

**Appendix E:
Air Quality**

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E.1 - Health Risk Assessment Report

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**Health Risk Assessment Report
Downtown Neighborhoods Community Plan, Fulton Corridor
Specific Plan, and the Downtown Development Code Project
City of Fresno, Fresno County, California**

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ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AAQS	ambient air quality standards
AREL	acute reference exposure level
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technologies
BTU	British Thermal Unit
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
DDC	Downtown Development Code
DNCP	Downtown Neighborhood Community Plan
DPM	diesel particulate matter
EMFAC	Emission Factors Model
EPA	United States Environmental Protection Agency
FCSP	Fulton Corridor Specific Plan
HAP	hazardous air pollutants (same as TAC)
HI	hazard index
K	Kelvin
MBTU	one million British Thermal Units
MERV	minimum efficiency reporting value
NSR	New Source Review
OEHHA	California Office of Environmental Health and Hazards Assessment
PAH	polycyclic aromatic hydrocarbons
PM_{10}	particulate matter less than 10 microns in diameter
$\text{PM}_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
REL	Reference exposure level
ROG	reactive organic gases
SCAQMD	South Coast Air Quality Management District
SJVAPCD	San Joaquin Valley Air Pollution Control District
TAC	toxic air contaminants
TOG	total organic gases

SECTION 1: EXECUTIVE SUMMARY

This health risk assessment (HRA) was prepared to evaluate the potential health risks from toxic air contaminants (TACs) at the proposed locations for sensitive receptors as detailed in the proposed Downtown Neighborhoods Community Plan (DNCP), Fulton Corridor Specific Plan (FCSP), and the Downtown Development Code (DDC or Downtown Code) in Fresno, California.

The California Air Resources Board (CARB) has identified several TACs, including diesel particulate matter (DPM), as carcinogenic substances, based on their potential to cause cancer, premature death, and other health problems. Those most vulnerable to these TACs are children whose lungs are still developing and the elderly who may have other serious health problems. In addition, diesel soot causes visibility reduction.

This HRA was conducted in accordance with the California Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA 2015), the Guidance for Air Dispersion Modeling (SJVAPCD, 2007), and the Final Staff Report Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document (SJVAPCD, 2015). This HRA includes: (1) an estimate of the TAC emissions from State Routes 41, 99 and 180 to the project study area; (2) a list of all stationary source TAC emissions in the project study area; (3) methodology utilized to analyze the TAC concentrations at the proposed sensitive receptors, (4) an assessment of human exposure to the TACs and PM_{2.5} at various sensitive receptor locations throughout the project study area; and (5) a quantitative estimation of project-specific health risks and hazards associated with these levels of exposure. These potential impacts are then compared with the applicable thresholds for cumulative sources of TAC emissions to assess the regulatory significance of these impacts.

Several mathematical modeling tools were employed in this assessment that are routinely used and approved by the BAAQMD to perform such air quality assessments.

- Lakes Environmental's AERMOD View Version 9.0.0 Model running the U.S Environmental Protection Agency (EPA) AERMOD air dispersion model.
- The ARB EMFAC2014 mobile emissions source model, which is used to calculate exhaust emissions from various types of vehicles operating on the nearby freeways.

The above models and their assumptions are described in subsequent sections and appendices to this report.

1.1 - Executive Summary

This report contains the results of a detailed health risk assessment to determine the cumulative community health risk and hazard impacts to the proposed placement of sensitive receptors within the DNCP and FCSP.

1.1.1 - TAC Emissions Impacts

This report contains the results of a detailed health risk assessment to determine the potential community health risk and hazard impacts associated with TAC emissions from nearby TAC sources including diesel particulate matter (DPM) sources located within the project study area. The principal focus was on assessing the long-term health impacts from TAC emissions used in assessing both long-term and short-term hazards. The analyses contained in this support the following conclusions:

- Development of residential units associated with the proposed project would have the potential to be located where the cumulative cancer risk exceeds the cumulative threshold of 100 in one million. Mitigation Measures 1 and 2 are provided to reduce the cancer risks to less than significant levels.
- The project study area would not exceed the cumulative noncancer chronic and acute hazard indexes of 10.0 at any location where development of residential uses would occur.

1.1.2 - Mitigation Measures

MM HRA-1 The City shall require that requires any new residential development that is located within $0.1 \mu\text{g}/\text{m}^3$ DPM concentration contours as detailed in Exhibit 4, to install a positive static pressure forced air heating, ventilation, and air conditioning (HVAC) system into each residential unit. Each HVAC system will be required to install a high efficiency Minimum Efficiency Reporting Value (MERV) filter of MERV 13 or better in the air intake for the HVAC system and the air intake will be installed with a fan designed to force air through the MERV 13 filter in order to create positive static pressure.

MM HRA-2 The City shall require that requires require any new residential development that is located within the recommended setback distances detailed in Table 10 from a stationary source of TAC emissions to install a positive static pressure forced air heating, ventilation, and air conditioning (HVAC) system into each residential unit. Each HVAC system will be required to install a high efficiency Minimum Efficiency Reporting Value (MERV) filter of MERV 13 or better in the air intake for the HVAC system and the air intake will be installed with a fan designed to force air through the MERV 13 filter in order to create positive static pressure.

SECTION 2: PROJECT DESCRIPTION

2.1 - Project Location

The DNCP boundaries are located within the southern portion of the City of Fresno. The community plan boundaries encompass 7,290 acres. The Community Plan area is generally bounded to the east by Chestnut Avenue, to the south by Church Avenue, to the west by Thorne, West, and Marks Avenues, and to the north by State Route 180 (Exhibit 1). Along the western side of the Community Plan area, the boundaries extend as far north as Clinton Avenue. The Community Plan area is divided by State Routes 99, 41, and 180, as well as the Union Pacific and BNSF railroad right-of-ways.

The FCSP area is located within the boundaries of the DNCP (Exhibit 2). The FCSP boundaries encompass 655 acres. The Specific Plan area is generally bounded to the north by Divisadero Street, to the west by State Route 99, to the south by State Route 41, and to the east by N Street, O Street, and the alley between M and N Streets (Exhibit 3). The Specific Plan area is divided by the Union Pacific railroad right-of-way.

2.1.1 - Sensitive Receptors in Project Vicinity

Individuals who are more sensitive to toxic exposures than the general population are considered sensitive receptors. This would include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. Such receptors may reside at hospitals, residences, convalescent facilities, and schools.

2.2 - Project Description

2.2.1 - Downtown Neighborhoods Community Plan Objectives

The primary objectives of the DNCP are as follows:

- To make the Downtown Neighborhoods attractive, healthy, mixed-income places to live, thanks to their historic character and their proximity to a revitalized Downtown.
- To revive the underlying structure of the Downtown Neighborhoods to create identifiable neighborhoods, districts, and corridors.
- To integrate the public realm of streets with a multi-modal transportation network that renders them walkable and livable.
- To regenerate parks and public spaces and make them safe and accessible to residents.
- To reinforce the identity of each of the Plan subareas by including all of the remaining ingredients for quality of life from childhood to old age within a walkable range.
- To reintroduce missing street trees, irrigation, and sidewalks, and slow down traffic on primary thoroughfares through various traffic-calming measures.
- To introduce a range of well-designed building types that provide a variety of housing choices within easy access of parks, services, and jobs.

- To design residential buildings to promote safety and community on the sidewalk and street.
- To design commercial buildings with facades that are adjacent to sidewalks, are constructed of quality and durable materials, can accommodate a mix of uses at any one time, and can be reused over time under different programs.
- To introduce the High Speed Train in a manner that has the least impact possible on the surrounding homes, businesses, and open spaces, while preserving Downtown’s interconnected street network to the maximum extent possible.

2.2.2 - Fulton Corridor Specific Plan Objectives

The primary objectives of the FCSP are to define:

- A vision for the future of Downtown that recognizes the importance of history and tradition while embracing opportunities for continued reinvestment, growth, and beneficial change.
- Goals and policies that work in tandem with and refine those of the General Plan and the Downtown Neighborhoods Community Plan to achieve the revitalization of the Plan area.
- New zoning standards for the Plan area that will replace current zoning regulations. These new standards are calibrated to deliver new development that is consistent with Fresno’s physical character, history, and culture, as well as the community’s vision for its future growth.
- The implementation strategy for transforming the Plan area’s streets, infrastructure, parks, and other public spaces. The above purposes provide private property owners with a clear understanding of the future context within which they are investing and reinvesting in their properties.

2.2.3 - Downtown Development Code Objectives

The objectives of the DDC are summarized as follows:

1. Property shall be occupied with land use activity to improve health; stabilize and improve property values; provide continuity of Fresno’s heritage; maximize compatibility; offer a range of housing choices; increase reinvestment in the Downtown Neighborhoods; provide a wide range of services and shopping; revitalize mixed-use corridors; and support convenient transit.
2. Buildings and their additions shall be designed and maintained to support reinvestment; generate one main building per site; front the adjacent street(s); enhance the building’s relationship to the public realm; use appropriate landscape materials; generate long-term value; and express creativity.
3. Frontages shall be designed and maintained to support the intended physical environment; support active and continuous pedestrian-oriented environments; provide appropriate physical transitions between the public right-of-way and the property; and express creativity.

4. Signage shall be designed and maintained to promote the aesthetic and environmental values of the community; provide an effective channel of communication; avoid traffic safety hazards; and safeguard and protect the public health, safety, and general welfare.
5. Open spaces, landscaping and streetscapes shall be designed and maintained to preserve and promote the aesthetic character and environmental quality of Fresno as a place to live, work, and shop; correspond to the adjacent streetscapes; incorporate urban agriculture at all scales, as practical; and contribute to mitigating environmental degradation.
6. Each new or modified block and street shall be designed and maintained to interconnect and form/maintain a network; support the intended physical context; generate pedestrian-oriented block lengths; transform large sites into pedestrian-oriented blocks; increase the number of blocks; and support a multi-modal transportation system.

2.3 - Project Characteristics

2.3.1 - Development Potential

The maximum amount of development that is anticipated to occur within the two Plan areas has been quantified for the purposes of conducting environmental impact analysis, as summarized in Table 1.

Table 1: Maximum Development Potential by Land Use¹

Land Use	Quantity DNCP (excl. FCSP)	Quantity FCSP	DNCP + FCSP
Residential (dwelling units)	3,697	6,293	9,990
Office (sf)	2,000,000	3,900,000	5,900,000
Retail (sf)	350,000	1,600,000	1,950,000
Industrial (sf)	2,900,000	150,000	3,050,000
Public Facilities (sf)	0	0	0
Agriculture (acres)	0	0	0
Open Conservation (acres)	33	31	64
Vacant Land (acres)	0	0	0

Note:

¹ To examine the level of development allowed within the FCSP area, individual underutilized parcels were identified within the FCSP area. These consisted of vacant lots, parking lots, lots that contain underutilized non-historic buildings, and buildings with parking lots in front of them. For the DNCP area, vacant parcels were identified. A floor area ratio (FAR) range, derived from the FAR of each proposed building type allowed within each parcel's respective zone in the Downtown Development Code, was then applied to each of the underutilized parcels, resulting in a total gross new building square footage.

This gross square footage was then apportioned among the uses projected within the plan area according to the land use proportions of the market demand development potential. Since the Market Analysis did not evaluate the industrial market, the industrial development potential was assumed to be approximately 10% of the total building square footage for the combined plan areas. The existing building square footage currently present within these parcels was then subtracted, by use from the proposed square footage.

Note that the allowed development potential within the FCSP area included 1.5 million square feet (sf) of space within

Land Use	Quantity DNCP (excl. FCSP)	Quantity FCSP	DNCP + FCSP
existing vacant buildings. As with new development potential, this 1.5 million sf of existing vacant space was apportioned according to the market demand potential, adding up to approximately 860 residential units 390,975 sf of office space, 119,233 sf of retail space, and a reduction of 42,587 sf of industrial space. This existing vacant space is considered new development potential, not existing development. Thus, the FCSP determines the allowed development that can occur within the FCSP area, regardless of whether it is a new building on vacant land or new uses in an existing vacant building.			

The “high” capacity development potential, by land use, for each of the FCSP districts is shown in Table 2. Negative development potential for industrial uses in certain districts is attributed to existing industrial uses that are assumed to be replaced by non-industrial uses.

Table 2: Development Potential by Downtown (FCSP) District (High Development Potential)

Land Use	Central Business District ¹	Cultural Arts District	Civic Center	South Stadium District	Chinatown	Armenian Town/	Divisadero Triangle	Total
Residential (units)	1,338	1,719	191	691	1,587	447	320	6,293
Office (s.f.)	1,338,402	1,172,463	57,775	290,845	891,318	206,191	-60,115	3,896,879
Retail (s.f.)	483,053	662,143	35,385	108,058	246,541	32,280	19,026	1,586,486
Industrial (s.f.)	—	-42,180	—	-848	204,062	-15,949	—	145,085
Note: ¹ Includes approximately 1.5 million sf, as estimated by the City, of vacant, but usable, space in existing multi-floor buildings in the Plan Area. Development potential is divided into 860 residential units and 467,621 sf of non-residential uses.								

2.3.2 - Residential Population Potential

Population projections were based on the 2025 General Plan, which allocated population by Community Plan areas. Table 3 shows the population increase allowed under the 2025 General Plan within each existing community plan area; the allowed population increase within the portion of each community plan that overlapped the DNCP area, the actual population within the portion of each community plan that overlapped the DNCP area in the year 2000 (per the 2000 Census); and the total expected 2035 population within the portion of each community plan that overlapped the DNCP area.

Table 3: 2025 General Plan Allowed Population Increase by Existing Community Plan Area

Existing Community Plan	Allowed Population Increase (Persons)		Population Within Proposed DNCP/FCSP Boundary (Persons)	
	Within Each Existing Community Plan Boundary	Within Proposed DNCP/FCSP Boundary ¹	Year 2000 ²	Year 2035
Central Area	12,845	12,845	14,927	27,772

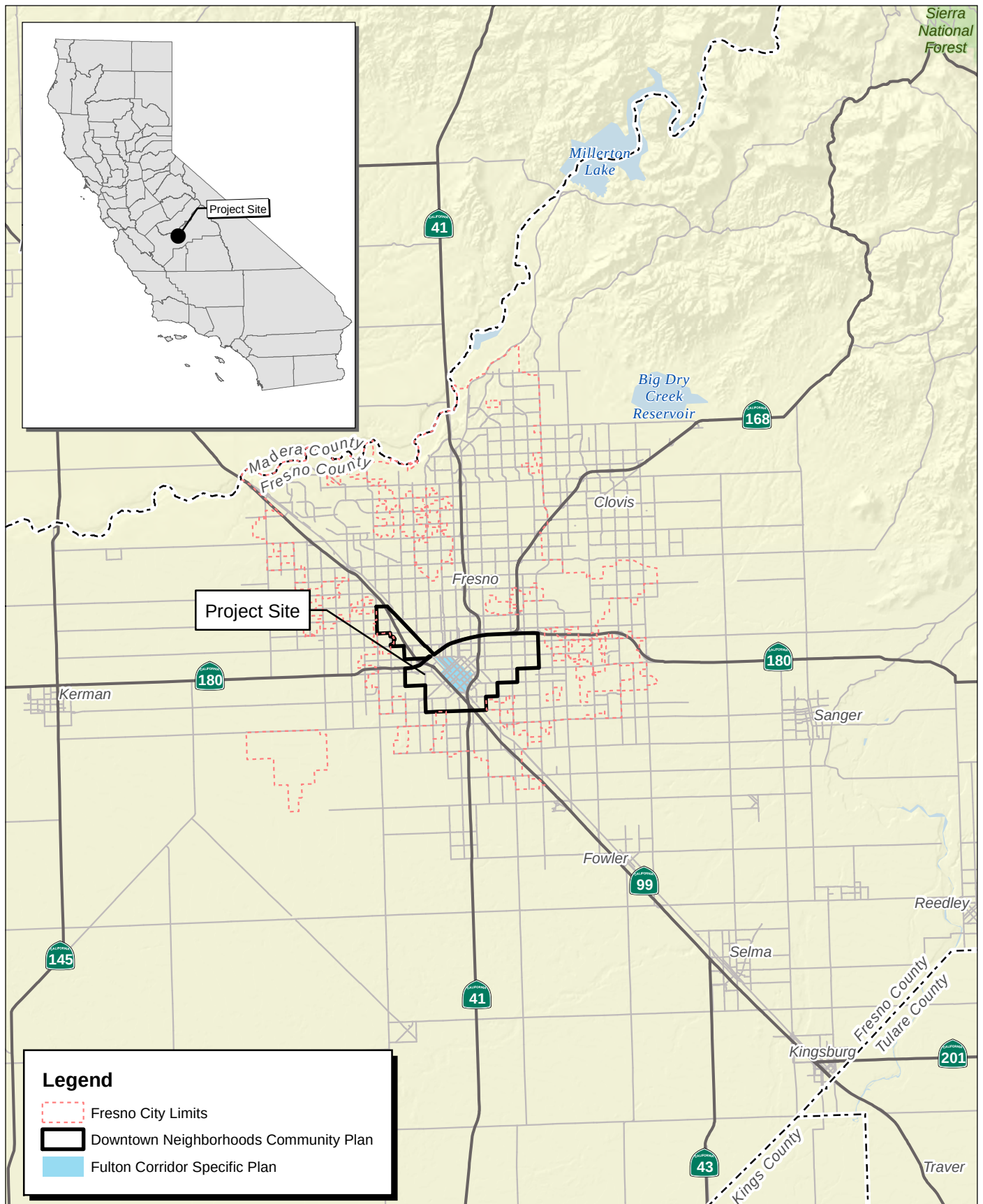
Existing Community Plan	Allowed Population Increase (Persons)		Population Within Proposed DNCP/FCSP Boundary (Persons)	
	Within Each Existing Community Plan Boundary	Within Proposed DNCP/FCSP Boundary ¹	Year 2000 ²	Year 2035
Edison	43,286	7,657	12,356	20,013
Roosevelt	39,036	5,809	35,598	41,407
West Area	73,913	5,447	4,754	10,201
Total	169,080	31,758	67,635	99,393
Notes: ¹ Percentage of existing community plan areas within proposed DNCP/FCSP boundary are as follows: Central Area: 100.00% Edison: 17.69% Roosevelt: 14.88% West Area: 7.37% ² Source: 2000 Census				

As Table 3 shows, the anticipated year 2035 population within the portions of the Edison, Roosevelt, and West Area community plans that overlapped the DNCP is within the limits of the 2025 General Plan. While the Central Area Community Plan permitted only 12,845 additional residents, the DNCP proposes to allow as many as 14,927 additional residents within this area. This increase is based upon the DNCP's – and the accompanying FCSP's – goals of generating a vibrant, mixed-use Downtown by introducing the maximum number of residents within the heart of Downtown (i.e., within the FCSP area). To achieve this end, the DNCP applies the aggregate allowed residential population increase for each portion of the Community Plan areas to the entire combined DNCP boundary, as shown below in Table 4.

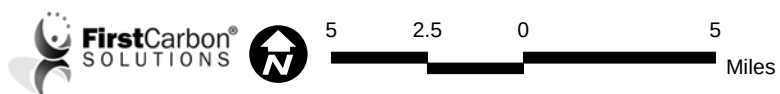
The residential population for each plan area, as well as the combined population for both plan areas, is shown in Table 4. Together, the DNCP and FCSP anticipate that by the year 2035, the residential population of the plan areas could increase by as many as 28,860 people, to a total population of 99,081 residents, which is within the limits established by the Fresno General Plan.

Table 4: Residential Population Potential

Land Use	DNCP (excl. FCSP)	FCSP	DNCP + FCSP
Existing Population (persons) ^a	66,344	3,877	70,221
New Population (persons) ^b	15,268	13,593	28,860
Total Residential Population (persons)	81,612	15,834	99,081
Existing Population Density (persons/acre)	9.98	5.92	9.62
Population Density in Year 2035 (persons/acre)	12.28	24.17	13.35
Notes: ^a Source: Claritas, Inc.; American Community Survey 2006-2008; Strategic Economics 2010. ^b Assumes 4.1 persons per household for the DNCP and 1.9 persons per household for the FCSP. The Citywide average for persons per household is 3.0. Source: Claritas, Inc.; American Community Survey 2006-2008; Strategic Economics 2010. The DNCP is composed primarily of large families, while the FCSP is home to a much larger proportion of single person households.			



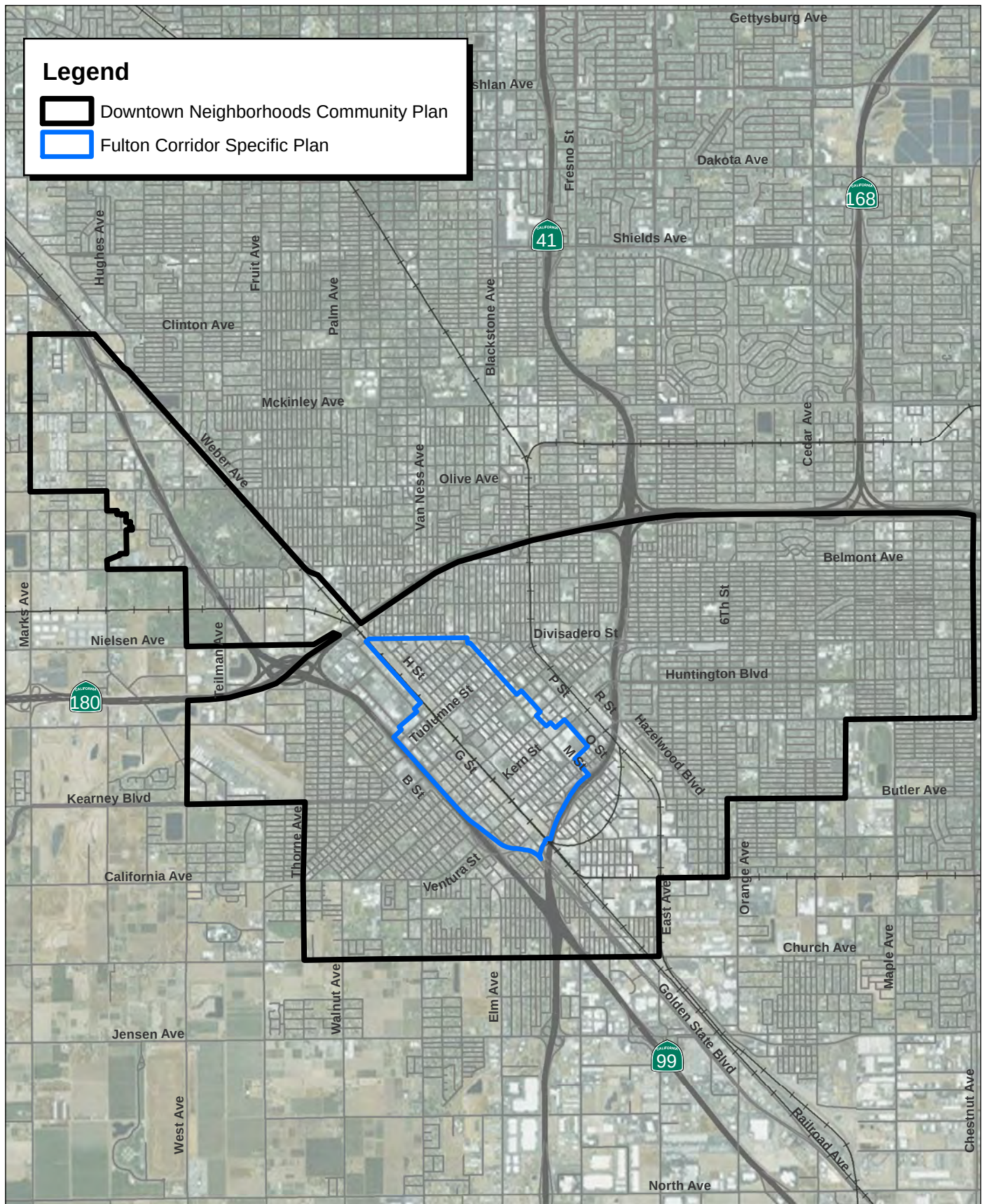
Source: Census 2000 Data, The CaSIL, FCS GIS 2013.



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Exhibit 1 Regional Location Map

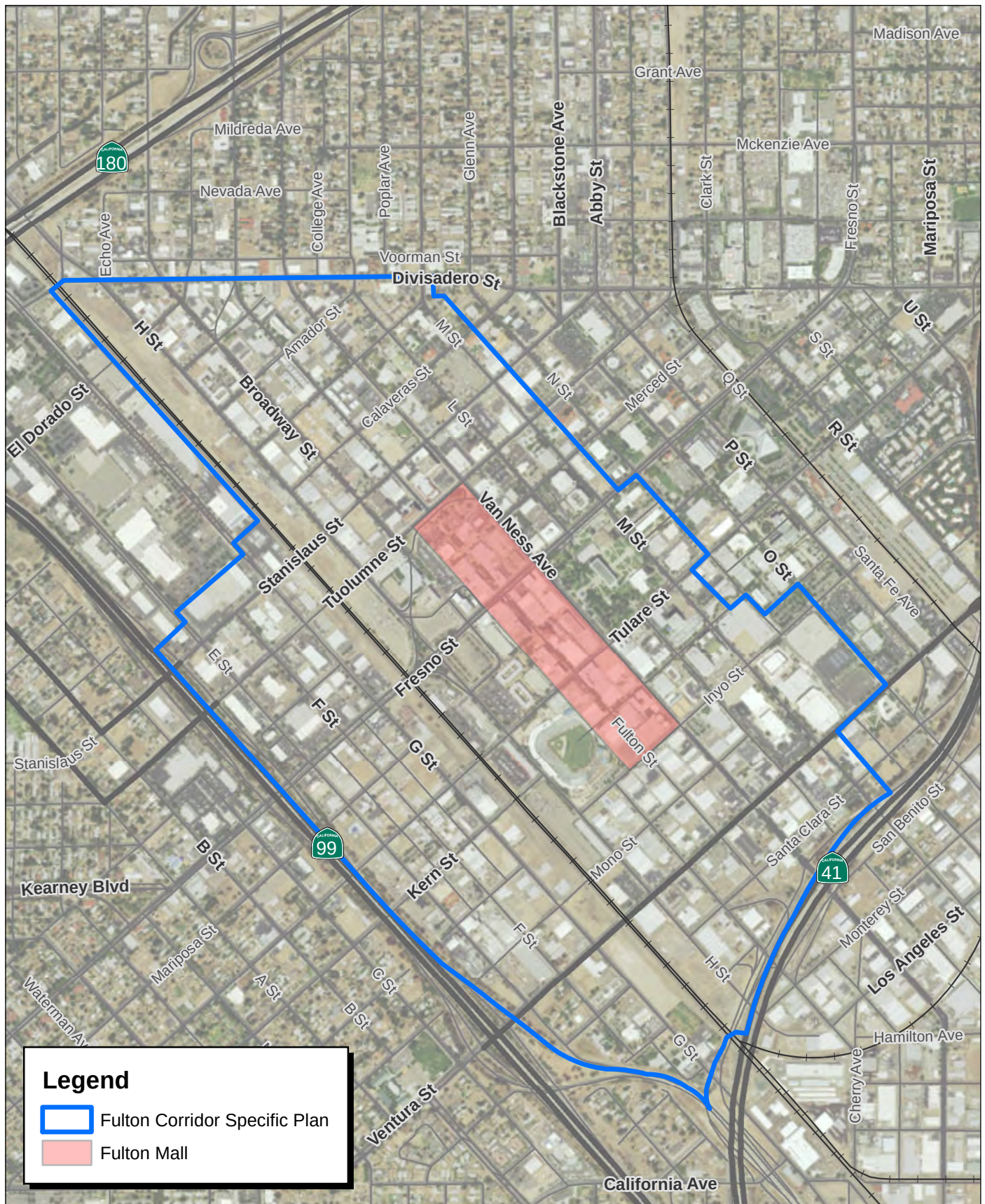
CITY OF FRESNO
DNCP, FCSP, AND DDC
HEALTH RISK ASSESSMENT



Source: ESRI Imagery, 2014



Exhibit 2 Plan Areas



Source: ESRI Imagery, 2014



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Exhibit 3

Fulton Corridor Specific Plan Area

CITY OF FRESNO
DNCP, FCSP, AND DDC
HEALTH RISK ASSESSMENT

SECTION 3: TOXIC AIR CONTAMINANTS

TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

3.1 - Diesel Emissions

According to The California Almanac of Emissions and Air Quality 2013 Edition (CARB, 2013), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is a subset of PM_{2.5} because the size of diesel particles are typically 2.5 microns and smaller. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or “soot.” Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California’s identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California’s potential airborne cancer risk from combustion sources. The various pollutants within DPM that also cause acute and chronic health impacts are detailed in Table 5, which was developed through crosschecking all diesel emissions pollutants provided in San Diego Air Pollution Control District’s (SDAPCD) Diesel Fired Engines Emissions Factor Table to the list of acute and chronic reference exposure levels provided at: <http://oehha.ca.gov/air/allrels.html>.

Table 5: Diesel Emission Pollutants that Cause Acute and Chronic Health Impacts

Toxic Air Contaminant	Reference Exposure Level (µg/m ³) ⁽¹⁾		Percent of DPM Emission Rate ⁽³⁾	Target Organ Systems
	Acute REL ⁽²⁾	Chronic REL		
1,3-Butadiene	660	140	0.51	Development
Acetaldehyde	470	140	1.84	Eyes, respiratory system (sensory irritation)
Acrolein	2.5	0.35	0.08	Eyes, respiratory system
Arsenic	0.2	0.015	0.004	Reproductive/developmental, cardiovascular system, nervous system
Benzene	27	3	0.44	Hematologic system, immune system, reproductive/developmental
Cadmium	—	0.02	0.004	Kidney, respiratory system

Table 2 (cont.): Diesel Emission Pollutants that Cause Acute and Chronic Health Impacts

Toxic Air Contaminant	TAC Potency factors ($\mu\text{g}/\text{m}^3$) ⁽¹⁾		Percent of DPM Emission Rate ⁽³⁾	Target Organ Systems
	Acute REL ⁽²⁾	Chronic REL		
Chlorobenzene	--	1,000	0.0005	Eyes, respiratory system
Chromium (hexavalent)	—	0.2	0.001	Respiratory system, hematologic system
Copper	100	—	0.01	Respiratory system
Ethyl benzene	—	5	0.03	Liver, kidney, developmental
Formaldehyde	55	9	4.07	Eyes, immune system, respiratory
Hexane	—	200	0.06	Nervous system
Hydrogen Chloride	2,100	9	4.07	Eyes, immune system, respiratory
Manganese	—	0.09	0.01	Nervous system
Mercury	0.6	0.03	0.005	Reproductive/developmental
Naphthalene	—	9	0.05	Respiratory system
Nickel	0.2	0.02	0.01	Immune system, respiratory system
Propylene	—	3,000	1.10	Respiratory system
Selenium	—	20	0.01	Liver, cardiovascular system, nervous system
Toluene	37,000	300	0.25	Nervous system, eyes, respiratory system, reproductive/developmental
Xylene	22,000	700	0.10	Eyes, nervous and respiratory systems
DPM	—	5	—	Respiratory system
Notes: ⁽¹⁾ Potency factors obtained from: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp ⁽²⁾ REL = Reference Exposure Level ⁽³⁾ Percentage of DPM Emission Rate calculated by dividing the pollutant's pounds per 1,000 gallons rate by the PM2.5 pounds per 1,000 gallons rate provided by the SDAPCD Source: OEHHA, 2014; SDAPCD, 2011.				

3.2 - Gasoline Emissions

CARB staff has evaluated the potential cancer risk levels caused by the use of gasoline and their findings are shown in Table 6. Table 6 shows the emissions of four major compounds of gasoline exhaust in the year 2005 for the study area, which included the San Francisco Bay Air Basin (CARB, 2008). As indicated in Table 6, the cancer potency weighted emissions of these four TACs from all types of gasoline sources are estimated at 481 tons per year. For gasoline vehicle sources, the potency weighted emissions of these four TACs are estimated at about 253 tons per year, or about 6

percent of the potency of diesel emissions. Since the potential cancer risks associated with gasoline vehicles are substantially less than the potential cancer risks associated with DPM emissions, gasoline-vehicle TAC emissions have not been analyzed in this HRA.

Table 6: TAC Emissions from Gasoline Exhaust

Toxic Air Contaminant	Emissions (tons per year) ¹			
	All Gasoline Sources ²	Potency Weighted ³	Gasoline Vehicular Sources	Potency Weighted
1,3-Butadiene	414	228	245	135
Benzene	1,997	180	1,153	104
Formaldehyde	3,208	61	605	12
Acetaldehyde	1,355	12	177	2
Total (other than DPM)	6,974	481	2,180	253
DPM (from Diesel)	4,552	4,552	-	-
Ratio of Gasoline Vehicular Sources to DPM Potency Weight				0.06
Notes: ¹ The tons per year of emissions are based on the total emissions from the San Francisco Bay Air Basin study area. ² Includes gasoline storage, distribution, and filling stations as well as vehicle sources. ³ Potency factors obtained from: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp Source: CARB, 2008; OEHHA, 2014.				

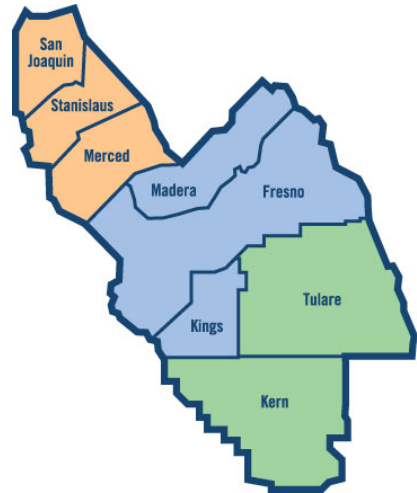
The 1990 Clean Air requires the use of reformulated gasoline that reduces TAC emissions by a minimum of 20 percent by the year 2000. The TAC reductions have been achieved by mainly reducing gasoline volatility as well as reducing the benzene content in gasoline. (<http://www.epa.gov/otaq/consumer/02-toxic.pdf>). In 2001, the EPA strengthened the benzene limitations in gasoline with adoption of the Mobile Source Air Toxics Rules (MSAT). The MSAT Phase 2 rules, which are now in effect limits benzene to an average of 0.62 percent of gasoline and provides other measures to reduce benzene emissions from gasoline.

Although, gasoline-powered vehicles create TACs, since TAC emissions from gasoline have been greatly reduced from the 1990 Clean Air Act and MSAT, and since gasoline-related TAC emissions are emitted at a rate of approximately 6 percent of diesel-related TAC emissions, the cancer risk created from gasoline-powered vehicles is negligible, when compared to DPM. Therefore no further analysis of gasoline emissions is provided in this analysis.

SECTION 4: ENVIRONMENTAL AND REGULATORY SETTING

4.1 - Environmental Setting

The project is located in the City of Fresno, in Fresno County and within the eight-county San Joaquin Valley Air Basin (SJVAB) (see figure at right). The air quality in the SJVAB is among the worst in the nation, and routinely exceeds federal and state air quality health standards for ozone and particulates. The SVAB's poor air quality is caused by natural geographic and climatic conditions, as well as local and regional development, transportation, and land use practices.



Source: SJVAPCD.

4.2 - Regulatory Setting – Toxic Air Contaminants

The toxic air contaminants (TACs) at the project site are addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce TACs through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving TACs are discussed below.

4.2.1 - Federal and State

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. There are national standards for six common “criteria” air pollutants including ozone, nitrogen dioxide, carbon monoxide, particulate matter (PM10 and PM2.5), lead, and sulfur dioxide, which were identified from provisions of the Clean Air Act of 1970. California, under the California Clean Air Act, has also defined a set of health protective California Ambient Air Quality Standards (CAAQS).

Besides the “criteria” air pollutants, there is another group of substances found in ambient air referred as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act and Toxic Air Contaminants (TACs) under the California Clean Air Act. These contaminants tend to be localized to their sources and are found in relatively low concentrations in ambient air. They are regulated at the federal, state and regional levels, due to their potential of causing adverse health effects from exposure to low concentrations for long periods of time. HAPs are the air contaminants identified by the EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of the contaminants originate from human activities, such as fuel combustion and solvent use. Mobile Source Air Toxics (MSATs) are a subset of the 188 identified HAPs. Of the 21 different HAPs that constitute the MSATs, there are six primary HAPs identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States is anticipated to increase by 64 percent between 2000 and 2020, emissions of MSATs are anticipated to decrease between 57 and 67 percent as a result of efforts to control mobile source emissions.

The CARB Statewide comprehensive air toxics program was established in the early 1980s. The TAC Identification and Control Act (Assembly Bill 1807, Tanner 1983 [AB 1807]) created California’s program to reduce exposure to air toxics. The Air Toxics “Hot Spots” Information and Assessment Act (Assembly Bill 2588, Connelly 1987 [AB 2588]) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

AB 1807, requires the CARB to identify and control TACs. In selecting substances, the CARB must consider “the risk of harm to the public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community.” AB 1807 also requires the CARB to use available information gathered from the AB 2588 program to include in the prioritization of compounds. In 1992, the Hot Spots Act was amended by Senate Bill 1731, to require facilities that pose a significant health risk to reduce their risk through a risk management plan.

In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce PM emissions and the associated health risks by 75 percent by 2010 and 85 percent by 2020. The plan provides a roadmap that identifies steps CARB will be taking to develop specific regulations to reduce diesel particulate matter (DPM) emissions.

As a result of controls on motor vehicles, fuels, stationary sources, and consumer products, the public’s exposure to air toxics has decreased dramatically. Between the early 1990’s and today, the decrease in statewide average health risk ranged from approximately a 20 percent decrease from formaldehyde to approximately a 90 decrease for perchlorethylene. 1,3-butadiene and benzene have also seen significant decreases of 80 to 85 percent as a result of CARB’s mobile source control program. In addition dioxins have been reduced by 99 percent in that time period, however that is primarily due to CARB’s restrictions on medical waste incinerators.

California emission regulations appropriate to the local industrial facility emission sources include:

- CARB Air Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling limits the idling of diesel vehicles to reduce emissions of toxics and criteria pollutants (CARB 2005). The driver of any vehicle subject to this section: (1) shall not idle the vehicle’s primary diesel engine for greater than five minutes at any location; and (2) shall not idle a diesel-fueled auxiliary power system (APS) for more than five minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).
- CARB Air Toxics Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRUs) and TRU Generator Sets, and Facilities Where TRUs Operate implements the provisions of the CARB Diesel Risk Reduction Program that limits the emissions of diesel particulate matter emissions from TRUs that operate in California (CARB 2011a).

- CARB Final Regulation Order, Requirements to Reduce Idling Emissions from New and In-Use Trucks, beginning in 2008, would require that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to “neutral” or “park”, and the parking brake is engaged (CARB 2005).
- CARB Final Regulation Order, Adoption of the Statewide Truck and Bus Regulations, would require affected on-road trucks and buses to meet performance requirements between 2013 and 2023 such that by January 1, 2023 all vehicles must have a 2010 model year engine or equivalent (CARB 2011b).

4.2.2 - Regional

The SJVAPCD is the agency principally responsible for comprehensive air pollution control for the SJVAB. The SJVAPCD is responsible for regulating emissions primarily from stationary sources and certain areawide and indirect sources, but has no authority over motor vehicle emissions and other non-stationary sources of TAC emissions. To that end, as a regional agency, the SJVAPCD works directly with the eight countywide transportation commissions and local governments and cooperates actively with all federal and state agencies. The SJVAPCD with coordination of the eight county transportation agencies is also responsible for developing, updating and implementing the Air Quality Plans for the Air Basin. In addition, the SJVAPCD has prepared the Guide for Assessing and Mitigating Air Quality Impact (GAMAQI) (SJVAPCD, 2014), which sets forth recommended thresholds of significance, analysis methodologies, and provides guidance on mitigating significant impacts.

SECTION 5: MODELING PARAMETERS AND ASSUMPTIONS

The TAC dispersion modeling utilized in this analysis has been based on the recommended methodology provided by the SJVAPCD (SJVAPCD, 2007; SJVAPCD, 2015) and OEHHA (OEHHA, 2015). This assessment focused on estimating potential health risk impacts to the proposed placement of sensitive receptors within the DNCP and FCSP from the nearby freeways. Important issues that affect the dispersion modeling include the following: 1) Model Selection, 2) Source Treatment, 3) Meteorological Data, and 4) Receptor Grid. Each of these issues is addressed below.

5.1 - Model Selection

Lakes Environmental's AERMOD View Version 9.0.0 Model running the AERMOD dispersion model was used for all dispersion modeling. Key dispersion modeling options selected include the regulatory default option and urban modeling option for the City of Fresno with a population of 520,159. Flagpole receptor height was set to 0 meters. AERMAP (the terrain pre-processor for AERMOD) was run with a 1-degree USGS DEM Map of West Fresno.

5.1.1 - Meteorological Data

Meteorological data from the National Climatological Data Center at the Fresno Air Terminal Airport was selected for this modeling application. Five full years of sequential meteorological data was collected at the Fresno Airport from 2009 to 2013. The SJVAPCD processed the data for input to the model. The data was obtained at:

http://www.valleyair.org/busind/pto/Tox_Resources/2013_Modeling/fresno.htm.

5.1.2 - Receptor Grid

Discrete Receptors were placed at the approximate location of representative nearby sensitive receptors located throughout the project study area. Sensitive receptors include but are not limited to single- and multi-family homes, schools, hospitals and convalescent care centers, parks, and churches.

5.2 - Freeway Emissions Assumptions

The principal source of TAC emissions from State Routes 41, 99, and 180 are from diesel vehicles operating on these freeways. The 2014 Annual Average Daily Truck Traffic on the California State Highway System (Caltrans, 2015), provides the annual average daily traffic on every State Route in the State as well as the percentage of traffic that are trucks. However, for State Route 180 this report does not provide any traffic information in the vicinity of the project site so for State Route 180 the traffic volumes were obtained from the Annual Average Daily Traffic (AADT) for all Vehicles on California State Highways (Caltrans, 2015a). Table 7 provides a summary of the Caltrans traffic volumes for State Routes 41, 99, and 180. Table 7 also shows the estimated number of diesel-powered non-trucks, which is based on the California, Texas & Florida Lead U.S. in High-Mileage Diesel & Hybrid Passenger Vehicles (Diesel Technology Forum, 2014), which found that diesel vehicles represent 1.85 percent of all vehicles in California.

Table 7: Vehicle Volumes and Vehicle Mixes on Nearby Freeways

Freeway	Segment	Annual Average Daily Traffic		
		Non-Trucks/Diesel	2-Axle Trucks	3+Axle Trucks
State Route 41	South of State Route 180	135,360/2,504	3,948	1,692
State Route 99	North of State Route 41	48,510/897	3,043	11,447
State Route 180	West of McCall Avenue	22,829/422	776	1,420

Source: Caltrans, 2015.

5.2.1 - Freeway DPM Emission Factors

The vehicle travel emission rates were obtained from the CARB EMFAC2014 model Version 1.0.7. The EMFAC2014 model is the latest emissions inventory model released by CARB that calculates motor vehicle emissions from vehicles operating on roads in California. The EMFAC2014 includes the latest data on California's car and truck fleets and travel activity and also reflects the emissions reductions associated with CARB's recent rulemaking, including on-road diesel fleet rules, Advanced Clean Car Standards, and the Smartway/Phase I Heavy-Duty Vehicle GHG Regulations. The EMFAC2014 model was run based on annual emission rates for Fresno County with a vehicle travel speed of 65 miles per hour for non-trucks and 2-axle trucks (Trucks 1) and a vehicle speed of 55 miles per hour was assumed for 3+-axle trucks (Trucks 2).

DNCP, FCSP, and DDC could potentially be adopted and projects could be constructed based on the adopted plans as soon as the year 2017. The EMFAC2014 PM₁₀ running emission factors utilized in this assessment are shown in Table 8 and the EMFAC2014 model printouts are provided in Appendix A.

Table 8: EMFAC2014 DPM Emission Rates

Vehicle Class	Speed (mph)	EMFAC2014 PM ₁₀ Running Emission Rates (grams/mile)
Non-trucks	65	0.053
2-axle trucks ¹	65	0.033
3+axle trucks ²	55	0.056
Non-trucks	65	0.053
2-axle trucks ¹	65	0.033

Notes:
¹ 2-axle trucks were modeled as Trucks 1 in EMFAC2014.
² 3+axle trucks were modeled as Trucks 2 in EMFAC2014.
Source: Caltrans, 2015.

The freeway emissions were modeled in the AERMOD model by using line volume sources. The line volume sources were modeled with a plume height of 6 feet and plume width of 12 feet for the on-

site roads, and a plume width of 60 feet for the off-site roads. All roads were modeled with a release height of 12 feet. The road source emissions rates entered into the AERMOD model are shown in Table 9. The road source emissions were determined by calculating the time it takes for each truck to cross the road length and then multiplying that amount of time by the daily truck operations and dividing it by 24 hours in order to determine the percent of daily running time. The daily running time was then multiplied by the EMFAC2014 emissions rates that are detailed above and were converted to grams per second.

Table 9: Vehicle Emissions Rates used in the AERMOD Model

Source ID	Description	Daily Vehicle Trips	DPM Emission Rates (grams/second)
SR41	SR-41 non trucks	2504	0.0172
	SR-41 2-axle trucks	3948	0.0169
	SR-41 3+axle trucks	1692	0.0123
	SR-41 total emissions	--	0.0465
SR99	SR-99 non trucks	897	0.006
	SR-99 2-axle trucks	3043	0.013
	SR-99 3+axle trucks	11447	0.082
	SR-99 total emissions	--	0.101
SR180	SR-180 non trucks	422	0.0032
	SR-180 2-axle trucks	776	0.0037
	SR-180 3+axle trucks	1420	0.0114
	SR-180 total emissions	--	0.0183
Source: EMFAC2014.			

SECTION 6: HEALTH RISK STANDARDS AND THRESHOLDS

Any project with the potential to expose sensitive receptors or the general public to substantial levels of TACs would be deemed to have a potentially significant impact. A health risk is the probability that exposure to a TAC under a given set of conditions will result in an adverse health effect. The health risk is affected by several factors, such as the amount, toxicity, and concentration of the contaminant; meteorological conditions; distance from the emission sources to people; the distance between emission sources; the age, health, and lifestyle of the people living or working at a location; and the length of exposure to the toxic air contaminant.

The term “risk” usually refers to the chance of contracting cancer as a result of an exposure, and it is expressed as a probability: chances-in-a-million. The values expressed for cancer risk do not predict actual cases that will result from exposure to toxic air contaminants. Rather, they state a probability of contracting cancer over and above the background level and over a given exposure to toxic air contaminants.

According to APR-1906 Framework for Performing Health Risk Assessments (SJVAPCD, 2015), any project that has the potential to expose the public to TACs in excess of the following threshold would be considered to result in a significant impact:

- Maximum Exposed Individual Cancer Risk from carcinogens equals or exceeds 20 in one million persons;
- Maximum Exposed Individual Acute Hazard Index from non-carcinogens equals or exceeds 1.0; or
- Maximum Exposed Individual Chronic Hazard Index from non-carcinogens equals or exceeds 1.0.

It should be noted that the above thresholds have been developed by the SJVAPCD in order to analyze projects that create new sources of TAC emissions and are not meant to be used in analyzing existing ambient concentrations of TAC emissions to projects with new sensitive receptors, such as the proposed project.

The only air district in California to develop a threshold to analyze the existing cancer and non-cancer risks to proposed sensitive receptors is the Bay Area Air Quality Management District. However, their thresholds have been challenged in court and they are awaiting the outcome of the pending appeal of the California Building Industry Association v. Bay Area Air Quality Management District (BAAQMD), is resolved prior to officially adopting the following draft thresholds. The BAAQMD Guidelines (BAAQMD, 2011) provides quantitative thresholds for both project-only impacts and cumulative impacts. However, the BAAQMD Guidelines (BAAQMD, 2012), removed the quantitative thresholds due to awaiting the outcome of the pending appeal of the California Building Industry Association v. Bay Area Air Quality Management District is resolved. In order to provide a conservative analysis, the quantitative thresholds provided in the 2011 BAAQMD Guidelines have been utilized.

According to the BAAQMD 2011 Guidelines (BAAQMD, 2011) a cumulative impact would occur if the project impacts combined with all sources within 1,000 feet of the project site at the maximum likely exposed individual resident to TACs in excess of the following thresholds would be considered to result in a significant impact:

- Maximum Incremental Cancer Risk: 100 in 1 million at the proposed sensitive receptors (i.e., residential, school, and hospital uses);
- Maximum Exposed Individual Acute Hazard Index from non-carcinogens equals or exceeds 10.0; or
- Maximum Exposed Individual Chronic Hazard Index from non-carcinogens equals or exceeds 10.0.

SECTION 7: HEALTH RISK IMPACTS

Health risks from TACs are twofold. First, TACs are carcinogens according to the State of California. Second, short-term acute and long-term chronic exposure to TACs can cause health effects to the respiratory system and other organs. Each of these health risks is discussed below.

7.1 - Cancer Risks

7.1.1 - DPM Cancer Risks from Freeways

According to the SJVAPCD Guidance (SJVAPCD, 2014), the SJVAPCD Staff Report (SJVAPCD, 2015), and OEHHa methodology (OEHHa 2015), health effects from carcinogenic air toxics are usually described in terms of individual cancer risk, which is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The cancer risk should be calculated using the following formula:

$$\text{Slope Factor} \times [C_{\text{air}} * \text{DBR} * A * \text{EF} * \text{ED} * \text{ASF} * 1 \times 10^{-6}] / \text{AT} = \text{Potential Cancer Risk}$$

Where:

Oral Slope Factor = 1.1

C_{air} [Concentration in air ($\mu\text{g}/\text{m}^3$)] = (Calculated by AERMOD Model)

DBR [Daily breathing rate (L/kg body weight – day)] = 361 for 3rd trimester to 0, 1,090 for 0 to 2 years, 745 for 2 to 16 years, and 233 for 16 to 69.75 years

A [Inhalation absorption factor] = 1

EF [Exposure frequency (days/year)] = 350 for residential uses

ED [Exposure duration (years)] = 0.25 (3rd trimester to 0), 2.0 (0 to 2 years), 14 (2 to 16 years), and 53.75 (16 to 69.75 years)

ASF [Age Sensitivity factors] = 10 for 3rd trimester to 2 years, 3 for 2 to 16 years and 1 for 16 to 69.75 years

10^{-6} [Conversion to cancer risk per 1,000,000 persons]

AT [Average time period over which exposure is averaged in days] = 25,550

The SJVAPCD Staff Report recommends that the OEHHa's Age Sensitivity factors be utilized, which includes utilizing a 10-fold multiplier to infants (3rd trimester to age 2), a 3-fold increase in exposure for children (ages 2 to 16 years old), and an exposure factor of 1 for ages 16 and older. The SJVAPCD also recommends utilizing OEHHa guidelines of separate breathing rates for each age group, which utilizes the 95th percentile for all age groups up to 16 years old and utilizes the 80th percentile for 16 years and older. The 95th percentile breathing rates for 3rd trimester is 361, for 0 to 2 years is 1,090, and for 2 to 16 years is 745 and the 80th percentile for 16 years and older is 233.

According to the above formula the residential receptors equates to:

$$\text{Potential Cancer Risk} = C_{\text{air}} * 14 \text{ (3}^{\text{rd}} \text{ trimester to 0)} + C_{\text{air}} * 328 \text{ (0 to 2 years)} + C_{\text{air}} * 471 \text{ (2 to 16 years)} + C_{\text{air}} * 1898 \text{ (16 to 69.75 years)} = 1,002 * C_{\text{air}}$$

Therefore, in order to exceed the cumulative cancer risk threshold of 100 per million that is detailed above in Section 6.0, the DPM concentration has to exceed $0.1 \mu\text{g}/\text{m}^3$ (i.e., $0.1 \times 1,002 = 100.2$). The AERMOD model (see Appendix B) found that that most impacted sensitive receptor in the study area is located at Three Palms RV Park, that is located on the east side of State Route 99 and west of Golden State Boulevard, which measured a PM_{10} concentration of $0.98 \mu\text{g}/\text{m}^3$. The cancer risk at this location is 979.6 per million from DPM emissions. Exhibit 4 shows the DPM concentrations and it should be noted that all areas within the project study area that are shaded red would exceed the 100 per million cumulative cancer risk threshold. Since the proposed project would allow development of residential uses within the area that exceeds the 100 per million cumulative cancer risk threshold, this would be considered a significant impact.

Mitigation Measure HRA-1 is provided that would require any new residential development that is located within $0.1 \mu\text{g}/\text{m}^3$ DPM concentration contours to install a positive static pressure forced air heating, ventilation, and air conditioning (HVAC) system into each residential unit. Each HVAC system will be required to install a high efficiency Minimum Efficiency Reporting Value (MERV) filter of MERV 13 or better in the air intake for the HVAC system and the air intake will be installed with a fan designed to force air through the MERV 13 filter in order to create positive static pressure.

According to Status of Research on Potential Mitigation Concepts to Reduce Exposure to Nearby Traffic Pollution (CARB, 2012), research has shown that homes with positive static pressure HVAC systems with MERV 13 to 16 air filters result in a 90 percent reduction in fine particles (PM_{10}) when compared to outdoor levels of PM_{10} . Based on this PM_{10} reduction rate, implementation of Mitigation Measure 1 would reduce the cancer risk experienced indoors at the most impacted location to 98.0 per million persons, which is within the BAAQMD's draft threshold of 100 per million from cumulative sources located within 1,000 feet of the project site. Therefore, with implementation of Mitigation Measure 1, the proposed residents would be exposed to a less than significant cancer risk from cumulative TAC concentrations.

7.1.2 - TAC Cancer Risks from Stationary Sources

CARB requires all facilities in California that emit TAC emissions to obtain a permit from CARB. CARB provides a Facility Search Engine at its website that can be used to identify facilities that emit TACs in different areas of the State. The project study area was analyzed in the Facility Search Engine and the stationary sources of TACs for year 2013 (most current year available) are shown in the following exhibits:

- Exhibit 5: Jane Addams Neighborhoods TAC Sources;
- Exhibit 6: Southwest Neighborhoods TAC Sources;
- Exhibit 7: Lowell and Jefferson Neighborhoods TAC Sources;
- Exhibit 8: Southeast Neighborhoods TAC Sources; and
- Exhibit 9: Downtown and South Van Ness Neighborhoods TAC Sources.

Each Exhibit shows the company name and address of each stationary TAC source as well as a map with the approximate location of the source. According to Health Risk Assessment for Proposed Land Use Project (CAPCOA, 2009), the siting of new sensitive receptors should adhere to the setback

recommendations as detailed in Table 10. If a residential use is proposed to be located within the setback distance from a stationary source of TAC emissions as detailed in Table 10 it may result in a significant cancer risk impact.

Table 10: CAPCOA Recommendations on Siting New Sensitive Receptors Near TAC Sources

Source Category	Advisory Recommendation
Distribution centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Chrome platters	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry cleaners using perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline dispensing facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.
Source: CAPCOA, 2009.	

Mitigation Measure HRA-2 is provided that would require any new residential development that is located within the recommended setback distances detailed in Table 10 from a stationary source of TAC emissions to install a positive static pressure forced air heating, ventilation, and air conditioning (HVAC) system into each residential unit. Each HVAC system will be required to install a high efficiency Minimum Efficiency Reporting Value (MERV) filter of MERV 13 or better in the air intake for the HVAC system and the air intake will be installed with a fan designed to force air through the MERV 13 filter in order to create positive static pressure.

7.2 - Non-Cancer Risks

In addition to the cancer risk from exposure to DPM there is also the potential DPM exposure may result in adverse health impacts from acute and chronic illnesses, as well as exceed PM_{2.5} concentrations, which are detailed below.

Chronic Health Impacts

Chronic health effects are characterized by prolonged or repeated exposure to a TAC over many days, months, or years. Symptoms from chronic health impacts may not be immediately apparent and are

often irreversible. The chronic hazard index is based on the most impacted sensitive receptor from the proposed project and is calculated from the annual average concentrations of DPM equivalent emissions. The relationship for non-cancer chronic health effects is given by the equation:

$$HI_{DPM} = C_{DPM} / REL_{DPM}$$

Where

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects

C_{DPM} = Annual average diesel particulate matter concentration in $\mu\text{g}/\text{m}^3$

REL_{DPM} = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated

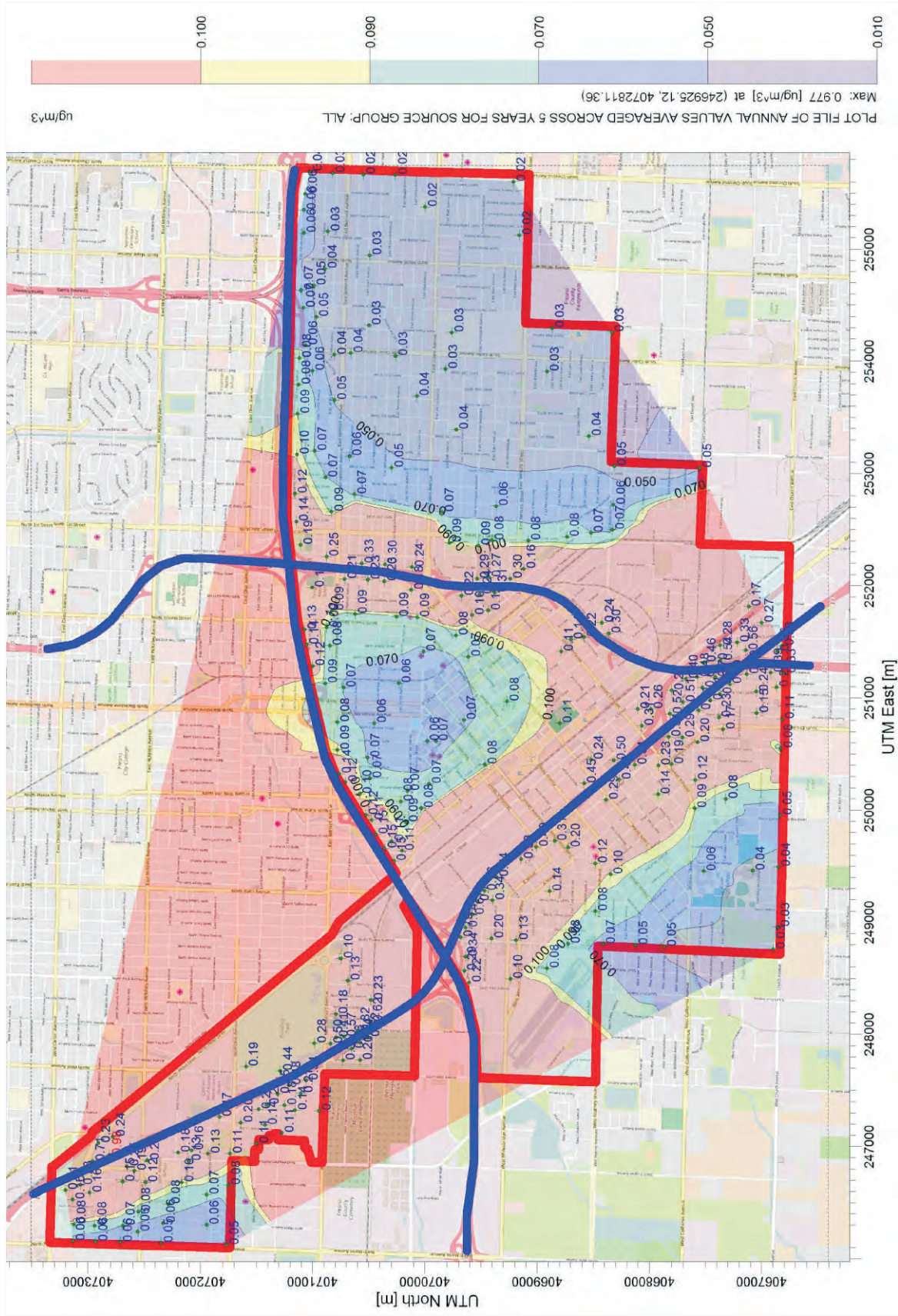
The REL_{DPM} is $5 \mu\text{g}/\text{m}^3$. The OEHHA, as protective for the respiratory system, has established this concentration. The AERMOD model found that the highest annual concentration at the proposed homes is $0.98 \mu\text{g}/\text{m}^3$ for DPM equivalent chronic non-cancer risk emissions. The resulting Hazard Index is:

$$HI_{DPM} = 0.98 / 5 = 0.196$$

As detailed in Section 6.0, the criterion for significance for new residential uses from existing TAC sources is 10.0 or greater. Since the proposed homes would experience a chronic risk from the nearby freeways that is below the cumulative threshold for new homes, the proposed project is not anticipated to expose new sensitive receptors to unacceptable non-cancer chronic risk levels from TAC emissions.

Acute Health Impacts

Acute health effects are characterized by sudden and severe exposure and rapid absorption of a TAC. Normally, a single large exposure is involved. Acute health effects are often treatable and reversible. According to the OEHHA, no acute risk has been found to be directly created from DPM, so there is no AREL assigned to DPM, and therefore the proposed project is not anticipated to expose new sensitive receptors to unacceptable non-cancer acute risk levels from TAC emissions.

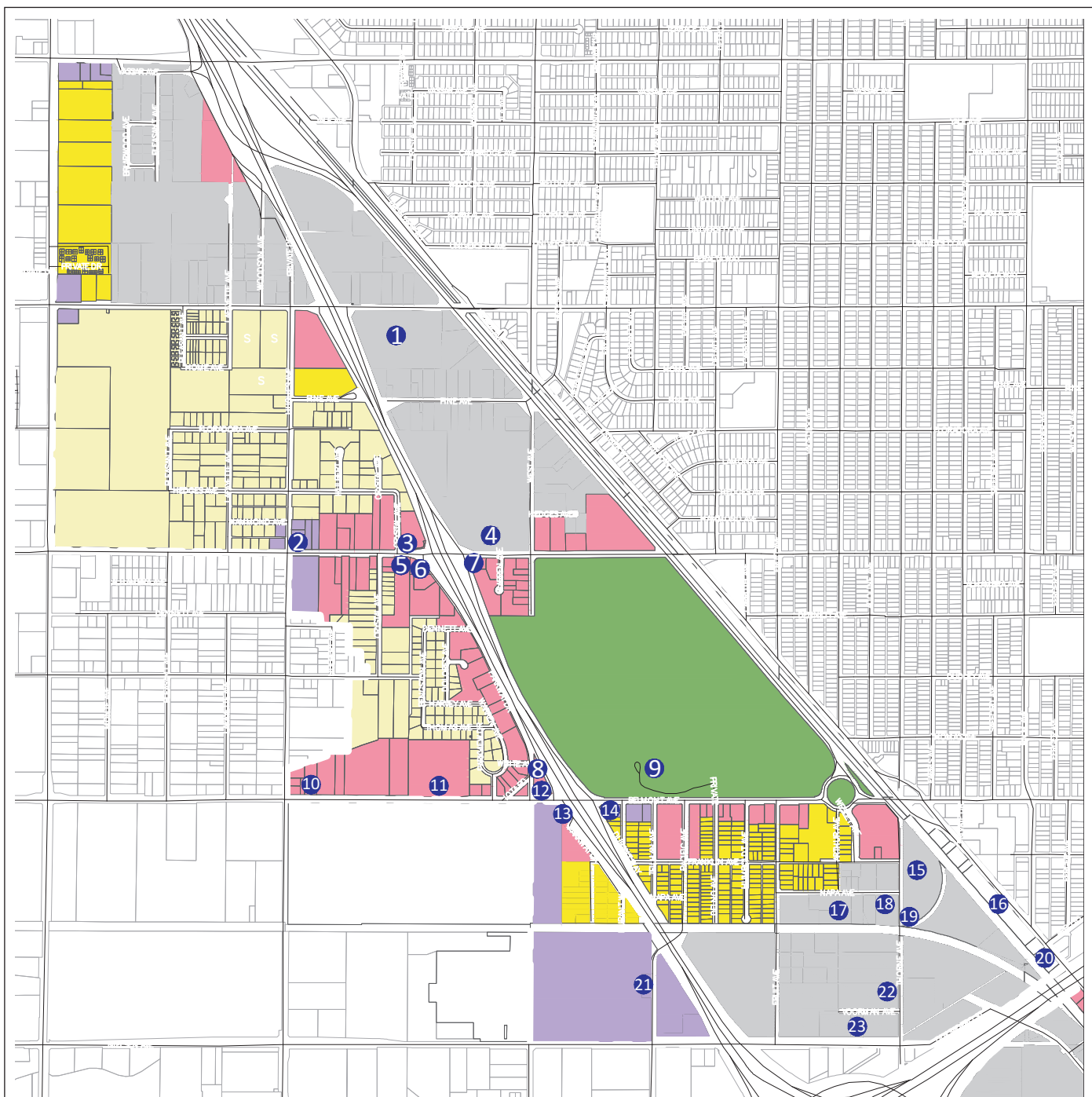


Source: AERMCO View Version 9.0.0



Exhibit 4

Freeway-Related DPM Concentrations



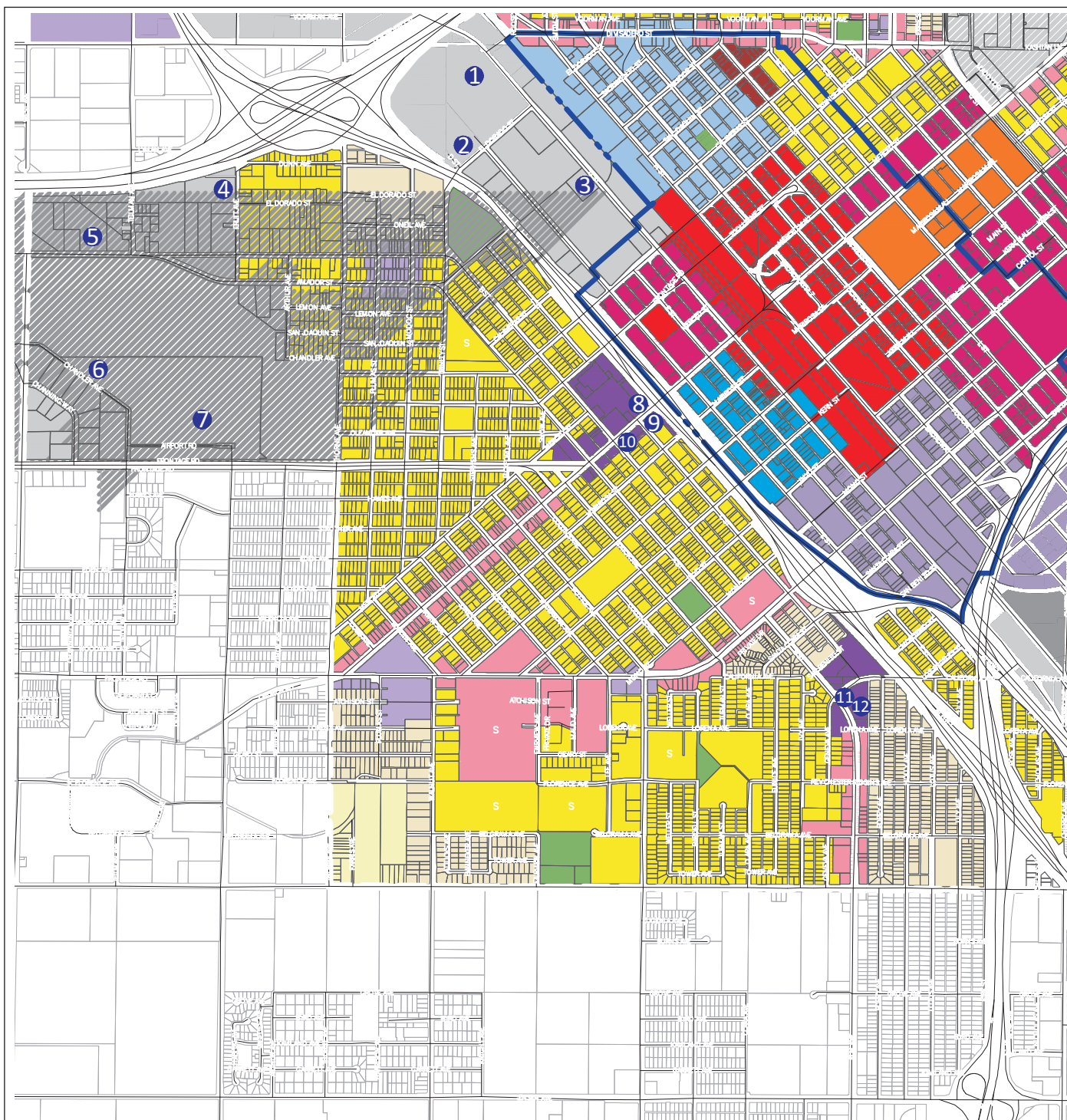
Legend

① = UPS (1601 W McKinley Ave)	⑨ = City of Fresno (890 W Belmont Ave)	⑰ = Level 3 Communicatons(305 W Napa Ave)
② = City of Fresno (2030 W Olive Ave)	⑩ = Belmont Boats (2006 W Belmont Ave)	⑱ = American Paving Co (315 N Thorne Ave)
③ = ARCO (1680 W Olive Ave)	⑪ = Chapel of Light (1620 W Belmont Ave)	⑲ = Fresno Flood Control (305 N Thorne Ave)
④ = CHP (1382 W Olive Ave)	⑫ = Valero (1280 W Belmont Ave)	⑳ = Whirlwind Car Wash (225 North H St)
⑤ = Olive Mini Mart (1703 W Olive Ave)	⑬ = Shell (1155 W Belmont Ave)	㉑ = Belmont Memorial (201 N Teilman Ave)
⑥ = Fast N Easy (1135 N Parkway Dr)	⑭ = The Zoo Gas (1025 W Belmont Ave)	㉒ = PG&E (211 N Thorne Ave)
⑦ = Chevron (1459 W Olive Ave)	⑮ = Calaveras Materials (410 N Thorne Ave)	㉓ = Sprint/United (233 W Voorman Ave)
⑧ = Verizon (530 N Parkway Dr)	⑯ = Zacky Farms (315 N H St)	

Source: CARB 2013



Exhibit 5 James Addams Neighborhoods TAC Sources



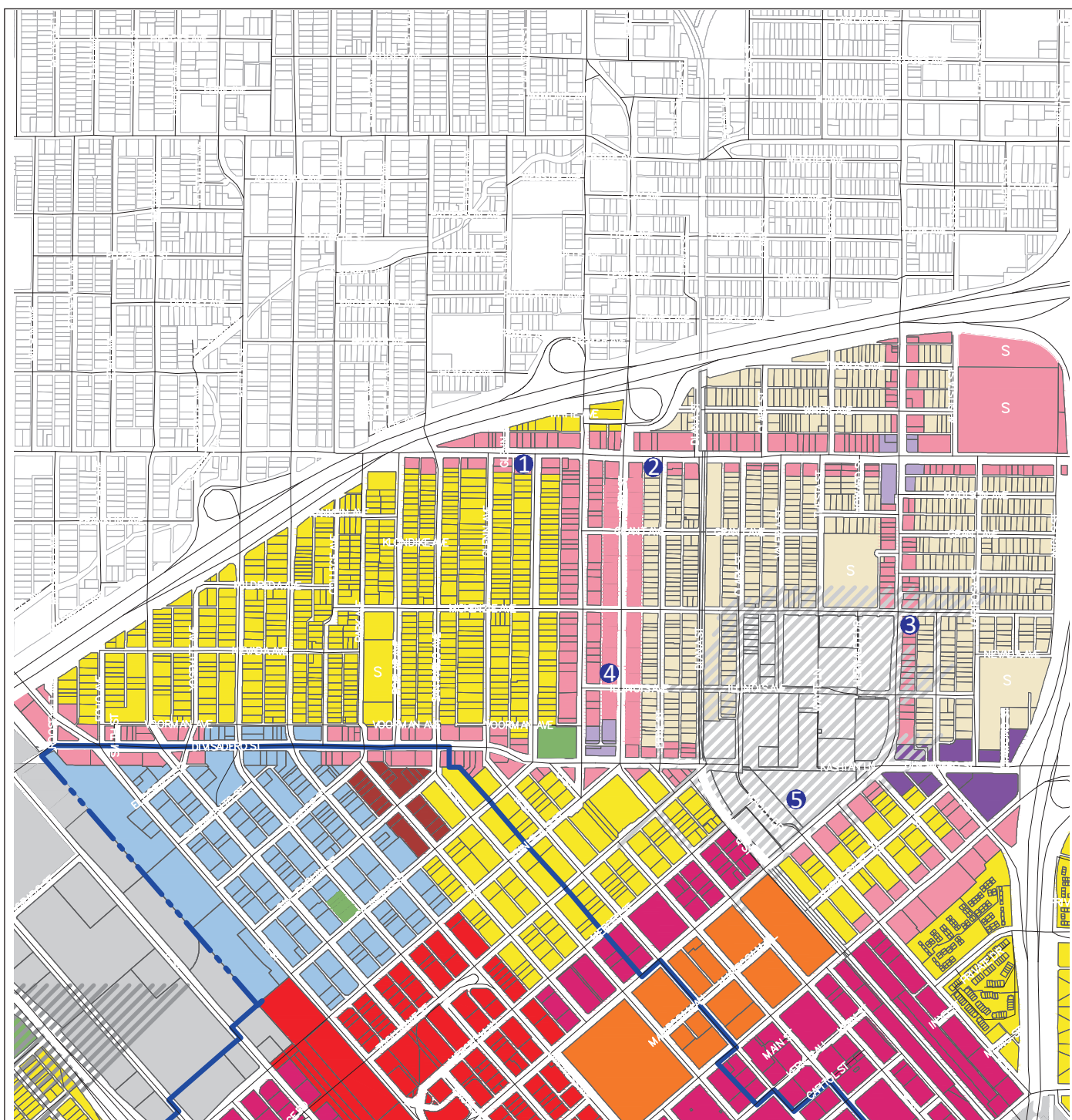
Legend

① = City of Fresno Buildings T & F (2101 G St)	⑦ = Memley Aviation (524 W Kearney Blvd)
② = City of Fresno Solid Waste (1325 El Dorado St)	⑧ = Burger King (1233 Fresno St)
③ = KFSN-TV/ABC (1777 G St)	⑨ = Quick-N-Easy (1212 Fresno St)
④ = Angelica Healthcare Services (422 S Fruit Ave)	⑩ = Family Express (1102 Fresno St)
⑤ = Ameripride Uniform (1050 W Whitesbridge Ave)	⑪ = Valley Gas (2139 S Elm Ave)
⑥ = Frank Ruiz Avionics (970 W Chandler Ave)	⑫ = City of Fresno (1802 E California Ave)

Source: CARB 2013



Exhibit 6 Southwest Neighborhoods TAC Sources



Legend

- ① = Penny Wise (1536 E Belmont Ave)
- ② = Fast N Easy (471 N Effie St)
- ③ = Fresno Central Market (294 N Fresno St)
- ④ = Carl's Jr. (217 N Abby St)
- ⑤ = Fresno Community Hospital (2823 Fresno St)

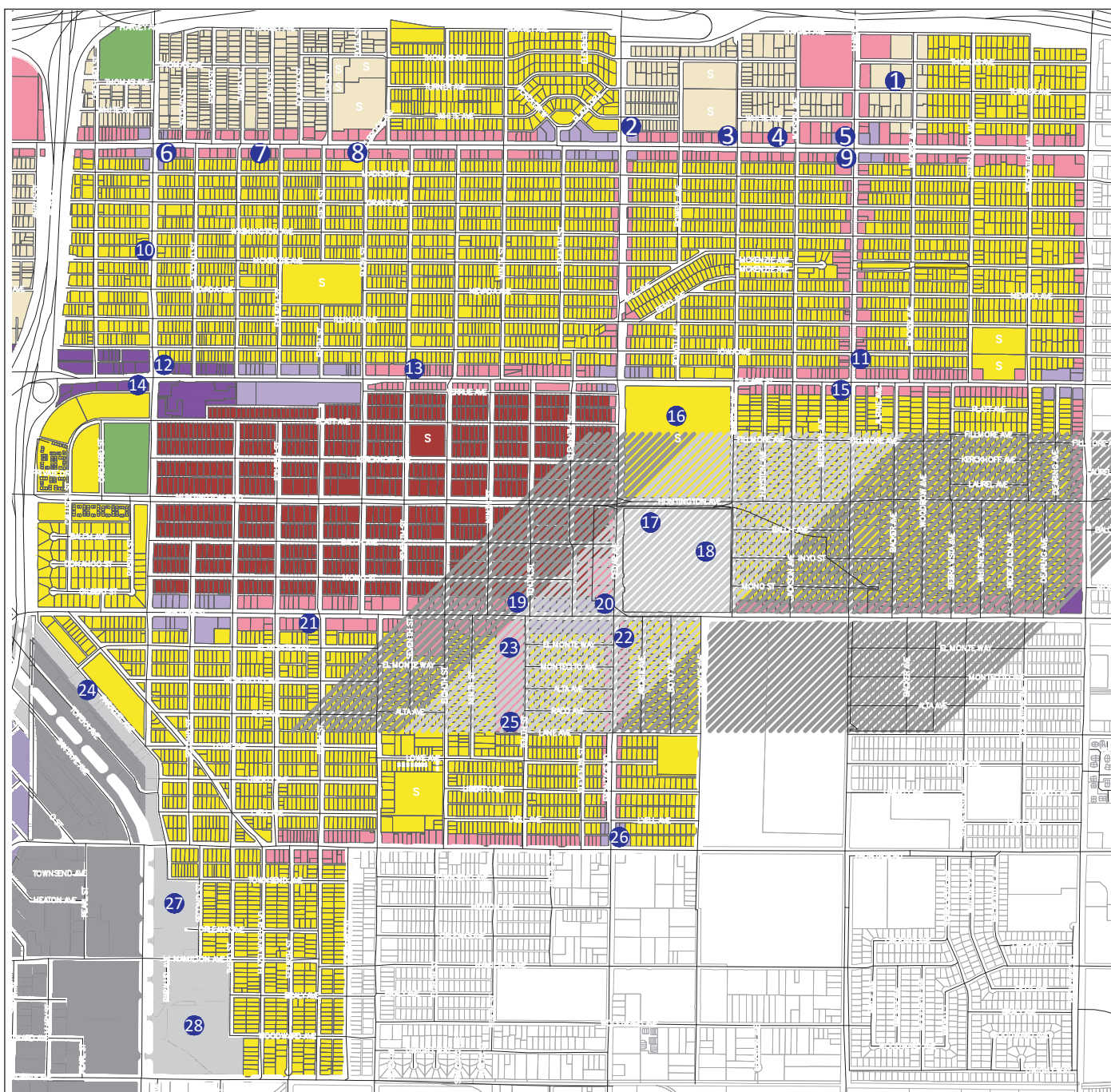
Source: CARB 2013



31680017 • 11/2015 | 7_tac.cdr

Exhibit 7 Lowell and Jefferson Neighborhoods TAC Sources

CITY OF FRESNO
DNCP, FCSP, AND DDC
HEALTH RISK ASSESSMENT



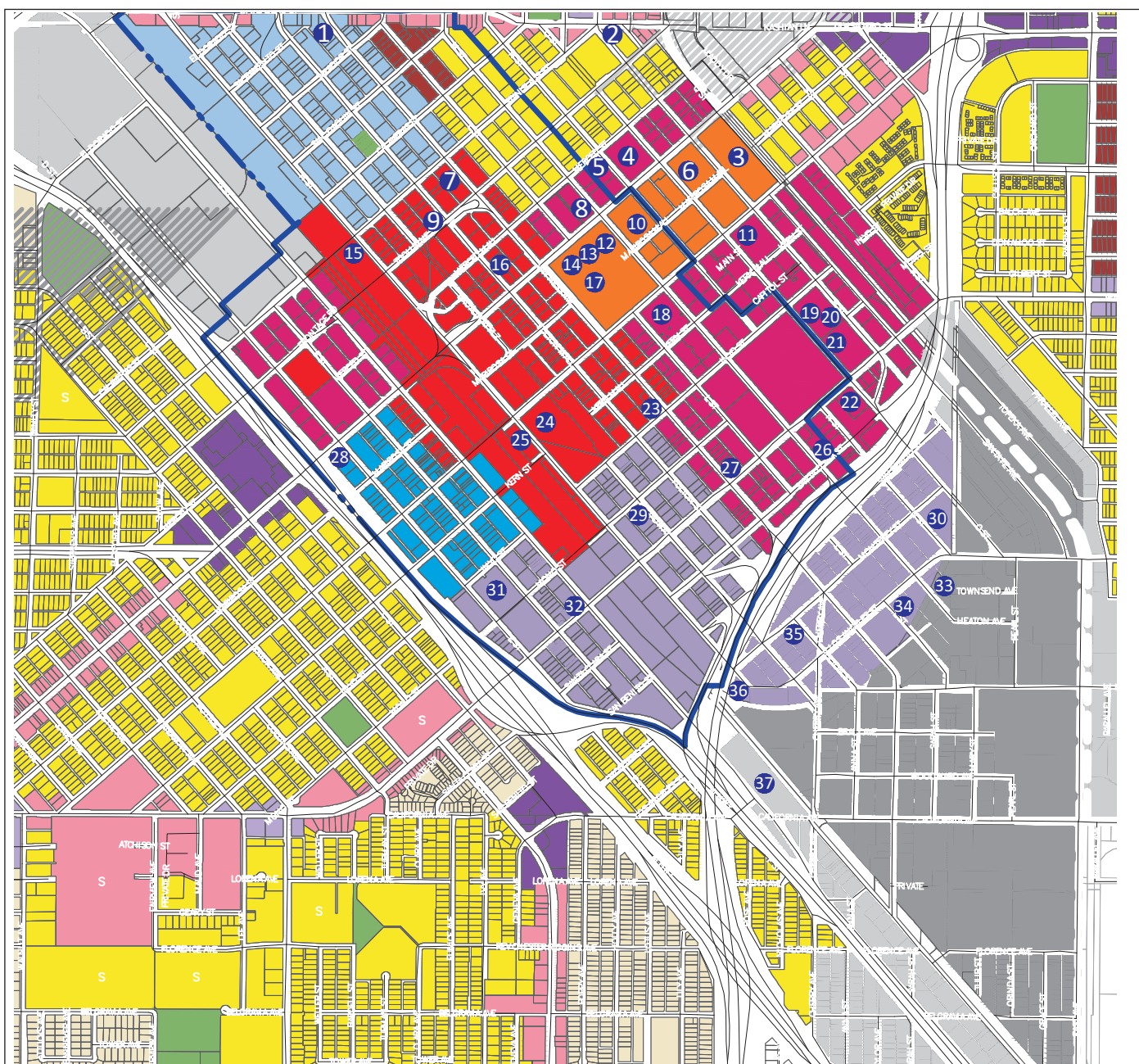
Legend

① = VKL Auto Body (4631 E Turner Ave)	⑩ = City of Fresno Water (315 N First St)	⑲ = Renewal Body Works(3951 E Ventura Ave)
② = Handi Stop 8 (4206 E White Ave)	⑪ = Pic 'N' Go (138 N Maple Ave)	⑳ = WKM Associates (4161 E Ventura Ave)
③ = P&S Auto Body(4491 E Belmont Ave)	⑫ = Quick Pick & Deli (3121 E Tulare Ave)	㉑ = Tony's Gas & Food (3464 E Ventura Ave)
④ = ABC Auto Body(4533 E Belmont Ave)	⑬ = Super 1 Food Store (3701 E Tulare Ave)	㉒ = Wong Corp. (4202 E Kings Canyon Rd)
⑤ = ARCO (4591 E Belmont Ave)	⑭ = ARCO AM/PM (3060 E Tulare Ave)	㉓ = Juvenile Hall (744 S 10th St)
⑥ = Johnny Quik (3110 E Belmont Ave)	⑮ = Valero (4594 E Tulare Ave)	㉔ = Evergreen Crematon (920 S Parallel Ave)
⑦ = P C Auto Body (3330 E Belmont Ave)	⑯ = Roosevelt High (4250 E Tulare Ave)	㉕ = Fresno County (1020 S 10th St)
⑧ = Shop-N-Quick (3564 E Belmont Ave)	⑰ = Valley Medical Center(445 S Cedar Ave)	㉖ = Family Express (4205 E Butler Ave)
⑨ = Super-7 (4594 E Belmont Ave)	⑱ = Fresno County (500 S Barton Ave)	㉗ = Lyons Magnus (1636 S 2nd St)
		㉘ = Valley Fig Growers (2028 S 3rd St)

Source: CARB 2013



Exhibit 8 Southeast Neighborhoods TAC Sources



Legend

① = Display Advert.(1837 Van Ness Ave)	⑬ = Annex Jail (2204 Fresno St)	⑳ = Valley Lavosh Baking Co (502 M St)
② = ARCO (1460 P St)	⑭ = Sheriff Administraton (2200 Fresno St)	㉑ = Snappy Food & Liquor (2111 Ventura Ave)
③ = City Hall (2600 Fresno St)	⑮ = Qwest Communicatons (1458 H St)	㉒ = Chevron (1350 Fresno St)
④ = Veterans Memorial (2425 Fresno St)	⑯ = Brix-Mercer Building (1221 Fulton Mall)	㉓ = Arrow Electric (645 Broadway St)
⑤ = Bureau of Reclamaton (1243 N St)	⑰ = Courthouse (1100 Van Ness Ave)	㉔ = Visa Petroleum (2414 Monterey St)
⑥ = Courthouse (1130 O St)	⑱ = Plaza Building (2220 Tulare St)	㉕ = California Dairies (755 F St)
⑦ = AT&T (1445 Van Ness Ave)	㉒ = City of Fresno (707 O St)	㉖ = Beacon Staton (603 G St)
⑧ = Fresno Main Jail (1225 M St)	㉓ = PG&E (705 P St)	㉗ = Gusmer Enterprises (124 M St)
⑨ = Nextel (1999 Tuolumne St)	㉔ = PG&E (650 O St)	㉘ = Earthgrains Baking Co (160 L St)
⑩ = Police Department(2323 Mariposa St)	㉕ = 5th Appellate Court (2424 Ventura St)	㉙ = Electric Motor Shop (253 Fulton St)
⑪ = GSA Pacific Rim (2502 Tulare St)	㉖ = Traffic Engineering (801 Van Ness Ave)	㉚ = County of Fresno (200 H St)
⑫ = Hall of Records (1155 M St)	㉗ = Chukansi Park (1800 Tulare St)	㉛ = Modern Custom Fabric.(2421 E Calif. Ave)
	㉘ = Fire Department (911 H St)	

Source: CARB 2013



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Exhibit 9 Downtown and South Van Ness TAC Sources

CITY OF FRESNO
DNCP, FCSP, AND DDC
HEALTH RISK ASSESSMENT

SECTION 8: REFERENCES

The following references were used in the preparation of this analysis and are referenced in the text and/or were used to provide the author with background information necessary for the preparation of thresholds and content.

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Appendix A: EMFAC2014 Model Printouts

EMFAC2014 Version 1.07

calendar_y	season_m	sub_area	vehicle_cla	fuel	temper	relative_h	process	speed_tim	pollutant	emission_r
2017	Annual	Fresno (SJV	NonTruck	Dsl	50	50	RUNEX	55	PM10	0.042879
2017	Annual	Fresno (SJV	NonTruck	Dsl	50	50	RUNEX	65	PM10	0.052574
2017	Annual	Fresno (SJV	NonTruck	Gas	50	50	RUNEX	55	PM10	0.001348
2017	Annual	Fresno (SJV	NonTruck	Gas	50	50	RUNEX	65	PM10	0.001625
2017	Annual	Fresno (SJV	NonTruck	NG	50	50	RUNEX	55	PM10	0.011438
2017	Annual	Fresno (SJV	NonTruck	NG	50	50	RUNEX	65	PM10	0.015864
2017	Annual	Fresno (SJV	Truck1	Dsl	50	50	RUNEX	55	PM10	0.026742
2017	Annual	Fresno (SJV	Truck1	Dsl	50	50	RUNEX	65	PM10	0.032761
2017	Annual	Fresno (SJV	Truck1	Gas	50	50	RUNEX	55	PM10	0.001195
2017	Annual	Fresno (SJV	Truck1	Gas	50	50	RUNEX	65	PM10	0.001468
2017	Annual	Fresno (SJV	Truck2	Dsl	50	50	RUNEX	55	PM10	0.055662
2017	Annual	Fresno (SJV	Truck2	Dsl	50	50	RUNEX	65	PM10	0.058363
2017	Annual	Fresno (SJV	Truck2	Gas	50	50	RUNEX	55	PM10	0.001459
2017	Annual	Fresno (SJV	Truck2	Gas	50	50	RUNEX	65	PM10	0.0018
2017	Annual	Fresno (SJV	Truck2	NG	50	50	RUNEX	55	PM10	0.036339
2017	Annual	Fresno (SJV	Truck2	NG	50	50	RUNEX	65	PM10	0.03885
2017	Annual	Fresno (SJV	NonTruck	Dsl			IDLEX		PM10	0.177353
2017	Annual	Fresno (SJV	NonTruck	Dsl			PMTW		PM10	0.009608
2017	Annual	Fresno (SJV	NonTruck	Dsl			PMBW		PM10	0.193456
2017	Annual	Fresno (SJV	NonTruck	Elec			PMTW		PM10	0.008
2017	Annual	Fresno (SJV	NonTruck	Elec			PMBW		PM10	0.03675
2017	Annual	Fresno (SJV	NonTruck	Gas			PMTW		PM10	0.007984
2017	Annual	Fresno (SJV	NonTruck	Gas			PMBW		PM10	0.037016
2017	Annual	Fresno (SJV	NonTruck	NG			PMTW		PM10	0.012
2017	Annual	Fresno (SJV	NonTruck	NG			PMBW		PM10	0.84182
2017	Annual	Fresno (SJV	Truck1	Dsl			IDLEX		PM10	0.8348
2017	Annual	Fresno (SJV	Truck1	Dsl			PMTW		PM10	0.012
2017	Annual	Fresno (SJV	Truck1	Dsl			PMBW		PM10	0.079567
2017	Annual	Fresno (SJV	Truck1	Gas			PMTW		PM10	0.008
2017	Annual	Fresno (SJV	Truck1	Gas			PMBW		PM10	0.078432
2017	Annual	Fresno (SJV	Truck2	Dsl			IDLEX		PM10	0.06144
2017	Annual	Fresno (SJV	Truck2	Dsl			PMTW		PM10	0.031155
2017	Annual	Fresno (SJV	Truck2	Dsl			PMBW		PM10	0.075588
2017	Annual	Fresno (SJV	Truck2	Gas			PMTW		PM10	0.013061
2017	Annual	Fresno (SJV	Truck2	Gas			PMBW		PM10	0.121239
2017	Annual	Fresno (SJV	Truck2	NG			IDLEX		PM10	0.417145
2017	Annual	Fresno (SJV	Truck2	NG			PMTW		PM10	0.036
2017	Annual	Fresno (SJV	Truck2	NG			PMBW		PM10	0.06174

Appendix B: AERMOD Model Printouts


```
**
*****
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.0.0
** Lakes Environmental Software Inc.
** Date: 11/11/2015
** File: C:\Vista Env\2013\13071 Fresno\AERMOD\2017\2017.ADI
**
```

```
*****
**
**
*****
** AERMOD Control Pathway
*****
**
**
```

```
CO STARTING
  TITLEONE City of Fresno - DNCP, FCSP, and DDC Year 2017
  TITLETWO Year 2017 Diesel exhaust PM10 emissions
  MODELOPT DFAULT CONC
  AVERTIME ANNUAL
  URBANOPT 520159 Fresno_City
  POLLUTID PM_10
  RUNORNOT RUN
  ERRORFIL 2017.err
```

```
CO FINISHED
```

```
**
*****
** AERMOD Source Pathway
*****
**
**
```

```
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
```

```
** -----
```

```
** Line Source Represented by Separated Volume Sources
```

```
** LINE VOLUME Source ID = SR41
```

```
** DESCRSRC State Route 41
```

```
** PREFIX
```

```
** Length of Side = 3.66
```

```
** Configuration = Separated
```

```
** Emission Rate = 0.0465
```

```
** Vertical Dimension = 1.83
```

```
** SZINIT = 0.85
```

```
** Nodes = 28
```

```
** 251287.604, 4066571.982, 70.06, 0.00, 3.40
```

```
** 251308.977, 4067007.228, 72.12, 0.00, 3.40
```

```
** 251248.881, 4067499.374, 74.46, 0.00, 3.40
```

```
** 251245.996, 4067742.933, 75.64, 0.00, 3.40
```

```
** 251280.138, 4067947.788, 77.00, 0.00, 3.40
```

```
** 251369.563, 4068185.020, 78.14, 0.00, 3.40
```

```
** 251530.236, 4068437.745, 79.98, 0.00, 3.40
```

** 251589.622, 4068499.417, 80.00, 0.00, 3.40
 ** 251778.833, 4068667.288, 80.71, 0.00, 3.40
 ** 251869.882, 4068773.986, 82.41, 0.00, 3.40
 ** 251943.717, 4068924.755, 84.01, 0.00, 3.40
 ** 251983.886, 4069127.275, 84.72, 0.00, 3.40
 ** 251994.257, 4069249.335, 85.01, 0.00, 3.40
 ** 251992.584, 4069649.358, 87.14, 0.00, 3.40
 ** 252007.621, 4069834.441, 88.18, 0.00, 3.40
 ** 252056.849, 4070033.322, 89.30, 0.00, 3.40
 ** 252124.537, 4070384.457, 90.47, 0.00, 3.40
 ** 252163.073, 4070873.514, 89.79, 0.00, 3.40
 ** 252205.902, 4071370.570, 91.00, 0.00, 3.40
 ** 252240.773, 4071932.886, 91.00, 0.00, 3.40
 ** 252244.545, 4072159.224, 91.00, 0.00, 3.40
 ** 252180.416, 4072347.839, 91.00, 0.00, 3.40
 ** 252044.613, 4072517.593, 91.00, 0.00, 3.40
 ** 251869.624, 4072649.024, 91.00, 0.00, 3.40
 ** 251688.548, 4072796.149, 91.00, 0.00, 3.40
 ** 251579.148, 4072931.956, 91.00, 0.00, 3.40
 ** 251477.293, 4073128.121, 91.00, 0.00, 3.40
 ** 251435.796, 4073362.011, 91.00, 0.00, 3.40

**

LOCATION	L0006795	VOLUME	251287.693	4066573.808	69.91
LOCATION	L0006796	VOLUME	251288.052	4066581.115	69.94
LOCATION	L0006797	VOLUME	251288.411	4066588.421	69.97
LOCATION	L0006798	VOLUME	251288.770	4066595.727	70.01
LOCATION	L0006799	VOLUME	251289.128	4066603.033	70.06
LOCATION	L0006800	VOLUME	251289.487	4066610.340	70.11
LOCATION	L0006801	VOLUME	251289.846	4066617.646	70.15
LOCATION	L0006802	VOLUME	251290.205	4066624.952	70.20
LOCATION	L0006803	VOLUME	251290.564	4066632.258	70.25
LOCATION	L0006804	VOLUME	251290.922	4066639.565	70.30
LOCATION	L0006805	VOLUME	251291.281	4066646.871	70.35
LOCATION	L0006806	VOLUME	251291.640	4066654.177	70.40
LOCATION	L0006807	VOLUME	251291.999	4066661.483	70.45
LOCATION	L0006808	VOLUME	251292.358	4066668.790	70.50
LOCATION	L0006809	VOLUME	251292.716	4066676.096	70.56
LOCATION	L0006810	VOLUME	251293.075	4066683.402	70.61
LOCATION	L0006811	VOLUME	251293.434	4066690.709	70.65
LOCATION	L0006812	VOLUME	251293.793	4066698.015	70.68
LOCATION	L0006813	VOLUME	251294.151	4066705.321	70.71
LOCATION	L0006814	VOLUME	251294.510	4066712.627	70.74
LOCATION	L0006815	VOLUME	251294.869	4066719.934	70.77
LOCATION	L0006816	VOLUME	251295.228	4066727.240	70.80
LOCATION	L0006817	VOLUME	251295.587	4066734.546	70.83
LOCATION	L0006818	VOLUME	251295.945	4066741.852	70.86
LOCATION	L0006819	VOLUME	251296.304	4066749.159	70.89
LOCATION	L0006820	VOLUME	251296.663	4066756.465	70.91
LOCATION	L0006821	VOLUME	251297.022	4066763.771	70.94
LOCATION	L0006822	VOLUME	251297.380	4066771.078	70.97
LOCATION	L0006823	VOLUME	251297.739	4066778.384	71.00
LOCATION	L0006824	VOLUME	251298.098	4066785.690	71.05
LOCATION	L0006825	VOLUME	251298.457	4066792.996	71.10
LOCATION	L0006826	VOLUME	251298.816	4066800.303	71.15

LOCATION	L0006827	VOLUME	251299.174	4066807.609	71.20
LOCATION	L0006828	VOLUME	251299.533	4066814.915	71.26
LOCATION	L0006829	VOLUME	251299.892	4066822.221	71.31
LOCATION	L0006830	VOLUME	251300.251	4066829.528	71.36
LOCATION	L0006831	VOLUME	251300.610	4066836.834	71.42
LOCATION	L0006832	VOLUME	251300.968	4066844.140	71.47
LOCATION	L0006833	VOLUME	251301.327	4066851.446	71.53
LOCATION	L0006834	VOLUME	251301.686	4066858.753	71.58
LOCATION	L0006835	VOLUME	251302.045	4066866.059	71.64
LOCATION	L0006836	VOLUME	251302.403	4066873.365	71.69
LOCATION	L0006837	VOLUME	251302.762	4066880.672	71.71
LOCATION	L0006838	VOLUME	251303.121	4066887.978	71.74
LOCATION	L0006839	VOLUME	251303.480	4066895.284	71.77
LOCATION	L0006840	VOLUME	251303.839	4066902.590	71.79
LOCATION	L0006841	VOLUME	251304.197	4066909.897	71.82
LOCATION	L0006842	VOLUME	251304.556	4066917.203	71.84
LOCATION	L0006843	VOLUME	251304.915	4066924.509	71.87
LOCATION	L0006844	VOLUME	251305.274	4066931.815	71.89
LOCATION	L0006845	VOLUME	251305.633	4066939.122	71.92
LOCATION	L0006846	VOLUME	251305.991	4066946.428	71.94
LOCATION	L0006847	VOLUME	251306.350	4066953.734	71.97
LOCATION	L0006848	VOLUME	251306.709	4066961.041	71.99
LOCATION	L0006849	VOLUME	251307.068	4066968.347	72.03
LOCATION	L0006850	VOLUME	251307.426	4066975.653	72.09
LOCATION	L0006851	VOLUME	251307.785	4066982.959	72.15
LOCATION	L0006852	VOLUME	251308.144	4066990.266	72.20
LOCATION	L0006853	VOLUME	251308.503	4066997.572	72.26
LOCATION	L0006854	VOLUME	251308.862	4067004.878	72.32
LOCATION	L0006855	VOLUME	251308.376	4067012.154	72.37
LOCATION	L0006856	VOLUME	251307.489	4067019.415	72.41
LOCATION	L0006857	VOLUME	251306.602	4067026.676	72.46
LOCATION	L0006858	VOLUME	251305.716	4067033.937	72.50
LOCATION	L0006859	VOLUME	251304.829	4067041.198	72.54
LOCATION	L0006860	VOLUME	251303.942	4067048.459	72.58
LOCATION	L0006861	VOLUME	251303.056	4067055.721	72.61
LOCATION	L0006862	VOLUME	251302.169	4067062.982	72.63
LOCATION	L0006863	VOLUME	251301.282	4067070.243	72.65
LOCATION	L0006864	VOLUME	251300.396	4067077.504	72.67
LOCATION	L0006865	VOLUME	251299.509	4067084.765	72.69
LOCATION	L0006866	VOLUME	251298.622	4067092.026	72.72
LOCATION	L0006867	VOLUME	251297.736	4067099.287	72.75
LOCATION	L0006868	VOLUME	251296.849	4067106.549	72.78
LOCATION	L0006869	VOLUME	251295.962	4067113.810	72.81
LOCATION	L0006870	VOLUME	251295.076	4067121.071	72.84
LOCATION	L0006871	VOLUME	251294.189	4067128.332	72.88
LOCATION	L0006872	VOLUME	251293.302	4067135.593	72.92
LOCATION	L0006873	VOLUME	251292.416	4067142.854	72.96
LOCATION	L0006874	VOLUME	251291.529	4067150.115	73.00
LOCATION	L0006875	VOLUME	251290.642	4067157.377	73.03
LOCATION	L0006876	VOLUME	251289.756	4067164.638	73.06
LOCATION	L0006877	VOLUME	251288.869	4067171.899	73.09
LOCATION	L0006878	VOLUME	251287.982	4067179.160	73.12
LOCATION	L0006879	VOLUME	251287.096	4067186.421	73.14
LOCATION	L0006880	VOLUME	251286.209	4067193.682	73.16

LOCATION	L0006881	VOLUME	251285.322	4067200.943	73.18
LOCATION	L0006882	VOLUME	251284.436	4067208.204	73.20
LOCATION	L0006883	VOLUME	251283.549	4067215.466	73.21
LOCATION	L0006884	VOLUME	251282.662	4067222.727	73.22
LOCATION	L0006885	VOLUME	251281.776	4067229.988	73.23
LOCATION	L0006886	VOLUME	251280.889	4067237.249	73.24
LOCATION	L0006887	VOLUME	251280.002	4067244.510	73.25
LOCATION	L0006888	VOLUME	251279.116	4067251.771	73.30
LOCATION	L0006889	VOLUME	251278.229	4067259.032	73.35
LOCATION	L0006890	VOLUME	251277.342	4067266.294	73.40
LOCATION	L0006891	VOLUME	251276.456	4067273.555	73.45
LOCATION	L0006892	VOLUME	251275.569	4067280.816	73.51
LOCATION	L0006893	VOLUME	251274.682	4067288.077	73.57
LOCATION	L0006894	VOLUME	251273.796	4067295.338	73.63
LOCATION	L0006895	VOLUME	251272.909	4067302.599	73.69
LOCATION	L0006896	VOLUME	251272.022	4067309.860	73.75
LOCATION	L0006897	VOLUME	251271.136	4067317.122	73.82
LOCATION	L0006898	VOLUME	251270.249	4067324.383	73.89
LOCATION	L0006899	VOLUME	251269.362	4067331.644	73.96
LOCATION	L0006900	VOLUME	251268.476	4067338.905	74.00
LOCATION	L0006901	VOLUME	251267.589	4067346.166	74.00
LOCATION	L0006902	VOLUME	251266.702	4067353.427	74.00
LOCATION	L0006903	VOLUME	251265.816	4067360.688	74.00
LOCATION	L0006904	VOLUME	251264.929	4067367.950	73.99
LOCATION	L0006905	VOLUME	251264.042	4067375.211	73.98
LOCATION	L0006906	VOLUME	251263.156	4067382.472	73.98
LOCATION	L0006907	VOLUME	251262.269	4067389.733	73.98
LOCATION	L0006908	VOLUME	251261.382	4067396.994	73.97
LOCATION	L0006909	VOLUME	251260.496	4067404.255	73.98
LOCATION	L0006910	VOLUME	251259.609	4067411.516	73.98
LOCATION	L0006911	VOLUME	251258.722	4067418.777	73.99
LOCATION	L0006912	VOLUME	251257.836	4067426.039	74.00
LOCATION	L0006913	VOLUME	251256.949	4067433.300	74.05
LOCATION	L0006914	VOLUME	251256.062	4067440.561	74.11
LOCATION	L0006915	VOLUME	251255.176	4067447.822	74.17
LOCATION	L0006916	VOLUME	251254.289	4067455.083	74.23
LOCATION	L0006917	VOLUME	251253.402	4067462.344	74.29
LOCATION	L0006918	VOLUME	251252.516	4067469.605	74.35
LOCATION	L0006919	VOLUME	251251.629	4067476.867	74.40
LOCATION	L0006920	VOLUME	251250.742	4067484.128	74.45
LOCATION	L0006921	VOLUME	251249.856	4067491.389	74.50
LOCATION	L0006922	VOLUME	251248.969	4067498.650	74.55
LOCATION	L0006923	VOLUME	251248.803	4067505.959	74.60
LOCATION	L0006924	VOLUME	251248.716	4067513.274	74.65
LOCATION	L0006925	VOLUME	251248.629	4067520.588	74.70
LOCATION	L0006926	VOLUME	251248.543	4067527.903	74.72
LOCATION	L0006927	VOLUME	251248.456	4067535.217	74.74
LOCATION	L0006928	VOLUME	251248.369	4067542.532	74.77
LOCATION	L0006929	VOLUME	251248.283	4067549.847	74.79
LOCATION	L0006930	VOLUME	251248.196	4067557.161	74.81
LOCATION	L0006931	VOLUME	251248.110	4067564.476	74.83
LOCATION	L0006932	VOLUME	251248.023	4067571.790	74.85
LOCATION	L0006933	VOLUME	251247.936	4067579.105	74.88
LOCATION	L0006934	VOLUME	251247.850	4067586.419	74.90

LOCATION	L0006935	VOLUME	251247.763	4067593.734	74.93
LOCATION	L0006936	VOLUME	251247.676	4067601.049	74.95
LOCATION	L0006937	VOLUME	251247.590	4067608.363	74.98
LOCATION	L0006938	VOLUME	251247.503	4067615.678	75.02
LOCATION	L0006939	VOLUME	251247.416	4067622.992	75.07
LOCATION	L0006940	VOLUME	251247.330	4067630.307	75.12
LOCATION	L0006941	VOLUME	251247.243	4067637.621	75.17
LOCATION	L0006942	VOLUME	251247.157	4067644.936	75.22
LOCATION	L0006943	VOLUME	251247.070	4067652.250	75.27
LOCATION	L0006944	VOLUME	251246.983	4067659.565	75.31
LOCATION	L0006945	VOLUME	251246.897	4067666.880	75.36
LOCATION	L0006946	VOLUME	251246.810	4067674.194	75.41
LOCATION	L0006947	VOLUME	251246.723	4067681.509	75.45
LOCATION	L0006948	VOLUME	251246.637	4067688.823	75.50
LOCATION	L0006949	VOLUME	251246.550	4067696.138	75.54
LOCATION	L0006950	VOLUME	251246.463	4067703.452	75.59
LOCATION	L0006951	VOLUME	251246.377	4067710.767	75.62
LOCATION	L0006952	VOLUME	251246.290	4067718.081	75.65
LOCATION	L0006953	VOLUME	251246.203	4067725.396	75.68
LOCATION	L0006954	VOLUME	251246.117	4067732.711	75.71
LOCATION	L0006955	VOLUME	251246.030	4067740.025	75.74
LOCATION	L0006956	VOLUME	251246.720	4067747.280	75.77
LOCATION	L0006957	VOLUME	251247.923	4067754.496	75.81
LOCATION	L0006958	VOLUME	251249.125	4067761.711	75.85
LOCATION	L0006959	VOLUME	251250.328	4067768.927	75.88
LOCATION	L0006960	VOLUME	251251.531	4067776.142	75.91
LOCATION	L0006961	VOLUME	251252.733	4067783.358	75.94
LOCATION	L0006962	VOLUME	251253.936	4067790.573	75.97
LOCATION	L0006963	VOLUME	251255.138	4067797.789	76.00
LOCATION	L0006964	VOLUME	251256.341	4067805.004	76.05
LOCATION	L0006965	VOLUME	251257.544	4067812.220	76.11
LOCATION	L0006966	VOLUME	251258.746	4067819.436	76.17
LOCATION	L0006967	VOLUME	251259.949	4067826.651	76.23
LOCATION	L0006968	VOLUME	251261.151	4067833.867	76.29
LOCATION	L0006969	VOLUME	251262.354	4067841.082	76.35
LOCATION	L0006970	VOLUME	251263.556	4067848.298	76.42
LOCATION	L0006971	VOLUME	251264.759	4067855.513	76.49
LOCATION	L0006972	VOLUME	251265.962	4067862.729	76.56
LOCATION	L0006973	VOLUME	251267.164	4067869.944	76.64
LOCATION	L0006974	VOLUME	251268.367	4067877.160	76.71
LOCATION	L0006975	VOLUME	251269.569	4067884.375	76.79
LOCATION	L0006976	VOLUME	251270.772	4067891.591	76.86
LOCATION	L0006977	VOLUME	251271.975	4067898.806	76.88
LOCATION	L0006978	VOLUME	251273.177	4067906.022	76.90
LOCATION	L0006979	VOLUME	251274.380	4067913.238	76.92
LOCATION	L0006980	VOLUME	251275.582	4067920.453	76.94
LOCATION	L0006981	VOLUME	251276.785	4067927.669	76.96
LOCATION	L0006982	VOLUME	251277.988	4067934.884	76.97
LOCATION	L0006983	VOLUME	251279.190	4067942.100	76.98
LOCATION	L0006984	VOLUME	251280.684	4067949.237	76.99
LOCATION	L0006985	VOLUME	251283.264	4067956.082	77.00
LOCATION	L0006986	VOLUME	251285.845	4067962.927	77.00
LOCATION	L0006987	VOLUME	251288.425	4067969.772	77.00
LOCATION	L0006988	VOLUME	251291.005	4067976.617	77.00

LOCATION	L0006989	VOLUME	251293.585	4067983.461	77.00
LOCATION	L0006990	VOLUME	251296.165	4067990.306	77.01
LOCATION	L0006991	VOLUME	251298.746	4067997.151	77.03
LOCATION	L0006992	VOLUME	251301.326	4068003.996	77.05
LOCATION	L0006993	VOLUME	251303.906	4068010.841	77.08
LOCATION	L0006994	VOLUME	251306.486	4068017.686	77.11
LOCATION	L0006995	VOLUME	251309.066	4068024.531	77.15
LOCATION	L0006996	VOLUME	251311.647	4068031.376	77.19
LOCATION	L0006997	VOLUME	251314.227	4068038.221	77.23
LOCATION	L0006998	VOLUME	251316.807	4068045.066	77.29
LOCATION	L0006999	VOLUME	251319.387	4068051.911	77.34
LOCATION	L0007000	VOLUME	251321.967	4068058.755	77.40
LOCATION	L0007001	VOLUME	251324.548	4068065.600	77.47
LOCATION	L0007002	VOLUME	251327.128	4068072.445	77.54
LOCATION	L0007003	VOLUME	251329.708	4068079.290	77.60
LOCATION	L0007004	VOLUME	251332.288	4068086.135	77.66
LOCATION	L0007005	VOLUME	251334.868	4068092.980	77.71
LOCATION	L0007006	VOLUME	251337.449	4068099.825	77.76
LOCATION	L0007007	VOLUME	251340.029	4068106.670	77.81
LOCATION	L0007008	VOLUME	251342.609	4068113.515	77.85
LOCATION	L0007009	VOLUME	251345.189	4068120.360	77.89
LOCATION	L0007010	VOLUME	251347.769	4068127.205	77.92
LOCATION	L0007011	VOLUME	251350.350	4068134.050	77.94
LOCATION	L0007012	VOLUME	251352.930	4068140.894	77.96
LOCATION	L0007013	VOLUME	251355.510	4068147.739	77.98
LOCATION	L0007014	VOLUME	251358.090	4068154.584	77.99
LOCATION	L0007015	VOLUME	251360.670	4068161.429	78.00
LOCATION	L0007016	VOLUME	251363.251	4068168.274	78.00
LOCATION	L0007017	VOLUME	251365.831	4068175.119	78.00
LOCATION	L0007018	VOLUME	251368.411	4068181.964	78.01
LOCATION	L0007019	VOLUME	251371.735	4068188.437	78.02
LOCATION	L0007020	VOLUME	251375.660	4068194.610	78.05
LOCATION	L0007021	VOLUME	251379.585	4068200.783	78.08
LOCATION	L0007022	VOLUME	251383.509	4068206.956	78.11
LOCATION	L0007023	VOLUME	251387.434	4068213.130	78.16
LOCATION	L0007024	VOLUME	251391.359	4068219.303	78.21
LOCATION	L0007025	VOLUME	251395.283	4068225.476	78.26
LOCATION	L0007026	VOLUME	251399.208	4068231.649	78.33
LOCATION	L0007027	VOLUME	251403.132	4068237.822	78.40
LOCATION	L0007028	VOLUME	251407.057	4068243.995	78.47
LOCATION	L0007029	VOLUME	251410.982	4068250.168	78.56
LOCATION	L0007030	VOLUME	251414.906	4068256.341	78.65
LOCATION	L0007031	VOLUME	251418.831	4068262.515	78.72
LOCATION	L0007032	VOLUME	251422.756	4068268.688	78.78
LOCATION	L0007033	VOLUME	251426.680	4068274.861	78.84
LOCATION	L0007034	VOLUME	251430.605	4068281.034	78.89
LOCATION	L0007035	VOLUME	251434.530	4068287.207	78.94
LOCATION	L0007036	VOLUME	251438.454	4068293.380	78.97
LOCATION	L0007037	VOLUME	251442.379	4068299.553	79.00
LOCATION	L0007038	VOLUME	251446.303	4068305.727	79.00
LOCATION	L0007039	VOLUME	251450.228	4068311.900	79.00
LOCATION	L0007040	VOLUME	251454.153	4068318.073	79.00
LOCATION	L0007041	VOLUME	251458.077	4068324.246	79.00
LOCATION	L0007042	VOLUME	251462.002	4068330.419	79.00

LOCATION	L0007043	VOLUME	251465.927	4068336.592	79.00
LOCATION	L0007044	VOLUME	251469.851	4068342.765	79.00
LOCATION	L0007045	VOLUME	251473.776	4068348.938	79.01
LOCATION	L0007046	VOLUME	251477.701	4068355.112	79.04
LOCATION	L0007047	VOLUME	251481.625	4068361.285	79.08
LOCATION	L0007048	VOLUME	251485.550	4068367.458	79.12
LOCATION	L0007049	VOLUME	251489.474	4068373.631	79.18
LOCATION	L0007050	VOLUME	251493.399	4068379.804	79.23
LOCATION	L0007051	VOLUME	251497.324	4068385.977	79.30
LOCATION	L0007052	VOLUME	251501.248	4068392.150	79.37
LOCATION	L0007053	VOLUME	251505.173	4068398.323	79.45
LOCATION	L0007054	VOLUME	251509.098	4068404.497	79.54
LOCATION	L0007055	VOLUME	251513.022	4068410.670	79.63
LOCATION	L0007056	VOLUME	251516.947	4068416.843	79.73
LOCATION	L0007057	VOLUME	251520.872	4068423.016	79.83
LOCATION	L0007058	VOLUME	251524.796	4068429.189	79.91
LOCATION	L0007059	VOLUME	251528.721	4068435.362	79.97
LOCATION	L0007060	VOLUME	251533.351	4068440.980	80.00
LOCATION	L0007061	VOLUME	251538.425	4068446.250	80.00
LOCATION	L0007062	VOLUME	251543.499	4068451.519	80.00
LOCATION	L0007063	VOLUME	251548.573	4068456.788	80.00
LOCATION	L0007064	VOLUME	251553.647	4068462.057	80.00
LOCATION	L0007065	VOLUME	251558.721	4068467.327	80.00
LOCATION	L0007066	VOLUME	251563.795	4068472.596	80.00
LOCATION	L0007067	VOLUME	251568.869	4068477.865	80.00
LOCATION	L0007068	VOLUME	251573.943	4068483.134	80.00
LOCATION	L0007069	VOLUME	251579.017	4068488.404	80.00
LOCATION	L0007070	VOLUME	251584.091	4068493.673	80.00
LOCATION	L0007071	VOLUME	251589.165	4068498.942	80.00
LOCATION	L0007072	VOLUME	251594.601	4068503.834	80.00
LOCATION	L0007073	VOLUME	251600.073	4068508.689	80.00
LOCATION	L0007074	VOLUME	251605.545	4068513.544	80.00
LOCATION	L0007075	VOLUME	251611.017	4068518.399	80.00
LOCATION	L0007076	VOLUME	251616.489	4068523.253	80.00
LOCATION	L0007077	VOLUME	251621.960	4068528.108	80.00
LOCATION	L0007078	VOLUME	251627.432	4068532.963	80.00
LOCATION	L0007079	VOLUME	251632.904	4068537.818	80.00
LOCATION	L0007080	VOLUME	251638.376	4068542.672	80.00
LOCATION	L0007081	VOLUME	251643.848	4068547.527	80.00
LOCATION	L0007082	VOLUME	251649.320	4068552.382	80.00
LOCATION	L0007083	VOLUME	251654.792	4068557.237	80.00
LOCATION	L0007084	VOLUME	251660.264	4068562.091	80.00
LOCATION	L0007085	VOLUME	251665.736	4068566.946	80.00
LOCATION	L0007086	VOLUME	251671.208	4068571.801	80.00
LOCATION	L0007087	VOLUME	251676.679	4068576.656	80.00
LOCATION	L0007088	VOLUME	251682.151	4068581.510	80.00
LOCATION	L0007089	VOLUME	251687.623	4068586.365	80.00
LOCATION	L0007090	VOLUME	251693.095	4068591.220	80.00
LOCATION	L0007091	VOLUME	251698.567	4068596.075	80.00
LOCATION	L0007092	VOLUME	251704.039	4068600.929	80.00
LOCATION	L0007093	VOLUME	251709.511	4068605.784	80.00
LOCATION	L0007094	VOLUME	251714.983	4068610.639	80.00
LOCATION	L0007095	VOLUME	251720.455	4068615.494	80.00
LOCATION	L0007096	VOLUME	251725.926	4068620.348	80.02

LOCATION	L0007097	VOLUME	251731.398	4068625.203	80.06
LOCATION	L0007098	VOLUME	251736.870	4068630.058	80.11
LOCATION	L0007099	VOLUME	251742.342	4068634.913	80.17
LOCATION	L0007100	VOLUME	251747.814	4068639.768	80.24
LOCATION	L0007101	VOLUME	251753.286	4068644.622	80.34
LOCATION	L0007102	VOLUME	251758.758	4068649.477	80.47
LOCATION	L0007103	VOLUME	251764.230	4068654.332	80.59
LOCATION	L0007104	VOLUME	251769.702	4068659.187	80.72
LOCATION	L0007105	VOLUME	251775.173	4068664.041	80.84
LOCATION	L0007106	VOLUME	251780.406	4068669.131	80.97
LOCATION	L0007107	VOLUME	251785.154	4068674.696	81.09
LOCATION	L0007108	VOLUME	251789.902	4068680.260	81.22
LOCATION	L0007109	VOLUME	251794.651	4068685.825	81.34
LOCATION	L0007110	VOLUME	251799.399	4068691.389	81.46
LOCATION	L0007111	VOLUME	251804.147	4068696.954	81.58
LOCATION	L0007112	VOLUME	251808.896	4068702.518	81.71
LOCATION	L0007113	VOLUME	251813.644	4068708.083	81.83
LOCATION	L0007114	VOLUME	251818.393	4068713.647	81.89
LOCATION	L0007115	VOLUME	251823.141	4068719.211	81.95
LOCATION	L0007116	VOLUME	251827.889	4068724.776	82.00
LOCATION	L0007117	VOLUME	251832.638	4068730.340	82.02
LOCATION	L0007118	VOLUME	251837.386	4068735.905	82.04
LOCATION	L0007119	VOLUME	251842.134	4068741.469	82.07
LOCATION	L0007120	VOLUME	251846.883	4068747.034	82.11
LOCATION	L0007121	VOLUME	251851.631	4068752.598	82.16
LOCATION	L0007122	VOLUME	251856.379	4068758.163	82.21
LOCATION	L0007123	VOLUME	251861.128	4068763.727	82.27
LOCATION	L0007124	VOLUME	251865.876	4068769.292	82.34
LOCATION	L0007125	VOLUME	251870.385	4068775.013	82.42
LOCATION	L0007126	VOLUME	251873.602	4068781.583	82.49
LOCATION	L0007127	VOLUME	251876.819	4068788.153	82.57
LOCATION	L0007128	VOLUME	251880.037	4068794.722	82.66
LOCATION	L0007129	VOLUME	251883.254	4068801.292	82.73
LOCATION	L0007130	VOLUME	251886.471	4068807.861	82.79
LOCATION	L0007131	VOLUME	251889.689	4068814.431	82.84
LOCATION	L0007132	VOLUME	251892.906	4068821.001	82.89
LOCATION	L0007133	VOLUME	251896.123	4068827.570	82.92
LOCATION	L0007134	VOLUME	251899.340	4068834.140	82.96
LOCATION	L0007135	VOLUME	251902.558	4068840.709	82.98
LOCATION	L0007136	VOLUME	251905.775	4068847.279	83.01
LOCATION	L0007137	VOLUME	251908.992	4068853.848	83.03
LOCATION	L0007138	VOLUME	251912.210	4068860.418	83.06
LOCATION	L0007139	VOLUME	251915.427	4068866.988	83.10
LOCATION	L0007140	VOLUME	251918.644	4068873.557	83.14
LOCATION	L0007141	VOLUME	251921.861	4068880.127	83.19
LOCATION	L0007142	VOLUME	251925.079	4068886.696	83.25
LOCATION	L0007143	VOLUME	251928.296	4068893.266	83.32
LOCATION	L0007144	VOLUME	251931.513	4068899.836	83.41
LOCATION	L0007145	VOLUME	251934.730	4068906.405	83.49
LOCATION	L0007146	VOLUME	251937.948	4068912.975	83.57
LOCATION	L0007147	VOLUME	251941.165	4068919.544	83.64
LOCATION	L0007148	VOLUME	251944.011	4068926.239	83.70
LOCATION	L0007149	VOLUME	251945.434	4068933.414	83.74
LOCATION	L0007150	VOLUME	251946.858	4068940.590	83.79

LOCATION	L0007151	VOLUME	251948.281	4068947.765	83.83
LOCATION	L0007152	VOLUME	251949.704	4068954.940	83.87
LOCATION	L0007153	VOLUME	251951.127	4068962.116	83.91
LOCATION	L0007154	VOLUME	251952.550	4068969.291	83.95
LOCATION	L0007155	VOLUME	251953.974	4068976.466	83.98
LOCATION	L0007156	VOLUME	251955.397	4068983.641	84.02
LOCATION	L0007157	VOLUME	251956.820	4068990.817	84.07
LOCATION	L0007158	VOLUME	251958.243	4068997.992	84.12
LOCATION	L0007159	VOLUME	251959.666	4069005.167	84.17
LOCATION	L0007160	VOLUME	251961.090	4069012.343	84.23
LOCATION	L0007161	VOLUME	251962.513	4069019.518	84.29
LOCATION	L0007162	VOLUME	251963.936	4069026.693	84.36
LOCATION	L0007163	VOLUME	251965.359	4069033.869	84.42
LOCATION	L0007164	VOLUME	251966.782	4069041.044	84.49
LOCATION	L0007165	VOLUME	251968.206	4069048.219	84.56
LOCATION	L0007166	VOLUME	251969.629	4069055.394	84.63
LOCATION	L0007167	VOLUME	251971.052	4069062.570	84.71
LOCATION	L0007168	VOLUME	251972.475	4069069.745	84.79
LOCATION	L0007169	VOLUME	251973.898	4069076.920	84.83
LOCATION	L0007170	VOLUME	251975.322	4069084.096	84.85
LOCATION	L0007171	VOLUME	251976.745	4069091.271	84.87
LOCATION	L0007172	VOLUME	251978.168	4069098.446	84.88
LOCATION	L0007173	VOLUME	251979.591	4069105.621	84.90
LOCATION	L0007174	VOLUME	251981.014	4069112.797	84.92
LOCATION	L0007175	VOLUME	251982.438	4069119.972	84.93
LOCATION	L0007176	VOLUME	251983.861	4069127.147	84.95
LOCATION	L0007177	VOLUME	251984.494	4069134.434	84.95
LOCATION	L0007178	VOLUME	251985.114	4069141.723	84.96
LOCATION	L0007179	VOLUME	251985.733	4069149.012	84.97
LOCATION	L0007180	VOLUME	251986.352	4069156.301	84.97
LOCATION	L0007181	VOLUME	251986.972	4069163.589	84.98
LOCATION	L0007182	VOLUME	251987.591	4069170.878	84.98
LOCATION	L0007183	VOLUME	251988.210	4069178.167	84.99
LOCATION	L0007184	VOLUME	251988.830	4069185.456	84.99
LOCATION	L0007185	VOLUME	251989.449	4069192.745	85.00
LOCATION	L0007186	VOLUME	251990.068	4069200.033	85.00
LOCATION	L0007187	VOLUME	251990.688	4069207.322	85.01
LOCATION	L0007188	VOLUME	251991.307	4069214.611	85.01
LOCATION	L0007189	VOLUME	251991.926	4069221.900	85.02
LOCATION	L0007190	VOLUME	251992.545	4069229.189	85.03
LOCATION	L0007191	VOLUME	251993.165	4069236.477	85.03
LOCATION	L0007192	VOLUME	251993.784	4069243.766	85.04
LOCATION	L0007193	VOLUME	251994.250	4069251.061	85.04
LOCATION	L0007194	VOLUME	251994.219	4069258.376	85.04
LOCATION	L0007195	VOLUME	251994.189	4069265.691	85.12
LOCATION	L0007196	VOLUME	251994.158	4069273.006	85.20
LOCATION	L0007197	VOLUME	251994.128	4069280.321	85.27
LOCATION	L0007198	VOLUME	251994.097	4069287.636	85.35
LOCATION	L0007199	VOLUME	251994.066	4069294.951	85.42
LOCATION	L0007200	VOLUME	251994.036	4069302.266	85.50
LOCATION	L0007201	VOLUME	251994.005	4069309.581	85.57
LOCATION	L0007202	VOLUME	251993.975	4069316.896	85.65
LOCATION	L0007203	VOLUME	251993.944	4069324.211	85.73
LOCATION	L0007204	VOLUME	251993.913	4069331.526	85.80

LOCATION	L0007205	VOLUME	251993.883	4069338.841	85.88
LOCATION	L0007206	VOLUME	251993.852	4069346.156	85.95
LOCATION	L0007207	VOLUME	251993.822	4069353.471	86.03
LOCATION	L0007208	VOLUME	251993.791	4069360.786	86.10
LOCATION	L0007209	VOLUME	251993.760	4069368.101	86.18
LOCATION	L0007210	VOLUME	251993.730	4069375.416	86.26
LOCATION	L0007211	VOLUME	251993.699	4069382.731	86.33
LOCATION	L0007212	VOLUME	251993.669	4069390.046	86.41
LOCATION	L0007213	VOLUME	251993.638	4069397.361	86.48
LOCATION	L0007214	VOLUME	251993.607	4069404.676	86.56
LOCATION	L0007215	VOLUME	251993.577	4069411.991	86.63
LOCATION	L0007216	VOLUME	251993.546	4069419.306	86.71
LOCATION	L0007217	VOLUME	251993.515	4069426.621	86.79
LOCATION	L0007218	VOLUME	251993.485	4069433.936	86.86
LOCATION	L0007219	VOLUME	251993.454	4069441.251	86.94
LOCATION	L0007220	VOLUME	251993.424	4069448.566	86.95
LOCATION	L0007221	VOLUME	251993.393	4069455.881	86.95
LOCATION	L0007222	VOLUME	251993.362	4069463.196	86.95
LOCATION	L0007223	VOLUME	251993.332	4069470.512	86.94
LOCATION	L0007224	VOLUME	251993.301	4069477.827	86.94
LOCATION	L0007225	VOLUME	251993.271	4069485.142	86.94
LOCATION	L0007226	VOLUME	251993.240	4069492.457	86.93
LOCATION	L0007227	VOLUME	251993.209	4069499.772	86.93
LOCATION	L0007228	VOLUME	251993.179	4069507.087	86.93
LOCATION	L0007229	VOLUME	251993.148	4069514.402	86.92
LOCATION	L0007230	VOLUME	251993.118	4069521.717	86.92
LOCATION	L0007231	VOLUME	251993.087	4069529.032	86.92
LOCATION	L0007232	VOLUME	251993.056	4069536.347	86.91
LOCATION	L0007233	VOLUME	251993.026	4069543.662	86.92
LOCATION	L0007234	VOLUME	251992.995	4069550.977	86.92
LOCATION	L0007235	VOLUME	251992.965	4069558.292	86.93
LOCATION	L0007236	VOLUME	251992.934	4069565.607	86.93
LOCATION	L0007237	VOLUME	251992.903	4069572.922	86.94
LOCATION	L0007238	VOLUME	251992.873	4069580.237	86.94
LOCATION	L0007239	VOLUME	251992.842	4069587.552	86.95
LOCATION	L0007240	VOLUME	251992.812	4069594.867	86.96
LOCATION	L0007241	VOLUME	251992.781	4069602.182	86.97
LOCATION	L0007242	VOLUME	251992.750	4069609.497	86.98
LOCATION	L0007243	VOLUME	251992.720	4069616.812	86.99
LOCATION	L0007244	VOLUME	251992.689	4069624.127	86.99
LOCATION	L0007245	VOLUME	251992.659	4069631.442	87.00
LOCATION	L0007246	VOLUME	251992.628	4069638.757	87.00
LOCATION	L0007247	VOLUME	251992.597	4069646.072	87.00
LOCATION	L0007248	VOLUME	251992.910	4069653.374	87.00
LOCATION	L0007249	VOLUME	251993.502	4069660.665	87.00
LOCATION	L0007250	VOLUME	251994.094	4069667.956	87.00
LOCATION	L0007251	VOLUME	251994.687	4069675.247	87.00
LOCATION	L0007252	VOLUME	251995.279	4069682.538	87.00
LOCATION	L0007253	VOLUME	251995.872	4069689.829	87.00
LOCATION	L0007254	VOLUME	251996.464	4069697.120	87.00
LOCATION	L0007255	VOLUME	251997.056	4069704.411	87.00
LOCATION	L0007256	VOLUME	251997.649	4069711.702	87.00
LOCATION	L0007257	VOLUME	251998.241	4069718.993	87.00
LOCATION	L0007258	VOLUME	251998.833	4069726.284	87.06

LOCATION	L0007259	VOLUME	251999.426	4069733.575	87.13
LOCATION	L0007260	VOLUME	252000.018	4069740.866	87.21
LOCATION	L0007261	VOLUME	252000.610	4069748.157	87.28
LOCATION	L0007262	VOLUME	252001.203	4069755.448	87.36
LOCATION	L0007263	VOLUME	252001.795	4069762.739	87.43
LOCATION	L0007264	VOLUME	252002.388	4069770.030	87.51
LOCATION	L0007265	VOLUME	252002.980	4069777.321	87.59
LOCATION	L0007266	VOLUME	252003.572	4069784.612	87.67
LOCATION	L0007267	VOLUME	252004.165	4069791.903	87.75
LOCATION	L0007268	VOLUME	252004.757	4069799.195	87.83
LOCATION	L0007269	VOLUME	252005.349	4069806.486	87.91
LOCATION	L0007270	VOLUME	252005.942	4069813.777	87.98
LOCATION	L0007271	VOLUME	252006.534	4069821.068	87.98
LOCATION	L0007272	VOLUME	252007.126	4069828.359	87.99
LOCATION	L0007273	VOLUME	252007.912	4069835.618	88.00
LOCATION	L0007274	VOLUME	252009.670	4069842.719	88.02
LOCATION	L0007275	VOLUME	252011.427	4069849.820	88.04
LOCATION	L0007276	VOLUME	252013.185	4069856.921	88.06
LOCATION	L0007277	VOLUME	252014.942	4069864.021	88.08
LOCATION	L0007278	VOLUME	252016.700	4069871.122	88.10
LOCATION	L0007279	VOLUME	252018.458	4069878.223	88.12
LOCATION	L0007280	VOLUME	252020.215	4069885.324	88.14
LOCATION	L0007281	VOLUME	252021.973	4069892.424	88.16
LOCATION	L0007282	VOLUME	252023.730	4069899.525	88.18
LOCATION	L0007283	VOLUME	252025.488	4069906.626	88.23
LOCATION	L0007284	VOLUME	252027.246	4069913.727	88.32
LOCATION	L0007285	VOLUME	252029.003	4069920.828	88.42
LOCATION	L0007286	VOLUME	252030.761	4069927.928	88.52
LOCATION	L0007287	VOLUME	252032.519	4069935.029	88.62
LOCATION	L0007288	VOLUME	252034.276	4069942.130	88.72
LOCATION	L0007289	VOLUME	252036.034	4069949.231	88.81
LOCATION	L0007290	VOLUME	252037.791	4069956.331	88.91
LOCATION	L0007291	VOLUME	252039.549	4069963.432	89.01
LOCATION	L0007292	VOLUME	252041.307	4069970.533	89.11
LOCATION	L0007293	VOLUME	252043.064	4069977.634	89.21
LOCATION	L0007294	VOLUME	252044.822	4069984.735	89.30
LOCATION	L0007295	VOLUME	252046.580	4069991.835	89.40
LOCATION	L0007296	VOLUME	252048.337	4069998.936	89.47
LOCATION	L0007297	VOLUME	252050.095	4070006.037	89.50
LOCATION	L0007298	VOLUME	252051.852	4070013.138	89.52
LOCATION	L0007299	VOLUME	252053.610	4070020.239	89.54
LOCATION	L0007300	VOLUME	252055.368	4070027.339	89.56
LOCATION	L0007301	VOLUME	252057.066	4070034.453	89.58
LOCATION	L0007302	VOLUME	252058.451	4070041.636	89.59
LOCATION	L0007303	VOLUME	252059.836	4070048.819	89.61
LOCATION	L0007304	VOLUME	252061.220	4070056.001	89.63
LOCATION	L0007305	VOLUME	252062.605	4070063.184	89.64
LOCATION	L0007306	VOLUME	252063.990	4070070.367	89.66
LOCATION	L0007307	VOLUME	252065.374	4070077.550	89.67
LOCATION	L0007308	VOLUME	252066.759	4070084.733	89.69
LOCATION	L0007309	VOLUME	252068.144	4070091.916	89.73
LOCATION	L0007310	VOLUME	252069.528	4070099.098	89.80
LOCATION	L0007311	VOLUME	252070.913	4070106.281	89.88
LOCATION	L0007312	VOLUME	252072.297	4070113.464	89.96

LOCATION	L0007313	VOLUME	252073.682	4070120.647	90.04
LOCATION	L0007314	VOLUME	252075.067	4070127.830	90.12
LOCATION	L0007315	VOLUME	252076.451	4070135.013	90.20
LOCATION	L0007316	VOLUME	252077.836	4070142.195	90.29
LOCATION	L0007317	VOLUME	252079.221	4070149.378	90.38
LOCATION	L0007318	VOLUME	252080.605	4070156.561	90.47
LOCATION	L0007319	VOLUME	252081.990	4070163.744	90.57
LOCATION	L0007320	VOLUME	252083.375	4070170.927	90.66
LOCATION	L0007321	VOLUME	252084.759	4070178.110	90.76
LOCATION	L0007322	VOLUME	252086.144	4070185.292	90.82
LOCATION	L0007323	VOLUME	252087.528	4070192.475	90.85
LOCATION	L0007324	VOLUME	252088.913	4070199.658	90.88
LOCATION	L0007325	VOLUME	252090.298	4070206.841	90.91
LOCATION	L0007326	VOLUME	252091.682	4070214.024	90.95
LOCATION	L0007327	VOLUME	252093.067	4070221.207	90.98
LOCATION	L0007328	VOLUME	252094.452	4070228.389	91.00
LOCATION	L0007329	VOLUME	252095.836	4070235.572	91.00
LOCATION	L0007330	VOLUME	252097.221	4070242.755	91.00
LOCATION	L0007331	VOLUME	252098.605	4070249.938	91.00
LOCATION	L0007332	VOLUME	252099.990	4070257.121	91.00
LOCATION	L0007333	VOLUME	252101.375	4070264.304	91.00
LOCATION	L0007334	VOLUME	252102.759	4070271.486	91.00
LOCATION	L0007335	VOLUME	252104.144	4070278.669	90.94
LOCATION	L0007336	VOLUME	252105.529	4070285.852	90.87
LOCATION	L0007337	VOLUME	252106.913	4070293.035	90.81
LOCATION	L0007338	VOLUME	252108.298	4070300.218	90.75
LOCATION	L0007339	VOLUME	252109.683	4070307.401	90.69
LOCATION	L0007340	VOLUME	252111.067	4070314.583	90.63
LOCATION	L0007341	VOLUME	252112.452	4070321.766	90.58
LOCATION	L0007342	VOLUME	252113.836	4070328.949	90.53
LOCATION	L0007343	VOLUME	252115.221	4070336.132	90.48
LOCATION	L0007344	VOLUME	252116.606	4070343.315	90.43
LOCATION	L0007345	VOLUME	252117.990	4070350.498	90.38
LOCATION	L0007346	VOLUME	252119.375	4070357.680	90.34
LOCATION	L0007347	VOLUME	252120.760	4070364.863	90.30
LOCATION	L0007348	VOLUME	252122.144	4070372.046	90.24
LOCATION	L0007349	VOLUME	252123.529	4070379.229	90.18
LOCATION	L0007350	VOLUME	252124.693	4070386.442	90.11
LOCATION	L0007351	VOLUME	252125.268	4070393.734	90.04
LOCATION	L0007352	VOLUME	252125.842	4070401.027	89.96
LOCATION	L0007353	VOLUME	252126.417	4070408.319	89.89
LOCATION	L0007354	VOLUME	252126.992	4070415.612	89.82
LOCATION	L0007355	VOLUME	252127.566	4070422.904	89.74
LOCATION	L0007356	VOLUME	252128.141	4070430.196	89.67
LOCATION	L0007357	VOLUME	252128.715	4070437.489	89.59
LOCATION	L0007358	VOLUME	252129.290	4070444.781	89.52
LOCATION	L0007359	VOLUME	252129.865	4070452.074	89.45
LOCATION	L0007360	VOLUME	252130.439	4070459.366	89.40
LOCATION	L0007361	VOLUME	252131.014	4070466.659	89.40
LOCATION	L0007362	VOLUME	252131.589	4070473.951	89.41
LOCATION	L0007363	VOLUME	252132.163	4070481.244	89.41
LOCATION	L0007364	VOLUME	252132.738	4070488.536	89.42
LOCATION	L0007365	VOLUME	252133.312	4070495.829	89.42
LOCATION	L0007366	VOLUME	252133.887	4070503.121	89.43

LOCATION	L0007367	VOLUME	252134.462	4070510.414	89.43
LOCATION	L0007368	VOLUME	252135.036	4070517.706	89.44
LOCATION	L0007369	VOLUME	252135.611	4070524.999	89.44
LOCATION	L0007370	VOLUME	252136.186	4070532.291	89.45
LOCATION	L0007371	VOLUME	252136.760	4070539.583	89.45
LOCATION	L0007372	VOLUME	252137.335	4070546.876	89.46
LOCATION	L0007373	VOLUME	252137.909	4070554.168	89.44
LOCATION	L0007374	VOLUME	252138.484	4070561.461	89.40
LOCATION	L0007375	VOLUME	252139.059	4070568.753	89.37
LOCATION	L0007376	VOLUME	252139.633	4070576.046	89.34
LOCATION	L0007377	VOLUME	252140.208	4070583.338	89.30
LOCATION	L0007378	VOLUME	252140.783	4070590.631	89.27
LOCATION	L0007379	VOLUME	252141.357	4070597.923	89.23
LOCATION	L0007380	VOLUME	252141.932	4070605.216	89.20
LOCATION	L0007381	VOLUME	252142.506	4070612.508	89.16
LOCATION	L0007382	VOLUME	252143.081	4070619.801	89.12
LOCATION	L0007383	VOLUME	252143.656	4070627.093	89.08
LOCATION	L0007384	VOLUME	252144.230	4070634.386	89.04
LOCATION	L0007385	VOLUME	252144.805	4070641.678	89.00
LOCATION	L0007386	VOLUME	252145.380	4070648.971	89.04
LOCATION	L0007387	VOLUME	252145.954	4070656.263	89.08
LOCATION	L0007388	VOLUME	252146.529	4070663.555	89.13
LOCATION	L0007389	VOLUME	252147.103	4070670.848	89.17
LOCATION	L0007390	VOLUME	252147.678	4070678.140	89.22
LOCATION	L0007391	VOLUME	252148.253	4070685.433	89.26
LOCATION	L0007392	VOLUME	252148.827	4070692.725	89.31
LOCATION	L0007393	VOLUME	252149.402	4070700.018	89.35
LOCATION	L0007394	VOLUME	252149.977	4070707.310	89.40
LOCATION	L0007395	VOLUME	252150.551	4070714.603	89.45
LOCATION	L0007396	VOLUME	252151.126	4070721.895	89.50
LOCATION	L0007397	VOLUME	252151.700	4070729.188	89.55
LOCATION	L0007398	VOLUME	252152.275	4070736.480	89.59
LOCATION	L0007399	VOLUME	252152.850	4070743.773	89.63
LOCATION	L0007400	VOLUME	252153.424	4070751.065	89.67
LOCATION	L0007401	VOLUME	252153.999	4070758.358	89.70
LOCATION	L0007402	VOLUME	252154.574	4070765.650	89.74
LOCATION	L0007403	VOLUME	252155.148	4070772.942	89.77
LOCATION	L0007404	VOLUME	252155.723	4070780.235	89.81
LOCATION	L0007405	VOLUME	252156.297	4070787.527	89.84
LOCATION	L0007406	VOLUME	252156.872	4070794.820	89.87
LOCATION	L0007407	VOLUME	252157.447	4070802.112	89.90
LOCATION	L0007408	VOLUME	252158.021	4070809.405	89.93
LOCATION	L0007409	VOLUME	252158.596	4070816.697	89.96
LOCATION	L0007410	VOLUME	252159.171	4070823.990	89.99
LOCATION	L0007411	VOLUME	252159.745	4070831.282	90.04
LOCATION	L0007412	VOLUME	252160.320	4070838.575	90.09
LOCATION	L0007413	VOLUME	252160.894	4070845.867	90.14
LOCATION	L0007414	VOLUME	252161.469	4070853.160	90.19
LOCATION	L0007415	VOLUME	252162.044	4070860.452	90.25
LOCATION	L0007416	VOLUME	252162.618	4070867.745	90.30
LOCATION	L0007417	VOLUME	252163.204	4070875.036	90.36
LOCATION	L0007418	VOLUME	252163.832	4070882.324	90.41
LOCATION	L0007419	VOLUME	252164.460	4070889.612	90.47
LOCATION	L0007420	VOLUME	252165.088	4070896.900	90.53

LOCATION	L0007421	VOLUME	252165.716	4070904.188	90.59
LOCATION	L0007422	VOLUME	252166.344	4070911.476	90.65
LOCATION	L0007423	VOLUME	252166.972	4070918.765	90.71
LOCATION	L0007424	VOLUME	252167.600	4070926.053	90.71
LOCATION	L0007425	VOLUME	252168.228	4070933.341	90.72
LOCATION	L0007426	VOLUME	252168.856	4070940.629	90.73
LOCATION	L0007427	VOLUME	252169.484	4070947.917	90.73
LOCATION	L0007428	VOLUME	252170.112	4070955.205	90.74
LOCATION	L0007429	VOLUME	252170.740	4070962.493	90.74
LOCATION	L0007430	VOLUME	252171.368	4070969.781	90.75
LOCATION	L0007431	VOLUME	252171.996	4070977.069	90.75
LOCATION	L0007432	VOLUME	252172.624	4070984.357	90.76
LOCATION	L0007433	VOLUME	252173.252	4070991.645	90.77
LOCATION	L0007434	VOLUME	252173.880	4070998.933	90.77
LOCATION	L0007435	VOLUME	252174.508	4071006.221	90.78
LOCATION	L0007436	VOLUME	252175.136	4071013.509	90.79
LOCATION	L0007437	VOLUME	252175.764	4071020.797	90.81
LOCATION	L0007438	VOLUME	252176.392	4071028.086	90.83
LOCATION	L0007439	VOLUME	252177.020	4071035.374	90.85
LOCATION	L0007440	VOLUME	252177.648	4071042.662	90.87
LOCATION	L0007441	VOLUME	252178.276	4071049.950	90.89
LOCATION	L0007442	VOLUME	252178.904	4071057.238	90.91
LOCATION	L0007443	VOLUME	252179.532	4071064.526	90.92
LOCATION	L0007444	VOLUME	252180.160	4071071.814	90.94
LOCATION	L0007445	VOLUME	252180.788	4071079.102	90.96
LOCATION	L0007446	VOLUME	252181.416	4071086.390	90.97
LOCATION	L0007447	VOLUME	252182.044	4071093.678	90.98
LOCATION	L0007448	VOLUME	252182.672	4071100.966	91.00
LOCATION	L0007449	VOLUME	252183.300	4071108.254	91.00
LOCATION	L0007450	VOLUME	252183.928	4071115.542	91.00
LOCATION	L0007451	VOLUME	252184.555	4071122.830	91.00
LOCATION	L0007452	VOLUME	252185.183	4071130.118	91.00
LOCATION	L0007453	VOLUME	252185.811	4071137.407	91.00
LOCATION	L0007454	VOLUME	252186.439	4071144.695	91.00
LOCATION	L0007455	VOLUME	252187.067	4071151.983	91.00
LOCATION	L0007456	VOLUME	252187.695	4071159.271	91.00
LOCATION	L0007457	VOLUME	252188.323	4071166.559	91.00
LOCATION	L0007458	VOLUME	252188.951	4071173.847	91.00
LOCATION	L0007459	VOLUME	252189.579	4071181.135	91.00
LOCATION	L0007460	VOLUME	252190.207	4071188.423	91.00
LOCATION	L0007461	VOLUME	252190.835	4071195.711	91.00
LOCATION	L0007462	VOLUME	252191.463	4071202.999	91.00
LOCATION	L0007463	VOLUME	252192.091	4071210.287	91.00
LOCATION	L0007464	VOLUME	252192.719	4071217.575	91.00
LOCATION	L0007465	VOLUME	252193.347	4071224.863	91.00
LOCATION	L0007466	VOLUME	252193.975	4071232.151	91.00
LOCATION	L0007467	VOLUME	252194.603	4071239.439	91.00
LOCATION	L0007468	VOLUME	252195.231	4071246.728	91.00
LOCATION	L0007469	VOLUME	252195.859	4071254.016	91.00
LOCATION	L0007470	VOLUME	252196.487	4071261.304	91.00
LOCATION	L0007471	VOLUME	252197.115	4071268.592	91.00
LOCATION	L0007472	VOLUME	252197.743	4071275.880	91.00
LOCATION	L0007473	VOLUME	252198.371	4071283.168	91.00
LOCATION	L0007474	VOLUME	252198.999	4071290.456	91.00

LOCATION	L0007475	VOLUME	252199.627	4071297.744	91.00
LOCATION	L0007476	VOLUME	252200.255	4071305.032	91.00
LOCATION	L0007477	VOLUME	252200.883	4071312.320	91.00
LOCATION	L0007478	VOLUME	252201.511	4071319.608	91.00
LOCATION	L0007479	VOLUME	252202.139	4071326.896	91.00
LOCATION	L0007480	VOLUME	252202.767	4071334.184	91.00
LOCATION	L0007481	VOLUME	252203.395	4071341.472	91.00
LOCATION	L0007482	VOLUME	252204.023	4071348.761	91.00
LOCATION	L0007483	VOLUME	252204.651	4071356.049	91.00
LOCATION	L0007484	VOLUME	252205.279	4071363.337	91.00
LOCATION	L0007485	VOLUME	252205.906	4071370.625	91.00
LOCATION	L0007486	VOLUME	252206.358	4071377.926	91.00
LOCATION	L0007487	VOLUME	252206.811	4071385.227	91.00
LOCATION	L0007488	VOLUME	252207.264	4071392.528	91.00
LOCATION	L0007489	VOLUME	252207.717	4071399.829	91.00
LOCATION	L0007490	VOLUME	252208.169	4071407.130	91.00
LOCATION	L0007491	VOLUME	252208.622	4071414.431	91.00
LOCATION	L0007492	VOLUME	252209.075	4071421.732	91.00
LOCATION	L0007493	VOLUME	252209.528	4071429.033	91.00
LOCATION	L0007494	VOLUME	252209.980	4071436.334	91.00
LOCATION	L0007495	VOLUME	252210.433	4071443.635	91.00
LOCATION	L0007496	VOLUME	252210.886	4071450.936	91.00
LOCATION	L0007497	VOLUME	252211.339	4071458.237	91.00
LOCATION	L0007498	VOLUME	252211.791	4071465.538	91.00
LOCATION	L0007499	VOLUME	252212.244	4071472.839	91.00
LOCATION	L0007500	VOLUME	252212.697	4071480.141	91.00
LOCATION	L0007501	VOLUME	252213.150	4071487.442	91.00
LOCATION	L0007502	VOLUME	252213.602	4071494.743	91.00
LOCATION	L0007503	VOLUME	252214.055	4071502.044	91.00
LOCATION	L0007504	VOLUME	252214.508	4071509.345	91.00
LOCATION	L0007505	VOLUME	252214.961	4071516.646	91.00
LOCATION	L0007506	VOLUME	252215.413	4071523.947	91.00
LOCATION	L0007507	VOLUME	252215.866	4071531.248	91.00
LOCATION	L0007508	VOLUME	252216.319	4071538.549	91.00
LOCATION	L0007509	VOLUME	252216.772	4071545.850	91.00
LOCATION	L0007510	VOLUME	252217.224	4071553.151	91.00
LOCATION	L0007511	VOLUME	252217.677	4071560.452	91.00
LOCATION	L0007512	VOLUME	252218.130	4071567.753	91.00
LOCATION	L0007513	VOLUME	252218.583	4071575.054	91.00
LOCATION	L0007514	VOLUME	252219.035	4071582.355	91.00
LOCATION	L0007515	VOLUME	252219.488	4071589.656	91.00
LOCATION	L0007516	VOLUME	252219.941	4071596.957	91.00
LOCATION	L0007517	VOLUME	252220.394	4071604.258	91.00
LOCATION	L0007518	VOLUME	252220.846	4071611.559	91.00
LOCATION	L0007519	VOLUME	252221.299	4071618.860	91.00
LOCATION	L0007520	VOLUME	252221.752	4071626.162	91.00
LOCATION	L0007521	VOLUME	252222.205	4071633.463	91.00
LOCATION	L0007522	VOLUME	252222.657	4071640.764	91.00
LOCATION	L0007523	VOLUME	252223.110	4071648.065	91.00
LOCATION	L0007524	VOLUME	252223.563	4071655.366	91.00
LOCATION	L0007525	VOLUME	252224.016	4071662.667	91.00
LOCATION	L0007526	VOLUME	252224.469	4071669.968	91.00
LOCATION	L0007527	VOLUME	252224.921	4071677.269	91.00
LOCATION	L0007528	VOLUME	252225.374	4071684.570	91.00

LOCATION	L0007529	VOLUME	252225.827	4071691.871	91.00
LOCATION	L0007530	VOLUME	252226.280	4071699.172	91.00
LOCATION	L0007531	VOLUME	252226.732	4071706.473	91.00
LOCATION	L0007532	VOLUME	252227.185	4071713.774	91.00
LOCATION	L0007533	VOLUME	252227.638	4071721.075	91.00
LOCATION	L0007534	VOLUME	252228.091	4071728.376	91.00
LOCATION	L0007535	VOLUME	252228.543	4071735.677	91.00
LOCATION	L0007536	VOLUME	252228.996	4071742.978	91.00
LOCATION	L0007537	VOLUME	252229.449	4071750.279	91.00
LOCATION	L0007538	VOLUME	252229.902	4071757.580	91.00
LOCATION	L0007539	VOLUME	252230.354	4071764.881	91.00
LOCATION	L0007540	VOLUME	252230.807	4071772.182	91.00
LOCATION	L0007541	VOLUME	252231.260	4071779.484	91.00
LOCATION	L0007542	VOLUME	252231.713	4071786.785	91.00
LOCATION	L0007543	VOLUME	252232.165	4071794.086	91.00
LOCATION	L0007544	VOLUME	252232.618	4071801.387	91.00
LOCATION	L0007545	VOLUME	252233.071	4071808.688	91.00
LOCATION	L0007546	VOLUME	252233.524	4071815.989	91.00
LOCATION	L0007547	VOLUME	252233.976	4071823.290	91.00
LOCATION	L0007548	VOLUME	252234.429	4071830.591	91.00
LOCATION	L0007549	VOLUME	252234.882	4071837.892	91.00
LOCATION	L0007550	VOLUME	252235.335	4071845.193	91.00
LOCATION	L0007551	VOLUME	252235.787	4071852.494	91.00
LOCATION	L0007552	VOLUME	252236.240	4071859.795	91.00
LOCATION	L0007553	VOLUME	252236.693	4071867.096	91.00
LOCATION	L0007554	VOLUME	252237.146	4071874.397	91.00
LOCATION	L0007555	VOLUME	252237.598	4071881.698	91.00
LOCATION	L0007556	VOLUME	252238.051	4071888.999	91.00
LOCATION	L0007557	VOLUME	252238.504	4071896.300	91.00
LOCATION	L0007558	VOLUME	252238.957	4071903.601	91.00
LOCATION	L0007559	VOLUME	252239.409	4071910.902	91.00
LOCATION	L0007560	VOLUME	252239.862	4071918.203	91.00
LOCATION	L0007561	VOLUME	252240.315	4071925.504	91.00
LOCATION	L0007562	VOLUME	252240.768	4071932.806	91.00
LOCATION	L0007563	VOLUME	252240.893	4071940.119	91.00
LOCATION	L0007564	VOLUME	252241.015	4071947.434	91.00
LOCATION	L0007565	VOLUME	252241.137	4071954.748	91.00
LOCATION	L0007566	VOLUME	252241.259	4071962.062	91.00
LOCATION	L0007567	VOLUME	252241.381	4071969.376	91.00
LOCATION	L0007568	VOLUME	252241.503	4071976.690	91.00
LOCATION	L0007569	VOLUME	252241.625	4071984.004	91.00
LOCATION	L0007570	VOLUME	252241.746	4071991.318	91.00
LOCATION	L0007571	VOLUME	252241.868	4071998.632	91.00
LOCATION	L0007572	VOLUME	252241.990	4072005.946	91.00
LOCATION	L0007573	VOLUME	252242.112	4072013.260	91.00
LOCATION	L0007574	VOLUME	252242.234	4072020.574	91.00
LOCATION	L0007575	VOLUME	252242.356	4072027.888	91.00
LOCATION	L0007576	VOLUME	252242.478	4072035.202	91.00
LOCATION	L0007577	VOLUME	252242.600	4072042.516	91.00
LOCATION	L0007578	VOLUME	252242.722	4072049.830	91.00
LOCATION	L0007579	VOLUME	252242.844	4072057.144	91.00
LOCATION	L0007580	VOLUME	252242.965	4072064.458	91.00
LOCATION	L0007581	VOLUME	252243.087	4072071.772	91.00
LOCATION	L0007582	VOLUME	252243.209	4072079.087	91.00

LOCATION	L0007583	VOLUME	252243.331	4072086.401	91.00
LOCATION	L0007584	VOLUME	252243.453	4072093.715	91.00
LOCATION	L0007585	VOLUME	252243.575	4072101.029	91.00
LOCATION	L0007586	VOLUME	252243.697	4072108.343	91.00
LOCATION	L0007587	VOLUME	252243.819	4072115.657	91.00
LOCATION	L0007588	VOLUME	252243.941	4072122.971	91.00
LOCATION	L0007589	VOLUME	252244.063	4072130.285	91.00
LOCATION	L0007590	VOLUME	252244.184	4072137.599	91.00
LOCATION	L0007591	VOLUME	252244.306	4072144.913	91.00
LOCATION	L0007592	VOLUME	252244.428	4072152.227	91.00
LOCATION	L0007593	VOLUME	252244.443	4072159.524	91.00
LOCATION	L0007594	VOLUME	252242.088	4072166.450	91.00
LOCATION	L0007595	VOLUME	252239.733	4072173.376	91.00
LOCATION	L0007596	VOLUME	252237.379	4072180.301	91.00
LOCATION	L0007597	VOLUME	252235.024	4072187.227	91.00
LOCATION	L0007598	VOLUME	252232.669	4072194.153	91.00
LOCATION	L0007599	VOLUME	252230.314	4072201.079	91.00
LOCATION	L0007600	VOLUME	252227.960	4072208.004	91.00
LOCATION	L0007601	VOLUME	252225.605	4072214.930	91.00
LOCATION	L0007602	VOLUME	252223.250	4072221.856	91.00
LOCATION	L0007603	VOLUME	252220.895	4072228.781	91.00
LOCATION	L0007604	VOLUME	252218.541	4072235.707	91.00
LOCATION	L0007605	VOLUME	252216.186	4072242.633	91.00
LOCATION	L0007606	VOLUME	252213.831	4072249.559	91.00
LOCATION	L0007607	VOLUME	252211.476	4072256.484	91.00
LOCATION	L0007608	VOLUME	252209.122	4072263.410	91.00
LOCATION	L0007609	VOLUME	252206.767	4072270.336	91.00
LOCATION	L0007610	VOLUME	252204.412	4072277.261	91.00
LOCATION	L0007611	VOLUME	252202.057	4072284.187	91.00
LOCATION	L0007612	VOLUME	252199.703	4072291.113	91.00
LOCATION	L0007613	VOLUME	252197.348	4072298.039	91.00
LOCATION	L0007614	VOLUME	252194.993	4072304.964	91.00
LOCATION	L0007615	VOLUME	252192.639	4072311.890	91.00
LOCATION	L0007616	VOLUME	252190.284	4072318.816	91.00
LOCATION	L0007617	VOLUME	252187.929	4072325.741	91.00
LOCATION	L0007618	VOLUME	252185.574	4072332.667	91.00
LOCATION	L0007619	VOLUME	252183.220	4072339.593	91.00
LOCATION	L0007620	VOLUME	252180.865	4072346.519	91.00
LOCATION	L0007621	VOLUME	252176.718	4072352.462	91.00
LOCATION	L0007622	VOLUME	252172.148	4072358.174	91.00
LOCATION	L0007623	VOLUME	252167.578	4072363.886	91.00
LOCATION	L0007624	VOLUME	252163.008	4072369.598	91.00
LOCATION	L0007625	VOLUME	252158.439	4072375.311	91.00
LOCATION	L0007626	VOLUME	252153.869	4072381.023	91.00
LOCATION	L0007627	VOLUME	252149.299	4072386.735	91.00
LOCATION	L0007628	VOLUME	252144.730	4072392.447	91.00
LOCATION	L0007629	VOLUME	252140.160	4072398.159	91.00
LOCATION	L0007630	VOLUME	252135.590	4072403.871	91.00
LOCATION	L0007631	VOLUME	252131.021	4072409.583	91.00
LOCATION	L0007632	VOLUME	252126.451	4072415.295	91.00
LOCATION	L0007633	VOLUME	252121.881	4072421.007	91.00
LOCATION	L0007634	VOLUME	252117.312	4072426.720	91.00
LOCATION	L0007635	VOLUME	252112.742	4072432.432	91.00
LOCATION	L0007636	VOLUME	252108.172	4072438.144	91.00

LOCATION	L0007637	VOLUME	252103.602	4072443.856	91.00
LOCATION	L0007638	VOLUME	252099.033	4072449.568	91.00
LOCATION	L0007639	VOLUME	252094.463	4072455.280	91.00
LOCATION	L0007640	VOLUME	252089.893	4072460.992	91.00
LOCATION	L0007641	VOLUME	252085.324	4072466.704	91.00
LOCATION	L0007642	VOLUME	252080.754	4072472.416	91.00
LOCATION	L0007643	VOLUME	252076.184	4072478.129	91.00
LOCATION	L0007644	VOLUME	252071.615	4072483.841	91.00
LOCATION	L0007645	VOLUME	252067.045	4072489.553	91.00
LOCATION	L0007646	VOLUME	252062.475	4072495.265	91.00
LOCATION	L0007647	VOLUME	252057.906	4072500.977	91.00
LOCATION	L0007648	VOLUME	252053.336	4072506.689	91.00
LOCATION	L0007649	VOLUME	252048.766	4072512.401	91.00
LOCATION	L0007650	VOLUME	252044.080	4072517.993	91.00
LOCATION	L0007651	VOLUME	252038.231	4072522.386	91.00
LOCATION	L0007652	VOLUME	252032.382	4072526.779	91.00
LOCATION	L0007653	VOLUME	252026.533	4072531.173	91.00
LOCATION	L0007654	VOLUME	252020.684	4072535.566	91.00
LOCATION	L0007655	VOLUME	252014.835	4072539.959	91.00
LOCATION	L0007656	VOLUME	252008.986	4072544.352	91.00
LOCATION	L0007657	VOLUME	252003.137	4072548.745	91.00
LOCATION	L0007658	VOLUME	251997.288	4072553.138	91.00
LOCATION	L0007659	VOLUME	251991.439	4072557.531	91.00
LOCATION	L0007660	VOLUME	251985.590	4072561.924	91.00
LOCATION	L0007661	VOLUME	251979.741	4072566.317	91.00
LOCATION	L0007662	VOLUME	251973.892	4072570.710	91.00
LOCATION	L0007663	VOLUME	251968.043	4072575.104	91.00
LOCATION	L0007664	VOLUME	251962.194	4072579.497	91.00
LOCATION	L0007665	VOLUME	251956.345	4072583.890	91.00
LOCATION	L0007666	VOLUME	251950.496	4072588.283	91.00
LOCATION	L0007667	VOLUME	251944.647	4072592.676	91.00
LOCATION	L0007668	VOLUME	251938.798	4072597.069	91.00
LOCATION	L0007669	VOLUME	251932.949	4072601.462	91.00
LOCATION	L0007670	VOLUME	251927.100	4072605.855	91.00
LOCATION	L0007671	VOLUME	251921.251	4072610.248	91.00
LOCATION	L0007672	VOLUME	251915.402	4072614.642	91.00
LOCATION	L0007673	VOLUME	251909.553	4072619.035	91.00
LOCATION	L0007674	VOLUME	251903.704	4072623.428	91.00
LOCATION	L0007675	VOLUME	251897.855	4072627.821	91.00
LOCATION	L0007676	VOLUME	251892.006	4072632.214	91.00
LOCATION	L0007677	VOLUME	251886.157	4072636.607	91.00
LOCATION	L0007678	VOLUME	251880.308	4072641.000	91.00
LOCATION	L0007679	VOLUME	251874.459	4072645.393	91.00
LOCATION	L0007680	VOLUME	251868.639	4072649.825	91.00
LOCATION	L0007681	VOLUME	251862.962	4072654.437	91.00
LOCATION	L0007682	VOLUME	251857.285	4072659.050	91.00
LOCATION	L0007683	VOLUME	251851.607	4072663.663	91.00
LOCATION	L0007684	VOLUME	251845.930	4072668.276	91.00
LOCATION	L0007685	VOLUME	251840.253	4072672.889	91.00
LOCATION	L0007686	VOLUME	251834.575	4072677.501	91.00
LOCATION	L0007687	VOLUME	251828.898	4072682.114	91.00
LOCATION	L0007688	VOLUME	251823.221	4072686.727	91.00
LOCATION	L0007689	VOLUME	251817.543	4072691.340	91.00
LOCATION	L0007690	VOLUME	251811.866	4072695.953	91.00

LOCATION	L0007691	VOLUME	251806.189	4072700.566	91.00
LOCATION	L0007692	VOLUME	251800.511	4072705.178	91.00
LOCATION	L0007693	VOLUME	251794.834	4072709.791	91.00
LOCATION	L0007694	VOLUME	251789.157	4072714.404	91.00
LOCATION	L0007695	VOLUME	251783.479	4072719.017	91.00
LOCATION	L0007696	VOLUME	251777.802	4072723.630	91.00
LOCATION	L0007697	VOLUME	251772.125	4072728.243	91.00
LOCATION	L0007698	VOLUME	251766.448	4072732.855	91.00
LOCATION	L0007699	VOLUME	251760.770	4072737.468	91.00
LOCATION	L0007700	VOLUME	251755.093	4072742.081	91.00
LOCATION	L0007701	VOLUME	251749.416	4072746.694	91.00
LOCATION	L0007702	VOLUME	251743.738	4072751.307	91.00
LOCATION	L0007703	VOLUME	251738.061	4072755.920	91.00
LOCATION	L0007704	VOLUME	251732.384	4072760.532	91.00
LOCATION	L0007705	VOLUME	251726.706	4072765.145	91.00
LOCATION	L0007706	VOLUME	251721.029	4072769.758	91.00
LOCATION	L0007707	VOLUME	251715.352	4072774.371	91.00
LOCATION	L0007708	VOLUME	251709.674	4072778.984	91.00
LOCATION	L0007709	VOLUME	251703.997	4072783.597	91.00
LOCATION	L0007710	VOLUME	251698.320	4072788.209	91.00
LOCATION	L0007711	VOLUME	251692.642	4072792.822	91.00
LOCATION	L0007712	VOLUME	251687.268	4072797.737	91.00
LOCATION	L0007713	VOLUME	251682.679	4072803.434	91.00
LOCATION	L0007714	VOLUME	251678.090	4072809.131	91.00
LOCATION	L0007715	VOLUME	251673.502	4072814.827	91.00
LOCATION	L0007716	VOLUME	251668.913	4072820.524	91.00
LOCATION	L0007717	VOLUME	251664.324	4072826.221	91.00
LOCATION	L0007718	VOLUME	251659.735	4072831.917	91.00
LOCATION	L0007719	VOLUME	251655.146	4072837.614	91.00
LOCATION	L0007720	VOLUME	251650.557	4072843.310	91.00
LOCATION	L0007721	VOLUME	251645.968	4072849.007	91.00
LOCATION	L0007722	VOLUME	251641.379	4072854.704	91.00
LOCATION	L0007723	VOLUME	251636.790	4072860.400	91.00
LOCATION	L0007724	VOLUME	251632.201	4072866.097	91.00
LOCATION	L0007725	VOLUME	251627.612	4072871.794	91.00
LOCATION	L0007726	VOLUME	251623.023	4072877.490	91.00
LOCATION	L0007727	VOLUME	251618.434	4072883.187	91.00
LOCATION	L0007728	VOLUME	251613.845	4072888.884	91.00
LOCATION	L0007729	VOLUME	251609.256	4072894.580	91.00
LOCATION	L0007730	VOLUME	251604.667	4072900.277	91.00
LOCATION	L0007731	VOLUME	251600.078	4072905.974	91.00
LOCATION	L0007732	VOLUME	251595.489	4072911.670	91.00
LOCATION	L0007733	VOLUME	251590.900	4072917.367	91.00
LOCATION	L0007734	VOLUME	251586.311	4072923.063	91.00
LOCATION	L0007735	VOLUME	251581.722	4072928.760	91.00
LOCATION	L0007736	VOLUME	251577.668	4072934.806	91.00
LOCATION	L0007737	VOLUME	251574.297	4072941.298	91.00
LOCATION	L0007738	VOLUME	251570.926	4072947.790	91.00
LOCATION	L0007739	VOLUME	251567.555	4072954.282	91.00
LOCATION	L0007740	VOLUME	251564.185	4072960.774	91.00
LOCATION	L0007741	VOLUME	251560.814	4072967.266	91.00
LOCATION	L0007742	VOLUME	251557.443	4072973.759	91.00
LOCATION	L0007743	VOLUME	251554.072	4072980.251	91.00
LOCATION	L0007744	VOLUME	251550.701	4072986.743	91.00

LOCATION	L0007745	VOLUME	251547.330	4072993.235	91.00
LOCATION	L0007746	VOLUME	251543.959	4072999.727	91.00
LOCATION	L0007747	VOLUME	251540.588	4073006.219	91.00
LOCATION	L0007748	VOLUME	251537.217	4073012.711	91.00
LOCATION	L0007749	VOLUME	251533.846	4073019.203	91.00
LOCATION	L0007750	VOLUME	251530.476	4073025.695	91.00
LOCATION	L0007751	VOLUME	251527.105	4073032.187	91.00
LOCATION	L0007752	VOLUME	251523.734	4073038.680	91.00
LOCATION	L0007753	VOLUME	251520.363	4073045.172	91.00
LOCATION	L0007754	VOLUME	251516.992	4073051.664	91.00
LOCATION	L0007755	VOLUME	251513.621	4073058.156	91.00
LOCATION	L0007756	VOLUME	251510.250	4073064.648	91.00
LOCATION	L0007757	VOLUME	251506.879	4073071.140	91.00
LOCATION	L0007758	VOLUME	251503.508	4073077.632	91.00
LOCATION	L0007759	VOLUME	251500.137	4073084.124	91.00
LOCATION	L0007760	VOLUME	251496.767	4073090.616	91.00
LOCATION	L0007761	VOLUME	251493.396	4073097.108	91.00
LOCATION	L0007762	VOLUME	251490.025	4073103.601	91.00
LOCATION	L0007763	VOLUME	251486.654	4073110.093	91.00
LOCATION	L0007764	VOLUME	251483.283	4073116.585	91.00
LOCATION	L0007765	VOLUME	251479.912	4073123.077	91.00
LOCATION	L0007766	VOLUME	251477.008	4073129.727	91.00
LOCATION	L0007767	VOLUME	251475.730	4073136.930	91.00
LOCATION	L0007768	VOLUME	251474.452	4073144.133	91.00
LOCATION	L0007769	VOLUME	251473.174	4073151.335	91.00
LOCATION	L0007770	VOLUME	251471.896	4073158.538	91.00
LOCATION	L0007771	VOLUME	251470.619	4073165.740	91.00
LOCATION	L0007772	VOLUME	251469.341	4073172.943	91.00
LOCATION	L0007773	VOLUME	251468.063	4073180.146	91.00
LOCATION	L0007774	VOLUME	251466.785	4073187.348	91.00
LOCATION	L0007775	VOLUME	251465.507	4073194.551	91.00
LOCATION	L0007776	VOLUME	251464.229	4073201.753	91.00
LOCATION	L0007777	VOLUME	251462.951	4073208.956	91.00
LOCATION	L0007778	VOLUME	251461.673	4073216.158	91.00
LOCATION	L0007779	VOLUME	251460.396	4073223.361	91.00
LOCATION	L0007780	VOLUME	251459.118	4073230.564	91.00
LOCATION	L0007781	VOLUME	251457.840	4073237.766	91.00
LOCATION	L0007782	VOLUME	251456.562	4073244.969	91.00
LOCATION	L0007783	VOLUME	251455.284	4073252.171	91.00
LOCATION	L0007784	VOLUME	251454.006	4073259.374	91.00
LOCATION	L0007785	VOLUME	251452.728	4073266.577	91.00
LOCATION	L0007786	VOLUME	251451.450	4073273.779	91.00
LOCATION	L0007787	VOLUME	251450.172	4073280.982	91.00
LOCATION	L0007788	VOLUME	251448.895	4073288.184	91.00
LOCATION	L0007789	VOLUME	251447.617	4073295.387	91.00
LOCATION	L0007790	VOLUME	251446.339	4073302.590	91.00
LOCATION	L0007791	VOLUME	251445.061	4073309.792	91.00
LOCATION	L0007792	VOLUME	251443.783	4073316.995	91.00
LOCATION	L0007793	VOLUME	251442.505	4073324.197	91.00
LOCATION	L0007794	VOLUME	251441.227	4073331.400	91.00
LOCATION	L0007795	VOLUME	251439.949	4073338.603	91.00
LOCATION	L0007796	VOLUME	251438.672	4073345.805	91.00
LOCATION	L0007797	VOLUME	251437.394	4073353.008	91.00
LOCATION	L0007798	VOLUME	251436.116	4073360.210	91.00

** End of LINE VOLUME Source ID = SR41

**

** Line Source Represented by Separated Volume Sources

** LINE VOLUME Source ID = SR99

** DESCRSRC State Route 99

** PREFIX

** Length of Side = 3.66

** Configuration = Separated

** Emission Rate = 0.101

** Vertical Dimension = 1.83

** SZINIT = 0.85

** Nodes = 23

** 251814.513, 4066477.169, 72.78, 0.00, 3.40

** 251446.399, 4066960.840, 72.90, 0.00, 3.40

** 251334.231, 4067110.971, 73.00, 0.00, 3.40

** 251151.312, 4067340.483, 73.07, 0.00, 3.40

** 250886.125, 4067662.187, 73.38, 0.00, 3.40

** 250542.715, 4068076.350, 73.00, 0.00, 3.40

** 250090.819, 4068623.105, 73.49, 0.00, 3.40

** 249737.494, 4069048.690, 73.87, 0.00, 3.40

** 249432.265, 4069410.763, 74.77, 0.00, 3.40

** 249325.269, 4069507.404, 74.97, 0.00, 3.40

** 249173.403, 4069605.772, 75.00, 0.00, 3.40

** 248598.473, 4069857.495, 80.14, 0.00, 3.40

** 248473.614, 4069930.782, 81.48, 0.00, 3.40

** 248379.022, 4070005.555, 82.90, 0.00, 3.40

** 248286.231, 4070106.454, 83.99, 0.00, 3.40

** 248156.388, 4070302.891, 84.98, 0.00, 3.40

** 247831.253, 4070846.638, 85.98, 0.00, 3.40

** 247633.782, 4071172.917, 84.95, 0.00, 3.40

** 247399.799, 4071688.131, 83.00, 0.00, 3.40

** 247215.126, 4072086.818, 83.82, 0.00, 3.40

** 246913.271, 4072762.678, 85.48, 0.00, 3.40

** 246615.562, 4073417.508, 87.14, 0.00, 3.40

** 246577.418, 4073486.461, 87.09, 0.00, 3.40

**

LOCATION	L0007799	VOLUME	251813.405	4066478.624	72.63
LOCATION	L0007800	VOLUME	251808.978	4066484.441	72.62
LOCATION	L0007801	VOLUME	251804.551	4066490.257	72.59
LOCATION	L0007802	VOLUME	251800.124	4066496.074	72.56
LOCATION	L0007803	VOLUME	251795.697	4066501.891	72.53
LOCATION	L0007804	VOLUME	251791.270	4066507.707	72.52
LOCATION	L0007805	VOLUME	251786.843	4066513.524	72.51
LOCATION	L0007806	VOLUME	251782.417	4066519.341	72.52
LOCATION	L0007807	VOLUME	251777.990	4066525.157	72.52
LOCATION	L0007808	VOLUME	251773.563	4066530.974	72.54
LOCATION	L0007809	VOLUME	251769.136	4066536.791	72.57
LOCATION	L0007810	VOLUME	251764.709	4066542.607	72.60
LOCATION	L0007811	VOLUME	251760.282	4066548.424	72.62
LOCATION	L0007812	VOLUME	251755.855	4066554.241	72.64
LOCATION	L0007813	VOLUME	251751.428	4066560.057	72.64
LOCATION	L0007814	VOLUME	251747.001	4066565.874	72.64
LOCATION	L0007815	VOLUME	251742.574	4066571.691	72.63
LOCATION	L0007816	VOLUME	251738.147	4066577.507	72.62

LOCATION	L0007817	VOLUME	251733.720	4066583.324	72.59
LOCATION	L0007818	VOLUME	251729.293	4066589.141	72.56
LOCATION	L0007819	VOLUME	251724.866	4066594.957	72.54
LOCATION	L0007820	VOLUME	251720.439	4066600.774	72.52
LOCATION	L0007821	VOLUME	251716.012	4066606.591	72.51
LOCATION	L0007822	VOLUME	251711.585	4066612.408	72.51
LOCATION	L0007823	VOLUME	251707.158	4066618.224	72.52
LOCATION	L0007824	VOLUME	251702.731	4066624.041	72.53
LOCATION	L0007825	VOLUME	251698.304	4066629.858	72.56
LOCATION	L0007826	VOLUME	251693.877	4066635.674	72.59
LOCATION	L0007827	VOLUME	251689.450	4066641.491	72.61
LOCATION	L0007828	VOLUME	251685.023	4066647.308	72.63
LOCATION	L0007829	VOLUME	251680.596	4066653.124	72.64
LOCATION	L0007830	VOLUME	251676.169	4066658.941	72.64
LOCATION	L0007831	VOLUME	251671.742	4066664.758	72.63
LOCATION	L0007832	VOLUME	251667.315	4066670.574	72.62
LOCATION	L0007833	VOLUME	251662.888	4066676.391	72.60
LOCATION	L0007834	VOLUME	251658.461	4066682.208	72.56
LOCATION	L0007835	VOLUME	251654.034	4066688.024	72.54
LOCATION	L0007836	VOLUME	251649.607	4066693.841	72.52
LOCATION	L0007837	VOLUME	251645.180	4066699.658	72.51
LOCATION	L0007838	VOLUME	251640.753	4066705.474	72.51
LOCATION	L0007839	VOLUME	251636.326	4066711.291	72.51
LOCATION	L0007840	VOLUME	251631.899	4066717.108	72.53
LOCATION	L0007841	VOLUME	251627.472	4066722.924	72.55
LOCATION	L0007842	VOLUME	251623.045	4066728.741	72.58
LOCATION	L0007843	VOLUME	251618.618	4066734.558	72.61
LOCATION	L0007844	VOLUME	251614.191	4066740.374	72.62
LOCATION	L0007845	VOLUME	251609.764	4066746.191	72.63
LOCATION	L0007846	VOLUME	251605.337	4066752.008	72.64
LOCATION	L0007847	VOLUME	251600.910	4066757.824	72.63
LOCATION	L0007848	VOLUME	251596.483	4066763.641	72.62
LOCATION	L0007849	VOLUME	251592.056	4066769.458	72.60
LOCATION	L0007850	VOLUME	251587.629	4066775.274	72.57
LOCATION	L0007851	VOLUME	251583.202	4066781.091	72.54
LOCATION	L0007852	VOLUME	251578.775	4066786.908	72.52
LOCATION	L0007853	VOLUME	251574.348	4066792.725	72.51
LOCATION	L0007854	VOLUME	251569.921	4066798.541	72.51
LOCATION	L0007855	VOLUME	251565.494	4066804.358	72.51
LOCATION	L0007856	VOLUME	251561.067	4066810.175	72.52
LOCATION	L0007857	VOLUME	251556.640	4066815.991	72.54
LOCATION	L0007858	VOLUME	251552.213	4066821.808	72.57
LOCATION	L0007859	VOLUME	251547.786	4066827.625	72.60
LOCATION	L0007860	VOLUME	251543.359	4066833.441	72.66
LOCATION	L0007861	VOLUME	251538.933	4066839.258	72.73
LOCATION	L0007862	VOLUME	251534.506	4066845.075	72.79
LOCATION	L0007863	VOLUME	251530.079	4066850.891	72.85
LOCATION	L0007864	VOLUME	251525.652	4066856.708	72.91
LOCATION	L0007865	VOLUME	251521.225	4066862.525	72.97
LOCATION	L0007866	VOLUME	251516.798	4066868.341	73.00
LOCATION	L0007867	VOLUME	251512.371	4066874.158	73.00
LOCATION	L0007868	VOLUME	251507.944	4066879.975	73.00
LOCATION	L0007869	VOLUME	251503.517	4066885.791	73.00
LOCATION	L0007870	VOLUME	251499.090	4066891.608	73.00

LOCATION	L0007871	VOLUME	251494.663	4066897.425	73.00
LOCATION	L0007872	VOLUME	251490.236	4066903.241	73.00
LOCATION	L0007873	VOLUME	251485.809	4066909.058	73.00
LOCATION	L0007874	VOLUME	251481.382	4066914.875	73.00
LOCATION	L0007875	VOLUME	251476.955	4066920.691	73.00
LOCATION	L0007876	VOLUME	251472.528	4066926.508	72.98
LOCATION	L0007877	VOLUME	251468.101	4066932.325	72.97
LOCATION	L0007878	VOLUME	251463.674	4066938.141	72.96
LOCATION	L0007879	VOLUME	251459.247	4066943.958	72.96
LOCATION	L0007880	VOLUME	251454.820	4066949.775	72.97
LOCATION	L0007881	VOLUME	251450.393	4066955.591	72.98
LOCATION	L0007882	VOLUME	251445.971	4066961.412	73.00
LOCATION	L0007883	VOLUME	251441.596	4066967.268	73.00
LOCATION	L0007884	VOLUME	251437.221	4066973.124	73.00
LOCATION	L0007885	VOLUME	251432.846	4066978.980	73.00
LOCATION	L0007886	VOLUME	251428.471	4066984.835	73.00
LOCATION	L0007887	VOLUME	251424.096	4066990.691	73.00
LOCATION	L0007888	VOLUME	251419.721	4066996.547	73.00
LOCATION	L0007889	VOLUME	251415.346	4067002.403	73.00
LOCATION	L0007890	VOLUME	251410.971	4067008.259	73.00
LOCATION	L0007891	VOLUME	251406.596	4067014.115	73.00
LOCATION	L0007892	VOLUME	251402.220	4067019.970	72.99
LOCATION	L0007893	VOLUME	251397.845	4067025.826	72.97
LOCATION	L0007894	VOLUME	251393.470	4067031.682	72.96
LOCATION	L0007895	VOLUME	251389.095	4067037.538	72.96
LOCATION	L0007896	VOLUME	251384.720	4067043.394	72.97
LOCATION	L0007897	VOLUME	251380.345	4067049.250	72.98
LOCATION	L0007898	VOLUME	251375.970	4067055.105	73.00
LOCATION	L0007899	VOLUME	251371.595	4067060.961	73.00
LOCATION	L0007900	VOLUME	251367.220	4067066.817	73.00
LOCATION	L0007901	VOLUME	251362.845	4067072.673	73.00
LOCATION	L0007902	VOLUME	251358.470	4067078.529	73.00
LOCATION	L0007903	VOLUME	251354.095	4067084.385	73.00
LOCATION	L0007904	VOLUME	251349.720	4067090.240	73.00
LOCATION	L0007905	VOLUME	251345.345	4067096.096	73.00
LOCATION	L0007906	VOLUME	251340.970	4067101.952	73.00
LOCATION	L0007907	VOLUME	251336.595	4067107.808	73.00
LOCATION	L0007908	VOLUME	251332.137	4067113.600	72.99
LOCATION	L0007909	VOLUME	251327.581	4067119.316	72.98
LOCATION	L0007910	VOLUME	251323.025	4067125.032	72.96
LOCATION	L0007911	VOLUME	251318.469	4067130.749	72.96
LOCATION	L0007912	VOLUME	251313.913	4067136.465	72.96
LOCATION	L0007913	VOLUME	251309.357	4067142.181	72.98
LOCATION	L0007914	VOLUME	251304.801	4067147.897	72.99
LOCATION	L0007915	VOLUME	251300.246	4067153.614	73.03
LOCATION	L0007916	VOLUME	251295.690	4067159.330	73.05
LOCATION	L0007917	VOLUME	251291.134	4067165.046	73.07
LOCATION	L0007918	VOLUME	251286.578	4067170.763	73.08
LOCATION	L0007919	VOLUME	251282.022	4067176.479	73.08
LOCATION	L0007920	VOLUME	251277.466	4067182.195	73.08
LOCATION	L0007921	VOLUME	251272.910	4067187.912	73.07
LOCATION	L0007922	VOLUME	251268.355	4067193.628	73.05
LOCATION	L0007923	VOLUME	251263.799	4067199.344	73.02
LOCATION	L0007924	VOLUME	251259.243	4067205.060	72.99

LOCATION	L0007925	VOLUME	251254.687	4067210.777	72.97
LOCATION	L0007926	VOLUME	251250.131	4067216.493	72.96
LOCATION	L0007927	VOLUME	251245.575	4067222.209	72.95
LOCATION	L0007928	VOLUME	251241.019	4067227.926	72.95
LOCATION	L0007929	VOLUME	251236.464	4067233.642	72.96
LOCATION	L0007930	VOLUME	251231.908	4067239.358	72.98
LOCATION	L0007931	VOLUME	251227.352	4067245.075	73.01
LOCATION	L0007932	VOLUME	251222.796	4067250.791	73.03
LOCATION	L0007933	VOLUME	251218.240	4067256.507	73.05
LOCATION	L0007934	VOLUME	251213.684	4067262.224	73.07
LOCATION	L0007935	VOLUME	251209.129	4067267.940	73.07
LOCATION	L0007936	VOLUME	251204.573	4067273.656	73.07
LOCATION	L0007937	VOLUME	251200.017	4067279.372	73.06
LOCATION	L0007938	VOLUME	251195.461	4067285.089	73.04
LOCATION	L0007939	VOLUME	251190.905	4067290.805	73.01
LOCATION	L0007940	VOLUME	251186.349	4067296.521	73.00
LOCATION	L0007941	VOLUME	251181.793	4067302.238	73.00
LOCATION	L0007942	VOLUME	251177.238	4067307.954	73.00
LOCATION	L0007943	VOLUME	251172.682	4067313.670	73.00
LOCATION	L0007944	VOLUME	251168.126	4067319.387	73.00
LOCATION	L0007945	VOLUME	251163.570	4067325.103	73.00
LOCATION	L0007946	VOLUME	251159.014	4067330.819	73.00
LOCATION	L0007947	VOLUME	251154.458	4067336.535	73.00
LOCATION	L0007948	VOLUME	251149.873	4067342.228	73.02
LOCATION	L0007949	VOLUME	251145.224	4067347.869	73.04
LOCATION	L0007950	VOLUME	251140.574	4067353.509	73.05
LOCATION	L0007951	VOLUME	251135.925	4067359.149	73.06
LOCATION	L0007952	VOLUME	251131.275	4067364.790	73.05
LOCATION	L0007953	VOLUME	251126.626	4067370.430	73.04
LOCATION	L0007954	VOLUME	251121.976	4067376.071	73.02
LOCATION	L0007955	VOLUME	251117.327	4067381.711	73.00
LOCATION	L0007956	VOLUME	251112.677	4067387.351	73.00
LOCATION	L0007957	VOLUME	251108.028	4067392.992	73.00
LOCATION	L0007958	VOLUME	251103.378	4067398.632	73.00
LOCATION	L0007959	VOLUME	251098.729	4067404.273	73.00
LOCATION	L0007960	VOLUME	251094.079	4067409.913	73.00
LOCATION	L0007961	VOLUME	251089.430	4067415.553	73.00
LOCATION	L0007962	VOLUME	251084.780	4067421.194	73.00
LOCATION	L0007963	VOLUME	251080.131	4067426.834	73.00
LOCATION	L0007964	VOLUME	251075.482	4067432.475	73.00
LOCATION	L0007965	VOLUME	251070.832	4067438.115	73.02
LOCATION	L0007966	VOLUME	251066.183	4067443.755	73.03
LOCATION	L0007967	VOLUME	251061.533	4067449.396	73.04
LOCATION	L0007968	VOLUME	251056.884	4067455.036	73.04
LOCATION	L0007969	VOLUME	251052.234	4067460.677	73.03
LOCATION	L0007970	VOLUME	251047.585	4067466.317	73.01
LOCATION	L0007971	VOLUME	251042.935	4067471.957	73.00
LOCATION	L0007972	VOLUME	251038.286	4067477.598	73.00
LOCATION	L0007973	VOLUME	251033.636	4067483.238	73.00
LOCATION	L0007974	VOLUME	251028.987	4067488.879	73.00
LOCATION	L0007975	VOLUME	251024.337	4067494.519	73.00
LOCATION	L0007976	VOLUME	251019.688	4067500.159	73.00
LOCATION	L0007977	VOLUME	251015.038	4067505.800	73.00
LOCATION	L0007978	VOLUME	251010.389	4067511.440	73.00

LOCATION	L0007979	VOLUME	251005.739	4067517.081	73.00
LOCATION	L0007980	VOLUME	251001.090	4067522.721	73.00
LOCATION	L0007981	VOLUME	250996.440	4067528.361	73.00
LOCATION	L0007982	VOLUME	250991.791	4067534.002	73.02
LOCATION	L0007983	VOLUME	250987.141	4067539.642	73.02
LOCATION	L0007984	VOLUME	250982.492	4067545.283	73.02
LOCATION	L0007985	VOLUME	250977.842	4067550.923	73.01
LOCATION	L0007986	VOLUME	250973.193	4067556.563	73.00
LOCATION	L0007987	VOLUME	250968.543	4067562.204	73.00
LOCATION	L0007988	VOLUME	250963.894	4067567.844	73.00
LOCATION	L0007989	VOLUME	250959.244	4067573.485	73.00
LOCATION	L0007990	VOLUME	250954.595	4067579.125	73.00
LOCATION	L0007991	VOLUME	250949.945	4067584.765	73.00
LOCATION	L0007992	VOLUME	250945.296	4067590.406	73.00
LOCATION	L0007993	VOLUME	250940.646	4067596.046	73.00
LOCATION	L0007994	VOLUME	250935.997	4067601.686	73.00
LOCATION	L0007995	VOLUME	250931.347	4067607.327	73.00
LOCATION	L0007996	VOLUME	250926.698	4067612.967	73.00
LOCATION	L0007997	VOLUME	250922.048	4067618.608	73.00
LOCATION	L0007998	VOLUME	250917.399	4067624.248	73.01
LOCATION	L0007999	VOLUME	250912.749	4067629.888	73.07
LOCATION	L0008000	VOLUME	250908.100	4067635.529	73.13
LOCATION	L0008001	VOLUME	250903.450	4067641.169	73.19
LOCATION	L0008002	VOLUME	250898.801	4067646.810	73.24
LOCATION	L0008003	VOLUME	250894.151	4067652.450	73.28
LOCATION	L0008004	VOLUME	250889.502	4067658.090	73.31
LOCATION	L0008005	VOLUME	250884.848	4067663.727	73.33
LOCATION	L0008006	VOLUME	250880.182	4067669.354	73.34
LOCATION	L0008007	VOLUME	250875.516	4067674.981	73.35
LOCATION	L0008008	VOLUME	250870.850	4067680.608	73.35
LOCATION	L0008009	VOLUME	250866.185	4067686.235	73.34
LOCATION	L0008010	VOLUME	250861.519	4067691.862	73.32
LOCATION	L0008011	VOLUME	250856.853	4067697.489	73.30
LOCATION	L0008012	VOLUME	250852.188	4067703.116	73.26
LOCATION	L0008013	VOLUME	250847.522	4067708.743	73.22
LOCATION	L0008014	VOLUME	250842.856	4067714.370	73.18
LOCATION	L0008015	VOLUME	250838.190	4067719.997	73.14
LOCATION	L0008016	VOLUME	250833.525	4067725.624	73.13
LOCATION	L0008017	VOLUME	250828.859	4067731.251	73.14
LOCATION	L0008018	VOLUME	250824.193	4067736.878	73.18
LOCATION	L0008019	VOLUME	250819.528	4067742.505	73.22
LOCATION	L0008020	VOLUME	250814.862	4067748.132	73.25
LOCATION	L0008021	VOLUME	250810.196	4067753.759	73.28
LOCATION	L0008022	VOLUME	250805.530	4067759.386	73.29
LOCATION	L0008023	VOLUME	250800.865	4067765.013	73.30
LOCATION	L0008024	VOLUME	250796.199	4067770.640	73.30
LOCATION	L0008025	VOLUME	250791.533	4067776.267	73.29
LOCATION	L0008026	VOLUME	250786.868	4067781.894	73.27
LOCATION	L0008027	VOLUME	250782.202	4067787.521	73.25
LOCATION	L0008028	VOLUME	250777.536	4067793.148	73.22
LOCATION	L0008029	VOLUME	250772.870	4067798.775	73.18
LOCATION	L0008030	VOLUME	250768.205	4067804.402	73.13
LOCATION	L0008031	VOLUME	250763.539	4067810.029	73.08
LOCATION	L0008032	VOLUME	250758.873	4067815.656	73.05

LOCATION	L0008033	VOLUME	250754.208	4067821.283	73.09
LOCATION	L0008034	VOLUME	250749.542	4067826.910	73.13
LOCATION	L0008035	VOLUME	250744.876	4067832.537	73.17
LOCATION	L0008036	VOLUME	250740.210	4067838.164	73.20
LOCATION	L0008037	VOLUME	250735.545	4067843.791	73.23
LOCATION	L0008038	VOLUME	250730.879	4067849.418	73.24
LOCATION	L0008039	VOLUME	250726.213	4067855.045	73.25
LOCATION	L0008040	VOLUME	250721.548	4067860.672	73.25
LOCATION	L0008041	VOLUME	250716.882	4067866.299	73.24
LOCATION	L0008042	VOLUME	250712.216	4067871.926	73.23
LOCATION	L0008043	VOLUME	250707.550	4067877.553	73.21
LOCATION	L0008044	VOLUME	250702.885	4067883.180	73.18
LOCATION	L0008045	VOLUME	250698.219	4067888.807	73.14
LOCATION	L0008046	VOLUME	250693.553	4067894.434	73.09
LOCATION	L0008047	VOLUME	250688.888	4067900.061	73.04
LOCATION	L0008048	VOLUME	250684.222	4067905.688	73.00
LOCATION	L0008049	VOLUME	250679.556	4067911.315	73.04
LOCATION	L0008050	VOLUME	250674.890	4067916.942	73.08
LOCATION	L0008051	VOLUME	250670.225	4067922.569	73.12
LOCATION	L0008052	VOLUME	250665.559	4067928.196	73.16
LOCATION	L0008053	VOLUME	250660.893	4067933.823	73.18
LOCATION	L0008054	VOLUME	250656.228	4067939.450	73.20
LOCATION	L0008055	VOLUME	250651.562	4067945.077	73.21
LOCATION	L0008056	VOLUME	250646.896	4067950.704	73.21
LOCATION	L0008057	VOLUME	250642.231	4067956.331	73.20
LOCATION	L0008058	VOLUME	250637.565	4067961.958	73.19
LOCATION	L0008059	VOLUME	250632.899	4067967.585	73.17
LOCATION	L0008060	VOLUME	250628.233	4067973.212	73.14
LOCATION	L0008061	VOLUME	250623.568	4067978.839	73.10
LOCATION	L0008062	VOLUME	250618.902	4067984.466	73.06
LOCATION	L0008063	VOLUME	250614.236	4067990.093	73.01
LOCATION	L0008064	VOLUME	250609.571	4067995.720	73.00
LOCATION	L0008065	VOLUME	250604.905	4068001.347	73.00
LOCATION	L0008066	VOLUME	250600.239	4068006.974	73.05
LOCATION	L0008067	VOLUME	250595.573	4068012.601	73.11
LOCATION	L0008068	VOLUME	250590.908	4068018.228	73.17
LOCATION	L0008069	VOLUME	250586.242	4068023.855	73.23
LOCATION	L0008070	VOLUME	250581.576	4068029.482	73.28
LOCATION	L0008071	VOLUME	250576.911	4068035.109	73.34
LOCATION	L0008072	VOLUME	250572.245	4068040.736	73.40
LOCATION	L0008073	VOLUME	250567.579	4068046.363	73.46
LOCATION	L0008074	VOLUME	250562.913	4068051.990	73.52
LOCATION	L0008075	VOLUME	250558.248	4068057.617	73.58
LOCATION	L0008076	VOLUME	250553.582	4068063.244	73.64
LOCATION	L0008077	VOLUME	250548.916	4068068.871	73.70
LOCATION	L0008078	VOLUME	250544.251	4068074.498	73.76
LOCATION	L0008079	VOLUME	250539.591	4068080.129	73.79
LOCATION	L0008080	VOLUME	250534.934	4068085.764	73.80
LOCATION	L0008081	VOLUME	250530.277	4068091.398	73.79
LOCATION	L0008082	VOLUME	250525.620	4068097.032	73.77
LOCATION	L0008083	VOLUME	250520.963	4068102.667	73.73
LOCATION	L0008084	VOLUME	250516.307	4068108.301	73.69
LOCATION	L0008085	VOLUME	250511.650	4068113.936	73.66
LOCATION	L0008086	VOLUME	250506.993	4068119.570	73.63

LOCATION	L0008087	VOLUME	250502.336	4068125.204	73.61
LOCATION	L0008088	VOLUME	250497.679	4068130.839	73.60
LOCATION	L0008089	VOLUME	250493.023	4068136.473	73.60
LOCATION	L0008090	VOLUME	250488.366	4068142.107	73.61
LOCATION	L0008091	VOLUME	250483.709	4068147.742	73.62
LOCATION	L0008092	VOLUME	250479.052	4068153.376	73.64
LOCATION	L0008093	VOLUME	250474.395	4068159.010	73.67
LOCATION	L0008094	VOLUME	250469.738	4068164.645	73.71
LOCATION	L0008095	VOLUME	250465.082	4068170.279	73.72
LOCATION	L0008096	VOLUME	250460.425	4068175.913	73.72
LOCATION	L0008097	VOLUME	250455.768	4068181.548	73.72
LOCATION	L0008098	VOLUME	250451.111	4068187.182	73.70
LOCATION	L0008099	VOLUME	250446.454	4068192.816	73.68
LOCATION	L0008100	VOLUME	250441.798	4068198.451	73.64
LOCATION	L0008101	VOLUME	250437.141	4068204.085	73.60
LOCATION	L0008102	VOLUME	250432.484	4068209.720	73.58
LOCATION	L0008103	VOLUME	250427.827	4068215.354	73.56
LOCATION	L0008104	VOLUME	250423.170	4068220.988	73.55
LOCATION	L0008105	VOLUME	250418.513	4068226.623	73.55
LOCATION	L0008106	VOLUME	250413.857	4068232.257	73.55
LOCATION	L0008107	VOLUME	250409.200	4068237.891	73.56
LOCATION	L0008108	VOLUME	250404.543	4068243.526	73.58
LOCATION	L0008109	VOLUME	250399.886	4068249.160	73.61
LOCATION	L0008110	VOLUME	250395.229	4068254.794	73.64
LOCATION	L0008111	VOLUME	250390.573	4068260.429	73.65
LOCATION	L0008112	VOLUME	250385.916	4068266.063	73.65
LOCATION	L0008113	VOLUME	250381.259	4068271.697	73.65
LOCATION	L0008114	VOLUME	250376.602	4068277.332	73.63
LOCATION	L0008115	VOLUME	250371.945	4068282.966	73.61
LOCATION	L0008116	VOLUME	250367.288	4068288.600	73.58
LOCATION	L0008117	VOLUME	250362.632	4068294.235	73.55
LOCATION	L0008118	VOLUME	250357.975	4068299.869	73.52
LOCATION	L0008119	VOLUME	250353.318	4068305.504	73.50
LOCATION	L0008120	VOLUME	250348.661	4068311.138	73.49
LOCATION	L0008121	VOLUME	250344.004	4068316.772	73.49
LOCATION	L0008122	VOLUME	250339.347	4068322.407	73.49
LOCATION	L0008123	VOLUME	250334.691	4068328.041	73.50
LOCATION	L0008124	VOLUME	250330.034	4068333.675	73.52
LOCATION	L0008125	VOLUME	250325.377	4068339.310	73.55
LOCATION	L0008126	VOLUME	250320.720	4068344.944	73.57
LOCATION	L0008127	VOLUME	250316.063	4068350.578	73.58
LOCATION	L0008128	VOLUME	250311.407	4068356.213	73.58
LOCATION	L0008129	VOLUME	250306.750	4068361.847	73.58
LOCATION	L0008130	VOLUME	250302.093	4068367.481	73.57
LOCATION	L0008131	VOLUME	250297.436	4068373.116	73.55
LOCATION	L0008132	VOLUME	250292.779	4068378.750	73.52
LOCATION	L0008133	VOLUME	250288.122	4068384.384	73.49
LOCATION	L0008134	VOLUME	250283.466	4068390.019	73.46
LOCATION	L0008135	VOLUME	250278.809	4068395.653	73.44
LOCATION	L0008136	VOLUME	250274.152	4068401.288	73.43
LOCATION	L0008137	VOLUME	250269.495	4068406.922	73.42
LOCATION	L0008138	VOLUME	250264.838	4068412.556	73.43
LOCATION	L0008139	VOLUME	250260.182	4068418.191	73.44
LOCATION	L0008140	VOLUME	250255.525	4068423.825	73.46

LOCATION	L0008141	VOLUME	250250.868	4068429.459	73.50
LOCATION	L0008142	VOLUME	250246.211	4068435.094	73.56
LOCATION	L0008143	VOLUME	250241.554	4068440.728	73.62
LOCATION	L0008144	VOLUME	250236.897	4068446.362	73.68
LOCATION	L0008145	VOLUME	250232.241	4068451.997	73.74
LOCATION	L0008146	VOLUME	250227.584	4068457.631	73.80
LOCATION	L0008147	VOLUME	250222.927	4068463.265	73.86
LOCATION	L0008148	VOLUME	250218.270	4068468.900	73.92
LOCATION	L0008149	VOLUME	250213.613	4068474.534	73.98
LOCATION	L0008150	VOLUME	250208.956	4068480.168	74.00
LOCATION	L0008151	VOLUME	250204.300	4068485.803	74.00
LOCATION	L0008152	VOLUME	250199.643	4068491.437	74.00
LOCATION	L0008153	VOLUME	250194.986	4068497.071	74.00
LOCATION	L0008154	VOLUME	250190.329	4068502.706	74.00
LOCATION	L0008155	VOLUME	250185.672	4068508.340	74.00
LOCATION	L0008156	VOLUME	250181.016	4068513.975	73.99
LOCATION	L0008157	VOLUME	250176.359	4068519.609	73.96
LOCATION	L0008158	VOLUME	250171.702	4068525.243	73.93
LOCATION	L0008159	VOLUME	250167.045	4068530.878	73.91
LOCATION	L0008160	VOLUME	250162.388	4068536.512	73.90
LOCATION	L0008161	VOLUME	250157.731	4068542.146	73.90
LOCATION	L0008162	VOLUME	250153.075	4068547.781	73.90
LOCATION	L0008163	VOLUME	250148.418	4068553.415	73.91
LOCATION	L0008164	VOLUME	250143.761	4068559.049	73.93
LOCATION	L0008165	VOLUME	250139.104	4068564.684	73.96
LOCATION	L0008166	VOLUME	250134.447	4068570.318	73.99
LOCATION	L0008167	VOLUME	250129.791	4068575.952	74.01
LOCATION	L0008168	VOLUME	250125.134	4068581.587	74.02
LOCATION	L0008169	VOLUME	250120.477	4068587.221	74.02
LOCATION	L0008170	VOLUME	250115.820	4068592.855	74.02
LOCATION	L0008171	VOLUME	250111.163	4068598.490	74.00
LOCATION	L0008172	VOLUME	250106.506	4068604.124	73.97
LOCATION	L0008173	VOLUME	250101.850	4068609.759	73.93
LOCATION	L0008174	VOLUME	250097.193	4068615.393	73.90
LOCATION	L0008175	VOLUME	250092.536	4068621.027	73.88
LOCATION	L0008176	VOLUME	250087.871	4068626.655	73.87
LOCATION	L0008177	VOLUME	250083.202	4068632.279	73.87
LOCATION	L0008178	VOLUME	250078.533	4068637.903	73.87
LOCATION	L0008179	VOLUME	250073.864	4068643.527	73.88
LOCATION	L0008180	VOLUME	250069.195	4068649.152	73.90
LOCATION	L0008181	VOLUME	250064.525	4068654.776	73.92
LOCATION	L0008182	VOLUME	250059.856	4068660.400	73.96
LOCATION	L0008183	VOLUME	250055.187	4068666.024	74.00
LOCATION	L0008184	VOLUME	250050.518	4068671.648	74.01
LOCATION	L0008185	VOLUME	250045.849	4068677.272	74.01
LOCATION	L0008186	VOLUME	250041.179	4068682.896	74.01
LOCATION	L0008187	VOLUME	250036.510	4068688.520	74.00
LOCATION	L0008188	VOLUME	250031.841	4068694.144	74.00
LOCATION	L0008189	VOLUME	250027.172	4068699.769	74.00
LOCATION	L0008190	VOLUME	250022.503	4068705.393	74.00
LOCATION	L0008191	VOLUME	250017.833	4068711.017	74.00
LOCATION	L0008192	VOLUME	250013.164	4068716.641	74.00
LOCATION	L0008193	VOLUME	250008.495	4068722.265	74.00
LOCATION	L0008194	VOLUME	250003.826	4068727.889	74.00

LOCATION	L0008195	VOLUME	249999.157	4068733.513	74.00
LOCATION	L0008196	VOLUME	249994.488	4068739.137	74.00
LOCATION	L0008197	VOLUME	249989.818	4068744.761	74.00
LOCATION	L0008198	VOLUME	249985.149	4068750.385	74.00
LOCATION	L0008199	VOLUME	249980.480	4068756.010	74.00
LOCATION	L0008200	VOLUME	249975.811	4068761.634	74.00
LOCATION	L0008201	VOLUME	249971.142	4068767.258	74.00
LOCATION	L0008202	VOLUME	249966.472	4068772.882	74.00
LOCATION	L0008203	VOLUME	249961.803	4068778.506	74.00
LOCATION	L0008204	VOLUME	249957.134	4068784.130	74.00
LOCATION	L0008205	VOLUME	249952.465	4068789.754	74.00
LOCATION	L0008206	VOLUME	249947.796	4068795.378	74.00
LOCATION	L0008207	VOLUME	249943.126	4068801.002	74.00
LOCATION	L0008208	VOLUME	249938.457	4068806.627	74.00
LOCATION	L0008209	VOLUME	249933.788	4068812.251	74.00
LOCATION	L0008210	VOLUME	249929.119	4068817.875	74.00
LOCATION	L0008211	VOLUME	249924.450	4068823.499	74.00
LOCATION	L0008212	VOLUME	249919.781	4068829.123	74.00
LOCATION	L0008213	VOLUME	249915.111	4068834.747	74.00
LOCATION	L0008214	VOLUME	249910.442	4068840.371	74.00
LOCATION	L0008215	VOLUME	249905.773	4068845.995	74.00
LOCATION	L0008216	VOLUME	249901.104	4068851.619	74.00
LOCATION	L0008217	VOLUME	249896.435	4068857.244	74.00
LOCATION	L0008218	VOLUME	249891.765	4068862.868	74.00
LOCATION	L0008219	VOLUME	249887.096	4068868.492	74.00
LOCATION	L0008220	VOLUME	249882.427	4068874.116	74.00
LOCATION	L0008221	VOLUME	249877.758	4068879.740	74.00
LOCATION	L0008222	VOLUME	249873.089	4068885.364	74.00
LOCATION	L0008223	VOLUME	249868.419	4068890.988	74.00
LOCATION	L0008224	VOLUME	249863.750	4068896.612	74.00
LOCATION	L0008225	VOLUME	249859.081	4068902.236	74.00
LOCATION	L0008226	VOLUME	249854.412	4068907.861	74.00
LOCATION	L0008227	VOLUME	249849.743	4068913.485	74.00
LOCATION	L0008228	VOLUME	249845.074	4068919.109	74.00
LOCATION	L0008229	VOLUME	249840.404	4068924.733	74.00
LOCATION	L0008230	VOLUME	249835.735	4068930.357	74.00
LOCATION	L0008231	VOLUME	249831.066	4068935.981	74.00
LOCATION	L0008232	VOLUME	249826.397	4068941.605	74.00
LOCATION	L0008233	VOLUME	249821.728	4068947.229	74.00
LOCATION	L0008234	VOLUME	249817.058	4068952.853	74.00
LOCATION	L0008235	VOLUME	249812.389	4068958.477	74.00
LOCATION	L0008236	VOLUME	249807.720	4068964.102	74.00
LOCATION	L0008237	VOLUME	249803.051	4068969.726	74.00
LOCATION	L0008238	VOLUME	249798.382	4068975.350	74.00
LOCATION	L0008239	VOLUME	249793.712	4068980.974	74.00
LOCATION	L0008240	VOLUME	249789.043	4068986.598	74.00
LOCATION	L0008241	VOLUME	249784.374	4068992.222	74.00
LOCATION	L0008242	VOLUME	249779.705	4068997.846	74.00
LOCATION	L0008243	VOLUME	249775.036	4069003.470	74.00
LOCATION	L0008244	VOLUME	249770.367	4069009.094	74.00
LOCATION	L0008245	VOLUME	249765.697	4069014.719	74.00
LOCATION	L0008246	VOLUME	249761.028	4069020.343	74.00
LOCATION	L0008247	VOLUME	249756.359	4069025.967	74.00
LOCATION	L0008248	VOLUME	249751.690	4069031.591	74.00

LOCATION	L0008249	VOLUME	249747.021	4069037.215	74.00
LOCATION	L0008250	VOLUME	249742.351	4069042.839	74.00
LOCATION	L0008251	VOLUME	249737.682	4069048.463	74.02
LOCATION	L0008252	VOLUME	249732.973	4069054.053	74.07
LOCATION	L0008253	VOLUME	249728.261	4069059.642	74.10
LOCATION	L0008254	VOLUME	249723.550	4069065.231	74.13
LOCATION	L0008255	VOLUME	249718.838	4069070.820	74.15
LOCATION	L0008256	VOLUME	249714.127	4069076.409	74.16
LOCATION	L0008257	VOLUME	249709.416	4069081.997	74.17
LOCATION	L0008258	VOLUME	249704.704	4069087.586	74.16
LOCATION	L0008259	VOLUME	249699.993	4069093.175	74.15
LOCATION	L0008260	VOLUME	249695.281	4069098.764	74.13
LOCATION	L0008261	VOLUME	249690.570	4069104.353	74.11
LOCATION	L0008262	VOLUME	249685.859	4069109.941	74.07
LOCATION	L0008263	VOLUME	249681.147	4069115.530	74.03
LOCATION	L0008264	VOLUME	249676.436	4069121.119	73.99
LOCATION	L0008265	VOLUME	249671.724	4069126.708	73.99
LOCATION	L0008266	VOLUME	249667.013	4069132.297	73.99
LOCATION	L0008267	VOLUME	249662.302	4069137.885	73.99
LOCATION	L0008268	VOLUME	249657.590	4069143.474	74.02
LOCATION	L0008269	VOLUME	249652.879	4069149.063	74.06
LOCATION	L0008270	VOLUME	249648.168	4069154.652	74.09
LOCATION	L0008271	VOLUME	249643.456	4069160.241	74.11
LOCATION	L0008272	VOLUME	249638.745	4069165.829	74.12
LOCATION	L0008273	VOLUME	249634.033	4069171.418	74.13
LOCATION	L0008274	VOLUME	249629.322	4069177.007	74.12
LOCATION	L0008275	VOLUME	249624.611	4069182.596	74.11
LOCATION	L0008276	VOLUME	249619.899	4069188.185	74.10
LOCATION	L0008277	VOLUME	249615.188	4069193.773	74.07
LOCATION	L0008278	VOLUME	249610.476	4069199.362	74.04
LOCATION	L0008279	VOLUME	249605.765	4069204.951	74.00
LOCATION	L0008280	VOLUME	249601.054	4069210.540	74.00
LOCATION	L0008281	VOLUME	249596.342	4069216.129	74.00
LOCATION	L0008282	VOLUME	249591.631	4069221.718	74.00
LOCATION	L0008283	VOLUME	249586.919	4069227.306	74.00
LOCATION	L0008284	VOLUME	249582.208	4069232.895	74.00
LOCATION	L0008285	VOLUME	249577.497	4069238.484	74.03
LOCATION	L0008286	VOLUME	249572.785	4069244.073	74.09
LOCATION	L0008287	VOLUME	249568.074	4069249.662	74.15
LOCATION	L0008288	VOLUME	249563.362	4069255.250	74.21
LOCATION	L0008289	VOLUME	249558.651	4069260.839	74.27
LOCATION	L0008290	VOLUME	249553.940	4069266.428	74.33
LOCATION	L0008291	VOLUME	249549.228	4069272.017	74.38
LOCATION	L0008292	VOLUME	249544.517	4069277.606	74.44
LOCATION	L0008293	VOLUME	249539.806	4069283.194	74.50
LOCATION	L0008294	VOLUME	249535.094	4069288.783	74.56
LOCATION	L0008295	VOLUME	249530.383	4069294.372	74.59
LOCATION	L0008296	VOLUME	249525.671	4069299.961	74.60
LOCATION	L0008297	VOLUME	249520.960	4069305.550	74.60
LOCATION	L0008298	VOLUME	249516.249	4069311.138	74.60
LOCATION	L0008299	VOLUME	249511.537	4069316.727	74.59
LOCATION	L0008300	VOLUME	249506.826	4069322.316	74.57
LOCATION	L0008301	VOLUME	249502.114	4069327.905	74.54
LOCATION	L0008302	VOLUME	249497.403	4069333.494	74.50

LOCATION	L0008303	VOLUME	249492.692	4069339.082	74.48
LOCATION	L0008304	VOLUME	249487.980	4069344.671	74.45
LOCATION	L0008305	VOLUME	249483.269	4069350.260	74.44
LOCATION	L0008306	VOLUME	249478.557	4069355.849	74.43
LOCATION	L0008307	VOLUME	249473.846	4069361.438	74.43
LOCATION	L0008308	VOLUME	249469.135	4069367.026	74.44
LOCATION	L0008309	VOLUME	249464.423	4069372.615	74.46
LOCATION	L0008310	VOLUME	249459.712	4069378.204	74.49
LOCATION	L0008311	VOLUME	249455.001	4069383.793	74.51
LOCATION	L0008312	VOLUME	249450.289	4069389.382	74.52
LOCATION	L0008313	VOLUME	249445.578	4069394.970	74.52
LOCATION	L0008314	VOLUME	249440.866	4069400.559	74.52
LOCATION	L0008315	VOLUME	249436.155	4069406.148	74.51
LOCATION	L0008316	VOLUME	249431.319	4069411.617	74.49
LOCATION	L0008317	VOLUME	249425.895	4069416.516	74.45
LOCATION	L0008318	VOLUME	249420.470	4069421.416	74.40
LOCATION	L0008319	VOLUME	249415.046	4069426.315	74.35
LOCATION	L0008320	VOLUME	249409.621	4069431.215	74.32
LOCATION	L0008321	VOLUME	249404.196	4069436.115	74.29
LOCATION	L0008322	VOLUME	249398.772	4069441.014	74.26
LOCATION	L0008323	VOLUME	249393.347	4069445.914	74.25
LOCATION	L0008324	VOLUME	249387.923	4069450.813	74.26
LOCATION	L0008325	VOLUME	249382.498	4069455.713	74.32
LOCATION	L0008326	VOLUME	249377.074	4069460.613	74.37
LOCATION	L0008327	VOLUME	249371.649	4069465.512	74.42
LOCATION	L0008328	VOLUME	249366.225	4069470.412	74.47
LOCATION	L0008329	VOLUME	249360.800	4069475.311	74.52
LOCATION	L0008330	VOLUME	249355.375	4069480.211	74.57
LOCATION	L0008331	VOLUME	249349.951	4069485.111	74.62
LOCATION	L0008332	VOLUME	249344.526	4069490.010	74.67
LOCATION	L0008333	VOLUME	249339.102	4069494.910	74.73
LOCATION	L0008334	VOLUME	249333.677	4069499.809	74.78
LOCATION	L0008335	VOLUME	249328.253	4069504.709	74.83
LOCATION	L0008336	VOLUME	249322.508	4069509.192	74.87
LOCATION	L0008337	VOLUME	249316.373	4069513.166	74.92
LOCATION	L0008338	VOLUME	249310.238	4069517.140	74.96
LOCATION	L0008339	VOLUME	249304.103	4069521.114	75.00
LOCATION	L0008340	VOLUME	249297.968	4069525.088	75.00
LOCATION	L0008341	VOLUME	249291.833	4069529.062	75.00
LOCATION	L0008342	VOLUME	249285.698	4069533.036	75.00
LOCATION	L0008343	VOLUME	249279.562	4069537.010	75.00
LOCATION	L0008344	VOLUME	249273.427	4069540.983	75.00
LOCATION	L0008345	VOLUME	249267.292	4069544.957	75.00
LOCATION	L0008346	VOLUME	249261.157	4069548.931	75.00
LOCATION	L0008347	VOLUME	249255.022	4069552.905	75.00
LOCATION	L0008348	VOLUME	249248.887	4069556.879	75.00
LOCATION	L0008349	VOLUME	249242.752	4069560.853	75.00
LOCATION	L0008350	VOLUME	249236.616	4069564.827	75.00
LOCATION	L0008351	VOLUME	249230.481	4069568.801	75.00
LOCATION	L0008352	VOLUME	249224.346	4069572.775	75.00
LOCATION	L0008353	VOLUME	249218.211	4069576.749	75.00
LOCATION	L0008354	VOLUME	249212.076	4069580.722	75.00
LOCATION	L0008355	VOLUME	249205.941	4069584.696	75.00
LOCATION	L0008356	VOLUME	249199.806	4069588.670	75.00

LOCATION	L0008357	VOLUME	249193.670	4069592.644	75.00
LOCATION	L0008358	VOLUME	249187.535	4069596.618	75.00
LOCATION	L0008359	VOLUME	249181.400	4069600.592	75.00
LOCATION	L0008360	VOLUME	249175.265	4069604.566	75.00
LOCATION	L0008361	VOLUME	249168.739	4069607.814	75.03
LOCATION	L0008362	VOLUME	249162.043	4069610.746	75.12
LOCATION	L0008363	VOLUME	249155.347	4069613.677	75.21
LOCATION	L0008364	VOLUME	249148.651	4069616.609	75.30
LOCATION	L0008365	VOLUME	249141.955	4069619.541	75.41
LOCATION	L0008366	VOLUME	249135.259	4069622.473	75.53
LOCATION	L0008367	VOLUME	249128.563	4069625.404	75.65
LOCATION	L0008368	VOLUME	249121.867	4069628.336	75.77
LOCATION	L0008369	VOLUME	249115.171	4069631.268	75.89
LOCATION	L0008370	VOLUME	249108.475	4069634.200	76.01
LOCATION	L0008371	VOLUME	249101.779	4069637.131	76.13
LOCATION	L0008372	VOLUME	249095.083	4069640.063	76.24
LOCATION	L0008373	VOLUME	249088.387	4069642.995	76.34
LOCATION	L0008374	VOLUME	249081.691	4069645.926	76.43
LOCATION	L0008375	VOLUME	249074.995	4069648.858	76.52
LOCATION	L0008376	VOLUME	249068.299	4069651.790	76.60
LOCATION	L0008377	VOLUME	249061.603	4069654.722	76.67
LOCATION	L0008378	VOLUME	249054.907	4069657.653	76.75
LOCATION	L0008379	VOLUME	249048.211	4069660.585	76.81
LOCATION	L0008380	VOLUME	249041.515	4069663.517	76.87
LOCATION	L0008381	VOLUME	249034.819	4069666.449	76.92
LOCATION	L0008382	VOLUME	249028.123	4069669.380	76.97
LOCATION	L0008383	VOLUME	249021.426	4069672.312	77.03
LOCATION	L0008384	VOLUME	249014.730	4069675.244	77.13
LOCATION	L0008385	VOLUME	249008.034	4069678.176	77.22
LOCATION	L0008386	VOLUME	249001.338	4069681.107	77.31
LOCATION	L0008387	VOLUME	248994.642	4069684.039	77.40
LOCATION	L0008388	VOLUME	248987.946	4069686.971	77.49
LOCATION	L0008389	VOLUME	248981.250	4069689.903	77.58
LOCATION	L0008390	VOLUME	248974.554	4069692.834	77.67
LOCATION	L0008391	VOLUME	248967.858	4069695.766	77.76
LOCATION	L0008392	VOLUME	248961.162	4069698.698	77.85
LOCATION	L0008393	VOLUME	248954.466	4069701.630	77.95
LOCATION	L0008394	VOLUME	248947.770	4069704.561	78.03
LOCATION	L0008395	VOLUME	248941.074	4069707.493	78.11
LOCATION	L0008396	VOLUME	248934.378	4069710.425	78.20
LOCATION	L0008397	VOLUME	248927.682	4069713.357	78.30
LOCATION	L0008398	VOLUME	248920.986	4069716.288	78.39
LOCATION	L0008399	VOLUME	248914.290	4069719.220	78.49
LOCATION	L0008400	VOLUME	248907.594	4069722.152	78.58
LOCATION	L0008401	VOLUME	248900.898	4069725.083	78.67
LOCATION	L0008402	VOLUME	248894.202	4069728.015	78.76
LOCATION	L0008403	VOLUME	248887.506	4069730.947	78.86
LOCATION	L0008404	VOLUME	248880.810	4069733.879	78.95
LOCATION	L0008405	VOLUME	248874.114	4069736.810	79.00
LOCATION	L0008406	VOLUME	248867.418	4069739.742	79.00
LOCATION	L0008407	VOLUME	248860.722	4069742.674	79.00
LOCATION	L0008408	VOLUME	248854.026	4069745.606	79.00
LOCATION	L0008409	VOLUME	248847.330	4069748.537	79.00
LOCATION	L0008410	VOLUME	248840.634	4069751.469	79.00

LOCATION	L0008411	VOLUME	248833.938	4069754.401	79.00
LOCATION	L0008412	VOLUME	248827.242	4069757.333	79.00
LOCATION	L0008413	VOLUME	248820.546	4069760.264	79.00
LOCATION	L0008414	VOLUME	248813.850	4069763.196	79.00
LOCATION	L0008415	VOLUME	248807.154	4069766.128	79.00
LOCATION	L0008416	VOLUME	248800.458	4069769.060	79.02
LOCATION	L0008417	VOLUME	248793.761	4069771.991	79.07
LOCATION	L0008418	VOLUME	248787.065	4069774.923	79.13
LOCATION	L0008419	VOLUME	248780.369	4069777.855	79.19
LOCATION	L0008420	VOLUME	248773.673	4069780.787	79.26
LOCATION	L0008421	VOLUME	248766.977	4069783.718	79.33
LOCATION	L0008422	VOLUME	248760.281	4069786.650	79.41
LOCATION	L0008423	VOLUME	248753.585	4069789.582	79.49
LOCATION	L0008424	VOLUME	248746.889	4069792.513	79.58
LOCATION	L0008425	VOLUME	248740.193	4069795.445	79.67
LOCATION	L0008426	VOLUME	248733.497	4069798.377	79.77
LOCATION	L0008427	VOLUME	248726.801	4069801.309	79.85
LOCATION	L0008428	VOLUME	248720.105	4069804.240	79.89
LOCATION	L0008429	VOLUME	248713.409	4069807.172	79.92
LOCATION	L0008430	VOLUME	248706.713	4069810.104	79.95
LOCATION	L0008431	VOLUME	248700.017	4069813.036	79.98
LOCATION	L0008432	VOLUME	248693.321	4069815.967	79.99
LOCATION	L0008433	VOLUME	248686.625	4069818.899	80.00
LOCATION	L0008434	VOLUME	248679.929	4069821.831	80.00
LOCATION	L0008435	VOLUME	248673.233	4069824.763	80.00
LOCATION	L0008436	VOLUME	248666.537	4069827.694	80.00
LOCATION	L0008437	VOLUME	248659.841	4069830.626	80.00
LOCATION	L0008438	VOLUME	248653.145	4069833.558	80.01
LOCATION	L0008439	VOLUME	248646.449	4069836.490	80.03
LOCATION	L0008440	VOLUME	248639.753	4069839.421	80.05
LOCATION	L0008441	VOLUME	248633.057	4069842.353	80.08
LOCATION	L0008442	VOLUME	248626.361	4069845.285	80.12
LOCATION	L0008443	VOLUME	248619.665	4069848.217	80.16
LOCATION	L0008444	VOLUME	248612.969	4069851.148	80.20
LOCATION	L0008445	VOLUME	248606.273	4069854.080	80.25
LOCATION	L0008446	VOLUME	248599.577	4069857.012	80.31
LOCATION	L0008447	VOLUME	248593.208	4069860.585	80.38
LOCATION	L0008448	VOLUME	248586.904	4069864.285	80.45
LOCATION	L0008449	VOLUME	248580.600	4069867.986	80.53
LOCATION	L0008450	VOLUME	248574.296	4069871.686	80.61
LOCATION	L0008451	VOLUME	248567.992	4069875.386	80.67
LOCATION	L0008452	VOLUME	248561.688	4069879.086	80.74
LOCATION	L0008453	VOLUME	248555.384	4069882.787	80.79
LOCATION	L0008454	VOLUME	248549.080	4069886.487	80.84
LOCATION	L0008455	VOLUME	248542.776	4069890.187	80.88
LOCATION	L0008456	VOLUME	248536.472	4069893.887	80.92
LOCATION	L0008457	VOLUME	248530.168	4069897.587	80.95
LOCATION	L0008458	VOLUME	248523.864	4069901.288	80.97
LOCATION	L0008459	VOLUME	248517.560	4069904.988	80.99
LOCATION	L0008460	VOLUME	248511.256	4069908.688	81.00
LOCATION	L0008461	VOLUME	248504.952	4069912.388	81.06
LOCATION	L0008462	VOLUME	248498.648	4069916.088	81.16
LOCATION	L0008463	VOLUME	248492.344	4069919.789	81.27
LOCATION	L0008464	VOLUME	248486.040	4069923.489	81.38

LOCATION	L0008465	VOLUME	248479.736	4069927.189	81.48
LOCATION	L0008466	VOLUME	248473.448	4069930.913	81.58
LOCATION	L0008467	VOLUME	248467.714	4069935.446	81.66
LOCATION	L0008468	VOLUME	248461.980	4069939.979	81.74
LOCATION	L0008469	VOLUME	248456.245	4069944.512	81.81
LOCATION	L0008470	VOLUME	248450.511	4069949.045	81.88
LOCATION	L0008471	VOLUME	248444.776	4069953.578	81.93
LOCATION	L0008472	VOLUME	248439.042	4069958.111	81.98
LOCATION	L0008473	VOLUME	248433.307	4069962.644	82.02
LOCATION	L0008474	VOLUME	248427.573	4069967.177	82.07
LOCATION	L0008475	VOLUME	248421.838	4069971.710	82.12
LOCATION	L0008476	VOLUME	248416.104	4069976.243	82.18
LOCATION	L0008477	VOLUME	248410.369	4069980.776	82.25
LOCATION	L0008478	VOLUME	248404.635	4069985.309	82.32
LOCATION	L0008479	VOLUME	248398.900	4069989.842	82.40
LOCATION	L0008480	VOLUME	248393.166	4069994.375	82.49
LOCATION	L0008481	VOLUME	248387.431	4069998.908	82.59
LOCATION	L0008482	VOLUME	248381.697	4070003.441	82.69
LOCATION	L0008483	VOLUME	248376.382	4070008.426	82.80
LOCATION	L0008484	VOLUME	248371.434	4070013.806	82.90
LOCATION	L0008485	VOLUME	248366.486	4070019.186	82.97
LOCATION	L0008486	VOLUME	248361.538	4070024.567	83.00
LOCATION	L0008487	VOLUME	248356.590	4070029.947	83.02
LOCATION	L0008488	VOLUME	248351.642	4070035.328	83.04
LOCATION	L0008489	VOLUME	248346.694	4070040.708	83.07
LOCATION	L0008490	VOLUME	248341.746	4070046.088	83.11
LOCATION	L0008491	VOLUME	248336.798	4070051.469	83.16
LOCATION	L0008492	VOLUME	248331.850	4070056.849	83.21
LOCATION	L0008493	VOLUME	248326.902	4070062.230	83.27
LOCATION	L0008494	VOLUME	248321.953	4070067.610	83.34
LOCATION	L0008495	VOLUME	248317.005	4070072.990	83.42
LOCATION	L0008496	VOLUME	248312.057	4070078.371	83.51
LOCATION	L0008497	VOLUME	248307.109	4070083.751	83.60
LOCATION	L0008498	VOLUME	248302.161	4070089.132	83.70
LOCATION	L0008499	VOLUME	248297.213	4070094.512	83.81
LOCATION	L0008500	VOLUME	248292.265	4070099.892	83.92
LOCATION	L0008501	VOLUME	248287.317	4070105.273	83.99
LOCATION	L0008502	VOLUME	248283.085	4070111.213	84.00
LOCATION	L0008503	VOLUME	248279.054	4070117.311	84.00
LOCATION	L0008504	VOLUME	248275.024	4070123.409	84.00
LOCATION	L0008505	VOLUME	248270.993	4070129.507	84.00
LOCATION	L0008506	VOLUME	248266.962	4070135.605	84.00
LOCATION	L0008507	VOLUME	248262.932	4070141.703	84.00
LOCATION	L0008508	VOLUME	248258.901	4070147.801	84.00
LOCATION	L0008509	VOLUME	248254.870	4070153.899	84.00
LOCATION	L0008510	VOLUME	248250.839	4070159.997	84.00
LOCATION	L0008511	VOLUME	248246.809	4070166.095	84.00
LOCATION	L0008512	VOLUME	248242.778	4070172.193	84.00
LOCATION	L0008513	VOLUME	248238.747	4070178.291	84.00
LOCATION	L0008514	VOLUME	248234.717	4070184.389	84.00
LOCATION	L0008515	VOLUME	248230.686	4070190.487	84.00
LOCATION	L0008516	VOLUME	248226.655	4070196.585	84.00
LOCATION	L0008517	VOLUME	248222.625	4070202.683	84.02
LOCATION	L0008518	VOLUME	248218.594	4070208.781	84.08

LOCATION	L0008519	VOLUME	248214.563	4070214.879	84.15
LOCATION	L0008520	VOLUME	248210.532	4070220.977	84.21
LOCATION	L0008521	VOLUME	248206.502	4070227.075	84.28
LOCATION	L0008522	VOLUME	248202.471	4070233.173	84.34
LOCATION	L0008523	VOLUME	248198.440	4070239.271	84.41
LOCATION	L0008524	VOLUME	248194.410	4070245.369	84.47
LOCATION	L0008525	VOLUME	248190.379	4070251.467	84.54
LOCATION	L0008526	VOLUME	248186.348	4070257.565	84.60
LOCATION	L0008527	VOLUME	248182.318	4070263.663	84.66
LOCATION	L0008528	VOLUME	248178.287	4070269.761	84.73
LOCATION	L0008529	VOLUME	248174.256	4070275.859	84.79
LOCATION	L0008530	VOLUME	248170.225	4070281.957	84.86
LOCATION	L0008531	VOLUME	248166.195	4070288.055	84.92
LOCATION	L0008532	VOLUME	248162.164	4070294.153	84.99
LOCATION	L0008533	VOLUME	248158.133	4070300.251	85.00
LOCATION	L0008534	VOLUME	248154.261	4070306.448	85.00
LOCATION	L0008535	VOLUME	248150.510	4070312.722	85.00
LOCATION	L0008536	VOLUME	248146.758	4070318.996	85.01
LOCATION	L0008537	VOLUME	248143.007	4070325.269	85.03
LOCATION	L0008538	VOLUME	248139.256	4070331.543	85.05
LOCATION	L0008539	VOLUME	248135.504	4070337.817	85.09
LOCATION	L0008540	VOLUME	248131.753	4070344.090	85.13
LOCATION	L0008541	VOLUME	248128.001	4070350.364	85.17
LOCATION	L0008542	VOLUME	248124.250	4070356.638	85.23
LOCATION	L0008543	VOLUME	248120.499	4070362.911	85.29
LOCATION	L0008544	VOLUME	248116.747	4070369.185	85.36
LOCATION	L0008545	VOLUME	248112.996	4070375.459	85.43
LOCATION	L0008546	VOLUME	248109.245	4070381.733	85.51
LOCATION	L0008547	VOLUME	248105.493	4070388.006	85.60
LOCATION	L0008548	VOLUME	248101.742	4070394.280	85.68
LOCATION	L0008549	VOLUME	248097.990	4070400.554	85.75
LOCATION	L0008550	VOLUME	248094.239	4070406.827	85.81
LOCATION	L0008551	VOLUME	248090.488	4070413.101	85.87
LOCATION	L0008552	VOLUME	248086.736	4070419.375	85.92
LOCATION	L0008553	VOLUME	248082.985	4070425.648	85.96
LOCATION	L0008554	VOLUME	248079.234	4070431.922	85.99
LOCATION	L0008555	VOLUME	248075.482	4070438.196	86.02
LOCATION	L0008556	VOLUME	248071.731	4070444.469	86.05
LOCATION	L0008557	VOLUME	248067.980	4070450.743	86.09
LOCATION	L0008558	VOLUME	248064.228	4070457.017	86.14
LOCATION	L0008559	VOLUME	248060.477	4070463.290	86.19
LOCATION	L0008560	VOLUME	248056.725	4070469.564	86.26
LOCATION	L0008561	VOLUME	248052.974	4070475.838	86.32
LOCATION	L0008562	VOLUME	248049.223	4070482.112	86.40
LOCATION	L0008563	VOLUME	248045.471	4070488.385	86.49
LOCATION	L0008564	VOLUME	248041.720	4070494.659	86.57
LOCATION	L0008565	VOLUME	248037.969	4070500.933	86.64
LOCATION	L0008566	VOLUME	248034.217	4070507.206	86.71
LOCATION	L0008567	VOLUME	248030.466	4070513.480	86.77
LOCATION	L0008568	VOLUME	248026.715	4070519.754	86.83
LOCATION	L0008569	VOLUME	248022.963	4070526.027	86.88
LOCATION	L0008570	VOLUME	248019.212	4070532.301	86.92
LOCATION	L0008571	VOLUME	248015.460	4070538.575	86.95
LOCATION	L0008572	VOLUME	248011.709	4070544.848	86.98

LOCATION	L0008573	VOLUME	248007.958	4070551.122	87.00
LOCATION	L0008574	VOLUME	248004.206	4070557.396	86.96
LOCATION	L0008575	VOLUME	248000.455	4070563.669	86.91
LOCATION	L0008576	VOLUME	247996.704	4070569.943	86.85
LOCATION	L0008577	VOLUME	247992.952	4070576.217	86.80
LOCATION	L0008578	VOLUME	247989.201	4070582.491	86.76
LOCATION	L0008579	VOLUME	247985.450	4070588.764	86.73
LOCATION	L0008580	VOLUME	247981.698	4070595.038	86.71
LOCATION	L0008581	VOLUME	247977.947	4070601.312	86.69
LOCATION	L0008582	VOLUME	247974.195	4070607.585	86.68
LOCATION	L0008583	VOLUME	247970.444	4070613.859	86.68
LOCATION	L0008584	VOLUME	247966.693	4070620.133	86.69
LOCATION	L0008585	VOLUME	247962.941	4070626.406	86.70
LOCATION	L0008586	VOLUME	247959.190	4070632.680	86.72
LOCATION	L0008587	VOLUME	247955.439	4070638.954	86.74
LOCATION	L0008588	VOLUME	247951.687	4070645.227	86.78
LOCATION	L0008589	VOLUME	247947.936	4070651.501	86.82
LOCATION	L0008590	VOLUME	247944.184	4070657.775	86.86
LOCATION	L0008591	VOLUME	247940.433	4070664.049	86.92
LOCATION	L0008592	VOLUME	247936.682	4070670.322	86.98
LOCATION	L0008593	VOLUME	247932.930	4070676.596	86.95
LOCATION	L0008594	VOLUME	247929.179	4070682.870	86.90
LOCATION	L0008595	VOLUME	247925.428	4070689.143	86.85
LOCATION	L0008596	VOLUME	247921.676	4070695.417	86.80
LOCATION	L0008597	VOLUME	247917.925	4070701.691	86.74
LOCATION	L0008598	VOLUME	247914.174	4070707.964	86.69
LOCATION	L0008599	VOLUME	247910.422	4070714.238	86.64
LOCATION	L0008600	VOLUME	247906.671	4070720.512	86.58
LOCATION	L0008601	VOLUME	247902.919	4070726.785	86.53
LOCATION	L0008602	VOLUME	247899.168	4070733.059	86.48
LOCATION	L0008603	VOLUME	247895.417	4070739.333	86.43
LOCATION	L0008604	VOLUME	247891.665	4070745.606	86.37
LOCATION	L0008605	VOLUME	247887.914	4070751.880	86.32
LOCATION	L0008606	VOLUME	247884.163	4070758.154	86.27
LOCATION	L0008607	VOLUME	247880.411	4070764.428	86.21
LOCATION	L0008608	VOLUME	247876.660	4070770.701	86.20
LOCATION	L0008609	VOLUME	247872.909	4070776.975	86.21
LOCATION	L0008610	VOLUME	247869.157	4070783.249	86.22
LOCATION	L0008611	VOLUME	247865.406	4070789.522	86.25
LOCATION	L0008612	VOLUME	247861.654	4070795.796	86.26
LOCATION	L0008613	VOLUME	247857.903	4070802.070	86.28
LOCATION	L0008614	VOLUME	247854.152	4070808.343	86.29
LOCATION	L0008615	VOLUME	247850.400	4070814.617	86.30
LOCATION	L0008616	VOLUME	247846.649	4070820.891	86.32
LOCATION	L0008617	VOLUME	247842.898	4070827.164	86.33
LOCATION	L0008618	VOLUME	247839.146	4070833.438	86.34
LOCATION	L0008619	VOLUME	247835.395	4070839.712	86.36
LOCATION	L0008620	VOLUME	247831.643	4070845.985	86.37
LOCATION	L0008621	VOLUME	247827.892	4070852.241	86.39
LOCATION	L0008622	VOLUME	247824.140	4070858.495	86.40
LOCATION	L0008623	VOLUME	247820.388	4070864.748	86.37
LOCATION	L0008624	VOLUME	247816.636	4070871.002	86.31
LOCATION	L0008625	VOLUME	247812.884	4070877.255	86.26
LOCATION	L0008626	VOLUME	247808.132	4070883.509	86.21

LOCATION	L0008627	VOLUME	247805.153	4070889.763	86.15
LOCATION	L0008628	VOLUME	247801.369	4070896.016	86.10
LOCATION	L0008629	VOLUME	247797.584	4070902.270	86.05
LOCATION	L0008630	VOLUME	247793.799	4070908.523	85.99
LOCATION	L0008631	VOLUME	247790.014	4070914.777	85.94
LOCATION	L0008632	VOLUME	247786.229	4070921.030	85.89
LOCATION	L0008633	VOLUME	247782.444	4070927.284	85.83
LOCATION	L0008634	VOLUME	247778.660	4070933.538	85.78
LOCATION	L0008635	VOLUME	247774.875	4070939.791	85.73
LOCATION	L0008636	VOLUME	247771.090	4070946.045	85.67
LOCATION	L0008637	VOLUME	247767.305	4070952.298	85.62
LOCATION	L0008638	VOLUME	247763.520	4070958.552	85.61
LOCATION	L0008639	VOLUME	247759.736	4070964.805	85.62
LOCATION	L0008640	VOLUME	247755.951	4070971.059	85.63
LOCATION	L0008641	VOLUME	247752.166	4070977.313	85.65
LOCATION	L0008642	VOLUME	247748.381	4070983.566	85.66
LOCATION	L0008643	VOLUME	247744.596	4070989.820	85.67
LOCATION	L0008644	VOLUME	247740.812	4070996.073	85.69
LOCATION	L0008645	VOLUME	247737.027	4071002.327	85.70
LOCATION	L0008646	VOLUME	247733.242	4071008.580	85.71
LOCATION	L0008647	VOLUME	247729.457	4071014.834	85.72
LOCATION	L0008648	VOLUME	247725.672	4071021.088	85.74
LOCATION	L0008649	VOLUME	247721.888	4071027.341	85.74
LOCATION	L0008650	VOLUME	247718.103	4071033.595	85.70
LOCATION	L0008651	VOLUME	247714.318	4071039.848	85.66
LOCATION	L0008652	VOLUME	247710.533	4071046.102	85.62
LOCATION	L0008653	VOLUME	247706.748	4071052.355	85.55
LOCATION	L0008654	VOLUME	247702.964	4071058.609	85.46
LOCATION	L0008655	VOLUME	247699.179	4071064.863	85.38
LOCATION	L0008656	VOLUME	247695.394	4071071.116	85.31
LOCATION	L0008657	VOLUME	247691.609	4071077.370	85.24
LOCATION	L0008658	VOLUME	247687.824	4071083.623	85.19
LOCATION	L0008659	VOLUME	247684.040	4071089.877	85.14
LOCATION	L0008660	VOLUME	247680.255	4071096.130	85.09
LOCATION	L0008661	VOLUME	247676.470	4071102.384	85.06
LOCATION	L0008662	VOLUME	247672.685	4071108.638	85.03
LOCATION	L0008663	VOLUME	247668.900	4071114.891	85.01
LOCATION	L0008664	VOLUME	247665.116	4071121.145	84.99
LOCATION	L0008665	VOLUME	247661.331	4071127.398	84.98
LOCATION	L0008666	VOLUME	247657.546	4071133.652	84.98
LOCATION	L0008667	VOLUME	247653.761	4071139.905	84.99
LOCATION	L0008668	VOLUME	247649.976	4071146.159	84.97
LOCATION	L0008669	VOLUME	247646.192	4071152.413	84.92
LOCATION	L0008670	VOLUME	247642.407	4071158.666	84.86
LOCATION	L0008671	VOLUME	247638.622	4071164.920	84.81
LOCATION	L0008672	VOLUME	247634.837	4071171.173	84.76
LOCATION	L0008673	VOLUME	247631.602	4071177.717	84.71
LOCATION	L0008674	VOLUME	247628.579	4071184.372	84.67
LOCATION	L0008675	VOLUME	247625.557	4071191.028	84.62
LOCATION	L0008676	VOLUME	247622.534	4071197.683	84.58
LOCATION	L0008677	VOLUME	247619.512	4071204.339	84.54
LOCATION	L0008678	VOLUME	247616.489	4071210.994	84.49
LOCATION	L0008679	VOLUME	247613.467	4071217.650	84.45
LOCATION	L0008680	VOLUME	247610.444	4071224.305	84.41

LOCATION	L0008681	VOLUME	247607.421	4071230.961	84.36
LOCATION	L0008682	VOLUME	247604.399	4071237.616	84.32
LOCATION	L0008683	VOLUME	247601.376	4071244.272	84.28
LOCATION	L0008684	VOLUME	247598.354	4071250.927	84.23
LOCATION	L0008685	VOLUME	247595.331	4071257.583	84.19
LOCATION	L0008686	VOLUME	247592.308	4071264.238	84.15
LOCATION	L0008687	VOLUME	247589.286	4071270.894	84.10
LOCATION	L0008688	VOLUME	247586.263	4071277.549	84.06
LOCATION	L0008689	VOLUME	247583.241	4071284.205	84.02
LOCATION	L0008690	VOLUME	247580.218	4071290.861	83.99
LOCATION	L0008691	VOLUME	247577.196	4071297.516	83.98
LOCATION	L0008692	VOLUME	247574.173	4071304.172	83.97
LOCATION	L0008693	VOLUME	247571.150	4071310.827	83.97
LOCATION	L0008694	VOLUME	247568.128	4071317.483	83.97
LOCATION	L0008695	VOLUME	247565.105	4071324.138	83.98
LOCATION	L0008696	VOLUME	247562.083	4071330.794	84.00
LOCATION	L0008697	VOLUME	247559.060	4071337.449	84.00
LOCATION	L0008698	VOLUME	247556.038	4071344.105	84.00
LOCATION	L0008699	VOLUME	247553.015	4071350.760	84.00
LOCATION	L0008700	VOLUME	247549.992	4071357.416	84.00
LOCATION	L0008701	VOLUME	247546.970	4071364.071	84.00
LOCATION	L0008702	VOLUME	247543.947	4071370.727	84.00
LOCATION	L0008703	VOLUME	247540.925	4071377.382	84.00
LOCATION	L0008704	VOLUME	247537.902	4071384.038	84.00
LOCATION	L0008705	VOLUME	247534.879	4071390.693	84.00
LOCATION	L0008706	VOLUME	247531.857	4071397.349	84.00
LOCATION	L0008707	VOLUME	247528.834	4071404.004	84.00
LOCATION	L0008708	VOLUME	247525.812	4071410.660	84.00
LOCATION	L0008709	VOLUME	247522.789	4071417.315	84.00
LOCATION	L0008710	VOLUME	247519.767	4071423.971	84.00
LOCATION	L0008711	VOLUME	247516.744	4071430.626	84.00
LOCATION	L0008712	VOLUME	247513.721	4071437.282	84.00
LOCATION	L0008713	VOLUME	247510.699	4071443.937	83.98
LOCATION	L0008714	VOLUME	247507.676	4071450.593	83.94
LOCATION	L0008715	VOLUME	247504.654	4071457.248	83.89
LOCATION	L0008716	VOLUME	247501.631	4071463.904	83.85
LOCATION	L0008717	VOLUME	247498.608	4071470.559	83.81
LOCATION	L0008718	VOLUME	247495.586	4071477.215	83.76
LOCATION	L0008719	VOLUME	247492.563	4071483.871	83.72
LOCATION	L0008720	VOLUME	247489.541	4071490.526	83.68
LOCATION	L0008721	VOLUME	247486.518	4071497.182	83.64
LOCATION	L0008722	VOLUME	247483.496	4071503.837	83.59
LOCATION	L0008723	VOLUME	247480.473	4071510.493	83.55
LOCATION	L0008724	VOLUME	247477.450	4071517.148	83.51
LOCATION	L0008725	VOLUME	247474.428	4071523.804	83.46
LOCATION	L0008726	VOLUME	247471.405	4071530.459	83.42
LOCATION	L0008727	VOLUME	247468.383	4071537.115	83.38
LOCATION	L0008728	VOLUME	247465.360	4071543.770	83.33
LOCATION	L0008729	VOLUME	247462.338	4071550.426	83.29
LOCATION	L0008730	VOLUME	247459.315	4071557.081	83.25
LOCATION	L0008731	VOLUME	247456.292	4071563.737	83.20
LOCATION	L0008732	VOLUME	247453.270	4071570.392	83.16
LOCATION	L0008733	VOLUME	247450.247	4071577.048	83.12
LOCATION	L0008734	VOLUME	247447.225	4071583.703	83.07

LOCATION	L0008735	VOLUME	247444.202	4071590.359	83.03
LOCATION	L0008736	VOLUME	247441.179	4071597.014	83.00
LOCATION	L0008737	VOLUME	247438.157	4071603.670	83.00
LOCATION	L0008738	VOLUME	247435.134	4071610.325	83.00
LOCATION	L0008739	VOLUME	247432.112	4071616.981	83.04
LOCATION	L0008740	VOLUME	247429.089	4071623.636	83.10
LOCATION	L0008741	VOLUME	247426.067	4071630.292	83.15
LOCATION	L0008742	VOLUME	247423.044	4071636.947	83.19
LOCATION	L0008743	VOLUME	247420.021	4071643.603	83.23
LOCATION	L0008744	VOLUME	247416.999	4071650.258	83.26
LOCATION	L0008745	VOLUME	247413.976	4071656.914	83.28
LOCATION	L0008746	VOLUME	247410.954	4071663.570	83.30
LOCATION	L0008747	VOLUME	247407.931	4071670.225	83.31
LOCATION	L0008748	VOLUME	247404.909	4071676.881	83.32
LOCATION	L0008749	VOLUME	247401.886	4071683.536	83.32
LOCATION	L0008750	VOLUME	247398.848	4071690.185	83.32
LOCATION	L0008751	VOLUME	247395.776	4071696.817	83.30
LOCATION	L0008752	VOLUME	247392.703	4071703.450	83.28
LOCATION	L0008753	VOLUME	247389.631	4071710.083	83.25
LOCATION	L0008754	VOLUME	247386.559	4071716.715	83.21
LOCATION	L0008755	VOLUME	247383.486	4071723.348	83.16
LOCATION	L0008756	VOLUME	247380.414	4071729.981	83.12
LOCATION	L0008757	VOLUME	247377.342	4071736.614	83.07
LOCATION	L0008758	VOLUME	247374.270	4071743.246	83.03
LOCATION	L0008759	VOLUME	247371.197	4071749.879	83.00
LOCATION	L0008760	VOLUME	247368.125	4071756.512	83.00
LOCATION	L0008761	VOLUME	247365.053	4071763.144	83.00
LOCATION	L0008762	VOLUME	247361.980	4071769.777	83.00
LOCATION	L0008763	VOLUME	247358.908	4071776.410	83.00
LOCATION	L0008764	VOLUME	247355.836	4071783.043	83.00
LOCATION	L0008765	VOLUME	247352.764	4071789.675	83.00
LOCATION	L0008766	VOLUME	247349.691	4071796.308	83.00
LOCATION	L0008767	VOLUME	247346.619	4071802.941	83.02
LOCATION	L0008768	VOLUME	247343.547	4071809.573	83.06
LOCATION	L0008769	VOLUME	247340.474	4071816.206	83.09
LOCATION	L0008770	VOLUME	247337.402	4071822.839	83.12
LOCATION	L0008771	VOLUME	247334.330	4071829.472	83.14
LOCATION	L0008772	VOLUME	247331.257	4071836.104	83.16
LOCATION	L0008773	VOLUME	247328.185	4071842.737	83.17
LOCATION	L0008774	VOLUME	247325.113	4071849.370	83.17
LOCATION	L0008775	VOLUME	247322.041	4071856.002	83.17
LOCATION	L0008776	VOLUME	247318.968	4071862.635	83.16
LOCATION	L0008777	VOLUME	247315.896	4071869.268	83.14
LOCATION	L0008778	VOLUME	247312.824	4071875.901	83.12
LOCATION	L0008779	VOLUME	247309.751	4071882.533	83.10
LOCATION	L0008780	VOLUME	247306.679	4071889.166	83.06
LOCATION	L0008781	VOLUME	247303.607	4071895.799	83.04
LOCATION	L0008782	VOLUME	247300.534	4071902.431	83.09
LOCATION	L0008783	VOLUME	247297.462	4071909.064	83.16
LOCATION	L0008784	VOLUME	247294.390	4071915.697	83.23
LOCATION	L0008785	VOLUME	247291.318	4071922.330	83.30
LOCATION	L0008786	VOLUME	247288.245	4071928.962	83.37
LOCATION	L0008787	VOLUME	247285.173	4071935.595	83.44
LOCATION	L0008788	VOLUME	247282.101	4071942.228	83.51

LOCATION	L0008789	VOLUME	247279.028	4071948.860	83.58
LOCATION	L0008790	VOLUME	247275.956	4071955.493	83.65
LOCATION	L0008791	VOLUME	247272.884	4071962.126	83.73
LOCATION	L0008792	VOLUME	247269.812	4071968.759	83.80
LOCATION	L0008793	VOLUME	247266.739	4071975.391	83.87
LOCATION	L0008794	VOLUME	247263.667	4071982.024	83.94
LOCATION	L0008795	VOLUME	247260.595	4071988.657	84.00
LOCATION	L0008796	VOLUME	247257.522	4071995.289	84.00
LOCATION	L0008797	VOLUME	247254.450	4072001.922	84.00
LOCATION	L0008798	VOLUME	247251.378	4072008.555	84.00
LOCATION	L0008799	VOLUME	247248.305	4072015.188	84.00
LOCATION	L0008800	VOLUME	247245.233	4072021.820	84.00
LOCATION	L0008801	VOLUME	247242.161	4072028.453	84.00
LOCATION	L0008802	VOLUME	247239.089	4072035.086	84.00
LOCATION	L0008803	VOLUME	247236.016	4072041.718	84.00
LOCATION	L0008804	VOLUME	247232.944	4072048.351	84.00
LOCATION	L0008805	VOLUME	247229.872	4072054.984	83.99
LOCATION	L0008806	VOLUME	247226.799	4072061.617	83.98
LOCATION	L0008807	VOLUME	247223.727	4072068.249	83.98
LOCATION	L0008808	VOLUME	247220.655	4072074.882	83.99
LOCATION	L0008809	VOLUME	247217.582	4072081.515	84.00
LOCATION	L0008810	VOLUME	247214.528	4072088.156	84.00
LOCATION	L0008811	VOLUME	247211.548	4072094.830	84.00
LOCATION	L0008812	VOLUME	247208.567	4072101.504	84.00
LOCATION	L0008813	VOLUME	247205.586	4072108.179	84.00
LOCATION	L0008814	VOLUME	247202.605	4072114.853	84.00
LOCATION	L0008815	VOLUME	247199.624	4072121.527	84.00
LOCATION	L0008816	VOLUME	247196.643	4072128.201	84.00
LOCATION	L0008817	VOLUME	247193.662	4072134.876	84.00
LOCATION	L0008818	VOLUME	247190.681	4072141.550	84.00
LOCATION	L0008819	VOLUME	247187.700	4072148.224	84.00
LOCATION	L0008820	VOLUME	247184.720	4072154.899	84.00
LOCATION	L0008821	VOLUME	247181.739	4072161.573	84.00
LOCATION	L0008822	VOLUME	247178.758	4072168.247	84.00
LOCATION	L0008823	VOLUME	247175.777	4072174.922	84.00
LOCATION	L0008824	VOLUME	247172.796	4072181.596	84.00
LOCATION	L0008825	VOLUME	247169.815	4072188.270	84.00
LOCATION	L0008826	VOLUME	247166.834	4072194.944	84.00
LOCATION	L0008827	VOLUME	247163.853	4072201.619	84.00
LOCATION	L0008828	VOLUME	247160.872	4072208.293	84.00
LOCATION	L0008829	VOLUME	247157.892	4072214.967	84.00
LOCATION	L0008830	VOLUME	247154.911	4072221.642	84.00
LOCATION	L0008831	VOLUME	247151.930	4072228.316	84.00
LOCATION	L0008832	VOLUME	247148.949	4072234.990	84.00
LOCATION	L0008833	VOLUME	247145.968	4072241.664	84.00
LOCATION	L0008834	VOLUME	247142.987	4072248.339	84.00
LOCATION	L0008835	VOLUME	247140.006	4072255.013	84.00
LOCATION	L0008836	VOLUME	247137.025	4072261.687	84.00
LOCATION	L0008837	VOLUME	247134.044	4072268.362	84.00
LOCATION	L0008838	VOLUME	247131.063	4072275.036	84.00
LOCATION	L0008839	VOLUME	247128.083	4072281.710	84.00
LOCATION	L0008840	VOLUME	247125.102	4072288.385	84.00
LOCATION	L0008841	VOLUME	247122.121	4072295.059	84.00
LOCATION	L0008842	VOLUME	247119.140	4072301.733	84.00

LOCATION	L0008843	VOLUME	247116.159	4072308.407	84.00
LOCATION	L0008844	VOLUME	247113.178	4072315.082	84.00
LOCATION	L0008845	VOLUME	247110.197	4072321.756	84.00
LOCATION	L0008846	VOLUME	247107.216	4072328.430	84.00
LOCATION	L0008847	VOLUME	247104.235	4072335.105	84.00
LOCATION	L0008848	VOLUME	247101.255	4072341.779	84.00
LOCATION	L0008849	VOLUME	247098.274	4072348.453	84.00
LOCATION	L0008850	VOLUME	247095.293	4072355.127	84.00
LOCATION	L0008851	VOLUME	247092.312	4072361.802	84.00
LOCATION	L0008852	VOLUME	247089.331	4072368.476	84.00
LOCATION	L0008853	VOLUME	247086.350	4072375.150	84.00
LOCATION	L0008854	VOLUME	247083.369	4072381.825	84.00
LOCATION	L0008855	VOLUME	247080.388	4072388.499	84.00
LOCATION	L0008856	VOLUME	247077.407	4072395.173	84.00
LOCATION	L0008857	VOLUME	247074.427	4072401.847	84.00
LOCATION	L0008858	VOLUME	247071.446	4072408.522	84.00
LOCATION	L0008859	VOLUME	247068.465	4072415.196	84.00
LOCATION	L0008860	VOLUME	247065.484	4072421.870	84.00
LOCATION	L0008861	VOLUME	247062.503	4072428.545	84.00
LOCATION	L0008862	VOLUME	247059.522	4072435.219	84.00
LOCATION	L0008863	VOLUME	247056.541	4072441.893	84.00
LOCATION	L0008864	VOLUME	247053.560	4072448.568	84.00
LOCATION	L0008865	VOLUME	247050.579	4072455.242	84.00
LOCATION	L0008866	VOLUME	247047.598	4072461.916	84.05
LOCATION	L0008867	VOLUME	247044.618	4072468.590	84.12
LOCATION	L0008868	VOLUME	247041.637	4072475.265	84.20
LOCATION	L0008869	VOLUME	247038.656	4072481.939	84.27
LOCATION	L0008870	VOLUME	247035.675	4072488.613	84.34
LOCATION	L0008871	VOLUME	247032.694	4072495.288	84.41
LOCATION	L0008872	VOLUME	247029.713	4072501.962	84.48
LOCATION	L0008873	VOLUME	247026.732	4072508.636	84.55
LOCATION	L0008874	VOLUME	247023.751	4072515.310	84.62
LOCATION	L0008875	VOLUME	247020.770	4072521.985	84.69
LOCATION	L0008876	VOLUME	247017.790	4072528.659	84.76
LOCATION	L0008877	VOLUME	247014.809	4072535.333	84.84
LOCATION	L0008878	VOLUME	247011.828	4072542.008	84.91
LOCATION	L0008879	VOLUME	247008.847	4072548.682	84.98
LOCATION	L0008880	VOLUME	247005.866	4072555.356	85.00
LOCATION	L0008881	VOLUME	247002.885	4072562.031	85.00
LOCATION	L0008882	VOLUME	246999.904	4072568.705	85.00
LOCATION	L0008883	VOLUME	246996.923	4072575.379	85.00
LOCATION	L0008884	VOLUME	246993.942	4072582.053	85.00
LOCATION	L0008885	VOLUME	246990.962	4072588.728	85.00
LOCATION	L0008886	VOLUME	246987.981	4072595.402	85.00
LOCATION	L0008887	VOLUME	246985.000	4072602.076	85.00
LOCATION	L0008888	VOLUME	246982.019	4072608.751	85.00
LOCATION	L0008889	VOLUME	246979.038	4072615.425	85.00
LOCATION	L0008890	VOLUME	246976.057	4072622.099	85.00
LOCATION	L0008891	VOLUME	246973.076	4072628.773	85.00
LOCATION	L0008892	VOLUME	246970.095	4072635.448	85.00
LOCATION	L0008893	VOLUME	246967.114	4072642.122	85.00
LOCATION	L0008894	VOLUME	246964.133	4072648.796	85.05
LOCATION	L0008895	VOLUME	246961.153	4072655.471	85.12
LOCATION	L0008896	VOLUME	246958.172	4072662.145	85.19

LOCATION	L0008897	VOLUME	246955.191	4072668.819	85.26
LOCATION	L0008898	VOLUME	246952.210	4072675.493	85.33
LOCATION	L0008899	VOLUME	246949.229	4072682.168	85.38
LOCATION	L0008900	VOLUME	246946.248	4072688.842	85.43
LOCATION	L0008901	VOLUME	246943.267	4072695.516	85.47
LOCATION	L0008902	VOLUME	246940.286	4072702.191	85.51
LOCATION	L0008903	VOLUME	246937.305	4072708.865	85.53
LOCATION	L0008904	VOLUME	246934.325	4072715.539	85.56
LOCATION	L0008905	VOLUME	246931.344	4072722.214	85.57
LOCATION	L0008906	VOLUME	246928.363	4072728.888	85.59
LOCATION	L0008907	VOLUME	246925.382	4072735.562	85.59
LOCATION	L0008908	VOLUME	246922.401	4072742.236	85.58
LOCATION	L0008909	VOLUME	246919.420	4072748.911	85.58
LOCATION	L0008910	VOLUME	246916.439	4072755.585	85.58
LOCATION	L0008911	VOLUME	246913.458	4072762.259	85.58
LOCATION	L0008912	VOLUME	246910.436	4072768.915	85.59
LOCATION	L0008913	VOLUME	246907.411	4072775.569	85.61
LOCATION	L0008914	VOLUME	246904.385	4072782.223	85.63
LOCATION	L0008915	VOLUME	246901.360	4072788.878	85.66
LOCATION	L0008916	VOLUME	246898.335	4072795.532	85.70
LOCATION	L0008917	VOLUME	246895.309	4072802.186	85.74
LOCATION	L0008918	VOLUME	246892.284	4072808.841	85.79
LOCATION	L0008919	VOLUME	246889.259	4072815.495	85.84
LOCATION	L0008920	VOLUME	246886.234	4072822.149	85.90
LOCATION	L0008921	VOLUME	246883.208	4072828.803	85.96
LOCATION	L0008922	VOLUME	246880.183	4072835.458	85.96
LOCATION	L0008923	VOLUME	246877.158	4072842.112	85.93
LOCATION	L0008924	VOLUME	246874.132	4072848.766	85.90
LOCATION	L0008925	VOLUME	246871.107	4072855.421	85.87
LOCATION	L0008926	VOLUME	246868.082	4072862.075	85.86
LOCATION	L0008927	VOLUME	246865.057	4072868.729	85.84
LOCATION	L0008928	VOLUME	246862.031	4072875.384	85.84
LOCATION	L0008929	VOLUME	246859.006	4072882.038	85.84
LOCATION	L0008930	VOLUME	246855.981	4072888.692	85.85
LOCATION	L0008931	VOLUME	246852.956	4072895.346	85.86
LOCATION	L0008932	VOLUME	246849.930	4072902.001	85.88
LOCATION	L0008933	VOLUME	246846.905	4072908.655	85.91
LOCATION	L0008934	VOLUME	246843.880	4072915.309	85.94
LOCATION	L0008935	VOLUME	246840.854	4072921.964	85.97
LOCATION	L0008936	VOLUME	246837.829	4072928.618	86.01
LOCATION	L0008937	VOLUME	246834.804	4072935.272	86.03
LOCATION	L0008938	VOLUME	246831.779	4072941.926	86.05
LOCATION	L0008939	VOLUME	246828.753	4072948.581	86.05
LOCATION	L0008940	VOLUME	246825.728	4072955.235	86.06
LOCATION	L0008941	VOLUME	246822.703	4072961.889	86.05
LOCATION	L0008942	VOLUME	246819.677	4072968.544	86.04
LOCATION	L0008943	VOLUME	246816.652	4072975.198	86.03
LOCATION	L0008944	VOLUME	246813.627	4072981.852	86.01
LOCATION	L0008945	VOLUME	246810.602	4072988.506	85.99
LOCATION	L0008946	VOLUME	246807.576	4072995.161	85.98
LOCATION	L0008947	VOLUME	246804.551	4073001.815	85.98
LOCATION	L0008948	VOLUME	246801.526	4073008.469	85.98
LOCATION	L0008949	VOLUME	246798.500	4073015.124	85.99
LOCATION	L0008950	VOLUME	246795.475	4073021.778	86.02

LOCATION	L0008951	VOLUME	246792.450	4073028.432	86.07
LOCATION	L0008952	VOLUME	246789.425	4073035.086	86.11
LOCATION	L0008953	VOLUME	246786.399	4073041.741	86.15
LOCATION	L0008954	VOLUME	246783.374	4073048.395	86.18
LOCATION	L0008955	VOLUME	246780.349	4073055.049	86.20
LOCATION	L0008956	VOLUME	246777.324	4073061.704	86.22
LOCATION	L0008957	VOLUME	246774.298	4073068.358	86.23
LOCATION	L0008958	VOLUME	246771.273	4073075.012	86.24
LOCATION	L0008959	VOLUME	246768.248	4073081.667	86.24
LOCATION	L0008960	VOLUME	246765.222	4073088.321	86.23
LOCATION	L0008961	VOLUME	246762.197	4073094.975	86.22
LOCATION	L0008962	VOLUME	246759.172	4073101.629	86.20
LOCATION	L0008963	VOLUME	246756.147	4073108.284	86.18
LOCATION	L0008964	VOLUME	246753.121	4073114.938	86.16
LOCATION	L0008965	VOLUME	246750.096	4073121.592	86.18
LOCATION	L0008966	VOLUME	246747.071	4073128.247	86.20
LOCATION	L0008967	VOLUME	246744.045	4073134.901	86.24
LOCATION	L0008968	VOLUME	246741.020	4073141.555	86.29
LOCATION	L0008969	VOLUME	246737.995	4073148.209	86.34
LOCATION	L0008970	VOLUME	246734.970	4073154.864	86.39
LOCATION	L0008971	VOLUME	246731.944	4073161.518	86.43
LOCATION	L0008972	VOLUME	246728.919	4073168.172	86.46
LOCATION	L0008973	VOLUME	246725.894	4073174.827	86.49
LOCATION	L0008974	VOLUME	246722.868	4073181.481	86.51
LOCATION	L0008975	VOLUME	246719.843	4073188.135	86.53
LOCATION	L0008976	VOLUME	246716.818	4073194.789	86.54
LOCATION	L0008977	VOLUME	246713.793	4073201.444	86.54
LOCATION	L0008978	VOLUME	246710.767	4073208.098	86.54
LOCATION	L0008979	VOLUME	246707.742	4073214.752	86.53
LOCATION	L0008980	VOLUME	246704.717	4073221.407	86.53
LOCATION	L0008981	VOLUME	246701.692	4073228.061	86.54
LOCATION	L0008982	VOLUME	246698.666	4073234.715	86.55
LOCATION	L0008983	VOLUME	246695.641	4073241.370	86.57
LOCATION	L0008984	VOLUME	246692.616	4073248.024	86.59
LOCATION	L0008985	VOLUME	246689.590	4073254.678	86.62
LOCATION	L0008986	VOLUME	246686.565	4073261.332	86.66
LOCATION	L0008987	VOLUME	246683.540	4073267.987	86.70
LOCATION	L0008988	VOLUME	246680.515	4073274.641	86.75
LOCATION	L0008989	VOLUME	246677.489	4073281.295	86.80
LOCATION	L0008990	VOLUME	246674.464	4073287.950	86.86
LOCATION	L0008991	VOLUME	246671.439	4073294.604	86.91
LOCATION	L0008992	VOLUME	246668.413	4073301.258	86.93
LOCATION	L0008993	VOLUME	246665.388	4073307.912	86.90
LOCATION	L0008994	VOLUME	246662.363	4073314.567	86.87
LOCATION	L0008995	VOLUME	246659.338	4073321.221	86.84
LOCATION	L0008996	VOLUME	246656.312	4073327.875	86.83
LOCATION	L0008997	VOLUME	246653.287	4073334.530	86.82
LOCATION	L0008998	VOLUME	246650.262	4073341.184	86.81
LOCATION	L0008999	VOLUME	246647.236	4073347.838	86.81
LOCATION	L0009000	VOLUME	246644.211	4073354.492	86.82
LOCATION	L0009001	VOLUME	246641.186	4073361.147	86.83
LOCATION	L0009002	VOLUME	246638.161	4073367.801	86.85
LOCATION	L0009003	VOLUME	246635.135	4073374.455	86.88
LOCATION	L0009004	VOLUME	246632.110	4073381.110	86.91

LOCATION	L0009005	VOLUME	246629.085	4073387.764	86.95
LOCATION	L0009006	VOLUME	246626.060	4073394.418	87.00
LOCATION	L0009007	VOLUME	246623.034	4073401.072	87.02
LOCATION	L0009008	VOLUME	246620.009	4073407.727	87.03
LOCATION	L0009009	VOLUME	246616.984	4073414.381	87.04
LOCATION	L0009010	VOLUME	246613.686	4073420.899	87.04
LOCATION	L0009011	VOLUME	246610.148	4073427.295	87.03
LOCATION	L0009012	VOLUME	246606.610	4073433.691	87.02
LOCATION	L0009013	VOLUME	246603.071	4073440.087	87.00
LOCATION	L0009014	VOLUME	246599.533	4073446.484	87.00
LOCATION	L0009015	VOLUME	246595.995	4073452.880	87.00
LOCATION	L0009016	VOLUME	246592.456	4073459.276	87.00
LOCATION	L0009017	VOLUME	246588.918	4073465.672	87.00
LOCATION	L0009018	VOLUME	246585.380	4073472.069	87.00
LOCATION	L0009019	VOLUME	246581.841	4073478.465	87.00
LOCATION	L0009020	VOLUME	246578.303	4073484.861	87.00

** End of LINE VOLUME Source ID = SR99

** Line Source Represented by Separated Volume Sources

** LINE VOLUME Source ID = SR180

** DESCRSRC State Route 180

** PREFIX

** Length of Side = 3.66

** Configuration = Separated

** Emission Rate = 0.0183

** Vertical Dimension = 1.83

** SZINIT = 0.85

** Nodes = 23

**	246071.960,	4069623.809,	68.27,	0.00,	3.40
**	246391.213,	4069625.056,	69.54,	0.00,	3.40
**	246867.600,	4069562.702,	72.44,	0.00,	3.40
**	247460.574,	4069561.818,	80.00,	0.00,	3.40
**	247970.842,	4069562.649,	81.99,	0.00,	3.40
**	248277.583,	4069627.124,	81.00,	0.00,	3.40
**	248464.109,	4069694.916,	80.15,	0.00,	3.40
**	248643.626,	4069793.305,	79.70,	0.00,	3.40
**	248964.686,	4069993.536,	79.00,	0.00,	3.40
**	249278.588,	4070190.993,	78.00,	0.00,	3.40
**	249887.497,	4070575.413,	80.92,	0.00,	3.40
**	250202.512,	4070766.716,	81.76,	0.00,	3.40
**	250457.817,	4070887.033,	82.50,	0.00,	3.40
**	250651.929,	4070936.173,	84.00,	0.00,	3.40
**	251291.250,	4071085.714,	87.00,	0.00,	3.40
**	251663.617,	4071159.779,	88.96,	0.00,	3.40
**	252146.977,	4071208.522,	91.00,	0.00,	3.40
**	252612.059,	4071263.357,	91.00,	0.00,	3.40
**	253145.492,	4071262.057,	91.00,	0.00,	3.40
**	253867.162,	4071237.775,	91.00,	0.00,	3.40
**	254993.443,	4071211.523,	91.00,	0.00,	3.40
**	255497.226,	4071191.490,	91.00,	0.00,	3.40
**	255705.531,	4071160.306,	91.00,	0.00,	3.40

LOCATION	L0009021	VOLUME	246073.788	4069623.817	68.08
LOCATION	L0009022	VOLUME	246081.099	4069623.845	68.08

LOCATION	L0009023	VOLUME	246088.410	4069623.874	68.08
LOCATION	L0009024	VOLUME	246095.722	4069623.902	68.08
LOCATION	L0009025	VOLUME	246103.033	4069623.931	68.09
LOCATION	L0009026	VOLUME	246110.344	4069623.959	68.09
LOCATION	L0009027	VOLUME	246117.655	4069623.988	68.10
LOCATION	L0009028	VOLUME	246124.966	4069624.016	68.19
LOCATION	L0009029	VOLUME	246132.277	4069624.045	68.28
LOCATION	L0009030	VOLUME	246139.588	4069624.074	68.37
LOCATION	L0009031	VOLUME	246146.899	4069624.102	68.46
LOCATION	L0009032	VOLUME	246154.210	4069624.131	68.55
LOCATION	L0009033	VOLUME	246161.521	4069624.159	68.64
LOCATION	L0009034	VOLUME	246168.832	4069624.188	68.72
LOCATION	L0009035	VOLUME	246176.143	4069624.216	68.81
LOCATION	L0009036	VOLUME	246183.454	4069624.245	68.90
LOCATION	L0009037	VOLUME	246190.765	4069624.273	68.99
LOCATION	L0009038	VOLUME	246198.076	4069624.302	69.00
LOCATION	L0009039	VOLUME	246205.387	4069624.331	69.00
LOCATION	L0009040	VOLUME	246212.698	4069624.359	69.00
LOCATION	L0009041	VOLUME	246220.009	4069624.388	69.00
LOCATION	L0009042	VOLUME	246227.320	4069624.416	69.00
LOCATION	L0009043	VOLUME	246234.631	4069624.445	69.00
LOCATION	L0009044	VOLUME	246241.942	4069624.473	69.00
LOCATION	L0009045	VOLUME	246249.253	4069624.502	69.00
LOCATION	L0009046	VOLUME	246256.565	4069624.530	69.00
LOCATION	L0009047	VOLUME	246263.876	4069624.559	69.00
LOCATION	L0009048	VOLUME	246271.187	4069624.588	69.01
LOCATION	L0009049	VOLUME	246278.498	4069624.616	69.02
LOCATION	L0009050	VOLUME	246285.809	4069624.645	69.04
LOCATION	L0009051	VOLUME	246293.120	4069624.673	69.06
LOCATION	L0009052	VOLUME	246300.431	4069624.702	69.07
LOCATION	L0009053	VOLUME	246307.742	4069624.730	69.09
LOCATION	L0009054	VOLUME	246315.053	4069624.759	69.11
LOCATION	L0009055	VOLUME	246322.364	4069624.788	69.13
LOCATION	L0009056	VOLUME	246329.675	4069624.816	69.14
LOCATION	L0009057	VOLUME	246336.986	4069624.845	69.16
LOCATION	L0009058	VOLUME	246344.297	4069624.873	69.21
LOCATION	L0009059	VOLUME	246351.608	4069624.902	69.30
LOCATION	L0009060	VOLUME	246358.919	4069624.930	69.38
LOCATION	L0009061	VOLUME	246366.230	4069624.959	69.46
LOCATION	L0009062	VOLUME	246373.541	4069624.987	69.54
LOCATION	L0009063	VOLUME	246380.852	4069625.016	69.62
LOCATION	L0009064	VOLUME	246388.163	4069625.045	69.70
LOCATION	L0009065	VOLUME	246395.438	4069624.503	69.78
LOCATION	L0009066	VOLUME	246402.688	4069623.555	69.86
LOCATION	L0009067	VOLUME	246409.937	4069622.606	69.94
LOCATION	L0009068	VOLUME	246417.186	4069621.657	70.00
LOCATION	L0009069	VOLUME	246424.436	4069620.708	70.00
LOCATION	L0009070	VOLUME	246431.685	4069619.759	70.00
LOCATION	L0009071	VOLUME	246438.934	4069618.810	70.00
LOCATION	L0009072	VOLUME	246446.183	4069617.861	70.00
LOCATION	L0009073	VOLUME	246453.433	4069616.913	70.00
LOCATION	L0009074	VOLUME	246460.682	4069615.964	70.00
LOCATION	L0009075	VOLUME	246467.931	4069615.015	70.00
LOCATION	L0009076	VOLUME	246475.180	4069614.066	70.00

LOCATION	L0009077	VOLUME	246482.430	4069613.117	70.00
LOCATION	L0009078	VOLUME	246489.679	4069612.168	70.00
LOCATION	L0009079	VOLUME	246496.928	4069611.219	70.01
LOCATION	L0009080	VOLUME	246504.177	4069610.271	70.01
LOCATION	L0009081	VOLUME	246511.427	4069609.322	70.02
LOCATION	L0009082	VOLUME	246518.676	4069608.373	70.02
LOCATION	L0009083	VOLUME	246525.925	4069607.424	70.02
LOCATION	L0009084	VOLUME	246533.175	4069606.475	70.02
LOCATION	L0009085	VOLUME	246540.424	4069605.526	70.02
LOCATION	L0009086	VOLUME	246547.673	4069604.577	70.02
LOCATION	L0009087	VOLUME	246554.922	4069603.629	70.01
LOCATION	L0009088	VOLUME	246562.172	4069602.680	70.01
LOCATION	L0009089	VOLUME	246569.421	4069601.731	70.00
LOCATION	L0009090	VOLUME	246576.670	4069600.782	70.00
LOCATION	L0009091	VOLUME	246583.919	4069599.833	70.00
LOCATION	L0009092	VOLUME	246591.169	4069598.884	70.00
LOCATION	L0009093	VOLUME	246598.418	4069597.935	70.00
LOCATION	L0009094	VOLUME	246605.667	4069596.987	70.00
LOCATION	L0009095	VOLUME	246612.916	4069596.038	70.00
LOCATION	L0009096	VOLUME	246620.166	4069595.089	70.00
LOCATION	L0009097	VOLUME	246627.415	4069594.140	70.00
LOCATION	L0009098	VOLUME	246634.664	4069593.191	70.00
LOCATION	L0009099	VOLUME	246641.914	4069592.242	70.05
LOCATION	L0009100	VOLUME	246649.163	4069591.293	70.15
LOCATION	L0009101	VOLUME	246656.412	4069590.345	70.25
LOCATION	L0009102	VOLUME	246663.661	4069589.396	70.35
LOCATION	L0009103	VOLUME	246670.911	4069588.447	70.44
LOCATION	L0009104	VOLUME	246678.160	4069587.498	70.54
LOCATION	L0009105	VOLUME	246685.409	4069586.549	70.64
LOCATION	L0009106	VOLUME	246692.658	4069585.600	70.74
LOCATION	L0009107	VOLUME	246699.908	4069584.651	70.83
LOCATION	L0009108	VOLUME	246707.157	4069583.703	70.93
LOCATION	L0009109	VOLUME	246714.406	4069582.754	71.00
LOCATION	L0009110	VOLUME	246721.656	4069581.805	71.00
LOCATION	L0009111	VOLUME	246728.905	4069580.856	71.00
LOCATION	L0009112	VOLUME	246736.154	4069579.907	71.00
LOCATION	L0009113	VOLUME	246743.403	4069578.958	71.00
LOCATION	L0009114	VOLUME	246750.653	4069578.009	71.00
LOCATION	L0009115	VOLUME	246757.902	4069577.061	71.00
LOCATION	L0009116	VOLUME	246765.151	4069576.112	71.00
LOCATION	L0009117	VOLUME	246772.400	4069575.163	71.00
LOCATION	L0009118	VOLUME	246779.650	4069574.214	71.00
LOCATION	L0009119	VOLUME	246786.899	4069573.265	71.01
LOCATION	L0009120	VOLUME	246794.148	4069572.316	71.21
LOCATION	L0009121	VOLUME	246801.397	4069571.367	71.40
LOCATION	L0009122	VOLUME	246808.647	4069570.419	71.60
LOCATION	L0009123	VOLUME	246815.896	4069569.470	71.80
LOCATION	L0009124	VOLUME	246823.145	4069568.521	71.99
LOCATION	L0009125	VOLUME	246830.395	4069567.572	72.19
LOCATION	L0009126	VOLUME	246837.644	4069566.623	72.38
LOCATION	L0009127	VOLUME	246844.893	4069565.674	72.58
LOCATION	L0009128	VOLUME	246852.142	4069564.725	72.77
LOCATION	L0009129	VOLUME	246859.392	4069563.777	72.97
LOCATION	L0009130	VOLUME	246866.641	4069562.828	73.08

LOCATION	L0009131	VOLUME	246873.944	4069562.693	73.18
LOCATION	L0009132	VOLUME	246881.255	4069562.682	73.28
LOCATION	L0009133	VOLUME	246888.566	4069562.671	73.38
LOCATION	L0009134	VOLUME	246895.877	4069562.660	73.47
LOCATION	L0009135	VOLUME	246903.188	4069562.649	73.57
LOCATION	L0009136	VOLUME	246910.499	4069562.638	73.67
LOCATION	L0009137	VOLUME	246917.810	4069562.627	73.77
LOCATION	L0009138	VOLUME	246925.121	4069562.616	73.87
LOCATION	L0009139	VOLUME	246932.433	4069562.606	73.96
LOCATION	L0009140	VOLUME	246939.744	4069562.595	74.06
LOCATION	L0009141	VOLUME	246947.055	4069562.584	74.16
LOCATION	L0009142	VOLUME	246954.366	4069562.573	74.26
LOCATION	L0009143	VOLUME	246961.677	4069562.562	74.36
LOCATION	L0009144	VOLUME	246968.988	4069562.551	74.46
LOCATION	L0009145	VOLUME	246976.299	4069562.540	74.55
LOCATION	L0009146	VOLUME	246983.610	4069562.529	74.65
LOCATION	L0009147	VOLUME	246990.921	4069562.518	74.75
LOCATION	L0009148	VOLUME	246998.232	4069562.507	74.85
LOCATION	L0009149	VOLUME	247005.543	4069562.497	74.95
LOCATION	L0009150	VOLUME	247012.855	4069562.486	75.04
LOCATION	L0009151	VOLUME	247020.166	4069562.475	75.14
LOCATION	L0009152	VOLUME	247027.477	4069562.464	75.24
LOCATION	L0009153	VOLUME	247034.788	4069562.453	75.34
LOCATION	L0009154	VOLUME	247042.099	4069562.442	75.44
LOCATION	L0009155	VOLUME	247049.410	4069562.431	75.54
LOCATION	L0009156	VOLUME	247056.721	4069562.420	75.63
LOCATION	L0009157	VOLUME	247064.032	4069562.409	75.73
LOCATION	L0009158	VOLUME	247071.343	4069562.399	75.83
LOCATION	L0009159	VOLUME	247078.654	4069562.388	75.93
LOCATION	L0009160	VOLUME	247085.966	4069562.377	76.03
LOCATION	L0009161	VOLUME	247093.277	4069562.366	76.12
LOCATION	L0009162	VOLUME	247100.588	4069562.355	76.22
LOCATION	L0009163	VOLUME	247107.899	4069562.344	76.32
LOCATION	L0009164	VOLUME	247115.210	4069562.333	76.42
LOCATION	L0009165	VOLUME	247122.521	4069562.322	76.52
LOCATION	L0009166	VOLUME	247129.832	4069562.311	76.61
LOCATION	L0009167	VOLUME	247137.143	4069562.300	76.71
LOCATION	L0009168	VOLUME	247144.454	4069562.290	76.81
LOCATION	L0009169	VOLUME	247151.765	4069562.279	76.91
LOCATION	L0009170	VOLUME	247159.076	4069562.268	77.01
LOCATION	L0009171	VOLUME	247166.388	4069562.257	77.11
LOCATION	L0009172	VOLUME	247173.699	4069562.246	77.20
LOCATION	L0009173	VOLUME	247181.010	4069562.235	77.30
LOCATION	L0009174	VOLUME	247188.321	4069562.224	77.40
LOCATION	L0009175	VOLUME	247195.632	4069562.213	77.50
LOCATION	L0009176	VOLUME	247202.943	4069562.202	77.60
LOCATION	L0009177	VOLUME	247210.254	4069562.191	77.69
LOCATION	L0009178	VOLUME	247217.565	4069562.181	77.79
LOCATION	L0009179	VOLUME	247224.876	4069562.170	77.89
LOCATION	L0009180	VOLUME	247232.187	4069562.159	77.99
LOCATION	L0009181	VOLUME	247239.499	4069562.148	78.17
LOCATION	L0009182	VOLUME	247246.810	4069562.137	78.37
LOCATION	L0009183	VOLUME	247254.121	4069562.126	78.57
LOCATION	L0009184	VOLUME	247261.432	4069562.115	78.76

LOCATION	L0009185	VOLUME	247268.743	4069562.104	78.96
LOCATION	L0009186	VOLUME	247276.054	4069562.093	79.16
LOCATION	L0009187	VOLUME	247283.365	4069562.082	79.35
LOCATION	L0009188	VOLUME	247290.676	4069562.072	79.55
LOCATION	L0009189	VOLUME	247297.987	4069562.061	79.74
LOCATION	L0009190	VOLUME	247305.298	4069562.050	79.94
LOCATION	L0009191	VOLUME	247312.609	4069562.039	79.99
LOCATION	L0009192	VOLUME	247319.921	4069562.028	79.97
LOCATION	L0009193	VOLUME	247327.232	4069562.017	79.95
LOCATION	L0009194	VOLUME	247334.543	4069562.006	79.93
LOCATION	L0009195	VOLUME	247341.854	4069561.995	79.91
LOCATION	L0009196	VOLUME	247349.165	4069561.984	79.90
LOCATION	L0009197	VOLUME	247356.476	4069561.973	79.88
LOCATION	L0009198	VOLUME	247363.787	4069561.963	79.87
LOCATION	L0009199	VOLUME	247371.098	4069561.952	79.85
LOCATION	L0009200	VOLUME	247378.409	4069561.941	79.83
LOCATION	L0009201	VOLUME	247385.720	4069561.930	79.84
LOCATION	L0009202	VOLUME	247393.032	4069561.919	79.86
LOCATION	L0009203	VOLUME	247400.343	4069561.908	79.87
LOCATION	L0009204	VOLUME	247407.654	4069561.897	79.89
LOCATION	L0009205	VOLUME	247414.965	4069561.886	79.91
LOCATION	L0009206	VOLUME	247422.276	4069561.875	79.93
LOCATION	L0009207	VOLUME	247429.587	4069561.865	79.94
LOCATION	L0009208	VOLUME	247436.898	4069561.854	79.96
LOCATION	L0009209	VOLUME	247444.209	4069561.843	79.97
LOCATION	L0009210	VOLUME	247451.520	4069561.832	79.99
LOCATION	L0009211	VOLUME	247458.831	4069561.821	80.00
LOCATION	L0009212	VOLUME	247466.142	4069561.827	80.00
LOCATION	L0009213	VOLUME	247473.454	4069561.839	80.00
LOCATION	L0009214	VOLUME	247480.765	4069561.851	80.00
LOCATION	L0009215	VOLUME	247488.076	4069561.863	80.00
LOCATION	L0009216	VOLUME	247495.387	4069561.875	80.00
LOCATION	L0009217	VOLUME	247502.698	4069561.887	80.00
LOCATION	L0009218	VOLUME	247510.009	4069561.899	80.00
LOCATION	L0009219	VOLUME	247517.320	4069561.911	80.00
LOCATION	L0009220	VOLUME	247524.631	4069561.923	80.00
LOCATION	L0009221	VOLUME	247531.942	4069561.934	80.00
LOCATION	L0009222	VOLUME	247539.253	4069561.946	80.00
LOCATION	L0009223	VOLUME	247546.564	4069561.958	80.00
LOCATION	L0009224	VOLUME	247553.876	4069561.970	80.00
LOCATION	L0009225	VOLUME	247561.187	4069561.982	80.00
LOCATION	L0009226	VOLUME	247568.498	4069561.994	80.00
LOCATION	L0009227	VOLUME	247575.809	4069562.006	80.00
LOCATION	L0009228	VOLUME	247583.120	4069562.018	80.00
LOCATION	L0009229	VOLUME	247590.431	4069562.030	80.00
LOCATION	L0009230	VOLUME	247597.742	4069562.042	80.00
LOCATION	L0009231	VOLUME	247605.053	4069562.054	80.00
LOCATION	L0009232	VOLUME	247612.364	4069562.065	80.00
LOCATION	L0009233	VOLUME	247619.675	4069562.077	80.00
LOCATION	L0009234	VOLUME	247626.986	4069562.089	80.00
LOCATION	L0009235	VOLUME	247634.298	4069562.101	80.00
LOCATION	L0009236	VOLUME	247641.609	4069562.113	80.00
LOCATION	L0009237	VOLUME	247648.920	4069562.125	80.00
LOCATION	L0009238	VOLUME	247656.231	4069562.137	80.00

LOCATION	L0009239	VOLUME	247663.542	4069562.149	80.00
LOCATION	L0009240	VOLUME	247670.853	4069562.161	80.00
LOCATION	L0009241	VOLUME	247678.164	4069562.173	80.00
LOCATION	L0009242	VOLUME	247685.475	4069562.184	80.00
LOCATION	L0009243	VOLUME	247692.786	4069562.196	80.00
LOCATION	L0009244	VOLUME	247700.097	4069562.208	80.00
LOCATION	L0009245	VOLUME	247707.409	4069562.220	80.00
LOCATION	L0009246	VOLUME	247714.720	4069562.232	80.00
LOCATION	L0009247	VOLUME	247722.031	4069562.244	80.00
LOCATION	L0009248	VOLUME	247729.342	4069562.256	80.00
LOCATION	L0009249	VOLUME	247736.653	4069562.268	80.00
LOCATION	L0009250	VOLUME	247743.964	4069562.280	80.00
LOCATION	L0009251	VOLUME	247751.275	4069562.292	80.00
LOCATION	L0009252	VOLUME	247758.586	4069562.303	80.06
LOCATION	L0009253	VOLUME	247765.897	4069562.315	80.15
LOCATION	L0009254	VOLUME	247773.208	4069562.327	80.25
LOCATION	L0009255	VOLUME	247780.519	4069562.339	80.35
LOCATION	L0009256	VOLUME	247787.831	4069562.351	80.45
LOCATION	L0009257	VOLUME	247795.142	4069562.363	80.55
LOCATION	L0009258	VOLUME	247802.453	4069562.375	80.64
LOCATION	L0009259	VOLUME	247809.764	4069562.387	80.74
LOCATION	L0009260	VOLUME	247817.075	4069562.399	80.84
LOCATION	L0009261	VOLUME	247824.386	4069562.411	80.94
LOCATION	L0009262	VOLUME	247831.697	4069562.422	81.04
LOCATION	L0009263	VOLUME	247839.008	4069562.434	81.13
LOCATION	L0009264	VOLUME	247846.319	4069562.446	81.23
LOCATION	L0009265	VOLUME	247853.630	4069562.458	81.33
LOCATION	L0009266	VOLUME	247860.941	4069562.470	81.42
LOCATION	L0009267	VOLUME	247868.253	4069562.482	81.52
LOCATION	L0009268	VOLUME	247875.564	4069562.494	81.62
LOCATION	L0009269	VOLUME	247882.875	4069562.506	81.72
LOCATION	L0009270	VOLUME	247890.186	4069562.518	81.82
LOCATION	L0009271	VOLUME	247897.497	4069562.530	81.92
LOCATION	L0009272	VOLUME	247904.808	4069562.541	82.00
LOCATION	L0009273	VOLUME	247912.119	4069562.553	82.00
LOCATION	L0009274	VOLUME	247919.430	4069562.565	82.00
LOCATION	L0009275	VOLUME	247926.741	4069562.577	82.00
LOCATION	L0009276	VOLUME	247934.052	4069562.589	82.00
LOCATION	L0009277	VOLUME	247941.363	4069562.601	82.00
LOCATION	L0009278	VOLUME	247948.675	4069562.613	82.00
LOCATION	L0009279	VOLUME	247955.986	4069562.625	82.00
LOCATION	L0009280	VOLUME	247963.297	4069562.637	82.00
LOCATION	L0009281	VOLUME	247970.608	4069562.649	82.00
LOCATION	L0009282	VOLUME	247977.768	4069564.105	82.00
LOCATION	L0009283	VOLUME	247984.922	4069565.609	82.00
LOCATION	L0009284	VOLUME	247992.077	4069567.112	82.00
LOCATION	L0009285	VOLUME	247999.232	4069568.616	82.00
LOCATION	L0009286	VOLUME	248006.387	4069570.120	82.00
LOCATION	L0009287	VOLUME	248013.541	4069571.624	82.00
LOCATION	L0009288	VOLUME	248020.696	4069573.128	82.00
LOCATION	L0009289	VOLUME	248027.851	4069574.632	82.00
LOCATION	L0009290	VOLUME	248035.006	4069576.136	82.00
LOCATION	L0009291	VOLUME	248042.160	4069577.640	82.00
LOCATION	L0009292	VOLUME	248049.315	4069579.144	82.00

LOCATION	L0009293	VOLUME	248056.470	4069580.647	81.96
LOCATION	L0009294	VOLUME	248063.625	4069582.151	81.89
LOCATION	L0009295	VOLUME	248070.779	4069583.655	81.83
LOCATION	L0009296	VOLUME	248077.934	4069585.159	81.77
LOCATION	L0009297	VOLUME	248085.089	4069586.663	81.71
LOCATION	L0009298	VOLUME	248092.244	4069588.167	81.65
LOCATION	L0009299	VOLUME	248099.398	4069589.671	81.60
LOCATION	L0009300	VOLUME	248106.553	4069591.175	81.55
LOCATION	L0009301	VOLUME	248113.708	4069592.678	81.51
LOCATION	L0009302	VOLUME	248120.863	4069594.182	81.47
LOCATION	L0009303	VOLUME	248128.018	4069595.686	81.43
LOCATION	L0009304	VOLUME	248135.172	4069597.190	81.40
LOCATION	L0009305	VOLUME	248142.327	4069598.694	81.38
LOCATION	L0009306	VOLUME	248149.482	4069600.198	81.35
LOCATION	L0009307	VOLUME	248156.637	4069601.702	81.31
LOCATION	L0009308	VOLUME	248163.791	4069603.206	81.27
LOCATION	L0009309	VOLUME	248170.946	4069604.710	81.23
LOCATION	L0009310	VOLUME	248178.101	4069606.213	81.18
LOCATION	L0009311	VOLUME	248185.256	4069607.717	81.14
LOCATION	L0009312	VOLUME	248192.410	4069609.221	81.08
LOCATION	L0009313	VOLUME	248199.565	4069610.725	81.03
LOCATION	L0009314	VOLUME	248206.720	4069612.229	81.00
LOCATION	L0009315	VOLUME	248213.875	4069613.733	81.00
LOCATION	L0009316	VOLUME	248221.029	4069615.237	81.00
LOCATION	L0009317	VOLUME	248228.184	4069616.741	81.00
LOCATION	L0009318	VOLUME	248235.339	4069618.245	81.00
LOCATION	L0009319	VOLUME	248242.494	4069619.748	81.00
LOCATION	L0009320	VOLUME	248249.648	4069621.252	81.00
LOCATION	L0009321	VOLUME	248256.803	4069622.756	81.00
LOCATION	L0009322	VOLUME	248263.958	4069624.260	81.00
LOCATION	L0009323	VOLUME	248271.113	4069625.764	81.00
LOCATION	L0009324	VOLUME	248278.240	4069627.363	81.00
LOCATION	L0009325	VOLUME	248285.112	4069629.860	80.99
LOCATION	L0009326	VOLUME	248291.983	4069632.358	80.98
LOCATION	L0009327	VOLUME	248298.854	4069634.855	80.97
LOCATION	L0009328	VOLUME	248305.726	4069637.352	80.98
LOCATION	L0009329	VOLUME	248312.597	4069639.850	80.98
LOCATION	L0009330	VOLUME	248319.468	4069642.347	81.00
LOCATION	L0009331	VOLUME	248326.340	4069644.844	81.01
LOCATION	L0009332	VOLUME	248333.211	4069647.342	81.01
LOCATION	L0009333	VOLUME	248340.082	4069649.839	81.01
LOCATION	L0009334	VOLUME	248346.954	4069652.336	81.01
LOCATION	L0009335	VOLUME	248353.825	4069654.834	80.99
LOCATION	L0009336	VOLUME	248360.697	4069657.331	80.92
LOCATION	L0009337	VOLUME	248367.568	4069659.828	80.85
LOCATION	L0009338	VOLUME	248374.439	4069662.326	80.78
LOCATION	L0009339	VOLUME	248381.311	4069664.823	80.72
LOCATION	L0009340	VOLUME	248388.182	4069667.320	80.67
LOCATION	L0009341	VOLUME	248395.053	4069669.818	80.62
LOCATION	L0009342	VOLUME	248401.925	4069672.315	80.58
LOCATION	L0009343	VOLUME	248408.796	4069674.813	80.54
LOCATION	L0009344	VOLUME	248415.667	4069677.310	80.50
LOCATION	L0009345	VOLUME	248422.539	4069679.807	80.48
LOCATION	L0009346	VOLUME	248429.410	4069682.305	80.46

LOCATION	L0009347	VOLUME	248436.281	4069684.802	80.44
LOCATION	L0009348	VOLUME	248443.153	4069687.299	80.42
LOCATION	L0009349	VOLUME	248450.024	4069689.797	80.39
LOCATION	L0009350	VOLUME	248456.895	4069692.294	80.36
LOCATION	L0009351	VOLUME	248463.767	4069694.791	80.32
LOCATION	L0009352	VOLUME	248470.201	4069698.255	80.29
LOCATION	L0009353	VOLUME	248476.612	4069701.768	80.25
LOCATION	L0009354	VOLUME	248483.024	4069705.282	80.20
LOCATION	L0009355	VOLUME	248489.435	4069708.796	80.15
LOCATION	L0009356	VOLUME	248495.846	4069712.310	80.09
LOCATION	L0009357	VOLUME	248502.258	4069715.824	80.02
LOCATION	L0009358	VOLUME	248508.669	4069719.338	80.00
LOCATION	L0009359	VOLUME	248515.080	4069722.852	80.00
LOCATION	L0009360	VOLUME	248521.491	4069726.366	80.00
LOCATION	L0009361	VOLUME	248527.903	4069729.880	80.00
LOCATION	L0009362	VOLUME	248534.314	4069733.393	80.03
LOCATION	L0009363	VOLUME	248540.725	4069736.907	80.04
LOCATION	L0009364	VOLUME	248547.137	4069740.421	80.05
LOCATION	L0009365	VOLUME	248553.548	4069743.935	80.06
LOCATION	L0009366	VOLUME	248559.959	4069747.449	80.05
LOCATION	L0009367	VOLUME	248566.371	4069750.963	80.04
LOCATION	L0009368	VOLUME	248572.782	4069754.477	80.03
LOCATION	L0009369	VOLUME	248579.193	4069757.991	80.00
LOCATION	L0009370	VOLUME	248585.604	4069761.505	80.00
LOCATION	L0009371	VOLUME	248592.016	4069765.018	80.00
LOCATION	L0009372	VOLUME	248598.427	4069768.532	80.00
LOCATION	L0009373	VOLUME	248604.838	4069772.046	80.00
LOCATION	L0009374	VOLUME	248611.250	4069775.560	80.00
LOCATION	L0009375	VOLUME	248617.661	4069779.074	80.00
LOCATION	L0009376	VOLUME	248624.072	4069782.588	80.00
LOCATION	L0009377	VOLUME	248630.484	4069786.102	80.00
LOCATION	L0009378	VOLUME	248636.895	4069789.616	80.00
LOCATION	L0009379	VOLUME	248643.306	4069793.130	80.00
LOCATION	L0009380	VOLUME	248649.520	4069796.981	80.00
LOCATION	L0009381	VOLUME	248655.724	4069800.850	80.00
LOCATION	L0009382	VOLUME	248661.927	4069804.718	79.99
LOCATION	L0009383	VOLUME	248668.131	4069808.587	79.98
LOCATION	L0009384	VOLUME	248674.334	4069812.456	79.99
LOCATION	L0009385	VOLUME	248680.538	4069816.325	80.00
LOCATION	L0009386	VOLUME	248686.741	4069820.194	80.00
LOCATION	L0009387	VOLUME	248692.945	4069824.063	80.00
LOCATION	L0009388	VOLUME	248699.149	4069827.932	80.00
LOCATION	L0009389	VOLUME	248705.352	4069831.801	80.00
LOCATION	L0009390	VOLUME	248711.556	4069835.669	80.00
LOCATION	L0009391	VOLUME	248717.759	4069839.538	80.00
LOCATION	L0009392	VOLUME	248723.963	4069843.407	80.00
LOCATION	L0009393	VOLUME	248730.166	4069847.276	80.00
LOCATION	L0009394	VOLUME	248736.370	4069851.145	79.96
LOCATION	L0009395	VOLUME	248742.573	4069855.014	79.91
LOCATION	L0009396	VOLUME	248748.777	4069858.883	79.88
LOCATION	L0009397	VOLUME	248754.980	4069862.752	79.85
LOCATION	L0009398	VOLUME	248761.184	4069866.621	79.83
LOCATION	L0009399	VOLUME	248767.388	4069870.489	79.81
LOCATION	L0009400	VOLUME	248773.591	4069874.358	79.80

LOCATION	L0009401	VOLUME	248779.795	4069878.227	79.80
LOCATION	L0009402	VOLUME	248785.998	4069882.096	79.81
LOCATION	L0009403	VOLUME	248792.202	4069885.965	79.82
LOCATION	L0009404	VOLUME	248798.405	4069889.834	79.84
LOCATION	L0009405	VOLUME	248804.609	4069893.703	79.87
LOCATION	L0009406	VOLUME	248810.812	4069897.572	79.91
LOCATION	L0009407	VOLUME	248817.016	4069901.440	79.95
LOCATION	L0009408	VOLUME	248823.219	4069905.309	80.00
LOCATION	L0009409	VOLUME	248829.423	4069909.178	80.00
LOCATION	L0009410	VOLUME	248835.627	4069913.047	80.00
LOCATION	L0009411	VOLUME	248841.830	4069916.916	80.00
LOCATION	L0009412	VOLUME	248848.034	4069920.785	80.00
LOCATION	L0009413	VOLUME	248854.237	4069924.654	80.00
LOCATION	L0009414	VOLUME	248860.441	4069928.523	80.00
LOCATION	L0009415	VOLUME	248866.644	4069932.391	80.00
LOCATION	L0009416	VOLUME	248872.848	4069936.260	80.00
LOCATION	L0009417	VOLUME	248879.051	4069940.129	80.00
LOCATION	L0009418	VOLUME	248885.255	4069943.998	79.97
LOCATION	L0009419	VOLUME	248891.458	4069947.867	79.89
LOCATION	L0009420	VOLUME	248897.662	4069951.736	79.81
LOCATION	L0009421	VOLUME	248903.866	4069955.605	79.72
LOCATION	L0009422	VOLUME	248910.069	4069959.474	79.64
LOCATION	L0009423	VOLUME	248916.273	4069963.342	79.56
LOCATION	L0009424	VOLUME	248922.476	4069967.211	79.48
LOCATION	L0009425	VOLUME	248928.680	4069971.080	79.40
LOCATION	L0009426	VOLUME	248934.883	4069974.949	79.32
LOCATION	L0009427	VOLUME	248941.087	4069978.818	79.23
LOCATION	L0009428	VOLUME	248947.290	4069982.687	79.15
LOCATION	L0009429	VOLUME	248953.494	4069986.556	79.07
LOCATION	L0009430	VOLUME	248959.697	4069990.425	78.99
LOCATION	L0009431	VOLUME	248965.898	4069994.298	78.91
LOCATION	L0009432	VOLUME	248972.087	4069998.191	78.87
LOCATION	L0009433	VOLUME	248978.275	4070002.084	78.84
LOCATION	L0009434	VOLUME	248984.464	4070005.977	78.80
LOCATION	L0009435	VOLUME	248990.652	4070009.870	78.76
LOCATION	L0009436	VOLUME	248996.841	4070013.762	78.72
LOCATION	L0009437	VOLUME	249003.029	4070017.655	78.69
LOCATION	L0009438	VOLUME	249009.218	4070021.548	78.65
LOCATION	L0009439	VOLUME	249015.406	4070025.441	78.61
LOCATION	L0009440	VOLUME	249021.595	4070029.334	78.57
LOCATION	L0009441	VOLUME	249027.783	4070033.227	78.54
LOCATION	L0009442	VOLUME	249033.972	4070037.120	78.50
LOCATION	L0009443	VOLUME	249040.161	4070041.012	78.49
LOCATION	L0009444	VOLUME	249046.349	4070044.905	78.49
LOCATION	L0009445	VOLUME	249052.538	4070048.798	78.47
LOCATION	L0009446	VOLUME	249058.726	4070052.691	78.45
LOCATION	L0009447	VOLUME	249064.915	4070056.584	78.43
LOCATION	L0009448	VOLUME	249071.103	4070060.477	78.39
LOCATION	L0009449	VOLUME	249077.292	4070064.369	78.35
LOCATION	L0009450	VOLUME	249083.480	4070068.262	78.30
LOCATION	L0009451	VOLUME	249089.669	4070072.155	78.24
LOCATION	L0009452	VOLUME	249095.857	4070076.048	78.18
LOCATION	L0009453	VOLUME	249102.046	4070079.941	78.11
LOCATION	L0009454	VOLUME	249108.234	4070083.834	78.05

LOCATION	L0009455	VOLUME	249114.423	4070087.726	78.06
LOCATION	L0009456	VOLUME	249120.612	4070091.619	78.09
LOCATION	L0009457	VOLUME	249126.800	4070095.512	78.12
LOCATION	L0009458	VOLUME	249132.989	4070099.405	78.14
LOCATION	L0009459	VOLUME	249139.177	4070103.298	78.15
LOCATION	L0009460	VOLUME	249145.366	4070107.191	78.15
LOCATION	L0009461	VOLUME	249151.554	4070111.084	78.15
LOCATION	L0009462	VOLUME	249157.743	4070114.976	78.14
LOCATION	L0009463	VOLUME	249163.931	4070118.869	78.12
LOCATION	L0009464	VOLUME	249170.120	4070122.762	78.10
LOCATION	L0009465	VOLUME	249176.308	4070126.655	78.07
LOCATION	L0009466	VOLUME	249182.497	4070130.548	78.03
LOCATION	L0009467	VOLUME	249188.685	4070134.441	78.00
LOCATION	L0009468	VOLUME	249194.874	4070138.333	78.00
LOCATION	L0009469	VOLUME	249201.062	4070142.226	78.00
LOCATION	L0009470	VOLUME	249207.251	4070146.119	78.00
LOCATION	L0009471	VOLUME	249213.440	4070150.012	78.00
LOCATION	L0009472	VOLUME	249219.628	4070153.905	78.00
LOCATION	L0009473	VOLUME	249225.817	4070157.798	78.00
LOCATION	L0009474	VOLUME	249232.005	4070161.691	78.00
LOCATION	L0009475	VOLUME	249238.194	4070165.583	78.00
LOCATION	L0009476	VOLUME	249244.382	4070169.476	78.00
LOCATION	L0009477	VOLUME	249250.571	4070173.369	78.00
LOCATION	L0009478	VOLUME	249256.759	4070177.262	78.00
LOCATION	L0009479	VOLUME	249262.948	4070181.155	78.00
LOCATION	L0009480	VOLUME	249269.136	4070185.048	78.00
LOCATION	L0009481	VOLUME	249275.325	4070188.940	78.00
LOCATION	L0009482	VOLUME	249281.510	4070192.838	78.00
LOCATION	L0009483	VOLUME	249287.693	4070196.741	78.00
LOCATION	L0009484	VOLUME	249293.875	4070200.644	78.00
LOCATION	L0009485	VOLUME	249300.057	4070204.547	78.00
LOCATION	L0009486	VOLUME	249306.239	4070208.450	78.00
LOCATION	L0009487	VOLUME	249312.421	4070212.353	78.00
LOCATION	L0009488	VOLUME	249318.603	4070216.256	78.00
LOCATION	L0009489	VOLUME	249324.786	4070220.159	78.00
LOCATION	L0009490	VOLUME	249330.968	4070224.062	78.00
LOCATION	L0009491	VOLUME	249337.150	4070227.965	78.00
LOCATION	L0009492	VOLUME	249343.332	4070231.868	78.00
LOCATION	L0009493	VOLUME	249349.514	4070235.771	78.00
LOCATION	L0009494	VOLUME	249355.696	4070239.674	78.00
LOCATION	L0009495	VOLUME	249361.879	4070243.577	78.00
LOCATION	L0009496	VOLUME	249368.061	4070247.479	78.00
LOCATION	L0009497	VOLUME	249374.243	4070251.382	78.00
LOCATION	L0009498	VOLUME	249380.425	4070255.285	78.00
LOCATION	L0009499	VOLUME	249386.607	4070259.188	78.00
LOCATION	L0009500	VOLUME	249392.789	4070263.091	78.04
LOCATION	L0009501	VOLUME	249398.972	4070266.994	78.09
LOCATION	L0009502	VOLUME	249405.154	4070270.897	78.13
LOCATION	L0009503	VOLUME	249411.336	4070274.800	78.18
LOCATION	L0009504	VOLUME	249417.518	4070278.703	78.22
LOCATION	L0009505	VOLUME	249423.700	4070282.606	78.26
LOCATION	L0009506	VOLUME	249429.882	4070286.509	78.31
LOCATION	L0009507	VOLUME	249436.065	4070290.412	78.35
LOCATION	L0009508	VOLUME	249442.247	4070294.315	78.40

LOCATION	L0009509	VOLUME	249448.429	4070298.218	78.44
LOCATION	L0009510	VOLUME	249454.611	4070302.121	78.48
LOCATION	L0009511	VOLUME	249460.793	4070306.024	78.53
LOCATION	L0009512	VOLUME	249466.975	4070309.927	78.57
LOCATION	L0009513	VOLUME	249473.158	4070313.830	78.62
LOCATION	L0009514	VOLUME	249479.340	4070317.733	78.66
LOCATION	L0009515	VOLUME	249485.522	4070321.636	78.70
LOCATION	L0009516	VOLUME	249491.704	4070325.539	78.75
LOCATION	L0009517	VOLUME	249497.886	4070329.442	78.81
LOCATION	L0009518	VOLUME	249504.068	4070333.345	78.87
LOCATION	L0009519	VOLUME	249510.251	4070337.247	78.91
LOCATION	L0009520	VOLUME	249516.433	4070341.150	78.95
LOCATION	L0009521	VOLUME	249522.615	4070345.053	78.98
LOCATION	L0009522	VOLUME	249528.797	4070348.956	79.01
LOCATION	L0009523	VOLUME	249534.979	4070352.859	79.03
LOCATION	L0009524	VOLUME	249541.161	4070356.762	79.07
LOCATION	L0009525	VOLUME	249547.344	4070360.665	79.11
LOCATION	L0009526	VOLUME	249553.526	4070364.568	79.16
LOCATION	L0009527	VOLUME	249559.708	4070368.471	79.22
LOCATION	L0009528	VOLUME	249565.890	4070372.374	79.28
LOCATION	L0009529	VOLUME	249572.072	4070376.277	79.38
LOCATION	L0009530	VOLUME	249578.254	4070380.180	79.47
LOCATION	L0009531	VOLUME	249584.436	4070384.083	79.55
LOCATION	L0009532	VOLUME	249590.619	4070387.986	79.63
LOCATION	L0009533	VOLUME	249596.801	4070391.889	79.70
LOCATION	L0009534	VOLUME	249602.983	4070395.792	79.77
LOCATION	L0009535	VOLUME	249609.165	4070399.695	79.82
LOCATION	L0009536	VOLUME	249615.347	4070403.598	79.87
LOCATION	L0009537	VOLUME	249621.529	4070407.501	79.91
LOCATION	L0009538	VOLUME	249627.712	4070411.404	79.95
LOCATION	L0009539	VOLUME	249633.894	4070415.307	79.98
LOCATION	L0009540	VOLUME	249640.076	4070419.210	80.00
LOCATION	L0009541	VOLUME	249646.258	4070423.113	80.00
LOCATION	L0009542	VOLUME	249652.440	4070427.015	80.00
LOCATION	L0009543	VOLUME	249658.622	4070430.918	80.00
LOCATION	L0009544	VOLUME	249664.805	4070434.821	80.00
LOCATION	L0009545	VOLUME	249670.987	4070438.724	80.01
LOCATION	L0009546	VOLUME	249677.169	4070442.627	80.03
LOCATION	L0009547	VOLUME	249683.351	4070446.530	80.06
LOCATION	L0009548	VOLUME	249689.533	4070450.433	80.10
LOCATION	L0009549	VOLUME	249695.715	4070454.336	80.15
LOCATION	L0009550	VOLUME	249701.898	4070458.239	80.20
LOCATION	L0009551	VOLUME	249708.080	4070462.142	80.26
LOCATION	L0009552	VOLUME	249714.262	4070466.045	80.32
LOCATION	L0009553	VOLUME	249720.444	4070469.948	80.38
LOCATION	L0009554	VOLUME	249726.626	4070473.851	80.43
LOCATION	L0009555	VOLUME	249732.808	4070477.754	80.47
LOCATION	L0009556	VOLUME	249738.991	4070481.657	80.51
LOCATION	L0009557	VOLUME	249745.173	4070485.560	80.56
LOCATION	L0009558	VOLUME	249751.355	4070489.463	80.60
LOCATION	L0009559	VOLUME	249757.537	4070493.366	80.65
LOCATION	L0009560	VOLUME	249763.719	4070497.269	80.69
LOCATION	L0009561	VOLUME	249769.901	4070501.172	80.73
LOCATION	L0009562	VOLUME	249776.084	4070505.075	80.78

LOCATION	L0009563	VOLUME	249782.266	4070508.978	80.82
LOCATION	L0009564	VOLUME	249788.448	4070512.881	80.87
LOCATION	L0009565	VOLUME	249794.630	4070516.783	80.91
LOCATION	L0009566	VOLUME	249800.812	4070520.686	80.96
LOCATION	L0009567	VOLUME	249806.994	4070524.589	81.00
LOCATION	L0009568	VOLUME	249813.177	4070528.492	81.00
LOCATION	L0009569	VOLUME	249819.359	4070532.395	81.00
LOCATION	L0009570	VOLUME	249825.541	4070536.298	81.00
LOCATION	L0009571	VOLUME	249831.723	4070540.201	81.00
LOCATION	L0009572	VOLUME	249837.905	4070544.104	81.00
LOCATION	L0009573	VOLUME	249844.087	4070548.007	81.00
LOCATION	L0009574	VOLUME	249850.270	4070551.910	81.00
LOCATION	L0009575	VOLUME	249856.452	4070555.813	81.00
LOCATION	L0009576	VOLUME	249862.634	4070559.716	81.00
LOCATION	L0009577	VOLUME	249868.816	4070563.619	81.00
LOCATION	L0009578	VOLUME	249874.998	4070567.522	81.00
LOCATION	L0009579	VOLUME	249881.180	4070571.425	81.00
LOCATION	L0009580	VOLUME	249887.363	4070575.328	81.00
LOCATION	L0009581	VOLUME	249893.610	4070579.125	81.00
LOCATION	L0009582	VOLUME	249899.859	4070582.920	81.00
LOCATION	L0009583	VOLUME	249906.108	4070586.715	81.00
LOCATION	L0009584	VOLUME	249912.357	4070590.510	81.00
LOCATION	L0009585	VOLUME	249918.606	4070594.305	81.00
LOCATION	L0009586	VOLUME	249924.855	4070598.100	81.00
LOCATION	L0009587	VOLUME	249931.104	4070601.895	81.00
LOCATION	L0009588	VOLUME	249937.353	4070605.690	81.00
LOCATION	L0009589	VOLUME	249943.602	4070609.485	81.00
LOCATION	L0009590	VOLUME	249949.852	4070613.280	81.00
LOCATION	L0009591	VOLUME	249956.101	4070617.075	81.05
LOCATION	L0009592	VOLUME	249962.350	4070620.870	81.09
LOCATION	L0009593	VOLUME	249968.599	4070624.665	81.13
LOCATION	L0009594	VOLUME	249974.848	4070628.459	81.17
LOCATION	L0009595	VOLUME	249981.097	4070632.254	81.22
LOCATION	L0009596	VOLUME	249987.346	4070636.049	81.26
LOCATION	L0009597	VOLUME	249993.595	4070639.844	81.30
LOCATION	L0009598	VOLUME	249999.844	4070643.639	81.35
LOCATION	L0009599	VOLUME	250006.093	4070647.434	81.39
LOCATION	L0009600	VOLUME	250012.342	4070651.229	81.43
LOCATION	L0009601	VOLUME	250018.591	4070655.024	81.48
LOCATION	L0009602	VOLUME	250024.840	4070658.819	81.52
LOCATION	L0009603	VOLUME	250031.089	4070662.614	81.56
LOCATION	L0009604	VOLUME	250037.338	4070666.409	81.60
LOCATION	L0009605	VOLUME	250043.587	4070670.204	81.65
LOCATION	L0009606	VOLUME	250049.836	4070673.999	81.69
LOCATION	L0009607	VOLUME	250056.085	4070677.794	81.73
LOCATION	L0009608	VOLUME	250062.334	4070681.589	81.78
LOCATION	L0009609	VOLUME	250068.583	4070685.384	81.82
LOCATION	L0009610	VOLUME	250074.832	4070689.179	81.86
LOCATION	L0009611	VOLUME	250081.082	4070692.974	81.91
LOCATION	L0009612	VOLUME	250087.331	4070696.769	81.95
LOCATION	L0009613	VOLUME	250093.580	4070700.564	81.99
LOCATION	L0009614	VOLUME	250099.829	4070704.358	81.96
LOCATION	L0009615	VOLUME	250106.078	4070708.153	81.89
LOCATION	L0009616	VOLUME	250112.327	4070711.948	81.82

LOCATION	L0009617	VOLUME	250118.576	4070715.743	81.76
LOCATION	L0009618	VOLUME	250124.825	4070719.538	81.71
LOCATION	L0009619	VOLUME	250131.074	4070723.333	81.66
LOCATION	L0009620	VOLUME	250137.323	4070727.128	81.62
LOCATION	L0009621	VOLUME	250143.572	4070730.923	81.59
LOCATION	L0009622	VOLUME	250149.821	4070734.718	81.57
LOCATION	L0009623	VOLUME	250156.070	4070738.513	81.55
LOCATION	L0009624	VOLUME	250162.319	4070742.308	81.54
LOCATION	L0009625	VOLUME	250168.568	4070746.103	81.53
LOCATION	L0009626	VOLUME	250174.817	4070749.898	81.55
LOCATION	L0009627	VOLUME	250181.066	4070753.693	81.59
LOCATION	L0009628	VOLUME	250187.315	4070757.488	81.64
LOCATION	L0009629	VOLUME	250193.564	4070761.283	81.68
LOCATION	L0009630	VOLUME	250199.813	4070765.078	81.72
LOCATION	L0009631	VOLUME	250206.270	4070768.487	81.76
LOCATION	L0009632	VOLUME	250212.883	4070771.604	81.80
LOCATION	L0009633	VOLUME	250219.497	4070774.721	81.83
LOCATION	L0009634	VOLUME	250226.110	4070777.837	81.87
LOCATION	L0009635	VOLUME	250232.724	4070780.954	81.90
LOCATION	L0009636	VOLUME	250239.337	4070784.071	81.94
LOCATION	L0009637	VOLUME	250245.951	4070787.187	81.98
LOCATION	L0009638	VOLUME	250252.564	4070790.304	82.00
LOCATION	L0009639	VOLUME	250259.178	4070793.421	82.00
LOCATION	L0009640	VOLUME	250265.791	4070796.538	82.00
LOCATION	L0009641	VOLUME	250272.405	4070799.654	82.00
LOCATION	L0009642	VOLUME	250279.018	4070802.771	82.00
LOCATION	L0009643	VOLUME	250285.631	4070805.888	82.00
LOCATION	L0009644	VOLUME	250292.245	4070809.004	82.00
LOCATION	L0009645	VOLUME	250298.858	4070812.121	82.00
LOCATION	L0009646	VOLUME	250305.472	4070815.238	82.00
LOCATION	L0009647	VOLUME	250312.085	4070818.355	82.00
LOCATION	L0009648	VOLUME	250318.699	4070821.471	82.00
LOCATION	L0009649	VOLUME	250325.312	4070824.588	82.00
LOCATION	L0009650	VOLUME	250331.926	4070827.705	82.00
LOCATION	L0009651	VOLUME	250338.539	4070830.821	82.00
LOCATION	L0009652	VOLUME	250345.153	4070833.938	82.00
LOCATION	L0009653	VOLUME	250351.766	4070837.055	82.00
LOCATION	L0009654	VOLUME	250358.380	4070840.171	82.00
LOCATION	L0009655	VOLUME	250364.993	4070843.288	82.00
LOCATION	L0009656	VOLUME	250371.607	4070846.405	82.00
LOCATION	L0009657	VOLUME	250378.220	4070849.522	82.00
LOCATION	L0009658	VOLUME	250384.834	4070852.638	82.00
LOCATION	L0009659	VOLUME	250391.447	4070855.755	82.00
LOCATION	L0009660	VOLUME	250398.061	4070858.872	82.00
LOCATION	L0009661	VOLUME	250404.674	4070861.988	82.00
LOCATION	L0009662	VOLUME	250411.288	4070865.105	82.00
LOCATION	L0009663	VOLUME	250417.901	4070868.222	82.00
LOCATION	L0009664	VOLUME	250424.515	4070871.339	82.00
LOCATION	L0009665	VOLUME	250431.128	4070874.455	82.00
LOCATION	L0009666	VOLUME	250437.742	4070877.572	82.01
LOCATION	L0009667	VOLUME	250444.355	4070880.689	82.05
LOCATION	L0009668	VOLUME	250450.969	4070883.805	82.08
LOCATION	L0009669	VOLUME	250457.582	4070886.922	82.12
LOCATION	L0009670	VOLUME	250464.653	4070888.763	82.14

LOCATION	L0009671	VOLUME	250471.741	4070890.557	82.16
LOCATION	L0009672	VOLUME	250478.828	4070892.352	82.23
LOCATION	L0009673	VOLUME	250485.916	4070894.146	82.32
LOCATION	L0009674	VOLUME	250493.003	4070895.940	82.41
LOCATION	L0009675	VOLUME	250500.091	4070897.734	82.50
LOCATION	L0009676	VOLUME	250507.178	4070899.529	82.59
LOCATION	L0009677	VOLUME	250514.266	4070901.323	82.66
LOCATION	L0009678	VOLUME	250521.353	4070903.117	82.74
LOCATION	L0009679	VOLUME	250528.441	4070904.911	82.81
LOCATION	L0009680	VOLUME	250535.528	4070906.706	82.88
LOCATION	L0009681	VOLUME	250542.616	4070908.500	82.94
LOCATION	L0009682	VOLUME	250549.703	4070910.294	83.00
LOCATION	L0009683	VOLUME	250556.791	4070912.088	83.04
LOCATION	L0009684	VOLUME	250563.878	4070913.883	83.08
LOCATION	L0009685	VOLUME	250570.966	4070915.677	83.13
LOCATION	L0009686	VOLUME	250578.053	4070917.471	83.18
LOCATION	L0009687	VOLUME	250585.141	4070919.265	83.24
LOCATION	L0009688	VOLUME	250592.228	4070921.060	83.30
LOCATION	L0009689	VOLUME	250599.316	4070922.854	83.36
LOCATION	L0009690	VOLUME	250606.403	4070924.648	83.43
LOCATION	L0009691	VOLUME	250613.491	4070926.442	83.51
LOCATION	L0009692	VOLUME	250620.579	4070928.237	83.58
LOCATION	L0009693	VOLUME	250627.666	4070930.031	83.65
LOCATION	L0009694	VOLUME	250634.754	4070931.825	83.71
LOCATION	L0009695	VOLUME	250641.841	4070933.619	83.75
LOCATION	L0009696	VOLUME	250648.929	4070935.414	83.80
LOCATION	L0009697	VOLUME	250656.034	4070937.134	83.84
LOCATION	L0009698	VOLUME	250663.153	4070938.799	83.88
LOCATION	L0009699	VOLUME	250670.272	4070940.464	83.91
LOCATION	L0009700	VOLUME	250677.391	4070942.129	83.94
LOCATION	L0009701	VOLUME	250684.510	4070943.794	83.96
LOCATION	L0009702	VOLUME	250691.629	4070945.459	83.98
LOCATION	L0009703	VOLUME	250698.748	4070947.125	84.00
LOCATION	L0009704	VOLUME	250705.867	4070948.790	84.00
LOCATION	L0009705	VOLUME	250712.986	4070950.455	84.00
LOCATION	L0009706	VOLUME	250720.105	4070952.120	84.00
LOCATION	L0009707	VOLUME	250727.224	4070953.785	84.00
LOCATION	L0009708	VOLUME	250734.343	4070955.450	84.00
LOCATION	L0009709	VOLUME	250741.462	4070957.116	84.00
LOCATION	L0009710	VOLUME	250748.581	4070958.781	84.00
LOCATION	L0009711	VOLUME	250755.700	4070960.446	84.00
LOCATION	L0009712	VOLUME	250762.818	4070962.111	84.00
LOCATION	L0009713	VOLUME	250769.937	4070963.776	84.00
LOCATION	L0009714	VOLUME	250777.056	4070965.441	84.00
LOCATION	L0009715	VOLUME	250784.175	4070967.107	84.01
LOCATION	L0009716	VOLUME	250791.294	4070968.772	84.02
LOCATION	L0009717	VOLUME	250798.413	4070970.437	84.04
LOCATION	L0009718	VOLUME	250805.532	4070972.102	84.06
LOCATION	L0009719	VOLUME	250812.651	4070973.767	84.09
LOCATION	L0009720	VOLUME	250819.770	4070975.432	84.11
LOCATION	L0009721	VOLUME	250826.889	4070977.098	84.15
LOCATION	L0009722	VOLUME	250834.008	4070978.763	84.18
LOCATION	L0009723	VOLUME	250841.127	4070980.428	84.22
LOCATION	L0009724	VOLUME	250848.246	4070982.093	84.27

LOCATION	L0009725	VOLUME	250855.365	4070983.758	84.34
LOCATION	L0009726	VOLUME	250862.484	4070985.423	84.43
LOCATION	L0009727	VOLUME	250869.603	4070987.089	84.51
LOCATION	L0009728	VOLUME	250876.722	4070988.754	84.58
LOCATION	L0009729	VOLUME	250883.841	4070990.419	84.66
LOCATION	L0009730	VOLUME	250890.960	4070992.084	84.73
LOCATION	L0009731	VOLUME	250898.079	4070993.749	84.79
LOCATION	L0009732	VOLUME	250905.197	4070995.414	84.85
LOCATION	L0009733	VOLUME	250912.316	4070997.080	84.91
LOCATION	L0009734	VOLUME	250919.435	4070998.745	84.96
LOCATION	L0009735	VOLUME	250926.554	4071000.410	85.00
LOCATION	L0009736	VOLUME	250933.673	4071002.075	85.00
LOCATION	L0009737	VOLUME	250940.792	4071003.740	85.00
LOCATION	L0009738	VOLUME	250947.911	4071005.405	85.00
LOCATION	L0009739	VOLUME	250955.030	4071007.071	85.00
LOCATION	L0009740	VOLUME	250962.149	4071008.736	85.00
LOCATION	L0009741	VOLUME	250969.268	4071010.401	85.00
LOCATION	L0009742	VOLUME	250976.387	4071012.066	85.00
LOCATION	L0009743	VOLUME	250983.506	4071013.731	85.00
LOCATION	L0009744	VOLUME	250990.625	4071015.396	85.00
LOCATION	L0009745	VOLUME	250997.744	4071017.061	85.00
LOCATION	L0009746	VOLUME	251004.863	4071018.727	85.05
LOCATION	L0009747	VOLUME	251011.982	4071020.392	85.12
LOCATION	L0009748	VOLUME	251019.101	4071022.057	85.19
LOCATION	L0009749	VOLUME	251026.220	4071023.722	85.27
LOCATION	L0009750	VOLUME	251033.339	4071025.387	85.36
LOCATION	L0009751	VOLUME	251040.458	4071027.052	85.44
LOCATION	L0009752	VOLUME	251047.576	4071028.718	85.53
LOCATION	L0009753	VOLUME	251054.695	4071030.383	85.63
LOCATION	L0009754	VOLUME	251061.814	4071032.048	85.73
LOCATION	L0009755	VOLUME	251068.933	4071033.713	85.83
LOCATION	L0009756	VOLUME	251076.052	4071035.378	85.92
LOCATION	L0009757	VOLUME	251083.171	4071037.043	85.95
LOCATION	L0009758	VOLUME	251090.290	4071038.709	85.97
LOCATION	L0009759	VOLUME	251097.409	4071040.374	85.99
LOCATION	L0009760	VOLUME	251104.528	4071042.039	86.00
LOCATION	L0009761	VOLUME	251111.647	4071043.704	86.01
LOCATION	L0009762	VOLUME	251118.766	4071045.369	86.02
LOCATION	L0009763	VOLUME	251125.885	4071047.034	86.04
LOCATION	L0009764	VOLUME	251133.004	4071048.700	86.06
LOCATION	L0009765	VOLUME	251140.123	4071050.365	86.09
LOCATION	L0009766	VOLUME	251147.242	4071052.030	86.12
LOCATION	L0009767	VOLUME	251154.361	4071053.695	86.14
LOCATION	L0009768	VOLUME	251161.480	4071055.360	86.16
LOCATION	L0009769	VOLUME	251168.599	4071057.025	86.18
LOCATION	L0009770	VOLUME	251175.718	4071058.691	86.20
LOCATION	L0009771	VOLUME	251182.837	4071060.356	86.22
LOCATION	L0009772	VOLUME	251189.955	4071062.021	86.24
LOCATION	L0009773	VOLUME	251197.074	4071063.686	86.26
LOCATION	L0009774	VOLUME	251204.193	4071065.351	86.28
LOCATION	L0009775	VOLUME	251211.312	4071067.016	86.30
LOCATION	L0009776	VOLUME	251218.431	4071068.682	86.32
LOCATION	L0009777	VOLUME	251225.550	4071070.347	86.35
LOCATION	L0009778	VOLUME	251232.669	4071072.012	86.43

LOCATION	L0009779	VOLUME	251239.788	4071073.677	86.51
LOCATION	L0009780	VOLUME	251246.907	4071075.342	86.58
LOCATION	L0009781	VOLUME	251254.026	4071077.007	86.65
LOCATION	L0009782	VOLUME	251261.145	4071078.673	86.71
LOCATION	L0009783	VOLUME	251268.264	4071080.338	86.77
LOCATION	L0009784	VOLUME	251275.383	4071082.003	86.83
LOCATION	L0009785	VOLUME	251282.502	4071083.668	86.89
LOCATION	L0009786	VOLUME	251289.621	4071085.333	86.94
LOCATION	L0009787	VOLUME	251296.780	4071086.814	86.98
LOCATION	L0009788	VOLUME	251303.950	4071088.240	87.00
LOCATION	L0009789	VOLUME	251311.121	4071089.667	87.00
LOCATION	L0009790	VOLUME	251318.291	4071091.093	87.00
LOCATION	L0009791	VOLUME	251325.462	4071092.519	87.00
LOCATION	L0009792	VOLUME	251332.633	4071093.946	87.00
LOCATION	L0009793	VOLUME	251339.803	4071095.372	87.00
LOCATION	L0009794	VOLUME	251346.974	4071096.798	87.00
LOCATION	L0009795	VOLUME	251354.145	4071098.224	87.00
LOCATION	L0009796	VOLUME	251361.315	4071099.651	87.00
LOCATION	L0009797	VOLUME	251368.486	4071101.077	87.00
LOCATION	L0009798	VOLUME	251375.657	4071102.503	87.00
LOCATION	L0009799	VOLUME	251382.827	4071103.929	87.00
LOCATION	L0009800	VOLUME	251389.998	4071105.356	87.00
LOCATION	L0009801	VOLUME	251397.168	4071106.782	87.00
LOCATION	L0009802	VOLUME	251404.339	4071108.208	87.00
LOCATION	L0009803	VOLUME	251411.510	4071109.634	87.00
LOCATION	L0009804	VOLUME	251418.680	4071111.061	87.00
LOCATION	L0009805	VOLUME	251425.851	4071112.487	87.00
LOCATION	L0009806	VOLUME	251433.022	4071113.913	87.00
LOCATION	L0009807	VOLUME	251440.192	4071115.339	87.00
LOCATION	L0009808	VOLUME	251447.363	4071116.766	87.00
LOCATION	L0009809	VOLUME	251454.534	4071118.192	87.00
LOCATION	L0009810	VOLUME	251461.704	4071119.618	87.00
LOCATION	L0009811	VOLUME	251468.875	4071121.045	87.00
LOCATION	L0009812	VOLUME	251476.045	4071122.471	87.00
LOCATION	L0009813	VOLUME	251483.216	4071123.897	87.00
LOCATION	L0009814	VOLUME	251490.387	4071125.323	87.01
LOCATION	L0009815	VOLUME	251497.557	4071126.750	87.02
LOCATION	L0009816	VOLUME	251504.728	4071128.176	87.04
LOCATION	L0009817	VOLUME	251511.899	4071129.602	87.06
LOCATION	L0009818	VOLUME	251519.069	4071131.028	87.09
LOCATION	L0009819	VOLUME	251526.240	4071132.455	87.13
LOCATION	L0009820	VOLUME	251533.411	4071133.881	87.23
LOCATION	L0009821	VOLUME	251540.581	4071135.307	87.33
LOCATION	L0009822	VOLUME	251547.752	4071136.733	87.42
LOCATION	L0009823	VOLUME	251554.922	4071138.160	87.51
LOCATION	L0009824	VOLUME	251562.093	4071139.586	87.60
LOCATION	L0009825	VOLUME	251569.264	4071141.012	87.68
LOCATION	L0009826	VOLUME	251576.434	4071142.438	87.76
LOCATION	L0009827	VOLUME	251583.605	4071143.865	87.84
LOCATION	L0009828	VOLUME	251590.776	4071145.291	87.92
LOCATION	L0009829	VOLUME	251597.946	4071146.717	87.99
LOCATION	L0009830	VOLUME	251605.117	4071148.144	88.08
LOCATION	L0009831	VOLUME	251612.287	4071149.570	88.17
LOCATION	L0009832	VOLUME	251619.458	4071150.996	88.27

LOCATION	L0009833	VOLUME	251626.629	4071152.422	88.36
LOCATION	L0009834	VOLUME	251633.799	4071153.849	88.46
LOCATION	L0009835	VOLUME	251640.970	4071155.275	88.55
LOCATION	L0009836	VOLUME	251648.141	4071156.701	88.65
LOCATION	L0009837	VOLUME	251655.311	4071158.127	88.75
LOCATION	L0009838	VOLUME	251662.482	4071159.554	88.84
LOCATION	L0009839	VOLUME	251669.740	4071160.397	88.94
LOCATION	L0009840	VOLUME	251677.014	4071161.130	89.02
LOCATION	L0009841	VOLUME	251684.288	4071161.864	89.06
LOCATION	L0009842	VOLUME	251691.562	4071162.597	89.11
LOCATION	L0009843	VOLUME	251698.837	4071163.331	89.16
LOCATION	L0009844	VOLUME	251706.111	4071164.064	89.22
LOCATION	L0009845	VOLUME	251713.385	4071164.798	89.27
LOCATION	L0009846	VOLUME	251720.659	4071165.531	89.33
LOCATION	L0009847	VOLUME	251727.933	4071166.265	89.39
LOCATION	L0009848	VOLUME	251735.208	4071166.999	89.45
LOCATION	L0009849	VOLUME	251742.482	4071167.732	89.51
LOCATION	L0009850	VOLUME	251749.756	4071168.466	89.57
LOCATION	L0009851	VOLUME	251757.030	4071169.199	89.62
LOCATION	L0009852	VOLUME	251764.304	4071169.933	89.67
LOCATION	L0009853	VOLUME	251771.579	4071170.666	89.72
LOCATION	L0009854	VOLUME	251778.853	4071171.400	89.77
LOCATION	L0009855	VOLUME	251786.127	4071172.133	89.81
LOCATION	L0009856	VOLUME	251793.401	4071172.867	89.85
LOCATION	L0009857	VOLUME	251800.676	4071173.600	89.89
LOCATION	L0009858	VOLUME	251807.950	4071174.334	89.93
LOCATION	L0009859	VOLUME	251815.224	4071175.067	89.96
LOCATION	L0009860	VOLUME	251822.498	4071175.801	89.99
LOCATION	L0009861	VOLUME	251829.772	4071176.535	90.00
LOCATION	L0009862	VOLUME	251837.047	4071177.268	90.00
LOCATION	L0009863	VOLUME	251844.321	4071178.002	90.00
LOCATION	L0009864	VOLUME	251851.595	4071178.735	90.00
LOCATION	L0009865	VOLUME	251858.869	4071179.469	90.00
LOCATION	L0009866	VOLUME	251866.143	4071180.202	90.00
LOCATION	L0009867	VOLUME	251873.418	4071180.936	90.00
LOCATION	L0009868	VOLUME	251880.692	4071181.669	90.00
LOCATION	L0009869	VOLUME	251887.966	4071182.403	90.00
LOCATION	L0009870	VOLUME	251895.240	4071183.136	90.00
LOCATION	L0009871	VOLUME	251902.515	4071183.870	90.04
LOCATION	L0009872	VOLUME	251909.789	4071184.603	90.12
LOCATION	L0009873	VOLUME	251917.063	4071185.337	90.20
LOCATION	L0009874	VOLUME	251924.337	4071186.070	90.28
LOCATION	L0009875	VOLUME	251931.611	4071186.804	90.37
LOCATION	L0009876	VOLUME	251938.886	4071187.538	90.45
LOCATION	L0009877	VOLUME	251946.160	4071188.271	90.54
LOCATION	L0009878	VOLUME	251953.434	4071189.005	90.63
LOCATION	L0009879	VOLUME	251960.708	4071189.738	90.72
LOCATION	L0009880	VOLUME	251967.982	4071190.472	90.82
LOCATION	L0009881	VOLUME	251975.257	4071191.205	90.89
LOCATION	L0009882	VOLUME	251982.531	4071191.939	90.91
LOCATION	L0009883	VOLUME	251989.805	4071192.672	90.93
LOCATION	L0009884	VOLUME	251997.079	4071193.406	90.94
LOCATION	L0009885	VOLUME	252004.353	4071194.139	90.96
LOCATION	L0009886	VOLUME	252011.628	4071194.873	90.97

LOCATION	L0009887	VOLUME	252018.902	4071195.606	90.98
LOCATION	L0009888	VOLUME	252026.176	4071196.340	90.99
LOCATION	L0009889	VOLUME	252033.450	4071197.073	90.99
LOCATION	L0009890	VOLUME	252040.725	4071197.807	91.00
LOCATION	L0009891	VOLUME	252047.999	4071198.541	91.00
LOCATION	L0009892	VOLUME	252055.273	4071199.274	91.00
LOCATION	L0009893	VOLUME	252062.547	4071200.008	91.00
LOCATION	L0009894	VOLUME	252069.821	4071200.741	91.00
LOCATION	L0009895	VOLUME	252077.096	4071201.475	91.00
LOCATION	L0009896	VOLUME	252084.370	4071202.208	91.00
LOCATION	L0009897	VOLUME	252091.644	4071202.942	91.00
LOCATION	L0009898	VOLUME	252098.918	4071203.675	91.00
LOCATION	L0009899	VOLUME	252106.192	4071204.409	91.00
LOCATION	L0009900	VOLUME	252113.467	4071205.142	91.00
LOCATION	L0009901	VOLUME	252120.741	4071205.876	91.00
LOCATION	L0009902	VOLUME	252128.015	4071206.609	91.00
LOCATION	L0009903	VOLUME	252135.289	4071207.343	91.00
LOCATION	L0009904	VOLUME	252142.563	4071208.076	91.00
LOCATION	L0009905	VOLUME	252149.832	4071208.858	91.00
LOCATION	L0009906	VOLUME	252157.093	4071209.714	91.00
LOCATION	L0009907	VOLUME	252164.354	4071210.570	91.00
LOCATION	L0009908	VOLUME	252171.615	4071211.426	91.00
LOCATION	L0009909	VOLUME	252178.876	4071212.283	91.00
LOCATION	L0009910	VOLUME	252186.136	4071213.139	91.00
LOCATION	L0009911	VOLUME	252193.397	4071213.995	91.00
LOCATION	L0009912	VOLUME	252200.658	4071214.851	91.00
LOCATION	L0009913	VOLUME	252207.919	4071215.707	91.00
LOCATION	L0009914	VOLUME	252215.180	4071216.563	91.00
LOCATION	L0009915	VOLUME	252222.441	4071217.419	91.00
LOCATION	L0009916	VOLUME	252229.701	4071218.275	91.00
LOCATION	L0009917	VOLUME	252236.962	4071219.131	91.00
LOCATION	L0009918	VOLUME	252244.223	4071219.987	91.00
LOCATION	L0009919	VOLUME	252251.484	4071220.843	91.00
LOCATION	L0009920	VOLUME	252258.745	4071221.699	91.00
LOCATION	L0009921	VOLUME	252266.005	4071222.555	91.00
LOCATION	L0009922	VOLUME	252273.266	4071223.412	91.00
LOCATION	L0009923	VOLUME	252280.527	4071224.268	91.00
LOCATION	L0009924	VOLUME	252287.788	4071225.124	91.00
LOCATION	L0009925	VOLUME	252295.049	4071225.980	91.00
LOCATION	L0009926	VOLUME	252302.309	4071226.836	91.00
LOCATION	L0009927	VOLUME	252309.570	4071227.692	91.00
LOCATION	L0009928	VOLUME	252316.831	4071228.548	91.00
LOCATION	L0009929	VOLUME	252324.092	4071229.404	91.00
LOCATION	L0009930	VOLUME	252331.353	4071230.260	91.00
LOCATION	L0009931	VOLUME	252338.613	4071231.116	91.00
LOCATION	L0009932	VOLUME	252345.874	4071231.972	91.00
LOCATION	L0009933	VOLUME	252353.135	4071232.828	91.00
LOCATION	L0009934	VOLUME	252360.396	4071233.684	91.00
LOCATION	L0009935	VOLUME	252367.657	4071234.541	91.00
LOCATION	L0009936	VOLUME	252374.918	4071235.397	91.00
LOCATION	L0009937	VOLUME	252382.178	4071236.253	91.00
LOCATION	L0009938	VOLUME	252389.439	4071237.109	91.00
LOCATION	L0009939	VOLUME	252396.700	4071237.965	91.00
LOCATION	L0009940	VOLUME	252403.961	4071238.821	91.00

LOCATION	L0009941	VOLUME	252411.222	4071239.677	91.00
LOCATION	L0009942	VOLUME	252418.482	4071240.533	91.00
LOCATION	L0009943	VOLUME	252425.743	4071241.389	91.00
LOCATION	L0009944	VOLUME	252433.004	4071242.245	91.00
LOCATION	L0009945	VOLUME	252440.265	4071243.101	91.00
LOCATION	L0009946	VOLUME	252447.526	4071243.957	91.00
LOCATION	L0009947	VOLUME	252454.786	4071244.813	91.00
LOCATION	L0009948	VOLUME	252462.047	4071245.670	91.00
LOCATION	L0009949	VOLUME	252469.308	4071246.526	91.00
LOCATION	L0009950	VOLUME	252476.569	4071247.382	91.00
LOCATION	L0009951	VOLUME	252483.830	4071248.238	91.00
LOCATION	L0009952	VOLUME	252491.090	4071249.094	91.00
LOCATION	L0009953	VOLUME	252498.351	4071249.950	91.00
LOCATION	L0009954	VOLUME	252505.612	4071250.806	91.00
LOCATION	L0009955	VOLUME	252512.873	4071251.662	91.00
LOCATION	L0009956	VOLUME	252520.134	4071252.518	91.00
LOCATION	L0009957	VOLUME	252527.395	4071253.374	91.00
LOCATION	L0009958	VOLUME	252534.655	4071254.230	91.00
LOCATION	L0009959	VOLUME	252541.916	4071255.086	91.00
LOCATION	L0009960	VOLUME	252549.177	4071255.942	91.00
LOCATION	L0009961	VOLUME	252556.438	4071256.799	91.00
LOCATION	L0009962	VOLUME	252563.699	4071257.655	91.00
LOCATION	L0009963	VOLUME	252570.959	4071258.511	91.00
LOCATION	L0009964	VOLUME	252578.220	4071259.367	91.00
LOCATION	L0009965	VOLUME	252585.481	4071260.223	91.00
LOCATION	L0009966	VOLUME	252592.742	4071261.079	91.00
LOCATION	L0009967	VOLUME	252600.003	4071261.935	91.00
LOCATION	L0009968	VOLUME	252607.263	4071262.791	91.00
LOCATION	L0009969	VOLUME	252614.541	4071263.350	91.00
LOCATION	L0009970	VOLUME	252621.852	4071263.333	91.00
LOCATION	L0009971	VOLUME	252629.163	4071263.315	91.00
LOCATION	L0009972	VOLUME	252636.475	4071263.297	91.00
LOCATION	L0009973	VOLUME	252643.786	4071263.279	91.00
LOCATION	L0009974	VOLUME	252651.097	4071263.261	91.00
LOCATION	L0009975	VOLUME	252658.408	4071263.244	91.00
LOCATION	L0009976	VOLUME	252665.719	4071263.226	91.00
LOCATION	L0009977	VOLUME	252673.030	4071263.208	91.00
LOCATION	L0009978	VOLUME	252680.341	4071263.190	91.00
LOCATION	L0009979	VOLUME	252687.652	4071263.172	91.00
LOCATION	L0009980	VOLUME	252694.963	4071263.155	91.00
LOCATION	L0009981	VOLUME	252702.274	4071263.137	91.00
LOCATION	L0009982	VOLUME	252709.585	4071263.119	91.00
LOCATION	L0009983	VOLUME	252716.896	4071263.101	91.00
LOCATION	L0009984	VOLUME	252724.207	4071263.083	91.00
LOCATION	L0009985	VOLUME	252731.519	4071263.065	91.00
LOCATION	L0009986	VOLUME	252738.830	4071263.048	91.00
LOCATION	L0009987	VOLUME	252746.141	4071263.030	91.00
LOCATION	L0009988	VOLUME	252753.452	4071263.012	91.00
LOCATION	L0009989	VOLUME	252760.763	4071262.994	91.00
LOCATION	L0009990	VOLUME	252768.074	4071262.976	91.00
LOCATION	L0009991	VOLUME	252775.385	4071262.959	91.00
LOCATION	L0009992	VOLUME	252782.696	4071262.941	91.00
LOCATION	L0009993	VOLUME	252790.007	4071262.923	91.00
LOCATION	L0009994	VOLUME	252797.318	4071262.905	91.00

LOCATION	L0009995	VOLUME	252804.629	4071262.887	91.00
LOCATION	L0009996	VOLUME	252811.940	4071262.869	91.00
LOCATION	L0009997	VOLUME	252819.252	4071262.852	91.00
LOCATION	L0009998	VOLUME	252826.563	4071262.834	91.00
LOCATION	L0009999	VOLUME	252833.874	4071262.816	91.00
LOCATION	L0010000	VOLUME	252841.185	4071262.798	91.00
LOCATION	L0010001	VOLUME	252848.496	4071262.780	91.00
LOCATION	L0010002	VOLUME	252855.807	4071262.763	91.00
LOCATION	L0010003	VOLUME	252863.118	4071262.745	91.00
LOCATION	L0010004	VOLUME	252870.429	4071262.727	91.00
LOCATION	L0010005	VOLUME	252877.740	4071262.709	91.00
LOCATION	L0010006	VOLUME	252885.051	4071262.691	91.00
LOCATION	L0010007	VOLUME	252892.362	4071262.674	91.00
LOCATION	L0010008	VOLUME	252899.673	4071262.656	91.00
LOCATION	L0010009	VOLUME	252906.985	4071262.638	91.00
LOCATION	L0010010	VOLUME	252914.296	4071262.620	91.00
LOCATION	L0010011	VOLUME	252921.607	4071262.602	91.00
LOCATION	L0010012	VOLUME	252928.918	4071262.584	91.00
LOCATION	L0010013	VOLUME	252936.229	4071262.567	91.00
LOCATION	L0010014	VOLUME	252943.540	4071262.549	91.00
LOCATION	L0010015	VOLUME	252950.851	4071262.531	91.00
LOCATION	L0010016	VOLUME	252958.162	4071262.513	91.00
LOCATION	L0010017	VOLUME	252965.473	4071262.495	91.00
LOCATION	L0010018	VOLUME	252972.784	4071262.478	91.00
LOCATION	L0010019	VOLUME	252980.095	4071262.460	91.00
LOCATION	L0010020	VOLUME	252987.406	4071262.442	91.00
LOCATION	L0010021	VOLUME	252994.717	4071262.424	91.00
LOCATION	L0010022	VOLUME	253002.029	4071262.406	91.00
LOCATION	L0010023	VOLUME	253009.340	4071262.388	91.00
LOCATION	L0010024	VOLUME	253016.651	4071262.371	91.00
LOCATION	L0010025	VOLUME	253023.962	4071262.353	91.00
LOCATION	L0010026	VOLUME	253031.273	4071262.335	91.00
LOCATION	L0010027	VOLUME	253038.584	4071262.317	91.00
LOCATION	L0010028	VOLUME	253045.895	4071262.299	91.00
LOCATION	L0010029	VOLUME	253053.206	4071262.282	91.00
LOCATION	L0010030	VOLUME	253060.517	4071262.264	91.00
LOCATION	L0010031	VOLUME	253067.828	4071262.246	91.00
LOCATION	L0010032	VOLUME	253075.139	4071262.228	91.00
LOCATION	L0010033	VOLUME	253082.450	4071262.210	91.00
LOCATION	L0010034	VOLUME	253089.762	4071262.192	91.00
LOCATION	L0010035	VOLUME	253097.073	4071262.175	91.00
LOCATION	L0010036	VOLUME	253104.384	4071262.157	91.00
LOCATION	L0010037	VOLUME	253111.695	4071262.139	91.00
LOCATION	L0010038	VOLUME	253119.006	4071262.121	91.00
LOCATION	L0010039	VOLUME	253126.317	4071262.103	91.00
LOCATION	L0010040	VOLUME	253133.628	4071262.086	91.00
LOCATION	L0010041	VOLUME	253140.939	4071262.068	91.00
LOCATION	L0010042	VOLUME	253148.249	4071261.964	91.00
LOCATION	L0010043	VOLUME	253155.556	4071261.718	91.00
LOCATION	L0010044	VOLUME	253162.863	4071261.472	91.00
LOCATION	L0010045	VOLUME	253170.170	4071261.226	91.00
LOCATION	L0010046	VOLUME	253177.477	4071260.981	91.00
LOCATION	L0010047	VOLUME	253184.783	4071260.735	91.00
LOCATION	L0010048	VOLUME	253192.090	4071260.489	91.00

LOCATION	L0010049	VOLUME	253199.397	4071260.243	91.00
LOCATION	L0010050	VOLUME	253206.704	4071259.997	91.00
LOCATION	L0010051	VOLUME	253214.011	4071259.751	91.00
LOCATION	L0010052	VOLUME	253221.318	4071259.505	91.00
LOCATION	L0010053	VOLUME	253228.625	4071259.260	91.00
LOCATION	L0010054	VOLUME	253235.932	4071259.014	91.00
LOCATION	L0010055	VOLUME	253243.239	4071258.768	91.00
LOCATION	L0010056	VOLUME	253250.546	4071258.522	91.00
LOCATION	L0010057	VOLUME	253257.853	4071258.276	91.00
LOCATION	L0010058	VOLUME	253265.160	4071258.030	91.00
LOCATION	L0010059	VOLUME	253272.467	4071257.784	91.00
LOCATION	L0010060	VOLUME	253279.774	4071257.539	91.00
LOCATION	L0010061	VOLUME	253287.081	4071257.293	91.00
LOCATION	L0010062	VOLUME	253294.388	4071257.047	91.00
LOCATION	L0010063	VOLUME	253301.695	4071256.801	91.00
LOCATION	L0010064	VOLUME	253309.002	4071256.555	91.00
LOCATION	L0010065	VOLUME	253316.309	4071256.309	91.00
LOCATION	L0010066	VOLUME	253323.616	4071256.063	91.00
LOCATION	L0010067	VOLUME	253330.923	4071255.818	91.00
LOCATION	L0010068	VOLUME	253338.230	4071255.572	91.00
LOCATION	L0010069	VOLUME	253345.537	4071255.326	91.00
LOCATION	L0010070	VOLUME	253352.844	4071255.080	91.00
LOCATION	L0010071	VOLUME	253360.151	4071254.834	91.00
LOCATION	L0010072	VOLUME	253367.458	4071254.588	91.00
LOCATION	L0010073	VOLUME	253374.765	4071254.342	91.00
LOCATION	L0010074	VOLUME	253382.072	4071254.097	91.00
LOCATION	L0010075	VOLUME	253389.379	4071253.851	91.00
LOCATION	L0010076	VOLUME	253396.686	4071253.605	91.00
LOCATION	L0010077	VOLUME	253403.993	4071253.359	91.00
LOCATION	L0010078	VOLUME	253411.299	4071253.113	91.00
LOCATION	L0010079	VOLUME	253418.606	4071252.867	91.00
LOCATION	L0010080	VOLUME	253425.913	4071252.621	91.00
LOCATION	L0010081	VOLUME	253433.220	4071252.376	91.00
LOCATION	L0010082	VOLUME	253440.527	4071252.130	91.00
LOCATION	L0010083	VOLUME	253447.834	4071251.884	91.00
LOCATION	L0010084	VOLUME	253455.141	4071251.638	91.00
LOCATION	L0010085	VOLUME	253462.448	4071251.392	91.00
LOCATION	L0010086	VOLUME	253469.755	4071251.146	91.00
LOCATION	L0010087	VOLUME	253477.062	4071250.900	91.00
LOCATION	L0010088	VOLUME	253484.369	4071250.655	91.00
LOCATION	L0010089	VOLUME	253491.676	4071250.409	91.00
LOCATION	L0010090	VOLUME	253498.983	4071250.163	91.00
LOCATION	L0010091	VOLUME	253506.290	4071249.917	91.00
LOCATION	L0010092	VOLUME	253513.597	4071249.671	91.00
LOCATION	L0010093	VOLUME	253520.904	4071249.425	91.00
LOCATION	L0010094	VOLUME	253528.211	4071249.179	91.00
LOCATION	L0010095	VOLUME	253535.518	4071248.934	91.00
LOCATION	L0010096	VOLUME	253542.825	4071248.688	91.00
LOCATION	L0010097	VOLUME	253550.132	4071248.442	91.00
LOCATION	L0010098	VOLUME	253557.439	4071248.196	91.00
LOCATION	L0010099	VOLUME	253564.746	4071247.950	91.00
LOCATION	L0010100	VOLUME	253572.053	4071247.704	91.00
LOCATION	L0010101	VOLUME	253579.360	4071247.458	91.00
LOCATION	L0010102	VOLUME	253586.667	4071247.213	91.00

LOCATION	L0010103	VOLUME	253593.974	4071246.967	91.00
LOCATION	L0010104	VOLUME	253601.281	4071246.721	91.00
LOCATION	L0010105	VOLUME	253608.588	4071246.475	91.00
LOCATION	L0010106	VOLUME	253615.895	4071246.229	91.00
LOCATION	L0010107	VOLUME	253623.202	4071245.983	91.00
LOCATION	L0010108	VOLUME	253630.509	4071245.737	91.00
LOCATION	L0010109	VOLUME	253637.815	4071245.492	91.00
LOCATION	L0010110	VOLUME	253645.122	4071245.246	91.00
LOCATION	L0010111	VOLUME	253652.429	4071245.000	91.00
LOCATION	L0010112	VOLUME	253659.736	4071244.754	91.00
LOCATION	L0010113	VOLUME	253667.043	4071244.508	91.00
LOCATION	L0010114	VOLUME	253674.350	4071244.262	91.00
LOCATION	L0010115	VOLUME	253681.657	4071244.016	91.00
LOCATION	L0010116	VOLUME	253688.964	4071243.771	91.00
LOCATION	L0010117	VOLUME	253696.271	4071243.525	91.00
LOCATION	L0010118	VOLUME	253703.578	4071243.279	91.00
LOCATION	L0010119	VOLUME	253710.885	4071243.033	91.00
LOCATION	L0010120	VOLUME	253718.192	4071242.787	91.00
LOCATION	L0010121	VOLUME	253725.499	4071242.541	91.00
LOCATION	L0010122	VOLUME	253732.806	4071242.295	91.00
LOCATION	L0010123	VOLUME	253740.113	4071242.050	91.00
LOCATION	L0010124	VOLUME	253747.420	4071241.804	91.00
LOCATION	L0010125	VOLUME	253754.727	4071241.558	91.00
LOCATION	L0010126	VOLUME	253762.034	4071241.312	91.00
LOCATION	L0010127	VOLUME	253769.341	4071241.066	91.00
LOCATION	L0010128	VOLUME	253776.648	4071240.820	91.00
LOCATION	L0010129	VOLUME	253783.955	4071240.574	91.00
LOCATION	L0010130	VOLUME	253791.262	4071240.329	91.00
LOCATION	L0010131	VOLUME	253798.569	4071240.083	91.00
LOCATION	L0010132	VOLUME	253805.876	4071239.837	91.00
LOCATION	L0010133	VOLUME	253813.183	4071239.591	91.00
LOCATION	L0010134	VOLUME	253820.490	4071239.345	91.00
LOCATION	L0010135	VOLUME	253827.797	4071239.099	91.00
LOCATION	L0010136	VOLUME	253835.104	4071238.854	91.00
LOCATION	L0010137	VOLUME	253842.411	4071238.608	91.00
LOCATION	L0010138	VOLUME	253849.718	4071238.362	91.00
LOCATION	L0010139	VOLUME	253857.025	4071238.116	91.00
LOCATION	L0010140	VOLUME	253864.331	4071237.870	91.00
LOCATION	L0010141	VOLUME	253871.640	4071237.670	91.00
LOCATION	L0010142	VOLUME	253878.949	4071237.500	91.00
LOCATION	L0010143	VOLUME	253886.258	4071237.330	91.00
LOCATION	L0010144	VOLUME	253893.567	4071237.159	91.00
LOCATION	L0010145	VOLUME	253900.876	4071236.989	91.00
LOCATION	L0010146	VOLUME	253908.185	4071236.819	91.00
LOCATION	L0010147	VOLUME	253915.494	4071236.648	91.00
LOCATION	L0010148	VOLUME	253922.804	4071236.478	91.00
LOCATION	L0010149	VOLUME	253930.113	4071236.308	91.00
LOCATION	L0010150	VOLUME	253937.422	4071236.137	91.00
LOCATION	L0010151	VOLUME	253944.731	4071235.967	91.00
LOCATION	L0010152	VOLUME	253952.040	4071235.796	91.00
LOCATION	L0010153	VOLUME	253959.349	4071235.626	91.00
LOCATION	L0010154	VOLUME	253966.658	4071235.456	91.00
LOCATION	L0010155	VOLUME	253973.967	4071235.285	91.00
LOCATION	L0010156	VOLUME	253981.277	4071235.115	91.00

LOCATION	L0010157	VOLUME	253988.586	4071234.945	91.00
LOCATION	L0010158	VOLUME	253995.895	4071234.774	91.00
LOCATION	L0010159	VOLUME	254003.204	4071234.604	91.00
LOCATION	L0010160	VOLUME	254010.513	4071234.434	91.00
LOCATION	L0010161	VOLUME	254017.822	4071234.263	91.00
LOCATION	L0010162	VOLUME	254025.131	4071234.093	91.00
LOCATION	L0010163	VOLUME	254032.440	4071233.922	91.00
LOCATION	L0010164	VOLUME	254039.749	4071233.752	91.00
LOCATION	L0010165	VOLUME	254047.059	4071233.582	91.00
LOCATION	L0010166	VOLUME	254054.368	4071233.411	91.00
LOCATION	L0010167	VOLUME	254061.677	4071233.241	91.00
LOCATION	L0010168	VOLUME	254068.986	4071233.071	91.00
LOCATION	L0010169	VOLUME	254076.295	4071232.900	91.00
LOCATION	L0010170	VOLUME	254083.604	4071232.730	91.00
LOCATION	L0010171	VOLUME	254090.913	4071232.560	91.00
LOCATION	L0010172	VOLUME	254098.222	4071232.389	91.00
LOCATION	L0010173	VOLUME	254105.532	4071232.219	91.00
LOCATION	L0010174	VOLUME	254112.841	4071232.048	91.00
LOCATION	L0010175	VOLUME	254120.150	4071231.878	91.00
LOCATION	L0010176	VOLUME	254127.459	4071231.708	91.00
LOCATION	L0010177	VOLUME	254134.768	4071231.537	91.00
LOCATION	L0010178	VOLUME	254142.077	4071231.367	91.00
LOCATION	L0010179	VOLUME	254149.386	4071231.197	91.00
LOCATION	L0010180	VOLUME	254156.695	4071231.026	91.00
LOCATION	L0010181	VOLUME	254164.004	4071230.856	91.00
LOCATION	L0010182	VOLUME	254171.314	4071230.686	91.00
LOCATION	L0010183	VOLUME	254178.623	4071230.515	91.00
LOCATION	L0010184	VOLUME	254185.932	4071230.345	91.00
LOCATION	L0010185	VOLUME	254193.241	4071230.174	91.00
LOCATION	L0010186	VOLUME	254200.550	4071230.004	91.00
LOCATION	L0010187	VOLUME	254207.859	4071229.834	91.00
LOCATION	L0010188	VOLUME	254215.168	4071229.663	91.00
LOCATION	L0010189	VOLUME	254222.477	4071229.493	91.00
LOCATION	L0010190	VOLUME	254229.787	4071229.323	91.00
LOCATION	L0010191	VOLUME	254237.096	4071229.152	91.00
LOCATION	L0010192	VOLUME	254244.405	4071228.982	91.00
LOCATION	L0010193	VOLUME	254251.714	4071228.812	91.00
LOCATION	L0010194	VOLUME	254259.023	4071228.641	91.00
LOCATION	L0010195	VOLUME	254266.332	4071228.471	91.00
LOCATION	L0010196	VOLUME	254273.641	4071228.300	91.00
LOCATION	L0010197	VOLUME	254280.950	4071228.130	91.00
LOCATION	L0010198	VOLUME	254288.259	4071227.960	91.00
LOCATION	L0010199	VOLUME	254295.569	4071227.789	91.00
LOCATION	L0010200	VOLUME	254302.878	4071227.619	91.00
LOCATION	L0010201	VOLUME	254310.187	4071227.449	91.00
LOCATION	L0010202	VOLUME	254317.496	4071227.278	91.00
LOCATION	L0010203	VOLUME	254324.805	4071227.108	91.00
LOCATION	L0010204	VOLUME	254332.114	4071226.937	91.00
LOCATION	L0010205	VOLUME	254339.423	4071226.767	91.00
LOCATION	L0010206	VOLUME	254346.732	4071226.597	91.00
LOCATION	L0010207	VOLUME	254354.042	4071226.426	91.00
LOCATION	L0010208	VOLUME	254361.351	4071226.256	91.00
LOCATION	L0010209	VOLUME	254368.660	4071226.086	91.00
LOCATION	L0010210	VOLUME	254375.969	4071225.915	91.00

LOCATION	L0010211	VOLUME	254383.278	4071225.745	91.00
LOCATION	L0010212	VOLUME	254390.587	4071225.575	91.00
LOCATION	L0010213	VOLUME	254397.896	4071225.404	91.00
LOCATION	L0010214	VOLUME	254405.205	4071225.234	91.00
LOCATION	L0010215	VOLUME	254412.514	4071225.063	91.00
LOCATION	L0010216	VOLUME	254419.824	4071224.893	91.00
LOCATION	L0010217	VOLUME	254427.133	4071224.723	91.00
LOCATION	L0010218	VOLUME	254434.442	4071224.552	91.00
LOCATION	L0010219	VOLUME	254441.751	4071224.382	91.00
LOCATION	L0010220	VOLUME	254449.060	4071224.212	91.00
LOCATION	L0010221	VOLUME	254456.369	4071224.041	91.00
LOCATION	L0010222	VOLUME	254463.678	4071223.871	91.00
LOCATION	L0010223	VOLUME	254470.987	4071223.701	91.00
LOCATION	L0010224	VOLUME	254478.297	4071223.530	91.00
LOCATION	L0010225	VOLUME	254485.606	4071223.360	91.00
LOCATION	L0010226	VOLUME	254492.915	4071223.189	91.00
LOCATION	L0010227	VOLUME	254500.224	4071223.019	91.00
LOCATION	L0010228	VOLUME	254507.533	4071222.849	91.00
LOCATION	L0010229	VOLUME	254514.842	4071222.678	91.00
LOCATION	L0010230	VOLUME	254522.151	4071222.508	91.00
LOCATION	L0010231	VOLUME	254529.460	4071222.338	91.00
LOCATION	L0010232	VOLUME	254536.769	4071222.167	91.00
LOCATION	L0010233	VOLUME	254544.079	4071221.997	91.00
LOCATION	L0010234	VOLUME	254551.388	4071221.827	91.00
LOCATION	L0010235	VOLUME	254558.697	4071221.656	91.00
LOCATION	L0010236	VOLUME	254566.006	4071221.486	91.00
LOCATION	L0010237	VOLUME	254573.315	4071221.315	91.00
LOCATION	L0010238	VOLUME	254580.624	4071221.145	91.00
LOCATION	L0010239	VOLUME	254587.933	4071220.975	91.00
LOCATION	L0010240	VOLUME	254595.242	4071220.804	91.00
LOCATION	L0010241	VOLUME	254602.552	4071220.634	91.00
LOCATION	L0010242	VOLUME	254609.861	4071220.464	91.00
LOCATION	L0010243	VOLUME	254617.170	4071220.293	91.00
LOCATION	L0010244	VOLUME	254624.479	4071220.123	91.00
LOCATION	L0010245	VOLUME	254631.788	4071219.953	91.00
LOCATION	L0010246	VOLUME	254639.097	4071219.782	91.00
LOCATION	L0010247	VOLUME	254646.406	4071219.612	91.00
LOCATION	L0010248	VOLUME	254653.715	4071219.441	91.00
LOCATION	L0010249	VOLUME	254661.024	4071219.271	91.00
LOCATION	L0010250	VOLUME	254668.334	4071219.101	91.00
LOCATION	L0010251	VOLUME	254675.643	4071218.930	91.00
LOCATION	L0010252	VOLUME	254682.952	4071218.760	91.00
LOCATION	L0010253	VOLUME	254690.261	4071218.590	91.00
LOCATION	L0010254	VOLUME	254697.570	4071218.419	91.00
LOCATION	L0010255	VOLUME	254704.879	4071218.249	91.00
LOCATION	L0010256	VOLUME	254712.188	4071218.079	91.00
LOCATION	L0010257	VOLUME	254719.497	4071217.908	91.00
LOCATION	L0010258	VOLUME	254726.806	4071217.738	91.00
LOCATION	L0010259	VOLUME	254734.116	4071217.567	91.00
LOCATION	L0010260	VOLUME	254741.425	4071217.397	91.00
LOCATION	L0010261	VOLUME	254748.734	4071217.227	91.00
LOCATION	L0010262	VOLUME	254756.043	4071217.056	91.00
LOCATION	L0010263	VOLUME	254763.352	4071216.886	91.00
LOCATION	L0010264	VOLUME	254770.661	4071216.716	91.00

LOCATION	L0010265	VOLUME	254777.970	4071216.545	91.00
LOCATION	L0010266	VOLUME	254785.279	4071216.375	91.00
LOCATION	L0010267	VOLUME	254792.589	4071216.205	91.00
LOCATION	L0010268	VOLUME	254799.898	4071216.034	91.00
LOCATION	L0010269	VOLUME	254807.207	4071215.864	91.00
LOCATION	L0010270	VOLUME	254814.516	4071215.693	91.00
LOCATION	L0010271	VOLUME	254821.825	4071215.523	91.00
LOCATION	L0010272	VOLUME	254829.134	4071215.353	91.00
LOCATION	L0010273	VOLUME	254836.443	4071215.182	91.00
LOCATION	L0010274	VOLUME	254843.752	4071215.012	91.00
LOCATION	L0010275	VOLUME	254851.061	4071214.842	91.00
LOCATION	L0010276	VOLUME	254858.371	4071214.671	91.00
LOCATION	L0010277	VOLUME	254865.680	4071214.501	91.00
LOCATION	L0010278	VOLUME	254872.989	4071214.331	91.00
LOCATION	L0010279	VOLUME	254880.298	4071214.160	91.00
LOCATION	L0010280	VOLUME	254887.607	4071213.990	91.00
LOCATION	L0010281	VOLUME	254894.916	4071213.819	91.00
LOCATION	L0010282	VOLUME	254902.225	4071213.649	91.00
LOCATION	L0010283	VOLUME	254909.534	4071213.479	91.00
LOCATION	L0010284	VOLUME	254916.844	4071213.308	91.00
LOCATION	L0010285	VOLUME	254924.153	4071213.138	91.00
LOCATION	L0010286	VOLUME	254931.462	4071212.968	91.00
LOCATION	L0010287	VOLUME	254938.771	4071212.797	91.00
LOCATION	L0010288	VOLUME	254946.080	4071212.627	91.00
LOCATION	L0010289	VOLUME	254953.389	4071212.456	91.00
LOCATION	L0010290	VOLUME	254960.698	4071212.286	91.00
LOCATION	L0010291	VOLUME	254968.007	4071212.116	91.00
LOCATION	L0010292	VOLUME	254975.316	4071211.945	91.00
LOCATION	L0010293	VOLUME	254982.626	4071211.775	91.00
LOCATION	L0010294	VOLUME	254989.935	4071211.605	91.00
LOCATION	L0010295	VOLUME	254997.242	4071211.372	91.00
LOCATION	L0010296	VOLUME	255004.547	4071211.081	91.00
LOCATION	L0010297	VOLUME	255011.853	4071210.791	91.00
LOCATION	L0010298	VOLUME	255019.158	4071210.500	91.00
LOCATION	L0010299	VOLUME	255026.463	4071210.210	91.00
LOCATION	L0010300	VOLUME	255033.769	4071209.919	91.00
LOCATION	L0010301	VOLUME	255041.074	4071209.629	91.00
LOCATION	L0010302	VOLUME	255048.379	4071209.338	91.00
LOCATION	L0010303	VOLUME	255055.685	4071209.048	91.00
LOCATION	L0010304	VOLUME	255062.990	4071208.757	91.00
LOCATION	L0010305	VOLUME	255070.295	4071208.467	91.00
LOCATION	L0010306	VOLUME	255077.600	4071208.176	91.00
LOCATION	L0010307	VOLUME	255084.906	4071207.886	91.00
LOCATION	L0010308	VOLUME	255092.211	4071207.595	91.00
LOCATION	L0010309	VOLUME	255099.516	4071207.305	91.00
LOCATION	L0010310	VOLUME	255106.822	4071207.014	91.00
LOCATION	L0010311	VOLUME	255114.127	4071206.724	91.00
LOCATION	L0010312	VOLUME	255121.432	4071206.433	91.00
LOCATION	L0010313	VOLUME	255128.738	4071206.143	91.00
LOCATION	L0010314	VOLUME	255136.043	4071205.852	91.00
LOCATION	L0010315	VOLUME	255143.348	4071205.562	91.00
LOCATION	L0010316	VOLUME	255150.654	4071205.271	91.00
LOCATION	L0010317	VOLUME	255157.959	4071204.981	91.00
LOCATION	L0010318	VOLUME	255165.264	4071204.690	91.00

LOCATION	L0010319	VOLUME	255172.570	4071204.400	91.00
LOCATION	L0010320	VOLUME	255179.875	4071204.109	91.00
LOCATION	L0010321	VOLUME	255187.180	4071203.819	91.00
LOCATION	L0010322	VOLUME	255194.486	4071203.528	91.00
LOCATION	L0010323	VOLUME	255201.791	4071203.238	91.00
LOCATION	L0010324	VOLUME	255209.096	4071202.947	91.00
LOCATION	L0010325	VOLUME	255216.402	4071202.657	91.00
LOCATION	L0010326	VOLUME	255223.707	4071202.366	91.00
LOCATION	L0010327	VOLUME	255231.012	4071202.076	91.00
LOCATION	L0010328	VOLUME	255238.318	4071201.785	91.00
LOCATION	L0010329	VOLUME	255245.623	4071201.495	91.00
LOCATION	L0010330	VOLUME	255252.928	4071201.204	91.00
LOCATION	L0010331	VOLUME	255260.234	4071200.914	91.00
LOCATION	L0010332	VOLUME	255267.539	4071200.623	91.00
LOCATION	L0010333	VOLUME	255274.844	4071200.333	91.00
LOCATION	L0010334	VOLUME	255282.150	4071200.042	91.00
LOCATION	L0010335	VOLUME	255289.455	4071199.752	91.00
LOCATION	L0010336	VOLUME	255296.760	4071199.461	91.00
LOCATION	L0010337	VOLUME	255304.066	4071199.171	91.00
LOCATION	L0010338	VOLUME	255311.371	4071198.880	91.00
LOCATION	L0010339	VOLUME	255318.676	4071198.590	91.00
LOCATION	L0010340	VOLUME	255325.982	4071198.299	91.00
LOCATION	L0010341	VOLUME	255333.287	4071198.009	91.00
LOCATION	L0010342	VOLUME	255340.592	4071197.718	91.00
LOCATION	L0010343	VOLUME	255347.898	4071197.428	91.00
LOCATION	L0010344	VOLUME	255355.203	4071197.137	91.00
LOCATION	L0010345	VOLUME	255362.508	4071196.847	91.00
LOCATION	L0010346	VOLUME	255369.814	4071196.556	91.00
LOCATION	L0010347	VOLUME	255377.119	4071196.266	91.00
LOCATION	L0010348	VOLUME	255384.424	4071195.975	91.00
LOCATION	L0010349	VOLUME	255391.730	4071195.685	91.00
LOCATION	L0010350	VOLUME	255399.035	4071195.394	91.00
LOCATION	L0010351	VOLUME	255406.340	4071195.104	91.00
LOCATION	L0010352	VOLUME	255413.646	4071194.813	91.00
LOCATION	L0010353	VOLUME	255420.951	4071194.523	91.00
LOCATION	L0010354	VOLUME	255428.256	4071194.232	91.00
LOCATION	L0010355	VOLUME	255435.562	4071193.942	91.00
LOCATION	L0010356	VOLUME	255442.867	4071193.651	91.00
LOCATION	L0010357	VOLUME	255450.172	4071193.361	91.00
LOCATION	L0010358	VOLUME	255457.478	4071193.070	91.00
LOCATION	L0010359	VOLUME	255464.783	4071192.780	91.00
LOCATION	L0010360	VOLUME	255472.088	4071192.489	91.00
LOCATION	L0010361	VOLUME	255479.394	4071192.199	91.00
LOCATION	L0010362	VOLUME	255486.699	4071191.908	91.00
LOCATION	L0010363	VOLUME	255494.004	4071191.618	91.00
LOCATION	L0010364	VOLUME	255501.268	4071190.884	91.00
LOCATION	L0010365	VOLUME	255508.498	4071189.802	91.00
LOCATION	L0010366	VOLUME	255515.729	4071188.720	91.00
LOCATION	L0010367	VOLUME	255522.959	4071187.637	91.00
LOCATION	L0010368	VOLUME	255530.190	4071186.555	91.00
LOCATION	L0010369	VOLUME	255537.420	4071185.472	91.00
LOCATION	L0010370	VOLUME	255544.651	4071184.390	91.00
LOCATION	L0010371	VOLUME	255551.881	4071183.308	91.00
LOCATION	L0010372	VOLUME	255559.112	4071182.225	91.00

LOCATION	L0010373	VOLUME	255566.343	4071181.143	91.00
LOCATION	L0010374	VOLUME	255573.573	4071180.060	91.00
LOCATION	L0010375	VOLUME	255580.804	4071178.978	91.00
LOCATION	L0010376	VOLUME	255588.034	4071177.895	91.00
LOCATION	L0010377	VOLUME	255595.265	4071176.813	91.00
LOCATION	L0010378	VOLUME	255602.495	4071175.731	91.00
LOCATION	L0010379	VOLUME	255609.726	4071174.648	91.00
LOCATION	L0010380	VOLUME	255616.956	4071173.566	91.00
LOCATION	L0010381	VOLUME	255624.187	4071172.483	91.00
LOCATION	L0010382	VOLUME	255631.417	4071171.401	91.00
LOCATION	L0010383	VOLUME	255638.648	4071170.319	91.00
LOCATION	L0010384	VOLUME	255645.878	4071169.236	91.00
LOCATION	L0010385	VOLUME	255653.109	4071168.154	91.00
LOCATION	L0010386	VOLUME	255660.339	4071167.071	91.00
LOCATION	L0010387	VOLUME	255667.570	4071165.989	91.00
LOCATION	L0010388	VOLUME	255674.801	4071164.907	91.00
LOCATION	L0010389	VOLUME	255682.031	4071163.824	91.00
LOCATION	L0010390	VOLUME	255689.262	4071162.742	91.00
LOCATION	L0010391	VOLUME	255696.492	4071161.659	91.00
LOCATION	L0010392	VOLUME	255703.723	4071160.577	91.00

** End of LINE VOLUME Source ID = SR180

** Source Parameters **

** LINE VOLUME Source ID = SR41

SRCPARAM	L0006795	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006796	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006797	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006798	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006799	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006800	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006801	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006802	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006803	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006804	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006805	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006806	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006807	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006808	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006809	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006810	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006811	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006812	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006813	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006814	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006815	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006816	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006817	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006818	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006819	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006820	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006821	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006822	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006823	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006824	0.0000463147	0.00	3.40	0.85
SRCPARAM	L0006825	0.0000463147	0.00	3.40	0.85

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	SRCPARAM L0007798	0.0000463147	0.00	3.40	0.85
**	-----				
**	LINE VOLUME Source ID = SR99				
	SRCPARAM L0007799	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007800	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007801	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007802	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007803	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007804	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007805	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007806	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007807	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007808	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007809	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007810	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007811	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007812	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007813	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007814	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007815	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007816	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007817	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007818	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007819	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007820	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007821	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007822	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007823	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007824	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007825	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007826	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007827	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007828	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007829	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007830	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007831	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007832	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007833	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007834	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007835	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007836	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007837	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007838	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007839	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007840	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007841	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007842	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007843	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007844	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007845	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007846	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007847	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007848	0.0000826514	0.00	3.40	0.85
	SRCPARAM L0007849	0.0000826514	0.00	3.40	0.85

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SRCPARAM	L0008984	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008985	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008986	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008987	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008988	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008989	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008990	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008991	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008992	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008993	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008994	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008995	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008996	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008997	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008998	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0008999	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009000	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009001	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009002	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009003	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009004	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009005	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009006	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009007	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009008	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009009	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009010	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009011	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009012	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009013	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009014	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009015	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009016	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009017	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009018	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009019	0.0000826514	0.00	3.40	0.85
SRCPARAM	L0009020	0.0000826514	0.00	3.40	0.85

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 LINE VOLUME Source ID = SR180

SRCPARAM	L0009021	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009022	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009023	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009024	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009025	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009026	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009027	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009028	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009029	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009030	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009031	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009032	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009033	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009034	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0009035	0.0000133382	0.00	3.40	0.85

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SRCPARAM	L0010386	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0010387	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0010388	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0010389	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0010390	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0010391	0.0000133382	0.00	3.40	0.85
SRCPARAM	L0010392	0.0000133382	0.00	3.40	0.85

** -----
 URBANSRC ALL
 SRCGROUP ALL
 SO FINISHED
 **

 ** AERMOD Receptor Pathway

 **
 **
 RE STARTING
 INCLUDED 2017.rou
 RE FINISHED
 **

 ** AERMOD Meteorology Pathway

 **
 **
 ME STARTING
 SURFFILE ..\93193_09-13.SFC
 PROFFILE ..\93193_09-13.PFL
 SURFDATA 93193 2009 FRESNO/AIR_TERMINAL
 UAIRDATA 23230 2009 OAKLAND/WSO_AP
 PROFBASE 101.0 METERS
 ME FINISHED
 **

 ** AERMOD Output Pathway

 **
 **
 OU STARTING
 ** Auto-Generated Plotfiles
 PLOTFILE ANNUAL ALL 2017.AD\AN00GALL.PLT 31
 SUMMFILE 2017.sum
 OU FINISHED
 **

 ** Project Parameters

 ** PROJCTN CoordinateSystemUTM
 ** DESCPTN UTM: Universal Transverse Mercator
 ** DATUM World Geodetic System 1984
 ** DTMRGN Global Definition
 ** UNITS m
 ** ZONE 11

** ZONEINX 0
**

* AERMOD (15181): City of Fresno - DNCP, FCSP, and DDC Year 2017

* AERMET (14134):

* MODELING OPTIONS USED: RegDEFAULT CONC

* PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS ELEV URBAN
* FOR A TOTAL OF 266 RECEPTORS. 5 YEARS FOR SOURCE GROUP: ALL

* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

* X Y

		AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
246615.01000	4073201.92000	0.30772	85.93	85.93	0.00	ANNUAL	ALL	000000005	
246659.49000	4073067.70000	0.27930	85.43	85.43	0.00	ANNUAL	ALL	000000005	
246528.81000	4073138.37000	0.15916	85.20	85.20	0.00	ANNUAL	ALL	000000005	
246591.40000	4072984.67000	0.16307	85.00	85.00	0.00	ANNUAL	ALL	000000005	
246306.79000	4073125.48000	0.08303	84.14	84.14	0.00	ANNUAL	ALL	000000005	
246293.80000	4072940.33000	0.07618	83.04	83.04	0.00	ANNUAL	ALL	000000005	
246160.62000	4073135.23000	0.06419	84.00	84.00	0.00	ANNUAL	ALL	000000005	
246154.12000	4072933.83000	0.06201	82.87	82.87	0.00	ANNUAL	ALL	000000005	
246296.16000	4072690.88000	0.07013	82.05	82.05	0.00	ANNUAL	ALL	000000005	
246147.98000	4072714.81000	0.05901	81.50	81.50	0.00	ANNUAL	ALL	000000005	
246241.86000	4072558.35000	0.06308	80.92	80.92	0.00	ANNUAL	ALL	000000005	
246421.33000	4072552.82000	0.07887	81.99	81.99	0.00	ANNUAL	ALL	000000005	
246872.66000	4072960.46000	0.70952	86.31	86.31	0.00	ANNUAL	ALL	000000005	
247032.80000	4072908.92000	0.22763	86.88	86.88	0.00	ANNUAL	ALL	000000005	
247087.11000	4072778.22000	0.24138	86.00	86.00	0.00	ANNUAL	ALL	000000005	
246925.12000	4072811.36000	0.97737	85.91	85.91	0.00	ANNUAL	ALL	000000005	
246687.39000	4072694.04000	0.15202	84.00	84.00	0.00	ANNUAL	ALL	000000005	
246824.37000	4072653.47000	0.25405	84.32	84.32	0.00	ANNUAL	ALL	000000005	
246787.80000	4072588.97000	0.18623	84.00	84.00	0.00	ANNUAL	ALL	000000005	
246143.35000	4072351.26000	0.05450	79.68	79.68	0.00	ANNUAL	ALL	000000005	
246318.56000	4072329.85000	0.06419	80.24	80.24	0.00	ANNUAL	ALL	000000005	
246304.94000	4071942.44000	0.05721	78.67	78.67	0.00	ANNUAL	ALL	000000005	
246487.93000	4072287.02000	0.07684	81.00	81.00	0.00	ANNUAL	ALL	000000005	
246682.61000	4072166.32000	0.09519	81.43	81.43	0.00	ANNUAL	ALL	000000005	
246881.19000	4072473.91000	0.22702	84.02	84.02	0.00	ANNUAL	ALL	000000005	
246682.61000	4072489.48000	0.12058	83.10	83.10	0.00	ANNUAL	ALL	000000005	
246871.45000	4072102.07000	0.12994	82.11	82.11	0.00	ANNUAL	ALL	000000005	
246573.59000	4071944.38000	0.07404	80.00	80.00	0.00	ANNUAL	ALL	000000005	
246121.94000	4071765.28000	0.04830	77.00	77.00	0.00	ANNUAL	ALL	000000005	
246659.25000	4071749.71000	0.07544	79.56	79.56	0.00	ANNUAL	ALL	000000005	
246947.60000	4072197.12000	0.18164	83.02	83.02	0.00	ANNUAL	ALL	000000005	
246967.42000	4072079.63000	0.16381	82.39	82.39	0.00	ANNUAL	ALL	000000005	

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246937.64000	4071933.04000	0.12861	82.00	82.00	0.00	ANNUAL	ALL	000000005
246939.04000	4071735.13000	0.10962	81.00	81.00	0.00	ANNUAL	ALL	000000005
247266.69000	4071829.45000	0.47497	83.00	83.00	0.00	ANNUAL	ALL	000000005
247215.43000	4071640.22000	0.19685	81.95	81.95	0.00	ANNUAL	ALL	000000005
247026.53000	4071497.94000	0.10780	80.46	80.46	0.00	ANNUAL	ALL	000000005
247334.73000	4071480.88000	0.24207	82.82	82.82	0.00	ANNUAL	ALL	000000005
247371.80000	4071407.94000	0.24763	83.00	83.00	0.00	ANNUAL	ALL	000000005
247194.84000	4071423.49000	0.14075	81.75	81.75	0.00	ANNUAL	ALL	000000005
247369.40000	4071250.12000	0.18446	82.21	82.21	0.00	ANNUAL	ALL	000000005
247472.11000	4071311.10000	0.35388	83.39	83.39	0.00	ANNUAL	ALL	000000005
247124.63000	4071273.71000	0.10857	80.86	80.86	0.00	ANNUAL	ALL	000000005
247547.92000	4071212.73000	0.47977	83.57	83.57	0.00	ANNUAL	ALL	000000005
247326.35000	4071155.31000	0.14479	82.00	82.00	0.00	ANNUAL	ALL	000000005
247477.39000	4071104.13000	0.21151	83.00	83.00	0.00	ANNUAL	ALL	000000005
247592.77000	4071055.70000	0.33527	83.27	83.27	0.00	ANNUAL	ALL	000000005
247319.45000	4070941.58000	0.11661	81.89	81.89	0.00	ANNUAL	ALL	000000005
247923.71000	4070983.63000	0.28219	87.71	87.71	0.00	ANNUAL	ALL	000000005
247714.11000	4071592.72000	0.19488	85.96	85.96	0.00	ANNUAL	ALL	000000005
247677.46000	4071289.38000	0.44240	85.28	85.28	0.00	ANNUAL	ALL	000000005
247769.08000	4070730.30000	0.30684	84.73	84.73	0.00	ANNUAL	ALL	000000005
247872.08000	4070651.88000	0.48079	85.91	85.91	0.00	ANNUAL	ALL	000000005
247771.87000	4070575.85000	0.20981	84.00	84.00	0.00	ANNUAL	ALL	000000005
247928.24000	4070573.26000	0.53615	85.93	85.93	0.00	ANNUAL	ALL	000000005
247977.48000	4070508.47000	0.62021	86.62	86.62	0.00	ANNUAL	ALL	000000005
247920.31000	4070840.15000	0.50341	86.95	86.95	0.00	ANNUAL	ALL	000000005
248027.03000	4070597.25000	0.82174	87.00	87.00	0.00	ANNUAL	ALL	000000005
248113.41000	4070487.48000	0.61880	86.03	86.03	0.00	ANNUAL	ALL	000000005
247975.19000	4070791.37000	0.41031	87.48	87.48	0.00	ANNUAL	ALL	000000005
247980.27000	4070721.24000	0.56696	87.31	87.31	0.00	ANNUAL	ALL	000000005
248181.51000	4070794.42000	0.18231	87.00	87.00	0.00	ANNUAL	ALL	000000005
248678.65000	4070747.88000	0.09831	84.11	84.11	0.00	ANNUAL	ALL	000000005
248307.98000	4070481.23000	0.22544	85.05	85.05	0.00	ANNUAL	ALL	000000005
248482.63000	4070686.39000	0.12501	85.22	85.22	0.00	ANNUAL	ALL	000000005
248868.48000	4069680.14000	0.79306	78.58	78.58	0.00	ANNUAL	ALL	000000005
248694.68000	4069637.45000	0.33702	79.03	79.03	0.00	ANNUAL	ALL	000000005
248568.65000	4069649.65000	0.28656	80.00	80.00	0.00	ANNUAL	ALL	000000005
248463.96000	4069603.91000	0.21994	80.00	80.00	0.00	ANNUAL	ALL	000000005
248952.97000	4069638.47000	0.74042	77.94	77.94	0.00	ANNUAL	ALL	000000005
249066.80000	4069579.51000	0.66660	76.39	76.39	0.00	ANNUAL	ALL	000000005
249187.33000	4069534.76000	0.78764	75.00	75.00	0.00	ANNUAL	ALL	000000005

249197.17000	4069396.90000	0.34480	74.00	74.00	0.00	ANNUAL	ALL	000000005
249281.58000	4069471.46000	0.75892	74.45	74.45	0.00	ANNUAL	ALL	000000005
249405.38000	4069363.14000	0.74171	74.08	74.08	0.00	ANNUAL	ALL	000000005
248856.73000	4069405.34000	0.20119	77.00	77.00	0.00	ANNUAL	ALL	000000005
248841.26000	4069185.88000	0.13171	76.06	76.06	0.00	ANNUAL	ALL	000000005
248495.51000	4069235.66000	0.10497	77.97	77.97	0.00	ANNUAL	ALL	000000005
248589.99000	4068911.36000	0.08115	76.10	76.10	0.00	ANNUAL	ALL	000000005
248809.40000	4068725.34000	0.08090	74.00	74.00	0.00	ANNUAL	ALL	000000005
249278.67000	4068888.90000	0.14320	72.00	72.00	0.00	ANNUAL	ALL	000000005
249564.91000	4069143.98000	0.53467	74.00	74.00	0.00	ANNUAL	ALL	000000005
249671.66000	4069007.57000	0.49377	73.54	73.54	0.00	ANNUAL	ALL	000000005
249724.47000	4068843.89000	0.31283	73.00	73.00	0.00	ANNUAL	ALL	000000005
249668.00000	4068723.16000	0.20161	72.50	72.50	0.00	ANNUAL	ALL	000000005
249525.80000	4068481.77000	0.12043	70.84	70.84	0.00	ANNUAL	ALL	000000005
249098.77000	4068482.84000	0.08283	70.24	70.24	0.00	ANNUAL	ALL	000000005
248806.68000	4068410.79000	0.06523	72.35	72.35	0.00	ANNUAL	ALL	000000005
248796.95000	4068122.60000	0.05499	71.00	71.00	0.00	ANNUAL	ALL	000000005
248781.37000	4067865.56000	0.04777	69.94	69.94	0.00	ANNUAL	ALL	000000005
249425.91000	4068344.58000	0.09668	69.30	69.30	0.00	ANNUAL	ALL	000000005
250093.81000	4068383.53000	0.29229	72.99	72.99	0.00	ANNUAL	ALL	000000005
250405.37000	4068130.39000	0.51272	73.05	73.05	0.00	ANNUAL	ALL	000000005
250271.01000	4068270.59000	0.44462	73.00	73.00	0.00	ANNUAL	ALL	000000005
250398.97000	4067919.67000	0.23072	72.18	72.18	0.00	ANNUAL	ALL	000000005
250141.94000	4067921.62000	0.14188	70.98	70.98	0.00	ANNUAL	ALL	000000005
250654.07000	4067828.15000	0.51340	73.00	73.00	0.00	ANNUAL	ALL	000000005
250648.22000	4067705.47000	0.29336	72.46	72.46	0.00	ANNUAL	ALL	000000005
250410.66000	4067802.84000	0.19036	71.86	71.86	0.00	ANNUAL	ALL	000000005
250270.46000	4067592.53000	0.11836	69.76	69.76	0.00	ANNUAL	ALL	000000005
250017.31000	4067598.37000	0.09134	69.00	69.00	0.00	ANNUAL	ALL	000000005
249456.50000	4067514.64000	0.05710	65.78	65.78	0.00	ANNUAL	ALL	000000005
250888.91000	4067563.97000	0.60876	73.00	73.00	0.00	ANNUAL	ALL	000000005
250605.87000	4067572.24000	0.19558	71.39	71.39	0.00	ANNUAL	ALL	000000005
250099.38000	4067320.65000	0.07937	68.00	68.00	0.00	ANNUAL	ALL	000000005
250976.29000	4067456.00000	0.61077	73.00	73.00	0.00	ANNUAL	ALL	000000005
250824.41000	4067380.66000	0.23270	72.02	72.02	0.00	ANNUAL	ALL	000000005
250720.36000	4067343.58000	0.17377	70.97	70.97	0.00	ANNUAL	ALL	000000005
251032.49000	4067373.48000	0.56276	72.91	72.91	0.00	ANNUAL	ALL	000000005
251124.87000	4067284.42000	0.70315	73.00	73.00	0.00	ANNUAL	ALL	000000005
251210.98000	4067131.35000	0.60226	72.27	72.27	0.00	ANNUAL	ALL	000000005
251057.90000	4067048.83000	0.23764	71.28	71.28	0.00	ANNUAL	ALL	000000005

250865.36000	4067044.04000	0.15263	70.54	0.00	ANNUAL	ALL	000000005
251093.32000	4066866.32000	0.20130	70.77	0.00	ANNUAL	ALL	000000005
251220.08000	4066801.74000	0.32659	70.69	0.00	ANNUAL	ALL	000000005
251226.06000	4066917.74000	0.38567	71.30	0.00	ANNUAL	ALL	000000005
250812.28000	4066814.89000	0.10685	69.03	0.00	ANNUAL	ALL	000000005
250549.58000	4066829.53000	0.07962	67.72	0.00	ANNUAL	ALL	000000005
249952.38000	4066838.17000	0.05096	64.79	0.00	ANNUAL	ALL	000000005
249460.98000	4067079.72000	0.04469	63.59	0.00	ANNUAL	ALL	000000005
249494.09000	4066851.29000	0.04008	62.54	0.00	ANNUAL	ALL	000000005
248959.48000	4066858.31000	0.03196	63.79	0.00	ANNUAL	ALL	000000005
248758.28000	4066896.29000	0.03019	65.22	0.00	ANNUAL	ALL	000000005
251412.73000	4066860.54000	0.56224	72.15	0.00	ANNUAL	ALL	000000005
251463.43000	4066820.42000	0.57927	72.43	0.00	ANNUAL	ALL	000000005
251669.92000	4067001.68000	0.27235	73.79	0.00	ANNUAL	ALL	000000005
251815.35000	4067114.52000	0.16541	75.37	0.00	ANNUAL	ALL	000000005
251425.65000	4067142.31000	0.56223	73.22	0.00	ANNUAL	ALL	000000005
251333.19000	4067365.26000	0.53897	74.00	0.00	ANNUAL	ALL	000000005
251494.79000	4067218.35000	0.32618	74.10	0.00	ANNUAL	ALL	000000005
251470.59000	4067368.72000	0.27833	74.85	0.00	ANNUAL	ALL	000000005
251317.92000	4067511.95000	0.46384	74.92	0.00	ANNUAL	ALL	000000005
251186.31000	4067414.01000	0.69716	73.75	0.00	ANNUAL	ALL	000000005
251184.58000	4067575.61000	0.48134	74.47	0.00	ANNUAL	ALL	000000005
251169.89000	4067674.13000	0.39993	74.85	0.00	ANNUAL	ALL	000000005
251091.25000	4067526.35000	0.60833	73.60	0.00	ANNUAL	ALL	000000005
250963.10000	4067700.41000	0.50908	73.85	0.00	ANNUAL	ALL	000000005
250858.53000	4067816.21000	0.52367	74.02	0.00	ANNUAL	ALL	000000005
251067.66000	4067801.52000	0.29339	74.98	0.00	ANNUAL	ALL	000000005
250901.75000	4067987.45000	0.25777	74.99	0.00	ANNUAL	ALL	000000005
250752.66000	4068068.73000	0.30871	74.64	0.00	ANNUAL	ALL	000000005
250902.11000	4068103.30000	0.21183	75.86	0.00	ANNUAL	ALL	000000005
250452.28000	4068521.01000	0.23547	75.35	0.00	ANNUAL	ALL	000000005
250774.97000	4068798.93000	0.10833	77.95	0.00	ANNUAL	ALL	000000005
249545.90000	4070275.68000	0.15036	78.82	0.00	ANNUAL	ALL	000000005
249637.19000	4070202.96000	0.10848	79.00	0.00	ANNUAL	ALL	000000005
249656.87000	4070357.37000	0.15235	80.00	0.00	ANNUAL	ALL	000000005
249720.78000	4070296.39000	0.10803	79.56	0.00	ANNUAL	ALL	000000005
249783.96000	4070436.71000	0.14547	80.04	0.00	ANNUAL	ALL	000000005
249913.70000	4070475.72000	0.11412	80.51	0.00	ANNUAL	ALL	000000005
249893.13000	4070166.43000	0.08500	80.00	0.00	ANNUAL	ALL	000000005
249956.31000	4070524.21000	0.12327	81.00	0.00	ANNUAL	ALL	000000005

250075.00000	4070214.58000	0.07665	80.00	80.00	0.00	ANNUAL	ALL	000000005
250144.38000	4070580.64000	0.09666	81.00	81.00	0.00	ANNUAL	ALL	000000005
250169.50000	4070154.76000	0.07309	80.00	80.00	0.00	ANNUAL	ALL	000000005
250018.77000	4070032.74000	0.07961	80.00	80.00	0.00	ANNUAL	ALL	000000005
250249.61000	4070709.44000	0.12405	81.14	81.14	0.00	ANNUAL	ALL	000000005
250284.19000	4070492.50000	0.07440	81.00	81.00	0.00	ANNUAL	ALL	000000005
250323.94000	4070763.90000	0.14296	81.75	81.75	0.00	ANNUAL	ALL	000000005
250467.42000	4070509.78000	0.06846	81.00	81.00	0.00	ANNUAL	ALL	000000005
250538.42000	4070778.35000	0.09326	82.00	82.00	0.00	ANNUAL	ALL	000000005
250783.67000	4070778.35000	0.07861	84.00	84.00	0.00	ANNUAL	ALL	000000005
250775.29000	4070451.76000	0.06155	82.11	82.11	0.00	ANNUAL	ALL	000000005
251129.19000	4070888.36000	0.08620	85.27	85.27	0.00	ANNUAL	ALL	000000005
251091.19000	4070722.28000	0.06840	84.18	84.18	0.00	ANNUAL	ALL	000000005
251133.41000	4070232.49000	0.06046	83.03	83.03	0.00	ANNUAL	ALL	000000005
251283.57000	4070998.42000	0.11727	86.48	86.48	0.00	ANNUAL	ALL	000000005
251473.79000	4071053.45000	0.13631	87.00	87.00	0.00	ANNUAL	ALL	000000005
251610.17000	4071071.40000	0.13424	88.08	88.08	0.00	ANNUAL	ALL	000000005
251466.61000	4070846.49000	0.07846	86.33	86.33	0.00	ANNUAL	ALL	000000005
251626.92000	4070876.39000	0.08575	87.18	87.18	0.00	ANNUAL	ALL	000000005
251776.46000	4070828.54000	0.09372	87.95	87.95	0.00	ANNUAL	ALL	000000005
251983.22000	4071002.96000	0.14947	89.88	89.88	0.00	ANNUAL	ALL	000000005
252061.04000	4070713.19000	0.21272	88.84	88.84	0.00	ANNUAL	ALL	000000005
252056.07000	4070507.86000	0.22949	88.38	88.38	0.00	ANNUAL	ALL	000000005
252040.69000	4070359.07000	0.22987	89.25	89.25	0.00	ANNUAL	ALL	000000005
251746.52000	4070620.87000	0.08574	87.00	87.00	0.00	ANNUAL	ALL	000000005
251964.68000	4070119.79000	0.18088	88.30	88.30	0.00	ANNUAL	ALL	000000005
251718.37000	4070066.31000	0.08850	86.00	86.00	0.00	ANNUAL	ALL	000000005
251724.41000	4070252.76000	0.08506	86.03	86.03	0.00	ANNUAL	ALL	000000005
251412.48000	4070011.34000	0.06715	83.90	83.90	0.00	ANNUAL	ALL	000000005
251912.19000	4069673.69000	0.21793	86.77	86.77	0.00	ANNUAL	ALL	000000005
251922.04000	4069510.42000	0.24420	85.99	85.99	0.00	ANNUAL	ALL	000000005
251941.74000	4069376.70000	0.31007	85.56	85.56	0.00	ANNUAL	ALL	000000005
251780.05000	4069434.20000	0.11810	84.09	84.09	0.00	ANNUAL	ALL	000000005
251737.82000	4069579.17000	0.10475	84.68	84.68	0.00	ANNUAL	ALL	000000005
251557.65000	4069721.34000	0.07847	83.87	83.87	0.00	ANNUAL	ALL	000000005
251367.64000	4069610.14000	0.07116	81.30	81.30	0.00	ANNUAL	ALL	000000005
250969.52000	4069269.44000	0.07507	80.00	80.00	0.00	ANNUAL	ALL	000000005
251413.69000	4068786.60000	0.10752	80.00	80.00	0.00	ANNUAL	ALL	000000005
251521.37000	4068698.07000	0.13972	80.00	80.00	0.00	ANNUAL	ALL	000000005
251543.15000	4068579.61000	0.22161	80.00	80.00	0.00	ANNUAL	ALL	000000005

251670.71000	4068422.40000	0.23573	80.00	80.00	0.00	ANNUAL	ALL	000000005
251574.62000	4068362.94000	0.30403	79.80	79.80	0.00	ANNUAL	ALL	000000005
250406.21000	4069465.28000	0.08298	79.47	79.47	0.00	ANNUAL	ALL	000000005
250234.12000	4069962.57000	0.07299	80.00	80.00	0.00	ANNUAL	ALL	000000005
250615.53000	4069900.53000	0.06550	80.14	80.14	0.00	ANNUAL	ALL	000000005
250805.72000	4069653.37000	0.06738	80.00	80.00	0.00	ANNUAL	ALL	000000005
250613.49000	4069978.84000	0.06420	80.50	80.50	0.00	ANNUAL	ALL	000000005
250239.80000	4068581.21000	0.45075	74.14	74.14	0.00	ANNUAL	ALL	000000005
250444.42000	4068316.76000	0.50096	74.21	74.21	0.00	ANNUAL	ALL	000000005
253050.05000	4067549.71000	0.04721	80.98	80.98	0.00	ANNUAL	ALL	000000005
253068.39000	4068310.79000	0.04612	84.00	84.00	0.00	ANNUAL	ALL	000000005
252722.23000	4068319.96000	0.05662	83.25	83.25	0.00	ANNUAL	ALL	000000005
252499.87000	4068329.13000	0.06618	82.29	82.29	0.00	ANNUAL	ALL	000000005
252474.65000	4068519.40000	0.07015	83.36	83.36	0.00	ANNUAL	ALL	000000005
252435.72000	4068734.21000	0.07660	84.40	84.40	0.00	ANNUAL	ALL	000000005
253332.85000	4068538.16000	0.04003	85.00	85.00	0.00	ANNUAL	ALL	000000005
252150.46000	4069120.82000	0.15851	86.11	86.11	0.00	ANNUAL	ALL	000000005
252063.10000	4069240.49000	0.29569	85.97	85.97	0.00	ANNUAL	ALL	000000005
252073.90000	4069429.74000	0.26659	87.00	87.00	0.00	ANNUAL	ALL	000000005
252064.32000	4069535.05000	0.28975	87.87	87.87	0.00	ANNUAL	ALL	000000005
252359.92000	4069524.28000	0.09146	88.00	88.00	0.00	ANNUAL	ALL	000000005
252405.39000	4069404.61000	0.08432	87.72	87.72	0.00	ANNUAL	ALL	000000005
252403.00000	4069079.10000	0.08447	86.20	86.20	0.00	ANNUAL	ALL	000000005
252381.82000	4069779.89000	0.09239	89.76	89.76	0.00	ANNUAL	ALL	000000005
252657.07000	4069849.30000	0.06625	89.60	89.60	0.00	ANNUAL	ALL	000000005
252711.14000	4069364.13000	0.05936	87.00	87.00	0.00	ANNUAL	ALL	000000005
253392.04000	4069719.49000	0.04010	89.78	89.78	0.00	ANNUAL	ALL	000000005
253052.74000	4070294.94000	0.05256	91.00	91.00	0.00	ANNUAL	ALL	000000005
252165.41000	4070115.62000	0.24014	91.00	91.00	0.00	ANNUAL	ALL	000000005
252188.60000	4070355.80000	0.29843	91.00	91.00	0.00	ANNUAL	ALL	000000005
252198.54000	4070561.20000	0.33327	89.89	89.89	0.00	ANNUAL	ALL	000000005
252258.17000	4070874.28000	0.24828	90.55	90.55	0.00	ANNUAL	ALL	000000005
252365.84000	4071107.84000	0.19210	91.00	91.00	0.00	ANNUAL	ALL	000000005
252572.24000	4071145.87000	0.14139	91.00	91.00	0.00	ANNUAL	ALL	000000005
252822.37000	4071155.44000	0.11953	91.00	91.00	0.00	ANNUAL	ALL	000000005
253169.45000	4071138.69000	0.09847	91.00	91.00	0.00	ANNUAL	ALL	000000005
253200.56000	4070980.71000	0.06921	91.00	91.00	0.00	ANNUAL	ALL	000000005
252660.80000	4070831.11000	0.08707	91.00	91.00	0.00	ANNUAL	ALL	000000005
252965.99000	4070883.77000	0.07039	91.00	91.00	0.00	ANNUAL	ALL	000000005
253154.06000	4070671.95000	0.05592	91.00	91.00	0.00	ANNUAL	ALL	000000005

252816.14000	4070625.57000	0.06849	91.00	91.00	0.00	ANNUAL	ALL	000000005
253531.59000	4071131.92000	0.09010	91.00	91.00	0.00	ANNUAL	ALL	000000005
253792.02000	4071123.78000	0.08459	91.00	91.00	0.00	ANNUAL	ALL	000000005
253656.72000	4070804.34000	0.04904	91.00	91.00	0.00	ANNUAL	ALL	000000005
254029.06000	4071119.71000	0.08137	91.00	91.00	0.00	ANNUAL	ALL	000000005
253916.14000	4071001.70000	0.05730	91.00	91.00	0.00	ANNUAL	ALL	000000005
254144.08000	4071062.31000	0.06364	91.00	91.00	0.00	ANNUAL	ALL	000000005
254478.01000	4071082.66000	0.06595	91.00	91.00	0.00	ANNUAL	ALL	000000005
254395.42000	4070966.57000	0.04787	91.00	91.00	0.00	ANNUAL	ALL	000000005
254060.30000	4070806.19000	0.04270	91.00	91.00	0.00	ANNUAL	ALL	000000005
254074.67000	4070658.97000	0.03843	91.00	91.00	0.00	ANNUAL	ALL	000000005
254636.89000	4071099.66000	0.07096	91.00	91.00	0.00	ANNUAL	ALL	000000005
254676.65000	4070988.67000	0.04751	91.00	91.00	0.00	ANNUAL	ALL	000000005
254826.70000	4070891.51000	0.03809	91.00	91.00	0.00	ANNUAL	ALL	000000005
255145.27000	4071078.53000	0.06287	91.00	91.00	0.00	ANNUAL	ALL	000000005
255160.71000	4070862.42000	0.03349	91.00	91.00	0.00	ANNUAL	ALL	000000005
255349.33000	4071078.36000	0.06288	91.00	91.00	0.00	ANNUAL	ALL	000000005
255494.81000	4071067.17000	0.05804	91.00	91.00	0.00	ANNUAL	ALL	000000005
255691.10000	4071022.82000	0.04246	91.00	91.00	0.00	ANNUAL	ALL	000000005
255678.43000	4070820.04000	0.02630	91.00	91.00	0.00	ANNUAL	ALL	000000005
255667.16000	4070548.27000	0.02121	91.00	91.00	0.00	ANNUAL	ALL	000000005
254945.53000	4070491.62000	0.02648	91.00	91.00	0.00	ANNUAL	ALL	000000005
255664.49000	4070263.23000	0.01940	91.00	91.00	0.00	ANNUAL	ALL	000000005
255376.28000	4069997.54000	0.02051	91.00	91.00	0.00	ANNUAL	ALL	000000005
254323.16000	4070496.88000	0.03272	91.00	91.00	0.00	ANNUAL	ALL	000000005
254258.72000	4069761.02000	0.02878	91.00	91.00	0.00	ANNUAL	ALL	000000005
254047.11000	4070262.23000	0.03369	91.00	91.00	0.00	ANNUAL	ALL	000000005
255603.14000	4069210.90000	0.01855	91.00	91.00	0.00	ANNUAL	ALL	000000005
255126.00000	4069156.23000	0.02128	91.00	91.00	0.00	ANNUAL	ALL	000000005
254296.06000	4068864.12000	0.02701	91.00	91.00	0.00	ANNUAL	ALL	000000005
254260.97000	4068335.90000	0.02767	90.00	90.00	0.00	ANNUAL	ALL	000000005
253689.52000	4070071.93000	0.03686	91.00	91.00	0.00	ANNUAL	ALL	000000005
253911.09000	4068910.50000	0.03095	89.00	89.00	0.00	ANNUAL	ALL	000000005
253934.89000	4069816.86000	0.03234	91.00	91.00	0.00	ANNUAL	ALL	000000005

** CONCUNIT ug/m^3

** DEPUNIT g/m^2

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E.2 - CalEEMod Methodology, Assumptions, and Output

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CalEEMod Methodology and Assumptions

The following project-specific assumptions and modeling parameters were incorporated into the analysis.

Construction

- CalEEMod's "General Office Building", "General Light Industry", "Apartments Mid Rise", and "Regional Shopping Center" were selected to model the planning areas development.
- CalEEMod's default phase ratios and phase lengths were used. Construction was expected to begin early 2016 and would be operational 2039.
- Equipment population and activity are based on CalEEMod defaults for each phase type. The default construction equipment activity (hours per day) was not modified from the defaults presented by CalEEMod.
- Land use quantities for each land use type was from the Traffic Memorandum from Fehr and Peers and is presented in Table 1.

Table 1: Land Use Assumptions

Land Use	Quantity
Downtown Neighborhood Community Plan	
Apartments Mid Rise	3,697 DU
General Light Industry	2,900 ksf
General Office Building	350 ksf
Regional Shopping Center	2,000 ksf
Fresno Corridor Specific Plan	
Apartments Mid Rise	6,293 DU
General Light Industry	150 ksf
General Office Building	1,600 ksf
Regional Shopping Center	3,900 ksf
Notes: DU = dwelling units ksf = thousand square feet Source: Fehr and Peers.	

Operation

- The Traffic Memorandum from Fehr and Peers was utilized to generate the trip rate for each land use type on weekdays and on weekends. Table 2 shows the revised trip generation for the Project.

Table 2: Revised Trip Generation

Land Use	Revised Weekday Trip Rate (/size/day)	Revised Saturday Trip Rate (/size/day)	Revised Sunday Trip Rate (/size/day)
Apartments Mid Rise	6.65	7.16	6.07
General Light Industry	6.97	1.32	0.68
General Office Building	11.01	2.37	0.98
Regional Shopping Center	42.94	49.97	25.24
Source: Fehr and Peers.			

Electricity Emission Factor

The default CalEEMod emission factors for Pacific Gas & Electric (from the CEC's year 2006 data) are as follows:

- Carbon dioxide: 641.35 pounds per megawatt hour (lbs/MWh)
- Methane: 0.029 lb/MWh
- Nitrous oxide: 0.006 lb/MWh

It is assumed that the Renewable Electricity Standards would have taken effect by 2020. The Renewable Electricity Standard requires that electricity providers include a minimum of 33 percent renewable energy in their portfolios by the year 2020. In 2006, Pacific Gas & Electric had 12.6 percent renewable energy in its portfolio (California Public Utilities Commission 2011). Therefore, without the renewable energy, PG&E's emission factors in 2006 would have been (unadjusted energy intensity):

- Carbon dioxide: 733.81 lbs/MWh
- Methane: 0.033 lb/MWh
- Nitrous oxide: 0.007 lb/MWh

The required 33-percent reduction would be anticipated by the year 2020. The emission factors for 2020 therefore are estimated by reducing the unadjusted 2006 emission factors by 33 percent and are as follows:

- Carbon dioxide: 491.65 lbs/MWh
- Methane: 0.022 lb/MWh
- Nitrous oxide: 0.005 lb/MWh

Electricity Consumption

CalEEMod has three categories for electricity consumption: electricity that is impacted by Title-24 regulations, non-Title-24 electricity, and lighting. The Title 24 uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. Lighting is separate since it can be both part and not part of Title-24. Since lighting is not considered as part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24 includes everything else such as appliances and electronics. Total electricity consumption in CalEEMod is divided into the three categories. The percentage for each category is determined by using percentages derived from the CalEEMod default electricity intensity factors. The percentages are then applied to the electricity consumption to result in the values used in the analysis. A reduction of 25 percent for new residential development and a 30 percent reduction for new nonresidential development was used for the analysis.

Solid Waste

CalEEMod defaults were altered to reflect the City of Fresno's goal of 75 percent waste diversion goal.

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2,000.00	1000sqft	45.91	2,000,000.00	0
General Light Industry	2,900.00	1000sqft	66.57	2,900,000.00	0
Apartments Mid Rise	3,697.00	Dwelling Unit	97.29	3,697,000.00	10573
Regional Shopping Center	350.00	1000sqft	8.03	350,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3	Operational Year	2035		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2035
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.5668	5.9674	4.6631	5.3900e-003	0.0157	0.2992	0.3149	4.1600e-003	0.2789	0.2831	0.0000	497.7000	497.7000	0.1324	0.0000	500.4800
2017	0.6469	6.9268	5.2617	5.7800e-003	3.6611	0.3575	4.0185	1.7349	0.3293	2.0642	0.0000	531.1318	531.1318	0.1565	0.0000	534.4181
2018	0.6978	7.7790	5.6166	8.3000e-003	2.0374	0.3640	2.4014	0.8417	0.3349	1.1766	0.0000	752.3186	752.3186	0.2298	0.0000	757.1442
2019	1.6631	10.6452	18.9116	0.0422	4.2444	0.3552	4.5996	1.4366	0.3281	1.7647	0.0000	3,246.7936	3,246.7936	0.2471	0.0000	3,251.9825
2020	3.0253	14.3841	38.5731	0.0990	5.9213	0.3559	6.2772	1.5958	0.3306	1.9264	0.0000	7,214.5247	7,214.5247	0.2645	0.0000	7,220.0788
2021	2.8091	12.0720	36.3965	0.0985	5.8987	0.3127	6.2113	1.5897	0.2904	1.8801	0.0000	7,117.3569	7,117.3569	0.2531	0.0000	7,122.6717
2022	2.6488	10.7249	34.4184	0.0981	5.8760	0.2887	6.1647	1.5836	0.2681	1.8517	0.0000	7,030.3826	7,030.3826	0.2443	0.0000	7,035.5124
2023	2.4801	9.4913	32.8250	0.0980	5.8760	0.2640	6.1400	1.5836	0.2451	1.8287	0.0000	6,974.4067	6,974.4067	0.2353	0.0000	6,979.3487
2024	2.3824	9.3242	31.7112	0.0987	5.9212	0.2554	6.1766	1.5958	0.2369	1.8327	0.0000	6,984.1035	6,984.1035	0.2312	0.0000	6,988.9585
2025	2.2959	9.0686	30.5653	0.0983	5.8987	0.2440	6.1427	1.5898	0.2261	1.8159	0.0000	6,921.1451	6,921.1451	0.2256	0.0000	6,925.8827
2026	2.2289	8.9650	29.9644	0.0987	5.8988	0.2437	6.1426	1.5898	0.2259	1.8157	0.0000	6,909.0047	6,909.0047	0.2235	0.0000	6,913.6972
2027	2.1734	8.8902	29.2544	0.0987	5.8990	0.2442	6.1432	1.5899	0.2263	1.8162	0.0000	6,882.4048	6,882.4048	0.2202	0.0000	6,887.0293
2028	2.1189	8.7857	28.5422	0.0983	5.8765	0.2433	6.1198	1.5838	0.2255	1.8094	0.0000	6,833.4070	6,833.4070	0.2164	0.0000	6,837.9521
2029	2.0810	8.7610	28.1924	0.0987	5.8992	0.2444	6.1437	1.5900	0.2266	1.8165	0.0000	6,840.2966	6,840.2966	0.2145	0.0000	6,844.8003
2030	2.0346	8.1233	27.8359	0.0992	5.8994	0.1953	6.0947	1.5900	0.1815	1.7715	0.0000	6,864.0947	6,864.0947	0.1549	0.0000	6,867.3473
2031	2.0039	8.0795	27.5219	0.0992	5.8994	0.1955	6.0949	1.5901	0.1817	1.7717	0.0000	6,850.6803	6,850.6803	0.1527	0.0000	6,853.8874
2032	1.9819	8.0743	27.3733	0.0996	5.9222	0.1964	6.1185	1.5962	0.1825	1.7787	0.0000	6,865.9075	6,865.9075	0.1514	0.0000	6,869.0874

2033	1.9389	7.9773	26.9453	0.0988	5.8770	0.1949	6.0719	1.5840	0.1811	1.7652	0.0000	6,804.2878	6,804.2878	0.1486	0.0000	6,807.4087
2034	1.9141	7.9477	26.7406	0.0988	5.8771	0.1949	6.0720	1.5841	0.1811	1.7652	0.0000	6,796.5259	6,796.5259	0.1471	0.0000	6,799.6155
2035	1.8875	7.8578	26.6791	0.0992	5.8997	0.1881	6.0878	1.5902	0.1743	1.7644	0.0000	6,816.3976	6,816.3976	0.1455	0.0000	6,819.4525
2036	0.1588	0.9368	2.1081	4.0400e-003	4.9681	0.0118	4.9799	1.2195	0.0118	1.2313	0.0000	342.8367	342.8367	0.0128	0.0000	343.1050
2037	0.1513	0.7620	2.0564	3.7800e-003	2.2072	0.0185	2.2257	0.5418	0.0185	0.5603	0.0000	322.7937	322.7937	0.0122	0.0000	323.0507
2038	16.5054	0.4718	1.5011	2.6500e-003	0.2531	0.0173	0.2704	0.0621	0.0173	0.0794	0.0000	227.8792	227.8792	8.7600e-003	0.0000	228.0631
2039	54.8176	0.0962	0.2279	3.8000e-004	0.8137	1.2600e-003	0.8150	0.1997	1.2600e-003	0.2010	0.0000	32.4263	32.4263	1.2000e-003	0.0000	32.4515
Total	111.2120	182.1120	523.8853	1.6522	112.5408	5.2862	117.8270	31.4667	4.9037	36.3705	0.0000	116,658.8062	116,658.8062	4.0295	0.0000	116,743.4256

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2016	2/23/2017	5	300	
2	Site Preparation	Site Preparation	2/24/2017	11/2/2017	5	180	
3	Grading	Grading	11/3/2017	8/15/2019	5	465	
4	Building Construction	Building Construction	8/16/2019	6/11/2037	5	4650	
5	Paving	Paving	6/12/2037	9/16/2038	5	330	
6	Architectural Coating	Architectural Coating	9/17/2038	12/22/2039	5	330	

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3,900.00	1000sqft	89.53	3,900,000.00	0
General Light Industry	150.00	1000sqft	3.44	150,000.00	0
Apartments Mid Rise	6,293.00	Dwelling Unit	165.61	6,293,000.00	17998
Regional Shopping Center	1,600.00	1000sqft	36.73	1,600,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3	Operational Year	2035		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2035
tblVehicleTrips	WD_TR	6.59	6.65
tblWoodstoves	NumberCatalytic	165.61	97.29

tblWoodstoves	NumberNoncatalytic	165.61	97.29

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.5668	5.9674	4.6631	5.3900e-003	0.0157	0.2992	0.3149	4.1600e-003	0.2789	0.2831	0.0000	497.7000	497.7000	0.1324	0.0000	500.4800
2017	0.6469	6.9268	5.2617	5.7800e-003	3.6611	0.3575	4.0185	1.7349	0.3293	2.0642	0.0000	531.1318	531.1318	0.1565	0.0000	534.4181
2018	0.6978	7.7790	5.6166	8.3000e-003	2.0374	0.3640	2.4014	0.8417	0.3349	1.1766	0.0000	752.3186	752.3186	0.2298	0.0000	757.1442
2019	2.0338	12.1409	23.6775	0.0541	5.0283	0.3805	5.4087	1.6471	0.3514	1.9985	0.0000	4,115.0151	4,115.0151	0.2743	0.0000	4,120.7744
2020	3.9193	17.8188	50.3302	0.1307	8.0170	0.4164	8.4334	2.1589	0.3864	2.5453	0.0000	9,459.3163	9,459.3163	0.3329	0.0000	9,466.3073
2021	3.6421	14.9249	47.4303	0.1301	7.9864	0.3672	8.3535	2.1506	0.3407	2.4913	0.0000	9,328.2594	9,328.2594	0.3177	0.0000	9,334.9317
2022	3.4363	13.2634	44.7984	0.1295	7.9557	0.3422	8.2978	2.1423	0.3173	2.4596	0.0000	9,210.9580	9,210.9580	0.3059	0.0000	9,217.3819
2023	3.2189	11.7260	42.6720	0.1294	7.9557	0.3146	8.2702	2.1423	0.2917	2.4340	0.0000	9,134.8009	9,134.8009	0.2940	0.0000	9,140.9749
2024	3.0920	11.5350	41.1786	0.1303	8.0169	0.3065	8.3234	2.1588	0.2840	2.4428	0.0000	9,144.7505	9,144.7505	0.2882	0.0000	9,150.8036
2025	2.9802	11.2383	39.6547	0.1298	7.9864	0.2951	8.2815	2.1506	0.2733	2.4239	0.0000	9,059.9776	9,059.9776	0.2808	0.0000	9,065.8749
2026	2.8906	11.1008	38.8468	0.1302	7.9866	0.2949	8.2814	2.1507	0.2730	2.4238	0.0000	9,043.2849	9,043.2849	0.2779	0.0000	9,049.1205
2027	2.8158	11.0004	37.8960	0.1302	7.9868	0.2955	8.2822	2.1508	0.2736	2.4244	0.0000	9,006.7386	9,006.7386	0.2735	0.0000	9,012.4809
2028	2.7425	10.8640	36.9460	0.1297	7.9564	0.2944	8.2508	2.1426	0.2727	2.4153	0.0000	8,941.1355	8,941.1355	0.2684	0.0000	8,946.7713
2029	2.6907	10.8268	36.4638	0.1302	7.9871	0.2958	8.2829	2.1509	0.2739	2.4248	0.0000	8,948.8752	8,948.8752	0.2656	0.0000	8,954.4519
2030	2.6303	10.1709	35.9732	0.1308	7.9872	0.2468	8.2340	2.1510	0.2289	2.3799	0.0000	8,966.5575	8,966.5575	0.2050	0.0000	8,970.8631
2031	2.5881	10.1114	35.5441	0.1308	7.9874	0.2470	8.2343	2.1510	0.2291	2.3801	0.0000	8,948.1133	8,948.1133	0.2021	0.0000	8,952.3565

2032	2.5575	10.1011	35.3323	0.1313	8.0181	0.2481	8.2662	2.1593	0.2301	2.3895	0.0000	8,967.2297	8,967.2297	0.2003	0.0000	8,971.4349
2033	2.5001	9.9762	34.7629	0.1303	7.9570	0.2462	8.2032	2.1429	0.2284	2.3713	0.0000	8,886.1114	8,886.1114	0.1965	0.0000	8,890.2369
2034	2.4661	9.9365	34.4834	0.1303	7.9571	0.2462	8.2033	2.1429	0.2284	2.3713	0.0000	8,875.4431	8,875.4431	0.1944	0.0000	8,879.5258
2035	2.4335	9.8470	34.3926	0.1308	7.9877	0.2396	8.2273	2.1512	0.2217	2.3729	0.0000	8,900.9558	8,900.9558	0.1925	0.0000	8,904.9979
2036	0.1588	0.9368	2.1081	4.0400e-003	6.7392	0.0118	6.7510	1.6542	0.0118	1.6660	0.0000	342.8367	342.8367	0.0128	0.0000	343.1050
2037	0.1513	0.7620	2.0564	3.7800e-003	2.9913	0.0185	3.0098	0.7342	0.0185	0.7527	0.0000	322.7937	322.7937	0.0122	0.0000	323.0507
2038	22.7574	0.4718	1.5011	2.6500e-003	0.3438	0.0173	0.3611	0.0844	0.0173	0.1017	0.0000	227.8792	227.8792	8.7600e-003	0.0000	228.0631
2039	75.7123	0.0962	0.2279	3.8000e-004	1.1169	1.2600e-003	1.1182	0.2742	1.2600e-003	0.2754	0.0000	32.4263	32.4263	1.2000e-003	0.0000	32.4515
Total	149.3291	219.5225	671.8176	2.1685	149.6629	6.1463	155.8092	41.3718	5.6966	47.0684	0.0000	151,644.6090	151,644.6090	4.9234	0.0000	151,748.0011

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.5668	5.9674	4.6631	5.3900e-003	0.0157	0.2992	0.3149	4.1600e-003	0.2789	0.2831	0.0000	497.6994	497.6994	0.1324	0.0000	500.4795
2017	0.6469	6.9268	5.2616	5.7800e-003	3.6611	0.3575	4.0185	1.7349	0.3293	2.0642	0.0000	531.1312	531.1312	0.1565	0.0000	534.4175
2018	0.6978	7.7790	5.6166	8.3000e-003	2.0374	0.3640	2.4014	0.8417	0.3349	1.1766	0.0000	752.3177	752.3177	0.2298	0.0000	757.1433
2019	2.0338	12.1409	23.6774	0.0541	5.0283	0.3805	5.4087	1.6471	0.3514	1.9985	0.0000	4,115.0144	4,115.0144	0.2743	0.0000	4,120.7737
2020	3.9193	17.8188	50.3302	0.1307	8.0170	0.4164	8.4334	2.1589	0.3864	2.5453	0.0000	9,459.3160	9,459.3160	0.3329	0.0000	9,466.3070
2021	3.6421	14.9249	47.4303	0.1301	7.9864	0.3672	8.3535	2.1506	0.3407	2.4913	0.0000	9,328.2591	9,328.2591	0.3177	0.0000	9,334.9313
2022	3.4363	13.2634	44.7984	0.1295	7.9557	0.3421	8.2978	2.1423	0.3173	2.4596	0.0000	9,210.9577	9,210.9577	0.3059	0.0000	9,217.3816
2023	3.2189	11.7260	42.6720	0.1294	7.9557	0.3146	8.2702	2.1423	0.2917	2.4340	0.0000	9,134.8005	9,134.8005	0.2940	0.0000	9,140.9745
2024	3.0920	11.5350	41.1786	0.1303	8.0169	0.3065	8.3234	2.1588	0.2840	2.4428	0.0000	9,144.7501	9,144.7501	0.2882	0.0000	9,150.8032

2025	2.9802	11.2383	39.6547	0.1298	7.9864	0.2951	8.2815	2.1506	0.2733	2.4239	0.0000	9,059.9773	9,059.9773	0.2808	0.0000	9,065.8746
2026	2.8906	11.1008	38.8468	0.1302	7.9866	0.2949	8.2814	2.1507	0.2730	2.4238	0.0000	9,043.2845	9,043.2845	0.2779	0.0000	9,049.1201
2027	2.8158	11.0004	37.8960	0.1302	7.9868	0.2955	8.2822	2.1508	0.2736	2.4244	0.0000	9,006.7382	9,006.7382	0.2735	0.0000	9,012.4806
2028	2.7425	10.8640	36.9460	0.1297	7.9564	0.2944	8.2508	2.1426	0.2727	2.4153	0.0000	8,941.1352	8,941.1352	0.2684	0.0000	8,946.7710
2029	2.6907	10.8268	36.4638	0.1302	7.9871	0.2958	8.2829	2.1509	0.2739	2.4248	0.0000	8,948.8749	8,948.8749	0.2656	0.0000	8,954.4515
2030	2.6303	10.1709	35.9732	0.1308	7.9872	0.2468	8.2340	2.1510	0.2289	2.3799	0.0000	8,966.5571	8,966.5571	0.2050	0.0000	8,970.8627
2031	2.5881	10.1114	35.5441	0.1308	7.9874	0.2470	8.2343	2.1510	0.2291	2.3801	0.0000	8,948.1128	8,948.1128	0.2021	0.0000	8,952.3561
2032	2.5575	10.1011	35.3323	0.1313	8.0181	0.2481	8.2662	2.1593	0.2301	2.3895	0.0000	8,967.2293	8,967.2293	0.2003	0.0000	8,971.4345
2033	2.5001	9.9762	34.7629	0.1303	7.9570	0.2462	8.2032	2.1429	0.2284	2.3713	0.0000	8,886.1110	8,886.1110	0.1965	0.0000	8,890.2365
2034	2.4661	9.9365	34.4834	0.1303	7.9571	0.2462	8.2033	2.1429	0.2284	2.3713	0.0000	8,875.4427	8,875.4427	0.1944	0.0000	8,879.5254
2035	2.4335	9.8470	34.3926	0.1308	7.9877	0.2396	8.2273	2.1512	0.2217	2.3729	0.0000	8,900.9554	8,900.9554	0.1925	0.0000	8,904.9975
2036	0.1588	0.9368	2.1081	4.0400e-003	6.7392	0.0118	6.7510	1.6542	0.0118	1.6660	0.0000	342.8363	342.8363	0.0128	0.0000	343.1046
2037	0.1513	0.7620	2.0564	3.7800e-003	2.9913	0.0185	3.0098	0.7342	0.0185	0.7527	0.0000	322.7933	322.7933	0.0122	0.0000	323.0504
2038	22.7574	0.4718	1.5011	2.6500e-003	0.3438	0.0173	0.3611	0.0844	0.0173	0.1017	0.0000	227.8789	227.8789	8.7600e-003	0.0000	228.0628
2039	75.7123	0.0962	0.2279	3.8000e-004	1.1169	1.2600e-003	1.1182	0.2742	1.2600e-003	0.2754	0.0000	32.4263	32.4263	1.2000e-003	0.0000	32.4515
Total	149.3291	219.5225	671.8175	2.1685	149.6629	6.1463	155.8092	41.3718	5.6966	47.0684	0.0000	151,644.5992	151,644.5992	4.9234	0.0000	151,747.9911

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description

1	Demolition	Demolition	1/1/2016	2/23/2017	5	300	
2	Site Preparation	Site Preparation	2/24/2017	11/2/2017	5	180	
3	Grading	Grading	11/3/2017	8/15/2019	5	465	
4	Building Construction	Building Construction	8/16/2019	6/11/2037	5	4650	
5	Paving	Paving	6/12/2037	9/16/2038	5	330	
6	Architectural Coating	Architectural Coating	9/17/2038	12/22/2039	5	330	

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Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	333.00	1000sqft	7.64	333,000.00	0
General Light Industry	483.00	1000sqft	11.09	483,000.00	0
Apartments Mid Rise	616.00	Dwelling Unit	16.21	616,000.00	1762
Regional Shopping Center	350.00	1000sqft	8.03	350,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.8465	0.1021	7.6014	0.0100		0.5333	0.5333		0.5331	0.5331	65.5325	274.3479	339.8805	0.3188	4.8900e-003	348.0921
Energy	0.1409	1.2599	0.9218	7.6900e-003		0.0974	0.0974		0.0974	0.0974	0.0000	5,328.8472	5,328.8472	0.2046	0.0624	5,352.4797
Mobile	13.9453	39.3014	152.0921	0.3273	19.5023	0.6100	20.1123	5.2336	0.5619	5.7955	0.0000	23,726.7858	23,726.7858	0.7308	0.0000	23,742.1327
Waste						0.0000	0.0000		0.0000	0.0000	316.5583	0.0000	316.5583	18.7081	0.0000	709.4276
Water						0.0000	0.0000		0.0000	0.0000	75.1699	451.8476	527.0176	7.7411	0.1865	747.4047
Total	22.9327	40.6634	160.6153	0.3450	19.5023	1.2407	20.7429	5.2336	1.1924	6.4260	457.2608	29,781.8286	30,239.0894	27.7034	0.2538	30,899.5367

3168.0017 Fresno FCSP - 2020 BAU**Fresno County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	650.00	1000sqft	14.92	650,000.00	0
General Light Industry	20.00	1000sqft	0.46	20,000.00	0
Apartments Mid Rise	1,049.00	Dwelling Unit	27.61	1,049,000.00	3000
Regional Shopping Center	267.00	1000sqft	6.13	267,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3	Operational Year	2020		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	6.65

tblWoodstoves	NumberCatalytic	27.61	165.61
tblWoodstoves	NumberNoncatalytic	27.61	165.61

2.0 Emissions Summary

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											669.5153	467.1744	1,136.6898	3.1510	8.3300e-003	1,205.4437
Energy											0.0000	5,122.7088	5,122.7088	0.1976	0.0597	5,145.3536
Mobile											0.0000	24,416.5307	24,416.5307	0.7488	0.0000	24,432.2544
Waste											282.6020	0.0000	282.6020	16.7013	0.0000	633.3293
Water											66.0763	456.1604	522.2367	6.8073	0.1645	716.1898
Total											1,018.1937	30,462.5742	31,480.7679	27.6059	0.2325	32,132.5707

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated											0.0000	24,416.5307	24,416.5307	0.7488	0.0000	24,432.2544

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	6,975.85	7,510.84	6367.43	20,406,203	20,406,203
General Light Industry	139.40	26.40	13.60	307,383	307,383

General Office Building	7,156.50	1,540.50	637.00	12,959,288	12,959,288
Regional Shopping Center	11,464.98	13,341.99	6739.08	19,388,037	19,388,037
Total	25,736.73	22,419.73	13,757.11	53,060,911	53,060,911

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.437499	0.063819	0.163172	0.170048	0.042873	0.007078	0.019723	0.082707	0.002066	0.001762	0.006633	0.000756	0.001865

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated											0.0000	3,815.0988	3,815.0988	0.1725	0.0357	3,829.7858
NaturalGas Unmitigated											0.0000	1,307.6100	1,307.6100	0.0251	0.0240	1,315.5679

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

General Light Industry	435200											0.0000	23.2239	23.2239	4.5000e-004	4.3000e-004	23.3653
General Office Building	8.918e+006											0.0000	475.8984	475.8984	9.1200e-003	8.7200e-003	478.7947
Regional Shopping Center	2.97705e+006											0.0000	158.8667	158.8667	3.0400e-003	2.9100e-003	159.8336
Apartments Mid Rise	1.21734e+007											0.0000	649.6209	649.6209	0.0125	0.0119	653.5744
Total												0.0000	1,307.6100	1,307.6100	0.0251	0.0240	1,315.5679

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	3.90539e+006	1,136.1213	0.0514	0.0106	1,140.4950
General Light Industry	193200	56.2041	2.5400e-003	5.3000e-004	56.4205
General Office Building	6.578e+006	1,913.6156	0.0865	0.0179	1,920.9825
Regional Shopping Center	2.43771e+006	709.1578	0.0321	6.6300e-003	711.8878
Total		3,815.0988	0.1725	0.0357	3,829.7858

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated											669.5153	467.1744	1,136.6898	3.1510	8.3300e-003	1,205.4437

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											669.5153	454.4346	1,123.9499	3.1386	8.3300e-003	1,192.4423
Landscaping											0.0000	12.7399	12.7399	0.0125	0.0000	13.0013
Total											669.5153	467.1744	1,136.6898	3.1510	8.3300e-003	1,205.4437

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	522.2367	6.8073	0.1645	716.1898

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	68.3466 / 43.0881	173.1409	2.2339	0.0540	236.7942
General Light Industry	4.625 / 0	8.7476	0.1510	3.6300e-003	13.0436
General Office Building	115.527 / 70.8068	290.5997	3.7759	0.0913	398.1856
Regional Shopping Center	19.7774 / 12.1216	49.7485	0.6464	0.0156	68.1665
Total		522.2367	6.8073	0.1645	716.1898

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	282.6020	16.7013	0.0000	633.3293

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	482.54	97.9513	5.7888	0.0000	219.5151
General Light Industry	24.8	5.0342	0.2975	0.0000	11.2819
General Office Building	604.5	122.7080	7.2518	0.0000	274.9966
Regional Shopping Center	280.35	56.9085	3.3632	0.0000	127.5357
Total		282.6020	16.7013	0.0000	633.3293

3168.0017 Fresno DNCP - 2020 with regulations - Non-Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	333.00	1000sqft	7.64	333,000.00	0
General Light Industry	483.00	1000sqft	11.09	483,000.00	0
Regional Shopping Center	58.00	1000sqft	1.33	58,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 30% for new non-residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020

2.0 Emissions Summary

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0218	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165
Energy	0.0848	0.7709	0.6475	4.6300e-003		0.0586	0.0586		0.0586	0.0586	0.0000	2,749.3066	2,749.3066	0.1016	0.0348	2,762.2306
Mobile	4.6296	13.6514	51.4707	0.1158	6.9254	0.2152	7.1406		0.1982	2.0567	0.0000	8,391.9933	8,391.9933	0.2562	0.0000	8,397.3730
Waste						0.0000	0.0000		0.0000	0.0000	196.8018	0.0000	196.8018	11.6307	0.0000	441.0455
Water						0.0000	0.0000		0.0000	0.0000	55.5750	241.7529	297.3280	5.7189	0.1372	459.9691
Total	8.7362	14.4224	52.1263	0.1204	6.9254	0.2738	7.1992		0.2568	2.1153	252.3768	11,383.0684	11,635.4452	17.7073	0.1721	12,060.6346

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0218	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165
Energy	0.0627	0.5700	0.4788	3.4200e-003		0.0433	0.0433		0.0433	0.0433	0.0000	2,372.0212	2,372.0212	0.0903	0.0292	2,382.9653
Mobile	4.2718	10.9094	44.7598	0.0870	5.1305	0.1632	5.2937		0.1503	1.5272	0.0000	6,304.7383	6,304.7383	0.1985	0.0000	6,308.9068
Waste						0.0000	0.0000		0.0000	0.0000	49.2004	0.0000	49.2004	2.9077	0.0000	110.2614

Water						0.0000	0.0000		0.0000	0.0000	44.4600	179.2782	223.7382	4.5745	0.1097	353.7933
Total	8.3563	11.4795	45.2467	0.0904	5.1305	0.2065	5.3371		0.1937	1.5705	93.6605	8,856.0533	8,949.7138	7.7710	0.1388	9,155.9433

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	4.35	20.41	13.20	24.87	25.92	24.57	25.87	0.00	24.59	25.76	62.89	22.20	23.08	56.11	19.30	24.08

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2718	10.9094	44.7598	0.0870	5.1305	0.1632	5.2937		0.1503	1.5272	0.0000	6,304.7383	6,304.7383	0.1985	0.0000	6,308.9068
Unmitigated	4.6296	13.6514	51.4707	0.1158	6.9254	0.2152	7.1406		0.1982	2.0567	0.0000	8,391.9933	8,391.9933	0.2562	0.0000	8,397.3730

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	3,366.51	637.56	328.44	7,423,295	5,499,380
General Office Building	3,666.33	789.21	326.34	6,639,143	4,918,459
Regional Shopping Center	2,490.52	2,898.26	1463.92	4,211,634	3,120,094
Total	9,523.36	4,325.03	2,118.70	18,274,072	13,537,933

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.437499	0.063819	0.163172	0.170048	0.042873	0.007078	0.019723	0.082707	0.002066	0.001762	0.006633	0.000756	0.001865

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,751.4824	1,751.4824	0.0784	0.0178	1,758.6500
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,910.1319	1,910.1319	0.0855	0.0194	1,917.9488
NaturalGas Mitigated	0.0627	0.5700	0.4788	3.4200e-003		0.0433	0.0433		0.0433	0.0433	0.0000	620.5388	620.5388	0.0119	0.0114	624.3153
NaturalGas Unmitigated	0.0848	0.7709	0.6475	4.6300e-003		0.0586	0.0586		0.0586	0.0586	0.0000	839.1747	839.1747	0.0161	0.0154	844.2818

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	1.05101e+007	0.0567	0.5152	0.4328	3.0900e-003		0.0392	0.0392		0.0392	0.0392	0.0000	560.8579	560.8579	0.0108	0.0103	564.2712
General Office Building	4.56876e+006	0.0246	0.2240	0.1881	1.3400e-003		0.0170	0.0170		0.0170	0.0170	0.0000	243.8064	243.8064	4.6700e-003	4.4700e-003	245.2902
Regional Shopping Center	646700	3.4900e-003	0.0317	0.0266	1.9000e-004		2.4100e-003	2.4100e-003		2.4100e-003	2.4100e-003	0.0000	34.5104	34.5104	6.6000e-004	6.3000e-004	34.7204
Total		0.0848	0.7709	0.6475	4.6200e-003		0.0586	0.0586		0.0586	0.0586	0.0000	839.1747	839.1747	0.0161	0.0154	844.2818

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	3.2261e+006	0.0174	0.1581	0.1328	9.5000e-004		0.0120	0.0120		0.0120	0.0120	0.0000	172.1572	172.1572	3.3000e-003	3.1600e-003	173.2049
Regional Shopping Center	488882	2.6400e-003	0.0240	0.0201	1.4000e-004		1.8200e-003	1.8200e-003		1.8200e-003	1.8200e-003	0.0000	26.0886	26.0886	5.0000e-004	4.8000e-004	26.2474
General Light Industry	7.91347e+006	0.0427	0.3879	0.3259	2.3300e-003		0.0295	0.0295		0.0295	0.0295	0.0000	422.2930	422.2930	8.0900e-003	7.7400e-003	424.8630
Total		0.0627	0.5700	0.4788	3.4200e-003		0.0433	0.0433		0.0433	0.0433	0.0000	620.5388	620.5388	0.0119	0.0114	624.3153

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	4.66578e+006	1,040.5095	0.0466	0.0106	1,044.7676
General Office Building	3.36996e+006	751.5304	0.0336	7.6400e-003	754.6059
Regional Shopping Center	529540	118.0920	5.2800e-003	1.2000e-003	118.5753

Total		1,910.1319	0.0855	0.0194	1,917.9488

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	4.31947e+006	963.2791	0.0431	9.8000e-003	967.2212
General Office Building	3.05028e+006	680.2389	0.0304	6.9200e-003	683.0227
Regional Shopping Center	484126	107.9643	4.8300e-003	1.1000e-003	108.4061
Total		1,751.4824	0.0784	0.0178	1,758.6500

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0218	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165
Unmitigated	4.0218	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165

6.2 Area by SubCategory

Unmitigated

[illegible]

Consumer Products	3.4134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.6000e-004	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165
Total	4.0218	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.6077					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.4134					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.6000e-004	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165
Total	4.0218	7.0000e-005	8.0800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0156	0.0156	4.0000e-005	0.0000	0.0165

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	223.7382	4.5745	0.1097	353.7933
Unmitigated	297.3280	5.7189	0.1372	459.9691

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	111.694 / 0	170.2161	3.6456	0.0873	273.8387
General Office Building	59.1853 / 36.2749	118.5094	1.9330	0.0466	173.5338
Regional Shopping Center	4.29621 / 2.63316	8.6025	0.1403	3.3800e-003	12.5967
Total		297.3280	5.7189	0.1372	459.9691

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	89.355 / 0	127.1672	2.9161	0.0698	210.0284
General Office Building	47.3483 / 29.0199	90.0355	1.5462	0.0372	134.0354
Regional Shopping Center	3.43696 / 2.10653	6.5356	0.1122	2.7000e-003	9.7295
Total		223.7382	4.5745	0.1096	353.7933

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	49.2004	2.9077	0.0000	110.2614
Unmitigated	196.8018	11.6307	0.0000	441.0455

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	598.92	121.5754	7.1849	0.0000	272.4582
General Office Building	309.69	62.8643	3.7152	0.0000	140.8829
Regional Shopping Center	60.9	12.3622	0.7306	0.0000	27.7044
Total		196.8018	11.6307	0.0000	441.0454

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	149.73	30.3938	1.7962	0.0000	68.1146
General Office Building	77.4225	15.7161	0.9288	0.0000	35.2207
Regional Shopping Center	15.225	3.0905	0.1827	0.0000	6.9261
Total		49.2005	2.9077	0.0000	110.2614

3168.0017 Fresno DNCP - 2020 with regulations - Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	616.00	Dwelling Unit	16.21	616,000.00	1762

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	6.65
tblWoodstoves	NumberCatalytic	16.21	97.29
tblWoodstoves	NumberNoncatalytic	16.21	97.29

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1334	0.3468	22.5967	0.0590		2.9812	2.9812		2.9811	2.9811	393.3165	274.3271	667.6436	1.8511	4.8900e-003	708.0328
Energy	0.0386	0.3294	0.1402	2.1000e-003		0.0266	0.0266		0.0266	0.0266	0.0000	892.9097	892.9097	0.0302	0.0122	897.3243
Mobile	2.6261	8.5644	30.5257	0.0753	4.5413	0.1393	4.6806	1.2187	0.1283	1.3470	0.0000	5,460.2850	5,460.2850	0.1638	0.0000	5,463.7237
Waste						0.0000	0.0000		0.0000	0.0000	57.5195	0.0000	57.5195	3.3993	0.0000	128.9050
Water						0.0000	0.0000		0.0000	0.0000	12.7330	68.1801	80.9130	1.3109	0.0316	118.2285
Total	7.7980	9.2407	53.2625	0.1364	4.5413	3.1471	7.6884	1.2187	3.1360	4.3547	463.5690	6,695.7019	7,159.2709	6.7552	0.0487	7,316.2142

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	3.1507	0.0531	4.5906	2.4000e-004		0.0439	0.0439		0.0437	0.0437	0.0000	274.3271	274.3271	0.0124	4.8900e-003	276.1041
Energy	0.0303	0.2588	0.1101	1.6500e-003		0.0209	0.0209		0.0209	0.0209	0.0000	796.5122	796.5122	0.0280	0.0106	800.3694
Mobile	2.3914	6.7664	26.1251	0.0564	3.3643	0.1052	3.4695	0.9029	0.0969	0.9997	0.0000	4,091.5872	4,091.5872	0.1259	0.0000	4,094.2315
Waste						0.0000	0.0000		0.0000	0.0000	14.3799	0.0000	14.3799	0.8498	0.0000	32.2262
Water						0.0000	0.0000		0.0000	0.0000	10.1864	51.3080	61.4944	1.0485	0.0252	91.3335
Total	5.5724	7.0783	30.8258	0.0583	3.3643	0.1700	3.5343	0.9029	0.1615	1.0643	24.5662	5,213.7345	5,238.3008	2.0647	0.0407	5,294.2649

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	28.54	23.40	42.12	57.23	25.92	94.60	54.03	25.92	94.85	75.56	94.70	22.13	26.83	69.44	16.40	27.64

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.3914	6.7664	26.1251	0.0564	3.3643	0.1052	3.4695	0.9029	0.0969	0.9997	0.0000	4,091.5872	4,091.5872	0.1259	0.0000	4,094.2315
Unmitigated	2.6261	8.5644	30.5257	0.0753	4.5413	0.1393	4.6806	1.2187	0.1283	1.3470	0.0000	5,460.2850	5,460.2850	0.1638	0.0000	5,463.7237

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	4,096.40	4,410.56	3739.12	11,983,051	8,877,373
Total	4,096.40	4,410.56	3,739.12	11,983,051	8,877,373

4.3 Trip Type Information

		Miles			Trip %			Trip Purpose %		
Land Use		H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise		10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.437499	0.063819	0.163172	0.170048	0.042873	0.007078	0.019723	0.082707	0.002066	0.001762	0.006633	0.000756	0.001865

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	496.7482	496.7482	0.0222	5.0500e-003	498.7811
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	511.4355	511.4355	0.0229	5.2000e-003	513.5285
NaturalGas Mitigated	0.0303	0.2588	0.1101	1.6500e-003		0.0209	0.0209		0.0209	0.0209	0.0000	299.7640	299.7640	5.7500e-003	5.5000e-003	301.5883
NaturalGas Unmitigated	0.0386	0.3294	0.1402	2.1000e-003		0.0266	0.0266		0.0266	0.0266	0.0000	381.4742	381.4742	7.3100e-003	6.9900e-003	383.7958

5.2 Energy by Land Use - NaturalGas
Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	7.14856e+006	0.0386	0.3294	0.1402	2.1000e-003		0.0266	0.0266		0.0266	0.0266	0.0000	381.4742	381.4742	7.3100e-003	6.9900e-003	383.7958
Total		0.0386	0.3294	0.1402	2.1000e-003		0.0266	0.0266		0.0266	0.0266	0.0000	381.4742	381.4742	7.3100e-003	6.9900e-003	383.7958

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	5.61737e+006	0.0303	0.2588	0.1101	1.6500e-003		0.0209	0.0209		0.0209	0.0209	0.0000	299.7640	299.7640	5.7500e-003	5.5000e-003	301.5883
Total		0.0303	0.2588	0.1101	1.6500e-003		0.0209	0.0209		0.0209	0.0209	0.0000	299.7640	299.7640	5.7500e-003	5.5000e-003	301.5883

5.3 Energy by Land Use - Electricity
Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.29334e+006	511.4355	0.0229	5.2000e-003	513.5285
Total		511.4355	0.0229	5.2000e-003	513.5285

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.22748e+006	496.7482	0.0222	5.0500e-003	498.7811
Total		496.7482	0.0222	5.0500e-003	498.7811

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.1507	0.0531	4.5906	2.4000e-004		0.0439	0.0439		0.0437	0.0437	0.0000	274.3271	274.3271	0.0124	4.8900e-003	276.1041
Unmitigated	5.1334	0.3468	22.5967	0.0590		2.9812	2.9812		2.9811	2.9811	393.3165	274.3271	667.6436	1.8511	4.8900e-003	708.0328

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5782					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4058					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.0097	0.2937	18.0076	0.0588		2.9560	2.9560		2.9558	2.9558	393.3165	266.8558	660.1723	1.8438	4.8900e-003	700.4085
Landscaping	0.1397	0.0531	4.5891	2.4000e-004		0.0252	0.0252		0.0252	0.0252	0.0000	7.4713	7.4713	7.2900e-003	0.0000	7.6243
Total	5.1334	0.3468	22.5967	0.0590		2.9812	2.9812		2.9810	2.9810	393.3165	274.3271	667.6436	1.8511	4.8900e-003	708.0328

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5782					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.4058					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0270	0.0000	1.4700e-003	0.0000		0.0186	0.0186		0.0184	0.0184	0.0000	266.8558	266.8558	5.1100e-003	4.8900e-003	268.4798
Landscaping	0.1397	0.0531	4.5891	2.4000e-004		0.0252	0.0252		0.0252	0.0252	0.0000	7.4713	7.4713	7.2900e-003	0.0000	7.6243
Total	3.1507	0.0531	4.5905	2.4000e-004		0.0439	0.0439		0.0437	0.0437	0.0000	274.3271	274.3271	0.0124	4.8900e-003	276.1041

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	61.4944	1.0485	0.0252	91.3335
Unmitigated	80.9130	1.3109	0.0316	118.2285

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	40.1349 / 25.3024	80.9130	1.3109	0.0316	118.2285

Total		80.9130	1.3109	0.0316	118.2285

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	32.1079 / 20.2419	61.4944	1.0485	0.0252	91.3335
Total		61.4944	1.0485	0.0252	91.3335

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.3799	0.8498	0.0000	32.2262
Unmitigated	57.5195	3.3993	0.0000	128.9050

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	283.36	57.5195	3.3993	0.0000	128.9050
Total		57.5195	3.3993	0.0000	128.9050

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	70.84	14.3799	0.8498	0.0000	32.2262
Total		14.3799	0.8498	0.0000	32.2262

3168.0017 Fresno FCSP - 2020 with regulations - Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	1,049.00	Dwelling Unit	27.61	1,049,000.00	3000

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion go

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022

tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblVehicleTrips	WD_TR	6.59	6.65
tblWoodstoves	NumberCatalytic	27.61	165.61
tblWoodstoves	NumberNoncatalytic	27.61	165.61

2.0 Emissions Summary

2.2 Overall Operational Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										M1/yr					
Area	8.7404	0.5904	38.4679	0.1004		5.0748	5.0748		5.0745	5.0745	669.5153	467.1577	1,136.6730	3.1510	8.3300e-003	1,205.4260
Energy	0.0656	0.5609	0.2387	3.5800e-003		0.0454	0.0454		0.0454	0.0454	0.0000	1,520.5557	1,520.5557	0.0514	0.0208	1,528.0733
Mobile	4.4720	14.5846	51.9828	0.1282	7.7334	0.2372	7.9706	2.0754	0.2185	2.2938	0.0000	9,298.4399	9,298.4399	0.2789	0.0000	9,304.2957
Waste						0.0000	0.0000		0.0000	0.0000	97.9513	0.0000	97.9513	5.7888	0.0000	219.5151
Water						0.0000	0.0000		0.0000	0.0000	21.6832	116.1054	137.7886	2.2323	0.0538	201.3339
Total	13.2780	15.7359	90.6895	0.2322	7.7334	5.3573	13.0907	2.0754	5.3383	7.4136	789.1498	11,402.2586	12,191.4084	11.5023	0.0829	12,458.6440

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										M1/yr					
Area	5.3653	0.0904	7.8173	4.1000e-004		0.0747	0.0747		0.0744	0.0744	0.0000	467.1577	467.1577	0.0211	8.3300e-003	470.1838
Energy	0.0516	0.4408	0.1876	2.8100e-003		0.0356	0.0356		0.0356	0.0356	0.0000	1,356.3983	1,356.3983	0.0476	0.0180	1,362.9668

Mobile	4.0724	11.5226	44.4890	0.0961	5.7292	0.1791	5.9082	1.5375	0.1650	1.7024	0.0000	6,967.6541	6,967.6541	0.2144	0.0000	6,972.1572
Waste						0.0000	0.0000		0.0000	0.0000	14.6927	0.0000	14.6927	0.8683	0.0000	32.9273
Water						0.0000	0.0000		0.0000	0.0000	17.3466	87.3736	104.7202	1.7856	0.0430	155.5339
Total	9.4894	12.0538	52.4939	0.0993	5.7292	0.2894	6.0186	1.5375	0.2750	1.8124	32.0393	8,878.5836	8,910.6229	2.9371	0.0693	8,993.7690

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	28.53	23.40	42.12	57.22	25.92	94.60	54.02	25.92	94.85	75.55	95.94	22.13	26.91	74.47	16.44	27.81

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0724	11.5226	44.4890	0.0961	5.7292	0.1791	5.9082	1.5375	0.1650	1.7024	0.0000	6,967.6541	6,967.6541	0.2144	0.0000	6,972.1572
Unmitigated	4.4720	14.5846	51.9828	0.1282	7.7334	0.2372	7.9706	2.0754	0.2185	2.2938	0.0000	9,298.4399	9,298.4399	0.2789	0.0000	9,304.2957

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	6,975.85	7,510.84	6367.43	20,406,203	15,117,474
Total	6,975.85	7,510.84	6,367.43	20,406,203	15,117,474

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.437499	0.063819	0.163172	0.170048	0.042873	0.007078	0.019723	0.082707	0.002066	0.001762	0.006633	0.000756	0.001865

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	845.9235	845.9235	0.0379	8.6000e-003	849.3853
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	870.9348	870.9348	0.0390	8.8600e-003	874.4990
NaturalGas Mitigated	0.0516	0.4408	0.1876	2.8100e-003		0.0356	0.0356		0.0356	0.0356	0.0000	510.4748	510.4748	9.7800e-003	9.3600e-003	513.5814
NaturalGas Unmitigated	0.0656	0.5609	0.2387	3.5800e-003		0.0454	0.0454		0.0454	0.0454	0.0000	649.6209	649.6209	0.0125	0.0119	653.5744

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.21734e+007	0.0656	0.5609	0.2387	3.5800e-003		0.0454	0.0454		0.0454	0.0454	0.0000	649.6209	649.6209	0.0125	0.0119	653.5744
Total		0.0656	0.5609	0.2387	3.5800e-003		0.0454	0.0454		0.0454	0.0454	0.0000	649.6209	649.6209	0.0125	0.0119	653.5744

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	9.56594e+006	0.0516	0.4408	0.1876	2.8100e-003		0.0356	0.0356		0.0356	0.0356	0.0000	510.4748	510.4748	9.7800e-003	9.3600e-003	513.5814
Total		0.0516	0.4408	0.1876	2.8100e-003		0.0356	0.0356		0.0356	0.0356	0.0000	510.4748	510.4748	9.7800e-003	9.3600e-003	513.5814

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	3.90539e+006	870.9348	0.0390	8.8600e-003	874.4990
Total		870.9348	0.0390	8.8600e-003	874.4990

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	3.79323e+006	845.9235	0.0379	8.6000e-003	849.3853
Total		845.9235	0.0379	8.6000e-003	849.3853

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.3653	0.0904	7.8173	4.1000e-004		0.0747	0.0747		0.0744	0.0744	0.0000	467.1577	467.1577	0.0211	8.3300e-003	470.1838
Unmitigated	8.7404	0.5904	38.4679	0.1004		5.0748	5.0748		5.0745	5.0745	669.5153	467.1577	1,136.6730	3.1510	8.3300e-003	1,205.4260

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9846					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.0969					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.4210	0.5000	30.6531	0.1000		5.0318	5.0318		5.0315	5.0315	669.5153	454.4346	1,123.9499	3.1386	8.3300e-003	1,192.4423
Landscaping	0.2380	0.0904	7.8148	4.1000e-004		0.0430	0.0430		0.0430	0.0430	0.0000	12.7231	12.7231	0.0124	0.0000	12.9836
Total	8.7404	0.5904	38.4679	0.1004		5.0748	5.0748		5.0745	5.0745	669.5153	467.1577	1,136.6730	3.1510	8.3300e-003	1,205.4260

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	4.0969					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0459	0.0000	2.5000e-003	0.0000		0.0317	0.0317		0.0314	0.0314	0.0000	454.4346	454.4346	8.7100e-003	8.3300e-003	457.2002
Landscaping	0.2380	0.0904	7.8148	4.1000e-004		0.0430	0.0430		0.0430	0.0430	0.0000	12.7231	12.7231	0.0124	0.0000	12.9836

Architectural Coating	0.9846					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.3653	0.0904	7.8173	4.1000e-004		0.0747	0.0747		0.0744	0.0744	0.0000	467.1577	467.1577	0.0211	8.3300e-003	470.1838

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	104.7202	1.7856	0.0430	155.5339
Unmitigated	137.7886	2.2323	0.0538	201.3339

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	68.3466 / 43.0881	137.7886	2.2323	0.0538	201.3339
Total		137.7886	2.2323	0.0538	201.3339

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	54.6773 / 34.4704	104.7202	1.7856	0.0430	155.5339

Total		104.7202	1.7856	0.0430	155.5339

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.6927	0.8683	0.0000	32.9273
Unmitigated	97.9513	5.7888	0.0000	219.5151

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	482.54	97.9513	5.7888	0.0000	219.5151
Total		97.9513	5.7888	0.0000	219.5151

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Apartments Mid Rise	72.381	14.6927	0.8683	0.0000	32.9273
Total		14.6927	0.8683	0.0000	32.9273

3168.0017 Fresno FCSP - 2020 with regulations - Non-Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	650.00	1000sqft	14.92	650,000.00	0
General Light Industry	20.00	1000sqft	0.46	20,000.00	0
Regional Shopping Center	267.00	1000sqft	6.13	267,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 30% for new non-residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion go

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										M1/yr					
Area	4.3117	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177
Energy	0.0665	0.6044	0.5077	3.6300e-003		0.0459	0.0459		0.0459	0.0459	0.0000	2,711.6560	2,711.6560	0.1045	0.0330	2,724.0648
Mobile	9.4448	25.5022	101.2010	0.2086	12.3753	0.3897	12.7651	3.3211	0.3590	3.6801	0.0000	15,118.0908	15,118.0908	0.4699	0.0000	15,127.9587
Waste						0.0000	0.0000		0.0000	0.0000	184.6507	0.0000	184.6507	10.9126	0.0000	413.8142
Water						0.0000	0.0000		0.0000	0.0000	44.3931	233.5809	277.9740	4.5701	0.1100	408.0566
Total	13.8230	26.1067	101.7174	0.2122	12.3753	0.4357	12.8110	3.3211	0.4050	3.7260	229.0438	18,063.3444	18,292.3882	16.0571	0.1430	18,673.9119

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										M1/yr					
Area	4.3117	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177
Energy	0.0479	0.4351	0.3655	2.6100e-003		0.0331	0.0331		0.0331	0.0331	0.0000	2,338.3155	2,338.3155	0.0925	0.0277	2,348.8289

Mobile	8.8054	20.6023	89.2090	0.1573	9.1680	0.2968	9.4648	2.4603	0.2734	2.7338	0.0000	11,388.2870	11,388.2870	0.3668	0.0000	11,395.9904
Waste						0.0000	0.0000		0.0000	0.0000	27.6976	0.0000	27.6976	1.6369	0.0000	62.0721
Water						0.0000	0.0000		0.0000	0.0000	35.5145	175.5824	211.0969	3.6555	0.0879	315.1168
Total	13.1650	21.0375	89.5832	0.1599	9.1680	0.3299	9.4979	2.4603	0.3065	2.7669	63.2121	13,902.2016	13,965.4137	5.7518	0.1156	14,122.0259

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	4.76	19.42	11.93	24.68	25.92	24.28	25.86	25.92	24.31	25.74	72.40	23.04	23.65	64.18	19.18	24.38

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.8054	20.6023	89.2090	0.1573	9.1680	0.2968	9.4648	2.4603	0.2734	2.7338	0.0000	11,388.2870	11,388.2870	0.3668	0.0000	11,395.9904
Unmitigated	9.4448	25.5022	101.2010	0.2086	12.3753	0.3897	12.7651	3.3211	0.3590	3.6801	0.0000	15,118.0908	15,118.0908	0.4699	0.0000	15,127.9587

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT		Annual VMT	
General Light Industry	139.40	26.40	13.60	307,383		227,718	
General Office Building	7,156.50	1,540.50	637.00	12,959,288		9,600,596	
Regional Shopping Center	11,464.98	13,341.99	6739.08	19,388,037		14,363,190	
Total	18,760.88	14,908.89	7,389.68	32,654,708		24,191,503	

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.437499	0.063819	0.163172	0.170048	0.042873	0.007078	0.019723	0.082707	0.002066	0.001762	0.006633	0.000756	0.001865

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,864.6892	1,864.6892	0.0834	0.0190	1,872.3201
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,053.6669	2,053.6669	0.0919	0.0209	2,062.0713
NaturalGas Mitigated	0.0479	0.4351	0.3655	2.6100e-003		0.0331	0.0331		0.0331	0.0331	0.0000	473.6264	473.6264	9.0800e-003	8.6800e-003	476.5088
NaturalGas Unmitigated	0.0665	0.6044	0.5077	3.6300e-003		0.0459	0.0459		0.0459	0.0459	0.0000	657.9891	657.9891	0.0126	0.0121	661.9935

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr						
General Light Industry	435200	2.3500e-003	0.0213	0.0179	1.3000e-004		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	23.2239	23.2239	4.5000e-004	4.3000e-004	23.3653	
General Office Building	8.918e+006	0.0481	0.4372	0.3672	2.6200e-003		0.0332	0.0332		0.0332	0.0332	0.0000	475.8984	475.8984	9.1200e-003	8.7200e-003	478.7947	
Regional Shopping Center	2.97705e+006	0.0161	0.1459	0.1226	8.8000e-004		0.0111	0.0111		0.0111	0.0111	0.0000	158.8667	158.8667	3.0400e-003	2.9100e-003	159.8336	
Total		0.0665	0.6044	0.5077	3.6300e-003		0.0459	0.0459		0.0459	0.0459	0.0000	657.9891	657.9891	0.0126	0.0121	661.9935	

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	6.2972e+006	0.0340	0.3087	0.2593	1.8500e-003		0.0235	0.0235		0.0235	0.0235	0.0000	336.0426	336.0426	6.4400e-003	6.1600e-003	338.0877
Regional Shopping Center	2.25054e+006	0.0121	0.1103	0.0927	6.6000e-004		8.3800e-003	8.3800e-003		8.3800e-003	8.3800e-003	0.0000	120.0976	120.0976	2.3000e-003	2.2000e-003	120.8284
General Light Industry	327680	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003	0.0000	17.4863	17.4863	3.4000e-004	3.2000e-004	17.5927
Total		0.0479	0.4351	0.3655	2.6100e-003		0.0331	0.0331		0.0331	0.0331	0.0000	473.6264	473.6264	9.0800e-003	8.6800e-003	476.5088

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	193200	43.0853	1.9300e-003	4.4000e-004	43.2616
General Office Building	6.578e+006	1,466.9512	0.0656	0.0149	1,472.9544
Regional Shopping Center	2.43771e+006	543.6305	0.0243	5.5300e-003	545.8552
Total		2,053.6669	0.0919	0.0209	2,062.0713

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	178860	39.8873	1.7800e-003	4.1000e-004	40.0506
General Office Building	5.954e+006	1,327.7937	0.0594	0.0135	1,333.2275
Regional Shopping Center	2.22865e+006	497.0081	0.0222	5.0500e-003	499.0420
Total		1,864.6892	0.0834	0.0190	1,872.3201

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.3117	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177
Unmitigated	4.3117	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177

6.2 Area by SubCategory

Unmitigated

[illegible]

Consumer Products	3.6595					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.2000e-004	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177
Total	4.3117	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.6515					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6595					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.2000e-004	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177
Total	4.3117	8.0000e-005	8.6700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0167	0.0167	4.0000e-005	0.0000	0.0177

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	211.0969	3.6555	0.0879	315.1168
Unmitigated	277.9740	4.5701	0.1100	408.0566

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	4.625 / 0	7.0483	0.1510	3.6200e-003	11.3391
General Office Building	115.527 / 70.8068	231.3246	3.7732	0.0909	338.7296
Regional Shopping Center	19.7774 / 12.1216	39.6011	0.6459	0.0156	57.9880
Total		277.9740	4.5701	0.1101	408.0566

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3.7 / 0	5.2657	0.1208	2.8900e-003	8.6968
General Office Building	92.4215 / 56.6455	175.7449	3.0181	0.0726	261.6307
Regional Shopping Center	15.8219 / 9.69729	30.0862	0.5167	0.0124	44.7893
Total		211.0969	3.6555	0.0879	315.1168

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Mitigated	27.6976	1.6369	0.0000	62.0721
Unmitigated	184.6507	10.9126	0.0000	413.8142

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	24.8	5.0342	0.2975	0.0000	11.2819
General Office Building	604.5	122.7080	7.2518	0.0000	274.9966
Regional Shopping Center	280.35	56.9085	3.3632	0.0000	127.5357
Total		184.6507	10.9126	0.0000	413.8142

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	3.72	0.7551	0.0446	0.0000	1.6923
General Office Building	90.675	18.4062	1.0878	0.0000	41.2495
Regional Shopping Center	42.0525	8.5363	0.5045	0.0000	19.1304
Total		27.6976	1.6369	0.0000	62.0721

**3168.0017 Fresno DNCP - 2030 with regulations - Non-Residential
Fresno County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2,157.00	1000sqft	49.52	2,157,000.00	0
General Light Industry	1,692.00	1000sqft	38.84	1,692,000.00	0
Regional Shopping Center	204.00	1000sqft	4.68	204,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 30% for new non-residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2030

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	18.6502	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763
Energy	0.3704	3.3670	2.8283	0.0202		0.2559	0.2559		0.2559	0.2559	0.0000	12,593.7701	12,593.7701	0.4698	0.1580	12,652.6150
Mobile	15.3531	38.5224	173.0655	0.5280	31.7525	0.8789	32.6314		0.8101	9.3298	0.0000	36,135.3774	36,135.3774	0.8432	0.0000	36,153.0837
Waste						0.0000	0.0000		0.0000	0.0000	876.5738	0.0000	876.5738	51.8040	0.0000	1,964.4585
Water						0.0000	0.0000		0.0000	0.0000	250.5536	1,143.6303	1,394.1839	25.7854	0.6193	2,127.6523
Total	34.3737	41.8897	175.9308	0.5482	31.7525	1.1349	32.8874		1.0662	9.5858	1,127.1275	49,872.8502	50,999.9776	78.9026	0.7773	52,897.8859

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	18.6502	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763
Energy	0.2714	2.4676	2.0728	0.0148		0.1875	0.1875		0.1875	0.1875	0.0000	10,846.6787	10,846.6787	0.4166	0.1322	10,896.4220

Mobile	14.0898	31.3377	151.5002	0.3968	23.5231	0.6700	24.1932		0.6177	6.9293	0.0000	27,146.75 83	27,146.758 3	0.6492	0.0000	27,160.39 09
Waste						0.0000	0.0000		0.0000	0.0000	219.1435	0.0000	219.1435	12.9510	0.0000	491.1146
Water						0.0000	0.0000		0.0000	0.0000	200.4429	851.2271	1,051.6700	20.6255	0.4948	1,638.184 2
Total	33.0115	33.8055	153.6100	0.4116	23.5231	0.8577	24.3808		0.8054	7.1170	419.5864	38,844.73 65	39,264.322 9	34.6425	0.6270	40,186.18 80

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	3.96	19.30	12.69	24.92	25.92	24.43	25.87	0.00	24.46	25.76	62.77	22.11	23.01	56.09	19.33	24.03

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	14.0898	31.3377	151.5002	0.3968	23.5231	0.6700	24.1932		0.6177	6.9293	0.0000	27,146.75 83	27,146.758 3	0.6492	0.0000	27,160.39 09
Unmitigated	15.3531	38.5224	173.0655	0.5280	31.7525	0.8789	32.6314		0.8101	9.3298	0.0000	36,135.37 74	36,135.377 4	0.8432	0.0000	36,153.08 37

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	11,793.24	2,233.44	1150.56	26,004,586	19,264,910

General Office Building	23,748.57	5,112.09	2113.86	43,004,899	31,859,208
Regional Shopping Center	8,759.76	10,193.88	5148.96	14,813,332	10,974,122
Total	44,301.57	17,539.41	8,413.38	83,822,817	62,098,241

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.441286	0.064999	0.162854	0.166959	0.043279	0.007061	0.019581	0.080766	0.002046	0.001783	0.006858	0.000660	0.001869

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,160.4374	8,160.4374	0.3652	0.0830	8,193.8327
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,928.3937	8,928.3937	0.3995	0.0908	8,964.9317
NaturalGas Mitigated	0.2714	2.4676	2.0728	0.0148		0.1875	0.1875		0.1875	0.1875	0.0000	2,686.2413	2,686.2413	0.0515	0.0493	2,702.5893
NaturalGas Unmitigated	0.3704	3.3670	2.8283	0.0202		0.2559	0.2559		0.2559	0.2559	0.0000	3,665.3764	3,665.3764	0.0703	0.0672	3,687.6833

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	2.9594e+007	0.1596	1.4507	1.2186	8.7000e-003		0.1103	0.1103		0.1103	0.1103	0.0000	1,579.2507	1,579.2507	0.0303	0.0290	1,588.8617
Regional Shopping Center	2.2746e+006	0.0123	0.1115	0.0937	6.7000e-004		8.4700e-003	8.4700e-003		8.4700e-003	8.4700e-003	0.0000	121.3813	121.3813	2.3300e-003	2.2300e-003	122.1200
General Light Industry	3.68179e+007	0.1985	1.8048	1.5160	0.0108		0.1372	0.1372		0.1372	0.1372	0.0000	1,964.7444	1,964.7444	0.0377	0.0360	1,976.7015
Total		0.3704	3.3670	2.8283	0.0202		0.2559	0.2559		0.2559	0.2559	0.0000	3,665.3764	3,665.3764	0.0703	0.0672	3,687.6833

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Regional Shopping Center	1.71952e+006	9.2700e-003	0.0843	0.0708	5.1000e-004		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003	0.0000	91.7599	91.7599	1.7600e-003	1.6800e-003	92.3184
General Light Industry	2.77217e+007	0.1495	1.3589	1.1415	8.1500e-003		0.1033	0.1033		0.1033	0.1033	0.0000	1,479.3370	1,479.3370	0.0284	0.0271	1,488.3400
General Office Building	2.0897e+007	0.1127	1.0244	0.8605	6.1500e-003		0.0779	0.0779		0.0779	0.0779	0.0000	1,115.1444	1,115.1444	0.0214	0.0204	1,121.9309
Total		0.2714	2.4676	2.0728	0.0148		0.1875	0.1875		0.1875	0.1875	0.0000	2,686.2413	2,686.2413	0.0515	0.0492	2,702.5893

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.63447e+007	3,645.0146	0.1631	0.0371	3,659.9312
General Office Building	2.18288e+007	4,868.0210	0.2178	0.0495	4,887.9426

Regional Shopping Center	1.86252e+006	415.3581	0.0186	4.2200e-003	417.0579
Total		8,928.3937	0.3995	0.0908	8,964.9317

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.51316e+007	3,374.4685	0.1510	0.0343	3,388.2779
General Office Building	1.97581e+007	4,406.2324	0.1972	0.0448	4,424.2642
Regional Shopping Center	1.70279e+006	379.7365	0.0170	3.8600e-003	381.2905
Total		8,160.4374	0.3652	0.0830	8,193.8327

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	18.6502	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763
Unmitigated	18.6502	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

SubCategory	tons/yr										MT/yr					
Architectural Coating	2.8179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	15.8290					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3900e-003	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763
Total	18.6502	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.8179					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	15.8290					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.3900e-003	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763
Total	18.6502	3.3000e-004	0.0371	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.0724	0.0724	1.9000e-004	0.0000	0.0763

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,051.6700	20.6255	0.4948	1,638.1842
Unmitigated	1,394.1839	25.7854	0.6193	2,127.6523

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	391.275 / 0	596.2851	12.7708	0.3059	959.2859
General Office Building	383.372 / 234.97	767.6418	12.5211	0.3015	1,124.0610
Regional Shopping Center	15.1108 / 9.26145	30.2570	0.4935	0.0119	44.3055
Total		1,394.1839	25.7854	0.6193	2,127.6524

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	313.02 / 0	445.4801	10.2153	0.2444	735.7516
General Office Building	306.697 / 187.976	583.2027	10.0155	0.2409	868.2116
Regional Shopping Center	12.0886 / 7.40916	22.9872	0.3948	9.5000e-003	34.2210
Total		1,051.6700	20.6255	0.4948	1,638.1842

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e

	MT/yr			
Mitigated	219.1435	12.9510	0.0000	491.1146
Unmitigated	876.5738	51.8040	0.0000	1,964.4585

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2098.08	425.8913	25.1695	0.0000	954.4498
General Office Building	2006.01	407.2019	24.0649	0.0000	912.5657
Regional Shopping Center	214.2	43.4807	2.5696	0.0000	97.4430
Total		876.5738	51.8040	0.0000	1,964.4585

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	524.52	106.4728	6.2924	0.0000	238.6125
General Office Building	501.503	101.8005	6.0162	0.0000	228.1414
Regional Shopping Center	53.55	10.8702	0.6424	0.0000	24.3607
Total		219.1435	12.9510	0.0000	491.1146

3168.0017 Fresno DNCP - 2030 with regulations - Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	2,157.00	Dwelling Unit	56.76	2,157,000.00	6169

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022

tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2030
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	12.1777	0.3555	26.4838	0.0351		1.8678	1.8678		1.8671	1.8671	229.4650	960.5902	1,190.0551	1.1155	0.0171	1,218.7921
Energy	0.1350	1.1534	0.4908	7.3600e-003		0.0933	0.0933		0.0933	0.0933	0.0000	3,126.6335	3,126.6335	0.1057	0.0427	3,142.0916
Mobile	6.6854	18.2529	78.0577	0.2622	15.8947	0.4330	16.3277	4.2648	0.3991	4.6639	0.0000	17,949.9861	17,949.9861	0.4130	0.0000	17,958.6598
Waste						0.0000	0.0000		0.0000	0.0000	201.4117	0.0000	201.4117	11.9031	0.0000	451.3766
Water						0.0000	0.0000		0.0000	0.0000	44.5860	238.7409	283.3269	4.5901	0.1106	413.9917
Total	18.9980	19.7618	105.0323	0.3047	15.8947	2.3940	18.2887	4.2648	2.3594	6.6242	475.4626	22,275.9507	22,751.4133	18.1275	0.1704	23,184.9118

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	11.0209	0.1842	15.9788	8.5000e-004		0.1541	0.1541		0.1534	0.1534	0.0000	960.5902	960.5902	0.0428	0.0171	966.8004
Energy	0.1061	0.9064	0.3857	5.7900e-003		0.0733	0.0733		0.0733	0.0733	0.0000	2,789.0859	2,789.0859	0.0980	0.0369	2,802.5923
Mobile	6.0530	14.6563	67.2625	0.1965	11.7752	0.3284	12.1037	3.1595	0.3028	3.4622	0.0000	13,450.4517	13,450.4517	0.3159	0.0000	13,457.0862

Waste						0.0000	0.0000		0.0000	0.0000	50.3529	0.0000	50.3529	2.9758	0.0000	112.8442
Water						0.0000	0.0000		0.0000	0.0000	35.6688	179.6614	215.3302	3.6716	0.0883	319.8157
Total	17.1800	15.7468	83.6270	0.2032	11.7752	0.5558	12.3310	3.1595	0.5294	3.6889	86.0217	17,379.7892	17,465.8109	7.1041	0.1424	17,659.1387

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	9.57	20.32	20.38	33.32	25.92	76.79	32.58	25.92	77.56	44.31	81.91	21.98	23.23	60.81	16.43	23.83

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.0530	14.6563	67.2625	0.1965	11.7752	0.3284	12.1037	3.1595	0.3028	3.4622	0.0000	13,450.4517	13,450.4517	0.3159	0.0000	13,457.0862
Unmitigated	6.6854	18.2529	78.0577	0.2622	15.8947	0.4330	16.3277	4.2648	0.3991	4.6639	0.0000	17,949.9861	17,949.9861	0.4130	0.0000	17,958.6598

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	14,344.05	15,444.12	13092.99	41,960,132	31,085,216
Total	14,344.05	15,444.12	13,092.99	41,960,132	31,085,216

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.441286	0.064999	0.162854	0.166959	0.043279	0.007061	0.019581	0.080766	0.002046	0.001783	0.006858	0.000660	0.001869

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,739.4252	1,739.4252	0.0778	0.0177	1,746.5435
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,790.8545	1,790.8545	0.0801	0.0182	1,798.1833
NaturalGas Mitigated	0.1061	0.9064	0.3857	5.7900e-003		0.0733	0.0733		0.0733	0.0733	0.0000	1,049.6607	1,049.6607	0.0201	0.0192	1,056.0488
NaturalGas Unmitigated	0.1350	1.1534	0.4908	7.3600e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,335.7790	1,335.7790	0.0256	0.0245	1,343.9084

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	2.50316e+007	0.1350	1.1534	0.4908	7.3600e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,335.7790	1,335.7790	0.0256	0.0245	1,343.9084
Total		0.1350	1.1534	0.4908	7.3600e-003		0.0933	0.0933		0.0933	0.0933	0.0000	1,335.7790	1,335.7790	0.0256	0.0245	1,343.9084

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.96699e+007	0.1061	0.9064	0.3857	5.7900e-003		0.0733	0.0733		0.0733	0.0733	0.0000	1,049.6607	1,049.6607	0.0201	0.0192	1,056.0488
Total		0.1061	0.9064	0.3857	5.7900e-003		0.0733	0.0733		0.0733	0.0733	0.0000	1,049.6607	1,049.6607	0.0201	0.0192	1,056.0488

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	8.03042e+006	1,790.8545	0.0801	0.0182	1,798.1833
Total		1,790.8545	0.0801	0.0182	1,798.1833

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	7.79981e+006	1,739.4252	0.0778	0.0177	1,746.5435
Total		1,739.4252	0.0778	0.0177	1,746.5435

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	11.0209	0.1842	15.9788	8.5000e-004		0.1541	0.1541		0.1534	0.1534	0.0000	960.5902	960.5902	0.0428	0.0171	966.8004
Unmitigated	12.1777	0.3555	26.4838	0.0351		1.8678	1.8678		1.8671	1.8671	229.4650	960.5902	1,190.0551	1.1155	0.0171	1,218.7921

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.0245					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2512	0.1714	10.5101	0.0343		1.7789	1.7789		1.7783	1.7783	229.4650	934.4284	1,163.8933	1.0906	0.0171	1,192.1068
Landscaping	0.4778	0.1842	15.9737	8.5000e-004		0.0888	0.0888		0.0888	0.0888	0.0000	26.1618	26.1618	0.0249	0.0000	26.6853
Total	12.1776	0.3555	26.4838	0.0351		1.8678	1.8678		1.8671	1.8671	229.4650	960.5902	1,190.0551	1.1155	0.0171	1,218.7921

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.0245					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.4242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0944	0.0000	5.1500e-003	0.0000		0.0652	0.0652		0.0646	0.0646	0.0000	934.4284	934.4284	0.0179	0.0171	940.1151
Landscaping	0.4778	0.1842	15.9737	8.5000e-004		0.0888	0.0888		0.0888	0.0888	0.0000	26.1618	26.1618	0.0249	0.0000	26.6853

Total	11.0209	0.1842	15.9788	8.5000e-004		0.1541	0.1541		0.1534	0.1534	0.0000	960.5902	960.5902	0.0428	0.0171	966.8004

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	215.3302	3.6716	0.0883	319.8157
Unmitigated	283.3269	4.5901	0.1106	413.9917

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	140.537 / 88.5996	283.3269	4.5901	0.1106	413.9917
Total		283.3269	4.5901	0.1106	413.9917

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	112.43 / 70.8796	215.3302	3.6716	0.0883	319.8157
Total		215.3302	3.6716	0.0883	319.8157

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	50.3529	2.9758	0.0000	112.8442
Unmitigated	201.4117	11.9031	0.0000	451.3766

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	992.22	201.4117	11.9031	0.0000	451.3766
Total		201.4117	11.9031	0.0000	451.3766

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	248.055	50.3529	2.9758	0.0000	112.8442
Total		50.3529	2.9758	0.0000	112.8442

3168.0017 Fresno FCSP - 2030 with regulations - Non-Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2,275.00	1000sqft	52.23	2,275,000.00	0
General Light Industry	70.00	1000sqft	1.61	70,000.00	0
Regional Shopping Center	933.00	1000sqft	21.42	933,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 30% for new non-residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion go

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2030

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.0840	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618
Energy	0.2326	2.1147	1.7763	0.0127		0.1607	0.1607		0.1607	0.1607	0.0000	9,486.8495	9,486.8495	0.3656	0.1153	9,530.2621
Mobile	23.8288	55.4793	260.7440	0.7252	43.2530	1.2175	44.4705	11.6054	1.1224	12.7278	0.0000	49,627.5272	49,627.5272	1.1749	0.0000	49,652.1996
Waste						0.0000	0.0000		0.0000	0.0000	645.9578	0.0000	645.9578	38.1750	0.0000	1,447.6332
Water						0.0000	0.0000		0.0000	0.0000	155.3406	817.3458	972.6864	15.9916	0.3850	1,427.8725
Total	39.1454	57.5942	262.5503	0.7379	43.2530	1.3783	44.6313	11.6054	1.2832	12.8886	801.2985	59,931.7811	60,733.0796	55.7072	0.5003	62,058.0291

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.0840	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618
Energy	0.1674	1.5221	1.2786	9.1300e-003		0.1157	0.1157		0.1157	0.1157	0.0000	8,180.6375	8,180.6375	0.3237	0.0967	8,217.4187
Mobile	22.1080	45.6922	231.3679	0.5465	32.0430	0.9330	32.9760	8.5976	0.8602	9.4579	0.0000	37,383.3252	37,383.3252	0.9106	0.0000	37,402.4483

Waste						0.0000	0.0000		0.0000	0.0000	96.8937	0.0000	96.8937	5.7263	0.0000	217.1450
Water						0.0000	0.0000		0.0000	0.0000	124.2725	614.3975	738.6700	12.7915	0.3076	1,102.6573
Total	37.3595	47.2146	232.6765	0.5556	32.0430	1.0488	33.0918	8.5976	0.9760	9.5737	221.1662	46,178.4187	46,399.5849	19.7522	0.4044	46,939.7310

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	4.56	18.02	11.38	24.70	25.92	23.91	25.86	25.92	23.94	25.72	72.40	22.95	23.60	64.54	19.18	24.36

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	22.1080	45.6922	231.3679	0.5465	32.0430	0.9330	32.9760	8.5976	0.8602	9.4579	0.0000	37,383.3252	37,383.3252	0.9106	0.0000	37,402.4483
Unmitigated	23.8288	55.4793	260.7440	0.7252	43.2530	1.2175	44.4705	11.6054	1.1224	12.7278	0.0000	49,627.5272	49,627.5272	1.1749	0.0000	49,652.1996

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	487.90	92.40	47.60	1,075,840	797,012
General Office Building	25,047.75	5,391.75	2229.50	45,357,509	33,602,086
Regional Shopping Center	40,063.02	46,622.01	23548.92	67,749,209	50,190,471
Total	65,598.67	52,106.16	25,826.02	114,182,557	84,589,569

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.441286	0.064999	0.162854	0.166959	0.043279	0.007061	0.019581	0.080766	0.002046	0.001783	0.006858	0.000660	0.001869

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	6,523.6199	6,523.6199	0.2919	0.0663	6,550.3168
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,184.7802	7,184.7802	0.3215	0.0731	7,214.1828
NaturalGas Mitigated	0.1674	1.5221	1.2786	9.1300e-003		0.1157	0.1157		0.1157	0.1157	0.0000	1,657.0176	1,657.0176	0.0318	0.0304	1,667.1019
NaturalGas Unmitigated	0.2326	2.1147	1.7763	0.0127		0.1607	0.1607		0.1607	0.1607	0.0000	2,302.0693	2,302.0693	0.0441	0.0422	2,316.0793

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	3.1213e+007	0.1683	1.5301	1.2852	9.1800e-003		0.1163	0.1163		0.1163	0.1163	0.0000	1,665.6446	1,665.6446	0.0319	0.0305	1,675.7814

Regional Shopping Center	1.0403e+07	0.0561	0.5100	0.4284	3.0600e-003		0.0388	0.0388		0.0388	0.0388	0.0000	555.1410	555.1410	0.0106	0.0102	558.5195
General Light Industry	1.5232e+06	8.2100e-003	0.0747	0.0627	4.5000e-004		5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003	0.0000	81.2838	81.2838	1.5600e-003	1.4900e-003	81.7784
Total		0.2326	2.1147	1.7763	0.0127		0.1607	0.1607		0.1607	0.1607	0.0000	2,302.0693	2,302.0693	0.0441	0.0422	2,316.0793

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Regional Shopping Center	7.86426e+006	0.0424	0.3855	0.3238	2.3100e-003		0.0293	0.0293		0.0293	0.0293	0.0000	419.6667	419.6667	8.0400e-003	7.6900e-003	422.2207
General Light Industry	1.14688e+006	6.1800e-003	0.0562	0.0472	3.4000e-004		4.2700e-003	4.2700e-003		4.2700e-003	4.2700e-003	0.0000	61.2019	61.2019	1.1700e-003	1.1200e-003	61.5744
General Office Building	2.20402e+007	0.1188	1.0804	0.9075	6.4800e-003		0.0821	0.0821		0.0821	0.0821	0.0000	1,176.1490	1,176.1490	0.0225	0.0216	1,183.3069
Total		0.1674	1.5221	1.2786	9.1300e-003		0.1157	0.1157		0.1157	0.1157	0.0000	1,657.0176	1,657.0176	0.0318	0.0304	1,667.1019

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	676200	150.7985	6.7500e-003	1.5300e-003	151.4156
General Office Building	2.3023e+07	5,134.3290	0.2298	0.0522	5,155.3405
Regional Shopping Center	8.51829e+006	1,899.6527	0.0850	0.0193	1,907.4267
Total		7,184.7802	0.3215	0.0731	7,214.1828

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	626010	139.6057	6.2500e-003	1.4200e-003	140.1770
General Office Building	2.0839e+007	4,647.2781	0.2080	0.0473	4,666.2963
Regional Shopping Center	7.78775e+006	1,736.7361	0.0777	0.0177	1,743.8435
Total		6,523.6199	0.2919	0.0663	6,550.3168

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	15.0840	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618
Unmitigated	15.0840	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2790					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.8022					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.7400e-003	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618

Total	15.0840	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.2790					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	12.8022					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.7400e-003	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618
Total	15.0840	2.7000e-004	0.0300	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.5000e-004	0.0000	0.0618

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	738.6700	12.7915	0.3076	1,102.6573
Unmitigated	972.6864	15.9916	0.3850	1,427.8725

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

General Light Industry	16.1875 / 0	24.6690	0.5283	0.0127	39.6868
General Office Building	404.344 / 247.824	809.6361	13.2061	0.3180	1,185.5534
Regional Shopping Center	69.1097 / 42.3575	138.3813	2.2572	0.0544	202.6323
Total		972.6864	15.9915	0.3850	1,427.8725

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	12.95 / 0	18.4300	0.4226	0.0101	30.4389
General Office Building	323.475 / 198.259	615.1072	10.5634	0.2541	915.7076
Regional Shopping Center	55.2877 / 33.886	105.1328	1.8055	0.0434	156.5108
Total		738.6700	12.7915	0.3076	1,102.6573

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	96.8937	5.7263	0.0000	217.1450
Unmitigated	645.9578	38.1750	0.0000	1,447.6332

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	86.8	17.6196	1.0413	0.0000	39.4867
General Office Building	2115.75	429.4781	25.3814	0.0000	962.4882
Regional Shopping Center	979.65	198.8601	11.7523	0.0000	445.6583
Total		645.9579	38.1750	0.0000	1,447.633 2

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	13.02	2.6429	0.1562	0.0000	5.9230
General Office Building	317.363	64.4217	3.8072	0.0000	144.3732
Regional Shopping Center	146.948	29.8290	1.7628	0.0000	66.8487
Total		96.8937	5.7262	0.0000	217.1450

3168.0017 Fresno FCSP - 2030 with regulations - Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	3,671.00	Dwelling Unit	96.61	3,671,000.00	10499

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Annual rate for development calculated from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion go

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65

tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2030
tblVehicleTrips	WD_TR	6.59	6.65
tblWoodstoves	NumberCatalytic	96.61	27.61
tblWoodstoves	NumberNoncatalytic	96.61	27.61

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										M1/yr					
Area	19.3192	0.3968	32.3043	0.0181		1.0958	1.0958		1.0946	1.0946	111.6196	1,634.8292	1,746.4487	0.5947	0.0292	1,767.9757
Energy	0.2297	1.9630	0.8353	0.0125		0.1587	0.1587		0.1587	0.1587	0.0000	5,321.2200	5,321.2200	0.1800	0.0727	5,347.5282
Mobile	11.3778	31.0645	132.8464	0.4463	27.0512	0.7369	27.7881	7.2583	0.6792	7.9375	0.0000	30,549.0954	30,549.0954	0.7030	0.0000	30,563.8573
Waste						0.0000	0.0000		0.0000	0.0000	342.7827	0.0000	342.7827	20.2579	0.0000	768.1982
Water						0.0000	0.0000		0.0000	0.0000	75.8809	406.3134	482.1943	7.8119	0.1882	704.5728
Total	30.9267	33.4243	165.9861	0.4769	27.0512	1.9914	29.0426	7.2583	1.9325	9.1908	530.2832	37,911.4580	38,441.7412	29.5474	0.2900	39,152.1321

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										M1/yr					
Area	18.7565	0.3134	27.1943	1.4400e-003		0.2622	0.2622		0.2610	0.2610	0.0000	1,634.8292	1,634.8292	0.0729	0.0292	1,645.3983
Energy	0.1805	1.5425	0.6564	9.8500e-003		0.1247	0.1247		0.1247	0.1247	0.0000	4,746.7475	4,746.7475	0.1667	0.0629	4,769.7340
Mobile	10.3017	24.9435	114.4741	0.3345	20.0403	0.5590	20.5993	5.3771	0.5153	5.8924	0.0000	22,891.3344	22,891.3344	0.5377	0.0000	22,902.6256

Waste						0.0000	0.0000		0.0000	0.0000	51.4174	0.0000	51.4174	3.0387	0.0000	115.2297
Water						0.0000	0.0000		0.0000	0.0000	60.7047	305.7659	366.4706	6.2486	0.1503	544.2945
Total	29.2386	26.7995	142.3248	0.3458	20.0403	0.9459	20.9862	5.3771	0.9010	6.2781	112.1221	29,578.67 69	29,690.799 1	10.0646	0.2424	29,977.28 22

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	5.46	19.82	14.25	27.50	25.92	52.50	27.74	25.92	53.38	31.69	78.86	21.98	22.76	65.94	16.43	23.43

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

- Improve Destination Accessibility
- Increase Transit Accessibility
- Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.3017	24.9435	114.4741	0.3345	20.0403	0.5590	20.5993	5.3771	0.5153	5.8924	0.0000	22,891.33 44	22,891.334 4	0.5377	0.0000	22,902.62 56
Unmitigated	11.3778	31.0645	132.8464	0.4463	27.0512	0.7369	27.7881	7.2583	0.6792	7.9375	0.0000	30,549.09 54	30,549.095 4	0.7030	0.0000	30,563.85 73

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	24,412.15	26,284.36	22282.97	71,411,982	52,903,954
Total	24,412.15	26,284.36	22,282.97	71,411,982	52,903,954

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.441286	0.064999	0.162854	0.166959	0.043279	0.007061	0.019581	0.080766	0.002046	0.001783	0.006858	0.000660	0.001869

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,960.3291	2,960.3291	0.1325	0.0301	2,972.4438
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,047.8567	3,047.8567	0.1364	0.0310	3,060.3295
NaturalGas Mitigated	0.1805	1.5425	0.6564	9.8500e-003		0.1247	0.1247		0.1247	0.1247	0.0000	1,786.4184	1,786.4184	0.0342	0.0328	1,797.2902
NaturalGas Unmitigated	0.2297	1.9630	0.8353	0.0125		0.1587	0.1587		0.1587	0.1587	0.0000	2,273.3634	2,273.3634	0.0436	0.0417	2,287.1987

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.26012e+007	0.2297	1.9630	0.8353	0.0125		0.1587	0.1587		0.1587	0.1587	0.0000	2,273.3634	2,273.3634	0.0436	0.0417	2,287.1987
Total		0.2297	1.9630	0.8353	0.0125		0.1587	0.1587		0.1587	0.1587	0.0000	2,273.3634	2,273.3634	0.0436	0.0417	2,287.1987

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.34762e+007	0.1805	1.5425	0.6564	9.8500e-003		0.1247	0.1247		0.1247	0.1247	0.0000	1,786.4184	1,786.4184	0.0342	0.0328	1,797.2902
Total		0.1805	1.5425	0.6564	9.8500e-003		0.1247	0.1247		0.1247	0.1247	0.0000	1,786.4184	1,786.4184	0.0342	0.0328	1,797.2902

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.3667e+007	3,047.8567	0.1364	0.0310	3,060.3295
Total		3,047.8567	0.1364	0.0310	3,060.3295

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.32745e+007	2,960.3291	0.1325	0.0301	2,972.4438
Total		2,960.3291	0.1325	0.0301	2,972.4438

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Mitigated	18.7565	0.3134	27.1943	1.4400e-003		0.2622	0.2622		0.2610	0.2610	0.0000	1,634.8292	1,634.8292	0.0729	0.0292	1,645.3983
Unmitigated	19.3192	0.3968	32.3043	0.0181		1.0958	1.0958		1.0946	1.0946	111.6196	1,634.8292	1,746.4487	0.5947	0.0292	1,767.9757

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4456					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.3371					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7234	0.0834	5.1187	0.0167		0.9446	0.9446		0.9435	0.9435	111.6196	1,590.3044	1,701.9239	0.5523	0.0292	1,722.5600
Landscaping	0.8131	0.3134	27.1856	1.4400e-003		0.1512	0.1512		0.1512	0.1512	0.0000	44.5248	44.5248	0.0424	0.0000	45.4156
Total	19.3192	0.3968	32.3043	0.0181		1.0958	1.0958		1.0946	1.0946	111.6196	1,634.8292	1,746.4487	0.5947	0.0292	1,767.9757

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4456					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.3371					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1607	1.0000e-005	8.7700e-003	0.0000		0.1110	0.1110		0.1099	0.1099	0.0000	1,590.3044	1,590.3044	0.0305	0.0292	1,599.9827
Landscaping	0.8131	0.3134	27.1856	1.4400e-003		0.1512	0.1512		0.1512	0.1512	0.0000	44.5248	44.5248	0.0424	0.0000	45.4156
Total	18.7565	0.3134	27.1943	1.4400e-003		0.2622	0.2622		0.2610	0.2610	0.0000	1,634.8292	1,634.8292	0.0729	0.0292	1,645.3983

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	366.4706	6.2486	0.1503	544.2945
Unmitigated	482.1943	7.8119	0.1882	704.5728

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	239.18 / 150.788	482.1943	7.8119	0.1882	704.5728
Total		482.1943	7.8119	0.1882	704.5728

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	191.344 / 120.63	366.4706	6.2486	0.1503	544.2945
Total		366.4706	6.2486	0.1503	544.2945

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	51.4174	3.0387	0.0000	115.2297
Unmitigated	342.7827	20.2579	0.0000	768.1982

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1688.66	342.7827	20.2579	0.0000	768.1982
Total		342.7827	20.2579	0.0000	768.1982

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	253.299	51.4174	3.0387	0.0000	115.2297
Total		51.4174	3.0387	0.0000	115.2297

3168.0017 Fresno DNCP - 2039 BAU**Fresno County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2,000.00	1000sqft	45.91	2,000,000.00	0
General Light Industry	2,900.00	1000sqft	66.57	2,900,000.00	0
Apartments Mid Rise	3,697.00	Dwelling Unit	97.29	3,697,000.00	10573
Regional Shopping Center	350.00	1000sqft	8.03	350,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3	Operational Year	2035		
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2035
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											393.31657	1,646.5017	2,039.81823	1.9123	0.0294	2,089.0787
Energy											0.0000	26,300.7813	26,300.7813	0.9983	0.3119	26,418.4210
Mobile											0.0000	77,833.0740	77,833.0740	1.6850	0.0000	77,868.4591
Waste											1,527.3284	0.0000	1,527.3284	90.2625	0.0000	3,422.8413
Water											410.1751	2,427.7971	2,837.9721	42.2387	1.0175	4,040.3997
Total											2,330.8200	108,208.1541	110,538.9740	137.0968	1.3587	113,839.1998

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated											0.0000	77,833.0740	77,833.0740	1.6850	0.0000	77,868.4591

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	24,585.05	26,470.52	22440.79	71,917,761	71,917,761
General Light Industry	20,213.00	3,828.00	1972.00	44,570,508	44,570,508
General Office Building	22,020.00	4,740.00	1960.00	39,874,733	39,874,733
Regional Shopping Center	15,029.00	17,489.50	8834.00	25,415,030	25,415,030
Total	81,847.05	52,528.02	35,206.79	181,778,032	181,778,032

4.3 Trip Type Information

		Miles			Trip %			Trip Purpose %		
Land Use		H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise		10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
General Light Industry		9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building		9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center		9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.440267	0.065260	0.162473	0.166863	0.043084	0.006979	0.019846	0.082125	0.002037	0.001766	0.006837	0.000617	0.001848

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated											0.0000	18,971.2918	18,971.2918	0.8578	0.1775	19,044.3255
NaturalGas Unmitigated											0.0000	7,329.4895	7,329.4895	0.1405	0.1344	7,374.0955

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	2.744e+007											0.0000	1,464.3029	1,464.3029	0.0281	0.0269	1,473.2144
Regional Shopping Center	3.9025e+006											0.0000	208.2523	208.2523	3.9900e-003	3.8200e-003	209.5197

Apartments Mid Rise	4.29029e+007												0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979
General Light Industry	6.3104e+007												0.0000	3,367.4698	3,367.4698	0.0645	0.0617	3,387.9636
Total													0.0000	7,329.4895	7,329.4895	0.1405	0.1344	7,374.0955

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.37638e+007	4,004.0423	0.1811	0.0375	4,019.4567
General Light Industry	2.8014e+007	8,149.5938	0.3685	0.0762	8,180.9673
General Office Building	2.024e+007	5,888.0481	0.2662	0.0551	5,910.7153
Regional Shopping Center	3.1955e+006	929.6076	0.0420	8.7000e-003	933.1863
Total		18,971.2918	0.8578	0.1775	19,044.3255

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated											393.31657	1,646.5017	2,039.81827	1.9123	0.0294	2,089.0787

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					

Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											393.3165	1,601.5677	1,994.8843	1.8694	0.0294	2,043.2433
Landscaping											0.0000	44.9340	44.9340	0.0429	0.0000	45.8354
Total											393.3165	1,646.5017	2,039.8182	1.9123	0.0294	2,089.0787

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	2,837.9721	42.2387	1.0175	4,040.3997

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	240.874 / 151.856	610.2020	7.8730	0.1903	834.5358
General Light Industry	670.625 / 0	1,268.4039	21.9001	0.5259	1,891.3207
General Office Building	355.467 / 217.867	894.1528	11.6182	0.2808	1,225.1864
Regional Shopping Center	25.9254 / 15.8898	65.2134	0.8474	0.0205	89.3568
Total		2,837.9721	42.2387	1.0175	4,040.3997

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	1,527.3284	90.2625	0.0000	3,422.8413

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1700.62	345.2105	20.4014	0.0000	773.6390
General Light Industry	3596	729.9555	43.1391	0.0000	1,635.8773
General Office Building	1860	377.5632	22.3134	0.0000	846.1434
Regional Shopping Center	367.5	74.5992	4.4087	0.0000	167.1816
Total		1,527.3284	90.2625	0.0000	3,422.8413

3168.0017 Fresno DNCP - 2039 - Non-Residential
Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2,000.00	1000sqft	45.91	2,000,000.00	0
General Light Industry	2,900.00	1000sqft	66.57	2,900,000.00	0
Regional Shopping Center	350.00	1000sqft	8.03	350,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new non-residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2035

2.0 Emissions Summary

2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.1583	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989
Energy	0.5093	4.6297	3.8890	0.0278		0.3519	0.3519		0.3519	0.3519	0.0000	16,513.7104	16,513.7104	0.6100	0.2091	16,591.3374
Mobile	18.9819	48.5649	219.6251	0.6943	41.6223	1.1590	42.7813	11.1681	1.0684	12.2365	0.0000	47,184.9820	47,184.9820	1.0268	0.0000	47,206.5445
Waste						0.0000	0.0000		0.0000	0.0000	1,182.1179	0.0000	1,182.1179	69.8612	0.0000	2,649.2023
Water						0.0000	0.0000		0.0000	0.0000	333.7567	1,451.9244	1,785.6811	34.3450	0.8242	2,762.4252
Total	43.6495	53.1951	223.5620	0.7221	41.6223	1.5110	43.1333	11.1681	1.4204	12.5885	1,515.8746	65,150.7106	66,666.5852	105.8432	1.0333	69,209.6083

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	24.1583	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989
Energy	0.3766	3.4235	2.8758	0.0205		0.2602	0.2602		0.2602	0.2602	0.0000	14,247.6064	14,247.6064	0.5422	0.1753	14,313.3420

Mobile	17.3843	39.6382	193.0952	0.5218	30.8350	0.8844	31.7193	8.2737	0.8153	9.0890	0.0000	35,450.3245	35,450.3245	0.7893	0.0000	35,466.9003
Waste						0.0000	0.0000		0.0000	0.0000	118.2118	0.0000	118.2118	6.9861	0.0000	264.9202
Water						0.0000	0.0000		0.0000	0.0000	267.0054	1,076.7167	1,343.7221	27.4722	0.6585	2,124.7702
Total	41.9192	43.0622	196.0189	0.5424	30.8350	1.1447	31.9797	8.2737	1.0757	9.3494	385.2172	50,774.7413	51,159.9585	35.7901	0.8338	52,170.0317

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	3.96	19.05	12.32	24.89	25.92	24.24	25.86	25.92	24.27	25.73	74.59	22.07	23.26	66.19	19.30	24.62

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	17.3843	39.6382	193.0952	0.5218	30.8350	0.8844	31.7193	8.2737	0.8153	9.0890	0.0000	35,450.3245	35,450.3245	0.7893	0.0000	35,466.9003
Unmitigated	18.9819	48.5649	219.6251	0.6943	41.6223	1.1590	42.7813	11.1681	1.0684	12.2365	0.0000	47,184.9820	47,184.9820	1.0268	0.0000	47,206.5445

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	20,213.00	3,828.00	1972.00	44,570,508	33,019,054
General Office Building	22,020.00	4,740.00	1960.00	39,874,733	29,540,295
Regional Shopping Center	15,029.00	17,489.50	8834.00	25,415,030	18,828,151
Total	57,262.00	26,057.50	12,766.00	109,860,271	81,387,501

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.440267	0.065260	0.162473	0.166863	0.043084	0.006979	0.019846	0.082125	0.002037	0.001766	0.006837	0.000617	0.001848

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	10,520.6914	10,520.6914	0.4708	0.1070	10,563.7456
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	11,473.6855	11,473.6855	0.5134	0.1167	11,520.6398
NaturalGas Mitigated	0.3766	3.4235	2.8758	0.0205		0.2602	0.2602		0.2602	0.2602	0.0000	3,726.9150	3,726.9150	0.0714	0.0683	3,749.5964
NaturalGas Unmitigated	0.5093	4.6297	3.8890	0.0278		0.3519	0.3519		0.3519	0.3519	0.0000	5,040.0249	5,040.0249	0.0966	0.0924	5,070.6977

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	6.3104e+007	0.3403	3.0933	2.5984	0.0186		0.2351	0.2351		0.2351	0.2351	0.0000	3,367.4698	3,367.4698	0.0645	0.0617	3,387.9636
General Office Building	2.744e+007	0.1480	1.3451	1.1299	8.0700e-003		0.1022	0.1022		0.1022	0.1022	0.0000	1,464.3029	1,464.3029	0.0281	0.0269	1,473.2144
Regional Shopping Center	3.9025e+006	0.0210	0.1913	0.1607	1.1500e-003		0.0145	0.0145		0.0145	0.0145	0.0000	208.2523	208.2523	3.9900e-003	3.8200e-003	209.5197
Total		0.5093	4.6297	3.8890	0.0278		0.3519	0.3519		0.3519	0.3519	0.0000	5,040.0249	5,040.0249	0.0966	0.0924	5,070.6977

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.75136e+007	0.2562	2.3291	1.9564	0.0140		0.1770	0.1770		0.1770	0.1770	0.0000	2,535.5066	2,535.5066	0.0486	0.0465	2,550.9373
General Office Building	1.9376e+007	0.1045	0.9498	0.7978	5.7000e-003		0.0722	0.0722		0.0722	0.0722	0.0000	1,033.9772	1,033.9772	0.0198	0.0190	1,040.2698
Regional Shopping Center	2.95015e+006	0.0159	0.1446	0.1215	8.7000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	157.4312	157.4312	3.0200e-003	2.8900e-003	158.3893
Total		0.3766	3.4235	2.8758	0.0205		0.2602	0.2602		0.2602	0.2602	0.0000	3,726.9150	3,726.9150	0.0714	0.0683	3,749.5964

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.8014e+007	6,247.3654	0.2796	0.0635	6,272.9318
General Office Building	2.024e+007	4,513.6959	0.2020	0.0459	4,532.1675
Regional Shopping Center	3.1955e+006	712.6243	0.0319	7.2500e-003	715.5406
Total		11,473.6855	0.5134	0.1167	11,520.6398

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.59347e+007	5,783.6634	0.2588	0.0588	5,807.3322
General Office Building	1.832e+007	4,085.5192	0.1828	0.0416	4,102.2385
Regional Shopping Center	2.92145e+006	651.5087	0.0292	6.6300e-003	654.1749
Total		10,520.6914	0.4708	0.1070	10,563.7456

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	24.1583	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989
Unmitigated	24.1583	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989

6.2 Area by SubCategory

Unmitigated

[illegible]

Landscaping	4.3900e-003	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989
Total	24.1583	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.6501					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	20.5039					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3900e-003	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989
Total	24.1583	4.3000e-004	0.0480	0.0000		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	0.0938	0.0938	2.4000e-004	0.0000	0.0989

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,343.7221	27.4722	0.6585	2,124.7702
Unmitigated	1,785.6811	34.3450	0.8242	2,762.4252

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

General Light Industry	670.625 / 0	1,022.0016	21.8885	0.5242	1,644.1661
General Office Building	355.467 / 217.867	711.7680	11.6097	0.2796	1,042.2448
Regional Shopping Center	25.9254 / 15.8898	51.9115	0.8467	0.0204	76.0143
Total		1,785.6811	34.3450	0.8242	2,762.4252

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	536.5 / 0	763.5297	17.5084	0.4188	1,261.0400
General Office Building	284.374 / 174.294	540.7536	9.2865	0.2234	805.0177
Regional Shopping Center	20.7403 / 12.7118	39.4389	0.6773	0.0163	58.7125
Total		1,343.7221	27.4722	0.6585	2,124.7702

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	118.2118	6.9861	0.0000	264.9202
Unmitigated	1,182.1179	69.8612	0.0000	2,649.2023

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	3596	729.9555	43.1391	0.0000	1,635.8773
General Office Building	1860	377.5632	22.3134	0.0000	846.1434
Regional Shopping Center	367.5	74.5992	4.4087	0.0000	167.1816
Total		1,182.1179	69.8612	0.0000	2,649.2023

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	359.6	72.9956	4.3139	0.0000	163.5877
General Office Building	186	37.7563	2.2313	0.0000	84.6143
Regional Shopping Center	36.75	7.4599	0.4409	0.0000	16.7182
Total		118.2118	6.9861	0.0000	264.9202

3168.0017 Fresno FCSP - 2039 BAU**Fresno County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3,900.00	1000sqft	89.53	3,900,000.00	0
General Light Industry	150.00	1000sqft	3.44	150,000.00	0
Apartments Mid Rise	6,293.00	Dwelling Unit	165.61	6,293,000.00	17998
Regional Shopping Center	1,600.00	1000sqft	36.73	1,600,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2035
tblVehicleTrips	WD_TR	6.59	6.65
tblWoodstoves	NumberCatalytic	165.61	97.29

tblWoodstoves	NumberNoncatalytic	165.61	97.29

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area											393.31656	2,802.6016	3,195.91812	1.9638	0.0500	3,252.6526
Energy											0.0000	30,847.1902	30,847.1902	1.1896	0.3593	30,983.5603
Mobile											0.0000	137,138.4067	137,138.4067	2.9941	0.0000	137,201.2836
Waste											1,702.6435	0.0000	1,702.6435	100.6234	0.0000	3,815.7339
Water											398.59127	2,747.4127	3,146.00397	41.0634	0.9924	4,315.9678
Total											2,494.5513	173,535.6112	176,030.1625	147.8343	1.4017	179,569.1982

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated											0.0000	137,138.4067	137,138.4067	2.9941	0.0000	137,201.2836

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	41,848.45	45,057.88	38198.51	122,417,762	122,417,762
General Light Industry	1,045.50	198.00	102.00	2,305,371	2,305,371
General Office Building	42,939.00	9,243.00	3822.00	77,755,729	77,755,729

Regional Shopping Center	68,704.00	79,952.00	40384.00	116,182,995	116,182,995
Total	154,536.95	134,450.88	82,506.51	318,661,857	318,661,857

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.440267	0.065260	0.162473	0.166863	0.043084	0.006979	0.019846	0.082125	0.002037	0.001766	0.006837	0.000617	0.001848

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
NaturalGas Unmitigated											0.0000	7,878.6864	7,878.6864	0.1510	0.1444	7,926.6347
Electricity Unmitigated											0.0000	22,968.5039	22,968.5039	1.0386	0.2149	23,056.9255

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

General Office Building	5.3508e+007												0.0000	2,855.3907	2,855.3907	0.0547	0.0524	2,872.7681
Regional Shopping Center	1.784e+007												0.0000	952.0103	952.0103	0.0183	0.0175	957.8041
Apartments Mid Rise	7.3029e+007												0.0000	3,897.1059	3,897.1059	0.0747	0.0715	3,920.8230
General Light Industry	3.264e+006												0.0000	174.1795	174.1795	3.3400e-003	3.1900e-003	175.2395
Total													0.0000	7,878.6864	7,878.6864	0.1510	0.1444	7,926.6347

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	2.34286e+007	6,815.6447	0.3082	0.0638	6,841.8828
General Light Industry	1.449e+006	421.5307	0.0191	3.9400e-003	423.1535
General Office Building	3.9468e+007	11,481.6938	0.5192	0.1074	11,525.8948
Regional Shopping Center	1.4608e+007	4,249.6347	0.1922	0.0398	4,265.9945
Total		22,968.5039	1.0386	0.2149	23,056.9255

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated											393.3165	2,802.6016	3,195.9181	1.9638	0.0500	3,252.6526

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products											0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth											393.3165	2,726.1741	3,119.4907	1.8909	0.0500	3,174.6939
Landscaping											0.0000	76.4275	76.4275	0.0729	0.0000	77.9588
Total											393.3165	2,802.6016	3,195.9181	1.9639	0.0500	3,252.6526

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	3,146.0039	41.0634	0.9924	4,315.9678

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	410.014 / 258.487	1,038.6803	13.4014	0.3240	1,420.5394
General Light Industry	34.6875 / 0	65.6071	1.1328	0.0272	97.8269
General Office Building	693.162 / 424.841	1,743.5980	22.6556	0.5476	2,389.1134
Regional Shopping Center	118.516 / 72.6389	298.1185	3.8736	0.0936	408.4881
Total		3,146.0039	41.0634	0.9924	4,315.9678

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	1,702.6435	100.6234	0.0000	3,815.7339

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	2894.78	587.6142	34.7270	0.0000	1,316.8813
General Light Industry	186	37.7563	2.2313	0.0000	84.6143
General Office Building	3627	736.2482	43.5110	0.0000	1,649.9797
Regional Shopping Center	1680	341.0248	20.1540	0.0000	764.2586
Total		1,702.6435	100.6233	0.0000	3,815.7339

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	3,697.00	Dwelling Unit	97.29	3,697,000.00	10573

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022

tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2035
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	20.8710	0.6093	45.3691	0.0602		3.2014	3.2014		3.2002	3.2002	393.3165	1,646.4079	2,039.7244	1.9121	0.0294	2,088.9798
Energy	0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	5,358.9078	5,358.9078	0.1812	0.0732	5,385.4023
Mobile	10.8096	30.0110	128.9842	0.4509	27.2472	0.7461	27.9933	7.3110	0.6878	7.9987	0.0000	30,648.0921	30,648.0921	0.6582	0.0000	30,661.9147
Waste						0.0000	0.0000		0.0000	0.0000	345.2105	0.0000	345.2105	20.4014	0.0000	773.6390
Water						0.0000	0.0000		0.0000	0.0000	76.4183	409.1911	485.6095	7.8672	0.1895	709.5630
Total	31.9119	32.5972	175.1946	0.5237	27.2472	4.1074	31.3546	7.3110	4.0478	11.3588	814.9453	38,062.5988	38,877.5442	31.0201	0.2920	39,619.4987

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	18.8883	0.3156	27.3630	1.4500e-003		0.2640	0.2640		0.2629	0.2629	0.0000	1,646.4079	1,646.4079	0.0734	0.0294	1,657.0512
Energy	0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	4,780.3665	4,780.3665	0.1679	0.0633	4,803.5158
Mobile	9.7637	24.1673	111.6170	0.3380	20.1855	0.5664	20.7519	5.4162	0.5221	5.9383	0.0000	22,966.2406	22,966.2406	0.5028	0.0000	22,976.7988
Waste						0.0000	0.0000		0.0000	0.0000	34.5211	0.0000	34.5211	2.0401	0.0000	77.3639

Water						0.0000	0.0000		0.0000	0.0000	61.1347	307.9315	369.0662	6.2929	0.1514	548.1495
Total	28.8338	26.0364	139.6410	0.3494	20.1855	0.9560	21.1415	5.4162	0.9106	6.3268	95.6557	29,700.9465	29,796.6022	9.0771	0.2441	30,062.8792

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	9.65	20.13	20.29	33.30	25.92	76.72	32.57	25.92	77.50	44.30	88.26	21.97	23.36	70.74	16.43	24.12

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.7637	24.1673	111.6170	0.3380	20.1855	0.5664	20.7519	5.4162	0.5221	5.9383	0.0000	22,966.2406	22,966.2406	0.5028	0.0000	22,976.7988
Unmitigated	10.8096	30.0110	128.9842	0.4509	27.2472	0.7461	27.9933	7.3110	0.6878	7.9987	0.0000	30,648.0921	30,648.0921	0.6582	0.0000	30,661.9147

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	24,585.05	26,470.52	22440.79	71,917,761	53,278,649
Total	24,585.05	26,470.52	22,440.79	71,917,761	53,278,649

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.440267	0.065260	0.162473	0.166863	0.043084	0.006979	0.019846	0.082125	0.002037	0.001766	0.006837	0.000617	0.001848

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,981.2958	2,981.2958	0.1334	0.0303	2,993.4962
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,069.4432	3,069.4432	0.1374	0.0312	3,082.0044
NaturalGas Mitigated	0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	1,799.0708	1,799.0708	0.0345	0.0330	1,810.0196
NaturalGas Unmitigated	0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.29029e+007	0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979
Total		0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.37133e+007	0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	1,799.0708	1,799.0708	0.0345	0.0330	1,810.0196
Total		0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	1,799.0708	1,799.0708	0.0345	0.0330	1,810.0196

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.37638e+007	3,069.4432	0.1374	0.0312	3,082.0044
Total		3,069.4432	0.1374	0.0312	3,082.0044

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.33685e+007	2,981.2958	0.1334	0.0303	2,993.4962
Total		2,981.2958	0.1334	0.0303	2,993.4962

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Mitigated	18.8883	0.3156	27.3630	1.4500e-003		0.2640	0.2640		0.2629	0.2629	0.0000	1,646.4079	1,646.4079	0.0734	0.0294	1,657.0512
Unmitigated	20.8710	0.6093	45.3691	0.0602		3.2014	3.2014		3.2002	3.2002	393.3165	1,646.4079	2,039.7244	1.9121	0.0294	2,088.9798

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4700					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.4386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.1446	0.2938	18.0150	0.0588		3.0492	3.0492		3.0480	3.0480	393.3165	1,601.5677	1,994.8843	1.8694	0.0294	2,043.2433
Landscaping	0.8179	0.3156	27.3542	1.4500e-003		0.1522	0.1522		0.1522	0.1522	0.0000	44.8402	44.8402	0.0427	0.0000	45.7365
Total	20.8710	0.6093	45.3691	0.0602		3.2014	3.2014		3.2002	3.2002	393.3165	1,646.4079	2,039.7244	1.9121	0.0294	2,088.9798

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4700					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.4386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1618	1.0000e-005	8.8300e-003	0.0000		0.1118	0.1118		0.1106	0.1106	0.0000	1,601.5677	1,601.5677	0.0307	0.0294	1,611.3146
Landscaping	0.8179	0.3156	27.3542	1.4500e-003		0.1522	0.1522		0.1522	0.1522	0.0000	44.8402	44.8402	0.0427	0.0000	45.7365
Total	18.8883	0.3156	27.3630	1.4500e-003		0.2640	0.2640		0.2629	0.2629	0.0000	1,646.4079	1,646.4079	0.0734	0.0294	1,657.0512

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	369.0662	6.2929	0.1514	548.1495
Unmitigated	485.6095	7.8672	0.1895	709.5630

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	240.874 / 151.856	485.6095	7.8672	0.1895	709.5630
Total		485.6095	7.8672	0.1895	709.5630

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	192.7 / 121.484	369.0662	6.2929	0.1514	548.1495
Total		369.0662	6.2929	0.1514	548.1495

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	34.5211	2.0401	0.0000	77.3639
Unmitigated	345.2105	20.4014	0.0000	773.6390

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1700.62	345.2105	20.4014	0.0000	773.6390
Total		345.2105	20.4014	0.0000	773.6390

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	170.062	34.5211	2.0401	0.0000	77.3639
Total		34.5211	2.0401	0.0000	77.3639

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	3,900.00	1000sqft	89.53	3,900,000.00	0
General Light Industry	150.00	1000sqft	3.44	150,000.00	0
Regional Shopping Center	1,600.00	1000sqft	36.73	1,600,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new non-residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2035

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	25.9990	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064
Energy	0.4023	3.6575	3.0723	0.0219		0.2780	0.2780		0.2780	0.2780	0.0000	16,364.1379	16,364.1379	0.6304	0.1989	16,439.0428
Mobile	38.4946	91.8056	434.2820	1.2506	74.3502	2.1058	76.4561	19.9497	1.9414	21.8911	0.0000	84,969.5013	84,969.5013	1.8737	0.0000	85,008.8495
Waste						0.0000	0.0000		0.0000	0.0000	1,115.0294	0.0000	1,115.0294	65.8964	0.0000	2,498.8527
Water						0.0000	0.0000		0.0000	0.0000	268.5126	1,409.6070	1,678.1196	27.6419	0.6655	2,464.9141
Total	64.8959	95.4635	437.4059	1.2725	74.3502	2.3840	76.7342	19.9497	2.2195	22.1692	1,383.5420	102,743.3471	104,126.8891	96.0426	0.8645	106,411.7655

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	25.9990	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064
Energy	0.2897	2.6337	2.2123	0.0158		0.2002	0.2002		0.2002	0.2002	0.0000	14,111.3310	14,111.3310	0.5581	0.1669	14,174.7950
Mobile	35.6408	75.8599	386.8915	0.9424	55.0807	1.6153	56.6960	14.7793	1.4894	16.2687	0.0000	64,007.8086	64,007.8086	1.4496	0.0000	64,038.2492

Waste						0.0000	0.0000		0.0000	0.0000	111.5029	0.0000	111.5029	6.5896	0.0000	249.8853
Water						0.0000	0.0000		0.0000	0.0000	214.8101	1,059.4443	1,274.2544	22.1105	0.5317	1,903.4107
Total	61.9295	78.4940	389.1554	0.9582	55.0807	1.8157	56.8964	14.7793	1.6898	16.4691	326.3130	79,178.6849	79,504.9979	30.7080	0.6987	80,366.4466

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	4.57	17.78	11.03	24.70	25.92	23.84	25.85	25.92	23.87	25.71	76.41	22.94	23.65	68.03	19.18	24.48

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	35.6408	75.8599	386.8915	0.9424	55.0807	1.6153	56.6960	14.7793	1.4894	16.2687	0.0000	64,007.8086	64,007.8086	1.4496	0.0000	64,038.2492
Unmitigated	38.4946	91.8056	434.2820	1.2506	74.3502	2.1058	76.4561	19.9497	1.9414	21.8911	0.0000	84,969.5013	84,969.5013	1.8737	0.0000	85,008.8495

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,045.50	198.00	102.00	2,305,371	1,707,882
General Office Building	42,939.00	9,243.00	3822.00	77,755,729	57,603,576
Regional Shopping Center	68,704.00	79,952.00	40384.00	116,182,995	86,071,548
Total	112,688.50	89,393.00	44,308.00	196,244,095	145,383,006

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.440267	0.065260	0.162473	0.166863	0.043084	0.006979	0.019846	0.082125	0.002037	0.001766	0.006837	0.000617	0.001848

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	11,244.2430	11,244.2430	0.5032	0.1144	11,290.2583
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12,382.5574	12,382.5574	0.5541	0.1259	12,433.2311
NaturalGas Mitigated	0.2897	2.6337	2.2123	0.0158		0.2002	0.2002		0.2002	0.2002	0.0000	2,867.0880	2,867.0880	0.0550	0.0526	2,884.5366
NaturalGas Unmitigated	0.4023	3.6575	3.0723	0.0219		0.2780	0.2780		0.2780	0.2780	0.0000	3,981.5805	3,981.5805	0.0763	0.0730	4,005.8117

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

General Light Industry	3.264e+006	0.0176	0.1600	0.1344	9.6000e-004		0.0122	0.0122		0.0122	0.0122	0.0000	174.1795	174.1795	3.3400e-003	3.1900e-003	175.2395
General Office Building	5.3508e+007	0.2885	2.6229	2.2033	0.0157		0.1993	0.1993		0.1993	0.1993	0.0000	2,855.3907	2,855.3907	0.0547	0.0524	2,872.7681
Regional Shopping Center	1.784e+007	0.0962	0.8745	0.7346	5.2500e-003		0.0665	0.0665		0.0665	0.0665	0.0000	952.0103	952.0103	0.0183	0.0175	957.8041
Total		0.4023	3.6575	3.0723	0.0220		0.2780	0.2780		0.2780	0.2780	0.0000	3,981.5805	3,981.5805	0.0763	0.0730	4,005.8117

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	3.77832e+007	0.2037	1.8521	1.5558	0.0111		0.1408	0.1408		0.1408	0.1408	0.0000	2,016.2554	2,016.2554	0.0386	0.0370	2,028.5260
Regional Shopping Center	1.34864e+007	0.0727	0.6611	0.5553	3.9700e-003		0.0502	0.0502		0.0502	0.0502	0.0000	719.6857	719.6857	0.0138	0.0132	724.0656
General Light Industry	2.4576e+006	0.0133	0.1205	0.1012	7.2000e-004		9.1600e-003	9.1600e-003		9.1600e-003	9.1600e-003	0.0000	131.1469	131.1469	2.5100e-003	2.4000e-003	131.9450
Total		0.2897	2.6337	2.2123	0.0158		0.2002	0.2002		0.2002	0.2002	0.0000	2,867.0880	2,867.0880	0.0549	0.0526	2,884.5366

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.449e+006	323.1396	0.0145	3.2900e-003	324.4620
General Office Building	3.9468e+007	3,801.7069	0.3939	0.0895	8,837.7265
Regional Shopping Center	1.4608e+007	3,257.7109	0.1458	0.0331	3,271.0426
Total		12,382.5574	0.5541	0.1259	12,433.2311

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.34145e+006	299.1550	0.0134	3.0400e-003	300.3793
General Office Building	3.5724e+007	7,966.7624	0.3565	0.0810	7,999.3651
Regional Shopping Center	1.33552e+007	2,978.3256	0.1333	0.0303	2,990.5140
Total		11,244.2431	0.5032	0.1144	11,290.2583

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	25.9990	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064
Unmitigated	25.9990	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.9282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	22.0661					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.7200e-003	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064

Total	25.9990	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.9282					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	22.0661					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.7200e-003	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064
Total	25.9990	4.6000e-004	0.0516	0.0000		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.1010	0.1010	2.6000e-004	0.0000	0.1064

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,274.2544	22.1105	0.5317	1,903.4107
Unmitigated	1,678.1196	27.6419	0.6655	2,464.9141

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

General Light Industry	34.6875 / 0	52.8622	1.1322	0.0271	85.0431
General Office Building	693.162 / 424.841	1,387.9477	22.6390	0.5452	2,032.3773
Regional Shopping Center	118.516 / 72.6389	237.3098	3.8708	0.0932	347.4937
Total		1,678.1196	27.6419	0.6655	2,464.9141

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	27.75 / 0	39.4929	0.9056	0.0217	65.2262
General Office Building	554.529 / 339.873	1,054.4694	18.1087	0.4356	1,569.7845
Regional Shopping Center	94.8128 / 58.1111	180.2921	3.0962	0.0745	268.4001
Total		1,274.2544	22.1105	0.5317	1,903.4107

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	111.5029	6.5896	0.0000	249.8853
Unmitigated	1,115.0294	65.8964	0.0000	2,498.8527

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	186	37.7563	2.2313	0.0000	84.6143
General Office Building	3627	736.2482	43.5110	0.0000	1,649.9797
Regional Shopping Center	1680	341.0248	20.1540	0.0000	764.2586
Total		1,115.0294	65.8963	0.0000	2,498.8526

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	18.6	3.7756	0.2231	0.0000	8.4614
General Office Building	362.7	73.6248	4.3511	0.0000	164.9980
Regional Shopping Center	168	34.1025	2.0154	0.0000	76.4259
Total		111.5029	6.5896	0.0000	249.8853

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Mid Rise	3,697.00	Dwelling Unit	97.29	3,697,000.00	10573

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2035
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	491.65	CH4 Intensity (lb/MW hr)	0.022	N2O Intensity (lb/MW hr)	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Use Renewable Portfolio Standards

Land Use - Information from Table 10 of Traffic Report (Fehr and Peers)

Vehicle Trips - Trip rate data from Traffic Report (Fehr and Peers)

Mobile Land Use Mitigation - Existing conditions

Area Mitigation -

Energy Mitigation - Title 24 energy efficiency regulation - 25% for new residential development

Water Mitigation - Apply urban water conservation

Waste Mitigation - Apply waste diversion goal

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022

tblProjectCharacteristics	CO2IntensityFactor	641.35	491.65
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2035
tblVehicleTrips	WD_TR	6.59	6.65

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	20.8710	0.6093	45.3691	0.0602		3.2014	3.2014		3.2002	3.2002	393.3165	1,646.4079	2,039.7244	1.9121	0.0294	2,088.9798
Energy	0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	5,358.9078	5,358.9078	0.1812	0.0732	5,385.4023
Mobile	10.8096	30.0110	128.9842	0.4509	27.2472	0.7461	27.9933	7.3110	0.6878	7.9987	0.0000	30,648.0921	30,648.0921	0.6582	0.0000	30,661.9147
Waste						0.0000	0.0000		0.0000	0.0000	345.2105	0.0000	345.2105	20.4014	0.0000	773.6390
Water						0.0000	0.0000		0.0000	0.0000	76.4183	409.1911	485.6095	7.8672	0.1895	709.5630
Total	31.9119	32.5972	175.1946	0.5237	27.2472	4.1074	31.3546	7.3110	4.0478	11.3588	814.9453	38,062.5988	38,877.5442	31.0201	0.2920	39,619.4987

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	18.8883	0.3156	27.3630	1.4500e-003		0.2640	0.2640		0.2629	0.2629	0.0000	1,646.4079	1,646.4079	0.0734	0.0294	1,657.0512
Energy	0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	4,780.3665	4,780.3665	0.1679	0.0633	4,803.5158
Mobile	9.7637	24.1673	111.6170	0.3380	20.1855	0.5664	20.7519	5.4162	0.5221	5.9383	0.0000	22,966.2406	22,966.2406	0.5028	0.0000	22,976.7988

Waste						0.0000	0.0000		0.0000	0.0000	34.5211	0.0000	34.5211	2.0401	0.0000	77.3639
Water						0.0000	0.0000		0.0000	0.0000	61.1347	307.9315	369.0662	6.2929	0.1514	548.1495
Total	28.8338	26.0364	139.6410	0.3494	20.1855	0.9560	21.1415	5.4162	0.9106	6.3268	95.6557	29,700.9465	29,796.6022	9.0771	0.2441	30,062.8792

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	9.65	20.13	20.29	33.30	25.92	76.72	32.57	25.92	77.50	44.30	88.26	21.97	23.36	70.74	16.43	24.12

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	9.7637	24.1673	111.6170	0.3380	20.1855	0.5664	20.7519	5.4162	0.5221	5.9383	0.0000	22,966.2406	22,966.2406	0.5028	0.0000	22,976.7988
Unmitigated	10.8096	30.0110	128.9842	0.4509	27.2472	0.7461	27.9933	7.3110	0.6878	7.9987	0.0000	30,648.0921	30,648.0921	0.6582	0.0000	30,661.9147

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	24,585.05	26,470.52	22440.79	71,917,761	53,278,649
Total	24,585.05	26,470.52	22,440.79	71,917,761	53,278,649

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	48.40	15.90	35.70	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.440267	0.065260	0.162473	0.166863	0.043084	0.006979	0.019846	0.082125	0.002037	0.001766	0.006837	0.000617	0.001848

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,981.2958	2,981.2958	0.1334	0.0303	2,993.4962
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,069.4432	3,069.4432	0.1374	0.0312	3,082.0044
NaturalGas Mitigated	0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	1,799.0708	1,799.0708	0.0345	0.0330	1,810.0196
NaturalGas Unmitigated	0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	4.29029e+007	0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979
Total		0.2313	1.9769	0.8412	0.0126		0.1598	0.1598		0.1598	0.1598	0.0000	2,289.4646	2,289.4646	0.0439	0.0420	2,303.3979

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	3.37133e+007	0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	1,799.0708	1,799.0708	0.0345	0.0330	1,810.0196
Total		0.1818	1.5535	0.6611	9.9200e-003		0.1256	0.1256		0.1256	0.1256	0.0000	1,799.0708	1,799.0708	0.0345	0.0330	1,810.0196

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.37638e+007	3,069.4432	0.1374	0.0312	3,082.0044
Total		3,069.4432	0.1374	0.0312	3,082.0044

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.33685e+007	2,981.2958	0.1334	0.0303	2,993.4962
Total		2,981.2958	0.1334	0.0303	2,993.4962

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Mitigated	18.8883	0.3156	27.3630	1.4500e-003		0.2640	0.2640		0.2629	0.2629	0.0000	1,646.4079	1,646.4079	0.0734	0.0294	1,657.0512
Unmitigated	20.8710	0.6093	45.3691	0.0602		3.2014	3.2014		3.2002	3.2002	393.3165	1,646.4079	2,039.7244	1.9121	0.0294	2,088.9798

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4700					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.4386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.1446	0.2938	18.0150	0.0588		3.0492	3.0492		3.0480	3.0480	393.3165	1,601.5677	1,994.8843	1.8694	0.0294	2,043.2433
Landscaping	0.8179	0.3156	27.3542	1.4500e-003		0.1522	0.1522		0.1522	0.1522	0.0000	44.8402	44.8402	0.0427	0.0000	45.7365
Total	20.8710	0.6093	45.3691	0.0602		3.2014	3.2014		3.2002	3.2002	393.3165	1,646.4079	2,039.7244	1.9121	0.0294	2,088.9798

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.4700					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.4386					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1618	1.0000e-005	8.8300e-003	0.0000		0.1118	0.1118		0.1106	0.1106	0.0000	1,601.5677	1,601.5677	0.0307	0.0294	1,611.3146
Landscaping	0.8179	0.3156	27.3542	1.4500e-003		0.1522	0.1522		0.1522	0.1522	0.0000	44.8402	44.8402	0.0427	0.0000	45.7365
Total	18.8883	0.3156	27.3630	1.4500e-003		0.2640	0.2640		0.2629	0.2629	0.0000	1,646.4079	1,646.4079	0.0734	0.0294	1,657.0512

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	369.0662	6.2929	0.1514	548.1495
Unmitigated	485.6095	7.8672	0.1895	709.5630

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	240.874 / 151.856	485.6095	7.8672	0.1895	709.5630
Total		485.6095	7.8672	0.1895	709.5630

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	192.7 / 121.484	369.0662	6.2929	0.1514	548.1495
Total		369.0662	6.2929	0.1514	548.1495

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	34.5211	2.0401	0.0000	77.3639
Unmitigated	345.2105	20.4014	0.0000	773.6390

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1700.62	345.2105	20.4014	0.0000	773.6390
Total		345.2105	20.4014	0.0000	773.6390

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	170.062	34.5211	2.0401	0.0000	77.3639
Total		34.5211	2.0401	0.0000	77.3639

E.3 - Land Use Calculations

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	2039		2020	
Downtown Neighborhoods Community Plan				
	Quantity	Units	Quantity	Units
High Denisty Residentnial	3,697	DU	616	DU
Industrial	2,900	KSF	483	KSF
Retail	350	KSF	58	KSF
General Office	2,000	KSF	333	KSF
Fulton Corridor Specific Plan				
	Quantity	Units	Quantity	Units
High Denisty Residentnial	6,293	DU	1,049	DU
Industrial	150	KSF	20	KSF
Retail	1,600	KSF	267	KSF
General Office	3,900	KSF	650	KSF
Annual Rate (land use/per year) - DNCP	Quantity	Units		
High Denisty Residentnial	154	DU		
Industrial	121	KSF		
Retail	15	KSF		
General Office	83	KSF		
Annual Rate (land use/per year) - FCSP	Quantity	Units		
High Denisty Residentnial	262	DU		
Industrial	5	KSF		
Retail	67	KSF		
General Office	163	KSF		

2030

Quantity	Units

2,157	DU

1,692	KSF

204	KSF

1,167	KSF

Quantity	Units

3,671	DU

70	KSF

933	KSF

2,275	KSF

E.4 - Air Quality and Land Use Handbook

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AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE



April 2005

California Environmental Protection Agency
California Air Resources Board



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California Air Resources Board

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(800) 363-7664 (public info)

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E-Mail: jharris@amadorapcd.org

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E-Mail: lgrewal@co.calaveras.ca.us

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Website: www.colusanet.com/apcd

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E-Mail: mcctaggart@co.el-dorado.ca.us

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E-Mail:

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Modoc County APCD

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Mojave Desert AQMD

Phone: (760) 245-1661

(800) 635-4617

Website: www.mdaqmd.ca.gov

Monterey Bay Unified APCD

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Santa Barbara County APCD

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Complaint Line: (805) 654-2797

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E-Mail: info@vcapcd.org

Yolo-Solano AQMD

Phone: (530) 757-3650

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Email: administration@ysaqmd.org

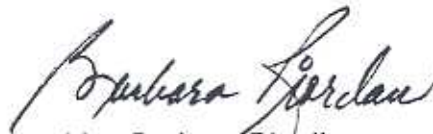
To My Local Government Colleagues....

I am pleased to introduce this informational guide to air quality and land use issues focused on community health. As a former county supervisor, I know from experience the complexity of local land use decisions. There are multiple factors to consider and balance. This document provides important public health information that we hope will be considered along with housing needs, economic development priorities, and other quality of life issues.

An important focus of this document is prevention. We hope the air quality information provided will help inform decision-makers about the benefits of avoiding certain siting situations. The overarching goal is to avoid placing people in harm's way. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. What is encouraging is that the health risk is greatly reduced with distance. For that reason, we have provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and land uses such as residences.

Land use decisions are a local government responsibility. The Air Resources Board's role is advisory and these recommendations do not establish regulatory standards of any kind. However, we hope that the information in this document will be seriously considered by local elected officials and land use agencies. We also hope that this document will promote enhanced communication between land use agencies and local air pollution control agencies. We developed this document in close coordination with the California Air Pollution Control Officers Association with that goal in mind.

I hope you find this document both informative and useful.

A handwritten signature in dark ink, appearing to read "Barbara Riordan". The signature is fluid and cursive, with a large initial 'B'.

Mrs. Barbara Riordan
Interim Chairman
California Air Resources Board

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APPENDICES

Appendix A	Land Use Classifications And Associated Facility Categories That Could Emit Air Pollutants
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Acknowledgments

The ARB staff would like to acknowledge the exceptional contributions made to this document by members of the ARB Environmental Justice Stakeholders Group. Since 2001, ARB staff has consistently relied on this group to provide critical and constructive input on implementing the specifics of ARB's environmental justice policies and actions. The Stakeholders Group is convened by the ARB, and comprised of representatives from local land use and air agencies, community interest groups, environmental justice organizations, academia, and business. Their assistance and suggestions throughout the development of this Handbook have been invaluable.

Executive Summary

The Air Resources Board's (ARB) primary goal in developing this document is to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Also, ARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

Focusing attention on these siting situations is an important preventative action. ARB and local air districts have comprehensive efforts underway to address new and existing air pollution sources under their respective jurisdictions. The issue of siting is a local government function. As more data on the connection between proximity and health risk from air pollution become available, it is essential that air agencies share what we know with land use agencies. We hope this document will serve that purpose.

The first section provides ARB recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that we have evaluated from the standpoint of the proximity issue. It is based on available information and reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants. A key air pollutant common to many of these sources is particulate matter from diesel engines. Diesel particulate matter (diesel PM) is a carcinogen identified by ARB as a toxic air contaminant and contributes to particulate pollution statewide.

Reducing diesel particulate emissions is one of ARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing diesel PM emissions each year. ARB's long-term goal is to reduce diesel PM emissions 85% by 2020. However, cleaning up diesel engines will take time as new engine standards phase in and programs to accelerate fleet turnover or retrofit existing engines are implemented. Also, these efforts are reducing diesel particulate emissions on a statewide basis, but do not yet capture every site where diesel vehicles and engines may congregate. Because living or going to school too close to such air pollution sources may increase both cancer and non-cancer health risks, we are recommending that proximity be considered in the siting of new sensitive land uses.

There are also other key toxic air contaminants associated with specific types of facilities. Most of these are subject to stringent state and local air district regulations. However, what we know today indicates that keeping new homes and other sensitive land uses from siting too close to such facilities would provide additional health protection. Chrome platers are a prime example of facilities that should not be located near vulnerable communities because of the cancer health risks from exposure to the toxic material used during their operations.

In addition to source specific recommendations, we also encourage land use agencies to use their planning processes to ensure the appropriate separation of industrial facilities and sensitive land uses. While we provide some suggestions, how to best achieve that goal is a local issue. In the development of these guidelines, we received valuable input from local government about the spectrum of issues that must be considered in the land use planning process. This includes addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. All of these factors are important considerations. The recommendations in the Handbook need to be balanced with other State and local policies.

Our purpose with this document is to highlight the potential health impacts associated with proximity to air pollution sources so planners explicitly consider this issue in planning processes. We believe that with careful evaluation, infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level. One suggestion for achieving this goal is more communication between air agencies and land use planners. Local air districts are an important resource that should be consulted regarding sources of air pollution in their jurisdictions. ARB staff will also continue to provide updated technical information as it becomes available.

Our recommendations are as specific as possible given the nature of the available data. In some cases, like refineries, we suggest that the siting of new sensitive land uses should be avoided immediately downwind. However, we leave definition of the size of this area to local agencies based on facility specific considerations. Also, project design that would reduce air pollution exposure may be part of the picture and we encourage consultation with air agencies on this subject.

In developing the recommendations, our first consideration was the adequacy of the data available for an air pollution source category. Using that data, we assessed whether we could reasonably characterize the relative exposure and health risk from a proximity standpoint. That screening provided the list of air pollution sources that we were able to address with specific recommendations. We also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. In the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Due to the large variability in relative risk in the source categories, we chose not to apply

a uniform, quantified risk threshold as is typically done in air quality permitting programs. Instead, because these guidelines are not regulatory or binding on local agencies, we took a more qualitative approach in developing the distance-based recommendations.

Where possible, we recommend a minimum separation between a new sensitive land use and known air pollution risks. In other cases, we acknowledge that the existing health risk is too high in a relatively large area, that air agencies are working to reduce that risk, and that in the meantime, we recommend keeping new sensitive land uses out of the highest exposure areas. However, it is critical to note that our implied identification of the high exposure areas for these sources does not mean that the risk in the remaining impact area is insignificant. Rather, we hope this document will bring further attention to the potential health risk throughout the impact area and help garner support for our ongoing efforts to reduce health risk associated with air pollution sources. Areas downwind of major ports, rail yards, and other inter-modal transportation facilities are prime examples.

We developed these recommendations as a means to share important public health information. The underlying data are publicly available and referenced in this document. We also describe our rationale and the factors considered in developing each recommendation, including data limitations and uncertainties. These recommendations are advisory and should not be interpreted as defined “buffer zones.” We recognize the opportunity for more detailed site-specific analyses always exists, and that there is no “one size fits all” solution to land use planning.

As California continues to grow, we collectively have the opportunity to use all the information at hand to avoid siting scenarios that may pose a health risk. As part of ARB’s focus on communities and children’s health, we encourage land use agencies to apply these recommendations and work more closely with air agencies. We also hope that this document will help educate a wider audience about the value of preventative action to reduce environmental exposures to air pollution.

1. ARB Recommendations on Siting New Sensitive Land Uses

Protecting California's communities and our children from the health effects of air pollution is one of the most fundamental goals of state and local air pollution control programs. Our focus on children reflects their special vulnerability to the health impacts of air pollution. Other vulnerable populations include the elderly, pregnant women, and those with serious health problems affected by air pollution. With this document, we hope to more effectively engage local land use agencies as partners in our efforts to reduce health risk from air pollution in all California communities.

Later sections emphasize the need to strengthen the connection between air quality and land use in both planning and permitting processes. Because the siting process for many, but not all air pollution sources involves permitting by local air districts, there is an opportunity for interagency coordination where the proposed location might pose a problem. To enhance the evaluation process from a land use perspective, section 4 includes recommended project related questions to help screen for potential proximity related issues.

Unlike industrial and other stationary sources of air pollution, the siting of new homes or day care centers does not require an air quality permit. Because these situations fall outside the air quality permitting process, it is especially important that land use agencies be aware of potential air pollution impacts.

The following recommendations address the issue of siting "sensitive land uses" near specific sources of air pollution; namely:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

The recommendations for each category include a summary of key information and guidance on what to avoid from a public health perspective.

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses).

We are characterizing sensitive land uses as simply as we can by using the example of residences, schools, day care centers, playgrounds, and medical facilities. However, a variety of facilities are encompassed. For example, residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.

In developing these recommendations, ARB first considered the adequacy of the data available for each air pollution source category. We assessed whether we could generally characterize the relative exposure and health risk from a proximity standpoint. The documented non-cancer health risks include triggering of asthma attacks, heart attacks, and increases in daily mortality and hospitalization for heart and respiratory diseases. These health impacts are well documented in epidemiological studies, but less easy to quantify from a particular air pollution source. Therefore, the cancer health impacts are used in this document to provide a picture of relative risk. This screening process provided the list of source categories we were able to address with specific recommendations. In evaluating the available information, we also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. Due to the large variability in relative risk between the source categories, we chose not to apply a uniform, quantified risk threshold as is typically done in regulatory programs. Therefore, in the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Additionally, because this guidance is not regulatory or binding on local agencies, we took a more qualitative approach to developing distance based recommendations.

Where possible, we recommend a minimum separation between new sensitive land uses and existing sources. However, this is not always possible, particularly where there is an elevated health risk over large geographical areas. Areas downwind of ports and rail yards are prime examples. In such cases, we recommend doing everything possible to avoid locating sensitive receptors within the highest risk zones. Concurrently, air agencies and others will be working to reduce the overall risk through controls and measures within their scope of authority.

The recommendations were developed from the standpoint of siting new sensitive land uses. Project-specific data for new and existing air pollution sources are available as part of the air quality permitting process. Where such information is available, it should be used. Our recommendations are designed to fill a gap where information about existing facilities may not be readily available. These recommendations are only guidelines and are not designed to substitute for more specific information if it exists.

A summary of our recommendations is shown in Table 1-1. The basis and references¹ supporting each of these recommendations, including health studies, air quality modeling and monitoring studies is discussed below beginning with freeways and summarized in Table 1-2. As new information becomes available, it will be included on ARB's community health web page.

¹Detailed information on these references are available on ARB's website at:
<http://www.ARB.ca.gov/ch/landuse.htm>.

Table 1-1

**Recommendations on Siting New Sensitive Land Uses
Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical
Facilities***

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

***Notes:**

- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in Table 1-2.

Table 1-2

Summary of Basis for Advisory Recommendations

Source Category	Range of Relative Cancer Risk^{1,2}	Summary of Basis for Advisory Recommendations
Freeways and High-Traffic Roads	300 – 1,700	In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70% drop off in particulate pollution levels at 500 feet.
Distribution Centers ³	Up to 500	- Because ARB regulations will restrict truck idling at distribution centers, transport refrigeration unit (TRU) operations are the largest onsite diesel PM emission source followed by truck travel in and out of distribution centers. - Based on ARB and South Coast District emissions and modeling analyses, we estimate an 80 percent drop-off in pollutant concentrations at approximately 1,000 feet from a distribution center.
Rail Yards	Up to 500	The air quality modeling conducted for the Roseville Rail Yard Study predicted the highest impact is within 1,000 feet of the Yard, and is associated with service and maintenance activities. The next highest impact is between a half to one mile of the Yard, depending on wind direction and intensity.
Ports	Studies underway	ARB will evaluate the impacts of ports and develop a new comprehensive plan that will describe the steps needed to reduce public health impacts from port and rail activities in California. In the interim, a general advisory is appropriate based on the magnitude of diesel PM emissions associated with ports.
Refineries	Under 10	- Risk assessments conducted at California refineries show risks from air toxics to be under 10 chances of cancer per million.⁴ - Distance recommendations were based on the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, particularly during non-routine emissions releases.
Chrome Platers	10-100	ARB modeling and monitoring studies show localized risk of hexavalent chromium diminishing significantly at 300 feet. There are data limitations in both the modeling and monitoring studies. These include variability of plating activities and uncertainty of emissions such as fugitive dust. Hexavalent chromium is one of the most potent toxic air contaminants. Considering these factors, a distance of 1,000 feet was used as a precautionary measure.
Dry Cleaners Using Perchloroethylene (perc)	15-150	Local air district studies indicate that individual cancer risk can be reduced by as much as 75 percent by establishing a 300 foot separation between a sensitive land use and a one-machine perc dry cleaning operation. For larger operations (2 machines or more), a separation of 500 feet can reduce risk by over 85 percent.

Source Category	Range of Relative Cancer Risk ^{1,2}	Summary of Basis for Advisory Recommendations
Gasoline Dispensing Facilities (GDF) ⁵	Typical GDF: Less than 10 Large GDF: Between Less than 10 and 120	Based on the CAPCOA Gasoline Service Station Industry-wide Risk Assessment Guidelines, most typical GDFs (less than 3.6 million gallons per year) have a risk of less than 10 at 50 feet under urban air dispersion conditions. Over the last few years, there has been a growing number of extremely large GDFs with sales over 3.6 and as high as 19 million gallons per year. Under rural air dispersion conditions, these large GDFs can pose a larger risk at a greater distance.

¹For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g., 10 chances in a million).

²The estimated cancer risks are a function of the proximity to the specific category and were calculated independent of the regional health risk from air pollution. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 in a million.

³Analysis based on refrigerator trucks.

⁴Although risk assessments performed by refineries indicate they represent a low cancer risk, there is limited data on non-cancer effects of pollutants that are emitted from these facilities. Refineries are also a source of non-routine emissions and odors.

⁵A typical GDF in California dispenses under 3.6 million gallons of gasoline per year. The cancer risk for this size facility is likely to be less than 10 in a million at the fence line under urban air dispersion conditions.

A large GDF has fuel throughputs that can range from 3.6 to 19 million gallons of gasoline per year. The upper end of the risk range (i.e., 120 in a million) represents a hypothetical worst case scenario for an extremely large GDF under rural air dispersion conditions.

Freeways and High Traffic Roads

Air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. Many of these epidemiological studies have focused on children. A number of studies identify an association between adverse non-cancer health effects and living or attending school near heavily traveled roadways (see findings below). These studies have reported associations between residential proximity to high traffic roadways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children.

One such study that found an association between traffic and respiratory symptoms in children was conducted in the San Francisco Bay Area. Measurements of traffic-related pollutants showed concentrations within 300 meters (approximately 1,000 feet) downwind of freeways were higher than regional values. Most other studies have assessed exposure based on proximity factors such as distance to freeways or traffic density.

These studies linking traffic emissions with health impacts build on a wealth of data on the adverse health effects of ambient air pollution. The data on the effects of proximity to traffic-related emissions provides additional information that can be used in land use siting and regulatory actions by air agencies. The key observation in these studies is that close proximity increases both exposure and the potential for adverse health effects. Other effects associated with traffic emissions include premature death in elderly individuals with heart disease.

Key Health Findings

- Reduced lung function in children was associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet. (Brunekreef, 1997)
- Increased asthma hospitalizations were associated with living within 650 feet of heavy traffic and heavy truck volume. (Lin, 2000)
- Asthma symptoms increased with proximity to roadways and the risk was greatest within 300 feet. (Venn, 2001)
- Asthma and bronchitis symptoms in children were associated with proximity to high traffic in a San Francisco Bay Area community with good overall regional air quality. (Kim, 2004)
- A San Diego study found increased medical visits in children living within 550 feet of heavy traffic. (English, 1999)

In these and other proximity studies, the distance from the roadway and truck traffic densities were key factors affecting the strength of the association with adverse health effects. In the above health studies, the association of traffic-related emissions with adverse health effects was seen within 1,000 feet and was

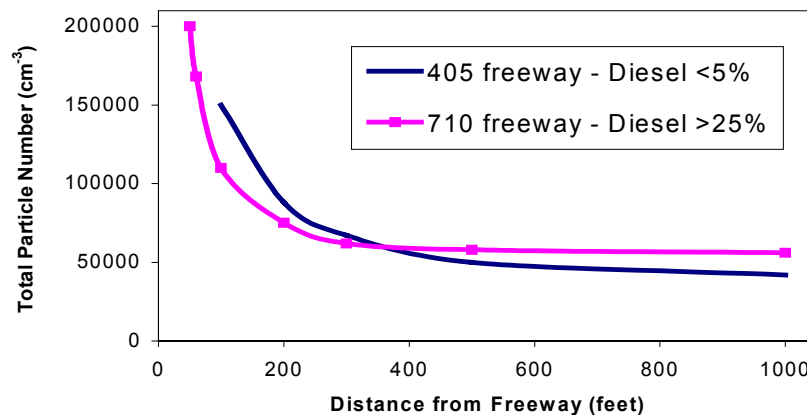
strongest within 300 feet. This demonstrates that the adverse effects diminished with distance.

In addition to the respiratory health effects in children, proximity to freeways increases potential cancer risk and contributes to total particulate matter exposure. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risk from motor vehicle traffic – diesel particulate matter (diesel PM) from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000-20,000/day), diesel PM represents about 70 percent of the potential cancer risk from the vehicle traffic. Diesel particulate emissions are also of special concern because health studies show an association between particulate matter and premature mortality in those with existing cardiovascular disease.

Distance Related Findings

A southern California study (Zhu, 2002) showed measured concentrations of vehicle-related pollutants, including ultra-fine particles, decreased dramatically within approximately 300 feet of the 710 and 405 freeways. Another study looked at the validity of using distance from a roadway as a measure of exposure

Figure 1-1
Decrease In Concentration of Freeway Diesel PM Emissions
With Distance



to traffic related air pollution (Knape, 1999). This study showed that concentrations of traffic related pollutants declined with distance from the road, primarily in the first 500 feet.

These findings are consistent with air quality modeling and risk analyses done by ARB staff that show an estimated range of potential cancer risk that decreases with distance from freeways. The estimated risk varies with the local meteorology, including wind pattern. As an example, at 300 feet downwind from a freeway (Interstate 80) with truck traffic of 10,000 trucks per day, the potential cancer risk was as high as 100 in one million (ARB Roseville Rail Yard Study). The cancer health risk at 300 feet on the upwind side of the freeway was much

less. The risk at that distance for other freeways will vary based on local conditions – it may be higher or lower. However, in all these analyses the relative exposure and health risk dropped substantially within the first 300 feet. This phenomenon is illustrated in Figure 1-1.

State law restricts the siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles with some exceptions.² However, no such requirements apply to the siting of residences, day care centers, playgrounds, or medical facilities. The available data show that exposure is greatly reduced at approximately 300 feet. In the traffic-related studies the additional health risk attributable to the proximity effect was strongest within 1,000 feet.

The combination of the children's health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation.

The impact of traffic emissions is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. As air agencies work to reduce the underlying regional health risk from diesel PM and other pollutants, the impact of proximity will also be reduced. In the meantime, as a preventative measure, we hope to avoid exposing more children and other vulnerable individuals to the highest concentrations of traffic-related emissions.

Recommendation

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.

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Distribution Centers

Distribution centers or warehouses are facilities that serve as a distribution point for the transfer of goods. Such facilities include cold storage warehouses, goods transfer facilities, and inter-modal facilities such as ports. These operations involve trucks, trailers, shipping containers, and other equipment with diesel engines. A distribution center can be comprised of multiple centers or warehouses within an area. The size can range from several to hundreds of acres, involving a number of different transfer operations and long waiting periods. A distribution center can accommodate hundreds of diesel trucks a day that deliver, load, and/or unload goods up to seven days a week. To the extent that these trucks are transporting perishable goods, they are equipped with diesel-powered transport refrigeration units (TRUs) or TRU generator sets.

The activities associated with delivering, storing, and loading freight produces diesel PM emissions. Although TRUs have relatively small diesel-powered engines, in the normal course of business, their emissions can pose a significant health risk to those nearby. In addition to onsite emissions, truck travel in and out of distribution centers contributes to the local pollution impact.

ARB is working to reduce diesel PM emissions through regulations, financial incentives, and enforcement programs. In 2004, ARB adopted two airborne toxic control measures that will reduce diesel PM emissions associated with distribution centers. The first will limit nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than five minutes at any one location.³ The elimination of unnecessary idling will reduce the localized impacts caused by diesel PM and other air toxics

³ For further information on the Anti-Idling ATCM, please click on:
<http://www.arb.ca.gov/toxics/idling/outreach/factsheet.pdf>

in diesel vehicle exhaust. This should be a very effective new strategy for reducing diesel PM emissions at distribution centers as well as other locations.

The second measure requires that TRUs operating in California become cleaner over time. The measure establishes in-use performance standards for existing TRU engines that operate in California, including out-of-state TRUs. The requirements are phased-in beginning in 2008, and extend to 2019.⁴

ARB also operates a smoke inspection program for heavy-duty diesel trucks that focuses on reducing truck emissions in California communities. Areas with large numbers of distribution centers are a high priority.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

Although distribution centers are located throughout the state, they are usually clustered near transportation corridors, and are often located in or near population centers. Diesel PM emissions from associated delivery truck traffic and TRUs at these facilities may result in elevated diesel PM concentrations in neighborhoods surrounding those sites. Because ARB regulations will restrict truck idling at distribution centers, the largest continuing onsite diesel PM emission source is the operation of TRUs. Truck travel in and out of distribution centers also contributes to localized exposures, but specific travel patterns and truck volumes would be needed to identify the exact locations of the highest concentrations.

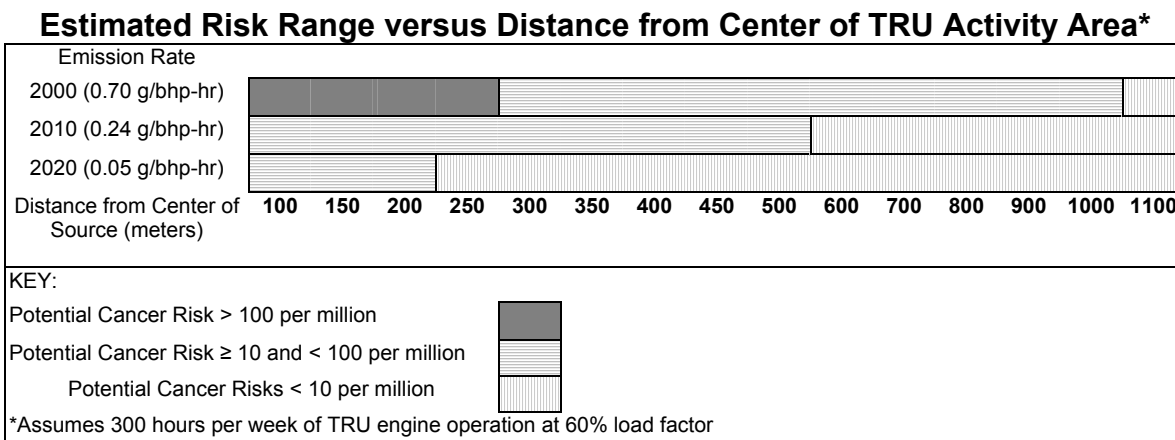
As part of the development of ARB's regulation for TRUs, ARB staff performed air quality modeling to estimate exposure and the associated potential cancer risk of onsite TRUs for a typical distribution center. For an individual person, cancer risk estimates for air pollution are commonly expressed as a probability of developing cancer from a lifetime (i.e., 70 years) of exposure. These risks were calculated independent of regional risk. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 additional cancer cases per one million population.

⁴ For further information on the Transport Refrigeration Unit ATCM, please click on: <http://www.arb.ca.gov/diesel/documents/trufaq.pdf>

The diesel PM emissions from a facility are dependent on the size (horsepower), age, and number of engines, emission rates, the number of hours the truck engines and/or TRUs operate, distance, and meteorological conditions at the site. This assessment assumes a total on-site operating time for all TRUs of 300 hours per week. This would be the equivalent of 40 TRU-equipped trucks a day, each loading or unloading on-site for one hour, 12 hours a day and seven days a week.

As shown in Figure 1-2 below, at this estimated level of activity and assuming a current fleet diesel PM emission rate, the potential cancer risk would be over 100 in a million at 800 feet from the center of the TRU activity. The estimated potential cancer risk would be in the 10 to 100 per million range between 800 to 3,300 feet and fall off to less than 10 per million at approximately 3,600 feet. However with the implementation of ARB's regulation on TRUs, the risk will be significantly reduced.⁵ We have not conducted a risk assessment for distribution centers based on truck traffic alone, but on an emissions basis, we would expect similar risks for a facility with truck volumes in the range of 100 per day.

Figure 1-2

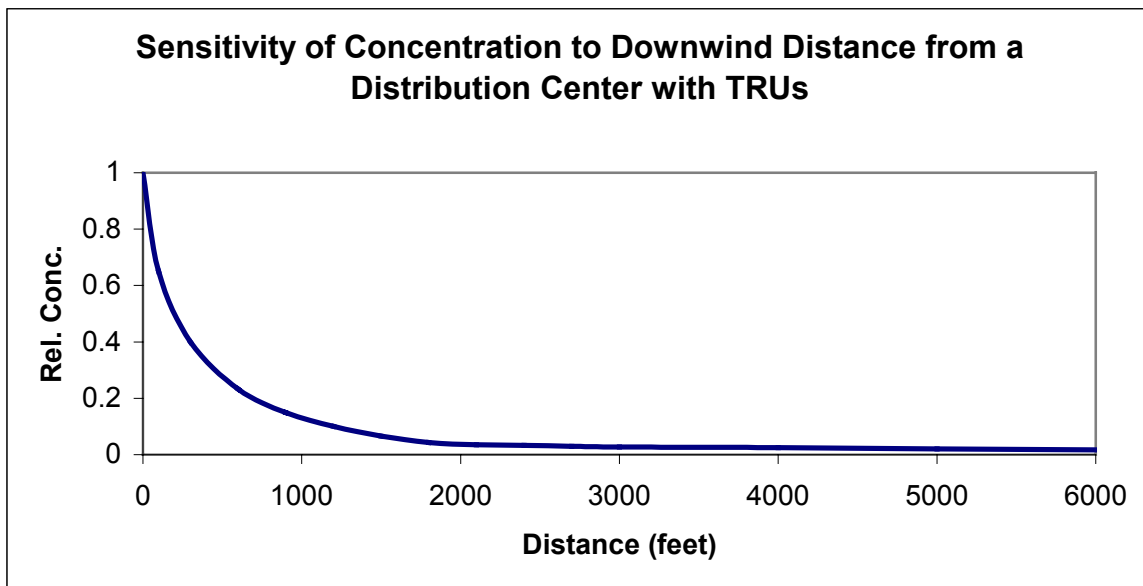


The estimated potential cancer risk level in Figure 1-2 is based on a number of assumptions that may not reflect actual conditions for a specific site. For example, increasing or decreasing the hours of diesel engine operations would change the potential risk levels. Meteorological and other facility specific parameters can also impact the results. Therefore, the results presented here are not directly applicable to any particular facility or operation. Rather, this information is intended to provide an indication as to the potential relative levels of risk that may be observed from operations at distribution centers. As shown in Figure 1-2, the estimated risk levels will decrease over time as lower-emitting diesel engines are used.

⁵ These risk values assume an exposure duration of 70 years for a nearby resident and uses the methodology specified in the 2003 OEHHA health risk assessment guidelines.

Another air modeling analysis, performed by the South Coast Air Quality Management District (South Coast AQMD), evaluated the impact of diesel PM emissions from distribution center operations in the community of Mira Loma in southern California. Based on dispersion of diesel PM emissions from a large distribution center, Figure 1-3 shows the relative pollution concentrations at varying distances downwind. As Figure 1-3 shows, there is about an 80 percent drop off in concentration at approximately 1,000 feet.

Figure 1-3
Decrease In Relative Concentration of Risk
With Distance



Both the ARB and the South Coast AQMD analyses indicate that providing a separation of 1,000 feet would substantially reduce diesel PM concentrations and public exposure downwind of a distribution center. While these analyses do not provide specific risk estimates for distribution centers, they provide an indication of the range of risk and the benefits of providing a separation. ARB recommends a separation of 1,000 feet based on the combination of risk analysis done for TRUs and the decrease in exposure predicted with the South Coast AQMD modeling. However, ARB staff plans to provide further information on distribution centers as we collect more data and implement the TRU control measure.

Taking into account the configuration of distribution centers can also reduce population exposure and risk. For example, locating new sensitive land uses away from the main entry and exit points helps to reduce cancer risk and other health impacts.

Recommendations

- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where TRU unit operations exceed 300 hours per week).
- Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

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Rail Yards

Rail yards are a major source of diesel particulate air pollution. They are usually located near inter-modal facilities, which attract heavy truck traffic, and are often sited in mixed industrial and residential areas. ARB, working with the Placer County air district and Union Pacific Railroad, recently completed a study⁶ of the Roseville Rail Yard (Yard) in northern California that focused on the health risk from diesel particulate. A comprehensive emissions analysis and air quality modeling were conducted to characterize the estimated potential cancer risk associated with the facility.

⁶ To review the study, please click on: <http://www.arb.ca.gov/diesel/documents/rstudy.htm>

The Yard encompasses about 950 acres on a one-quarter mile wide by four-mile long strip of land that parallels Interstate 80. It is surrounded by commercial, industrial, and residential properties. The Yard is one of the largest service and maintenance rail yards in the West with over 30,000 locomotives visiting annually.

Using data provided by Union Pacific Railroad, the ARB determined the number and type of locomotives visiting the Yard annually and what those locomotives were doing - moving, idling, or undergoing maintenance testing. Union Pacific provided the annual, monthly, daily, and hourly locomotive activity in the yard including locomotive movements; routes for arrival, departure, and through trains; and locomotive service and testing. This information was used to estimate the emissions of particulate matter from the locomotives, which was then used to model the potential impacts on the surrounding community.

The key findings of the study are:

- Diesel PM emissions in 2000 from locomotive operations at the Roseville Yard were estimated at about 25 tons per year.
- Of the total diesel PM in the Yard, moving locomotives accounted for about 50 percent, idling locomotives about 45 percent, and locomotive testing about five percent.
- Air quality modeling predicts potential cancer risks greater than 500 in a million (based on 70 years of exposure) in a 10-40 acre area immediately adjacent to the Yard's maintenance operations.
- The risk assessment also showed elevated cancer risk impacting a larger area covering about a 10 by 10 mile area around the Yard.

The elevated concentrations of diesel PM found in the study contribute to an increased risk of cancer and premature death due to cardiovascular disease, and non-cancer health effects such as asthma and other respiratory illnesses. The magnitude of the risk, the general location, and the size of the impacted area depended on the meteorological data used to characterize conditions at the Yard, the dispersion characteristics, and exposure assumptions. In addition to these variables, the nature of locomotive activity will influence a risk characterization at a particular rail yard. For these reasons, the quantified risk estimates in the Roseville Rail Yard Study cannot be directly applied to other rail yards. However, the study does indicate the health risk due to diesel PM from rail yards needs to be addressed. ARB, in conjunction with the U.S. Environmental Protection Agency (U.S. EPA), and local air districts, is working with the rail industry to identify and implement short term, mid-term and long-term mitigation strategies. ARB also intends to conduct a second rail study in southern California to increase its understanding of rail yard operations and the associated public health impacts.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

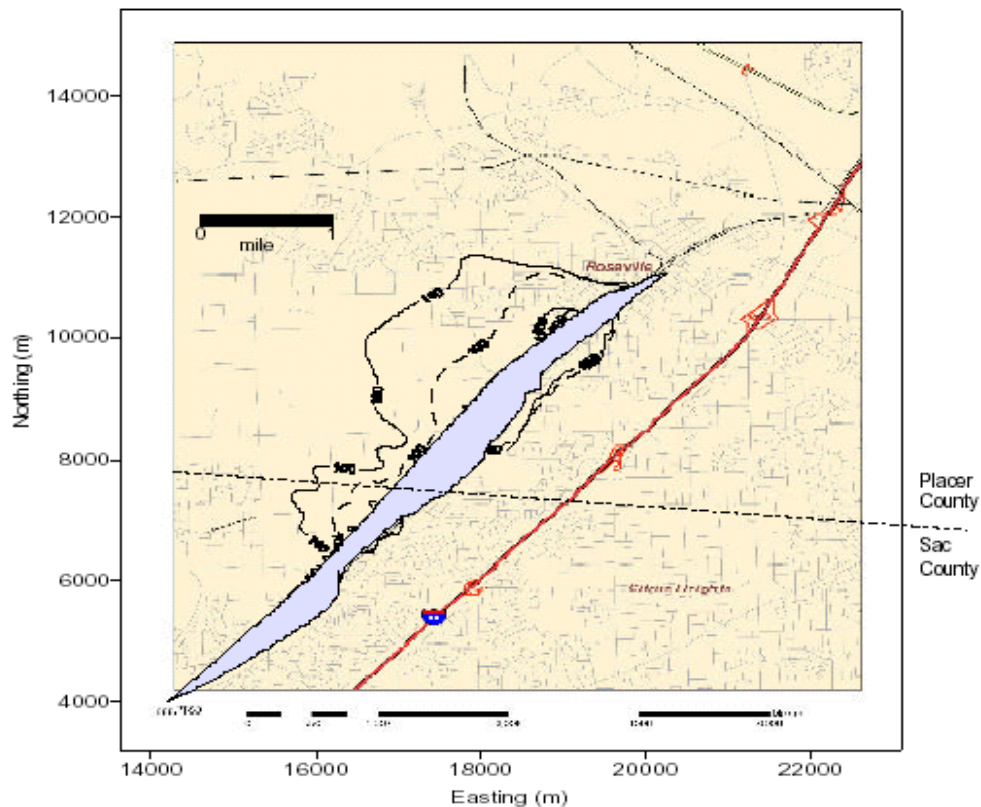
Distance Related Findings

Two sets of meteorological data were used in the Roseville study because of technical limitations in the data. The size of the impact area was highly dependent on the meteorological data set used. The predicted highest impact area ranged from 10 - 40 acres with the two different meteorological data sets. This area, with risks estimated above 500 in a million, is adjacent to an area that includes a maintenance shop (see Figure 1-4). The high concentration of diesel PM emissions is due to the number of locomotives and nature of activities in this area, particularly idling locomotives.

The area of highest impact is within 1,000 feet of the Yard. The next highest impact zone as defined in the report had a predicted risk between 500 and 100 in one million and extends out between a half to one mile in some spots, depending on which meteorological conditions were assumed. The impact areas are irregular in shape making it difficult to generalize about the impact of distance at a particular location. However, the Roseville Rail Yard Study clearly indicates that the localized health risk is high, the impact area is large, and mitigation of the locomotive diesel PM emissions is needed.

For facilities like rail yards and ports, the potential impact area is so large that the real solution is to substantially reduce facility emissions. However, land use planners can avoid encroaching upon existing rail facilities and those scheduled for expansion. We also recommend that while air agencies tackle this problem, land use planners try not to add new sensitive individuals into the highest exposure areas. Finally, we recommend that land use agencies consider the potential health impacts of rail yards in their planning and permitting processes. Additional limitations and mitigation may be feasible to further reduce exposure on a site-specific basis.

Figure 1-4
Estimated Cancer Risk from the Yard
(100 and 500 in a million risk isopleths)



Notes: 100/Million Contours: Solid Line – Roseville Met Data; Dashed Line-McClellan Met Data, Urban Dispersion Coefficients, 80th Percentile Breathing Rate, All Locomotives' Activities (23 TPY), 70-Year Exposure

Recommendation

- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard⁷.
- Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.

References

- *Roseville Rail Yard Study*. ARB (2004)

⁷ The rail yard risk analysis was conducted for the Union Pacific rail yard in Roseville, California. This rail yard is one of the largest in the state. There are other rail yards in California with comparable levels of activity that should be considered "major" for purposes of this Handbook.

Ports

Air pollution from maritime port activities is a growing concern for regional air quality as well as air quality in nearby communities. The primary air pollutant associated with port operations is directly emitted diesel particulate. Port-related activities also result in emissions that form ozone and secondary particulate in the atmosphere. The emission sources associated with ports include diesel engine-powered ocean-going ships, harbor craft, cargo handling equipment, trucks, and locomotives. The size and concentration of these diesel engines makes ports one of the biggest sources of diesel PM in the state. For that reason, ARB has made it a top priority to reduce diesel PM emissions at the ports, in surrounding communities, and throughout California.

International, national, state, and local government collaboration is critical to reducing port emissions based on both legal and practical considerations. For example, the International Maritime Organization (IMO) and the U.S. EPA establish emission standards for ocean-going vessels and U.S.-flagged harbor craft, respectively. ARB is pursuing further federal actions to tighten these standards. In addition, ARB and local air districts are reducing emissions from ports through a variety of approaches. These include: incentive programs to fund cleaner engines, enhanced enforcement of smoke emissions from ships and trucks, use of dockside electricity instead of diesel engines, cleaner fuels for ships, harbor craft, locomotives, and reduced engine idling. The two ATCMs that limit truck idling and reduce emissions from TRUs (discussed under “Distribution Centers”) also apply to ports.

ARB is also developing several other regulations that will reduce port-related emissions. One rule would require ocean-going ships to use a cleaner marine diesel fuel to power auxiliary engines while in California coastal waters and at dock. Ships that frequently visit California ports would also be required to further reduce their emissions. ARB has adopted a rule that would require harbor craft to use the same cleaner diesel fuel used by on-road trucks in California. In 2005, ARB will consider a rule that would require additional controls for in-use harbor craft, such as the use of add-on emission controls and accelerated turnover of older engines.

Key Health Findings

Port activities are a major source of diesel PM. Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

The Ports of Los Angeles and Long Beach provide an example of the emissions impact of port operations. A comprehensive emissions inventory was completed in June 2004. These ports combined are one of the world's largest and busiest seaports. Located in San Pedro Bay, about 20 miles south of downtown Los Angeles, the port complex occupies approximately 16 square miles of land and water. Port activities include five source categories that produce diesel emissions. These are ocean-going vessels, harbor craft, cargo handling equipment, railroad locomotives, and heavy-duty trucks.

The baseline emission inventory provides emission estimates for all major air pollutants. This analysis focuses on diesel PM from in-port activity because these emissions have the most potential health impact on the areas adjacent to the port. Ocean vessels are the largest overall source of diesel PM related to the ports, but these emissions occur primarily outside of the port in coastal waters, making the impact more regional in nature.

The overall in-port emission inventory for diesel particulate for the ports of Los Angeles and Long Beach is estimated to be 550 tons per year. The emissions fall in the following major categories: ocean-going vessels (17%), harbor craft (25%), cargo handling (47%), railroad locomotive (3%), and heavy duty vehicles (8%). In addition to in-port emissions, ship, rail, and trucking activities also contribute to regional emissions and increase emissions in nearby neighborhoods. Off-port emissions associated with related ship, rail, and trucking activities contribute an additional 680 tons per year of diesel particulate at the Port of Los Angeles alone.

To put this in perspective, the diesel PM emissions estimated for the Roseville Yard in ARB's 2004 study are 25 tons per year. The potential cancer risk associated with these emissions is 100 in one million at a distance of one mile, or one half mile, depending on the data set used. This rail yard covers one and a half square miles. The Los Angeles and Long Beach ports have combined diesel PM emissions of 550 tons per year emitted from a facility that covers a much larger area - 16 miles. The ports have about twice the emission density of the rail yard - 34 tons per year per square mile compared to 16 tons per year per square mile. However, while this general comparison is illustrative of the overall size of the complex, a detailed air quality modeling analysis would be needed to assess the potential health impact on specific downwind areas near the ports.

ARB is in the process of evaluating the various port-related emission sources from the standpoint of existing emissions, growth forecasts, new control options, regional air quality impacts, and localized health risk. A number of public processes - both state and local - are underway to address various aspects of these issues. Until more of these analyses are complete, there is little basis for recommending a specific separation between new sensitive land uses and ports.

For example, the type of data we have showing the relationship between air pollutant concentrations and distance from freeways is not yet available.

Also, the complexity of the port facilities makes a site-specific analysis critical. Ports are a concentration of multiple emission sources with differing dispersion and other characteristics. In the case of the Roseville rail yard, we found a high, very localized impact associated with a particular activity, service and maintenance. By contrast, the location, size, and nature of impact areas can be expected to vary substantially for different port activities. For instance, ground level emissions from dockside activities would behave differently from ship stack level emissions.

Nonetheless, on an emissions basis alone, we expect locations downwind of ports to be substantially impacted. For that reason, we recommend that land use agencies track the current assessment efforts, and consider limitations on the siting of new sensitive land uses in areas immediately downwind of ports.

Recommendations

Avoid siting new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.

References

- *Roseville Rail Yard Study*. ARB (2004)
- Final Draft, "*Port-Wide Baseline Air Emissions Inventory*." Port of Los Angeles (June 2004)
- Final Draft, "*2002 Baseline Air Emissions Inventory*." Port of Long Beach (February 2004)

Petroleum Refineries

A petroleum refinery is a complex facility where crude oil is converted into petroleum products (primarily gasoline, diesel fuel, and jet fuel), which are then transported through a system of pipelines and storage tanks for final distribution by delivery truck to fueling facilities throughout the state. In California, most crude oil is delivered either by ship from Alaska or foreign sources, or is delivered via pipeline from oil production fields within the state. The crude oil then undergoes many complex chemical and physical reactions, which include distillation, catalytic cracking, reforming, and finishing. These refining processes have the potential to emit air contaminants, and are subject to extensive emission controls by district regulations.

As a result of these regulations covering the production, marketing, and use of gasoline and other oil by-products, California has seen significant regional air quality benefits both in terms of cleaner fuels and cleaner operating facilities. In

the 1990s, California refineries underwent significant modifications and modernization to produce cleaner fuels in response to changes in state law. Nevertheless, while residual emissions are small when compared to the total emissions controlled from these major sources, refineries are so large that even small amounts of fugitive, uncontrollable emissions and associated odors from the operations, can be significant. This is particularly the case for communities that may be directly downwind of the refinery. Odors can cause health symptoms such as nausea and headache. Also, because of the size, complexity, and vast numbers of refinery processes onsite, the occasional refinery upset or malfunction can potentially result in acute or short-term health effects to exposed individuals.

Key Health Findings

Petroleum refineries are large single sources of emissions. For volatile organic compounds (VOCs), eight of the ten largest stationary sources in California are petroleum refineries. For oxides of nitrogen (NO_x), four of the ten largest stationary sources in California are petroleum refineries. Both of these compounds react in the presence of sunlight to form ozone. Ozone impacts lung function by irritating and damaging the respiratory system. Petroleum refineries are also large stationary sources of both particulate matter under 10 microns in size (PM₁₀) and particulate matter under 2.5 microns in size (PM_{2.5}). Exposure to particulate matter aggravates a number of respiratory illnesses, including asthma, and is associated with premature mortality in people with existing cardiac and respiratory disease. Both long-term and short-term exposure can have adverse health impacts. Finer particles pose an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health. NO_x are also significant contributors to the secondary formation of PM_{2.5}.

Petroleum refineries also emit a variety of toxic air pollutants. These air toxics vary by facility and process operation but may include: acetaldehyde, arsenic, antimony, benzene, beryllium, 1,3-butadiene, cadmium compounds, carbonyl sulfide, carbon disulfide, chlorine, dibenzofurans, diesel particulate matter, formaldehyde, hexane, hydrogen chloride, lead compounds, mercury compounds, nickel compounds, phenol, 2,3,7,8 tetrachlorodibenzo-p-dioxin, toluene, and xylenes (mixed) among others. The potential health effects associated with these air toxics can include cancer, respiratory irritation, and damage to the central nervous system, depending on exposure levels.

Distance Related Findings

Health risk assessments for petroleum refineries have shown risks from toxic air pollutants that have quantifiable health risk values to be around 10 potential cancer cases per million. Routine air monitoring and several air monitoring studies conducted in the San Francisco Bay Area (Crockett) and the South Coast Air Basin (Wilmington) have not identified significant health risks specifically

associated with refineries. However, these studies did not measure diesel PM as no accepted method currently exists, and there are many toxic air pollutants that do not have quantifiable health risk values.

In 2002, ARB published a report on the results of the state and local air district air monitoring done near oil refineries. The purpose of this evaluation was to try to determine how refinery-related emissions might impact nearby communities. This inventory of air monitoring activities included 10 ambient air monitoring stations located near refineries in Crockett and four stations near refineries in Wilmington. These monitoring results did not identify significant increased health risks associated with the petroleum refineries. In 2002-2003, ARB conducted additional monitoring studies in communities downwind of refineries in Crockett and Wilmington. These monitoring results also did not indicate significant increased health risks from the petroleum refineries.

Consequently, there are no air quality modeling or air monitoring data that provides a quantifiable basis for recommending a specific separation between refineries and new sensitive land uses. However, in view of the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, we believe the siting of new sensitive land uses immediately downwind should be avoided. Land use agencies should consult with the local air district when considering how to define an appropriate separation for refineries within their jurisdiction.

Recommendations

- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.

References

- *Review of Current Ambient Air Monitoring Activities Related to California Bay Area and South Coast Refineries.* ARB (March 2002)
<http://www.arb.ca.gov/aaqm/qmosqual/special/mldrefinery.pdf>
- *Community Air Quality Monitoring: Special Studies – Crockett.* ARB (September 2004)
<http://www.arb.ca.gov/ch/communities/studies/crockett/crockett.htm>
- *Wilmington Study - Air Monitoring Results.* ARB (2003)
<http://www.arb.ca.gov/ch/communities/studies/wilmington/wilmington.htm>

Chrome Plating Operations

Chrome plating operations rely on the use of the toxic metal hexavalent chromium, and have been subject to ARB and local air district control programs for many years. Regulation of chrome plating operations has reduced statewide emissions substantially. However, due to the nature of chrome plating

operations and the highly toxic nature of hexavalent chromium, the remaining health risk to nearby residents is a continuing concern.

Chrome plating operations convert hexavalent chromium in solution to a chromium metal layer by electroplating, and are categorized based upon the thickness of the chromium metal layer applied. In “decorative plating”, a layer of nickel is first plated over a metal substrate. Following this step, a thin layer of chromium is deposited over the nickel layer to provide a decorative and protective finish, for example, on faucets and automotive wheels. “Hard chrome plating” is a process in which a thicker layer of chromium metal is deposited directly on metal substrates such as engine parts, industrial machinery, and tools to provide greater protection against corrosion and wear.

Hexavalent chromium is emitted into the air when an electric current is applied to the plating bath. Emissions are dependent upon the amount of electroplating done per year and the control requirements. A unit of production referred to as an ampere-hour represents the amount of electroplating produced. Small facilities have an annual production rate of 100,000 – 500,000 ampere-hours, while medium-size facilities may have a production rate of 500,000 to about 3 million ampere-hours. The remaining larger facilities have a range of production rates that can be as high as 80 million ampere-hours.

The control requirements, which reduce emissions from the plating tanks, vary according to the size and type of the operation. Facilities either install add-on pollution control equipment, such as filters and scrubbers, or in-tank controls, such as fume suppressants and polyballs. With this combination of controls, the overall hexavalent chromium emissions have been reduced by over 90 percent. Larger facilities typically have better controls that can achieve efficiencies greater than 99 percent. However, even with stringent controls, the lack of maintenance and good housekeeping practices can lead to problems. And, since the material itself is inherently dangerous, any lapse in compliance poses a significant risk to nearby residents.

A 2002 ARB study in the San Diego community of Barrio Logan measured unexpectedly high concentrations of hexavalent chromium near chrome platers. The facilities were located in a mixed-use area with residences nearby. The study found that fugitive dust laden with hexavalent chromium was an important source of emissions that likely contributed to the elevated cancer risk. Largely as a result of this study, ARB is in the process of updating the current requirements to further reduce the emissions from these facilities.

In December 2004, the ARB adopted an ATCM to reduce emissions of hexavalent chromium and nickel from thermal spraying operations through the installation of best available control technology. The ATCM requires all existing facilities to comply with its requirements by January 1, 2006. New and modified thermal spraying operations must comply upon initial startup. An existing thermal spraying facility may be exempt from the minimum control efficiency

requirements of the ATCM if it is located at least 1,640 feet from the nearest sensitive receptor and emits no more than 0.5 pound per year of hexavalent chromium.⁸

Key Health Findings

Hexavalent chromium is one of the most toxic air pollutants regulated by the State of California. Hexavalent chromium is a carcinogen and has been identified in worker health studies as causing lung cancer. Exposure to even very low levels of hexavalent chromium should be avoided.

The California Office of Environmental Health Hazard Assessment has found that: 1) many epidemiological studies show a strong association between hexavalent chromium exposure in the work place and respiratory cancer; and 2) all short-term assays reported show that hexavalent chromium compounds can cause damage to human DNA.

Hexavalent chromium when inhaled over a period of many years can cause a variety of non-cancer health effects. These health effects include damage to the nose, blood disorders, lung disease, and kidney damage. The non-cancer health impacts occur with exposures considerably higher than exposures causing significant cancer risks. It is less likely that the public would be exposed to hexavalent chromium at levels high enough to cause these non-cancer health effects. Non-cancer health effects, unlike cancer health effects, have a threshold or exposure level below which non-cancer health effects would not be expected.

Distance Related Findings

ARB's 2002 Barrio Logan Study measured concentrations of hexavalent chromium in the air near two chrome plating facilities. The study was conducted from December 2001 to May 2002. There were two chrome platers on the street - one decorative and one hard plater. The purpose of the study was to better understand the near source impact of hexavalent chromium emissions. Air monitors were placed at residences next to the platers and at varying distances down the street. The monitors were moved periodically to look at the spatial distribution of the impact. Source testing and facility inspections identified one of the facilities as the likely source.

The first two weeks of monitoring results showed unexpectedly high levels of hexavalent chromium at a number of the monitoring sites. The high concentrations were intermittent. The concentrations ranged from 1 to 22 ng/m³ compared to the statewide average of 0.1 ng/m³. If these levels were to continue for 70 years, the potential cancer risk would be 150 in one million. The highest value was found at an air monitor behind a house adjacent to one of the

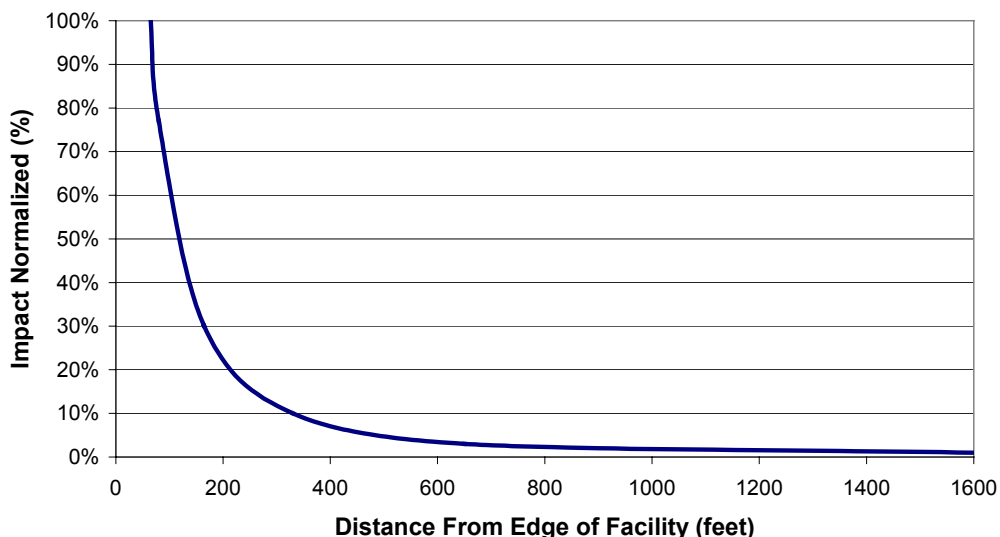
⁸ For further information on the ATCM, please refer to:
<http://www.arb.ca.gov/regact/thermspr/thermalspr.htm>

plating facilities—approximately 30 feet from the back entrance. Lower, but significant concentrations were found at an ambient air monitor 250 feet away.

The monitoring covered a period when the facility was not operating its plating tank. During this period, one of the highest concentrations was measured at an adjacent house. It appears that chromium-laden dust was responsible for high concentrations at this location since there was no plating activity at the time. Dust samples from the facility were tested and found to contain high levels of hexavalent chromium. On the day the highest concentration was measured at the house next door, a monitor 350 feet away from the plater's entrance showed very little impact. Similar proximity effects are shown in ARB modeling studies.

Figure 1-5 shows how the relative health risk varies as a function of distance from a chrome plater. This analysis is based on a medium-sized chrome plater with an annual production rate of 3 million ampere-hours. As shown in Figure 1- 5, the potential health risk drops off rapidly, with over 90 percent reduction in risk within 300 feet. This modeling was done in 2003 as part of a review of ARB's current air toxic control measure for chrome platers and is based on data from a recent ARB survey of chrome platers in California. The emission

Figure 1-5
Risk vs. Distance From Chrome Plater
(Based on plating tank emissions)



rates are only for plating operations. Because there are insufficient data available to directly quantify the impacts, the analysis does not include fugitive emissions, which the Barrio Logan analysis indicated could be significant.

Both the ARB Barrio Logan monitoring results and ARB's 2003 modeling analysis suggests that the localized emissions impact of a chrome plater diminishes significantly at 300 feet. However, in developing our recommendation, we also considered the following factors:

- some chrome platers will have higher volumes of plating activity,
- potential dust impacts were not modeled,
- we have only one monitoring study looking at the impact of distance, and,
- hexavalent chromium is one of the most potent toxic air contaminants ARB has identified.

Given these limitations in the analysis, we recommend a separation of 1,000 feet as a precautionary measure. For large chrome platers, site specific information should be obtained from the local air district.

Recommendation

- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.

References

- *Ambient Air Monitoring for Hexavalent Chromium and Metals in Barrio Logan: May 2001 through May 2002.* ARB, Monitoring and Laboratory Division (October 14, 2003)
- *Draft Barrio Logan Report.* ARB, Planning and Technical Support Division (November 2004)
- *Proposed Amendments to the Hexavalent Chromium Control Measure for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities.* ARB (April 1998)
- Murchison, Linda; Suer, Carolyn; Cook, Jeff. *"Neighborhood Scale Monitoring in Barrio Logan,"* (AWMA Annual Conference Proceedings, June 2003)

Dry Cleaners Using Perchloroethylene (Perc Dry Cleaners)

Perchloroethylene (perc) is the solvent most commonly used by the dry cleaning industry to clean clothes or other materials. The ARB and other public health agencies have identified perc as a potential cancer-causing compound. Perc persists in the atmosphere long enough to contribute to both regional air pollution and localized exposures. Perc dry cleaners are the major source of perc emissions in California.

Since 1990, the statewide concentrations and health risk from exposure to perc has dropped over 70 percent. This is due to a number of regulatory requirements on perc dry cleaners and other sources, including degreasing operations, brake cleaners, and adhesives. ARB adopted an Airborne Toxic Control Measure (ATCM) for Perc Emissions from Dry Cleaning Operations in 1993. ARB has also prohibited the use of perc in aerosol adhesives and automotive brake cleaners.

Perc dry cleaners statewide are required to comply with ARB and local air district regulations to reduce emissions. However, even with these controls, some emissions continue to occur. Air quality studies indicate that there is still the potential for significant risks even near well-controlled dry cleaners. The South Coast AQMD has adopted a rule requiring that all new dry cleaners use alternatives to perc and that existing dry cleaners phase out the use of perc by December 2020. Over time, transition to non-toxic alternatives should occur. However, while perc continues to be used, a preventative approach should be taken to siting of new sensitive land uses.

Key Health Findings

Inhalation of perc may result in both cancer and non-cancer health effects. An assessment by California's Office of Environmental Health Hazard Assessment (OEHHA) concluded that perc is a potential human carcinogen and can cause non-cancer health effects. In addition to the potential cancer risk, the effects of long-term exposure include dizziness, impaired judgment and perception, and damage to the liver and kidneys. Workers have shown signs of liver toxicity following chronic exposure to perc, as well as kidney dysfunction and neurological effects. Non-cancer health effects occur with higher exposure levels than those associated with significant cancer risks. The public is more likely to be exposed to perchloroethylene at levels causing significant cancer risks than to levels causing non-cancer health effects. Non-cancer health effects, unlike cancer health effects, have a threshold or exposure level below which non-cancer health effects would not be expected. The ARB formally identified perc as a toxic air contaminant in October 1991.

One study has determined that inhalation of perc is the predominant route of exposure to infants living in apartments co-located in the same building with a business operating perc dry cleaning equipment. Results of air sampling within co-residential buildings indicate that dry cleaners can cause a wide range of exposures depending on the type and maintenance of the equipment. For example, a well-maintained state-of-the-art system may have risks in the range of 10 in one million, whereas a badly maintained machine with major leaks can have potential cancer risks of thousands in one million.

The California Air Pollution Control Officers Association (CAPCOA) is developing Industry-wide Risk Assessment Guidelines for Perchloroethylene Dry Cleaners which, when published, will provide detailed information on public health risk from exposure to emissions from this source.

Distance Related Findings

Risk created by perc dry cleaning is dependent on the amount of perc emissions, the type of dry cleaning equipment, proximity to the source, and how the emissions are released and dispersed (e.g., type of ventilation system, stack parameters, and local meteorology). Dry cleaners are often located near

residential areas, and near shopping centers, schools, day-care centers, and restaurants.

The vast majority of dry cleaners in California have one dry cleaning machine per facility. The South Coast AQMD estimates that an average well-controlled dry cleaner uses about 30 to 160 gallons of cleaning solvent per year, with an average of about 100 gallons. Based on these estimates, the South Coast AQMD estimates a potential cancer risk between 25 to 140 in one million at residential locations 75 feet or less from the dry cleaner, with an average of about 80 in one million. The estimate could be as high as 270 in one million for older machines.

CAPCOA's draft industry-wide risk assessment of perc dry cleaning operations indicates that the potential cancer risk for many dry cleaners may be in excess of potential cancer risk levels adopted by the local air districts. The draft document also indicates that, in general, the public's exposure can be reduced by at least 75 percent, by providing a separation distance of about 300 feet from the operation. This assessment is based on a single machine with perc use of about 100 gallons per year. At these distances, the potential cancer risk would be less than 10 potential cases per million for most scenarios.

The risk would be proportionately higher for large, industrial size, dry cleaners. These facilities typically have two or more machines and use 200 gallons or more per year of perc. Therefore, separation distances need to be greater for large dry cleaners. At a distance of 500 feet, the remaining risk for a large plant can be reduced by over 85 percent.

In California, a small number of dry cleaners that are co-located (sharing a common wall, floor, or ceiling) with a residence have the potential to expose the inhabitants of the residence to high levels of perc. However, while special requirements have been imposed on these existing facilities, the potential for exposure still exists. Avoiding these siting situations in the future is an important preventative measure.

Local air districts are a source of information regarding specific dry cleaning operations—particularly for large industrial operations with multiple machines. The 300 foot separation recommended below reflects the most common situation – a dry cleaner with only one machine. While we recommend 500 feet when there are two or more machines, site specific information should be obtained from the local air district for some very large industrial operations. Factors that can impact the risk include the number and type of machines, controls used, source configuration, building dimensions, terrain, and meteorological data.

Recommendation

- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines provide 500 feet. For operations with 3 or more machines, consult with the local air district.
- Do not site new sensitive land uses in the same building with perc dry cleaning operations.

References

- *Proposed Amended Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems*, Final Staff Report. South Coast AQMD. (October 2002)
- *Air Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations*. ARB (1994)
(<http://www.arb.ca.gov/toxics/atcm/percatcm.htm>)
- “An Assessment of Tetrachloroethylene in Human Breast Milk”, Judith Schreiber, New York State Department of Health – Bureau of Toxic Substance Assessment, *Journal of Exposure Analysis and Environmental Epidemiology*, Vol.2, Suppl.2, pp. 15-26, 1992.
- Draft Air Toxics “Hot Spots” Program Perchloroethylene Dry Cleaner Industry-wide Risk Assessment Guidelines. (CAPCOA (November 2002)
- *Final Environmental Assessment for Proposed Amended Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems*. South Coast AQMD. (October 18, 2002)

Gasoline Dispensing Facilities

Refueling at gasoline dispensing facilities releases benzene into the air. Benzene is a potent carcinogen and is one of the highest risk air pollutants regulated by ARB. Motor vehicles and motor vehicle-related activity account for over 90 percent of benzene emissions in California. While gasoline-dispensing facilities account for a small part of total benzene emissions, near source exposures for large facilities can be significant.

Since 1990, benzene in the air has been reduced by over 75 percent statewide, primarily due to the implementation of emissions controls on motor vehicle vapor recovery equipment at gas stations, and a reduction in benzene levels in gasoline. However, benzene levels are still significant. In urban areas, average benzene exposure is equivalent to about 50 in one million.

Gasoline dispensing facilities tend to be located in areas close to residential and shopping areas. Benzene emissions from the largest gas stations may result in near source health risk beyond the regional background and district health risk thresholds. The emergence of very high gasoline throughput at large retail or

wholesale outlets makes this a concern as these types of outlets are projected to account for an increasing market share in the next few years.

Key Health Findings

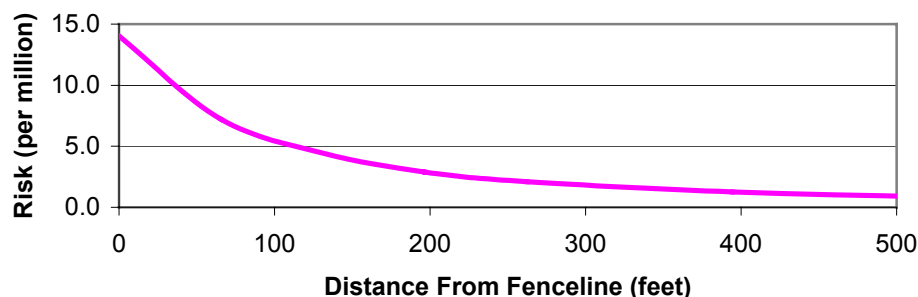
Benzene is a human carcinogen identified by ARB as a toxic air contaminant. Benzene also can cause non-cancer health effects above a certain level of exposure. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness. It is unlikely that the public would be exposed to levels of benzene from gasoline dispensing facilities high enough to cause these non-cancer health effects.

Distance Related Findings

A well-maintained vapor recovery system can decrease emissions of benzene by more than 90% compared with an uncontrolled facility. Almost all facilities have emission control systems. Air quality modeling of the health risks from gasoline dispensing facilities indicate that the impact from the facilities decreases rapidly as the distance from the facility increases.

Statistics reported in the ARB's staff reports on Enhanced Vapor Recovery released in 2000 and 2002, indicated that almost 96 percent of the gasoline dispensing facilities had a throughput less than 2.4 million gallons per year. The remaining four percent, or approximately 450 facilities, had throughputs exceeding 2.4 million gallons per year. For these stations, the average gasoline throughput was 3.6 million gallons per year.

**Figure 1-6
Gasoline Dispensing Facility Health Risk
for 3,600,000 gal/yr throughput**



As shown in Figure 1-6, the risk levels for a gasoline dispensing facility with a throughput of 3.6 million gallons per year is about 10 in one million at a distance of 50 feet from the fenceline. However, as the throughput increases, the potential risk increases.

As mentioned above, air pollution levels in the immediate vicinity of large gasoline dispensing facilities may be higher than the surrounding area (although tailpipe emissions from motor vehicles dominates the health impacts). Very large gasoline dispensing facilities located at large wholesale and discount centers may dispense nine million gallons of gasoline per year or more. At nine million gallons, the potential risk could be around 25 in one million at 50 feet, dropping to about five in one million at 300 feet. Some facilities have throughputs as high as 19 million gallons.

Recommendation

- Avoid siting new sensitive land uses within 300 feet of a large gasoline dispensing facility (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

References

- *Gasoline Service Station Industry-wide Risk Assessment Guidelines*. California Air Pollution Control Officers Association (December 1997 and revised November 1, 2001)
- *Staff Report on Enhanced Vapor Recovery*. ARB (February 4, 2000)
- *The California Almanac of Emissions and Air Quality*. ARB (2004)
- *Staff Report on Enhanced Vapor Recovery Technology Review*. ARB (October 2002)

Other Facility Types that Emit Air Pollutants of Concern

In addition to source specific recommendations, Table 1-3 includes a list of other industrial sources that could pose a significant health risk to nearby sensitive individuals depending on a number of factors. These factors include the amount of pollutant emitted and its toxicity, the distance to nearby individuals, and the type of emission controls in place. Since these types of facilities are subject to air permits from local air districts, facility specific information should be obtained where there are questions about siting a sensitive land use close to an industrial facility.

Potential Sources of Odor and Dust Complaints

Odors and dust from commercial activities are the most common sources of air pollution complaints and concerns from the public. Land use planning and permitting processes should consider the potential impacts of odor and dust on surrounding land uses, and provide for adequate separation between odor and dust sources. As with other types of air pollution, a number of factors need to be considered when determining an adequate distance or mitigation to avoid odor or

Table 1-3 – Examples of Other Facility Types That Emit¹ Air Pollutants of Concern

<u>Categories</u>	<u>Facility Type</u>	<u>Air Pollutants of Concern</u>
Commercial	Autobody Shops Furniture Repair Film Processing Services Distribution Centers Printing Shops Diesel Engines	Metals, Solvents Solvents ² , Methylene Chloride Solvents, Perchloroethylene Diesel Particulate Matter Solvents Diesel Particulate Matter
Industrial	Construction Manufacturers Metal Platers, Welders, Metal Spray (flame spray) Operations Chemical Producers Furniture Manufacturers Shipbuilding and Repair Rock Quarries and Cement Manufacturers Hazardous Waste Incinerators Power Plants Research and Development Facilities	Particulate Matter, Asbestos Solvents, Metals Hexavalent Chromium, Nickel, Metals Solvents, Metals Solvents Hexavalent chromium and other metals, Solvents Particulate Matter, Asbestos Dioxin, Solvents, Metals Benzene, Formaldehyde, Particulate Matter Solvents, Metals, etc.
Public	Landfills Waste Water Treatment Plants Medical Waste Incinerators Recycling, Garbage Transfer Stations Municipal Incinerators	Benzene, Vinyl Chloride, Diesel Particulate Matter Hydrogen Sulfide Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene Diesel Particulate Matter Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
Transportation	Truck Stops	Diesel Particulate Matter
Agricultural Operations	Farming Operations Livestock and Dairy Operations	Diesel Particulate Matter, VOCs, NOx, PM10, CO, SOx, Pesticides Ammonia, VOCs, PM10

¹Not all facilities will emit pollutants of concern due to process changes or chemical substitution. Consult the local air district regarding specific facilities.

²Some solvents may emit toxic air pollutants, but not all solvents are toxic air contaminants.

dust complaints in a specific situation. Local air districts should be consulted for advice when these siting situations arise.

Table 1-4 lists some of the most common sources of odor complaints received by local air districts. Complaints about odors are the responsibility of local air districts and are covered under state law. The types of facilities that can cause odor complaints are varied and can range from small commercial facilities to large industrial facilities, and may include waste disposal and recycling operations. Odors can cause health symptoms such as nausea and headache. Facilities with odors may also be sources of toxic air pollutants (See Table 1-3). Some common sources of odors emitted by facilities are sulfur compounds, organic solvents, and the decomposition/digestion of biological materials. Because of the subjective nature of an individual's sensitivity to a particular type of odor, there is no specific rule for assigning appropriate separations from odor sources. Under the right meteorological conditions, some odors may still be offensive several miles from the source.

Table 1-4
Sources of Odor Complaints

- Sewage Treatment Plants
- Landfills
- Recycling Facilities
- Waste Transfer Stations
- Petroleum Refineries
- Biomass Operations
- Autobody Shops
- Coating Operations
- Fiberglass Manufacturing
- Foundries
- Rendering Plants
- Livestock Operations

Sources of dust are also common sources of air pollution-related complaints. Operations that can result in dust problems are rock crushing, gravel production, stone quarrying, and mining operations. A common source of complaints is the dust and noise associated with blasting that may be part of these operations. Besides the health impacts of dust as particulate matter, thick dust also impairs visibility, aesthetic values, and can soil homes and automobiles. Local air districts typically have rules for regulating dust sources in their jurisdictions, but dust sources can still be a concern. Therefore, separation of these facilities from residential and other new sensitive land uses should be considered.

In some areas of California, asbestos occurs naturally in stone deposits. Asbestos is a potent carcinogenic substance when inhaled. Asbestos-containing dust may be a public health concern in areas where asbestos-containing rock is mined, crushed, processed, or used. Situations where asbestos-containing gravel has been used in road paving materials are also a source of asbestos exposure to the general public. Planners are advised to consult with local air pollution agencies in areas where asbestos-containing gravel or stone products are produced or used.

2. Handbook Development

ARB and local air districts share responsibility for improving statewide air quality. As a result of California's air pollution control programs, air quality has improved and health risk has been reduced statewide. However, state and federal air quality standards are still exceeded in many areas of California and the statewide health risk posed by toxic air contaminants (air toxics) remains too high. Also, some communities experience higher pollution exposures than others - making localized impacts, as well regional or statewide impacts, an important consideration. It is for this reason that this Handbook has been produced - to promote better, more informed decision-making by local land use agencies that will improve air quality and public health in their communities.

Land use policies and practices, including planning, zoning, and siting activities, can play a critical role in air quality and public health at the local level. For instance, even with the best available control technology, some projects that are sited very close to homes, schools, and other public places can result in elevated air pollution exposures. The reverse is also true – siting a new school or home too close to an existing source of air pollution can pose a public health risk. The ARB recommendations in section 1 address this issue.

This Handbook is an informational document that we hope will strengthen the relationship between air quality and land use agencies. It highlights the need for land use agencies to address the potential for new projects to result in localized health risk or contribute to cumulative impacts where air pollution sources are concentrated.

Avoiding these incompatible land uses is a key to reducing localized air pollution exposures that can result in adverse health impacts, especially to sensitive individuals.

Individual siting decisions that result in incompatible land uses are often the result of locating “sensitive” land uses next to polluting sources. These decisions can be of even greater concern when existing air pollution exposures in a community are considered. In general terms, this is often referred to as the issue of “cumulative impacts.” ARB is working with local air districts to better define these situations and to make information about existing air pollution levels (e.g., from local businesses, motor vehicles, and other areawide sources) more readily available to land use agencies.

In December 2001, the ARB adopted “Policies and Actions for Environmental Justice” (Policies). These Policies were developed in coordination with a group of stakeholders, representing local government agencies, community interest

groups, environmental justice organizations, academia, and business (Environmental Justice Stakeholders Group).

The Policies included a commitment to work with land use planners, transportation agencies, and local air districts to develop ways to identify, consider, and reduce cumulative air pollution emissions, exposure, and health risks associated with land use planning and decision-making. Developed under the auspices of the ARB's Environmental Justice Stakeholders Group, this Handbook is a first step in meeting that commitment.

ARB has produced this Handbook to help achieve several objectives:

- Provide recommendations on situations to avoid when siting new residences, schools, day care centers, playgrounds, and medical-related facilities (sensitive sites or sensitive land uses);
- Identify approaches that land use agencies can use to prevent or reduce potential air pollution impacts associated with general plan policies, new land use development, siting, and permitting decisions;
- Improve and facilitate access to air quality data and evaluation tools for use in the land use decision-making process;
- Encourage stronger collaboration between land use agencies and local air districts to reduce community exposure to source-specific and cumulative air pollution impacts; and
- Emphasize community outreach approaches that promote active public involvement in the air quality/land use decision-making process.

This Handbook builds upon California's 2003 General Plan Guidelines. These Guidelines, developed by the Governor's Office of Planning and Research (OPR), explain the land use planning process and applicable legal requirements. This Handbook also builds upon a 1997 ARB report, "The Land Use-Air Quality Linkage" ("Linkage Report").⁹ The Linkage Report was an outgrowth of the California Clean Air Act which, among other things, called upon local air districts to focus particular attention on reducing emissions from sources that indirectly cause air pollution by attracting vehicle trips. Such indirect sources include, but are not limited to, shopping centers, schools and universities, employment centers, warehousing, airport hubs, medical offices, and sports arenas. The Linkage Report summarizes data as of 1997 on the relationships between land use, transportation, and air quality, and highlights strategies that can help to reduce the use of single occupancy automobile use. Such strategies

⁹ To access this report, please refer to ARB's website or click on:
<http://www.arb.ca.gov/ch/programs/link97.pdf>

complement ARB regulatory programs that continue to reduce motor vehicle emissions.

In this Handbook, we identify types of air quality-related information that we recommend land use agencies consider in the land use decision-making processes such as the development of regional, general, and community plans; zoning ordinances; environmental reviews; project siting; and permit issuance. The Handbook provides recommendations on the siting of new sensitive land uses based on current analyses. It also contains information on approaches and methodologies for evaluating new projects from an air pollution perspective.

The Handbook looks at air quality issues associated with emissions from industrial, commercial, and mobile sources of air pollution. Mobile sources continue to be the largest overall contributors to the state's air pollution problems, representing the greatest air pollution health risk to most Californians. Based on current health risk information for air toxics, the most serious pollutants on a statewide basis are diesel PM, benzene, and 1,3-butadiene, all of which are primarily emitted by motor vehicles. From a state perspective, ARB continues to pursue new strategies to further reduce motor vehicle-related emissions in order to meet air quality standards and reduce air toxics risk.

While mobile sources are the largest overall contributors to the state's air pollution problems, industrial and commercial sources can also pose a health risk, particularly to people near the source. For this reason, the issue of incompatible land uses is an important focus of this document.

Handbook Audience

Even though the primary users of the Handbook will likely be agencies responsible for air quality and land use planning, we hope the ideas and technical issues presented in this Handbook will also be useful for:

- public and community organizations and community residents;
- federal, state and regional agencies that fund, review, regulate, oversee, or otherwise influence environmental policies and programs affected by land use policies; and
- private developers.

3. Key Community Focused Issues Land Use Agencies Should Consider

Two key air quality issues that land use agencies should consider in their planning, zoning, and permitting processes are:

- 1) **Incompatible Land Uses.** Localized air pollution impacts from incompatible land use can occur when polluting sources, such as a heavily trafficked roadway, warehousing facilities, or industrial or commercial facilities, are located near a land use where sensitive individuals are found such as a school, hospital, or homes.
- 2) **Cumulative Impacts.** Cumulative air pollution impacts can occur from a concentration of multiple sources that individually comply with air pollution control requirements or fall below risk thresholds, but in the aggregate may pose a public health risk to exposed individuals. These sources can be heavy or light-industrial operations, commercial facilities such as autobody shops, large gas dispensing facilities, dry cleaners, and chrome platers, and freeways or other nearby busy transportation corridors.

Incompatible Land Uses

Land use policies and practices can worsen air pollution exposure and adversely affect public health by mixing incompatible land uses. Examples include locating new sensitive land uses, such as housing or schools, next to small metal plating facilities that use a highly toxic form of chromium, or very near large industrial facilities or freeways. Based on recent monitoring and health-based studies, we now know that air quality impacts from incompatible land uses can contribute to increased risk of illness, missed work and school, a lower quality of life, and higher costs for public health and pollution control.¹⁰

Avoiding incompatible land uses can be a challenge in the context of mixed-use industrial and residential zoning. For a variety of reasons, government agencies and housing advocates have encouraged the proximity of affordable housing to employment centers, shopping areas, and transportation corridors, partially as a means to reduce vehicle trips and their associated emissions. Generally speaking, typical distances in mixed-use communities between businesses and industries and other land uses such as homes and schools, should be adequate to avoid health risks. However, generalizations do not always hold as we addressed in section 1 of this Handbook.

In terms of siting air pollution sources, the proposed location of a project is a major factor in determining whether it will result in localized air quality impacts. Often, the problem can be avoided by providing an adequate distance or setback

¹⁰ For more information, the reader should refer to ARB's website on community health: <http://www.arb.ca.gov/ch/ch.htm>

between a source of emissions and nearby sensitive land uses. Sometimes, suggesting project design changes or mitigation measures in the project review phase can also reduce or avoid potential impacts. This underscores the importance of addressing potential incompatible land uses as early as possible in the project review process, ideally in the general plan itself.

Cumulative Air Pollution Impacts

The broad concept of cumulative air pollution impacts reflects the combination of regional air pollution levels and any localized impacts. Many factors contribute to air pollution levels experienced in any location. These include urban background air pollution, historic land use patterns, the prevalence of freeways and other transportation corridors, the concentration of industrial and commercial businesses, and local meteorology and terrain.

When considering the potential air quality impacts of polluting sources on individuals, project location and the concentration of emissions from air pollution sources need to be considered in the land use decision-making process. In section 4, the Handbook offers a series of questions that helps land use agencies determine if a project should undergo a more careful analysis. This holds true regardless of whether the project being sited is a polluting source or a sensitive land use project.

Large industrial areas are not the only land uses that may result in public health concerns in mixed-use communities. Cumulative air pollution impacts can also occur if land uses do not adequately provide setbacks or otherwise protect sensitive individuals from potential air pollution impacts associated with nearby light industrial sources. This can occur with activities such as truck idling and traffic congestion, or from indirect sources such as warehousing facilities that are located in a community or neighborhood.

In October 2004, Cal/EPA published its Environmental Justice Action Plan. In February 2005, the Cal/EPA Interagency Working Group approved a working definition of “cumulative impacts” for purposes of initially guiding the pilot projects that are being conducted pursuant to that plan. Cal/EPA is now in the process of developing a Cumulative Impacts Assessment Guidance document. Cal/EPA will revisit the working definition of “cumulative impacts” as the Agency develops that guidance. The following is the working definition:

“Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable, and to the extent data are available.”

4. Mechanisms for Integrating Localized Air Quality Concerns Into Land Use Processes

Land use agencies should use each of their existing planning, zoning, and permitting authorities to address the potential health risk associated with new projects. Land use-specific mechanisms can go a long way toward addressing both localized and cumulative impacts from new air pollution sources that are not otherwise addressed by environmental regulations. Likewise, close collaboration and communication between land use agencies and local air districts in both the planning and project approval stages can further reduce these impacts. Local agency partnerships can also result in early identification of potential impacts from proposed activities that might otherwise escape environmental review. When this happens, pollution problems can be prevented or reduced before projects are approved, when it is less complex and expensive to mitigate.

The land use entitlement process requires a series of planning decisions. At the highest level, the General Plan sets the policies and direction for the jurisdiction, and includes a number of mandatory elements dealing with issues such as housing, circulation, and health hazards. Zoning is the primary tool for implementing land use policies. Specific or community plans created in conjunction with a specific project also perform many of the same functions as a zoning ordinance. Zoning can be modified by means of variances and conditional use permits. The latter are frequently used to insure compatibility between otherwise conflicting land uses. Finally, new development usually requires the approval of a parcel or tract map before grading and building permits can be issued. These parcel or tract maps must be consistent with the applicable General Plan, zoning and other standards.

Land use agencies can use their planning authority to separate industrial and residential land uses, or to require mitigation where separation is not feasible. By separating incompatible land uses, land use agencies can prevent or reduce both localized and cumulative air pollution impacts without denying what might otherwise be a desirable project.¹¹ For instance:

- a dry cleaner could open a storefront operation in a community with actual cleaning operations performed at a remote location away from residential areas;
- gas dispensing facilities with lower fuel throughput could be sited in mixed-use areas;
- enhanced building ventilation or filtering systems in schools or senior care centers can reduce ambient air from nearby busy arterials; or
- landscaping and regular watering can be used to reduce fugitive dust at a building construction site near a school yard.

¹¹ It should be noted that such actions should also be considered as part of the General Plan or Plan element process.

The following general and specific land use approaches can help to reduce potential adverse air pollution impacts that projects may have on public health.

General Plans

The primary purpose of planning, and the source of government authority to engage in planning, is to protect public health, safety, and welfare. In its most basic sense, a local government General Plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, forming the basis for most land use decisions. Therefore, the most effective mechanism for dealing with the central land use concept of compatibility and its relationship to cumulative air pollution impacts is the General Plan. Well before projects are proposed within a jurisdiction, the General Plan sets the stage for where projects can be sited, and their compatibility with comprehensive community goals, objectives, and policies.

In 2003, OPR revised its General Plan Guidelines, highlighting the importance of incorporating sustainable development and environmental justice policies in the planning process. The OPR General Plan Guidelines provides an effective and long-term approach to reduce cumulative air pollution impacts at the earliest planning stages. In light of these important additions to the Guidelines, land use agencies should consider updating their General Plans or Plan elements to address these revisions.

The General Plan and related Plan elements can be used to avoid incompatible land uses by incorporating air quality considerations into these documents. For instance, a General Plan safety element with an air quality component could be used to incorporate policies or objectives that are intended to protect the public from the potential for facility breakdowns that may result in a dangerous release of air toxics. Likewise, an air quality component to the transportation circulation element of the General Plan could include policies or standards to prevent or reduce local exposure to diesel exhaust from trucks and other vehicles. For instance, the transportation circulation element could encourage the construction of alternative routes away from residential areas for heavy-duty diesel trucks. By considering the relationship between air quality and transportation, the circulation element could also include air quality policies to prevent or reduce trips and travel, and thus vehicle emissions. Policies in the land use element of the General Plan could identify areas appropriate for future industrial, commercial, and residential uses. Such policies could also introduce design and distance parameters that reduce emissions, exposure, and risk from industrial and some commercial land uses (e.g., dry cleaners) that are in close proximity to residential areas or schools.

Land use agencies should also consider updating or creating an air quality element in the jurisdiction's General Plan. In the air quality element, local decision-makers could develop long-term, effective plans and policies to address

air quality issues, including cumulative impacts. The air quality element can also provide a general reference guide that informs local land use planners about regional and community level air quality, regulatory air pollution control requirements and guidelines, and references emissions and pollution source data bases and assessment and modeling tools. As is further described in Appendix C of the Handbook, new assessment tools that ARB is developing can be included into the air quality element by reference. For instance, ARB's statewide risk maps could be referenced in the air quality element as a resource that could be consulted by developers or land use agencies

Zoning

The purpose of "zoning" is to separate different land uses. Zoning ordinances establish development controls to ensure that private development takes place within a given area in a manner in which:

- All uses are compatible (e.g., an industrial plant is not permitted in a residential area);
- Common development standards are used (e.g., all homes in a given area are set back the same minimum distance from the street); and,
- Each development does not unreasonably impose a burden upon its neighbors (e.g., parking is required on site so as not to create neighborhood parking problems).

To do this, use districts called "zones" are established and standards are developed for these zones. The four basic zones are residential, commercial, industrial and institutional.

Land use agencies may wish to consider how zoning ordinances, particularly those for mixed-use areas, can be used to avoid exacerbating poor land use practices of the past or contributing to localized and cumulative air pollution impacts in the community.

Sometimes, especially in mixed-use zones, there is a potential for certain categories of existing businesses or industrial operations to result in cumulative air pollution impacts to new development projects. For example:

- An assisted living project is proposed for a mixed-use zone adjacent to an existing chrome plating facility, or several dry cleaners;
- Multiple industrial sources regulated by a local air district are located directly upwind of a new apartment complex;
- A new housing development is sited in a mixed-use zone that is downwind or adjacent to a distribution center that attracts diesel-fueled delivery trucks and TRUs; or
- A new housing development or sensitive land use is sited without adequate setbacks from an existing major transportation corridor or rail yard.

As part of the public process for making zoning changes, local land use agencies could work with community planning groups, local businesses, and community residents to determine how best to address existing incompatible land uses.

Land Use Permitting Processes

■ Questions to Consider When Reviewing New Projects

Very often, just knowing what questions to ask can yield critical information about the potential air pollution impacts of proposed projects – both from the perspective of a specific project as well as in the nature of existing air pollution sources in the same impact area. Available land use information can reveal the proximity of air pollution sources to sensitive individuals, the potential for incompatible land uses, and the location and nature of nearby air pollution sources. Air quality data, available from the ARB and local air districts, can provide information about the types and amounts of air pollution emitted in an area, regional air quality concentrations, and health risk estimates for specific sources.

General Plans and zoning maps are an excellent starting point in reviewing project proposals for their potential air pollution impacts. These documents contain information about existing or proposed land uses for a specific location as well as the surrounding area. Often, just looking at a map of the proposed location for a facility and its surrounding area will help to identify a potential adjacent incompatible land use.

The following pages are a “pull-out” list of questions to consider along with cross-references to pertinent information in the Handbook. These questions are intended to assist land use agencies in evaluating potential air quality-related concerns associated with new project proposals.

The first group of questions contains project-related queries designed to help identify the potential for localized project impacts, particularly associated with incompatible land uses. The second group of questions focuses on the issue of potential cumulative impacts by including questions about existing emissions and air quality in the community, and community feedback. Depending on the answers to these questions, a land use agency may decide a more detailed review of the proposal is warranted.

The California Department of Education has already developed a detailed process for school siting which is outlined in Appendix E. However, school districts may also find this section helpful when evaluating the most appropriate site for new schools in their area. At a minimum, using these questions may encourage school districts to engage throughout their siting process with land use agencies and local air districts. The combined expertise of these entities can be useful in devising relevant design standards and mitigation measures that can

reduce exposure to cumulative emissions, exposure, and health risk to students and school workers.

As indicated throughout the Handbook, we strongly encourage land use agencies to consult early and often with local air districts. Local air districts have the expertise, many of the analytical tools, and a working knowledge of the sources they regulate. It is also critical to fully involve the public and businesses that could be affected by the siting decision. The questions provided in the chart below do not imply any particular action should be taken by land use agencies. Rather the questions are intended to improve the assessment process and facilitate informed decision-making.

■ Project-Related Questions

This section includes project-related questions that, in conjunction with the questions in the next section, can be used to tailor the project evaluation. These questions are designed to help identify the potential for incompatible land uses from localized project impacts.

Questions to Consider When Reviewing New Projects

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
1. Is the proposed project: ▲ A business or commercial license renewal ▲ A new or modified commercial project ▲ A new or modified industrial project ▲ A new or modified public facility project ▲ A new or modified transportation project ▲ A housing or other development in which sensitive individuals may live or play	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.
2. Does the proposed project: ▲ Conform to the zoning designation? ▲ Require a variance to the zoning designation? ▲ Include plans to expand operations over the life of the business such that additional emissions may increase the pollution burden in the community (e.g., from additional truck operations, new industrial operations or process lines, increased hours of operation, build-out to the property line, etc.)?	See Appendix F for a general explanation of land use processes. In addition, Section 3 contains a discussion of how land use planning, zoning, and permitting practices can result in incompatible land uses or cumulative air pollution impacts.
3. Has the local air district provided comments or information to assist in the analysis?	See Section 5 and Appendix C for a description of air quality-related tools that the ARB and local air districts use to provide information on potential air pollution impacts.
4. Have public meetings been scheduled with the affected community to solicit their involvement in the decision-making process for the proposed project?	See Section 7 for a discussion of public participation, information and outreach tools.
5. If the proposed project will be subject to local air district regulations: ▲ Has the project received a permit from the local air district? ▲ Would it comply with applicable local air district requirements? ▲ Is the local air district contemplating new regulations that would reduce emissions from the source over time? ▲ Will potential emissions from the project	See Appendix C for a description of local air district programs.

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
trigger the local air district's new source review for criteria pollutants or air toxics emissions? ▲ Is the local air district expected to ask the proposed project to perform a risk assessment? ▲ Is there sufficient new information or public concern to call for a more thorough environmental analysis of the proposed project? ▲ Are there plans to expand operations over time? ▲ Are there land-use based air quality significance thresholds or design standards that could be applied to this project in addition to applicable air district requirements?	
6. If the proposed project will release air pollution emissions, either directly or indirectly, but is not regulated by the local air district: ▲ Is the local air district informed of the project? ▲ Does the local air district believe that there could be potential air pollution impacts associated with this project category because of the proximity of the project to sensitive individuals? ▲ If the project is one in which individuals live or play (e.g., a home, playground, convalescent home, etc.), does the local air district believe that the project's proximity to nearby sources could pose potential air pollution impacts? ▲ Are there indirect emissions that could be associated with the project (e.g., truck traffic or idling, transport refrigeration unit operations, stationary diesel engine operations, etc.) that will be in close proximity to sensitive individuals? ▲ Will the proposed project increase or serve as a magnet for diesel traffic? ▲ Are there land-use based air quality significance thresholds or design standards that could be applied to this project in addition to applicable air district requirements? ▲ Is there sufficient new information or public concern to call for a more thorough environmental analysis of the proposed project? ▲ Should the site approval process include identification and mitigation of potential	See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
direct or indirect emissions associated with the potential project?	
7. Does the local air district or land use agency have pertinent information on the source, such as: ▲ Available permit and enforcement data, including for the owner or operator of the proposed source that may have other sources in the State. ▲ Proximity of the proposed project to sensitive individuals. ▲ Number of potentially exposed individuals from the proposed project. ▲ Potential for the proposed project to expose sensitive individuals to odor or other air pollution nuisances. ▲ Meteorology or the prevailing wind patterns between the proposed project and the nearest receptor, or between the proposed sensitive receptor project and sources that could pose a localized or cumulative air pollution impact.	See Appendix C for a description of local air district programs. See Appendix B for a listing of useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also, do not hesitate to contact your local air district regarding answers to any of these questions that might not be available at the land use agency. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
8. Based upon the project application, its location, and the nature of the source, could the proposed project: ▲ Be a polluting source that is located in proximity to, or otherwise upwind, of a location where sensitive individuals live or play? ▲ Attract sensitive individuals and be located in proximity to or otherwise downwind, of a source or multiple sources of pollution, including polluting facilities or transportation-related sources that contribute emissions either directly or indirectly? ▲ Result in health risk to the surrounding community?	See Section 3 for a discussion of what is an incompatible land use and the potential cumulative air pollution impacts. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
9. If a CEQA categorical exemption is proposed, were the following questions considered: ▲ Is the project site environmentally sensitive as defined by the project's location? (A project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant.) ▲ Would the project and successive future projects of the same type in the approximate location potentially result in cumulative impacts? ▲ Are there "unusual circumstances" creating the possibility of significant effects?	See CEQA Guidelines section 15300, and Public Resources Code, section 21084. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites). See also Section 5 and Appendix C for a description of air quality-related tools that the ARB and local air districts use to provide information on potential air pollution impacts.

■ Questions Related to Cumulative Impact Assessment

The following questions can be used to provide the decision-maker with a better understanding of the potential for cumulative air pollution impacts to an affected community. Answers to these questions will help to determine if new projects or activities warrant a more detailed review. It may also help to see potential environmental concerns from the perspective of the affected community. Additionally, responses can provide local decision-makers with information with which to assess the best policy options for addressing neighborhood-scale air pollution concerns.

The questions below can be used to identify whether existing tools and procedures are adequate to address land use-related air pollution issues. This process can also be used to pinpoint project characteristics that may have the greatest impact on community-level emissions, exposure, and risk. Such elements can include: the compliance record of existing sources including those owned or operated by the project proponent; the concentration of emissions from polluting sources within the approximate area of sensitive sites; transportation circulation in proximity to the proposed project; compatibility with the General Plan and General Plan elements; etc.

The local air district can provide useful assistance in the collection and evaluation of air quality-related information for some of the questions and should be consulted early in the process.

Questions Related to Cumulative Impact Assessment

Technical Questions	Cross-Reference to Relevant Handbook Sections
1. Is the community home to industrial facilities?	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.
2. Do one or more major freeways or high-traffic volume surface streets cut through the community?	See transportation circulation element of your general plan. See also Appendix B for useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
3. Is the area classified for mixed-use zoning?	See your general plan and zoning ordinances.
4. Is there an available list of air pollution sources in the community?	Contact your local air district.
5. Has a walk-through of the community been conducted to gather the following information:	See Appendix B for a listing of useful information that land use agencies

Technical Questions	Cross-Reference to Relevant Handbook Sections
▲ Corroborate available information on land use activities in the area (e.g., businesses, housing developments, sensitive individuals, etc.)? ▲ Determine the proximity of existing and anticipated future projects to residential areas or sensitive individuals? ▲ Determine the concentration of emission sources (including anticipated future projects) to residential areas or sensitive individuals?	should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district.
6. Has the local air district been contacted to obtain information on sources in the community?	See Section 7 for a discussion of public participation, information and outreach tools.
7. What categories of commercial establishments are currently located in the area and does the local air district have these sources on file as being regulated or permitted?	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants. Also contact your local air district.
8. What categories of indirect sources such as distribution centers or warehouses are currently located in the area?	See Appendix A for typical land use classifications and associated project categories that emit air pollutants.
9. What air quality monitoring data are available?	Contact your local air district.
10. Have any risk assessments been performed on emission sources in the area?	Contact your local air district.
11. Does the land use agency have the capability of applying a GIS spatial mapping tool that can overlay zoning, sub-development information, and other neighborhood characteristics, with air pollution and transportation data?	See Appendix B for a listing of useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district for tools that can be used to supplement available land use agency tools.
12. Based on available information, is it possible to determine if the affected community or neighborhood experiences elevated health risk due to a concentration of air pollution sources in close proximity, and if not, can the necessary information be obtained?	Contact your local air district. Also see Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
13. Does the community have a history of chronic complaints about air quality?	See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.
14. Is the affected community included in the public participation process for the agency's decision?	See Section 7 for a discussion of public participation, information and outreach tools.
15. Have community leaders or groups been contacted about any pre-existing or chronic community air quality concerns?	See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.

■ Mitigation Approaches

In addition to considering the suitability of the project location, opportunities for mitigation of air pollution impacts should be considered. Sometimes, a land use agency may find that selection of a different project location to avoid a health risk is not feasible. When that happens, land use agencies should consider design improvements or other strategies that would reduce the risk. Such strategies could include performance or design standards, consultation with local air districts and other agencies on appropriate actions that these agencies should, or plan to, undertake, and consultation and outreach in the affected community. Potential mitigation measures should be feasible, cost-effective solutions within the available resources and authority of implementing agencies to enforce.¹²

■ Conditional Use Permits and Performance Standards

Some types of land uses are only allowed upon approval of a conditional use permit (also called a CUP or special use permit). A conditional use permit does not re-zone the land but specifies conditions under which a particular land use will be permitted. Such land uses could be those with potentially significant environmental impacts. Local zoning ordinances specify the uses for which a conditional use permit is required, the zones they may be allowed in, and public hearing procedures. The conditional use permit imposes special requirements to ensure that the use will not be detrimental to its surroundings.

In the context of land use planning, performance standards are requirements imposed on projects or project categories through conditional use permits to ensure compliance with general plan policies and local ordinances. These standards could apply to such project categories as distribution centers, very large gas dispensing facilities, autobody shops, dry cleaners, and metal platers. Land use agencies may wish to consider adding land use-based performance standards to zoning ordinances in existing mixed-use communities for certain air pollution project categories. Such standards would provide certainty and equitable treatment to all projects of a similar nature, and reserve the more resource intensive conditional or special use permits to projects that require a more detailed analysis. In developing project design or performance standards, land use agencies should consult with the local air district. Early and regular consultation can avoid duplication or inconsistency with local air district control requirements when considering the site-specific design and operation of a project.

¹² A land use agency has the authority to condition or deny a project based upon information collected and evaluated through the land use decision-making process. However, any denial would need to be based upon identifiable, generally applicable, articulated standards set forth in the local government's General Plan and zoning codes. One way of averting this is to conduct early and regular outreach to the community and the local air district so that community and environmental concerns can be addressed and accommodated into the project proposal.

Examples of land use-based air quality-specific performance standards include the following:

- Placing a process vent away from the direction of the local playground that is nearby or increasing the stack height so that emissions are dispersed to reduce the emissions impact on surrounding homes or schools.
- Setbacks between the project fence line and the population center.
- Limiting the hours of operation of a facility to avoid excess emissions exposure or foul odors to nearby individuals.
- An ordinance that requires fleet operators to use cleaner vehicles before project approval (if a new business), or when expanding the fleet (if an existing business); and
- Providing alternate routes for truck operations that discourage detours into residential neighborhoods.

Outreach to Other Agencies

When questions arise regarding the air quality impacts of projects, including potential cumulative impacts, land use agencies should consult the local air district. Land use agencies should also consider the following suggestions to avoid creating new incompatible land uses:

- Consult with the local air district to help determine if emissions from a particular project will adversely impact sensitive individuals in the area, if existing or future effective regulations or permit requirements will affect the proposed project or other sources in the vicinity of the proposed project, or if additional inspections should be required.
- Check with ARB for new information and modeling tools that can help evaluate projects seeking to site within your jurisdiction.
- Become familiar with ARB's Land Use-Air Quality Linkage Report to determine whether approaches and evaluation tools contained in the Report can be used to reduce transportation-related impacts on communities.
- Contact and collaborate with other state agencies that play a role in the land use decision-making process, e.g., the State Department of Education, the California Energy Commission, and Caltrans. These agencies have information on mitigation measures and mapping tools that could be useful in addressing local problems.

■ Information Clearinghouse

- Land use agencies can refer to the ARB statewide electronic information clearinghouse for information on what measures other jurisdictions are using to address comparable issues or sources.¹³

¹³ This information can be accessed from ARB's website by going to:
<http://www.arb.ca.gov/ch/clearinghouse.htm>

The next section addresses available air quality assessment tools that land use agencies can use to evaluate the potential for localized or cumulative impacts in their communities.

5. Available Tools to Evaluate Cumulative Air Pollution Emissions and Risk

Until recently, California has traditionally approached air pollution control from the perspective of assessing whether the pollution was regional, category-specific, or from new or existing sources. This methodology has been generally effective in reducing statewide and regional air pollution impacts and risk levels. However, such an incremental, category-by-category, source-by-source approach may not always address community health impacts from multiple sources - including mobile, industrial, and commercial facilities.

As a result of air toxics and children's health concerns over the past several years, ARB and local air districts have begun to develop new tools to evaluate and inform the public about cumulative air pollution impacts at the community level. One aspect of ARB's programs now underway is to consolidate and make accessible air toxics emissions and monitoring data by region, using modeling tools and other analytical techniques to take a preliminary look at emissions, exposure, and health risk in communities.

ARB has developed multiple tools to assist local air districts perform assessments of cumulative emissions, exposure, and risk on a neighborhood scale. These tools include:

- Regional risk maps that show trends in potential cancer risk from toxic air pollutants in southern and central California between 1990 and 2010. These maps are based on the U.S. EPA's ASPEN model. These maps provide an estimate of background levels of toxic air pollutant risk but are not detailed enough to assess individual neighborhoods or facilities.¹⁴
- The Community Health Air Pollution Information System (CHAPIS) is a user-friendly, Internet-based system for displaying information on emissions from sources of air pollution in an easy to use mapping format. CHAPIS contains information on air pollution emissions from selected large facilities and small businesses that emit criteria and toxic air pollutants. It also contains information on air pollution emissions from motor vehicles. When released in 2004, CHAPIS did not contain information on every source of air pollution or every air pollutant. However, ARB continues to work with local air districts to include all of the largest air pollution sources and those with the highest documented air pollution risk. Additional facilities will be added to CHAPIS as more data become available.¹⁵

¹⁴ For further information on these maps, please visit ARB's website at:

<http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm>

¹⁵ For further information on CHAPIS, please click on:

<http://www.arb.ca.gov/ch/chapis1/chapis1.htm>

- The Hot Spots Analysis and Reporting Program (HARP) is a software database package that evaluates emissions from one or more facilities to determine the overall health risk posed by the facility(-ies) on the surrounding community. Proper use of HARP ensures that the risk assessment meets the latest risk assessment guidelines published by the State Office of Environmental Health Hazard Assessment (OEHHA). HARP is designed with air quality professionals in mind and is available from the ARB.
- The Urban Emissions Model (URBEMIS) is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, office buildings, and construction projects. URBEMIS uses emission factors available from the ARB to estimate vehicle emissions associated with new land uses.

Local air districts, and others can use these tools to assess a new project, or plan revision. For example, these tools can be used to:

- Identify if there are multiple sources of air pollution in the community;
- Identify the major sources of air pollution in the area under consideration;
- Identify the background potential cancer risk from toxic air pollution in the area under consideration;
- Estimate the risk from a new facility and how it adds to the overall risk from other nearby facilities; and
- Provide information to decision-makers and key stakeholders on whether there may be significant issues related to cumulative emissions, exposure, and health risk due to a permitting or land use decision.

If an air agency wishes to perform a cumulative air pollution impact analysis using any of these tools, it should consult with the ARB and/or the local air district to obtain information or assistance on the data inputs and procedures necessary to operate the program. In addition, land use agencies could consult with local air districts to determine the availability of land use and air pollution data for entry into an electronic Geographical Information System (GIS) format. GIS is an easier mapping tool than the more sophisticated models described in Appendix C. GIS mapping makes it possible to superimpose land use with air pollution information so that the spatial relationship between air pollution sources, sensitive receptors, and air quality can be visually represented. Appendix C provides a general description of the impact assessment process and micro-scale, or community level modeling tools that are available to evaluate potential cumulative air pollution impacts. Modeling protocols will be accessible on ARB's website as they become available. The ARB will also provide land use agencies and local air districts with statewide regional modeling results and information regarding micro-scale modeling.

6. ARB Programs to Reduce Air Pollution in Communities

ARB's regulatory programs reduce air pollutant emissions through statewide strategies that improve public health in all California communities. ARB's overall program addresses motor vehicles, consumer products, air toxics, air-quality planning, research, education, enforcement, and air monitoring. Community health and environmental justice concerns are a consideration in all these programs. ARB's programs are statewide but recognize that extra efforts may be needed in some communities due to historical mixed land-use patterns, limited participation in public processes in the past, and a greater concentration of air pollution sources in some communities.

ARB's strategies are intended to result in better air quality and reduced health risk to residents throughout California. The ARB's priority is to prevent or reduce the public's exposure to air pollution, including from toxic air contaminants that pose the greatest risk, particularly to infants and children who are more vulnerable to air pollution.

In October 2003, ARB updated its statewide control strategy to reduce emissions from source categories within its regulatory authority. A primary focus of the strategy is to achieve federal and state air quality standards for ozone and particulate matter throughout California, and to reduce health risk from diesel PM. Along with local air districts, ARB will continue to address air toxics emissions from regulated sources (see Table 6-1 for a summary of ARB activities). As indicated earlier, ARB will also provide analytical tools and information to land use agencies and local air districts to help assess and mitigate cumulative air pollution impacts.

The ARB will continue to consider the adoption of or revisions to needed air toxics control measures as part of the state's ongoing air toxics assessment program.¹⁶

As part of its effort to reduce particulate matter and air toxics emissions from diesel PM, the ARB has developed a Diesel Risk Reduction Program¹⁷ that lays out several strategies in a three-pronged approach to reduce emissions and their associated risk:

- Stringent emission standards for all new diesel-fueled engines;
- Aggressive reductions from in-use engines; and
- Low sulfur fuel that will reduce PM and still provide the quality of diesel fuel needed to control diesel PM.

¹⁶ For continuing information and updates on state measures, the reader can refer to ARB's website at <http://www.arb.ca.gov/toxics/toxics.htm>.

¹⁷ For a comprehensive description of the program, please refer to ARB's website at <http://www.arb.ca.gov/diesel/dieselryp.htm>.

Table 6-1
ARB ACTIONS TO ADDRESS
CUMULATIVE AIR POLLUTION IMPACTS IN COMMUNITIES

Information Collection

- Improve emission inventories, air monitoring data, and analysis tools that can help to identify areas with high cumulative air pollution impacts
- Conduct studies in coordination with OEHHA on the potential for cancer and non-cancer health effects from air pollutants emitted by specific source categories
- Establish web-based clearinghouse for local land use strategies

Emission Reduction Approaches (2004-2006)*

- Through a public process, consider development and/or amendment of regulations and related guidance to reduce emissions, exposure, and health risk at a statewide and local level for the following sources:
 - Diesel PM sources such as stationary diesel engines, transport refrigeration units, portable diesel engines, on-road public fleets, off-road public fleets, heavy-duty diesel truck idling, harbor craft vessels, waste haulers
 - Other air toxics sources, such as formaldehyde in composite wood products, hexavalent chromium for chrome plating and chromic acid anodizing, thermal spraying, and perchloroethylene dry cleaning
- Develop technical information for the following:*
 - Distribution centers
 - Modeling tools such as HARP and CHAPIS
- Adopt rules and pollution prevention initiatives within legal authority to reduce emissions from mobile sources and fuels, and consumer products
- Develop and maintain Air Quality Handbook as a tool for use by land use agencies and local air districts to address cumulative air pollution impacts

Other Approaches

- Establish guidelines for use of statewide incentive funding for high priority mobile source emission reduction projects

*Because ARB will continue to review the need to adopt or revise statewide measures, the information contained in this chart will be updated on an ongoing basis.

A number of ARB's diesel risk reduction strategies have been adopted. These include measures to reduce emissions from refuse haulers, urban buses, transport refrigeration units, stationary and portable diesel engines, and idling trucks and school buses. These sources are all important from a community perspective.¹⁸

¹⁸ The reader can refer to ARB's website for information on its mobile source-related programs at: <http://www.arb.ca.gov/msprog/msprog.htm>, as well as regulations adopted and under consideration as part of the Diesel Risk Reduction Program at: <http://www.arb.ca.gov/diesel/dieselrrp.htm>

The ARB will continue to evaluate the health effects of air pollutants while implementing programs with local air districts to reduce air pollution in all California communities.

Local air districts also have ambitious programs to reduce criteria pollutants and air toxics from regulated sources in their region. Many of these programs also benefit air quality in local communities as well as in the broader region. For more information on what is being done in your area to reduce cumulative air pollution impacts through air pollution control programs, you should contact your local air district.¹⁹

¹⁹ Local air district contacts can be found on the inside cover to this Handbook.

7. Ways to Enhance Meaningful Public Participation

Community involvement is an important part of the land use process. The public is entitled to the best possible information about the air they breathe and what is being done to prevent or reduce unhealthful air pollution in their communities. In particular, information on how land use decisions can affect air pollution and public health should be made accessible to all communities, including low-income and minority communities.

Effective community participation consistently relies on a two-way flow of information – from public agencies to community members about opportunities, constraints, and impacts, and from community members back to public officials about needs, priorities, and preferences. The outreach process needed to build understanding and local neighborhood involvement requires data, methodologies, and formats tailored to the needs of the specific community. More importantly, it requires the strong collaboration of local government agencies that review and approve projects and land uses to improve the physical and environmental surroundings of the local community.

Many land use agencies, especially those in major metropolitan areas, are familiar with, and have a long-established public review process. Nevertheless, public outreach can often be improved. Active public involvement requires engaging the public in ways that do not require their previous interest in or knowledge of the land use or air pollution control requirements, and a commitment to taking action where appropriate to address the concerns that are raised.

■ Direct Community Outreach

In conjunction with local air districts, land use agencies should consider designing an outreach program for community groups, other stakeholders, and local government agency staffs that address the problem of cumulative air pollution impacts, and the public and government role in reducing them. Such a program could consider analytical tools that assist in the preparation and presentation of information in a way that supports sensible decision-making and public involvement. Table 7-1 contains some general outreach approaches that might be considered.

**Table 7-1
Public Participation Approaches**

- Staff and community leadership awareness training on environmental justice programs and community-based issues
- Surveys to identify the website information needs of interested community-based organizations and other stakeholders
- Information materials on local land use and air district authorities
- Community-based councils to facilitate and invite resident participation in the planning process
- Neighborhood CEQA scoping sessions that allows for community input prior to technical analysis
- Public information materials on siting issues are under review including materials written for the affected community, and in different media that widens accessibility
- Public meetings
- Identify other opportunities to include community-based organizations in the process

To improve outreach, local land use agencies should consider the following activities:

- Hold meetings in communities affected by agency programs, policies, and projects at times and in places that encourage public participation, such as evenings and weekends at centrally located community meeting rooms, libraries, and schools.
- Assess the need for and provide translation services at public meetings.
- Hold community meetings to update residents on the results of any special air monitoring programs conducted in their neighborhood.
- Hold community meetings to discuss and evaluate the various options to address cumulative impacts in their community.
- In coordination with local air districts, make staff available to attend meetings of community organizations and neighborhood groups to listen to and, where appropriate, act upon community concerns.
- Establish a specific contact person for environmental justice issues.
- Increase student and community awareness of local government land use activities and policies through outreach opportunities.
- Make air quality and land use information available to communities in an easily understood and useful format, including fact sheets, mailings, brochures, public service announcements, and web pages, in English and other languages.
- On the local government web-site, dedicate a page or section to what the land use program is doing regarding environmental justice and cumulative environmental impacts, and, as applicable, activities conducted with local air districts such as neighborhood air monitoring studies, pollution prevention, air pollution sources in neighborhoods, and risk reduction.

- Allow, encourage, and promote community access to land use activities, including public meetings, General Plan or Community Plan updates, zoning changes, special studies, CEQA reviews, variances, etc.
 - Distribute information in multiple languages, as needed, on how to contact the land use agency or local air district to obtain information and assistance regarding environmental justice programs, including how to participate in public processes.
 - Create and distribute a simple, easy-to-read, and understandable public participation handbook, which may be based on the “Public Participation Guidebook” developed by ARB.
- **Other Opportunities for Meaningful Public Outreach**
- Community-Based Planning Committees

Neighborhood-based or community planning advisory councils could be established to invite and facilitate direct resident participation into the planning process. With the right training and technical assistance, such councils can provide valuable input and a forum for the review of proposed amendments to plans, zone changes, land use permits, and suggestions as to how best to prevent or reduce cumulative air pollution impacts in their community.

- Regional Partnerships

Consider creating regional coalitions of key growth-related organizations from both the private and public sectors, with corporations, communities, other jurisdictions, and government agencies. Such partnerships could facilitate agreement on common goals and win-win solutions tailored specifically for the region. With this kind of dialogue, shared vision, and collaboration, barriers can be overcome and locally acceptable sustainable solutions implemented. Over the long term, such strategies will help to bring about clean air in communities as well as regionally.

**LAND USE CLASSIFICATIONS AND ASSOCIATED FACILITY CATEGORIES
THAT COULD EMIT AIR POLLUTANTS**

(1) Land Use Classifications – by Activity ⁱ	(2) Facility or Project Examples	(3) Key Pollutants ^{ii,iii}	(4) Air Pollution Permits ^{iv}
COMMERCIAL/ LIGHT INDUSTRIAL: SHOPPING, BUSINESS, AND COMMERCIAL			
▲ Primarily retail shops and stores, office, commercial activities, and light industrial or small business	Dry cleaners; drive-through restaurants; gas dispensing facilities; auto body shops; metal plating shops; photographic processing shops; textiles; apparel and furniture upholstery; leather and leather products; appliance repair shops; mechanical assembly cleaning; printing shops	VOCs, air toxics, including diesel PM, NOx, CO, SOx	Limited; Rules for applicable equipment
▲ Goods storage or handling activities, characterized by loading and unloading goods at warehouses, large storage structures, movement of goods, shipping, and trucking.	Warehousing; freight-forwarding centers; drop-off and loading areas; distribution centers	VOCs, air toxics, including diesel PM, NOx, CO, SOx	No ^v
LIGHT INDUSTRIAL: RESEARCH AND DEVELOPMENT			
▲ Medical waste at research hospitals and labs	Incineration; surgical and medical instrument manufacturers, pharmaceutical manufacturing, biotech research facilities	Air toxics, NOx, CO, SOx	Yes
▲ Electronics, electrical apparatus, components, and accessories	Computer manufacturer; integrated circuit board manufacturer; semi-conductor production	Air toxics, VOCs	Yes
▲ College or university lab or research center	Medical waste incinerators; lab chemicals handling, storage and disposal	Air toxics, NOx, CO, SOx, PM10	Yes
▲ Research and development labs	Satellite manufacturer; fiber-optics manufacturer; defense contractors; space research and technology; new vehicle and fuel testing labs	Air toxics, VOCs	Yes
▲ Commercial testing labs	Consumer products; chemical handling, storage and disposal	Air toxics, VOCs	Yes

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(1) Land Use Classifications – by Activity ⁱ	(2) Facility or Project Examples	(3) Key Pollutants ^{ii,iii}	(4) Air Pollution Permits ^{iv}
INDUSTRIAL: NON-ENERGY-RELATED			
▲ Assembly plants, manufacturing facilities, industrial machinery	Adhesives; chemical; textiles; apparel and furniture upholstery; clay, glass, and stone products production; asphalt materials; cement manufacturers, wood products; paperboard containers and boxes; metal plating; metal and canned food product fabrication; auto manufacturing; food processing; printing and publishing; drug, vitamins, and pharmaceuticals; dyes; paints; pesticides; photographic chemicals; polish and wax; consumer products; metal and mineral smelters and foundries; fiberboard; floor tile and cover; wood and metal furniture and fixtures; leather and leather products; general industrial and metalworking machinery; musical instruments; office supplies; rubber products and plastics production; saw mills; solvent recycling; shingle and siding; surface coatings	VOCs, air toxics, including diesel PM, NOx, PM, CO, SOx	Yes
INDUSTRIAL: ENERGY AND UTILITIES			
▲ Water and sewer operations	Pumping stations; air vents; treatment	VOCs, air toxics, NOx, CO, SOx, PM10	Yes
▲ Power generation and distribution	Power plant boilers and heaters; portable diesel engines; gas turbine engines	NOx, diesel PM, NOx, CO, SOx, PM10, VOCs	Yes
▲ Refinery operations	Refinery boilers and heaters; coke cracking units; valves and flanges; flares	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Yes
▲ Oil and gas extraction	Oil recovery systems; uncovered wells	NOx, diesel PM, VOCs, CO, SOx, PM10	Yes
▲ Gasoline storage, transmission, and marketing	Above and below ground storage tanks; floating roof tanks; tank farms; pipelines	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Yes
▲ Solid and hazardous waste treatment, storage, and disposal activities.	Landfills; methane digester systems; process recycling facility for concrete and asphalt materials	VOCs, air toxics, NOx, CO, SOx, PM10	Yes
CONSTRUCTION (NON-TRANSPORTATION)			
	Building construction; demolition sites	PM (re-entrained road dust), asbestos, diesel PM, NOx, CO, SOx, PM10, VOCs	Limited; state and federal off-road equipment standards

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(1) Land Use Classifications – by Activity ⁱ	(2) Facility or Project Examples	(3) Key Pollutants ^{ii,iii}	(4) Air Pollution Permits ^{iv}
DEFENSE			
	Ordnance and explosives demolition; range and testing activities; chemical production; degreasing; surface coatings; vehicle refueling; vehicle and engine operations and maintenance	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Limited; prescribed burning; equipment and solvent rules
TRANSPORTATION			
▲ Vehicular movement	Residential area circulation systems; parking and idling at parking structures; drive-through establishments; car washes; special events; schools; shopping malls, etc.	VOCs, NOx, PM (re-entrained road dust) air toxics e.g., benzene, diesel PM, formaldehyde, acetaldehyde, 1,3 butadiene, CO, SOx, PM10	No
▲ Road construction and surfacing	Street paving and repair; new highway construction and expansion	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	No
▲ Trains	Railroads; switch yards; maintenance yards	VOCs, NOx, CO, SOx, PM10, air toxics, including diesel PM	Limited; Applicable state and federal MV standards, and possible equipment rules
▲ Marine and port activities	Recreational sailing; commercial marine operations; hotelling operations; loading and un-loading; servicing; shipping operations; port or marina expansion; truck idling		
▲ Aircraft	Takeoff, landing, and taxiing; aircraft maintenance; ground support activities		
▲ Mass transit and school buses	Bus repair and maintenance		
NATURAL RESOURCES			
▲ Farming operations	Agricultural burning; diesel operated engines and heaters; small food processors; pesticide application; agricultural off-road equipment	Diesel PM, VOCs, NOx, PM10, CO, SOx, pesticides	Limited ^{vi} ; Agricultural burning requirements, applicable state and federal mobile source standards; pesticide rules
▲ Livestock and dairy operations	Dairies and feed lots	Ammonia, VOCs, PM10	Yes ^{vii}
▲ Logging	Off-road equipment e.g., diesel fueled chippers, brush hackers, etc.	Diesel PM, NOx, CO, SOx, PM10, VOCs	Limited; Applicable state/federal mobile source standards
▲ Mining operations	Quarrying or stone cutting; mining; drilling or dredging	PM10, CO, SOx, VOCs, NOx, and asbestos in some geographical areas	Applicable equipment rules and dust controls

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(1) Land Use Classifications – by Activity ⁱ	(2) Facility or Project Examples	(3) Key Pollutants ^{ii,iii}	(4) Air Pollution Permits ^{iv}
RESIDENTIAL			
Housing	Housing developments; retirement developments; affordable housing	Fireplace emissions (PM10, NOx, VOCs, CO, air toxics); Water heater combustion (NOx, VOCs, CO)	No ^{vii}
ACADEMIC AND INSTITUTIONAL			
▲ Schools, including school-related recreational activities	Schools; school yards; vocational training labs/classrooms such as auto repair/painting and aviation mechanics	Air toxics	Yes/No ^{viii}
▲ Medical waste	Incineration	Air toxics, NOx, CO, PM10	Yes
▲ Clinics, hospitals, convalescent homes		Air toxics	Yes

ⁱ These classifications were adapted from the American Planning Association's "Land Based Classification Standards." The Standards provide a consistent model for classifying land uses based on their characteristics. The model classifies land uses by refining traditional categories into multiple dimensions, such as activities, functions, building types, site development character, and ownership constraints. Each dimension has its own set of categories and subcategories. These multiple dimensions allow users to have precise control over land-use classifications. For more information, the reader should refer to the Association's website at <http://www.planning.org/LBCS/GeneralInfo/>.

ⁱⁱ This column includes key criteria pollutants and air toxic contaminants that are most typically associated with the identified source categories.

Additional information on specific air toxics that are attributed to facility categories can be found in ARB's Emission Inventory Criteria and Guidelines Report for the Air Toxics Hot Spots Program (May 15, 1997). This information can be viewed at ARB's web site at <http://www.arb.ca.gov/ab2588/final96/guide96.pdf>.

Criteria air pollutants are those air pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Criteria pollutants include ozone (formed by the reaction of volatile organic compounds and nitrogen oxides in the presence of sunlight), particulate matter, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead.

Volatile organic compounds (VOCs) combine with nitrogen oxides to form ozone, as well as particulate matter. VOC emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. On-road mobile sources are the largest contributors to statewide VOC emissions. Stationary sources of VOC emissions include processes that use solvents (such as dry-cleaning, degreasing, and coating operations) and petroleum-related processes (such as petroleum refining, gasoline marketing and dispensing, and oil and gas extraction). Areawide VOC sources include consumer products, pesticides, aerosols and paints, asphalt paving and roofing, and other evaporative emissions.

Nitrogen oxides (NOx) are a group of gaseous compounds of nitrogen and oxygen, many of which contribute to the formation of ozone and particulate matter. Most NOx emissions are produced by the combustion of fuels. Mobile sources make up about 80 percent of the total statewide NOx emissions. Mobile sources include on-road vehicles and trucks, aircraft, trains, ships, recreational boats, industrial and construction equipment, farm

equipment, off-road recreational vehicles, and other equipment. Stationary sources of NO_x include both internal and external combustion processes in industries such as manufacturing, food processing, electric utilities, and petroleum refining. Areawide source, which include residential fuel combustion, waste burning, and fires, contribute only a small portion of the total statewide NO_x emissions, but depending on the community, may contribute to a cumulative air pollution impact.

Particulate matter (PM) refers to particles small enough to be breathed into the lungs (under 10 microns in size). It is not a single substance, but a mixture of a number of highly diverse types of particles and liquid droplets. It can be formed directly, primarily as dust from vehicle travel on paved and unpaved roads, agricultural operations, construction and demolition.

Carbon monoxide (CO) is a colorless and odorless gas that is directly emitted as a by-product of combustion. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. CO problems tend to be localized.

An Air Toxic Contaminant (air toxic) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. Similar to criteria pollutants, air toxics are emitted from stationary, areawide, and mobile sources. They contribute to elevated regional and localized risks near industrial and commercial facilities and busy roadways. The ten compounds that pose the greatest statewide risk are: acetaldehyde; benzene; 1,3-butadiene; carbon tetrachloride; diesel particulate matter (diesel PM); formaldehyde; hexavalent chromium; methylene chloride; para-dichlorobenzene; and perchloroethylene. The risk from diesel PM is by far the largest, representing about 70 percent of the known statewide cancer risk from outdoor air toxics. The exhaust from diesel-fueled engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute about 26 percent of statewide diesel PM emissions, with an additional 72 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and other equipment. Stationary engines in shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations contribute about two percent of statewide emissions. However, when this number is disaggregated to a sub-regional scale such as neighborhoods, the risk factor can be far greater.

ⁱⁱⁱ The level of pollution emitted is a major determinant of the significance of the impact.

^{iv} Indicates whether facility activities listed in column 4 are generally subject to local air district permits to operate. This does not include regulated products such as solvents and degreasers that may be used by sources that may not require an operating permit per se, e.g., a gas station or dry cleaner.

^v Generally speaking, warehousing or distribution centers are not subject to local air district permits. However, depending on the district, motor vehicle fleet rules may apply to trucks or off-road vehicles operated and maintained by the facility operator. Additionally, emergency generators or internal combustion engines operated on the site may require an operating permit.

^{vi} Authorized by recent legislation SB700.

^{vii} Local air districts do not require permits for woodburning fireplaces inside private homes. However, some local air districts and land use agencies do have rules or ordinances that require new housing developments or home re-sales to install U.S. EPA –certified stoves. Some local air districts also ban residential woodburning during weather inversions that concentrate smoke in residential areas. Likewise, home water heaters are not subject to permits; however, new heaters could be subject to emission limits that are imposed by federal or local agency regulations.

^{viii} Technical training schools that conduct activities normally permitted by a local air district could be subject to an air permit.

LAND USE-BASED REFERENCE TOOLS TO EVALUATE NEW PROJECTS FOR POTENTIAL AIR POLLUTION IMPACTS

Land use agencies generally have a variety of tools and approaches at hand, or accessible from local air districts that can be useful in performing an analysis of potential air pollution impacts associated with new projects. These tools and approaches include:

- Base map of the city or county planning area and terrain elevations.
- General Plan designations of land use (existing and proposed).
- Zoning maps.
- Land use maps that identify existing land uses, including the location of facilities that are permitted or otherwise regulated by the local air district. Land use agencies should consult with their local air district for information on regulated facilities.
- Demographic data, e.g., population location and density, distribution of population by income, distribution of population by ethnicity, and distribution of population by age. The use of population data is a normal part of the planning process. However, from an air quality perspective, socioeconomic data is useful to identify potential community health and environmental justice issues.
- Emissions, monitoring, and risk-based maps created by the ARB or local air districts that show air pollution-related health risk by community across the state.
- Location of public facilities that enhance community quality of life, including parks, community centers, and open space.
- Location of industrial and commercial facilities and other land uses that use hazardous materials, or emit air pollutants. These include chemical storage facilities, hazardous waste disposal sites, dry cleaners, large gas dispensing facilities, auto body shops, and metal plating and finishing shops.
- Location of sources or facility types that result in diesel on-road and off-road emissions, e.g., stationary diesel power generators, forklifts, cranes, construction equipment, on-road vehicle idling, and operation of transportation refrigeration units. Distribution centers, marine terminals and ports, rail yards, large industrial facilities, and facilities that handle bulk goods are all examples of complex facilities where these types of emission sources are frequently concentrated.¹ Very large facilities, such as ports, marine terminals, and airports, could be analyzed regardless of proximity to a receptor if they are within the modeling area.
- Location and zoning designations for existing and proposed schools, buildings, or outdoor areas where sensitive individuals may live or play.
- Location and density of existing and proposed residential development.
- Zoning requirements, property setbacks, traffic flow requirements, and idling restrictions for trucks, trains, yard hostlers², construction equipment, or school buses.
- Traffic counts (including diesel truck traffic counts), within a community to validate or augment existing regional motor vehicle trip and speed data.

¹ The ARB is currently evaluating the types of facilities that may act as complex point sources and developing methods to identify them.

² Yard hostler means a tractor less than 300 horsepower that is used to transfer semi-truck or tractor-trailer containers in and around storage, transfer, or distribution yards or areas and is often equipped with a hydraulic lifting fifth wheel for connection to trailer containers.

ARB AND LOCAL AIR DISTRICT INFORMATION AND TOOLS CONCERNING CUMULATIVE AIR POLLUTION IMPACTS

It is the ARB's policy to support research and data collection activities toward the goal of reducing cumulative air pollution impacts. These efforts include updating and improving the air toxics emissions inventory, performing special air monitoring studies in specific communities, and conducting a more complete assessment of non-cancer health effects associated with air toxics and criteria pollutants.¹ This information is important because it helps us better understand links between air pollution and the health of sensitive individuals -- children, the elderly, and those with pre-existing serious health problems affected by air quality.

ARB is working with CAPCOA and OEHHA to improve air pollutant data and evaluation tools to determine when and where cumulative air pollution impacts may be a problem. The following provides additional information on this effort.

How are emissions assessed?

Detailed information about the sources of air pollution in an area is collected and maintained by local air districts and the ARB in what is called an emission inventory. Emission inventories contain information about the nature of the business, the location, type and amount of air pollution emitted, the air pollution-producing processes, the type of air pollution control equipment, operating hours, and seasonal variations in activity. Local districts collect emission inventory data for most stationary source categories.

Local air districts collect air pollution emission information directly from facilities and businesses that are required to obtain an air pollution operating permit. Local air districts use this information to compile an emission inventory for areas within their jurisdiction. The ARB compiles a statewide emission inventory based on the information collected by the ARB and local air districts. Local air districts provide most of the stationary source emission data, and ARB provides mobile source emissions as well as some areawide emission sources such as consumer products and paints. ARB is also developing map-based tools that will display information on air pollution sources.

Criteria pollutant data have been collected since the early 1970's, and toxic pollutant inventories began to be developed in the mid-1980's.

¹ A criteria pollutant is any air pollutant for which EPA has established a National Ambient Air Quality Standard or for which California has established a State Ambient Air Quality Standard, including: carbon monoxide, lead, nitrogen oxides, ozone, particulates and sulfur oxides. Criteria pollutants are measured in each of California's air basins to determine whether the area meets or does not meet specific federal or state air quality standards. Air toxics or air toxic contaminants are listed pollutants recognized by California or EPA as posing a potential risk to health.

How is the toxic emission inventory developed?

Emissions data for toxic air pollutants is a high priority for communities because of concerns about potential health effects. Most of ARB's air toxics data is collected through the toxic "Hot Spots" program. Local air districts collect emissions data from industrial and commercial facilities. Facilities that exceed health-based thresholds are required to report their air toxics emissions as part of the toxic "Hot Spots" program and update their emissions data every four years. Facilities are required to report their air toxics emissions data if there is an increase that would trigger the reporting threshold of the hotspots program. Air toxics emissions from motor vehicles and consumer products are estimated by the ARB. These estimates are generally regional in nature, reflecting traffic and population.

The ARB also maintains chemical speciation profiles that can be used to estimate toxics emissions when no toxic emissions data is available.

What additional toxic emissions information is needed?

In order to assess cumulative air pollution impacts, updated information from individual facilities is needed. Even for sources where emissions data are available, additional information such as the location of emissions release points is often needed to better model cumulative impacts. In terms of motor vehicles, emissions data are currently based on traffic models that only contain major roads and freeways. Local traffic data are needed so that traffic emissions can be more accurately assigned to specific streets and roads. Local information is also needed for off-road emission sources, such as ships, trains, and construction equipment. In addition, hourly maximum emissions data are needed for assessing acute air pollution impacts.

What work is underway?

ARB is working with CAPCOA to improve toxic emissions data, developing a community health air pollution information system to improve access to emission information, conducting neighborhood assessment studies to better understand toxic emission sources, and conducting surveys of sources of toxic pollutants.

How is air pollution monitored?

While emissions data identify how much air pollution is going into the air, the state's air quality monitoring network measures air pollutant levels in outdoor air. The statewide air monitoring network is primarily designed to measure regional exposure to air pollutants, and consists of more than 250 air monitoring sites.

The air toxics monitoring network consists of approximately 20 permanent sites. These sites are supplemented by special monitoring studies conducted by ARB and local air districts. These sites measure approximately sixty toxic air pollutants. Diesel PM, which is the major driver of urban air toxic risk, is not monitored directly. Ten of the

60 toxic pollutants, not including diesel, account for most of the remaining potential cancer risk in California urban areas.

What additional monitoring has been done?

Recently, additional monitoring has been done to look at air quality at the community level. ARB's community monitoring was conducted in six communities located throughout the state. Most sites were in low-income, minority communities located near major sources of air pollution, such as refineries or freeways. The monitoring took place for a year or more in each community, and included measurements of both criteria and toxic pollutants.

What is being learned from community monitoring?

In some cases, the ARB or local air districts have performed air quality monitoring or modeling studies covering a particular region of the state. When available, these studies can give information about regional air pollution exposures.

The preliminary results of ARB's community monitoring are providing insights into air pollution at the community level. Urban background levels are a major contributor to the overall risk from air toxics in urban areas, and this urban background tends to mask the differences between communities. When localized elevated air pollutant levels were measured, they were usually associated with local ground-level sources of toxic pollutants. The most common source of this type was busy streets and freeways. The impact these ground-level sources had on local air quality decreased rapidly with distance from the source. Pollutant levels usually returned to urban background levels within a few hundred meters of the source.

These results indicate that tools to assess cumulative impacts must be able to account for both localized, near-source impacts, as well as regional background air pollution. The tools that ARB is developing for this purpose are air quality models.

How can air quality modeling be used?

While air monitoring can directly measure cumulative exposure to air pollution, it is limited because all locations cannot be monitored. To address this, air quality modeling provides the capability to estimate exposure when air monitoring is not feasible. Air quality modeling can be refined to assess local exposure, identify locations of potential hot spots, and identify the relative contribution of emission sources to exposure at specific locations. The ARB has used this type of information to develop regional cumulative risk maps that estimate the cumulative cancer air pollution risk for most of California. While these maps only show one air pollution-related health risk, it does provide a useful starting point.

What is needed for community modeling?

Air quality models have been developed to assess near-source impacts, but they have very exacting data requirements. These near-source models estimate the impact of local sources, but do not routinely include the contribution from regional air pollution background. To estimate cumulative air pollution exposure at a neighborhood scale, a modeling approach needs to combine features of both micro-scale and regional models.

In addition, improved methods are needed to assess near-source impacts under light and variable wind conditions, when high local concentrations are more likely to occur. A method for modeling long-term exposure to air pollutants near freeways and other high traffic areas is also needed.

What modeling work has ARB developed?

A key component of ARB's Community Health Program is the Neighborhood Assessment Program (NAP). As described later in this section, the NAP studies are being conducted to better understand pollution impacts at the community level. Through two such studies conducted in Barrio Logan (San Diego) and Wilmington (Los Angeles), ARB is refining community-level modeling methodologies. Regional air toxics modeling is also being performed to better understand regional air pollution background levels.

In a parallel effort, ARB is developing modeling protocols for estimating cumulative emissions, exposure, and risk from air pollution. The protocols will cover modeling approaches and uncertainties, procedures for running the models, the development of statewide risk maps, and methods for estimating health risks. The protocols are subject to an extensive peer review process prior to release.

How are air pollution impacts on community health assessed?

On a statewide basis, ARB's toxic air contaminant program identifies and reduces public exposure to air toxics. The focus of the program has been on reducing potential cancer risk, because monitoring results show potential urban cancer risk levels are too high. ARB has also looked for potential non-cancer risks based on health reference levels provided by OEHHA. On a regional basis, the pollutants measured in ARB's toxic monitoring network are generally below the OEHHA non-cancer reference exposure levels.

As part of its community health program, the ARB is looking at potential cancer and non-cancer risk. This could include chronic or acute health effects. If the assessment work shows elevated exposures on a localized basis, ARB will work with OEHHA to assess the health impacts.

What tools has ARB developed to assess cumulative air pollution impacts?

ARB has developed the following tools and reports to assist land use agencies and local air districts assess and reduce cumulative emissions, exposure, and risk on a neighborhood scale.

Statewide Risk Maps

ARB has produced regional risk maps that show the statewide trends for Southern and Central California in estimated potential cancer risk from air toxics between 1990 and 2010.² These maps will supplement U.S. EPA's ASPEN model and are available on the ARB's Internet site. These maps are best used to obtain an estimate of the regional background air pollution health risk and are not detailed enough to estimate the exact risk at a specific location.

ARB also has maps that focus in more detail on smaller areas that fall within the Southern and Central California regions for these same modeled years. The finest visual resolution available in the maps on this web site is two by two kilometers. These maps are not detailed enough to assess individual neighborhoods or facilities.

Community Health Air Pollution Information System (CHAPIS)

CHAPIS is an Internet-based procedure for displaying information on emissions from sources of air pollution in an easy to use mapping format. CHAPIS uses Geographical Information System (GIS) software to deliver interactive maps over the Internet. CHAPIS relies on emission estimates reported to the ARB's emission inventory database - California Emissions Inventory Development and Reporting System, or CEIDARS.

Through CHAPIS, air district staff can quickly and easily identify pollutant sources and emissions within a specified area. CHAPIS contains information on air pollution emissions from selected large facilities and small businesses that emit criteria and toxic air pollutants. It also contains information on air pollution emissions from motor vehicle and areawide emissions. CHAPIS does not contain information on every source of air pollution or every air pollutant. It is a major long-term objective of CHAPIS to include all of the largest air pollution sources and those with the highest documented air pollution risk. CHAPIS will be updated on a periodic basis and additional facilities will be added to CHAPIS as more data becomes available.

CHAPIS is being developed in stages to assure data quality. The initial release of CHAPIS will include facilities emitting 10 or more tons per year of nitrogen oxides, sulfur dioxide, carbon monoxide, PM10, or reactive organic gases; air toxics from refineries and power plants of 50 megawatts or more; and facilities that conducted health risk

²ARB maintains state trends and local potential cancer risk maps that show statewide trends in potential inhalable cancer risk from air toxics between 1990 and 2010. This information can be viewed at ARB's web site at <http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm>)

assessments under the California Air Toxics “Hot Spots” Information and Assessment Program.³

CHAPIS can be used to identify the emission contributions from mobile, area, and point sources on that community.

“Hot Spots” Analysis and Reporting Program (HARP)

HARP⁴ is a software package available from the ARB and is designed with air quality professionals in mind. It models emissions and release data from one or more facilities to estimate the potential health risk posed by the selected facilities on the neighboring community. HARP uses the latest risk assessment guidelines published by OEHHA.

With HARP, a user can perform the following tasks:

- Create and manage facility databases;
- Perform air dispersion modeling;
- Conduct health risk analyses;
- Output data reports; and
- Output results to GIS mapping software.

HARP can model downwind concentrations of air toxics based on the calculated emissions dispersion at a single facility. HARP also has the capability of assessing the risk from multiple facilities, and for multiple locations of concern near those facilities. While HARP has the capability to assess multiple source impacts, there had been limited application of the multiple facility assessment function in the field at the time of HARP’s debut in 2003. HARP can also evaluate multi-pathway, non-inhalation health risk resulting from air pollution exposure, including skin and soil exposure, and ingestion of meat and vegetables contaminated with air toxics, and other toxics that have accumulated in a mother’s breast milk.

Neighborhood Assessment Program (NAP)

The NAP⁵ has been a key component of ARB’s Community Health Program. It includes the development of tools that can be used to perform assessments of cumulative air pollution impacts on a neighborhood scale. The NAP studies have been done to better understand how air pollution affects individuals at the neighborhood level. Thus far, ARB has conducted neighborhood scale assessments in Barrio Logan and Wilmington.

As part of these studies, ARB is collecting data and developing a modeling protocol that can be used to conduct cumulative air pollution impact assessments. Initially these

³ California Health & Safety Code section 44300, et seq.

⁴ More detailed information can be found on ARB’s website at:

<http://www.arb.ca.gov/toxics/harp/harp.htm>

⁵ For more information on the Program, please refer to: <http://www.arb.ca.gov/ch/programs/nap/nap.htm>

assessments will focus on cumulative inhalation cancer health risk and chronic non-cancer impacts. The major challenge is developing modeling methods that can combine both regional and localized air pollution impacts, and identifying the critical data necessary to support these models. The objective is to develop methods and tools from these studies that can ultimately be applied to other areas of the state. In addition, the ARB plans to use these methods to replace the ASPEN regional risk maps currently posted on the ARB Internet site.

Urban Emissions Model (URBEMIS)

URBEMIS⁶ is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, office buildings, and construction projects. URBEMIS uses emission factors available from the ARB to estimate vehicle emissions associated with new land uses. URBEMIS estimates sulfur dioxide emissions from motor vehicles in addition to reactive organic gases, nitrogen oxides, carbon monoxide, and PM10.

Land-Use Air Quality Linkage Report⁷

This report summarizes data currently available on the relationships between land use, transportation and air quality. It also highlights strategies that can help to reduce the use of the private automobile. It also briefly summarizes two ARB-funded research projects. The first project analyzes the travel patterns of residents living in five higher density, mixed use neighborhoods in California, and compares them to travel in more auto-oriented areas. The second study correlates the relationship between travel behavior and community characteristics, such as density, mixed land uses, transit service, and accessibility for pedestrians.

⁶ For more information on this model, please refer to ARB's website at <http://www.arb.ca.gov/html/soft.htm>.

⁷ To access this report, please refer to ARB's website or click on: <http://www.arb.ca.gov/ch/programs/link97.pdf>

LAND USE AND AIR QUALITY AGENCY ROLES IN THE LAND USE PROCESS

A wide variety of federal, state, and local government agencies are responsible for regulatory, planning, and siting decisions that can have an impact on air pollution. They include local land use agencies, regional councils of government, school districts, local air districts, ARB, the California Department of Transportation (Caltrans), and the Governor's Office of Planning and Research (OPR) to name a few. This Section will focus on the roles and responsibilities of local and state agencies. The role of school districts will be discussed in Appendix E.

Local Land Use Agencies

Under the State Constitution, land use agencies have the primary authority to plan and control land use.¹ Each of California's incorporated cities and counties are required to adopt a comprehensive, long-term General Plan.²

The General Plan's long-term goals are implemented through zoning ordinances. These are local laws adopted by counties and cities that describe for specific areas the kinds of development that will be allowed within their boundaries.

Land use agencies are also the lead for doing environmental assessments under CEQA for new projects that may pose a significant environmental impact, or for new or revised General Plans.

Local Agency Formation Commissions (LAFCOs)

Operating in each of California's 58 counties, LAFCOs are composed of local elected officials and public members who are responsible for coordinating changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structures, and preparing a sphere of influence for each city and special district within each county. Each Commission's efforts are directed toward seeing that local government services are provided efficiently and economically while agricultural and open-space lands are protected. LAFCO decisions strive to balance the competing needs in California for efficient services, affordable housing, economic opportunity, and conservation of natural resources.

¹ The legal basis for planning and land use regulation is the "police power" of the city or county to protect the public's health, safety and welfare. The California Constitution gives cities and counties the power to make and enforce all local police, sanitary and other ordinances and regulations not in conflict with general laws. State law reference: California Constitution, Article XI §7.

²OPR General Plan Guidelines, 2003:

http://www.opr.ca.gov/planning/PDFs/General_Plan_Guidelines_2003.pdf

Councils of Government (COG)

COGs are organizations composed of local counties and cities that serve as a focus for the development of sound regional planning, including plans for transportation, growth management, hazardous waste management, and air quality. They can also function as the metropolitan planning organization for coordinating the region's transportation programs. COGs also prepare regional housing need allocations for updates of General Plan housing elements.

Local Air Districts

Under state law, air pollution control districts or air quality management districts (local air districts) are the local government agencies responsible for improving air quality and are generally the first point of contact for resolving local air pollution issues or complaints. There are 35 local air districts in California³ that have authority and primary responsibility for regional clean air planning. Local air districts regulate stationary sources of air pollutants within their jurisdiction including but not limited to industrial and commercial facilities, power plants, construction activities, outdoor burning, and other non-mobile sources of air pollution. Some local air districts also regulate public and private motor vehicle fleet operators such as public bus systems, private shuttle and taxi services, and commercial truck depots.

■ Regional Clean Air Plans

Local air districts are responsible for the development and adoption of clean air plans that protect the public from the harmful effects of air pollution. These plans incorporate strategies that are necessary to attain ambient air quality standards. Also included in these regional air plans are ARB and local district measures to reduce statewide emissions from mobile sources, consumer products, and industrial sources.

■ Facility-Specific Considerations

Permitting. In addition to the planning function, local air districts adopt and enforce regulations, issue permits, and evaluate the potential environmental impacts of projects.

Pollution is regulated through permits and technology-based rules that limit emissions from operating units within a facility or set standards that vehicle fleet operators must meet. Permits to construct and permits to operate contain very specific requirements and conditions that tell each regulated source what it must do to limit its air pollution in compliance with local air district rules, regulations, and state law. Prior to receiving a permit, new facilities must go through a New Source Review (NSR) process that establishes air pollution control requirements for the facility. Permit conditions are typically contained in the permit to operate and specify requirements that businesses must follow; these may include limits on the amount of pollution that can be emitted, the

³ Contact information for local air districts in California is listed in the front of this Handbook.

type of pollution control equipment that must be installed and maintained, and various record-keeping requirements.

Local air districts also notify the public about new permit applications for major new facilities, or major modifications to existing facilities that seek to locate within 1,000 feet of a school.

Local air districts can also regulate other types of sources to reduce emissions. These include regulations to reduce emissions from the following sources:

- hazardous materials in products used by industry such as paints, solvents, and degreasers;
- agricultural and residential burning;
- leaking gasoline nozzles at service stations;
- public fleet vehicles such as sanitation trucks and school buses; and
- fugitive or uncontrolled dust at construction sites.

However, while emissions from industrial and commercial sources are typically subject to the permit authority of the local air district, sensitive sites such as a day care center, convalescent home, or playground are not ordinarily subject to an air permit. Local air district permits address the air pollutant emissions of a project but not its location.

Under the state's air toxics program, local air districts regulate air toxic emissions by adopting ARB air toxic control measures, or more stringent district-specific requirements, and by requiring individual facilities to perform a health risk assessment if emissions at the source exceed district-specific health risk thresholds⁴, ⁵ (See the section on ARB programs for a more detailed summary of this program).

One approach by which local air districts regulate air toxics emissions is through the "Hot Spots" program.⁶ The risk assessments submitted by the facilities under this

⁴ Cal/EPA's Office of Environmental Health Hazard Assessment has published "A Guide to Health Risk Assessment" for lay people involved in environmental health issues, including policymakers, businesspeople, members of community groups, and others with an interest in the potential health effects of toxic chemicals. To access this information, please refer to <http://www.oehha.ca.gov/pdf/HRSGuide2001.pdf>

⁵ Section 44306 of the California Health & Safety Code defines a health risk assessment as a detailed comprehensive analysis that a polluting facility uses to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

⁶ AB-2588 (the Air Toxics "Hot Spots" Information and Assessment Act) requires local air districts to prioritize facilities by high, intermediate, and low priority categories to determine which must perform a health risk assessment. Each district is responsible for establishing the prioritization score threshold at which facilities are required to prepare a health risk assessment. In establishing priorities for each facility, local air districts must consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant risk. All facilities within the highest category must prepare a health risk assessment. In addition, each district may require facilities in the intermediate and low priority categories to also submit a health risk assessment.

**Table D-1
Local Sources of Air Pollution, Responsible Agencies,
and Associated Regulatory Programs**

Source	Examples	Primary Agency	Applicable Regulations
Large Stationary	Refineries, power plants, chemical facilities, certain manufacturing plants	Local air districts	Operating permit rules Air Toxics "Hot Spots" Law (AB 2588) Local district rules Air Toxic Control Measures (ATCMs)* New Source Review rules Title V permit rules
Small Stationary	Dry cleaners, auto body shops, welders, chrome plating facilities, service stations, certain manufacturing plants	Local air districts	Operating permit conditions, Air Toxics "Hot Spots" Law (AB 2588) Local district rules ATCMs* New Source Review rules
Mobile (non-fleet)	Cars, trucks, buses	ARB	Emission standards Cleaner-burning fuels (e.g., unleaded gasoline, low-sulfur diesel) Inspection and repair programs (e.g., Smog Check)
Mobile Equipment	Construction equipment	ARB, U.S. EPA	ARB rules U.S. EPA rules
Mobile (fleet)	Truck depots, school buses, taxi services	Local air districts, ARB	Local air district rules ARB urban bus fleet rule
Areawide	Paints and consumer products such as hair spray and spray paint	Local air district, ARB	ARB rules Local air district rules

*ARB adopts ATCMs, but local air districts have the responsibility to implement and enforce these measures or more stringent ones.

program are reviewed by OEHHA and approved by the local air district. Risk assessments are available by contacting the local air district.

Enforcement. Local air districts also take enforcement action to ensure compliance with air quality requirements. They enforce air toxic control measures, agricultural and residential burning programs, gasoline vapor control regulations, laws that prohibit air pollution nuisances, visible emission limits, and many other requirements designed to

clean the air. Local districts use a variety of enforcement tools to ensure compliance. These include notices of violation, monetary penalties, and abatement orders. Under some circumstances, a permit may be revoked.

■ Environmental Review

As required by the California Environmental Quality Act (CEQA), local air districts also review and comment on proposed land use plans and development projects that can have a significant effect on the environment or public health.⁷

California Air Resources Board

The ARB is the air pollution control agency at the state level that is responsible for the preparation of air plans required by state and federal law. In this regard, it coordinates the activities of all local air districts to ensure all statutory requirements are met and to reduce air pollution emissions for sources under its jurisdiction.

Motor vehicles are the single largest emissions source category under ARB's jurisdiction as well as the largest overall emissions source statewide. ARB also regulates emissions from other mobile equipment and engines as well as emissions from consumer products such as hair sprays, perfumes, cleaners, and aerosol paints.

Air Toxics Program

Under state law, the ARB has a critical role to play in the identification, prioritization, and control of air toxic emissions. The ARB statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, Tanner 1983) created California's program to reduce exposure to air toxics.⁸ The Air Toxics "Hot Spots" Information and Assessment Act (Hot Spots program) supplements the AB 1807 program, by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Under AB 1807, the ARB is required to use certain criteria to prioritize the identification and control of air toxics. In selecting substances for review, the ARB must consider criteria relating to emissions, exposure, and health risk, as well as persistence in the atmosphere, and ambient concentrations in the community. AB 1807 also requires the ARB to use available information gathered from the Hot Spots program when prioritizing compounds.

The ARB identifies pollutants as toxic air contaminants and adopts statewide air toxic control measures (ATCMs). Once ARB adopts an ATCM, local air districts must

⁷ Section 4 of this Handbook contains more information on the CEQA process.

⁸ For a general background on California's air toxics program, the reader should refer to ARB's website at <http://www.arb.ca.gov/toxics/tac/appendxb.htm>.

implement the measure, or adopt and implement district-specific measures that are at least as stringent as the state standard. Taken in the aggregate, these ARB programs will continue to further reduce emissions, exposure, and health risk statewide.

With regard to the land use decision-making process, ARB, in conjunction with local air districts, plays an advisory role by providing technical information on land use-related air issues.

Other Agencies

Governor's Office of Planning and Research (OPR)

In addition to serving as the Governor's advisor on land use planning, research, and liaison with local government, OPR develops and implements the state's policy on land use planning and coordinates the state's environmental justice programs. OPR updated its General Plan Guidelines in 2003 to highlight the importance of sustainable development and environmental justice policies in the planning process. OPR also advises project proponents and government agencies on CEQA provisions and operates the State Clearinghouse for environmental and federal grant documents.

California Department of Housing and Community Development

The Department of Housing and Community Development (HCD) administers a variety of state laws, programs and policies to preserve and expand housing opportunities, including the development of affordable housing. All local jurisdictions must update their housing elements according to a staggered statutory schedule, and are subject to certification by HCD. In their housing elements, cities and counties are required to include a land inventory which identifies and zones sites for future residential development to accommodate a mix of housing types, and to remove barriers to the development of housing.

An objective of state housing element law is to increase the overall supply and affordability of housing. Other fundamental goals include conserving existing affordable housing, improving the condition of the existing housing stock, removing regulatory barriers to housing production, expanding equal housing opportunities, and addressing the special housing needs of the state's most vulnerable residents (frail elderly, disabled, large families with children, farmworkers, and the homeless).

Transportation Agencies

Transportation agencies can also influence mobile source-related emissions in the land use decision-making process. Local transportation agencies work with land use agencies to develop a transportation (circulation) element for the General Plan. These local government agencies then work with other transportation-related agencies, such as the Congestion Management Agency (CMA), Metropolitan Planning Organization

(MPO), Regional Transportation Planning Agency (RTPA), and Caltrans to develop long and short range transportation plans and projects.

Caltrans is the agency responsible for setting state transportation goals and for state transportation planning, design, construction, operations and maintenance activities. Caltrans is also responsible for delivering California's multibillion-dollar state Transportation Improvement Program, a list of transportation projects that are approved for funding by the California Transportation Commission in a 4-year cycle.

When safety hazards or traffic circulation problems are identified in the existing road system, or when land use changes are proposed such as a new residential subdivision, shopping mall or manufacturing center, Caltrans and/or the local transportation agency ensure the projects meet applicable state, regional, and local goals and objectives.

Caltrans also evaluates transportation-related projects for regional air quality impacts, from the perspective of travel-related emissions as well as road congestion and increases in road capacity (new lanes).

California Energy Commission (CEC)

The CEC is the state's CEQA lead agency for permitting large thermal power plants (50 megawatts or greater). The CEC works closely with local air districts and other federal, state and local agencies to ensure compliance with applicable laws, ordinances, regulations and standards in the permitting, construction, operation and closure of such plants. The CEC uses an open and public review process that provides communities with outreach and multiple opportunities to participate and be heard. In addition to its comprehensive environmental impact and engineering design assessment process, the CEC also conducts an environmental justice evaluation. This evaluation involves an initial demographic screening to determine if a qualifying minority or low-income population exists in the vicinity of the proposed project. If such a population is present, staff considers possible environmental justice impacts including from associated project emissions in its technical assessments.⁹

Department of Pesticides Regulation (DPR)

Pesticides are industrial chemicals produced specifically for their toxicity to a target pest. They must be released into the environment to do their job. Therefore, regulation of pesticides focuses on using toxicity and other information to ensure that when pesticides are used according to their label directions, potential for harm to people and the environment is minimized. DPR imposes strict controls on use, beginning before pesticide products can be sold in California, with an extensive scientific program to ensure they can be used safely. DPR and county enforcement staff tracks the use of pesticides to ensure that pesticides are used properly. DPR collects periodic

⁹ See California Energy Commission, "Environmental Performance Report," July 2001 at http://www.energy.ca.gov/reports/2001-11-20_700-01-001.PDF

measurements of any remaining amounts of pesticides in water, air, and on fresh produce. If unsafe levels are found, DPR requires changes in how pesticides are used, to reduce the possibility of harm. If this cannot be done - that is, if a pesticide cannot be used safely - use of the pesticide will be banned in California.¹⁰

Federal Agencies

Federal agencies have permit authority over activities on federal lands and certain resources, which have been the subject of congressional legislation, such as air, water quality, wildlife, and navigable waters. The U.S. Environmental Protection Agency generally oversees implementation of the federal Clean Air Act, and has broad authority for regulating certain activities such as mobile sources, air toxics sources, the disposal of toxic wastes, and the use of pesticides. The responsibility for implementing some federal regulatory programs such as those for air and water quality and toxics is delegated by management to specific state and local agencies. Although federal agencies are not subject to CEQA they must follow their own environmental process established under the National Environmental Policy Act (NEPA).

¹⁰ For more information, the reader is encouraged to visit the Department of Pesticide Regulation web site at www.cdpr.ca.gov/docs/emppm/pubs/tacmenu.htm.

SPECIAL PROCESSES THAT APPLY TO SCHOOL SITING

The [California Education Code](#) and the [California Public Resources Code](#) place primary authority for siting public schools with the local school district, which is the 'lead agency' for purposes of CEQA. The California Education Code requires public school districts to notify the local planning agency about siting a new public school or expanding an existing school. The planning agency then reports back to the school district regarding a project's conformity with the adopted General Plan. However, school districts can overrule local zoning and land use designations for schools if they follow specified procedures. In addition, all school districts must evaluate new school sites using site selection standards established in Section 14010 of Title 5 of the California Code of Regulations. Districts seeking state funding for school site acquisition must also obtain site approval from the California Department of Education.

Before making a final decision on a school site acquisition, a school district must comply with CEQA and evaluate the proposed site acquisition/new school project for air emissions and health risks by preparing and certifying an environmental impact report or negative declaration. Both the California Education Code section 17213 and the California Public Resources Code section 21151.8 require school districts to consult with administering agencies and local air districts when preparing the environmental assessment. Such consultation is required to identify both permitted and non-permitted "facilities" that might significantly affect health at the new site. These facilities include, but are not limited to, freeways and other busy traffic corridors, large agricultural operations, and rail yards that are within one-quarter mile of the proposed school site, and that might emit hazardous air emissions, or handle hazardous or acutely hazardous materials, substances, or waste.

As part of the CEQA process and before approving a school site, the school district must make a finding that either it found none of the facilities or significant air pollution sources, or alternatively, if the school district finds that there are such facilities or sources, it must determine either that they pose no significant health risks, or that corrective actions by another governmental entity would be taken so that there would be no actual or potential endangerment to students or school workers.

In addition, if the proposed school site boundary is within 500 feet of the edge of the closest traffic lane of a freeway or traffic corridor that has specified minimum average daily traffic counts, the school district is required to determine through specified risk assessment and air dispersion modeling that neither short-term nor long term exposure poses significant health risks to pupils.

State law changes effective January 1, 2004 (SB352, Escutia 2003, amending Education Code section 17213 and Public Resources Code section 21151.8) also provides for cases in which the school district cannot make either of those two findings and cannot find a suitable alternative site. When this occurs, the school district must adopt a statement of over-riding considerations, as part of an environmental impact

report, that the project should be approved based on the ultimate balancing of the merits.

Some school districts use a standardized assessment process to determine the environmental impacts of a proposed school site. In the assessment process, school districts can use maps and other available information to evaluate risk, including a local air district's database of permitted source emissions. School districts can also perform field surveys and record searches to identify and calculate emissions from non-permitted sources within one-quarter mile radius of a proposed site. Traffic count data and vehicular emissions data can also be obtained from Caltrans for major roadways and freeways in proximity to the proposed site to model potential emissions impacts to students and school employees. This information is available from the local COG, Caltrans, or local cities and counties for non-state maintained roads.

**GENERAL PROCESSES USED BY LAND USE AGENCIES
TO ADDRESS AIR POLLUTION IMPACTS**

There are several separate but related processes for addressing the air pollution impacts of land use projects. One takes place as part of the planning and zoning function. This consists of preparing and implementing goals and policies contained in county or city General Plans, community or area plans, and specific plans governing land uses such as residential, educational, commercial, industrial, and recreational activities. It also includes recommending locations for thoroughfares, parks and other public improvements.

Land use agencies also have a permitting function that includes performing environmental reviews and mitigation when projects may pose a significant environmental impact. They conduct inspections for zoning permits issued, enforce the zoning regulations and issue violations as necessary, issue zoning certificates of compliance, and check compliance when approving certificates of occupancy.

Planning

■ **General Plan¹**

The General Plan is a local government “blueprint” of existing and future anticipated land uses for long-term future development. It is composed of the goals, policies, and general elements upon which land use decisions are based. Because the General Plan is the foundation for all local planning and development, it is an important tool for implementing policies and programs beneficial to air quality. Local governments may choose to adopt a separate air quality element into their General Plan or to integrate air quality-beneficial objectives, policies, and strategies in other elements of the Plan, such as the land use, circulation, conservation, and community design elements.

More information on General Plan elements is contained in Appendix D.

■ **Community Plans**

Community or area plans are terms for plans that focus on a particular region or community within the overall general plan area. It refines the policies of the general plan as they apply to a smaller geographic area and is implemented by ordinances and other discretionary actions, such as zoning.

¹ In October 2003, OPR revised its General Plan Guidelines. An entire chapter is now devoted to a discussion of how sustainable development and environmental justice goals can be incorporated into the land use planning process. For further information, the reader is encouraged to obtain a copy of OPR’s General Plan Guidelines, or refer to their website at:
http://www.opr.ca.gov/planning/PDFs/General_Plan_Guidelines_2003.pdf

■ Specific Plan

A specific plan is a hybrid that can combine policies with development regulations or zoning requirements. It is often used to address the development requirements for a single project such as urban infill or a planned community. As a result, its emphasis is on concrete standards and development criteria.

■ Zoning

Zoning is the public regulation of the use of land. It involves the adoption of ordinances that divide a community into various districts or zones. For instance, zoning ordinances designate what projects and activities can be sited in particular locations. Each zone designates allowable uses of land within that zone, such as residential, commercial, or industrial. Zoning ordinances can address building development standards, e.g., minimum lot size, maximum building height, minimum building setback, parking, signage, density, and other allowable uses.

Land Use Permitting

In addition to the planning and zoning function, land use agencies issue building and business permits, and evaluate the potential environmental impacts of projects. To be approved, projects must be located in a designated zone and comply with applicable ordinances and zoning requirements.

Even if a project is sited properly in a designated zone, a land use agency may require a new source to mitigate potential localized environmental impacts to the surrounding community below what would be required by the local air district. In this case, the land use agency could condition the permit by limiting or prescribing allowable uses including operating hour restrictions, building standards and codes, property setbacks between the business property and the street or other structures, vehicle idling restrictions, or traffic diversion.

Land use agencies also evaluate the environmental impacts of proposed land use projects or activities. If a project or activity falls under CEQA, the land use agency requires an environmental review before issuing a permit to determine if there is the potential for a significant impact, and if so, to mitigate the impact or possibly deny the project.

■ Land Use Permitting Process

In California, the authority to regulate land use is delegated to city and county governments. The local land use planning agency is the local government administrative body that typically provides information and coordinates the review of development project applications. Conditional Use Permits (CUP) typically fall within a land use agency's discretionary authority and therefore are subject to CEQA. CUPs are

intended to provide an opportunity to review the location, design, and manner of development of land uses prior to project approval. A traditional purpose of the CUP is to enable a municipality to control certain uses that could have detrimental environmental effects on the community.

The process for permitting new discretionary projects is quite elaborate, but can be broken down into five fundamental components:

- Project application
- Environmental assessment
- Consultation
- Public comment
- Public hearing and decision

Project Application

The permit process begins when the land use agency receives a project application, with a detailed project description, and support documentation. During this phase, the agency reviews the submitted application for completeness. When the agency deems the application to be complete, the permit process moves into the environmental review phase.

Environmental Assessment

If the project is discretionary and the application is accepted as complete, the project proposal or activity must undergo an environmental clearance process under CEQA and the CEQA Guidelines adopted by the California Resources Agency.² The purpose of the CEQA process is to inform decision-makers and the public of the potential significant environmental impacts of a project or activity, to identify measures to minimize or eliminate those impacts to the point they are no longer significant, and to discuss alternatives that will accomplish the project goals and objectives in a less environmentally harmful manner.

What is a “Lead Agency”?

A lead agency is the public agency that has the principal responsibility for carrying out or approving a project that is subject to CEQA. In general, the land use agency is the preferred public agency serving as lead agency because it has jurisdiction over general land uses. The lead agency is responsible for determining the appropriate environmental document, as well as its preparation.

What is a “Responsible Agency”?

A responsible agency is a public agency with discretionary approval authority over a portion of a CEQA project (e.g., projects requiring a permit). As a responsible agency, the agency is available to the lead agency and project proponent for early consultation on a project to apprise them of applicable rules and regulations, potential adverse impacts, alternatives, and mitigation measures, and provide guidance as needed on applicable methodologies or other related issues.

What is a “Commenting Agency”?

A commenting agency is any public agency that comments on a CEQA document, but is neither a lead agency nor a responsible agency. For example, a local air district, as the agency with the responsibility for comprehensive air pollution control, could review and comment on an air quality analysis in a CEQA document for a proposed distribution center, even though the project was not subject to a permit or other pollution control requirements.

² Projects and activities that may have a significant adverse impact on the environment are evaluated under CEQA Guidelines set forth in title 14 of the California Code of Regulations, sections 15000 et seq.

To assist the lead agency in determining whether the project or activity may have a significant effect that would require the preparation of an EIR, the land use agency may consider criteria, or thresholds of significance, to assess the potential impacts of the project, including its air quality impacts. The land use agency must consider any credible evidence in addition to the thresholds, however, in determining whether the project or activity may have a significant effect that would trigger the preparation of an EIR.

The screening criteria to determine significance is based on a variety of factors, including local, state, and federal regulations, administrative practices of other public agencies, and commonly accepted professional standards. However, the final determination of significance for individual projects is the responsibility of the lead agency. In the case of land use projects, the lead agency would be the City Council or County Board of Supervisors.

A new land use plan or project can also trigger an environmental assessment under CEQA if, among other things, it will expose sensitive sites such as schools, day care centers, hospitals, retirement homes, convalescence facilities, and residences to substantial pollutant concentrations.³

CEQA only applies to “discretionary projects.” Discretionary means the public agency must exercise judgment and deliberation when deciding to approve or disapprove a particular project or activity, and may append specific conditions to its approval. Examples of discretionary projects include the issuance of a CUP, re-zoning a property, or widening of a public road. Projects that are not subject to the exercise of agency discretion, and can therefore be approved administratively through the application of set standards are referred to as ministerial projects. CEQA does not apply to ministerial projects.⁴ Examples of typical ministerial projects include the issuance of most building permits or a business license.

Once a potential environmental impact associated with a project is identified through an environmental assessment, mitigation must be considered. A land use agency should incorporate mitigation measures that are suggested by the local air district as part of the project review process.

Consultation

Application materials are provided to various departments and agencies that may have an interest in the project (e.g., air pollution, building, police, fire, water agency, Fish and Game, etc.) for consultation and input.

³ Readers interested in learning more about CEQA should contact OPR or visit their website at <http://www.opr.ca.gov/>.

⁴ See California Public Resources Code section 21080(b)(1).

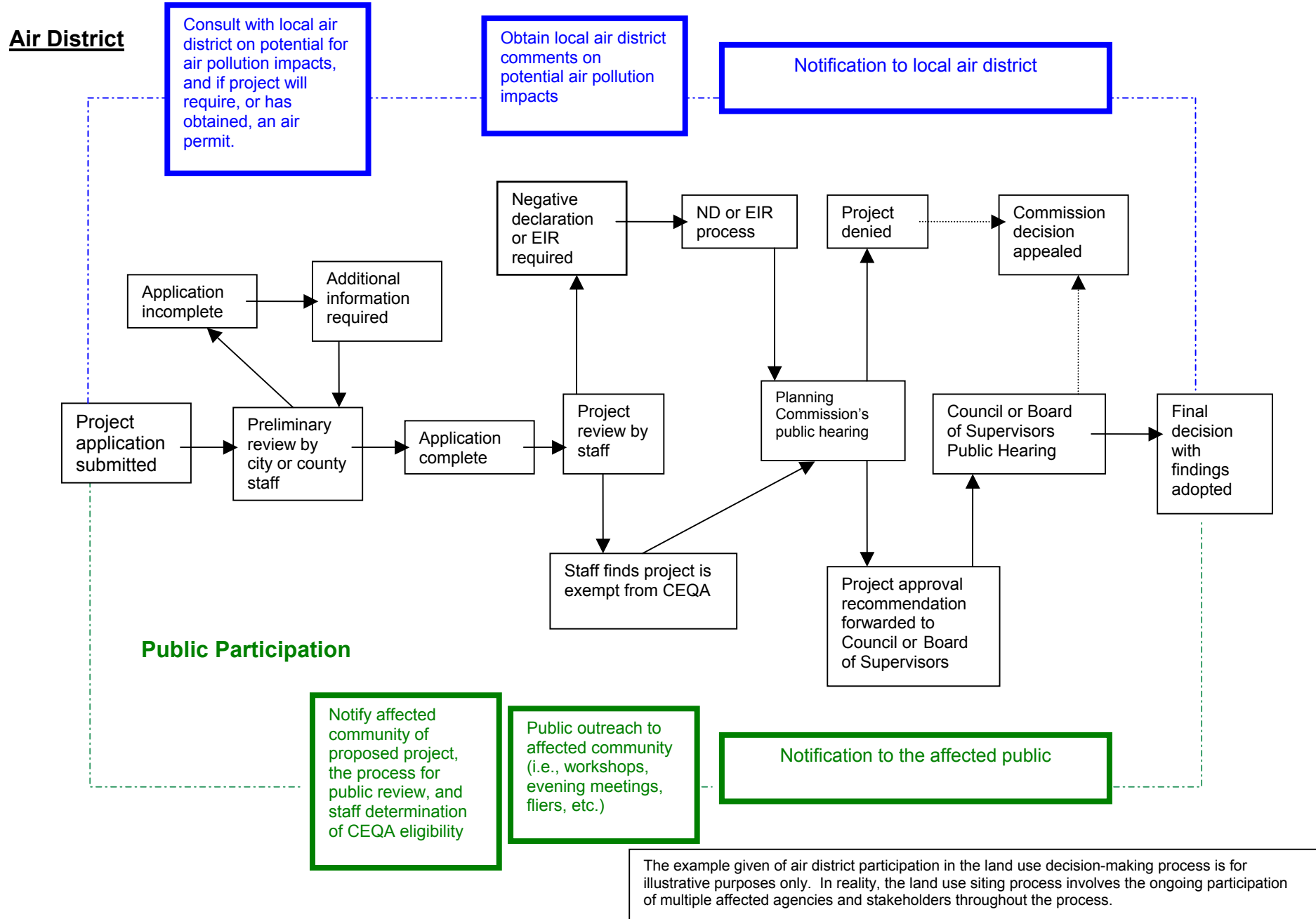
Public Comment

Following the environmental review process, the Planning Commission reviews application along with the staff's report on the project assessment and a public comment period is set and input is solicited.

Public Hearing and Decision

Permit rules vary depending on the particular permit authority in question, but the process generally involves comparing the proposed project with the land use agency standards or policies. The procedure usually leads to a public hearing, which is followed by a written decision by the agency or its designated officer. Typically, a project is approved, denied, or approved subject to specified conditions.

USE PERMIT (DISCRETIONARY ACTION) REVIEW PROCESS*



GLOSSARY OF KEY AIR POLLUTION TERMS

Air Pollution Control Board or Air Quality Management Board: Serves as the governing board for local air districts. It consists of appointed or elected members from the public or private sector. It conducts public hearings to adopt local air pollution regulations.

Air Pollution Control Districts or Air Quality Management Districts (local air district): A county or regional agency with authority to regulate stationary and area sources of air pollution within a given county or region. Governed by a district air pollution control board.

Air Pollution Control Officer (APCO): Head of a local air pollution control or air quality management district.

Air Toxic Control Measures (ATCM): A control measure adopted by the ARB (Health and Safety Code section 39666 et seq.), which reduces emissions of toxic air contaminants.

Ambient Air Quality Standards: An air quality standard defines the maximum amount of a pollutant that can be present in the outdoor air during a specific time period without harming the public's health. Only U.S. EPA and the ARB may establish air quality standards. No other state has this authority. Air quality standards are a measure of clean air. More specifically, an air quality standard establishes the concentration at which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Federal standards are referred to as National Ambient Air Quality Standards (NAAQS); state standards are referred to as California ambient air quality standards (CAAQS).

Area-wide Sources: Sources of air pollution that individually emit small amounts of pollution, but together add up to significant quantities of pollution. Examples include consumer products, fireplaces, road dust, and farming operations.

Attainment vs. Nonattainment Area: An attainment area is a geographic area that meets the National Ambient Air Quality Standards for the criteria pollutants and a non-attainment area is a geographic area that doesn't meet the NAAQS for criteria pollutants.

Attainment Plan: Attainment plans lay out measures and strategies to attain one or more air quality standards by a specified date.

California Clean Air Act (CCAA): A California law passed in 1988, which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air districts in violation of the CAAQS

must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

California Environmental Quality Act (CEQA): A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process helps decision-makers determine whether any potential, significant, adverse environmental impacts are associated with a proposed project and to identify alternatives and mitigation measures that will eliminate or reduce such adverse impacts.¹

California Health and Safety Code: A compilation of California laws, including state air pollution laws, enacted by the Legislature to protect the health and safety of people in California. Government agencies adopt regulations to implement specific provisions of the California Health and Safety Code.

Clean Air Act (CAA): The federal Clean Air Act was adopted by the United States Congress and sets forth standards, procedures, and requirements to be implemented by the U.S. Environmental Protection Agency (U.S. EPA) to protect air quality in the United States.

Councils of Government (COGs): There are 25 COGs in California made up of city and county elected officials. COGs are regional agencies concerned primarily with transportation planning and housing; they do not directly regulate land use.

Criteria Air Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM10 and PM2.5. The term "criteria air pollutants" derives from the requirement that the U.S. EPA and ARB must describe the characteristics and potential health and welfare effects of these pollutants. The U.S. EPA and ARB periodically review new scientific data and may propose revisions to the standards as a result.

District Hearing Board: Hears local air district permit appeals and issues variances and abatement orders. The local air district board appoints the members of the hearing board.

Emission Inventory: An estimate of the amount of pollutants emitted into the atmosphere from mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

Environmental Impact Report (EIR): The public document used by a governmental agency to analyze the significant environmental effects of a proposed project, to identify

¹ To track the submittal of CEQA documents to the State Clearinghouse within the Office of Planning and Research, the reader can refer to CEQAnet at <http://www.ceqanet.ca.gov>.

alternatives, and to disclose possible ways to reduce or avoid the possible negative environmental impacts.

Environmental Justice: California law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code sec.65040.12(c)).

General Plans: A statement of policies developed by local governments, including text and diagrams setting forth objectives, principles, standards, and plan proposals for the future physical development of the city or county.

Hazardous Air Pollutants (HAPs): An air pollutant listed under section 112 (b) of the federal Clean Air Act as particularly hazardous to health. U.S. EPA identifies emission sources of hazardous air pollutants, and emission standards are set accordingly. In California, HAPs are referred to as toxic air contaminants.

Land Use Agency: Local government agency that performs functions associated with the review, approval, and enforcement of general plans and plan elements, zoning, and land use permitting. For purposes of this Handbook, a land use agency is typically a local planning department.

Mobile Source: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes.

National Ambient Air Quality Standard (NAAQS): A limit on the level of an outdoor air pollutant established by the US EPA pursuant to the Clean Air Act. There are two types of NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare.

Negative Declaration (ND): When the lead agency (the agency responsible for preparing the EIR or ND) under CEQA, finds that there is no substantial evidence that a project may have a significant environmental effect, the agency will prepare a "negative declaration" instead of an EIR.

New Source Review (NSR): A federal Clean Air Act requirement that state implementation plans must include a permit review process, which applies to the construction and operation of new or modified stationary sources in nonattainment areas. Two major elements of NSR to reduce emissions are best available control technology requirements and emission offsets.

Office of Planning and Research (OPR): OPR is part of the Governor's office. OPR has a variety of functions related to local land-use planning and environmental programs. It provides General Plan Guidelines for city and county planners, and coordinates the state clearinghouse for Environmental Impact Reports.

Ordinance: A law adopted by a City Council or County Board of Supervisors. Ordinances usually amend, repeal or supplement the municipal code; provide zoning specifications; or appropriate money for specific purposes.

Overriding Considerations: A ruling made by the lead agency in the CEQA process when the lead agency finds the importance of the project to the community outweighs potential adverse environmental impacts.

Public Comment: An opportunity for the general public to comment on regulations and other proposals made by government agencies. You can submit written or oral comments at the public meeting or send your written comments to the agency.

Public Hearing: A public hearing is an opportunity to testify on a proposed action by a governing board at a public meeting. The public and the media are welcome to attend the hearing and listen to, or participate in, the proceedings.

Public Notice: A public notice identifies the person, business, or local government seeking approval of a specific course of action (such as a regulation). It describes the activity for which approval is being sought, and describes the location where the proposed activity or public meeting will take place.

Public Nuisance: A public nuisance, for the purposes of air pollution regulations, is defined as a discharge from any source whatsoever of such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. (Health and Safety Code section 41700).

Property Setback: In zoning parlance, a setback is the minimum amount of space required between a lot line and a building line.

Risk: For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g., 10 chances in a million).

Sensitive Individuals: Refers to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality).

Sensitive Sites or Sensitive Land Uses: Land uses where sensitive individuals are most likely to spend time, including schools and schoolyards, parks and playgrounds, day care centers, nursing homes, hospitals, and residential communities.

Setback: An area of land separating one parcel of land from another that acts to soften or mitigate the effects of one land use on the other.

State Implementation Plan (SIP): A plan prepared by state and local agencies and submitted to U.S. EPA describing how each area will attain and maintain national ambient air quality standards. SIPs include the technical information about emission inventories, air quality monitoring, control measures and strategies, and enforcement mechanisms. A SIP is composed of local air quality management plans and state air quality regulations.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities.

Toxic Air Contaminant (TAC): An air pollutant, identified in regulation by the ARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650 et seq.) than pollutants subject to State Ambient Air Quality Standards. Health effects associated with TACs may occur at extremely low levels. It is often difficult to identify safe levels of exposure, which produce no adverse health effects.

Urban Background: The term is used in this Handbook to represent the ubiquitous, elevated, regional air pollution levels observed in large urban areas in California.

Zoning ordinances: City councils and county boards of supervisors adopts zoning ordinances that set forth land use classifications, divides the county or city into land use zones as delineated on the official zoning, maps, and set enforceable standards for future develop