Appendix E

Greenhouse Gases

SCAG EIR Scenarios Methodology Summary

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This document provides an overview of the methodology and assumptions used to estimate the baseline and future-year impact metrics of the SCAG EIR scenarios, as modeled by Calthorpe Associates' using the Rapid Fire model.

The scenarios were analyzed using the Rapid Fire scenario modeling tool developed by Berkeley, CA-based planning and design firm Calthorpe Associates. The model is a user-friendly, spreadsheet-based tool that produces and evaluates scenarios at the national, state, regional, county, and subregional scales across a range of critical metrics. It constitutes a single framework into which data and research-based assumptions about the future can be loaded to test the impacts of varying land use patterns.

The Rapid Fire model emerged out of the near-term need for a comprehensive modeling tool that could inform state, regional, and local agencies and policy makers in evaluating climate, land use, and infrastructure investment policies. The model produces results for a range of metrics, including:

- **GHG (CO2e) emissions from cars and buildings**
- **Air pollution and public health impacts**
- **Fuel use and cost**
- **Building energy and water use, and cost**
- **Land consumption**
- **Fiscal impacts, including capital infrastructure costs, operations and maintenance costs, and local revenues**

Results are summarized so that users can compare the impacts of different scenarios. All assumptions are clearly identified and can be easily modified to test varying land use and policy choices. A detailed description of the Rapid Fire model can be found in the Rapid Fire Technical Summary, available at www.calthorpe.com/scenario_modeling_tools.

SCAG SCS and EIR scenarios developed with the map-based Local Sustainability Planning Tool (LSPT) were translated into the Rapid Fire modeling framework to allow for impacts modeling. Additional scenarios were also developed using the Rapid Fire model based on analysis of SCAG land use, trend, and model data.

Land Development Categories

A core concept in the modeling of the impacts of the scenarios in the Rapid Fire model is the allocation/designation of growth (in population, housing, and jobs) to one of three Land Development

Categories, or LDCs. LDCs, as defined by the Rapid Fire Model, represent distinct forms of land use. Their general land use characteristics and transportation infrastructure are described below. These characteristics are determined by model inputs that can be entered or adjusted by the user. Thus, the parameters of the LDCs are varied from subregion to subregion within the SCAG region.

Urban

Urban is the most intense and most mixed LDC, often found within and directly adjacent to moderate and high density urban centers. Virtually all 'Urban' growth would be considered infill or redevelopment. The majority of housing in Urban areas is multifamily and attached single family (townhome). These housing types tend to consume less water and energy than the larger single family types found in greater proportion in less urban locations.

The Urban LDC is supported by high levels of regional and local transit service. Well-connected street networks and the mix and intensity of uses result in a highly walkable environment and relatively low dependence on the automobile for many trips. These characteristics lead to the lowest per-capita rate of vehicle miles traveled (VMT) among all LDCs.

Compact

The Compact LDC is less intense than the Urban LDC, but highly walkable with rich mix of retail, commercial, residential, and civic uses. The Compact form is likely to occur as new growth on the urban edge or large-scale redevelopment. It contains a rich mix of housing, from multifamily and attached single family (townhome) to small- and medium-lot single family homes. Housing types in Compact areas tend to consume less energy and water than the larger types found in the Standard LDC.

While it is well served by regional and local transit service, the Compact LDC but may not benefit from as much service as Urban LDC growth, and is less likely to occur around major multimodal hubs. Streets are well connected and walkable, and destinations such as schools, shopping, and entertainment areas can typically be reached via a walk, bike, transit, or short auto trip. Per-capita VMT is higher than the Urban LDC, and lower than that of the Standard LDC.

Standard

The Standard LDC represents the majority of separate-use auto-oriented development that has dominated the American suburban landscape over the past decades. Densities tend to be lower than Compact LDC, and are generally not highly mixed or organized to facilitate walking, biking, or transit service. Standard growth can contain a wide variety of housing types, though medium- and larger-lot single family homes comprise the majority of this development form; these larger single family types tend to consume more energy and water than those in the Urban or Compact LDCs.

Standard growth is not typically well served by regional transit service (typically), with most trips made via automobile. Per-capita VMT in Standard LDC development is the highest amongst LDCs.

Metrics Modeling

The following sections describe the assumptions and calculation methods used to model impacts of the SCAG EIR scenarios with the Rapid Fire model.

Land Consumption

Land consumption includes all land that will be developed to accommodate population and job growth, including residential and employment areas, transportation alignments, open space, and public lands. Land consumption is estimated using per-capita rates of land consumption, which vary by Land Development Category and the distribution of growth into greenfield or refill development. Default rates are based on studies of existing and planned development, and can be adjusted by the user.

Land consumption includes both refill and greenfield growth. Refill growth includes all development that may occur within the bounds of already-developed, urbanized areas, including infill, redevelopment, and greyfield and brownfield development. Greenfield growth refers to development that occurs on land that has not previously been developed or otherwise impacted, including agricultural land, forest land, desert land and other virgin sites. While both greenfield and refill land requirements are modeled, only greenfield growth is counted towards the "new land consumption" of a scenario. (Together, greenfield plus refill growth is counted towards "land development.") The default land consumption characteristics for the three LDCs are as follows:

Urban: Comprised entirely of infill, redevelopment, greyfield, and brownfield growth, the Urban LDC consumes no greenfield acreage per capita.

Compact: Representing a combination of smart mixed-use growth in and around the urban edge (greenfield growth) as well as larger-scale greyfield growth within urban areas, the Compact LDC consumes a moderate acreage per capita. The land consumption rate for Compact growth is determined in part by the proportion of growth allocated to refill versus greenfield sites.

Standard: Generally consisting of lower-density, auto-oriented residential and commercial development, the Standard LDC consumes the highest acreage per capita since most, if not all, growth occurs on greenfield land. The new land consumption of a scenario is largely dictated by its proportion of Standard development.

The specific allocation of growth to either refill or greenfield land in each LDC and time period can vary by land use option. By setting assumptions for the proportion of refill growth and greenfield land consumption, as well as the intensity of greenfield growth in terms of acres consumed per capita, users can model a range of land-use policy options, from business-as-usual growth, to the application of urban growth boundaries, to a restriction of growth to refill parcels and sites only.

Assumptions

The per-capita rates of greenfield and refill growth used to calculate the land consumption characteristics of the EIR scenarios vary by subregion, based on historic rates of land use and development. The resulting regional averages are summarized in Table 1.

Land Consumption Rates

Land Development Category and Condition	Acres per Capita
Urban-Greenfield	0.02 ac
Compact-Greenfield	0.11 ac
Standard-Greenfield	0.15 - 0.16 ac
Urban-Refill	0.01 - 0.02 ac
Compact-Refill	0.07 - 0.08 ac
Standard-Refill	0.15 ac

Table 1. Regional Average Land Consumption Rates

Fiscal Impacts

Infrastructure Costs

Infrastructure costs include one-time capital costs for local streets, curbs, gutters, and sidewalks; water and sewage/wastewater systems; and parks and recreation facilities. Data was incorporated from a number of sources, including development impact fees from representative cities in the SCAG region, to derive per-housing unit cost factors by residential building type, LDC, and development condition (greenfield or refill). Generally, infrastructure costs are higher with dispersed development patterns, as they require greater lengths of streets, sewers, and pipes because of the location of new development relative to already developed areas, as well as the distances between homes and other buildings.

Calculations

The one-time per-unit infrastructure cost assumption factors are multiplied by the number of new growth housing units by type, LDC, and development condition in each year leading up to 2035; these yearly totals are then added together to arrive at the cumulative total infrastructure cost of a scenario. Housing unit growth is assumed to grow in a straight-line trend to meet subregional housing unit projections in the scenario horizon years (2020 and 2035).

Assumptions

One-time per-unit infrastructure costs vary by residential building type, LDC, and development condition, as summarized in Table 2. Assumptions are given in 2008 dollars, with final scenario calculated results adjusted to 2011 dollars.

Average One-Time Capital Infrastructure Cost Per Unit	Urban	Compact Refill	Compact Greenfield	Standard
Single Family Large Lot	$10,350	$14,964	$16,352	$18,908
Single Family Small Lot	$10,350	$14,291	$15,995	$18,162
Townhome	$10,350	$13,853	$15,879	$17,411
Multifamily	$8,192	$11,107	$13,148	$15,022

Table 2. Regional Average Infrastructure Cost Assumptions

Operations and Maintenance Costs

Operations and maintenance (O&M) costs include the ongoing local expenditures required to operate and maintain the infrastructure serving new residential growth. These engineering and public works costs are strongly linked to the physical form of infrastructure. More dispersed development, which entails greater lengths of roads and sewer pipes, incur higher costs to local jurisdictions than more compact development, which capitalizes on the economic efficiencies of shared infrastructure capacity. Data was incorporated from a number of sources, including General Fund expenditure data from representative cities in the SCAG region, to derive per-housing unit cost factors by residential building type, LDC, and development condition (greenfield or refill).

Calculations

The annual per-unit O&M assumption factors are multiplied by the number of new growth housing units by type, LDC, and development condition in a given year. Housing unit growth is assumed to grow in a straight-line trend to meet subregional housing unit projections in the scenario horizon years (2020 and 2035).

Assumptions

Annual per-unit O&M costs vary by residential building type, LDC, and development condition, as summarized in Table 3. Assumptions are given in 2008 dollars, with final calculated scenario results adjusted to 2011 dollars.

Annual Average O&M Cost Per Unit	Urban	Compact Refill	Compact Greenfield	Standard
SF Large Lot	$220	$213	$223	$249
SF Small Lot	$220	$213	$223	$249
Townhome	$192	$187	$196	$218
Multifamily	$164	$160	$167	$186

Table 3. Regional Average Operations and Maintenance Cost Assumptions

Local Revenues

Local revenues estimated include property taxes and property transfer taxes, sales taxes, and vehicle license fees generated by new housing units. Due to the price premiums of higher-intensity locations, more compact development generates significantly higher local revenues than more dispersed development. Housing market data and property tax rates from throughout the SCAG region were used to estimate annual per-unit revenues by residential building type, LDC, and development condition (greenfield or refill).

Calculations

The annual per-unit revenue assumption factors are multiplied by the number of new growth housing units by type, LDC, and development condition in a given year. Housing unit growth is assumed to grow in a straight-line trend to meet subregional housing unit projections in the scenario horizon years (2020 and 2035).

Assumptions

Annual per-unit revenues vary by residential building type, LDC, and development condition (for the Compact LDC), as summarized in Table 4. Assumptions are given in 2008 dollars, with final calculated scenario results adjusted to 2011 dollars.

Annual Average Local Revenues Per Unit				
Housing Unit Type	**Urban**	**Compact Refill**	**Compact Greenfield**	**Standard**
SF Large Lot	$7,299	$7,881	$6,768	$5,253
SF Small Lot	$5,763	$6,216	$5,349	$4,160
Townhome	$4,936	$5,319	$4,593	$3,575
Multifamily	$3,528	$3,799	$3,276	$2,573

Table 4. Regional Average Local Revenue Assumptions

Residential Energy Consumption

Residential energy use of existing and new growth housing units is calculated as a function of three basic sets of assumptions: a) average base-year energy use for existing units; b) base-year energy use for new units by building type; and c) reductions in building energy use resulting from advances in building energy efficiency policy and technology.

Calculations

Energy use for existing units is calculated by applying average per-unit factors for electricity and gas useto the number of existing units. Once these products are calculated, percentage reductions are applied to reflect ongoing retrofits and other energy efficiency efforts.

Energy use for new units is calculated using by applying per-unit factors for annual electricity and gas use by the number of new units built in a given year. Percentage reductions are applied to the baseline usage factors to reflect the assumption that new construction will be built to meet progressively higher efficiency standards such that in each successive year, new units will require less energy. It is also expected that new buildings can see further improvement between the time built and the end year of the scenarios (for instance, a building built in 2018 may be retrofit by 2035 to meet even higher standards).

Assumptions

Energy use factors for the four building types by which all new homes are categorized – single-family large lot, single-family small lot, single-family attached, and multifamily – are derived from the California Energy Commission (CEC) Residential Appliance Saturation Survey (RASS) dataset[1]. The RASS data includes per-unit electricity and gas consumption factors by climate zone (California Title 24 building climate zones), building type, and building size. Data by climate zone is used to determine baseline energy use factors for each building type and subregion. The regional average rates of electricity and natural gas use for new units are summarized in Table 5.

Energy Use for New Growth Residential Units

[1] California Energy Commission. (2004). *California Statewide Residential Appliance Saturation Survey (RASS).* Sacramento: CEC.

Housing Unit Type	Electricity	Natural Gas
SF Large Lot (homes above 2000 sq ft), regional average per unit	9,090 kWh	530 thm
SF Small Lot (homes below 2000 sq ft), regional average per unit	6,780 kWh	400 thm
Townhome, regional average per unit	5,725 kWh	345 thm
Multifamily, regional average per unit	3,690 kWh	285 thm

Table 5. Regional Average Residential Energy Use Assumptions, New Units

Average per-household energy use for existing units is also derived from the RASS dataset, with no distinctions made by building type. The regional average rates of electricity and natural gas use are summarized in Table 6.

Energy Use for Existing Residential Units		
	Electricity	Natural Gas
Regional average per unit	5,840 kWh	440 therms

Table 6. Regional Average Residential Energy Use Assumptions, Existing Units

Energy use reductions are applied to reflect an assumption of modest improvements in building efficiency standards. By 2035, the residential energy use of new units is assumed to be 20% lower than baselines. Additionally, it is assumed that efficiency improvements and retrofits are made to existing units such that they use, on average, 0.5% less energy per year. It is also assumed that each year, 0.6% of the population of existing units is replaced by new units built to current standards.

Commercial Energy Consumption

The energy use of existing and new commercial buildings is calculated as a function of three basic sets of assumptions: a) per-employee floorspace factors, b) baseline energy intensity factors, and c) reductions in building energy use resulting from advances in building energy efficiency policy and technology.

Calculations

Energy use for existing commercial floorspace is calculated by applying per-square foot energy intensity factors for annual electricity and gas use to the amount of existing commercial floorspace. Existing floorspace by subregion is estimated based on the number of employees in each subregion and the average amount of floorspace per employee in the SCAG region.

Energy use for new commercial floorspace is calculated by applying per-square foot energy intensity factors for annual electricity and gas use to the amount of floorspace built in a given year. New floorspace by subregion is estimated based on the number of projected new jobs by floorspace-requiring type (retail, office, warehouse), and assumptions about the amount of floorspace required per employee, which varies by commercial type and LDC.

In each year, percentage reductions are applied to reflect efficiency improvements for both new and existing buildings. For new commercial buildings, reductions are made relative to the baseline usage factors to reflect the assumption that, year-upon-year, new construction will be built to meet higher efficiency standards. It is also expected that new buildings can see further improvement over the time span of the model.

Assumptions

The amount of existing floorspace for which commercial energy use is modeled in the SCAG region (including office, retail, and warehouse space; not including industrial space or uses) is estimated to be approximately 4 billion square feet in 2005. The amount of new commercial floorspace in each scenario is calculated using assumptions about the number of employees by commercial space type (office, retail, or warehouse), and the amount of floorspace required per employee in each of the three Land Development Categories. Floorspace requirements are highest in the Standard LDC and lowest in the Urban LDC, as summarized in Table 7. The number of employees in each commercial space category, which is the same for all scenarios, is based on SCAG job projections by industry.

Square Footage per Employee by Land Development Category			
	Urban	Compact	Standard
Commercial - Office	200 sf	250 sf	450 sf
Commercial - Retail	450 sf	550 sf	750 sf
Commercial - Warehouse	1000 sf	1000 sf	1000 sf

Table 7. Regional Average Commercial Floorspace Assumptions

Average per-square foot energy use for new and existing commercial buildings was estimated using the California Energy Commission (CEC) Commercial End-Use Survey (CEUS) dataset[2]. The CEUS data, derived from a 2000-03 survey of energy use throughout the state, provides per-square-foot electricity and natural gas consumption intensities by building use (e.g., office, restaurant, retail) and climate zone (CEC Forecasting Zones); these were used to produce weighted averages for all commercial floorspace by subregion. The regional average rates of electricity and natural gas use, which serve as baselines for calculating the energy consumption of both existing and new commercial floorspace, are summarized in Table 8.

Baseline Energy Use for Commercial Floorspace		
	Electricity	Natural Gas
Regional average per square foot	14.1 kWh	0.23 therms

Table 8. Commercial Energy Use Assumptions

Energy use reductions are applied to reflect an assumption of modest improvements in building efficiency standards. By 2035, the energy use of new commercial floorspace is assumed to be 20% lower than baselines. Additionally, it is assumed that efficiency improvements and retrofits are made to existing units such that they use, on average, 0.5% less energy per year. It is also assumed that each year, 2% of existing commercial floorspace is replaced by new construction built to current standards.

Residential and Commercial Building Energy Emissions

Building GHG emissions include total emissions from residential and commercial electricity and natural gas use. Emission results are based on energy consumption as calculated, and GHG emission rates that are assumed to vary according to the mix of resources used to generate energy. The baseline and projected emission rates are measured per unit of energy consumed (kilowatt-hour for electricity

[2] California Energy Commission. (2006). *California Commercial End-Use Survey.* Sacramento: CEC.

or therm for natural gas), and include carbon dioxide, methane, and nitrous oxide emissions in units of carbon dioxide equivalent (CO_2e). The same emission rates are applied to the energy used by residential and commercial buildings.

Calculations

GHG emissions are calculated separately for electricity and natural gas use, then added together to arrive at total residential and commercial building emissions. In a given year, the electricity or gas emissions rate is applied to the amount of electricity or gas used in that year.

Assumptions

GHG emissions rate baselines and projections are based on California's statewide energy portfolio. The projected rates are made for the scenario horizon years of 2020 and 2035, with rates following a straight-line trend in between. The emissions rate for electricity generation is expected to decline over time, while that for natural gas use is expected to remain constant. The SCAG EIR scenarios assume modest improvements in the electricity generation portfolio over time, with increases to about 28% renewables by 2020, and 35% by 2035. Emissions from natural gas combustion remain constant. The building energy emission rates are summarized in Table 9.

Building Energy GHG Emission Rates			
	2005	2020	2035
Electricity emissions	0.81 lbs/kWh	0.69 lbs/kWh	0.62 lbs/kWh
Natural gas emissions	11.7 lbs/therm	11.7 lbs/therm	11.7 lbs/therm

Table 9. Building Energy GHG Emission Assumptions

Residential Energy Costs

Residential and commercial energy costs are calculated on the basis of energy use and price assumptions. The model applies separate retail price factors to residential and commercial electricity and natural gas use. Price projection assumptions are expressed in constant dollars, and specified for the scenario horizon years of 2020 and 2035. Between scenario years, prices are assumed to follow a straight-line trend.

Assumptions

Baseline energy costs are based on Energy Information Administration (EIA) retail price data[3] for California. Projections are made for the scenario horizon years of 2020 and 2035, with rates following a straight-line trend in between. The costs for electricity and natural gas are expected to rise over time, as summarized in Table 10.

Building Energy Costs (2008$)			
	2005	2020	2035
Residential electricity cost (2008$)	$0.14 per kWh	$0.19 per kWh	$0.24 per kWh
Residential natural gas	$1.28 per therm	$1.71 per therm	$2.30 per therm
Commercial electricity	$0.14 per kWh	$0.20 per kWh	$0.26 per kWh

[3] Energy Information Administration. (2009). *Current and Historical Monthly Retail Sales, Revenues, and Average Retail Price by State and by Sector.* Washington D.C.: EIA

Commercial natural gas	$1.18 per therm	$1.55 per therm	$2.08 per therm

Table 10. Building Energy Cost Assumptions

Residential Water Use

Residential water use is calculated as a function of three basic sets of assumptions: a) average base-year water use for existing units; b) base-year water use for new units by building type; and c) reductions in building water use resulting from advances in water efficiency policy and technology.

Average per-household water use for existing units is derived from total residential sector water use and housing units for the baseline year. The energy used by the population of existing units is expected to decline over time, as water-saving measures are implemented. The extent of future energy savings due to each of these conditions are determined by user-specified rates – expressed as percentage reductions from baseline use – to each horizon year.

Calculations

Water use for new units is calculated using annual per-unit water usage factors, which vary by building type (single family large lot, single family small lot, townhome, and multifamily). Each year, percentage reductions are applied to the baseline factors to reflect the assumption that new homes will be built with the technology to meet higher efficiency standards.

Water use for existing units is calculated by multiplying the regional average rate by the number of existing units. Year-upon-year reductions are then applied to reflect gradual improvements in water efficiency and conservation policies.

Assumptions

Average water use for existing units is assumed to be approximately 0.5 acre feet (AF) per household per year. For new units, indoor water use is based on per-capita average rates by type, while outdoor water use is based on lot size and irrigation assumptions, evapotranspiration zone, and reference evapotranspiration according to the California Irrigation Management Information System (CIMIS)[4]. The regional average water use rates by unit type are summarized in Table 11.

Water Use for New Growth Residential Units	
Housing Unit Type	**Annual Water Use**
SF Large Lot (above 5500 sq ft), regional average per unit	0.61 AF
SF Small Lot (below 5500 sq ft), regional average per unit	0.38 AF
Townhome, regional average per unit	0.28 AF
Multifamily, regional average per unit	0.27 AF

Table 11. Residential Water Use Assumptions

Water use reductions are applied to reflect an assumption of modest improvements in building efficiency standards. By 2035, the residential water use of new units is assumed to be 20% lower than baselines.

[4] California Irrigation Management Information System. (1999). *Reference Evapotransportation Zones*. http://wwwcimis.water.ca.gov/cimis/infoEtoOverview.jsp

Residential Water Cost Calculations

Residential water costs are calculated on the basis of water use and retail water price assumptions for California. Water price projections are expressed in constant dollars per acre-foot, and made for the scenario horizon years of 2020 and 2035.

Assumptions

Water prices are expected to increase over time in response to limited supply and the potential application of pricing strategies to promote water conservation. The default per-acre foot price assumption ($888 per acre-foot) is derived from values for average annual household water use and water bills in California[5]. The projected water prices are based on a 1.1% annual price increase assumption, as used by the Pacific Institute in a 2005 analysis of future water use scenarios in California[6]. Between horizon years, prices are assumed to follow a straight-line trend. Water prices are summarized in Table 12.

Residential Water Costs			
	2005	2020	2035
Residential water cost (2008$)	$888 per AF	$1,047 per AF	$1,233 per AF

Table 12. Residential Water Cost Assumptions

GHG Emissions from Water-Related Energy Use

Water-related GHG emissions result from two main categories of energy use: a) system uses, including the transport, treatment, and distribution of water consumed; and b) end uses, including all uses of water that occur within homes (e.g., water heating). Energy use and emissions are estimated for system uses only. (Emissions resulting from end uses are accounted for as a component of residential and commercial building energy emissions.)

Emissions related to water-system energy use are calculated using the per-gallon water-energy intensity assumptions, and the same per-kWh electricity emission rate as used to estimate building energy emissions. Water-related GHG emissions are calculated after first calculating water energy use, which is calculated after calculating water use.

Assumptions

Water energy intensity factors are expressed in kilowatt hours (kWh) of electricity per million gallons (MG) of water used. The system uses related to water include the energy used for water supply, conveyance, treatment, distribution, and wastewater treatment. The per-gallon energy use factors associated with these stages of the water cycle were estimated by the CEC in a 2005 report[7] and a 2006 refinement of the report's original factors. The factors for Southern California are summarized in Table 13 .

[5] Public Policy Institute of California. (2008). *Water Supply and Quality Facts.* Sacramento: PPIC.
[6] Gleick, P. H., Cooley, H., & Groves, D. (2005). *California Water 2030: An Efficient Future.* Oakland: Pacific Institute.

[7] California Energy Commission. (2005). *California's Water-Energy Relationship.* Sacramento: CEC.

Water-Related Energy Use	
	Energy Use
Water Supply and Conveyance	9,730 kWh/MG
Water Treatment	110 kWh/MG
Water Distribution	1,270 kWh/MG
Wastewater Treatment (interior water use only)	1,910 kWh/MG

Table 13. Water-Related Energy Use Assumptions

The GHG emissions rates for water-related energy use are assumed to be the same as for building energy use. These rates are summarized in Table 14.

Water-Related Energy Emission Rates			
	2005	2020	2035
Electricity emissions	0.81 lbs/kWh	0.69 lbs/kWh	0.62 lbs/kWh

Table 14. Water-Related GHG Emission Assumptions

Public Health Impacts

The Rapid Fire model was used to estimate differences in health incidences and costs associated with air pollution from auto travel. Auto-related air pollution results in a spectrum of health incidences, including cases of chronic bronchitis; acute myocardial infarction; respiratory and cardiovascular hospitalizations; respiratory-related ER visits; acute bronchitis; work loss days; premature mortality; asthma exacerbation; and acute, lower, and upper respiratory symptoms. Health incidences, and their related costs, are reduced along with miles driven. Savings (rather than absolute totals) in health incidences and costs to 2035 are estimated according to research-based rates and valuations.

Calculations

Criteria pollutant emissions are calculated by the California Air Resources Board Emissions Factors (EMFAC) model, using modeled travel metrics and fleet characteristic assumptions. The criteria pollutants for which health incidences and costs are modeled include nitrogen oxides (NO_x), particulate matter ($PM_{2.5}$), sulfur oxides (SO_x), and reactive organic gases/volatile organic chemicals (ROG/VOC). The rates of avoided health incidences and health costs per ton of criteria pollutant are applied to the pollutant emission totals to arrive at totals for each scenario. Note that results may not be expressed as absolute totals, but only in terms of relative differences between scenarios (avoided incidences or costs of one scenario relative to another).

Assumptions

The public health incidence and cost assumptions were developed by TIAX LLC for the American Lung Association[8]. Assumptions are based on national data from the EPA, Office of Air Quality Planning & Standards, Air Benefit and Cost Group (August 2010), with valuations (costs) extrapolated for the year

[8] TIAX LLC for the American Lung Association of California (2011), *Health Impact of Land Use VMT and In-Use Vehicle Fleets*.

2035. The avoided health incidences per ton of pollutant emitted are summarized in Table 15. The incidence rates are inclusive of both PM-related and ozone-related health cases.

Avoided Health Incidences per Ton of Pollutant, 2035				
Health Incidence	**PM2.5**	**SOx**	**ROG/VOC**	**NOx**
a. Premature Mortality	0.07631	0.00619	0.00096	0.00612
b. Chronic Bronchitis	0.03417	0.00276	0.00035	0.00264
c. Acute Myocardial Infarction	0.07272	0.00609	0.00076	0.00565
d. Hospitalization: Respiratory	0.00882	0.00072	0.00096	0.00156
e. Hospitalization: Cardiovascular	0.01982	0.00165	0.00021	0.00154
f. ER visits (respiratory related)	0.01754	0.00142	0.00045	0.00162
g. Acute Bronchitis	0.0875	0.00709	0.00089	0.00671
h. Work Loss Days	6.48295	0.51187	0.20329	0.63809
i. Asthma Exacerbation	0.95418	0.07681	0.20071	0.26441
j. Acute Respiratory Symptoms	38.23382	3.02214	0.38744	2.95034
k. Lower Respiratory Symptoms	1.04022	0.08416	0.0106	0.07988
l. Upper Respiratory Symptoms	0.78766	0.06357	0.00801	0.06068

Table 15. Health Incidence Assumptions

The avoided health costs per ton of pollutant are summarized in Table 16.

Avoided Health Costs per Ton of Pollutant, 2035	
Pollutant	**2010$ per ton**
NOx (as component of ozone)	$1,648
VOC (as component of ozone)	$1,648
PM2.5	$756,413
Indirect PM: NOx	$58,841
Indirect PM: SOx	$61,386
Indirect PM: ROG/VOC	$7,778

Table 16. Health Cost Assumptions

Construction Emissions

GHG Construction Existing

San Bernardino	Yearly Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	13,333	14,000			1,400		0.58	3.26	4,561.80	1.98	11.12
Commercial	18,037	18,939	750	14,204,167		57	3.16	17.75	1,008.66	2.60	14.61
									5,570.45		

Ventura	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	2,259	2,372			237		1.63	9.16	2,172.32	2.97	16.69
Commercial	3,741	3,928	750	2,945,833		12	3.14	17.64	207.86	2.52	14.16
									2,380.18		

Riverside	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	18,741	19,678			1,968		0.57	3.20	6,301.31	1.97	11.07
Commercial	25,296	26,561	750	19,920,833		80	3.15	17.70	1,410.13	2.60	14.61
									7,711.44		

Orange	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	3,778	3,967			397		0.57	3.20	1,270.22	1.97	11.07
Commercial	10,481	11,006	750	8,254,167		33	3.15	17.70	584.28	2.59	14.55
									1,854.51		

Los Angeles	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	26,037	28,641			2,864		0.58	3.26	9,332.38	1.98	11.12
Commercial	20,407	22,448	750	16,836,111		67	3.16	17.75	1,195.55	2.61	14.66
									10,527.93		

Imperial	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	1,889	1,983			198		1.51	8.48	1,682.49	1.89	10.62
Commercial	2,444	2,567	750	1,925,000		8	3.19	17.92	137.99	2.52	14.16
									1,820.49		
							24.39	137.02	29,864.99	28.20	158.43

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
15,573.03	1.71	9.61	13,449.44	0.00	0.00	0.00	0.40	2.25	3,146.07	0.16	0.90	1,258.43
829.91	2.97	16.69	948.01	0.00	0.00	0.00	1.38	7.75	440.49	0.41	2.30	130.87
16,402.94			*14,397.45*			*0.00*			*3,586.56*			*1,389.30*
Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
3,958.15	2.66	14.94	3,545.01	0.00	0.00	0.00	0.46	2.58	613.05	0.22	1.24	293.20
166.82	2.62	14.72	173.44	0.00	0.00	0.00	1.37	7.70	90.69	0.40	2.25	26.48
4,124.97			*3,718.45*			*0.00*			*703.74*			*319.68*
Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
21,778.21	1.67	9.38	18,461.74	0.00	0.00	0.00	0.40	2.25	4,421.97	0.16	0.90	1,768.79
1,163.91	2.91	16.35	1,302.69	0.00	0.00	0.00	1.38	7.75	617.77	0.41	2.30	183.54
22,942.13			*19,764.42*			*0.00*			*5,039.74*			*1,952.33*
Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
4,390.07	1.67	9.38	3,721.54	0.00	0.00	0.00	0.40	2.25	891.39	0.16	0.90	356.55
480.41	2.78	15.62	515.65	0.00	0.00	0.00	1.38	7.75	255.97	0.41	2.30	76.05
4,870.49			*4,237.19*			*0.00*			*1,147.36*			*432.60*
Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
31,858.80	1.68	9.44	27,031.71	0.00	0.00	0.00	0.40	2.25	6,436.12	0.16	0.90	2,574.45
987.47	2.92	16.40	1,104.75	0.00	0.00	0.00	1.38	7.75	522.11	0.41	2.30	155.12
32,846.27			*28,136.46*			*0.00*			*6,958.23*			*2,729.57*
Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
2,105.90	1.91	10.73	2,128.18	0.00	0.00	0.00	0.39	2.19	434.55	0.16	0.90	178.28
109.01	3.47	19.49	150.11	0.00	0.00	0.00	1.37	7.70	59.26	0.40	2.25	17.30
2,214.91			*2,278.29*			*0.00*			*493.81*			*195.58*
83,401.70	28.97	162.75	72,532.26	0.00	0.00	0.00	10.71	60.17	17,929.44	3.46	19.44	7,019.05

GHG Construction Baseline

San Bernardino	Yearly Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	13,333	14,000			1,400		0.43	2.42	3,382.02	0.72	4.04
Commercial	18,037	18,939	750	14,204,167		57	2.87	16.12	916.09	1.07	6.01
									4,298.11		

Ventura	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	2,259	2,372			237		1.40	7.87	1,865.79	1.05	5.90
Commercial	3,741	3,928	750	2,945,833		12	2.86	16.07	189.33	1.05	5.90
									2,055.12		

Riverside	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	18,741	19,678			1,968		0.43	2.42	4,753.62	0.71	3.99
Commercial	25,296	26,561	750	19,920,833		80	2.86	16.07	1,280.31	1.07	6.01
									6,033.93		

Orange	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	3,778	3,967			397		0.43	2.42	958.24	0.72	4.04
Commercial	10,481	11,006	750	8,254,167		33	2.86	16.07	530.49	1.07	6.01
									1,488.73		

Los Angeles	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	26,037	28,641			2,864		0.43	2.42	6,918.83	0.72	4.04
Commercial	20,407	22,448	750	16,836,111		67	2.87	16.12	1,085.83	1.08	6.07
									8,004.67		

Imperial	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	1,889	1,983			198		1.35	7.58	1,504.21	0.70	3.93
Commercial	2,444	2,567	750	1,925,000		8	2.89	16.24	125.02	1.07	6.01
									1,629.23		
							21.68	121.80	23,509.79	11.03	61.97

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
5,662.92	0.99	5.56	7,786.52	0.00	0.00	0.00	0.32	1.80	2,516.85	0.09	0.51	707.87
341.54	1.62	9.10	517.10	0.00	0.00	0.00	1.27	7.13	405.38	0.30	1.69	95.76
6,004.46			*8,303.61*			*0.00*			*2,922.23*			*803.62*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
1,399.34	1.57	8.82	2,092.35	0.00	0.00	0.00	0.33	1.85	439.79	0.11	0.62	146.60
69.51	1.53	8.60	101.28	0.00	0.00	0.00	1.26	7.08	83.41	0.30	1.69	19.86
1,468.85			*2,193.64*			*0.00*			*523.20*			*166.46*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
7,849.00	0.99	5.56	10,944.38	0.00	0.00	0.00	0.32	1.80	3,537.58	0.09	0.51	994.94
479.00	1.61	9.04	720.73	0.00	0.00	0.00	1.27	7.13	568.53	0.30	1.69	134.30
8,328.00			*11,665.11*			*0.00*			*4,106.11*			*1,129.24*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
1,604.49	0.99	5.56	2,206.18	0.00	0.00	0.00	0.32	1.80	713.11	0.09	0.51	200.56
198.47	1.61	9.04	298.63	0.00	0.00	0.00	1.27	7.13	235.57	0.30	1.69	55.65
1,802.97			*2,504.81*			*0.00*			*948.68*			*256.21*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
11,585.02	1.02	5.73	16,412.11	0.00	0.00	0.00	0.32	1.80	5,148.90	0.09	0.51	1,448.13
408.61	1.68	9.44	635.61	0.00	0.00	0.00	1.27	7.13	480.49	0.30	1.69	113.50
11,993.63			*17,047.72*			*0.00*			*5,629.39*			*1,561.63*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
779.96	1.13	6.35	1,259.08	0.00	0.00	0.00	0.31	1.74	345.41	0.09	0.51	100.28
46.29	1.94	10.90	83.92	0.00	0.00	0.00	1.26	7.08	54.51	0.30	1.69	12.98
826.25			*1,343.00*			*0.00*			*399.92*			*113.26*
30,424.15	16.68	93.71	43,057.90	0.00	0.00	0.00	9.52	53.48	14,529.52	2.36	13.26	4,030.42

GHG Construction Plan

San Bernardino	Yearly Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)
Residential	11,148	11,706			1,171		0.43	2.42	2,827.75	0.72
Commercial	16,741	17,578	750	13,183,333		53	2.87	16.12	850.25	1.07
									3,678.00	

Ventura	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)
Residential	2,407	2,528			253		1.40	7.87	1,988.14	1.05
Commercial	3,852	4,044	750	3,033,333		12	2.86	16.07	194.95	1.05
									2,183.09	

Riverside	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)
Residential	17,222	18,083			1,808		0.43	2.42	4,368.45	0.71
Commercial	24,296	25,511	750	19,133,333		77	2.86	16.07	1,229.69	1.07
									5,598.14	

Orange	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)
Residential	4,370	4,589			459		0.43	2.42	1,108.55	0.72
Commercial	10,815	11,356	750	8,516,667		34	2.86	16.07	547.36	1.07
									1,655.92	

Los Angeles	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)
Residential	29,148	32,063			3,206		0.43	2.42	7,745.55	0.72
Commercial	22,259	24,485	750	18,363,889		73	2.87	16.12	1,184.37	1.08
									8,929.91	

Imperial	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)
Residential	1,815	1,906			191		1.35	7.58	1,445.22	0.70
Commercial	2,407	2,528	750	1,895,833		8	2.89	16.24	123.12	1.07
									1,568.35	
							21.68	121.80	23,613.40	11.03

NOx Emissions per 1 project (pounds per day)	Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
4.04	4,734.83	0.99	5.56	6,510.39	0.00	0.00	0.00	0.32	1.80	2,104.37	0.09	0.51	591.85
6.01	316.99	1.62	9.10	479.93	0.00	0.00	0.00	1.27	7.13	376.24	0.30	1.69	88.88
	5,051.82			*6,990.33*			*0.00*			*2,480.61*			*680.73*
NOx Emissions per 1 project (pounds per day)	Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
5.90	1,491.10	1.57	8.82	2,229.56	0.00	0.00	0.00	0.33	1.85	468.63	0.11	0.62	156.21
5.90	71.57	1.53	8.60	104.29	0.00	0.00	0.00	1.26	7.08	85.89	0.30	1.69	20.45
	1,562.68			*2,333.85*			*0.00*			*554.52*			*176.66*
NOx Emissions per 1 project (pounds per day)	Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
3.99	7,213.01	0.99	5.56	10,057.58	0.00	0.00	0.00	0.32	1.80	3,250.94	0.09	0.51	914.33
6.01	460.06	1.61	9.04	692.24	0.00	0.00	0.00	1.27	7.13	546.05	0.30	1.69	128.99
	7,673.07			*10,749.82*			*0.00*			*3,796.99*			*1,043.31*
NOx Emissions per 1 project (pounds per day)	Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
4.04	1,856.18	0.99	5.56	2,552.25	0.00	0.00	0.00	0.32	1.80	824.97	0.09	0.51	232.02
6.01	204.78	1.61	9.04	308.13	0.00	0.00	0.00	1.27	7.13	243.06	0.30	1.69	57.42
	2,060.96			*2,860.38*			*0.00*			*1,068.03*			*289.44*
NOx Emissions per 1 project (pounds per day)	Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
4.04	12,969.29	1.02	5.73	18,373.16	0.00	0.00	0.00	0.32	1.80	5,764.13	0.09	0.51	1,621.16
6.07	445.69	1.68	9.44	693.29	0.00	0.00	0.00	1.27	7.13	524.09	0.30	1.69	123.80
	13,414.97			*19,066.45*			*0.00*			*6,288.22*			*1,744.96*
NOx Emissions per 1 project (pounds per day)	Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
3.93	749.38	1.13	6.35	1,209.71	0.00	0.00	0.00	0.31	1.74	331.87	0.09	0.51	96.35
6.01	45.59	1.94	10.90	82.65	0.00	0.00	0.00	1.26	7.08	53.68	0.30	1.69	12.78
	794.96			*1,292.36*			*0.00*			*385.55*			*109.13*
61.97	30,558.47	16.68	93.71	43,293.18	0.00	0.00	0.00	9.52	53.48	14,573.92	2.36	13.26	4,044.24

GHG Construction Modified 2008 RTP

San Bernardino	Yearly Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	13,296	13,961			1,396		0.43	2.42	3,372.63	0.72	4.04
Commercial	18,000	18,900	750	14,175,000		57	2.87	16.12	914.21	1.07	6.01
									4,286.84		

Ventura	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	2,667	2,800			280		1.40	7.87	2,202.25	1.05	5.90
Commercial	3,667	3,850	750	2,887,500		12	2.86	16.07	185.58	1.05	5.90
									2,387.83		

Riverside	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	18,593	19,522			1,952		0.43	2.42	4,716.04	0.71	3.99
Commercial	20,926	21,972	750	16,479,167		66	2.86	16.07	1,059.11	1.07	6.01
									5,775.15		

Orange	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	5,148	5,406			541		0.43	2.42	1,305.84	0.72	4.04
Commercial	15,111	15,867	750	11,900,000		48	2.86	16.07	764.81	1.07	6.01
									2,070.65		

Los Angeles	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	24,815	27,296			2,730		0.43	2.42	6,594.05	0.72	4.04
Commercial	20,852	22,937	750	17,202,778		69	2.87	16.12	1,109.48	1.08	6.07
									7,703.53		

Imperial	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	1,556	1,633			163		1.35	7.58	1,238.76	0.70	3.93
Commercial	1,815	1,906	750	1,429,167		6	2.89	16.24	92.82	1.07	6.01
									1,331.58		
							21.68	121.80	23,555.57	11.03	61.97

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
5,647.19	0.99	5.56	7,764.89	0.00	0.00	0.00	0.32	1.80	2,509.86	0.09	0.51	705.90
340.84	1.62	9.10	516.03	0.00	0.00	0.00	1.27	7.13	404.54	0.30	1.69	95.56
5,988.03			*8,280.92*			*0.00*			*2,914.41*			*801.46*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
1,651.69	1.57	8.82	2,469.66	0.00	0.00	0.00	0.33	1.85	519.10	0.11	0.62	173.03
68.13	1.53	8.60	99.28	0.00	0.00	0.00	1.26	7.08	81.76	0.30	1.69	19.47
1,719.82			*2,568.94*			*0.00*			*600.86*			*192.50*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
7,786.95	0.99	5.56	10,857.87	0.00	0.00	0.00	0.32	1.80	3,509.61	0.09	0.51	987.08
396.24	1.61	9.04	596.21	0.00	0.00	0.00	1.27	7.13	470.30	0.30	1.69	111.10
8,183.19			*11,454.08*			*0.00*			*3,979.92*			*1,098.17*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
2,186.52	0.99	5.56	3,006.46	0.00	0.00	0.00	0.32	1.80	971.79	0.09	0.51	273.31
286.13	1.61	9.04	430.54	0.00	0.00	0.00	1.27	7.13	339.62	0.30	1.69	80.22
2,472.65			*3,437.00*			*0.00*			*1,311.40*			*353.54*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
11,041.20	1.02	5.73	15,641.70	0.00	0.00	0.00	0.32	1.80	4,907.20	0.09	0.51	1,380.15
417.51	1.68	9.44	649.45	0.00	0.00	0.00	1.27	7.13	490.96	0.30	1.69	115.97
11,458.70			*16,291.15*			*0.00*			*5,398.16*			*1,496.12*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
642.32	1.13	6.35	1,036.89	0.00	0.00	0.00	0.31	1.74	284.46	0.09	0.51	82.58
34.36	1.94	10.90	62.31	0.00	0.00	0.00	1.26	7.08	40.47	0.30	1.69	9.63
676.69			*1,099.20*			*0.00*			*324.92*			*92.22*
30,499.08	16.68	93.71	43,131.29	0.00	0.00	0.00	9.52	53.48	14,529.67	2.36	13.26	4,034.02

GHG Construction Envision 2

San Bernardino	Yearly Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	11,148	11,706			1,171		0.43	2.42	2,827.75	0.72	4.04
Commercial	16,741	17,578	750	13,183,333		53	2.87	16.12	850.25	1.07	6.01
									3,678.00		

Ventura	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	2,593	2,722			272		1.40	7.87	2,141.07	1.05	5.90
Commercial	3,926	4,122	750	3,091,667		12	2.86	16.07	198.70	1.05	5.90
									2,339.77		

Riverside	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	16,111	16,917			1,692		0.43	2.42	4,086.61	0.71	3.99
Commercial	23,704	24,889	750	18,666,667		75	2.86	16.07	1,199.70	1.07	6.01
									5,286.31		

Orange	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	5,296	5,561			556		0.43	2.42	1,343.41	0.72	4.04
Commercial	11,296	11,861	750	8,895,833		36	2.86	16.07	571.73	1.07	6.01
									1,915.15		

Los Angeles	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	29,148	32,063			3,206		0.43	2.42	7,745.55	0.72	4.04
Commercial	22,259	24,485	750	18,363,889		73	2.87	16.12	1,184.37	1.08	6.07
									8,929.91		

Imperial	Increment	Redevlopment Adjustment	Square Feet per Employee	Square Feet	projects/ 100 units	projects/250,000 square feet	ROG Emissions per 1 project (tons per year)	ROG Emissions per 1 project (pounds per day)	Total ROG Emissions (Pounds per Day)	NOx Emissions per 1 project (tons per year)	NOx Emissions per 1 project (pounds per day)
Residential	1,815	1,906			191		1.35	7.58	1,445.22	0.70	3.93
Commercial	2,407	2,528	750	1,895,833		8	2.89	16.24	123.12	1.07	6.01
									1,568.35		
							21.68	121.80	23,717.49	11.03	61.97

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
4,734.83	0.99	5.56	6,510.39	0.00	0.00	0.00	0.32	1.80	2,104.37	0.09	0.51	591.85
316.99	1.62	9.10	479.93	0.00	0.00	0.00	1.27	7.13	376.24	0.30	1.69	88.88
5,051.82			*6,990.33*			*0.00*			*2,480.61*			*680.73*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
1,605.81	1.57	8.82	2,401.06	0.00	0.00	0.00	0.33	1.85	504.68	0.11	0.62	168.23
72.95	1.53	8.60	106.30	0.00	0.00	0.00	1.26	7.08	87.54	0.30	1.69	20.84
1,678.75			*2,507.36*			*0.00*			*592.22*			*189.07*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
6,747.66	0.99	5.56	9,408.71	0.00	0.00	0.00	0.32	1.80	3,041.20	0.09	0.51	855.34
448.84	1.61	9.04	675.36	0.00	0.00	0.00	1.27	7.13	532.73	0.30	1.69	125.84
7,196.50			*10,084.06*			*0.00*			*3,573.93*			*981.18*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
2,249.44	0.99	5.56	3,092.98	0.00	0.00	0.00	0.32	1.80	999.75	0.09	0.51	281.18
213.90	1.61	9.04	321.85	0.00	0.00	0.00	1.27	7.13	253.88	0.30	1.69	59.97
2,463.34			*3,414.83*			*0.00*			*1,253.63*			*341.15*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
12,969.29	1.02	5.73	18,373.16	0.00	0.00	0.00	0.32	1.80	5,764.13	0.09	0.51	1,621.16
445.69	1.68	9.44	693.29	0.00	0.00	0.00	1.27	7.13	524.09	0.30	1.69	123.80
13,414.97			*19,066.45*			*0.00*			*6,288.22*			*1,744.96*

Total Nox Emissions (Pounds per Day)	CO Emissions per 1 project (tons per year)	CO Emissions per 1 project (pounds per day)	Total CO Emissions (Pounds per Day)	SO_X Emissions per 1 project (tons per year)	SO_X Emissions per 1 project (pounds per day)	Total SO_X Emissions (Pounds per Day)	PM_{10} Emissions per 1 project (tons per year)	PM_{10} Emissions per 1 project (pounds per day)	Total PM_{10} Emissions (Pounds per Day)	$PM_{2.5}$ Emissions per 1 project (tons per year)	$PM_{2.5}$ Emissions per 1 project (pounds per day)	Total $PM_{2.5}$ Emissions (Pounds per Day)
749.38	1.13	6.35	1,209.71	0.00	0.00	0.00	0.31	1.74	331.87	0.09	0.51	96.35
45.59	1.94	10.90	82.65	0.00	0.00	0.00	1.26	7.08	53.68	0.30	1.69	12.78
794.96			*1,292.36*			*0.00*			*385.55*			*109.13*
30,600.35	16.68	93.71	43,355.38	0.00	0.00	0.00	9.52	53.48	14,574.17	2.36	13.26	4,046.22