

**SURVEY OF CEQA DOCUMENTS
ON GREENHOUSE GAS EMISSIONS
DRAFT WORK PLAN**

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SURVEY OF CEQA DOCUMENTS ON GREENHOUSE GAS EMISSIONS

WORK PLAN

A. INTRODUCTION

The following constitutes the Work Plan that will be used to complete the survey of CEQA documents to obtain greenhouse gas (GHG) emissions data on residential, commercial, and mixed use projects that have been evaluated in California Environmental Quality Act (CEQA) documents (including negative declarations and environmental impact reports (EIRs)) within the the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The information in the Work Plan can be used for a number of different purposes, including obtaining air quality and GHG emissions information that decision makers rely upon to approve or deny projects.

B. OBJECTIVES

The objective of the survey is to collect data on the estimated GHG and operational NOx emissions for residential, commercial, and mixed use projects that have been evaluated under CEQA for which the SCAQMD is a responsible agency. The information will be used to determine the level of GHG emissions for residential and commercial projects that constitute the 90th percentile (for example, 90th percentile is 90 percent of known emissions), or other percentile as desired.

C. PROCEDURES

The following will be completed:

1. Obtain CEQA documents for review. The SCAQMD will provide copies of CEQA documents (e.g., EIRs, Negative Declarations, Mitigated Negative Declarations, etc.) to the consultant, which have been submitted to the SCAQMD for intergovernmental review as a responsible agency. Additional CEQA documents can be obtained and evaluated, depending on time, budget, and sample size required.
2. Explore opportunities to identify and include projects that were exempt under CEQA, including the Building Industry Association's database and databases from local cities or counties regarding exempt projects. If available and quantifiable, GHG emissions will be included in calculation of the significance threshold.
3. Each document will be logged with a tracking number.

D. DATA COLLECTION

Each document will be reviewed and the following information will be extracted and recorded into an Excel spreadsheet:

- General Project Description (i.e., commercial, residential, etc.). Residential uses will be those that meet the definitions in the First Land Use Screen by URBEMIS (see Attachment 1). Commercial land uses will be those that meet the definition in the Second, Third, Fourth, Fifth and Sixth Land use Screens in URBEMIS (see Attachment 1).
- Determine and report GHG [including carbon dioxide (CO₂) and CO₂ equivalent (CO₂eq)] emissions associated with construction emissions, if provided in the CEQA document.
- Determine (or calculate) and report GHG (including CO₂ and CO₂eq emissions) emissions associated with operational emissions, if provided in the CEQA document.
- If GHG emissions were not quantified in the CEQA document for both construction and operational project phases, the CEQA document will be reviewed for the following information in order to estimate GHGs for construction and operations:
 - The type of commercial building (restaurant, office building, strip mall, etc.), square footage, and acreage of project.
 - The number and type of dwelling units (apartment, condominiums, single family dwellings), and acreage of project.
 - Length of construction period.
- Identify the mitigation measures imposed, if any, for air quality impacts due to construction, operation, or GHG emissions.
- Identify the general types of mitigation measures (e.g., standard dust control, URBEMIS measures, CARB/AQMD requirements, etc.) imposed for air quality impacts due to construction, operation, or GHG emissions (e.g., project design features).

E. EMISSION CALCULATIONS

GHG emission calculations will be conducted for projects in which no GHG emissions were quantified and included in the CEQA document.

- The URBEMIS 2007 model will be run using assumptions for projects without GHG emissions calculations provided in the CEQA document. Construction and operational GHG emissions will be calculated, as applicable.

- CO₂, the primary component of GHG emissions, will be based on the URBEMIS2007 model and all associated assumptions. Note that the URBEMIS2007 model does not have the capability of estimating emissions associated with the use of electricity and other similar indirect emission sources.
- As shown in Table 1, CO₂ emissions comprise an average of 98.9 percent of the carbon dioxide equivalent (CO₂eq) emissions. URBEMIS2007 reports CO₂ emissions primarily from mobile sources during operational activities of a project. Therefore, only CO₂ emissions will be considered for statistical analysis. Where projects only provide CO₂eq emissions, the CO₂eq emissions will be considered to be CO₂ emissions.

**Table 1
Comparison of CO₂ to CO₂eq Emissions**

| Emission Source | CO₂ | CH₄ | N₂O | Total CO₂eq |
|---|-----------------------|-----------------------|-----------------------|-------------------------------|
| CO ₂ eq Factors ⁽¹⁾ | 1 | 21 | 310 | |
| Electricity | | | | |
| Emission Factor (lbs/MWh) ⁽²⁾ | 724.12 | 0.0302 | 0.0081 | 727.27 |
| Percentage | 99.57 | 0.09 | 0.35 | |
| Natural Gas | | | | |
| Emission Factor (kg/mmBTU) ⁽³⁾ | 53.06 | 0.005 | 0.0001 | 53.20 |
| Percentage | 99.7 | 0.20 | 0.06 | |
| Gasoline | | | | |
| Emission Factor (kg/gal) ⁽⁴⁾ | 8.81 | 0.00022 | 0.0005 | 8.97 |
| Percentage | 98.2 | 0.05 | 1.73 | |
| Diesel | | | | |
| Emission Factor (kg/gal) ⁽⁴⁾ | 10.15 | 0.00026 | 0.00058 | 10.34 |
| Percentage | 98.2 | 0.05 | 1.74 | |
| | | | | |
| Average Percentage | 98.9 | | | |

Emission Factors from California Climate Action Registry General Reporting Protocol (January 2009) Appendix C using ⁽¹⁾ Table C.1 (universal factors), ⁽²⁾ Table C.2 (California factors), ⁽³⁾ Table C.7 and C.8 (universal factors), and ⁽⁴⁾ Tables C.3 and C.6 (California factors).

- Indirect GHG emissions for electricity and natural gas consumption will be calculated using the emission factors presented in Table 1 from the California Climate Action Registry (C-CAR) General Reporting Protocol. Residential and commercial electricity and natural gas usage is estimated using the California Energy Commission's California Energy Demand 2008-2018 Staff Revised Forecast (November 2007) and California Commercial End-Use Survey (March 2006). The total statewide residential electricity use projected for 2009 is approximately 95,000 GWh^a and based on a projected statewide population of 38 million^b, the electricity usage per capita is approximately 2,500 kWh. The US Census Bureau estimates 2.87

^a Figure 3 (page 14) in CEC California Energy Demand 2008-2018 Staff Revised Forecast

^b Figure 7 (page 20) in CEC California Energy Demand 2008-2018 Staff Revised Forecast

persons per household in California^c. Therefore, the residential electricity usage is approximately 7,175 kWh per household. The total statewide residential natural gas use projected for 2009 is 5,122 million therms^d and based on a projected statewide population of 38 million^e, the natural gas usage per capita is approximately 134.8 therms. Based on 2.87 persons per household, the residential natural gas usage is approximately 387 therms per household. The total statewide commercial electricity use projected for 2009 is approximately 110,000 GWh^f and based on a projected statewide commercial square footage of 4.9 billion^g, the electricity usage per square foot is approximately 22.4 kWh. The total statewide commercial natural gas usage projected for 2009 is 2,159 million therms^h and based on a projected statewide commercial square footage of 4.9 billionⁱ, the natural gas usage per square foot is approximately 0.44 therms.

- Indirect GHG emissions that would be created from electrical use will only be provided for the operational phase of projects since construction activities do not typically use substantial amounts of electricity.

F. DATA MANAGEMENT

Once GHG emissions have been collected from all available archived CEQA documents reviewed (approximately 280 documents), an emissions distribution curve will be generated for residential, commercial, and mixed use projects.

- The 90th percentile for GHG emissions will be determined for residential, commercial, and mixed use projects, respectively.
- The data will be reviewed and extreme data points, suggesting that incorrect data or calculations are present, will be considered as erroneous and not included in the analysis.
- A report will be prepared that summarizes the data collected, and identifies the 90th percentile (or other percentile as desired) for GHG emissions for the projects evaluated.

^c US Census Bureau (2000) <http://quickfacts.census.gov/qfd/states/06000.html>

^d Figure 41 (page 218) in CEC California Energy Demand 2008-2018 Staff Revised Forecast

^e Figure 7 (page 20) in CEC California Energy Demand 2008-2018 Staff Revised Forecast

^f Figure 3 (page 14) in CEC California Energy Demand 2008-2018 Staff Revised Forecast

^g Chapter 8 (page 149) in CEC California Commercial End-Use Survey

^h Figure 41 (page 218) in CEC California Energy Demand 2008-2018 Staff Revised Forecast

ⁱ Chapter 8 (page 149) in CEC California Commercial End-Use Survey

ATTACHMENT 1

URBEMIS Land Use Definitions

Table 1. Land Use Definitions and Percent Worker Commute

| | Land Use Definition | Percent Worker Commute |
|---|---|------------------------|
| First Land Use Screen: Residential | | |
| Single Family Housing | Detached homes on individual lots | N/A |
| Apartments, Low Rise | Buildings with one to three floors | N/A |
| Apartments, Medium Rise | Buildings with four to ten floors | |
| Apartments, High Rise | Buildings with more than ten floors | N/A |
| Condo/Townhouse General | Condos and townhomes in buildings with one or two levels. | N/A |
| Condo/Townhouse High Rise | Condos and townhomes in buildings with 3 or more levels. | N/A |
| Mobile Home Park | Trailers sited and installed on permanent foundations. | N/A |
| Retirement Community | Self-contained villages restricted to adults or senior citizens | N/A |
| Congregate Care (Assisted Living) Facility | One or more multiunit buildings designed for elderly living and may contain dining rooms, medical, and recreational facilities. | N/A |
| Second Land Use Screen: Educational | | |
| Day-Care Center | Facilities that care for pre-school children, normally during daytime hours. May also include after-school care for older children. | 5 |
| Elementary School | Generally includes Kindergarten through either 6 th or 8 th grades. | 20 |
| Junior High School | Includes 7 th , 8 th , and often 9 th grades. | 20 |
| High School | Includes 10 th , 11 th , and 12 th grades and oftentimes 9 th grade. | 10 |
| Junior College (2 years) | Most have facilities separate from other land uses and exclusive access points and parking facilities. | 5 |
| University/College (4 years) | Four year and graduate educational institutions. | 6 |
| Library | Public or private facility, which houses books, and includes reading rooms and possibly meeting rooms. | 5 |
| Place of Worship | Building(s) providing public worship services. | 3 |
| Blank (Edit all 5 columns) | Blank commercial land use that can be entered by the URBEMIS2007 user. | 2 |
| Third Land Use Screen: Recreational | | |
| City Park | Owned and operated by a city, these facilities can vary widely as to location, type, and number of facilities. May including boating, swimming, ball fields, camp sites, and picnic facilities. | |
| Racquet Club | Privately owned facilities with tennis, racquetball, and/or handball courts, exercise rooms, and/or swimming pools and/or weight rooms | 5 |
| Racquet/Health Club | Privately owned facilities with tennis, racquetball, and/or handball courts. | 5 |
| Quality Restaurant | Typically with customer turnover rates of at least one hour. | 8 |
| High Turnover (sit-down Restaurant) | Typically with high customer turnover rates of less than one hour. | 5 |
| Fast Food Restaurant with Drive Through | Includes fast food restaurants with drive through windows, such as McDonald's, Burger King, and Taco Bell. | 5 |
| Fast Food Restaurant without Drive Through | Includes fast food restaurants without drive through windows, such as McDonald's, Burger King, and Taco Bell. | 5 |
| Hotel | Place of lodging providing sleeping accommodations, restaurants, and meeting or convention facilities. | 5 |
| Motel | Place of lodging providing accommodations and often, a restaurant. | 5 |
| Fourth Land Use Screen: Large Retail | | |
| Free-Standing Discount Store | Free-standing store with off-street parking, can be part of neighborhood shopping centers. | 2 |
| Free-Standing Discount Superstore | Same as free-standing discount store but also include full service grocery department under the same roof. | 2 |
| Discount Club | Discount/warehouse store whose shoppers pay a membership fee to take advantage of discounted prices. | 2 |

| | Land Use Definition | Percent Worker Commute |
|---|--|------------------------|
| Regional Shopping Center | Integrated group of commercial establishments that are planned, developed, owned, and managed as a unit. | 2 |
| Electronics Superstores | Free-standing warehouse type facilities specializing in the sale of home and vehicle electronic merchandise, as well as TVs, compact disc and cassette tape players, cameras, radios, videos, and general electronic accessories. | 2 |
| Home Improvement Superstore | Free-standing warehouse type facilities specializing in lumber, tools, paint, lighting, wallpaper and paneling, kitchen and bathroom fixtures, lawn equipment, and garden plants and accessories. | 2 |
| Fifth Land Use Screen: Retail | | |
| Strip Mall | Neighborhood store complexes with a variety of retail outlets. | 2 |
| Hardware/Paint Store | Stores selling general hardware items and/or paints and supplies. | 2 |
| Supermarket | Free-standing stores selling a complete assortment of food, food preparation and wrapping materials, and household cleaning and servicing items. May also contain money machines, photo centers, pharmacies, and video rental areas. | 2 |
| Convenience market (24 hour) | These markets sell convenience foods, newspapers, etc. and do not have gasoline pumps. (Trip generation rates with gas pumps is approximately 12% higher than without. | 2 |
| Convenience market with gas pumps | These markets sell convenience foods, newspapers, etc. and do have gasoline pumps. | 2 |
| Gasoline/Service Station | Excludes gasoline stations with convenience stores or car washes. | 2 |
| Sixth Land Use Screen: Commercial | | |
| Bank (with drive-through) | Banks with one or more drive-up windows. | 2 |
| General Office Building | Houses multiple tenants in a location where affairs of businesses, commercial or industrial organizations or professional persons or firms are conducted. | 35 |
| Office Park | Contain general office buildings and related support services, arranged in a park- or campus-like setting. | 48 |
| Government Office Building | Individual building containing the entire function or simply one agency of a city, county, state, or federal government. | 10 |
| Government (Civic Center) | Group of government buildings connected with pedestrian walkways | 10 |
| Pharmacy/Drugstore with Drive Through | Retail facilities selling prescription and non-prescription drugs. Also typically sell cosmetics, toiletries, medications, stationary, personal care products, limited food products, and general merchandise. These facilities include a drive-through window. | 2 |
| Pharmacy/Drugstore without Drive Through | Retail facilities selling prescription and non-prescription drugs. Also typically sell cosmetics, toiletries, medications, stationary, personal care products, limited food products, and general merchandise. These facilities do not contain a drive-through window. | 2 |
| Medical Office Building | Includes both medical and dental office buildings that provide diagnoses and outpatient care. Generally operated by one or more private physicians or dentists. | 7 |
| Hospital | Any institution where medical or surgical care is given to non-ambulatory and ambulatory patients and overnight accommodations are provided. | 25 |
| Seventh Land Use Screen: Industrial | | |
| Warehouse | Buildings devoted to the storage of materials, also include office and maintenance areas. | 2 |
| General Light Industry | Typical light industrial activities include: print plants, material testing labs, and assemblers of data processing equipment. They employ fewer than 500 persons and tend to be free-standing. | 50 |
| General Heavy Industry | Could also be categorized as manufacturing facilities. However, heavy industrial uses are limited to the production of large items. | 90 |
| Industrial Park | Contain a number of industrial or related facilities and are characterized by a mix of manufacturing, service, and warehouse facilities. May contain highly diversified facilities, a number of small businesses, or one or two dominant industries. | 41.5 |
| Manufacturing | Sites where the primary activity is the conversion of raw materials or parts into finished products. May also include associated office, warehouse, research, and other functions. | 48 |