

# SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

## **Preliminary Draft Staff Report**

### **Proposed Rule 2305 – Warehouse Indirect Source Rule - Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305**

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## **CHAPTER 1: BACKGROUND**

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**INTRODUCTION**

**AIR QUALITY MANAGEMENT PLAN**

**RULEMAKING BACKGROUND**

**EMISSIONS INVENTORY OF PR 2305 WAREHOUSES**

**AIR QUALITY NEED**

**LEGAL AUTHORITY**

## INTRODUCTION

Proposed Rule (PR) 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and PR 316 – Fees for Rule 2305 would apply to operators and owners of existing and new warehouses with floor space greater than or equal to 100,000 square feet within a single building. These warehouses are used to receive, store, and serve as a distribution point for goods. The majority of emissions associated with warehouses are from on-road vehicles such as trucks that deliver goods, and off-road vehicles such as cargo handling equipment. PR 2305 would require warehouses subject to the rule to annually take actions that either reduce emissions regionally and locally or that facilitate emission reductions.

More specifically, PR 2305 requires warehouse operators of warehouses subject to PR 2305 to earn a certain number of points each year from emission-reducing activities or payment of a mitigation fee. This program would work similarly to the LEED system by the United States Green Building Council in that actions are assigned a specified level of points based on a menu.<sup>1</sup> For PR 2305, the amount of points every warehouse operator must earn annually depends upon the number of truck trips to their warehouse.<sup>2</sup> Second, an operator may choose to apply to implement a site-specific custom plan that incorporates actions that are not on the menu, plan approval is required prior to being able to earn points. Custom plans could include onsite and offsite measures within the control of the operator that can be demonstrated to reduce emissions of NO<sub>x</sub> and/or diesel PM. Third, an operator may choose to pay a mitigation fee to South Coast AQMD. The funds generated from the mitigation fee will be used to provide financial incentives for truck owners to purchase NZE or ZE trucks, or for the installation of fueling and charging infrastructure, with priority given for projects in the communities near warehouses that paid the fee. In addition, warehouse operators and owners would also have reporting and recordkeeping requirements. Finally, warehouse operators would pay fees as established by PR 316 to reimburse South Coast AQMD for administrative costs associated with ensuring compliance with PR 2305.

There are many factors that go into determining the stringency of proposed rules. For PR 2305, the draft stringency recommended here considered the following points: the need for emission reductions, the significance of emissions associated with the warehousing industry, the potential emissions reductions from PR 2305 when considering other measures, and the impact to industry. The analysis included in this Preliminary Draft Staff Report and in the accompanying Draft Environmental Assessment (CEQA analysis) and Draft Socioeconomic Impact Assessment that are forthcoming describe the information used to develop the proposed rule approach.

## AIR QUALITY MANAGEMENT PLAN

The South Coast Air Quality Management District (South Coast AQMD) is the regional air quality regulatory agency for all of Orange County, and large portions of Los Angeles, Riverside, and San Bernardino counties. It is responsible for developing and enforcing air pollution control rules and regulations and implementing strategies to meet attainment standards for the South Coast Air Basin (SCAB) and the Riverside County portions of both the Salton Sea Air Basin (SSAB) and the

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<sup>1</sup> There are two important distinctions between LEED and PR 2305. First, the point values between the two systems are completely separate and do not relate to each other. Second, PR 2305 requires annual compliance whereas LEED typically is accomplished on a one-time basis during building construction/design or during renovation.

<sup>2</sup> Point values consider regional and local emission reductions and cost, but warehouse operators do not need to calculate these values. See Chapter 2 for additional detail.

Mojave Desert Air Basin (MDAB). The federal Clean Air Act (CAA) requires the submission of State Implementation Plans (SIP) for nonattainment areas that do not meet the federal National Ambient Air Quality Standards (NAAQS). Additionally, the California Clean Air Act (CCAA) imposes further requirements on meeting state ambient air quality standards for criteria pollutants. South Coast AQMD's jurisdiction is currently classified as being in extreme nonattainment status for the federal NAAQS ozone standards, and serious nonattainment for the federal fine Particulate Matter (PM 2.5) standards.

Per the California Health and Safety Code, the South Coast AQMD is required to adopt an Air Quality Management Plan (AQMP) to demonstrate compliance with both federal and state ambient air quality standards for South Coast AQMD's jurisdiction.<sup>3</sup> The AQMP is a blueprint for meeting federal and state air quality standards, which include the NAAQS for the South Coast AQMD jurisdiction. On March 3, 2017, South Coast AQMD's Governing Board adopted the 2016 AQMP.<sup>4</sup> Based on analysis in the 2016 AQMP, in order to attain the 8-hour ozone standards by the NAAQS deadlines, the total SCAB emissions of NOx must be reduced to approximately 141 tons per day in 2023 and 96 tons per day in 2031. This represents an additional 45% reduction in NOx beyond baseline 2023 levels, and an additional 55% NOx reduction beyond baseline 2031 levels. As seen in Figure 1, approximately 80% of NOx emissions in 2023 and 2031 will be from mobile sources. The control strategy in the 2016 AQMP includes many stationary and mobile source measures that will be carried out by the South Coast AQMD and the California Air Resources Board (CARB) (Figure 2). To attain the federal ozone and PM 2.5 NAAQS, the 2016 AQMP relies on reducing regional NOx emissions as a primary strategy (NOx is a precursor to the formation of both ozone and PM 2.5), but also includes measures to reduce directly emitted PM 2.5.

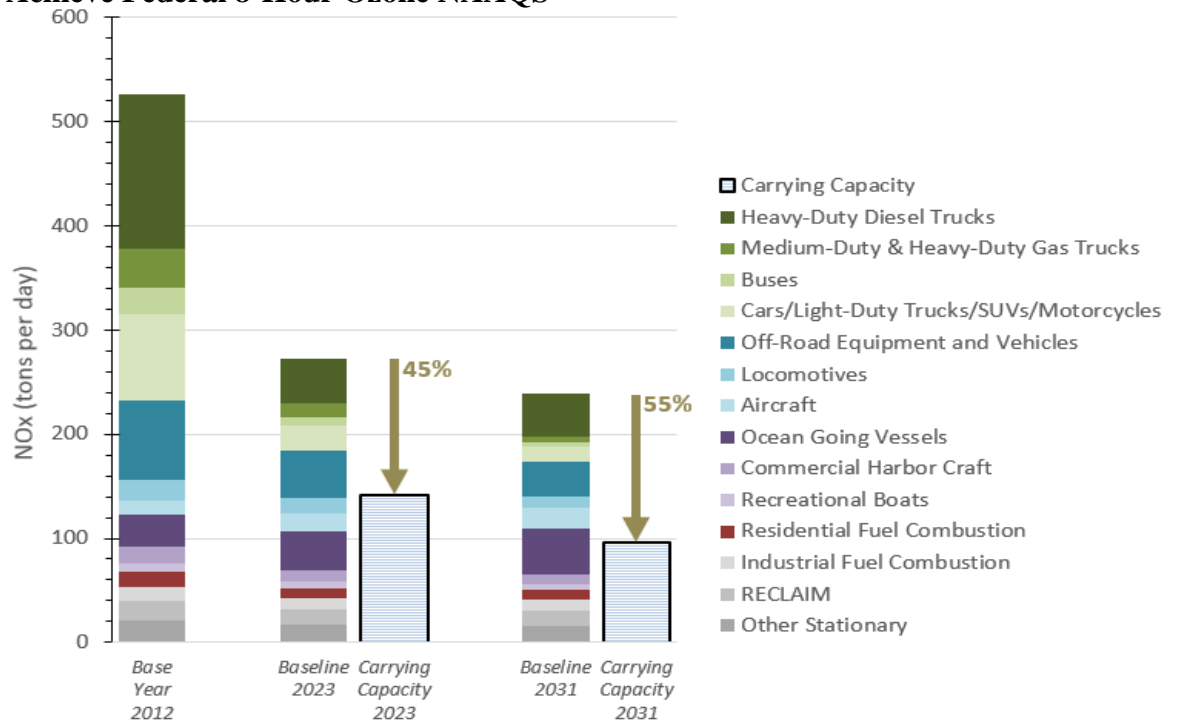
CARB is committed to achieving emission reductions with its state Mobile Source Strategy (MSS) in the State Implementation Plan (SIP). However, the majority of these emission reductions come from measures titled as "Further Deployment of Cleaner Technologies" (Further Deployment Measures), which were not fully defined. The Further Deployment Measures are expected to reduce 108 tons per day of NOx emissions beyond baseline by 2023 and 88 tons per day beyond baseline by 2031.

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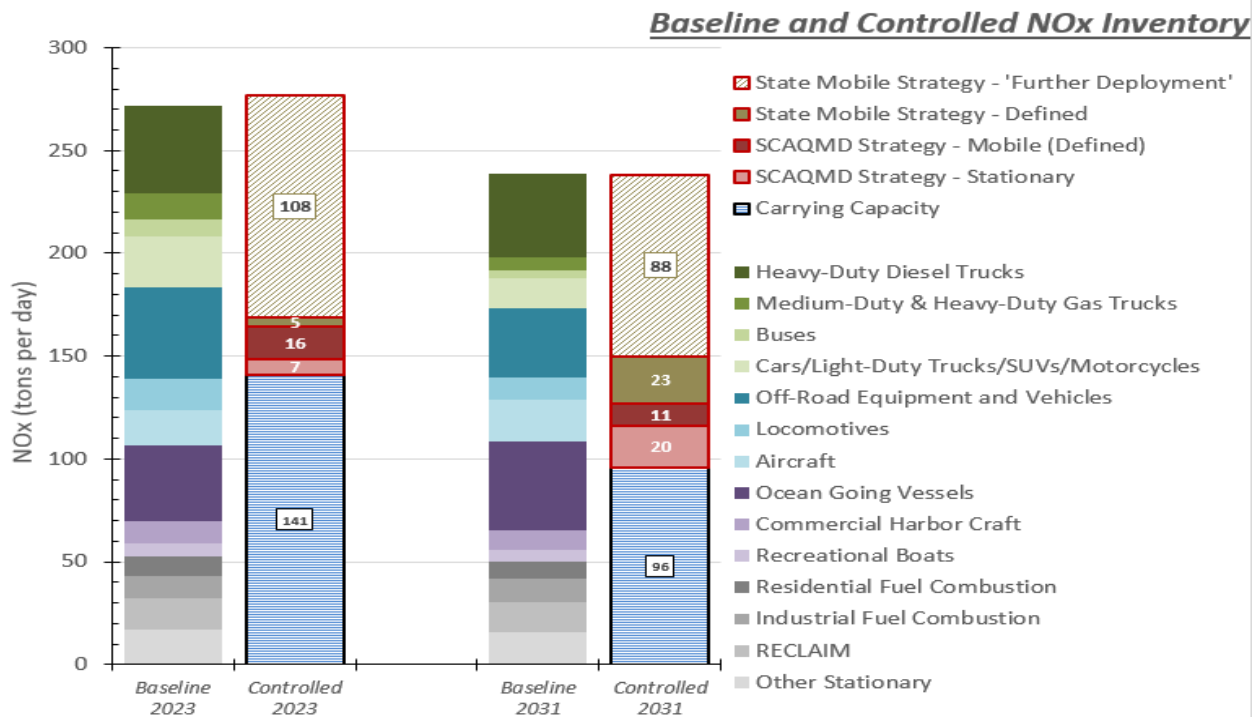
<sup>3</sup> Health and Safety Code Section 40460(a)

<sup>4</sup> South Coast AQMD, Final 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>

**Figure 1: South Coast Air Basin Baseline NOx Emissions and Reductions Needed to Achieve Federal 8-Hour Ozone NAAQS**



**Figure 2: NOx Control Strategy in the 2016 AQMP**





## RULEMAKING BACKGROUND

Implementation of the Further Deployment Measures described above is based on a combination of incentive funding and development of new regulations. In the 2016 AQMP, the South Coast AQMD committed to assist CARB and U.S. EPA in developing the Further Deployment Measures, including through the development of local Facility Based Mobile Source Measures (FBMSMs). One of the FBMSMs includes MOB-03 – Emissions Reductions at Warehouse Distribution Centers.

The 2016 AQMP described a year-long process for staff to evaluate potential emissions reduction strategies for the FBMSMs and report back to the Governing Board on the most promising approach. South Coast AQMD staff convened a working group to explore potential voluntary and regulatory approaches for warehouses,<sup>5</sup> consistent with what was outlined in the 2016 AQMP for control measure MOB-03. After considering the results of that year-long process, in May 2018, the Governing Board directed staff to initiate rulemaking for a warehouse Indirect Source Rule (ISR),<sup>6</sup> namely Proposed Rule (PR) 2305 and PR 316.

### *Other South Coast AQMD Air Quality Plans*

The South Coast AQMD Governing Board has approved several other plans since adoption of the AQMP that would also benefit from adoption of PR 2305 and PR 316. These include the Contingency Measure Plan for the 1997 8-hour Ozone Standard<sup>7</sup>, and multiple Community Emission Reduction Plans (CERPs) prepared pursuant to Assembly Bill (AB) 617.

The Contingency Measure Plan describes the measures that must be implemented to meet the 2023 attainment deadline for the federal ozone standard. This plan lays out in greater detail many of the strategies included in the 2016 AQMP, in particular for the Further Deployment Measures. With the approval of this plan, the South Coast AQMD Governing Board committed to achieving between 14.4 and 16.4 tons per day of NO<sub>x</sub> reductions by 2023.<sup>8</sup>

Assembly Bill (AB) 617 is a program established to address the disproportionate burden of air pollution on environmental justice communities, by providing funding and enabling selected communities to shape the actions to reduce emissions. In December 2018, CARB approved the South Coast AQMD Year 1 admission of the communities of San Bernardino/Muscoy, East Los Angeles/Boyle Heights/West Commerce, and Wilmington/Carson/West Long Beach into the AB 617 Program. These AB 617 Year 1 communities established Community Steering Committees (CSCs) to work on the development of CERPs to serve as a road map on how to address each respective community's air quality concerns, and in September 2019, the South Coast AQMD Governing Board adopted the AB 617 CERPs. All three of the South Coast AQMD Year 1 AB 617 communities requested that a warehouse ISR be developed due to their concerns regarding air

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<sup>5</sup> Presentation materials from this process are available here: <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/fbmsm-mtngs>

<sup>6</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-may4-032.pdf>  
<http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-jun1-001.pdf>

<sup>7</sup> <http://www.aqmd.gov/docs/default-source/planning/1997-ozone-contingency-measure-plan/1997-8-hour-ozone-draft-contingency-measure-plan---120619.pdf>

<sup>8</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-dec6-028.pdf>

pollution impacts from trucks and diesel PM.<sup>9</sup> Similar to the Year 1 AB 617 communities, the Year 2 AB 617 community of South East Los Angeles also included in their CERP a request for continued development of the warehouse ISR to reduce emissions in their community.<sup>10</sup>

### ***State Goals***

Several state goals have focused on the need to accelerate the adoption of lower emission technologies, in particular Zero Emissions (ZE) vehicles. Two notable examples include CARB's Draft Mobile Source Strategy (MSS)<sup>11</sup> and a recent executive order from the governor.<sup>12</sup>

CARB's Draft MSS is an integrated planning effort designed to meet state goals for criteria pollutants, greenhouse gases, and toxics. One of the key conclusions from this analysis is that a significant portion of the existing mobile source fleet (trucks, cars, off-road equipment, etc.) will need to convert to ZE technologies quickly to meet multiple state goals, including attainment of federal air quality standards. While some strategies like the recently adopted Advanced Clean Trucks (ACT) regulation<sup>13</sup> have been more clearly defined in the Draft MSS and through CARB rulemaking efforts, other strategies are still undefined and rely on unspecified "accelerated turnover" to ZE technologies, including for emissions sources associated with warehouses, such as trucks and cargo handling equipment. Further, in September 2020, the governor of California signed an executive order directing state agencies to pursue ZE goals for mobile sources. This includes a goal of a 100% ZE truck fleet by 2045, a 100% ZE drayage truck fleet (trucks that visit ports and railyards) by 2035, and 100% ZE off-road equipment operations by 2035. Although this goal sets out potential targets, it does not include any enforceable mechanism and funding programs and regulations (such as PR 2305) that are needed to achieve the targets.

### ***Public Process***

Since the South Coast AQMD Governing Board voted to initiate rulemaking in May 2018, staff has held 12 working group meetings, presented four updates to the Mobile Source Committee and two updates to the full South Coast AQMD Governing Board. Written materials include this Preliminary Draft Staff Report, two drafts of PR 2305 and one draft of PR 316, and one draft technical report on the WAIRE Menu. Dates for each of these activities is listed in Table 1.

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<sup>9</sup> <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/san-bernardino/cerp/carb-submittal/final-cerp.pdf>

<http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/east-la/cerp/carb-submittal/final-cerp.pdf>

<http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/wilmington/cerp/final-cerp-wcwlb.pdf>

<sup>10</sup> <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/southeast-los-angeles/draft-cerp-5b-trucks.pdf>

<sup>11</sup> <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

<sup>12</sup> <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf>

<sup>13</sup> <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks>

**Table 1: Dates of Key Public Process Activities Prior to Release of Preliminary Draft Staff Report**

Activity	Dates
Working Group Meetings	Aug. 1, 2018; Aug. 23, 2018; Oct. 24, 2018; Mar. 22, 2019; Aug. 23, 2019; Sept. 19, 2019; Nov. 13, 2019; Dec. 10, 2019; Mar. 3, 2020; Oct. 9, 2020; Oct. 30, 2020; Dec. 17, 2020
Mobile Source Committee Updates	Nov. 16, 2018; Feb. 15, 2019; Sept. 20, 2019; Jan. 24, 2020
Governing Board Updates	Sept. 7, 2018; Mar. 1, 2019
Draft WAIRE Menu Technical Document and Calculator	Mar. 3, 2020
Draft Rule Language	Nov. 10, 2019; Oct. 9 2020
CEQA Notice of Preparation	Nov. 13, 2020

The following potential options for reducing emissions from warehouses were discussed in the Warehouse ISR Working Group:

- Facility Caps: Allow emissions at each warehouse distribution center to be capped so each warehouse distribution center would have the flexibility to individually determine how to reduce emissions.
- Local Government Measures: Local governments may decide to tailor emission reduction strategies to address local needs (e.g., through their land use authority).
- Clean Fleets Crediting/Banking Program: Allow clean fleets to generate credits that would be managed through a bank while requiring ISR facilities to regularly purchase and apply the credits to offset emissions from individual warehouse distribution centers.
- Voluntary Fleet Certification Program: Allow fleet owners to certify their fleets are cleaner than what would otherwise be required by CARB regulations while requiring facilities to use a prescribed amount of certified fleets.
- Best Management Practices (BMPs):- Allow facilities to choose from an assortment of BMPs such as utilizing ZE or NZE equipment on site, and/or installing ZE/NZE fueling and charging infrastructure, or solar energy storage.
- Mitigation Fees:- Allow facilities to pay mitigation fees if other options are not chosen and apply collected funds to subsidize the purchase and use of ZE/NZE equipment or the installation of fueling/charging infrastructure.

Of these options, only the Best Management Practices (now the WAIRE Menu and Custom WAIRE Plan option) and the Mitigation Fee options have been carried forward to PR 2305. These options were found to be the least administratively burdensome for facilities and South Coast AQMD compliance staff and ensured that emission reductions would be focused in the communities near warehouses. The menu-based approach is similar to other rules that allow multiple options of compliance, such as South Coast AQMD Rule 2202 - On-Road Motor Vehicle Mitigation Options<sup>14</sup> that focuses on reducing emissions from employee commutes, Rule 403 – Fugitive Dust<sup>15</sup> that focuses on reducing particulate matter emissions from activities like earth moving. Both rules allow multiple options to comply with overall requirements in each rule.

<sup>14</sup> <http://www.aqmd.gov/docs/default-source/rule-book/reg-xxii/rule-2202.pdf>

<sup>15</sup> <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf>

PR 2305 will also include a points-based system that is similar to programs widely used in South Coast AQMD's jurisdiction for development projects including LEED for green building design,<sup>16</sup> and San Bernardino's Greenhouse Gas Reduction Plan<sup>17</sup>. Both programs assign points based on actions taken from a menu, and assign a rating based on the total number of points earned. PR 2305 will take a similar approach to these successful programs (and additionally includes many menu items that can be used in LEED and San Bernardino's GHG Reduction Plan). PR 2305 and PR 316 are described in greater detail in Chapter 2.

## **EMISSIONS INVENTORY OF PR 2305 WAREHOUSES**

The sources of emissions associated with warehouses include the trucks that deliver goods to and from the facilities, yard trucks located at warehouses that move trailers, transport refrigeration units (TRUs) located on trucks and trailers that keep cargo, like food, cold, and the passenger vehicles for warehouse employees. Additional emissions sources can include onsite stationary equipment (e.g., diesel backup generators or manufacturing equipment), and emissions from power plants that provide electricity for the warehouse – though these sources have not been included in the baseline emissions inventory. Most of these vehicles are diesel powered, except for passenger vehicles which are typically gasoline powered.

The emissions inventory established in the 2016 AQMP provides a platform from which to develop a baseline inventory for the universe of warehouses that would be subject to PR 2305 and PR 316. However, there are several developments that have occurred since the approval of the 2016 AQMP. First, the on-road mobile emissions inventory developed by CARB that was used in the 2016 AQMP is EMFAC 2014. However, a newer version of that model has since been approved by U.S. EPA (EMFAC 2017) with updated emission rates. Second, the CARB Board has approved two key regulations that will affect trucks that travel to warehouses called the Advanced Clean Trucks regulation<sup>18</sup> and the Low NOx Omnibus regulation.<sup>19</sup> Finally, CARB and U.S. EPA are continuing to develop additional regulations, but many are too speculative to consider at their current level of development. One future regulation, the Heavy-Duty Inspection and Maintenance (I/M) regulation,<sup>20</sup> is considered here as there is statutory direction for CARB to develop and adopt it<sup>21</sup> and the regulation has been developed sufficiently to provide a preliminary quantification of the impact. The emissions data from these more recent regulations are included either in the META tool that CARB developed to support their Draft Mobile Source Strategy, and/or within the documentation that CARB has prepared for each regulation. The key data parameters and the associated data sources are listed in Table 2 below.

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<sup>16</sup> <https://www.usgbc.org/leed>

<sup>17</sup> <http://www.sbcounty.gov/Uploads/lus/GreenhouseGas/FinalGHGUpdate.pdf>

<sup>18</sup> Ibid.

<sup>19</sup> <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox>

<sup>20</sup> <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>

<sup>21</sup> Senate Bill 210, [http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201920200SB210](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201920200SB210)

**Table 2: Key Data Sources Used for PR 2305 Emissions Inventory**

Parameter	Data Sources	Data Availability
Warehouse Populations and Square Footage <sup>22</sup>	CoStar, Dun & Bradstreet, InfoUSA, Leonard's Guide, Google Earth	<a href="http://www.costar.com">www.costar.com</a> , <a href="http://www.dnb.com">www.dnb.com</a> , <a href="http://www.dataaxleusa.com">www.dataaxleusa.com</a> , <a href="http://www.leonardsguide.com">www.leonardsguide.com</a> , <a href="http://www.google.com/earth">www.google.com/earth</a>
Truck Emission Rates	EMFAC 2017, CARB META Tool	<a href="https://arb.ca.gov/emfac/2017/">https://arb.ca.gov/emfac/2017/</a> , <a href="http://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy">ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy</a>
Truck and Car Trip Rates	Institute of Transportation Engineers, 2016. <i>High-Cube Warehouse Vehicle Trip Generation Analysis</i>	<a href="http://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498">www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498</a>
Truck and Car Trip Lengths	SCAG 2016 Regional Transportation Plan	<a href="https://scag.ca.gov/resources-prior-plans">https://scag.ca.gov/resources-prior-plans</a>
TRU Populations and Emissions Rates	CARB TRU rulemaking analysis	<a href="https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit/tru-meetings-workshops">https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit/tru-meetings-workshops</a>
Yard Truck Populations	Power Systems Research	<a href="http://www.powersys.com">www.powersys.com</a>
Yard Truck Emission Rates	CARB Carl Moyer Guidelines, CARB Low NO <sub>x</sub> Omnibus rulemaking analysis	<a href="https://ww2.arb.ca.gov/guidelines-carl-moyer">https://ww2.arb.ca.gov/guidelines-carl-moyer</a> , <a href="https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox">https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox</a>

The NO<sub>x</sub> and diesel PM baseline emissions in the South Coast AQMD associated with warehouses in key milestone years is shown in Table 3 below. As seen in this table, heavy duty trucks are the largest source of emissions, comprising more than 90% of the total PR 2305 inventory.

**Table 3: PR 2305 Warehouse NO<sub>x</sub> and Diesel PM Emissions (tons per day)**

Emission Source	2019		2023		2031	
	NO <sub>x</sub>	DPM	NO <sub>x</sub>	DPM	NO <sub>x</sub>	DPM
Heavy Duty Trucks	39.79	0.68	24.43	0.18	24.78	0.17
Passenger Vehicles	0.96	0.02	0.70	0.02	0.39	0.01
TRUs	0.09	0.003	0.09	0.003	0.08	0.003
Yard Trucks	1.88	0.08	1.67	0.07	1.61	0.06
<i>Total</i>	<i>42.72</i>	<i>0.783</i>	<i>26.92</i>	<i>0.273</i>	<i>26.86</i>	<i>0.243</i>

## AIR QUALITY NEED

There are six key reasons why PR 2305 and PR 316 are needed. First and foremost, the SCAB region continues to experience ozone and fine particulate matter levels that exceed federal air quality standards. This poor air quality is among the worst, if not the worst in the nation.<sup>23</sup> Attaining the air quality standards yields monetized health benefits that are estimated to be about

<sup>22</sup> Additional details regarding the universe of PR 2305 warehouses is described in Chapter 3 and Appendix A.

<sup>23</sup> <https://www.stateoftheair.org/assets/SOTA-2020.pdf>

\$173 billion.<sup>24</sup> NO<sub>x</sub> is the primary pollutant that needs to be reduced to meet federal air quality standards, and mobile sources associated with goods movement make up about 52% of all NO<sub>x</sub> emissions in the SCAB.<sup>25</sup> Trucks are the largest source of NO<sub>x</sub> emissions in the air basin and also for the emissions associated with warehouses. Any diesel PM reductions brought about by PR 2305 and PR 316 will also help meet federal air quality standards for fine PM. PR 2305 and PR 316 would reduce emissions from the goods movement sector by requiring warehouse operators to take actions to reduce emissions directly or through facilitating emissions reductions.

Second, existing regulations are not sufficient to meet either the 2023 or 2031 attainment dates. Even newly proposed regulations from CARB and U.S. EPA (as shown in CARB's Draft MSS) will not be able to meet these air quality standards on their own, and additional actions are needed. No single regulation could achieve federal air quality standards on its own, including PR 2305 and PR 316. However, these proposed rules are designed to contribute their own additional emissions reductions and enhance emission reductions from other programs, and are part of the collection of actions needed to meet air quality standards.

Third, the 2016 AQMP estimated that at least \$1 billion per year in incentive funding to clean up vehicle and engine fleets would be needed – absent any further regulations – to meet the 2023 and 2031 attainment dates. Although incentive funding has increased, reaching between about \$100 to \$200 million per year over the past few years,<sup>26</sup> it has not reached a level sufficient to turn over enough vehicles to meet air quality standards. Many incentive programs are oversubscribed,<sup>27</sup> with demand far exceeding funding availability. However, some programs are undersubscribed.<sup>28</sup> PR 2305 and PR 316 are designed to work with existing and future incentive programs, and can help encourage greater levels of incentive funding and encourage applicants to apply for funding. The regulatory requirements in PR 2305 and PR 316 are expected to increase industry's interest in incentive programs in order to reduce the cost of compliance. This can help ensure that all incentive funds are spent and can potentially spread incentives to a broader segment of industry if more recipients sign up for funding. Finally, much of the incentive funding that South Coast AQMD distributes is allocated annually as part of the state legislature's budgetary process. A regulatory requirement may increase the request for funding from the legislature by many stakeholders, which has the potential to further increase the amount of funding available and reducing the cost of compliance to industry.

A fourth air quality need for PR 2305 and PR 316 is to support statewide efforts to increase the number of ZE vehicles. There are many actions occurring across state government to increase the use of ZE vehicles to satisfy many goals, including meeting federal and state air quality standards, reducing toxics and greenhouse gas emissions, encouraging manufacturing of ZE vehicles in the state, reducing the dependence on fossil fuels and the related impacts from extracting and

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<sup>24</sup> [http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/sociofinal\\_030817.pdf](http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/sociofinal_030817.pdf)

<sup>25</sup> [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial\\_goods-movement.pdf?1606001690](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf?1606001690)

<sup>26</sup> <http://www.aqmd.gov/docs/default-source/planning/1997-ozone-contingency-measure-plan/1997-8-hour-ozone-draft-contingency-measure-plan---120619.pdf>

<sup>27</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Technology/technology-committee-agenda-12-18-20.pdf#page=6>

<sup>28</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-dec4-005.pdf>

producing these fuels, etc.<sup>29</sup> The South Coast AQMD is uniquely positioned to contribute to this effort with its authority to regulate indirect sources. PR 2305 and PR 316 provide a mechanism to require warehouse operators to encourage ZE vehicle use at their facilities as one of many options of compliance.

A fifth air quality need is to ensure that state actions to require cleaner vehicles actually occur in the South Coast AQMD region. The recent ACT and Low NOx Omnibus regulations assume a certain amount of new truck sales every year, and also assume that the activity of those newer, cleaner trucks will occur consistent with past behavior as demonstrated in EMFAC. However, the nature of those two regulations ensures that lower emissions occur only *if* trucks are sold. It does not require any certain number of trucks to be sold, or to operate within the South Coast AQMD.<sup>30</sup> Similarly, the upcoming TRU regulation is expected to have requirements for newly manufactured trailer TRUs to meet lower PM standards, yet will not mandate that fleets purchase them, nor will it direct sales in certain parts of the state.<sup>31</sup>

For comparison, CARB mandates a certain percentage of light duty vehicle sales to be zero emission vehicles (ZEVs) or plug-in hybrid electric vehicles (PHEVs)<sup>32</sup> as part of its Advanced Clean Cars (ACC) regulation.<sup>33</sup> CARB has reported that all vehicle manufacturers subject to ACC are in compliance as of 2019.<sup>34</sup> However, the distribution of ZEVs and PHEVs throughout the state does not coincide with the areas with highest air pollution. Figure 3 shows county-level median Air Quality Index (AQI)<sup>35</sup> compared with the percent of the light duty vehicle population that is ZEV or PHEV<sup>36</sup>. This figure shows that three of the four counties in the South Coast AQMD jurisdiction have the highest AQI in the state, and that ZEVs and PHEVs are not preferentially located in areas with higher AQI.<sup>37</sup> PR 2305 and PR 316 would place requirements on warehouse operators in South Coast AQMD that will encourage them to ensure that the potential benefits from statewide regulations occur here.

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<sup>29</sup> <https://static.business.ca.gov/wp-content/uploads/2019/12/2018-ZEV-Action-Plan-Priorities-Update.pdf>, <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf>, <https://www.ca.gov/archive/gov39/2012/03/23/news17472/index.html>, <https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html>, <https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>

<sup>30</sup> Neither of these regulations impose any requirements on trucks registered out of state. Warehouse operators would have the choice to use ZE or NZE technologies for out of state trucks too.

<sup>31</sup> <https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit/new-transport-refrigeration-unit-regulation>

<sup>32</sup> ZEVs and PHEVs have lower tailpipe emissions than their conventional gasoline or diesel counterparts as they can run wholly or at least partially without using an internal combustion engine.

<sup>33</sup> <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program>

<sup>34</sup> [https://ww2.arb.ca.gov/sites/default/files/2020-10/2019\\_zev\\_credit\\_annual\\_disclosure.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-10/2019_zev_credit_annual_disclosure.pdf)

<sup>35</sup> Air Quality Index is an indicator of overall air quality and considers all criteria air pollutants measured within a geographic area. Higher values indicate worse air quality.

<https://www.epa.gov/outdoor-air-quality-data/air-quality-index-report>

<sup>36</sup> <https://www.energy.ca.gov/files/zev-and-infrastructure-stats-data>

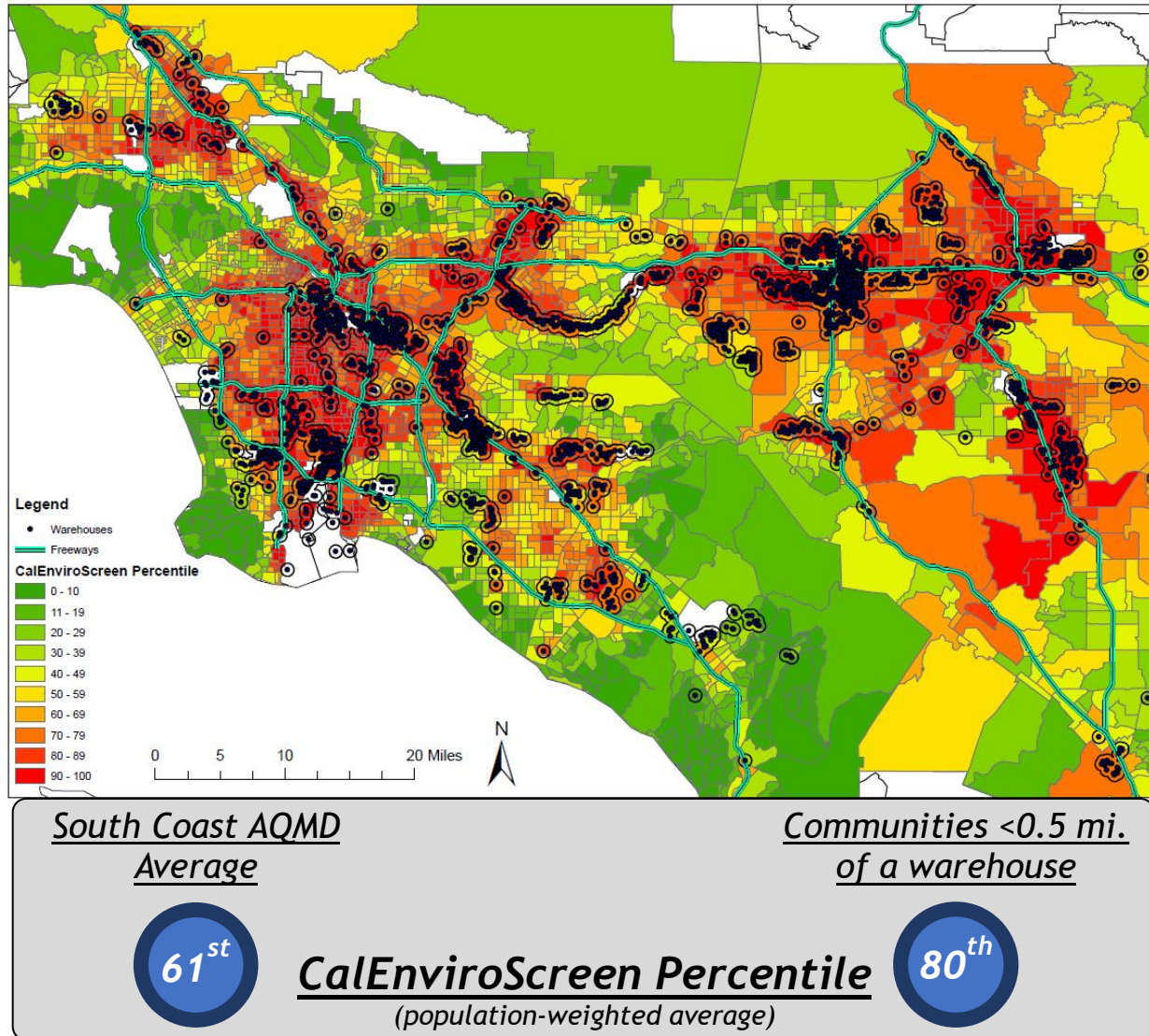
<sup>37</sup> Of the 59 counties in California, Orange County ranks 6<sup>th</sup> in ZEV and PHEV share, Los Angeles County ranks 10<sup>th</sup>, Riverside County ranks 23<sup>rd</sup>, and San Bernardino County ranks 26<sup>th</sup>.





and PR 316 would reduce this local pollution burden by requiring warehouse operators to take actions to reduce emissions and exposures from trucks and other emission sources associated with their facility (e.g., through NZE/ZE truck use, filters, etc.), as well as take actions to facilitate (e.g., ZE infrastructure) and enhance emission reductions from other programs (e.g., incentive programs, CARB regulations, etc.).

**Figure 4: Environmental Burden on Communities Near PR 2305 Warehouses as Demonstrated by CalEnviroScreen**



**LEGAL AUTHORITY**

The South Coast AQMD may adopt PR 2305 and PR 316 through the authority to “adopt and enforce rules and regulations to achieve the state and federal ambient air quality standards in all areas affected by emission sources under their jurisdiction...” (Health and Safety Code section

40001; *see also* section 40702.) Generally, CARB has primary authority over emissions from motor vehicles and the South Coast AQMD has primary authority over all sources in the basin, except motor vehicles. (Health and Safety Code section 40000.) However, Health and Safety Code section 40716 recognizes air districts may adopt and implement regulations that control emissions from indirect and areawide sources in order to meet state ambient air quality standards.

The key pollutants of interest for PR 2305 include nitrogen oxides (NO<sub>x</sub>, a key precursor pollutant for ozone and fine PM) and diesel PM (a component of fine PM, and a toxic air contaminant). The South Coast AQMD is in nonattainment of the California Ambient Air Quality Standards (CAAQS) for both ozone and fine PM, referred to as PM 2.5. Notably, for ozone, the current 8-Hour CAAQS and the 2015 8-hour NAAQS are at an equivalent level and for PM 2.5, the current annual CAAQS and the 2012 annual NAAQS are also at an equivalent level. As a result, the South Coast AQMD relies on the same measures to meet both federal and state ozone and PM 2.5 standards.

In addition, the Clean Air Act allows a state to include "...as part of an applicable [state] implementation plan, an indirect source review program which the State chooses to adopt and submit as part of its plan." (Clean Air Act section 110(a)(5)(A)(i).) An indirect source is defined as "...a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution." (Clean Air Act section 110(a)(5)(C).)

The South Coast AQMD Governing Board approved the 2016 Air Quality Management Plan (2016 AQMP) in March of 2017. The 2016 AQMP was subsequently approved by CARB, included into the State Implementation Plan (SIP), and approved by U.S. EPA in 2019. The 2016 AQMP included MOB-03, a facility-based mobile source control measure to reduce mobile source emissions associated with warehouse distribution centers, which has resulted in PR 2305 and PR 316.

By approving MOB-03 into the 2016 AQMP, the South Coast AQMD and CARB have committed to, and the U.S. EPA has authorized, the development of an indirect source rule to achieve emission reductions from mobile sources attributed to warehouse activities, in order to assist attaining the federal ozone NAAQS in 2023 and 2031. While MOB-03 was adopted as part of the NO<sub>x</sub> emissions reduction strategy for ozone, the 2016 AQMP also recognized that the "NO<sub>x</sub> strategy will assist in meeting the annual PM 2.5 as "expeditiously as practicable" earlier than the attainment year of 2025." (2016 AQMP, pg. 4-52.)

Initially, the South Coast AQMD Governing Board authorized a one-year public process to identify if MOB-03 could be achieved through voluntary or regulatory measures, and then ultimately determined, in May of 2018, that staff should pursue a regulatory approach.

A California Attorney General Opinion from 1993 determined that a district could adopt a regulation to,

"...require the developer of an indirect source to submit the plans to the district for review and comment prior to the issuance of a permit for construction by a city or county. A district may also require the owner of an indirect source to adopt

reasonable post-construction measures to mitigate particular indirect effects of the facility's operation.”

The opinion acknowledged a district may adopt a regulation requiring new and existing indirect sources to submit plans to the district to mitigate mobile indirect source emissions from both construction and operations that are attributed to the source. The Clean Air Act does not contain any prohibition on the scope of an Indirect Source Rule adopted by a state, as confirmed by the opinion and Health and Safety Code section 40716, and a state indirect source rule may include reasonable post-construction measures. The opinion further acknowledged that under Health and Safety Code section 42311, the district could adopt a regulation to collect fees to recover the costs associated with the indirect source review program. A similarly worded section, Health and Safety Code section 40522.5, specifically authorizes the South Coast AQMD to collect fees to recover costs associated with regulatory programs for areawide or indirect sources. These are the types of fees contemplated by PR 316.

Implementation of PR 2305 and PR 316 will also meet the requirement for districts in extreme nonattainment to consider all feasible measures that have been implemented in other areas in order to meet state standards. (Health and Safety Code section 40920.5(c).) While the term “feasible” is not defined in the Health and Safety Code, it is defined in another state regulation as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” (14 California Code of Regulations section 15364.)

There are several examples of indirect source rules that have already been adopted in California. For example, the San Joaquin Valley Unified Air Pollution Control District adopted Rule 9510, which requires new development projects that meet certain specifications to reduce emissions of PM 10 and NOx. In addition, indirect source programs have been implemented by Mendocino County AQMD, Great Basin Unified APCD, Colusa County APCD, Placer Court APCD, Imperial County APCD, and Shasta County AQMD. As several California air districts have already adopted and implemented indirect source rules, policies, and/or the collection of reduction fees, this type of measure has been shown in a variety of areas to be “feasible.” Furthermore, the authority for air districts to set emission reduction targets from indirect sources was confirmed by the court in *NAHB v. San Joaquin Valley UAPCD* (9th Cir. 2010) 627 F.3d 730.

Health and Safety Code section 40717 further requires districts to “adopt, implement, and enforce transportation control measures for the attainment of state or federal ambient air quality standards...” The section defines transportation control measures as “any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions.” (Health and Safety Code section 40717 (g).) PR 2305 will encourage facilities to reduce motor vehicle emissions by requiring fewer points from facilities that are able to employ certain transportation control measures, such as fewer truck trips (with additional subsequent reduced vehicle idling).

In addition to the above provisions, the South Coast AQMD may adopt rules or regulations that require “the owner or the operator of any air pollution emission source to take such action as the state board or the district may determine to be reasonable for the determination of the amount of

such emission from such source.” (Health and Safety Code section 41511.) Even more specifically, under Health and Safety Code section 40701(g), the South Coast AQMD is authorized to collect information regarding a source, “...except a noncommercial vehicular source, to provide (1) a description of the source, and (2) disclosure of the data necessary to estimate the emissions of pollutants for which ambient air quality standards have been adopted, or their precursor pollutants....” These sections of the Health and Safety Code therefore authorize the South Coast AQMD to require owners and operators of warehouses to provide information that may be used to quantify emissions based on warehouse activity.

Programs reducing emissions of precursors to ozone and PM 2.5 for purposes of achieving and maintaining the NAAQS or CAAQS may also have concurrent benefits in reducing emissions of air toxics. The district may adopt rules to reduce emissions from sources that may affect public health. One of the duties imposed upon the district is the duty to enforce Health and Safety Code section 41700. That section provides:

“Except as otherwise provided in section 41705, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.”

Accordingly, the South Coast AQMD may adopt regulations to prevent the potential health impacts from toxic air contaminants, including diesel PM, as well as to reduce the emissions of criteria air pollutants. The California Supreme Court has upheld the districts’ authority to regulate air toxic emissions from sources within their jurisdiction. (*Western Oil & Gas Assoc. v. Monterey Bay Unified Air Pollution Control Dist.* (1989) 49 Cal.3d 408.)

## **CHAPTER 2: SUMMARY OF PROPOSAL**

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**INTRODUCTION**

**PROPOSED RULE 2305**

**PROPOSED RULE 316**

**WAIRE MITIGATION PROGRAM**

## INTRODUCTION

Proposed Rule (PR) 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program includes the requirements that regulated warehouse owners and operators must follow. These requirements include an obligation for applicable warehouse operators to earn a specified number of WAIRE Points every year using either a menu of options, developing and implementing a custom plan, or paying a mitigation fee. Warehouse operators that over-comply may transfer excess WAIRE Points earned in one year to a subsequent year or may transfer WAIRE Points to another site within their control. If they so choose, warehouse owners may also opt in and earn WAIRE Points and transfer them to an operator at that site. PR 2305 also requires reporting information about facility operations and recordkeeping. PR 316 is the companion rule to PR 2305 and establishes the administrative fees that PR 2305 warehouse owners and operators must pay to support South Coast AQMD compliance activities.

## PROPOSED RULE 2305

### *Purpose – Subdivision (a)*

The purpose of the proposed rule is to reduce local and regional emissions of NO<sub>x</sub> and PM associated with warehouses in order to assist in meeting state and federal air quality standards. Actions required by PR 2305 can also work together with other regulations, incentive programs, and state policies to enhance their effect (e.g., clean air goals and zero emission vehicle goals). PR 2305 therefore also acts as a facilitating measure to achieve emission reductions from these other efforts. Reductions in NO<sub>x</sub> and PM regionally will assist in meeting federal and state air quality standards, and concurrent reductions in diesel PM will also reduce air quality impacts to communities living near warehouses.

The proposed purpose is as follows:

*The purpose of this rule is to reduce local and regional emissions of nitrogen oxides and particulate matter, and to facilitate local and regional emission reductions associated with warehouses, in order to assist in meeting state and federal air quality standards for ozone and fine particulate matter.*

### *Applicability- Subdivision (b)*

In 2014, there were approximately 32,000 industrial warehouse buildings of any size in the counties of Los Angeles, Orange, Riverside, and San Bernardino counties. PR 2305 will apply only to the largest facilities in South Coast AQMD that have more than 100,000 square feet of indoor space in a single building. Warehouse owners often do not conduct day-to-day operations, and thus PR 2305 applies to both operators and owners of these facilities, however most requirements do not apply to owners unless they opt in (see Requirements discussion below). Some large industrial properties may also have buildings that exceed the 100,000 square foot threshold, but do not conduct any warehousing activities (e.g., they may conduct manufacturing instead). Finally, some facilities may have tenants that change through time. One year may include a tenant operating a facility as a church, and the next year a new tenant may change to a warehouse operator. The applicability of the rule is therefore tied to buildings that *may* be used for warehousing activities, however only limited reporting is required by PR 2305 if warehousing activities are not actually occurring.

The proposed applicability is as follows:

*This rule applies to owners and operators of warehouses located in the South Coast Air Quality Management District (South Coast AQMD) jurisdiction with greater than or equal to 100,000 square feet of indoor floor space in a single building.*

***Definitions – Subdivision (c)***

PR 2305 includes definitions of specific terms related to the warehousing industry and mobile source technology. Some definitions are based on existing South Coast AQMD rules and regulations. There are technology terms such as electric charger levels or technology type that have range differences in the industry, but at time of inclusion were based on an existing source. Please refer to PR 2305 subdivision (c) for each specific definition.

Proposed Definitions:

Alternative Energy Generation Equipment	Warehouse Facility Owner
Alternative-Fueled Vehicle	Warehouse Land Owner
Alternative Fueling Station	Warehouse Size
Class 2B Truck	Warehouse Activities
Class 3 Truck	Yard Truck
Class 4 Truck	Zero-Emission (ZE) Truck
Class 5 Truck	
Class 6 Truck	
Class 7 Truck	
Class 8 Truck	
Cold Storage Warehouse	
Compliance Period	
Diesel Particulate Matter (DPM)	
Dwell Time	
Electric Charger	
Fuel Type	
Level 2 Charger	
Level 3 Charger	
Level 4 Charger	
Level 5 Charger	
MERV 16	
Near-Zero Emission (NZE) Trucks	
Nitrogen Oxides (NOx)	
Parent Company	
Straight Truck	
Tractor	
Transport Refrigeration Unit	
Truck Class	
Truck Trip	
Vehicle Miles Traveled (VMT)	
Warehouse	
Warehouse Facility	
Warehouse Operator	

*Alternative Energy Generation Equipment:* Some warehouses already operate solar panels that generate electricity. This is expected to be the dominant technology for alternative energy generation equipment at a PR 2305 warehouses. However, other onsite forms of energy generation may be possible (e.g., windmills). This definition only applies to reporting requirements, and warehouse operators will be required to specify which type of technology they operate onsite.

*Alternative fueled-vehicles and fueling stations:* Alternative fuels means fuels for vehicles besides diesel and gasoline. This is expected to be dominantly natural gas, electricity, and potentially other fuels like hydrogen or propane. Traditionally alternative-fueled vehicles have lower emissions than their gasoline and diesel counterparts. However, any requirements in the rule related to vehicle emissions refer to near-zero emissions or zero-emissions vehicles. These alternative-fuel definitions only apply to reporting requirements for alternative-fueling stations.

*Class 2b to 8 trucks:* These definitions use common classifications for trucks based on their gross vehicle weight rating.<sup>41</sup> *Truck class* refers to these classes.

*Cold storage warehouse:* These warehouses store perishable goods (e.g., food) and typically have higher energy use due to onsite refrigeration, higher daily truck trip generation rates due to the need to move perishable goods quickly, including from trucks that have a transport refrigeration unit.

*Compliance period:* This is the 12-month period during which warehouse operators (and warehouse facility or land owners who opt in) need to earn WAIRE Points. These WAIRE Points are documented in the Annual WAIRE Report filed within 30 days after the compliance period ends.

*Diesel Particulate Matter (DPM):* DPM is the particulate matter that is emitted from diesel fueled engines that power trucks and equipment. It a component of fine PM, and also a toxic air contaminant and carcinogen.

*Dwell time:* This is the period of time that trucks stay parked at a warehouse.

*Electric charger:* This definition varies in different applications outside PR 2305. For the purposes of PR 2305, an electric charger is a plug that can be used to charge a vehicle independent of whether other plugs are operating. Some electric charging stations are designed with more than one plug, which can be concurrently attached to vehicles, however they cannot charge vehicles simultaneously. For example, high powered charging stations may not be able to deliver multiple high charges at the same time, but a station operator may not want to dedicate personnel to wait for one plug to finish before plugging in the next vehicle to charge, so multiple plugs may be plugged into vehicles, and sit idle. The station would then automatically cycle to the next plug when the first vehicle finishes charging. For purposes of PR 2305, this station would count as a single electric charger. Alternatively, if multiple plugs were able to operate simultaneously, then each plug would count as an individual electric charger.

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<sup>41</sup> <https://afdc.energy.gov/data/10380>



*Fuel type:* This refers to the different types of fuels used in vehicles and equipment.

*Level 2 through 5 chargers:* This definition varies in different applications outside PR 2305. For the purposes of PR 2305, the different levels have been established at set charger output levels [measured in kilowatts (kW)]. The level 5 charger output is capped at 350 kW, as there are still very few chargers available at this high charging capacity. It is expected that new chargers may be able to exceed this level soon, especially for Class 8 trucks. If an operator chooses to install this kind of equipment, they are expected to apply through a Custom WAIRE Plan to earn WAIRE Points.

*MERV 16:* This is equal to a 95% particulate matter efficiency rating for filters used in building heating, ventilation, and air conditioning systems as defined in Standard 52.2 from the American Society of Heating, Refrigerating and Air-Conditioning Engineers. WAIRE Points earned from the WAIRE Menu for filter system installations or filter replacements in residences, schools, daycares, hospitals, or community centers must meet this minimum efficiency level. Filters can reduce indoor exposure to particulate matter.

*Near-zero emissions (NZE) trucks:* This definition refers to the lowest optional low NO<sub>x</sub> standard for truck engines in Title 13, Section 1956.8 of the California Code of Regulations. This level is currently set at 0.02 gram/brake horsepower-hour. CARB is proposing to change this standard to include new test cycles starting in 2024, and additionally lowering the level to as low as 0.01 g/bhp-hr in 2027 as part of its recent Low NO<sub>x</sub> Omnibus rulemaking. The PR 2305 definition uses the Section 1956.8 definition, but slightly refines it by pointing to the “lowest non-zero optional NO<sub>x</sub> standard applicable at the time of manufacture. This refinement is made to ensure that future lower standards are not applied to existing trucks who qualified for the near-zero definition at the time of manufacture.

*Nitrogen oxides (NO<sub>x</sub>):* The definition in PR 2305 is the same definition that is used in South Coast AQMD Rule 2000.

*Parent company:* This term refers to the company or entity that owns another company either directly, or through a subsidiary.

*Straight truck:* This refers to smaller trucks that carry goods on the same chassis as the cab and engine. Typical examples include a box truck or a package delivery truck.

*Tractor:* This refers to larger Class 7 and 8 trucks that pull a trailer, often called “semis.”

*Transport Refrigeration Unit (TRU):* TRUs are typically diesel-powered refrigeration units commonly mounted on the front of a trailer near the tractor cab, or on the front of a straight truck just above the cab. The diesel engine providing power for the TRU is smaller than a truck engine, but TRUs commonly idle for long periods at a warehouse in order to keep the goods inside the straight truck or trailer at appropriate temperatures.

*Truck trip:* A one-way trip from a truck or tractor either from or to a warehouse. A truck entering a warehouse site, and then later leaving would count as two truck trips, and one truck visit.

*Vehicle Miles Travelled (VMT):* For PR 2305, this term refers to the total annual miles of travel made by trucks or tractors. VMT does not need to be tracked to earn any WAIRE Points from the WAIRE Menu. VMT only needs to be reported by warehouse operators in an Initial Site Information Report if they own a fleet that serves that warehouse.

*Warehouse and Warehouse Facility:* A warehouse refers to the building used to store goods, while a warehouse facility refers to the entire property that includes a warehouse, as well as the accessory uses such as the truck yard, parking, maintenance facilities, etc.

*Warehouse Facility Owner and Warehouse Land Owner:* These terms are separately defined because there are rare instances where the owner of the land beneath a warehouse facility is not the same as the owner of the warehouse building. Most parts of PR 2305 do not require anything of warehouse facility or land owners. However, they can opt in to certain parts of the proposed rule (e.g., they can opt in to earn WAIRE Points, and then transfer those to a warehouse operator at that site). In one instance, the Warehouse Operations Notification [see paragraph (d)(7)], there is a requirement of the warehouse facility owner that is not applicable to the warehouse land owner.

*Warehouse Operator:* Most of PR 2305 is applicable to the warehouse operator. The operator is the entity that has control of day-to-day operations at the site. Some operators will hire companies to take care of day-to-day operations for portions of the site, such as yard operations, or temporary laborers to load or unload trucks and trailers. In this instance, the warehouse operator is the entity that hires these companies or temporary laborers.

*Warehouse Size:* This term refers to the indoor floor space of a warehouse. A warehouse may have multiple floors, as well as mezzanine areas, used for warehousing activities. For example, a warehouse building may take up 100,000 square feet of ground area, and have 100,000 square feet of floor space on the first floor used for warehousing activity, and 50,000 square feet of floor space on a mezzanine, with 20,000 square feet of the mezzanine used for office space and the remainder used for warehousing activity. The warehouse size in this case would be 130,000 square feet.

*Warehousing Activity:* Warehousing activity refers to the activities related to the storage and distribution of goods. This can include many activities including sorting, labeling, repackaging, palletizing, applying SKUs, racking, various levels of automation, and other similar activities. There are also many different activities that can occur within the same building that would not be considered warehousing activities, including supporting office administration, manufacturing, vehicle maintenance, or ‘factory’ retail stores that are open to the general public. Standalone retail stores that are open to the general public are also not covered by PR 2305. These non-warehousing activities are not considered warehousing activity.

*Yard truck:* These trucks can be off-road or on-road vehicles and are used to transport trailers short distances around a warehouse facility, for example from a dock door to parking area. Some yard trucks also shuttle trailers short distances on roads to nearby warehouses.

*Zero Emissions (ZE) truck:* This term refers to the definition developed by CARB in its recent Advanced Clean Trucks regulation.

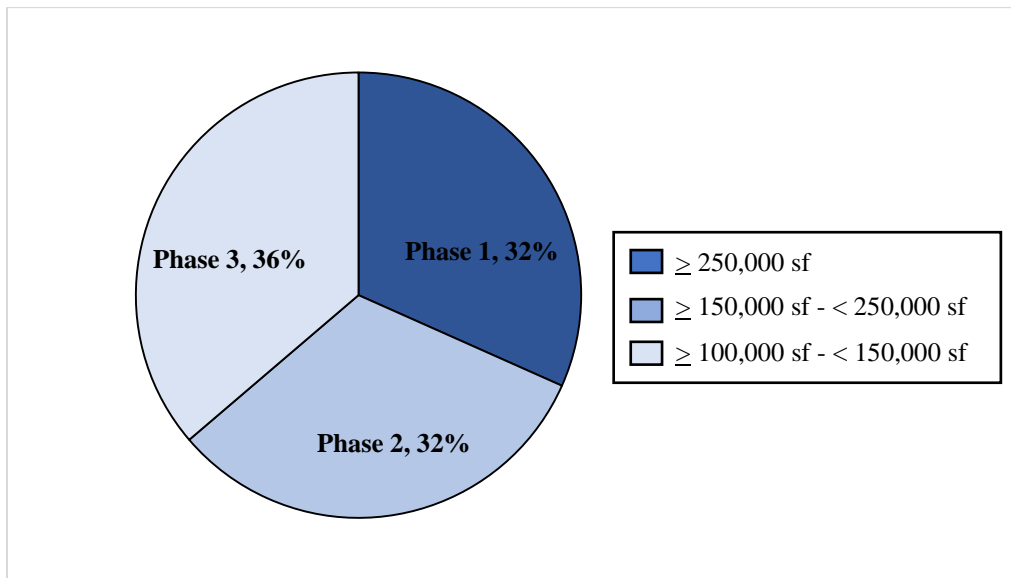
**Requirements – Subdivision (d)**

Subdivision (d) establishes the key requirements of the Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program. This includes establishing the WAIRE Points system, describing how Points can be earned or transferred, and laying out when specific reports are due.

**Paragraph (d)(1)**

This paragraph establishes a WAIRE Points Compliance Obligation (WPCO) for warehouse operators. Warehouse operators must earn WAIRE Points to comply with their WPCO by the initial reporting date in Table 1 of PR 2305. Table 1 splits the universe of PR 2305 warehouses that are anticipated to earn Points into three phases, approximately one third each as shown in Figure 5 below.

**Figure 5: Number of PR 2305 Warehouses Anticipated to Earn Points by Phase**



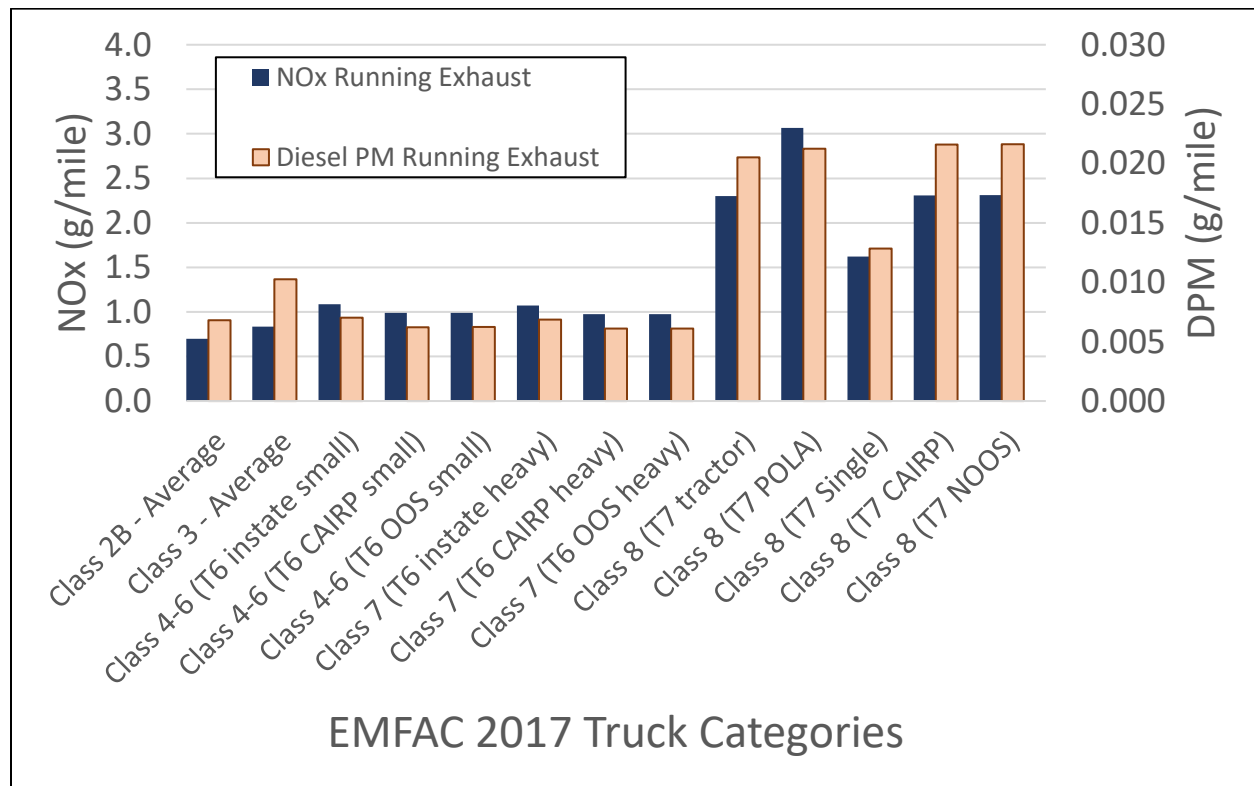
Paragraph (d)(1) also describes a two-step test to determine if an operator needs to earn Points. First, operators in warehouses with greater than or equal to 100,000 sq. ft. of space that may be used for warehousing activities and who use all of that space are required to earn Points. Second, if an operator only uses a part of the warehousing activity space, they are only required to earn Points if they operate at least 50,000 sq. ft. of that space.

Paragraph (d)(1) also provides the fundamental calculations to determining the WPCO for each warehouse operator, including Equation 1 below.

$$\text{Equation 1: } WPCO = WATTs \times \text{Stringency} \times \left( \frac{\text{Annual}}{\text{Variable}} \right)$$

The WATTs parameter (Weighted Annual Truck Trips)<sup>42</sup> in Equation 1 presents the number of truck trips by truck class associated with a warehouse, and serves as a proxy for overall warehouse activity and emissions. Larger Class 8 trucks carry more goods and have higher emissions and are thus weighted more heavily than smaller Class 2B to 7 trucks. The value of 2.5 was calculated by comparing the running exhaust emission rates of different truck classes in EMFAC that typically visit warehouses (Figure 6 below) for calendar year 2023 (after CARB’s Truck and Bus rule is fully phased in). The ratio between individual truck classes varies but is approximately 2.5 overall when comparing Class 8 to Class 2B to 7.

**Figure 6: NOx and Diesel PM Emission Rates in 2023 for Different Truck Classes**



Warehouse operators are required to submit actual truck trip data to account for the amount of warehouse activity during the compliance period. Truck trip counts can be determined and accounted for by various methods such as interaction with warehouse personnel logging truck trips, automated camera systems with recognition software, truck driver surveys, contractual records that provide sufficient details for truck activity, etc. Absent specific information about truck class, operators may simplify the analysis by just tracking straight trucks (as a proxy for Class 2b to 7) and tractors (as a proxy for Class 8). Truck trip data must be recorded contemporaneously with the truck trips themselves (e.g., recorded at least daily), and the methods used to collect the truck trip data must be verifiable by South Coast AQMD compliance staff.

<sup>42</sup> A parameter like emissions or vehicle miles travelled is not used to determine the WPCO in order to reduce the administrative burden on warehouse operators and South Coast AQMD compliance staff. Motor carriers have also expressed concern that they do not want to reveal where or how far they travel to warehouse operators or South Coast AQMD in order to keep their clients private.

In the very rare case where an operator has lost their truck trip activity records due to a force majeure event (such as a fire), default truck trip rates based on truck trip generation rates from the Institute of Transportation Engineers and the Fontana Truck Trip study are also available.<sup>43</sup> These default Weighted Truck Trip Rates (WTTR) are shown in Table 4 below. Only those trucks that use a warehouse's truck driveway must be included. Trucks that utilize the employee parking driveway for building servicing activities like mail delivery or trash pickup do not need to be included. Additional discussion of methods to record actual truck trips are provided in the WAIRE Program Implementation Guidelines (Appendix A).

**Table 4: Truck Trip Generation Rates Used for Default WTTR in Case of Loss of Records due to Force Majeure**

Warehouse Type	Class 8 / Tractor-Trailer / 4+ Axle  (Average daily trips per 1,000 sq. ft. of warehouse building area)^	Class 2B-7 / 'Straight' Trucks / 2- and 3-Axle  (Average daily trips per 1,000 sq. ft. of warehouse building area)^	Weighted Truck Trip Rate (WTTR)  (2.5 × Class 8 + Class 4-7)
High Cube Transload & Short Term Storage (≥200k sf)	0.33	0.12	0.95
Warehouse (100k – 200k sf)	0.21	0.14	0.67
Cold Storage (>100k sf)	0.75	0.29	2.17

The proposed stringency of PR 2305 in Equation 1 is 0.0025 WAIRE Points per WATT. The proposed stringency was developed by evaluating 18 different scenarios of potential PR 2305 compliance, described further in Chapter 3. The potential emissions benefits from this scenario analysis were evaluated alongside the potential costs and impact to industry.

The annual variable in Equation 1 is the ramp up schedule for the PR 2305 stringency. As proposed, the full stringency of 0.0025 would not be achieved until the third compliance period for each warehouse. The annual variable in Table 2 of PR 2305 is layered in with the warehouse Phases. All three Phases will be at full stringency in the fifth compliance period. New warehouses that are built after PR 2305 would be placed into the appropriate Phase based on warehouse size. The annual variable is established relative to when PR 2305 is adopted, and does not 'reset' for a new warehouse that is built after rule adoption. For example, a new warehouse built in September 2025 that is 125,000 sf with at least 100,000 sf usable for warehousing activities would need to submit its first Annual WAIRE Report 30 days after July 1, 2026. Their annual variable for their first compliance period would be 1.0.

<sup>43</sup> <http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498>  
<https://tampabayfreight.com/pdfs/Freight%20Library/Fontana%20Truck%20Generation%20Study.pdf>

*Paragraph (d)(2)*

Paragraph (d)(2) provides the three primary options available to earn WAIRE Points. This includes completing actions from the WAIRE Menu in paragraph (d)(3), completing actions from an approved Custom WAIRE Plan in paragraph (d)(4), or paying a mitigation fee from paragraph (d)(5). Points can be earned from any combination of these three options in any compliance period.

*Paragraph (d)(3)*

Paragraph (d)(3) and Table 3 include the WAIRE Menu option. The WAIRE Menu itself has 32 different actions or investments that can be completed. Points can be earned from any combination of Menu actions, at any level of implementation. Points can be earned only if they go beyond requirements in other U.S. EPA, CARB, or South Coast AQMD regulations. in effect during that compliance period.<sup>44</sup> When determining if an action goes beyond requirements from another regulation, a comparison is made between the regulatory requirement on the entity itself earning Points (typically the warehouse operator), rather than requirements on a non-PR 2305 entity. For example, CARB's ACT regulation requires truck manufacturers to sell a certain fraction of ZE trucks beginning in 2024. ACT does not apply to any regulated entity covered by PR 2305. Therefore, a warehouse operator (or warehouse facility or land owner if they opt in) may earn Points for purchasing a ZE truck, regardless of any requirements in ACT. At this time, there are no regulations in place that limit what a warehouse operator or owner could implement from the WAIRE Menu. There is the potential that CARB's upcoming TRU regulation, its Advanced Clean Fleets (ACF) regulation, or potentially other regulations could impose requirements on warehouse operators or owners. Even if a new regulation comes into place that imposes requirements directly on a warehouse operator or owner, if the action is completed prior to the other regulation's mandated timeline, then Points could still be earned under PR 2305. For example, hypothetically if ACF requires a warehouse operator who owns a fleet to purchase ZE trucks by 2030, but the operator purchases ZE trucks early in 2029, then they would be able to earn WAIRE Points for that action in 2029.

Table 3 in PR 2305 includes specific WAIRE Points for each action. Warehouse operators (or owners who opt in) would earn Points relative to their level of implementation of an action with the Points associated with each annualized metric in Table 3. The basic equation that needs to be followed to earn Points from the Menu is shown in Equation 2 below. As an example, if a warehouse operator demonstrates that they had 520 ZE Class 8 truck visits<sup>45</sup> to their warehouse during a compliance period, they would earn 72.7 WAIRE Points for that action following the method below.

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<sup>44</sup> Points can be earned even if local ordinances (e.g., from a city or county) or building codes include requirements for some of the actions covered by PR 2305. Local land use authorities also have the option to require higher compliance obligations under CEQA using the framework set up by PR 2305. For example, as a condition of approving a new warehouse project, a land use agency could require a warehouse operator to earn additional WAIRE Points beyond their WPCO in order to reduce air quality impacts. However there is no obligation on land use agencies under PR 2305 or PR 316 unless they are a warehouse owner or operator subject to PR 2305.

<sup>45</sup> 520 visits is the same as 1,040 one-way truck trips.

Equation 2:

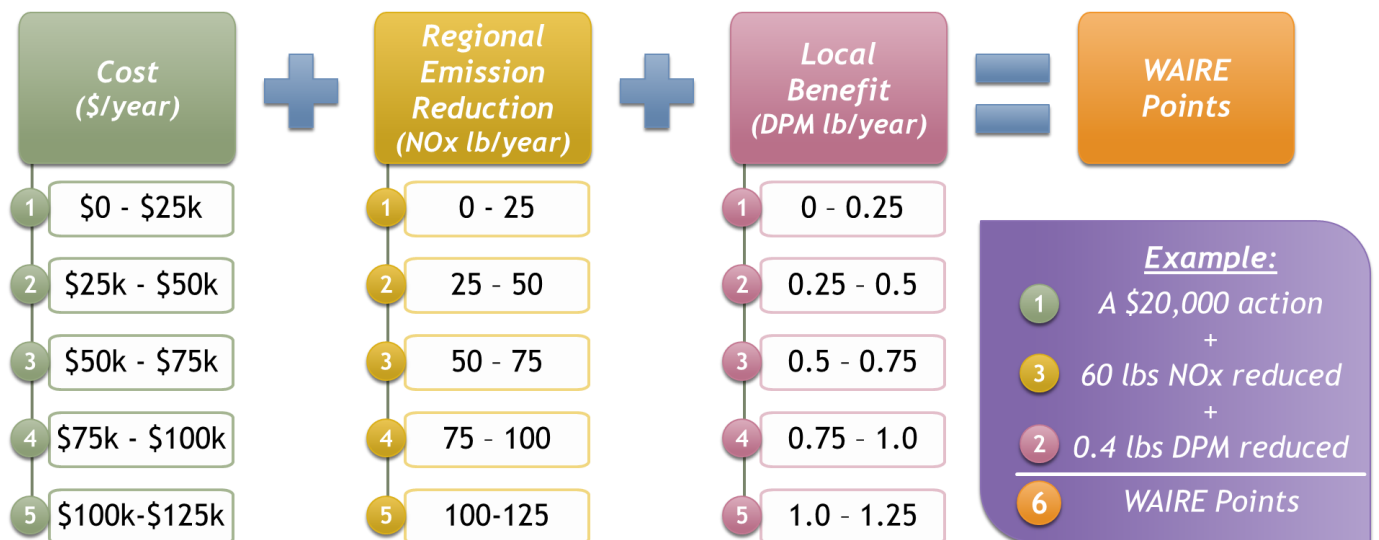
$$\text{WAIRE Points per Annualized Metric} \times \text{Level of implementation} \div \text{Annualized metric} = \text{Points earned}$$

For ZE Class 8 visits example above:  $51 \text{ Points} \times 520 \text{ visits} \div 365 \text{ visits} = 72.7 \text{ Points}$

Figure 7 below shows the underlying calculation used to develop the number of WAIRE Points associated with each WAIRE Menu action. The details for these calculations are provided in Appendix B to this staff report. An earlier draft of this appendix was provided to the Working Group as the WAIRE Menu Draft Technical Report on March 3, 2020. This more detailed calculation approach is not used by warehouse operators or owners to earn WAIRE Points from the Menu. This approach is just the original analysis used to establish the balancing between different menu actions in PR 2305. In this approach, each WAIRE Point consists of three elements: the incremental cost to complete the action, the regional emission reduction of NOx in lbs/year, and the local DPM emission reductions in lbs/year. Each of these elements is calculated for individual actions at a set level of implementation (i.e., the annualized metric), binned and then summed to simplify comparisons.

Actions are split primarily into two groups, one-time investments in technologies that can reduce emissions or facilitate the implementation of emission reductions, and ongoing use of these technologies. Points are earned separately for the investment and the ongoing use. Points can be earned from both a one-time investment in emission reduction technologies and use of that technology in the same compliance period. For example, a warehouse operator could install a charging station and earn Points from that action, and begin using that charging station to earn more Points in the same compliance period.

**Figure 7: Approach to Develop WAIRE Points for Each WAIRE Menu Action\***



\*This approach is not used by warehouse operators or owners to earn Points. This is only the underlying methodology to the WAIRE Menu.

Finally, PR 2305 does not prohibit operators from using incentive funding from South Coast AQMD, CARB, or other sources to earn WAIRE Points. However, many of these programs have express limitations in using their funds to comply with a regulation. Because these limitations are written into each specific program's requirements, they are not included in PR 2305 as those programs' requirements could change through time. Staff is unaware of any requirements in programs like Carl Moyer, AB 617 funding, or similar programs that limit the use of funds with WAIRE Menu items associated with ongoing use (e.g., truck visits). However, there are commonly limitations in these funding programs associated with the purchase of vehicles or equipment.

*Paragraph (d)(4)*

Paragraph (d)(4) describes the Custom WAIRE Plan option, including the requirements for what needs to be included in a Plan and Plan application, and the process and criteria for approval or disapproval of the Plan application, or rescission of an approved Plan by South Coast AQMD. Custom WAIRE Plans are only potentially approvable if they include actions that are not already included in the WAIRE Menu in Table 3 of PR 2305. Points may only be earned from an approved Custom WAIRE Plan. The Custom WAIRE Plan only needs to describe how Points would be earned under the plan, not how all Points would be earned to meet the WPCO if the Plan only addresses part of the points compliance obligation. The methodology to calculate WAIRE Points in Custom WAIRE Plan applications will be described more fully in the WAIRE Program Implementation Guidelines, and will be consistent with the WAIRE Menu Technical Report methods in Appendix B. The general approach requires comparison of baseline conditions without the Custom WAIRE Plan to the NOx and DPM emission reductions and the incremental costs when the Plan is implemented. Emission reductions must be quantifiable, verifiable, real, and achieved as quickly as feasible, and no later than three years after Plan approval.

Key milestones need to be described in the Custom WAIRE Plan application and must be adhered to if approved. Approved plans that do not make adequate progress on these approved milestones may have their Plan approval rescinded 30 days after notification by the Executive Officer (EO) of identified deficiencies. If the deficiencies are not corrected in that period, the EO may then rescind the Plan approval. If a warehouse facility or land owner opts into the program and has a Custom WAIRE Plan approved by South Coast AQMD, then they are required to implement it. If the Plan is not implemented, then the entity who filed the Plan application shall be the entity who will be held in violation of the rule for any compliance period covered by the approved Plan for which a sufficient number of WAIRE Points was not earned as demonstrated in the Plan. If a warehouse operator (or owner who opts in) does not earn a sufficient number of WAIRE Points to satisfy their WPCO as demonstrated in a previously approved Plan, they may still satisfy their WPCO for that compliance period through the completion of actions from the WAIRE Menu, or by paying a mitigation fee pursuant to paragraph (d)(5), and document these actions in their Annual WAIRE Report.

Examples of potential Custom WAIRE Plans that some industry stakeholders have expressed potential interest in include: installing offsite charging/fueling infrastructure for ZE vehicles, installing and operating energy efficiency systems for cold storage warehouses, installing onsite ZE charging stations with higher power (i.e., above 350 kW) than is described in the WAIRE Menu, or overcompliance with upcoming CARB regulations should they be approved (such as the



TRU regulation or ACF). Other custom approaches are also potentially approvable provided they meet the criteria described in paragraph (d)(4).

Custom WAIRE Plans that rely on VMT reductions will be limited to those projects that can show that these VMT reductions go beyond what is modeled in the latest Regional Transportation Plan (RTP) from the Southern California Association of Governments (SCAG). The Plan application itself would need to include the analysis showing how VMT reductions would be lower than RTP modeled VMT. An example custom approach that may be disqualified from this includes an operator who moves operations from multiple smaller operations into a larger facility, thus reducing truck trips and VMT between the previous smaller warehouses. However, this reduction in VMT for that operator likely does not reduce VMT overall because the smaller warehouses are not expected to stay vacant given the low vacancy rates experienced by warehouses in the South Coast AQMD region.<sup>46</sup> Hence, while the operator's VMT declines, the region's VMT may actually increase. Similarly, a warehouse operator that demonstrates that they have a lower trip generation rate and VMT than would be calculated using default values has not demonstrated that overall VMT in the region is reduced. The RTP models average trip generation rates, and outputs average miles per trip. Some warehouses are therefore expected to be higher, and some lower than the average.

Although earning Points through VMT reduction programs may not be likely in most situations, PR 2305 is still expected to provide an additional motivation for warehouse operators to improve efficiency beyond normal market forces. Because the WPCO is tied to a warehouse's annual truck trips, if a facility can find ways to improve efficiency and reduce its number of truck trips, then its compliance obligation under PR 2305 will be lower.

#### *Paragraph (d)(5)*

If a warehouse operator does not earn a sufficient number of WAIRE Points to satisfy their WPCO from the WAIRE Menu or from an approved Custom WAIRE Plan, a warehouse operator may choose to pay a mitigation fee to the South Coast AQMD at a cost of \$1,000 per WAIRE Point. This value was determined by comparing the potential costs of implementing a variety of WAIRE Menu actions at an individual warehouse under different stringencies using methods described in the WAIRE Menu Technical Report (see Appendix B), and evaluating how many WAIRE Points were earned for each action. Although the costs vary across actions, many actions are approximately equal to \$1,000 per WAIRE Point.<sup>47</sup> Additional discussion about the WAIRE Mitigation Program that would spend the collected fees is included at the end of this chapter.

#### *Paragraph (d)(6)*

This paragraph describes the limited transfer of WAIRE Points under PR 2305. PR 2305 is not a credit trading system. Transferring WAIRE Points may only be allowed in three limited instances of overcompliance with rule requirements. First, if an operator conducts warehousing activities at multiple warehouses, it may be more feasible for them to make investments at a larger scale at one

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<sup>46</sup> Vacancy rates in 2019 in South Coast AQMD warehouses are about 4%, about 50% lower than the vacancy rates of surrounding markets. Source: IEc Task 2 "Technical Memorandum on Real Estate Markets Neighboring the South Coast AQMD Region"

<sup>47</sup> Examples are shown in slides 16-19 from the March 3, 2020 Working Group.  
[http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/whse\\_isr\\_slides\\_3-3-2020.pdf](http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/whse_isr_slides_3-3-2020.pdf)

facility, compared to repeated smaller investments at several facilities. Under PR 2305, this operator could over-comply and earn extra Points at one warehouse, and then transfer the excess to another warehouse in their control. Because one of the purposes of PR 2305 is to reduce local emissions, the full value of any Points transferred from one warehouse to another is discounted by the amount of the WAIRE Points that were earned from local emission reductions of diesel PM. Table 3 in PR 2305 already provides the discounted Point value, and operators (or owners who opt in) do not need to determine the amount to discount other than looking up values in that table.

The second transfer method involves a warehouse operator earning excess WAIRE Points in one year and banking those Points to transfer into a subsequent year. These Points are not discounted and can be banked for up to three years. For example, excess Points earned in the compliance period from July 1, 2021 to June 30, 2022 would be usable until the end of the compliance period ending June 30, 2025, and reported in the Annual Report no later than 30 days after July 1, 2025 (pursuant to subparagraph (d)(7)(C)). This three-year period could be shorter if the action that earned Points would have already been required by another regulation in the year in which the Points would otherwise be used. WAIRE Points may also be earned prior to a warehouse operator's first compliance period. For example, an operator of a 125,000 sq. ft. warehouse could earn Points in the 2021-2022 compliance period, even though PR 2305 does not impose a WPCO on a warehouse of this size until the 2023-2024 compliance period. The three-year banking clock in this instance would not commence until after their first compliance period in 2023-2024. The extra time is meant to encourage early compliance and achieve emissions reductions sooner.

The final transfer method involves transfers between a warehouse facility or land owner and a warehouse operator, and vice versa. Warehouse facility or land owners may find it advantageous to improve their properties using options within PR 2305 on their own. Any Points earned from this activity may be transferred to an operator at that site over the subsequent three-year period. Operators may also transfer Points earned in excess of their WPCO back to a warehouse facility or land owner, who may then transfer those Points to a subsequent operator at that site.

#### *Paragraph (d)(7)*

This paragraph outlines the required reports and notifications that operators and owners must submit. Warehouse facility owners (not warehouse land owners) must submit a notification 60 days after rule adoption, within 14 days after a new operator has the ability to use at least 50,000 sq. ft. of a warehouse with  $\geq 100,000$  sq. ft. of floor space that may be used for warehousing activity. A typical date for this would be the start date of a lease. Notification is also required after a warehouse building has been modified such that it has new square footage. A report must also be submitted within three days of the EO's request.

Warehouse operators must submit a more detailed one-time Initial Site Information Report approximately six months before their first Annual WAIRE Report must be submitted for that site. As an example, if Operator A has recently moved to a new warehouse and has not been required to submit an Annual WAIRE Report before for that site, they are then required to submit the Initial Site Information Report. This is the only Initial Site Information Report that Operator A will need to submit for that site. If Operator A moves to another warehouse and has never submitted an Annual WAIRE Report for that second warehouse, they will need to submit an Initial Site

Information Report for that warehouse. Initial Site Information Reports must also be submitted within 30 days of the request from the EO.

Warehouse operators, and warehouse facility or land owners as applicable, are required to submit an Annual WAIRE Report within 30 days after July 1 of every year for which they must satisfy a WPCO. The Annual WAIRE Report is the primary mechanism by which operators demonstrate how they have earned a sufficient number of WAIRE Points for the preceding compliance period. If an operator with a WPCO departs a warehouse before the end of that compliance period (e.g., if their lease ends), they are required to submit their Annual WAIRE Report no later than the date that they vacate the warehouse. No Annual WAIRE Reports are due before the applicable Initial Reporting Date in Table 1. Because the WPCO is tied to the number of truck trips at a warehouse while the operator was responsible for warehousing activities, the operator's Annual WAIRE report in this instance only needs to demonstrate how Points were earned for the portion of the compliance period when the operator was at that warehouse.

***Reporting, Notification, and Recordkeeping Requirements – Subdivision (e)***

This subdivision describes the information that must be included in the various reports and notifications required by PR 2305, as well as recordkeeping requirements. An online reporting portal is anticipated to be created if PR 2305 is approved by the Governing Board that will be used for all report and notification submissions. Reporting procedures will be further documented in the WAIRE Implementation Guidelines (Appendix A).

***Paragraph (e)(1)***

The Warehouse Operations Notification described in this paragraph includes basic information about the warehouse facility itself, whether the warehouse facility owner is also an operator, as well as information about any entities leasing the site, and how much of the site they have leased.

***Paragraph (e)(2)***

The Initial Site Information Report provided by a warehouse operator must include information about how many square feet they can use for warehousing activities. There are two cases when this is the only information that needs to be provided for this report. First, if the warehouse operator is in a building where the total square footage that can be used for warehousing activities is less than 100,000 sq. ft., then no more information is required. Second, some warehouse operators may lease only a portion of a warehouse with more than 100,000 sq. ft. that can be used for warehousing activities. In this situation, if the operator only can use <50,000 sq. ft. (e.g., due to lease conditions), then they do not need to report any further information. This second case does not apply where there are multiple operators under the ownership or control of a single parent company who each operate <50,000 sq. ft., but who collectively operate more than 50,000 sq. ft.

Apart from the two cases described above, Initial Site Information Reports must include information about actual truck trip data from the previous 12-month period, and the anticipated truck trips in the following 12-month period, by truck class or truck type (e.g., tractors or straight trucks). Trucks delivering or picking up goods from a warehouse are a proxy for total activity and emissions related to a warehouse and will use a truck entrance that is different than the employee vehicle entrance (that may also have minor use for mail trucks, or refuse pickup for administrative activities at the warehouse). In order to streamline reporting, only those trucks or tractors that use a warehouse's truck driveway must be included, with the intention of focusing on truck activity

most closely aligned with total warehouse activity and emissions. Occasional truck traffic that utilizes the employee parking driveway for building services activities like mail delivery or trash pickup do not need to be included.

Additional data that must be reported includes information about any trucks owned by the operator that serve that warehouse, information about any onsite alternative fueling stations, information about any yard trucks operated at the site (owned or non-owned), and information about any onsite energy generation equipment. Finally, the report must include the anticipated options that the operator plans to use to earn Points for the current compliance period. These anticipated options might not end up being the actual options used to meet the WPCO, but they do provide an early planning step for operators to consider how they will comply with their WPCO in six months.

*Paragraph (e)(3)*

The Annual WAIRE Report shall include actual truck trip data used to determine the WPCO pursuant to paragraph (d)(1). The report shall also include how many WAIRE Points were earned from the WAIRE Menu and details about the reporting metric from the WAIRE Menu, the Points from a Custom Plan, and the Points from mitigation fees. Finally, the report shall include current contact information for the warehouse operator.

*Paragraph (e)(4)*

Records which demonstrate the accuracy and validity of any information reported to South Coast AQMD must be kept for a period of seven years after the reporting deadline and made available upon request during normal business hours.

*Paragraph (e)(5)*

Some warehouse facility or land owners, or operators may choose to hire consultants to complete some of the reporting requirements in PR 2305. This paragraph ensures that any reports are submitted by an official authorized by an officer of the warehouse owner or operator, as applicable. This authorized official may or may not be an employee of the warehouse owner or operator. The authorized official must certify that the information reported is accurate based on their best available knowledge.

***WAIRE Implementation Guidelines – Subdivision (f)***

This subdivision identifies that the EO will periodically publish the WAIRE Implementation Guidelines referred to throughout PR 2305 (Appendix A of this staff report). This Appendix will be provided at a future date.

***Exemptions – Subdivision (g)***

Two limited exemptions are described in this subdivision. First, similar to paragraph (e)(2), warehouse operators who cannot use more than 50,000 sq. ft. of a warehouse that is larger than 100,000 square feet, for warehousing activities due to lease conditions (e.g., they have leased <50,000 sq. ft.), are not required to earn any WAIRE Points. This exemption does not apply if the warehouse operator is under the control of a parent company of one or more lessees in the same building, and collectively the entities under the parent company's control operate more than 50,000 sq. ft. of a building that is 100,000 square feet or greater.

The second exemption relates to rare, unforeseen circumstances, beyond the reasonable control of the warehouse operator, or owner, who made the investment or took the action to earn the WAIRE Points. For example, if a warehouse operator purchases a zero emission truck and anticipates using this same truck to earn Points, but a malfunction in the powertrain due to an equipment manufacturer defect (e.g., malfunctioning electric motor, fuel cell stack, etc.) results in an inability to use the equipment, then the operator may apply for relief for the Points that would have been earned.

***Severability – Subdivision (h)***

In the event a court holds that a portion or portions of PR 2305 are invalid or unenforceable, subdivision (h) allows the other portions of the rule to remain fully applicable and enforceable. Similarly, if the exemptions in PR 2305 are held by judicial order to be invalid, then the warehouse operators that had been covered by the exemption shall have to comply with the requirements of PR 2305.

## **PROPOSED RULE 316 – FEES FOR REGULATION XXIII**

***Purpose – Subdivision (a)***

The purpose of the Proposed Rule 316 (PR 316) is to act as a companion rule to Proposed Rule 2305 (PR 2305) – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program. PR 2305 requires reporting information about facility operations and recordkeeping. PR 316 establishes the administrative fees that PR 2305 warehouse operators and owners must pay in order to recover South Coast AQMD administrative costs associated with ensuring compliance with PR 2305.

The proposed purpose is as follows:

*California Health and Safety Code Section 40522.5 provides authority for the South Coast Air Quality Management District to adopt a fee schedule for areawide or indirect sources of emissions which are regulated, but for which permits are not issued, to recover the costs of programs related to these sources. The purpose of this rule is to recover the South Coast AQMD's cost of implementing Rule 2305.*

***Applicability- Subdivision (b)***

Warehouse owners and operators routinely move into or out of warehouses. As the applicability is tied to reports that must be submitted pursuant to PR 2305, any individual company may be required to pay multiple fees under PR 316 in any one year, then potentially not be subject to fees in the following year if they are not required to submit any of the applicable reports.

The proposed applicability is as follows:

*This rule applies to owners and operators of facilities subject to Rule 2305 that submit an Annual WAIRE Report, a Custom WAIRE Plan application, an Initial Site Information Report, a Warehouse Operations Notification, or that pay a Mitigation Fee.*

***Definitions – Subdivision (c)***

PR 316 includes definitions of specific terms related to the warehousing industry and aspects of implementing PR 2305. Most definitions refer back to definitions within PR 2305. Please refer to PR 316 subdivision (c) for each specific definition.

Proposed Definitions:

Annual WAIRE Report

Custom WAIRE Plan Application

Initial Site Information Report

Mitigation Fee

Warehouse

Warehouse Operations Notification

Warehouse Operator

Warehouse Facility Owner

Warehouse Land Owner

Warehousing Activities

***Annual WAIRE Fees – Subdivision (d)***

Fees that will be established in this subdivision will be set at a flat level that is equal to the level of effort required by South Coast AQMD staff to conduct compliance activities related to the reports for which the fees are being paid. Fees must be paid at the time that the report must be submitted pursuant to PR 2305.

***Custom WAIRE Plan Application Evaluation Fee – Subdivision (e)***

Custom WAIRE Plans applications are expected to be unique, and require varying levels of effort by staff to review depending on the complexity of the application. Similar to other plan review fees in South Coast AQMD Rule 306, the fees in this subdivision are set consistent with the amount of staff time needed to complete an application review. An initial fee must be paid upfront as a deposit to cover a minimal amount of staff time, and subsequent fees may be assessed if more time is required. Staff will track time spent reviewing a Custom WAIRE Plan application, and if less cost is incurred than was paid in the initial fee, a refund will be issued.

***Mitigation Program Administration Fee – Subdivision (f)***

PR 2305 includes an option for warehouse operators (or owners who opt in) to pay a mitigation fee to South Coast AQMD to earn WAIRE Points. These collected fees will be used for a mitigation program to incentivize near-zero and zero emissions trucks and zero emissions charging infrastructure. Funds will be directed to projects in the communities near the warehouses that paid the fees. South Coast AQMD administers many incentive programs currently, including Carl Moyer, SOON, AB 617, etc. Prolonged experience with these programs has shown that some funds are needed to ensure efficient and accurate program administration. The amount set in PR 316 is 6.25 percent of the mitigation fee a warehouse operator or owner pays, and is consistent with recent program administration requirements for similar incentive programs.<sup>48</sup>

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<sup>48</sup> AB 134 (2017): [http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201720180AB134](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB134)

AB 617 Incentives Guidelines:

[https://ww2.arb.ca.gov/sites/default/files/2020-10/cap\\_incentives\\_2019\\_guidelines\\_final\\_rev\\_10\\_14\\_2020\\_0.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-10/cap_incentives_2019_guidelines_final_rev_10_14_2020_0.pdf)

***Payment Due Dates – Subdivision (g)***

Payment of fees for Custom WAIRE Plans are due no later than 60 days after an invoice has been provided. Fees for Annual WAIRE Reports, Initial Site Information Reports, and Warehouse Operations Notifications are due when the applicable report must be submitted. Requirements for payments in this subdivision are consistent with other South Coast AQMD fee programs in Rule 301.

***Exemptions – Subdivision (h)***

Two exemptions are provided in this subdivision. First, warehouse facility owners who submit a Warehouse Operations Notification for a warehouse that has less than 100,000 sq. ft. that can be used for warehousing activities are exempt from PR 316 fees. Second, warehouse operators who use <50,000 sq. ft. of a warehouse for warehousing activities are also exempt from PR 316 fees. The collection of this information will occur online, and no additional compliance with these components of the WAIRE Program is expected for these entities, hence staff costs are expected to be de minimis for this activity. This reported information is needed however to verify that the owner or operator does not have any further obligations under PR 2305.

**WAIRE Mitigation Program**

The main intent of the WAIRE Mitigation Program is to provide NOx and DPM emission reductions for communities around warehouses that paid the mitigation fees. Any in-lieu mitigation fees paid to South Coast AQMD by a warehouse operator (or owner who opts in) would be targeted to projects in the surrounding area for NZE or ZE trucks, or ZE charging/fueling infrastructure. Any solicitations for requests for funding, or funding allocations that would be spent from the WAIRE Mitigation Program must be approved by the South Coast AQMD Governing Board in a public meeting. The proposed incentives would be used toward the purchase of NZE and ZE trucks or the purchase and installation of ZE charging or hydrogen fueling infrastructure. The WAIRE Mitigation Program would be available to any applicant that has trucks domiciled and/or used in the same geographic area of the warehouses that paid the WAIRE Program mitigation fee or applicants who intend to purchase and install ZE charging or hydrogen fueling infrastructure to serve that same geographic area. Funds would be prioritized first to areas in the same Source Receptor Area (SRA)<sup>49</sup> as the warehouse. Should there be insufficient project applicants in any area for the amount of funding available, the funding may be redirected to an adjacent SRA. Project funding solicitations would be issued within one year of receiving mitigation fees, and could potentially be coordinated with solicitations from other incentive programs. Incentive projects would be evaluated for cost effectiveness to maximize the potential for NOx and DPM reductions of each incentive project. Because this funding program is wholly within the control of South Coast AQMD, funds may be combined with other incentive programs as allowable on a case-by-case basis.

The WAIRE Mitigation Program incentives would be offered as a solicitation to receive enough applications similar to the existing incentive programs of Carl Moyer, Prop 1B, or VW Mitigation Trust. Similar to the existing incentive programs, there would be an application evaluation following the end of the solicitation. This would include evaluation of application documents,

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<sup>49</sup> <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>

subsequent inspection of the NZE or ZE truck purchased or the ZE charging or hydrogen fueling infrastructure installed, and annual reports to follow the emission reductions of the incentive projects for the life of the incentive project contracts.

Additional details to this mitigation program will be developed in the future.



## **CHAPTER 3: IMPACT ASSESSMENT**

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**INTRODUCTION**

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**COMPARATIVE ANALYSIS**

## INTRODUCTION

PR 2305 and PR 316 will apply to warehouses with greater than or equal to 100,000 square feet of indoor floor space. These warehouses are part of a larger goods-movement network of facilities located throughout the South Coast AQMD region that also includes marine ports, airports, rail yards, and smaller warehouses.

Warehouses serve as an intermediate storage facility for goods coming from manufacturing facilities, other warehouses, or food production sites that are ultimately destined for another location, including retail stores, other warehouses, customers (e.g., through e-commerce), or other manufacturing operations. Goods are transported to and from warehouses in trucks of a variety of sizes, including smaller Class 2b-7 trucks used for local delivery or larger Class 8 tractor trailers (typically diesel-powered) that can transport goods either locally or nationally. These trucks will back up to a warehouse's loading dock to load/unload their cargo in or out of the warehouse. Some warehouses also allow trailers to be parked within their truck yard for short periods of time. These trailers are moved around the yard or to/from a loading dock with a yard truck (typically diesel-powered).

Inside the warehouse, goods are stored on storage racks that may be more than 20 feet high. The level of automation varies inside each warehouse, but, if automation is present, can include conveyor systems, robotics, and scanners. Goods are commonly moved around inside a warehouse by employees operating pallet jacks or small industrial forklifts. Additional activities include sorting, labeling, repackaging, palletizing, applying scannable bar codes (SKUs), racking, and packing/unpacking trucks. Many additional activities can be present at a facility with a warehouse including supporting office administration, manufacturing, vehicle maintenance, or retail stores that are open to the general public. Some warehouses also support cold storage, typically for food products, and will have large refrigeration systems. Trucks distributing goods to/from these cold storage warehouses typically keep goods at their appropriate temperature with a small diesel-powered transport refrigeration unit (TRU) mounted on the truck or trailer.

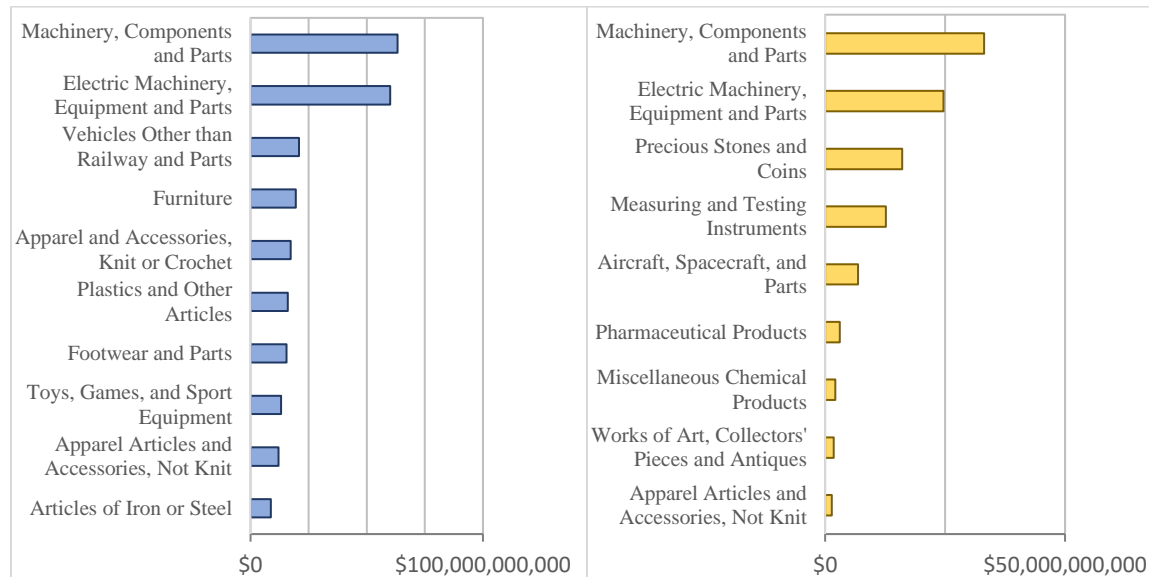
## AFFECTED INDUSTRY

Southern California is a major gateway for goods coming from Asia. A wide variety of industries have supply chains which relies on goods moving through Southern California. Approximately \$500 billion in goods were moved through the larger Southern California Association of Governments (SCAG) region in 2016, with imports accounting for about 75%. It is unclear how much of this total flow of goods move through warehouses subject to PR 2305 and PR 316. However about 69% of imports from the ports of Los Angeles and Long Beach (LA/LB) do not go directly onto rail, and therefore are expected to utilize warehouses within the South Coast AQMD region. Figure 8 shows the top commodities traded through the ports of LA/LB and through the Los Angeles and Ontario airports in 2018.<sup>50</sup>

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<sup>50</sup> [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial\\_goods-movement.pdf](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf)

**Figure 8: Top Commodities Traded Through Long Beach and Los Angeles Ports (left) and Los Angeles and Ontario Airports (right)**



Warehouses are operated by cargo owners or by third party logistics (3PLs) firms who manage warehouses on behalf of cargo owners.<sup>51</sup> Warehouses are typically owned by a landlord<sup>52</sup> who leases the facility for a short period (e.g., three years) either to a cargo owner or 3PL. All three groups of industries (i.e., cargo owners, 3PLs, and warehouse owners) will be affected by PR 2305 and PR 316. Some motor carriers may choose to update some of their business practices (e.g., using more NZE or ZE trucks) in response to shifting market conditions brought about by PR 2305 (or other CARB regulations or incentive programs), however they are not regulated by PR 2305.

As shown in the baseline emissions inventory below, most NOx and diesel PM emissions associated with warehouses come from trucks. Trucks are owned and/or operated by motor carriers, and their services are provided on behalf of the owner of the goods they are carrying. Warehouse operators often do not own the goods in their warehouse, and in these cases they may not be directly involved in hiring all or any motor carriers that visit the warehouse.

Industry stakeholders have indicated that the business relationships between warehouse operators, cargo owners, and motor carriers can vary widely, even in a single warehouse. Some warehouses are more vertically integrated where the operator owns the goods in the warehouse, and directly contracts with motor carriers, or uses their own fleet, to transport the goods to retail establishments. In this situation, the warehouse operator has a relatively high level of control of the trucks and cargo flowing through the warehouse.<sup>53</sup> Other warehouse operators may not own any goods within the warehouse, or have a direct relationship with any motor carriers visiting the warehouse, or own

<sup>51</sup> [https://scag.ca.gov/sites/main/files/file-attachments/task4\\_understandingfacilityoperations.pdf](https://scag.ca.gov/sites/main/files/file-attachments/task4_understandingfacilityoperations.pdf)

<sup>52</sup> In rare instances, the land beneath a warehouse building is owned by a different entity than the warehouse building itself.

<sup>53</sup> Note that even in this instance, the supplier of some of the goods to the warehouse may arrange to transport inbound shipments without involving the warehouse operator.

a fleet themselves. The warehouse operator may have very little control over the trucks calling at the warehouse in this configuration.

One common relationship between all warehouse operators is they either own the goods in the warehouse themselves, or have a direct contractual relationship with the goods owner to manage the warehousing of those goods. The specific conditions in these contracts can vary widely depending on the needs of the two parties. For example, some warehouse operators have indicated their contracts with motor carriers have included air quality goals, such as providing incentives to fleets that met EPA SmartWay standards,<sup>54</sup> or requiring use of zero emission (ZE) trucks. Under PR 2305, some warehouse operators may choose to include contract provisions either with motor carriers or with goods owners who contract with motor carriers, that take into account the requirements of the rule. This could include requiring or incentivizing near zero emission (NZE) or ZE truck visits, or increasing the price charged for warehousing operations so that the operator can comply with PR 2305 in other ways.

### *Affected Facilities*

There are approximately 45,000 industrial buildings of any size located in the South Coast AQMD region, totaling about 1.6 billion square feet. Warehousing makes up a significant fraction of this industrial space, with approximately 90% of these buildings classified as distribution, light distribution, cold storage, truck terminal, or warehouse.<sup>55</sup> Some industrial properties also include a combination of warehousing and manufacturing uses.

**Most industrial properties are smaller in size, typically less than 100,000 square feet. However, the majority of the industrial building square footage occurs in larger buildings (Figure 9). The amount of industrial building space within South Coast AQMD's region has been growing substantially over the past several decades, with most of the growth occurring in the counties of San Bernardino and Riverside since the year 2000 (**

**Figure 10).**<sup>56</sup> Warehousing is anticipated to continue to grow in the SCAG region at a rate of ~1.8% annually.<sup>57</sup>

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<sup>54</sup> EPA SmartWay is a voluntary program that promotes fuel efficiency for freight carriers.

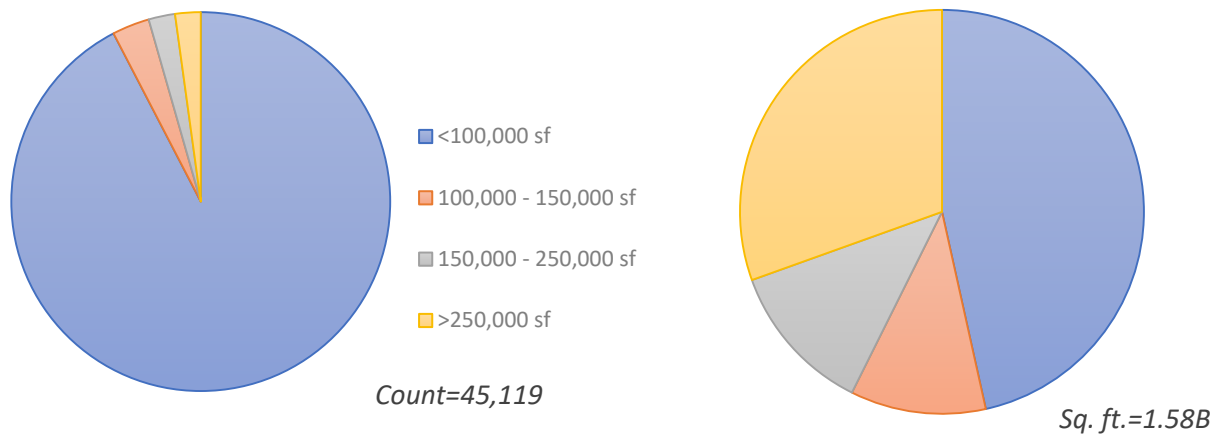
<https://www.epa.gov/smartway>

<sup>55</sup> [www.costar.com](http://www.costar.com)

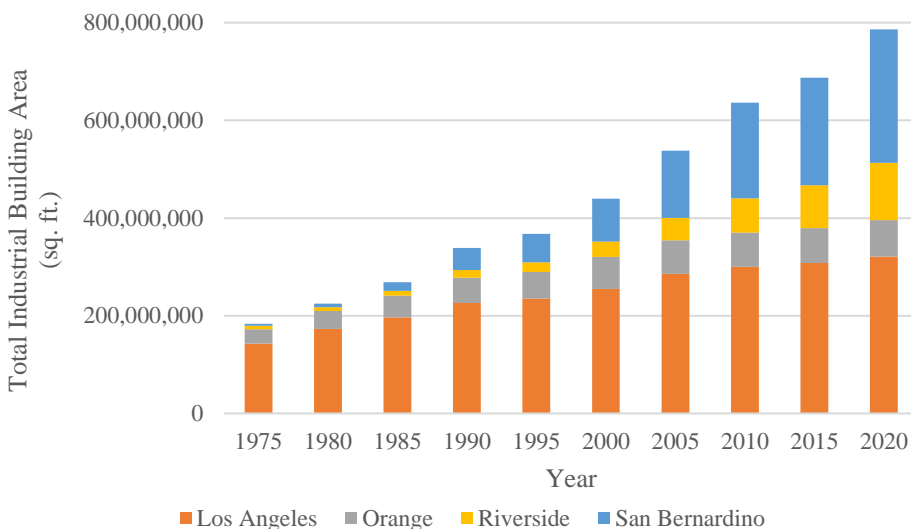
<sup>56</sup> Ibid.

<sup>57</sup> [https://scag.ca.gov/sites/main/files/file-attachments/final\\_report\\_03\\_30\\_18.pdf](https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf)

**Figure 9: Industrial Building Count (left) and Square Footage (right) by Building Size in South Coast AQMD Jurisdiction**



**Figure 10: Industrial Building Growth by County**



There are currently about 3,320 facilities with 100,000 square feet or more of building area that may be subject to PR 2305 and PR 316 (see Appendix C for a list of addresses and a discussion of how the number and type of facilities was determined). Of these facilities, an estimated 2,902 are expected to be required to earn WAIRE Points under PR 2305, with the remainder only subject to limited reporting (e.g., facilities with  $\leq 100,000$  sq. ft. of warehousing activity in a building with  $>100,000$  sq. ft.). Of the warehouses expected to be required to earn WAIRE Points, about 38% may have more than one operator in a single building (yielding a total of about 4,000 operators), about 45% may own a truck fleet,<sup>58</sup> and about 17% may be owner occupied (with any combination thereof).

<sup>58</sup> Data is not available for how many trucks from operator-owned fleets serve a warehouse.

## BASELINE EMISSIONS INVENTORY

The discussion below provides the method for estimating baseline emissions of NO<sub>x</sub> and diesel PM in 2019, 2023, and 2031 for the 2,902 warehouses expected to be required to earn WAIRE Points under PR 2305.<sup>59</sup> The estimate presented here relies on the substantial work previously conducted to estimate vehicular-related emissions, including work performed by:

- California Air Resources Board (CARB) both for the 2016 AQMP emissions inventory<sup>60</sup> and for the Draft Mobile Source Strategy<sup>61</sup>,
- SCAG for the 2016 Regional Transportation Plan, and
- South Coast AQMD for the 2016 AQMP

South Coast AQMD also sponsored a study to evaluate warehouse activities that affect air quality, co-sponsored with the National Association for Industrial and Office Parks (NAIOP).<sup>62</sup> The study was conducted by the Institute of Transportation Engineers (ITE) to update warehouse trip generation estimates for warehouses.<sup>63</sup>

### *Methodology for Estimating NO<sub>x</sub> Emissions from Warehouses*

#### Trip Generation Rates

Data was obtained for three categories of warehouses from CoStar<sup>64</sup> including warehouses  $\geq 100,000$  and  $< 200,000$  sq. ft.,  $\geq 200,000$  sq. ft., and all cold storage warehouses  $\geq 100,000$  sq. ft. Current warehouse data was projected to 2023 and 2031, using growth factors derived from SCAG's Industrial Warehousing report<sup>65</sup>.

Trip generation rates for on-road vehicles were obtained from the High-Cube Warehouse Vehicle Trip Generation Analysis<sup>66</sup> by ITE and supplemented with data from the City of Fontana's Truck Trip Generation Study<sup>67</sup>.

**Table 5: Trip Generation Rates in Trips/Thousand Sq. Ft.**

Warehouse Category	Class 8	Class 4-7	Passenger Vehicles
$\geq 200,000$ sq. ft.	0.33	0.12	1.000
$\geq 100,000 - < 200,000$ sq. ft.	0.21	0.14	1.385
Cold Storage ( $\geq 100,000$ sq. ft.)	0.75	0.29	1.282

<sup>59</sup> The spreadsheet that includes all calculations described here is available at: [www.aqmd.gov/fbmsm](http://www.aqmd.gov/fbmsm)

<sup>60</sup> <https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php>

<sup>61</sup> <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

<sup>62</sup> <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/high-cube-warehouse>

<sup>63</sup> <https://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498>

<sup>64</sup> <https://www.costar.com/>

<sup>65</sup> [https://www.scag.ca.gov/Documents/Task4\\_UnderstandingFacilityOperations.pdf](https://www.scag.ca.gov/Documents/Task4_UnderstandingFacilityOperations.pdf)

<sup>66</sup> <https://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498>

<sup>67</sup> <https://www.tampabayfreight.com/pdfs/Freight%20Library/Fontana%20Truck%20Generation%20Study.pdf>

**Table 6: Warehouse Square Footage for Each Warehouse Category**

Warehouse Category	2019	2023	2031
≥200,000 sq. ft.	521,727,570	562,574,867	644,269,462
≥100,000 – <200,000 sq. ft.	214,795,154	231,611,979	265,245,630
Cold Storage (≥100,000 sq. ft.)	8,188,346	8,829,431	10,111,601

Trucks

Baseline composite truck emission rates<sup>68</sup> (ER) were calculated from EMFAC2017 for heavy duty trucks of Class 4-7 and Class 8 for calendar years 2019, 2023, and 2031. EMFAC2017 provides activity and emission rates for all on-road vehicles that operate within California, however, the analysis presented here is limited to those categories most likely to deliver goods to and from warehouses. EMFAC categories<sup>69</sup> in this analysis and their relationship to truck class are shown in Table 7 below.

**Table 7: EMFAC Truck Categories**

EMFAC Category	Description	Truck Class
T6 CAIRP Small	Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR≤26,000 lbs	Class 4-6
T6 Instate Small	Medium-Heavy Duty Diesel Instate Truck with GVWR≤26,000 lbs	
T6 OOS Small	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR≤26,000 lbs	
T6 CAIRP Heavy	Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>26,000 lbs	Class 7
T6 Instate Heavy	Medium-Heavy Duty Diesel Instate Truck with GVWR>26,000 lbs	
T6 OOS Heavy	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR>26,000 lbs	
T7 CAIRP	Heavy-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>33,000 lbs	Class 8
T7 NNOOS	Heavy-Heavy Duty Diesel Non-Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 NOOS	Heavy-Heavy Duty Diesel Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 POLA	Heavy-Heavy Duty Diesel Drayage Truck in South Coast with GVWR>33,000 lbs	
T7 Tractor	Heavy-Heavy Duty Diesel Tractor Truck with GVWR>33,000 lbs	

Vehicle miles traveled (VMT) per trip of 14.2 mi/trip and 39.9 mi/trip for medium-heavy (Class 4-7) and heavy-heavy duty trucks (Class 8) respectively, were derived from SCAG’s 2016 Regional Transportation Plan modeling analysis (Table 8).

<sup>68</sup> This is the sum of each truck category’s emissions rate multiplied by its corresponding VMT, and then divided by the total sum of VMTs.

<sup>69</sup> <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>

**Table 8. Truck activity data from SCAG's Heavy-Duty Truck Regional Travel Demand Model**

Truck Class	VMT (mi/day)	Trips (trip/day)	Mile/trip
Class 4-7	7,744,000	544,000	14.2
Class 8	12,060,000	302,000	39.9

Class 8 truck emissions were discounted by 22.2% to account for the trips made in between warehouses by trucks.<sup>70</sup> Total idling emissions in the South Coast Air Basin (SCAB) for these truck classes were proportioned by the VMT estimate associated with warehouse trucking to calculate potential idling emissions associated with warehouses. The equations below show how preliminary emissions estimates were calculated.

Equation [1]:

$$VMT \text{ Associated with Warehouses} = \text{Warehouse size (ksf)} \times \text{trip rates} \left( \frac{\text{trips}}{\text{ksf}} \right) \times \frac{\text{miles}}{\text{trip}}$$

Equation [2]:

$$\begin{aligned} \text{Running Exhaust Emissions Associated with Warehouses} \\ = ER_{\text{Class 8}} \times \text{Warehouse VMT}_{\text{Class 8}} \times (1 - 0.222) \\ + ER_{\text{Class 4-7}} \times \text{Warehouse VMT}_{\text{Class 4-7}} \end{aligned}$$

Equation [3]:

$$\begin{aligned} \text{Idling Exhaust Emissions associated with Warehouses} \\ = \left( \frac{\text{Warehouse VMT}_{\text{Class 8}}}{\text{Total VMT}_{\text{Class 8}}} \right) \times \text{Idling } ER_{\text{Class 8}} (1 - 0.222) \\ + \left( \frac{\text{Warehouse VMT}_{\text{Class 4-7}}}{\text{Total VMT}_{\text{Class 4-7}}} \right) \times \text{Idling } ER_{\text{Class 4-7}} \end{aligned}$$

CARB recently approved two regulations that are expected to lower the emissions from trucks beginning with model year 2024 trucks, including the Advanced Clean Trucks Regulation and the Low NOx Omnibus Regulation. Additional emission reductions are anticipated from the upcoming Heavy Duty Inspection and Maintenance (I/M) regulation<sup>71</sup>. CARB modified EMFAC 2017 to account for these regulations in the META tool that supports its Draft 2020 Mobile Source Strategy. These modifications were applied to the truck categories and VMT associated with warehouses under PR 2305. The anticipated emission reductions from these regulations associated with the 2,902 warehouses expected to earn WAIRE Points under PR 2305 is shown in

<sup>70</sup> [https://scag.ca.gov/sites/main/files/file-attachments/task4\\_understandingfacilityoperations.pdf](https://scag.ca.gov/sites/main/files/file-attachments/task4_understandingfacilityoperations.pdf) (pg 3-24)

<sup>71</sup> <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>



Table 9.

**Table 9: Estimated Baseline Truck Emission (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points**

	2019		2023		2031	
	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM
EMFAC 2017 Baseline	39.79	0.68	24.48	0.18	28.38	0.20
Reductions from CARB ACT, Low NO <sub>x</sub> Omnibus and Heavy Duty I/M Regulations	0	0	-0.005	< -0.01	-3.60	-0.03
<b>Total</b>	<b>39.79</b>	<b>0.68</b>	<b>24.43</b>	<b>0.18</b>	<b>24.78</b>	<b>0.17</b>

Passenger Vehicles

Similar to the methodology described for trucks, composite emission rates for running exhaust and start exhaust emissions for light duty cars and trucks from EMFAC2017, default car trip lengths from SCAG (10.6 mi./trip), and ITE trip generation rates for each warehouse category were used to estimate emissions from passenger car travel attributed to each warehouse category. No corrections outside of default values discussed above were made for passenger cars. Baseline emissions for this category are shown in Table 10 below.

**Table 10: Estimated Baseline Passenger Car Emission (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points**

	2019		2023		2031	
	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM
<b>Total</b>	<b>0.96</b>	<b>0.02</b>	<b>0.70</b>	<b>0.02</b>	<b>0.39</b>	<b>0.01</b>

Cargo Handling Equipment

Two main types of cargo handling equipment are typically operated at warehouses. These include yard trucks and industrial trucks (including pallet jacks and forklifts). Emissions from industrial trucks are not estimated for PR 2305 warehouses.<sup>72</sup> Yard trucks operated at warehouses are typically powered by diesel engines, and can be certified as off-road (which restricts the yard truck to one warehouse’s yard) or on-road (which allows for short trips to nearby warehouses). Some warehouses may have more than one yard truck operating onsite, while others may have none. Several data sources<sup>73</sup> were used to estimate the potential yard truck emissions associated with warehouses subject to PR 2305 including:

<sup>72</sup> Warehouses subject to PR 2305 have indoor areas that are nearly always above grade compared to the nearby truck and trailer yard to accommodate trucks backing up to a dock. Industrial trucks therefore operate almost exclusively in an indoor environment in these warehouses. During site visits, staff did not observe any industrial trucks powered by internal combustion engines (ICEs) at warehouses subject to PR 2305, and operators cited the desire to avoid operating ICEs in indoor environments.

<sup>73</sup> Population data for yard trucks operated at warehouses is not available from CARB.

- A business survey of warehouses commissioned by South Coast AQMD.<sup>74</sup> Respondents to this survey indicated that larger warehouses (>200,000 sq. ft.) operate an average of 3.6 yard trucks per million square feet of warehouse space, while smaller warehouses (100,000 to 200,000 sq. ft.) operate an average of 1.2 yard trucks per million square feet.
- Yard truck manufacturing data by calendar year was purchased from Powersys.<sup>75</sup> This data product includes an attrition model that estimates the retirement of older yard trucks through time. Both on-road and off-road data is available from this product.
- Activity data was provided by a yard truck manufacturer. On-road yard trucks are estimated to travel 2,145 mi/yr and off-road yard trucks are estimated to operate for 1,430 hrs/yr.
- Calendar year-specific emission rates for on-road and off-road yard trucks was obtained from the Carl Moyer Guidelines.<sup>76</sup>

The estimated baseline NO<sub>x</sub> and diesel PM emissions from yard trucks are presented in Table 11 below.

**Table 11: Estimated Baseline Yard Truck Emissions (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points**

	2019		2023		2031	
	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM
<b>Total</b>	<b>0.09</b>	<b>0.003</b>	<b>0.09</b>	<b>0.003</b>	<b>0.08</b>	<b>0.003</b>

#### Transport Refrigeration Units (TRUs)

Updated emission estimates were based on CARB's current rulemaking effort affecting TRUs.<sup>77</sup> Half of all truck, trailer, and genset TRU emissions in the South Coast Air Basin were assumed to be associated with cold storage warehousing as refrigerated goods must travel to or from a warehouse for local delivery. This emission total was further reduced by the amount of cold storage warehousing square footage subject to PR 2305 WAIRE Point requirements relative to total cold storage warehousing in the South Coast AQMD jurisdiction (which is about 62%). Results of this analysis are presented below in Table 12.

**Table 12: Estimated Baseline TRU Emissions (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points**

	2019		2023		2031	
	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM
<b>Total</b>	<b>1.88</b>	<b>0.08</b>	<b>1.67</b>	<b>0.07</b>	<b>1.61</b>	<b>0.06</b>

<sup>74</sup> <http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/business-survey-summary.pdf>

<sup>75</sup> <https://www.powersys.com/>

<sup>76</sup> [https://ww2.arb.ca.gov/sites/default/files/classic/msprog/moyer/guidelines/2017/2017\\_cmpgl.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/msprog/moyer/guidelines/2017/2017_cmpgl.pdf)

<sup>77</sup> <https://www.arb.ca.gov/orion/>

### ***Summary of Baseline Emissions***

Table 13 presents a summary of total baseline emissions associated with the 2,902 warehouses expected to earn WAIRE Points under PR 2305. This emissions total represents about 19% and 28% of the South Coast AQMD carrying capacity<sup>78</sup> in 2023 and 2031, respectively.

**Table 13: Summary of Baseline Emissions Associated With PR 2305 Warehouses Expected to Earn WAIRE Points**

Emission Source	2019		2023		2031	
	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM	NO <sub>x</sub>	Diesel PM
Trucks	39.79	0.68	24.43	0.18	24.78	0.17
Passenger Vehicles	0.96	0.02	0.70	0.02	0.39	0.01
Yard Trucks	0.09	0.003	0.09	0.003	0.08	0.003
TRUs	1.88	0.08	1.67	0.07	1.61	0.06
<b>Total</b>	<b>42.72</b>	<b>0.783</b>	<b>26.92</b>	<b>0.273</b>	<b>26.86</b>	<b>0.243</b>

## **RULE STRINGENCY**

Many factors go into considering the stringency of proposed rules. For PR 2305, the draft stringency recommended here considered the following points: the need for emission reductions (discussed in Chapter 1), the significance of emissions associated with the warehousing industry (discussed above in the Summary of Baseline Emissions), the potential emissions reductions from PR 2305 when considering other measures, and the impact to industry.

### ***Potential Emission Reductions from PR 2305 and PR 316 When Considering Other Measures***

As described in the baseline emissions inventory analysis above, recent CARB regulations have been quantified to the extent possible. In addition, CARB's Draft Mobile Source Strategy (Draft MSS) is designed to consider all the other measures that may be needed across every mobile source sector to meet various state goals, including attainment of federal air quality standards. This strategy includes very aggressive targets across all sectors, and any shortfall in one sector (e.g., ocean going vessels) would need to be made up by another sector (e.g., trucks).

South Coast AQMD staff submitted comments to CARB stating the Draft MSS needs to go even further, since emission reductions modeled in CARB's Draft MSS are not sufficient to meet either of the upcoming 2023 or 2031 federal deadlines for ozone reduction. Even in the most aggressive modeling in the Draft MSS,<sup>79</sup> in 2023 more than 95% of heavy-duty trucks will be no cleaner than 2010 engine standards assumed for all trucks in the baseline emissions inventory from the 2016 AQMP. This scenario projects these trucks will still make up about 57% of the truck fleet in 2031.

<sup>78</sup> The carrying capacity is the maximum amount of NO<sub>x</sub> emissions that are allowable in the air basin while still meeting 2023 and 2031 federal ozone standards.

<sup>79</sup> The Draft MSS did not explicitly consider any emission reductions from PR 2305 and PR 316.

Since the 2016 AQMP requires a 45% and 55% reduction in NO<sub>x</sub> by 2023 and 2031 respectively, the continued presence of large fractions of 2010 MY trucks in the fleet will hamper efforts to meet these deadlines. Any additional emission reductions provided by PR 2305 and PR 316 would assist in meeting the region's federal air quality attainment needs.

### *Impact to Industry*

Some potential impacts to industry from PR 2305 include increased costs of warehouse operations and potential imposition of competitive disadvantages relative to warehousing in other regions. The potential cost impacts are described in the 'Compliance Costs' section below, and will be analyzed further in the socioeconomic analysis that will be released for public review at least 30 days prior to the public hearing to consider adoption of PR 2305 and PR 316.

The potential imposition of competitive disadvantages from air quality regulatory costs on the goods movement industry has been analyzed in two studies. First, one study was conducted by Industrial Economics Inc. (IEc)<sup>80</sup> and funded by South Coast AQMD to analyze the potential for PR 2305 and PR 316 to cause warehouses to relocate to nearby areas in order to avoid compliance with the rules. The second study by Davies Transportation Consulting Inc. was funded by the ports of LA/LB to analyze how the logistics industry might respond to a new truck rate for imported goods at marine terminals. These studies will be discussed in greater depth in the socioeconomic analysis, but a brief synopsis of the results is included below.

#### IEc Warehouse Relocation Study

**The IEc study found the warehousing industry in the South Coast AQMD is robust, and has grown at faster rates than surrounding areas (see**

Figure 10 and Figure 11), all while experiencing consistent increases in rent that have outpaced neighboring markets (see Figure 12). Since 2010, the rent increases in South Coast AQMD have average about \$0.47 per sq. ft. annually, all while growing in capacity by about 17 million sq. ft. per year. Nearby areas outside the South Coast AQMD jurisdiction have only increased their rents about \$0.06 per sq. ft. annually over the same period.<sup>81</sup>

Industry stakeholders interviewed as part of the IEc study pointed to several benefits that warehouses rely on that are unique to this area, including the highly developed transportation network of multiple ports, railways, and interstate highways, along with a large labor pool that is difficult to access in more remote regions, and proximity to the large metropolitan customer base.

IEc modeled the potential costs that warehouses face with and without PR 2305 and PR 316 using two different methods. These analyses took into account different costs in neighboring markets such as rent, labor, utilities, transportation, etc., as well as costs associated with different potential stringencies of PR 2305 and PR 316. If costs are cheaper in a neighboring region compared to South Coast AQMD, then a warehouse would be motivated to relocate its operations. The analyses considered costs for existing building stock in neighboring areas, as well as hypothetical building

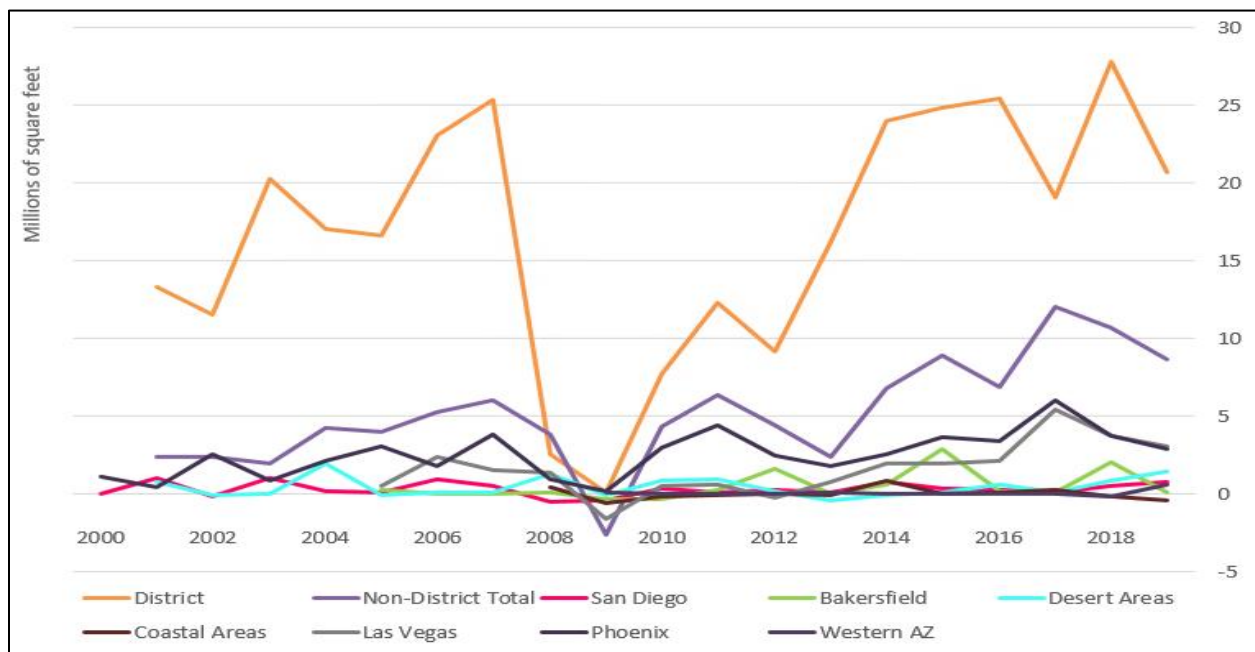
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<sup>80</sup> Study will be included as an appendix to the socioeconomic analysis and is also located here: [www.aqmd.gov/fbmsm](http://www.aqmd.gov/fbmsm).

<sup>81</sup> These annual \$0.47/sf increased rents result in an additional cost to industry in the South Coast AQMD jurisdiction of about \$11.4 billion from 2010-2019 compared to non-District \$0.06/sf increases in rents.

stock assuming that existing vacant land that is industrially zoned could accommodate warehouses. One method that assumed all warehouses serve all markets equally found that no warehouses would relocate even with compliance costs of up to \$2/sq. ft. of warehousing space. A more conservative modeling method found that up to 10 warehouses would have cheaper costs today (without PR 2305) in neighboring regions if the warehouses were solely dedicated to a single market (e.g., serving the national market only via inbound drayage trucks from the port and outbound trucking to intermodal railyards).<sup>82</sup> This same conservative model found that no additional warehouses would experience cheaper costs in neighboring areas (and hence potentially relocate) if compliance costs from PR 2305 were at or below \$1.50/sq. ft.

**Figure 11: Annual Net Absorption<sup>83</sup> in Warehousing Space in South Coast AQMD Jurisdiction and Neighboring Areas**

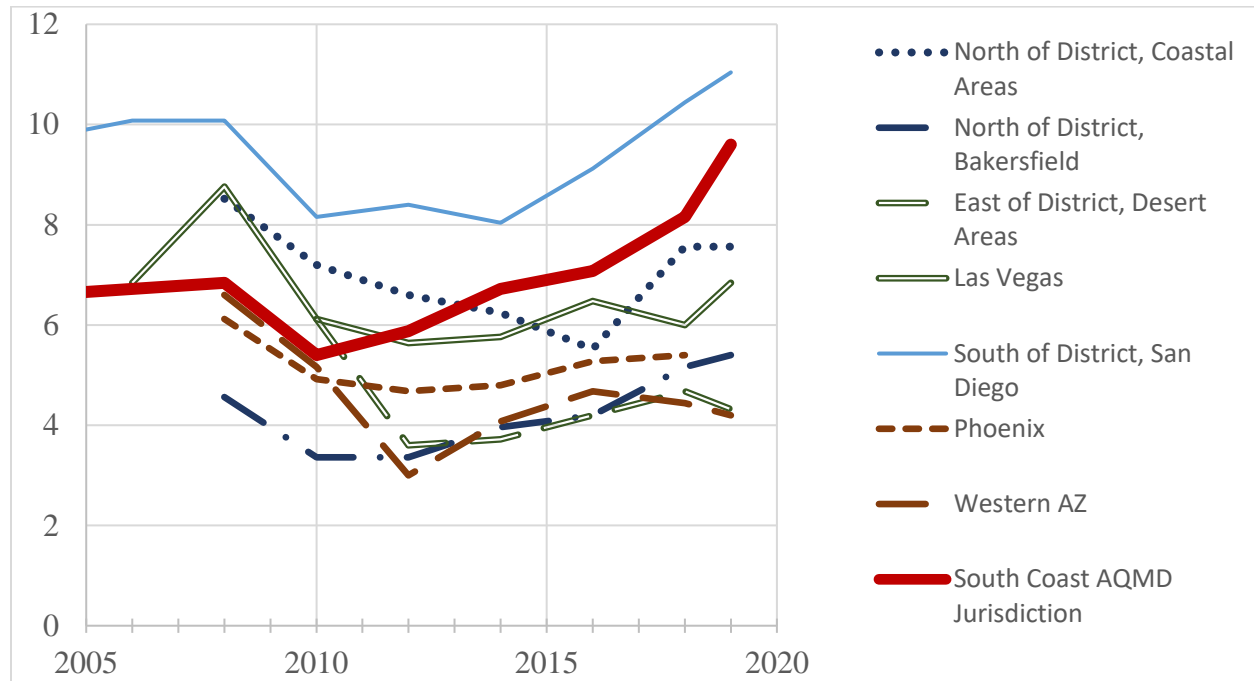


**<sup>82</sup> As seen in**

Figure 10 and Figure 11, warehousing is preferentially growing in the South Coast AQMD jurisdiction compared to neighboring markets. One indication of the conservative nature of this modeling approach is that it finds that the opposite should be occurring in the baseline, and a small number of warehouses should relocate outside of the South Coast AQMD jurisdiction.

<sup>83</sup> Net absorption is a common metric used to track warehouse industry growth and is defined as the amount of warehouse space that tenants moved into minus the amount of warehouse space vacated in a given time period. Continually rising net absorption in South Coast AQMD indicates that more warehouses are being built and occupied than are being vacated. Negative net absorption indicates that more tenants are vacating warehouses than moving into warehouses during a given time period.

**Figure 12: Warehousing Historical Rents in South Coast AQMD Jurisdiction and Neighboring Areas**



Davies Transportation Consulting Port Study

The Davies study evaluated the potential for cargo diversion away from the ports of LA/LB if the ports implemented an update to its Clean Truck Program that would impose a new truck rate on loaded cargo containers that move through the port complex, with exemptions provided for NZE (through 2031) and ZE trucks. This study evaluated the different types and ultimate destinations throughout the country of cargo imported to the ports. A model was developed that evaluated the potential costs of using different ports, including the cost of increased time to travel from east Asia to ports in the eastern half of the United States.<sup>84</sup> This analysis found only a portion of goods are potentially subject to diversion to different ports, even at the maximum truck rate evaluated.<sup>85</sup> If the truck rate were set at \$70/TEU<sup>86</sup>, the study found that the potential diversion of total containerized imports would only be up to 1.4%. The ports ultimately approved a truck rate of \$10/TEU,<sup>87</sup> though they have yet to implement the rate. Based on the Davies study, this rate level would result in 0.2% diversion of total containerized imports.

<sup>84</sup> As an example, the Davies study found that goods traveling from Shanghai to the New York/New Jersey port took more than 10 days longer than goods travelling from Shanghai to the ports of LA/LB.

<sup>85</sup> The Davies study found that 35% of imported goods would not relocate at all to a different port within the study parameters (i.e., up to \$70/TEU). These are goods that are goods destined for the local market or for markets within about an 800-mile trucking distance from the ports.

<sup>86</sup> Twenty-foot Equivalent Unit. Most marine containers that are trucked out of the ports are forty-foot equivalent units, equal to two TEUs.

<sup>87</sup> [https://polb.granicus.com/MinutesViewer.php?view\\_id=77&clip\\_id=7245](https://polb.granicus.com/MinutesViewer.php?view_id=77&clip_id=7245).

Potential Impact of PR 2305 and PR 316 on Industry Competitiveness

The two studies analyze the effect of diversion of the logistics sector away from the South Coast AQMD jurisdiction, but with important differences. The Davies study found cargo owners had limited choices if the ports implemented the Clean Truck Program. They could either pay for the cost of NZE or ZE trucks, pay the \$10/TEU rate, or relocate to a different port.<sup>88</sup> The study concluded that at \$70/TEU it would be more cost effective for the vast majority of goods (98.6%) to continue using the ports of LA/LB.

Because PR 2305 and PR 316 apply at warehouses, not at ports, a cargo owner has more options than simply paying the maximum cost of complying with these rules (through increased warehousing costs in the South Coast AQMD jurisdiction) or diverting their cargo to another port. Under PR 2305, cargo owners will have many options and they can implement the cheapest option for their business operation that may be significantly lower cost than the maximum cost option (see

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<sup>88</sup> The Davies study analyzed a variety of costs for goods travelling from Shanghai, China to Chicago, including from ocean shipping, rail shipping, trucking, port and rail fees, the value of time differences in shipping routes, etc.



Table 22). In addition, cargo owners could utilize warehouses just outside of the South Coast AQMD jurisdiction in neighboring areas, rather than shifting to a different port. The IEc study found the stringency of the rule would have to be more than \$1.50/sq. ft. for it to be more efficient to divert a small amount of cargo outside of the Basin to warehouses that are not subject to PR 2305 and PR 316. The cost of diverting cargo to other ports would be even higher than diverting it to warehouses outside the basin, due in large part to the increased travel times: moving cargo to a nearby region increases travel time by only a few hours,<sup>89</sup> rather than 10+ days from moving goods to a port on the east coast.

Finally, the Davies study and others<sup>90</sup> have documented the ports of LA/LB have lost market share of containerized imports continuously since at least 2003. The reasons for this loss have been attributed to many macroeconomic causes that outweigh any increased regulatory costs in California, including labor stoppages in 2002 and 2014/2015, the widening of the Panama Canal in 2016, the recent shifting of some manufacturing from east China to southeast Asia in response to trade tensions,<sup>91</sup> increased investments in infrastructure at competing ports, the lack of increased trade with areas outside of east Asia, etc. Despite this longer term shift in global trade flows, containerized traffic at the ports of LA/LB has steadily increased<sup>92</sup> (Figure 13) and is still expected to reach 34 million TEUs by 2040.<sup>93</sup> Warehousing in the South Coast AQMD jurisdiction has grown rapidly (

Figure 10 and Figure 11) to accommodate this increased goods movement activity and is expected to continue.<sup>94</sup> Thus, even with a loss of market share, given the significant and continued growth in the logistics industry in South Coast AQMD's jurisdiction, it is not clear that any logistics activity has relocated as opposed to experiencing faster growth in other areas. Similarly, the warehousing industry has experienced significant increased costs (Figure 12), and yet has continued to grow faster than neighboring regions (Figure 11). PR 2305 and PR 316 would also impose additional costs on the industry, however relocation of warehousing due to these rules is not expected if costs are below \$1.75 per sq. ft. Similar to the port analysis, it is possible that the growth of warehousing may change in the future in response to many factors (regulatory costs from CARB and/or South Coast AQMD, land costs, labor availability, changing market conditions, etc.)<sup>95</sup>

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<sup>89</sup> For example, travel time without traffic from the ports to Bakersfield is about 2.5 hours, while travel time from the ports to Ontario (located in the Inland Empire) is about 1 hour.

<sup>90</sup> <https://www.pmsaship.com/wp-content/uploads/2019/12/Briefing-Paper-Loss-of-Market-Share-at-U.S.-West-Coast-Ports.pdf>

<sup>91</sup> <https://www.freightwaves.com/news/freight-volumes-shift-east-as-supply-chains-move-out-of-china>

<sup>92</sup> <https://www.polb.com/business/port-statistics#latest-statistics>,

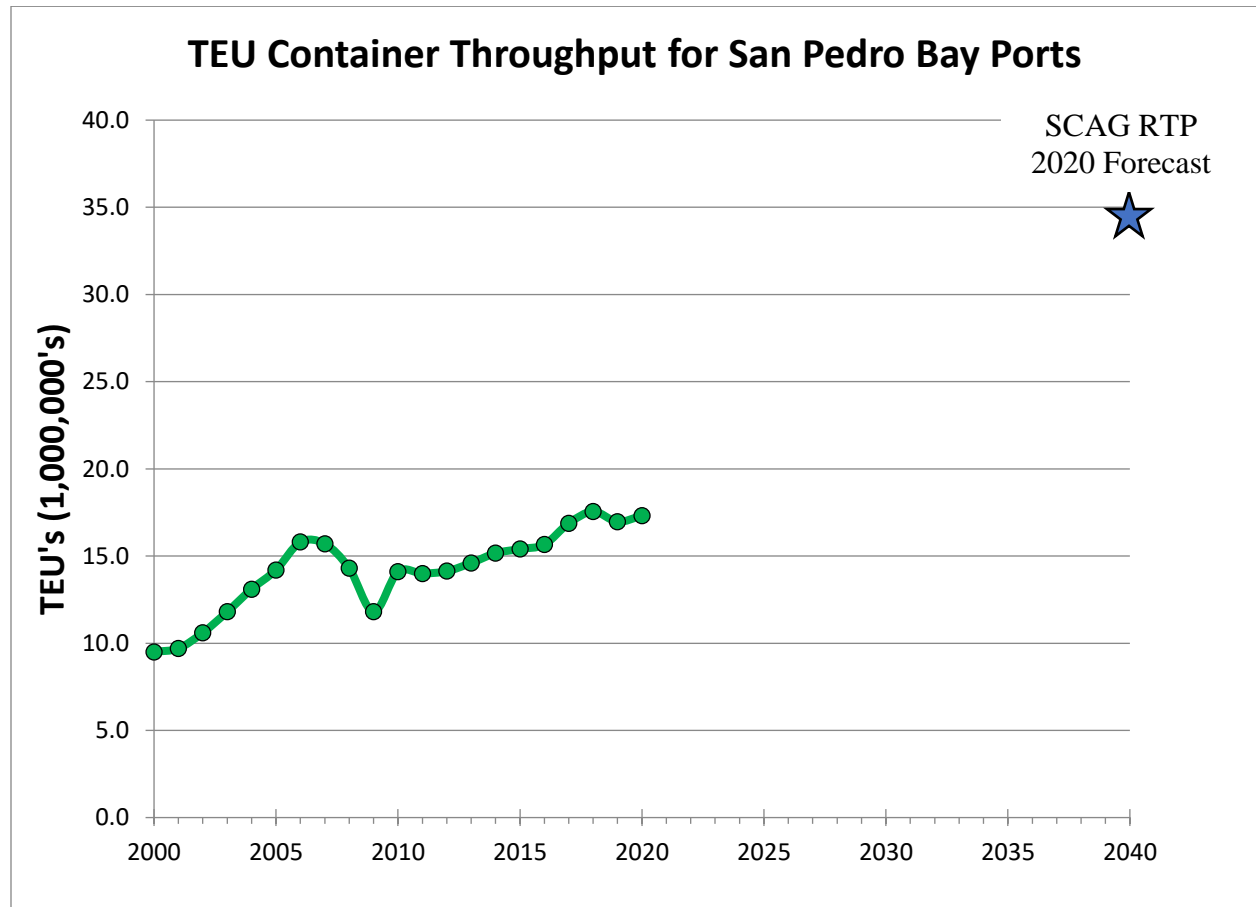
<https://www.portoflosangeles.org/business/statistics/container-statistics>

<sup>93</sup> [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial\\_goods-movement.pdf](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf)

<sup>94</sup> [https://scag.ca.gov/sites/main/files/file-attachments/final\\_report\\_03\\_30\\_18.pdf](https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf)

<sup>95</sup> Although PR 2305 is not expected to result in relocation of logistics activity at the proposed level of stringency, CEQA analysis requires a different legal standard of review. To be conservative in that analysis, some relocation is therefore considered to be possible in order to evaluate any potential environmental impacts.

**Figure 13: Containerized Trade Flows at the Ports of Long Beach and Los Angeles**



***Summary of Considerations For Determining PR 2305 Stringency***

Because of the pressing need to meet federal air quality standards in 2023 and 2031, both from a public health perspective and from a public policy perspective (e.g., avoiding federal sanctions), the stringency of the rule should be set at a level that achieves emission reductions beyond what other regulations will require, and that is within South Coast AQMD’s legal authority. The immediacy of the 2023 deadline also drives a need for a phase-in schedule that can achieve emission reductions early.

The logistics industry and warehousing in particular are robust in our region and have continued to grow rapidly despite experiencing headwinds such as continuously increasing rents and loss of market share to other ports. However, as demonstrated in the ‘Compliance Costs’ section below, there will be financial impacts to industry to implement PR 2305, and it will also require many warehouse operators and cargo owners to change their business practices to implement actions required by PR 2305. After balancing all of these factors, staff is proposing to set the stringency

of PR 2305 at 0.0025 WAIRE Points per Weighted Annual Truck Trip (WATT),<sup>96</sup> phased in over a three-year period after a warehouse operator's initial requirement date. The discussion below presents the potential impacts of PR 2305 and PR 316 based on this stringency and phase-in schedule.

## SCENARIO ANALYSIS

In response to stakeholder feedback, PR 2305 provides a flexible suite of options for warehouse operators to comply. This proposed rule will require subject warehouse operators to annually earn WAIRE Points<sup>97</sup> by completing any combination of 1) implementing actions from the WAIRE Menu, 2) developing and implementing an approved Custom WAIRE Plan, or 3) paying a mitigation fee.

The WAIRE Menu includes 32 options to earn WAIRE Points, and any approved Custom WAIRE Plan would include additional options as it is limited to actions not on the WAIRE Menu. With about 4,000 warehouse operators and dozens of options available for compliance, it is not possible to determine the precise cost or emissions impact of PR 2305 and PR 316. In addition, due to annual compliance obligations, the potential compliance approach from one year may differ from the approach in a following year as technologies and markets evolve, and as early investments are utilized. Because of the variety of outcomes possible, annual updates on the implementation of PR 2305 and PR 316 will be provided to the South Coast AQMD Mobile Source Committee, and additional information will be made available on the South Coast AQMD website. This regular tracking, with opportunity for public input, will allow for timely adjustments to be made to the WAIRE Program should they be necessary.

There are other similar existing programs that also include multiple compliance options including South Coast AQMD Rule 2202 – On-Road Motor Vehicle Mitigation Options<sup>98</sup> and San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 9510 – Indirect Source Review<sup>99</sup>. Both of these rules allow facilities to comply through prescriptive measures in the respective rule, or through paying a mitigation fee<sup>100</sup>. In the case of Rule 2202, approximately 8% of facilities pay the mitigation fee, and the remainder choose a different compliance option.<sup>101</sup> In addition, Rule 9510 has shown as technologies advance, the compliance approaches change. As an example, when SJVAPCD Rule 9510's started in 2006, about 14% of projects reduced emissions using clean construction equipment, whereas the most recent report from 2020 shows 42% of projects chose this option.<sup>102</sup>

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<sup>96</sup> As described in Chapter 2, warehouse operators must track their WATTs every year to determine their WAIRE points compliance obligation.

<sup>97</sup> As described in Chapter 2 and in PR 2305 (d)(1), a facility's WAIRE Points Compliance Obligation (WPCO) is determined based on four parameters: 1) the number of truck trips to a facility in any given year, 2) the stringency of the rule, 3) an annual variable that determines how quickly the rule phases in, 4) a warehouse operator's Initial Reporting Date based on the size of the facility.

<sup>98</sup> <http://www.aqmd.gov/docs/default-source/rule-book/reg-xxii/rule-2202.pdf>

<sup>99</sup> <http://www.valleyair.org/rules/currnrules/r9510-a.pdf>

<sup>100</sup> Called an Air Quality Investment Program fee for Rule 2202 and an Off-Site Emissions Reduction Fee for Rule 9510. Rule 9510 also allows compliance through a Voluntary Emissions Reduction Agreement that is similar to a mitigation fee.

<sup>101</sup> <http://www.aqmd.gov/home/research/documents-reports/activity-report>

<sup>102</sup> <https://www.valleyair.org/ISR/Documents/2020-ISR-Final-Annual-Report.pdf>

Notwithstanding the potential uncertain outcomes, a robust analytical approach has been conducted to estimate the potential impacts of PR 2305 and PR 316, including through the development of 18 different scenarios designed to show the range of potential outcomes. A description of these 18 scenarios analyzed is included in Table 14 below. The scenarios were developed to show potential end-member impacts from all 32 WAIRE Menu actions,<sup>103</sup> as well as using mitigation fees.<sup>104</sup> Staff will continue to evaluate if further scenario analysis would provide meaningful insight, and updates may be presented in the Draft Staff Report.

Each scenario is structured to follow a series of choices a warehouse operator may make based on compliance choices from a previous year. For example, if a warehouse operator purchased an NZE Class 8 truck in their first year complying with PR 2305 to earn WAIRE Points, they were assumed to use that same truck in subsequent years to earn additional WAIRE Points.

As a bounding analysis approach, all 2,902 warehouses were assumed to only comply with a single scenario approach from 2021 through 2031. No single scenario in this bounding analysis is expected to occur. Rather, they present possible extreme compliance outcomes. In reality, a hybrid of all scenarios (or other compliance approaches encompassed within the range of scenarios analyzed) is expected to occur.

For these scenario analyses,<sup>105</sup> all 2,902 warehouses potentially required to earn WAIRE Points were modeled for every year from 2022-2031 using their square footage and the applicable average trip generation rates<sup>106</sup> to determine the amount of WAIRE Points they are required to earn in each year, referred to as their WAIRE Points compliance obligation (WPCO). The amount of warehousing space required to earn WAIRE Points was grown 1.8% per year, consistent with analysis from SCAG.<sup>107</sup> The prioritization steps below were used to determine how WAIRE Points would be earned for each scenario. If sufficient WAIRE Points were not earned for any of the previous steps to satisfy a warehouse operator's WPCO in a given year, WAIRE Points were assumed to have been earned from the next step.

- 1) Banked WAIRE Points earned in any of the previous three years<sup>108</sup>
- 2) WAIRE Points earned from using vehicles or equipment<sup>109</sup> acquired or installed in any previous year<sup>110</sup>

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<sup>103</sup> See Appendix B – WAIRE Menu Technical Report for supplemental details for each action.

<sup>104</sup> Custom WAIRE Plans were not modeled as they are not expected to be used by most facilities. The potential costs and emissions impacts from Custom WAIRE Plan implementation is expected to be within the range of analysis shown for the 18 scenarios.

<sup>105</sup> The spreadsheet that includes all calculations described here is available at: [www.aqmd.gov/fbmsm](http://www.aqmd.gov/fbmsm)

<sup>106</sup> See PR 2305 (d)(1)(C)

<sup>107</sup> [https://scag.ca.gov/sites/main/files/file-attachments/final\\_report\\_03\\_30\\_18.pdf](https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf)

<sup>108</sup> PR 2305 (d)(6)(B) allows extra WAIRE Points earned in any one compliance year to be transferred for use in any of the next three compliance years.

<sup>109</sup> Trucks earning WAIRE Points were assumed to make 520 visits per year (10 per week), and travelled default distances of 39.9 miles per trip for class 8, and 14.2 miles per trip for all smaller trucks. Yard trucks were operated for 1,000 hrs/yr.

<sup>110</sup> As a simplifying assumption, the scenarios analyzed here do not include any usage of equipment or vehicles in the year it was installed or acquired. However, it is expected that the usage of equipment or vehicles will earn WAIRE Points in the same year they are acquired.

- 3) WAIRE Points earned from acquiring or installing vehicles or equipment
- 4) Mitigation fees were assumed paid to provide supplementary WAIRE Points if other prescribed actions within a scenario were not available or sufficient to satisfy the WPCO.

**Table 14: Scenario Descriptions**

#	Scenario Description	Notes
1	NZE Class 8 truck acquisitions and subsequent visits from those trucks	
2	NZE Class 8 truck acquisitions and subsequent visits from those trucks (early purchase)	One additional truck is acquired earlier than required, thus increasing WAIRE Points earned from truck visits in subsequent years.
3	NZE Class 8 truck acquisitions (funded by Carl Moyer program) and subsequent visits from those trucks	No WAIRE Points earned for truck acquisitions. Mitigation fees paid to earn WAIRE Points in first year of compliance.
4	NZE Class 8 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions.
5	ZE Class 8 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions. ZE Class 8 trucks are assumed to not be commercially available until late 2022. Mitigation fees paid to earn WAIRE Points until then.
6	Level 3 charger installations followed by ZE Class 6 & Class 8 truck acquisitions and subsequent visits from those trucks, using installed chargers	Chargers provide ~30,000 kWh/year per Class 6 truck, and ~90,000 kWh/yr per Class 8 truck. Class 8 trucks only acquired if 25 Class 6 trucks had been previously purchased for one warehouse.
7	Pay Mitigation Fee	
8	NZE Class 6 truck acquisitions and subsequent visits from those trucks	
9	NZE Class 6 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions.
10	ZE Class 6 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions.
11	Rooftop solar panel installations and usage	Solar panel coverage limited to 50% of building square footage. Mitigation fees used to make up any shortfall in WAIRE Points.
12	Hydrogen station installations followed by ZE Class 8 truck acquisitions and subsequent visits from those trucks, using the hydrogen station	System installation in first year is followed by a truck acquisition. In subsequent years trucks are only acquired if needed to earn WAIRE Points.
13	ZE Class 2b-3 truck acquisitions and subsequent visits from those trucks	
14	ZE Class 2b-3 truck visits from non-owned fleets	
15	Filter System Installations	
16	Filter Purchases	
17	TRU plug installations and usage in cold storage facilities	Scenario is only applied to cold storage warehouses. Plugs limited to 1:10,000 sq. ft. of building space.
18	ZE Hostler Acquisitions and Usage	

### *Emission Reductions*

The total potential emission reductions associated with PR 2305 and PR 316 from each scenario above are presented in Table 15 and Table 16 below.<sup>111</sup> The methods used to calculate the emission reductions are consistent with the baseline emissions inventory methodology described above, or

<sup>111</sup> Appendix D includes a discussion of how ‘SIP creditable’ emission reductions can potentially be determined.

with the WAIRE Menu Technical Report in Appendix B, as applicable.<sup>112</sup> Emission reductions from mitigation fees paid to earn WAIRE Points are assumed to achieve NO<sub>x</sub> emission reductions at \$100,000/ton in the year after the fee was paid (consistent with current criteria used for funding Class 8 NZE trucks). Although individual funded projects would vary in the amount of reductions and the duration over which the reductions occur, this simplified approach is sufficient to evaluate programmatic impacts of an ongoing WAIRE Mitigation Program. Emission reductions from the Mitigation Program would be lower than shown in these tables if a portion of the funding goes towards projects that facilitate emission reductions from other programs (such as ZE charging/fueling infrastructure).

**Table 15: Total NO<sub>x</sub> Emission Reductions (tpd) for 18 Bounding Analysis Scenarios**

Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	0.0	1.0	2.2	3.5	4.1	4.4	4.6	4.9	5.2	5.3
2	0.0	1.3	2.4	4.1	4.3	4.6	4.8	5.0	5.1	5.2
3	0.0	4.7	7.4	5.4	5.1	5.2	5.3	5.4	5.6	5.7
4	1.0	1.9	3.2	3.8	4.1	4.2	4.4	4.5	4.6	4.7
5	0.0	5.4	2.9	3.4	3.7	3.8	3.9	4.0	4.1	4.2
6	0.0	0.0	0.5	1.1	1.6	2.0	2.2	2.3	2.5	2.7
7	0.0	3.7	8.9	15.3	18.2	19.8	20.3	20.8	21.3	21.8
8	0.0	0.5	1.4	2.5	3.1	3.4	3.5	3.6	3.8	3.9
9	1.0	1.7	3.0	3.5	3.7	3.7	3.8	3.8	3.9	3.9
10	1.1	1.9	3.3	3.9	4.1	4.2	4.2	4.3	4.3	4.4
11 <sup>113</sup>	0.0	0.1	1.6	1.1	1.6	12.8	15.4	19.3	19.8	20.3
12	0.0	0.0	0.4	0.7	1.2	2.4	2.8	3.2	3.3	3.5
13	0.0	0.4	0.8	3.5	4.1	1.3	1.2	1.1	1.0	0.9
14	0.5	1.0	1.5	1.6	1.5	1.4	1.3	1.2	1.1	1.0
15	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0
17	0.0	0.0	0.1	0.3	0.4	0.4	0.3	0.2	0.1	0.1
18	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

**Table 16: Total Diesel PM Emission Reductions (tpd) for 18 Bounding Analysis Scenarios**

Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	0	0.008	0.018	0.028	0.033	0.035	0.036	0.039	0.041	0.041
2	0	0.011	0.019	0.033	0.034	0.037	0.038	0.039	0.040	0.040
3	0	0.010	0.028	0.033	0.036	0.037	0.038	0.039	0.040	0.040
4	0.009	0.015	0.026	0.030	0.033	0.034	0.035	0.035	0.036	0.036
5	0	0.014	0.021	0.024	0.026	0.027	0.028	0.028	0.029	0.029
6	0	0	0.002	0.006	0.009	0.011	0.012	0.013	0.014	0.015
7	0	0.002	0.004	0.006	0.007	0.008	0.008	0.008	0.009	0.009

<sup>112</sup> Earlier analyses presented to the Working Group showed different emission reduction outcomes. The primary difference is that Table 15 includes all emission reductions from trucks that are turned over due to PR 2305. Previous analyses only evaluated emission reductions tied specifically to WAIRE Points. For example, a NZE Class 8 truck could typically travel ~55,000 miles per year, but is only assumed to earn WAIRE Points for 40,000 of those miles in the scenario analysis. Table 15 includes emission reductions from the 55,000 miles of travel instead of only looking at the 40,000 miles that earn WAIRE Points.

<sup>113</sup> Emission Reductions from power plants are capped by the total amount of fossil fuel power plant emissions that occur in South Coast AQMD while solar panels generate power, and additional reductions are added from the WAIRE Mitigation Program.

8	0	0.003	0.008	0.015	0.019	0.021	0.022	0.022	0.023	0.023
9	0.023	0.011	0.018	0.021	0.023	0.023	0.023	0.024	0.024	0.024
10	0.023	0.011	0.018	0.021	0.023	0.023	0.023	0.024	0.024	0.024
11	0	0	0	0	0	0	0	0	0	0
12	0	0	0.003	0.005	0.008	0.017	0.020	0.023	0.023	0.025
13	0	0.004	0.009	0.015	0.018	0.019	0.020	0.020	0.020	0.020
14	0.004	0.010	0.017	0.019	0.020	0.020	0.020	0.020	0.020	0.020
15	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0
17	0	0.002	0.007	0.014	0.017	0.016	0.013	0.009	0.004	0.000
18	0	0.001	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004

As discussed in the Baseline Emissions Inventory section above, CARB regulations are expected to also reduce emissions from trucks going to PR 2305 warehouses. Tables 17 and 18 below show the ‘surplus’ emission reductions that would be expected for each scenario after taking into account emission reductions from CARB’s ACT, Low NOx Omnibus, and Heavy Duty I/M rules. As stated in the Air Quality Need section of Chapter 1, there is no requirement that the emission reductions from statewide rules will apply in the South Coast AQMD jurisdiction, and PR 2305 and PR 316 would ensure that higher emission reductions are actually achieved here, as demonstrated in Table 15 and Table 16. Table 15: Total NOx Emission Reductions (tpd) for 18 Bounding Analysis Scenarios

**Table 17: NOx Emission Reductions (tpd) for 18 Bounding Analysis Scenarios After Discounting Reductions from CARB Regulations**

Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	0.0	1.0	2.2	3.3	3.6	3.4	3.2	3.1	3.1	3.0
2	0.0	1.3	2.4	3.9	3.8	3.6	3.5	3.2	3.0	2.9
3	0.0	4.7	7.4	5.2	4.6	4.3	3.9	3.7	3.5	3.4
4	1.0	1.9	3.2	3.6	3.7	3.3	3.0	2.7	2.5	2.4
5	0.0	5.4	2.9	3.4	3.6	3.6	3.7	3.6	3.6	3.5
6	0.0	0.0	0.4	1.1	1.5	1.8	1.9	1.9	1.8	1.8
7	0.0	3.7	8.9	15.3	18.2	19.8	20.3	20.8	21.3	21.8
8	0.0	0.5	1.4	2.5	3.0	3.1	3.2	3.3	3.4	3.5
9	1.0	1.7	3.0	3.4	3.6	3.5	3.5	3.5	3.5	3.5
10	1.1	1.9	3.3	3.8	4.1	4.1	4.1	4.2	4.2	4.2
11 <sup>114</sup>	0.0	0.1	1.6	1.1	1.6	12.8	15.4	19.3	19.8	20.3
12	0.0	0.0	0.4	0.7	1.1	2.2	2.6	2.9	2.8	2.8
13	0.0	0.4	0.8	3.5	4.0	1.3	1.2	1.1	1.0	0.9
14	0.5	1.0	1.5	1.6	1.5	1.4	1.2	1.1	1.0	0.9
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.1	0.3	0.4	0.4	0.3	0.2	0.1	0.1
18	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

<sup>114</sup> Emission Reductions from power plants are capped by the total amount of fossil fuel power plant emissions that occur in South Coast AQMD while solar panels generate power, and additional reductions are added from the WAIRE Mitigation Program.

**Table 18: Diesel PM Emission Reductions (tpd) for 18 Bounding Analysis Scenarios After Discounting Reductions from CARB Regulations**

Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	0.000	0.008	0.018	0.027	0.029	0.028	0.026	0.026	0.025	0.024
2	0.000	0.011	0.019	0.031	0.030	0.029	0.028	0.026	0.025	0.023
3	0.000	0.010	0.028	0.031	0.032	0.030	0.028	0.026	0.025	0.023
4	0.009	0.015	0.025	0.029	0.029	0.026	0.024	0.022	0.021	0.019
5	0.000	0.014	0.021	0.024	0.026	0.026	0.026	0.026	0.026	0.025
6	0.000	0.000	0.002	0.006	0.008	0.010	0.010	0.010	0.010	0.009
7	0.000	0.002	0.004	0.006	0.007	0.008	0.008	0.008	0.009	0.009
8	0.000	0.003	0.008	0.015	0.018	0.019	0.020	0.020	0.021	0.021
9	0.023	0.011	0.018	0.021	0.022	0.022	0.021	0.021	0.022	0.021
10	0.023	0.011	0.018	0.021	0.023	0.023	0.023	0.023	0.023	0.023
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.003	0.005	0.008	0.016	0.018	0.020	0.020	0.020
13	0.000	0.004	0.009	0.015	0.018	0.019	0.019	0.019	0.019	0.019
14	0.004	0.010	0.017	0.019	0.020	0.020	0.020	0.019	0.019	0.019
15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	0.000	0.002	0.007	0.014	0.017	0.016	0.013	0.009	0.004	0.000
18	0.000	0.001	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004

***WAIRE Program Compliance Costs***

There are five types of compliance costs warehouse operators may experience with PR 2305 and PR 316 including: 1) costs to implement actions from the WAIRE Menu, 2) costs to develop and implement a Custom WAIRE Plan, 3) optional mitigation fees, 4) administrative fees pursuant to PR 316, and 5) costs associated with reporting and recordkeeping. The analysis presented here is a preliminary draft, and staff anticipates continuing to work on these estimates. Costs can be analyzed in a number of ways with a rule that includes as many options as PR 2305. One approach is to calculate costs using the scenario analysis presented above. A discussion of cost estimates with this approach is below. Because of the variability in emissions estimates and cost estimates in the extreme bounding analyses presented in the scenarios, cost effectiveness calculations may not be appropriately considered using only these approaches. Another approach is to calculate costs for individual actions on the WAIRE Menu. Any updates will be presented in the upcoming Draft Staff Report and Socioeconomic Impact Assessment.

**Scenario Cost Analysis**

Preliminary expected costs resulting from each of the 18 bounding compliance scenarios are discussed below. The majority of expected costs result from the capital cost associated with the estimated number of equipment acquisitions (ZE and NZE trucks, solar panels, charger installations, etc.) and the operating and maintenance (O&M) costs associated with usage of the equipment (fuel and electricity consumption, truck maintenance, etc.) in each scenario. This analysis attempts to isolate and attribute capital and O&M costs for only the equipment incremental to current CARB regulations such as CARB's ACT and Low NOx Omnibus regulations.



Table 22 at the end of this preliminary analysis shows discounted total costs over a ten-year compliance time horizon (2022 – 2031). The costs shown in this analysis are in 2018 dollars and have not been discounted to account for the time value of money. Unless specified otherwise in the discussion here, incremental capital and O&M cost estimates are based on the analysis in the WAIRE Menu Technical Report in Appendix B, and the references contained therein.

To facilitate the discussion of the cost calculations, scenarios are grouped based on their compliance strategy. The groupings are comprised of (1) mitigation fees only; (2) truck acquisition and associated visits; (3) truck visits from non-owned fleets; (4) equipment acquisition and associated usage, and; (5) equipment/truck acquisition and associated usage/visits.

#### Mitigation Fees Only - Scenario 7

The cost calculation for the mitigation fee scenario is straightforward. In lieu of earning WAIRE Points from equipment acquisitions and usage, all facilities choose to pay a fee of \$1,000 for each WAIRE Point in their WPCO attributed to their facility in every year of compliance. The total cost associated with the mitigation fee presented here does not reflect earning any Points from any other actions, such as truck acquisitions and visits resulting from CARB regulations, and should be considered a conservative high-end estimate. It is likely trucks purchased and used due to CARB regulations will be used to earn WAIRE Points to reduce the total amount of mitigation fees collected.<sup>115</sup> This scenario also conservatively does not include any Points that might be earned from any trucks that are incentivized through the WAIRE Mitigation Program. Including these assumptions would significantly lower the cost, and the potential emission reductions from this scenario. This scenario is presented in all of the summary charts below as a point of comparison.

#### Truck Acquisition and Associated Visits - Scenarios 1, 2, 3, 8, 13, and 18

Each scenario in this compliance strategy grouping relies on earning Points through purchase of clean trucks (NZE Class 8, NZE Class 6, ZE Class 2b-3, and ZE hostlers) and their subsequent usage (i.e. visits to the warehouse facility). Only those vehicle purchases and visits incremental to existing CARB regulations are considered. Figure 14 below presents total costs (truck acquisition and usage) in each compliance year (2022 – 2031) for each scenario in \$/sq. ft.

**Figure 14: Potential Bounding Analysis Costs from Truck Acquisition and Subsequent Usage Scenarios**

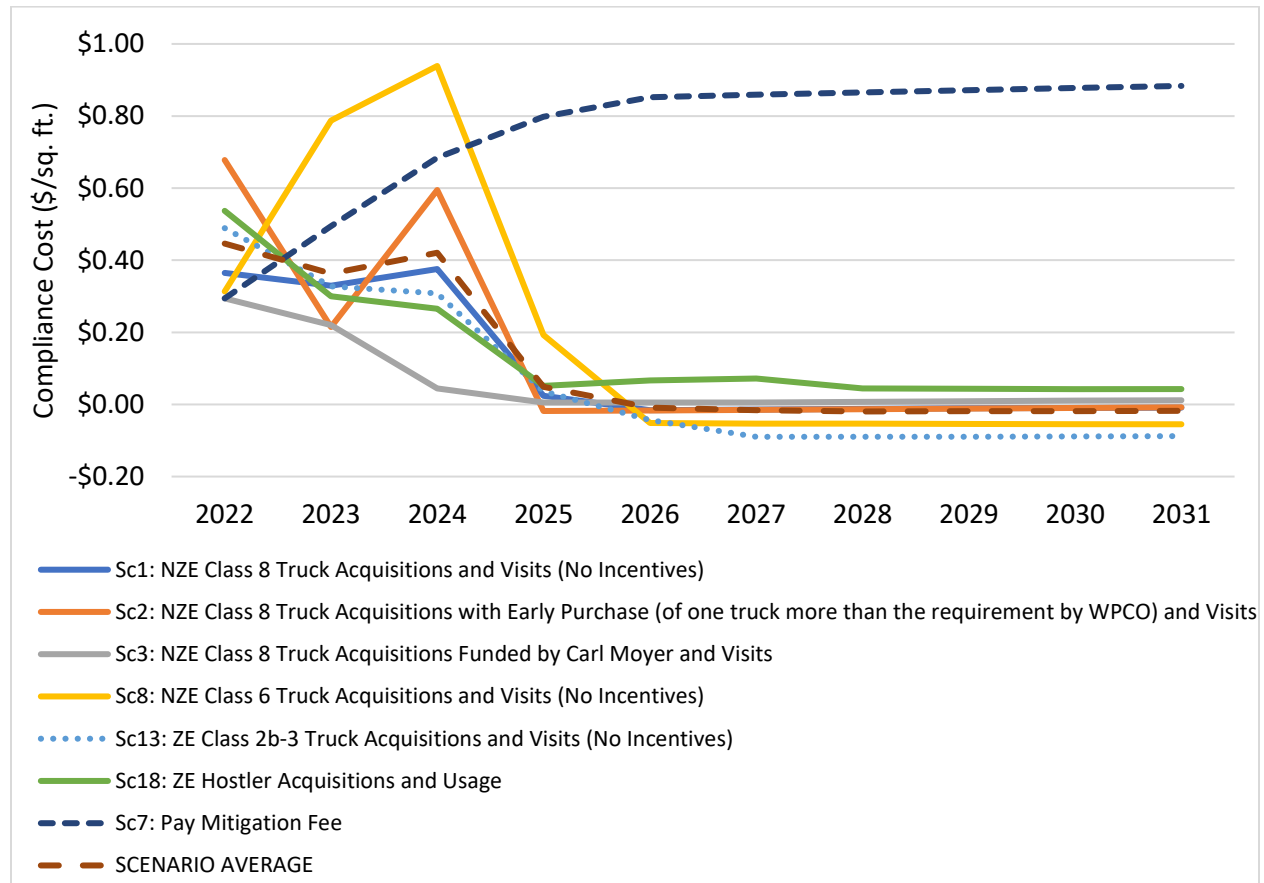


Table 19 below presents capital costs of Diesel and NZE trucks. These costs are assumed to remain constant across the entire compliance period.<sup>115,116</sup> Capital costs of ZE trucks are expected to decrease over time as a result of decreased battery costs. Projected capital costs over time for each ZE vehicle class can be found in Table 20 below.<sup>117,118,119</sup> When the number of truck purchases in any compliance year for a given scenario falls below the expected number of truck purchases in CARB’s EMFAC 2017 projections for that year, the incremental acquisition cost for each truck class and fuel type is used. However, if the number of truck purchases in a scenario exceeds

<sup>115</sup> Capital costs for diesel trucks can be found in Table C-6 of the CARB ACT Appendix C-1 – SRIA submitted to DoF: <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

<sup>116</sup> Capital costs for NZE Class 8 trucks can be found in Table 31 of the 2018 Feasibility Assessment for Drayage Trucks: <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>. Class 6 capital costs were calculated by taking the ratio of capital costs for NZE Class 6 and 8 trucks found in the WAIRE Menu.

<sup>117</sup> Capital costs for each ZE truck class (2b-3, 6, 8) for model years 2024-2030 are taken from CARB’s ACT Appendix C-1 – SRIA as submitted to DoF (Table C-7): <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>.

<sup>118</sup> To fill in missing years (2022, 2023), ZE capital costs were linearized between 2018 and 2024. 2031 costs assumed to be equal to 2030.

<sup>119</sup> ZE Hostler capital cost projections are not available for future years. Staff applied a yearly cost multiplier based on ZE Class 2b-3 capital costs to the incremental cost of ZE Hostlers included in the WAIRE Menu. A cost multiplier is generated by taking ratio of difference in capital cost in each year (2022 -2031) to the difference in capital costs in year 1 (2022).

EMFAC 2017 projections, the full capital cost associated with each truck type is used for those trucks above projections. An 8% sales tax is applied to each truck acquisition and no financing costs have been included in this preliminary analysis.

Scenario 3 assumes all trucks purchased are subsidized by Carl Moyer incentive funds and no WAIRE Points (or costs) are attributed to warehouse operators for these vehicle purchases. Because no Points are earned for NZE Class 8 truck acquisitions in Scenario 3, it is necessary for facilities to pay a mitigation fee for the additional WAIRE Points needed for compliance in each calendar year (2022 – 2031) in which visits from Moyer-funded trucks are not sufficient to meet the WPCO.

**Table 19: Capital Costs for Diesel and NZE Truck Acquisitions**

Vehicle Class	Diesel	NZE
Class 2b-3	\$50,000	N/A
Class 6	\$85,000	\$98,525
Class 8	\$130,000	\$160,599

**Table 20: Capital Cost by ZE Truck Class and Year**

Year	ZE Class 8	ZE Class 6	ZE Class 2b-3
2022	\$265,556	\$134,877	\$71,920
2023	\$231,236	\$125,177	\$68,318
2024	\$201,351	\$116,174	\$64,896
2025	\$194,134	\$112,591	\$63,635
2026	\$188,312	\$109,702	\$62,599
2027	\$183,371	\$107,253	\$61,684
2028	\$178,870	\$105,025	\$60,829
2029	\$174,809	\$103,016	\$60,035
2030	\$170,748	\$101,008	\$59,241
2031	\$170,748	\$101,008	\$59,241

Costs associated with the use/visits of facility-owned NZE and ZE trucks is done on a per-mile basis. Per-mile usage costs resulting from fuel consumption and other costs (including maintenance, fees, insurance, and mid-life costs) were calculated for all truck classes and fuel types and then multiplied by the expected VMT in each compliance year for each scenario.<sup>120,121,122</sup>

<sup>120</sup> Data on maintenance costs, mid-life costs, fuel cost and fuel economy for diesel, ZE and NZE trucks is taken from the WAIRE Menu Technical Report in Appendix B.

<sup>121</sup> Vehicle fees for all ZE and diesel truck classes are taken from CARB's ACT Total Cost of Ownership document: <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>. Fees for NZE trucks are assumed to be the same as diesel trucks.

<sup>122</sup> Annual insurance costs assumed to be equal to 3% of vehicle value. Vehicle value assumed to decrease by 10% in years 2-8 and an additional 5% in years 9-11. The average annual cost is included in the per mile cost analysis.

A breakdown of total usage costs for each truck class and fuel type can be found in Table 21 below. Per-mile usage costs (not considering capital costs) of Class 6 and 8 NZE trucks is slightly lower than diesel, and results in a modest net savings to facilities. Per-mile usage costs of Class 2b-3, 6, and 8 ZE trucks is significantly lower than diesel and results in a net savings to facilities. Additionally, for Scenario 18, the incremental cost associated with ZE hostler/yard truck usage is taken from the WAIRE Menu Technical Report in Appendix B (\$6,250/1000 hours), and the references therein.

**Table 21: Annual Operating and Maintenance Costs by Vehicle Class and Fuel Type (in 2018 Dollars)**

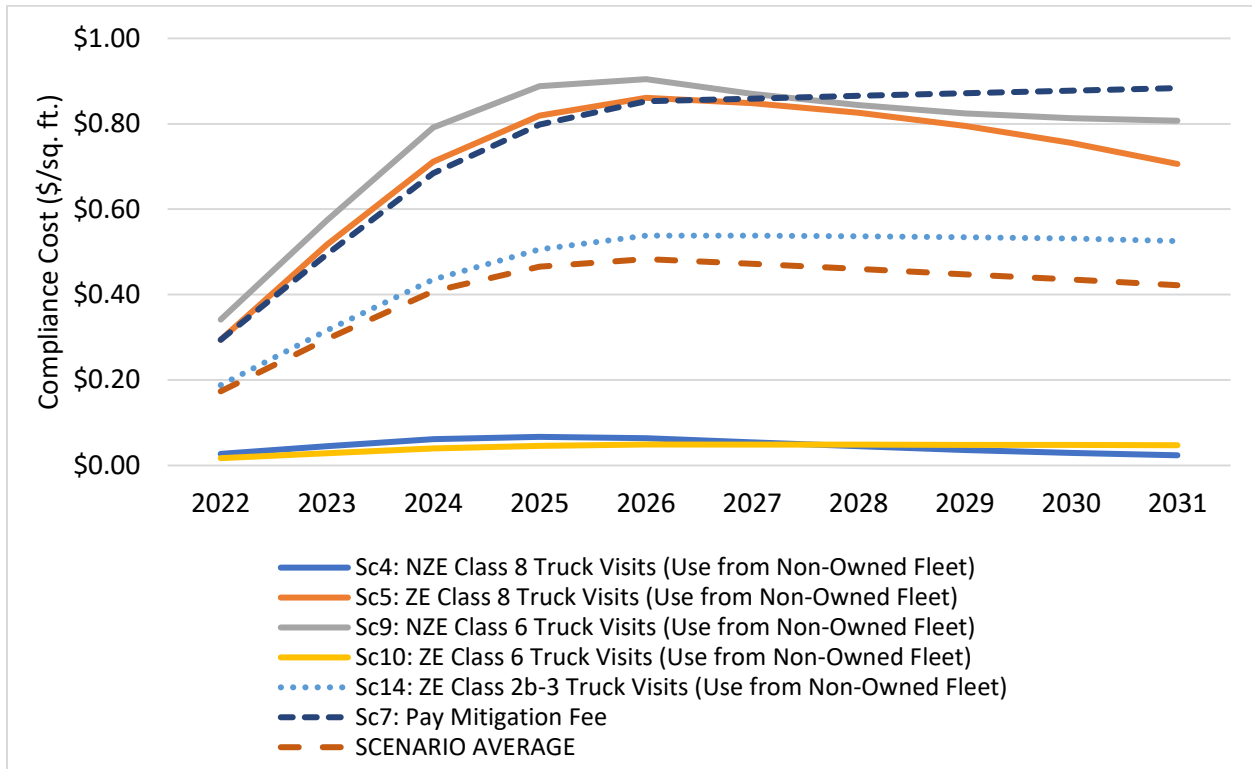
Vehicle Class	Fuel Type	Total Annual Fuel Cost	Total Annual Other Cost	Total Annual Miles	\$/mile
Class 8	Diesel	\$34,231	\$15,306	54000	\$0.92
	ZE	\$16,875	\$18,071	54000	\$0.65
	NZE	\$30,918	\$16,841	54000	\$0.88
Class 6	Diesel	\$12,130	\$7,844	24000	\$0.83
	ZE	\$3,923	\$7,238	24000	\$0.47
	NZE	\$9,219	\$8,525	24000	\$0.74
Class 2b-3	Diesel	\$2,418	\$4,221	15000	\$0.44
	ZE	\$1,508	\$3,843	15000	\$0.36

#### Truck Visits from Non-owned Fleets - Scenarios 4, 5, 9, 10, and 14

Scenarios associated with this compliance strategy grouping earn WAIRE Points solely from visits to their facilities from non-owned NZE or ZE trucks. Costs for these scenarios only include visits above and beyond those resulting from existing CARB regulations. To calculate expected costs due to PR 2305, the incremental cost associated with each visit by truck class and fuel type was taken from the WAIRE menu and multiplied by the number of visits by non-owned trucks necessary to comply in all compliance years.

The analysis for scenarios 9 and 10 indicates that if all warehouse operators only complied using ZE or NZE Class 6 trucks as a bounding analysis, that the total VMT associated with WAIRE Points could exceed the VMT from these Class 6 trucks in EMFAC. To account for the shortfall in this bounding analysis, the analysis does not include WAIRE Points beyond existing VMT in EMFAC, and assumes that warehouse operators earn the remaining WAIRE Points necessary for compliance by paying the mitigation fee. Figure 15 below presents total costs, including non-owned truck visits and the mitigation fee (Scenario 5 only), in each compliance year (2022 – 2031) for each scenario in \$/sq. ft.

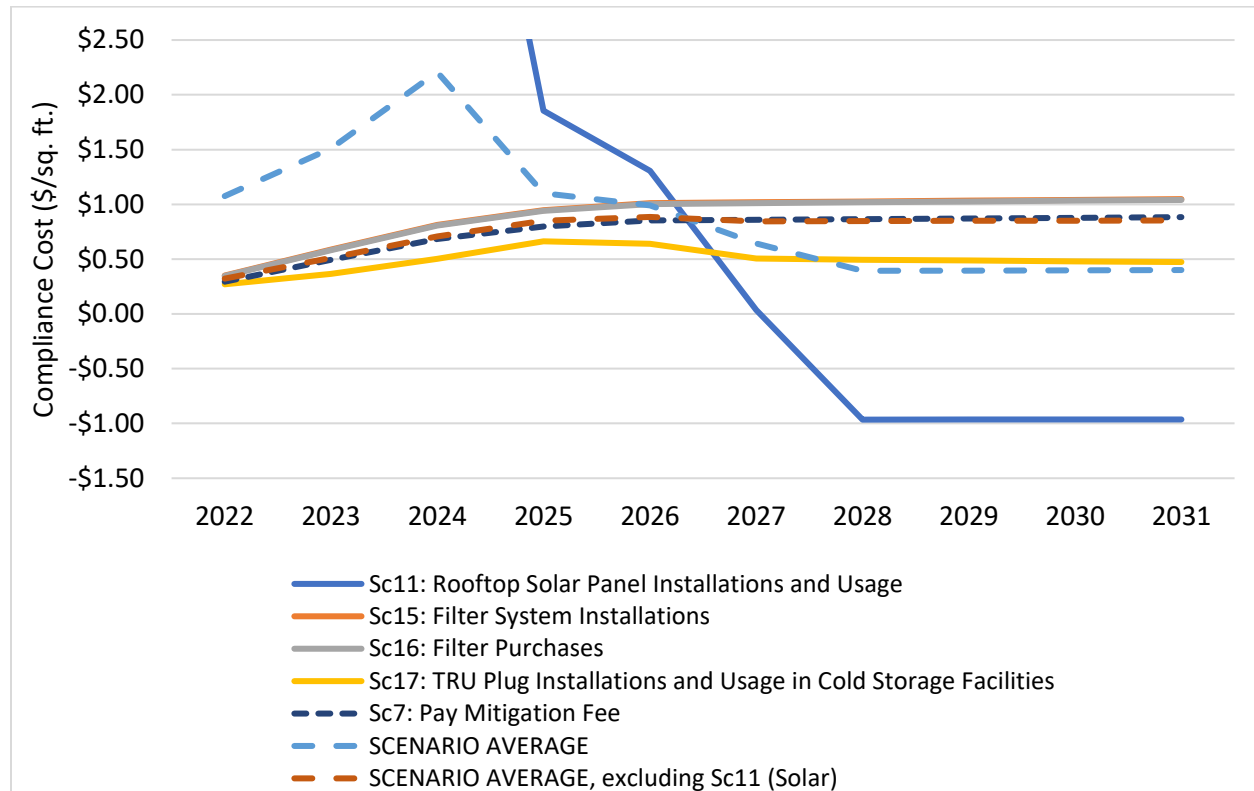
**Figure 15: Potential Bounding Analysis Costs from Truck Visits from a Non-owned Fleet**



Equipment Acquisition and Associated Usage - Scenarios 11, 15, 16, and 17

Facilities in these scenarios meet their WAIRE Point obligation by acquiring and using clean technologies, such as solar panels (Scenario 11), filter systems (Scenario 15), filters only (Scenario 16), and TRU plugs (Scenario 17). Costs associated with the acquisition and usage of these technologies, as well as construction and permitting costs for TRU plug installs are listed in the WAIRE Menu Technical Report in Appendix B. Usage of installed solar panels results in a cost savings equal to the assumed electricity price of \$0.17 per kWh. TRU costs were only applied to cold storage warehouses. Construction and permitting costs associated with TRU plug installations have been included. For Scenario 17 only, it is necessary for facilities to pay a mitigation fee for the additional WAIRE Points needed for compliance in each calendar years 2024 – 2031. Figure 16 presents total costs in each compliance year (2022 – 2031) for Scenarios 11, 15, 16, and 17 in \$/sq. ft.

**Figure 16: Potential Bounding Analysis Costs from Non-truck Equipment and Associated Usage**



Equipment/Truck Acquisition and Associated Usage/Visits - Scenarios 6 and 12

Scenarios 6 and 12 assume facilities use both ZE truck and charging/fueling infrastructure acquisitions and their associated usage to earn WAIRE Points. Scenario 6 combines Level 3 charger installations with Class 6 and 8 ZE truck purchases. Scenario 12 combines hydrogen station installations and Class 8 ZE truck purchases. Incremental acquisition costs for Class 6 and 8 ZE trucks can be found in Table 18. Level 3 charger and hydrogen station installation and usage costs are also listed in the WAIRE Menu Technical Report in Appendix B, along with construction and permitting costs for charger installation projects. To avoid double-counting, no costs are accumulated for charger usage as electricity costs are already accounted for in the per-mile usage costs for Class 6 and 8 ZE trucks. This analysis also assumes hydrogen costs decline over time from roughly \$9.75/kg per in 2020 to \$6.20/kg in 2031.<sup>123</sup> Figure 17 below presents total costs for both scenarios in each compliance year (2022 – 2031) in \$/sq. ft.

<sup>123</sup> Hydrogen cost projections can be found in CARB ACT Appendix C-1 – SRIA submitted to DoF (Figure C-5): <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

**Figure 17: Potential Bounding Analysis Costs from Equipment Acquisition (Truck and Non-Truck) and Associated Visits/Usage**

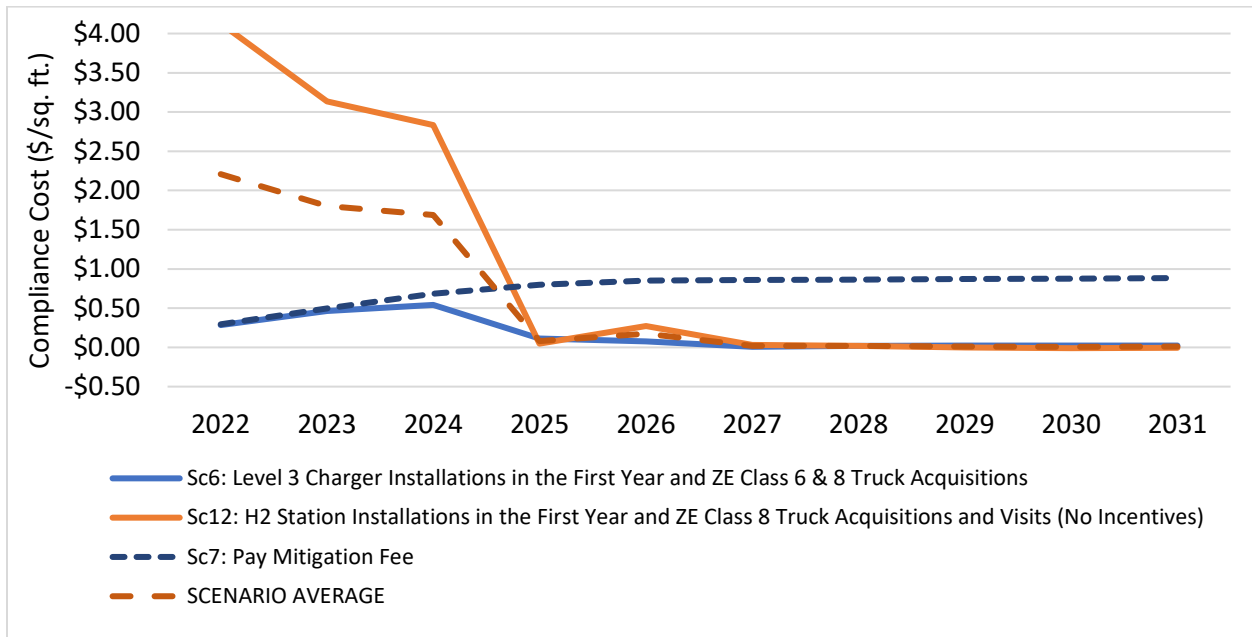


Table 22 below shows a cost summary for each compliance scenario including net present value (assuming 1% discount rate), average annual cost, and a weighted average annual cost per square foot of warehouse space after taking into account equipment acquisition from CARB's ACT, Low NOx Omnibus. For reference,



Table 23 below shows a cost summary for each compliance scenario for total ISR only costs (ignoring projected equipment acquisition from CARB regulations). Average annual costs range from \$29.1M/yr. (or \$0.04/sq. ft./yr.) for the lowest cost scenario (Scenario 13: ZE Class 2b-3 Acquisitions and Associated Usage) up to \$921M/yr. (or \$1.14/sq. ft./yr.) for the highest cost scenario (Scenario 11: Solar Panel Installations).

The costs presented here are default calculations broadly applicable to the industry, however individual warehouse operators may identify different specific costs for their operations. Warehouse operators are assumed to gravitate towards the lowest cost options for their specific situations. As such, the maximum cost that warehouse operators would be expected to incur is \$0.78/sq. ft./yr. resulting from the mitigation fee scenario. However, based on the cost analysis, it is likely that in most situations warehouse operators will identify substantially cheaper options that work within their operations.

**Table 22: Total Cost Summary of Each Compliance Scenario (2022-2031) After Accounting for CARB's ACT and Low NOx Omnibus Regulations**

<b>Equipment</b>	<b>Scenario</b>	<b>NPV Total Cost (1% Discount Rate)</b>	<b>Average Annual Cost (\$/yr.)</b>	<b>Average Annual Cost (\$/sq. ft./yr.)</b>
NZE Class 8	Sc1	\$638,262,698	\$64,966,618	\$0.08
NZE Class 8	Sc2	\$845,818,325	\$86,095,585	\$0.11
NZE Class 8	Sc3	\$357,847,750	\$36,670,741	\$0.05
NZE Class 8	Sc4	\$350,167,074	\$36,936,260	\$0.05
ZE Class 8	Sc5	\$5,611,542,259	\$596,396,110	\$0.74
ZE Class 6 & 8	Sc6	\$1,093,965,155	\$112,821,896	\$0.14
Mitigation Fee	Sc7	\$5,905,149,994	\$628,861,500	\$0.78
NZE Class 6	Sc8	\$1,287,932,729	\$130,785,343	\$0.16
NZE Class 6	Sc9	\$6,012,154,522	\$638,887,541	\$0.79
ZE Class 6	Sc10	\$332,922,140	\$35,428,479	\$0.04
Solar	Sc11	\$9,142,248,478	\$921,184,141	\$1.14
H <sub>2</sub> , ZE Class 8	Sc12	\$6,453,366,591	\$659,553,443	\$0.82
ZE Class 2b-3	Sc13	\$307,696,114	\$29,063,641	\$0.04
ZE Class 2b-3	Sc14	\$3,666,396,796	\$390,227,364	\$0.48
Filter System	Sc15	\$7,008,472,865	\$746,347,940	\$0.92
Filter	Sc16	\$6,950,906,239	\$740,226,510	\$0.92
TRU	Sc17	\$41,121,112	\$4,365,913	\$0.50
Yard Trucks	Sc18	\$946,519,313	\$97,986,547	\$0.12

**Table 23: Total Cost Summary of Each Compliance Scenario (Without Accounting for Existing CARB Regulations)**

Equipment	Scenario	NPV Total Cost (1%)	Average Annual Cost (\$/yr.)	Average Annual Cost (\$/sq. ft./yr.)
NZE Class 8	Sc1	\$731,128,440	\$74,775,068	\$0.09
NZE Class 8	Sc2	\$914,298,893	\$93,280,837	\$0.12
NZE Class 8	Sc3	\$310,776,651	\$31,569,153	\$0.04
NZE Class 8	Sc4	\$537,946,366	\$57,287,868	\$0.07
ZE Class 8	Sc5	\$6,150,343,948	\$654,993,662	\$0.81
ZE Class 6 & 8	Sc6	\$1,304,812,881	\$135,255,282	\$0.17
Mitigation Fee	Sc7	\$5,905,149,994	\$628,861,500	\$0.78
NZE Class 6	Sc8	\$1,460,766,320	\$149,050,597	\$0.18
NZE Class 6	Sc9	\$6,854,548,309	\$729,966,319	\$0.90
ZE Class 6	Sc10	\$344,882,934	\$36,727,865	\$0.05
Solar	Sc11	\$9,142,248,478	\$921,184,141	\$1.14
H <sub>2</sub> , ZE Class 8	Sc12	\$7,734,552,862	\$796,246,855	\$0.99
ZE Class 2b-3	Sc13	\$531,199,138	\$52,547,309	\$0.07
ZE Class 2b-3	Sc14	\$3,774,484,237	\$401,958,874	\$0.50
Filter System	Sc15	\$7,008,472,865	\$746,347,940	\$0.92
Filter	Sc16	\$6,950,906,239	\$740,226,510	\$0.92
TRU	Sc17	\$41,121,112	\$4,365,913	\$0.50
Yard Trucks	Sc18	\$946,519,313	\$97,986,547	\$0.12

***WAIRE Program Administrative Costs*****PR 316 Estimated Costs**

PR 316 details the administrative fees that PR 2305 regulated entities must pay to fund South Coast AQMD compliance activities for PR 2305. The total annual cost for South Coast AQMD to administer and enforce the WAIRE Program was determined as a function of the fully burdened hourly rates for staff multiplied by the total staff time required to process the three types of reports required by PR 2305, including the Warehouse Operations Notification, Initial Site Information Report, and the Annual WAIRE Report. In addition, reporting would be conducted through a new web portal, which includes an estimated \$25,000 annually to maintain. Warehouse Operations Notifications require significantly less information than the other two reports

There are 3,320 warehouse owners expected to initially submit a Warehouse Operations Notification, and about 4,000 warehouse operators across 2,902 warehouses that are expected to submit an Initial Site Information Report and Annual WAIRE Report during their first year that they would need to earn WAIRE Points. As described in Appendix C, an estimated 515 warehouse owners are operators who would need to submit a one-time Initial Site Information Report and

Annual WAIRE Reports thereafter. The remaining warehouses are assumed to get a new operator every five years. Table 24 below shows how many reports are expected every year through 2031.

**Table 24: Number of Reports Submitted by PR 2305 Warehouses Each Year**

Year	Warehouse Operations Notification	Initial Site Information Report	Annual WAIRE Report
2021	3,320	0	0
2022	561	1,333	1,333
2023	561	1,894	2,667
2024	561	1,894	4,000
2025	561	561	4,000
2026	561	561	4,000
2027	561	561	4,000
2028	561	561	4,000
2029	561	561	4,000
2030	561	561	4,000
2031	561	561	4,000

Table 25 below shows the estimated average level of effort, burdened rates for staff, and costs for each report.

**Table 25: PR 316 Fee Evaluation**

Staff	Burdened Hourly Rate	Warehouse Operations Notification	Initial Site Information Report	Annual WAIRE Report
Planning & Rules Manager	\$141.29	0.05 hrs	0.1 hrs	0.2 hrs
Program Supervisor	\$126.57	0.05 hrs	0.2 hrs	0.6 hrs
Air Quality Specialist	\$110.28	0.1 hrs	1.0 hrs	1.75 hrs
Air Quality Inspector II	\$94.78	0 hrs	0.5 hrs	1.25 hrs
<i>Staff Cost per Report</i>		<i>\$24.42</i>	<i>\$135.59</i>	<i>\$387.41</i>
<i>Web Portal Cost per Report</i>		<i>\$5.09</i>	<i>\$5.09</i>	<i>\$5.09</i>
<b><i>Total Cost per Report<sup>124</sup></i></b>		<b><i>\$29.51</i></b>	<b><i>\$140.68</i></b>	<b><i>\$392.50</i></b>

Finally, Custom WAIRE Plan Application Evaluations will be assessed on a level of effort basis. A fee of \$161.25 will be assessed for every hour of review, consistent with plan review fees for other South Coast AQMD programs.<sup>125</sup> Reviews are expected to require multiple hours of staff time, and an initial fee will be assessed when the application is submitted equal to five hours of review (\$806.25). If review requires less than five hours, then a refund will be provided to the applicant.

<sup>124</sup> Similar to other South Coast AQMD fees in Regulation III, costs are expected to increase through time, consistent with the Consumer Price Index including for increased staff costs and overhead costs from inflation. All fees in PR 316 will therefore be adjusted periodically consistent with all other Regulation III fees pursuant to Rule 320.

<sup>125</sup> Rule 306(d)

### ***Warehouse Operator Administrative Costs***

Warehouse operators are expected to experience administrative costs associated with recordkeeping and reporting for PR 2305.<sup>126</sup> For example, truck trip data collection could include a variety of different methods, such as security cameras that include a log of vehicles that pass the camera, an in-road sensor which can count truck trips and identify the number of axles per truck, the use of an onsite personnel to check in all vehicles that enter, etc. Warehouse operators may already have measures in place for security and tracking purposes and would not experience additional costs from PR 2305 for installing new systems. Other options such as telematics, GPS, or truck driver surveys could be used as well and those costs would fall within the three estimates described below. The low cost compliance option consists of a third party security camera subscription that would generate a 30 day log of vehicles captured by the camera at an annual cost of \$2,000 with no set up costs,<sup>127</sup> the medium cost compliance option consists of the installation of an in-road sensor which uses pneumatic tubes to count axles and identify truck types which has a total initial installation cost of \$19,500 with no monthly costs,<sup>128</sup> and the high cost compliance option consists of dedicating personnel (e.g., to staff a guard shack for all hours of the day) at a total cost of \$141,649.20.<sup>129</sup> The first two example options for obtaining truck trip counts would potentially require some additional administrative effort to compile all the data and submit the information as required by PR 2305. This type of reporting is expected to be similar to the kind of reporting required in CARB's ACT regulation, specifically for large entity reporting, and is estimated to be no more than 25 hours of work totaling \$1,250 per year.<sup>130</sup>

These preliminary estimates of administrative costs will continue to be evaluated and will be updated in the Draft Staff Report.

## **FEASIBILITY**

The potential feasibility of PR 2305 and PR 316 have been evaluated using a variety of approaches. Staff considered the technical, economic, and market feasibility as described below. Many technical assessment studies have been conducted on NZE and ZE technologies that may be used to comply with PR 2305. These studies are referenced in the WAIRE Menu Technical Report in Appendix B. Additional information on technical feasibility was also obtained from industry sources who have used technologies in commercial service at warehouses, and results from South Coast AQMD funded projects.<sup>131</sup> The technical feasibility of some WAIRE Menu actions are not considered technically feasible today (e.g., ZE Class 8 trucks), however they are expected to become commercialized in the next two years and are therefore included as a compliance option. Economic feasibility will be considered in more detail in the socioeconomic impact analysis report, however some preliminary analysis is included here. First, the proposed rule may impose annual

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<sup>126</sup> Engineering costs to implement specific WAIRE Menu actions (such as for charging infrastructure) have already been included in the compliance cost estimates above.

<sup>127</sup> <https://www.cnet.com/news/this-company-could-turn-every-homes-camera-into-a-license-plate-reader/>

<sup>128</sup> [https://www.westernite.org/annualmeetings/16\\_Albuquerque/Papers/7B\\_Sobie.pdf](https://www.westernite.org/annualmeetings/16_Albuquerque/Papers/7B_Sobie.pdf)

<sup>129</sup> <https://www.bls.gov/oes/current/oes339032.htm#st>

<sup>130</sup> <https://ww3.arb.ca.gov/regact/2019/act2019/isor.pdf>

<sup>131</sup> Examples: <http://www.aqmd.gov/docs/default-source/technology-research/clean-fuels-program/clean-fuels-advisory-agenda---september-17-2020.pdf>, <http://www.aqmd.gov/docs/default-source/technology-research/annual-reports-and-plan-updates/2019-annual-report-2020-plan-update.pdf>

average costs between about \$0 per year and \$750 million per year,<sup>132</sup> which translates to a range of about \$0 per sq. ft. to \$0.89 per sq. ft., with the mitigation fee-only scenario averaging about \$0.75 per sq. ft.

There are two points of comparison that illustrate the impact PR 2305 may have on industry. First, there are about \$500 billion worth of goods that flow through the SCAG region every year, with the vast majority flowing through the import and export points in the South Coast AQMD region.<sup>133</sup> If only 31% of imported containerized goods at the ports of LA/LB go directly to rail, the majority of the remainder likely flows through the largest warehouses. The warehouses subject to PR 2305 include about 750 million sq. ft. of space, out of a total of about 1.2 billion sq. ft. of warehousing space in the entire SCAG region (all building sizes), or about 63%.<sup>134</sup> Because PR 2305 warehouses include the largest facilities, an even greater fraction of goods is expected to flow through these warehouses with smaller warehouses sending or receiving goods from the larger facilities. At the low end, it is possible to estimate that the total value of goods flowing through PR 2305 warehouses is at least \$217 billion.<sup>135</sup> Using the ~\$630 million annual cost from the mitigation fee scenario as a proxy for the highest costs that could be imposed by PR 2305 at the proposed stringency, at the high end PR 2305 could therefore add <0.3% to the total cost of goods handled by warehouses.

The potential cost effectiveness of PR 2305 is difficult to determine with the wide variety of options available for compliance. PR 2305 aims to reduce regional NOx emissions, as well as local emissions of diesel PM (to reduce regional PM and local toxics emissions), and local exposures to air pollution. Traditional cost effectiveness approaches are therefore not comparable to other programs focused solely on regional pollutant emission reductions that simply divide total cost by NOx emission reductions, or toxics rules that do not calculate cost effectiveness. Nevertheless,

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<sup>132</sup> Excluding the solar panel scenario with anomalously high costs relative to other scenarios.

<sup>133</sup> [https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial\\_goods-movement.pdf](https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf)

<sup>134</sup> Ibid.

<sup>135</sup> \$500 billion \* 69% (non-rail) \* 63% (PR 2305 whse sq. ft./SCAG whse sq. ft.) = \$217 billion

Table 26 below shows the preliminary cost effectiveness in dollars per ton of NO<sub>x</sub> reduced using values from Table 23 and Table 15 above before accounting for any actions by CARB in the ACT or Low NO<sub>x</sub> Omnibus regulations. Table 27 shows similar values after accounting for these two regulations (using Table 22 and Table 17).

**Table 26: Preliminary Estimates of Cost Effectiveness<sup>136</sup> for Regional NO<sub>x</sub> Reductions Without Considering CARB's ACT and Low NO<sub>x</sub> Omnibus Regulations**

Scenario	Description	Cumulative NO <sub>x</sub> (tons) (2022-2031)	Cumulative Cost (2022-2031)	Cost-Effectiveness (\$/ton)
1	NZE Class 8	12,848	\$731,128,440	\$56,906
2	NZE Class 8	13,432	\$914,298,893	\$68,069
3	NZE Class 8	18,177	\$310,776,651	\$17,097
4	NZE Class 8	13,286	\$537,946,366	\$40,490
5	ZE Class 8	12,921	\$6,150,343,948	\$475,996
6	ZE Class 6 & 8	5,439	\$1,304,812,881	\$239,921
7	Mitigation Fee	54,787	\$5,905,149,994	\$107,785
8	NZE Class 6	9,381	\$1,460,766,320	\$155,724
9	NZE Class 6	11,680	\$6,854,548,309	\$586,862
10	ZE Class 6	13,031	\$344,882,934	\$26,467
11	Solar	33,580	\$9,142,248,478	\$272,253
12	H <sub>2</sub> , ZE Class 8	6,388	\$7,734,552,862	\$1,210,889
13	ZE Class 2b-3	5,220	\$531,199,138	\$101,772
14	ZE Class 2b-3	4,417	\$3,774,484,237	\$854,632
15	Filter System	0	\$7,008,472,865	N/A
16	Filter	0	\$6,950,906,239	N/A
17	TRU	694	\$41,121,112	\$59,295
18	Yard Trucks	292	\$946,519,313	\$3,241,504

**Table 27: Preliminary Estimates of Cost Effectiveness for Regional NO<sub>x</sub> Reductions After Considering CARB ACT and Low NO<sub>x</sub> Omnibus Regulations**

Scenario	Description	Cumulative NO <sub>x</sub> (tons) (2022-2031)	Cumulative Cost (2022-2031)	Cost-Effectiveness (\$/ton)
1	NZE Class 8	9,502	\$638,262,698	\$67,172
2	NZE Class 8	10,082	\$845,818,325	\$83,897
3	NZE Class 8	14,862	\$357,847,750	\$24,079
4	NZE Class 8	9,943	\$350,167,074	\$35,218
5	ZE Class 8	12,154	\$5,611,542,259	\$461,688
6	ZE Class 6 & 8	4,417	\$1,093,965,155	\$247,670
7	Mitigation Fee	54,761	\$5,905,149,994	\$107,835
8	NZE Class 6	8,692	\$1,287,932,729	\$148,169
9	NZE Class 6	11,015	\$6,012,154,522	\$545,810
10	ZE Class 6	12,792	\$332,922,140	\$26,026
11	Solar	33,581	\$9,142,248,478	\$272,246
12	H <sub>2</sub> , ZE Class 8	5,648	\$6,453,366,591	\$1,142,675
13	ZE Class 2b-3	5,164	\$307,696,114	\$59,586

<sup>136</sup> Some scenarios include NO<sub>x</sub> reductions from the WAIRE Mitigation Program, which assumes a cost-effectiveness of \$100,000 per ton of NO<sub>x</sub> (with reductions assumed to occur the year after the fee is paid), consistent with existing mobile source funding programs like Carl Moyer.



14	ZE Class 2b-3	4,201	\$3,666,396,796	\$872,816
15	Filter System	0	\$7,008,472,865	N/A
16	Filter	0	\$6,950,906,239	N/A
17	TRU	728	\$41,121,112	\$56,457
18	Yard Trucks	271	\$946,519,313	\$3,499,053

The market feasibility was evaluated by considering whether the proposed stringency of PR 2305 would result in a level of implementation that exceeds the potential ability of the market to respond. In an extreme hypothetical example, if the stringency of PR 2305 required ten billion miles of Class 8 ZE truck travel per year, but there is only a total of three billion miles of truck travel from all Class 8 trucks (fueled by diesel, electric, natural gas, etc.), then this would indicate that the stringency is infeasible.

The scenario analysis described above includes calculations to determine whether any bounding analysis scenario exceeded expected market conditions. The parameters that were evaluated include the number of new trucks purchased in a year, the amount miles travelled by trucks in a year, the amount of power required to charge trucks, and the amount of fossil fueled power generation in South Coast AQMD. In nearly all cases, PR 2305 would not exceed existing market capacity. In rare instances, some bounding analysis scenarios show that some new truck sales in early years of the program could be higher than is expected in EMFAC for those respective truck categories, assuming that every warehouse operator bought the same class of truck and technology (e.g., NZE or ZE) to comply with PR 2305. This is unlikely as no more than about 40% of warehouse operators are estimated to own truck fleets (and not every truck fleet owns all truck classes), and truck acquisitions to earn Points would necessarily be less than shown. Even in these extreme cases (which are not reasonably expected to occur), the amount of sales is typically no more than about double what is projected from EMFAC for our region. Similarly, some scenarios show that if all warehouse operators only obtain WAIRE Points from NZE or ZE truck visits from Class 6 trucks, then the total miles travelled from those visits to warehouses would exceed the total miles travelled from those truck types for all of South Coast AQMD (regardless of whether a trip is to a warehouse) by about 15% or less. As above, this extreme example is not expected to occur as all warehouses are not expected to only choose a single compliance pathway with nearly three dozen options available for compliance – as well as many different operational practices and markets served by warehouses. Finally, the highest electricity demand for charging electric trucks (Scenario 6) is about 844 GWh per year. This level of charging is less than what CEC has preliminarily calculated for the total need for electric trucks in the South Coast AQMD region.<sup>137</sup>

<sup>137</sup> As part of the development of the 2020 Integrated Energy Policy Report, CEC staff included a scenario that explicitly evaluates the electric power needed if >100,000 ZE trucks are deployed to assist in meeting 2031 ozone standards. This analysis showed the projected electricity demand from charging these trucks would be about 1,684 GWh in 2031, with a peak summer hourly load of about 164 MW for Southern California Edison, the region's largest utility. This results in about a 1-2% increase in electricity demand overall from SCE compared to the 'mid' case analysis in the 2019 IEPR, but is still within the range of expected demand as the additional load does not exceed CEC's modeled 'high' case.

<https://efiling.energy.ca.gov/getdocument.aspx?tn=235836>,  
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=230923>,  
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=230924>

Considering the many different compliance options and business models of warehouse operators, it is unlikely that any of the extreme scenarios discussed above would be expected to occur. With roughly three dozen options for earning WAIRE Points (32 Menu actions, a mitigation fee option, and additional options from Custom WAIRE Plans), it is unlikely any particular scenario modeled would be chosen by more than a small fraction of all warehouse operators in any given year. If these more realistic lower levels of implementation are assumed for each scenario, then none of the market capping conditions would be exceeded. It is also foreseeable that if some of the extreme examples discussed above began to materialize during a compliance period, with all operators choosing the same exact truck type and technology to implement, that warehouse operators would respond to these market conditions and pivot to implement other alternatives.

## **SOCIOECONOMIC ASSESSMENT**

A socioeconomic analysis will be conducted and released for public comment and review at least 30 days prior to the South Coast AQMD Governing Board Public Hearing on PR 2305 and PR 316, which is anticipated to be heard on April 2, 2021.

## **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PR 2305 and PR 316 are considered a “project” as defined by the California Environmental Quality Act (CEQA). Pursuant to CEQA, the South Coast AQMD, as Lead Agency, prepared a Notice of Preparation (NOP) of the Draft Environmental Assessment (EA) and Initial Study (IS) to analyze environmental impacts from the project identified above pursuant to its certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l), and South Coast AQMD Rule 110). The NOP/IS was released for a 32-day public review and comment period that began Friday, November 13, 2020 and ended on Tuesday, December 15, 2020. In addition, because the proposed project could have statewide, regional or areawide significance, a CEQA Scoping Meeting was held on December 2, 2020 pursuant to Public Resources Code Section 21083.9(a)(2). The South Coast AQMD is also preparing a Draft EA (equivalent to a Draft EIR) that will be circulated for public review and comment. Comments received at the CEQA Scoping Meeting and on the NOP/IS will be considered when preparing the Draft EA.

## **DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727**

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

PR 2305 and PR 316 are needed to protect public health by reducing local and regional emissions of NO<sub>x</sub> and diesel PM associated with warehouses and the mobile sources attracted to warehouses. By reducing these emissions, PR 2305 and PR 316 will also assist in meeting state and federal air quality standards for ozone and fine PM. NO<sub>x</sub> is a precursor to the formation of ozone and PM<sub>2.5</sub>, and diesel PM is a toxic air contaminant and component of fine PM.

Authority

Authority for the South Coast AQMD Governing Board to adopt PR 2305 and PR 316 may be found in sections 39002, 39650 through 39669, 40000, 40001, 40440, 40441, 40522.5, 40701, 40702, 40716, 40717, 40725 through 40728, 40910, 40920.5, 41508, 41511, and 41700 of the Health and Safety Code.

Clarity

PR 2305 and PR 316 are written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PR 2305 and PR 316 are in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

PR 2305 and PR 316 will not impose the same requirements as any existing state or federal regulations. The proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In adopting these rules, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: Clean Air Act Section 110(a)(5)(A)(i); Health & Safety Code Sections 40440, 40716, 40717, and 40522.5.

## COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of proposed rules with any Federal or South Coast AQMD rules and regulations applicable to the same source. This analysis will be included in the Draft Staff Report and released for public comment and review at least 30 days prior to the South Coast AQMD Governing Board Public Hearing on PR 2305 and PR 316, which is anticipated to be heard on April 2, 2021.

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**Appendix A: WAIRE PROGRAM IMPLEMENTATION GUIDELINES**

The Draft WAIRE Program Implementation Guidelines will be provided at a future date and opportunity will be provided for public comment.

**Appendix B: WAIRE MENU TECHNICAL REPORT****DRAFT WAIRE Menu Technical Report****OVERVIEW**

This technical report describes the methodology used to determine how WAIRE Points are attributed to each of the actions on the WAIRE Menu provided in PR 2305. Section 1 of this report presents an overview of how the Points are determined within the Menu, while all subsequent sections presents detailed methodologies for each Menu item.

***SECTION 1) WAIRE Points Calculation Methodology***

This section describes the general methodology used to determine how WAIRE Points are attributed to each of the actions on the WAIRE Menu. While this methodology is used to determine the value of each WAIRE Menu action during the rulemaking process, warehouse operators and/or owners will not need to use this calculation methodology document to determine how to comply with the rule. For compliance, warehouse operators (and in some cases owners if they choose to comply on behalf of their operator) will only need to consult the WAIRE Menu itself to determine how many actions, or how much of each action to complete for compliance.

WAIRE Points may be earned in two ways, through the purchase of near-zero (NZE) and zero emission (ZE) equipment or equipment that facilitates its use, and through the usage of NZE and ZE equipment. WAIRE Points are assigned based on three key parameters, cost, regional emissions reductions, and local emissions reduction. The cost parameter is based on the incrementally higher cost a warehouse operator faces when choosing to purchase NZE/ZE equipment (compared to conventional diesel technology). The regional emissions reduction parameter is based on the reduction in nitrogen oxides (NOx) emissions from using ZE/NZE equipment. The local emissions reduction parameter is based on the reduction in Diesel Particulate Matter (DPM)<sup>1</sup> from using ZE/NZE equipment.

In practice, the actual costs and emission reductions of each implemented action will likely vary for each warehouse operator. Calculating these unique values on a case-by-case basis would impose a considerable administrative burden to both the regulated community and to South Coast AQMD. In order to simplify compliance and administration of PR 2305, WAIRE Points for each Menu action are determined using representative default values described in the calculation methodology summaries that follow.

**Section 1a) WAIRE MENU ANNUALIZED UNITARY METRICS AND BINS**  
WAIRE Points values in the WAIRE Menu are determined for each action based on a single Annualized Unitary Metric (AUM). The AUM is the default level of implementation used for

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<sup>1</sup> DPM is both a component of the criteria pollutants PM10 and PM2.5, and a toxic air contaminant. Emissions of DPM from warehouse indirect sources can contribute to high-level, localized pollutant concentrations that can significantly affect air quality and public health for populations near warehouses.

calculating each WAIRE Menu action's Points. For example, the AUM for the truck acquisition WAIRE Menu action is one truck acquired during the compliance year. The cost and regional and local emissions reductions are calculated for acquiring one truck and used to determine the default WAIRE Point value for that Menu action. Warehouse operators use these default Point values in the WAIRE Menu to determine how many Points they earned in total depending on their level of implementation. For example, the default Point value in the Menu for acquiring one ZE class 8 truck is 126 Points. If a warehouse operator acquired five ZE trucks, they would earn a total of 630 Points (126 Points for each truck acquisition). Similarly, for ZE class 8 truck visits, the AUM of 365 visits per year (one per day on average) yields 27 Points in the WAIRE Menu. If a warehouse operator only has 100 ZE class 8 truck visits during a compliance year, they would earn a total of 7.4 Points<sup>2</sup>  $[(100 \div 365) \times 27 = 7.4]$ . The AUM's for each WAIRE Menu action are described in the individual calculation methodology summaries that follow.

WAIRE Points are also calculated using a point binning system to simplify the merging of the cost, regional emission reduction, and local emissions reduction parameters. For the AUM, Points are earned for each \$25,000 incremental cost, 25-pound NO<sub>x</sub> regional emission reduction, and 0.25-pound DPM local emission reduction. Once these three parameters are calculated, their binned points are summed to yield the total default WAIRE Points earned for that action.

### **Section 1b) COSTS:**

The costs for each WAIRE Menu action are based on the annualized incremental costs difference between the new ZE/NZE technology and the costs of the conventional diesel equivalent. Due to existing statutory or regulatory prohibitions, most state incentive funding programs used to offset the higher purchase price of ZE/NZE vehicles and equipment cannot be used to aid in complying with state or federal law or South Coast AQMD rules or regulations<sup>3</sup>, and incentive funds are not considered in these costs. However, WAIRE Points may be earned from the usage of incentivized vehicles/equipment. For example, if a warehouse operator owns a fleet of trucks, and they want to purchase a ZE or NZE truck, they will need to decide among two options. First, they could purchase the truck at full price and receive WAIRE Points for that action. Second, they could instead choose to receive incentive funding for that purchase but not earn any WAIRE Points for the truck purchase. In both instances, they would be allowed to receive WAIRE Points for the visits that this truck makes to their warehouse.

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<sup>2</sup> WAIRE Points are calculated to no more than one decimal place.

<sup>3</sup> California Health and Safety Codes 44281(b), 44391.4(a), 44271(c), CCR Title 13, Ch. 8.2 Sec. 2353 (c)(4), Moyer Guidelines Ch. 2, CA Beneficiary Mitigation Plan

**Section 1c) REGIONAL EMISSION REDUCTIONS:**

Regional emission reductions are calculated in two ways. First, NOx reductions are calculated from using ZE/NZE vehicles and equipment for activities associated with the warehouse. Second, regional NOx emission reduction Points are calculated for WAIRE Menu items affiliated with the acquisition of ZE/NZE vehicles/equipment at a rate of \$100,000 per ton of NOx. This is the cost effectiveness threshold that South Coast AQMD utilizes in its Carl Moyer incentive funding program. These regional emission reduction Points are assigned to these acquisition Menu items because if a facility chose to pay that level of funding as a mitigation fee, South Coast AQMD would likely spend the funds using the same cost effectiveness threshold.

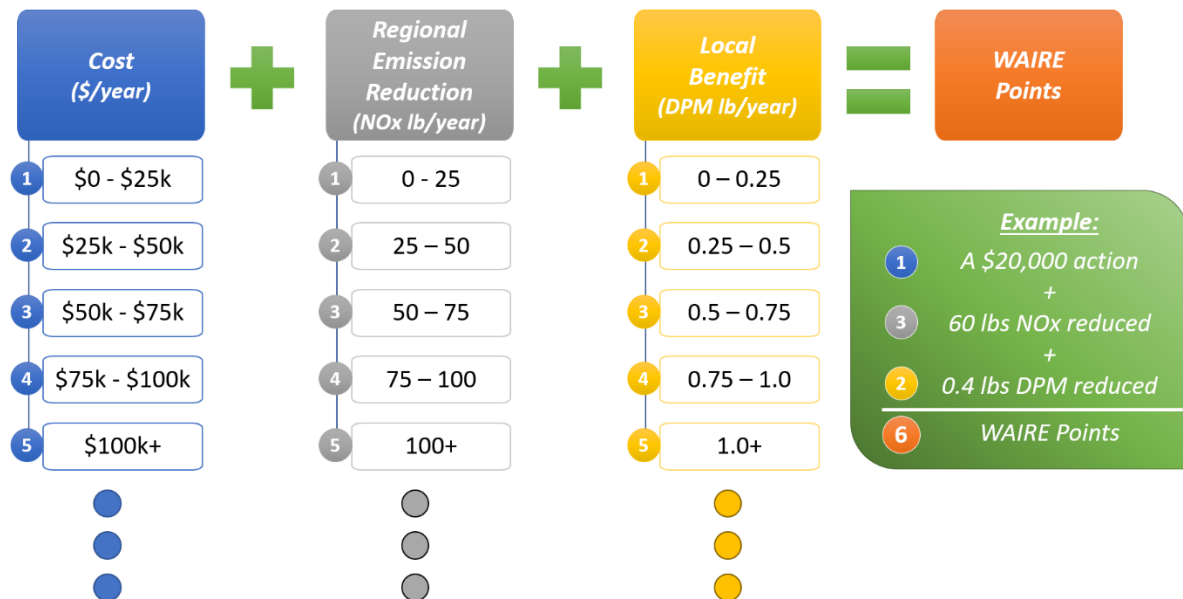
**Section 1d) LOCAL EMISSION REDUCTIONS:**

Local emission reductions are calculated in a similar manner as regional emission reductions, except that Diesel Particulate Matter (DPM) is used instead of NOx.

**Section 1e) EXAMPLE:**

Figure 1, below, presents one example of how the calculation methods discussed above would yield the total WAIRE Points earned. In this example, an AUM would cost \$20,000 and result in a 60 lbs/year NOx reduction, and a 0.4 lbs/year DPM reduction. Combining the three together would result in a total of 6 WAIRE Points. Specific calculations for each WAIRE Menu action are included in the following sections.

**Figure 1: WAIRE Points Calculation**



## SECTION 2) Zero and Near-Zero Emission Truck Visits and Truck Acquisitions

**Description:** Two key factors affect the analysis of ZE and NZE trucks – the definitions of ZE and NZE, and the truck class. In the context of PR 2305, the definition of a ZE truck is the same as CARB’s Advanced Clean Trucks Regulation definition. At the time of this writing, CARB’s draft definition for ZE truck is one “with a drivetrain that produces zero exhaust emission of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions.” For PR 2305 a NZE truck is one in which the engine meets CARB’s lowest Optional Low NOx standard at the time of manufacture, which is currently 0.02 g/hp-hr NOx.

In addition to drivetrain technology, trucks are commonly classified based on their Gross Vehicle Weight Rating (GVWR). Throughout this document Class 2b-7 refers to heavy duty trucks with GVWR of 8,501 – 33,000 lbs and Class 8 trucks with GVWR of greater than 33,000 lbs. Table 1 below presents truck classifications.

**Table 1. Truck Classes**

Truck Class	GVWR (lbs)
Class 2b	8,501 – 10,000
Class 3	10,001 – 14,000
Class 4	14,001 – 16,000
Class 5	16,001 – 19,500
Class 6	19,501 – 26,000
Class 7	26,001 – 33,000
Class 8	33,001 & over

**Commercial Availability:** The ZE truck market is beginning to grow rapidly with many models entering the commercial market today and many major manufacturers announcing plans for future commercialization of battery-electric and hydrogen fuel cell electric trucks.<sup>4</sup> Some notable manufacturer announcements include: Daimler Class 8 eCascadia, Navistar battery-electric Class 8, Volvo battery-electric VNR Class 8, Tesla’s long range battery-electric tractor, BYD’s battery-electric Class 6 and 8, Nikola’s and Kenworth (in conjunction with Toyota) hydrogen fuel cell tractors, Sea Electric Class 4-8 battery-electric trucks, Lion Electric’s Class 6-8 battery-electric trucks, Amazon’s order of 100,000 Rivian’s battery electric trucks, etc. NZE engines are currently available in two sizes – 11.9 liter and 8.9 liter. Major truck manufacturers offer these engines in different truck classes, including for class 8 regional haul and/or drayage truck operations.

**Operation:** Trucks that visit warehouses may be owned by the warehouse operator, or by a motor carrier not affiliated with that warehouse. Arrangements for truck visits to the site to deliver or pick up goods is typically made by the owner of the goods, or someone acting on their behalf. As such, each individual truck visiting a warehouse can have a unique operating profile that may not be shared by any other truck visiting that site. One truck may travel 30 miles on the inbound trip, and only two miles on the outbound trip. Another truck may be loaded with goods from multiple warehouses or stores, and determining what portion of a trip to attribute to each warehouse would be impractical. Finally, trucks may idle their engines for short periods while at the

<sup>4</sup> A useful reference is the online ZETI tool. <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>



warehouse before or after the trailer is dropped off/picked up. For the emissions and cost analyses presented below, input parameters are meant to be broadly applicable and may not reflect any one individual truck trip or truck acquisition.

### SECTION 2a) ZE/NZE Truck Acquisitions<sup>5</sup>

**ZE/NZE Truck Purchase Prices:** Several key references were consulted to estimate incremental purchase prices for NZE and ZE trucks relative to conventional diesel trucks including: CARB’s Advanced Clean Truck Regulation (ACT), Standardized Regulatory Impact Assessment (SRIA)<sup>6</sup> and Total Cost of Ownership Discussion Documents<sup>7</sup>, California Energy Commission’s Revised Transportation Demand Forecast<sup>8</sup>, the Ports’ Feasibility Study<sup>9</sup>, ICF’s Intensive Literature Review for Medium and Heavy-Duty Electrification in California<sup>10</sup>, NACFE’s TCO Calculator<sup>11</sup>, as well as data from South Coast AQMD’s Carl Moyer Grant Program and CARB’s HVIP program. While cost estimates vary somewhat among these references, the single point estimates shown in Table 2 below are consistent with these previous analyses.

**Table 2. Incremental Costs for NZE and ZE Truck Purchases**

WAIRE Menu Item		Annualized Unitary Metric	Incremental Cost (\$/metric)
Class 8 Truck	NZE	1 truck purchased	\$65,000
Class 4-7 Truck			\$30,000
Class 8 Truck	ZE		\$150,000
Class 4-7 Truck			\$80,000
Class 2b-3 Truck			\$16,000

**WAIRE Points for ZE/NZE Truck Acquisitions:** Acquisition of NZE Class 8 and Class 4-7 trucks earns 3 and 2 WAIRE Points, respectively. Similarly, the acquisition of ZE Class 8, Class 4-7, and Class 2b-3 trucks earns 6, 4, and 1 WAIRE Points, respectively. In addition, using a cost-effectiveness of \$100,000 per ton of NO<sub>x</sub>, WAIRE Points for regional emission reductions for Class 8 and 4-7 NZE truck acquisitions are 52 and 24 WAIRE Points, respectively. For ZE truck acquisitions, Class 8, 4-7, and 2b-3 earns 120, 64, and 13 WAIRE Points, respectively.

<sup>5</sup> WAIRE Points can be earned from either truck purchases or truck leases. Points are calculated assuming trucks are purchased.

<sup>6</sup> <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

<sup>7</sup> <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>

<sup>8</sup> <https://efiling.energy.ca.gov/GetDocument.aspx?tn=230885&DocumentContentId=62525>

<sup>9</sup> <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>

<sup>10</sup> [https://caletc.com/wp-content/uploads/2019/01/Literature-Review\\_Final\\_December\\_2018.pdf](https://caletc.com/wp-content/uploads/2019/01/Literature-Review_Final_December_2018.pdf)

<sup>11</sup> <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

## SECTION 2b) Truck Visits

**Regional and Local Emission Reductions from ZE/NZE Truck Visits:** Key parameters that can affect the emissions estimate from any one individual trip include: trip length, truck class, vehicle powertrain, and vehicle speed. Collecting all the necessary information to calculate precise emissions estimates for each trip is not feasible as it would require 1) instrumenting all trucks with telematics systems that report uniform data, 2) requiring detailed information reporting about truck loads (e.g., how much of the goods in each truck trailer is being transported to each location), and 3) conducting substantial data analysis to determine the emissions associated with each truck trip. Because of these challenges, various models are used to estimate emissions from trucking activity. In particular, CARB's EMFAC model and SCAG's Heavy-Duty Truck Regional Travel Demand model provide emissions estimates in the South Coast AQMD.

EMFAC2017 provides activity and emission rates for on-road vehicles that operate within California. EMFAC categories<sup>12</sup> and their relationship to truck class are shown in Table 3 below. EMFAC categorizes all truck types that are on the road, however the analysis presented here is limited to those categories that are most likely to deliver goods to and from warehouses.

**Table 3. EMFAC Truck Categories**

EMFAC Category	Description	Truck Class
LHD1 - DSL	Light-Heavy-Duty Trucks (GVWR 8,501-10,000 lbs)	Class 2b-3
LHD1 - GAS		
LHD2 - DSL	Light-Heavy-Duty Trucks (GVWR 8,501-10,000 lbs)	
LHD2 - GAS		
T6 CAIRP Small	Light-Heavy-Duty Trucks (GVWR 10,001-14,000 lbs)	Class 4-6
T6 Instate Small	Medium-Heavy Duty Diesel Instate Truck with GVWR≤26,000 lbs	
T6 OOS Small	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR≤26,000 lbs	
T6 CAIRP Heavy	Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>26,000 lbs	Class 7
T6 Instate Heavy	Medium-Heavy Duty Diesel Instate Truck with GVWR>26,000 lbs	
T6 OOS Heavy	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR>26,000 lbs	
T7 CAIRP	Heavy-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>33,000 lbs	Class 8
T7 NNOOS	Heavy-Heavy Duty Diesel Non-Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 NOOS	Heavy-Heavy Duty Diesel Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 POLA	Heavy-Heavy Duty Diesel Drayage Truck in South Coast with GVWR>33,000 lbs	
T7 Tractor	Heavy-Heavy Duty Diesel Tractor Truck with GVWR>33,000 lbs	

<sup>12</sup> <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf> (Table 6.1-1)

Baseline weighted averages of NOx and PM10 emission rates<sup>13</sup> for calendar year 2023 for running exhaust (RUNEX), exhaust from engine startups (STREX), and idling exhaust (IDLEX) of the above-mentioned truck categories are presented below.

**Table 4. Weighted average emission rates (g/mi for RUNEX, g/trip for STREX, g/vehicle/day for IDLEX)**

Truck Class	NOx			DPM			Mile/trip <sup>14</sup>	Trip/day/truck <sup>15</sup>
	RUNEX	IDLEX	STREX	RUNEX	IDLEX	STREX		
Class 2b-3	0.727	0.888	0.290	0.008	0.013	0	15.3	1.3
Class 4-7	1.079	2.855	2.117	0.007	0.001	0	14.2	5.9
Class 8	2.372	76.203	2.028	0.020	0.027	0	39.9	5.2

The regional and local emission reductions achieved by switching to ZE trucks relative to baseline emissions are calculated using Equation 1 below. While regional emission reductions from switching to NZE trucks is assumed to equal 90% of the reduction compared to ZE trucks, local emission reductions are assumed to be the same between ZE and NZE as NZE trucks are fueled by natural gas and do not emit DPM.

Equation [1]:

$$\begin{aligned}
 & \text{Emission Reduction } \left( \frac{\text{lb}}{\text{trip}} \right) \\
 & = \left[ \left( \text{RUNEX} \left( \frac{\text{g}}{\text{mi}} \right) \times \frac{\text{mi}}{\text{trip}} \right) + \left( \text{STREX} \left( \frac{\text{g}}{\text{trip}} \right) \right) + \left( \frac{\text{IDLEX} \left( \frac{\text{g}}{\text{day.truck}} \right)}{\frac{\text{trip}}{\text{day.truck}}} \right) \right] \times \frac{1 \text{ lb}}{453.592 \text{ g}}
 \end{aligned}$$

Results of the calculation for the two truck class categories are presented in Table 5 below.

**Table 5. NOx and DPM emission reductions for a single truck trip**

Truck Class	ZE Truck		NZE Truck	
	NOx lb/trip	DPM lb/trip	NOx lb/trip	DPM lb/trip
Class 2b-3	0.027	0.0003	N/A	N/A
Class 4-7	0.040	0.0002	0.036	0.0002
Class 8	0.247	0.002	0.222	0.002

<sup>13</sup> VMT-weighted, population-weighted and number of starts-weighted averages were computed to equalize the frequency of the values for RUNEX, IDLEX and STREX emission rates, respectively, in the data set by multiplication of each truck category emission rates to its corresponding VMT, population or number of starts and then dividing by the sum of total VMT, population or number of starts.

<sup>14</sup> SCAG 2016 RTP mileage rates for medium-heavy (Class 4-7) and heavy-heavy trucks (Class 8)

<sup>15</sup> Truck populations from EMFAC and trips/day from SCAG 2016 RTP. A trip is a one-way trip, while a ‘visit’ to a warehouse includes the incoming trip and the outgoing trip.

Table 6 below illustrates the method used in determining point values based on regional and local emissions reductions using results in Table 5.

**Table 6. NO<sub>x</sub> and DPM emission reductions for the Annualized Unitary Metric**

WAIRE Menu Item		Annualized Unitary Metric (AUM)	Annualized Regional Emission Reductions (lb NO <sub>x</sub> /AUM)	Annualized Local Emission Reductions (lb DPM/AUM)
Class 8 Truck	NZE	365 truck visits	$0.9 \times 180.3 = 162.3$	1.3
Class 4-7 Truck			$0.9 \times 29.2 = 26.3$	0.1
Class 8 Truck	ZE		$0.247 \times 2 \times 365 = 180.3$	$0.002 \times 2 \times 365 = 1.3$
Class 4-7 Truck			$0.040 \times 2 \times 365 = 29.2$	$0.0002 \times 2 \times 365 = 0.1$
Class 2b-3	ZE		$0.027 \times 2 \times 365 = 19.7$	$0.0003 \times 2 \times 365 = 0.2$

**WAIRE Points from ZE/NZE Truck Visit Emission Reductions:** For the annualized regional NO<sub>x</sub> emission reductions, 365 truck visits from Class 8 ZE and NZE trucks will earn 8 and 7 WAIRE Points. Similarly, Class 4-7 ZE and NZE will earn 2 WAIRE Points, and Class 2b-3 ZE will earn 1 WAIRE Point. The associated local DPM emission reductions will earn 6 WAIRE Points for both ZE and NZE Class 8 truck visits, 1 WAIRE Point for both ZE and NZE Class 4-7 truck visits, and 1 WAIRE Point for ZE Class 2b-3.

**Costs from ZE/NZE Truck Visits:** The incremental cost of a truck visit used in the WAIRE Menu is based on the total cost of ownership of a ZE or NZE truck compared to an equivalent conventional diesel truck, taking into account the estimated total number of trips that truck will take in its useful life. The total cost of ownership (TCO), assuming a 12-year life, for Class 3, 4, 6 and 8 conventional diesel, battery electric, and hydrogen fuel cell trucks were obtained from CARB’s Advanced Clean Truck Total Cost of Ownership Discussion Documents. The key components of the TCO include:

- (1) Capital cost: vehicle capital cost, taxes associated with the vehicle purchase, financing costs for the vehicle
- (2) Fuel cost<sup>16</sup>: The cost of the fuel
- (3) Other cost: maintenance costs, midlife costs<sup>17</sup>, vehicle registration, and residual values at the end of the truck’s operating life

Tables 7, 8, 9, and 10 below present the base TCO data used in this analysis for Class 3, 4, 6, and 8 diesel, battery-electric, and hydrogen fuel cell trucks. The total cost of ownership for Class 6

<sup>16</sup> Low Carbon Fuel Standard credits were not included in the analysis presented here.

<sup>17</sup> Midlife costs are the cost of rebuilding or replacing major propulsion components due to wear or deterioration. For diesel vehicles, this would be a midlife engine rebuild, for battery-electric vehicles this would be a battery replacement, and for a hydrogen fuel-cell vehicle this would be a fuel cell stack refurbishment.

CNG shown in Table 8 was estimated using a similar approach as Table 9, with modifications made to the incremental purchase cost, fuel cost<sup>18</sup> and fuel economy<sup>19,20</sup>. Maintenance cost of natural gas vehicles were assumed to be about one to two cents per mile greater than for diesel vehicles due to more frequent oil changes and inspections, and higher replacement costs for spark plugs and injectors<sup>21</sup>. A summary of the analyses in Tables 7, 8, 9, and 10 is shown in Table 11.

**Table 7. Base TCO data for Class 3 trucks<sup>22</sup>**

	<b>Diesel</b>	<b>Battery Electric</b>	<b>Hydrogen Fuel Cell</b>	<b>Natural Gas NZE</b>
Annual Miles	15,000	15,000	15,000	TCO information was not found in the literature (Most NZE trucks in this Class are conversions)
Operating Years	12	12	12	
Energy Storage	-	38 kWh	10 kWh/10 kg	
<b>Total Capital Cost</b>	<b>\$53,110</b>	<b>\$86,568</b>	<b>\$306,673</b>	
Average Fuel Cost	\$3.74/gal	\$0.18/kWh	\$8.00/kg	
Average Fuel Economy	23.2 mpg	1.79 mi/kWh	58 mi/kg	
<b>Total Fuel Cost</b>	<b>\$20,817</b>	<b>\$13,142</b>	<b>\$25,986</b>	
Lifetime Maintenance Cost	\$23,731	\$17,779	\$23,731	
Midlife Cost	\$0	\$0	\$42,982	
Registration Fees	\$8,331	\$7,509	\$13,919	
Residual Values	(\$8,207)	(\$4,104)	(\$2,052)	
<b>Total Other Cost</b>	<b>\$23,855</b>	<b>\$21,204</b>	<b>\$78,580</b>	
<b>Total</b>	<b>\$97,782</b>	<b>\$113,657</b>	<b>\$410,258</b>	

<sup>18</sup> <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

<sup>19</sup> [https://afdc.energy.gov/files/u/publication/ng\\_regional\\_transport\\_trucks.pdf](https://afdc.energy.gov/files/u/publication/ng_regional_transport_trucks.pdf) (Figure 5)

<sup>20</sup> [https://www.energy.gov/sites/prod/files/2014/03/f8/deer12\\_kargul.pdf](https://www.energy.gov/sites/prod/files/2014/03/f8/deer12_kargul.pdf)

<sup>21</sup> [https://ww3.arb.ca.gov/msprog/tech/techreport/ng\\_tech\\_report.pdf](https://ww3.arb.ca.gov/msprog/tech/techreport/ng_tech_report.pdf)

<sup>22</sup> <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

**Table 8. Base TCO data for Class 4 trucks<sup>23</sup>**

	<b>Diesel</b>	<b>Battery Electric</b>	<b>Hydrogen Fuel Cell</b>	<b>Natural Gas NZE</b>
Annual Miles	15,000	15,000	Class 4 H2 trucks are not expected in the near future	TCO information was not found in the literature
Operating Years	12	12		
Energy Storage	-	120 kWh		
<b>Total Capital Cost</b>	<b>50,000</b>	<b>100,000</b>		
Average Fuel Cost	\$3.74/gal	\$0.17/kWh		
Average Fuel Economy	10 mpg			
<b>Total Fuel Cost</b>				
Lifetime Maintenance Cost				
Midlife Cost				
Registration Fees				
Residual Values	\$500	\$5,000		
<b>Total Other Cost</b>				
<b>Total</b>	<b>\$124,229</b>	<b>\$177,345</b>		

**Table 9. Base TCO data for Class 6 trucks<sup>24</sup>**

	<b>Diesel</b>	<b>Battery Electric</b>	<b>Hydrogen Fuel Cell</b>	<b>Natural Gas NZE</b>
Annual Miles	24,000	24,000	24,000	24,000
Operating Years	12	12	12	12
Energy Storage	-	104 kWh	50 kWh/20 kg	-
<b>Total Capital Cost</b>	<b>\$88,705</b>	<b>\$172,225</b>	<b>\$330,967</b>	<b>\$118,705</b>
Interest Rate	5%			
Financed Period	5 years			
Average Fuel Cost	\$3.74/gal	\$0.17/kWh	\$8.00/kg	\$2.42/GGE
Average Fuel Economy	7.4 mpg	1.04 mi/kWh	14.1 mi/kg	6.3 mpg
<b>Total Fuel Cost</b>	<b>\$104,349</b>	<b>\$33,472</b>	<b>\$171,398</b>	<b>\$110,629</b>
Lifetime Maintenance Cost	\$49,138	\$36,853	\$49,138	\$54,898
Midlife Cost	\$0	\$0	\$32,237	\$0
Registration Fees	\$11,592	\$10,860	\$15,482	\$11,000
Residual Values	(\$10,477)	(\$5,239)	(\$2,619)	(\$10,477)
<b>Total Other Cost</b>	<b>\$50,252</b>	<b>\$42,474</b>	<b>\$94,237</b>	<b>\$55,421</b>
<b>Total</b>	<b>\$243,306</b>	<b>\$248,171</b>	<b>\$596,603</b>	<b>\$340,176</b>

<sup>23</sup> <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

<sup>24</sup> <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

**Table 10. Base TCO data for Class 8 trucks<sup>25</sup>**

	Diesel	Battery Electric	Hydrogen Fuel Cell	Natural Gas NZE
Annual Miles	54,000	54,000	54,000	68,383
Operating Years	12	12	12	12
Energy Storage	-	510 kWh	10 kWh/10 kg	-
<b>Total Capital Cost</b>	<b>\$167,500</b>	<b>\$593,662</b>	<b>\$786,486</b>	<b>\$192,710</b>
Interest Rate	5%			12.5%
Financed Period	5 years			
Average Fuel Cost	\$3.74/gal	\$0.15/kWh	\$8.00/kg	\$2.92/DGE
Average Fuel Economy	5.9 mpg	0.48	11.2 mi/kg	5.1 mi/DGE
<b>Total Fuel Cost</b>	<b>\$296,381</b>	<b>\$152,074</b>	<b>\$486,820</b>	<b>\$469,831</b>
Lifetime Maintenance Cost	\$95,484	\$71,613	\$95,484	
Midlife Cost	\$0	\$42,949	\$94,023	
Registration Fees	\$27,545	\$21,472	\$26,548	
Residual Values	(\$15,453)	(\$7,727)	(\$3,863)	
<b>Total Other Cost</b>	<b>\$107,576</b>	<b>\$128,308</b>	<b>\$212,192</b>	
<b>Total</b>	<b>\$571,456</b>	<b>\$874,044</b>	<b>\$1,485,498</b>	<b>\$624,925</b>

**Table 11. Summary of TCO Analyses from Literature Review**

Truck Class	Ownership period	Annual Mileage	Diesel	Low-NOx CNG	Battery-Electric	Hydrogen Fuel Cell
Class 3	12	15,000	\$97,782		\$113,657	\$410,258
Class 4	12	15,000	\$124,229 <sup>1</sup>		\$177,345 <sup>1</sup>	
Class 6	12	24,000	\$243,306 <sup>2</sup>	\$340,176	\$248,171 <sup>2</sup>	\$596,603 <sup>2</sup>
Class 8 (Ports Study)	12	68,383	\$598,122 <sup>3</sup>	\$624,925 <sup>3</sup>	\$1,063,000 <sup>3</sup>	
Class 8 (CARB TCO)	12	54,000	\$571,456 <sup>2</sup>		\$874,044 <sup>2</sup>	\$1,485,498 <sup>2</sup>

1. <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>
2. <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>
3. <https://cleanairactionplan.org/documents/final-dravage-truck-feasibility-assessment.pdf/>

Using the reported annual mileages shown in Table 11, costs were calculated on a dollar per mile basis, as shown in Equation 2.

<sup>25</sup> <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

Equation [2]:

$$TCO \left( \frac{\$}{mi} \right) = \frac{TCO (\$)}{12 (yr) * Annual Mileage \left( \frac{mi}{yr} \right)}$$

**Table 12. Total Cost of Ownership calculated as \$/mi**

Truck Class	Diesel	Low-NOx CNG	Battery-Electric	Hydrogen Fuel Cell
Class 3	0.54		0.67	2.28
Class 4	0.69		0.99	
Class 6	0.84	1.18	0.86	2.07
Class 8 (Ports Study)	0.73	0.76	1.30	
Class 8 (CARB TCO)	0.88		1.35	2.29

SCAG’s Heavy-Duty Truck Regional Travel Demand model provides an estimate of heavy-duty truck activities within South Coast Air Basin. TCO values on a dollar per trip basis are estimated using SCAG’s VMT and trip rates in Table 13.

**Table 13. Truck activity data from SCAG’s Heavy-Duty Truck Regional Travel Demand Model**

Truck Class	VMT (mi/day)	Trips (trip/day)	Mile/trip
Class 2b-3	7,456,000	488,000	15.3
Class 4-7	7,744,000	544,000	14.2
Class 8	12,060,000	302,000	39.9

Equation 3 below illustrates the method used to determine TCOs on a dollar per trip basis using the TCOs (\$/mi) in Table 12 and SCAG’s mileage rates in Table 13, with results shown in Table 13. Equation [3]:

$$TCO \left( \frac{\$}{trip} \right) = TCO \left( \frac{\$}{mi} \right) \times \frac{mi}{trip}$$

**Table 14. Total Cost of Ownership (\$/trip)**

Truck Class	Diesel	Low-NOx CNG	Battery-Electric	Hydrogen Fuel Cell
Class 3	8.31		10.28	34.96
Class 4	9.80		13.99	
Class 6	12.00	16.77	12.24	29.42
Class 8 (Ports Study)	29.08	30.39	51.69	
Class 8 (CARB TCO)	35.19		53.82	91.47



Although the TCO analyses above assume a 12-year useful life for a truck, motor carriers may require shorter periods over which they absorb the incrementally higher costs of ZE or NZE trucks compared to diesel. The analysis here therefore assumes that this incremental cost is absorbed over a 3-year period, instead of the full 12-year useful life. The incremental cost is therefore multiplied by four ( $12 \div 3 = 4$ ) to determine the default cost for truck visits.

**Table 15. Annualized Incremental Costs**

Truck Class		Annualized Unitary Metric	Annualized Incremental Cost (\$/metric)
Class 8	NZE	365 truck visits**	$(\$30.39 - \$29.08) \times 4 \times 2 \times 365 = \$3,825$
Class 4-7*			$(\$16.77 - \$12.00) \times 4 \times 2 \times 365 = \$13,928$
Class 8	ZE		$(\$53.82 - \$35.19) \times 4 \times 2 \times 365 = \$54,400$
Class 4-7*			$(\$12.24 - \$12.00) \times 4 \times 2 \times 365 = \$701$
Class 2b-3			$(\$10.28 - \$8.31) \times 4 \times 2 \times 365 = \$5,752$

\*In this analysis, Class 6 TCOs were used for the Class 4-7 category in the WAIRE Menu

\*\* One visit equals two one-way trips

**WAIRE Points for ZE/NZE Truck Visit Costs:** Based on the costs presented in Table 15, the number of WAIRE Points earned for ZE Class 8, Class 4-7, and Class 2b-3 truck visits are 3, 1, and 1, respectively. One WAIRE Point is earned for both NZE Class 8 and Class 4-7 truck visits.

**Total WAIRE Points for ZE/NZE Truck Visits:** The total WAIRE Points for truck visits includes Points from the cost, regional emission reductions, and local emission reductions. In addition, because most of the emissions associated with warehouses comes from trucks visits, a multiplier of three is applied to the summed Points to encourage operators to choose this option, and to promote a more rapid return on investment for the purchase of ZE/NZE trucks. For example, for 365 class 8 ZE truck visits, a warehouse would earn: 8 Points for regional, 6 Points for Local, and 3 Points for cost, with a sub-total of 17 Points. The final total for this Menu item would be 51 Points ( $17 \times 3$ ).

**SECTION 3) Electric Charger Usage and Installation**

**Description:** ZE battery electric trucks require specialized charging infrastructure. Installing this infrastructure can require facility electrical upgrades, dedication of space for electrical equipment and vehicle parking, permitting with local authorities, and plans to optimize charger usage. The charging stations themselves range in size and are typically rated based on the amount of kW that can be dispensed. Higher powered charging stations ( $\geq 350$  kW) are just now entering the market, and may require significant construction. On the usage side, the cost of the electricity can vary depending on the time of day when trucks are charged, the kW charging level, and the level of demand charges. Utilities are introducing new rate structures for the use of these stations to address this new market need. Trucks that would use charging infrastructure at a warehouse are likely to travel to destinations unrelated to the warehouse itself, and providing this infrastructure can facilitate greater usage of ZE trucks.

**Commercial Availability:** Several different manufacturers sell EVSE at a variety of power levels (e.g., Level 2, Level 3, etc.), including with optional power management software that govern how trucks are charged. At the current early stage of commercialization and demonstration of electric trucks, the higher power chargers used for heavy duty vehicle charging have not yet followed a common standard, and proprietary charging systems are commonly tailored to each vehicle. This is expected to change in the near future with the development of a common High Power Charging for Commercial Vehicles standard by the CharIN<sup>26</sup> organization. In addition, local utilities and land use agencies are developing programs specifically focused on charging infrastructure upgrades. Notable examples include the Charge Ready Transport program from Southern California Edison (SCE)<sup>27</sup>, the Commercial EV Charging Station Rebate Program from the Los Angeles Department of Water and Power (LADWP)<sup>28</sup>, and permit streamlining efforts from many local permitting agencies<sup>29</sup>. SCE and LADWP collectively provide power to  $>80\%$  of warehouses that may be included in PR 2305 (see chart).

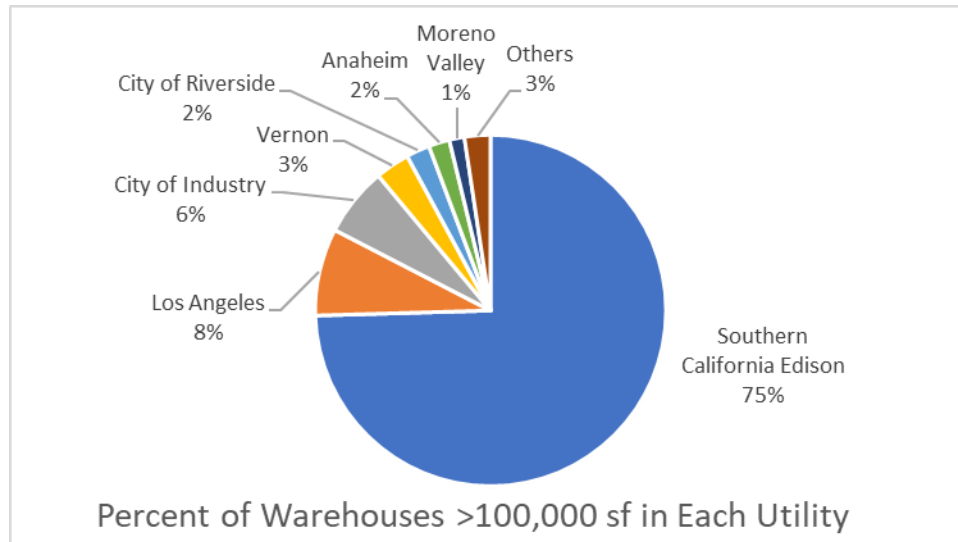
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<sup>26</sup> <http://www.charinev.org/hpccv> - CharIN members include most major vehicle manufacturers as well as many major energy and charging infrastructure companies.

<sup>27</sup> <https://www.sce.com/business/electric-cars/charge-ready-transport>

<sup>28</sup> [www.ladwp.com/ladwp/faces/ladwp/commercial/c-savemoney/c-sm-rebatesandprograms/c-sm-rp-commevstation](http://www.ladwp.com/ladwp/faces/ladwp/commercial/c-savemoney/c-sm-rebatesandprograms/c-sm-rp-commevstation)

<sup>29</sup> <http://www.business.ca.gov/ZEVRoadiness>



**SECTION 3a) Charger Usage**

**Emissions:** While charging infrastructure on its own does not reduce emissions, this equipment does facilitate emissions reductions by providing additional locations for electric vehicles to obtain power and making it possible for their increased use. However, similar to the calculations for truck acquisitions, regional emission WAIRE Points are earned at a \$100,000 per ton of NOx cost effectiveness level. Both regional and local emission reductions Points are earned when charging stations are used. The amount of regional NO<sub>x</sub> emissions reductions is tied to the total amount of dispensed electricity, using default electric vehicle efficiencies and emission rates. The amount of local DPM emissions reductions is set equal to six miles of travel for every charging event<sup>30</sup>. The Annualized Unitary Metric (AUM) is set at 165,000 kWh, equal to about 450 kWh per day, or enough for five separate two hour-long charging events per day on a 50 kW charger, or to recharge one truck with a 500 kWh battery.

The tables and equations below illustrate the methods used to determine Point values based on regional and local emissions reductions.

**Table 16. Electric Vehicle Efficiencies<sup>31</sup>, Emission Rates<sup>32</sup>, and Emissions Reductions**

Truck Category	Efficiency	Emission Rate		Emissions Reductions	
	mile/kWh	NO <sub>x</sub> g/mile	DPM g/mile	lb NO <sub>x</sub> /kWh	lb DPM/kWh
Class 4-5	1.26	1.08	0.007	0.003	0.00002
Class 6-7	0.8	1.08	0.007	0.002	0.00001
Class 8	0.62	2.37	0.02	0.003	0.00003

<sup>31</sup> CARB Advanced Clean Truck – Draft Standardized Regulatory Impact Assessment (SRIA), 8/8/2019 <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

<sup>32</sup> <https://www.arb.ca.gov/emfac/2017/>, emission rates are from calendar year 2023

*Equation [4]: NOx reductions = (mile/kWh) × (g/mile) × 165,000 kWh/yr ÷ 453.59 (g/lb)*

Equation 1 (Class 4-5):  $1.26 \times 1.08 \times 165,000 \div 453.59 = 495 \text{ lb NOx}$   
 Equation 1 (Class 6-7):  $0.8 \times 1.08 \times 165,000 \div 453.59 = 314 \text{ lb NOx}$   
 Equation 1 (Class 8):  $0.62 \times 2.37 \times 165,000 \div 453.59 = 535 \text{ lb NOx}$

*Equation [5]: DPM reductions = (mile/kWh) × (g/mile) × 165,000 kWh/yr ÷ 453.59 (g/lb)*

Equation 2 (Class 4-5):  $1.26 \times 0.007 \times 165,000 \div 453.59 = 3.2 \text{ lb DPM}$   
 Equation 2 (Class 6-7):  $0.8 \times 0.007 \times 165,000 \div 453.59 = 2.0 \text{ lb DPM}$   
 Equation 2 (Class 8):  $0.62 \times 0.02 \times 165,000 \div 453.59 = 4.5 \text{ lb DPM}$

**WAIRE Points from Charging Station Usage Emission Reductions:** Emission reductions vary for each class of truck. For the WAIRE Menu, the regional and local emission reductions from class 8 trucks are used. Regional emission reductions therefore result in 22 WAIRE Points, while local emission reductions result in 18 WAIRE Points.

**Costs of Using Charging Stations:** Over the past year staff worked closely with multiple utilities to understand their new commercial EV charging rate structures and developed estimates of the average cost of electricity per kWh. As noted above, about three quarters of all warehouses potentially subject to the rule are located within SCE's jurisdiction. For this analysis, multiple scenarios were evaluated for a five concurrent two hour long charging events per day on a 50 kW chargers. Table 17 reflects the expected charging rate and the average electricity rate for two most appropriate SCE rate schedule for heavy-duty EV charging. The average cost assumes an equal amount of charging in each time window.

**Table 17. Annual Average Cost of Electricity\* – Two Key SCE Rate Schedules for Charging Stations South Coast AQMD Staff Analysis**

Charging Window	SCE TOU-EV-9	SCE TOU-8-RTP
	\$/kWh *	\$/kWh **
<b>On-Peak</b>	<b>0.34</b>	<b>0.28</b>
<b>Mid-peak</b>	<b>0.16</b>	<b>0.25</b>
<b>Off-peak</b>	<b>0.14</b>	<b>0.23</b>

\* Demand charges and voltage discount are zero for TOU-EV-9

\*\*Demand charges contributes to 40% of total annual electricity cost – Voltage discount included

\*\*\*These costs do not account for any LCFS revenue that a facility may receive. The LCFS value may vary depending on market conditions but can be more than \$0.10/kWh.<sup>33</sup>

In LADWP jurisdiction the electricity rate can range between \$0.11-0.3 \$/kWh for charging heavy-duty vehicles depending on load factor, daily charging hours, and charging capacity. The provided range by LADWP staff is consistent with the rates provided in Table 5.

Using the \$0.21 \$/kWh rate above, and AUM of 165,000 kWh per year for a charging station, the total annual cost of electricity for the warehouse is \$34,650, equal to two WAIRE Points.

<sup>33</sup> <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

### SECTION 3b) Charger Installation

**Costs to Install Charging Stations:** Charging infrastructure costs can vary greatly from site to site. The analysis presented here was informed by staff discussions with charger providers, utilities, other industry stakeholders, data from current South Coast AQMD funded projects, and multiple studies (referenced below). Table 18 presents a summary of the range of costs for purchasing and installing different EVSEs.

Electrification projects require site-specific planning and sometimes can take more than one year to implement. Because of this potentially extended period, the charging infrastructure installation WAIRE Menu item includes project milestones to allow warehouses to earn Points for partial completion of charger installation during a compliance year. Three milestones that are common to all charging station projects include purchasing the Electric Vehicle Supply Equipment (EVSE), construction mobilization, and final permit sign off & charger energization. In order to account for splitting charger installations into two separate milestones, it is assumed that the construction mobilization milestone will require up to \$10,000 of the total installation cost, and the remaining cost is incurred during construction and prior to final permit sign-off.

**Table 18. Charging Infrastructure Installation Cost Ranges, and Key Incentives/Rebates Programs**

Charging Installation Activity	Charger Level	Cost Range <sup>A-D</sup>
		\$ per charger
EVSE Purchase	Level 5	60,000 – 140,000
	Level 4	30,000 – 60,000
	Level 3	10,000 – 30,000
	Level 2	3,000 – 5,000
Charger Installation <sup>1</sup>	Level 3, 4, or 5	10,000 – 80,000
	Level 2	5,000 – 10,000

*Notes:*

1. Installation cost for one charger includes electrical service extension, permitting, labor costs, and trenching to lay cables

*References:*

- A. Charging the Future: Challenges and Opportunities for Electric Vehicle Adoption, Henry Lee and Alex Clark, August 2018
- B. Estimating Electric Vehicle Charging Infrastructure Costs across Major U.S. Metropolitan Areas. Michael Nicolas, August 2019
- C. Rocky Mountain Institute Report, <https://www.greenbiz.com/blog/2014/05/07/rmi-whats-true-cost-ev-charging-stations>, 2019
- D. CARB Advanced Clean Truck - Standardized Regulatory Impact Assessment (SRIA), August 2019

**WAIRE Points from Charging Station Installations:** Table 19 below summarizes the Points that a warehouse would earn for purchasing an EVSE and installing it. Similar to truck acquisitions, regional emission Points are assigned at a \$100,000 per ton of NOx cost effectiveness.

**Table 19. Summary of WAIRE Points Earned for Installing Charging Infrastructure**

Charger Installation Activity	Cost Points	Regional Emissions Points	Total WAIRE Points
1 EVSE Purchased	6	112	118
	3	48	51
	2	24	26
	1	4	5
1 construction project	1	8	9
	1	8	9
1 construction project	3	56	59
	1	8	9

**SECTION 4) Hydrogen Fueling Station Installation and Usage**

**Description:** Hydrogen refueling stations (HRS) are used to supply fuel to vehicles with hydrogen fuel cell drivetrains. An HRS is composed of storage and dispensing units and can sometimes include a production unit if the hydrogen is produced on site. If the hydrogen is produced on site or delivered to the station at an intermediary pressure or in liquid state, intermediary storage is also needed along with a compression system.

**Commercial Availability:** While construction of hydrogen fueling stations has been increasing, with 43 now operating in the state<sup>34</sup>, they are primarily focused on the light duty vehicle market, or in some cases for transit buses. However, some Class 8 truck manufacturers are actively pursuing the development and commercialization of hydrogen fuel cell trucks over the next few years, including Toyota, Kenworth, Hyundai, and Nikola. Fueling infrastructure will be a critical component to facilitate these new ZE trucks.

**Hydrogen Station Installation Costs:** Hydrogen prices are influenced by the cost of production, distribution, and sales, among other factors. In addition to AB 8 and CARB's Scoping Plan, the recently-updated Low Carbon Fuel Standard, Executive Orders B-16-2012 and B-48-18 provide strong policy drivers for accelerating commercialization of fuel cell vehicles and their associated hydrogen fuel station network.

Table 20 below presents a summary of costs associated with developing a hydrogen fueling station from literature review and discussion with stakeholders. In this context, total capital cost includes site design and engineering, permitting, equipment, project management, and labor costs.

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<sup>34</sup> [www.veloz.org](http://www.veloz.org)

**Table 20. Hydrogen Fueling Station Costs**

	Capacity (kg/day)	Cost (\$)	\$/Capacity (\$/kg/day)	Source
			5000-10,000	CARB Total Cost of ownership Discussion Documents <sup>35</sup>
Gaseous H2 LDV fueling system at 700 bar	250	1,725,000	6,900	Moyer Granted Project for Sunline Transit- EPC Design
Gaseous H2 Station- 700 bar Cascade dispensing	700	3,065,724	4,380	Argonne National Lab Heavy Duty Refueling Model, (2016 Dollar) <sup>36</sup>
Gaseous H2 Station- 700 bar Booster compressor	700	3,140,211	4,486	
Gaseous H2 Station- 350 bar Cascade dispensing	700	2,029,488	2,899	
Liquid H2 Station- 700 bar via vaporization/compression	700	2,421,134	3,459	Argonne National Lab Heavy Duty Refueling Station Model, (2016 Dollars) <sup>2</sup>
Liquid H2 Station- 350 bar via vaporization/compression	700	1,430,748	2,044	
Liquid H2 Station- 700 bar via LH2 pump/vaporization	700	1,541,243	2,202	
Liquid H2 Station- 350 bar via LH2 pump/vaporization	700	1,145,634	1,637	
Onsite H2 Production	7257.5	16,500,000	2,274	Industry stakeholder input
Onsite H2 Production	600	5,000,000	8,333	Industry stakeholder input

**WAIRE Points for Hydrogen Station Installation:** For the WAIRE Menu an onsite hydrogen fueling station with a capacity of 700kg/day with delivered hydrogen was assumed to cost \$2 million. This would yield 80 WAIRE Points. At a cost effectiveness of \$100,000 per ton of NOx, an additional 1600 Points are earned for regional emissions.

**Emission Reductions from Hydrogen Usage:** Annualized regional NOx emission reductions and local DPM emission reductions were set to be same as the reductions achieved by usage of onsite electric charger stations at 535 lb NOx/yr and 4.5 lb DPM/yr. Details of the calculation can be found in Section 3 of this report.

**Hydrogen Fuel Costs:** To determine the annualized unitary metric (AUM) for dispensed hydrogen, a back calculation was conducted based on the amount of regional NOx emissions:

Equation [6]:

$$\begin{aligned}
 \text{Total kg of Dispensed } H_2 &= 535 \left(\frac{lb}{yr}\right) \times 453.59 \left(\frac{gr}{lb}\right) \times \frac{1}{2.372 \left(\frac{g}{mi}\right) \times 16.63 \left(\frac{mi}{kg H_2}\right)} \\
 &= 6,152 \frac{kg}{yr}
 \end{aligned}$$

Where, 2.372 (g/mi) is the VMT weighted average of NOx running exhaust emission rate of Class 8 trucks considered in this analysis including T7 CAIRP, T7 NNOOS, T7 NOOS, T7 POLA and

<sup>35</sup> <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>

<sup>36</sup> <https://hdsam.es.anl.gov/index.php?content=hdrsam>



T7 Tractor. 16.63 (mi/kg) is the reported fuel economy for a class 8 fuel cell truck<sup>37</sup>. Given the total kg of dispensed hydrogen calculated above and a retail price of \$10/kg, the annual cost will be \$61,520.

**WAIRE Points for Dispensed Hydrogen:** Based on the emission reductions stated above, 22 and 18 Points are earned respectively for regional NOx and local DPM. Cost Points would contribute another 3 Points, for a total of 43 Points for 6,152 kg of H<sub>2</sub> dispensed.

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<sup>37</sup> <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

### **SECTION 5) Zero Emissions Yard Truck Acquisition and Usage**

**Description:** Yard trucks (also called yard tractors, terminal trucks, hostlers, yard jockeys, or yard goats) move trailers and containers around warehouse facilities. Most yard trucks at warehouse facilities are diesel fueled and emit NO<sub>x</sub>, DPM, and other pollutants. Duty cycles for yard trucks vary depending on use, with heavier use at railyards and port facilities and lighter use typically at warehouses and manufacturing plants, as defined by hours of use and diesel consumption rates. CARB has limited population data for about 1,100 yard tractors operating statewide through its DOORS reporting program for off-road vehicles, but it is unclear how many of these operate at warehouses in South Coast AQMD. In addition, many yard tractors can be on-road vehicles, which are not required to be reported through the DOORS system. For example, about two thirds of the roughly 1,600 yard tractors at the ports of Los Angeles and Long Beach are on-road vehicles.

**Commercial Availability:** Many battery-electric yard tractor demonstration projects have taken place in the past several years, including in the South Coast AQMD. Following these efforts, multiple manufacturers have begun offering battery-electric ZE yard trucks for sale commercially including OrangeEV, Kalmar Ottawa, and BYD.

**Operation:** Operation of yard trucks can be tracked by hours of use, with hourly usage varying from <1,000 hours/year up to 6,000 hours/year. The diesel reductions were calculated by using the horse power, hours of use, the load factor, and the pollutant emission factor.

#### **SECTION 5a) ZE Yard Truck Acquisition**

**WAIRE Points from ZE Yard Truck Acquisition:** ZE yard trucks currently cost about \$310,000 while their diesel equivalent costs about \$100,000<sup>38</sup>. This incremental cost of \$210,000 would earn nine WAIRE Points per ZE yard truck purchased. Similar to the methods used for on-road truck acquisitions, at \$100,000 per ton cost effectiveness, a ZE yard truck acquisition would earn 168 Points for regional emission reductions.

#### **SECTION 5b) ZE Yard Truck Usage**

**Emissions:** From the DOORS data, the most common yard trucks operate a 175 hp, Tier 3 engine. Table 21 below shows the emission factors from the Carl Moyer Guidelines<sup>39</sup> for this type of yard truck. Assuming that this type of yard truck operates 1,000 hours per year, and has operated for ten years, the emission reductions from switching to a ZE yard truck are shown in Equation 7 below.

**Table 21. Emission Factors for a Tier 3 Yard Truck**

<b>Pollutant</b>	<b>Emission Factor (EF) g/hp-hr</b>	<b>Deterioration Rate (DR) g/hp-hr-hr</b>	<b>Load Factor (LF)</b>
NO <sub>x</sub>	2.32	0.00003	0.39
DPM	0.088	0.000044	

<sup>38</sup> <https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

<sup>39</sup> <https://ww3.arb.ca.gov/msprog/moyer/guidelines/current.htm>

*Equation [7]*

$$\text{Emissions} = (hp) \times (LF) \times [((\text{total hrs of use}) \times (DR)) + (EF)] \times (\text{hrs of use}) \div 453.59 \left(\frac{g}{lb}\right)$$

$$\text{Equation 7 NOx: } 175 \times 0.39 \times [((10 \times 1,000) \times 0.00003) + 2.32] \times 1,000 \div 453.59 = 394 \text{ lbs}$$

$$\text{Equation 7 DPM: } 175 \times 0.39 \times [((10 \times 1,000) \times 0.0000044) + 0.088] \times 1,000 \div 453.59 = 19.9 \text{ lbs}$$

**Costs:** Although purchase prices for ZE yard trucks are higher than their diesel equivalent, once purchased the operational costs are expected to be lower. An analysis by the ports of Long Beach and Los Angeles evaluated the Total Cost of Ownership (TCO) for battery-electric ZE yard trucks in comparison to diesel<sup>40</sup>. This analysis found a TCO for ZE yard trucks to be about \$450,000 (not including infrastructure costs) while equivalent diesel had a TCO of about \$375,000. Assuming a ~12,000 useful life of a yard truck, the annual incremental cost of operating a ZE yard truck for 1,000 hours is shown in Equation 8.

$$\text{Equation [8]: } (\$450,000 - \$375,000) \times 1,000 \text{ hrs} \div 12,000 \text{ hrs} = \$6,250$$

**WAIRE Points from Using ZE Yard Trucks:** Following the results from Equation 6, using a ZE yard truck would earn 16 Points for regional emission reductions and 80 Points for local emission reductions. One cost Point would be earned following the results of Equation 7. Similar to the approach for on-road truck visits, a multiplier of three is applied to the sum of cost, regional, and local Points. Therefore the total Points for 1,000 hours of ZE yard truck usage is:  $(16 + 80 + 1) \times 3 = 291$  Points.

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<sup>40</sup><https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

**SECTION 6) Transport Refrigeration Unit Plug (TRU) Acquisition and Usage****Description:**

TRUs are truck or trailer installed refrigeration systems used at cold storage and distribution center warehouses to transport and temporarily store perishable goods and products. Most of the 7,400 truck and 166,000 trailer TRUs that operate in California are powered by diesel-fueled internal combustion engines (ICEs)<sup>41</sup> which emit about 5.5 tons of NO<sub>x</sub> and 0.2 tons of diesel particulate matter (DPM) daily<sup>42</sup>. Newer TRU technology allow zero emission operations by plugging hybrid and battery electric models into TRU charging infrastructure at warehouses and other destinations. CARB is currently developing a new truck TRU regulation as well as a separate trailer TRU regulation which, among other requirements, could mandate:

- installation of charging infrastructure, and
- truck TRU fleets to annually turn over a portion of their fleet to full ZE technology.

WAIRE Points may only be earned for actions beyond any adopted rules and regulations from U.S. EPA, CARB, or South Coast AQMD. If CARB's previously proposed truck TRU regulation is adopted in the coming years,<sup>43</sup> WAIRE Points could only be earned for the installation of TRU plug infrastructure and TRU plug usage beyond CARB requirements, or potentially through a Custom WAIRE Plan thereafter that would demonstrate how actions taken go beyond CARB rules.

**Commercial Availability:**

Current zero emission operation capable TRUs are: plug-in and hybrid (eTRU); battery-electric; cryogenic; and hydrogen fuel cell. All except the hydrogen fuel cell technologies are commercially available, and are offered for sale commercially by such manufacturers as Advanced Energy Machines, Air Liquide, Boreas, Carrier, Electric Reefer Solutions, and Thermo King. Additionally, there are manufacturers and firms that focus solely on the electric plug-in infrastructure such CleanFutures and Shorepower Technologies<sup>44</sup>.

**Operation:** Electric zero emission trailer TRUs and truck TRUs operate using an onboard battery, or via power from the electrical grid if they are plugged into a charger. Hybrid trailer TRUs may operate via a diesel engine when in transit, and in zero emissions mode while plugged into a charger. Charger operators may claim LCFS credits for the electricity dispensed for TRUs, potentially at a level that fully offsets the cost of electricity.<sup>45</sup> Charger operators are therefore expected to track the total amount of kWh of charger usage for TRUs when they obtain LCFS credits. Plug usage can be tracked by hours of use, 1,460 hours of annual usage or approximately 4 hours per day of TRU plug usage was determined from the 2023 baseline of the TRU ATCM. The 4 hour average use is attributed to truck dwell time at warehouses or delivery destinations.

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<sup>41</sup> <https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/slidesworkshop82019.pdf>

<sup>42</sup> <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

<sup>43</sup> CARB has proposed bifurcating the TRU regulation, with rulemaking in 2021 focusing on TRU trucks, and new emission standards, and later rulemaking focusing on ZE trailers.

<sup>44</sup> [https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/clean\\_tru\\_technology\\_webinar\\_slides\\_handout.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/clean_tru_technology_webinar_slides_handout.pdf)

<sup>45</sup> <https://ww2.arb.ca.gov/sites/default/files/2020-08/Preliminary%20TRU%20Cost%20Doc%2008202020.pdf>

Diesel emission reductions were be calculated by using the horse power, annual hours of use, the load factor, and the pollutant emission factor<sup>46</sup>.

### SECTION 6a) TRU Plug Acquisition and Installation

**WAIRE Points from TRU Plug Acquisition and Installation:** A TRU plug installation costs approximately \$13,600 which includes a Level 2 charger, equipment, design, construction, and installation costs<sup>47</sup>. Using a similar methodology as is described for installing chargers for vehicles in this document, acquisition and installation of a single TRU plug could earn a total of 15 WAIRE Points, with 1 Point for each TRU plug purchased, beginning construction, and receiving final permit sign-off/charger energization. Similar to truck acquisitions, regional emission Points are assigned at a \$100,000 per ton of NOx cost effectiveness, resulting in an additional 12 Points.

### SECTION 6b) TRU Plug Usage

**Emissions:** The 2023 calendar year weighted average emission factors for the South Coast AQMD was used in Equation 1, to calculate the default annual NOx and DPM emission reductions from trailer and truck eTRUs plugging in. The AUM is set at 10,658 kWh, equal to an eTRU plugged in 4 hours per day for 365 days and drawing 7.3 kW of power.<sup>48</sup>

*Equation [1]*

$$\text{Emissions} = (\text{annual hours of use}) \times (\text{Pollutant Emission factor}) \div 453.59 \left(\frac{g}{lb}\right)$$

Equation 1 NOx:  $1,460 \times 12.60 \div 453.59 = 40.6 \text{ lbs}$

Equation 1 DPM:  $1,460 \times 0.53 \div 453.59 = 1.7 \text{ lbs}$

**Costs:** Using the AUM of 10,658 kWh, and the \$0.18/kWh rate for electricity calculated for charging station usage in this document (and not considering any potential offset from LCFS credits), the average annual cost to operate a TRU plug is shown in Equation 2.

*Equation [2]:*  $(\$0.18 / \text{kWh}) \times 10,658 \text{ kWh} = \$1,918$

**WAIRE Points from Using ZE TRUs:** Following the results from Equation 1, using a TRU plug would earn 2 Points for regional emission reductions and 7 Points for local emission reductions. One cost Point would be earned following the results of Equation 2. Similar to the approach for other WAIRE action usage or visits, for replacing diesel-fueled equipment/vehicles, a multiplier of three is applied to the sum of cost, regional, and local Points. Therefore, the total Points for 10,658 kWh from TRU charging is:  $(2 + 7 + 1) \times 3 = 30 \text{ Points}$ .

<sup>46</sup> [https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/tru\\_healthanalysisslidesworkshop10312019.pdf](https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/tru_healthanalysisslidesworkshop10312019.pdf)

<sup>47</sup> <https://ww2.arb.ca.gov/sites/default/files/2020-08/Preliminary%20TRU%20Cost%20Doc%2008202020.pdf>

<sup>48</sup> <https://ww2.arb.ca.gov/sites/default/files/2020-08/Preliminary%20TRU%20Cost%20Doc%2008202020.pdf>

## **SECTION 7) Solar Panel System Acquisition and Usage**

### **Description:**

Solar panel systems are electric energy generation systems that are composed of the solar panels which collect and convert solar radiation to direct current (DC) power, the racking system which mount the panels and equipment to a rooftop or carport, and the inverter which convert the DC power to alternating current (AC) power. The installations of solar panel systems on warehouse rooftops and carports is an increasing trend which provide renewable power for both warehouse usage and for sale back to the grid. Many commercial buildings with significant rooftop or parking area spaces are incorporating solar panel systems into their operations for financial savings. California is leading the nation with over 600,000 commercial buildings being equipped with solar panel systems, with a solar market penetration of about 2.5%<sup>49</sup>. In the last several years, there have been many technology advancements in solar panels that have made them lighter, more efficient, and more flexible which allows for them to be installed in more applications that have led to a decrease in overall installation costs.

### **Commercial Availability:**

Solar panel systems have wide commercially available throughout California with hundreds of manufacturers and installers who offer a range options for system sizes and component configurations.

### **Operation:**

To analyze the installation and use of solar panel systems, the median solar panel system size was set at 100 kW based on a literature review of Lawrence Berkeley National Laboratory's (LBNL) annual Tracking the Sun Report<sup>50</sup>. The 100 kW solar system parameter was inputted into the National Renewable Energy Laboratory's (NREL) PVWatts<sup>51</sup> calculator specifying a region in the South Coast AQMD jurisdiction which resulted in an annual estimated electrical generation of 165,000 kWh. The 100 kW solar panel system and the 165,000 kWh estimated electrical generation serve as the annual unitary metric (AUM) for solar panel system installation and usage, respectively.

## **SECTION 7a) Solar Panel System Acquisition and Installation**

**WAIRE Points from Solar Panel System Acquisition and Installation:** Based on LBNL's Tracking the Sun study<sup>52</sup> the price per kW for a rooftop solar panel system was \$2.80 per kW and a carport solar panel system was estimated to cost \$3.74<sup>53</sup>. Carport solar panel systems have higher costs due to structural costs to elevate the solar panels to provide the carport or truck shade structure. WAIRE Points are calculated based on the total cost of the installation of the 100 kW solar panel system. Applying the \$2.80 per Watt costs for rooftop installation for the 100 kW solar panel system results in a total acquisition and installation cost of \$280,000. For carport solar panel system installation, the \$3.74 per Watt for carport solar panel system installation for the 100 kW

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<sup>49</sup> <https://emp.lbl.gov/webinar/commercial-rooftop-solar-energy-market>

<sup>50</sup> <https://emp.lbl.gov/tracking-the-sun>

<sup>51</sup> <https://pvwatts.nrel.gov/>

<sup>52</sup> [https://eta-publications.lbl.gov/sites/default/files/tracking\\_the\\_sun\\_2018\\_briefing.pdf](https://eta-publications.lbl.gov/sites/default/files/tracking_the_sun_2018_briefing.pdf)

<sup>53</sup> Based on a confidential data obtained from industry source that requested non-attribution.

solar panel system which results in a total acquisition and installation cost of \$374,000. Using a similar methodology as is described for installing chargers for vehicles in this document, acquisition and installation of a rooftop solar panel system could earn 23 WAIRE Points for a 100 kW rooftop solar panel system, and 27 WAIRE Points for a 100 kW carport solar panel systems. Similar to truck acquisitions, regional emission Points are assigned at a \$100,000 per ton of NOx cost effectiveness, resulting in an additional 12 Points.

### **SECTION 7b) Solar Panel System Usage**

**Emissions:** Using emissions data from local power plants which potentially provide power to warehouses within the South Coast AQMD jurisdiction, a peak rate NOx emission factor of 0.07 lbs/MWh was calculated<sup>54</sup>. The combustion of natural gas at the local power plants do not generate DPM so only NOx is considered in this analysis. The calculated NOx emission factor is used with the AUM of the estimated generation of 165,000 kWh for a 100 kW solar panel system installed on a structure in the South Coast AQMD jurisdiction. Equation 1 shows the calculated the default annual NOx emission reductions from solar panel system usage.

*Equation [1]*

*Emissions = (Power Plant NOx Emission Factor lbs/MWh) ×  
(Total Estimated KWh generated)/1,000*

Equation 1 NOx:  $0.07 \times 165,000 \div 1,000 = 9.7$  lbs

**Costs:** No cost is considered for the operation of the solar panel system. After the initial installation costs, the minimal maintenance costs are negligible considering the cost saving from solar electric power generation in comparison to purchasing grid power.

**WAIRE Points from Solar Panel System Usage:** Following the results from Equation 1, using a solar panel system would earn 1 Point for regional emission reductions. There are no cost or local benefit WAIRE Points contributions.

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<sup>54</sup> Power plant emission calculations were derived from CEMS, eGRID, and EIA data to calculate for the South Coast AQMD jurisdiction

**SECTION 8) Installation of Air Filter Systems or Air Filters in Community Facilities****Description:**

The installation of air filter systems or the installation/replacement of air filters is provided on the WAIRE Menu to provide a community benefit in reducing exposure for the communities near warehouses. Air filters have been shown to successfully remove black carbon (BC) and particulate matter (PM) which include ultrafine particles (UFP) (particles with a diameter < 0.1µm), diesel particulate matter (DPM), PM<sub>2.5</sub> (particles with a diameter < 2.5µm), and PM<sub>10</sub> (particles with a diameter < 10µm) of outdoor particles formed from the combustion of fossil fuels that permeate into the indoors.<sup>55</sup> Exposure to PM contaminants may lead to potential health hazards such as asthma, lung inflammation allergies, and other respiratory or cardiovascular problems<sup>56</sup>. DPM is an air toxin and classified human carcinogen which account for more than 80% of the total cancer risk from air toxics in the south coast air basin (SCAB)<sup>57</sup>. Air filters can be integrated to a heating, ventilation, and air conditioning (HVAC) system or standalone, where the use of high-performance panel filters (HP-PF) resulted in up to 90% removal of UFP, DPM, PM<sub>2.5</sub>, and PM<sub>10</sub>, where HP-PF used were minimum efficiency reporting value 16 (MERV 16) filters<sup>58</sup>. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers defines MERV 16 as filters used for HVAC units that remove at least 95% of particles 0.3 microns or larger.

**Commercial Availability:**

Air filter systems and air filters have wide commercially available throughout California with numerous manufacturers and installers who offer a range options for system sizes and air filter types.

**Operation:**

Air filters can be installed on existing HVAC units or as standalone units at residences, schools, daycares, hospitals, community centers, and other community locations. The integration of air filters with HVAC units does lead to a decrease in the HVAC pressure as caused by the increased resistance of the filters that captures particles. In time the air filter media becomes saturated with particles leading to further HVAC pressure decreases and decreased particle capture efficiency. For standalone systems that uses its own fan the energy demand to operate at top speed is 100 watts/hr or about 5 kWh for 10 hours of operation for a 5 day week<sup>59</sup>. General service maintenance on the air filters involves replacement, on a set interval period or depending on the activity at the location the filters are installed.

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<sup>55</sup> Polidori A, Fine PM, White V, Kwon PS. Pilot study of high-performance air filtration for classroom applications. *Indoor Air*. 2013

<sup>56</sup> Liu, L., Poon, R., Chen, L., Frescura, A.M., Montuschi, P., Ciabattini, G., Wheeler, A. and Dales, R. (2009) Acute Effects of Air Pollution on Pulmonary Function, Airway Inflammation, and Oxidative Stress in Asthmatic Children, *Environ. Health Perspect.*, 117, 668–674.

<sup>57</sup> MATES III Study; South Coast Air Quality Management District, 2008

<sup>58</sup> Polidori A, Fine PM, White V, Kwon PS. Pilot study of high-performance air filtration for classroom applications. *Indoor Air*. 2013

<sup>59</sup> Energy draw is based on a vendor estimate for a school installation (Email dated October 11, 2019 to Victor Juan)



**WAIRE Points from Air Filter or Air Filter System Installation:**

With the emission reductions from the installation of air filter systems or the replacement of air filters being much less than the emission reductions associated with truck purchase, the regional WAIRE Points are related the cost effort considering the same cost effectiveness. The annual metric for the number of air filter systems with MERV 16 air filters installed is 25 systems, and the annual metric for the replacement of air filters is 200 MERV 16 air filters. With the annual metrics and the estimated emission reduction, the installation of 25 air filter systems with MERV 16 air filters equates to 55 WAIRE Points, and the installation/replacement of 200 MERV 16 air filters equates to 51 WAIRE Points.

**Costs:** The costs for air filter systems with MERV 16 air filters were obtained from vendors and contractors that South Coast AQMD has worked with to install air filter systems and air filters at schools and other facilities as part of mitigation and settlement projects. The estimated costs analyzed for the installation of 25 air filter systems with MERV 16 air filters is \$65,000 and cost for the replacement/installation of 200 MERV 16 air filters is \$60,000. Using the \$0.21 \$/kWh electricity rate that is used in other WAIRE Menu actions and assuming 10 hours of use each day for 365 days, the estimated electricity costs for a standalone air filter system for 365 kWh would be \$76.65.

## **Appendix C: WAREHOUSE POPULATION METHODOLOGY**

The analysis of the population of warehouses subject to PR 2305 was compiled between February 2020 – October 2020. Sources for this population of PR 2305 warehouses include the datasets of: CoStar; Dun & Bradstreet (DNB); Fleetseek; InfoUSA; and Leonard’s List, as well as a visual review with Google Maps. CoStar was the primary dataset used to compile the population of PR 2305 warehouses; this CoStar dataset was cross-referenced against the other datasets listed above, which offered additional warehouse information.

The population of PR 2305 warehouses described in this methodology is a snapshot in time, and is expected to update over time to adjust to changes such as warehouse operators moving in and out of warehouse facilities, operational changes, new warehouses construction, etc. Reporting requirements from PR 2305 will provide more detailed information about warehouse properties, operations, and their characteristics upon the adoption of PR 2305. Although there may be some differences between the statistics determined here and actual warehouse operations at every site, the analysis presented below is believed to provide a representative portrayal of the operators subject to PR 2305 and PR 316. The reporting requirements within PR 2305 will ensure that information used to ensure compliance is up to date and more accurate than can be provided from solely relying on third party commercial data products. The list of warehouses potentially subject to PR 2305 and PR 316 are included in the table following this methodology write-up.

### Total Population (3,320 warehouses are anticipated to submit a Warehouse Operations Notification Report)

CoStar is a subscription online database for commercial real estate information. CoStar allows the user to utilize a search function to find properties, either through their “Property” search database or their “Tenant” search database. The dataset was exported from CoStar using the “Property” search. CoStar’s search function utilizes filters to help find properties or tenants with specific characteristics. The CoStar filters used to define the characteristics of warehouse facilities applicable to PR 2305’s warehouse inventory are: “Property Type” (industrial and flex), “Building Status” (existing and under renovation), Rentable Building Area, or “RBA” (greater than or equal to 100,000 square feet), “Secondary Type” (distribution, light distribution, light manufacturing, manufacturing, refrigeration/cold storage, truck terminal, and warehouse), and “Market Name” (Inland Empire (California), Orange County (California), and Los Angeles). The submarkets of Mojave River Valley, San Bernardino Outlying, Antelope Valley Industrial, East Los Angeles County Outlying Industrial, and North East Los Angeles County Outlying Industrial were excluded from the property search as they fall outside of South Coast AQMD’s jurisdiction.

### Tenants

The CoStar Tenant dataset was exported from CoStar using the “Tenant” search. This dataset was exported to assist in identifying operators at the 3,320 warehouses applicable to PR 2305. Filters used from CoStar to define the characteristics are the same as those selected for the “Property” search, as described above, for consistency. To the extent possible, the Tenant and Property datasets were cross-referenced with each other via the property address. Due to discrepancies and missing information (data provided in CoStar is based on reporting from brokers and researchers), not all the data from these two datasets were able to be matched.

### Warehouse Operator Names

The warehouse operators for the 3,320 warehouses were derived from several data sources as each dataset provides different information on tenants, owners, businesses, and companies that differ in definition:

- “Owner Name”, “Property ID”, “Property Address”, “Property Name”, “Company Name”, “City”, and “Zip” from CoStar.
- “Company” from InfoUSA. This dataset is cross-referenced using property addresses.
- “Business Name” from DNB. This dataset is cross-referenced using property addresses.
- “Company” from Leonard’s List. This dataset is cross-referenced using property addresses.

Datasets were refined using the criteria below:

1. If CoStar had data for a property tenant, this was considered to be the correct operator name.
2. If CoStar did not have data for a property, multiple matches between InfoUSA, DNB, and Leonard’s List would be considered the correct operator name.
3. Absent CoStar property tenant data, and no matching data as described in step 2., InfoUSA, DNB, and Leonard’s List were considered the correct operator name in that order of priority.
4. CoStar “Owner Name” was considered the correct operator name if the above steps did not result in an operator.
5. If steps 1-4 did not yield an operator name, or yielded an operator name that appeared to not be a name for a company that would engage in warehousing activities (such as the name of a church), Staff used Google Maps to do a visual verification using Google Maps’ street view to determine an operator name by searching for signage with the operator name on the addressed property or building. If the Google Maps visual verification showed that the property was not for warehouse use (through the name of the property operator or the nature of the property itself, or was a vacant lot), this was considered a potentially inapplicable property for earning WAIRE Points and likely only subject to PR 2305 reporting.

Note that because this dataset was created in order to identify the single most correct operator for each warehouse, this process results in one warehouse operator identified per warehouse. Some warehouses may have multiple operators; identifying warehouses with multiple operators is discussed below.

### Facilities Potentially Only Subject to Reporting Under PR 2305 (418 facilities from the total population of 3,320 warehouses)

247 facilities are expected to only need to satisfy PR 2305 reporting requirements because these facilities have less than 100,000 square feet of warehouse space in a single building after excluding CoStar-reported office space. An additional 171 facilities potentially may only be subject to reporting requirements in PR 2305 as visual review with Google Maps indicated that they may not conduct warehousing activities. For example, some facilities were considered inapplicable if they appeared to be mostly used for manufacturing, and unlikely to have 100,000 square feet dedicated to warehouse use.

To aid in this evaluation, only facilities with the “Secondary Type” column designation of “Manufacturing” and “Light Manufacturing” from CoStar were analyzed in this step. Buildings

with less than one dock door per 10,000 square feet of building area were further screened out. These facilities with less than one loading docks per 10,000 square feet were visually reviewed with Google Maps to look for visual cues of warehousing use (such as dock doors) or lack thereof (such as manufacturing equipment taking up the majority of the site) to determine if on site warehousing use would be potentially applicable to PR 2305.

From the additional analysis described below, all applicable warehouse statistics considerations are out of the 2,902 applicable warehouses, unless stated otherwise.

#### Warehouses That Potentially Have Multiple Operators (1,093 warehouses)

CoStar identified the tenancy of warehouses as single, multiple, or unknown number of operators, and also in many cases identifies the last known tenant. However, the accuracy of the businesses identified as tenants within CoStar was not always considered reliable, as historical tenant data could not always be distinguished from multiple current tenants. Based on a review of all available information within CoStar, out of 2,902 warehouses potentially required to earn WAIRE Points, staff identified 1,093 warehouses that potentially have multiple operators, 1,777 potentially have single operators, and 32 are unknown.

#### Warehouses Whose Operators Potentially Own a Fleet (1,316 warehouses)

Staff identified 1,316 warehouses with operators that potentially own their own truck fleets. To determine this information, staff cross-referenced the warehouse operator names determined above with “Fleet Name” data from the Fleetseek dataset. Because the names of operators and fleets did not exactly match across the two datasets, a fuzzy lookup tool<sup>1</sup> was used that showed the similarity between operator name and fleet seek name. Operators’ potential fleet ownership was further verified by using data from the Federal Motor Carrier Safety Administration Company Snapshot tool<sup>2</sup> and information from company websites. Examples of potential fleet matches that were excluded from the final tally include small fleets (e.g., <3 trucks) that are registered on the east coast who may only share a name with an operator of a warehouse, or fleets who carry cargo not considered likely for warehousing activities under PR 2305 (e.g., refuse).

Although this analysis shows that perhaps ~40% of warehouse operators own a fleet, it is not possible to determine the extent to which any operator’s fleet services a particular warehouse. The reporting requirements under PR 2305 will provide additional information about warehouse operators who own or lease trucks that serve that warehouse.

#### Warehouses within Phases of Rule Implementation

PR 2305 would be implemented in three phases: warehouses larger than or equal to 250,000 square feet will be required to comply with PR 2305 in Phase 1; warehouses larger than or equal to 150,000 square feet and less than 250,000 square feet will be added in Phase 2; and warehouses larger than or equal to 100,000 square feet and less than 150,000 square feet will be added in Phase 3. Using the Rentable Building Area data from CoStar, of the 2,902 warehouse potentially required to earn WAIRE Points, 919 warehouses are in Phase 1, 901 warehouses are in Phase 2, and 1,082 warehouses are in Phase 3. For the 418 facilities that are potentially only subject to PR 2305

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<sup>1</sup> Source: <https://www.microsoft.com/en-us/download/details.aspx?id=15011>

<sup>2</sup> <https://safer.fmcsa.dot.gov/CompanySnapshot.aspx>

reporting requirements there are 37 warehouses in Phase 1, 57 warehouses in Phase 2, and 324 warehouses in Phase 3.

#### Owner-Operators (515 warehouses)

There are 515 warehouses potentially operated by the owners of the warehouse. The applicable warehouse operated by the owners was determined by cross-referencing CoStar warehouse “Owner Name” data with DNB’s “Business Name” data for that same address.

#### Warehouses Near Ports (202 warehouses)

Staff identified 202 warehouses that are located near the Ports of Los Angeles and Long Beach. Warehouses determined to be Warehouses Near Ports were designated on “Submarket Name” column of the CoStar property dataset as: Carson Industrial; Long Beach South East Industrial; Long Beach South West Industrial; Rancho Dominguez Industrial; San Pedro Industrial; and Wilmington Industrial.

#### Warehouses with Existing Solar Panels (214 warehouses)

Staff identified 214 applicable warehouses with solar panel systems installed. Google Maps satellite view was used to identify which applicable warehouses that had solar panels systems installed. “Property Address” data from the CoStar property search were searched in Google Maps to complete a visual review of each property to determine the presence of solar panel systems.

#### Facilities by Secondary Type

The CoStar property search data set provided a secondary industry type designation. These designations are provided under the “Secondary Type” column in the property search dataset. The following breakdown shows the “Secondary Type” designations for the 2,902 warehouses potentially required to earn WAIRE Points under PR 2305: Distribution: 824 facilities; Light Distribution: 5 facilities; Light Manufacturing: 13 facilities; Manufacturing: 419 facilities; Refrigeration/Cold Storage: 42 facilities; Truck Terminal: 33 facilities; and Warehouse: 1,566 facilities.<sup>3</sup>

#### Low Floor Area Ratio (FAR) (870 warehouses)

Staff identified 870 warehouses with FARs less than 0.45. The FAR describes the ratio of indoor floor area relative to the total square footage of a property. For single story buildings, lower FARs indicate a large outdoor area, which in the case of warehouses typically indicates a large yard for truck and trailer parking. The lower the FAR, the more likely it is that space could be identified onsite for larger scale ZE charging/fueling infrastructure installations. Warehouses with FARs <0.45 were identified as this is a common value used by local land use agencies for new warehouse developments. The FAR alone is not the sole determinant if a facility can install ZE charging/fueling infrastructure. Facilities with FARs higher than 0.45 may also have the ability to install ZE charging/fueling infrastructure, and conversely some facilities with FARs <0.45 may not have sufficient access to electrical utility infrastructure connections onsite or nearby.

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<sup>3</sup> These ‘Secondary Types’ were one of the parameters used by IEC in their study of warehouses that may relocate with PR 2305 (“Assessment of Warehouse Relocations Associated with the South Coast Air Quality Management District Warehouse Indirect Source Rule”). That study analyzed 2,638 warehouses that were considered most likely to relocate. The Technical Memorandum on Real Estate Markets Neighboring the South Coast AQMD Region from that study describes the methodology it used relative to these datasets.

## List of Warehouse Addresses Potentially Subject to PR 2305

Property Address	City	State	Zip	Property Address	City	State	Zip
6100 S Wilmington Ave	Huntington Park	CA	90001	140 N Orange	City of Industry	CA	91744
914 E 59th St	Los Angeles	CA	90001	155 N Orange Ave	City Of Industry	CA	91744
1853 E 65th St	Los Angeles	CA	90001	15350 E Stafford St	City Of Industry	CA	91744
1016 E 59th St	Los Angeles	CA	90001	14736 Nelson Ave	City Of Industry	CA	91744
1711 E 58th Pl	Los Angeles	CA	90001	16195 E Stephens St	City Of Industry	CA	91745
8122 Maie Ave	Los Angeles	CA	90001	14625 E Clark Ave	City of Industry	CA	91745
7314 Maie Ave	Los Angeles	CA	90001	16639 E Gale Ave	City Of Industry	CA	91745
5901 Central Ave	Los Angeles	CA	90001	15541 E Gale Ave	City Of Industry	CA	91745
8801 S Alameda St	Los Angeles	CA	90002	16555 Gale Ave	City of Industry	CA	91745
5867 S Los Angeles St	Los Angeles	CA	90003	14425 E Clark Ave	City of Industry	CA	91745
5930 S Wall St	Los Angeles	CA	90003	16900 Chestnut St	Hacienda Heights	CA	91745
3401 S Grand Ave	Los Angeles	CA	90007	360 Parriott Pl W	City Of Industry	CA	91745
3751 S Hill St	Los Angeles	CA	90007	16040 Stephens St	City of Industry	CA	91745
3333 S Grand Ave	Los Angeles	CA	90007	918 S Stimson Ave	City of Industry	CA	91745
2250 Maple Ave	Los Angeles	CA	90011	16049 E Stephens St	City of Industry	CA	91745
900 E 29th St	Los Angeles	CA	90011	16150 E Stephens St	City of Industry	CA	91745
1100 N Main St	Los Angeles	CA	90012	333 S Turnbull Canyon Rd	City of Industry	CA	91745
900 E 3rd St	Los Angeles	CA	90013	15530 E Salt Lake Ave	City of Industry	CA	91745
500 S Central Ave	Los Angeles	CA	90013	15650 Salt Lake Ave	City of Industry	CA	91745
754 Wall St	Los Angeles	CA	90014	768 Turnbull Canyon Rd	City of Industry	CA	91745
808 Wall St	Los Angeles	CA	90014	15615 E Gale Ave	City of Industry	CA	91745
421 E 6th St	Los Angeles	CA	90014	17009 Green Dr	Hacienda Heights	CA	91745
1057 S San Pedro St	Los Angeles	CA	90015	15241 Don Julian Rd	City Of Industry	CA	91745
1816 Oak St	Los Angeles	CA	90015	620 S Hacienda Blvd	City of Industry	CA	91745
401 E Pico Blvd	Los Angeles	CA	90015	16950 Chestnut St	Hacienda Heights	CA	91745
940 W Washington Blvd	Los Angeles	CA	90015	218 S Turnbull Canyon Rd	City of Industry	CA	91745
1525 S Broadway	Los Angeles	CA	90015	17009 E Green Dr	City Of Industry	CA	91745
2340 S Fairfax Ave	Los Angeles	CA	90016	15343 E Proctor Ave	City of Industry	CA	91745
5716 W Jefferson Blvd	Los Angeles	CA	90016	14455 E Clark Ave	City Of Industry	CA	91745
799 Towne Ave	Los Angeles	CA	90021	16425 E Gale Ave	City of Industry	CA	91745
2415 E 15th St	Los Angeles	CA	90021	15450 E Salt Lake Ave	City of Industry	CA	91745
1340 E 6th St	Los Angeles	CA	90021	800 Turnbull Canyon Rd	City of Industry	CA	91745
2000 E 8th St	Los Angeles	CA	90021	15381 E Proctor Ave	City of Industry	CA	91745
1900 Sacramento St	Los Angeles	CA	90021	16253 Gale Ave	City of Industry	CA	91745
921 E Pico Blvd	Los Angeles	CA	90021	500 S Hacienda Blvd	City of Industry	CA	91745
1205 Wholesale St	Los Angeles	CA	90021	16175 E Stephens St	City Of Industry	CA	91745
1334 S Central Ave	Los Angeles	CA	90021	425 Turnbull Canyon Rd	Hacienda Heights	CA	91745
1226 Stanford Ave	Los Angeles	CA	90021	13285 E Temple Ave	City Of Industry	CA	91746
1050 S Stanford Ave	Los Angeles	CA	90021	14300 E Bonelli St	City Of Industry	CA	91746
2415 E 15th St	Los Angeles	CA	90021	14730 Don Julian Rd	City of Industry	CA	91746
1206 E 6th St	Los Angeles	CA	90021	220 S 6th Ave	City Of Industry	CA	91746
1800 Essex St	Los Angeles	CA	90021	14955 E Salt Lake Ave	City Of Industry	CA	91746
1208 Stanford Ave	Los Angeles	CA	90021	15110 E Don Julian Rd	La Puente	CA	91746
801 E 7th St	Los Angeles	CA	90021	13400 E Nelson Ave	City of Industry	CA	91746
1515 E 15th St	Los Angeles	CA	90021	320 S 6th Ave	City of Industry	CA	91746
1701 Bay St	Los Angeles	CA	90021	13170 E Temple Ave	City of Industry	CA	91746
2260 E 15th St	Los Angeles	CA	90021	14923 E Proctor Ave	City of Industry	CA	91746
1396 E 7th St	Los Angeles	CA	90021	14551 Bonelli St	City Of Industry	CA	91746
2045 E Washington Blvd	Los Angeles	CA	90021	13000 Temple Ave	City Of Industry	CA	91746
750 S Alameda St	Los Angeles	CA	90021	440 N Baldwin Park Blvd	City of Industry	CA	91746
1735 S Santa Fe Ave	Los Angeles	CA	90021	13890 E Nelson Ave	City of Industry	CA	91746
1601 E Olympic Blvd	Los Angeles	CA	90021	665 N Baldwin Park Blvd	City of Industry	CA	91746
670 Mesquit St	Los Angeles	CA	90021	13060 E Temple Ave	City of Industry	CA	91746
1444 S Alameda St	Los Angeles	CA	90021	14350 Lomitas Ave	City Of Industry	CA	91746
1807 E Olympic Blvd	Los Angeles	CA	90021	15125 Proctor Ave	City of Industry	CA	91746
800 McGarry St	Los Angeles	CA	90021	14829 Salt Lake Ave	City of Industry	CA	91746
5550 Ferguson Dr	Commerce	CA	90022	13085 E Temple Ave	City of Industry	CA	91746
5500 E Olympic Blvd	Commerce	CA	90022	415 S 7th Ave	City of Industry	CA	91746
5500 Ferguson Dr	Commerce	CA	90022	730 Baldwin Park Blvd	City of Industry	CA	91746
5605 Union Pacific Ave	Commerce	CA	90022	13111 E Temple Ave	City of Industry	CA	91746
5610 Union Pacific Ave	Commerce	CA	90022	15025 Proctor Ave	City of Industry	CA	91746

Property Address	City	State	Zip	Property Address	City	State	Zip
5000 Triggs St	Commerce	CA	90022	505 S 7th Ave	City Of Industry	CA	91746
5750 Grace Pl	Commerce	CA	90022	14438 E Don Julian Rd	City Of Industry	CA	91746
5631 Ferguson Dr	Commerce	CA	90022	14841 Don Julian Rd	City of Industry	CA	91746
5555 E Olympic Blvd	Commerce	CA	90022	200 N Willow Ave	City of Industry	CA	91746
5500 Union Pacific Ave	Commerce	CA	90022	14317 Don Julian Rd	City Of Industry	CA	91746
5600 E Olympic Blvd	Commerce	CA	90022	355 N Vineland Ave	City of Industry	CA	91746
4944 Triggs St	Commerce	CA	90022	705 N Baldwin Park Blvd	City of Industry	CA	91746
5510 Grace Pl	Commerce	CA	90022	14528 Bonelli Ave	City of Industry	CA	91746
5471 Ferguson Dr	Commerce	CA	90022	550 S 7th Ave	City Of Industry	CA	91746
2233 Jesse St	Los Angeles	CA	90023	245 N Baldwin Park Blvd	City of Industry	CA	91746
1400 Los Palos St	Los Angeles	CA	90023	315 S 7th Ave	City of Industry	CA	91746
1401 S Hicks Ave	Los Angeles	CA	90023	14850 E Don Julian Rd	City of Industry	CA	91746
1439 S Herbert Ave	Commerce	CA	90023	166 N Baldwin Park Blvd	City of Industry	CA	91746
1815 S Soto St	Los Angeles	CA	90023	14777 Don Julian Rd	City of Industry	CA	91746
2155 E 7th St	Los Angeles	CA	90023	15010 Don Julian Rd	City Of Industry	CA	91746
3600 E Olympic Blvd	Los Angeles	CA	90023	420 S 6th Ave	La Puente	CA	91746
2555 E Olympic Blvd	Los Angeles	CA	90023	14237 E Don Julian Rd	City Of Industry	CA	91746
1363 S Bonnie Beach Pl	Commerce	CA	90023	245 N Vineland Ave	City of Industry	CA	91746
3040 E 12th St	Los Angeles	CA	90023	14641 E Don Julian Rd	City of Industry	CA	91746
4209 E Noakes St	Commerce	CA	90023	14840 E Proctor Ave	City of Industry	CA	91746
4000 Union Pacific Ave	Commerce	CA	90023	300 N Baldwin Park Blvd	City Of Industry	CA	91746
4422 Dunham St	Los Angeles	CA	90023	14255 Lomitas Ave	City of Industry	CA	91746
3170 E Washington Blvd	Los Angeles	CA	90023	13155 E Railroad Ave	City of Industry	CA	91746
2901 E 12th St	Los Angeles	CA	90023	13255 E Amar Rd	City of Industry	CA	91746
3686 E Olympic Blvd	Los Angeles	CA	90023	13500 E Nelson Ave	City of Industry	CA	91746
1151 S Boyle Ave	Los Angeles	CA	90023	120 Puente Ave	City Of Industry	CA	91746
3700 E Olympic Blvd	Los Angeles	CA	90023	14505 E Proctor Ave	City of Industry	CA	91746
3900 Union Pacific Ave	Los Angeles	CA	90023	14840 Don Julian Rd	City Of Industry	CA	91746
1430 S Eastman Ave	Los Angeles	CA	90023	325 N Baldwin Park Blvd	City of Industry	CA	91746
3100 E Washington Blvd	Los Angeles	CA	90023	321 Vineland Ave	City Of Industry	CA	91746
3888 E Washington Blvd	Vernon	CA	90023	13007 Crossroads Parkway South	City Of Industry	CA	91746
4130 Noakes St	Commerce	CA	90023	14421 E Bonelli St	City Of Industry	CA	91746
2824 E 12th St	Los Angeles	CA	90023	14724 Proctor Ave	City of Industry	CA	91746
342 N San Fernando Rd	Los Angeles	CA	90031	111 N Baldwin Park Blvd	City of Industry	CA	91746
3880 N Mission Rd	Los Angeles	CA	90031	13110 Loudon Ln	City of Industry	CA	91746
210 N Ave. 21	Los Angeles	CA	90031	18111 E Railroad St	City of Industry	CA	91748
300 W Avenue 33	Los Angeles	CA	90031	19395 E Walnut Dr N	City of Industry	CA	91748
1731 Workman St	Los Angeles	CA	90031	717 S Nogales St	City Of Industry	CA	91748
1919 Vineburn Ave	Los Angeles	CA	90032	18669 San Jose Ave	City Of Industry	CA	91748
4121 Valley Blvd	Los Angeles	CA	90032	18401 E Arenth Ave	City Of Industry	CA	91748
2011 N Soto St	Los Angeles	CA	90032	18501 E San Jose Ave	City Of Industry	CA	91748
4335 Valley Blvd	Los Angeles	CA	90032	18215 E Rowland St	City of Industry	CA	91748
210 S Anderson St	Los Angeles	CA	90033	18400 E Gale Ave	City of Industry	CA	91748
5831 Santa Monica Blvd	Los Angeles	CA	90038	17531 Railroad St	City of Industry	CA	91748
4563 Colorado Blvd	Los Angeles	CA	90039	18901 E Railroad St	City of Industry	CA	91748
5067 W San Fernando Rd	Los Angeles	CA	90039	1110 S Fullerton Rd	City of Industry	CA	91748
4841 W San Fernando Rd	Los Angeles	CA	90039	18895 Arenth Ave	City Of Industry	CA	91748
2800 Casitas Ave	Los Angeles	CA	90039	1177 S Jellick Ave	City Of Industry	CA	91748
5431 W San Fernando Rd	Los Angeles	CA	90039	1070 Samuelson St	City Of Industry	CA	91748
5375 W San Fernando Rd	Los Angeles	CA	90039	888 S Azusa Ave	City Of Industry	CA	91748
4561 Colorado Blvd	Los Angeles	CA	90039	18505 E Gale Ave	City of Industry	CA	91748
4690 Colorado Blvd	Los Angeles	CA	90039	18383 E Railroad St	City of Industry	CA	91748
4841 W San Fernando Rd	Los Angeles	CA	90039	18175 E Rowland St	City Of Industry	CA	91748
1801 Blake Ave	Los Angeles	CA	90039	19101 E Walnut Dr N	City Of Industry	CA	91748
7261 E Slauson Ave	Commerce	CA	90040	18945 San Jose Ave	City of Industry	CA	91748
6100 S Malt Ave	Commerce	CA	90040	19545 San Jose Ave	La Puente	CA	91748
6100 Bandini Blvd	Commerce	CA	90040	17528 E Rowland St	City of Industry	CA	91748
5991 Bandini Blvd	Bell	CA	90040	19555 E Arenth Ave	City of Industry	CA	91748
2340 S Eastern Ave	Commerce	CA	90040	888 Kearn Creek Ct	City of Industry	CA	91748
5900 E Slauson Ave	Commerce	CA	90040	18051 E Arenth Ave	City of Industry	CA	91748
5300 Harbor St	Commerce	CA	90040	19317 E Arenth Ave	City of Industry	CA	91748
6605 Flotilla St	Commerce	CA	90040	17355 E Railroad St	City of Industry	CA	91748
6315 Bandini Blvd	Commerce	CA	90040	18501 E Arenth Ave	City of Industry	CA	91748

Property Address	City	State	Zip	Property Address	City	State	Zip
6000 Rickenbacker Rd	Commerce	CA	90040	16610 E Chestnut St	City of Industry	CA	91748
2131 Garfield Ave	Commerce	CA	90040	780 Nogales St	City of Industry	CA	91748
6000 Bandini Blvd	Commerce	CA	90040	19161 E Walnut Dr N	City Of Industry	CA	91748
2600 Commerce Way	Commerce	CA	90040	17708 Rowland St	City Of Industry	CA	91748
5835 S Eastern Ave	Commerce	CA	90040	17400 E Chestnut St	City of Industry	CA	91748
6393 E Washington Blvd	Commerce	CA	90040	18537 E Gale Ave	City Of Industry	CA	91748
6000 E Slauson Ave	Commerce	CA	90040	18689 Arenth Ave	Rowland Heights	CA	91748
6108 Peachtree St	Commerce	CA	90040	18551 E Arenth Ave	City of Industry	CA	91748
6453 Bandini Blvd	Commerce	CA	90040	18275 E Arenth Ave	City of Industry	CA	91748
2400 Yates Ave	Commerce	CA	90040	17560 Rowland St	City Of Industry	CA	91748
5500 Sheila St	Commerce	CA	90040	875 S Azusa Ave	City Of Industry	CA	91748
6027 Eastern Ave	Commerce	CA	90040	18045 E Rowland St	City of Industry	CA	91748
2930 Vail Ave	Commerce	CA	90040	17300 Chestnut St	City Of Industry	CA	91748
5424 E Slauson Ave	Commerce	CA	90040	825 Ajax Ave	City Of Industry	CA	91748
5811 E 61st St	Commerce	CA	90040	18835 E San Jose Ave	City of Industry	CA	91748
6505 Gayhart St	Commerce	CA	90040	801 Sentous St	City of Industry	CA	91748
6289 E Slauson Ave	Commerce	CA	90040	19430 E Arenth Ave	City of Industry	CA	91748
6443 E Slauson Ave	Commerce	CA	90040	18825 E San Jose Ave	City of Industry	CA	91748
6121 Randolph St	Commerce	CA	90040	918 Radecki Ct	Los Angeles	CA	91748
6001 Slauson Ave	Commerce	CA	90040	18639 Railroad St	City of Industry	CA	91748
6051 Telegraph Rd	Commerce	CA	90040	19545 San Jose Ave	City Of Industry	CA	91748
6541 E Washington Blvd	Commerce	CA	90040	18910 E San Jose Ave	City Of Industry	CA	91748
2501 Malt Ave	Commerce	CA	90040	880 S Azusa Ave	City Of Industry	CA	91748
3217 S Garfield Ave	Commerce	CA	90040	19301 E Walnut Dr	City of Industry	CA	91748
7400 Bandini Blvd	Commerce	CA	90040	18305 San Jose Ave	City of Industry	CA	91748
2500 S Atlantic Blvd	Commerce	CA	90040	2321 Arrow Hwy	La Verne	CA	91750
6213 Randolph St	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
4901 Zambrano St	Commerce	CA	90040	3355 Dulles Dr	Jurupa Valley	CA	91752
5890 Sheila St	Commerce	CA	90040	11180 Cantu Galleano Ranch St	Jurupa Valley	CA	91752
6608 E 26th St	Commerce	CA	90040	11296 Harrell St	Jurupa Valley	CA	91752
2638 Yates Ave	Commerce	CA	90040	11600 Philadelphia St	Jurupa Valley	CA	91752
5560 E Slauson Ave	Commerce	CA	90040	12471 Riverside Dr	Eastvale	CA	91752
5945 S Malt Ave	Commerce	CA	90040	11041 Inland Ave	Jurupa Valley	CA	91752
6000 E Sheila St	Commerce	CA	90040	10900 San Sevaine Way	Jurupa Valley	CA	91752
2187 S Garfield Ave	Commerce	CA	90040	10980 Inland Ave	Jurupa Valley	CA	91752
6550 Washington Blvd	Commerce	CA	90040	4420 Serrano Dr	Jurupa Valley	CA	91752
6111 Bandini Blvd	Los Angeles	CA	90040	4560 Hammer Ave	Eastvale	CA	91752
5815 Smithway St	Commerce	CA	90040	4325 Etiwanda Ave	Jurupa Valley	CA	91752
2727 Malt Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
6687 Flotilla St	Commerce	CA	90040	4000 Hammer Ave	Eastvale	CA	91752
5353 Jillson St	Commerce	CA	90040	12087 Landon Dr	Jurupa Valley	CA	91752
4501 E Washington Blvd	Commerce	CA	90040	3650 Dulles Dr	Jurupa Valley	CA	91752
4901 Alexander Rd	Commerce	CA	90040	4250 Hammer Ave	Eastvale	CA	91752
2601 S Malt Ave	Commerce	CA	90040	3155 Universe Dr	Jurupa Valley	CA	91752
2425 S Malt Ave	Commerce	CA	90040	11600 Iberia St	Jurupa Valley	CA	91752
6015 Randolph St	Commerce	CA	90040	3790 De Forest Cir	Jurupa Valley	CA	91752
2600 Garfield Ave	Commerce	CA	90040	3810 Wabash Dr	Jurupa Valley	CA	91752
6130 E Sheila St	Commerce	CA	90040	12300 Riverside Dr	Eastvale	CA	91752
5959 Randolph St	Commerce	CA	90040	4345 Parkhurst St	Jurupa Valley	CA	91752
5500 E Slauson Ave	Commerce	CA	90040	5250 Goodman Way	Eastvale	CA	91752
3364 Garfield Ave	Commerce	CA	90040	11600 Riverside Dr	Jurupa Valley	CA	91752
6021 S Malt Ave	Commerce	CA	90040	11500 Philadelphia St	Jurupa Valley	CA	91752
3412 Garfield Ave	Commerce	CA	90040	3251 De Forest St	Jurupa Valley	CA	91752
5777 Smithway St	Commerce	CA	90040	11905 Landon Dr	Jurupa Valley	CA	91752
6100 Garfield Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
6150 Sheila St	Commerce	CA	90040	11888 Mission Blvd	Jurupa Valley	CA	91752
6100 E Slauson Ave	Commerce	CA	90040	4450 Wineville Ave	Jurupa Valley	CA	91752
6250 Bandini Blvd	Commerce	CA	90040	10800 San Sevaine Way	Jurupa Valley	CA	91752
5999 Bandini Blvd	Los Angeles	CA	90040	14909 Summit Dr	Eastvale	CA	91752
6300 Slauson Ave	Commerce	CA	90040	4550 Wineville Ave	Jurupa Valley	CA	91752
6141 Randolph St	Commerce	CA	90040	12510 Micro	Eastvale	CA	91752
7208 E Gage	Commerce	CA	90040	4100 Hammer Ave	Eastvale	CA	91752
6201 Randolph St	Commerce	CA	90040	3950 Hammer Ave	Eastvale	CA	91752
2100 Yates Ave	Commerce	CA	90040	12100 Riverside Dr	Jurupa Valley	CA	91752



Property Address	City	State	Zip	Property Address	City	State	Zip
2300 Yates Ave	Commerce	CA	90040	3100 Milliken Ave	Mira Loma	CA	91752
4542 Dunham St	Commerce	CA	90040	4950 Goodman Way	Eastvale	CA	91752
6430 E Slauson Ave	Commerce	CA	90040	12450 Philadelphia St	Eastvale	CA	91752
5770 Peachtree St	Commerce	CA	90040	11850 Riverside Dr	Jurupa Valley	CA	91752
7400 E Slauson Ave	Commerce	CA	90040	10888 San Sevaine Way	Jurupa Valley	CA	91752
4900 Alexander St	Commerce	CA	90040	5055 Goodman Way	Eastvale	CA	91752
5300 Sheila St	Commerce	CA	90040	11310 Harrell St	Jurupa Valley	CA	91752
2855 Vail Ave	Commerce	CA	90040	10220 San Sevaine Way	Jurupa Valley	CA	91752
4940 Sheila St	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
7101 E Slauson Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
6446 E Washington Blvd	Commerce	CA	90040	12455 Harvest Dr	Eastvale	CA	91752
2222 Davie Ave	Commerce	CA	90040	4740 Hammer Ave	Eastvale	CA	91752
3525 S Garfield Ave	Commerce	CA	90040	11350 Riverside Dr	Mira Loma	CA	91752
6817 E Acco St	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
1935 Tubeway Ave	Commerce	CA	90040	12400 Riverside Dr	Eastvale	CA	91752
7026 E Slauson Ave	Commerce	CA	90040	11640 Harrell St	Jurupa Valley	CA	91752
2200 Saybrook Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
2220 S Gaspar Ave	Commerce	CA	90040	11010 Hopkins St	Jurupa Valley	CA	91752
2211 S Tubeway Ave	Commerce	CA	90040	3590 De Forest Cir	Jurupa Valley	CA	91752
6000 Bandini Blvd	Commerce	CA	90040	11811 Landon Dr	Jurupa Valley	CA	91752
5804 E Slauson Ave	Commerce	CA	90040	11040 Inland Ave	Jurupa Valley	CA	91752
2650 Commerce Way	Commerce	CA	90040	4388 Serrano Dr	Jurupa Valley	CA	91752
3423 S Garfield Ave	Commerce	CA	90040	11280 Riverside Dr	Jurupa Valley	CA	91752
6400 E Washington Blvd	Commerce	CA	90040	11310 Cantu Galleano Ranch Rd	Jurupa Valley	CA	91752
6321 Chalet Dr	Commerce	CA	90040	12100 Riverside Dr	Jurupa Valley	CA	91752
6241 Telegraph Rd	Commerce	CA	90040	3450 Dulles Dr	Jurupa Valley	CA	91752
6101 Peachtree St	Commerce	CA	90040	11015 Hopkins St	Jurupa Valley	CA	91752
6501 Flotilla St	Commerce	CA	90040	3900 Hammer Ave	Eastvale	CA	91752
6023 Garfield Ave	Commerce	CA	90040	10225 San Sevaine Way	Jurupa Valley	CA	91752
6666 E Washington Blvd	Commerce	CA	90040	3198 Dulles Dr	Jurupa Valley	CA	91752
6349 E Slauson Ave	Commerce	CA	90040	3325 Space Center Ct	Jurupa Valley	CA	91752
6281 E Slauson Ave	Commerce	CA	90040	10395 Nobel Ct	Jurupa Valley	CA	91752
6033 Bandini Blvd	Los Angeles	CA	90040	4225 Etiwanda Ave	Jurupa Valley	CA	91752
4900 Zambrano St	Commerce	CA	90040	11145 Inland Ave	Jurupa Valley	CA	91752
4500 York Blvd	Los Angeles	CA	90041	11650 Venture Dr	Jurupa Valley	CA	91752
5758 W Century Blvd	Los Angeles	CA	90045	3401 Etiwanda Ave	Jurupa Valley	CA	91752
11101 Aviation Blvd	Los Angeles	CA	90045	11625 Venture Dr	Jurupa Valley	CA	91752
5600 W Century Blvd	Los Angeles	CA	90045	3401 Etiwanda Ave	Jurupa Valley	CA	91752
5353 W Imperial Hwy	Los Angeles	CA	90045	11900 Riverside Dr	Jurupa Valley	CA	91752
11201 Aviation Blvd	Los Angeles	CA	90045	10995 Inland Ave	Jurupa Valley	CA	91752
5720 Avion Dr	Los Angeles	CA	90045	11991 Landon Dr	Jurupa Valley	CA	91752
5343 W Imperial Hwy	Los Angeles	CA	90045	15640 Cantu-Galleano Ranch Rd	Eastvale	CA	91752
6041 W Imperial Hwy	Los Angeles	CA	90045	11450 Philadelphia St	Jurupa Valley	CA	91752
6040 Avion Dr	Los Angeles	CA	90045	12350 Philadelphia St	Eastvale	CA	91752
6007 S St Andrews Pl	Los Angeles	CA	90047	11455 Cantu Galleano Ranch Rd	Jurupa Valley	CA	91752
6100 S Gramercy Pl	Los Angeles	CA	90047	11865 Cantu-Galleano Ranch Rd	Jurupa Valley	CA	91752
4455 Fruitland Ave	Vernon	CA	90058	11290 Cantu Galleano Ranch Rd	Jurupa Valley	CA	91752
2957 46th St	Vernon	CA	90058	12400 Philadelphia St	Mira Loma	CA	91752
2700 Fruitland Ave	Vernon	CA	90058	3401 Etiwanda Ave	Jurupa Valley	CA	91752
3900 E 26th St	Los Angeles	CA	90058	11201 Iberia St	Jurupa Valley	CA	91752
3840 E 26th St	Vernon	CA	90058	11555 Iberia St	Jurupa Valley	CA	91752
1925 E Vernon Ave	Vernon	CA	90058	10810 Inland Ave	Jurupa Valley	CA	91752
2761 Fruitland Ave	Vernon	CA	90058	1700 S Baker Ave	Ontario	CA	91761
3333 Downey Rd	Los Angeles	CA	90058	2151 S Turner Ave	Ontario	CA	91761
2800 Sierra Pine Ave	Vernon	CA	90058	2151 Proforma Ave	Ontario	CA	91761
3280 E 26th St	Vernon	CA	90058	3655 E Philadelphia St	Ontario	CA	91761
2503 E Vernon Ave	Vernon	CA	90058	2551 E Philadelphia St	Ontario	CA	91761
2263 E Vernon Ave	Vernon	CA	90058	1801 S Archibald Ave	Ontario	CA	91761
3359 E 50th St	Vernon	CA	90058	1651 S Archibald Ave	Ontario	CA	91761
4100 Bandini Blvd	Vernon	CA	90058	3351 E Philadelphia St	Ontario	CA	91761
2200 E 55th St	Los Angeles	CA	90058	1510 Auto Center Dr	Ontario	CA	91761
4890 S Alameda St	Vernon	CA	90058	4651 E Francis St	Ontario	CA	91761
5215 S Boyle Ave	Vernon	CA	90058	5101 Airport Dr	Ontario	CA	91761
2050 E 49th St	Vernon	CA	90058	5815 Clark St	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
2230 E 38th St	Los Angeles	CA	90058	3371 E Francis St	Ontario	CA	91761
4375 Bandini Blvd	Los Angeles	CA	90058	1000 S Cucamonga Ave	Ontario	CA	91761
3368 E Vernon Ave	Vernon	CA	90058	4250 Greystone Ave	Ontario	CA	91761
4380 Ayers Ave	Los Angeles	CA	90058	1550 S Archibald Ave	Ontario	CA	91761
2665 Leonis Blvd	Vernon	CA	90058	1175 E Francis St	Ontario	CA	91761
4700 S Boyle Ave	Vernon	CA	90058	5300 E Jurupa St	Ontario	CA	91761
4415 Bandini Blvd	Vernon	CA	90058	3790 E Jurupa St	Ontario	CA	91761
2025 E 55th St	Vernon	CA	90058	1150 S Milliken Ave	Ontario	CA	91761
4633 Downey Rd	Vernon	CA	90058	5351 Jurupa St	Ontario	CA	91761
5370 S Boyle Ave	Vernon	CA	90058	1670 Champagne Ave	Ontario	CA	91761
1901 E 55th St	Vernon	CA	90058	5590 E Francis St	Ontario	CA	91761
2900 Fruitland Ave	Los Angeles	CA	90058	2950 E Jurupa Ave	Ontario	CA	91761
6023 Alcoa Ave	Vernon	CA	90058	821 S Rockefeller Ave	Ontario	CA	91761
1791 E Martin Luther King Jr Blvd	Los Angeles	CA	90058	1500 S Dupont St	Ontario	CA	91761
3751 Seville Ave	Vernon	CA	90058	1990 S Vintage Ave	Ontario	CA	91761
4900 S Santa Fe Ave	Vernon	CA	90058	1391 S Vintage Ave	Ontario	CA	91761
3049 E Vernon Ave	Vernon	CA	90058	1750 S Archibald Ave	Ontario	CA	91761
5000 E District Blvd	Vernon	CA	90058	3855 E Jurupa St	Ontario	CA	91761
3155 Bandini Blvd	Los Angeles	CA	90058	1991 S Cucamonga Ave	Ontario	CA	91761
2522 S Soto St	Vernon	CA	90058	500 S Dupont Ave	Ontario	CA	91761
4170 Bandini Blvd	Los Angeles	CA	90058	5400 Shea Center Dr	Ontario	CA	91761
3200 E Slauson Ave	Vernon	CA	90058	5401 E Jurupa St	Ontario	CA	91761
4955 Maywood Ave	Vernon	CA	90058	5141 Santa Ana St	Ontario	CA	91761
6174 Boyle Ave	Vernon	CA	90058	1405 E Locust St	Ontario	CA	91761
3001 Sierra Pine Ave	Los Angeles	CA	90058	5600 E Francis St	Ontario	CA	91761
2221 E 49th St	Vernon	CA	90058	5772 Jurupa St	Ontario	CA	91761
2610 E 37th St	Vernon	CA	90058	4652 E Brickell St	Ontario	CA	91761
2045 E Vernon Ave	Vernon	CA	90058	5120 Santa Ana Ave	Ontario	CA	91761
4510 S Alameda St	Vernon	CA	90058	1600 S Baker Ave	Ontario	CA	91761
2380 E 57th St	Vernon	CA	90058	1801 S Carlos Ave	Ontario	CA	91761
4701 S Santa Fe Ave	Vernon	CA	90058	3800 E Philadelphia St	Ontario	CA	91761
2901 Fruitland Ave	Vernon	CA	90058	1643 S Parco Ave	Ontario	CA	91761
2640 E 45th St	Vernon	CA	90058	3550 E Francis Ave	Ontario	CA	91761
5008 S Boyle Ave	Vernon	CA	90058	3690 Jurupa St	Ontario	CA	91761
5685 Alcoa Ave	Los Angeles	CA	90058	5555 Jurupa St	Ontario	CA	91761
2600 S Soto St	Los Angeles	CA	90058	2090 S Etiwanda Ave	Ontario	CA	91761
2931 S Alameda St	Los Angeles	CA	90058	5750 Francis St	Ontario	CA	91761
4460 Pacific Blvd	Los Angeles	CA	90058	2110 S Parco Ave	Ontario	CA	91761
4270 S Maywood Ave	Vernon	CA	90058	3000 E Philadelphia St	Ontario	CA	91761
2801 S Santa Fe Ave	Vernon	CA	90058	1751 S Pointe St	Ontario	CA	91761
2001 S Alameda St	Los Angeles	CA	90058	5801 E Airport Dr	Ontario	CA	91761
1861 E 55th St	Los Angeles	CA	90058	5153 E Philadelphia St	Ontario	CA	91761
3305 Bandini Blvd	Vernon	CA	90058	1651 S Carlos Ave	Ontario	CA	91761
5175 S Soto St	Vernon	CA	90058	2041 S Turner Ave	Ontario	CA	91761
2050 E 55th St	Vernon	CA	90058	2151 S Vintage Ave	Ontario	CA	91761
2537 E 27th St	Vernon	CA	90058	989 S Cucamonga Ave	Ontario	CA	91761
2838 S Alameda St	Vernon	CA	90058	4641 E Guasti Rd	Ontario	CA	91761
4605 S Alameda St	Los Angeles	CA	90058	1310 S Cucamonga Ave	Ontario	CA	91761
6152 Boyle Ave	Vernon	CA	90058	2530 E Lindsay Privado	Ontario	CA	91761
2283 E 49th St	Vernon	CA	90058	102 S Wanamaker Ave	Ontario	CA	91761
5990 Malburg Way	Vernon	CA	90058	930 S Rockefeller Ave	Ontario	CA	91761
5119 District Blvd	Vernon	CA	90058	1041 S Mildred St	Ontario	CA	91761
4505 Bandini Blvd	Vernon	CA	90058	1150 Etiwanda Ave	Ontario	CA	91761
6250 S Boyle Ave	Los Angeles	CA	90058	2900 E Jurupa St	Ontario	CA	91761
5233 Alcoa Ave	Vernon	CA	90058	4455 E Philadelphia St	Ontario	CA	91761
4215 Exchange Ave	Vernon	CA	90058	2950 E Philadelphia St	Ontario	CA	91761
2707 S Alameda St	Los Angeles	CA	90058	1755 E Acacia St	Ontario	CA	91761
2801 E Vernon Ave	Vernon	CA	90058	3355 E Cedar St	Ontario	CA	91761
2034 E 27th St	Vernon	CA	90058	3625 Jurupa St	Ontario	CA	91761
4160 Bandini Blvd	Los Angeles	CA	90058	2191 S Burgundy Pl	Ontario	CA	91761
2890 E 54th St	Vernon	CA	90058	5100 Shea Center Dr	Ontario	CA	91761
4050 E 26th St	Los Angeles	CA	90058	1251 S Rockefeller Ave	Ontario	CA	91761
1820 E 27th St	Vernon	CA	90058	1455 E Francis St	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
4177 Bandini Blvd	Los Angeles	CA	90058	5300 Shea Center Dr	Ontario	CA	91761
3033 Bandini Blvd	Los Angeles	CA	90058	2060 S Wineville Ave	Ontario	CA	91761
2300 E Vernon Ave	Vernon	CA	90058	1900 Lynx Pl	Ontario	CA	91761
2254 E 49th St	Vernon	CA	90058	3550 E Jurupa St	Ontario	CA	91761
5001 S Soto St	Vernon	CA	90058	4070 E Greystone Dr	Ontario	CA	91761
4400 Pacific Blvd	Vernon	CA	90058	1545 E Locust St	Ontario	CA	91761
2825 S Santa Fe Ave	Vernon	CA	90058	2650 E Lindsay Privado	Ontario	CA	91761
5401 S Soto St	Vernon	CA	90058	602 S Rockefeller Ave	Ontario	CA	91761
3260 E 26th St	Vernon	CA	90058	1950 S Vintage Ave	Ontario	CA	91761
5000 Long Beach Ave	Los Angeles	CA	90058	1950 Sterling Ave	Ontario	CA	91761
1938 E 46th St	Los Angeles	CA	90058	5110 E Jurupa St	Ontario	CA	91761
1937 E Vernon Ave	Vernon	CA	90058	200 E Main St	Ontario	CA	91761
4310 Bandini Blvd	Los Angeles	CA	90058	2600 E Francis St	Ontario	CA	91761
2726 Fruitland Ave	Vernon	CA	90058	701 Malaga Pl	Ontario	CA	91761
2825 E 44th St	Vernon	CA	90058	1290 E Elm St	Ontario	CA	91761
4440 E 26th St	Los Angeles	CA	90058	100 E Main St	Ontario	CA	91761
4651 Bandini Blvd	Los Angeles	CA	90058	1650 S Vintage Ave	Ontario	CA	91761
3663 Bandini Blvd	Vernon	CA	90058	2021 S Archibald Ave	Ontario	CA	91761
3163 E Vernon Ave	Vernon	CA	90058	1015 S Vintage Ave	Ontario	CA	91761
4900 Boyle Ave	Vernon	CA	90058	4000 E Mission Blvd	Ontario	CA	91761
2801 E 46th St	Vernon	CA	90058	820 S Vintage Ave	Ontario	CA	91761
5801 S 2nd St	Los Angeles	CA	90058	1460 S Hofer Ranch Rd	Ontario	CA	91761
4240 Bandini Blvd	Los Angeles	CA	90058	5650 E Santa Ana St	Ontario	CA	91761
4444 Ayers Ave	Los Angeles	CA	90058	1560 S Baker Ave	Ontario	CA	91761
2311 E 48th St	Vernon	CA	90058	5400 Shea Center Dr	Ontario	CA	91761
5525 S Soto St	Vernon	CA	90058	2095 S Archibald Ave	Ontario	CA	91761
2834 46th St	Vernon	CA	90058	3980 E Earlstone Dr	Ontario	CA	91761
3100 E 44th St	Vernon	CA	90058	1505 S Dupont Ave	Ontario	CA	91761
5215 S Boyle Ave	Vernon	CA	90058	1671 S Champagne Ave	Ontario	CA	91761
3001 Bandini Blvd	Los Angeles	CA	90058	4060 E Jurupa St	Ontario	CA	91761
2100 E 38th St	Vernon	CA	90058	3601 Jurupa St	Ontario	CA	91761
3425 E Vernon Ave	Vernon	CA	90058	3950 Airport Dr	Ontario	CA	91761
5700 Bickett St	Los Angeles	CA	90058	4450 E Lowell St	Ontario	CA	91761
3250 E 26th St	Vernon	CA	90058	601 Rockefeller Ave	Ontario	CA	91761
3851 S Santa Fe Ave	Vernon	CA	90058	5140 Santa Ana St	Ontario	CA	91761
4851 S Alameda St	Los Angeles	CA	90058	1900 S Rochester Ave	Ontario	CA	91761
2652 Long Beach Ave	Los Angeles	CA	90058	1851 S Cucamonga Ave	Ontario	CA	91761
2900 Fruitland Ave	Los Angeles	CA	90058	3940 Earlstone St	Ontario	CA	91761
3215 E Slauson Ave	Vernon	CA	90058	5490 E Francis St	Ontario	CA	91761
2131 E 52nd St	Vernon	CA	90058	2800 E Philadelphia St	Ontario	CA	91761
3030 S Atlantic Blvd	Vernon	CA	90058	4755 Zinfandel Ct	Ontario	CA	91761
1995 E 20th St	Los Angeles	CA	90058	3510 E Francis Ave	Ontario	CA	91761
5300 S Boyle Ave	Vernon	CA	90058	1923 E Avion St	Ontario	CA	91761
2825 E 54th St	Los Angeles	CA	90058	4001 Santa Ana St	Ontario	CA	91761
6062 Alcoa Ave	Vernon	CA	90058	2500 E Francis St	Ontario	CA	91761
2615 S Bonnie Beach Pl	Los Angeles	CA	90058	2539 E Philadelphia St	Ontario	CA	91761
5500 S Boyle Ave	Vernon	CA	90058	1400 S Campus Ave	Ontario	CA	91761
4715 S Alameda St	Vernon	CA	90058	5725 E Jurupa St	Ontario	CA	91761
5383 Alcoa Ave	Vernon	CA	90058	1040 S Vintage Ave	Ontario	CA	91761
5000 Pacific Blvd	Vernon	CA	90058	1521 E Francis St	Ontario	CA	91761
4507 Maywood Ave	Vernon	CA	90058	2155 S Excise Ave	Ontario	CA	91761
1801 E 50th St	Los Angeles	CA	90058	1392 Sarah Pl	Ontario	CA	91761
4900 E 50th St	Vernon	CA	90058	1600 Proforma Ave	Ontario	CA	91761
2501 W Rosecrans Ave	Los Angeles	CA	90059	1930 S Rochester Ave	Ontario	CA	91761
1430 N McKinley Ave	Los Angeles	CA	90059	2001 Burgundy Pl	Ontario	CA	91761
740 E 111th Pl	Los Angeles	CA	90059	1450 E Mission Blvd	Ontario	CA	91761
13344 S Main St	Los Angeles	CA	90061	1260 S Vintage Ave	Ontario	CA	91761
13900 S Broadway	Los Angeles	CA	90061	1425 Toyota Way	Ontario	CA	91761
13809 S Figueroa St	Gardena	CA	90061	2001 S Hellman Ave	Ontario	CA	91761
13217 S Figueroa St	Los Angeles	CA	90061	717 E State St	Ontario	CA	91761
13500 S Figueroa St	Los Angeles	CA	90061	225 S Wineville Ave	Ontario	CA	91761
13255 S Broadway	Los Angeles	CA	90061	3781 E Airport Dr	Ontario	CA	91761
12822 S Main St	Los Angeles	CA	90061	3095 E Cedar St	Ontario	CA	91761
13301 S Main St	Los Angeles	CA	90061	2019 S Business Pky	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
4540 Worth St	Los Angeles	CA	90063	1051 S Rockefeller Ave	Ontario	CA	91761
1506 N Knowles Ave	Los Angeles	CA	90063	1000 S Etiwanda Ave	Ontario	CA	91761
3424 N San Fernando Rd	Los Angeles	CA	90065	5440 E Francis St	Ontario	CA	91761
2000 N San Fernando Rd	Los Angeles	CA	90065	5491 E Francis St	Ontario	CA	91761
12800 Culver Blvd	Los Angeles	CA	90066	1600 Milliken Ave	Ontario	CA	91761
12655 Beatrice St	Los Angeles	CA	90066	1500 S Hellman Ave	Ontario	CA	91761
5553 Bandini Blvd	Bell	CA	90201	2925 Jurupa St	Ontario	CA	91761
6511 Salt Lake Ave	Bell	CA	90201	1595 S Dupont Ave	Ontario	CA	91761
5350 Lindbergh Ln	Bell	CA	90201	1151 S Mildred St	Ontario	CA	91761
5391 Rickenbacker Rd	Bell	CA	90201	2501 E Guasti Rd	Ontario	CA	91761
5630 Bandini Blvd	Bell	CA	90201	2690 E Cedar St	Ontario	CA	91761
5555 Bandini Blvd	Bell Gardens	CA	90201	3140 Jurupa St	Ontario	CA	91761
8457 S Eastern Ave	Bell Gardens	CA	90201	2880 Jurupa St	Ontario	CA	91761
5400 Lindbergh Ln	Bell	CA	90201	4100 E Mission Blvd	Ontario	CA	91761
5300 Lindbergh Ln	Bell	CA	90201	2600 S Stanford Ave	Ontario	CA	91761
4700 Eastern Ave	Bell	CA	90201	4000 E Airport Dr	Ontario	CA	91761
5600 Lindbergh Ln	Bell	CA	90201	4750 Zinfandel Ct	Ontario	CA	91761
5500 Lindbergh Ln	Bell	CA	90201	1800 S Wineville Ave	Ontario	CA	91761
5651 Rickenbacker Rd	Bell	CA	90201	5005 E Philadelphia St	Ontario	CA	91761
4901 Bandini Blvd	Bell	CA	90201	2830 E Philadelphia St	Ontario	CA	91761
5630 Rickenbacker Rd	Bell	CA	90201	1930 S Parco Ave	Ontario	CA	91761
4900 Cecelia St	Cudahy	CA	90201	4850 E Airport Dr	Ontario	CA	91761
250 W Apra St	Compton	CA	90220	5151 E Philadelphia St	Ontario	CA	91761
1620 S Wilmington Ave	Compton	CA	90220	290 S Milliken Ave	Ontario	CA	91761
2101 E Via Arado	Rancho Dominguez	CA	90220	2055 S Haven Ave	Ontario	CA	91761
350 W Manville St	Compton	CA	90220	700 Malaga Pl	Ontario	CA	91761
500 W Victoria St	Compton	CA	90220	1100 S Etiwanda Ave	Ontario	CA	91761
18511 S Broadwick St	Rancho Dominguez	CA	90220	1495 E Francis St	Ontario	CA	91761
255 W Manville St	Compton	CA	90220	1790 Champagne Ave	Ontario	CA	91761
300 W Artesia Blvd	Compton	CA	90220	2030 S Lynx Pl	Ontario	CA	91761
355 W Carob St	Compton	CA	90220	1110 S Mildred Ave	Ontario	CA	91761
1200 W Artesia Blvd	Compton	CA	90220	1521 S Hellman Ave	Ontario	CA	91761
20212 S Rancho Way	Rancho Dominguez	CA	90220	5721 Santa Ana St	Ontario	CA	91761
2917 W Rosecrans Ave	Compton	CA	90220	4774 E Airport Dr	Ontario	CA	91761
18924 Laurel Park Rd	Rancho Dominguez	CA	90220	3971 Airport Dr	Ontario	CA	91761
1965 E Vista Bella Way	Rancho Dominguez	CA	90220	5700 E Airport Dr	Ontario	CA	91761
2301 E Pacifica Pl	Rancho Dominguez	CA	90220	5491 E Philadelphia St	Ontario	CA	91761
1931 E Vista Bella Way	Rancho Dominguez	CA	90220	715 E California St	Ontario	CA	91761
18553 Dominguez Hills Dr	Rancho Dominguez	CA	90220	5450 E Francis St	Ontario	CA	91761
2060 Via Arado	Rancho Dominguez	CA	90220	1710 E Cedar St	Ontario	CA	91761
601 W Walnut St	Compton	CA	90220	1375 E Locust St	Ontario	CA	91761
220 W Manville St	Compton	CA	90220	752 Campus Ave	Ontario	CA	91761
201 W Carob St	Compton	CA	90220	1670 Etiwanda Ave	Ontario	CA	91761
700 W Artesia Blvd	Compton	CA	90220	3120 E Mission Blvd	Ontario	CA	91761
20001 S Rancho Way	Rancho Dominguez	CA	90220	620 Wanamaker Ave	Ontario	CA	91761
1420 N Mckinley Ave	Compton	CA	90220	4083 E Airport Dr	Ontario	CA	91761
1825 Acacia Ave	Compton	CA	90220	5601 Santa Ana St	Ontario	CA	91761
2500 Edison Way	Compton	CA	90220	5431 E Philadelphia St	Ontario	CA	91761
2141 E Paulhan St	Rancho Dominguez	CA	90220	3100 E Cedar St	Ontario	CA	91761
220 W Victoria St	Compton	CA	90220	3070 E Cedar St	Ontario	CA	91761
201 W Manville St	Compton	CA	90220	5200 Shea Center Dr	Ontario	CA	91761
741 W Artesia Blvd	Compton	CA	90220	1555 S Dupont Ave	Ontario	CA	91761
775 W Manville St	Compton	CA	90220	1777 S Vintage Ave	Ontario	CA	91761
2140 E University Dr	Rancho Dominguez	CA	90220	4710 E Guasti Rd	Ontario	CA	91761
921 W Artesia Blvd	Compton	CA	90220	601 Kettering Dr	Ontario	CA	91761
1650 S Central Ave	Compton	CA	90220	2285 S Ponderosa Ave	Ontario	CA	91761
1860 Acacia Ave	Compton	CA	90220	1520 E Mission Blvd	Ontario	CA	91761
200 E Stanley St	Compton	CA	90220	4305 E Jurupa St	Ontario	CA	91761
350 W Apra St	Compton	CA	90220	1700 S Hellman Ave	Ontario	CA	91761
1707 W Compton Blvd	Compton	CA	90220	1900 S Proforma Ave	Ontario	CA	91761
18450 S Wilmington Ave	Rancho Dominguez	CA	90220	5500 E Francis St	Ontario	CA	91761
400 W Artesia Blvd	Compton	CA	90220	1990 S Cucamonga Ave	Ontario	CA	91761
1701 S Central Ave	Compton	CA	90220	1050 S Dupont Ave	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
18615 S Ferris Pl	Rancho Dominguez	CA	90220	1001 Doubleday Ave	Ontario	CA	91761
19640 S Rancho Way	Compton	CA	90220	3655 E Airport Dr	Ontario	CA	91761
250 W Manville St	Compton	CA	90220	1650 S Archibald Ave	Ontario	CA	91761
711 W Walnut St	Compton	CA	90220	2560 E Philadelphia St	Ontario	CA	91761
15650 S Avalon Blvd	Compton	CA	90220	3551 E Francis St	Ontario	CA	91761
415 W Walnut St	Compton	CA	90220	1425 S Campus Ave	Ontario	CA	91761
18301 Broadwick St	Rancho Dominguez	CA	90220	3645 E Philadelphia St	Ontario	CA	91761
18410 S Broadwick St	Compton	CA	90220	3350 E Cedar St	Ontario	CA	91761
2576 E Victoria St	Compton	CA	90220	1090 E Belmont St	Ontario	CA	91761
18735 Ferris Pl	Rancho Dominguez	CA	90220	1900 Burgundy Pl	Ontario	CA	91761
660 W Artesia Blvd	Compton	CA	90220	4501 E Wall St	Ontario	CA	91761
2456 E Del Amo Blvd	Compton	CA	90220	900 S Dupont Ave	Ontario	CA	91761
1714 S Anderson Ave	Compton	CA	90220	5600 E Airport Dr	Ontario	CA	91761
675 W Manville St	Compton	CA	90220	4061 E Francis St	Ontario	CA	91761
19914 Via Baron	Rancho Dominguez	CA	90220	2521 E Francis St	Ontario	CA	91761
525 W Manville St	Compton	CA	90220	4060 E Francis St	Ontario	CA	91761
301 W Walnut St	Compton	CA	90220	13610 S Archibald Ave	Ontario	CA	91761
601 W Carob St	Compton	CA	90220	1291 S Vintage Ave	Ontario	CA	91761
303 W Artesia Blvd	Compton	CA	90220	4502 Airport Dr	Ontario	CA	91761
2511 S Edison Way	Compton	CA	90220	5400 E Francis St	Ontario	CA	91761
1055 W Victoria St	Compton	CA	90220	425 S Rockefeller Ave	Ontario	CA	91761
2331 E Pacifica Pl	Rancho Dominguez	CA	90220	5461 Santa Ana St	Ontario	CA	91761
18600 Broadwick St	Rancho Dominguez	CA	90220	1000 Sarah Pl	Ontario	CA	91761
2035 E Vista Bella Way	Rancho Dominguez	CA	90220	1901 Vineyard Ave	Ontario	CA	91761
175 E Manville St	Compton	CA	90220	1625 S Proforma Ave	Ontario	CA	91761
1935 Via Arado	Rancho Dominguez	CA	90220	2401 E Philadelphia St	Ontario	CA	91761
399 W Artesia Blvd	Compton	CA	90220	2825 Jurupa St	Ontario	CA	91761
550 W Artesia Blvd	Compton	CA	90220	820 S Wanamaker Ave	Ontario	CA	91761
19840 S Rancho Way	Compton	CA	90220	1540 Acacia Ct	Ontario	CA	91761
801 W Artesia Blvd	Compton	CA	90220	2590 E Lindsay Privado	Ontario	CA	91761
2361 E Pacifica Pl	Rancho Dominguez	CA	90220	1505 S Haven Ave	Ontario	CA	91761
425 W Carob St	Compton	CA	90220	4551 E Philadelphia St	Ontario	CA	91761
1600 S Anderson Ave	Compton	CA	90220	5501 Santa Ana St	Ontario	CA	91761
3000 E Via Mondo	Compton	CA	90221	5691 E Philadelphia St	Ontario	CA	91761
2960 E Victoria St	Rancho Dominguez	CA	90221	3951 E Earlstone St	Ontario	CA	91761
2850 E Del Amo Blvd	Carson	CA	90221	4290 E Brickell St	Ontario	CA	91761
2626 Vista Industria	Compton	CA	90221	1320 S Baker Ave	Ontario	CA	91761
18554 S Susana Rd	Rancho Dominguez	CA	90221	2400 E Francis St	Ontario	CA	91761
19067 S Reyes Ave	Rancho Dominguez	CA	90221	1930 S Vineyard Ave	Ontario	CA	91761
18626 S Reyes Ave	Compton	CA	90221	4495 E Wall St	Ontario	CA	91761
3104 E Ana St	Rancho Dominguez	CA	90221	2150 S Parco Ave	Ontario	CA	91761
3015 E Ana St	Compton	CA	90221	1495 E Locust St	Ontario	CA	91761
19201 S Reyes Ave	Compton	CA	90221	2260 S Haven Ave	Ontario	CA	91761
17707 S Santa Fe Ave	Compton	CA	90221	4651 E Brickell St	Ontario	CA	91761
19200 S Reyes Ave	Compton	CA	90221	4652 E Guasti Rd	Ontario	CA	91761
3040 E Ana St	Compton	CA	90221	1661 S Vintage Ave	Ontario	CA	91761
3136 E Victoria St	Compton	CA	90221	1220 S Baker Ave	Ontario	CA	91761
19119 S Reyes Ave	Compton	CA	90221	3900 E Philadelphia St	Ontario	CA	91761
19600 S Alameda St	Rancho Dominguez	CA	90221	5200 E Airport Dr	Ontario	CA	91761
19201 S Susana Rd	Compton	CA	90221	611 S Palmetto Ave	Ontario	CA	91762
2966 E Victoria St	Compton	CA	90221	5161 Richton Rd	Montclair	CA	91763
19007 S Reyes Ave	Rancho Dominguez	CA	90221	4545 Brooks St	Montclair	CA	91763
18111 S Santa Fe Ave	Rancho Dominguez	CA	90221	1050 N Vineyard Ave	Ontario	CA	91764
17707 S Santa Fe Ave	Compton	CA	90221	950 Barrington Ave	Ontario	CA	91764
20250 S Alameda St	Compton	CA	90221	5350 Ontario Mills Pky	Ontario	CA	91764
2910 Pacific Commerce Dr	Rancho Dominguez	CA	90221	853 Qvc Way	Ontario	CA	91764
2640 E Del Amo Blvd	Compton	CA	90221	751 Vintage Ave	Ontario	CA	91764
3025 Victoria St	Rancho Dominguez	CA	90221	5100 Ontario Mills Pkwy	Ontario	CA	91764
3020 E Victoria St	Compton	CA	90221	1051 N Wineville Ave	Ontario	CA	91764
2661 E Del Amo Blvd	Rancho Dominguez	CA	90221	5678 Concours	Ontario	CA	91764
18201 S Santa Fe Ave	Compton	CA	90221	990 Barrington Ave	Ontario	CA	91764
18221 S Susana Rd	Compton	CA	90221	5505 E Concours	Ontario	CA	91764
19615 S Susana Rd	Compton	CA	90221	5798 E Ontario Mills Pky	Ontario	CA	91764

Property Address	City	State	Zip	Property Address	City	State	Zip
2902 Val Verde Ct	Rancho Dominguez	CA	90221	5250 Ontario Mills Pky	Ontario	CA	91764
20100 S Alameda St	Rancho Dominguez	CA	90221	5400 Ontario Mills Pky	Ontario	CA	91764
2883 E Victoria St	Rancho Dominguez	CA	90221	2203 Jay St	Ontario	CA	91764
19801 S Santa Fe Ave	Rancho Dominguez	CA	90221	2004 Jay St	Ontario	CA	91764
2660 E Del Amo Blvd	Carson	CA	90221	4105 Inland Empire Blvd	Ontario	CA	91764
2300 N Alameda St	Compton	CA	90222	5576 Ontario Mills Pky	Ontario	CA	91764
419 E Euclid Ave	Compton	CA	90222	905 Wineville Ave	Ontario	CA	91764
1501 N Tamarind Ave	Compton	CA	90222	5300 E Concours St	Ontario	CA	91764
1700 N Alameda St	Compton	CA	90222	5125 Ontario Mills Pky	Ontario	CA	91764
12021 Woodruff Ave	Downey	CA	90241	2104 Jay St	Ontario	CA	91764
9300 Hall Rd	Downey	CA	90241	2053 E Jay St	Ontario	CA	91764
11634 Patton Rd	Downey	CA	90241	1904 Jay St	Ontario	CA	91764
9220 Hall Rd	Downey	CA	90241	740 Vintage Ave	Ontario	CA	91764
9400 Hall Rd	Downey	CA	90241	5200 Ontario Mills Pky	Ontario	CA	91764
7475 Flores St	Downey	CA	90242	5642 Ontario Mills Pky	Ontario	CA	91764
9151 Imperial Hwy	Downey	CA	90242	951 Etiwanda Ave	Ontario	CA	91764
7500 Amigos Ave	Downey	CA	90242	5678 Ontario Mills Pky	Ontario	CA	91764
7300 Flores Ave	Downey	CA	90242	5540 4th St	Ontario	CA	91764
200 N Nash St	El Segundo	CA	90245	800 Barrington Ave	Ontario	CA	91764
901 N Nash St	El Segundo	CA	90245	1060 S Wineville Ave	Ontario	CA	91764
2000 E Imperial Hwy	El Segundo	CA	90245	5525 E Concours	Ontario	CA	91764
202 N Nash St	El Segundo	CA	90245	5300 Ontario Mills Pky	Ontario	CA	91764
815 Lapham St	El Segundo	CA	90245	1315 E 3rd St	Pomona	CA	91766
2000 E El Segundo Blvd	El Segundo	CA	90245	1335 Philadelphia St	Pomona	CA	91766
268 Gardena Blvd	Carson	CA	90248	1201 E Lexington Ave	Pomona	CA	91766
14702 S Maple St	Gardena	CA	90248	1889 W Mission Blvd	Pomona	CA	91766
14439 S Avalon Blvd	Gardena	CA	90248	2849 Ficus St	Pomona	CA	91766
17110 S Main St	Gardena	CA	90248	1585 W Mission Blvd	Pomona	CA	91766
15913 S Main St	Gardena	CA	90248	2200 Reservoir St	Pomona	CA	91766
16920 S Main St	Gardena	CA	90248	2750 S Towne Ave	Pomona	CA	91766
14800 S Figueroa St	Gardena	CA	90248	1325 E Franklin Ave	Pomona	CA	91766
18620 S Broadway St	Carson	CA	90248	2801 S Towne Ave	Pomona	CA	91766
14527 S San Pedro St	Gardena	CA	90248	1040 Walnut Ave	Pomona	CA	91766
240 E Rosecrans Ave	Gardena	CA	90248	1301 E Lexington Ave	Pomona	CA	91766
100 W Alondra Blvd	Carson	CA	90248	1395 E Lexington Ave	Pomona	CA	91766
15100 S Figueroa St	Gardena	CA	90248	2800 S Reservoir St	Pomona	CA	91766
15100 S San Pedro St	Gardena	CA	90248	1885 W Mission Blvd	Pomona	CA	91766
261 E Redondo Beach Blvd	Gardena	CA	90248	1601 W Mission Blvd	Pomona	CA	91766
200 E Alondra Blvd	Gardena	CA	90248	1768 W 2nd St	Pomona	CA	91766
331 W Victoria St	Gardena	CA	90248	1350 E Lexington Ave	Pomona	CA	91766
17529 S Main St	Gardena	CA	90248	2855 S Reservoir St	Pomona	CA	91766
17226 S Main St	Gardena	CA	90248	1589 E 9th St	Pomona	CA	91766
151 W Rosecrans Ave	Gardena	CA	90248	1937 W Mission Blvd	Pomona	CA	91766
14725 S Broadway	Gardena	CA	90248	2200 S Reservoir St	Pomona	CA	91766
14300 S Main St	Gardena	CA	90248	2540 Fulton Rd	Pomona	CA	91767
17006 S Figueroa St	Gardena	CA	90248	159 San Antonio Ave	Pomona	CA	91767
15700 S Main St	Gardena	CA	90248	855 Towne Center Dr	Pomona	CA	91767
1855 W 139th St	Gardena	CA	90249	280 W Bonita Ave	Pomona	CA	91767
1720 W 135th St	Gardena	CA	90249	2655 Pine St	Pomona	CA	91767
1700 W 132nd St	Gardena	CA	90249	2743 Thompson Creek Rd	Pomona	CA	91767
1930 W 139th St	Gardena	CA	90249	1800 W Holt Ave	Pomona	CA	91768
1639 W Rosecrans Ave	Gardena	CA	90249	2205 Mt Vernon Ave	Pomona	CA	91768
2001 W Rosecrans Ave	Gardena	CA	90249	2883 Surveyor St	Pomona	CA	91768
1600 135th St	Gardena	CA	90249	3200 Pomona Blvd	Pomona	CA	91768
2002 W 139th St	Gardena	CA	90249	2875 Pomona Blvd	Pomona	CA	91768
13720 S Western Ave	Gardena	CA	90249	2303 Mount Vernon Ave	Pomona	CA	91768
12651 Crenshaw Blvd	Hawthorne	CA	90250	2887 Surveyor St	Pomona	CA	91768
12200 Wilkie Way	Hawthorne	CA	90250	1338 W Holt Ave	Pomona	CA	91768
2815 W El Segundo Blvd	Hawthorne	CA	90250	1320 W Holt Ave	Pomona	CA	91768
12525 Daphne Ave	Hawthorne	CA	90250	3255 Pomona Blvd	Pomona	CA	91768
5422 W Rosecrans Ave	Hawthorne	CA	90250	300 Enterprise Pl	Pomona	CA	91768
12600 Prairie Ave	Hawthorne	CA	90250	462 S Humane Way	Pomona	CA	91768
4926 Rosecrans Ave	Hawthorne	CA	90250	2861 Surveyor St	Pomona	CA	91768

Property Address	City	State	Zip	Property Address	City	State	Zip
12250 Crenshaw Blvd	Hawthorne	CA	90250	300 E Arrow Hwy	San Dimas	CA	91773
3901 Jack Northrop Ave	Hawthorne	CA	90250	420 E Arrow Hwy	San Dimas	CA	91773
1 Rocket Rd	Hawthorne	CA	90250	321 W Covina Blvd	San Dimas	CA	91773
2701 W El Segundo Blvd	Hawthorne	CA	90250	430 E 19th St	Upland	CA	91784
3901 Jack Northrop Ave	Hawthorne	CA	90250	1225 W 9th St	Upland	CA	91786
2805 W El Segundo Blvd	Hawthorne	CA	90250	2022 W 11th St	Upland	CA	91786
12524 Cerise Ave	Hawthorne	CA	90250	19705 Business Pky	City Of Industry	CA	91789
2040 Randolph St	Huntington Park	CA	90255	21908 Valley Blvd	Walnut	CA	91789
2224 E Slauson Ave	Huntington Park	CA	90255	21301 Ferrero Pky	City Of Industry	CA	91789
6230 S Alameda St	Huntington Park	CA	90255	433 Cheryl Ln	City Of Industry	CA	91789
2700 E Imperial Hwy	Lynwood	CA	90262	3880 Valley Blvd	Walnut	CA	91789
11840 Alameda St	Lynwood	CA	90262	21535 Baker Pky	City Of Industry	CA	91789
11852 Alameda St	Lynwood	CA	90262	408 Brea Canyon Rd	City of Industry	CA	91789
2588 Industry Way	Lynwood	CA	90262	20701 Currier Rd	Walnut	CA	91789
11600 Alameda St	Lynwood	CA	90262	368 Cheryl Ln	Walnut	CA	91789
2820 Butler Ave	Lynwood	CA	90262	611 Reyes Dr	City Of Industry	CA	91789
2520 Industry Way	Lynwood	CA	90262	22067 Ferrero	City Of Industry	CA	91789
10650 S Alameda St	Lynwood	CA	90262	21700 Baker Pky	City Of Industry	CA	91789
11711 S Alameda St	Lynwood	CA	90262	168 Brea Canyon Rd	City Of Industry	CA	91789
12150 S Alameda St	Lynwood	CA	90262	20301 E Walnut Dr N	Walnut	CA	91789
4020 Redondo Beach Ave	Redondo Beach	CA	90278	21733 Baker Pky	City Of Industry	CA	91789
4000 Redondo Beach Ave	Redondo Beach	CA	90278	20300 E Business Pky	Walnut	CA	91789
2819 182nd St	Redondo Beach	CA	90278	19465 E Walnut Dr N	City Of Industry	CA	91789
2425 Manhattan Beach Blvd	Redondo Beach	CA	90278	21481 Ferrero Pky	City of Industry	CA	91789
2411 Santa Fe Ave	Redondo Beach	CA	90278	318 Brea Canyon Rd	City Of Industry	CA	91789
3650 Redondo Beach Ave	Redondo Beach	CA	90278	20415 E Walnut Dr	Diamond Bar	CA	91789
2420 Santa Fe Ave	Redondo Beach	CA	90278	280 Machlin Ct	City Of Industry	CA	91789
4231 Liberty Blvd	South Gate	CA	90280	425 S Lemon Ave	City of Industry	CA	91789
4301 E Firestone Blvd	South Gate	CA	90280	21901 Ferrero Pky	City of Industry	CA	91789
2680 Sequoia Dr	South Gate	CA	90280	21415 Baker Pky	City Of Industry	CA	91789
2401 Firestone Blvd	South Gate	CA	90280	4200 W Valley Blvd	Walnut	CA	91789
8751 Rayo Ave	South Gate	CA	90280	19700 Business Pky	Walnut	CA	91789
4570 Ardine St	South Gate	CA	90280	179 S Grand Ave	City Of Industry	CA	91789
5321 E Firestone Blvd	South Gate	CA	90280	383 S Cheryl Ln	City Of Industry	CA	91789
9350 Rayo Ave	South Gate	CA	90280	20002 E Business Pky	City Of Industry	CA	91789
2601 Sequoia Dr	South Gate	CA	90280	19515 E Walnut Dr N	City Of Industry	CA	91789
4452 Ardine St	South Gate	CA	90280	3900 Valley Blvd	Walnut	CA	91789
5037 Patata St	South Gate	CA	90280	218 Machlin Ct	City of Industry	CA	91789
2323 Firestone Blvd	South Gate	CA	90280	223 Brea Canyon Rd	City of Industry	CA	91789
5625 E Firestone Blvd	South Gate	CA	90280	501 Cheryl Ln	City Of Industry	CA	91789
10240 Alameda St	South Gate	CA	90280	19850 E Business Pky	Walnut	CA	91789
4500 Ardine St	South Gate	CA	90280	21508 Baker Pky	City Of Industry	CA	91789
2610 Wisconsin Ave	South Gate	CA	90280	381 Brea Canyon Rd	City of Industry	CA	91789
8621 S Rayo Ave	South Gate	CA	90280	200 Old Ranch Rd	Walnut	CA	91789
5011 Firestone Pl	South Gate	CA	90280	108 S Mayo Ave	City Of Industry	CA	91789
4100 Ardmore Ave	South Gate	CA	90280	20275 Business Pky	Walnut	CA	91789
8616 Otis St	South Gate	CA	90280	20470 E Business Pky	City of Industry	CA	91789
2741 Seminole Dr	South Gate	CA	90280	21558 Ferrero Pky	City of Industry	CA	91789
9700 E Frontage Ave	South Gate	CA	90280	20595 Business Pky	Walnut	CA	91789
8990 S Atlantic Ave	South Gate	CA	90280	455 Brea Canyon Rd	City Of Industry	CA	91789
9301 S Garfield Ave	South Gate	CA	90280	19635 E Walnut Dr N	City Of Industry	CA	91789
4361 E Firestone Blvd	South Gate	CA	90280	535 S Brea Canyon Rd	Walnut	CA	91789
2641 Seminole Dr	South Gate	CA	90280	20435 E Business Pky	Walnut	CA	91789
8685 Bowers Ave	South Gate	CA	90280	680 S Lemon Ave	City Of Industry	CA	91789
261 W Beach Ave	Inglewood	CA	90302	515 S Lemon Ave	City of Industry	CA	91789
540 N Oak St	Inglewood	CA	90302	19901 Harrison Ave	City Of Industry	CA	91789
687 N Eucalyptus Ave	Inglewood	CA	90302	20405 Business Pky	Walnut	CA	91789
490 N Oak St	Inglewood	CA	90302	21003 Commerce Pointe Dr	City Of Industry	CA	91789
1100 Colorado Blvd	Santa Monica	CA	90401	21490 Baker Pky	City Of Industry	CA	91789
1540 Francisco St	Torrance	CA	90501	21508 Ferrero Pky	City Of Industry	CA	91789
19600 S Western Ave	Torrance	CA	90501	222 N Vincent Ave	West Covina	CA	91790
19321 S Harbortgate Way	Torrance	CA	90501	2801 W Mission Rd	Alhambra	CA	91803
2012 Abalone Ave	Torrance	CA	90501	1000 Meridian Ave	Alhambra	CA	91803

Property Address	City	State	Zip	Property Address	City	State	Zip
1331 W Torrance Blvd	Torrance	CA	90501	3201 W Mission Rd	Alhambra	CA	91803
19145 Gramercy Pl	Torrance	CA	90501	905 Westminster Ave	Alhambra	CA	91803
19400 S Western Ave	Torrance	CA	90501	82851 Avenue 45	Indio	CA	92201
1452 W Knox St	Torrance	CA	90501	82585 Showcase Pky	Indio	CA	92203
19400 Harborgate Way	Torrance	CA	90501	1777 W Lincoln St	Banning	CA	92220
20263 S Western Ave	Torrance	CA	90501	533 E 3rd St	Beaumont	CA	92223
1540 W 190th St	Torrance	CA	90501	415 Nicholas Rd	Beaumont	CA	92223
19200 S Western Ave	Torrance	CA	90501	862 W 4th St	Beaumont	CA	92223
19800 Van Ness Ave	Torrance	CA	90501	630 Nicholas Rd	Beaumont	CA	92223
1451 Knox St	Torrance	CA	90501	1010 W 4th St	Beaumont	CA	92223
1450 W 228th St	Torrance	CA	90501	920 W 4th St	Beaumont	CA	92223
19001 S Western Ave	Torrance	CA	90501	1020 Prosperity Way	Beaumont	CA	92223
20100 S Western Ave	Torrance	CA	90501	52200 Industrial Way	Coachella	CA	92236
2027 Harpers Way	Torrance	CA	90501	85901 Avenue 53	Coachella	CA	92236
19001 Harborgate Way	Torrance	CA	90501	85810 Peter Rabbit Ln	Coachella	CA	92236
1580 Francisco St	Torrance	CA	90501	Two Bunch Palms Trail	Desert Hot Springs	CA	92240
19900 Van Ness Ave	Torrance	CA	90501	411 W Garnet Ave	Palm Springs	CA	92263
1640 W 190th St	Torrance	CA	90501	54895 Fillmore St	Thermal	CA	92274
501 Van Ness Ave	Torrance	CA	90501	87500 Airport Blvd	Thermal	CA	92274
19561 Harborgate Way	Torrance	CA	90501	22069 Van Buren St	Grand Terrace	CA	92313
19600 Van Ness Ave	Torrance	CA	90501	3255 S Cactus Ave	Bloomington	CA	92316
2300 Crenshaw Blvd	Torrance	CA	90501	1551 S Lilac Ave	Bloomington	CA	92316
19700 Van Ness Ave	Torrance	CA	90501	11260 Cedar Ave	Bloomington	CA	92316
20000 S Western Ave	Torrance	CA	90501	18244 Valley Blvd	Bloomington	CA	92316
20100 S Vermont Ave	Torrance	CA	90502	305 W Resource Dr	Rialto	CA	92316
19901 Hamilton Ave	Torrance	CA	90502	315 W Resource Dr	Bloomington	CA	92316
19900 S Vermont Ave	Torrance	CA	90502	18750 Orange St	Bloomington	CA	92316
19310 Pacific Gateway Dr	Torrance	CA	90502	3520 S Cactus Ave	Bloomington	CA	92316
1000 190th St	Torrance	CA	90502	12050 Agua Mansa Rd	Bloomington	CA	92316
20051 S Vermont Ave	Torrance	CA	90502	3370 Enterprise Dr	Bloomington	CA	92316
19681 Pacific Gateway Dr	Torrance	CA	90502	1409 S Lilac Ave	Bloomington	CA	92316
19875 Pacific Gateway Dr	Torrance	CA	90502	3375 Enterprise Dr	Bloomington	CA	92316
19780 Pacific Gateway Dr	Torrance	CA	90502	330 Resource Dr	Bloomington	CA	92316
1000 Francisco St	Torrance	CA	90502	18012 Slover Ave	Bloomington	CA	92316
19301 Pacific Gateway Dr	Torrance	CA	90502	3350 S Enterprise Ave	Bloomington	CA	92316
19500 S Vermont Ave	Torrance	CA	90502	17820 Slover Ave	Bloomington	CA	92316
970 Francisco St	Torrance	CA	90502	18298 Slover Ave	Bloomington	CA	92316
20333 Normandie Ave	Torrance	CA	90502	127 W Jurupa Ave	Rialto	CA	92316
2727 Maricopa St	Torrance	CA	90503	3994 S Riverside Ave	Colton	CA	92324
301 Crenshaw Blvd	Torrance	CA	90503	2245 W Valley Blvd	Colton	CA	92324
2925 California St	Torrance	CA	90503	1801 E Cooley Dr	Colton	CA	92324
2700 California St	Torrance	CA	90503	330 W Citrus Ave	Colton	CA	92324
538 Crenshaw Blvd	Torrance	CA	90503	280 De Berry St	Colton	CA	92324
19200 Hawthorne Blvd	Torrance	CA	90503	12249 Holly St	Colton	CA	92324
588 Crenshaw Blvd	Torrance	CA	90503	3996 S Riverside Ave	Colton	CA	92324
525 Maple Ave	Torrance	CA	90503	2063 W Bustamante Pky	Colton	CA	92324
2610 Columbia St	Torrance	CA	90503	225 W Acacia Ave	Colton	CA	92324
4100 W 190th St	Torrance	CA	90504	3700 S Riverside Ave	Colton	CA	92324
4240 W 190th St	Torrance	CA	90504	1501 Cooley Dr	Colton	CA	92324
4302 W 190th St	Torrance	CA	90504	1601 E Steel Rd	Colton	CA	92324
18700 Crenshaw Blvd	Torrance	CA	90504	1601 Fairway Dr	Colton	CA	92324
2525 W 190th St	Torrance	CA	90504	2163 S Riverside Ave	Colton	CA	92324
3000 W Lomita Blvd	Torrance	CA	90505	1600 W Agua Mansa Rd	Colton	CA	92324
23540 Telo Ave	Torrance	CA	90505	1601 E Cooley Dr	Colton	CA	92324
2600 Skypark Dr	Torrance	CA	90505	2036 Miguel Bustamante Pky	Colton	CA	92324
2901 Airport Dr	Torrance	CA	90505	1603 Steel Rd	Colton	CA	92324
23215 Early Ave	Torrance	CA	90505	311 W Citrus St	Colton	CA	92324
3963 Workman Mill Rd	City Of Industry	CA	90601	21700 Barton Rd	Colton	CA	92324
3777 Workman Mill Rd	City Of Industry	CA	90601	2053 Miguel Bustamante Pky	Colton	CA	92324
2645 Pacific Park Dr	Whittier	CA	90601	1601 Ashley Way	Colton	CA	92324
2680 S Pellissier Pl	City Of Industry	CA	90601	10917 Cherry Ave	Fontana	CA	92331
3931 Workman Mill Rd	City Of Industry	CA	90601	13048 Valley Blvd	Fontana	CA	92335
2727 S Workman Mill Rd	City of Industry	CA	90601	10288 Calabash Ave	Fontana	CA	92335
2300 Pellissier Pl	City of Industry	CA	90601	13450 Napa St	Fontana	CA	92335



Property Address	City	State	Zip	Property Address	City	State	Zip
2225 Workman Mill Rd	City of Industry	CA	90601	13373 Napa St	Fontana	CA	92335
12031 Philadelphia St	Whittier	CA	90601	13232 Valley Blvd	Fontana	CA	92335
3737 Capitol Ave	City of Industry	CA	90601	13053 San Bernardino Ave	Fontana	CA	92335
3735 Workman Mill Rd	City Of Industry	CA	90601	9950 Calabash Ave	Fontana	CA	92335
12910 Mulberry Dr	Whittier	CA	90602	8375 Sultana Ave	Fontana	CA	92335
12352 Whittier Blvd	Whittier	CA	90602	9211 Kaiser Way	Fontana	CA	92335
12252 Whittier Blvd	Whittier	CA	90602	13600 Napa St	Fontana	CA	92335
8550 Chetle Ave	Whittier	CA	90606	13265 Valley Blvd	Fontana	CA	92335
12100 Rivera Rd	Whittier	CA	90606	9988 Redwood Ave	Fontana	CA	92335
8189 Byron Rd	Whittier	CA	90606	13055 Valley Blvd	Fontana	CA	92335
6311 Knott Ave	Buena Park	CA	90620	13369 Valley Blvd	Fontana	CA	92335
6261 Caballero Blvd	Buena Park	CA	90620	13310 Valley Blvd	Fontana	CA	92335
6600 Valley View St	Buena Park	CA	90620	9774 Calabash Ave	Fontana	CA	92335
6905 Aragon Cir	Buena Park	CA	90620	9415 Kaiser Way	Fontana	CA	92335
6388 Artesia Blvd	Buena Park	CA	90620	13649 Valley Blvd	Fontana	CA	92335
6363 Regio Ave	Buena Park	CA	90620	14000 San Bernardino Ave	Fontana	CA	92335
6900 Orangethorpe Ave	Buena Park	CA	90620	13550 Valley Blvd	Fontana	CA	92335
6800 Valley View St	Buena Park	CA	90620	13277 San Bernardino Ave	Fontana	CA	92335
6400 Valley View St	Buena Park	CA	90620	13230 San Bernardino Ave	Fontana	CA	92335
6101 Knott Ave	Buena Park	CA	90620	13479 Valley Blvd	Fontana	CA	92335
6300 Regio Ave	Buena Park	CA	90620	9687 Transportation Way	Fontana	CA	92335
6280 Artesia Blvd	Buena Park	CA	90620	15895 Valley Blvd	Fontana	CA	92335
6570 Altura Blvd	Buena Park	CA	90620	8432 Almeria Ave	Fontana	CA	92335
6300 Regio Ave	Buena Park	CA	90620	7801 Cherry Ave	Fontana	CA	92336
6485 Descanso Ave	Buena Park	CA	90620	7630 Cherry Ave	Fontana	CA	92336
6545 Caballero Blvd	Buena Park	CA	90620	14750 Miller Ave	Fontana	CA	92336
6700 Artesia Blvd	Buena Park	CA	90620	5565 Sierra Ave	Fontana	CA	92336
6230 Descanso Ave	Buena Park	CA	90620	14527 Baseline Ave	Fontana	CA	92336
6880 Caballero Blvd	Buena Park	CA	90620	14605 Miller Ave	Fontana	CA	92336
6450 Caballero Blvd	Buena Park	CA	90620	7551 Cherry Ave	Fontana	CA	92336
6270 Caballero Blvd	Buena Park	CA	90620	14600 Bar Harbor Rd	Fontana	CA	92336
6800 Artesia Blvd	Buena Park	CA	90620	14650 Miller Ave	Fontana	CA	92336
6660 Orangethorpe Ave	Buena Park	CA	90620	7953 Cherry Ave	Fontana	CA	92336
6201 Regio Ave	Buena Park	CA	90620	14780 Bar Harbor Rd	Fontana	CA	92336
6300 Valley View St	Buena Park	CA	90620	5885 Sierra Ave	Fontana	CA	92336
6250 Caballero Blvd	Buena Park	CA	90620	7351 McGuire Ave	Fontana	CA	92336
6565 Knott Ave	Buena Park	CA	90620	7875 Hemlock Ave	Fontana	CA	92336
6525 Caballero Blvd	Buena Park	CA	90620	14650 Meyer Canyon Rd	Fontana	CA	92336
6251 Regio Ave	Buena Park	CA	90620	14597 Baseline Ave	Fontana	CA	92336
6201 Knott Ave	Buena Park	CA	90620	6101 Sierra Ave	Fontana	CA	92336
5650 Dolly Ave	Buena Park	CA	90621	14613 Bar Harbor Rd	Fontana	CA	92336
7025 Firestone Blvd	Buena Park	CA	90621	14779 Bar Harbor Rd	Fontana	CA	92336
5600 Beach Blvd	Buena Park	CA	90621	16270 Jurupa Ave	Fontana	CA	92337
7221 Cate Dr	Buena Park	CA	90621	11127 Catawba Ave	Fontana	CA	92337
5600 Knott Ave	Buena Park	CA	90621	10730 Production Ave	Fontana	CA	92337
5609 River Way	Buena Park	CA	90621	11275 Banana Ave	Fontana	CA	92337
7220 Cate Dr	Buena Park	CA	90621	13397 Marlay Ave	Fontana	CA	92337
5911 Fresca Dr	La Palma	CA	90623	11880 Pacific Ave	Fontana	CA	92337
5593 Fresca Dr	La Palma	CA	90623	10681 Production Ave	Fontana	CA	92337
5692 Fresca Dr	La Palma	CA	90623	11695 Pacific Ave	Fontana	CA	92337
6565 Valley View St	La Palma	CA	90623	17300 Slover Ave	Fontana	CA	92337
14000 E 183rd St	La Palma	CA	90623	12060 Cabernet Dr	Fontana	CA	92337
6901 Marlin Cir	La Palma	CA	90623	15996 Jurupa Ave	Fontana	CA	92337
11130 Holder St	Cypress	CA	90630	11081 Banana Ave	Fontana	CA	92337
11411 Valley View St	Cypress	CA	90630	11440 Pacific Ave	Fontana	CA	92337
5560 Katella Ave	Cypress	CA	90630	11251 Beech Ave	Fontana	CA	92337
6200 Phyllis Dr	Cypress	CA	90630	13414 Slover Ave	Fontana	CA	92337
11251 Warland Dr	Cypress	CA	90630	11591 Etiwanda Ave	Fontana	CA	92337
11150 Hope St	Cypress	CA	90630	13083 Slover Ave	Fontana	CA	92337
6550 Katella Ave	Cypress	CA	90630	13231 Slover Ave	Fontana	CA	92337
5665 Corporate Ave	Cypress	CA	90630	10851 Sierra Ave	Fontana	CA	92337
6600 Katella Ave	Cypress	CA	90630	10613 Jasmine St	Fontana	CA	92337
6450 Katella Ave	Cypress	CA	90630	13169 Slover Ave	Fontana	CA	92337
11130 Warland Dr	Cypress	CA	90630	11001 Etiwanda Ave	Fontana	CA	92337

Property Address	City	State	Zip	Property Address	City	State	Zip
10800 Valley View St	Cypress	CA	90630	11016 Mulberry Ave	Fontana	CA	92337
10824 Hope St	Cypress	CA	90630	11751 Cabernet Dr	Fontana	CA	92337
5440 Cerritos Ave	Cypress	CA	90630	13472 Marlay Ave	Fontana	CA	92337
5757 Plaza Dr	Cypress	CA	90630	13521 S Santa Ana Ave	Fontana	CA	92337
6032 Katella Ave	Cypress	CA	90630	10727 Commerce Way	Fontana	CA	92337
600 S Harbor Blvd	La Habra	CA	90631	10700 Business Dr	Fontana	CA	92337
1111 S Harbor Blvd	La Habra	CA	90631	10746 Commerce Way	Fontana	CA	92337
777 S Harbor Blvd	La Habra	CA	90631	10837 Commerce Way	Fontana	CA	92337
15221 Canary Ave	La Mirada	CA	90638	11875 Cabernet Dr	Fontana	CA	92337
14501 Artesia Blvd	La Mirada	CA	90638	13204 Philadelphia Ave	Fontana	CA	92337
14405 Artesia Blvd	La Mirada	CA	90638	13201 Dahlia St	Fontana	CA	92337
14450 Industry Cir	La Mirada	CA	90638	10825 Beech Ave	Fontana	CA	92337
15500 Phoebe Ave	La Mirada	CA	90638	1200 S Etiwanda Ave	Fontana	CA	92337
14041 Rosecrans Ave	La Mirada	CA	90638	10825 Production Ave	Fontana	CA	92337
14950 Valley View Ave	La Mirada	CA	90638	12925 Marlay Ave	Fontana	CA	92337
14720 E Alondra Blvd	La Mirada	CA	90638	11900 Cabernet Dr	Fontana	CA	92337
16800 E Trojan Way	La Mirada	CA	90638	13489 Slover Ave	Fontana	CA	92337
16930 Valley View Ave	La Mirada	CA	90638	13508 Marlay Ave	Fontana	CA	92337
16222 Phoebe Ave	La Mirada	CA	90638	13512 Marlay Ave	Fontana	CA	92337
14445 Alondra Blvd	La Mirada	CA	90638	12903 Jurupa Ave	Fontana	CA	92337
16420 Valley View Ave	La Mirada	CA	90638	11070 Mulberry Ave	Fontana	CA	92337
14001 Rosecrans Ave	La Mirada	CA	90638	10721 Jasmine St	Fontana	CA	92337
14659 Alondra Blvd	La Mirada	CA	90638	13032 Slover Ave	Fontana	CA	92337
16200 Trojan Way	La Mirada	CA	90638	13052 Jurupa Ave	Fontana	CA	92337
16400 Trojan Way	La Mirada	CA	90638	SEC Oleander & Santa Ana Ave	Fontana	CA	92337
16050 Canary Ave	La Mirada	CA	90638	12005 Cabernet Dr	Fontana	CA	92337
14585 Industry Cir	La Mirada	CA	90638	13050 Marlay Ave	Fontana	CA	92337
15005 Northam St	La Mirada	CA	90638	11700 Industry Ave	Fontana	CA	92337
15910 Valley View Ave	La Mirada	CA	90638	15750 Jurupa Ave	Fontana	CA	92337
14647 Northam St	La Mirada	CA	90638	13204 Jurupa Ave	Fontana	CA	92337
16501 Trojan Way	La Mirada	CA	90638	10846 Commerce Way	Fontana	CA	92337
15155 Northam St	La Mirada	CA	90638	11101 Etiwanda Ave	Fontana	CA	92337
15500 Valley View Ave	La Mirada	CA	90638	10586 Tamarind Ave	Fontana	CA	92337
14221 Artesia Blvd	La Mirada	CA	90638	13611 Jurupa Ave	Fontana	CA	92337
14355 Industry Cir	La Mirada	CA	90638	15971 Santa Ana Ave	Fontana	CA	92337
14701 Industry Cir	La Mirada	CA	90638	11260 Elm Ave	Fontana	CA	92337
14930 Alondra Blvd	La Mirada	CA	90638	10651 Elm Ave	Fontana	CA	92337
15300 Desman Rd	La Mirada	CA	90638	13423 Santa Ana Ave	Fontana	CA	92337
14101 Rosecrans Blvd	La Mirada	CA	90638	15910 Jurupa Ave	Fontana	CA	92337
14407 Alondra Blvd	La Mirada	CA	90638	11001 Citrus Ave	Fontana	CA	92337
15090 Northam St	La Mirada	CA	90638	10886 S Citrus Ave	Fontana	CA	92337
15130 Northam St	La Mirada	CA	90638	11754 Cabernet Dr	Fontana	CA	92337
16301 Trojan Way	La Mirada	CA	90638	11100 Hemlock Ave	Fontana	CA	92337
16000 Heron Ave	La Mirada	CA	90638	14874 Jurupa Ave	Fontana	CA	92337
14380 Industry Cir	La Mirada	CA	90638	11250 Poplar Ave	Fontana	CA	92337
16400 Knott Ave	La Mirada	CA	90638	13489 Jurupa Ave	Fontana	CA	92337
14455 Industry Cir	La Mirada	CA	90638	10850 Business Dr	Fontana	CA	92337
16651 Knott Ave	La Mirada	CA	90638	15801 Santa Ana Ave	Fontana	CA	92337
6913 Acco St	Montebello	CA	90640	15101 Santa Ana Ave	Fontana	CA	92337
7227 Telegraph Rd	Montebello	CA	90640	10760 Tamarind Ave	Fontana	CA	92337
1221 Frankel Ave	Montebello	CA	90640	11618 Mulberry Ave	Fontana	CA	92337
1150 S Taylor Ave	Montebello	CA	90640	11751 Industry Ave	Fontana	CA	92337
1501 Greenwood Ave	Montebello	CA	90640	16171 Santa Ana Ave	Fontana	CA	92337
7301 Telegraph Rd	Montebello	CA	90640	13366 Philadelphia Ave	Fontana	CA	92337
1 Minson Way	Montebello	CA	90640	13367 Marlay Ave	Fontana	CA	92337
901 Union St	Montebello	CA	90640	10725 Sierra Ave	Fontana	CA	92337
7171 Telegraph Rd	Montebello	CA	90640	11895 Cabernet Dr	Fontana	CA	92337
1540 S Greenwood Ave	Montebello	CA	90640	10509 Business Dr	Fontana	CA	92337
1550 S Maple Ave	Montebello	CA	90640	10918 Cherry Ave	Fontana	CA	92337
1220 W Washington Blvd	Montebello	CA	90640	10798 Catawba Ave	Fontana	CA	92337
3579 Minson Ave	Montebello	CA	90640	11188 Citrus Ave	Fontana	CA	92337
1620 S Greenwood Ave	Montebello	CA	90640	13003 Slover Ave	Fontana	CA	92337
1620 S Maple Ave	Montebello	CA	90640	15889 Slover Ave	Fontana	CA	92337
825 S Vail Ave	Montebello	CA	90640	11281 Citrus Ave	Fontana	CA	92337

Property Address	City	State	Zip	Property Address	City	State	Zip
1520 Beach St	Montebello	CA	90640	10606 Commerce Way	Fontana	CA	92337
6905 Acco St	Montebello	CA	90640	10661 Etiwanda Ave	Fontana	CA	92337
1515 Gage Rd	Montebello	CA	90640	13500 Marlay Ave	Fontana	CA	92337
1501 Date St	Montebello	CA	90640	10545 Production Ave	Fontana	CA	92337
7107 Telegraph Rd	Montebello	CA	90640	13170 Marlay Ave	Fontana	CA	92337
666 Union St	Montebello	CA	90640	11800 Industry Ave	Fontana	CA	92337
800 Union St	Montebello	CA	90640	13379 Jurupa Ave	Fontana	CA	92337
2101 W Flotilla St	Montebello	CA	90640	15816 Santa Ana Ave	Fontana	CA	92337
14405 Best Ave	Norwalk	CA	90650	9441 N Opal Ave	Mentone	CA	92359
15301 Shoemaker Ave	Norwalk	CA	90650	801 Opal Ave	Mentone	CA	92359
15505 Shoemaker Ave	Norwalk	CA	90650	490 Nevada St	Redlands	CA	92373
12851 Leyva St	Norwalk	CA	90650	2125 San Bernardino Ave	Redlands	CA	92373
14820 Carmenita Rd	Norwalk	CA	90650	1675 W Park Ave	Redlands	CA	92373
12840 E Leyva St	Norwalk	CA	90650	301 Tennessee St	Redlands	CA	92373
11100 Firestone Blvd	Norwalk	CA	90650	27352 River Bluff Ave	Redlands	CA	92374
4700 Gregg Rd	Pico Rivera	CA	90660	2456 W Lugonia Ave	Redlands	CA	92374
4741 S Durfee Ave	Pico Rivera	CA	90660	9724 Alabama St	Redlands	CA	92374
8800 Rex Rd	Pico Rivera	CA	90660	2200 W San Bernardino Ave	Redlands	CA	92374
8500 Rex Rd	Pico Rivera	CA	90660	2255 W Lugonia Ave	Redlands	CA	92374
9935 Beverly Blvd	Pico Rivera	CA	90660	2459 Almond Ave	Redlands	CA	92374
8500 Mercury Ln	Pico Rivera	CA	90660	26940 Palmetto Ave	Redlands	CA	92374
8625 Rex Rd	Pico Rivera	CA	90660	27573 River Bluff Ave	Redlands	CA	92374
8460 E Whittier Blvd	Pico Rivera	CA	90660	26525 Pioneer Ave	Redlands	CA	92374
5102 Industry Ave	Pico Rivera	CA	90660	1897 E Colton Ave	Redlands	CA	92374
4800 Gregg Rd	Pico Rivera	CA	90660	26763 San Bernardino Ave	Redlands	CA	92374
8820 Mercury Ln	Pico Rivera	CA	90660	26871 San Bernardino Ave	Redlands	CA	92374
8900 Rex Rd	Pico Rivera	CA	90660	2301 W San Bernardino Ave	Redlands	CA	92374
8320 Rex Rd	Pico Rivera	CA	90660	9425 California St	Redlands	CA	92374
4901 Gregg Rd	Pico Rivera	CA	90660	2501 W San Bernardino Ave	Redlands	CA	92374
8525 Rex Rd	Pico Rivera	CA	90660	26950 San Bernardino Ave	Redlands	CA	92374
8321 Canford St	Pico Rivera	CA	90660	1651 California St	Redlands	CA	92374
8905 Rex Rd	Pico Rivera	CA	90660	2200 Palmetto Ave	Redlands	CA	92374
8570 Mercury Ln	Pico Rivera	CA	90660	27223 Pioneer Ave	Redlands	CA	92374
8350 Rex Rd	Pico Rivera	CA	90660	27334 San Bernardino Ave	Redlands	CA	92374
8001 Telegraph Rd	Pico Rivera	CA	90660	27517 Pioneer Ave	Redlands	CA	92374
8700 Rex Rd	Pico Rivera	CA	90660	27582 Pioneer Ave	Redlands	CA	92374
7185 Rosemead Blvd	Pico Rivera	CA	90660	26875 Pioneer Ave	Redlands	CA	92374
8200 E Slauson Ave	Pico Rivera	CA	90660	9712 Alabama St	Redlands	CA	92374
7860 Paramount Blvd	Pico Rivera	CA	90660	1251 Research Dr	Redlands	CA	92374
8700 Mercury Ln	Pico Rivera	CA	90660	1300 California St	Redlands	CA	92374
7255 Rosemead Blvd	Pico Rivera	CA	90660	26881 Palmetto Ave	Redlands	CA	92374
7875 Telegraph Rd	Pico Rivera	CA	90660	26682 Almond Ave	Redlands	CA	92374
11204 Norwalk Blvd	Santa Fe Springs	CA	90670	9425 Nevada St	Redlands	CA	92374
13220 Molette St	Santa Fe Springs	CA	90670	1455 Research Dr	Redlands	CA	92374
13408 Orden Dr	Santa Fe Springs	CA	90670	1730 Marigold Ave	Redlands	CA	92374
13415 Carmenita Rd	Santa Fe Springs	CA	90670	2300 W San Bernardino Ave	Redlands	CA	92374
15015 Valley View Ave	Santa Fe Springs	CA	90670	26635 Pioneer Ave	Redlands	CA	92374
8945 Dice Rd	Santa Fe Springs	CA	90670	26681 San Bernardino Ave	Redlands	CA	92374
9211 Norwalk Blvd	Santa Fe Springs	CA	90670	1898 Marigold Ave	Redlands	CA	92374
12801 Excelsior Dr	Santa Fe Springs	CA	90670	1480 Mountain View Ave	Redlands	CA	92374
9206 Santa Fe Springs Rd	Santa Fe Springs	CA	90670	1950 Palmetto Ave	Redlands	CA	92374
11688 Greenstone Ave	Santa Fe Springs	CA	90670	1901 California St	Redlands	CA	92374
15120 Marquardt Ave	Santa Fe Springs	CA	90670	27040 San Bernardino Ave	Redlands	CA	92374
9501 Norwalk Blvd	Santa Fe Springs	CA	90670	2185 Lugonia Ave	Redlands	CA	92374
12202 E Slauson Ave	Santa Fe Springs	CA	90670	26759 Almond Ave	Redlands	CA	92374
10035 Geary Ave	Santa Fe Springs	CA	90670	9375 Alabama St	Redlands	CA	92374
12320 Bloomfield Ave	Santa Fe Springs	CA	90670	26717 Palmetto Ave	Redlands	CA	92374
13438 Foster Rd	Santa Fe Springs	CA	90670	26597 San Bernardino Ave	Redlands	CA	92374
13225 Alondra Blvd	Santa Fe Springs	CA	90670	9889 Almond Ave	Redlands	CA	92374
11333 Greenstone Ave	Santa Fe Springs	CA	90670	27081 Almond Ave	Redlands	CA	92374
10900 Painter Ave	Santa Fe Springs	CA	90670	2470 W Lugonia Ave	Redlands	CA	92374
10628 Fulton Wells Ave	Santa Fe Springs	CA	90670	2255 W San Bernardino Ave	Redlands	CA	92374
9700 Bell Ranch Dr	Santa Fe Springs	CA	90670	1895 Marigold Ave	Redlands	CA	92374
13607 Orden Dr	Santa Fe Springs	CA	90670	1898 E Colton Ave	Redlands	CA	92374

Property Address	City	State	Zip	Property Address	City	State	Zip
15700 Shoemaker Ave	Santa Fe Springs	CA	90670	2290 Palmetto Ave	Redlands	CA	92374
12935 Leffingwell Ave	Santa Fe Springs	CA	90670	2250 W Lugonia Ave	Redlands	CA	92375
11925 E Pike St	Santa Fe Springs	CA	90670	1450 Alder Ave	Rialto	CA	92376
12928 Sandoval St	Santa Fe Springs	CA	90670	1552 N Alder Ave	Rialto	CA	92376
11600 Los Nietos Rd	Santa Fe Springs	CA	90670	1371 N Laurel Ave	Rialto	CA	92376
13409 Orden Dr	Santa Fe Springs	CA	90670	2625 W Renaissance Pky	Rialto	CA	92376
13500 Foster Rd	Santa Fe Springs	CA	90670	1979 W Renaissance Pky	Rialto	CA	92376
8834 Millergrrove Dr	Santa Fe Springs	CA	90670	360 S Lilac Ave	Rialto	CA	92376
13225 Marquardt Ave	Santa Fe Springs	CA	90670	1660 N Linden Ave	Rialto	CA	92376
15510 Carmenita Rd	Santa Fe Springs	CA	90670	1314 W Merrill Ave	Rialto	CA	92376
10805 Painter Ave	Santa Fe Springs	CA	90670	1568 N Linden Ave	Rialto	CA	92376
12235 Bell Ranch Dr	Santa Fe Springs	CA	90670	1710 W Base Line Rd	Rialto	CA	92376
14141 Alondra Blvd	Santa Fe Springs	CA	90670	1364 W Rialto Ave	Rialto	CA	92376
9601 John St	Santa Fe Springs	CA	90670	1221 Alder Ave	Rialto	CA	92376
13227 Orden Dr	Santa Fe Springs	CA	90670	1998 W Baseline Rd	Rialto	CA	92376
12065 Pike St	Santa Fe Springs	CA	90670	1464 W Merrill Ave	Rialto	CA	92376
9200 Sorensen Ave	Santa Fe Springs	CA	90670	300 S Cedar Ave	Rialto	CA	92376
12418 Florence Ave	Santa Fe Springs	CA	90670	1401 Alder Ave	Rialto	CA	92376
12828 Carmenita Rd	Santa Fe Springs	CA	90670	1920 W Baseline Rd	Rialto	CA	92376
12318 Florence Ave	Santa Fe Springs	CA	90670	450 S Cactus Ave	Rialto	CA	92376
12301 Hawkins St	Santa Fe Springs	CA	90670	1110 W Merrill Ave	Rialto	CA	92376
9830 Norwalk Blvd	Santa Fe Springs	CA	90670	2510 W Walnut Ave	Rialto	CA	92376
13113 Adler Rd	Santa Fe Springs	CA	90670	562 W Santa Ana Ave	Rialto	CA	92376
13132 Lakeland Rd	Santa Fe Springs	CA	90670	2450 W Walnut Ave	Rialto	CA	92376
8808 Pioneer Blvd	Santa Fe Springs	CA	90670	1686 W Base Line Rd	Rialto	CA	92376
12034 Greenstone Ave	Santa Fe Springs	CA	90670	2245 Renaissance Pkwy	Rialto	CA	92376
10715 Shoemaker Ave	Santa Fe Springs	CA	90670	1543 Alder Ave	Rialto	CA	92376
8110 Sorensen Ave	Santa Fe Springs	CA	90670	1590 N Tamarind Ave	Rialto	CA	92376
12012 Burke St	Santa Fe Springs	CA	90670	371 S Cactus Ave	Rialto	CA	92376
15160 Spring Ave	Santa Fe Springs	CA	90670	1642 W Miro Way	Rialto	CA	92376
10506 Shoemaker Ave	Santa Fe Springs	CA	90670	1495 Tamarind Ave	Rialto	CA	92376
11650 Burke St	Santa Fe Springs	CA	90670	1420 N Tamarind Ave	Rialto	CA	92376
11529 Greenstone Ave	Santa Fe Springs	CA	90670	1750 Miro Way	Rialto	CA	92376
12827 E Imperial Hwy	Santa Fe Springs	CA	90670	120 S Cedar Ave	Rialto	CA	92376
11320 Bloomfield Ave	Santa Fe Springs	CA	90670	548 W Merrill Ave	Rialto	CA	92376
14027 Borate St	Santa Fe Springs	CA	90670	1960 W Miro Way	Rialto	CA	92376
12310 E Slauson Ave	Santa Fe Springs	CA	90670	181 S Larch Ave	Rialto	CA	92376
12330 Lakeland Rd	Santa Fe Springs	CA	90670	2225 Alder Ave	Rialto	CA	92377
14066 Borate St	Santa Fe Springs	CA	90670	2602 N Locust Ave	Rialto	CA	92377
13827 Carmenita Rd	Santa Fe Springs	CA	90670	2180 N Locust Ave	Rialto	CA	92377
13642 Orden Dr	Santa Fe Springs	CA	90670	1508 W Casmalia St	Rialto	CA	92377
10107 Norwalk Blvd	Santa Fe Springs	CA	90670	2415 N Locust Ave	Rialto	CA	92377
9306 Sorensen Ave	Santa Fe Springs	CA	90670	3196 N Locust Ave	Rialto	CA	92377
8724 Millergrrove Dr	Santa Fe Springs	CA	90670	3105 N Alder Ave	Rialto	CA	92377
12681 Corral Pl	Santa Fe Springs	CA	90670	3110 N Alder Ave	Rialto	CA	92377
12311 Shoemaker Ave	Santa Fe Springs	CA	90670	1850 Vineyard Ave	Rialto	CA	92377
13901 Carmenita Rd	Santa Fe Springs	CA	90670	4982 Hallmark Pky	San Bernardino	CA	92407
13012 Molette St	Santa Fe Springs	CA	90670	2552 W Shenandoah Way	San Bernardino	CA	92407
12500 E Slauson Ave	Santa Fe Springs	CA	90670	5454 A Industrial Park	San Bernardino	CA	92407
12866 Ann St	Santa Fe Springs	CA	90670	7140 N Cajon Blvd	San Bernardino	CA	92407
13861 Rosecrans Ave	Santa Fe Springs	CA	90670	2765 Lexington Way	San Bernardino	CA	92407
13833 Borate St	Santa Fe Springs	CA	90670	6010 N Cajon Blvd	San Bernardino	CA	92407
11811 E Florence Ave	Santa Fe Springs	CA	90670	3454 Mike Daley Dr	San Bernardino	CA	92407
9101 Sorensen Ave	Santa Fe Springs	CA	90670	5685 Industrial Pky	San Bernardino	CA	92407
15614 Shoemaker Ave	Santa Fe Springs	CA	90670	2705 Lexington Way	San Bernardino	CA	92407
9630 Norwalk Blvd	Santa Fe Springs	CA	90670	7010 N Cajon Blvd	San Bernardino	CA	92407
12816 Adler Dr	Santa Fe Springs	CA	90670	3372 N Mike Daley Dr	San Bernardino	CA	92407
13220 Orden Dr	Santa Fe Springs	CA	90670	4472 Georgia Blvd	San Bernardino	CA	92407
9400 Santa Fe Springs Rd	Santa Fe Springs	CA	90670	4162 Georgia Blvd	San Bernardino	CA	92407
13530 Rosecrans Ave	Santa Fe Springs	CA	90670	5080 Hallmark Pky	San Bernardino	CA	92407
10006 Santa Fe Springs Rd	Santa Fe Springs	CA	90670	5415 N Industrial Pky	San Bernardino	CA	92407
12821 Carmenita Rd	Santa Fe Springs	CA	90670	5959 Palm Ave	San Bernardino	CA	92407
12801 Excelsior Dr	Santa Fe Springs	CA	90670	5990 N Cajon Blvd	San Bernardino	CA	92407

Property Address	City	State	Zip	Property Address	City	State	Zip
13325 Molette St	Santa Fe Springs	CA	90670	5404 Industrial Pky	San Bernardino	CA	92407
13833 Freeway Dr	Santa Fe Springs	CA	90670	1761 Interchange Dr	San Bernardino	CA	92407
13146 Firestone Blvd	Santa Fe Springs	CA	90670	3525 N Mike Daley Dr	San Bernardino	CA	92407
11130 Bloomfield Ave	Santa Fe Springs	CA	90670	6227 Cajon Blvd	San Bernardino	CA	92407
14911 Valley View Ave	Santa Fe Springs	CA	90670	4010 Georgia Blvd	San Bernardino	CA	92407
12850 E Florence Ave	Santa Fe Springs	CA	90670	4382 N Georgia Blvd	San Bernardino	CA	92407
12935 Imperial Hwy	Santa Fe Springs	CA	90670	4382 Georgia Blvd	San Bernardino	CA	92407
12241 Florence Ave	Santa Fe Springs	CA	90670	7250 Cajon Blvd	San Bernardino	CA	92407
12909 Sandoval St	Santa Fe Springs	CA	90670	2612 W Shenandoah Way	San Bernardino	CA	92407
13545 Larwin Cir	Santa Fe Springs	CA	90670	1651 Interchange Dr	San Bernardino	CA	92407
12623 Cisneros Ln	Santa Fe Springs	CA	90670	5690 Industrial Pky	San Bernardino	CA	92407
12380 Clark St	Santa Fe Springs	CA	90670	19949 Kendall Dr	San Bernardino	CA	92407
12005 Pike St	Santa Fe Springs	CA	90670	17335 Glen Helen Pky	San Bernardino	CA	92407
15050 Shoemaker Ave	Santa Fe Springs	CA	90670	6207 Cajon Blvd	San Bernardino	CA	92407
15225 Bonavista Ave	Santa Fe Springs	CA	90670	5405 Industrial Pky	San Bernardino	CA	92407
12991 Marquardt Ave	Santa Fe Springs	CA	90670	1592 E San Bernardino Ave	San Bernardino	CA	92408
12588 Florence Ave	Santa Fe Springs	CA	90670	125 E Club Center Dr	San Bernardino	CA	92408
12802 Leffingwell Rd	Santa Fe Springs	CA	90670	1050 E Orange Show Rd	San Bernardino	CA	92408
12540 Slauson Ave	Santa Fe Springs	CA	90670	945 S Sunnyside Ave	San Bernardino	CA	92408
11954 Washington Blvd	Santa Fe Springs	CA	90670	980 E Mill St	San Bernardino	CA	92408
12801 Excelsior Dr	Santa Fe Springs	CA	90670	270 E Central Ave	San Bernardino	CA	92408
12009 Telegraph Rd	Santa Fe Springs	CA	90670	555 E Orange Show Rd	San Bernardino	CA	92408
13527 Orden Dr	Santa Fe Springs	CA	90670	1454 S Sunnyside Ave	San Bernardino	CA	92408
14044 Freeway Dr	Santa Fe Springs	CA	90670	701 S Arrowhead Ave	San Bernardino	CA	92408
11500 Los Nietos Rd	Santa Fe Springs	CA	90670	1295 E Central Ave	San Bernardino	CA	92408
11211 Greenstone Ave	Santa Fe Springs	CA	90670	1400 E Victoria Ave	San Bernardino	CA	92408
12801 Ann St	Santa Fe Springs	CA	90670	1089 E Mill St	San Bernardino	CA	92408
10810 Painter Ave	Santa Fe Springs	CA	90670	1350 N Waterman Ave	San Bernardino	CA	92408
12825 Leffingwell Rd	Santa Fe Springs	CA	90670	1410 E Central Ave	San Bernardino	CA	92408
14088 Borate St	Santa Fe Springs	CA	90670	300 S Tippecanoe Ave	San Bernardino	CA	92408
13635 E Freeway Dr	Santa Fe Springs	CA	90670	1470 S Tippecanoe Ave	San Bernardino	CA	92408
14404 Best Ave	Santa Fe Springs	CA	90670	675 E Central Ave	San Bernardino	CA	92408
9747 S Norwalk Blvd	Santa Fe Springs	CA	90670	1910 E Central Ave	San Bernardino	CA	92408
13341 Cambridge St	Santa Fe Springs	CA	90670	1456 E Harry Sheppard Blvd	San Bernardino	CA	92408
13700 Firestone Blvd	Santa Fe Springs	CA	90670	890 E Mill St	San Bernardino	CA	92408
12601 Shoemaker Ave	Santa Fe Springs	CA	90670	990 E Mill St	San Bernardino	CA	92408
10205 Painter Ave	Santa Fe Springs	CA	90670	1905 Riverview Dr	San Bernardino	CA	92408
12907 Imperial Hwy	Santa Fe Springs	CA	90670	570 E Mill St	San Bernardino	CA	92408
15415 Marquardt Ave	Santa Fe Springs	CA	90670	786 E Central Ave	San Bernardino	CA	92408
10747 Patterson Pl	Santa Fe Springs	CA	90670	520 E Orange Show Rd	San Bernardino	CA	92408
15305 Valley View Ave	Santa Fe Springs	CA	90670	736 W Inland Center Dr	San Bernardino	CA	92408
10521 Dale Ave	Stanton	CA	90680	825 E Central Ave	San Bernardino	CA	92408
14014 Arbor Pl	Cerritos	CA	90703	1445 Riverview Dr	San Bernardino	CA	92408
16012 Arthur St	Cerritos	CA	90703	1650 E Central Ave	San Bernardino	CA	92408
13012 Midway Pl	Cerritos	CA	90703	258 E Commercial Dr	San Bernardino	CA	92408
14101 Park Pl	Cerritos	CA	90703	255 S Waterman Ave	San Bernardino	CA	92408
14121 Artesia Blvd	Cerritos	CA	90703	Tippecanoe Ave	San Bernardino	CA	92408
16000 Carmenita Rd	Cerritos	CA	90703	750 S Valley View Ave	San Bernardino	CA	92408
15928 Commerce Way	Cerritos	CA	90703	2505 Steele St	San Bernardino	CA	92408
12836 Alondra Blvd	Cerritos	CA	90703	343 S Lena Rd	San Bernardino	CA	92408
12889 Moore St	Cerritos	CA	90703	301 S Tippecanoe Ave	San Bernardino	CA	92408
16069 Shoemaker Ave	Cerritos	CA	90703	631 S Waterman Ave	San Bernardino	CA	92408
16110 Carmenita Rd	Cerritos	CA	90703	1445 S Tippecanoe Ave	San Bernardino	CA	92408
14171 Park Pl	Cerritos	CA	90703	311 S Doolittle Ave	San Bernardino	CA	92408
17211 Valley View Ave	Cerritos	CA	90703	1494 S Waterman Ave	San Bernardino	CA	92408
16010 Shoemaker Ave	Cerritos	CA	90703	1393 E San Bernardino Ave	San Bernardino	CA	92408
12850 Midway Pl	Cerritos	CA	90703	1050 W Rialto Ave	San Bernardino	CA	92410
15905 Commerce Way	Cerritos	CA	90703	1500 W Rialto Ave	San Bernardino	CA	92410
18021 Valley View Ave	Cerritos	CA	90703	7776 Tippecanoe Ave	San Bernardino	CA	92410
15950 Bloomfield Ave	Cerritos	CA	90703	927 E 9th St	San Bernardino	CA	92410
12851 Midway Pl	Cerritos	CA	90703	3512 14th St	Riverside	CA	92501
17101 Valley View Ave	Cerritos	CA	90703	9700 Indiana Ave	Riverside	CA	92503
15959 Pioma Ave	Cerritos	CA	90703	8200 Arlington Ave	Riverside	CA	92503
13226 Alondra Blvd	Cerritos	CA	90703	12000 Magnolia Ave	Riverside	CA	92503

Property Address	City	State	Zip	Property Address	City	State	Zip
17817 Valley View Ave	Cerritos	CA	90703	7145 Arlington Ave	Riverside	CA	92503
13950 Cerritos Corporate Dr	Cerritos	CA	90703	7337 Central Ave	Riverside	CA	92504
13233 Moore St	Cerritos	CA	90703	8000 Lincoln Ave	Riverside	CA	92504
12928 Midway Pl	Cerritos	CA	90703	5825 Jasmine St	Riverside	CA	92504
14100 Vine Pl	Cerritos	CA	90703	2950 Jefferson St	Riverside	CA	92504
16028 Marquardt Ave	Cerritos	CA	90703	7809 Lincoln Ave	Riverside	CA	92504
16200 Carmenita Rd	Cerritos	CA	90703	7227 Central Ave	Riverside	CA	92504
13140 Midway Pl	Cerritos	CA	90703	16833 Krameria Ave	Riverside	CA	92504
13131 166th St	Cerritos	CA	90703	3100 Jefferson St	Riverside	CA	92504
15927 Distribution Way	Cerritos	CA	90703	1080 Mount Vernon Ave	Riverside	CA	92507
16290 Shoemaker Ave	Cerritos	CA	90703	797 Palmyrita Ct	Riverside	CA	92507
10811 Bloomfield	Los Alamitos	CA	90720	545 Columbia Ave	Riverside	CA	92507
10681 Calle Lee	Los Alamitos	CA	90720	705 Columbia Ave	Riverside	CA	92507
4411 Katella Ave	Los Alamitos	CA	90720	800 E La Cadena Dr	Riverside	CA	92507
7210 Alondra Blvd	Paramount	CA	90723	3080 12th St	Riverside	CA	92507
14350 Garfield Ave	Paramount	CA	90723	1001 Columbia Ave	Riverside	CA	92507
16706 Garfield Ave	Paramount	CA	90723	1495 Columbia Ave	Riverside	CA	92507
14001 S Garfield Ave	Paramount	CA	90723	6860 Sycamore Canyon Blvd	Riverside	CA	92507
14900 Garfield Ave	Paramount	CA	90723	875 Michigan Ct	Riverside	CA	92507
7743 Adams St	Paramount	CA	90723	1560 Sierra Ridge Dr	Riverside	CA	92507
14001 Orange Ave	Paramount	CA	90723	795 Columbia Ave	Riverside	CA	92507
15701 Minnesota Ave	Paramount	CA	90723	555 Palmyrita Ave	Riverside	CA	92507
350 Westmont Dr	San Pedro	CA	90731	6681 River Run Dr	Riverside	CA	92507
401 Westmont Ave	San Pedro	CA	90731	800 Iowa Ave	Riverside	CA	92507
300 Westmont Dr	San Pedro	CA	90731	6721 Sycamore Canyon Blvd	Riverside	CA	92507
111 E 22nd St	San Pedro	CA	90731	475 Palmyrita Ave	Riverside	CA	92507
901 New Dock St	Wilmington	CA	90731	6275 Lance Dr	Riverside	CA	92507
301 Westmont Dr	San Pedro	CA	90731	6150 Sycamore Canyon Blvd	Riverside	CA	92507
1710 Apollo Ct	Seal Beach	CA	90740	1730 Eastridge Ave	Riverside	CA	92507
1770 Saturn Way	Seal Beach	CA	90740	1651 Eastridge Ave	Riverside	CA	92507
1700 Saturn Way	Seal Beach	CA	90740	935 Palmyrita Ave	Riverside	CA	92507
2401 E Pacific Coast Hwy	Wilmington	CA	90744	1111 Citrus St	Riverside	CA	92507
909 Colon St	Wilmington	CA	90744	6688 Box Springs Blvd	Riverside	CA	92507
900 E M St	Wilmington	CA	90744	1580 Eastridge Ave	Riverside	CA	92507
901 E E St	Wilmington	CA	90744	780 Columbia Ave	Riverside	CA	92507
920 E Pacific Coast Hwy	Wilmington	CA	90744	3087 12th St	Riverside	CA	92507
301 N Figueroa St	Wilmington	CA	90744	6335 Sycamore Canyon Blvd	Riverside	CA	92507
990 E 233rd St	Carson	CA	90745	333 Palmyrita Ave	Riverside	CA	92507
901 E 233rd St	Carson	CA	90745	1850 Atlanta Ave	Riverside	CA	92507
900 Watson Center Rd	Carson	CA	90745	500 Palmyrita Ave	Riverside	CA	92507
1111 E Watson Center Rd	Carson	CA	90745	6250 Sycamore Canyon Blvd	Riverside	CA	92507
1145 E 233rd St	Carson	CA	90745	6075 Lance Dr	Riverside	CA	92507
1071 E 233rd St	Carson	CA	90745	6255 Sycamore Canyon Blvd	Riverside	CA	92507
1710 E Sepulveda Blvd	Carson	CA	90745	6400 Sycamore Canyon Blvd	Riverside	CA	92507
810 E 233rd St	Carson	CA	90745	6711 Sycamore Canyon Blvd	Riverside	CA	92507
23610 S Banning Blvd	Carson	CA	90745	1155 Mount Vernon Ave	Riverside	CA	92507
800 E 230th St	Carson	CA	90745	6125 Sycamore Canyon Blvd	Riverside	CA	92507
24760 S Main St	Carson	CA	90745	1200 Columbia Ave	Riverside	CA	92507
22941 S Wilmington Ave	Carson	CA	90745	6975 Sycamore Canyon Blvd	Riverside	CA	92507
22673 S Wilmington Ave	Carson	CA	90745	6677 Box Spring Blvd	Riverside	CA	92507
809 E 236th St	Carson	CA	90745	1100 Citrus St	Riverside	CA	92507
21175 S Main St	Carson	CA	90745	490 Columbia Ave	Riverside	CA	92507
1113 E 230th St	Carson	CA	90745	1660 Iowa Ave	Riverside	CA	92507
1015 E 236th St	Carson	CA	90745	2727 Kansas Ave	Riverside	CA	92507
22707 S Wilmington Ave	Carson	CA	90745	2111 Eastridge Ave	Riverside	CA	92507
1035 Watson Center Rd	Carson	CA	90745	2321 3rd St	Riverside	CA	92507
1610 E Sepulveda Blvd	Carson	CA	90745	1680 Eastridge Ave	Riverside	CA	92507
1241 Watson Center Rd	Carson	CA	90745	1455 Citrus Ave	Riverside	CA	92507
1040 E Watson Center Rd	Carson	CA	90745	1601 Iowa Ave	Riverside	CA	92507
909 E 236th St	Carson	CA	90745	1500 Eastridge Ave	Riverside	CA	92507
22560 Lucerne St	Carson	CA	90745	6980 Sycamore Canyon Blvd	Riverside	CA	92507
1058 E 230th St	Carson	CA	90745	1455 Columbia Ave	Riverside	CA	92507
851 Watson Center Rd	Carson	CA	90745	6659 Sycamore Canyon Blvd	Riverside	CA	92507

Property Address	City	State	Zip	Property Address	City	State	Zip
23011 S Wilmington Ave	Carson	CA	90745	1995 3rd St	Riverside	CA	92507
1031 Watson Center Rd	Carson	CA	90745	7295 San Gorgonio Dr	Riverside	CA	92508
1165 E 230th St	Carson	CA	90745	7345 Sycamore Canyon Blvd	Riverside	CA	92508
1041 E 230th St	Carson	CA	90745	7105 Old 215 Frontage Rd	Riverside	CA	92508
720 Watson Center Rd	Carson	CA	90745	7350 San Gorgonio Dr	Riverside	CA	92508
989 E 233rd St	Carson	CA	90745	2325 Cottonwood Ave	Riverside	CA	92508
23000 Avalon Blvd	Carson	CA	90745	2325 Cottonwood Ave	Riverside	CA	92508
1130 Watson Center Rd	Carson	CA	90745	12246 Holly St	Riverside	CA	92509
1231 E 230th St	Carson	CA	90745	10045 Limonite Ave	Jurupa Valley	CA	92509
1021 E 233rd St	Carson	CA	90745	9670 Galena St	Jurupa Valley	CA	92509
23601 S Wilmington Ave	Carson	CA	90745	1135 Hall Ave	Jurupa Valley	CA	92509
1000 E 223rd St	Carson	CA	90745	4851 Felspar St	Jurupa Valley	CA	92509
24700 S Main St	Carson	CA	90745	6510 General Dr	Jurupa Valley	CA	92509
1350 E 223rd St	Carson	CA	90745	4510 Rutile St	Jurupa Valley	CA	92509
1240 E 230th St	Carson	CA	90745	5300 Via Ricardo	Jurupa Valley	CA	92509
22351 Wilmington Ave	Carson	CA	90745	6580 General Rd	Jurupa Valley	CA	92509
1118 E 223rd St	Carson	CA	90745	2356 Fleetwood Dr	Jurupa Valley	CA	92509
1130 E 230th St	Carson	CA	90745	2345 Fleetwood Dr	Jurupa Valley	CA	92509
24600 S Main St	Carson	CA	90745	1755 Brown Ave	Riverside	CA	92509
21023 S Main St	Carson	CA	90745	12215 Holly St	Riverside	CA	92509
23301 S Wilmington Ave	Carson	CA	90745	2350 Fleetwood Dr	Jurupa Valley	CA	92509
22600 S Bonita Ave	Carson	CA	90745	2100 Avalon St	Jurupa Valley	CA	92509
771 Watson Center Rd	Carson	CA	90745	14600 Innovation Dr	Riverside	CA	92518
1220 Watson Center Rd	Carson	CA	90745	14950 Meridian Pky	March Air Reserve Base	CA	92518
17145 S Margay Ave	Carson	CA	90746	15750 Meridian Pky	Riverside	CA	92518
18420 Harmon Ave	Carson	CA	90746	14605 Innovation Dr	Riverside	CA	92518
18655 S Bishop Ave	Carson	CA	90746	14855 Innovation Dr	Riverside	CA	92518
18300 Central Ave	Carson	CA	90746	14540 Innovation Dr	Riverside	CA	92518
18055 Harmon Ave	Carson	CA	90746	21800 Authority Way	Riverside	CA	92518
1535 E Beachey Pl	Carson	CA	90746	22000 Opportunity Way	Riverside	CA	92518
1501 E Victoria St	Carson	CA	90746	14751 Meridian Pky	Riverside	CA	92518
18431 S Wilmington Ave	Carson	CA	90746	20801 Krameria Ave	Riverside	CA	92518
18120 Bishop Ave	Carson	CA	90746	22280 Opportunity Way	Riverside	CA	92518
1500 E Glenn Curtiss St	Carson	CA	90746	22220 Opportunity Way	Riverside	CA	92518
1371 Charles Willard St	Carson	CA	90746	14813 Meridian Pky	Riverside	CA	92518
1725 Charles Willard St	Carson	CA	90746	20901 Krameria Ave	Riverside	CA	92518
16525 S Avalon Blvd	Carson	CA	90746	15801 Meridian Pky	Riverside	CA	92518
1380 Charles Willard St	Carson	CA	90746	15001 Meridian Pky	Riverside	CA	92518
1450 Glenn Curtiss St	Carson	CA	90746	14350 Meridian Pky	Riverside	CA	92518
1550 Charles Willard St	Carson	CA	90746	21822 Opportunity Way	Riverside	CA	92518
1650 E Glenn Curtiss St	Carson	CA	90746	5733 W Whittier Ave	Hemet	CA	92545
16325 S Avalon Blvd	Carson	CA	90746	17350 Perris Blvd	Moreno Valley	CA	92551
1651 E Glenn Curtiss St	Carson	CA	90746	24950 Grove View Rd	Moreno Valley	CA	92551
966 E Sandhill Ave	Carson	CA	90746	16875 Heacock St	Moreno Valley	CA	92551
1460 Beachey Pl	Carson	CA	90746	24960 San Michele Rd	Moreno Valley	CA	92551
1065 E Walnut St	Carson	CA	90746	17500 N Perris Blvd	Moreno Valley	CA	92551
17000 Kingsview Ave	Carson	CA	90746	24520 San Michele Rd	Moreno Valley	CA	92551
3201 Walnut Ave	Signal Hill	CA	90755	16901 San Celeste	Moreno Valley	CA	92551
3366 E Willow St	Signal Hill	CA	90755	17101 Heacock St	Moreno Valley	CA	92551
1281 Pier G Way	Long Beach	CA	90802	16110 Cosmos St	Moreno Valley	CA	92551
Pier F	Long Beach	CA	90802	24600 Nandina Ave	Moreno Valley	CA	92551
2500 E Thompson St	Long Beach	CA	90805	24300 Nandina Ave	Moreno Valley	CA	92551
6375 Paramount Blvd	Long Beach	CA	90805	24870 Nandina Ave	Moreno Valley	CA	92551
2201 E Market St	Long Beach	CA	90805	25300 Globe St	Moreno Valley	CA	92551
105 W Victoria St	Long Beach	CA	90805	17300 Perris Blvd	Moreno Valley	CA	92551
105 W Victoria St	Long Beach	CA	90805	17825 Indian St	Moreno Valley	CA	92551
6925 N Paramount Blvd	Long Beach	CA	90805	24103 San Michele Rd	Moreno Valley	CA	92551
6979 Cherry Ave	Long Beach	CA	90805	24975 Nandina Ave	Moreno Valley	CA	92551
100 W Victoria St	Long Beach	CA	90805	16850 Heacock St	Moreno Valley	CA	92551
3333 Airport Way	Long Beach	CA	90806	16415 Cosmos St	Moreno Valley	CA	92551
3500 E Willow St	Long Beach	CA	90806	24101 Iris Ave	Moreno Valley	CA	92551
2600 Temple Ave	Long Beach	CA	90806	17800 Perris Blvd	Moreno Valley	CA	92551
2401 E Wardlow Rd	Long Beach	CA	90807	17791 Perris Blvd	Moreno Valley	CA	92551

Property Address	City	State	Zip	Property Address	City	State	Zip
2400 E Wardlow Rd	Long Beach	CA	90807	24901 San Michele Rd	Moreno Valley	CA	92551
1800 E Wardlow Rd	Long Beach	CA	90807	17783 Indian St	Moreno Valley	CA	92551
4800 Conant St	Long Beach	CA	90808	24385 Nandina Ave	Moreno Valley	CA	92551
4001 Worsham Ave	Long Beach	CA	90808	15810 Heacock St	Moreno Valley	CA	92551
4501 E Conant St	Long Beach	CA	90808	17100 Perris Blvd	Moreno Valley	CA	92551
3701 Conant St	Long Beach	CA	90808	24208 San Michele Rd	Moreno Valley	CA	92551
3700 Cover St	Long Beach	CA	90808	25100 Globe St	Moreno Valley	CA	92551
3205 N Lakewood Blvd	Long Beach	CA	90808	23400 Cactus Ave	Moreno Valley	CA	92553
4175 E Conant St	Long Beach	CA	90808	14300 Graham St	Moreno Valley	CA	92553
3855 N Lakewood Blvd	Long Beach	CA	90808	14255 Elsworth St	Moreno Valley	CA	92553
2300 Redondo Ave	Long Beach	CA	90809	23700 Cactus Ave	Moreno Valley	CA	92553
3600 E Burnett Ave	Long Beach	CA	90809	23800 Cactus Ave	Moreno Valley	CA	92553
2211 E Carson St	Carson	CA	90810	23360 Cactus Ave	Moreno Valley	CA	92553
2320 E Dominguez St	Carson	CA	90810	22150 Goldencrest Dr	Moreno Valley	CA	92553
2839 El Presidio St	Carson	CA	90810	23650 Brodiaea Ave	Moreno Valley	CA	92553
2807 El Presidio St	Carson	CA	90810	22135 Alessandro Blvd	Moreno Valley	CA	92553
1483 W Via Plata St	Long Beach	CA	90810	22750 Cactus Ave	Moreno Valley	CA	92553
20500 S Alameda St	Carson	CA	90810	23400 Cactus Ave	Moreno Valley	CA	92553
2161 E Dominguez St	Long Beach	CA	90810	22705 Newhope St	Moreno Valley	CA	92553
2201 E Carson St	Carson	CA	90810	23532 Brodiaea Ave	Moreno Valley	CA	92553
2630 E El Presidio St	Carson	CA	90810	28020 Eucalyptus Ave	Moreno Valley	CA	92555
2220 E Carson St	Carson	CA	90810	28010 Eucalyptus Ave	Moreno Valley	CA	92555
2270 E 220th St	Carson	CA	90810	28025 Eucalyptus Ave	Moreno Valley	CA	92555
21950 Arnold Center Rd	Carson	CA	90810	28015 Eucalyptus Ave	Moreno Valley	CA	92555
2155 E 220th St	Carson	CA	90810	12661 Aldi Pl	Moreno Valley	CA	92555
2132 E Dominguez St	Carson	CA	90810	29800 Eucalyptus Ave	Moreno Valley	CA	92555
21136 S Wilmington Ave	Carson	CA	90810	25720 Jefferson Ave	Murrieta	CA	92562
2000 E Carson St	Carson	CA	90810	38655 Sky Canyon Dr	Murrieta	CA	92563
21906 Arnold Center Rd	Carson	CA	90810	30590 Cochise Cir	Murrieta	CA	92563
20633 S Fordyce Ave	Carson	CA	90810	19940 Hansen Ave	Nuevo	CA	92567
1665 Hughes Way	Long Beach	CA	90810	24312 Daytona Cove	Perris	CA	92570
20974 S Santa Fe Ave	Long Beach	CA	90810	24195 Orange Ave	Perris	CA	92570
20488 Reeves Ave	Carson	CA	90810	17618 Harvill Ave	Perris	CA	92570
21900 S Wilmington Ave	Carson	CA	90810	18810 Harvill Ave	Perris	CA	92570
20355 Reeves Ave	Carson	CA	90810	23129 Cajalco Rd	Perris	CA	92570
2649 E Dominguez St	Long Beach	CA	90810	17789 Old Oleander Blvd	Perris	CA	92570
2131 W Willow St	Long Beach	CA	90810	707 E 4th St	Perris	CA	92570
2711 E Dominguez St	Long Beach	CA	90810	23123 Cajalco Rd	Perris	CA	92570
1500 W Dominguez St	Long Beach	CA	90810	24201 Orange Ave	Perris	CA	92570
21750 S Arnold Center Dr	Carson	CA	90810	145 Malbert St	Perris	CA	92570
3025 E Dominguez St	Carson	CA	90810	18310 Harvill Ave	Perris	CA	92570
2011 E Carson St	Carson	CA	90810	22780 Harley Knox Blvd	Perris	CA	92570
20600 S Alameda St	Carson	CA	90810	3350 Redlands Ave	Perris	CA	92571
20801 S Santa Fe Ave	Carson	CA	90810	4413 Patterson Ave	Perris	CA	92571
2116 E 220th St	Carson	CA	90810	375 Markham St	Perris	CA	92571
2200 Technology Pl	Long Beach	CA	90810	4565 Redlands Ave	Perris	CA	92571
2888 E El Presidio St	Carson	CA	90810	3100 N Perris Blvd	Perris	CA	92571
2230 E Carson St	Carson	CA	90810	4555 Redlands Ave	Perris	CA	92571
20642 S Fordyce Ave	Carson	CA	90810	251 E Rider St	Perris	CA	92571
2417 E Carson St	Carson	CA	90810	290 W Markham St	Perris	CA	92571
2250 E 220th St	Carson	CA	90810	657 Nance St	Perris	CA	92571
20444 Reeves Ave	Carson	CA	90810	100 W Sinclair St	Perris	CA	92571
20499 Reeves Ave	Carson	CA	90810	4323 Indian Ave	Perris	CA	92571
1925 E Dominguez St	Carson	CA	90810	400 Harley Knox Blvd	Perris	CA	92571
2001 E Dominguez St	Long Beach	CA	90810	4150 Patterson Ave	Perris	CA	92571
3900 Via Oro	Long Beach	CA	90810	3411 N Perris Blvd	Perris	CA	92571
20943 S Maciel Ave	Carson	CA	90810	3700 Indian Ave	Perris	CA	92571
2400 E Dominguez St	Long Beach	CA	90810	4378 N Perris Blvd	Perris	CA	92571
1431 W Via Plata St	Long Beach	CA	90810	353 Perry St	Perris	CA	92571
20434 S Santa Fe Ave	Carson	CA	90810	4100 N Webster Ave	Perris	CA	92571
1981 E 213th St	Carson	CA	90810	3500 Indian Ave	Perris	CA	92571
2255 E 220th St	Carson	CA	90810	3300 Indian Ave	Perris	CA	92571
1901 W Pacific Coast Hwy	Long Beach	CA	90810	501 Harley Knox Blvd	Perris	CA	92571



Property Address	City	State	Zip	Property Address	City	State	Zip
20821 S Santa Fe Ave	Carson	CA	90810	2830 Barrett Ave	Perris	CA	92571
2575 El Presidio St	Carson	CA	90810	3984 Indian Ave	Perris	CA	92571
20639 S Fordyce Ave	Carson	CA	90810	278 W Markham St	Perris	CA	92571
2201 E Dominguez St	Carson	CA	90810	22722 Harley Knox Blvd	Perris	CA	92571
625 W Anaheim St	Long Beach	CA	90813	4120 Indian St	Perris	CA	92571
1710 Pier B St	Long Beach	CA	90813	3691 N Perris Blvd	Perris	CA	92571
1711 Harbor Ave	Long Beach	CA	90813	4120 Indian St	Perris	CA	92571
3500 E Burnett Ave	Long Beach	CA	90815	3411 N Perris Blvd	Perris	CA	92571
4184 Conant St	Long Beach	CA	90846	3900 Indian Ave	Perris	CA	92571
3788 Conant St	Long Beach	CA	90846	3404 Indian Ave	Perris	CA	92571
4022 Conant St	Long Beach	CA	90846	350 W Markham St	Perris	CA	92571
4600 Conant St	Long Beach	CA	90846	1320 S Buena Vista St	San Jacinto	CA	92583
4350 Conant St	Long Beach	CA	90846	41573 Dendy Pky	Temecula	CA	92590
12321 Lower Azusa Rd	Arcadia	CA	91006	28820 Single Oak Dr	Temecula	CA	92590
12389 Lower Azusa Rd	Arcadia	CA	91006	43044 Business Park Dr	Temecula	CA	92590
12359 Lower Azusa Rd	Arcadia	CA	91006	42375 Remington Ave	Temecula	CA	92590
12339 Lower Azusa Rd	Arcadia	CA	91006	42301 Bostik Ct	Temecula	CA	92590
1700 Business Center Dr	Duarte	CA	91010	26879 Diaz Rd	Temecula	CA	92590
1801 Highland Ave	Duarte	CA	91010	27565 Diaz Rd	Temecula	CA	92590
2310 Central Ave	Duarte	CA	91010	43085 Business Park Dr	Temecula	CA	92590
801 Royal Oaks Dr	Monrovia	CA	91016	28381 Vincent Moraga Dr	Temecula	CA	92590
9545 Wentworth St	Sunland	CA	91040	43195 Business Park Dr	Temecula	CA	92590
1015 S Arroyo Pky	Pasadena	CA	91105	42301 Zevo Dr	Temecula	CA	92590
26801 Agoura Rd	Calabasas	CA	91301	41995 Zevo Dr	Temecula	CA	92590
6633 Canoga Ave	Canoga Park	CA	91303	41980 Winchester Rd	Temecula	CA	92590
8901 Canoga Ave	Canoga Park	CA	91304	41915 Business Park Dr	Temecula	CA	92590
8900 De Soto Ave	Canoga Park	CA	91304	27719 Diaz Rd	Temecula	CA	92590
8900 De Soto Ave	Canoga Park	CA	91304	42500 Winchester Rd	Temecula	CA	92590
9401 De Soto Ave	Chatsworth	CA	91311	43225 Business Park Dr	Temecula	CA	92590
8900 De Soto Ave	Canoga Park	CA	91311	40750 County Center Dr	Temecula	CA	92591
9409 Owensmouth Ave	Chatsworth	CA	91311	26040 Ynez Rd	Temecula	CA	92591
9109 Mason Ave	Chatsworth	CA	91311	40610 County Center Dr	Temecula	CA	92591
20000 Prairie St	Chatsworth	CA	91311	26201 Ynez Rd	Temecula	CA	92591
9631 De Soto Ave	Chatsworth	CA	91311	40761 County Center Dr	Temecula	CA	92591
20730 Prairie St	Chatsworth	CA	91311	26531 Ynez Rd	Temecula	CA	92591
20400 Plummer St	Chatsworth	CA	91311	3660 Brennan Ave	Perris	CA	92599
9419 Mason Ave	Chatsworth	CA	91311	14370 Myford Rd	Irvine	CA	92606
21701 Prairie St	Chatsworth	CA	91311	14600 Myford Rd	Irvine	CA	92606
20525 Nordhoff St	Chatsworth	CA	91311	14350 Myford Rd	Irvine	CA	92606
9120 Mason Ave	Chatsworth	CA	91311	1452 Alton Pky	Irvine	CA	92606
9140 Lurline Ave	Chatsworth	CA	91311	14524 Myford Rd	Irvine	CA	92606
21314 Lassen St	Chatsworth	CA	91311	16700 Red Hill Ave	Irvine	CA	92606
21350 Lassen St	Chatsworth	CA	91311	2815 Warner Ave	Irvine	CA	92606
9700 Independence Ave	Chatsworth	CA	91311	2152 Alton Pky	Irvine	CA	92606
9301 Mason Ave	Chatsworth	CA	91311	1601 Alton Pkwy	Irvine	CA	92606
20701 Plummer St	Chatsworth	CA	91311	1600 Barranca Pky	Irvine	CA	92606
21605 Plummer St	Chatsworth	CA	91311	1 Icon	Foothill Ranch	CA	92610
8900 De Soto Ave	Canoga Park	CA	91311	80 Icon	Foothill Ranch	CA	92610
9453 Owensmouth Ave	Chatsworth	CA	91311	50 Icon	Foothill Ranch	CA	92610
20650 Prairie St	Chatsworth	CA	91311	20131 Ellipse	Foothill Ranch	CA	92610
8900 De Soto Ave	Canoga Park	CA	91311	19511 Pauling	Foothill Ranch	CA	92610
18537 Parthenia St	Northridge	CA	91324	26972 Burbank Ave	Foothill Ranch	CA	92610
19901 Nordhoff St	Northridge	CA	91324	25892 Towne Centre Dr	Foothill Ranch	CA	92610
8500 Balboa Blvd	Northridge	CA	91329	19531 Pauling	Foothill Ranch	CA	92610
12708 Branford St	Pacoima	CA	91331	20 Icon	Foothill Ranch	CA	92610
10865 Sutter Ave	Pacoima	CA	91331	25861 Wright St	Foothill Ranch	CA	92610
12224 Montague St	Pacoima	CA	91331	20081 Ellipse	Foothill Ranch	CA	92610
10241 Norris Ave	Pacoima	CA	91331	20001 Ellipse Dr	Foothill Ranch	CA	92610
12878 Pierce St	Pacoima	CA	91331	1062 McGaw Ave	Irvine	CA	92614
13592 Desmond St	Pacoima	CA	91331	17482 Pullman St	Irvine	CA	92614
12450 Branford St	Pacoima	CA	91331	2323 Main St	Irvine	CA	92614
12820 Pierce St	Pacoima	CA	91331	17352 Derian Ave	Irvine	CA	92614
12154 Montague St	Pacoima	CA	91331	17352 Armstrong Ave	Irvine	CA	92614
675 Glenoaks Blvd	San Fernando	CA	91340	1 Edwards Way	Irvine	CA	92614

Property Address	City	State	Zip	Property Address	City	State	Zip
1150 Aviation Pl	San Fernando	CA	91340	17421 Von Karman Ave	Irvine	CA	92614
13571 Vaughn St	San Fernando	CA	91340	2026 McGaw Ave	Irvine	CA	92614
1245 Aviation Pl	San Fernando	CA	91340	121 Waterworks Way	Irvine	CA	92618
1145 Arroyo Ave	San Fernando	CA	91340	5 Marconi	Irvine	CA	92618
13207 Bradley Ave	Sylmar	CA	91342	20 Goodyear	Irvine	CA	92618
13259 Ralston Ave	Sylmar	CA	91342	9750 Irvine Blvd	Irvine	CA	92618
15180 Bledsoe St	Sylmar	CA	91342	9401 Toledo Way	Irvine	CA	92618
13100 Telfair Ave	Sylmar	CA	91342	1 Holland	Irvine	CA	92618
12780 San Fernando Rd	Sylmar	CA	91342	34 Parker	Irvine	CA	92618
15624 Roxford St	Sylmar	CA	91342	7000 Barranca Pky	Irvine	CA	92618
13291 Ralston Ave	Sylmar	CA	91342	117 Waterworks Way	Irvine	CA	92618
13235 Golden State Rd	Sylmar	CA	91342	9500 Jeronimo Rd	Irvine	CA	92618
12744 San Fernando Rd	Sylmar	CA	91342	6001 Oak Canyon	Irvine	CA	92618
12745 Arroyo St	Sylmar	CA	91342	6489 Oak Canyon	Irvine	CA	92618
13287 Ralston Ave	Sylmar	CA	91342	14300 Alton Pky	Irvine	CA	92618
15825 Roxford St	Sylmar	CA	91342	15800 Laguna Canyon Rd	Irvine	CA	92618
15860 Olden St	Sylmar	CA	91342	9400 Jeronimo Rd	Irvine	CA	92618
15648 Roxford St	Sylmar	CA	91342	5 Pasteur	Irvine	CA	92618
12975 Bradley Ave	Sylmar	CA	91342	9271 Jeronimo Rd	Irvine	CA	92618
14093 Balboa Blvd	Sylmar	CA	91342	67 Fairbanks	Irvine	CA	92618
12740 Arroyo St	Sylmar	CA	91342	9650 Jeronimo Rd	Irvine	CA	92618
15853 Olden St	Sylmar	CA	91342	8014 Marine Way	Irvine	CA	92618
13943 Balboa Blvd	Sylmar	CA	91342	15041 Bake Pky	Irvine	CA	92618
15148 Bledsoe St	Sylmar	CA	91342	9300 Toledo Way	Irvine	CA	92618
15900 Valley View Ct	Sylmar	CA	91342	76 Fairbanks	Irvine	CA	92618
16450 Foothill Blvd	Sylmar	CA	91342	9300 Toledo Way	Irvine	CA	92618
16633 Schoenborn St	North Hills	CA	91343	6485 Oak Canyon	Irvine	CA	92618
16719 Schoenborn St	North Hills	CA	91343	14155 Bake Pky	Irvine	CA	92618
16689 Schoenborn St	North Hills	CA	91343	10 Whatney	Irvine	CA	92618
25655 Springbrook Ave	Santa Clarita	CA	91350	9 Holland St	Irvine	CA	92618
25655 Springbrook Ave	Santa Clarita	CA	91350	9801 Muirlands Blvd	Irvine	CA	92618
20705 Centre Pointe Pky	Santa Clarita	CA	91350	1585 MacArthur Blvd	Costa Mesa	CA	92626
9545 San Fernando Rd	Sun Valley	CA	91352	1650 Sunflower Ave	Costa Mesa	CA	92626
7900 San Fernando Rd	Sun Valley	CA	91352	1660 Scenic Ave	Costa Mesa	CA	92626
7608 N Clybourn Ave	Sun Valley	CA	91352	1683 Sunflower Ave	Costa Mesa	CA	92626
9800 Glenoaks Blvd	Sun Valley	CA	91352	1701 Placentia Ave	Costa Mesa	CA	92627
10635 Stagg St	Sun Valley	CA	91352	20200 Windrow Dr	Lake Forest	CA	92630
9171 San Fernando Rd	Sun Valley	CA	91352	25392 Commercentre Dr	Lake Forest	CA	92630
12250 Montague St	Sun Valley	CA	91352	25952 Commercentre Dr	Lake Forest	CA	92630
10947 Pendleton St	Sun Valley	CA	91352	25862 Commercentre Dr	Lake Forest	CA	92630
11308 Penrose St	Sun Valley	CA	91352	14520 Delta Ln	Huntington Beach	CA	92647
9210 San Fernando Rd	Sun Valley	CA	91352	17311 Nichols Ln	Huntington Beach	CA	92647
10671 Lanark St	Sun Valley	CA	91352	5701 Skylab Rd	Huntington Beach	CA	92647
29115 Avenue Valleyview	Valencia	CA	91355	5800 Skylab Rd	Huntington Beach	CA	92647
24903 Avenue Kearny	Valencia	CA	91355	5700 Skylab Rd	Huntington Beach	CA	92647
29010 Avenue Paine	Valencia	CA	91355	7391 Heil Ave	Huntington Beach	CA	92647
28104 Witherspoon Pky	Valencia	CA	91355	14505 Astronautics Dr	Huntington Beach	CA	92647
27712 Avenue Mentry	Valencia	CA	91355	5901 Bolsa Ave	Huntington Beach	CA	92647
28901 N Avenue Paine	Valencia	CA	91355	5601 Skylab Rd	Huntington Beach	CA	92647
27811 Hancock Pky	Valencia	CA	91355	5951 Skylab Rd	Huntington Beach	CA	92647
28939 Avenue Williams	Valencia	CA	91355	5801 Skylab Rd	Huntington Beach	CA	92647
28355 Witherspoon Pky	Valencia	CA	91355	16350 Gothard St	Huntington Beach	CA	92647
25045 Avenue Tibbitts	Valencia	CA	91355	5900 Skylab Rd	Huntington Beach	CA	92647
29125 Avenue Paine	Valencia	CA	91355	7601 Clay Ave	Huntington Beach	CA	92648
28751 Witherspoon Pky	Valencia	CA	91355	5551 McFadden Ave	Huntington Beach	CA	92649
29120 Commerce Center Dr	Valencia	CA	91355	15342 Graham St	Huntington Beach	CA	92649
28936 Avenue Williams	Valencia	CA	91355	15400 Graham St	Huntington Beach	CA	92649
28470 Witherspoon Pky	Valencia	CA	91355	5600 Argosy Cir	Huntington Beach	CA	92649
27420 Avenue Scott	Valencia	CA	91355	22 Brookline	Aliso Viejo	CA	92656
28305 W Livingston Ave	Valencia	CA	91355	33608 Ortega Hwy	San Juan Capistrano	CA	92675
26121 Avenue Hall	Valencia	CA	91355	30800 Rancho Viejo Rd	San Juan Capistrano	CA	92675
25145 Anza Dr	Valencia	CA	91355	7400 Hazard Ave	Westminster	CA	92683
27680 Avenue Mentry	Valencia	CA	91355	15172 Goldenwest Cir	Westminster	CA	92683

Property Address	City	State	Zip	Property Address	City	State	Zip
28624 Witherspoon Pky	Valencia	CA	91355	29947 Avenida De Las Banderas	Rancho Santa Margarita	CA	92688
29010 Commerce Center Dr	Valencia	CA	91355	30200 Avenida De Las Banderas	Rancho Santa Margarita	CA	92688
28545 Livingston Ave W	Valencia	CA	91355	22591 Avenida Empresa	Rancho Santa Margarita	CA	92688
28909 Avenue Williams	Valencia	CA	91355	30322 Esperanza	Rancho Santa Margarita	CA	92688
28101 Industry Dr	Valencia	CA	91355	625 N Grand Ave	Santa Ana	CA	92701
25200 Rye Canyon Rd	Valencia	CA	91355	511 N Fairview St	Santa Ana	CA	92703
28150 Industry Dr	Valencia	CA	91355	3100 S Susan St	Santa Ana	CA	92704
27772 Avenue Scott	Santa Clarita	CA	91355	3441 W MacArthur Blvd	Santa Ana	CA	92704
27727 Avenue Scott	Valencia	CA	91355	3100 W Segerstrom Ave	Santa Ana	CA	92704
27801 Avenue Scott	Valencia	CA	91355	2811 S Harbor Blvd	Santa Ana	CA	92704
28455 Livingston Ave	Valencia	CA	91355	2701 S Harbor Blvd	Santa Ana	CA	92704
29040 Avenue Valleyview	Valencia	CA	91355	2700 S Fairview St	Santa Ana	CA	92704
28454 Livingston Ave	Valencia	CA	91355	4041 W Garry Ave	Santa Ana	CA	92704
28680 Braxton Ave	Valencia	CA	91355	3300 W Segerstrom Ave	Santa Ana	CA	92704
28210 Avenue Stanford	Valencia	CA	91355	3731 Warner Ave	Santa Ana	CA	92704
27911 W Franklin Pky	Valencia	CA	91355	4042 W Garry Ave	Santa Ana	CA	92704
29125 Avenue Valley View	Valencia	CA	91355	3300 S Fairview St	Santa Ana	CA	92704
28145 W Harrison Pky	Valencia	CA	91355	3030 S Susan St	Santa Ana	CA	92704
28310 W Livingston Ave	Valencia	CA	91355	3330 S Harbor	Santa Ana	CA	92704
28361 Constellation Rd	Valencia	CA	91355	3323 W Warner Ave	Santa Ana	CA	92704
29011 Commerce Center Dr	Valencia	CA	91355	2801 S Yale St	Santa Ana	CA	92704
24800 Avenue Rockefeller	Valencia	CA	91355	3201 S Susan St	Santa Ana	CA	92704
21200 Victory Blvd	Woodland Hills	CA	91367	3400 W Garry Ave	Santa Ana	CA	92704
21240 Burbank Blvd	Woodland Hills	CA	91367	1929 E Saint Andrew Pl	Santa Ana	CA	92705
14000 Arminta St	Panorama City	CA	91402	2400 S Grand Ave	Santa Ana	CA	92705
14400 Arminta St	Panorama City	CA	91402	2001 E Carnegie Ave	Santa Ana	CA	92705
7860 Nelson Rd	Van Nuys	CA	91402	2801 Catherine Way	Santa Ana	CA	92705
7900 Nelson Rd	Panorama City	CA	91402	2040 E Dyer Rd	Santa Ana	CA	92705
7651 Woodman Ave	Panorama City	CA	91402	2036 E Dyer Rd	Santa Ana	CA	92705
14200 Arminta St	Panorama City	CA	91402	1800 E Dyer Rd	Santa Ana	CA	92705
7865 Nelson Rd	Panorama City	CA	91402	1800 E Saint Andrew Pl	Santa Ana	CA	92705
7519 Woodman Ave	Van Nuys	CA	91405	3030 Red Hill Ave	Santa Ana	CA	92705
15800 Roscoe Blvd	Van Nuys	CA	91406	2525 Pullman St	Santa Ana	CA	92705
8201 Woodley Ave	Van Nuys	CA	91406	1951 Carnegie Ave	Santa Ana	CA	92705
15903 Strathern St	Van Nuys	CA	91406	1395 S Lyon St	Santa Ana	CA	92705
15330 Raymer St	Van Nuys	CA	91406	1224 E Warner Ave	Santa Ana	CA	92705
15853 Strathern St	Van Nuys	CA	91406	2601 S Garnsey St	Santa Ana	CA	92707
7855 Hayvenhurst Ave	Van Nuys	CA	91406	1801 S Standard Ave	Santa Ana	CA	92707
7800 Woodley Ave	Van Nuys	CA	91406	2400 S Garnsey St	Santa Ana	CA	92707
15955 Strathern St	Van Nuys	CA	91406	2526 S Birch St	Santa Ana	CA	92707
7943 Woodley Ave	Van Nuys	CA	91406	302 E Goetz Ave	Santa Ana	CA	92707
15500 Erwin St	Van Nuys	CA	91411	515 E Dyer Rd	Santa Ana	CA	92707
820 S Flower St	Burbank	CA	91502	1217 E Saint Gertrude Pl	Santa Ana	CA	92707
2980 N San Fernando Blvd	Burbank	CA	91504	601 W Dyer Rd	Santa Ana	CA	92707
3000 Winona Ave	Burbank	CA	91504	500 W Warner Ave	Santa Ana	CA	92707
4510 W Vanowen St	Burbank	CA	91505	11488 Slater Ave	Fountain Valley	CA	92708
960 Chestnut St	Burbank	CA	91506	17595 Mount Herrmann St	Fountain Valley	CA	92708
7306 Laurel Canyon Blvd	North Hollywood	CA	91605	17235 Newhope St	Fountain Valley	CA	92708
6904 Tujunga Ave	North Hollywood	CA	91605	17665 Newhope St	Fountain Valley	CA	92708
11651 Hart St	North Hollywood	CA	91605	1123 Warner Ave	Tustin	CA	92780
11500 Sherman Way	North Hollywood	CA	91605	1200 Valencia Ave	Tustin	CA	92780
11330 Sherman Way	North Hollywood	CA	91605	1111 Bell Ave	Tustin	CA	92780
7100 Tujunga Ave	North Hollywood	CA	91605	1382 Bell Ave	Tustin	CA	92780
11211 Vanowen St	North Hollywood	CA	91605	1201 Bell Ave	Tustin	CA	92780
11428 Sherman Way	North Hollywood	CA	91605	1231 Warner Ave	Tustin	CA	92780
1100 W Hollyvale St	Azusa	CA	91702	2721 Michelle Dr	Tustin	CA	92780
6230 N Irwindale Ave	Azusa	CA	91702	1101 Bell Ave	Tustin	CA	92780

Property Address	City	State	Zip	Property Address	City	State	Zip
1017 W 5th St	Azusa	CA	91702	3101 W Sunflower Ave	Santa Ana	CA	92799
1344 W Foothill Blvd	Azusa	CA	91702	353 N Euclid Way	Anaheim	CA	92801
823 W 8th St	Azusa	CA	91702	1256 N Magnolia Ave	Anaheim	CA	92801
16100 E Foothill Blvd	Irwindale	CA	91702	1160 N Anaheim Blvd	Anaheim	CA	92801
970 W Sierra Madre Ave	Azusa	CA	91702	1201 N Magnolia Ave	Anaheim	CA	92801
311 Aerojet Ave	Azusa	CA	91702	1415 N Raymond Ave	Anaheim	CA	92801
1223 W 10th Ave	Azusa	CA	91702	400 E Orangethorpe Ave	Anaheim	CA	92801
1000 W Sierra Madre Ave	Azusa	CA	91702	1212 N Hubbell Way	Anaheim	CA	92801
601 S Vincent Ave	Azusa	CA	91702	1226 N Olive St	Anaheim	CA	92801
1055 W 8th St	Azusa	CA	91702	500 E Orangethorpe Ave	Anaheim	CA	92801
500 W Danlee Dr	Azusa	CA	91702	1111 N Brookhurst St	Anaheim	CA	92801
975 W 8th St	Azusa	CA	91702	295 E Orangethorpe Ave	Anaheim	CA	92801
1100 Baldwin Park Blvd	Baldwin Park	CA	91706	1765 Penhall Way	Anaheim	CA	92801
5082 4th St	Irwindale	CA	91706	1515 S Manchester Ave	Anaheim	CA	92802
13502 Virginia Ave	Baldwin Park	CA	91706	2114 W Ball Rd	Anaheim	CA	92804
5793 Martin Rd	Irwindale	CA	91706	1500 S Anaheim Blvd	Anaheim	CA	92805
15761 Tapia St	Irwindale	CA	91706	1620 S Lewis St	Anaheim	CA	92805
13245 Los Angeles St	Baldwin Park	CA	91706	1331 S Vernon St	Anaheim	CA	92805
600 Live Oak Ave	Irwindale	CA	91706	901 E Ball Rd	Anaheim	CA	92805
5091 4th St	Irwindale	CA	91706	1400 S Allec St	Anaheim	CA	92805
16033 Arrow Hwy	Irwindale	CA	91706	1001 E Ball Rd	Anaheim	CA	92805
1450 Virginia Ave	Baldwin Park	CA	91706	1501 E Cerritos Ave	Anaheim	CA	92805
5400 N Irwindale Ave	Irwindale	CA	91706	1201 E Cerritos Ave	Anaheim	CA	92805
5300 Irwindale Ave	Irwindale	CA	91706	1000 E Ball Rd	Anaheim	CA	92805
16180 Ornelas St	Irwindale	CA	91706	929 E South St	Anaheim	CA	92805
5301 Rivergrade Rd	Irwindale	CA	91706	1771 S Lewis St	Anaheim	CA	92805
4826 4th St	Irwindale	CA	91706	1730 S Anaheim Way	Anaheim	CA	92805
4889 4th St	Irwindale	CA	91706	1051 S East St	Anaheim	CA	92805
4414 Azusa Canyon Rd	Irwindale	CA	91706	1515 E Winston Rd	Anaheim	CA	92805
5555 N Irwindale Ave	Irwindale	CA	91706	601 E Ball Rd	Anaheim	CA	92805
4800 Azusa Canyon Rd	Irwindale	CA	91706	710 E Ball Rd	Anaheim	CA	92805
15601 Cypress Ave	Irwindale	CA	91706	500 E Cerritos Ave	Anaheim	CA	92805
4401 Foxdale St	Irwindale	CA	91706	1625 S Lewis St	Anaheim	CA	92805
4981 4th St	Irwindale	CA	91706	1045 S East St	Anaheim	CA	92805
4775 Irwindale Ave	Irwindale	CA	91706	1455 S Allec St	Anaheim	CA	92805
16142 Fern Ave	Chino	CA	91708	3356 E La Palma Ave	Anaheim	CA	92806
15989 Cypress Ave	Chino	CA	91708	1423 S State College Blvd	Anaheim	CA	92806
8601 Merrill Ave	Chino	CA	91708	1600 N Kraemer Blvd	Anaheim	CA	92806
15820 Euclid Ave	Chino	CA	91708	1206 N Miller St	Anaheim	CA	92806
16043 El Prado	Chino	CA	91708	1440 N Kraemer Blvd	Anaheim	CA	92806
6720 Kimball Ave	Chino	CA	91708	2121 E Winston Rd	Anaheim	CA	92806
6911 Bickmore Ave	Chino	CA	91708	2201 E Cerritos Ave	Anaheim	CA	92806
16388 Fern Ave	Chino	CA	91708	3130 Miraloma Ave	Anaheim	CA	92806
6509 Kimball Ave	Chino	CA	91708	2891 E Miraloma Ave	Anaheim	CA	92806
15710 San Antonio Ave	Chino	CA	91708	1200 N Miller St	Anaheim	CA	92806
15785 Mountain Ave	Chino	CA	91708	1919 S State College Blvd	Anaheim	CA	92806
16300 Fern Ave	Chino	CA	91708	3190 Miraloma Ave	Anaheim	CA	92806
6720 Kimball Ave	Chino	CA	91708	3310 E Miraloma Ave	Anaheim	CA	92806
8646 Enterprise Way	Chino Hills	CA	91708	1231 N Miller St	Anaheim	CA	92806
15835 San Antonio Ave	Chino	CA	91708	1211 N Miller St	Anaheim	CA	92806
6750 Kimball Ave	Chino	CA	91708	1151 N Ocean Cir	Anaheim	CA	92806
15780 El Prado Rd	Chino	CA	91708	1650 N Kraemer Blvd	Anaheim	CA	92806
15970 Mountain Ave	Chino	CA	91708	1540 S Page Ct	Anaheim	CA	92806
16380 Euclid Ave	Chino	CA	91708	3125 E Coronado St	Anaheim	CA	92806
6377 Kimball Ave	Chino	CA	91708	3335 E La Palma Ave	Anaheim	CA	92806
15704 Mountain Ave	Chino	CA	91708	1204 N Miller St	Anaheim	CA	92806
15578 Hellman Ave	Chino	CA	91708	1202 N Miller St	Anaheim	CA	92806
15730 Mountain Ave	Chino	CA	91708	1150 N Red Gum St	Anaheim	CA	92806
16081 S Fern Ave	Chino	CA	91708	1000 N Edward Ct	Anaheim	CA	92806
15913 Mountain Ave	Chino	CA	91708	2040 S State College Blvd	Anaheim	CA	92806
8719 Enterprise Way	Chino	CA	91708	3340 E La Palma Ave	Anaheim	CA	92806
16045 Mountain Ave	Chino	CA	91708	1153 N Ocean Cir	Anaheim	CA	92806
6716 Bickmore Ave	Chino	CA	91708	3454 E Miraloma Ave	Anaheim	CA	92806
16133 Fern Ave	Chino	CA	91708	3845 E Coronado St	Anaheim	CA	92807

Property Address	City	State	Zip	Property Address	City	State	Zip
15910 Euclid Ave	Chino	CA	91708	5455 E La Palma Ave	Anaheim	CA	92807
6711 Bickmore Ave	Chino	CA	91708	5115 E La Palma Ave	Anaheim	CA	92807
15207 Flight Ave	Chino	CA	91708	4875 E Hunter Ave	Anaheim	CA	92807
15702 Cypress Ave	Chino	CA	91708	1230 N Tustin Ave	Anaheim	CA	92807
6725 Kimball Ave	Chino	CA	91708	5235 E Hunter Ave	Anaheim	CA	92807
15221 Fairfield Ranch Rd	Chino Hills	CA	91709	4633 E La Palma Ave	Anaheim	CA	92807
15291 Fairfield Ranch Rd	Chino Hills	CA	91709	1275 N Manassero St	Anaheim	CA	92807
15271 Fairfield Ranch Rd	Chino Hills	CA	91709	5425 E La Palma Ave	Anaheim	CA	92807
13775 Magnolia Ave	Chino	CA	91710	5325 E Hunter Ave	Anaheim	CA	92807
13445 12th St	Chino	CA	91710	5001 E La Palma Ave	Anaheim	CA	92807
13602 12th St	Chino	CA	91710	1265 N Van Buren St	Anaheim	CA	92807
13925 Pipeline Ave	Chino	CA	91710	5200 E La Palma Ave	Anaheim	CA	92807
15559 Flight Ave	Chino	CA	91710	105 S Puente St	Brea	CA	92821
15097 Van Vliet Ave	Chino	CA	91710	2701 E Imperial Hwy	Brea	CA	92821
13799 Monte Vista Ave	Chino	CA	91710	114 S Berry St	Brea	CA	92821
13931 Yorba Ave	Chino	CA	91710	408 Saturn St	Brea	CA	92821
4450 Edison Ave	Chino	CA	91710	3200 Enterprise St	Brea	CA	92821
5400 Alton St	Chino	CA	91710	300 E Cypress St	Brea	CA	92821
14101 Pipeline Ave	Chino	CA	91710	205 S Puente St	Brea	CA	92821
5085 Schaefer Ave	Chino	CA	91710	113 Viking Ave	Brea	CA	92821
13824 Yorba Ave	Chino	CA	91710	3300 E Birch St	Brea	CA	92821
13880 Monte Vista Ave	Chino	CA	91710	895 Columbia St	Brea	CA	92821
13780 Central Ave	Chino	CA	91710	630 E Lambert Rd	Brea	CA	92821
4091 E Francis Ave	Ontario	CA	91710	200 N Berry St	Brea	CA	92821
14701 Yorba Ave	Chino	CA	91710	2830 Orbiter St	Brea	CA	92821
15065 Flight Ave	Chino	CA	91710	350 Ranger Ave	Brea	CA	92821
13950 Norton Ave	Chino	CA	91710	100 S Puente St	Brea	CA	92821
4340 Eucalyptus Ave	Chino	CA	91710	200 N Puente St	Brea	CA	92821
14680 Monte Vista Ave	Chino	CA	91710	250 S Kraemer Blvd	Brea	CA	92821
6910 Bickmore Ave	Chino	CA	91710	3172 Nasa St	Brea	CA	92821
4626 Eucalyptus Ave	Chino	CA	91710	2750 Orbiter St	Brea	CA	92821
4681 Edison Ave	Chino	CA	91710	1225 W Imperial Hwy	Brea	CA	92821
4361 Edison Ave	Chino	CA	91710	2650 Orbiter St	Brea	CA	92821
13725 Pipeline Ave	Chino	CA	91710	566 Vanguard Way	Brea	CA	92821
4950 Edison Ave	Chino	CA	91710	675 S Placentia Ave	Fullerton	CA	92831
14430 Monte Vista Ave	Chino	CA	91710	1400 S Manhattan Ave	Fullerton	CA	92831
5521 Schaefer Ave	Chino	CA	91710	2020 E Orangethorpe Ave	Fullerton	CA	92831
4271 Edison Ave	Chino	CA	91710	2100 E Valencia Dr	Fullerton	CA	92831
14425 Yorba Ave	Chino	CA	91710	1030 E Valencia Dr	Fullerton	CA	92831
13950 Ramona Ave	Chino	CA	91710	1600 E Valencia Dr	Fullerton	CA	92831
12851 Reservoir St	Chino	CA	91710	700 S Raymond Ave	Fullerton	CA	92831
8986 Remington Ave	Chino	CA	91710	315 S Hale Ave	Fullerton	CA	92831
14035 Pipeline Ave	Chino	CA	91710	1335 S Acacia Ave	Fullerton	CA	92831
5150 Eucalyptus Ave	Chino	CA	91710	601 S Acacia Ave	Fullerton	CA	92831
13770 Norton Ave	Chino	CA	91710	1820 E Valencia Dr	Fullerton	CA	92831
15616 Euclid Ave	Chino	CA	91710	1500 E Valencia Dr	Fullerton	CA	92831
13860 Ramona Ave	Chino	CA	91710	1415 S Acacia St	Fullerton	CA	92831
5150 Edison Ave	Chino	CA	91710	1610 E Orangethorpe Ave	Fullerton	CA	92831
14210 Telephone Ave	Chino	CA	91710	800 S State College Blvd	Fullerton	CA	92831
13851 Ramona Ave	Chino	CA	91710	1500 E Walnut Ave	Fullerton	CA	92831
13771 Norton Ave	Chino	CA	91710	800 S Raymond Ave	Fullerton	CA	92831
8985 Merrill Ave	Chino	CA	91710	1551 E Orangethorpe Ave	Fullerton	CA	92831
5026 Chino Hills Pky	Chino	CA	91710	1424 S Raymond Ave	Fullerton	CA	92831
4640 Vinita Ct	Chino	CA	91710	667 S State College Blvd	Fullerton	CA	92831
14275 Telephone Ave	Chino	CA	91710	1401 E Orangethorpe Ave	Fullerton	CA	92831
5045 Eucalyptus Ave	Chino	CA	91710	350 S Raymond Ave	Fullerton	CA	92831
13850 Central Ave	Chino	CA	91710	2001 E Orangethorpe Ave	Fullerton	CA	92831
13875 Ramona Ave	Chino	CA	91710	701 S Sally Pl	Fullerton	CA	92831
4980 Eucalyptus Ave	Chino	CA	91710	1050 S State College Blvd	Fullerton	CA	92831
4250 Eucalyptus Ave	Chino	CA	91710	1901 E Rossllynn Ave	Fullerton	CA	92831
13950 Mountain Ave	Chino	CA	91710	2501 E Orangethorpe Ave	Fullerton	CA	92831
13404 Monte Vista Ave	Chino	CA	91710	2441 Cypress Way	Fullerton	CA	92831
13941 Norton Ave	Chino	CA	91710	1800 E Orangethorpe Ave	Fullerton	CA	92831
5116 Chino Hills Pky	Chino	CA	91710	2340 E Walnut Ave	Fullerton	CA	92831

Property Address	City	State	Zip	Property Address	City	State	Zip
14525 Monte Vista Ave	Chino	CA	91710	2325 Moore Ave	Fullerton	CA	92833
14207 Monte Vista Ave	Chino	CA	91710	2330 Raymer Ave	Fullerton	CA	92833
4651 Schaefer Ave	Chino	CA	91710	2009 Raymer Ave	Fullerton	CA	92833
14141 Yorba Ave	Chino	CA	91710	560 N Gilbert St	Fullerton	CA	92833
Monte Vista Ave	Chino	CA	91710	1920 Malvern St	Fullerton	CA	92833
8721 Merrill Ave	Chino	CA	91710	2425 W Commonwealth Ave	Fullerton	CA	92833
14310 Ramona Ave	Chino	CA	91710	570 N Gilbert St	Fullerton	CA	92833
4451 Eucalyptus Ave	Chino	CA	91710	2430 W Artesia Blvd	Fullerton	CA	92833
13971 Norton Ave	Chino	CA	91710	2750 W Moore Ave	Fullerton	CA	92833
13950 Yorba Ave	Chino	CA	91710	1930 Malvern St	Fullerton	CA	92833
14510 Monte Vista Ave	Chino	CA	91710	691 Burning Tree Rd	Fullerton	CA	92833
14725 Monte Vista Ave	Chino	CA	91710	1881 W Malvern Ave	Fullerton	CA	92833
5125 Schaefer Ave	Chino	CA	91710	1901 Raymer Ave	Fullerton	CA	92833
14120 Ramona Ave	Chino	CA	91710	4225 N Palm St	Fullerton	CA	92835
14326 Monte Vista Ave	Chino	CA	91710	4260 N Harbor Blvd	Fullerton	CA	92835
6185 Kimball Ave	Chino	CA	91710	458 E Lambert Rd	Fullerton	CA	92835
14651 Yorba Ave	Chino	CA	91710	4250 N Harbor Blvd	Fullerton	CA	92835
13775 Ramona Ave	Chino	CA	91710	210 E Lambert Rd	Fullerton	CA	92835
14000 Monte Vista Ave	Chino	CA	91710	4201 Bonita Pl	Fullerton	CA	92835
5151 Eucalyptus Ave	Chino	CA	91710	4150 N Palm St	Fullerton	CA	92835
15245 Van Vliet Ave	Chino	CA	91710	4278 N Harbor Blvd	Fullerton	CA	92835
14286 Monte Vista Ave	Chino	CA	91710	7421 Chapman Ave	Garden Grove	CA	92841
13975 Monte Vista Ave	Chino	CA	91710	12122 Western Ave	Garden Grove	CA	92841
4775 Eucalyptus Ave	Chino	CA	91710	7571 Lampson Ave	Garden Grove	CA	92841
5051 Edison Ave	Chino	CA	91710	12752 Monarch St	Garden Grove	CA	92841
13428 Benson Ave	Chino	CA	91710	12131 Western Ave	Garden Grove	CA	92841
13770 Ramona Ave	Chino	CA	91710	12101 Western Ave	Garden Grove	CA	92841
14720 Monte Vista Ave	Chino	CA	91710	11955 Monarch St	Garden Grove	CA	92841
8599 Rochester Ave	Rancho Cucamonga	CA	91730	7301 Orangewood Ave	Garden Grove	CA	92841
9409 Buffalo Ave	Rancho Cucamonga	CA	91730	12571 Western Ave	Garden Grove	CA	92841
10299 6th St	Rancho Cucamonga	CA	91730	12821 Knott St	Garden Grove	CA	92841
8949 Buffalo Ave	Rancho Cucamonga	CA	91730	12570 Knott St	Garden Grove	CA	92841
10621 6th St	Rancho Cucamonga	CA	91730	7361 Doig Dr	Garden Grove	CA	92841
11711 Arrow Route	Rancho Cucamonga	CA	91730	11700 Monarch St	Garden Grove	CA	92841
11335 Jersey Blvd	Rancho Cucamonga	CA	91730	7372 Doig Dr	Garden Grove	CA	92841
9160 N Buffalo Ave	Rancho Cucamonga	CA	91730	7366 Orangewood Ave	Garden Grove	CA	92841
10865 Jersey Blvd	Rancho Cucamonga	CA	91730	7300 Chapman Ave	Garden Grove	CA	92841
12155 6th St	Rancho Cucamonga	CA	91730	1900 2nd St	Norco	CA	92860
11081 Tacoma Dr	Rancho Cucamonga	CA	91730	3390 Horseless Carriage Dr	Norco	CA	92860
11701 6th St	Rancho Cucamonga	CA	91730	1300 W Taft Ave	Orange	CA	92865
10680 Acacia St	Rancho Cucamonga	CA	91730	2060 N Batavia St	Orange	CA	92865
10660 Acacia St	Rancho Cucamonga	CA	91730	2164 N Batavia St	Orange	CA	92865
11600 Millenium Ct	Rancho Cucamonga	CA	91730	615 N Grove Ave	Orange	CA	92865
10670 6th St	Rancho Cucamonga	CA	91730	230 W Blueridge Ave	Orange	CA	92865
11600 Dayton Dr	Rancho Cucamonga	CA	91730	2079 N Glassell St	Orange	CA	92865
11167 White Birch Dr	Rancho Cucamonga	CA	91730	2095 N Batavia St	Orange	CA	92865
8595 Milliken Ave	Rancho Cucamonga	CA	91730	1481 N Main St	Orange	CA	92867
9150 Hermosa Ave	Rancho Cucamonga	CA	91730	833 N Elm St	Orange	CA	92867
11555 Arrow Route	Rancho Cucamonga	CA	91730	750 N Main St	Orange	CA	92868
9292 9th St	Rancho Cucamonga	CA	91730	759 N Eckhoff St	Orange	CA	92868
9449 8th St	Rancho Cucamonga	CA	91730	625 W Palm Ave	Orange	CA	92868
10808 6th St	Rancho Cucamonga	CA	91730	190 W Crowther Ave	Placentia	CA	92870
11530 6th St	Rancho Cucamonga	CA	91730	355 S Melrose St	Placentia	CA	92870
9345 Santa Anita Ave	Rancho Cucamonga	CA	91730	200 Boysenberry Ln	Placentia	CA	92870
9560 Buffalo Ave	Rancho Cucamonga	CA	91730	1575 Magnolia Ave	Corona	CA	92878
8901 Arrow Route	Rancho Cucamonga	CA	91730	150 E Radio Rd	Corona	CA	92879
9545 Santa Anita Ave	Rancho Cucamonga	CA	91730	1375 Sampson Ave	Corona	CA	92879
9325 Santa Anita Ave	Rancho Cucamonga	CA	91730	1001 El Camino Ave	Corona	CA	92879
10667 Jersey Blvd	Rancho Cucamonga	CA	91730	300 E Parkridge Ave	Corona	CA	92879
9000 9th St	Rancho Cucamonga	CA	91730	1283 Sherborn St	Corona	CA	92879
8858 Rochester Ave	Rancho Cucamonga	CA	91730	515 S Promenade Ave	Corona	CA	92879
10650 4th St	Rancho Cucamonga	CA	91730	1223 Sherborn St	Corona	CA	92879
11246 Jersey Blvd	Rancho Cucamonga	CA	91730	2553 Sampson Ave	Corona	CA	92879
9101 Hermosa Ave	Rancho Cucamonga	CA	91730	1560 E 6th St	Corona	CA	92879

Property Address	City	State	Zip	Property Address	City	State	Zip
8449 Milliken Ave	Rancho Cucamonga	CA	91730	555 S Promenade Ave	Corona	CA	92879
10404 6th St	Rancho Cucamonga	CA	91730	222 S Promenade Ave	Corona	CA	92879
8400 Milliken Ave	Rancho Cucamonga	CA	91730	353 Meyer Cir	Corona	CA	92879
9471 Buffalo Ave	Rancho Cucamonga	CA	91730	1470 E 6th St	Corona	CA	92879
11096 Jersey Blvd	Rancho Cucamonga	CA	91730	1660 Leeson Ln	Corona	CA	92879
10013 8th St	Rancho Cucamonga	CA	91730	265 Radio Rd	Corona	CA	92879
9333 Hermosa Ave	Rancho Cucamonga	CA	91730	264 Mariah Cir	Corona	CA	92879
8369 Milliken Ave	Rancho Cucamonga	CA	91730	1550 Magnolia Ave	Corona	CA	92879
9363 Lucas Ranch Rd	Rancho Cucamonga	CA	91730	1235 E Quarry St	Corona	CA	92879
12434 4th St	Rancho Cucamonga	CA	91730	725 E Harrison St	Corona	CA	92879
11599 Arrow Rt	Rancho Cucamonga	CA	91730	1493 E Bentley Dr	Corona	CA	92879
9678 Utica Ave	Rancho Cucamonga	CA	91730	580 E Harrison St	Corona	CA	92879
9189 Utica Ave	Rancho Cucamonga	CA	91730	395 Smitty Way	Corona	CA	92879
9059 Hermosa Ave	Rancho Cucamonga	CA	91730	2571 Sampson Ave	Corona	CA	92879
8535 Oakwood Pl	Rancho Cucamonga	CA	91730	235 Radio Rd	Corona	CA	92879
8865 Utica Ave	Rancho Cucamonga	CA	91730	1275 Quarry St	Corona	CA	92879
9133 Center Ave	Rancho Cucamonga	CA	91730	375 TRM Cir	Corona	CA	92879
9120 Center Ave	Rancho Cucamonga	CA	91730	545 Alcoa Cir	Corona	CA	92880
10750 7th St	Rancho Cucamonga	CA	91730	550 Monica Cir	Corona	CA	92880
11400 Newport Dr	Rancho Cucamonga	CA	91730	2380 Railroad St	Corona	CA	92880
9168 Hermosa Ave	Rancho Cucamonga	CA	91730	1692 Jenks Dr	Corona	CA	92880
11655 Jersey Blvd	Rancho Cucamonga	CA	91730	1990 Pomona Rd	Corona	CA	92880
8825 Boston Pl	Rancho Cucamonga	CA	91730	451 N Cota St	Corona	CA	92880
9141 Arrow Hwy	Rancho Cucamonga	CA	91730	220 Klug Cir	Corona	CA	92880
8291 Milliken Ave	Rancho Cucamonga	CA	91730	250 Airport Cir	Corona	CA	92880
9180 Center Ave	Rancho Cucamonga	CA	91730	475 N Sheridan St	Corona	CA	92880
8840 Flower Rd	Rancho Cucamonga	CA	91730	150 S Maple St	Corona	CA	92880
10401 7th St	Rancho Cucamonga	CA	91730	299 N Smith Ave	Corona	CA	92880
9448 Richmond Pl	Rancho Cucamonga	CA	91730	132 Business Center Dr	Corona	CA	92880
10825 7th St	Rancho Cucamonga	CA	91730	14969 Summit Dr	Eastvale	CA	92880
9650 9th St	Rancho Cucamonga	CA	91730	250 Klug Cir	Corona	CA	92880
9041 Pittsburgh Ave	Rancho Cucamonga	CA	91730	150 N Maple St	Corona	CA	92880
9050 Hermosa Ave	Rancho Cucamonga	CA	91730	1400 W Rincon St	Corona	CA	92880
11355 Arrow Route	Rancho Cucamonga	CA	91730	1160 W Rincon St	Corona	CA	92880
11601 Dayton Dr	Rancho Cucamonga	CA	91730	311 Cessna Cir	Corona	CA	92880
11200 Arrow Route	Rancho Cucamonga	CA	91730	6300 Providence Way	Eastvale	CA	92880
9393 Arrow Route	Rancho Cucamonga	CA	91730	14940 Summit Dr	Eastvale	CA	92880
12320 4th St	Rancho Cucamonga	CA	91730	450 N Sheridan St	Corona	CA	92880
9060 Rochester Ave	Rancho Cucamonga	CA	91730	341 Bonnie Cir	Corona	CA	92880
10655 E 7th St	Rancho Cucamonga	CA	91730	311 Bonnie Cir	Corona	CA	92880
8784 Rochester Ave	Rancho Cucamonga	CA	91730	1000 W Rincon St	Corona	CA	92880
8950 Toronto Ave	Rancho Cucamonga	CA	91730	14939 Summit Dr	Eastvale	CA	92880
9408 Richmond Pl	Rancho Cucamonga	CA	91730	345 Cessna Cir	Corona	CA	92880
12320 4th St	Rancho Cucamonga	CA	91730	185 N Smith Ave	Corona	CA	92880
10220 4th St	Rancho Cucamonga	CA	91730	2455 Wardlow Rd	Corona	CA	92880
9955 6th St	Rancho Cucamonga	CA	91730	1170 W Rincon St	Corona	CA	92880
9000 Rochester Ave	Rancho Cucamonga	CA	91730	1150 W Rincon St	Corona	CA	92880
8950 Rochester Ave	Rancho Cucamonga	CA	91730	1295 E Ontario Ave	Corona	CA	92881
10955 Arrow Rt	Rancho Cucamonga	CA	91730	1851 California Ave	Corona	CA	92881
9089 8th St	Rancho Cucamonga	CA	91730	1930 California Ave	Corona	CA	92881
11190 White Birch Dr	Rancho Cucamonga	CA	91730	1241 Old Temescal Rd	Corona	CA	92881
9520 Santa Anita Ave	Rancho Cucamonga	CA	91730	1161 Olympic Dr	Corona	CA	92881
9100 9th St	Rancho Cucamonga	CA	91730	1346 Railroad St	Corona	CA	92882
9275 Buffalo Ave	Rancho Cucamonga	CA	91730	909 W Railroad St	Corona	CA	92882
8998 Hyssop Ave	Rancho Cucamonga	CA	91730	1010 Railroad St	Corona	CA	92882
9282 Pittsburgh Ave	Rancho Cucamonga	CA	91730	1351 Railroad St	Corona	CA	92882
11195 Eucalyptus St	Rancho Cucamonga	CA	91730	2621 Research Dr	Corona	CA	92882
9121 Pittsburgh Ave	Rancho Cucamonga	CA	91730	2616 Research Dr	Corona	CA	92882
12250 E 4th St	Rancho Cucamonga	CA	91730	22324 Temescal Canyon Rd	Corona	CA	92883
9199 Cleveland Ave	Rancho Cucamonga	CA	91730	22420 Temescal Canyon Rd	Corona	CA	92883
9595 Utica Ave	Rancho Cucamonga	CA	91730	21937 Knabe Rd	Corona	CA	92883
8886 White Oak Ave	Rancho Cucamonga	CA	91730	22705 Savi Ranch Pky	Yorba Linda	CA	92887
4501 Arden Dr	El Monte	CA	91731				
9320 Telstar Ave	El Monte	CA	91731				

Property Address	City	State	Zip	Property Address	City	State	Zip
4187 Temple City Blvd	El Monte	CA	91731				
9860 Gidley St	El Monte	CA	91731				
4189 Temple City Blvd	El Monte	CA	91731				
3136 Rosemead Blvd	El Monte	CA	91731				
4250 Shirley Ave	El Monte	CA	91731				
4350 Temple City Blvd	El Monte	CA	91731				
10511 Valley Blvd	El Monte	CA	91731				
4300 Baldwin Ave	El Monte	CA	91731				
4300 Shirley Ave	El Monte	CA	91731				
9700 Factorial Way	South El Monte	CA	91733				
11077 Rush St	South El Monte	CA	91733				
1886 Santa Anita Ave	South El Monte	CA	91733				
1747 Tyler Ave	South El Monte	CA	91733				
12465 6th St	Rancho Cucamonga	CA	91739				
12455 Arrow Hwy	Rancho Cucamonga	CA	91739				
12521 Arrow Rte	Rancho Cucamonga	CA	91739				
12400 Arrow Rt	Rancho Cucamonga	CA	91739				
8939 Etiwanda Ave	Rancho Cucamonga	CA	91739				
8570 Hickory Ave	Rancho Cucamonga	CA	91739				
8728 Etiwanda Ave	Rancho Cucamonga	CA	91739				
12200 Arrow Rt	Rancho Cucamonga	CA	91739				
8925 Santa Anita Ave	Rancho Cucamonga	CA	91739				
2001 E Gladstone St	Glendora	CA	91740				
139 N Sunset Blvd	City Of Industry	CA	91744				
14750 Nelson Ave	City of Industry	CA	91744				
16017 E Valley Blvd	City of Industry	CA	91744				
15000 Nelson Ave	City of Industry	CA	91744				
14500 Nelson Ave	City of Industry	CA	91744				
17637 E Valley Blvd	City of Industry	CA	91744				
15930 Valley Blvd	City Of Industry	CA	91744				
15801 E Valley Blvd	City of Industry	CA	91744				
17411 Valley Blvd	City of Industry	CA	91744				
14380 E Nelson Ave	City of Industry	CA	91744				
15620 E Valley Blvd	City of Industry	CA	91744				
15929 E Valley Blvd	City of Industry	CA	91744				
347 S Stimson Ave	City of Industry	CA	91744				



## **Appendix D: POTENTIAL SIP CREDIT APPROACH FOR PR 2305**

### **Introduction**

#### *What is the purpose of PR 2305?*

As stated in PR 2305, its purpose is to reduce local and regional emissions, and to facilitate local and regional emission reductions associated with warehouses and the mobile sources attracted to warehouses in order to help achieve state and federal ambient air quality standards and to reduce exposure to diesel particulate matter.

#### *What is the State Implementation Plan?*

The federal Clean Air Act requires areas with levels of ozone, particulate matter, and other pollutants that exceed National Ambient Air Quality Standards (NAAQS) to develop State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain the NAAQS. SIPs are not single documents. They are a compilation of new and previously submitted plans, programs (such as monitoring, incentives, permitting, emissions inventory, etc.), local air district rules, state regulations, and federal controls. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts prepare SIP elements and submit them to CARB for review and approval. CARB then forwards these SIP revisions to the EPA for approval.

#### *What is 'SIP credit'?*

SIP credit is the general term given for emission reductions that are creditable towards commitments in the SIP.

#### *Why is SIP Credit needed?*

The SIP contains a detailed accounting of the expected emissions inventory in future milestone years with Clean Air Act deadlines. This emissions inventory includes a baseline scenario (i.e. business-as-usual) and a control scenario (if the SIP's proposed measures are all adopted). The 2016 AQMP from South Coast AQMD and the companion State SIP Strategy from CARB includes substantial emission reductions tied to 'further deployment of cleaner technologies' control measures that are not yet fully defined. Emission reductions from these control measures are needed to both meet the NAAQS and to ensure that federal sanctions are not imposed under the federal Clean Air Act. If adopted, PR 2305 will provide emission reductions that can help meet these 'further deployment' commitments. This document provides the background for how PR 2305 emission reductions will be SIP creditable.

#### *What are the requirements for SIP credit?*

There are a variety of guidance documents<sup>1</sup> and regulations that address how emission reductions can be credited towards the SIP. In general, SIP creditable emission reductions must satisfy five

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<sup>1</sup> Voluntary Mobile Source SIP Programs, [www.epa.gov/sites/production/files/2016-05/documents/vmep-gud.pdf](http://www.epa.gov/sites/production/files/2016-05/documents/vmep-gud.pdf)  
Improving Air Quality with Economic Incentive Programs (2001),  
[www.epa.gov/sites/production/files/2015-07/documents/eipfin.pdf](http://www.epa.gov/sites/production/files/2015-07/documents/eipfin.pdf)  
Voluntary and Emerging SIP Measures,  
[www.epa.gov/sites/production/files/2016-05/documents/voluntarycontrolmeasurespolicypepa.pdf](http://www.epa.gov/sites/production/files/2016-05/documents/voluntarycontrolmeasurespolicypepa.pdf)  
Energy Efficiency and Renewable Energy SIP Measures,  
[www.epa.gov/sites/production/files/2016-05/documents/eresecerem\\_gd.pdf](http://www.epa.gov/sites/production/files/2016-05/documents/eresecerem_gd.pdf)

key ‘integrity elements’. Namely, the emission reductions must be quantifiable, enforceable, verifiable, surplus, and real.

*Which emission source categories can achieve SIP-creditable emission reductions with PR 2305?*

The emission sources that may have SIP-creditable emission reductions from PR 2305 include on-road trucks, hostlers (both on-road and off-road vehicles), Transport Refrigeration Units (TRUs), light duty vehicles, and power plants.

*What is the role of scrapping in SIP-creditable mobile source measures?*

Scrapping is the process by which older vehicles that are replaced by newer, cleaner vehicles are scrapped and taken out of service to ensure that the emission reductions from the newer vehicle are achieved. Scrapping ensures that the new vehicle is not just accommodating growth in the vehicle fleet. SIP-creditable emission reductions can be achieved both with and without a scrapping program. Examples of SIP-creditable programs with scrapping requirements include many voluntary incentive programs like Carl Moyer, or AB 617 funding. These programs are implemented on an individual truck basis (through grant funding contracts), and without a scrapping requirement it would not be possible to discern whether any one individual truck would result in eventual scrapping of a truck somewhere in the entire truck fleet, or if the newer, cleaner truck is actually adding emissions due to growing the truck fleet.

Other SIP-creditable measures do not require scrapping, such as CARB regulations like the Low NOx Omnibus Rule or the Advanced Clean Trucks Rule. These rules rely on assumptions about future truck sales and future truck activity (e.g., miles travelled per year). Importantly, these rules broadly affect large sections of the truck fleet instead of individual trucks, and the rulemaking analysis for these rules consider how each rule will affect the entire truck fleet, including growth and rates of vehicle turnover. These assumptions are subsequently verified through the regular updates to the EMFAC model.

*What is EMFAC?*

EMFAC is an emissions model developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California, and to support CARB's regulatory and air quality planning efforts to meet the Federal Highway Administration's transportation planning requirements. U.S. EPA approves EMFAC for use in the State Implementation Plan and transportation conformity analyses.

*How does SIP credit work for incentive funding programs?*

Programs like Carl Moyer or AB-617 funding programs provide subsidies to offset the higher purchase price of near-zero and zero emission vehicles. In some cases, these types of voluntary

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Incorporating Bundled Measures in a SIP,

[www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/20050816\\_page\\_incorporating\\_bundled\\_measure\\_sip.pdf](http://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/20050816_page_incorporating_bundled_measure_sip.pdf)

Incorporating Energy Efficiency/Renewable Energy Policies and Programs into SIPs,

[www.epa.gov/sites/production/files/2016-05/documents/eeremanual\\_0.pdf](http://www.epa.gov/sites/production/files/2016-05/documents/eeremanual_0.pdf)

Diesel Retrofit SIP Programs, <http://nepis.epa.gov/Exe/ZyPDF.cgi/P100HP2S.PDF?Dockey=P100HP2S.PD>

incentive programs can result in prospective SIP creditable emission reductions.<sup>2</sup> While incentive funding programs have been included as control measures within the 2016 AQMP, they are not included in the baseline emissions inventory, nor are their effects included within EMFAC. PR 2305 is designed to work together with incentive programs. Although some incentive programs are oversubscribed<sup>3</sup>, others are undersubscribed<sup>4</sup>. PR 2305 can help ensure that incentive funds are fully utilized, and can also potentially spread incentives to additional vehicles by lowering the amount that vehicle purchasers are willing to accept due to the requirements within PR 2305 on warehouse operators.

### **Background on Obtaining SIP Credit for Mobile Source Emission Reduction Measures**

SIP creditable emission reductions are typically obtained through three key processes.

- 1) Regulations adopted at the local, state, or federal level that meet the ‘integrity elements’ described above can achieve prospective SIP credit at the time that the regulation is adopted. Prospective SIP credit is a projection of how emission reductions will occur in the future due to a control measure.
  - a. Example: CARB’s Truck and Bus Regulation<sup>5</sup> requires fleets to only utilize trucks that meet or exceed 2010 truck engine standards (with some limited exceptions) by 2023. Those fleets may include older, higher-emitting trucks today, but the future emission reductions from the existing regulation provides prospective SIP credit. As shown below, not all emission reduction measures can be credited towards the SIP prospectively.
- 2) For some regulations or control measures, actual emission reductions achieved may be higher or lower than originally estimated at the time the regulation was adopted. A later analysis may evaluate how a rule is actually being implemented and adjust the amount of SIP creditable emission reductions. These retrospective emission reductions evaluate how emissions changed in the past, and then project how that will affect the future.
  - a. Example: EPA’s Heavy Duty Engine Standards<sup>6</sup> required all truck engine manufacturers to meet a NOx emission standard of 0.2 g/hp-hr by 2010 (with some limited exceptions). SIP creditable prospective emission reductions were assumed in the EMFAC 2007 emission model at the time assuming that engines would meet these standards in real world conditions.<sup>7</sup> However, subsequent testing of these engines has shown that engines that meet the EPA standard (based on a test cycle) do not achieve the previously assumed level of emission reductions in real world conditions.<sup>8</sup> One example includes during periods when the engine exhaust controls

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<sup>2</sup> <https://ww2.arb.ca.gov/resources/documents/implementation-state-sip-strategy>

<sup>3</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-dec6-006.pdf>

<sup>4</sup> <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-dec4-005.pdf>

<sup>5</sup> <https://ww2.arb.ca.gov/our-work/programs/truck-bus-regulation/truck-and-bus-regulation-regulation-advisories>  
Accessed 11/5/2020.

<sup>6</sup> <https://www.govinfo.gov/content/pkg/FR-2001-01-18/pdf/01-2.pdf> Accessed 11/5/2020.

<sup>7</sup> EMFAC 2007 Revision of Heavy Heavy-Duty Diesel Truck Emission Factors and Speed Correction Factors. [https://ww3.arb.ca.gov/msei/onroad/techmemo/revised\\_hhddt\\_emission\\_factors\\_and\\_speed\\_corr\\_factors.pdf](https://ww3.arb.ca.gov/msei/onroad/techmemo/revised_hhddt_emission_factors_and_speed_corr_factors.pdf).  
Accessed 11/5/2020.

<sup>8</sup> See Figure ES-3 for an example: <https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/isor.pdf#page=27>.  
Accessed 11/5/2020.

are operating at lower temperatures than necessary to fully reduce NO<sub>x</sub> emissions.<sup>9</sup> As a result, a more recent EPA-approved emissions inventory for trucks in EMFAC 2017 has subsequently been updated to incorporate this more recent real world data.<sup>10</sup> The table below shows a comparison of NO<sub>x</sub> emission rates for the same model year truck between the EPA-approved EMFAC 2007 and EMFAC 2017 emissions inventory models. The more recent EMFAC 2017 model used more recent real-world data, and the subsequent SIP creditable emission reductions from the EPA Heavy Duty Engine Standard have been revised to incorporate real-world conditions.

**Table 1: Zero-Mile NO<sub>x</sub> Emission Rates for Model Year 2015**

EMFAC 2007 <sup>11</sup>	EMFAC 2017 <sup>12</sup>
1.14	2.68

- 3) Finally, real-world emissions from some sources are often affected by multiple factors. For example, on-road vehicle emissions are affected by multiple regulations, market forces (e.g., the state of the economy, the price of fuel, etc.), financial incentive programs (e.g., the Carl Moyer program), and private sector policies (e.g., corporate sustainability goals). In order to account for all of these competing influences, every few years the baseline mobile source emissions inventory used for the SIP is updated, including through updates to CARB's mobile source inventories (e.g., the EMFAC model, off-road equipment inventories, etc.), updates to the Regional Transportation Plan (RTP) from the Southern California Association of Governments (SCAG), and new South Coast AQMD Air Quality Management Plans (AQMPs). Because SIP creditable emission reductions cannot always be separately assigned to each unique factor, the holistic evaluation of the on-road mobile source sector in EMFAC updates (or equivalent off-road sector updates) conducted by CARB ensures that the SIP inventory is as comprehensive, accurate, and current as possible.
- a. Example: Every four years SCAG updates its forecast for the transportation system in the RTP. This modeling analysis includes a forecast of vehicle miles travelled in the freight sector based on a number of factors including: activity data from the ports of Los Angeles and Long Beach, national commodity flow surveys, land use patterns, developments in the roadway network, etc. These modeled outputs (e.g., vehicle miles travelled, vehicle speeds, location of vehicle activity) are combined with emission factors from EMFAC to establish the SIP creditable emissions inventory in the subsequent AQMP.

<sup>9</sup> Tan et al., On-Board Sensor-Based NO<sub>x</sub> Emissions from Heavy-Duty Diesel Vehicles. *Environ. Sci. Technol.* 2019, 53, 9, 5504–5511. <https://pubs.acs.org/doi/10.1021/acs.est.8b07048> Accessed 11/5/2020.

<sup>10</sup> EMFAC2017 Volume III – Technical Documentation.

<https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>

<sup>11</sup> [https://ww3.arb.ca.gov/msei/onroad/techmemo/revised\\_hhddt\\_emission\\_factors\\_and\\_speed\\_corr\\_factors.pdf](https://ww3.arb.ca.gov/msei/onroad/techmemo/revised_hhddt_emission_factors_and_speed_corr_factors.pdf),

Table 8

<sup>12</sup> <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>, Table 4.3-46

**Expected Mechanisms to Obtain SIP-Creditable Emission Reductions with PR 2305**

If PR 2305 is adopted, SIP-creditable emission reductions can be achieved prospectively, retrospectively, and through holistic mobile source inventory analysis. Because other existing and forthcoming mobile source measures will reduce emissions from the same sources, not all emission reductions achievable from PR 2305 can be fully quantified at time of rule adoption. As described in CARB's Mobile Source Strategy<sup>13</sup>, additional future measures may be developed that would affect emission sources at facilities covered by PR 2305, but it is too speculative at this stage to determine how they may or may not overlap with PR 2305.

Prospective Emission Reductions from PR 2305

Emissions reductions are expected from all of the emissions sources covered by PR 2305, however not all of the emission reductions can be fully quantified at time of rule adoption. This is primarily because some emission reductions from PR 2305 will at least partially overlap with other SIP-creditable measures. The table at the end of this section lists the key existing and future mobile source measures that also reduce emissions sources addressed by PR 2305, and describes how the overlap is addressed.

Retrospective Emission Reductions from PR 2305

The PR 2305 WAIRE Program will be tracked by South Coast AQMD staff to evaluate how it is implemented every year, reported publicly to the Governing Board Mobile Source Committee, with results also made available on the South Coast AQMD web page. A key component of this analysis will be to evaluate which menu options are being chosen by every facility, and comparing that to the original analysis conducted during the rulemaking process. If trends emerge that show greater or lesser emission reductions than envisioned in the rulemaking analysis, then adjustment may be made in subsequent revisions to the SIP inventory (e.g., as part of a future AQMP).

Holistic Analysis of Emission Reductions from PR 2305

Some emission reductions may be attributable to PR 2305, but will not be captured in either a prospective or retrospective analysis. This could include emissions from trucks purchased to comply with PR 2305, but that make truck trips between facilities that aren't regulated under PR 2305. These truck trips are not accounted for in the rulemaking analysis, or in subsequent annual reviews of the WAIRE Program. In addition, if many warehouse operators decide to install zero emission charging/fueling infrastructure, this is expected to make it easier for truck owners to decide to switch to zero emission technologies as finding a fueling location will become less of a concern. This potential increased zero emission technology penetration into the overall truck fleet is not accounted for in the rulemaking analysis except for zero emissions truck visits to regulated facilities. Further, the assumptions included in the rulemaking analysis about other mobile source measures (e.g., CARB's Low NOx Omnibus Rule or ACT Rule) will likely be revised based on future, unknown conditions. In particular, the level of future truck sales, future activity per truck, future costs to operate trucks, etc. all may require updates as part of a normal EMFAC update. As is currently practiced, this holistic analysis will provide the mechanism to ensure that all overlapping mobile source measures are captured across the entire truck fleet.

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<sup>13</sup> <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

**Table 2: Existing and Future Measures that Have Overlapping SIP-Creditable Emission Reductions with PR 2305**

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
Incentive Funding Programs	Various state and federal programs (e.g., Carl Moyer, AB 617 funding, DERA, etc.) provide subsidies to offset the higher cost of NZE and ZE vehicles.	Existing and Future	Potential overlap for existing state and federal funding programs. Uncertain overlap for any new funding programs.	Because incentive programs are not included within EMFAC, no adjustments are made to the PR 2305 calculation.
EPA Heavy Duty Engine Standards	Requires manufacturers nationwide to only sell trucks meeting specified emission standards by 2010 (e.g., 0.2 g/hp-hr NOx)	Existing	Partial overlap due to CARB Truck and Bus Rule.	Overlap calculated as part of CARB Truck and Bus Rule.
CARB Truck and Bus Rule	Requires truck fleets to only operate trucks meeting EPA’s 2010 engine standard by 2023. Measure is phased in before 2023.	Existing	Partial overlap before 2023. No overlap after 2023.	Any emission from NZE or ZE truck activity associated with PR 2305 are compared against baseline truck emission rates that are the average for that truck type in any calendar year from EMFAC 2017 (which includes the Truck and Bus Rule).
CARB Advanced Clean Truck (ACT) Rule	Requires truck manufacturers to ensure that a portion of their new vehicle sales in CA are zero emissions. Measure phases in from 2024-2035.	Existing	No overlap before 2024. Partial overlap after 2024.	Before 2024, any ZE truck activity attributable to PR 2305 that aren’t funded by Incentive Programs provide prospective SIP creditable emission reductions. As a conservative approach <sup>1</sup> , after 2024 any emission reductions from ZE truck activity associated with PR 2305 will be reduced by the amount of applicable ZE truck activity

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
				associated with ACT <sup>2</sup> in addition to any potentially incentive funded trucks.
CARB Low NO <sub>x</sub> Omnibus Rule	Requires manufacturers to only sell trucks in CA meeting specified emission standards. Updates warranty, useful life, certification testing procedures, etc. Measure phases in from 2024-2027.	Existing	No overlap before 2024. Partial overlap after 2024	Before 2024, any NZE truck activity attributable to PR 2305 that aren't funded by Incentive Programs provide prospective SIP creditable emission reductions. As a conservative approach <sup>1</sup> , after 2024 any emission reductions from ZE truck activity associated with PR 2305 is reduced by the amount of applicable NZE truck activity associated with Low NO <sub>x</sub> Omnibus <sup>2</sup> in addition to any potentially incentive funded trucks.
CARB Transport Refrigeration Units (TRU) Air Toxics Control Measure (ATCM)	Requires TRUs to meet in-use particulate matter standards, phased in through 2021.	Existing	No overlap.	No adjustment necessary as rule is completely phased in.
CARB In-Use Off-Road Diesel Rule	For PR2305, this measure applies to yard trucks. This rule requires fleets to meet specified in-use emission levels, depending on fleet size. The rule is phased in from 2014-2029.	Existing	Potential overlap.	Average baseline emission rate for yard trucks is based on industry estimate of yard truck age. This age profile results in baseline emissions that are lower than the most stringent standard in the In-Use Offroad Rule. SIP-creditable emission reduction calculations for yard trucks therefore assume less emission reductions than if only considering this measure.

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
EPA Cleaner Trucks Initiative	Proposal would require manufacturers nationwide to only sell trucks meeting specified emission standards. Level of control and timing uncertain, though it may match CARB’s Low NOx Omnibus Rule in 2027.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. SIP credit for this measure in relation to PR 2305 will be determined at a later date if PR 2305 is approved.
CARB Advanced Clean Fleets Rule	Proposal would require fleets to increasingly use ZE trucks. Goal is a 100% ZE truck fleet by 2045, with interim goals before then.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. SIP credit for this measure in relation to PR 2305 will be determined at a later date if both PR 2305 and ACF are approved.
CARB Proposed TRU ATCM Amendments	Proposal will transition straight truck TRUs to ZE from 2024-2031. A second rule amendment will target transitioning trailer TRUs to ZE by 2035.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. SIP credit for this measure in relation to PR 2305 will be determined at a later date if both PR 2305 and the TRU ATCM are approved. PR 2305 (d)(3)(A) also prohibits earning WAIRE Points in any year that a CARB or EPA rule applies.
CARB Proposed ZE Forklift Rule	Proposal would require fleets to phase in ZE forklifts from 2025-2040.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. Emission reductions not calculated for forklifts in PR 2305 as these are not included in the WAIRE Menu.



Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
CARB Heavy Duty Inspection & Maintenance (HD I/M) Rule	Proposal would require truck owners to routinely test their trucks to ensure they operate within acceptable standards.	Future	Potential overlap as emission reductions from this measure are not yet accounted for in EMFAC.	Expected effect of HD I/M is calculated in CARB META tool. Baseline truck emissions (i.e. trucks that would go to warehouses absent PR 2305) will be reduced to account for HD I/M before calculating the difference due to ZE and NZE trucks visiting PR 2305 warehouses.

Notes:

- 1) There are no requirements in this measure that ensure that mandated statewide sales targets will result in emission reductions specifically in the South Coast Air Basin.
- 2) Emissions from this measure are derived from CARB’s Mobile Emissions Toolkit and Analysis (META) tool that was developed for CARB’s Mobile Source Strategy as a means of evaluating how all mobile source strategies will interact in the future.