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Socioeconomic Impact Analysis: New Regulation 6, Rule 6: Prohibition of Trackout

Prepared for:

Bay Area Air Quality Management District

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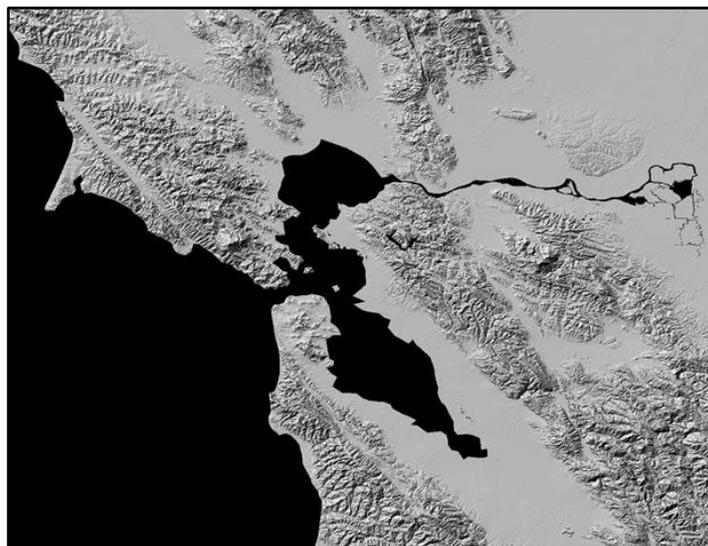
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1. INTRODUCTION

The Bay Area Air Quality Management District (Air District) is proposing a new regulation to control particulate matter, called Regulation 6, Particulate Matter, Rule 6: Prohibition of Trackout (Rule 6-6). Rule 6-6 is part of a suite of proposals aimed at addressing fine particulate pollution. Small particles cause or contribute to a wide variety of serious health problems, including asthma, bronchitis, cardiovascular diseases, and cancer. The Air District has committed to reducing particulate matter levels to achieve significant health benefits. The new rule will help reduce emissions of particulate matter in the Bay Area in a feasible and cost-effective manner, thereby improving public health and air quality throughout the region. This report analyzes the socioeconomic impacts associated with the proposed new regulation and amendments.

After this introduction, this report discusses the proposed revisions in greater detail (Section Two). After that discussion, the report describes the socioeconomic impact analysis methodology and data sources (Section Three). The report describes population and economic trends in the nine-county San Francisco Bay Area (Section Four), which serves as a backdrop against which the Air District is contemplating its various rule changes. Finally, the socioeconomic impacts stemming from the proposed rule changes are discussed in Section Five. The report is prepared pursuant to Section 40728.5 of the California Health and Safety Code, which requires an assessment of socioeconomic impacts of proposed air quality rules. The findings in this report can assist Air District staff in understanding the socioeconomic impacts of the proposed requirements, and can assist staff in preparing a refined version of the rule. Figure 1 is a map of the nine-county region that comprises the San Francisco Bay Area Air Basin.

Figure 1 – Map of San Francisco Bay Area Region



2. OVERVIEW OF NEW REGULATION 6-6: PROHIBITION OF TRACKOUT

The proposed new Rule 6-6 focuses on road dust, which is a large source of fine particulates. Road dust is composed of small particles from erosion of the road's surface and fine particles from vehicles driving over and pulverizing any solid materials that may have been deposited on the road. Tire wear and brake pad wear are also sources of particulates found near roadways. Proposed new Rule 6-6 addresses mud and dirt that can be "tracked out" onto a paved road from a construction site, quarry, landfill or other disturbed surface. This material – referred to as "trackout" – contributes to particulate pollution because vehicle traffic on the paved road will pulverize the mud and dirt into smaller particles (known as silt), and turbulence from the vehicles entrain the silt into the air. Proposed new Rule 6-6 addresses this problem by prohibiting trackout of mud and dirt onto paved roadways. Prohibition of trackout is intended to control particulate matter with an aerodynamic diameter of 2.5 micron or less (PM_{2.5}), particularly around areas that can impact nearby young and elderly people, or people with breathing issues.

The principal requirements in the proposed new Rule 6-6 are that the owner/operator of a bulk material site greater than one acre, construction site greater than one acre, or disturbed surface site greater than one acre cannot allow solids from the site to be "tracked out" or deposited on the adjacent paved public road. A small amount of trackout is tolerable, but if the dirt or solids track out onto the road for more than cumulative 25 linear feet, or 25 square feet, the solids on the road must be cleaned up. At the end of the workday, no more solids than would fill a quart container are allowable. Any cleanup can likely be done by using a shovel or hand sweeping with a dust pan, but precautions must be taken to control fugitive dust during the cleanup process.

COST OF COMPLIANCE

Total costs for implementation of proposed new Rule 6-6 are estimated to be \$2,500,000 in capital costs, and \$1,160,000 in annual operating costs. Air District staff envisions affected sources and industries will implement Rule 6-6 in one of three ways, which are described below:

GRIZZLY BARS OR RUMBLE GATES

Trackout at large sites can be prevented by using "grizzly" bars or a "rumble grate" system. A grizzly system can be installed for approximately \$10,000, with monthly cleaning required to provide an open catch basin below the grizzly for mud and dirt to fall into and away from the vehicle tires. Most large sites already have a grizzly system or a truck wash station. Annual costs of operating a grizzly system are estimated to be \$3,000 per year. The Air District estimates that 100 facilities in the Bay Area require grizzly bar systems, resulting in a total capital cost of \$1 million (annualized at \$200,000 a year), on top of which would be added \$100,000 in total annual operating costs. Thus, total annual costs amount to \$300,000 a year.

TRUCK WASH STATIONS

Truck wash stations are very effective at preventing trackout, and typically cost on a per unit basis anywhere from \$100,000 to \$150,000, amortized to \$30,000 per year in capital costs. Water, power, maintenance, and mud cleanout and disposal increase the total costs to about \$56,000 per year. These facilities need to have the mud removed weekly, typically removing 800 – 1,000 lbs. of solids. A large facility may need two truck wash stations if they have high vehicle traffic. Staff estimates that few, if any, large sites will need to install a truck wash system. However, assuming that ten sites determine it is more cost effective to use a truck wash rather than a grizzly system, the costs could be \$1,500,000 in capital expenditures, with annual costs totaling \$560,000 or approximately \$56,000 in annual costs each.

HAND-SWEEPING TRACKOUT

One option for removing excessive trackout and cleanup of all trackout at the end of each workday is to use a street sweeper. Conventional street sweepers are estimated to cost \$250,000, although they do a very poor job of capturing and controlling visible road dust and will probably not prevent dust plumes when sweeping. Regenerative PM₁₀ efficient street sweepers are estimated to cost \$450,000. A simpler option is to send a worker to scoop up or sweep up any excessive trackout, and sweep up the area at the end of the workday. Estimated cost for cleanup of 50 square feet of excessive trackout or spills is \$75 (one worker for one hour, plus hand tools) each workday, totaling \$15,000 per year (typically 200 dry workdays each year). Staff estimates large facilities with effective truck wash systems will not have to do any cleanup. Staff estimates that 200 facilities with effective grizzly systems will have to do minor cleanup at the end of each dry workday, with total incremental costs for these facilities equal to 10 percent X \$3,000,000 = \$300,000 in annual costs, or \$1,500 per year at each facility. Below is a summary of costs associated with proposed new Rule 6-6 (Table 1).

Table 1- Capital and Operating Costs: Proposed New Rule 6-6: Prohibition of Trackout

Controls		Unit Costs		Sites	Aggregate Costs			
	(A1) Unit Cost: Capital	(B1) Unit Cost: Annual Operations	(C1) Number of Sites	(D1) Total Aggregate Capital Cost [A1 x C1]	(E1) Aggregate Annual Capital Cost	(F1) Aggregate Annual Operating Cost [B1 x C1]	(G1) Total Annual Cost [E1 + F1]	
Track-Out Prevention								
Grizzly system	\$10,000	\$3,000	100	\$1,000,000	\$200,000	\$100,000	\$300,000	
Truck wash station	\$150,000	\$26,000	10	\$1,500,000	\$300,000	\$260,000	\$560,000	
Trackout Clean-Up								
Sweeping	-- na	\$15,000	200	-- na	-- na	\$300,000	\$300,000	
Summary of Costs (Track-Out Prevention and Cleanup Combined)					Total Aggregate Capital Cost (Grizzlies, TWS, and Sweeping) [D1 + D2]	Aggregate Annual Capital Cost (Grizzlies, TWS, and Sweeping) [E1 + E2]	Aggregate Annual Operating Costs (Grizzlies, TWS, and Sweeping) [F1 + F2]	Total Aggregate Annual Costs (Grizzlies, TWS, and Sweeping) [G1 + G2]
					\$2,500,000	\$500,000	\$660,000	\$1,160,000

3. METHODOLOGY

Applied Development Economics (ADE) typically begins its impact analysis by preparing a statistical description of the industries affected by proposed rules and amendments, analyzing data on the number of establishments, jobs, and payroll. We also estimated sales generated by impacted industries. To generate its estimates, ADE relies on the most current data available from a variety of sources, particularly the State of California's Employment Development Department (EDD) Labor Market Information Division, the US Census County Business Patterns, and the US Internal Revenue Service. When presented with a list of specific firms affected by proposed new regulations, ADE also analyzes firm-specific data from private data vendors, such as InfoUSA.

When compliance cost information is readily available, ADE then compares costs against net profits, in the case of private sector entities affected by proposed rules, with the results of socioeconomic analysis show what proportion of profits the compliance costs represent. Based on assumed thresholds of significance, ADE discusses in the report whether the affected sources are likely to reduce jobs as a means of recouping the cost of rule compliance or as a result of reducing business operations. To the extent that such job losses appear likely, the indirect multiplier effects of the jobs losses are estimated using a regional IMPLAN input-output model. In the case of impacts borne by public sector entities, ADE analyzes whether affected sources can cover costs a combination of sources' annual revenues and fund balance reserves.

When analyzing the socioeconomic impacts of proposed new rules and amendments, ADE attempts to work closely within the parameters of accepted methodologies discussed in a 1995 California Air Resources Board (ARB) report called "Development of a Methodology to Assess the Economic Impact Required by SB513/AB969" (by Peter Berck, PhD, UC Berkeley Department of Agricultural and Resources Economics, Contract No. 93-314, August, 1995). The author of this report reviewed a methodology to assess the impact that California Environmental Protection Agency proposed regulations would have on the ability of California businesses to compete. The ARB has incorporated the methodologies described in this report in its own assessment of socioeconomic impacts of rules generated by the ARB. One methodology relates to determining a level above or below which a rule and its associated costs is deemed to have significant impacts. When analyzing the degree to which its rules are significant or insignificant, the ARB employs a threshold of significance that ADE follows. Berck reviewed the threshold in his analysis and wrote, "The Air Resources Board's (ARB) use of a 10 percent change in [Return on Equity] ROE (i.e. a change in ROE from 10 percent to a ROE of 9 percent) as a threshold for a finding of no significant, adverse impact on either competitiveness or jobs seems reasonable or even conservative."

4. ECONOMIC AND DEMOGRAPHIC TRENDS

This section of the report discusses the larger context within which the Air District is contemplating proposed New Regulation 6-6 (Prohibition of Trackout). This section begins with a broad overview of demographic and economic trends, with discussion then narrowing to industries and sources affected by the proposed rule changes.

REGIONAL POPULATION TRENDS

Table 2 tracks population growth in the nine-county San Francisco Bay Area between 2007 and 2017, including data for the year 2012. Between 2007 and 2017, the region grew by approximately 0.5 percent a year. Between 2012 and 2017, the region grew annually at a somewhat faster rate of 0.9 percent per year. Overall, there are 7,714,638 people in the region. At 1,938,180, Santa Clara County has the most people, while Napa has the least, at 142,408. Alameda and Contra Costa Counties grew the fastest between 2012 and 2017, at 1.3 percent a year, while Marin and Napa grew by the slowest rate (0.6 percent a year) over the same period.

Table 2: Population Trends: Bay Area Counties, Region, and California

JURISDICTION	2007	2012	2017	07-12 CAGR	12-17 CAGR	07-17 CAGR
California	37,463,609	37,881,357	39,523,613	0.2%	0.9%	0.5%
SF Bay Area	7,122,615	7,300,094	7,714,638	0.5%	1.1%	0.8%
Alameda	1,519,250	1,543,027	1,645,359	0.3%	1.3%	0.8%
Contra Costa	1,035,097	1,069,977	1,139,513	0.7%	1.3%	1.0%
Marin	254,532	255,812	263,604	0.1%	0.6%	0.4%
Napa	134,726	138,074	142,408	0.5%	0.6%	0.6%
San Francisco	823,940	826,103	874,228	0.1%	1.1%	0.6%
San Mateo	727,719	735,256	770,203	0.2%	0.9%	0.6%
Santa Clara	1,797,623	1,828,496	1,938,180	0.3%	1.2%	0.8%
Solano	422,646	415,862	436,023	-0.3%	1.0%	0.3%
Sonoma	478,935	487,487	505,120	0.4%	0.7%	0.5%

Source: ADE, Inc., based on California Dept. of Finance E-5 Reports (note: CAGR = compound annual growth rate)

REGIONAL ECONOMIC TRENDS

Data in Table 3 describe the larger economic context within which officials are contemplating the proposed New Regulation 6-6. Businesses in the region employ over three and a half million workers, or 3,611,076. Of the 3,611,076 workers, 157,408 or 4.4 percent, are civil servants in the public sector (109,269 are local government employees and 48,140 are state and federal workers). This figure does not include public sector education employees, who were combined with private sector education employees in an effort to present a picture as to the total number of persons in the education in the Bay Area. There are 145,498 employees in "Education: elementary and secondary", and another

77,514 in “Education: post-secondary”, for a total of 223,012 (or 6.2 percent). For the same reason, we combined public sector workers in health care with private sector workers in health.

Table 3 — San Francisco Bay Area Employment Trends By Sector: 2006 - 2016

INDUSTRY SECTOR		2006	2011	2016	2016	2016 CA	SFBA CAGR* 06-11	SFBA CAGR 11-16	CA CAGR 11-16
Total		3,150,735	3,040,409	3,672,206	100.00%	100%	-0.7%	3.8%	2.7%
11	Agriculture	20,450	19,231	20,317	0.6%	2.5%	-1.2%	1.1%	1.6%
21	Mining	2,047	1,977	1,638	0.0%	0.1%	-0.7%	-3.7%	-2.8%
22	Utilities	15,689	18,940	18,705	0.5%	0.6%	3.8%	-0.2%	0.3%
23	Construction	192,897	130,376	184,119	5.0%	4.6%	-7.5%	7.1%	6.5%
31-33	Manufacturing	352,040	311,361	335,243	9.1%	7.8%	-2.4%	1.5%	0.9%
42	Wholesale	125,200	113,953	128,274	3.5%	4.3%	-1.9%	2.4%	1.8%
44-45	Retail	336,232	311,906	343,504	9.4%	10.0%	-1.5%	1.9%	1.7%
48-49	Transportation and	85,970	76,695	89,958	2.4%	3.0%	-2.3%	3.2%	4.7%
51	Information	112,820	116,668	172,891	4.7%	3.1%	0.7%	8.2%	3.8%
52	Finance and Insurance	151,360	118,888	129,338	3.5%	3.2%	-4.7%	1.7%	0.9%
53	Real Estate	62,020	52,139	58,855	1.6%	1.7%	-3.4%	2.5%	2.2%
54	Prof., Scientific, Tech.	312,042	339,865	436,816	11.9%	7.3%	1.7%	5.1%	2.8%
55	Mgt. of Companies	56,807	60,196	72,498	2.0%	1.4%	1.2%	3.8%	2.8%
561	Admin. Support	175,238	158,050	200,162	5.5%	6.2%	-2.0%	4.8%	4.4%
562	Waste Management	10,482	11,105	12,499	0.3%	0.3%	1.2%	2.4%	3.0%
6111	Education - elem., sec.	123,430	120,714	145,498	4.0%	5.3%	-0.4%	3.8%	1.6%
6112-6117	Education - post-sec.	68,644	69,239	77,514	2.1%	3.1%	0.2%	2.3%	1.0%
62	Health	345,833	384,305	469,975	12.8%	14.1%	2.1%	4.1%	3.8%
71	Arts, Entert., Recreation	50,976	52,549	61,090	1.7%	1.8%	0.6%	3.1%	3.7%
721	Accommodations	222,418	236,326	300,218	8.2%	1.3%	-0.4%	1.9%	2.2%
722	Food, drinking	47,380	46,522	51,100	1.4%	8.1%	1.2%	4.9%	4.6%
81	Other service***	105,108	105,729	123,827	3.4%	3.1%	0.1%	3.2%	2.9%
92	Public: Local Govt.**	116,196	105,061	109,269	3.0%	3.9%	-2.0%	0.8%	0.5%
92	Public: State and Federal**	59,325	66,047	48,140	3.0%	2.5%	2.2%	-6.1%	-0.7%
99	Unclassified	131	12,567	19,630	0.5%	0.6%	149.1%	9.3%	7.4%

Source: Applied Development Economics, Inc. based on California EDD LMID QCEW (<http://www.labormarketinfo.edd.ca.gov/qcew/qcew-select.asp>).
 *Note: CAGR = compound annual growth rate. **Note: EDD LMID public education (elementary, secondary, and post-secondary), public health, and public utilities employment data moved out of local, state and federal public administration categories and into their corresponding private categories above, in an effort to accurately profile employment trends by sector. ***Note: in 2013, the US BLS moved a large portion of NAICS 814110 (private households) to NAICS 624120 (Support to elderly persons and persons with disabilities): the totals above account for that adjustment for 2006 and 2011.

The top five sectors in the Bay Area in terms of total number of workers are Health and Social Assistance (NAICS 62) (469,75 workers), Professional/Technical Services (NAICS 54) (436,816 workers), Retail (NAICS 44-45) (343,504), Manufacturing (NAICS 31-33) (335,243) and Food Services (300,218). Of the top-ten leading sectors in terms of employment, six exhibited high rates of annual growth from 2010 to 2015, growing annually by more than four percent. These sectors are Health and Social Assistance (4.1 percent per year), Professional/Technical Services (5.1 percent), Food Services (4.9 percent), Administrative Support (NAICS 561) (4.8 percent), Construction (NAICS 23) (7.1 percent per year) and Information (NAICS 51), which grew at a phenomenal annual rate of 8.2 percent. Combined, these five sectors employ 49 percent of total employment, or 1,764,180 out of

3,611,076. The table also demonstrates the advanced nature of the regional economy, as 12.1 percent of all workers are in the Professional, Scientific and Technical (NAICS 54), whereas in the state as a whole, 7.3 percent of all workers are in this sector. Interestingly, at 1.5 percent per year, manufacturing employment growth in the Bay Area almost doubled statewide manufacturing growth rates (0.9 percent), underscoring the diversity of the regional economy.

TYPES OF INDUSTRIES SUBJECT TO PROPOSED NEW RULE 6-6

If adopted, Air District Compliance & Enforcement inspectors will need to monitor approximately 150 – 250 large bulk material sites, large construction sites, and large disturbed surface sites for trackout, and will need to respond to citizen complaints of localized fugitive dust from trackout. Construction sites are defined as any location where buildings, structures or improvements are being constructed, maintained, altered, remodeled, expanded or demolished. These sites include all contiguous and adjacent areas where related activities can take place. A disturbed surface site is any land that has been physically moved, uncovered, destabilized, or otherwise modified from its natural conditions, making the surface subject to wind erosion, vehicle traffic or mechanical activities that generate fugitive dust. Large bulk material sites, large construction sites, and large disturbed surface sites are sites where the total area of the site is greater than 1 acre.

Types of industries that reflect areas covered by proposed Rule 6-6 are listed below (Table 4). The list of industries reflects the firms that are subject to and have been part of the process involving other Regulation 6 measures, particularly proposed Rule 6-1, Section 6-1-307. That list was further reduced to the fifteen industries below, to focus only on industries having to do with construction, bulk materials storage and handling, and large surface sites such as solid waste collection facilities. According to County Business Patterns, there are 3,588 establishments operating in the Bay Area in the type of industries that will be subject to Rule 6-6, if adopted. These industries annually generate approximately \$37.8 billion in revenues, and employ an estimated 77,018 workers.

Table 4 - Industries Subject to Proposed New Rule 6-6 (Trackout Prohibition): SF Bay Area

Industries	NAICS	Establishments	Employment	Aggregate Revenue
Total		3,588	77,018	\$37,769,778,401
Other Crushed & Broken Stone Mining & Quarrying	212319	9	211	\$36,581,189
Construction sand and gravel mining	212321	11	360	\$57,453,108
Comm. and Instit. Bldng Const. Contractors	236220	820	17,841	\$15,107,436,446
Highway Street & Bridge Construction	237310	164	6,808	\$3,362,056,766
Poured Concrete Foundation & Structure Contractors	238110	315	7,146	\$1,504,378,858
All Other Specialty Trade Contractors	238990	540	7,248	\$1,656,945,175
Brick, Stone/Related Constr Material Mrchnt Whlsrs	423320	51	391	\$296,374,897
Other Construction Materials Wholesalers	423390	58	610	\$240,088,744
Recyclable Material Merchant Wholesalers	423930	159	2,846	\$2,421,908,611
Other Miscellaneous Durable Goods Merchant Whlsrs	423990	240	2,226	\$4,519,337,218
Home Centers	444110	91	12,203	\$4,686,095,390
Other Building Material Dealers	444190	724	7,553	\$1,603,375,371
Solid Waste Collection	562111	166	7,456	\$1,189,865,303
Other Waste Collection	562119	16	291	\$51,561,117
Waste Mgmt. Landfill	562212	23	613	\$128,942,960

Source: ADE, Inc, based on US Census County Business Patterns 2015, US Economic Census, and Statistics of US Businesses

Many of the industries subject to proposed Rule 6-6 are in construction and/or industries having to do with handling and moving materials in bulk (Table 5). In the Bay Area, affected industries declined by almost 15,000 jobs between 2006 and 2011, as the downturn affected the hardest real estate-related industries and sectors (including construction). However, between 2011 and 2016, these industries in the Bay Area had rebounded, having grown by 15,500 jobs over this five-year period. It is important to note that employment figures in Table 5 below differ from Table 4 above largely because below is based on California EDD, which masks many counties' industry data for confidentiality.¹ The table below is presented in an effort to show trends over the last ten years, particularly the effect the Great Recession had on industries potentially subject to Rule 6-6.

Table 5 - Employment Trends for Type of Industries Subject to Proposed New Rule 6-6 (Trackout Prohibition): San Francisco Bay Area

NAICS	Total Employment in Select Industries	2006	2011	2016	06-11 Chg	06-11 CAGR	11-16 Chg	11-16 CAGR
	Total	67,487	52,524	68,004	-14,963	-4.9%	15,480	5.3%
212319	Other crushed and broken stone mining	47	54	na^	7	3%	---	---
212321	Construction sand, gravel mng.	na	157	na	---	---	---	---
236220	Commercial and institutional bldg. const.	14,510	9,030	17,127	-5,480	-9%	8,097	14%
237310	Highway, street, bridge constr.	7,962	6,609	7,238	-1,353	-4%	629	2%
238110	Poured concrete fndtn and structure cont.	5,505	3,376	6,376	-2,129	-9%	3,000	14%
212321	Construction sand, gravel mining	222	135	288	-87	-9%	153	16%
238990	All other specialty trade contr.	7,997	5,841	7,537	-2,156	-6%	1,696	5%
423320	Brick, stone, and related construction mat. Wholesalers	955	539	997	-416	-11%	458	13%
423930	Recyclable Material Merchant Wholesalers	2,076	2,600	2,185	524	4.6%	-415	-3.4%
423990	Other Misc. Dur. Goods Merchant Whlsrs	1,479	1,363	1,243	-116	-1.6%	-120	-1.8%
424690	Oth. chemical, allied prod. Whlsrs	2,108	1,911	1,885	-197	-2%	-26	0%
444110	Home centers	13,665	12,110	13,279	-1,555	-2%	1,169	2%
444190	Other building material dealers	6,448	4,228	4,835	-2,220	-8%	607	3%
562111	Solid Waste Collection	2699	3085	3,789	692	21%	166	3%
562119	Other waste collection	15	na	40	---	---	---	---
562212	Waste Mgmt. Landfill	1,799	1,486	1,185	-313	-4%	-301	-4%

Source: ADE, Inc., based on EDD LMID QCEW (<http://www.labormarketinfo.edd.ca.gov/qcew/qcew-select.asp>): *Note: local government excludes local school districts and community colleges, as well as local government health services and districts. ^Notes: "na" employment figures due to EDD LMID data suppression for purposes of confidentiality.

¹While the EDD and CBP-based employment estimates vary, employment data on an industry-by-industry basis are distributed in a somewhat similar manner: according to EDD, there are 17,127 workers in commercial and institutional building construction (NAICS 236220), whereas the estimate based on County Business Patterns places employment in the same industry at 17,841. Poured concrete foundation (NAICS 238110) is 6,376 according to EDD, whereas according to estimates based on CBP it is 7,146. But this is not the case for all industries. For example, EDD reports 3,789 workers in solid waste collection (NAICS 562111), while based on the way establishments are distributed by size of workforce in the CBP data set, there are 7,456 workers in this industry per CBP.

5. SOCIOECONOMIC IMPACT ANALYSIS OF PROPOSED NEW RULE 6-6 (PROHIBITION OF TRACKOUT)

With respect to analyzing socioeconomic impacts of proposed new rules and amendments to existing rules, the District identifies a set of economic sectors and industries that would be impacted by implementation of proposed new regulations. All firms and establishments within affected industries could be subject to proposed regulation, or a sub-set might be affected in so far as they exceed certain thresholds or triggers identified in proposed regulations. In the case of proposed Rule 6-6, the District indicated that not all establishments within affected industries would implement control measures contemplated in Rule 6-6. Thus, staff estimates that 100 facilities in the Bay Area will adopt grizzly systems to mitigate trackout, whereas 10 facilities will implement truck wash stations. An estimated 200 facilities will implement hand-sweeping mitigations to deal with trackout. Staff also identified types and characteristics of establishments in industries potentially affected by the proposed rule, i.e. large construction sites, large bulk materials sites, and large disturbed surface areas that generate trackout. Staff further indicated that more than likely establishments in the bottom-half of affected industries would adopt hand-sweeping as their respective trackout mitigation, and the type of establishment that would adopt a truck wash station would be those that perform anywhere in the 75th to 90th percentile range of their respective industries.

SOCIOECONOMIC IMPACT ANALYSIS: GRIZZLY SYSTEMS

Since the types of facilities that would adopt control associated with proposed Rule 6-6 are operators of large sites, we assume that the 100 facilities that would adopt grizzly system would be in the top 25th percentile in terms of performance.² The original list of 15 industries consisting of 3,387 establishments (Table 4) was narrowed to the nine industries below by first focusing on the top 25th percentile performers within each of the 15 industries; of the 3,387 establishments, 232 are in the highest 25th percentile. We then ordered the list of industries based on average annual revenue characteristics. We then pro-rated the total number of establishments in each affected industry to

² Using County Business Patterns, we arranged Bay Area establishments in affected industries by their respective employment size categories (1-4 workers, 5-9 workers, 10-19 workers, 20-49 workers, 50-99, etc.), on the assumption that performance correlates with employment size category. In this manner, we were able to identify the number of establishments in the top 25th percentile (i.e. 75th percentile-to-100th percentile performers), as well as those in the first fiftieth percentile. In addition to estimating employment generated by establishments in various performance tiers, we also estimated revenues in a manner that accounted for productivity based on employment size of establishments. To this end, we used data from the US Economic Census and US Census Statistics of United States Business (SUSB). SUSB data shows that within the same industries, establishments that are in a higher employment size category generate higher revenues-per-worker ratios than establishments in smaller employment size categories.

“100”, as the Air District estimates that 100 facilities would adopt grizzly systems. The original list of 15 industries fell to nine due to pro-rating of the number of establishments. As indicated below, the impacts stemming from the grizzly system are less than significant.

Table 6- Socioeconomic Impact Analysis: Rule 606: Trackout Prohibition: Grizzly System

NAICS	Industries	Establishments (Est. Number That Will Adopt Grizzly System Control)	Est. Aggregate Annual Revenues Of Control- Adopting Establishments	Est. Aggregate Annual Net Profits of Control- Adopting Establishments	Est. Aggregate Cost of Control- Adopting Establishments	Cost to Net Profits
Total		100	\$2,016,276,123	\$80,410,177	\$300,000	0.4%
212321	Construction sand and gravel mining	2	\$34,882,545	\$1,720,061	\$6,000	0.3%
236220	Comm. and Instit. Bldng Const. Contractors	48	\$977,353,019	\$37,942,626	\$144,000	0.4%
237310	Highway Street & Bridge Construction	10	\$259,408,359	\$14,226,564	\$30,000	0.2%
423320	Brick, Stone/Related Constr Material Mrchnt Whlsrs	5	\$53,570,812	\$1,515,647	\$15,000	1.0%
423930	Recyclable Material Merchant Wholesalers	10	\$234,553,093	\$10,353,632	\$30,000	0.3%
423990	Other Miscellaneous Durable Goods Merchant Whlsrs	15	\$346,982,710	\$9,816,975	\$45,000	0.5%
562111	Recyclable Material Merchant Wholesalers	5	\$65,871,688	\$2,907,705	\$15,000	0.5%
562119	Other Waste Collection	2	\$15,942,438	\$703,730	\$6,000	0.9%
562212	Solid Waste Landfill	3	\$27,711,460	\$1,223,238	\$9,000	0.7%

SOCIOECONOMIC IMPACT ANALYSIS: TRUCK WASH STATION

With respect to the portion of the proposed Rule 6-6 having to do with truck wash stations as possibly trackout mitigation, Air District staff indicates that the highest performing firms operating in the Bay Area already have this control in place. Staff believes that establishment needing to adopt a truck wash station would be performing at the 75th percentile-to-90th percentile range. The ten 75th-to-90th percentile performing establishments that would adopt a truck wash system would come from the four industries identified below, the list of which was arrived at in the same way we described above for the grizzly system. Impacts are less than significant.

Table 7- Socioeconomic Impact Analysis: Rule 606: Trackout Prohibition: Truck Wash Station

NAICS	Industries	Establishments (Est. Number That Will Adopt Truck Wash Station Control)	Est. Aggregate Annual Revenues Of Control-Adopting Establishments	Est. Aggregate Annual Net Profits of Control-Adopting Establishments	Est. Aggregate Cost of Control-Adopting Establishments	Cost to Net Profits
		10	\$209,368,066	\$8,851,350	\$560,000	6.3%
212321	Construction sand and gravel mining	1	\$17,441,273	\$860,030	\$56,000	6.5%
236220	Comm. and Instit. Bldng Const. Contractors	7	\$142,530,649	\$5,533,300	\$392,000	7.1%
237310	Highway Street & Bridge Construction	1	\$25,940,836	\$1,422,656	\$56,000	3.9%
423930	Recyclable Material Merchant Wholesalers	1	\$23,455,309	\$1,035,363	\$56,000	5.4%

It is important to note that some industries will have establishments that bear the cost of both a new grizzly system and a truck wash system. Thus, we analyzed the cumulative effect of adopting both controls, for those industries at-risk of doing so. Impacts are still less than significant.

Table 8- Socioeconomic Impact Analysis: Rule 606: Trackout Prohibition: Grizzly System and Truck Wash Station

NAICS	Industries	Establishments (Est. Number That Will Adopt Both Grizzly System and Truck Wash Station Control)	Est. Aggregate Annual Revenues Of Control-Adopting Establishments	Est. Aggregate Annual Net Profits of Control-Adopting Establishments	Est. Aggregate Cost of Control-Adopting Establishments	Cost to Net Profits
		42	\$904,302,259	\$38,531,817	\$686,000	1.8%
212321	Construction sand and gravel mining	1	\$17,441,273	\$860,030	\$59,000	6.9%
236220	Comm. and Instit. Bldng Const. Contractors	29	\$590,484,115	\$22,923,670	\$479,000	2.1%
237310	Highway Street & Bridge Construction	6	\$155,645,016	\$8,535,938	\$74,000	0.9%
423930	Recyclable Material Merchant Wholesalers	6	\$140,731,856	\$6,212,179	\$74,000	1.2%

SOCIOECONOMIC IMPACT ANALYSIS: SWEEPING

According to the Air District, the type of establishment that would adopt hand-sweeping as a Rule 6-6 mitigation would come from the first 50th percentile set of establishments, although staff estimates that only 200 facilities will adopt this approach. For purposes of the analysis, we assume the 200 establishments would come from all of the 15 affected industries. Of the 3,588 establishments in the 15 affected industries, an estimated 1,800 are in the first 50th percentile, an amount that is then prorated to 200, to reflect the fact that 200 facilities will adopt sweeping as their respective Rule 6-6 control. As indicated below, impacts are less than significant, although poured concrete foundation

(NAICS 238110), and other building materials dealers (NAICS 444190) cost-to-net profit ratios are close to 10 percent.

Table 9- Socioeconomic Impact Analysis: Rule 606: Trackout Prohibition: Grizzly System and Truck Wash Station

NAICS	Industries	Establishments (Est. Number That Will Adopt Hand-Sweep Control)	Est. Aggregate Annual Revenues Of Control- Adopting Establishments	Est. Aggregate Annual Net Profits of Control- Adopting Establishments	Est. Aggregate Cost of Control- Adopting Establishments	Cost to Net Profits
		200	\$603,039,072	\$26,285,674	\$300,000	1.1%
212319	Other Crushed & Broken Stone Mining & Quarrying	1	\$5,225,884	\$257,689	\$1,500	0.6%
212321	Construction sand and gravel mining	1	\$1,143,575	\$56,390	\$1,500	2.7%
236220	Comm. and Instit. Bldng Const. Contractors	52	\$47,156,870	\$1,830,716	\$78,000	4.3%
237310	Highway Street & Bridge Construction	10	\$13,859,169	\$760,069	\$15,000	2.0%
238110	Poured Concrete Foundation & Structure Contractors	17	\$5,261,306	\$288,542	\$25,500	8.8%
238990	All Other Specialty Trade Contractors	27	\$9,546,635	\$463,130	\$40,500	8.7%
423320	Brick, Stone/Related Constr Material Mrchnt Whlsrs	3	\$5,501,779	\$155,659	\$4,500	2.9%
423390	Other construction Matl. Whls.	4	\$7,052,448	\$311,309	\$6,000	1.9%
423930	Recyclable Material Merchant Wholesalers	9	\$11,116,638	\$490,710	\$13,500	2.8%
423990	Other Miscellaneous Durable Goods Merchant Whlsrs	12	\$44,049,559	\$1,246,268	\$18,000	1.4%
444110	Home Centers	6	\$417,503,538	\$18,837,347	\$9,000	0.0%
444190	Other Building Material Dealers	46	\$15,797,569	\$712,771	\$69,000	9.7%
562111	Solid Waste Collection	9	\$7,204,934	\$318,040	\$13,500	4.2%
562119	Other Waste Collection	1	\$489,770	\$21,619	\$1,500	6.9%
562212	Solid Waste Landfill	2	\$12,129,397	\$535,415	\$3,000	0.6%

SMALL BUSINESS DISPROPORTIONATE IMPACT ANALYSIS

The State of California procures goods and services from a wide range of businesses, including small businesses. For purposes of certifying small business, the California Department of General Services defines a small business as a business that meets the following criteria:

- Be independently owned and operated;
- Not dominant in field of operation;
- Principal office located in California;

- Owners (officers, if a corporation) domiciled in California; and,
- Including affiliates, be either,
 - A business with 100 or fewer employees; average annual gross receipts of \$15 million or less, over the last three tax years;
 - A manufacturer* with 100 or fewer employees; or,
 - A microbusiness. A small business will automatically be designated as a microbusiness, if gross annual receipts are less than \$3,500,000; or the small business is a manufacturer with 25 or fewer employees.

Of the 100 establishments that will adopt a grizzly system, fifteen in four industries (brick, stone construction materials [NAICS 423320], recyclable material merchant wholesaler [NAICS 562111], other waste collection [NAICS 562119] and solid waste land fill [NAICS 562212])) meet the gross receipt criterion of small business. Assuming these establishments fulfill the other criteria and are indeed small businesses, each of these establishments are not significantly impacted. Moreover, their combined cost of \$45,000 out of a total of \$300,000 in cost suggests small businesses are not disproportionately impacted when it comes to the grizzly system. None of the establishments that would adopt truck wash system are small businesses, as their respective annual receipts average higher than \$15 million. Except for home centers (NAICS 444110), all of the establishments that would adopt sweeping as their Rule 6-6 trackout mitigation are small businesses, although none are significantly impacted by the proposed new rule. Thus, proposed new Rule 6-6 does not disproportionately impact small businesses.