



Staff Recommendations

San Joaquin Valley Agricultural Burning Assessment

Released: February 5, 2021

Board Hearing: February 25, 2021

Executive Summary

The San Joaquin Valley Air Pollution Control District (District) and the agricultural industry have made significant progress transitioning from open burning of agricultural materials to less polluting alternatives such as soil incorporation in response to Senate Bill (SB) 705 (Florez 2003) which calls for phasing out agricultural burning in the San Joaquin Valley (Valley). The District's 2020 Staff Report and Recommendations on Agricultural Burning (2020 Report) represents another step in the right direction with its new agricultural burn prohibitions, while requesting California Air Resources Board (CARB or Board) concurrence on proposed postponements of burn prohibitions for certain crop categories and materials for which alternatives are more challenging to implement.

CARB believes that partnerships between the District, CARB, other State and federal agencies, the agricultural industry, and Valley residents and other stakeholders can continue and accelerate the transformation to use of cleaner alternatives, paving a viable path to near-complete phase-out of agricultural burning in the Valley. Recognizing the need for a transitional period, CARB staff recommend that the Board concur with the District's burn prohibition postponements as set forth in the 2020 Report through August 31, 2021, and that the Board delegate the Executive Officer the authority to provide concurrence for an additional period beyond the first six-month concurrence period, through January 1, 2025, provided the District implement additional measures, with CARB support.

Background

Agriculture underpins the Valley's economy, providing a vast array of products that feed not just California but much of the United States and the world. The Valley's farmers and ranchers are some of the most innovative in the country, often on the cutting edge of new approaches for improving crop yield and quality while also seeking the most sustainable practices.

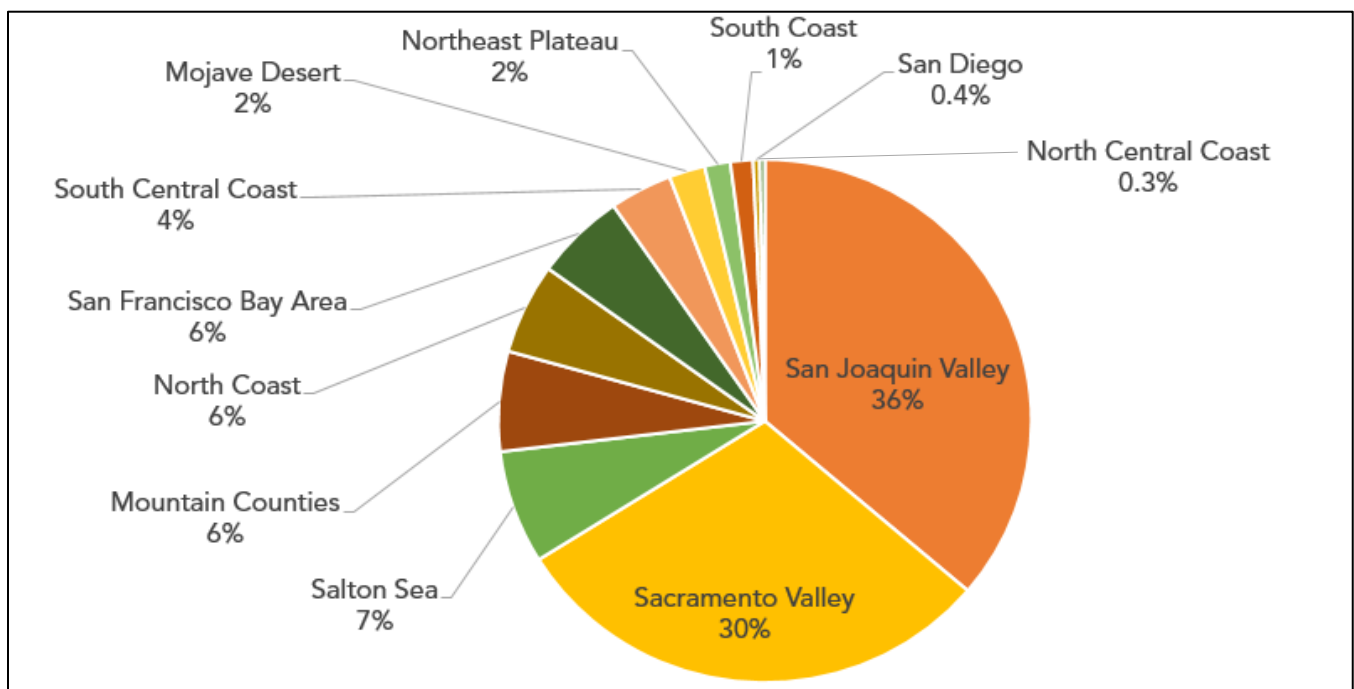
Although acknowledged as the "fruit basket to the country," the Valley also has some of the worst air quality in the nation. To meet increasingly stringent National Ambient Air Quality Standards (NAAQS) for ozone and fine particulate matter (PM_{2.5}), the District, in partnership with CARB and the United States Environmental Protection Agency (US EPA), has adopted some of the most restrictive air quality regulations in the United States. Since agriculture accounts for a significant fraction of air emissions in the Valley, many of these regulations have focused on reducing emissions from the Valley's agricultural trucks and tractors, as well as agricultural practices such as harvesting and tilling.

To maintain healthy and productive operations, agriculture produces a significant amount of woody biomass every year through practices such as orchard and vineyard prunings and removals. Historically, the most cost-effective means of disposing of this biomass has been open agricultural burning, while non-combustion alternatives such as soil incorporation have been perceived as comparatively costlier, although often without accounting fully for co-benefits associated with the alternatives which could include increased crop yields, improved soil health, and lower water usage. Agricultural burning is also one of the most effective

methods for controlling a range of crop pests and diseases. To this end, California law (California Health and Safety Code section 39011) specifically allows for open agricultural burning for the purposes of disease or pest prevention.

In 2017, approximately 6 tons per day of PM2.5 were produced by open agricultural burning statewide, of which about 36 percent or 2 tons occurred in the San Joaquin Valley. These emissions are significant, not just in terms of potential implications for attaining air quality standards, but also for their impacts on local communities. To mitigate the public health impacts of open agricultural burning emissions, the Valley District as well as other air districts in California have adopted regulations restricting open agricultural burning and have also implemented smoke management programs to ensure burning occurs on days with favorable meteorological dispersion.

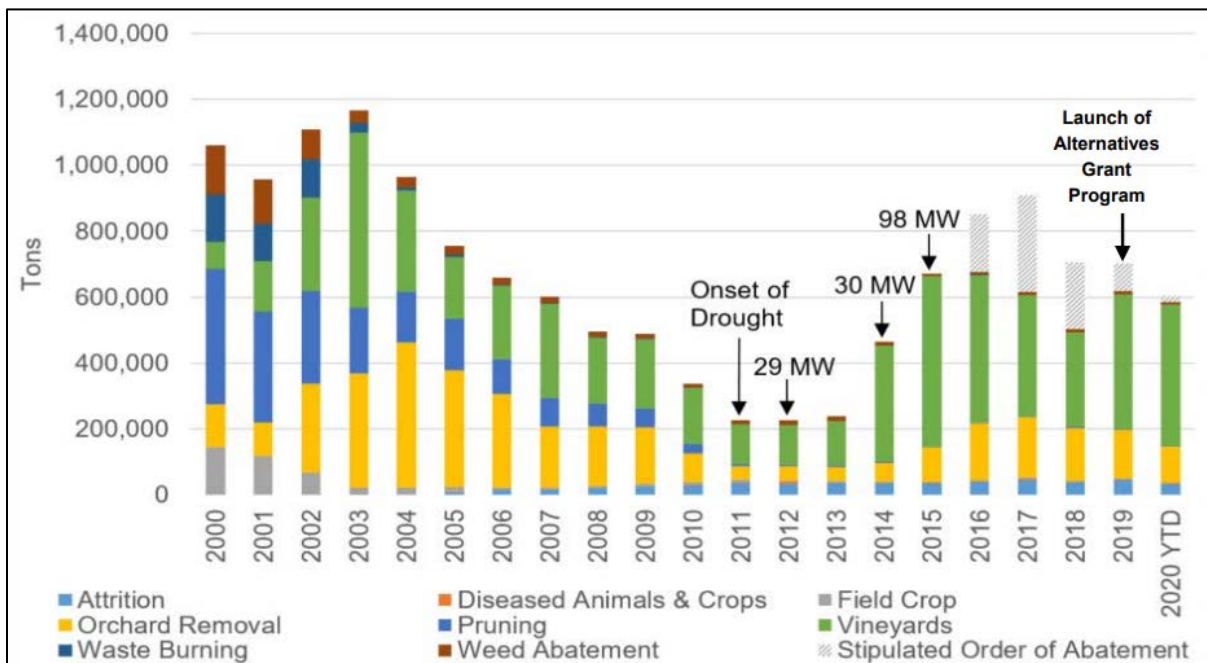
OPEN AGRICULTURAL BURNING EMISSIONS (PM2.5) BY REGION IN CALIFORNIA (2017)



In response to public health and air quality concerns, the Legislature has also taken actions to mitigate emissions associated with open agricultural burning. In 1970, Assembly Bill (AB) 16 directed CARB to establish guidelines for the control of agricultural burning. In 1991, as a result of widespread concerns about smoke associated with fall rice straw burning activities, AB 1378 was adopted, requiring the phase down of rice straw burning in the Sacramento Valley by 2002. Through close collaboration between CARB, the local air districts in the Sacramento Valley, and rice straw growers, AB 1378 succeeded in significantly reducing open burning of rice straw. The legislation established a year by year decreasing cap on total acres burned, which coupled with incentive funding and extensive outreach reduced rice straw burning in the Sacramento Valley by more than 85 percent. More than 90 percent of the diverted rice straw is currently incorporated into the soil with the additional costs for this change in practices being absorbed by rice growers into their operating costs.

Recognizing the impacts of open agricultural burning on air quality in the San Joaquin Valley, the District was one of the first local air quality districts to begin regulating open air burning through adoption of local Rule 4103 in 1992. The District subsequently amended Rule 4103 multiple times to address evolving air quality needs and changes in agricultural practices. In 2003, the legislature adopted SB 705 (codified at California Health and Safety Code 41855.5 *et seq.*) which aimed to phase out open agricultural burning in the San Joaquin Valley between 2005 and 2010. Prior to passage of SB 705, approximately 1 million tons of agricultural biomass, primarily prunings, orchard removals, and vineyard removals, were open burned in the San Joaquin Valley every year. To comply with the phased-in requirements of SB 705, the District amended Rule 4103 in 2005, 2007, and 2010, expanding burn prohibitions for a range of crops and materials in the Valley. Through implementation of Rule 4103, and with the collaboration of the agricultural industry, the District succeeded, by 2011, in reducing open agricultural burning by approximately 80 percent. The District further mitigated public exposure to smoke through its Smoke Management System (SMS), which divides the Valley into 103 burn allocation zones and is designed to ensure that open agricultural burning does not cause or substantially contribute to a violation of air quality standards.

SAN JOAQUIN VALLEY OPEN AGRICULTURAL BURNING TRENDS



However, as allowed under SB 705, the District can postpone the burn prohibition for some crop categories and materials if the District determines the postponement is necessary based on criteria delineated in SB 705 and CARB concurs. These criteria include the economic feasibility of alternatives, availability of federal or State funding for biomass facilities or other alternatives (e.g. soil incorporation), and implications for attaining federal air quality standards. Beginning in 2011, the Valley entered into a series of droughts which resulted in growers having to remove many acres of orchards and vineyards. At the same time, a number of biomass facilities shuttered, significantly limiting the options available to growers. For

economic reasons, many agricultural operators chose to dispose of their agricultural biomass through open burning. As a result, approximately 600,000 tons of agricultural material are currently being burned in the Valley every year, even though the District has tightened its burning restrictions and launched the Alternatives to Agricultural Open Burning Incentive Pilot Program in late 2018 to encourage soil incorporation and other more sustainable alternatives. The District has executed \$12 million in grants under this successful and oversubscribed incentive program since its launch, assisting with the disposal of approximately 23,000 acres and 640,000 tons of agricultural biomass using non-combustion alternatives.

Since adoption of SB 705 in 2003, the District has requested, and CARB has provided concurrence on, postponements of the requirements of SB 705, in 2005, 2007, 2010, 2012, and 2015. CARB's most recent concurrence, granted for the District's 2015 determinations, expired on December 31, 2020. On January 3, 2021, CARB provided concurrence, for the limited period through February 24, 2021, with the postponement of the prohibition of agricultural burning where issues such as disease pose obstacles to implementing alternatives. In addition, CARB concurred, for the same limited period and with specified conditions, with the postponement of the prohibition of agricultural burning where the District and permit applicant could document that there was an immediate imperative to clear a field for planting.

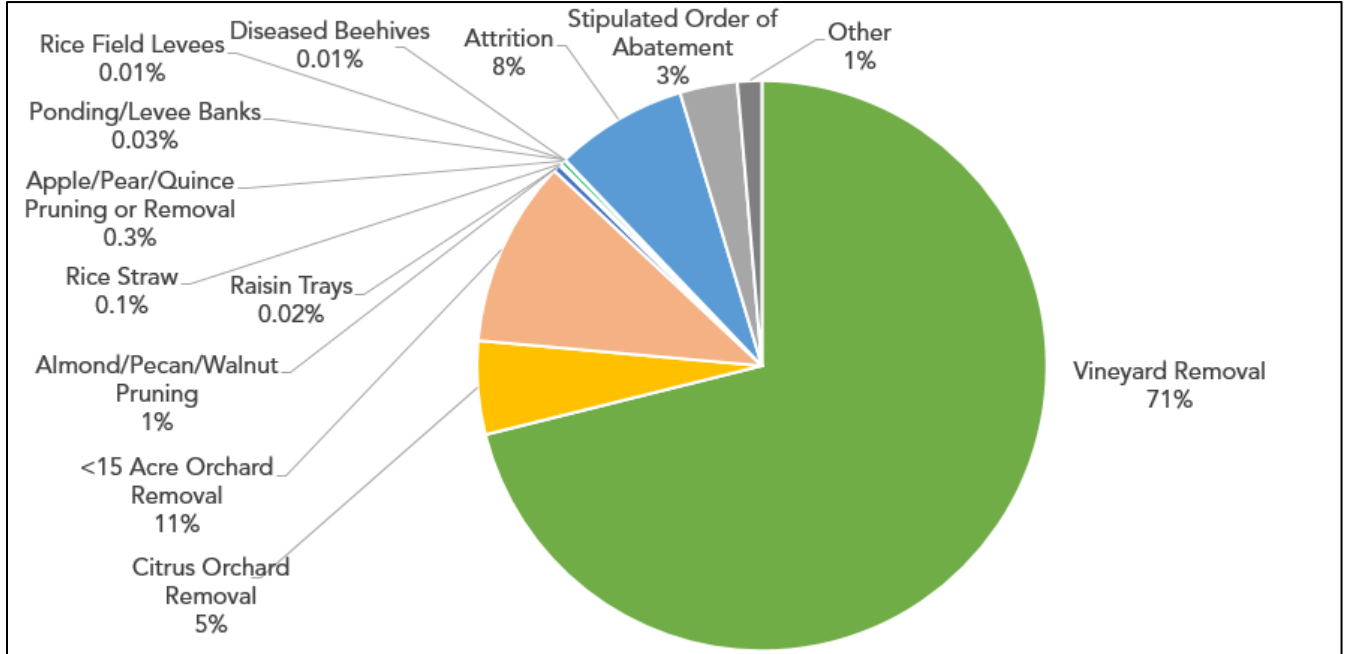
This report provides CARB staff's assessment of the District 2020 Report. The following sections of the Staff Recommendations summarize the key elements of the District 2020 Report, discuss CARB staff recommendations, describe opportunities for funding sustainable alternatives, and provide an environmental analysis.

Summary of District 2020 Report

The District adopted the 2020 Report at its December 17, 2020, meeting. The 2020 Report makes recommendations for new agricultural burn prohibitions and requests CARB concurrence on proposed postponement of burn prohibitions for certain crop categories and materials. The 2020 Report includes phased-in reductions of open burning of vineyard removals and orchard removals, crop categories that together account for approximately 90 percent of total tons burned in 2020. In addition, the 2020 Report proposes prohibitions for residual rice stubble and rice stubble spot burning; raisin trays; and prunings of almond, walnut, and pecan crops. These determinations are accompanied by the District's evaluation of the technological and economic feasibility of alternatives to open agricultural burning for each crop category or material. Some burn prohibitions were scheduled to begin as early as January 1, 2021, with full implementation of all burn prohibitions by January 1, 2024.

The 2020 Report calls for the transition from open agricultural burning to non-combustion alternatives for certain crop categories as predicated on the availability of incentives from State and other sources to make the alternatives economically feasible. To this end, the 2020 Report includes a request for funding support from the State of approximately \$15 million per year. Additionally, the 2020 Report makes recommendations for State energy policy more broadly, in part to address the decline in biomass plant capacity in the Valley.

SAN JOAQUIN VALLEY 2020 OPEN AGRICULTURAL BURNING BY CROP TYPE



Staff Recommendations

The District has made considerable progress reducing agricultural burning since the passage of SB 705, and the 2020 Report is another significant step in the right direction. In particular, the District’s Alternatives to Agricultural Open Burning Incentive Pilot Program, since its inception in November 2018, has borne out the feasibility of soil incorporation and highlighted the important role incentives play in making alternatives accessible to Valley agricultural operators. CARB believes that partnerships between the District, CARB, other State and federal agencies, the agricultural industry, and Valley residents and other stakeholders can continue and accelerate this transformation, paving a viable path to near-complete phase-out of agricultural burning in the Valley by January 1, 2025.

Recognizing the need for a transitional period, CARB staff recommend that the Board concur with the District’s burn prohibition postponements as set forth in the 2020 Report through August 31, 2021, and that the Board delegate the Executive Officer the authority to provide concurrence for an additional period beyond the first six-month concurrence period, through January 1, 2025, provided that the District implement additional measures, with CARB support, as described below, with the aim of facilitating a swift phase-out of agricultural burning. Meeting a target of near-complete phase-out of agricultural burning will require a partnership between the District, CARB, other State and federal agencies, the agricultural industry, and Valley residents and other stakeholders that builds on the framework established in the District’s 2020 Report. The approach includes two components: first, accelerated timelines—starting with large agricultural operations which are better able to absorb the costs of alternatives such as soil incorporation, while allowing more time for

smaller agricultural operations to adjust—and second, a clear ton target that will serve as a backstop to ensure the near-complete phase-out of burning by January 1, 2025.

Accelerate Reductions by Crop Category

The table below summarizes the District 2020 Report recommendations and CARB staff recommendations to accelerate reductions by crop category or material.

Crop Category or Material	District 2020 Report Recommendation	CARB Staff Recommendation
Vineyard Removals	Effective 2022, based on case-by-case evaluation, where alternatives are available, prohibit burning of projects >15 acres per location per year <15 acre projects allowed to burn	Introduce prohibition on burning at large agricultural operations, including for <15 acre removal projects, effective 2022. Phase in prohibitions for small agricultural operations while providing a longer transition time than for larger operations.
Citrus Orchard Removals	<p>Effective January 1, 2021:</p> <ol style="list-style-type: none"> 1) Prohibit burning at agricultural operations with total citrus acreage at all sites >500 acres 2) 2) Prohibit burning of removals >40 acres at a single location per year 3) Maintain case-by-case determination for removals 15-40 acres at agricultural operations ≤500 acres <p>Effective January 1, 2022</p> <ol style="list-style-type: none"> 1) Lower acreage threshold to >200 acres 2) Lower removal size threshold to >30 acres 3) Maintain case-by-case for removals 15-30 acres at agricultural operations ≤200 acres 4) Effective January 1, 2023, prohibit all citrus removal 	<p>Accelerate the phase-out timeline:</p> <ul style="list-style-type: none"> • Pull forward 2022 recommendation to be effective September 1, 2021 • Pull forward 2023 recommendation to be effective January 1, 2022 <p>Introduce prohibition on burning of ≤15 acre removal projects at large agricultural operations, effective 2022. Phase in prohibitions for small agricultural operations while providing a longer transition time than for larger operations.</p>

	open burns except removal projects ≤15 acres	
<15 Acre Orchard Removals	Continue to permit burning	Introduce prohibition on burning of ≤15 acre removal projects at large agricultural operations, effective 2022. Phase in prohibitions for small agricultural operations while providing a longer transition time than for larger operations.
Surface Harvested Prunings (Almond/Walnut/Pecan)	Effective January 1, 2021, prohibit surface harvested pruning open burns >20 acres Effective January 1, 2022, prohibit open burning ≤20 acres at agricultural operations >200 acres Effective January 1, 2023, lower agricultural operation threshold to >50 acres	Concur with District 2020 Report Recommendations
Raisin Trays	Prohibit effective January 1, 2024	Concur with District 2020 Report Recommendations
Rice Stubble	Effective January 1, 2021, prohibit open burning of 75 percent of rice stubble per year of the total acreage of rice farmed by the operator	Decrease percentage of acreage that can be burned from 25 percent to 20 percent
Residual Rice Stubble and Spot Burning	Prohibit effective January 1, 2021	Concur with District 2020 Report Recommendations
Rice Field Levees and Banks	Continue to permit burning	Concur with District 2020 Report Recommendations

Apple/Pear/Quince Prunings and Orchard Removals	Continue to permit burning	Concur with District 2020 Report Recommendations
Weed Abatement (Ponding and Levee Banks)	Continue to permit burning	Concur with District 2020 Report Recommendations
Diseased Beehives	Continue to permit burning	Concur with District 2020 Report Recommendations

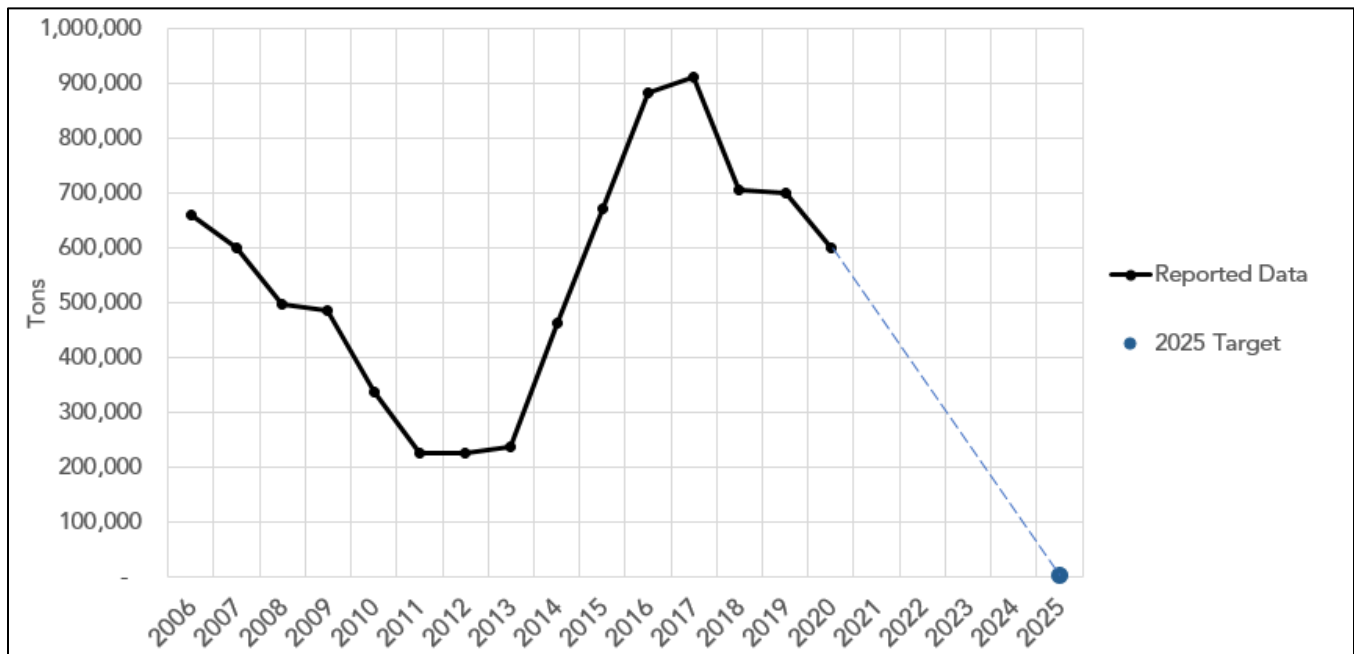
Phase Out Agricultural Burning by 2025

CARB is confident that if the District accelerates reductions by crop type through a combination of restrictions and incentives, significant progress will be made in phasing out open agricultural burning in the Valley. However, to provide certainty the phase down will occur in a timely fashion and to protect public health for both the region and community, CARB also recommends the District set a clear ton target for the near-complete phase-out of burning by January 1, 2025. While allowing year-to-year flexibility, the target provides certainty for reductions in the amount of agricultural material burned and helps the District send a clear signal that the market is moving towards more sustainable alternatives to open burning. This target would not only protect public health but would also help the Valley attain federal PM2.5 air quality standards. As described in the 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards (2018 PM2.5 Plan or SIP) adopted by CARB in January 2019, the District must attain the 12 microgram per cubic meter annual PM2.5 standard by 2025. If the target is surpassed or met early, in addition to providing health benefits sooner, there is the possibility the District could earn SIP credit for any additional emissions reductions, thereby helping to meet the aggregate commitment for emissions reductions made in the SIP.

As noted above, there may be special circumstances that merit providing very limited exceptions to the prohibition. These exceptions may include burning of the small amount of agricultural material for which there are cogent disease issues, including agricultural commissioner- or State-ordered disease removals, or where there are safety or water quality issues that limit the use of pesticides. This agricultural material includes weeds and vegetative materials on rice field levees and banks; apple, pear, and quince crop prunings and orchard removals; weeds affecting ponding and levee banks; and diseased beehives. On average over the past 15 years, these categories have accounted for approximately 1 percent of the tons of agricultural material burned so continued burning of these materials will have negligible impacts on air quality. Ongoing tracking of burning of these materials will help ensure this remains the case.

The graph below shows tons of agricultural material burned, including reported data through 2020 and a target reflecting near-complete phase-out of agricultural burning by 2025.

SAN JOAQUIN VALLEY OPEN AGRICULTURAL BURNING TRENDS AND 2025 TARGET



Transitional Readiness

During the recommended six-month period of initial CARB concurrence, the District should take a number of actions to improve readiness to reduce burning at the pace needed to meet the 2025 target of a near-complete phase-out of agricultural burning in the Valley. To help support the District in this transition, CARB has an important partnership role in all these actions, which include:

1. Holding a summit on non-burning alternatives;
2. Developing outreach materials and programs with UC Cooperative Extension to identify alternatives to vineyard and orchard removals;
3. Pursuing a Clean Biomass/Bioenergy Collaborative across state agencies;
4. Pursuing additional incentive funding from State and federal sources; and
5. Encouraging the use of woody biomass in low-carbon uses.

Penalties

The District should consider seeking to raise the per acre penalty (currently at \$750) for burning conducted pursuant to a Stipulated Order of Abatement that was granted in 2015 by the District Hearing Board to allow orchard removal burns to a level commensurate with chipping/shredding/tilling operations. Funds raised with this penalty should continue to be used to support the District's incentive-based grant program for alternatives to open burning. The penalty should be of a level to make the cost of open burning commensurate with that of alternatives such as soil incorporation.

Funding Sustainable Alternatives

Through its Alternatives to Agricultural Open Burning Incentive Pilot Program, the District has recognized the importance of moving away from open agricultural burning and towards more sustainable alternatives, such as soil incorporation of agricultural materials. The District and agricultural industry in the Valley are recognized leaders in effectively using incentives in partnership with CARB, the United States Department of Agriculture (USDA), and California Department of Agriculture (CDFA) to achieve notable reductions in air emissions from the agricultural sector. Examples of this successful partnership include the Moyer Program and the FARMER Program which have significantly reduced emissions from the Valley's agricultural truck and tractor fleets. This private industry and government air quality improvement partnership has served as an example not just for other regions in California but for the rest of the United States. It also serves as the foundation for incentivizing the pursuit of sustainable alternatives to current practices of open agricultural burning in the Valley.

To support expanding access to alternatives such as soil incorporation during the phase-out period through January 1, 2025, incentive funds are anticipated to play an important role. Funding on the order of \$15 million to \$30 million annually, coming from multiple federal, State, and local sources will help facilitate the expeditious phase out of agricultural burning as called for in this report. The amount of funding needed depends on the extent to which incentives can be focused towards smaller agricultural operations that might face more serious economic hurdles to implementing comparatively costlier alternatives to open burning. The overall cost of an incentive program would be less if incentives were provided only to the smaller agricultural operations or if the incentive amounts were reduced over time. Funding should be limited to the transitional period to help the Valley achieve near-complete phase-out of agricultural burning.

Another alternative to burning is to convert agricultural residue to liquid and gaseous fuels, which can also support the State's climate change mitigation efforts. As part of California's effort to reduce greenhouse gas emissions, CARB has adopted a Low Carbon Fuel Standard (LCFS) which sets a decreasing carbon intensity for California's transportation fuel pool and helps support the deployment of a range of low-carbon and renewable fuel alternatives like renewable diesel, biodiesel, alternative jet fuel, renewable natural gas, and others. These low-carbon fuels will be critical to decarbonizing our transportation sector over the coming years, particularly for areas that will be hard to electrify like agricultural equipment, marine, and other off-road equipment. As the State pushes towards carbon neutrality these fuels will also have applicability beyond transportation such as the industrial sector or decarbonizing the natural gas grid and electricity sector. Using biomass-based feedstocks, such as agricultural residues, in the production of these fuels can help reduce a fuel's carbon intensity. When appropriately designed, a renewable fuel production facility that utilizes agricultural residue that would otherwise be open burned can help reduce greenhouse gas and criteria pollutant emissions, waste, and fossil fuel dependence, while supporting local economies.

Environmental Analysis

CARB has determined that the proposed concurrence is exempt from the California Environmental Quality Act (CEQA) under the general rule or “common sense” exemption (14 CCR 15061(b)(3)). CEQA Guidelines states “the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.” The concurrence is also categorically exempt from CEQA under the “Class 8” exemption (14 CCR 15308) because it is an action taken by a regulatory agency for the protection of the environment.

The District 2020 Report requested that CARB concur with its determinations that certain crops meet the statutory requirements necessary to postpone the agricultural burning prohibitions imposed by Health and Safety Code sections 41855.5 and 41855.6. The first part of the proposed action before the Board is a staff recommendation for concurrence with the District’s determinations through August 31, 2021. The District conducted its own environmental review of its analysis to postpone the agricultural burning prohibitions under CEQA and found the 2020 Report to be categorically exempt from CEQA under CEQA Guidelines section 15308 as an action taken by a regulatory agency for the maintenance, restoration, enhancement, or protection of air quality in the San Joaquin Valley. CARB’s concurrence through August 31, 2021, with the District’s determinations does not create any additional requirements or environmental impacts beyond what the District analyzed in the 2020 Report. In addition, no construction activities or relaxation of environmental standards would occur as a result of the Board’s concurrence through August 31, 2021.

The second part of the proposed action would delegate to the CARB Executive Officer the authority to extend CARB’s concurrence with the District’s agricultural burn prohibition postponements through January 1, 2025, provided the District incorporate a number of CARB recommendations to accelerate the transition away from agricultural burning and fully implement the burn prohibition with limited exceptions. Staff recommend the District set a clear target for the near-complete phase-out of agricultural burning with limited exceptions by January 1, 2025, by accelerating the District’s crop category-specific timelines and focusing on phasing out burning at large agricultural operations first. Staff also recommend the District take a number of actions to improve readiness to reduce burning at the pace needed to meet the 2025 target of a near-complete phase-out of agricultural burning in the Valley, including partnering with CARB, State and federal entities, and other key stakeholders to develop technological and funding solutions for economically feasible alternatives to burning agricultural waste. These recommendations do not relax any environmental standards and are expected to reduce the air emissions from agricultural burning. They further help realize a stronger economy by encouraging investment in economically feasible alternatives for removing agricultural waste and protect human health by limiting air emissions released by burning. The District’s further consideration of these staff recommendations will provide a procedure for considering the environmental impact of implementing these recommendations. The proposed action to delegate authority to the Executive Officer to concur after August 31, 2021, through January 1, 2025, provided the

District implement these recommendations, does not foreseeably cause an environmental impact.

Based on CARB's review it can be seen with certainty that there is no possibility that the proposed concurrence may result in a significant adverse impact on the environment. Further, the proposed action is designed to protect the environment, and CARB found no substantial evidence indicating the proposal could adversely affect air quality or any other environmental resource area, or that any of the exceptions to the exemption apply. (14 CCR 15300.2.) Therefore, this activity is exempt from CEQA.