APPENDIX D. STATEWIDE ACTIONS

I. INTRODUCTION

Community-scale air pollution exposure is caused by many factors, including the cumulative impacts from multiple pollution sources and land use and transportation planning decisions that have placed communities and sources too close together. Identifying effective solutions will require multiple strategies at both the statewide and local level to deliver new emission reductions directly within these communities.

The Program includes a multi-pronged set of actions that are underway to reduce the air pollution burden in heavily impacted communities throughout the State. These actions include:

- New regulations to set clean technology requirements for the types of sources that are concentrated within impacted communities, coupled with enhanced enforcement tools.
- New incentives specifically targeted to help purchase cleaner vehicles and equipment in impacted communities.
- New resources and tools to reduce community residents' exposure to air pollution through coordination with land use and transportation planning agencies.

This appendix identifies the broad suite of actions CARB and air districts are undertaking now to reduce criteria air pollutants and toxic air contaminants in impacted communities throughout the State. This includes: new regulatory measures with a focus on zero emission technologies where feasible; community-focused enforcement; air district requirements to develop an expedited schedule for BARCT implementation; CARB's Technology Clearinghouse; guidance documents; and incentive funding to support communities included in the Program. CARB staff will also develop additional measures to improve energy efficiency, require cleaner fuels, and reduce climate super pollutants, which can also help reduce air pollution in impacted communities. Community emissions reduction programs will build from these actions, and identify additional strategies targeted to the individual pollution challenges within each community.

Land use and transportation policies are under the jurisdiction of local and regional government agencies, not local air districts, which makes the solutions more

challenging. However, this Blueprint supports identification, design, and implementation of emissions and exposure reduction strategies related to these policies, including:

- Commitments to develop resources and tools on best practices for land use and transportation strategies, including use of the Land Use Handbook[59] and development of a Freight Handbook.
- Commitments to develop resources on health data to enhance the consideration of public health in the local decision-making process.
- Requirements that community emissions reduction programs include local government agencies on community steering committees, identify land use and transportation strategies that could reduce exposure within the community, and include specific engagement mechanisms to advocate for these strategies.

As part of an ongoing process to address community-scale exposure challenges across the State, CARB will also:

- Work with other government agencies to identify future actions that are outside of CARB's authority in order to improve data collection and the ability to understand air quality/public health relationships at the community level and promote greater consideration of air quality for transportation projects.
- Consider how land use patterns and the proximity of sensitive receptors may influence State and air district regulatory strategies.
- Evaluate of how geographic approaches could be incorporated into air toxics and mobile source regulations to reduce exposures for impacted communities.

II. STATEWIDE EMISSION REDUCTION STRATEGIES

Identifying specific strategies for reducing criteria air pollutants and toxic air contaminants in communities with high cumulative exposure burdens is critical for implementing strong statewide actions to ensure new emissions reductions. The strategies outlined in this section reflect actions that CARB and air districts are already taking to deliver new reductions in communities. This includes new strategies from existing air quality and climate plans, early action incentive funding appropriated by the Legislature, and additional community-focused actions (e.g., new regulatory measures, targeted enforcement activities, other new tools and resources).

[59] California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005, available at: https://www.arb.ca.gov/ch/landuse.htm.

FOUNDATIONAL STRATEGIES IN CARB AIR QUALITY AND CLIMATE PLANS

CARB's Governing Board has adopted several comprehensive air quality and climate plans in recent years, including the *State Strategy for the State Implementation Plan*, the *California Sustainable Freight Action Plan*, *California's 2017 Climate Change Scoping Plan*, and the *Short-Lived Climate Pollutants Reduction Strategy*. Each of these plans includes a suite of emissions reduction strategies that will address many of the sources that are concentrated within heavily impacted communities like cars, trucks, freight sources, and other equipment. Together they provide a foundation for additional emissions reductions needed to deliver healthful air in communities with high cumulative exposure burdens.

Table 5, Table 6, and Table 7 provide lists of new CARB strategies associated with these plans.[60] CARB staff have already begun developing regulations, policies, and incentive programs to implement these strategies. This is an ongoing process that will begin achieving emissions reductions in the near-term and providing benefits that support community-level actions, with a focus on zero emission technologies where the technologies are now feasible. New regulations cover the following range of sources:

- *For communities heavily impacted by freight sources* –
    - Expanded standards for clean operation for ships while they are in port.
    - New operating time requirements and transition to zero emission operation for transport refrigeration units at warehouses.
    - Zero emission requirements for forklifts.
    - Petitioning U.S. EPA for cleaner locomotive standards.
- *For communities heavily impacted by traffic* –
    - New clean car standards and sales requirements for zero emission cars.
    - New clean truck standards; new testing and warranty requirements to make sure trucks remain clean over their lifetime.
    - Zero emission requirements for delivery trucks, buses, and airport shuttles.
- *For communities heavily impacted by other equipment* –
    - Zero emission requirements for airport equipment.
    - Zero emission requirements for lawn and garden equipment.
    - Assessing opportunities for zero emission requirements for other off-road equipment.

[60] The information provided in these tables reflects the published plans; some of the information may have been revised or updated since publication.

Some of the strategies focused on reducing climate pollutants will also provide opportunities to reduce criteria air pollutants and toxic air contaminants. CARB will continue to develop coordinated strategies that leverage resources, accelerate action at the community level, and support healthier, more sustainable communities. CARB also anticipates emission reductions in communities as a result of the enhanced compliance provision in Senate Bill 1,[61] which prevents the California Department of Motor Vehicles from issuing registrations to heavy-duty trucks that do not comply with applicable CARB regulations. Several of the strategies listed in Table 5, Table 6, and Table 7 have already been adopted by the CARB Governing Board and are being implemented, while development for many of the remaining strategies is underway.

Table 5 State Strategy for the State Implementation Plan Measures and Schedule *(Approved 2017)*[62]

Proposed Measure	Agency	Action	Implementation Begins
On-Road Light-Duty			
Advanced Clean Cars 2	CARB	2020-2021	2026
Lower In-Use Emission Performance Assessment	CARB / BAR	n/a	Ongoing
Further Deployment of Cleaner Technologies*	CARB / SCAQMD / U.S. EPA	ongoing	2016
On-Road Heavy-Duty			
Lower In-Use Emission Performance Level	CARB	2017-2020	2018 +
Low-NOx Engine Standard – California Action	CARB	2019	2023
Low-NOx Engine Standard – Federal Action*	U.S. EPA	2019	2024
Medium and Heavy-Duty GHG Phase 2	CARB / U.S. EPA	2017-2019	2018 +
Innovative Clean Transit	CARB	2017	2018
Last Mile Delivery**	CARB	2018	2020
Innovative Technology Certification Flexibility	CARB	2016	2017
Zero-Emission Airport Shuttle Buses	CARB	2018	2023
Incentive Funding to Achieve Further Emission Reductions from On-Road Heavy-Duty Vehicles	CARB / SCAQMD	ongoing	2016
Further Deployment of Cleaner Technologies*	CARB / SCAQMD / U.S. EPA	ongoing	2016

(continued on next page)

[61] Senate Bill 1, Beall, Chapter 5, Statutes of 2017, California Vehicle Code § 4000.15(a).
[62] California Air Resources Board, *Revised Proposed 2016 State Strategy for the State Implementation Plan*, March 7, 2017, Table 2, available at: www.arb.ca.gov/planning/sip/sip.htm.

Proposed Measure	Agency	Action	Implementation Begins
Off-Road Federal and International Sources			
More Stringent National Locomotive Emission Standards*	U.S. EPA	2017	2023
Tier 4 Vessel Standards*	CARB / IMO	2016 - 2018	2025
Incentivize Low Emission Efficient Ship Visits	CARB	2018 - 2020	2018 +
At-Berth Regulation Amendments	CARB	2017 - 2018	2023
Further Deployment of Cleaner Technologies*	CARB / SCAQMD U.S. EPA	ongoing	2016
Off-Road Equipment			
Zero-Emission Off-Road Forklift Regulation Phase 1	CARB	2020	2023
Zero-Emission Off-Road Emission Reduction Assessment	CARB	2025 +	--
Zero-Emission Off-Road Worksite Emission Reduction Assessment	CARB	tbd	--
Zero-Emission Airport Ground Support Equipment	CARB	2018	2023
Small Off-Road Engines	CARB	2018 - 2020	2022
Transport Refrigeration Units Used for Cold Storage	CARB	2018 - 2019	2020 +
Low-Emission Diesel Requirement	CARB	by 2020	2023
Further Deployment of Cleaner Technologies*	CARB / SCAQMD / U.S. EPA	ongoing	2016
Consumer Products			
Consumer Products Program	CARB	2019 - 2021	2020 +

* Request the U.S. EPA approval under the provisions of Section 182(e)(5) of the Clean Air Act allowing for reliance on anticipated development of new control techniques or improvement of existing control technologies. Also includes identification of needed funding, infrastructure development, and actions/resources required from other agencies.
** This measure is being developed as the *Advanced Clean Local Trucks Regulation*.

Table 6 Summary of California's 2017 Climate Change Scoping Plan Update Measures *(Approved 2017)*[63]

POLICY	PRIMARY OBJECTIVE	HIGHLIGHTS	IMPLEMENTATION TIME FRAME
SB 350*[A]	Reduce GHG emissions in the electricity sector through the implementation of the 50 percent RPS, doubling of energy savings, and other actions as appropriate to achieve GHG emissions reductions planning targets in the Integrated Resource Plan (IRP) process.	• Load-serving entities file plans to achieve GHG emissions reductions planning targets while ensuring reliability and meeting the State's other policy goals cost-effectively. • 50 percent RPS. • Doubling of energy efficiency savings in natural gas and electricity end uses statewide.	2030
Low Carbon Fuel Standard (LCFS)*	Transition to cleaner/less- polluting fuels that have a lower carbon footprint.	• At least 18 percent reduction in carbon intensity, as included in the Mobile Source Strategy.	2030
Mobile Source Strategy (Cleaner Technology and Fuels [CTF] Scenario)*	Reduce GHGs and other pollutants from the transportation sector through transition to zero-emission and low-emission vehicles, cleaner transit systems and reduction of vehicle miles traveled.	• 1.5 million zero-emission vehicles (ZEV), including plug-in hybrid electric, battery-electric, and hydrogen fuel cell vehicles by 2025 and 4.2 million ZEVs by 2030. • Continue ramp up of GHG stringency for all light-duty vehicles beyond 2025. • Reductions in GHGs from medium-duty and heavy-duty vehicles via the Phase 2 Medium and Heavy-Duty GHG Standards. • Innovative Clean Transit: Transition to a suite of innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new bus sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NOx standard.	Various

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[63] California Air Resources Board, *California's 2017 Climate Change Scoping Plan*, November 2017, Table 1, available at: www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

POLICY	PRIMARY OBJECTIVE	HIGHLIGHTS	IMPLEMENTATION TIME FRAME
Mobile Source Strategy (Cleaner Technology and Fuels [CTF] Scenario)* (continued)		• Last Mile Delivery: New regulation that would result in the use of low NOx or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 • Reduction in vehicle miles traveled (VMT), to be achieved in part by continued implementation of SB 375 and regional Sustainable Community Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy, but included in the document "Potential VMT Reduction Strategies for Discussion" in Appendix C of the Scoping Plan. B	Various
SB 1383*	Approve and Implement Short-Lived Climate Pollutant strategy to reduce highly potent GHGs	• 40 percent reduction in methane and hydrofluoro-carbon (HFC) emissions below 2013 levels by 2030. • 50 percent reduction in anthro-pogenic black carbon emissions below 2013 levels by 2030.	2030
California Sustainable Freight Action Plan*	Improve freight efficiency, transition to zero emission technologies, and increase competitiveness of California's freight system.	• Improve freight system efficiency by 25 percent by 2030. • Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	2030
Post-2020 Cap-and-Trade Program	Reduce GHGs across largest GHG emissions sources	• Continue the existing Cap-and-Trade Program with declining caps to ensure the State's 2030 target is achieved.	2030

* These measures and policies are referred to as "known commitments."
[A] SB 350 Clean Energy and Pollution Reduction Act of 2015 (De León, Chapter 547, Statutes of 2015). This policy also includes increased demand response and PV.
[B] Potential State-Level Strategies to Advance Sustainable, Equitable Communities and Reduce Vehicle Miles of Travel (VMT) - for Discussion. http://www.arb.ca.gov/cc/scopingplan/meetings/091316/Potential%20VMT%20Measures%20For%20Discussion_9.13.16.pdf.

Table 7 Summary of Proposed New Short-Lived Climate Pollutant Measures and Estimated Emission Reductions[A] *(Approved 2017)*[64]

Measure Name	2030 Annual Emission Reductions	2030 Annual Emissions
Black Carbon		
2030 BAU[B]		26
Residential Fireplace and Woodstove Conversion	3	
Clean Energy Goals[C]	4	
2030 BAU with new measures		19
Methane		
2030 BAU[B]		117
Dairy and Other Livestock (Manure and Enteric Fermentation)	26	
Landfill	4	
Wastewater, Industrial and Other Miscellaneous Sources	7	
Oil and Gas Sector	8	
2030 BAU with new measures		71[D]
Hydrofluorocarbons		
2030 BAU[B]		65
Financial Incentive for Low-GWP Refrigeration Early Adoption	2	
HFC Supply Phasedown (to be achieved through global HFC phasedown)[E]	19	
Prohibition on sales of very-high GWP refrigerant	5	
Prohibition on new equipment with high-GWP Refrigerants	15	
2030 BAU with new measures		24

[A] Using 20-year GWPs from the 4th Assessment report of the IPCC for methane and HFCs, and 5th Assessment report for black carbon (the first report to define a GWP for black carbon).
[B] Business As Usual (BAU) forecasted inventory includes reductions from implementation of current regulations.
[C] Future emission reduction measures that will be developed to help the State meet its air quality and climate change goals are also expected to help the State meet the black carbon target by 2030.
[D] The specific annual reduction values shown above do not sum exactly to the total shown due to rounding.
[E] A global HFC production and consumption phasedown was agreed to on October 15, 2016, in Kigali, Rwanda. ARB is currently evaluating the impact upon HFC emission reductions in California and plans to utilize the results from the assessment to inform future updates to BAU projections for HFC emissions.

[64] California Air Resources Board, *Short-Lived Climate Pollutant Reduction Strategy*, March 2017, Table 2, available at: www.arb.ca.gov/cc/shortlived/shortlived.htm.

NEW CARB STRATEGIES TO REDUCE EMISSIONS IN IMPACTED COMMUNITIES

Figure 18 lists new strategies to reduce emissions from a number of sources that are significant contributors to cumulative exposure burdens (details are provided in Appendix F). CARB has identified new mobile source measures in both the light- and heavy-duty sectors. Five of the new regulatory measures are specifically focused on reducing near-source risk from freight-related sources. The new measures also include strengthening control requirements for stationary sources of toxic air contaminants, such as chrome plating.

CARB staff will continue to work with communities and air districts to identify additional sources that may require further statewide action and will update the CARB Governing Board on an annual basis on ongoing community-focused efforts and the need for additional regulatory and other actions.

Figure 18 New Strategies for Emissions Reduction in Communities

FREIGHT-RELATED RISK REDUCTION MEASURES	• Commercial Harbor Craft amendments.
	• Amendments to set requirements for zero emission technologies.
	  o Cargo Handling Equipment amendment.
	  o Drayage trucks at seaports and rail yards amendment.
	• Evaluation and potential development of regulation to reduce idling for all rail yard sources.
	• Evaluation and potential development of regulation to reduce emissions from locomotives not preempted under the Clean Air Act.

AIRBORNE TOXIC CONTROL MEASURES	• Chrome Plating Control Measures amendments. • Composite Wood Products Control Measure amendments.
OTHER STRATEGIES TO FURTHER REDUCE EMISSIONS	• Catalytic converter theft reduction. • Heavy-duty, on-road, and off-road engine in-use testing. • Suggested control measure for commercial cooking.

INCENTIVES

In addition to the strategies identified above, the fiscal year 2017-2018 State budget appropriated $250 million of Cap-and-Trade auction proceeds for incentive projects to achieve accelerated reductions through the deployment of cleaner mobile sources in impacted communities. As directed by the Legislature, these funds are being administered through the Carl Moyer Memorial Air Quality Standards Attainment Program[65] (Carl Moyer Program), except that at its discretion, an air district may allocate up to 40 percent of the funds it receives to incentivize clean trucks. These incentives are to be distributed in accordance with the funding amounts and truck evaluation requirements in the *Proposition 1B Goods Movement Emission Reduction Program Guidelines for Implementation*.[66]

The funding allocated to specific air districts included:

- 43 percent to South Coast Air Quality Management District.
- 32 percent to San Joaquin Valley Air Pollution District.
- 20 percent to Bay Area Air Quality Management District.
- 5 percent to CARB for distribution to other air districts.

The CARB Governing Board also approved a *Community Air Protection Program Funds Supplement to the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines*[67] in April 2018 to facilitate funding the types of projects that are most beneficial to communities. This includes: increased grant amounts for replacing older vehicles and equipment; broader project eligibility; and an added focus on projects that address community-level air pollution (e.g., school buses, delivery trucks, improved infrastructure for electric vehicles).

CARB staff is also working with air districts to ensure funds target the types of projects that will reduce emissions and exposure in communities with high cumulative exposure burdens, per statute.[68] Air districts must also work with directly with communities in

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[65] Additional information for the California Air Resources Board, *Community Air Protection Program Funds Supplement to the Carl Moyer Memorial Air Quality Standards Attainment Program* is available at: www.arb.ca.gov/msprog/moyer/moyer.htm.

[66] California Air Resources Board, *Proposition 1B Goods Movement Emission Reduction Program Guidelines for Implementation*, June 2015, available at: www.arb.ca.gov/bonds/gmbond/gmbond.htm.

[67] California Air Resources Board, *Community Air Protection Program Funds Supplement to the Carl Moyer Memorial Air Quality Standards Attainment Program 2017 Guidelines*, April 27, 2018, available at: www.arb.ca.gov/msprog/moyer/moyer.htm.

[68] Requirements for the Greenhouse Gas Reduction Fund, the source of the appropriations, also apply. More information is available at: www.arb.ca.gov/cc/capandtrade/auctionproceeds/auctionproceeds.htm.

identifying the types of investments that best support community needs, with at least 70 percent of the funds invested in projects to benefit disadvantaged communities. Air districts are conducting public outreach to local residents and community groups to inform investment decisions, and select projects in communities with high cumulative exposure burdens. The funds also focus on vehicles and/or equipment that spend a substantial amount of time in those communities, with a priority on zero emission technologies. Air districts are posting information on their webpages regarding their proposed approaches and public engagement process for funding projects.

Governor Brown's *Proposed Fiscal Year 2018-2019 Budget* includes an additional $250 million of Cap-and-Trade auction proceeds for continued support of early action incentive programs to reduce emissions within impacted communities.

In addition to this new incentive funding, CARB will work with the air districts to leverage other incentive programs such as the Low Carbon Transportation Investments, Volkswagen Environmental Mitigation Trust, and other low-income equity funding, along with local district funding programs as community emissions reductions programs are developed and implemented. This will also include increasing outreach activities to community members and small business owners in the community to help deliver funding to those who need it the most.

AIR DISTRICT STRATEGIES

Air districts are also engaged in regional planning efforts to meet national and State ambient air quality standards and in implementing local risk reduction programs. This includes: new regulatory measures; incentive funding to achieve early reductions in diesel particulate emissions from mobile sources; programs to identify, solicit, and support opportunities to accelerate the deployment of innovative clean air technologies; and "new and modified stationary source review" programs that ensure that new or expanding sources of air pollution are controlled with the best available air pollution control equipment.

Statute also requires that any air district in nonattainment for at least one criteria air pollutant adopt an expedited schedule for implementation of BARCT by January 1, 2019.[69] These requirements apply to industrial sources that are subject to CARB's Cap-and-Trade program (e.g., oil refineries, cement plants). The expedited schedule is designed to ensure accelerated implementation of cleaner control technologies across the State. The schedule must give the highest priority to those permitted units that have not modified their emissions-related permit conditions for the greatest period of time. The schedule will not apply to a permitted unit that has

[69] California Health and Safety Code § 40920.6(a)(c)(1).

implemented BARCT due to a permit revision or a new permit issuance since 2007. Prior to adopting the schedule, the air district must hold a public meeting and take into account: (1) the local public health and clean air benefits to the surrounding community; (2) the cost-effectiveness of each control option; and (3) the air quality and attainment benefits of each control option. CARB staff will be posting these schedules in the online Resource Center and will incorporate the updated BARCT determinations into the Technology Clearinghouse as they are adopted.

CARB will also provide specific guidance on the process for identifying and evaluating further pollution reduction strategies that are to be included as part of all community emissions reduction programs. While the individual strategies will vary by community, the criteria establish a minimum baseline for the types of strategies that will be considered, including adopting more stringent control limits, permitting requirements for new sources, enhanced enforcement to deal with local compliance issues, and commitments for coordination with local land use and transportation agencies.

III. NEW TOOLS AND RESOURCES

Emissions reduction strategies are key to reducing exposures in communities with high cumulative exposure burdens. To support these strategies, CARB staff have identified and are developing new tools and resources to help communities, air districts, industry, and other stakeholders achieve exposure reductions at the community level. These tools and resources are designed to: promote broad community participation; provide data and guidance on emissions sources and emissions reduction strategies; and facilitate the adoption of land use and transportation strategies that can deliver additional exposure reductions.

Several of these tools and resources are directly responsive to statutory requirements, such as:

- The Technology Clearinghouse,[70] which includes data necessary to support new air district BACT, BARCT, and T-BACT determinations and other air district rules.
- The annual emissions reporting system,[71] which will collect and display integrated criteria, toxics, and climate data for facilities across the State on an annual basis.
- The community air monitoring toolbox including reviews of advanced sensing monitoring technologies and reviews of existing community air monitoring systems.

[70] California Health and Safety Code § 40920.8(a).
[71] California Health and Safety Code § 39607.1(b)(1).

- Source attribution methodologies for assessing and identifying sources contributing to high cumulative exposure burdens in a community.[72]

Other tools and resources have been identified in response to public input on the resources needed to support effective community engagement and emissions reductions. This includes a variety of guidance resources like the Land Use Handbook, Freight Handbook, best practices on outreach, land use, and transportation, and new enforcement activities including community programs and outreach.

Figure 19 includes the full list of tools and resources under development, with additional detail provided in Appendix F.

Figure 19 New Tools and Resources to Support Community Engagement and Emissions Reductions

DATA	• Expand and maintain the Technology Clearinghouse.
GUIDANCE	• Develop a Freight Handbook. • Develop industrywide guidance for gasoline dispensing facilities. • Compile and develop best practices guidance on outreach, land use and transportation.*
MONITORING RESOURCES	• Develop and maintain community air monitoring online Resource Center.**
ENFORCEMENT ACTIVITIES	• Provide community programs for enhanced complaint reporting. • Provide enforcement staff cross-training for multi-media violations. • Conduct periodic Supplemental Environmental Projects outreach.

* The online Resource Center contains comment letters that CARB has written on CEQA documents for some proposed projects.
** Including an assessment of current air monitoring technologies and air monitoring networks.

[72] California Health and Safety Code § 44391.2(b)(2).