Emissions and Source Attribution for East Los Angeles, Boyle Heights and West Commerce Community

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1. Introduction

The Community Emissions Reduction Program (CERP) needs to identify air pollution challenges that each community faces, and define strategies to reduce the exposure burden from sources of criteria air pollutants (CAPs) and toxic air contaminants (TACs). Thus, rigorous accounting of sources and their resulting emissions are required to produce an accurate emissions inventory that will serve as a baseline reference from which emission reductions can be measured. This rigorous accounting of sources, their emissions and their contribution to cumulative exposure burden is what the CARB guidelines identify as source attribution. Per the direction of CARB guidelines, source attribution is required to meet the following AB 617 statutory requirements:

California Health and Safety Code § 44391.2 (b) (2) directs CARB to provide "[a] methodology for assessing and identifying the contributing sources or categories of sources, including, but not limited to, stationary and mobile sources, and an estimate of their relative contribution to elevated exposure to air pollution in impacted communities…"

CARB recommended five technical approaches to conduct source attribution analysis. They are emissions inventory, air quality modeling, targeted air monitoring/back trajectory/pollution roses/inverse modeling, chemical mass balance and positive matrix factorization. Among them, based on the availability of data and resources, an emissions inventory and an air quality modeling analysis are source attribution tools employed to identify sources contributing to air pollution levels in the community, with an emphasis on identifying sources within the community (emissions inventory). More information on source attribution methods is included in the Source Attribution Methodology report.[1] The most recent air quality modeling analysis was conducted as part of the Multiple Air Toxics Exposure Study (MATES IV) in 2015, which showed Diesel Particulate Matter (DPM) was the air pollutant that contributed most to the air toxics cancer risk in the South Coast AQMD, with the ELABHWC community having higher air toxics cancer risk compared to the overall average (**Figure 3-5**). A community-specific emissions inventory was developed for criteria air pollutants (CAPs) and TACs based on the most recent available datasets.

The ELABHWC community contains some obvious sources of air pollution, including over 30 miles of major freeways and 5 major rail yards within the community that support the goods movement industry. The community also includes a wide range of industrial facilities, including metal processing, surface coatings, auto body shops, rendering facilities, and warehousing that attracts heavy-duty truck traffic. The source attribution analysis highlights that in the year 2017, on-road and off-road mobile sources were the predominant sources of DPM, with the major contributors being heavy-heavy duty trucks, medium-heavy duty trucks, off-road diesel equipment, and trains. In this community, stationary sources and area sources are the main sources of hexavalent chromium and 1,3-butadiene, with fuel combustion in manufacturing and coating industries being the main source of hexavalent chromium, and the chemical industry as the major source for 1,3-butadiene emissions. The analysis presented in this chapter provides further details

[1] Methodology for Source Attribution Analyses for the first year AB 617 Communities in the South Coast Air Basin (Technical Report), 2019. [add URL when available]

on the sources of VOCs and PM2.5. Projected emissions in future years show decreases in DPM emissions, although DPM continues to be the main contributor to air toxics cancer risk.

While detailed methodology to develop these emissions is provided in the Source Attribution Methodology report[2], the community-level emissions and their sources are discussed in this report. Base year emissions of CAPs and TACs are provided in section 2. Future year emissions of CAPs and TACs are discussed in section 3, and a summary is provided in section 4.

2. Base year emissions inventory and source attribution

2.1 Overall profiles of CAPs and TACs

A variety of sources contribute to the emissions of criteria pollutants in the East Los Angeles, Boyle Heights, West Commerce community, with different sources emitting different air pollutant species (**Error! Reference source not found.**). NOx emissions are related to combustion sources. In this community, on-road mobile sources are the largest emitters of NOx, with heavy-duty trucks being the largest contributor. Off-road mobile sources are the second largest contributor to NOx, and includes trains and off-road equipment. Area sources of NOx are mainly from fuel combustion for space and water heating at commercial businesses and homes, whereas point sources include a large mineral processing plant, manufacturing facilities, and electric utilities.

VOC emissions mostly come from area sources, specifically from consumer products and outdoor paints (architectural coatings), as well as vehicle exhaust. The largest contributors to PM2.5 emissions are from area sources, such as commercial cooking, residential wood burning (residential fuel combustion), and paved road dust. PM is also emitted from mobile sources via vehicle exhaust and tire and brake wear. While paved road dust is also related to vehicles traveling on roads, it is considered as an area source rather than a mobile source. It is important to note that ambient PM2.5 concentrations in the community have decreased steadily in the past decades due to the reductions of PM2.5 precursor emissions such as NOx, SOx, and VOC. Ambient PM2.5 can be either formed through chemical reactions of its precursor pollutants or be emitted directly from sources. In the South Coast Air Basin icnluding this community, majority of ambient PM is chemically produced rather than direclty emitted from sources. Accordingly, even if PM2.5 emission has not decreased much, ambient PM2.5 concentrations have been improved substantially. South Coast Air Basin is close to the attainment of the U.S. EPA's ambient air quality standards for PM2.5.

TAC emissions from point sources were compiled from the emissions reported by facilities. TAC emissions from area, on-road, and off-road sources were calculated using chemical speciation profiles applied to PM or TOG emissions. Details on the chemical speciation profiles are provided in a separate Source Attribution Methodology report[1]. In total, 22 air toxic pollutants were analyzed and included in this report. This list of air toxic pollutants is consistent with the list of TACs that facilities are required to report under the South Coast AQMD Annual Emissions

[2] Methodology for Source Attribution Analyses for the first year AB 617 Communities in the South Coast Air Basin (Technical Report), 2019. [add URL when available]

Reporting (AER) program, except chlorofluorocarbons (CFCs) and ammonia were not included. CFCs do not have an associated air toxics cancer risk, whereas ammonia is included in the CAPs inventory because is a PM precursor.

The contribution from point, area, on-road and off-road emission sources to TACs emissions in this community are presented in

Figure 2. Note that the emissions in the figure are weighted based on the air toxics cancer risk of each TAC relative to diesel PM (DPM). For example, Cr^{6+} has an approximately 464 times higher air toxics cancer risk than DPM per unit weight. Thus, Cr^{6+} emissions are multiplied by 464 to estimate the air toxics cancer-risk-weighted emissions of Cr^{6+}. The units in the air toxics cancer risk-weighted DPM-equivalent emissions are expressed in pounds per year (lbs/year). This weighting approach enables a comparison of the contribution of each TAC to overall air toxics cancer risk using a consistent scale.

Figure 2 indicates that DPM is the largest contributor to the overall air toxics cancer risk in the community, followed by hexavalent chromium, 1,3-butadiene, and benzene.

Figure 2 also indicates the major source categories from which the major TACs originate. Most of the DPM is emitted from mobile sources. A significant portion of Cr^{6+} is emitted from on-road mobile sources, mostly from brake wear. A detailed emission inventory by major source categories is provided in the Appendix.

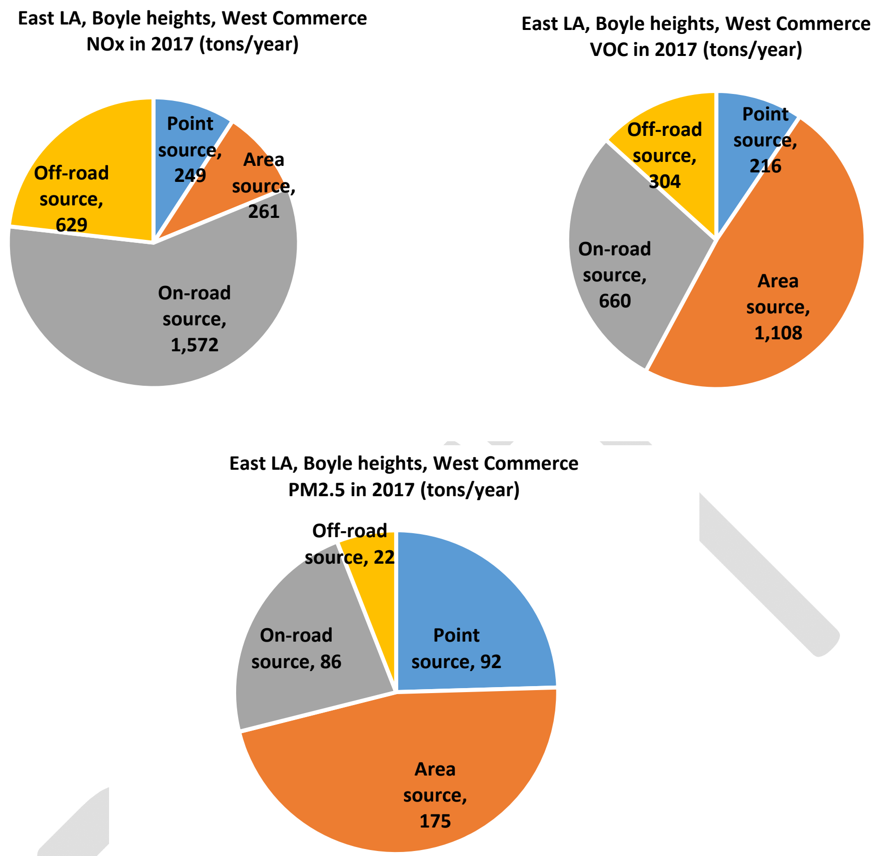

Figure 1. Contribution of major source categories to NOx emissions, TOG emissions, PM2.5 emissions in the East Los Angeles, Boyle Heights, West Commerce community in 2017 (tons/year)

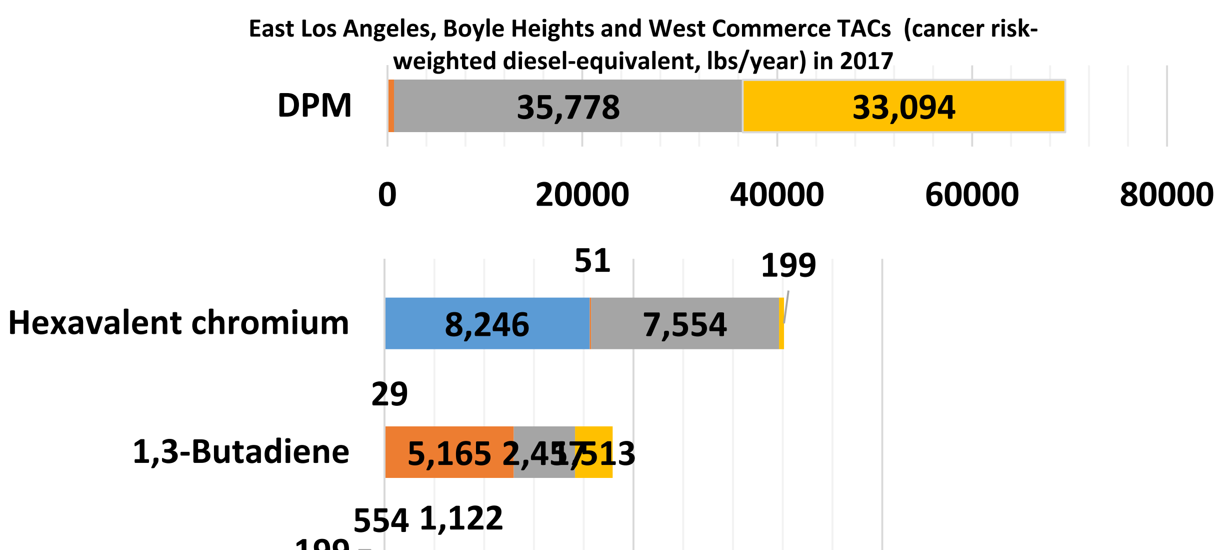

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Figure 2. Contribution of major sources to toxic air contaminant emissions (air toxic cancer risk-weighted diesel-equivalent, lbs/year) in the East Los Angeles, Boyle Heights, West Commerce community in 2017. Note the different scale for Diesel PM with respect to the other air toxics.

2.2 Stationary and area sources

Figure 3 provides the source attribution of VOC and PM2.5 emissions from stationary sources in the ELABHWC community in 2017. The largest contribution to VOC emissions is from solvent evaporation from consumer products. A wide range of industries also contribute significantly to total VOC emissions from stationary sources, with degreasing and surface coating being the second largest source of VOC from stationary and area sources, and gas stations (petroleum marketing) also being a significant source of VOC emissions.

Emissions of PM2.5 in the ELABHWC community originate from a wide range of activities, including commercial cooking, residential and commercial fuel combustion, and paved road dust. In addition, emissions from various industries including electricity generation, mineral processing, and manufacturing contribute to total PM2.5 emissions.

Figure 4 illustrates the emissions of the major TACs from stationary and area sources in the community. The emissions of each pollutant are weighted by their corresponding air toxics cancer risk relative to Diesel PM. In this community, hexavalent chromium and 1,3-butadiene are the most predominant air toxics from stationary and area sources. Hexavalent chromium is emitted from fuel combustion in manufacturing, and from coating industries (**Figure 5**), whereas the major source for 1,3-butadiene emissions is from the chemical industry.

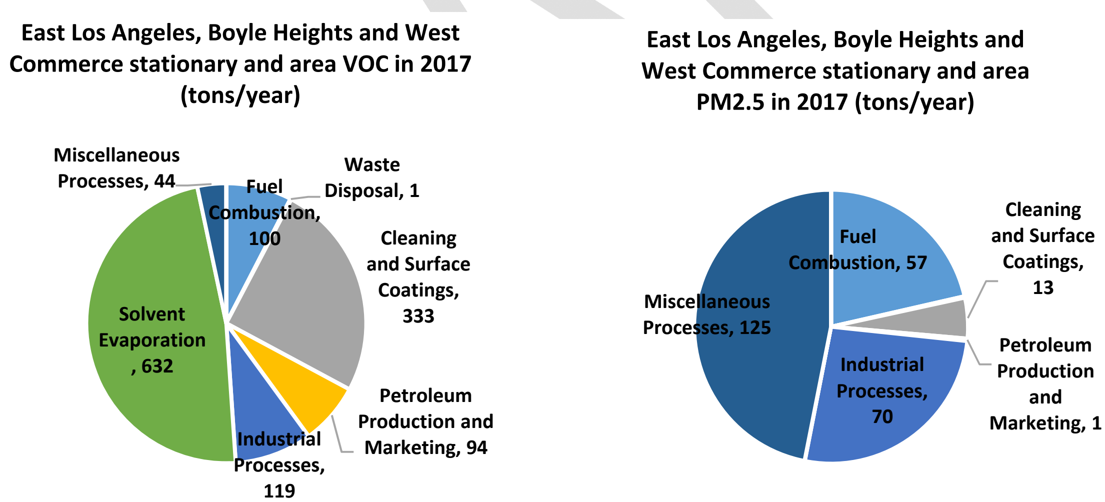


Figure 3. Source attribution of VOC emissions and PM2.5 emissions from stationary and area sources in the East Los Angeles, Boyle Heights, West Commerce community for the year 2017

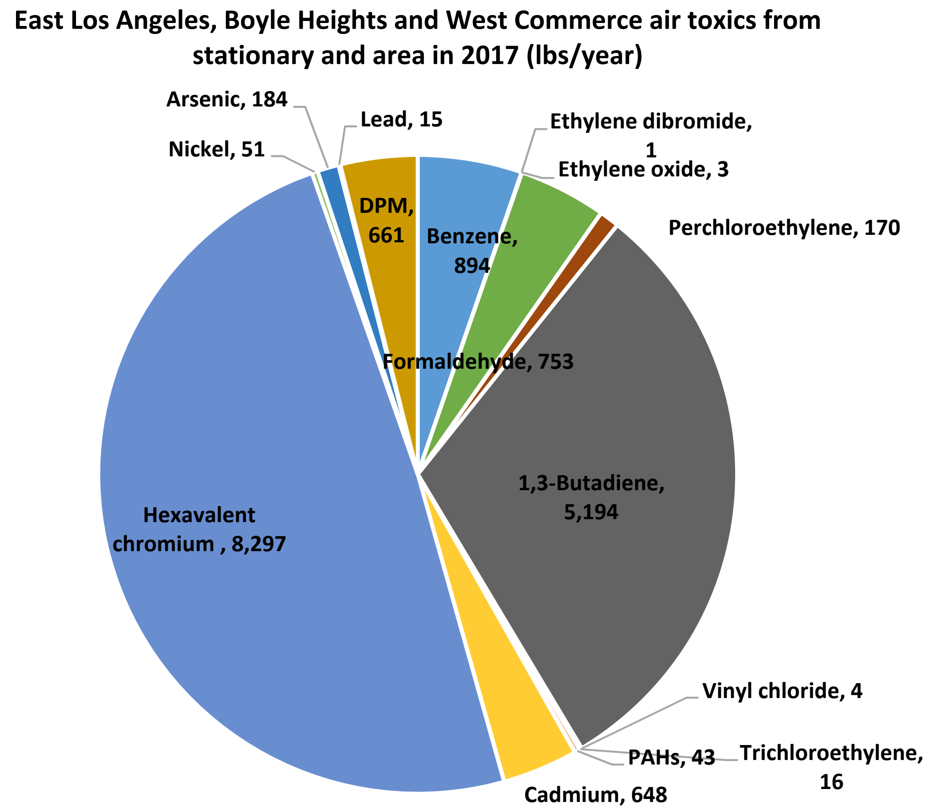


Figure 4. Toxic air contaminant emissions, weighted by air toxics cancer risk, from stationary sources in the East Los Angeles, Boyle Heights, West Commerce community for the year 2017, unit in lbs/year

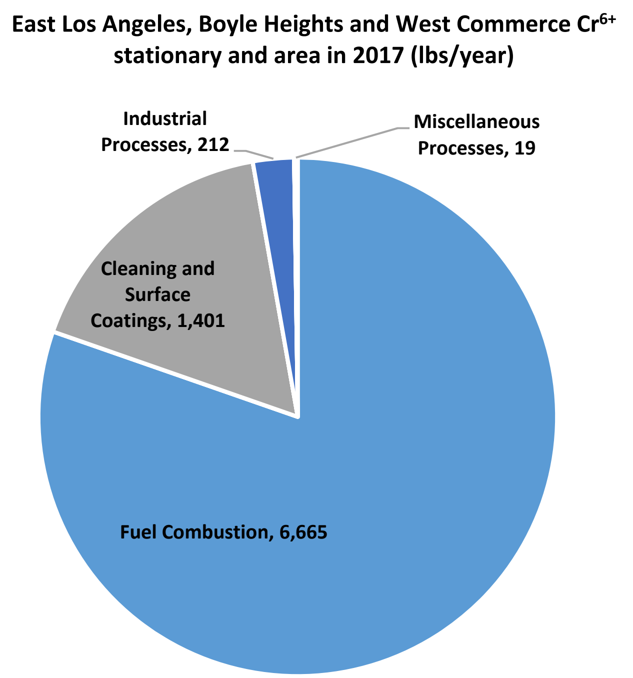


Figure 5. Source attribution of Cr^{6+} emissions from stationary and area sources in the East Los Angeles, Boyle Heights, West Commerce community for 2017 (weighted by air toxics cancer risk, in lbs/year)

2.3 On-road mobile sources

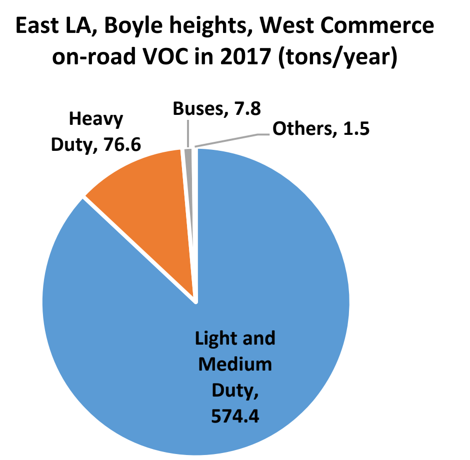
In this community, passenger vehicles and light- and medium-duty vehicles contribute to the majority of VOC and PM2.5 emissions (**Figure 6**). VOC emissions are mostly from gasoline vehicles[3], and, as a result, passenger cars are the main contributor to VOC emissions because of the large the number of vehicles and miles travelled by these types of vehicles. PM2.5 emissions from on-road sources are from fuel combustion as well as from tire and brake wear. Light and medium duty vehicles are the main contributors to the total emissions of PM2.5, because these vehicles travel the most miles within the community. Even though heavy-duty trucks drive less than 10% of the total vehicle miles travelled in Los Angeles County, heavy-duty trucks contribute to more than 25% of the total PM2.5 emissions from on-road sources[4].

Toxic emissions from on-road sources are largely dominated by DPM (**Figure 7**). The largest contributor to DPM emissions is diesel-fueled heavy-duty trucks, so the largest impacts from on-road sources in the community are concentrated along the main goods movement corridors. The

[3] These emissions are largely related to evaporative and running losses
[4] Heavy-duty diesel vehicles tend to have higher PM exhaust and tire and brake wear emissions per mile driven compared to gasoline cars.

second largest contributor to air toxics cancer risk from on-road sources is hexavalent chromium, which is emitted from brake wear[5] and, to a smaller extent, from fuel combustion.

Other TACs emitted from on-road sources include benzene, 1,3-butadiene and formaldehyde. The source of benzene is from evaporative losses and from the incomplete combustion of gasoline, whereas formaldehyde and 1,3-butadiene emissions are generated from fuel combustion.



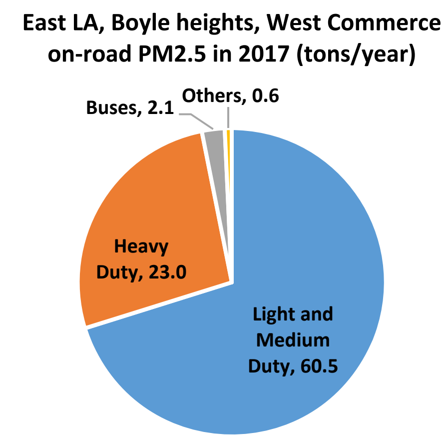


Figure 6. Source attribution of VOC emissions and PM2.5 emissions from on-road sources in the East Los Angeles, Boyle Heights, and West Commerce community for 2017

[5] A small fraction of hexavalent chromium was considered to originate from vehicle brake wear. The emission factors were empirically adjusted for the MATES IV analysis. While this approach worked reasonably well for the MATES analysis, further evaluation may be required for adapting this adjustment to more recent data. For example, an adjustment may be required to reflect cleaner vehicle fuels compared to those in use during previous MATES.

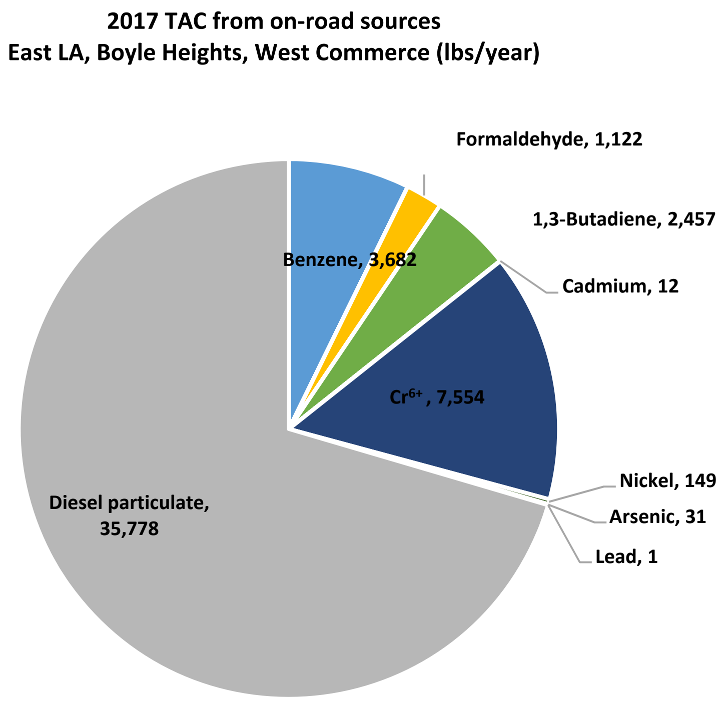


Figure 7. Toxic air contaminant emissions, weighted by air toxics cancer risk, from on-road mobile sources in the East Los Angeles, Boyle Heights, West Commerce community for the year 2017, unit in lbs/year

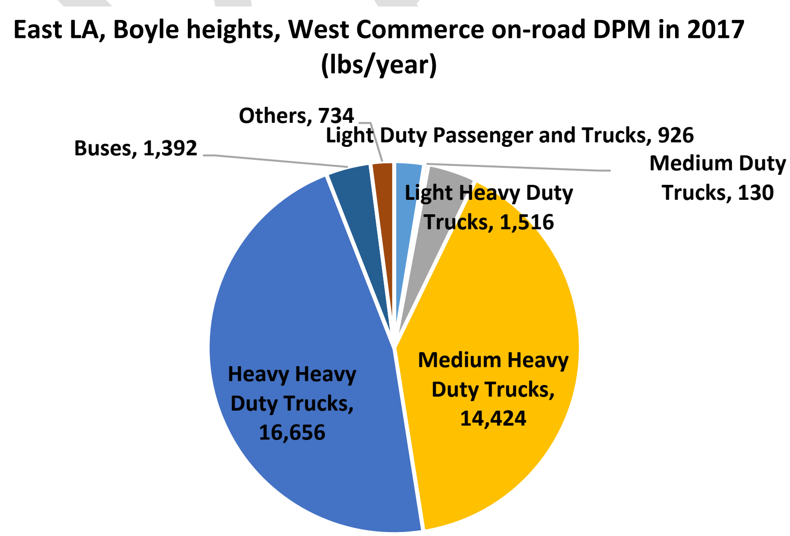


Figure 8. Source attribution of DPM emissions from stationary and area sources in the East Los Angeles, Boyle Heights, West Commerce community for 2017 (weighted by air toxics cancer risk, in lbs/year)

2.4 Off-road mobile sources

Figure 9 presents the major sources of VOC and PM2.5 emissions from off-road sources. The largest contributor to total VOC from off-road sources in the community is small off-road equipment. This category includes small off-road spark-ignition engines used in lawn and garden equipment, industrial, logging, airport ground support, and commercial utility equipment, golf carts, and specialty vehicles. Other significant sources of VOC include evaporative emissions from fuel storage and handling, recreational boats and recreational vehicles, and emissions from trains. Although there is no major waterway or waterbody in the ELABHWC community, boats that are parked in the community still emit pollutants through fuel evaporation.

As in the case of VOC emissions, the largest off-road source contributing to PM2.5 emissions is from small off-road equipment. The second largest contribution to PM2.5 emissions from off-road sources in the community is from trains. There are 5 large railyards within the community boundaries, and some of them are near residential areas.

Figure 10 presents the contribution of TAC emissions from off-road sources in the ELABHWC community. Diesel PM is the toxic air contaminant that contributes the most to total air toxics cancer risk in the community from off-road sources. The two main sources of DPM are trains and diesel off-road equipment (**Figure *11***).

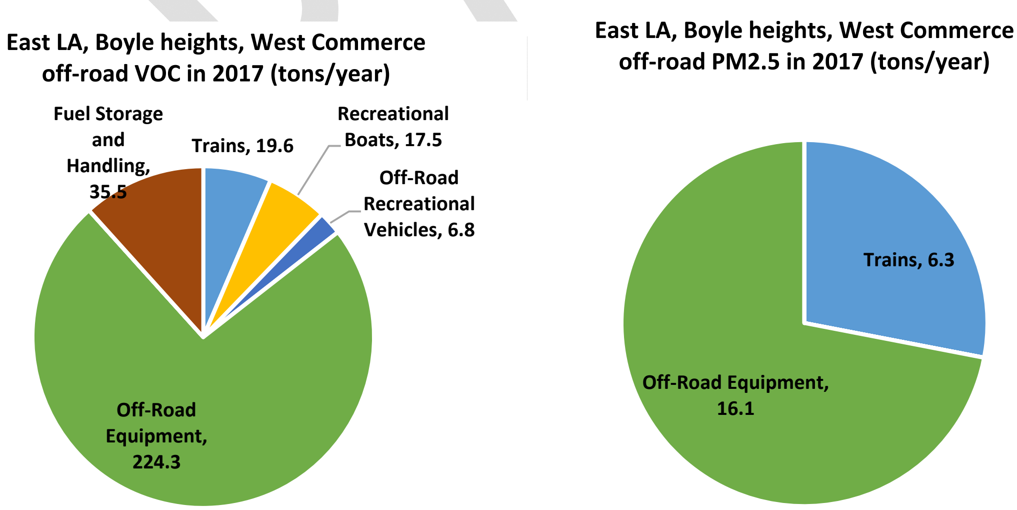


Figure 9. Source attribution of VOC emissions and PM2.5 emissions from off-road sources in the East Los Angeles, Boyle Heights and West Commerce community for the years 2017

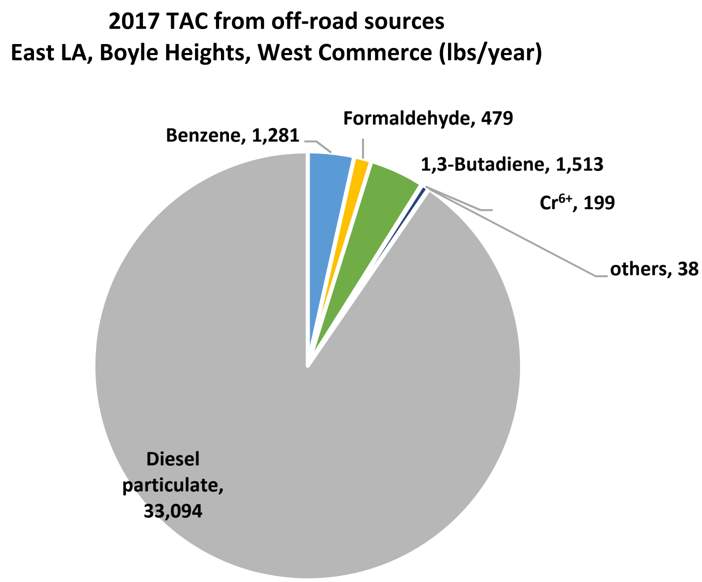


Figure 10. Toxic air contaminant emissions, weighted by air toxics cancer risk, from off-road sources in the East Los Angeles, Boyle Heights, West Commerce community for the year 2017, unit in lbs/year

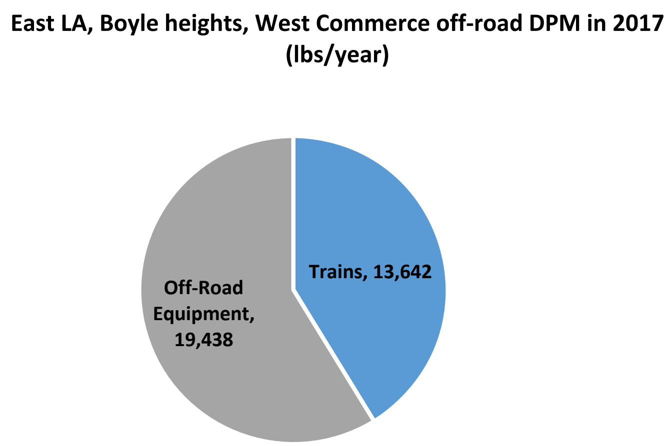


Figure 11. Source attribution of DPM emissions from stationary and area sources in the East Los Angeles, Boyle Heights, West Commerce community for 2017 (weighted by air toxics cancer risk, in lbs/year)

3. Future year emissions inventory and source attribution

3.1 Trends of emission changes for CAPs and TACs

Future emissions of CAPs and TACs in the ELABHWC community are projected using the best available information for population growth, economic growth and emission adjustments reflecting ongoing or proposed regulations targeting specific air pollutants. To date, there are 10 facilities within the community boundary subject to Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations and/or Rule 1420 – Emissions Standard for Lead that regulate toxic emissions from metal melting operations; five facilities subject to the Rule 1426 that regulates electroplating operations – Emissions from Metal Finishing Operations; 8 facilities subject to Rule 1496 1469 – Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations that regulates and/or Rule 1420 that regulate toxic emissions from metal melting operations; five facilities subject to the Rule 1426 that regulates electroplating operations; 8 facilities subject to Rule 1496 that regulates toxic emissions from electroplating and chromic acid anodizing operations. Furthermore, on-road DPM emissions from heavy-duty diesel vehicles in this community will be subject to diesel Truck and Bus Regulation enacted after 2017. Off-road diesel equipment is also subject to state regulations that will reduce DPM emissions. South Coast AQMD is developing various regulations to reduced NOx and VOC emissions since the adoption of the 2016 AQMP in March 2017. However, control factors for those newer regulations are under development and not reflected in the current inventory. The cutoff date for stationary NOx and VOC rules is December 2015. Future versions of emission inventory will reflect the newer regulations.

Figure 12 presents the projected major CAPs emissions (NOx, VOC and PM2.5) in the ELABHWC community in the two future target years 2024 and 2029, along with the base year 2017. The NOx emissions in the community are expected to decrease substantially between the year 2017 (2,710 tons/year) to the year 2024 (1,841 tons/year), due to the existing regulations on mobile sources and the emission reduction commitments under the RECLAIM program. The NOx emissions in 2029 are projected to rise slightly (to 1,851 tons/year) due to the expected increase in industrial and mobile source activity projections. VOC emissions are expected to decrease by 10% between the years 2017 and 2029, mostly due to cleaner vehicle emissions. Unlike NOx and VOC emissions, PM2.5 emissions remain virtually unchanged, with less than a 1% change during the period from 2017 to 2029.

Trends for TAC emissions are shown in **Figure 13**. Diesel PM continues to dominate the TACs emission inventory in future years, despite a significant reduction in DPM from heavy-duty trucks. DPM decreases by 60% from 2017 (69,553 lbs/year) to 2024 (26,425 lbs/year), and continues to decline through 2029 (22,327 lbs/year). Hexavalent chromium is the second largest contributor to air toxics cancer risk, and increases slightly from 2017 to 2029, due to an increase in brake wear emissions and projected industrial activity growth. The third largest contributor to air toxics cancer risk is 1,3-butadiene, whose emissions remain relatively stable due to slight increases in industrial emissions offset by reductions in emissions from vehicles. Benzene and formaldehyde emissions decrease throughout the 12 year period due to decreases in the emissions from vehicles, whereas emissions from metals, i.e., cadmium, nickel, arsenic and lead, show a slight increasing trend due to projected industrial activity growth.

It is important to note that many of the South Coast AQMD regulations addressing toxic metal pollution emissions from industrial facilities (e.g. South Coast AQMD Rule 1407 and Rule 1469) include requirements that reduce fugitive emissions from these facilities. Fugitive emissions can often account for the vast majority of the toxic metal emissions from a facility. Unfortunately, the methods available to create an emissions inventory are not able to reflect fugitive emissions from these facilities. Therefore, while the inventory may not show an overall decrease in toxic metal emissions the regulations result in overall decreased emissions due to reductions in fugitive emissions.

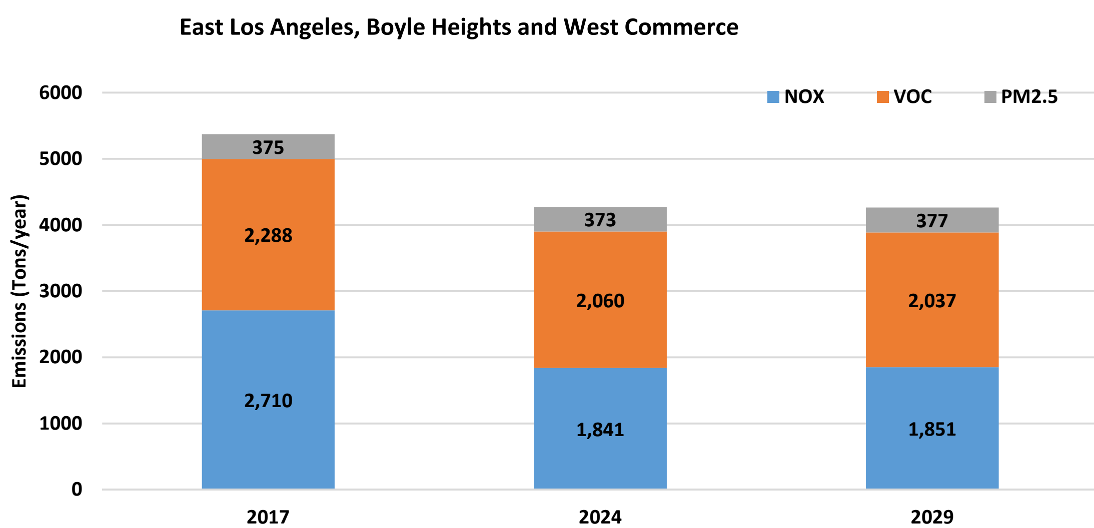


Figure 12. The community total emission trends for NOx, VOC & PM2.5 (tons/year) for the year of 2017, 2024 and 2029

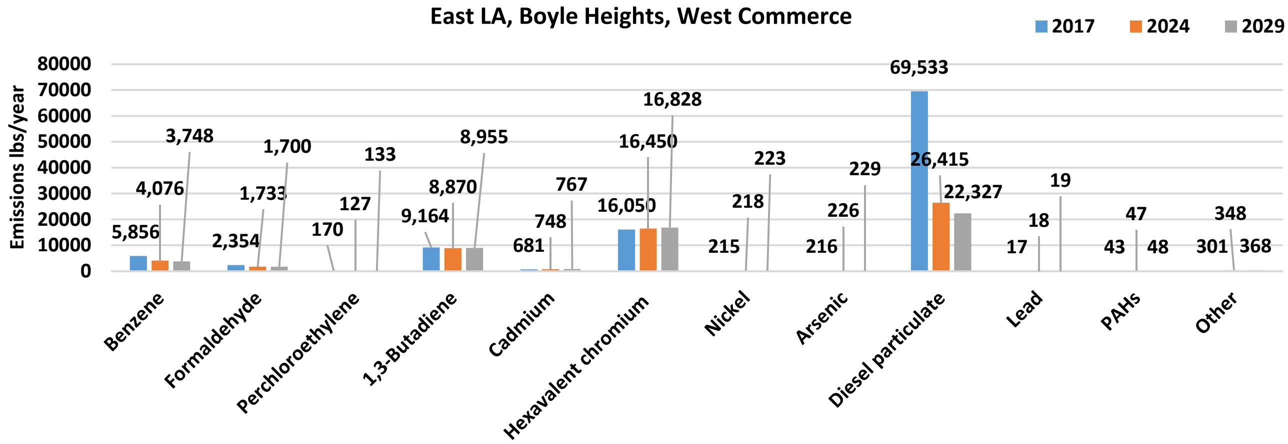


Figure 13. The community total emission trends for toxic air contaminants (air toxics cancer risk-weighted diesel-equivalent emissions, lbs/year) for the year of 2017, 2024 and 2029

Figure 14 presents the cumulative TAC emissions by the major categories for the three years of interest. The overall cancer-risk-weighted emissions decrease between 2017 and 2029. In particular, diesel heavy duty trucks and off-road equipment decrease substantially over the 12-year period, driving down the overall TAC emissions.

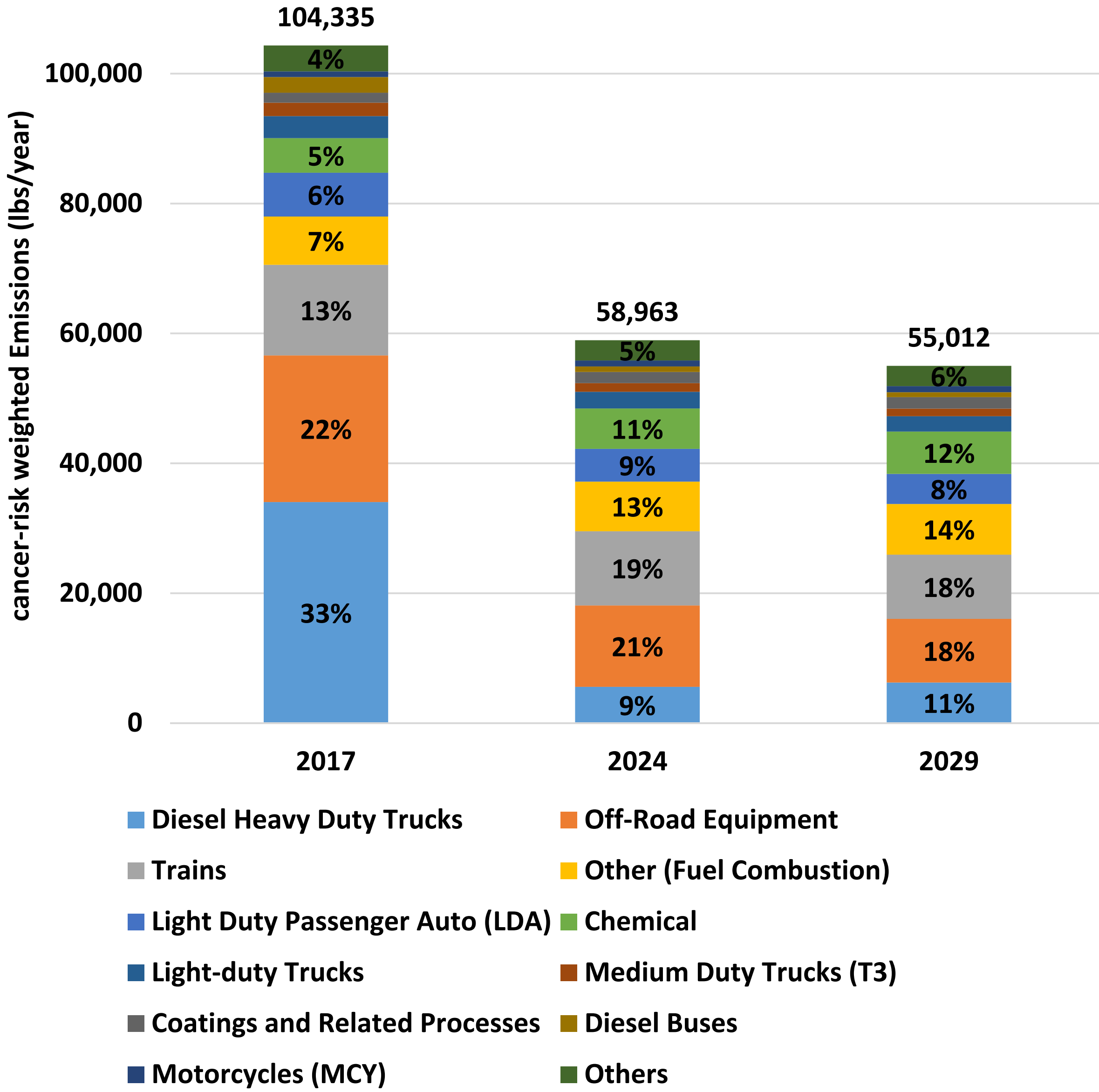


Figure 14. Toxic air contaminant emissions from all sources in the East Los Angeles, Boyle Heights, West Commerce community, shown by major categories. Emissions are weighted based on their cancer risk relative to DPM.

3.2 Stationary and Area Sources

Community-level emissions of NOx, VOC and PM2.5 from stationary and area sources are presented in **Figure 15** for the years 2017, 2024 and 2029. NOx emissions are expected to decline from 2017 to 2024, due to the emission reductions from RECLAIM facilities.[6] VOC and PM2.5 emissions are expected to grow gradually due to growth in population, and in economic and industrial activities.

Emissions of hexavalent chromium and 1,3-butadiene are the largest contributors to total toxic emissions from area and stationary sources (**Figure 16**), and are expected to rise from 2017 to 2029 due to the projected industrial activity growth during the same period. Hexavalent chromium is emitted from fuel combustion in manufacturing, and from coating industries, whereas the major source for 1,3-butadiene emissions is from the chemical industry. Emissions of other TACs that are primarily emitted from industrial activities, i.e., formaldehyde, cadmium, arsenic, nickel, and lead, are also expected to increase due to industrial growth. Only benzene, DPM, and perchloroethylene emissions are expected to decline due to on-going regulations.

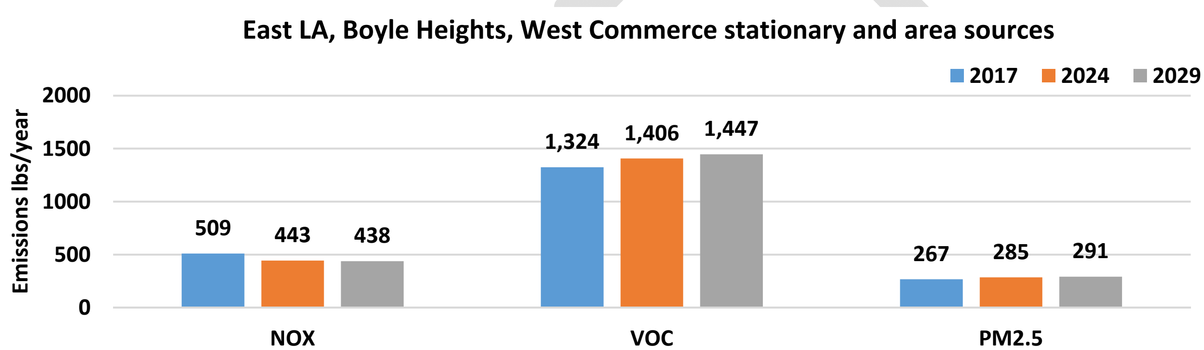


Figure 15. Trends in NOx, VOC and PM25 emissions from stationary and area sources in the East Los Angeles, Boyle Heights, West Commerce community. Emissions are presented in pounds per year.

[6] NOx RECLAIM is an emission cap-and-trade program that includes lager stationary sources located in the Basin. The current regulation, Rule 2002 requires 12 tons per year of NOx emission reductions from 2016 to 2022. When the rule is fully implemented in 2022, no significant changes in NOx are expected except for a slight increase from 2024 to 2029 due to the growth in economic, industrial, and commercial activities. The 2016 AQMP includes a control measure to target an additional 5 tons per year of NOx reduction from the RECLAIM facilities by 2031. The impact of the additional "NOx shave" is not reflected in the community inventory since December 2015 was the cut off for stationary source regulations to reflect on the inventory. The rulemaking to achieve additional 5 TPD NOx is still ongoing and will be reflected on the inventory when it is finalized.

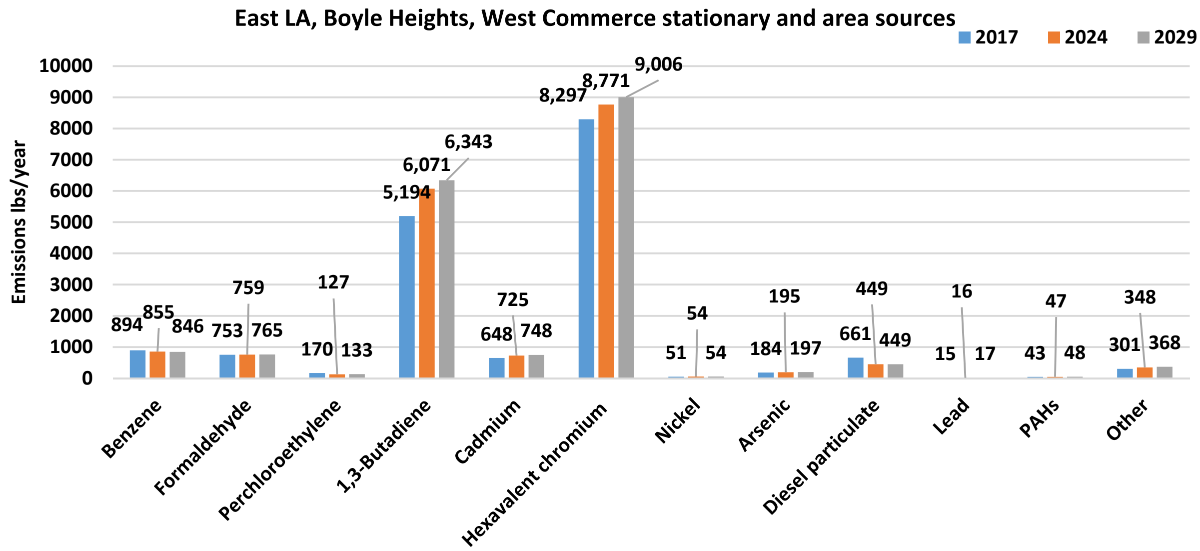


Figure 16. Trends in toxic air contaminant emissions (air toxics cancer-risk-weighted diesel-equivalent, lbs/year) from stationary and area sources in the East Los Angeles, Boyle Heights and West Commerce community

3.3 On-road mobile sources

Trends for on-road emissions are presented in **Figure 17**. On-road emissions are expected to decline significantly from 2017 to 2024, due to turnover to cleaner vehicles for both light-duty vehicles and heavy-duty trucks. Vehicle emissions decrease from 2017 to 2024 despite the projected increase in vehicle activity, i.e. vehicle-miles traveled (VMT), for most vehicle categories (**Table 1**). After 2024, passenger vehicles will emit less NOx because the future vehicles are cleaner than current vehicles, despite an increase in VMT. On the other hand, while regulations on heavy-duty trucks after 2024 will decrease the emissions from individual trucks, the projected increase in heavy-duty truck activity offsets these gains. As a result, overall NOx emissions from on-road mobile sources increase slightly from 2024 to 2029.

VOC emissions are expected to decline for all vehicle types except for motorcycles, whose emissions are projected to grow steadily from 2017 to 2029. PM2.5 emissions are expected to decline for all vehicle types from 2017 to 2024. After 2024, the effect of vehicle regulations on light-, medium- and heavy-heavy duty trucks is offset by their growth activity. Emissions of PM2.5 from heavy-duty trucks are expected to increase slightly, offsetting passenger vehicle PM2.5 emission reductions. As a result, overall PM2.5 emissions from vehicles are projected to grow by 1 ton/year from 2024 to 2029.

Figure 18 presents the trends in emissions of toxic air contaminants from on-road mobile sources, with emissions weighting based on air toxics cancer risk relative to DPM. In 2017, DPM is the pollutant contributing most to the air toxics cancer risk, followed by hexavalent chromium. However, regulations on heavy-duty diesel trucks reduce the DPM emissions drastically from 2017 to 2024. Beyond 2024, the DPM emissions from heavy-duty diesel trucks increases slightly by 2029, due to an increase in VMT; however, the DPM emissions in 2029 are still XX% lower than in 2017. Hexavalent chromium emissions are predominantly from brake wear, which is directly related to VMT, with a small contribution from fuel combustion. Because VMT from vehicles is expected to increase, so are emissions of hexavalent chromium. Benzene emissions are projected to decline due to reductions in evaporative emissions from vehicles. Formaldehyde and 1,3-butadiene emissions are projected to decrease due to expected reductions in VOC emissions from vehicle exhaust.

Table 1. Trends for vehicle miles travelled (VMT) from on-road mobile sources in the East Los Angeles, Boyle Heights, West Commerce community

	Vehicle Categories					
Year	**Light and Medium Duty**	**Light Heavy Duty**	**Medium Heavy Duty**	**Heavy Heavy-Duty**	**Buses**	**Total**
2017	7,206	164	133	203	51	7,757
2024	7,316	181	193	307	57	8,054
2029	7,637	216	251	415	65	8,584

Unit in 1000 miles

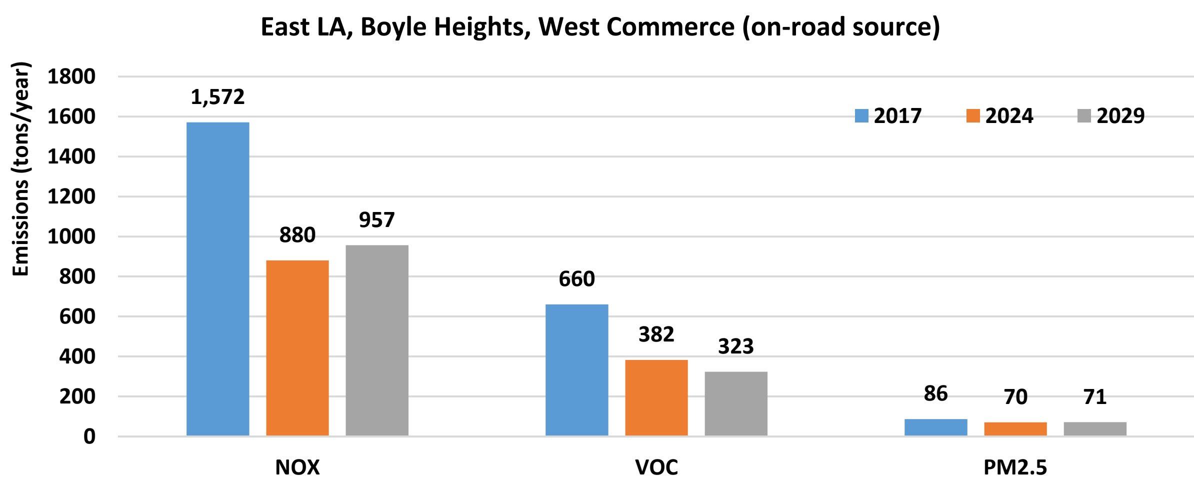


Figure 17. Trends in NOx, VOC and PM25 emissions from on-road mobile sources in the East Los Angeles, Boyle Heights, West Commerce community. Emission values in tons per year.

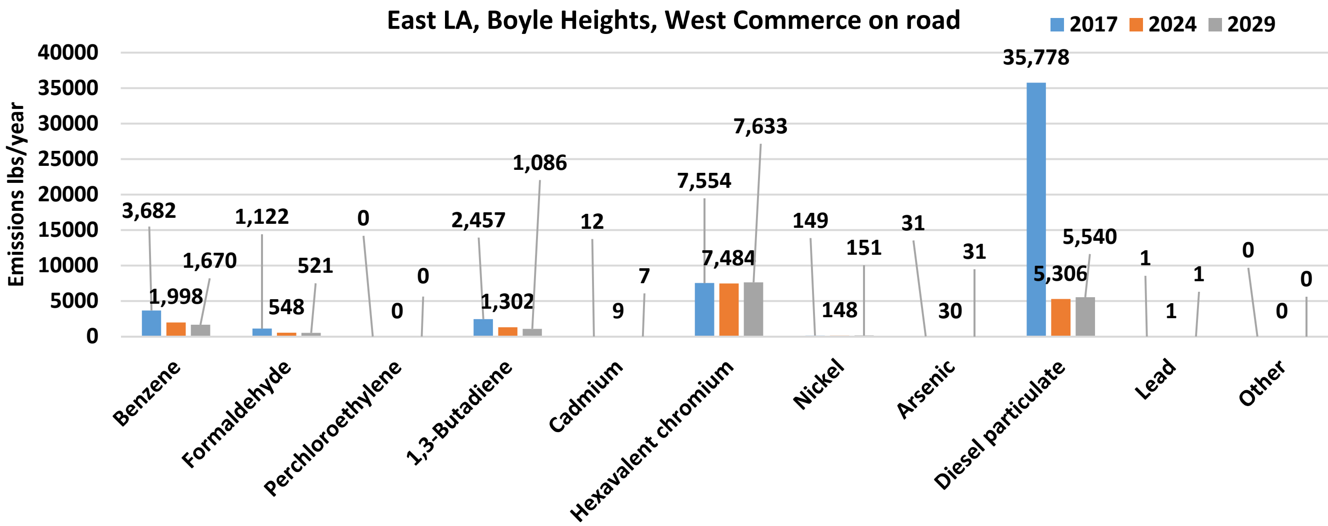


Figure 18. Trends in toxic air contaminant emissions (air toxics cancer risk weighted diesel-equivalent, lbs/year) from on-road sources in East Los Angeles, Boyle Heights, and West Commerce

3.4 Off-road mobile sources

Trends in emissions of NOx, VOC, and PM2.5 from off-road mobile sources in the ELABHWC community are presented in **Figure 19Figure *19***. All three pollutants are projected to decline steadily from 2017 to 2029. In general, emissions are expected to decline due to emission reductions from trains and industrial off-road equipment, due to turnover of older equipment to newer, cleaner equipment. Reductions in evaporative emissions from fuel storage handling and recreational vehicles drive the overall VOC reduction in the community.

Trends in toxic air contaminant emissions are presented in **Figure 20**. Emissions from off-road mobile sources in this community are dominated by diesel emissions from trains and heavy industrial and construction off-road equipment. Off-road equipment regulations and turnover to cleaner and more fuel-efficient locomotives reduce the overall TACs in the community. While benzene and 1,3-butadiene decrease from 2017 to 2024, the projected increase in industrial activity through 2029 reverts the effect of regulations shown in the 2017-2024 period. The emissions of the remaining TACs are projected to decline as a result of regulations.

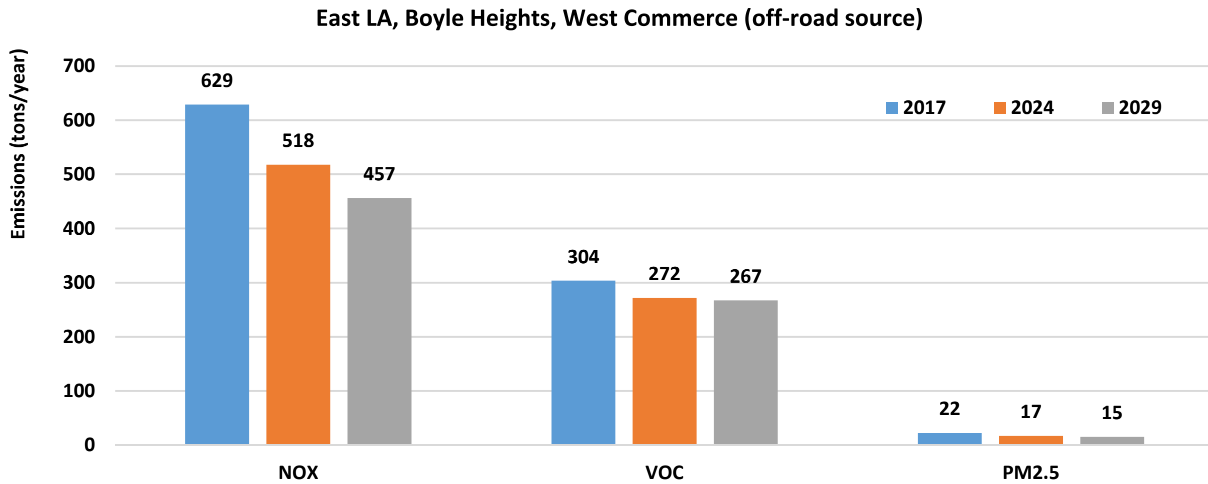


Figure 19. Trends in NOx, VOC and PM25 emissions from off-road mobile sources in the East Los Angeles, Boyle Heights, West Commerce community. Emission values in tons per year.

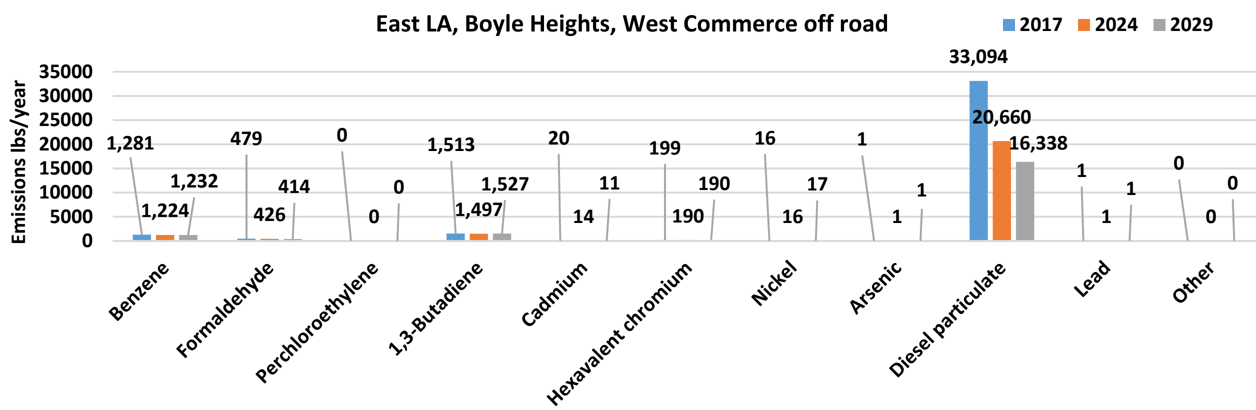


Figure 20. Trends in toxic air contaminant emissions (air toxics cancer risk weighted diesel-equivalent, lbs/year) from off-road sources in East Los Angeles, Boyle Heights, and West Commerce

4. Summary

The main sources of air pollution emissions in the ELABHWC community are on-road traffic, trains, off-road equipment, and certain industrial activities.

NOx emissions in this community are dominated by mobile sources – both on-road and off-road – which account for 80% of the total emissions. Heavy-duty truck traffic, trains, and off-road equipment are the largest sources for NOx. Stationary and area sources contribute to 20% of NOx emissions in this community, mostly from fuel combustion in the residential, commercial, and industrial sectors.

VOC emissions are dominated by area sources, with consumer products being the largest source. Passenger vehicles and off-road equipment, such as lawn mowers and other small gasoline engines, are the largest contributors to VOC emissions from on-road and off-road sources, respectively.

Half of the PM2.5 emissions are from miscellaneous area sources that include commercial cooking, residential fuel combustion, construction, and paved road dust. Industrial activities involving mineral processing, manufacturing and power generation are the second largest source of emissions, with PM2.5 vehicle emissions also contributing significantly to total emissions.

Toxic air contaminants (TACs) emissions in the ELABHWC community are dominated by diesel particulate matter (DPM) from diesel exhaust. DPM is emitted from heavy-duty trucks, trains, and industrial off-road equipment. Hexavalent chromium is the second largest component of TACs based on risk-weighted emissions, and the major sources include industrial activities and brake wear from on-road vehicles. Other significant TAC species includes 1,3-butadiene and benzene, which are mostly emitted from mobile sources.

Future NOx emissions in the community are expected to decrease due to the existing regulations on mobile sources and the emission reduction commitments for major facilities. VOC emissions are also expected to decline, although they will decline more slowly compared to NOx reductions. Emissions of DPM from heavy-duty trucks are also expected to decrease substantially. CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation will also contribute to reducing DPM. Emissions of hexavalent chromium and 1,3-butadiene from stationary and area sources are expected to increase slightly in the future years, due to increased industrial activity. However, in future years, DPM continues to be the main contributor to air toxics cancer risk in this community.