051-108*	16 OZ/AC	4 HRS	RHIZOCTONIA	OZ/LBS
ENDURA/PYRIDINECARBOXAMIDE *EPA #7969-197*	9 OZ/AC	12 HRS/14 DAYS	PIN ROT	OZ/LBS
GLYSTAR PLUS/GLYPHOSATE *EPA #42750-61*	128 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
KERB SC/PRONAMIDE *EPA #62719-578*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
LOROX DF/LINURON *EPA #61842-23*	2 LBS/AC	8 DAYS/67 DAYS	WEEDS	OZ/LBS/GAL
MUSTANG/ ZETA-CYPERMETHRIN *EPA #279-3126*	4 OZ/AC	12 HRS/1 DAY	APHID	OZ/LBS
NUPRID 4F MAX/IMIDACLOPRID *EPA #228-528*	12 OZ/AC	12 HRS/21 DAYS	APHID/THRIPS	OZ/LBS
PCQ RODENTICIDE/DIPHACINONE *EPA #CA12455-50003-AA*	2 OZ/50 SQ.FT	N/A	SQUIRREL	OZ
QUADRIS/AZOXYSTROBIN *EPA #100-1098*	16 OZ/AC	4 HRS	PIN ROT	OZ/LBS/GAL
WARRIOR II/LAMBDA CYHALOTHRIN *EPA #100-1295*	1.92 OZ/AC	24 HRS/1 DAY	ARMYWORM	OZ
WEEVIL-CIDE/ALUMINUM PHOSPHIDE *EPA #70506-13*	2 TAB/BURROW	4 DAYS	SQUIRREL	TABS
WILLOWOOD 3.3 SC/PRONAMIDE *EPA #87290-22*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
~~WRANGLER~~/IMIDACLOPRID willowood *EPA #34704-931*	12 OZ/AC	12 HRS/21 DAYS	APHID	96 OZ ✓
OTHER:				OZ/LBS/GAL

EQUIPMENT USED: ☒ JD6310 ☐ JD6200 ☐ HESSTON OTHER: ☒

METHOD: ☐ GROUND ☐ BED TOP ☐ CHEMIGATE ☒ INJECT/SIDEDRESS

COMMENTS:

OPERATOR: Antonio Nuñez

RECOMMENDED BY: MH

AV

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7396880 ACRES COMPLETED: 10

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1B GROWER: Bob Campbell Ranches DATE: 6/10/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
GoalTender	30floz	NO. OF TREES	CAPACITY
		W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

PM

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	6:20		11			21			31		
2	6:30		12			22			32		
3	6:50		13			23			33		
4	PM		14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS / HOURS

COMPUTATIONS

GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)			(preemergence)			

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1B Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

Product Use Recommendation

67501 - 7396880 **(Rec No. 7396880)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-06-10**	Expire Date **2023-06-10**	PCA & License **Jack Alamillo 136801**			
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**			
County **Santa Barbara**	Site Commodity **BROCCOLI**	Preplant **Yes**	Method **Ground**	Proposed **10 Acres**	Treated **10 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	10 ACRES	10 ACRES		

		Crops	Other
Block Ranch 41 Plot 1B Broccoli	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** *** In addition, adhere to all State and local regulations governing the use of these products *** ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Broccoli	Pigweed, Redroot (preemergence)	10 Floz / A		0.78 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1B Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature : 

Date : 2022-06-10

Product Use Report

Sent

58174-12290426

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410001**	**45 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1B Broccoli**	**Yes**

Date/Time Started	Treated Area	Commodity	Comments
2022-06-10 18:20:00 Date/Time Completed **2022-06-10 18:50:00**	**10 Acres**	**BROCCOLI** **13005-00**	**Ranch 41** **Plot 1B Broccoli** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	0.78 Ga	10 Floz/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
24 Hours	**0 Days**	**Coastal Growers Supply**

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7409935 ACRES COMPLETED: 6.15

TYPE OF EQUIPMENT: GRO GALLONS PER ACRE 100

LOCATION: R41 P1C GROWER: Bob Campbell Ranches DATE: 6/16/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
GoalTender	48floz	NO. OF TREES	CAPACITY
		W.O. ACRES	PRESSURE
		PEST TREATED	NURSE RIG NO.
		DISEASE	CAPACITY
		SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

A

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	1:30		11			21			31		
2	1:45		12			22			32		
3	AM		13			23			33		
4			14			24			34		
5			15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Broccoli	Carpetweed (preemergence)	16 Floz / A		0.77 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1C Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST

Product Use Recommendation

67501 - 7409935 **(Rec No. 7409935)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-06-15**	Expire Date **2023-06-15**	PCA & License **Jack Alamillo 136801**			
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**			
County **Santa Barbara**	Site Commodity **BROCCOLI**	Preplant **Yes**	Method **Ground**	Proposed **6.15 Acres**	Treated **6.15 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	6.15 ACRES	6.15 ACRES		

		Crops	Other
Block Ranch 41 Plot 1C Broccoli	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	Caution	Broccoli	Carpetweed (preemergence)	16 Floz / A		0.77 Ga

Pre-Harvest Interval : 0 Days

Re-Entry Interval : 24 Hours

Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Wildlife

Criteria Used For Determining Recommendation: Field Observation

Advisor Comments:

Ranch 41

Plot 1C Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

I certify that the product recommendations in this document are consistent with my review of the product notices beginning on the following page and the product(s) label.

Signature : 

Date : 2022-06-15

Product Use Report

Sent

58174-12311875

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**

Permit No.	Site ID	Planted Area
4203003	**410001**	**45 Acres**

Location	Block ID	Pre-Plant Application
BODGER HOME RANCH 41 Blk1-	**Ranch 41 Plot 1C Broccoli**	**Yes**

Date/Time Started	Treated Area	Commodity	Comments
2022-06-16 01:30:00 Date/Time Completed **2022-06-16 01:45:00**	**6.15 Acres**	**BROCCOLI** **13005-00**	**Ranch 41** **Plot 1C Broccoli** **NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.** **| Restrictions: Avoid Drift -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification.**

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	**F**	**F**

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Nufarm GoalTender (92894-3-AA-71368) (41.00% - Oxyfluorfen)	0.77 Ga	16 Floz/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
24 Hours	**0 Days**	**Coastal Growers Supply**

Coastal Growers Supply, Inc.

APPLICATION CHART

WORK ORDER NUMBER: 7491626 ACRES COMPLETED: 10.57

TYPE OF EQUIPMENT: GRD GALLONS PER ACRE: 100

LOCATION: R41 P1B GROWER: Bob Campbell Ranches DATE: 7/16/22

MATERIAL	PER ACRE OR TANK	CROP OR TREE	SPRAY RIG NO.
Spray Aide	36floz	NO. OF TREES	CAPACITY
Proclaim	14.4oz	W.O. ACRES	PRESSURE
XenTari	6Lb	PEST TREATED	NURSE RIG NO.
Dibrom	48floz	DISEASE	CAPACITY
Dyne-Amic	36floz	SPEEDOMETER	
		ENDING	BEGINNING

OPERATION	TIME
MATERIAL, OUT-IN	pm
MOVING TO AND FROM JOB	
SET-UP TIME	
BREAKDOWN TIME	
ACTUAL APPLICATION	
TOTAL HOURS	
ACRES PER LOAD 3	

TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.	TANK	HOUR	TEMP.
1	7:40		11			21			31		
2	7:50		12			22			32		
3	8:10		13			23			33		
4	8:20	½	14			24			34		
5	PM		15			25			35		
6			16			26			36		
7			17			27			37		
8			18			28			38		
9			19			29			39		
10			20			30			40		

OPERATORS	HOURS

COMPUTATIONS

Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		0.99 Ga
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Broccoli	Moth, Diamondback	4.8 Oz / A		50.74 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Armyworm	2 Lb / A		338.24 Oz
Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	Danger	Broccoli	Caterpillar, Diamondback	1 Pt / A		1.32 Ga
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		0.99 Ga

Pre-Harvest Interval : 7 Days

Re-Entry Interval : 48 Hours

Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing -- California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/

Product Use Recommendation

67501 - 7491626 **(Rec No. 7491626)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**			Proposed Date / Timing **2022-07-16**	Expire Date **2023-07-16**		PCA & License **Jack Alamillo 136801**		
			Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**			Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**		
County **Santa Barbara**	Site Commodity **BROCCOLI**	Preplant **No**	Method **Ground**	Proposed **10.57 Acres**	Treated **10.57 Acres**	Tank Vol	No. Tanks	Spray Vol **100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	10.57 ACRES	10.57 ACRES		

		Crops	Other
Block Ranch 41 Plot 1B **Broccoli**	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** *** In addition, adhere to all State and local regulations governing the use of these products *** ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		0.99 Ga
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Broccoli	Moth, Diamondback	4.8 Oz / A		50.74 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Armyworm	2 Lb / A		338.24 Oz
Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	Danger	Broccoli	Caterpillar, Diamondback	1 Pt / A		1.32 Ga
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		0.99 Ga

Pre-Harvest Interval : 7 Days

Re-Entry Interval : 48 Hours

Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/

By using BeeWhere for their bee check Applicators (PCOs or Growers) can access registered beekeeper information within 1 mile of the application. Agrian Inc. and BeeWhere make no representation or warranty as to the accuracy or completeness of the information provided or that all products that may be toxic to bees are labeled to identify affects on bees. Users of this database must verify the results identified and read and follow the pesticide label affixed to the product container before use of the product. User waives any claim against BeeWhere and/or Agrian Inc. pertaining to the accuracy or completeness of the information provided by the Cal Ag Permits website or this BeeWhere program.

Species Toxic To: Aquatic Invertebrates; Aquatic Organisms; Bees; Birds; Fish; Mammals; Wildlife; Green Lacewing; Predatory Mites

Product Use Report

Sent

58174-12449590

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	**No**	**32**	**07N**	**34W**	**S**	**Ground**	**Bob Campbell Ranches**	**Coastal Growers Supply** **2261 Evora Way** **Santa Maria** **93455** **Applicator ID: 32334**
Permit No. **4203003**	Site ID **410001**					Organic **No**	Planted Area **45 Acres**	
Location **BODGER HOME RANCH 41 Blk1-**		Block ID **Ranch 41 Plot 1B Broccoli**					Pre-Plant Application **No**	
Date/Time Started **2022-07-16 19:40:00** Date/Time Completed **2022-07-16 20:20:00**		Treated Area **10.57 Acres**					Commodity **BROCCOLI 13005-00**	Comments

Ranch 41

Plot 1B Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

| Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --

California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check

for bees at
https://beewhere.calagpermits.org/

By using BeeWhere for their bee check Applicators (PCOs or Growers) can access registered beekeeper information within 1 mile of the application. Agrian Inc. and BeeWhere make no representation or warranty as to the accuracy or completeness of the information provided or that all products that may be toxic to bees are labeled to identify affects on bees. Users of this database must verify the results identified and read and follow the pesticide label affixed to the product container before use of the product. User waives any claim against BeeWhere and/or Agrian Inc. pertaining to the accuracy or completeness of the information provided by the Cal Ag Permits website or this BeeWhere program.

Wind Direction/Velocity	Start Temperature	Finish Temperature
° Mph	F	F

Chem No	Product Applied	Total Product Used	Rate	Dilution
	Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	0.99 Ga	0.09 Ga/A	100 Ga
	Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	50.74 Oz	4.8 Oz/A	100 Ga
	Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	338.24 Oz	2 Lb/A	100 Ga
	Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	1.32 Ga	1 Pt/A	100 Ga
	Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	0.99 Ga	0.09 Ga/A	100 Ga

Re-Entry Interval	Pre-Harvest Interval	Applied / Supervised By
48 Hours	7 Days	Coastal Growers Supply

Converted From REC-7491626

Created 2022-07-18 12:58:34

Shared With - Coastal Grower Supply - Santa Maria,Jack Alamillo

2022 BR24

CHEMICAL/FERTILIZER APPLICATION CARD

DATE: 7-02-22	FIELD: BR-24	CROP: Broccoli
RANCH: 41	BLOCK 1B	TREATED ACRES: 10
START TIME: 6:30		TEMPERATURE: LOW (MED) HIGH
END TIME: 12:00		WIND SPEED: LOW (MED) HIGH

FERTILIZERS

15-8-4 ~~SPRT~~	GAL	AN20	GAL
UN32	GAL	CAN17	GAL
ACADIAN BLEND	GAL/PNT/OZ	CATS	GAL

OTHER: 15-0-4) 498 (GAL/PNT/OZ)

PESTICIDES

CHEMICAL/ACTIVE INGREDIENT	AMT/AC	RE-ENTRY/HARVEST	PEST	TOTAL AMOUNT
ASANA XL/ESFENVELERATE *EPA #352-515*	9 OZ/AC	12 HRS/3 DAYS	BAGRADA	OZ/LBS/GAL
BELAY/CLOTHIANIDIN *EPA #59639-150*	12 OZ/AC	12 HRS/21 DAYS	MAGGOTS	120 OZ/LBS ✓
CONTANS WG/CONIOTHYRIUM MINITANS *EPA #264-1174*	96 OZ/AC	4 HRS/4 HRS	SCLEROTINIA	OZ/LBS
CREDIT 41 EXTRA/GLYPHOSATE *EPA #71368-20*	64 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
DOUBLE NICKEL/AMYLOLIQUEFACIENS *EPA #70051-108*	16 OZ/AC	4 HRS	RHIZOCTONIA	OZ/LBS
ENDURA/PYRIDINECARBOXAMIDE *EPA #7969-197*	9 OZ/AC	12 HRS/14 DAYS	PIN ROT	OZ/LBS
GLYSTAR PLUS/GLYPHOSATE *EPA #42750-61*	128 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
KERB SC/PRONAMIDE *EPA #62719-578*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
LOROX DF/LINURON *EPA #61842-23*	2 LBS/AC	8 DAYS/67 DAYS	WEEDS	OZ/LBS/GAL
MUSTANG/ ZETA-CYPERMETHRIN *EPA #279-3126*	4 OZ/AC	12 HRS/1 DAY	APHID	OZ/LBS
NUPRID 4F MAX/IMIDACLOPRID *EPA #228-528*	12 OZ/AC	12 HRS/21 DAYS	APHID/THRIPS	OZ/LBS
PCQ RODENTICIDE/DIPHACINONE *EPA #CA12455-50003-AA*	2 OZ/50 SQ.FT	N/A	SQUIRREL	OZ
QUADRIS/AZOXYSTROBIN *EPA #100-1098*	16 OZ/AC	4 HRS	PIN ROT	OZ/LBS/GAL
WARRIOR II/LAMBDA CYHALOTHRIN *EPA #100-1295*	1.92 OZ/AC	24 HRS/1 DAY	ARMYWORM	OZ
WEEVIL-CIDE/ALUMINUM PHOSPHIDE *EPA #70506-13*	2 TAB/BURROW	4 DAYS	SQUIRREL	TABS
WILLOWOOD 3.3 SC/PRONAMIDE *EPA #87290-22*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
~~WILLOWOOD~~ IMIDACLOPRID *EPA #34704-931*	12 OZ/AC	12 HRS/21 DAYS	APHID	~~120~~ OZ
WILLOWOOD 4 SC/IMIDACLOPRID *EPA #87290-71*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
OTHER: Willowood Imidacloprid	12 oz/Ac	12 HRS 21 days	Aphid	120 (OZ)/LBS/GAL ✓

EQUIPMENT USED:	☒ JD6310	☐ JD6200	☐ HESSTON	OTHER:	
METHOD:	☐ GROUND	☐ BED TOP	☐ CHEMIGATE	☒ INJECT/SIDEDRESS	
COMMENTS:					

OPERATOR: Antonio Núñez

RECOMMENDED BY: MH

AV

Product Use Recommendation

67501 - 7524349 **(Rec No. 7524349)**

Coastal Grower Supply **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 805-247-1006**	Proposed Date / Timing **2022-07-28**	Expire Date **2023-07-28**	PCA & License **Jack Alamillo 136801**	
	Applicator **Coastal Growers Supply** **32334** **2261 Evora Way** **Santa Maria, CA 93455** **Phone: 8057970266**		Grower & Permit Number **Bob Campbell Ranches** **4203003** **1501 North L** **Lompoc, CA 93436** **Phone: 805-736-5451**	

County	Site Commodity	Preplant	Method	Proposed	Treated	Tank Vol	No. Tanks	Spray Vol
Santa Barbara	**BROCCOLI**	**No**	**Ground**	**5.4 Acres**	**5.4 Acres**			**100 Ga**

Site ID / STR	Location	Planted Area	Proposed Area	Treated Area	Row	Band
410001 32,07N,34W S	BODGER HOME RANCH 41 Blk1-	45 ACRES	5.4 ACRES	5.4 ACRES		

		Crops	Other
Block Ranch 41 Plot 1C Broccoli	North		
	South		
	East		
	West		

*** * * ALWAYS READ AND FOLLOW LABEL DIRECTIONS * * ***

*** * In addition, adhere to all State and local regulations governing the use of these products * ***

I certify that alternative and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and, if feasible, adopted.

Product Name	Signal Word	Labeled Commodity	Pest	Rate	Per Full Tank	Mat. Req.
Miller Miller SPRAY AIDE (90930-50023) (70.00% - Total Principal Functioning Agents)	Warning	Not Applicable	Na	12 Floz / 100ga		0.51 Ga
Bayer CropScience Movento (264-1050) (22.40% - Spirotetramat)	Caution	Broccoli	Aphid	5 Floz / A		0.21 Ga
Syngenta Proclaim (100-904-ZB) (5.00% - Emamectin Benzoate)	Caution	Broccoli	Moth, Diamondback	4.8 Oz / A		25.92 Oz
Valent BioSciences Corporation XenTari(r) Biological Insecticide Dry Flowable (73049-40) (54.00% - Bacillus Thuringiensis, Subsp. Aiza)	Caution	Broccoli	Moth, Diamondback	1 Lb / A		86.4 Oz
Amvac Dibrom 8 Emulsive (5481-479) (62.00% - Naled)	Danger	Broccoli	Caterpillar, Diamondback	1 Pt / A		0.68 Ga
Helena Dyne-Amic (5905-50071) (99.00% - Total Principal Functioning Agents)	Warning	Not Applicable (ground)	Na	12 Floz / 100ga		0.51 Ga

Pre-Harvest Interval : 7 Days

Re-Entry Interval : 48 Hours

Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --
California Code of Regulations 6690-6692 go into effect starting January 2018. In summary these codes state pesticide use within a quarter mile of a school site or day care facility is prohibited between the hours of 6 AM to 6 PM on days when school is in session. For details or exceptions to this general summary please reference the code or speak to your County Ag Commissioner for clarification. --

Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check for bees at https://beewhere.calagpermits.org/

By using BeeWhere for their bee check Applicators (PCOs or Growers) can access registered beekeeper information within 1 mile of the application. Agrian Inc. and BeeWhere make no representation or warranty as to the accuracy or completeness of the information provided or that all products that may be toxic to bees are labeled to identify affects on bees. Users of this database must verify the results identified and read and follow the pesticide label affixed to the product container before use of the product. User waives any

Product Use Report

Sent

58174-12512533

County	Nursery	Sec.	Twn.	Rng.	Base	Method	Property Operator	Applicator Name and Address
Santa Barbara	No	32	07N	34W	S	Ground	Bob Campbell Ranches	Coastal Growers Supply 2261 Evora Way Santa Maria 93455 Applicator ID: 32334
Permit No. 4203003	Site ID 410001					Organic No	Planted Area 45 Acres	
Location BODGER HOME RANCH 41 Blk1-		Block ID Ranch 41 Plot 1C Broccoli					Pre-Plant Application No	
Date/Time Started 2022-07-28 19:00:00 Date/Time Completed 2022-07-28 19:20:00	Treated Area 5.4 Acres						Commodity BROCCOLI 13005-00	Comments

Ranch 41

Plot 1C Broccoli

NO DRIFT TO NON TARGET AREAS. CHECK ACRES. POST FIELD.

| Restrictions: Avoid Drift -- Closed Mixing System Required -- Do Not Feed/Graze Treated Area -- Oral Notification Required -- Posting Required -- Toxic To Bees -- Toxic To Birds -- Toxic To Fish -- See Label Regarding Feeding/Grazing --

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Reminder - using this product in California while bloom is present requires a bee check. Checking for bees and providing a 48 hour notification to all registered beekeepers is a vital communication tool used in pollinator stewardship and is also required by law/regulation. Please use this recommendation to assist informing the applicator to check

2022 BR 25

A ✓

CHEMICAL/FERTILIZER APPLICATION CARD

DATE: 7-8-22	FIELD: BR-25	CROP: Broccoli
RANCH: 41	BLOCK 1C	TREATED ACRES: 6
START TIME: 12:00	TEMPERATURE: LOW (MED) HIGH	
END TIME: 4:00	WIND SPEED: LOW (MED) HIGH	

FERTILIZERS

15-8-4 298	GAL	AN20	GAL
UN32	GAL	CAN17	GAL
ACADIAN BLEND	GAL/PNT/OZ	CATS	GAL
OTHER:	GAL/OZ/LBS	OTHER:	GAL/OZ/LBS

PESTICIDES

CHEMICAL/ACTIVE INGREDIENT	AMT/AC	RE-ENTRY/HARVEST	PEST	TOTAL AMOUNT
ASANA XL/ESFENVELERATE *EPA #352-515*	9 OZ/AC	12 HRS/3 DAYS	BAGRADA	OZ/LBS/GAL
BASAGRAN T/0 *EPA #769-112*	32OZ/AC	48HRS/30 DAYS	WEEDS	OZ/GAL/LBS
BELAY/CLOTHIANIDIN *EPA #59639-150*	12 OZ/AC	12 HRS/21 DAYS	MAGGOTS	60 OZ/LBS ✓
BUG-N-SLUGGO *EPA #67702-24-AA-70051*	22-24 LBS/ AC	4 HRS/ 0 DAYS	EARWIGS	OZ/GAL/LBS
CONTANS WG/CONIOTHYRIUM MINITANS *EPA #264-1174*	96 OZ/AC	4 HRS/4 HRS	SCLEROTINIA	OZ/LBS
CREDIT 41 EXTRA/GLYPHOSATE *EPA #71368-20*	64 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
DOUBLE NICKEL/AMYLOLIQUEFACIENS *EPA #70051-108*	16 OZ/AC	4 HRS	RHIZOCTONIA	OZ/LBS
ENDURA/PYRIDINECARBOXAMIDE *EPA #7969-197*	9 OZ/AC	12 HRS/14 DAYS	PIN ROT	OZ/LBS
GLYSTAR PLUS/GLYPHOSATE *EPA #42750-61*	128 OZ/AC	4 HRS	WEEDS	OZ/LBS/GAL
KERB SC/PRONAMIDE *EPA #62719-578*	64 OZ/AC	24 HRS/55 DAYS	WEEDS	OZ/LBS/GAL
LOROX DF/LINURON *EPA #61842-23*	2 LBS/AC	8 DAYS/67 DAYS	WEEDS	OZ/LBS/GAL
MUSTANG/ ZETA-CYPERMETHRIN *EPA #279-3126*	4 OZ/AC	12 HRS/1 DAY	APHID	OZ/LBS
QUADRIS/AZOXYSTROBIN *EPA #100-1098*	16 OZ/AC	4 HRS	PIN ROT	OZ/LBS/GAL
WARRIOR II/LAMBDA CYHALOTHRIN *EPA #100-1295*	1.92 OZ/AC	24 HRS/1 DAY	ARMYWORM	OZ
WILLOWOOD 4 SC/IMIDACLOPRID *EPA #87290-71*	12 OZ/AC	12 HRS/21 DAYS	APHIDS	60 OZ/LBS/GAL ✓
WATERMAXX	0.5 GAL/AC			OZ/LBS/GAL
SONALAN HFP *EPA #10163-356*	64 OZ/AC	24HRS/ 0 DAYS	EARWIGS	OZ/LBS/GAL
OTHER:				OZ/LBS/GAL
OTHER:				OZ/LBS/GAL

EQUIPMENT USED: ☒ JD6310 ☐ JD6200 ☐ HESSTON OTHER:

METHOD: ☐ GROUND ☐ BED TOP ☐ CHEMIGATE ☒ INJECT/SIDEDRESS

COMMENTS:

OPERATOR: Antonio Nuñez

RECOMMENDED BY: MH

AV

ATTACHMENT J

https://www.wsj.com/articles/SB878669083179710500

New Study Gives Credence To Fears of Lompoc Valley

By Marc LifsherStaff Reporter of The Wall Street Journal

Nov. 5, 1997 12:01 am ET

SACRAMENTO -- Lompoc Valley residents, who for years have claimed that drifting agricultural pesticides make them sick, do in fact suffer from higher levels of bronchitis, asthma, lung cancer and infant respiratory disease than do people in similar regions of the state, according to a draft study by California Environmental Protection Agency scientists.

"Lompoc residents have complained of many illnesses, but increased respiratory disease has been a repetitive theme," the draft report says. "This evaluation does provide some corroboration of the residents' concerns."

The report, which will be released next month for public comment, is a marked departure from a June 1996 study of the health of Lompoc residents. That previous draft, written by an administrator at CalEPA's Office of Environmental Health Hazard Assessment, concluded that "analyses did not provide findings of increased illness in the Lompoc area."

Health Hazard Assessment spokeswoman Bev Passerello says her agency wouldn't comment on the latest study until its public release.

The earlier report discounted preliminary evidence of higher-than-normal lung and bronchus cancer as "not statistically significant." And it dismissed indications of respiratory illnesses such as asthma as too flawed to reach "scientifically meaningful conclusions."

However, those findings were denounced by members of California's scientific community and lawmakers after this newspaper reported in October 1996 that one of the top researchers on the project said he had been ordered to halt the study prematurely and not discuss his work with colleagues outside of Cal-EPA. The subsequent uproar spawned two legislative inquiries and forced Health Hazard Assessment to restart its Lompoc investigation.

"It may be reasonable to stop a study if there is no evident likelihood of a productive outcome. It is not reasonable to terminate an inquiry that shows promise," the whistle-blower, Robert

Holtzer, testified at a March 3 Senate hearing. Dr. Holtzer, a physician and biologist, says he retired from Health Hazard Assessment last year in part because of his superiors' handling of the Lompoc situation.

The latest report seems to indicate that Dr. Holtzer's concerns were warranted.

Among other things, the new study found an 85% greater rate of bronchitis and asthma in Lompoc hospital-discharge data than was seen in similar records from six other coastal regions.

The research also revealed significantly elevated bronchitis rates for children under five years of age and adults over 60, while asthma cases ran excessively high for adults 25 and older.

Sinusitis rates ranged from 37% to five times greater in Lompoc than in San Luis Obispo County, Ventura County, Mendocino County, Humboldt County, Del Norte County and Santa Barbara County (excluding Lompoc), the study says.

Lompoc infants, the report also notes, had a "two-fold or greater risk" of contracting respiratory ailments serious enough to require hospital stays compared with the six-county survey. Lung and bronchus cancer rates were 37% greater than the aggregate rate posted by the local three-county Cancer Registry.

Though residents in the heavily farmed Lompoc area have long blamed agricultural chemicals for their health problems, the study doesn't attempt to identify the cause. Instead, the report suggests that further scientific investigation -- including the gathering of residents' personal medical histories and information on weather patterns and environmental factors -- "may be warranted."

The current draft -- marked a "work in progress" -- recently underwent peer review by a coterie of outside scientists.

Their comments could lead to changes in the document before it is released to the public in December.

But assuming that the thrust of the report stays the same, it is sure to set off a renewed round of criticism of Health Hazard Assessment. "It sounds like they intentionally lied" with the first report, says Kristen Haynie, a consultant with the California Association of Professional Scientists, a labor group that represents top Health Hazard Assessment staff.

Ms. Passerello of Health Hazard Assessment acknowledges that "large differences" exist between the 1997 and the 1996 draft reports, but says that the department's management has opted to "concentrate only on this version."

Political Fallout

There has already been considerable political fallout from the first Lompoc report. It was among several incidents that contributed to the Senate Rules Committee's refusal to confirm Gov. Pete Wilson's appointment of Richard Becker as Health Hazard Assessment's director. Dr. Becker, who stayed on as interim chief deputy director, left Cal-EPA last week to join the state Department of Transportation. Gov.

Wilson then named Joan Denton, a senior scientist at the Air Resources Board, as the new Health Hazard Assessment director.

Dr. Holtzer, meantime, says he's generally satisfied by the latest draft. It "addressed what I wanted to address," says Dr. Holtzer, who was brought in as a consultant for this study and is one of its five authors. He adds that the evidence on respiratory diseases, especially among the very young and elderly, "confirms community concerns and definitely needs to be followed up" with additional scientific review and, in turn, concrete action.

But any attempts to limit pesticide use in the Lompoc Valley are sure to come under attack by local farmers. "The whole issue of pesticide drift is a statewide issue and ought to be dealt with as a statewide issue," Richard Quandt, a representative of growers and packers in the area, said during a recent state-sponsored meeting.

The job of pinpointing the causes of health problems in Lompoc is being tackled by an interagency task force that reports to the state Department of Pesticide Regulation. The group, which has been meeting regularly for months, consists of representatives from state air-pollution, pesticide, public-health and scientific agencies, the federal EPA, Lompoc and Santa Barbara County governments, farmers and local environmental activists.

Prototype for Elsewhere?

The Lompoc work is being watched closely because it could become a prototype for officials trying to figure out how to deal with pesticides causing problems in residential neighborhoods, according to task-force facilitator Jake MacKenzie.

There is "a national interest in these sorts of processes," says Mr. MacKenzie, the Western coordinator of the U.S. EPA's Office of Pesticide programs. Still, before it makes any recommendations to top regulators, the task force must await the final results of the Lompoc health study. It is also waiting for the Department of Pesticide Regulation to come up with a computer model for analyzing Lompoc weather patterns and an up-to-date historical inventory of pesticide use in the area.

The task force, which is scheduled to meet again tomorrow, is also close to reaching a consensus on asking the state to monitor pesticide concentrations in the air during next summer's harvest season.

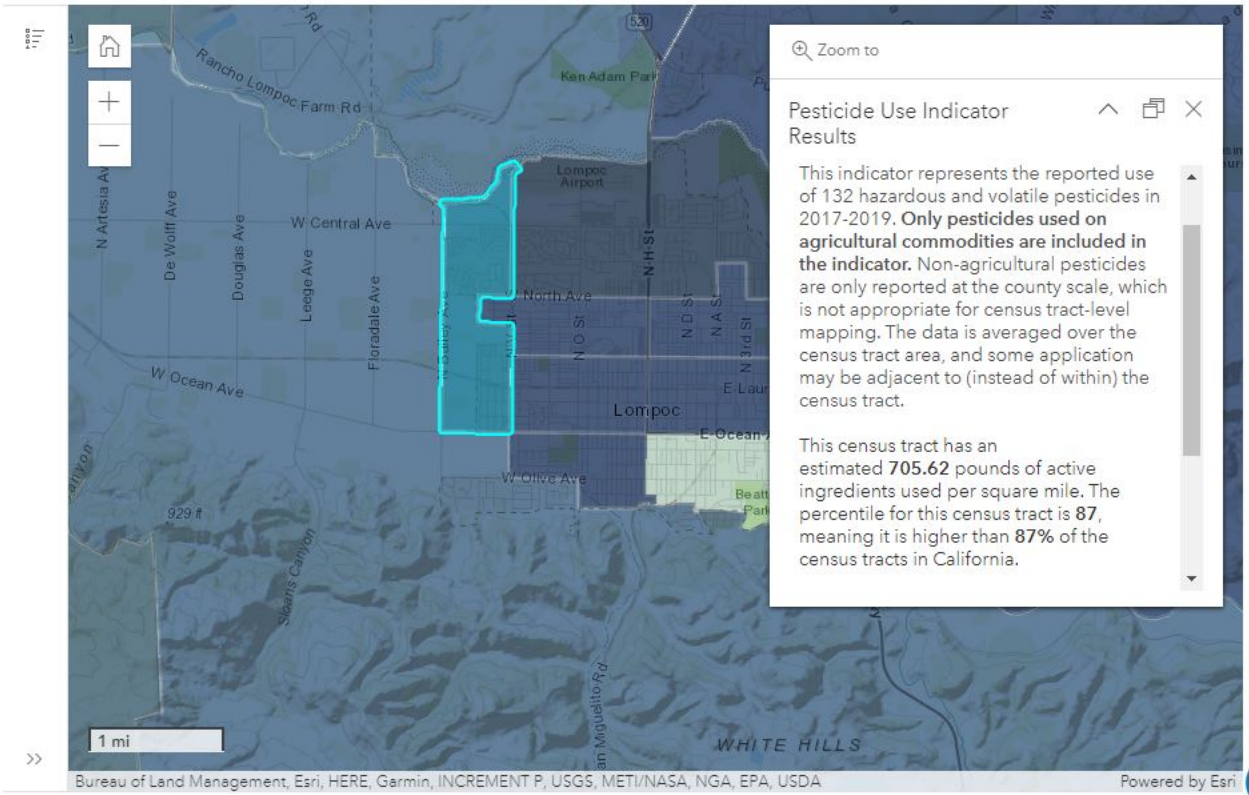
But such plans, while laudable, should not be strung out, warns Dr. Holtzer. "I think the state needs to come to closure with further study," he says, "and not have committee meetings for another two years."

ATTACHMENT K

CalEnviroScreen 4.0 Pesticides Map

Click to open in a new window

CalEnviroScreen 4.0 Pesticides



ATTACHMENT L

North SBC ACS Select Data

Data	Lompoc	Santa Maria	Vandenberg Village	Solvang	Buellton
Population Est (V2021)	43,834	109,711 X		6,048	5,164
Population est (V2021)	44,398	109,903 X		6,123	5,170
Population % change est (V2021)	-1.30%	-0.20% X		-1.20%	-0.10%
Population, April 1, 2020	44,444	109,707	7,308	6,126	5,161
Population, Census, April 1, 2010	42,434	99,553	6,497	5,245	4,828
Persons under 5 years	7.20%	9.60%	2.70%	3.30%	8.40%
Persons under 18 years	27.30%	31.20%	20.80%	19.00%	23.70%
Persons 65 years and over	11.60%	10.10%	21.30%	29.80%	15.70%
Female persons	45.20%	50.30%	47.70%	56.50%	52.70%
White alone	55.90%	59.40%	65.40%	83.00%	87.10%
Black or Af./Amer alone	2.80%	1.20%	4.10%	4.50%	0.40%
Amer Indian/Alaska Native alone	1.80%	1.70%	2.20%	0.50%	0.30%
Asian alone, percent	4.10%	4.70%	2.70%	2.60%	1.10%
Hawaiian and Other API alone	0.30%	0.00%	0.50%	0.00%	0.00%
Two or More Races	17.00%	21.70%	11.50%	5.70%	4.00%
Hispanic or Latino	61.40%	77.40%	24.80%	20.10%	21.70%
White alone, not Latino	28.60%	15.10%	59.20%	69.90%	74.70%
Veterans, 2017-2021	2,734	3,188	969	346	267
Foreign born persons	23.30%	33.20%	14.10%	17.10%	12.80%
Owner-occupied housing unit rate	46.90%	50.90%	77.10%	58.20%	68.70%
Median value of owner-occupied housing	$353,100	$376,100	$444,300	$779,300	$600,600
Median monthly owner costs -w/ mortgage	$1,980	$2,001	$2,102	$3,026	$2,725
Median monthly owner costs -without mortgage	$523	$531	$618	$1,028	$601
Median gross rent, 2017-2021	$1,294	$1,583	$1,873	$1,479	$2,062
Households	13,432	28,803	2,621	2,542	1,923
Persons per household	3.06	3.76	2.69	2.35	2.68
Lang. other than English at home, age 5 years+	46.80%	65.20%	17.90%	21.70%	20.10%
Households with a computer	91.60%	92.30%	98.00%	96.30%	99.40%
Households with a broadband Internet	85.60%	89.10%	89.90%	96.00%	98.70%
High school or higher, persons age 25 years	73.60%	62.20%	92.80%	94.90%	93.10%
Bachelor's degree or higher, age 25 years+	12.20%	13.60%	31.30%	39.70%	41.70%
disability, under age 65 years	9.20%	6.60%	9.40%	3.30%	6.30%

North SBC ACS Select Data

Data	Lompoc	Santa Maria	Vandenberg Village	Solvang	Buellton
W/O health insurance, under 65 years	13.10%	18.30%	7.20%	8.50%	4.90%
civilian labor force, % of pop 16 years+	58.30%	66.10%	60.60%	62.30%	73.00%
civilian labor force, Female % of pop 16 years+	58.50%	58.80%	55.90%	59.90%	72.40%
Total retail sales, 2017 ($1,000)	408,789	1,761,758	NA	78,383	166,751
Total retail sales per capita, 2017	$9,487	$16,711	NA	$13,744	$32,018
Mean travel time to work (minutes)	27.4	22.2	23.4	29.7	28.8
Median household income (in 2021 dollars)	$60,234	$73,300	$95,747	$94,451	$107,614
Per capita income	$24,419	$23,537	$41,817	$61,866	$45,291
Persons in poverty	19.40%	12.80%	3.60%	6.70%	2.70%
Population per square mile, 2020	3,823.80	4,809.60	1,386.70	2,526.20	3,262.30
Population per square mile, 2010	3,659.00	4,374.90	1,238.30	2,162.70	3,051.50

ATTACHMENT M

Miguelito Elementary School

1600 West Olive Avenue, Lompoc, CA 93436
Contact info
Website
Public school
623 Students
Grades K-6

4/10 GreatSchools Rating

★★★★★
4 reviews
Public school
623 Students
Grades K-6
1600 West Olive Avenue, Lompoc, CA 93436
Contact info
Website
Edit school info
Miguelito Elementary School

- ACADEMICS
- Academic Progress
- Test Scores
- EQUITY
- Equity Overview
- Race/Ethnicity
- Low-Income Students
- Students With Disabilities
- ENVIRONMENT
- Student Demographics
- Teachers & Staff
- From the School
- Reviews
- Neighborhood

Review
Updates
Compare
Updates
Compare
Saved

4/10 GreatSchools Summary Rating

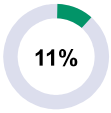
4/10	Test Scores	below
4/10	Academic Progress	below
4/10	Equity	below

ENVIRONMENT

Student Demographics

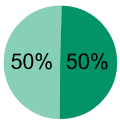
Schools that create a positive culture help all students thrive. See how.

Hispanic	68%
White	23%
Two or more races	4%
Black	3%
Asian	1%
Filipino	1%
Native American	<1%
Pacific Islander	<1%



Students learning English

Students from low-income families



Gender
Female
Male

ENVIRONMENT

Teachers & Staff

What makes a great teacher? The truth may surprise you.

Students per teacher	Stat
% of teachers with 3 or more years experience	Stat
% of full time teachers who are certified	Stat

Show more

Parent Tip

ATTACHMENT N

Clarence Ruth Elementary School

501 North W Street, Lompoc, CA 93436
Contact info
Website
Public school
546 Students
Grades K-6

3/10 GreatSchools Rating

3 reviews
Public school
546 Students
Grades K-6
501 North W Street, Lompoc, CA 93436
Contact info
Website
Edit school info

Clarence Ruth Elementary School

- ACADEMICS
- Academic Progress
- Test Scores
- EQUITY
- Equity Overview
- Race/Ethnicity
- Low-Income Students
- Students With Disabilities
- ENVIRONMENT
- Student Demographics
- Teachers & Staff
- From the School
- Reviews
- Neighborhood

Review
Updates
Compare
Updates
Compare
Saved

3/10 GreatSchools Summary Rating

3/10	Test Scores	below
4/10	Academic Progress	below
2/10	Equity	below

EQUITY

Low-Income Students

How a school's approach to at-risk students affects your child.

Academic progress	Test scores

These ratings show how much students from low-income households improved academically from one year to the next compared to schools with sim proficiency levels across the state.

All students	4/10
Low-income (80% of students)	4/10

Notice something missing or confusing?

EQUITY

Students With Disabilities

Discipline & attendance	Test scores

% suspended | % chronically absent

This shows the suspension rates for students with disabilities at this school compared to the state average. High suspension rates mean less time for te and learning.

All students	2%	▲ 3%
Students with disabilities	11%	▲ 7%

Parent tip

Learn about your child's rights when it comes to school discipline.

Weigh in

Help others and rate this school on how well it supports students with **learning differences**

Submit your own review

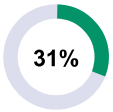
Notice something missing or confusing?

ENVIRONMENT

Student Demographics

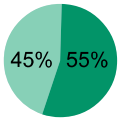
Schools that create a positive culture help all students thrive. See how.

Hispanic	86%
White	7%
Two or more races	3%
Black	1%
Filipino	1%
Asian	1%
Native American	<1%
Unspecified	1%



Students learning English

Students from low-income families



Gender
Female
Male

ENVIRONMENT

Teachers & Staff

What makes a great teacher? The truth may surprise you.

Students per teacher — Stat

% of teachers with 3 or more years experience — Stat

% of full time teachers who are certified — Stat

Show more

Parent Tip

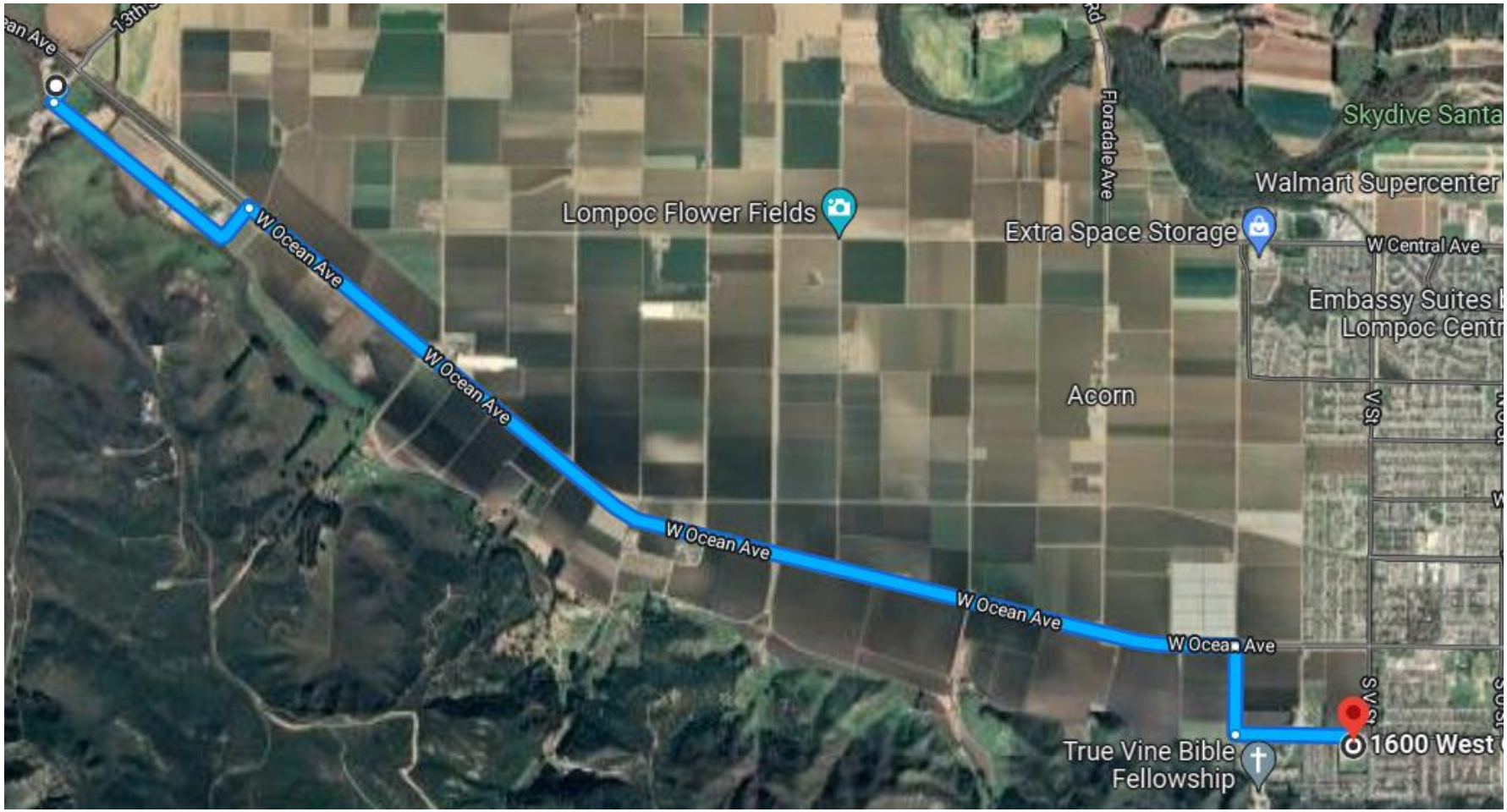
What's the most important thing to look for in the staff at a school?

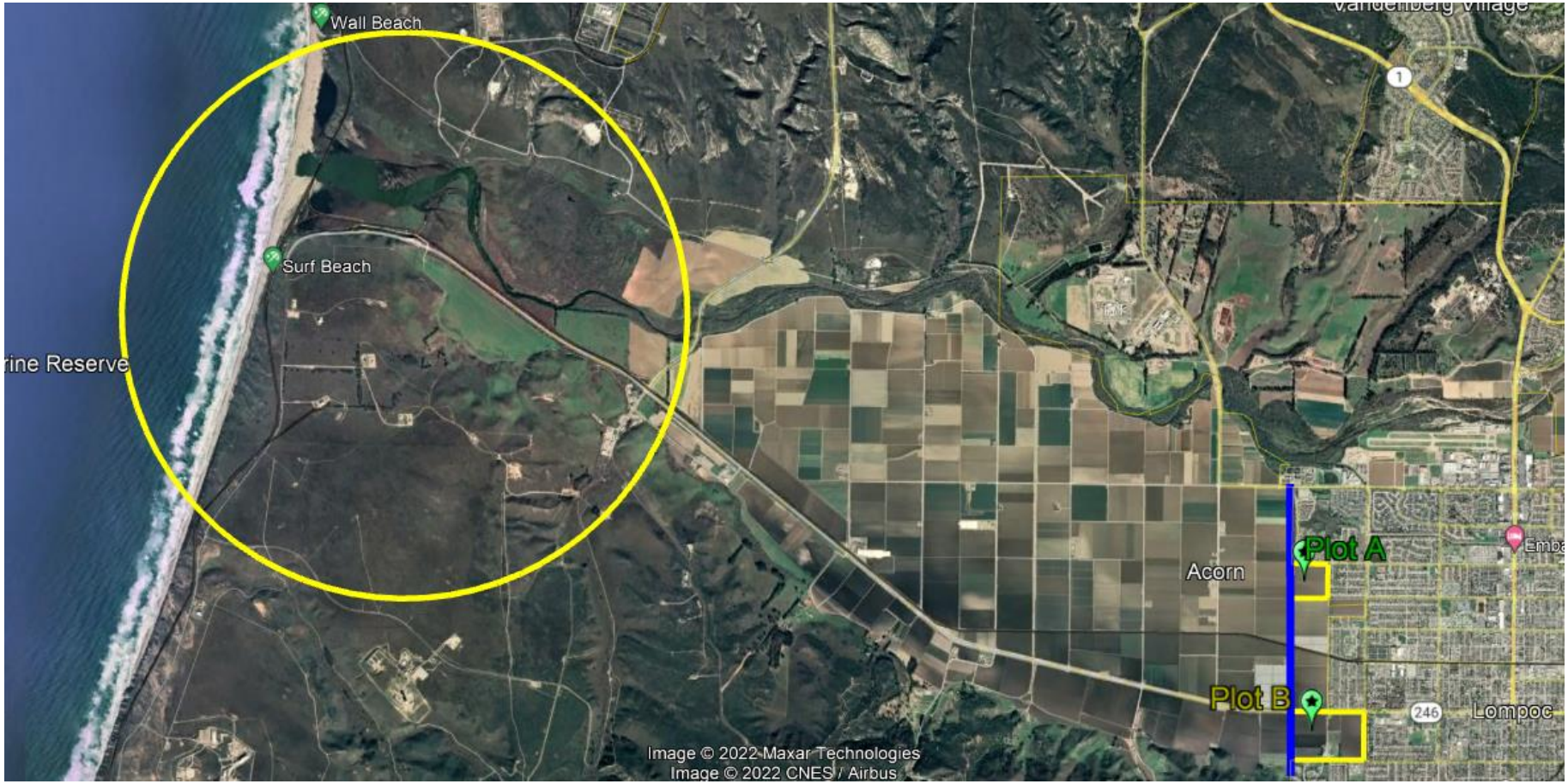
ENVIRONMENT

From the School

ATTACHMENT O

Site B is approximately 6 miles from the likely
Vandenberg Commercial Space Port Entrance



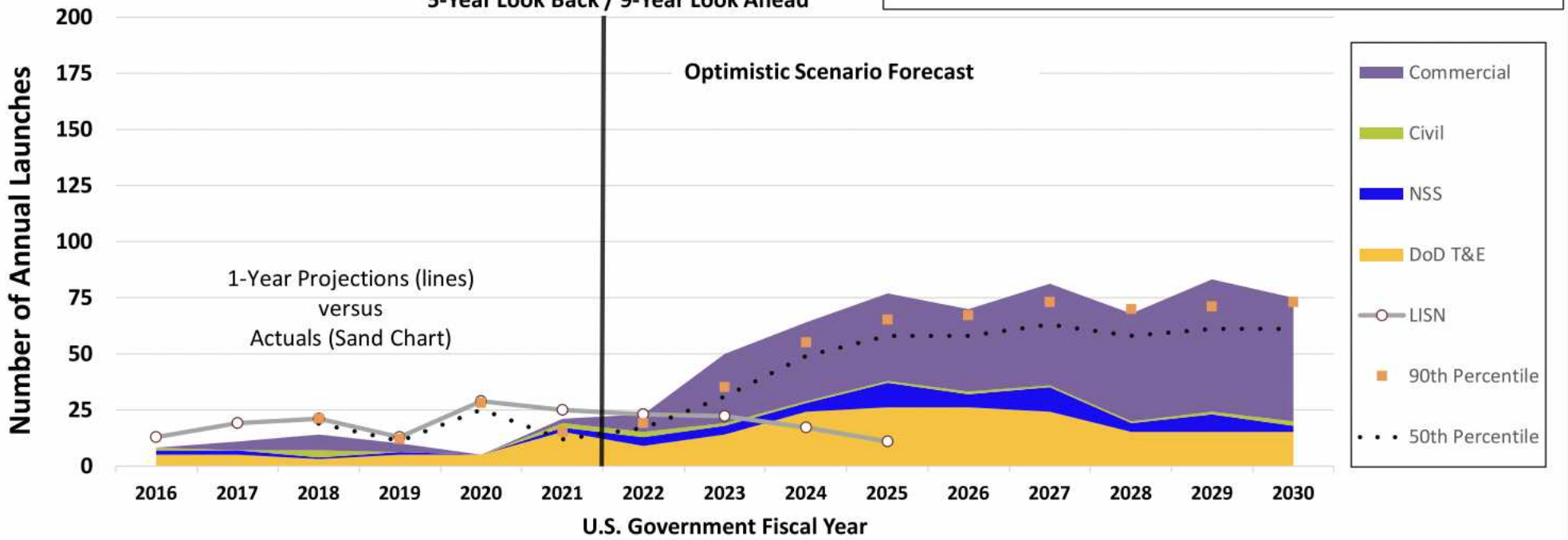

Wall Beach
Surf Beach
rine Reserve
Vandenberg Village
1
Acorn
Plot A
Plot B
246
Lompoc
Image © 2022 Maxar Technologies
Image © 2022 CNES / Airbus

ATTACHMENT P

Western Range Launch Activity

5-Year Look Back / 9-Year Look Ahead

The Sand Chart and Table represents the forecast of planned launches.
The dashed lines represent the number of launches from the simulation.



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Commercial	0	4	7	4	0	2	8	31	35	39	37	45	48	59	55
Civil	1	0	3	0	0	2	2	1	1	1	1	1	1	1	2
NSS	2	2	1	1	0	2	4	4	4	11	6	11	4	8	3
DoD T&E	5	5	3	5	5	15	9	14	24	26	26	24	15	15	15
Totals	8	11	14	10	5	21	23	50	64	77	70	81	68	83	75
LISN	13	19	21	13	29	25	23	22	17	11					
ASAM 90th Percentile			21	12	28	15	19	35	55	65	67	73	70	71	73
ASAM 50th Percentile			19	11	25	12	17	31	49	58	58	63	58	61	61

LISN 9/27/2021

ASAM 9/30/2021

File: Launch_Schedule_2021_10_07.xlsx | 18 NAWCs shown at start of FY20 | Sheet: WR_SandChart_4MissionCat_Op1r

ATTACHMENT Q

Building a Thriving Space Enterprise at Vandenberg AFB

We firmly believe that the next decade will be transformative for U.S. commercial and defense space capabilities. This decade of transformation presents a unique opportunity to capitalize on the growing commercial space industry activities and attract additional commercial activity to Vandenberg AFB and the surrounding region. It is through this lens that our team has come together to develop a master plan for Vandenberg AFB that supports the United States Space Force mission and positions California as a global leader in the future of the commercial space industry.

Leaders from the State of California, REACH, the 30th Space Wing, Cal Poly State University and Deloitte have announced a commitment to develop a thriving spaceport at Vandenberg Air Force Base and the surrounding area. According to the memorandum of understanding, the parties will develop a master plan that identifies the required infrastructure, human capital development, governance and financing necessary to support the United States Space Force mission and position California as a global leader in the future of the commercial space industry.

We collectively invite you to learn more, reach out, and join us on this journey towards tomorrow.

A Bold Challenge for California

Together, we can imagine a bold future where there is a developed commercial space enterprise in the Central Coast that contains a sustained presence from companies across the value chain and....

- Supports regular orbital space launch from multiple launch service providers
  - Enables and supports the military and commercial use of responsive access to space
  - Is home to multiple vertical launch providers and at least one horizontal launch provider
  - Operationally responsive space is enabled and supported through horizontal and vertical launch providers
- Is home to an ecosystem for logistics, downstream applications, and testing and evaluation capabilities
  - Integrates the commercial and government ecosystem for Space Domain Awareness
  - Provides the conditions to attract and sustain downstream applications providers
- Expands the roles of universities in Space Domain Awareness, technology transfer, and innovation

...enables sustained human spaceflight to orbit and orbital destinations for the first time in California.

A Vision for the Future of Vandenberg AFB

What do we want to do?

The Market View

We recommend a focus on leading in the 1) launch services, 2) logistics, and 3) downstream applications segments of the value chain.

The Operations View

We recommend a focus on 1) continuing to support strategic (heavy) launch for all users while enabling operationally responsive space.

The Development View

We recommend a focus on developing a space cluster centered around launch, logistics (SSA/SDA), and downstream applications.

How are we going to do it?

Grow Launch Services Activities

Focus area: Increase capabilities at Vandenberg AFB and the Western Range to support additional launch types and concepts of operations inclusive of most launch architecture types

Outcomes: Diversifies launch activities beyond heavy launch to include horizontal (air launch), small vertical launch, and potential other emerging concepts

Build an Ecosystem for Downstream Applications

Focus area: Build the regional ecosystem to support downstream applications (space data and services) companies and the associated workforce

Outcomes: Diversifies the space companies and associated value chain components within the region by providing a more continuous workforce presence

Create Capabilities for Testing & Evaluation

Focus area: Create capabilities for testing and evaluation in support of launch and downstream applications

Outcomes: Diversifies the aerospace and defense presence within the region and provides sustainable operations and a more continuous workforce presence within the region

What do we need to achieve this vision?

- Targeted investment in supporting and enabling on-base infrastructure
- Creation of the Commercial Space Zone
- Targeted investment or improvements in regional infrastructure including those that support workforce transportation to/from other major hubs
- Utilization of incentivization "levers" to support the growth of the commercial space user base across the launch services and downstream segments of the value chain
- Support from key stakeholder groups at the federal, state, regional, and local levels
- Development of a skilled workforce by building a talent pipeline and/or relocating talent

What do we get in the end?

Increased number of LSPs that provide most of the CONOPS and vehicle classes: 5-7 LSPs focused on Small/ORS, Medium/TRS, Heavy/Ultra Heavy, and Horizontal

Creation and development of the Commercial Space Zone (CSZ)

Developed, sustained presence of technology companies to the CSZ focused on Space Domain Awareness, Downstream Applications, and Ground Systems

ATTACHMENT R

Building a Thriving Space Enterprise on the Central Coast of California

Commercial Space Master Plan

GOAL 1: Attract Space Industry Activities to the Central Coast

OBJECTIVE 1.1 STRENGTHEN THE ECOSYSTEM BY ESTABLISHING A CONCIERGE ENTITY TO SUPPORT ATTRACTION AND DEVELOPMENT EFFORTS

1.1.1 CONCIERGE ENTITY DESIGN

Develop the business plan and operating model for a concierge function either through REACH, GO-Biz, or some other construct that can advance and accelerate the goals of the region and the recommendations of these development efforts.

1.1.2 ESTABLISH A SPACE ROUNDTABLE

Assess the use of a similar construct to the Arizona Space Business Roundtable (ASBR) for an engagement mechanism, likely in concert with the concierge function, to support industry and ecosystem engagement.

1.1.3 STRENGTHEN LINKAGES WITH VENTURE CAPITAL AND PRIVATE EQUITY GROUPS

Develop a venture and accelerator engagement strategy to engage with VCs, angel investors, high-net-worth individuals etc., to ensure that companies looking to come to the Central Coast and VSFB have appropriate access to potential capital sources.

OBJECTIVE 1.2 ATTRACT ADDITIONAL LAUNCH SERVICES PROVIDERS

1.2.1 SUPPORT FASTER TIMES FROM SITE IDENTIFICATION TO FIRST LAUNCH

Increase the attraction of Vandenberg by increasing the time from site identification to first launch through process improvement, identification of bottlenecks, and the communication of critical environmental regulations.

1.2.2 SUPPORT THE DEPLOYMENT OF OPERATIONALLY RESPONSIVE SPACE CAPABILITIES AT VANDENBERG

Increase the attraction of Vandenberg for the location of ORS and similar assured access to space capabilities by launch services providers by focusing on on-base land-use and mission development zone design and supporting regional capabilities to support an increased and sustained workforce and local operations.

1.2.3 SUPPORT THE DEPLOYMENT OF TACTICALLY RESPONSIVE SPACE CAPABILITIES AT VANDENBERG

Increase the attraction of Vandenberg for the location of TRS and similar assured access to space capabilities by launch services providers by focusing on continued technology horizon scanning, on-base land use and mission development zone design, and supporting regional capabilities to support an increased and sustained workforce and local operations, and coordination with the State of California's Governor's Military Council and other relevant entities to promote and attract TRS solutions and missions.

OBJECTIVE 1.3 ATTRACT ADDITIONAL SPACE INDUSTRY COMPANIES BEYOND LAUNCH SERVICE PROVIDERS

1.3.1 FOCUS ON THE ATTRACTION OF SPACE DOMAIN AWARENESS (SDA) AND SPACE TRAFFIC MANAGEMENT COMPANIES (STM) AND ACTIVITIES TO THE CENTRAL COAST REGION

Space domain awareness is a critical enabling capability for space launch and space operations as well as a key activity for the U.S. Space Force at Vandenberg SFB as part of the Combined Space Operations Center (CSpOC). Increase the attractiveness of co-location for SDA and STM through promotion of existing regional activities, the potential for access to a talented workforce for those who retire from the CSpOC at VSFB, and the ability of a carefully crafted mission development zone design to encourage knowledge transfer through co-location synergies.

1.3.2 FOCUS ON THE ATTRACTION OF REMOTE SENSING AND GROUND SYSTEM PROVIDERS

Promote the alignment between remote sensing capabilities and key agricultural, environment, sustainability, conservation, forestry, and wildlife goals within the State of California and the region as well as access to a talented software engineering and analytics workforce from leading regional academic institutions.

OBJECTIVE 1.4 IMPROVE THE REGULATORY AND BUSINESS ENVIRONMENT

1.4.1 ASSESS TAX IMPACTS AND IMPLICATIONS IN SUPPORT OF ATTRACTION INCENTIVIZATION

Leverage space activity economic impact report to assess the impact of tax credits or other tax liability offsets.

1.4.2 STREAMLINE PROCESSES

Streamline processes and capabilities, potentially through the concierge function, to ensure that initial engagement of first operational activities is a smooth and mostly seamless process for commercial entities.

1.4.3 LIABILITY & INDEMNIFICATION ASSESSMENT

Produce an assessment of the limiting regulations and policies that would impact human spaceflight in California.

Credit: U.S. Air Force photo by Joe Davila/Released

GOAL 2: Modernize and Invest in Infrastructure

OBJECTIVE 2.1 IMPROVE ON-BASE LAUNCH SUPPORTING INFRASTRUCTURE

2.1.1 DESIGN AND BUILD SUPPORTING LAUNCH SERVICES INFRASTRUCTURE

Build supporting shared-used launch services infrastructure that supports multiple launch providers such as GN2 pipelines, roads, sewer, and other utilities to new and additional launch sites on South VSFB.

2.1.2 INFRASTRUCTURE INVESTMENT AND DEVELOPMENT PLAN

For identified and prioritized infrastructure, produce cost-benefit analysis and continue to assess and refine the shared infrastructure plan.

OBJECTIVE 2.2 IMPROVE ON-BASE TRANSPORTATION AND LOGISTICS INFRASTRUCTURE

2.2.1 DESIGN AND BUILD EASE-OF-ACCESS INFRASTRUCTURE

Build ease-of-access infrastructure that supports increased launch tempos and additional base uses inclusive of new gate access and North VSFB to South VSFB flyover bridge.

2.2.2 DESIGN AND BUILD LOGISTICS INFRASTRUCTURE

Build or improve logistics infrastructure to support increased launch tempos, new launch CONOPS, and increased base activities inclusive of items such as the boat dock and rail spurs.

OBJECTIVE 2.3 DEVELOP THE MISSION DEVELOPMENT ZONE

2.3.1 ANCHOR TENANT RECRUITMENT

Assess ability to attract anchor tenancy and activities to the region that support "green" priorities including conservation, environmental impact, climate change, wildfire management, and more.

2.3.2 DEVELOP A MISSION DEVELOPMENT ZONE DESIGN AND PLANNING GUIDE

Produce mission development zone guide tied to Phase 0/1 findings and produce associated development cost analysis. Assess available land/facilities throughout the county as part of an alternative analysis.

2.3.3 PRODUCE A SCIF PAYLOAD PROCESSING OR OTHER FLEX DEVELOPMENT FACILITY DESIGN AS PART OF THE MISSION DEVELOPMENT ZONE

Produce cost analysis and business case for a SCIF PPF or similar flex development space and assess placement within the mission development zone as part of the mission development zone design.

2.3.4 PRODUCE A SPACE TECHNOLOGY ACCELERATOR DESIGN

Develop academic incubator and accelerator concepts, engagement mechanisms, and associated business case.

GOAL 3: Strengthen the Central Coast Space Identity

OBJECTIVE 3.1 ESTABLISH A CLEAR, MODERN BRAND FOR THE CENTRAL COAST SPACE ECOSYSTEM

3.1.1 ESTABLISH A COHESIVE BRANDING AND MARKETING IDENTITY FOR THE CENTRAL COAST SPACE ECOSYSTEM

Create a clear, modern identity for the Central Coast space ecosystem that aligns our vision and ambitions for industry growth to the core tenets of the region such as conservation, environmental sustainability, tourism, wine, and open space.

OBJECTIVE 3.2 INTEGRATION OF SPACE AND REGIONAL QUALITY OF LIFE ATTRIBUTES

3.2.1 DEVELOP INITIATIVES TO INCREASE SPACE INDUSTRY ACTIVITIES IN THE REGION COMPATIBLE WITH SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) EDUCATIONAL PRIORITIES FOR K-12

Assess the demand and required engagement mechanisms and infrastructure required to support increased STEM education priorities in the region.

3.2.2 INTEGRATE ENTERTAINMENT AND TOURISM ACTIVITIES INTO THE SPACE INDUSTRY ATTRACTION PLANS AND ASSOCIATED DEVELOPMENT INITIATIVES

Assess the linkages between space, entertainment, and tourism to capitalize on expanded industry activities and regional entertainment, tourism, and open space assets.

3.2.3 PROMOTE THE LINKAGES BETWEEN SPACE INDUSTRY GROWTH AND CONSERVATION PRIORITIES

Produce educational and informational materials to describe and demonstrate how the growth of the space industry aligns and supports thoughtful growth that aligns with environmental goals and the region's identity.

OBJECTIVE 3.3 WORKFORCE DEVELOPMENT AND ECONOMIC MOBILITY

3.3.1 INCENTIVIZE WORKFORCE DEVELOPMENT AND ECONOMIC MOBILITY THROUGHOUT THE REGION

Promote greater linkages between current and future space companies with the region's leading academic institutions and their extensive aerospace degree programs to increase the recruitment of local talent and the sustainment of local space industry jobs.

OBJECTIVE 3.4 HOUSING AND TRANSPORTATION

3.4.1 PLAN FOR FUTURE COMMUNITY NEEDS

Support the needs of a growing high-tech workforce by producing sufficient housing and associated infrastructure, such as roads, renewable energy, water, and broadband internet. Leverage the results of 2021 planning efforts, such as Lompoc's Office of Local Defense Community Cooperation grant and the Environmental Protection Agency Building Blocks technical assistance to optimize community development planning and action.

3.4.2 ADVOCATE FOR TRANSPORTATION INFRASTRUCTURE AND SERVICE

Prioritize and invest in reducing vehicle miles traveled, which can take the form of increased public transportation, improved roadways and sufficient housing for the workforce in close proximity to work centers.

ATTACHMENT S

MAY 16, 2021

VANDENBERG'S REGIONAL ECONOMIC IMPACT COULD GROW TO $6 BILLION, REACH STUDY SHOWS

NEW STUDY SHOWS THAT EXPECTED GROWTH COULD ADD 1,968 NEW JOBS PER YEAR ACROSS SANTA BARBARA AND SAN LUIS OBISPO COUNTIES

Vandenberg — newly renamed a Space Force Base — powers 16,000 jobs and an annual economic impact of $4.5 billion in Santa Barbara and San Luis Obispo counties — a number that could grow to more than $6 billion over the next decade.

That's among the topline findings of a new study, commissioned by REACH and conducted by Cal Poly, assessing the base's current contributions to the regional and state economy and modeling the impact of expected future growth in military and commercial activity. The economic impact study was funded in partnership with the County of Santa Barbara.

Conservative estimates show that growth could add 1,968 new jobs per year in key industries such as professional, scientific and technical services as well as construction and administrative services.

"What we found is what many people in communities around the base already know — that Vandenberg provides substantial positive economic benefits well beyond its borders and that its anticipated future growth presents even greater economic opportunities to nearby counties and the state as a whole," said **Dr. Cyrus Ramezani**, a finance professor at Cal Poly and lead author of the study.

The base supplies quality jobs, stimulates the production of goods and services, and increases local incomes and overall expenditures on goods and services across the two counties, the study found. It also plays a critical role in retaining high-paying and long-term jobs in the region and spurs significant tax revenues to local and state governments.

"This study really illuminates the many and far-reaching ripple effects of having the nation's premier West Coast launch site in our backyard," REACH COO **Andrew Hackleman** said. "The future growth projections also underscore the big payoff of supporting the burgeoning commercial space industry around the base and into San Luis Obispo County."

Commercial space activities at the base, growing since the early 2000s, are on an upward trajectory with record private investment and a new National Space Strategy highlighting partnership with the private sector as essential to national security, economic prosperity and scientific knowledge.

"Vandenberg is excited to be launching into a new era of cooperation with commercial partners to further national security strategic interests while contributing to the economic vitality of the region," said **Col. Anthony Mastalir**, Delta Space Launch 30 Commander. "Vandenberg is proud of its long history in the

community and looks forward to building on that relationship to assure access to space for the U.S. Space Force and our Nation."

REACH has partnered with the 30th Space Wing, County of Santa Barbara, Cal Poly State University, Deloitte and the Governor's Office of Business and Economic Development (GO-Biz) to develop a master plan for commercial space on the Central Coast, with the first phase expected to be finalized in coming weeks.

"High-quality, future-oriented jobs are what we need in the region, and this study shows expanding space activity at Vandenberg can provide that," said Santa Barbara County Supervisor **Joan Hartmann,** whose Third District encompasses the base and Vandenberg Village. "We should embrace that expansion, including prioritizing the planning and infrastructure needed to unlock job growth."

Several such projects, from on-base launch pad improvements to off-base roads and utility connections, are underway or under consideration.

"As long-time neighbors of the base, we recognize the foundational role Vandenberg plays in our economy and look forward to continuing to work with the base on ways we can help one another grow," Lompoc Mayor **Jenelle Osborne** said.

Direct economic contributions by Vandenberg include employment of military and federal civilian personnel, defense contracting and capital investment, with indirect contributions that include enhancing regional household expenditures and demand by local businesses, the study states.

Other impacts stem from:

- The base's retired military personnel and veterans, who mostly stay in the area and boost the local economy through direct spending and contributing valuable skills as employees for local industries and as small businesses owners
- Expenditures by a sizable number of government and business visitors to the base
- Thousands of tourists are attracted each year by frequent missile and rocket launches.

The study noted several benefits of expanded military and commercial space activity at the base beyond total economic impact and job creation, including:

- Creating more long-term, higher-paying jobs, which have been growing more slowly than lower-paying jobs in Santa Barbara and SLO counties
- Increasing employment opportunities in central Santa Barbara County and significantly contributing to reducing income disparities within the county
- Pushing up wages in the aerospace, defense and transportation manufacturing sector, which have been stagnant in the region
- Providing avenues for the region to retain and attract high-skilled talent, including graduates of UC-Santa Barbara and Cal Poly.

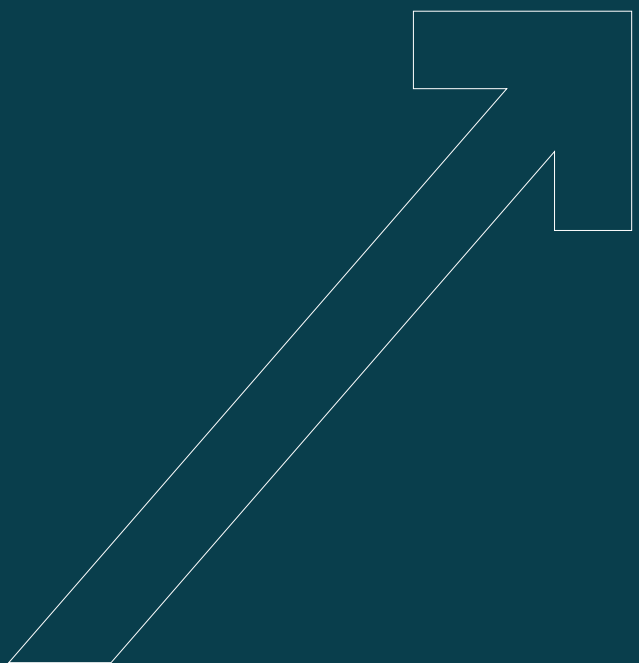
"We have a significant opportunity here. We should be looking at some of our one-time cannabis tax revenue as well as infrastructure funding and COVID-19 stimulus to do what we can to accelerate the economic engine of Vandenberg Air Force Base," said Santa Barbara County Fifth District Supervisor **Steve Lavagnino**.

ATTACHMENT T

ECONOMIC IMPACT OF VANDENBERG AIR FORCE BASE ON SANTA BARBARA AND SAN LUIS OBISPO COUNTIES

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

APRIL 28, 2021



REACH

REACH

Cyrus Ramezani, Professor of Finance, California Polytechnic State University
Stephen F. Hamilton, Professor of Economics, California Polytechnic State University
Alexander Lustig, Undergraduate Research Assistant, California Polytechnic State University
Spencer Rhode, Undergraduate Research Assistant, California Polytechnic State University

CAL POLY

Table of Contents

ACKNOWLEDGMENTS

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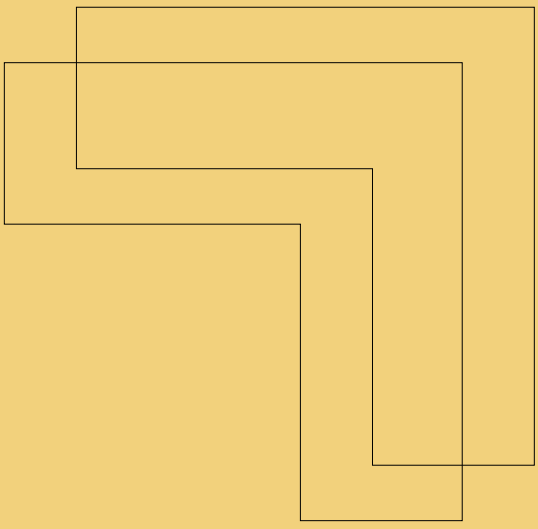
The opinions and conclusions expressed in this report are those of the authors and do not necessarily represent those of REACH, the Vandenberg Air Force Base staff, the County of Santa Barbara, and the City of Lompoc. Any errors or omissions are the sole responsibility of the authors. Please direct comments and suggestions to Dr. Cyrus Ramezani (cramezan@calpoly.edu).

SECTION 1

EXECUTIVE SUMMARY



1. EXECUTIVE SUMMARY

Vandenberg Air Force Base (VAFB) has provided economic opportunities for the residents of Santa Barbara and San Luis Obispo Counties and the rest of California since its creation in 1941. Today, VAFB's military and civilian population and the related contractors' workforce directly contribute to the economic development of this region through capital investment, employment, and defense contracting and indirectly by enhancing regional household expenditures and demand by local businesses. The base's retired military personnel and veterans mostly stay in the area and contribute to the local economy through their direct expenditures, as well as by contributing their valuable skills as employees for local industries and as small businesses owners. Moreover, expenditures by a sizable number of government and business visitors to the base and tourists attracted by frequent missile and rocket launches also contribute to the local economy. Collectively, the base's economic activities result in significant tax revenues, with large fiscal impact on the local and state governments.

To understand the overall economic role played by VAFB, this report estimates the base's current economic impact and its dynamic evolution over the next decade under two alternative scenarios. First, under a "Stand Still" scenario, we assume that the level of economic activity associated with VAFB is flat; that is, the size of the base's workforce (military and civilian), its dollars expenditures on operations and maintenance, awarded contracts, gross payments to retirees, and the number of tourists and government/business visitors to the base will remain at their 2020 level until 2030. Second, the report provides estimates of the economic impact of VAFB under various "envisioned growth" scenarios by accounting for anticipated military growth, proposed expansions of commercial missile, satellite and rocket launches as envisioned by REACH (*The Commercial Space Master Plan*), and potential infrastructure improvements being considered by the City of Lompoc.

Economic impact associated with various scenarios are calculated using modeling software from Regional Economic Models Inc. (REMI). Utilizing REMI's built-in forecasting capabilities, the study simulates the total economic impact of VAFB over the period 2020-2030, with and without the envisioned expansions in military and commercial space activities. To best understand the economic impact of VAFB, we report the following common indicators of economic health of the regions: Employment, Gross Domestic Product (GDP), Output, Personal Income, and Disposable Personal Income for Santa Barbara and San Luis Counties, as well as the rest of California. These indicators, their definitions and estimations are discussed in greater detail in the body of this report.

Overall, the REMI models confirm what is widely recognized in the adjacent communities: VAFB provides substantial positive economic benefits to the nearby counties and California as a whole.

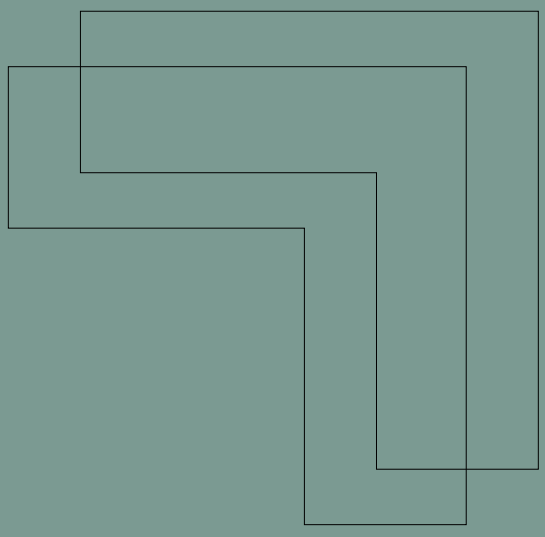
The Economic Impact of Vandenberg Air Force Base 2020-2030 Results for 2020 and the "Average" of calendar years 2020-2030 (inclusive)						
Stand Still Scenario						
	Santa Barbara		**San Luis Obispo**		**Rest of California**	
	2020	Average	2020	Average	2020	Average
Total Employment (Jobs)	15,071	13,497	832	674	4,502	4,245
Employment Multiplier	1.87	1.54	-	-	-	
Gross Domestic Product ($M)	2,628	2,847	113	111	723	820
Output ($M)	4,326	4,667	196	188	1,278	1,423
Personal Income ($ M)	1,332	1,557	108	115	451	539
Disposable Personal Income ($M)	1,149	1,362	90	99	379	464
Fiscal Impact						
Corporate Income Taxes ($M)	23.86	25.85	1.03	1.01	6.57	7.45
Personal Income Taxes ($M)	111.27	130.04	8.98	9.60	37.63	45.04
Retail Sales & Use Taxes ($M)	43.1	51.10	3.39	3.71	14.21	17.41
Property Taxes (PI, $M)	2.41	2.41	-	-	-	-
All Military and Commercial Developments Scenarios						
	2020	Average	2020	Average	2020	Average
Total Employment (Jobs)	15,071	15,348	832	791	4,502	4,760
Employment Multiplier	1.87	1.70	-	-	-	-
Gross Domestic Product ($M)	2,628	3,224	113	130	723	924
Output ($M)	4,326	5,282	196	221	1,278	1,603
Personal Income ($M)	1,332	1,751	108	134	451	606
Disposable Personal Income ($M)	1,149	1,529	90	115	379	521
Fiscal Impact						
Corporate Income Taxes ($M)	23.86	29.27	1.03	1.19	6.57	8.39
Personal Income Taxes ($M)	111.27	146.25	8.98	11.17	37.63	50.63
Retail Sales & Use Taxes ($M)	43.1	57.36	3.39	4.32	14.21	19.56
Property Taxes (PI, $M)	2.41	3.89	-	-	-	-

The base supplies quality jobs, stimulates the production of goods and services, and increases local incomes and overall expenditures on goods and services. The above table contains a brief overview of the noted aggregate economic indicators. The full report provides detailed analysis across different industry sectors and the fiscal impact on the local and state government revenues.

In 2020, VAFB contributed $3.464 billion to the GDP of Santa Barbara and San Luis Obispo Counties and the rest of the California economy, with a total economic output of $4.522 billion in overall economic output in the two counties. VAFB's current economic footprint and its anticipated future growth present enormous economic opportunities for local communities and the State. The base's contracting with the local businesses provides employment in a wide variety of industry sectors, while the military personnel and their families support local communities by creating demand for goods and services. In addition, the retired military pensions and other forms of compensation provide individuals and communities with a reliable source of income. The analysis undertaken in this report shows that the economic impact of VAFB on the surrounding communities and the State of California will grow over the next decade by the anticipated increase in military activity on the base, the potential infrastructure improvements in the City of Lompoc, and the proposed private-sector commercial space activities envisioned in *The Commercial Space Master Plan*.

SECTION 2

INTRODUCTION AND SCOPE OF THE STUDY



2. INTRODUCTION AND SCOPE OF THE STUDY

This study was commissioned by REACH Central Coast. The objective was to assess the economic impact of Vandenberg Air Force Base (VAFB) on the surrounding communities of Santa Barbara and San Luis Obispo Counties, as well as the rest of California. While VAFB is located in Santa Barbara County, its economic impact extends to California as whole and to San Luis Obispo County, where some of its vendors, contractors, military personnel and veterans reside.

The study is based on data for the fiscal year 2020 and employs REMI, which is a widely used regional economic model. The REMI model is a dynamic input-output model, which can determine the current and future impact of VAFB, given historical changes to the business cycle. The study will determine VAFB's impact on total output, employment and labor income and its fiscal implications for the surrounding communities. Results of the economic impact analysis are reported for each county and the rest of California. A similar study was undertaken in 2006, and to the extent possible, this report will present the key findings in parallel fashion so as to enable comparisons of VAFB's economic impact over time.

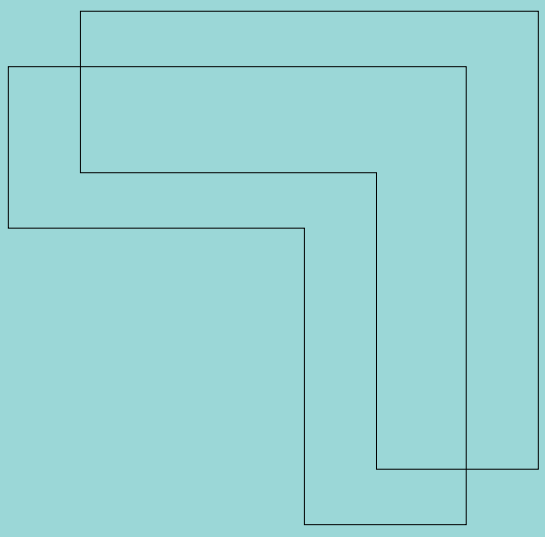
The data for this study were obtained from a number of sources. Information about the number of employees (military and federal civilians) and their dependents, the base's annual expenditures on operations and maintenance, expenditures on private contractors that serve the base, annual gross pay to retirees, and number of business and government visitors and tourists who visit the area, and anticipated expansions at the base were obtained from VAFB management.

Data on tax revenues, generated by economic activities associated with VAFB (property, sales, income taxes), were obtained from Santa Barbara County, San Luis Obispo County, other California government agencies, and REMI. Similarly, information about potential infrastructure improvements being considered were obtained from the City of Lompoc.

Finally, information regarding the future expansions of commercial satellite and rocket launches as envisioned in *The Commercial Space Master Plan* were obtained from REACH and Deloitte.

SECTION 3

VANDENBERG AIR FORCE BASE DESCRIPTION



3. VANDENBERG AIR FORCE BASE DESCRIPTION

Vandenberg Air Force Base (VAFB), located roughly halfway between San Francisco and Los Angeles, was established in 1941 as an Army base and transferred to the Air Force in 1957.[1] The base is bordered by the Pacific Ocean, the Santa Ynez Mountains, and the ranches of northern Santa Barbara County.

Map of Vandenberg Air Force Base

It occupies 99,604 acres and the area, while mostly rural, includes urbanized areas of offices, residences, support facilities, and the Western Launch and Test Range. The nearest community to the base is Lompoc, which has an estimated population of 43,600.[2]

VAFB is home to the 30th Space Wing, which manages the Department of Defense's space and missile testing base, with a mission of placing satellites into polar orbit using expendable and reusable rocket boosters.[3] The base contains the 381st Training Group (Air Education and Training Command), which trains space and missile operators. It is home to several important Department of Defense organizations, including the Missile Defense Agency (MDA) and the National Reconnaissance Office (NRO), and also plays an important role in operational test launch of unarmed Minuteman III intercontinental ballistic missiles. Furthermore, several defense contractors, including Lockheed Martin, Boeing, General Dynamics, Northrop Grumman, and Raytheon Technologies, carry major contracts and are tenants on the base.

Vandenberg Air Force Base Rocket Launch Facilities

Key Vandenberg Air Force Base Organizations and Private Sector Firms

In addition to its military space launch mission, VAFB also performs space launches for government space entities such as the National Aeronautics and Space Administration (NASA) and private space companies such as SpaceX. Commercial space activities at VAFB have been growing since the early 2000s. There are several companies with contracts to launch from VAFB. These include SpaceX, the United Launch Alliance (ULA) and Firefly.[4] Additionally, the base is recognized as the West Coast's premier rocket launch hub and has received interest from other private organizations to serve as a launch site for future space missions.

Currently, VAFB maintains the position as one of the most important military bases for rocket launches, playing an indispensable role in support of the newly created Space Force. The Space Force plans to continue to grow the number of launches from VAFB in the foreseeable future. To handle the growing launch demand, plans have been drawn up to expand the base's facilities so as to accommodate further commercial space launches. These commercial activities have attracted many engineering and high technology professionals to the area. Additionally, activities on VAFB draw thousands of visitors to the region annually, many of whom stay for extended time periods.[5]

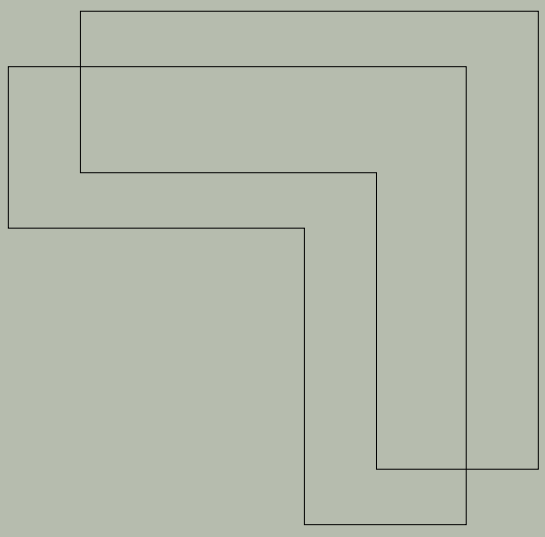
VAFB is one of the top employers in Santa Barbara County. The base currently employs 2,912 military personnel, 2,867 family members, 1,375 federal civilian employees, and 992 direct contractors and hundreds of sub-contractors, all of whom either live on or off the base. During the fiscal year, the gross payroll for the 30th Space Wing was $369.30 million, and annual operations and maintenance was more than $207.58 million. Furthermore, the base executed 852 contracts with a value of $134.93 million.[6] The base is a major contributor to Santa Barbara County's economy, along with the University of California-Santa Barbara (UCSB) and the county government.

Activities at Vandenberg Air Force Base

Activities at Vandenberg Air Force Base cont.

SECTION 4

REGIONAL ECONOMY AND DEMOGRAPHICS



4. REGIONAL ECONOMY AND DEMOGRAPHICS

In this section we present a brief overview of the economic and demographic characteristics of Santa Barbara county, which is home to VAFB, and neighboring San Luis Obispo County, where some of the base employees and contractors reside. The two counties have similar economic profiles, share significant commercial relations and have strong business ties. Some of the materials presented in this section are drawn from the 2018-Industry, Economic, and Workforce Research prepared for the Workforce Development Boards for these counties. This overview summarizes the demographic and employment information, with particular relevance to VAFB and the area's aerospace and defense industry.

4.1 SANTA BARBARA COUNTY

Demographics: Table SB1 below summarizes the most recent demographic information for Santa Barbara County. In 2018, the total population of the county was estimated to be 453,457, with Santa Maria, close to VAFB, being the largest city. Additionally, between 2010 and 2018, the population of Santa Maria grew by roughly 8%, the largest percent growth of any municipality in the county. Santa Maria is followed by Santa Barbara as the second largest city, which is located in the southern end of the county.[7] It is important to note that military retirees and veterans are an important group, representing 4.71% of the total population of the county.[8]

Table SB1. Population Estimates for Cities in Santa Barbara County 2011-2018

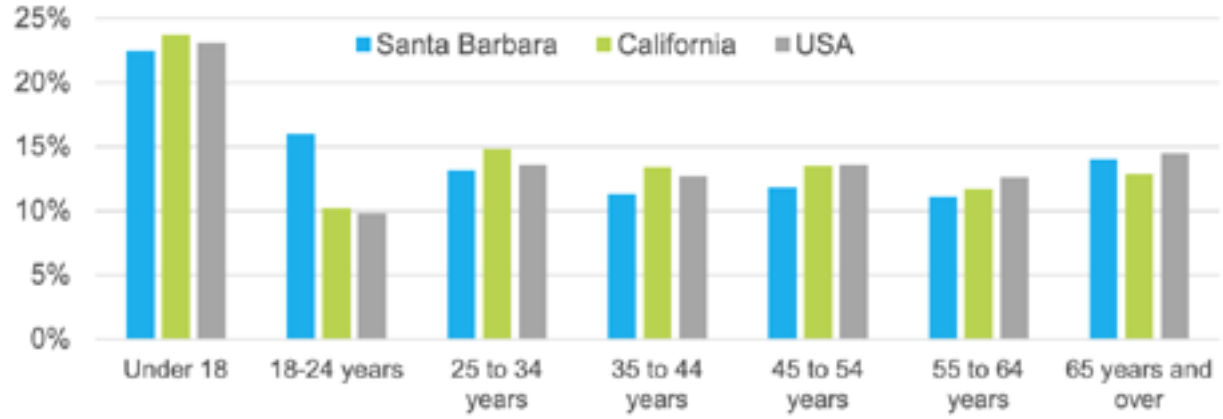
City	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015	1/1/2016	1/1/2017	1/1/2018
Buellton	4,828	4,854	4,852	4,882	4,917	4,912	4,921	5,098	5,291
Carpinteria	13,044	12,990	13,029	13,134	13,510	13,580	13,705	13,697	13,704
Goleta	29,888	29,916	29,921	30,114	30,388	30,734	31,225	31,622	31,949
Guadalupe	7,080	7,059	7,089	7,142	7,205	7,254	7,302	7,341	7,604
Lompoc	42,434	42,153	43,085	43,253	43,969	44,169	44,027	43,881	43,599
Santa Barbara	88,410	89,146	90,103	91,458	92,552	93,777	94,290	94,244	94,807
Santa Maria	99,553	100,275	101,501	102,412	103,603	104,968	106,744	107,978	108,470
Solvang	5,245	5,296	5,307	5,331	5,393	5,420	5,460	5,653	5,771
Rest of County	133,413	132,711	133,307	135,347	136,975	138,173	139,399	140,511	142,262
County Total	**423,895**	**424,400**	**428,194**	**433,073**	**438,512**	**442,987**	**447,073**	**450,025**	**453,457**

Source: State of California, Department of Finance, https://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2010-18/

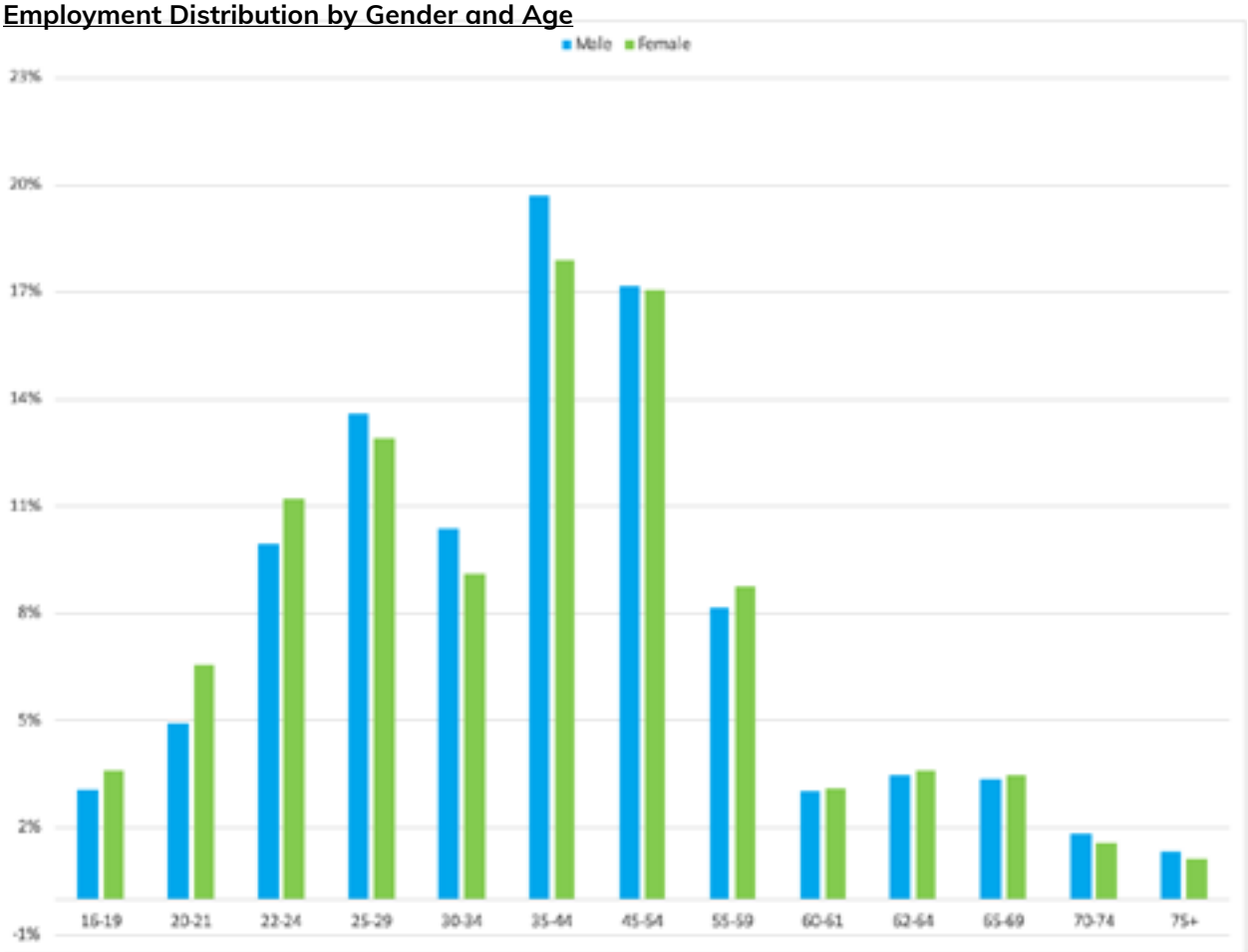
Age distribution is a key determinant of available labor supply for local businesses and a critical factor for regional economic development. The age distribution of Santa Barbara County is illustrated in Figure SB1. The figure shows that about 22% of the county's population is under the age of 18 (same as the national average). The county's population is younger than the national and the state averages (41% between the ages of 18 and 44).[9] This is clearly a positive aspect of the county's labor force and advantageous for further economic developments at VAFB.

Figure SB1. Age Distribution in Santa Barbara County

Age Distribution



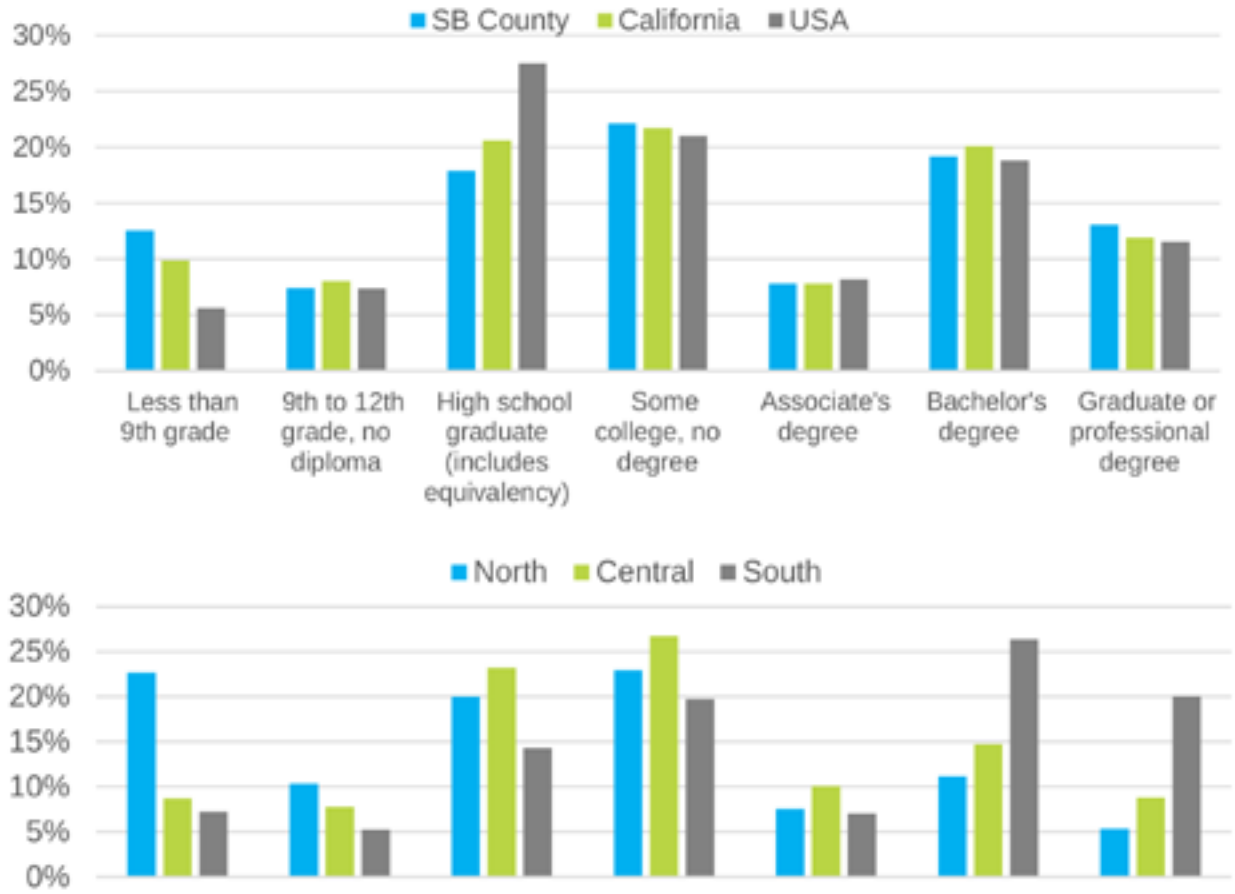
Employment Distribution by Gender and Age



Source: SB County BW Report, 2018.

Educational Attainment: Figure SB2 presents data on educational attainment of Santa Barbara County residents. Overall, approximately 38% of the county residents have a high-school diploma or less, 30% have some college or an associate degree, and 32% hold a bachelor's or higher degrees. Overall, the county's educational attainment levels are similar to the state and slightly better than the national average for those holding a bachelor's or higher degrees.

Figure SB2. Educational Attainment in Santa Barbara County, Population 25 Years and Older



Source: SB County BW Report, 2018.

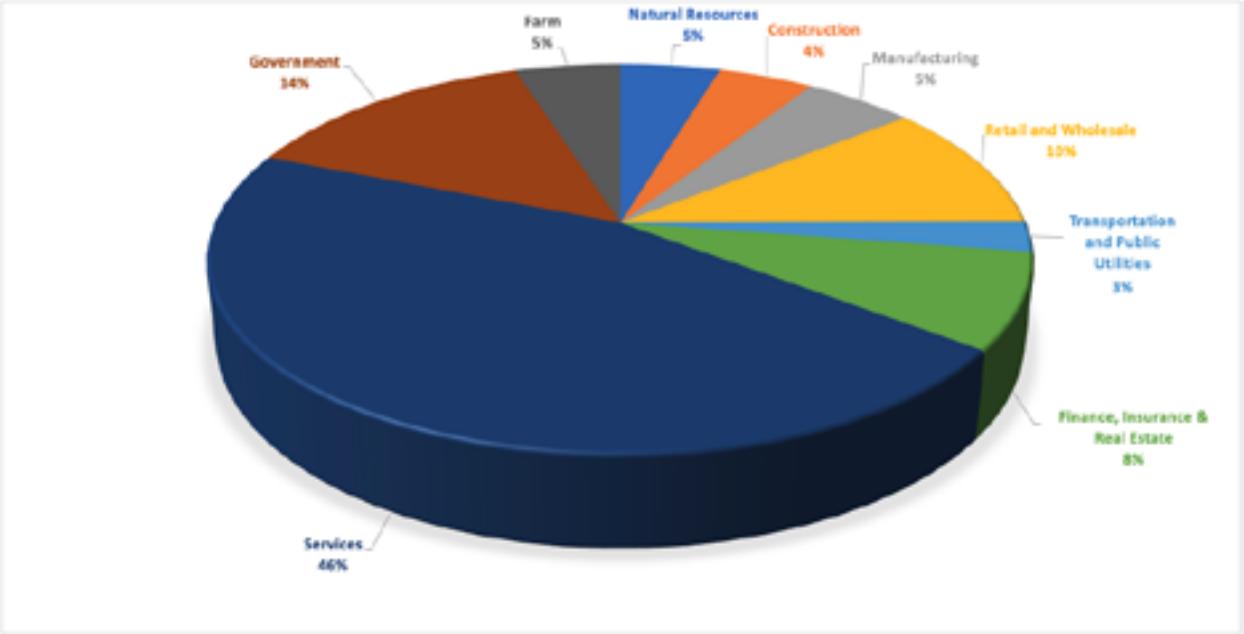
The lower panel of Figure SB2 shows the same data for the northern, central and southern parts of the county. The data shows that the county has a higher concentration of individuals with less than a high-school diploma and that the population is concentrated in the north and central areas. On the other end of the educational spectrum, the county has a higher number of individuals with bachelor's or graduate and professional degrees, most of whom reside in the southern areas of the county.

The central part of the county, which is home to VAFB, has the highest concentration of individuals with a high-school diploma and above. This is reflective of the workforce at the base and the role it

plays in providing good-paying and long-term jobs. This concentration of educated labor force is important for further economic development on VAFB.

Job Environment: As of 2019, there were a total of 291,191 jobs in Santa Barbara County. Of these, 4.55% were in farming, 81.86% were in the private sector, and 13.58% were in the public sector, including military and state and local government. The concentration of jobs in the county varies by region. The south region has 55%, the central 14%, and the north 31% of the total employment in the county.[10] As of June 2019, the county had an unemployment rate of 3.4% (Dec 2020: 7.6%).[11]

Figure SB3. Composition of Jobs in Santa Barbara County by Industry



Source: REMI Data, 2018.

As with the educational attainment, the three noted regions of the county differ by income and racial composition. It appears that the north and south regions of the county are driving much of the county's economic growth, while the central region, where VAFB is located, is lagging behind. The central area has an above average unemployment rate and has seen less than half the job growth rate of the north and south regions since 2010.[12] This may be attributed to stable employmentat VAFB, which is the principle employer in the area, and lack of private-sector job growth, both of which negatively impact the area's economy. Future expansion of commercial activities on VAFB can reduce the high unemployment in this region and significantly contribute to reducing income disparities within the county.

Table SB2 shows the occupational tiers in Santa Barbara County. The table also shows the median annual wage for each employment tier. As a recent BW Report (2018) shows, the overall job quality in the county is deteriorating.

Table SB2. Santa Barbara County Job Tiers and Median Income		
Tier 1	**Tier 2**	**Tier 3**
Occupations include managers, professional positions (lawyers, accountants, physicians), and high-skill technical occupations (scientists, programmers, engineers). These are typically higher-paying occupations.	Occupations include sales positions, teachers, librarians, office and administrative positions, as well as manufacturing operations and production occupations. These can be considered middle-skill, middle-wage positions.	Occupations include protective services, food service and retail, buildings and grounds keeping, and personal care positions. These are typically lower-paying occupations.
In Santa Barbara County, the median wage for a Tier 1 worker is $91,478 a year.	In Santa Barbara County, the median wage for a Tier 2 worker is $48,277 a year.	In Santa Barbara County, the median wage for the Tier 3 worker is $25,792 a year.

Source: SB County BW Report, 2018.

Table SB3 below shows the distribution of job tiers over the period 2010 through 2017. As these data show, since 2010 Tier 3 occupations, which represent more than half of all jobs in the county, have been growing at a faster pace than Tier 1 and Tier 2 jobs. As the proportion of higher-paying Tier 1 and Tier 2 jobs in the county declines, an increasing number of residents will have to travel farther to work or work more jobs to continue to live in the county. Clearly further expansion at VAFB can help alleviate such outcomes by creating Tier 1 and Tier 2 jobs.

Table SB3. Santa Barbara County Job Tiers (2010-17)			
Year	**Tier 1**	**Tier 2**	**Tier 3**
2010	20.1%	28.4%	51.5%
2011	20.1%	28.5%	51.4%
2012	19.9%	28.6%	51.5%
2013	19.8%	28.2%	52.0%
2014	19.4%	28.0%	52.6%
2015	19.6%	27.9%	52.5%
2016	19.7%	27.7%	52.6%
2017	19.8%	27.7%	52.5%

Source: SB County BW Report, 2018.

Table SB4 below shows the county's employment and income by industry cluster. As these data show, growth in the aerospace and defense sector has been stagnant over the recent years. This economic sector consists of all industries that manufacture and design instruments, aircraft, space vehicles and other engine components. While this sector includes military contractors, it does not include direct military personnel. As shown, the aerospace and defense industry cluster only consists of 2% of county employment, but has the fourth-highest per capita earnings. While the aerospace and defense cluster provides the fourth-highest per capita income in the county, it is still below the national average per capita income for that sector of $128,158. Future expansion of commercial activities on VAFB will likely lead to an upward adjustment to income in this sector, which offers long-term employment and will help reverse its stagnant growth rate.

Table SB4. Santa Barbara County Employment by Industry Clusters

Industry Clusters	2017 Employment	% of County	% Growth since 2010	Earnings per worker
Food, Beverage & Agriculture	23,282	11%	15%	$42,853
Healthcare	17,562	9%	22%	$78,907
Tourism & Hospitality	16,091	8%	17%	$31,935
Building & Design	12,897	6%	7%	$76,166
Business Services	$10,544	5%	-9%	$58,189
Information & Communications Technologies (ICT)	7,903	4%	47%	$128,894
Biotechnology & Related Devices	3,506	2%	54%	$114,809
Aerospace and Defense	3,199	2%	0%	$107,350
Energy & Environment	1,792	1%	-17%	$115,507

Source: SB County BW Report, 2018.

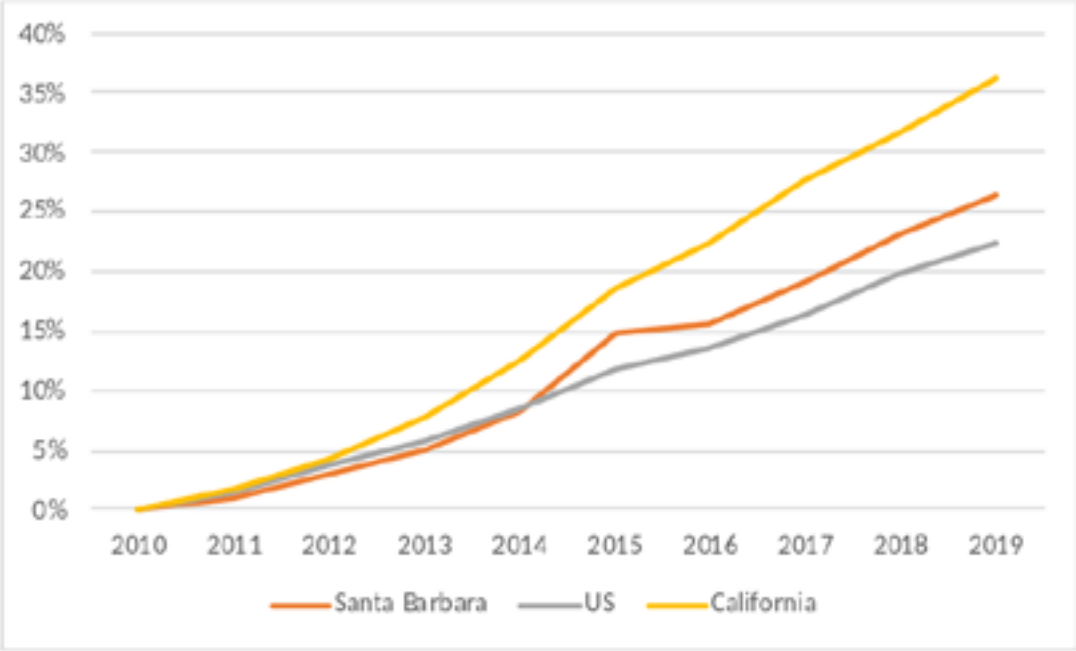
Table SB5 below shows the wages and typical level of education for each job within the aerospace and defense cluster in the county. Moreover, aerospace and defense occupations are mostly concentrated in Tier 1 (67%) and Tier 2 (32%) job categories. As such, these occupations typically require an education level between a high school diploma and a bachelor's degree. As Figure SB2 showed, there is a high concentration of high school graduate and higher degrees within the central region of the county. Hence further expansion of commercial activities at the base is feasible and will lead to hiring more Tier 1 and 2 employees.

Table SB5. Aerospace & Defense Jobs in Santa Barbara County		
Description	**Median Hourly Earnings**	**Typical Entry-Level Education**
Software Developers, Systems Software	$57.69	Bachelor's degree
Industrial Engineers	$49.56	Bachelor's degree
Electrical & Electronic Equipment Assemblers	$18.36	High school diploma or equivalent
Machinists	$20.53	High school diploma or equivalent
Electrical & Electronics Engineering Technicians	$28.26	Associate's degree

Source: SB County BW Report, 2018.

GDP and Household Income: The 2019 annual Gross Domestic Product for Santa Barbara County was $31.35 billion, which after adjusting for inflation had increased by 9.86% since 2017. Additionally, the per capita GDP for the county is roughly $70,2101. The county's GDP has grown 26.32% between 2010 and 2019. This growth is faster than the U.S. real GDP growth (22.39%), but slower than the overall California real GDP growth over the same period (36.15%). The county's median household income is $74,624 and the average per capita income is $36,039.[13] Figure SB4 shows the county's GDP growth in relation to the U.S. and California for the past 10 years.

Figure SB4. Santa Barbara County Cumulative GDP Growth



Source: U.S. Bureau of Economic Analysis.

The Role of VAFB in Santa Barbara County Economic Development: As Santa Barbara County continues to generate talent, specifically through UCSB and other local universities, this talent is often exported to other areas, with the county losing out on the benefit that retaining talents locally could bring. Specifically, the county is "exporting talent in high-skill, high-pay occupations in management, business, science, and arts and is importing workers in lower-pay service, sales and office, and production, transportation, and material moving occupations."[14]

VAFB plays a critical role in retaining high paying and long-term jobs in Santa Barbara County. These jobs generate significant income and contribute to the fiscal health of the county and the municipalities surrounding the base. Future commercial expansion at VAFB will ensure additional Tier 1 and 2 jobs are created and will give the county more opportunities to retain and attract high-skilled talent. VAFB's potential expansion will give the opportunity to spur further economic development for the central region, enabling that area to benefit from increased economic prosperity.

4.2 SAN LUIS OBISPO COUNTY

Demographics: Table SLO1 below summarizes the most recent demographic information for San Luis Obispo County. As of 2019, the total population of San Luis Obispo County is 283,111. Population growth in the county has been under 0.5% per year over the last decade. Over this period, the county's population grew by 3.82%. The Coastal sub-region has seen little population growth over the past seven years (2%), but the rest of the county has seen steady population growth. The population in the City of San Luis Obispo has increased the most, growing by about 5%. North and south county grew more consistently, increasing by 3.8% and 3.2% respectively.

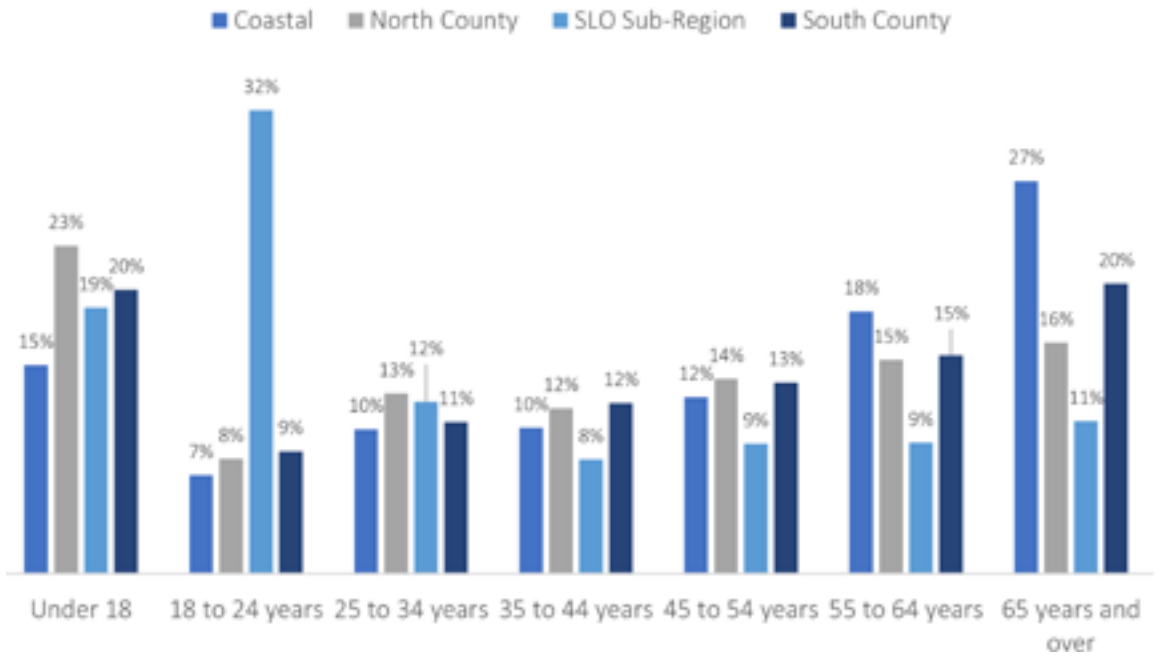
Table SLO1. Population Estimates for Cities in San Luis Obispo County 2011-2018

City	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015	1/1/2016	1/1/2017	1/1/2018
Arroyo Grande	17,252	17,245	17,307	17,501	17,600	17,808	17,884	17,874	17,912
Atascadero	28,310	28,654	28,836	29,234	29,524	30,350	30,909	31,135	31,147
El Paso de Robles	29,793	30,129	30,505	30,930	31,160	31,314	31,349	31,562	31,559
Grover Beach	13,156	13,205	13,227	13,345	13,407	13,489	13,565	13,593	13,560
Morro Bay	10,234	10,325	10,297	10,380	10,420	10,442	10,499	10,516	10,503
Pismo Beach	7,655	7,667	7,746	7,840	7,912	8,015	8,150	8,209	8,233
San Luis Obispo	45,119	45,456	45,356	45,710	45,942	45,965	45,981	46,424	46,548
Rest of County	118,118	117,343	118,230	118,364	119,660	119,286	119,804	119,897	120,639
County Total	**269,637**	**270,024**	**271,504**	**273,304**	**275,625**	**276,669**	**278,141**	**279,210**	**280,101**

Source: State of California, Department of Finance, https://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2010-18/

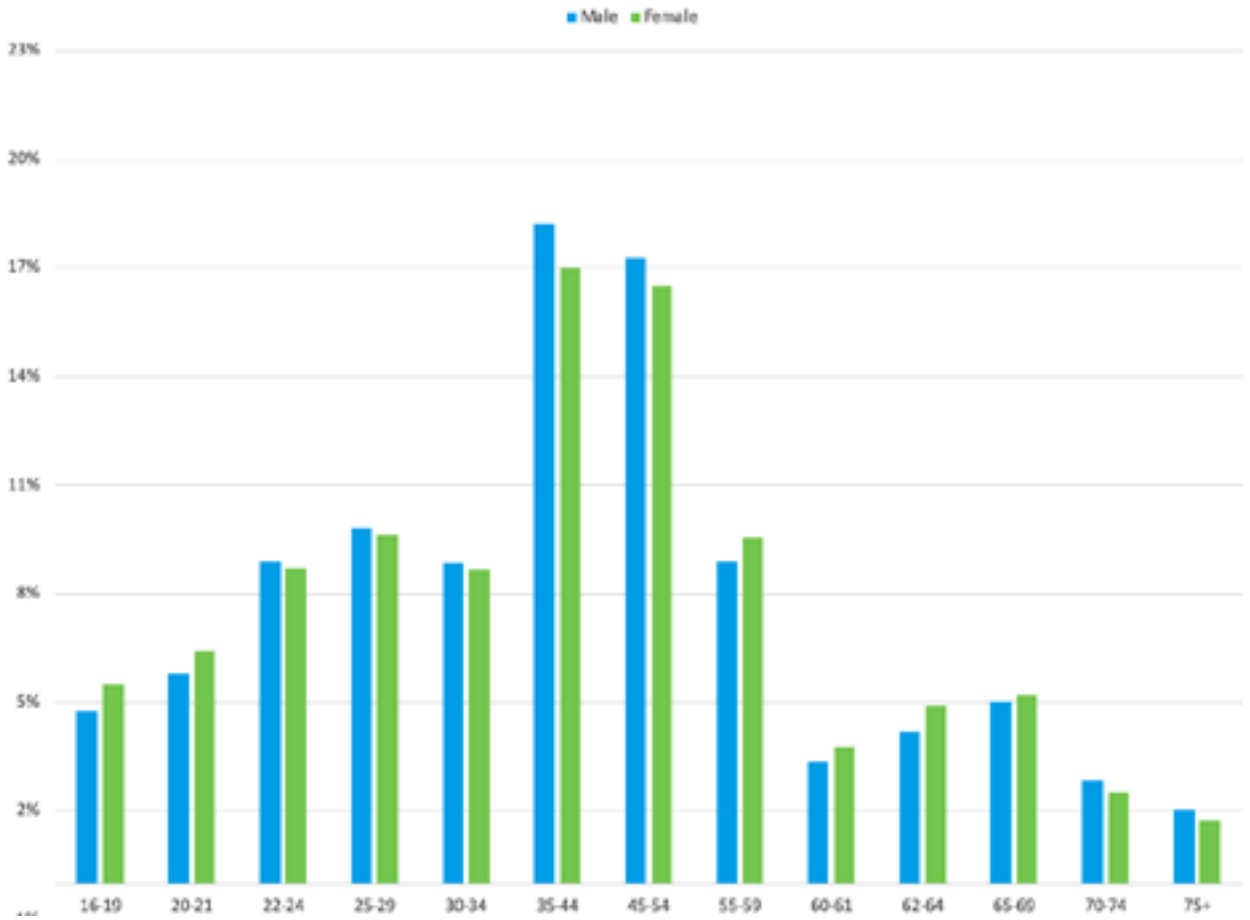
Figure SLO1 shows the age distribution in the county by sub-regions. Overall, a quarter (25%) of the county's population is 55 years and older. This older population is mostly concentrated in the Coastal area (45%), followed by the south (35%) and north (31%) areas. On the other hand, more than half (51%) of the City of San Luis Obispo residents are 24 years or younger. This is because California Polytechnic State University's students, faculty, and staff, and their families mostly reside within the city. Additionally, 20.9% of the county's population is over the age of 65, and 17.5% is under the age of 18.[15] It is important to note again that 5.92% of county residents are veterans. [16]

Figure SLO1. Age Distribution in San Luis Obispo County



Source: SLO County BW Report, 2018.

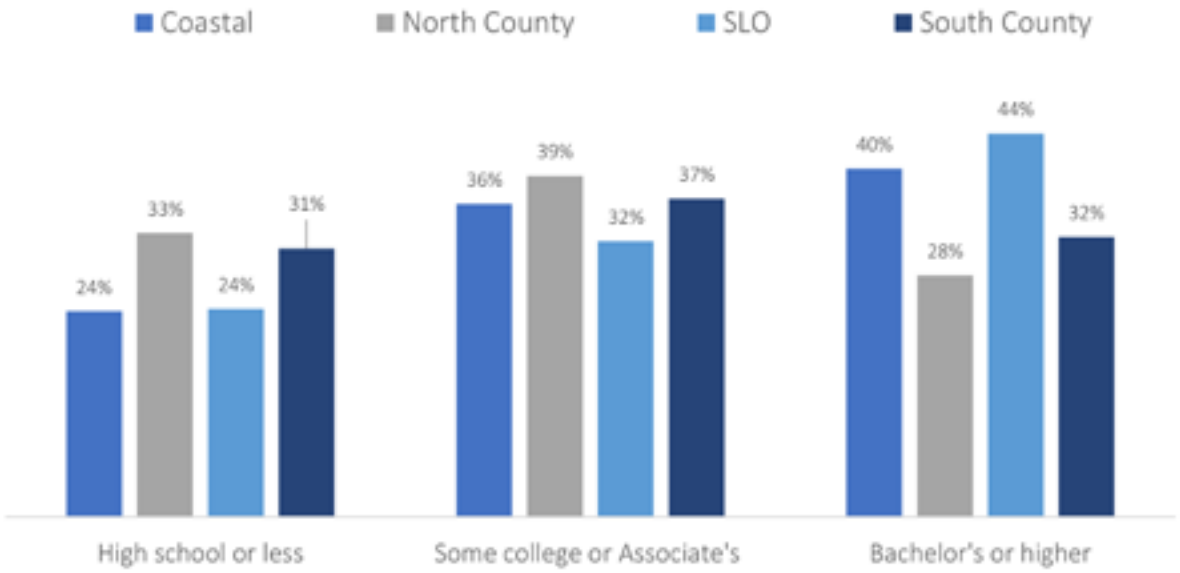
Figure SLO1 (cont.) Age Distribution in San Luis Obispo County
Employment Distribution by Gender and Age



Source: SLO County BW Report, 2018.

Educational Attainment: Educational attainment in San Luis Obispo County is relatively high, with 70% of residents having some college or higher degrees. In fact 40% of residents of the Coastal area and the City of San Luis Obispo have a bachelor's degree or higher.

Figure SLO2. Educational Attainment in San Luis Obispo County



Source: SLO County BW Report, 2018.

Job Environment: The county supports 178,476 total jobs (2.08% farm, 84.69% private nonfarm, and 13.23% in the public sector with the state and local government and the military). The average earnings is $56,409, which is lower than both the state ($78,217) and national ($66,029) average. Over the last decade, the county has experienced significant job growth. Overall, about 30,000 additional jobs were created in the county, representing a cumulative annual growth rate of 1.91% (total 21% over the period). This figure is larger than the U.S. total over the period (18%), but also smaller than that of the State of California (25%). The strong job growth in the county has led to comparatively low levels of unemployment. The county unemployment rate is usually below 3.0%, indicating a tight labor market.

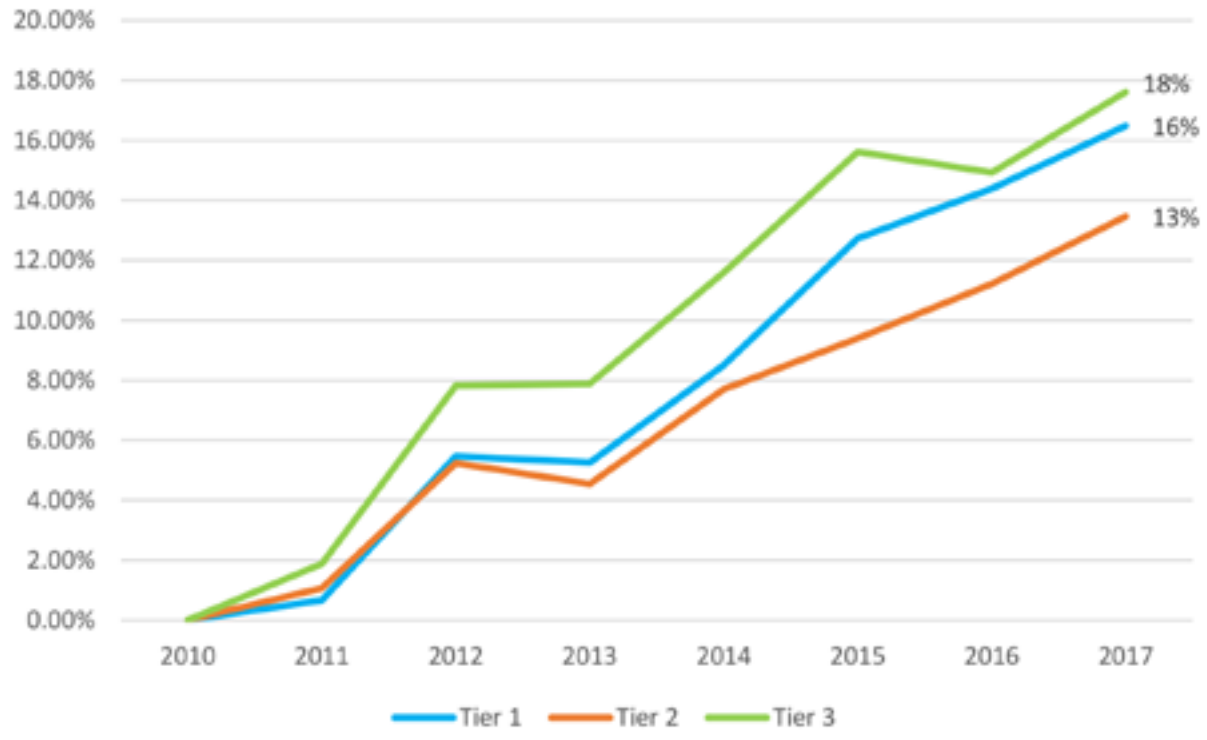
Table SLO2 below shows the occupational tiers in San Luis Obispo County. The table also shows the median annual wage for each employment tier. It appears that relative to neighboring counties, San Luis Obispo county has the lowest average income for workers in all three tiers. Moreover, as a recent BW Report (2018) shows, the overall job quality in the county is deteriorating.

Table SLO2. San Luis Obispo County Job Tiers and Median Income		
Tier 1	**Tier 2**	**Tier 3**
Occupations include managers, professional positions (lawyers, accountants, physicians), and high-skill technical occupations (scientists, programmers, engineers). These are typically higher-paying occupations.	Occupations include sales positions, teachers, librarians, office and administrative positions, as well as manufacturing operations and production occupations. These can be considered middle-skill, middle-wage positions.	Occupations include protective services, food service and retail, buildings and grounds keeping, and personal care positions. These are typically lower-paying occupations.
In San Luis Obispo County, the median wage for a Tier 1 worker is $80,413 a year.	In San Luis Obispo County, the median wage for a Tier 2 worker is $46,530 a year.	In San Luis Obispo County, the median wage for the Tier 3 worker is $27,730 a year.

Source: SLO County BW Report, 2018.

Figure SLO3 below shows the growth for each job tier over the period 2010 through 2017.

Figure SLO3. San Luis Obispo County Jobs Growth by Tiers (2010-17)

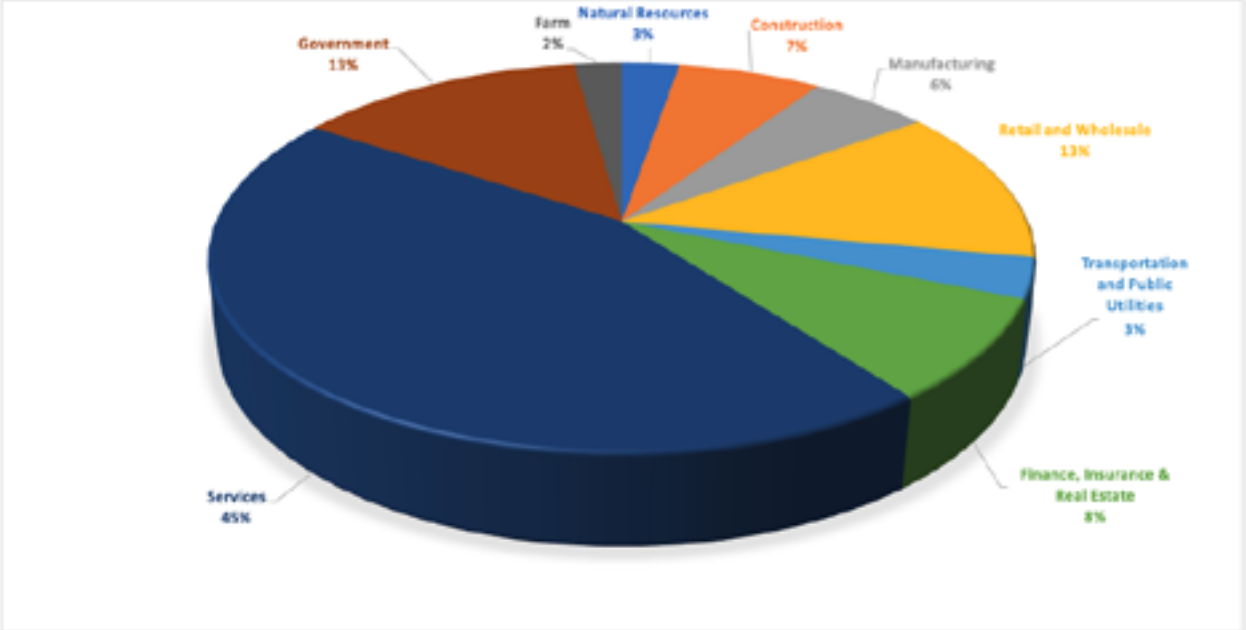


Source: SLO County BW Report, 2018.

As Figure SLO3 shows, since 2010 Tier 3 occupations, which represent a large portion of all jobs in the county, have been growing at a faster pace than Tier 1 and Tier 2 jobs. Again, as the proportion of higher-paying Tier 1 and Tier 2 jobs in the county declines, an increasing number of residents will have to travel farther to work or work more jobs to continue to live in the county. Clearly further expansion at VAFB can also help alleviate such outcomes in San Luis Obsipo County by creating additional Tier 1 and Tier 2 jobs.

Figure SLO4 below shows the composition of jobs by industry in San Luis Obispo county. We note that the county is very similar in this regard with neighboring Santa Barbara County. Moreover, the large number of low-paying jobs in the county reflects the presence of a large Tourism and Hospitality Industry. Other industry clusters providing the largest number of jobs in the county include Education & Knowledge Creation, and Healthcare. These three industries together account for 41% of all jobs in the county. Other industries that experienced significant growth since 2010 include Information & Communication Technologies (51%), Building & Design (41%), and Defense, Aerospace & Transportation Manufacturing (37%). The later industries are responsible for the growth of mid- to higher-wage jobs in the county, with average wages between $59,069 and $81,880.[17]

Figure SLO4. Composition of Jobs in San Luis Obispo County by Industry



Source: SLO County BW Report, 2018.

Table SLO3 below shows the key industry clusters within the county, along with their cumulative growth rate since 2010. The table shows that the Defense, Aerospace & Transportation Manufacturing (DATM) cluster has experienced the third-highest growth rate over the past decade. This sector employs 533 individuals, with average annual earnings of $59,069. The largest portion of DATM jobs are Tier 2 occupations (43%), followed by Tier 3 (38%), and Tier 1 (19%).

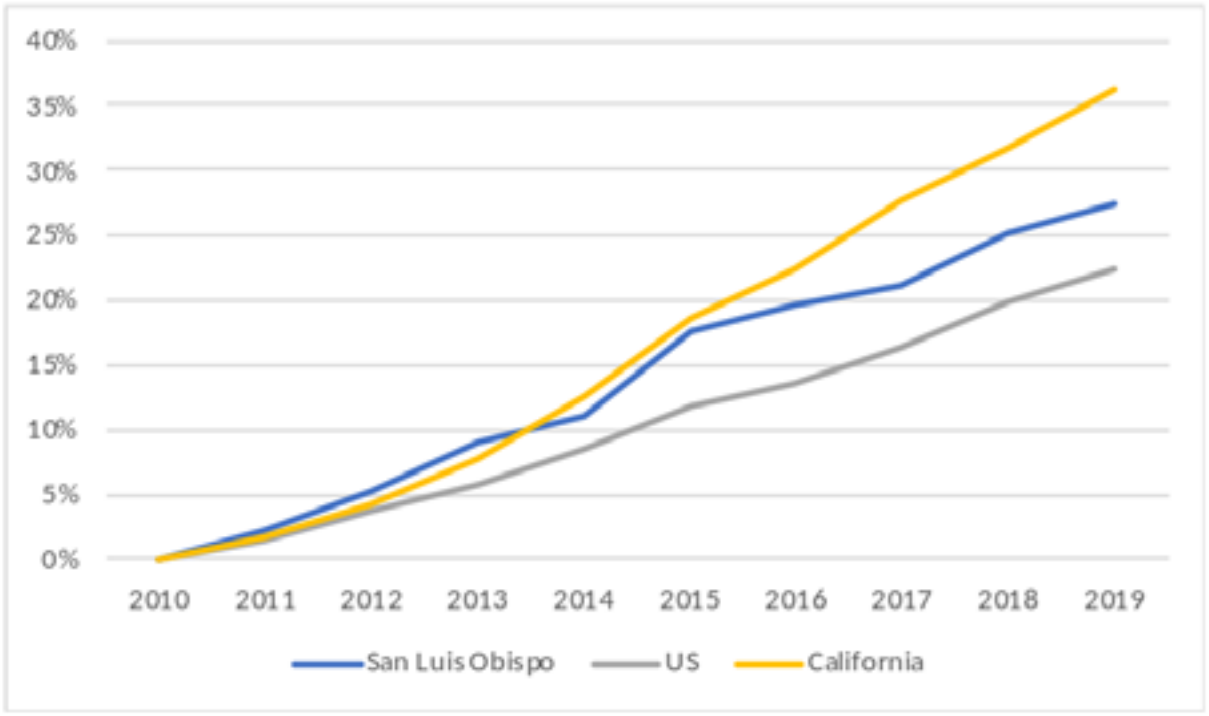
Table SLO3. San Luis Obispo County Employment by Industry Clusters

Industry Clusters	2017 Employment	% Growth since 2010
Energy	3,265	11%
Information & Communications Technologies (ICT)	2,666	51%
Biotechnology & Biomedical Devices (B&BD)	989	23%
Building & Design	7,861	41%
Healthcare	15,158	26%
Defense, Aerospace & Transportation Manufacturing	533	37%

Source: SLO County BW Report, 2018.

GDP and Household Income: In 2019, the gross domestic product for the county stood at $19.10 billion, representing roughly $67,340 per capita. Figure SLO4 shows the cumulative GDP growth for the county, the State of California, and the U.S. since 2010. Over the last decade, the county's real GDP grew by 27.45%, which is much larger than the U.S. real growth rate of 22.39% but lags behind California's real growth rate of 36.15% over that same period.

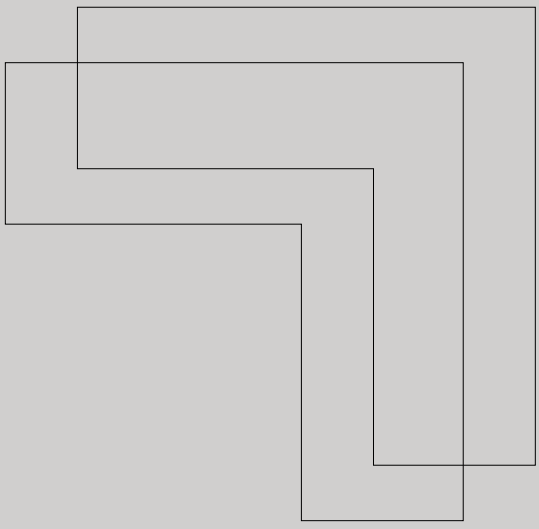
Figure SLO5. San Luis Obispo County Cumulative GDP Growth



Source: SLO County BW Report, 2018.

SECTION 5

ECONOMIC AND FISCAL IMPACT OF VAFB



5. ECONOMIC AND FISCAL IMPACT OF VAFB

It is standard practice to use an "input-output model" to assess the economic and fiscal impact of a military base. Such models takes economic activity on the base as "input" data and projects the current and future impact on "output" in surrounding economies. It is important that the model provides dynamic estimates of the output that are reflective of expected fluctuations in the business cycle and local labor markets and demographics, rather than being a static snapshot of the base's current impact.

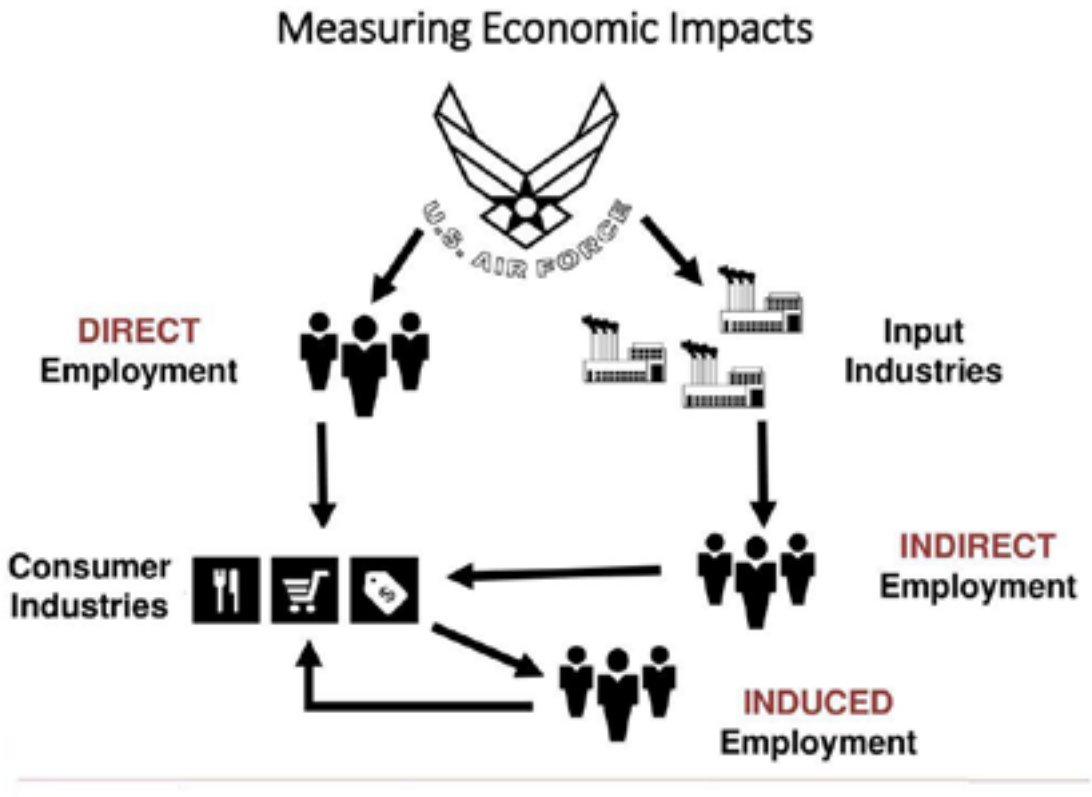
Figure EF1 below provides a schematic view of a generic military base economy and the measurement of its economic impact on surrounding communities. Panel A shows three types of economic activities associated with a base: The installation's footprint is measured by the number of military and civilian employees plus local expenditures on base that support operations and maintenance (O&M). Procurement measures the base's local expenditure on contractors for manufacturing, professional and technical services, and construction. Transfer payments capture the base's expenditures on retirement and veteran compensation.

Figure EF1-A. Understanding the Economic Impact of an Air Force Base

Source: Authors

Panel B shows that inputs are separated into two categories; direct on-base employment and procurement expenditures (input industries). On-base employment data is the total number of active duty military personnel, trainees and reserves, service contractors, and civilian employees (O&M). Expenditures by these economic agents results in increased demand for local consumer industries. Procurement includes the base expenditures on infrastructure projects, as well as projected expenditures by the base visitors and tourism spending. These expenditures generate direct local employment, which in turn leads to additional demand for consumer industries. The increased demand for consumer goods, in turn, leads to induced local employment and income.

Figure EF1-B. Understanding the Economic Impact of an Air Force Base



Source: Authors

Consistent with Panel B, the outputs from the model are typically segmented into direct, indirect, and induced impacts. Direct impacts are related to the current operations and future growth of the base, such as anticipated growth in the size of military and civilian employees, as well as planned facility enhancements and construction projects. Given the projected direct activity, the model will provide estimates of the indirect and induced impacts through secondary effects resulting from the base's economy. For example, when VAFB hires a construction company, it results in employment that is indirectly attributable to the base. The induced impact resulting from the hiring

of the construction company occurs when the construction firm and its suppliers hire additional employees and acquire additional supplies to complete the base project. While these jobs are created due to the infrastructure project on the base, the new employees are not working directly on the base project, hence the term "induced impact."

The majority of military base economic impact analyses that rely on input-output models are static. That means the economic impact is assessed at a point in time, and consequently expected structural, demographic and educational changes to the local economy, as well as the overall macroeconomic factors such as inflation, interest rates, and government expenditures, are not considered. For this analysis, we utilize a dynamic impact model that accounts for these factors and are therefore able to project the estimated economic impact of VAFB over time. This dynamic impact model will be based on expected future business cycle fluctuations that are consistent with historical economic and demographic trends for the regions under consideration.

In the next section we report estimates of direct, indirect and induced impacts for each county and the rest of California under two scenarios. First, under a "Stand Still" scenario, we assume that the level of economic activity associated with VAFB remains flat over the next decade; that is, the size of the base's workforce (military and civilian), its dollars expenditures on operations and maintenance, awarded contracts, gross payments to retirees, and the number of tourists and government/business visitors to the base will remain at their 2020 level until 2030. Second, we provide estimates of the economic impact of VAFB under various "envisioned growth" scenarios by accounting for anticipated military growth at the base, proposed expansions of commercial satellite and rocket launches as envisioned by REACH (*The Commercial Space Master Plan*), and potential infrastructure improvements being considered by the City of Lompoc.

We then estimate the fiscal impact of these developments in terms of corporate, personal income, sales, and property tax revenues generated under each scenario. It is important to note that corporate and personal income tax revenues accrue to the State of California, and sales and property tax revenues accrue to the counties under consideration. Before turning to the task of reporting our findings, we provide a brief overview of the modeling procedure used in this analysis.

5.1 ECONOMIC IMPACT MODEL

This study utilizes the Regional Economic Models Inc. Policy Insight Plus (REMI henceforth) model to estimate the current and future economic impact of VAFB on Santa Barbara and San Luis Obispo Counties and the rest of California. Utilizing VAFB's current employment and total compensation, planned capital investments, and ongoing operations and management expenditures, the model estimates the current and future economic impact of the base.

REMI is a structural economic forecasting and policy analysis model. It integrates input-output, computable general equilibrium (CGE), econometric, and economic geography methodologies. The model is dynamic, with forecasts and simulations generated on an annual basis and behavioral responses to wages, prices and other economic factors. The model consists of thousands of simultaneous equations with a structure that is relatively straightforward. The exact number of equations used varies depending on the extent of industry, demographic, demand and other detail in the model.

REMI is utilized by many public agencies, consulting firms, nonprofit organizations and local governments to simulate the economic impact of a variety of public and private capital investments, including infrastructure development, energy projects and military bases. The model provides output that quantifies the economic impact of a certain area of study, and for this report's sake, results are segmented on a county-wide basis into the number of jobs created, benefit to county GDP, and the general tax implications. These effects are further separated into direct, indirect and induced impacts. In construction of the model, REMI uses audited data from public agencies such as the U.S. Bureau of Economic Analysis and the Census Bureau as well as user inputted data to construct its larger model.

At the core of the REMI model (version 2.4.6) used for our analysis is the local economic and demographic forecasts and input-output coefficients for 70 local industry sectors. This includes the REMI economic and demographic baseline forecast for each county and the rest of California, which produces multi-year baseline forecast for these regions. The results associated with the two scenarios noted above are then compared to the baseline forecasts.

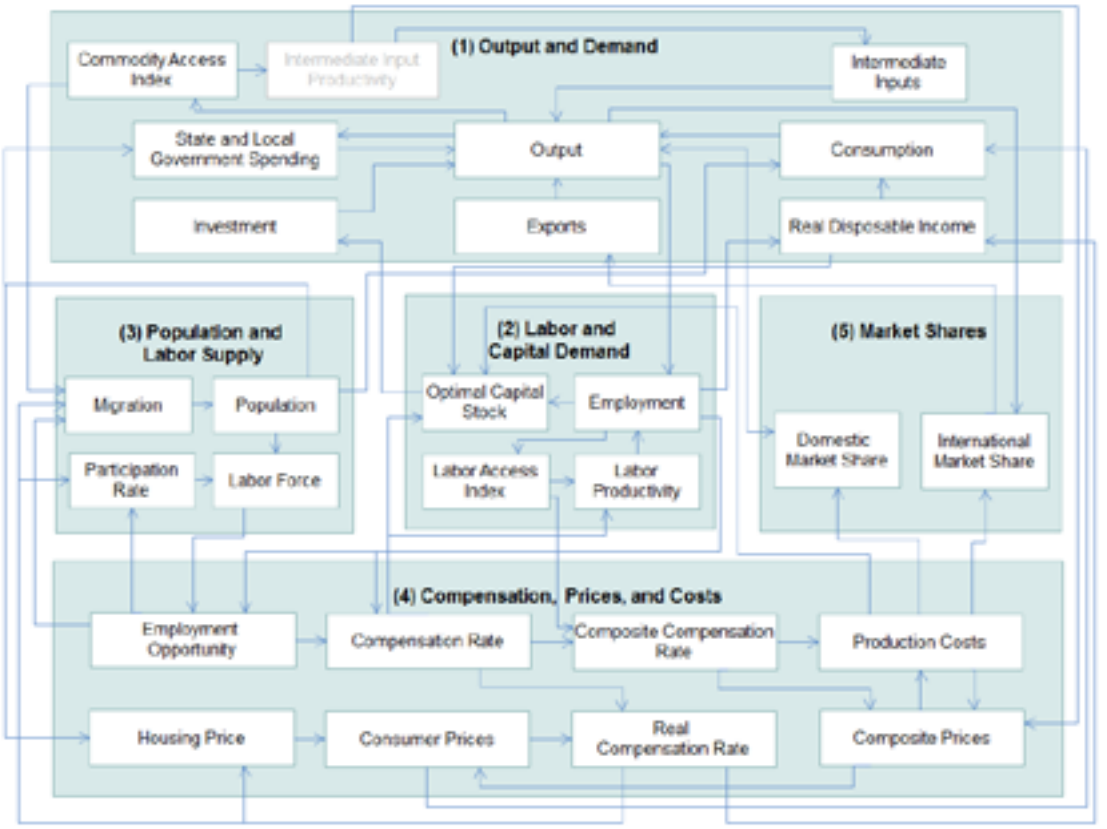
The industrial sectors in REMI are based on the North American Industry Classification System (NAICS). The input-output system is assembled using data from the Bureau of Economic Analysis (BEA), the Bureau of Labor Statistics (BLS), the Department of Energy (DOE), Department of Defense (DOD), the Census Bureau and other public sources.

The custom REMI model used to evaluate the economic impact of VAFB contains information for Santa Barbara and San Luis Obispo Counties and the rest of California as a whole. This configuration allows us to estimate the economic impacts for each county and to model spillover effects across both counties and the state.

The REMI model is based on two key underlying assumptions from mainstream economic theory: households maximize utility and producers maximize profits. In the model, businesses produce goods to sell to other firms, consumers, investors, governments and purchasers outside the region. The output is produced using labor, capital, fuel and intermediate inputs from other industries. The demand for labor, capital and fuel per unit of output depends on their relative costs, since an increase in the price of any one of these inputs leads to substitution away from that input to other inputs. The supply of labor in the model depends on the number of people in the region and the labor force participation rate. Economic migration also affects the population size. People will move into an area if the real after-tax wage rates are relatively high or if the likelihood of being employed increases in a region.

Supply and demand for labor in the model determine the wage rates. These wage rates, along with other prices and productivity, determine the cost of doing business for every industry in the model. An increase in costs would decrease the share of markets supplied by local firms. This market share, combined with the demand described above, determines the amount of local output. The model has several other feedback mechanisms. For example, changes in wages and employment impact income and consumption, while economic expansion changes investment and population growth impacts government spending.

Figure EF2. The Overall Structure of REMI-PI Model



Source: Regional Economic Models Inc., Policy Insight Plus, Version 2.4.6, 2020.

Figure EF2 is a pictorial representation of the REMI model. The overall structure of the model can be summarized in five major blocks: (1) Output and Demand, (2) Labor and Capital Demand, (3) Population and Labor Supply, (4) Compensation, Prices and Costs and (5) Market Shares. The blocks and their key interactions are shown in the figure. The Output and Demand block shows a business that sells to all the sectors of final demand as well as to other industries. The Labor and Capital Demand block shows how labor and capital requirements depend both on output and on their relative costs. The Population and Labor Supply block contribute to demand and wage determination. Economic migrants in turn respond to wages and other labor market conditions. Supply and demand interact in the Compensation, Price, and Costs block. Production costs determine market shares. Output depends on market shares and the components of demand.

The REMI model brings together all of the above elements to determine the value of each of the variables in the model for each year in the baseline forecast as well as for simulation purposes. The model includes all the inter-industry interactions that are included in input-output models in the Output bloc, but goes well beyond an input-output model by including the linkages among all of the other blocks shown in the figure.

To broaden the model in this way, it is necessary to estimate key relationships. This is accomplished by using extensive data sets covering all counties in the United States. These large data sets and three decades of research effort enable REMI to simultaneously maintain a theoretically sound model structure and build a model based on all the relevant data available.

Finally, the model has strong dynamic properties, which means that it forecasts not only what will happen but also when it will happen. This results in long-term predictions that have year-by-year change. Moreover, the long-term properties of general equilibrium models are preserved while maintaining accurate annual predictions and using estimates of key equations from primary data sources.

5.2 VAFB INPUTS: DIRECT ECONOMIC PROFILE

Table EF1 lists the current 2020 VAFB inputs and their projected levels over the next decade. The inputs associated with the installation's footprint are listed under the "Stand Still Scenario." These include the number of military and civilian employees, on-base expenditures that support operations and maintenance (O&M), local expenditure on contractors for professional and technical services including planned capital projects, expenditures on executed contracts, and expenditures by visitors and tourists to the base. Transfer payments to retirees and veterans are also included.

The second page of the table shows the inputs associated with the anticipated expansions to the base employment (military and civilian) as described by the base's leadership. Similarly, the City of Lompoc will likely undertake a number of infrastructure developments (roads, bridges and enhancements to the municipal facilities) to better serve VAFB. Finally, under the leadership of REACH, Deloitte has recently undertaken a major study, entitled *The Commercial Space Master Plan*, which proposes expansion of commercial satellite, missile and rocket launches at VAFB. Table A3 in the Appendix provides details of the envisioned expansions. The inputs associated with these plans appear in the last rows of Table EF1.

Table EF1. Vandenberg Air Force Base Inputs for the REMI Model 2020-2030											
Type	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Stand Still Scenario											
Federal Military Employment (Number)	2,912	2,912	2,912	2,912	2,912	2,912	2,912	2,912	2,912	2,912	2,912
Federal Civilian Employment (Number)	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375
Military Dependents (Age 0 - Age 17)	1,452	0	0	0	0	0	0	0	0	0	0
Military Dependents (Age 18 - Age 65)	859	0	0	0	0	0	0	0	0	0	0
Retirees and Veterans ($M)	83.12	83.12	83.12	83.12	83.12	83.12	83.12	83.12	83.12	83.12	83.12
Utilities (Elec., gas, water, sewage, $M)	13.66	13.66	13.66	13.66	13.66	13.66	13.66	13.66	13.66	13.66	13.66
Maintenance Services ($M)	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82	7.82
Medical Employees ($M)	10.27	10.27	10.27	10.27	10.27	10.27	10.27	10.27	10.27	10.27	10.27
Real Estate Services ($M)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Retail Expenditures ($M)	8.45	8.45	8.45	8.45	8.45	8.45	8.45	8.45	8.45	8.45	8.45
Business Support Services ($M)	18.15	18.15	18.15	18.15	18.15	18.15	18.15	18.15	18.15	18.15	18.15
Travel and Entertainment ($M)	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98	4.98
Transportation Exp. ($M)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Telecom Service ($M)	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Civil and Other Engineering Service ($M)	42.31	42.31	42.31	42.31	42.31	42.31	42.31	42.31	42.31	42.31	42.31
Planned Capital Projects ($M)	37.72	37.72	37.72	37.72	0	0	0	0	0	0	0
Contracts Executed ($M)	135	135	135	135	135	135	135	135	135	135	135
Tourist & Visitor Exp. ($M)	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66	9.66

Source: VAFB, Deloitte, City of Lompoc, and Authors' Research.

Table EF1 cont. Vandenberg Air Force Base Inputs for the REMI Model Period 2020-2030

Type	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Anticipated VAFB Expansion Scenario											
VAFB Expansion (Military Employment)	0	0	0	0	0	500	500	500	500	500	500
VAFB Expansion (Civilian Employment)	0	0	0	0	0	200	200	200	200	200	200
Lompoc Infrastructure ($M)	0	0	0	50	75	125	0	0	0	0	0
Commercial Space Expansion Scenario											
Commercial Space Expansion (Employees)	0	75	75	125	235	370	595	595	595	595	595
Commercial Space Expansion ($M Construction)	0	0	19.95	39.89	59.84	79.79	0	0	0	0	0

Source: VAFB, Deloitte, City of Lompoc, and Authors' Research.

5.3 VAFB OUTPUTS: AVERAGE ANNUAL ECONOMIC IMPACT 2020-30

In this section we present the overall economic impact associated with various expansion scenarios (input presented in Table EF1). Utilizing REMI's built-in forecasting capabilities, we simulate the overall economic impact of VAFB over the period 2020-2030, under the Stand Still and alternative military and commercial space expansion scenarios envisioned. To best understand the economic impact of VAFB, we report the following common indicators of the economic health for Santa Barbara and San Luis Obispo Counties as well as the rest of California: Total Employment, regional Gross Domestic Product (GDP), Output, Personal Income, and Disposable Personal Income.

The economic impacts in this report represent the most conservative growth projections for VAFB.

Table EF2 reports the estimated average annual impacts over the period 2020-2030 (Tables A1 and A2 in Appendix A show similar estimates for each year). The middle three columns show the marginal impact of additional economic activities. The last column (+All) shows the impact of all the expansion scenarios given the inputs in Table EF1. It is important to reiterate that under the "Stand Still scenario," the economic footprint of VAFB over the next decade is assumed to remain constant. Moreover, the inputs associated with the future expansion scenarios are selected to be the lowest possible values. Hence, the economic impacts in this report represent the most conservative growth projections for VAFB.

Table EF2. Average Annual Economic Impact of VAFB Under Different Expansion Scenarios, 2020-2030

Category	Stand Still	+Military Expan.	+Lompoc	+ Com. Epan.	+All
Santa Barbara County					
Total Employment (Jobs)	13,497	14,402	13,648	14,291	15,348
Gross Domestic Product ($M)	2,847	3,077	2,868	2,974	3,224
Output ($M)	4,667	5,045	4,703	4,868	5,282
Personal Income ($M)	1,557	1,661	1,571	1,633	1,751
Disposable Personal Income ($M)	1,362	1,452	1,374	1,427	1,529
San Luis Obispo County					
Total Employment (Jobs)	674	716	697	725	791
Gross Domestic Product ($M)	111	119	114	119	130
Output ($M)	188	200	194	202	221
Personal Income ($M)	115	122	118	124	134
Disposable Personal Income ($M)	99	105	101	106	115
Rest of California					
Total Employment (Jobs)	4,245	4,517	4,291	4,442	4,760
Gross Domestic Product ($M)	820	877	829	859	924
Output ($M)	1,423	1,522	1,438	1,489	1,603
Personal Income ($M)	539	574	545	566	606
Disposable Personal Income ($M)	464	494	469	487	521

Source: Outputs from the REMI model.

5.4 VAFB OUTPUTS: DIRECT, INDIRECT, AND INDUCED EMPLOYMENT IMPACTS

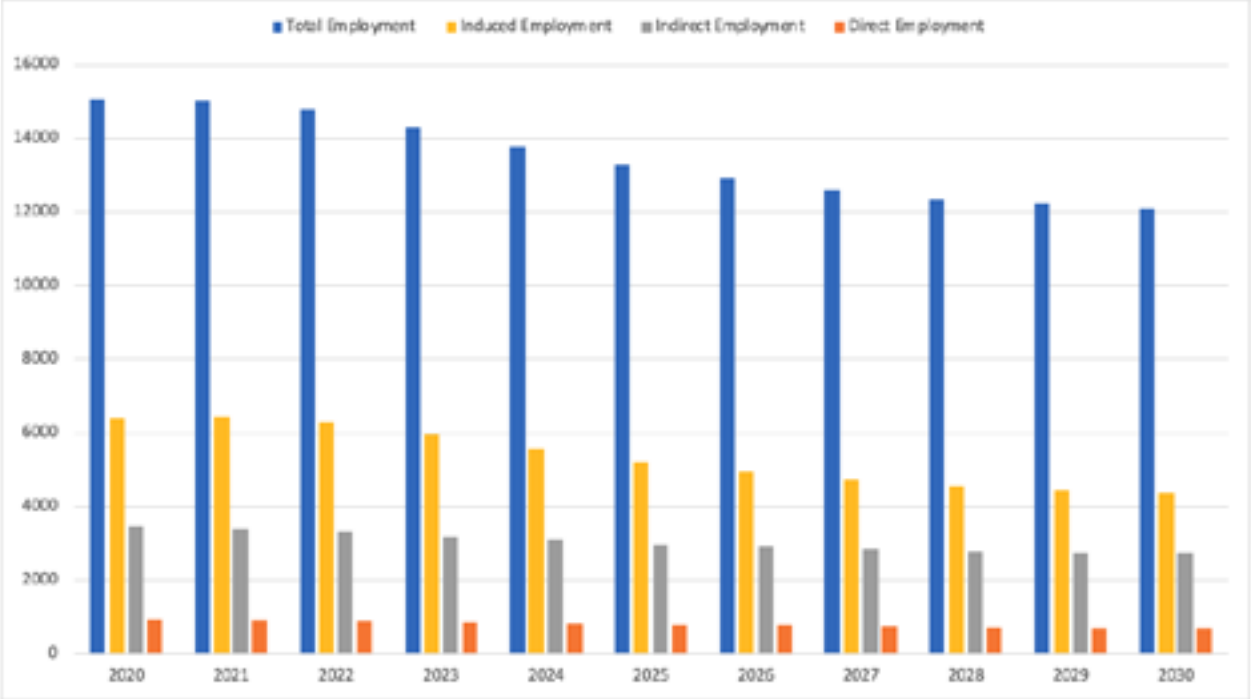
Next we present estimates of the direct, indirect and induced employment impacts of VAFB on the regions under consideration. Figures EF3, EF4 and EF6 below shows the total, direct, indirect and induced employment for Stand Still and All Developments scenarios over the period 2020-2030.

Note that under the Stand Still scenario, where the on-base head counts (military and civilian) and the dollar expenditures remain flat, the base's employment impact declines over time. This is due to the fact that within the REMI model, wages (labor productivity) and prices are rising over time, and consequently fewer individuals are employed given the fixed expenditures by the base. This trend, however, is mitigated with the expansion of military personnel on the base and the increase in commercial space activities, as envisioned in Table EF1.

It is important to also emphasize that over the last decade there has been a transition of some services (e.g., housing and water) away from the base and to the local economy. Additionally, as military health care access at the base clinic continues to decrease due to cuts in personnel/ supported specialties/etc. by the Department of Defense Health Services, the increased reliance on the local community for dependent, active duty and retiree health care will likely grow, even under the Stand Still scenario. Moreover, the base administration is considering further privatization of base services (e.g. power), which will also lead to increased economic impact on the local community. The timing and magnitude of these developments is difficult to predict and their impact is not built into the models presented above. Again, this omission implies a very conservative growth projections for VAFB.

Figure EF3. VAFB Impact on Employment in Santa Barbara County: Total, Direct, Indirect and Induced

Stand Still Scenario

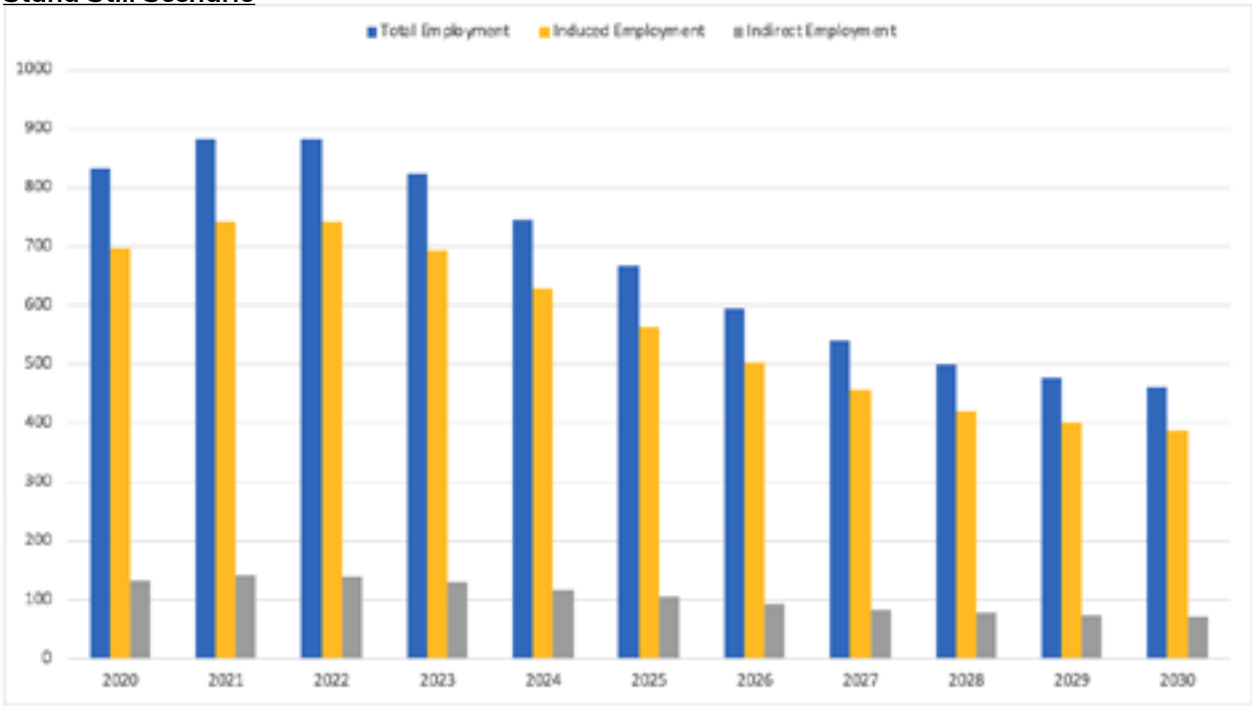


All Developments Scenarios

Source: REMI Output for 2020 through 2030.

Figure EF4. VAFB Impact on Employment in San Luis Obispo County: Total, Direct, Indirect and Induced

Stand Still Scenario



All Developments Scenarios

Source: REMI Output for 2020 through 2030.

Figure EF5. VAFB Impact on Employment on Rest of California: Total, Direct, Indirect and Induced

Stand Still Scenario

All Developments Scenarios

Source: REMI Output for 2020 through 2030.

Table EF3 below shows the breakdown of the total employment under the Stand Still and All Developments scenarios for each county and the rest of California for 2020 and the average over the period 2020-2030. Note that there are no direct employment impacts from VAFB on San Luis Obispo County and the rest of California since by assumption no part of the base's employment, annual O&M or contractor expenditures occur outside Santa Barbara County.

Anticipated military growth and the proposed increase in commercial space activities could result in 1,968 new jobs per year in Santa Barbara and SLO Counties.

Also note that the base's miltary and civilian actual head count (4,287), is not included in the Direct column for Santa Barbara County. The figure included in this column (948) is the "imputed direct" employment, estimated by REMI, which corresponds to the base's annual expenditures for O&M and all contractors serving the base.

Finally, it should be clear that the employment impact associated with anticipated military growth and the proposed increase in commercial space activities (missile, satellite and rocket launches) on the regional economies is very large, resulting in 1,968 (13.9% increase relative to Stand Still scenario) total new jobs per year, on average.

Table EF3. Total, Direct, Indirect, and Induced Employment Impact of VAFB 2020-2030
Results for 2020 and the "Average" of calendar years 2020-2030 (inclusive)

Stand Still Scenario								
	Total		**Direct**		**Indirect**		**Induced**	
	2020	Average	2020	Average	2020	Average	2020	Average
Santa Barbara	15,071	13,497	948	806	3,456	3.044	6,380	4,378
San Luis Obispo	832	674	0	0	135	106	697	567
Rest of California	4,502	4,245	0	0	1,347	1,220	3,155	3,025
All Military and Commercial Developments Scenarios								
	Total		**Direct**		**Indirect**		**Induced**	
	2020	Average	2020	Average	2020	Average	2020	Average
Santa Barbara	15,071	15,348	948	1,102	3,456	3,411	6,380	6,060
San Luis Obispo	832	791	0	0	135	123	697	662
Rest of California	4,502	4,760	0	0	1,347	1,360	3,155	3,375

5.5 VAFB OUTPUTS: EMPLOYMENT MULTIPLIERS 2020-2030

"Employment multiplier" is defined as the ratio of total employment to direct employment on the base (Table EF3 above). For example, an employment multiplier of 3.00 indicates that the creation of 1 direct new job on VAFB is expected to support 2 additional jobs in the local economy, for a total impact of 3 new jobs. Figure EF6 depicts how the multiplier effect causes the direct base employment to result in additional new jobs in the surrounding areas.

Figure EF6. Estimating Employment Multipliers

Source: Authors

There are several methods in the literature for calculating employment multipliers from the REMI output and each results in different estimates of this important indicator. To see the differences that could result, consider the data in Table EF3 (previous page). Recall that the base's actual military and civilian head count input for 2020 is 4,287. Also the "imputed direct" employment, corresponding to the base's annual expenditures for O&M and all contractors, was estimated by REMI to be 948 jobs. Hence the base's direct employment can be viewed as the federal military and civilian employees (4,287), or one may include the imputed direct employees to arrive at an estimate of 5,235 jobs on the base. Now using the broad multiplier definition given above, the base's employment multiplier can be either 3.51 (15,071/4,287), or 2.88 (15,071/5,235). Clearly, the higher multiplier value overlooks the fact that O&M and base contractor expenditures result in direct employment.

There is no clear consensus in the literature regarding the correct method to calculate employment multipliers. For this reason we report three different employment multipliers in Table EF4 below. The "Lower Bound" value is defined as the number of private-sector jobs created (15,071-5,235) divided by the number of direct jobs created by the base (5,235). The "Middles Values" is defined as number of private-sector jobs created (15,071-5,235) divided by the number of military and civilian employees working on the base (4,287). Finally, the "Upper Bound" is defined as total number of jobs created (15,071) divided by the number of direct jobs created by the base (5,235).

Using these definitions, Table EF4 reports the annual (2020-2030) and average employment multiplier estimates for the Stand Still and All Developments scenarios. It is important to note that the "Upper Bound" estimates are similar to the estimated multipliers reported for other military bases around the nation. Moreover, it is reasonable to consider the average of the "Upper Bound" value as the long-run estimate of VAFB employment multiplier.

Table EF4. Employment Multipliers for Santa Barbara County 2020-2030

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Average
Stand Still Scenario												
Lower Bound	1.87	1.87	1.82	1.74	1.64	1.56	1.50	1.45	1.41	1.39	1.37	1.54
Middle Values	2.29	2.27	2.20	2.08	1.96	1.86	1.77	1.70	1.65	1.62	1.59	1.83
Upper Bound	2.88	2.90	2.86	2.78	2.69	2.62	2.55	2.50	2.46	2.45	2.43	2.60
All Developments Scenarios												
Lower Bound	1.87	1.87	1.85	1.82	1.79	1.96	1.66	1.61	1.57	1.55	1.52	1.70
Middle Values	2.29	2.30	2.26	2.24	2.23	2.49	2.19	2.12	2.06	2.02	1.98	2.18
Upper Bound	2.88	2.88	2.87	2.85	2.80	3.10	2.76	2.72	2.67	2.65	2.63	2.78

Source: REMI Model

5.6 VAFB OUTPUTS: IMPACTS ON DIFFERENT INDUSTRIES

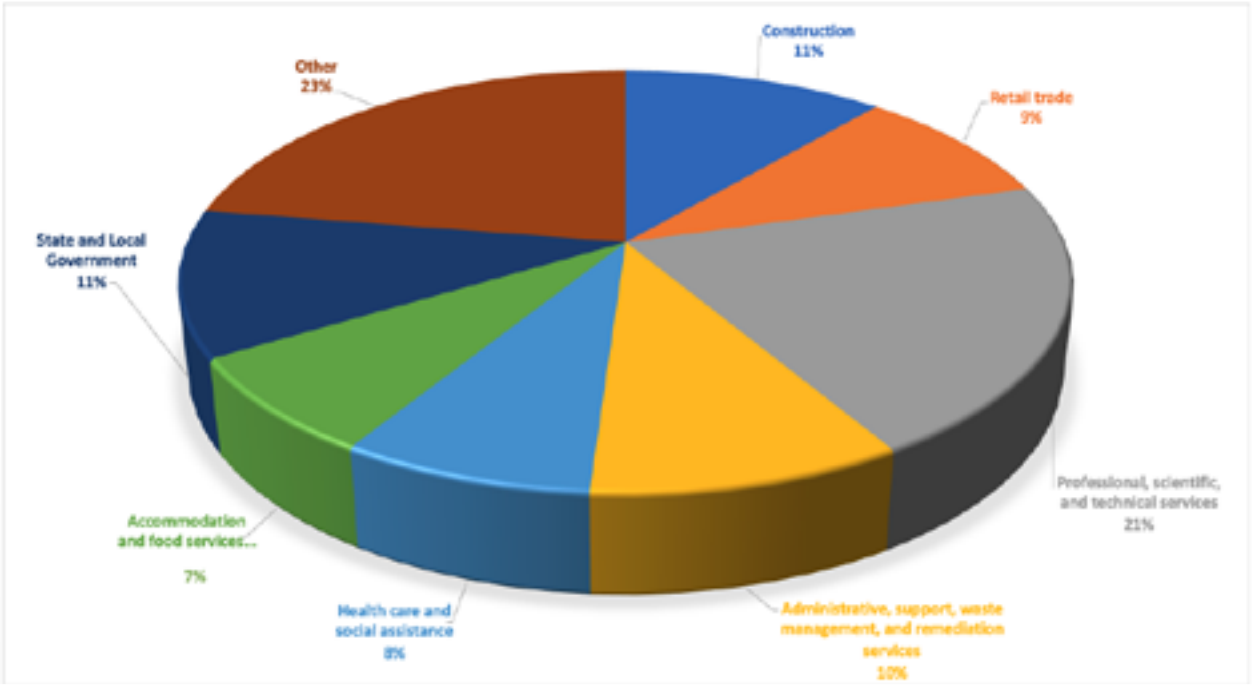
For purposes of this economic policy analysis, it is important to understand the impact of VAFB in terms of current employment and jobs created in different sectors of the local economy. For example, given the estimated total number of jobs associated with the presence of VAFB in Santa Barbara County (15,701), it is possible to arrive at the distribution of jobs within different sectors of the economy under both the Stand Still and All Developments scenarios. Similarly we can estimate the distribution of jobs by economic sector base on the estimated numbers of direct, indirect and induced jobs.

Figure EF7 below reports the impact of VAFB on the distribution of jobs in Santa Barbara County. The figure shows that under the Stand Still scenario, the base creates quality employment in key sectors such as construction, administrative service, and professional, scientific, and technical services. Furthermore, expansion of the economic activities resulting from the All Developments scenarios will further increase employment opportunities in these sectors within the central part of Santa Barbara County.

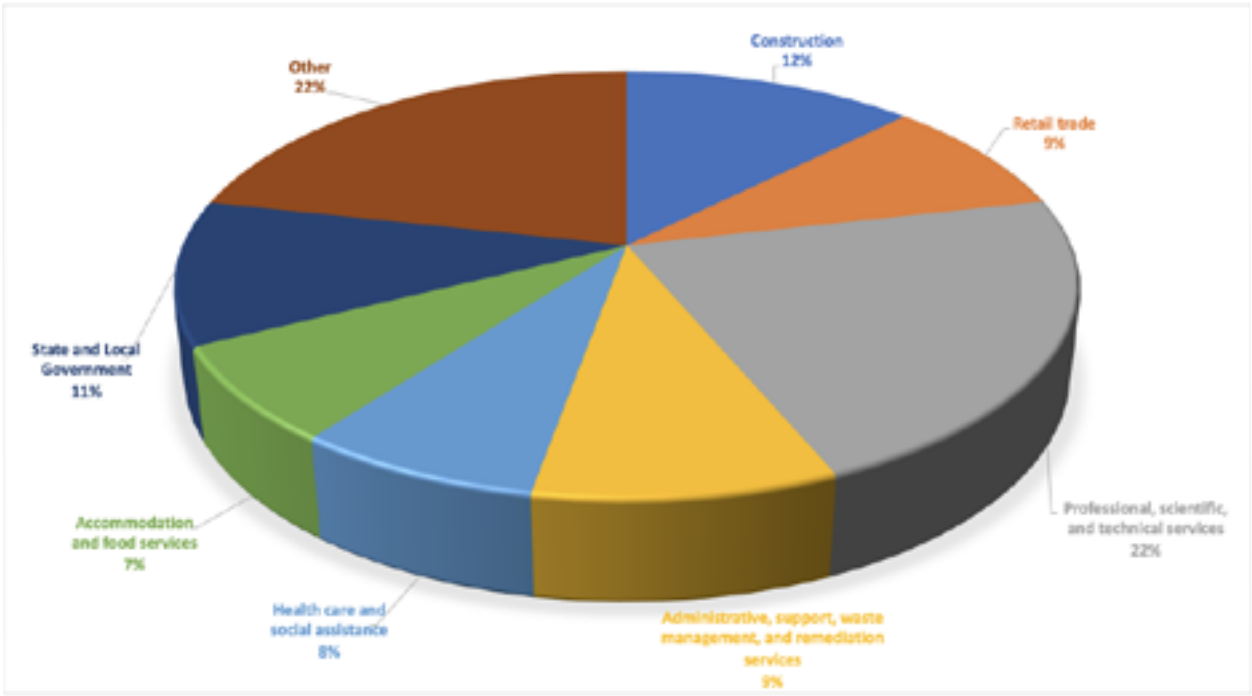
Figures EF8 and EF9 show similar results for the composition of direct and indirect jobs as well as the induced jobs created by the presence of VAFB in Santa Barbara County. These figures show that the economic benefits of VAFB extend to the local secondary and tertiary employment created by the base.

Figure EF7. The Composition of Total Jobs Created by VAFB in Santa Barbara County

Stand Still Scenario



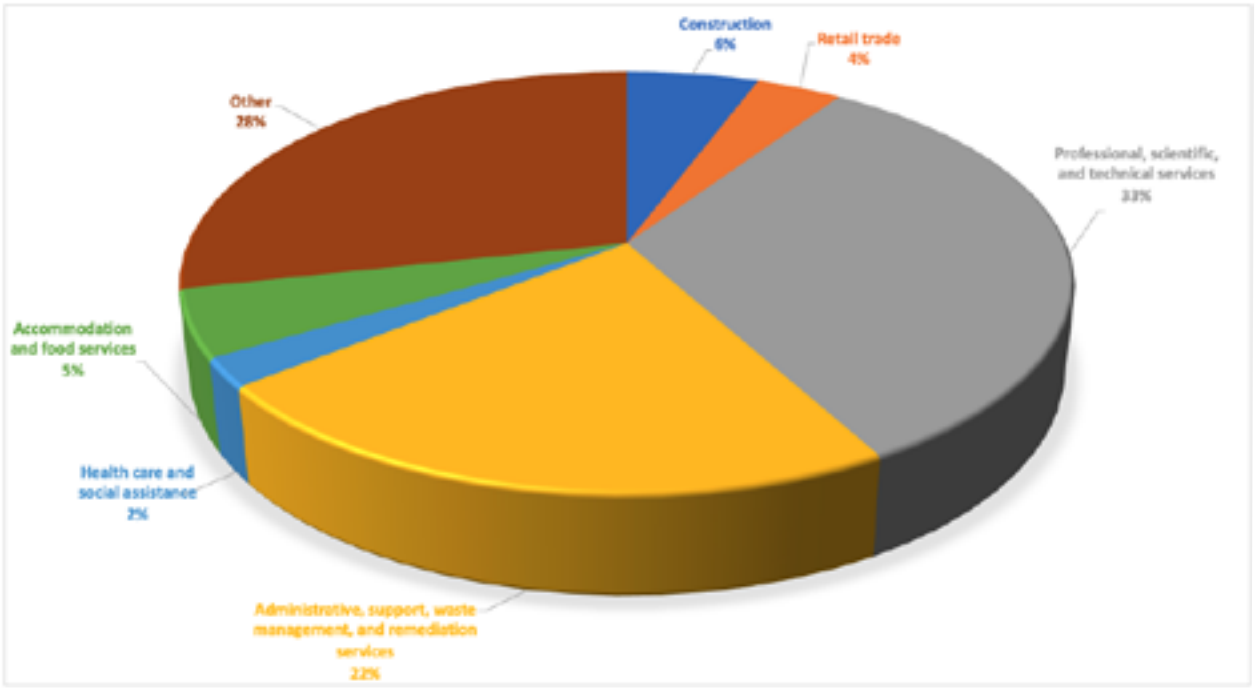
All Developments Scenarios



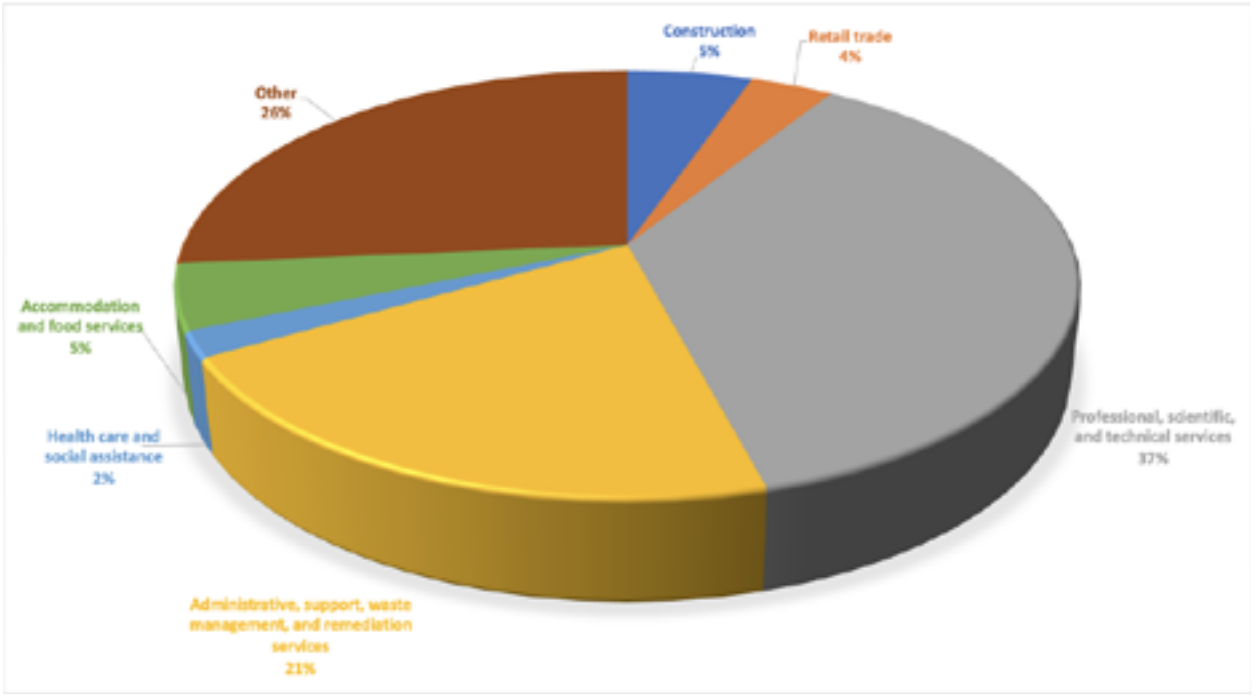
Source: REMI Output, Average of 2020-2030.

Figure EF8. The Composition of Direct & Indirect Jobs Created by VAFB in Santa Barbara County

Stand Still Scenario



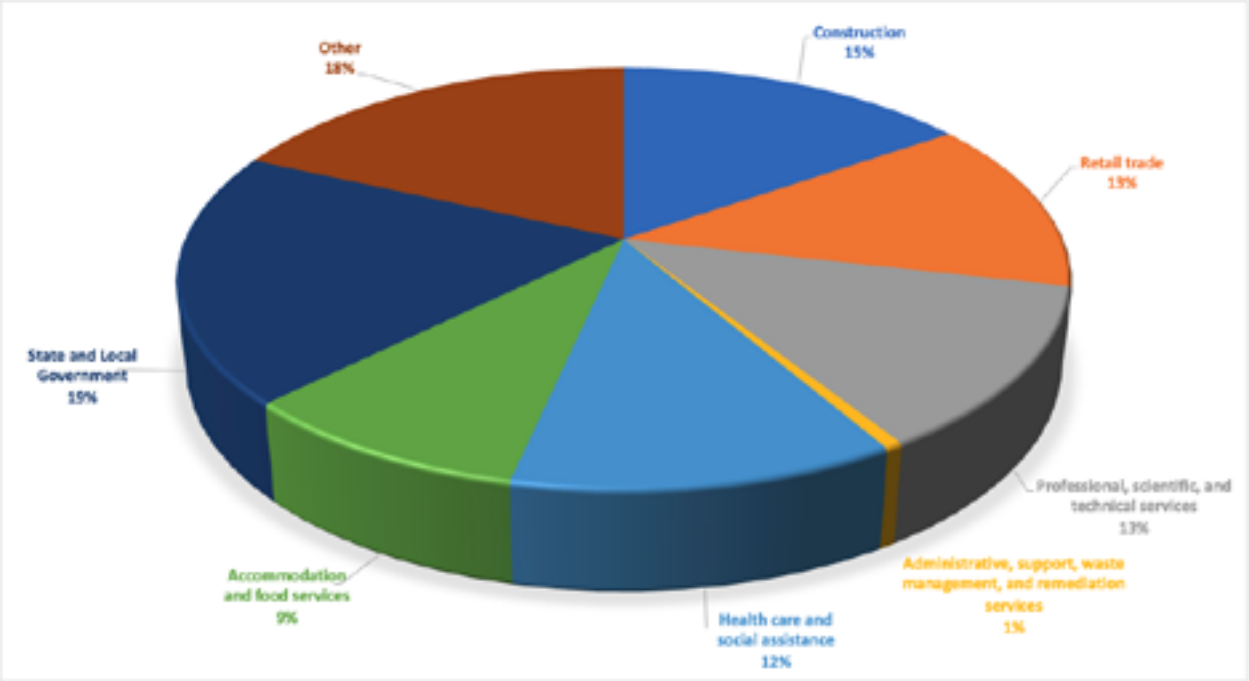
All Developments Scenarios



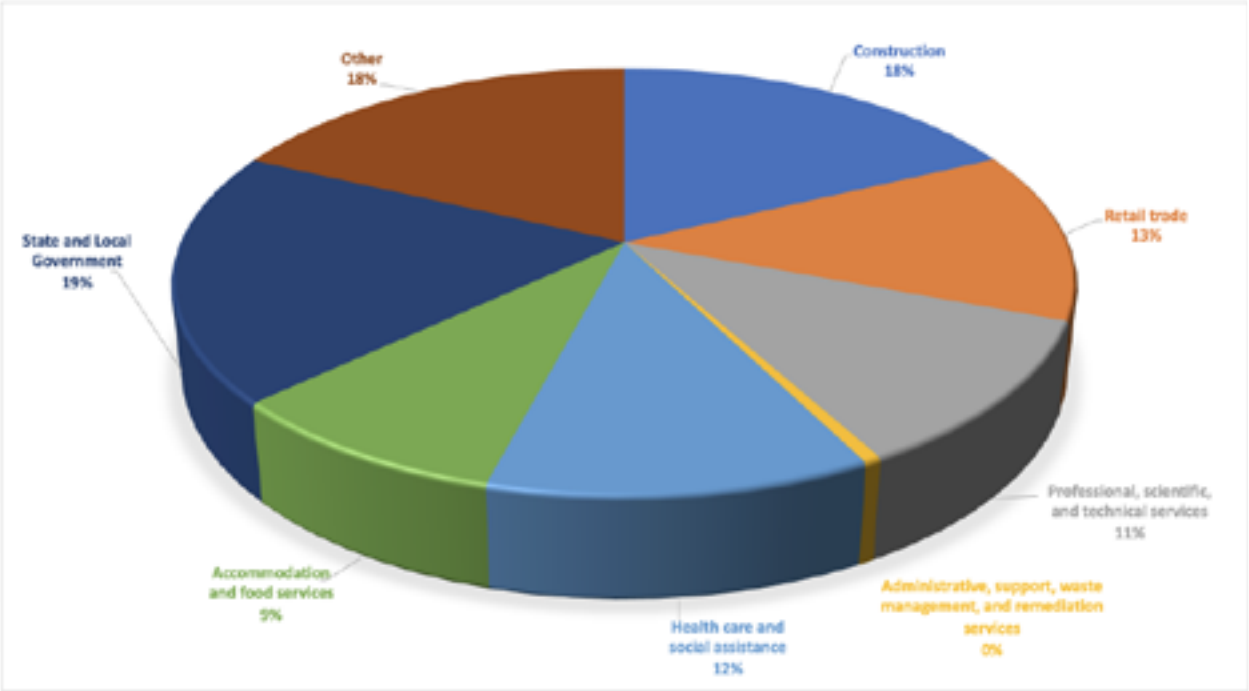
Source: REMI Output, Average of 2020-2030.

Figure EF9. The Composition of Induced Jobs Created by VAFB in Santa Barbara County

Stand Still Scenario



All Developments Scenarios



Source: REMI Output, Average of 2020-2030.

5.7 VAFB OUTPUTS: ESTIMATED FISCAL IMPACTS

The tax revenues generated by the activities on VAFB are of critical importance to the fiscal health of the surrounding communities and the State of California as a whole. The calculations presented in Table EF5 below are based on REMI forecasts of annual corporate income, personal income, and retail sales under each scenario. Tax revenues are calculated using the average of 2015-2017 California corporate income tax rate of 0.9078%, personal income tax rate of 8.3508%, retail sales & use tax rate of 3.7515%, and local property tax rate of 1.16%.

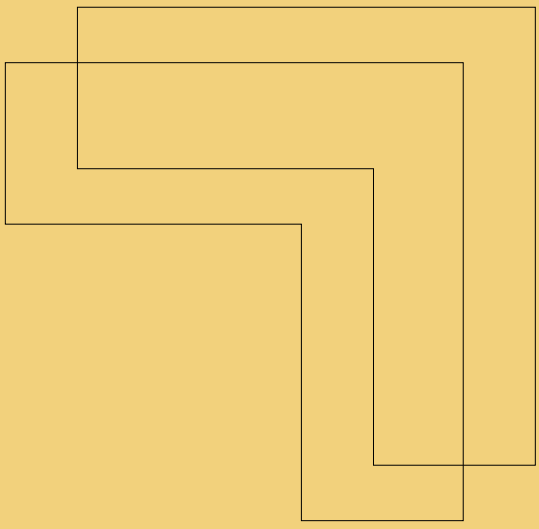
Table EF5. Annual Corporate, Personal Income, Retail Sales, and Property Tax Revenues ($M) 2020-2030

Stand Still Scenario											
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Santa Barbara County											
Corporate Income ($M)	23.86	25.02	25.41	25.61	25.7	25.78	25.92	26.16	26.45	26.95	27.48
Personal Income ($M)	111.27	115.73	120.52	124.35	127.19	130.11	133.01	136.21	139.96	143.74	148.32
Retail Sales & Use ($M)	43.1	45.7	47.71	49.18	50.33	51.52	52.31	53.22	54.75	56.21	58.02
Property Tax (PI, $M)	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41
San Luis Obispo County											
Corporate Income ($M)	1.03	1.16	1.2	1.18	1.11	1.03	0.95	0.89	0.85	0.83	0.83
Personal Income ($M)	8.98	9.6	10.11	10.25	10.09	9.84	9.56	9.35	9.24	9.23	9.33
Retail Sales & Use ($M)	3.39	3.71	3.93	3.99	3.93	3.84	3.71	3.6	3.57	3.56	3.61
Rest of California											
Corporate Income ($M)	6.57	7.29	7.57	7.64	7.62	7.52	7.44	7.43	7.45	7.62	7.77
Personal Income ($M)	37.63	41.28	43.41	44.73	45.35	45.59	45.85	46.36	47.12	48.37	49.72
Retail Sales & Use ($M)	14.21	15.98	16.87	17.39	17.65	17.78	17.76	17.85	18.18	18.67	19.21

Table EF5 cont. Annual Corporate, Personal Income, Retail Sales, and Property Tax Revenues ($M) 2020-2030											
All Developments Scenarios											
	2020	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Santa Barbara County											
Corporate Income ($M)	23.86	25.18	25.73	26.56	27.33	31.69	31.52	31.8	32.18	32.77	33.38
Personal Income ($M)	111.27	116.55	122.2	129.43	135.8	157.29	157.5	162.21	167.09	171.9	177.5
Retail Sales & Use ($M)	43.1	46.02	48.37	51.16	53.67	62.11	61.8	63.23	65.21	67.06	69.27
Property Taxes (PI, $M)	2.41	2.41	2.65	3.11	3.80	4.73	4.73	4.73	4.73	4.73	4.73
San Luis Obispo County											
Corporate Income ($M)	1.03	1.17	1.24	1.29	1.31	1.43	1.22	1.15	1.09	1.06	1.05
Personal Income ($M)	8.98	9.67	10.35	11.09	11.51	12.9	11.87	11.72	11.61	11.57	11.65
Retail Sales & Use ($M)	3.39	3.74	4.02	4.31	4.48	5.03	4.6	4.51	4.48	4.47	4.5
Rest of California											
Corporate Income ($M)	6.57	7.34	7.68	7.98	8.19	9.18	8.93	8.94	8.98	9.17	9.34
Personal Income ($M)	37.63	41.56	44.05	46.78	48.75	55.36	54.06	55.27	56.29	57.84	59.38
Retail Sales & Use ($M)	14.21	16.09	17.12	18.18	18.97	21.55	20.91	21.25	21.69	22.29	22.91

SECTION 6

SUMMARY AND CONCLUSIONS



6. SUMMARY AND CONCLUSIONS

To understand the overall economic role played by VAFB, this report estimated the base's current economic impact and its dynamic evolution over the next decade under two alternative scenarios.

VAFB supplies quality jobs, stimulates the production of goods and services, and increases local incomes and overall expenditures on goods and services.

First, under a Stand Still scenario, we assumed that the level of economic activity associated with VAFB stays flat; that is, the size of the base's workforce (military and civilian), its dollar expenditures on operations and maintenance, awarded contracts, gross payments to retirees, and the number of tourists and government-business visitors to the base will remain at their 2020 level until 2030. Second, the report provided estimates of the economic impact of VAFB under various All Developments scenarios by ac-counting for anticipated military growth, proposed expansions of commercial satellite, missile and rocket launches as envisioned by REACH ("The Commercial Space Master Plan"), and potential infrastructure improvements being considered by the City of Lompoc.

Economic impacts associated with various scenarios were calculated using modeling software from Regional Economic Models Inc. (REMI). Utilizing REMI's built-in forecasting capabilities, the study simulated the total economic impact of VAFB over the period 2020-2030, with and without the envisioned expansions in military and commercial space activities. To best understand the economic impact of VAFB, we reported the following common indicators of economic health of the regions: Employment, Gross Domestic Product (GDP), Output, Personal Income, and Disposable Personal Income for Santa Barbara and San Luis Obispo Counties as well as the rest of California.

Overall, the REMI models confirmed what is widely recognized in the adjacent communities: VAFB provides substantial positive economic benefits to the nearby counties and California as a whole. The base supplies quality jobs, stimulates the production of goods and services, and increases local incomes and overall expenditures on goods and services.

In summary, VAFB contributed $3.464 billion to the GDP of Santa Barbara, San Luis Obispo and the rest of California economy in 2020 (for additional details, see the table in Executive Summary on page 7). VAFB's current economic footprint and its anticipated future growth present enormous economic opportunities for local communities and the state. The base's contracting with local businesses provides employment in a wide variety of industry sectors, while the military personnel and their families support local communities by creating demand for goods and services. In addition, the retired military pensions and other forms of compensation provide individuals and communities with a reliable source of income. The analysis undertaken in this report showed that the economic impact of VAFB on the surrounding communities and the State of California will grow over the next decade by the anticipated increase in military activity on the base, the potential infrastructure improvements in the City of Lompoc, and the proposed private-sector commercial space activities envisioned in the *The Commercial Space Master Plan*.

NOTES

[1] For a brief history of VAFB see https://www.vandenberg.spaceforce.mil/About-Us/Fact-Sheets/Display/Article/338341/history-office/

[2] See Table SB1 below.

[3] See "Units," Vandenberg Air Force Base, accessed January 7, 2021, https://www.vandenberg.spaceforce.mil/Units/

[4] SpaceX and FIrefly have private investors but have not become public companies. ULA is a consortium between Lockheed-Martin and Boeing. Most recently, SpaceX, in partnership with NASA, completed a launch in November 2020. See "SpaceX launches Sentinel-6 satellite from VAFB," News, Vandenberg Air Force Base, accessed January 7, 2021, https://www.vandenberg.spaceforce.mil/News/Article-Display/Article/2423931/spacex-launches-sentinel/

[5] For 2021, more missiles, satellite and rocket launches are planned (at least 12 launches are planned). VAFB will likely be renamed the Vandenberg Space Force Base in near future. See https://lompocrecord.com/news/local/military/vandenberg/military-officials-plan-to-rename-van article_2db59a35-6e4e-5e35-ad7e-3aa84d24c33e.html

[6] Data taken from the "FY20 COMMANDER'S FACT CARD." See also "Vandenberg AFB In-Depth Overview," Vandenberg AFB, Military Installations, accessed January 7, 2021, https://installations.militaryonesource.mil/in-depth-overview/vandenberg-afb

[7] See "County Statistical Profile," County of Santa Barbara, accessed January 7, 2021, https://www.countyofsb.org/ceo/asset.c/2794

[8] U.S. Census Bureau, 2018.

[9] SB County BW Report, 2018.

[10] SB County BW Report, 2018.

[11] "Unemployment Rate in Santa Barbara, CA," U.S. Regional Data, FRED, 2018, https://fred.stlouisfed.org/series/CASANT1URN

[12] SB County BW Report, 2018.

[13] U.S. Census Bureau, 2018.

[14] SB County BW Report, 2018.

[15] SLO County BW Report, 2018.

[16] U.S. Census Bureau, 2018.

[17] SLO County BW Report, 2018.

APPENDIX A

Table A1. VAFB Economic Impact Under Stand Still Scenario, 2020-2030											
Type	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Santa Barbara County											
Total Employment (Jobs)	15,071	15,045	14,784	14,294	13,773	13,304	12,908	12,598	12,356	12,228	12,103
Gross Domestic Product ($M)	2,628	2,756	2,798	2,821	2,831	2,840	2,855	2,881	2,914	2,969	3,027
Output ($M)	4,326	4,534	4,603	4,637	4,650	4,660	4,680	4,716	4,762	4,842	4,929
Personal Income ($M)	1,332	1,386	1,443	1,489	1,523	1,558	1,593	1,631	1,676	1,721	1,776
Disposable Personal Income ($M)	1,149	1,218	1,272	1,311	1,342	1,373	1,394	1,419	1,460	1,498	1,546
San Luis Obispo County											
Total Employment (Jobs)	832	883	882	825	747	667	596	541	499	477	461
Gross Domestic Product ($M)	113	128	133	130	122	114	105	98	94	92	91
Output ($M)	196	219	227	221	207	192	177	165	156	153	151
Personal Income ($M)	108	115	121	123	121	118	114	112	111	110	112
Disposable Personal Income ($M)	90	99	105	106	105	102	99	96	95	95	96
Rest of California											
Total Employment (Jobs)	4,502	4,819	4,773	4,620	4,428	4,216	4,041	3,913	3,817	3,804	3,766
Gross Domestic Product ($M)	723	803	834	842	839	828	820	818	821	839	856
Output ($M)	1,278	1,412	1,459	1,468	1,459	1,436	1,417	1,410	1,410	1,438	1,466
Personal Income ($M)	451	494	520	536	543	546	549	555	564	579	595
Disposable Personal Income ($M)	379	426	450	463	471	474	473	476	485	498	512

Source: REMI Model

Table A2. VAFB Economic Impact Under All Commercial Developments Scenario, 2020-2030											
Type	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Santa Barbara County											
Total Employment (Jobs)	15,071	15,189	15,071	15,152	15,129	17,061	15,769	15,450	15,151	14,978	14,803
Gross Domestic Product ($M)	2,628	2,773	2,834	2,926	3,010	3,491	3,472	3,503	3,544	3,609	3,677
Output ($M)	4,326	4,561	4,662	4,816	4,953	5,745	5,681	5,725	5,782	5,875	5,974
Personal Income ($M)	1,332	1,396	1,463	1,550	1,626	1,884	1,886	1,942	2,001	2,058	2,126
Disposable Personal Income ($M)	1,149	1,227	1,289	1,364	1,431	1,656	1,647	1,686	1,738	1,788	1,846
San Luis Obispo County											
Total Employment (Jobs)	832	889	909	922	899	962	757	696	642	608	581
Gross Domestic Product ($M)	113	129	136	142	144	157	135	126	120	117	115
Output ($M)	196	221	233	243	245	267	226	211	200	195	191
Personal Income ($M)	108	116	124	133	138	154	142	140	139	139	140
Disposable Personal Income ($M)	90	100	107	115	119	134	123	120	119	119	120
Rest of California											
Total Employment (Jobs)	4,502	4,855	4,851	4,865	4,803	5,307	4,804	4,713	4,590	4,565	4,505
Gross Domestic Product ($M)	723	808	845	879	902	1,011	984	984	989	1,010	1,029
Output ($M)	1,278	1,421	1,480	1,534	1,569	1,758	1,701	1,698	1,701	1,732	1,761
Personal Income ($M)	451	498	528	560	584	663	647	662	674	693	711
Disposable Personal Income ($M)	379	429	456	484	506	574	557	566	578	594	611

Source: REMI Model

Table A3. Potential Infrastructure & Improvement Projects				
How-to-Play Impacts	**Where-to-Play Impacts**	**Infrastructure, Improvement or General Project Area**	**Stage**	**Source**
Grow Commercial Enterprises	**Launch services, logistics and downstream application markets**	**South Mission District ADP**: Create a "commercial zone" on SVAFB enabling commerical LSPs to lease land for building required administrative, storage, launch control or processing facilities.	Investment Ready	VAFB & 30th SW Spaceport of the Future document
		Additional findings: Consider ADP infrastructure and configurations to support non-LSPs such as those participating in logistics & downstream applications segments.	Investment Ready	Deloitte Industry Interviews
		Mission District Perimeter Security Fence Modification: SVAFB perimeter security system modification to place the new Mission District outside of the controlled security area, enables public accessibility.	Investment Ready	VAFB & 30th SW Spaceport of the Future document
		South Mission District ADP Coworking Facilities Development Plan: Develop a plan to build and lease shared office space within the commercial enterprise zone to support LSP's and downstram applications providers in an unclassified seeting .	Requires Assessment	VAFB & 30th SW Spaceport of the Future document
Grow Launch Services Providers and Launch CONOPS	**All Launch Classes & CONOPS**	**SVAFB Gate Enhancement**: To support a new vehicle security inspection state for LSPs. Potential plan to connect NVAFB to SVAFB via an overpass roadway and incorporate a second inspection state on SVAFB.	Investment Ready	VAFB & 30th SW Spaceport of the Future document
		GN2 ASU and Pipeline: Design and build a Gaseous Nitrogen (GN2) Air Separation Unit (ASU) associated storage area and pipeline on SVAFB to produce launch quality nitrogen.	Investment Ready	VAFB & 30th SW Spaceport of the Future document
	Heavy Launchers & Strategic CONOPS	**Boat dock refurbishment and upgrade**: Perform updates to the boat dock and build supporting components such as a sea wall to support sustain utilization of the dock for offloading heavy and ultra-heavy launch vehicle components.	Requires Assessment	Deloitte SME Interviews/ Indsutry Research
	Small Launch & ORS CONOPS	**Small Launch Vehicle Environmental Assessment/Launch & Landing Pads**: Develop a Small Launch Vehicle Programmatic EA to approve launch sites and launch rates. Resulting EA will save Small Launch providers a potential 2-year effort and costs.	Funded	VAFB & 30th SW Spaceport of the Future document
		SLC-8: transition SLC-8 into a government-facilitated launch pad for small LSPs launching government and commercial missions.	Partially Funded	VAFB & 30th SW Spaceport of the Future document

Source: The Commercial Space Master Plan, Deloitte.

Table A3 cont. Potential Infrastructure & Improvement Projects				
How-to-Play Impacts	**Where-to-Play Impacts**	**Infrastructure, Improvement or General Project Area**	**Stage**	**Source**
Grow Launch Services Providers and Launch CONOPS	**Small Launch & ORS CONOPS (cont).**	**Improve & Extend Utilities to new SVAFB sites:** Extend roads, sewer, utilities and communications to new SVAFB "greenfield: sites southeast of SLC-6/Boathouse to provide space for small launch service providers.	Investment Ready	VAFB & 30th SW Spaceport of the Future document
	ORS CONOPS by Small and Horizontal Launches[1]	**Create a leasable SCIF Payload Processing Facility**: For additional capacity for small and medium launch this is cost effective and can portentially support multiple users.	Requires Assessment	Deloitte Industry Interviews
		Hydrazine Storage and Fueling: Assess the current hydrazine storage capacity and invest in improvements to support USG use in small launcher payloads in support of the ORS mission.	Requires Assessment	Deloitte Industry Interviews
	Horizontal (Air Launch) CONOPS	**Revitalize VAFB Runway:** Perform necessary updates to the main runway and any associated ILS/ALS/PAPI equipment as necessary to support commercial utilization by horizontal launch vehicles/carrier aircraft. Potentially extend staffing of the air strip to increase base accessibility.	Requires Assessment	Deloitte SME Interviews/ Indsutry Research
		Runway Safety Assessment: Perform an EA and design study to assess human and installation safety requirement for horizontal launch operations operating out of KVBG.	Requires Assessment	Deloitte Industry Interviews
Support & Grow On-Base Operations and Activities	**Communications Infrastructure**	**Upgrade Telecommunications Infrastructure**: Lay new fiber optic cable to enhance network performance and speed.	Requires Assessment	Deloitte SME Interviews/ Indsutry Research
	Operational Infrastructure	**Revitalize the North Side Well**: Rehabilitate and restore old well infrastructure to provide additional water source for the base and surrounding activities.	Requires Assessment	Deloitte SME Interviews/ Indsutry Research
	Storage & Operations Infrastructure	**Dedicate space and facilities for commodities storage**: Set aside land for storage of flight-ready hardware and improve the roads/access options to reach stoge areas.	Requires Assessment	Deloitte SME & Industry Interviews/ Indsutry Research
Enabling Infrastructure	**Transportation**	**Improve rail trasite times to/from base**: Add additional transit optoins such as express trains from LAX/Union State on the Amtrak/CALTRANS Pacific Surfliner partnership.	Requires Assessment	Deloitte Industry Interviews
		Rail Freight Capability Upgrades: Improve the ability to receive space-qualified hardware and associated supporting systems inclusive of Conex boxes through rocket cores via rail from LA and other manufacturing centers.	Requires Assessment	Deloitte Industry Interviews

Source: The Commercial Space Master Plan, Deloitte.

ADDITIONAL REFERENCES

1. *California Statewide National Security Economic Impacts*, California Research Bureau, California State Library, 2020 Update.

2. *California Statewide & Regional National Security Economic Impacts*, California Research Bureau, California State Library, 2019.

3. I*ndustry, Economic, and Workforce Research*, Santa Barbara County Workforce Development Board Report - BW Research Partnership, 2018.

4. *Industry, Economic, and Workforce Research*, San Luis Obispo County Workforce Development Board Report - BW Research Partnership, 2018.

5. *Regional Economic Models, Inc. REMI PI+, Model Documentation and Explanation of Methodology*, www.remi.com.

6. *Utah's Defense Sector: Economic Impacts of the Military and Veterans*, Kem C. Gardner Policy Insti- tute, The University of Utah, 2020.

7. *Vandenberg Air Force Base: Economic Impacts to the Economies of the Counties of Santa Barbara and San Luis Obispo, California*, University of California Santa Barbara - Economic Forecast Project. 2006.

8. *Vandenberg Air Force Base Master Plan*, Phase 0 Interim Report, Deloitte, February 28, 2020.

ATTACHMENT U

United States Census Bureau

QuickFacts

Vandenberg Village CDP, California; Lompoc city, California

QuickFacts provides statistics for all states and counties, and for cities and towns with a ***population of 5,000 or more.***

Table

All Topics	Vandenberg Village CDP, California	Lompoc city, California
Population Estimates, July 1 2022, (V2022)	X	NA
PEOPLE		
Population		
Population Estimates, July 1 2022, (V2022)	X	NA
Population Estimates, July 1 2021, (V2021)	X	43,834
Population estimates base, April 1, 2020, (V2022)	X	NA
Population estimates base, April 1, 2020, (V2021)	X	44,398
Population, percent change - April 1, 2020 (estimates base) to July 1, 2022, (V2022)	X	NA
Population, percent change - April 1, 2020 (estimates base) to July 1, 2021, (V2021)	X	-1.3%
Population, Census, April 1, 2020	7,308	44,444
Population, Census, April 1, 2010	6,497	42,434
Age and Sex		
Persons under 5 years, percent	2.7%	7.2%
Persons under 18 years, percent	20.8%	27.3%
Persons 65 years and over, percent	21.3%	11.6%
Female persons, percent	47.7%	45.2%
Race and Hispanic Origin		
White alone, percent	65.4%	55.9%
Black or African American alone, percent (a)	4.1%	2.8%
American Indian and Alaska Native alone, percent (a)	2.2%	1.8%
Asian alone, percent (a)	2.7%	4.1%
Native Hawaiian and Other Pacific Islander alone, percent (a)	0.5%	0.3%
Two or More Races, percent	11.5%	17.0%
Hispanic or Latino, percent (b)	24.8%	61.4%
White alone, not Hispanic or Latino, percent	59.2%	28.6%
Population Characteristics		
Veterans, 2017-2021	969	2,734
Foreign born persons, percent, 2017-2021	14.1%	23.3%
Housing		
Housing units, July 1, 2021, (V2021)	X	X
Owner-occupied housing unit rate, 2017-2021	77.1%	46.9%
Median value of owner-occupied housing units, 2017-2021	$444,300	$353,100
Median selected monthly owner costs -with a mortgage, 2017-2021	$2,102	$1,980
Median selected monthly owner costs -without a mortgage, 2017-2021	$618	$523
Median gross rent, 2017-2021	$1,873	$1,294
Building permits, 2021	X	X
Families & Living Arrangements		
Households, 2017-2021	2,621	13,432
Persons per household, 2017-2021	2.69	3.06
Living in same house 1 year ago, percent of persons age 1 year+, 2017-2021	88.5%	83.0%
Language other than English spoken at home, percent of persons age 5 years+, 2017-2021	17.9%	46.8%
Computer and Internet Use		
Households with a computer, percent, 2017-2021	98.0%	91.6%
Households with a broadband Internet subscription, percent, 2017-2021	89.9%	85.6%
Education		
High school graduate or higher, percent of persons age 25 years+, 2017-2021	92.8%	73.6%
Bachelor's degree or higher, percent of persons age 25 years+, 2017-2021	31.3%	12.2%

Lompoc v. Vandenberg Village

Select ACS Data

Data	Lompoc	Vandenberg Village
Population, Census 2020	44,444	7,308
Population, Census 2010	42,434	6,497
Population, Census 2000	41,103	5,802
Population Growth 2000 - 2020	3,341	1,506
2000 - 2020 Population Percent Increase	8.13	25.96
Persons under 5 years	7.20%	2.70%
Persons under 18 years	27.30%	20.80%
Persons 65 years and over	11.60%	21.30%
Female persons	45.20%	47.70%
Black or Af./Amer alone	2.80%	4.10%
Amer Indian/Alaska Native alone	1.80%	2.20%
Asian alone, percent	4.10%	2.70%
Hawaiian and Other API alone	0.30%	0.50%
Two or More Races	17.00%	11.50%
Hispanic or Latino	61.40%	24.80%
White alone, not Latino	28.60%	59.20%
Veterans, 2017-2021	2,734	969
Foreign born persons	23.30%	14.10%
Owner-occupied housing unit rate	46.90%	77.10%
Median value of owner-occupied housing	$353,100	$444,300
Median monthly owner costs -w/ mortgage	$1,980	$2,102
Median monthly owner costs -without mortgage	$523	$618
Median gross rent, 2017-2021	$1,294	$1,873
Households	13,432	2,621
Persons per household	3.06	2.69
Lang. other than English at home, age 5 years+	46.80%	17.90%
Households with a computer	91.60%	98.00%
Households with a broadband Internet	85.60%	89.90%
High school or higher, persons age 25 years	73.60%	92.80%
Bachelor's degree or higher, age 25 years+	12.20%	31.30%
disability, under age 65 years	9.20%	9.40%

Lompoc v. Vandenberg Village

Select ACS Data

Data	Lompoc	Vandenberg Village
W/O health insurance, under 65 years	13.10%	7.20%
civilian labor force, % of pop 16 years+	58.30%	60.60%
civilian labor force, Female % of pop 16 years+	58.50%	55.90%
Total retail sales, 2017 ($1,000)	408,789	NA
Total retail sales per capita, 2017	$9,487	NA
Mean travel time to work (minutes)	27.4	23.4
Median household income (in 2021 dollars)	$60,234	$95,747
Per capita income	$24,419	$41,817
Persons in poverty	19.40%	3.60%
Population per square mile, 2020	3,823.80	1,386.70
Population per square mile, 2010	3,659.00	1,238.30