

BEFORE THE COLORADO AIR QUALITY CONTROL COMMISSION

REGARDING PROPOSED REGULATION NUMBER 20)
– ZERO EMISSION VEHICLE PROGRAM)

PREHEARING STATEMENT

**ELYRIA AND SWANSEA NEIGHBORHOOD ASSOCIATION,
GLOBEVILLE, ELYRIA-SWANSEA COALITION, AND COLORADO LATINO
FORUM (COLLECTIVELY, THE “ENVIRONMENTAL JUSTICE COALITION”)**

EXECUTIVE SUMMARY

General Position and Summary of Issues. The Elyria and Swansea Neighborhood Association, the Globeville, Elyria-Swansea Coalition, and the Colorado Latino Forum (collectively, the “Environmental Justice Coalition”) support the Air Pollution Control Division’s proposal and encourage the Air Quality Control Commission to adopt the Zero Emission Vehicle (ZEV) standards.

By accelerating the transition to clean electric vehicles, the ZEV standards will significantly reduce emissions of ozone-forming nitrogen oxides and volatile organic compounds, as well as other harmful pollutants. These reductions in traffic-related pollution will provide significant health benefits for communities throughout Colorado and especially in communities that bear a disproportionate share of the state’s environmental, social, and economic burdens.

Legal and Factual Testimony and Exhibits. The Environmental Justice Coalition, in this prehearing statement and accompanying exhibits, offers evidence and argument that support the Division’s proposed amendments to Regulation 20. The Environmental Justice Coalition reserves the right to respond to information and arguments submitted by other parties. Exhibits offered into the record include technical documents referenced in this prehearing statement. Among others, exhibits include:

- a Denver Department of Environmental Health report detailing pollution problems in Globeville and Elyria-Swansea [EJC-PHS EX-A];
- a WE ACT for Environmental Justice report detailing pollution problems in Globeville and Elyria-Swansea, among other places [EJC-PHS EX-C];
- an American Lung Association report that evaluates air pollution and related health problems throughout the United States [EJC-PHS EX-R];
- Colorado air quality data reports from 2015 through 2017 [EJC-PHS EX-S to -U];
- a Denver Department of Environmental Health study regarding vehicle electrification in the Denver area [EJC-PHS EX-AB]; and
- various scientific studies.

Estimate of Time Necessary for Presentation. The Environmental Justice Coalition estimates that the time needed to present its direct testimony, conduct cross-examination, and provide rebuttal testimony is 1.5 hours. However, the Environmental Justice Coalition also wishes to reserve the right to request additional time based on information presented by other parties.

Witnesses. The Environmental Justice Coalition anticipates offering the following witnesses for the hearing:

- Ean Tafoya, Colorado Latino Forum, presenting facts in support of the proposed rule.
- Drew Dutcher, Elyria and Swansea Neighborhood Association, presenting facts in support of the proposed rule.
- Maria De Luna, Globeville, Elyria-Swansea Coalition, presenting facts in support of the proposed rule. Ms. De Luna is a monolingual Spanish speaker and will require the assistance of a Spanish language translator.
- Mercedes Gonzalez, Globeville, Elyria-Swansea Coalition, presenting facts in support of the proposed rule. Ms. Gonzalez is a monolingual Spanish speaker and will require the assistance of a Spanish language translator.
- Angelina Torres, Globeville, Elyria-Swansea Coalition, presenting facts in support of the proposed rule. Ms. Torres is a monolingual Spanish speaker and will require the assistance of a Spanish language translator.
- Nola Miguel, Globeville, Elyria-Swansea Coalition, presenting facts in support of the proposed rule.
- Sandra Ruiz-Parrilla, Unite North Metro Denver, presenting facts in support of the proposed rule.
- Michael Hiatt, counsel for the Environmental Justice Coalition, presenting facts and legal argument in support of the proposed rule. He may rely on any of the exhibits cited below.
- Marta Darby, counsel for the Environmental Justice Coalition, presenting facts and legal argument in support of the proposed rule. She may rely on any of the exhibits cited below.
- Any witnesses identified by any other party.
- Any other witnesses that may be needed for rebuttal or impeachment purposes.

Request for Spanish Language Translator. The Environmental Justice Coalition anticipates offering three witnesses who are monolingual Spanish speakers, Ms. De Luna, Ms. Gonzalez, and Ms. Torres. To assist with their testimony, the Environmental Justice Coalition respectfully requests that the Commission provide a Spanish language translator at the hearing.

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FACTUAL AND LEGAL ISSUES

Rapidly increasing the number of electric vehicles on Colorado roads is essential to cleaning up the Denver metro area's persistent air pollution problems, which are caused in significant part by gasoline- and diesel-powered vehicles. Conventional cars and trucks emit smog-forming pollutants and other dangerous chemicals, compromising the health of those who live, work, recreate, and go to school near major transit corridors, including Interstate 70 and Interstate 25. These heavily trafficked highways bisect Globeville and Elyria-Swansea, communities that for decades have suffered from acute pollution problems and a strikingly high incidence of respiratory illness, especially among children and low-income households. Adopting the Zero Emission Vehicle (ZEV) standards will accelerate Colorado's transition to clean electric cars, which will significantly reduce air pollution and improve quality of life in these and other vulnerable communities.

I. Minority and Low-Income Communities Are Disproportionately Exposed to Air Pollution from Gasoline- and Diesel-Powered Cars and Trucks.

A. Traffic pollution in Globeville and Elyria-Swansea exacerbates the neighborhoods' long history of industrial pollution.

Globeville and Elyria-Swansea are culturally rich, predominately Latino and low-income communities that together are home to about 10,000 residents.¹ About 84 percent of Elyria-Swansea residents are Latino, as are about 68 percent of Globeville residents.² Both neighborhoods have younger populations and more families with children than Denver as a whole, and many residents are monolingual Spanish speakers.³ Average incomes hover around \$39,200 (Globeville) and \$44,700 (Elyria-Swansea), significantly lower than the \$73,100 city average.⁴ Home ownership rates in the vibrant communities are well above average, and numerous families are proud to have called Globeville and Elyria-Swansea home for generations.

Residents of these neighborhoods also have suffered from severe pollution problems for decades. In the 1870s and 1880s, smelters, meatpacking operations, and two railroads attracted residents with the promise of jobs, and left behind soil and groundwater contaminated with toxic metals such as lead, arsenic, and cadmium.⁵ Today, two Superfund sites are located just blocks from people's homes and less than one-half mile from an elementary school: the Vasquez Boulevard/I-70 Superfund site, a four-square-mile

¹ EJC-PHS EX-A, Gretchen Armijo & Gene C. Hook, Denver Dep't of Env'tl. Health, *How Neighborhood Planning Affects Health in Globeville and Elyria Swansea* 5, 14 (2014) [hereinafter *Health Impact Assessment*], <http://tinyurl.com/y6yauozg>.

² *Id.* at 14.

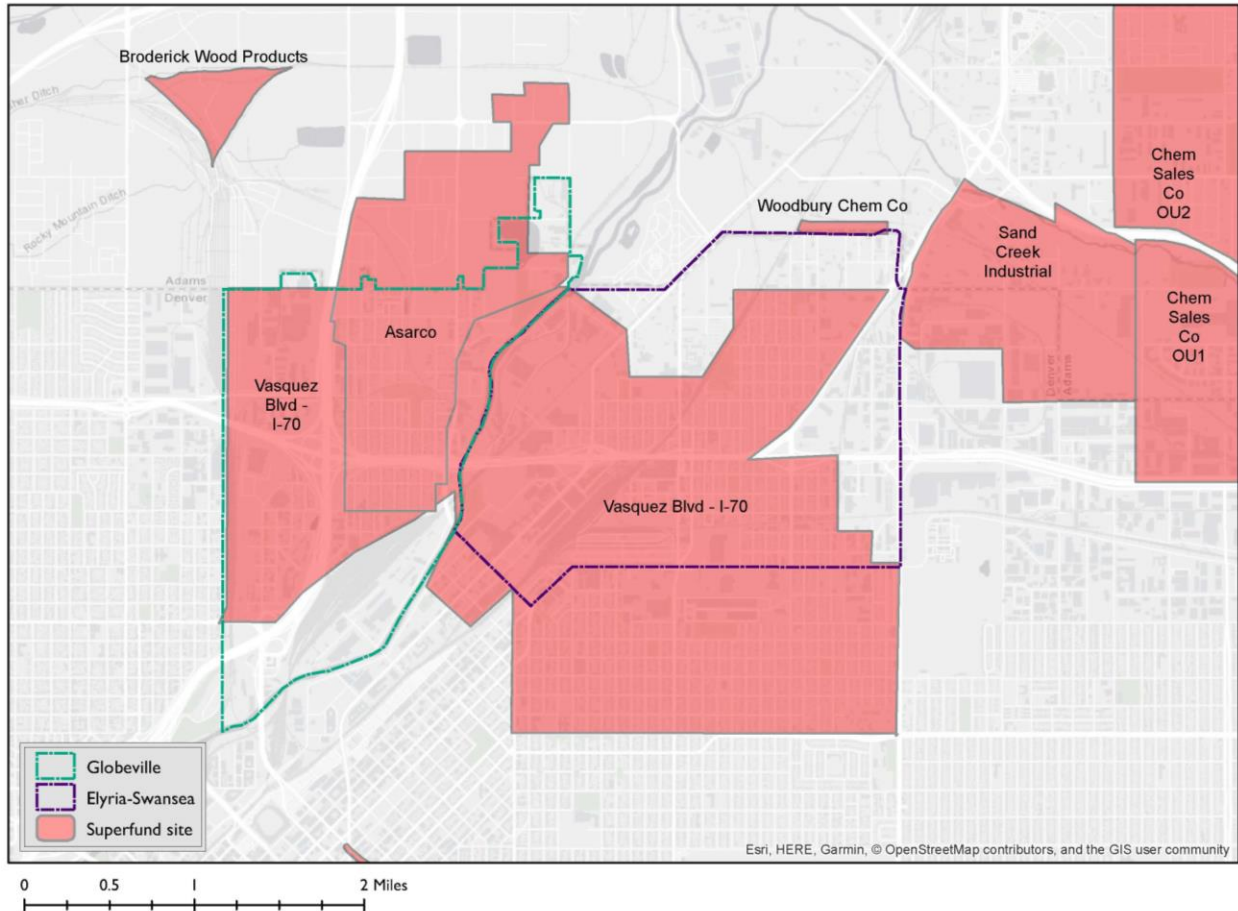
³ *Id.*

⁴ *Id.*

⁵ *Id.* at 12–13; see also, e.g., *Superfund Sites in Reuse in Colorado*, U.S. Env'tl. Prot. Agency (Mar. 7, 2019) [hereinafter *Superfund Sites in Colorado*], <http://tinyurl.com/yxmvv23w>; *Superfund Site Information: ASARCO, Inc. (Globe Plant)*, U.S. Env'tl. Prot. Agency (June 26, 2019) [hereinafter *ASARCO Superfund Site*], <http://tinyurl.com/y4567ka5>; *Superfund Site: Vasquez Boulevard and I-70 Denver, CO*, U.S. Env'tl. Prot. Agency (Mar. 7, 2019) [hereinafter *Vasquez Boulevard and I-70 Superfund Site*], <http://tinyurl.com/y23mnszp>.

cluster of former smelter operations, and the ASARCO, Inc., Globe Plant, a former metal and refining operation that closed in 2006.⁶ Additionally, three other Superfund sites are less than three miles from the neighborhoods. The nearby Superfund sites include a sixty-four-acre former wood treatment facility; a 550-acre industrial site that once was the location of an oil refinery, a pesticide manufacturing plant, and a landfill; and a five-square-mile former chemical distribution facility that contaminated groundwater and drinking water supplies with toxic volatile organic compounds, which impair cognition and cause cancer, among other serious health problems.⁷

Figure 1. Superfund Sites Near Globeville and Elyria-Swansea⁸



⁶ *Superfund Sites in Colorado*, *supra* note 5; *ASARCO Superfund Site*, *supra* note 5; *Vasquez Boulevard and I-70 Superfund Site*, *supra* note 5.

⁷ *Superfund Site: Chemical Sales Co., Denver, CO*, U.S. Env'tl. Prot. Agency (June 26, 2019), <http://tinyurl.com/yxughmpb>; *Superfund Sites in Colorado*, *supra* note 5; EJC-PHS EX-B, Barbara L. Rowe et al., *Occurrence and Potential Human-Health Relevance of Volatile Organic Compounds in Drinking Water from Domestic Wells in the United States*, 115 *Env'tl. Health Persp.* 1539, 1539, 1543 (2007), <http://tinyurl.com/y6zqmua9>.

⁸ *See Superfund Sites in Colorado*, *supra* note 5.

The heavy industrial presence in Globeville and Elyria-Swansea remains. The Suncor oil refinery and the 928-megawatt Cherokee Generating Station, which recently switched from coal- to gas-fired generation, surround Elyria-Swansea.⁹ Looming over homes, the Suncor refinery spews 8.5 tons of cyanide gas each year, a colorless gas that can cause rapid breathing, convulsions, and loss of consciousness.¹⁰ Local industrial businesses exacerbate these pollution problems and contribute to the often foul-smelling air. Scattered among residential buildings and single-family homes are a wood treatment facility, roofing products manufacturer, many solvent-based industries, and a pet food manufacturing facility.¹¹ Freight trains filled with coal and petroleum refining products frequently travel through the communities, expelling coal dust from the uncovered cars and amplifying the near constant industrial din.¹² Overall, industrial and commercial uses cover more than 70 percent of the neighborhoods, twice as much as the Denver average.¹³ These operations emit toxic chemicals and leach heavy metals into the soil, threatening the health of residents and worsening the legacy pollution problems.

Traffic pollution is the primary source of air pollution in the neighborhoods, and this pollution is particularly severe.¹⁴ Two major interstates, Interstate 70 and Interstate 25, cut through the communities, and Interstate 270 skirts their northeastern edge. Numerous homes in Elyria-Swansea and the Swansea Elementary School are located within a few hundred feet of Interstate 25 and the Interstate 70 viaduct, a stretch of highway that carries about 150,000 vehicles every day and that soon will be widened to increase the number of primary travel lanes from six to ten, plus four new auxiliary lanes.¹⁵ A number of schools are in close proximity to the Interstate 70 expansion project, which will increase traffic and intensify the neighborhood's existing air pollution problems. Meanwhile, about 250,000 vehicles travel along Interstate 25 each day, and about 10,000 trucks and heavy machinery barrel down neighborhood streets and idle at industrial sites and two truck stops.¹⁶ Sharp spikes in poor air quality, largely caused by gasoline- and diesel-powered vehicles, are common.¹⁷

This long history of polluting industrial activities has left residents of Globeville and Elyria-Swansea to bear a disproportionate share of Denver's environmental, social, and economic burdens. Adoption of the ZEV standards will help alleviate these burdens by

⁹ *Health Impact Assessment*, *supra* note 1, at 21, 24.

¹⁰ Bruce Finley, *Suncor Oil Refinery Spews 8.5 Tons a Year of Cyanide Gas Over Low-Income North Denver Neighborhoods*, *State Records Show*, Denver Post (Apr. 19, 2018), <http://tinyurl.com/y2lxj8hm>.

¹¹ *Health Impact Assessment*, *supra* note 1, at 21, 24; EJC-PHS EX-C, WE ACT for Env'tl. Just., *Assisting Congress to Better Understand Environmental Justice* 35 (2013), <https://tinyurl.com/y67kdkqt>.

¹² Colo. Dep't of Transp., *Colorado Freight and Passenger Rail Plan* 34 (2018), <http://tinyurl.com/y49hp99g>.

¹³ *Health Impact Assessment*, *supra* note 1, at 19.

¹⁴ *Id.* at 19–21.

¹⁵ *Id.* at 19, 21; Colo. Dep't of Transp., *I-70 East ROD 1: Phase 1 (Central 70 Project)* 32, 125 (2017), <http://tinyurl.com/y5cmcosz>.

¹⁶ *Health Impact Assessment*, *supra* note 1, at 19; WE ACT for Env'tl. Just., *supra* note 11, at 35.

¹⁷ *See Health Impact Assessment*, *supra* note 1, at 19.

reducing emissions from one of the primary sources of air pollution in the communities: conventional motor vehicles.

B. The severe pollution problems in Globeville and Elyria-Swansea exemplify those often borne by minority and low-income communities.

The acute pollution problems suffered by Globeville and Elyria-Swansea residents exemplify the environmental injustices frequently borne by minority and low-income communities. Moreover, the disproportionate traffic pollution these communities face is an all too typical phenomenon in other minority and low-income communities in Colorado and elsewhere.

For example, a 2013 study, which evaluated all census tracts in the United States, found that minority and lower-income communities are much more likely to be in areas with higher road and traffic densities than white and affluent populations.¹⁸ This proximity to highway air pollution, the authors cautioned, interacts with multiple social factors that place “lower-income and minority groups at potentially higher risk of adverse health effects,” particularly among children and older adults.¹⁹ Such discrepancies between disadvantaged and affluent communities can be substantial. According to various studies, low-income families are three times more likely to live in areas with high traffic density than families with high incomes, which increases their risk of developing cancer due to air pollution from vehicles, in addition to other health problems.²⁰

A 2019 report by the Union of Concerned Scientists further underscores the significant harm caused by such disparities and the systemic injustice that these

¹⁸ EJC-PHS EX-D, Nancy Tian et al., *Evaluating Socioeconomic and Racial Differences in Traffic-Related Metrics in the United States Using a GIS Approach*, 23 J. Exposure Sci. & Envtl. Epidemiology 215, 218 (2013) [hereinafter Tian et al., *Socioeconomic and Racial Differences in Traffic-Related Metrics*], <http://tinyurl.com/y69z4k2u> (finding that Blacks and Latinos were more than twice as likely to live in high density tracts than Whites); see also Ctrs. for Disease Control & Prevention, *CDC Health Disparities and Inequalities Report—United States, 2013*, Morbidity & Mortality Wkly. Rep., Nov. 22, 2013, at 48–49 [hereinafter *CDC Health Disparities and Inequalities*], <http://tinyurl.com/y2rjh9yu> (finding that social and demographic disparities, such as minority and socioeconomic status, exist with respect to residential proximity to major highways).

¹⁹ Tian et al., *Socioeconomic and Racial Differences in Traffic-Related Metrics*, *supra* note 18, at 221.

²⁰ See, e.g., EJC-PHS EX-E, Robert B. Gunier et al., *Traffic Density in California: Socioeconomic and Ethnic Differences Among Potentially Exposed Children*, 13 J. Exposure Analysis & Envtl. Epidemiology 240, 240, 242–44 (2003), <http://tinyurl.com/yxoyvh88>; EJC-PHS EX-F, Benjamin J. Apelberg et al., *Socioeconomic and Racial Disparities in Cancer Risk from Air Toxics in Maryland*, 113 Envtl. Health Persp. 693, 693, 695–98 (2005), <http://tinyurl.com/y2fvfm3y>; EJC-PHS EX-G, Shi V. Liu et al., *Evaluation of Traffic Density Parameters as an Indicator of Vehicle Emission-Related Near-Road Air Pollution: A Case Study with NEXUS Measurement Data on Black Carbon*, Int'l J. Env't Res. & Pub. Health, Dec. 15, 2017, at 2, <http://tinyurl.com/y3amn54m>; Tian et al., *Socioeconomic and Racial Differences in Traffic-Related Metrics*, *supra* note 18, at 215–16.

communities have endured. According to the analysis, average concentrations of fine particulate matter (PM_{2.5}) from conventional motor vehicles were 61 percent higher in predominately African-American communities, 73 percent higher in Asian-American communities, and 75 percent higher in Latino communities than the average concentrations in predominately white communities.²¹ By contrast, areas with the lowest levels of PM_{2.5} pollution from vehicles were comprised of 85 percent white residents.²² The report found that such inequities reflect “decades of local, state, regional, and national decisions about transportation, housing, and land use” that left communities of color “with inadequate access to public transportation, divided by highways, and exposed to air polluted by congested highways serving suburban commuters.”²³

As these studies and the experience of Globeville and Elyria-Swansea residents demonstrate, low-income and minority communities bear disproportionate pollution burdens that combine with other social, economic, and environmental inequities to create a “triple jeopardy.”²⁴ Together, these burdens make it much more likely that disadvantaged communities will suffer greater harm from exposure to air pollution, including pollution from gasoline- and diesel-powered vehicles.²⁵

II. Adoption of the ZEV Standards Will Improve Air Quality and Public Health in Globeville, Elyria-Swansea, and Other Disproportionately Burdened Communities.

A. Vehicle exhaust endangers public health and welfare in Globeville and Elyria-Swansea, particularly among children and low-income households.

The acute air pollution problems in Globeville and Elyria-Swansea reflect the longstanding regional air quality problems in the Denver area, which for decades has failed to attain the Clean Air Act’s standards for ground-level ozone (smog). Emissions from gasoline- and diesel-powered cars and trucks are one of the primary causes of the Denver area’s high ozone levels. Vehicle exhaust contains an array of harmful pollutants, including ozone-forming volatile organic compounds and nitrogen oxides, as well as carbon monoxide and particulate matter. These pollutants exacerbate chronic respiratory illness and cardiovascular disease; impair lung function; cause cancer and premature death; increase the risk of neurological conditions such as autism spectrum disorders, Alzheimer’s disease,

²¹ EJC-PHS EX-H, Union of Concerned Scientists, *Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic* 1–2 (2019) [hereinafter UCS, *Inequitable Exposure to Air Pollution from Vehicles*], <http://tinyurl.com/yxry4goh>.

²² *Id.*

²³ *Id.* at 7.

²⁴ *CDC Health Disparities and Inequalities*, *supra* note 18, at 49.

²⁵ *Id.*

and Parkinson's disease; and contribute to developmental and cognition problems.²⁶ Numerous peer-reviewed studies demonstrate that living near major roadways amplifies these risks in both children and adults, and that such health problems can occur even when pollution levels are well below federal air quality standards and after only brief exposures.²⁷

Ozone pollution poses a particular threat to the health of Globeville and Elyria-Swansea residents, as well as residents throughout the Denver metro area. As Table 1 shows below, ozone concentrations in these areas are consistently above or just slightly below the national ambient air quality standards (NAAQS) for ozone, 70 parts per billion

²⁶ See, e.g., EJC-PHS EX-I, Raed Alotaibi et al., *Traffic Related Air Pollution and the Burden of Childhood Asthma in the Contiguous United States in 2000 and 2010*, 127 *Env't Int'l* 858, 859, 864–66 (2019) [hereinafter Alotaibi et al., *Traffic Related Air Pollution and Childhood Asthma*], <http://tinyurl.com/yvzb4yct>; EJC-PHS EX-J, Sandie Ha et al., *Prenatal and Early Life Exposures to Ambient Air Pollution and Development*, 174 *Envtl. Res.* 170, 171–75 (2019) [hereinafter Ha et al., *Prenatal and Early Life Exposures to Air Pollution*], <http://tinyurl.com/yvbttec8>; EJC-PHS EX-K, Pengfei Fu et al., *The Association Between PM_{2.5} Exposure and Neurological Disorders: A Systematic Review and Meta-Analysis*, 655 *Sci. Total Env't* 1240, 1246 (2019), <http://tinyurl.com/y5opydxl>; EJC-PHS EX-L, Marie-Claire Floes-Pajot et al., *Childhood Autism Spectrum Disorders and Exposure to Nitrogen Dioxide, and Particulate Matter Air Pollution: A Review and Meta-Analysis*, 151 *Envtl. Res.* 763, 767, 775 (2016), <http://tinyurl.com/yyl6z8ap>; EJC-PHS EX-M, Anoop S.V. Shah et al., *Short Term Exposure to Air Pollution and Stroke: Systematic Review and Meta-Analysis*, *BMJ*, Mar. 24, 2015, at 3–6, <http://tinyurl.com/yxdma29y>; EJC-PHS EX-N, Yongping Hao et al., *Ozone, Fine Particulate Matter, and Chronic Lower Respiratory Disease Mortality in the United States*, 192 *Am. J. Respiratory & Critical Care Med.* 337, 339–41 (2015), <http://tinyurl.com/yxaaf976>; EJC-PHS EX-O, Heather E. Volk et al., *Residential Proximity to Freeways and Autism in the CHARGE Study*, 119 *Envtl. Health Persp.* 873, 873, 875–76 (2011) [hereinafter Volk et al., *Proximity to Freeways and Autism*], <http://tinyurl.com/y2ehw75c>.

²⁷ See, e.g., Alotaibi et al., *Traffic Related Air Pollution and Childhood Asthma*, *supra* note 26, at 863–65 (finding that asthma incidents would decrease significantly if pollution levels of nitrogen dioxide and fine particulate matter (PM_{2.5}) did not exceed World Health Organization air quality guidelines, which are more rigorous than the U.S. standards); EJC-PHS EX-P, Qian Di et al., *Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults*, 318 *JAMA* 2446, 2449–54 (2017) [hereinafter Di et al., *Short-Term Exposure to Air Pollution*], <http://tinyurl.com/y2fo6bs3> (concluding that federal air quality standards for PM_{2.5} and ozone may need to be reevaluated given the increased risk of mortality at pollution levels below the standards); EJC-PHS EX-Q, Qian Di et al., *Air Pollution and Mortality in the Medicare Population*, 376 *New Eng. J. Med.* 2513 (2017) [hereinafter Di et al., *Air Pollution and Mortality*], <http://tinyurl.com/y26gqszp> (finding adverse effects related to PM_{2.5} exposure at concentrations below federal air quality standards); Volk et al., *Proximity to Freeways and Autism*, *supra* note 26, at 873, 875–76 (finding an increased risk of autism in children living within 309 meters, or about 1,000 feet, of a freeway); EJC-PHS EX-R, Am. Lung Ass'n, *State of the Air 2019*, at 45 (2019) [hereinafter ALA, *State of the Air*], <http://tinyurl.com/y5uctdvh> (reviewing several studies and finding that living “next to a busy road” significantly increases risk of asthma, premature death, cardiovascular disease, and other serious health complications among both children and adults).

(ppb) (2015) and 75 ppb (2008).²⁸ The observed levels also significantly exceed 60 ppb, a level at which even short-term ozone exposure is known to contribute to premature death in older adults, particularly among racial minorities and low-income households.²⁹ These unhealthy ozone levels compromise human health, causing chest pain, decreased lung function, cognition and developmental problems, increased hospitalizations for respiratory illnesses, and premature death, as well as other serious health complications.³⁰

Such health problems can arise even after only brief exposures to ozone pollution. According to the American Lung Association, breathing ozone for one hour can cause cardiac arrhythmias, which can increase the risk of premature death and stroke.³¹ Slightly longer exposures, on the order of one to two days, increase the risk of heart attacks in middle-aged adults, including adults who have no history of heart disease.³² Long-term exposures lasting eight hours or more, including days, months, or years, results in increased hospital admissions for childhood asthma, lower birth weights, and decreased lung function in newborns.³³ Young children and children from low-income families are at particular risk of these and other complications.³⁴

²⁸ National Ambient Air Quality Standards for Ozone, 73 Fed. Reg. 16,436, 16,436 (Mar. 27, 2008), <http://tinyurl.com/y4gdnhc4>; *NAAQS Table*, U.S. Evtl. Prot. Agency (Dec. 20, 2016) [hereinafter *NAAQS Table*], <http://tinyurl.com/y3owclef>. Compliance with the 2008 and 2015 ozone NAAQS are determined based on annual fourth-highest daily maximum eight-hour concentration, averaged over three years. 73 Fed. Reg. at 16,437; *NAAQS Table*, *supra*.

²⁹ See Di et al., *Short-Term Exposure to Air Pollution*, *supra* note 27, at 2449–54 (finding a significant risk of mortality from ozone exposure in an analysis limited to days with daily ozone concentrations below 60 ppb).

³⁰ See, e.g., ALA, *State of the Air*, *supra* note 27, at 45; Alotaibi et al., *Traffic Related Air Pollution and Childhood Asthma*, *supra* note 26, at 863–65; Ha et al., *Prenatal and Early Life Exposures to Air Pollution*, *supra* note 26, at 171–75.

³¹ ALA, *State of the Air*, *supra* note 27, at 37.

³² *Id.*

³³ *Id.*

³⁴ *Id.*

Table 1. Ozone Levels at Selected Denver Metro Locations³⁵

Site ^a	Highway Proximity	O ₃ (eight-hour average)					
		First Maximum Value			Fourth Maximum Value [3-Year Average of]		
		2015 (ppb)	2016 (ppb)	2017 (ppb)	2015 (ppb)	2016 (ppb)	2017 (ppb)
Welby	~1 mile	75	72	71	69 [71]	66 [67]	68 [67]
CAMP	downtown	77	74	69	67 [65]	70 [66]	67 [68]
La Casa	0.2 miles	80	73	69	69 [69]	69 [68]	68 [69]
Highlands	0.5 miles	- ^b	97	76	- ^b	82 [-] ^b	72 [-] ^b
Aurora East	-	81	70	76	68 [69]	66 [67]	69 [67]

^a The locations of the air monitoring stations are: Welby, 3174 E. 78th Avenue, Denver, approximately thirteen kilometers (eight miles) north-northeast of the Central Business District and about one mile north of Interstate 70; CAMP, 2105 Broadway, downtown Denver; La Casa, 4587 Navajo Street, Denver, about 0.2 miles south of Interstate 70 near Globeville; Highlands, 8100 S. University Boulevard, about 0.5 miles north of Colorado 470; and Aurora East, 36001 Quincy Avenue, in east Denver.

^b The Highlands monitor was shut down from approximately October 2013 to September 2015 because of construction activities on the property.

Nitrogen dioxide (NO₂), one of the primary components of vehicle exhaust, also poses a significant health threat to Globeville and Elyria-Swansea residents. In recent years, Globeville and Elyria-Swansea have experienced some of the highest NO₂ levels in the United States. In 2017, for example, the Globeville monitor recorded the eleventh highest one-hour NO₂ concentration in the nation (88 ppb), the La Casa monitor recorded the eighteenth highest level (82 ppb), and the downtown Denver monitor (CAMP) recorded the nineteenth highest level (81 ppb).³⁶ Moreover, although monitored annual average NO₂ levels in Globeville and Elyria-Swansea are below the federal air quality standard of 53 ppb (100 µg/m³), the levels far exceed the 10.6 ppb (20 µg/m³) or higher exposure level linked to serious health problems such as childhood asthma and severe respiratory problems in adults, as Table 2 shows below.³⁷ Exposure to traffic-related NO₂ pollution is a leading cause of childhood asthma, particularly among urban residents and children living in households with lower median incomes.³⁸ Breathing NO₂ even for short periods can

³⁵ EJC-PHS EX-S, Colo. Air Pollution Control Div., *2017 Air Quality Data Report* 51 (2018) [hereinafter *2017 Air Quality Data*], <http://tinyurl.com/yy24hksh>; EJC-PHS EX-T, Colo. Air Pollution Control Div., *2016 Air Quality Data Report* 51 (2017) [hereinafter *2016 Air Quality Data*], <http://tinyurl.com/y3a7cda2>; EJC-PHS EX-U, Colo. Air Pollution Control Div., *2015 Air Quality Data Report* 49 (2016) [hereinafter *2015 Air Quality Data*], <http://tinyurl.com/yyhzx6on>.

³⁶ *2017 Air Quality Data*, *supra* note 35, at 21.

³⁷ Review of the Primary National Ambient Air Quality Standards for Oxides of Nitrogen, 83 Fed. Reg. 17,226, 17,229 n.10 (Apr. 18, 2018); EJC-PHS EX-V, Jakob Usemann et al., *Exposure to Moderate Air Pollution and Associations with Lung Function at School-Age: A Birth Cohort Study*, 126 *Env't Int'l* 682, 682, 686–88 (2019) [hereinafter Usemann et al., *Exposure to Moderate Air Pollution*], <https://tinyurl.com/y2hauwnn> (concluding that exposure to NO₂ levels of 20 µg/m³, including levels “much lower” than World Health Organization guideline limits of 40 µg/m³, may contribute to decreased lung function at school-age).

³⁸ Alotaibi et al., *Traffic Related Air Pollution and Childhood Asthma*, *supra* note 26, at 864–65.

aggravate cardiovascular and respiratory diseases, and increase hospital admissions and emergency room visits.³⁹ Long-term exposure increases the risk of premature death, including from diseases such as pneumonia and heart disease.⁴⁰

Table 2. Nitrogen Dioxide Levels at Selected Denver Metro Locations⁴¹

Site ^a	Highway Proximity	NO ₂ (annual mean)					
		2015 (ppb)	2016 (ppb)	2017 (ppb)	2015 (µg/m ³)	2016 (µg/m ³)	2017 (µg/m ³)
Welby	~1 mile	17.5	16.0	14.5	33	30	27
CAMP	downtown	22.0	21.2	19.2	41	40	36
La Casa	0.2 miles	20.4	19.1	18.4	38	36	35
I-25 Denver	adjacent	27.0	25.8	24.5	51	49	46
I-25 Globeville	adjacent	- ^b	28.3	27.4	- ^b	53	52

^a The locations of the air monitoring stations are: Welby, 3174 E. 78th Avenue, Denver, approximately thirteen kilometers (eight miles) north-northeast of the Central Business District about one mile north of Interstate 70; CAMP, 2105 Broadway, downtown Denver; La Casa, 4587 Navajo Street, Denver, about 0.2 miles south of Interstate 70; I-25 Denver, 913 Yuma Street, adjacent to Interstate 25; and I-25 Globeville, 4905 Acoma Street, adjacent to Interstate 25.

^b The I-25 Globeville monitor began operating in October 2015.

PM_{2.5} pollution, produced by the combustion of gasoline and diesel, also endangers public health. These tiny particles, which are twenty times smaller than a human hair, can penetrate deep into the lungs and enter the bloodstream, exacerbating lung and heart problems, causing asthma attacks, and increasing hospitalizations and premature mortality, even after only short-term exposures.⁴² Residents of Globeville, Elyria-Swansea, and other disproportionately burdened Colorado communities face a particular risk of such health complications. Although annual average PM_{2.5} concentrations comply with the NAAQS for the pollutant—12 µg/m³ (long-term, annual average) and 35 µg/m³ (short-term, twenty-four-hour average), harm to human health can occur after PM_{2.5} exposures at concentrations below the NAAQS for PM_{2.5}, including short-term exposures below 25

³⁹ EJC-PHS EX-W, Ki-Do Eum et al., *Long-Term NO₂ Exposures and Cause-Specific Mortality in American Older Adults*, 124 *Env't Int'l* 10, 10 (2019) [Eum et al., *Long-Term NO₂ Exposures*], <https://tinyurl.com/y5rpw2jb> (noting that numerous studies have found that short-term exposures to NO₂, including over only a twenty-four hour period, increase the risk of cardiovascular and respiratory mortality); see also *Basic Information About NO₂*, U.S. Env'tl. Prot. Agency (Sept. 8, 2016), <http://tinyurl.com/y44dhocf>.

⁴⁰ Eum et al., *Long-Term NO₂ Exposures*, *supra* note 39, at 12–14.

⁴¹ *2017 Air Quality Data*, *supra* note 35, at 56; *2016 Air Quality Data*, *supra* note 35, at 59; *2015 Air Quality Data*, *supra* note 35, at 57.

⁴² UCS, *Inequitable Exposure to Air Pollution from Vehicles*, *supra* note 21, at 1–2; EJC-PHS EX-X, Xu Meng et al., *Potential Harmful Effects of PM_{2.5} on Occurrence and Progression of Acute Coronary Syndrome: Epidemiology, Mechanisms, and Prevention Measures*, *Int'l J. Env'tl. Res. & Pub. Health*, July 25, 2016, at 2–5 [hereinafter Meng et al., *Potential Harmful Effects of PM_{2.5}*], <http://tinyurl.com/y4xyfjwz>.

$\mu\text{g}/\text{m}^3$.⁴³ And, even small changes in $\text{PM}_{2.5}$ levels, on the order of $1 \mu\text{g}/\text{m}^3$, can harm human health.⁴⁴ As Table 3 shows below, Globeville and Elyria-Swansea have consistently experienced $\text{PM}_{2.5}$ concentrations that exceed, or are just slightly below, $25 \mu\text{g}/\text{m}^3$.

Table 3. Fine Particulate Matter Levels at Selected Denver Metro Locations⁴⁵

Site ^a	Highway Proximity	$\text{PM}_{2.5}$					
		Annual Average			Annual 98th Percentile (3-Year Average)		
		2015 ($\mu\text{g}/\text{m}^3$)	2016 ($\mu\text{g}/\text{m}^3$)	2017 ($\mu\text{g}/\text{m}^3$)	2015 ($\mu\text{g}/\text{m}^3$)	2016 ($\mu\text{g}/\text{m}^3$)	2017 ($\mu\text{g}/\text{m}^3$)
CAMP	downtown	7.4	6.9	7.0	22.6	21.0	20
La Casa	0.2 miles	7.0	6.3	7.4	24.1	20.9	19
I-25 Denver	adjacent	9.0	7.8	7.9	26.0	25.4	23
I-25 Globeville	adjacent	-	9.5	8.9	-	-	22.4 ^b

^a The locations of the air monitor stations are as follows: CAMP, 2105 Broadway, downtown Denver; La Casa, 4587 Navajo Street, Denver, about 0.2 miles south of Interstate 70; I-25 Denver, 913 Yuma Street, adjacent to Interstate 25; and I-25 Globeville, 4905 Acoma Street, adjacent to Interstate 25.

^b Because the Globeville monitor began operating in October 2015, the value represents the annual 98th percentile, rather than the three-year average of the ninety-eighth percentile.

Not surprisingly, residents in Globeville and Elyria-Swansea suffer from air pollution-related health problems at much higher rates than Denver residents as a whole. According to a 2014 City of Denver study, residents of these neighborhoods have some of the highest rates of cardiovascular disease in the Denver area.⁴⁶ The study also found that children in Elyria-Swansea are 40 percent more likely to visit the emergency room as a result of an asthma attack than children in Denver overall, and children in Globeville are

⁴³ See, e.g., Di et al., *Air Pollution and Mortality*, supra note 27 (finding increased risk of death when long-term $\text{PM}_{2.5}$ exposures were below $12 \mu\text{g}/\text{m}^3$); Di et al., *Short-Term Exposure to Air Pollution*, supra note 27, at 2449 (finding higher risk of death when daily $\text{PM}_{2.5}$ levels were below $25 \mu\text{g}/\text{m}^3$, particularly among older adults and minorities); Meng et al., *Potential Harmful Effects of $\text{PM}_{2.5}$* , supra note 42, at 4 (“Notably, disastrous effects can also be observed at a $\text{PM}_{2.5}$ level of $<15 \mu\text{g}/\text{m}^3$, which is lower than the current limit provided by European governments.”); EJC-PHS EX-Y, Giulia Cesaroni et al., *Long Term Exposure to Ambient Air Pollution and Incidence of Acute Coronary Events: Prospective Cohort Study and Meta-Analysis in 11 European Cohorts from the ESCAPE Project*, *BMJ*, Jan. 21, 2014, at 4, <http://tinyurl.com/y2w9hc89> (concluding that exposure to $\text{PM}_{2.5}$ at levels below $15 \mu\text{g}/\text{m}^3$ can harm human health).

⁴⁴ See, e.g., EJC-PHS EX-Z, Austin M. Williams et al., *Short-Term Impact of $\text{PM}_{2.5}$ on Contemporaneous Asthma Medication Use: Behavior and the Value of Pollution Reductions*, 116 *Proc. Nat’l Acad. Sci.* 5246, 5246, 5250–51 (2019), <http://tinyurl.com/y3rvqd5g> (finding decreases in lung function when $\text{PM}_{2.5}$ concentrations increase by $1 \mu\text{g}/\text{m}^3$); ALA, *State of the Air*, supra note 27, at 40 (finding reductions in premature deaths when $\text{PM}_{2.5}$ concentrations decrease by $1 \mu\text{g}/\text{m}^3$).

⁴⁵ 2017 Air Quality Data, supra note 35, at 42; 2016 Air Quality Data, supra note 35, at 37; 2015 Air Quality Data, supra note 35, at 36.

⁴⁶ See *Health Impact Assessment*, supra note 1, at 16–17.

20 percent more likely.⁴⁷ A June 2019 study found that these problems are getting worse. The study compared asthma hospitalization rates in Denver neighborhoods between 2006 to 2010 and 2013 to 2017.⁴⁸ Between 2006–2010 and 2013–2017, Elyria-Swansea’s asthma hospitalization rate increased by 41 percent and was 75 percent higher than the state average during the 2013–2017 period.⁴⁹ Meanwhile, Globeville’s asthma hospitalization rate increased by 25 percent and exceeded the state average by 94 percent.⁵⁰ Across Denver as a whole, emergency room visits for asthma-related complications, a common health problem associated with ozone, NO₂, and PM_{2.5} exposure, are among the highest in the state, particularly among children younger than nineteen and among lower-income households.⁵¹ These rates are especially high around the Interstate 70 corridor and the junction of Interstate 70 and Interstate 25.⁵²

B. Accelerating the transition to clean electric vehicles will improve health and welfare in disproportionately burdened communities.

Replacing conventional motor vehicles with plug-in and battery electric vehicles will greatly improve air quality, particularly in communities along major transit corridors. For example, a 2017 City of Denver study found that by 2025, driving a battery electric vehicle, rather than a new gasoline-powered car, will markedly reduce emissions of ozone precursors: the change in vehicles will decrease emissions of nitrogen oxides (NO_x) by about 84 percent and emissions of volatile organic carbons (VOCs) by about 99 percent.⁵³ The swiftly declining costs of renewable energy and recent legislation that requires utilities to significantly reduce emissions from generating sources will amplify these air quality benefits, as the electric grid that powers electric vehicles becomes increasingly clean over the next decade and beyond.⁵⁴

Colorado residents living near high-traffic corridors such as Interstate 70 and Interstate 25, where traffic pollution problems are acute, stand to benefit the most from these air quality improvements. The 2017 City of Denver study, which did not consider the

⁴⁷ *Id.* at 16.

⁴⁸ Kevin Hamm, *Asthma in Denver: Search Rates By Neighborhood*, Denver Post (June 30, 2019) [hereinafter Hamm, *Asthma in Denver*], <http://tinyurl.com/y3r2y4tn>.

⁴⁹ *Id.* In 2006–2010, Elyria-Swansea’s asthma hospitalization rate was 787.8 per 100,000 people. *Id.* In 2013–2017, the rate was 1,113.12. *Id.*

⁵⁰ Hamm, *Asthma in Denver*, *supra* note 48. In 2006–2010, Globeville’s asthma hospitalization rate was 991.39 per 100,000 people. *Id.* In 2013–2017, the rate was 1,238.47. *Id.*

⁵¹ *Asthma Data*, Colo. Dep’t of Pub. Health & Env’t, <http://tinyurl.com/yypzh6ly>; EJC-PHS EX-AA, City & Cty. Denver, *2014 Health of Denver Report* 10 (2015), <https://tinyurl.com/y3e9yt8p>; *see also* Hamm, *Asthma in Denver*, *supra* note 48.

⁵² *Health Impact Assessment*, *supra* note 1, at 16.

⁵³ EJC-PHS EX-AB, Denver Dep’t of Env’tl. Health, *Opportunities for Vehicle Electrification in the Denver Metro Area and Across Colorado* 4–5 (2017) [hereinafter *Denver Opportunities for Electric Vehicles*], <http://tinyurl.com/y4gjhk85>.

⁵⁴ *See, e.g.*, S.B. 19-236, 72d Gen. Assemb., 1st Reg. Sess. § 5 (Colo. 2019) (to be codified at Colo. Rev. Stat. § 40-2-125.5(3)(a)) (mandating that utilities “shall” reduce carbon dioxide emissions from generating resources by 80 percent by 2030 and directing them to eliminate such emissions by 2050).

effect of the ZEV standards, estimated that by 2025 electric vehicles would alleviate ozone pollution in the Denver metro area by reducing VOC emissions by 36.2 tons per day and NOx emissions by 36.8 tons per day.⁵⁵ Notably, the study estimated that electric vehicles would account for 4.6 percent of light-duty vehicles in 2025, a rate that falls far short of the 6.21 percent adoption rate estimated in the Initial Economic Impact Analysis for the proposed ZEV standards.⁵⁶ Thus, the air quality benefits of adopting the ZEV standards likely will be even greater, particularly given Colorado’s transition to a clean electric grid and for those living along major transit corridors.

Over time, these air quality benefits will translate into substantial improvements in public health, decreasing the risk of cardiovascular disease, asthma, dementia, and other serious health complications.⁵⁷ Recent studies further indicate that some such benefits likely will accrue in the near future. Reductions in particle pollution, for example, have “almost immediate health benefits” and can result in fewer deaths in the first two years, even when particle pollution levels decrease incrementally, on the order of 1 µg/m³.⁵⁸

By accelerating the transition to clean electric vehicles, adoption of the ZEV standards will ensure that Coloradans, and disproportionately burdened communities in particular, will reap the air quality and public health benefits of advancements in clean electric vehicle technologies. Moreover, because the standards will significantly reduce ozone pollution, their adoption will help put Colorado on track to comply with the Clean Air Act’s health-based standards for ozone, standards that the Denver Metro / Northern Front Range area has failed to attain for decades.

III. Adopting the ZEV Standards Will Help the Commission Comply with House Bill 19-1261, Which Directs the Commission to Alleviate Pollution in Disproportionately Burdened Communities.

The Commission should adopt the ZEV standards because it will help reduce the disproportionate air pollution burden the Globeville, Elyria-Swansea, and other minority and low-income communities face from conventional vehicles. Doing so also will help the Commission comply with the recently passed House Bill 19-1261, which specifically directs the Commission to reduce pollution in disproportionately impacted communities. Through House Bill 19-1261, the General Assembly sought to ensure that disproportionately

⁵⁵ *Denver Opportunities for Electric Vehicles*, note 53, at 66.

⁵⁶ *Id.*; Colo. Pollution Control Div., *Initial Economic Impact Analysis* 5 (May 10, 2019).

⁵⁷ See, e.g., Shua Pan et al., *Potential Impacts of Electric Vehicles on Air Quality and Health Endpoints in the Greater Houston Area in 2040*, 207 *Atmospheric Env’t* 38 (2019), <https://tinyurl.com/y5y69qnj> (concluding that replacing 35 percent of Houston’s conventional motor vehicles with electric vehicles by 2040 would reduce pollution by 50 percent and prevent 114 premature deaths, 7,500 cases of exacerbated asthma, and 5,500 days of missed school every year); Erika Garcia et al., *Association of Changes in Air Quality With Incident Asthma in Children in California, 1993-2014*, 321 *JAMA* 1906 (2019), <http://tinyurl.com/y4qvqhxx> (“Among children in Southern California, decreases in ambient nitrogen dioxide and PM_{2.5} between 1993 and 2014 were significantly associated with lower asthma incidence.”).

⁵⁸ ALA, *State of the Air*, *supra* note 27, at 39–40 (finding that lowering annual particle pollution levels by 1 µg/m³ could prevent approximately 34,000 premature deaths each year in the United States).

burdened communities will not continue to inequitably bear the environmental, social, and economic costs of pollution. As the legislature found, “frontline communities” already are “experiencing harmful climate impacts, including . . . more severe ground-level ozone pollution” that is “causing respiratory damage and loss of life.”⁵⁹ To alleviate such harms, the legislature called for the urgent protection of frontline communities through driving investments in low-carbon technologies that “put Colorado squarely on the path to a modern, resilient, one-hundred-percent clean economy.”⁶⁰ Consistent with this directive, House Bill 19-1261 requires the Commission to implement rules “designed to achieve reductions in harmful air pollution affecting [disproportionately impacted] communities,” including strategies that “facilitate adoption of technologies that have very low or zero emissions.”⁶¹

Globeville, Elyria-Swansea, and other near-highway communities qualify as “disproportionately impacted communities” under House Bill 19-1261, thereby requiring the Commission to implement rules that protect them from harmful pollution, including emissions of ozone precursors.⁶² Under the legislation, “disproportionately impacted communities” include communities where multiple factors, including environmental and socio-economic stressors, “may act cumulatively to affect health and the environment and contribute to persistent environmental health disparities.”⁶³ As explained, residents of Globeville and Elyria-Swansea have long suffered from environmental injustices that stem from decades of polluting industrial activities that continue to this day.⁶⁴ These persistent environmental threats have contributed to strikingly high rates of cardiovascular disease and acute respiratory illnesses, health problems fueled, in significant part, by pollution from the gasoline- and diesel-powered cars and trucks that clog neighborhood streets and the two interstates that bisect the communities.⁶⁵

By accelerating Colorado’s transition to zero emission vehicles, the ZEV standards will significantly reduce pollution causing substantial harm to Globeville, Elyria-Swansea, and other disproportionately burdened communities—and will put the Commission on a path to compliance with House Bill 19-1261.

⁵⁹ H.B. 19-1261, 72d Gen. Assemb., 1st Reg. Sess. § 1 (Colo. 2019) (to be codified at Colo. Rev. Stat. § 25-7-102(2)).

⁶⁰ H.B. 19-1261 § 1; Colo. Rev. Stat. § 25-7-102(2).

⁶¹ H.B. 19-1261 § 3; Colo. Rev. Stat. § 25-7-105(1)(e).

⁶² See H.B. 19-1261 §§ 1, 3; Colo. Rev. Stat. §§ 25-7-102(2), 25-7-105(1).

⁶³ H.B. 19-1261 § 3; Colo. Rev. Stat. § 25-7-105(1)(e)(IV) (directing the Commission to consider “minority, low-income, tribal, or indigenous populations in the state that potentially experience disproportionate environmental harms and risks” when identifying these communities).

⁶⁴ See *supra* text accompanying notes Part I.A.

⁶⁵ See *supra* text accompanying notes Part II.A.

LIST OF ISSUES TO BE RESOLVED

Whether the Commission should adopt the proposed amendment to Regulation 20, which establishes a Zero Emission Vehicle (ZEV) program for Colorado.

EXHIBITS

No.	Citation
EJC-PHS EX-A	Gretchen Armijo & Gene C. Hook, Denver Dep't of Env'tl. Health, <i>How Neighborhood Planning Affects Health in Globeville and Elyria Swansea</i> (2014)
EJC-PHS EX-B	Barbara L. Rowe et al., <i>Occurrence and Potential Human-Health Relevance of Volatile Organic Compounds in Drinking Water from Domestic Wells in the United States</i> , 115 Env'tl. Health Persp. 1539 (2007)
EJC-PHS EX-C	WE ACT for Env'tl. Just., <i>Assisting Congress to Better Understand Environmental Justice</i> (2013)
EJC-PHS EX-D	Nancy Tian et al., <i>Evaluating Socioeconomic and Racial Differences in Traffic-Related Metrics in the United States Using a GIS Approach</i> , 23 J. Exposure Sci. & Env'tl. Epidemiology (2013)
EJC-PHS EX-E	Robert B. Gunier et al., <i>Traffic Density in California: Socioeconomic and Ethnic Differences Among Potentially Exposed Children</i> , 13 J. Exposure Analysis & Env'tl. Epidemiology 240 (2003)
EJC-PHS EX-F	Benjamin J. Apelberg et al., <i>Socioeconomic and Racial Disparities in Cancer Risk from Air Toxics in Maryland</i> , 113 Env'tl. Health Persp. 693 (2005)
EJC-PHS EX-G	Shi V. Liu et al., <i>Evaluation of Traffic Density Parameters as an Indicator of Vehicle Emission-Related Near-Road Air Pollution: A Case Study with NEXUS Measurement Data on Black Carbon</i> , Int'l J. Env't Res. & Pub. Health, Dec. 15, 2017
EJC-PHS EX-H	Union of Concerned Scientists, <i>Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic</i> (2019)
EJC-PHS EX-I	Raed Alotaibi et al., <i>Traffic Related Air Pollution and the Burden of Childhood Asthma in the Contiguous United States in 2000 and 2010</i> , 127 Env't Int'l 858 (2019)
EJC-PHS EX-J	Sandie Ha et al., <i>Prenatal and Early Life Exposures to Ambient Air Pollution and Development</i> , 174 Env'tl. Res. 170 (2019)
EJC-PHS EX-K	Pengfei Fu et al., <i>The Association Between PM_{2.5} Exposure and Neurological Disorders: A Systematic Review and Meta-Analysis</i> , 655 Sci. Total Env't 1240 (2019)
EJC-PHS EX-L	Marie-Claire Floes-Pajot et al., <i>Childhood Autism Spectrum Disorders and Exposure to Nitrogen Dioxide, and Particulate Matter Air Pollution: A Review and Meta-Analysis</i> , 151 Env'tl. Res. 763 (2016)
EJC-PHS EX-M	Anoop S.V. Shah et al., <i>Short Term Exposure to Air Pollution and Stroke: Systematic Review and Meta-Analysis</i> , BMJ, Mar. 24, 2015
EJC-PHS EX-N	Yongping Hao et al., <i>Ozone, Fine Particulate Matter, and Chronic Lower Respiratory Disease Mortality in the United States</i> , 192 Am. J. Respiratory & Critical Care Med. 337 (2015)

EJC-PHS EX-O	Heather E. Volk et al., <i>Residential Proximity to Freeways and Autism in the CHARGE Study</i> , 119 <i>Envtl. Health Persp.</i> 873 (2011)
EJC-PHS EX-P	Qian Di et al., <i>Association of Short-Term Exposure to Air Pollution with Mortality in Older Adults</i> , 318 <i>JAMA</i> 2446 (2017)
EJC-PHS EX-Q	Qian Di et al., <i>Air Pollution and Mortality in the Medicare Population</i> , 376 <i>New Eng. J. Med.</i> 2513
EJC-PHS EX-R	Am. Lung Ass'n, <i>State of the Air 2019</i> (2019)
EJC-PHS EX-S	Colo. Air Pollution Control Div., <i>2017 Air Quality Data Report</i> (2018)
EJC-PHS EX-T	Colo. Air Pollution Control Div., <i>2016 Air Quality Data Report</i> (2017)
EJC-PHS EX-U	Colo. Air Pollution Control Div., <i>2015 Air Quality Data Report</i> (2016)
EJC-PHS EX-V	Jakob Usemann et al., <i>Exposure to Moderate Air Pollution and Associations with Lung Function at School-Age: A Birth Cohort Study</i> , 126 <i>Env't Int'l</i> 682 (2019)
EJC-PHS EX-W	Ki-Do Eum et al., <i>Long-Term NO₂ Exposures and Cause-Specific Mortality in American Older Adults</i> , 124 <i>Env't Int'l</i> 10 (2019)
EJC-PHS EX-X	Xu Meng et al., <i>Potential Harmful Effects of PM_{2.5} on Occurrence and Progression of Acute Coronary Syndrome: Epidemiology, Mechanisms, and Prevention Measures</i> , <i>Int'l J. Env'tl. Res. & Pub. Health</i> , July 25, 2016
EJC-PHS EX-Y	Giulia Cesaroni et al., <i>Long Term Exposure to Ambient Air Pollution and Incidence of Acute Coronary Events: Prospective Cohort Study and Meta-Analysis in 11 European Cohorts from the ESCAPE Project</i> , <i>BMJ</i> , Jan. 21, 2014
EJC-PHS EX-Z	Austin M. Williams et al., <i>Short-Term Impact of PM_{2.5} on Contemporaneous Asthma Medication Use: Behavior and the Value of Pollution Reductions</i> , 116 <i>Proc. Nat'l Acad. Sci.</i> 5246 (2019)
EJC-PHS EX-AA	City & Cty. Denver, <i>2014 Health of Denver Report</i> (2015)
EJC-PHS EX-AB	Denver Dep't of Env'tl. Health, <i>Opportunities for Vehicle Electrification in the Denver Metro Area and Across Colorado</i> (2017)

CONCLUSION

For the reasons above, the Commission should adopt the proposed amendments to Regulation 20.

Date: July 10, 2019

Respectfully submitted,



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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that I have on this 10th day of July, 2019, sent true and complete electronic copies of the foregoing **PREHEARING STATEMENT of ELYRIA AND SWANSEA NEIGHBORHOOD ASSOCIATION, GLOBEVILLE, ELYRIA-SWANSEA COALITION, AND COLORADO LATINO FORUM (COLLECTIVELY, THE “ENVIRONMENTAL JUSTICE COALITION”)** to:

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